# 4-20 mA configurable vibration transmitter module

iT300

The iT300 transmitter provides an easy means to connect a standard IEPE vibration sensor to a PLC, DCS or SCADA system. The transmitter's input provides power to and measures the signal from either an accelerometer, piezovelocity sensor or dual output sensor. The input circuitry has a wide frequency response, capable of measuring signals between 0.2 Hz and 20,000 Hz.
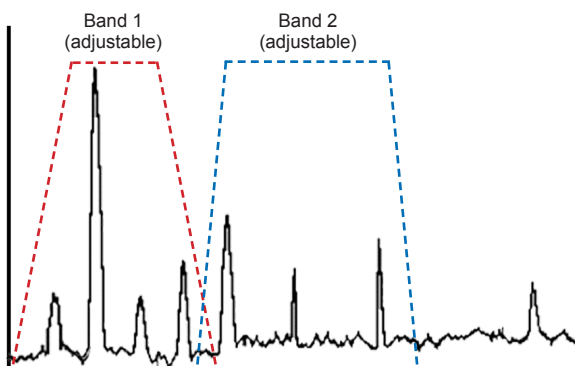

The transmitter has two independent processing bands with flexible mapping options to two separate 4-20 mA analog outputs. The processing channels contain selectable integration, allowing input from accelerometers to be output as acceleration or velocity. Selectable band filters and detector types make it easy to tailor the processing to specific machines or applications.

Key features

- Accepts input from accelerometers (single or dual output) or piezovelocity sensors
- Input signal is split into two independent processing bands
- Measures real-time sensor bands, BOV, true peak and temperature (if applicable)
- Built-in web server for custom configuration of bandwidth/detection type
- 2 x 4-20 mA outputs, user-defined
- Text field for user entry of machine information
- Configurations can be stored
- Selectable speed range
- Manufactured in an approved ISO 9001 facility

System architecture – input/output
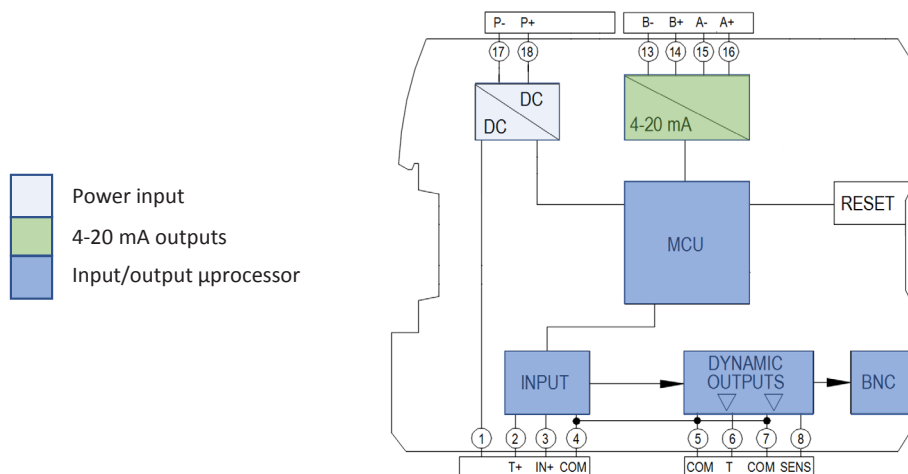
Certifications

Note: Due to continuous process improvement, specifications are subject to change without notice.
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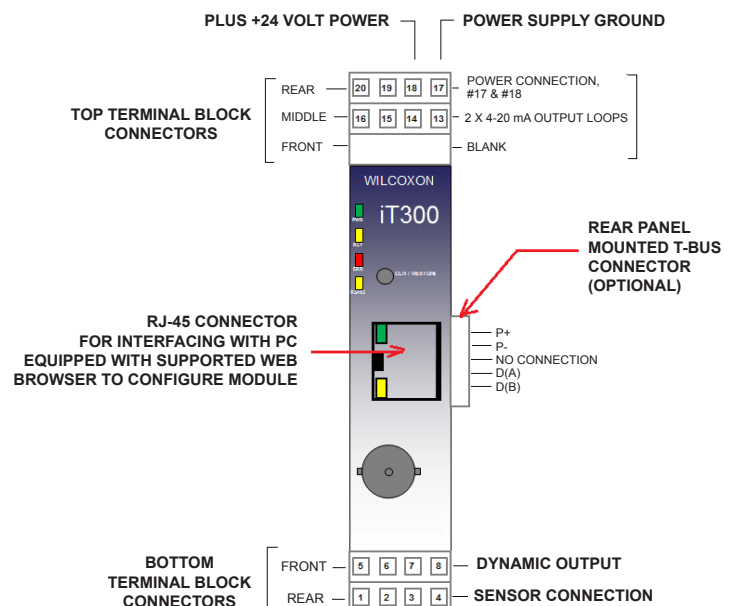
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iT300

