

# SKF Transmitter Module (CMPT CTU)

For machinery fault detection

The SKF CMPT Copperhead Transmitter Module (CTU) is a digital vibration and temperature transmitter. It can be used as part of a machinery fault detection system. The SKF CMPT CTU can make three types of vibration signal process analysis – SKF's Acceleration Enveloping (gE), acceleration (g), or velocity (mm/s or inch/s). The type of vibration analysis is user selectable. The SKF CMPT CTU has analog output signals proportional to the processed vibration and temperature for connection to automation systems and SKF CMPT DCL alarm and display monitors. The SKF CMPT CTU can process vibration signals from the SKF CMPT family of sensors or other industrial accelerometers.

- SKF's Acceleration Enveloping vibration analysis is useful to identify repetitive impact type vibrations generated by machinery faults due to loose components, gear faults, lack of lubrication and rolling bearing damage.
- The acceleration vibration analysis is useful to monitor overall machinery and structural vibration, including machinery having journal bearings.
- The velocity vibration analysis is useful to identify overall machinery vibration levels such as looseness and unbalance and including machinery support by journal bearings.

The SKF CMPT CTU has unique features to monitor both normal speed and low speed machinery (n <40 r/min) with Acceleration Enveloping. It can also monitor unbalance down to 120 r/min with low speed velocity filter.

## Features

- Suitable with accelerometer sensors (10 to 230 mV/g)
- Temperature converter for accelerometers with integral temperature sensors
- User selectable vibration signal process analyses:
  - Acceleration Enveloping, gE (band 3)
  - Acceleration, g
  - Velocity, mm/s (*inch/s*)
- Front panel user configurable for:
  - Vibration
  - Output range
  - Optional sensor input or buffered vibration output input
  - Optional signal decay for Acceleration Enveloping Peak hold
  - Optional output signal averaging
- Analog output signals – Processed vibration and temperature for interface with PLC/DCS and SKF CMPT DCL alarm/display monitors



## Features (continued)

- 35 mm DIN rail mounted with rugged steel retainer clip
- Front panel mounted BNC connector for buffered vibration and temperature measurements (easy access for SKF Microlog).
- Front panel sensor OK/overload lamp for detection of sensor and CTU faults
- CAN-bus interface for connectivity of multiple numbers of SKF CMPT CTU and remote monitoring via computer
- Internal isolated DC/DC converter for grounding loop and reverse polarity protection
- Auxiliary 24 V DC voltage output for optional powering of other sensor types (tachometer).

## Sensors

Recommended sensors to use with the SKF CMPT CTU are:

- CMPT 2310T with integrated cable 5, 10 or 15 m (16, 33 or 49 ft.)
- CMSS 2100T top exit, with 3-pin connector (recommended cable: CMSS 933-SY-XXM)
- CMSS 2200T side exit, with 3-pin connector (recommended cable: CMSS 933-SY-XXM)

CMSS 793T or CMSS 797T cannot be used with SKF CMPT CTU due to differences in power supply of temperature sensor.

See the SKF CMPT CTU Installation Manual for additional details for the interface with sensors, power supply and monitoring devices. Tables are provided for use with 10, 30, 100, 230 mV/g sensitivity sensors. The SKF CMPT CTU should be mounted within 100 m (328 ft.) of the accelerometer sensors.

## Specifications

### Power requirements

- Supply Voltage: +24 V DC (22 to +28 V DC)
- Supply current: 250 mA, maximum
- Power: 6 W, maximum
- Sensor input:
  - Vibration: Constant current source accelerometer (10, 30, 100, 230 mV/g)
  - Optional temperature: (10 mV/°C)

### Vibration process analysis

- Acceleration Enveloping, gE (Filter band 3): 500 Hz to 10 kHz
- Acceleration, g: 3 Hz to 10 kHz (RMS and Peak Hold)
- Velocity, mm/s (inch/s), ISO: 10 Hz to 1 kHz or 2 Hz to 1 kHz
- Vibration signal decay: 1 or 10 seconds (Acceleration Enveloping only)

### Output

- Processed vibration: 4 to 20 mA/0 to 10 V DC proportional to full scale vibration
- Temperature: 4 to 20 mA/0 to 10 V DC proportional to 0 to +120 °C
- Buffered acceleration output: BNC connector, screw terminals
- Output averaging: On/Off
- CAN-bus: SKF protocol (see SKF CMPT CTU Instruction Manual for details)
- Auxiliary power: 24 V DC/20 mA maximum

**Output range:  
Full scale at 100 mV/g sensor**

	Acceleration Enveloping gE and Acceleration g	Velocity ISO-RMS, mm/s (PEAK inch/s)
Range 0	3	1,5 (0.06)
Range 1	10	5,0 (0.20)
Range 2	30	15,0 (0.60)
Range 3	100	50,0 (2.00)

## Environmental

- Operating temperature: 0 to +70 °C (32 to +160 °F)
- Storage temperature: -40 to +85 °C (-40 to +185 °F)
- Humidity: 95% maximum
- IP rating: IP20

## Mechanical

- Weight: 0,225 kg (0.102 lbs.)
- Enclosure: Thermoplastic ABS
- Color: Gray
- Connectors: Two 8-pole pluggable screw clamp type (16 total)
- Wiring: 0,2 to 2,5 mm (24 to 12 AWG)
- Mounting: 35 mm DIN-rail type EN50022 with steel retaining clip
- Minimum space between CTU's: 5 mm
- Dimensions:
  - Height: 75 mm (2.95 in.)
  - Width: 45 mm (1.77 in.)
  - Depth: 118 mm (4.65 in.)
- Approval: CE

## Ordering information

- **CMPT CTU** – CTU Vibration and temperature transmitter monitoring module
- **CMPT DCL** – Display - Copperhead alarm/display/relay module
- **CMPT CAN** – CTU USB-CAN module used for communications between computer and CTU'

