REMOTE INDICATION INTERFACE TYPE **RIS-FS2**

for overhead-lines

General description

The remote indication interface type RIS-FS2 provides a bidirectional interface between a remote terminal unit (RTU) and the overhead line fault indicators type FLA4. The RIS-FS2 is designed to receive fault information, status information and configuration settings from the FLA4 fault indicators and to provide this data through a serial RS485 interface using the Modbus protocol. The RIS-FS2 acts as Modus server device.
By writing into the Modbus registers the RIS-FS2 is also able to change the configuration of the overhead line indicators, thus providing a fully bidirectional interface.

figure 1: Remote indication interface type RIS-FS2

The RIS-FS2 collects following data from the overhead line indicators:

- Faults
- Network events (current on/off, voltage on/off)
- Load current read-outs
- Voltage status information
- Temperature read-outs
- Configuration settings

This data is gathered using short-range radio communication with the FLA4 fault indicators. The bidirectional radio communication allows for the adjustment of the fault indicator settings through the RIS-FS2 interface.

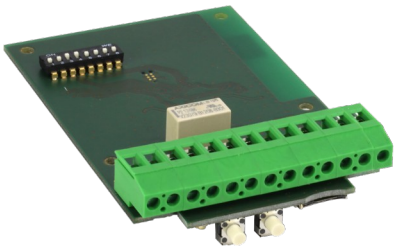


figure 2: retrofittable circuit board

The RIS-FS2 is housed in a DIN rail enclosure, featuring two buttons, an external antenna connector, and screw connectors for easy integration into remote terminal unit setups. Additionally, the RIS-FS2 is available as a circuit board for direct integration into custom housings.

The firmware of the RIS-FS2 is updatable with the help of the integrated SD card reader.

Features and Options

Bidirectional communication:	Read and change settings of the overhead line indicators
Low power mode:	Suitable for battery powered RTU setups
Datalogging mode:	For frequent current load read-outs
Firmware updates:	The firmware of the RIS-FS2 can be updated via SD cards
Test and Reset buttons:	For easy local testing of the setup and resetting the indicators after an event
Easy Modbus configuration:	Via DIP switches accessible from the top of the DIN rail enclosure.
Screw connectors:	All cables are connected via screw connectors accessible from the bottom
DIN rail enclosure:	Standard-sized housing mountable on TH35 DIN rails without tools
Power supply:	6V DC to 48V DC

Operation

In the event of a fault, the overhead line indicators type FLA4 transmit event data to the nearby RIS-FS2 remote indication interface via their integrated short-range radio module, as illustrated in figure 3. Upon receiving the data, the RIS-FS2 signals the event through the relay and by changing the states of Modbus registers.
All overhead line indicators type FLA4 are equipped with short-range radio modules, enabling retrofit installations of pole-mounted RTU setups with integrated RIS-FS2 interfaces.

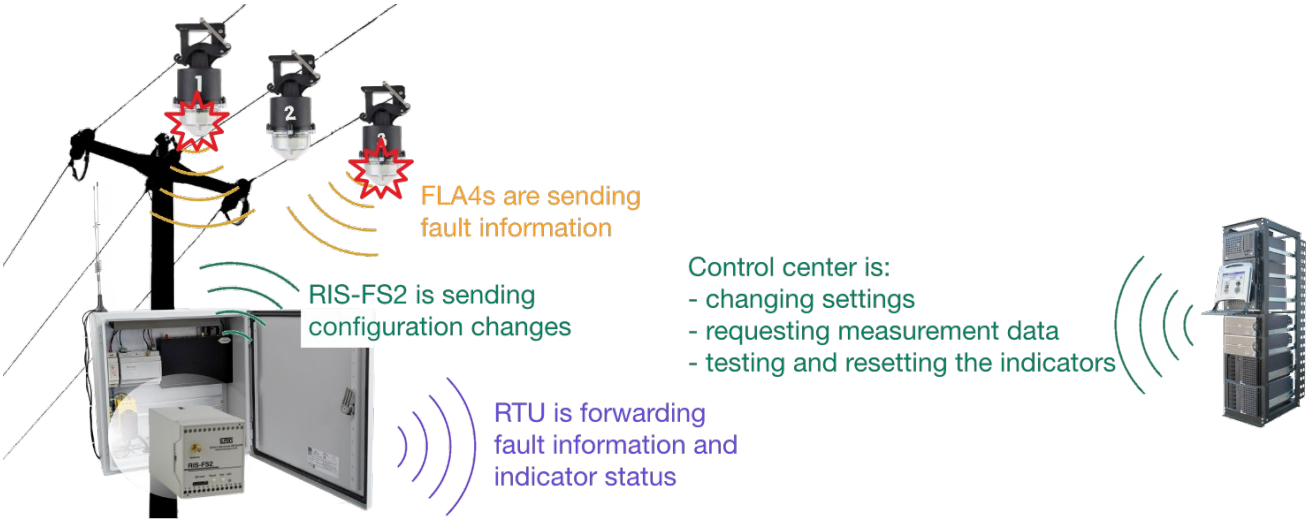


figure 3: installation scenario with fault indicators type FLA4

The RIS-FS2 features a datalogging mode, which allows the overhead line indicators to transmit current read-outs and voltage status updates at short intervals while optimizing the power consumption of the indicators.

