

ZMY/ZFY405CW1, ZMY/ZFY410CW1
E570 Series 2 2G/4G transformer connected
3-phase electricity meter

Technical data



E570 Series 2 is a smart CT/VT 4- and 3-wire transformer connected electricity meter for the new energy markets. It offers reliable performance and versatile functionality. E570 has built-in support for multi-energy and can be optionally equipped with exchangeable communication modules, such as RS-485, 2G GSM/GPRS or 2G/4G LTE.

Date: 21.08.2019

File name: D000063744 E570 Series 2 ZxY400CW1 IDIS 2G 4G 3-phase Technical Data en d.docx

Revision history

Version	Date	Comments
a.00	18.05.2017	1 st draft.
a.01	16.08.2017	2 nd draft.
a.02	05.09.2017	3 rd draft after first R&D review.
a.03	06.02.2018	4 th draft containing type designation comments and remarks.
a.04	08.02.2018	5 th draft with final corrections made by HW engineering after complete testing.
a	14.02.2018	Final version completed for 1 st release with latest drawings.
b	18.06.2018	Product name updated.
c	20.09.2018	Updated cover photograph.
d	21.08.2019	Updated conductor cross-section. Deleted SP 1618 impulse voltage.

Although the information contained within this document is presented in good faith and believed to be correct, Landis+Gyr (including its affiliates, agents and employees) disclaim any and all liability for any errors, inaccuracies or incompleteness relating to the product. Landis+Gyr makes no warranty, representation or guarantee regarding the performance, quality, durability or suitability of the products for any particular purpose. To the fullest extent permitted by law Landis+Gyr disclaims (1) any and all liability arising out of the use of the product, (2) any and all liability, including, but without limitation to, special, consequential and indirect damages and losses, and (3) any and all implied warranties, including, but without limitation to, fitness for purpose and merchantability.

The information contained in this document is strictly confidential and is intended for the addressee only. The unauthorised use, disclosure, copying, alteration or distribution of this document or the contents thereof is strictly prohibited and may be unlawful.

All product information are subject to change without notice.

Transformer connected E570 Series 2 electricity meter offers a flexible solution for communication between the meter and the metering system (HES, Head-End System)

using exchangeable E57C communication modules, such as RS-485, 2G GPRS or 2G/4G LTE.

E570 Series 2 2G/4G transformer connected 3-phase electricity meter (ZxY400CW1) - Technical data

General

Functions

Measurement:

- Combined bi-directional measurement
- 3-phase/4-wire and 3-phase/3-wire

Communication:

- Two-way communication to the AMM system with 2G/GPRS or 2G/4G LTE
- IDIS-compliant except data type 64 bit

Serial interface:

- Integrated RS-485 with twin jack RJ12

Version with wired M-Bus interface:

- Wired M-Bus master supports up to 4 multi-energy devices (gas, water, district heating)
- Also used as a CII customer interface

Inputs and outputs:

- Up to 5 SO outputs
- 1 control input
- 1 mechanical on-off latching 10 A load control switch
- 2 solid-state 100 mA auxiliary control switches
- Optical port for local reading, configuration and parameterisation

Control buttons:

- 1 scroll button for the display
- 1 sealable reset button

LCD display:

- 9 digits for displaying register values
- Phase, energy direction, no-load mode, alarm, units of measure and supply control switch state indicators on display
- Multi-energy units

External supply control switch control:

- Control for the disconnection of power
- 3 operating modes
- Can be controlled remotely from the AMM system, manually with a push-button or via local communication interfaces

Interoperability and certification

- IDIS 2 DLM, DLMS and IEC readout
- MID certification
- IEC 62052-31 safety standard compliant
- RED compliant (2G and 2G/4G)

- RoHS compliant

Voltage

Nominal voltage U_n ZMY

3 x 58/100 V to 277/480 VAC

Nominal voltage U_n ZFY

3 x 100 to 240VAC

Extended operating voltage range

80% – 115% U_n

Frequency

Nominal frequency f_n

50 Hz or 60 Hz

Tolerance

± 5%

IEC-specific data

Current

Nominal current I_n

1 A, 5 A

Maximum current I_{max}

Metrological

200% I_n

2 A, 10 A

Thermal

12 A

Short-circuit current

0.5 s with 30 x I_{max}

Measurement accuracy

ZxY405

Active energy, to IEC 62053-22

class 0.5 S

Reactive energy:

ZFY to IEC 62053-23

class 2

ZMY to IEC 62053-24

class 1 S

ZxY410

Active energy, to IEC 62053-21

class 1

Reactive energy:

ZFY to IEC 62053-23

class 2

ZMY to IEC 62053-24 class 2

Active power (typical) 0.6 W

Apparent power (typical) 1 VA

Measurement behaviour**Starting current ZxY405**According to IEC 0.1% I_n Typical 0.07% I_n **Starting current ZxY410**According to IEC 0.2% I_n Typical 0.14% I_n

The start-up of the meter is controlled by the starting power and not by the starting current.

