

F4002 Two Analog Input Device Control Card

Two 4-21 mA analog input card, with two thresholds that can be set through the panel keyboard. It can control all the 4-20 mA output transducers normally used for EXPLOSIVE and TOXIC GAS, OXYGEN, TEMPERATURE and LEVEL sensors.



Main Characteristics

- Redundant (note 1)
- Can be hot-swapped (note 2)
- Suitable for applications fault-tolerant SIL2 and SIL3 in accordance with IEC 61508
- Two separate and independent channels
- Two separately settable alarm thresholds per channel
- Two 0-999 displays read engineered values
- Values can be expressed in ppm, LEL%, O2%, mA, °C
- Transparent plastic pockets to contain labels indicating selected measuring scale
- Two 4-21 mA inputs
- Input repetition on 4-20 mA outputs in terminal block and serial Modbus RTU
- Communication management by FPGA
- Internal logic management by micro-controller
- SMD technology multilayer circuit
- Front plug-in on 19" rack, with locking screws

LED Indications

Status	2nd Level	1st Level	Fault	Indication
	Red LED	Red LED	Yellow LED	Display
Normal	-	-	-	000 ÷ 999
Pre-alarm	-	∅	-	Read value
Alarm	⊗	⊗	-	Read value
Channel disabled	-	-	⊗	- - -
Card not configured	-	-	∅	F00
Fault for line opening	-	-	∅	F01
Fault for exceeded range	-	-	∅	F02
Trouble for internal test failure	-	-	∅	F03
Atypical or out-of-range current	-	-	∅	FXX (mA)
Data error in EEPROM	-	-	∅	E00
Threshold value not valid	-	-	∅	E01
Range not supported by card	-	-	∅	E02
Detector being calibrated	-	-	-	CAL
<i>LED status legend</i> ⊗ = on - = off ∅ = blinking				

Parameter Configuration Via Software

Parameter	Mode
Normal operating mode	Increasing or decreasing value (up/down)
Logic status of the latching/non latching channel	Latching/Non-latching (Note 3)
Alarm modality	Normal/Silent/Buzzer only
Analog value repetition on Modbus	Yes/No
Measurement expressed in:	Range:
ppm	0~5; 0~10; 0~15; 0~20; 0~50; 0~100; 0~200; 0~500; 0~999
LEL %	0~100
O ₂ %	0~25; 15~25
mA	4~20
°C	0~100; 0~150; 0~220; 0~300

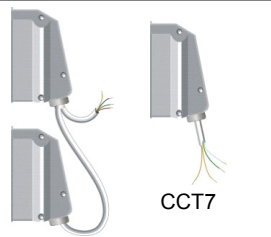
Calibration

Card calibration can be made directly from panel keyboard, at access level 3. At this level, it is possible to set pre-alarm and alarm thresholds, as well as zero and full scale values, applying a known value sample to sensor input.

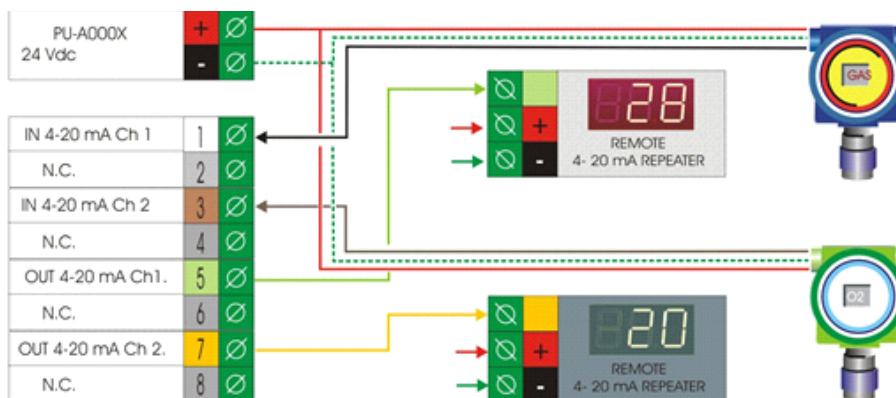
Connection Via Cable Plug

Connection between the card and the field is carried out by means of a special cable, provided with a plug-in connector at one of its ends. Cable conductors are wired directly onto a marshaling terminal block, while the connector is plugged into the back of the rack.

Function		Connection with PLUG CABLE	
Input signal 1	+	1	White
---		2	---
Input signal 2	+	3	Brown
---		4	---
Output signal 1	+	5	Green
---		6	---
Output signal 2	+	7	Yellow
---		8	---



Connection example of a sensor and a repeater



NOTE:

1. **Redundancy** - In fault-tolerant systems, this card has to be duplicated, i.e. two cards are to be used, which must be installed in two contiguous racks. Each input line from the field has to be connected to both cards and its exclusion is only possible from both of them.
2. **Hot Swap** - The card can be removed and replaced without switching off the panel.
3. **Latching Mode** - An alarm status persists until reset.