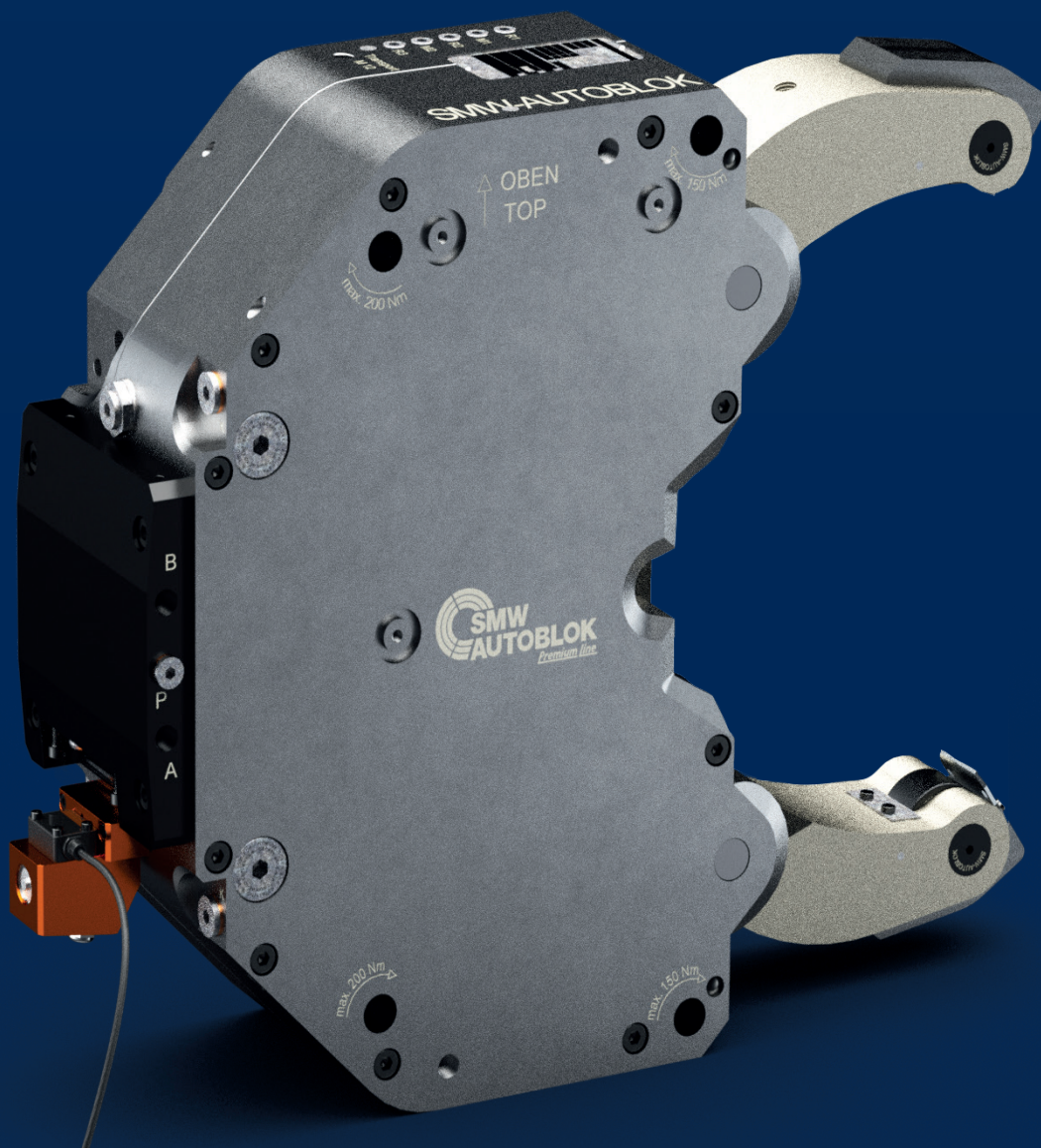


**ULTRASONIC LINEAR STROKE CONTROL  
FOR STEADY RESTS**

**USP 4.0 250**

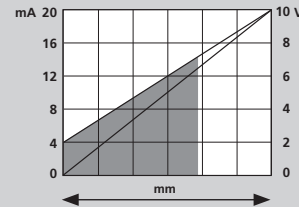
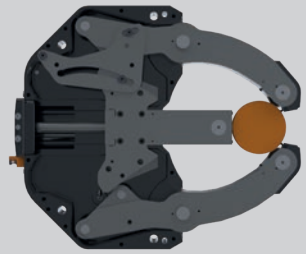




