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, specifically for Long Line industrial applications.

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.

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 39 ft (12 m) each, connected with 3280 ft (1000 m) jumper cable (on one circuit) and Zener barrier MTL7760ac or equivalent. Other configurations are possible, consult us for details.

Key Advantages

- Scalable & Future-Proof: Up to 16 FG-BBOX-LL units can be added to a single FG-NET system (without exceeding a total number of 500 digital sense cables per FG-NET) ensuring long-term expandability without additional power sources or zoning panels.
- Advanced Fault Management: Detects multiple simultaneous leaks (up to 118 alarms for 118 cables) and maintains system integrity by continuing to monitor all preceding cables in case of a break.
- Compact & Easy to Conceal: The FG-BBOX-LL has no display but features a luminous logo (green or red) for real-time status identification. It can be installed discreetly while all command and control remain centralized on the FG-NET unit.
- Dynamic Leak Evolution Analysis: Tracks the magnitude and progression of a leak over time through alarm logs. The sequence and timestamps of addressable sections reporting a leak provide real-time monitoring of its development.
- Reliable & Intelligent Monitoring: Detects cable break faults while maintaining system integrity by continuing to monitor all preceding cables.
- Smart Connectivity & Alerts: Uses TCP/IP (RJ45 Ethernet) for easy integration with BMS via MODBUS/JBUS, and features 4 relay outputs.
- Customizable & Secure: Each sense cable is fully addressable and can be renamed, ensuring clear identification and easy system management.

Technical Data

Compatibility	Digital units, satellite devices: FG-NET, FG-NET-LL, FG-RELAYS Digital sense cables and probes: OD range of cables Interface box: FG-DOD
Dimensions & Weight	6.89" W x 8.66"H x 2.17"D (175 mm W x 220 mm H x 55 mm D) 1.76 lbs (0.8 kg)
Sensor Capacity	118 lengths of sense cables (59 x 3 circuits)
Location Accuracy	Relevant sense cable
Operating Languages	NA
Supply Voltage	100-240 VAC, 50/60 Hz
Current	0.13 A (120 V), 0.07 A (230 V)
Power Consumption	15 VA Max
Operating Temperature	5°F to 131°F (-15°C to 55°C)
Case Type	ABS flame retardant UL94V0
Screen Size	No screen
Format	Wall mounted
Ingress Protection	IP40 - Indoor use only
Serial Connection	MODBUS/JBUS RS232 or RS422/485
IT Security	TCP/IP connection (IPv4, IPv6) & Log-In Trap, HTTPS with TLS1.2, RFC 5280: X.509 (PKIC and CRL profile, IEEE 802.1X support, RADIUS or EAP-TLS)
Network	10/100BASE-T; IPv4/IPv6
Numbers of Realys	4 (2 leak + 1 break common fault + 1 power failure relay)
Relay Types	Volt free dry contact (NO, NC, COM)
Power Failure Relay	Activated on loss of supply voltage
Type of Faults Available on the Configurable Relays	Non-configurable
Maximum Relay Switching Voltage	125 VAC and 220 VDC
Maximum Relay Switching Capacity	60 W (30 V x 2A)

Identification Codes

FG-BBOX-LL F	FG-NET's Satellite Device - 2 Circuits Black Box (Wall Mounted) 100-240VAC for "TTK Bus 8771"
FG-NET F	Digital Touchscreen Leak Detection Panel (Wall Mounted)
FG-NET E	Digital Touchscreen Leak Detection Panel (Rack Mounted)
FG-NET-LL F	Digital Touchscreen Leak Detection Panel (wall mounted) 100-240VAC for "OD Bus 8771"

Certifications

ATEX certified FG-OD range of sense cables and probes can be connected to the FG-BBOX-LL unit.

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

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