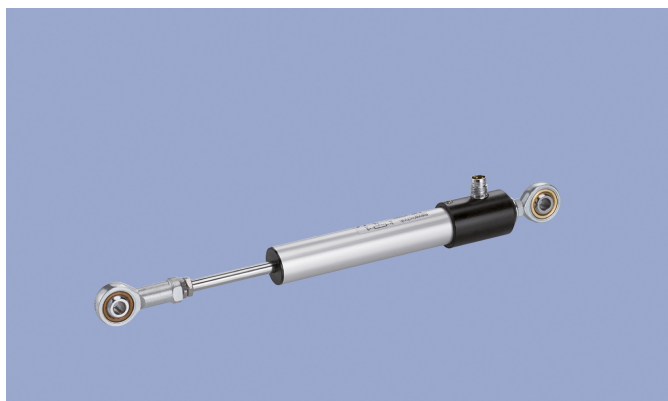
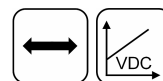


**Transducer  
Potentiometric**

**TX2**  
Pivot Head Mounting  
up to 300 mm



**Special Features**

- Outstanding linearity up to  $\pm 0.05\%$
- Sealed to IP67 - suitable for harsh environmental conditions (moisture, oil, dust)
- Very long life - up to 50 million movements
- Compact dimensions =  $\varnothing 16$  mm
- Easy to assemble via low backlash pivot heads with a large angle of freedom (up to  $\pm 12.5$  degrees)
- Cable or plug connection optional
- For transducers with mounting clamps series TX2, see separate data sheet

**Applications**

- Mobile working machines (industrial trucks, construction machinery, agricultural and forestry machinery)

High protection class and very compact dimensions characterize this inexpensive transducer. The heavy-duty design together with metal flanges and double sealed actuating rod make the TX2 Series an ideal choice for applications used in adverse environments with dirt, dust and humidity.

Users with mobile applications can especially benefit from the TX2 Series' pivot-head mounting.

The electrical connection is made by radial plug connector or radial cable.

For transducers with and without return spring and mounting clamps, central thread or flange plates see separate TEX Series data sheets.

**Description**

Material	Housing: aluminium, anodized Actuating rod: SS 1.4305 / AISI 303, rotatable, external thread M5
Mounting	Pivot Head Mounting (SS pivot heads on request)
Bearing	Sintered bronze bushing
Resistance element	Conductive plastic
Wiper	Precious metal multi-finger wiper
Electrical connection	Connector M8x1, 3-pin / Cable 4x 0.14 mm <sup>2</sup> (AWG 26), PUR, shielded, L = 2 m

