

4

INPUT/OUTPUT MODULES

Contents

Manufacturer	Page No
Input/Output Modules	
Sontay	4.2
Electro Controls	4.3
Titan	4.3
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

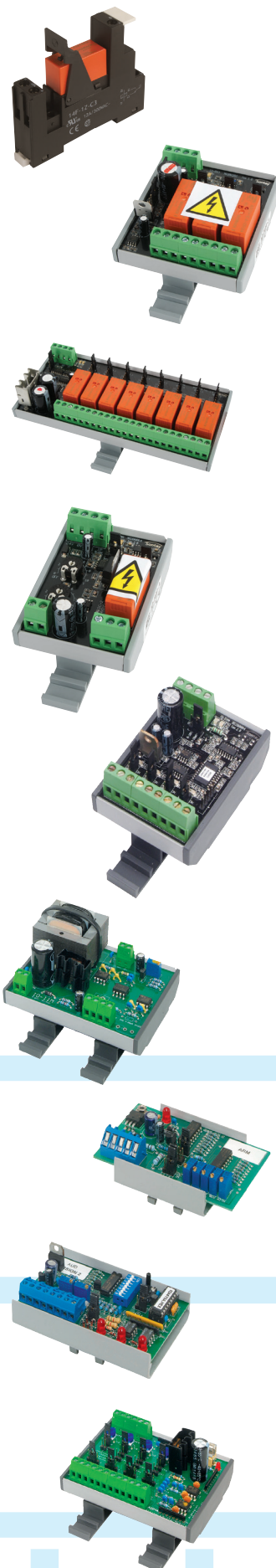
Intended for applications which require independent manual override of analogue output channels from a BMS controller, as a fail-safe in the event of controller failure. Enables actuators to be manually overridden from the panel where local access is difficult. Also useful for commissioning or temporary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

Features

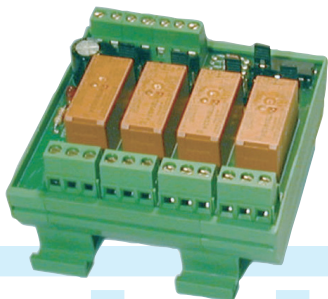
- 4 x 0-10V DC channels
- Hand/off/auto link selectable
- Manual adjustment of output signal
- 24V AC/DC powered
- Up to four outputs to be controlled from one input
- Direct or buffered output signals

IO-ABM4 Series

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



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

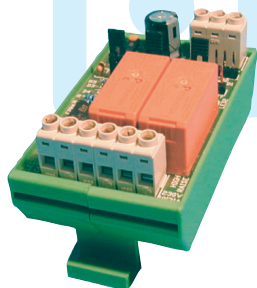
These products accept a 0-10V DC input and produce a 2-stage relay output which can be used for external plant switching. HIGH/LOW or RAISE/LOWER functions can be selected for multi staged heating & Cooling.

Features

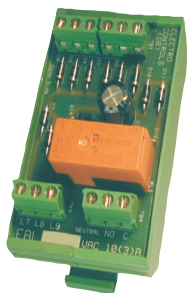
- DIN rail mounted

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

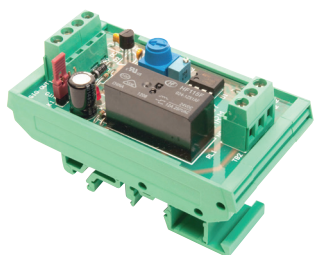
Input/Output Modules

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.

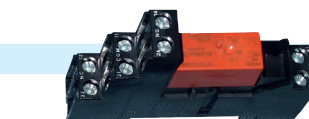
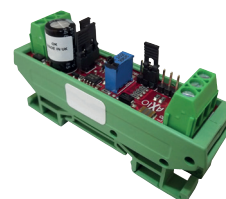
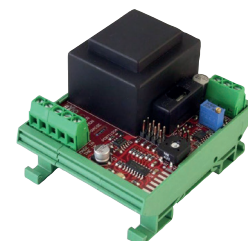
Features

- 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

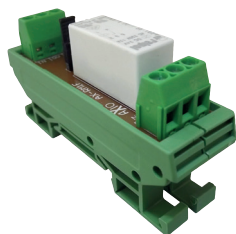
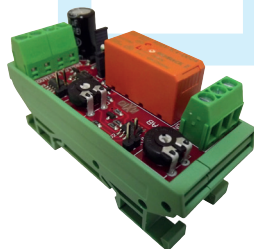
AX-RM1 Series

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

