

RESIDENTIAL AND COMMERCIAL

Landis+Gyr Dialog

ZMD100AR

TECHNICAL DATA



General

Voltage

Rated Voltage U_n 3 x 220/380–240/415 VExtended operating voltage range 80%–115% U_n

Frequency

Rated Frequency f_n 50 or 60 Hz
tolerance $\pm 2\%$

IEC-specific data

Current

Base Current I_b selectable 5, 10, 20, 40 AMaximum Current I_{max} ZMD110AR
measurement selectable 40, 60, 80, 100 A
thermal 120 AMaximum Current I_{max} ZMD120AR
measurement selectable 40, 60, 80, 100, 120 A
thermal 120 AShort circuit ≤ 10 ms 10'000 A

Measurement Accuracy

Accuracy ZMD110AR
active energy according to IEC 62053-21 class 1Accuracy ZMD120AR
active energy according to IEC 62053-21 class 2

Measurement Behaviour

Starting current
class 2 according to IEC, 0.5% I_b
class 1 according to IEC, 0.4% I_b
typical 0.3% I_b

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

Starting power single phase
rated voltage x starting current

MID-specific data

Current (for Classes A and B)

Reference current I_{ref} 5 A; 10 A; 20 AMinimum current I_{min} $\leq 0.05 \times I_{ref}$ Transitional current I_{tr} 0.5 A; 1 A; 2 AMaximum current I_{max} 100 A

Measurement Accuracy

ZMD110AR, to EN 50470-3 Class B

ZMD120AR, to EN 50470-3 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)

bridging time 0.5 s

data storage after further 0.2 s

switch off after approx. 2 s

Voltage Restoration (Power Up)

function standby 3 phases after 2 s

function standby 1 phase after 5 s

display of energy direction and phase voltage after further 2–3 s

Power Consumption

Power Consumption per Phase in Voltage Circuit

phase voltage 240 V

active power (typical) 0.5 W

apparent power (typical) 4 VA

Power Consumption per Phase in Current Circuit

phase current 10 A

apparent power (typical) 0.03 VA

Environmental Influences

Temperature Range to IEC62052-11

operation $-40\text{ °C to }+70\text{ °C}$

storage $-40\text{ °C to }+85\text{ °C}$

Temperature Coefficient

range $-40\text{ °C to }+70\text{ °C}$

average value (typical) $\pm 0.012\text{ \%}/\text{K}$

with $\cos\varphi=1$ ($0.05\text{ Ib} - I_{max}$) $\pm 0.02\text{ \%}/\text{K}$

with $\cos\varphi=0.5$ ($0.1\text{ Ib} - I_{max}$) $\pm 0.03\text{ \%}/\text{K}$

Impermeability according to IEC 60529 IP52

Electromagnetic Compatibility

Electrostatic Discharges to IEC 61000-4-2

contact discharge 15 kV

Electromagnetic RF Fields to IEC 61000-4-3

80 MHz – 2 GHz min. to IEC 10 V/m

typical 30 V/m

Radio Interference Suppression according to IEC/CISPR 22 class B

Fast Transient Burst Test to IEC 61000-4-4

current and voltage circuits under load

according to IEC 62053-21/22/23 4 kV

auxiliary circuits > 40 V 2 kV

Fast Transient Surge Test to IEC 61000-4-5

current and voltage circuits 6 kV

auxiliary circuits > 40 V 2 kV


Insulation Strength

Insulation Strength 4 kV at 50 Hz for 1 min

Pulse Voltage 1.2/50 μ s to IEC 62052-11

current and voltage circuits 8 kV

auxiliary circuits > 40 V 6 kV

Protection Class II according to IEC 62052-11 

Calendar Clock

Accuracy < 5 ppm

Backup Time (Power Reserve)

