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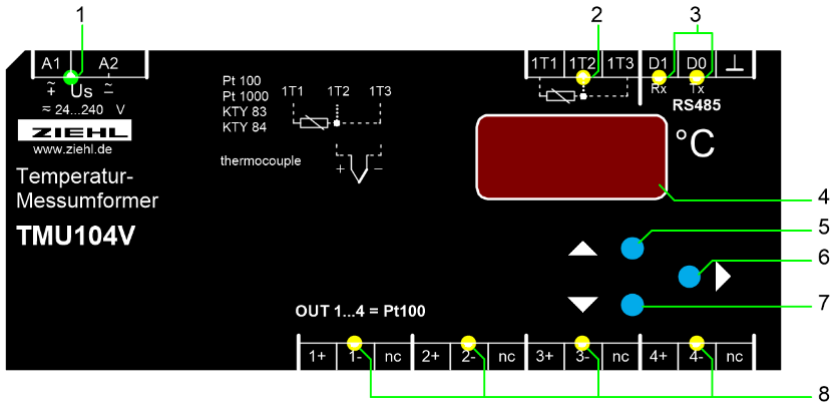
Operating Manual TMU104V

updated: 2018-11-09 / sm

Measuring point multiplicator / Measuring-Transducer /
1 input for temperature sensors, 4 outputs Pt100

You can get further information and help via the QR-Code or search for TMU104V at ziehl.de
Datasheets, Operating Manuals and quick guides, Connection Plans, CAD-Data, copious FAQ, Certificates.

1 Display and controls



1	**LED Us**
	• on = normal operation
	• off = device not ready
2	**LED Sensor input**
	• on = displays temperature of sensor in the digital display
	• blinks = Sensor error (error code in the digital display)
3	**LEDs RS485 interface**
	• Rx flashes briefly = Unit is receiving data via the RS485 interface
	• Tx flashes briefly = Unit is transmitting data via the RS485 interface
4	**Digital display (3 digits)**
	• Display of sensor value (°C), error codes
	• Display of menu and configuration mode
5	**Button Up ▲**
	• Press short = selection of menu item; Change into display mode (see 8.3)
	• Press long (≥ 2s) = displays the max. sensor value Reset: press button Set ≥ 2s additionally
6	**Button Set ▶**
	Press long (≥ 10 s) = displays the firmware version
	When simulating via interface:
	• Switch over to next output Pt 100 -> simulated value in (LED OUTx on)
7	**Button Down ▼**
	• Press short = selection of menu item; Change into display mode (see 8.3)
	• Press long (≥ 2s) = displays the min. sensor value Reset: press button Set 2s additionally
8	**OUT1 … OUT4**
	When simulating via interface:
	• Simulated value at OUTx is displayed (switch over to next with Set)

2 Factory setting

Menu item	Parameter	Factory setting value	User Data
In	In.	100	
	LA.	3-L	
BUS	bUS.	Mod	
	Adr.	1	
	bd.	9.6	
	PAr.	Evn	
	StP. *1)	1	
Code	Cod.	oFF	
	Pin.	504	
Int	Int *2)	-4.0	
Tri	tri *3)	20	
Trd	trd *3)	5	

*1) from Firmware -02 *2) from Firmware -03 *3) from Firmware -04*

2.1 Factory reset

Press key Set and keep it pressed while switching on supply voltage.

