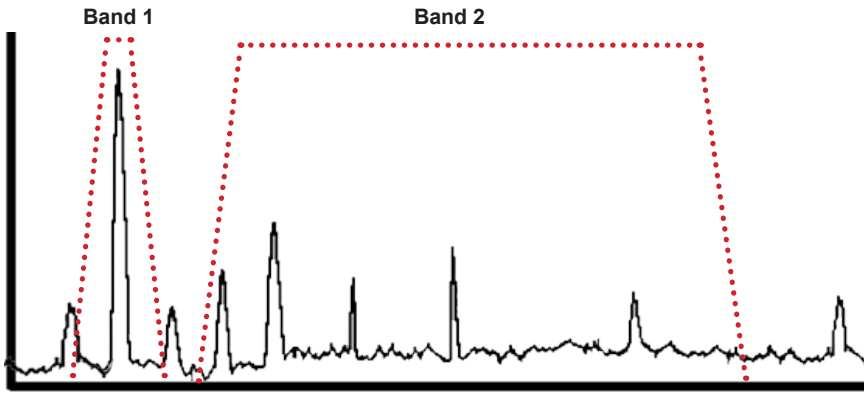
User-configurable intelligent vibration transmitter

iT301

Wilcoxon's new intelligent vibration transmitters measure and process dynamic vibration signals. The iT301 is optimized for process control and monitoring, with a variety of options for input signals, a wide frequency response, selectable band filters and detector types, and flexible output mapping options. The transmitter is MODBUS/RS485 enabled and features a built-in web server interface for efficient user configuration in the field.



2 user-configurable independent processing bands

See page 3 for system architecture and page 4 for more details on the iT301's built-in web server.

Certifications

CE

Key features

- Accepts input from accelerometers (single and dual output), piezovelocity sensors
- Input signal split into 2 independent processing bands
- Measures real-time sensor bands, BOV, signal true peak and temperature
- Built-in web browser allows custom configuration of bandwidth and detection type
- High/low alarms mappable to a single NC/NO relay
- Configurations can be stored for easy recall
- Selectable speed range
- Communicates using Modbus-TCP or RS485 protocol
- Manufactured in an approved ISO 9001 facility

Wilcoxon Sensing Technologies
An Amphenol Company

8435 Progress Drive
Frederick, MD 21701
USA

Tel: +1 (301) 330-8811
Fax: +1 (301) 330-8873
info@wilcoxon.com

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www.wilcoxon.com

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SPECIFICATIONS

INPUT		
Sensor type	IEPE accelerometers (single and dual output), piezovelocity transducers	
IEPE power source	+24 VDC, 4.5 mA, enable/disable	
Sensitivity range:		
Acceleration	9 - 11,000 mV/g	
Velocity	9 - 11,000 mV/in/sec	
Temperature	10 mV/°C (optional 10 mV/°K)	
Maximum dynamic signal	±10 VAC	
Frequency response	0.2 Hz to 20 kHz (-3 dB, 0.1 dB)	
Units	English or metric	
ANALYSIS		
Fmax	200 to 20,000 Hz in 1, 2, 5 sequence	
FFT resolution	Fixed, 1600 lines, bandwidth changes with Fmax	
Windowing	Hanning	
Dynamic range	>90 dB	
BAND PROCESSING		
Vibration bands 1 and 2, independently configurable	Sensor units or single integration Low frequency* ≥ Fmin, based on user-selected Fmax High frequency* ≤ Fmax RMS, peak or peak-to-peak	(*Fmax ≥ Fmin)
MEASUREMENTS		
Bands 1 and 2	configured vibration results	
True peak band	True peak detector, 10 Hz to 25 kHz	
Bias output voltage (BOV)	Measures sensor BOV (VDC)	
Temperature	10 mV/°C, 2° to 120°C, sensor dependent	
ALARMS		
High / Low / Relay	All measurement parameters, user-configurable	
OUTPUTS		
Buffered dynamic:		
Vibration	DC coupled, BNC or terminal block; Raw sensor signal	
Temperature	DC coupled, terminal block	
Loop outputs:		
4-20 mA (two) (sourced)	Configurable from measurement results Full scale, user-configurable	
Max loop resistance	500 Ω	
RS485	Two-wire, half-duplex; 256 kbps max band rate; 120Ω termination network, switchable via DIP switch	
Alarm relay	1 x NC/NO	

Note: Due to continuous process improvement, specifications are subject to change without notice.
This document is cleared for public release.

