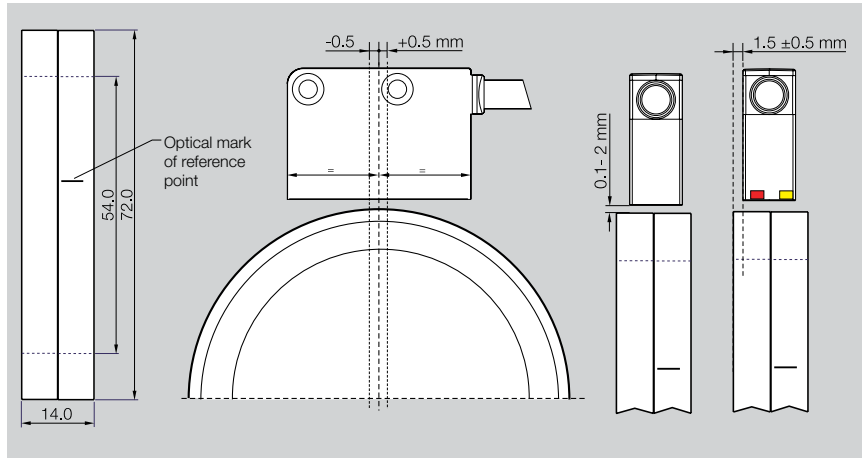


Magnetic Rotary Encoder

Technical Data

Description

BML-S2E Sensor Head and Magnet Ring



BML-S2E Sensor Head

Ordering Code	BML-S2E0-Q__-M410-__0-KA__ (see ordering code on page 5)
Output Signals	Incremental Quadrature, A / B / Z and \bar{A} / \bar{B} / \bar{Z}
Output Signal Level	RS422 or 10...30V (without \bar{A} / \bar{B} / \bar{Z})
Positional Resolution (counts per revolution)	Up to 46,000 counts per revolution
System Accuracy (degrees)	0.16 degrees
Supply Voltage	10...30V or 5V
Supply Current	< 40 mA (10...30V) or < 50 mA (5V)
Magnet Gap (sensor to magnet)	0.1 to 2 mm
Operating Temperature	-20 to +80°C
Housing Material	Plastic (PBT)
Cable Type	PUR 6x2x0.08 mm ²
Ingress Protection	IP 67

Magnet Ring

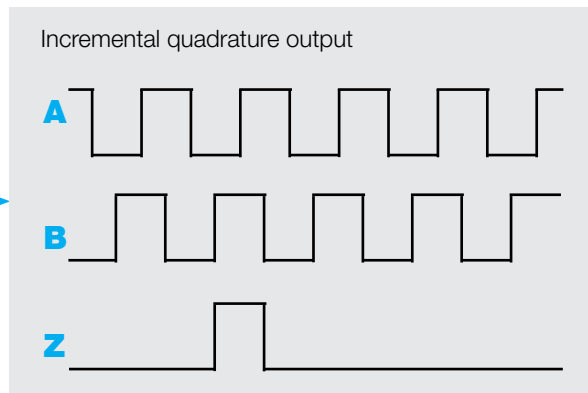
Ordering Code	BML-M20-I40-A0-M072/054-R1
Diameter	Outer: 72 mm, Inner: 54
Width	14 mm
Magnet Pole Spacing	5 mm
Max. Rotational Velocity	5217 RPM
Reference Pulse	Single, 1 per revolution
Material	Hard ferrite 8/22 according to DIN 17410 isotropic (sintered)
Weight	126 grams
Operating Temperature	-20° to +80° C

System Concept Overview

Magnet ring



Sensor head



Digital Display



or

Controller/PLC High Speed Counter



BML Rotary Magnetic Encoder – BML-S2E

When ordering a BML-S2E system, the following factors must be considered:

- Desired positional resolution in μm or counts per revolution (CPR)
- Maximum rotational speed of application
- Speed of input electronics (e.g., PLC counter card or other input device)

Position Resolution

The BML-S2E is available in resolutions of ranging from 4,600 to 46,000 CPR. Higher resolution means higher accuracy, and results in more pulses for a given amount of rotational movement, and typically requires higher speed input electronics. The resolution is determined by the sensor head, and is selected in the ordering code (see table below). Resolution is not field-changeable.

Maximum Rotational Speed

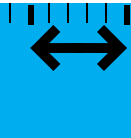
Higher rotational speed results in higher frequency pulses on the output of the BML-S2E. Pulse frequency is also determined by position resolution; higher resolution and/or faster rotational speed = higher frequency.

