

Model iT100M, iT200M Series Metric 4-20 mA vibration transmitter modules



Features

- Field adjustable filter settings
- Slim 17.5mm case
- Reverse wiring protection
- ESD protection
- Front panel BNC for dynamic signal output

Benefits

- Flexible filter frequencies allow users to make field adjustment easily, no hardware changes; easy to revert back to factory settings
- Dynamic signal available for portable data collectors (BNC) or hard wired on-line systems (terminals)
- Communicates with other iT Series modules through integrated communication bus

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

Terminal	Designation	Description
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) "Blinking" every 2 seconds, normal operation
Red LED	"ON" error condition, indicates signal clipping or internal circuit failure

Output, 4-20 mA loop current

Full scale, $\pm 2\%$	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	2.0 Hz to 20 kHz
Repeatability	2%
Maximum 4-20mA loop load resistance ¹	600 Ω
Zero (4mA) accuracy	± 0.25 mA
Reading accuracy	$\pm 2\%$ 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	$1.0 \pm 2\%$
Noise RTO, broadband, 1Hz - 10 kHz, RMS	≤ 0.0001 volts
Frequency response: amplitude (± 3 dB)	≤ 0.3 Hz to ≥ 100 kHz
Phase shift (at 1 kHz)	$0^\circ \pm 1^\circ$
Output type	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	$V_{in} - 2 \pm 1$ Volts
Constant-current	3.6 mA $\pm 20\%$
Maximum dynamic signal input, for linear response ³	± 7 volts peak

Environmental

Power: voltage (V_{in})	24 ± 4 volts, DC
absolute maximum voltage	32 volts DC @65°C
current draw	≤ 130 mA
Temperature	-40°C to +85°C
Humidity, non-condensing	$\leq 95\%$
Altitude limit, operating	3,000 meters

Physical

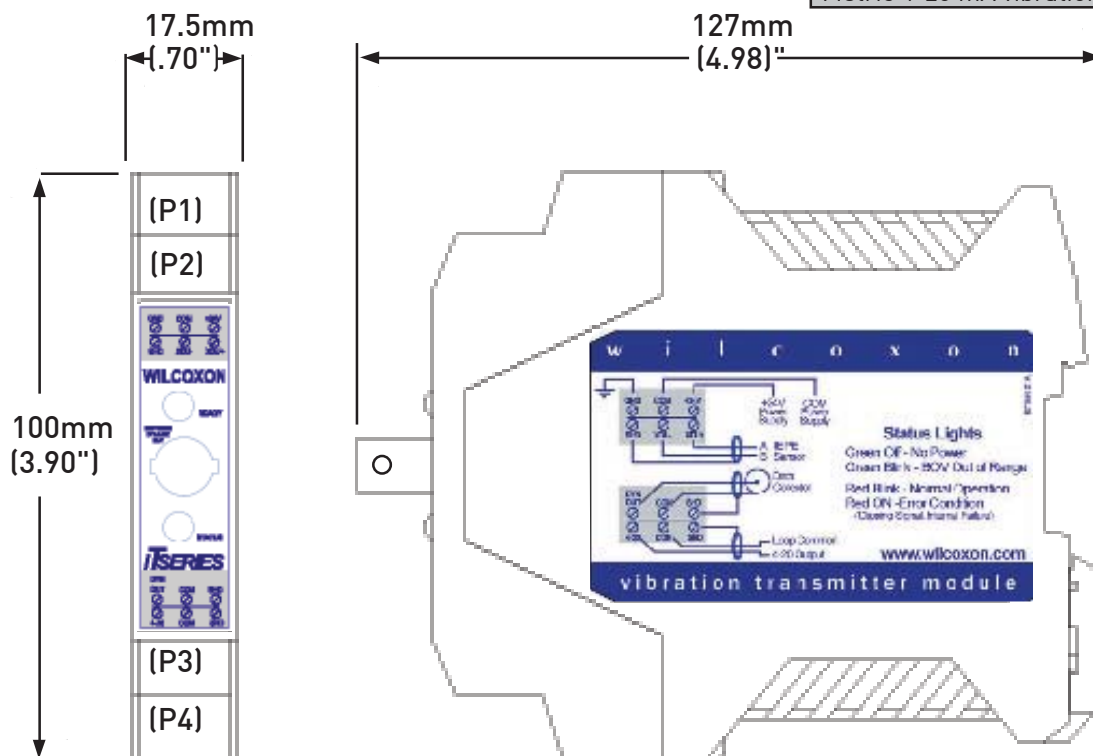
Mounting	snap into 35 mm DIN rail
Width	17.5 mm (0.70")
Depth, front of BNC to back of DIN rail	127 mm (4.98")
Height	100 mm (3.90")