with supercap > 20 days

loading time for max. backup time 300 h

Display

Characteristics

type LCD liquid crystal display

digit size in value field 8 mm

number of positions in value field up to 8

digit size in index field 6 mm

number of positions in index field up to 6

Inputs and Outputs

Control Inputs

control voltage U_s 220–240 V AC

voltage range 80%–115% U_s

input current < 2 mA ohmic at 230 V AC

Output Contacts

type solid state relay

voltage 12–240 V AC/DC

maximum current 100 mA

max pulse frequency (pulse length 20 ms) 25 Hz

Optical Test Output for Active Energy

type	infrared LED
number	1
meter constant	selectable

Communication Interfaces

Optical Interface	according to IEC 62056-21
type	serial, bidirectional, half duplex
maximum bit rate	9600 bps
protocols	IEC 62056-21 and dlms

Integrated Interface

alternatively available (only one)

- Type c4: S0/CS interface (parameterisable)
- Type c5: M-Bus interface

Type c4: S0/CS Interface parameterised as S0 Interface

type	pulse transistor output r53
standard	IEC 62053-31 class A / DIN 43864
connection	2 screwless spring-type terminals
rated voltage	24 V DC
maximum voltage	27 V DC
current	10 – 20 mA
pulse constant	parameterisable
insulation resistance to meter	4 kV at 50 Hz for 1 min
creep distance	≥ 6.2 mm
characteristic:	closed if meter is without voltage

Type c4: S0/CS Interface parameterised as CS Interface

type	serial, bidirectional, current interface
standard	IEC 62056-21 / DIN 66258
protocols	IEC 62056-21 and dlms
connection	2 screwless spring-type terminals
rated voltage without load	24 V DC
maximum voltage without load	30 V DC
binary 1 state	10 – 30 mA
binary 0 state	≤ 2 mA
maximum bit rate	9600 bps
insulation resistance to meter	4 kV at 50 Hz for 1 min
creep distance	≥ 6.2 mm

Type c5: M-Bus Interface

type	serial, bidirectional interface
standard (only physical layer)	EN 13757-2
protocols	IEC 62056-21 and dlms
data formats	7E1, 8N1, 8E1
connection	2 screw type terminals
voltage coded bit transmission (call):	
- signal condition binary 1	rated +36 V DC (min. +35 V DC, max. +38 V DC)
- signal condition binary 0	rated +24 V DC (min. +23 V DC, at least 12 V DC below binary 1)
current coded bit transmission (answer):	
- signal condition binary 1	max. 1.5 mA
- signal condition binary 0	min. 12.5 mA (min. 11 mA up to max. 20 mA above binary 1)
maximum short circuit current	83 mA
maximum bit rate	9600 bps
insulation resistance to meter	4 kV at 50 Hz for 1 min
creep distance	≥ 6.2 mm

Connections

Phase Connections

type	screw type terminals
diameter for $I_{max} \leq 85$ A	8.5 mm
diameter for $I_{max} > 85$ A	9.5 mm
minimum conductor cross section	4 mm ²
maximum cross section cable	35 mm ² (up to 120 A)
maximum cross section strand	25 mm ² (up to 85 A)
screw head	Pozidrive Combi No. 2
screw dimension	M6 x 14
maximum screw head diameter	≤ 6.6 mm
tightening torque	3 – 5 Nm

Type c4: S0/CS Interface

type	2 screwless spring-type terminals
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Type c5: M-Bus Interface

type	2 screw type terminals
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Other Connections

type	screwless spring-type terminals
maximum current of voltage outputs	1 A
maximum voltage of inputs	276 V

