

HVAC Control Products

Issue 3



Western Automation

Distributor of Controls to Regulate and Monitor

Western Automation is the premier UK technical sales and distribution company of all major HVAC control products and energy control solutions.



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Building Controls Industry Association

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Western Automation

Contact your local sales office for additional products from this range.

Terms of Business applies, a copy of which is available on request. E&OE - Although we strive to keep this document as accurate as possible, we cannot be held responsible for any errors and omissions.

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AIR & WATER FLOW

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Wind Speed & Direction Sensors

The AV-WS measures wind speed providing a pulsed output and is intended for applications where external weather conditions influence the building control strategy, such as for the automatic closing of windows. A mounting arm and U bolts for pole mounting are included.

Specification

Electrical conns: Flying lead (3m long)
Ambient range: 20°C to +70°C

AV-WS Series

Type	Part No.
Wind speed sensor	AV-W-S
Wind speed & direction sensor	AV-W-AD

Single-Point Air Velocity Sensor

The AV-622 is a single-point, multi-range air velocity transmitter with user selectable 0-10V DC or 4-20mA outputs and four user selectable measurement ranges. The unit has a built-in self-test feature and the user can manually override the output to 0%, 50%, or 100% of output range to aid commissioning.

Features

- User selectable 0-10V DC or 4-20mA outputs
- Built-in self-test feature
- Built-in manual override facility for 0%, 50% or 100% of output range
- Durability and resistance to chemical reagents

Specification

0 to 4 m/s, 0 to 8 m/s, 0 to 16 m/s, 0 to 32 m/s selectable ranges.
Accuracy (\pm 3% of range): 0 to 4 m/s, \pm ; 0.12 m/s
0 to 8 m/s, \pm ; 0.24 m/s
0 to 16 m/s, \pm ; 0.48 m/s
0 to 32 m/s, \pm ; 0.96 m/s

AV-622 Series

Type	Part No.
Air velocity sensor	AV-622
Accessory	
Duct probe adjustment flange	DPA

Air Flow Switch

This paddle switch is intended to monitor air flow within a duct and provides a switched output on detection of either a specific air velocity or flow failure.

Features

- Adjustable switching point
- Lid-mounting screws provide tamper proofing

FS-521 Series

Description	Part No.
80 x 175 mm Paddle Switch	FS-521

Fan Speed Controllers

Remote control via 0-10V DC or 4-20mA or Modbus signal. Suitable for direct connection to BMS or transmitters.

FC-ERV Series - IP54

Type	Part No.
1A - Single phase	FC-ERV-1
3A - Single phase	FC-ERV-3
5A - Single phase	FC-ERV-5
10A - Single phase	FC-ERV-10

Manual Speed Controllers for Small Motors

Manual control for small, single-phase motors up to 4 amps. Suitable for wall and/or flush mounting.

FC-MTY Series - IP54

Type	Part No.
1A - Single phase	FC-MTY-1
2A - Single phase	FC-MTY-2
4A - Single phase	FC-MTY-4

Sontay®





Multi Point Air velocity Probes

The AV-EP series of air velocity probes are available in lengths from 100 to 600mm and the AV-MPS series in lengths of 700 to 2000mm. They are used to ensure that recommended flow rates for public buildings and industrial plants are achieved. They can be connected to a PA-60x, PA-65x, PA-699 Air Differential Pressure Sensor of an appropriate range.

Features

- Mounting plates included
- Double gasket seals the probe to the duct
- Push on connectors to suit PA-TUBE-8MM

Specification

Probe Material: AV-EP PVC Flame retardant (V0)
 AV-MPS 316 Stainless steel
 Connectors: Nickel plated brass to suit 6mm ID PVC tubing

AV-MPS Series

Type	Probe Length (mm)	Part No.
Pair of multi-point stainless steel probes	700	AV-MPS-700
	800	AV-MPS-800
	1000	AV-MPS-1000
	1250	AV-MPS-1250
	1500	AV-MPS-1500
	1750	AV-MPS-1750
2000	AV-MPS-2000	
Accessories		
PVC tube 8mm o/d, 30m reel		PA-TUBE-8MM

AV-EP Series

Type	Probe Length (mm)	Part No.
Pair of multi-point ABSI probes	100	AV-EP-100
	200	AV-EP-200
	300	AV-EP-300
	400	AV-EP-400
	500	AV-EP-500
	600	AV-EP-600



Wind Speed & Direction Sensor

The AXIO wind speed and direction sensors give an analogue output of both the wind speed and direction. The units are manufactured from anodised aluminium alloy, UPVC and stainless steel.

AX-WSD-V

Type	Wind Speed	Wind Direction	Part No.
0-10V DC Output - LED indication control box	0-50m/s	10 to 360 degrees	AX-WSD-V

Air Velocity Probes - Multipoint

Stainless steel multipoint air velocity probes for use in ductwork. The two probes can be connected to the relevant AX-ADPT air velocity transmitter to output velocity pressure to the BMS which can then accurately work out air velocity in m/s.

AX-AV-MPP

Type	Min Duct (mm)	Max Duct (mm)	Part No.
2 x Multipoint probes 400mm	248	300	AX-AV-MPP-400
2 x Multipoint probes 500mm	336	400	AX-AV-MPP-500
2 x Multipoint probes 600mm	424	500	AX-AV-MPP-600
2 x Multipoint probes 700mm	512	600	AX-AV-MPP-700
2 x Multipoint probes 800mm	599	700	AX-AV-MPP-800
2 x Multipoint probes 1000mm	775	900	AX-AV-MPP-1000
2 x Multipoint probes 1250mm	995	1150	AX-AV-MPP-1250
2 x Multipoint probes 1500mm	1215	1400	AX-AV-MPP-1500
2 x Multipoint probes 1750mm	1434	1650	AX-AV-MPP-1750
2 x Multipoint probes 2000mm	1653	1900	AX-AV-MPP-2000
2 x Multipoint probes 2150mm	1875	2150	AX-AV-MPP-2150

Water Leak Detection

The WD-x range is designed to detect water leaks either at localised points using the WD-PS point sensor or larger areas with the WD-CS cable sensor, a rain sensor is also available. All these sensors are used with the WD-AMX range of modules that are suitable for DIN-rail mounting inside AHUs, power distribution units or general areas where leak detection is required. They are fitted as standard with LED indication of the water leak status, and sounder that can be disabled by simply removing a jumper. The WD-AMX relay output can be either configured to be manual or auto reset.

Module Features

- AC detector excitation for reliability
- 24V AC/DC or 230V AC versions
- Audible alarm

Sensor Features

- WD-CS is easy to lay and detects along its entire length
- More than one WD-PS can be connected to a WD-AMX
- Self-contained heater to avoid nuisance alarms on WD-RS

Specification

Power Supply:	WD-AMX-1	24V AC/DC ±10%
	WD-AMX-2	230V AC @ 50Hz
	WD-RS heater	24V AC/DC
Protection:	WD-AMX	IP30
	WD-RS	IP65

Modules

Description	Part No.
24V AC/DC Controller with buzzer	WD-AMX-1
230V AC Controller with buzzer	WD-AMX-2

Sensors

Water Cable Sensor, 2m cable, 3m leader	WD-CS-2M
Water Cable Sensor, 5m cable, 3m leader	WD-CS-5M
Water Cable Sensor, 10m cable, 3m leader	WD-CS-10M
Water Cable Sensor, 15m cable, 3m leader	WD-CS-15M
Water Cable Sensor, 20m cable, 3m leader	WD-CS-20M
Water Cable Sensor, 25m cable, 3m leader	WD-CS-25M
Water Point Sensor, 2m	WD-PS
Rain Sensor with internal heater, 2m leader	WD-RS
Rain Sensor with internal heater, 5m leader	WD-RS-5M

Sensors

Pack of 20 fixing clips for WD-CS	WD-FC
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Condensation Prevention Sensor

Sontay's condensation prevention sensor has been designed to provide a switched output signal to prevent the onset of condensation on chilled surfaces such as chilled beams. The detector measures the temperature compensated RH and surface temperature of the chilled surface and calculates the dew point temperature. This is compared to an adjustable setpoint to provide either a current output or VFC switched output.

Features

- Reliable and accurate switching
- VFC or current output
- Quick and simple to install

Sensors

Description	Part No.
Condensation Prevention Sensor 2m Lead	WD-CPS
Condensation Prevention Sensor 5m Lead	WD-CPS-5M



Rain, Water & Leak Detectors

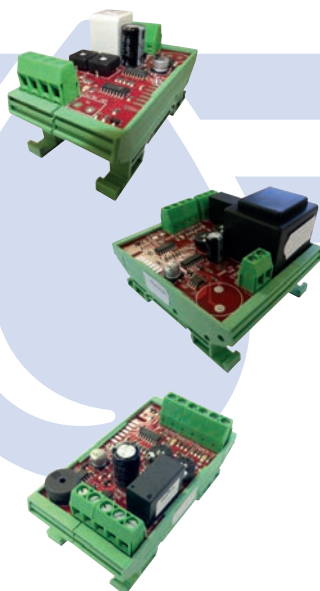
Detects conductive non corrosive liquid/water in plant rooms, boiler houses, under floors, roofs etc. DO NOT use with combustible liquids i.e. fuels. AC sensor excitation is used for reliable operation which eliminates the sensor degradation problems found with DC systems.

EW... Series

Connection	Media Temp °C	Part No.
Switch Unit	230V AC	EW-230
	24V AC	EW-24
Sensors		
Probe sensor can be fitted in various locations		EW-01
Cable sensor 3mm Dia. Order per metre (Max 200m)		EW-03
Rain sensor 2 sensor & 2 heater wires 24V AC 1 Watt		EW-06



AXIO



Rain, Water & Leak Detectors

The AX-WLD2 range of two zone water leak detection products is designed for DIN rail mounting wherever localised water leak detection is required. The cable used will not be subject to oxidation or erosion over time, due to an isolated AC signal for cable excitation.

AX-WD2 Series

Description	Part No.
Two Zone 24V alarm detection module	AX-WLD2-24
Two Zone 230V AC alarm detection module	AX-WLD2-230
Two Zone 24V alarm detection module + alarm	AX-WLD2-24-A
Two Zone 230V AC alarm detection module + alarm	AX-WLD2-230-A
Enclosure for WLD2	AX-WLD2-Enc
Drip tray alarm in an enclosure	AX-WLD-DTA

Water Leak Detection Cables

A range of cable sensors used to detect water leaks, usually at floor level. These sensors must be used in conjunction with the AX-WLD2 range of detection modules.

AX-W... Series

Description	Part No.
Cable sensor for WLD2, 2m cable 1m leader	AX-WCS-2
Cable sensor for WLD2, 5m cable 3m leader	AX-WCS-5
Cable sensor for WLD2, 10m cable 3m leader	AX-WCS-10
Cable sensor for WLD2, 15m cable 3m leader	AX-WCS-15
Cable sensor for WLD2, 20m cable 3m leader	AX-WCS-20
Customer spec for cable and header	AX-WCS-xx
Point sensor for WLD2 & 2m cable	AX-WPS

Rain, Water & Leak Detectors

The AX-WLDF range of four zone water leak detection module with open or short circuit sensor cable detection.

AX-WLDF Series

Description	Part No.
Four zone 24V alarm detection module	AX-WLDF-24
Four zone 230V AC alarm detection module	AX-WLDF-230

Water Leak Detection Cables

A range of cable sensors used to detect water leaks, usually at floor level. These sensors must be used in conjunction with the AX-WLDF range of detection modules.

AX-W... Series

Description	Part No.
Cable sensor for WLDF, 2m cable 1m leader	AX-WLDF-C2
Cable sensor for WLDF, 5m cable 3m leader	AX-WLDF-C5
Cable sensor for WLDF, 10m cable 3m leader	AX-WLDF-C10
Cable sensor for WLDF, 15m cable 3m leader	AX-WLDF-C15
Cable sensor for WLDF, 20m cable 3m leader	AX-WLDF-C20
Customer spec for cable and header	AX-WLDF-xx
Point sensor with 2m cable	AX-WLDF-P

Rain Sensor with Integral Heater

The WRS1 provides detection of rainfall. An integrated heater prevents false detection alarms resulting from dew forming, and to provide rapid recovery from rainfall.

AX-WRS1

Description	Part No.
Rain sensor with 1m cable	AX-WRS1

Liquid Flow Switch

The FS-541 series of paddle switches are intended to monitor liquid flow within pipes and provides a VFC output on detection of either a specific flow rate or flow failure. The FS-541 screws directly into a 1" BSPT boss.

Features

- Adjustable switching point

FS-541 Series

Description	Part No.
1" BSPT flow switch	FS-541

Hydrostatic Level Transmitter

LS-712 range of submersible water level transmitters provides continuous hydrostatic level measurement up to 10,2m of water column. They are suitable for many applications such as water tanks, wells, sumps and ponds. Transmitters have a vented cable which provides an atmospheric reference for the sensor, which is necessary for ensuring repeatable, precision depth measurements under the most adverse conditions.

Features

- Compact design
- Simple installation
- Stainless steel construction

LS-712 Series

Description	Part No.
0-300 mbar, 5 meter cable, 4-20mA output	LS-712-A
0-300 mbar, 5 meter cable, 0-10V DC output	LS-712-A-V
0-1000 mbar, 15 meter cable, 4-20mA output	LS-712-B
0-1000 mbar, 15 meter cable, 0-10V DC output	LS-712-B-V

Automatic Float Switch

The LS-AFS is designed for simple reliable water level control. The float switch can be used to control a pump for either tank filling or tank emptying (a high or low level cut-out). It is easily achieved by positioning the float stops on the cord. The electrical connections are easily made inside the housing, via the terminal strip. Two M20 cable glands are provided for use with suitable conduit.

Features

- Reliable
- Easy to install & adjust
- Simple wiring

LS-AFS

Description	Part No.
Automatic Float switch	LS-AFS

Capacitance Level Sensors

These sensors are designed for level measurement in tanks or sumps providing a 4-20mA output relating to the level of fluid in the tank. The LS-CAP1 is suitable for conducting liquids such as water whilst the LS-CAP2 is designed for use with clean, low viscosity non-conducting liquids such as oil. Both types consist of two concentric elements, an inner probe and an outer tube. Fluid rises in the cavity between the two concentric elements and the changes in capacitance are transposed into an analogue 4-20mA output signal.

Features

- Suitable for a wide range of media
- Easy in-situ range adjustment
- 4-20mA output
- No moving parts
- Unaffected by pressure or vacuum

LS-CAP Series

Description	Probe Sensor	Part No.
		0.5m
Sensors for conducting liquids	1m	LS-CAP-1-1.0
	1.5m	LS-CAP-1-1.5
	2m	LS-CAP-1-2.0
	2.5m	LS-CAP-1-2.5
	3m	LS-CAP-1-3.0
Sensors for non-conducting liquids	0.5m	LS-CAP-2-0.5
	1m	LS-CAP-2-1.0
	1.5m	LS-CAP-2-1.5
	2m	LS-CAP-2-2.0
	2.5m	LS-CAP-2-2.5
	3m	LS-CAP-2-3.0

Sontay®





Ultrasonic Level Transmitter

The LS-UT provides accurate level measurement or liquids in tanks or sumps in applications where non-contact level monitoring is the preferred option. The 4-20mA loop powered output represents the distance between the surface of the liquid being detected and the transmitter. It has a user programmable measuring range of up to 8 metres, it works by sending out ultrasonic sound waves from its sensor, the sound waves reflect off the surface of the liquid in the vessel and return back to the sensor. The time taken to perform this process is calculated and then converted to provide a measurement in metres.

Features

- Maintenance free
- Simple set up procedure
- IP68 housing (2m for 24 hours)
- Low consumption
- Locking nut supplied

LS-UT Series

Description	Part No.
Ultrasonic level transmitter	LS-UT

Float Switch

The LS-541 is intended to monitor the liquid level in a tank or vessel and provides a switched output for local alarm, pump or valve control. The differential between switching is equivalent to approximately 15mm (0.59").

LS-541 Series

Description	Part No.
1" BSPT Float Switch (horizontal mount)	LS-541

Liquid Level Float

The LS-FL series is a range of level switches suitable for single or multi-level applications where access is only available from the top surface or where multiple level sensing is desired from a single penetration. Units consist of a float, which is suspended from a weighted cable. As the liquid level changes, the float follows the surface level, at the same time tilting due to its weighted restraint. Inside the float are a number of micro switches which trigger as the float tips.

LS-FL Series

Description		Part No.
Alarm switch	High level	LS-FL-1H
	Low level	LS-FL-1L
	High & low level	LS-FL-2LH
Control switch	Emptying pump	LS-FL-2H
	Filling pump	LS-FL-2L

Compact Liquid Level Switch

A range of level switches designed for high and low liquid level detection in tanks and vessels. The LS-S types are for side mounting, type 1 switches fit from the inside of the tank and tighten on to a back nut whilst the type 2 switches mount from the outside into a tapered boss.

The LS-TM is an easy to install Top Mounting Level Switch, and has a reversible float so that it can be used for either high or low level alarms. The float is suspended from a 5m PVC cable with a polyethylene weight and is fully submersible and adjustable.

Features

- Low cost
- Easy to install
- Reliable switching

LS-S Series

Description	Part No.
Polypropylene float switch, Internal fixing to M16 back nut	LS-SN-1
Polypropylene float switch, 1/2" NPT external fixing	LS-SN-2
Stainless steel float switch, Internal fixing to M8 back nut	LS-SS-1
Stainless steel float switch, 1/2" PF external fixing	LS-SS-2
Top mounting reversible float switch	LS-TM

Suspended Sealed Float Switch

The sealed Float switch is suitable for single phase pumps direct control to adjust levels of clear or contaminated water, acid or alkaline fluid. (Not suitable for ketonic and aromatic hydrocarbons.)

The float contains a micro switch inside water seal enclosure, and is connected to a pump by a flexible cable. The float position is dependent on the water level which will in turn switch on or off a device (e.g. pump or relay, refer to max. rating .refer to max. rating for the micro switch in the float switch).

Float Switches	
Cable Length (m)	Part No.
3	LL113
5	LL115
8	LL118



Liquid Level Transmitter Ultrasonic

These level switches are suitable for mounting from the top of a tank to monitor the level of liquid. The float follows the surface of the liquid level. The switches within the float operate according to the tilting action.

AX-UL-S... Series				
Measuring Range	Operating Temp °C	Display	Output	Part No.
0.35 to 8m	-20 to +90	No	4-20mA loop powered	AX-UL-SEP-370-2
0.25 to 6m			AX-UL-SEP-380-2	
0.35 to 8m			4-20mA suitable for diesel	AX-UL-STV-370-2
0.25 to 6m			AX-UL-STV-380-2	
0.35 to 8m		Yes	4-wire 4-20mA & 2x relay	AX-UL-STP-370-4
0.25 to 6m				AX-UL-STP-380-4

AXIO



Liquid Level Transmitter Ultrasonic

This entry level transmitter is designed specifically for use in the many industrial applications where economical liquid level measurement with an analog 4-20mA output proportional to level is required.

Features

- Measures liquid height or distance to liquid
- Simple push button calibration
- Built-in 4 digit display

Specification

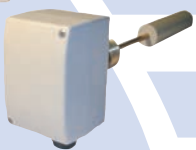
Accuracy: +/- 1%
Pressure: -0.25 to 3 bar (20°C)

MSP422			
Measuring Range	Operating Temp °C	Output 2 Wire	Part No.
0.3 to 8m	-20 to +70	4-20mA loop	MSP422

mobrey



Electro Controls



Horizontal Liquid Level Switches

To monitor liquid level in tanks and switch pumps or an alarm in the event of high or low level. Two switches are required when using both high and low level or limit and alarm functions. EL-041/093 switches contain magnets, therefore ensure that no metal objects are present in the liquid.

Specification

Detection: ELL-01/02 Oil, diesel, water, non aggressive fluids
 EL-041/093 Oil, diesel, water, some aggressive fluids

ELL... Series

Mounting	Media Temp °C	Media Contact Materials	Rating	Part No.
Horizontal	90	Phosphor bronze / brass / stainless steel	IP43	ELL-01
			IP65	ELL-02
	330	Stainless steel	IP65	EL-041 EL-093

High-Low Switching

These level switches are suitable for mounting from the top of a tank to monitor the level of liquid. The float follows surface of the liquid level. The switches within the float operate according to the tilting action.

Specification

Connection: 5m PVC cable
 Switching rate: 230V AC 6(3)A

EL... Series

Measuring Range	Operating Temp °C	Span Max.	Output 2 Wire	Part No.
Vertical	40	Low level alarm	Close on low level & open on rise	EL-AL
		High level alarm	Close on high level & open on low	EL-AH
	250/1200 adj. dead band	High & low level alarm	Close on high-off-close on low	EL-AHL
	250/1200 adj.	Pump filling	Close on low level until high level	EL-PF
		Pump emptying	Close on high level until high level	EL-PE

Liquid Level Transmitter Ultrasonic

These level switches are suitable for mounting from the top of a tank to monitor the level of liquid. The float follows the surface of the liquid level. The switches within the float operate according to the tilting action.

Specification

Accuracy: 0.25%
 Pressure: -0.25 to +2 bar

ELU-8 Series

Measuring Range	Operating Temp °C	Span Max.	Output 2 Wire	Part No.
0.5 to 8m	-10 to +60	100mm	4-20mA loop	ELU-8

Liquid Flow Switches

ELF... detects liquid flow through chillers, boilers, pipes and other units to monitor pump operation or switch alarms in the event of flow failure i.e. hot water, chilled water, diesel oil and up to 30% glycol systems. ELF-4../5.. can be used with some aggressive liquids.

ELF Series

Connection	Media Temp °C	Media Contact Materials	Rating	Part No.
1" BSPT	+4 to 110	Phosphor Bronze / Brass / Stainless Steel	IP54	ELF-1C ELF-3
		Stainless steel	IP54	ELF-4 ELF-5
	-30 to +110	Phosphor bronze / brass / stainless steel	IP65	ELF-2 ELF-3W ELF-4W ELF-5W
		Stainless steel	IP65	
Tee ¾" x ¾" x 1"	+4 to 110	Phosphor bronze / brass / stainless steel / iron	IP54	ELF-7

2

GAS DETECTION

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Coster	2.5
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Safety / Fire Detection

Axio	2.7
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To comply with IGEM/UP/11 Edition 2, it is a requirement for any Gas Solenoid Valve installed into a teaching environment to incorporate pressure proving to ensure the closure of all downstream outlets prior to restoration of the gas supply.

A system must be fitted to each separate teaching area in which gas is being used.

ADDITIONAL INFORMATION REQUIRED

- What is the size of the Gas Solenoid Valve required?
- What are the sizes of any Water Solenoid Valves required?
- Do you require any Remote Stops to cover additional exits?

LAB / FOOD TECH / WORKSHOP

1 | Is there a requirement to Isolate Water and/or Electric?

YES **ServiceGuard**
Service Isolation System



OPTIONS

- SG-PT00
- SGE-PT00
- SGW-PT00

NO **GasGuard**
Gas Proving System



OPTIONS

- GG-PT00

2 | Is there any mechanical ventilation in the area?

YES System must be interlocked with the Ventilation



OPTIONS

- FCMON
- AIRDPS

NO System must be interlocked with a CO2 Sensor



OPTIONS

- CO2M
- CO2T-L

BOILER / PLANT ROOM



Boiler and Plant rooms are governed in general by IGEM/UP/2 Edition 3, with stricter requirements under IGEM/UP/11 Edition 2 for educational establishments.


Although Gas Detection is usually down to a risk assessment for commercial and industrial applications, the risks are outlined in IGEM/UP/11 and are mandatory for educational establishments.

ADDITIONAL INFORMATION REQUIRED

- What is the size of the Gas Solenoid Valve required?
- How many items of plant are installed (for Thermal Link and Gas Sensor quantities)?
- Do you require any Remote Stops to cover additional exits?

1 | Are all items of plant fitted with Flame Failure Devices?

YES **BoilerGuard Panel**
or **GasMonitor**



OPTIONS

- BG-PO
- GM-PO

NO **BoilerGuard**
c/w Pressure Transmitter



OPTIONS

- BG-PT00

2 | Is the room connected to the main building?

YES Combustible Gas detection must be installed



OPTIONS

- FGS-NG
- FGS-LPG

3 | Is the room accessible from the main building?

YES Carbon Monoxide detection must be installed



OPTIONS

- FGS-CO

COMMERCIAL KITCHEN



Under BS6173:2009 and IGEM/UP/19 it is a requirement for the gas supply in a commercial kitchen to be interlocked with any mechanical ventilation, this includes any supply ventilation where it is required as part of the ventilation strategy.

With commercial kitchens (as with plant rooms), if all appliances are fitted with Flame Failure Devices (thermocouples) gas pressure proving is not required. However, due to the frequency of which ventilation interlocks are switched on and off and as appliances are regularly moved for cleaning, gas pressure proving is often installed to provide additional protection for leaks on the pipework as well as critical loss of gas pressure.

ADDITIONAL INFORMATION REQUIRED

- What is the size of the Gas Solenoid Valve required?
- How many fans are installed?
- Are the fans single or 3 phase?
- Do you require any Remote Stops to cover additional exits?

IF ALL APPLIANCES ARE FITTED WITH FLAME FAILURE DEVICES:

1 How would you like to interlock the ventilation?

2 Is there a variable speed controller installed?

AIR DP SWITCHES **VentGuard**

OPTIONS • VG-DP2

FAN CURRENT MONITORING **VentGuard Plus**

OPTIONS • VGP-PO

YES System must be interlocked with a CO2 Sensor

OPTIONS • CO2M

IF ALL APPLIANCES ARE NOT FITTED WITH FLAME FAILURE DEVICES:

1 How would you like to interlock the ventilation?

2 Is there a variable speed controller installed?

AIR DP SWITCHES **GasGuard**

OPTIONS • GG-PT00
• AIRDPS

FAN CURRENT MONITORING **GasGuard**

OPTIONS • GG-PT00
• FCMON

YES System must be interlocked with a CO2 Sensor

OPTIONS • CO2M
• CO2T-L



Automatic Gas Proving System

Suitable for schools, hospitals, laboratories, kitchens and industry. Provides Protection against fire and explosion in the event of a gas leak.

Features

- Clear LCD indication & instructions
- No commissioning required
- Annual service reminder
- 24V DC auxiliary power output
- Interfaces for: Gas sensors, CO2 sensors, Ventilation systems, Remote emergency stop buttons
- System status button to aid with fault finding
- High accuracy Pressure Transmitter
- Built in time delays to avoid nuisance tripping
- 5 Year Warranty
- UK Manufactured

Gas Safety Panels

Description	Part No.
GasGuard system	GG-PT00
ServiceGuard system (Gas, Water & Elec)	SG-PT00
ServiceGuard system (Gas & Elec)	SGE-PT00
ServiceGuard system (Gas & Water)	SGW-PT00
BoilerGuard panel only (Non-proving)	BG-PO
BoilerGuard c/w pressure transmitter	BG-PT00
GasMonitor panel	GM-PO
VentGuard panel	VG-PO
VentGuard Plus panel	VGP-PO

Gas Sensors

The Flamefast gas sensor is one of the most cost effective and versatile units available on the market. With a voltage output, and volt free contact the FGS can connect directly into most third party controllers or can easily connect to the New LCD based range of panels using the BACnet output.

Features

- 24V AC/DC power supply
- Pre-calibrated
- Traffic light LCD readout
- Volt free contact output
- BACnet interface (16 address)
- Latching function with reset input
- Analogue output
- Touch button setup and calibration
- Calibration and 'End of Life' reminder
- Oxygen sensor monitors for enrichment and depletion as standard
- Mounts onto any standard single gang junction box or conduit box
- UK Manufactured

Gas Sensors

Description	Part No.
Flamefast gas sensor - Carbon monoxide	FGS-CO
Flamefast gas sensor - Natural gas	FGS-NG
Flamefast gas sensor - LPG	FGS-LPG
Flamefast gas sensor - Hydrogen	FGS-H2
Flamefast gas sensor - Oxygen	FGS-O2
Flamefast gas sensor - Nitrogen dioxide	FGS-NO2
Flamefast gas sensor - Nitric oxide	FGS-NO
Flamefast gas sensor - Hydrogen (EC)	FGS-H2e
Flamefast gas sensor - Chlorine	FGS-CL2
Flamefast gas sensor - Ozone	FGS-O3
Flamefast gas sensor - Sulphur dioxide	FGS-SO2
Flamefast gas sensor - Carbon dioxide	FGS-CO2
Flamefast gas sensor - Natural gas (Infra-red)	FGS-NGIR

Gas Sensors - Duct Mount

Description	Part No.
Flamefast gas sensor - Duct mount - Carbon monoxide	FGSD-CO
Flamefast gas sensor - Duct mount - Natural gas	FGSD-NG
Flamefast gas sensor - Duct mount - LPG	FGSD-LPG
Flamefast gas sensor - Duct mount - Hydrogen	FGSD-H2
Flamefast gas sensor - Duct mount - Oxygen	FGSD-O2

CO2, Temperate & RH Monitors

The Flamefast carbon dioxide, temperature & relative humidity monitor provides a bold visual indication using a traffic light LCD, as well as having a digital readout for all three signals.

Using the built in volt free contact, the unit can be easily interfaced with ventilation and window control systems, as well as gas safety systems. The unit can also simply be used as a traffic light indication to raise awareness of high CO2, temp or RH levels.

Features

- 100-240V power supply
- CO2 readout (Temp & RH on - H model only)
- CO2 traffic light indication (can be configured for Temp & RH)
- Volt free contact output based on CO2 (can be configured for temp & RH)
- Typical 15 Year life expectancy
- Self-calibrating CO2 sensor
- Audible alarm
- Mounts onto any standard single gang junction box or conduit box
- UK Manufactured

CO2, Temperate & RH Monitors

Description	Part No.
CO2 monitor c/w relay output (230V AC)	CO2M
CO2, temp & RH monitor c/w relay output (230V AC)	CO2M-H

Gas Detectors

Pre-Alarm for panel mounting.

Features

- Power supply 230V AC or 12V AC
- Adjustable pre alarm and alarm threshold
- Voltage free SPDT outputs for control of NO or NC valves

RFG

Description	Part No.
Gas detector single channel 3 modules wide	RFG361
For RFG 361	Panel Kit ACD316 Wall Kit ACD315
Gas detector single channel 6 modules wide	RFG651
Gas detector two channel 6 modules wide	RFG652
For RFG 652	Panel Enclosure ACD644 Wall Mount Enclosure ACD615
Gas detector three channel 6 modules wide	RFG653

Gas Sensors

Used to monitor gas or carbon monoxide in the air and process a voltage output to the electronic detector RFG.

Features

- Power supply 12V AC
- Plastic housing
- Wall mounting
- Housing dimensions: Commercial 80 x 80 x 42mm

SRS Series

Type	Gas Sensed	IP Rating	Connection Length (m)		Part No.
			3 x 1mm ²	3 x 1.5mm ²	
Commercial	Methane	30	50	75	SRS150
	LPG	30	50	75	SRS250
	CO	30	50	75	SRS350



Gas Detectors

Wall or panel mounted microprocessor based gas detector control units. The range can be configured to meet specific customer requirements. The following parameters can be changed using on board DIP switches.

Features

- Number of sensors from 1 to 3
- 3 Zone protection
- Intrinsically safe option (on or off)
- IP44 protective rating
- 4 - 20mA signal input from each sensor
- EN50194 for explosive gases

Gas Detection Control Panels

Description	Part No.
Gas detection panel single sensor	GS100M
Gas detection panel up to 3 sensors	GS300M
Gas detection panel 4 channel	BX444-M

Gas Sensors

Description	Part No.
Natural gas sensor IP55	SGM595
Natural gas sensor IP30	SG500
Carbon monoxide sensor	CO100AR
Carbon monoxide duct sensor	CO200/DUCT
LPG sensor	SGM595-LPG





Gas Safety Interlock Systems

Merlin Series Kitchen Panels

Type	Part No.
Kitchen gas pressure proving with ventilation interlock	Merlin 2000S
Kitchen fan current monitoring	Merlin CT1250
Kitchen fan air dp monitoring up to 2 fans	Merlin CT1200S
Kitchen fan air dp monitoring - up to 4 fans	Merlin 1500
Kitchen fan air dp monitoring c/w fan speed controller	Merlin CT1400
Kitchen fan air dp monitoring c/w 2 x fan speed controller	Merlin CT1450
Kitchen gas pressure proving with ventilation interlock & 2 x fan speed controllers	Merlin CT1750

External Interlocking Options

Current monitor	PM2
Current sensor	CS1
Current sensor x 2	CS2

Laboratories

Gas pressure proving	Merlin 1000S
Gas pressure proving c/w electric	Merlin 1000S+
Gas pressure proving c/w electric & water	Merlin 1000SW+

Gas Detectors

Methane (NG)	Methane (NG)
Carbon monoxide (CO)	Carbon Monoxide (CO)
LPG	LPG

CO2 Monitoring

CO2 monitor inc PPM & coloured LEDs	CO2 Monitor
CO2 monitor colour LEDs only	CO2-C1



Gas Sensors

A range of stand-alone gas leak alarm Systems for use in commercial / industrial gas installations to provide safety alarm and shutdown facilities on detection of gas leakage.

Features

- 1, 2 & 3 channel options
- Audio and visual alarms
- Adjustable alarm sensitivity
- Relay output for gas shut-off valves
- Relay output for remote alarms
- Auto or manual reset selectable
- Self-diagnosis fault system

GL-CO Series

Description	Part No.
Controllers (DIN-rail mount)	
1-channel, 1 x SPDT	GL-CO-RFG-361
1-channel, 2 x SPDT	GL-CO-RFG-651
2-channel, 2 x SPDT	GL-CO-RFG-652
3-channel, 2 x SPDT	GL-CO-RFG-653
Options	
Panel door mounting kit for RFG361	GL-CO-RFG-FMK3
Panel door mounting kit for RFG65x	GL-CO-RFG-FMK6
Wall mounting kit for RFG65x	GL-CO-RFG-WMK6
Sensors	
Combustibles Sensor (natural gas)	GL-CO-SRS-150
Propane/LPG Sensor	GL-CO-SRS-250
Carbon Monoxide Sensor	GL-CO-SRS-350

Gas Sensors

The GS-S range of 4-20mA loop powered gas sensors are fitted into a robust housing, to detect the following gases:

- Nitrogen dioxide
- Oxygen
- Sulphur dioxide

Features

- 4-20mA output
- Wide supply voltage range (7.5 to 35V DC)
- Excellent long term stability
- Accuracy unaffected by position

GS-S Series

Type	Range	Resolution	Part No.
NO ₂ - Nitrogen Dioxide Sensors	0 to 10ppm	0.1ppm	GS-S-ND10
O ₂ - Oxygen Sensor	15 to 25%	0.1%	GS-S-OX25
SO ₂ - Sulphur Dioxide Sensor	0 to 20ppm	0.5ppm	GS-S-SD20



Duct Smoke Detector

The AX-GS-SD2000 Series Duct Smoke Detector has the option of either a photoelectric sensor or an Ionisation sensor or high temperature applications, the sensor heads are interchangeable. The sensors samples air currents passing through a duct using a range of sampling tubes and has 2 alarm relay outputs to switch on fans, blowers etc and send an alarm to the BMS or alarm panel.

Features

- 24V AC/DC or 120/240V AC versions
- Simple change out of photo or ion heads
- Range of sampling tubes for ducts 1' to 12'
- Clear cover for easy visual inspection
- Built in reset switch that is also alarm test switch
- 2 x alarm relay outputs

AX-GS-SD2000 Series			
Type	Ambient Temp range	Sensor	Part No.
Duct mounted	0 to +70°C	Ionisation	AX-GS-SD2000-N
	0 to +60°C	Photoelectric	AX-GS-SD2000-P

Sampling Tubes	
Description	Part No.
30-60cm Sampling Tube	AX-GS-SD-1
2400-3500cm Sampling Tube	AX-GS-SD-10
600-1200cm Sampling Tube	AX-GS-SD-2.5
100-240cm Sampling Tube	AX-GS-SD-5



Emergency STOP Button / Electro Thermal Link

Firemans switch for remote override of ventilation plant in the event of fire.

ES... & TFL Series	
Type	Part No.
Twist knob	ES02
Key lock	ES03
Electro thermal link	TFL72



Duct Smoke Detectors

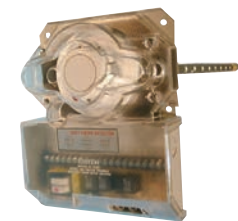
Detects smoke/combustion products in air moving through HVAC ducts.

Features

- Ionisation model - Detects small smoke particles 0.1-1 micron and combustion gases as in fast burning fires.
- Photoelectric model - Best suited to detect large smoke particles 1-10 micron e.g. PVC insulation, fabrics & furnishings.

RWE... Series		
Detector Head	Supply	Part No.
Ionisation	230V AC or 24V AC/DC	RWE-N
Photoelectric	230V AC or 24V AC/DC	RWE-P
Sampling Tube		
750mm		ST750
1500mm		ST1500
3000mm		ST3000

Electro Controls



Duct Smoke Detector

The SD-622 provides relay outputs on the detection of smoke or fault conditions. The alarm output relay can be either manual or auto reset depending on application type.

Features

- Manual or auto reset
- Fault relay output
- Self-test feature

SD-622 Series			
Type	Supply	Protection	Part No.
Duct mounted	24V AC/DC	IP65	SD-622



3

CONTROLLERS



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Single Phase Controllers

The single phase DIN-Rail mounting controllers are suitable for providing control of electric heating loads from an analogue signal. Applications include electric heating coils, heating cables and electric furnaces. The units utilise solid-state switching with "zero crossing technology" to provide accurate switching control. All items are provided with an alarm output for over temperature protection and LED Indication of Output ON, and are designed to mount on DIN rail.

Features

- Selectable control input
- Over temperature protection with auto reset
- No additional heat sinks or RFI filters required
- Efficient electronic switching

RE-1P Series

Current kW	Part No.
2	RE-1P-2
4	RE-1P-4N
7	RE-1P-7

Three Phase Controllers

The RE-3P range are suitable for providing control of electric heating loads from an analogue signal. Applications include electric heating coils, heating cables and electric furnaces. The units utilise solid-state switching with "zero crossing technology" to provide accurate switching control.

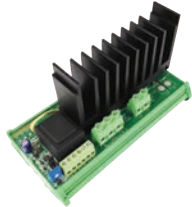
All controllers are provided with an alarm output for over temperature protection and LED Indication of Output ON. The 12 & 18kW versions are for Din-rail mounting and 27, 36, 57 & 86kW are designed to mount on the control panel back plate.

Features

- Selectable control input
- Over temperature protection with auto reset
- No additional heat sinks or RFI filters required
- Efficient electronic switching
- Small foot print

RE-3P Series

Current kW	Mounting	Part No.
12	Din-rail	RE-3P-12
18		RE-3P-18
27		RE-3P-27
36	Panel mount	RE-3P-36
54		RE-3P-57
57		RE-3P-57
86		RE-3P-86



Thyristor Controllers

RG Series

Phase Type	Current Rating	Description	Heat Dissipation	Part No.
Single	12A	85-265V AC, 24V AC/DC supply, 0-10V signal	10W	RGC1P23V12ED
	30A	85-265V AC, 24V AC/DC supply, 0-10V signal	30W	RGC1P23V30ED
	43A	85-265V AC, 24V AC/DC supply, 0-10V signal	40W	RGC1P23V42ED
	50A	85-265V AC, 24V AC/DC supply, 0-10V signal	53W	RGC1P23V50ED
	63A	85-265V AC, 24V AC/DC supply, 0-10V signal	80W	RGC1P23V62ED
Three (2 pole switching 1 direct)	25A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal	60W	RGC2P60V25C1DM
	40A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal	105W	RGC2P60V40C1DM
	75A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal, fan	190W	RGC2P60V75C1DFM
Three (3 pole switching)	20A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal	65W	RGC3P60V20C1DM
	30A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal	115W	RGC3P60V30C1DM
	65A	180-660V AC, 24V AC/DC supply, 0-10V, 0-5V, 1-5V signal, fan	235W	RGC3P60V65C1DFM



Electro Controls



Single & Three Phase Controllers

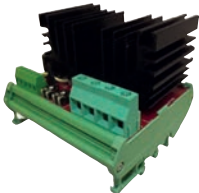
These Thyristor controls accept 0-10V DC input signals from temperature controllers to regulate the current flow to electric heaters or other resistive loads in order to achieve accurate proportional control. The unit operates on burst fire zero voltage switched principle. The FULL load is switched on & off on timed bursts and is proportional to the input signal.

EY1... & EY3... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply VAC 50/60Hz	Internal Fuse	Part No.
Single	DIN rail	1.5	230	- *	EY1-1.5
		3.5	230	15A	EY1-3
		7.0	230	30A	EY1-7
		12.5	230	55A	EY1-12
Three	DIN rail	10	415	15A/Ph	EY3-10
		20	415	30A/Ph	EY3-20
		28	415	40A/Ph	EY3-28
		36	415	55A/Ph	EY3-36
	Bracket	54	415	75A/Ph	EY3-54
		86	415	120A/Ph	EY3-86
		105	415	160A/Ph	EY3-105
		150	415	220A/Ph	EY3-150

* The EY-1.5 does not have a fitted internal fuse. A high speed semi-conductor fuse should be fitted externally.

AXIO



Power Regulators - Single Phase - DIN Rail Mount

Single Phase Power Regulators suitable for loads up to 12kW. Units use "zero point switching" technology to reduce RFI problems and extend system lifespan. DIN rail mounted to 9kW, the 12kW is panel mounted.

AX-MPR1... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply	Internal Fuse	Part No.
Single	DIN rail	2	24V AC/DC	10A	AX-MPR1-2
		4		20A	AX-MPR1-4
		6		30A	AX-MPR1-6
		9		40A	AX-MPR1-9
		12		60A	AX-MPR1-12

Power Regulators - Three Phase - DIN Rail Mount

DIN rail mount three phase power regulators suitable for loads from 6 to 18kW. Units use "zero point switching" technology to reduce RFI problems and extend system lifespan.

AX-MPR3... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply	Internal Fuse	Part No.
Three	DIN rail	6	24V AC/DC	10A	AX-MPR3-6
		12		20A	AX-MPR3-12
		18		30A	AX-MPR3-18

Power Regulators - Three Phase - Panel Mount

Three phase power regulators in rugged steel enclosures suitable for loads up to 54kW. The 54kW version uses a fan to disperse heat whereas the smaller units have unassisted cooling.

AX-PPR3... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply	Internal Fuse	Part No.
Three	Panel	27	24V AC/DC	40A	AX-PPR3-27
		36		60A	AX-PPR3-36
		54		80A	AX-PPR3-54

Power Regulators - Three Phase - Panel Mount

Three phase power regulators in a durable steel enclosure, suitable for loads up to 105kW. All heat is dissipated without the need for additional fans or heatsinks. Alarm output option.

AX-PPR3... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply	Internal Fuse	Part No.
Three	Panel	72	24V AC/DC	100A	AX-PPR3-72
		105		146A	AX-PPR3-105

Power Regulators - Three Phase - Panel Mount

Three phase power regulators in a durable enclosure, suitable for loads up to 400kW. All heat is dissipated without the need for additional fans or heatsinks. The units are built and fused according to the actual load requirements.

AX-PPR3... Series

Phase Type	Mounting Type	Max Heater Duty kW	Supply	Internal Fuse	Part No.
Three	Panel	150	380-440V AC		AX-PPR3-150

TUC03 Configurable Terminal Unit Controller

To provide direct digital control of terminal unit applications with heating and/or cooling coils, an electric heater and 3-speed or variable speed fan.

- 230V AC power supply
- 5V DC / 15V DC / 24V AC power supply for field devices, directly provided by the controller

TUC03 Series

Description	Part No.
BACnet MS/TP with Peer to Peer Communication, compatible with 10K3A1 inputs	TUC03



Intelligent Room Automation

Excellent room climate and energy efficiency - integrated, modular, open.



Stand Alone or BACnet/MSTP - Universal Terminal Unit Controller

Voltage / IO	Description and Functionality	Part No.
24V AC/DC (13 I/O)	Freely configurable BACnet room controllers (B-ASC) for fan coil unit, chilled beam, VAV, panel heating etc.. (c/w room automation functions.. i.e. window contact, demand fan control, external cooling etc..) Master/slave up to 8no. units. Parameterisation through EY-RU382 room unit, easy-set software, memory plug in or changes over network. (230V version c/w onboard 24V 6VA output)	EY-RC301F005
230V AC (16 I/O)	Room display/controls for EY-RC3's (c/w integral NTC sensor)	EY-RC302F001
Power from EY-RC3	Room display/controls for EY-RC3's (c/w integral NTC sensor)	EY-RU382F001

Universal Electronic Controller

24V AC (6 I/O)	Universal control with configurable modes for temperature, pressure, CO2, humidity, supply air cascade and heating. Operation / setting through LCD display. P/PI control. (410 version includes week time switching & PID DHW control functionality)	RDT405F201
24V AC (11 I/O)		RDT410F201
230V AC (11 I/O)		RDT410F301

Panel Heating/Cooling Electric Distributors (For power, signalling and time programmes)

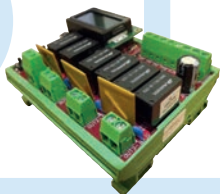
24V AC / 230V AC (6 zones)	Heating only (c/w 2 set back zones)	FXV3006F001
230V AC (10 zones)	Heating & cooling (c/w 2 set back zones) pump control, change over input, high temp/humidity input	FXV3110F001
24V AC (10 zones)		FXV3110F002
230V AC (10 zones)	Heating, Heating & Cooling. Pump control (c/w logic), change over input, high temp/humidity input, boiler output, NC/NO actuators, pump/valve protection, LED indication	FXV3210F001
24V AC (10 zones)		FXV3210F002

Heating/Cooling Electronic Room Controllers (Stand alone/integrated to FXV3 distribution centres)

230V AC dial	Heating, lowering set back input, frost protection (up to 6 actuators)	TRT317F210
24V AC dial	Heating, lowering set back input, frost protection (up to 4 actuators)	TRT317F212
230V AC dial	Heating/cooling, lowering set back input, frost protection, valve protection & cooling lock (up to 6 actuators)	TRT327F210
24V AC dial	Heating/cooling, lowering set back input, frost protection, valve protection & cooling lock (up to 4 actuators)	TRT327F212
230V AC c/w display	Heating, lowering set back input, frost protection (up to 5 actuators) Includes - operating mode selection (+ other features)	TRA410F210
24V AC c/w display	Heating, lowering set back input, frost protection (up to 5 actuators) Includes - operating mode selection (+ other features)	TRA410F212
230V AC c/w display	Heating/cooling, lowering set back input, frost protection, valve protection & cooling lock (up to 5 actuators) Includes - operating modes, time programme, pilot clock output, selection of floor/radiator/fan control, floor sensor connection (+ other features)	TRA421F210
24V AC c/w display	Heating/cooling, lowering set back input, frost protection, valve protection & cooling lock (up to 5 actuators) Includes - operating modes, time programme, pilot clock output, selection of floor/radiator/fan control, floor sensor connection (+ other features)	TRA421F212



AXIO



Temperature Controller - Proportional with Integral Feedback

The Axio AX-PI is a microprocessor based temperature controller with a two line LCD display to simplify set up. The unit controls temperature between -10°C to +110°C using configurable heating and cooling stages, with adjustable proportional and integral parameters. The set point can be adjusted locally using push buttons or remotely with a potentiometer. A setback input is provided for use with an external switch. There is also a low limit sensor input. The minimum and maximum temperatures values are stored for display via the menu. The AX-PI is provided in a DIN rail carrier and is 24V AC/DC powered.

AX-PI... Series

Description	Part No.
DIN rail PI controller	AX-PI
DIN rail PI controller 0-10V remote setpoint	AX-PI-R10V
External setpoint control	AX-POT

Window Actuator Controller - Three Channel

The AX-WAC is a three channel window controller providing timed forward/reverse outputs to open and close two wire DC window actuators. Each output can be driven from a separate 0-10V input or can be combined. Any cycle time from five to 240 seconds can be set. A "Close All" input is also provided.

AX-WAC

Description	Part No.
Window Actuator Controller	AX-WAC

Single Phase Motor Regulator - Panel Mount

Miniature Triac Motor Regulator for step-less speed regulation of controllable single phase AC motors. Loads can be controlled in both two or three wire connection mode (capacitor).

AX-FC... Series

Description	Part No.
8A Single phase AC motor regulator - DIN rail	AX-FC-8

SIEMENS



Heating Controllers

RVL Series

Description	Part No.
Compensated heating controller with optimum start for a second zone slave only - with LPB communication.	RVL479
Compensated heating controller with optimum start for zone or boiler control - with LPB communication.	RVL480
Compensated heating controller with optimum start for zone or boiler and DHW control - with LPB communication.	RVL481
Compensated heating controller with optimum start for zone, boiler and DHW control - with LPB communication.	RVL482

RVP Series

Description	Part No.
Compensated heating controller for zone or boiler control - no communication.	RVP201.0
Compensated heating controller for zone or boiler and DHW control - no communication.	RVP211.0
Compensated heating controller with optimum start for zone control - with LPB communication.	RVP340
Compensated heating controller with optimum start for zone, boiler and DHW control - with LPB communication.	RVP350
Compensated heating controller with optimum start for 2 zones, boiler and DHW control - with LPB communication.	RVP360

RWD Series

Description	Part No.
Universal controller, 24V AC, 2 modulating outputs	RWD62
Universal controller, 24V AC, 1 modulating and 1 2-point output	RWD68
Universal controller, 24V AC, with 2 relay outputs	RWD82

Temperature Sensors

QA Series

Description	Part No.
Room temperature (LG Ni1000) sensor, range 0..50°C (Not PPS2)	QAA24
Room temperature (LG Ni1000) sensor, range 0..50°C with setpoint adjuster, range 535°C	QAA25
Outside temperature (LG Ni1000) sensor	QAC22
Clamp-on temperature (LG Ni1000) sensor	QAD22
Immersion temperature (LG Ni1000) sensor with 2m cable, range -50-180°C, PN16	QAE26.90
Duct temperature (Pt1000) sensor with 0.4m probe	QAM2112.040
Cable temperature (Pt1000) sensor, 1.5m cable	QAP2012.150
Return air temperature (LG Ni1000) sensor	QAP22

Time Switches

Digital time switch.

TACTIC...Series	
Description	Part No.
Single channel, 7 day & 24 hour timer 20 programme spaces	TACTIC371.1
Two Channel, 7 day & 24 hour timer 42 programme spaces	TACTIC572.1

GRÄSSLIN™
by **INTERMATIC®**



Round Pattern Time Switches

Round Pattern Switches (RPTS) are renowned for their simplicity and ease of use in Industrial and Commercial installations.

Standard RPTS		
Description		Part No.
Quartz time clock with up to 2 ON/OFF operations per day, with a 3 pin base,	without battery reserve	S254/2
	with battery reserve	Q554/2
Quartz time clock with up to 2 ON/OFF operations per day, with a 4 pin base,	without battery reserve	S255/2
	with battery reserve	Q555/2

Accessories	
Description	Part No.
Conduit Entry Box, used with all RPTS Products	FD930

Time Switches

Primarily used with Electric Immersion heaters, they can also be used for panel heater control, Security lighting Boilers.

Multi Application Switch	
Description	Part No.
Powersaver Boost	PSB
Powersaver 24/7 - Compliant with Part L and Part P in Scotland of new building regs.	PS 24/7

DIN Mounting		
Description		Part No.
Single module wide	7 day digital time clock, single channel	20722
Five module wide	7 day digital time clock, Four channels	27403

Panel/Surface Mounting		
Description		Part No.
72x72 case	7 day analogue time clock, single channel	16921
	7 day digital time clock, single channel	23671

SANGAMO



4

INPUT/OUTPUT MODULES

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Axio	4.4

Single-Stage Relay Modules

A range of relays for use with BMS controllers for switching plant and isolation of input signals. They are supplied complete with DIN-rail mounting base and retaining clip.

IO-RM-1 Series

Input Signals	Output Contacts Amps	Part No.
12V DC	8	IO-RM1-12DC
24V DC	8	IO-RM1-24DC
24V AC	12	IO-RM1-24AC
240V AC	12	IO-RM1-240AC

Relay Modules

This range of relay modules is intended for use with BMS controllers to convert an analogue control output to various switching relay modes. The adjustable relay module provides individually adjustable on and off switching points.

Features

- Fault finding LED indication
- Relay status LED indication
- Link selectable raise/lower, hi/low or binary
- On/Off/Auto links for ease of commissioning

IO-RM Series

Description	Part No.
2-Stage relay module	IO-RM-2
3-Stage relay module	IO-RM-3
4-Stage relay module	IO-RM-4
8-Stage relay module	IO-RM-8
Adjustable Switching Point Relay Module	IO-RM-A

Digital Input Multiplexers

These modules are intended for use with BMS controllers to expand their input capacity by multiplexing four or six digital signals or 24V AC/DC inputs into a single analogue controller unit. Each combination of input states corresponds to an analogue value from the IO-DIM-4 and IO-DIM-6 which can be decoded into four or six digital status bits.

Features

- Fault finding LED indication
- Input status indication
- Input status simulation
- Expands controller input capacity
- Self calibrating output

IO-DIM Series

Description	Part No.
4 x VFC or 24V AC/DC inputs, 0-10V DC output	IO-DIM-4
6 x VFC or 24V AC/DC inputs, 0-10V DC output	IO-DIM-6

Input Isolation Modules

Intended for use with BMS controllers wherever the output signal requires isolation from the supply ground. The IO-IIM accepts either a current loop or voltage input. The module is powered by 24V AC and the output 0V is floating with respect to the input and supply ground.

Features

- 4-20mA, 0-5V DC, or 0-10V DC input
- Full opto-isolation between inputs and output

IO-IIM Series

Description	Part No.
4-20mA, Input Isolation Module	IO-IIM-I
0-5/0-10V DC, Input Isolation Module	IO-IIM-V

Signal Conditioning

For signal rescaling, the IO-A-RM can accept either a voltage or current input which can be rescaled to either a voltage or current output. The signal rescaling is achieved by using the trimming potentiometers and jumpers links. The IO-A-RM can also reverse an input signal. The IO-A-UD accepts a raise/lower relay signal and provides a 0-10V DC output. Additional features include Hand/Off/Auto jumper for manual override, LED status indication and selectable hysteresis.

Features

- Field selectable ranges
- LED Status
- Voltage to current, current to voltage conversion (IO-A-RM)
- Current or voltage outputs (IO-A-UD)

IO-A Series

Description	Part No.
Analogue Rescaling Module	IO-A-RM
R/L to Analogue Module	IO-A-UD

Analogue Override Module

Intended for applications which require independent manual override of analogue output channels from a BMS controller, as a fail-safe in the event of controller failure. Enables actuators to be manually overridden from the panel where local access is difficult. Also useful for commissioning or temporary control of plant prior to controller installation.

Features

- 4 x 0-10V DC channels
- Hand/off/auto link selectable
- Manual adjustment of output signal
- 24V AC/DC powered
- Up to four outputs to be controlled from one input
- Direct or buffered output signals

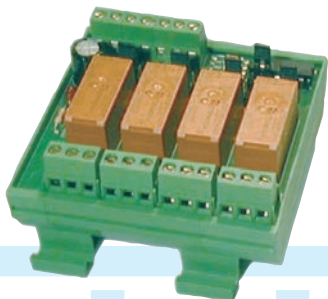
IO-ABM4 Series

Description	Part No.
4-20mA, Input Isolation Module	IO-ABM4

Sontay®



Electro Controls



Four-Stage Relay Override Module

This unit Provides up to 4 independent switched relay outputs from either 1,2,3 or 4 independent 0-10V DC inputs. Alternatively up to 4 outputs can be switched from just 1 x 0-10V DC input via link selection. All switch points are fixed at approx 5V DC ON and 4V DC OFF. This product can also be used in place of 4 single relays.

Features

- DIN rail mounted

EROV4 Series

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	4 x 10 (3)	EROV4

Two-Stage Relay Modules

These products accept a 0-10V DC input and produce a 2-stage relay output which can be used for external plant switching. HIGH/LOW or RAISE/LOWER functions can be selected for multi staged heating & Cooling.

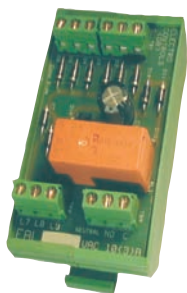
Features

- DIN rail mounted

E2RM Series

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	2 x 10 (3)	E2RM

Electro Controls



Alarm Integrator

Provides a common alarm output for up to 9 separate alarm input signals. Parallel connection is possible for additional alarm inputs.

Features

- DIN rail mounted

EAL... Series

Input Signals	Output Contacts Amps	Part No.
24V AC	10	EAL-24
11V AC	10	EAL-110
230V AC	10	EAL-230



Input / Output Modules: Analogue Outputs

Input/Output Modules

Output Types	Description	Part No.
0-10V	4 x Digital inputs to 1 x 0-10V output	IO/DIM4
	4 x Up to isolated digital inputs to 1 x 0-10V output	IO/DIM4/OI
	6 or 8 x Digital inputs to 1 x 0-10V output	IO/DIM6-8

Input / Output Modules: Analogue Inputs

Input/Output Modules

Output Types	Description	Part No.
Relay	0-10V Input to 1 x adjustable single relay output	IO/ARM
	0-10V Input to 1 x single relay output	IO/1RM
	0-10V Input to 2 x relay output (Raise / Lower, High / Low, Sequence or Binary control)	IO/2RM
	0-10V Input to 3 x relay output (Sequence or Step control)	IO/RM3
	0-10V Input to 4 x relay output (Sequence, Step, Binary control)	IO/DOM4
	0-10V Input to 6 x relay output (Sequence, Step, Binary control)	IO/DOM6



Digital Input Multiplexer - Analogue Output - 4 or 6 Inputs

Calculates a single analogue value based on the status of the four or six digital input signals. This signal can then be decoded within a BMS controller to give the status of each individual digital Input. The module is designed as a direct replacement for the equivalent "Trend" module.

Features

- Can be powered from 24V AC/DC
- Inputs can be volt free or 24V AC/DC
- Jumper-selectable voltage or current output

AX-DIM... Series

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Four channel digital input multiplexer	AX-DIM4-MI5
	Six channel multiplexer, voltage output	AX-DIM6-MI-V
	Six channel multiplexer, current output	AX-DIM6-MI-I

Raise / Lower to Analogue Converters

The AX-RLA isolates and converts a Raise/Lower input signal into a 0-10V analogue output. The unit provides 16 Raise/Lower cycle times and a manual output override for commissioning.

Features

- 16 standard actuator timing ranges
- 24V AC to drive the actuator
- 0-10V DC output

AX-RLA... Series

Input Signals	Output Contacts Amps	Part No.
24V AC	Raise/lower to analogue module 24V AC	AX-RLA-AC
230V AC	Raise/lower to analogue module 230V AC	AX-RLA230ACT

Signal Conversion Modules (Analogue to Analogue)

A series of modules which can convert current to voltage (or vice-versa) and also opto-isolate the input signal from the output to the BMS or other controller. The new AX-ABC converts an analogue signal to 0-10V DC and can also power the signal loop.

Features

- Powered from standard 24V AC supply
- Small form factor
- Offers cost-saving when retrofitting
- Huge range of analogue conversions
- Fits standard Din Rail

AX-VI / AX-VSM

Input Signals	Output Contacts Amps	Part No.
24V AC	0-10V DC to 4-20mA conversion module	AX-VI
	0-60V DC to 0-10V DC scaling module	AX-VSM

Standard Single Relay Modules - DIN Rail

A range of single pole and multi-pole changeover relays designed for use in control applications. The 12V DC version has a sensitive coil that can be driven directly by most BMS controllers.

Features

- Can convert a BMS output to digital VFC
- Large range of coil options
- Complete with DIN rail base
- Unit comprises full assembly of relay, base and clip

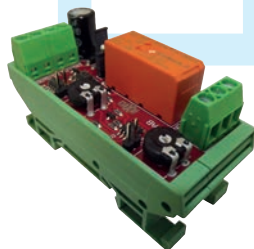
AX-RM1 Series

Input Signals	Output Contacts Amps	Part No.
12V DC	12V DC sensitive coil 10A@250V AC (res)	AX-RM1-12DC
24V AC	24V AC coil 12A@250V AC (res)	AX-RM1-24AC
24V DC	24V DC coil 12A@250V AC (res)	AX-RM1-24DC
230V AC	230V AC coil 12A@250V AC (res)	AX-RM1-230AC

AXIO



AXIO



Standard Multi-Pole Single Relay Modules - DIN Rail

2, 3 and 4-pole changeover relays designed for use in control applications.

Features

- Can convert a BMS output to digital VFC
- Range of voltage options 24V AC, 240V AC
- Complete with DIN carriers
- 2, 3 and 4-pole variants
- DC options available on request

AX-RM1-2 / 3 / 4 Series

Input Signals	Output Contacts Amps	Part No.
24V AC	2 x 8A@250V AC (res) 24V AC coil	AX-RM1-2-24AC
230V AC	2 x 8A@250V AC (res) 230V AC coil	AX-RM1-2-230AC
24V AC	3 x 10A@250V AC (res) 24V AC coil	AX-RM1-3-24AC
230V AC	3 x 10A@250V AC (res) 230V AC coil	AX-RM1-3-230AC
24V AC	4 x 6A@250V AC (res) 24V AC coil	AX-RM1-4-24AC
230V AC	4 x 6A@250V AC (res) 230V AC coil	AX-RM1-4-230AC

Single Relay Module - Analogue Input, Fixed Switchpoint

The AX-RM1F is a useful alternative to traditional Single Pole 12V DC relay modules, with the added advantages of ON/OFF/AUTO links, with a fixed switch point of 5V and LED Indication.

Features

- Can convert a BMS output to digital VFC
- On/Off auto links
- DIN rail mount

AX-RM1F

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Single relay module - Fixed switchpoint	AX-RM1F

Single Relay Module - Analogue Input, Adjustable Switchpoints

The AX-RM1AB is an advanced single relay module that offers adjustable Switch points (on and off) and a buffered 0-10V DC output for controlling secondary devices from the same 0-10V DC output.

Features

- Can convert a BMS output to digital VFC
- Contact rating - 12A @ 230V AC resistive
- Adjustable switching threshold On & Off
- DIN rail mount

AX-RM1AB

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Single relay module adjustable switchpoints	AX-RM1AB

Voltage Splitter & Reference Module

The AX-VSR module takes a 0-10V input and outputs three buffered 0-10V DC outputs. The module also includes an adjustable reference output, factory set to 10V. This can be connected to an external potentiometer to provide a low cost 0-10V setpoint.

