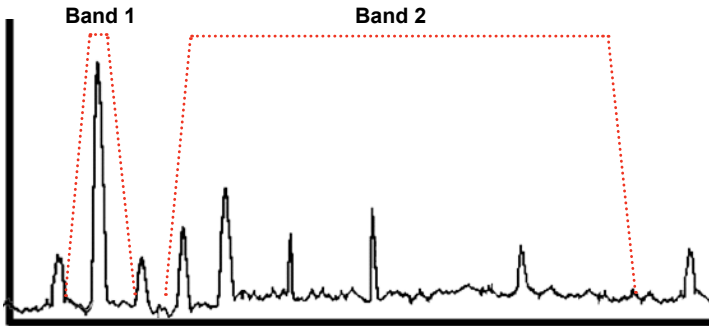


# User-configurable intelligent vibration transmitter

## iT301

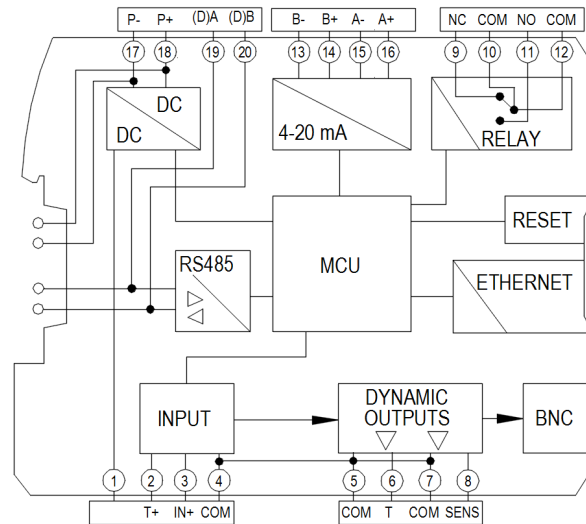


### Key features

- Accepts input from accelerometers (single and dual output), piezo-velocity sensors
- Input signal is split into two independent processing bands
- Measures real time sensor bands, BOV, signal true peak and temperature (if available)
- Built-in web browser allows custom configuration of bandwidth and detection type
- 2 x 4-20 mA outputs, user-defined
- High/low alarms mappable to a single NC/NO relay
- Text field for user entry of machine information
- Configurations can be stored for easy recall
- Selectable speed range to monitor high- or low-speed machinery
- Communicates using Modbus-TCP or RS485 protocol

## BLOCK DIAGRAM AND CONNECTIVITY

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



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

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 mV/g - 11,000 mV/g <b>velocity:</b> 9 mV/in/sec - 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, 1,600 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*, $\geq F_{min}$ , based on user-selected Fmax High frequency*, $\leq F_{max}$ * $F_{max} \geq F_{min}$ RMS, peak or peak-to-peak
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 bias output voltage (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

### Applications

- Chemical processing
- Oil and gas
- Process automation
- General condition monitoring

### Contact

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### SPECIFICATIONS

#### OUTPUTS

Loop outputs	
<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 120 Ω termination network, switchable via DIP switch
<b>Alarm relay</b>	1 x NC/NO

#### 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	
<b>T-bus, rear backplane</b>	Power and RS485 daisy chain	

#### PHYSICAL

<b>Mounting</b>	35 mm DIN rail	
<b>Dimensions, case</b>	22 mm width x 114mm 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	
<b>Indicators</b>	<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

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## iT301

## Built-in web server

User entry of machine identity

User entry of sensor parameters

Easily select frequency range

User-configurable analysis band type and frequency limits

Measurement results and continuous monitoring of alarms

4-20 mA mapping

### Machine Information

Location:  Machine ID:

Machine Name:  Measurement Point:

---

### Sensor Input

Sensor Type:  IEPE Power:

Sensitivity (mV/g):  Serial Number:

Averaging Time:

---

### Frequency Range

F max:  F min:

---

### 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"/>

---

### 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"/>	0.001 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"/>	0.000 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"/>	0.001 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"/>	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	Volts	11.8 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:

---

### 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"/>	in/sec 4.00 mA	<input type="text" value="Loop A Dest"/>	<input type="radio"/>	<input type="text" value="10"/>
Loop B	<input type="text" value="Disabled"/>	<input type="text" value="5"/>	0.00 mA	<input type="text" value="Loop B Dest"/>	<input type="radio"/>	<input type="text" value="10"/>

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