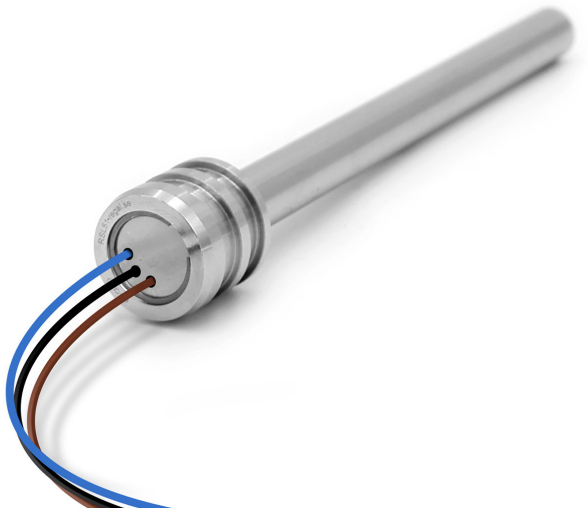
RSL51

Hall-effect cylinder sensor 50-400 mm

The RSL51 sensor is a linear position sensor intended to be installed in hydraulic cylinders where accurate feedback of the piston position is needed for the control of various functions. The sensor provides an analog signal ranging from 0.5 to 4.5 V. With its small installation dimension, it is especially well suited for applications with small hydraulic cylinders where space is at a premium.

The RSL51 sensor contains an array of hall-effect sensors housed in a stainless steel chassis. A surrounding ring magnet, mounted in a sliding ferromagnetic piston, influences the output of the hall-effect sensors. Data from the hall-effect sensors are then processed by an algorithm which determines the position of the piston.

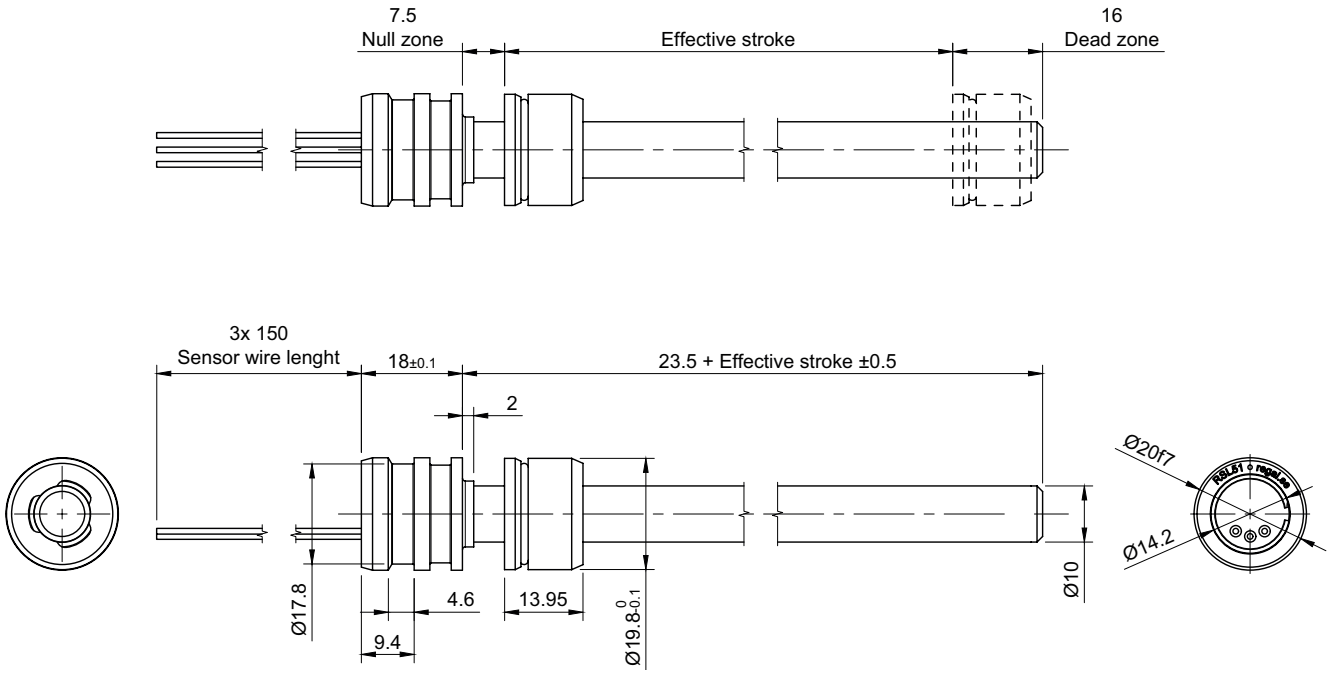
- Compact design
- Easy to install
- Non-contact technology



