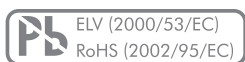


Magneto-Optical Encoder Type E50

- Wear-free design provides 10,000,000 revolutions
- Contactless magnetic indexing system enables free running operation (virtually no friction)
- Optical high speed contact sensing
- 24 or 32 detents resolution
- With or without integrated push button
- Switching torque: From 0.45 to 1.5 Ncm



Standard Product Variety

- 5 N push button force or without push button
- 24 or 32 detents revolution
- 0.45, 0.6, 1.3 or 1.5 Ncm switching torque
- 6 mm or 1/4" shaft diameter
- 5 VDC regulated or 5 to 26 VDC operating voltage

Possible Customization

- Shaft dimensions and shape
- Switching torque
- Software filtered pulse/level change
- Others

Typical Applications

- Time shift controls for test & measurement and audio/video mixer desks
- High value medical devices
- Applications with extensive use and/or long life cycles

Preference Types Selection Chart¹

Push Button	Switching Torque	24 Detents	32 Detents
Yes, 5N	0.45 Ncm	E50-1211-000X	-
	0.6 Ncm	-	E50-2213-000X
	1.3 Ncm	-	E50-2214-000X
	1.5 Ncm	E50-1212-000X	-

¹ For other types/options, see type key.

Magneto-Optical Encoder Type E50

Specifications

Encoder

Mechanical Data

Resolution:	24 or 32 detents
Switching torque:	24 detents: 0.45 or 1.5 Ncm (+/- 50%) 32 detents: 0.6 or 1.3 Ncm (+/- 50%)
Rotational life:	10,000,000 revolutions min.
Shaft load (continuous operation):	3 N max. radial, 2 N max. axial
Fastening torque of nut:	0.4 Nm max.

Electrical Data

Coding/output:	2-bit quadrature
Resolution:	24 or 32 pulses per revolution (PPR) per channel
Operating speed:	600 RPM max.
Operating voltage:	Regulated version: 5 VDC (+/- 10%) or 5 to 26 VDC (with internal voltage regulator)
Output current load:	20 mA max.
Supply current:	40 mA typ. (at no load condition)

Material Data

Shaft:	Plastic
Housing:	Plastic
Nut:	Plastic
Connector leads:	Alloy copper, gold plated (AuCo)

Environmental Data

Operating temperature range:	-20 to +70°C
Storage temperature range:	-20 to +80°C
IP sealing:	IP50 shaft/front panel sealing
Flammability:	UL94-HB

Packaging Size: 1 pce

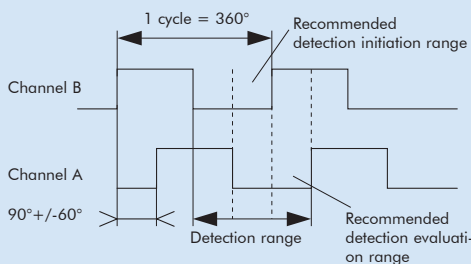
Soldering Conditions

Hand soldering: 340°C max. during 2 s max.

Additional Data for Push Button Switch

Push button actuation force:	5 N (+/- 50%)
Push button switch travel:	0.9 mm (+/- 0.2 mm)
Push button switch life:	5,000,000 actuations min.
Actuation strength:	50 N min.

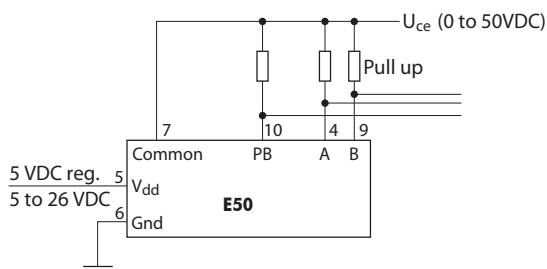
Output Timing



- Signal A is nominally in quadrature to signal B (90° phase shift).
- A = B = High is the indexed position and is outside of the detection range because of magnetic indexing.
- The signals should not be evaluated until the state A = B = Low is reached.

