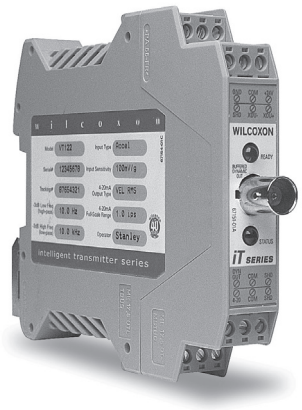
Wilcoxon Research

Model iT100, iT200 Series
4-20 mA vibration transmitter modules



Features
- Slim 17.5mm case
- Reverse wiring protection
- ESD protection
- Front panel BNC for dynamic signal output
- Communicates with other iT Series modules through intergrated communication bus

Benefits
- Dynamic signal available for portable data collectors (BNC) or hard wired on-line systems (terminals)
- Units can be daisy chained providing mutiple 4-20 mA output from a single sensor

The iT Series vibration transmitter module operates from a 24 Volt DC (nominal) power supply. They accept input directly from IEPE-type sensors. The module then processes the signal and produces an output 4-20 mA loop current proportional to the overall in-band vibration. The input dynamic vibration signal is buffered and presented as an output at the BNC connector and on one set of terminals. The standard 4-20 mA loop output signal is usually wired to a Programmable Logic Controller (PLC) or a Distributed Control System (DCS).

Wiring

Terminal designations

P1	+24V	Positive power input for iT module
	COM	Common for power input
	GND	Earth ground connection (to ground iT module)
P2	XDU+	Sensor power/signal Input
	XDU-	Sensor common Input
	SHD	Sensor shield wiring termination
P3	DYN OUT	Dynamic signal out
	COM	Common of dynamic signal out
	SHD	Shield point termination for dynamic out
P4	4-20	4-20 mA loop return signal
	COM	Common reference for 4-20 mA return
	SHD	Shield point termination for loop wiring

Front Panel

BNC connector	Output BNC connection for buffered dynamic signal (for data collector)
Green LED	"On" indicates 24 Volt power applied and Sensor connection OK "Off" indicates no 24 Volt power applied or unit not ready "Flashing" indicates BOV out of OK range (5V to 18V)
Red LED	"Blinking" every 2 seconds, normal operation "ON" error condition, indicates signal clipping or internal circuit failure

Output, 4-20 mA loop current

Full scale, ±2%	see chart on back
Output type	peak (equivalent) or true RMS, true peak or true peak - peak
Frequency response, without filtering, -3dB:	
Acceleration	0.3 Hz to 20 kHz
Velocity	1.0 Hz to 10 kHz[4]
Repeatability	2%
Maximum 4-20mA loop load resistance[1]	2%
Zero (4mA) accuracy	±0.25 mA
Reading accuracy	±2% of full scale
High-pass filtering, 2-pole, pre-set[2]	see chart on back
Low-pass filtering, 8-pole, pre-set[2]	see chart on back
Temperature offset, maximum	0.1%/°C
Turn-on time	120 seconds

Output, buffered dynamic

Gain, RTI sensor	1.0 ± 2%
Noise RTO, broadband, 1Hz - 10 kHz, RMS	≤ 0.0001 volts
Frequency response: amplitude (±3dB)	≤0.3 Hz to ≥100 kHz
Phase shift (at 1 kHz)	0° ± 1°
Output type	AC- AC/DC coupled

Input

Sensor types	IEPE accelerometers and IEPE PiezoVelocity transducers
Sensor sensitivities accepted:	
Accelerometer	10 mV/g, 100 mV/g, 500 mV/g
PiezoVelocity	10 mV/ips, 100 mV/ips, 500 mV/ips
Sensor powering:	
Open circuit voltage	Vin - 2 ±1 Volts
Constant-current	3.6 mA ±20%
Maximum dynamic signal input, for linear response[3]	±7 volts peak

Environmental

Power: voltage (Vin)	24 ±4 volts, DC
absolute maximum voltage	32 volts DC
current draw	≤130 mA
Operating temperature	-40°C to +85°C
Humidity, non-condensing	≤ 95%
Altitude limit, operating	3,000 meters

Physical

Mounting	snap fit 35 mm DIN rail
Width	17.5 mm (0.70")
Depth, front of BNC to back of DIN rail	127 mm (4.98")
Height	100 mm (3.90")

Notes: [1] Determined at powering voltage of 24 Volts
[2] In "Manual Set" mode the filters are continuously variable. LF: 2 Hz to 1 kHz, HF: 200 Hz to 20 kHz
[3] Under all conditions the input vibration should not exceed 50ips
[4] Limited by sensor type, see ordering information matrix

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Due to continued research and product development, Wilcoxon Research reserves the right to amend this specification without notice.