Speed of Input Electronics

The frequency at which a counter card or digital display can accept a quadrature pulse signal is typically limited to some maximum value. This is normally expressed in kilohertz (kHz) or megahertz (mHz). The BML-S2E sensor is capable of producing output pulses at frequencies as high as 2.1 mHz. However, if the counter card is not capable of accepting pulses at this frequency, care must be taken to select a minimum edge separation value that corresponds to the maximum frequency of the counter.

Use the table below to determine the correct ordering codes for resolution and minimum edge separation (see example below):

Maximum Rotational Speed with 72 mm O.D. Magnet Ring		Resolution ordering code				
		F	G	H	K	
		Resolution (CPR with 4x interpolation)	46,000	23,000	9,200	4,600
		Resolution (μm)	5	10	25	50
Minimum edge separation	Min. edge separation ordering code	Maximum pulse frequency (kHz)	Maximum rotational speed (rpm)			
0.12 μsec	D	2,100	5,217	5,217	5,217	5,217
0.29 μsec	E	860	2,609	5,217	5,217	5,217
0.48 μsec	F	520	1,304	2,609	5,217	5,217
1 μsec	G	250	848	1,696	3,848	3,848
2 μsec	H	125	391	783	2,009	2,009
4 μsec	K	63	196	391	1,030	1,030
8 μsec	L	32	98	196	443	443
16 μsec	N	16	51	103	248	248
24 μsec	P	10	34	68	170	170



Example Ordering Code:

BML - S2E0 - Q53F - M410 - D0 - KA02

Output signal
Q = incremental (digital)

Supply voltage
5 = 10...30 V
6 = 5 V

Output voltage
1 = digital square wave, RS422 (5V)
3 = 10...30 V

Resolution -
See table above
(F, G, H, K)

Minimum edge separation -
See table above
(D, E, F, G, H, K, L, N, P)

Integral cable length
KA02 = 2 m (standard)
KA05 = 5 m
KA10 = 10 m
KA15 = 15 m
KA20 = 20 m

Magnetic Rotary Encoder

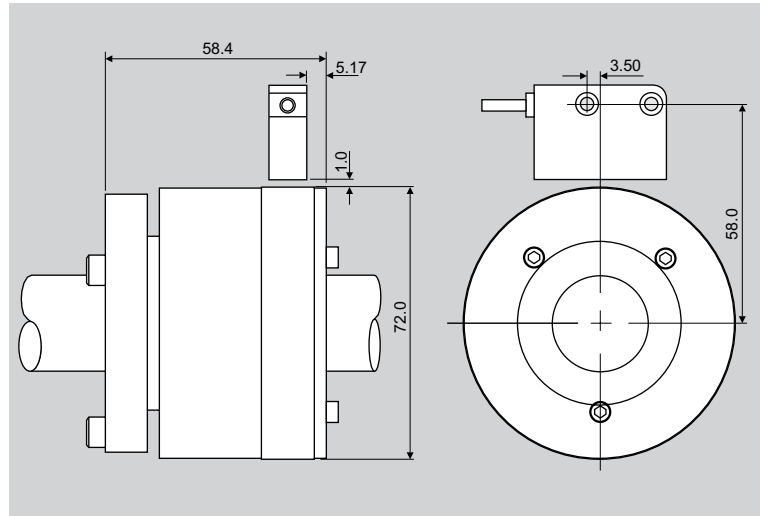
Mounting Hub

Description

BML-S2E Mounting Hub

Mounting Hub

The optional mounting hub, when used with the appropriately sized quick-disconnect (QD) bushing, provides a quick and easy method for mounting the magnet ring to rotating shafts with diameters from 0.5" to 1.5". The mounting hub allows the magnet ring to be secured to the shaft, and then rotated into the correct position. The LED on the BML-S2E sensor head provides a visual indication of home position.



Hub Assembly	BAM MC-ML-002-D54-1-01
Material	Aluminum
Weight (with magnet)	340 grams
QD Bushings	BAM MC-ML-003-Dxx.x-3-01*
Material	Steel

*Indicate bore size in mm (Dxx.x) in part number

- 12.7 = 12.7 mm = 0.50"
- 19.1 = 19.1 mm = 0.75"
- 25.4 = 25.4 mm = 1.00"
- 31.8 = 31.8 mm = 1.25"
- 38.1 = 38.1 mm = 1.50"

