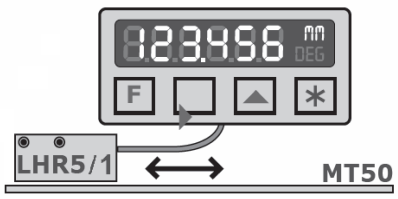
Datasheet

- Full metal body - particular high robustness construction
- Resistant to dust, water or shavings
- Simple mounting and alignment
- Resolution up to 5µm
- System accuracy ±100 µm
- Protection class IP67
- Low noise system
- Speed proportional signal Output / real time

Contactless magnetic measuring technology with integrated digital processing electronic. In combination with the flexible magnetic tape MT50/PM5 and optionally with the aluminium-profile PS1 or the stainless steel cover strip DB50 you achieve a very accurate, robust and cheap length and angle measuring solution.



Ideal for linear motors, IPC, PLC, ...

Mechanical Data

Material Housing	 Zinc die casting; plated
Dimensions	35 mm x 10 mm x 25 mm
Weight	35 g (without cable)
Distance between sensor bottom and top side of magnetic scale	0,1 - 2,0 mm
Angular tolerance (alpha, beta, gamma)	1°
Cable material	PUR (highly flexible)
Cable length	< 100 Meter (TTL) < 50 Meter (PP)
Protection class	IP67
Operating temperature	-10° to+70°C

Electrical Data

Resolution	< 5 µm with integrated digital evaluation; four edge evaluation
Period length	5 mm
Current consumption	24 VDC: 30mA 5 VDC: 50 mA no load
Operating voltage	5 V DC ± 5% 10-30 V DC
Output specification	Line Driver / TTL Push Pull
Output signals	A; B; Z; $\overline{A}$; $\overline{B}$; $\overline{Z}$
Index signal, periodically or single signal	5 mm (I) or single signal (S)
Measurement speed	< 16 m/s (cut-off frequency reduced)

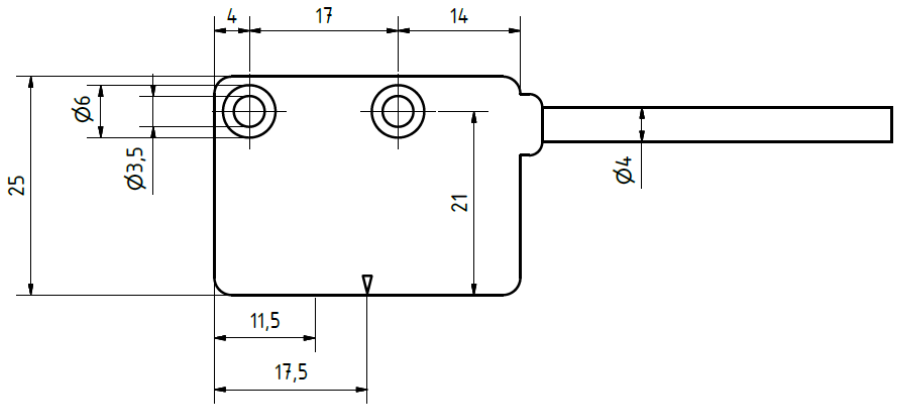
Willtec Messtechnik ek, Eschenweg 4, 79232 March-Hugstetten, Fon:07665/93465-0 Fax:07665/93465-22
info@willtec.de www.willtec.de

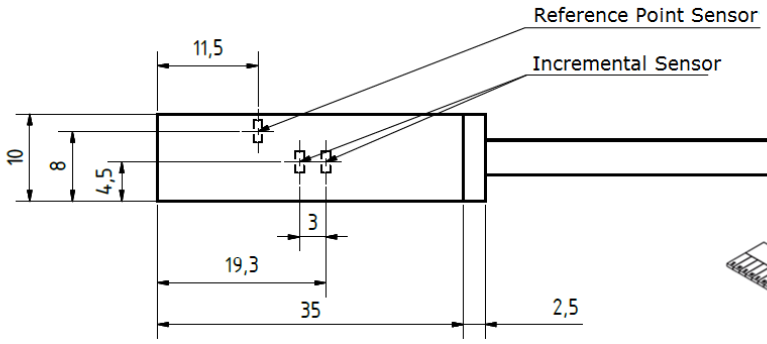
Edge distance

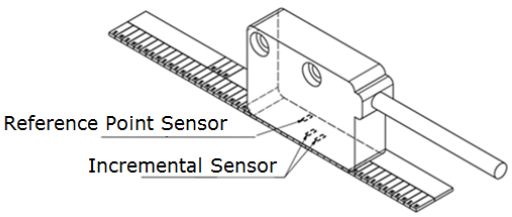
Example: Edge distance t = 2µs
(that means the downstream unit must be able to process 500kHz)

Formula for counting frequency = 1 /(2µs x 4)= 500kHz

Dimension



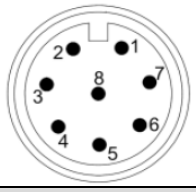
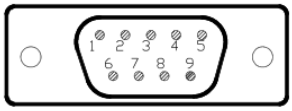




Limitation of Output Frequency

Min. edge distance T	Correlates counting frequency	5 µm	10 µm	50 µm	100 µm
120 ns	~ 8,3 MHz	10 m/s	10 m/s	10 m/s	10 m/s
290 ns	~ 3,4 MHz	10 m/s	10 m/s	10 m/s	10 m/s
480 ns	~ 2,1 MHz	6,5 m/s	10 m/s	10 m/s	10 m/s
680 ns	~ 1,5 MHz	4,5 m/s	9 m/s	10 m/s	10 m/s
800 ns	1,25 MHz	4 m/s	8 m/s	10 m/s	10 m/s
1.000 ns	1 MHz	2,8 m/s	5,5 m/s	10 m/s	10 m/s
1.500 ns	~ 670 KHz	2 m/s	4 m/s	10 m/s	10 m/s
2.000 ns	500 KHz	1,5 m/s	3 m/s	7,5 m/s	7,5 m/s
4.000 ns	250 KHz	0,75 m/s	1,5 m/s	3,9 m/s	3,9 m/s
8.000 ns	125 KHz	0,4 m/s	0,8 m/s	2 m/s	2 m/s
10.000 ns	100 KHz	0,4 m/s	0,8 m/s	2 m/s	2 m/s
16.000 ns	62,5 KHz	0,2 m/s	0,4 m/s	1 m/s	1 m/s

Pin Assignment

	Cable			
	Line Driver / Differential	**Push Pull**	**CO8P**	**SUBD9**
A	pink	green	6	6
$\overline{A}$	grey	-	5	5
B	green	yellow	3	8
$\overline{B}$	yellow	-	4	4
Z	white	grey	1	9
$\overline{Z}$	brown	-	2	1
Vcc	red	brown	8	7
GND	blue	white	7	2

Ordering Example

Type **LHR5/1 - 10 - I - Y - 2 - CO8P - 24 - xx**

Resolution
5 / **10** / 25 / 50 / 100 [µm]

Reference signal
I = periodic index pulse (5mm)
S = reference-single signal
O = without reference signal

Output
Y = Push-Pull (ABZ)
L = Line Driver (ABZ, $\overline{ABZ}$)

Cable length
2 = 2,0 m
5 = 5,0 m
10 = 10,0 m
other lengths on request

Connector
CO8P = circular connector M12, 8-pol.
SUBD9 = SUB-D 9-pol.

Power supply
5 = 5 VDC
24 = 10-30 VDC

Desired counting frequency (in kHz)
This information is not necessary.

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