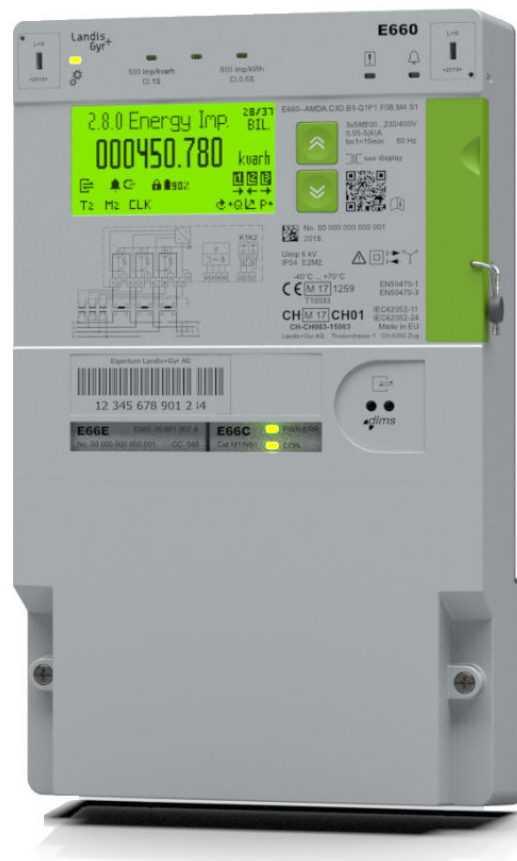


3-phase 3-wire & 3-phase 4-wire transformer meter

## E660 Series 2

Technical data



Building on its tradition of industrial meters, Landis+Gyr has developed the E660, the adaptable industrial meter of the future.

## Revision history

Version	Date	Comments
a.01	06.05.2021	First draft.
a.02	06.07.2021	Second draft.
a.03	09.07.2021	Third draft.
a.04	19.08.2021	Updates for safety testing.
a	02.09.2021	First edition.
b	19.11.2021	Updated power consumption, environmental influences, product safety, display, connections and auxiliary power supply.
c	30.11.2021	Updated to RoHS3.
d	26.01.2022	Updated type designation.
e	11.02.2022	Updated type designation.
f	29.08.2022	Updated optional OVC IV, updated output standard 62053-31 to 62052-11:2020 Ed. 2.

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## The E660 smart industrial meter offers flexible solutions to all industrial metering use cases now and in the future

### Design

The E660 is a completely new smart industrial meter based on our experience with the most proven platform for industrial and commercial meters with more than 2 million meters installed in over 80 countries.

The E660 is the result of a century of Landis+Gyr experience in the metering field combined with high quality requirements.

### Range

E660 meters are the answer to a wide range of specific needs: from the reliable commercial meter to the complex measuring device with comprehensive additional functionalities for sophisticated data acquisition and flexible rate control at large industrial customers.

The functionalities can be extended in the field according needs.

The E660 is also available as a complete energy and power quality meter in all-in-one device.

### Application

The E660 offers high flexibility in connecting to different power distribution systems from low up to high voltage levels thanks to various voltage and current settings.

Covering most of the energy measurement and calculation use cases, E660 meters record active and reactive energy consumption in all three-phase, four-wire and three-phase, three-wire networks with powerful recording capabilities.

## General

### Functions

Measurement:

- Bi-directional (active and reactive) measurement
- 3-phase, 4-wire
- 3-phase, 3-wire
- 1-phase operation possible
- Power quality measurement (application as power quality instrument) (PQI)

Communication:

- Communication through a secure communication module with several communication options
- IDIS-compliant with the exception of data type 64-bit

Inputs and outputs:

- 3 control inputs
- 2 solid state outputs
- Additional I/O in an extension module
- Optical interface for local reading, configuration and parameterisation in the communication module

Control buttons:

- 2 scroll buttons for the display

- 1 sealable set button

LCD display:

- Up to 10 digits for displaying register values
- Phase, energy direction, no-load mode, alarm, units of measure and supply control switch state indicators on display

Interoperability and certification:

- DLMS compliant
- MID certification
- IEC 62052-31:2015 safety standard compliant
- RoHS3 compliant