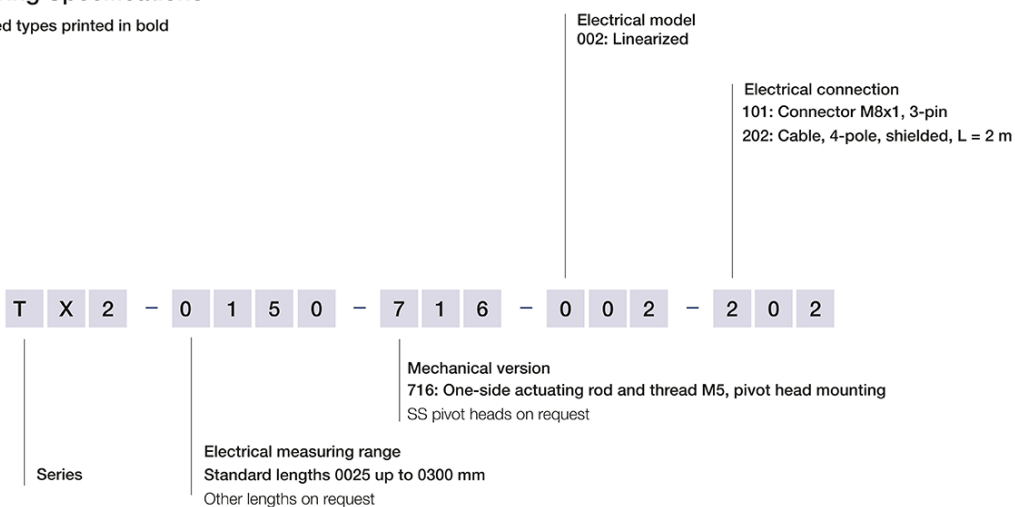
**Mechanical Data**

Type	TX2 0025	TX2 0050	TX2 0075	TX2 0100	TX2 0150	TX2 0200	TX2 0250	TX2 0300
Dimensions	See dimension drawing							
Length of housing (dim. A $\pm 1$ mm)	86 mm	111 mm	136 mm	161 mm	224 mm	274 mm	324 mm	374 mm
Mechanical travel (dim. B $\pm 1$ mm)	30 mm	55 mm	80 mm	105 mm	158 mm	208 mm	258 mm	308 mm
Min. distance between pivot heads (dim. C, nominal)	136 mm	161 mm	186 mm	211 mm	274 mm	324 mm	374 mm	424 mm
Weight (cable/connector version)	120/100 g	156/110 g	160/120 g	177/130 g	190/150 g	225/163 g	250/190 g	270/205 g
Operating force, horizontal	$\leq 5$ N (at RT 20°C)							
Operating force, vertical	$\leq 5$ N (at RT 20°C)							
Initial operating force	max. 15 N *							
	*) Initial operating force is dependent on ambient temperature and inactive time.							

## Ordering Specifications

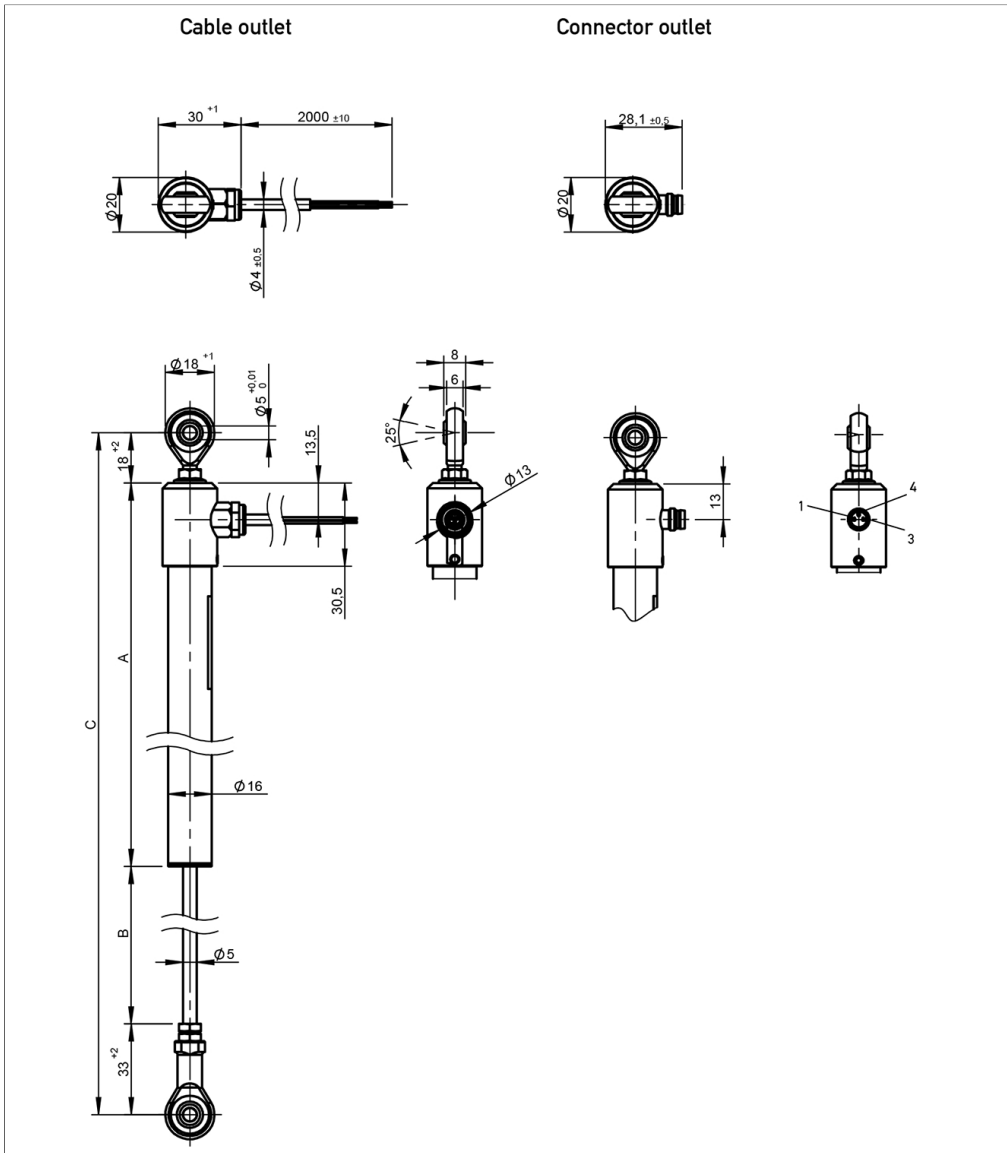
### Ordering Specifications

Preferred types printed in bold



**Drawing**

CAD data see  
[www.novotechnik.de/en/download/cad-data/](http://www.novotechnik.de/en/download/cad-data/)