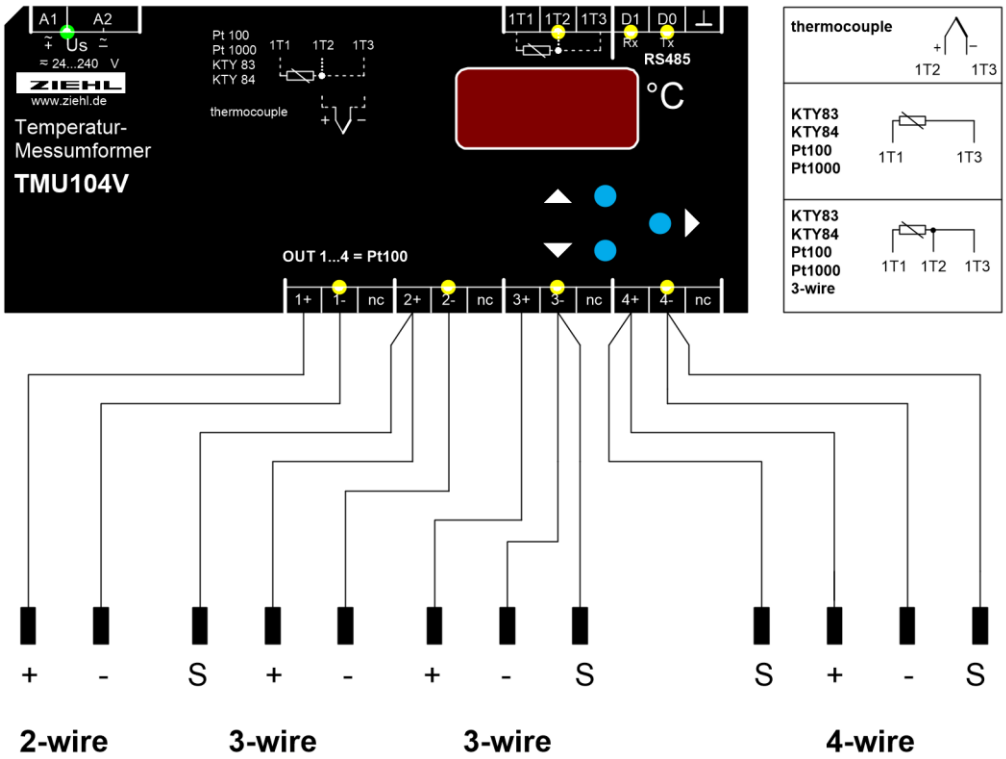
⇒ After app. 2s display changes to 888 - Cod - oFF - 888

⇒ after app. 10s display ---

Device has been reset to factory settings. Release key Set.

