HARTBR

Fault Circuit Indicator
FLOCO

REAL-TIME NETWORK MONITORING

01

INSTALLED IN CONVENTIONAL FUSE CUTOUT

RELEVANT FEATURES FOR SMART GRID SYSTEMS

Fault Location (Embedded GPS)

Load monitoring, with 1.0% of accuracy

Fuse tube drop-out detection

Sensor for voltage presence detection

Integration with SCADA systems

Support for automation and planning systems

Regular fuse function

The right solution for fault location in medium-voltage networks, with fully integration with supervisory systems

01 Floco reports the events to the Operation Center, through an embedded IoT communication module.

02 Fast field crew deployment, reducing service time to clear the fault.

03 Maintains the protection function - performed by the fuse links.

04 SAIDI and SAIFI improvements.

100% HartBR Technology

SMARTPHONE ACCESS (Android and IOS)

COMMUNICATION BASED ON IoT NETWORKS

INTEGRATION WITH SCADA

SELF-POWERED BY HARVEST ENERGY FROM THE NETWORK

COMPETITIVE PRICE

NO BATTERIES, MAINTENANCE FREE

Product tested by KEMA Labs

In compliance with IEEE 495/2007 - Guide for Testing Faulted Circuit Indicators, Floco - Fault Circuit Indicator - has obtained the Type Tests Certificate, issued by Kema Labs.

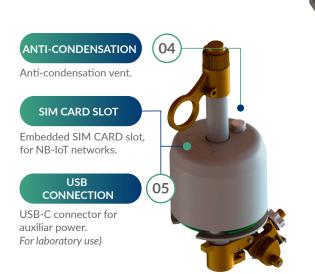**KEMA**

MAIN FEATURES

Floco® has an internal self-powering circuit and has no batteries, nor electrolytic capacitors.
One equipment, for all 15kV/27kV and 38kV voltage classes.

ANTI-CONDENSATION
04

Anti-condensation vent.

SIM CARD SLOT

Embedded SIM CARD slot, for NB-IoT networks.

USB CONNECTION
05

USB-C connector for auxiliar power.
For laboratory use)

SIGNALING WINDOW
02

Fault signaling is done by high-intensity LEDs:

🟡 **Temporary fault identification:**
With Floco® in stand-up position, it detects the short-circuit event and flags the temporary fault.

🔴 **Permanent fault identification:**
When the fuse blows and FLOCO drops down, the accelerometer detects the movement, and Floco® flags a permanent fault.

MANUAL PHASE SELECTOR
03

The electrician selects the correct phase where Floco will be installed.
A hall-effect sensor detects the position of selector, **Phase A, B ou C.**

IoT Communication

- Bluetooth 5.0 LE (for connection with for Hart Devices App)
- Narrowband-IoT (NB-IoT) - Onboard SIM Card slot
- LoRa 915Mhz
- Integrated Antennas

ArpeggIO® Suite

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WAN

ArpeggIO® Suite

ArpeggIO is a system that operates as a broker for IoT protocols. It's responsible for integrating Floco to the utility companies' legacy systems.

TECHNICAL SPECIFICATIONS

Operating Voltage	6 kV to 35 kV
Operating Current	0 A to (limited to the fuse link)
Current Capacity	10 kA/170ms (IEEE Standard 495-2007)
Minimum Time for Short-Circuit Fault Recognition	20 ms
Auto Reset Time	Configurable
Energy Storage	Ultra capacitors
Metering Accuracy	±1%
Frequency	50/60Hz
Operating Temperature	-25°C to +55°C
Humidity	5% to 100%
Level of Protection	IP65
LED Viewing Distance at Night	≥ 300m (estimated)
Wind Resistance	≤ 150km/h

ULTRA CAPACITOR BANK

Floco® has ultracapacitors with a lifetime of over 20 years, as an efficient alternative to batteries.

Power autonomy:
Over 6 hours with the LEDs signaling the fault.

With Hart Devices App it's possible to access FLOCO, through Bluetooth, for:
- Local current monitoring
- Event log analysis
- Check voltage presence
- Configuration and IoT network status

Hart Devices App for Floco®
Configuration and Monitoring