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OPERATING AND ASSEMBLY INSTRUCTIONS

VIBRATION MONITORING SYSTEM
VMS ATEX

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1. INTRODUCTION

The VMS system is intended for continuous monitoring of fan parameters (Vibrations, temperature of the motor windings). VMS allows measurement of signals from 1 vibration sensor in ATEX execution for zones 1 and 21, maintaining the security integrity level SIL1.
The automatic box has been designed for installation in a safe zone.

Standard system uses two sensor NC contacts, one contact oversees the safety relay, while the second activates the interface relay with information on exceeding the first alarm threshold. The system has been equipped with a PTC relay (for ATEX zones) to which should be connected a signal from PTC sensors located in the motor winding. An additional option of the system is the ability to read vibration values (4-20mA analog signal).

2. TECHNICAL DATA OF THE SYSTEM

Power		230VAC, 50/60Hz
Current max.		1,5 A
Overcurrent protections		Type C, 2A
Sensor	Vibration range	0-16 mm/s V_{rms}
	Ambient temperature	-30˚C…+60˚C
	Measurement range	10 Hz...1000 Hz
	Output signals	1 x 4…20mA, 2 x relay contact
	IP	67
IP housing		54

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3. INSTALLATION

The delivered system is ready for use. All you need to do is do the following:
- connect power contactors supplying the fan in accordance with a diagram,
- connect the power supply (according to the provided diagram),
- set the sensor's vibration thresholds.

The device may only be installed by qualified and authorized personnel (with appropriate qualifications), in accordance with health and safety rules, relevant legal regulations in force in Poland and the instruction manual of the device.

The cable from the sensor should be placed in such a way that it will not be exposed to mechanical damage.

A. Mounting the sensor

Mounting the sensor is done by screwing to the appropriate surface with the M8 screw. The housing cover should be tightened with a torque wrench.

Fig. 1 (sensor connection)

B. Connecting the power supply

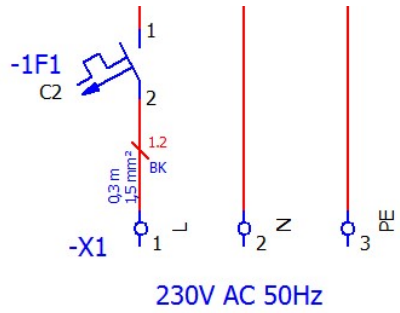

Fig. 2 (Some of the electrical documentation)

ATTENTION!
Although the overcurrent switch is turned off, there may still be voltage in the cabinet.

