

REMOTE INDICATION INTERFACE TYPE RIS-FM

for overhead-lines

General description

The remote indication system type RIS-FM is designed to transmit information from overhead line fault indicators type FLA4 either to a SCADA system or directly to users via Short Message Service (SMS). This makes the RIS-FM suitable both as an easily integrated component within a SCADA environment and as a lightweight, stand-alone solution.

The RIS-FM gathers data on:

- Faults
- Network events (current on/off, voltage on/off)

using short-range radio communication with the FLA4 fault indicators. It then forwards this data as human-readable SMS messages to up to five recipients.

Each message provides details about the type of event along with additional information, such as fault types, fault current levels, or the current network status. Furthermore, the RIS-FM can be configured to send periodic "heartbeat" SMS messages, which include the battery status and load current of each monitored overhead line fault indicator.

Features and Options

Stand-alone system:	Easy to integrate, there is no additional hardware or server software required.
Message format:	Human-readable SMS messages
Recipients:	Up to 5 recipients
Transmitted information:	Remote indication of: <ul style="list-style-type: none"> - Fault events (including event details like type of fault and fault current) - Network events (current on/off, voltage on/off)
Heartbeat:	Configurable heartbeat SMS with battery status and load current of each monitored FLA4

Configuration by remote control

The type RIS-FM can be fully configured using the remote control type HS2. The configuration of the SIM card PIN and the telephone numbers of the recipients is stored on an SD card and the remote control sends this data via short range radio to configure the RIS-FM. Additional parameters, such as the unique station ID or the heartbeat interval, can be conveniently adjusted on-site using the remote control. This eliminates the need for a computer during field operations.



figure 1: Remote indication interface type RIS-FM



figure 2: Remote control type HS2

Operation

In the event of a fault, the overhead line indicators type FLA4 transmit event data to the nearby RIS-FM remote indication system via their integrated short-range radio module as can be seen in figure 4. Once the data has been received, the RIS-FM forwards the information as SMS messages to up to five recipients (see also figure 3).

All overhead line indicators type FLA4 are equipped with short-range radio modules. This enables the RIS-FM to be installed together with new indicators or to be easily retrofitted to existing installations.

