

# Eddy Current Probes for Industry **SENTURION**



**Designed for Strength,  
Reliability and Accuracy**

## SENTURION

### How Eddy Current Probes work?

Eddy current probe systems are made up of a coil, embedded in the tip of the probe, a separate driver unit and an interconnecting 'tuned' length of cable.

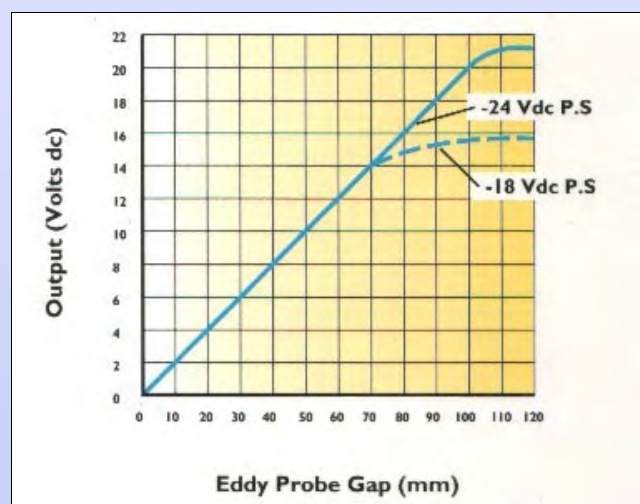
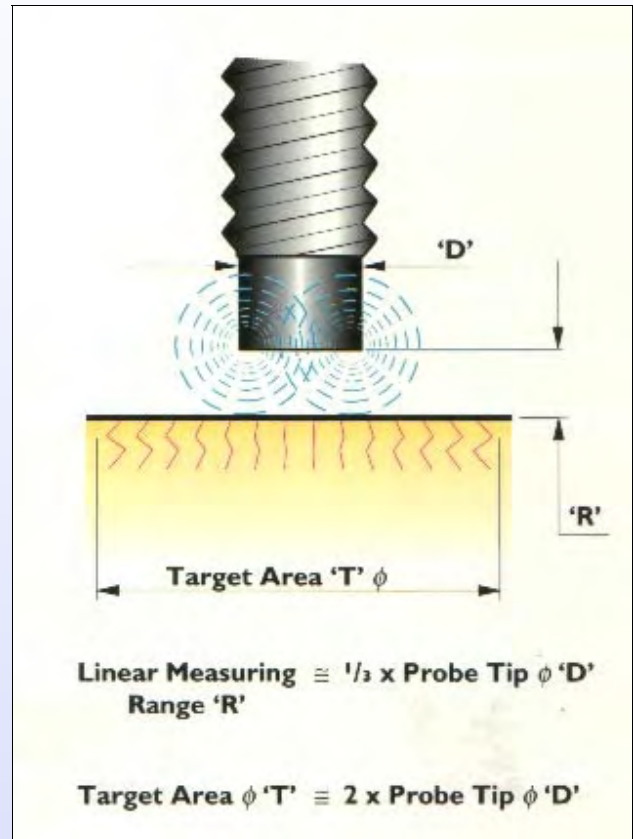
The principle of operation, as the name implies, depends upon the eddy currents set up in the surface of the target material.

The coil is supplied with a constant r.f current from the remote eddy probe driver, which sets up an electro-magnetic field between the tip and the observed surface.

Any electrically conductive material within this electromagnetic field, ie. the target material, will have eddy currents induced in it's surface. The energy absorbed from the electromagnetic field to produce these eddy currents will vary the strength of the field, and hence the energising current, in proportion to the probe target distance. Such changes are sensed in the driver where they are converted to a varying voltage signal. The whole probe, extension cable and driver system relies for it's operation on being a tuned circuit and as such is dependant on the system's natural frequency. Thus each system is set up for a fixed electrical/cable length. Eddy probe systems are usually supplied with 2,5,9 or 14 metre total cable lengths.

SENTURION eddy current probes have been designed to be the most robust available and are ideally suited to a vast range of industrial applications.

