

Quick Guide MU2000K

updated: 2018-11-09 / sm

- Universal Measuring Transducer for Voltage and Current (AC and DC)

Detailed operating manual see:

<https://www.ziehl.com/en/products/?view=detail&detail=110>



1 Display and controls



- **Set**
Button to navigate in menu
- **Down**
Button to change Parameters
- **LED Power**
Device active
- **LED I**
Current input active
- **LED U**
Voltage input active
- **LED AC**
Alternate Current / Voltage measuring active

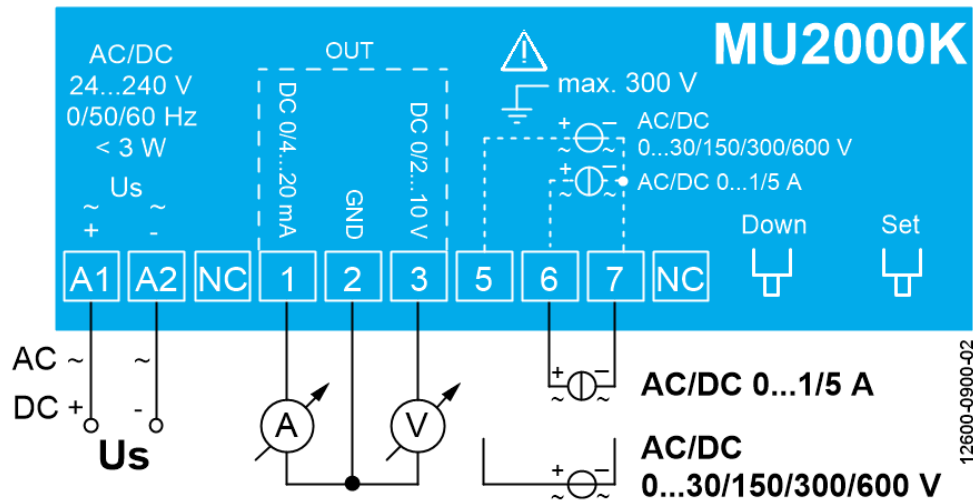


2 Factory setting

Default settings:

- Input: AC 5 A (AC 0 – 5 A)
- Output: DC 0 – 10 V, 0 – 20 mA
- Measuring time: 160 ms (8 measurements, x 20 ms measurement time)

3 Connecting diagram



4 Important Information



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



The measuring input fulfils reinforced insulation according to DIN EN 61010-1 for overvoltage category II and pollution degree 2.
Connected voltages may not exceed 300 V AC/DC to earth.

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 is 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 instruction manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

Observe the maximum temperature permissible when installing in switching cabinet. Make sure sufficient space to other equipment or heat sources. If the cooling becomes more difficult e.g. through close proximity of apparatus with elevated surface temperature or hindrance of the cooling air, the tolerable environmental temperature is diminishing.



Attention! Universal power supply
The device has a universal power supply, that is suitable for DC- and AC voltages. Before connecting the device to supply-voltage make sure that the connected voltage corresponds with the voltage on the lateral type on the device.



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



Attention
All wires connected to the device must have insulation rated at least 300 Vac.

5 Installation

The unit can be installed as follows:

- Installation in switchgear cabinet on 35 mm mounting rail according to EN 60715
- With screws M4 for installation on walls or panel. (additional latch is not included in delivery)

Connection according to connection plan or type plate.

6 Commissioning

6.1 Overview of the predefined standard ranges

Following standard ranges can be set without adjustment to the unit:

Input voltage (AC / DC)	
Zero point	Full scale
0 V ...	30 V
80 V ...	120 V
0 V ...	150 V
0 V ...	300 V
0 V ...	600 V

Input current (AC / DC)	
Zero point	Full scale
0 A ...	1 A
0 A ...	5 A

Output
0 - 10 V / 0 - 20 mA or 2 - 10 V / 4 - 20 mA

6.2 Setting a predefined range

- Power off the device
- Press Button [Set] and keep pressed
- Power on the device, and keep pressed the button [Set]
 - ⇒ After 5s flashes the green LED, release button [Set]
 - ⇒ Parameterization „input type“ → LED ON flashes 1x
- Select with button [Set] the input type → displayed by LED U (DC voltage), LED AC + U (AC voltage), LED I (DC current), LED AC + I (AC current)
- Press button [Down]
 - ⇒ Parameterization „range“ >> LED ON flashes 2x
- Select with button [Set] the range of the input

