

Company: Joyoung International Trading Co., Limited

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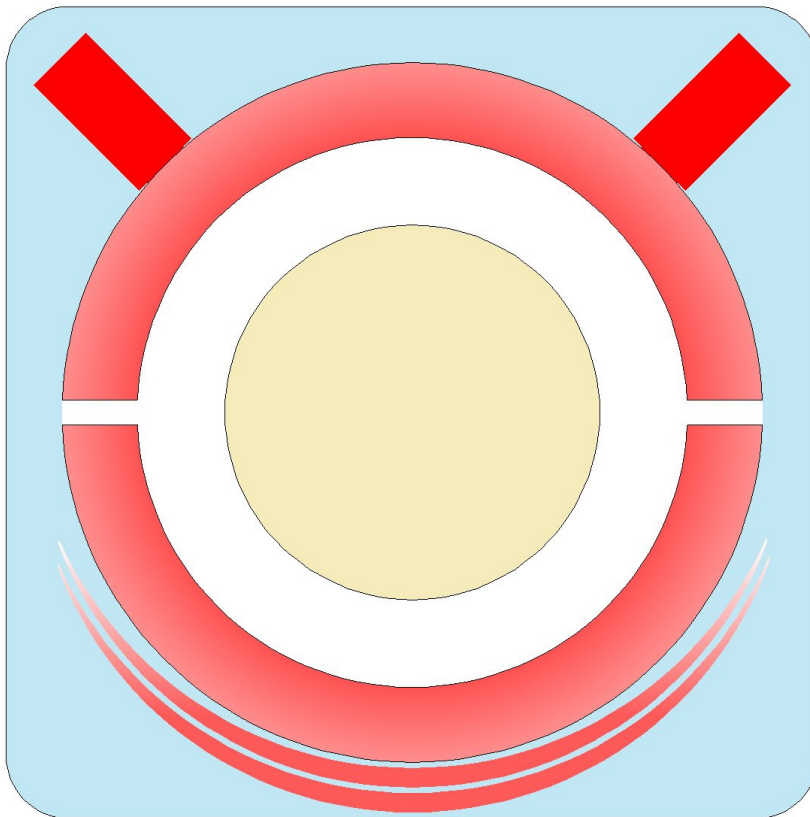
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MMS 3120/xxx-xxx

Dual Channel Bearing Vibration Transmitter for Seismic Sensors



- Highly flexible due to numerous hardware options
- Precisely adaptable to the requirements by versatile combination possibilities
- Applicable for the operation of sensors in explosive areas
- For measurement and processing absolute bearing vibration signals
- Inputs for seismic absolute vibration sensors
- Integrated microcontroller
- Corresponds to the standards VDI 2056/.. and API 670
- Two redundant 24 V DC supply inputs
- Supervision functions for electronic and sensors
- To be mounted directly at the machine
- 2 Current outputs 0/4...20 mA
- Up to 5 configurable function outputs

Application:

The **MMS 3120/..** dual channel bearing vibration transmitter is part of the revised **MMS 3000** transmitter system for monitoring and protecting any kind of turbo machines.

The transmitters of the new generation are characterised by their highly flexible hardware options and their versatile combination possibilities and can thus optimally be adapted on the demands of the respective plant.

They permit economic measurement and supervision of absolute bearing vibrations by using seismic

absolute vibration sensors.

Application fields of the transmitters are all kind of turbo machines, fans, compressors, gear boxes, pumps and similar, rotational machines.

Due to the bus capability, **MMS 3000** transmitters are applicable 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** absolute bearing vibration transducers:

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

Function and Design:

The **MMS 3120/..** Dual Channel Bearing Vibration Transmitter converts the signals of vibration transducers into two independent 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 error situations the status of the "OK" output changes and the 4...20 mA current output indicates 0 mA.

All required configurations are made by means of the **MMS 3910W** configuration software.

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 seismic vibration sensors of type PR 9268/20, PR 9268/30; PR 9268/60 and PR 9268/70
Sensor connection:
Harting connector

Measuring ranges:

Freely selectable by means of configuration software according to the measuring ranges of the applied sensors.

