Converter
Frequency to Voltage

RoHS Compliant

Features:

- Easy to use
- Max Full Scale: 100kHz @ 10V Out
- Min Full Scale: 10Hz @ 10V Out
- Matched to many Input Devices
- Hysteresis on Inputs
- One Capacitor to set Full Scale
- Three Capacitors to set Filtering
- Three Status LED's
- Over Range Output
- Excellent Linearity
- 10V Industry Standard Output
- Mains 110/115v or 230/240V
- DC Powered, 12V to 24V

Applications:

- Shaft Speed Control
- Conveyor Speed Control
- Closed loop Control Systems
- Monitoring and Speedometers
- Frequency to Voltage Conversion
- In Automobile R&D
- In Mining
- In Ship Building
- In Paper Making

Electrical Characteristics - Signal Inputs

Parameter		PNP	NPN	VR
Input Frequency - max	$f_{(in)(max)}$	100kHz	100kHz	100kHz
Input Voltage - max	$V_{(in)(max)}$	50V @ <5mA	50V @ 0mA	28V
Input Voltage - Rising Trigger Point	$V_{(in+)}$	8.5V @ <0.5mA	1.5V @ <-1.6mA	40mV Max
Input Voltage - Falling Trigger Point	$V_{(in-)}$	7.5V @ <0.5mA	1.1V @ <-1.6mA	-40mV Min
Input Voltage - Hysteresis	$V_{(in)(hyst)}$	1V	0.4V	80mV
Input Voltage - min	$V_{(in)(min)}$	-50V @ 0mA	-0.6V @ <-2mA	-28V

Parameter		PNP	NPN	VR
Input Current - Input connected to 0V	$I_{(in)}$ @ 0V	0mA	<-1.6mA	Z(in) = 11k
Terminal Voltage - Connected to DVM	Input open	0V	4.5V	0V
Input Signal - Min MARK width	$t_{(in)(mark)}$	5As (50% at 100kHz)	5As (50% at 100kHz)	x
Input Signal - Minimum SPACE width	$t_{(in)(space)}$	4As (40% at 100kHz)	4As (40% at 100kHz)	x

Electrical Characteristics - Other

Parameter	Terminal	Values	Comments
Output Voltage - Full Scale	OUT	10V	See graph 1
Output Voltage - Zero Input	OUT	< 20mV	$f_{(in)}$ = 0 Hz
Output Source Current - max	OUT	3.3mA	$V_{(out)}$ = 10V (External Load = 3k)
Output Current - Limited	OUT	< 20mA	Output Connected to 0V
Output Voltage - Noise pk-pk (excl. ripple)	OUT	< 5mV	$f_{(in)}$ = 100 kHz, $V_{(out)}$ = 10V
Output Voltage - Minimum Rise Time	OUT	520µs	See graph 2
Output Voltage - Minimum Fall Time	OUT	520µs	See graph 2
Input/Output Linearity	OUT	Better than ±0.5%	Full Scale
Over Range 'OR' Maximum Voltage	OR	30V DC	Open Collector Output OFF
Over Range 'OR' Minimum Voltage	OR	< 0.1V @ 100mA (max)	Open Collector Output ON
Input Voltage - DC Powered	+UNR I/O	12V to 24V (26V max) @ <25mA	< 60mA with o/p s/c to 0V
Input Voltage - Load Dump Protection	+UNR I/O	+60V	See LM2931 Data Sheet for more details
Input Voltage - Reverse Transient Protection	+UNR I/O	-50V	
Input Voltage - AC Powered	V(AC)	110/115V or 230/240V	Fusing ~ 100mA - see Note1
Typical DC Output Voltage - Rectified DC	+UNR I/O	17V (...M) & 23V (...M2)	No External Load, <150mV ripple
Available DC Output Current - Rectified DC	+UNR I/O or +DET	12mA @ 12V (< 200mV ripple)	**ATP3/1M - 0.5VA Transformer**

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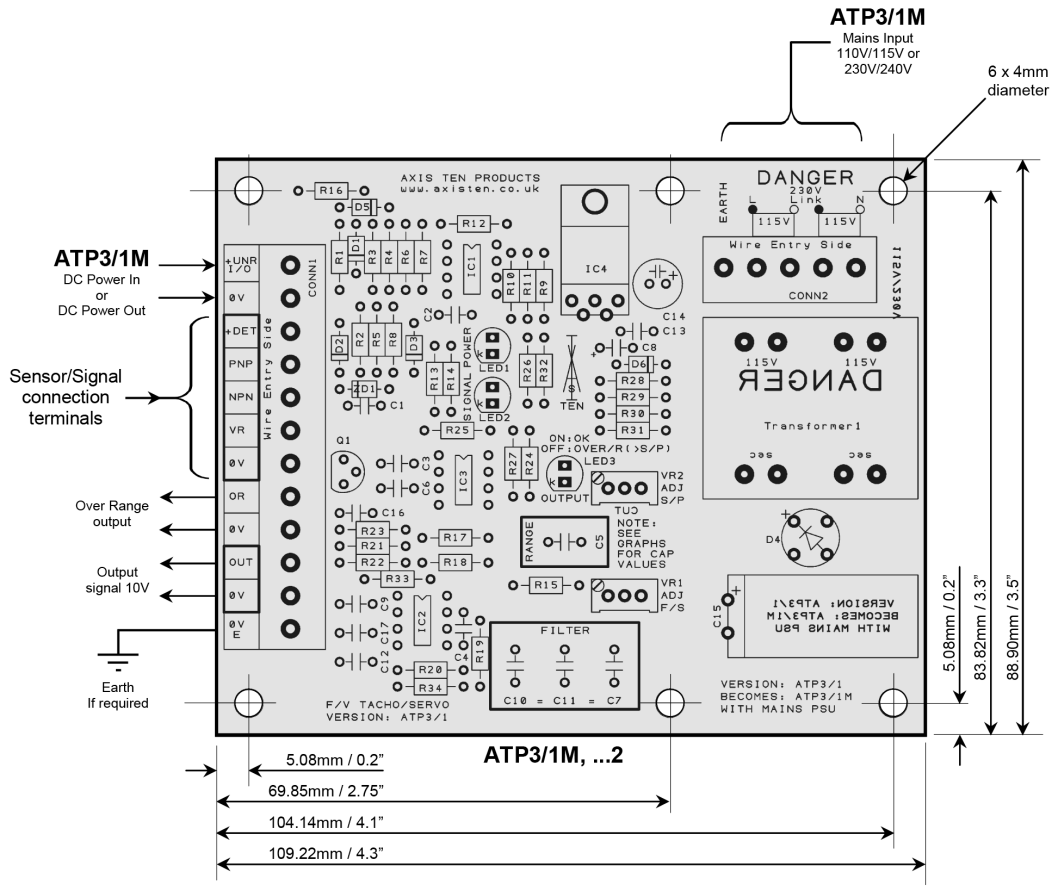
PCB HEIGHT	
ATP3/1M	15mm / 0.6”



Part Number Table

Description	Part Number
Converter, Frequency to Voltage	ATP3/1M