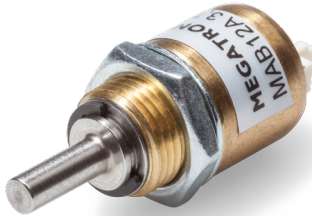


Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series MAB12A



- Only 12.2 mm housing diameter
- Sleeve bearing or ball bearing
- 6 mm, 6.35mm or 3.175mm shaft diameter
- Supply voltage 5 VDC
- Output signal analog absolute or PWM
- Integrated MOLEX coupling

Very compact magnetic absolute encoder. Easy to mount by central thread with hex nut. With the MOLEX plug-in connection, the encoder could be easily connected to the evaluation unit. This improves the handling during installation and service.

Electrical Data	Analog	PWM	
Effective electrical angle of rotation ^{1.)}	360°		
Independent linearity (best straight line) ^{1.)}	±0.28 % @ 25°C		
Output signal	0...5 V analog	5 V PWM	
Resolution	10 Bit	10 Bit	12 Bit
Update rate	0.38 ms	1 ms	4,1 ms
Supply voltage	5 V ±10 %		
Power consumption (no load)	≤ 20 mA		
Output load	≥ 10 kOhm		

Mechanical and environmental data, Miscellaneous	Sleeve bearing low torque	Sleeve Bearing increased torque	Ball bearing very low torque
Mechanical angle of rotation ^{1.)}	360° without stop		
Lifetime ^{2.)}	> 1 Mio. shaft revolutions	> 1 Mio. shaft revolution	-
Bearing	Sleeve bearing	Sleeve bearing	Ball bearing
Max. operational speed	100 rev./min	100 rev./min	15.000 rev./min
Operational torque /@ RT ^{1.) 2.)}	< 0.3 Ncm	< 0.35 ±0.2 Ncm	< 0.035 Ncm
Operating temperature range	-40..+125 °C		
Storage temperature range	-40..+125 °C		
Protection grade shaft side (IEC 60529) standard	IP40		
Vibration (IEC 68-2-6, Test Fc)	(5 Hz to 2 kHz) 20 g		
Housing diameter	12.2 mm		
Housing depth	10.6 mm		
Shaft diameter	3.17 mm, 6 mm, 6.35 mm		3.17 mm
Shaft type	Solid shaft		
Max. allowed radial load	10 N		5 N
Max. allowed axial load	< 1 N		

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Mechanical and Environmental Data, Miscellaneous	Sleeve bearing low torque	Sleeve Bearing increased torque	Ball bearing very low torque
Connection type	Molex connector: 53398-0371		
Connection position	Axial		
Sensor mounting	Bushing		
Mass	app. 14 g		app. 11 g
Fastening parts included in delivery	Hex nut and tooth washer		
Fastening torque mounting nut	< 2.25 Nm		
Material shaft	Stainless steel		Brass
Material housing	Brass		

Immunity

ESD

Human Body Model
MIL-STD-883E, Method 3015.7 ± 2 kV

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						
Description	Selection: standard=black/bold, possible options=grey/cursive					
Series	MAB12A					
Shaft diameter / shaft length: Standard: Ø6 x 17.1 mm (not available in combination with ball bearing) <i>Option: Ø6.35 x 17.1 mm (not available in combination with ball bearing)</i> <i>Option: Ø3.17 x 17.1 mm length with sleeve bearing (17.3 mm length with ball bearing)</i> <i>Option: user defined shaft length [mm] (*)</i>	6x17,1	6,35x17,1	3,17x17,1	XxXX		
Supply voltage / Output signal: Standard: VSUP=5 V ±10 % / OUT=0...5 V <small>(ratiometric resolution 10Bit)</small> <i>Option: 1 VSUP=5 V ±10 % / PWM, Resolution 12 Bit</i> <i>Option: 2 VSUP=5 V ±10 % / PWM, Resolution 10 Bit</i>		0505	12 05PWM	10 05PWM		
Sense of rotation: Standard: CW (output signal (analog) or duty cycle (PWM) increases clockwise)				CW		
Electrical angle: Standard: 360°				360°		
Bearing: Standard: Sleeve bearing low torque <i>Option: Sleeve bearing increased torque</i> Ball bearing very low torque (not available in connection with Ø6 mm or Ø6.35 mm shaft, only in available in connection with Ø3.17 mm shaft)					LT <i>MT</i> KL	
Electrical connection: In sensor housing integrated Molex connector						K

Order example MAB12A:

Requirement:

Shaft Ø 6.00 mm / shaft length 17.1 mm, VSUP=5 V / OUT=0...5 V, resolution 10 Bit, absolute output signal 0...5 V, sense of rotation CW, effective electrical angle 360°, sleeve bearing low torque, electrical connection: integrated connector in sensor housing

