



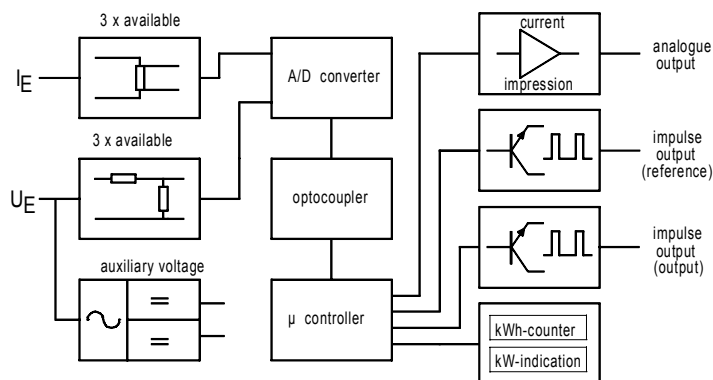
Energy meter for three-phase current with current converter or direct coupling

- Pulse outputs for energy consumption (reference and output)
- Analogue output for active power
- Energy consumption display and storage (reference and output)
- Active power display
- Resettable kWh meter with reversal preventing device
- Optional current converter
- Optional weight of pulses/kWh
- LEDs for function check
- Housing width 71 mm, sealable cover

Application

The EZD electronic energy meter is used to detect the energy consumption of three-phase consumers (regardless of load) in industrial plant, workshops, machines, offices, etc. It can be used for metering plant with burst firing controls (intermittent power consumption) and can also measure distorted sine waves. It can display and save the value of the energy consumed, output it in pulse format for further processing and display the instantaneous active power via an analogue output 0-20 mA or 4-20 mA.

Function



The values to be measured are sent to an IC via **external** current converters or directly via push-through openings and voltage dividers. The instantaneous current and voltage values are multiplied and converted into a frequency corresponding to the active power. A downstream microcontroller analyses these values, outputs the pulses and saves the measured values. The values are displayed on an LCD. Two open collector outputs enable the active power reference and output to be output in pulse format. A 20 mA analogue output indicates the instantaneous power. An isolated auxiliary voltage is not required (this is generated from the measurement-circuit voltage). The meter readings are stored in the event of a mains failure.

Technical data

Input	Type	EZD
Rated voltage	Rated voltage	400/230 V and 3 x 400 V \pm 20%
	Rated current	0-5 A, option 0-1 A, (only via external current converters) Option 0-10 A (63 A) direct coupling via push-through openings
Rated frequency	Rated frequency	40 different primary currents, can be selected via pushbuttons on the front panel 5/10/15/20/25/30/40/50/60/75/80/100/150/200/250/300/350/400/450/500/550/600/ 650/700/750/800/850/900/1000/1200/1250/1500/1600/1800/2000/2400/2500/ 3000/3500 or 4000 A
	Power consumption	50-60 Hz Voltage circuit approx. 0.1 VA, between L1 and L2 2.5 VA, current circuit approx. 0.5 VA
Continuous overload	Continuous overload	Current and voltage, 1.2x, direct coupling current 6.3x
	Impulse overload	Voltage 2x 1 second, current 20x 0.5 seconds current direct coupling 30x 10 ms
Temperature range	Temperature range	-15 to +20 to +30 to +55 °C

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Display

Via key
Via key
Via key
Function indicators

Two-line LCD

Active power, reference, +9 999 999 kWh (with reversal preventing device)
Instantaneous active power, 9 999.99 kW, with (-) for negative power
Active power, output -9 999 999 kWh (with reversal preventing device)
Selected primary current
Selected output pulse weight
LED for active power, 2000 pulses/kWh for current converter connection
200 pulses/kWh for direct coupling

Pulse outputs

Active power, reference and delivery
Priority, with current converter

LED for energy flow direction (-P), lights when negative power
Transistor, 24 V DC (max. 30 V/50 mA), ON (active) 10-27 mA, OFF (inactive) < 1 mA
1/10/100/1000/2000 or 5000 pulses/kWh, can be selected via pushbuttons on the front panel
(with the addition of 25,000 pulses/kWh for option 0-1 A)
Attention! The weight of the pulses must be divided by the transformation ratio (K_N) of the current converter used.

