amc VIBRO

AV MONITOR 1000E

ONE CHANNEL ROTATING MACHINERY CONDITION MONITORING SYSTEM

USER MANUAL

2017

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1. Introduction

AV MONITOR 1000E (*AVM 1000E*) is a universal module for condition monitoring of rotating machinery with constant and variable rotational speed.

The features of *AVM 1000E* are as follows:

- ICP® (IEPE) standard accelerometer input,
- 4...20 mA output proportional to signal estimate,
- vibration velocity or acceleration measurement,
- calculation of RMS or 0-PEAK values,
- build-in connector for AC voltage signal from the vibration sensor (10 V_{pp}),
- DIN rail mounting.

AVM 1000E is a perfect solution for automated protection systems of rotating machines. The device can be integrated with the controller via 4...20 mA current output. The 10 V_{pp} AC voltage output allows to control vibration level using a portable vibration analyzer.

2. Front panel description

Measurement chain diagnostics for IEPE sensor:

- **Indicator of the sensor status:**

Res LEDs:

  - *open* – open circuit or sensor failure
  - *short* – short circuit or sensor failure

- **Indicator of the selected estimate:**

Green LEDs:

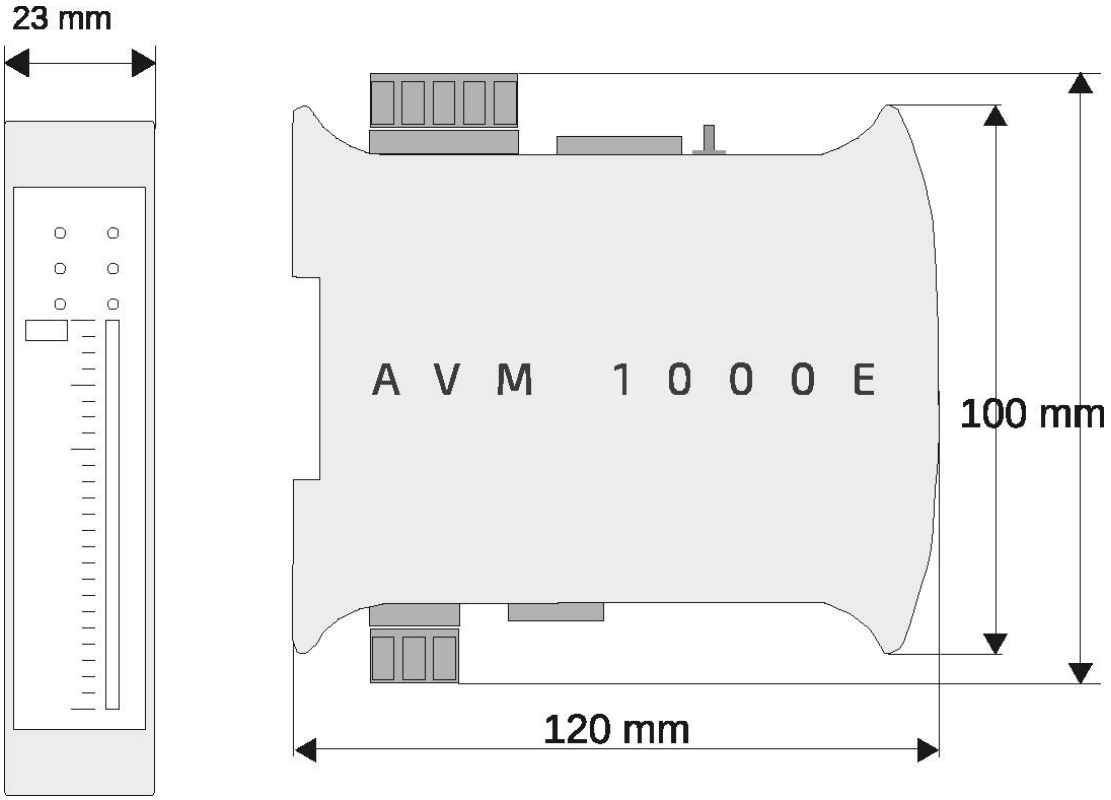
  - *RMS* – RMS value of vibration signal
  - *PEAK* – maximum value of vibration signal (0-Peak)

- **Indicator of the selected measured value:**

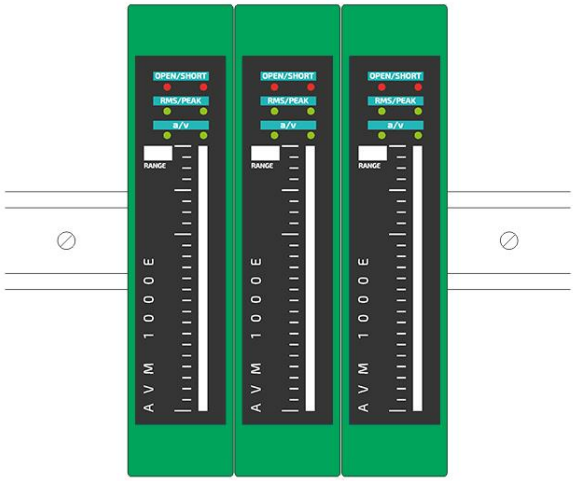
Green LEDs:

