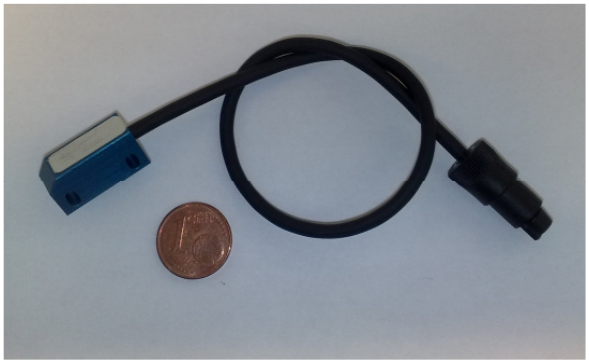
ED34 Linear Encoder

-- PRELIMINARY DATASHEET FOR ENGINEERING SAMPLES --



RoHS

- **Contactless Magnetic Encoder**
- **Linear measurement**
- **Small Housing**

DESCRIPTION

The ED34 is a linear incremental encoder based on the well established magnetoresistive sensor technology. The contactless magnetic measuring principle is used for precise incremental displacement measurement by utilizing a magnetized scale with alternating north and south poles. Air gaps up to 0.4 mm are possible between scale and the read head. The encoder device is equipped with an internal sine / cosine interpolation unit which supports an A/B quadrature output with reliable position information. The small housing could be well integrated into machineries where position feedback is needed. The contactless AMR technology is well suited for applications covered by pollution like dust or oil which could not affect the measurement.

FEATURES

Resolution: 5 µm
Temp. operating range -20°C .. + 70°C
Small Housing

APPLICATIONS

Linear Displacement
xyz-Table
Harsh environments

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ABSOLUTE MAXIMUM RATINGS

Absolute maximum ratings are limiting values of permitted operation and should never be exceeded under the worst possible conditions either initially or consequently. If exceeded by even the smallest amount, instantaneous catastrophic failure can occur. And even if the device continues to operate satisfactorily, its life may be considerably shortened.

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	Vcc	Measured versus GND	**-0.3**		**+5.5**	V
Operating Temperature	Top		**-20**		**+70**	℃
Storage temperature	Tstor		**-40**		**+85**	℃

Stress above one or more of the limiting values may cause permanent damage to the device. Exposure to limiting values for extended periods may affect device reliability.

OPERATING CONDITIONS

If not otherwise noted, 25℃ ambient temperature, 5V supply voltage applied.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply voltage	Vcc	Measured versus GND	**4.5**	**5**	**5.5**	V
Supply Current	I		**14**	**16**	**18**	mA
Output Frequency [1)]	f_{out}			**50**		kHz
Resolution (flank to flank)	A			**5**		µm
Flanks per mm				**200**		
Ambient Temperature	T_{amb}		**-20**		**+70**	℃
Absolute accuracy	Δx		**-10**		**+10**	µm
Repeadibility	R		**-10**		**+10**	µm
Deviation of pulse width	Δn		**-**	**±10**	**±45**	deg
Deviation of phase shift	Δφ		**-**	**±10**	**±40**	deg
Motions Speed	V		**-**	**-**	**6**	m/s
used magnetic pole width	p			**1**		mm
air gap sensor - scale	d		**0.1**		**0.4**	mm

[1)] **Motion speed @ V = 1 m/s**

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FUNCTIONAL DESCRIPTION

Typical performance graphs

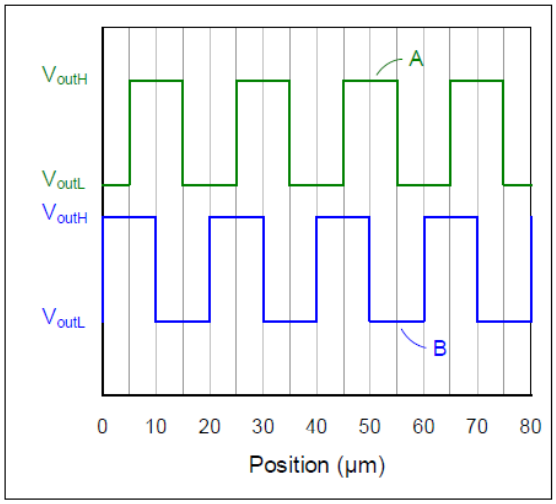

Fig.1: Typical output signals depends on direction of movement.

