

- ◆ utilization in industrial technological processes
- ◆ control of the loose material transport
- ◆ indicator of leakages in pressure gases and steam distributions
- ◆ indicator of cavitation
- ◆ indicator of bearings damage
- ◆ indicator of partial electrical discharges



Purpose

The UES 600 sensor is determined for a detection of ultrasonic emission in the frequency range about 40 kHz. It will find its utilization for the detection and quantification of processes producing this emission. The sources of emission are most often the disruptions in circular areas of roller bearings, leakages in pressure distributions, dry friction and cavitation. The sensor than could be used for detection of bearings damages, cavitation rise in turbines and pumps, indication of loose material transport, indication of attendance of solid particles in gas and liquids flows.

This sensor is determined for using in hard operating conditions at limits mentioned below. The most important limit is to use the sensor till environmental temperature 240°C.

Use

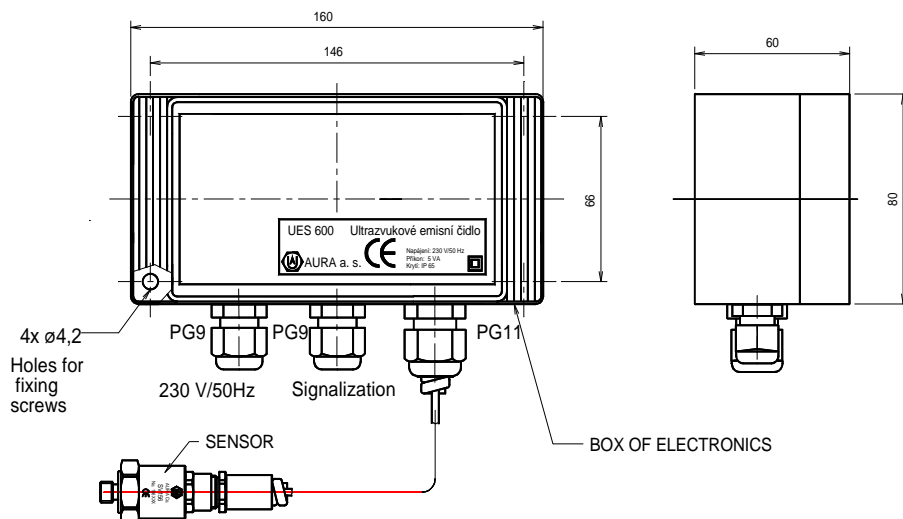
The sensor UES600 works on the principle of measurement of low-amplitude and high frequencies via a piezoelectric element. The measured quantity is the vibration amplitude. The signal scanned by the sensor is amplified and modified. The sensor measures the median and peak-to-peak value. The peak-to-peak value is only displayed. Except displaying, the median also compares with default value and transmits via current loop.

The device consists of two parts (see Pic No. 1) – Electronics and sensor box. The piezoelectric accelerometer SV156 can be used as sensor for the contact measurement. For the contactless measurement we can use the ST609 pressure sensor.

The sensor finds its using at rotation machines diagnostics – mostly the bearings damage. It can be used as an indicator of dry friction rising e.g. as a result of rotating parts contact. We can also use the sensor at transport of loose material or an indicator of material flow stop or start, as a meter of flow of solid parts (dust) drifted by liquid etc.

ST609 can serve also as an indicator of cavitation and impressions in systems in hydraulics. It also finds its using as an indicator of liquid outflows, namely both of gases and liquids. E.g. at valves leakage or as an indicator of gases outflows from pressure mains.

The ST609 sensor can be also used as an indicator of partial discharges in insulators, discharges indicator, indicator of brush discharge rise etc. by the electric machines. Its using indicates in time the future electric punctures.



Pic No. 1 UES600 Ultrasonic emission sensor

Parameters		
Parameter	Unit	Value
Power supply		
Power supply	V	230 / 50 Hz according to the ČSN IEC 38 standard
Input	-	5 VA
Protection class	-	II according to IEC 536
Protection	-	fuse, T63 mA
Signal output		
input voltage range		500 μ V up to 0,5 V
middle frequency	KHz	40
input impedance	M Ω	3
Output – switching relay contact		
setting range of comparator	%	5 up to 95
setting range of time delay	s	0,1 up to 10
load	-	max. 230 V, max. 5 A ss, 2 A st
breaking ability	A	5 1,5 2
		24 V ss 60 V ss 230 V, 50 Hz
Output – current loop		
kind of loop		0-20 mA, active, galvanically separated
max. output voltage	V	10
min. output voltage	mA	0
max. output current	mA	25