

INDUSTRIAL + COMMERCIAL

Landis+Gyr Dialog

ZMG400AR/CR, ZFG400AR/CR

TECHNICAL DATA



General

Voltage ZMG400xR

Nominal Voltage U_n 3 x 58/100 to 69/120 VVoltage Range 80% to 115% U_n Nominal Voltage U_n 3 x 220/380 to 240/415 VVoltage Range 70% to 125% U_n

Voltage ZFG400xR

Nominal Voltage U_n 3 x 100 to 120 VVoltage Range 80% to 115% U_n

Frequency

Nominal Frequency f_n 50 or 60 Hztolerance $\pm 2\%$

IEC-specific data

Current

Nominal Current I_n 1 A, 5 A, 5||1 A

Maximal Current I_{max}

metrological 1 A, 5A 200%

metrological 5||1 A 6 A

thermal 1 A 2.4 A

thermal 5 A 12 A

thermal 5||1 8 A

Short Circuit 0.5 s with $20 \times I_{max}$

Measurement Accuracy

Accuracy ZxG405xR – only with $I_n = 5$ A

active energy to IEC 62053-22 class 0.5 S

reactive energy to IEC 62053-23 class 1

Accuracy ZxG410xR

active energy to IEC 62053-21 class 1

reactive energy to IEC 62053-23 class 2

Measurement Behaviour

Starting Current ZxG405xR

according to IEC 0.1% $I_n = 5$ Atypical 0.07% $I_n = 5$ A

Starting Current ZxG410xR

according to IEC 0.2% I_n typical 0.14% I_n 5||1 A $I_n = 1$ 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 $\sqrt{3}$

MID-specific data

Current (for Classes B/C)

Reference Current I_{ref} 1.0, 5.0 A/5.0 A

Minimum Current I_{min} 0.01, 0.05 A/0.05 A

Transitional Current I_{tr} 0.05, 0.25 A/0.25 A

Maximum Current I_{max} 2.0, 6.0, 10.0 A/10.0 A

Measurement Accuracy

ZxD400AR/CR; to EN 50470-3 Classes B and C

Measurement Behaviour

Starting Current I_{st}

Class B: I_{st} 0.002, 0.01 A

Class C: I_{st} 0.005 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 58 V 100 V 240 V

active power (typical) 0.5 W 0.5 W 0.8 W

apparent power (typical) 1.5 VA 1.5 VA 5 VA

Power Consumption per Phase in Current Circuit

phase current 1 A 5 A 10 A

active power (typical) 0.08 W 0.125 W 0.5 W

apparent power (typical) 0.1 VA 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 -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

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


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

current and voltage circuits 10 kV

For version 3 x 58/100 to 69/120 V:

current and voltage circuits 8 kV

auxiliary circuits > 40 V 6 kV

Protection Class II according to IEC 60050-131 

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 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 100–240 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, asynchronous, 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, 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

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
height (with extended hook) 305.5 mm
depth 75 mm

Suspension Triangle

height (with extended hook) 230 mm
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

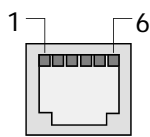
Connections

Phase Connections

type cage type terminals
cross section 5.2 x 5.2 mm
recommended conductor cross section 4 – 6 mm²
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

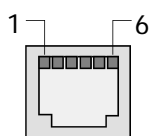
type designation .02/.42
type RJ 12
pin assignment



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

RS485 Interface

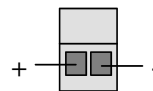
type designation .03/.43
type RJ 12
pin assignment



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

CS Interface

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



Other Connections

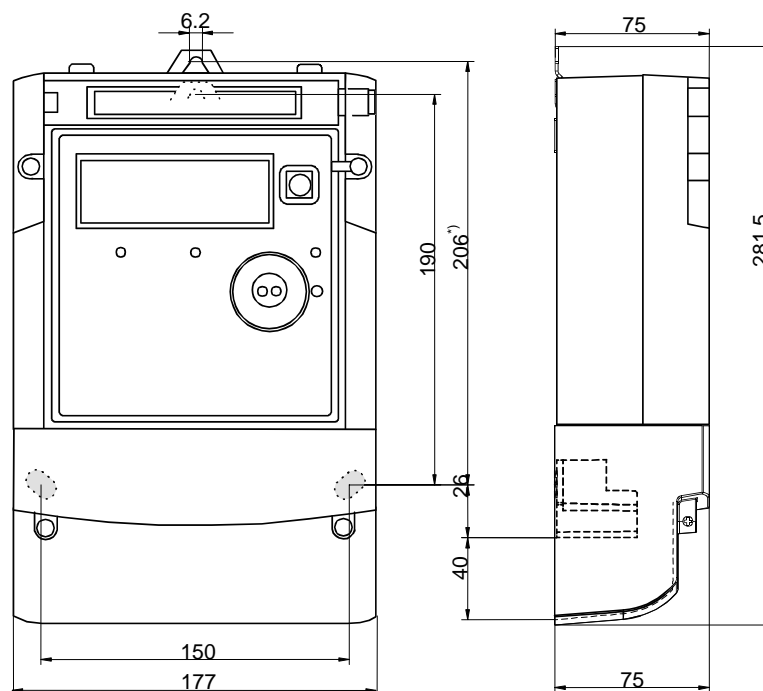
type screw type terminals
max. current of voltage outputs 1 A
max. voltage of control inputs 300 V

Material

Housing

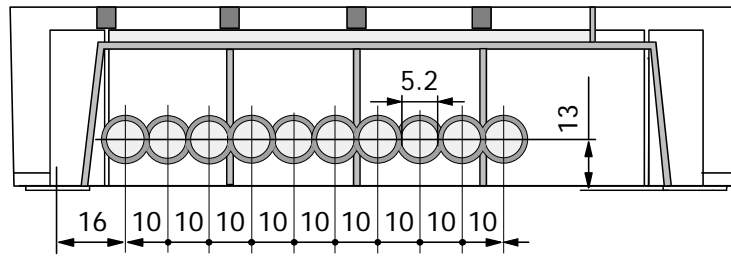
The meter housing is made of polycarbonate which is partly glass-fibre reinforced.