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





Ordering information

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

iT		iT Model type		L		Low frequency corner (high-pass)	
111M	Acceleration input, acceleration 4-20 mA output; m/s ² -peak	0000.3	0.3 Hz (acceleration models only)				
112M	Acceleration input, acceleration 4-20 mA output; m/s ² -RMS	0001.0	1 Hz (lowest freq. velocity or displacement, S > 500)				
113M	Acceleration input, acceleration 4-20 mA output; m/s ² -true peak	0002.0	2 Hz (lowest freq. velocity or displacement, S > 100)				
114M	Acceleration input, acceleration 4-20 mA output; m/s ² -true peak - Peak	0005.0	5 Hz (lowest freq. velocity or displacement, S > 010)				
121M	Acceleration input, velocity 4-20 mA output; mm/s-peak	0010.0	10 Hz				
122M	Acceleration input, velocity 4-20 mA output; mm/s-RMS	0020.0	20 Hz				
123M	Acceleration input, velocity 4-20 mA output; mm/s-true peak	0030.0	30 Hz				
124M	Acceleration input, velocity 4-20 mA output; mm/s-true peak -peak	0050.0	50 Hz				
221M	PiezVelocity (PVT) input, velocity 4-20 mA output; mm/s-peak	0080.0	80 Hz				
222M	PiezVelocity (PVT) input, velocity 4-20 mA output; mm/s-RMS	0100.0	100 Hz				
223M	PiezVelocity (PVT) input, velocity 4-20 mA output; mm/s- true peak	0200.0	200 Hz				
224M	PiezVelocity (PVT) input, velocity 4-20 mA output; mm/s-true peak-Peak	0300.0	300 Hz				
231M	PiezVelocity (PVT) input, displacement 4-20 mA output; mm-peak	0500.0	500 Hz				
232M	PiezVelocity (PVT) input, displacement 4-20 mA output; mm-RMS	1000.0	1000 Hz				
233M	PiezVelocity (PVT) input, displacement 4-20 mA output; mm-true peak						
234M	PiezVelocity (PVT) input, displacement 4-20 mA output; mm-true peak-peak						
				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 (acceleration models only)		
F		Full-scale output					
	Acceleration	Velocity	Dispalcement				
02			0.2mm				
05	50 m/s ²		0.5mm				
10	100 m/s ²		1.0mm				
15		15.0 mm/s					
20	200 m/s ²	20.0 mm/s	2.0 mm				
25		25. mm/s					
30	300 m/s ²	30.0 mm/s	3.0 mm				
40		40.0 mm/s	4.0 mm				
50	500 m/s ²	50.0 mm/s	5.0 mm				
99		100.0 mm/s					
S		Sensitivity					
	Accelerometers	PiezoVelocity transducer PVT*					
010	1.02 mV / m/s ²	0.39mV/mm/s					
100	10.2 mV / m/s ²	3.9 mV/mm/s					
102		4.0 mV/mm/s					
500	51.0 mV / m/s	19.7 mV/mm/s					
510		20.0 mV/mm/s					

We reserve the right to vary the foregoing details without prior notice



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