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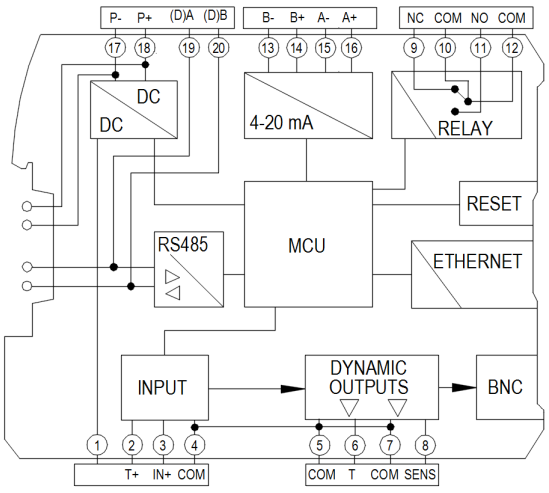
SPECIFICATIONS

ACCESSIBILITY / NETWORK	
Built-in web server	Password-protected configuration and firmware upgrades
Browser support	IE, Mozilla, Chrome
IP address	Default: 192.168.0.100
Subnet mask	Default: 255.255.255.0
Default gateway	Default: 192.168.0.1
ENVIRONMENTAL	
Power	11 - 32 VDC, 350 mA max
Temperature:	
Operating	–40° to +70°C
Storage	–40° to +85°C
Isolation	500 VAC, input to output
T-bus, rear backplane	Power and RS485 daisy chain
PHYSICAL	
Mounting	35 mm DIN rail
Dimensions, case	22 mm width x 114 mm depth x 100 mm height (0.89 x 4.473 x 3.9 in.) BNC connector adds 10 mm to overall depth
Connections	Screw terminal
Indicators:	
Green LED	**Solid** – normal, **flashing** – test, **off** – no power
Red LED	**Solid** – sensor fault, **flashing** – 4-20 mA fault, **off** – normal
Yellow LED (relay)	**On** – relay energized, **off** – relay de-energized
Yellow LED (RS485)	**Flashing** – RS485 active, **off** – RS485 idle / non-matching address



IO Port	Terminal numbers and signal assignments
Vibration sensor	1 – No connection 2 – Temperature sensor in (T+) 3 – Signal in / Sensor Power (IN+) 4 – Circuit Common (COM)
Temperature dynamic output	5 – Circuit Common (COM) 6 – Temperature out (T)
Sensor dynamic output	7 – Circuit Common (COM) 8 – Sensor out (SENS)
Signal relay	9 – Normally closed (NC) 10 – Relay common (COM) 11 – Normally open (NO) 12 – Relay common (COM)
4-20 mA loop B (Secondary loop)	13 – B- 14 – B+
4-20 mA loop A (Primary loop)	15 – A- 16 – A+
Power input	17 – P- 18 – P+
RS485*	19 – (D)A 20 – (D)B

