

# INDUSTRIAL+COMMERCIAL

Landis+Gyr Dialog

## ZMD400AT/CT, ZFD400AT/CT

### TECHNICAL DATA



#### General

#### Voltage

Nominal Voltage  $U_n$  ZMD400xT

3 x 58/100–69/120 V  
 3 x 110/190–133/230 V  
 3 x 220/380–240/415 V

extended operating voltage range

3 x 58/100–240/415 V

Nominal Voltage  $U_n$  ZFD400xT

3 x 100–120 V  
 3 x 220–240 V

extended operating voltage range

3 x 100–415 V

Voltage Range

80–115%  $U_n$ 

#### Frequency

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

#### IEC-specific data

#### Current

Nominal Current  $I_n$  1 A, 2 A, 5 A, 5||1 AMaximal Current  $I_{max}$ 

metrological 1 A, 2 A, 5 A 200%  $I_n$   
 metrological 5||1 A 6 A  
 thermal 1 A 2.4 A  
 thermal 2 A, 5 A, 5||1 A 12 A

Short Circuit Current 0.5 s with 20 x  $I_{max}$ 

#### Measurement Accuracy

Accuracy ZxD405xT

active energy to IEC 62053-22 class 0.5 S  
 reactive energy to IEC 62053-23 class 1

Accuracy ZxD410xT

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

#### Measurement Behaviour

Starting Current ZxD405xT

according to IEC 0.1%  $I_n$   
 typical 0.07%  $I_n$   
 5||1 A as 1 A meter

Starting Current ZxD410xT

according to IEC 0.2%  $I_n$   
 typical 0.14%  $I_n$   
 5||1 A as 1 A meter

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 power x starting current

Starting Power in F-Circuit all phases  
nominal voltage /  $\sqrt{3}$  x starting current x 3

## MID-specific data

### Current (for Classes B and C)

Rated Current  $I_n$  1.0, 5.0 A

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

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

Maximum Current  $I_{max}$  2.0, 10.0 A

### Measurement Accuracy

ZxD400XT; 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:  $I_{st}$  0.001, 0.005 A

## General

### 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 to +70 °C

storage -40 °C to +85 °C

Temperature Coefficient

range from -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 IP51

### 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 1.2/50 $\mu$ s to IEC 62052-11  
current and voltage circuits 8 kV  
auxiliary circuits 6 kV

Protection Class II according to IEC 62052-11 

### Calendar Clock

Calendar Type Gregorian or Persian (Jalaali)

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 $U_s$	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. 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 045x

nominal voltage range	100–240 V AC/DC
tolerance	80–115% $U_n$
frequency	50 or 60 Hz
max. power consumption	6.8 W

### On Extension Board 046x

nominal voltage range	12–24 VDC
tolerance	80–115% $U_n$
max. power consumption	3.5 W

## Ripple Control Receiver (optional)

### On Extension Board 043x or 003x (ZMD400 only)

Same functionality as RCR161.

All established RCR systems e.g. Semagyr, Ricontic, Decabit, Double Decabit, K22/Z22 are supported.

Code length, pulse length and pulse position can be parameterised.

### Electrical Data

nominal voltage	58 or 230 V
frequency	50 or 60 Hz

### Filter Values (parameterisable)

functional voltage $U_f$	0.3–2.5% $U_n$
control frequency $f_s$	110–2000 Hz
bandwidth	0.6–6% $f_s$

## 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
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
GSM	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	

## Material

### Housing

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

## Connections

### Phase Connections

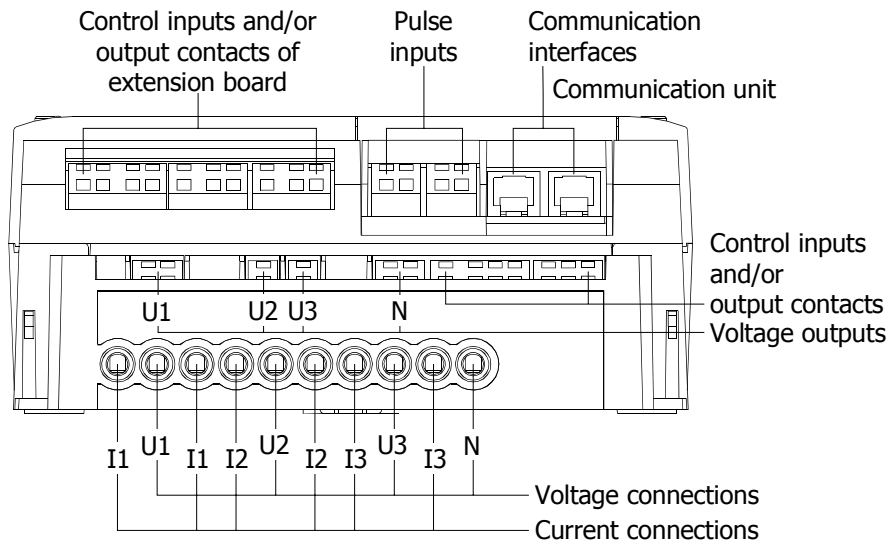
type	screw type terminals
diameter	5.2 mm
recommended conductor cross section	4–6 mm <sup>2</sup>
screw head	Pozidrive Kombi No. 1
screw dimensions	M4 x 8
screw head diameter	≤ 5.8 mm
tightening torque	< 1.7 Nm