Number of flashes	LED			
	U	AC + U	I	AC + I
1 x	DC 0...30 V	AC 0...30 V	DC 0...1 A	AC 0...1 A
2 x	DC 80...120 V	AC 80...120 V	DC 0...5 A	AC 0...5 A
3 x	DC 0...150 V	AC 0...150 V		
4 x	DC 0...300 V	AC 0...300 V		
5 x	DC 0...600 V	AC 0...600 V		

- Press button [Down]
 - ⇒ Parameterization „output“ → LED Power flashes 4x

- Select with button [Set] the output range

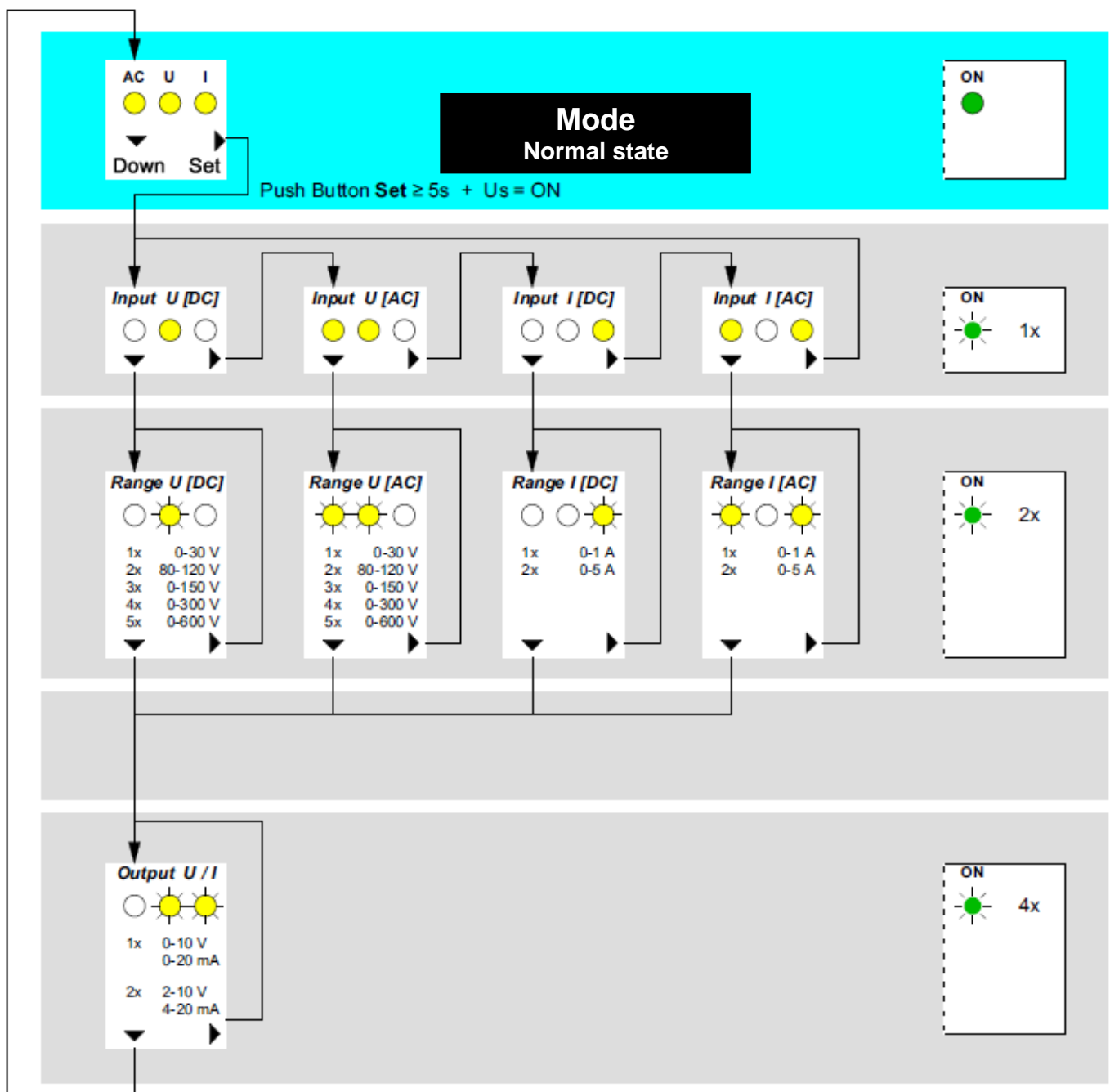
Number Of flashes	LED U + I
1 x	0 - 10 V / 0 - 20 mA
2 x	2 - 10 V / 4 - 20 mA

