CMON 2504

Acoustic Emission (AE) Interface Card for the SKF Multilog On-line System IMx

The CMON 2504 interface card extends the functionality of the SKF Multilog On-line System IMx to include SKF Acoustic Emission Enveloping (AEE) technology. SKF Acoustic Emission Enveloping is an acoustic emission (AE) measurement method that can be used to assess lubrication conditions within a rolling element bearing while it is in service. It can also be used in combination with other SKF condition monitoring equipment and techniques to help identify a range of machinery defects.

CMON 2504 AE interface card.

Key features

- Enables use of SKF Acoustic Emission Enveloping technology
- Assessment of lubrication conditions within rolling element bearings whilst in service by use of lubrication film breakdown detection
- Enveloped demodulated AE signal at 100 mV/aeE
- Enveloping and filtering of 100 to 500 kHz band pass on AE input
- Two (2) different cable lengths (10 and 20 m) available for the cable assembly

CMSS-ONL-2504 cable assembly.

Description

CMON 2504: AE interface card for the SKF Multilog On-line System IMx

To be used with the CMSS-ONL-2504 AE interface cable assembly. The CMON 2504 can be fitted to a DIN rail.

CMSS-ONL-2504: AE interface cable assembly for the SKF Multilog On-line System IMx

The standard cable assembly includes a pre-amp embedded in the connector. The cable is intended to be used with the CMSS 786M dual sensor, which provides both acceleration and AE input signals. The sensor glue mount, which is included with the cable assembly, should be fixed to the mounting surface using a thin layer of Loctite 480 epoxy. **The use of other epoxies or sensor mounts can significantly attenuate the AE signal.**

Recommended use

The most common application for SKF Acoustic Emission Enveloping technology is lubrication condition monitoring of a bearing's rolling elements.

Installation considerations

Sensor anchoring

In most cases, the AE sensor is mounted on a bearing housing or a machine casing. Hence, the material of the casing and the distance between the source and the sensor can have a significant effect on the attenuation of the AE wave. The surface onto which the sensor is to be mounted should be free of paint, coatings or rust, have a smooth machine finish and have a suitable AE couplant between the sensor and the surface. **Fig. 1** below gives some examples of good sensor locations.