Features

- 3 buffered 0-10V outputs
- Can be powered from 24V AC/DC
- Converts external potentiometer to 0-10V

AX-VSR

Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Voltage splitter and reference module	AX-VSR

Multi-Mode Relay Module - 2 Stage

Provides two switched outputs from a single 0-10V DC input (from a BMS or similar). AXIO Relay modules include an impressive array of modes, the AX-RM2T offers raise/lower, plant/pump changeover, cascade or binary control of two heating or cooling stages. The module can also be configured as a single/dual stage Timer.

Features

- Multiple operating modes
- LED Indication of output status
- Manual override jumpers to aid commissioning

AX-RM2T		
Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Dual relay module with timer 0 to 30s	AX-RM2T
	Dual relay module with timer 0 to 240s	AX-RM2T2
	Dual relay sequencer with timer 0 to 30s	AX-RM2S

Multi-Mode Relay Module - 3 Stage

A Triple Relay module with seven jumper-selectable operating modes and time delay. The module can be used to control three-stage loads, as a fan/heat/cool switch and includes a reverse mode and time delay.

Features

- Multiple operating modes
- LED Indication of output status
- Manual override jumpers to aid commissioning

AX-RM3M / RL3R		
Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Three-stage multi-mode relay module	AX-RM3M
	Raise/lower input to 3 stage relay module	AX-RL3R

Multi-Mode Relay Module - 4 Stage

Two versatile relay output modules with multiple operating modes. One unit can be configured for up to nine modes of operation to control four independent loads from a single 0-10 or 2-10V DC signal. The signal can be reversed. Can be connected to the AX-RM6M to provide ten switched stages.

Features

- Multiple operating modes
- LED indication of output status
- Control four independent loads from a single analogue signal

AX-RM4M		
Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Four-Stage Multi-Mode Relay module	AX-RM4M
	Four Relay module 4 adjustable switchpoints On & Off	AX-RM4AB

Multi-Mode Relay Module - 6 Stage

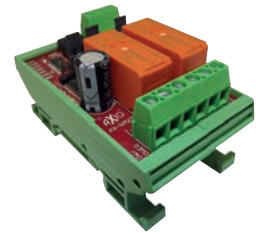
Accepts a 0-10V DC input and provides six switched outputs. Up to nine different modes of operation are available and the signal can also be reversed. Can be connected to the AX-RM4M to provide ten switched stages.

Features

- Multiple operating modes
- LED indication of output status
- Manual override jumpers to aid commissioning
- Contact rating 12A @ 250V AC (resistive)

AX-RM6M		
Input Signals	Output Contacts Amps	Part No.
24V AC/DC	Six-stage multi-mode relay module	AX-RM6M

AXIO



5

GAS SAFETY & SOLENOID VALVES

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Firemans Switch

This range of safety switches is for use in the event of fire or other emergency. Usually located at exits to gas plant rooms, units are key operated with a 2 or 3-position latching switch.

EP-FS Series	
Type	Part No.
2 Position key operated	EP-FS-1
3 Position key operated	EP-FS-2

Emergency Stop Button

A range of emergency stop switches for manual shut down of systems in the event of fire or other emergency.

Features

Switch rating: 6A @ 240V AC

EP-SW Series	
Button Type	Part No.
Twist knob	EP-SW-11
Key lock	EP-KL

Duct Smoke Detector

The SD-622 provides relay outputs on the detection of smoke or fault conditions. The alarm output relay can be either manual or auto reset depending on application type.

SD-622 Series	
Description	Part No.
Smoke detector	SD-622

Fusible Thermal Link

The EP-SW-72 is for use in gas safety circuits. Units consist of a ventilated high temperature glass filled resin case, with electrical connection terminals and a thermal fuse. When located above boilers, the fuse activates on detection of over-temperature to close down the gas system. Replacement fuses are available.

Features

- High temperature flame retardant glass filled resin housing
- 72°C Melting point
- IP20

EP-SW72 Series	
Type	Part No.
Electro-thermal link	EP-SW-72
Electro-thermal link – spare fuse	EP-SW-72-F



Emergency STOP Button / Electro Thermal Link

Firemans switch for remote override of ventilation plant in the event of fire.

ES... & TFL Series	
Type	Part No.
Twist knob	ES02
Key lock	ES03
Electro thermal link	TFL72



Electro Controls



Remote Alarm Panels

This products accepts a switched input 230V AC, 24V AC/DC or a 0-10V DC adjustable input signal to provide an audible and visual alarm.

Features

- Flush mounting
- Light & buzzer
- IP40

ERA... Series

Number of Channels	Input Signals	Part No.
1	1 x 230V AC	ERA-230
	1 x 0-10V DC	ERA-10-1
	1 x 24V AC/DC	ERA-24-1
2	2 x 0-10V DC	ERA-10-2
	2 x 24V AC/DC	ERA-24-2
4	4 x 0-10V DC	ERA-10-4
	4 x 24V AC/DC	ERA-24-4

Firemans Switch

Firemans switch for remote override of ventilation plant in the event of fire.

EFM... & EKFM Series

Type	Mounting	Part No.
3 position key operated	Flush	EFM-1
Keyguard for EFM-1	Surface	EKFM
Knob operated (safe breakglass)	Surface	EFM-4
	Flush	EFM-5
Accessories		
Surface mounting box for EFM-1 87H x 87W x 45DV		EE-BP6
Replacement lid for EKFM		EE-KF

Emergency STOP Button / Electro Thermal Link

Firemans switch for remote override of ventilation plant in the event of fire.



EK... & EL Series

Type	Part No.
Twist knob	EK-10
Key lock	EK-25
Electro thermal link	EL-72



Gas Detection

Gas Proving

Description	Part No.
Blacks proving system for gas installations, 230V, key reset gas solenoid valves, accessories	PG0001

230V Auto Reset Gas Solenoid Valves, Accessories

Description	Size (mm)	Part No.
Screwed BSP	15 1/2"	GVA 15
	20 3/4"	GVA20
	25 1"	GVA25

Gas Solenoid Valves

Approved to EN161 - Meet British gas industry requirements
230V AC coil. Class A. EN161 & Din3391 to 3394. Protection to IP54.

Normally Closed 230V AC

Valve Size	Connection	Part No.
¼"	BSP	ZVG8
½"	BSP	ZEV15
¾"	BSP	ZEV20
1"	BSP	ZEV25
1¼"	BSP	ZEV32
1½"	BSP	ZEV40
2"	BSP	ZEV50
2½"	BSP	ZEV65
3"	BSP	ZEV80
65mm	(2 ½") flanged	ZEVF65
80mm	(3") flanged	ZEVF80
100mm	(4") flanged	ZEVF100
125mm	(5") flanged	ZEVF125
150mm	(6") flanged	ZEVF150

Normally Closed 24V AC

Valve Size	Connection	Part No.
½"	BSP	ZEV15-24
¾"	BSP	ZEV20-24
1"	BSP	ZEV25-24
1¼"	BSP	ZEV32-24
1½"	BSP	ZEV40-24
2"	BSP	ZEV50-24
2½"	BSP	ZEV65-24
3"	BSP	ZEV80-24
80mm	(3") flanged	ZEVF

Closed Position Indication (CPI) Switch

Valve Size	Part No.
¾"	CPI-20
1"	CPI-25
1¼"	CPI-32
1½"	CPI-40
2"	CPI-50
2½" BSP & Flanged	CPI-65
3" BSP & Flanged	CPI-80
4" Flanged	CPI-100

BANICO
Controls





Gas Solenoid Valves

Class "A" Safety Shutoff Solenoid Gas Valve. For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.



Normally Closed 230V AC

Valve Size	Connection	Part No.
15mm	Screwed	VE4015A1005
20mm	Screwed	VE4020A1005
25mm	Screwed	VE4025A1004
32mm	Screwed	VE4032A1000
40mm	Screwed	VE4040A1003
50mm	Screwed	VE4050A1002
65mm	Flanged	VE4065B3005
80mm	Flanged	VE4080B3005
100mm	Flanged	VE4100A3001

Closed position indicators to suit

Closed Position Indication (CPI) Switch

Valve Size (mm)	Part No.
20-25	MS052501
32-40	MS054001
50	MS055001
65-80	BSP Valve MS056501
80	Flanged Valve MS058001
100	MS051001

Automatic N/C Gas Solenoid Valves

Working temperature -15°C to +60°C without power normally closed with power open.

GCA Series				
Type	Valve Size DN	P.max(!) mbar	Power Supply	Part No.
Screwed	½"	200	230V AC	GCA 815
	¾"			GCA 820
	1"	500		GCA 825/500
	1¼"	360		GCA 832/360
	1½"	GCA 840/360		
	2"	GCA 850/360		
Threaded	65mm	360	GCA 865	
	80mm		GCA 880	
	100mm		GCA 8100	
	125mm		GCA 8125	
	150mm		GCA 8150	
	200mm		GCA 8200C	
GCA DN 250-300 Series				
Threaded	250mm	360	230V AC	GCA 8250C
	300mm			GCA 8300C

Accessories

Microswitches	
Description	Part No.
CPI microswitch for GCA 815/GCA 820/GCA 825	FCM 15-20-25
CPI microswitch for GCA 825/500	FCM 15-20-25/500
CPI microswitch for GCA 832/360 - GCA 840/360	FCM 32-40/360
CPI microswitch for GCA 850/360	FCM 50/360
CPI microswitch for GCA 865/GCA 880	FCM 65-80
CPI microswitch for GCA 8100	FCM 100
CPI microswitch for GCA 8125 / GCA 8150	FCM 125-150
Gas Pressure Regulators	
Gas Pressure Regulator DN15, 9-28 mbar	RG02 010
Gas Pressure Regulator DN20, 9-28 mbar	RG03 010
Gas Pressure Regulator DN25, 9-28 mbar	RG04 010
Gas Pressure Regulator DN32, 13-23 mbar	RG05 020
Gas Pressure Regulator DN40, 13-23 mbar	RG06 020
Gas Pressure Regulator DN50, 13-23 mbar	RG07 020

coste® group
PERSONAL AUTOMATION





Gas Safety Shut-Off Valves

POWERSEAT® ECO ELECTRO HYDRAULIC GAS SAFETY SHUT OFF VALVE

The Powerseat® electro-hydraulic gas shut-off valve allows the control and safety shut-off of low pressure combustible gases in pipes from 40mm to 250mm, whilst focusing on being energy efficient and environmentally friendly. The Powerseat® Eco shut-off valve is kept open by a hydraulic pump where hydraulic fluid is forced into a cylinder driving the valve open.

Features

- ED to display "ON" and "Manual re-set required" status
- Increased environmental protection to IP56 equivalent
- Manual re-set switch incorporated on all versions
- IP67 equivalent rating option available. (increased cost)
- Screwless quick connections for installation of electrics
- Volt free contacts for BMS connection

PE668 Series

Type	Size	Part No.
Screwed	40mm	PE6683-230V
	50mm	PE6684-230V
	65mm	PE6685FL4-230V
	80mm	PE6686FL4-230V
Flanged	100mm	PE6687FL4-230V
	150mm	PE6689FL4-230V
	200mm	PE66810FL4-230V
	250mm	PE66811FL4-230V

Optional Extras

Type	Part No.
Thermal fuse link	BC66ETF
Emergency stop button	BC66ESB/P

Gas Solenoid Valves

Series 2000 - Class "A" safety shut-off valves, normally closed.

Features

- Gas families 1, 2 & 3
- Cast aluminium bodies

2000 Series

Type	Size	Part No.
Fast opening - Full wave rectified, with flow adjustment	¾" BSP	2005 230V
	1" BSP	2006 230V
	1¼" BSP	2007 230V
	1½" BSP	2008 230V
	2" BSP	2009 230V
Fast opening - Full wave rectified, with flow adjustment and CPI	¾" BSP	2005 230VC
	1" BSP	2006 230VC
	1¼" BSP	2007 230VC
	1½" BSP	2008 230VC
	2" BSP	2009 230VC

Gas Regulators

Appliance and Domestic Gas Regulators

- Suitable for mounting in any position
- Inlet pressures up to 100mbar
- Connections tapped BS21 parallel for 1/4" and 3/8" and BS21 taper

Gas Regulators - Appliance & Domestic

Type	Size	Outlet Spring (mbar)	Part No.
Female BSP	1/4"	5 - 15	60DJ
	3/8"	5 - 15	80DJ
	1/2"	5 - 17.5	150DJ

Commercial and Industrial Regulators

- Compact and accurate regulator
- Suitable for horizontal and vertical pipelines
- Inlet pressures up to 345mbar

Gas Regulators - Commercial & Industrial

Type	Size	Outlet Spring (mbar)	Part No.
Female BSP	1/2"	1 - 23	J78R-1/2
	3/4"	15 - 23	J78R-3/4
	1"	10 - 20	J78R-1

Industrial Regulators

- Service and appliance regulator
- All sizes can be installed in any position
- Inlet pressures up to 345mbar

Gas Regulators - Industrial

Type	Size	Outlet Spring (mbar)	Part No.
Female BSP	3/4"	12-25	J48-3/4
	1"	12-25	J48-1
	1 1/4"	12-25	J48-1 1/4
	1 1/2"	12-25	J48-1 1/2
	2"	12-25	J48-2
	2 1/2"	12-25	J48-2 1/2
Flanged PN16	3"	12-25	J48-3
	DN65	12-25	J48-DN65
	DN80	12-25	J48-DN80
	DN100	12-25	J48-DN100
	DN150	12-25	J48-DN150

Medium Pressure Service Regulators

- Iron bodied regulator
- Fully rotational aluminium alloy diaphragm case
- Inlet pressures up to 8.6 bar

Gas Regulators - Medium Pressure

Type	Size	Outlet Spring (mbar)	Part No.
Female BSP	3/4"	32-50	J125-S1-3/4
	1"	32-50	J125-S1-1
	1 1/2"	32-70	J125-S1-1 1/2
	2"	32-70	J125-S1-2
Flanged PN16	3/4"	32-50	J125-S5-3/4
	1"	32-50	J125-S5-1
	1 1/2"	32-70	J125-S5-1 1/2
	2"	32-70	J125-S5-2

Honeywell



elster



elster



6

ENERGY MONITORING & METERING

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Water Meters - WRAS Approved

Cold Water Meters

- EEC Class B approved
- Working pressure 16 Bar, 30°C
- Dry dial
- Counter hermetically sealed
- Supplied with unions & washers as standard

Pulsed Cold Water Meters WRAS Approved

Description	Size (mm)	Union Size	Part No.
Screwed BSP	15	½"	S15MJC
	20	¾"	S20MJC
	25	1"	S25MJC
	30	1¼"	S30MJC
	40	1½"	S40MJC
	50	2"	S50MJC
Flanged PN16	50		F50MJFC
	65		F65WC
	80		F80WC
	100		F100WC
	150		F150WC
	200		F200WC

Hot Water Meters

- EEC Class B approved
- Working pressure 16 Bar, 90°C
- Dry dial
- Counter hermetically sealed
- Supplied with unions & washers as standard

Pulsed Hot Water Meters

Description	Size (mm)	Union Size	Part No.
Screwed BSP	15	½"	S15MJH
	20	¾"	S20MJH
	25	1"	S25MJH
	30	1¼"	S30MJH
	40	1½"	SD40MJH
	50	2"	S50MJH
Flanged PN16	50		F50MJFH
	65		F65WH
	80		F80WH
	100		F100WH
	150		F150WH
	200		F200WH



Flow Sensors

The MW range of flow sensors are meters especially designed for the special conditions in heating and cooling circuits. The pulse transmission takes place via the tried and tested reed-contact and is thus, compatible with the MW-MD. The special construction and the material design guarantee long-term measuring stability and high reliability. All of the flow sensors are designed for temperatures up to 120°C with safety up to 130°C.

Single-Jet Types

Union Size	Litres /pulse	Qi (l/h)	Qp (m³/h)	Qs (m³/h)	Part No.
½"	10	12	0.6	1.2	MW-SJ-15A
½"	10	30	1.5	3	MW-SJ-15B
¾"	10	50	2.5	5	MW-SJ-20

Multijet-Jet Horizontal Types

¾"	10	30	1.5	3	MW-MJ-20A
¾"	10	50	2.5	5	MW-MJ-20B
1"	10	65	3.5	7	MW-MJ-25A
1"	10	90	6	12	MW-MJ-25B
1¼"	10	90	6	12	MW-MJ-32
1½"	10	160	10	20	MW-MJ-40

Multijet-Jet Vertical Riser Pipe Types

¾"	10	30	1.5	3	MW-MJR-20
1"	10	65	3.5	7	MW-MJR-25A
1"	10	90	6	12	MW-MJR-25B
1¼"	10	90	6	12	MW-MJR-32
1½"	10	160	10	30	MW-MJR-40

Multijet-Jet Vertical Down Pipe Types

¾"	10	30	1.5	3	MW-MJD-20
1"	10	65	3.5	7	MW-MJD-25A
1"	10	90	6	12	MW-MJD-25B
1¼"	10	90	6	12	MW-MJD-32
1½"	10	160	10	30	MW-MJD-40



How to size your water meter...

Sontay offer a wide range of water & heat metering products

Upper Limit (m ³ /h)	90	120	150	250	300	350	650
Permanent (m ³ /h)	15	25	40	60	100	150	250
Lower Limit (m ³ /h)	0.35	0.45	0.8	1.5	3	3.5	6.5
Meter Code	MW-xF-50	MW-xF-65	MW-xF-80	MW-xF-100	MW-xF-125	MW-F-150	MW-F-200
Upper Limit (m ³ /h)	60	60	90	180	250	300	500
Permanent (m ³ /h)	15	25	40	60	100	150	250
Lower Limit (m ³ /h)	0.6	1	3.2	2	3	8	10
Meter Code	MW-F-50	MW-F-65	MW-F-80	MW-F-100	MW-F-125	MW-F-150	MW-F-200
Upper Limit (m ³ /h)	3	5	7	12	12	20	
Permanent (m ³ /h)	1.5	2.5	3.5	6	6	10	
Lower Limit (l/h)	30	50	65	90	90	160	
Meter Code	MW-MJx-20A	MW-MJx-20B	MW-MJx-25A	MW-MJx-25B	MW-MJx-32	MW-MJx-40	
Upper Limit (m ³ /h)	3	5	7	12	20	30	
Permanent (m ³ /h)	1.5	2.5	3.5	6	10	15	
Lower Limit (l/h)	15	25	35	60	100	450	
Meter Code	MW-MxS-15	MW-xS-20	MW-xS-25	MW-xS-32	MW-xS-40	MW-CS-50	
Qi. Minimum (l/h)	12	30	50				
Qp. Nominal (m ³ /h)	0.6	1.5	2.5				
Qs. Maximum (l/h)	1.2	3	3.5				
Meter Code	MW-SJ-15A	MW-SJ-15B	MW-SJ-20				

To ensure you get the best performance and accuracy from your meter it is essential that it is sized correctly. To do this you will need to know your permanent, upper limit and lower limit flow rates. Select the closest match from these tables.

In today's energy efficient environment, metering isn't just desirable, in many cases it's a legal requirement.

New standards and EU directives are brought into UK law by SIs (Statutory Instruments), so it's vital that metering products and systems are compliant.

Metering in buildings falls into basic categories such as:

Gas
(MG Series)

Electricity
(PM series)

Water
(MW series)

Heat
(MW series)

All these categories are covered by MID (the Measuring Instruments Directive).

Sontay have all the in-house knowledge of the SI's, standards and directives (the legal metrology) applicable to this complex range of products to allow the correct choices to be made when specifying.

Flow parts for metering

Sontay offer flow parts for two distinct applications

Flow parts for water

denoted in the Sontay catalogue as 'water meters'

They are used specifically for sanitary water only, i.e. water without additives or chemical treatment, and are designed for non-continuous flow, such as domestic cold and hot water supplies.

- The total daily flow should not exceed 3 hours, over a 6 year period
- Volumetric flows higher than this can lead to increased wear in the bearings of the impellor, causing inaccuracies in reading meters
- Water meters have a narrow fluid temperature range, typically between:
0 to +90°C for hot water meters
0 to +30°C for cold water meters

Flow parts for heating

denoted in the Sontay catalogue as 'flow sensors'

They can be used with chemically treated water, and are designed for continuous or very high duty cycle flow conditions typically found in hot water heating systems.

- Flow sensors have a wider fluid temperature range than water meters, typically between 0 to +120°C

Note: Because of these distinct differences, only flow parts designed specifically for heat metering should be used for heat metering applications. Although water meters can, in theory, be used for heat meter applications, Sontay cannot warranty water meters if used in this manner.

The Importance of MID Certification

After October 2016 every new meter installed for billing must be MID approved. It is a criminal offence to use a non-approved meter for billing. MID makes no distinction between primary main supply meters and secondary sub-billing meters.

For billing purposes, meters must be approved to one of the following:

- MID Annex B + Annex D
- MID Annex B + Annex F. or
- MID Annex H1.

From October 2016, for residential, commercial or industrial landlords or property managers, an MID approved meter must be employed in:

- Multi-use commercial buildings
- Industrial Estates
- Sub-let shops or concessions
- Residential flats
- Marinas
- Caravan parks
- Data centre server supplies
- Sports facilities
- Any charging of electricity by meter reading



The use of unapproved meters is prohibited by the Electricity Act 1989, and to bill electricity or gas with a non-approved meter is a breach of the 1989 Act and is classed as a criminal offence.

Mechanical & Ultrasonic Flow Meters

- Easy to use with easy setup menu
- Non invasive sensing
- Cost effective solution with no draindown

Non Invasive Ultrasonic Flow meters	
Description	Part No.
15-80mm strap on ultrasonic flow meter 230V	U3000A
50-1000mm strap on ultrasonic flow meter 230V	U3000B
250-2000mm strap on ultrasonic flow meter 230V	U3000C

Non Invasive 230V/Battery Heat Meter with Strap On Sensors

- Temp sensors are clamp on type with no insertion required
- No programming required

Non-Intrusive 230V Heat meters	
Description	Part No.
Calek non-intrusive heat meter c/w pulse & M-Bus	CALEC PM
Calek non-intrusive heat meter c/w pulse & LONWorks	CALEC PL
Calek non-intrusive heat meter c/w 4-20mA & M-Bus	CALEC AM
Calek non-intrusive heat meter c/w 4-20mA & LONWorks	CALEC AL

Non-Intrusive Battery Heat Meters	
Description	Part No.
Calek non-intrusive heat meter c/w pulse & M-Bus	CALEC PB
Calek non-intrusive heat meter c/w pulse & LONWorks	CALEC PMB

Electromagnetic Flow meters

- No moving parts, no wear, no maintenance
- Accuracy of +/- 0.5%
- Pulse and 4 -20mA outputs as standard Triowirl VT Steam Flow meters

Electromagnetic Water Meters		
Description	Size (mm)	Part No.
Flanged PN10	25	MAG25
	40	MAG40
	50	MAG50
	65	MAG65
Flanged PN16	80	MAG80
	100	MAG100
	150	MAG150
	200	MAG200
Flanged PN10	250	MAG250
	300	MAG300

Triowirl VT Steam Flow Meters

- No moving parts, no wear, no maintenance
- Accuracy of +/- 1%
- Pulse and 4 -20mA outputs as standard

Electromagnetic Water Meters		
Description	Size (mm)	Part No.
Triowirl VT steam meter wafer pattern	25	TRIWIRL 25
	40	TRIWIRL 40
	50	TRIWIRL 50
	80	TRIWIRL 80
	100	TRIWIRL 100
	150	TRIWIRL 150



SIEMENS



kamstrup



MULTICAL® 403 Heat & Cooling Meter

Now, you only need to keep one meter in stock. With MULTICAL® 403 everything from inlet/outlet position to energy unit, cut-off dates and much more can be configured individually via the meter's front panel directly at the installation site.

What's in the box

- 1 x Heat Meter + Kamstrup calibration certificate
- 1 x matched pair temperature sensors with 1.5m cable + Kamstrup calibration certificate
- 1 x pair 65mm temperature sensor pockets
- 1 x lithium battery power supply
- 1 x pair unions

Multical 403® Series

Size (mm)	QP Flow (m ³ /hr)	Body Length (mm)	Heat Meter Part No.	Cooling Meter Part No.
15 (½")	0.6	110	403Wx10xxx	403Tx10xxx
20 (¾")	0.6	190	403Wx30xxx	403Tx30xxx
15 (½")	1.5	110	403Wx40xxx	403Tx40xxx
15 (½")	1.5	165	403Wx50xxx	403Tx50xxx
20 (¾")	1.5	130	403Wx70xxx	403Tx70xxx
20 (¾")	1.0	190	403Wx90xxx	403Tx90xxx
20 (¾")	2.5	130	403WxA0xxx	403TxA0xxx
20 (¾")	2.5	190	403WxB0xxx	403TxB0xxx
25 (1")	3.5	260	403WxD0xxx	403TxD0xxx
25 (1")	6.0	260	403WxF0xxx	403TxF0xxx
DN25	6.0	260	403WxG0xxx	403TxG0xxx
40 (1½")	10.0	300	403WxH0xxx	403TxH0xxx
DN40	10.0	300	403WxJ0xxx	403TxJ0xxx
DN50	15.0	270	403WxK0xxx	403TxK0xxx

Calibration Certificates

Description

Set of manufacturer's calibration certificates (2 pcs.)

Communication Module

Description	Part No.
PT500 (2-wire) prepared for Ultraflow	MC603-E
Data + 2 pulse inputs (A, B)	HC-003-10
Data + 2 pulse outputs (C, D)	HC-003-11
M-Bus, Configurable+ 2 pulse inputs (A, B)	HC-003-20
M-Bus, Configurable + 2 pulse outputs (C, D)	HC-003-21
Mbus configurable w/ thermal disconnect	HC-003-22
Wireless M-Bus, Configurable, 868 MHz + 2 pulse inputs (A, B)	HC-003-30**
Analog 0/4...20mA outputs**	HC-003-40**
BACnet MS/TP (RS485) + 2 pulse inputs (A, B)**	HC-003-66**
Modbus RTU (RS-485) + 2 pulse inputs (A, B)**	HC-003-67

** denotes that the meter must be mains powered

Power Supply

Battery, D-cell	603-Batt
230V AC high power	603-230HP
24V AC high power	603-24HP
230V AC	603-230VAC
24V AC	603-24VAC

Temperature Sensor Set – PT500

1.5m PT500 pocket sensors (matched pair)	6700000A
3m PT500 pocket sensors (matched pair)	6700000B
5m PT500 pocket sensors (matched pair)	6700000C
10m PT500 pocket sensors (matched pair)	6700000D

Sensor Pockets

65mm stainless steel pocket (1 pc.)	65-57-324
90mm stainless steel pocket (1 pc.)	65-57-327
140mm stainless steel pocket (1 pc.)	65-57-314

Mounting Bracket

Flat mounting bracket for wall mounting	30-26-207-A
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MULTICAL® 603 Heat & Cooling Meter

The MULTICAL® 603 heat and cooling meter comes with a built-in Auto Detect function, making it possible to replace the ULTRAFLOW® when needed, without having to manually re-configure the calculator.

- Increases flexibility, allows you to keep only one type of calculator in stock to be used for all Kamstrup ultrasonic flow meters.
- Auto Detect is compatible with fourth generation ULTRAFLOW®, which has been produced since 2008.
- Auto Detect delivers clear benefits when you need to switch the flow part but not the calculator
- It is simple: MULTICAL® 603 is connected to the new flow meter and will automatically detect the flow meter and re-configure accordingly without any need for technical support or special tools. This level of flexibility saves resources, money and unnecessary worries.

Calculator / Integrator

Description	Part No.
PT500 (2-wire) prepared for Ultraflow	MC603-E

Communication Module

Data + 2 pulse inputs (A, B)	HC-003-10
Data + 2 pulse outputs (C, D)	HC-003-11
M-Bus, Configurable+ 2 pulse inputs (A, B)	HC-003-20
M-Bus, Configurable + 2 pulse outputs (C, D)	HC-003-21
Mbus configurable w/ thermal disconnect	HC-003-22
Wireless M-Bus, Configurable, 868 MHz + 2 pulse inputs (A, B)	HC-003-30**
Analog 0/4...20mA Outputs**	HC-003-40**
BACnet MS/TP (RS485) + 2 pulse inputs (A, B)**	HC-003-66**
Modbus RTU (RS-485) + 2 pulse inputs (A, B)**	HC-003-67

** denotes that the meter must be mains powered

Power Supply

Battery, D-cell	603-Batt
230V AC high power	603-230HP
24V AC high power	603-24HP
230V AC	603-230VAC
24V AC	603-24VAC

Temperature Sensor Set – PT500

1.5m PT500 pocket sensors (matched pair)	6700000A
3m PT500 pocket sensors (matched pair)	6700000B
5m PT500 pocket sensors (matched pair)	6700000C
10m PT500 pocket sensors (matched pair)	6700000D

Sensor Pockets

65mm stainless steel pocket (1 pc.)	65-57-324
90mm stainless steel pocket (1 pc.)	65-57-327
140mm stainless steel pocket (1 pc.)	65-57-314

Mounting Bracket

Flat mounting bracket for wall mounting	30-26-207-A
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Ultrasonic Flow Sensors

ULTRAFLOW 54 is a static flow sensor based on the ultrasonic measuring principle. It is primarily used as a volume flow sensor for use with the MULTICAL calculators and has been designed for heating and cooling applications where water is the heat-bearing medium. The volume is measured using a bi-directional ultrasonic technique based on transit time. This principle has proven long-term stability and accuracy.

BSP Threaded Connection, PN16

Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Heat Meter Part No.	Cooling Meter Part No.
15 (½")	1.5	110	65-5-CDHA-XXX	65-1-CDAA-XXX
	1.5	130	65-5-CDHD-XXX	65-1-CDAD-XXX
20 (¾")	1.5	190	65-5-CDHF-XXX	65-1-CDAF-XXX
	2.5	190	65-5-CEHF-XXX	65-1-CEAF-XXX
25 (1")	3.5	260	65-5-CGJG-XXX	65-1-CGAG-XXX
	6.0	260	65-5-CHJG-XXX	65-1-CHAG-XXX
30 (1¼")	6.0	260	65-5-CHJH-XXX	
40 (1½")	10.0	300	65-5-CJJJ-XXX	65-1-CJAJ-XXX

Flanged Connection, PN25

DN50	15	270	65-5-CKCE-XXX	65-1-CKCE-XXX
DN65	25	300	65-5-CLCG-XXX	65-1-CLCG-XXX
DN80	40	300	65-5-CMCH-XXX	65-1-CMCH-XXX
DN100	60	360	65-5-FACL-XXX	65-1-FACL-XXX
	100	360	65-5-FBCL-XXX	65-1-FBCL-XXX
DN125	100	350	65-5-FBCM-XXX	65-1-FBCM-XXX
	150	500	65-5-FCCN-XXX	65-1-FCCN-XXX
DN150	250	500	65-5-FDCN-XXX	65-1-FDCN-XXX
	400	500	65-5-FECN-XXX	65-1-FECN-XXX
DN200	400	500	65-5-FECP-XXX	65-1-FECP-XXX
	600	500	65-5-FFCP-XXX	65-1-FFCP-XXX
DN250	400	600	65-5-FECP-XXX	65-1-FECP-XXX
	600	600	65-5-FFCR-XXX	65-1-FFCR-XXX
DN250	1000	500	65-5-FGCR-XXX	65-1-FGCR-XXX
	1000	500	65-5-FGDS-XXX	65-1-FGDS-XXX

Calibration Certificates

Description
Set of manufacturer's calibration certificates (2 pcs.)

kamstrup





Ultrasonic Energy Meters & Calculators

(Other variants available on request)

SonoSelect are ultrasonic compact energy meters approved to MID class 2. Intended for measuring energy consumption in heating applications they feature upgradeable communication slot, are focused on user friendliness via SonoApp and long operating life introducing genuine diagnostic function.

SonoSafe Heat Meter (pockets, connections and other communication options are sold as accessories)

Description	Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Part No.
SonoSafe 10	15 (1/2")	0.6	110	014U0003
		1.5		014U0007
	20 (3/4")	2.5	130	014U0011
	25 (1")	3.5	160	014U0015
				014U0019

SonoSelect Heat Meter (pockets, connections and other communication options are sold as accessories)

Description	Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Part No.
SonoSelect 10	15 (1/2")	0.6	110	014U0165
		1.5		014U0167
	20 (3/4")	2.5	130	014U0169
	25 (1")	3.5	160	014U0171
SonoSelect 10 Pulse input module (2 inputs)	15 (1/2")	0.6	110	014U0173
		1.5		014U0183
	20 (3/4")	2.5	130	014U0185
	25 (1")	3.5	160	014U0187
				014U0189
				014U0191

SonoSelect Cooling Meter (pockets, connections and other communication options are sold as accessories)

Description	Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Part No.
SonoSelect 10	15 (1/2")	0.6	110	014U1400
		1.5		014U1401
	20 (3/4")	2.5	130	014U1402
	25 (1")	3.5	160	014U1403
SonoSelect 10 Pulse input module (2 inputs)	15 (1/2")	0.6	110	014U1404
		1.5		014U1405
	20 (3/4")	2.5	130	014U1406
	25 (1")	3.5	160	014U1407
				014U1408
				014U1409

Accessories for SonoSafe/Select

Description	Part No.
M-bus communication module	M-Bus module with 2 pulse input 014U1998
Radio module	Wireless OMS 868.95MHz with 2 pulse input 014U1999
Bluetooth dongle	Dongle to link Sonoselect/safe to Sonoapp 014U1963

Heating Meters, Battery (pockets, connections and other communication options are sold as accessories)

Description	Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Part No.
Sonometer 30	15 (1/2")	0.6	110	187F3001
		1.5		187F3015
	20 (3/4")	2.5	130	187F3130
		3.5		187F3029
	25 (1")	6.0	260	187F3043
	40 (1 1/2")	10.0	300	187F3057
				187F3071

Heat and Cool Meters, Battery, M-Bus, with 2x Pulse Input

(can be changed to output in DN15-50). Pockets, connections and other communication options are sold as accessories

Description	Size (mm)	QP Flow (m3/hr)	Body Length (mm)	Part No.
Sonometer 30	15 (1/2")	0.6	110	187F3008
		1.5		187F3022
	20 (3/4")	2.5	130	187F3036
		3.5		187F3050
	25 (1")	6.0	260	187F3064
Sonometer 31	40 (1 1/2")	10.0	300	187F3078
	25 (2")	15.0	270	187F3106
	65	25.0	300	187F3304
	80	40.0		187F3312
	100	60.0	350	187F3320

Heating Meters, Battery (pockets, connections and other communication options are sold as accessories)

Description	Size (mm)	QP FLOW (m3/hr)	Body Length (mm)	Part No.
Sonometer 30	15 (½")	0.6	110	187F3001
		1.5		187F3015
	20 (¾")	2.5	130	187F3130
		3.5		187F3029
	25 (1")	6.0	260	187F3043
	10.0		187F3057	
	40 (1½")	10.0	300	187F3071

Heat and Cool Meters, Battery, M-Bus, with 2x Pulse Input

(can be changed to output in DN15-50). Pockets, connections and other communication options are sold as accessories

Sonometer 30	15 (½")	0.6	110	187F3008
		1.5		187F3022
	20 (¾")	2.5	130	187F3036
		3.5		187F3050
	25 (1")	6.0	260	187F3064
	10.0		187F3078	
	25 (2")	15.0	270	187F3106
Sonometer 31	65	25.0	300	187F3304
	80	40.0		187F3312
	100	60.0	350	187F3320

Accessories

Description	Part No.
Sono31 Battery 3.6V DC (D-cell)	187F3380
Sono31 Mains unit 230V AC	187F3381
Sono31 M-Bus module	187F3382
Sono31 Radio OMS 868.95 MHz	187F3383
Sono31 RS-485 Modbus RTU	187F3384
Sono31 RS-232 M-Bus	187F3385
Sono31 RS-485 M-Bus	187F3386
Sono31 M-Bus, RS232 and 2X pulses output	187F3387
Sono31 M-Bus, RS232 and 2X 4-20mA output	187F3388
Sono31 2 x Pulse Output Module	187F3392
Sono30 Optical head OG-1-USB	187F3112
Sono30 Battery 3.6V DC A-cell	187F3113
Sono30 Main unit 230V AC	187F3114
Sono30 Mains unit 24V AC	187F3115
Sono30 M-Bus module	187F3116
Sono30 Radio OMS 868,95 MHz module	187F3117
Sono30 RS-485 Modbus	187F3118
Pt500/f5.2 mm/2.0m JUMO	187F3126
Pt500/f5.2 mm/2.0m JUMO	187F3127
Pt500/f5.2 mm/2.0m JUMO	187F3390
Pt500/f5.2 mm/10.0m JUMO	187F3391

Sono3500CT Ultrasonic Flowmeter 115-230V AC with Pulsed Outputs

Description	Size (mm)	QP FLOW (m3/hr)	Diameter (mm)	Part No.
Sono 3500	125	100.0	100	187F3531
	150		150	187F3532
	200	250.0	200	187F3533
	250	400.0	250	187F3534
	300	560.0	300	187F3535

Infocal 9 Energy Calculator, 240V with M-Bus Output, c/w Sensors

Description	Part No.
Infocal 9	Suitable for 1 litre pulse input from mechanical meter
	Suitable for 10 litre pulse input from mechanical meter
	Suitable for 100 litre pulse input from mechanical meter

Infocal 9 Energy Calculator, Battery with M-Bus Output, c/w Sensors

Infocal 9	Suitable for 1 litre pulse input from mechanical meter
	Suitable for 10 litre pulse input from mechanical meter
	Suitable for 100 litre pulse input from mechanical meter

Accessories & Spare Parts - Sensor Pockets

Description	Part No.
Pocket - 35mm	Brass pocket for meters DN15-DN32 (set of 2)
Pocket - 52mm	Brass pocket for meters DN40-DN65 (set of 2)
Pocket - 85mm	Brass pocket for meters DN80-DN125 (set of 2)
Pocket - 120mm	Brass pocket for meters DN125+ (set of 2)
Pocket - 85mm	Stainless steel pocket for meters DN80-DN125 (set of 2)
Pocket - 120mm	Stainless steel pocket for meters DN125+ (set of 2)

Connection Sets

DN15 connection set	DN15 connection set for SonoSelect and SonoSafe heat meters
DN20 connection set	DN 20 connection set for SonoSelect and SonoSafe heat meters
DN25 connection set	DN25 connection set for SonoSelect and SonoSafe heat meters
DN40 connection set	R1½ x G2B pack of 2 threaded connections
Adapter	M10 Adapter (single)
Adapter	M10 Adapter (32 Pack)





Heat Meter Calculator

The CF 51 represents a technology step forward in the heat energy metering. The multifunctional display facilitates easy reading, providing fast and clear access to the most important billing data. The display enables the diagnosis of failures alarms from a single glance. The LCD has a long life time and through a push button you get easily access to each level of data.

Standards Compliance

- Class 2.0 acc. EN 1434, Env. Class C acc. EN 1434, PTB approved

Heat Meters

Description	Part No.
Includes the Integrator, Battery or 230V Power supply, 1.5m sensor leads Mbus output with energy and volume pulse repetition and 50mm brass pockets. Available in K=1, K=10, K=100 and K=1000. To match the water meter you are using.	CF51
Modbus to BACnet Converters	
Modbus to BAC net signal converter 240V	CCI-2X485/240V
Modbus to BAC net signal converter 24V	CCI-2X485/24V
Field programming device for CCI-2X485 signal converter	FPT-601

US Echo II Ultrasonic Flow Meter

US ECHO II easily adapts its self to different types of calculators. Its powerful electronics enables any user to take advantage of all state of the art functions maintaining an extraordinary high precision throughout the entire measurement curve.

Standards Compliance

- MID 2014/32/EU Module B+D
- Env. Class C acc. EN 1434
- PED compliance
- Class 2.0 acc. EN 1434
- PTB approved

US ECHO II Ultrasonic Flowmeter

Size (mm)	Description	Part No.
15	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-15
20	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-20
25	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-25
32	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-32
40	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-40
50	Ultrasonic flow heat meter c/w dual output, 1.5m sensors & pockets	CF-ECHO-50

Above are based on Battery c/w pulsed & Mbus output - 230V version is available

US ECHO Flow Parts – Retro Fitting

The US ECHO flow parts are manufactured by Itron for use with the CF55/51 range of calculators, as these are manufactured to Class 2 accuracy this will be suitable for use on RHI applications and are suitable to be retro fitted.

Axonic

A static ultrasonic flow meter perfectly adapted to the needs of district heating and cooling applications. It has been developed for heating and cooling applications where water is used as an energy transfer medium. Equipped with an universal interface which allows it to be easily combined with Itron calculators such as CF51, CF55 or CF800. It is powered by the connected calculators and therefore it doesn't require its own source of electrical power (e.g. battery).

Standards Compliance

- IP68
- Cooling approval according PTB 7.2
- Environmental class EN1434 class C, MID class E2 + M2
- MID approval according to 2014/32/EU
- Class 2 acc. to EN1434

Axonic Flow Meters

Size (mm)	Application	QP (M ³ /h)	L (mm)	PN (bar)	Pulse weight (L)	Part No.
65	Heating	25	200	16	10	AX-AH24C11Z10FM1EN
65	Heating	25	300	16	10	AX-BH24C11Z10FM1EN
65	Heating	25	300	25	10	AX-CH24C11Z10FM1EN
65	Heating	25	300	40	10	AX-DH24C11Z10FM1EN
80	Heating	40	200	16	10	AX-EH24C11Z10FM1EN
80	Heating	40	225	16	10	AX-FH24C11Z10FM1EN
80	Heating	40	300	16	10	AX-GH24C11Z10FM1EN
80	Heating	40	350	16	10	AX-IH24C11Z10FM1EN
80	Heating	40	300	25	10	AX-HH24C11Z10FM1EN
80	Heating	40	350	40	10	AX-JH24C11Z10FM1EN
100	Heating	60	250	16	10	AX-KH24C11Z10FM1EN
100	Heating	60	360	16	10	AX-LH24C11Z10FM1EN
100	Heating	60	360	25	10	AX-MH24C11Z10FM1EN
100	Heating	60	400	16	10	AX-NH24C11Z10FM1EN
100	Heating	60	400	40	10	AX-OH24C11Z10FM1EN
150	Heating	150	300	16	100	AX-QH24E11Z10FM1EN
150	Heating	150	300	40	100	AX-RH24E11Z10FM1EN
150	Heating	150	500	16	100	AX-SH24E11Z10FM1EN
150	Heating	150	500	25	100	AX-TH24E11Z10FM1EN
65	Cooling	25	200	16	10	AX-AC24C11Z10FF2EN
65	Cooling	25	300	16	10	AX-BC24C11Z10FF2EN
65	Cooling	25	300	25	10	AX-CC24C11Z10FF2EN
80	Cooling	40	200	16	10	AX-EC24C11Z10FF2EN
80	Cooling	40	225	16	10	AX-FC24C11Z10FF2EN
80	Cooling	40	300	16	10	AX-GC24C11Z10FF2EN
80	Cooling	40	350	16	10	AX-IC24C11Z10FF2EN
80	Cooling	40	300	25	10	AX-HC24C11Z10FF2EN
100	Cooling	60	250	16	10	AX-KC24C11Z10FF1EN
100	Cooling	60	360	16	10	AX-LC24C11Z10FF1EN
100	Cooling	60	360	25	10	AX-MC24C11Z10FF1EN
150	Cooling	150	300	16	100	AX-QC24F11Z10FF1EN
150	Cooling	150	500	16	100	AX-SC24F11Z10FF1EN
150	Cooling	150	500	25	100	AX-TC24F11Z10FF1EN

Equipped with 3m cable length, Pulse A active, Pulse B disabled. Heat: MID certificate and test report / Cooling: including factory test report.

Oil Meters, Mechanical

- Suitable for heating oil, naphtha, diesel and petrol applications
- Volume display on roller counter, in litres
- For horizontal, vertical or inclined mounting
- Threaded or flanged connections
- Suitable for temperatures for up to 130°C

Oil Flow Meter			
Description	Size (mm)	QP Flow (ltrs/hr)	Part No.
Mechanical oil meter	4 (1/8")	1 - 50	VZ04
	8 (1/4")	4 - 135	VZ08
	15 (1/2")	10 - 400	VZ015
	20 (3/4")	30 - 1000	VZ020
	25 (1")	75 - 2000	VZ025
	40 (1 1/2")	225 - 6000	VZ040
Mechanical oil meter with pulse output	50 (2")	750 - 20000	VZ050
	4 (1/8")	1 - 50	VZ04-RV
	8 (1/4")	4 - 135	VZ08-RV
	15 (1/2")	10 - 400	VZ015-RV
	20 (3/4")	30 - 1000	VZ020-RV
	25 (1")	75 - 2000	VZ025-RV
40 (1 1/2")	225 - 6000	VZ040-RV	
50 (2")	750 - 20000	VZ050-RV	



Gas Meters

C.P.T. Quantometer Range with Low Pressure Drop

The CPT Quantometer is a turbine meter based on the rotation of an impellor, the speed of rotation being proportional to the flow rate of the gas.

- The meters are constructed for installation between flanges
- The turbine rotors extract the maximum energy before the gas exits, expanding to minimise pressure losses
- The index head can be rotated through 350°
- Suitable for: Natural gas, LPG, compressed air etc



Mechanical Turbine Gas Flow Meters				
Description	Size (mm)	Qmin (m³/hr)	Qmax (m³/hr)	Part No.
G40	50	6	65	CPT50G40
G65	50	10	100	CPT50G65
	65	5	100	CPT65G65
G100	65	8	160	CPT65G100
	80	8	160	CPT80G100
G160	80	13	250	CPT80G160
	100	13	250	CPT100G160
G250	80	20	400	CPT80G250
	100	20	400	CPT100G250
G400	100	32	650	CPT100G400
	150	32	650	CPT150G400
G650	150	50	1000	CPT150G650
	150	80	1600	CPT150G1000
G1000	200	80	1600	CPT200G1000
	200	80	2500	CPT200G1600
G2500	200	120	4000	CPT200G2500

Diaphragm Type Gas Meter

- Suitable for various gases
- MID approved
- Supplied with pulse lead
- Complete with BS746 unions

BK Range				
Max. flow Q _h (m³/hr)	Min. flow Q _b (m³/hr)	Threaded connection on meter	Connection size with unions (mm)	Part No.
6	0.04	1"	25	BK-G4P
10	0.06	1"	25	BK-G6P
16	0.1	1 1/4"	32	BK-G10P
25	0.16	2"	50	BK-G16P
40	0.25	2"	50	BK-G25P
65	0.40	3"	80	BK-G40P
100	0.65	3"	80	BK-G65P



Turbine Quantometer, Pulsed Output, Internally Threaded

QA Range				
Max. flow Q _h (m³/hr)	Min. flow Q _b (m³/hr)	Threaded connection on meter	Connection size with unions (mm)	Part No.
16	1.6	1"	25	QA10
25	2.0	1"	25	QA16
40	2.5	1"	25	QA25
65	5.0	1 1/2"	40	QA40DN40
100	6.0	2"	50	QA65
160	10.0	3"	80	QA100
400	20.0	4"	100	QA250
650	32.0	6"	150	QA400
1000	50.0	6"	150	QA650



Diaphragm Type Gas Meter

- Suitable for various gases
- MID Approved
- Supplied with Pulse Lead
- Complete with BS746 Unions

IGDM Range

Max. flow Q_p (m ³ /hr)	Min. flow Q_p (m ³ /hr)	Threaded Connection on Meter	Connection Size with Unions (mm)	Body Length (mm)	Part No.
6	0.04	G1B	20	226	IGDM-G4P
10	0.06	G1½B	25	327	IGDM-G6P
16	0.1	G1½B	30	264	IGDM-G10P
25	0.16	G2B	50	405	IGDM-G16P
40	0.25	G2B	50	465	IGDM-G25P



Gas Meters - G4 Meter Installation Kit

Description	Part No.
Includes isolation valve, flexible connector, gas regulator and bracket	METKIT/G4

Gas Meters - Mounting Shelf/Bracket

Description	Part No.
Bracket for mounting of G4 diaphragm gas meter	METBRAG4
Shelf for mounting of G6 & G10 diaphragm gas meters	METBRAG6/G10
Shelf for mounting of G16 & G25 diaphragm gas meters	METBRAG16/G25

Chatterbox-e Unit

Description	Part No.
Isolation Barrier/Relay Unit	CHATTERBOX-E



Screwed Turbine Type Gas Meter

- Compact size
- Maintenance free
- Supplied with pulse plug
- Reducers available to ¾" and 1¼"
Screwed BSP connections

IGQM Range

Max. flow Q_p (m ³ /hr)	Min. flow Q_p (m ³ /hr)	Threaded connection on meter	Connection size with unions (mm)	Body length (mm)	Part No.
16	1.6	G1B	25	240	IGQM-10
25	2	G1B	25	240	IGQM-16
40	2.5	G1B	25	240	IGQM-25
65	3.3	G1½B	40	405	IGQM-40

Wafer Pattern Turbine Type Gas Meter

- IP65 protection
- Supplied with pulse plug and lead
- Top hat filters to suit
- 8 digit mechanical counter



DN50-DN200 Range

Max. flow Q_p (m ³ /hr)	Min. flow Q_p (m ³ /hr)	Threaded connection on meter	Connection size with unions (mm)	Body length (mm)	Part No.
100	10	N/A	50	120	IGTM DN50 G40/65
160	10	N/A	65	120	IGTM DN65 G65/100
250	8	N/A	80	120	IGTM DN80 G100/160
400	20	N/A	80	120	IGTM DN80 G250
400	13	N/A	100	150	IGTM DN100 G160/250
650	32	N/A	100	150	IGTM DN100 G400
1000	32	N/A	150	180	IGTM DN150 G400/650
1600	80	N/A	150	180	IGTM DN150 G1000
1600	50	N/A	200	200	IGTM DN200 G650/1000
2500	130	N/A	200	200	IGTM DN200 G1600

Rotary Turbine Type Gas Meter

- Low pressure drop
- Supplied with pulse plug
- IP67 protection
- Top hat filters to suit



DN50-DN150 Range

Max. flow Q_p (m ³ /hr)	Min. flow Q_p (m ³ /hr)	Threaded connection on meter	Connection size with unions (mm)	Body length (mm)	Part No.
120	0.8	N/A	50	171	IGRM DN50 MAX
280	1.4	N/A	80	171	IGRM DN80 MAX
480	2.4	N/A	100	241	IGRM DN100 MAX

Gas Filters

- Filters for non aggressive gases (dry)
- Max pressure rating to 2 Bar
- Fully removeable filters for inspection/cleaning.
- Biomass versions are available also

Filters			
Connection	Size (mm)	Filter Size (Micron)	Part No.
Screwed	15	50	FM02 B50
	20		FM03 B50
	25		FM04 B50
	32		FM05 B50
	40		FM06 B50
	50		FM07 B50
	65		FF08 B50
Flanged	80	10	FF09 B50
	100		FF10 B50
	125		FF11 B10
	150		FF12 B10
	200		FF13 B10
	250		FF14 B10
	300		FF15 B10

costeR group
PERSONAL AUTOMATION



M-Bus System

The M-Bus (meter bus) is a cost-optimized field bus for the transfer of energy consumption data. A central master - in the simplest case a PC with level converter - communicates by a 2 wire bus with the bus users (up to 250 slaves per segment: Heat meter, water meter, electrical meter, gas meter... and also sensors and actuators of any type).

More and more manufacturer implement the electrical M-Bus interface with protocol layer into their meters. The M-Bus is european standard and described in the EN1434.

- Standard field bus system (EN1434)
- Two-wire bus with power supply of the bus users
- No special requirements to the bus cable (electricity installation cable or telephone cable is enough)
- Almost any wiring topology (line, star and tree)
- Large extension (up to some kilometers)
- Remote reading of consumption data (heat, water, gas and electricity)
- Communication with sensors and actuators of any type
- Energy monitoring and - optimization
- Leakage monitoring
- Applicable in the industry and in private households
- Good availability of system components
- Superior costing / performance relation
- Remote read out with modem possible from any place

M-Bus Master

Description	Part No.
PW3 - 3 slave M-Bus level converter	MR005
PW20 - 20 slave M-Bus level converter	MR006
PW60 - 60 slave M-Bus level converter	MR004

M-Bus Slaves

1 Pulse to M-Bus converter	IM001G
2 pulse to M-Bus converter	IM003G
4 Pulse to M-Bus converter	IM002G

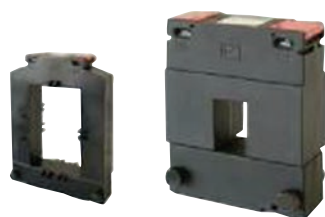
M-Bus Accessories

3 Way digital pulse splitter	Pulse Splitter
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Relay M-BUS SOLUTIONS



kamstrup



Sontay®



Control Panel Meters & Current Transformers

- Single function DIN96
- Shallow depth (45mm), plastic enclosure
- Singleline LCD display
- Not approved for MID or billing

E300 Meter Range

Type	Part No.
3 Phase energy meter	E300-110
3 Phase energy meter with pulse output	E300-111

382 DN Meter

- kWh meter 5(85)A 382GH
- Measurement in 4 quadrant
- Measurement in up to 8 tariffs
- Voltage quality measurement
- Safe data logging of consumption
- Safe data logging of events
- Immune to magnetic influence
- OBIS identification codes
- Real time clock (RTC) with supercap

382 DN Meter Range

Type	Part No.
kWh meter	382DN

Current Transformers - Moulded Case Current Transformers

- Suitable for 'new' installations

Moulded Case Current Transformers

Rating	Cable Dia. (mm)	Part No.
100-5 Amp	23	M100-5
200-5 Amp	23	M200-5
300-5 Amp	23	M300-5
400-5 Amp	24	M400-5
500-5 Amp	24	M500-5

Note: Larger ratios are available on request – please contact sales for details

Split Ring / Moulded Case Clip Together Current Transformers

- Suitable for installation on existing applications

Split Ring / Moulded Case Current Transformers

Rating	Window Dia. (mm)	Part No.
100-5 Amp	30 x 20	S100-5
200-5 Amp	30 x 20	S200-5
300-5 Amp	30 x 20	S300-5
400-5 Amp	30 x 20	S400-5
500-5 Amp	80 x 50	S500-5

Note: Larger ratios are available on request – please contact sales for details

PM-CTR Series Current Transducers

This series of current transducers provide accurate load trending information with a choice of 4-20mA, 0-10V DC and 0-5V DC output signals. They provide accurate, reliable and maintenance-free operation. Solid and split-core versions are available with current ratings up to 100A. Current versions are supplied with pre-wired 400mm tails and voltage versions have screw terminals. Both versions have a unique self-gripping feature which allows the switch to literally clip on to a cable without the need for a base mounting plate.

4-20mA Output

Description	Hole Dia. (mm)	Part No.
0 to 20A split core Current Transducer	13 x 13	PM-CTR-01
0 to 50A split core Current Transducer	13 x 13	PM-CTR-02
0 to 100A split core Current Transducer	13 x 13	PM-CTR-03
0 to 20A solid core Current Transducer	13dia	PM-CTR-04
0 to 50A solid core Current Transducer	13dia	PM-CTR-05
0 to 100A solid core Current Transducer	13dia	PM-CTR-06

0-5V DC Output

0 to 10A solid core Current Transducer	13dia	PM-CTR-07
0 to 20A solid core Current Transducer	13dia	PM-CTR-08
0 to 50A solid core Current Transducer	13dia	PM-CTR-09
0 to 100A solid core Current Transducer	13dia	PM-CTR-10

0-10V DC Output

20/50/100A split core Current Transducer	13 x 13	PM-CTR-11
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PowerLogic PM5000 Series Energy Meters

The PowerLogic PM5000 series power meters are the new benchmark in affordable, precision metering. It is the ideal fit for high-end cost management applications, providing the measurement capabilities needed to allocate energy usage, perform tenant metering and sub-billing, pin-point energy savings, optimize equipment efficiency and utilization, and perform a high level assessment of the power quality in an electrical network.

- Three phases, neutral and ground can be monitored simultaneously
- Power quality measurements
- Data recording
- Graphical display, large characters and powerful backlighting
- Easy to understand menus
- Text in 8 selectable languages
- Highly accurate devices with global billing certifications
- IP52 front display
- Single 96x96mm unit

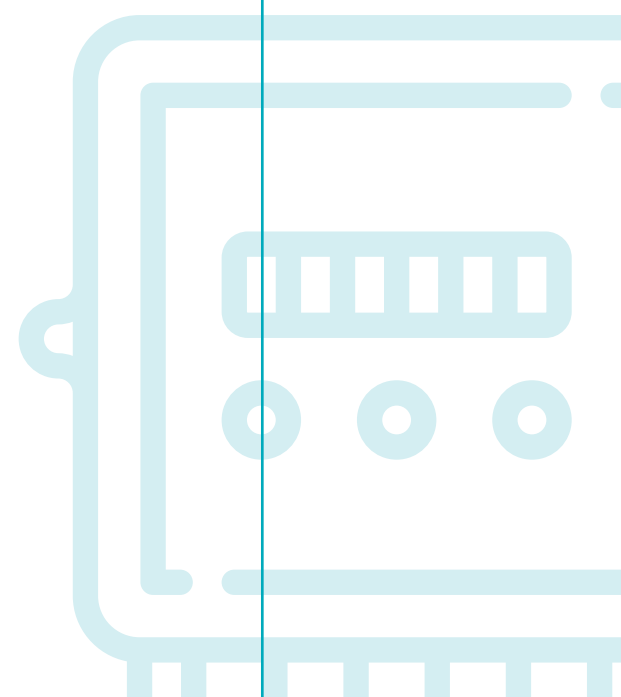
PM5000 Series	
Description	Part No.
PM5100 15th THD CL0.5 1DO Pulse	METSEP5100
PM5110 15th THD CL0.5 1DO Modbus	METSEP5110
PM5111 MID Version	METSEP5111
PM5310 31st CL0.5 4 tariffs 2DI/2DO Modbus	METSEP5310
PM5320 31st CL0.5 4 tariffs 2DI/2DO Ethernet	METSEP5320

Acti 9 iEM3000 3-Phase DIN Rail-Mounted Energy Meters

Feature-rich energy metering offer for DIN rail, modular enclosures. With native Modbus, BACnet, M-Bus and LON protocol support, you can easily integrate these meters into commercial and non-critical buildings to add simple energy management applications to virtually any BMS, AMR or EMS system. The iME3100 energy measurement counter is used to measure the active energy consumed by single-phase, three-phase or three-phase + neutral type electrical circuits.

- Accuracy class 1.0 and 0.5s for active energy metering
- Accuracy class 2 for reactive energy metering
- Compliance to regulations EN50470-1/3 (MID), IEC 61557-12, IEC 62053-21/22, IEC 62053-23
- Graphical display for easy viewing
- Compact size mounts easily on DIN rail with two clips
- Anti-tamper sealing parts prohibit accessibility to all metering connections (voltage, current, DI/DO) and ensure the integrity of your data
- Internal clock saves the date and time of the last reset
- Internal clock saves date and time for 48hr in case of power outage
- Multi-tariff selection by digital inputs or internal clock
- Digital output for alarming or configured as pulse output
- WAGES monitoring

PM5000 Series	
Description	Part No.
iEM3210 Energy Meter CT Pulse MID	A9MEM3210
iEM3250 Energy Meter CT Modbus MID	A9MEM3255
iEM3110 Energy Meter 63 A Direct Pulse MID	A9MEM3110
iEM3150 Energy Meter 63 A Direct Modbus MID	A9MEM3150



CARLO GAVAZZI



Gateway Logging Devices & Controllers

VMU-C EM is a modular system that records, monitors and transmits analog and digital signals from an industrial, commercial or residential installation with a specific focus on energy efficiency.

The system includes a web server with a powerful and intuitive user interface to monitor data and set up the system. Data can be transmitted using various protocols (FTP, HTTP, Modbus TCP/IP) and via wired or wireless connection.

VMU-C EM System

Description	Part No.
WEB Server and FTP master unit	VMU-CEMAWSSUX
USB Dongle connection module	VMUDAUDCX
BACnet gateway and field wiring controller	SB2WEB24

Single Phase MID Direct Connect

The EM11 Series is also a 120 or 230V AC single-phase device, which provides information concerning the status of the power supply, in conjunction with energy measurement. It is the ideal solution for any application requiring a power analyser to display and control the main energy supply. It prevents line overload conditions by switching off selected non-priority loads through its alarm output.

EM11 Series

Description	Part No.
1-ph energy meter, 45A, 230V LN, self power supply, 1 open collector output - certified MID, Annex "B" + Annex "D"	EM110DINAV81X01PFB
1-ph energy meter, 45A, 230V LN, self power supply, back lit LCD display, touch interface, 1 open collector output - certified MID, Annex "B" + Annex "D"	EM111DINAV81X01PFB
1-ph energy meter, 45A, 230V LN, self power supply, back lit LCD display, touch interface, Modbus RS485 output - certified MID, Annex "B" + Annex "D"	EM111DINAV81XS1PFB
1-ph energy meter, 45A, 230V LN, self power supply, back lit LCD display, touch interface, M-bus output - certified MID, Annex "B" + Annex "D"	EM111DINAV81XM1PFB
1-ph energy meter, 100A, 230V LN, self power supply, back lit LCD display, touch interface, 1 open collector output - certified MID, Annex "B" + Annex "D"	EM112DINAV01X01PFB
1-ph energy meter, 100A, 230V LN, self power supply, back lit LCD display, touch interface, Modbus RS485 output - certified MID, Annex "B" + Annex "D"	EM112DINAV01XS1PFB
1-ph energy meter, 100A, 230V LN, self power supply, back lit LCD display, touch interface, M-bus output - Certified MID, Annex "B" + Annex "D"	EM112DINAV01XM1PFB

Three Phase MID Direct Connect

EM300 range offers a cost effective, compact and MID certified 3-phase metering solution. The meters are ideal for remote monitoring with 1 digital input, 1 pulse output and with the option of either M-Bus or Modbus RTU to communicate with PLCs.

EM300 Series

Description	Part No.
3-ph energy meter, 65A, 400V AC L-L, self power supply, back lit LCD display, touch interface, 1 open collector output - certified MID, Annex "B" + Annex "D"	EM340DINAV23X01PFB
3-ph energy meter, 65A, 400V AC L-L, self power supply, back lit LCD display, touch interface, Modbus RS485 output - certified MID, Annex "B" + Annex "D"	EM340DINAV23XS1PFB
3-ph energy meter, 65A, 400V AC L-L, self power supply, back lit LCD display, touch interface, M-Bus output - certified MID, Annex "B" + Annex "D"	EM340DINAV23XM1PFB

3 Phase CT Connect

EM210 is an innovative, cost-effective and compact energy meter: it is the first on the market to have a detachable display, allowing it to be mounted either on a panel of just 72x72 mm or on a DIN-rail in only 4 modules with no adaptor or external accessory.