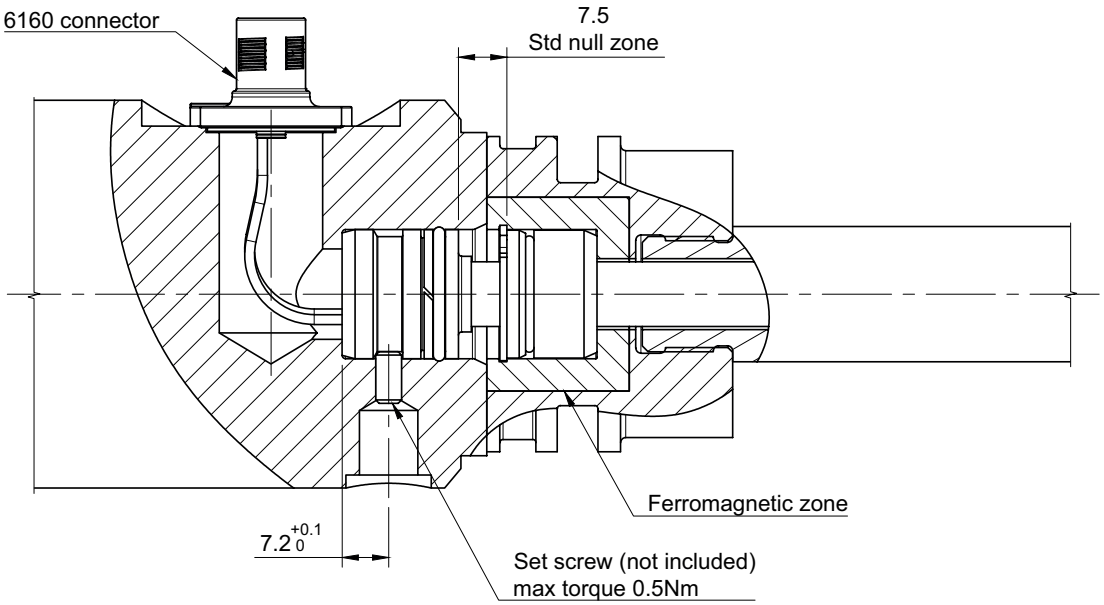
Electrical connection	
Operating voltage	10 - 32 VDC
Over voltage	36 VDC at +85 °C for 60 min
Reverse polarity protection	Up to 32 VDC
Current consumption	< 30 mA at 24 VDC
Signal characteristics	
Signal output	0.5 to 4.5 V
Alarm output	< 0.3 V
Output update frequency	950 Hz (up to 1672 Hz)
Linearity error	< 0.5 mm
Resolution	14 bit
Repeatability error	< 0.6 mm
Load resistance	>10 kohm
Startup time	75 ms

Operating condition	
Operating temperature	-40... +105 °C
Operating pressure	35 MPa
Proof pressure (static)	46 MPa
EMC	ISO 13766-1:2018 Earth-moving and building construction machinery ISO 13766-2:2018 Earth-moving and building construction machinery. ISO 14982:2009 Agricultural and forestry machinery.
Material	
Sensor housing	Stainless steel (EN 1.4301 & EN 1.4404)
Magnet	POM
Magnet cover	POM
Retaining ring	Beryllium copper
O-rings	NBR Sh70
Back-up ring	PTFE
Sensor wires	LiH-T 0.25 mm², 32 x 0.1 thinned copper wire, TPE insulation

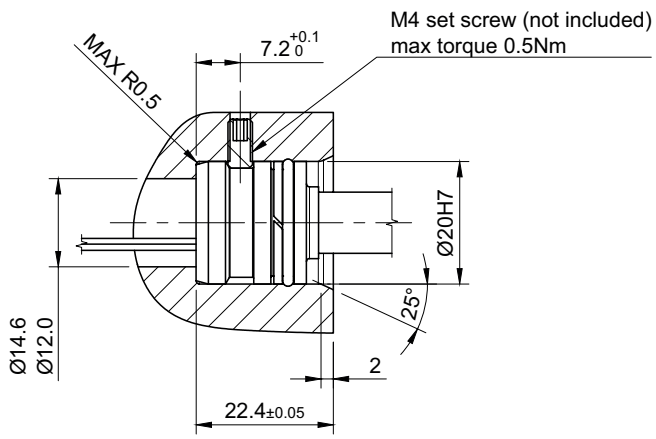
Product dimensions



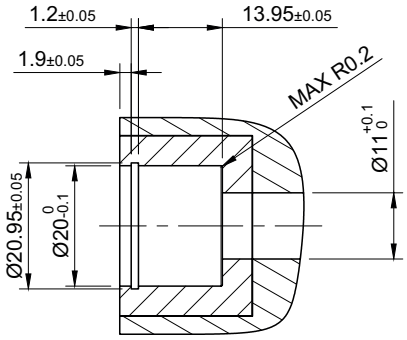
Overview of installation with 6160 connector



