

The **VHL2003** magnetic hall linear sensor is a sprung loaded short stroke design with an Ø20mm aluminium case, developed for precise positional feedback for actuator and solenoid valves.

Available with a measurement range up to a maximum of 10mm, the sensor provides the customer with the option of either metric or imperial thread mounting and a choice of different cable lengths up to 9m. Supplied with a nitrile O ring to seal the front face, the pressure area of the sensor will operate up to 300 bar.

Manufactured with high quality materials, they are typically specified in industrial and automotive control measurement systems where performance and reliability are part of the design criteria.

To meet customer exacting requirements, the individual measurement range can be factory programmed between 5mm to 10mm in 1mm increments.

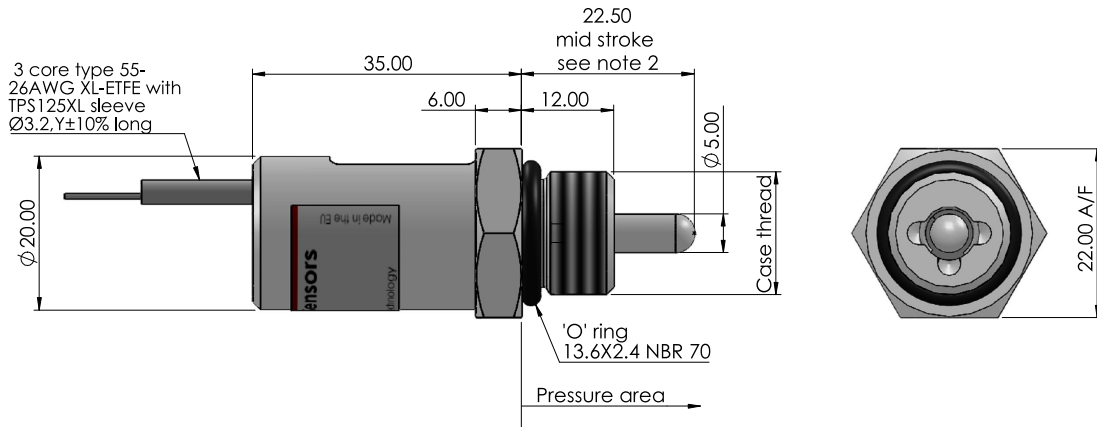
They are designed to be environmentally protected against the ingress of dust and water to IP68/IP69.

Key features and benefits

- Measurement ranges 5 mm to 10mm
- Contactless technology
- Sprung loaded shaft
- Choice of metric or imperial thread mounting
- Maximum operating temperature up to 150°C (302°F)
- Pressure area operates to a working pressure of 300 bar
- Sealed to IP68/IP69K
- 3 core type 55-26AWG XL-ETFE TPS125XL
- Choice of cable length between 0.5 to 9m
- Custom designs available on request



VHL2003-AB-XX-Y-ZZZ – Hexagon case with a sprung loaded shaft



Ordering information: VHL2003-AB-XX-Y-ZZZ

Case thread
 1. M16x1.5-6g
 2. 5/8-18UNF-2A

1. Sprung loaded

Stroke length
 0.5 - 3mm to 10 - 10mm

Output signal
 V1 - 0.5 - 4.5

Output slope
 see graph sheet 2

Cable length 0 to 9
 0 - 0.9m, 1 - 1m.....9 - 9m

Electrical and Mechanical Specification			
Input Specification			
Supply voltage (Vs)	5.0±10% regulated	8 to 30 unregulated	VDC
Over voltage protection	Up to 50		VDC
Supply current	<15		mA
Reverse polarity protection	Up to -10		VDC
Power on settlement time	<100		ms
Input voltage rise time	0.25 minimum		V/ms
Output Specification			
Output type	Analogue voltage		
Output direction	See output characteristics graph		
Voltage output (Vout)	0.5 - 4.5	0.5 - 4.5	VDC
Line regulation	Ratiometric with Vs	<0.01% FS	
Monotonic range	0 - 100% measurement range		
Load resistance	>10K		Ohms
Output noise	<5		mVRMS
Performance Specification			
Measurement range	5 to 10 in 1mm increments		mm
Resolution	0.025		% of measurement range
Sensitivity tolerance (see note 4 and 5)	<±2.5		%FS
Non-linearity (see note 5)	<±1		%FS
Temperature coefficient (Vout)	<±0.003	<±0.011	%FS/°C
Update rate (nominal)	500		Hz
Max operating speed	1		m/s
General Specification			
IP rating	IP68 and IP69K		
Life (shaft bearing)	25 million cycles		dependent on environment
Dither life	Contactless - no degradation		
Operational temperature	-40 to +150	See de-rating graph	°C
Storage temperature	-55 to +150		°C
Weight (approx)	50		grams
Torque setting	40		Nm
Working pressure	300		bar
Materials	Case - Anodised aluminium Electronic cover - PBT glass filled (black) Shaft - Stainless steel 303		

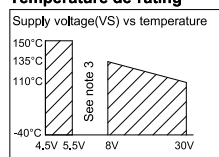
Notes:

1. Incorrect wiring may cause internal damage.
2. When the sensor is positioned as shown the instrument is mid-travel (2.5V output).
3. Do not operate between 5.5V and 8V.
4. Ideal sensitivity (mV/mm) is calculated from the ideal span of 4000mV (4.5-0.5VDC) divided by the measurement range in mm.
5. Sensitivity and Non-linearity are calculated from least squares best fit method.
6. Due to Hall effect technology used in this device, ferrous materials and magnetic fields may influence output.
7. General dimension tolerance is +0.25.

Electrical Connections (see note 1)

Wire colour	Function
Red	Supply Voltage (Vs)
White	Output Voltage (Vout)
Black	Ground

Temperature de-rating



Output characteristics

