

# SKF Loop-powered Vibration Transmitter

## CMSS 420VT

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### Features

- Solid-state reliability
- Integral sensor
- 4-20 mA output
- Dynamic signal output

### Description

The CMSS 420VT is a solid-state, loop-powered vibration transmitter. It provides a 4-20 mA output that is proportional to overall vibration in terms of velocity. The CMSS 420VT continuously monitors machinery health and transmits 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.

### 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 4-20 mA loop, and you are ready to interface with a PLC or DCS. Electrical conduit may be connected directly to the top 3/4" NPT fitting, (NPT Mounting Adapters are available, part number CMSS 203).

### Specifications

#### DYNAMIC

**Output:** 4-20 mA proportional to full scale Velocity

**Accuracy:**  $\pm 5\%$  of full-scale

**Frequency response:** 2-2,000 Hz

**Frequency response accuracy:**

-3 db: 2 Hz to 2 kHz

10%: 10 Hz to 1 kHz

5%: 15 Hz to 750 Hz

**Buffered output:** Acceleration, 100 mV/g

#### ELECTRICAL

**Power** (Two wire loop power): +22 Vdc to +36 Vdc

**Maximum load** (see note – maximum load resistance calculations for specific requirements): Up to 600 Ohms resistive

**Grounding:** Case isolated



#### ENVIRONMENTAL

**Operating temperature:** -20 °C to +80 °C (-4 °F to +176 °F)

**Sealed:** Epoxy encapsulated

**Enclosure:** SS, NEMA 4, 4X, 12

**Mounting:** Stud mounted

**Weight** (without display): 227 g (8 oz.)

#### REGULATORY APPROVAL

**CE Mark:** SKF Loop-Powered Vibration Transmitter CMSS 420VT and displays CMSS 420LCD and CMSS 420LED

## SKF Loop-powered Vibration Transmitter CMSS 420VT

### Ordering information

**CMSS 420VT-1** 25.4 mm/sec. (0-1 in/sec.) RMS, includes 1/4"-28 and M8 Mounting Studs

**CMSS 420VT-2** 50.8 mm/sec. (0-2 in/sec.) RMS, includes 1/4"-28 and M8 Mounting Studs

### Optional display

Light Emitting Diode Display (LED)	Liquid Crystal Display (LCD)
<b>CMSS 420LED-01</b> 0-1 in/sec.	<b>CMSS 420LCD-01</b> 0-1 in/sec.
<b>CMSS 420LED-02</b> 0-2 in/sec.	<b>CMSS 420LCD-02</b> 0-2 in/sec.
<b>CMSS 420LED-51</b> 25.4 mm/sec.	<b>CMSS 420LCD-51</b> 25.4 mm/sec.
<b>CMSS 420LED-52</b> 50.8 mm/sec.	<b>CMSS 420LCD-52</b> 50.8 mm/sec.

### Accessories

#### CMSS 420LCD/CMSS 420LED Display Retrofit (requires transmitter)

LCD displays actual vibration levels in velocity on a Liquid Crystal display. LED displays actual vibration levels in velocity on a Light Emitting Diode display. The displays are shipped loose, and it is a simple installation. Includes a BNC connector that provides access to the raw acceleration signal.



#### CMSS 420BNC – BNC Adapter Retrofit

90 Degree 3/4" NPT conduit elbow with a BNC connector to access the raw acceleration signal. This is useful for connection to portable data collectors.



#### CMSS 420WF – 3/4" NPT Weatherproof Cable Fitting

When used with the CMSS 420EL, provides a simple weatherproof exit for the instrument wire.



#### CMSS 420EL – 90 Degree 3/4" by 3/4" NPT Elbow

Useful for connecting CMSS 420VT to hard or flexible conduit. When used with the CMSS 420WF, provides a simple weatherproof exit for the instrument wire.



#### CMSS 203 – Pipe Thread Accelerometer Mounting Adapter

They are provided in several NPT sizes to accommodate the most common plugs found on most machinery. The adapters have a 1/4"-28 threaded hole to mate with the CMSS 420VT and most common accelerometers and vibration transmitters.



Part number	Pipe thread mounting adapter
<b>CMSS 203-01</b>	1/2" (NPT) National pipe tapered thread
<b>CMSS 203-02</b>	3/4" (NPT) National pipe tapered thread
<b>CMSS 203-03</b>	3/8" (NPT) National pipe tapered thread
<b>CMSS 203-04</b>	1/4" (NPT) National pipe tapered thread

#### NOTE: Maximum load resistance calculations:

$$R_{Load} = (V_s - 13.5 - V_d) / 0.032$$

#### Where:

$R_{Load}$  = Load Resistance

$V_s$  = DC Supply Voltage

$V_d$  = Display Voltage (5.0 Vdc for LED, 2.0 Vdc for LCD, 0 Vdc if not using a display unit)

#### For Example:

Using a LED Display and a Supply Voltage of 24 Vdc

Supply Voltage  $V_s$  = 24 V; Display Voltage  $V_d$  = 5.0 Vdc for LED

$$R_{Load} = (V_s - 13.5 - V_d) / 0.032$$

$$= (24 - 13.5 - 5) / 0.032$$

$$= 172 \text{ Ohm}$$