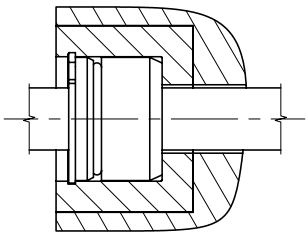
Header installation cylinder interface



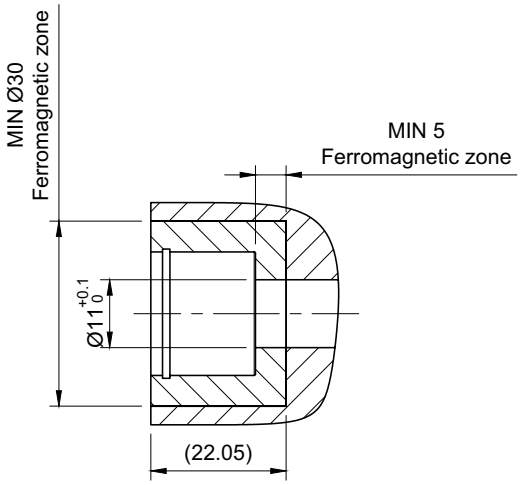
Magnet assembly installation piston interface



Installed magnet assembly

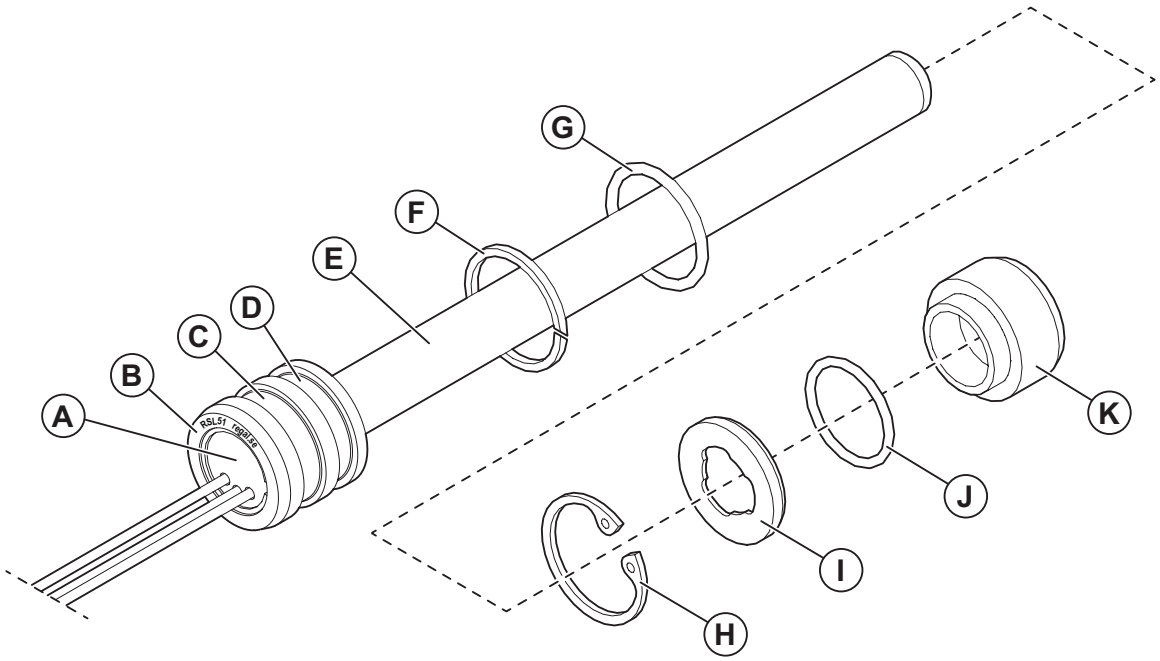


Minimum ferromagnetic zone requirements



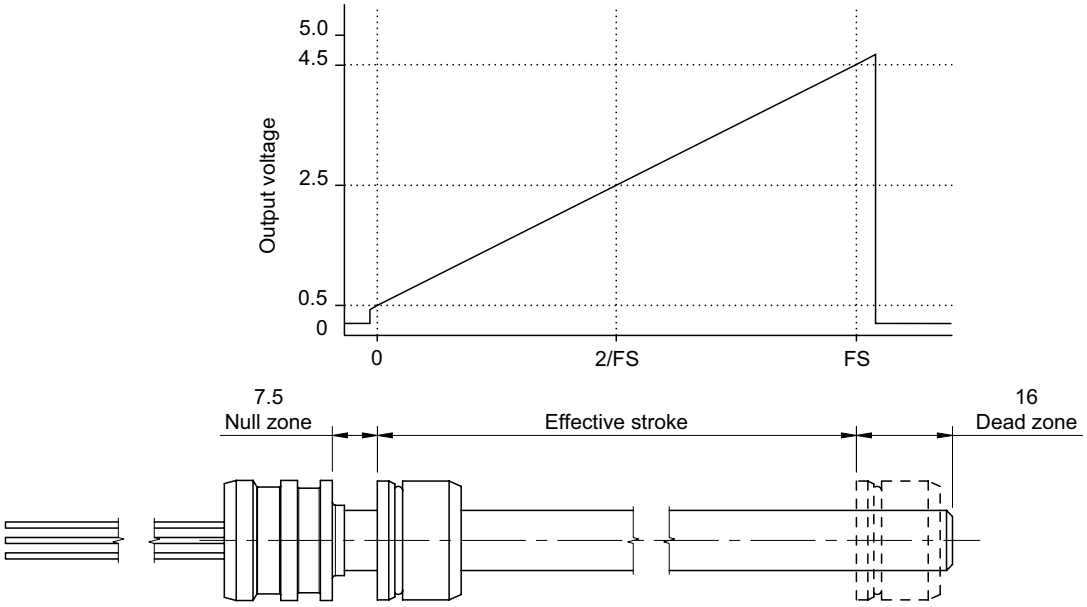
Note. Ferromagnetic zone must follow above specification.

Exploded view of sensor and magnet assembly



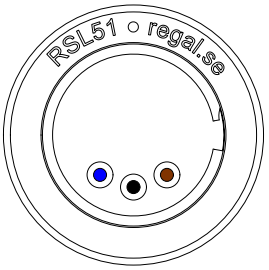
Position	Part name
A.	QR-code
B.	Sensor header
C.	Set screw groove
D.	O-ring groove
E.	Sensor rod
F.	Back-up ring
G.	O-ring (17.17x1.78 NBR shore 70)
H.	Retaining ring
I.	Magnet cover
J.	Manget O-ring (NBR shore 70)
K.	Magnet shell with magnet

Signal output



Sensor wire leads connection

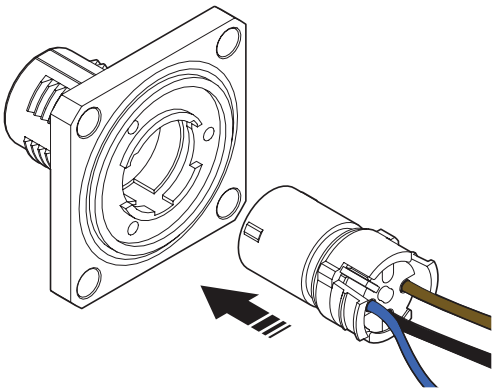
Color	M12 pinning	Function
Brown	1	Operating voltage
Blue	3	GND
Black	4	Output signal