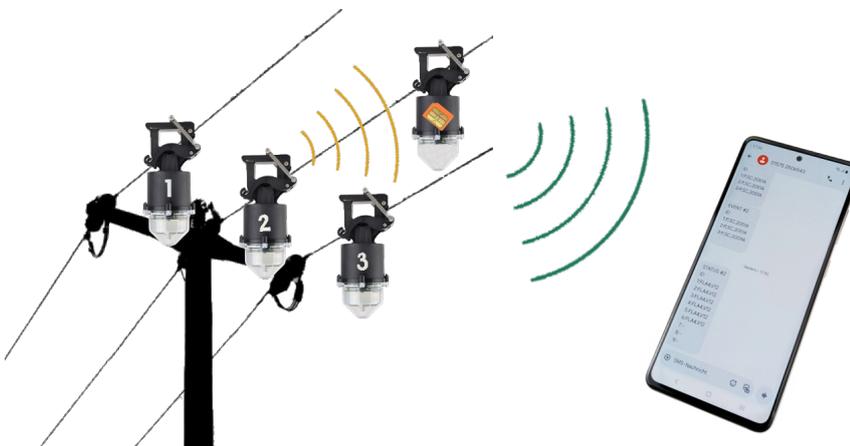


figure 4: installation scenario with fault indicators type FLA4

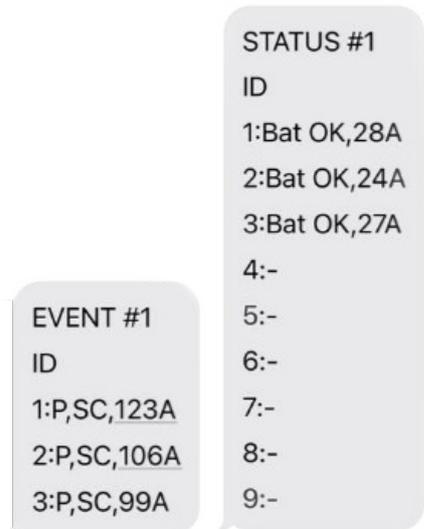


figure 3: Event and status message

Installation and energy harvesting

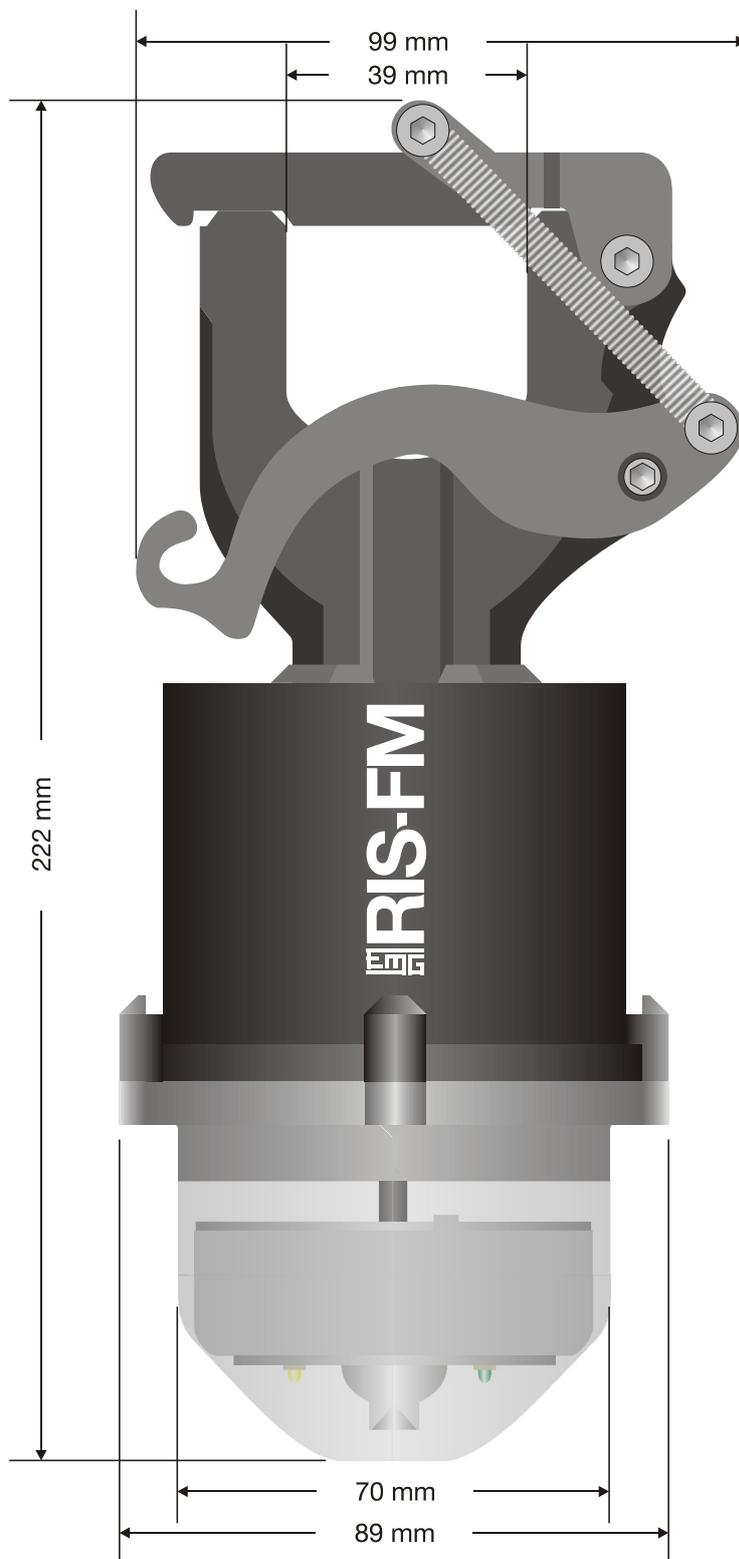
The RIS-FM is installed directly onto the medium-voltage line within the range of the overhead line indicators. Mounting can be performed under live conditions with the aid of an adapter and hot stick. Once installed, the RIS-FM harvests energy directly from the line. The harvested energy is stored in internal supercapacitors, significantly reducing the load on the internal batteries and extending their service life.

