

I-Sense3 / I-Sense4

Feeder measuring technique for measuring AC currents via Rogowski coils

Item no.:

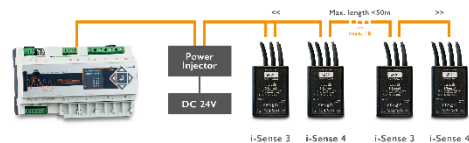
- **111.7080.13 - I-Sense3**
feeder measurement L1/ L2/ L3
- **111.7080.14 - I-Sense4**
feeder measurement L1/ L2/ L3/ N



1. Use

The I-Sense was developed to measure currents in local substations in the low-voltage network easily and quickly using Rogowski coils. The solution can continuously measure currents from 1A to 450 Amps with a frequency response up to 3 kHz. The flexible and lightweight measuring head of the coils enables easy and quick installation, even in hard-to-reach places. The solution is characterised by the following core functions:

- Simple and fast integration via CAT V cable as a "daisy chain" via RJ45 connectors with up to 16 participants
- Supply via 24V DC power injector
- Automated address allocation on the bus



Thanks to these functions, the solution can be quickly integrated into the supply system without further parameterisation. The data is read out fully automatically via the bus using the PQI-DA smart and PQI-DE with feature P3 (Modbus Master) devices, where the data is permanently stored on site (FiFo). The averaging time is freely adjustable from 1 s to 15 min. In addition, a minimum current value and a maximum current value are determined by the unit at intervals and made available for retrieval. The data can be visualised and evaluated by the PQI-DA smart and PQI-DE measuring devices in the WinPQ software solution. With appropriately insulated conductors, the solution can also be used for pure current measurement in medium-voltage systems.

2. Electrical properties

Nominal range IN:	3 or 4 x 450 A AC RMS
Measuring range:	1 - 450 A RMS
Output:	Modbus via RJ45
Accuracy (at 25°C, 50Hz):	± 1 % of measured value
Linearity (10...100% of measuring range):	± 0.2 % of the measured value
Bandwidth (-3dB):	40 Hz to 3 kHz
Crest Factor:	up to 2.75 @450 A, up to 3.00 @300 A
Temperature Coefficient:	±0.15% of reading / °C
Influence of conductor positioning:	± 2.5 % of the measured value ²
Influence of electric fields (distance > 10cm):	± 0.25 % of the measured value
Working Voltage (see Safety Standards section):	1000 V ACRMS or DC (flexible heads)
Power supply	+24 V DC via RJ45
Current Consumption:	15 mA typ. (20 mA max.)

2) Not relevant when used with cable clamp adapter

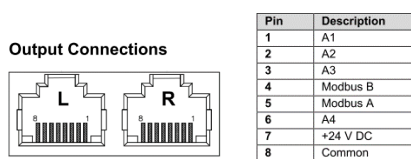
We take care of it.

3. General properties

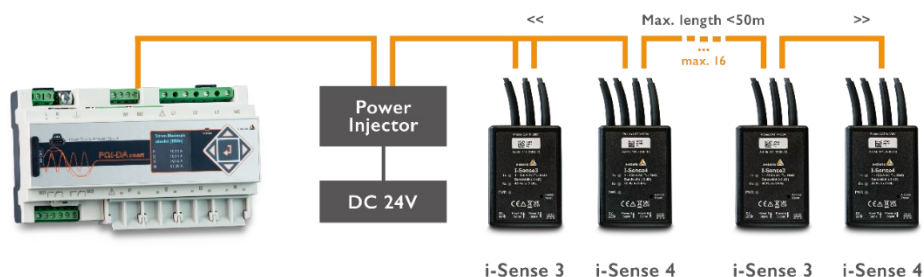
Flammability rating:	UL94 V-0 (Probe) / UL94 V-2 (Enclosure)
Probe Conductor Diameter :	70 mm (3")
Probe Cable Diameter:	6 mm (nominal)
Cable Length (Probe to Integrator box):	0.5 m
Output Connection:	2x RJ45 connectors
MODBUS Register Map:	See operating instructions.
Operating Temperature Range:	-20 to +65°C
Storage Temperature Range:	-40 to +75°C
LED Indication:	Modbus Tx (Yellow), Rx (Green), Power (Green)
Operating Humidity	15% to 85% (non-condensing)
Degree of protection :	IP67 Probe, IP30 Enclosure ³
Colour:	Black
Housing Dimensions :	92 x 66 x 28 mm
Weight:	245 g

³ IP 33 is achieved by suitable mounting of the enclosure in the application.

