



# — PRODUCT INFORMATION

## PCHcompact VIBRATION SENSOR — PCH 1102

**FINALLY vibration measurements and monitoring has become cheap and easy to handle.**

Finally it's here. The simple, cheap and yet precise vibration sensor for monitoring uncomplicated machines. With the PCH 1102 it is now just as easy and cheap to monitor vibration as it is to monitor temperature.

What can go wrong in a Fan, a Pump, a Decanter, a Separator or an Electric motor? There are a number of possibilities, however two of the major possibilities are Unbalance and Misalignment, both being very destructive for a machine.

If a machine is allowed to run with an unbalance, a misalignment, eccentricity or even with a bent shaft, this will cause extra stress on the bearings and thereby reduce their lifetime. Also these machine destructive problems result in an increasing power consumption. If a machine runs for just 8 hours a day this can have a heavy impact on running cost, not to say what the impact would be if the machine runs for 24 hours a day.

Monitoring of e.g. the level of imbalance of the grinder or spindle on a CNC machine or other material handling machines can improve production quality considerably. This can be done by using the vibration level as an indicator. One benefit could be higher acceptance rates. The PCH 1102 is capable of giving you this important information.

Wiring of the PCH 1102 is well known to any electrician, since it only requires +24 V DC and the output signals are 4-20 mA and 2-10 V which easily can be connected to a PLC or a control and surveillance unit, like a CTS system.

For a quick start the PCH 1102 sensor is delivered with an Installation Guide as well as a Table with vibration limits for different machine sizes.



Vibration Sensor Type PCH 1102

SPECIFICATIONS	PCH 1102
Max. measuring range	± 5 g
Measuring parameter: Velocity	V: mm/s
Full Scale measuring value. The Full Scale value corresponds to the max. output signal (20 mA or 10 V)	10 mm/s 20 mm/s
Smallest measurable value	0.1 mm/s
Bandwidth	10 - 1000 Hz
Temperature range (operational)	-30°C to +70°C (-22 to +158F)
Shock	1000 g
Power supply (non isolated)	18 - 30 VDC, max 30 mA
Output signal	4-20 mA and 2-10 V DC
M12 connector or Cable (integrated)	M12 conn. or 2, 5, 10 m of cable
Weight	App. 110 grams
Housing (IP65)	Stainless Steel type 4305
Grounding	Signal GND connected to Chassis

# HOW TO ORDER THE PCHcompact VIBRATION SENSOR:

The PCHcompact Vibration Sensor PCH 1102 is available in different versions depending upon what is to be measured i.e. how large the signals will be, the required frequency range (see below in Technical Hints) and mounted with a connector or integrated cable. By selecting a number from the 3 areas below and writing them in the rectangular boxes respectively, you can create the precise order code to be used when ordering your PCH 1102 sensor.

## ORDER CODE:

**PCH 1102 -**  -  -

### Sensor type:

1 PCH 1102:

### Full Scale Measuring Range:

1 0 - 10 mm/s  
2 0 - 20 mm/s

### Frequency Range:

1 10 - 1000 Hz (Standard)

### Connector or integrated cable:

00 M12 connector (4 poled Male)  
02 2 meters of integrated shielded cable  
05 5 meters of integrated shielded cable  
10 10 meters of integrated shielded cable

## EXAMPLE:

PCH 1102-1-1-00 is a PCHcompact Vibration Sensor type PCH 1102 for monitoring of unbalance, misalignment, eccentricity or a bent shaft with a measuring range from 0-10 mm/s, in the frequency range from 10 to 1000 Hz, equipped with a standard industrial 4 poled M12 connector.

## **TECHNICAL HINTS**

Typically Unbalance, Misalignment, etc. is measured in Velocity (mm/s). This conforms to most vibration standards, both the general ISO 10816 and newer standards complying to a specific kind of machine.

To determine if the bandwidth of the standard PCH 1102 sensor is appropriate one should consider the rotational speed of the machine. Frequency = RPM / 60.

In the case of a fan running at 1500 rpm the frequency is equal to  $1500 / 60 = 25$  Hz. To detect unbalance the bandwidth of the sensor must cover the 25 Hz signal.

## **SUPPORT**

For advice and recommendations in the choice of measuring range, frequency range or if your special desires are not listed among the standard choices above, please contact PCH Engineering Support, Phone: +45 4576 8776.

*PCH Engineering A/S reserves the right to change all specifications in this Product Information without notice*



**The Vibration Monitoring Specialists**

**CHF1100-UK16**