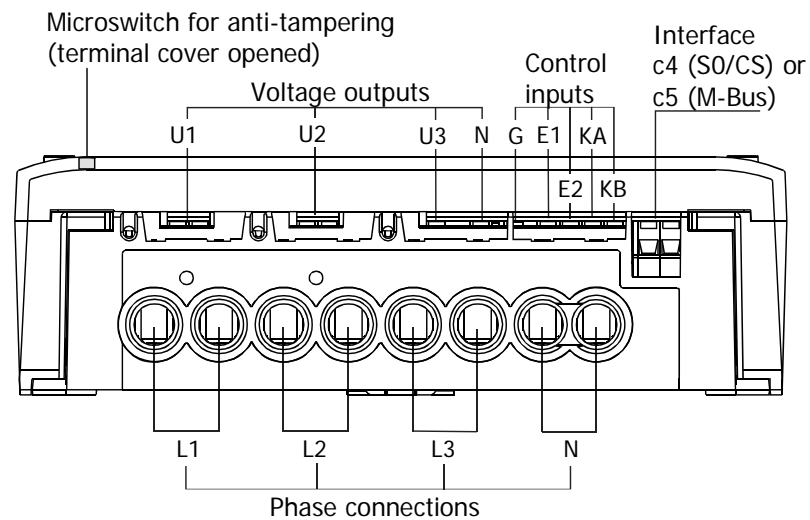
Anti-tampering

Functions

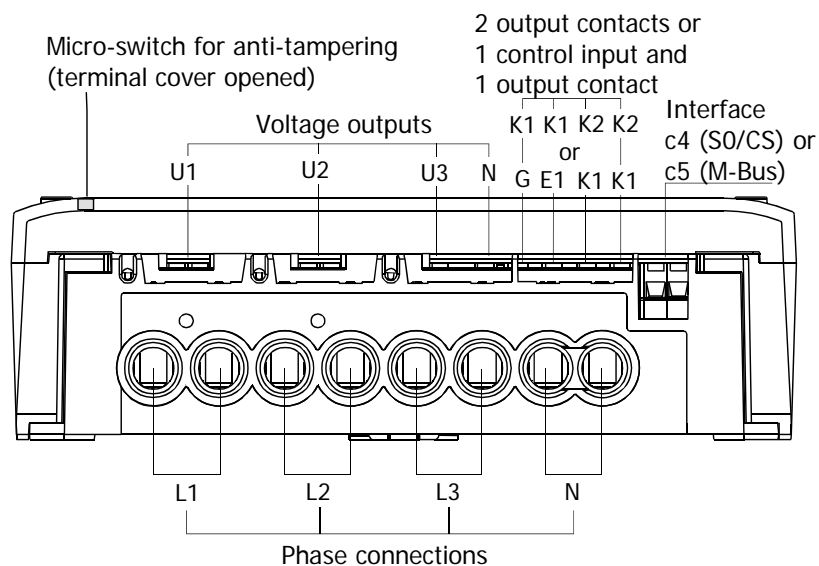
- logging of terminal cover removed
- logging of strong magnetic field on the meter

Terminal Layout and Dimensions

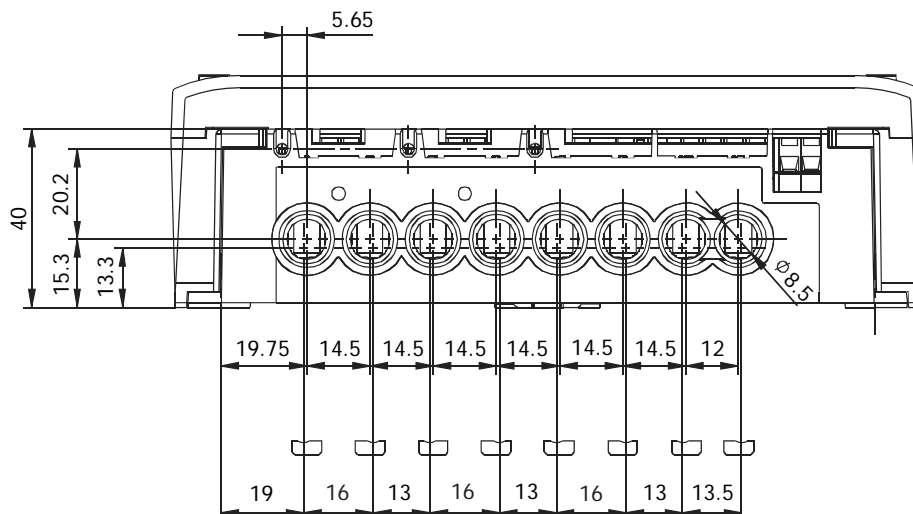
Terminal Layout for Variant with 4 Control Inputs