4. Connection



Several I-Senses are supplied with power by connecting them ("daisy-chaining") via the right RJ45 socket. A maximum of 16 units can be connected in a chain! The supply voltage is looped into the bus via article 111.7080.15.3 "Power Injector". The maximum length of the chain is 50m. Addressing on the bus is automatic.



5. Safety standard

IEC 61010-1

IEC 62262 IK07

1000 VRMS, Category III, 600 VRMS, Category IV, Pollution Degree 2 (Probe)

Output limited to 30V to Earth (Unterminated)

Use of the probe on uninsulated conductors is limited to 1000 V AC RMS or DC and frequencies below 1 kHz.

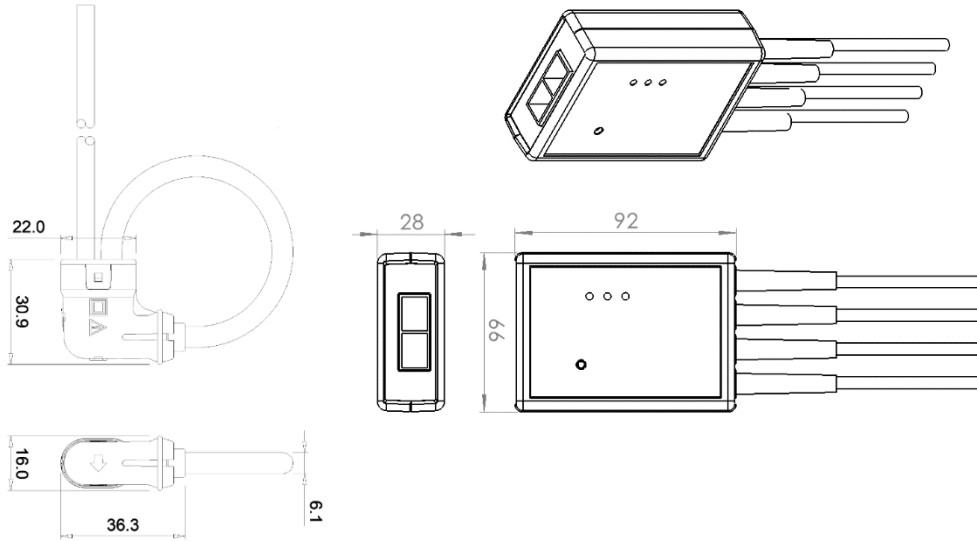
We'll sort it out.

6. EMC standard

Emissions: IEC 61000-6-4, EN 55011

Immunity: IEC 61000-6-5 (Power Stations Level 3, Substations Level 2), EN 61326-1

7. Dimensions



8. Ordering information

REMARK	IDENT no.
<ul style="list-style-type: none">● I-Sense3 for measuring the feeder currents L1 / L2 / L3 as average (N-Min) / Min / Max / Live value in connection with PQI-DA smart / PQI-DE via Rogowski coils 3x450A AC; Diameter: 70mm; Cable length L1/L2/L3 - 50cm; N 80cm; Power supply: 24VDC via RJ45; Dimensions I-Sense: 92 x 66 x 28 mm incl. all mounting adapters and cable ties	111.7080.13
<ul style="list-style-type: none">● I-Sense4 for measuring the feeder currents L1 / L2 / L3 / N as average (N-Min) / Min / Max / Live value in connection with PQI-DA smart / PQI-DE via Rogowski coils 4x450A AC; diameter: 70mm; cable length L1/L2/L3 - 50cm; N 80cm; power supply: 24VDC via RJ45; dimensions I-Sense: 92 x 66 x 28 mm incl. all mounting adapters and cable ties	111.7080.14
Accessories	IDENT no.
<ul style="list-style-type: none">● I-Sense cable clamp adapter, clip for fixing the Rogowski coil to the cable (spare part)	111.7080.15.1
<ul style="list-style-type: none">● DIN rail power supply 10W, 90 → 264V ac, 24V dc / 400mA, hwxwd: 91mm x 18mm x 57,5mm"	111.7080.15.2
<ul style="list-style-type: none">● Power injector I-Sense PQI-DA smart / PQI-DE; adapter cable to be able to supply the I-Sense units via a power supply unit using patch cables.	111.7080.15.3

A. Eberle GmbH & Co. KG

Frankenstraße 160
D-90461 Nuremberg

Phone: +49 (0) 911 / 62 81 08-0
Fax: +49 (0) 911 / 62 81 08 96
E-mail: info@a-eberle.de

<http://www.a-eberle.de>

Version: 25.09.2023 12:56

Copyright 2023 by A. Eberle GmbH & Co. KG
Subject to change without notice.