Piezo-tronic voltage source accelerometer

A/120/V
A/120/VT
A/120/VTC
A/120/VI
A/120/VTI

standard output 10 ; 31.6 ; 100mV/g • 18gm wt.
125°C max. temp. • Teds option

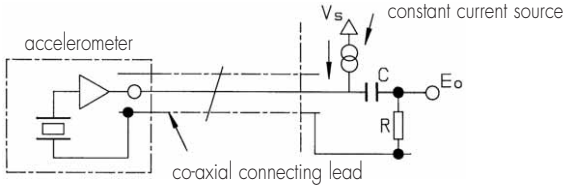
General purpose KONIC vibration transducers c/w integral two wire charge/voltage converter (QVC). QVCs are energised from a current source, generate a low impedance, noise immune voltage proportional to input charge, hence acceleration, and need minimal interfacing.
Fig.1 shows basic supply connection, signal extraction. This type of QVC interface is available in several commercial vibration spectrum analysers as well as in our own VV/04 or V4/04 signal conditioner, which provide in addition normalising, scaling, and fault detection features.

Associated with the QVC is a 5V peak out limit. This imposes an overriding, sensitivity dependent peak acceleration constraint on the A/120/V of 50/500g, and above which the QVC saturates.
We suggest that applications are evaluated sufficient to determine the requisite A/120/V sensitivity.

options

- case and base isolated versions available
- extended low frequency response, 0.5x std. LF response, option/L
- non magnetic (/N) ; A/120/VT/N and A/120/V/N : 13gm, A/120/VTC/N : 20gm
- wideband temperature calibration -50/+125°C
- A/120/VTC, fitted hermetic TNC connector, can be supplied proof pressure tested with/without cable.
- Teds capable digital memory and communication, compliant with IEEE P1451.4 : A/120/VM, A/120/VTM and A/120/VTCM

FIG. 1



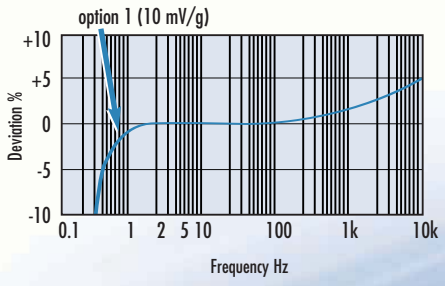
The transducer signal cable constitutes a capacitive load to the QIC.

The quadrature drive current available, I_C, equals the source current Is less the QVC minimum operating current of around 1.5mA,

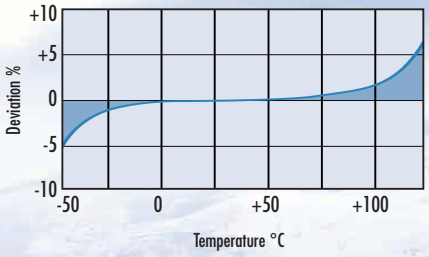
I_{QVC}, thus :
$I_C = \sqrt{I_S^2 - I_{QVC}^2}$, or 3.7mA from a 4mA source, capable of driving a 10nF cable a 5V pk., 12kHz.

The A/120/V bias voltage is temperature dependent and increases from 9V @ 20°C to 11/12V @ 125°C, thus reducing pro-rata the positive output voltage for supply voltages Vs below 18V.

FREQUENCY RESPONSE



TEMPERATURE RESPONSE



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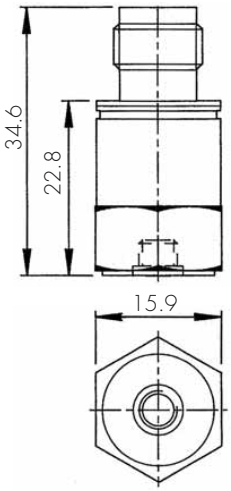
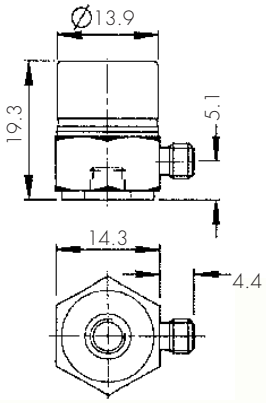
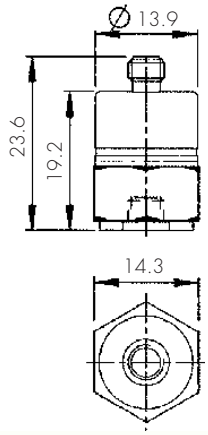


A/120/V

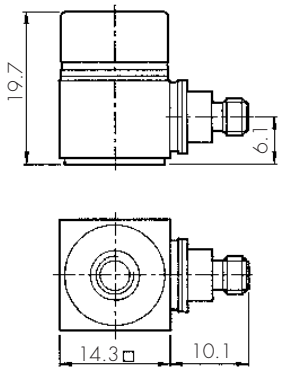
dims. mm



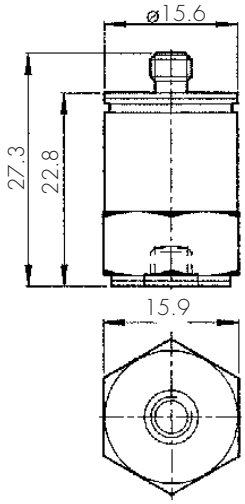
A/120/VT



A/120/VI



A/120/VTI



CONVERSION MODE	KONIC/2 WIRE QVC		
sensitivity option →	**1**	**2**	**3**
Voltage sensitivity, ±5% @ 20°C mV/g	10	31.6	100
Resonant frequency kHz	28		
Cross axis error % max	5		
Temperature range °C	-50 / +125		
Voltage sens. deviation re 20°C	-5% @ -50°C		+ 5% @ +125°C
Pyro-electric output, g/°C	0.2		
Pyro-electric corner freq. Hz	0.002		
Base strain sens. g/μ strain	0.01		
Max continuous accn. g sine	1000		
Supply voltage V	15/35		
Supply current mA	2/15		
Bias voltage V (20°C)	8.5/9.5		
Settling time to 90% final val. secs.	5	5	5
Noise level, equiv. mg	3	2	1
L.F. corner frequency, Hz	0.2	0.7	2
L.F. corner frequency, Hz /L option	0.1	0.4	1
Saturation limit, equiv. g	450/500	140/155	45/50
Output resistance, ohms (500Hz)	30	50	100
Case material	s/steel 303 S31		
Mounting	base tapped 10/32 UNF 4mm deep		
Weight gm	18, 29 (/VTC)		
Connector	Microdot skt.10/32 UNF thd. (A/120/V, /VT) TNC skt (A/120/VTC) Isolated Microdot 10/32 UNF (A/120/VI, /VTI)		
Case seal	welded, hermetic connector (TNC)		