Magneto-Optical Encoder Type E50

System Interfacing



As driver an ULN2003A with open collector output with integrated clamp diodes is used. The cathode of all clamp diodes is connected to common and protects the encoder against, for instance, inductive surges. For this purpose, the common pin must be connected to U_{ce} to which the pull-up or load resistors are also connected.

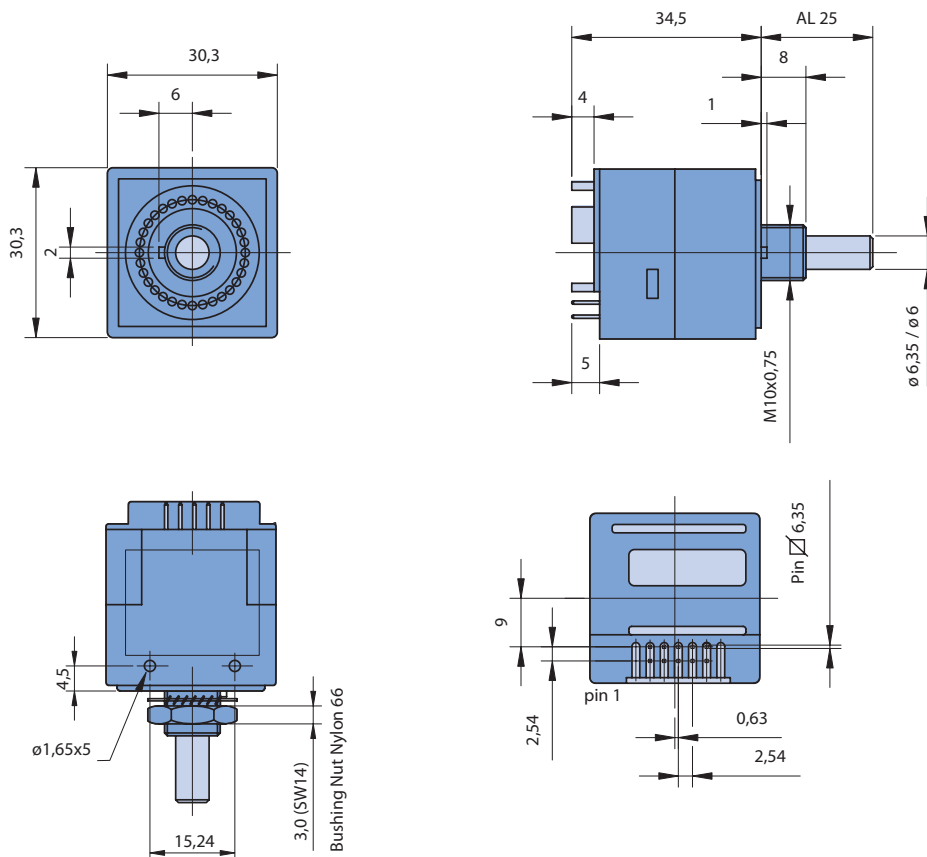
Pin Allocation

1 No connection	2 No connection
3 No connection	4 Channel A
5 V_{dd}	6 Ground
7 Common (clamp diodes)	8 No connection
9 Channel B	10 Push button

Connector Assignment

1	2
3	4
5	6
7	8
9	10

Drawings



Magneto-Optical Encoder Type E50

Type Key

E 5 0 | **-** | **X X X X** | **-** | **X X X X**

Resolution

- 1 - 24 detents (24 PPR)
- 2 - 32 detents (32 PPR)

Push Button

- 1 - Without push button
- 2 - With push button

Operating Voltage

- 1 - 5 VDC regulated
- 2 - 5 to 26 VDC

Torque

- 1 - 0.45 Ncm (24 detents)
- 2 - 1.5 Ncm (24 detents)
- 3 - 0.6 Ncm (32 detents)
- 4 - 1.3 Ncm (32 detents)

Shaft Diameter

- X - 6 mm
- Z - ¼"

Shaft Length (AL)

- 000 - 25 mm
- xxx - Custom¹
(e.g. 20.0 mm = 200)

¹ Customized Shaft Length

Please state shaft length (AL) measured from mounting face (max. AL = 25 mm).

