GB

Energy detector 3-gang

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 devise 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.

This product is only intended for use in dry rooms.

Structure of the device

See figure 1
(1) KNX connection
(2) Programming button and LED
(3) Function displays
(4) In/outputs

Function

Application purpose

The energy detector detects the energy supplied and drawn from the mains for up to three phases with a high level of accuracy.
In addition, voltage, current, active power, reactive power and frequency. The resulting energy costs are calculated for up to three tariffs.

i This KNX device is not an electric meter for billing purposes as defined by the standards (e.g. IEC 62052-11).

With the aid of integrated monitoring functions, peak loads can be detected, reported and avoided by means of additional measures.
All information, limiting values and measured values are accessible via KNX telegrams.

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.
The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer's product database.
Planning, installation and commissioning of the device are carried out with the aid of KNX-certified software. Full functionality with KNX commissioning software version ETS3.0f onwards.
An updated version of the product database, technical descriptions and conversion programs and other auxiliary programs are available on our Internet website.

Intended use

- Energy detector for alternating or three-phase current 110/230 V AC / 230/400 V AC, 50/60 Hz, for recording and visualising consumption values and for controlling in KNX depending on these values.
  Not approved for billing purposes.
- Installation in distribution boxes on DIN rail according to EN 60715

Product characteristics

The energy detector has three channels for connecting loads to up to three separate phases with a common neutral conductor. Each channel can measure:
- Voltage (eff.)
- Current (eff.)
- Active power
- Reactive power

Additionally, the active power and reactive power of all channels will be summed up and displayed as three-phase power values along with the mains frequency.
According to the parameterisation the measured values will be transmitted on the KNX bus, either cyclically and / or when the value changes. An additional telegram will be transmitted if certain values exceed or fall below a specified limit.

i The measured values are calculated in intervals of one second.

i The transmission process is distributed over a time period of one second in order to reduce the bus load.

Energy meter

The following meters exist for each channel and for the three-phase current variables:
- 1 x "energy meter total":
  The active power measured for the channel or as a three-phase current variable is integrated over time. The meter is independent of tariff periods in operation. The meter reading can be reset via the ETS download or via a group object.
- 1 x "energy meter ¼ h value":
  The active power measured for the channel or as a three-phase current variable is integrated over time. The meter is independent of tariff periods in operation. The meter reading is reset at the start every quarter of an hour and can be configured for the transmission of a limit value telegram.
- 3 x "energy meter n": The active power measured for the channel or as a three-phase current variable is integrated over time if the current time is within the tariff period of tariff n. The meter reading can be reset via the ETS download or via a group object.
- The meter readings can be read or requested explicitly via a communication object. For the intermediate meters it is also possible to activate objects via triggers instead of the tariff periods (trigger 1: start event; trigger 2: transmit meter reading and optionally stop the meter).

i The meter readings are calculated in intervals of one second.

i In the case of a power failure of the KNX system, the values of the energy meter are saved and applied when restarting.

Tariff meters

The meter readings of the tariff-related three-phase current energy meters are available weighted with the price configured for the tariff as communication objects costs n for tariffs n = 1, 2 and 3.
In the case of a power failure of the KNX system, the values of the tariff meter are saved and applied when restarting.

Information for electrically skilled persons

Installation and electrical connection

DANGER
Electric shock from touching live parts in the installation environment.
An electric shock can be fatal.
Before working on the device, disconnect the power and cover live parts in the area. Use circuit breakers for the leads (rated current ≤ 16 A, B characteristic). The assignment for disconnecting the device from the mains voltage must be labelled perfectly.
Do not remove the housing cover!
Dangerous voltages may still be present even after sisconnecting the lines!

Installation

Install energy detector in distribution boxes on DIN rail according to EN 60715. The terminals for the mains should be located at the top.

Connection

Connect the mains, load and bus terminal as shown in figure 2.
To ensure safe insulation on the bus terminal the terminal cover ref.-no. 2050 K must be used if necessary.

Commissioning

After adjusting the physical address, loading the application by means of ETS (commissioning tool) and connecting to the mains voltage, the energy detector is operational.
The power LED lights up continuously if the energy meter is in operation and the energy saving mode is not active. Channel LEDs E1, E2 and E3 indicate the measurement of an energy amount of 1/6400 kWh at the respective channel by lighting up briefly.
If the energy-saving mode is activated, the power LED goes out and no energy is counted.

Operation with current transformer

The energy detector can be operated with a current transformer.
The current transformer needs to have the following technical data.

Rated current:	
Primary (Input)	max. 75 A
Secondary (Output)	5 A
Recommended accuracy class	0,5 % or 1 %

Note the correct polarity while connecting the current transformer.
For more details on installation, connection and commissioning of the current transformer please refer to the manufacturer's product information.
Select parameter "Measurement with current transformer 75 A" in the area "Measurement" in the ETS product application of the energy detector for operating with current transformer.

Application

Specification

Number of communication objects:	125
ETS:	from version 3.0f or higher

For more details on the function please refer to the product information.

Technical data

General:

Test mark	KNX
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Weight	approx. 300 g
Installation width	72 mm / 4 rail units
Installation	in distribution boxes on DIN rail according to EN 60715
Overvoltage category	III

Connection terminals for mains power supply and inputs:

Connection type	Screw terminal
single-wire	0.5 ... 2.5 mm²
stranded without ferrule	0.5 ... 2.5 mm²
stranded with ferrule	0.5 ... 2.5 mm²

KNX supply:

KNX Medium	TP 1
Commissioning mode	S-Mode
KNX rated voltage	DC 21 ... 32 V SELV
KNX current consumption	typical 10 mA
Connection type KNX	connection terminal

Power supply via E1/N:

Rated voltage	AC 110 ... 240 V~
Mains frequency	50 / 60 Hz
Power consumption	max. 2 W

Inputs E1 ... E3:

Rated voltage range	AC 110 ... 240 V~
Rated current range	4 mA ... 16 A
Rated frequency	50 / 60 Hz
Measurands:	
Voltage (rms value)	
Current (rms value)	
Frequency	
Active power (signed +/-)	
Reactive power (signed +/-)	
Active energy (signed +/-)	
Accuracy	1%
Pulse LED	6400 / kWh
Pulse duration	4.9 ms

Power dissipation:

Voltage measurement	≤ 0.03 W / phase
Current measurement	≤ 0.80 W / phase
Power consumption from mains	< 1 W

Accessories

Connection cover for bus terminal	2050 K
Current transformers:	
Phoenix Contact	PACT MCR-V1-21-44- 75-5A-1
Wago	855-305/075-201
Schneider Electric	METSECT5CC008

The listed current transformers are examples. The compatibility to the energy detector has to be proved before commissioning.

Warranty

The warranty follows about the specialty store in between the legal framework as provided for by law.

JUNG

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Ref.-no.: 2103 REG ES

Operating instructions

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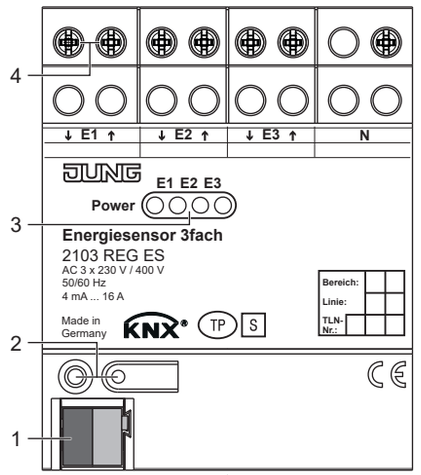

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