Priority, with direct coupling

1/10/100/200 or 500 pulses/kWh, can be selected via pushbuttons on the front panel

Analogue output

Accuracy
Pulse length
Test voltage
Rated value, with current converter

$\pm 1\%$
60 - 100 ms
4 KV, 50 Hz 10 sec.
0-20 mA or 4-20 mA corresponds to 0-3.45 kW at 5/5 A (690 W at 1/1 A)
Attention! The power value 3.45 kW or 690 W must be multiplied by the transformation ratio (K_N) of the current converter used.

Rated value, with direct coupling

0-20 mA or 4-20 mA corresponds to 0-40 kW
Analogue value corresponds to + P, - P or + / - P, can be selected via pushbuttons on the front panel

Accuracy
Load
Test voltage

$\pm 0.5\%$
0 - 500 Ohm
4 KV, 50 Hz 10 sec.

Reset

The kWh display can be reset to zero via keys on the front panel.

Regulations

EMC
Mechanical strength
Electrical safety

DIN EN 61326
DIN EN 61 010 Part 1
DIN EN 61010 part 1
Housing all insulated, protection class II, at a working voltage up to 300V (network to neutral conductor) degree of pollution 2, measuring category CAT III

Pulse output
Accuracy, overload
Creepages and clearances
Degree of protection

DIN S0 43 864
DIN EN 60 688
DIN EN 61 010 Part 1
DIN EN 60 529, IP 20

Weight

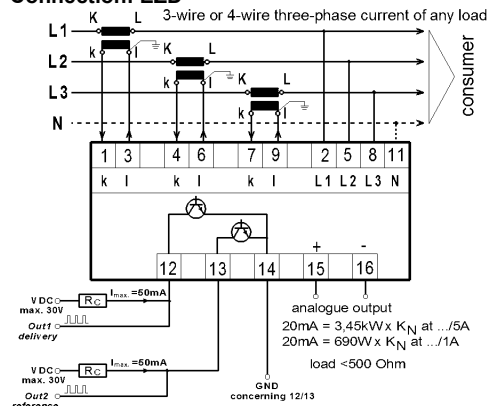
220 g

Installation

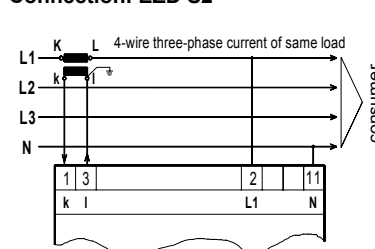
Mounting
Electrical connection

Snap-on mounting on rail to DIN EN 50 022
Screw-type terminal max. 4 mm²

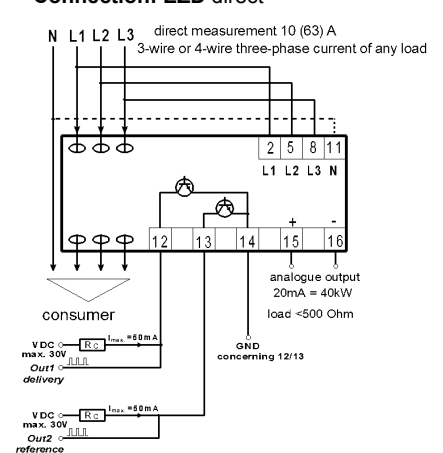
Connection: EZD



Connection: EZD S2



Connection: EZD direct



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Functions and Programming:

- Indication of (-)kWh for the active power input (about 6 sec.)



- Menu option for selection of current transformer
- Selection of the current transformer with the key (Selection: 5/10/15/20/25/ ... /4000)



- End of current transformer selection and next menu option for selection of impulse rate of the S0-output
- Selection of impulse/kWh with the key (Selection: 1/10/100/1000/2000/5000 Imp/kWh)



- End and next menu option for the adjustment of the analog output 0-20 mA
- Selection with the key
 - Indication: + P ⇒ 20 mA-output only in case of active power input
 - Indication: - P ⇒ 20 mA-output only in case of active power output
 - Indication: +/- P ⇒ 20 mA-output in case of input and output of active power



- End and next menu option for adjustment of active power work counter
- Selection with the key
 - Indication: +kWh ⇒ all energy consumption will be added up to the active power work counter (+kWh)
 - Indication: +/- kWh ⇒ all energy consumption will be added up to the corresponding counters depending on input (+ kWh) or output (-kWh)



- End of programming and storage of the adjustments

Reset: If you press the keys and for 3 seconds the counters -kWh and +kWh will be reseted.