- Press button [Down]
 - ⇒ End of parameterization, LED ON lights permanently

Attention:

- When no button is pressed during scaling for 120 s, the process is cancelled automatically. Entered values will be discarded.
- When scaling is started, all parameters are reset to default.
- In normal operating mode the selected input is displayed with LED.

6.3 Diagram for setting a predefined range



6.4 Overview of scaling an arbitrary range

Other ranges may be set by scaling of the input signal:

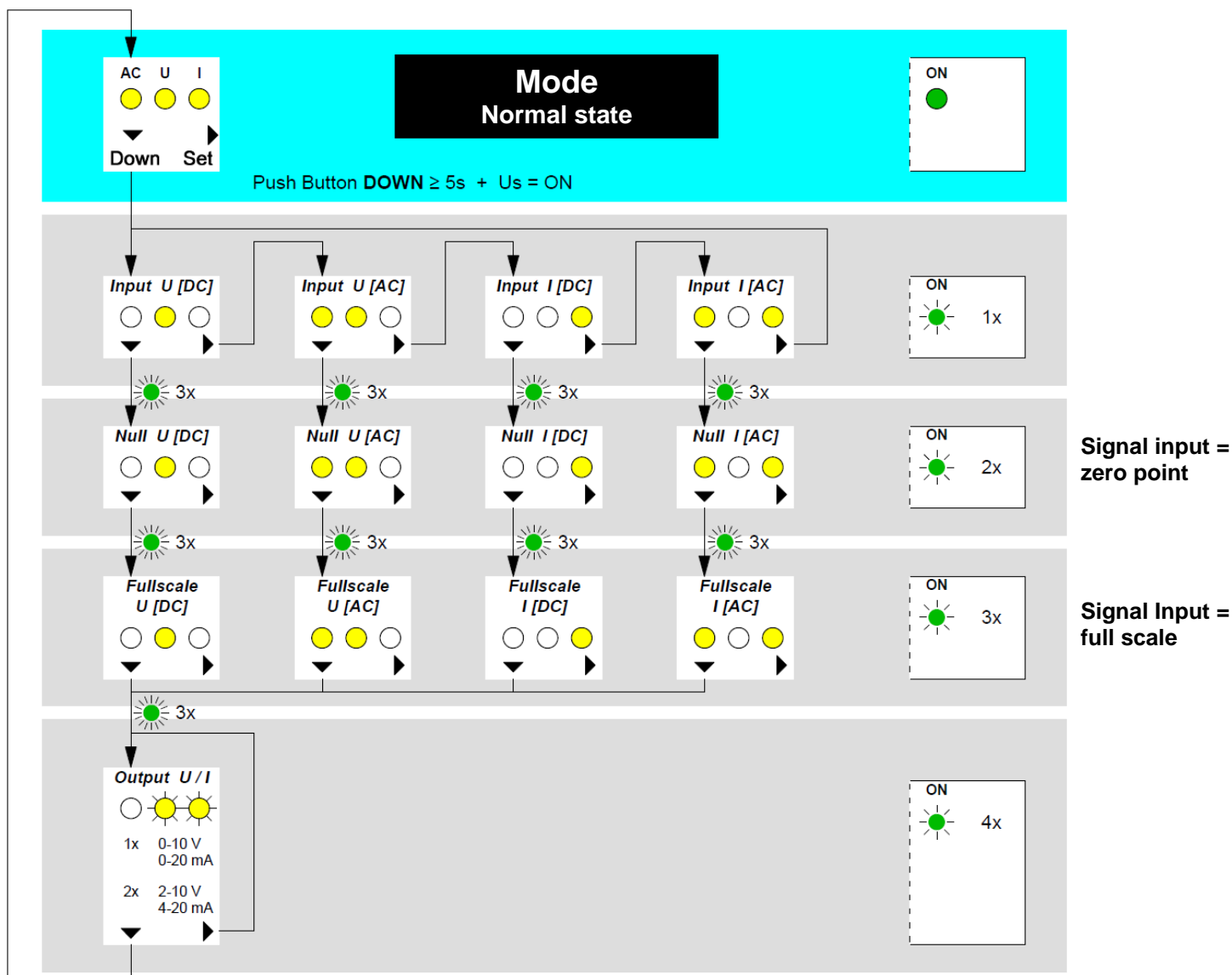
Input	Range	
	Zero point	Full scale
U (AC / DC)	0 ... 600 V	0 ... 600 V
I (AC / DC)	0 ... 5 A	0 ... 5 A

