

# Magnetostrictive Linear Position Sensor

Inside Cylinder SSI Output

L5-AXX-XXXX-12



## Profile

- Robust, oil resistance
- Absolute position output, without zero operation
- Contactless sensing with highest durability
- High resolution, SSI output up to 0.5µm
- Design of low power consumption, reduce the temperature drift



## Features

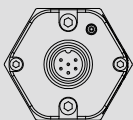
- Status LEDs for indicating operating status and diagnostics
- Modular design, easy repairing
- Linearity deviation <math>< \pm 0.01\%</math> rated length
- Repeatability <math>< \pm 0.001\%</math> rated length

Parameter of measurement	
Stroke length	25~7600mm
SSI	24/25/26 bits Binary or Gray
Baud rate	70kBd ~ 1MBd Cable Length: <math>< 3</math> <math>< 50</math> <math>< 100</math> <math>< 200</math> <math>< 400</math> m Baud rate: 1000 <math>< 400</math> <math>< 300</math> <math>< 200</math> <math>< 100</math> kBd
Resolution	0.5 / 1 / 2 / 5 / 10 / 20 / 50 / 100µm
Linearity	<math>< \pm 0.01\%</math> F.S. (Min. ±40µm)
Repeatability	<math>< \pm 0.001\%</math> F.S. (±1 bit)
Update time	Range: 300 750 1000 2000 5000 mm Frequency: 3.7 3.0 2.3 1.2 0.5 kHz

Electrical characteristics	
Connection	Cable or M16, 7 pin/8 pin connector
Voltage	24VDC (-15%/+20%)
Current	<math>< 60\text{mA}</math> (depend on measuring range)
Polarity protection*	Max. -30VDC
Overvoltage protection*	Max. 36VDC
Electric strength	500V (DC ground to machine ground)
Error indicator	Red Green LED indicator
Single-stable time	16µs

\*Max. 5mins

## Sensor diagnostic display



Indicator	description
Green ON	normal function
Green Flash	programming mode
Red Flash	magnet out of measuring range
Red ON	magnet not detected or damaged magnet

Design & Material	
Sensor electronics housing	Aluminum alloy
Sensor rod	304L Stainless
Sensor flange	304L Stainless

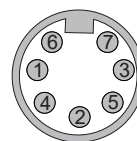
Installation & Accessories	
Mounting position	Any orientation
Installation	Threaded flange M18×1.5 or on demand
Magnet	L5-0000-ACRI-0001, not included in delivery L5-0000-ACRI-0004, not included in delivery
Antimagnetic spacer	L5-0000-ACMT-0001, not included in delivery
Connector	7 pin: E1-2207-0100, not included in delivery or 8 pin: E1-2208-0100, not included in delivery

Operation condition	
Magnet speed	Any
Operating temperature	-40 C ~ +85 C
Humidity	R.H.90%, No condensation
Temperature coefficient	<math>< 15\text{ppm}/\text{C}</math>
Protection level	IP67
Operating pressure	35MPa (continuously)/70MPa (peak value)
Shock test	150g/11ms, IEC60068-2-27
Vibration test	15g/10...2000Hz, IEC60068-2-6 excluding resonant frequencies

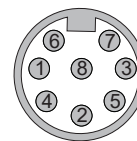
## Wiring

Signal	Ub	GND	+C	-C	+D	-D
Cable(color)	Brown	White	Yellow	Green	Pink	Gray
M16, 7 pin connector	5	6	3	4	2	1
M16, 8 pin connector	7	6	1	3	2	5

M16, 7 pin Pin top view(sensor)



M16, 8 pin Pin top view(sensor)



# Magnetostrictive Linear Position Sensor

Inside Cylinder SSI Output

L5-AXX-XXXX-12

## Ordering example Inside Cylinder

**L5 - AXX - 0100 - 1212 - XXXXXXXX - X**

**z** Series

A01 = 46mm inside cylinder  
A02 = 44mm inside cylinder

**a** Measuring range

0100 = 100mm  
.....  
Max.7600 mm  
in 5-mm increments

**b** Output

12 = SSI Output

**c** Operation Voltage

1 = 24 VDC

**d** Wiring

2 = M16, 7 pin connector  
4 = M16, 8 pin connector  
PXX = Standard cable outlet, XX meters\*  
TXX = High temperature cable,XX meters\*\*

**e** Output

S1G1 = 25 bits,Gray  
S1G2 = 24 bits,Gray  
S1G3 = 26 bits,Gray  
S1B1 = 25 bits,Binary  
S1B2 = 24 bits,Binary  
S1B3 = 26 bits,Binary

**f** Resolution

1 = 0.001    2 = 0.002  
3 = 0.005    4 = 0.01  
5 = 0.02    6 = 0.05  
7 = 0.1    8 = 0.0005

**g** Direction

P = forward direction  
N = reverse direction

**h** Magnet

0 = L5-0000-ACRI-0001 <sup>1)</sup>  
1 = L5-0000-ACRI-0004 <sup>2)</sup>

**i** Blind Area(Bigning+End)

S = 50.8 + 63.5 (mm) <sup>3)</sup>  
B = 29 + 60 (mm) <sup>4)</sup>  
M = 29 + 60 (mm) <sup>3)</sup> Custom circuit

\*temperature range of standard cable:-30...70 °C

\*\*temperature range of high temperature cable:-20...180 °C

Explanation: If you need other cables, please consult the technicians from HL.