Types

EZD	Energy meter for three-phase current, any load, three-phase measurement
EZD S2	Energy meter for three-phase current, equal load, single-phase measurement
EZD S3	Energy meter for three-phase current, any load, three-phase measurement, connection to voltage converter sec. 100 V
Options	Input 1 A Direct coupling 10 A (63 A) Direct coupling 10 A (63 A) on EZD S2



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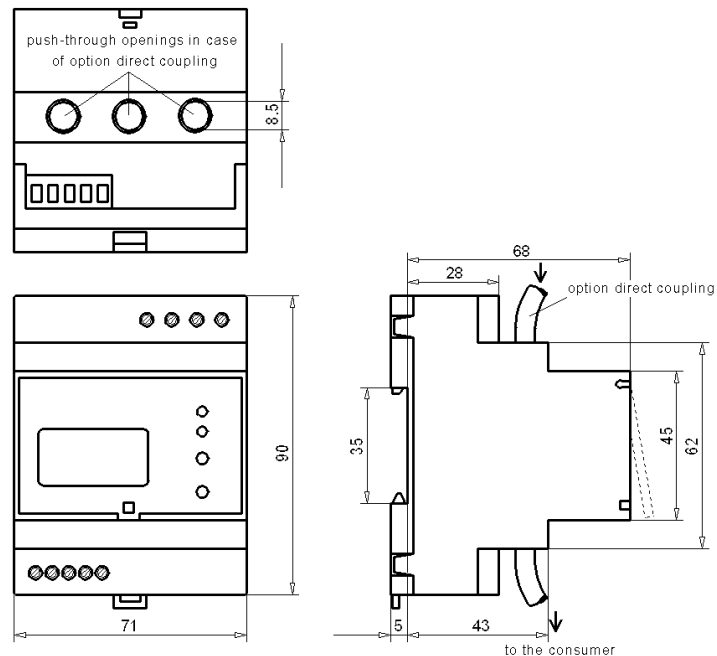
GENERAL DESCRIPTION: ENERGY METERS

EZW/EZD

- Application** Type EZW and EZD energy meters are meters which can be coupled both via converters and directly. The wall-mounting devices can only be used when connected to external current converters. They are used to detect energy consumption and instantaneous active power on AC and DC mains. Both plant with burst firing controls (intermittent power consumption) and distorted sine waves can be metered. The meters are used in industrial plant, workshops, machines, offices, etc., and snap onto 35 mm rails.
- Special features**
- Pulse outputs for energy consumption (reference and output)
 - Analogue output for active power 0-20 mA or 4-20 mA
 - Energy consumption display and storage (reference and output)
 - Active power display
 - Resettable kWh meter with reversal preventing device
 - Optional current converter
 - Direct coupling via push-through openings, max. 63 A
 - Optional weight of pulses/kWh
 - LEDs for function display
 - Slimline design, housing width 71 mm
 - Sealable cover
- Design** EZW and EZD energy meters are manufactured in accordance with DIN EN 60 688 and in compliance with applicable VDE and DIN guidelines. They can measure electrical energy and the active power reference and output on AC and DC mains (identical or non-identical load). The electronic energy meters feature two pulse outputs, one analogue output and a 2-line, resettable LCD. The pulse outputs can be set with a weight of between 1 and 25,000 pulses/kWh. The accuracy is 1% in relation to the upper range value. 40 different primary currents on external current converters with ratings from 5 to 4000 A can be selected. The 20 mA analogue output for the instantaneous active power is isolated and corresponds to a power rating of 1150 W (EZW) or 3450 W (EZD) at 5/5 A, to be multiplied by the current converter transformation ratio (K_N). The 20 mA output is programmable for the instantaneous power reference (+P) or output (-P) or reference and output (+/-P). The accuracy is 0.5% in relation to the upper range value. The electronics are housed in impact-resistant enclosures made from NORYL plastic. The enclosures are dimensioned in accordance with DIN 43 880 for installed equipment.

Dimension drawing

EZW, EZD



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