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SENSING TECHNOLOGIES

SPECIFICATIONS

INPUT	
IEPE sensor type	Single-ended, DC coupled
Temperature sensor input	10 mV/°C
IEPE power source	+24 VDC, 4.5 mA
Sensitivity range:	
acceleration	9 - 11,000 mV/g
velocity	9 - 11,000 mV/ips
Full scale input range	± 10 VDC
Frequency response	0.2 - 20 kHz (-3 dB, -0.1 dB)
Fmax options	200, 500 Hz; 1, 2, 5, 10, 20 kHz
Accuracy	±0.2% of full scale, 100 Hz
ADC sampling rate	48 kbps, 24 bits delta-sigma
FFT resolution, windowing	1,600 lines, Hanning window
Dynamic range	>90 dB

CONFIGURABLE OPTIONS	
Frequency bands 1 and 2	Sensor unit[1] or single integration[2] Fstart[3] Fstop[3] Detection type: rms, peak, pk-pk
Fixed measurement bands	True peak, BOV, temperature[4]

MAPPABLE OUTPUTS	
4-20 mA output	2 user-configurable, based on (5) mappable options
Max loop resistance	500 Ω
Output scaling[1]:	
acceleration	g (m/sec^2) - rms, peak, peak-peak
velocity	ips (mm/sec) - rms, peak, peak-peak
displacement	mils (mm) - rms, peak, peak-peak
Output ranges[1]:	
acceleration	1 - 50 g (10 - 500 m/sec^2)
velocity	0.1-5 ips (2-100 mm/sec)
displacement	10 - 200 mils (0.2 - 5.0 mm)

ENVIRONMENTAL	
Temperature range	–40° to +70°C (storage: –40°C to +85°C)
Power	11 - 32 VDC, 3.8 watts max (158 mA at 24 VDC)
Isolation	500 VAC
Connection type	screw terminal, 14 - 24 AWG
Mounting	35 mm DIN rail
Dimensions	W x H x D: 22.5 x 99.2 x 114.5 mm

Notes: [1] Based on IEPE sensor type (accelerometer or piezovelocity).
[2] Acceleration signal to velocity, velocity signal to displacement.
[3] The available selections are affected by the Fmax setting.
[4] 786T style sensors only.

System architecture

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)
4-20 mA Loop B	13 – B- 14 – B+
4-20 mA Loop A	15 – A- 16 – A+
Power input	17 – P- 18 – P+
Not used	19 – 20 –

PLUS +24 VOLT POWER — POWER SUPPLY GROUND

TOP TERMINAL BLOCK CONNECTORS
REAR 20 19 18 17 — POWER CONNECTION, #17 & #18
MIDDLE 16 15 14 13 — 2 X 4-20 mA OUTPUT LOOPS
FRONT — BLANK

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REAR PANEL MOUNTED T-BUS CONNECTOR (OPTIONAL)

RJ-45 CONNECTOR FOR INTERFACING WITH PC EQUIPPED WITH SUPPORTED WEB BROWSER TO CONFIGURE MODULE

P+
P-
NO CONNECTION
D(A)
D(B)

BOTTOM TERMINAL BLOCK CONNECTORS
FRONT — 5 6 7 8 — DYNAMIC OUTPUT
REAR — 1 2 3 4 — SENSOR CONNECTION

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Built-in web server

iT300

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Settings changes do not take effect until the "Save & Enable Changes" button is pressed

[Save & Enable Changes] [Abandon Changes] [Login]

Login required before any changes can be made

Machine Information

Location	Machine Location	
Machine Name	Machine Name	
Machine ID	Machine ID	
Measurement Point	Measurement Point	

MACHINE INFORMATION

User entry of machine identity

Sensor Input

Sensor Type	Acceleration
Sensitivity (mV/g)	100
Averaging Time	1 sec
IEPE Power	Enabled
Serial Number	Sensor Serial Number

SENSOR INPUT

User entry of sensor parameters

Frequency Range

F max	5 kHz
F min	5 Hz

FREQUENCY RANGE

User selection of frequency analysis range

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

SENSOR BAND CONFIGURATION

Analysis band type and frequency limits

Measurement Results

	Result Unit	Present Level
Band 1	in/sec	1.000 in/sec
Band 2	g	1.000 g
True Peak	g	1.417 g
Temperature	Fahrenheit	32.0 °F
BOV	Volts	12.1 Volts

MEASUREMENT RESULTS

Results from each band in selectable units

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	☐	10
Loop B	Disabled	5	0.00 mA	Loop B Dest	☐	10

CURRENT LOOPS

4-20 mA mapping

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:FB

NETWORK CONFIGURATION

Default configuration. Consult full manual on configuring your PC network adaptor.

Module Information

Model	iT300	Hardware Revision	D8
Serial Number	ENG2	Firmware Revision	1.01

[Change Password] [Load Configuration from File] [Save Configuration to File] [Restore Factory Defaults] [Update Firmware]

Default user: user
Default password: admin
Remember to save your changes to have new values take effect.

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