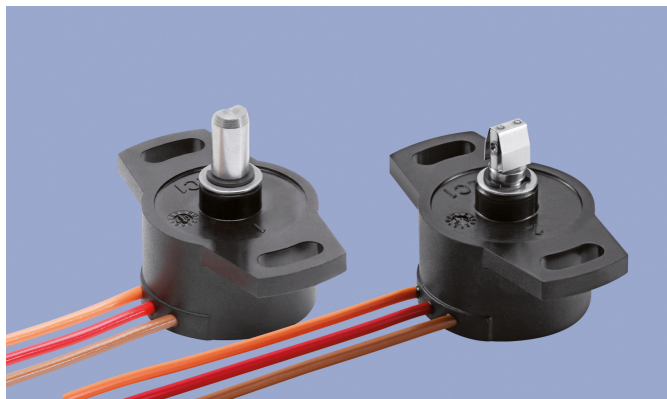
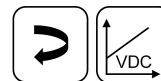


Rotary Sensor Potentiometric

SP-2800



Special Features

- Available with marked shaft (head shape B) or with push-on coupling (head shape D)
- Easy mounting
- Protection class IP54 or IP65
- Long life
- 1-channel or 2-channel (fully redundant)
- Good price/performance ratio

Applications

- Measuring/control technology
- Valves/throttle control
- Manufacturing Engineering (woodwork machines, riveting machines, packaging machines, welding machines)
- Assembly/test devices
- Medical appliances
- Building automation
- Mobile working machines (industrial trucks, construction machinery, agricultural and forestry machinery)

Designed to convert rotary movement into a proportional voltage, these sensors utilize conductive plastic technology on both the resistance and collector tracks.

The housing and bearings are produced in a special high-grade temperature-resistant plastic material. Fixings are in the form of elongated slots which allow simplicity in mounting together with ease of mechanical adjustment.

The special backlash-free push-on coupling ensures extremely quick and easy installation. The sensor is not sensitive to either dirt or dampness. Electrical connections are made via conductors which are sealed into the housing. They are suitable for use with any of the termination methods currently in use. The use of elastomer-damped precious metal multi-finger wiper ensures reliable contact even under the severest of working conditions.

Special models with different electrical travels and shaft dimensions are available.

Description

Material	Housing and bearing: high grade, temperature resistant plastic PPS-GF Shaft: SS X8CrNiS18-9 1.4305 / AISI 303
Mounting	With 2 screws M4 and washers
Max. fastening torque of mounting screws	max. 180 Ncm
Resistance element	Conductive plastic
Wiper	Precious metal multi-finger wiper
Electrical connection	Lead wires, bared and tinned, diameter approx. 1 mm ² , TPE-PEE insulation, 1-channel D = 2.1 mm, 2-channels D = 1,6 mm SP-28_ _ _ _ _001/006: L = 0.3 m SP-28_ _ _ _ _003: L = 1.5 m