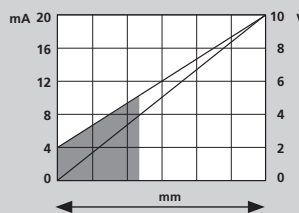
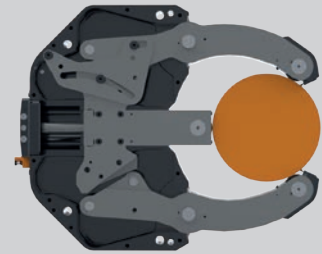
# USP 4.0 250

## Ultrasonic linear stroke control

## measuring system for steady rests



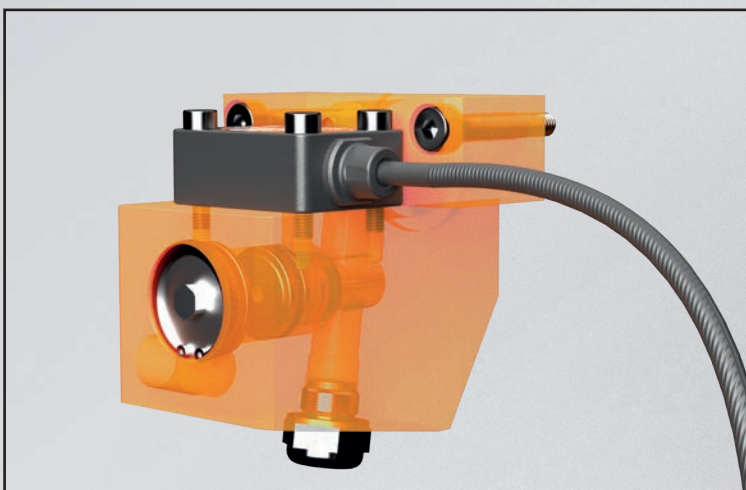
Current or voltage signal depending on the steady rest clamping range



The linear stroke control sensor generates an analog current or voltage signal between a minimum of 4 mA and a maximum of 20 mA (0-10 V) depending on the steady rest clamping range. This allows to detect any position of the steady rest and thus of the steady rest arms safely.

- Time and energy saving due to only partial opening of the steady rest during the workpiece loading (with appropriate machine hydraulics).
- Collision protection through evaluation of the output signal by the machine control.

