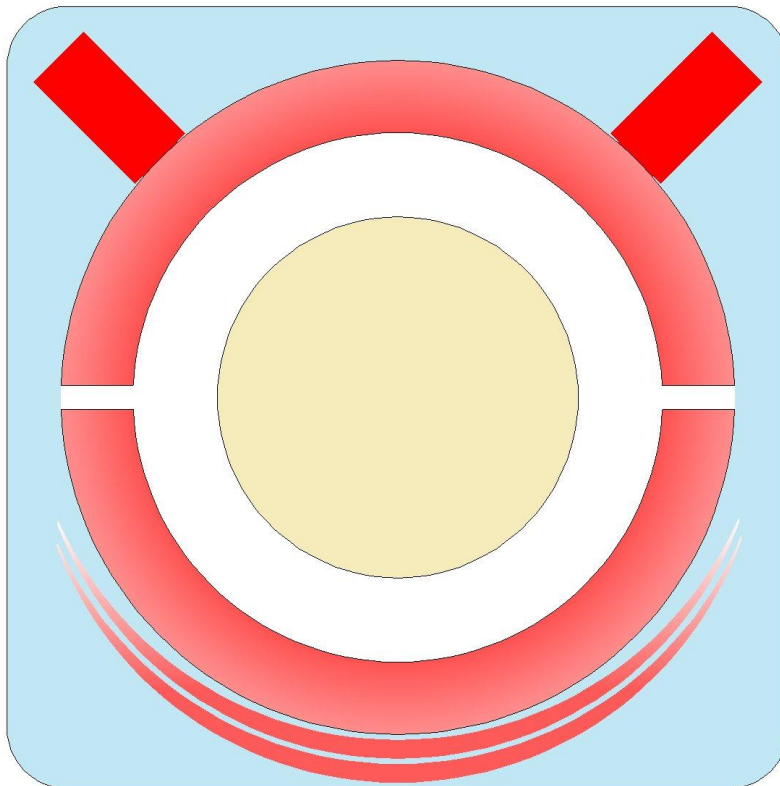


MMS 3120

Dual Channel Bearing Vibration Transmitter



- Measurement and processing of absolute bearing vibrations
- Signal inputs for electrodynamic vibration transducers
- Integrated micro controller
- Corresponds to the most common standards, such as VDI 2056/.
- Two redundant 24 V dc supply inputs
- Self-test functions for electronic circuits and transducers
- To be mounted directly at the machine
- 0/4...20 mA current outputs
- Limit supervision

Applications:

The **MMS 3120** dual channel bearing vibration transmitter is part of the **MMS 3000** transmitter system for monitoring and protecting any kind of turbo machines. It permits economic measurement and supervision of absolute bearing vibrations by using electrodynamic vibration transducers.

Application fields of the system are

all types of turbo machines, fans, compressors, gear boxes pumps and other machines.

MMS 3000 Transmitters are suitable for big systems with programmable logic controls and host computers as used in power stations, refineries and chemical plants, as well as for small plants

with only few measuring points and decentralized data processing. The inputs of the transmitter may be operated with all **epro** standard bearing vibration transducers:

PR 9268/20/30 and
PR 9268/60/70

The transmitter is not designed for the use in hazardous areas.

Function and Design:

The **MMS 3120** Dual Channel Bearing Vibration Transmitter converts the input signal of electrodynamic vibration transducers to two independent output signals proportional to the vibration velocity or the vibration amplitude (peak – peak) or to an output signal proportional to the maximum of these characteristic values.

The integrated module and sensor supervision detects fault functions of both - sensor and module electronic. In this case the status of the ok output (Channel Clear) changes and the 4...20 mA current output indicates 0 mA.

All settings are made with jumpers and DIP-switches.

The transmitters are delivered with a standard configuration suitable for most applications, if desired any other configuration can be prepared in the factory.

Technical Data:

Sensor inputs:

Two independent inputs for electrodynamic vibration transducers with "Harting" connectors; e.g. epro type PR 9268/.

Measuring ranges:

selectable by means of DIP switches:
0...5/10/25/50/100 mm/s rms vibration velocity with input sensitivities of 30/28.5/22 mV/mm/s or
0...25/50/100/125/250/500 μ m 0-peak vibration amplitude with input sensitivities of 30/28.5/22 mV/mm/s

Frequency range:

5/10...1000 Hz (DIN 45670)

Linearity error :

0,25 %

Ripple of output signal:

< 50 mVpp for measuring peak values

Stability of output signal over temperature:

Zero point:
< 0,05 %/K
Gain:
< 0,01 %/K

Stability of output signal over the time: :

Zero point:
< 0,05 %/24 h
Gain:
< 0,01 %/24 h

Analog outputs:

Current outputs:

Two, one for each channel, proportional to the measuring signal or one output proportional to the maximum value of both inputs:

0/4...20 mA or

4...20 mA

Permissible burden:

< 500 Ohm

open circuit and short-circuit proof

Cable connection via cage clamp terminals

Additional outputs:

Two test outputs, one for each channel, proportional to the dynamic input signal; also to be used for analysis- and diagnosis purposes; cable connection via cage clamp terminals.
Buffered voltage output:

± 10 V

there is one output for the "OK" status and one limit value per channel

Peak hold time:

adjustable from 5.5 ms (200 Hz) to 2222 ms (0.5 Hz) in 15 steps

Power supply:

18...24...36,0 V dc galvanically isolated by means of dc/dc converters

Current consumption:

approx. 100 mA at 24 V

Power consumption:

approx. 2.5 W

Environmental conditions:

(according to IEC 359, DIN 43745)

Housing:

Aluminium, non-corroding

Protection class:

IP 65 according to DIN 40050, IEC 144
CE certified

EMC tested:

according to EN 55011 and EN 50082-2

Operating temperature range:

-20.... max. +65 °C

Temperature range for storage and transport:

-30.... +90 °C

Permissible relative humidity:

0....95 % non-condensing

Permissible vibration and shock:

shock: 20 g over 2 ms

vibration: 5 g at 60 Hz

Mounting direction:

preferably with the cable glands showing to the bottom.

Dimensions:

w x h x d

127,5 x 125,75 x 80 mm

Net weight:

approx. 1300 g

Gross weight:

approx. 1500 g

Accessories:

Operating manual

Module and sensor supervision:

The internal module supervision continuously checks the following functions:

- the input signal is within the predefined range

- the cable between transmitter and sensor must be ok (no short-circuit / no broken cable)
- the supply voltage is within the ok-range

The state of module and sensor supervision is indicated via potential-free optocoupler outputs at the terminal strip.

Maximum electric load of the optocoupler output:

U: 48 V DC

I: 100 mA

Programmable measuring parameters:

- operating mode
- characteristic variables
- measuring modes
- measuring range
- warning and alarm limits
- output current

Limit supervision:

In the dual channel mode the characteristic value of channel 1 is supervised on alarm limit exceedings by alarm channel yellow and the characteristic value of channel 2 by alarm channel red.

In the single channel mode and in the operating mode with combined channels (e. g. $\max(x,y)$) the limit values are assigned to the common characteristic value, but may be adjusted independently from each other, e.g. yellow for Alert and red for Danger.

Maximum electric load of the optocoupler output:

U: 48 V DC

I: 100 mA

Operating modes:

The **MMS 3120** Transmitter provides different measuring modes.

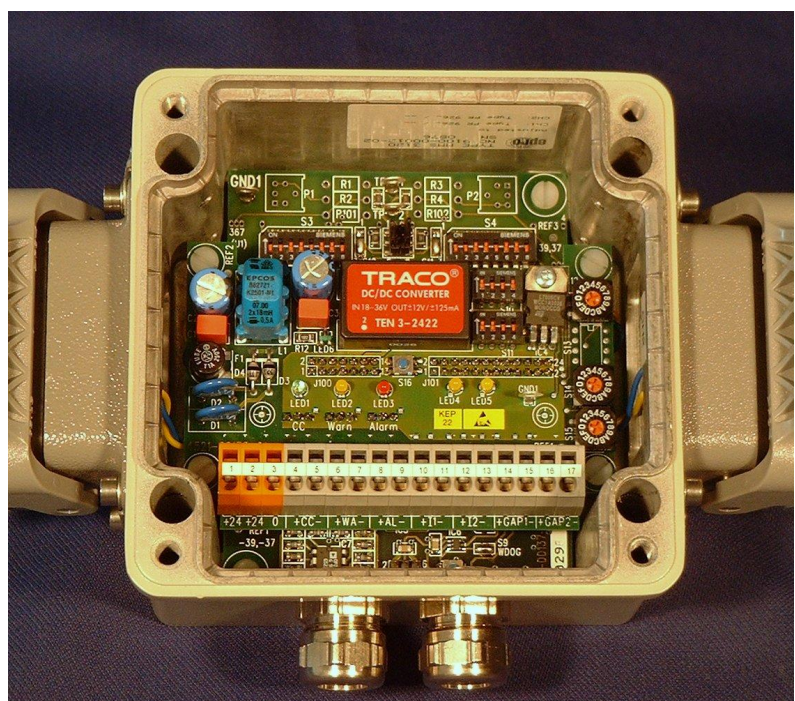
- The **MMS 3120** Transmitter provides different measuring modes.