Frequency ranges (-3dB):

High pass filter: 5/10/15 Hz
Low-pass filter: 50...1500 Hz

Output characteristic value:

Standard:

- Two current outputs, proportional to the chosen characteristic and related to the system ground. The outputs may be freely assigned to the measuring channels.

Optional:

- Two galvanically separated current outputs, proportional to the chosen characteristic. The outputs may be freely assigned to the measuring channels.
- Without current output
Current output ranges:
0/4...20 mA or 20...4/0 mA
Maximum burden:
500 Ohm
Open circuit and short-circuit proof.

Buffered sensor signal:

Two signal outputs for analysis and diagnosis purposes one for each channel, proportional to the dynamic sensor signal. Accessible via terminals. Unfiltered voltage output:
 $\pm 5,0$ V; Error $\pm 2,5$ %

Limit value- and channel supervision:

The transmitter provides altogether 5 function outputs. Limit values can be programmed either on individual measurements or for the sum value of the combined measurements. Beyond this, the function outputs can be used to indicate the Channel Clear state. The function outputs can be freely assigned by means of the configuration software.

The following options are possible:

- Without function outputs
- 5 X opto-coupler output
 U_{MAX} : 48 V DC
 I_{MAX} : 100 mA
 P_{MAX} : 5 W
- 5 x relay contact (make contact)
 U_{MAX} : 48 V DC
 I_{MAX} : 1 A
 P_{MAX} : 50 W
- 5 x photomos relays
 U_{MAX} : 48 V DC
 I_{MAX} : 500 mA
 P_{MAX} : 25 W

Data interfaces:

Standard:

- RS 232 interface for configuration of the transmitter and for displaying of the measure data.

Optional:

- RS485 bus with epro protocol V2.0
- PROFIBUS DP

Linearity error (without sensor):

0,2% at 25°C

Linearity error (with sensor):

< 2,2 % at 25°C

Output stability over temperature:

< 0,08%/10 K

Long-term drift:

Max. 1% of f.s.d.

Power supply:

Option for redundant power supply, decoupled via diodes.

Nominal:

+24 V DC

Spannungsbereich:

+18...+31,2 V DC

Power consumption:

Depending on the built-in options.

max. 6 W

Housing:

Aluminium, non-corroding

Protection class:

IP 65 according to DIN 40050, IEC 144, CE certified.

EMC tested:

according to EN 55011 and EN 61326

Environmental conditions:

(according to IEC 359, DIN 43745)
Maximum permissible temperature of the mounting surface: 65°C.

Operating temperature range:
-20...+65°C

Mounted on 10 mm spacing bolts:
Maximum permissible temperature of the mounting surface: 90°C.

Operating temperature range:
-20...+45°C

By all means, heat concentrations must be avoided by constructive measures.

Permissible relative humidity:

0.....95 % non-condensing

Vibration and shock :

shock: 20 g over 2 ms

vibration: 5 g at 60 Hz

Mounting direction:

Preferably with the cable glands downwards.

Dimensions:

See drawing

Weight:

Depending on the chosen hardware options.

Net weight: max. 1,3 kg

Gross weight: max. 1,5 kg

Module and sensor supervision:

The internal module supervision continuously checks the following functions:

- whether the input signal is within the predefined range.

- whether the cable between transmitter and sensor is ok (no short-circuit / no broken cable).
- The system voltages.

The state of module and sensor supervision can be signalled by means of switching contacts of the function outputs. Specifications of the different options can be found in the technical data.

The most important configuration parameters:

All configurations are made by means of the **MMS 3910W** configuration software.

The configuration software is not contained in the transmitter's extent of supply and must be ordered separately.

The adjustable parameters, shown in the list below may differ, depending on the chosen operation mode and measuring function.