## Technical Data

Type	TX2 0025	TX2 0050	TX2 0075	TX2 0100	TX2 0150	TX2 0200	TX2 0250	TX2 0300
Electrical measuring range	0 ... 27 mm	0 ... 52 mm	0 ... 77 mm	0 ... 102 mm	0 ... 155 mm	0 ... 205 mm	0 ... 255 mm	0 ... 305 mm
Defined electr. measuring range	0 ... 25 mm	0 ... 50 mm	0 ... 75 mm	0 ... 100 mm	0 ... 150 mm	0 ... 200 mm	0 ... 250 mm	0 ... 300 mm
Output	Voltage divider							
Resistance value	1 k $\Omega$	2 k $\Omega$	3 k $\Omega$	4 k $\Omega$	6 k $\Omega$	8 k $\Omega$	10 k $\Omega$	12 k $\Omega$
Resistance tolerance	$\pm$ 20 %							
Independent linearity	$\leq \pm 0.2$ %FS	$\leq \pm 0.1$ %FS	$\leq \pm 0.1$ %FS	$\leq \pm 0.1$ %FS	$\leq \pm 0.05$ %FS	$\leq \pm 0.05$ %FS	$\leq \pm 0.05$ %FS	$\leq \pm 0.05$ %FS
Repeatability	$\leq \pm 0.01$ mm							
Recommended operating wiper current	$\leq 1$ $\mu$ A							
Max. wiper current in case of malfunction	10 mA							
Max. permissible supply voltage Ub	42 VDC							
Effective temp. coefficient of the output-to-applied voltage ratio	typ. 5 ppm/K							
Insulation resistance (500 VDC)	$\geq 10$ M $\Omega$							
Dielectric strength (500 VAC, 50 Hz)	$\leq 100$ $\mu$ A							
<b>Environmental Data</b>								
Max. operational speed	5 m/s							
Vibration IEC 60068-2-6	20 g, 5 ... 2000 Hz, Amax = 0.75 mm							
Shock IEC 60068-2-27	50 g, 6 ms							
Protection class DIN EN 60529	IP67 **							
Operating temperature	-40 ... +85°C (connector M8), -20 ... +100°C (Cable)							
Operating humidity	0 ... 95 % R.H. (no condensation)							
Life	typ. > 50 Mio. movements							
	**) Use mating connector with protection class IP67 or higher. Protection class was determined according to the standard in new condition. Durability of actuating rod seal is dependent upon both application environment and operating cycles. Read manual instructions prior to starting application equipment.							
Functional safety	If you need assistance in using our products in safety-related systems, please contact us							
Traceability	Serial number on type labeling: production batch of the sensor assembly and relevant sensor components							
Conformity/Approval	CE, UKCA see <a href="https://www.novotechnik.de/en/downloads/certificates/declarations-of-conformity-eu/uk">https://www.novotechnik.de/en/downloads/certificates/declarations-of-conformity-eu/uk</a> WEEE see <a href="https://www.novotechnik.de/en/downloads/certificates/eu-directive-weee/">https://www.novotechnik.de/en/downloads/certificates/eu-directive-weee/</a>							

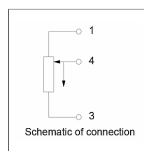
### Important:

All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper ( $I_e \leq 1$   $\mu$ A).

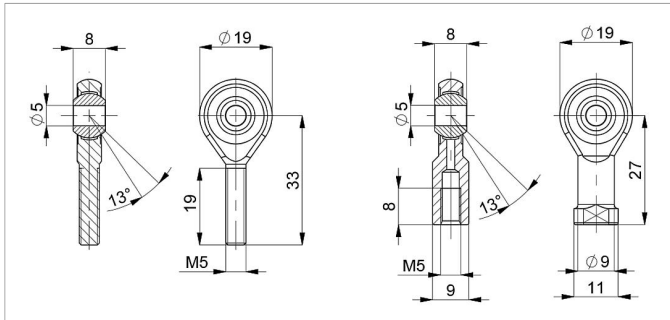
### Connection Assignment

Signal	Connector code 101	Cable code 202
Connection 1	Pin 1	BN
Connection 4 Signal output	Pin 4	WH
Connection 3	Pin 3	GN

The signal output slope on pin 2 (or black wire) is rising while extending the rod with "+" of the power supply at pin 3 (or red wire) and falling with power supply "+" at pin 1 (or brown wire).