### Other Connections

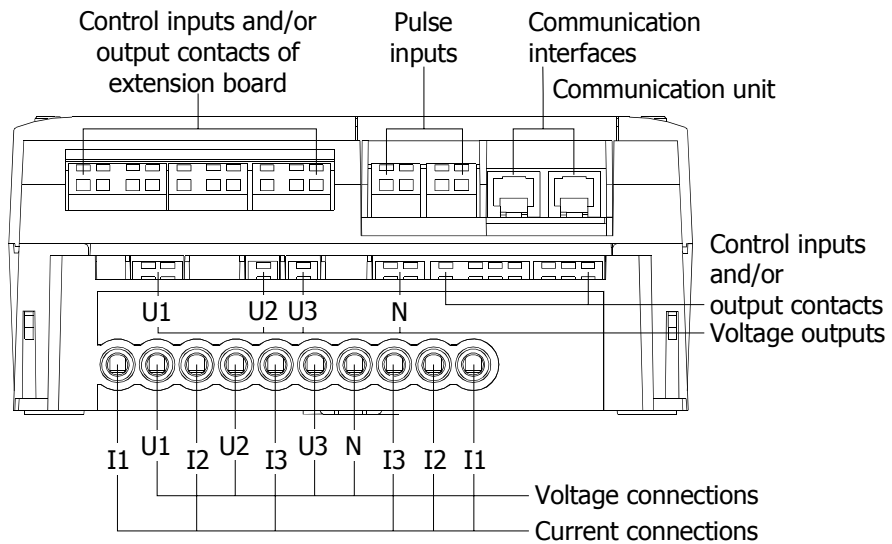
type	screwless spring-type terminal
max. current of voltage outputs	1 A
max. voltage of inputs	250 V



## Terminal Layout according to DIN



## Symmetrical Terminal Layout (optional, ZMD400 only)



<b>Type designation</b>	ZMD	4	10	C	T	44	4207
<b>Network Type</b>	<ul style="list-style-type: none"> <li>ZFD 3-phase 3 wire network (F-circuit)</li> <li>ZMD 3-phase 4 wire network (M-circuit)</li> </ul>						
<b>Connection Type</b>	<ul style="list-style-type: none"> <li>3: Direct connection</li> <li>4: Transformer operated</li> </ul>						
<b>Accuracy Class</b>	<ul style="list-style-type: none"> <li>10: Active energy class 1 (IEC), B (MID)</li> <li>05: Active energy class 0.5 (IEC), C (MID)</li> </ul>						
<b>Measured Quantities</b>	<ul style="list-style-type: none"> <li>C: Active and reactive energy</li> <li>A: Active energy</li> </ul>						
<b>Construction</b>	<ul style="list-style-type: none"> <li>T: With exchangeable communication units</li> </ul>						
<b>Tariffication</b>	<ul style="list-style-type: none"> <li>21: Energy rates, external rate control via control inputs</li> <li>24: Energy rates, internal rate control via time switch (additionally possible via control inputs)</li> <li>41: Energy and demand rates, external rate control via control inputs</li> <li>44: Energy and demand rates, internal rate control via time switch (additionally possible via control inputs)</li> </ul> <p>All versions with 3 control inputs and 2 output contacts</p>						
<b>Additional functions</b>	<ul style="list-style-type: none"> <li>060x 6 outputs</li> <li>240x 2 control inputs, 4 outputs</li> <li>420x 4 control inputs, 2 outputs</li> <li>003x integrated ripple control receiver</li> <li>043x 4 outputs, integrated ripple control receiver</li> <li>045x 4 outputs, additional power supply 100–240 VAC</li> <li>046x 4 outputs, additional power supply 12–24 VDC</li>   <li>xxx0 no additional functions</li> <li>xxx2 DC-magnet-detection</li> <li>xxx7 load profile</li> <li>xxx9 DC-magnet-detection and load profile</li> </ul>						

Subject to change without notice.

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