EM210 Series

Description	Part No.
EM210 energy analyser, self power supply, 40-480V AC, 45-65Hz; 400V LL, 333 mV input; pulse + Modbus output	EM21072DMV53X0XX
EM210 energy analyser, self power supply, 40-480V AC, 45-65Hz; 400V LL, 333 mV input; pulse output	EM21072DMV53X0SX
EM210 energy analyser, self power supply, 40-480V AC, 45-65Hz; 400V LL, 1 or 5A input; pulse + Modbus output- certified MID, Annex "B" + Annex "D"	EM21072DAV53H0XPFB
EM210 energy analyser, self power supply, 40-480V AC, 45-65Hz; 400V LL, 1 or 5A input; pulse output- certified MID, Annex "B" + Annex "D"	EM21072DAV53H0SPFB

3 Phase Power Analyser

Web Based Energy Management Solution

Description	Part No.
WM20 base with 18-60V AC/DC power supply 400V/5A input	WM20AV53H
WM20 base with 90-260V AC/DC power supply 100V/5A input	WM20AV63H
RS485 / RS232 module	MC485232
Ethernet module	MCETH
BACnet-IP module	MCBACIP
BACnet-MS/TP module	MC BAC MS
BACnet-MS/TP Profibus DP V0 module	M C PB
Dual relay output (SPDT) module	M O R2
Dual static output (AC/DC Opto-Mos) module	M O O2

Accessories

Description	Part No.
ROGOWSKI current sensor package 3 coils 400mm for EM21072DMV	ROG4K1002M4003X
ROGOWSKI current sensor package 3 coils 600mm for EM21072DMV	ROG4K1002M6003X
ROGOWSKI current sensor package 3 coils 900mm for EM21072DMV	ROG4K1002M9003X
EM200 series adapter from 72x72 to 96x96	EM200-96 ADAPTER
Current transformer 50A primary 5A secondary class 1 23mm	CTD-1X505AXXX
Current transformer 60A primary 5A secondary class 1 23mm	CTD-1X605AXXX
Current transformer 70A primary 5A secondary class 1 23mm	CTD-1X705AXXX
Current transformer 75A primary 5A secondary class 0.5 23mm	CTD-1X755AXXX
Current transformer 80A primary 5A secondary class 0.5 23mm	CTD-1X805AXXX
Current transformer 100A primary 5A secondary class 0.5 23mm	CTD-1X1005AXXX
Current transformer 120A primary 5A secondary class 0.5 23mm	CTD-1X1205AXXX
Current transformer 125A primary 5A secondary class 0.5 23mm	CTD-1X1255AXXX
Current transformer 150A primary 5A secondary class 0.5 23mm	CTD-1X1505AXXX
Current transformer 160A primary 5A secondary class 0.5 23mm	CTD-1X1605AXXX
Current transformer 200A primary 5A secondary class 0.5 23mm	CTD-1X2005AXXX
Current transformer 250A primary 5A secondary class 0.5 23mm	CTD-1X2505AXXX
Current transformer 300A primary 5A secondary class 0.5 23mm	CTD-1X3005AXXX
CTD-2X current transformer 40A 24mm	CTD2X405AXXX
CTD-2X current transformer 50A 24mm	CTD2X505AXXX
CTD-2X current transformer 60A 24mm	CTD2X605AXXX
CTD-2X current transformer 70A 24mm	CTD2X705AXXX
CTD-2X current transformer 75A 24mm	CTD2X755AXXX
CTD-2X current transformer 80A 24mm	CTD2X805AXXX
CTD-2X current transformer 100A 24mm	CTD2X1005AXXX
CTD-2X current transformer 120A 24mm	CTD2X1205AXXX
CTD-2X current transformer 125A 24mm	CTD2X1255AXXX
CTD-2X current transformer 150A 24mm	CTD2X1505AXXX
CTD-2X current transformer 160A 24mm	CTD2X1605AXXX
CTD-2X current transformer 200A 24mm	CTD2X2005AXXX
CTD-2X current transformer 250A 24mm	CTD2X2505AXXX
CTD-2X current transformer 300A 24mm	CTD2X3005AXXX
CTD-2X current transformer 400A 24mm	CTD2X4005AXXX
CTD-2X current transformer 500A 24mm	CTD2X5005AXXX
CTD-2X current transformer 600A 24mm	CTD2X6005AXXX





Single Circuit Measurement

- Options from 40A single phase to current transformer fed
- MID B+D approved versions available for sub-billing applications
- Communication options: pulse, RS485 Modbus, M-Bus, Ethernet inc webserver

Countis E range

Description	Part No.
COUNTIS E10 1PH 63A	48503000
COUNTIS E10 1PH 63A	48503000
COUNTIS E11 1PH 63A 2T	48503001
COUNTIS E12 1PH 63A MID	48503002
COUNTIS E20 3PH 63A	48503003
COUNTIS E21 3PH 63A 2T	48503004
COUNTIS E30 3PH 100A	48503005
COUNTIS E31 3PH 100A 2T	48503006
COUNTIS E32 3PH 100A 2MID	48503007
COUNTIS E40 3PH CT/5A	48503008
COUNTIS E41 3PH CT/5A 2T	48503009
COUNTIS E50 96x96 3PH CT/5A	48503010
COUNTIS E53 96x96 CT/5A RS485	48503011
COUNTIS E33 3PH 100A RS485	48503012
COUNTIS E34 3PH 100A RS485+MID	48503013
COUNTIS E44 CT/5A MID RS485	48503014
COUNTIS E42 CT/5A MID	48503015
COUNTIS E63 3x1PH 100A RS485	48503016
COUNTIS E43 CT/5A RS485	48503017
COUNTIS E00 1PH 32A	48503019
COUNTIS E02 1PH 32A MID	48503020
COUNTIS E35 3PH M-Bus	48503025
COUNTIS E36 3PH 100A M-Bus MID	48503026
COUNTIS E45 3PH M-Bus	48503027
COUNTIS E46 3PH M-Bus MID	48503028
COUNTIS E03 1PH 32A Modbus	48503029
COUNTIS E04 1PH 32A Modbus MID	48503030
COUNTIS E13 1PH 80A Modbus	48503031
COUNTIS E14 1PH 80A Modbus MID	48503032
COUNTIS E15 1PH 80A M-Bus	48503033
COUNTIS E16 1PH 80A M-Bus MID	48503034
COUNTIS E23 3PH 63A Modbus	48503035
COUNTIS E24 3PH 63A Modbus MID	48503036
COUNTIS E26 3PH 63A M-Bus MID	48503038
COUNTIS E04 1PH 40A Modbus MID	48503040
COUNTIS E06 1PH 40A M-Bus MID	48503042
COUNTIS E14 1PH 80A Modbus MID	48503044
COUNTIS E15 1PH 80A M-Bus	48503045
COUNTIS E16 1PH 80A M-Bus MID	48503046
COUNTIS E17 1PH 80A Ethernet	48503047
COUNTIS E18 1PH 80A Ethernet MID	48503048
COUNTIS E22 3PH 80A 2T MID	48503049
COUNTIS E23 3PH 80A Modbus	48503050
COUNTIS E24 3PH 80A Modbus MID	48503051
COUNTIS E25 3PH 80A M-Bus	48503052
COUNTIS E26 3PH 80A M-Bus MID	48503053
COUNTIS E27 3PH 80A Ethernet	48503054
COUNTIS E28 3PH 80A Ethernet MID	48503055

Sensors

TE-18 5-20A	48290500
TE-18 25-63A	48290501
TE-25 40-160A	48290502
TE-35 63-250A	48290503
TE-45 160-630A	48290504
TR-10 25-63A	48290555
TR-14 40-160A	48290556
TR-21 63-250A	48290557
TF-32 160-600A	48290558

Measurement System Package

Kit PLOMBAGE DIRIS B-30	48290049
Cable Configuration USB	48290050
Cable RJ45-1M	48290183
Cable RJ45-2M	48290184



Single Circuit Measurement

- The original multi-function meter and still the best
- Choose between a fully integrated meter (A10, A14, A40) or an expandable meter (A20, A30, A41)
- Easily retrofit the new A40 - split-core and Rogowski coil current sensors
- IEC 61557-12, IEC 62053-22 class 0.5S, IEC 62053-23 class 2

Diris A range

Description	Part No.
DIRIS A10 without RS485	48250400
DIRIS A10 AVEC COM	48250401
DIRIS A14 RS485+MID	48250020
DIRIS A14 RS485+MID Panel Mounted	48250021
Kit D'ENCASTREMENT 92x92 4U	48250070
DIRIS A20 Module ENERGIES	48250080
DIRIS A20 Module RS485	48250082
Module TERRE DIRIS A	48250087
Kit ENCASTREMENT DIRIS	48250088
Protection IP65 DIRIS A	48250089
DIRIS/ATYS Module ENERGIES	48250090
Module RS485 DIRIS/ATYS	48250092
Module 2 x 0/4-20mA DIRIS AP	48250093
Module 2 in/2 out DIRIS	48250094
Module Profibus-DP A40/A41	48250096
Module Memory A40/A41	48250097
DIRIS A20	48250402
DIRIS A30	48250403
DIRIS A41	48250404
DIRIS A40 RS485 Modbus - 3 inputs / 2 outputs	48250500
DIRIS A40 Ethernet Modbus TCP and webserver - RS485 Modbus - 3 inputs / 2 outputs	48250501
DIRIS A40 Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	48250502
Module Ethernet DIRIS / ATYS	48250203
Ethernet+RS485 DIRIS / ATYS	48250204
Module Profibus-DP DIRIS A40	48250205
Temperature module DIRIS A40	48250206
DIRIS A60	48250207
Sonde PT100 Vis M6	48250208
Sonde PT100 Oeillet	48250209
DIRIS A41 12-48V DC	48250406

Multi Circuit Measurement

- Cutting edge multi-circuit power monitoring system for AC & DC applications
- Accuracy IEC 61557-12 class 0.5 from 2% to 120% of current sensor rating
- Quick connect and configuration
- From 1 to 186 single-phase loads monitored in one system
- Ideal for branch circuit monitoring
- AC current range up to 6300A / DC current range up to 5000A
- Retrofit option using split-core and Rogowski coils
- Communication options: RS485 Modbus, Modbus TCP, SNMP, Bacnet
- Webserver options for local monitoring and FTP export

Performance Monitoring Devices

DIRIS B-30 RS485 - Modbus - 230V AC	48290000
DIRIS B-30 RF - Modbus - 230V AC	48290002
DIRIS O-iod Digital Module	48290030
DIRIS O-ioa 0/4-20mA Module	48290031
DIRIS O-it Temperature Module	48290032
DIRIS O-m Modbus RS485 Module	48290033
DIRIS O-p PROFIBUS DP Module	48290034
DIRIS O-b/ip BACNET Module	48290035
DIRIS O-b/mstp BACNET Module	48290036

Displays

DIRIS D-40 AFFICHEUR Digiware	48290199
DIRIS D-30 AFFICHEUR MONOPOINT	48290200
DIRIS D- 50 AFFICHEUR Digiware	48290201

Gateways & Concentrators

DIRIS G-30 RS/ETH	48290300
DIRIS G-40 RS/RF/ETH	48290301
DIRIS G-50 RS/ETH	48290302
DIRIS G-60 RS/RF/ETH	48290303

DIRIS Digiware S

DIRIS Digiware S-130	48290160
DIRIS Digiware S-135	48290161
DIRIS Digiware S-Datacenter	48290162



7

HOME AUTOMATION & BUILDING CONTROL



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Presence/Movement Detectors

The EBDSPiR series of presence detector switches are designed to provide automatic control of lighting, heating or ventilation loads. They detect movement using a PIR sensor and turn the load on. When an area is no longer occupied the load will switch off after an adjustable time out period.

The MWS1 series of microwave presence detector switches are designed to provide automatic control of lighting, heating or ventilation loads.

Presence Detectors

Description	Part No.
Ceiling mounted presence detector, voltage free output contact	EBDSPiR-230V-VFC
Ceiling mounted presence detector, voltage free output contact	EBDSPiR-24V-VFC

Microwave Presence Detectors

Wall mounted microwave presence detector	MWS1-VFC-24V
Wall mounted microwave presence detector with integral light sensor (c/w 300 lux light sensor)	MWS1-VFC-24V-LUX



Light level Transmitters

Senses light level and transmits a 0-10V DC signal linear across the selected range. Suitable for use with Building Management Systems.

Specification

Field of view 120°	ELT-4W IP65
Protection ELT-4R IP30	Supply voltage 24V AC/DC

ELT Series

Description	Part No.
Room	Surface Mounted ELT-4R
Outside	Surface Mounted ELT-4W

PIR Occupancy Sensors

These units are used for lighting control and designed to be installed into ceiling tiles. They can be connected to control circuits or BMS systems.

The EOCL-1 has a built-in adjustable lux sensor which will switch on the lighting only when ambient light falls below the pre-set level and movement is detected.

Specification

Field of view 60°	Protection IP40	Supply voltage 12 to 24V AC/DC
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EO-C... Series

Description	Part No.
Room	Flush mounted EO-C01
Outside	Flush mounted EO-CL1
Accessories	
Surface mounting back box	EE-BP12



Light Level Transmitter & Occupancy Sensors

TP Series

Description	Part No.
Internal light level (4-20mA loop output) (State lux range)	TPLLr
Occupancy and light level flush wall mount 24V with VFC relay	TP-WAOC/24/VF

* Standard Lux Ranges 0-1000, 0-2500, 0-5000, 0-10,000 & 0-20,000





Lighting Controller

The LL-C is designed to give savings over uncontrolled lighting whilst retaining an ease of installation and configuration. A passive infra-red detector monitors occupancy through moving body heat and a photo-sensitive device monitors light level. This will ensure that lighting is only switched on when the area covered is occupied and the light level is too low for normal working conditions. The LL-C-M is a mains powered unit which switches the live feed directly to the lighting.

Features

- Combined light level & occupancy detection
- Flush mounted
- 6 meter coverage
- Energy saving
- Easy adjustment of light level and delay time

Specification

Field of view 360°
Off delay timer 10 sec. to 30 min.
Protection IP30
Supply voltage 230V AC @ 50Hz

LL-C Series

Description	Part No.
240V flush ceiling mounted light level & Occ. detector	LL-C-M

Light Level Sensors

This range of Light Level Sensors return a linear 0-10VDC signal representing the lux level at the sensor element. This value is typically used in lighting strategies to optimise energy efficiency through dimming and/or disabling of lights as required. The LL-E-V is an External Light Level Sensor with three different output ranges which can be selected using a link on the PCB. The enclosure is rated to IP65. The LL-C-V (ceiling mounted) and LL-W-V (wall mounted) variants have a fixed range of 0-2000 lux and are suitable for internal applications.

Features

- 0-10V DC output
- 24V AC/DC powered

Specification

Protection LL-C-V & LL-W-V IP30
LL-E-V IP65
Supply voltage 24V AC/DC

LL Series

Type	Description	Part No.
Flush mounted	Internal ceiling mounted light level sensor	LL-C-V
	External light level Sensor	LL-E-V
Surface mounted	Internal wall mounted light level sensor	LL-W-V

Occupancy Detectors

The OC range of Passive Infra-red Detectors is for monitoring occupation through moving body heat. The detection of occupancy causes the internal SPDT relay to activate and the volt free contacts ensure compatibility with a vast array of equipment including BMS digital inputs. The OC-W-LV can be fixed directly to a wall or mounted using the angled bracket supplied.

Specification

Field of view 90° (OC-W-V) 360° (OC-C-LV)
Off delay timer 10 sec. to 30 min.
Supply voltage 12 to 24V AC/DC

OC Series

Description		Part No.
Ceiling mounted detector (low voltage)	Flush mounted	OC-C-LV
Ceiling mounted detector	Surface mounted	OC-C-M
Wall mounted detector (low voltage)	Wall mounted	OC-W-LV

Smart Building Key Components

Controllers

Power Supply	Description	Part No.
24V DC	BACnet gateway controller	SB2WEB24
No supply is needed	Terminal adaptor transparent module	SH1DUPFT
DC power supply	Smart generator module	SH2MCG24
DC power supply	Smart house controller	SH2WEB24
24V DC	USB dongle Interface module	SH2DSP24

DIN Rail Mount Digital Input Module

DC power supply	4 x digital input module	SH2INDI424
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DIN Rail Mount Digital Output Modules

DC power supply	Heating only (c/w 2 set back zones)	SH2RE1A424
Bus supplied	Heating & cooling (c/w 2 set back zones) pump control, change over input, high temp / humidity input	SH2RE16A4
DC power supply		SH2R0AC224

DIN Rail Mount Dimmer Modules

230V AC	DALI gateway master	SB2DALI230
DC power supply	4 x 1 - 10V dimmer module	SH2D10V424
230V supplied	500W Universal dimmer module	SH2D500W1230
230V supplied	500W Universal dimmer module with energy monitoring	SH2D500WE230

Decentralised Analogue Input Modules

Bus-powered	Analogue input 1 x 10K3 1 x Linear 10K	SHPINT1P1
24V DC	Analogue input 3 x 0-10V DC	SHPINV324
24V DC	Analogue input 1 x 10K3 1 x Linear 10K 2 x 0-10V DC	SHPINV2T1P124
24V DC	Analogue input 2 x 4-20mA	SHPINA224
Bus-powered	Analogue input 2 X PT/Nl 1000	SHPINNI2

Decentralised Analogue Output Modules

DC power supply	Analogue output 2 x 0-10V DC	SHPOUTV224
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Decentralised Digital Input Modules

Bus-powered	Voltage input module	BDA-INVOL-U
Bus-powered	Universal light switch interface 4 inputs	BDB-INCON4-U
Bus-powered	Alarm input module	BDD-INCON4-U
Supplied by Dupline®	Pulse counter module 4 inputs	SHPINCTS04

Decentralised Digital Output Modules

Bus-powered	1 Way decentralised 13A relay	BDA-RE13A-U
230V AC	1 Way decentralised roller blind module AC	SHDRODC230

Decentralised Digital Input & Output Modules

230V AC	Fire & smoke damper module 4 x inputs / 2 x relay outputs	SBB4I20230
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PIR Sensors

Bus-powered	ELKO PIR sensor	BSB-PIR90-U
Bus-powered	Indoor PIR sensor	BSP-PIR90A-U
Bus-powered	Outdoor PIR sensor	BSP-PIR90-U
Bus-powered	ELKO PIR sensor with Lux sensor	SHSBP90L
Bus-powered	Outdoor PIR sensor with Lux sensor	SHSPP90L
Bus-powered	Indoor PIR sensor with Lux sensor	SHSPP90LA
Bus-powered	360° Ceiling mount PIR with Lux sensor	SHSQP360L

Environmental Sensors

Supplied by Dupline®	Temperature sensor	SHSUT
Supplied by Dupline®	Temperature & humidity sensor	SHSUTH
Supplied by Dupline®	CO2 & Temperature sensor with traffic light	SHSUCOT
Supplied by Dupline®	CO2 Temperature & humidity sensor with traffic light	SHSUCOTH
Supplied by Dupline®	Temperature Sensor with display	SHSUTD
Supplied by Dupline®	Temperature & humidity sensor with display	SHSUTHD
Supplied by Dupline®	CO2 & Temperature sensor with display	SHSUCOTD
Supplied by Dupline®	CO2 Temperature & humidity sensor with display	SHSUCOTHD

Modbus to BACnet Gateways

The BACnet gateways are designed to expose Modbus network data as BACnet MS/TP points. This Modbus to BACnet MS/TP mapping of objects is carried out through our own specific PC software provided with the Gateway.

BACnet IO Modules

Output Type	Description	Part No.
AO, DO, DI, RI, Relay	4 x AO, 2 x DO, 7 x DI, 4 x RI, 2 x Relay BACnet I/O for network expansion	BACnet IO Modules
AO, DO, DI, RI, Relay	2 x AO, 4 x DO, 7 x DI, 4 x RI, 2 x Relay BACnet I/O for network expansion	BACnet IO Modules

Modbus to BACnet Gateway

BACnet MS/TP	Modbus RTU to BACnet MS/TP Gateway c/w PC mapping software (24V Supply)	CCI-2X485/24
BACnet MS/TP	Modbus RTU to BACnet MS/TP Gateway c/w PC mapping software (24V Supply)	CCI-2X485/240
N/A	Field Programming tool to upload mapping from PC to CCI2X485	FPT-601

BACnet MS/TP to IP Router

BACnet IP (RJ45)	BACnet MS/TP to IP router	TP-NM-R/1000
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SC-ST

Smart Temperature Controller



The new range of Smart Temperature Controllers offer accurate control of heating, cooling and ventilation demand in modern building control systems such as hotels and office buildings.

Depending on the chosen model, operation is either as a conventional thermostat or a P+I controller (proportional integral), with relay output switching or modulating 0-10V control signals for modern EC fans and actuators. Additional inputs include energy savings, configurable for either window contact or occupancy detector, and remote temperature sensing into the built in control strategy.



The respective control parameters are available via cost efficient 2-wire RS-485 bus, using the BACnet MS/TP protocol. This allows centralised supervision of HVAC systems, with defined local access into the control strategy which makes this range ideal for large building projects aiming for high energy efficiency and smart user interaction.

FEATURES

- BACnet MS/TP over RS-485 communication
- Control signal options: SPST relays on/off or 0-10Vdc modulation
- Implemented control strategy
- Input options for PIR sensor, window contact, remote sensor and more

BENEFITS

- Centralised supervision of HVAC systems, with defined local access into the control strategy (features lockable)
- High energy efficiency and smart user interface
- Sleep-mode, Countdown-timer and Auto-Fan off feature

SPECIFICATION

Heating and cooling:	
SC-ST-B & AC	2x SPST relays, 5(1)A@24V AC, 4-pipe
SC-ST-EC & P	2x 0-10V DC@10mA, input impedance >1k5Ω, 4-pipe
Fan speed control:	
SC-ST-B & P	3x SPST relays, 10(4)A@24V DC
SC-ST-AC & EC	1x 0-10V DC@10mA, input impedance >1k5Ωp
Operating Mode:	
Automatic changeover between heating and cooling set by the setpoint and space temperature differential (Variants operating mode available on request.)	
Additional Inputs:	
· ESI VFC, configurable N/O or N/C (window contact or PIR)	
· External Temperature Sensor 10K3A1 (Sontay -A)	
· Digital input VFC, configurable NO or NC for eg. fan proving Air DP switch	
BACnet communication:	
BACnet Application Specific Controller (B-ASC)	
Supports DS-RPM-B and DS-WPM-B BIBBs	
RS-485, 2-wire connection	
BACnet MS/TP 9k6/19k2/38k4/57k6/76k8 + auto baud	
N81 data format (BACnet Standard)	
Power supply:	
SC-ST-B	85-260Vac, 50/60Hz
SC-ST-P/EC/AC	24V AC/DC ±10%
Housing:	
Material	ABS (flame retardant) RAL9003
Dimensions	115 x 85 x 25mm
Protection:	
IP30	
Weight:	
130g	

Part code	Description
SC-ST-B	Smart Temperature Controller B
SC-ST-P	Smart Temperature Controller PLUS
SC-ST-EC	Smart Temperature Controller EC
SC-ST-AC	Smart Temperature Controller AC

SC-gateways

Gateways for Air Conditioners



The IntesisBox gateways for Air Conditioners help improve the integration time of the most popular AC brands like Daikin, Mitsubishi or Toshiba into BMS, SCADA or EMS system via Modbus or BACnet. For Modbus a common register map can be used across the range no matter which manufacturer. For BACnet the IntesisBox range offers all the necessary BACnet objects to integrate the AC units into projects. Additional ranges for Fujitsu, LG, Hitachi, Samsung, Hisense or Panasonic are available on request.



FEATURES

- Automation, building management, hotel management, HVAC and many more
- Daikin Domestic Line S21 or Skyair/VAV Line via P1P2, Toshiba or Mitsubishi
- Integration of on/off, mode, setpoint, ambient temperature, fan speed, vanes, errors
- Integration of many extra points like number of hours, window status, remote lock, outside temperature
- Available in BACnet MS/TP plus IP or Modbus

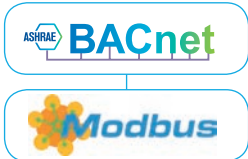
SPECIFICATION

Communication:	
BACnet	MS/TP via RS-485 or IP via Ethernet
Modbus	RTU via RS-485
8 data bits, no parity, 1 stop bit	
2k4, 4k8, 9k6 or 19k2bps baud rate	
Environmental:	
Operating	Temp. 0 to +40°C
RH 5 to 95%, non-condensing	
Storage	Temp -40 to +85 °C
RH 5 to 95%	
Material:	PC (UL94 V-0), light grey, RAL 7035
Dimensions:	93x53x58mm
Weight:	85g

Part code	Description
BACnet server gateways for Air Conditioners	
SC-DK-AC-BAC-1	AC Gateway Daikin Domestic line S21 - BACnet
SC-DK-RC-BAC-1	AC Gateway Daikin Skyair/VAV line P1P2 - BACnet
SC-TO-RC-BAC-1	AC Gateway Toshiba - BACnet
SC-ME-AC-BAC-1	AC Gateway Mitsubishi - BACnet
Modbus slave gateways for Air Conditioners	
SC-DK-AC-MBS-1	AC Gateway Daikin Domestic line S21 - Modbus
SC-DK-RC-MBS-1	AC Gateway Daikin Skyair/VAV line P1P2 - Modbus
SC-TO-RC-MBS-1	AC Gateway Toshiba - Modbus
SC-ME-AC-MBS-1	AC Gateway Mitsubishi - Modbus



SMART COMMUNICATION SENSORS



- Save time and cost on installation through smart connectivity.
- Our Smart Communications sensors offer total environmental sensing in one single space sensors.
- Installation of all sensors is over one twisted pair cable and configuration is simple.
- All option outputs are available via BACnet MS/TP or Modbus RTU.

SC 1000

Smart Communication Space Sensor



SPECIFICATION

BACnet MS/TP	9k6 to 78k8bps or auto baud rate detection
Modbus RTU	9k6 to 57k6bps, selectable parity and stop bit configuration
Supply voltage	24V AC/DC ±10%
Output measurement ranges	
Temperature:	-10 to +110 units (°C or °F selectable). ±0.4units
RH:	0 to 100%, ±2%
CO ₂ :	0 to 2,000ppm or 0 to 5,000ppm, ±30ppm ±3%
CO:	0 to 100ppm
IAQ:	0 to 10 indices values
LL:	0 to 10,000lux
OC:	Detection, off delay 10-900 seconds user configurable

Auxiliary Inputs

Analogue:	1x 0-10V DC linear (default) or any Sontay 10K3A1 thermistor.
Digital:	1x Volt Free Contact

User Interfaces

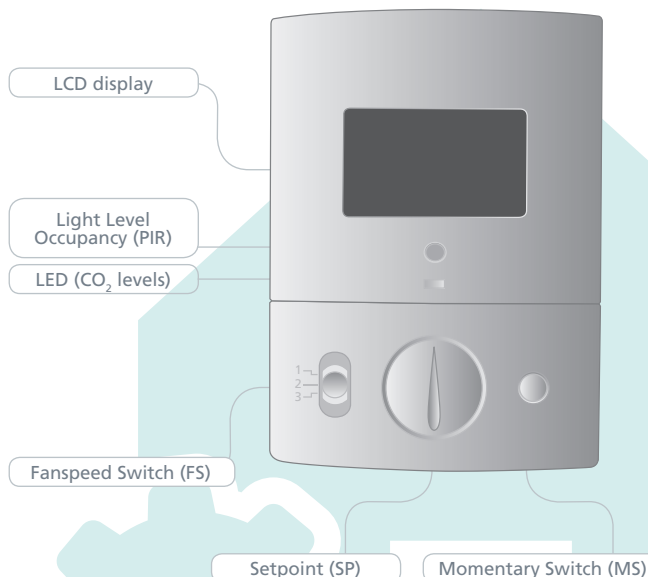
Setpoint wheel SP:	User configurable: Min. max. °C or °F selectable
Override button MS:	User configurable
Fan speed switch FS:	Configurable 3, 4 or 5 stages (Off, Auto, 1, 2, 3)
LCD Display:	Indication of measured values. fan speed status, configurable (e.g. occupancy status)
Traffic light LED:	Green, amber, red LED indication for CO ₂ level

Housing:

Material	ABS (flame retardant)
Protection	IP30
Colour	Polished white finish
Dimensions	115 x 85 x 28mm
Weight	up to 145g

Ambient

Temperature	0 to +50°C
RH	0 to 95% non-condensing



Part code	Description
SPACE SENSOR	
SC - 1 x x x x x	Space Temperature and RH
	Configuration Sensing CO₂
2	-none
3	-CO ₂
4	-CO ₂ and Traffic Light LED
	Configuration Sensing CO/IAQ (Air Quality)
0	-none
1	-CO
2	-IAQ
3	-CO and IAQ
	Configuration User Indication
0	-none
1	-LCD Display
2	-Light Level Sensor
3	-Occupancy Sensor (PIR)
4	-Light Level and PIR Sensor
	Configuration Interface Options
0	-none
1	-SP
2	-MS
3	-FS
4	-SP and MS
5	-SP and FS
6	-FS and MS
7	-SP, MS and FS
	Configuration Analogue Input
0	-Analogue 0-10V
1	-Resistive for 10K3A1 Thermistor

REPLACEMENT PARTS

SC	C	O	Replacement CO Sensor for SB/SM Range	
	I	A	Q	Replacement IAQ (Air Quality) Sensor for SB-SM Range

Note: CO and IAQ elements have a 5 year life and can be replaced on site.



SC 600

Smart Communication Plant Sensor



SPECIFICATION

BACnet MS/TP	9k6 to 78k8bps or auto baud rate detection
ModBus RTU	9k6 to 57k6bps, selectable parity and stop bit configuration
Supply voltage	24V AC/DC ±10%
Output measurement ranges	
Temperature:	-10 to +110 units (°C or °F selectable). ±0.4units
RH:	0 to 100%, ±2%
CO ₂ :	0 to 2,000ppm or 0 to 5,000ppm, ±30ppm ±3%
CO:	0 to 100ppm
IAQ:	0 to 10 indices values
LL:	0 to 10,000lux
OC:	Detection, off delay 10-900 seconds user configurable
Auxiliary Inputs	
Analogue:	1x 0-10V DC linear (default) or any Sontay 10K3A1 thermistor.
Digital:	1x Volt Free Contact
User Interfaces	
LCD Display:	Indication of measured values. fan speed status, configurable (e.g. occupancy status)
Traffic light LED:	Green, amber, red LED indication for CO ₂ level
Housing:	
Material	ABS (flame retardant)
Protection	IP65 (when screws applied) IP54 (Plant Gas Sensors)
Dimensions	116 x 106 x 52mm
Weight	up to 265g
Ambient	
Temperature	0 to +50°C
RH	0 to 95% non-condensing

Part code	Description
IMMERSION SENSOR	
SC - 2 0 0 x 0 x	Immersion Temperature Configuration User indication
0	- none
1	- LCD Display
2	- Light Level Sensor
3	- PIR Sensor
4	- Light Level and PIR sensor
Configuration Analogue Input	
0	-Analogue 0-10V
1	-Resistive for 10K3A1 Thermistor

Part code	Description
DUCT SENSOR	
SC - 3 x x x 0 x	Duct Temperature and RH
2	-none
3	-CO ₂
4	-CO ₂ and Traffic Light LED
Configuration Sensing CO/IAQ (Air Quality)	
0	-none
1	-CO
2	-IAQ
3	-CO and IAQ
Configuration User Indication	
0	-none
1	-LCD Display
2	-Light Level Sensor
3	-PIR Sensor
4	-Light Level and PIR Sensor
Configuration Analogue Input	
0	-Analogue 0-10V
1	-Resistive for 10K3A1 Thermistor

Part code	Description
PLANT SENSOR	
SC - 4 x 0 x 0 x	Plant Temperature
Configuration Sensing RH	
0	- none
2	- RH
Configuration User Indication	
0	-none
1	-LCD Display
2	-Light Level Sensor
3	-PIR Sensor
4	-Light Level and PIR Sensor
Configuration Analogue Input	
0	-Analogue 0-10V
1	-Resistive for 10K3A1 Thermistor

Part code	Description
REPLACEMENT PARTS	
SC - C O	Replacement CO Sensor for SB/SM Range
I A Q	Replacement IAQ (Air Quality) Sensor for SB-SM Range

Part code	Description
OUTSIDE WALL SENSOR (RAD SHIELD)	
SC - 5 x 0 x 0 x	Outside Temperature (Rad Shield)
Configuration Sensing RH	
0	-none
2	-RH
Configuration User Indication	
0	-none
1	-LCD Display
2	-Light Level Sensor
3	-PIR Sensor
4	-Light Level and PIR Sensor
Configuration Analogue Input	
0	-Analogue 0-10V
1	-Resistive for 10K3A1 Thermistor

Part code	Description
PLANT HOUSING GAS SENSING	
SC - 6 x x x 0 x	Plant Housing Gas Sensing IP54
Configuration Sensing CO ₂	
0	- none
3	-CO ₂
Configuration Sensing CO/IAQ (Air Quality)	
0	- none
1	-CO
2	-IAQ
3	-CO and IAQ
Configuration User Indication:	
0	- none
1	-LCD Display
Configuration Analogue Input:	
0	- Analogue 0-10V
1	- Resistive for 10K3A1 thermistor

Note: CO and IAQ elements have a 5 year life and can be replaced on site.



SC-FS-ROUTER-BAC Fieldserver BACnet Router



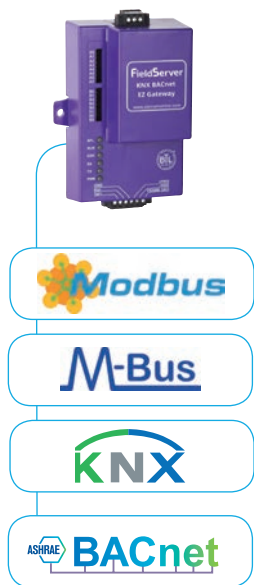
- Routing between BACnet MS/TP (RS-485) and BACnet IP (Ethernet)
- Available in single port (32 devices) or dual port (64 devices) without the use of additional line drivers.
- Easy installation with DeviceFind™, one page configuration via web browser and device discovery button
- SMC Cloud connects your device to the cloud, allowing remote access for diagnostics, monitoring, alarming & configuration

SPECIFICATION

Power	9-30Vdc or 12-24V AC, 240mA at 12V
Ambient	Temperature -40 - 75°C Relative Humidity 5 - 90% non condensing
Communication	Serial RS-485, galvanic isolation Baud rate 4k8, 9k6, 19k2, 38k4, 57k6, 115k2 Ethernet: 10/100BaseT, MDIX, DHCP Ethernet: 10/100 BaseT MDIX
Installation	Table, wall or DIN rail mount
Dimension	115 x 74 x D1mm
Weight	200g

Part code	Description
SC-FS-ROUTER-BAC	FieldServer BACnet Router (Dual Port)
SC-FS-ROUTER-BAC1	FieldServer BACnet Router (Single Port)
SC-FS-8915-35-QS	Din Rail Mounting Assembly

SC-FS-EZ-x Fieldserver EZ Gateways into BACnet/Modbus



The EZ Gateway is an easy to use, high-performance building and industrial automation protocol gateway for integrators to interface M-Bus, Modbus or KNX products in commercial buildings, campuses and industrial facilities over Modbus

RTU, Modbus TCP/IP, BACnet MS/TP or BACnet IP protocols. With the EZ Gateway range, the integrator does not need to be a protocol expert and can minimise configuration and commissioning time.

- **M-Bus:** M-Bus Explorer and Device Profiles App allow each M-Bus device to be auto-discovered, templatised and presented to quickly configure new M-Bus devices. This makes each corresponding M-Bus device into a virtual BACnet device within the EZ Gateway, thereby providing granular visibility and control over each device via BACnet.
- **Modbus:** Supports virtual nodes allowing each Modbus device connected to a single EZ Gateway to be seen as a separate device on the BACnet network. The web interface is used to configure the local network settings and create profiles for Modbus devices.
- **KNX:** The EZ Gateways KNX interface is compatible with all KNX certified products. Easy data mapping via built in KNX data map graphical user interface and import of XML and ESF files.
- SMC Cloud connects your device to the cloud, allowing

SPECIFICATION

Power	9-30Vdc or 12-24V AC.
Ambient	Temperature -40 - 75°C Relative Humidity 5 - 90% non condensing
Communication	Baud rate 4k8, 9k6, 19k2, 38k4, 57k6, 115k2
Installation	Table, wall or DIN rail mount
Dimension	115 x 74 x 41mm
Weight	200g

Part code	Description
SC-FS-EZ1-MBUS-MOD-BAC	EZ Gateway, M-Bus to Modbus/BACnet - 16 devices, 500 points
SC-FS-EZ2-MBUS-MOD-BAC	EZ Gateway, M-Bus to Modbus/BACnet - 32 devices, 1000 points
SC-FS-EZ3-MBUS-MOD-BAC	EZ Gateway, M-Bus to Modbus/BACnet - 64 devices, 5000 points
SC-FS-EZ1-MOD-BAC	EZ Gateway, Modbus to BACnet - 500 points
SC-FS-EZ2-MOD-BAC	EZ Gateway, Modbus to BACnet - 1000 points
SC-FS-EZ1-KNX-BAC	EZ Gateway, KNX to BACnet - 500 points
SC-FS-EZ2-KNX-BAC	EZ Gateway, KNX to BACnet - 1000 points

SC-FS-BENG-x FieldServer BACnet Internet of Things Gateway



The new BACnet Internet of Things Gateway offers all you would expect from a high - end Explorer product and more. It not only automatically discovers BACnet IP and BACnet MS/TP networks, but with new Monitor View and Historian

features, device data points can be precisely tracked and logged for analysis. Additionally it also acts as a Wifi Access Point for remote access from any mobile device without user restrictions. Cellular data (SIM card required) is an option.

- Discover BACnet network simultaneously and read/write objects and properties
- Configure easily on the web using smartphone or other smart devices without additional software installations.
- Monitor View and Historian for data analysis
- SMC Cloud connects the device to the cloud, allowing remote access for diagnostics, monitoring, alarming & configuration
- Secure data interface through REST API

SPECIFICATION

Power	9-30Vdc or 12-24V AC.
Ambient	Temperature -40 - 75°C Relative Humidity 5 - 90% non condensing
Communication	Baud rate 4k8, 9k6, 19k2, 38k4, 57k6, 115k2
Installation	Table, wall or DIN rail mount
Dimension	115 x 74 x 41mm
Weight	200g

Part code	Description
SC-FS-BENG-W	BACnet Internet of Things Gateway (WiFi Only)
SC-FS-BENG-C	BACnet Internet of Things Gateway (WiFi and cellular)

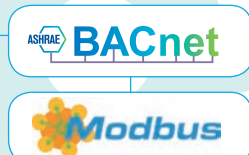


SC-IO

Smart I/O Modules



The Sontay Smart Communication IO-Modules extend your system when your application requires additional inputs and outputs on a physical controller. Integrating the 20 IO points with your BMS provides a simple and cost effective expansion of a new or existing controller. SC-IO-24 for RS-485 and brand new in 2018 the SC-IO-24-IP for Ethernet, both capable to transmit data via the BACnet or Modbus protocol.



Communication:

- Selectable communication protocol (BACnet or Modbus) via DIP switch.
- The SC-IO-24 supports BACnet MS/TP or Modbus RTU over RS-485.
- The SC-IO-24-IP in addition supports BACnet IP and Modbus TCP/IP over Ethernet.
- Automatic device instance configuration and baud rate detection (BACnet MS/TP).
- Connects to any Modbus master or Modbus TCP/IP master controller.
- Copy & broadcast configuration to other Sontay SC-IO products via BACnet.

Inputs and Outputs:

- Inputs: Configurable universal analogue and digital inputs. The SC-IO-24-IP also support pulse counting with counter reset object for the digital inputs and PWM to analogue object converters.
- Outputs: Configurable analogue and digital outputs. The SC-IO-24 comes with 10 override switches to manually control each output (auto, forced on or forced off).

Installation:

- 10 override switches to manually control each output (auto, forced on or off)
- LED status indication of each input and output
- DIN rail mounting
- 24V AC/DC powered
- Removable two part terminal blocks

SPECIFICATION

Supply voltage:	24V AC/DC ±10%
Supply current:	8VA (331mA @ 24V AC)
Inputs:	SC-IO-24 8 x Universal configurable for 0-10V DC, thermistor type B (10K4A1), On/off (VFC) or 4-20mA
	2 x Digital normally open/closed or direct/reverse
	SC-IO-24-IP 8 x Universal, configurable for 0-10V DC, thermistor, on/off or 4-20mA
	2 x Digital, normally open/closed or direct/reverse
	Supports on-board PWM to analogue object converters and pulse counters with counter reset object
	2x RS-485 communication ports
Outputs:	SC-IO-24 2 x Universal, 0-10V DC, Pulsed signal (20mA drive), on/off or 4-20mA
	2 x Analogue 10V DC
	6 x Digital Relay, normally open/closed, independent common per relay, 5A resistive
	SC-IO-24-IP 6x Digital outputs
	4x Analogue outputs
Protocols:	SC-IO-24 BACnet MS/TP: 9k6, 19k2, 38k4 or 76k8 bps (BAS-C), or auto baud rate detection
	Modbus RTU Slave @ 9k6, 19k2, 38k4 or 57k6
	No parity, 2 stop bit
	Even parity, 1 stop bit
	Odd parity, 1 stop bit
	SC-IO-24-IP Additional to the above:
	BACnet IP Supports DHCP or fixed/static addressing
	Connects to any Modbus TCP/IP master controller
Ambient:	Temperature 0 to 50°C
	RH 5 to 95% RH, non-condensing
Housing:	Material ABS
	Dimensions 160 x 126 x 57mm (SC-IO-24)
Protection:	IP30
Weight:	400g

Part code	Description
SC-IO-24	Smart Communication IO Module BACnet / Modbus
SC-IO-24-IP	Smart Communication IO Module BACnet IP/Modbus TCP/IP

ST-TOUCH

Touchscreen Thermostat



The ST-TOUCH range of touchscreen thermostats, offers intuitive ambient temperature control with a modern design to maximize energy efficiency. Whether flush or surface mounted its slim cell-phone like design and full touchscreen operation definitely has its finger on the pulse.



FEATURES

- Auto fan speed with auto-off function (-HC only)
- Calendar/time programmable (-P only)
- Sleeping mode (-HC only)
- Adjustable Switching Differential (deadband, -P only)
- On/off memory function
- Anti-frost protection mode
- Lock-function
- Modbus RS-485 communication as standard

MODELS

-HC	-P
Hotels & Offices	Smart Homes
Heating & Cooling	Programmable
3-Speed Fan Control	Boilers/Underfloor
White Touch Screen	External Sensor Option
	Blue Touch Screen

SPECIFICATION

Operation:	-HC Heating/cooling/fan
	-P Heating programmable
Set point range:	-HC 10-30°C / 1°C per step
	-P 5-35°C / 0.5°C per step
Accuracy	±1°C
Output contacts:	-HC Heating/cooling: 3A resistive
	Fan speed: 5A resistive
	-P Heating: 20A resistive
Supply:	-HC 220V AC ±10% 50/60Hz
	-P 85 to 240V AC 50/60Hz <2W
Wiring:	-HC ≤ 1.5mm ²
	-P ≤ 2.5mm ²
Dimensions	110 x 86 x 13mm (when flush mounted)
Ambient:	Temperature 0 to 50°C
	RH <90% non-condensing
Protection	IP30
Communication:	ModBus via RS-485
Weight:	180g

Part code	Description
ST-TOUCH-HC	Heating/cooling Touch Screen Thermostat
ST-TOUCH-P	Programmable Touch Screen Thermostat
	Accessories
ST-TOUCH-555	External temperature sensor, for -P version only
ST-TOUCH-BOX	Optional back box



SC-PM-E23C5 Smart Power and Energy Meter



Designed with the user in mind, the SC-PM-E23C5 offers maximum application flexibility for retrofit as well as low-energy buildings. Its universal inputs allow utilisation of existing Sontay Current Transformers (PM-CT range) as well as the new low profile Rogowski Rope Transducer PM-CTR-UO18 up to 5000A.

The energy data gets transmitted either via the Modbus RTU or BACnet MS/TP protocol. Auto-detection of the baud rate, parity and protocol type eases up the commissioning of the energy monitoring system in building projects. The meter's small form factor enables installation in existing panels with limited space, and does not require external mounting or the expense of extra enclosures or conduit runs.



FEATURES

- Simplest possible installation, commissioning and operation
- Compatible with CTs (see page 35) from 5-5000A (requires 5A secondary from the CT)
- Native ModBus or BACnet communication for seamless into BMS
- Unidirectional or bidirectional
- Flexible CT configurations (1, 2 or 3- phase)

APPLICATIONS:

- Energy monitoring and commercial sub metering
- Renewable energy
- Energy management
- Cost allocation in building

Part code	Description
SC-PM-E23C5	Smart Power and Energy Meter
PM-CTR-UO18	Rogowski Current Transformer
PM-CT-x	All Current Transformers on page 35

CHARACTERISTICS:

Measurements:

- Bi-directional kW, kVAR, kVA, PF, Real kW, reactive kVAR and apparent kVA
- Import and export Totals of Present Power Demand
- Peak Power Demand
- Current, voltage, frequency
- Accumulated Net Energy and Real Energy by Phase (kWh)
- Import and Export Accumulators of Real and Apparent Energy
- Reactive Energy Accumulators by Quadrant (3-phase Total and Per Phase)
- Demand Interval Configuration

Measurement Accuracy:

- Real Power & Energy, 1/3 Volt Current Input Mode
- IEC 62053-22 Class 0.2S, ANSI C12.20 0.2%
- Real Power & Energy, Rogowski Current Input Mode
- IEC 62053-22 Class 0.5S, ANSI C12.20 0.5%

SPECIFICATION

Frequency Range	45 to 65Hz
Outputs	RS-485 Serial (Modbus RTU Protocol) RS-485 Serial (BACnet MS/TP Protocol)
Reactive Power & Energy	IEC 62053-23 Class 2, 2%
Measured AC Voltage	Min. 90V L-N (156V L-L) for stated accuracy; UL max.: 480V L-L (277V L-N); CE max.: 300V L-N
Impedance	2.5MΩ L-N / 5MΩ L-L

Input Current Characteristics

Measurement Input Range	0 to 0.333V AC (+20% over-range)
Impedance	33kΩ

Ambient

Temperature	Operating	-30°C to 70°C (-22° to 158°F)
	Storage	-40°C to 85°C (-40° to 185°F)
Humidity		<95% RH (non-condensing)
Protection		IP20
Dimensions		152 x 47 x 36mm (6.68 x 1.84 x 1.41")
Weight		300g

PA-60-x Multi-Configurable Air DP Sensor



The PA-60-2-COM differential pressure transmitter is ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratory's and clean rooms (air and non-corrosive gases). Four field-selectable pressure ranges and selectable Modbus/BACnet outputs, which are easily defined by user selection switches. An optional LCD displays is Modbus/BACnet outputs.



FEATURES

- User selectable measurement range and output type
- Duct fixing kit included
- Snap-fit cover

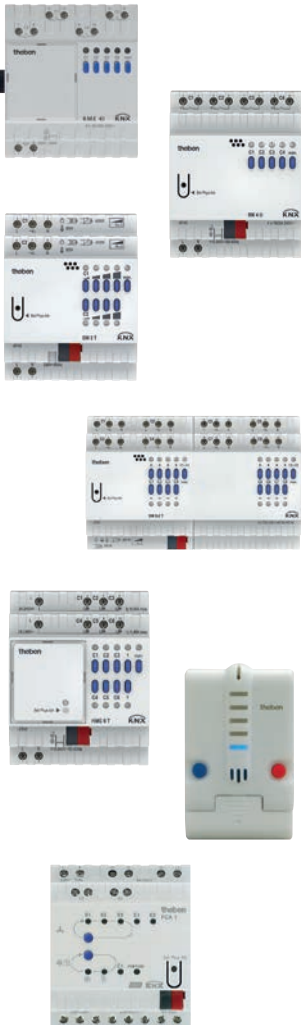
Part code	Description
PA-60-2-COM	0 to 50, 100, 300 & 500Pa Multi Range Selectable 0-10Vdc or 4-20mA Selectable Output ModBus/BACnet
	Suffix (add to above part code)
-LCD	Integral LCD Display

SPECIFICATION

Power Supply:	24V AC/DC ±10%	
Measurement ranges:	Selectable	
Overall accuracy:	PA-60-2 ±2.00% fs	
Over Pressure:	0.1bar	
Pressure Connections:	Push fit for 6mm (0.24")ID tubing	
Housing:	Material	ABS (Flame retardant VO)
	Dimensions	116 x 106 x 52mm
Protection:	IP65	
Ambient range:	Temperature	0 to 40°C
	RH	0 to 85% RH. non-condensing
Weight:	240g	

Part code	Description
Accessories	
DFK	Duct fixing kit
TEE	Tee piece air pressure (pack of 10)
PA-TUBE-8MM	PVC tube 8mm o/d x 1.5mm wall, 30m reel

Note: A duct fixing kit (DFK) is supplied with the sensor, consisting of 2m and 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.



Presence/Movement Detectors

Microwave Presence Detectors

Description	Part No.
Compact ceiling PIR presence/absence detector	EBDSPIR-KNX
High sensitivity PIR presence/absence detector	EBDHS-KNX
Adjustable ceiling mount microwave presence/absence detector	MWS3A-KNX
Low profile ceiling microwave presence/absence detector	MWS6-KNX

Accessories

Compact, programming/commissioning handset	UHS5
Compact, user handset	UHS7
Surface mounting back box for detectors	DBB
Surface mounting back box for MWS3 series	MWS3A-DBB
Wall mounting bracket for MWS3A series	MWS3A-DBB-WBRKT
Clear vandal proof polycarbonate cover	MWS3A-VPPC
Surface mount back box extender	MWS3A-DBB-EXT

Passive Infrared Presence Detectors

Module No	Description	Part No.
PresenceLight 360B-KNX WH	Ceiling mounted presence light 360	2009000
PresenceLight 180B-KNX WH	Wall mounted presence light 180	2009050
thePrema P360 KNX UP WH	8 x 8m detection area	2079000
theRonda S360 KNX Flat DE WH	Slim flush fit PIR with 9m circular detection	2089560
thePassa P360 KNX UP WH	Corridor sensor with 2 x 15m x 5m detection	2019300
theRonda P360-110 DALI UP WH	DALI single light channel broadcast PIR	2080040
theRonda P360-330 DALI UP WH	DALI 3 light channel addressable PIR	2080045

Actuators

Switching Actuators

Module No	Description	Part No.
RMG 4 I KNX	4 way switch actuator base module	4930210
RME 4 I KNX	4 way extension module	4930215
RMG 8 S KNX	8 way switch actuator - base module	4930220
RMG 4 U KNX	8 way extension module	4930223

Universal Dimmer Actuators

DMG 2 T KNX	2 channel dimmer base module	4930270
DME 2 T KNX	2 channel extension module	4930275
DM 2 T KNX	2 way universal dimmer	4940270
DM 4 T KNX	4 way universal dimmer	4940275
DM 4-2 T KNX	4 way universal dimmer	4940280
DM 8-2 T KNX	8 way universal dimmer	4940285

Heating Actuators

Module No	Description	Part No.
HMG 6 T KNX	6 way heating actuator - base module	4930240
HME 6 T KNX	6 way extension module	4930245
HM 6 T KNX	6 way heating actuator c/w outputs	4940240
HM 12 T KNX	12 way heating actuator c/w outputs	4940245
CHEOPS drive KNX	Thermal actuator no sensor	7319200
CHEOPS control KNX	Thermal actuator with integral temp sensor	7329201
FCA 1 KNX	Fan coil controller	4920200
FCA 2 KNX	Fan coil controller with 0-10	4920210
HMT 6 S KNX	Wall mount 6 zone UFH controller 24v/0-10	4900373
HMT 12 S KNX	Wall mount 12 zone UFH controller 24v/0-10	4900374

HVAC Controllers

Individual Room Thermostats

Module No	Description	Part No.
RAMSES 713 FC KNX	Temp controller for fan coils	7139202

Multi-functional Display with Room Thermostat

VARIA 826 S WH KNX	White glass multi function screen	8269210
VARIA 826 S BK KNX	Black glass multi function screen	8269211

Sensor Technology

Brightness & Temperature Sensors

Module No	Description	Part No.
LUNA 131 S KNX	Light & temp sensor	1319201
LUNA 133 KNX	Light sensor	1339200
LUNA 134 KNX	Light sensor 10 channels	1349200

CO2 Air Quality Sensor

Module No	Description	Part No.
AMUN 716 S KNX	Multi function room sensor, CO2, temp, humidity, pressue.	7199230

Self Contained Outdoor Weather Station

Module No	Description	Part No.
Meteodata 140 S 24V KNX	24V Weather station	1409201
Meteodata 140 S 24V GPS KNX	24V Weather station with GPS receiver	1409204
Meteodata 140 S KNX	100-230V Weather station	1409207
Meteodata 140 S GPS KNX	100-230V Weather station with GPS receiver	1409208

System Devices

Binary Input/Binary Output Sensor Interfaces

Module No	Description	Part No.
TA 2 S KNX	2 Inputs binary interface	4969222
TA 4 S KNX	4 Inputs binary interface with temp inputs C3/C4	4969224
TA 6 S KNX	6 Inputs binary interface with temp inputs C3/C4	4969226
TA 8 S KNX	8 Inputs binary interface with temp inputs C3/C4	4969228
BM 6 T KNX	Din rail mount 6 channel input 10 - 240AC/DC	4940230

DALI Gateway

DALI Gateway KNX PLUS	Dali gateway module - KNX	9070929
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Interface

KNX USB Interface		9070397
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Clocks

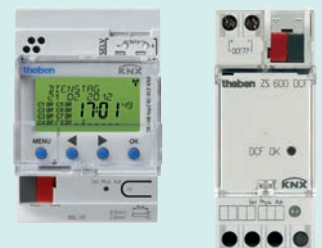
Digital Time Switch

Module No	Description	Part No.
TR 648 top2 RC-DCF KNX	8 Channel time clock with GPS	6489210
TR 648 top2 RC KNX	8 Channel time clock	6489212

Time Transmitter

ZS 600 DCF KNX	Signal emitter	6009200
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INVERTERS

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Variable Speed Drives for Fans & Pumps	
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HVAC Inverter Drives

- Variable torque
- HVAC type for fan and pump control
- IP21 suitable for panel mounting
- IP55 suitable for boiler house mounting

LL-CC Series

Rating		IP21	IP55
kW	Amps	Part No.	Part No.
0.75	2.6	ACH580-01-02A7-4	ACH580-01-02A7-4+B056
1.1	3.3	ACH580-01-03A4-4	ACH580-01-03A4-4+B056
1.5	4	ACH580-01-04A1-4	ACH580-01-04A1-4+B056
2.2	5.6	ACH580-01-05A7-4	ACH580-01-05A7-4+B056
3	7.2	ACH580-01-07A3-4	ACH580-01-07A3-4+B056
4	9.4	ACH580-01-09A5-4	ACH580-01-09A5-4+B056
5.5	12.6	ACH580-01-12A7-4	ACH580-01-12A7-4+B056
7.5	17	ACH580-01-018A-4	ACH580-01-018A-4+B056
11	25	ACH580-01-026A-4	ACH580-01-026A-4+B056
15	32	ACH580-01-033A-4	ACH580-01-033A-4+B056
18.5	38	ACH580-01-039A-4	ACH580-01-039A-4+B056
22	45	ACH580-01-046A-4	ACH580-01-046A-4+B056
30	62	ACH580-01-062A-4	ACH580-01-062A-4+B056
37	73	ACH580-01-073A-4	ACH580-01-073A-4+B056
45	88	ACH580-01-088A-4	ACH580-01-088A-4+B056
55	106	ACH580-01-106A-4	ACH580-01-106A-4+B056
75	145	ACH580-01-145A-4	ACH580-01-145A-4+B056
90	169	ACH580-01-169A-4	ACH580-01-169A-4+B056
110	206	ACH580-01-206A-4	ACH580-01-206A-4+B056
132	246	ACH580-01-246A-4	ACH580-01-246A-4+B056
160	293	ACH580-01-293A-4	ACH580-01-293A-4+B056
200	363	ACH580-01-363A-4	ACH580-01-363A-4+B056
250	430	ACH580-01-430A-4	ACH580-01-430A-4+B056

Control Panel & Accessories

Description	Part No.
ACH-AP-H ACH-AP-H control panel	3AXD50000004398
DPMP-01 Control panel door mounting kit (flush mounting).	3AUA0000108878
DPMP-02 Control panel mounting platform (surface)	3AXD50000009374
DPMP-EXT IP66 Door mounting kit for the panel (for one drive, contains panel Bus Adapter)	3AXD50000010763
CDPI-01 Panel Bus adapter	3AXD50000004419



HVAC Inverter Drives

Danfoss VLT® HVAC Drive is dedicated to ventilation, heating, and refrigeration applications. With a wide range of powerful standard and optional features, the VLT® HVAC Drive provides the lowest overall cost of ownership.

VLT Series - IP54

Rating		IP54	IP66
kW	Amps	Part No.	Part No.
1.1	3	131N9572	131B9296
1.5	4.1	131U0963	131B8922
2.2	5.6	131U0964	131B9297
3	7.2	131U0965	131B9298
4	10	131U0966	131B9299
5.5	13	131L9238	131B9300
7.5	16	131L9239	131B9307
11	24	131L9240	131B9308
15	32	131L9241	131B9317
18.5	37.5	131L9242	131B9318

VLT Series - Backplates

Drive Type	Part No.
1.1-4kW Drives	130B3150
15.5-7.5kW Drives	130B1098
11-18.5kW Drives	130B3383
22-37kW Drives	130B3397



SIEMENS



HVAC Inverter Drives with Integrated Class B Filter

- Integrated communication for fast and easy network integration
- LG-Ni-1000 Sensor input with auto configuring of field devices
- Built-in PID for fast and accurate pressure control using pumps & fans
- Low harmonics design reduces noises and interference
- Pump cascading with up to 3 pumps
- Parameter assignment matched to user needs
- Belt failure detection without an external sensor
- Essential service mode for applications requiring continuous, uninterruptible operation
- One common interface throughout all power ranges
- Optional plain text operator panel with copy and time scheduler function

IP20 SED2 - Series

Rating		Part No.
kW	Amps	
0.75	2	G120P-0.75/32B
1.1	2	G120P-1.1/32B
1.5	2	G120P-1.5/32B
2.2	4.2	G120P-2.2/32B
3	4.2	G120P-3/32B
4	4.2	G120P-4/32B
5.5	6.7	G120P-5.5/32B
7.5	6.7	G120P-7.5/32B
11	6.7	G120P-11/32B
15	6.7	G120P-15/32B
18.5	17	G120P-18.5/32B
22	17	G120P-22/32B

IP54 SED2 - Series

1.1	11.5	G120P-1.1/35B
1.5	11.5	G120P-1.5/35B
2.2	11.5	G120P-2.2/35B
3	11.5	G120P-3/35B
4	11.5	G120P-4/35B
5.5	21	G120P-5.5/35B
7.5	21	G120P-7.5/35B
11	21	G120P-11/35B
15	21	G120P-15/35B
18.5	35	G120P-18.5/35B
22	35	G120P-22/35B

Schneider Electric



Altivar 212

Altivar 212 is a variable speed drive for 3-phase asynchronous motors from 0.75 kW to 75kW. Dedicated HVAC drives for 0.75 to 75kW motors.

Altivar 212 IP21 HVAC Variable Speed Drive - 400-480V AC

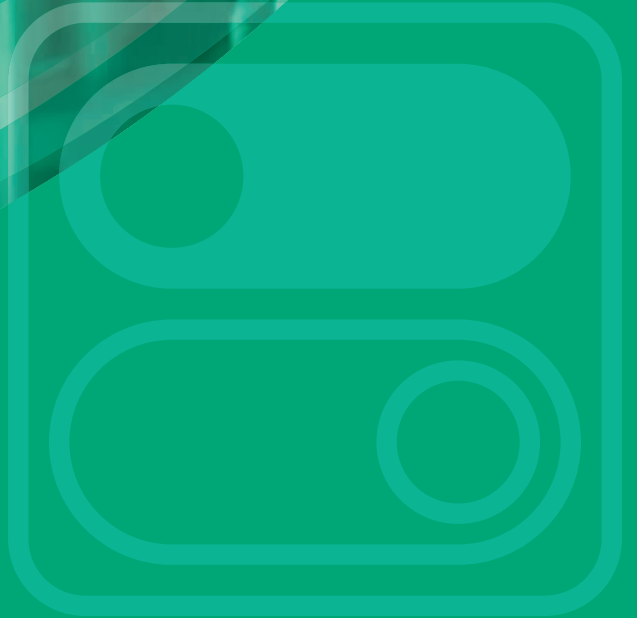
Power (kW)	Description	Part No.
0.75	ATV930 VSD IP21 0.75kW 400V/480V	ATV212H075N4
1.50	ATV930 VSD IP21 1.5kW 400V/480V	ATV212HU15N4
2.20	ATV930 VSD IP21 2.2kW 400V/480V	ATV212HU22N4
3.00	ATV930 VSD IP21 3kW 400V/480V	ATV212HU30N4
4.00	ATV930 VSD IP21 4kW 400V/480V	ATV212HU40N4
5.50	ATV930 VSD IP21 5.5kW 400V/480V	ATV212HU55N4
7.50	ATV930 VSD IP21 7.5kW 400V/480V	ATV212HU75N4
11	ATV930 VSD IP21 11kW 400V/480V	ATV212HD11N4
15	ATV930 VSD IP21 15kW 400V/480V	ATV212HD15N4
18.50	ATV930 VSD IP21 18.5kW 400V/480V	ATV212HD18N4
22	ATV930 VSD IP21 22kW 400V/480V	ATV212HD22N4
30	ATV930 VSD IP21 30kW 400V/480V	ATV212HD30N4
37.50	ATV930 VSD IP21 37kW 400V/480V	ATV212HD37N4
45	ATV930 VSD IP21 45kW 400V/480V	ATV212HD45N4
55	ATV930 VSD IP21 55kW 400V/480V	ATV212HD55N4
75	ATV930 VSD IP21 75kW 400V/480V	ATV212HD75N4

Altivar 212 IP55 HVAC Variable Speed Drive - 400-480V AC

0.75	ATV212 VSD IP55 0.75kW 400V/480V	ATV212W075N4
1.50	ATV212 VSD IP55 1.5kW 400V/480V	ATV212WU15N4
2.20	ATV212 VSD IP55 2.2kW 400V/480V	ATV212WU22N4
3.00	ATV212 VSD IP55 3kW 400V/480V	ATV212WU30N4
4.00	ATV212 VSD IP55 4kW 400V/480V	ATV212WU40N4
5.50	ATV212 VSD IP55 5.5kW 400V/480V	ATV212WU55N4
7.50	ATV212 VSD IP55 7.5kW 400V/480V	ATV212WU75N4
11	ATV212 VSD IP55 11kW 400V/480V	ATV212WD11N4
15	ATV212 VSD IP55 15kW 400V/480V	ATV212WD15N4
18.50	ATV212 VSD IP55 18.5kW 400V/480V	ATV212WD18N4
22	ATV212 VSD IP55 22kW 400V/480V	ATV212WD22N4
30	ATV212 VSD IP55 30kW 400V/480V	ATV212WD30N4
37.50	ATV212 VSD IP55 37kW 400V/480V	ATV212WD37N4
45	ATV212 VSD IP55 45kW 400V/480V	ATV212WD45N4
55	ATV212 VSD IP55 55kW 400V/480V	ATV212WD55N4
75	ATV212 VSD IP55 75kW 400V/480V	ATV212WD75N4

9

PERIPHERALS & INTERFACES



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Current Switches

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Annunciators & Plant Extension Timers

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Axio	9.3



Current Switches

Sontay's range of current switches offer fixed or adjustable setpoint and provide accurate, reliable and maintenance-free operation. Solid and split-core versions are available, with current ratings of up to 150A. Output switching options include 0.75A @ 30V AC/DC or 1A @ 240V AC.