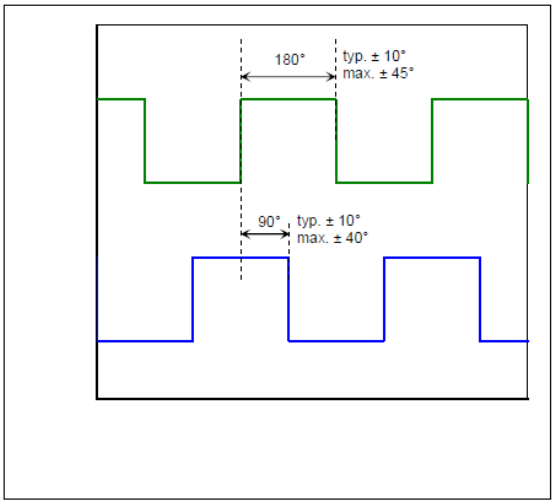

Fig.2: Pulse width deviation and phase shift.

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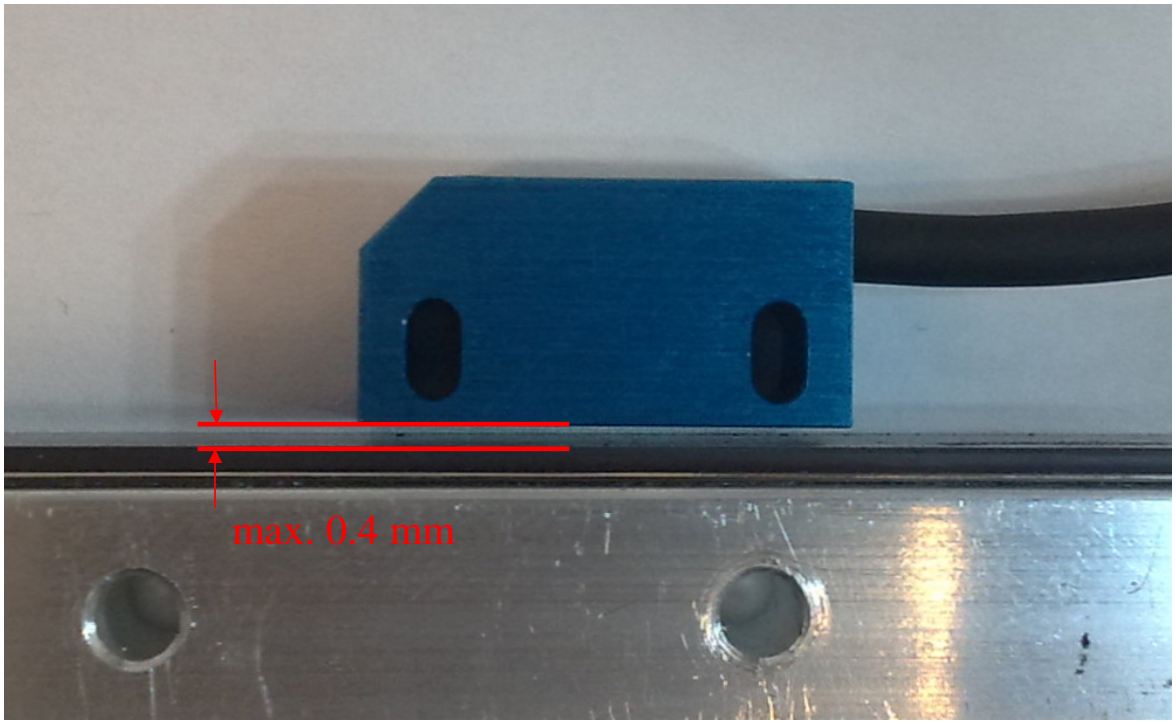
MOUNTING OF ED34

The Encoder works with a pole scale of 1mm pole pitch. The maximum air gap between Scale and Encoder lower side is 0.4 mm.