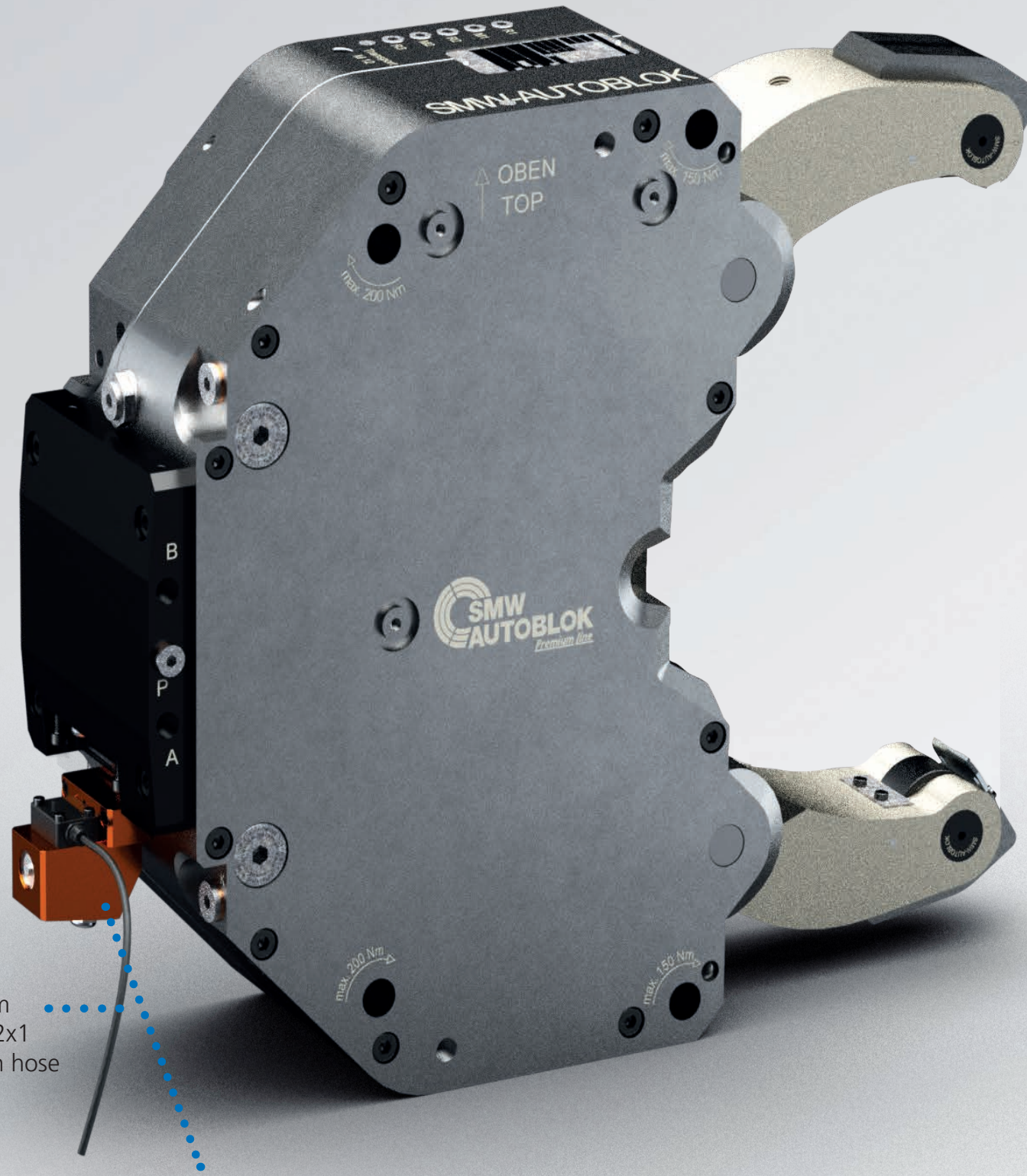
### Valve body for steady rests with USP 4.0 250



Valve body with Air purge and coolant drain valve.  
**Use of airpurge is mandatory!**

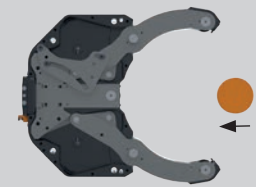
Cable 200 mm  
with plug M12x1  
and protection hose

Valve body with  
integrated drain valve



### TIME AND ENERGY SAVING:

By only partially opening  
of the steady rest.



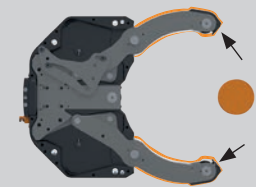
without USP 4.0 250



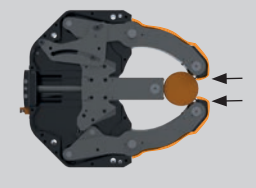
with USP 4.0 250

### COLLISION PROTECTION:

Evaluation of the  
output signal.



