

# INDUSTRIAL + COMMERCIAL

Landis+Gyr Dialog

## ZMD402CT, ZFD402CT

### TECHNICAL DATA



#### General

#### Voltage

Nominal Voltage  $U_n$  ZMD402CT

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  $U_n$  ZFD402CT

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  $I_n$ 

ZMD402CT 1 A, 5 A

ZFD402CT 5 A

Maximal Current  $I_{max}$ metrological 1 A, 5A 200%  $I_n$ 

thermal 1 A 2.4 A

thermal 5A 12 A

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

#### Measurement Accuracy

Accuracy ZxD402CT

active energy to IEC 62053-22 class 0.2 S

reactive energy to IEC 62053-23 class 0.5

#### Measurement Behaviour

Starting Current ZxD402CT

according to IEC 0.1%  $I_n$ typical 0.07%  $I_n$ 

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 /  $\sqrt{3}$  x starting current x 3

## MID-specific data

### Current (for Class 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

See accuracy in "IEC-specific data"

### Measurement Behaviour

Starting Current  $I_{st}$  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

#### Temperature Range according to IEC 62052-11

metrological	-10 °C to +45 °C
operation limit	-25 °C to +55 °C
storage	-40 °C to +85 °C

#### Temperature Coefficient

range	from -10 °C to +45 °C
average value (typical)	$\pm 0.008\%$ per K
at $\cos\varphi=1$ (from 0.05 Ib to $I_{max}$ )	$\pm 0.01\%$ per K
at $\cos\varphi=0.5$ (from 0.1 Ib to $I_{max}$ )	$\pm 0.02\%$ 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 Strength

Insulation Strength 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

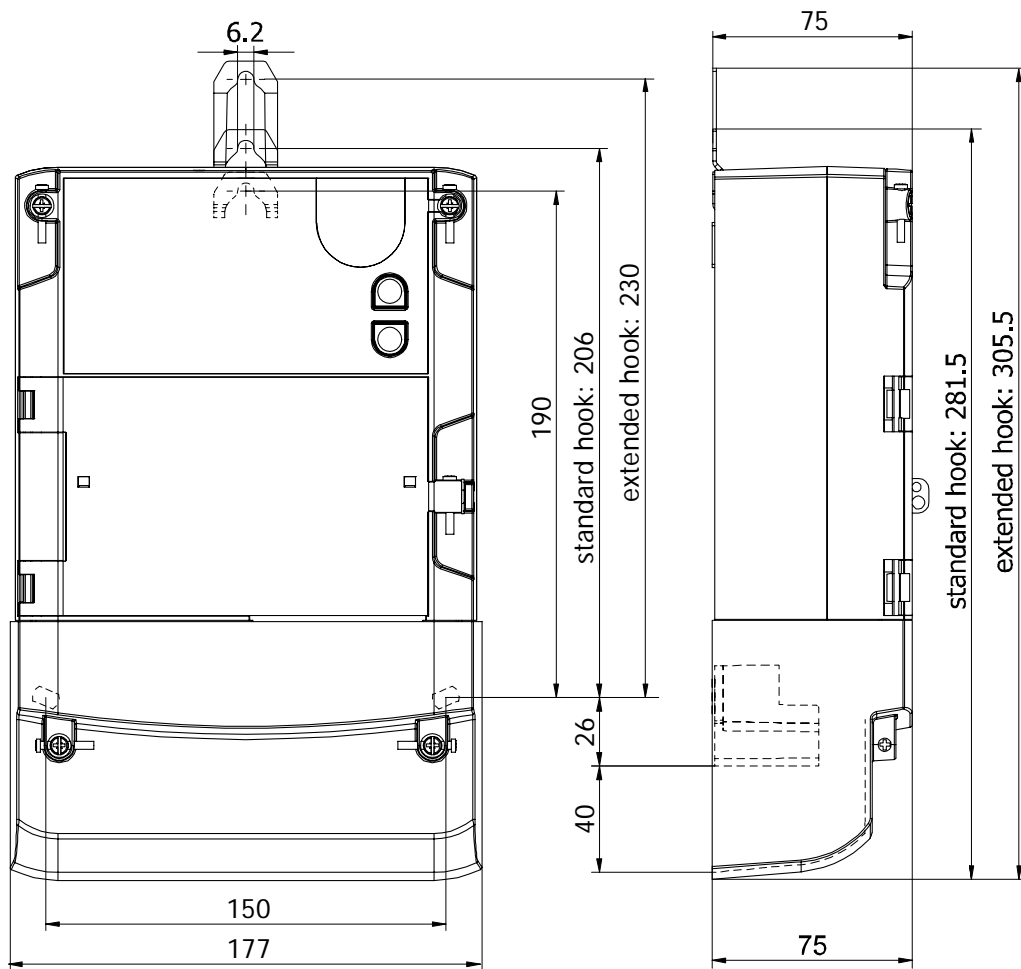
The meter housing is made of polycarbonate which is partly glass-fibre reinforced.