Adjustable setpoint types

The PM-CS series of adjustable setpoint current switches allow easy detection of broken drive belts, drive belt slip or pump coupling shear. A typical HVAC motor that loses its load has a reduction of current draw of up to 50%.

Applications

- Detection of fan belt breakage & motor failure
- Verifying lighting circuits
- Monitoring critical motors (compressors etc.)
- Process equipment status

Features

- Adjustable set-point
- More reliable & amp; cost-effective than differential pressure switches (no fitting or tapping)
- 100% solid-state output, no moving parts to fail
- Output status LEDs for fast setup
- Self-powered

Fixed setpoint types

The PM-CS series of fixed setpoint current switches provide a cost-effective solution for monitoring the status of unit vents, exhaust fans, re-circulation pumps and other fixed loads where belt loss is not a concern.

Applications

- Detection of motor failure
- Verifying lighting running times
- Monitoring critical motors (compressors etc.)
- Process equipment status

Features

- Miniature size
- Self-powered, no supply required
- 100% Solid state, no moving parts to fail

PM-CS Series

Type	Core	Part No.
Adjustable setpoint		
0.5 to 150A	30V AC/DC Solid	PM-CSA-02
0.75 to 150A	30V AC/DC Split	PM-CSA-01
	240V AC/DC Split	PM-CSA-03
Fixed setpoint		
0.25 to 150A	30V AC/DC Solid	PM-CSF-02
0.35 to 150A	30V AC/DC Split	PM-CSF-01
0.5 to 150A	240V AC/DC Split	PM-CSF-03



Current Switches

Adjustable setpoint types

These devices are powered by induction from the monitored AC conductor which passes through the hole/core. They sense the current flow and can thereby monitor the operation/failure of fans, pumps, motors, etc. The normally open triac switch closes when the current flow exceeds the set point. The switch point is adjustable via a multi turn pot.

Specification

Switch rating max.: 250V DC 1A
Input frequency range: 10-400Hz

Fixed setpoint types

These units are powered by induction from the monitored AC conductor which passes through the hole/core. They sense current flow and can monitor the operation/failure of fans, pumps, motors etc. Simply connect 2 wires to indicate run/fail - the normally open switch contacts close when the setpoint is exceeded. The GNG models incorporate dry contacts for true digital switching.

Specification

Switch rating: 30V AC / 40V DC 0.5A
On state volt drop: <0.1V (@24V DC @ 150mA)

ESOL... /ESLT... Series

Type	Conductor Current Input Range	Set Points	Part No.
Adjustable setpoint			
Solid core	1.025-6, 6-40, 40-200A	Adj.	ESOL-325NS
	1.6-6, 6-40, 40-200A	Adj.	ESLT-325NS
Fixed setpoint			
Solid core	0-5 to 200A auto ranging	1A Fixed	ESOL-GNG
	1-5 to 200A auto ranging	2.5A Fixed	ESLT-GNG

Alarm Annunciators - 1 to 2 Channel

The UI-AA series are used in conjunction with one or two analogue or VFC signals to provide low cost local audible and visual alarm facilities. The units can accept voltage, current and VFC switched inputs.

Adjustment of alarm threshold and the time delay before an alarm is standard on all models. A mute button silences the audible alarm, whilst the visual alarm will not reset until the monitored parameter returns to within its desired range.

UI-AA... Series

Description	Part No.
1-channel Interface Panel	UI-AA-1-F
2 channel	UI-AA-2-F



Alarm Annunciators - 1 to 4 Channel

The AX-AA range of alarm annunciators accept a volt free contact to provide audible and visual alarms at a very competitive price point. Features include adjustable threshold and time delay, versions with up to 4 channels and an alarm output relay.

AX-AA... Series

Description	Part No.
Alarm annunciator - 1 channel	AX-AA-1
Alarm annunciator - 2 channel	AX-AA-2
Alarm annunciator - 3 channel	AX-AA-3
Alarm annunciator - 4 channel	AX-AA-4



Plant Extension Timer

The AX-PET is an electronic timer switch that provides energy saving functionality in ventilation, boiler and lighting installations.

AX-PET

Description	Part No.
Plant extension timer	AX-PET

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PRESSURE DETECTION

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Air Differential Pressure Switches

These are high sensitivity air differential pressure switches, suitable for providing an indication of fan status and dirty filter conditions. The switching setpoint is adjusted by knob mounted under the main cover. Units are supplied complete with a duct fixing kit.

Features

- Duct fixing kit included
- IP54 housing

PA-930 Climair® Series	
Description	Part No.
IP54 Switch Housing	
20 - 300Pa	PA-930-80
50 - 500Pa	PA-930-83
200 - 1000Pa	PA-930-85



Air Differential Pressure Switches

This series air differential pressure switches are suited in domestic, commercial and industrial areas strong polluted on air conditioning and ventilating systems for filter monitoring, correct fan functioning control, low pressure and overpressure monitoring.

Features

- Differential pressure for air controls
- Alarm activation at a preset value

PA1x Series	
Description	Part No.
IP54 Switch Housing	
20 - 300Pa	PA10
50 - 500Pa	PA12
IP65 mounted in 130x130x99mm enclosure	
20 - 300Pa	PA10-IP65
50 - 500Pa	PA12-IP65



Air Differential Pressure Switches

To monitor air flow, dirty filters, flue draught, frost on coils & level. For positive, negative, vacuum & differential pressure. Suitable for non-corrosive, non-combustible air/gases.

Specification

- Enclosure: Steel zinc plated
- EFS-02HT - High temperature model includes - 2 x Brass duct adaptors for 6mm OD metal tube.

EDA..., EADP... & EFS... Series							
Range mbar	Diff. mbar	Approx.	Max Press mbar	230VAC SPDT	Media Temp °C	Rating	Part No.
0.13/30	0.05/2		35	10(2)A	80	IP30	EFS-02
0.13/30	0.05/2		35	10(2)A	300	IP30	EFS-02HT



Accessories

Description	Part No.
Brass duct flange for 6mm OD metal tube	EE-BFN
Copper tube 6mm OD x 10m for EFS...	EE-CT6
Duct kit 2m EE-PH + 2xEE-PT for EFS-02	EE-D1
Duct kit 2m EE-PH + 2xEE-PT for EDA... & EADP	EE-D2
PVC hose 5x8mm (order per metre)	EE-PH
70mm plastic duct adaptor for use with PVC hose	EE-PT
Plastic T connector for use with PVC hose	EE-TE
Plastic straight connector for use with PVC hose	EE-TA
Plastic Y connector for use with PVC hose	EE-TY



Air Differential Pressure Switches

These are highly sensitive air differential pressure switches, suitable for providing an indication of fan status and 'dirty filter' conditions. The switching setpoint is adjusted by means of a knob mounted under the main cover. Units are supplied complete with a duct fixing kit.

Features

- Duct fixing kit included
- IP54 or IP65 housing option
- One screw needed for housing cover
- Scale in Pascal's

PA-DPS Series		
Type	Differential	Part No.
IP54 Switch Housing		
20 - 300Pa	10Pa	PA-DPS-88
50 - 500Pa	20Pa	PA-DPS-83
200 - 1000Pa	100Pa	PA-DPS-85
IP65 Switch Housing		
20 - 300Pa		PA-DPS-90W
50 - 500Pa		PA-DPS-91W
100 - 1000Pa		PA-DPS-92W
500 - 2000Pa		PA-DPS-94W





Multi-Configurable Air Differential Pressure Sensor

The PA-60-x series of differential pressure transmitters are ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratory's and clean rooms (air and non-corrosive gases).

Features

- User selectable measurement range
- IP65 housing
- Duct fixing kit included
- Snap-fit cover

Specification

- Supply: 24V AC/DC $\pm 10\%$ (3 wire)
- Accuracy: $\pm 3.0\%$ max (PA-60-1)
 $\pm 2.0\%$ max (PA-60-2/3/4)
 $\pm 1.0\%$ max (PA-60-2-HA)

PA-60 Series

Type	Part No.	Option
0 to 25, 50, 150 & 250Pa Multi Range Selectable 0-10V DC or 4-20mA Selectable Output	PA-60-1	<input type="checkbox"/>
0 to 50, 100, 300 & 500Pa Multi Range Selectable 0-10V DC or 4-20mA Selectable Output	PA-60-2	<input type="checkbox"/>
0 to 50, 100, 300 & 500Pa Multi Range Selectable 0-10Vdc or 4-20mA Selectable Output High Accuracy	PA-60-2-HA	<input type="checkbox"/>
0 to 125, 250, 750 & 1250Pa Multi Range Selectable 0-10Vdc or 4-20mA Selectable Output	PA-60-3	<input type="checkbox"/>
0 to 250, 500, 1500 & 2500Pa Multi Range Selectable 0-10Vdc or 4-20mA Selectable Output	PA-60-4	<input type="checkbox"/>
Accessories		
Duct fixing kit	DFK	
Tee piece air pressure (pack of 10)	TEE	
PVC tube 8mm ϕ /d x 1.5mm wall, 30m reel	PA-TUBE-8MM	
Integral LCD Display	LCD	



Multi-Configurable Air Differential Pressure Sensor

The PA-65x pressure transducers sense differential or gauge (static) pressure and convert this pressure difference to a proportional electrical output for either field selectable unidirectional or bidirectional pressure ranges. The PA-650 series is offered with field selectable ranges and analogue outputs of 0 to 5V DC, 0 to 10V DC, or 4 to 20mA.

Features

- Field selectable multi-ranges
- Re-zero
- Integral LCD
- IP65 housing
- Duct fixing kit included
- Snap-fit cover

Specification

- Supply: 24V DC
- Accuracy: $\pm 1.0\%$ max (Overall)
 $\pm 0.98\%$ max (Non-linearity)
 $\pm 0.10\%$ max (Hysteresis)
 $\pm 0.05\%$ max (Non-repeatability)

PA-65 Series

Type	Part No.	Option
0 to 25, 50, 150 & 250Pa Multi Range Selectable 0-10V DC or 4-20mA Selectable Output	PA-65-0	<input type="checkbox"/>
0 to 50, 100, 300 & 500Pa Multi Range Selectable 0-10V DC or 4-20mA Selectable Output	PA-65-1	<input type="checkbox"/>
0 to 50, 100, 300 & 500Pa Multi Range Selectable 0-10Vdc or 4-20mA Selectable Output High Accuracy	PA-65-2	<input type="checkbox"/>
Accessories		
Duct fixing kit	DFK	
Tee piece air pressure (pack of 10)	TEE	
PVC tube 8mm ϕ /d x 1.5mm wall, 30m reel	PA-TUBE-8MM	
Integral LCD Display	LCD	

Part No. Completion
When ordering complete the Part No. by adding the following:-

- Options Add
Static pressure probe S

Multi-range Air Differential Pressure Sensor

Sontay's range of field selectable multi-range differential pressure transmitters, incorporate a proven ceramic fulcrum lever technology for pressure measurement. The PA-699 has up to three field selectable ranges in one unit, providing versatility for a multitude of applications.

Features

- Adjustable measurement range
- IP65 housing
- Duct fixing kit included
- Compact construction

Specification

- Supply: 13.5 to 33V DC or 24V AC $\pm 15\%$
- Accuracy: $\pm 1.0\%$ max (PA-699-01 to 04)
 $\pm 0.6\%$ (Others)
- Output: 0-10 Volts or 4-20mA

PA-699 Series

Type	Part No.	Option
0 to 30, 50 & 100Pa (bidirectional)	PA-699-01	<input type="checkbox"/>
0 to 30, 50 & 100Pa	PA-699-02	<input type="checkbox"/>
0 to 100, 300 & 500Pa	PA-699-04	<input type="checkbox"/>
0 to 500, 1000 & 1600Pa	PA-699-06	<input type="checkbox"/>
0 to 1600, 2500 & 5000Pa	PA-699-08	<input type="checkbox"/>
Accessories		
Duct fixing kit	DFK	
Tee piece air pressure (pack of 10)	TEE	
PVC tube 8mm ϕ /d, 30m reel	PA-TUBE-8MM	
DIN-rail bracket	PA-BRK	
Calibration certificate \neq	PA-699-CAL	

\neq This option must be specified at the time of sensor order. They are built to order and not available ex-stock.



Part No. Completion
When ordering complete the Part No. by adding the following:-

- Options Add
Integral LCD Screen LCD
0-10 Voltage output V

Air Differential Pressure Transducer

PTH is a series of pressure transducers which are ideal for monitoring and controlling pressure differentials in ventilation systems. PTH transducers are unique to its competitors in that they can be configured to suit any controller. With 8 different pressure ranges and the possibility of choosing between voltage and current outputs, PTH pressure transducers have a wide range of applications, are easy to install and save space in the stores and service van.

Standard Features

- Supply voltage: 24V AC
13.5 - 28V DC
- Pressure connector: 2 x 6.2mm
- Cable entry: PG11
- Enclosure: IP54
- Zero-set switch
- Quick release cover
- All units come with easy to use instructions and diagrams

PTH Series

Ranges	Part No.
-0.5 to +0.5 mbar	0-10V DC or 2-10V DC 4-20mA or 0-20mA
0 to 1 mbar	
0 to 1.5 mbar	
0 to 3 mbar	
0 to 5 mbar	
0 to 10 mbar	
0 to 16 mbar	
0 to 25 mbar	

Bailey & Mackey Ltd



Air Differential Pressure Sensors (multi-range)

Specification

- Supply: 24V AC or DC
- Multiple selectable ranges
- Output: 0-10 Volts or 4-20mA

TPDPT7 Series

Type	Part No.
4 x +/- Selectable ranges: 0-25, 0-50, 0-75, 0-100Pa	TPDPT7/100
4 x +/- Selectable ranges: 0-25, 0-50, 0-75, 0-100Pa with display	TPDPT7/100/D
4 x +/- Selectable ranges: 0-100, 0-200, 0-300, 0-400, 0-500Pa	TPDPT7/500
4 x +/- Selectable ranges: 0-100, 0-200, 0-300, 0-400, 0-500Pa with display	TPDPT7/500/D
8 x +/- Selectable ranges: 0-50, 0-125, 0-250, 0-500, 0-1000, 0-1500, 0-2000, 0-2500Pa	TPDPT/2500
8 x +/- Selectable ranges: 0-50, 0-125, 0-250, 0-500, 0-1000, 0-1500, 0-2000, 0-2500Pa with display	TPDPT7/2500/D
6 x Selectable ranges: 0-5000, 0-6000, 0-7000, 0-8000, 0-9000, 0-10000	TPDPT7/10000

TITAN
Products Ltd.





Air Differential Pressure Transmitter

Differential pressure transmitter with 8 selectable ranges and outputs 0..5V, 0..10V or 4 to 20mA. NEMA 4X / IP65 rates enclosure. For monitoring differential pressure of air and other non-flammable and non-aggressive gases. Monitoring air filters, fans, Industrial cooling air cycles, control of air and fire dampers. DIN rail mounting included. Options available with LCD display, Auto Zero feature, MODBUS RTU and BACnet MS/TP versions available.

Standard Features

- Supply voltage: 24V AC
15-24V DC
- Pressure connector: 2 x 5.3mm
- Cable entry: PG11 (20mm conduit adaptor available)
- Enclosure: IP65 / NEMA 4x
- Zero-set switch
- Snap-on cover
- All units come with easy to use instructions and diagrams

22 ADP Series

Ranges	Output signal	Display type	Additional Features	Part No.
0...250 Pa version with 8 selectable ranges				
-25...25 Pa		-	-	22ADP-18Q
-50...50 Pa		LCD	-	22ADP-18L
-100...100 Pa	DC 0...10V	-	Auto-zero	22ADP-18QA
-150...150 Pa	DC 0...5V	LCD	Auto-zero	22ADP-18QB
0...25 Pa	4...20mA	-	Volumetric flow	22ADP-15Q
0...50 Pa		LCD	Volumetric flow, MODBUS	22ADP-15QL
0...100 Pa		-	Volumetric flow, auto-zero, MODBUS	22ADP-15QA
0...250 Pa		LCD	Volumetric flow, auto-zero, MODBUS	22ADP-15QB
0...2500 Pa version with 8 selectable ranges				
-100...100 Pa		-	-	
0...100 Pa		-	-	
0...250 Pa	DC 0...10V	-	Volumetric flow, MODBUS	22ADP-184
0...500 Pa	DC 0...5V	LCD	Volumetric flow, MODBUS	22ADP-184L
0...1000 Pa	4...20mA	-	-	22ADP-154
0...1500 Pa		LCD	-	22ADP-154L
0...2000 Pa		-	-	
0...2500 Pa		-	-	
0...7000 Pa version with 8 selectable ranges				
0...1000 Pa		-	-	
0...1500 Pa		-	-	
0...2000 Pa	DC 0...10V	-	-	22ADP-186
0...2500 Pa	DC 0...5V	LCD	-	22ADP-186L
0...3000 Pa	4...20mA	-	Volumetric flow, MODBUS	22ADP-156
0...4000 Pa		LCD	Volumetric flow, MODBUS	22ADP-156L
0...5000 Pa		-	-	
0...7000 Pa		-	-	



Air Differential Pressure Transmitters

These devices measure vacuum, pressure or differential pressure of air and non-combustible, non-aggressive gases across fans, filters, air flow devices etc and give a 0-10V DC output signal linear across the range. Suitable for air conditioning, ventilation and building management systems. Models with square root extracted output are available on request.

Specification

- Accuracy: <3% (EDT-050)
<2% (EDT-1...25)
- Pressure: -0.25 to +2 bar

EDT... Series

Range mbar	Max. Press. mbar	Output Signal	Pressure Connections	Rating	Part No.
-0.5 to +0.5	50	0-10V DC	6mm push-on	IP54	EDT-050
0 to 1	50	0-10V DC	6mm push-on	IP54	EDT-1
0 to 3	50	0-10V DC	6mm push-on	IP54	EDT-3
0 to 5	50	0-10V DC	6mm push-on	IP54	EDT-5
0 to 10	50	0-10V DC	6mm push-on	IP54	EDT-10
0 to 16	50	0-10V DC	6mm push-on	IP54	EDT-16

Differential Pressure Transducers

This series of miniature differential pressure transducers have a piezo-resistive sensor and a unique conductive seal that eliminates internal wire bonding. Zero and full scale adjusters are provided under the top cover. They are ideal for use in areas requiring exact pressure measurement, low hysteresis and long term stability. For all applications where air, oil or water is to be monitored.

Specification

- Pressure connections: 1/8" BSP Female brass
- Max. media temp. -20 to +80°C

482 Series

Ranges	Outputs	Part No.
0 to 35 mbar	4-20mA (3 wire)	482A
0 to 70 mbar		
0 to 350 mbar	0-10V DC (2 wire)	482B
0 to 1 bar		
0 to 2 bar		
0 to 7 bar		
0 to 17 bar		

Bailey & Mackey Ltd



Liquid Differential Pressure Switches

1482 Series

Range Bar	Diff. Bar	Max. Press. Bar	Media Contact Materials	Rating	Part No.
0.2 to 4	20 to 250 mbar	6	Brass/Phosphor bronze	IP40	BK100



Liquid Differential Pressure Switches

These units can be used to monitor the flow of liquids across pumps, boilers, chillers, valves etc. They can also be used to monitor dirty filter conditions. Suitable for water, air, oil, diesel and up to 30% glycol etc. Type EP-099/100/101 are suitable for low pressure applications i.e. below 0.4 bar.

Specification

- Pressure connections: 1/4" BSP Female
1/4" BSP Male (EP-113/ST)
- Max. media temp. 80°C

EP... Series

Range Bar	Diff. Bar	Max. Press. Bar	Media Contact Materials	Rating	Part No.
0.2 to 4	0.1	23	Brass/Phosphor bronze	IP40	EP-113
0.2 to 4	0.07 to 1	10	Brass/Phosphor bronze	IP40	EP-114W
0.2 to 4	0.2 to 4	16	Brass/Phosphor bronze	IP40	EP-115W
0.2 to 4	8 to 125	6	Brass/Phosphor bronze	IP40	EP-099
0.2 to 4	10 to 300	6	Brass/Phosphor bronze	IP40	EP-100
0.2 to 4	25 to 400	6	Brass/Phosphor bronze	IP40	EP-101

Electro Controls



Liquid Pressure Switches

Suitable to monitor static or positive pressure of water, air, oil, diesel, steam** etc & switch in the event of high or low pressure conditions. Two switches must be used if both high and low pressures are to be controlled.

Features

- * The minimum differential will gradually increase by approx 60% as the switch setting is increased
- **The pressure line can be formed into a U shape/syphon for media temperatures up to 300°C
- Tamper proof adjustment
- Volt free contacts

Specification

- Pressure connections: 1/2" BSP Female
- Max. media temp: 80°C

EP... Series

Range Bar	Diff. Bar	Max. Press. Bar	Media Contact Materials	Rating	Part No.
0.1 to 2	* 0.7 to 1.9	40	Cast aluminium/Nitrile	IP65	EP-2
0.2 to 4	* 0.15 to 3.7	40	Cast aluminium/Nitrile	IP65	EP-4
0.5 to 8	* 0.3 to 7.5	40	Cast aluminium/Nitrile	IP65	EP-8
1 to 16	* 0.6 to 15	48	Cast aluminium/Nitrile	IP65	EP-16





Liquid Pressure Switches

Adjustable pressure switches, suitable for the monitoring of flow failure and proving in pumps, chillers, valves etc. Units have an adjustable setpoint and differential.

Features

- Adjustable pressure range
- Narrow adjustable differential

PL-PSA Series

Range Description	Rating	Part No.
-0.75-+3 Bar	IP30	PL-PSA1
-0.8-+1.5 Bar		PL-PSA2
-0.5-+7 Bar		PL-PSA3
Accessories		
Mounting bracket for PSA		BRK

Liquid Differential Pressure Switches

Liquid differential pressure switch suitable for monitoring flow status across pumps, chillers, valves etc. The switch has an adjustable set point from 0.3 bar to 4.5 bar (4.4 to 65.3 psi) with a fixed differential of 0.2 bar (2.9 psi).

Features

- SPDT switch
- Simple to configure
- Single unit covers a wide pressure range

PL-FD Series

Range Description	Rating	Part No.
0.3 to 4.5 bar	IP30	PL-FD113

Differential Pressure Switches

Ideal for flow monitoring and proving applications in heating, ventilating and air-conditioning systems.

Features

- Over-pressure safety capability to 10 bar/20 bar
- Mechanically isolated switching chamber for safety and reliability
- Medium temperatures to 80°C
- Rugged construction
- Adjustable setting and differential

Specification

- Pressure connections: 1/8" BSP Female
- Max. media temp. -10 to +80°C

PL-630 Series

Range Description	Rating	Part No.
6 to 20 mbar	IP65	PL-630-A-0.02
15 to 60 mbar	IP65	PL-630-A-0.06
40 to 200 mbar	IP65	PL-630-A-0.2
0.15 to 1 bar"	IP65	PL-630-A-1
1 to 3 bar	IP65	PL-630-A-3
2 to 5.5 bar	IP65	PL-630-A-5.5

Static Pressure Switches

Features optimised polymer diaphragm technology to give long term stability and excellent repeatability of switching points and housed within a rugged industrial case.

Features

- Suitable for liquids and gases
- High vibration resilience
- Adjustable switching differential
- Spade connectors and gland supplied

PL-625 Series

Range Description	Rating	Part No.
120-2200mbar	IP54	PL-625-2.2
1000-6000mbar	IP54	PL-625-6

Low Range Differential Pressure Sensors

A sensor for liquids and gases which uses the 'Hall Effect' sensing technology. The high over pressure resilience and rugged mechanical construction make this product suitable for a wide range of HVAC applications.

Features

- Output signal in current or voltage
- High over pressure safety margin
- High linearity, accuracy and repeatability
- Rugged IP65 case construction
- Used for mildly aggressive liquids and gases

Specification

- Pressure connections: 1/8" BSP Female
- Max. media temp. -10 to +80°C

PL-652 Series

Sensor Type	Range Description	Part No.
4-20mA output (3-wire)	0 to 50 mbar	PL-652-0.05
0-10V DC output	0 to 50 mbar	PL-652-0.05-V
Accessories		
Calibration certificate [≠]		PL-652-CAL

[≠] This option must be specified at the time of sensor order. They are built to order and not available ex-stock.

Liquid Differential Pressure Sensors

For high accuracy and close control applications, the PL-692 features ceramic sensing technology for exceptional accuracy and reliability. The amplified sensing technologies allow high temperature stability and no creepage associated with mechanical systems.

Features

- Current and voltage output models
- Supplied with 6mm o/d fittings
- Easy installation and wiring
- Complete with 1.5m cable, ready connected
- High temperature stability

Specification

- Max. ambient temp: -15 to +80°C
- Response time: <5ms

PL-692 Series

Sensor Type	Transmitter Description	Part No.
4-20mA output (2-wire loop powered)	0 to 100 mbar	PL-692-0.1
	0 to 200 mbar	PL-692-0.2
	0 to 400 mbar	PL-692-0.4
	0 to 1 bar	PL-692-1
	0 to 2.5 bar	PL-692-2.5
	0 to 4 bar	PL-692-4
	0 to 6 bar	PL-692-6
	0 to 10 bar	PL-692-10
	0 to 16 bar	PL-692-16
	0-10V DC output	0 to 100 mbar
0 to 200 mbar		PL-692-0.2-V
0 to 400 mbar		PL-692-0.4-V
0 to 1 bar		PL-692-1-V
0 to 2.5 bar		PL-692-2.5-V
0 to 4 bar		PL-692-4-V
0 to 6 bar		PL-692-6-V
0 to 10 bar		PL-692-10-V
0 to 16 bar		PL-692-16-V

Accessories

Calibration certificate ≠ PL-692-CAL

≠ This option must be specified at the time of sensor order. They are built to order and not available ex-stock.



Static Pressure Transmitters

The PL-52x range of static pressure transmitters are suitable for use with a large range of liquids and gases compatible with the FPM (viton) seal. The pressure transmitter is based on proven ceramic technology for exceptional performance speed and reliability.

Features

- Suitable for water, steam (with PL-HS) or air
- Compact rugged construction
- Negligible temperature influence
- Supply short circuit & polarity reversal protected

Specification

- Electrical terminals and gland to DIN EN175 301-803-A
- IP65 protection

PL-52x Series

Sensor Type	Description	Part No.
4-20mA output (2-wire loop powered)	0 to 100mbar	PL-525-0.1
	0 to 200mbar	PL-525-0.2
	0 to 300mbar	PL-525-0.3
	0 to 600mbar	PL-525-0.6
	0 to 1 bar	PL-528-1
	0 to 1.6 bar	PL-528-1.6
	0 to 2.5 bar	PL-528-2.5
	0 to 4 bar	PL-528-4
	0 to 6 bar	PL-528-6
	0 to 10 bar	PL-528-10
0-10V DC output	0 to 16 bar	PL-528-16
	0 to 25 bar	PL-528-25
	0 to 40 bar	PL-528-40
	0 to 100mbar	PL-525-0.1-V
	0 to 200mbar	PL-525-0.2-V
	0 to 300mbar	PL-525-0.3-V
	0 to 600mbar	PL-525-0.6-V
	0 to 1 bar	PL-528-1-V
	0 to 1.6 bar	PL-528-1.6-V
	0 to 2.5 bar	PL-528-2.5-V
	0 to 4 bar	PL-528-4-V
	0 to 6 bar	PL-528-6-V
	0 to 10 bar	PL-528-10-V
	0 to 16 bar	PL-528-16-V
	0 to 25 bar	PL-528-25-V
	0 to 40 bar	PL-528-40-V

Accessories

Heatsink PL-HS

Calibration certificate ≠ PL-528-CAL

≠ This option must be specified at the time of sensor order. They are built to order and not available ex-stock.



BELIMO®



Water Pressure & Flow Sensors

Static Pressure

Description	Output signal	Pressure range	Part No.
Active	DC 0...10V	0...4 bar	22WP-114
		0...6 bar	22WP-115
		0...10 bar	22WP-116
	4...20mA	0...16 bar	22WP-117
		0...4 bar	22WP-134
		0...6 bar	22WP-135
		0...10 bar	22WP-136
		0...16 bar	22WP-137

Differential Pressure

Active	DC 0...10V	0...1 bar	22WDP-111
		0...2.5 bar	22WDP-112
		0...4 bar	22WDP-114
	4...20mA	0...6 bar	22WDP-115
		0...1 bar	22WDP-131
		0...2.5 bar	22WDP-132
		0...4 bar	22WDP-134
		0...6 bar	22WDP-135

Flow (Volumetric Flow)

Description	Output signal	Flow rate	Part No.
Active	DC 0...10V	0...0.42 l/s	FM015R-SZ
		0...0.78 l/s	FM020R-SZ
		0...1.38 l/s	FM025R-SZ
		0...2.16 l/s	FM032R-SZ
		0...3.00 l/s	FM040R-SZ
		0...5.76 l/s	FM050R-SZ

Dwyer®



Magnehelic® Differential Pressure Gauges 2000 Series

Features

- Accuracy: ±2% of full scale at 70°F (21.1°C)

- Temperature limits: 20°F to 140°F (-6.67°C to 60°C)

Magnehelic® Gauges

Measurement Type	Range	Accuracy	Part No.
Pa Pascal	0-60	±4%	2000-60PA
	0-100	±3%	2000-100PA
	0-125		2000-125PA
	0-250		2000-250PA
	0-300		2000-300PA
	0-500		2000-500PA
KPa	0-750		2000-750PA
	0-1		2000-1KPA
	0-1.5		2000-1.5KPA
	0-2		2000-2KPA
	0-3		2000-3KPA
	0-4		2000-4KPA
	0-5		2000-5KPA
	0-8		2000-8KPA
	0-10		2000-10KPA

Calibration - add

A-414 StSt Clean room termination - add

Magnehelic® enclosure - add

Accessories

Description	Part No.
Surface mounting bracket	A-299
Flat flush mounting bracket	A-300
Pipe mounting kit	A-610
Portable kit	A-432
Air filter kit	A-605

Minihelic® Differential Pressure Gauges 2-5000 Series

Features

- Accuracy: ±5% of full scale at 70°F (21.1°C)

- Temperature limits: 20°F to 120°F (-6.67°C to 48.9°C)

Minihelic® Gauges

Measurement Type	Range	Part No.
Pa Pascal	0-125	2-5000-125PA
	0-250	2-5000-250PA
	0-500	2-5000-500PA
	0-750	2-5000-750PA
KPa	0-1	2-5000-1KPA
	0-2	2-5000-3KPA
	0-3	2-5000-5KPA

Calibration - add

Accessories

Description	Part No.
Surface mounting bracket	A-497
Portable kit	A-434
Air filter kit	A-609



Magnesense® II Differential Pressure Transmitter

Used to monitor air pressure, air velocity and air flow, BACnet or Modbus communications.

Features

- Protection: IP66

Magnesense® Transmitters

in w.c.	Pa	mm w.c.	kPa	Part No.
0.10, 0.15, 0.25, 0.50	25, 40, 50, 125	2.5, 4, 6, 10	0.025, 0.05, 0.05, 0.125	MS2-W101
±0.10, ±0.15, ±0.25, ±0.50	±25, ±40, ±50, ±125	±2.5, ±4, ±6, ±10	±0.025, ±0.05, ±0.05, ±0.125	MS2-W111
1, 2, 3, 5	250, 500, 750, 1250	25, 50, 75, 125	0.25, 0.5, 0.75, 1.25	MS2-W102
±1, ±2, ±3, ±5	±250, ±500, ±750, ±1250	25, 50, 75, 125	0.25, 0.5, 0.75, 1.25	
10, 15, 25, 28	2500, 3500, 5000, 6975	250, 350, 500, 697.5	2.5, 3.5, 5.0, 6.975	MS2-W103
±10, ±15, ±25, ±28	±2500, ±3500, ±5000, ±6975	±250, ±350, ±500, ±697.5	±2.5, ±3.5, ±5.0, ±6.975	

For duct mount static probe change W to D, example: MS2-D101. For DIN rail mounting change W to N, example: MS2-N101

Magnehelic® Indicating Transmitter 605 Series

Used for visual monitoring and electronic control of low differential pressure.

Magnehelic® Transmitters

Measurement Type	Selectable Range	Accuracy	Part No.
WG	0 - 6.0	+/-0.5% Mech. +/-0.2%	605-6
	0 - 10	+/-0.5% Mech. +/-0.2%	605-10
	0 - 50	+/-0.5% Mech. +/-0.2%	605-50
Pa Pascals	0 - 60	+/-0.2% Mech. +/-0.2%	605-60PA
	0 - 125	+/-0.2% Mech. +/-0.2%	605-125PA
	0 - 250	+/-0.2% Mech. +/-0.2%	605-250PA
kPa Kilopascals	0 - 500	+/-0.5% Mech. +/-0.2%	605-500PA
	0 - 1.5	+/-0.5% Mech. +/-0.2%	605-1.5KPA

Photohelic® 3000 MR Series

For use with BMS systems.

Photohelic® Gauges

Measurement Type	Selectable Range	Part No.
Pa Pascals	0 - 60	3000 MR 60PA
	0 - 125	3000 MR 125PA
	0 - 250	3000 MR 250PA
	0 - 500	3000 MR 500PA

Digihelic® 3 Differential Pressure Controller

Three in one instrument; gauge, switch & transmitter. Square root output for flow.

Digihelic® Gauges

Range	Part No.	Range	Part No.
0 - 0.25 in w.c.	DH3-002	0 - 50 in w.c.	DH3-010*
0 - 0.5 in w.c.	DH3-003	0 - 100 in w.c.	DH3-011*
0 - 1 in w.c.	DH3-004	0.25 - 0-0.25 in w.c.	DH3-013*
0 - 2.5 in w.c.	DH3-005	0.5 - 0-0.5 in w.c.	DH3-014*
0 - 5 in w.c.	DH3-006	1 - 0-1 in w.c.	DH3-015*
0 - 10 in w.c.	DH3-007	2.5 - 0-2.5 in w.c.	DH3-016*
0 - 25 in w.c.	DH3-009	5 - 0-5 in w.c.	DH3-017*
		10 - 0-10 in w.c.	DH3-018*

*Velocity and volumetric flow not available on bi-directional range units and models DH-010 and DH3-011.

Accessories

Description	Part No.
Silver RS-232 to RS-485 converter with DB9F connector	351-9-N
Silver RS-232 to RS-485 converter with DB9F connector, includes 120V AC to 12V DC adaptor	351-9
Digihelic® controller surface mounting bracket	A-266
1/8" I.D. x 1/4" O.D. PVC tubing (per foot)	A-203
Digihelic® communication software	DIGIHELLIC LINKS

Differential Pressure Gauges DM-2000 Series

Specification

- Accuracy: ±1% F.S. at 70°F.
- Temperature limits: 20°F to 120°F (-6.67°C to 48.9°C).

DM-2000 Series

Range	Part No.
0 - 0.25" w.c.	DM-2002
0 - 0.5" w.c.	DM-2003
0.25 - 0-0.25" w.c.	DM-2012
0.5-0 - 0.5" w.c.	DM-2013

Dwyer®



11

HUMIDITY TEMPERATURE & CO2 & AIR QUALITY



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Averaging Temperature Duct Sensor

Description	Sensor Type	Additional Features	Part No.
Active	DC 0...5V / 0...10V	Probe length 6m	22MT-125
	4...20mA		22MT-145

Humidity / Temperature Duct Sensor

	DC 0...5V / 0...10V		22DTH-11M
Active	4...20mA	Probe length 140mm	22DTH-13M
	MODBUS RTU		22DTH-15M
	BACnet MS/TP		22DTH-16M

CO2 Duct Sensor

Active	DC 0...5V / 0...10V	Probe length 180mm	22DC-11
	4...20mA		22DC-13

CO2 / Temperature Duct Sensor

Active	DC 0...5V / 0...10V	Probe length 180mm	22DTC-11
	4...20mA		22DTC-13

CO2 / Humidity / Temperature Duct Sensor

Active	MODBUS RTU	Probe length 180mm	22DTM-15
	BACnet MS/TP		22DTM-16

CO2 / VOC Duct Sensor

Active	DC 0...5V / 0...10V	Probe length 180mm	22DCV-11
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CO2 / VOC / Temperature Duct Sensor

Active	DC 0...5V / 0...10V	Probe length 180mm	22DCM-11
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CO2 / VOC / Mix CO2 + VOC / Temperature Duct Sensor

Active	DC 0...5V / 0...10V	Probe length 180mm	22DCK-11
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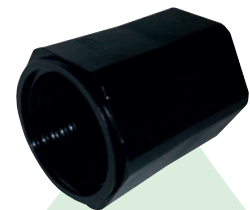
Frost Protection Stat Sensor

Switch	Volt free relay NO/NC	Auto reset, probe length 3m	01DTS- 104
		Auto reset, probe length 6m	01DTS- 105
		Manual reset, probe length 3m	01DTS- 104X
		Manual reset, probe length 6m	01DTS- 105X

Sensor Adaptors

Sensor Adaptors

Description	Sensor Type	Additional Features	Part No.
20mm adaptor (in bags of 10x)	1 hole		A-22G-A01.1
	2 holes	20mm conduit adaptor	A-22G-A02.1
	4 holes		A-22G-A04.1



Electro Controls



Air Quality Transmitters

These products can be used to detect a mixture of pollutant gases in the air i.e. cigarette smoke, odours and other gases generally found within clubs, pubs, restaurants, kitchens, smoking areas etc. The 0-10V DC linear output signal is proportional to the contamination level produced and can be used to control fresh air dampers or fans etc. A solid state element is used to sense contaminant gases.

Features

EAQ... Transmitters should not be used to detect carbon dioxide (CO2). CO2 transmitters are ideal for use in clean areas i.e.. theatres, conference rooms.

EAQ-R1 Fits square or round outlet box.

EAQ... Sensor

Type	Accuracy	Supply	Rating	Part No.
Room	±5%	24V AC/DC	IP30	EAQ-R1
Duct		24V AC/DC	IP65	EAQ-D1

Carbon Dioxide Transmitter

These detect the presence of carbon dioxide ONLY and give a 0-10V DC or 4-20mA output signal linear across the range. Suitable for use in clean areas such as no-smoking rooms, theatres, conference rooms etc.

ECD... Sensor

Type	Accuracy	Supply	Rating	Part No.
Room	0-2000ppm ±75ppm	24V AC/DC	IP30	ECD-R1
Duct		24V AC/DC	IP65	ECD-D1



CO2, Temperate & RH Transmitters

An accurate and cost effective solution for the HVAC market, with 0-10V outputs for CO2, temp & RH levels. Using the built in volt free contact allows the unit to be easily interfaced with a variety of systems including ventilation, window control, gas safety, or with the optional LCD the unit can simply be used as a traffic light indication to raise awareness of high CO2, temp or RH levels.

Features

- 24V AC/DC power supply
- Optional CO2 readout (Temp & RH on - H model only)
- Optional CO2 traffic light indication (can be configured for Temp & RH)
- Volt free contact output based on CO2 (can be configured for Temp & RH)
- Typical 15 year life expectancy
- Self-calibrating CO2 sensor
- Mounts onto any standard single gang junction or conduit box
- UK Manufactured

CO2, Temperate & RH Transmitters

Description	Part No.
CO2 Transmitter (24V)	CO2T
CO2, Temp & RH Transmitter (24V)	CO2T-H
CO2 & Temp Transmitter c/w 10K3 Thermistor (24V)	CO2T-P3
Temp & RH Transmitter (24V)	RHT
CO2 Transmitter c/w display (24V)	CO2T-L
CO2, Temp & RH Transmitter c/w LCD (24V)	CO2T-HL
CO2 & Temp Transmitter c/w 10K3 Therm & LCD (24V)	CO2T-P3L
Temp & RH Transmitter c/w Display (24V)	RHT-L

Features

- 24V AC/DC power supply
- Volt free contact output based on CO2 (can be configured for Temp & RH)
- Typical 15 year life expectancy
- Self-calibrating CO2 sensor
- 200mm duct probe
- UK Manufactured

CO2, Temperate & RH Transmitters - Duct Mount

Description	Part No.
CO2 Transmitter - Duct (24V)	CO2TD
CO2, Temp & RH Transmitter - Duct (24V)	CO2TD-H
CO2 & Temp Transmitter c/w 10K3 Therm - Duct (24V)	CO2TD-P3
Temp & RH Transmitter - Duct (24V)	RHTD



Room/Duct Carbon Dioxide Transmitters

High reliability, low maintenance and BSF* compliant. Sontay's new carbon dioxide sensor range uses a non-dispersive infrared sensor for measuring CO2 concentrations in controlled spaces. They deliver accurate measurement and instant control, with long-term stability.

The microprocessor electronics feature a unique self-calibration algorithm that continually adjusts for drift, prevalent in many other sensor types. The operation ensures adequate air quality while maximising energy savings by ventilating at the optimum level. Sensors can be connected to a BMS, using the optional ModBus communications interface for added overall efficiency.

These units are ideal for all types of ventilation in commercial buildings, industrial plants, laboratories and public spaces, such as schools and train stations. * *Building Schools for the Future (BSF), Building Bulletin 1 (BB1) compliance.*

Features

- Accurate and reliable measurement using NDIR technology
- 10 to 15-year product life time (depending on type)
- RH & Temp. models
- 3-stage status indication on CO2 only models
- 3-colour 'traffic light' status indication LCD with alarm function options
- RS485 ModBus connectivity available
- Wall and duct models available

Specification

Output signal selectable: 0-10V DC/4-20mA
 Range: 0 to 2000ppm
 Protection: IP65 (duct) IP30 (wall)

GS-CO2... Series

Mounting Type	ModBus/BACnet	Mode Button	LED (6) Indication	Part No.
Duct	-	-	-	GS-CO2-622
	Yes	-	-	SM-33000
Room	Yes	-	-	SM-130000
	-	-	Yes	GS-CO2-1001
	Yes	-	Yes	SM-140000
	-	-	Yes	GS-CO2-1001-LED

Room/Duct Carbon Dioxide, RH & Temperature Transmitters

GS-CO2... Series

Mounting Type	Temp Range	ModBus/BACnet	LED Display	Part No.
Duct	-20 to +60°C	-	-	GS-CO2-RHT-622
		-	Yes	GS-CO2-RHT-622-LED
		Yes	Yes	SM-36000
		-	-	GS-CO2-RHT-1001
Room		Yes	-	SM-150000
		-	Yes	GS-CO2-RHT-1001-LED
		Yes	Yes	SM-160000



CO2 & Temperature Sensors

TP Series

Type	Output	Part No.
CO2 & Temperature	0-10V	TPVRC02T
CO2 & Temperature	0-10V Resistive & Temperature	TPVRC02-RT*
CO2, Temperature & Humidity	0-10V	TPVRC02HT
CO2, Temperature & Humidity	0-10V & Resistive Temperature	TPVRC02H-RT*
CO2 & Temperature c/w LED indication	0-10V	TPVRC02T/L
CO2 & Temperature c/w LED indication	0-10V Resistive Temperature	TPVRC02-RT/L
CO2, Temperature & Humidity c/w LED indication	0-10V	TPVRC02HT/L
CO2, Temperature & Humidity c/w LED indication	0-10V & Resistive Temperature	TPVRC02H-RT*/L
Battery Powered CO2 indication only	LED indication only	TP-CO2-IND/L

* State element type required.

All sensors available in white, grey or black housings.





Outside Air RH & T Sensors

The RH-632 Duct Mounted Humidity and Temperature Sensors offer the latest technology for high accuracy RH measurement. Units can be ordered with an optional direct resistive temperature output (where this option is required, the type of temperature element MUST be specified at the time of ordering). The RH-632 is also available with additional outputs for enthalpy and dewpoint. Non-standard temperature output ranges can be specified at time of order.

Features

- Snap fit cover
- Fully configurable LCD Display
- High stability & reliability
- Long term stability

RH-632 Series

RH Accuracy	Description	Part No.
± 2%	RH & T High accuracy Transmitter	RH-632-AH
	Direct resistive temperature output	RH-632-AH-T*
	Enthalpy & dewpoint outputs	RH-632-EN
	Custom Temperature Output	RH-632-AH-TR
± 3%	RH & T Transmitter	RH-632
	Direct resistive temperature output	RH-632-T*
	Custom Temperature Output	RH-632-TR

*Thermistor Type TBA prior to order

Space Mount RH & T Sensors

Using the latest high accuracy RH & T element, the RH-1000 is available with active temperature and RH outputs, as well as a directly connected passive resistive temperature output along with other passive outputs. A multi-line backlit LCD display is also available.

Features

- High stability and reliability
- Selectable 0-10V DC, 0-5V DC or 4-20mA output
- Fully configurable LCD display option

RH-1000 Series

RH Accuracy	Description	Part No.
± 2%	RH & T high accuracy transmitter	RH-1000-AH
	Direct resistive temperature output	RH-1000-AH-T*
	Enthalpy & dewpoint outputs	RH-1000-EN
	Integral LCD for RH & Temp.	RH-1000-AH-LCD
	Custom temperature output	RH-1000-AH-TR
± 3%	RH & T transmitter	RH-1000
	Direct resistive temperature output	RH-1000-T*
	Integral LCD for RH & temp.	RH-1000-LCD
	Custom temperature output	RH-1000-TR

*Thermistor Type TBA prior to order

Wall Mount RH & T Sensors

The RH-631 Duct Mounted Humidity and Temperature Sensors offer the latest technology for high accuracy RH measurement. Units can be ordered with an optional direct resistive temperature output (where this option is required, the type of temperature element MUST be specified at the time of ordering). The RH-631 is also available with additional outputs for enthalpy and dewpoint. Non-standard temperature output ranges can be specified at time of order.

Features

- Snap fit cover
- Fully configurable LCD Display
- High stability & reliability
- Long term stability

RH-631 Series

RH Accuracy	Description	Part No.
± 2%	RH & T High accuracy transmitter	RH-631-AH
	Direct resistive temperature output	RH-631-AH-T*
	Enthalpy & dewpoint outputs	RH-631-EN
	Custom temperature output	RH-631-AH-TR
± 3%	RH & T transmitter	RH-631
	Direct resistive temperature output	RH-631-T*
	Custom temperature output	RH-631-TR

*Thermistor Type TBA prior to order

Humidistats

Room/Duct Mounted

The RH-SH Humidistats are designed for the on/off control of humidification and dehumidification equipment, or the initiation of alarms or override controls.

Features

- Single and 2-stage units available
- Duct or space mounted units

RH-SH Series

Type	Stage Type	Description	Part No.
Room humidistats	Single	Concealed setpoint	RH-SH-1R
		Exposed setpoint	RH-SH-1RE
Duct humidistats	Single	RH & T transmitter	RH-SH-1D
		Exposed setpoint	RH-SH-1DE

Humidity-Temperature Sensors

Duct Mounted

The RH-622 duct mounted humidity and temperature sensors offer the latest technology for high accuracy RH measurement. Units can be ordered with an optional direct resistive temperature output (where this option is required, the type of temperature element MUST be specified at the time of ordering). The RH-622 is also available with additional outputs for enthalpy and dewpoint. Non-standard temperature output ranges can be specified at time of order.

Features

- $\pm 2\%$ and $\pm 3\%$ Accuracy versions
- Snap fit cover
- Fully configurable LCD Display
- Direct thermistor temperature options available
- High stability & reliability
- Long term stability

RH-622 Series

RH Accuracy	Description	Part No.
$\pm 2\%$	RH & T high accuracy transmitter	RH-622-AH
	Direct resistive temperature output	RH-622-AH-T*
	Enthalpy & dewpoint outputs	RH-622-EN
	Custom temperature output	RH-622-AH-TR
$\pm 3\%$	RH & T transmitter	RH-622
	Direct resistive temperature output	RH-622-T*
	Custom temperature output	RH-622-TR

*Thermistor Type TBA prior to order



Humidity & Combined Temperature Sensors

Specifications

Output: 4-20mA or 0-10V (Thermistor option for temperature sensor)

Range: 0 to 100% RH / 0-50°C temperature

Accuracy: $\pm 2\%$ RH and $\pm 0.3^\circ\text{C}$ temperature (@ 25°C between 30 to 70% RH)

TP Series

Type	Range	Part No.
Room Humidity Sensor	4-20mA signal 24V DC supply (2 wire)	TPRH (state colour)
	0-10V 24V AC/DC supply (3 wire)	TPVRH (state colour)
Room temp (Thermistor) & humidity sensor	4-20mA 24V DC supply (2+2 wire)	TPRH-RT (state colour)
	0-10V 24V AC/DC (3+2 wire)	TPVRH-RT (state colour)
Room temp & humidity sensor	4-20mA loop powered 24V DC supply (2+2 wire)	TPRHT/LP (state colour)
	0-10V signal only, 24V AC/DC (4 wire)	TPVRHT (state colour)
Duct humidity sensor	4-20mA signal 24V DC supply (2 wire)	TPDH
	0-10V signal 24V AC/DC supply (3 wire)	TPVDH
Duct temp (thermistor) & humidity sensor	4-20mA 24V DC (2+2 wire)	TPDH-RT
	4-20mA loop powered 24V DC (2+2 wire)	TPDHT/LP
Duct temp & humidity sensor	0-10V signal only 24V AC/DC (4 wire)	TPVDHT
	4-20mA signal 24V DC supply (2 wire)	TPDH
Outside humidity sensor	0-10V signal only 24V AC/DC supply (3 wire)	TPVOH
	4-20mA 24V DC (2+2 wire)	TPOH-RT
Outside temp & humidity sensor	4-20mA loop powered 24V DC (2+2 wire)	TPOHT/LP

*Note: - For temperature thermistor element state type required.



AXIO



Room / Space Relative Humidity & Temperature Transmitter

High-quality, cost effective room (space) RH&T transmitters available in both 2% and 3% accuracy versions. Jumper-selectable outputs and an optional direct resistance temperature output make these units very flexible solution. The units will fit a standard single-gang back box.

Features

- Fits a standard single gang back box.
- High stability & reliability
- 0-5/10V DC or 4-20mA selectable outputs

AX-RHT-O... Series

RH Accuracy	Description	Part No.
± 3%	0-10V DC / 4-20mA	AX-RHT-S3
	0-10V DC / 4-20mA + Thermistor	AX-RHT-S3-x
± 2%	0-10V DC / 4-20mA	AX-RHT-S2
	0-10V DC / 4-20mA + Thermistor	AX-RHT-S2-x

Duct Relative Humidity & Temperature Transmitter

Duct mounted RH & T transmitters offer very high-quality sensing for both humidity and temperature. Outputs are individually selectable for either 4-20mA or 0-10V DC and an optional direct resistive temperature output provides superb flexibility.

Features

- High-quality 316 stainless steel probe
- 2% and 3% RH accuracy available
- High stability & reliability

AX-RHT-D... Series

RH Accuracy	Description	Part No.
± 3%	0-10V DC / 4-20mA	AX-RHT-D3
	0-10V DC / 4-20mA + Thermistor	AX-RHT-D3-x
± 2%	0-10V DC / 4-20mA	AX-RHT-D2
	0-10V DC / 4-20mA + Thermistor	AX-RHT-D2-x

Outside Relative Humidity & Temperature Transmitter

Wall mounted RH & T transmitters that offer a cost effective solution for RH and temperature measurement. Optional direct resistive temperature output. Outputs are individually selectable for either 4-20mA or 0-10V DC and an optional direct resistive temperature output provides superb flexibility.

Features

- High-quality 316 stainless steel probe
- 2% and 3% RH accuracy available
- High stability & reliability

AX-RHT-O... Series

RH Accuracy	Description	Part No.
± 3%	0-10V DC / 4-20mA	AX-RHT-O3
	0-10V DC / 4-20mA + Thermistor	AX-RHT-O3-x
± 2%	0-10V DC / 4-20mA	AX-RHT-O2
	0-10V DC / 4-20mA + Thermistor	AX-RHT-O2-x

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TEMPERATURE

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Temperature Sensors

For measuring the temperature, absolute or relative humidity, CO₂, VOC / air quality, frost for all types of air and water HVAC systems. Sophisticated interior and external applications that require high IP protection to NEMA 4X / IP65 protection with a snap-on cover. Special mounting bracket included. Other sensor element types and mounting flangers options available.

Specification

Supply voltage: 24V AC

(Active only) PG11 (20mm conduit adaptor available)

Enclosure: IP65 / NEMA 4x

• Snap-on cover

• All units come with easy to use instructions and diagrams

Outside Sensors

Description	Sensor Type	Additional Features	Part No.
Passive	PT1000		01UT-1B
	Ni1000		01UT-1C
	Ni1000TK5000 (Siemens)		01UT-1D
	NTC10k (UK equivalent 10K3A1)		10UT-1L
	NTC10k Precon (UK equivalent 10K4A1)		10UT-1M
Active	DC 0...5V / 0...10V		22UT-12
	4...20mA		22UT-14

Humidity / Temperature

Active	DC 0...5V / 0...10V		22UTH-11
	4...20mA		22UTH-13
Active with heat shield	DC 0...5V / 0...10V		22UTH-110X
	4...20mA		22UTH-130X
	MODBUS RTU		22UTH-150X
	BACnet MS/TP		22UTH-160X

Duct & Immersion Sensors

Description	Sensor Type	Additional Features	Part No.
Passive	PT1000		01DT-1BH
	Ni1000		01DT-1CH
	Ni1000TK5000 (Siemens)	Probe length 50mm	01DT-1DH
	NTC10k (UK equivalent 10K3A1)		01DT-1LH
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1MH	
Active	DC 0...5V / 0...10V		22DT-12H
	4...20mA		22DT-14H
Passive	PT1000		01DT-1BL
	Ni1000		01DT-1CL
	Ni1000TK5000 (Siemens)	Probe length 100mm	01DT-1DL
	NTC10k (UK equivalent 10K3A1)		01DT-1LL
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1ML	
Active	DC 0...5V / 0...10V		22DT-12L
	4...20mA		22DT-14L
Passive	PT1000		01DT-1BN
	Ni1000		01DT-1CN
	Ni1000TK5000 (Siemens)	Probe length 150mm	01DT-1DN
	NTC10k (UK equivalent 10K3A1)		01DT-1LN
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1MN	
Active	DC 0...5V / 0...10V		22DT-12N
	4...20mA		22DT-14N
Passive	PT1000		01DT-1BP
	Ni1000		01DT-1CP
	Ni1000TK5000 (Siemens)	Probe length 200mm	01DT-1DP
	NTC10k (UK equivalent 10K3A1)		01DT-1LP
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1MP	
Active	DC 0...5V / 0...10V		22DT-12P
	4...20mA		22DT-14P
Passive	PT1000		01DT-1BR
	Ni1000		01DT-1CR
	Ni1000TK5000 (Siemens)	Probe length 300mm	01DT-1DR
	NTC10k (UK equivalent 10K3A1)		01DT-1LR
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1MR	
Active	DC 0...5V / 0...10V		22DT-12R
	4...20mA		22DT-14R
Passive	PT1000		01DT-1BT
	Ni1000		01DT-1CT
	Ni1000TK5000 (Siemens)	Probe length 450mm	01DT-1DT
	NTC10k (UK equivalent 10K3A1)		01DT-1LT
	NTC10k Precon (UK equivalent 10K4A1)	01DT-1MT	
Active	DC 0...5V / 0...10V		22DT-12T
	4...20mA		22DT-14T
Passive	PT1000		01HT-1B
	Ni1000		01HT-1C
	Ni1000TK5000 (Siemens)	Enclosure type	01HT-1D
	NTC10k (UK equivalent 10K3A1)		01HT-1L
	NTC10k Precon (UK equivalent 10K4A1)	01HT-1M	
Active	DC 0...5V / 0...10V		22HT-12
	4...20mA		22HT-14

Temperature Sensors

Cable (Flying Lead) Sensors

Description	Sensor Type	Additional Features	Part No.
Passive	PT1000		01CT-1BH
	Ni1000		01CT-1CH
	Ni1000TK5000 (Siemens)		01CT-1DH
	NTC10k (UK equivalent 10K3A1)	Probe length 50mm	01CT-1LH
	NTC10k Precon (UK equivalent 10K4A1)		01CT-1MH
Active	DC 0...5V / 0...10V		22CT-12H
	4...20mA		22CT-14H

Strap-on Sensors

Passive	PT1000		01ST-1B3
	Ni1000		01ST-1C3
	Ni1000TK5000 (Siemens)	50mm probe with 2m cable	01ST-1D3
	NTC10k (UK equivalent 10K3A1)		01ST-1L3
	NTC10k Precon (UK equivalent 10K4A1)		01ST-1M3
Passive	PT1000		01HT-1B
	Ni1000		01HT-1C
	Ni1000TK5000 (Siemens)	Enclosure type	01HT-1D
	NTC10k (UK equivalent 10K3A1)		01HT-1L
	NTC10k Precon (UK equivalent 10K4A1)		01HT-1M
Active	DC 0...5V / 0...10V		22HT-12
	4...20mA		22HT-14

Immersion Pockets

Description	Part No.
Stainless steel 50mm Pocket	A-22P-A06
Brass 50mm Pocket	A-22P-A18
Stainless steel 100mm Pocket	A-22P-A08
Brass 100mm Pocket	A-22P-A20
Stainless steel 150mm Pocket	A-22P-A10
Brass 150mm Pocket	A-22P-A22
Stainless steel 200mm Pocket	A-22P-A12
Brass 200mm Pocket	A-22P-A24
Stainless steel 300mm Pocket	A-22P-A14
Brass 300mm Pocket	A-22P-A26
Stainless steel 450mm Pocket	A-22P-A16
Brass 450mm Pocket	A-22P-A28

Tightening straps + Thermal Contact Fluid

40...110mm length	A-22P-A41
40...900mm length	A-22P-A43

Sensor Adaptors

Sensor Adaptors

Description	Sensor Type	Additional Features	Part No.
20mm adaptor (in bags of 10x)	1 hole		A-22G-A01.1
	2 holes	20mm conduit adaptor	A-22G-A02.1
	4 holes		A-22G-A04.1

BELIMO



Sontay[®]



Part No. Completion
When ordering complete the Part No. by adding the following:-

TT-518 Series	
Interface options	<input type="checkbox"/> Add
Aluminium housing	AL
Stainless steel housing	SS
Brass housing	BR
Brilliant white thimble	BW
5m cable length	5M



Thimble Sensors

These direct output, thimble temperature sensors are used for measuring air temperature in indoor spaces. Units contain either a high quality thermistor, nickel or platinum sensing element. The sensing element is mounted in an attractive thimble enclosure for surface mounting, typically on a backplate or a ceiling tile.

Features

- Plastic, brass, stainless steel or aluminium thimble housing options

TT-518 Series

Output Type	Description	Part No.	Interface Option
Passive	10K3A1, Trend	TT-518-A	<input type="checkbox"/>
	10K4A1, Andover	TT-518-B	<input type="checkbox"/>
	20K6A1, Honeywell	TT-518-C	<input type="checkbox"/>
	PT1000A, Cylon	TT-518-E	<input type="checkbox"/>
	Ni 1000A, Sauter	TT-518-F	<input type="checkbox"/>
	Ni 1000A/TCR (LAN1), Siemens	TT-518-G	<input type="checkbox"/>
	SAT1, Satchwell	TT-518-H	<input type="checkbox"/>
	STA1, Landis & Staefa	TT-518-K	<input type="checkbox"/>
	TAC1, TAC	TT-518-L	<input type="checkbox"/>
	2.2K3A1, Johnson Controls	TT-518-M	<input type="checkbox"/>
	30K6A1, Drayton	TT-518-P	<input type="checkbox"/>
	50K6A1	TT-518-Q	<input type="checkbox"/>
	SAT2, Satchwell	TT-518-S	<input type="checkbox"/>
SAT3, Satchwell	TT-518-T	<input type="checkbox"/>	
Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-518-CVO	<input type="checkbox"/>
	4-20mA/0-10V DC calibrated to customer spec. in the range -10 to +60°C	TT-518-CVO-C	<input type="checkbox"/>

Duct Sensors

The TT-322 is a direct output, temperature sensor used to measure air temperature in ducts. Units contain either a high quality thermistor, nickel or platinum sensing element. The sensing element is fitted into a 150mm long stainless steel probe with holes to allow air to flow directly over the sensing element. A flange plate is available for adjustment of penetration depth (order as TT-322-DFP).

TT-322 Series

Output Type	Description	Part No.	250mm Probe Part No.
Passive	10K3A1, Trend	TT-322-A	TT-322-A-250
	10K4A1, Andover	TT-322-B	TT-322-B-250
	20K6A1, Honeywell	TT-322-C	TT-322-C-250
	PT1000A, Cylon	TT-322-E	TT-322-E-250
	Ni 1000A, Sauter	TT-322-F	TT-322-F-250
	Ni 1000A/TCR (LAN1), Siemens	TT-322-G	TT-322-G-250
	SAT1, Satchwell	TT-322-H	TT-322-H-250
	STA1, Landis & Staefa	TT-322-K	TT-322-K-250
	TAC1, TAC	TT-322-L	TT-322-L-250
	2.2K3A1, Johnson Controls	TT-322-M	TT-322-M-250
	30K6A1, Drayton	TT-322-P	TT-322-P-250
	50K6A1	TT-322-Q	TT-322-Q-250
	SAT2, Satchwell	TT-322-S	TT-322-S-250
SAT3, Satchwell	TT-322-T	TT-322-T-250	
STA2, Siemens/Landis & Staefa	TT-322-Y	TT-322-Y-250	
Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-322-CVO	TT-322-CVO-250
	4-20mA/0-10V DC selectable output (custom temp. scaling) calibration to cust. spec. in the range -30 to +70°C	TT-322-CVO-C	TT-322-CVO-C-250
Accessory			
	Duct flange plate		TT-322-DFP

Duct Averaging Sensors

These direct output, temperature sensors are used for measuring temperature in ducts where an average reading across the air flow is required. Units contain either high quality thermistor, nickel or platinum sensing elements which are housed in an 8mm diameter 'Nylon 12' tube, spaced at 0.5m intervals along the standard 2.2m length.