## Summary of the main features

	3-phase, 4-wire	3-phase, 3-wire
<b>Measured quantities</b>		
Energy (quadrants, phases, direction, reverse stop)	27 <sup>1)</sup>	15
Summation channels (virtual or digital input)	0 <sup>1) 3)</sup>	0
Losses (OLA, NLA, I <sup>2</sup> , U <sup>2</sup> )	0 <sup>1) 3)</sup>	0
Active power harmonic distortion	2 <sup>1)</sup>	2
Rotating field direction	•	
<b>Energy and demand registers</b>		
Rated energy registers / rates	96 / 8	96 / 8
Total energy registers	27	15
Current demand registers (period 1 / period 2)	22 / 22	10 / 10
Last average demand	22	10
Rated maximum demand registers / rates	64 / 8	64 / 8
Last average power factor (multi-utility meters only)	2	2
<b>Other registers</b>		
Operating time	1 total and 8 rated	1 total and 8 rated
Diagnostic registers	66	21
<b>Tariff module</b>		
Season tables	12	12
Week tables	12	12
Day tables	32	32
Special days (set 26 years ahead)	200	200
Time-of-use control signals	24	24
Emergency settings	•	•
Active/passive timetables	•	•
<b>Control scripts</b>		
Communication and digital inputs, TOU; voltage, power factor, demand, current monitoring, status, missing voltages	•	•
<b>Billing data profile</b>		
Amount	1	1
Maximum number of entries	≤ 370	≤ 370
Maximum number of captured channels	≤ 90	≤ 90
<b>Load profiles (integration period from 1 up to 60 minutes)</b>		
Independent continuous load profiles	2 (1 optional)	2 (1 optional)
Maximum number of entries	≤ 36 000	≤ 36 000
Maximum number of captured channels	≤ 60	≤ 60
<b>Data storage (stored data profile, 2 load profiles, standard event log, dedicated event logs)</b>		
Non-volatile memory (Flash memory)	•	•
<b>Instantaneous values</b>		

	3-phase, 4-wire	3-phase, 3-wire
Voltage phase-neutral	● <sup>2)</sup>	-
Voltage phase-phase	●	●
Current	(I1, I2, I3, IN <sup>4)</sup> ) <sup>2)</sup>	(I1, I2, I3) <sup>2)</sup>
Frequency	● <sup>2)</sup>	● <sup>2)</sup>
Phase angles	● <sup>2)</sup>	● <sup>2)</sup>
Active power (+/-)	(P1, P2, P3, P total) <sup>2)</sup>	P total
Reactive power (+/-)	(Q1, Q2, Q3, Q total) <sup>2)</sup>	Q total
Power factor	(PF1, 2, 3, PF total) <sup>1)</sup>	PF total
THD of active power	Sum <sup>2)</sup>	
THD of phase voltage	Sum + Phase 1, 2, 3 <sup>2)</sup>	Sum + (Phase 1, 3) <sup>2)</sup>
THD of phase current	Sum + Phase 1, 2, 3 <sup>2)</sup>	Sum + (Phase 1, 3) <sup>2)</sup>
<b>Event logs</b>		
Regular event logs	8	8
	Maximum number of timestamped entries	
• Standard event log	1000	1000
• Fraud detection event log	250	250
• Meter and terminal cover opening event log	100	100
• Magnetic tamper event log	100	100
• Inputs and outputs change event log	500	500
• Parameter change event log	250	250
• Meter point access event log	200	200
• Communication event log (E660 ↔ E66C)	250	250
• Utility-defined event log	200	200
Certified event logs	2	2
• Certified firmware update event log	100	100
• Certified parameter change event log	100	100
Quality of supply event logs	5	5
• Quality of supply event log	100	100
• Power failure event log	50	50
• Voltage quality event log	100	100
• Voltage dips and swells event log	50	50
• Voltage interruption event log	50	50
<b>Inputs and outputs</b>		
Digital inputs (in meter)	3	3
Digital outputs (in meter)	2	2
<b>Security system</b>		
High-level security (HLS) according DLMS/IDIS	●	●
Role-based access control (RBAC)	●	●

<sup>1)</sup> Value recordable in a dedicated load profile from 1 up to 60 minutes (typically 15 minutes).

- 2) Value recordable in another load profile from 1 up to 60 minutes (typically 5 minutes).
- 3) Planned for next release(s).
- 4) Calculated.

	3-phase, 4-wire	3-phase, 3-wire
<b>Power quality according to EN50160</b>		
Line frequency (IEC61000-4-30)	1 (10 min aggregation period)	1 (10 min aggregation period)
Voltage variations (IEC61000-4-30)	3	3
Voltage unbalance (negative sequence) (IEC61000-4-30)	1	1
Voltage zero sequence unbalance (IEC61000-4-30)	1	1
Voltage THD per phase (IEC61000-4-30)	3	3
Voltage THD sum (IEC61000-4-30)	1	1
Voltage dips and swells (IEC61000-4-30)	•	•
Voltage interruptions (IEC61000-4-30)	•	•
Flicker (short-term and long-term) (IEC61000-4-30)	•	•
Rapid Voltage Changes (RVC) (IEC61000-4-30)	•	•
Power failures (IDIS)	•	•
<b>Other power quality values</b>		
Current variations	3 phases + neutral	3 phases
Current THD per phase	3	-
Current THD sum	1	1
THD of active power	Sum	Sum
THD of phase current	Sum + Phase 1, 2, 3	Sum + (Phase 1, 3)

### Components of a metering point

Electricity meter:

Metrological and billing unit

Communication module:

Handles all communication (mandatory, see separate Technical data document)

Extension module:

Module for additional inputs, outputs, etc. (optional, see separate Technical data document)

