REMOTE CHARGE CONVERTER
Model 1772M1-X

Product description

Model 1772M1 Remote Charge Converters are designed for high-temperature piezoelectric (PE) (HTPE) transducers that can operate at temperatures up to + 815°C (+ 1500°F).

The circuit is connected to the PE with a high temperature coaxial cable. The circuit makes it possible to operate with high-temperature PE typically having resistance as low as 10 kΩ at high temperatures. The 1772M1 has a gain of 1 or 2. The sensitivity of the circuit is not affected by the PE transducer's and cable capacitances.

Model Number Definition:
1772M1-1 Fixed gain of 1 mV/pC
1772M1-2 Fixed gain of 2 mV/pC

Key features and benefits

- Sensitivities: 1 mV/pC, and 2 mV/pC
- Capable to operate with PEs having resistance ⩾ 10 kΩ
- Output signal on same 2 wires that carry supply current from constant current power supply
- Operation over a constant current range of 4 to 20 mA and temperature range of +14°F to +212°F (-10°C to +100°C).
- Radiation resistant: 1.0 MRads (integrated Gamma)
- Compliance: Industrial CE Standard Class A
- RoHS Compliant

Applications

- Operates with extreme high temperature PE transducers having resistance of ⩾ 10 kΩ
- Has a gain of 1 or 2

Parker Defense Systems

Parker Meggitt Defense Systems
9801 Muirlands Blvd.
Irvine, CA 92618
+1 (949) 465 7700
www.meggittdefense.com

REMOTE CHARGE CONVERTER
Model 1772M1-X

Specifications	
The following performance specifications are typical values, referenced at +75˚F (+24˚C) unless otherwise noted.	
Electrical Characteristics **Input characteristics** Input Connection Source Impedance Source Resistance, R_{PE} Source Capacitance, C_{PE} Input Range	 The input is single ended with one side connected to signal ground Input $R_{PE} \geqslant 10\ k\Omega$ $C_{PE} \leqslant 1000\ pF$ 5000 pCpk (-1) and 2500 pCpk (-2)
Output characteristics Output Connections Output Impedance Capacitive Load DC Output Bias Maximum Output Voltage Electrical Noise at the output C_{PE} = 50 pF Broadband noise (1 Hz - 10 kHz) Spectral density noise	 The output is single ended with one side connected to signal ground 50 Ohm maximum The output is direct coupled and requires capacitive decoupling for resistive loads +11.5 Vdc to +16.0 Vdc over all temperature range 5 Vpk, 10 Vpk-pk **(-1)** **(-2)** µV rms 10 15 µV/√Hz 1 Hz 9 10 10 Hz 1 2 100 Hz 0.1 0.2 1 kHz 0.04 0.03 10 kHz 0.04 0.03
Transfer Characteristics Gain -1 Gain -2	 1 mV/pC ±2.5% 2 mV/pC ±2.5%
Gain Stability With Temperature Total Harmonic Distortion	 The gain will change less than ±1% referred to the +25˚C gain over the temperature range +14˚F to +212˚F (-10˚C to +100˚C) Less than 1% for output signals
Power requirements Current Requirement Voltage Supply Warm Up Time	The remote charge converter is designed to be powered from a positive constant current supply +4 mA to +20 mA +24 Vdc to +30 Vdc 3 minutes to meet 10 V pk-pk output voltage