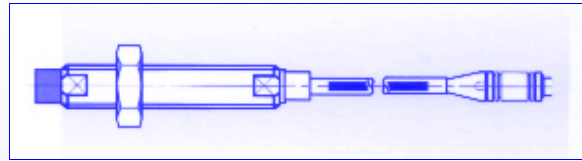
*Senturion probes are Calibrated using a standard target of steel. Other types of conductive material may affect the sensitivity of the system.*



# Eddy Current Probes for Industry **SENTURION**

## STRAIGHT MOUNT PROBES

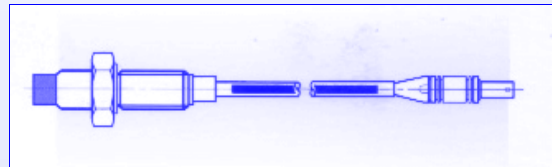
- Robust stainless steel threaded case in various lengths and threads
- Peek encapsulated tip impervious to oil or water ingress
- Suitable for forward or reverse mounting in suitable bracketry
- Supplied with free running locknut Intrinsicly safe options available
- Choice of cable lengths with or without armouring connecting directly to driver unit or to extension cable
- Operating temperature range, -30°C to + 180°C



Probe Type	Measuring Range	Tip Diameter	Data Sheet Reference
PRS O2	2.5 mm	5 mm	L156
PRS O4	4mm	8mm	L157
PRS O8	8mm	20mm	L158

## REVERSE MOUNT PROBES

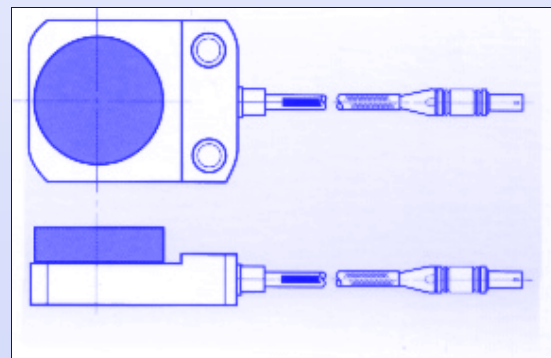
- Robust stainless steel threaded case with integral locknut
- Suitable for reverse mounting into bracketry or Sonosics probe housing
- Peek encapsulated tip impervious to oil or water ingress
- Intrinsicly safe options available
- Choice of cable lengths with or without armouring connecting directly to driver unit or to extension cable
- Operating temperature range, -30°C to + 180°C



Probe Type	Measuring Range	Tip Diameter	Data Sheet Reference
PRR O4	4mm	8mm	L159

## DISC PROBES

- Robust stainless steel body with 2 or 3 mounting holes
- Peek encapsulated tip impervious to oil or water ingress
- Range of standard bracketry available, for mounting
- Choice of cable lengths with or without armouring connecting directly to driver unit or to extension cable
- Operating temperature range, -30°C to + 180°C



Probe Type	Measuring Range	Disc Diameter	Data Sheet Reference
PRD 02	2.5 mm	5 mm	L160.
PRDO4	4mm	8mm	L161
PRDO8	8mm	20mm	L162
PRD 12	12mm	25mm	L163
PRD 18	18mm	40mm	L164

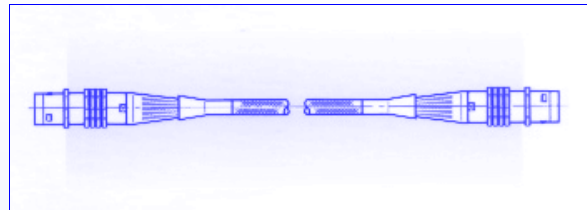
**Predictive Maintenance systems**

# Eddy Current Probes for Industry **SENTURION**



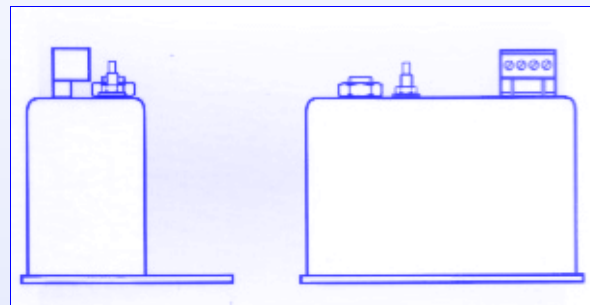
## EXTENSION CABLES

- Available in various 'tuned' lengths up to 18m. With or without stainless steel overbraid armouring.
- Various connectors, oversheaths and sealing glands are available, supplied and fitted
- Ordering details appear on relevant probe data sheets