## Connections

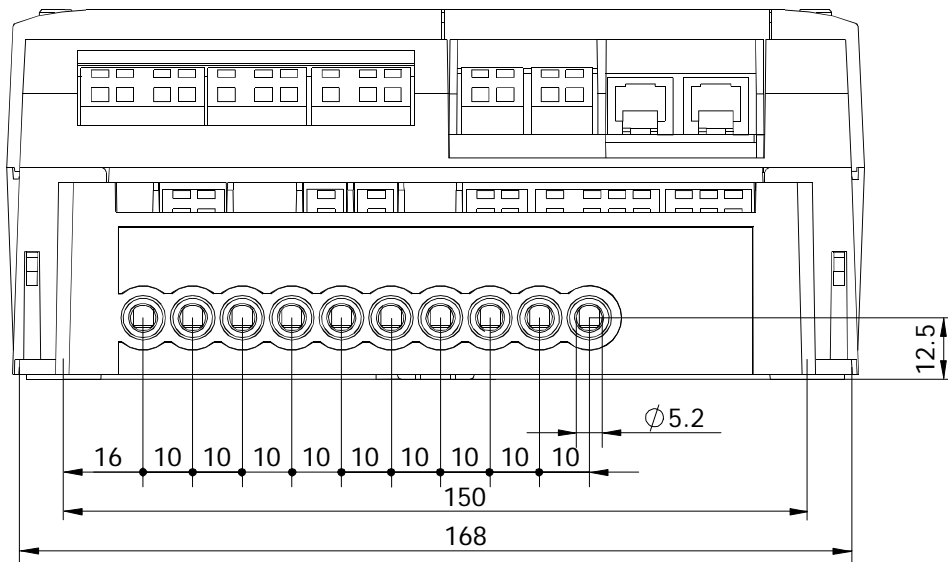
Phase Connections	
type	screw type terminals
diameter	5.2 mm
recommended conductor cross section	4–6 mm <sup>2</sup>
screw head	Pozidrive Kombi No. 2
screw dimensions	M4 x 8
screw head diameter	≤ 5.8 mm
tightening torque	< 1.7 Nm