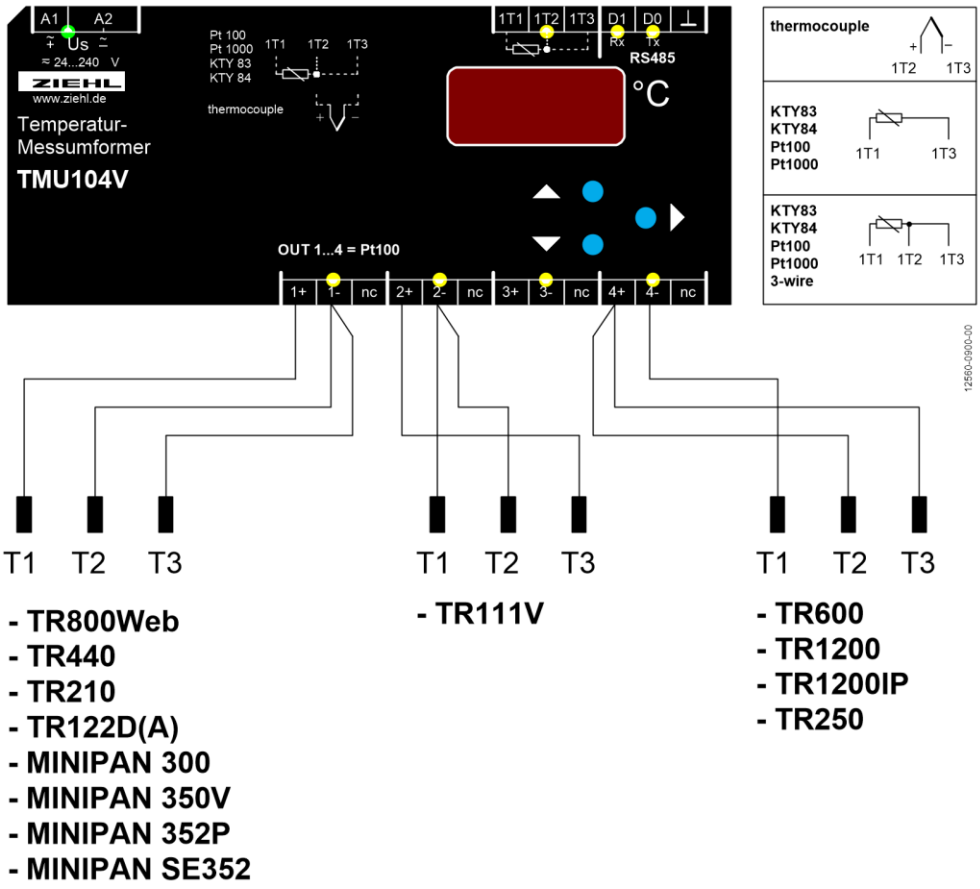
3 Connecting diagram

3.1 Outputs



S = Sense-wire

3.2 Connection of ZIEHL equipment



4 Important notes

DANGER!
Hazardous voltage!
Will cause death or serious injury. Turn off and lock out all power supplying this device before working on this device.

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.
Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instructions manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.
The equipment are built according to DIN / EN and checked and leave the plant according to security in perfect condition. If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.
Instead of the industrial norms and regulations written in this instructions manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

Universal power supply.
The device universal power supply works within the range AC/DC 24-240 V.
Before switching on make sure, that the rated supply voltage Us of the type- plate and the mains voltage are the same.

A circuit-breaker or switch must be situated within easy reach of the unit and fused. Installation excess current protection should be ≤ 10 A.

5 Installation

The unit can be installed as follows:

- Installation in switchgear cabinet on 35 mm mounting rail according to EN 60715 for protection against fire, external environmental conditions and mechanical effects.
- With screws M4 for installation on walls or panel. (additional latch is not included in delivery)
- Connection according to connection plan or type plate.

Failure to comply with the information in this instruction manual will not guarantee the function of the device.

6 Putting into operation

6.1 General instructions for operation

The decimal point of the last digit shows the operating mode the device is in.

6.2 Display mode

- Decimal point off (display value of measuring input)

6.3 Menu mode

- Decimal point on
- menu mode, select the menu items

Button Up / Down	Press short:	Selection of menu item; Change into display mode
Button Set	Press short:	Change into parameter setting mode

6.4 Parameter setting mode

- Decimal point blinking

Button Up / Down	Press short/long:	Adjustment of parameter value (slow/fast)
Button Set	Press short:	Storage of setting and choice of next parameter. Change into menu mode after the last parameter

6.5 Switch on device

Switch on supply voltage,

⇒ All LEDs and displays are on. TMU104V is ready after app. 1 s.

6.6 Configure the sensor input

Starting from the display mode:

⇒ Return into the display mode by pressing Set key ≥ 2s

⇒ If no entry is made for 30 s, the device also returns to the display mode.

- Press Down key
  - ⇒ Display In.
- Press Set key
- Set sensor type using the Up / Down key 100. … tht.
- Press Set key
- Set line resistance with keys Up / Down (Pt100, Pt1000, KTY83, KTY84 only)

  3-L. => 3-wire sensor

  0.0. … 99.9. => 2-wire sensor, set value of resistance from device to sensor and back
- Press Set key
  - ⇒ Exit the menu item
- Move to the previous/next menu item with the Up and Down keys

6.7 Possible indications in display

In display mode:

EEE	-EE		Over range / under range
Er1	Er2		Short-circuit / Interruption in 1T1/1T2/1T3
Er3	Er4		Internal device fault

In Menu mode / parameter setting mode:

In.			**Sensor input**
	100		Pt100
	1.0		Pt1000
	83		KTY83
	84		KTY84
		LA	Line resistance
		3-L	3 wire
		0 ... 99.9	2 wire, specify the total line resistance 0 … 99,9Ω
	thb		Type B thermocouple
	thE		Type E thermocouple
	thJ		Type J thermocouple
	thK		Type K thermocouple
	thL		Type L thermocouple
	thn		Type N thermocouple
	thr		Type R thermocouple
	thS		Type S thermocouple
	tht		Type T thermocouple