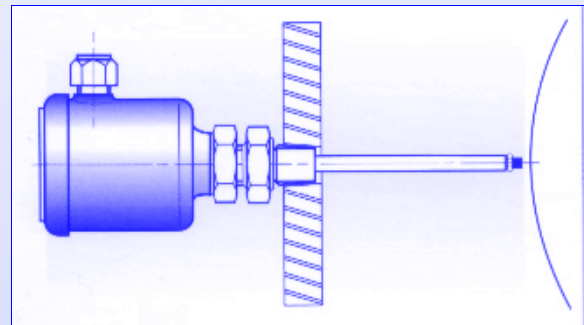
## DRIVER UNITS

- Compact design either baseplate or DIN rail mounted.
- Robust connector supplied for convenient connection/disconnection
- Electrically isolated case
- Four connections per box required
- (-24V, 0V, Signal and 0V)
- Operating temperature, -30°C to +90°C
- Ordering details appear on relevant probe data sheets



## PROBE HOLDER

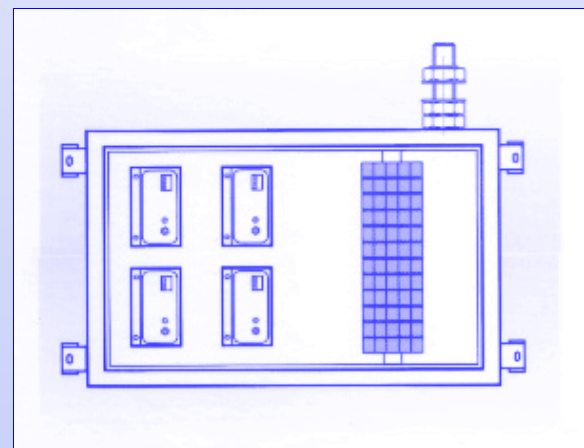
- Enables the replacement of probes without recalibration.
- Available in aluminium alloy or stainless steel enclosure
- Internal adjustment of probe insertion depth
- Sealed at both cable and probes entry points
- Up to 300 mm maximum insertion depth



## DRIVER HOUSING

- Sheet steel enclosure with removable gland plates and lockable door
- Sealed to 1P65
- Capacity for 2, 4, 6 or 9 drivers
- Fully wired with terminals fitted

Housing Type	No of Drivers	Size of Enclosure
DH2	2	240x240mm
DH4	4	240x360mm
DH6	6	2480x360mm
DH9	9	480x480mm



# Eddy Current Probes for Industry

## STANDARD FEATURES OF SENTURION EDDY CURRENT PROBES

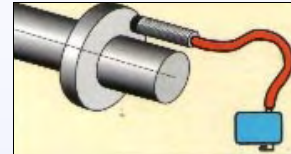
- Rugged Industrial Design
- Conforms to API 670
- Operating temperature, -30°C to 180°C, PROBE
- Operating temperature, -30°C to 90°C, DRIVER
- DIN rail mounted driver units available
- Wide power supply tolerance (-18 to 30Vdc)
- Sealed to IP 65, (PROBES)
- Frequency range DC - 10kHz
- Stainless steel case
- Radiation resistant
- Calibration adjustment  $\pm 5\%$
- Temperature sensitivity  $\sim 5\%$  at 120°C (PROBE)
- Temperature sensitivity  $\sim 5\%$  at 90°C (DRIVER)
- Output impedance less than 50 ohms
- Effect of target magnetism, less than 5% at 110 $\mu$ t
- Stainless steel overbraid on cable
- Interchangeability, less than 5% error

### Ancillary Equipment

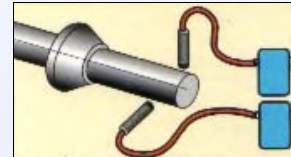
We can offer a full range of bracketry, glands and other installation aids, as well as an install and commission service.

## Predictive Maintenance systems

Shaft axial position  
measurement.  
thrust wear,  
differential expansion



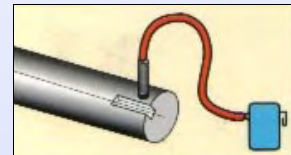
Shaft radial vibration,  
eccentricity, relative  
vibration, X & Y  
monitoring



Speed, zero speed



Phase reference  
angle, reverse  
rotation



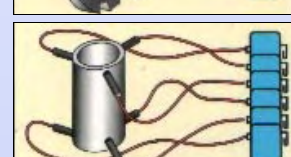
Tapered shaft  
axial position,  
(4, 2 & single  
probe systems)



Shaft axial position  
using triangulation  
patterns



Alignment



Reciprocating  
compressor  
Rod Drop  
monitoring

