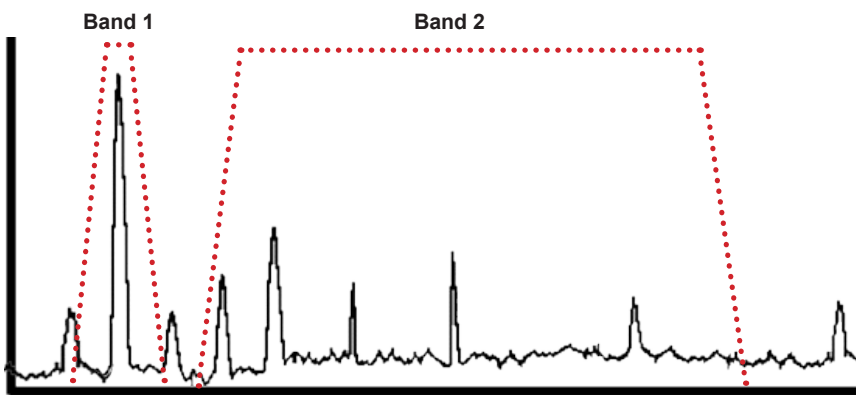


User-configurable intelligent vibration transmitter

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



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

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

User-configurable intelligent vibration transmitter



iT301

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* $\geq F_{min}$, based on user-selected Fmax High frequency* $\leq F_{max}$ RMS, peak or peak-to-peak	(*Fmax \geq Fmin)
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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
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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; 120 Ω termination network, switchable via DIP switch
Alarm relay	1 x NC/NO

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User-configurable intelligent vibration transmitter

iT301

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
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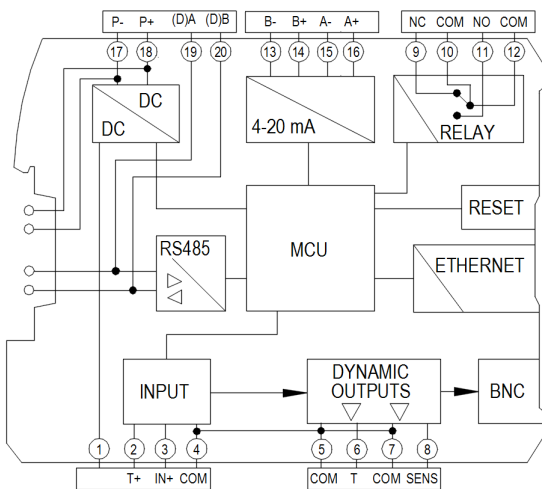
T-bus, rear backplane	Power and RS485 daisy chain
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PHYSICAL

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

Location: Machine ID:

Machine Name: Measurement Point:

MACHINE INFORMATION

User entry of machine identity

Sensor Input

Sensor Type: IEPE Power:

Sensitivity (mV/g): Serial Number:

Averaging Time:

SENSOR INPUT

User entry of sensor parameters

Frequency Range

F max: F min:

FREQUENCY RANGE

Easily select frequency range

Sensor Band Configuration

	Output Type	F start (Hz)	F stop (Hz)	Detector Type
Band 1	<input type="text" value="Velocity"/>	<input type="text" value="5"/>	<input type="text" value="5000"/>	<input type="text" value="RMS"/>
Band 2	<input type="text" value="Acceleration"/>	<input type="text" value="5"/>	<input type="text" value="5000"/>	<input type="text" value="RMS"/>

SENSOR BAND CONFIGURATION

User-configurable analysis band type and frequency limits

Measurement Results and Alarms

	Result Unit	Present Level	Low Limit Enable	Low Limit Value	High Limit Enable	High Limit Value	Result Status	Alarm Status	Map to Relay
Band 1	<input type="text" value="in/sec"/>	<input type="text" value="1.000 in/sec"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="text" value="500"/>	Disabled	OK	<input type="checkbox"/>
Band 2	<input type="text" value="g"/>	<input type="text" value="1.000 g"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="text" value="500"/>	Disabled	OK	<input type="checkbox"/>
True Peak	<input type="text" value="g"/>	<input type="text" value="1.417 g"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="text" value="500"/>	Disabled	OK	<input type="checkbox"/>
Temperature	<input type="text" value="Fahrenheit"/>	<input type="text" value="32.0 °F"/>	<input type="checkbox"/>	<input type="text" value="32"/>	<input type="checkbox"/>	<input type="text" value="248"/>	Disabled	OK	<input type="checkbox"/>
BOV	<input type="text" value="Volts"/>	<input type="text" value="12.0 Volts"/>	<input checked="" type="checkbox"/>	<input type="text" value="5"/>	<input checked="" type="checkbox"/>	<input type="text" value="16"/>	OK	OK	<input type="checkbox"/>

Alarm Delay Time (sec): Relay Status:

Alarm Hold Time (sec): Clear Alarms: Force Relay:

MEASUREMENT RESULTS AND ALARMS

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

Current Loops

	Loop Source	Full Scale	Level	Destination	Force Loop	Force Value (mA)
Loop A	<input type="text" value="Band 1"/>	<input type="text" value="5"/>	<input type="text" value="in/sec"/> 7.20 mA	<input type="text" value="Loop A Dest"/>	<input type="checkbox"/>	<input type="text" value="10"/>
Loop B	<input type="text" value="Disabled"/>	<input type="text" value="5"/>	<input type="text" value="0.00 mA"/>	<input type="text" value="Loop B Dest"/>	<input type="checkbox"/>	<input type="text" value="10"/>

CURRENT LOOPS

4-20 mA mapping

Network Configuration

IP Address: Subnet Mask:

Default Gateway: MAC Address:

NETWORK CONFIGURATION

Modbus/RS485

Slave Address: Format:

Baud Rate: Parity:

MODBUS/RS485

Multiple communication methods: Modbus TCP, Modbus Serial, RS485

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