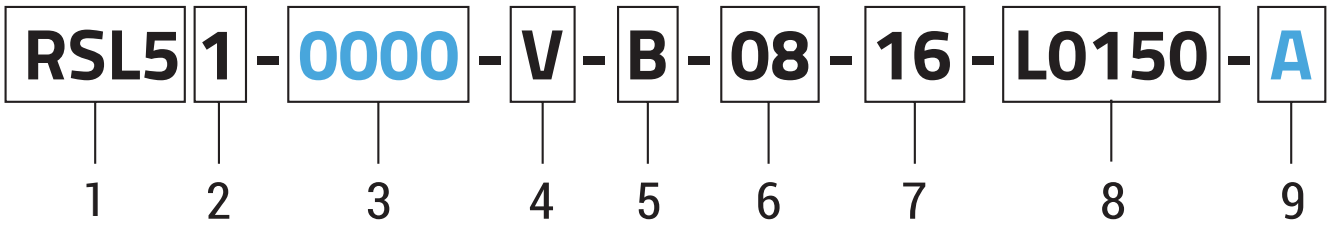
Connector 6160

The 6160 (M12) is a flange connector that does not require soldering. It features a protection rating of IP67 and is supplied with pins pre-mounted on the sensor wires from the factory.

See separate datasheet for further details.



Configuration code



Pos	Description	Configurations	Function
1	Product family identifier	RSL5	
2	Header type	1	
3	Effective stroke	50...400	50 mm increments
4	Output	V	0.5 - 4.5 V
5	Operating voltage	B	9 - 32 VDC
6	Null zone	08	8 mm null zone (std)
7	Dead zone	16	16 mm dead zone (std)
8	Wire lenght	L0150	150 mm flying leads (std)
9	Contact option	Blank	No connector (std)
		A	Flying leads equiped with 6160 crimp contacts

Example: RSL51-0050-V-B-08-16-L0150-A

Notes

Contact information: Regal Components AB, Lefflersgatan 1, 754 50 Uppsala, Sweden. info@regal.se. +46 (0)18-65 70 00. www.regal.se