

Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder

Series MP1627



- Very large operating temperature range -40..125°C
- Flange- or bushing mounting
- Optional redundant electronics
- Ø27 mm housing
- 18.1 mm housing depth
- Ø6 mm shaft
- 5 V, 12 V or 24 V supply voltage
- 300 mm signal cable length
- IP65
- Sleeve bearing

The MP1627 series is particularly suitable where a very large operating temperature range is required. Due to the choice of flange or bushing mounting, the rotary encoder is compatible with a variety of installation situations. The low installation depth completes the positive overall impression.

Electrical Data	
Effective electrical angle of rotation 1.)	360°
Independent linearity (best straight line) 1.)	±0.5 %
Output signal	@VSUP 5 V Output voltage: 10 % ±3 %..90 % ±3 % ratiometric @VSUP 24 V or 12 V Output voltage 10 % ±3 %..90 % ±3 %
Resolution 1.)	12 Bit (4096 steps)
Update rate	800 µs
Supply voltage	5 VDC ±0.5 V 12 VDC ±0.5 V 24 VDC ±0.5 V
Power consumption (no load)	< 16 mA (single) < 32 mA (redundant)
Output load	≥ 10 kΩ
Insulation voltage	±8 kV contact discharge, ±16 kV aerial discharge (IEC 61000-4-2)
Insulation resistance 1.)	>1000 MΩ @ 500 VDC

Mechanical and Environmental Data	
Mechanical angle of rotation 1.)	360° without stop
Lifetime 2.)	50 mio. shaft revolutions
Max. operational speed	400 rev. / min.
Bearing	Sleeve Bearing
Operational torque @ RT 1.) 2.)	≤ 5 Nmm
Operating temperature range	-40 °C up to +120 °C
Storage temperature range	-40 °C up to +120 °C
Protection grade (IEC 60529)	IP65 (option IP67)
Vibration (IEC 68-2-6, Test Fc)	10..2000 Hz 196 m/s ² 12 hours
Shock (IEC 68-2-27, Test Ea)	980 m/s ² 6 ms (18 times)
Housing diameter	27 mm
Housing depth	18 mm
Shaft diameter	6 mm
Shaft type	Solid shaft

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Mechanical and Environmental Data, Miscellaneous

Max. allowed radial load	≤1 N
Max. allowed axial load	≤1 N
Connection type	Single strands 300 mm ±20 mm
Connection position	Axial
Sensor mounting	Bushing or flange mounting
Mass	app. 45 g
Fastening parts included in delivery	Hex nut, tooth washer
Fastening torque mounting nut	< 150 Ncm
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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Order code (non redundant version)

Description	Selection: Standard=black/bold , possible <i>options=grey/italic</i>						
Series:	MP1627						
Mounting type / design: Bushing only <i>Flange and Bushing</i>		- F					
Shaft diameter / shaft length: Ø 6.00 mm x 25.2 mm <i>Option: user defined shaft [mm]</i> <i>(Shaft diameters > 6.00 mm are designed as two part shaft)</i>			6x23,1 XxXX				
Supply voltage / output signal: VSUP=5 V ±10 % / output voltage: 10 % ±3%..90 % ±3 % from VSUP (ratiometric) <i>Option: VSUP 12 V ±0.5 V</i> <i>Output voltage: 1.2 V ±0.36 V to 10.8 V ±0.36 V</i> <i>Option: VSUP 24 V ±0.5 V</i> <i>Output voltage: 2.4 V ±0.72 V to 21.6 V ±0.72 V</i>				0505 1212 2424			
Sense of rotation output signal: Signal increases by turning the shaft clockwise <i>Option: signal increases by turning the shaft counter-clockwise</i>					CW CCW		
Effective electrical angle: Effective electrical angle 360° <i>Option: user defined effective electrical angle xxx°</i>						360 xxx	
Electrical connection: Single strands length 0.30 m <i>Option: single strands length in x.xx [m]</i>							L0,30 Lx,xx

Order example MP1627 (non redundant version):

Requirement:

Exclusively Bushing mounting, Shaft Ø 6.00 mm, shaft length 25.2 mm, VSUP = 5 V / OUT = 10 % ±3 %..90 % ±3 % from VSUP (ratiometric), output increases by turning the shaft clockwise CW, effective electrical angle 360°, signal cable length 30 cm

Example for order code:

MP1627 6x25,2 0505 CW 360 L0,30

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Order example (redundant version)

