

# INDUSTRIAL + COMMERCIAL

Landis+Gyr Dialog

## ZMG310AR/CR

### TECHNICAL DATA



#### General

##### Voltage

Nominal Voltage  $U_n$  ZMG310xR  
3 x 220/380 to 240/415 V

Voltage Range 70% to 125%  $U_n$

##### Frequency

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

#### IEC-specific data

##### Current

Base Current  $I_b$  5 – 10 – 20 – 40 A

##### Maximal Current $I_{max}$

metrological 40 – 60 – 80 – 100 – 125 A  
thermal 125 A  
with aluminium wires 80 A

Short Circuit  $\leq 10$  ms 10'000 A

##### Measurement Accuracy

###### Accuracy ZMG310xR

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

##### Measurement Behaviour

###### Starting Current ZMG310xR

according to IEC 0.4%  $I_b$   
typical 0.3%  $I_b$

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

#### MID-specific data

##### Current (for Class B)

Minimum Current  $I_{min}$  0.25, 0.5, 0.75, 1.0 A

Transitional Current  $I_{tr}$  0.5, 1.0, 1.5, 2.0 A

Maximum Current  $I_{max}$  125 A  
with aluminium wires 80 A

##### Measurement Accuracy

ZMG300xR; to EN 50470-3 Class B

##### Measurement Behaviour

Starting Current  $I_{st}$  0.02, 0.04, 0.06, 0.08 A

## General

### 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	240 V
active power (typical)	0.8 W
apparent power (typical)	5 VA

#### Power Consumption per Phase in Current Circuit

phase current	10 A
apparent power (typical)	0.03 VA

### Environmental Influences

Temperature Range	to IEC 62052-11
operation	-40 °C to +70 °C
storage	-40 °C to +85 °C

#### Temperature Coefficient

range	-25 °C to +70 °C
average value (typical)	$\pm 0.012\%$ per K
at $\cos\varphi=1$ (from 0.05 $I_b$ to $I_{max}$ )	$\pm 0.02\%$ per K
at $\cos\varphi=0.5$ (from 0.1 $I_b$ to $I_{max}$ )	$\pm 0.03\%$ 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
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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 1.2/50 $\mu$ s	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 digits in value field	up to 8
digit size in index field	6 mm
number of digits in index field	up to 7

### Inputs and Outputs

#### Control Inputs

control voltage $U_s$	100 to 240 V AC
input current	< 2 mA ohmic at 230 V AC

#### Output Contacts

type	solid state relay
voltage	12 to 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

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

<b>RS232-Interface</b>	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

<b>RS485 interface</b>	according to ISO-8482
type	serial, symmetrical, half duplex
nominal voltage range	-7 to +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

<b>CS Interface</b>	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

<b>Weight</b>	approx. 1.5 kg
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<b>External Dimensions</b>	
width	177 mm
height (with short terminal cover)	244 mm
height (with standard terminal cover)	281.5 mm
depth	75 mm

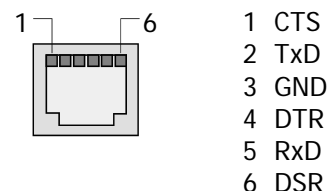
<b>Suspension Triangle</b>	
height (suspension eyelet open)	206 mm
height (suspension eyelet covered)	190 mm
width	150 mm

<b>Terminal Cover</b>	
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

<b>Phase Connections</b>	
type	cage type terminals
cross section	9 x 9 mm
min conductor cross section	2.5 mm <sup>2</sup>
max. cross section cable	35 mm <sup>2</sup> (up to 125 A)
max. cross section strand	25 mm <sup>2</sup> (up to 80 A)
screw head	Pozidrive Combi No. 2
screw dimension	M6 x 14
screw head diameter	≤ 6.6 mm
tightening torque	3 to 5 Nm

<b>RS232 Interface</b>	
type designation	.02/.42
type	RJ 12
pin assignment	



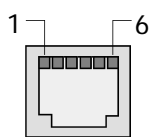
- 1 CTS
- 2 TxD
- 3 GND
- 4 DTR
- 5 RxD
- 6 DSR