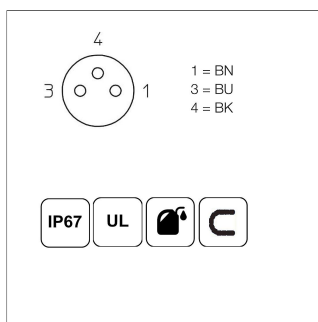
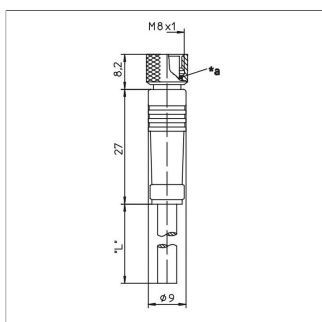
### Sensor Mounting



**Z-G-04**  
Conversion kit for series TEX and TX2: SS  
version with 2 pivot heads.

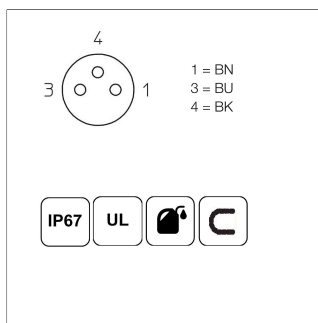
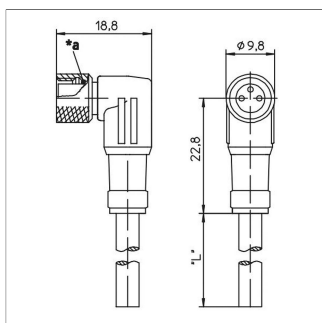
P/N	Pack. unit [pcs]
400108552	2

## Connector System M8



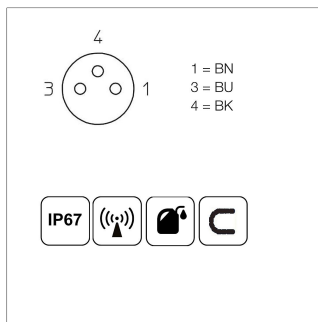
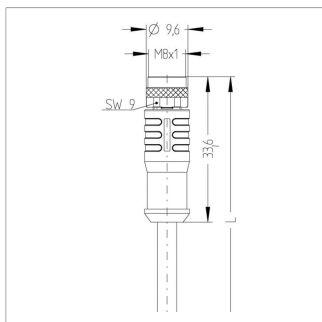
**EEM-33-64/66/68**  
M8x1 Mating female connector, 3-pin, straight, with molded cable, not shielded, IP67, open ended  
Plug housing PA  
Cable sheath PUR,  $\varnothing = \text{max. } 6 \text{ mm}$ , -40 ... +90°C  
Lead wires PP, 0.34 mm<sup>2</sup>

P/N	Type	Length
400005617	EEM-33-64	2 m
400005619	EEM-33-66	5 m
400005643	EEM-33-68	10 m



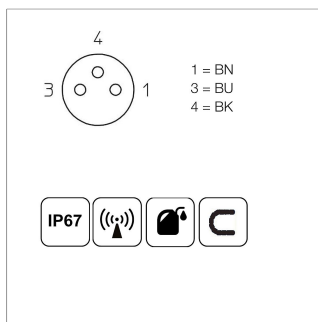
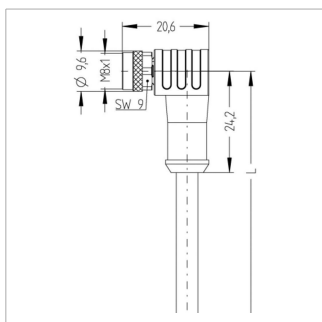
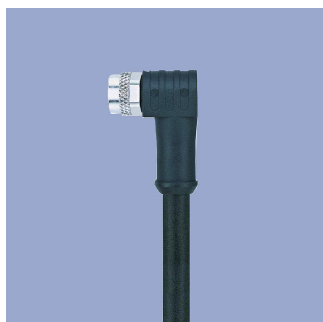
**EEM-33-65/67/69**  
M8x1 Mating female connector, 3-pin, angled, with molded cable, not shielded, IP67, open ended  
Plug housing PA  
Cable sheath PUR,  $\varnothing = \text{max. } 6 \text{ mm}$ , -40 ... +90°C  
Lead wires PP, 0.34 mm<sup>2</sup>

