VS202 Smart Vibration Sensor (RS485 version)
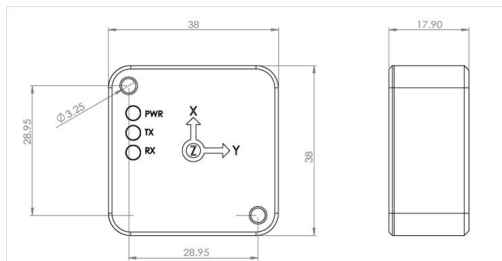
Introductio

The VS202 is the highly accurate and cost-effective machine health monitoring system. It assembles several vibration sensors with built-in intelligent computing functions, which can actively sense the health status of equipment, and transmit the computing results to the field control system via open transmission protocols.

It is a RS485, triaxial (X, Y and Z), high-bandwidth, smart vibration sensor, which can instantly diagnose the health status of machine.

The built-in time domain data cleaning and RPM identification functions can handle the monitoring and diagnosis of variable frequency rotating machine and non-rotary equipment easily.

Application

Providing early warning diagnosis and remaining life estimation of components in high-speed rotating machine, motor, gearbox and non-rotary type equipment, such as robot and linear guide.

Model			VS202
Vibration measurement capability	Measurement direction		Triaxial (X, Y and Z)
	Amplitude		±16 g
	Sensitivity (±5%)		0.488 mg / LSB
	Frequency response		5 - 5 kHz
	ADC resolution		16 bits
Temperature measurement capability	Measurement Range		-20°C to 85 °C
	Sensitivity (±5%)		256 LSB/$^{\circ}$C
	ADC resolution		16-bit
Computing capability	CPU		Arm® Cortex®-M7 32-bit RISC
	Clock speed		480 MHz
	Flash memory		2 Mbytes
	RAM		1 Mbyte
Environmental resistance	Temperature		-20°C to 85 °C
	IP grade		IP65
Power supply	Power voltage		12 to 24 VDC
	Power consumption		0.45 W
	Reverse voltage protection		V
Feature extraction and fail modes identification	Data update rate		1 set/s
	Sampling rate		~ 26,667 Samplings/s
	Sampling mode	Successively sampling	V [1*]
		Software trigger	V [1*]
		Hardware trigger	V [1*]
	Time domain data cleaning		V
	RPM identifier		V
	Time domain features	Overall (mm/s)	V
		Peak (mm/s)	V
		Peak to peak (mm/s)	V
		Crest factor	V
	Frequency domain features	Power in band	30 sets
		Power in order	(10 sets for each X, Y and Z axis)
	Fail mode identification	Energy of fail-modes	Unbalance, Misalignment, Looseness, Bearing defect, Gear mesh defect, Vane pass defect
	Failure alarm	Caution	V
		Warning	V
Communication	Method		RS485
	Protocol		Modbus
	Distance		100m
	Upload	Raw data	X
		Time domain features	V
		Freq. domain features	V
		Energy of fail-modes	V
		Failure alarm	V
	Download	Sampling mode	V
		Trigger mode	V
		Band definition	V
		Failure alarm	V
		FOTA	X
Appearance	Dimensions		38 x 38 x 18.1 mm
	Housing material		Aluminum alloy
	Water-proof method		Seal
	Wire		Flexible, insulated, 1m of length
	Wire connector		Pigtail v [2*]
	LED for running status		V [3*]
	LED for communication status		V [4*]
Device Management	Acquisition mode configuration		V [5*]
	Trigger mode configuration		V [5*]
	Fail mode definition configuration		V [5*]
	Alarm threshold configuration		V [5*]
	FOTA		V [5*]

1* Configurable through utility
2* RED: 12-24 VDC in, BLACK: GND, GREEN: A, YELLOW: B, BLUE: Hardware trigger (TTL), BROWN: Reset to default (TTL), Thick BLACK: Shielding
3* GREEN LED Flash
4* RED and Orange LED Flash
5* Manage through device management utility