Meter Dimensions (Standard Terminal Cover)

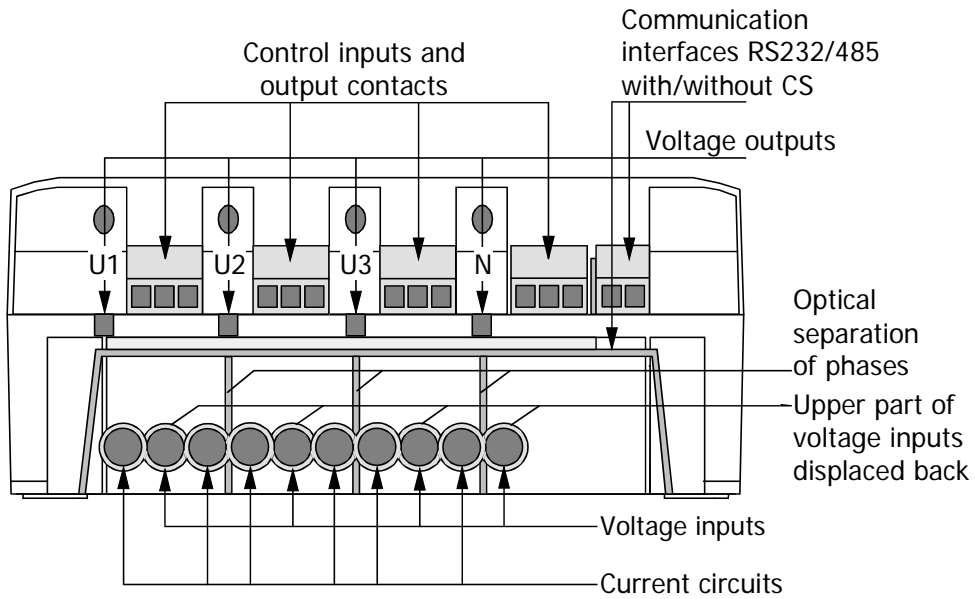


*) The height of the suspension triangle with extended hook is 230 mm. See also User Manual.

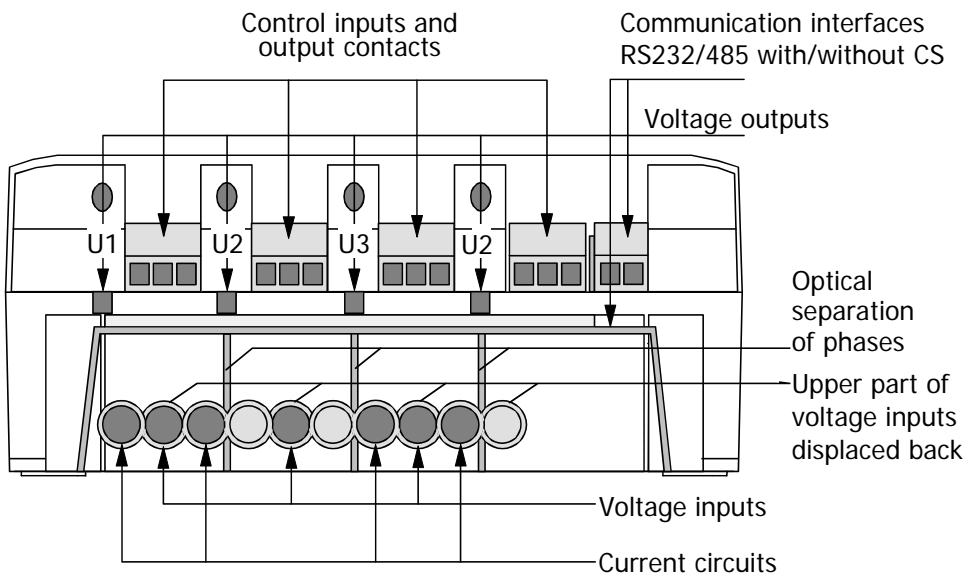
Terminal Dimensions



Terminal Layout according to DIN – 4-wire ZMG400



Terminal Layout according to DIN – 3-wire ZFG400



Type Designation	ZMG	4	10	CR	4.26	0	b	.43
Network Type	_____							
ZFG	3-phase 3 wire network (F-connection)							
ZMG	3-phase 4 wire network (M-connection)							
Connection Type	_____							
3	Direct connection							
4	Transformer connection							
Accuracy Class	_____							
10	Class 1 (IEC), B (MID) ZMG310/410..							
05	Class 0.5 (IEC), C (MID) ZMG405..							
Measured Quantities	_____							
AR	Active energy meter							
CR	Combi meter for active and reactive energy							
Tariff Functions; Control Inputs/Output Contacts	_____							
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.02	2 output contacts							
x.26	2 control inputs/6 output contacts							
x.44	4 control inputs/4 output contacts							
Special Functions	_____							
0	none							
Further Functions	_____							
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							
Interfaces	_____							
00	none							
02	with RS232							
03	with RS485							
40 ^{*)}	with CS							
42 ^{*)}	with CS and RS232							
43 ^{*)}	with CS and RS485							
	<i>*) Available for x.00, x.26, x.44 only</i>							

Data subject to change without notice.

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