



KEY FEATURES

- Rugged construction
- Aluminium body
- Long life
- Resistive or hall effect
- Regulated output options
- Range of shaft designs

APPLICATIONS

- Motorsport control monitoring
- Vehicle and machine controls
- Angular positioning

Description

Our rotary sensors are rugged and versatile, made in the United Kingdom.

With the option of a traditional resistive element or a superior hall effect sensor, these rotary sensors can be used in many applications.

The resistive sensors have fixed ranges of 45°, 125° or 350° and the hall-effect sensors can be programmed by the factory for any range from 1° up to a full 360°.

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Sealing

- IP65 – Medium seal giving added protection and with low movement resistance.
 Digit 6 = Dust-tight, no ingress of dust for up to 8 hours
 Digit 5 = Protected against low pressure water jet over a short period
- IP67 – High grade seal giving maximum protection but with higher movement resistance.
 Digit 6 = Dust-tight, no ingress of dust for up to 8 hours
 Digit 7 = Protected from immersion up to 1 metre depth for 30 minutes

NOTE: The IP67 seal is generally preferred however the rotation of the shaft on the MS-22 range can be a little tighter than on the IP65 version. The MS-23 range being completely sealed will always be supplied as IP67.

Fixings

These sensors come with two options, a standard or compact flange. Both options have a slot to enable fine adjustment of the sensor position with a PCD of 38mm in the standard flange and 32mm in the compact flange. For drawing see figure 1.

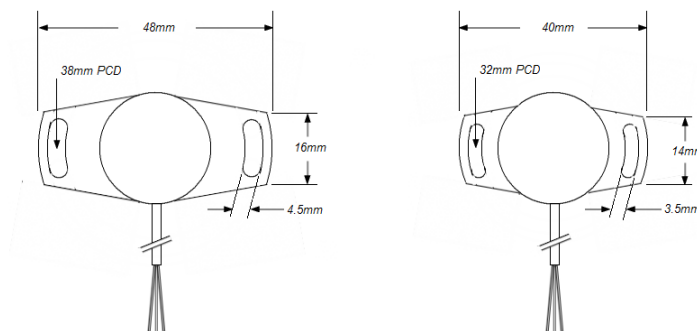


Figure 1

The MS-22 range has options of a range of shaft fittings. These are based on standard shaft types across a range of industries. If a none of these are suitable, the MS-23 can be used, or speak to us and we can discuss a bespoke design with the production team. See Figure 2.

