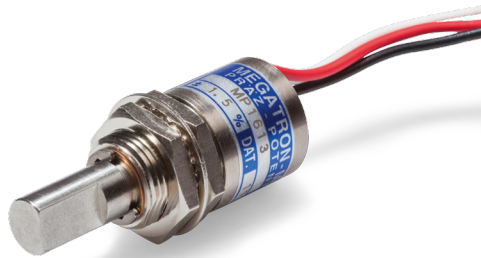


# Data Sheet for Angle Sensors

## Hall-Effect Single-Turn Rotary Encoder

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## Series MP1613



- Wide operating temperature range -40..+105 °C
- Less power consumption  $\leq 7$  mA
- Only  $\varnothing 13$  mm housing
- $\varnothing 6$  mm shaft
- Resolution nearly infinite
- Sleeve bearing
- Effective electrical angle of rotation  $\pm 45^\circ$  (=90°)
- 5 V supply voltage
- Voltage output

The MP1613 is ideal for low-power applications. The effective electrical angle of rotation from  $\pm 45^\circ$  predestines it for use as a thrust regulator in mobile applications. The compact housing dimensions in combination with the widespread 6 mm shaft diameter guarantees high application compatibility.

### Electrical Data

Effective electrical angle of rotation 1.)	$\pm 45^\circ$ (=90°)
Independent linearity (best straight line) 1.)	$\pm 1.5\%$ @ 90°
Output signal	VSUP x 0.1..0.9 V (sense of rotation 0..90°)
Resolution	Nearly infinite
Supply voltage	5 V $\pm 10\%$
Power consumption (no load)	$\leq 7$ mA
Output load	$\geq 10$ kOhm
Insulation voltage	$\pm 4$ kV contact discharge, $\pm 4$ kV aerial discharge (IEC 61000-4-2)
Insulation resistance 1.)	$> 100$ MOhm @ 250 VDC

### Mechanical and Environmental Data

Mechanical angle of rotation 1.)	360° without stop
Lifetime 2.)	$> 50$ mio. shaft revolutions
Bearing	Sleeve bearing
Max. operational speed	400 rev./min
Operational torque @ RT 1.) 2.)	$< 0.2$ Ncm
Operating temperature range	-40..+105 °C
Storage temperature range	-50..+105 °C
Protection grade (IEC 60529)	IP40
Vibration (IEC 68-2-6, Test Fc)	10 to 2000 Hz 196 m/s <sup>2</sup>
Shock (IEC 68-27, Test Ea)	980 m/s <sup>2</sup> 6ms
Housing diameter	13 mm
Housing depth	12 mm
Shaft diameter	6 mm
Shaft type	Solid shaft with shaft flattening
Max. allowed radial load	1 N
Max. allowed axial load	1 N

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## Mechanical and Environmental Data, Miscellaneous

Connection type	Single strands 3 x AWG26 app. 150 mm
Connection position	Radial
Sensor mounting	Bushing
Mass	app. 15 g
Fastening parts included in delivery	Hex nut, tooth washer
Fastening torque mounting nut	< 0.15 Nm
Material shaft	Stainless steel
Material housing	Metal

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

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Series MP1613

## Order Code

Description		Selection: Standard=black/bold, possible options=grey/cursive				
<b>Series:</b>	<b>MP1613</b>					
<b>Shaft diameter / shaft length:</b> Ø 6.00 mm x 21 mm <i>Option: user defined shaft dimensions [mm]</i>		<b>6x21</b> <i>XxXX</i>				
<b>Supply voltage / output signal:</b> VSUP=5 V ±10 % / output signal: VSUP x 0.1..0.9 V (sense of rotation CW 0°..90°)			<b>0505</b>			
<b>Sense of rotation:</b> Signal increases by turning the shaft clockwise <i>Option: signal decreases by turning the shaft clockwise</i>				<b>CW</b> <i>CCW</i>		
<b>Effective electrical angle:</b> ±45° (=90°) <i>Option: user defined effective electrical angle</i> <i>(A user defined electrical angle is possible in a range ±10° ≤ α ≤ ±45° in 5° steps)</i>					<b>090</b> <i>xxx</i>	
<b>Electrical connection:</b> Single strands cable length 0.15 m <i>Option: single strands cable length in x.xx [m]</i>						<b>L0,15</b> <i>Lx,xx</i>

## Order example MP1613:

### Requirement:

Shaft Ø 6.00 mm, shaft length 21 mm, VSUP=5 V / Out=VSUP x 0.1..0.9 V, sense of rotation CW, effective electrical angle ±45° (=90°), signal cable length 0.15 m

### Example for order code:

MP1613 6x21 0505 CW090 L0,15

## For higher quantities or on-going demand, additional options are available as described below

For example:

- Changed shaft design, e.g.
  - Shaft slot
  - Special shaft flattening
- Special cable and connection design

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Series MP1613

## Technical Drawing

