

INDUSTRIAL+COMMERCIAL

Landis+Gyr Dialog

ZMG400AR/CR

TECHNICAL DATA



Voltage

Nominal Voltage Un ZMG400xR
3 x 220/380 to 240/415 V

Voltage Range 70% to 125% Un

Frequency

Nominal Frequency fn 50 or 60 Hz
tolerance ± 2%

Current

Nominal Current In 5 A, 5||1 A

Maximal Current Imax

metrological 5A	10 A
metrological 5 1 A	6 A
thermal 5 A	12 A
thermal 5 1	8 A

Short Circuit 0.5 s with 20 x Imax

Measurement Accuracy

Accuracy ZMG405xR – only with In = 5 A
active energy to IEC 62053-22 class 0.5 S
reactive energy to IEC 62053-23 class 1

Accuracy ZMG410xR

active energy to IEC 62053-21 class 1
reactive energy to IEC 62053-23 class 2

Measurement Behaviour

Starting Current ZMG405xR

according to IEC 0.1% In = 5 A
typical 0.07% In = 5 A

Starting Current ZMG410xR

according to IEC 0.2% In = 5 A
typical 0.14% In = 5 A
In = 1 A

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

Starting Power in M-Circuit single phase
nominal voltage x starting current

Starting Power in F-Circuit all phases
nominal voltage x starting current x √3

Operating Behaviour

Voltage Failure (Power Down)
bridging time according to IEC 0.5 s
data storage after another 0.2 s
switch off after approx. 1 s

Voltage Restoration (Power Up)		
function standby 3 phases		after 4 s
function standby 1 phase		after 5 s
detection of energy direction + phase voltage		after 4 to 5 s

Power Consumption

Power Consumption per Phase in Voltage Circuit		
phase voltage	100 V	240 V
active power (typical)	0.65 W	0.8 W
apparent power (typical)	1.5 VA	5 VA

Power Consumption per Phase in Current Circuit		
phase current	5 A	10 A
active power (typical)	0.125 W	0.5 W
apparent power (typical)	0.15 VA	0.6 VA

Environmental Influences

Temperature Range		to IEC 62052-11
operation class 1		-40 °C to +70 °C
operation class 0.5		-25 °C to +70 °C
storage		-40 °C to +85 °C

Temperature Coefficient	
range	from -25 °C to +70 °C
average value (typical)	±0.012% per K
at $\cos\varphi=1$ (from 0.05 Ib to Imax)	±0.02% per K
at $\cos\varphi=0.5$ (from 0.1 Ib to Imax)	±0.03% per K

Impermeability according to IEC 60529	IP53
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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		10 and 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 not under load		4 kV
current and voltage circuits under load		
according to IEC 62053-21/22/23		2 kV
auxiliary circuits > 40 V		1 kV

Fast Transient Surge Test		to IEC 61000-4-5
current and voltage circuits		4 kV
auxiliary circuits > 40 V		1 kV

Insulation Strength

Insulation Strength	4 kV @ 50 Hz during 1 min
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Impulse Voltage 1.2/50µs		to IEC 62052-11
current and voltage circuits		10 kV
auxiliary circuits > 40 V		6 kV

Protection Class according to IEC 60050-131	2
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Calendar Clock

Accuracy	< 5 ppm
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Calendar Type	
Gregorian or Persian (Jalaali)	

Backup Time (Power Reserve)	
with supercap	> 21 days
loading time for max. backup time	300 h
with battery 1 (calendar clock, display readout)	10 years
battery type	UM3-R6-AA
with battery 2 (calendar clock only)	10 years
battery type	CR2032

Display

Characteristics	
type	LCD liquid crystal display
digit size in value field	9 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 7

Inputs and Outputs

Control Inputs	
control voltage Us	100...240 V AC
input current	< 2 mA ohmic at 230 V AC

Output Contacts	
type	solid state relay
voltage	12...240 V AC/DC
max. current	100 mA
max. switching frequency (pulse length 20 ms)	25 Hz

Optical Test Output		Active and Reactive Energy
type		red LED
number		2
meter constant		selectable

Communication Interfaces

Optical Interface	according to IEC 62056-21
type	serial, bidirectional, half duplex
max. bit rate	19'200 bps
protocols	IEC 62056-21 and dlms