Output
0 - 10 V / 0 - 20 mA or 2 - 10 V / 4 - 20 mA

6.5 Scaling of range

- Power off the device
- Press Button [Down] and keep pressed
- Power on the device, and keep pressed the button [Down]
 - ⇒ After 5s flashes the green LED, release button [Down]
 - ⇒ Parameterization „input type“ → LED ON flashes 1x
- Select with button [Set] the input type → displayed by LED U (DC voltage), LED AC + U (AC voltage), LED I (DC current), LED AC + I (AC current)
- Press button [Down]
 - ⇒ Parameterization „input zero point“ → LED ON flashes 2x
 - ⇒ Connect a signal at the input corresponding to the zero point
- Press button [Down] (store of value, green LED flashes 3 times quickly)
 - ⇒ Parameterization „input full scale“ → LED ON flashes 3x
 - ⇒ Connect a signal at the input corresponding to the full scale
- Press button [Down] (store of value, green LED flashes 3 times quickly)
 - ⇒ Parameterization „output“ → LED ON flashes 4x
- Select with button [Set] the output range
 - LEDs (U + I) 1 x flash -> output 0 - 10 V / 0 - 20 mA
 - LEDs (U + I) 2 x flash -> output 2 - 10 V / 4 - 20 mA
- Press button [Down]
 - ⇒ End of parameterization, LED ON lights permanently

6.6 Diagram for scaling of range



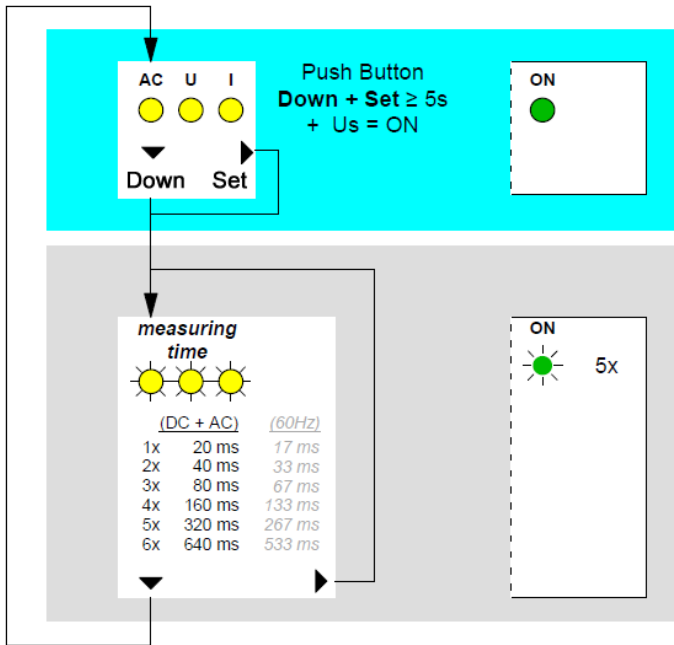
6.7 Setting the System measurement time

- Power off the device
- Keep pressed buttons [Set] and [Down] simultaneously
- Switch on power supply while buttons are pressed
 - ⇒ Release buttons after app. 5s when green LED starts blinking
 - ⇒ Parameterization „System measurement time“ → LED ON flashes 5x