MID-specific data**Current (for classes B and C)****Rated current I_n**

1.0 A, 5.0 A

Minimum current I_{min}

0.01 A, 0.05 A

Transitional current I_{tr}

0.05 A, 0.25 A

Maximum current I_{max}

2.0 A, 10.0 A

Measurement accuracy

ZxY400CP1 to EN 50470-3

classes B and C

Measurement behaviour**Starting current I_{st}** Class B: I_{st} 0.002 A, 0.01 AClass C: I_{st} 0.001 A, 0.005 A**General data****Operating behaviour****Voltage failure (power-down)**

Voltage < 46V

Bridging time 0.5 s

Voltage restoration (power-up)

Function stand-by 3 phases < 3 s

Function stand-by 1 phase < 5 s

Detection of energy direction / phase voltage < 3 s

Voltage > 47 V

Power consumption

Power consumption in voltage circuit per phase

Power consumption in current circuit per phase

Apparent power at 5 A (typical) 0.125 VA

Apparent power at 1 A (typical) 0.005 VA

Environmental influences**Temperature range to IEC 62052-11**

Operation meter -40 °C to +70 °C

Operation LCD display -20 °C to +70 °C

According to IEC62052-31 -25 °C to +55 °C

Battery -30 °C to +60 °C

Storage -40 °C to +85 °C

Temperature coefficient

Range -40 °C to +70 °C

Average value (typical) $\pm 0.01\%$ per KAt $\cos\varphi=1$ (from 0.05 I_b to I_{max}) $\pm 0.02\%$ per KAt $\cos\varphi=0.5$ (from 0.1 I_b to I_{max}) $\pm 0.03\%$ per K**Ingress protection acc. to IEC 60529**

IP54

Electromagnetic compatibility**Electrostatic discharges according to IEC 61000-4-2**

Contact discharge 8 kV

Air discharge 15 kV

Immunity conducted disturbances 2 to 150 kHz

According to CENELEC TR 50579

Electromagnetic RF fields acc. to IEC 61000-4-3

80 MHz to 2 GHz 10 and 30 V/m

Radio interference suppression

according to IEC/CISPR 22

class B

Fast transient burst test acc. to IEC 61000-4-4

Current and voltage circuits under load

according to IEC 62053-21 4 kV

Auxiliary circuits > 40 V 2 kV

Surge immunity acc. to IEC 61000-4-5


Current and voltage circuits 4 kV

Auxiliary circuits > 40 V 1 kV

Insulation strength**Insulation strength**

4 kV at 50 Hz during 1 min.

Impulse voltage 1.2/50 μs	
Auxiliary circuits to IEC 62052-11	6 kV
Current and voltage circuits to IEC 62052-11	8 kV

Protective class according to IEC 62052-11	
	II 

Calendar clock

Normal operation	
Accuracy (at +23 °C)	<5 ppm (0.5 s/day)

Back-up time (power reserve)	
With supercapacitor	14 days
With battery CR2477 (opt.)	expected 10 year lifetime

Display

Characteristics	
Type	LCD liquid crystal display with backlight
Digit size / number of value field	8 mm / up to 9
Digit size / number of index field	6 mm / up to 6

Inputs and outputs

Digital input	
According to IEC 62053-31	S0 class B

Control input	
Control voltage U_s	70 to 250 VAC
Input current	< 1 mA ohmic at 230 VAC

2 outputs	
	solid-state auxiliary control switch
Voltage range	0 to 280 VAC/DC
Maximum switching current	100 mA

1 electromechanical output	
	on-off latching load control switch
Voltage range	0 to 250 VAC
Max. resistive load	10 A
Max. operations with $\cos\phi \sim 1$	100,000 op.