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C. Motor connection diagram

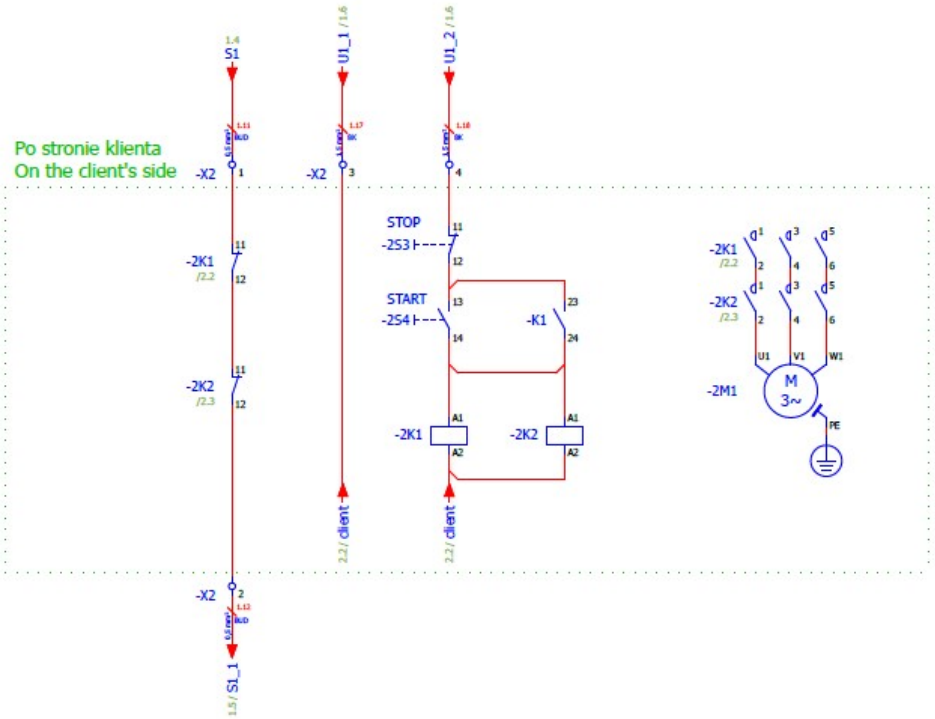

Fig. 3 (Motor connection - according to electrical documentation)

4. START-UP

After properly tightening the sensor and setting the appropriate vibration range setting (table included in the fan operation and installation manual) using the knobs on the sensor (Fig.4). As well as after the correct electrical installation we can start supplying power to the VMS system.

At the first start-up, the system is in the state of passivation (safety relay in the state of opening control contacts, the RESET button lights up in blue), for the system to be reactivated, press the RESET button. The transition to the state of reactivation of the system will be confirmed by switching off the blue diode.

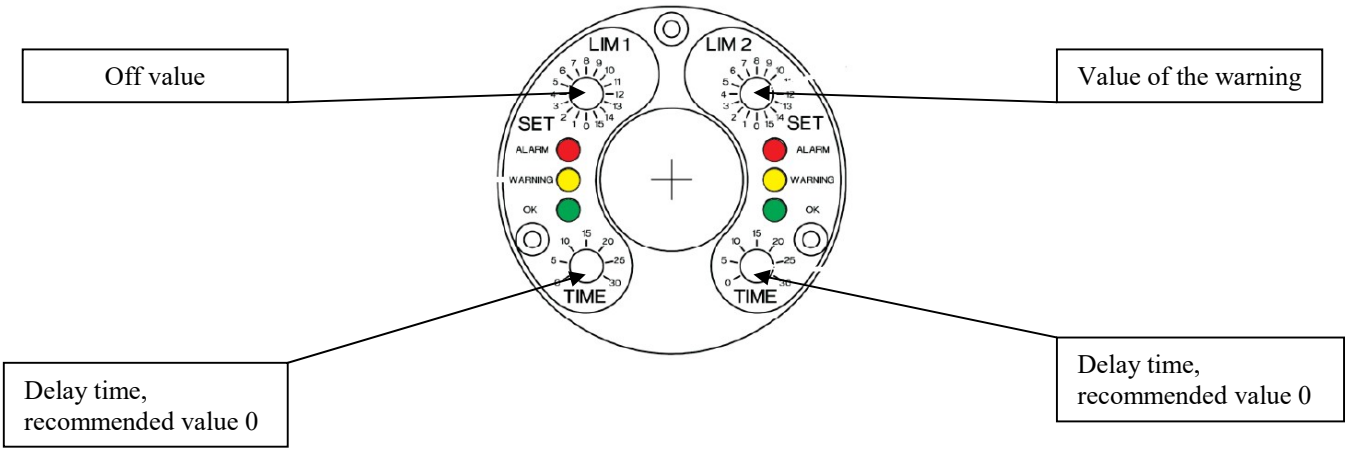

Fig. 4 (Setting of sensor ranges)

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5. OPERATION AND EXPLOITATION

A. Measurement

The system has been adapted for continuous monitoring of vibration parameters and temperature of motor windings.

B. Test of periodic functions

The system provides for the use of a vibration sensor test function to check the safety function. The test is carried out by pressing and holding the TEST key for 5 seconds. At this time, the system should pass into a passivation state, the RESET button will light up blue.

The time intervals of the test depend on the device's operating time (more information the tests, see the vibration sensor manual).

C. Detection of vibrations

The system is working properly (vibrations in the standard), the green LED informing about the DC voltage supply is on.

Information on exceeding the alarm threshold can be downloaded from the potential-free contacts of the -4K3 relay.