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>							
Series:	MP1627							
Mounting type / design: Bushing only <i>Flange and Bushing</i>		- F						
Redundant electronic: Galvanically insulated electronic <small>(2 separate supply voltages, 2 separate grounds, =6 electrical connection cables [VSUP1, VSUP2, Ground 1, Ground 2, Out 1, Out 2])</small> <i>Galvanically not insulated electronics (one supply voltage, one ground, =4 electrical connection cables [1xVSUP, 1xGround, Out 1, Out2])</i>			X1 X2					
Shaft diameter / shaft length: Ø 6.00 mm x 25.2 mm <i>Option: user defined shaft [mm]</i>				6x25,2 XxXX				
Supply voltage / output signal: VSUP=5 V ±10 % / output voltage: 10 % ±3%..90 % ±3 % from VSUP (ratiometric) <i>Option: VSUP 12 V ±0.5 V</i> <i>Output voltage: 1.2 V ±0.36 V to 10.8 V ±0.36 V</i> <i>Option: VSUP 24 V ±0.5 V</i> <i>Output voltage: 2.4 V ±0.72 V to 21,6 V ±0.72 V</i>					0505 1212 2424			
Sense of rotation output signal 1: Signal 1 increases by turning the shaft clockwise <i>Option: signal 1 decreases by turning the shaft clockwise</i>						CW CCW		
Sense of rotation output signal 2: Signal 2 increases by turning the shaft clockwise <i>Option: signal 2 decreases by turning the shaft clockwise</i>							CW CCW	
Effective electrical angle: Effective electrical angle 360° <i>Option: user defined effective electrical angle</i>								360 xxx
Electrical connection: Single strands length 0.30 m <i>Option: single strands length in x.xx [m]</i>								L0,30 Lx,xx

Order example MP1627X (redundant version):

Requirement:

Exclusively bushing mounting, Redundant galvanically insulated electronic, shaft Ø 6.00 mm, shaft length 25.2 mm, VSUP = 5 V / Out = 10 % ±3 %..90 % ±3 % from VSUP (ratiometric), sense of rotation output signal 1: signal increases clockwise, sense of rotation output signal 2: signal increases clockwise, effective electrical angle for each signal output 360°, signal cable length 30 cm

Example order code:

MP1627 X1 6x25,2 0505 CW CW 360 L0,30

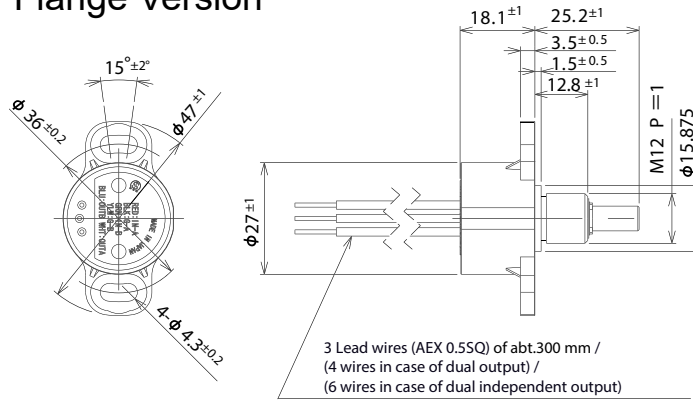
For higher quantities or on-going demand, additional options are available as described below

For example:

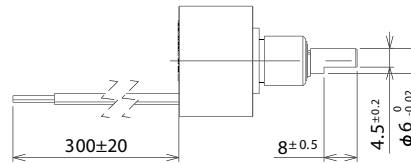
- PWM-output (pulse width modulation)
- Customized output signal, e.g.:
 - Signal plateaus
- Changed shaft design
 - Slot in the shaft
 - Special shaft flattening
- Special cable and connection design

Drawing

Flange Version



Bushing Version



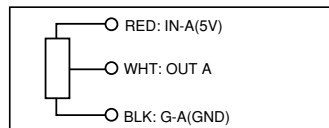
Note:

- 1) 1 pc. each of inner teeth washer and hex nut is attached.
- 2) Please duly note that inner construction may burn out when applying the voltage to the wrong terminals except input terminal.

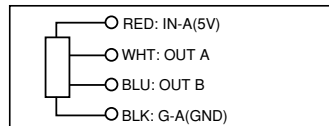
Dimensions in mm

Terminal Connection Diagrams:

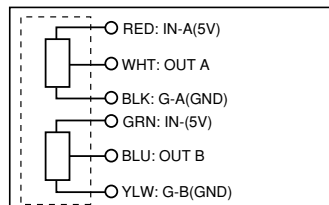
Single electronic:
1 electrical output



Redundant electronics X2:
2 electrical outputs
galvanically not insulated



Redundant electronics X1:
2 electrical outputs
galvanically insulated



Output Characteristics