Up to 5 digital pulse outputs	
	S0 output
Standard	IEC 62053-31
Supply voltage (nominal/max. value)	24 / 27 V
Current	on-state min. 10 mA, max. 27 mA off-state max. 2 mA

Test output	
	active (configurable as reactive)
Type	red LED
Pulse length	selectable from 2 to 40 ms
Meter constant	selectable

Communication interfaces

Optical interface	
Type	serial, bi-directional interface
Max. transmission speed	19,200 bps
Protocol	according to DLMS or opt. IEC 62056-21

2G interface (GPRS)	
	E57C G10.L
Quad-band GSM	850/900/1800/1900 MHz
GPRS	Class 10 multi-slot
GPRS	Class B mobile station
CSD	Up to 14.4 kbit/s
RED compliant	

2G/4G LTE	
	E57C L10.L
2G bands	900/1800 MHz
4G bands	B1 (2100 MHz), B3 (1800 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz)
4G LTE FDD Category 1 up to 10Mbps with GPRS fall-back	
RED compliant	

2G/4G protocols	
TCP/IPv4 protocol	
DLMS communication protocol supporting:	
- COSEM transport layers for IPv4 networks 62056-47 (Wrapper) used for IP connections (GPRS)	
- Data Link Layer using HDLC Protocol 62056-47 used for analogue connections (CSD)	
- COSEM application layer 62056-53	
- COSEM application model 62056-61 (OBIS) and 62056- 62 (interface classes)	

Antenna	
	for all bands
Antenna connector	SMA

Wired M-Bus interface	
	EN 13757-2: 2005
"Point-to-Point" or "Point-to-Multipoint" bus system	
Max. transmission rate	2,400 bps
Max. unit loads (1 unit load = 1.5 mA)	16
Max. wiring length	≤ 50 m
Transmission from master:	
MARK:	H = SPACE voltage + ≥ 10 V but < 42 V
SPACE:	L ≥ 12 V
Transmission from slave:	
MARK:	L = 0 mA to 1.5 mA
SPACE:	H = (11 mA to 20 mA + MARK current)

RS-485 Interface	
	to ISO-8482
Type	serial, symmetrical, half-duplex
Nominal input voltage CMR	-7 to +12 VDC
Binary 1 state	difference voltage < -0.2 V

Binary 0 state	difference voltage > 0.2 V
Max. transmission rate	38,400 bps
Max. number of slaves	31
Protocols	IEC 62056-21 and DLMS

Material

Case antistatic polycarbonate plastic

Case material is antistatic glass-filled polycarbonate.

Flame retardant and self-extinguishing class V0 according to IEC 60695-11-10.

High temperature deflection, UV stabilised and can withstand applicable environmental tests defined in IEC 60068.

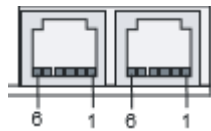
Connections

Phase connections

Material of terminal	brass
Type	cage type terminal with one screw
Diameter	5.2 x 5.2 mm
Conductor cross-section	2.5 to 16.0 mm ²
Stranded wires must be fitted with ferrules.	
Screw head	Pozidrive combi no. 2
Screw dimension	M4 x 15
Tightening torque	1.5 to 2 Nm

RS-485 interface twin jack RJ12 type

Pin assignment



- | | |
|----|-------------------|
| 1. | C (Common Ground) |
| 2. | Data A |
| 3. | Data B |
| 4. | Data B |
| 5. | Data A |
| 6. | C (Common Ground) |