# E660 Series 2 3-phase, 3-wire & 3-phase, 4-wire transformer meter – Technical data

## Voltage and frequency

### Voltage (meter)

Nominal voltages $U_n$	
3-phase, 4-wire	3 x 58/100 to 69/120 V 3 x 110/190 to 140/240 V 3 x 220/380 to 240/420 V
3-phase, 3-wire	3 x 100 to 120 V 3 x 220 to 277 V

### Wide operating voltage ranges

3 x 58/100 to 277/480 V  
3 x 100 to 480 V (mid-point earthed)

### Voltage tolerances

Up to 240/415 V	80 to 120%
277/480 V	80 to 115%

### Frequency

Nominal frequency $f_n$	50 Hz
Tolerance	± 5%

## IEC-specific data

### Current

Nominal current $I_n$	
	1 A, 2 A, 5 A

### Maximum current $I_{max}$

Metrological for $I_n = 1$ A	1.2 A, 2 A, 6 A, 10 A
Metrological for $I_n = 2$ A	6 A, 10 A
Metrological for $I_n = 5$ A	6 A, 10 A, 15 A

### Short-circuit current

0.5 s with 20 x  $I_{max}$

### Measurement accuracy

E660 Series 2 – AMxx.xxx.Wx	
Active energy, according to IEC 62053-22:2020	class 0.2 S

E660 Series 2 – AMxx.xxx.Xx	
Active energy, according to IEC 62053-22:2020	class 0.5 S

E660 Series 2 – AMxx.xxx.Yx	
Active energy, according to IEC 62053-21:2020	class 1

E660 Series 2 – AMxx.xxx.x2	
Reactive energy, according to IEC 62053-24:2020	class 2

E660 Series 2 – AMxx.xxx.x3	
Reactive energy, according to IEC 62053-24:2020	class 1 S

E660 Series 2 – AMxx.xxx.x4	
Reactive energy, according to IEC 62053-24:2020	class 0.5 S

### Measurement behaviour

#### Starting current E660 Series 2 – AMxx.xxx.Xx (Cl. 0.5 S meter)

According to IEC	0.1% $I_n$
Typical	0.07% $I_n$

#### Starting current E660 Series 2 – AMxx.xxx.Yx (Cl. 1 S meter)

According to IEC	0.2% $I_n$
------------------	------------

#### Starting current E660 Series 2 – AMxx.xxx.Wx (Cl. 0.2 S meter)

According to IEC	0.1% $I_n$
Typical	0.07% $I_n$

#### Starting power (4-wire) single-phase

Nominal voltage x starting current

#### Starting power (3-wire) in F-circuit all phases

Nominal voltage x starting current x  $\sqrt{3}$

## MID-specific data

### Current (for classes B and C)

Rated current $I_n$	
	1 A, 2 A, 5 A

### Minimum current $I_{min}$

Metrological for $I_n = 1$ A	0.005 A, 0.01 A
Metrological for $I_n = 2$ A	0.01 A, 0.02 A
Metrological for $I_n = 5$ A	0.025 A, 0.05 A

