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 12 m each, connected with 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	175 mm W x 220 mm H x 55 mm D 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	-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

CE Ex

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.