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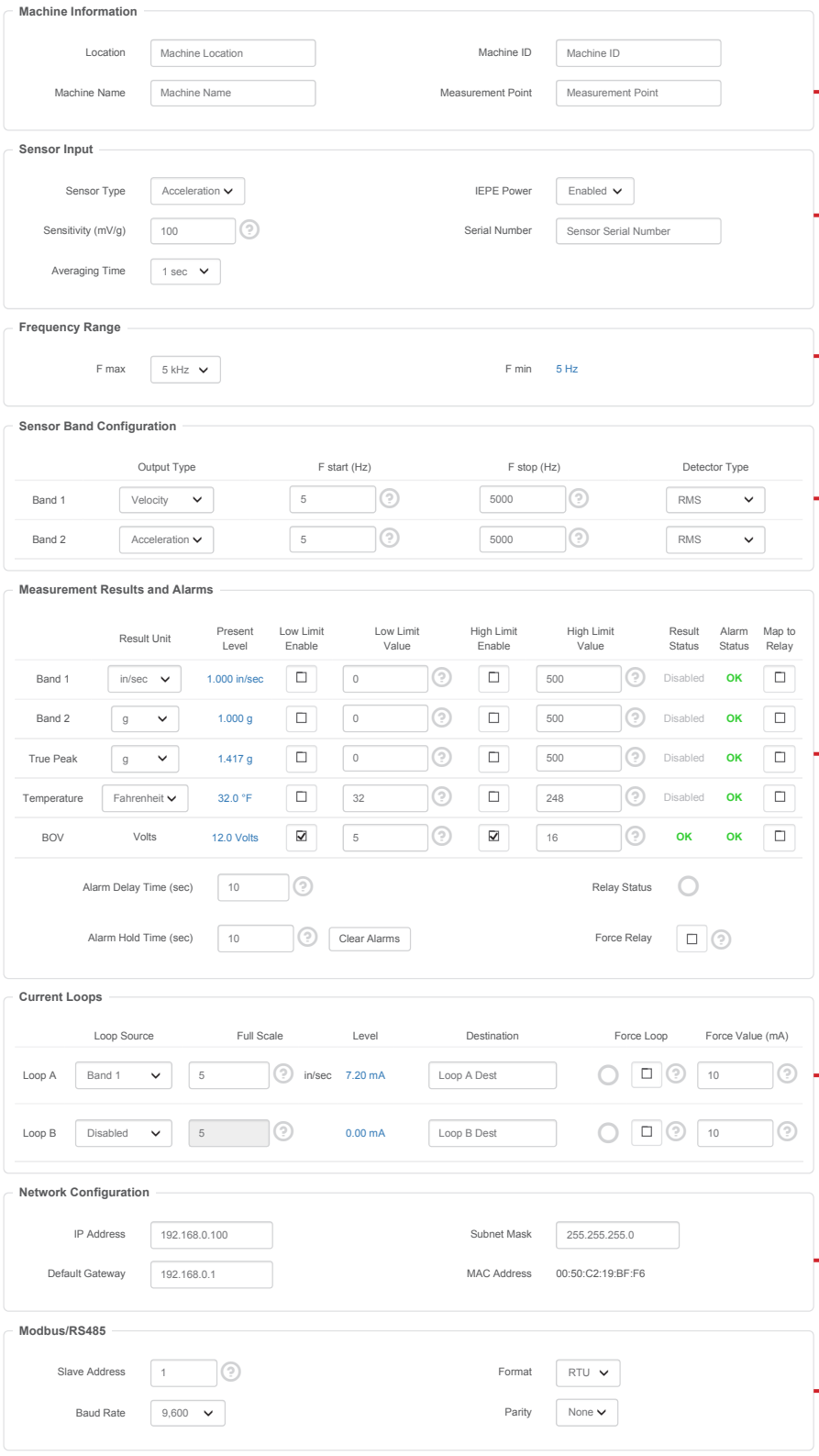
Built-in web server



MACHINE INFORMATION

User entry of machine identity

SENSOR INPUT

User entry of sensor parameters

FREQUENCY RANGE

Easily select frequency range

SENSOR BAND CONFIGURATION

User-configurable analysis band type and frequency limits

MEASUREMENT RESULTS AND ALARMS

Measurement results from all bands, selectable alarm levels, and continuous monitoring of alarms

CURRENT LOOPS

4-20 mA mapping

NETWORK CONFIGURATION

MODBUS/RS485

Multiple communication methods: Modbus TCP, Modbus Serial, RS485

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