TT-325 Series

Output Type	Description	Part No.	5m Probe Part No.
Passive	10K3A1, Trend	TT-325-A	TT-325-A-5M
	10K4A1, Andover	TT-325-B	TT-325-B-5M
	20K6A1, Honeywell	TT-325-C	TT-325-C-5M
	PT1000A, Cylon	TT-325-E	TT-325-E-5M
	Ni 1000A, Sauter	TT-325-F	TT-325-F-5M
	Ni 1000A/TCR (LAN1), Siemens	TT-325-G	TT-325-G-5M
	SAT1, Satchwell	TT-325-H	TT-325-H-5M
	STA1, Landis & Staefa	TT-325-K	TT-325-K-5M
	TAC1, TAC	TT-325-L	TT-325-L-5M
	2.2K3A1, Johnson Controls	TT-325-M	TT-325-M-5M
	30K6A1, Drayton	TT-325-P	TT-325-P-5M
	50K6A1	TT-325-Q	TT-325-Q-5M
	SAT2, Satchwell	TT-325-S	TT-325-S-5M
	SAT3, Satchwell	TT-325-T	TT-325-T-5M
	STA2, Siemens/Landis & Staefa	TT-325-Y	TT-325-Y-5M
	Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-325-CVO
4-20mA/0-10V DC selectable output (custom temp. scaling) calibration to cust. spec. in the range -30 to +70°C		TT-325-CVO-C	TT-325-CVO-C-5M



True Duct Averaging Sensors

The TT-626 true duct averaging sensor contains a PT100b element, which measures at every instantaneous point along the full length of the 10mm diameter copper tube and is suitable for use in the range -30 to +70°C

TT-626 Series

Output Type	Description	Part No.
Passive	PT100b thermistor output	TT-626-PT100B
	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-626-CVO
Active	4-20mA/0-10V DC selectable output (custom temp. scaling) calibration to cust. spec. in the range -30 to +70°C	TT-626-CVO-C

The unit does not measure over the first 100mm of the probe length



Outside Air Sensors

These direct output, temperature sensors are for measuring outside air temperature. Units contain either a high quality thermistor, Nickel or Platinum sensing element. The sensors are housed in IP65 rated enclosures. The TT-331 has a cap containing the sensing element located externally in the shadow of the lid to curb the effects of solar gain, but should always be situated in a sheltered position on a north facing wall.

TT-331 Series

Output Type	Description	Part No.	
Passive	10K3A1, Trend	TT-331-A	
	10K4A1, Andover	TT-331-B	
	20K6A1, Honeywell	TT-331-C	
	PT1000A, Cylon	TT-331-E	
	Ni 1000A, Sauter	TT-331-F	
	Ni 1000A/TCR (LAN1), Siemens	TT-331-G	
	SAT1, Satchwell	TT-331-H	
	STA1, Landis & Staefa	TT-331-K	
	TAC1, TAC	TT-331-L	
	2.2K3A1, Johnson Controls	TT-331-M	
	30K6A1, Drayton	TT-331-P	
	50K6A1	TT-331-Q	
	SAT2, Satchwell	TT-331-S	
	STA2, Siemens/Landis & Staefa	TT-331-Y	
	Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-331-CVO
		4-20mA/0-10V DC selectable output (custom temp. scaling) calibration to cust. spec. in the range -30 to +70°C	TT-331-CVO-C





Outside Air Sensors with Radiation Shield

Direct output, temperature sensors for measuring outside air temperature. Units contain either a high quality thermistor, nickel or platinum sensing element. The sensors are housed in IP65 rated enclosures. The TT-332 has the element fitted into a PTFE radiation shield, designed to provide fast response times to changes in outside air temperature and to protect the element from the effects of direct sunlight.

TT-332 Series

Output Type	Description	Part No.
Passive	10K3A1, Trend	TT-332-A
	10K4A1, Andover	TT-332-B
	20K6A1, Honeywell	TT-332-C
	PT1000A, Cylon	TT-332-E
	Ni 1000A, Sauter	TT-332-F
	Ni 1000A/TCR (LAN1), Siemens	TT-332-G
	SAT1, Satchwell	TT-332-H
	STA1, Landis & Staefa	TT-332-K
	TAC1, TAC	TT-332-L
	2.2K3A1, Johnson Controls	TT-332-M
	30K6A1, Drayton	TT-332-P
	50K6A1	TT-332-Q
	SAT2, Satchwell	TT-332-S
	STA2, Siemens/Landis & Staefa	TT-332-Y
Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-332-CVO
	4-20mA/0-10V DC calibrated to customer spec. in the range -30 to +70°C	TT-332-CVO-C

Strap-on Sensors

The TT-351 is used to measure pipe temperature, and contain either a high quality thermistor, nickel or platinum element, which is housed in a 50mm long brass probe with 2 metres of PTFE 2-core screened cable as standard connecting the probe to an IP65 housing for termination.



TT-351 Series

Output Type	Description	Part No.	5m Probe Part No.
Passive	10K3A1, Trend	TT-351-A	TT-351-A-5M
	10K4A1, Andover	TT-351-B	TT-351-B-5M
	20K6A1, Honeywell	TT-351-C	TT-351-C-5M
	PT1000A, Cylon	TT-351-E	TT-351-E-5M
	Ni 1000A, Sauter	TT-351-F	TT-351-F-5M
	Ni 1000A/TCR (LAN1), Siemens	TT-351-G	TT-351-G-5M
	SAT1, Satchwell	TT-351-H	TT-351-H-5M
	TAC1, TAC	TT-351-L	TT-351-L-5M
	2.2K3A1, Johnson Controls	TT-351-M	TT-351-M-5M
	30K6A1, Drayton	TT-351-P	TT-351-P-5M
	50K6A1	TT-351-Q	TT-351-Q-5M
	SAT2, Satchwell	TT-351-S	TT-351-S-5M
	STA2, Siemens/Landis & Staefa	TT-351-Y	TT-351-Y-5M
	Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-325-CVO
4-20mA/0-10V DC selectable output (custom temp. scaling) calibration to cust. spec. in the range -30 to +70°C		TT-325-CVO-C	TT-325-CVO-C-5M

Flying Lead Sensors

The TT-555 is a direct output temperature sensor used to measure air temperature, especially in fan-coil units etc., and contain either a high quality thermistor, nickel or platinum sensing element suitable for the range -10 to +60°C. The sensing element is housed in a 35mm long acetyl probe, with 2 metres of 2-core screened cable fitted as standard. Longer lengths can be made to order. Order option - R for a stainless steel cap with the element potted in a waterproof compound.



TT-555 Series

Output Type	Description	Part No.	Insert Option
Passive	10K3A1, Trend	TT-555-A	<input type="checkbox"/>
	10K4A1, Andover	TT-555-B	<input type="checkbox"/>
	20K6A1, Honeywell	TT-555-C	<input type="checkbox"/>
	PT1000A, Cylon	TT-555-E	<input type="checkbox"/>
	Ni 1000A, Sauter	TT-555-F	<input type="checkbox"/>
	Ni 1000A/TCR (LAN1), Siemens	TT-555-G	<input type="checkbox"/>
	SAT1, Satchwell	TT-555-H	<input type="checkbox"/>
	STA1, Landis & Staefa	TT-555-K	<input type="checkbox"/>
	TAC1, TAC	TT-555-L	<input type="checkbox"/>
	2.2K3A1, Johnson Controls	TT-555-M	<input type="checkbox"/>
	30K6A1, Drayton	TT-555-P	<input type="checkbox"/>
	50K6A1	TT-555-Q	<input type="checkbox"/>
	SAT2, Satchwell	TT-555-S	<input type="checkbox"/>
	STA2, Siemens/Landis & Staefa	TT-555-Y	<input type="checkbox"/>
Active	4-20mA/0-10V DC output ranges -10 to +40°C, -10 to +110°C	TT-555-CVO	<input type="checkbox"/>
	4-20mA/0-10V DC calibration to cust. spec. in the range -10 to +60°C	TT-555-CVO-C	<input type="checkbox"/>

Part No. Completion
When ordering complete the Part No. by adding the following:-

TT-555 Series

Options Add
5m cable length 5M
Cap potted R

Space Sensors

The TT-1000 is a direct output temperature sensor used for measuring air temperature in a room environment. Units contain either a high quality thermistor, nickel or platinum sensing element. Active outputs (0-10V DC or 4-20mA) are also available. The TT-1000 can be configured with a variety of user interface options including, setpoint control, fan speed switching, latching or momentary switching.

TT-1000 Series			
Output Type	Description	Part No.	Interface Option
Passive	10K3A1, Trend	TT-1000-A	<input type="checkbox"/>
	10K4A1, Andover	TT-1000-B	<input type="checkbox"/>
	20K6A1, Honeywell	TT-1000-C	<input type="checkbox"/>
	PT1000A, Cylon	TT-1000-E	<input type="checkbox"/>
	Ni 1000A, Sauter	TT-1000-F	<input type="checkbox"/>
	Ni 1000A/TCR (LAN1), Siemens	TT-1000-G	<input type="checkbox"/>
	SAT1, Satchwell	TT-1000-H	<input type="checkbox"/>
	STA1, Landis & Staefa	TT-1000-K	<input type="checkbox"/>
	TAC1, TAC	TT-1000-L	<input type="checkbox"/>
	2.2K3A1, Johnson Controls	TT-1000-M	<input type="checkbox"/>
	30K6A1, Drayton	TT-1000-P	<input type="checkbox"/>
	50K6A1	TT-1000-Q	<input type="checkbox"/>
	4-20mA/0-10V DC / 0-5V DC selectable output, output ranges -0 to +40°C	TT-1000-ACT	<input type="checkbox"/>
	4-20mA/0-10V DC / 0-5V DC selectable output, output ranges -20 to +50°C (custom temp. scaling)	TT-1000-ACT-TR	<input type="checkbox"/>
Active			



Part No. Completion
When ordering complete the Part No. by adding the following:-

TT-911 Series

Interface options	<input type="checkbox"/> Add
Black housing	BL
Brilliant white housing	BW
2-wire, 1-11 Ω setpoint	SP
3-wire, 0-10 Ω setpoint	SP3
3-speed fan switch	FS3
4-speed fan switch	FS4
5-speed fan switch	FS5
Latching switch	LS
Momentary switch	MS

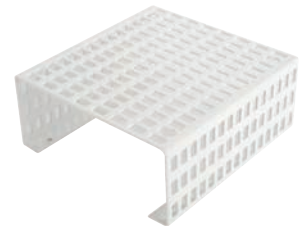
Space Sensor Guard

The TT-GD is designed to protect TT-1000 and TT-1015 sttemperature sensors from accidental damage.

Features

- Robust construction
- Easy fixing

TT-GD Series	
Description	Part No.
Space Sensor Guard	TT-GD





Immersion Sensor

These immersion sensors are used for measuring the temperature of liquids in pipework. Units contain either a high quality thermistor, nickel or platinum element. The TT-341 sensing element is housed in a 150mm long stainless steel probe fitted to an IP65 rated enclosure, for direct mounting into a TT-PO-521 stainless steel pocket.

Specification

Output type:
Current 4 to 20mA
Voltage 0 to 10V DC
Ambient range: -10 to +60°C

TT-341 Series

Description	Part No.
Passive Output Type	
10K3A1 Trend	TT-341-A
10K4A1 Andover	TT-341-B
20K6A1 Honeywell	TT-341-C
PT100A Serck	TT-341-D
PT1000A Cylon	TT-341-E
Ni 1000A Sauter	TT-341-F
Ni 1000A/TCR (LAN1) Siemens	TT-341-G
SAT1 Sauter	TT-341-H
TAC1 TAC	TT-341-L
2.2K3A1 Johnson Controls	TT-341-M
3K3A1 Alerton	TT-341-N
30K6A1 Drayton	TT-341-P
50K6A1	TT-341-Q
100K6A1 York .40°C	TT-341-R
SAT2 Satchwell	TT-341-S
SAT3 Satchwell	TT-341-T
SIE1 Siebe	TT-341-W
STA2 Siemens/Landis & Staefa	TT-341-Y
Active Output Type	
Selectable temp. ranges -10 to +40°C, or -10 to +110°C	TT-341-CVO
Custom temp. scaling in the range of -30 to +70°C (dependent on sensor type/application)	TT-341-CVO-C



Temperature Sensors

Specification

Ambient temperature: up to 110°C
Enclosure flammability: ED, EF, EM & ES - UL94-V0

Part Number Completion

1 Select Sensor Type e.g room ER

2 Select Compatibility e.g Drayton 30K6A1

Part Number ER-30K6A1

Sensor Selection Chart

Type	Rating	Description	Part No.
Duct	IP65	2m long cable sensor 7.1 dia. x 40	ED-
Flue gas	IP65	Probe length 230mm	EF-
Room	IP30	85H x 85W x 30D	ER-
Strap-on	IP65	Approx. 80 dia. x 55 2m long cable includes strap for up to 6" pipe diameter	ES-
Outside	IP65	Approx. 80 dia. x 55	EX-

Ordering Chart

Compatibility	Part No.	Sensor Type				
		Duct	Flue Gas	Room	Strap-On	Outside
Honeywell, Trend, Alerton & Smart	2 10K3A1	1 ED-	EF-	ER-	ES-	EX-
Satchwell	10K3A1/A					
Honeywell	20K6A1					
Drayton	30K6A1					
Landis & Staefa	LST1					
Siemens, Landis & Staefa	LS1000					
TAC	TAC1					
Serck	PT100					
Cylon	PT1000					

Capillary Thermostats

These products are used to monitor the temperature of air or liquids. Applications include heating and air conditioning systems. The liquid filled sensor element enables a rapid response to temperature changes.

EC-EMC Series			
Type	IP Rating	Range	Part No.
1-Stage	IP43	-20 to +40°C	EC-2
		-20 to +40°C	EC-3
		-20 to +40°C	EC-4
		-20 to +40°C	EC-5
		0 to 100°C	EC-6
		0 to 200°C	EC-7
		0 to 200°C	EC-8
		-15 to +45°C	EC-3D
	IP43*	0 to 70°C	EC-6D
		30 to 65°C	EC-6DM
		60 to 95°C	EC-7DM
		-20 to +40°C	EC-3W
		-20 to +40°C	EC-4W
		-20 to +40°C	EC-5W
IP65	0 to 100°C	EC-6W	
	0 to 200°C	EC-7W	
	0 to 200°C	EC-8W	
	-20 to +40°C	EMC-22A	
	0 to 100°C	EMC-23A	
2-Stage	IP43	-20 to +40°C	EMC-22A
		0 to 100°C	EMC-23A

* Also available with IP65 weatherproof enclosure

Freeze Protection Thermostats

These products are used to prevent the freezing of liquids inside pipes or heating/cooling units.

EFP Series			
Type	IP Rating	Range	Part No.
Freeze protection thermostats	IP43	-15 to +15°C	EFP-1
		-15 to +15°C	EFP-2
		-15 to +15°C	EFP-3
		-15 to +15°C	EFP-4
		-15 to +15°C	EFP-1W
	IP65	-15 to +15°C	EFP-2W
		-15 to +15°C	EFP-3W
		-15 to +15°C	EFP-4W
		-15 to +15°C	
		-15 to +15°C	

Immersion Thermostats

These products are used to monitor liquid temperatures in pipes, boilers tanks etc. The liquid filled sensing enables a rapid response to temperature changes. The E10 - is a single function thermostat and the EBD dual function has two separate thermostats inside the enclosure.

EBS Series - Single & Dual Function					
Type	Range		IP Rating	Part No.	
	Control	Limit			
Manual reset single function	0 to 35°C	-	IP43	EBS-1	
	0 to 80°C	-		EBS-2	
	35 to 95°C	-		EBS-3	
	50 to 30°C	-		EBS-4	
	-	35 to 95°C		EBS-7	
	-	60 to 95°C		EBS-8	
	-	95 to 130°C		EBS-9	
	Manual reset dual function	0 to 80°C		0 to 80°C	EBD-1
		35 to 95°C		35 to 95°C	EBD-2
35 to 95°C		60 to 95°C	EBD-8		

Strap-On Thermostat

These products are used to monitor the temperature of liquids in pipes and cylinders.

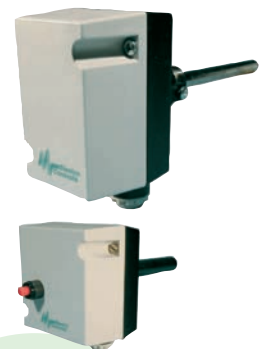
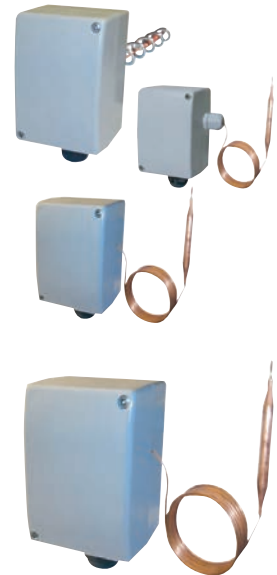
BRC Series			
Type	Rating	Range	Part No.
Manual reset	IP30	20 to 90°C	BRC

Outside Frost Thermostats

These products are used to monitor the temperature outside buildings and switch heating / cooling or other units in the event of high / low temperatures.

EOF Series - Single & Dual Function			
Type	Rating	Range	Part No.
Single function	IP65	-20 to +30°C	EOF-01
Dual function	IP65	-20 to +30°C/-20 to +30°C	EOF-21

Electro Controls





Capillary Frost Thermostats (Economy)

The ST-FRE range of thermostats provide a low cost switch output based on the average temperature detected along a six metre capillary sensor. The most common application is for frost protection on fresh air intakes or air-conditioning systems, to prevent the icing up of filters, fans and coils. The capillary is fixed in a matrix across the duct, in a position downstream of the pre-heater or frost coil.

Features

- Easy adjustment of setpoint
- Setting indicator

ST-FRE Series

Description	Part No.
Auto reset 6m capillary	ST-FRE-1
Manual reset capillary	ST-FRE-2
Accessories	
Pack of six additional capillary fixing clips	ST-DFK
Mounting bracket for ST-FRE	BRK

Strap-on Thermostats

Sontay's range of strap-on thermostats can be used to control the temperature of liquids and gases in a variety of applications where it is not possible to insert a pocket.

Features

- Install in any position
- Easy adjustment of setpoint
- Setting indicator

ST-S Series

Type	Protection	Range	Part No.
Auto Reset	IP30	0 to 90°C	ST-S01-A

Immersion Thermostats

The ST-I range of immersion thermostats can be used to control the temperature of liquids in pipe work systems. Liquid filled sensing elements ensure rapid response and accurate switching differentials.

Features

- Units supplied with stainless steel pocket
- Single and dual stage versions
- ½" BSP connection
- Robust housing

These are available in two types:

Control thermostats (auto reset) with an adjustable setpoint, adjustable differential and auto reset, which provides a switched output to a heater, cooler or controller.

Safety thermostats (manual reset) with an adjustable setpoint, fixed differential and manual reset, to provide high limit cut-out on boilers etc.

ST-I Series

Type	Protection	Range	Part No.
Auto reset	IP65	0 to 120°C	ST-I-01A
Manual reset		0 to 110°C	ST-I-02M
Accessories			
Stainless steel pocket replacement			ST-IMM-PKT

Duct Thermostats

These duct thermostats can be used to control the temperature in duct work systems. Liquid filled sensing elements ensure rapid response and accurate switching differentials.

Features

- Robust housing

These are available in two types:

Safety thermostats (manual reset) with an adjustable setpoint, fixed differential and manual reset, which provides high limit cut-out on boilers etc.

Control thermostats (auto reset) with an adjustable setpoint, adjustable differential and auto reset, which provides a switched output to a heater, cooler or controller.

ST-D Series

Type	Protection	Range	Part No.
Manual reset	IP43	0 to 90°C	ST-D-04M
Auto reset	IP54	-35 to +35°C	ST-D-01A
	IP65	-30 to +30°C	ST-D-03A

Wall Mount Thermostats

These wall mount thermostats are suitable for industrial use. Typical applications are damp, dusty and strongly polluted areas and are ideally suited for greenhouse applications.

Features

- IP65 protection
- Single version
- Robust housing

ST-W Series

Type	Range	Part No.
Auto reset	-30 to +30°C	ST-W-01A

Temperature Controllers

These products can monitor the temperature inside buildings, rooms, ducts (return air), tanks, pipes etc and give 0-10V DC output signal linear across the desired proportional band. Suitable for control damper motors, valve actuators, step controls, relay modules and thyristors etc. The duct unit should be mounted in the return air, if multi-stages of heating and cooling are required.

ETC Series			
Mounting Type	Range	Function	Part No.
Duct	-10 to +50°C	Heating or cooling	ETC-D50
		Heating and cooling	ETC-D52
Immersion	-10 to +50°C	Heating or cooling	ETC-I50
		Heating or cooling	ETC-I95
Accessories			
½" BSP x 120mm stainless steel pocket for ETC-I...			EE-STK

Temperature Controllers

These products are used to monitor liquid temperatures in pipes, boilers tanks etc. The liquid filled sensing enables a rapid response to temperature changes. The EBS is a single function thermostat and the EBD dual function has two separate thermostats inside the enclosure.

Features

- DIN rail mounting

E15-P0 Series			
Output Signals	Range	Function	Part No.
1	-10 to +50°C 25 to 95°C	Heating or cooling	E15-P01
		Heating or cooling	E15-P02
2	-10 to +50°C	Heating & cooling, (2 heating or 2 cooling)	E15-P03
3	-10 to +50°C	Heating & cooling & cooling	E15-P04
Accessories			
Wall mounting enclosure IP65			EE-M2T

Sensors, Adjusters & Displays

These products are used to monitor liquid temperatures in pipes, boilers tanks etc. The liquid filled sensing elements enables a rapid response to temperature changes.

Features

- IP43 Protection
- Robust housing

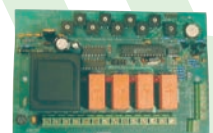
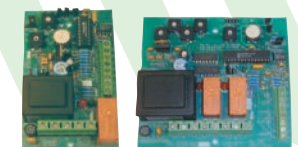
E10 Series		
Type	Description	Part No.
Bead Sensor	with 2 way terminal strip	E10-B
Cable Sensor	with 2m cable	E10-C
Duct sensor	Probe length 160mm	E10-D
Duct Averaging	Probe length 160mm (use 2xE10-DA for averaging)	E10-DA
	Stainless brushed satin with 200mm cable, drill hole 12 dia.	E10-GS
Thimble sensor	Brass with 200mm cable, drill hole 12 dia.	E10-GB
	White with 200mm cable, drill hole 12 dia.	E10-GW
Black bulb sensor	For radiant tube heaters	E10-H
Immersion sensor	Probe length 120mm "Order pocket separately"	E10-I
Fan Coil sensor	With duct flange & 2m cable	E10-K
Room sensor	Can be mounted on square or round outlet box	E10-R
	As E10-R (use 2 x E10-RA for averaging)	E10-RA
Strap-On sensor	Includes fixing strap for up to 6" dia. Pipe. 2m cable	E10-S
Room sensor + knob	With knob adj. ±4°C above & below main set point knob setting	E10-V
Outside sensor	Weatherproof	E10-X
	-10 to +50°C front panel mounting	E10-P50
	25 to 95°C front panel mounting	E10-P95
Setpoint Adjuster	±4°C front panel mounting	E10-P4
	For minor adjustment of main set point knob setting	
Accessories		
½" BSP x 120mm stainless steel pocket for E10-I		EE-STK

Electronic Thermostats

These products monitor the temperature of air/liquid & control multiple heating/cooling or other units in response to temperature changes according to the model used. The set-point is adjustable via the dial on the PCB. All units can be used with a wide range of remote accessories. For Use with E10 series of sensors.

Sensors, Adjusters & Displays			
Type	Range	Supply	Part No.
1-Stage function	-10 to +95°C	230V AC	ETE-1D
		24V AC	ETE-1DL24
2-Stage function	-10 to +95°C	230V AC	ETE-2D
		24V AC	ETE-2DL24
4-Stage function	-10 to +95°C	230V AC	ETE-4D
		24V AC	ETE-4DL24

Electro Controls



TEMPERATURE

TEMPERATURE DETECTION/SENSORS

13

DOMESTIC HEATING CONTROLS

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Siemens	13.6
Sontay	13.6

Domestic Thermostatic Radiator Valves

Features

Temperature: 8° to 28°C

RAS-C ² Bi-Directional Combi Packs (includes "Revolver" valve & sensor)	
Description	Part No.
15mm Angle contract TRV	013G605000
8/10mm Angle contract TRV	013G605500
15mm Straight contract TRV	013G605100
8/10mm Straight contract TRV	013G605600
15mm Angle reversible with 10mm Push-fit elbow	013G606000

Lockshield Valves

Domestic Lockshield Valves, Type RLV-D	
Description	Part No.
15mm Angle, compression connections, nickel	003L020300
8/10mm Angle, compression connections, nickel	003L020400
15mm Angle, complete with 10mm Push-fit elbow, nickel	003L020500

Commercial Thermostatic Radiator Valves

TRV Valve Body Type RA-G for One Pipe Systems	
Description	Part No.
Straight	
½" Straight TRV body (single pipe)	013G167500
¾" Straight TRV body (single pipe)	013G167700
1" Straight TRV body (single pipe)	013G167900
Vertical Angle	
½" Angle TRV body (single pipe)	013G167600
¾" Angle TRV body (single pipe)	013G167800
1" Angle TRV body (single pipe)	013G168000

TRV Valve Body Type RA-FN, for 2 Pipe Systems	
Description	Part No.
Straight	
¾" Straight TRV body	013G002200
½" Straight TRV body	013G002400
15mm or ½" Straight TRV body	013G008400
¾" Straight TRV body	013G002600
1" Straight TRV body	013G002800
Vertical Angle	
¾" Vertical angle TRV body	013G002100
½" Vertical angle TRV body	013G002300
15mm / ½" Angle TRV body	013G0023AA
¾" Vertical angle TRV body	013G002500
1" Vertical angle TRV Body	013G002700

Thermostatic Sensor Type RA2000

for use with all RA-FN, RA-N & RA-G valve bodies

Type	Temp.	Part No.
Built-in Sensor connection with clamping ring / allen screw	5° - 26°C	013G291000
Frost protection, connection with clamping ring / allen screw	5° - 22°C	013G291400
Tamperproof with allen screw	5° - 26°C	013G292000

Spares & Accessories for Thermostatic Radiator Valves

Description	Part No.
Replacement for RAVL built-in sensor	013G295000
Replacement for RAVL remote sensor	013G295200
Replacement for RAV built-in sensor	013G296000
Replacement for RAV remote sensor	013G296200





Timeswitches & Programmers

MK18 Models with Calendar & Service Interval Timer

Description	Part No.
FP715Si - 7 day, 24hr or 5/2 day, 2 channel, independent timebases	087N789800
CP715Si - 7 day, 24hr or 5/2 day, 2 channel, common timebase	087N789700
TS715Si - 7 day, 24hr or 5/2 day, single channel timeswitch	087N789900

SET Programmers & Timeswitches

SET 1E - 24hr electronic timeswitch	087N654000
SET 2E - 24hr electronic mini-programmer	087N654100
SET 3E - 24hr electronic programmer	087N654200
SET 3M - 24hr electro-mechanical programmer	087N653200

Programmable Room Thermostats

5/2 Day Programmable Thermostats

Description	Part No.
TP5000 Si - 5 day/2 day & 24hr programmable electronic room thermostat with service interval function, battery powered.	087N791000
TP5000A Si - as TP5000 Si but for remote sensor (not included), battery powered.	087N791100
TP5000M Si - 5/2 day & 24hr programmable electronic room thermostat with service interval function, mains powered.	087N791700
TP5000MA Si - as TP5000M Si but for remote sensor (not included), mains powered.	087N791800
TP5000 Si-RF - 5/2 day & 24hr programmable electronic room thermostat with RF control & service interval function, battery powered.	087N791200
TP5000A Si-RF - as TP5000 Si-RF but for remote sensor (not included)	087N791300
TP5000 Si-RF + RX-1 - 5/2 day & 24hr programmable electronic room thermostat with service interval function complete with RX-1 receiver unit, battery powered.	087N791400

7 Day Programmable Thermostats

TP7001 Si - 7 day/5/2 day & 24hr programmable electronic room thermostat with service interval function, battery powered.	087N800200
TP7001A Si - as TP7000 Si but for remote sensor (included), battery powered.	087N800900
TP7001M Si - 7 day/5/2 day & 24hr programmable electronic room thermostat with service interval function, mains powered.	087N800300
TP7001MA Si - as TP7000M Si but for remote sensor (included), mains powered.	087N801000

Room Thermostats

Electronic, Type RET 1000 (5-30°C)

Description	Part No.
RET1000B - Dial setting, battery powered	087N645100
RET1000M - Dial setting, mains powered	087N645000

Electro-Mechanical, Type RMT 230V (8-30°C)

RMT230* - SPDT 220/240V AC, 10(4)A, no accelerator	087N111000
RMT230 - SPDT 220/240V AC, 10(4)A	087N110000
RMT230T - SPDT 220/240V AC, 10(4)A, night set-back	087N112500

Electro-Mechanical, Type RMT 24V (8-30°C)

RMT24 - SPDT 24V AC, 10(4)A	087N119600
RMT24T - SPDT 24V AC, 10(4)A, night set-back	087N119700

Motorized Valves

3 Port Mid-Position Valves with HSA3 Actuators (spring return to heating closed)

Description	Part No.
Shoe Type	
HS3 - 22mm 3 port mid-position valve complete with actuator	087N661300
Paddle Type	
HS3B - 22mm 3 port mid-position valve complete with actuator	087N664600
HS3B2B - 28mm 3 port mid-position valve complete with actuator	087N665100

2 Port Valves Complete with HPA2 Actuators (spring return to heating closed)

Description	Part No.
Shoe Type	
HP22 - 22mm 2 port valve complete with HPA2 actuator	087N660900
HP28 - 28mm 2 port valve complete with HPA2 actuator	087N661100
HP28C - 28mm 2 port valve complete with HPA2C actuator	087N661200

Spring Return Valve Actuators (use with both paddle & shoe valves)

HSA3 - 3 port mid-position valve actuator	087N658700
HSA3D - 3 port diverter valve actuator, 4 wire with SPST Aux. Sw	087N658900
HPA2 - 2 port valve actuator, 4 wire with SPST Aux. Sw	087N657900
HPA2C - 2 port valve actuator, 5 wire with SPDT Aux. Sw	087N658000

Classic TRV

Features

- 'A' rated for energy efficiency
- Non-stick internals
- Slim-line contemporary design
- Liquid filled sensor
- Balance the system via the TRV

TRV4 Range

Description	Part No.
15mm Angle with integral head	07 05 150
15mm Straight with integral head	07 05 151

Motorized Valves

2 Port Valve Complete with Actuator

Description	Part No.
ZA5/679-2 - 22mm 2 port valve complete with actuator	27100

3 Port Valve Complete with Actuator

MA1/679-3 - 22mm 3 port mid-position valve complete with actuator	27101
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Drayton



Room Thermostats

These products are used to monitor the temperature inside buildings and switch heating/cooling or other units. These units are tamper proof.

Features

- Robust housing

TA-2 Features

- Adjustable limit stops under the cover
- Main adjustment via knob
- Backplate for 1 gang box included

PTR01... Features

- Knob adjustment only
- Range and limit stops provided
- Order backplate separately
- Enclosure flammability

TA2 & PTR01 Series

Type	Rating	Range	Part No.
	IP20	5 to 30°C	TA2
Single function	IP30	-20 to +30°C	PTR01-045
		5 to 30°C	PTR01-010
Accessories			
Backplate for PTR01... (will fit square or round outlet boxes)			EE-BP2

Thermostat Guards

A range of transparent, high impact, polycarbonate thermostat guards for use with a variety of thermostats/sensors etc. The guards screw fix to wall over the existing thermostat.

Features

- Supplied with lock and Key
- Ideal for use in public areas, sports halls etc.
- Self locking snap-lock cover, unlock with key.

EG Series

For Type	Internal Dimensions (mm)	Part No.
MTR 10...	H133 x W155 x D70	EG-1000
TA-2, PTR01..., ER..., EH..., EHR...	H102 x W123 x D60	EG-2000
Various (not suitable for EMR...)	H123 x W196 x D70	EG-3000

Electro Controls



Honeywell



ErP Class
V
+3%

TVR 'Traditional'

ST Series

Description	Part No.
TRV Fixed head for VT117E was T100-353	T1001W0GB
Traditional TRV; 15mm angled body	VT117-15A
Traditional TRV; 15mm straight body	VT117-15S

Wired Sundial Control Installer Packs

The Sundial S and Y Plans are designed to provide independent time and temperature control of both heating and hot water circuits in fully pumped central heating installations. Sundial satisfies the requirements of the Building Regulations Part L1 when used in conjunction with radiator thermostats and automatic bypass valve.

S Plan

Description	Part No.
Boxed S Plan with 24hr programmer	Y609A1037
Boxed S Plan with 7 day programmer	Y609A1045

Y Plan

Boxed Y Plan with 24hr programmer	Y609A1003
Boxed Y Plan with 7 day programmer	Y609A1029

Wireless Sundial RF2 Control Packs

Sundial RF2 Control Packs

Description	Part No.
Pk 1 - 1 ch. heating pack - ST9120C + DT92E	Y9120H2009
Pk 2 - 2 ch. heating pack - ST9420C + DT92E	Y9420H1008
Pk 3 - 2 ch.system pack ST9420C + DT92E + CS92A	Y9420S2005
Pk 4 - 1 ch. HW pack ST9120C + CS92	Y9120W1000
Pk 5 - 2 zone pack ST9520C + 2xDT92	Y9520Z1007

Motorised Zone Valves

Motorised Valves

Description	Part No.
2 Port zone valve 22mm SRC 5 wire. S Plan valve	V4043H1056/U
2 Port zone valve 28mm SRC 6 wire	V4043H1106/U
Diverter valve 22mm 3 wire 3 port	V4044C1288/U
Mid-position valve 22mm 3 port, Y Plan valve	V4073A1039/U
Mid-position valve 28mm 3 port	V4073A1088/U

Programmable Thermostats

A range of wired/wireless digital programmable thermostats provide automatic time and temperature control of radiator, cooling and warm air heating systems. Optimum start is also available on the CM900 range, to maximize the efficiency with which your thermostat operates based on the outside temperature.

CM Series

Clock Function	Part No.
CM701 1 day prog stat wired, service reminder, optimum start	CMT701A1014
CM707 7 day prog stat wired, service reminder, optimum start	CMT707A1029
CM721 1 day prog stat wireless, service reminder, plus optimum start RF	CMT721D1019
CM727 7 day prog stat wireless, with service reminder & optimum start RF	CMT727D1016
CM901 Prog stat, 24hr, with optimum start, 24-230V AC	CMT901A1044

Time Switches & Programmers

A series of one and two channel time controllers with independent heating and hot water control and three switching times per channel per day for up to seven days programming on some models. The ST9000 range of programmers incorporate the line of text display, giving clear English instructions for ease of use.

ST Series

Clock Function	Part No.
1 Day timer, volt free	ST9100A1008
1 Day service timer, volt free	ST9100S1007
7 Day timer, volt free relay, holiday mode	ST9100C1006
1 Day 2 channel programmer	ST9400A1002

Room Thermostat

Features

- Gas filled diaphragm
- 6 Amp contacts
- AC 24-250V ideal for combi boilers

RAA Series

Thermostat Type	Range	Part No.
Room Thermostat	8 - 30°C	RAA21

Space Thermostats

The ST-TY series of wall mounting thermostats are suitable for heating and/or cooling and frost protection applications.

Features

- Tamperproof option
- Bi-metallic switch mechanism for reliability

STY-TY Series

Thermostat Type	Range	Part No.
Heating	5 - 35°C	ST-TY92C1
Frost	-5 - 35°C	ST-TY92C1F
Heating or cooling	5 - 35°C	ST-TY92C3
(Tamper proof)	5 - 35°C	ST-TY92C3T

Honeywell



SIEMENS



Sontay®



14

VALVES & ACTUATORS

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2 Piece Brass Ball Valve BSP Parallel F/F Ends

Features

- Full bore
- 40 Bar rated (1/4"-2")
- 25 Bar rated (2 1/2"-4")
- -20°C to +130°C
- WRAS & EN331 Gas approved

ART 40 Series

Valve Rp	Colour	Part No.
1/4"	Yellow	BIVF040P025LFY
3/8"	Yellow	BIVF040P038LFY
1/2"	Blue	BIVF040P050BLF
1/2"	Red	BIVF040P050LFR
1/2"	Yellow	BIVF040P050LFY
3/4"	Blue	BIVF040P075BLF
3/4"	Red	BIVF040P075LFR
3/4"	Yellow	BIVF040P075LFY
1"	Blue	BIVF040P100BLF
1"	Red	BIVF040P100LFR
1"	Yellow	BIVF040P100LFY
1 1/4"	Blue	BIVF040P125BLF
1 1/4"	Red	BIVF040P125LFR
1 1/4"	Yellow	BIVF040P125LFY
1 1/2"	Blue	BIVF040P150BLF
1 1/2"	Red	BIVF040P150LFR
1 1/2"	Yellow	BIVF040P150LFY
2"	Blue	BIVF040P200BLF
2"	Red	BIVF040P200LFR
2"	Yellow	BIVF040P200LFY
2 1/2"	Yellow	BIVF040P250LFY
3"	Yellow	BIVF040P300LFY
4"	Yellow	BIVF040P400LFY

Brass Ball Valve Compression Ends

Features

- Full bore
- 25 Bar rated (2 1/2"-4")
- -20°C to +130°C
- WRAS & EN331 Gas approved

ART 89 Series

Valve Rp	Colour	Part No.
15mm	Blue	BIVL89X15LFB
15mm	Red	BIVL89X15LFR
15mm	Yellow	BIVL89X15LFY
22mm	Blue	BIVL89X22LFB
22mm	Red	BIVL89X22LFR
22mm	Yellow	BIVL89X22LFY
28mm	Blue	BIVL89X28LFB
28mm	Red	BIVL89X28LFR
28mm	Yellow	BIVL89X28LFY
35mm	Blue	BIVL89X35LFB
35mm	Red	BIVL89X35LFR
35mm	Yellow	BIVL89X35LFY
42mm	Blue	BIVL89X42LFB
42mm	Red	BIVL89X42LFR
42mm	Yellow	BIVL89X42LFY
54mm	Blue	BIVL89X54LFB
54mm	Red	BIVL89X54LFR
54mm	Yellow	BIVL89X54LFY

Brass Ball Valve BSP Parallel F/F Ends

Features

- Full bore
- 40 Bar rated (1/4"-1")
- 32 Bar rated (1 1/4")
- 30 Bar rated (1 1/2"-2 1/2")
- 25 Bar rated (3")
- -20°C to +130°C
- ISO Direct mount

ART 160 Series

Valve Rp	Part No.
1/4"	ADMB160025
3/8"	ADMB160038
1/2"	ADMB160050
3/4"	ADMB160075
1"	ADMB160100
1 1/4"	ADMB160125
1 1/2"	ADMB160150
2"	ADMB160200
2 1/2"	ADMB160250
3"	ADMB160300

Brass Gate Valve BSP Taper F/F Ends

Features

- Conforms to BS 5154
- 25 Bar rated
- -10°C to +186°C
- Kite Marked KM 553179

ART 175 Series

Valve Rp	Part No.
1/2"	AGVA175050
3/4"	AGVA175075
1"	AGVA175100
1 1/4"	AGVA175125
1 1/2"	AGVA175150
2"	AGVA175200





Cast Iron PN16 Flanged Ball Valve

Features

- Full bore
- 16 Bar rated
- -10°C to +150°C
- ISO Direct mount
- Stainless steel ball

ART 78 Series

Valve Rp	Part No.
¾"	AIVL78SS075LB
1"	AIVL78SS100LB
1¼"	AIVL78SS125LB
1½"	AIVL78SS150LB
2"	AIVL78SS200LB
2½"	AIVL78SS250LB
3"	AIVL78SS300LB
4"	AIVL78SS400LB
5"	AIVL78SS500LB
6"	AIVL78SS600LB

Cast Iron PN16 Flanged Swing Check Valve

Features

- 16 Bar rated
- -10°C to +230°C
- Bronze trim
- Conforms to EN12334 (BS5153)

ART 170 Series

Valve Rp	Part No.
2"	ACST170200CV
2½"	ACST170250CV
3"	ACST170300CV
4"	ACST170400CV
5"	ACST170500CV
6"	ACST170600CV
8"	ACST170800CV
10"	ACST1701000CV
12"	ACST1701200CV

Cast Iron Dual Plate Wafer Check Valve

Features

- 16 Bar Rated
- -10°C to +110°C
- Stainless Steel Disc
- EPDM Seat

ART 121 Series

Valve Rp	Part No.
2"	ACSC121200
2½"	ACSC121250
3"	ACSC121300
4"	ACSC121400
5"	ACSC121500
6"	ACSC121600
8"	ACSC121800
10"	ACSC1211000
12"	ACSC1211200

Ductile Iron Wafer Butterfly Valve

Features

- 16 Bar rated
- -10°C to +110°C
- DI Zinc plated disc
- EPDM liner
- ISO Top

ART 110 Series

Valve Rp	Part No.
2"	ABUT110200
2½"	ABUT110250
3"	ABUT110300
4"	ABUT110400
5"	ABUT110500
6"	ABUT110600
8"	ABUT110800
10"	ABUT1101000
12"	ABUT1101200

Ductile Iron Wafer Butterfly Valve

Features

- 16 Bar rated
- -10°C to +110°C
- Stainless steel disc
- EPDM liner
- ISO Top
- WRAS Approved

ART 115 Series

Valve Rp	Part No.
2"	ABUT115200
2½"	ABUT115250
3"	ABUT115300
4"	ABUT115400
5"	ABUT115500
6"	ABUT115600
8"	ABUT115800
10"	ABUT1151000
12"	ABUT1151200

DZR Brass Fixed Orifice Commissioning Valve BSP Parallel Ends

Features

- 25 Bar rated
- -10°C to +120°C
- EPDM seat
- 5 Year guarantee

ART 25 Series

Description	Part No.
½" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25050
¾" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25075
1" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25100
1¼" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25125
1½" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25150
2" Art 25 DZR Brass D reg valve fixed orifice BSPP	ADRE25200

DZR Brass Double Regulating Valve BSP Parallel Ends

Features

- 25 Bar rated
- -10°C to +120°C
- EPDM seat
- 5 Year guarantee

ART 26 Series

Description	Part No.
½" Art 26 DZR Brass double reg valve BSPP	ADRF26050
¾" Art 26 DZR Brass double reg valve BSPP	ADRF26075
1" Art 26 DZR Brass double reg valve BSPP	ADRF26100
1¼" Art 26 DZR Brass double reg valve BSPP	ADRF26125
1½" Art 26 DZR Brass double reg valve BSPP	ADRF26150
2" Art 26 DZR Brass double reg valve BSPP	ADRF26200
½" Art 26 "Low flow" DZR Brass double reg valve BSPP	ADRF26LOW050

DZR Brass Metering Station BSP Parallel M/F Ends

Features

- 20 Bar rated
- -10°C to +120°C
- 5 Year guarantee

ART 27 Series

Description	Part No.
½" Art 27 standard flow DZR Brass metering station BSPP	ADRF27050
¾" Art 27 DZR Brass metering station BSPP	ADRF27075
1" Art 27 DZR Brass metering station BSPP	ADRF27100
1¼" Art 27 DZR Brass metering station BSPP	ADRF27125
1½" Art 27 DZR Brass metering station BSPP	ADRF27150
2" Art 27 DZR Brass metering station BSPP	ADRF27200
½" Art 27 "Low flow" DZR Brass metering station BSPP	ADRF27LOW050
½" Art 27 "Med flow" DZR Brass metering station BSPP	ADRF27MED050
½" Art 27 "Ultra low flow" DZR brass metering station BSPP	ADRF27ULOW050
½" Art 27 "Ultra low flow" DZR brass metering station BSPP	ADRF27UULOW050

Ductile Iron Double Regulating Valve Flanged PN16

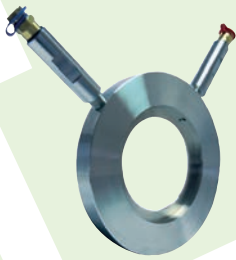
Features

- 16 Bar rated
- -10°C to +120°C
- c/w ext & test points

ART 250 Series

Description	Part No.
10" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD2501000
12" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD2501200
2" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250200
2½" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250250
3" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250300
4" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250400
5" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250500
6" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250600
8" Art 250 PN16 D/I Flgd D Reg Val Var orifice c/w test points & exts	ADRD250800





Stainless Steel Metering Station Wafer Pattern

Features

- 16 Bar rated
- -10°C to +120°C
- C/W Ext & test points

ART 270 Series

Description	Part No.
2" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270200
2½" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270250
3" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270300
4" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270400
5" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270500
6" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270600
8" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC270800
10" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC2701000
12" Art 270 PN16 304SS Wafer orifice plate c/w test points & exts	ADRC2701200

Cast Iron PN16 Flanged Differential Pressure Control Valve (DPCV)

Features

- 16 Bar rated
- -10°C to +120°C

ART 241HP Series

Description	Part No.
2½" Art 241HP PN16 Flanged cast iron DPCV DP range 80-160kPa	ADPC241HP250
3" Art 241HP PN16 Flanged cast iron DPCV DP range 80-160kPa	ADPC241HP300
4" Art 241HP PN16 Flanged cast iron DPCV DP range 80-160kPa	ADPC241HP400

ART 241LP Series

Description	Part No.
2½" Art 241LP PN16 Flanged cast iron DPCV DP range 20-80kPa	ADPC241LP250
3" Art 241LP PN16 Flanged cast iron DPCV DP range 20-80kPa	ADPC241LP300
4" Art 241LP PN16 Flanged cast iron DPCV DP range 20-80kPa	ADPC241LP400
5" Art 241LP PN16 Flanged cast iron DPCV DP range 20-80kPa	ADPC241LP500
6" Art 241LP PN16 Flanged cast iron DPCV DP range 20-80kPa	ADPC241LP600

DZR Differential Pressure Control Partner Balancing Valve (VODRV)

Features

- 25 Bar rated
- -10°C to +120°C
- C/W Imp Tube connection & test points
- 5 Year guarantee

ART 28DP Series

Description	Part No.
½" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP050
¾" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP075
1" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP100
1¼" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP125
1½" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP150
2" Art 28DP BSPP DZR brass DPCV partner valve	ADPC28DP200

DZR Differential Pressure Control Valve (DPCV) BSP Parallel Ends

Features

- 16 Bar rated
- -10°C to +120°C
- 5 Year guarantee

ART 24HP Series

Description	Part No.
½" Art 24HP BSPP DZR brass DPCV DP range 20-60kPa	ADPC24H050
¾" Art 24HP BSPP DZR brass DPCV DP range 20-60kPa	ADPC24H075
1" Art 24HP BSPP DZR brass DPCV DP range 20-60kPa	ADPC24H100
1¼" Art 24HP BSPP DZR brass DPCV DP range 20-80kPa	ADPC24H125
1½" Art 24HP BSPP DZR brass DPCV DP range 20-80kPa	ADPC24H150
2" Art 24HP BSPP DZR brass DPCV DP range 20-80kPa	ADPC24H200

ART 24LP Series

Description	Part No.
½" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L050
¾" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L075
1" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L100
1¼" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L125
1½" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L150
2" Art 24LP BSPP DZR brass DPCV DP range 5-30kPa	ADPC24L200



Brass Solenoid Valve Pilot Operated 2/2 Way Normally Closed

Features

- Brass body
- 0°C to +120°C
- EPDM diaphragm
- Voltage 24V AC/DC, 110V AC, 230V AC, 12V DC

ART 642 Series

Description	Part No.
3/8" SLP10EE1-13L WRAS NC Brass solenoid valve EPDM 110V AC 13mm orifice	ASLGSLPNCW038E110VAC
3/8" SLP10EE2-13L WRAS NC Brass solenoid valve EPDM 230V AC 13mm orifice	ASLGSLPNCW038E230VAC
3/8" SLP10EE7-13L WRAS NC Brass solenoid valve EPDM 24V AC 13mm orifice	ASLGSLPNCW038E24VAC
3/8" SLP10EE4-13L WRAS NC Brass solenoid valve EPDM 24V DC 13mm orifice	ASLGSLPNCW038E24VDC
1/2" SLP15EE1-13L WRAS NC Brass solenoid valve EPDM 110V AC 13mm orifice	ASLGSLPNCW050E110VAC
1/2" SLP15EE2-13L WRAS NC Brass solenoid valve EPDM 230V AC 13mm orifice	ASLGSLPNCW050E230VAC
1/2" SLP15EE7-13L WRAS NC Brass solenoid valve EPDM 24V AC 13mm orifice	ASLGSLPNCW050E24VAC
1/2" SLP15EE4-13L WRAS NC Brass solenoid valve EPDM 24V DC 13mm orifice	ASLGSLPNCW050E24VDC
3/4" SLP20EE1 WRAS NC Brass solenoid valve EPDM 110V AC 20mm orifice	ASLGSLPNCW075E110VAC
3/4" SLP20EE2 WRAS NC Brass solenoid valve EPDM 230V AC 20mm orifice	ASLGSLPNCW075E230VAC
3/4" SLP20EE7 WRAS NC Brass solenoid valve EPDM 24V AC 20mm orifice	ASLGSLPNCW075E24VAC
3/4" SLP20EE4 WRAS NC Brass solenoid valve EPDM 24V DC 20mm orifice	ASLGSLPNCW075E24VDC
1" SLP25EE1 WRAS NC Brass solenoid valve EPDM 110V AC 25mm orifice	ASLGSLPNCW100E110VAC
1" SLP25EE2 WRAS NC Brass solenoid valve EPDM 230V AC 25mm orifice	ASLGSLPNCW100E230VAC
1" SLP25EE7 WRAS NC Brass solenoid valve EPDM 24V AC 25mm orifice	ASLGSLPNCW100E24VAC
1" SLP25EE4 WRAS NC Brass solenoid valve EPDM 24V DC 25mm orifice	ASLGSLPNCW100E24VDC
1 1/4" SLP35EE1 WRAS NC Brass solenoid valve EPDM 110V AC 35mm orifice	ASLGSLPNCW125E110VAC
1 1/4" SLP35EE2 WRAS NC Brass solenoid valve EPDM 230V AC 35mm orifice	ASLGSLPNCW125E230VAC
1 1/4" SLP35EE7 WRAS NC Brass solenoid valve EPDM 24V AC 35mm orifice	ASLGSLPNCW125E24VAC
1 1/4" SLP35EE4 WRAS NC Brass solenoid valve EPDM 24V DC 35mm orifice	ASLGSLPNCW125E24VDC
1 1/2" SLP40EE1 WRAS NC Brass solenoid valve EPDM 110V AC 40mm orifice	ASLGSLPNCW150E110VAC
1 1/2" SLP40EE2 WRAS NC Brass solenoid valve EPDM 230V AC 40mm orifice	ASLGSLPNCW150E230VAC
1 1/2" SLP40EE7 WRAS NC Brass solenoid valve EPDM 24V AC 40mm orifice	ASLGSLPNCW150E24VAC
1 1/2" SLP40EE4 WRAS NC Brass solenoid valve EPDM 24V DC 40mm orifice	ASLGSLPNCW150E24VDC
2" SLP50EE1 WRAS NC Brass solenoid valve EPDM 110V AC 50mm orifice	ASLGSLPNCW200E110VAC
2" SLP50EE2 WRAS NC Brass solenoid valve EPDM 230V AC 50mm orifice	ASLGSLPNCW200E230VAC
2" SLP50EE7 WRAS NC Brass solenoid valve EPDM 24V AC 50mm orifice	ASLGSLPNCW200E24VAC
2" SLP50EE4 WRAS NC Brass solenoid valve EPDM 24V DC 50mm orifice	ASLGSLPNCW200E24VDC





Seals	Type	Application
	EPDM -	Some chemicals Drinking water High temp. water
	FKM -	Oils High temp. water
	NBR -	Water



Part No. Completion
When ordering complete the Part No. by adding the following:-

PU225		PU220 & AD	
Voltage		Voltage	
AC	DC	AC	DC
24V	12V	24V	12V
48V	24V	48V	24V
110V	48V	110V	48V
220V		220V	110V
240V		240V	
380V		380V	



Normally Closed & Opened 2 Way Servo Assisted Solenoid Valves

Media: Water, air & light oil -10°C to +160°C max.
Opening/closing time: 50mSec max.

Mounting: Coil upright
Brass body, Stainless steel tube & internal parts

PU225 Series

Size	Ø Orifice (mm)	Pressure Rating (bar)			Seals	Max Media Temp. °C	Part No.	Insert
		Min	Max	Max Working				
3/8"	13	0.5	10	15	NBR	80	PU22503	<input type="checkbox"/>
					FKM	130	PU22503V	<input type="checkbox"/>
					EPDM	160	PU22503E	<input type="checkbox"/>
1/2"	13	0.5	10	15	NBR	80	PU22504A	<input type="checkbox"/>
					FKM	130	PU22504AV	<input type="checkbox"/>
					EPDM	160	PU22504AE	<input type="checkbox"/>
3/4"	25	0.5	10	15	NBR	80	PU22506A	<input type="checkbox"/>
					FKM	130	PU22506AV	<input type="checkbox"/>
					EPDM	160	PU22506AE	<input type="checkbox"/>
1"	25	0.5	10	15	NBR	60	PU22508A	<input type="checkbox"/>
					FKM	120	PU22508AV	<input type="checkbox"/>
					EPDM	120	PU22508AE	<input type="checkbox"/>

Normally closed 2 way assisted lift Solenoid Valves

Media: Water, air & light oil 155°C max.
Opening/closing time: 50mSec max.

Mounting: Coil upright
Brass body, Stainless steel tube & internal parts

PU220 & AD Series

Size	Ø Orifice (mm)	Pressure Rating (bar)				Seals	Max Media Temp. °C	Part No.	Insert
		Min	Max (DC)	Max (AC)	Max Working				
3/8"	13	0	5	0.5	10	NBR	80	PU22003	<input type="checkbox"/>
						FKM	120	PU22003V	<input type="checkbox"/>
						EPDM	155	PU22003E	<input type="checkbox"/>
1/2"	13	0	5	8.5	10	NBR	80	PU22004A	<input type="checkbox"/>
						FKM	120	PU22004AV	<input type="checkbox"/>
						EPDM	155	PU22004AE	<input type="checkbox"/>
3/4"	20	0	5	8.5	10	NBR	80	PU22006A	<input type="checkbox"/>
						FKM	120	PU22006AV	<input type="checkbox"/>
						EPDM	155	PU22006AE	<input type="checkbox"/>
1"	25	0	5	7	10	NBR	80	PU22008A	<input type="checkbox"/>
						FKM	120	PU22008AV	<input type="checkbox"/>
						EPDM	155	PU22008AE	<input type="checkbox"/>
1 1/4"	35	0	7	10	10	NBR	90	AD35N	<input type="checkbox"/>
						FKM	120	AD35V	<input type="checkbox"/>
						EPDM	120	AD35E	<input type="checkbox"/>
						SILICONE	130	AD35S	<input type="checkbox"/>
						NBR	90	AD40N	<input type="checkbox"/>
1 1/2"	35	0	7	10	10	FKM	120	AD40V	<input type="checkbox"/>
						EPDM	120	AD40E	<input type="checkbox"/>
						SILICONE	130	AD40S	<input type="checkbox"/>
						NBR	90	AD50N	<input type="checkbox"/>
						FKM	120	AD50V	<input type="checkbox"/>
2"	51	0	7	7	10	EPDM	120	AD50E	<input type="checkbox"/>
						SILICONE	130	AD50S	<input type="checkbox"/>

Protective Cover for Control Valves & Damper Actuators

If you have difficult operating conditions then it is the ideal solution for protecting your control valves in harsh environments. The BLUE BAG Series cover offers an innovative & effective weather protection solution for control valves & actuators. Made of heavy duty fabric, it gives significant protection against severe weather such as rain, sleet or snow. The "Ice Blue" colour minimizes solar glare which keeps the protected equipment cooler than other forms of protection. It can be installed and removed in seconds & it is available in two sizes to fit various control valve assemblies.

Features

- Easiest of Installations
- Long lasting nylon rope included
- Ice Blue colour to minimise solar glare
- Water repellent fabric
- Keeps equipment cooler in hot conditions
- Keeps equipment clean & protected
- UV Protective coating.

The Blue Bag Series

Description	Part No.
Small weatherproof bag	EE-VMC SMALL
Large weatherproof bag	EE-VMC LARGE



Damper Actuators

Rotary actuators with connecting cable for 2 to 40Nm standard with IP54 protection. IP66/67 Robusline versions also available or actuator protection weatherguards. Various speed options and communication versions MODBUS RTU, KNX, MP-Bus are available.

CM... Series 2Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close 3-point	24V AC/DC	Lefthand rotation (CCW)	CM24-L
		Righthand rotation (CCW)	CM24-R
	230V AC	Lefthand rotation (CCW)	CM230-L
		Righthand rotation (CCW)	CM230-R
Modulating	24V AC/DC	Lefthand rotation (CCW)	CM24-SR-L
		Righthand rotation (CCW)	CM24-SR-R

For dampers with up to 0.4m². Universal clamp reversible 6...12.7mm

LM... Series 5Nm with Connecting Cable

Open/close 3-point	24V AC/DC	1x Integral auxiliary switch	LM24A
			LM24A-S
	230V AC	1x Integral auxiliary switch	LM230A
			LM230A-S
Modulating	24V AC	Parameterisable	LM24A-SR
	230V AC		LM24A-MP
			LM230ASR

For dampers with up to 1m². Universal clamp reversible 6...20mm

NM... Series 10Nm with Connecting Cable

Open/close 3-point	24V AC/DC	1x Integral auxiliary switch	NM24A
			NM24A-S
		1x Integral auxiliary switch	NM230A
			NM230A-S
Modulating	24V AC/DC	Parameterisable	NM24A-SR
	230V AC		NM24A-MP
			NM230ASR

For dampers with up to 2m². Universal clamp reversible 8...26.7mm

SM... Series 20Nm with Connecting Cable

Open/close 3-point	24V AC/DC	1x Integral auxiliary switch	SM24A
			SM24A-S
		1x Integral auxiliary switch	SM230A
			SM230A-S
Modulating	24V AC/DC	Parameterisable	SM24A-SR
	230V AC		SM24A-MP
			SM230ASR

For dampers with up to 4m². Universal clamp reversible 10...20mm

GM... Series 40Nm with Connecting Cable

Open/close 3-point	24V AC/DC		GM24A
	230V AC/DC		GM230A
Modulating	24V AC/DC	Parameterisable	GM24A-SR
			GM24A-MP

For dampers with up to 8m². Universal clamp reversible 12...26.7mm

BELIMO®





Rotary Actuators with Mechanical Emergency Control Function

TF Series 2.5Nm with Connecting Cable (IP42)

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	1x Integral auxiliary switch	TF24
	230V AC/DC	1x Integral auxiliary switch	TF24-S
	230V AC	1x Integral auxiliary switch	TF230
Modulating	24V AC/DC	Parameterisable	TF24-SR
	230V AC	Parameterisable	TF24-MFT
	230V AC	Parameterisable	TF230-SR

For dampers with up to 0.5m². Universal clamp reversable 6...12mm

LF Series 4Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	Integral auxiliary switch	LF24
	230V AC/DC	Integral auxiliary switch	LF24-S
	230V AC	Integral auxiliary switch	LF230
Modulating	24V AC/DC	Parameterisable	LF24-SR
	24V AC/DC	Parameterisable	LF24-MFT2
	24V AC/DC	Parameterisable	LF24-MFT2

For dampers with up to 0.8m². Universal clamp reversable 8...16mm

NF Series 10Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	AC 24...240V / DC 24...125V	2x Integral aux switch	NFA
	24V AC/DC	2x Integral aux switch	NFA-S2
	24V AC/DC	2x Integral aux switch	NF24A
Modulating	24V AC/DC	2x Integral aux switch	NF24A-S2
	24V AC/DC	2x Integral aux switch	NF24A-SR
	24V AC/DC	2x Integral aux switch Parameterisable	NF24A-SR-S2
24V AC/DC	2x Integral aux switch Parameterisable	NF24A-MP	

For dampers with up to 2m². Universal clamp reversable 10...25.4mm

SF Series 20Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24...240V AC / 24...125V DC	2x Integral aux switch	SFA
	24V AC/DC	2x Integral aux switch	SFA-S2
	24V AC/DC	2x Integral aux switch	SF24A
Modulating	24V AC/DC	2x Integral aux switch	SF24A-S2
	24V AC/DC	2x Integral aux switch	SF24A-SR
	24V AC/DC	2x Integral aux switch Parameterisable	SF24A-SR-S2
24V AC/DC	2x Integral aux switch Parameterisable	SF24A-MP	

For dampers with up to 4m². Universal clamp reversable 10...25.4mm

EF Series 30Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	2x Integral aux switch	EF24A
	24V AC/DC	2x Integral aux switch	EF24A-S2
	230V AC/DC	2x Integral aux switch	EF230A
Modulating	24V AC/DC	2x Integral aux switch	EF230A-S2
	24V AC/DC	2x Integral aux switch	EF24A-SR
	24V AC/DC	2x Integral aux switch Parameterisable	EF24A-SR-S2
24V AC/DC	2x Integral aux switch Parameterisable	EF24A-MP	

For dampers with up to 6m². Universal clamp reversable 12...26.7mm

Rotary Actuators with Electrical Emergency Control Function (SuperCap)

GK Series 40Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close			GK24A-1
Modulating	24V AC/DC		GK24A-SR
		Parameterisable	GK24A-MP
For dampers with up to 8m ² . Universal clamp reversible 12...26.7mm			

Accessories

Description	Type	Part No.	
Extension for base plate converts footprint of NM...A to NM... galvanised steel	NM...A	ZNMA	
Extension for base plate converts footprint of SM...A to SM / AM galvanised steel	SM...A	Z-SMA	
Extension for base plate converts footprint of GM...A to GM... galvanised steel	GM...A	Z-GMA	
Ball Joint with M8 for crank arms KH8 round steel rod ø8mm	NM...A, SM...A, TF, LF, AF	KG8	
Ball Joint with M10 for crank arms KH8 round steel rod ø10 mm	NM...A, SM...A, GM...A, TF, LF, AF	KG10A	
Mounting Kit for Damper Linkage for flat and side mounting	NM...A	ZG-NMA	
	SM...A	ZG-SMA	
Auxiliary Switch add-on	1 x SPDT	TM...A, LM...A, NM...A, SM...A, GM...A	S1A
	2 x SPDT	TM...A, LM...A, NM...A, SM...A, GM...A	S2A
Positioner for wall mounting	TM...A, LM...A, NM...A, SM...A, GM...A, TF, LF, AF	SGA24	
Positioner for front-panel mounting	TM...A, LM...A, NM...A, SM...A, GM...A, TF, LF, AF	SGF24	

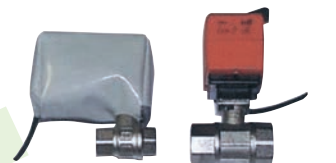
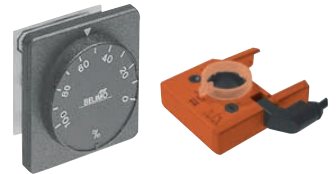
Actuator Protection

Temperature range: -25°C to +70°C
Weight: 550g/m²

Weatherguards

For Actuator	Resistance	Part No.
LR...A	Water, oils, alkalies & dilute acids	ZWGA-01
NR...		ZWGA-02
NV... & AV... (Post 2004)		ZWGA-03
SR...A		ZWGA-04
NM...A & LM...A		ZWGA-05
SM...A/NM24ALON & MF		ZWGA-06
GM...A & GR...A		ZWGA-07

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Robustline Damper Actuators IP66 / IP67

For extreme conditions, without emergency function.