## RS485 Interface

type designation .03/.43

type RJ 12

pin assignment

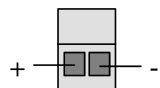


- 1 c (ground)
- 2 a (data a)
- 3 b (data b)
- 4 b
- 5 a
- 6 c

## CS Interface

type designation .40/.42/.43

type screw type terminals



## Other Connections

type screw type terminals

max. current of voltage outputs 1 A

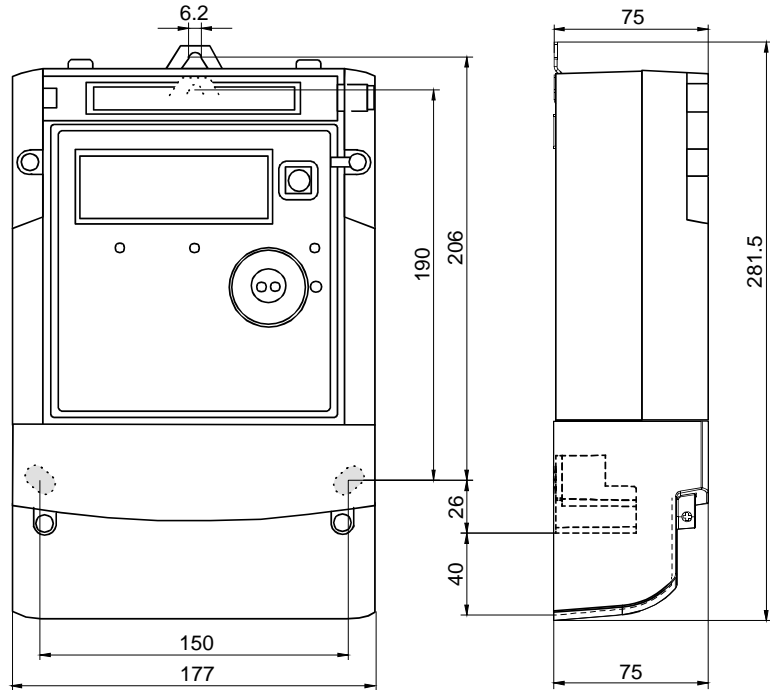
max. voltage of control inputs 300 V

## Material

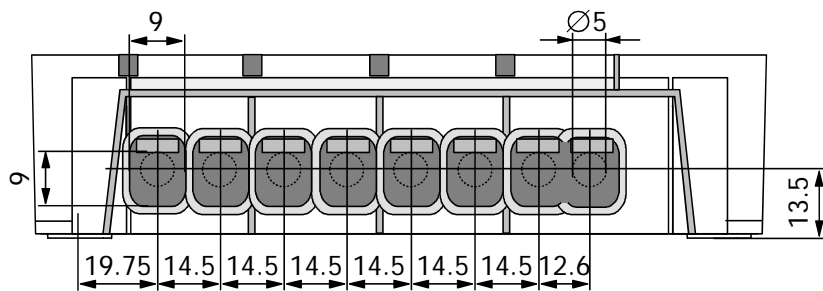
### Housing

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

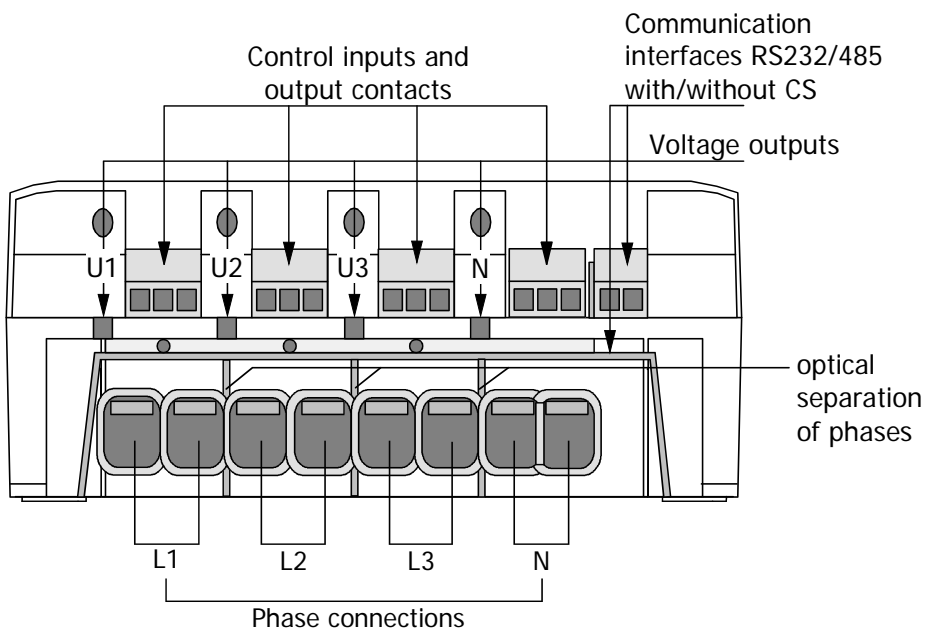
## Meter Dimensions (Standard Terminal Cover)



## Terminal Dimensions



## Terminal Layout



<b>Type Designation</b>	ZMG	3	10	CR	4.26	0	b	.43
<b>Network Type</b>	_____							
ZFG	3-phase 3 wire network (F-connection)							
ZMG	3-phase 4 wire network (M-connection)							
<b>Connection Type</b>	_____							
3	Direct connection							
4	Transformer connection							
<b>Accuracy Class</b>	_____							
10	Class 1 (IEC), B (MID) ZMG310/410..							
05	Class 0.5 (IEC), C (MID) ZMG405..							
<b>Measured Quantities</b>	_____							
AR	Active energy meter							
CR	Combi meter for active and reactive energy							
<b>Tariff Functions; Control Inputs/Output Contacts</b>	_____							
1.xx	Energy rates, externally controlled							
2.xx	Energy rates, internally controlled with time switch							
3.xx	Energy and demand rates, externally controlled							
4.xx	Energy and demand rates, internally controlled with time switch							
x.00	no inputs/output contacts							
x.26	2 control inputs/6 output contacts							
x.44	4 control inputs/4 output contacts							
<b>Special Functions</b>	_____							
0	none							
<b>Further Functions</b>	_____							
0	none							
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							
<b>Interfaces</b>	_____							
00	none							
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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