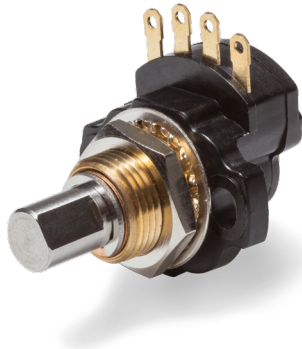


# Data Sheet for Angle Sensors

## Hall-Effect Single-Turn Rotary Encoder

Series MP1618



Picture shows version with solder terminals (LF)

- Wide operating temperature range -40..+105 °C
- Also available with redundant electronics
- Less power consumption  $\leq 7$  mA (single),  $\leq 14$  mA (redundant)
- Bushing or flange mounting
- $\varnothing 6$  mm shaft
- Resolution nearly infinite
- Sleeve bearing
- Effective electrical angle of rotation  $\pm 45^\circ$  ( $=90^\circ$ )
- 5 V supply voltage
- Voltage output

The MP1618 is particularly suitable in low-power applications and requirements for a large operating temperature range. The option with a redundant electronic makes it also from interest for applications with increased operational safety requirements. The installation via flange or bushing makes this rotary encoder compatible with a variety of installation situations.

Electrical Data	Single Output	Redundant Crossed Output
Effective electrical angle of rotation 1.)	$\pm 45^\circ$ ( $=90^\circ$ )	
Independent linearity (best straight line) 1.)	$\pm 1,5\%$ @ $90^\circ$	
Output signal	VSUP x 0.1..0.9 V (sense of rotation CW $0^\circ$ .. $90^\circ$ )	Output 1: VSUP x 0.1..0.9 V (sense of rotation CW $0^\circ$ .. $90^\circ$ ) Output 2: VSUP x 0,1..0.9 V (sense of rotation CCW $0^\circ$ .. $90^\circ$ )
Resolution	Nearly infinite	
Supply voltage	5 V $\pm 10\%$	
Power consumption (no load)	$\leq 7$ mA	$\leq 14$ 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.)	$360^\circ$ 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

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## Mechanical and Environmental Data, Miscellaneous

Housing diameter / length	22 mm
Housing depth	12 mm
Shaft diameter	6 mm
Shaft type	Solid shaft
Max. allowed radial load	1 N
Max. allowed axial load	1 N
Connection type	Solder terminals or single strands AWG26 150 mm
Connection position	Radial
Sensor mounting	Mounting via bushing or flange
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	Plastic

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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Hall-Effect Single-Turn Rotary Encoder

Series MP1618

## Order Code (non redundant version)

Description		Selection: Standard=black/bold, possible options=grey/cursive				
<b>Series:</b>	<b>MP1618</b>					
<b>Shaft diameter / shaft length:</b> Ø 6.00 mm x 16.4 mm <i>Option: User defined shaft [mm]</i>		<b>6x16,4</b> XxXX				
<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 output signal:</b> Signal increases by turning the shaft clockwise <i>Option: signal increases by turning the shaft counter-clockwise</i>				<b>CW</b> CCW		
<b>Effective electrical angle:</b> ±45° (=90°) <i>Option: user defined effective electrical angle (User defined effective electrical angle ±10° ≤ α ≤ ±45° in 5° steps)</i>					<b>090</b> XXX	
<b>Electrical connection:</b> Solder terminals Single strands cable length 0.15 [m] <i>Option: single strands cable length in x.xx [m]</i>						<b>LF</b> <b>L0,15</b> Lx,xx

## Order example MP1618:

### Requirement:

Shaft Ø 6.00 mm, shaft length 16.4 mm, VSUP = 5 V / Out = VSUP x 0.1..0.9 V, sense of rotation CW, effective electrical angle ±45° (=90°), electrical connections solder terminals

### Example for order code:

MP1618 6x16,4 0505 CW 090 LF

# Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder

Series MP1618

## Order example (redundant version)

Description		Selection: standard=black/bold, possible options=grey/cursive					
<b>Series:</b>	<b>MP1618</b>						
<b>Redundant output:</b>	<b>X</b>						
<b>Shaft diameter / shaft length:</b> Ø 6.00 mm x 16.4 mm <i>Option: user defined shaft [mm]</i>		<b>6x16,4</b> <i>XxXX</i>					
<b>Supply voltage / output signal:</b> VSUP=5 V ±10 % / output voltage: Output 1: VSUP x 0.1..0.9 V (sense of rotation CW 0°..90°), Output 2: VSUP x 0.1..0.9 V (sense of rotation CCW 0°..90°) <small>Galvanically not insulated electronics (one supply voltage, one ground, =4 electrical connections [1xVSUP, 1xGround, Out 1, Out2])</small>			<b>0505</b>				
<b>Sense of rotation output signal 1:</b> Signal 1 increases by turning the shaft clockwise <i>Option: Signal 1 decreases by turning the shaft clockwise</i>				<b>CW</b> <i>CCW</i>			
<b>Sense of rotation output signal 2:</b> Signal 1 decreases by turning the shaft clockwise <i>Option: Signal 1 increases by turning the shaft clockwise</i>					<b>CCW</b> <i>CW</i>		
<b>Effective electrical angle:</b> ±45° (=90°) <i>Option: user defined effective electrical angle (User defined effective electrical angle ±10° ≤ α ≤ ±45° in 5° steps)</i>						<b>090</b> <i>XXX</i>	
<b>Electrical connection:</b> Solder terminals Single strands cable length 0.15 [m] <i>Option: single strands cable length x,xx [m]</i>							<b>LF</b> <b>L0,15</b> <i>Lx,xx</i>

## Order example MP1618X (redundant version):

<b>Requirement:</b> Shaft Ø 6.00 mm, shaft length 16.4 mm, VSUP=5 V, Out 1 = VSUP x 0.1..0.9 V (sense of rotation CW 0°..90°), Out 2 = VSUP x 0.1..0.9 V (sense of rotation CCW 0°..90°), sense of rotation CW/CCW, effective electrical angle ±45° (=90°), electrical connections solder terminals
<b>Example for order code:</b> MP1618X 6x16,4 0505 CW CCW 090 LF

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

For example:

- Changed shaft design, e.g.:
  - Slot in the shaft
  - Special shaft flattening
- Special cable and connection design

# Data Sheet for Angle Sensors

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## Technical Drawing