 - Single channel mode
 - Vibration amplitude
 - S_{0-p}
 - S_{p-p}
 - Vibration velocity
 - S_{0-p}
 - S_{p-p}
 - Dual channel mode
 - Vibration amplitude
 - S_{0-p}
 - S_{p-p}
 - Vibration velocity
 - S_{0-p}
 - S_{p-p}

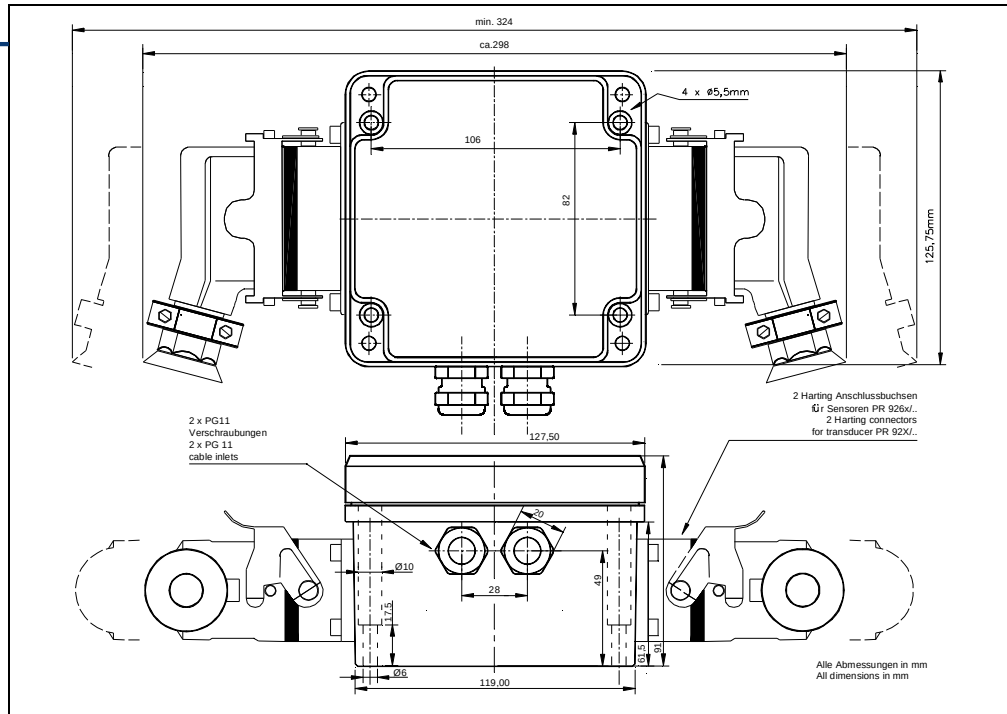
Moreover, the two channels may be combined with each other. In this mode, the following measurements can be carried out:

- $\text{Max}(x, y)$

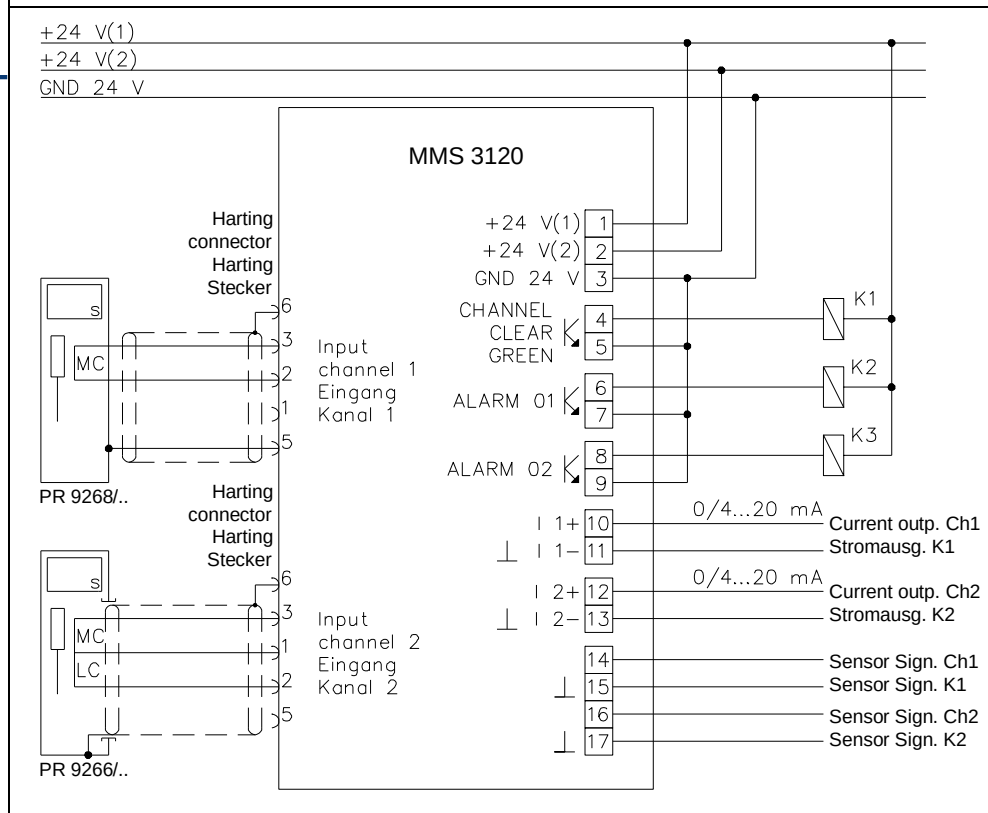
Internal view of the transmitter:



Dimensions:



Connection diagram:



Order number:

MMS 3120 Dual channel bearing vibration transmitter: 9100 – 00017