  - *acc* – acceleration
  - *vel* – velocity

3. Module dimensions



4. Mounting



AVM 1000E module is designed for mounting on 35mm DIN rain in an upright position

5. Electrical connectors

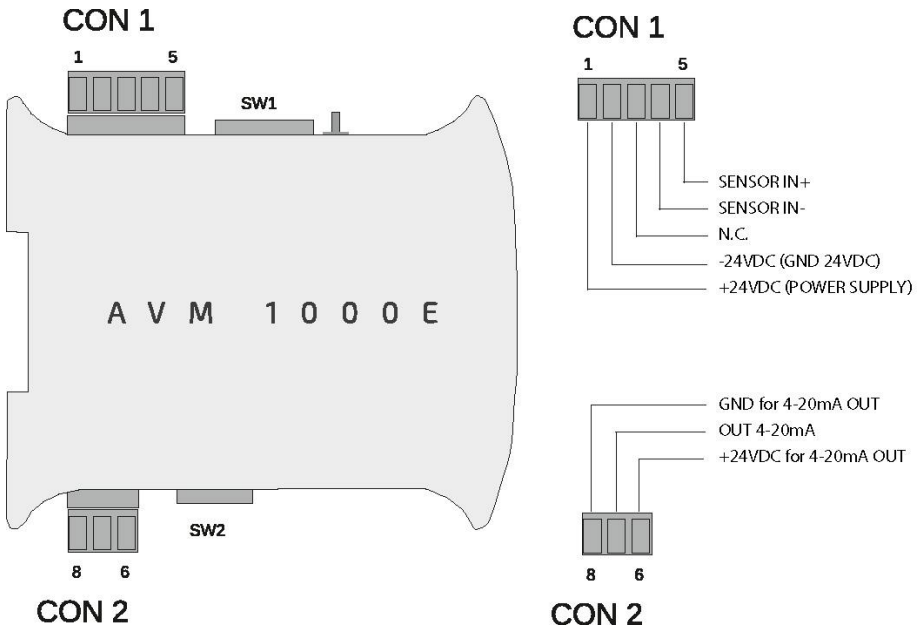


Figure 6-1 // Description of the connectors

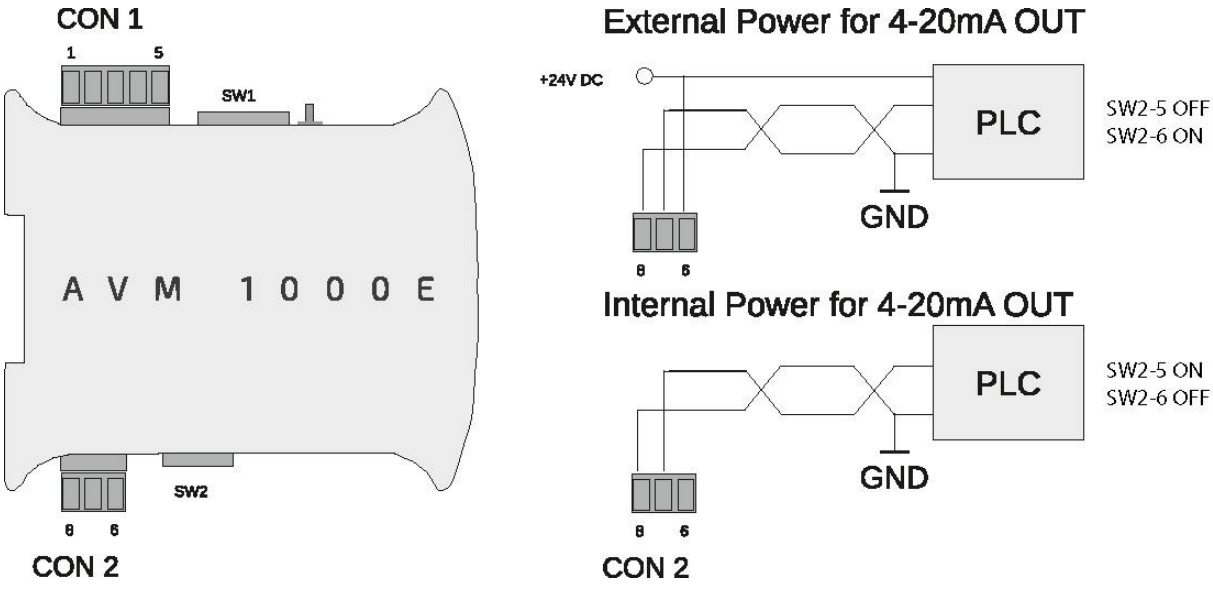


Figure 6-2 // 4..20mA current loop connection

6. Activation

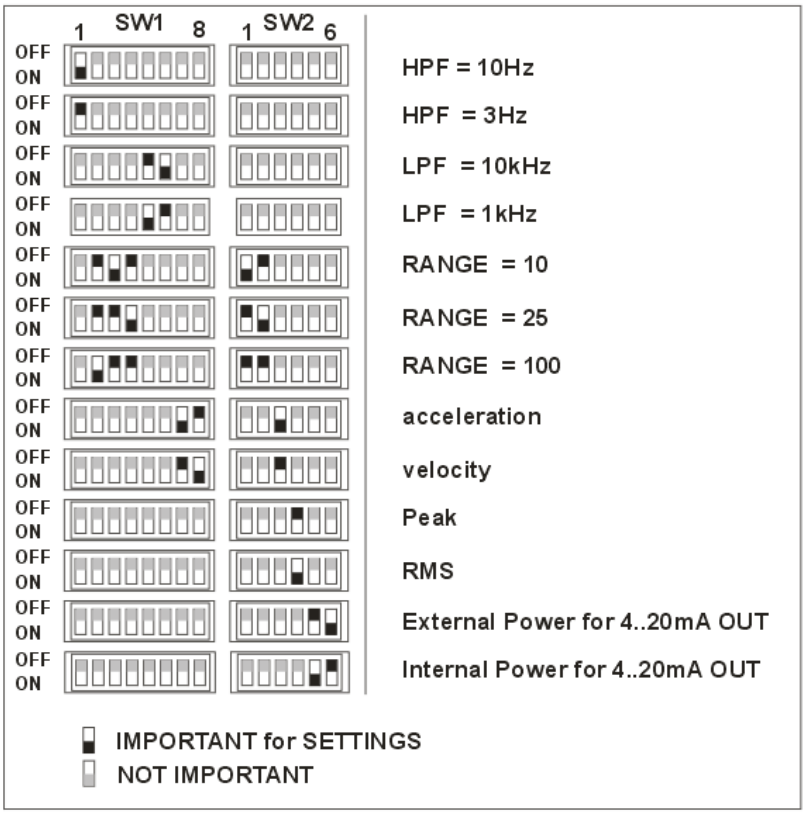
After connecting the power, the *AVM 1000E* module enters into testing procedure. Subsequently all display's LEDs will flash for a short period of time. Once the testing procedure is over, the device is ready to operate. If an error of a sensor circuit is detected, then the *open/short* diode will lit.

7. AVM 1000E configuration

Measurement parameter configuration is set by proper set-up of configuration switches SW1 and SW2.

Functions of configuration switches

SW 1	SW2
	
S1 – ON, HPF=10Hz (OFF=3Hz)	**S1** – ON, range 10 (OFF, range 100)
S2 – ON, range 100	**S2** – ON, range 25 (OFF, range 100)
S3 – ON, range 10	**S3** – ON, acceleration (OFF, velocity)
S4 – ON, range 25	**S4** – ON - RMS (OFF - PEAK)
S5 – ON, LPF = 1kHz	**S5** – ON, internal power supply+24V for 4..20mA