RS232 Interface	to DIN 61393 / DIN 66259
type	serial, asymmetric, asynchronous, bidirectional
operating mode	intelligent or transparent
nominal voltage	±9 V DC
maximum voltage	±15 V DC
minimum voltage	±5 V DC
max. bit rate	38'400 bps
protocols	IEC 62056-21 and dlms
max. conductor length depending on environment and connecting cable	30 m
insulation resistance to meter	4 kVAC / 50 Hz, 1 min
creep distance	≥ 6.2 mm

RS485 Interface	according to ISO-8482
type	serial, symmetric, asynchronous, bidirectional
nominal voltage range	-7...+12 V DC
binary 1 state	difference voltage < -0.2 V
binary 0 state	difference voltage > 0.2 V
max. bit rate	38'400 bps
max. number of slaves	32
protocols	IEC 62056-21 and dlms
max. conductor length depending on environment and connecting cable	≤ 1000 m
insulation resistance to meter	4 kVAC / 50 Hz, 1 min
creep distance	≥ 6.2 mm

CS Interface	to IEC 62056-21 / DIN 66258
type	serial, bidirectional, current interface
nominal voltage without load	24 V DC
max. voltage without load	30 V DC
binary 1 state	10 – 30 mA
binary 0 state	≤ 2 mA
max. bit rate	9600 bps
protocols	IEC 62056-21 and dlms
insulation resistance to meter	4 kVAC / 50 Hz, 1 min
creep distance	≥ 6.2 mm

Weight and Dimensions

Weight	approx. 1.5 kg
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External Dimensions

width	177 mm
height (with short terminal cover)	244 mm
height (with standard terminal cover)	281.5 mm
depth	75 mm

Suspension Triangle

height (suspension eyelet open)	206 mm
height (suspension eyelet covered)	190 mm
width	150 mm

Terminal Cover

short	no free space
standard	40 mm free space
long	60 mm free space
ZxB-type 80 mm	80 mm free space
ZxB-type 110 mm	110 mm free space
ADP1 adapter	
RCR/FTY adapter	

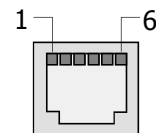
Connections

Phase Connections

type	cage type terminals
cross section	5.2 x 5.2 mm
recommended conductor cross section	4 – 6 mm ²
screw head	Pozidrive Combi No. 2
screw dimension	M4 x 15
screw head diameter	max. 5.6 mm
tightening torque	1.5 to 2 Nm

RS232 Interface

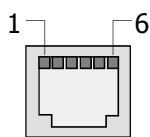
type designation	.02/.42
type	RJ 12
pin assignment	



1	CTS
2	TxD
3	GND
4	DTR
5	RxD
6	DSR

RS485 Interface

type designation .03/.43
 type RJ 12
 pin assignment



- 1 c (ground)
- 2 a (data a)
- 3 b (data b)
- 4 b
- 5 a
- 6 c

Other Connections

type screw type terminals
 max. current of voltage outputs 1 A
 max. voltage of control inputs 300 V

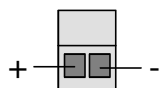
Material

Housing

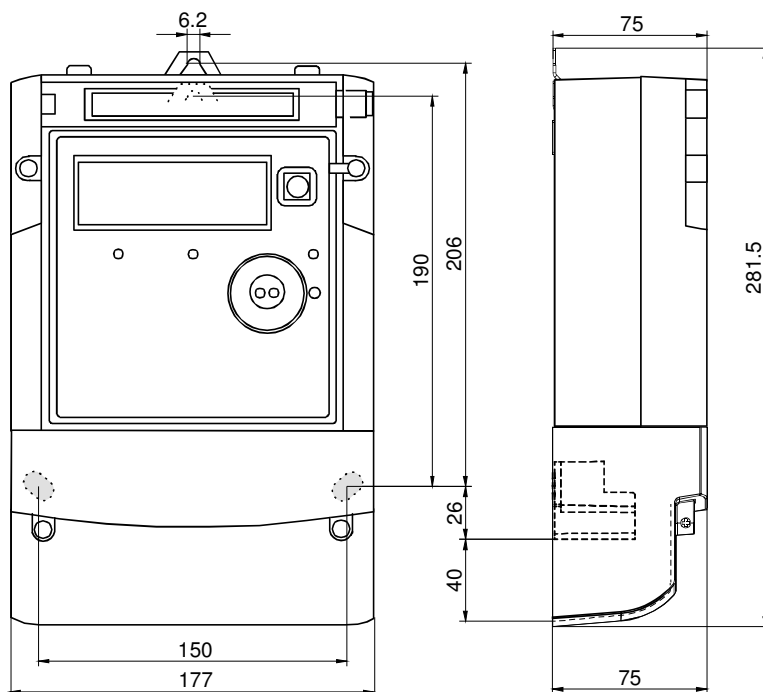
The meter housing is made of polycarbonate which is partly glass-fibre reinforced.

