TTK
LIQUID LEAK DETECTION SYSTEMS
OIL & GAS DIVISION

FG-ALS8-OD
Eight Zones Alarm & Locating System Unit for Hydrocarbon Sense Cables
Installation Instructions

Installation Instructions
FG-ALS8-OD

FG-ALS8

FG-ALS8-OD

1 Panel Mounting

- Fix the panel to the wall using 4 screws.
- Six push through holes are available for the installation 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 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

- 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 = cablebreak all cable

- 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-ALS8-OD panel is designed to receive up to 8 sense cables FG-OD/ODC/ODR by 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 and leave all other seven outputs vacant;
  - or other possible connection.

  The numbering of the 'cables' (1 to 8) 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:

v1.0.0

TTK

FG-ALS8-OD

TTK LIQUID LEAK DETECTION SYSTEMS

- 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 8 outputs (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 eight cable:
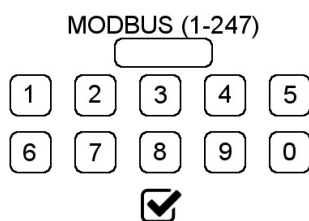
ZONE 1: 12 m	ZONE 5: 7 m
ZONE 2: 0 m	ZONE 6: 12 m
ZONE 3: 3 m	ZONE 7: 1 m
ZONE 4: 0 m	ZONE 8: 12 m

⌂   ↻

- 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.

MODBUS (1-247)

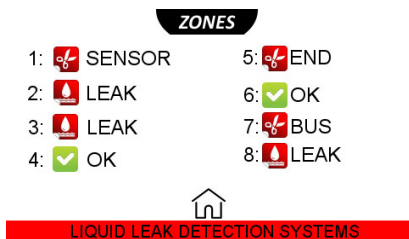| 1	2	3	4	5
6	7	8	9	0

☑

- 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

ZONES

1:	SENSOR	5:	END
2:	LEAK	6:	OK
3:	LEAK	7:	BUS
4:	OK	8:	LEAK

⌂

LIQUID LEAK DETECTION SYSTEMS

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.

TTK's FG-OD cables are certified ATEX / IECEx according to the above mentioned marking, according to EN / IEC 60079-0, EN / IEC 60079-18 and EN / IEC 80079-34.
Special installation precautions are required where explosive areas are concerned . E.g. the use of zener barriers, specific location of alarm and/or satellite panels, ...
The customer is responsible for the verification that the design and installation of the detection system, in an ATEX / IECEx classified zone, is consistent with the classification of the area.
The customer retains sole responsibility for their use of TTK's products.

6 MODBUS

The MODBUS protocol implemented on the FG-ALS8-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-ALS8-OD connected to the same supervisor	31
Slave number	1 to 247
Maximum number of read registers	16
MODBUS Addresses in the memory	Register 1 = length cable 1 Register 2 = leak cable 1 Register 3 = cablebreak cable 1 Register 4 = leak location cable 1 (Always 1m) Register 5 = length cable 2 Register 6 = leak cable 2 Register 7 = cablebreak cable 2 Register 8 = leak location cable 2 (Always 1m) Register 9 = length cable 3 Register 10 = leak cable 3 Register 11 = cablebreak cable 3 Register 12 = leak location cable 3 (Always 1m) Register 13 = length cable 4 Register 14 = leak cable 4 Register 15 = cablebreak cable 4 Register 16 = leak location cable 4 (Always 1m) From register 17 to 32 for cable 5,6,7, 8

Format of the answer:

slave number	function	num. 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 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.

MADE IN FRANCE

MODBUS RS485

COLOR CODE:
B : White
C : Black
D : Red

UNUSED CIRCUITS:
NO SHUNT NEEDED

TTK S.A.S
FG-ALS8-OD V1703

POWER SUPPLY:
100-240VAC
50/60 Hz 0.25A

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

-30°C ≤ T(amb) ≤ +100°C

FG-ALS8-OD wiring diagram

- **TTK Headquarters** / 19 rue du Général Foy / 75008 Paris / France / T : +33.1.56.76.90.10 / F : +33.1.55.90.62.15 / www.ttk.fr / ventes@ttk.fr
- **TTK Oil & Gas Division** / 19 rue du Général Foy / 75008 Paris / France / T : +33.1.56.76.90.10 / F : +33.1.55.90.62.15 / www.ttk.fr / rrisi@ttk.fr
- **TTK UK Ltd.** / 3 Luke Street / London EC2A 4PX / United Kingdom / T : 0207 729 6002 / F : 0207 729 6003 / www.ttkuk.com / sales@ttkuk.com
- **TTK Pte Ltd.** / #10-08, Shenton House, 3 Shenton Way / Singapore 068805 / Tel.+65-6220.2068 / Mob: +65.9271.6191 / Fax. +65-6220.2026 / www.ttk.sg / sales@ttk.sg
- **TTK Asia Ltd.** / 2107-2108 Kai Tak Commercial Building / 317 Des Voeux Road Central / Hongkong / Tel.+852.2858.7128 / Fax.+852.2858.8428 / www.ttkasia.com / info@ttkasia.com
- **TTK Middle East FZCO** / Building 6EA, Office 510 PO Box 54925 / Dubai Airport Free Zone / UAE T: +971 4 70 17 553 / M: +971 50 259 66 29 / www.ttkuk.com / cgalmiche@ttk.fr
- **TTK Deutschland GmbH** / Berner Strasse 34 / 60437 Frankfurt / Deutschland / T : +49(0)69-95005630 / F : +49(0)69-95005640 / www.ttk-gmbh.de / vertrieb@ttk-gmbh.de
- **TTK North America Inc** / 1730 St. Laurent Boulevard, Suite 800 / Ottawa, ON K1G 5L1 / Canada / T : +1 613 566 5968 / www.ttkcanada.com / info@ttkcanada.com
- **Thomas Sales & Marketing Inc. TTK Master Distributor For USA** / 7200 W 66th St / Bedford Park, IL 60638 / The United States / T: +1 630-518-4724 / www.ttkusa.com / dmolk@ttkusa.com