

JPVL-52 + vibration sensor (accelerometer)

- ♦ for permanent vibration measurement
- ♦ for permanent roller bearing status measurement
- ♦ values display
- ♦ OK-Alert-Breakdown states evaluation
- ♦ 2 signals of 4~20mA current loop proportional to measured quantities
- ♦ 24V DC power supply
- ♦ DIN35mm mounting rail



General areas of application

- ♦ engines, generators, gear-boxes
- ♦ fans, compressors, wind power plants
- ♦ hydraulic turbines, pumps, ...

JPVL-52 converter - module description

The JPVL-52 module is determined for the diagnostics of vibration and roller bearing status during machine operation. It is constructed for DIN35mm mounting rail of switchboard with suitable protection against external influences activity.

Vibration and bearing states are indicated by one suitably located passive sensor – piezoelectric accelerometer. The sensor is connected by cable to the input connector of the module permanently evaluating in two frequency bands:

- 1) vibration effective speed (RMS) in band from 1Hz to 1000Hz, in adjustable measuring range from 0~10mm/s to 0~100mm/s
- 2) roller bearing surface wear by acoustic emission in band of 10~50kHz, so-called conjugated acceleration. The measurement proceeds in logarithmic units in dB, the measurement range is -10~+50dB. The initial level is set during machine operation. The value is reset to 0dB by pushing the button at the highest revolutions and then the module measures the value increase up to the basic level.

Application

The application is very simple – the sensor (accelerometer) is located at the measuring place on the machine. The best way is to screw the sensor on the bearing housing in radial or axial direction so that the vibration are measured in the requested direction. The cable from sensor is led into the switchboard (the recommended distance of the switchboard from sensors is up to 10 m) directly to the JPVL-52 module. The JPVL-52 module is connected with 24V DC power supply and appropriate outputs of 4~20mA current loops is connected to analog inputs of machine control and diagnostic system. The master system can evaluate vibration and bearings status by analog outputs of converter and stop the machine.

Converter delivery and calibration

The JPVL-52 module is delivered with the appropriate AURA accelerometer, e.g. SV156 or SV164 type. The module is calibrated with this sensor (from the manufacturer), so there's no need to do any other settings.

Converter setting

By the display and buttons on the front panel the user can adjust especially:

- 1) To reset the bearings status to 0dB during operation
 - 2) To change the limits for measured quantities evaluation
- During the common operation the display shows the measured values and levels, there's no need to use the control elements (unattended operation).

Power supply, outputs

The module is fed by the DC current, 24V voltage. The supply voltage and the active current outputs 4~20mA are led into the pluggable connector terminals on the bottom of the module. If is necessary to fed the JPVL-52 module from the common distribution network of 230V/50Hz, the power supply of DC current has to be used.

Basic technical data of JPVL-52 module

Module power supply	24V DC/200mA
Analog outputs	2 x 4~20mA, proportional to measured quantities
Display	LED alphanumeric 4 characters, with rotating display
Indication	9 x LED colour indicators for machine status indication
Control	2 x control button with combined function
Measured quantities (adjustable from manufacture)	<ul style="list-style-type: none"> ♦ RMS vibration speed 0~10,20,50,100mm/s frequency range 1,3,10Hz~100,1000Hz ♦ conjug. acceleration -10~+50dB, 10~50kHz
Sensor	SV156 ($K=3pC/m.s^{-2}$) – for vibration frequencies 3Hz~1000Hz SV164 ($K=10pC/m.s^{-2}$) – for vibration frequencies 1Hz~1000Hz

Design and operation conditions of JPVL-52 module

Module design	DIN 35mm mounting rail
Material of housing	ABS plastic
Protection	IP20
Operation temperature	-20 to +70°C
Dimensions (w x h x d)	34 x 90 x 138 mm