LIQUID LEAK DETECTION SYSTEMS
OIL & GAS DIVISION

FG-BBOX-LL

Long Line Digital Black Box for Hydrocarbon Leak Detection

Product Datasheet





- FG-NET Satellite Device
- Monitoring up to 118 Lengths of Sense Cables
- Dynamic Leak Evolution Analysis
- Location of Faults on Cable
- Exclusive for Hydrocarbon Detection

Description

The FG-BBOX-LL is a satellite device of the TTK FG-NET Digital Unit. It is designed to be connected with FG-OD oil leak detection range of sense cables, for industry Long Line application.

Similar to FG-BBOX, the FG-BBOX-LL is monitored by FG-NET via a standard Ethernet network. It expands FG-NET to manage two additional circuits of sense cables with up to 118* (2 x 59) addresses of additional Sense Cables.

The FG-BBOX-LL detects multiple simultaneous leak locations to the concerned sense cables. All command and control is centralised to the FG-NET, FG-BBOX-LL is not equipped with display so it can be discretely located.

FG-BBOX-LL connects to the FG-NET through the facilities Ethernet network, eliminating the need for additional connections.

In the event of a fault on the sense cables connected to the FG-BBOX-LL, the relevant relay contact is activated and the LED on the relevant circuit switched to red.

On the FG-NET unit, the alarm appears on its touch screen, the responses are identical as a fault on the sense cable physically connected on the FG-NET unit.

*: Calculated based on typical connection as: hydrocarbon sense cables at 12 metres each, connected with 1000m jumper cable (on one circuit) and Zener barrier MTL7760ac or equivalent. Other configurations are possible, consult us for details.

Features & Benefits

FEATURES

- Up to 118 FG-OD range of Sense Cables can be managed independently providing a maximum protected length of 1416m (118 x 12m) for both circuits.
- No physical jumper cable or distance limit between FG-NET unit and FG-BBOX-LL.
- Up to 16 FG-BBOX-LL can be connected to one FG-NET unit without exceeding a total number of 500 Digital Sense Cables per FG-NET.
- TCP/IP connection via standard RJ45 socket.
- Relay type: Volt Free Contact NO/NC.
- 4 Relay contacts: 2 leak relays (1 for each circuit), 1 cable break relay and 1 power failure relay.

BENEFITS

- Dynamic Leak Evolution Analysis - The magnitude of a leak and its evolution in time can be analysed through the alarm logs. The number and sequence of addressable sections which report a leak, together with their timestamp, allow to monitor the leak's progression in time.
- Multiple simultaneous leaks can be detected and located (118 cables = 118 potential alarms).
- Each sense cable is addressable and can be assigned a specific name.
- Cable break faults can be detected (to the concerned cable). When a cable break occurs, the system maintains its integrity by continuing to monitor all preceding cables for faults.
- Extension and upgrade of the system is easy.

Product Diagram



FG-BBOX-LL

Technical Data

Compatibility	Digital units: FG-NET, FG-NET-LL Sense cables: FG-OD, FG-ODL
Dimensions	W: 175 mm H: 220 mm D: 55 mm
Maximum Length of Sense Cable	Up to 1416m (2 circuits x 59 lengths x 12m) per unit (connected with 1000m jumper cable and Zener barrier MTL7760ac or equivalent)
Accuracy	To the concerned sense cable
System Capacity	Up to 16 FG-BBOX-LL can be monitored by 1 FG-NET or FG-NET-LL
Supply Voltage	100-240VAC 0.35A 50/60Hz
Maximum Power Consumption	15W
Working Temperature Range	-15°C to 55°C
Working Humidity Range	5% to 80% non-condensing
Relay Types	Volt free contact (NO, NC, COM)
Relay Numbers	4
Connectivity	RJ45
Maximum Relay Switching Voltage	125 V AC and 60 V DC
Maximum Relay Switching Capacity	60 VA or 30 W
Ingress Protection	IP40 - indoor use only

Identification Codes

FG-BBOX-LL	Long Line digital black box for hydrocarbon leak detection 100-240V
FG-BBOX	Digital black box 100-240V
FG-NET (Wall mounted / Rack mounted)	FG-NET digital unit wall mounted in plastic enclosure / rack mounted in 19" & 4U
FG-NET-LL (Wall mounted / Rack mounted)	Long line digital unit for hydrocarbon leak detection sense cables in wall mounted in plastic enclosure / in rack mounted in 19" & 4U
FG-OD3, 7, 12, 20	Hydrocarbon sense cable in 3, 7, 12, 20m
FG-ODLxxyy/xxyy/xxyy	Customerized Hydrocarbon sense cable, with connectors at each end xx= section length (3, 7, 12 or 20); yy= section numbers i.e.: FG-ODL2004: the mounting of 4 section cables FG-ODL : 4 sections of 20m
Accessories	
FG-DEx	ATEX bus diversion box for FG-OD hydrocarbon sense cable
FG-NOD (x)	"OD bus 8771" jumper cable x meters with connectors

Certificates

FG-OD sense cables which are certified by ATEX can be connected to the FG-BBOX-LL digital black box.

All the connections in the FG-BBOX-LL must be done with the power supply switched off. Read carefully the installation guide for the FG-NET digital unit.

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