- Select with button [Set] the System measurement time

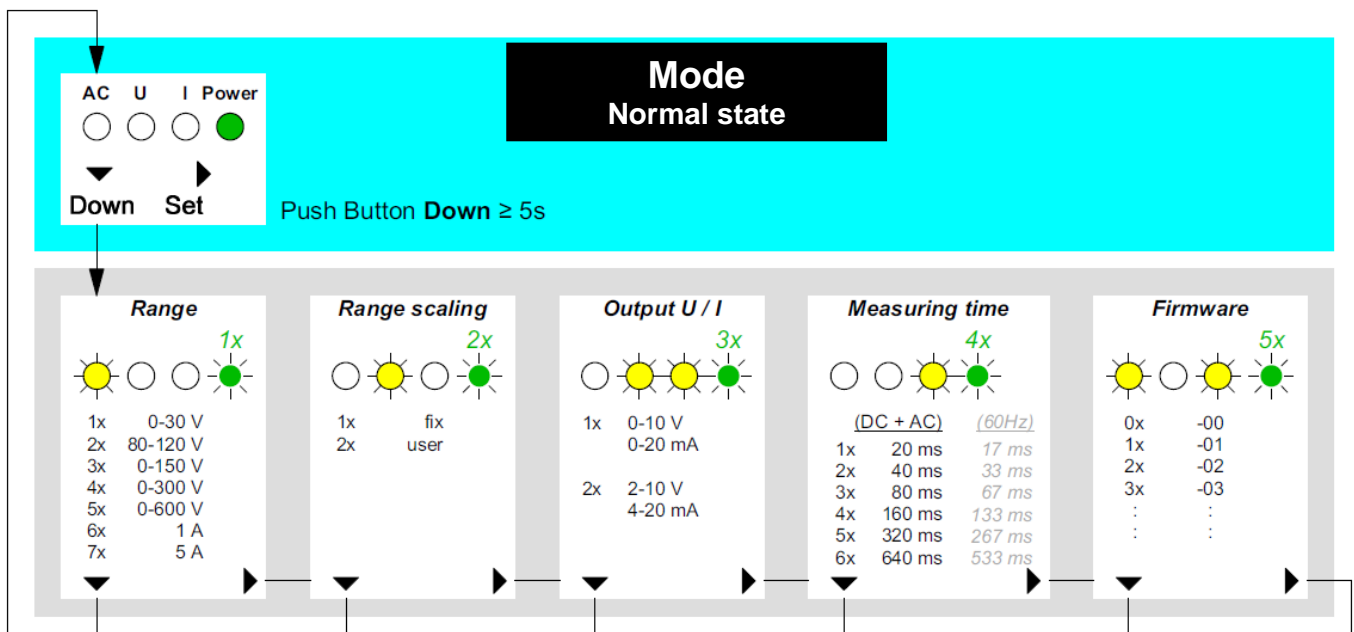
Number of flashes	LEDs AC + U + I
1 x	20 ms (60Hz = 17 ms)
2 x	40 ms (60Hz = 33 ms)
3 x	80 ms (60Hz = 67 ms)
4 x	160 ms (60Hz = 133 ms)
5 x	320 ms (60Hz = 267 ms)
6 x	640 ms (60Hz = 533 ms)

- Press button [Down]
 - ⇒ End of parameterization, LED ON lights permanently



6.8 Checking of parameters

During operation, several parameters can be checked.



7 Error search

Wrong output signal (current/voltage) OUT (terminal 1 – 2 – 3)	
Cause	The device is not configured correctly
Remedy	Check commissioning

22mA at output 0/4...20 mA, 11V at output 0/2...10 V (LED Power flashes quickly)	
Cause	Internal error of device
Remedy	Reset by interrupting supply voltage. If the error cannot be patched by a Reset send back to factory for repair.

