

Installation Instructions for: CGi420R 4-20mA Interface with Output Relays

The CGI420R is a 4-20mA analogue module to interface with Gas Detectors and is compatible with Cooper addressable control panels. This interface has a unique address on the Cooper addressable loop. It has a built in isolator for short circuit protection and three relay outputs. Each relay is separately programmable with its own sensitivity level that can be expressed as a percentage of L.E.L (Lower Explosion Limit) or PPM (Parts per million) by setting DIL switches (see table 1).

Installation

General Operation

Each relay will be controlled by an 8-way DIL switch, 7 of which will be used to set the activation threshold in steps of 5% between 4 and 20mA (see table 1).

When the threshold is reached, the corresponding relay is activated.

The 8th Position DIL Switch is used to select 'tracking' and will operate as follows:

	Tracking switch set to 'ON'	Tracking switch set to 'OFF'
Pre-Alarm 1 threshold exceeded (DIL SWITCH JP1)	<input type="checkbox"/> Relay 1 operate <input type="checkbox"/> Panel displays pre-alarm 1, <input type="checkbox"/> No fire LED	<input type="checkbox"/> Relay 1 operate <input type="checkbox"/> No Indication on the panel
Pre-Alarm 2 threshold exceeded (DIL SWITCH JP2)	<input type="checkbox"/> Relay 2 operate <input type="checkbox"/> Panel displays pre-alarm 2, <input type="checkbox"/> No fire LED	<input type="checkbox"/> Relay 2 operate <input type="checkbox"/> No Indication on the panel
Alarm (threshold exceeded (DIL SWITCH JP3)	<input type="checkbox"/> Relay 3 operate <input type="checkbox"/> Panel displays Alarm Condition <input type="checkbox"/> Fire LED ON. <input type="checkbox"/> Panel Cause & effect programming active	<input type="checkbox"/> Relay 3 operate <input type="checkbox"/> No Indication on the panel

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.
5. Recommended Loop Cable Type: FIRETUF, FP200, MICC

Notes:

No addressing of the interface is required. See control panel operation for details.

There are no serviceable parts so no maintenance procedures apply.

Cooper Lighting and Safety Ltd.

Wheatley Hall Road, Doncaster, South Yorkshire, DN2 4NB, United Kingdom

Sales
Tel: +44 (0)1302 – 303303
Fax: +44 (0)1302 – 367155
sales@cooperfire.com

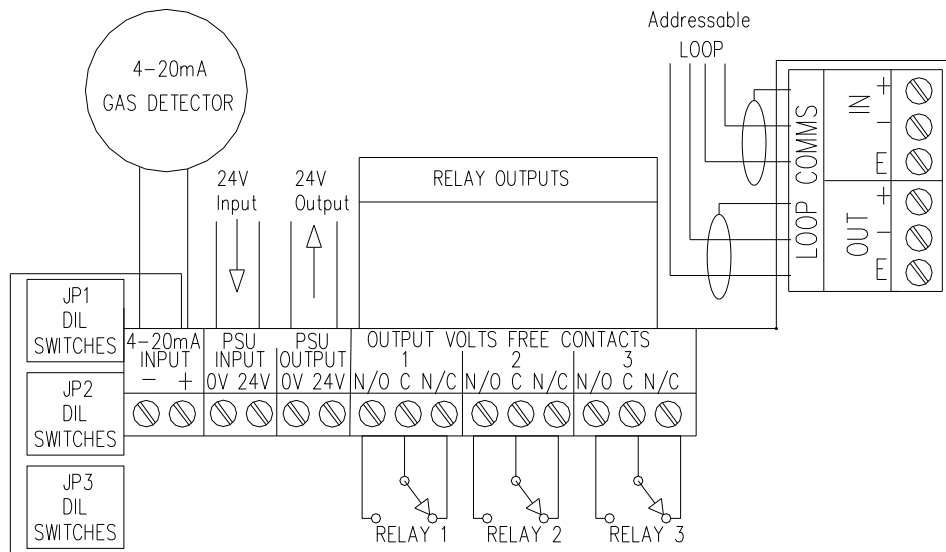
Technical
Tel: +44 (0)1302 – 303350
Fax: +44 (0)1302 – 303340
techsupport@cooperfire.com

Export
Tel: +44 1302 – 303250
Fax: +44 1302 – 303345
export@cooperfire.com

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COOPER Safety
Fire Systems

Standard Connections



Notes:

1. Only connect cable screen to its adjacent earth terminal.
2. Output relays are volt-free contacts and are not monitored.
3. Sensitivity is set by DIL switch's JP1, JP2 and JP3.
4. 24V External power supply is required

Specifications

Loop Load	Min	Nom	Max	Units
Quiescent Current		310		μA

Operating Loop Voltage	18.5		30	V DC
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Inputs	4		20	mA
External PSU	15V		30V	V DC

Output Relays				
Switching Voltage		24	30	V DC
Contact Rating			1	A
Switching Power			30	W

Environmental				
Operating Temperature	-10		+60	°C
Humidity (Non Condensing)			95	%RH

Standards
EN54 : Pt17
EN54 : Pt18

Compatibility
Suitable for use with Cooper Analogue Addressable Fire Systems (800 series protocol PR200-07-400)

Physical	
Dimensions	147 x 88 x 57 (mm)
Weight	0.25kg
Ingress Protection	IP40

Percentages	8	DIL switches to set, ON = 1						
		7	6	5	4	3	2	1
0%	Tracking Bit - ON activates relays and passes fire and pre-alarms to the panel, OFF activates the relays only	0	0	1	0	0	0	0
5%		0	0	1	0	0	1	1
10%		0	0	1	0	1	1	0
15%		0	0	1	1	0	0	1
20%		0	0	1	1	1	0	1
25%		0	1	0	0	0	0	0
30%		0	1	0	0	0	1	1
35%		0	1	0	0	1	1	0
40%		0	1	0	1	0	1	0
45%		0	1	0	1	1	0	1
50%		0	1	1	0	0	0	0
55%		0	1	1	0	0	1	1
60%		0	1	1	0	1	1	1
65%		0	1	1	1	0	1	0
70%		0	1	1	1	1	0	1
75%		1	0	0	0	0	0	0
80%		1	0	0	0	1	0	0
85%		1	0	0	0	1	1	1
90%		1	0	0	1	0	1	0
95%		1	0	0	1	1	0	1
100%	1	0	1	0	0	0	1	

Table 1: Setting of Dil Switches JP1, JP2 and JP3

Short Circuit Isolator

This addressable device contains an integral short circuit isolator, which operates between the – IN terminal and the – OUT terminal. The isolator operates in conjunction with the Cooper Addressable Control Panel when a low parallel resistance fault of typically 200Ω is present between the +VE and –VE of the loop wiring.

Short Circuit Isolation Data (Integral with each device)	
Total Loop Resistance for correct operation of short circuit isolator	50Ω (max)
Parallel Fault Resistance to be seen at the Control Panel for isolators to open	200Ω (typ)
Continuous Current allowable through isolator	700mA (max)
Isolator Resistance in closed state	0.26Ω (max)
Leakage Current into direct short circuit with isolator open	14mA (max)
Voltage at which isolator changes from open to closed or closed to open state	3.8V to 11V
Maximum switching current to isolator	1.5A