LIQUID LEAK DETECTION SYSTEMS
OIL & GAS DIVISION

FG-ALS4-OD

Four Zones Alarm & Locating System Unit for Hydrocarbon Sense Cables

Installation Instructions

Installation Instructions FG-ALS4-OD

1 Panel Mounting

- Fix the panel to the wall using 4 screws (not included).
- Five push through holes are available for the installation of the PG11 glands.
  1. Power supply
  2. Relays
  3. Outputs 1&2
  4. Outputs 3&4
  5. JBUS/MODBUS
- Knock out the push through holes from the outside.
- Connect all plug-in terminals (refer to step 2).
- Plug the terminals.
- Close the enclosure by inserting the top side, then push the bottom. Lock with the two available screws.
- Power up from the fuse spur.

2 Electrical Connections

- Connect the sense cables following this color code:
  B : White
  C : Black
  D : Red

  No need to terminate the unused outputs.
  The wiring diagram is on the back page.
- Connect the relays :
  COM : Common
  NC : Normally Close
  NO : Normally Open
- Five relays are available on FG-ALS4-OD:
  Relay 1 = leak section 1
  Relay 2 = leak section 2
  Relay 3 = leak section 3
  Relay 4 = leak section 4
  Relay 5 = cablebreak all sections
- Connect the power supply following the signs:
  Ground sign : Ground
  N : Neutral
  L : Live

  Power supply : 100-240VAC 50/60Hz 0.25A

3 Capacity

- The FG-ALS4-OD panel is designed to receive up to 4 sense cables FG-OD by panel.

  The sense cables can be connected freely on each output without bypassing the 4 sense cables in total.

  It is possible to:
  - connect one FG-OD sense cable per output;
  - or two sense cables on the first output, plus one cable on the second output and one cable on the third output, no cable on the fourth output;
  - or four cables on the first output and leave all other three outputs vacant.

  The numbering of the "sections" (1 to 4, one per cable) is done automatically based on the order of output wiring.

  Further sense cables won't be detected by the system.

4 Powering on the System

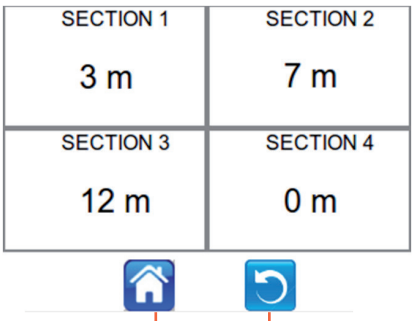
- Power on from the fuse spur:
  The panel will sound and show "SYSTEM TEST" for 10 seconds on the display, then show the "home" screen:

- Touch the first button (flag) to change the language:
  English
  French
  German

  The language setting will affect the bottom banner and the texts in the alarms screen.
- Touch the second button (arrows) to show the installed lengths on each of the 4 zones (refer to step 5).
- Touch the third button (gears) to change the MODBUS slave number.

5 Settings

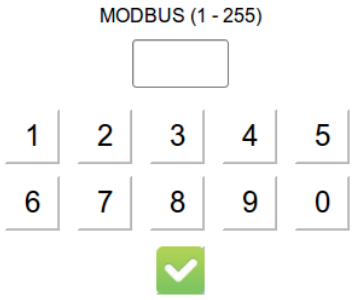
- Touch the second button (arrows), the touch screen shows the installed lengths on each of the four sections:



- Touch the "home" button to come back to the main page.
- Touch the "refresh" button (arrows) to update the lengths displayed.

The system will come back to the "home" screen after 30 seconds of inactivity.

- Touch the third button (gears) to change the Modbus slave number.

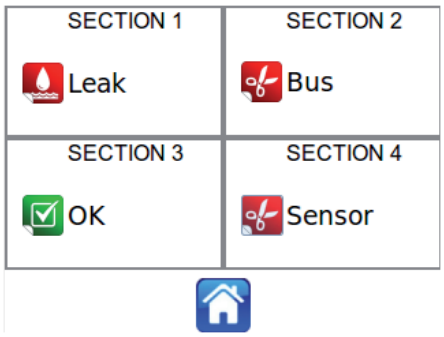


- Alarms screen:

  In the case of faults (leak or cablebreak), the leak alarms are represented by a drop of water followed by the word "Leak".

  Cablebreak alarms are represented by scissors and the word "Bus" or "Sensor" or "End" depending on the cablebreak type.

  - Break bus = OD BUS 8771 break
  - Break sensor = cable FG-OD damaged
  - Break end = end plug missed



The "home" button allows to back to the main page. It displays the lengths or change the MODBUS. The system will come back to the "home" screen after 30 seconds of inactivity.

6 MODBUS

The MODBUS protocol implemented on the FG-ALS4-OD panel permits the supervision of the current status of the system. The two types of alarms – leak and cable break – are coded using different Modbus addresses.

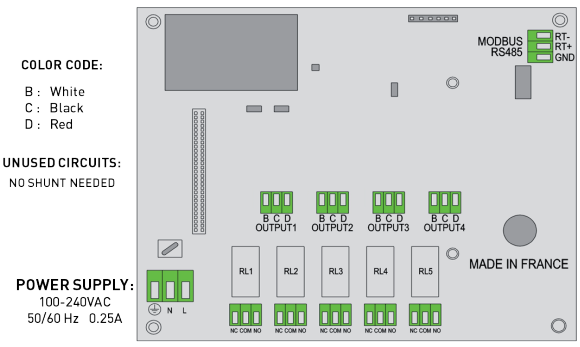
The physical support of the MODBUS is two-wire RS485.

Serial port configuration	9600 B, 8 data bits, 1 stop bit, no parity
Communication protocol	MODBUS or JBUS, functions 3 or 4
Maximum number of FG-ALS connected to the same supervisor	31
Slave number	1 to 255
Maximum number of read registers	16
MODBUS Addresses in the memory	Register 1 = length section 1 Register 2 = leak section 1 Register 3 = cablebreak section 1 Register 4 = leak location section 1 (Always 1m) Register 5 = length section 2 Register 6 = leak section 2 Register 7 = cablebreak section 2 Register 8 = leak location section 2 (Always 1m) Register 9 = length section 3 Register 10 = leak section 3 Register 11 = cablebreak section 3 Register 12 = leak location section 3 (Always 1m) Register 13 = length section 4 Register 14 = leak section 4 Register 15 = cablebreak section 4 Register 16 = leak location section 4 (Always 1m)

Format of the answer:

slave number	function	num. of bytes read	byte 1	byte 2	...	byte N	CRC 16
1, 2, ..., 255	3 or 4	up to 32	XXh	XXh	...	XXh	XXXXh

- Remarks:
  - The last panel on the serial link should be terminated by a 120 Ohms/1W resistor between points RT- and RT+. The shield of the data transmission cable should be connected to the supervisor's ground and to terminal COM of each FG-ALS panel.
  - Slave number 0 inhibits the MODBUS operation.
  - It is recommended to leave at least 200 ms between the successive requests.



FG-ALS4-OD wiring diagram

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