### Transitional current $I_{tr}$

Metrological for $I_n = 1$ A	0.05 A
Metrological for $I_n = 2$ A	0.1 A

<b>Transitional current <math>I_{tr}</math></b>		<b>Power factor</b>	
Metrological for $I_n = 5$ A	0.25 A	Range	-1 ... +1
<b>Maximum current <math>I_{max}</math></b>		<b>Phase angle</b>	
Metrological for $I_n = 1$ A	1.2 A, 2 A, 6 A, 10 A	Resolution	0.1°
Metrological for $I_n = 2$ A	6 A, 10 A	Range voltage-voltage	0 ... 360°
Metrological for $I_n = 5$ A	6 A, 10 A, 15 A	Range current-voltage	0 ... 360°
<b>Measurement accuracy according to EN 50470-3:2006 &amp; A1:2018</b>		<b>Power quality values</b>	
<b>E660 Series 2 – AMxx.xxx.Bx</b>		<b>According to IEC 61000-4-30</b>	
Active energy, according to EN 50470-3:2006 & A1:2018		class S	
class B		<b>General</b>	
<b>E660 Series 2 – AMxx.xxx.Cx</b>		<b>Operating behaviour</b>	
Active energy, according to EN 50470-3:2006 & A1:2018		<b>Voltage failure (power-down)</b>	
class C		Bridging time (base meter at 3 x 230/400V)	
<b>Measurement behaviour</b>		2.0 s	
<b>Starting current <math>I_{st}</math></b>		Data storage	
Class B: $I_{st}$	0.002 A, 0.004 A, 0.01 A	after another 0.2 s	
Class C: $I_{st}$	0.001 A, 0.002 A, 0.005 A	<b>Voltage restoration (power-up)</b>	
<b>Grid diagnostic values</b>		Function standby 3 phases	
<b>Voltage</b>		after 5 s	
Range	20 V... 120% $U_n$	Function standby 1 phase	
Accuracy class 1 <sup>*)</sup>	0.5%	after 5 s	
Accuracy class 0.2 S, 0.5 S <sup>*)</sup>	0.2%	Detection of energy direction and phase voltage	
*) 60% $U_n$ ... 120% $U_n$ , balanced and unbalanced, without harmonics		after 5 s	
<b>Current</b>		<b>Power consumption</b>	
Range	$I_{start}$ ... 120% $I_{max}$	<b>Power consumption per phase in voltage circuit</b>	
Accuracy class 1 <sup>*)</sup>	0.5%	Meter only (no E66C, no E66E):	
Accuracy class 0.2 S, 0.5 S <sup>*)</sup>	0.2%	3 x 58/100 to 69/120 V	
*) 10% $I_n$ ... 120% $I_{max}$ , balanced and unbalanced, without harmonics		< 0.3 W 0.6 VA	
<b>Frequency</b>		3 x 110/190 to 133/230 V	
Range	$f_n$ +/- 15%	< 0.3 W 0.8 VA	
Accuracy	0.5%	3 x 220/380 to 277/480 V	
<b>Power</b>		< 0.4 W 1.0 VA	
Range	$P_{start}$ ... 120% $P_{max}$	E66C (idle communication) and E66E installed:	
Accuracy <sup>*)</sup>	according to meter class	3 x 58/100 to 69/120 V	
Resolution	1 mW	< 0.9 W 1.5 VA	
*) 10% $P_n$ ... 120% $P_{max}$ pf=1, balanced and unbalanced, without harmonics		3 x 110/190 to 133/230 V	
		< 1.1 W 2.0 VA	
		3 x 220/380 to 277/480 V	
		< 1.2 W 2.8 VA	
		E66C (active communication <sup>*)</sup> and E66E installed:	
		3 x 58/100 to 69/120 V	
		< 1.4 W 2.0 VA	
		3 x 110/190 to 133/230 V	
		< 1.4 W 2.7 VA	
		3 x 220/380 to 277/480 V	
		< 1.6 W 3.7 VA	
		*) Meter communication duty cycle is typically < 0.1%.	
		Voltage circuits when auxiliary power supply is installed and operating:	
		3 x 58/100 to 69/120 V	
		< 0.08 W 0.2 VA	
		3 x 110/190 to 133/230 V	
		< 0.1 W 0.25 VA	
		3 x 220/380 to 277/480 V	
		< 0.15 W 0.4 VA	



**Power consumption per phase in current circuit**

Phase current	1 A	5 A	10 A
Active power (typical)	5 mW	0.125 W	0.5 W
Apparent power (typical)	5 mVA	0.125 VA	0.5 VA

**Environmental influences****Temperature range according to IEC 62052-11:2020**

Metrological	–40 °C to +70 °C
Storage	–40 °C to +85 °C

**Temperature range Cl. 0.2 according to IEC 62052-11:2020**

Metrological	–25 °C to +55 °C
Storage	–40 °C to +85 °C

**Temperature coefficient**

Range	–40 °C to +70 °C
Average value (typical)	± 0.012% per K
At cos $\varphi$ =1 (from 0.05 $I_b$ to $I_{max}$ )	± 0.02% per K
At cos $\varphi$ =0.5 (from 0.1 $I_b$ to $I_{max}$ )	± 0.03% per K

**Ingress protection according to IEC 60529**

IP54 (without breakouts)

This meter is intended for indoor use only.

**Mechanical environmental according to the Measuring Instruments Directive 2014/32/EU**

M2

**Electromagnetic environment according to the Measuring Instruments Directive 2014/32/EU**

E2

**Electromagnetic compatibility****Electrostatic discharges according to IEC 61000-4-2 & IEC 62052-11:2020 9.3.3**

Air discharge	15 kV
Contact discharge	8 kV

**Electromagnetic RF fields according to IEC 61000-4-3 & IEC 62052-11:2020 9.3.4**

80 MHz to 2 GHz	10 and 30 V/m
2 GHz to 6 GHz	3 and 10 V/m

**Fast transient burst test according to IEC 61000-4-4 & IEC 62052-11:2020 9.3.6**

Current and voltage circuits	4 kV
------------------------------	------

**Fast transient burst test according to IEC 61000-4-4 & IEC 62052-11:2020 9.3.6**

Auxiliary circuits > 40 V	2 kV
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**Surge test according to IEC 61000-4-5 & IEC 62052-11:2020 9.3.9**

Current and voltage circuits	4 kV
Auxiliary circuits > 40 V	2 kV

**Conducted disturbances according to IEC 61000-4-6 & IEC 62052-11:2020 9.3.7**

150 kHz to 80 MHz	10 V
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**Ring wave according to IEC 61000-4-12 & IEC 62052-11:2020 9.3.10**

Current and voltage circuits (CM/DM*)	4 kV / 2 kV
Auxiliary circuits > 40 V (CM/DM*)	2 kV / 1 kV

\* CM = common mode and DM = differential mode according to IEC 62052-11:2020.

