



## Operating Behaviour

### Voltage Interruption (Power Down)

bridging time according to IEC	0.5 s
data storage	after another 0.2 s
switch off	after approx. 2.5 s

### Voltage Restoration (Power Up)

function standby 3 phases	after 2 s
function standby 1 phase	after 5 s
detection of	
energy direction + phase voltage	after 2 to 3 s

## Power Consumption

### Power Consumption per Phase in the Voltage Circuit

phase voltage	58 V	110 V	240 V
active power (typical)	0.65 W	0.7 W	0.8 W
apparent power (typical)	1.3 VA	1.7 VA	3.6 VA

### Power Consumption per Phase in the Current Circuit

phase current	1 A	5 A	10 A
active power (typical)	5 mW	0.125 W	0.5 W
apparent power (typical)	5 mVA	0.125 VA	0.5 VA

## Environmental Influences

### Temperatur Range to IEC 62052-11

operation	-25 °C – +70 °C
storage	-40 °C – +85 °C

### Temperature Coefficient

range	von -25 °C – +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 IP51

## Electromagnetic Compatibility

### Electrostatic Discharges to IEC 61000-4-2

contact discharge	15 kV
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### Electromagnetic RF Fields to IEC 61000-4-3

80 MHz – 2 GHz	10 and 30 V/m
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### 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 Strenght

### Insulation Strenght 4 kV @ 50 Hz during 1 min

### Impulse Voltage 1.2/50µs to IEC 62053-11

current and voltage circuits	8 kV
auxiliary circuits	6 kV

### Protection Class according to IEC 60050-131 2

## Calendar Clock

### Accuracy < 5 ppm

### Backup Time (Power Reserve)

with supercap	> 20 days
loading time for max backup time	300 h
with battery (optional)	10 years
battery type	CR-P2

## 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 8

## 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 pulse 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	9600 bps
protocols	IEC 62056-21 and dlms

## Communication Units

Exchangeable communication units for various applications.

## Additional Power Supply (optional)

on extension board 025x

nominal voltage range	100...160 V DC 100...240 V AC
tolerance	80 – 115 % Un
frequency	50 or 60 Hz
max power consumption	2.2 W

## Ripple Control Receiver (optional)

on extension board 043x or 003x (ZMD400 only)

nominal voltage	58 or 230 V
frequency	50 or 60 Hz
functional voltage U <sub>f</sub>	0.3 – 2.5 % Un
control frequency f <sub>s</sub>	110 – 2000 Hz
bandwidth	0.6 – 6 % f <sub>s</sub>

## 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
GSM	60 mm free space
ZxB-type 80 mm	80 mm free space
ZxB-type 110 mm	110 mm free space
Metcom3 adapter	
FTT4/5 adapter	

## Connections

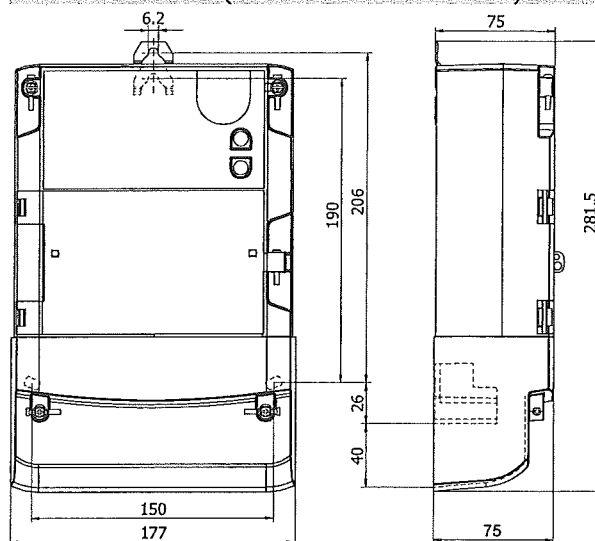
### Phase Connections

type	screw type terminals
diameter	5.2 mm
recommended conductor cross section	4 – 6 mm <sup>2</sup>
screw head	Pozidrive Kombi No. 1
screw dimensions	M4 x 8
screw head diameter	≤ 5.8 mm
tightening torque	< 1.7 Nm

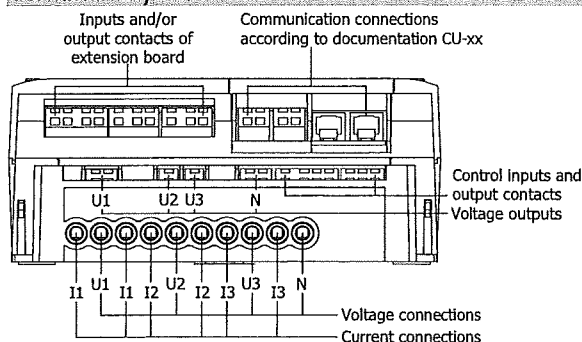
## Other Connections

type	screwless spring-type terminal
max current of voltage outputs	1 A
max voltage of inputs	250 V

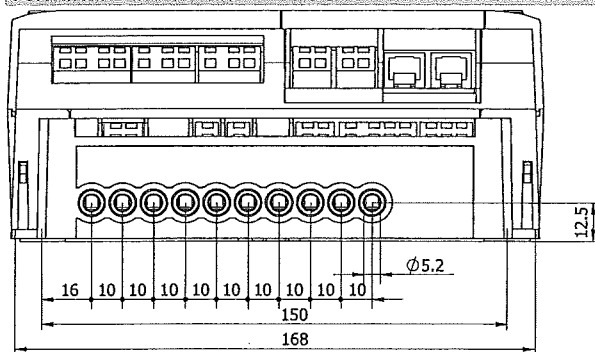
### Meter Dimensions (Standard Terminal Cover)



### Terminal Layout



### Terminal Dimensions



## Material

### Housing

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

## Type Designation

ZMD 4 10 C R 44 4207 . c1

### Network Type

ZFD 3-phase 3 wire network (F-circuit)

ZMD 3-phase 4 wire network (M-circuit)

### Connection Type

3: Direct connection

4: Transformer operated

### Accuracy Class

10: Active energy class 1 according to IEC

05: Active energy class 0.5 S according to IEC

### Measured Quantities

C: Active and reactive energy

A: Active energy

### Construction

R: With integrated interface

T: With exchangeable communication units

### Tariffication

21: Energy rates, external rate control via control inputs

24: Energy rates, internal rate control via time switch  
(additionally possible via control inputs)

41: Energy and demand rates, external rate control via control inputs

44: Energy and demand rates, internal rate control via time switch  
(additionally possible via control inputs)

All versions with 3 control inputs and 2 output contacts

### Additional Functions

0000: no additional functions

0600: 6 outputs

2400: 2 control inputs, 4 outputs

4200: 4 control inputs, 2 outputs

0030: integrated ripple control receiver

0430: 4 outputs, integrated ripple control receiver

0250: 2 outputs, additional power supply

0007: + load profile

0607: + load profile

2407: + load profile

4207: + load profile

0037: + load profile

0437: + load profile

0257: + load profile

### Integrated Interface (R-Types only)

c1: RS232 interface

c2: RS485 interface

c3: CS interface

#### Landis+Gyr Ltd.

Feldstrasse 1

CH – 6301 Zug

Switzerland

Phone: +41 41 935 6000

www.landisgyr.com

Landis  
+Gyr