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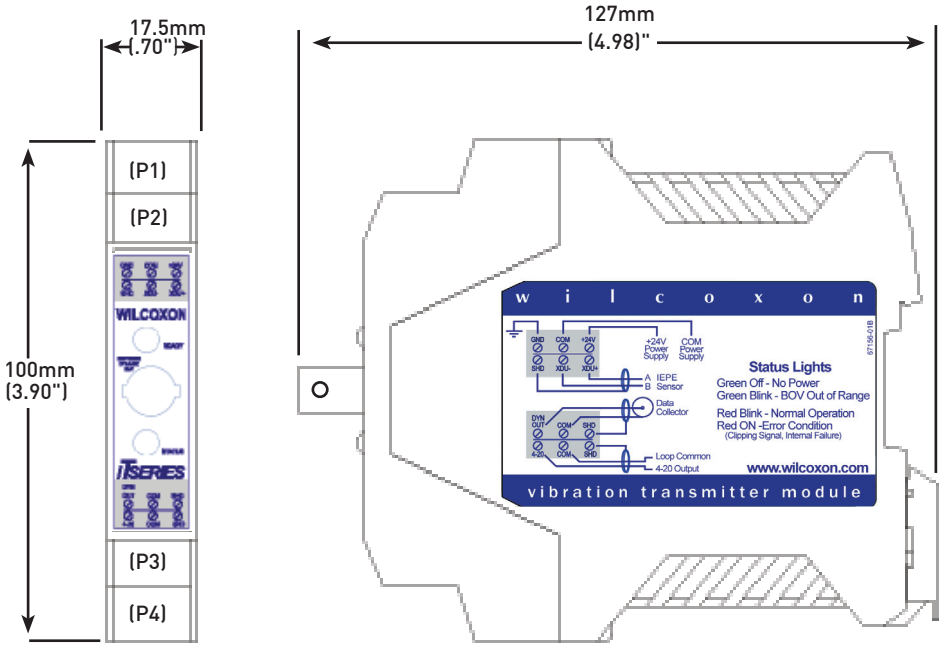

Ordering information

iT □□□ - F □□ - S□□□ - L □□□□.□ - H □□□□□ (displayed on side label)

iT	*iT* Model type
111	Acceleration input, acceleration 4-20 mA output; g-peak
112	Acceleration input, acceleration 4-20 mA output; g-RMS
113	Acceleration input, acceleration 4-20 mA output; g-true peak
114	Acceleration input, acceleration 4-20 mA output; g-true peak - peak
121	Acceleration input, velocity 4-20 mA output; ips-peak
122	Acceleration input, velocity 4-20 mA output; ips-RMS
123	Acceleration input, velocity 4-20 mA output; ips-true peak
124	Acceleration input, velocity 4-20 mA output; ips-true peak -peak
221	PiezoVelocity (PVT) input, velocity 4-20 mA output; ips-peak
222	PiezoVelocity (PVT) input, velocity 4-20 mA output; ips-RMS
223	PiezoVelocity (PVT) input, velocity 4-20 mA output; ips- true peak
224	PiezoVelocity (PVT) input, velocity 4-20 mA output; ips-true peak-peak
231	PiezoVelocity (PVT) input, displacement 4-20 mA output; mil-peak
232	PiezoVelocity (PVT) input, displacement 4-20 mA output; mil-RMS
233	PiezoVelocity (PVT) input, displacement 4-20 mA output; mil-true peak
234	PiezoVelocity (PVT) input, displacement 4-20 mA output; mil-true peak-peak

F	Full-scale output		
	Acceleration	Velocity	Dispalcement
05	5g	0.5 ips	
10	10 g	1.0 ips	10 mil
20	20 g	2.0 ips	20mil
25			25 mil
30	30 g	3.0 ips	
50	50 g	5.0 ips (S100 only)	
99			100 mil

S	Input Sensor Sensitivity	
	Accelerometers	PiezoVelocity Transducer PVT®
010	10 mV / g	10mV/ips
100	100 mV / g	100mV/ips
500	500 mV / g	500 mV/ips

L	Low frequency corner (high-pass)
0000.3	0.3 Hz (acceleration models only)
0001.0	1 Hz (lowest freq. velocity or displacement, S > 500)
0002.0	2 Hz (lowest freq. velocity or displacement, S > 100)
0005.0	5 Hz (lowest freq. velocity or displacement, S > 010)
0010.0	10 Hz
0020.0	20 Hz
0030.0	30 Hz
0050.0	50 Hz
0080.0	80 Hz
0100.0	100 Hz
0200.0	200 Hz
0300.0	300 Hz
0500.0	500 Hz
1000.0	1000 Hz

H	High frequency corner (low-pass)
00200	200 Hz
00300	300 Hz
00500	500 Hz
00800	800 Hz
01000	1000 Hz
02000	2000 Hz (highest frequency for displacement models)
03000	3000 Hz
05000	5000 Hz (highest frequency for velocity models)
10000	10000 Hz (highest frequency for true peak or true peak - peak)
20000	20000 Hz (acceleration models only)

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