**Damped oscillatory waves according to IEC 61000-4-18 & IEC 62052-11:2020 9.3.11**

Voltage circuits (CM/DM*)	2.5 kV / 1 kV
Auxiliary circuits > 40 V (CM/DM*)	2.5 kV / 1 kV

\* CM = common mode and DM = differential mode according to IEC 62052-11:2020.

**Conducted disturbances according to IEC 61000-4-19 & IEC 62052-11:2020 9.3.8**

2 to 30 kHz	3% $I_{max}$
30 to 150 kHz	1.5% $I_{max}$

**Radio interference suppression according to IEC/CISPR 32**

class B

**Product safety****Insulation strength**

AC voltage	4 kV at 50 Hz during 1 min
Impulse voltage according to SP method 1618	12 kV
Impulse voltage 1.2/50 $\mu$ s, current and voltage circuits	8 kV
Impulse voltage 1.2/50 $\mu$ s, auxiliary circuits	6 kV

**Safety according to IEC 62052-31:2015**

Protection class	class II <input type="checkbox"/>
Extended environmental conditions	3K6
Overvoltage category	OVC III
Indoor use	
Pollution degree internal	2
Pollution degree external and terminals	3
Rated impulse voltage	6 kV
Altitude	up to 2000 m

**Safety according to IEC 61010-1:2010/A1:2016 (Edition 3.0)**

Extended environmental conditions	3K6
Overvoltage category current and voltage circuits	OVC III (OVC IV with E66C Series 1 LTE Cat M1/NB1 optional)
Overvoltage category auxiliary circuits	OVC III
Indoor use	
Pollution degree internal	2
Pollution degree external and terminals	3
Altitude	up to 2000 m

**Calendar clock****Calendar type**

Gregorian

**Clock** **RTC chip**

Accuracy at 23 °C	< 0.5 s/day
(EN 62054-21 requirement for time switches < 0.5 s)	
At - 40 °C to + 70 °C	< 5 ppm

**Clock backup time with supercapacitor** **> 30 days**

Charging time for maximum backup time	300 h
Charging time for 10 days backup time	24 h

**Clock backup time with battery** **10 years**

Battery type (field replaceable)	CR2477
Nominal battery voltage	3 V
Battery temperature range	- 40 °C to + 55 °C

**Display****Characteristics**

Type	dot-matrix LCD
Digit size value field	8 mm
Number of digits value field	max. 10
Digit size code field	6 mm
Number of digits code field	8

**Inputs (optocoupler)****HLV, basic insulation, OVC III**

Number on base meter	3
AC control voltage U <sub>S</sub>	80 to 276 VAC
DC control voltage U <sub>S</sub>	80 to 240 VDC
AC input current	< 0.8 mA at 230 VAC
DC input current	< 1.6 mA at 230 VDC

**Outputs (solid-state relay)****HLV or SELV, reinforced insulation, OVC III, intended to control auxiliary devices**

Number	2
Voltage	12 to 240 VAC/DC
Maximum current for each output	100 mA <sub>RMS</sub>
Maximum current all outputs together	200 mA <sub>RMS</sub>
Maximum switching frequency (pulse length 20 ms)	25 Hz
Contact resistance (typical)	13–18 Ohm
Configurable as alarm, control or time synchronisation output	
Pulse transmitting according EN 62052-11:2020 (Ed. 2) Cl. A and B	

**Outputs (optical)****Pulse output (test) LEDs** **active and reactive energy**

Type	red LED
Number	2
Meter constant	selectable

**Communication interface****Optical interface according to IEC 62056-21 in E66C communication module**

Type	serial, asynchronous, half-duplex
Maximum transmission rate	19,200 bps
Protocol	DLMS

**IP communication over communication module**

Maximum number of parallel ports	5
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**Environmental protection****Design**