The 44mm outer shell is a new product and has a good delivery schedule.

It is recommended to choose it as the priority.

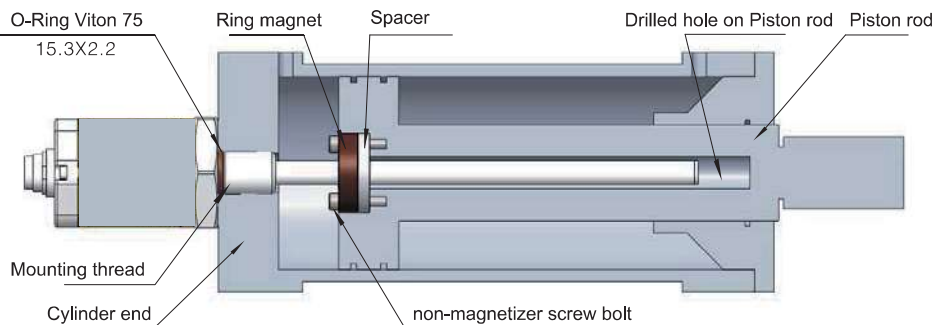
<sup>1)</sup>The magnet L5-0000-ACRI-0001 needs to be equipped with an antimagnetic spacer L5-0000-ACMT-0001.

<sup>2)</sup>The magnet L5-0000-ACRI-0004 does not require an antimagnetic spacer.

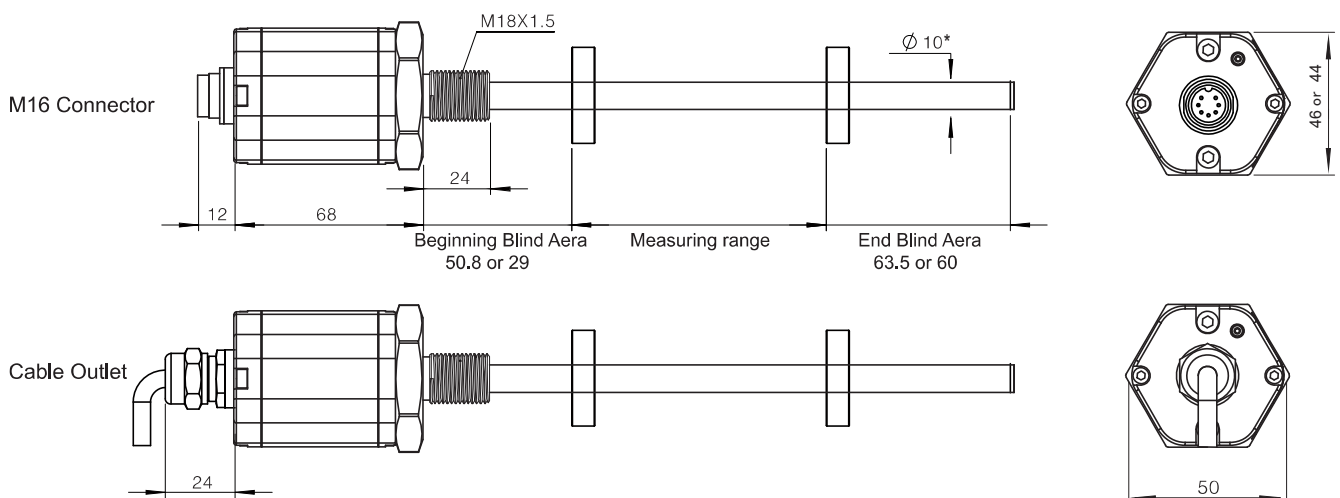
<sup>3)</sup>This blind zone is compatible with the magnet L5-0000-ACRI-0001 and L5-0000-ACRI-0004.

<sup>4)</sup>This blind zone is only compatible with the magnet L5-0000-ACRI-0004, which can be used to replace the Balluff's magnet.

## Installation



## Dimensions



Note: L5 series product compression rod can be easily separated from the electronic head(two M4x59 screw), which can be quickly replaced without pressure relief, and the rod can be permanently a part of the cylinder.

\*Pressure tube can be customized 7mm and 12mm directly, please consult the sales of Heinlanz.