

Radio energy sensor, 1-gang Mini

Order No. : 5471 00

Operating instructions**1 Safety instructions**

Electrical equipment may only be installed and fitted by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully.

Danger of electric shock. Always disconnect before carrying out work on the device or load. At the same time, take into account all circuit breakers that supply dangerous voltage to the device or load.

These instructions are an integral part of the product, and must remain with the end customer.

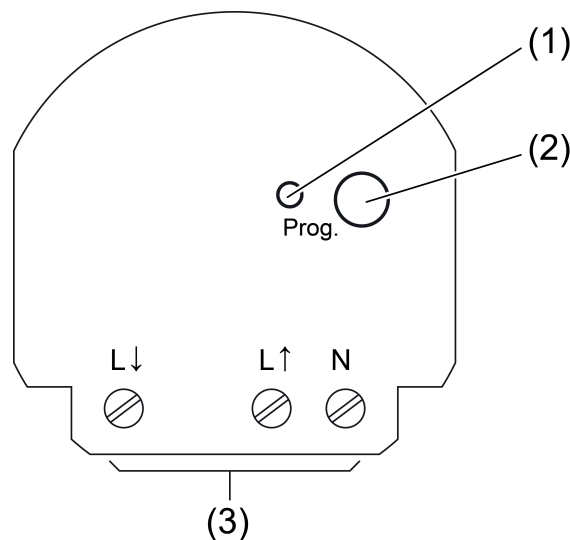
2 Device components

Figure 1: Energy sensor

(1) Status LED, red

(2) Button **Prog**

(3) Terminals

3 Function**System information**

This device is a part of the eNet system.

High transmission reliability at a radio frequency of 868 MHz is achieved by the transmission behaviour and bidirectional data transfer.


The range of a radio system depends on various external circumstances. The range can be optimised by the choice of installation location.

This device complies with the requirements of the R&TTE Directive 1999/5/EC. Declaration of Conformity and further information on the eNet system can be found on our website.


The device may be operated in all EU and EFTA countries.

Intended use

- Energy sensor for radio transmission of voltage, current and energy values
- Operation with eNet server

- Installation in appliance box according to DIN 49073
- Mounting in surface-mounted housing or built-in housing (accessory) for false ceilings
-  The energy sensor is not officially calibrated and may not therefore be used for invoicing purposes.

Product characteristics

- Detection of current and voltage of the connected consumer
- Calculation of the effective, idle, apparent power and the effective energy
- Event or time-controlled transmission of measured value telegrams to the eNet server
- Update of the device software
-  The parameter list is in the Internet in the documentation for this device.

Functional description

The energy sensor records and calculates various characteristic electrical values of the connected consumers. It is possible to display these values using the visualisation of the eNet server. All the energy sensors available in the building installation can be monitored using the eNet server (see technical documentation of the eNet server).

Time and event-controlled data transmission

The energy sensor determines the current consumption data every 0.2 seconds. The data can be transmitted at a configurable transmission of 1...60 minutes. In addition, data transmission can be coupled to the change in effective output. If the effective output exceeds a value of 1...2000 W and the deviation to the most recently transmitted value is 1...50 %, the data is transferred again, but only after at least one minute.

Default setting

Time-controlled transmission, transmission interval: 15 minutes

Event-controlled transmission:

Rel. threshold value, effective output: 10 %

Abs. threshold value, effective output: 1 W

Transferred characteristic electric values

- Current
- Voltage
- Average effective output
Interval for average formation configurable between 0.2...300 s.
- Apparent output
- Fundamental oscillation idle power
- Effective energy
The total effective energy is saved to power failure-proof memory.

4 Information for electrically skilled persons**4.1 Fitting and electrical connection****DANGER!**

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before working on the device, disconnect the power supply and cover up live parts in the working environment.

Connecting and mounting energy sensor

To ensure good transmission quality, keep a sufficient distance from any possible sources of interference, e.g. metallic surfaces, microwave ovens, hi-fi and TV systems, ballasts or transformers.

