

vibro-meter
certified by


TCC 1XX

Charge Converter Type TCC 1XX

CHARACTERISTICS

- Qualified for flight on Ariane 5 launcher (ESA-CNES-SEP-Arianespace Program)
- Low mass and volume
- 0.5 Hz to 25 kHz frequency response
- 3-pole HP and LP filters (TCC 171)



DESCRIPTION

The TCC 165, 168, 169, 170, 171 charge converters are airborne devices designed to be used with very high temperature piezoelectric transducers. They incorporate a charge amplifier front end and produce a biased output voltage proportional to a charge input.

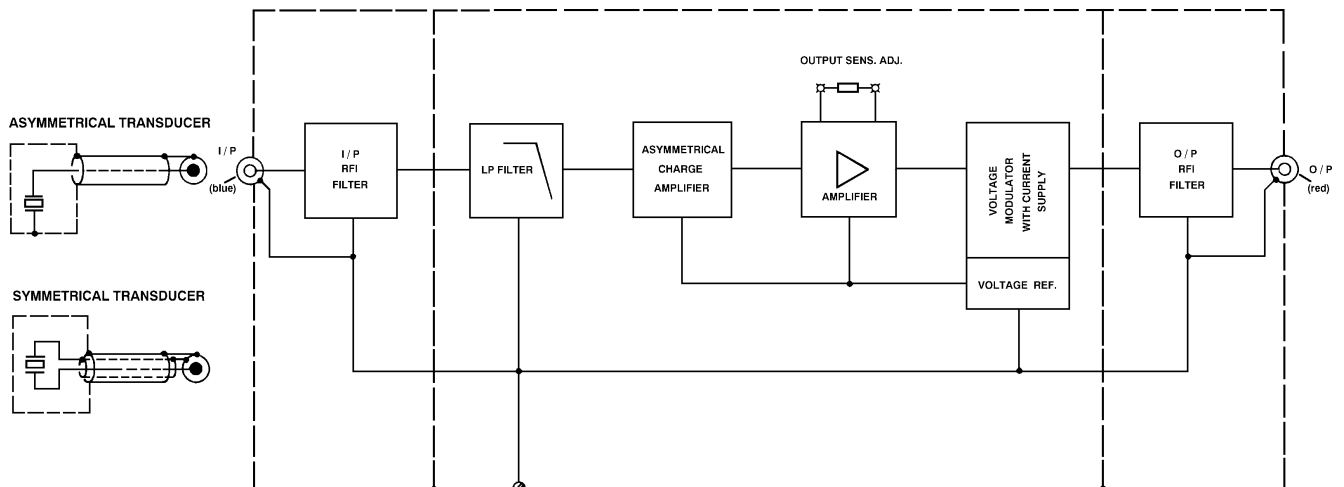
The TCC 1XX are built using MIL qualified discrete components as well as SMD hybrid circuits, providing small size and rugged construction.

The construction permits modification of the transfer

function and filter value for special applications.

In addition, the input and the output of the module are fitted with an LC network, in order to immunize the converter to RFI signals.

The TCC 1XX units perform the charge conversion at or near the point of measurement. Transmission to the processing electronics may be done via coaxial cable and transmission distances of over 300 m are common.



SPECIFICATIONS

TCC 1XX

INPUT

Configuration	: Asymmetrical, single-ended
Source resistance	: Minimum 100 k Ω
Source capacitance	: 200 to 1000 pF

TRANSFER, FILTERS

- TCC 165	: 1 mV/pC, 2500 pC, 1Hz 5% - 25 kHz (-3dB)
- TCC 168	: 5 mV/pC, 500 pC, 1Hz 5% - 7.5 kHz (-3dB)
- TCC 169	: 0.5 mV/pC, 5000 pC, 1Hz 5% - 25 kHz (-3dB)
- TCC 170	: 0.5 mV/pC, 5000 pC, 10Hz 5% - 25 kHz (-3dB)
- TCC 171	: 1.25 mV/pC, 2000 pC, 30Hz - 3dB - 3 kHz (-3dB)

LP filter

- Type	: Butterworth 1 pole, TCC 171 3 pole
- Skirt slope	: 6 dB/octave, TCC 171 18 dB/octave

Gain stability	: <0.1% per 1000 pF change in source capacitance
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Amplitude linearity	: $\pm 0.5\%$ of reading from best straight line approximation to curve O/P versus I/P
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Harmonic distortion	: <0.5% at any output level
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Warm-up time	: (1 Hz HP filter) 240 s max. to meet all specifications
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OUTPUT

Configuration	: Single-ended two-wire technique
Bias DC offset voltage	: 14.5 to 17 VDC
Dynamic signal	: Max. 2.5 V _{peak}
Impedance	: <50 Ω
Residual noise (referred to input)	: 1 pC RMS, transfer 5 mV/pC, 2 pC RMS, transfer 0.5 mV/pC

Vibration sensitivity	: 0.05 pC/g, transfer 5 mV/g 0.5 pC/g, transfer 0.5 mV/g
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SUPPLY

Constant current	: 4 to 20 mA, nominal 6 mA
Voltage limit from the constant current source	: ≤ 22 V at 20 mA

Protected against polarity reversal	: Max. 50 V
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ENVIRONMENTAL

Temperature range

- Operation	: -55 to +100°C
- Storage	: -73 to +125°C

Humidity	: Splash and drip-proof. option up to 100% RH
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Vibration	: 20 mm p/p 5 to 16 Hz 10 g 16 to 60 Hz 22.5 g 60 to 70 Hz
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Shock	: 50 g peak halfsine wave 11 ms
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Acoustic sensitivity	: (Under 180 dB SLP) 0.05 pC referred to input
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PRESENTATION

Mechanical construction	: Cylindrical outside \varnothing 25.4 mm
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Length	: 61 mm
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Mounting	: M14x1.5, thickness max. 4mm
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Material	: Aluminium
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Input and output interface (mating connectors)

- Input	: 2 pole connector type Lemo FVN 03.250 CLAC 27R (Red)
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- Output	: 2 pole connector type Lemo FVN 03.250 CLAC 27B (Blue)
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Connectors for coaxial cable	: Outside \varnothing 2 to 2.7 mm
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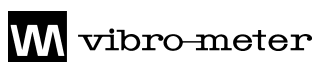
WEIGHT	: (Standard version) 40 g TCC 171 45 g
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Ordering Information:

- Type and Ordering No	: TCC 165	241-165-000-01 (1 mV/pC, 1Hz-25 kHz)
	: TCC 168	241-168-000-01 (5 mV/pC, 1Hz-7.5 kHz)
	: TCC 169	241-169-000-01 (0.5 mV/pC, 1Hz-25 kHz)
	: TCC 170	241-170-000-01 (0.5 mV/pC, 10Hz-25 kHz)
	: TCC 171	241-171-000-50 (1.25 mV/pC, 30Hz-3 kHz) (-3dB, 3 pole)



Due to the continual development of our products we reserve the right to modify the specifications without forewarning.



Head Office

Vibro-Meter SA, Rte de Moncor 4,
P.O. Box 1071, CH-1701 Fribourg, Switzerland
Phone : +41 26-407 11 11
Fax Industrial & Marine : +41 26-407 13 01
Fax Aerospace : +41 26-402 36 62
Fax Instrumentation : +41 26-407 13 75
E-mail : vmsa@vibro-meter.ch
Internet : www.vibro-meter.com
www.meggitt.com

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