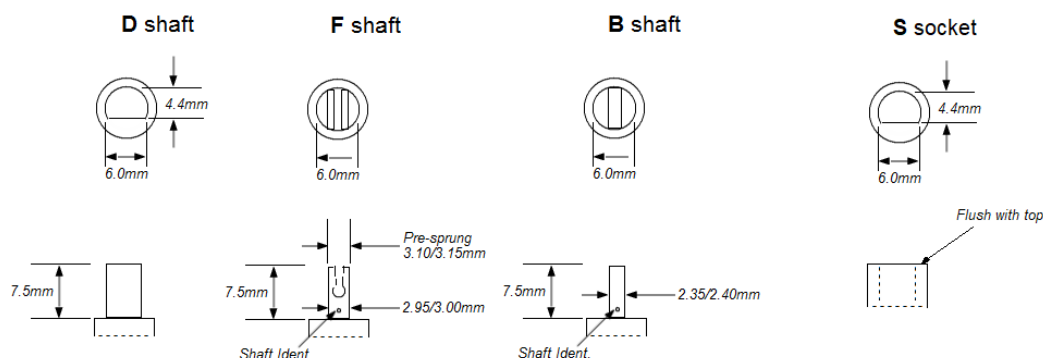


Figure 2

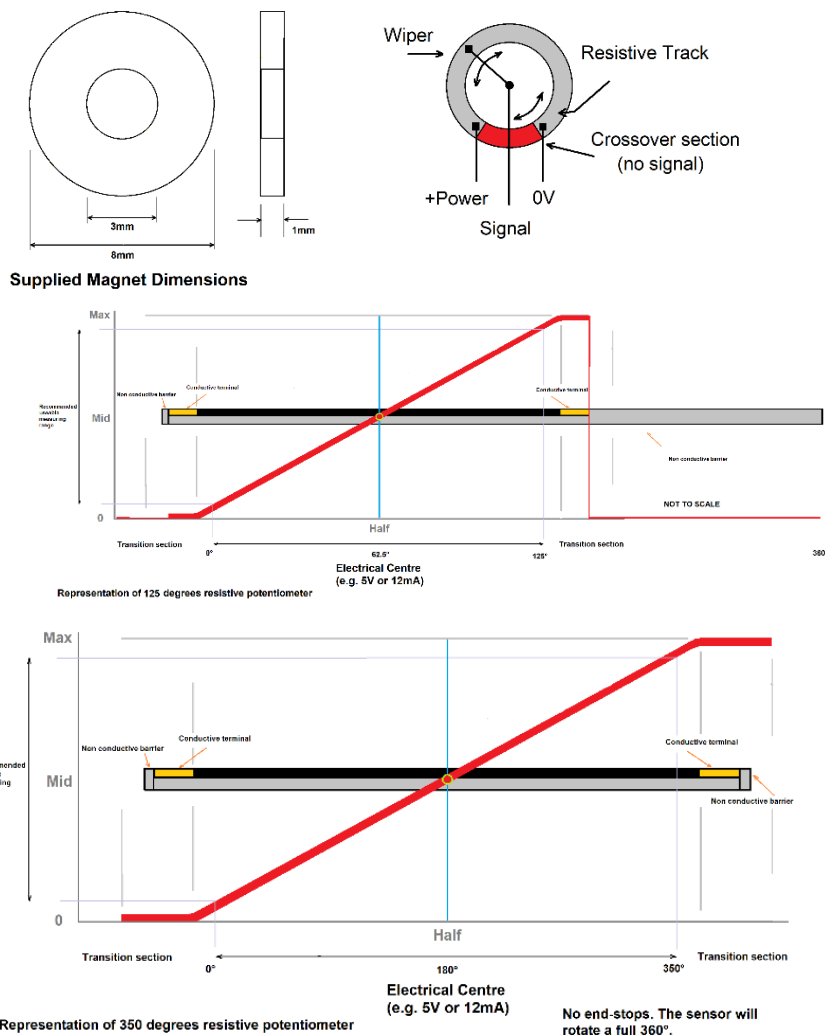
Mechanical Set Up

- With similarity to a linear potentiometer, the centre of rotation coincides with the mid-point of the output range. It is always best (if possible) to make mechanical setup from the central point of rotation. This can be done by relating the electrical output to the mechanical position.
- In general (unless otherwise specified) the centre of rotation is with the flat of the D shaft or one narrow end of the blade shafts aligned with the cable exit of the sensor body. When using the MS-23, the centre of rotation is aligned with the North pole of the magnet.

MS-23 Magnet

The MS-23 sensor is supplied with a magnet in the shape of a washer, See figure 2. When supplied, the magnet will have a red dot indicating the north pole.

Other magnets can be used. If you wish to use your own magnet it is recommended to supply one to the factory in order to set up the sensor correctly. Magnets can vary and have different affects on the sensor. Without a sample magnet supplied, the sensor will be set to the standard magnet.



Larger picture in drawings section. Figures 3, 4, 5

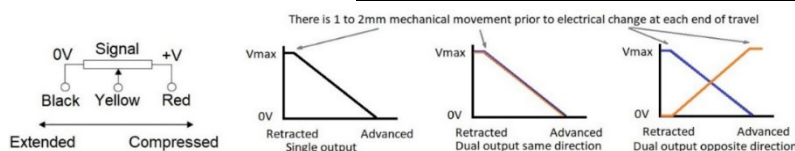
Electrical Set Up

Potentiometric output

- Always connect your potentiometric sensor as a potential divider.
- Never use the potentiometer as a variable resistor or rheostat, it will draw too much current and overheat.
- The Red and black wires can be reversed in polarity to change the direction of the output. This will not cause any adverse effects in the operation.
- For single output 3 wire cable is used and for dual output (2 x 125° only) 7 wire cable. In the 7 wire cable the green wire is not used.
- Dual output can be configured where both outputs are mirrored, or that one increases as the other decreases. This can be done by reversing the supply and GND wires for the output that requires reversing.

