

Linear Position Transmitter HLT 1100-R2

Magnetostrictive

For full integration

Resolution min. 0.1 mm



CANopen Safety
Increased Functional Safety

Description:

This version of the linear position sensor HLT 1100 has been developed specifically for use in safety circuits / safety functions as part of the functional safety of machinery and equipment up to SIL 2 (IEC 61508) or PL d (ISO 13849).

The sensor works on the principle of magnetostriction.

This measuring principle determines with high accuracy the position, distance and/or speed and is based on elapsed time measurement.

Based on this non-contact and wear-free measuring system, HYDAC offers this version in a pressure-resistant stainless steel housing For full integration in hydraulic cylinders.

In the CANopen version, the measured value is digitised and made available to the CAN field bus system via the CANopen protocol. The instrument parameters can be viewed and configured by the user via the CANopen object directory using standard CAN software.

Technical data:

Input data	
Measuring ranges	200 .. 2500 mm
Model	Rod Ø 10 mm for cylinder full integration ¹⁾ Operating pressure: ≤ 450 bar Peak pressure acc. to DIN EN ISO 19879: 630 bar
Material	Rod: Stainless steel 1.4571 Housing: Stainless steel 1.4301
Seal	O-ring: NBR Backup ring: PTFE
Output data	
Output signal	CANopen Safety
Resolution	0.1 mm
Non-linearity	≤ ± 0.02 % FS
Hysteresis	≤ ± 0.1 mm
Repeatability	≤ ± 0.1 mm
Temperature coefficient	≤ ± 0.003 % FS / °C
Sampling rate	≤ 10 ms (0 .. 100 %)
Environmental conditions	
Operating temperature range	-40 .. +85 °C
Storage temperature range	-40 .. +100 °C
Fluid temperature range	-40 .. +120 °C
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance acc. to DIN EN 60068-2-6 at 5 .. 8.2 Hz at 8.2 .. 150 Hz	≤ 7.5 mm ≤ 2.0 g
Shock resistance acc. to DIN EN 60068-2-27 (11 ms)	≤ 50 g
Protection class acc. to DIN EN 60529	IP 67 (cable outlet) IP 6K9K ²⁾ (separate male flange connector M12x1)
Installation position	No restrictions
Protocol data for CANopen	
Communication profile	CiA DS 301 V4.2 / DS 304 V1.0.1
NMT-Services	CiA DSP 302 V4.1
Layer setting services and protocol	CiA DSP 305 V2.2
Encoder Device Profile	CiA DS 406 V3.2
Baud rates	10 kbit/s .. 1 Mbit/s acc. to DS305 V2.2
Transmission services - PDO - Transfer	Measured value as 32 bit and float synchronous, asynchronous, cyclical
Node ID/ baud rate	Adjustable via LSS
Safety-related data	
Performance level	
Based on	DIN EN ISO 13849-1:2008
PL	d
Architecture	Category 2
Safety Integrity Level	
Based on	DIN EN 61508:2002
SIL	2
Other data	
Supply voltage	9 .. 36 V DC
Residual ripple of supply voltage	≤ 250 mV _{PP}
Current consumption without output	< 100 mA
Weight	Depending on length: 100 mm (with 1 m cable): ~310 g 2500 mm (with 1 m cable): ~1030 g

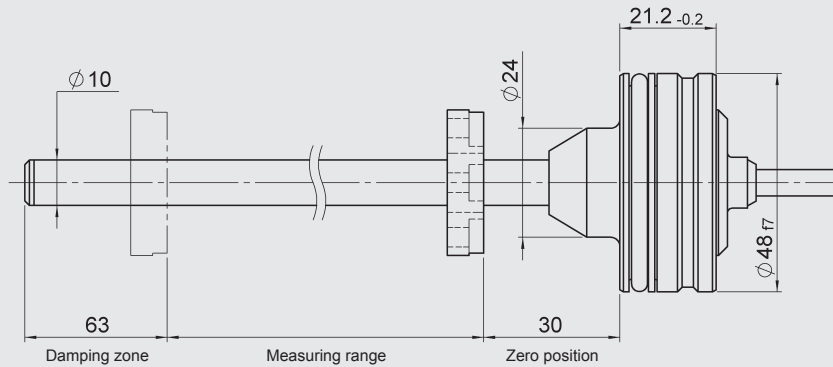
Note: Reverse polarity protection of the supply voltage, overvoltage and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

¹⁾ Other variants available on request.

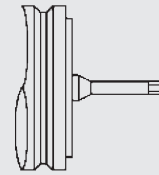
²⁾ With mounted mating connector in corresponding protection class

Dimensions:



Pin connections:

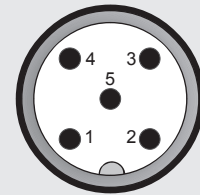
Cable outlet



Lead

brown	+U _B
white	0 V
green	CAN_L
yellow	CAN_H

M12x1, 5 pole



Pin	Signal	Description
1	n.c.	
2	+U _B	Supply+
3	0 V	Supply-
4	CAN_H	Bus line dominant high
5	CAN_L	Bus line dominant low

Model code:

HLT 1 1 0 0 - R2 - XXX - F13 - XXXX - S2PD - 000

Design / geometry type

1 = rod

Model

R2 = rod for cylinder full integration

Electrical connection

Cable output

K01 = jacketed cable, length 1 m
 K02 = jacketed cable, length 2 m
 K05 = jacketed cable, length 5 m
 K10 = jacketed cable, length 10 m

Separate male flange connector M12x1, 5 pole

L06 = 60 mm lead length
 L18 = 180 mm lead length
 L24 = 240 mm lead length

Output signal

F13 = CANopen Safety

Measuring range in mm (200 .. 2500 mm)

Example
 0250 = 250 mm

Functional safety

S2PD = SIL 2 acc. to IEC 61508
 and PLd – Cat 2 acc. to DIN EN 13849-1

Modification

000 = standard

Accessories available: (not supplied with instrument)

ZBL MR17.4 position magnet part no.: 6119372
 ZBL MR22 position magnet part no.: 6084453
 ZBL MR33 position magnet part no.: 6084207

More detailed information on accessories as well as on further accessories, such as mating connectors, can be found in the Accessories brochure.

Note:

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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