DIINNO

EHZ541

Electronic household meter (eHZ) – three-phase meter, mME, MID class A



The EHZ541 is an electronic household meter (eHZ) in plug-in design according to DIN 43857-2 for direct connection up to 60 A. As a modern metering device within the meaning of the German Metering Point Operation Act (MsbG), it measures active energy in both directions and provides the values relevant to legal metrology via the optical INFO interface and the two-line LC display. It is connected to a Smart Meter Gateway via the rear optical MSB interface with the OKK-485 or OKK-232 communication head and the BAB-01 communication adapter. A LoRaWAN interface for wireless remote reading is available as an option.

3 × 230/400 V
Three-phase four-wire, 50 Hz

0.25–5 (60) A
Imin–Ib (Imax), direct connection

Class A
MID, EN 50470-1/-3

eHZ
Plug-in design, DIN 43857-2

Type code

Position	Characteristic	Value
EHZ541	Design	Three-phase meter, plug-in design (eHZ) according to DIN 43857-2
2nd position	Energy direction	B: consumption meter with backstop · L: feed-in meter with backstop · Z: bidirectional meter · S: feed-in meter, net metering without backstop
3rd position	Tariff	E: single tariff · D: dual tariff
4th position	Further specification	L: additional LoRaWAN interface · no suffix: optical MSB interface, without LoRaWAN

Example: EHZ541-ZE = bidirectional meter, single tariff, optical MSB interface. Related product: EHZ541-i – base meter with integrated LMN interface (separate datasheet DB-EHZ541i-DE).

Ordering information

Type	Energy direction	Tariff (factory setting)	Registers
EHZ541-BE	Consumption (+A), backstop	Single tariff	1.8.0
EHZ541-BD	Consumption (+A), backstop	Dual tariff	1.8.0, 1.8.1, 1.8.2
EHZ541-LE	Feed-in (−A), backstop	Single tariff	2.8.0
EHZ541-SE	Feed-in (−A), net metering	Single tariff	2.8.0
EHZ541-ZE	Bidirectional (+A / −A)	Single tariff	1.8.0, 2.8.0
EHZ541-ZD	Bidirectional (+A / −A)	Dual tariff	1.8.0, 1.8.1, 1.8.2, 2.8.0

Option (4th position): suffix L for an additional LoRaWAN interface (on request). The energy direction is permanently configured at the factory and cannot be changed in operation. Packaging unit: on request.

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Technical data

Electrical and metrological data

Connection type	Three-phase four-wire (3p4w) · single-phase (1p2w)
Nominal voltage	3 × 230/400 V · 1 × 230 V (on L2, or on any of L1, L2, L3)
Frequency	50 Hz
Current Imin–Ib (Imax)	0.25–5 (60) A, direct connection
Starting current	0.004 × Ib = 0.02 A
Transitional current (Itr)	10 % × Ib = 0.5 A
Measuring accuracy	Class A (EN 50470-1/-3)
Impulse withstand voltage	4 kV (EN 50470-1, EN 50470-3)
Short-circuit withstand	30 × Imax (EN 50470-1, EN 50470-3)
Power consumption	Current path < 0.2 VA · voltage path < 0.5 W
LED pulse output	10,000 imp/kWh (infrared, test LED)
Mechanical environmental conditions	M1
Utilisation category	UC1

Display and operation

LC display	Two-line · viewing angle 15° (above), 60° (left, right, below)
Digit size	Value field min. 3.5 × 8 mm · code field min. 1.9 × 4.2 mm
Registers +A	Single tariff 1.8.0 · dual tariff 1.8.1 / 1.8.2
Registers −A	2.8.0 · dual tariff optionally 2.8.1 / 2.8.2