General Data

Subject	Value
Frequency Band	LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66 LTE-TDD: B34, B38, B39, B40, B41 WCDMA: B1, B2, B4, B5, B6, B8, B19 GSM: 850, 900, 1800, 1900MHz
Data Transfer	LTE: 150 Mbps (DL) / 50 Mbps (UL) HSPA+: 42 Mbps (DL) / 5.76 Mbps (UL) WCDMA: 384 Kbps (DL) / 384 Kbps (UL) EDGE: 236.8 Kbps (DL) / 236.8 Kbps (UL) GPRS: 85.6 Kbps (DL) / 85.6 Kbps (UL)
Sim Card	Nano-SIM: 12.3 × 8.8 mm
Short range communication	433MHz bidirectional radio interface to overhead line fault indicators type FLA4 and remote control type HS2

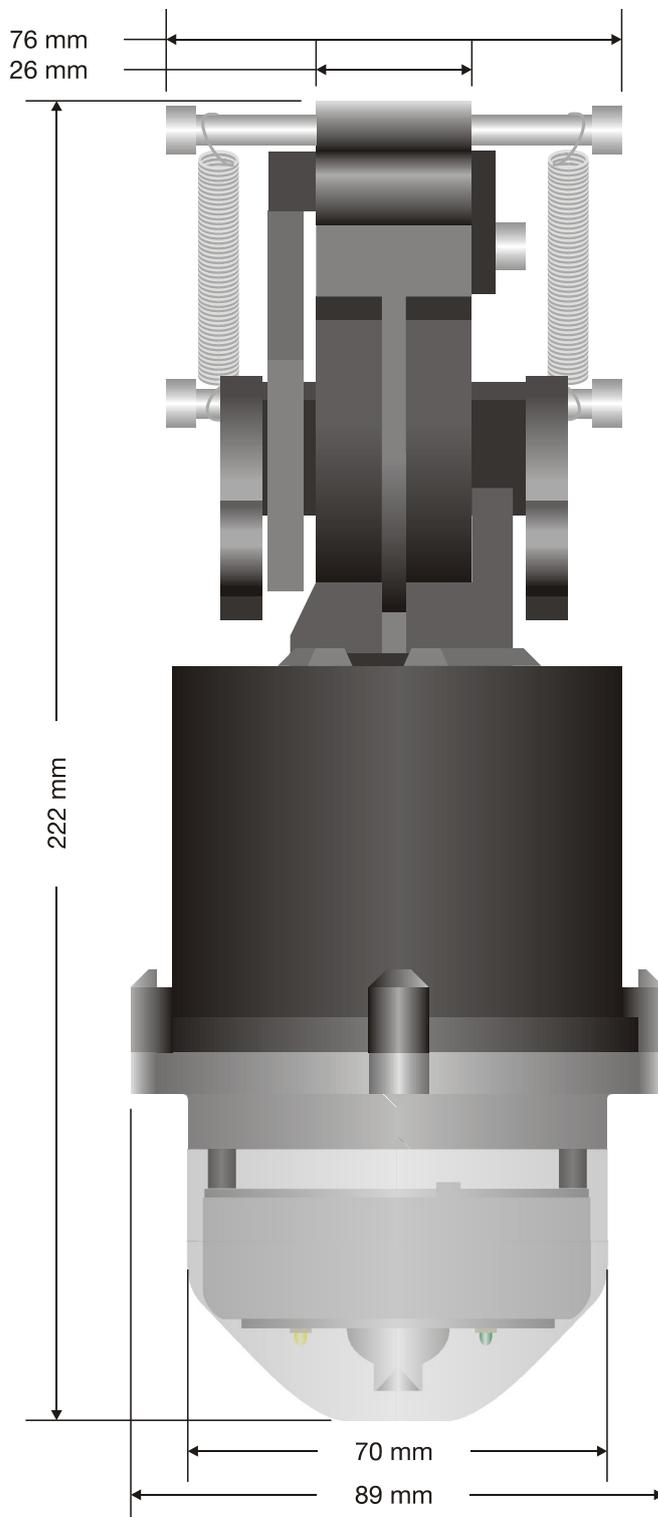
Subject	Value
Remote indication	a) faults and the reset of the monitored indicators b) current on/off events or voltage on/off events, detected by the monitored indicators c) battery status and current load of the monitored indicators
Indication for activity	a) ultra-bright red LED b) green LED (for active operation) c) yellow LED (for radio mode)
On site function test	Full communication test for monitored FLA4 and wide area communication by remote control
Dimensions	(WxDxH) 98mm x 89mm x 222mm
Weight	685g
Protection class	IP65
Housing material	PA66, Carbotex K20 UVR
Operation temperature range	-20°C to +70°C
Cable diameter ranges	5 mm - 38 mm
Power supply	a) super-capacitors charged by energy harvesting from network b) 3 lithium battery (LiSOC12) type A / 3.6V / 3600 mAh
Internal log	60 log entries with date and time stamp

Front view



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Side view



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