

MODEL AAMR - DUAL SETPOINT ANALOG ALARM MODULE



- SELECTABLE ANALOG INPUTS (0 to 10 VDC or 0 to 20 mA)
- 0 to 100% FULL SCALE RELAY TRIP POINT ADJUSTMENTS
- 20 to 30 VDC MODULE POWER $\pm 2\%$ ZERO/SPAN
- FORM C RELAY OUTPUTS RATED 3 A, 250 VAC/DC
- REPEATABILITY BETTER THAN 0.1% FULL SCALE
- ACCURACY GREATER THAN 0.5% FULL SCALE

UL UL Recognized Component,
 File #E171375



DESCRIPTION

The Dual Setpoint Module is specifically designed to address the rigorous demands of process control applications. The flexibility of either internal or external alarm set point adjustments and DIN rail mounting, creates many installation possibilities.

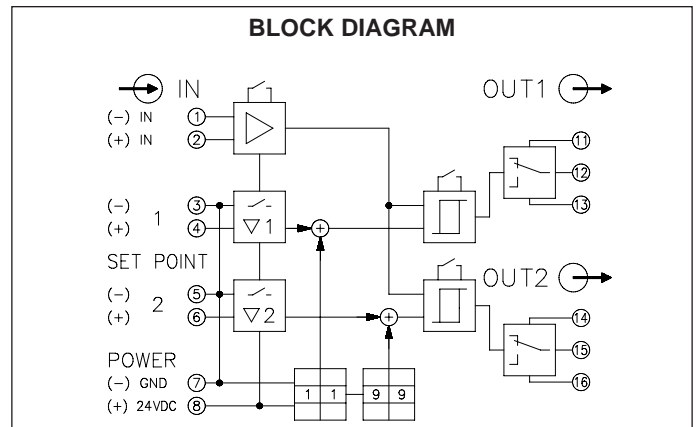
The setpoint module accepts either 0(4) to 20 mA or 0 to 10 VDC analog input signals. The input signal level is selected by a series of DIP switches found behind the module's side door. DIP switch selectable variables include a 1% setpoint hysteresis and normally open/normally closed selectable alarm relay action.

The two digit, thumbwheel switches located on the top of the module allow for easy adjustment of the alarm setpoints. A corresponding yellow LED indicates the status of the relay contact for each setpoint.

Each setpoint has a 0 to 4 second on-delay timer adjustment. This on-delay adjustment is very useful in applications involving turbulence. The time delay will eliminate relay chatter caused by any analog level process signal's quick fluctuation.

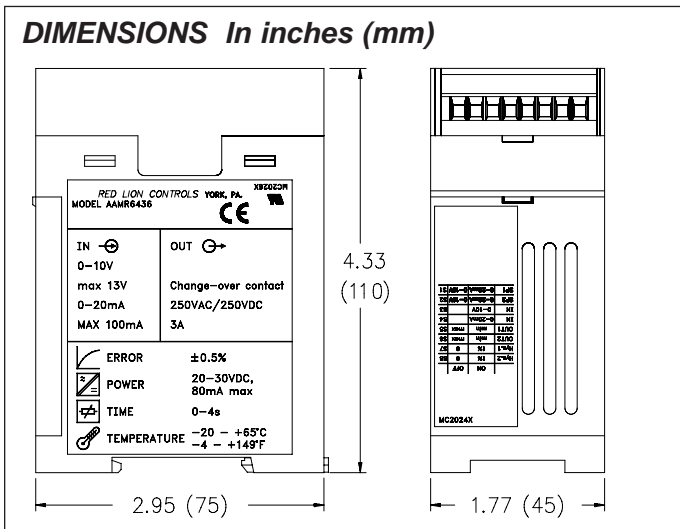
The setpoint module contains a $\pm 2\%$ zero and span adjustment for fine calibration of the setpoint trip points. The zero and span adjustments are found in the same area as the DIP switch adjustments.

The module's environmental operating temperature range is -20°C to $+65^{\circ}\text{C}$. The modular high density packaging and mounting saves time and panel space. The modules snap onto standard 35 mm flat DIN rail.