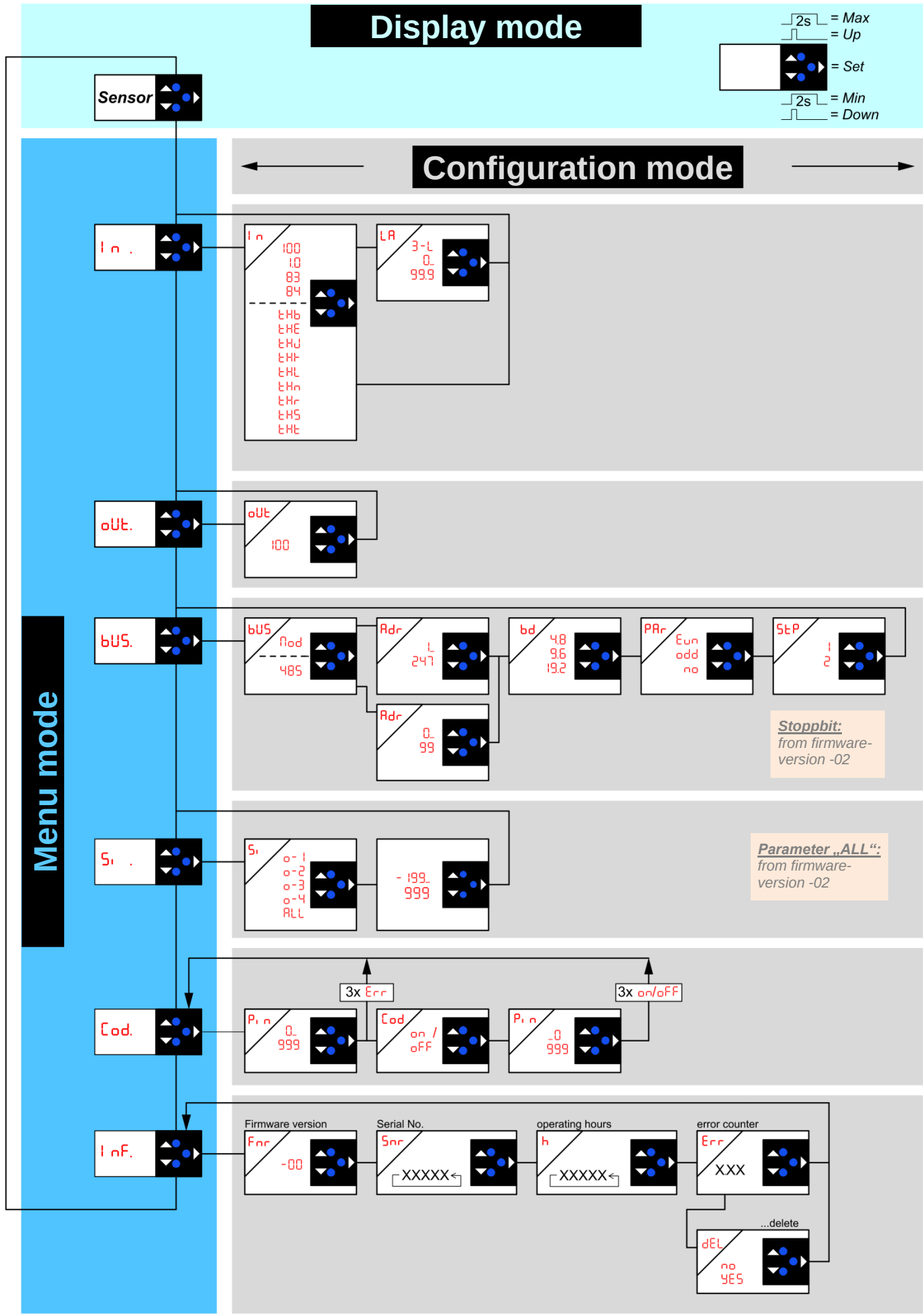
oUt.			**sensor output**
	100		Pt100

bUS.			**RS485 interface**
	Mod		Modbus protocol
	485		Ziehl RS485 protocol
		Adr	Device address ->
		1 ... 247	-> Modbus: 1 … 247
		0 ... 99	-> Ziehl RS485 protocol: 0 … 99
	bd		Baud rate ->
		4.8	-> 4800 bd
		9.6	-> 9600 bd
		19.2	-> 19200 bd
	PAr		Parity ->
		Evn	-> Even
		odd	-> odd
		no	-> no
	StP		Stop bit ->
		1 / 2	-> 1 / 2 Stop bits *(from Firmware Version -02)*

Si.			**Simulation sensor output**
	o-1 ... o-4		Out 1 … Out 4 (o-1 … o-4)
	ALL		All together *(from Firmware Version -02)*

Cod.			**Code lock**
	Pin		Code pin

Inf.			**Info about device**
	Fnr		Firmware version
	Snr		Serial number
	h		Operating hours
	Err		Saved errors
		dEL	-> delete


Display mode
2s = Max
= Up
= Set
2s = Min
= Down
Sensor
Configuration mode
Menu mode
In .
In
100
1.0
83
84
tHb
tHE
tHJ
tHH
tHL
tHn
tHr
tHS
tHt
LA
3-L
0..
99.9
oUt.
oUt
100
bUS.
bUS
Mod
485
Adr
1..
247
Adr
0..
99
bd
4.8
9.6
19.2
PAr
Evn
odd
no
StP
1
2
Stoppbit:
from firmware-version -02
SI .
SI
o-1
o-2
o-3
o-4
ALL
- 199..
999
Parameter „ALL“:
from firmware-version -02
Cod.
3x Err
3x on/oFF
Pin
0..
999
Cod
on /
oFF
Pin
-0
999
InF.
Firmware version
Fnr
-00
Serial No.
Snr
XXXXX
operating hours
h
XXXXX
error counter
Err
XXX
...delete
dEL
no
YES

8 Error search and measures

Er1 or Er2 appears in the display	
Cause	Sensor short-circuit or sensor interruption in the temperature sensor
Remedy	Check temperature sensor to see if electrically okay and correctly connected

Er3 or Er4 appears in the display	
Cause	Internal device fault
Remedy	Switch device off and then back on. If the error continues to appear, send the device to the factory for inspection

Er8 or Er9 appears in the error memory (info menu)	
Cause	Communication error in RS485
Remedy	Normally no problem, if number of errors increases (while communicating via RS485) within a short time -> review parameters of interface and connection cables.

The device cannot be programmed (configured)	
Cause	Code lock
Remedy	The code block provides protection against unauthorized manipulation on the device. When the code block is active, the parameters cannot be changed. The pin can be set by the user. <u>Pin code unknown? -> perform a code reset::</u> • While switching on the control voltage, keep the "Set" key pressed for 2 s ⇒ The display changes 888 - Cod - oFF - 888 . • Release the Set key • Code block is switched off, Pin code is back to default setting 504

Displayed temperature does not match the sensor temperature	
Cause	• temperature sensor is incorrectly connected • False sensor settings
Remedy	• Check the Pt 100 sensor connection (see connection diagram) • Check the sensor settings (3-wire or 2-wire with specification of the line resistance –> Resistance of outgoing and return line)

