Electricity Meters IEC

INDUSTRIAL+COMMERCIAL

Landis+Gyr Dialog

ZMG310AR/CR

TECHNICAL DATA

Voltage

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

Voltage Range	70% to 125% Un

Current

Base Current Ib	5 – 10 – 20 – 40 A

Maximal Current Imax	
metrological	40 – 60 – 80 – 100 – 125 A
thermal	125 A

Short Circuit ≤ 10 ms	10'000 A

Frequency

Nominal Frequency fn	50 or 60 Hz
tolerance	± 2 %

Mesurement 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 % Ib
typical	0.3 % Ib

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

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 Coefficent	
range	from –25 °C to +70 °C
average value (typical)	± 0.012 % per K
at cosφ=1 (from 0.05 Ib to Imax)	± 0.02 % per K
at cosφ=0.5 (from 0.1 Ib to Imax)	± 0.03 % per K

Impermeability according to IEC 60529	IP53

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 Strenght

Insulation Strenght	4 kV @ 50 Hz during 1 min

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

Calendar Clock

Accuracy	< 5 ppm

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 to 2400 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

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 lenght 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 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 lenght 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

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

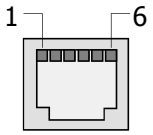
Terminal Cover	
short	no free space
standard	40 mm free space
long	60 mm free space
ZxB-type 80 mm	80 mm free space
ZxB-type 110 mm	110 mm free space
ADP1 adapter	
RCR/FTY adapter	

Connections

Phase Connections	
type	cage type terminals
cross section	9 x 9 mm
min conductor cross section	2.5 mm^2
max. cross section cable	35 mm^2 (up to 125 A)
max. cross section strand	25 mm^2 (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

RS232 Interface	
type designation	.02/.42
type	RJ 12

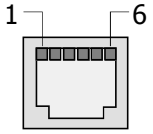
pin assignment



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

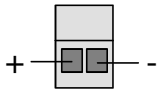
RS485 Interface	
type designation	.03/.43
type	RJ 12

pin assignment



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

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



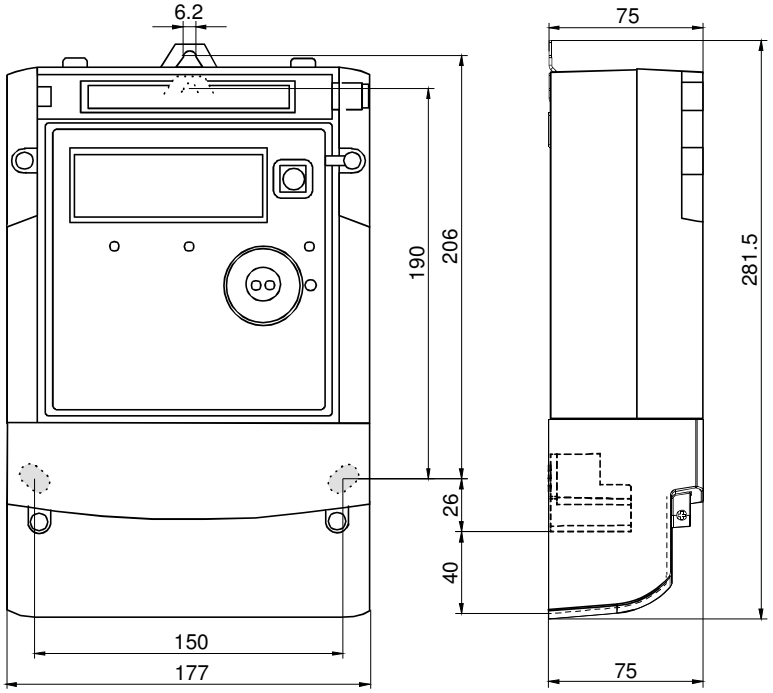
Other Connections	
type	screw type terminals
max. current of voltage outputs	1 A
max. voltage of control inputs	300 V

Material

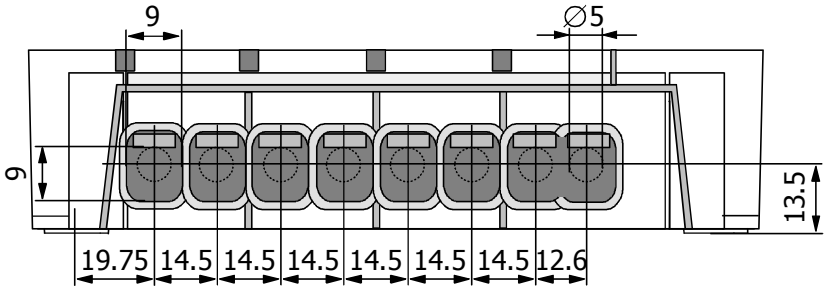
Housing

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

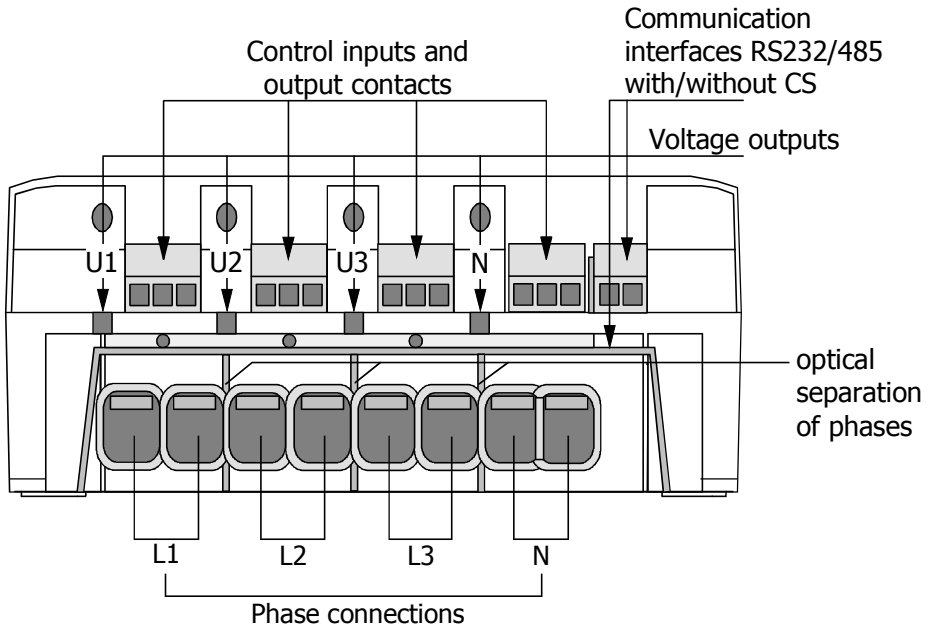
Meter Dimensions (Standard Terminal Cover)



Terminal Dimensions



Terminal Layout



ZMG 3 10 CR 4 .26 0 b .43

Network type

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

Connection type

- 3 Direct connection

Accuracy class

- 10 1 according IEC ZMG310...

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

Povided 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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