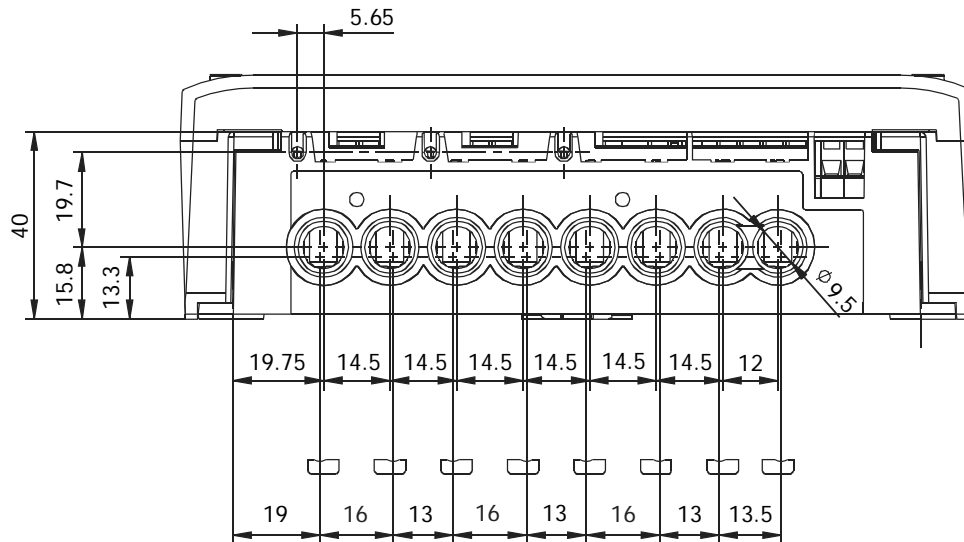
Terminal Layout for Variant with 2 Output Contacts or with 1 Control Input and 1 Output Contact