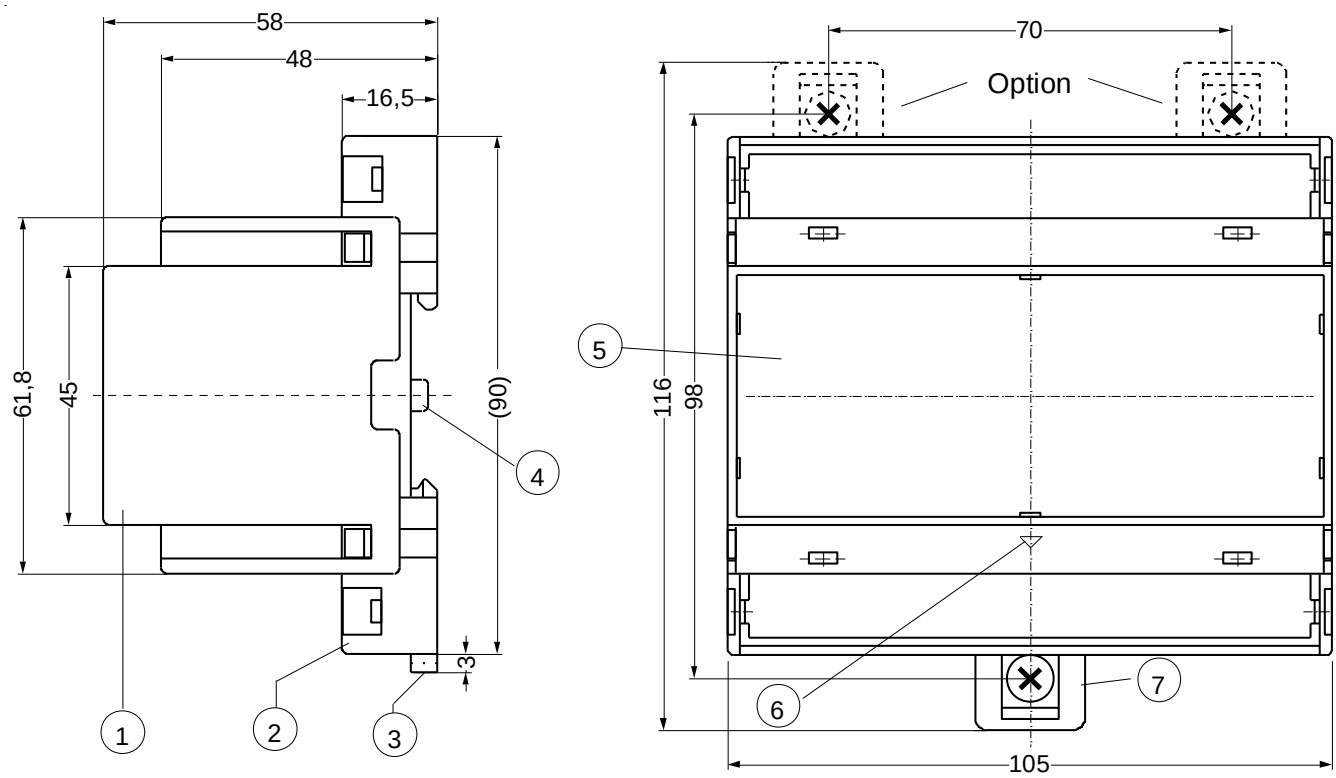
9 Technical data

Rated supply voltage Us:	AC/DC 24 – 240 V	0/50/60 Hz
Tolerance	DC 20,4 - 297 V	AC 20 - 264 V
Power consumption	< 2,5 W	< 7 VA
Housing	Design V6, switchgear mounting	
Mounting height	55 mm	
Width	6 TE	
Dimensions (width x height x depth) (B x H x T)	105 x 90 x 58 mm	
Wire connection, one wire	each 1 x 0,14 mm² – 2,5 mm²	
Stranded wire with insulated ferrules	each 1 x 0,14 mm² – 1,5 mm²	
Strip length	min. 8 mm	
Torque	0,5 Nm (3,6 lb.in)	
Protection class housing	IP 30	
Protection class terminal	IP 20	
Installation	Snap mounting on mounting rail 35 mm according to EN 60 715 or with screws M 4	
Weight	approx. 200 g	

Subject to technical changes

10 Housing Design V6

Dimensions in mm



1 Cover
2 Base
3 Bar for snap mounting
4 Latch for sealing
5 Front panel
6 Position downward
7 For fixing to wall with screws, Ø 4.2 mm