NM Series 10Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	1x Integral aux switch	NM24P
	230V AC/DC		NM24P-S
	230V AC	1x Integral aux switch	NM230P
Modulating	24V AC/DC	Parameterisable	NM24P-SR
	230V AC		NM24P-MP
			NM230PSR

For dampers with up to 2m². Universal clamp 10...20mm

SM Series 20Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	1x Integral aux switch	SM24P
	230V AC/DC		SM24P-S
	230V AC	1x Integral aux switch	SM230P
Modulating	24V AC/DC	Parameterisable	SM24P-SR
	230V AC		SM24P-MP
			SM230PSR

For dampers with up to 4m². Universal clamp 14...20mm

Robustline Damper Actuators IP66 / IP67

For extreme conditions, with electrical emergency function (SuperCap).

NKQ Series 6Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	Parameterisable	NKQ24P-1
Modulating			NKQ24P-SR
			NKQ24P-MF

For dampers with up to 1.2m². Universal clamp 10...20mm

Robustline Damper Actuators IP66

For outdoor conditions, with mechanical emergency function.

NFG Series 10Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	AC 24...240V / DC 24...125V	Parameterisable	NFG-L
			NFG-S2-L
Modulating	24V AC/DC	Parameterisable	NF24G-SR-L
			NF24G-SR-S2-L

For dampers with up to 2m². Universal clamp 12...26.7mm

SFG Series 10Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	AC 24...240V / DC 24...125V	Parameterisable	SFG-L
			SFG-S2-L
Modulating	24V AC/DC	Parameterisable	SF24G-SR-L
			SF24G-SR-S2-L

For dampers with up to 4m². Universal clamp 12...26.7mm

Robustline Damper Actuators IP66

For outdoor conditions, with electrical emergency function (SuperCap).

GK Series 40Nm with Connecting Cable

Control Type	Rating	Type	Part No.
Open/close	24V AC/DC	Parameterisable	GK24G-1
Modulating			GK24G-SR
			GK24G-MP

For dampers with up to 8m². Universal clamp 14...26.7mm

Actuators for Third-Party Mixing Valves

Retrofit actuators for easy motorising of mixing valves. The actuators can be mounted on the most common mixing valves of different manufacturers using the correct spondind mounting kit.

Actuator features

- Order valve and Form Fit adaptor
- Other manufacturers Retrofits available

Modulating actuator specification

- *****SR versions: (0)2-10V DC control signal with 2...10V DC position feedback signal

Open/close & 3 point actuator specification

- 2 wire & 3 wire control no feedback if required then order S1A / S2A for SM actuators

Valves			Compatible Actuators										
Valve Manufacturer	DN (mm)	Valve series	Form Fit Adaptor	HT24-3-T	HT24-3-S	HT24-SR-T	HT230-3-T	HT230-3-S	HTL24-3-T	HTL230-3-T	SM24A	SM230A	SM24A-SR
ESBE		All series (except VRG, VRB)	MS-NRE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		3MG, F120 - F165, 4HG	MS-NRE1	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		G119 - G151	MS-NRE2	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		4MG, F432 - F465	MS-NRE3	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		G419 - G151	MS-NRE4	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		15 - 50 65 - 150	VRG, VRB	MS-NRE6 Z-MKESA	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Landis & Staefa		Series 2, VCI 31	MS-NRL	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
		20 - 40 40 - 50	VBG31 VBF21	MS-NRL	Yes	Yes	Yes	Yes	Yes	Yes			
		20 - 40	Series 1, B3F, B3G	MS-NRL1	Yes	Yes	Yes	Yes	Yes	Yes			
Oventrop		3W, 4W, H	MS-NRO1	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Satchwell		15 - 50	MB	MS-NRS	Yes	Yes	Yes	Yes	Yes	Yes			
		65 - 100	MB, MBF	MS-NRSF Z-MBFA	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	

Actuators						
For Valve	IP Rating	Voltage	Torque Nm	Running Time	Aux Switch	Part No.
3-Point	40	24V AC	10	140sec	No	HT24-3-T
	40	24V AC	10	140sec	Yes	HT24-3-S
	40	24V AC	10	140sec	No	HT230-3-T
	40	230V AC	10	140sec	Yes	HT230-3-S
	40	24V AC	10	280sec	No	HTL24-3-T
	40	230V AC	10	280sec	No	HTL230-3-T
	54	24V AC/DC	20	150sec	No	SM24A
	54	230V AC/DC	20	150sec	No	SM230A
Modulating	40	24V AC	10	140sec	No	HT24-SR-T
	54	24V AC/DC	20	150sec	No	SM24A-SR

Actuators for Third-Party Short Stroke Globe Valves

Retrofit actuators for easy motorising of mixing valves. The actuators can be mounted on the most common mixing valves of different manufacturers using the correct spondind mounting kit.

Actuator features

- 5.5mm stroke
- Other manufacturers retrofits available

Modulating actuator specification

- *****SR versions: (0)2-10V DC control signal with 2...10V DC position feedback signal

Open/close & 3 point actuator specification

- 2 wire & 3 wire control with no feedback if feedback is required then order S1A / S2A for SM actuators

Valves			Compatible Actuators					
Valve Manufacturer	DN (mm)	Valve series	NRDVX24-3-T-CA	NRDVX230-3-T-CA	NRDVX24-SR-T-CA	NRDVX24-3-T-SI	NRDVX230-3-T-SI	NRDVX24-SR-T-SI
Cazzaniga	15 - 40	V02BM..LN	Yes	Yes	Yes			
		V03BM..LN	Yes	Yes	Yes			
Siemens	15 - 40	VVG44, VVI52				Yes	Yes	Yes
		VXG44, VVP45				Yes	Yes	Yes
		VXP45, VMP45				Yes	Yes	Yes

Actuators						
For Valve	IP Rating	Voltage	Torque Nm	Running Time	Aux Switch	Part No.
Open/close & 3-point	40	24V AC	500	140sec	No	NRDVX24-3-T-CA
	40	230V AC	500	140sec	No	NRDVX230-3-T-CA
	40	24V AC	500	140sec	No	NRDVX24-3-T-SI
	40	230V AC	500	140sec	No	NRDVX230-3-T-SI
Modulating	40	24V AC/DC	500	140sec	No	NRDVX24-SR-T-CA
	40	24V AC/DC	500	140sec	No	NRDVX24-SR-T-SI





Actuators for Third-Party Globe Valves

Retrofit actuators for easy motorising of globe valves. This clever, unique and universal retrofit concept, mounting Belimo globe valve actuators on numerous series from various valve manufacturers is extremely simple. You will find the right globe valve actuator in a few steps even without knowing the manufacturer.

Actuator features

- Order valve and Form Fit adaptor
- Other manufacturers Retrofits available

Modulating actuator specification

- *****-MP-RE versions: Parameterisable 0.5-10V DC or 2-10V DC control signal with (0)2...10VDC position feedback signal
- Actuator speed can also be adjusted

Open/close & 3 point actuator specification

- *****-RE 2 wire & 3 wire control with no feedback
- if feedback is required then order S2A-H

Valves

	Acting force N	Stroke Length	Torque Nm	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
NV... / NVK...	1000	20mm	500	Yes	Yes	Yes								
SV...	1500	20mm	500				Yes	Yes	Yes					
SVL...	1500	50mm	500						Yes	Yes	Yes			
AVK...	2000	32mm	500							Yes	Yes	Yes		
EV...	2500	50mm	500								Yes	Yes	Yes	
RV...	4500	50mm	500								Yes	Yes	Yes	Yes

Note: Attachments, spacer rings or disks maybe required for Sauter, Siebe, Johnson Control & LDM valves



Valves

Valve Manufacturer	DN (mm)	Valve series	Adaptor (Spacer ring, disk or attachment) if required	Compatible Actuators																							
				NV24A-RE	NV230A-RE	NV24A-MP-RE	NVK24A-3-RE	NVK230A-3-RE	NVK24A-MP-RE	NVC24A-MP-RE	NVC24A-MP-RE	SV24A-RE	SV230A-RE	SV24A-MP-RE	SV24A-MP-RE	SVL230A-RE	SVL24A-MP-RE	AVK24A-3-RE	AVK230A-3-RE	AVK24A-MP-RE	EV24A-RE	EV230A-RE	EV24A-MP-RE	EVC24A-MF-RE	RV24A-MF-RE		
Cazzaniga	15 - 50	V2BM, V3BM																									
Controlli	15 - 50	VMB, VMB..F, VSB, VSB..F		Yes	Yes	Yes	Yes	Yes	Yes																		
		(H) VFS2, VL2, VL3, VRB2 (H) VRB3, VRG2, VRG3		Yes	Yes	Yes	Yes	Yes	Yes	Yes																	
Danfoss	15 - 80	(H) VF2, VF3		Yes	Yes	Yes	Yes	Yes	Yes																		
	25 - 50	(H) VE2		Yes	Yes	Yes	Yes	Yes	Yes																		
	65 - 100	(H) VL2, VL3										Yes	Yes	Yes	Yes												
	100 - 150	(H) VF2, VF3										Yes	Yes	Yes	Yes												
Elesta	15 - 50	BKF..., BKG...		Yes	Yes	Yes	Yes	Yes	Yes																		
	15 - 50	V5011R, V5013R		Yes	Yes	Yes	Yes	Yes	Yes																		
	15 - 65	V5049A, V5050A		Yes	Yes	Yes	Yes	Yes	Yes																		
		V5025A, V5328A,		Yes	Yes	Yes	Yes	Yes	Yes																		
	20 - 80	V5329A, V5329C		Yes	Yes	Yes	Yes	Yes	Yes																		
	25 - 80	V5095A		Yes	Yes	Yes	Yes	Yes	Yes																		
Hora	80 - 150	V5015		Yes	Yes	Yes	Yes	Yes	Yes																		
	80 - 150	V5049A, V5050A										Yes	Yes	Yes	Yes												
	100 - 150	V5015A										Yes	Yes	Yes	Yes												
	15 - 25	BR225RG		Yes	Yes	Yes	Yes	Yes	Yes																		
		BR206GF, BR206GG, BR216GF BR216GG, BR216RA, BR216RA-TW		Yes	Yes	Yes	Yes	Yes	Yes																		
	15 - 50	BR306GF, BR306GG, BR316GF BR316GG, BR316RA, BR316RA-TW		Yes	Yes	Yes	Yes	Yes	Yes																		
		½" - 2"	BR216RGA, BR316RGA		Yes	Yes	Yes	Yes	Yes																		
		¾"	BR316RGA MS		Yes	Yes	Yes	Yes	Yes																		
	Johnson	15 - 40	VBD-4xx4, VBD-4xx8, VG82, VG84, VG88, VG89		Yes	Yes	Yes	Yes	Yes	Yes																	
		15 - 50	BM-2xx2, BM-2xx8, VB7216, VB7816, VBF-0xx4, VBF-0xx8		Yes	Yes	Yes	Yes	Yes	Yes																	
VBF-2xx4, VBF-2xx8, VG7201				Yes	Yes	Yes	Yes	Yes	Yes																		
50 - 150		VG7203, VG7401, VG7403, VG7802, VG7804		Yes	Yes	Yes	Yes	Yes	Yes																		
Kieback & Peter	65 - 100	VBD-4xx4, VBD-4xx8, VG82, VG84, VG88, VG89		Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes												
	65 - 100	VBF-0xx4, VBF-0xx8		Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes												
	65 - 100	VBF-2xx4, VBF-2xx8		Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes												
	65 - 150	VG2231..., VG2431..., VG2831..	ZRV-303									Yes	Yes	Yes	Yes												
	LDM	15 - 50	RB, RB.-BK, RB..S017, RB..S017-BK		Yes	Yes	Yes	Yes	Yes	Yes																	
		15 - 50	RF, RF.-BF		Yes	Yes	Yes	Yes	Yes	Yes																	
		15 - 50	RK.-BF		Yes	Yes	Yes	Yes	Yes	Yes																	
	MUT	15 - 50	RV 102 E, RV 203 E	ZNV-203	Yes	Yes	Yes	Yes	Yes	Yes																	
	Osby	15 - 50	MTR, MTV		Yes	Yes	Yes	Yes	Yes	Yes																	
		25 - 40	BTV, GTV, RTV		Yes	Yes	Yes	Yes	Yes	Yes																	
Riccus & Seibt	15	RGV315/4		Yes	Yes	Yes	Yes	Yes	Yes																		
Samson	15 - 50	V2001		Yes	Yes	Yes	Yes	Yes	Yes																		
Satchwell / Schneider Electric	15 - 50	MJF, VSF, MZ, VZ		Yes	Yes	Yes	Yes	Yes	Yes																		
32 - 150	MJF, MZF, VZF										Yes	Yes	Yes	Yes													

Actuators for Third-Party Globe Valves

Retrofit actuators for easy motorising of globe valves. This clever, unique and universal retrofit concept, mounting Belimo globe valve actuators on numerous series from various valve manufacturers is extremely simple. You will find the right globe valve actuator in a few steps even without knowing the manufacturer.



Valves		Compatible Actuators																							
Valve Manufacturer	DN (mm)	Valve series	Adaptor (Spacer ring, disk or attachment) if required	NV24A-RE	NV230A-RE	NV24A-MP-RE	NVK24A-3-RE	NVK230A-3-RE	NVK24A-MP-RE	NVKC24A-MP-RE	SV24A-RE	SV230A-RE	SV24A-MP-RE	SVC24A-MP-RE	SVL230A-RE	SVL24A-MP-RE	AVK24A-3-RE	AVK230A-3-RE	AVK24A-MP-RE	EV24A-RE	EV230A-RE	EV24A-MP-RE	EVC24A-MF-RE	RV24A-MF-RE	
Sauter	15	V1T		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
	15 - 32	V4F..		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
	15 - 40	BT43B		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
	15 - 50	B6F..F, B6G..F, B6R..F, B6S..F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		BUG.., BUN.., BXD..F, BXE..F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		BXN.., V6F..F, V6G..F, V6R..F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		V6S..F, VUG, VUN, VXD..F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		VXE..F, VXN.., BUE, VUE		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
			ZRV-301													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	20 - 32	B4F..F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes														
	40 - 100	B4F..F	ZRV-301												Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	65 - 80	BXD..F, VXD..F	ZRV-301												Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65 - 100	BXE..F, VXE..F	ZRV-301												Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
65 - 150	BUG.., VUG..	ZRV-304												Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	B6F..F, B6S..F, V6F..F, V6S..F	ZRV-301												Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Siebe / Schneider Electric	65 - 150	BUE.., VUE..	ZRV-304											Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		VB8.., VB9..													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Siemens	65 - 150	VB8223, VB9223	ZRV-302											Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		15 - 25	VXF61, VWF61		Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		15 - 40	VPF52E, VPF52F, VWF52, VXF41		Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		15 - 50	VVG41, VVG41		Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		15 - 80	VVF40, VXF40		Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		25 - 80	WF21, VWF31, VXF21, VXF31		Yes	Yes	Yes	Yes	Yes	Yes	Yes														
		32 - 150	VXF61													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		40 - 150	VWF61													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		50 - 150	VXF41													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		50 - 150	VWF41, VWF45													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
100	WF21, VXF21													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
100 - 150	WF31, VVF40, VXF31, VXF40													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
SpiraxSarco	15 - 50	B & K series, KE43, KE71, KE73 LE31, LE33		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
TAC / Schneider Electric	15 - 32	VB8.., VB9..		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
	15 - 50			Yes	Yes	Yes	Yes	Yes	Yes	Yes															
	40 - 65													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
40 - 100														Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	65 - 150													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
TREND	15 - 50	GIB F/21, F/31, T/21, T/31		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
Wittier	15 - 50	V206H, V216H, V216R, V306H, V316H, V316R		Yes	Yes	Yes	Yes	Yes	Yes	Yes															
				Yes	Yes	Yes	Yes	Yes	Yes	Yes															

Actuators

For Valve	IP Rating	Voltage	Stroke mm	Torque Nm	Running Time	Emergency Function	Part No.
3-point	54	24V AC/DC	20	1000	150sec	No	NV24A-RE
	54	230V AC	20	1000	150sec	No	NV230A-RE
	54	24V AC	20	1000	150sec / 35sec	Yes	NVK24A-3-RE
	54	230V AC	20	1000	150sec / 35sec	Yes	NVK230A-3-RE
	54	24V AC/DC	20	1500	150sec	No	SV24A-RE
	54	230V AC	20	1500	150sec	No	SV230A-RE
	54	230V AC	50	1500	150sec	No	SVL230A-RE
	54	24V AC	32	2000	150sec / 35sec	Yes	AVK24A-3-RE
	54	230V AC	32	2000	150sec / 35sec	Yes	AVK230A-3-RE
	54	24V AC/DC	50	2500	188sec	No	EV24A-RE
	54	230V AC	50	2500	188sec	No	EV230A-RE
	54	24V AC/DC	20	1000	150sec	No	NV24A-MP-RE
Modulating	54	24V AC/DC	20	1000	150sec / 35sec	Yes	NVK24A-MP-RE
	54	24V AC/DC	20	1000	35sec	No	NVK24A-MP-RE
	54	24V AC/DC	20	1000	35sec / 35sec	Yes	NVKC24A-MP-RE
	54	24V AC/DC	20	1500	150sec	No	SV24A-MP-RE
	54	24V AC/DC	20	1500	35sec / 35sec	Yes	SVC24A-MP-RE
	54	24V AC/DC	50	1500	150sec	No	SVL24A-MP-RE
	54	24V AC/DC	32	1000	35sec / 35sec	Yes	AVK24A-MP-RE
	54	24V AC/DC	50	2500	188sec	No	EV24A-MP-RE
	54	24V AC/DC	50	2500	44sec	No	EVC24A-MF-RE
	54	24V AC/DC	50	4500	150sec	No	RV24A-MF-RE





Actuators for Third-Party Rotary Valves & Butterfly Valves without/with Emergency Function

Universal actuators for the motorising of existing installations. With the help of simple adaptors, these actuators can be mounted on installed rotary & butterfly valves from various manufacturers.

Modulating actuator specification

- ****-MP-R versions: Parameterisable 0.5-10V DC or 2-10V DC control signal with (0)2...10V DC position feedback signal
- Actuator speed can also be adjusted

Open/close actuator specification

- no feedback on SR, DR or GR actuators if required then order S1A or S2A
- **F*-R versions: Open/close control signal with mechanical emergency control function

Valves

Valve Manufacturer	DN (mm)	Valve series	Form fit adaptor, reducer required	Compatible Actuators																						
				SR24A-R	SR230A-R	SR24A-MP-R	SR24P-R	SR230P-R	SR24P-MP-R	SRFA-R	SRFA-S2-R	GR24A-R	GR230A-R	GR24A-MP-R	DR24A-R	DR230A-R	PRCA-S2-T	PRCA-BAC-S2-T	PRKCA-BAC-S2-T	SY4-24-3-T	SY4-230-3-T	SY4-24-SR-T	SY4-230-SR-T	SY4-24-MP-T	SY4-230-MP-T	
Albion	50	ART 115 & 135	ZSV-011	Yes																						
			ZPV-11		Yes																					
	ZSFV-11				Yes																					
	ZGV-16 & ZGI-004					Yes																				
	ZPR01 & UTRS17 x 11																									
Ari	25 - 100	Zesa/Gesa/Ziva	ZSF11		Yes																					
			ZPF-11			Yes																				
	ZSFF-11					Yes																				
	ZPR05																									
	ZSV-11-4K				Yes																					
Danfoss	25 - 80	Sylax	ZPV-11			Yes																				
			ZSFV-11				Yes																			
	ZGV-14						Yes																			
	ZPR06							Yes																		
	ZSV-009				Yes																					
Leengate / Brandoni	40 - 50	LV9911 & LV9912 / J9.128 & L9.128	ZPV-09				Yes																			
			ZSFV-09					Yes																		
	ZGV-14 & UTRS14 x 9							Yes																		
	ZPR03 & UTRS14 x 9								Yes																	
	ZGV-14 & UTRS14 x 11									Yes																
Sauter	80 - 100	DEF	ZPR03 & UTRS14 x 11							Yes																
			ZPR03 & UTRS14 x 11									Yes														
	ZPR03 & UTRS14 x 11											Yes														
	ZPR01 & UTRS17 x 14												Yes													
	ZGV-14													Yes												
Siemens	40 - 65	VKF46	ZPR10					Yes																		
			ZPV-11						Yes																	
	ZSFV-11									Yes																
	ZGV-14													Yes												
	ZSFV-14														Yes											
Tour & Anderson / Xurox	65 - 80	Xurox - Wafer	ZPR10																			Yes				
			ZPV-11																					Yes		
	ZSFV-11																							Yes		
	ZGV-16 & ZGI-002																								Yes	
	ZPR11																								Yes	

Actuators

For Valve	IP Rating	Voltage	Torque Nm	Running Time	Emergency Function	Part No.
Open/close	54	24V AC/DC	20	90sec	No	SR24A-R
	54	230V AC	20	90sec	No	SR230A-R
	66/67	24V AC/DC	20	90sec	No	SR24P-R
	66/67	230V AC	20	90sec	No	SR230P-R
	54	24...240V AC/24...125V DC	20	75sec / 20sec	Yes (Mechanical Spring)	SRFA-R
	54	24...240V AC/24...125V DC	20	75sec / 20sec	Yes (Mechanical Spring) / 2 Aux Switches	SRFA-S2-R
	54	24V AC/DC	40	150sec	No	GR24A-R
	54	230V AC	40	150sec	No	GR230A-R
	54	24V AC/DC	<90	150sec	No	DR24A-R
	54	230V AC	<90	150sec	No	DR230A-R
Modulating	66/67	24...240V AC/24...125V DC	160	35sec adjustable	No / 2 Aux Switches	PRCA-S2-T
	67	24V AC/DC	400	16sec	No / 2 Aux Switches	SY4-24-3-T
	67	230V AC	400	18sec	No / 2 Aux Switches	SY4-230-3-T
	54	24V AC/DC	20	90sec	No	SR24A-MP-R
	66/67	24V AC/DC	20	90sec	No	SR24P-MP-R
	54	24V AC/DC	40	90sec	No	GR24A-MP-R
	67	24V AC/DC	400	150sec	No / 2 Aux Switches	SY4-24-MP-T
Open/Close, 3-point, Modulating, BACnet	66/67	24...240V AC/24...125V DC	160	35sec adjustable / 35sec	No / 2 Aux Switches	SY4-230-MP-T
	66/67	24...240V AC/24...125V DC	160	35sec adjustable / 35sec	Yes (SuperCap) / 2 Aux Switches	PRKCA-BAC-S2-T

Accessories

Adaptors

Description	Part No.
	MS-NRE
	MS-NRE1
	MS-NRE2
	MS-NRE3
	MS-NRE4
	MS-NRE6
	Z-MKESA
Adaptor / Linkage for Landis & Staefa mixing valve	MS-NRL
	MS-NRL1
Adaptor / Linkage for Oventrop mixing valve	MS-NR01
	MS-NRS
Adaptor / Linkage for Satchwell mixing valve	MS-NRSF
	Z-MBFA
Sauter adaptor for globe valve	ZRV-301
Siede distance ring	ZRV-302
Johnson Control distance ring	ZRV-303
Sauter disk	ZRV-304
LDM distance ring	ZNV-203
SY4 actuators Mounting / adaptor kit	ZSY-011
	ZPRO5
	ZPRO6
	ZPRO8
	ZPRO9
	ZPR10
	ZPR11
	ZPR12
	ZPR05
	ZPR06
	ZPR08
	ZPR09
	ZPR10
	ZPR11
	ZPR12

Aux Switch

Add-on auxiliary switch - 2 Aux switches for AVK..A., EV..A., NV..A., RV..A., SV..A., SVL..A.	S2A-H
Add-on auxiliary switch - 1 Aux switch for SM....	S1A
Add-on auxiliary switch - 2 Aux switches for SM....	S2A

Linkages

For PR actuators	Position indicator and tappet shaft for PR actuators with F05, square 14x14mm	ZRP03
	Position indicator and tappet shaft for PR actuators with F07, square 17x17mm	ZRP01
	Tappet shaft only for PR actuators with F07, square 17x17mm	ZRP02
For SR... actuators	Form Fit adaptor, square 8mm, 9mm, 10mm, 11mm, 12mm, 14mm	ZSV-08
		ZSV-09
		ZSV-10
		ZSV-11
		ZSV-12
	Form Fit adaptor, two flats 8mm, 9mm, 10mm, 11mm, 14mm	ZSV-14
		ZSF-08
		ZSF-09
		ZSF-10
		ZSF-11
		ZSF-14
For SR..P. actuators	Form Fit adaptor, square 8mm, 9mm, 10mm, 11mm, 12mm, 14mm	ZPV-08
		ZPV-09
		ZPV-10
		ZPV-11
		ZPV-12
	Form Fit adaptor, two flats 8mm, 9mm, 10mm, 11mm, 14mm	ZPV-14
		ZPF-08
		ZPF-09
		ZPF-10
		ZPF-11
For SRF... actuators	Form Fit adaptor, square 8mm, 9mm, 10mm, 11mm, 12mm, 14mm	ZPF-14
		ZSFV-08
		ZSFV-09
		ZSFV-10
		ZSFV-11
	Form Fit adaptor, two flats 8mm, 9mm, 10mm, 11mm, 14mm	ZSFV-11-4K
		ZSFV-12
		ZSFV-14
		ZSFF-08
		ZSFF-09
For GR... actuators	Form Fit adaptor, square 14mm, 16mm, 17mm, 19mm	ZSFF-10
		ZSFF-11
		ZSFF-14
	Form Fit adaptor, two flats 14mm, 17mm	ZGV-14
		ZGV-16
		ZGV-17
		ZGV-19
	ZGF-14	
	ZGF-17	

Reducers

For DR...actuators	Form Fit adaptor, 13xØ19x33 mm (LxWxH)	ZDV-01
	Form Fit adaptor, 17x17x19 mm (LxWxH)	ZDV-02
For ZGV-19 adaptor	Reducer for Form Fit adaptor, 14x14x20 mm (LxWxH)	ZGI-001
For ZGV-16 adaptor	Reducer for Form Fit adaptor, 11x11x20 mm (LxWxH)	ZGI-002
For ZGV-19 adaptor	Reducer for Form Fit adaptor, 14x14x35 mm (LxWxH)	ZGI-003
For ZGV-16 adaptor	Reducer for Form Fit adaptor, 11x11x35 mm (LxWxH)	ZGI-004
For ZGV-19 adaptor	Reducer for Form Fit adaptor, 11x17x15 mm (LxWxH)	ZGI-009
For ZGV-19 adaptor	Reducer for Form Fit adaptor, 12x12x35 mm (LxWxH)	ZGI-012
For ZGV-16 adaptor	Reducer for Form Fit adaptor, 10x10x15 mm (LxWxH)	ZGI-013
For ZGV-19 adaptor	Reducer for Form Fit adaptor, 8x17x15 mm (LxWxH)	ZGI-014

Straight Square Reducers

Sqaure 11 x 9	Reducer outer square dimensions 11mm x inner square dimension 9mm	UTRS11 x 9
Sqaure 14 x 9	Reducer outer square dimensions 14mm x inner square dimension 9mm	UTRS14 x 9
Sqaure 14 x 10	Reducer outer square dimensions 14mm x inner square dimension 10mm	UTRS14 x 10
Sqaure 14 x 11	Reducer outer square dimensions 14mm x inner square dimension 11mm	UTRS14 x 11
Sqaure 17 x 11	Reducer outer square dimensions 17mm x inner square dimension 11mm	UTRS17 x 11
Sqaure 17 x 12	Reducer outer square dimensions 17mm x inner square dimension 12mm	UTRS17 x 12
Sqaure 17 x 14	Reducer outer square dimensions 17mm x inner square dimension 14mm	UTRS17 x 14
Sqaure 22 x 16	Reducer outer square dimensions 22mm x inner square dimension 16mm	UTRS22 x 16
Sqaure 22 x 17	Reducer outer square dimensions 22mm x inner square dimension 17mm	UTRS22 x 17



VALVES & ACTUATORS

RETROFITTING OF LINEAR VALVE





Characterised Control Valves Internal Thread DN15-50

Motorised valves for control of cold and hot water circuits in HVAC systems.

Actuator features

- Valve medium temperature -10...120°C
- Valve leakage rate A, Leak-proof (EN 12266-1)

Modulating actuator specification

- ****-SR versions: (0)2-10V DC control signal with 2...10V DC position feedback signal
- **F*-SR versions: (0)2-10V DC control signal with mechanical emergency control function

Open/close & 3-point actuator specification

- 2 wire & 3 wire control no feedback if required then order S1A / S2A

Valves		Compatible Actuators											2 - Way Valve	3 - Way Valve			
DN (mm)	Rp	Kvs (m³/h)	LR24A	LR230A	LR24A-SR	LR24A-SR	NR24A	NR230A	NR24A-SR	NR24A-SR	SR24A	SR230A	SR24A-SR	SR24A-SR	Part No.	Part No.	
15	½"	0.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-P25-S1	R3015-P25-S1	
		0.4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-P4-S1	R3015-P4-S1
		0.63	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-P63-S1	R3015-P63-S1
		1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-1-S1	R3015-1-S1
		1.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-1P6-S1	R3015-1P6-S1
		2.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-2P5-S1	R3015-2P5-S1
20	¾"	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-4-S1	R3015-4-S1	
		6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-6P3-S1	R3015-6P3-S1	
		8.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2020-4-S2	R3020-4-S2	
		6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2020-6P3-S2	R3020-6P3-S2	
25	1"	8.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2020-8P6-S2	R3020-8P6-S2	
		6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2025-6P3-S2	R3025-6P3-S2	
		10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2025-10-S2	R3025-10-S2	
32	1¼"	16	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2025-16-S2	R3025-16-S2	
		16					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2032-16-S3	R3032-16-S3	
40	1½"	16					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2040-16-S3	R3040-16-S3	
		25								Yes	Yes	Yes	Yes	Yes	R2040-25-S3	R3040-25-S4	
		25									Yes	Yes	Yes	Yes	R2050-25-S4	R3050-25-S4	
50	2"	40								Yes	Yes	Yes	Yes	Yes	R2050-40-S4	R3050-40-S4	
		58									Yes	Yes	Yes	Yes	Yes	R3050-58-S4	

Ball Valves Internal Thread DN15-50

Motorised valves for control of cold and hot water circuits in HVAC systems.

Actuator features

- Valve medium temperature -10...120°C
- Valve leakage rate A, Leak-proof (EN 12266-1)

Open/Close & 3-point actuator specification

- 2 wire & 3 wire control
- No feedback if required then order S1A / S2A
- **F* versions: with mechanical emergency control function

Valves		Compatible Actuators										2 - Way Valve	3 - Way Valve	3 - Way L-Bore Valve		
DN (mm)	Rp	Kvs (m³/h)	LR24A	LR230A	LR24A	LR24A	NR24A	NR230A	NR24A-SR	NR24A-SR	SR24A	SR230A	SR24A	Part No.	Part No.	Part No.
15	½"	15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2015-S1	R3015-S1	
		5.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			R3015-BL1
20	¾"	32	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2020-S2	R3020-S2	
		11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			R3020-BL2
25	1"	26	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2025-S2	R3025-S2	
		10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			R3025-BL2
32	1¼"	32					Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2032-S3	R3032-S3	
		9					Yes	Yes	Yes	Yes	Yes	Yes			R3032-BL2	
		15					Yes	Yes	Yes	Yes	Yes	Yes			R3032-BL3	
40	1½"	31					Yes	Yes	Yes	Yes	Yes	Yes	Yes	R2040-S3	R3040-S3	
		14					Yes	Yes	Yes	Yes	Yes	Yes			R3040-BL3	
		47									Yes	Yes	Yes			R3040-BL4
50	2"	49								Yes	Yes	Yes	Yes	R2050-S4	R3050-S4	
		24					Yes	Yes	Yes	Yes	Yes	Yes			R3050-BL3	
		75									Yes	Yes	Yes			R3050-BL4

Potable Water Valves Internal Thread DN15-50

Motorised valves for potable water circuits in HVAC systems.

Actuator features

- Valve medium temperature -5...65°C
- Valve leakage rate A, Leak-proof (EN 12266-1)
- WRAS approval: 1609315

Open/close & 3-point actuator specification

- 2 wire & 3 wire control - NO / NC versions available
- **F* versions: with mechanical emergency control function
- **K* versions: with electrical emergency control function
- No feedback if required then order S1A / S2A

Valves		Compatible Actuators											2 - Way Valve	
DN (mm)	Rp	Kvs (m³/h)	NR24A	NR230A	NRFA	NRFA-S2	SR24A	SR230A	SRFA	SRFA-S2	GR24A-5	GR230A-5	GRK24A-5	Part No.
15	½"	28	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	EXT-R215-B3-PW
20	¾"	42	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	EXT-R220-B3-PW
25	1"	70	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	EXT-R225-B3-PW
32	1¼"	80					Yes	Yes	Yes	Yes	Yes	Yes	Yes	EXT-R232-B4-PW
40	1½"	125					Yes	Yes	Yes	Yes	Yes	Yes	Yes	EXT-R240-B4-PW
50	2"	179								Yes	Yes	Yes	Yes	EXT-R250-B5-PW

Actuators					
For Valve	Voltage	Torque Nm	Running Time	Emergency Function	Part No.
Open/close & 3-point	24V AC/DC	5	90sec	No	LR24A
	230V AC/DC	5	90sec	No	LR230A
	24V AC/DC	10	90sec	No	NR24A
	230V AC/DC	10	90sec	No	NR230A
	24V AC/DC	20	90sec	No	SR24A
	230V AC/DC	20	90sec	No	SR230A
Modulating	24V AC/DC	40	90sec	No	GR24A-5
	230V AC/DC	40	90sec	No	GR230A-5
	24V AC/DC	5	90sec	No	LR24A-SR
Open/close & 3-point	24V AC/DC	10	90sec	No	NR24A-SR
	24V AC/DC	20	90sec	No	SR24A-SR
	24V AC	4	75sec / 20sec	Yes (Mechanical)	LRF24
Modulating	24V AC	4	75sec / 20sec	Yes (Mechanical)	LRF24-SR
	24V AC	10	75sec / 20sec	Yes (Mechanical)	NRF24A
	24...240V AC/125...125V DC	10	75sec / 20sec	Yes (Mechanical)	NRFA
Open/close	24...240V AC/125...125V DC	10	75sec / 20sec	Yes (Mechanical) & 2 Aux Switch	NRFA-S2
	24V AC	10	90sec / 20sec	Yes (Mechanical)	NRF24A-SR
	24V AC	20	75sec / 20sec	Yes (Mechanical)	SRF24A
Open/close	24...240V AC/125...125V DC	20	75sec / 20sec	Yes (Mechanical)	SRFA
	24...240V AC/125...125V DC	20	75sec / 20sec	Yes (Mechanical) & 2 Aux Switch	SRFA-S2
	24 VAC	20	90sec / 20sec	Yes (Mechanical)	SRF24A-SR
Open/close	24V AC	40	150sec / 35sec	Yes (SuperCap)	GRK24A-5

Zone Valves Internal Thread

Motorised valves for control of cold and hot water circuits in HVAC systems.

Actuator features

- Valve medium temperature 2...90°C
- Valve leakage rate A, Leak-proof (EN 12266-1)
- PN25

Modulating actuators specification:

- ****-SR versions: 2-10V DC control signal
- ****-SZ versions: 0.5-10V DC control signal

Open/Close & 3-point actuator specification

- **K* versions: with electrical emergency control function
- With NO / NC versions available
- **C* & **D* versions as Fast runners

Valves		Compatible Actuators										2 - Way Valve		3 - Way L-Bore Valve	
DN (mm)	Rp	Kvs (m³/h)	CQ24A	CQ24A-SR	CQ24A-SZ	CQ230A	CQK24A	CQK24A-SR	CQK230A	CQC230A	CQD230A	Part No.	Part No.		
15	½"	0.1 - 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C215Q-F			
		0.4 - 4.8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C215Q-J			
		2.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		C315Q-H		
20	¾"	0.5 - 8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C220Q-K			
		4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		C220Q-J		

Actuators					
For Valve	Voltage	Torque Nm	Running Time	Emergency Function	Part No.
Open/close & 3-point	24V AC/DC	1	75sec	No	CQ24A
	230V AC/DC	1	75sec	No	CQ230A
Modulating	24V AC/DC	1	75sec	No	CQ24A-SR
	24V AC/DC	1	75sec	No	CQ24A-SZ
Open/close & 3-point	24V AC/DC	1	75sec	Yes (SuperCap)	CQK24A
	230V AC	1	75sec	Yes (SuperCap)	CQK230A
Modulating	24V AC/DC	1	75sec	Yes (SuperCap)	CQK24A-SR
Open/close	230V AC	1	35sec	No	CQC230A
	230V AC	1	15sec	No	CQD230A





Pressure Independent Characterised Control Valves Internal Threaded

Motorised Mechanical Pressure Independent Control Valves for control of cold and hot water circuits in HVAC systems.

Actuator features

- Valve medium temperature 2...90°C
- Valve Leakage rate A, Leak-proof (EN 12266-1)
- Pressure test point versions available (PT)

Modulating actuators specification:

- ****-SR versions: 2-10V DC control signal
- ****-SZ versions: 0.5-10V DC control signal

Open/close & 3-point actuator specification

- **K* versions: with electrical emergency control function
- With NO / NC versions available
- **C* & **D* versions as Fast runners

Valves

DN (mm)	Rp	Vnom (l/s)	Compatible Actuators						Valve without PT	Valve with PT	
			CQ24A	CQ24A-SR	CQ24A-SZ	CQ230A	CQK24A	CQK24A-SR	Part No.	Part No.	
15	½"	0.006 - 0.058	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C215QP-B	C215QPT-B
		0.014 - 0.117	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C215QP-D	C215QPT-D
20	¾"	0.025 - 0.272	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C220QP-F	C220QPT-F
25	1"	0.072 - 0.583	Yes	Yes	Yes	Yes	Yes	Yes	Yes	C225QP-G	C225QPT-G

Actuators

For Valve	Voltage	Torque Nm	Running Time	Emergency Function	Part No.
Open/close & 3-point	24V AC/DC	1	75sec	No	CQ24A
Modulating	230V AC/DC	1	75sec	No	CQ230A
Open/close & 3-point	24V AC/DC	1	75sec	No	CQ24A-SR
Modulating	24V AC/DC	1	75sec	No	CQ24A-SZ
Open/close & 3-point	24V AC/DC	1	75sec	Yes (SuperCap)	CQK24A
Modulating	230V AC	1	75sec	Yes (SuperCap)	CQK230A
Open/close	24V AC/DC	1	75sec	Yes (SuperCap)	CQK24A-SR
Open/close	230V AC	1	35sec	No	CQC230A
Open/close	230V AC	1	15sec	No	CQD230A

Pressure Independent Characterised Control Valves

Motorised Electronic Pressure Independent Control Valves for control of cold and hot water circuits in HVAC systems.

Actuator features

- Valve medium temperature -10...120°C
- Valve leakage rate A, Leak-proof (EN 12266-1)
- Cold & Hot Water inc Glycol up to 50% vol.
- Real Time flow information via feedback output 0-10V DC or via communications MP Bus / MODBUS RTU

Actuators specification: Included as part of the valve assembly

- ****-MP versions: Also Parameterisable TO 0.5-10V DC or 2-10V DC control signal
- ****-KMP versions: same as MP version with electrical emergency function
- ****-MOD version: MODBUS RTU version
- Utilise a ZTH-EU for all settings and flow rate monitoring

Valves - DN 15 - 50 Internal Threaded & 65 - 150 Flanged PN16

DN (mm)	Rp	"Vnom (l/s) Adjustable Min - Max"	MP version	KMP version	MOD Version
			Part No.	Part No.	Part No.
15	½"	0.105 - 0.350	EP015R+MP	EP015R+KMP	EP015R+MOD
20	¾"	0.195 - 0.650	EP020R+MP	EP020R+KMP	EP020R+MOD
25	1"	0.345 - 1.150	EP025R+MP	EP025R+KMP	EP025R+MOD
32	1¼"	0.540 - 1.800	EP032R+MP	EP032R+KMP	EP032R+MOD
40	1½"	0.750 - 2.500	EP040R+MP	EP040R+KMP	EP040R+MOD
50	2"	1.440 - 4.800	EP050R+MP	EP050R+KMP	EP050R+MOD
65	2½"	3.60 - 8.00	P6065W800E-MP	P6065W800E-KMP	P6065W800E-MOD
80	3"	4.95 - 11.00	P6080W1100E-MP	P6080W1100E-KMP	P6080W1100E-MOD
100	4"	9.00 - 20.00	P6100W2000E-MP	P6100W2000E-KMP	P6100W2000E-MOD
125	5"	13.95 - 31.00	P6125W3100E-MP	P6125W3100E-KMP	P6125W3100E-MOD
150	6"	20.25 - 45.00	P6150W4500E-MP	P6150W4500E-KMP	P6150W4500E-MOD

Energy Valve

Motorised Electronic Pressure Independent Control Valves with integrated Web Server, Delta-T manager for optimum differential temperature

Actuator features

- Valve medium temperature -10...120°C
- Valve Leakage rate A, Leak-proof (EN 12266-1)
- Cold & Hot Water inc Glycol up to 50% vol.
- Real Time flow information, power control and intergrated Web Server via communications BANnet IP or MS/TP

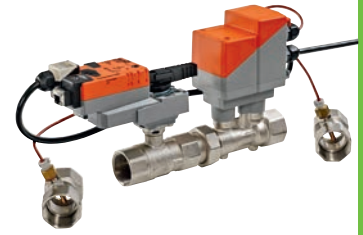
Actuators specification: Included as part of the valve assembly

- ****-BAC versions: Also Parameterisable TO 0.5-10V DC or 2-10V DC control signal or BACnet IP or MS/TP communications
- ****-KBAC versions: same as BAC version with electrical emergency function

DN 15 - 50 Internal Threaded & 65 - 150 Flanged PN16

DN (mm)	Rp	"Vnom (l/s) Adjustable Min - Max"	BAC version	KBAC version
			Part No.	Part No.
15	½"	0.105 - 0.350	EV015R+BAC	EV015R+KBAC
20	¾"	0.195 - 0.650	EV020R+BAC	EV020R+KBAC
25	1"	0.345 - 1.150	EV025R+BAC	EV025R+KBAC
32	1¼"	0.540 - 1.800	EV032R+BAC	EV032R+KBAC
40	1½"	0.750 - 2.500	EV040R+BAC	EV040R+KBAC
50	2"	1.440 - 4.800	EV050R+BAC	EV050R+KBAC
65	2½"	3.60 - 8.00	P6065W800EV-BAC	P6065W800EV-KBAC
80	3"	4.95 - 11.00	P6080W1100EV-BAC	P6080W1100EV-KBAC
100	4"	9.00 - 20.00	P6100W2000EV-BAC	P6100W2000EV-KBAC
125	5"	13.95 - 31.00	P6125W3100EV-BAC	P6125W3100EV-KBAC
150	6"	20.25 - 45.00	P6150W4500EV-BAC	P6150W4500EV-KBAC

BELIMO®





Butterfly Valves

Features

- Valve medium temperature 5...120°C (-10...5°C with spindle heater)
- PN6, 10, 16 for DN25...300
- DN 350...700 also available
- Check differential pressure for correct actuator for all sizes 25...80mm

Modulating actuators specification:

- ****-SR versions: (0)2-10V DC control with 2...10V DC position feedback signal
- **K*-SR-** versions: (0)2-10V DC control signal with electrical emergency control function

Open/close actuator specification:

- no feedback on SR, DR or GR actuators if required then order S1A or S2A
- **K* versions: Open/close control signal with electrical emergency control function
- **F* versions: Open/close control signal with mechanical emergency control function

Wafer Valves

DN (mm)	Kvs (m³/h)	Compatible Actuators											Part No.																												
		SR24A-5	SR230A-5	SRFA-5	SRFA-S2-5	SR24A-SR-5	SR230A-SR-5	SRF24A-SR-5	GR24A-5	GRC24G-5	GR230A-5	GRC24A-5		GRK24A-5	GR24A-SR-5	GRK24A-SR-5	DR24A-5	DRC24G-5	DR230A-5	DRC24A-5	DRK24A-5	DR24A-SR-5	DRK24A-SR-5	DR24A-7	DRC24G-7	DR230A-7	DRC24A-7	DRK24A-7	DR24A-SR-7	DRK24A-SR-7	PRCA-S2-T	PRCA-BAC-S2-T	PRKCA-BAC-S2-T	ZPR01 Linkage	ZPR02 Tappet Shaft only	ZPR03 Linkage					
25	45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D625N			
32	55	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D632N			
40	70	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D640N			
50	90	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D650N			
65	180	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D665N			
80	300					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D680N			
100	580															Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D6100N			
125	820																	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D6125N		
150	1600																																					Yes	Yes	D6150N	
200	2900																																						Yes	Yes	D6200W
250	4400																																						Yes	Yes	D6250W
300	7300																																						Yes	Yes	D6300W

Lugged Valves

DN (mm)	Kvs (m³/h)	Compatible Actuators											Part No.																														
		SR24A-5	SR230A-5	SRFA-5	SRFA-S2-5	SR24A-SR-5	SR230A-SR-5	SRF24A-SR-5	GR24A-5	GRC24G-5	GR230A-5	GRC24A-5		GRK24A-5	GR24A-SR-5	GRK24A-SR-5	DR24A-5	DRC24G-5	DR230A-5	DRC24A-5	DRK24A-5	DR24A-SR-5	DRK24A-SR-5	DR24A-7	DRC24G-7	DR230A-7	DRC24A-7	DRK24A-7	DR24A-SR-7	DRK24A-SR-7	PRCA-S2-T	PRCA-BAC-S2-T	PRKCA-BAC-S2-T	ZPR01 Linkage	ZPR02 Tappet Shaft only	ZPR03 Linkage							
25	45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D625NL			
32	55	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D632NL		
40	70	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D640NL		
50	90	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D650NL		
65	180	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D665NL		
80	300					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D680NL		
100	580															Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D6100NL		
125	820																	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	D6125NL	
150	1600																																								Yes	Yes	D6150NL
200	2900																																								Yes	Yes	D6200WL
250	4400																																								Yes	Yes	D6250WL
300	7300																																								Yes	Yes	D6300WL

Butterfly Valves

3-way valves for open-close, change-over, and control applications (as mixing and diverting valves) using conventional controls open / close, 2-10V, 0.5-10V, 4-20mA or 3 point control. This flexibility is guaranteed by the energy-efficient and multifunctional PR actuators. Two passive sensors can be connected for each PR actuator when using BACnet MS/TP, Modbus RTU or MP-Bus comms. The valves have a virtually equal-percentage characteristic curve for opening angles between 0% and 60%. Depending on the desired Kv value, the opening angle can be set via Near Field Communication (NFC) with the Belimo Assistant App on a SmartPhone. Which means that Belimo butterfly valves are ideally suited for use as a control device and an alternative to large 3 way globe valves. Either use your own pipework assembly and just utilise the D7***NL/BAC or utilise a made up 3 way assembly the ZD7*** pipework assembly and fittings.

3 Way Butterfly Valves

For DN (mm)	Description	Part No.
150	150mm 3 Way Butterfly Valve for mixing, diverting changeover or control applications (2x D6150NL, 2x ZPR01 & 2x PRCA-BAC-S2-T)	D7150NL/BAC
200	200mm 3 Way Butterfly Valve for mixing, diverting changeover or control applications (2x D6200WL, 2x ZPR01 & 2x PRCA-BAC-S2-T)	D7200WL/BAC
250	250mm 3 Way Butterfly Valve for mixing, diverting changeover or control applications (2x D6250WL, 2x ZPR01 & 2x PRCA-BAC-S2-T)	D7250WL/BAC
300	300mm 3 Way Butterfly Valve for mixing, diverting changeover or control applications (2x D6300WL, 2x ZPR01 & 2x PRCA-BAC-S2-T)	D7300WL/BAC

T-Piece 3 Way Butterfly Valves

150	150mm T-piece 3 Way Butterfly Valve flange pipework (includes mounting screws, washers and nuts)	ZD7150
200	200mm T-piece 3 Way Butterfly Valve flange pipework (includes mounting screws, washers and nuts)	ZD7200
250	250mm T-piece 3 Way Butterfly Valve flange pipework (includes mounting screws, washers and nuts)	ZD7250
300	300mm T-piece 3 Way Butterfly Valve flange pipework (includes mounting screws, washers and nuts)	ZD7300

Actuators

For Valve	IP Rating	Voltage	Torque Nm	Running Time	Emergency Function	Part No.
Open/close	54	24V AC/DC	20	90sec	No	SR24A-5
	54	230V AC/DC	20	90sec	No	SR230A-5
	54	24V AC/DC	40	150sec	No	GR24A-5
	54	230V AC/DC	40	150sec	No	GR230A-5
	54	24V AC/DC	40	35sec	No	GRC24A-5
	66	24V AC/DC	40	35sec	No	GRC24G-5
	54	24V AC/DC	<90	150sec	No	DR24A-5
	54	230V AC/DC	<90	150sec	No	DR230A-5
	54	24V AC/DC	<90	35sec	No	DRC24A-5
	66	24V AC/DC	<90	35sec	No	DRC24G-5
	54	24V AC/DC	<90	150sec	No	DR24A-7
	54	230V AC/DC	<90	150sec	No	DR230A-7
	54	24V AC/DC	<90	35sec	No	DRC24A-7
	66	24V AC/DC	<90	35sec	No	DRC24G-7
	Modulating	66/67	24...240V AC/24...125V DC	160	35sec	No
54		24V AC/DC	20	90sec	No	SR24A-SR-5
54		230V AC	20	90sec	No	SR230A-SR-5
54		24V AC/DC	40	150sec	No	GR24A-SR-5
54		24V AC/DC	<90	150sec	No	DR24A-SR-5
Open/close, modulating, BACnet	66/67	24...240V AC/24...125V DC	160	35sec	No	PRCA-BAC-S2-T
	54	24...240V AC/24...125V DC	20	75sec / 20 sec	Yes (Mechanical spring)	SRFA-5
Open/close	54	24...240V AC/24...125V DC	20	75sec / 20 sec	Yes (Mechanical spring) & 2 Aux switches	SRFA-S2-5
	54	24V AC/DC	40	150sec / 35sec	Yes (SuperCap)	GRK24A-5
	54	24V AC/DC	<90	150sec / 35sec	Yes (SuperCap)	DRK24A-5
	54	24V AC/DC	<90	150sec / 35sec	Yes (SuperCap)	DRK24A-7
	54	24V AC/DC	20	90sec / 20sec	Yes (Mechanical spring)	SRF24A-SR-5
Modulating	54	24V AC/DC	40	150sec / 35sec	Yes (SuperCap)	GRK24A-SR-5
	54	24V AC/DC	40	150sec / 35sec	Yes (SuperCap)	DRK24A-SR-5
	54	24V AC/DC	160	35sec	Yes (SuperCap)	DRK24A-SR-7
Open/close, modulating, BACnet	66/67	24...240V AC/24...125V DC	160	35sec	Yes (SuperCap)	PRKCA-BAC-S2-T

Accessories

Linkages

For DN (mm)	Description	Part No.
100	Position indicator and tappet shaft for PR actuators with F05, square 14x14mm	ZRP03
125...300	Position indicator and tappet shaft for PR actuators with F07, square 17x17mm	ZRP01
125...300	Tappet shaft only for PR actuators with F07, square 17x17mm	ZPR02

Linkages

25...100	Flange ISO 5211, F05 24V AC/DC, 30W	ZR24-F05
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BELIMO





Screwed Valves

Features

- Valve medium temperature 5...120°C (-10...5°C with spinde heater)
- PN16 external thread

Modulating actuators specification:

- ****-SR versions: (0)2-10V DC control with 2...10V DC position feedback signal
- **K* versions: (0)2-10V DC control signal with electrical emergency control function

Open/close & 3-point actuator specification:

- 2 wire & 3 wire control no feedback if required then order S2A-H

Valves		Compatible Actuators												2 - Way Valve	3 - Way Valve				
DN (mm)	Rp	Kvs (m³/h)	LV24A-TPC	LV230A-TPC	LV24A-SR-TPC	NV24A-TPC	NV230A-TPC	NV24A-SR-TPC	NVK24A-3-TPC	NVK24A-SR-TPC	SV24A-TPC	SV230A-TPC	SV24A-SR-TPC	AVK24A-3-TPC	AVK24A-SR-TPC	Part No.	Part No.		
15	1 1/8"	0.63	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H411B	H511B		
		1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H412B	H512B	
		1.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H413B	H513B
		2.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H414B	H514B
		4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H415B	H515B
20	1 1/4"	6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H420B	H520B		
25	1 1/2"	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H425B	H525B		
32	2"	16				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H432B	H532B		
40	2 1/4"	25			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H440B	H540B		
50	2 3/4"	40								Yes	Yes	Yes	Yes	Yes	Yes	H450B	H550B		

Accessories

Pipe Connectors	Part No.
For DN (mm)	
15	ZH4515
20	ZH4520
25	ZH4525
32	ZH4532
40	ZH4540
50	ZH4550
Linear actuator aux switch	S2A-H

Pipe connectors sold individually so order quantity as per valve (DN) type e.g. for a 3 way valve, you need to order 3 of relevant connector

Flanged Valves PN6 with Linear Actuator

Features

- Valve medium temperature 5...120°C (-10...5°C with spinde heater)
- PN6 Flanged

Modulating actuators specification:

- ****-SR versions: (0)2-10V DC control with 2...10V DC position feedback signal
- **K* versions: (0)2-10V DC control signal with electrical emergency control function

Open/close & 3-point actuator specification:

- 2 wire & 3 wire control no feedback if required then order S2A-H

Valves		Compatible Actuators												2 - Way Valve	3 - Way Valve					
DN (mm)	Rp	Kvs (m³/h)	LV24A-TPC	LV230A-TPC	LV230A-SR-TPC	NV24A-TPC	NV230A-TPC	NV24A-SR-TPC	SV24A-TPC	SV230A-TPC	SV24A-SR-TPC	RV24A-SR	NVK24A-3-TPC	NVK24A-SR-TPC	AVK24A-3-TPC	AVK24A-SR-TPC	Part No.	Part No.		
15	1/2"	0.63	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H611R	H711R		
		1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H612R	H712R	
		1.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H613R	H713R
		2.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H614R	H714R
		4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H615R	H715R
20	3/4"	6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H620R	H720R		
25	1	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H625R	H725R		
32	1 1/4"	16				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H632R	H732R		
40	1 1/2"	25				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H640R	H740R		
50	2"	40				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H650R	H750R		
65	2 1/2"	58				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H664R	H764R		
80	3"	90				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H679R	H779R		
100	4"	145							Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H6100R	H7100R		

Flanged Valves PN16 with Linear Actuator

Features

- Valve medium temperature 5...120°C (-10...5°C with spindle heater)
- PN6 Flanged

Modulating actuators specification:

- ****-SR versions: (0)2-10V DC control with 2...10V DC position feedback signal
- **K* versions: (0)2-10V DC control signal with electrical emergency control function

Open/close & 3-point Actuator specification:

- 2 wire & 3 wire control no feedback if required then order S2A-H
- * Check differential pressure for correct actuator

Valves		Compatible Actuators										2 - Way Valve	3 - Way Valve				
DN (mm)	Rp	Kvs (m³/h)	LV24A-TPC LV230A-TPC	LV230A-SR-TPC	NV24A-TPC NV230A-TPC	NV24A-SR-TPC	SV24A-TPC SV230A-TPC	SV24A-SR-TPC	EV24A-TPC EV230A-TPC	EV24A-SR-TPC	RV24A-SR	NVK24A-3-TPC	NVK24A-SR-TPC	AVK24A-3-TPC	AVK24A-SR-TPC	Part No.	Part No.
15	½"	0.63	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H611N	H711N
		1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H612N	H712N
		1.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H613N	H713N
		2.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H614N	H714N
		4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H615N	H715N
20	¾"	6.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H620N	H720N	
		10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H625N	H725N
32	1¼"	16			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H632N	H732N	
		25			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H640N	H740N	
40	1½"	40			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	H650N	H750N	
		58					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	H664N	H764N	
65	2½"	63							Yes	Yes			Yes	Yes	H665N	H765N	
		90					Yes	Yes			Yes	Yes			H679N	H779N	
80	3"	100						Yes	Yes				Yes	Yes	H680N	H780N	
		145					Yes	*Yes	*Yes			Yes	*Yes	*Yes	H6100N	H7100N	

Actuators						
For Valve	Voltage	Torque Nm	Running Time	Emergency Function	Part No.	
Open/close & 3-point	24V AC/DC	500	150sec	No	LV24A-TPC	
	230V AC/DC	500	150sec	No	LV230A-TPC	
	24V AC/DC	1000	150sec	No	NV24A-TPC	
	230V AC/DC	1000	150sec	No	NV230A-TPC	
	24V AC/DC	1500	150sec	No	SV24A-TPC	
	230V AC/DC	1500	150sec	No	SV230A-TPC	
	24V AC/DC	2500	150sec	No	EV24A-TPC	
	230V AC/DC	2500	150sec	No	EV230A-TPC	
			500	150sec	No	LV24A-SR-TPC
		24V AC/DC	1000	150sec	No	NV24A-SR-TPC
		1500	150sec	No	SV24A-SR-TPC	
		2500	150sec	No	EV24A-SR-TPC	
		4500	120sec	No	RV24A-SR	
Open/close & 3-point	24V AC	1000	150sec / 35sec	Yes (SuperCap)	NVK24A-3-TPC	
Modulating	24V AC	1000	150sec / 35sec	Yes (SuperCap)	NVK24A-SR-TPC	
Open/close & 3-point	24V AC	2000	150sec / 35sec	Yes (SuperCap)	AVK24A-3-TPC	
Modulating	24V AC	2000	150sec / 35sec	Yes (SuperCap)	AVK24A-SR-TPC	

Service Tools

Tools	
Description	Part No.
Service tool for parameterisable and communicative actuators	ZTH EU
Belimo PC-Tool software - Free download for Belimo Website	
Belimo Assistant - NFC interface on actuators - Google play	MFT-P





Pressure Independent Control Valves

Reduce costs and balance your business – your clients are your business, so everybody wins if you can reduce yours and their costs.