RoHS3 (2015/863/EU) compliant

Design	
<b>Connections</b>	
<b>Phase connections</b>	
Terminal type	screwless spring cage clamp terminal
Diameter	4.2 mm
Conductor cross-section	recommended 1.5–6.0 mm <sup>2</sup> solid wires 0.2–10 mm <sup>2</sup> stranded wires or with ferrules 0.2–6 mm <sup>2</sup>
Stripping length	16–18 mm
Screwdriver size	4.0 x 0.6 mm (3.0 x 0.5 mm) e.g. classic PB 100 size 2; VDE PB 5100 size 1 (IEC/EN 60900)
<b>Other connections</b>	
Terminal type	spring cage clamp
Diameter	maximum 2.0 mm
Conductor cross-section	recommended 0.5–2.5 mm <sup>2</sup> maximum 2.5 mm <sup>2</sup>
Stripping length	5–6 mm
Voltage	same as phase connections
Maximum current of voltage outputs	1 A
Screwdriver size	3.5 x 0.6 mm (2.2 x 0.3 mm; 3.0 x 0.5 mm) e.g. VDE PB 5100 size 2 (IEC/EN 60900); VDE PB 5100 size 1 (IEC/EN 60900); VDE PB 5100 size 0 (IEC/EN 60900); classic PB 100 size 1; PB 106 size 1
<b>Auxiliary power supply (optional)</b>	
<b>Aux PS 1: SELV, reinforced insulation</b>	
Nominal voltage range	24 to 60 V DC
Tolerance DC	80 to 115% U <sub>n</sub>
Typical power consumption	2.3 W (24 V) to 2.5 W (60 V)
Maximum current	130 mA (24 V) to 60 mA (60 V)
DC version	independent of DC polarity
<b>Aux PS 2: HLV, reinforced insulation</b>	
Nominal voltage range	60 V to 250 V DC / 100 V to 240 V AC
Tolerance AC	80 to 115% U <sub>n</sub>
Tolerance DC	90 to 115% U <sub>n</sub>
Frequency	50 to 60 Hz
<b>V<sub>IN</sub> = 80 V</b>	
Typical power consumption	2.5 W/4.3 VA
Maximum current	85 mA
<b>Aux PS 2: HLV, reinforced insulation</b>	
<b>V<sub>IN</sub> = 276 V</b>	
Typical power consumption	2.7 W/6.6 VA
Maximum current	35 mA
DC voltage	independent of DC polarity
<b>Housing</b>	
<b>Material</b>	
Polycarbonate, partly glass-fibre reinforced	
Flame retardant and self-extinguishing class V0 according to IEC 60695-11-10.	
<b>Weight and dimensions</b>	
<b>Weight</b>	
approximately 2.1 kg	
<b>External dimensions</b>	
Width	179.3 mm
Height (with standard terminal cover)	294 mm
Height (with extended hook)	309.1 mm
Depth	83 mm
<b>Suspension triangle</b>	
Height (with extended hook)	230 mm
Height (with covered hook)	206 mm
Width	150 mm
<b>Terminal cover</b>	
Standard (opaque or transparent)	40 mm free space
Long (opaque or transparent)	60 mm free space
Extended 1 (opaque)	80 mm free space
Extended 2 (opaque)	110 mm free space