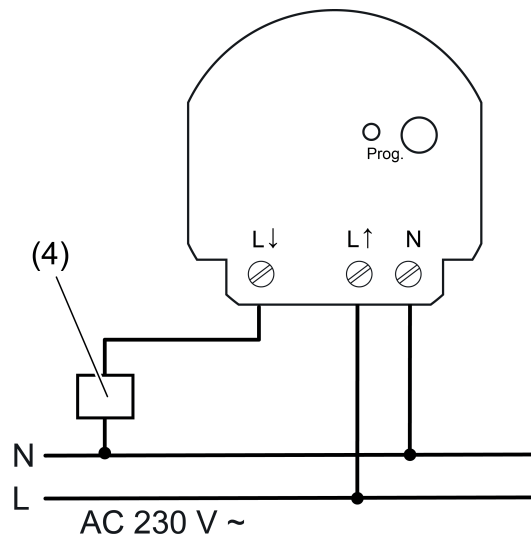


Figure 2: Connection example, energy sensor

(4) Monitored consumer

- Connect energy sensor as shown in the connection example (Figure 2).
- Insert energy sensor in the appliance box in such a way that the **Prog** button and status-LED are visible.
- Perform commissioning.
- Mount the cover.

4.2 Commissioning



DANGER!

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

During commissioning, cover the parts carrying voltage on the device and in their surrounding area.

Integrating an energy sensor into the project

The energy sensor must be read in using a system scan of the eNet server and integrated into a project.

To do this, the eNet server must be connected correctly and connected to a computer (see the instructions of the eNet server).

- Start the commissioning interface of the eNet server. Create or open the project into which the energy sensor is to be integrated (see technical documentation of the eNet server).
- Start the system scan in the commissioning interface of the eNet server.
- Press button **Prog** (2) for longer than 4 seconds.
The status LED (4) flashes after 1 seconds. The energy sensor is in programming mode for approx. 1 minute.
The eNet server finds the energy sensor and displays it on the commissioning interface.
The status LED of the energy sensor goes out.
- Assign the energy sensor to the installation location using the commissioning interface.

Removing an energy sensor from the project

- In the commissioning interface of the eNet server, delete the energy sensor from the current project (refer to the technical documentation of the eNet server).
The energy sensor is removed from the project and the parameters reset to the default setting.

Resetting the device to the factory setting

The connection to the eNet server is disconnected and parameters are reset to default setting.

- Press the **Prog** button for at least 20 seconds.
The status LED flashes after 4 seconds. After 20 seconds the status LED flashes faster.
- Release **Prog** button and press briefly once again within 10 seconds.
The status LED flashes more slowly for approx. 5 seconds.
Device is reset to default setting.

5 Appendix



The icon confirms the conformity of the product to the relevant guidelines.

5.1 Technical data

Rated voltage	AC 230 V ~
Mains frequency	50 / 60 Hz
Rated load current	16 A (I _L)
Peak current (1 s)	80 A
Peak current (1 min)	24 A
Power consumption	max. 0.5 W
Transmission interval	1 ... 60 min
Ambient temperature	-25 ... +70 °C
Connection	
single stranded	0.75 ... 4 mm ²
Finely stranded with conductor sleeve	0.75 ... 2.5 mm ²
Dimensions Ø×H	53×23 mm
Radio frequency	868.3 MHz
Transmitting power	max. 20 mW
Transmitting range in free field	typical 100 m
Measuring ranges	
Current	0 mA ... 16 A
Accuracy (current)	± 0.5 % of the current value and ± 8 mA
Voltage	207 ... 250 V
Accuracy (voltage)	± 0.5 % of curr. val.
Transmitted power and output values	
Effective output	-4000 ... 4000 W
Apparent output	0 ... 4000 VA
Idle output	-4000 ... 4000 var
Accuracy (power)	± 0.5 % of the current value and ± 2 W/VA/var
Effective energy	-99999 ... 99999 kW·h

5.2 Parameter list

Settings window

Device settings

Parameters	Setting options, Basic setting	Explanations
Manual commissioning	On, Off Basic setting: On	Blocks manual commissioning for all device channels. In the "Off" setting, the device cannot be reset to the factory setting.

Repeater mode	On, Off Basic setting: Off	In addition to its other functions, the device can be used as a repeater. In the "On" setting, the device repeats all the received telegrams.
Transmission mode	Single, Double Basic setting: Double	The transmission of all measured value telegrams is repeated to guarantee increased transmission security (no unsecured transmission). It is possible to switch over to simple transmission.