P/N	Type	Length
400005618	EEM-33-65	2 m
400005620	EEM-33-67	5 m
400005644	EEM-33-69	10 m



**EEM-33-56/58/60**  
M8x1 Mating female connector, 3-pin, straight, with molded cable, shielded, IP67, open ended  
Plug housing TPU  
Cable sheath PUR,  $\varnothing = \text{max. } 6 \text{ mm}$ , -40 ... +90°C  
Lead wires PP, 3x 0.34 mm<sup>2</sup>\*

P/N	Type	Length
400005602	EEM-33-56	2 m
400005604	EEM-33-58	5 m
400005606	EEM-33-60	10 m



**EEM-33-57/59/61**  
M8x1 Mating female connector, 3-pin, angled, with molded cable, shielded, IP67, open ended  
Plug housing TPU  
Cable sheath PUR,  $\varnothing = \text{max. } 6 \text{ mm}$ , -40 ... +90°C  
Lead wires PP, 3x 0.34 mm<sup>2</sup>\*

P/N	Type	Length
400005603	EEM-33-57	2 m
400005605	EEM-33-59	5 m
400005607	EEM-33-61	10 m

**IP67** Protection class IP67 DIN EN 60529

**IP68** Protection class IP68 DIN EN 60529

Very good Electromagnetic Compatibility (EMC) and shield systems

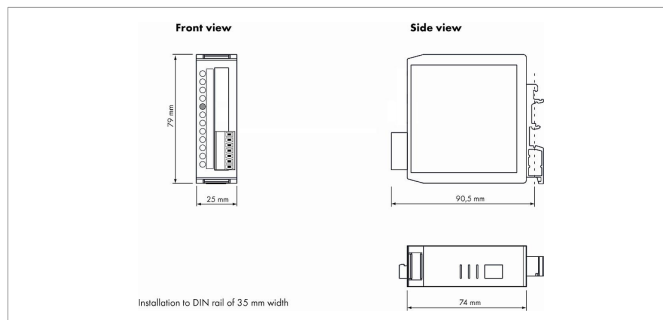
Very good resistance to oils, coolants and lubricants

**C** Suited for applications in dragchains

**UL** UL - approved

CAN-Bus

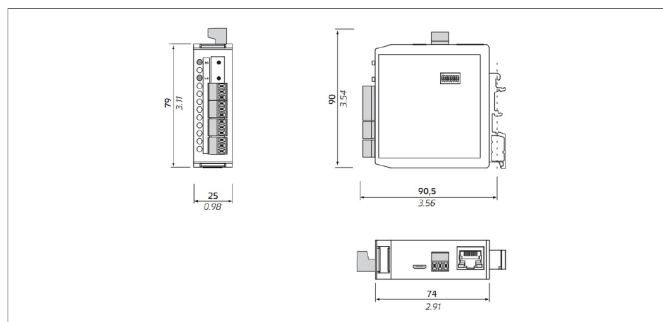
## Signal Processing



### MUP-080

Cost-efficient signal conditioner with fixed output range, voltage or current output. Not adjustable. Detailed data see separate data sheet.

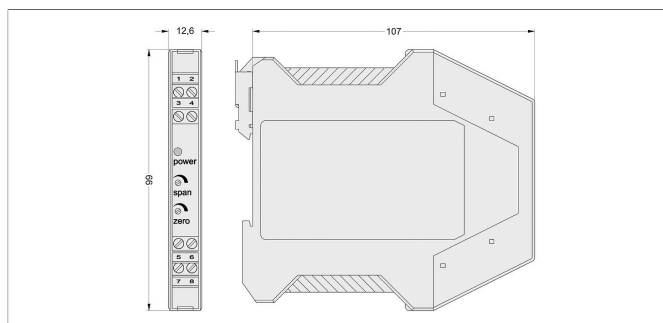
P/N	Type	Output
400054220	MUP-080-111	0 ... 10 V
400054221	MUP-080-113	4 ... 20 mA



### MUP-410

Signal conditioner with simple teach-in function to adapt start and end point. Switchable current or voltage outputs. With galvanic isolation. Detailed data see separate data sheet.