The Danfoss ABQM is a money saving device:

- Fewer products, so less installation to do
- Easy sizing, so fewer calculations
- Set and forget, no commissioning
- Better comfort, so fewer complaints and less service required
- Always the right flow, so no energy wasted

AB-QM Valves without Measuring Points

Description	DN	Qmax	Ex thread	Part No.
AB-QM DN10 LF	10LF	150	G ½"	003Z125100
AB-QM DN10	10	275	G ½"	003Z120100
AB-QM DN15 LF	15LF	275	G ¾"	003Z125200
AB-QM DN15	15	450	G ¾"	003Z120200
AB-QM DN15 HF	15HF	1135	G ¾"	003Z1222
AB-QM DN20	20	900	G1"	003Z120300
AB-QM DN20 HF	20HF	1700	G1"	003Z1223
AB-QM DN25	25	1700	G1¼"	003Z120400
AB-QM DN25 HF	25HF	2700	G1¼"	003Z1224
AB-QM DN32	32	3200	G1½"	003Z120500
AB-QM DN32 HF	32HF	4000	G1½"	003Z1225

AB-QM Valves with Test Points

Description	DN	Qmax	Ex thread	Part No.
AB-QM DN10 LF	10LF	150	G ½"	003Z126100
AB-QM DN10	10	275	G ½"	003Z121100
AB-QM DN15 LF	15LF	275	G ¾"	003Z126200
AB-QM DN15	15	450	G ¾"	003Z121200
AB-QM DN20	20	900	G1"	003Z121300
AB-QM DN25	25	1700	G1¼"	003Z121400
AB-QM DN32	32	3200	G1½"	003Z121500
AB-QM DN40	40	7500	G2"	003Z077000
AB-QM DN50	50	12500	G2½"	003Z077100
AB-QM DN50	50	12500	Flanged PN16	003Z077200
AB-QM DN65	65	20000	Flanged PN16	003Z077300
AB-QM DN65 HF	65HF	25000	Flanged PN16	003Z0793
AB-QM DN80	80	28000	Flanged PN16	003Z077400
AB-QM DN80 HF	80HF	40000	Flanged PN16	003Z0794
AB-QM DN100	100	38000	Flanged PN16	003Z077500
AB-QM DN100 HF	100HF	59000	Flanged PN16	003Z0795
AB-QM DN125	125	90000	Flanged PN16	003Z070500
AB-QM DN125 HF	125HF	110000	Flanged PN16	003Z071500
AB-QM DN150	150	145000	Flanged PN16	003Z070600
AB-QM DN150 HF	150HF	190000	Flanged PN16	003Z071600
AB-QM DN200	200	190000	Flanged PN16	003Z070700
AB-QM DN200 HF	200HF	250000	Flanged PN16	003Z071700
AB-QM DN250	250	280000	Flanged PN16	003Z070800
AB-QM DN250 HF	250HF	370000	Flanged PN16	003Z071800

AB-QM Valve Accessories & Spare Parts

Description	Part No.
Union connection To pipe : R¾". For valve size DN10. (One pcs.)	003Z023100
Union connection To pipe : R½". For valve size DN15 (One pcs.)	003Z023200
Union connection To pipe : R¾". For valve size DN20 (One pcs.)	003Z023300
Union connection To pipe : R1". For valve size DN25 (One pcs.)	003Z023400
Union connection To pipe : R1¼". For valve size DN32 (One pcs.)	003Z023500
Union connection To pipe : R1½". For valve size DN40 (One pcs.)	003Z027900
Union connection To pipe : R2". For valve size DN50 (One pcs.)	003Z027800
Union Connection Internal threaded to pipe : ¾". For valve size DN10. (One pcs.)	003Z395400
Union Connection Internal threaded to pipe : ½". For valve size DN15 (One pcs.)	003Z395500
Union Connection Internal threaded to pipe : ¾". For valve size DN20 (One pcs.)	003Z395600
Union Connection Internal threaded to pipe : 1". For valve size DN25 (One pcs.)	003Z395700
Shut-off cap Max 16bar. For valve size DN10 to DN32	003Z123000
Shut-off cap Max 1bar. For valve size DN10 to DN32	003Z024000
Hand wheel For valve size DN40 to DN100	003Z069500
Hand wheel For valve size DN125 to DN250	003Z069600
Adapter Adapter to enable New Actuator types to fit on old style valves	065Z031300
Adapter To enable Old Actuator types to fit 2nd generation of ABQM DN40-100	003Z069400
Adapter Adapter 0.5mm ABQM	003Z024600
Insulation for DN10 Heating insulation cap for DN10 AB-QM valves	003Z473000
Insulation for DN15 Heating insulation cap for DN15 AB-QM valves	003Z473100
Insulation for DN20 Heating insulation cap for DN20 AB-QM valves	003Z473200
Insulation for DN25 Heating insulation cap for DN25 AB-QM valves	003Z473300
Insulation for DN32 Heating insulation cap for DN32 AB-QM valves	003Z473400
Insulation for DN40 Heating insulation cap for DN40 AB-QM valves	003Z473500
Insulation for DN50 Heating insulation cap for DN50 AB-QM valves	003Z473600

Gear Motors for AB-QM

Description	Part No.
AMV110 NL 24V, 24 s/mm, 3-point. For valve size DN10 to DN32	082H805600
AMV120NL 24V, 12 s/mm, 3-point. For valve size DN10 to DN32	082H805800
AME110 NL 24V, 24 s/mm, 0-10V. For valve size DN10 to DN32	082H805700
AME110 NLX 24V, 24 s/mm, 0-10V. With position feedback signal. For valve size DN10 to DN32	082H806000
AME435QM 24V, 11 s/mm, 0-10V. For valve size DN40 to DN100	082H017100
AME55QM 24V, 8 s/mm, 0-10V. For valve size DN125 to DN150	082H307800
AME85QM 24V, 8 s/mm, 0-10V. For valve size DN200 to DN250	082G145300

NovoCon® S

NovoCon® S Digital/Hybrid is a high accuracy multi-function actuator, specifically designed for use in combination with Pressure Independent Balancing Control Valve type AB-QM in sizes from DN 10-32.

NovoCon® S - High Accuracy Actuator for AB-QM

Description	Part No.
NovoCon® remote i/o NovoCon® remote i/o - High accuracy multi-function actuator	003Z850300

NovoCon® S - Accessories

Description	Part No.
Cable - digital 1.5m cable for NovoCon® S Digital actuators - Connections: Bus/Power	003Z860000
Cable - digital 5m cable for NovoCon® S Digital actuators - Connections: Bus/Power	003Z860100
Cable - digital 10m cable for NovoCon® S Digital actuators - Connections: Bus/Power	003Z860200
Daisychain cable - digital 1.5m cable for NovoCon® S Digital actuators - Connections: Actuator/Actuator	003Z860300
Daisychain cable - digital 5m cable for NovoCon® S Digital actuators - Connections: Actuator/Actuator	003Z860400
Daisychain cable - digital 10m cable for NovoCon® S Digital actuators - Connections: Actuator/Actuator	003Z860500
Cable - analog 1.5m cable for NovoCon® S Hybrid - Connections: 0-10V/Power/Voltage booster	003Z860600
Cable - analog 5m cable for NovoCon® S Hybrid - Connections: 0-10V/Power/Voltage booster	003Z860700
Cable - analog 10m cable for NovoCon® S Hybrid - Connections: 0-10V/Power/Voltage booster	003Z860800
Cable - remote i/o 1.5m cable for NovoCon® remote i/o - remote i/o capability	003Z861200
Cable - temp sensor 1.5m surface sensor cable for energy	003Z861000

Thermal Actuators for AB-QM

Description	Part No.
TWA-Z 24V 24V, on/off, NC. For valve size DN10 to DN20. Restrictions apply for DN25 & DN32	082F138000
TWA-Z 230V 230V, on/off, NC. For valve size DN10 to DN20. Restrictions apply for DN25 & DN32	082F138200
ABNM 24V, 0-10V. For valve size DN10 to DN32 only. 1 metre cable	082F116000
ABNM 24V, 0-10V. (LIN) For valve size DN10 to DN32 only. 1 metre cable	082F116100

Spring Return Actuator Options for AB-QM

Description	Part No.
AME13 SD 24V (0-10V) S/R Closed actuator for valve sizes DN10-DN32 (use with 003Z025700 adaptor)	082G300600
AME13 SU 24V (0-10V) S/R Open actuator for valve sizes DN10-DN32 (use with 003Z395900 & 003Z025700 adaptors)	082H304300
AME 25 SD 24V (0-10V) Spring Return actuator for valve sizes DN40-DN100 (use with 003Z069400 adaptor)	082H303800
AME 658 SD 24V (0-10V) Spring Return actuator for valve sizes DN125-DN150	082G344800
AME85QM 24V, 8 s/mm, 0-10V. For valve size DN200 to DN250 (Use with AM-PBU power back-up unit)	082G145300
AM-PBU Electronic power backup unit	082H709000
Stem Adaptor DN10-32 Stem adaptor for ABQM DN10-32 to AMV/E 13SD only	003Z025700
Adaptor DN10-32 Adaptor for ABQM DN10-32 to AMV/E 13SU only (use with 003Z025700 for SU applications)	003Z395900
Adaptor DN40-100 Adaptor for ABQM DN40-100 to AMV/E 25SU or SD	003Z069400

H-Module for Air Handling Units (made to order)

Description	Part No.
Hero Plant DN15 DN15 plant flushing bypass with drain, strain, measuring & test points. 90-450/h	146B5928
Hero Plant DN20 DN20 plant flushing bypass with drain, strain, measuring & test points. 180-900/h	146B5929
Hero Plant DN25 DN25 plant flushing bypass with drain, strain, measuring & test points. 340-1700/h	146B5930
Hero Plant DN32 DN32 plant flushing bypass with drain, strain, measuring & test points. 640-3200/h	146B2683
Hero Plant DN40 DN40 plant flushing bypass with drain, strain, measuring & test points. 3000-7500/h	146B2684
Hero Plant DN50 DN50 plant flushing bypass with drain, strain, measuring & test points. 5000-12500/h	146B2685
Hero Plant DN65 DN65 plant flushing bypass with drain, strain, measuring & test points. 8000-20,000/h	146B2686
Hero Plant DN80 DN80 plant flushing bypass with drain, strain, measuring & test points. 11,200-28,000/h	146B5931
Hero Plant DN100 DN100 plant flushing bypass with drain, strain, measuring & test points. 15,200-38,000/h	146B5932
Hero Plant DN125 DN125 plant flushing bypass with drain, strain, measuring & test points. 36,000-90,000/h	146B5933
Hero Plant DN150 DN150 plant flushing bypass with drain, strain, measuring & test points. 44,000-110,000/h	146B5934





VZL 2 & 4 Way Short Stroke 2.8mm (supplied without fittings)

- Reduced cost valves for control of fan coil systems along with thermic, 3-point control or modulating actuators
- 15mm and 20mm compression ends for direct connection to copper pipework using a nut and olive (not supplied)
- 2 and 4, port versions available
- 3mm stroke to enable use with TWA-Z thermic actuator

VZL2 & VZL4 Series

Valve		2 - Way	4 - Way
DN (mm)	Kvs (m³/h)	Part No.	Part No.
15	0.25	065Z204000	065Z206000
15	0.40	065Z204100	065Z206100
15	0.63	065Z204200	065Z206200
15	1.0	065Z204300	065Z206300
15	1.6	065Z204400	065Z206400
20	2.5	065Z204500	065Z206500
20	3.5	065Z204600	065Z206600

Thermal Actuators for Terminal Control Valves - VZ & VZL

Type	Action	Voltage	Torque Nm	Part No.
TWA-ZL 24V NC	Normally closed	24V	90N	082H310000
TWA-ZL 24V NO	Normally open			082H310100
TWA-ZL 230V NC	Normally closed	230V		082H310200
TWA-ZL 230V NO	Normally open		082H310300	

Gear Actuators for Terminal Control Valves - VZ & VZL

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 130	3-Point	24V	200N	5.5	24s/mm	082H803600
AMV 130		230V				082H803700
AME 130	Modulating	24V				082H804400

VRB DN15-50 2 & 3 Way Valves

Use with AMV/E 435 and 438SU actuators

- Plant valves in 15-50mm for use with 3-point, modulating and spring return plant actuators
- External version comes with couplings for BSP connection
- Easy connection and removal of valve through coupling system
- Made of RG5 to eliminate erosion
- Stuffing box available for future maintenance

VRB2 & VRB3 Series Internal Thread PN16

Valve		2 - Way	3 - Way
DN (mm)	Kvs (m³/h)	Part No.	Part No.
15	0.63	065Z023100	065Z021100
15	1.0	065Z023200	065Z021200
15	1.6	065Z023300	065Z021300
15	2.5	065Z023400	065Z021400
15	4.0	065Z023500	065Z021500
20	6.3	065Z023600	065Z021600
25	10.0	065Z023700	065Z021700
32	16.0	065Z023800	065Z021800
40	25.0	065Z023900	065Z021900
50	40.0	065Z024000	065Z022000

VRB2 & VRB3 Series External Thread (Tail Pieces Included) PN16

Valve		2 - Way	3 - Way
DN (mm)	Kvs (m³/h)	Part No.	Part No.
15	0.63	065Z017101	065Z015101
15	1.0	065Z017201	065Z015201
15	1.6	065Z017301	065Z015301
15	2.5	065Z017401	065Z015401
15	4.0	065Z017501	065Z015501
20	6.3	065Z017601	065Z015601
25	10.0	065Z017701	065Z015701
32	16.0	065Z017801	065Z015801
40	25.0	065Z017901	065Z015901
50	40.0	065Z018001	065Z016001

VRB Accessories

Description	Part No.
Stem heater	Stem heater for AMV/E 438 SU,15,16, 25, 35 (at temperature from 0° till -10°C)
Stem heater	Stem heater for AMV/E 435 (at temperature from 0° till -10°C)
Adapter	Adapter to enable old actuator types to fit on new style valves DN15-50
Adapter	Adapter to enable new actuator types to fit on old style valves

VF DN15-150 2 & 3 Way Flanged Valves

Use with AMV/E 435 & 438SU actuators (DN15-80), AMV/E 55 (DN100), AMV/E 85 (DN125-250), AMV/E 855 (DN200-300)

- PN16 flanged valves in 15mm-150mm for use with 3-point, modulating and spring return actuators
- Made with a cast iron body, stainless steel spindle and brass plug
- Can be used with glycol concentrations of up to 50%
- Stem heaters available for installation with temperatures down to -10°C
- Stuffing box available for future maintenance

VF2 & VF3 - Flanged

Valve		2 - Way	3 - Way
DN (mm)	Kvs (m³/h)	Part No.	Part No.
15	0.63	065Z027100	065Z025100
15	1.0	065Z027200	065Z025200
15	1.6	065Z027300	065Z025300
15	2.5	065Z027400	065Z025400
15	4.0	065Z027500	065Z025500
20	6.3	065Z027600	065Z025600
25	10.0	065Z027700	065Z025700
32	16.0	065Z027800	065Z025800
40	25.0	065Z027900	065Z025900
50	40.0	065Z028000	065Z026000
65	63.0	065Z028100	065Z026100
80	100.0	065Z028200	065Z026200
100	145.0	065B320500	065B168500
125	220.0	065B323000	065B312500
150	320.0	065B325500	065B315000
200	630.0		065B420000
250	1000.0		065B425000
300	1500.0		065B430000

VFM2 2-way - Flanged

Use with AMV/E 655 or 658 SD/SU actuators (DN65-250)

VFM2 2-way - Flanged

DN (mm)	Kvs (m³/h)	Part No.
65	63.0	065B350000
80	100.0	065B350100
100	160.0	065B350200
125	250.0	065B350300
150	400.0	065B350400
200	630.0	065B350500
250	900.0	065B350600

Gear Actuators for Plant Control Valves - VRB/VF/VFM

AMV & AME 435 - for DN80 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 435		24V				082H016200
AMV 435	3-point	230V	400N	15	15s/mm	082H016300
AME 435	Modulating	24V				082H016100

AMV & AME 438 SU Spring Up Actuator - for DN15-50 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 438		24V				082H012200
AMV 438	3-point	230V	400N	15	15s/mm	082H012300
AME 438	Modulating/3-point	24V				082H012100

AMV & AME 438 SU Accessories

Description	Part No.	
Switch	Additional switch (2x)	082H701500
Switch	Additional switch (2x) and potentiometer (10kOhm)	082H701600
Switch	Additional switch (2x) and potentiometer (1kOhm)	082H701700

AMV & AME 55/56 - for DN100 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 55		24V				082H302000
AMV 55	3-point	230V	2000N	40	8s/mm	082H302100
AME 55	Modulating/3-point	24V				082H302200
AMV 56		24V				082H302300
AMV 56	3-point	230V	1500N	40	4s/mm	082H302400
AME 56	Modulating/3-point	24V				082H302500

AMV & AME 55/56 Accessories

Description	Part No.	
Switch	2 x additional switch	082H703700
Potentiometer	Potentiometer (10 kOhm/30mm)	082H703500
Potentiometer	Potentiometer (10 kOhm/40mm)	082H703600
Potentiometer	Potentiometer (1 kOhm/30mm)	082H703800
Potentiometer	Potentiometer (1 kOhm/40mm)	082H703900





Gear Actuators for Plant Control Valves - VRB/VF/VFM

AMV & AME 85/86 - for DN125 & DN150 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 85	3-point	24V	5000N	40	8s/mm	082G145000
AMV 85		230V				082G145100
AME 85	Modulating/ 3-point	24V	5000N	40	3s/mm	082G145200
AMV 86		24V				082G146000
AMV 86	3-Point	24V	5000N	40	3s/mm	082G146100
AME 86		230V				082G146200

AMV & AME 85/86 Accessories

Description	Part No.
Switch Additional switch (2x) - AMV 86/3/24	082H705000
Switch Additional switch (2x) - AMV 86/3/230	082H705100
Switch Additional switch (2x) - AMV 85/8/24	082H707200
Switch Additional switch (2x) - AMV 85/8/230	082H707100
Switch & pot.-meter Additional switch (2x) & Potentiometer (10 kOhm) - AMV 86/3/24	082H708100
Switch & pot.-meter Additional switch (2x) & Potentiometer (10 kOhm) - AMV 86/3/230	082H708000
Switch & pot.-meter Additional switch (2x) & Potentiometer (10 kOhm) - AMV 85/8/24	082H708300
Switch & pot.-meter Additional switch (2x) & Potentiometer (10 kOhm) - AMV 85/8/230	082H708200

AME 685 & 855 - for VF3 DN200-300 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AME 685	Modulating/	24V	5000N	35	2.7s/mm	082G350000
AME 685		230V		50		082G350100
AME 855	3-point	24V	15000N	50	2s/mm	082G351000
AME 855		230V		63		082G351100

AMV & AME 655 - for VFM2 DN65-250 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 655	3-point	24V	2000N	50	3s/mm	082G344000
AMV 655		230V				082G344100
AME 655	Modulating/	24V	2000N	50	2s/mm	082G344200
AME 655		230V				082G344300

AMV & AME 658 SD Spring Down Actuator - for VFM2 DN65-250 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 658 SD	3-point	24V	2000N	50	4s/mm	082G344400
AMV 658 SD		230V				082G344500
AME 658 SD	Modulating/	24V	2000N	50	4s/mm	082G344800
AME 658 SD		230V				082G344900

AMV & AME 658 SU Spring Up Actuator - for VFM2 DN65-250 Valves

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 658 SU	3-point	24V	2000N	50	4s/mm	082G344600
AMV 658 SU		230V				082G344700
AME 658 SU	Modulating/	24V	2000N	50	4s/mm	082G345000
AME 658 SU		230V				082G345100

AMV & AME 655/658 Accessories

Description	Part No.
Adapter Adapter to enable actuator AMV/E 655/658 to fit VFG DN15-65 valves	065B352500
Adapter Adapter to enable actuator AMV/E 655/658 to fit VFG DN80-125 valves	065B352600
Adapter Adapter to enable actuator AMV/E 655/658 to fit VFG DN150-250 valves	065B352700

VFS Steam Control Valves - for Temperatures up to 150°C as standard and up to 200°C with High Temperature Adapter

- PN25 flanged valves in 15mm-100mm for use with 3-point, modulating and spring return actuators
- Made with a cast iron body with stainless steel spindle and plug
- Can be used with glycol concentrations of up to 50%
- Stem heaters available for installation with temperatures to -10°C
- Adapter available for temperatures over 150°C

VFS2 2-way - Flanged

DN (mm)	Kvs (m ³ /h)	Part No.
15	0.40	065B151000
15	0.63	065B151100
15	1.0	065B151200
15	1.6	065B151300
15	2.5	065B151400
15	4.0	065B151500
20	6.3	065B152000
25	10.0	065B152500
32	16.0	065B153200
40	25.0	065B154000
50	40.0	065B155000
65	63.0	065B336500
80	100.0	065B338000
100	145.0	065B340000

VFS Accessories

Description	Part No.
Stem heater for AMV/E 438 SU,15,16, 25, 35 (at temperature from 0° till -10°C)	065B217100
Stem heater for AMV/E 55, 56 (at temperature from 0°C till -10°C)	065Z702000
Stem heater for AMV/E 85, 86 (at temperature from 0°C till -10°C)	065Z702100

Gear Actuators for Steam Control Valves - VFS

AMV & AME 25 SU/SD (with safety function)

Type	Control Type	Voltage	Torque Nm	Stroke (mm)	Running Time	Part No.
AMV 25 SD	3-Point	24V	450N	15	11s/mm	082H303600
AMV 25 SD		230V				082H303700
AME 25 SD	Modulating/3-point	24V				082H303800
AMV 25 SU	3-point	24V				082H303900
AMV 25 SU		230V				082H304000
AME 25 SU	Modulating/3-point	24V				082H304100

AMV 25 SU/SD Accessories

Description	Part No.
Adaptor High temperature adaptor for VFS 2 valves (>150°C)	065Z754800
Adaptor High temperature adaptor for VEFS 2 valves (>150°C)	065Z754900
Switch Additional switch (2x)	082H701500
Switch Additional switch (2x) and potentiometer (10kOhm)	082H701600
Switch Additional switch (2x) and potentiometer (1kOhm)	082H701700





Rotary Valves & Actuators

- Rotary valves in sizes 20mm-150mm for use with AMB actuators
- Body GG20 cast iron with a stainless steel spindle & brass shoe
- Direct connection to pipework via BSP or flanged connection
- For use with 3-point control or modulating control signals
- Direct connection to the valve with no linkages
- Can be used for direct replacement of ESBE 3G and 3F range valves

HRE 3 Cast Iron Three-Port Control Valves, Internally Threaded, PN6

DN (mm)	Kvs (m³/h)	Part No.
20	6.3	065Z041800
25	10.0	065Z041900
32	16.0	065Z042000
40	25.0	065Z042100
50	40.0	065Z042200

HRE 3 DZR Three-Port Control Valves, Internally Threaded, PN10

DN (mm)	Kvs (m³/h)	Part No.
15	0.4	065Z039900
15	0.63	065Z040000
15	1.0	065Z040100
15	1.6	065Z040200
15	2.5	065Z040300
15	4.0	065Z039800
20	2.5	065Z039700
20	4.0	065Z040400
20	6.3	065Z040500
25	6.3	065Z040600
25	10.0	065Z040700
32	16.0	065Z040800
40	25.0	065Z040900
50	40.0	065Z041000

AMB 162/182 Rotary Actuators

(incl. adapter kits for HRB & HFE valves and will fit previous HRB & HRE valve range)

AMB 162 Rotary Actuators - for DN15-DN50 Valves

Type	Control Type	Voltage	Torque Nm	Turn Time	Part No.
AMB 162		24V		120s	082H021300
AMB 162					082H021800
AMB 162	3-point	230V	5N	60s	082H022200
AMB 162				120s	082H022300
AMB 162				480s	082H022800
AMB 162					082H022400
AMB 162	Modulating	24V		60s	082H023000

AMB 182 Rotary Actuators - for DN65-DN150 Valves

Type	Control Type	Voltage	Torque Nm	Turn Time	Part No.
AMB 182	Modulating	24V	15N		082H024100
AMB 182	3-point	230V	10N	60s	082H023100
AMB 182					082H023200

AMB 182 Rotary Actuators - for DN125-DN150 Valves

Type	Control Type	Voltage	Torque Nm	Turn Time	Part No.
AMB 182		24V			082H023400
AMB 182	3-point	230V	15N	240s	082H023800
AMB 182					082H024000

AMB 162/182 Accessories

Description	Part No.
Linkage kit For ESBE (old type), Seltron, Somatherm, Hora, WIP, PAW, Acaso, BRV, IMIT, IMP, IVAR	082H025000
Linkage kit For Centra - Type DR/ZR	082H025100
Linkage kit For Meibes, Wita	082H025200
Linkage kit For Honeywell - Type V5442..., Type V5433..	082H025300
Linkage kit For ESBE VRG 131 (2009)	082H025400
Linkage kit For Danfoss RVA, HRB, HRE, HFE (2012), ESBE 3F & 3G types. Incl. w. new actuator	082H025500

Flowcon Green

Fixed female-by-end threaded. Pressure/temperature plugs (standard).
Incl. FN0.2./FH electrical modulating actuator with feedback signal, 24V.

Pressure Independent Control Valves DN15-40				
Flow Max l/s	PICV Size	PICV Connection	Modulating Actuator	Part No.
0.16	1/2"	Threaded	FN.0.2	Green.0
0.31	3/4"			Green.1
0.16	1"			Green.2
1.29	1 1/4"			

Pressure Independent Control Valves DN40-50				
Flow Max l/s	PICV Size	PICV Connection	Modulating Actuator	Part No.
3.79	1 1/2"	Threaded	FH	Green.3
	2"			

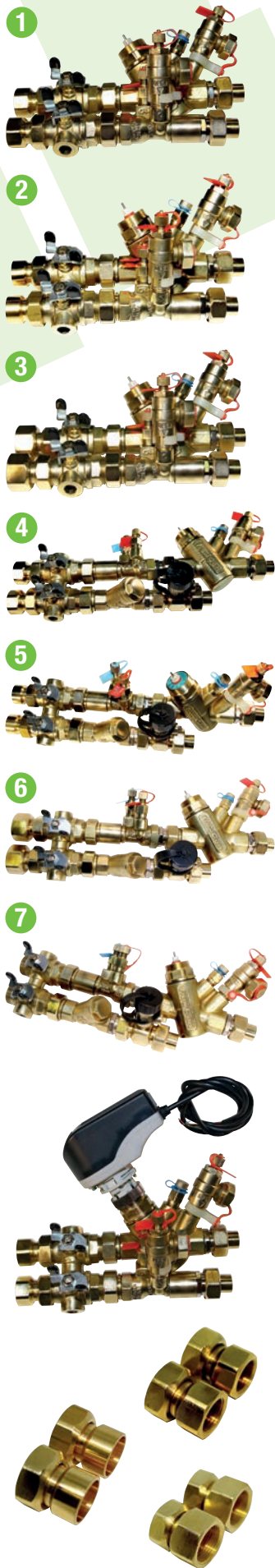
Actuator Options		
Product Code Ref.	Description	Part No.
FN.0.4	Actuator: FlowCon FN.0.4 electric 24V 3-point floating	FN.0.4
FN.0.3	Actuator: FlowCon FN.0.3 electric 230 3-point floating	FN.0.3
FN.0.2	Actuator: FlowCon FN.0.2 electric 24V 0-10V modulating	FN.0.2

FlowCon SM

Pressure independent control and dynamic balancing valve. Double flange connection. Pressure/temperature plugs (standard),
incl. actuator with selectable control signal.

Pressure Independent Control & Dynamic Balancing Valves				
Flow Max l/s	PICV Size	PICV Connection	Modulating Actuator	Part No.
9.89	50, 65 & 80mm	Flanged	SM.0.0.0.3	SM.3
20.2	80 & 100mm			SM.4
29.5	125 & 150mm			SM.5
76.8	200 & 250mm			SM.6





FlowControl Valve Sets

Assembled with FlowCon PICV's and other components from world class valve manufacturers.

Valve Set Options

Product Code Ref.	Description	Part No.
(1) 15mm & 22mm valve sets fitted with 15A system connections.	Compact FCU valve set. Flushing By-Pass. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 15mm Union Female Threaded System Connections.	PR.0.4.15.S.0 & 15A
(1) 15mm & 22mm valve sets fitted with 15D system connections.	Compact FCU valve set. Flushing By-Pass. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 15mm Union Solder System Connections.	PR.0.4.15.S.0 & 15D
(2) 15mm & 22mm valve sets fitted with 20A system connections.	Compact FCU valve set. Flushing By-Pass. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 22mm Union Female Threaded System Connections.	PR.0.4.15.S.0 & 20A
(3) 15mm & 22mm valve sets fitted with 15A system connections.	Compact FCU valve set. Flushing By-Pass. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 15mm Union Female Threaded System Connections.	PR.0.4.15.S.0, 15A & FN.0.2
(4) 15mm & 22mm valve sets fitted with 15A system connections.	Compact FCU Valve Set. Flushing By-Pass. Strainer. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 15mm Union Female Threaded System Connections.	PR.1.1.15.S.0 & 15A PR.1.2.15.S.0 & 15A PR.1.3.15.S.0 & 15A PR.1.4.15.S.0 & 15A
(5) 15mm & 22mm valve sets fitted with 15D system connections.	Compact FCU Valve Set. Flushing By-Pass. Strainer. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 15mm Union Solder System Connections.	PR.1.1.15.S.0 & 15D PR.1.2.15.S.0 & 15D PR.1.3.15.S.0 & 15D PR.1.4.15.S.0 & 15D
(6) 15mm & 22mm valve sets fitted with 20A system connections.	Compact FCU Valve Set. Flushing By-Pass. Strainer. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections and 22mm Union Female Threaded System Connections.	PR.1.1.15.S.0 & 20A PR.1.2.15.S.0 & 20A PR.1.3.15.S.0 & 20A PR.1.4.15.S.0 & 20A
(7) 15mm & 22mm valve sets without system connections.	Compact FCU Valve Set. Flushing By-Pass. Strainer. Metering Station & Hose Union Drain Valve to the Flow Branch. PICV with PT plugs, Hose Union Drain Valve. Fitted with 15mm Union Solder FCU Connections.	PR.1.1.15.S.0 PR.1.2.15.S.0 PR.1.3.15.S.0 PR.1.4.15.S.0

The Valve Set is available right and left handed. The image shows the right handed version. The Valve Set can be fitted with 15ml meterings stations with XLF, ULF and LF orifice plates (the images show the standard flow option) or with 20ml metering station.

System Connection Options

Size	Description	Part No.
20mm	System Connections: Euroconus Insert with flat EPDM face	20J
15mm	System Connections: 15mm Union Solder	15D
22mm	System Connections: 22mm Union Solder	22D
½"	System Connections: 15mm Union Female Threaded	15A
¾"	System Connections: 22mm Union Female Threaded	20A
15mm	System Connections: 15mm Union Press Fitting	15E
22mm	System Connections: 22mm Union Press Fitting	22E

Two-Way Control Valve PN16, Flat Sealing DN15/20, V5832A

For individual room control, fan coil units and small re-heaters/re-coolers; hot water or cold water (max. 50% glycol), water quality VDI2035.

6.5mm Stroke Valves

DN (mm)	Valve Rp	Kvs (m³/h)	Close Off Pressure with		Part No.
			90N motor kPa	180N motor kPa	
15	G½"	0.16	600	1600	V5832A1004
15	G½"	0.25	600	1600	V5832A1012
15	G½"	0.4	600	1600	V5832A1020
15	G½"	0.63	600	1600	V5832A1038
15	G½"	1	180	1200	V5832A1046
15	G½"	1.6	180	1200	V5832A1053
22	G¾"	2.5	50	400	V5832A1061
22	G¾"	4	50	400	V5832A1079

Honeywell



Three-Way Control Valve PN16, Conical Sealing DN15/20, V5823A

For individual room control, fan coil units and small re-heaters/re-coolers; hot water or cold water (max. 50% glycol), water quality VDI2035.

6.5mm Stroke Valves

DN (mm)	Valve Rp	Kvs (m³/h)	Close Off Pressure with		Part No.
			90N motor kPa	180N motor kPa	
15	G½"	0.25	500	800	V5823A2003
15	G½"	0.4	500	800	V5823A2011
15	G½"	0.63	500	800	V5823A2029
15	G½"	1	150	250	V5823A2037
15	G½"	1.6	50	250	V5823A2045
22	1½" x 14	2.5	-	240	V5823A2151
22	1½" x 14	2.5	50	100	V5823A2052
22	1½" x 14	4	-	240	V5823A2169
22	1½" x 14	4	50	100	V5823A2060



Three-Way/Bypass Control Valve PN16, Conical Sealing DN15/20

For individual room control, fan coil units and small re-heaters/re-coolers; hot water or cold water (max. 50% glycol), water quality VDI2035.

6.5mm Stroke Valves

DN (mm)	Valve Rp	Kvs (m³/h)	Close Off Pressure with		Part No.
			90N motor kPa	180N motor kPa	
15	G½"	0.25	500	800	V5823C2009
15	G½"	0.4	500	800	V5823C2017
15	G½"	0.63	500	800	V5823C2025
15	G½"	1	150	250	V5823C2033
15	G½"	1.6	150	250	V5823C2041
22	1½" x 14	2.5	-	240	V5823C2157
22	1½" x 14	2.5	50	100	V5823C2058
22	1½" x 14	4	-	240	V5823C2165
22	1½" x 14	4	50	100	V5823C2066



Actuators for 6.5mm Stroke Valves

Control Type	Rating	Run Time Minutes	Part No.
180N			
Open/Close 3-Point	24V AC	150s	M7410C1007
Modulating	24V AC	150s	M7410C1002

Flat Sealing 2, 3, & 4 Port Valves available Please contact your local sales office

Three-Way Control Valve PN16, Flanged Connections DN15-150

For heating and air conditioning; water quality VDI2035.

Specification

Media Temp. 2°C to 170°C

20/38mm Stroke Linear Valves

DN (mm)	Valve Kvs (m³/h)	Close Off Pressure with		Stroke (mm)	Part No.
		600N motor kPa	1800N motor kPa		
15	2.5	1000	-	20	V5329A1004
15	4	1000	-	20	V5329A1012
20	6.3	1000	-	20	V5329A1020
25	10	1000	-	20	V5329A1038
32	16	790	1000	20	V5329A1046
40	25	480	1000	20	V5329A1053
50	40	260	1000	20	V5329A1061
65	63	160	650	20	V5329A1079
80	100	100	400	20	V5329A1087
100	160	-	230	38	V5050A1090
125	250	-	90	38	V5050A1108
150	360	-	90	38	V5050A1116





Two-Way Control Valves PN16, Threaded Connections DN15-50

For heating, ventilating and air conditioning; hot/cold water quality VDI2035.

20mm Stroke Valves

DN (mm)	Valve Rp	Kvs (m³/h)	Close Off Pressure with		Medium Type	Part No.
			900N motor kPa	1800N motor kPa		
Brass						
15		0.63	1600	-	water	V5011R1000
15		1	1600	-	water	V5011R1018
15		1.6	1600	-	water	V5011R1026
15		2.5	1600	-	water	V5011R1034
15		4	1600	-	water	V5011R1042
20		6.3	1600	-	water	V5011R1059
25		10	1000	1600	water	V5011R1067
32		16	700	1600	water	V5011R1075
40		25	460	1500	water	V5011R1083
50		40	260	850	water	V5011R1091
Stainless Steel Plug						
15		0.63	1600	-	water / steam	V5011S1005
15		1	1600	-	water / steam	V5011S1013
15		1.6	1600	-	water / steam	V5011S1021
15		2.5	1600	-	water / steam	V5011S1039
15		4	1600	-	water / steam	V5011S1047
20		6.3	1600	-	water / steam	V5011S1054
25		10	1000	1600	water / steam	V5011S1062
32		16	700	1600	water / steam	V5011S1070
40		25	460	1500	water / steam	V5011S1088
50		40	260	850	water / steam	V5011S1096

Actuators for 20mm Stroke Valves

Electrical actuator floating control.



Actuators for 20mm Stroke Valves

Run Time Min	Power Supply		Control Signal	Manual Operation	Spring Return	Part No.
	VAC	VA				
1.0	24	4	3pt	-	-	ML6420A3072
1.8	230	12	3pt	-	Stem retracts	ML6425B3021
1.0	24	5	0/2-10V	Yes	-	ML7420A6009
1.8	24	12	0/2-10V	-	Stem retracts	ML7425A6008
1.8	24	12	0/2-10V	-	Stem retracts	ML7425B6007

Three-Way Control Valve PN16, Flat Sealing DN15-50

For heating, ventilating and air conditioning, open circuits; hot/cold water quality VDI2035.



20mm Stroke Linear Valves

DN (mm)	Valve		Close Off Pressure with		Part No.
	Rp	Kvs (m³/h)	900N motor kPa	1800N motor kPa	
Brass					
15	G1 1/8"	2.5	1600	-	V5013R1032
		4	1600	-	V5013R1040
20	G1 1/4"	6.3	1600	-	V5013R1057
25	G1 1/2"	10	1000	1600	V5013R1065
32	G2"	16	700	1600	V5013R1073
40	G2 1/4"	25	460	1500	V5013R1081
50	G2 3/4"	40	260	850	V5013R1099

Small Linear Actuators 6.5mm Stroke

Electrical actuator floating control, for valve series: V5822, V5823, V5832, V5833. And also for V5078B valve series (with adaptor).

3-Point Actuator					
Stem Force N	Power Supply		Manual Operation	End Switches	Part No.
	VAC	VA			
6,5 mm; 180 N					
180	24	0.7	-	-	M7410C1007
	24	0.7	•	-	M6410C2023
	24	0.7	•	2	M6410C4029
	230	7	•	-	M6410L2023
	230	7	•	2	M6410L4029
6,5 mm; 280 N					
300	24	0.7	-	-	M7410C1015
	24	0.7	•	-	M6410C2031
	24	0.7	•	2	M6410C4037
	230	7	-	-	M6410L2031
	230	7	•	2	M6410L4037

Actuator 3-Point, 20/38mm

Electrical actuator floating control, for valve series: V5011, V5013, V5015, V5016, V5025, V5049, V5050, V5328, V5329

3-Point Actuator				
Run Time Min	Power Supply		Stroke (mm)	Part No.
	VAC	VA		
20mm; 600 N				
1.9	24	13	20	ML6421A3005
	230	11	20	ML6421A3013
38mm; 1800 N				
3.5	24	13	38	ML6421B3004
	230	11	38	ML6421B3012
Accessories				
Dual end switches SPDT, adjustable (250V~10A)				43191680-002
Single feedback potentiometer 220/135 ohm operating range, for 20mm models				43191679-001
220/135 ohm operating range, for 38mm models				43191679-002

Actuator 0/2..10V, 20/38mm 1800 N, ML7421

Electrical actuator modulating control, for valve series: V5011, V5013, V5015, V5016, V5025, V5049, V5050, V5328, V5329.

Specification

Control input signal: 0/2...10V~; 0/4...20mA

Modulating Spring Return Actuators				
Run Time Min	Power Supply		Stroke (mm)	Part No.
	VAC	VA		
20mm; 1800 N				
1.9	24	12	20	ML7421A3004
38mm; 1800 N				
3.5	24	12	38	ML7421B3003
Accessories				
Dual end switches SPDT, adjustable (250V~, 10A)				43191680-002
High temperature kits for V5011R/S, V5013R/E; V5328A/V5329A DN15..32				43196000-001

Actuator 0/2..10V, 20mm 600 N, ML7420/ML7425

Electrical actuator modulating control, for valve series: V5011, V5013, V5016A, V5025, V5049, V5050, V5328, V5329.

Specification

Position feedback: 0/2...10V~; 0/4...20mA

Modulating Actuators						
Run Time Min	Power Supply		Power Loss Action	Manual Operation	Spring Return	Part No.
	VAC	VA				
20mm; 600 N						
1.0	24	5	-	Yes	-	ML7420A6009
1.0	24	5	-	-	-	ML7420A6025
0.5	24	7	-	Yes	-	ML7420A6017
1.8	24	12	Stem Extends	Yes	Yes	ML7425A6008
1.8	24	12	Stem Retracts	Yes	Yes	ML7425B6007
Accessories						
Dual end switches SPDT, adjustable (250V~, 10A)				43191680-205		

Compact Line Rotary Valve Actuator

Electrical actuator for valve series V5433A/G, V5442A/G.

Modulating Actuators						
Run Time Sec	Power Supply		Control Signal	Manual Operation	End Switches	Part No.
	VAC	VA				
100	24	3	3pt	Yes	-	ML6063A1003
100	24	3	3pt	Yes	2	ML6063A4007
100	230	3	3pt	Yes	-	ML6063L1009
100	230	3	3pt	Yes	2	ML6063L4003





Damper Actuators

M9000 Series

Control Type	Torque Nm	Rating	Type	Part No.
Open/close floating control	4	24V AC/DC	Integral auxiliary switch	M9304 AGA 1N
		230V AC	Integral auxiliary switch	M9304 AGC 1N
			Integral auxiliary switch	M9304 ADA 1N
Modulating	4	24V AC/DC	Integral auxiliary switch	M9304 ADC 1N
		230V AC	Integral auxiliary switch	M9304 GGA 1N
			Integral auxiliary switch	M9304 GDA 1N
Open/close floating control	8	24V AC/DC	Integral auxiliary switch	M9108 AGA 1N
		230V AC	Integral auxiliary switch	M9108 AGC 1N
			Integral auxiliary switch	M9108 ADA 1N
Modulating	8	24V AC/DC	Integral auxiliary switch	M9108 ADC 1N
		230V AC	Integral auxiliary switch	M9108 GGA 1N
			Integral auxiliary switch	M9108 GDA 1N
Open/close floating control	16	24V AC/DC	Integral auxiliary switch	M9116 AGA 1N
		230V AC	Integral auxiliary switch	M9116 AGC 1N
			Integral auxiliary switch	M9116 ADA 1N
Modulating	16	24V AC/DC	Integral auxiliary switch	M9116 ADC 1N
		230V AC	Integral auxiliary switch	M9116 GGA 1N
			Integral auxiliary switch	M9116 GDA 1N
Open/close floating control	24	24V AC/DC	Integral auxiliary switch	M9124 AGA 1N
		230V AC	Integral auxiliary switch	M9124 AGC 1N
			Integral auxiliary switch	M9124 ADA 1N
Modulating	24	24V AC/DC	Integral auxiliary switch	M9124 ADC 1N
		230V AC	Integral auxiliary switch	M9124 GGA 1N
			Integral auxiliary switch	M9124 GDA 1N
Open/close floating control	32	24V AC/DC	Integral auxiliary switch	M9132 AGA 1N
		230V AC	Integral auxiliary switch	M9132 AGC 1N
			Integral auxiliary switch	M9132 ADA 1N
Modulating	32	24V AC/DC	Integral auxiliary switch	M9132 ADC 1N
		230V AC	Integral auxiliary switch	M9132 GGA 1N
			Integral auxiliary switch	M9132 GDA 1N
Open/close 2-point spring return	8	24V AC/DC	Integral auxiliary switch	M9208 BGA 1S
		230V AC	Integral auxiliary switch	M9208 BGB 1S
			Integral auxiliary switch	M9208 BDA 1S
Open/close 3-point spring return	20	24V AC/DC	On/off	M9220 BGA 1
		230V AC	On/off integral auxiliary switch	M9220 BGC 1
			Integral auxiliary switch	M9220 BDA 1
Modulating spring return	20	24V AC/DC	Integral auxiliary switch	M9220 BDC 1
			Integral auxiliary switch	M9220 HGA 1
			Integral auxiliary switch	M9220 HGC 1

Three-Way Mixing Valve

VG7000 Series

DN (mm)	Valves		2 - Way Valve	3 - Way Valve
	Rp	Kvs (m³/h)	Part No.	Part No.
15	½"	1.6	VG7201ET	VG7802ET
	½"	2.5	VG7201FT	VG7802FT
	½"	4.0	VG7201GT	VG7802GT
20	¾"	6.3	VG7201LT	VG7802LT
25	1"	10	VG7201NT	VG7802NT
32	1¼"	16	VG7201PT	VG7802PT
40	1½"	25	VG7201RT	VG7802RT
50	2"	40	VG7201ST	VG7802ST

Actuators for VG7000 Valves

Control Type	Rating	Part No.
500N		
Open/close 3-point	24V AC	VA7150-1001
	230V AC	VA7150-1003
Modulating	24V AC	VA7152-1001

Terminal Unit Valves

The VG3000 brass valve series is primarily designed to regulate the flow of water in response to the demand of a controller in zone and terminal unit applications.

Body Type	Valve		2-Port	4-Port
	DN (mm)	Kvs (m³/h)	Part No.	Part No.
2-Port/4-Port	10	0.4	VG3210BS	VG3410BS
	10	0.63	VG3210CS	VG3410CS
	10	1.0	VG3210DS	VG3410DS
	10	1.6	VG3210ES	VG3410ES
	10	2.5	VG3210FS	VG3410FS
	15	2.5	VG3210JS	VG3410JS
	15	4.0	VG3210KS	VG3410KS
	20	6.3	VG3210LS	VG3410LS

* Female connection also available

VG3000 Series (Compression Connection)				
Body Type	Valve		2-Port	4-Port
	DN (mm)	Kvs (m³/h)	Part No.	Part No.
2-Port/4-Port	10	0.4	VG3290BS	VG3490BS
	10	0.63	VG3290CS	VG3490CS
	10	1.0	VG3290DS	VG3490DS
	10	1.6	VG3290ES	VG3490ES
	10	2.5	VG3290FS	VG3490FS

Thermic Actuators for VG3000 Valves				
Action	Rating	Mounting Thread	Part No.	
Direct	230V AC	M30	VA-7087-23	
Direct	24V AC		VA-7087-21	
Normally open	230V AC		VA-7097-21	

N/C and reverse action also available

Pressure Independent Control Valves

A PICV replaces a traditional control valve and water pressure balancing set.

It automatically limits the water flow rate, irrespective of pressure and allows the flow to be modulated to match the load. Once the maximum flow setting is pre-set using the graduated scale, the flow will be modulated by means of the control valve and actuator - independent of the system pressure. This results in stable flow and energy efficiency, regardless of what is happening elsewhere in the system. PIC Valves are particularly well suited to use with inverter driven pumps and variable load circuits.

VP1000 Valves - Axial Model				
DN (mm)	Connection Size	Maximum flow (l/h)	Part No.	
15	Rc ½" Female	150	VP100AAA	
		600	VP100AAE	
		780	VP100AAG	
20	Rc ¾" Female	1000	VP100BAJ	
		1500	VP101BAN	
		2200	VP100CAU	
25	1" Union Female	2700	VP100CAW	
		2700	VP100DAW	
		3000	VP100DAY	

VP1000 Valves - Ball Model				
DN (mm)	Connection Size	Maximum flow (l/h)	Part No.	
40	1½" Union Female	6000	VP101DBB	
		6000	VP101EBB	
		9000	VP101EBC	
		11000	VP101EBD	
50	2" Union Female	12000	VP101FBD	
		18000	VP101FBF	
		18000	VP101GBF	

VPA Valves				
DN (mm)	Connection Size	Maximum flow (l/h)	Part No.	
50	Flange ISO 7005-2	13104	VPA050-C	
65		20880	VPA065-C	
80		28080	VPA080-C	
100		50040	VPA100-C	
125		90000	VPA125-C	
150		145080	VPA150-C	

Electric Actuators				
Control Type	Voltage	Running Time	Mounting Thread	Part No.
Floating	24V AC	13s/mm	M30	VA-7480-0001
		8s/mm		VA-7481-0001
	230V AC	13s/mm		VA-7480-0003
		8s/mm		VA-7481-0003
Proportional	24V AC	Self Calibrating	VA-7482-8201	
	24V AC/DC	3.2mm Electrical Stroke	VA-7482-1001	
		6mm Electrical Stroke	VA-7482-3001	





VUL/BUL Unit Valves in Cast Brass, PN16

With AXT, AXS, AXM thermal or motorised actuators

Features

- 16 Bar rated
- 2°C to 120°C

- Valve body made of nickel-plated cast brass for DN 10 and gun metal for DN 15 and DN 20

2-Port (Screwed*)

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
2-port	10	0.16	4	VUL010F340
	10	0.4	4	VUL010F330
	10	0.63	4	VUL010F320
	10	1	4	VUL010F300
	10	1.6	4	VUL010F310
	15	2.5	4	VUL015F310
	15	3.5	4	VUL015F300
	20	4.5	4	VUL020F300

*Screwed, compression and solder fittings available

2-Port (Compression*)

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
2-port	10	0.4	4	VUL010F630
	10	0.63	4	VUL010F620
	10	1	4	VUL010F610
	10	1.6	4	VUL010F600

3-Port (Screwed*)

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
3-port	10	0.4	3.7	BUL010F330
	10	0.63	3.7	BUL010F320
	10	1	3.7	BUL010F310
	10	1.6	3.7	BUL010F300
	15	2.5	3.7	BUL015F310
	15	4	3.7	BUL015F300
	20	5	3.7	BUL020F300

*Screwed, compression and solder fittings available

4-Port (Screwed*)

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
4-port	10	0.4	3.7	BUL010F430
	10	0.63	3.7	BUL010F420
	10	1	3.7	BUL010F410
	10	1.6	3.7	BUL010F400
	15	2.5	3.7	BUL015F410
	15	4	3.7	BUL015F400
	20	5	3.7	BUL020F400

*Screwed, compression and solder fittings available

4-Port (Compression*)

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
4-port	10	0.4	3.7	BUL010F630
	10	0.63	3.7	BUL010F620
	10	1	3.7	BUL010F610
	10	1.6	3.7	BUL010F600

Actuators

Thermal Actuators

Action	Rating	Control	Pushing Force (N)	Part No.
Normally closed	230V AC	2-point (NC)	115	AXT211F110
Normally open	230V AC	2-point (NO)	110	AXT211F210
Normally closed	24V AC/DC	2-point (NC)	115	AXT211F112
Normally open	24V AC/DC	2-point (NO)	110	AXT211F212

Motorised Actuators

Normally closed	24V AC	0...10V (NC)	115	AXS215SF122
Normally open	24V AC	0...10V (NO)	110	AXS215SF222
	230V AC	2/3-point	120	AXM217F200
	24V AC	2/3-point	120	AXM217F202
	24V DC	0...10V/4...20 mA	120	AXM217SF402

VUN/BUN Male Thread Valves in Cast Brass, PN16

with electric linear actuators.

Features

- 16 Bar rRated
- -15°C to 150°C
- Valve body & valve seat in dezincification-resistant (DZR) cast brass

2-Port Male Thread*				
Body Type	Valve			Part No.
	DN (mm)	Kvs (m³/h)	Stroke (mm)	
2-port	15	0.4	8	VUN015F350
	15	0.63	8	VUN015F340
	15	1	8	VUN015F330
	15	1.6	8	VUN015F320
	15	2.5	8	VUN015F310
	15	4	8	VUN015F300
	20	6.3	8	VUN020F300
	25	10	8	VUN025F300
	32	16	8	VUN032F300
	40	22	8	VUN040F300
	50	28	8	VUN050F300
	50	40	8	VUN050F200

*c/w screwed fittings

3-Port Male Thread*				
Body Type	Valve			Part No.
	DN (mm)	Kvs (m³/h)	Stroke (mm)	
3-port	15	1	8	BUN015F330
	15	1.6	8	BUN015F320
	15	2.5	8	BUN015F310
	15	4	8	BUN015F300
	20	6.3	8	BUN020F300
	25	10	8	BUN025F300
	32	16	8	BUN032F300
	40	22	8	BUN040F300
	50	28	8	BUN050F300
	50	40	8	BUN050F200

*c/w screwed fittings

Actuators

Electric Linear Actuators			
Rating	Control	Pushing Force (N)	Part No.
230V AC	2/3-point, running time: 30s	250	AVM105F100
230V AC	2/3-point, running time: 120s	250	AVM105F120
24V AC	2/3-point, running time: 120s	250	AVM105F122
24V AC/DC	2/3-point or 0...10V	250	AVM105SF132
230V AC	2/3-point, running time: 120s	500	AVM115F120
24V AC	2/3-point, running time: 120s	500	AVM115F122
24V AC/DC	2/3-point or 0...10V	500	AVM115SF132
230V AC	2/3-point	1000	AVM321F110
24V AC/DC	2/3-point	1000	AVM321F112
24V AC/DC	2/3-point or 0...10V	1000	AVM321SF132





Creating Sustainable Environments.



VQD/VQE/BQD/BQE Flanged Valves in Grey Cast Iron

With electric linear actuators.

Features

- 6 Bar rated
- -10°C to 150°C

- Valve body and seat made of grey cast iron

2-Port Flanged PN6

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
2-port	65	63	20	VQD065F300
	80	100	20	VQD080F300
	100	160	40	VQD100F300

3-Port Flanged PN6

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
2-port	65	63	20	BQD065F300
	80	100	20	BQD080F300
	100	160	40	BQD100F300

2-Port Flanged PN16 / PN10

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
2-port	65	63	20	VQE065F300
	80	100	20	VQE080F300
	100	160	40	VQE100F300
	125	220	40	VQE125F300
	150	320	40	VQE150F300

3-Port Flanged PN16 / PN10

Body Type	Valve			Part No.
	DN (mm)	Kvs (m ³ /h)	Stroke (mm)	
3-port	65	63	20	BQE065F300
	80	100	20	BQE080F300
	100	160	40	BQE100F300
	125	220	40	BQE125F300
	150	320	40	BQE150F300

Actuators

Electric Linear Actuators

Rating	Control	Pushing Force (N)	Part No.
230V AC	2/3-point	1000	AVM322F120
24V AC/DC	2/3-point	1000	AVM322F122
24V AC/DC	2/3-point, 0...10V or 4...20 mA	1000	AVM322SF132
24V AC	2/3-point, 0...10V or 4...20 mA	2500	AVM234SF132

Electric Linear Actuators with Spring Return

24V AC/DC	3-point, 0...10V or 4...20 mA	2000	AVF234SF132
24V AC/DC	3-point, 0...10V or 4...20 mA	2000	AVF234SF232

Valves with 5.5mm Stroke, PN16

VVG/VXG44 Series

Valves			Actuator		2 - Way Valve		3 - Way Valve	
DN (mm)	Kvs (m³/h)	Voltage	Torque NM	Running Time	Part No.	Part No.	Part No.	Part No.
15	0.25	24V AC	-	-	VVG44.15-0.25/C	VXG44.15-0.25/C	VXG44.15-0.4/C	VXG44.15-0.4/C
	0.4	24V AC	-	-	VVG44.15-0.4/C	VXG44.15-0.4/C	VXG44.15-0.63/C	VXG44.15-0.63/C
	0.63	24V AC	-	-	VVG44.15-0.63/C	VXG44.15-0.63/C	VXG44.15-1/C	VXG44.15-1/C
	1	24V AC	-	-	VVG44.15-1/C	VXG44.15-1/C	VXG44.15-1.6/C	VXG44.15-1.6/C
	1.6	24V AC	-	-	VVG44.15-1.6/C	VXG44.15-1.6/C	VXG44.15-2.5/C	VXG44.15-2.5/C
	2.5	24V AC	-	-	VVG44.15-2.5/C	VXG44.15-2.5/C	VXG44.15-4/C	VXG44.15-4/C
	4	24V AC	-	-	VVG44.15-4/C	VXG44.15-4/C	VXG44.20-6.3/C	VXG44.20-6.3/C
20	6.3	24V AC	-	-	VVG44.20-6.3/C	VXG44.20-6.3/C	VXG44.25-10/C	VXG44.25-10/C
25	10	24V AC	-	-	VVG44.25-10/C	VXG44.25-10/C	VXG44.32-16/C	VXG44.32-16/C
32	16	24V AC	-	-	VVG44.32-16/C	VXG44.32-16/C	VXG44.40-25/C	VXG44.40-25/C
40	25	24V AC	-	-	VVG44.40-25/C	VXG44.40-25/C		

Electric Actuators 400 N - for Valves with 5.5mm Stroke

Type	Actuator			Spring Valve	Part No.
	Voltage	Torque NM	Running Time		
3-point	24V AC	2	120s	No	SAS81.00
	230V AC	2.5	120s	No	SAS31.00
	230V AC	5	120s	Yes	SAS31.50
Modulating	24V AC	4.5	30s	No	SAS61.03
	24V AC	7	30s	Yes	SAS61.53

Actuators with spring return function have a position indication in place of manual control lever

Accessories

Description	Part No.
Auxiliary switch	ASC10.6

Valves V.P45 with 5.5mm Stroke

For chilled water and low pressure hot water in closed circuits with threaded connections to ISO 228/1.

Valves

Valves		2 - Way Valve		3 - Way Valve	
DN (mm)	Kvs (m³/h)	Part No.	Part No.	Part No.	Part No.
10	0.25	VVP45.10-0.25/C	VXP45.10-0.25/C	VXP45.10-0.4/C	VXP45.10-0.4/C
	0.4	VVP45.10-0.4/C	VXP45.10-0.4/C	VXP45.10-0.63/C	VXP45.10-0.63/C
	0.63	VVP45.10-0.63/C	VXP45.10-0.63/C	VXP45.10-1/C	VXP45.10-1/C
	1	VVP45.10-1/C	VXP45.10-1/C	VXP45.10-1.6/C	VXP45.10-1.6/C
	1.6	VVP45.10-1.6/C	VXP45.10-1.6/C	VXP45.15-2.5/C	VXP45.15-2.5/C
15	2.5	VVP45.15-2.5/C	VXP45.15-2.5/C	VXP45.20-4/C	VXP45.20-4/C
20	4	VVP45.20-4/C	VXP45.20-4/C	VXP45.25-6.3/C	VXP45.25-6.3/C
25	6.3	VVP45.25-6.3/C	VXP45.25-6.3/C	VXP45.25-10/C	VXP45.25-10/C
	10	VVP45.25-10/C	VXP45.25-10/C	VXP45.32-16/C	VXP45.32-16/C
32	16	VVP45.32-16/C	VXP45.32-16/C	VXP45.40-25/C	VXP45.40-25/C
40	25	VVP45.40-25/C	VXP45.40-25/C		

Modulating actuator features

- Manual override

Modulating actuator specification

Control DC 0...10V

Electric Actuators

Type	Actuator			Spring Valve	Part No.
	Voltage	PN VA	Running Time		
3-point	24V AC	0.8	150s		SSC81
	230V AC	6	150s		SSC31
Modulating	24V AC	2	35s		SSC61
		2...3	35s		SSC61.5

Flanged Butterfly Valves PN6/10/16

Features

- For mounting between counter flanges PN6, PN10 or PN16 to ISO 7005

- For chilled or hot water in closed circuits

Valves

Valves		Part No.
DN (mm)	Kvs (m³/h)	
40	50	VKF41.40
50	80	VKF41.50
65	200	VKF41.65
80	400	VKF41.80
100	760	VKF41.100
125	1000	VKF41.125
150	2100	VKF41.150
200	4000	VKF41.200

SIEMENS



SIEMENS



3- Port Valves with Flanged Connections, PN10

Features

- For chilled, low and high temperature water & brine in closed circuits
- With flanged connections to ISO 7005

Valves with 20mm Stroke

Valves		Part No.
DN (mm)	Kvs (m³/h)	
15	1.6	VXF32.15.1.6
15	2.5	VXF32.15.2.5
15	4	VXF32.15.4
25	6.3	VXF32.25.6.3
25	10	VXF32.25.10
40	16	VXF32.40.16
40	25	VXF32.40.25
50	40	VXF32.50.40
65	63	VXF32.65.63
80	100	VXF32.80.100

Valves with 40mm Stroke

125	250	VXF32.125.250
150	400	VXF32.150.400

Flanged Valves with 20mm Stroke PN25

Features

- For chilled water, low pressure hot water, domestic hot water, high pressure hot water, brine, thermo-oil, saturated steam and super heated steam in open or closed circuits
- With flanged connections to ISO 7005

Valves

Valves		Part No.
DN (mm)	Kvs (m³/h)	
15	0.25	VVF53.15-0.2
15	0.4	VVF53.15-0.4
15	1.6	VVF53.15-1.6
15	2.5	VVF53.15-2.5
15	4	VVF53.15-4
25	10	VVF53.25-10



Actuators

Modulating actuator features

- Manual override

Modulating actuator specification

Control: DC 0...10V
Operating range/ position feedback: DC 4...20V



Electrohydraulic Actuators - for Valves with 20mm Stroke

Type	Force	Actuator			Part No.	
		Voltage	Torque NM	Running Time		
3-point	1000 N	230V AC	16	120s	8s	SKD32.50
			21	120s	-	SKD32.51
		24V AC	13	120s	8s	SKD82.50
			18	120s	-	SKD82.51
Modulating	1000 N	24V AC	17	30s	8s	SKD62
		24V AC	18	120s open 5s close	8s	SKB62

Accessories

Description	Part No.
Auxiliary switch for SK*6* actuators	ASC1.6

Flanged Three Port Slipper Valves PN6

Features

- With flanged connections to ISO 7005
- For chilled water and low pressure hot water in closed circuits

Valves

Valves		Part No.
DN (mm)	Kvs (m³/h)	
40	25	VBF21.40
50	40	VBF21.50
63	63	VBF21.65
80	100	VBF21.80
100	160	VBF21.100
125	550	VBF21.125
150	820	VBF21.150



Actuators

Electric Actuators - 5...20 Nm

Type	Actuator				Part No.
	Voltage	PN VA	Running Time	Torque Nm	
3-point	230V AC	3	125s	5	SQK33.00
	230V AC	4	125s	10	SAL31.00T10
	24V AC	4	125s	10	SAL61.00T10
	24V AC	4	125s	10	SAL81.00T10*
	230V AC	6.5	125s	40	SAL31.00T40
	24V AC	6.5	125s	40	SAL61.00T40
	24V AC	6.5	125s	40	SAL81.00T40

*Linkage required

All actuators have two in built limit switches and space for one ancillary unit (auxiliary switch or potentiometer).