Settings, channel

Parameters	Setting options, Basic setting	Explanations
Manual commissioning	On, Off Basic setting: On	Blocks manual commissioning for the device channel. In the "Off" setting, the device cannot be reset to the factory setting.
Transmit voltage	On, Off Basic setting: On	Transmits the current voltage value.
Transmit current	On, Off Basic setting: On	Transmits the current current value.
Transmit effective output	On, Off Basic setting: On	Transmits the average effective output. If negative values are displayed, then effective output is fed in, e.g. via a photovoltaic system.
Transmit apparent output	On, Off Basic setting: On	Transmits the current apparent output value.
Transmit idle output	On, Off Basic setting: On	Transmits the current value of the basic oscillation idle output. If negative values are displayed, this is a capacitive idle power. Positive values show an inductive idle power.
Transmit absolute effective energy	On, Off Basic setting: On	Transmits the cumulative value of the effective energy. If negative values are displayed, then effective energy is fed in, e.g. via a photovoltaic system.
Effective energy	-1073741823...1073741823 Wh Basic setting: 0 Wh (Current value)	Displays the currently cumulated effective energy. The value can be reset to 0 or set to any other value.
Transmission interval	1 ... 60 min Basic setting: 15 min	The current consumption data is transmitted at the interval set here at the latest. Changes to the effective output cause fresh transmission, however only after one minute at the earliest.

Rel. threshold value, effective output	1 ... 50 % Basic setting: 10 %	The transmission of consumption data can be coupled to the change in effective output. The basis is always the most recently transmitted effective output value. If the percentage change entered here is exceeded, then all the measured values are resent.
Abs. threshold value, effective output	0 ... 2000 W Basic setting: 1 W	A lower threshold value of the effective output can be entered here, to avoid frequent transmission in the lower power range. Event-controlled transmission is only active above this threshold value.
Suppression length, effective output	0 ms ... 300 s Basic setting: 0 ms	Triggers for event-controlled transmission are often switch-on and switch-off operations. In order to avoid incorrect measured values due to switch-on peaks, this parameter can be used to enter a suppression period. The measured values are only transmitted if the effective output is still above or below the relative threshold value after the set time.
Averaging length	0.2 ... 300 s Basic setting: 1 s	In the case of effective output, it is not the current value which is transmitted, as with other measured values, but the average value. It is possible to set the period for average value formation here.

Information window

During channel selection in the Information window, the following values are displayed.

Display value	Explanations
Measuring status: value is real/ out of service	value is real: Device being operated out of service: Device error
Measuring status: no fault/ value is corrupted due to failure	no fault: Measurement active value is corrupted due to failure: The sensor is not supplying valid measured values.
Measuring status: in commission	Not used.
Measuring status: time synchronisation active	Not used.
Measuring status: Acknowledged	Not used.
Measuring status: no alarm	Not used.

Voltage	Displays the current voltage value.
Current	Displays the current current value.
Effective output	Displays the current effective output.
Idle output	Displays the current idle output. If negative values are displayed, this is a capacitive idle power. Positive values show an inductive idle power.
Apparent output	Displays the current apparent output.
Absolute effective energy	Displays the current absolute effective energy. If negative values are displayed, then effective energy is fed in, e.g. via a photovoltaic system.
Effective energy	Displays the cumulated effective energy. Counter status can be set via settings window.

i The value can be updated using the arrow next to the display values.

5.3 Troubleshooting

Negative effective output or energy values are displayed.

Cause 1: This is an energy source, e.g. a photovoltaic system, feeding in energy.

Cause 2: The energy sensor is connected in reverse polarity.

Connect the energy sensor with the correct polarity.

i If negative idle power values are displayed, this is a capacitive idle power. Positive values show an inductive idle power.

5.4 Accessories

Installation adapter Mini housing
DRA server

Order No. 5429 00
Order No. 5301 00

5.5 Warranty

The warranty is provided in accordance with statutory requirements via the specialist trade.

Please submit or send faulty devices postage paid together with an error description to your responsible salesperson (specialist trade/installation company/electrical specialist trade). They will forward the devices to the Gira Service Center.

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