



IOMod FPI is a fault passage indicator module for medium voltage applications that can be used as a standalone device or part of Elseta mini RTU with voltages and currents based on sensors technology or with adapters connected to current and voltage transformers with communication support based on Modbus RTU, IEC 60870-5-101, and IEC 60870-5-103 protocols.

Designed for short-circuit and earth fault indicator with direction detection. IOMod FPI can be used for numerous applications like electrical distribution substations, photovoltaic and hydropower plants, and railway power supplies where the user needs them.

IOMod FPI also calculates neutral current and voltage RMS values I_0 and U_0 as well as many other measurements like active, reactive, apparent power for every phase, power factors per phase, phase angles for currents and voltages, and more.

Unique by the device size and complex functionality perfectly fits into any application like a recloser, RTU cabinet, or switchgear retrofit project. This device enables utilities and distribution network operators (DNO) to digitalize substations into smart grid elements.

Applications

- Power Grid
- Solar energy projects
- Wind energy projects
- Hydro energy projects
- Smart RMU applications
- Factory resources supervision
- Energy sub-metering applications
- Substation automation projects



Technical
documentation



Ordering

Features

- Directional fault detection for all network types;
- Earth fault detection;
- 50/50N Instantaneous overcurrent detection;
- 51/67 Phase directional overcurrent detection;
- 67N Neutral directional overcurrent detection;
- 27 Under voltage detection (with VT or LPVT);
- 59/59N Over voltage detection (with VT or LPVT);
- 81HBL2 Inrush blocking for selected protections;
- 2 settings groups;
- Measurements of RMS values for currents, phase, and phase-to-phase voltages.
- Additional measurements of frequency, active, reactive, and apparent power, neutral voltage, neutral current, power factors, phase angles, total Harmonics distortion and more.

LPVT - low power VTs (IEC 61869-011) or voltage sensors.

General

Product Description	3 Current sensor inputs and 3 Voltage sensor inputs module
Configuration Software	IOMOD Utility

Measurement values and functions

Analog inputs	6x 16-bit resolution
Input types	Channel-independent
Current inputs	3
Current inputs measurement range	225 mV (IEC 61869-10) with <u>external adapter 1A / 5A</u>
Current input impedance	1 MΩ; < 170 pF
Accuracy	1%
Voltage inputs	3
Voltage input measurement range	3.25 V/√3 AC (IEC 61869-11) with <u>external adapter 100VAC / 400VAC</u>
Voltage input impedance	1 MΩ; < 170 pF
Accuracy	1%
Frequency measurement range	45..65 Hz
Overvoltage protection	±20V

Interface and communication

RS485 interface	ANSI/TIA/EIA-485-A-1998
Communication protocols	– Modbus RTU Slave; – IEC 60870-5-101 Slave; – IEC 60870-5-103 Slave.
Baudrate	600 – 115200 baud
Parity	None, Even, Odd
Terminating resistors	120Ω (configurable, default off)
USB Interface	
Type	Mini USB (type B)
Use	Configuration/Firmware upgrade

Power supply

Auxiliary power supply	9-33VDC (full range)
Power consumption	40mA @ 12VDC, 20mA @24 VDC
Insulation voltage	3kV

Operating conditions

Operating temperature	-40°C ... 85°C
Storage temperature	-40°C ... 85°C
Relative humidity	max. 95 % (non condensing)
Protection class	IP20

Dimensions

Installation type	DIN Rail mounting
Case height x width x depth	119 x 17.5 x 101 mm

Order Codes

IOMOD-FPI	3xCurrent 3xVoltage sensors module with IEC-101, IEC103, Modbus-RTU protocol support.
IOMOD-FPI-RJ	3xCurrent 3xVoltage sensors module with 2xRJ45 connectors and IEC-101, IEC103, Modbus-RTU protocol support.