## Dimensions

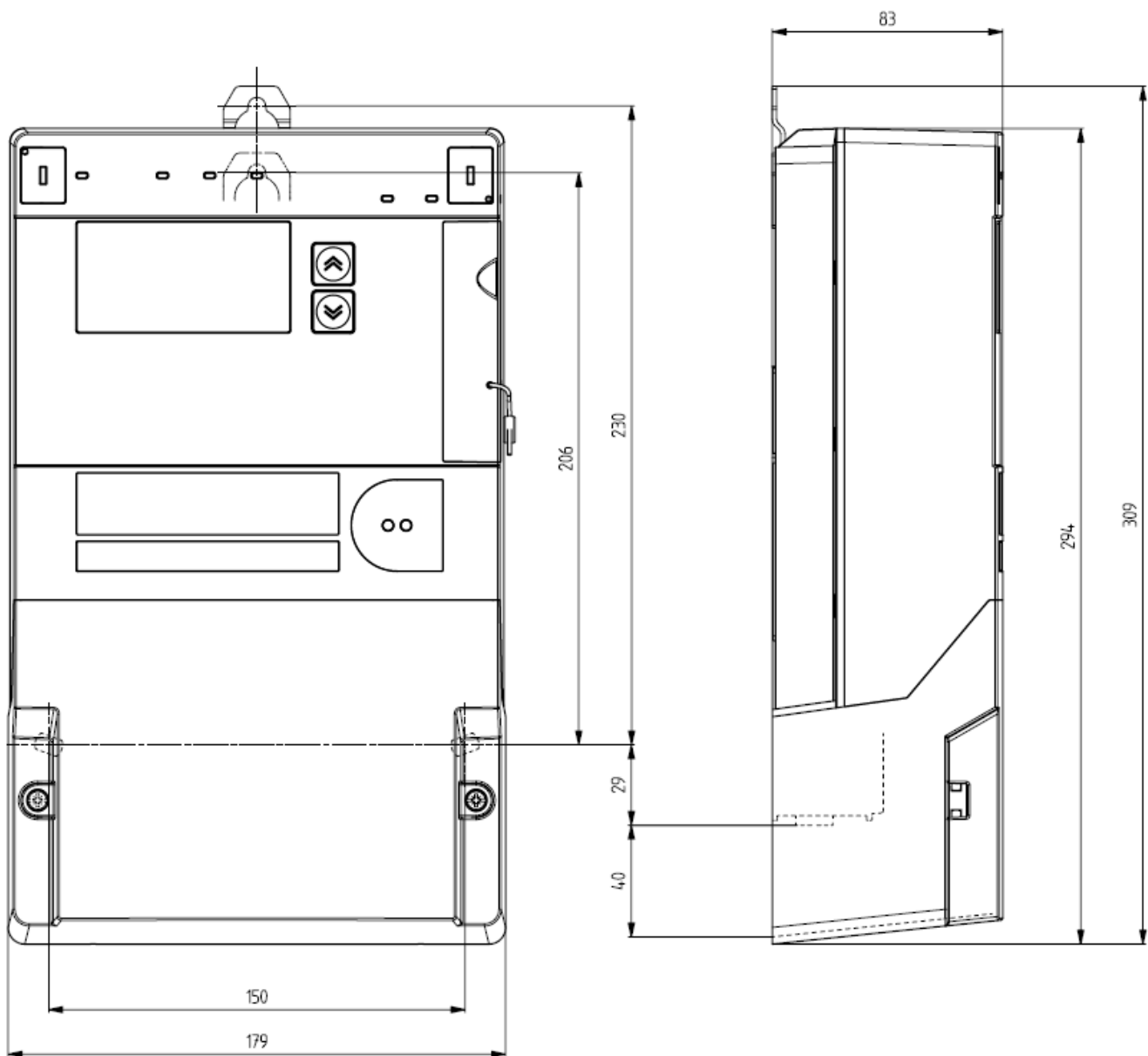


Figure 1: Meter dimensions (standard terminal cover)

