SKF CMPT 2310 and CMPT 2310T

Low profile integral cable accelerometers

SKF CMPT 2310 and CMPT 2310T models are piezoelectric accelerometer sensors especially made for the monitoring of machinery operating in harsh industrial conditions, such as crushers, vibrating screens, conveyors, mills, etc. They have a high shock limit, excellent thermal stability, minimum mass loading effects and are highly reliable. The sensors are also suitable for monitoring other industrial equipment.

The SKF CMPT 2310T model sensor includes a precision integrated circuit temperature sensor. SKF CMPT 2310T temperature output voltage is linearly proportional to the temperature (°C) and does not require external calibration or trimming to provide high accuracy over the full 0 to 120 °C temperature range.

The SKF CMPT 2310 and CMPT 2310T sensors are hermetically sealed in a stainless steel body and have an integral stainless steel wire over-braided cable. The sensors have a low profile housing and a side exit integral cable for use in a wide range of industrial applications where harsh operating conditions and limited mounting space prevail. The stainless steel and hermetic construction makes them suitable in corrosive and wet environments. The sensor cable is double insulated and highly resistant to abrasion and wear. The sensor cable has excellent signal transmission characteristics, low capacitance, redundant shielding and high mechanical durability. The transducer and internal cable shield/ground are isolated from the sensor housing to prevent ground loops. The sensor mounting base and fastener (included) are compatible with industry standard accelerometers.

Features

- 100 mV/g sensitivity
- SKF CMPT 2310T includes an integral temperature sensor (10 mV/°C)
- Rugged design, stainless steel hermetically sealed sensor housing
- Integral 5 m *(16 ft.)* stainless steel wire over-braided, shielded cable
- Straight forward sensor interface with color-coded cabling
- Standard mounting techniques, utilizing a low profile side exit cable with recessed mounting screws
- The internal sensor capsule is isolated from the machine ground
- Low noise, highly shock resistant, and overload protected electronics

Specifications

Specifications conform to ISA-RP-37.2 (1-95) and are typical values referenced at 24 °C *(75 °F)*, 24 V DC supply, 4 mA constant current and 80 Hz.

Sensor – Accelerometer (SKF CMPT 2310 and CMPT 2310T)

- Sensitivity: 100 mV/g
- Frequency range: 1 Hz to 10 kHz
- Sensitivity precision: ±10%
- Sensitivity deviation over full temperature range: 10%, approximately –5% at –50 °C *(–60 °F)* and +5% at +120 °C *(+250 °F)*
- Amplitude linearity: < 1%, up to full scale
- Transverse sensitivity: ≤ 5% of axial
- Acceleration output range: 70 g
- Shock limit: 5 000 g peak
- Accelerometer measurement temperature range: –50 to +120 °C *(–60 to +250 °F)*

Sensor – Temperature (SKF CMPT 2310T)

- Sensitivity: 10 mV/°C
- Temperature sensor measurement range: 0 to 120 °C *(30 to +250 °F)*
- Precision: ±1,5 °C *(±2.7 °F)*

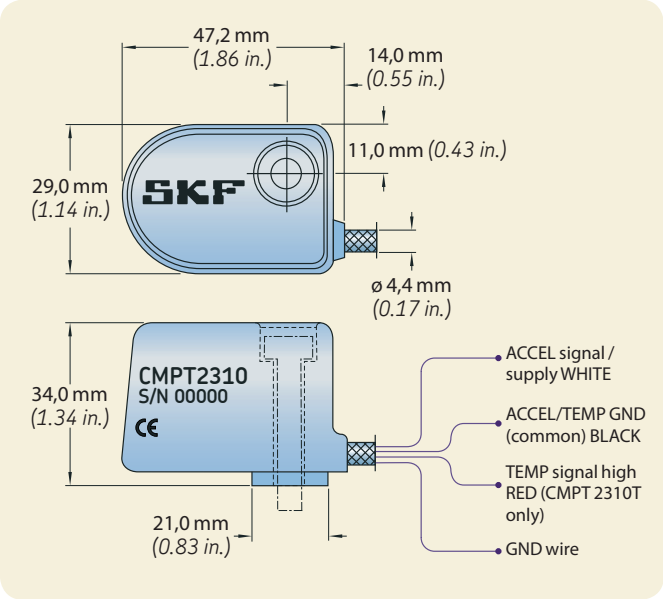
Electrical

Power requirements

- Voltage source: 24 V DC nominal, 18 to 30 V DC
- Constant current diode: 4 mA DC at 24 V, 2 to 10 mA is permissible.
- Acceleration sensor bias voltage: 11,5 V DC, ±10% for 24 V DC supply at 25 °C *(+75 °F)*
- Over voltage protection: Approximately 18 V DC
- Reverse polarity (wiring) protection installed
- Cable: Integral cable, 5 m *(16.4 ft.)* length
- Acceleration sensor electrical noise level: < 1 mg RMS broadband 2,5 Hz to 25,0 kHz
- Wire specification: 0,32 mm² (AWG 22) stranded tin copper (seven strands at 0,05 mm² each)
- Grounding/Shielding: Case isolated, internal shielding (Faraday cage), Faraday cage connected to power supply return

Wire connections – SKF CMPT 2310

- White: ACCEL signal/power (connected to constant current source)
- Black: ACCEL signal ground (GND)
- Blank twisted wire: Screen connected to internal shield



Wire connections – SKF CMPT 2310T

- White: ACCEL signal/power
- Black: ACCEL/TEMP signal ground (GND)
- Red: TEMP signal high
- Blank twisted wire: Screen connected to internal shield

Environmental

- Maximum operating temperature: 120 °C *(250 °F)*
- Storage temperature: –50 to +150 °C *(–60 to +300 °F)*
- Vibrations limits: 70 g peak
- Shock limit: 5 000 g peak
- Electromagnetic sensitivity, equivalent g, maximum: < 100 µg/Gauss at 50 to 60 Hz
- CE: According to the generic immunity standard for Industrial Environment EN 50082-2
- IEC: 529, IP 67

Physical

- Weight:
  - Sensor without cable: 210 g *(7.4 oz.)*
  - Sensor with cable: 410 g *(14.5 oz.)*
- Sensor housing material: 304 stainless steel
- Hardware: One M6 × 1 socket head cap screw (30 mm long) and one 1/4-28 UNF socket head cap screw (1.25 in. long) included
- Screw torque: 6 Nm *(50 in. lbs.)*

CE