

iMS magnetic length measuring system

Detailed
information

under
www.isel-germany.de



Figure:
iMS magnetic length measuring system

Features

- Measuring head with sensor in stable casing
- Reliable, robust, good value
- 2 channels, A and B,
Difference mode incremental RS 422 or
Difference mode analogue 1VSS
- Incremental/digital resolution (see table)
- Repeatability = ± 1 increment
- Magnetic tape on self-adhesive,
stainless steel bearer tape

optional:

- Reference pulse

General

The iMS contactless magnetic measuring system relies on scanning a magnetically coded measuring tape by means of a magnetically sensitive sensor and is suitable for detection of both linear and radial positions. A decisive advantage compared with significantly more expensive optical systems is provided by its insensitivity to contamination caused by liquids, greases and dust. Our length measuring system is therefore a cost-effective alternative to other systems on the market.

Available sensor interfaces for further processing in the peripherals are, optionally, a pulse sensor with incremental RS422 AB output (Z optional) and a SIN/COS/(Z optional) sensor with voltage amplitude 1Vss.

Ordering information

iMS-I magnetic length measuring system
in casing

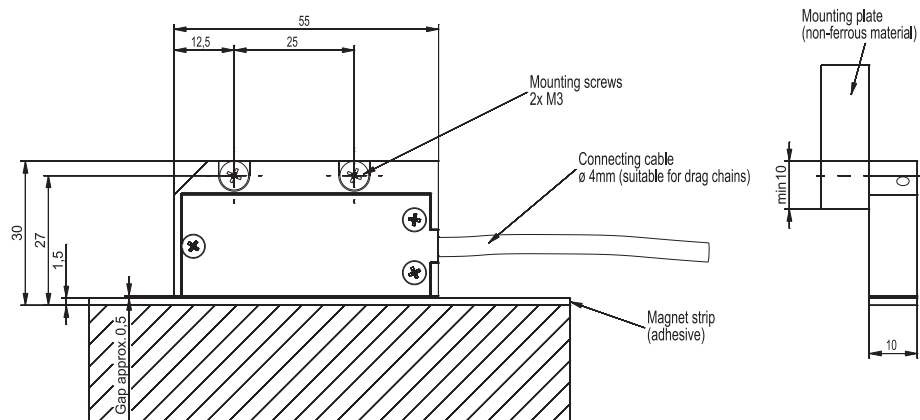
Resolution $5\mu\text{m}$, edge interval $0.55\mu\text{s}$,
Processing speed 5.25 m/s

Part no.: **390255 4412**

Magnetic tape on self-adhesive stainless
steel bearer tape (2 mm pole pitch, 10 mm
wide, 1.3 mm thick)

Part no.: **563150**

Dimensioned drawing



Subject to technical changes.

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Technical specification

Sensor

Mechanical specification	
Casing	Aluminium
Weight	appr. 70 g
Sensor cable	PUR
Cable bending radius	> 10 mm, first bend > 10 mm from sensor casing
Electronic data	
Supply voltage	4.9V - 5.1V (optional: 7V - 15V)
Current drain	< 100 mA on no load
Output signals	Standard RS422 A, /A, B, /B optional reference Z, /Z Option: SIN/ COS 1Vss +20%, -40%, Z and /Z right sign
Termination	Terminating resistor = 120 Ohm between corresponding output signals, e.g. A - /A, at receiver
Sensor distance - magnetic tape	0.4 - 0.7 mm
Sensor resolution incremental	1 μ m, 2.5 μ m, 5 μ m, 10 μ m, 20 μ m
Pulse interval	0.25 μ s, 0.55 ns, 1 μ s, 2 μ s, 4 μ s, 8 μ s
Analogue sensor resolution	Sinusoidal period length = 2 mm
maximum speed	< 10 m/s, higher on request
Repeatability	Incremental resolution \pm 1 increment, plus errors due to angular tilting in the 3 sensor axes
Accuracy	Measurement error 20 μ m, plus errors due to angular tilting in the 3 sensor axes
Reference sequence	optional: NSN (special order)
Ambient conditions	
Operating temperature	-5°C to 80°C
Storage temperature	-20°C to 100°C
Air humidity (only sensor)	100%, dewing allowed

Normal measurement - magnetic strip

Operating temperature	-5°C to 80°C
Material	High quality stainless steel, coding bearer elastomer, self-adhesive
Thickness	1.3 mm \pm 0.15 mm + bonding layer 0.13 mm, optional: 0.1 mm stainless steel tape + bonding view 0.2 mm
Width	10 mm
Length	up to 50 m on roll
Pole pitch/PITCH	2 mm, i.e. north pole = 2 mm, south pole = 2 mm magnetic period = 4 mm
Number of tracks	Single track, 10 mm wide Option: signal track 5 mm, reference track periodically 5 mm
Accuracy	\pm 0.04 mm/m up to 50 m length, at 20°C
Coefficient of expansion	17E-6 m/Kelvin
Ambient conditions	
with no or minimum effect on the measurement norm	Chemical resistance to contamination with motor oil, gearbox oil, ATF, hydraulic oil, kerosene, antifreeze, Clorox disinfectant, turpentine, water, brine. The materials listed have no or little effect on the long term stability of the measurement standard; among others, it depends on the concentration, the temperature and the time of the contamination. Please check your own case.
little/average effect on the measurement standard	Jet petrol, carburettor fuels, heptanes, alcohols
serious effect on the measurement standard	Aromatic hydrocarbons, ketones, inorganic acids