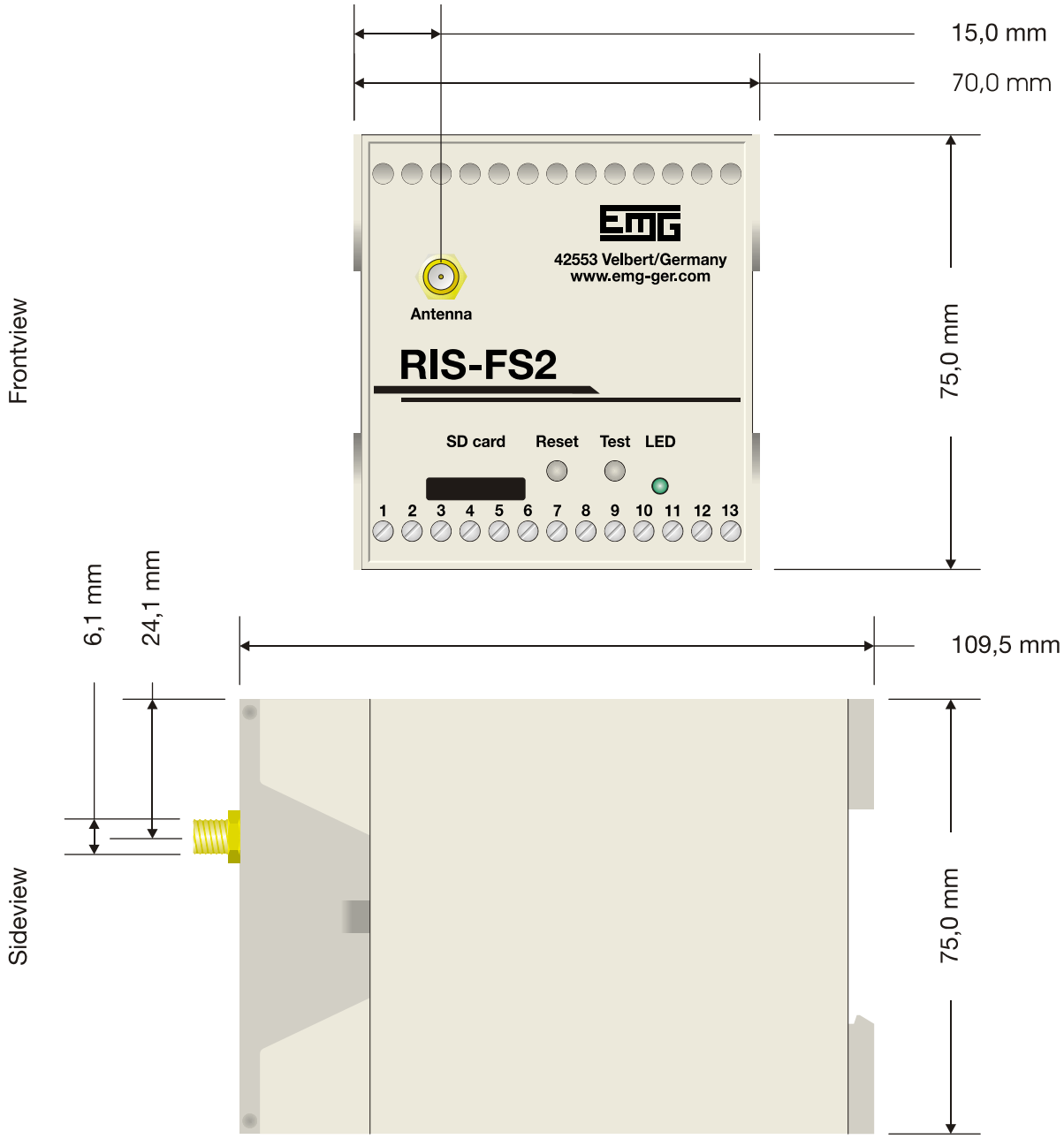
Fault and network events are accessible via Modbus registers and can also be signalled through a configurable relay contact. This feature enables a very low power consumption mode, where the RIS-FS2 and the Modbus master device can operate in standby mode and only become active upon the occurrence of events.

General Data

Subject	Value
Interface	a) RS485, 2W cabling, half-duplex b) TTL, 3 pins, 3.3V
Protocol	Modbus RTU
Modbus addresses *	1 to 8
Parity bits *	a) no parity, 1 stop bit b) no parity, 2 stop bits c) even parity d) odd parity
Baud rates *	a) 9600 baud b) 19200 baud c) 38400 baud d) 57600 baud
Relay output	1x NO/NC contacts wipe contact (1000 ms, time configurable via Modbus register)
Short range communication	433MHz bidirectional radio interface to overhead line fault indicators type FLA4
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
Bidirectional communication	a) Reading and changing configuration b) Testing and resetting of indicators c) Reading of measurement data (load current, temperature, voltage status)
Indication for activity	Multicolor LED (red/green/yellow)
On site function test	Communication test for monitored FLA4 by test button
On site reset	Monitored FLA4 can be reset by reset button
Housing	For DIN rail TH35 (according to IEC 60715)
Dimensions	Housing: (WxDxH) 70 mm x 109.5 mm x 75 mm Circuit board: (WxD) 66 mm x 97.5 mm
Weight	150 g
Operation temperature range	-40°C to +85°C
Power supply	6V DC to 48V DC

* Configurable via DIP switch.

Housing



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