Weight and dimensions

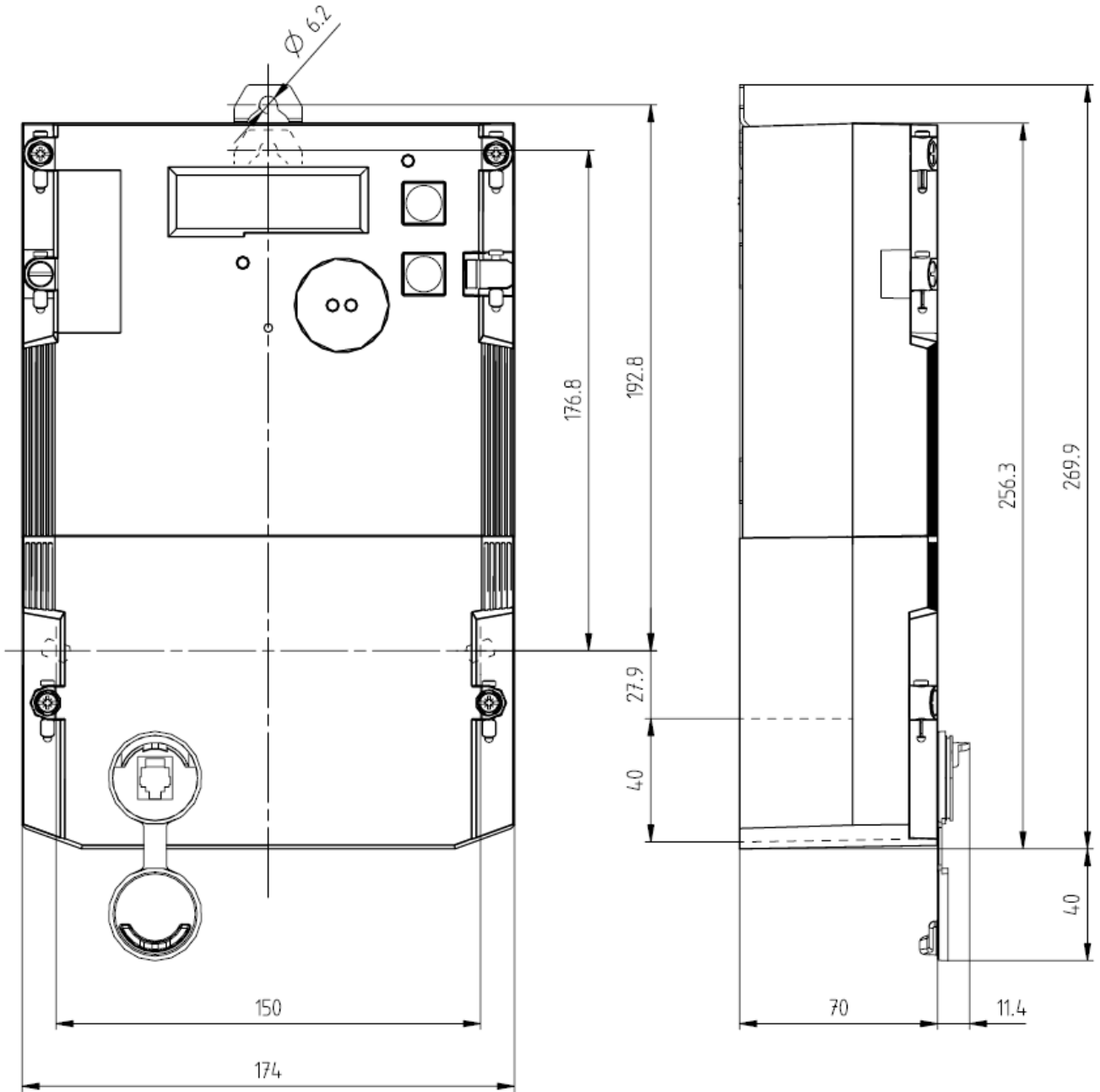
Weight

approximately 1.2 kg

Width/height/depth

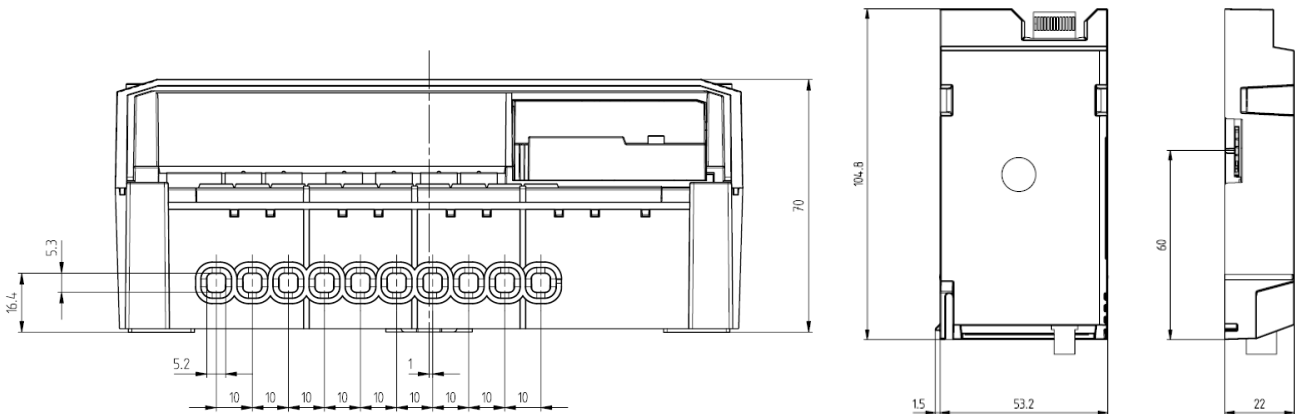
174/269/70 mm

Dimensions (with terminal cover)