Connect as follows:

Single output	Red	+ Supply
Single output	Black	GND (0V)
Single output	Yellow	Signal
Dual output	Brown	+ Supply
Dual output	Blue	GND (0V)
Dual output	White	Signal
	Green	Not used



Hall-effect Voltage output (figure 4.2)

- Connection for a Hall effect sensor is the same as for potentiometric, but the input voltage MUST NOT be reversed.
- The Hall-effect sensor can be programmed for any angle from 1° to 360° with dual outputs being independent from each other which allows full flexibility on start and finish angles.
- 5V input sensors can be re-programmed by the factory, but 6-30V input sensors are fixed once programmed

Connect as follows for single output:

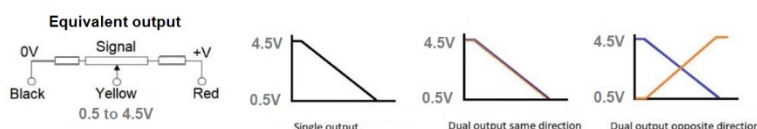
6-30V or 11-30V DC	Red	+ Supply
	Black	GND (0V)
0-5V or 0-10V	Yellow	Signal

Connect as follows for 6 wire dual output:

6-30V or 5V DC	Red	+ Supply
	Black	GND (0V)
Output 1	Yellow	Signal
6-30V or 11-30V DC	Brown	+ Supply
	Blue	GND (0V)
Output 2	White	Signal
	Green	Not used

Connect as follows for 4 wire dual output:

6-30V or 5V DC	Red	+ Supply
	Black	GND (0V)
Output 1	Yellow	Signal 1
Output 2	Green	Signal 2



Drawings

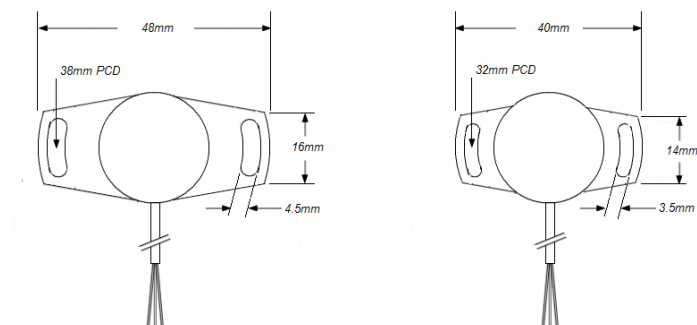


Figure 1

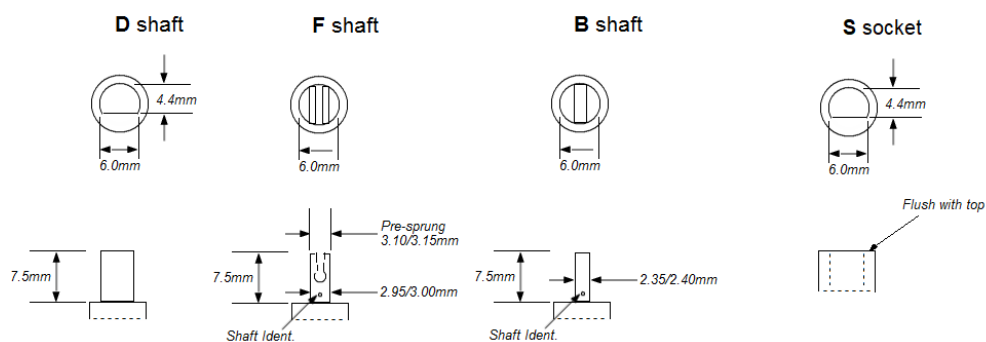
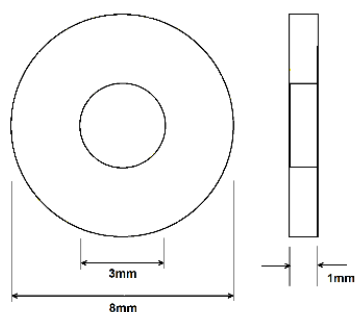