- KKS identification per channel
- Operating mode
- Sensor sensitivity
- Series resistance of safety barriers
- Measuring range
- Measuring mode
- Frequency range of the measurement
- Characteristical variables
- Current suppression
- Current calibration
- Current smoothing
- Shift of output current
- Zoom function for current output
- Warning and alarm limits
- Operating principle of function outputs
- Limit value hysteresis
- Response delay of alarm outputs
- Limit downscaling
- Test values

Limit supervision and Function outputs:

The transmitter provides altogether five so-called function outputs. Each of these function outputs can be assigned to a limit value as well as to the channel clear function.

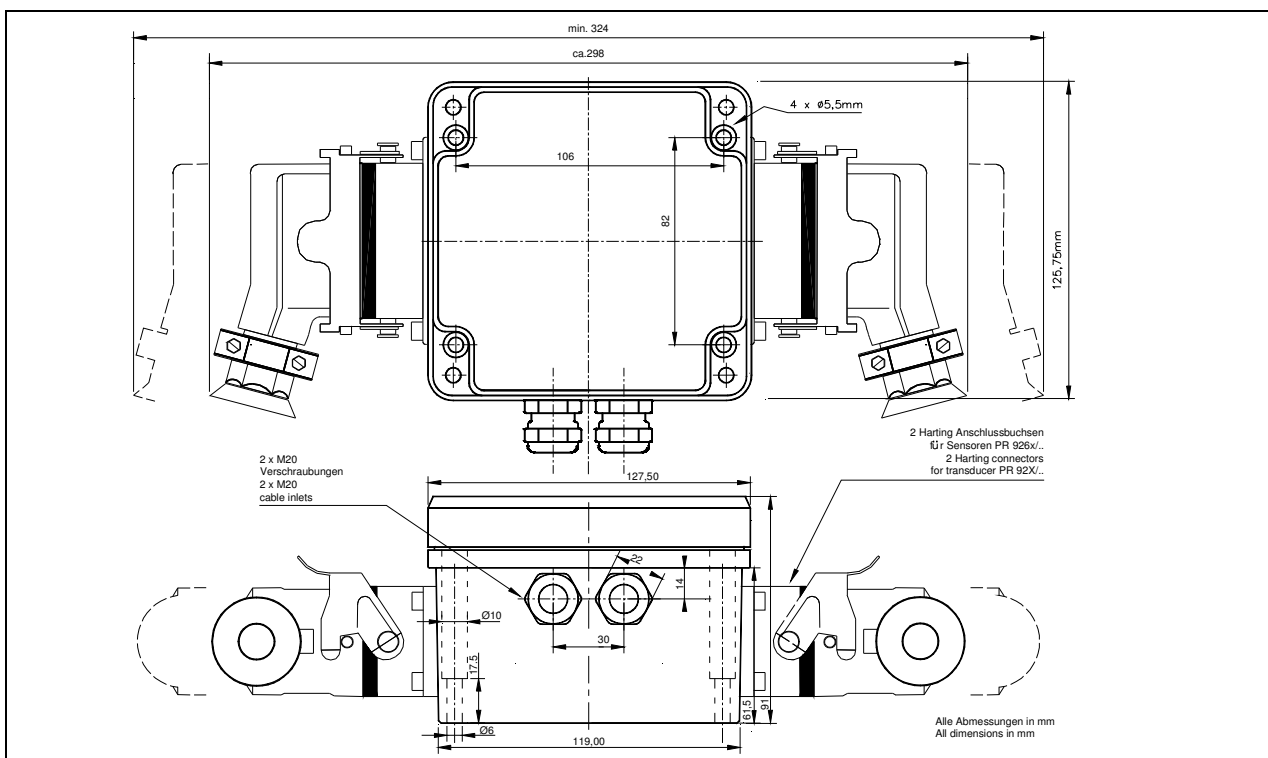
Beside this, the assignment between input channel and function output can be freely selected.

The output of channel clear can be made either individually for each channel or with a logical OR resp. AND combination.

The limit values can only be assigned to a single channel, either with or without latching function. They switch on increasing levels.

