LIQUID LEAK DETECTION SYSTEMS
OIL & GAS DIVISION

FG-ALS8-OD

Eight- Zone Alarm & Location System Unit for Hydrocarbon Sense Cables

Installation Notice

Installation Notice FG-ALS8-OD

1 Panel Mounting

- Fix the panel to the wall using 4 screws.
- Six push-through holes are available for installing of the PG11 glands.
  1. Power supply
  2. Outputs 1 & 2 and relays 1 & 2
  3. Outputs 3 & 4 and relays 3 & 4
  4. Outputs 5 & 6 and relays 5 & 6
  5. Outputs 7 & 8 and relays 7 & 8
  6. 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 box, starting by inserting the top side, and then push the bottom down. Lock, using the two available screws.
- Power up from the circuit-breaker.

2 Electrical Connections

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

  There is no need to terminate the unused outputs.
  The wiring diagram is on the back page.
- Connect the relays:
  COM: Common
  NC: Normally Closed
  NO: Normally Open
- Nine relays are available on FG-ALS8-OD:
  Relay 1 = leak cable 1 Relay 2 = leak cable 2
  Relay 3 = leak cable 3 Relay 4 = leak cable 4
  Relay 5 = leak cable 5 Relay 6 = leak cable 6
  Relay 7 = leak cable 7 Relay 8 = leak cable 8
  Relay 11 = cable-break all cable
- Connect the power supply following the signs:
  Ground sign: Ground
  N: Neutral
  L: Live

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

3 Capacity

- The FG-ALS8-OD panel is designed to receive up to 8 sense cables FG-OD/ODC/ODR per panel.

  The sense cables can be connected freely on each output without bypassing the 8 sense cables in total.

  It is possible to:
  - connect one FG-OD/ODC/ODR sense cable per output;
  - or eight cables on the first output, leaving all other seven outputs vacant;
  - or other possible connection.

  The cables (1 to 8) are numbered automatically based on the order of output wiring.

  The system will not detect further sense cables.

4 Powering-on the System

- Power on from the circuit-breaker:
  The panel will sound and show "SYSTEM TEST" for 10 seconds on the display, and will 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 alarm screen.
- Touch the second button (arrows) to show the lengths installed in each of the 4 zones (please refer to step 5).
- Touch the third button (gears) to change the MODBUS slave number.

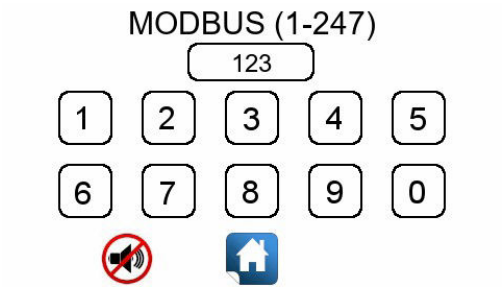
5 Settings

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

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

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

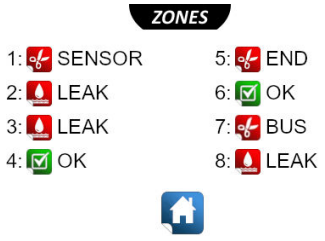
- Touch the third button (gears) to change the Modbus slave number.



- Alarm screen:

  If a fault occurs (leak or cable-break), the leak alarms are represented by a drop of water followed by the word "leak".

  Cable-break alarms are represented by scissors and the word "Bus" or "Sensor" or "End" depending on the type of cable-break.
  - Break bus = OD BUS 8771 break
  - Break sensor = cable FG-OD damaged
  - Break end = end plug missed



The "home" button allows you to return to the main page. It displays the lengths or changes the MODBUS. The system will return to the "home" screen after 30 seconds of inactivity.

6 MODBUS

The MODBUS protocol implemented on FG-ALS8-OD panel allows the current status of the system to be supervised. The two types of alarm (leak and cable-break) are coded using different Modbus registers for each individual zone.

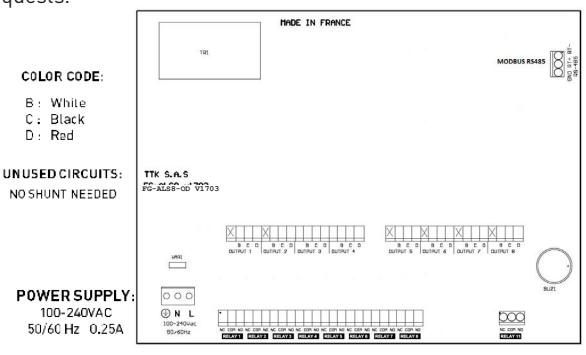
The physical support of the MODBUS is two-wire RS485.

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-ALS8-OD connected to the same controller	31
Slave number	1 to 247
Maximum number of reading registers	16
MODBUS Addresses in the memory	Register 1 = length cable 1 Register 2 = leak cable 1 Register 3 = cable-break cable 1 Register 4 = leak location cable 1 (always 1m) Register 5 = length cable 2 Register 6 = leak cable 2 Register 7 = cable-break cable 2 Register 8 = leak location cable 2 (always 1m) Register 9 = length cable 3 Register 10 = leak cable 3 Register 11 = cable-break cable 3 Register 12 = leak location cable 3 (always 1m) Register 13 = length cable 4 Register 14 = leak cable 4 Register 15 = cable-break cable 4 Register 16 = leak location cable 4 (always 1m) From register 17 to 32 for cable 5, 6, 7, 8

Format of the solution:

slave number	function	no. of bytes read	byte 1	byte 2	...	byte N	CRC 16
1, 2, ..., 247	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 shielding of the data transmission cable should be connected to the controller's earth and to the terminal COM of each FG-ALS panel.
  - Slave number 0 inhibits the MODBUS operation.
  - It is advisable to leave at least 200 ms between the successive requests.



FG-ALS8-OD wiring diagram

TTK's FG-OD cables are certified ATEX / IECEx according to the marking mentioned above, according to EN / IEC 60079-0, EN / IEC 60079-18 and EN / IEC 80079-34.
Special installation precautions are required when working in explosive atmospheres, such as the use of zener barriers, specific location of alarm and/or satellite panels etc.
The client is responsible for verifying that the design and installation of the detection system, in an ATEX / IECEx classified zone, is consistent with the classification of the area.
The client retains sole responsibility for its use of TTK's products.

TTK FG-OD
CE 0081 II 1G
Ex ia IIB T4 Ga
LCIE 13 ATEX 3082 X
IECEx LCIE 13.0072X

-30°C (-22°F) ≤ T(amb ≤ +100°C (+212°F)