

ZxF100Ax/Cx
E350 series 2
Technical Data



Building on its tradition of open communication meters, Landis+Gyr is now bringing out the E350, the latest generation of its flexible modular meters. E350 is compatible with the interfaces and communication modules of the existing ZMF/ZFF100 platform.

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Revision history

Version	Date	Comments
d	17.03.2011	Temperature range for display operation changed from 55 °C to 70 °C.
e	01.06.2011	General load switching capacity for disconnecter added.
f	20.12.2011	Maximum cross-section of the conductor is terminal-dependent. Document template updated.
g	12.12.2012	Company name changed to Landis+Gyr AG. Auxiliary circuits deleted. Suspension hanger added.

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Subject to change without notice.

The E350 direct-connected residential meters record active and reactive energy consumption in all three-phase, four-wire networks (ZMF100) and three-phase, three-wire networks (ZFF100).

Basic Version

The basic version provides energy registers for tariffication, red test diodes for active and reactive energy, an optical interface for meter reading and an interface for various communication forms. This interface is protected against fraud and is independent of the module suppliers. The exchangeable AMR Module is situated outside of the calibration liability.

Disconnecter

The function of the disconnecter is customer-specific and is defined by the communication module. Possible uses: anti-tampering, load limitation, remote disconnect, prepayment.

Extensions

The basic version can be extended with various AMR Modules for additional functions and communications: multi-rate import/export with external rate control, S0 pulse output, communication via PLC, GSM/GPRS or Ethernet.

The values below are for the basic 3x 230/400 V version.

E350 series 2 ZxF100Ax/Cx – Technical specifications

General	
Voltage	
Nominal voltage U_n	
ZMF100	3 x 230/400 V 3 x 127/230 V
ZFF100	3 x 230 V
Extended operating voltage range	80% – 115% U_n
Frequency	
Nominal frequency f_n	50 Hz
Tolerance	± 2%
IEC-specific Data	
Current	
Base current I_b	selectable: 5, 10, 20 or 40 A
Maximum current I_{max}	
Metrological	selectable: 80 or 100 A
Thermal	100 A
Short circuit ≤ 10 ms	30 x I_{max}
Measurement Accuracy	
ZMF/ZFF110Ax, to IEC 62053-21	class 1
ZMF/ZFF120Ax, to IEC 62053-21	class 2
ZMF/ZFF110Cx	
Active energy, to IEC 62053-21	class 1
Reactive energy, to IEC 62053-23	class 2

ZMF/ZFF120Cx	
Active energy, to IEC 62053-21	class 2
Reactive energy, to IEC 62053-23	class 2

Measurement Behaviour

Starting current	
According to IEC	0.5% I_b
Typical	ca. 0.3% I_b

MID-specific Data

Current

Reference current I_{ref}	selectable: 5, 10 or 20 A
Minimum current I_{min}	≤ 0.05 x I_{ref}
Transitional current I_{tr}	0.5 A, 1 A or 2 A
Maximum current I_{max}	80 or 100 A

Measurement Accuracy

to EN 50470-3	
ZMF/ZFF110Ax	class B
ZMF/ZFF120Ax	class A
ZMF/ZFF110Cx, active energy	class B
ZMF/ZFF120Cx, active energy	class A

Measurement Behaviour

Starting current I_{st}	
Class A:	$I_{st} \leq 0.005 \times I_{ref}$
Class B:	$I_{st} \leq 0.004 \times I_{ref}$

General

Operating Behaviour

Voltage failure (Power Down)
Voltage (for $U_n=230/400$ V) 170 V, configurable

Voltage restoration (Power Up)

Function standby 3 phases < 5 s
Detection of energy direction / phase voltage < 3 s
Voltage > 176 V

Power Consumption

Power consumption in voltage circuit per phase
Active power at U_n (typical) 0.45 W
Apparent power at U_n (typical) 0.51 VA

Power consumption in current circuit

Apparent power at 5 A (typical) 0.01 VA

Environmental Influences

Temperature range
Operation meter -40 °C to +70 °C
Operation display -25 °C to +70 °C
Storage -40 °C to +70 °C

Temperature coefficient

Range -25 °C to +70 °C
Average value (typical) $\pm 0.05\%$ per K
At $\cos\varphi=1$ (from 0.1 I_b to I_{max}) $\pm 0.05\%$ per K
At $\cos\varphi=0.5$ (from 0.2 I_b to I_{max}) $\pm 0.07\%$ per K

Impermeability to IEC 60529 IP 52

Electromagnetic Compatibility

Electrostatic discharges according to IEC 61000-4-2
Contact discharge 8 kV

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 not under load 4 kV
Current and voltage circuits under load according to IEC 62053-21 2 kV

Fast transient surge test acc. to IEC 61000-4-5
Current and voltage circuits 4 kV