S6 – ON, LPF = 10kHz	**S6** – ON, external power supply for 4..20mA
S7 – ON, acceleration	
S8 – ON, velocity	



Example:

Monitoring of the RMS of the vibration signal velocity, using 3 Hz high pass filter and 10 kHz low pass filter, for 100 mm/s range and internal power loop, the following configuration of the switches must be set:

SW1

OFF	ON	OFF	OFF	OFF	ON	OFF	ON
1							8

SW2

OFF	OFF	OFF	ON	ON	OFF
1					6

WARNING!

The set - up of the switches configuration should be done on a switched off device. If the set - up was done on an operating module, it needs to be restarted in order to activate the new configuration.

8. Technical parameters

Parameter	Value
Sensor type:	IEPE, 100mV/g , 8mA/20V
Measured values:	velocity, acceleration
Types of estimates:	RMS, 0-PEAK
Power supply:	24 VDC (18..36 VDC)
Power consumption:	< 4 W
Low pass filter:	1 and 10 kHz, 24dB/okt, 4^{th} order
High-pass filter:	3 and 10 Hz, 12db/okt, 2^{nd} order
Insulation:	1kV DC (2 or 3 kV DC optionally)
Current output:	2 or 3 wired 4..20 mA current loop
Voltage output:	AC, $10V_{pp}$ max
Operating temperature:	-20..+60^{o}C
Operating relative humidity:	< 95% RH
Protection class:	IP40
Dimensions:	23 x 100 x 120 (W x H x L)
Mounting:	35 mm DIN rail