Terminal Dimensions for Connections with Diameter 8.5 mm



Terminal Dimensions for Connections with Diameter 9.5 mm



Weight and Dimensions

Weight approx. 1.2 kg

External Dimensions

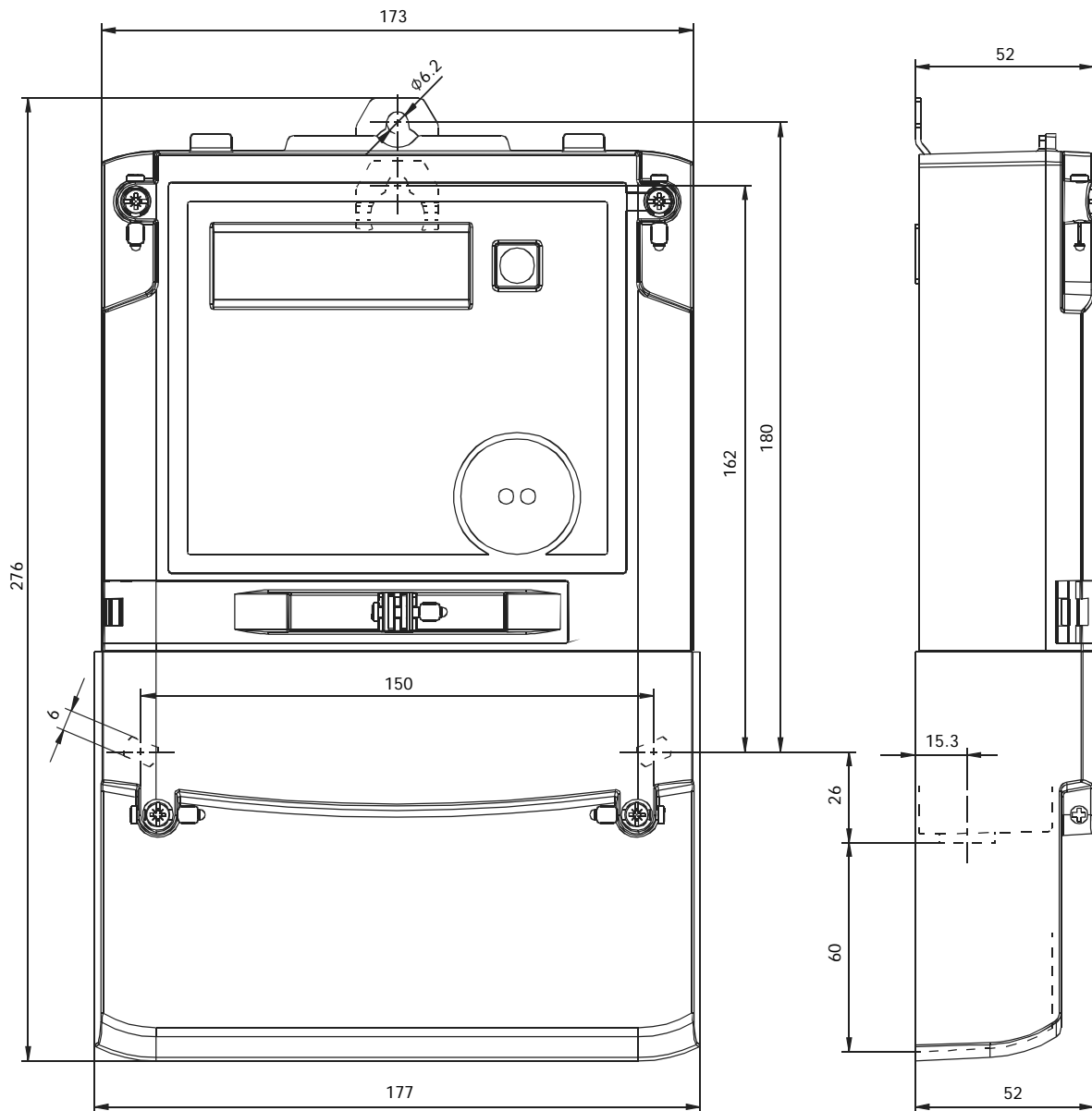
width	177 mm
height with short terminal cover	213 mm
height with standard terminal cover	275 mm
depth	52 mm

Suspension Triangle

height (suspension eyelet open)	180 mm
height (suspension eyelet covered)	162 mm
width	150 mm

Terminal Cover

short	no free space
standard	60 mm free space
according to DIN-43857 (black)	60 mm free space



Material

Case

lower part of case and terminal block
 upper part of case and terminal cover
 transparent viewing window

polycarbonate, glass-fibre reinforced
 polycarbonate and ABS
 polycarbonate

Type Designation

	ZMD	1	10	A	R	44	4002	.c4
Network Type	3-phase 4 wire network (M-circuit)							
Connection Type	Direct connection							
Accuracy Class	Active energy class 1 (IEC); B (MID) Active energy class 2 (IEC); A (MID)							
Measured Quantities	Active energy							
Construction	With integrated interface							
Tariffication	Energy rates, external rate control via control inputs Energy rates, internal rate control via time switch (additionally possible via control inputs) Energy rates and 1 demand rate, external rate control via control inputs Energy rates and 1 demand rate, internal rate control via time switch (additionally possible via control inputs)							
Additional functions	4 control inputs, no output contact no control input, 2 output contacts (only with tariffication 24 or 44) 1 control input and 1 output contact (only with tariffication 24 or 44) no control input, no output contact (only with tariffication 24 or 44)							
Anti-tampering	no with protection functions (only with S0/CS-interface: xxx2.c4)							
Integrated Interface	S0/CS interface M-Bus interface (only without anti-tampering: xxx0.c5)							

Data subject to change without notice.

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