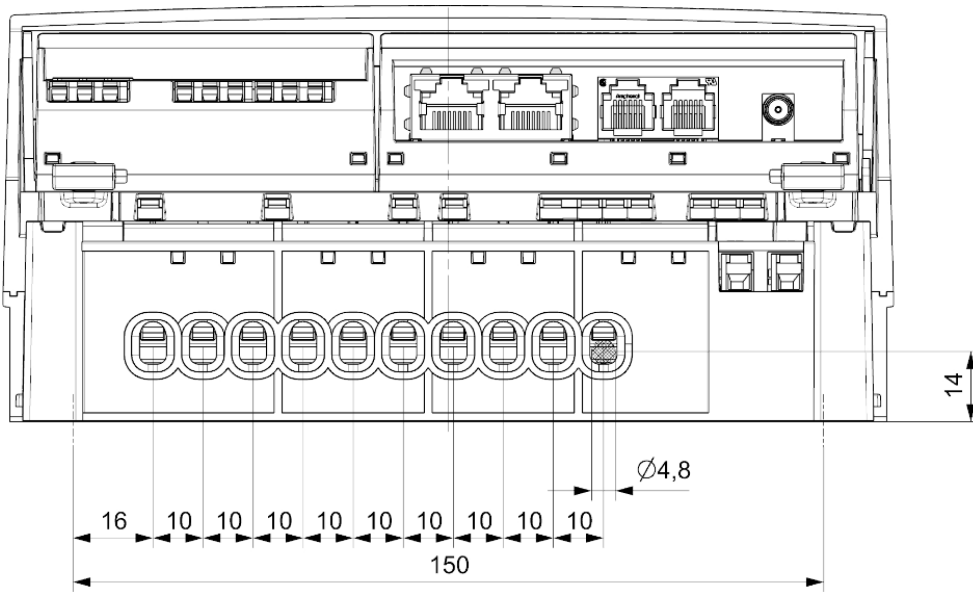


Figure 2: Terminal dimensions

Extension module (example):  
Control inputs and/or outputs

Communication module (example):  
Communication interfaces

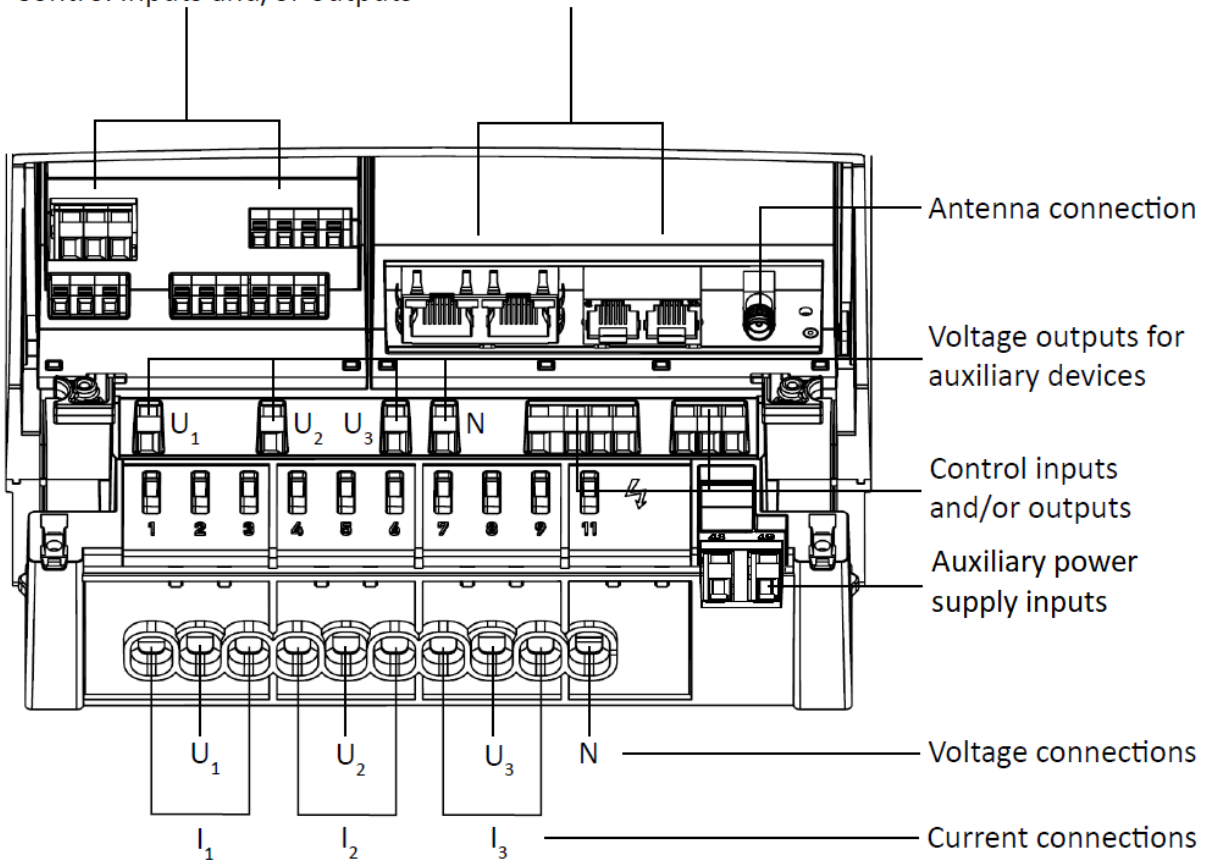


Figure 3: Terminal layout according to DIN

# Type designation (example)

<b>Example</b>	E660	-A	M	D	G.	C	5	D.	C	3-	1	Q1	P1	0	.F3	S.	0	0	0	0	-S2
<b>Brand name</b>	E660 Industrial modular meter																				
<b>Product family</b>	A Product family DLMS smart meter																				
<b>Network and mechanical standard</b>	F 3-phase, 3-wire M 3-phase, 4-wire (DIN)																				
<b>Maximum current</b>	A 1.2 A B 2 A C 6 A D 10 A E 15 A																				
<b>Voltage level</b>	B 58-69 V Upn / 100-120 V Upp C 110-140 V Upn / 190-240 V Upp D 220-240 V Upn / 380-420 V Upp G Wide voltage measurement range: 3 x 58/100 to 240/415 V H Wide voltage measurement range: 3 x 58/100 to 69/120 V + 3 x 220/380 to 240/415 V																				
<b>Measurement modes</b>	A Active only, vector summation (reverse running stop over all phases) B Active only, arithmetic summation (reverse running stop per phase) C Active and reactive/apparent, vector summation (reverse running stop over all phases) D Active and reactive/apparent, arithmetic summation (reverse running stop per phase)																				
<b>Measurement modes 2</b>	5 Active plus and minus including balanced																				
<b>Additional quantities</b>	A Energy only D Energy, demand and profiles																				
<b>Accuracy active measurement</b>	B Class B (MID) C Class C (MID) W Class 0.2 S (IEC 62053-22) X Class 0.5 S (IEC 62053-22) Y Class 1 (IEC 62053-21)																				
<b>Accuracy reactive measurement</b>	0 No reactive measurement 2 Class 2 (IEC 62053-24) 3 Class 1 S (IEC 62053-24) 4 Class 0.5 S (IEC 62053-24)																				
<b>Measurement interval energy</b>	1 100 ms																				
<b>Power quality</b>	Q0 Power quality level 0 (no PQ profile enabled) Q1 Power quality level 1 (only for accuracy class 0.5% or better; U, I, PF, angle, THD (U, I, A), unbalance (U), sags/swells/interruptions) Q2 Power quality level 2 (only for accuracy class 0.5% or better; U, I, PF, angle, THD (U, I, A), unbalance (U), sags/swells/interruptions, flicker and rapid voltage changes)																				
<b>Power supply</b>	P1 Standard from mains with battery																				
<b>Auxiliary power supply</b>	0 Without auxiliary power supply 1 With additional auxiliary power supply 1: 24-60 VDC 2 With additional auxiliary power supply 2: 60-250 VDC / 100-240 VAC																				
<b>Tamper detection</b>	F0 No fraud detection F3 Fraud detection: software events, covers opening, magnetic field detection																				
<b>Terminals</b>	S Spring-type terminals																				
<b>Options 1</b>	0 None																				
<b>Options 2</b>	0 None																				
<b>Options 3</b>	0 None																				
<b>Options 4</b>	0 None																				
<b>Hardware series</b>	S2 Series 2																				

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**Contact:**

Landis+Gyr AG

Alte Steinhäuserstrasse 18

CH-6330 Cham

Switzerland

Phone: +41 41 935 6000

[www.landisgyr.com](http://www.landisgyr.com)