

Loop-powered vibration transmitters series

CMSS 420VT / CMCP 420VT-T

Simply, the most economical approach to preventive maintenance

Have somebody look after your rotating machinery, including pumps, motors, fans, blowers, compressors and other machinery for too much vibration. The SKF loop-powered vibration transmitter works around the clock, seven days a week.

Features

- Solid-state reliability
- Integral sensor
- Standard 4 to 20 mA output
- Dynamic signal output for portable analyzers
- CE approved
- Approved Class 1, Division 2, Groups B, C, D for United States and Canada

Description

The CMSS 420 series are solid state, loop-powered vibration transmitters. They provide a 4 to 20 mA output that is proportional to overall vibration in terms of velocity. The series of CMSS 420 continuously monitor machinery health and transmit directly into a PLC or DCS for trending, alarm and machine shutdown. In addition, the CMSS 420VT provides access to the dynamic transducer output. The buffered output is available for temporary connection of portable analyzers for detailed machine fault analysis.

In a addition, the CMCP 420VT-T provides a second 4 to 20 mA output related to temperature.

Simple installation

Simply mount the CMSS 420VT into a 1/4-28 or M8 tapped hole in the bearing housing or machine case (NPT mounting adapters are available, part number CMSS 203), connect two wires into a 4 to 20 mA loop, and you are ready to interface with a PLC or DCS. Electrical conduit may be connected directly to the top 3/4 in. NPT fitting (NPT mounting adapters are available, part number CMSS 203).



Specifications

CMSS 420VT velocity and dynamic signal output

Dynamic

- Output: 4 to 20 mA proportional to full scale velocity
- Accuracy: $\pm 5\%$ of full-scale
- Frequency response: 2 to 2 000 Hz
- Frequency response accuracy:
 - -3 dB: 2 Hz to 2 kHz
 - 10%: 10 Hz to 1 kHz
 - 5%: 15 to 750 Hz
- Buffered output: Acceleration, 100 mV/g

CMCP 420VT-T velocity and temperature output

Dynamic

- Output 1: 4 to 20 mA proportional to full scale velocity
- Velocity accuracy: $\pm 5\%$ of full-scale
- Frequency response: 2 to 2 000 Hz
- Frequency response accuracy:
 - -3 dB: 2 Hz to 2 kHz
 - 10%: 10 Hz to 1 kHz
 - 5%: 15 to 750 Hz
- Output 2: 4 to 20 mA proportional to full scale temperature
 - From 0 to 100 °C (30 to 210 °F)
- Temperature accuracy: 2,5 °C at 85 °C (4.5 °F at 185 °F)

CMSS 420VT and CMCP 420VT-T

Environmental

- Operating temperature: –20 to +80 °C (–5 to +175 °F)
- Sealed: Epoxy encapsulated
- Case material: Stainless steel 316L
- Mounting: Stud mounted
- Weight (without display): 227 g (8 oz.)

Regulatory approval

CE Mark: SKF loop-powered vibration transmitter CMSS 420 VT and displays CMSS 420LCD and CMSS 420LED

Hazardous area ratings

- Suitable for use in Class I, Division 2, Groups B, C, D (United States and Canada)

Electrical ratings

- 22 to 36 V DC, 4 to 23 mA, provided from an external DC source rated 36 V DC maximum, 23 mA maximum. The CMSS 420VT is suitable for use in Class I, Division 2, Groups B, C, D.
- Maximum load: Up to 500 Ω resistive at 24 V DC and no display (see note – maximum load resistance calculations for specific requirements)
- Grounding: Case isolated Ω

Ordering information

- **CMSS 420VT-1**
 - 25,4 mm/s (0 to 1 in./s) RMS, includes 1/4-28 and M8 mounting studs
- **CMSS 420VT-2**
 - 50,8 mm/s (0 to 2 in./s) RMS, includes 1/4-28 and M8 mounting studs
- **CMCP 420VT-T1**
 - 25,4 mm/s (0 to 1 in./s) RMS, 0 to 100 °C (30 to 210 °F), includes 1/4-28 and M8 mounting studs
- **CMCP 420VT-T2**
 - 50,8 mm/s (0 to 2 in./s) RMS, 0 to 100 °C (30 to 210 °F), includes 1/4-28 and M8 mounting studs

Optional display

Light Emitting Diode display (LED)

- **CMSS 420LED-01**
 - 0 to 1 in./s
- **CMSS 420LED-02**
 - 0 to 2 in./s
- **CMSS 420LED-51**
 - 25,4 mm/s
- **CMSS 420LED-52**
 - 50,8 mm/s

Liquid Crystal Display (LCD)

- **CMSS 420LCD-01**
 - 0 to 1 in./s
- **CMSS 420LCD-02**
 - 0 to 2 in./s
- **CMSS 420LCD-51**
 - 25,4 mm/s
- **CMSS 420LCD-52**
 - 50,8 mm/s

Note: Maximum load resistance calculations:

DC supply voltage range: 22 to 36 V DC

$$R_L \text{ max} = \frac{V_s - 14 - V_d}{0,02}$$

R_L = Load resistance

V_s = DC supply voltage

V_d = Display voltage: 5,0 V DC for LED, 2,0 V DC for LCD, 0,0 V DC for no display

The recommended Load Resistance (R_L) for most installations is: 100 or 250 Ω at $V_s = 24$ V DC, with or without an LED/LCD display.