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

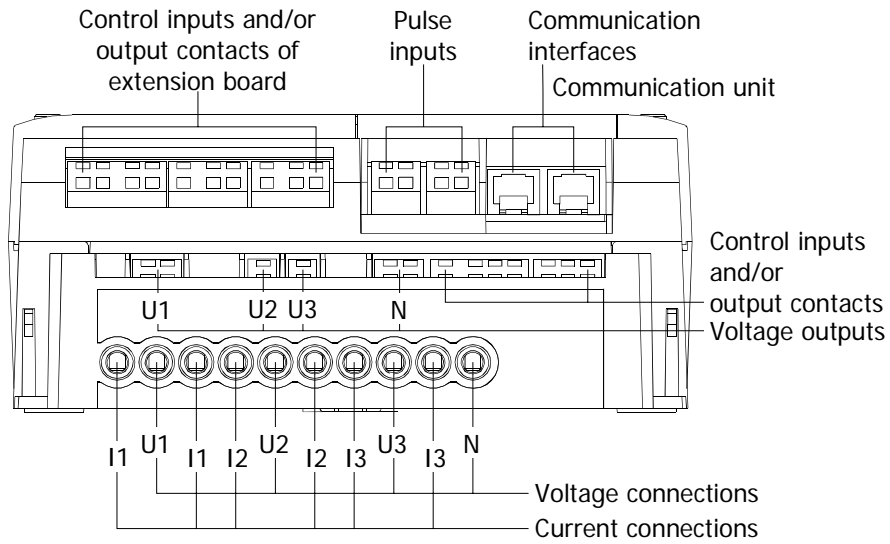
## Meter Dimensions (Standard Terminal Cover)



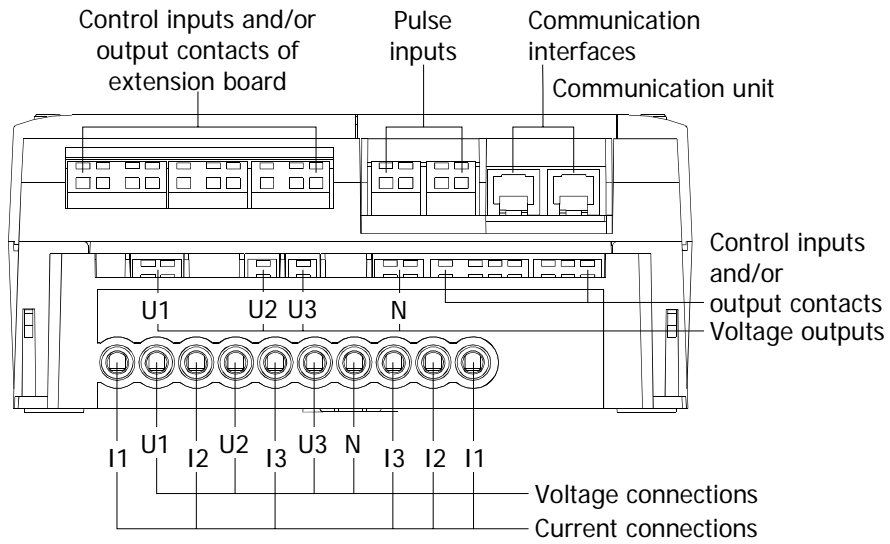
## Terminal Dimensions



Terminal Layout according to DIN



Symmetrical Terminal Layout (optional, ZMD402CT only)



<b>Type designation</b>	ZMD	4	02	C	T	44	4207
<b>Network Type</b>	_____						
ZFD	3-phase 3 wire network (F-circuit)						
ZMD	3-phase 4 wire network (M-circuit)						
<b>Connection Type</b>	_____						
4	Transformer operated						
<b>Accuracy Class</b>	_____						
02	Active energy class 0.2 S according to IEC						
<b>Measured Quantities</b>	_____						
C	Active and reactive energy						
<b>Construction</b>	_____						
T	With exchangeable communication units						
<b>Tariffication</b>	_____						
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						
<b>Additional functions</b>	_____						
060x	6 outputs						
240x	2 control inputs, 4 outputs						
420x	4 control inputs, 2 outputs						
003x	integrated ripple control receiver						
043x	4 outputs, integrated ripple control receiver						
045x	4 outputs, auxiliary power supply 100–240 V AC/DC						
046x	4 outputs, auxiliary power supply 12–24 V DC						
xxx0	no additional functions						
xxx2	DC-magnet-detection						
xxx7	load profile						
xxx9	DC-magnet-detection and load profile						

Subject to change without notice.

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