



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

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.



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

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.

04 ANTI-CONDENSATION

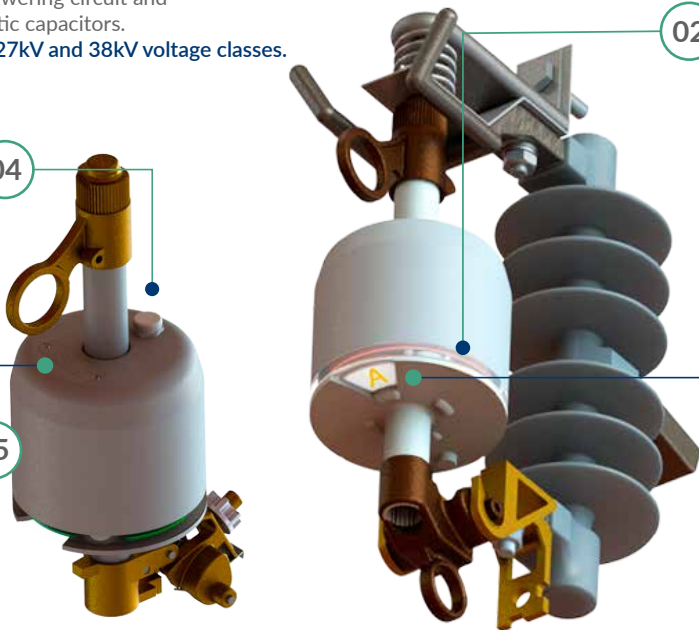
Anti-condensation vent.

SIM CARD SLOT

Embedded SIM CARD slot, for NB-IoT networks.

05 USB CONNECTION

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



02 SIGNALING WINDOW

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.

03 MANUAL PHASE SELECTOR

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



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.

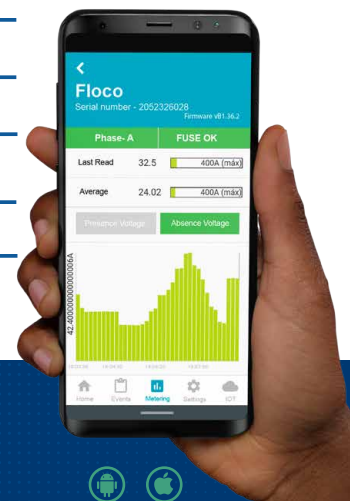
TECHNICAL SPECIFICATIONS

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

