

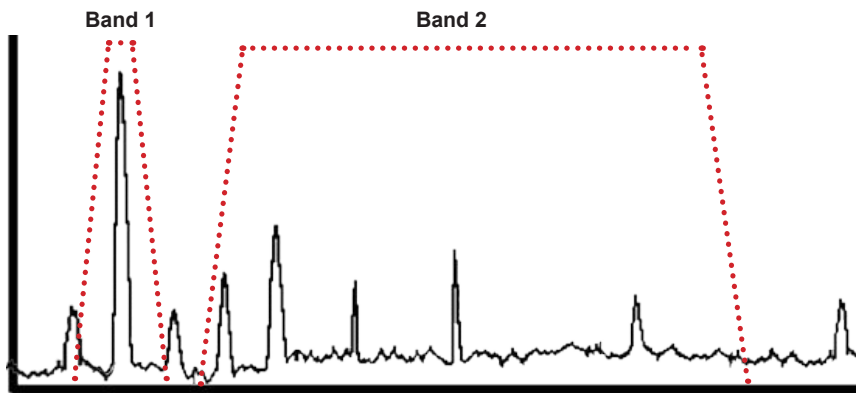
User-configurable intelligent vibration transmitter

iT301



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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

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User-configurable intelligent vibration transmitter



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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	

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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

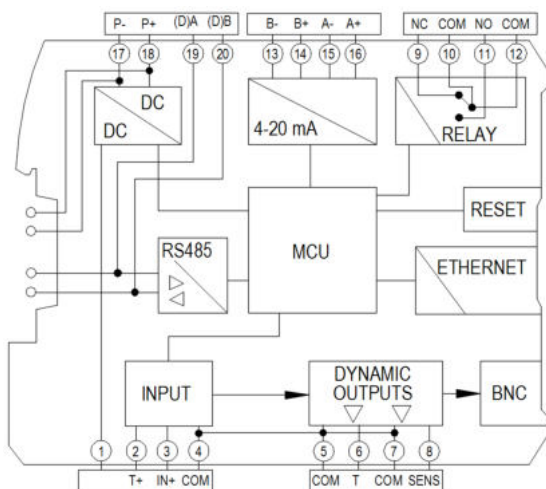
Mounting 35 mm DIN rail

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

Location

Machine Location

Machine ID

Machine ID

Machine Name

Machine Name

Measurement Point

Measurement Point

Sensor Input

Sensor Type

Acceleration

IEPE Power

Enabled

Sensitivity (mV/g)

100

Serial Number

Sensor Serial Number

Averaging Time

1 sec

Frequency Range

F max

5 kHz

F min

5 Hz

Sensor Band Configuration

Output Type

F start (Hz)

F stop (Hz)

Detector Type

Band 1

Velocity

5

5000

RMS

Band 2

Acceleration

5

5000

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	in/sec	1.000 in/sec	<input type="checkbox"/>	0	<input type="checkbox"/>	500	Disabled	OK	<input type="checkbox"/>
Band 2	g	1.000 g	<input type="checkbox"/>	0	<input type="checkbox"/>	500	Disabled	OK	<input type="checkbox"/>
True Peak	g	1.417 g	<input type="checkbox"/>	0	<input type="checkbox"/>	500	Disabled	OK	<input type="checkbox"/>
Temperature	Fahrenheit	32.0 °F	<input type="checkbox"/>	32	<input type="checkbox"/>	248	Disabled	OK	<input type="checkbox"/>
BOV	Volts	12.0 Volts	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>	16	OK	OK	<input type="checkbox"/>

Alarm Delay Time (sec)

10

Relay Status

Alarm Hold Time (sec)

10

Clear Alarms

Force Relay

☐

Current Loops

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

Network Configuration

IP Address

192.168.0.100

Subnet Mask

255.255.255.0

Default Gateway

192.168.0.1

MAC Address

00:50:C2:19:BF:F6

Modbus/RS485

Slave Address

1

Format

RTU

Baud Rate

9,600

Parity

None

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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