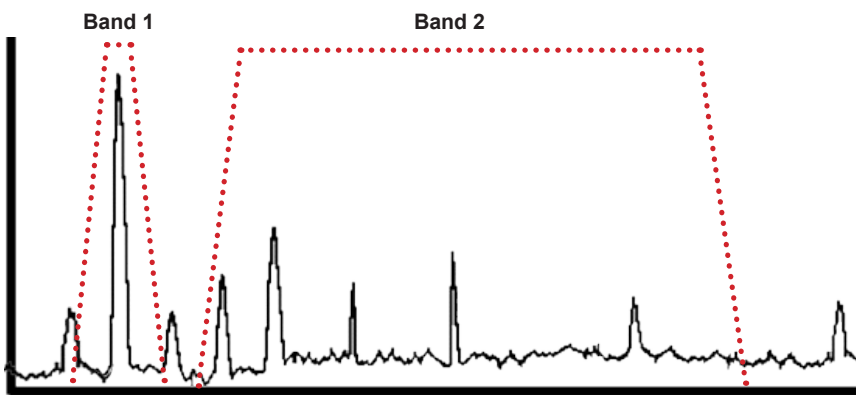


# User-configurable intelligent vibration transmitter

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

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# User-configurable intelligent vibration transmitter

## iT301

### SPECIFICATIONS

#### ACCESSIBILITY / NETWORK

<b>Built-in web server</b>	Password-protected configuration and firmware upgrades
<b>Browser support</b>	IE, Mozilla, Chrome
<b>IP address</b>	Default: 192.168.0.100
<b>Subnet mask</b>	Default: 255.255.255.0
<b>Default gateway</b>	Default: 192.168.0.1

#### ENVIRONMENTAL

<b>Power</b>	11 - 32 VDC, 350 mA max
<b>Temperature:</b>	
<b>Operating</b>	-40° to +70°C
<b>Storage</b>	-40° to +85°C

<b>Isolation</b>	500 VAC, input to output
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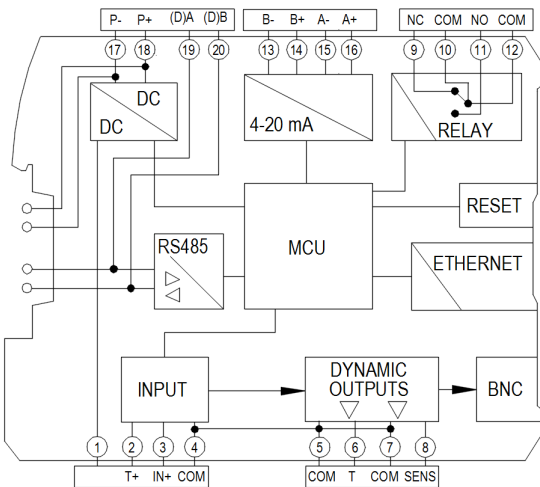
<b>T-bus, rear backplane</b>	Power and RS485 daisy chain
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#### PHYSICAL

<b>Mounting</b>	35 mm DIN rail
<b>Dimensions, case</b>	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
<b>Connections</b>	Screw terminal

#### Indicators:

<b>Green LED</b>	<b>Solid</b> – normal, <b>flashing</b> – test, <b>off</b> – no power
<b>Red LED</b>	<b>Solid</b> – sensor fault, <b>flashing</b> – 4-20 mA fault, <b>off</b> – normal
<b>Yellow LED (relay)</b>	<b>On</b> – relay energized, <b>off</b> – relay de-energized
<b>Yellow LED (RS485)</b>	<b>Flashing</b> – RS485 active, <b>off</b> – 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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