Linkages

Accessories

Description	Part No.
Linkage for SAL... and VBF21 slipper valves	ASK31N
Linkage for SQK33/SQL33/83 and slipper valves VBF21/VBG31/VBI31 up to DN65 consisting of bracket with captive screw.	ASK32
Linkage for SAL... and VKF41 butterfly valves	ASK33N

Pressure Independent Control Valves PN25

Internally Threaded

DN (mm)	Minimum flow (l/h)	Maximum flow (l/h)	Part No.
15	30	200	VPI46.15L0.2
	100	575	VPI46.15L0.6
20	200	1190	VPI46.20F1.4
	220	1330	
25	238	1530	VPI46.25F1.8
	280	1800	
32	468	3400	VPI46.32F4
	550	4001	

Internally Threaded with Test Points

15	30	200	VPI46.15L0.2Q
	100	575	VPI46.15L0.6Q
20	200	1190	VPI46.20F1.4Q
	220	1330	
25	238	1530	VPI46.25F1.8Q
	280	1800	
32	468	3400	VPI46.32F4Q
	550	4001	
40	1370	9500	VPI46.40F9.5Q
	1400	11500	

Externally Threaded

10	30	200	VPP46.10L0.2
15	30	200	VPP46.15L0.2
	100	575	VPP46.15L0.6
20	200	1190	VPP46.20F1.4
	220	1330	
25	238	1530	VPP46.25F1.8
	280	1800	
32	468	3400	VPP46.32F4
	550	4001	

Externally Threaded with Test Points

10	30	200	VPP46.10L0.2Q
15	30	200	VPP46.15L0.2Q
	100	575	VPP46.15L0.6Q
20	200	1190	VPP46.20F1.4Q
	220	1330	
25	238	1530	VPP46.25F1.8Q
	280	1800	
32	468	3400	VPP46.32F4Q
	550	4001	

Electric Actuators for Pressure Independent Control Valves

Type	Voltage	Running Time	Part No.	
			15 to 32mm PICV	40 to 50mm PICV
3-point	24V AC/DC	150s	SSA81	SAY81P03
	230V AC	150s	SSA31	SAY31P03
DC 0-10V	24V AC/DC	34/70s	SSA61	SAY61P03

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Internally Threaded Control Ball Valves PN40

2/3-Port Valves

DN (mm)	Kvs (m³/h)	2-Port		3-Port	
		Part No.		Part No.	
15	1.6	VAI61.15-1.6	VBI61.15-1.6		
	2.5	VAI61.15-2.5	VBI61.15-2.5		
	4	VAI61.15-4	VBI61.15-4		
25	6.3	VAI61.15-6.3	VBI61.15-6.3		
	10	VAI61.25-10	VBI61.25-10		
32	16	VAI61.32-16	VBI61.32-16		
	25	VAI61.40-25	VBI61.40-25		
50	40	VAI61.50-40	VBI61.50-40		
	63	VAI61.50-63	VBI61.50-63		

Electric Actuators 5 Nm Torque Ball Valves

Type	Voltage	Running Time	15 to 25mm Ball Valves		15 to 50mm Ball Valves	
			Part No.		Part No.	
3-point	24V AC/DC	150s	GDB141.9E	GLB141.9E		
	230V AC	150s	GDB341.9E	GLB341.9E		
DC 0-10V	24V AC/DC	150s	GDB161.9E	GLB161.9E		

Straight Mini Combi Valve (MCV), PN10, 1...90°C

VPD1... Valves

DN (mm)	Connection	V _{min} (l/h)	V ₁₀₀ (l/h)	Part No.
10	Rp3/8"	25	104	VPD110A-45
10	Rp3/8"	57	185	VPD110A-90
10	Rp3/8"	86	318	VPD110A-145
10	Rp3/8"	95	483	VPD110B-200
15	Rp1/2"	25	104	VPD115A-45
15	Rp1/2"	57	185	VPD115A-90
15	Rp1/2"	86	318	VPD115A-145
15	Rp1/2"	95	483	VPD115B-200

Angled Mini Combi Valve (MCV), PN10, 1...90°C

VPE1... Valves

DN (mm)	Connection	V _{min} (l/h)	V ₁₀₀ (l/h)	Part No.
10	Rp3/8"	25	104	VPE110A-45
10	Rp3/8"	57	185	VPE110A-90
10	Rp3/8"	86	318	VPE110A-145
10	Rp3/8"	95	483	VPE110B-200
15	Rp1/2"	25	104	VPE115A-45
15	Rp1/2"	57	185	VPE115A-90
15	Rp1/2"	86	318	VPE115A-145
15	Rp1/2"	95	483	VPE115B-200

Actuators for Mini Combi Valves (MCV) & small valves

Type	Voltage	Actuator		Part No.
		Control Signal	Run Time at 50Hz	
Thermic	230V AC	3-Position	150s	SSA21
			210s	STA23 ⁽¹⁾
			150s	SSA81
Motoric	24V AC	0...10V DC	270s	STA73 ⁽¹⁾
			34s	SSA61 ⁽²⁾
			270s	STA63 ⁽¹⁾
Thermic		Modulating		

⁽¹⁾ Recommended flow from 77 to 483 l/h

⁽²⁾ When using the VPD... Valves with SSA61... actuators, the flow rate pre-adjustment must be set to minimum 1.5 mm valve stroke

Flanged Combi Valve with pressure test points, PN16, 1...120°C

VPF43... Valves

DN (mm)	V _{min} (l/h)	V ₁₀₀ (l/h)	Part No.
50	2.3	15	VPF43.50F16
50	4.3	25	VPF43.50F25
65	4.4	25	VPF43.65F24
65	6	35	VPF43.65F35
80	5.3	34	VPF43.80F35
80	7	43	VPF43.80F45
100	12.1	68	VPF43.100F70
100	14.8	90	VPF43.100F90
125	18.5	110	VPF43.125F110
125	23	135	VPF43.125F135
150	25.6	148	VPF43.150F160
150	32	195	VPF43.150F200

Flanged Combi Valve with pressure test points, PN25, 1...120°C

VPF53... Valves			
DN (mm)	V _{min} (l/h)	V ₁₀₀ (l/h)	Part No.
50	2.3	15	VPF53.50F16
50	4.3	25	VPF53.50F25
65	4.4	25	VPF53.65F24
65	6	35	VPF53.65F35
80	5.3	34	VPF53.80F35
80	7	43	VPF53.80F45
100	12.1	68	VPF53.100F70
100	14.8	90	VPF53.100F90
125	18.5	110	VPF53.125F110
125	23	135	VPF53.125F135
150	25.6	148	VPF53.150F160
150	32	195	VPF53.150F200

Actuators for Combi Valves VPF43.. & VPF53.. with 20mm stroke

Spring Return	Actuator		Run Time at 50Hz	Part No.
	Voltage	Control Signal		
No	230V AC	3-Position	30s	SAX31P03
No			120s	SAV31P00
Yes			120s	SQV91P.. + ASP1.1 ⁽⁹⁾
No			30s	SAX81P03
No	24V AC	0...10V DC Modulating	120s	SAV81P00
Yes			120s	SQV91P.. ⁽⁹⁾
No			30s	SAX61P03
No			120s	SAV61P00
Yes			120s	SQV91P.. ⁽⁹⁾

⁽⁹⁾ SQV91P.. Could be SQV91P30 (spring return open) or SQV91P40 (spring return closed)

Valves V...P47...S with 2.5mm Stroke PN16

Valves with Compression Fittings

Valves		2 - Way	3 - Way T Bypass
DN (mm)	Kvs (m ³ /h)	Part No.	Part No.
10	0.25	VVP47.10-0-2	VMP47.10-0-2
	1	VVP47.10-0-1	VMP47.10-0-1
	0.4	VVP47.10-0.4	VMP47.10-0.4
	0.6	VVP47.10-0.6	VMP47.10-0.6
	1.6	VVP47.10-1.6	VMP47.10-1.6
15	2.5	VVP47.15-2.5	VMP47.15-2.5

Thermic Actuators 100N for Small Rooms

Type	Voltage	Actuator	Positioning Time	Part No.
2-point	230V AC		3 min	STP23

Electro Motoric Actuators 100N

Type	Voltage	Actuator		Part No.
		PN VA	Running Time	
3-point	230V AC	3	150s	SSP31
	24V AC	6.5	150s	SSP81
Modulating	24V AC	2	34s	SSP61

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Damper Actuators without Spring Return

Modulating actuator features

- Manual override

Modulating actuator specification

- Control DC 0...10V

Rotary Air Damper Actuators 10 Nm

Type	Voltage	Actuator		Part No.
		PN VA	2 Aux. Switches	
3-point	230V AC	2	Yes	GLB336.1E
Modulating	24V AC	3	-	GLB161.1E

Rotary Air Damper Actuators 15 Nm

Type	Voltage	Actuator		Part No.
		PN VA		
3-point	24V AC	3		GEB131.1E
	230V AC			GEB331.1E
Modulating	24V AC	4		GEB161.1E

Rotary Air Damper Actuators 25 Nm

Type	Voltage	Actuator		Part No.
		PN VA		
3-point	24V AC	7		GBB131.1E
	230V AC	5		GBB331.1E
Modulating	24V AC	6		GBB161.1E

Damper Actuators Spring Return

Rotary Air Damper Actuators 16 Nm

Type	Voltage	Actuator		Part No.
		PN VA		
2-point	24V AC	9		GCA121.1E
	230V AC	9		GCA321.1E
Modulating	24V AC	9		GCA321.1E

Accessories

Description		Part No.
External auxiliary switches for use with rotary air damper actuators	Single switched unit	ASC77.1
GBB..., GCA..., GEB..., GIB...	Double switched unit	ASC77.2E

Modulating Control Valves with Magnetic Actuator, PN16

Features

- Mixing and 2-port valves PN16 with magnetic actuator for modulating control of chilled or low-temperature hot water systems in closed circuits. With positioning control, position feedback signal, spring return function and manual control.
- When used as a 2-port valve, port B must be closed off with the accessories (nut, cover, gasket) provided with the valve.

3-Port LTHW/CHW Flanged Valves			
DN (mm)	Kvs (m ³ /h)	Temperature	Part No.
15	0.6	1-130°C	MXF461.15-0.6
	1.5		MXF461.15-1.5
	3.0		MXF461.15-3.0
20	5.0		MXF461.20-5.0
	8.0		MXF461.25-8.0
32	12.0		MXF461.32-12
40	20.0		MXF461.40-20
50	30.0		MXF461.50-30
65	50.0		MXF461.65-50
80	80.0		1-120°C
100	130.0		M3P100FY

3-Port LTHW/CHW Screwed Valves				
DN (mm)	Kvs (m ³ /h)	Additional	Temperature	Part No.
15	0.6	c/w couplings	1-130°C	MXG461.15-0.6
				MXG461.15-0.6/C
	1.5	c/w couplings		MXG461.15-1.5
3.0				MXG461.15-1.5/C
		c/w couplings		MXG461.15-3.0
20	5.0	c/w couplings		MXG461.15-3.0/C
				MXG461.20-5.0
25	8.0	c/w couplings		MXG461.20-5.0/C
				MXG461.25-8.0
32	12.0	c/w couplings		MXG461.25-8.0/C
			MXG461.32-12	
40	20.0	c/w couplings	MXG461.32-12/C	
			MXG461.40-20	
50	30.0	c/w couplings	MXG461.40-20/C	
			MXG461.50-30	
			MXG461.50-30/C	

3-Port LTHW Valves - Control Signal Suitable for Open Systems				
DN (mm)	Kvs (m ³ /h)	Additional	Temperature	Part No.
15	0.6	w/o couplings	-20-130°C	MXG461B15-0.6
	1.5			MXG461B15-1.5
	3.0			MXG461B15-3
20	5.0			MXG461B20-5
25	8.0			MXG461B25-8
32	12.0			MXG461B32-12
40	20.0			MXG461B40-20
50	30.0			MXG461B50-30

3-Port LTHW Valves - Stainless Steel Body				
DN (mm)	Kvs (m ³ /h)	Additional	Temperature	Part No.
15	1.5	w/o couplings	1-130°C	MXG461S15-1.5
20	5.0			MXG461S20-5.0
25	8.0			MXG461S25-8.0
32	12.0			MXG461S32-12
50	30.0			-20-130°C

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Modulating Control Valves with Magnetic Actuator, PN16

Modulating control of high-temperature hot water or steam. With positioning control, position feedback signal, spring return function and manual.

2 Port HTHW Flanged Valves			
DN (mm)	Kvs (m ³ /h)	Temperature	Part No.
15	0.6	1-180°C	MVF461H15-0.6
	1.5		MVF461H15-1.5
	3.0		MVF461H15-3
20	5.0		MVF461H20-5
25	8.0		MVF461H25-8
32	12.0		MVF461H32-12
40	20.0		MVF461H40-20
50	30.0		MVF461H50-30



VZ*19* Long Stroke (5.5mm) Zone Valves

These long stroke (5.5mm) small linear zone valves are designed for the regulation in flow of hot and chilled water in fan coils or other terminal unit applications.

2-Way Valves

DN (mm)	Kvs (m³/h)	Flat Face External Thread		Compression End Connection	
		Part No.	Connection	Part No.	Connection
15	0.25	VZ219E-15BP01	G1/2A	VZ219C-15BP01	15mm
15	0.4	VZ219E-15BP02	G1/2A	VZ219C-15BP02	15mm
15	0.6	VZ219E-15BP03	G1/2A	VZ219C-15BP03	15mm
15	1	VZ219E-15BP04	G1/2A	VZ219C-15BP04	15mm
15	1.6	VZ219E-15BP05	G1/2A	VZ219C-15BP05	15mm
20	2.5	VZ219E-20BP07	G3/4A	VZ219C-20BP07	22mm
20	4	VZ219E-20BP08	G3/4A		
20	6	VZ219E-20BP09	G3/4A		

3-Way Valves

DN (mm)	Kvs (m³/h)	Flat Face External Thread		Compression End Connection	
		Part No.	Connection	Part No.	Connection
15	0.25	VZ319E-15BP01	G1/2A	VZ319C-15BP01	15mm
15	0.4	VZ319E-15BP02	G1/2A	VZ319C-15BP02	15mm
15	0.6	VZ319E-15BP03	G1/2A	VZ319C-15BP03	15mm
15	1	VZ319E-15BP04	G1/2A	VZ319C-15BP04	15mm
15	1.6	VZ319E-15BP05	G1/2A	VZ319C-15BP05	15mm
20	2.5	VZ319E-20BP07	G3/4A	VZ319C-20BP07	22mm
20	4	VZ319E-20BP08	G3/4A		
20	6	VZ319E-20BP09	G3/4A		

3-Way Valves with Integral By-Pass (4 ports)

DN (mm)	Kvs (m³/h)	Flat Face External Thread		Compression End Connection	
		Part No.	Connection	Part No.	Connection
15	0.25	VZ419E-15BP01	G1/2A	VZ419C-15BP01	15mm
15	0.4	VZ419E-15BP02	G1/2A	VZ419C-15BP02	15mm
15	0.6	VZ419E-15BP03	G1/2A	VZ419C-15BP03	15mm
15	1	VZ419E-15BP04	G1/2A	VZ419C-15BP04	15mm
15	1.6	VZ419E-15BP05	G1/2A	VZ419C-15BP05	15mm
20	2.5	VZ419E-20BP07	G3/4A	VZ419C-20BP07	22mm
20	4	VZ419E-20BP08	G3/4A		
20	6	VZ419E-20BP09	G3/4A		



MZ20A, MZ20B Actuators

The long stroke MZ20 is an electro-mechanical zone valve actuator designed for use with the VZ*19* valves.

Actuators

Description	Control signal	Part No.
MZ20A	24V AC	845-5051-000
MZ20A-R	24V AC	845-5052-000
MZ20B-24	24V AC	845-5001-000
MZ20B-230	230V AC	845-5003-000

* 0...10 V, 6-9V, 1-5V, 2...10 V, 4...7 V, 6...10 V, 8...11 V

Erie AG/AH Zone Actuators

The AG (General Close Off) and AH (High Close Off) actuators are spring return, two position actuators for coupling to the VT series valves. The Pop-top connection allows for quick and simple assembly, all Normally Closed actuators feature a manual override lever.

General Close-Off Actuators

Spring Return Valve Function	Control signal	Part No.
Normally closed	24V AC	AG13A230
		AG13A23A
	230V AC	AG13U230
		AG13U23A
Normally open	24V AC	AG23A230
	230V AC	AG23A23A
		AG23U230

High Close-Off Actuators

Spring Return Valve Function	Control signal	Part No.
Normally closed	24V AC	AH13A230
	230V AC	AH13U230
		AH13U23A



V211T Globe Valves

The V211T is an internally threaded valve with a soft seat for tight shut off. Suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water.

2-Way Plug Valve

DN (mm)	Kvs (m ³ /h)	Connection	Rangeability	Part No.
15	1.6	Rp 1/2	>50	721 1716 000
15	2.5	Rp 1/2	>50	721 1720 000
15	4.0	Rp 1/2	>50	721 1724 000
20	6.3	Rp 3/4	>50	721 1728 000
25	10	Rp 1	>50	721 1732 000
32	16	Rp 1 1/4	>50	721 1736 000
40	25	Rp 1 1/2	>50	721 1740 000
50	38	Rp 2	>50	721 1744 000

V311T Globe Valves

The V311T is an internally threaded valve with a soft seat for tight shut off. If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.

2-Way Plug Valve

DN (mm)	Kvs (m ³ /h)	Connection	Rangeability	Part No.
15	1.6	Rp 1/2	>50	731 1717 000
15	2.5	Rp 1/2	>50	731 1721 000
15	4.0	Rp 1/2	>50	731 1725 000
20	6.3	Rp 3/4	>50	731 1729 000
25	10	Rp 1	>50	731 1733 000
32	16	Rp 1 1/4	>50	731 1737 000
40	25	Rp 1 1/2	>50	731 1741 000
50	38	Rp 2	>50	731 1745 000

MG350 Actuators

The MG350 is a compact electro-mechanical actuator for controlling two-way and three-way Venta globe valves V211, V211T, V311 and V311T.

The MG350 actuators are primarily designed for applications where the demands on speed and thrust are relatively small.

Actuators

Description	Control signal	Part No.	
Modulating	24V AC/DC	0...10V DC, 2...10V DC	MG350-24M
Modulating with feedback and alarms	24V AC/DC	0...10V DC, 2...10V DC, 4...20mA	MG350-24MP
Floating	24V AC/DC	Three-Wire	MG350-24F
Floating with feedback and alarms	24V AC/DC	Three-Wire	MG350-24FP

MZX Globe Valves

The MZX is a 3 way valve utilising a compact actuator for installations with limited space. The valves are suitable for a wide range of mixing applications such as heating, cooling, air handling and domestic hot water systems.

2-Way Pressure Balanced Plug Valve, Stem Up Closed PN16

DN (mm)	Kvs (m ³ /h)	Connection	Rangeability	Part No.
15	2.6	Rp 1/2	>50	MZX4402
20	4.2	Rp 3/4	>50	MZX4452
25	8.3	Rp 1	>50	MZX4501
32	12.5	Rp 1 1/4	>50	MZX4551
40	21	Rp 1 1/2	>50	MZX4601
50	33	Rp 2	>50	MZX4651

MG350S Actuators

The MG350S is a compact electro-mechanical actuator for controlling the VZX and MZX two-way and three-way linear globe valves.

The MG350S actuators are primarily designed for applications where the demands on speed and thrust are relatively small.

Actuators

Description	Control signal	Part No.	
Modulating	24V AC/DC	0...10V DC, 2...10V DC	MG350S-24M
Floating	24V AC/DC	Three-Wire	MG350S-24F

Schneider
Electric





VGS211F 15-100CS Globe Valves

The VGS211F...CS is a flanged high temperature valve for media temperatures up to 200°C. Primarily designed for steam but also suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water and steam.

2-Way Plug Valve, Stem Up Open PN16

DN (mm)	Kvs (m³/h)	Stroke (mm)	Rangeability	Part No.
15	0.6	16.5	>50	VGS211F-15CS03
15	1.0		>50	VGS211F-15CS04
15	1.6		>50	VGS211F-15CS05
15	2.5		>50	VGS211F-15CS07
15	4.0		>50	VGS211F-15CS08
20	6.3	25	>50	VGS211F-20CS
25	10		>35	VGS211F-25CS
32	16		>35	VGS211F-32CS
40	25		>35	VGS211F-40CS
50	40		>35	VGS211F-50CS
65	63	45	>35	VGS211F-65CS
80	110		>35	VGS211F-80CS
100	140		>35	VGS211F-100CS

VG221F 65-150C Globe Valves

The VG221F...C is a large flanged balanced valve suitable for large hydronic flows in heating and air conditioning circuits. The balanced plug enables a low actuating force to control the valve. Suitable for a wide range of applications using hot water or deaerated cooling water.

2-Way Pressure Balanced Plug Valve, Stem Up Closed PN16

DN (mm)	Kvs (m³/h)	Stroke (mm)	Rangeability	Part No.
65	63	25	>50	VG221F-65C
80	100	45	>50	VG221F-80C
100	130		>50	VG221F-100C
125	200		>50	VG221F-125C
150	300		>50	VG221F-150C

VG311F 65-150C Globe Valves

The VG311F...C is a large flanged general purpose valve suitable for a wide range of mixing applications with hot or chilled water in heating cooling and air handling systems.

3-Way Plug Mixing Valve Stem Up Closed (A Port/B-AB open) PN16

DN (mm)	Kvs (m³/h)	Stroke	Rangeability	Part No.
65	63	25	>50	VG311F-65C
80	100	45	>50	VG311F-80C
100	130		>50	VG311F-100C
125	200		>50	VG311F-125C
150	300		>50	VG311F-150C

FORTA Actuators

The Forta is a family of actuators for the control of 2 way and 3 way globe valves. The Forta has a very fine resolution PCBA board which provides good rangeability of the valve. The Software in the actuator calibrates the running time and S2 switch points to the valve stroke limits. It may also be configured for different flow characteristics, inverse signal or sequence control.

MG900 SR - Spring Return Actuators

Description	Control signal	Part No.
Stem up	24V AC 0...10V / 2...10V / 0-5V / 5-10 / 2-6 / 6-10	MG900-SU
Stem down		MG900-SD

M800 - Spring Return Actuators

Description	Control signal	Part No.
M800	24V AC 0...10V / 2...10V / 0...5V / 5-10 / 2-6 / 6-10	880 0310 030
M800 S2		880 0311 030

M700 - Spring Return Actuators

Description	Control signal	Part No.
M700-SRSU	24V AC 0...10V / 2...10V / 0-5V / 5-10V / 2-6V / 6-10V	880 0430 000
M700-S2-SRSU		880 0431 000
M700-SRSD		880 0440 000
M700-S2-SRSD		880 0441 000

MD*A Range Actuators

The MD...A are 2...10V modulating damper actuators designed for operating air control dampers in ventilation and air conditioning systems for building services installations.

Actuators Non-Spring Return		
Description	Torque Nm	Part No.
MD5A-24	5	875 1009 000
MD10A-24	10	875 1019 000
MD20A-24	20	875 1029 000
MD40A-24	40	875 1039 000

MD*B Range Actuators

The MD...B are on/off damper actuators designed for operating air control dampers in ventilation and air conditioning systems for building services installations. The actuators are available in 24V AC/DC or 230V AC versions.

Actuators Non-Spring Return		
Description	Torque Nm	Part No.
MD5B-230	5	875 1001 000
MD5B-230-S	5	875 1003 000
MD5B-24	5	875 1005 000
MD5B-24-S	5	875 1007 000
MD10B-230	10	875 1011 000
MD10B-24	10	875 1015 000
MD20B-230	20	875 1021 000
MD20B-24	20	875 1025 000
MD40B-24	40	875 1035 000

MD10SR Range Actuators

The MD10 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 2m² in building service installations.

Actuators Spring / SuperCap Return			
Description	Torque Nm	Part No.	
On/Off	24...240V AC /	10	MD10SR-T
	24...125V DC	10	MD10SR-TS
		10	MD10SR-24T
	24V AC/DC	10	MD10SR-24TS
2...10V modulating	10	MD10SR-24M	

MD20SR Range Actuators

The MD20 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 4m² in building service installations.

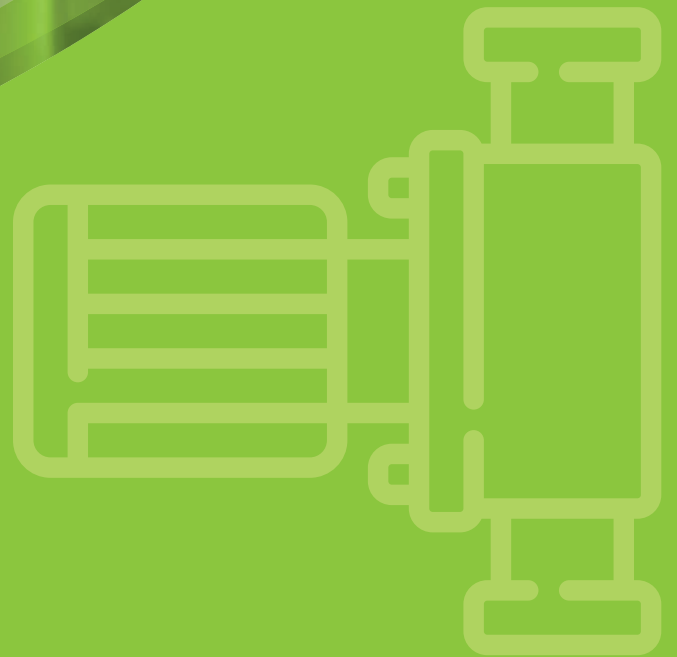
Actuators Spring / SuperCap Return			
Description	Torque Nm	Part No.	
On/Off	24...240V AC /	20	MD20SR-T
	24...125V DC	20	MD20SR-TS
		20	MD20SR-24T
	24V AC/DC	20	MD20SR-24TS
2...10V modulating	20	MD20SR-24M	

Schneider
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PUMPS



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Wet Rotor Electronic Circulators

Low energy consumption electronic pump for water circulation, suitable for commercial heating and air conditioning systems.

Evoplus Range

Type	Part No.
EVOPLUS B 60/220.40 M230/50-60	60150964
EVOPLUS B 60/240.50 M230/50-60	60150971
EVOPLUS D 120/220.32 M220-240/50-60	60151000
EVOPLUS B 120/250.40 M230/50-60	60150967
EVOPLUS B 150/250.40 M220-240/50-60	60150968
EVOPLUS D 120/280.50 M220-240/50-60	60151012
EVOPLUS B 80/240.50 M230/50-60	60150972
EVOPLUS D 120/250.40 M220-240/50-60	60151005
EVOPLUS B 120/220.32 M230/50-60	60150962
EVOPLUS B 120/280.50 M230/50-60	60150974
EVOPLUS D 180/280.50 M220-240/50-60	60151014
EVOPLUS D 150/250.40 M220-240/50-60	60151006
EVOPLUS D 120/340.65 M220-240/50-60	60151019
EVOPLUS D 150/340.65 M220-240/50-60	60151020
EVOPLUS D 60/220.40 M220-240/50-60	60151002
EVOPLUS B 150/340.65 M230/50-60	60150986
EVOPLUS D 120/360.80 M220-240/50-60	60151025
EVOPLUS D 80/220.40 M220-240/50-60	60151003
EVOPLUS D 60/240.50 M220-240/50-60	60151009
EVOPLUS B 120/340.65 M220-240/50-60	60150981
EVOPLUS B 180/280.50 M230/50-60	60150976
EVOPLUS B 60/340.65 M230/50-60	60150978
EVOPLUS B 180/250.40 M230/50-60	60150969
EVOPLUS D 180/250.40 M220-240/50-60	60151007
EVOPLUS D 60/340.65 M220-240/50-60	60151016
EVOPLUS D 100/220.40 M220-240/50-60	60151011
EVOPLUS D 100/280.50 M220-240/50-60	60151013
EVOPLUS D 150/280.50 M220-240/50-60	60151164

In Line Pumps

Hot or cold water circulation pump with in-line ports, suitable for installation directly on the pipework of civil and industrial heating, air conditioning, refrigeration, and sanitary water systems.

KLP / KLM Range

Type	Part No.
KLP 40-1200 T 3x230-400/50	105110234
KLP 50-1200 T 230/400/50-01 IE2	60145206
KLP 40-1200 M 230/50	105110434
KLP 40-600 M 220/240/50-01	105110224
KLP 40- 900 T 230/400/50-01	105110414
KLM 50-600 M 220/240/50-01	105110074
KLM 50-600 T 230/400/50-01	105110454

Wall/Floor Mounted Pressurisation Unit

E.SYPRESS Pressurisation units are designed to maintain the water content within a sealed heating or chilled water systems.

E.Sypress Range

Type	Part No.
E.SYPRESS 1 Single pump unit	60163023
E.SYPRESS Compact single pump	60163022
E.SYPRESS E1 Digital single unit	60163024
E.SYPRESS E2 Digital twin unit	60163025





Light Commercial Circulators

Magna1 Single Head Single Phase 230V

Type	Fittings	Part No.
MAGNA1 25-60 1½" BSPM	No fittings	97924246
MAGNA1 25-80 1½" BSPM	No fittings	97924247
MAGNA1 32-40 2" BSPM	No fittings	97924257
MAGNA1 32-40F 32mm FL	No flanges	97924258
MAGNA1 32-60 32mm BSPM	No fittings	97924259
MAGNA1 32-60F 32mm FL	No flanges	98333834
MAGNA1 32-80 2" BSPM	No fittings	97924255
MAGNA1 32-80F 32mm FL	No flanges	98333854
MAGNA1 32-100F 32mm FL	No flanges	97924256
MAGNA1 32-120F 32mm FL	No flanges	98333874
MAGNA1 40-100F 40mm FL	No flanges	97924266
MAGNA1 40-120F 40mm FL	No flanges	97924267

Magna1 Twin Head Single Phase 230V

Type	Fittings	Part No.
MAGNA1D 32-40 2" BSPM	No fittings	97924367
MAGNA1D 32-60 2" BSPM	No fittings	97924368
MAGNA1D 32-80 2" BSPM	No fittings	97924369
MAGNA1D 32-100 2" BSPM	No fittings	97924370
MAGNA1D 32-40F 32mm FL	No flanges	98333830
MAGNA1D 32-60F 32mm FL	No flanges	98333850
MAGNA1D 32-80F 32mm FL	No flanges	98333870
MAGNA1D 32-100F 32mm FL	No flanges	97924371
MAGNA1D 32-120F 32mm FL	No flanges	97924372
MAGNA1D 40-40F 40mm FL	No flanges	97924379
MAGNA1D 40-60F 40mm FL	No flanges	97924380
MAGNA1D 40-80F 40mm FL	No flanges	97924381
MAGNA1D 40-100F 40mm FL	No flanges	97924382
MAGNA1D 40-120F 40mm FL	No flanges	97924383
MAGNA1D 40-150F 40mm FL	No flanges	97924384
MAGNA1D 40-180F 40mm FL	No flanges	97924385

Magna3 Single Head Single Phase 230V

Type	Fittings	Part No.
MAGNA3 25-80 1PH BSPM	No fittings	97924246
MAGNA3 25-100 1PH BSPM	No fittings	97924247
MAGNA3 32-100 2" BSPM	No fittings	97924257
MAGNA3 32-100F 32mm FL	No flanges	97924258
MAGNA3 32-120F 32mm FL	No flanges	97924259
MAGNA3 32-40F 32mm FL	No flanges	98333834
MAGNA3 32-60 2" BSPM	No fittings	97924255
MAGNA3 32-60F 32mm FL	No flanges	98333854
MAGNA3 32-80 2" BSPM	No fittings	97924256
MAGNA3 32-80F 32mm FL	No flanges	98333874
MAGNA3 40-40F 40mm FL	No flanges	97924266
MAGNA3 40-60F 40mm FL	No flanges	97924267
MAGNA3 40-80F 40mm FL	No flanges	97924268
MAGNA3 40-100F 40mm FL	No flanges	97924269
MAGNA3 40-120F 40mm FL	No flanges	97924270
MAGNA3 40-150F 40mm FL	No flanges	97924271
MAGNA3 40-180F 40mm FL	No flanges	97924272

Magna3 Twin Head Single Phase 230V

Type	Fittings	Part No.
MAGNA3D 32-40 2" BSPM	No fittings	97924449
MAGNA3D 32-40F 32mm FL	No flanges	98333840
MAGNA3D 32-60 2" BSPM	No fittings	97924450
MAGNA3D 32-60F 32mm FL	No flanges	98333860
MAGNA3D 32-80 2" BSPM	No fittings	97924451
MAGNA3D 32-80F 32mm FL	No flanges	98333880
MAGNA3D 32-100 2" BSPM	No fittings	97924452
MAGNA3D 32-100F 32mm FL	No flanges	97924453
MAGNA3D 32-120F 32mm FL	No flanges	97924454
MAGNA3D 40-40F 40mm FL	No flanges	97924461
MAGNA3D 40-60F 40mm FL	No flanges	97924462
MAGNA3D 40-80F 40mm FL	No flanges	97924463
MAGNA3D 40-100F 40mm FL	No flanges	97924464
MAGNA3D 40-120F 40mm FL	No flanges	97924465
MAGNA3D 40-150F 40mm FL	No flanges	97924466
MAGNA3D 40-180F 40mm FL	No flanges	97924467

Multi-Speed Commercial Circulators

Magna1 Single Head Single Phase 230V

Type	Flange Size (mm)	Part No.
MAGNA1 50-40	50	97924188
MAGNA1 50-60F	50	97924189
MAGNA1 50-80F	50	97924190
MAGNA1 50-100F	50	97924191
MAGNA1 50-120F	50	97924192
MAGNA1 50-150F	50	97924193
MAGNA1 50-180F	50	97924194
MAGNA1 65-40F	65	97924202
MAGNA1 65-60F	65	97924203
MAGNA1 65-80F	65	97924204
MAGNA1 65-100F	65	97924205
MAGNA1 65-120F	65	97924206
MAGNA1 65-150F	65	97924207
MAGNA1 80-40F	80	97924214
MAGNA1 80-60F	80	97924215
MAGNA1 80-80F	80	97924216
MAGNA1 80-100F	80	97924217
MAGNA1 80-120F	80	97924218
MAGNA1 100-40F	100	97924219
MAGNA1 100-60F	100	97924220
MAGNA1 100-80F	100	97924221
MAGNA1 100-100F	100	97924222
MAGNA1 100-120F	100	97924223

Includes unions. Where product is flanged, appropriate pipe work counter flanges are supplied separately

Magna1D Twin Head Single Phase 230V

Type	Flange Size (mm)	Part No.
MAGNA1D 50-40F	50	97924393
MAGNA1D 50-60F	50	97924394
MAGNA1D 50-80F	50	97924395
MAGNA1D 50-100F	50	97924396
MAGNA1D 50-120F	50	97924397
MAGNA1D 50-150F	50	97924398
MAGNA1D 50-180F	50	97924399
MAGNA1D 65-40F	65	97924407
MAGNA1D 65-60F	65	97924408
MAGNA1D 65-80F	65	97924409
MAGNA1D 65-100F	65	97924410
MAGNA1D 65-120F	65	97924411
MAGNA1D 65-150F	65	97924412
MAGNA1D 80-40F	80	97924419
MAGNA1D 80-60F	80	97924420
MAGNA1D 80-80F	80	97924421
MAGNA1D 80-100F	80	97924422
MAGNA1D 80-120F	80	97924423
MAGNA1D 100-40F	100	97924424
MAGNA1D 100-60F	100	97924425
MAGNA1D 100-80F	100	97924426
MAGNA1D 100-100F	100	97924427
MAGNA1D 100-120F	100	97924428

Includes unions. Where product is flanged, appropriate pipe work counter flanges are supplied separately





Multi-Speed Commercial Circulators

Magna3 Single Head Single Phase 230V

Type	Flange Size (mm)	Part No.
MAGNA3 50-40F	50	97924280
MAGNA3 50-60F	50	97924281
MAGNA3 50-80F	50	97924282
MAGNA3 50-100F	50	97924283
MAGNA3 50-120F	50	97924284
MAGNA3 50-150F	50	97924285
MAGNA3 50-180F	50	97924286
MAGNA3 65-40F	65	97924294
MAGNA3 65-60F	65	97924295
MAGNA3 65-80F	65	97924296
MAGNA3 65-100F	65	97924297
MAGNA3 65-120F	65	97924298
MAGNA3 65-150F	65	97924299
MAGNA3 80-40F	80	97924306
MAGNA3 80-60F	80	97924307
MAGNA3 80-80F	80	97924308
MAGNA3 80-100F	80	97924309
MAGNA3 80-120F	80	97924310
MAGNA3 100-40F	100	97924311
MAGNA3 100-60F	100	97924312
MAGNA3 100-80F	100	97924313
MAGNA3 100-100F	100	97924314
MAGNA3 100-120F	100	97924315

Includes unions. Where product is flanged, appropriate pipe work counter flanges are supplied separately

Magna3D Twin Head Single Phase 230V

Type	Flange Size (mm)	Part No.
MAGNA3D 50-40F	50	97924475
MAGNA3D 50-60F	50	97924476
MAGNA3D 50-80F	50	97924477
MAGNA3D 50-100F	50	97924478
MAGNA3D 50-120F	50	97924479
MAGNA3D 50-150F	50	97924480
MAGNA3D 50-180F	50	97924481
MAGNA3D 65-40F	65	97924489
MAGNA3D 65-60F	65	97924490
MAGNA3D 65-80F	65	97924491
MAGNA3D 65-100F	65	97924492
MAGNA3D 65-120F	65	97924493
MAGNA3D 65-150F	65	97924494
MAGNA3D 80-40F	80	97924501
MAGNA3D 80-60F	80	97924502
MAGNA3D 80-80F	80	97924503
MAGNA3D 80-100F	80	97924504
MAGNA3D 80-120F	80	97924505
MAGNA3D 100-40F	100	97924506
MAGNA3D 100-60F	100	97924507
MAGNA3D 100-80F	100	97924508
MAGNA3D 100-100F	100	97924509
MAGNA3D 100-120F	100	97924510

Includes unions. Where product is flanged, appropriate pipe work counter flanges are supplied separately

Accessories

For Product Type	Size	Part No.
Pump Spares		
MAGNA spacer kit	30mm x 40mm	96281076
MAGNA spacer kit	40mm x 50mm	96281077
Union Sets		
TP 32B, UP 32B	G2" x 1¼"	509971
UP 25-xx	1½" x 1¼"	529821
UP 20-xx N, B	1¼" x ¾"	529982
ALPHA 25-40B, 25-60B, TP 25B, UP 25B	G1½" x 1"	529972
ALPHA 32-40,60, TP(E) 32, UPE, MAGNA, UP 32	1¼"	509922
Mechanical Seal Kit		
TP/TPD 32/40	12mm BUBE	96409293
TP/TPD	16mm BUBE	96409265
LM/LP/NM/NP	22mm BBUE	485278
NB, NK, TP	28mm BAQE	96488302
CH(N),(V) 2, 4	AQQE	96586305
CR/N 32-150	HQQE	96525458

Hot Water Service Circulators

Single Phase 230V

Type	Fittings	Part No.
UP20-30N	No fittings	98057221
UP20-07N	No fittings	98057201
UP20-15N	No fittings	98057205
UP20-45N	No fittings	98057222
UPS 15-50N	No fittings	97549426
UPS 25-55N	No fittings	95906772
UPS 25-80N	No fittings	98057227
UPS 32-100N	No fittings	98057249
UPS 32-55N	No fittings	95906773
UPS 32-80N	No fittings	98057247
UPS 40-50FN	No flanges	98057242
UPS 40-80FN	No flanges	95906774

*Union and flange sets for pumps supplied with no fittings/flanges are listed separately and need to be ordered as an extra item.

Unilift Submersible Pumps

KP Range

Type	Part No.
KP150-A-1 Sump pump c/w float	011K7700
KP150-AV-1 Sump pump fixed float	011K7500
KP250-A-1 Sump pump c/w float	012K7700
KP250-AV-1 Sump pump fixed float	012K7500
KP350-A-1 Sump pump c/w float	013N7800
KP350-AV-1 Sump pump fixed float	013N7900



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BURNERS, BOOSTERS & SPARES

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Gas Boosters

A range of gas boosters to lift the gas pressure where less than suitable pressure is available.

GB Series	
Description	Part No.
GB3160 3PH DSB ACO VFC M	X18234E
GB3500 3PH DSB ACO VFC M	X18235F
GB3160 Gas Booster 3PH	X18249V
GB3500 Gas Booster 3PH	X18250S
GB3160 Booster 3PMULTI-B	X18252Q
GB3160 Gas Booster 1PH	X18257M
GB3500 Booster 3PMULTI-B	X18258W
GB3160 Booster 1PMULTI-B	X18259X



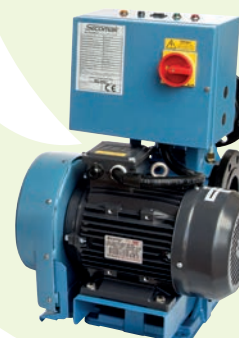
Gas Boosters

Purpose-built centrifugal fan powered by an electric motor, providing a pressure lift to the gas supply where the desired operational pressure cannot be achieved by the installation or gas supply alone. This allows sufficient gas pressure to operate Burners, Boilers and CHP's to operate efficiently and effectively.

The centrifugal design gives high performance from their small physical size, occupying less space whilst providing a lower power consumption than equivalent direct drive boosters.

Built to British Standard 8487: 2007 & 2013. Inverter driven Gas Boosters also available.

SGP Series	
Description	Part No.
SECOMAK Gas Booster 3PH	SGP535-07
535/2 c/w Install Kit	SGP535/03
535/5 c/w Install Kit	SGP535/05
535/9 c/w Install Kit	SGP535/07
540/1+Install Kit+Soft ST	SGP540/02-S
540/2+Install Kit+Soft ST	SGP540/04-S
540/3+Install Kit+Soft ST	SGP540/06-S
576/1 1PH c/w Install Kit	SGP576/04
576/1 3PH c/w Install Kit	SGP576/06





Satronic - Gas & Dual Fuel (Old to New) Chart

Burner Controllers

Old Type Mod. No.	Model	New Type Mod. No.	Model
MMI 811	35	MMI 811.1	35
		DMG 971	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 811	63	MMI 811.1	63
		DMG 971	3
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 812	23	MMI 812.1	23
		DMG 972	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 812.1	23	MMI 962.1	23
		DMG 972	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 812	33	MMI 812.1	23
		DMG 972	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 812	33 110V	MMI 962.1	33 110V
MMI 812.1	33 110V	MMI 962.1	33 110V
MMI 812	63	MMI 812.1	23
			Shorter pre-purger
		DMG 973	2
			Rewire air proving switch from term 5/7 to term. 4/7, shorter timings
MMI 813	23	MMI 813.1	23
		DMG 973	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 816		MMI 816.1	
MMI 815	5	MMI 815.1	5
			Repeating
MMI 815	10	MMI 815.1	10
			Repeating
MMG 810	32	MMG 810.1	32
		DMG 970	01*
			Rewire air proving switch from term 5/7 to terminal 4/7, ts 3 sec.
MMG 810	33	MMG 810.1	33
		DMG 970	01*
			Rewire air proving switch from term 5/7 to terminal 4/7
MMG 810	43	MMG 810.1	43
		DMG 971	03*
			Rewire air proving switch from term 5/7 to terminal 4/7
MMG 811	63	MMG 811.1	63
		DMG 971	03*
			Rewire air proving switch from term 5/7 to terminal 4/7
MMG 811	33	MMG 811.1	33
		DMG 970	01*
			Rewire air proving switch from term 5/7 to terminal 4/7
MMG 811	63F	MMG 811.1	63
		DMG 971	03*
			Rewire air proving switch from term 5/7 to terminal 4/7
MMG 816		MMG 816.1	*
			Must not be used with UVZ 780
MMG 816F		MMG 816.1	*
			Must not be used with UVZ 780
MMG 870	45	MMG 870.1	65
MMG 870	65	MMG 870.1	65

Burner Controllers

Old Type Mod. No.	Model	New Type Mod. No.	Model
IBR 661		TME 780	New wiring inc/. new base mandatory, change flame detector (rep:UVZE)
		TMG 740-3	New wiring inc/. new base mandatory, change flame detector (rep:UVZ 780)
GBR 681		DMG 970	1
GBR 681/74		DMG 970	1
			New wiring inc/. new base mandatory
TTI 790		MMI 810.1	Fail-safe air pressure switch supervision link between terminal 1 & 9 needed
TMG 720		TMG 740-3	5
TTG 760		MMG 810.1	
TFI 712F-1/TFI 712F/TFI 812	5	TFI 812.2	5
			Long pre-ignition
		TFI 812.2	5
			Without pre-ignition
		DKG 972	5
			Short pre-ignition
TFI 712-1/TFI 712/TFI 812	10	TFI 812.2	10
			Long pre-ignition
		TFI 812.2	10
			Without pre-ignition
		DKG 972	10
			Short pre-ignition
MMI 810	13	MMI 810.1	13
MMI 810	15	MMI 810.1	13
			Safety time 3 sec
MMI 810	32	MMI 810.1	33
			Safety time 3 sec
		DMG 970	1
			Rewire air proving switch from term 5/7 to terminal 4/7, ts 3 sec
MMI 810	33	MMI 810.1	33
		DMG 970	1
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 810	33 110V	MMI 810.1	33 110V
MMI 810	35	MMI 810.1	35
		DMG 970	2
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 810	40-34	MMI 810.1	40-34
MMI 810	43	MMI 810.1	43
		DMG 970	3
			Rewire air proving switch from term 5/7 to terminal 4/7
MMI 810/MMI 810.1	45 45	MMI 810.1	43
			Safety time 5 sec
		DMG 970	3
			Rewire air proving switch from term 5/7 to terminal 4/7, ts 3 sec
MMI 810	55	MMI 810.1	55
MMI 810	310	MMI 810.1	35
			Safety time 5 sec
		DMG 970	2
			Rewire air proving switch from term 5/7 to terminal 4/7, ts 3 sec



Gas Burners

These burners are available for use on natural gas, LPG, towns gas and biogas with single stage on/off, two stage high/low or modulating operation. They are typically suited for commercial hot water boiler systems and steam boiler systems.

Features and Benefits

- Quick and easy installation
- Reliable and trouble free operation
- Industry standard components available
- Most components can be easily accessed allowing for easy maintenance

MGN Series

Description	Part No.
MGN860 LN T3S 225 Burner	26-36-42013-332
MGN860 LN T3S 325 Burner	26-36-42014-332
MGN1350LN T3S 225 Burner	26-36-42053-332
MGN1350LN T3S 325 Burner	26-36-42054-332
MGN1550LN T3D 250 Burner	26-36-43238-33
MGN2000LN T3D 250SD Burner	26-36-43239-33
MGN1550LN T3D 450 Burner	26-36-43241-33
MGN2000LN T3D 450SD Burner	26-36-43242-33
MGN190 S1L 125 NAT GAS-ON/OFF-1 PH/50HZ	710000171520
MGN190 S1L 225 NAT GAS-ON/OFF-1 PH/50HZ	710000571520
MGN190 T1L 125 NAT GAS-HIGH/LOW-1 PH/50HZ	720000172520
MGN190 T1L 225 NAT GAS-HIGH/LOW-1 PH/50HZ	720001172520
MGN320 S1L 155 NAT GAS-ON/OFF-1 PH/50HZ	730000273520
MGN320 S1L 255 NAT GAS-ON/OFF-1 PH/50HZ	730001073520
MGN320 T1L 155 NAT GAS-HIGH/LOW-1 PH/50HZ	740000274520
MGN320 T1L 255 NAT GAS-HIGH/LOW-1 PH/50HZ	740000474520

Dual Fuel Burners

Dual fuel burners are most commonly used if the fuel source is intermittent. By having both gas and oil fuel options available, it ensures the downtime of the boiler is limited.

MDF Series dual fuel burners are suitable for use with natural gas, LPG, town gas, biogas and light oil. They can operate effectively with Two stage high/low gas and oil or fully modulating gas and oil operation.

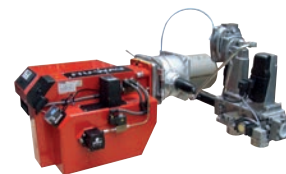
Features and Benefits

- Quick and easy installation
- Reliable and trouble free operation
- Industry standard components available
- Most components can be easily accessed allowing for easy maintenance

MDF Series

Description	Part No.
MDFL1510 T3D 296SD Burner	27-36-43501-33
MDFL1510 T3D 496SD Burner	27-36-43505-33
MDFL760 T3D 230 Burner	27-36-43551-332
MDFL1070 T3D 230 Burner	27-36-43552-332
MDFL760 T3D 330 Burner	27-36-43553-332
MDFL1070 T3D 330 Burner	27-36-43554-332

Full range of Nu-Way burners available. Sterling, 'M' + 'N' Series Oil & Gas - Contact us for full details.



Gas Burners

RS Series

Description	Part No.
RS34 MZ TC H/L GAS B 412	3789010-0231
RS34 MZ TC H/L GAS 415	3789010-0232
RS34 MZ H/L GAS BURN 420	3789010-0233
RS34 MZ TL 1PH GAS MB412	3789011.0231
RS44 MZ 1PH GAS B 412	3789110-0231
RS44 MZ 1PH GAS MB415	3789110-0232
RS44 MZ 1PH GAS B/R 420	3789110-0233
RS44 MZ 3PH GAS B/R 412	3789140-0231
RS44 MZ 3PH GAS B/R 415	3789140-0232
RS44 MZ 3PH GAS B/R 420	3789140-0233
RS130M C/W 65MM MBC1900	3789811.0222

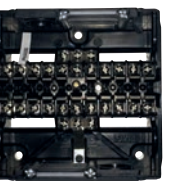
Oil Burners

RL Series

Description	Part No.
RL34.1 OIL BURNER	3470510
RL44 MZ TC 1PH OIL BURNER	3470710
RL44 MZ TC 3PH OIL BURNER	3470740
RL70 TC 3PH OIL BURNER	3471712
RL100 TC 3PH OIL BURNER	3471812
RL130 TC 3PH OIL BURNER	3471912

RIELLO





BURNERS, BOOSTERS & SPARES

BURNER SPARES

Gas Air Differential Pressure Switches

Cast Iron Valves

Range (mbar)	Difference (mbar)	MOPD (mbar)	Part No.
0.3 - 3.0	0.3 - 0.5	100	C6045D 1043
1.0 - 10.0	0.5 - 1.5	100	C6045D 1050
5.0 - 50.0	1.2 - 2.5	200	C6045D 1019
15.0 - 150.0	3.5 - 10.5	300	C6045D 1027

On Off Pressure Switches

Cast Iron Valves

Range (mbar)	Difference (mbar)	MOPD (mbar)	Part No.
2.0 - 15.0	2.0 - 6.0	25	L404F 1219
2.0 - 50.0	6.0 - 14.0	85	L404F 1243
10.0 - 150.0	10.0 - 22.0	225	L404F 1227
20.0 - 300.0	20.0 - 50.0	350	L404F 1235

Atmospheric Gas Burner Boxes

TFI Series 110V

Detection Method	Pre-purge (sec)	Lockout Time (sec)	Internal 1st to 2nd Valve Time (sec)	Part No.
IRD 1020 or Flame	5s	5s	15s	DKG972 MOD 5
Probe	10s	5s	15s	DKG972 MOD 10

Blown Gas Burner Boxes

MMI Series 230V

Detection Method	Pre-purge (sec)	Lockout Time (sec)	Internal 1st to 2nd Valve Time (sec)	Part No.
IRD 1020 or UVD 971	30s	3s	12s	MMI 810.1 MOD40-34
	34s	5s	10s	MMI 810.1 MOD 35

Blown Gas Burner with Air Damper Control

MMG Series 962.1 Mod 23

Detection Method	Pre-purge (sec)	Lockout Time (sec)	Internal 1st to 2nd Valve Time (sec)	Part No.
UVZ 780 Red	40s	3s	10s	MMG 810.1 MOD 43
	65s - 67s	5s	10s	MMG 810.1 MOD 43

Blown Gas Burner with Air Damper Control

TMG Series

Detection Method	Pre-purge (sec)	Lockout Time (sec)	Internal 1st to 2nd Valve Time (sec)	Part No.
UVZ 780 Blue	40s	15s	10s	TMG 740/3 MOD 43-35240
UVZ 780 Red	40s	3s	6s	TMG 740/3 MOD 43-35110

Flame Detection Probes

UVZ & UVD Series

Description	For	Part No.
UV detector	TMG 740-3 & SGU	UVZ 780 BLUE
	TTG 760-1 & MMG 810	UVZ 780 RED

Control Box Bases

Wiring Bases

Description	For	Part No.
Wiring base	TMG control boxes	S720-G
Universal wiring base	TF800, DK0970, MMO.872	S98
	TFI 800, MMI/MMG 810 & DKW control boxes	S98

Ignition Transformers

ZT Series

Type	Voltage	Cable Length (M)	Part No.
Ignition transformer	230V	1.5	ZT 812-1.5M
	110V	1.0	ZT 815

Gas Pressure Switches

Switches

Description	Part No.
A4 Pressure switch	LGW 10
A4 Pressure switch	LGW 50
A4 Pressure switch	LGW 150

DUNGS®
Combustion Controls



Thermocouples

Series 7000 - Universal thermocouples including fittings pack

Features

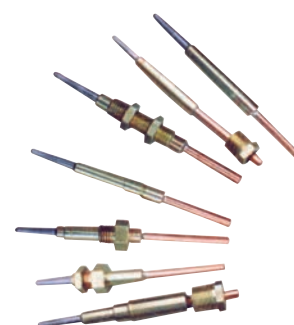
- High Quality Universal, specific duty and replacement type thermocouples
- Normal working temp. range 400 to 600°C. Max. operating temp. 1000°C
- Drop out time typically 30 to 40 seconds

7000 Series - Universal Thermocouples

Type	Size (mm)	Part No.
Ext. life	24" (600mm)	7000/EL/600MM
	36" (900mm)	7000/EL/900MM
	48" (1200mm)	7000/EL/1200MM
	72" (1800mm)	7000/EL/1800MM
Ext. life for LPG with interrupter	36" (900mm)	7000/EL/900MMA
	36" (900mm)	7001/S/900MM
Long life	36" (900mm)	7002/900MM
	36" (900mm)	7003/900MM
Super Universal	48" (1200mm)	7003/1200MM
	36" (900mm)	7003/900PLUS
Gas Fire Universal	36" (900mm)	7004/900MM

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TEKNIGAS**

A Company of Watts Industries Europe B.V.



Automatic Air Vent

Automatic air vent for use with sealed heating systems.

Features and Benefits

- Automatically vents trapped air from within a sealed heating system.
- Saves time and cost when commissioning new heating systems.
- Solid brass construction and heat resistant polypropylene float give long life and dependability.
- Available in 3/8" and 1/2" connections.
- Reduces call backs to rectify air locks, saving time and money.

Air Vent

Description	Part No.
3/8" Automatic air vent	AVEN 100 001
1/2" Automatic air vent	AVEN 100 005

RWC
RELIANCE WORLDWIDE CORPORATION
www.rwc.com



Filling Loops

Filling loops for charging sealed heating systems via temporary connection to the mains supply.

Features

- 1/8" BSP test port on isolating double check valve.
- 15mm compression connections.
- Class 3 contamination risks.
- Ball valve with lever for easy operation.
- Thumb-grip nuts on hose to allow quick connection/disconnection to mains supply.
- Conforms to Water Supply Regulations (1999)

Filmaster Filling Loop

Description	Part No.
15mm dual isolator c/w check valve	FIBV 246 208
1/2" Filling loop sealing cap and tag	BCAP 246 200



17

TECHNICAL DATA



Contents

Manufacturer	Page No
Technical Data	
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Motor Rating Chart	17.3
Fuse Rating Chart	17.4

Ingress Protection

Degrees of protection against solid foreign objects (1st characteristic numeral)			Degrees of protection against ingress of water (2nd characteristic numeral)		
Digit	Protection		Digit	Protection	
0		No Protection	0		No Protection
1		Protected against foreign objects of 50mm Ø and greater. Protected against access to hazardous parts with the back of a hand.	1		Protected against vertically falling water drops. Vertically falling drops shall have no harmful effects.
2		Protected against solid foreign objects of 12.5mm Ø and greater. Protected against access to hazardous parts with a finger.	2		Protected against vertically falling water drops when enclosure tilted up to 15°. Vertically falling drops shall have no harmful effects when the enclosure is tilted at an angle up to 15° on either side of the vertical.
3		Protected against solid foreign objects of 2.5mm Ø and greater. Protected against access to hazardous parts with a tool.	3		Protected against spraying water. Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects.
4		Protected against solid foreign objects of 1mm Ø and greater. Protected against access to hazardous parts with a wire.	4		Protected against splashing water. Water projected in splashes against the enclosure from any direction shall have no harmful effects.
5		Dust-protected. Ingress of dust is not totally prevented, but dust shall not penetrate in a quality to interfere with satisfactory operation of the apparatus or to impair safety.	5		Protected against water jets. Water projected in jets against the enclosure from any direction shall have no harmful effects.
6		Dust-tight. No ingress of dust.	6		Protected against powerful water jets. Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
			7		Protected against the effects of temporary immersion in water. Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardised conditions of pressure and time.
			8		Protected against the effects of continuous immersion in water. Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7.

Utilisation Chart / Motor Rating Chart

TECHNICAL DATA

UTILISATION CHART / MOTOR RATING CHART

Utilisation Categories	
A contactor duty is characterised by the utilisation category	
Utilisation categories for contactor relays according to IEC 337-1	
Alternating current	
AC 11	Making and breaking for normal and occasional utilisation conditions
Direct current	
DC 11	Making and breaking for normal and occasional utilisation conditions
Utilisation categories for contactor relays according to IEC 947-5-1	
Alternating current	
AC-12	Control of resistive loads and solid state loads with isolation by opto couplers
AC-13	Control of solid state loads with transformer isolation
AC-14	Control of small electromagnetic loads (< 72VA)
AC-15	Control of small electromagnetic loads (> 72VA)
Direct current	
DC-12	Control of resistive loads and solid state loads with isolation by opto couplers.
DC-13	Control of electromagnets.
DC-14	Control of electromagnetic loads having economy resistors in circuit
Utilisation categories for contactors according to IEC 158-1	
Alternating current	
AC 1	Non-inductive or slightly inductive loads, resistance furnaces
AC 3	Slip-ring motors: starting, plugging
AC 3	Squirrel-cage motors: starting, switching-off motors during running
AC 4	Squirrel-cage motors: starting, plugging, inching
Direct current	
DC 1	Non-inductive or slightly inductive loads, resistance furnaces
DC 2	Shunt motors: starting, switching-off motors during running
DC 3	Shunt motors: starting, plugging, inching
DC 4	Series motors: starting, switching-off motors during running.
DC 5	Series motors: starting, plugging, inching
Utilisation categories for contactors according to IEC 947-4-1	
Alternating current	
AC 1	Non-inductive or slightly inductive loads, resistance furnaces
AC 3	Slip-ring motors: starting, switching off
AC 3	Squirrel-cage motors: starting, switching-off motors during running
AC 4	Squirrel-cage motors: starting, plugging, inching
AC 5a	Switching of discharge lamp controls
AC 5b	Switching of incandescent lamps
AC 6a	Switching of transformers
AC 6b	Switching of capacitor banks
AC 8a	Hermetic refrigerant compressor motor control with manual resetting of overload releases
AC 8b	Hermetic refrigerant compressor motor control with automatic resetting of overload releases
Direct current	
DC 1	Non-inductive or slightly inductive loads, resistance furnaces
DC 3	Shunt motors: starting, plugging, inching. Dynamic breaking of DC motors
DC 5	Series motors: starting, plugging, inching. Dynamic breaking of DC motors
DC 6	Switching of incandescent lamps.

Motor Ratings	kW	HP	Motor Rated Current at						
			220-230V	240V	380V	415V	440V	500V	600V
0.06	1/12	0.38	0.35	0.22	0.20	0.19	0.16	0.12	
0.09	1/8	0.55	0.50	0.33	0.30	0.28	0.24	0.21	
0.12	1/6	0.76	0.68	0.42	0.40	0.37	0.33	0.27	
0.18	1/4	1.1	1	0.64	0.60	0.55	0.46	0.40	
0.25	1/3	1.4	1.38	0.88	0.85	0.76	0.59	0.56	-
0.37	1/2	2.1	1.93	1.22	1.15	1.06	0.85	0.77	0.7
0.55	3/4	2.7	2.3	1.5	1.4	1.25	1.20	1.02	0.9
0.75	1	3.3	3.1	2	2	1.67	1.48	1.22	1.1
1.1	1.5	4.9	4.1	2.6	2.5	2.26	2.1	1.66	1.5
1.5	2	6.2	5.6	3.5	3.5	3.03	2.6	2.22	2
2.2	3	8.7	7.9	5	5	4.31	3.8	3.16	2.9
2.5	3.4	9.8	8.9	5.7	5.5	4.9	4.3	3.59	3.3
3	4	11.6	10.6	6.6	6.5	5.8	5.1	4.25	3.5
3.7	5	14.2	13	8.2	7.5	7.1	6.2	5.2	4.4
4	5.5	15.3	14	8.5	8.4	7.6	6.5	5.6	4.9
5	6.8	18.9	17.2	10.5	10	9.4	8.1	6.9	6
5.5	7.5	20.6	18.9	11.5	11	10.3	8.9	7.5	6.7
6.5	8.8	23.7	21.8	13.8	12.5	12	10.4	8.7	8.1
7.5	10	27.4	24.8	15.5	14	13.5	11.9	9.9	9
8	11	28.8	26.4	16.7	15.4	14.4	12.7	10.6	9.7
9	12.5	32	29.3	18.3	17	15.8	13.9	11.6	10.6
11	15	39.2	35.3	22	21	19.3	16.7	14.1	13
12.5	17	43.8	40.2	25	23	21.9	19	16.1	15
15	20	52.6	48.2	30	28	26.3	22.5	19.3	17.5
18.5	25	64.9	58.7	37	35	32	28.5	23.5	21
20	27	69.3	63.4	40	37	34.6	30.6	25.4	23
22	30	75.2	68	44	40	37.1	33	27.2	25
25	34	84.4	77.2	50	47	42.1	38	30.9	28
30	40	101	92.7	60	55	50.1	44	37.1	33
37	50	124	114	72	66	61.9	54	45.4	42
40	54	134	123	79	72	67	60	49.1	44
45	60	150	136	85	80	73.9	64.5	54.2	49
51	70	168	154	97	90	83.8	73.7	61.4	56
55	75	181	166	105	96	90.3	79	66.2	60
59	80	194	178	112	105	96.9	85.3	71.1	66
75	100	245	226	140	135	123	106	90.3	82
80	110	260	241	147	138	131	112	96.3	86
90	125	292	268	170	165	146	128	107	98
100	136	325	297	188	182	162	143	119	107
110	150	358	327	205	200	178	156	131	118
129	175	420	384	242	230	209	184	153	135
132	180	425	393	245	242	214	186	157	140
140	190	449	416	260	250	227	200	167	145
147	200	472	432	273	260	236	207	173	152
160	220	502	471	295	280	256	220	188	170
180	245	578	530	333	320	289	254	212	192
184	250	590	541	340	325	295	259	217	200
200	270	626	589	370	340	321	278	235	215
220	300	700	647	408	385	353	310	260	235
250	340	803	736	460	425	401	353	295	268
257	350	826	756	475	450	412	363	302	280
295	400	948	868	546	500	473	416	348	320
315	430	990	927	580	535	505	445	370	337
355	480	1080	1010	636	580	549	483	405	366
400	545	1250	1130	710	650	611	538	450	410
450	610	1410	1270	800	740	688	608	508	460
475	645	1490	1340	850	780	730	645	540	485
500	680	1570	1420	890	830	770	680	565	510
560	760	1750	1580	1000	920	860	760	630	570
600	810	-	-	1080	990	920	810	680	610
670	910	-	-	1200	1100	1030	910	760	680

Direct-on-line starting			
Motor FLC Amp		Recommended fuse link Type gG Amp	Recommended fuse link Type gG Amp
From	to		
0	0.7	2	
0.8	1.4	4	
1.5	2.0	6	
2.1	3.0	10	
3.1	6.1	16	
6.2	9.0	20	
9.1	11.0	25	20M25
11.1	14.4	32	20M32
14.5	15.4	35	32M35
15.5	18.0	40	32M40
18.1	22.0	50	32M50
22.1	28.0	63	32M63
28.1	45.0	80	63M80
45.1	58.0	100	63M100
58.1	80.0	125	100M125
80.1	99.0	160	100M160
99.1	128.0	200	
128.1	180.0	250	200M250
180.1	216.0	315	200M315
216.1	270.0	355	315M355
270.1	328.0	400	
328.1	385.0	450	400M450
385.1	430.0	500	
430.1	500.0	560	
500.1	560.0	630	
560.1	620.0	670	630M670

Assisted starting - Star-delta, auto-transformer, etc.			
Motor FLC Amp		Recommended fuse link Type gG Amp	
From	to		
0	1.4	2	
1.5	2.1	4	
2.2	3.1	6	
3.2	5.5	10	
5.6	1.0	16	
10.1	1.4	20	
14.1	1.8	25	
18.1	22.0	32	
22.1	28.0	35	
28.1	32.0	40	
32.1	40.0	50	
40.1	5.1	63	
51.1	80.0	80	
80.1	100.0	100	
100.1	125.0	125	
125.1	160.0	160	
160.1	200.0	200	
200.1	250.0	250	
250.1	315.0	315	
315.1	355.0	355	
355.1	400.0	400	
400.1	450.0	450	
450.1	500.0	500	
500.1	560.0	560	
560.1	630.0	630	

These recommendations apply for ambient temperatures up to 35°C.

Suitable adjustments to the recommended ratings may be necessary if any of the following conditions occur singly or in combination:

- a) Starting currents in excess of the assumed ones.
- b) Long run up times due to high inertia loads.
- c) Larger number of starts per operating cycle (the recommendations allow for two starts in rapid succession and up to eight starts per hour).
- d) High enclosure temperature.