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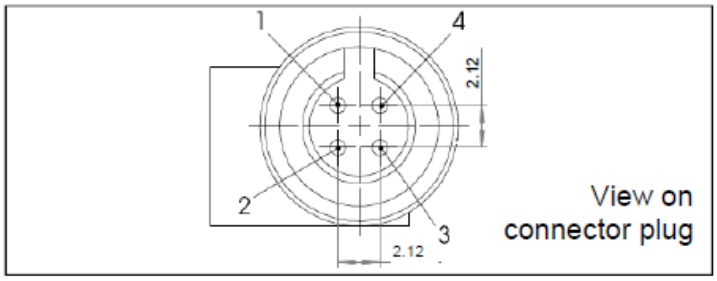
TERMINALS

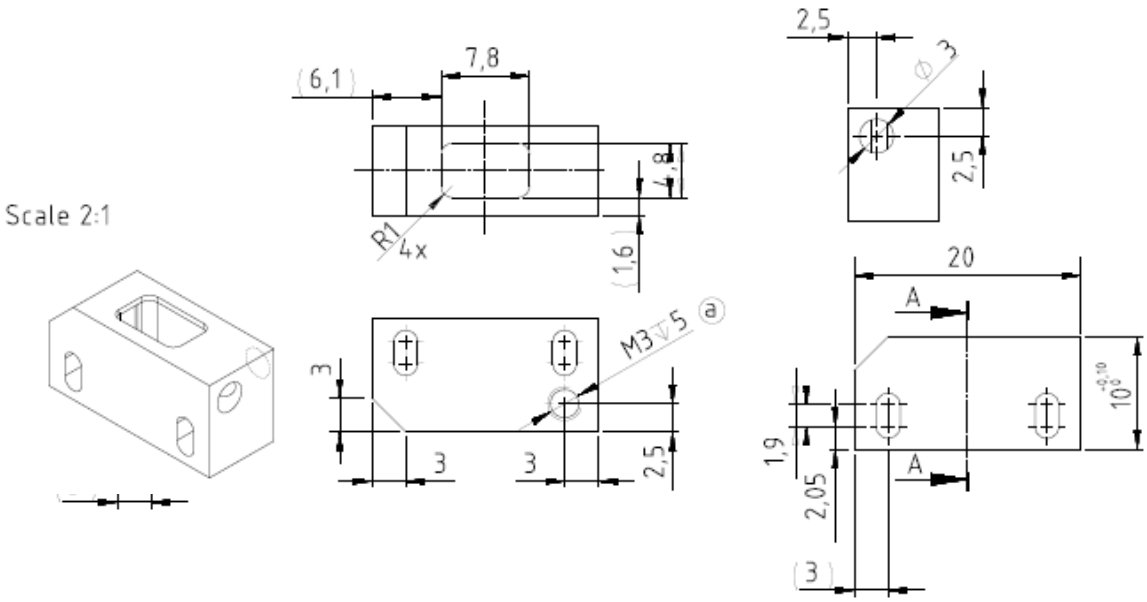
Connector: Binder Type: 09-9764-70-04

Pin	Name	Desription	Color
1	A	Channel A	white
2	B	Channel B	yellow
3	Vcc	Supply 5V	green
4	Gnd	Ground	brown + shield



Connector: Binder Type: 09-9764-70-04

MECHANICAL DIMENSIONS



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ORDERING CODES

Article Number	**G-MRED-111**

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