Mechanical Data

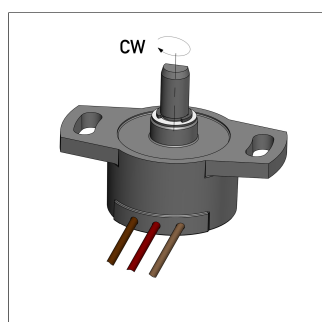
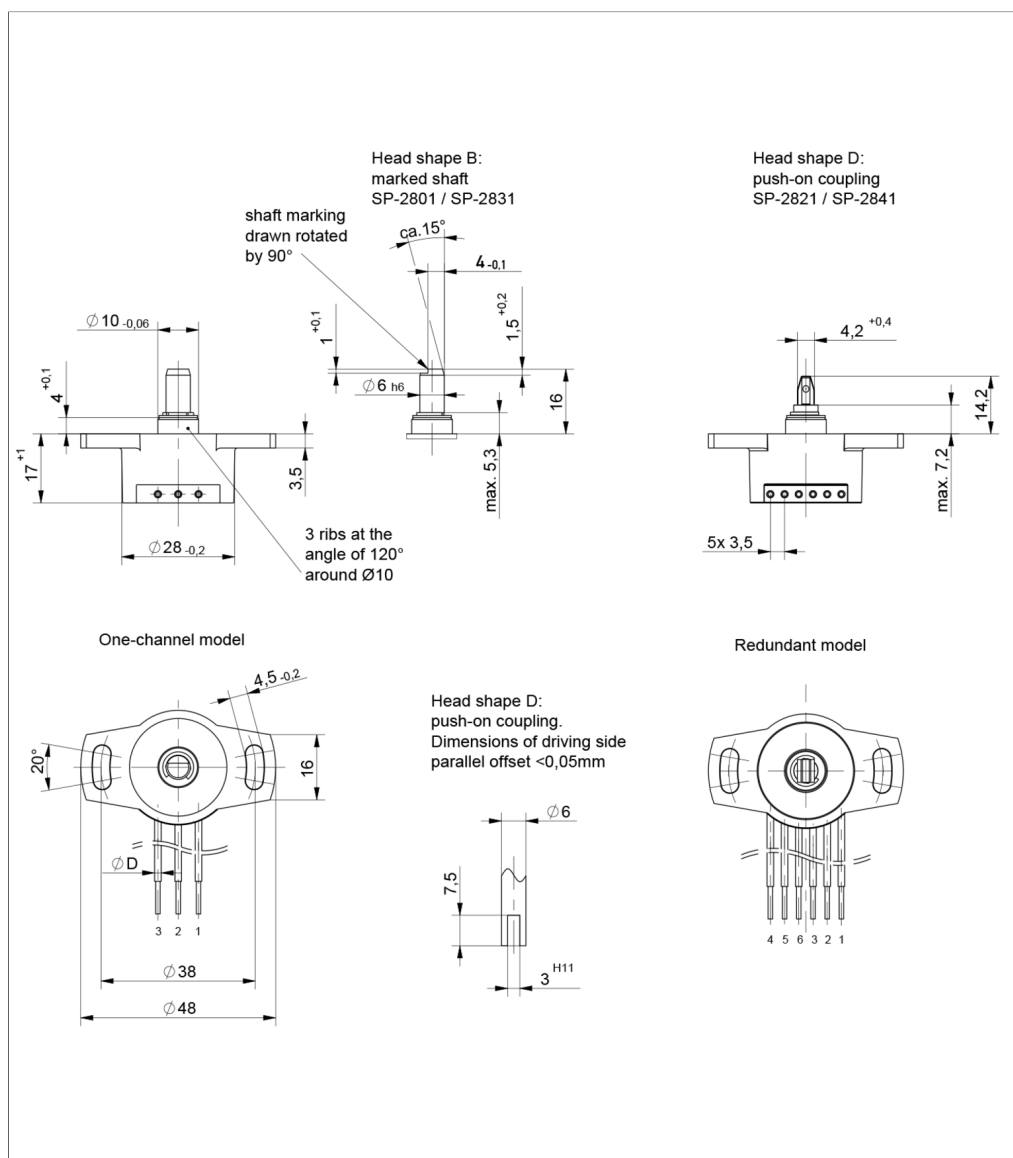
Type SP-	2801-308 -000-001	2831-308 -000-001	2821-308 -000-001	2841-308 -000-001	2801-100 -002-001	2831-100 -002-001	2841-100 -002-001	2841-100 -002-003	2841-130 -050-003	2841-345 -065-001	2841-100 -067-006
Dimensions	See dimension drawing										
Head shape	B	B	D	D	B	B	D	D	D	D	D
Torque	≤ 0.2 Ncm	≤ 0.5 Ncm	≤ 0.2 Ncm	≤ 0.5 Ncm	≤ 0.2 Ncm	≤ 0.5 Ncm	≤ 0.5 Ncm	≤ 0.5 Ncm	≤ 0.5 Ncm	≤ 0.5 Ncm	≤ 0.5 Ncm
Permitted shaft load static or dynamic	20 N (axial / radial)										

Ordering Specifications

P/N	Type	Measuring range	Head form of shaft	Protection class	
400019720	SP-2801-308-000-001	308° ±2°	B	IP54	0.3 m
400019721	SP-2831-308-000-001	308° ±2°	B	IP65	0.3 m
400019740	SP-2821-308-000-001	308° ±2°	D	IP54	0.3 m
400019741	SP-2841-308-000-001	308° ±2°	D	IP65	0.3 m
400019722	SP-2801-100-002-001	100° ±2°	B	IP54	0.3 m
400019727	SP-2831-100-002-001	100° ±2°	B	IP65	0.3 m
400019742	SP-2841-100-002-001	100° ±2°	D	IP65	0.3 m
400019743	SP-2841-100-002-003	100° ±2°	D	IP65	1.5 m
400019744	SP-2841-130-050-003	130° ±2°	D	IP65	1.5 m
400019764	SP-2841-345-065-001	345° ±2°	D	IP65	0.3 m
400019765	SP-2841-100-067-006	2x 100° ±2°	D	IP65	0.3 m

Drawing

CAD data see
www.novotechnik.de/en/download/cad-data/



When the marking of the shaft is pointing towards the electrical outlet, the sensor output is near the electrical center position.

