



# MONITRAN

SENSING THE FUTURE

## Eddy Current Probe Guide



## **MONITRAN Eddy Current Probes**

### *Your first choice for vibration, displacement and proximity measurement*

Monitran eddy current probes provide simple, cost-effective solutions whenever you need rapid-response, non-contact measurement of vibration, proximity or displacement in your static or rotating machinery.

#### **Typical applications**

- Pumps
- Turbines
- DC gap machine tools
- Gauges
- Plain metal bearings
- Centrifuges

#### **Monitran eddy current probes at a glance**

- DC output for measuring gap between probe tip and target
- AC output for profiling behaviour of rotating components
- Resistant to contamination from oil, dirt, dust and water
- Ruggedly built and rigorously tested to withstand harsh conditions
- Manufactured in the UK to ISO 9001:2000 standard

## **MONITRAN Eddy Current Probe Drivers**

An eddy current probe driver is required for each probe. Choose the model most suited to your needs from the list below and decide whether you need voltage, current or digital output.

If you can't find what you're looking for, variations are normally available with a range of different power requirements and output sensitivities. **Simply call our helpful Sales Team on +44 1494 816569.**

### **Special Applications**

As you can see, Monitran provides a wide range of probes, drivers and housings to suit almost every situation.

If you can't find the right equipment on these pages, however, then please do not hesitate to call us on **+44 (0)1494 816569** to discuss. We may be able to use our experience, know-how and in-house design capability to tailor a solution specifically for your needs.

For further information please go to **[www.monitran.com](http://www.monitran.com)**

## Selection Tips

Use this simple checklist to help you choose the right eddy current probes for your application

### **What's your operating environment?**

All Monitran eddy current probes are designed to withstand harsh environments:

- Temperature to 180°C
- Oil, grease and water ingress to IP65
- Stainless steel overbraided ETFE cable resistant to all lubricants, common chemicals, water, steam and abrasion

### **What range do you need?**

- How far will your probes be from the target?

### **What's your target material?**

- Must be electrically conductive
- Sensitivity and linearity vary between different target materials
- Monitran probes are calibrated with stainless steel grade ANSI4140

### **How will you mount your probes?**

Rigid and careful mounting is essential:

- To ensure that any variation in gap results from variation in target position rather than probe position
- To ensure that no contact occurs between probe and target
- To ensure that no electrically conductive material approaches close enough to the probe tip to cause attenuation of the signal

### **How long do your cables have to be?**

- To assist installation extension cables can be used to a maximum length of 9 metres

### **Any other questions?**

Our goal is to make sure that you find the right eddy current probes for your application. That's why we provide:

- Informed product support
- Detailed product documentation
- Bespoke design consultancy for tailor-made solutions

So if you have any difficulties, just call us on +44 1494 816569.

## Important note

**Eddy current probe sets are individually calibrated.**

An eddy current probe arrangement consists of an accurately calibrated set of components comprising probe, driver and extension cable.

Changing any of these carefully tuned components will nullify the calibration. If any element of the arrangement needs replacement, therefore, the whole set must be returned to Monitran so that the relevant component can be replaced and the whole set recalibrated.

The exception to this is the DSPD40. With this product probes and cables of the same type and length may be safely exchanged in the field without the need for factory recalibration.

## ECPD AND ECPD+



- Standard analogue driver with voltage output, 0-16V
- DC component proportional to gap
- AC component monitors vibration
- Select either -24V or +24V power
- Alternative sensitivities and input voltages available on request
- Robustly mounted in powder coated die-cast alloy enclosure
- Fully potted electronics
- Ideal for harsh industrial environments
- Additional enclosures available for mounting multiple drivers and for increased protection

## DSPD40



- Advanced, highly versatile digital driver
- Analogue and digital outputs
- Wide range of input power options and output sensitivities available
- Sampling frequency of 40kHz compatible with highest machine frequencies
- Lightweight, DIN-rail mountable enclosure allows convenient, space-saving multiple installations
- All functions and parameters accessible via simple PC connection
- No special software required

**Note:** each DSPD40 probe must be initialised before use with the individually prepared calibration file supplied with the unit.

## ECPD60 AND ECPD85



- Three wire, 4-20mA output signals
- Suitable for use with PLCs and other industrial controllers
- 24VDC required for operation
- ECPD60 output proportional to gap for thrust measurement
- ECPD85 output proportional to peak-to-peak vibration
- Range dependent on associated probe, typically 2mm gap or 125micron peak-to-peak vibration for turbine and pump shafts

## ECPD-2 SERIES



- Two wire, loop powered 4-20mA output signals
- Suitable for use with PLCs and other industrial controllers
- 24VDC required for operation
- ECPD-2DC output proportional to gap for thrust measurement
- ECPD-2AC output proportional to peak-to-peak vibration
- Range dependent on associated probe, typically 2mm gap or 125micron peak-to-peak vibration for turbine and pump shafts

# The ECPHD080 heavy-duty eddy current probe system

## The heavy-duty eddy current probe system

- Designed for greatest protection from harsh industrial conditions
- Foolproof installation and maintenance
- Rugged IP65 cast aluminum driver housing with integral probe
- Robust construction gives many years of trouble-free operation
- Stainless steel probe sleeve tailored to exact insertion depth required
- Working gap set before final lock down
- Connection to data system or controller by appropriate cable via M20 entry
- Optional steel wire armoured cable with heavy-duty glands
- Unit can be based on any driver type highlighted in this guide
- Particularly suited to thrust or vibration measurements on pumps and turbines



## Eddy Current Probes

### General Specifications

**Case material**

Stainless steel

**Tip material**

PEEK, encapsulated with potting

**Cable**

Overbraided stainless steel

**Frequency range**

DC to 10kHz

**Probe operating temperature**

-30°C to +180°C

**Probe temperature sensitivity**

<5% at 150°C

**Maximum non-condensing humidity**

95%

**Output Impedance**

50 Ω

**Non-linearity**

<1%

**EP080**

5mm diameter, 2mm gap,  
37mm body, M8 thread

**EP200**

13mm diameter, 5mm gap,  
62mm body, M16 thread

**EP200F**

13mm diameter, 5mm gap,  
25mm flange, 3 x M3 holes

**EP340**

20mm diameter, 8.5mm gap,  
75mm body, M24 thread

**EP340F**

13mm diameter, 5mm gap,  
40mm flange, 3 x M3 holes

**EP480**

25mm diameter tip, 12mm gap,  
99mm body, M30 thread



**Alternative body length and thread available to special order**

**All probes are supplied with 1 metre overbraided stainless steel cable**

**Extensions are available up to 9 metres**



# **MONITRAN**

*A world leader in vibration,  
proximity and displacement  
monitoring since 1986*

*Established in 1986 and based near High Wycombe in the UK, Monitran is a world leader in the development and manufacture of sensors and systems for vibration, proximity and displacement measurement. The company has the widest range of such products available from any single supplier and has an impressive track record of customising products for bespoke applications.*

*With full ISO 9001:2000 and, where appropriate, ATEX and IECEx approval for use in hazardous areas, Monitran's products are used for monitoring machinery in a diverse range of industrial applications including automotive, aerospace, building maintenance, industrial processing, paper production, power generation and wind turbines. They are also used extensively in R & D, calibration and structural and equipment qualification testing.*

*Monitran is a privately-owned independent company. At present all operations are based at a single site a few miles to the west of London. The location is ideally situated for easy access to Heathrow, Gatwick, Stansted and Luton airports, as well as the M40, M4, M25 and M1 motorways and national rail.*

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## **Recommended Distributor:**