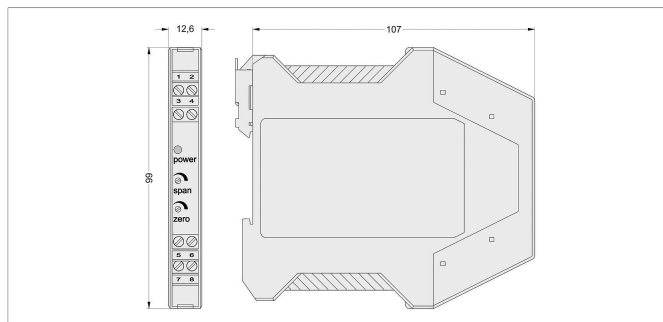
P/N	Type	Output
400108799	MUP-410-11	4 ... 20 mA, 0 ... 10 V, 0 ... 2/5 V, ± 10 V, 0 ... 5/20 mA



### MUP-110

Signal conditioner in compact size with voltage or current output, adjustable zero and span. Detailed data see separate data sheet.

P/N	Type	Output
400054010	MUP-110-0	0 ... 20 mA
400054011	MUP-110-1	0 ... 10 V
400054014	MUP-110-4	4 ... 20 mA

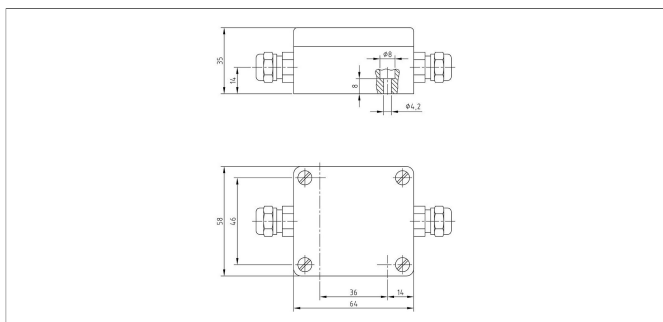
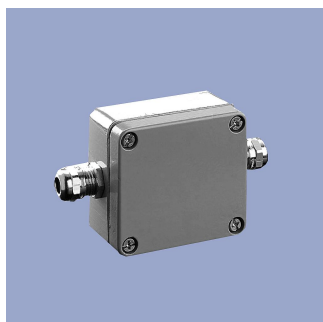


### MUP-160

Signal conditioner in compact size with voltage or current output, adjustable zero and span. With galvanic isolation. Detailed data see separate data sheet.

P/N	Type	Output
400054060	MUP-160-0	0 ... 20 mA
400054061	MUP-160-1	0 ... 10 V
400054064	MUP-160-4	4 ... 20 mA

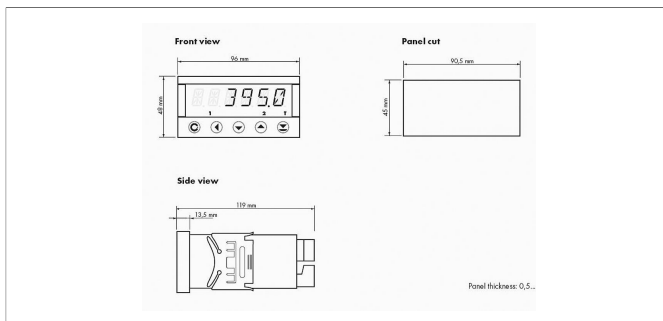
## Signal Processing



### MUK-350

Signal conditioner inside robust housing, even for outside use. Zero point and span adjustable. Detailed data see separate data sheet.

P/N	Type	Output
400054171	MUK-350-0	0 ... 20 mA
400054172	MUK-350-1	0 ... 10 V
400054173	MUK-350-4	4 ... 20 mA
400054174	MUK-350-6	± 10 V



### MAP-4000

Multifunctional measuring device with digital display for direct connection of potentiometric and normalized signals.

- Supply voltage 10...30 VDC, 80...250 VDC or AC
- High accuracy up to 0.1%
- Adjustable supply voltage for sensors 5...24 V
- Temperature coefficient 100 ppm/K
- Optional RS 232, RS 485, analog output, limited switch
- Complete data see separate data sheet



**Product Models by  
request**



**Product variant TX2 with bellows**

Version with bellows to protect the actuating rod from contamination in environments heavily exposed to media

- By request (with minimum order quantity)

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