protected area

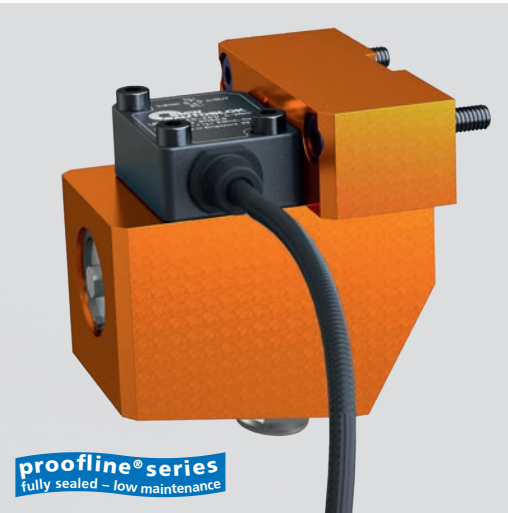


protected area



USP 4.0 250

Measuring range 25 - 250 mm



Linear stroke control unit for Steady Rests

- Completely sealed, protection class IP 67
- Output signal 4 - 20 mA or 0 - 10 V

Application/customer benefits

- For SMW-AUTOBLOK steady rests
- Non-contact distance measurement using ultrasonic technology
- Industry 4.0 compatible
- Linear stroke measuring of the entire clamping stroke avoids collision with the tools, which is an added safety feature
- Time and energy saving due to only partial opening of the steady rest (with corresponding machine hydraulics)

Technical features

- Ultrasonic measuring system
- No interference from magnetic fields
- Measuring range = 25 - 250 mm
- Compact design / easy installation
- Output signal analog 0 - 10 V / 4 - 20 mA
- Protection class IP 67
- Reverse polarity protection
- Use of airpurge is mandatory

Accessories

Sensor connection cable see USP 4.0 250 (Plug M12 x 1) and protection hose

Ordering Example

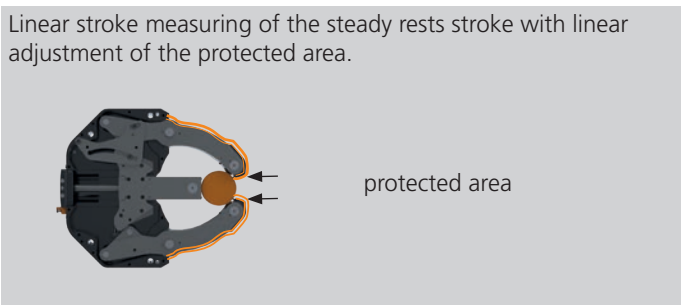
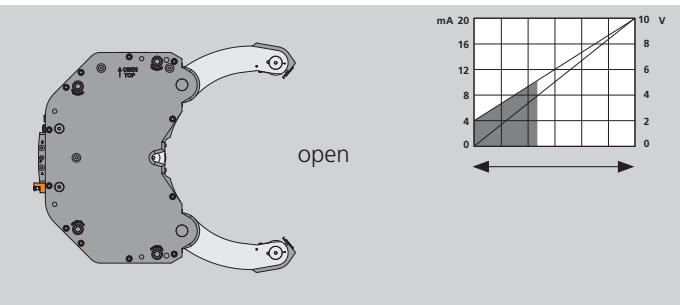
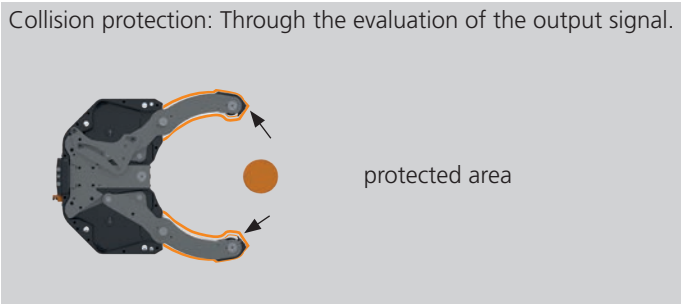
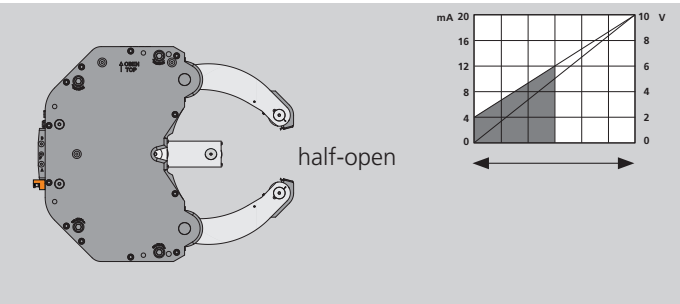
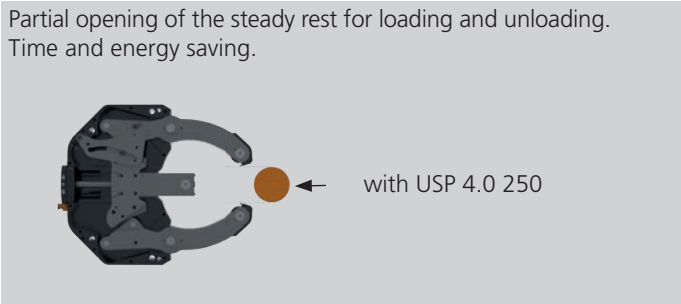
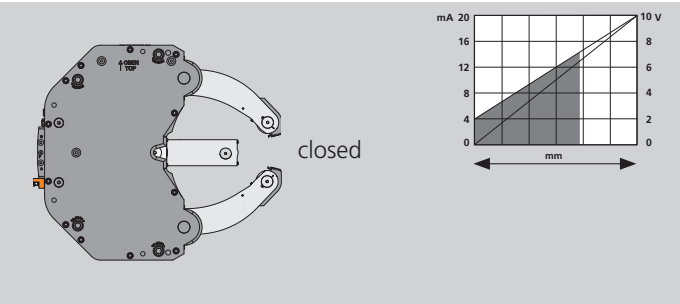
USP 4.0 250 with 200 mm cable with plug M12 x 1 and protection hose