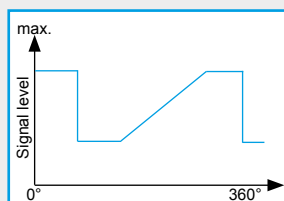
Example for order code: MAB12A 6x17,1 0505 CW360 LT K

Additional options

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

For example:

- Special shaft design
- Special cable and connection design
- Special torque
- Sense of rotation CCW
- User defined electrical angle



Customized signal characteristic

For Example:

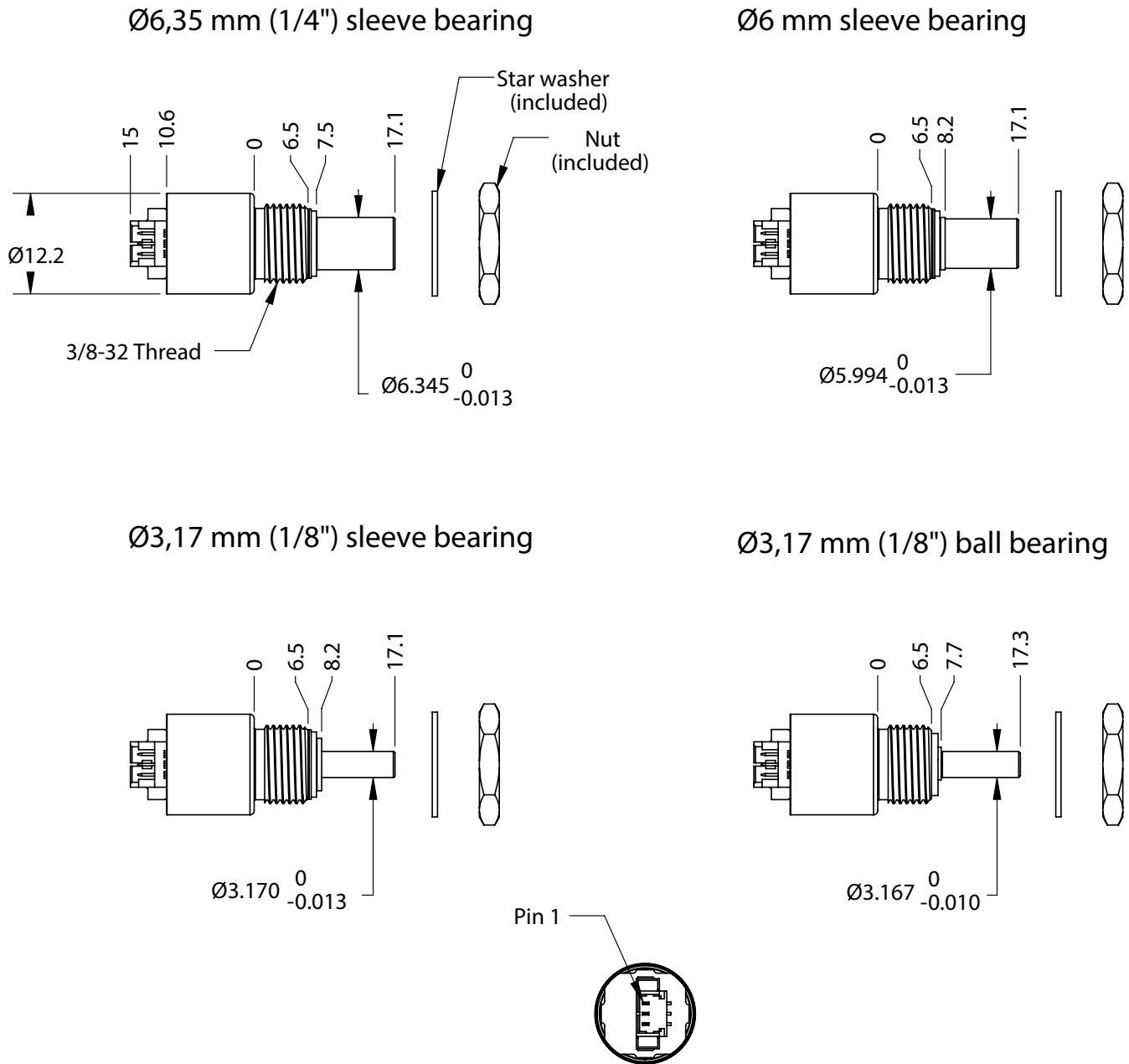
- minimum/maximum signal level
- signal plateaus

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Series MAB12A

Drawing



Pin	Analog Output:	PWM Output:
1	+5VDC power	+5VDC power
2	Analog output	PWM output
3	Ground	Ground

Connector in the sensor: Molex # 53398-0371
 Counter connector housing: Molex # 51021-0300
 Crimp pins for counter conn.: Molex # 50079-8100
 Crimp tools: Molex # 50079