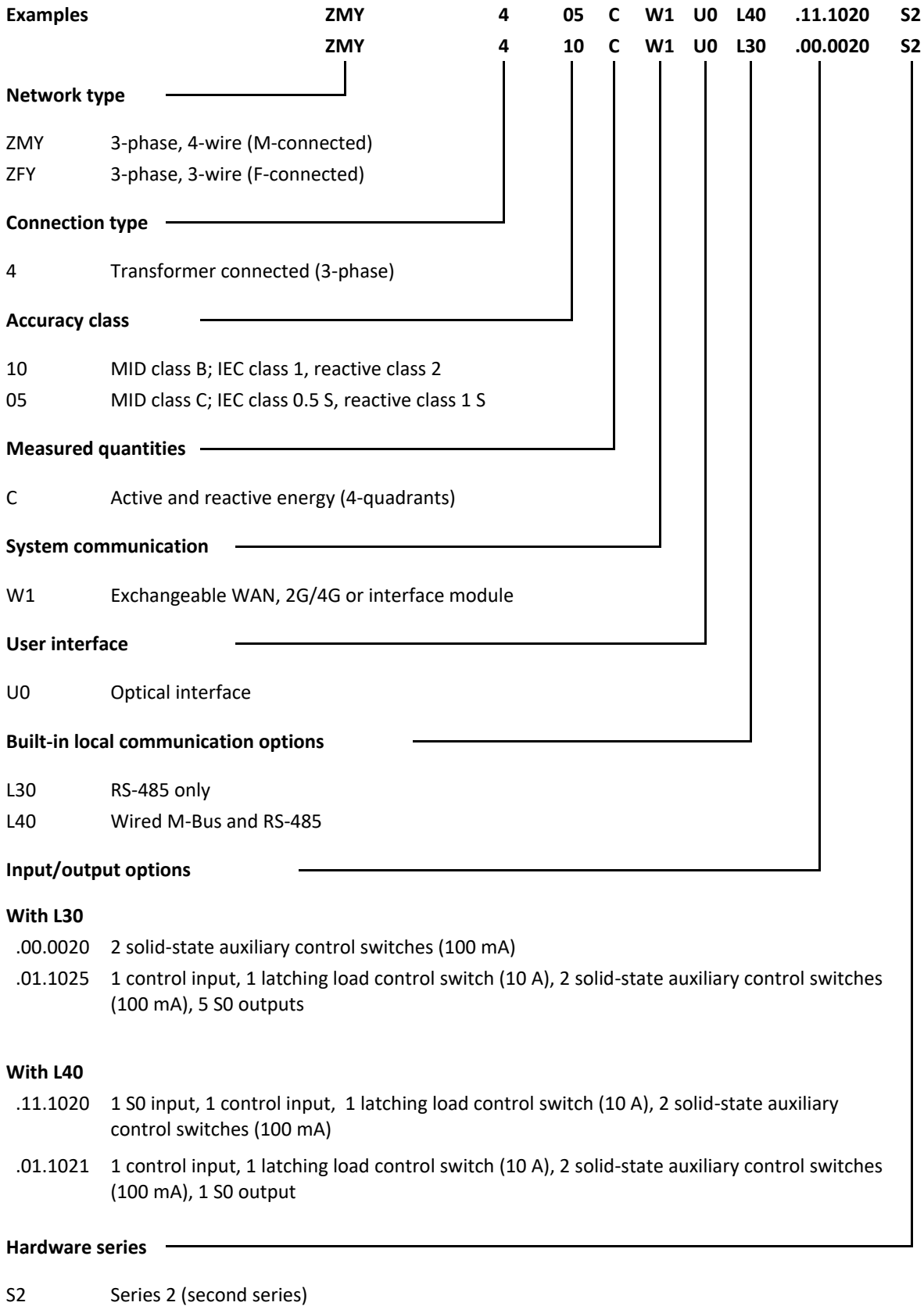


Terminal cover image used contains CII socket. Plain version available.

Dimensions of connection terminals



E570 S2 Type Designation



Available modules

Var 1	A 3 0 . 0	RS-485 module interface
Var 2	G 1 0 . L	2G with last gasp alarming
Var 3	L 1 0 . L	2G/4G with last gasp alarming