Measuring principle

In **steady rests**, the levers with their rollers move linear and concentric to the center of rotation. With conventional end position measurement via non-contact limit switches, the two end positions **fully open** and **fully closed** without work piece are detected.

With linear stroke measuring via USP 4.0 250, the clamping stroke is measured lineary. This means that a corresponding

analog signal is always available for each individual position. Only partial opening of the steady rest is possible with the appropriate hydraulics, and in addition to easier loading it also saves time and energy. Due to the linear stroke measuring, the integration of a collision protection software is also possible.



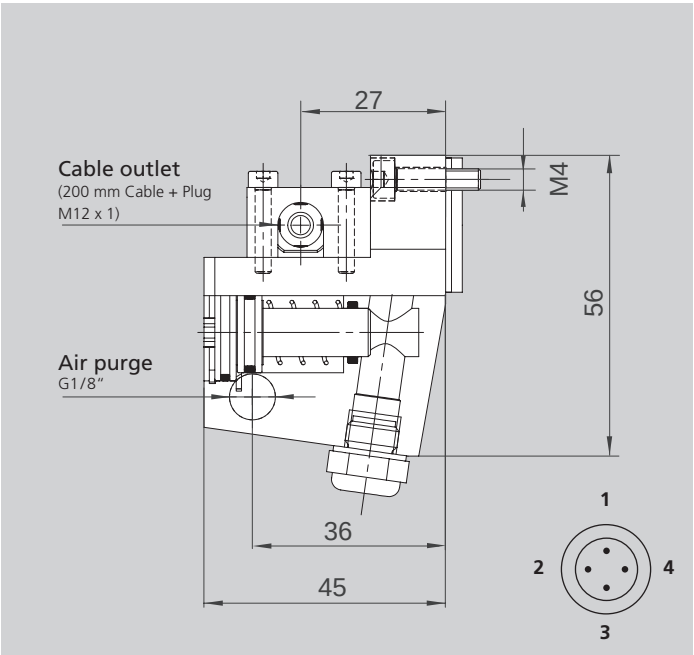
Linear stroke control unit for Steady Rests

- Completely sealed, protection class IP 67
- Output signal 4 - 20 mA or 0 - 10 V