Figure 2



Supplied Magnet Dimensions

Figure 3

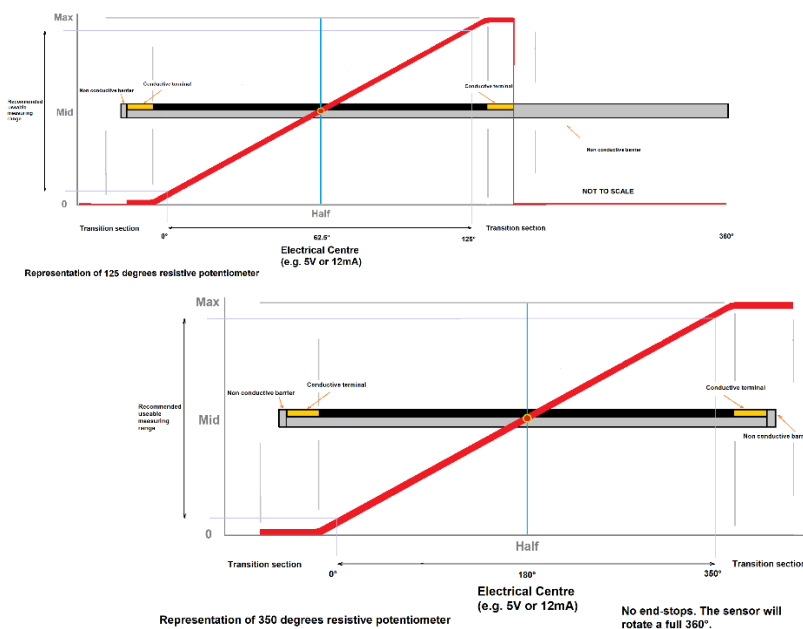
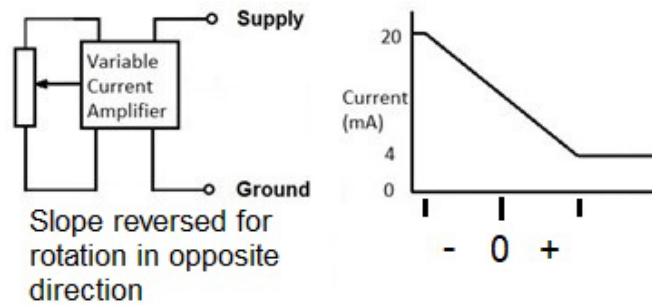


Figure 4

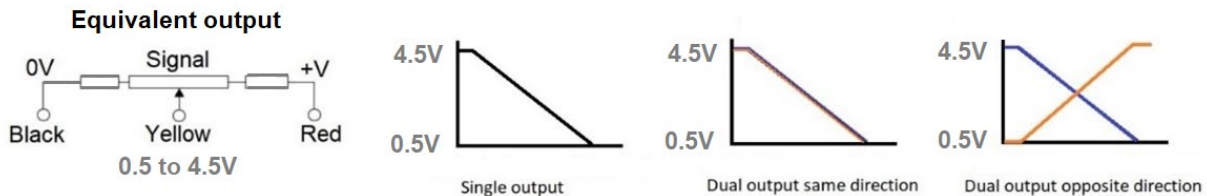
Current output

Note this output is only available by special request and is not a standard option



Hall effect output

NOTE: the diagram is an equivalent based on how a potentiometric sensor works. The sensor is actually made from a complex sensor and amplifier to give 0.5 to 4.5V output as default and can be 0.1 to 4.9V output by request.



Please note that the electrical output over the sensor operating range (stroke length) is slightly less than the applied voltage.

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