Insulation Strength

Insulation strength 4 kV at 50 Hz for 1 minute

Impulse voltage 1.2/50 μ s to IEC 62052-11
Current and voltage circuits 8 kV

Protection class II acc. to IEC 62052-11

Display

Characteristics
Type LCD liquid crystal display
Digit size value field 8 mm
Number of digits value field 8
Digit size index field 6 mm
Number of digits index field 5

Inputs and Outputs

Optical test outputs active and reactive energy
Type red LED
Pulse length approx. 10 ms
Meter constant 1000 imp/kWh

Communication Interface

Optical interface
Type serial, bi-directional interface
Protocol according to IEC 62056-21

Wired interface

Interface to AMR module to IEC 62056-21
(data readout, rate control)

Disconnecter (ZxF100xB only)

Contact data
Maximum switching voltage 400 V AC
Maximum switching current 100 A
Short circuit ≤ 10 ms to EN 62053-21 3000 A
Maximum switching power 25 kVA
Power consumption in current path at 5 A: 0.08 VA

Insulation strength

Contact to contact 4 kV at 50 Hz for 1 minute

Mechanical life

At maximum power 10,000 cycles

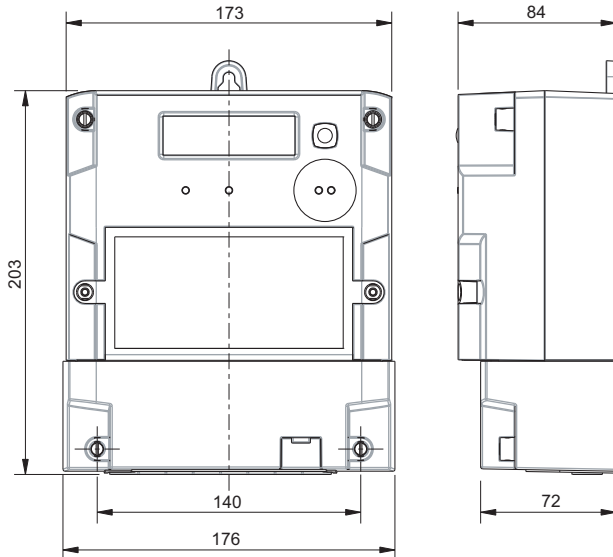
General load switching capacity according to IEC 62055-31 UC3

Weight and Dimensions

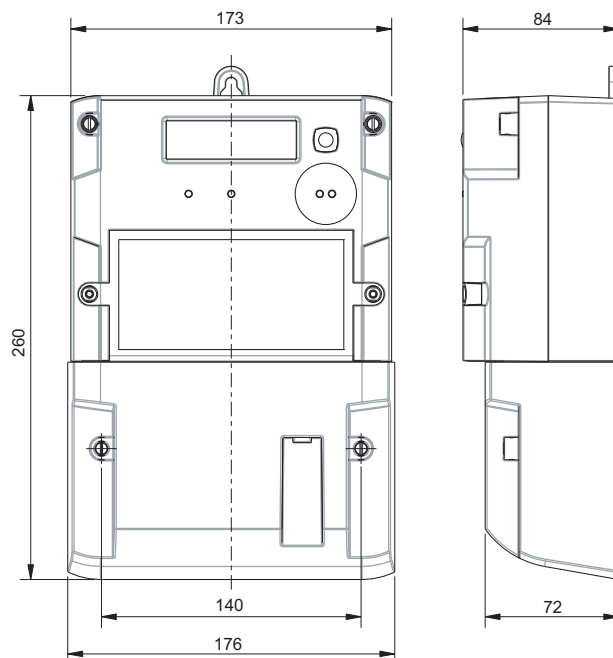
Weight

Without disconnecter	approx. 1.1 kg
With disconnecter	approx. 1.2 kg

Dimensions (with short terminal cover)



Dimensions (with extended 60 mm terminal cover)



External dimensions compliant with DIN 43857

Width	176 mm
Height (with short terminal cover)	203 mm
Height (with extended terminal cover)	260 mm
Depth	84 mm
Height +20 mm, if suspension hanger mounted	

Suspension triangle

Height (suspension eyelet open)	180 mm
Height (suspension eyelet covered)	162 mm
Width	150 mm

Terminal cover

Short	no free space
Extended	40, 60 or 80 mm free space

Material

Housing

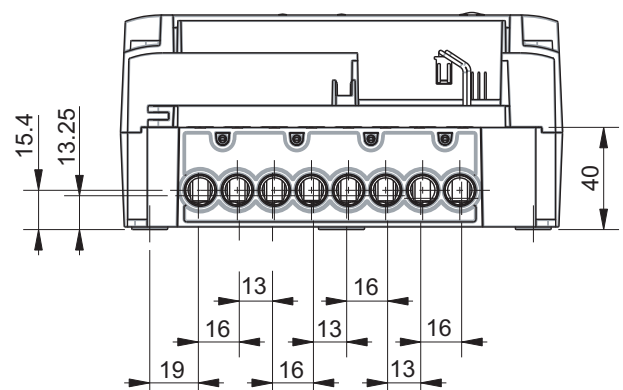
Polycarbonate, partly glass-fiber reinforced