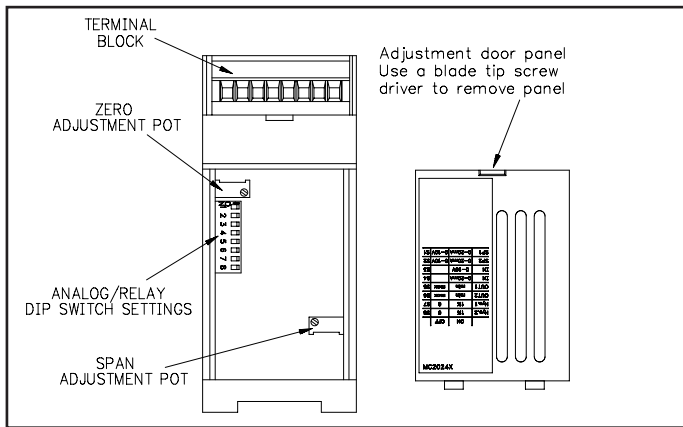
SPECIFICATIONS

- POWER SUPPLY VOLTAGE:** 20 to 30 VDC @ 80 mA
- INPUT SIGNALS:** 0 to 10 VDC, 0 (4) to 20 mA - DIP switches 1 to 4
 Max. Allowable Input Signal Level: 13 VDC, 100 mA
- RESPONSE TIME:** 15 msec max.
- INPUT RESISTANCE:**
 Current: $\leq 100 \Omega$
 Voltage: $\geq 100 \text{ K}\Omega$
- INPUT PROTECTION:** Surge suppressor diodes
- SETPOINT RANGE:** 0 to 10 VDC or 0 (4) to 20 mA
 Range: 0 to 99% of Input Range
 Hysteresis: 1% - DIP switches 7 & 8
- ZERO/SPAN CALIBRATION ADJUSTMENTS:** $\pm 2\%$ 0.1 mA, 1.0 mA
- OUTPUT TYPE:** 2 Form C contacts max. rating 3 A @ 250 VAC/DC
 Contacts: Silver Cadmium Oxide (Ag CdO)
 Relay Output Time Delay: 0 to 4 seconds
- ACCURACY:** $\leq 0.5\%$ full scale
- REPEATABILITY:** $\leq 0.1\%$ full scale
- OPERATING TEMPERATURE RANGE:** -20 to $+65^{\circ}\text{C}$ (-4 to 149°F)
- TEMPERATURE COEFFICIENT:** 100 ppm/K
- CONSTRUCTION:** Case body is green, high impact plastic
- CONNECTIONS:** 14 AWG wire max.
- MOUNTING:** Standard DIN top hat (T) profile rail according to EN50022-35 x 7.5 and 35 x 15.
- WEIGHT:** 7.46 oz (211.37 g)



ORDERING INFORMATION

MODEL	DESCRIPTION	PART NUMBER
AAMR	Dual Setpoint Analog Alarm	AAMR6436



INPUT

The Dual Setpoint Module is capable of accepting both voltage and current process level signals. The module's analog input circuits are protected by transient suppressor diodes which guard against short circuits and voltage switching transients. Maximum analog input voltage and current is 13 VDC and 100 mA respectively. The analog input circuit is then routed to the threshold setpoint switches where a comparison is made between the external setpoint circuit and the module's decade switch setpoint circuit. The module's setpoints always hold (minimum setpoint level) priority over the external analog setpoint signal inputs, Terminals 3, 4, 5 and 6.

OUTPUT SETPOINTS AND TIME DELAYS

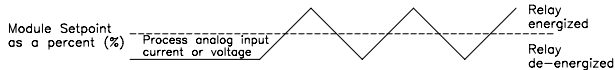
Each setpoint is capable of a 0 to 4 second on-delay or delay on operate alarm relay output function. This time delay feature is very valuable when monitoring processes that fluctuate momentarily due to such things as wave action about an analog level sensor. The 0 to 4 second time delay eliminates nuisance relay tripping or chattering.

RELAY SETTINGS (MIN/MAX)

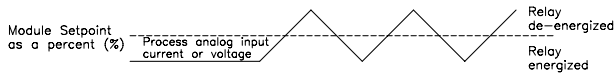
Each setpoint controls a 3A/250 VAC/DC SPDT mechanical relay. The module's DIP switch setting (S5 and S6) control the relay's response as each relay reaches its respective setpoint threshold. The relay action can be inverted by positioning DIP switches S5 and S6 in the ON or OFF position. Relay status is indicated by a yellow LED which is found on the top of the module above each timer potentiometer.