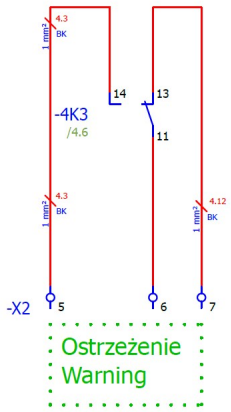

Fig. 5 (Warning information)

The blue diode informs us about exceeding the threshold of switching off the VMS system. The diode lighting is equivalent to the activation of the safety relay. After lowering the vibrations on the tested object and detecting by the sensor a lower vibration value in relation to the given shutdown threshold, the system is still in an inactive state. The system reintegration is done only by manually pressing the RESET key.

D. Detection of too high temperature

The VMS system has been equipped with a PTC temperature transmitter. This sensor is adapted to measure the PTC value placed in the explosion hazard zone.

After exceeding the temperature value for which the PTC sensor was designed, the relay will operate and the VMS system switches to passive mode. Reporting this status will be visible by lighting up the blue and red LEDs. After lowering the temperature, the VMS system will not return automatically. This possibility exists only by manually pressing the RESET button located on the relay housing -3U3 (Fig.5) which will cause the device to be reset and the red diode to be

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extinguished. Then press the RESET button on the cabinet housing to reactivate the security system.

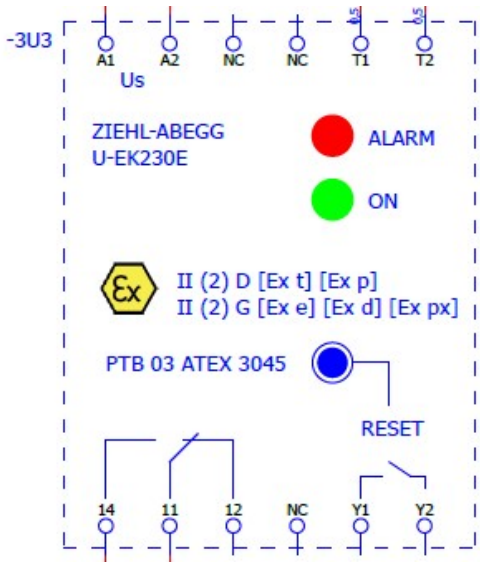

Fig. 5 (PTC relay)

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E. Housing - buttons and controls

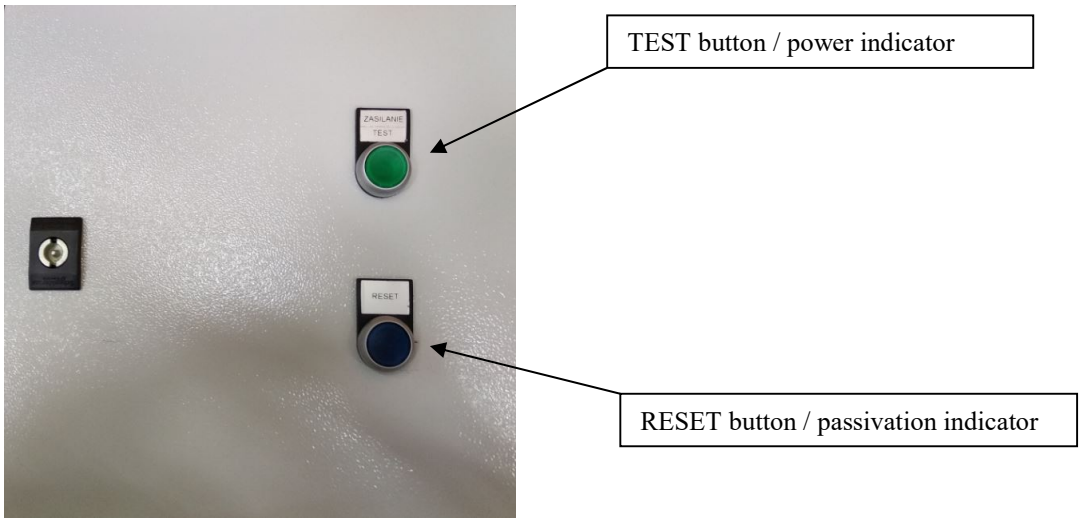

Fig. 6 (Front panel - no power supply)

Fig. 7 (Front panel standby status - correct condition)

Fig. 8 (Front panel - passivation)

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