Technical Data

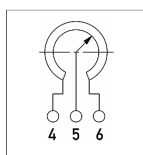
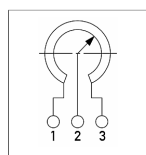
Type SP-	2801-308 -000-001	2831-308 -000-001	2821-308 -000-001	2841-308 -000-001	2801-100 -002-001	2831-100 -002-001	2841-100 -002-001	2841-100 -002-003	2841-130 -050-003	2841-345 -065-001	2841-100 -067-006
Electrical measuring range	308° ±2°	308° ±2°	308° ±2°	308° ±2°	100° ±2°	100° ±2°	100° ±2°	100° ±2°	130° ±2°	345° ±2°	2x 100° ±2°
Output signal	Voltage divider										
Number of channels	1	1	1	1	1	1	1	1	1	1	2
Resistance value	5 kΩ	5 kΩ	5 kΩ	5 kΩ	3 kΩ	3 kΩ	3 kΩ	3 kΩ	3 kΩ	5 kΩ	3 kΩ
Resistance tolerance	± 20 %										
Independent linearity	≤ ±0.3 %FS	≤ ±0.3 %FS	≤ ±0.3 %FS	≤ ±0.3 %FS	≤ ±1 %FS	≤ ±1 %FS	≤ ±1 %FS	≤ ±1 %FS	≤ ±1 %FS	≤ ±0.3 %FS	≤ ±1 %FS
Interlinearity											≤ ±2 %FS
Repeatability	≤ ±0.03°	≤ ±0.03°	≤ ±0.06°	≤ ±0.06°	≤ ±0.03°	≤ ±0.03°	≤ ±0.06°	≤ ±0.06°	≤ ±0.06°	≤ ±0.06°	≤ ±0.06°
Recommended operating wiper current	≤ 1 µA										
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)	≥ 10 MΩ										
Dielectric strength (500 VAC, 50 Hz)	≤ 100 µA										
Environmental Data											
Max. operational speed	120 rpm										
Vibration IEC 60068-2-6	20 g, 5 ... 2000 Hz, Amax = 0.75 mm										
Shock IEC 60068-2-27	100 g, 6 ms										
Protection class DIN EN 60529	IP54	IP65	IP54	IP65	IP54	IP65	IP65	IP65	IP65	IP65	IP65
Operating temperature	-40 ... +120°C										
Life	> 50 Mio. movements (restriction when passing over the dead zone)										

Important:

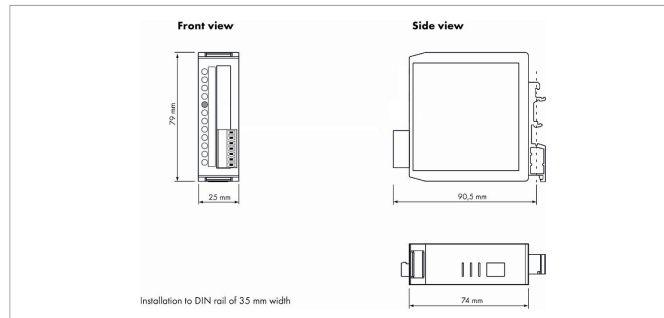
All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper (I_e ≤ 1 µA).
FS = Full scale: Signal span according to electrical measuring range

Connection Assignment

Signal	Lead wires code 001/003	Lead wires code 006
	Single-channel	Fully redundant
Connection 1	BN	BN
Connection 2 Signal output	RD	RD
Connection 3	OG	OG
Connection 4	-	BN
Connection 5 Signal output	-	RD
Connection 6	-	OG



