

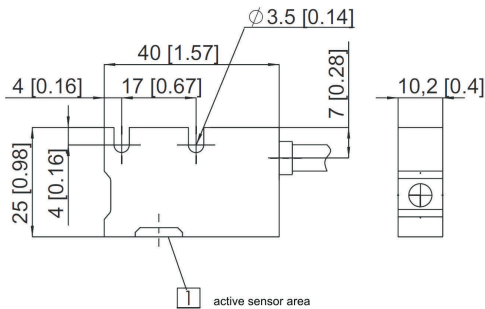
## Magnetic Incremental Encoders MSI2 and MSI5

## Magnetic Incremental Encoder MSI2 and MSI5

Contactless measuring sensor unit with integrated digital signal output. In combination with MT series Magnetic Tape Scales, the ME series Magnetic Readheads forms an open, robust linear measuring system.

- ▶ Easy Mounting.
- ▶ Robust metal enclosure.
- ▶ Protection class Ip67
- ▶ Insensitive to dust, humidity, shavings.

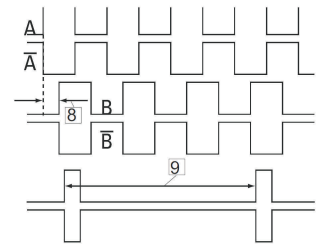
- ▶ No contact, no wear.
- ▶ High Velocity
- ▶ Incremental RS 422 encoder output.



### Signal figures

For a rotation of the magnetic ring in the CW direction (see the Mounting Tolerances drawing)

- 9] Periodic index signal (every 2 mm); the logical assignment A, B and I-Signal can change
- 8] Pulse edge interval: Pay attention to the instructions in the technical data



## SPECIFICATIONS

Technical Data	MSI2 series		MSI5 series	
	Push-Pull	RS422	Push-Pull	RS422
Output circuit	Push-Pull	RS422	Push-Pull	RS422
Supply voltage	4.8 ... 30 V DC	4.8 ... 26 V DC	4.8 ... 30 V DC	4.8 ... 26 V DC
Permissible load / channel	± 20mA	120 Ohm	± 20mA	120 Ohm
Max cable length	max. 30 m	RS422 Standard	max. 30 m	RS422 Standard
Power consumption (no load)	typ. 25 mA, max. 60 mA		typ. 25 mA, max. 60 mA	
Short circuit proof 1)	yes	yes 2)	yes	yes 2)
Min. pulse edge interval	1 is (edge interval) corresponds to 4 µs/cycle		1 is (edge interval) corresponds to 4 µs/cycle	
Output signal	A, A', B, B', I, I'		A, A', B, B', I, I'	
Reference signal	index periodical		index periodical	
System Accuracy:	typ 200µm		typ 200µm	
(L in [m], up to L = 50 m, at T = 20°C)	max. ± (0.04 + L * scale class) mm		max. ± (0.04 + L * scale class) mm	
Repeatability	±1 increment		±1 increment	
Resolution (4 edge detection)	100µm, max 25m/s		25µm, max 16,25m/s	
	25µm, max 4m/s		5µm, max 3,25m/s	
	10µm, max 6.5m/s			
Magnetic scale needed	use 2mm pitch scales		use 5mm pitch scales	
Permissible alignment tolerance	see page 3: mounting tolerances, valid for 10mm wide scales			
Operating air gap	0.1 ... 1.0mm, 0.4mm recommended		0.1 ... 2.0mm, 1.0mm recommended	
Offset	max. ±1mm			
Tilting	max. ±3°			
Torsion	max. ±3°			
Operating Temperature	- 20 °C + 80 °C			
Storage Temperature	- 40 °C + 80 °C			
Shock resistance	500 g/1 ms			
Vibration	30 g/10 ... 2000 Hz			
Protection	IP67 acc. to DIN 60 529 (housing)			
Humidity	100 %, condensation possible			
Housing	Zinc die-cast			
Cable	2 m long, PUR 8 x 0.14 mm <sup>2</sup>			
	shielded, may be used in trailing cable installations			
Status LED	Green	pulse on index		pulse on index
	Red	Error; Speed too high or weak magnetic field		Error; Speed too high or weak magnetic fields
		MSI2.XXXX.X020 and MSI2.XXXX.X050 types		MSI5.XXXX.X050 and MSI5.XXXX.X250 types
CE compliance	acc. to EN 61 000-6-2, EN 61 000-6-4 and EN 61 000-6-3			
RoHS compliance	acc. to EG guideline 2002/95/EG			

1) if supply voltage is correctly applied  
 2) Only 1 channel to be shorted, @5V to Gnd or Vcc, >5V, 30V, to GND only  
 3) at speed listed, pulse edge distance is 1µs, pulse period is 4µs.min. 250kHz counter is needed

# Magnetic Incremental Encoder MSI2 and MSI5

## Connecting the sensor

Cable Assignment / connector Pinout									
Signal	0V	Ub	A	A\	B	B\	I	I\	shield
Cable Colour	WH	BN	GN	YE	GY	PK	BU	RD	conn. To housing
Connector pin									

## Order Codes

MSI2- | 1 | 1 | X | 1 | - | 2 | X X X |  
 | a | b | c | d | | e | f |

**a Model**

1 = standard

**c Output Circuitry / Power Supply**

1 = RS422 / 4.8 ... 26 Vdc  
 2 = push - pull / 4.8 ... 30 Vdc

**e Reference Signal**

2 = periodic index

**b Edge Distance**

1 = standard

**d Connection Type**

1 = cable PUR , 2m

**f Resolution**

005 = 100µm  
 020 = 25µm  
 050 = 10µm

MSI5- | 1 | 1 | X | 1 | - | 2 | X X X |  
 | a | b | c | d | | e | f |

**a Model**

1 = standard

**c Output Circuitry / Power Supply**

1 = RS422 / 4.8 ... 26 Vdc  
 2 = push - pull / 4.8 ... 30 Vdc

**e Reference Signal**

2 = periodic index

**b Edge Distance**

1 = standard

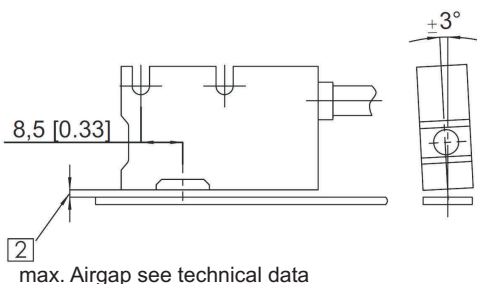
**d Connection Type**

1 = cable PUR , 2m

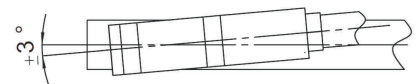
**f Resolution**

050 = 25µm  
 250 = 5µm

## Allowed mounting tolerances



Torsion



Offset