Connections

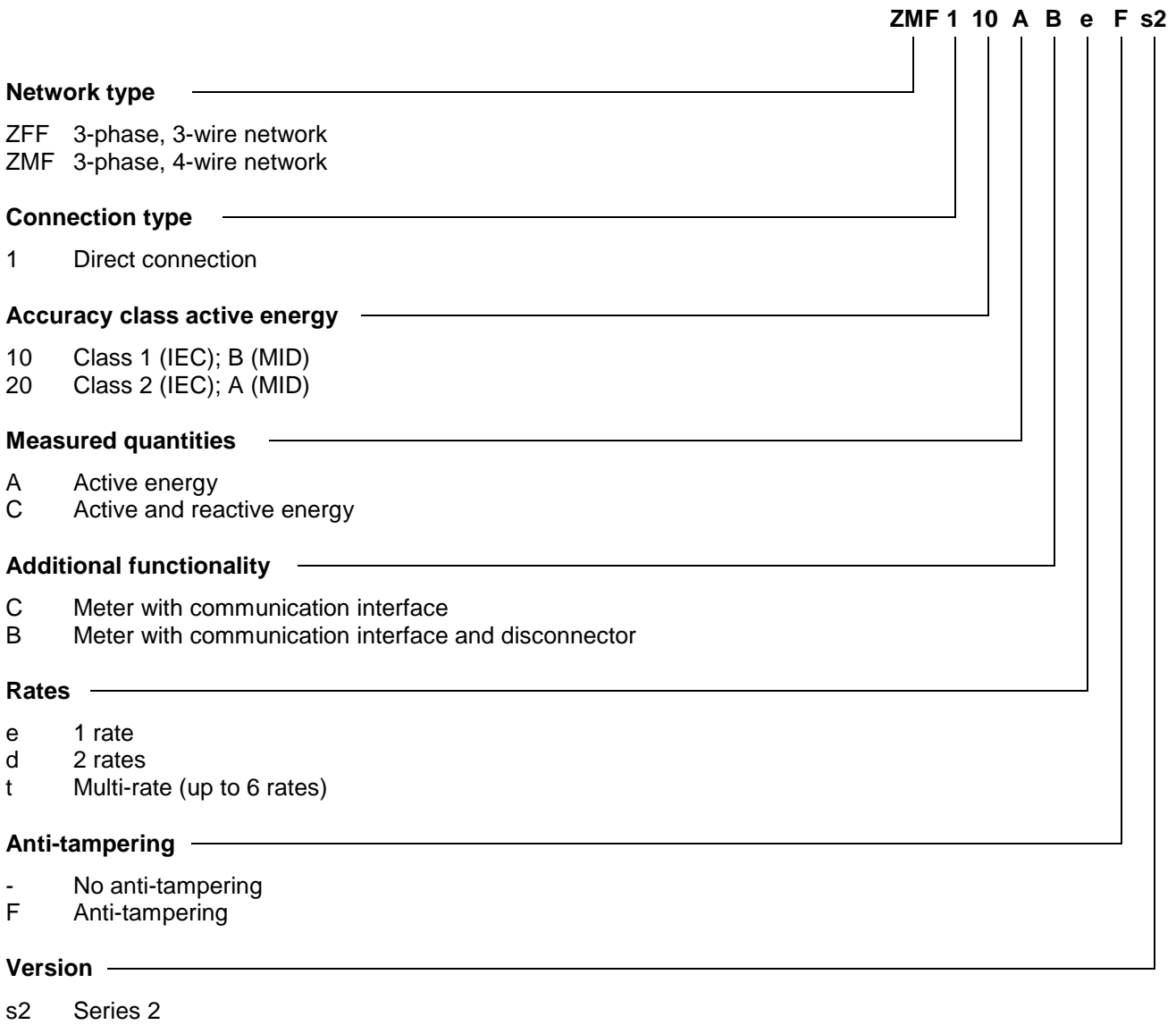
Phase connections

Type	screw-type terminals
Diameter steel-type	8.5 mm
Diameter brass-type	9.5 mm
Minimum conductor cross-section	4 mm ²
Maximum conductor cross-section	
- (9.5 mm terminals)	35 mm ²
- (8.5 mm terminals)	25 mm ²
Wire-end ferrules must be fitted on stranded wires!	
Screw dimensions	M6 x 14
Maximum screw head diameter	≤ 6.6 mm
Cross-slot	type Z, size 2, to ISO-4757-1983
Tightening torque	< 3 Nm

Layout and dimensions



E350 Type Designation



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