MIN/MAX DIP SWITCH POSITION RELAY TRUTH TABLE

MAX Relay Setting
DIP Switch 5/6 OFF



MIN Relay Setting
DIP Switch 5/6 ON



ANALOG/RELAY DIP SWITCHES

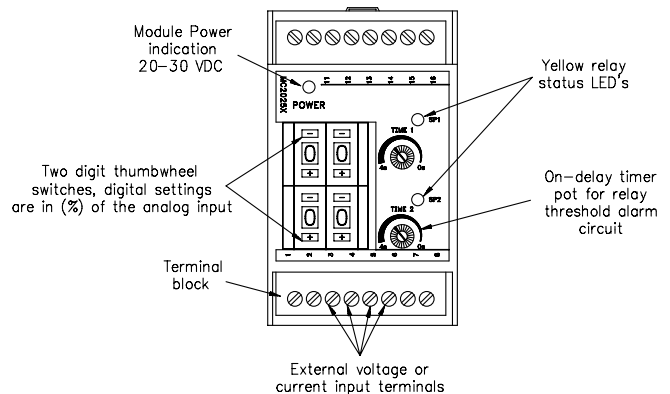
	ON	OFF
1	SP1 0-20mA	0-10V
2	SP2 0-20mA	0-10V
3	IN 0-10V	
4	IN 0-20mA	
5	OUT1	MIN MAX
6	OUT2	MIN MAX
7	HYS1	1% 0
8	HYS2	1% 0

EXTERNAL ANALOG SETPOINT FUNCTION

The AAMR6436 features an ability to accept up to two external voltage or current setpoint inputs. These external analog inputs are evaluated in the module's comparator circuit which compares the module's thumbwheel switches setpoints with the incoming external current or voltage value.

Applying an external voltage or current, [the external analog setpoint inputs must match the analog process input. If the module is configured for 0 to 10 VDC, the external inputs must be 0 to 10 VDC] to Terminals 3 and 4 (setpoint 1) and/or Terminals 5 and 6 (setpoint 2), creates an additive effect to the threshold circuit.

Example: the setpoint module is configured for a 0 to 10 VDC analog input signal, and setpoint 1 thumbwheel switch is set at 60 (60%) which is equivalent to a 6 V relay setpoint. By introducing a 1 VDC signal onto Terminals 3 and 4, the effective alarm threshold is now 70 or 7 VDC.



The same example can be applied to 0 to 20 mA analog input signals. Introducing an external mA signal now increases the threshold trip point.

By setting both module setpoint thumbwheel switches to 0 (0%), it is now possible to have full control of the relay threshold setpoints externally.

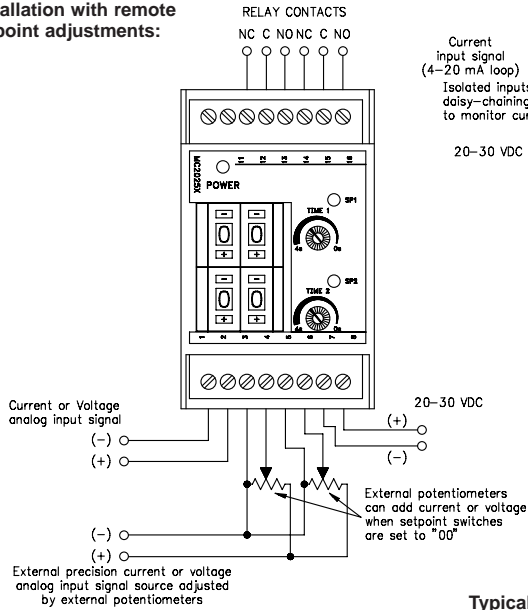
Note: The modules' thumbwheel (%) trip point values hold precedence over the external analog threshold values. The external analog values can only be added to existing module thumbwheel setpoint values.