CS Interface

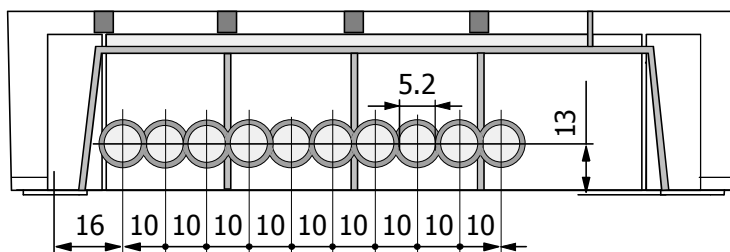
type designation .40/.42/.43
 type screw type terminals

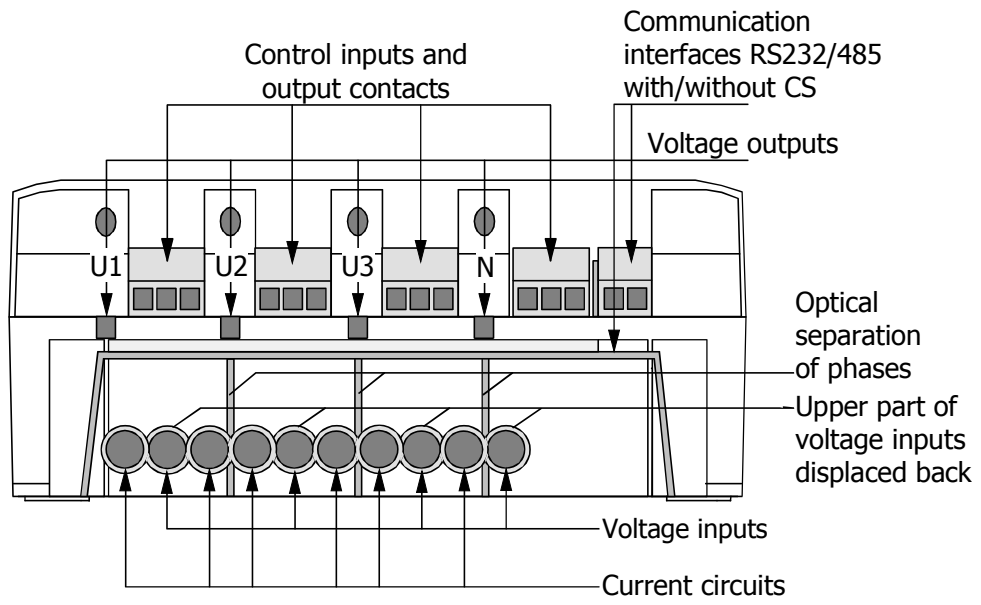


Meter Dimensions (Standard Terminal Cover)



Terminal Dimensions





Network type

- ZMG Three-phase four-wire network (M connection)

Connection type

- 4 Transformer connection

Accuracy class

- 10 1 according to IEC ZMG310/410..
- 05 0.5 according to IEC ZMG405C

Measurement variants

- AR Active energy meter
- CR Combi meter for active and reactive energy

Tariff functions

- 1 Energy rates, external controlled
- 2 Energy rates, internal controlled with time switch
- 3 Energy and demand rates, external controlled
- 4 Energy and demand rates internal controlled with time switch

Number of control inputs/output contacts

Provided combinations: 00 / 26 / 44

Special functions

- 0 no

Further functions

- 0 no
- 3 with software events
- 4 with hard- and software events
- 7 with load profile
- a with load profile and software events
- b with load profile and hard- and software events

Interfaces

- 00 no
- 02 with RS232
- 03 with RS485
- 40 with CS
- 42 with CS and RS232
- 43 with CS and RS485

Data subject to change without notice.

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The logo for Landis+Gyr, featuring the company name in a sans-serif font with a vertical line separating 'Landis' and 'Gyr', and a plus sign to the right of 'Gyr'.

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