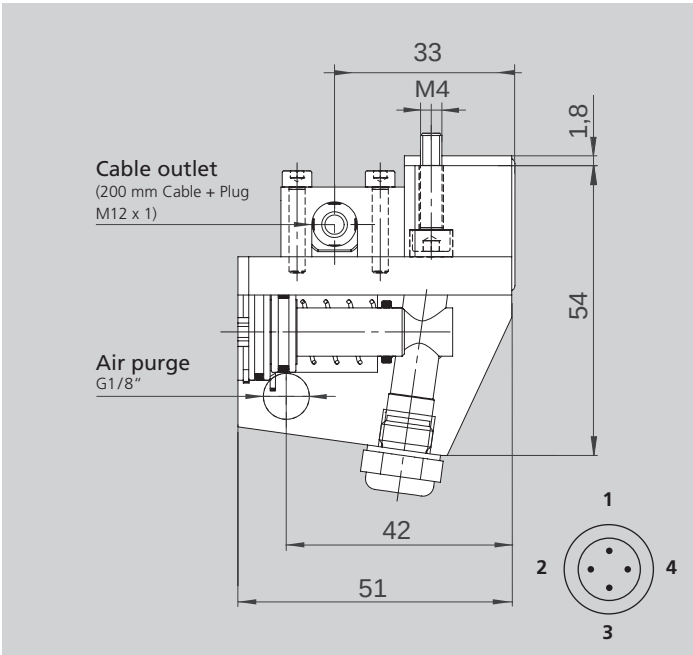
USP 4.0 250

Measuring range 25 - 250 mm

USP 4.0 250 for RX



USP 4.0 250 for SR/SLU-X/K



Technical features

| SMW-AUTOBLOK Typ  |                         | USP 4.0 250 for RX                                                        | USP 4.0 250 for SR/ SLU-X/K                                               |
|-------------------|-------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                   |                         | 0-10 V / 4-20 mA                                                          | 0-10 V / 4-20 mA                                                          |
| Measuring range   |                         | 25 - 250 mm                                                               | 25 - 250 mm                                                               |
| Output signal     |                         | 0 - 10 V<br>4 - 20 mA                                                     | 0 - 10 V<br>4 - 20 mA                                                     |
| Power supply      |                         | 18 ... 30 V DC                                                            | 18 ... 30 V DC                                                            |
| Repeat accuracy   |                         | < ± 0.1 %                                                                 | < ± 0.1 %                                                                 |
| Linearity         |                         | < ± 1.0 %                                                                 | < ± 1.0 %                                                                 |
| Operating range   |                         | -25 - 60°                                                                 | -25 - 60°                                                                 |
| Protection class  |                         | IP 67                                                                     | IP 67                                                                     |
| Displays/controls |                         |                                                                           |                                                                           |
| LED green         | permanently on flashing | Power on<br>Standby-Operation / IO-Link Communication                     | Power on<br>Standby-Operation / IO-Link Communication                     |
| LED yellow        | permanently on flashing | Object in the measuring range,<br>Programming the limits, object detected | Object in the measuring range,<br>Programming the limits, object detected |
| LED red           | permanently on flashing | Malfunction<br>Programming the limits, object not recognized              | Malfunction<br>Programming the limits, object not recognized              |
| Pin assignment    |                         |                                                                           |                                                                           |
| Pin 1             | brown BN                | 24 V DC                                                                   | 24 V DC                                                                   |
| Pin 2             | white WH                | -                                                                         | -                                                                         |
| Pin 3             | blue BU                 | GND                                                                       | GND                                                                       |
| Pin 4             | black BK                | 0 - 10 V<br>4 - 20 mA                                                     | 0 - 10 V<br>4 - 20 mA                                                     |