MODULE'S POWER SUPPLY

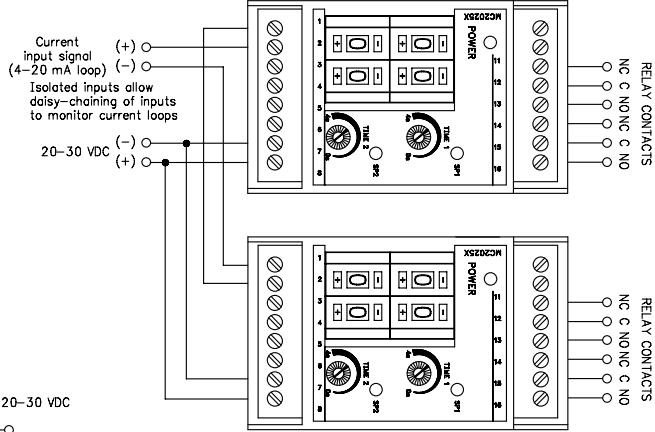
The module's power supply input is protected from wiring short circuits and voltage transients by a suppressor diode. Overall module current consumption is less than 80 mA with relays activated.

WIRING DIAGRAMS

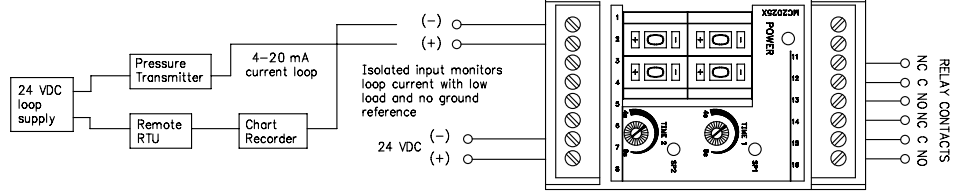
Typical single module installation with remote setpoint adjustments:



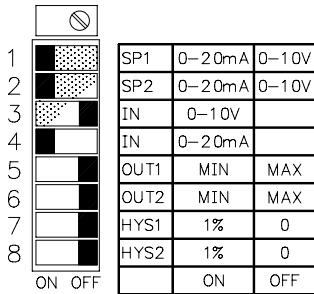
Typical dual module installation:



Typical current loop installation:

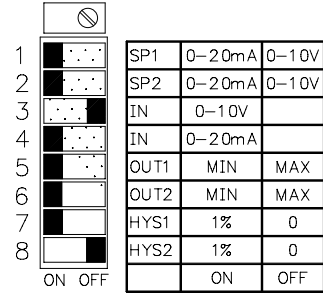


CONFIGURATION 1



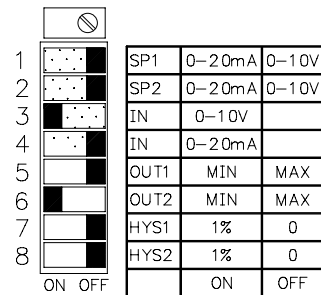
- 0 (4)-20 mA analog input signal
- Relays de-energized below setpoint (max)
- Terminal 3, 4, 5 and 6 can accept an external mA input for set point adjustment
- No hysteresis on the setpoints

CONFIGURATION 2



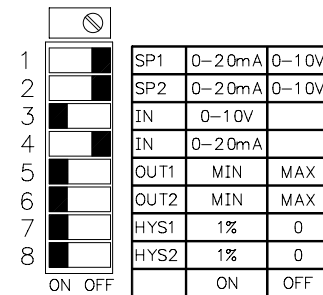
- 0 (4)-20 mA analog input signal
- Relays energized below set point (min)
- Terminal 3, 4, 5 and 6 can accept an external mA input for set point adjustment
- 1% hysteresis on set point (1)

CONFIGURATION 3



- 0 - 10 VDC analog input signal
- Relay (1) de-energized below setpoint (max)
Relay (2) energized below setpoint (min)
- Terminal 3, 4, 5 and 6 can accept an external voltage for set point adjustment
- No hysteresis on the setpoints

CONFIGURATION 4



- 0 - 10 VDC analog input signal
- Relays energized below set point (min)
- Terminal 3, 4, 5 and 6 can accept an external voltage for setpoint adjustment
- Both set points 1% hysteresis

LIMITED WARRANTY

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to one year from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company's liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company's option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

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