



# PRODUCT DATA SHEET

## PCH 1420 Vibration Monitor

**PCH 1420 Vibration Monitor is a protection device with 4 real-time vibration input channels, 1 tacho input and 1 process input channel. This vibration monitor combines protection with condition monitoring of roller bearings by means of a variety of bearing failure detectors like Envelope, Kurtosis and Crest factor. PCH 1420 offers 4-20 mA outputs, safety and alarm relays, a RS-485 and USB port for communication and timewave form recording of RAW data. Several features support the ISO/EN 13849-1 standard.**

### Input channels:

Up to 4 transducers: 2-wire accelerometer, velocity sensor or proximity probe (can be combined)  
 1 Process input 4-20 mA, 0-20 mA or 0-22 V  
 1 Tacho input with NPN, PNP or AC

### Sensor type:

Accelerometer, 10-500 mV/g, type IEPE:  
 Maximum input:.....  $\pm 1.8$  Vpk  
 Input overload:.....  $\pm 1.8$  Vpk  
 Transducer Bias Current:..... 5 mA

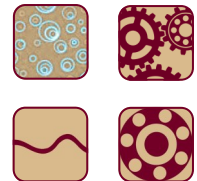
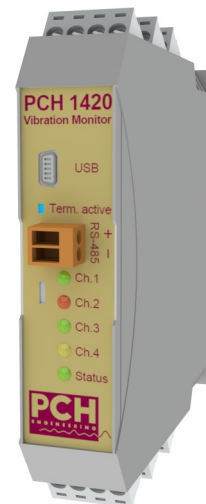
Proximity probe, 0.8-8V/mm  
 Maximum voltage input:..... -2 to -22 V  
 Peak detector, attack time:..... 1-1000 ms  
 Peak detector, decay time:..... 0.1-100 s

### Band 1 (per input channel):

Detectors:..... True RMS, Pk-Pk or Pk  
 Filter ranges:  
 Velocity:..... 0.7 to 1200 Hz  
 Acceleration:..... 0.7 Hz to 10 kHz  
 Displacement:..... 0.7 to 1200 Hz  
 Measuring parameter:..... mm/s, m/s<sup>2</sup>,  $\mu$ m, mm, mils

### Band 2 (per input channel, IEPE only):

Detectors: True RMS, 2 Envelope detectors with user defined filters from 1 - 500 Hz, Kurtosis and Crest factor (top factor) according to VDI 3832:  
 Filter ranges:  
 Velocity:..... 0.7 to 1200 Hz  
 Acceleration:..... 0.7 Hz to 10 kHz  
 Displacement:..... 0.7 to 1200 Hz



### Standard measuring ranges:

10 or 20 or 50 or 100 mm/s, 2.5 or 6 or 12 or 24 m/s<sup>2</sup>  
 Other ranges are available through user software PCH Vibration Studio®

### Standard frequency ranges:

10 Hz - 1000 Hz, -1 dB, 24 dB/oct.  
 Optional:..... 1-300, 1-1000, 0.7-10.5 Hz  
 High frequency band:..... 2-10 kHz  
 More filters bands are available through user software PCH Vibration Studio®

### Up to 4 configurable outputs:

User can configure up to 4 analogue DC outputs or alarm relays in total. DC outputs can be configured as 4-20 mA, 0-20 mA, 2-10 V or 0-10 V. Each output can be assigned to any of the measuring parameters. Output is relative to measuring range.

Voltage load:..... min. 10 k $\Omega$   
 Current load:..... max. 400  $\Omega$

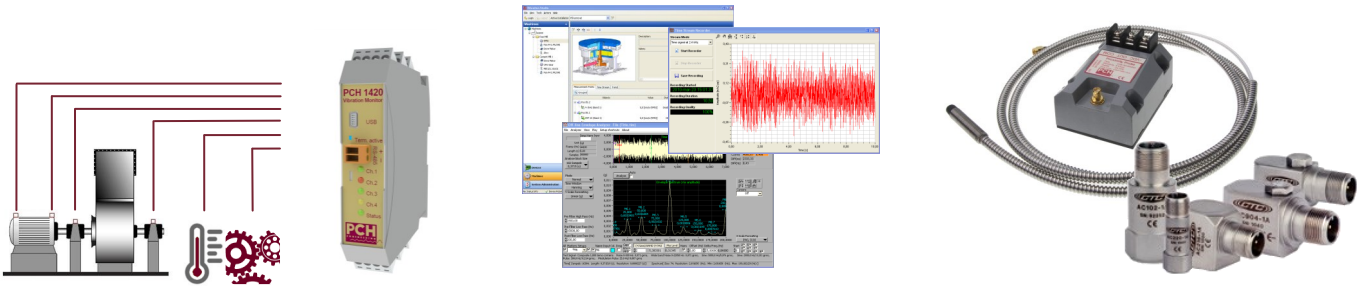
Alarm Relays: Relays with break-function, can be user configured as Alert or Danger relays with latch function or auto reset.

Max voltage:..... 30 V  
 Max current:..... 100 mA



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### Alarm detectors:

Alert and Danger alarm per each detector with adjustable alarm limits. Alarm delay time:

Alert delay time..... 0-100 s  
 Danger delay time..... 0-100 s  
 Hang time for Alert and Danger..... 0-100 s

### Safety relay:

1 redundant safety relay with break-function (power fail-safe). Danger alarms can be forwarded to this relay, when the monitor is configured as a Safety Monitor according to ISO 13849-1.

All system failures, like cable short, cable break and internal system failure, will automatically trip the safety relay.

### Test function:

Can be activated digitally or by PC. As default the alarm relays activate and DC outputs increase to the specified test level of 102 %. The user can configure the full test function through PCH Vibration Studio®.

### Timewave form recording:

Up to 4 input channels can record digital raw data (timewave form) simultaneously to a PC running PCH Vibration Studio®. The recording can be done through:  
 RS-485/LAN (buffered).....Up to 10 kHz  
 Mini USB (real-time).....Up to 10 kHz  
 Timewave form recording can be either user or event activated.

### Raw data (analogue signal):

Raw data could be obtained from a BNC connector to an external data collector through PCH Output Box. Frequency range depends on accelerometer.  
 BNC through PCH Output Box.....Up to 25 kHz

### Trending of measuring data:

All input channels can be trended and alarms can be stored when connected to either PCH EtherBridge or directly to a PC running PCH Vibration Studio®.

### Communication:

RS-485 interface.....2 screw terminals  
 Daisy chain, up to 255 units  
 USB interface:.....Mini USB/B  
 Remote access through PCH EtherBridge

### Modularity:

PCH 1420 Vibration Monitors, PCH EtherBridge, PCH Input and Output Boxes can be interconnected by means of DIN rail bus connectors.



### Front panel:

5 light diodes indicate channel status (green, yellow, red) for each of the 4 vibration input channels, as well as for general system status.

### Power supply:

+24 V DC, ±5 %, max. power consumption; 10 W

### Operating temperature:

-10 °C to + 50 °C

### Housing:

DIN rail enclosure IP20 with screw terminals

### Dimensions:

On DIN rail:.....H:110,W:23,D:114 mm

### Compliance:

CE, GOST-R, ISO 13849-1, ISO 10816, VDI 3832, API 670

PCH Engineering A/S reserves the right to change all specifications and accessories listed in this sheet without notice.

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