Dual Trip Amplifiers 4002ALM

The 4002ALM trip-amplifier can accept a wide range of input types. The unit can have up to two relay outputs and can also produce an isolated 4-20mA re-transmission output.

- Wide range of configurable inputs
- Configurable trip action with fail-safe modes
- Optional isolated re-transmission
- Optional isolated transmitter supply
- Optional LED display or 0-10V signal output of input and setpoints values

Options and ordering codes

4002ALM	HL	-	A	A	-	XX	-	4	AB

Input type		
4-20mA	HL	A
0-20mA	HL	B
0-30mA 2 sec delay	HL	C
0-1mA	HL	D
0-5VDC	HL	E
1-5VDC	HL	F
0-10VDC	HL	G
18-26VDC	HL	H
Type K 0-150˚C	TC	P
Type K 0-200˚C	TC	Q
Type K 0-250˚C	TC	R
Type K 0-500˚C	TC	S
Type K 0-600˚C	TC	T
Type K 0-1200˚C	TC	U
Type J 0-250˚C	TC	W
Pt100 3 wire ±100˚C	RTD	Y
Pt100 3 wire ±50˚C	RTD	Z
Pt100 3 wire ±30˚C	RTD	1
Pt100 3 wire 0-50˚C	RTD	2
Pt100 3 wire 0-100˚C	RTD	3
Pt100 3 wire 0-150˚C	RTD	4
Pt100 3 wire 0-200˚C	RTD	5
Pt100 3 wire 0-250˚C	RTD	6
Pt100 3 wire 0-400˚C	RTD	7

Output options	
A	4-20mA re-transmission
X	No re-transmission

Supply type	
230/115VAC	4
24VDC	6

Options	
A	LED display
B	Tx supply
AB	LED and Tx supply

Other ranges and thermocouple types are available as detailed in the product description, please contact our sales department.

Dual Trip Amplifiers 4002ALM continued

Description

The relay outputs are single pole change-over relays with mains voltage rating. Each trip can be configured so that the alarm condition can be above or below the setpoint. The relays can be energised or de-energised in the alarm condition, satisfying fail-safe and non-fail-safe applications. In addition the alarm LEDs can be selected to light when the relay is either on or off.

The input stage is isolated as standard with the inputs user-reconfigurable to cover several different ranges if specified at point of order. In addition there is an optional isolated transmitter supply of 24Vdc, suitable for exciting most standard transmitters.

The following applications are also possible:

One output relay is energised when the input reaches the high setpoint and is latched on until the lower setpoint is reached. The reverse operation is also possible. This is ideal for applications such as pumping out. All the above options are user-configurable but can be specified at point of order. Default configuration is set to Hi/Hi alarms with LED on when relay energised. Please specify at time of ordering if other combinations are required.

Inputs

The input types and ranges following are our standard ones only. Contact sales for others.

4002ALM - HL for DC Current and Voltage
0-20mA, 4-20mA, 0-10mA into 15Ω/30Ω

0-1V, 0-10V, 1-5V, into 100kΩ/1MΩ

Min and Max full scale ranges:

DC current	0 to 50μA	0 to 10A
DC voltage	0 to 100mV	0 to 300V

Note: For input voltages greater than 30Vac or 60Vdc a divider unit must be specified.

4002ALM - TC for Thermocouples
Types E, J, K, N, R, S and T non-linearised

Ranges 0-250, 0-500, 0-1200˚C (Others available)

Auto cold junction compensation. Open cct t/c can drive either upscale or downscale

4002ALM - RTD for Resistance Thermometers
2 or 3 wire Pt100 or other, linearised output

Ranges 0-250, 0-500, -100-100˚C (others available)

Outputs

Mains Rated Relays
03A resistive at 240Vac

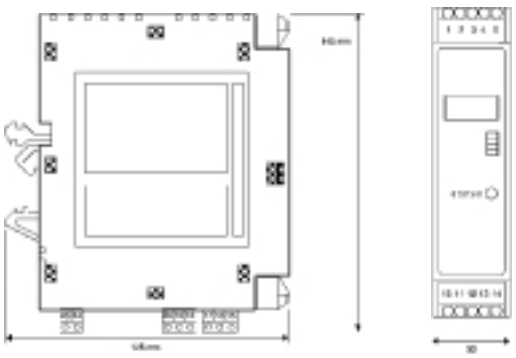
DC Current and Voltage
0-20mA, 4-20mA, 0-10mA into 750Ω

0-1V, 0-10V, 1-5V into a minimum 2kΩ

Specification

Parameter	Min	Typ	Max	Comments
Supply voltage		24Vdc		Options: 24Vdc or 24Vac, 110Vac, 240Vac
Supply current	20mA	50mA	160mA	24V supply (max if both relays energised)
Input impedance (volt)	100kΩ	1MΩ	10MΩ	Dependent on range (Typ=10V)
Input impedance (mA)	0.02Ω	15Ω	5kΩ	Dependent on range (Typ=20mA)
Volt drop (mA input)		0.3	0.35	At 20mA input on 0(4) to 20mA range
Trip point accuracy			±0.25%	
Temperature coefficient			±100ppm/˚C	
Trip point drift			±100ppm/˚C	
Relay response time		10ms		Signal response 300ms for T/C, 30ms others
Operating ambient	0˚C		55˚C	
Relative humidity	0%		90%	
Isolation voltage	1kV			
Surge voltage	2.5kV for 50μS			Transient of 10kV/μS
Notes	Setpoints are adjusted by 20 turn potentiometers on the front panel. Setpoints can be checked by measuring 0-10V (0-100%) voltage on the front panel terminals. H/H, H/L, L/H, LL, fail-safe, non-fail-safe and LED options are user selectable using internal links. Hysteresis is set at 1.0% but other values are possible, please specify if required. The process input level is available as 0-1V (0-100%) on front panel or on 3 digit LED display. Figures based on HL version, 24Vdc supply, 20˚C ambient.			

Dimensions and connections



10. Input -ve	T/C -ve	RTD -ve	15. Relay 1 N/C
11. Input +ve	T/C +ve	RTD +ve	16. Relay 1 N/O
12.	T/C shield	RTD 3rd wire	17. Relay 1 common
1. Output -ve			18. Relay 2 N/C
2. Output +ve			19. Relay 2 N/O
24. Power input -ve			20. Relay 2 common
25. Power input +ve			
13. Trans supply -ve			
14. Trans supply +ve			