Exceeding of limit values can be signalled by means of switching contacts of the function outputs. Specifications of the function output options can be found in the technical data.

Dimensions:



Operating modes:

The **MMS 3120** bearing vibration transmitter offers provides different measuring modes, each of them to be configured by means of the **MMS 3910W** configuration software.

At the single channel as well as at the dual channel mode the following measuring modes are at disposal:

Vibration amplitude:

S_{O-P}

S_{P-P}

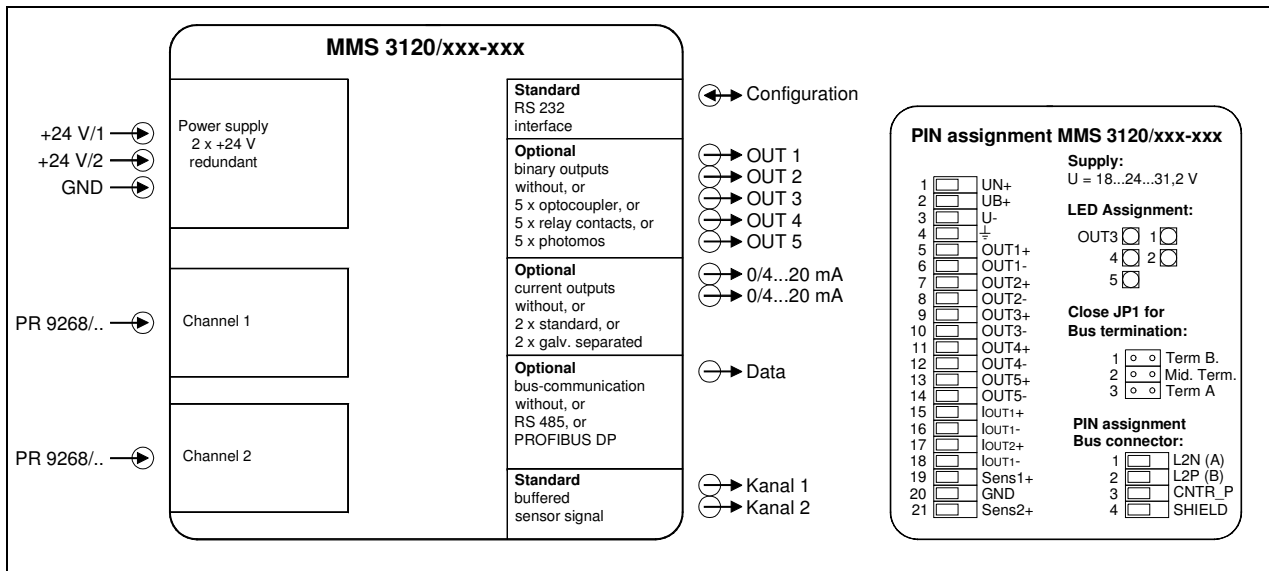
$MAX(x,y)$

Vibration velocity

V_{RMS}

$MAX(x,y)$

In- / Outputs:



Order options:

For **MMS 3120/** bearing vibration transmitters the following order options are possible:

Sensor inputs K1 and K2:

Two identical input channels, no mixed application !

- PR 9268/.. [Standard]

Communication:

- RS 232 [Standard]
- RS 485
- PROFIBUS DP

Output characteristic:

- Without
- 2 x with system ref. [Standard]
- 2 x galvanically separated

Function outputs:

- Without
- 5 x opto coupler [Standard]
- 5 x relay contact (make contact)
- 5 x photomos

Display:

- Without [Standard]
- With 8-digit display

Standard types, deliverable ex stock:

MMS 3120/010-000 Sensor PR 9268/.., RS 232, without Bus-communication, current output with common ground, no function outputs, no display. **9100-03025**

MMS 3120/011-000 Sensor PR 9268/.., RS 232, without Bus-communication, current output with common ground, with function outputs, no display. **9100-03026**

Accessories:

MMS 3910 W Configuration kit for **MMS 3000** Transmitter

9510-00023

Warning note:

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