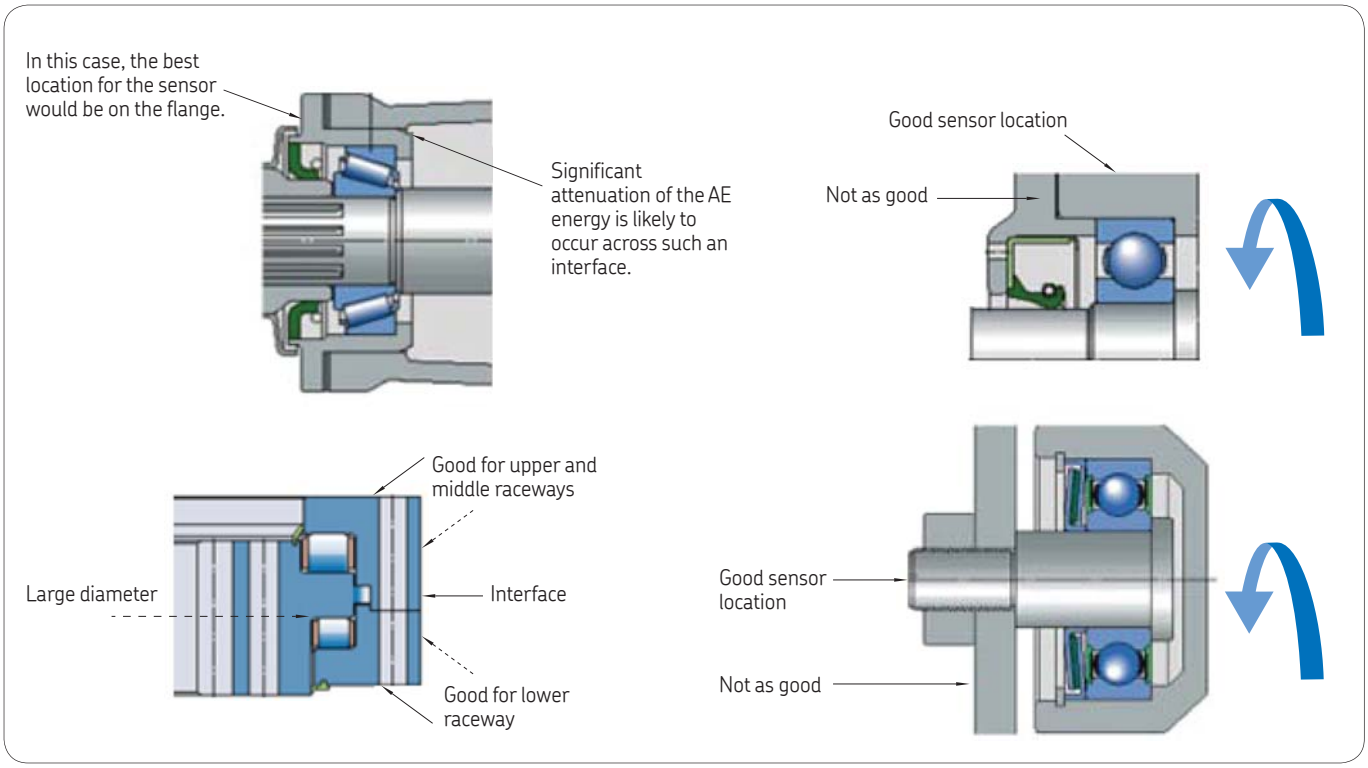

Fig. 1. Examples of good sensor locations.

Choice of couplant and adhesives

The right choice of couplant and adhesives between the interfaces are vital in order to avoid attenuation of AE. It is important to remove all traces of air between the mating surfaces (even smooth ones) by means of a couplant with an AE impedance matched closely to steel, and with the ability to last for the required period of time required for that application.

Stud method

The stud method provides the best results with least attenuation of the AE. It also has the benefit of having only one interface and not requiring any adhesive. The mating surface on the bearing or machine housing should be prepared in accordance with the specifications provided in the following table.

Table 1

Stud method specifications

Stud model	From	To	Surface preparation toolkit
CMSS 30168700	1/4-28	1/4-28	CMAC 9600-01
CMSS 30168701	1/4-28	M8	CMAC 9600-02
CMSS 30168703	1/4-28	M6	CMAC 9600-10

Specifications

CMSS-ONL-2504 AE interface cable assembly for the SKF Multilog On-line System IMx

Environmental

- Size:
  - Connector (H × W × D): Approximately 5,0 × 2,5 × 2,5 cm *(2 × 1 × 1 in.)*
  - Cable (coiled in approximately 27,5 cm *(11 in.)* diameter): 7 mm *(0.28 in.)* diameter × 10 m *(32 ft.)* or 20 m *(65 ft.)*
- Weight:
  - 0,70 kg *(1.5 lbs.)* for 10 m *(32 ft.)* cable
  - 1,35 kg *(3.0 lbs.)* for 20 m *(65 ft.)* cable
- Temperature range: –40 to +120 °C *(–40 to +248 °F)*
- Ingress protection:
  - Cable to sensor IP 65
  - Cable to gland IP 65
- Humidity: 10 to 90% relative

Input

- Dual sensor CMSS 786M

Output

- 4-core cable with accelerometer and AE signals to CMON 2504 AE interface card for the SKF Multilog On-line System IMx

CMON 2504 AE interface card for the SKF Multilog On-line System IMx

Environmental

- Size (H × W × D): 7,1 × 9,2 × 1,8 cm *(2.8 × 3.2 × 0.7 in.)*
- Weight: 0,06 kg *(0.13 lbs.)*
- Temperature range:
  - Operating mode: –20 to +60 °C *(–5 to +140 °F)*
  - Storage: –40 to +70 °C *(–40 to +160 °F)*
- Humidity: 10 to 90% relative

Power supply

- 11 to 30 V DC
- 30 mA

Input

- Accelerometer and AE signals from CMSS-ONL-2504 AE interface cable assembly

Output

- Enveloped demodulated AE signal at 100 mV/aeE
- Enveloping and filtering:
  - 100 to 500 kHz band pass on AE input
  - Single ended demodulated output

Ordering information

- **CMSS 786M** SKF Dual Sensor
- **CMON 2504** AE interface card for the SKF Multilog On-line System IMx
- Interface cable assembly (order only one of the following based on the cable length required):
  - **CMSS-ONL-2504-10** AE interface cable assembly for the SKF Multilog On-line System IMx, 10 m *(32 ft.)*
  - **CMSS-ONL-2504-20** AE interface cable assembly for the SKF Multilog On-line System IMx, 20 m *(65 ft.)*
- It is essential that the correct couplant and adhesive are purchased. See application note **CM3153**, ***CMSS 786M AEE Sensor Mounting for On-line Systems*** for details.
- For installations using an adhesive mounting stud use the **CMSS 910M** stud, and for installations using an isolated adhesive mounting stud use the **CMSS 910MI** stud.
- To verify installation, it is recommended that **CMAC 2504** is used.

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