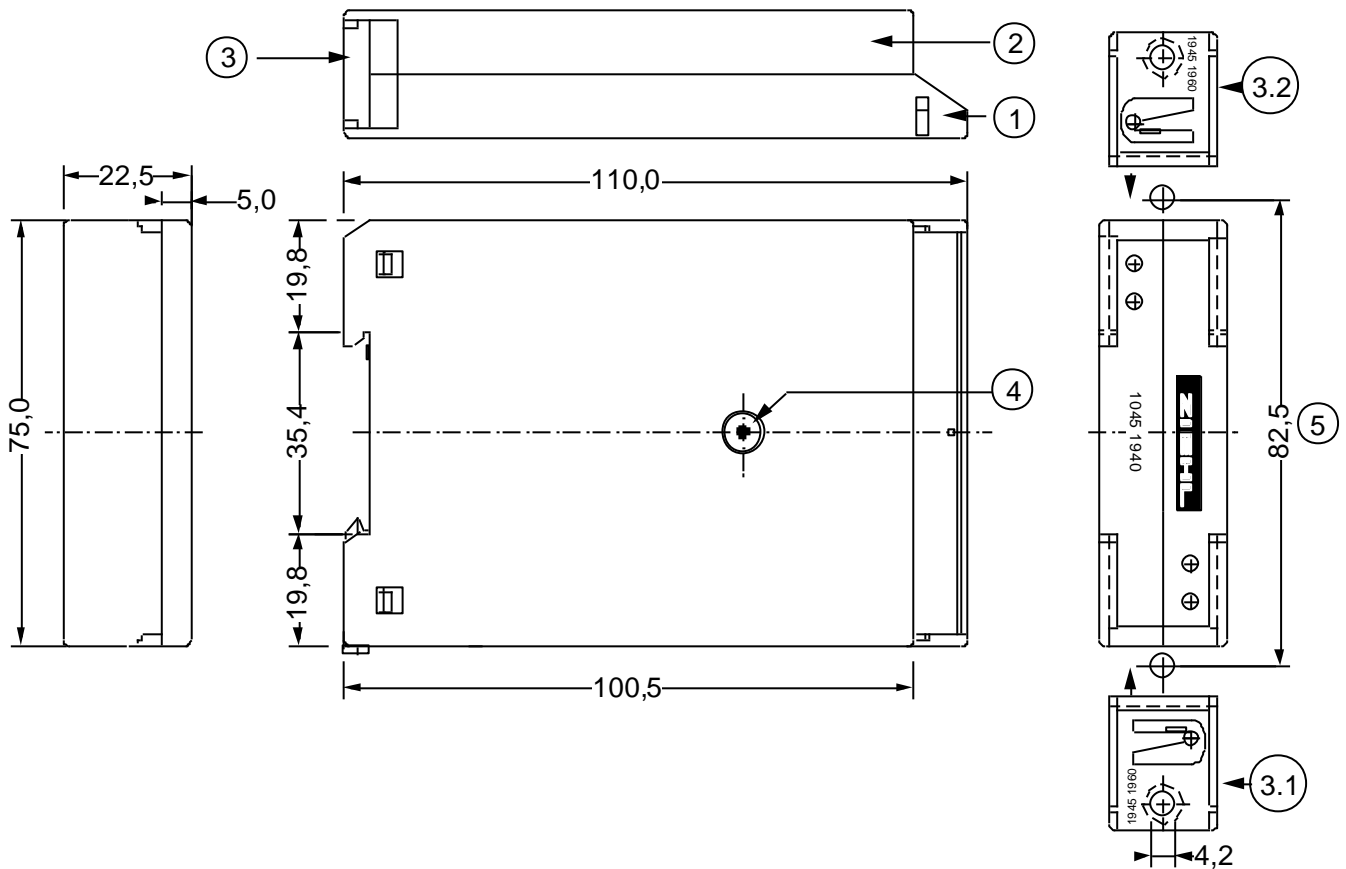
8 Technical data

Rated supply voltage U_s	AC/DC 24 – 240 V	0/50...400 Hz	< 3 W < 8 VA
Tolerance	DC 20,4 - 297 V	AC 20 - 264 V	
Housing	Type K		
Dimension (H x W x D)	75 x 22,5 x 110 mm		
Line connection solid wire	each 1 x 0,5...2,5 mm ²		
Stranded wire with insulated ferrules	each 1 x 0,14...1,5 mm ²		
Torque	0.5 Nm (3,6 lb.in)		
Protection class housing	IP 40		
Protection class terminals	IP 20		
Mounting	Snap mounting on 35 mm standard rail EN 60 715 or M4 screws		
Weight	app. 100 g		

Subject to technical changes

9 Housing Type K

Dimensions in mm



- 1 lower part
- 2 upper part
- 3 bar
- 4 screw
- 5 holes for screw-mount