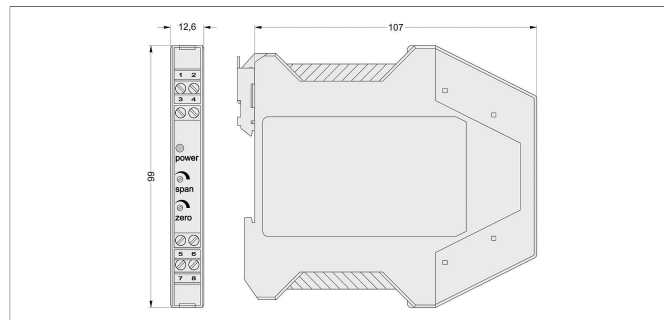
Signal Processing



MUP-080

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

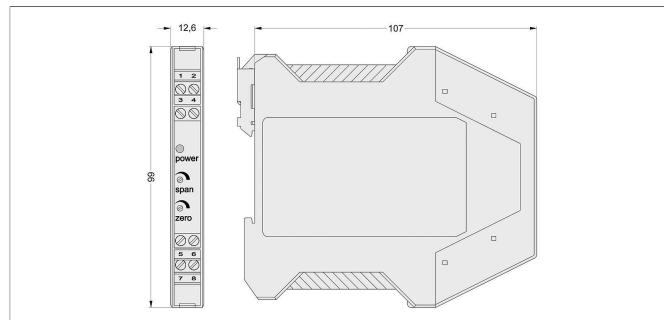
P/N	Type	Output
400054220	MUP-080-111	0 ... 10 V
400054221	MUP-080-113	4 ... 20 mA



MUP-110

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

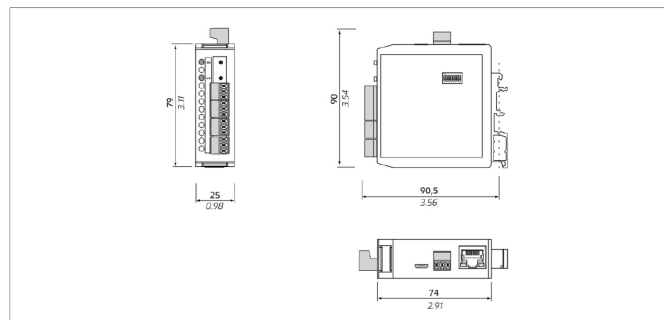
P/N	Type	Output
400054010	MUP-110-0	0 ... 20 mA
400054011	MUP-110-1	0 ... 10 V
400054014	MUP-110-4	4 ... 20 mA



MUP-160

Signal conditioner in compact size with voltage or current output, adjustable zero and span. With galvanic isolation.

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

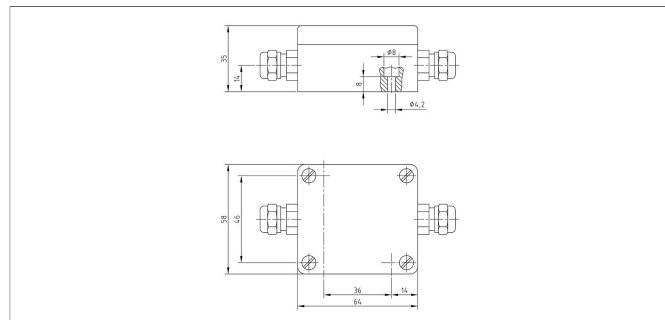
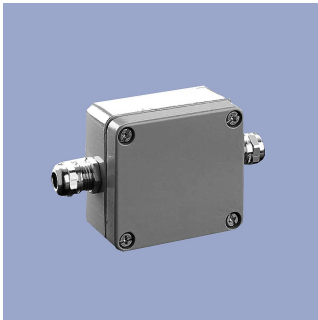


MUP-410

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

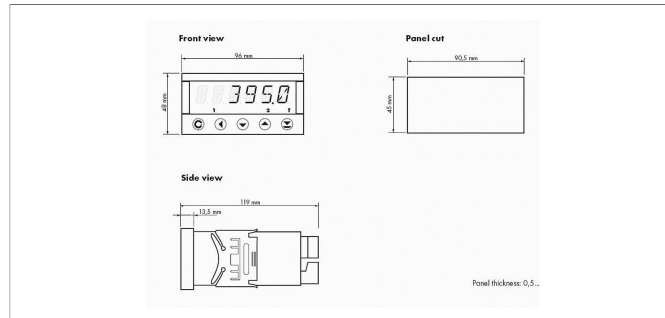
Signal Processing



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

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