Order overview

| SMW-AUTOBLOK Typ                                 | Id.-Nr.   |        |
|--------------------------------------------------|-----------|--------|
| USP 4.0 250                                      |           |        |
| Complete set for <b>RX</b> steady rests          | 0 - 10 V  | 228761 |
|                                                  | 4 - 20 mA | 228670 |
| Complete set for <b>SR /SLU-X/K</b> steady rests | 0 - 10 V  | 228762 |
|                                                  | 4 - 20 mA | 228740 |
| USP 4.0 250 ultrasonic sensor <b>single</b>      | 0 - 10 V  | 211501 |
| USP 4.0 250 ultrasonic sensor <b>single</b>      | 4 - 20 mA | 211500 |

# Binary Box 4.0

## Binary Interface Box

## Binary Interface Box



### Application/customer benefits

- Binary output signal 10 bit
- Suitable to USP 4.0 250 (usable for 0 - 10 V versions)

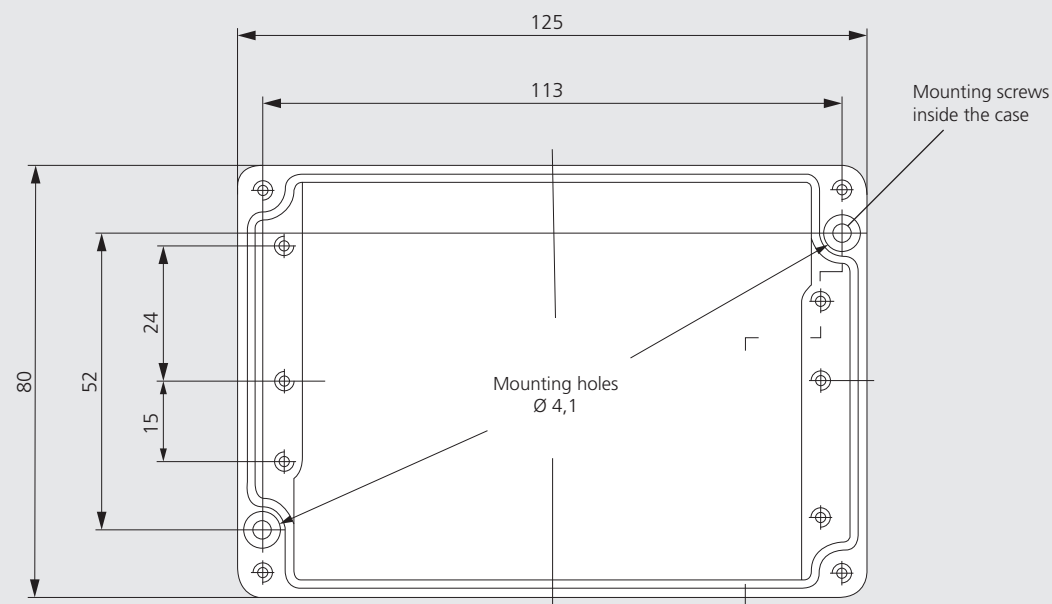
## Technical features

- Dimensions 125 x 80 x 50 mm
- Protection class IP 64
- Operating temperature 0 - 70°C
- Resolution: 0-50 mm 0,05 mm = 1 Digit  
                   > 50 mm 0,25 mm = 1 Digit
- Connections: Socket 16 pin Zylind R  
                   style A, code N

Internal connection according to the manual instruction for cable with one open end to connect to the USP 4.0 250 sensor.

## Standard equipment

## Binary Interface Box without cables



Case Binary interface box

## Technical data

|                   |                                      |
|-------------------|--------------------------------------|
| SMW-AUTOBLOK Type | Binary Interface Box for USP 4.0 250 |
| Id. No.           | 212100                               |

| Cabel for USP 4.0 250*                                | length | Id. No. |
|-------------------------------------------------------|--------|---------|
| Connecting cable with straight plug<br>M12 x 1 5-pole | 5 m    | 208244  |
|                                                       | 10 m   | 208245  |
|                                                       | 15 m   | 208246  |



| Protection hose | length | Id. No. |
|-----------------|--------|---------|
|                 | 200 mm | 212052  |

\* Shielded PUR cable, 1 side with open end, 1 side with M12 x 1 cable socket, gold-plated contacts.

## Notes

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