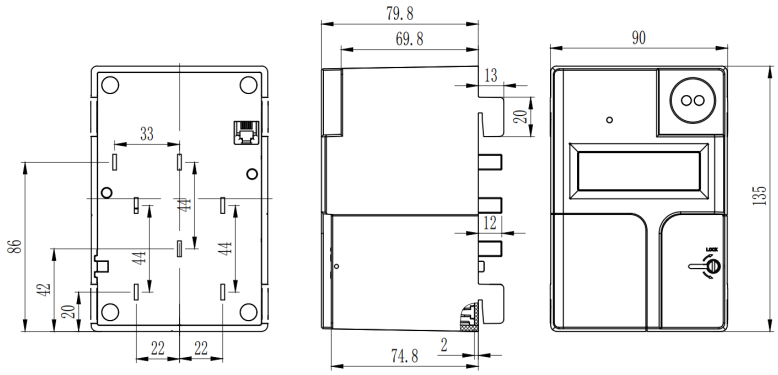
Environmental conditions and mechanics

Temperature range	−25 °C … +55 °C (operation) · −40 °C … +70 °C (storage)
Relative humidity	95 % non-condensing, < 75 % annual average (IEC 62052-11, EN 50470-1, IEC 60068-2-30)
Electromagnetic environmental conditions	E2
Degree of protection	IP51
Housing material	Glass-fibre reinforced polycarbonate
Dimensions (L × W × H)	135 × 90 × 80 mm
Weight	Approx. 450 g
Connection	Contact blades, installation in a contacting device according to DIN VDE 0603-5
User seal	Seal
Service life	20 years

Interfaces

INFO (customer interface)	Optical according to IEC 62056-21, unidirectional
INFO protocol	SML according to FNN specification EDL 1.04, push mode
MSB interface	Rear, optical · 9600 Bd, 8-N-1 · SML 1.04, push mode
Connection to Smart Meter Gateway	Via the OKK-485 (recommended, RJ12) or OKK-232 (RJ10, with adapter) communication head and the BAB-01 communication adapter (LMN according to BSI TR-03109, PTB-A 50.8, FNN specification)
LoRaWAN (option “L”)	Additional radio interface for wireless remote reading, on request

Dimensional drawing



Dimensions in mm. Main dimensions according to DIN 43857-2. Housing identical to the EHZ541-i; the RJ12 socket on the rear is only fitted on the EHZ541-iXXC variant.

Standards & conformity

Measuring Instruments Directive (MID)	Directive 2014/32/EU
EU type-examination certificate (module B)	DE MTP 19 B 005 MI-003 · notified body MID/1948 · valid until 11.08.2029
Conformity assessment (module D)	DE CSA 25 D 011 · notified body MID/1948 · valid until 16.12.2028
Radio Equipment Directive (RED)	2014/53/EU – only variant with LoRaWAN interface
EMC Directive	2014/30/EU
Metrological standards	EN 50470-1, EN 50470-3, IEC 62052-11, IEC 60068-2-30
Design & connection	DIN 43857-2, EN 60999-1, DIN VDE 0603-5
Data interfaces	IEC 62056-21, SML 1.04, BSI TR-03109, PTB-A 50.8
Legal metrology	Only the approved meter types with their respectively released software versions comply with legal metrology

CE · MID 2014/32/EU · class A · EMC 2014/30/EU · RED 2014/53/EU (option L) · DE-M

The EU declaration of conformity is available as a separate document. Manufacturer: Holley Technology Ltd., Hangzhou/China. Importer and distribution in Germany: DIINNO GmbH, Berlin.

Accessories

OKK-485	Optical communication head (RS485) for the MSB interface – RJ12 plug, directly to the BAB-01 (recommended)
OKK-232	Optical communication head (RS232) for the MSB interface – RJ10 plug, with adapter to the BAB-01
BAB-01	Communication adapter according to BSI TR-03109 – connection in combination with OKK-485 or OKK-232

Disposal

In accordance with Directive 2012/19/EU (WEEE), the meter and its electronic accessories must not be disposed of with household waste at the end of their service life. The devices must be collected separately and recycled in an environmentally sound manner.