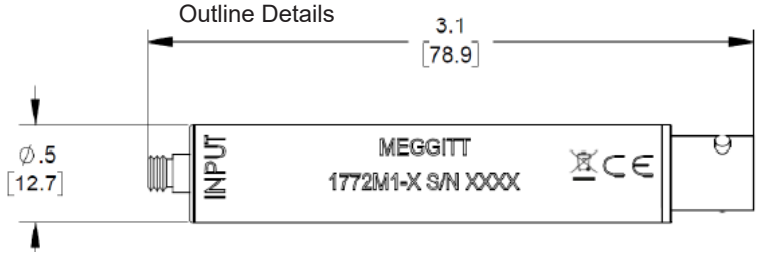
Parker Defense Systems

REMOTE CHARGE CONVERTER
Model 1772M1-X

Physical	
Dimensions	See Outline Details, inch[mm]
Weight	Maximum 2.0 oz (56.7 g)
Case material	
Case Material	Stainless steel
Input Connector	Microdot Connector, S-50 series or equivalent
Output Connector	BNC Coaxial Connector
Environmental	
Temperature	
Operating Temperature	+14°F to +212°F (-10°C to +100°C)
Humidity	The unit will withstand 95% relative humidity.
Vibration	20 g pk level with frequency sweep from 55 Hz to 2000 Hz
Shock	100g pk amplitude with 3.6ms have-sine pulse
Radiation	1.0 MRads (integrated Gamma)
Compliance	Industrial CE standard class A
Accessories	Optional: Model 1001-XXX Cable assembly (10-32/10-32), 10 ft, for under +550˚F (288˚C) Model 1001M1-XXX Cable assembly (10-32/BNC) , 10 ft, for under +550˚F (288˚C), BNC +330˚F (165˚C)

Frequency Response (ref 100 Hz)			
		1772M1-1	**1772M1-2**
R_{PE} >20kΩ	±5%	⩽11 Hz - ⩾50 kHz	⩽15 Hz - ⩾50 kHz
	±10%	⩽6 Hz - ⩾50 kHz	⩽8 Hz - ⩾50 kHz
	-3dB	⩽3 Hz - ⩾50 kHz	⩽4 Hz - ⩾50 kHz
R_{PE} =20kΩ	±5%	⩽7 Hz - ⩾50 kHz	⩽7 Hz - ⩾50 kHz
	±10%	⩽4 Hz - ⩾50 kHz	⩽5 Hz - ⩾50 kHz
	-3dB	⩽2.5 Hz - ⩾50 kHz	⩽3.5 Hz - ⩾50 kHz
R_{PE} =10kΩ	±5%	⩽4 Hz - ⩾50 kHz	⩽5 Hz - ⩾50 kHz
	±10%	⩽3 Hz - ⩾50 kHz	⩽4 Hz - ⩾50 kHz
	-3dB	⩽2 Hz - ⩾50 kHz	⩽2.5 Hz - ⩾50 kHz

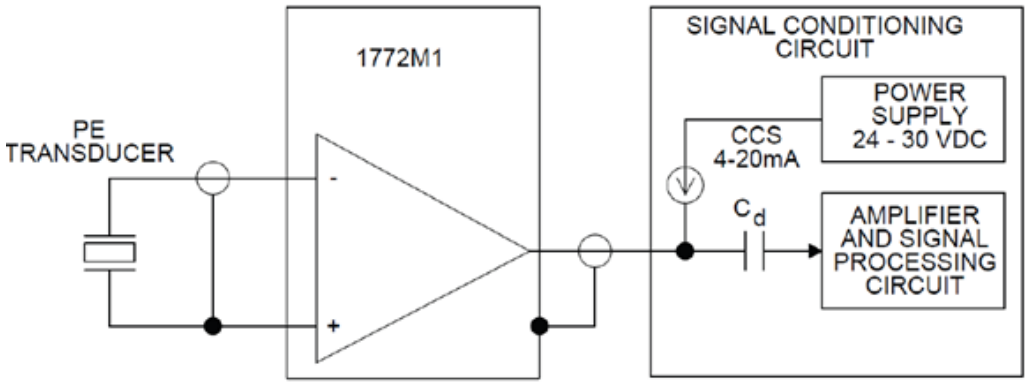
Outline Details



Parker Defense Systems

REMOTE CHARGE CONVERTER
Model 1772M1-X

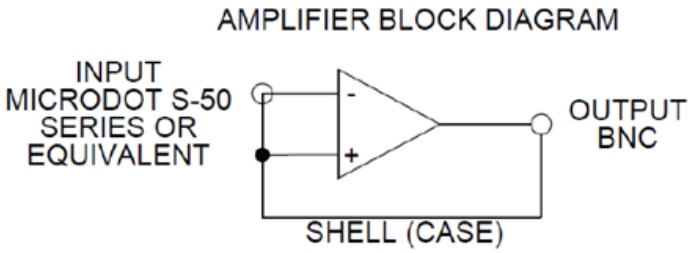
CONNECTION DIAGRAM



CCS = CONSTANT CURRENT SOURCE (CURRENT REGULATOR DIODE)

C_d = DECOUPLING CAPACITOR

BLOCK DIAGRAM



APPLIES TO CALIFORNIA FACILITY

Continued product improvement necessitates that MEGGITT reserve the right to modify these specifications without notice. MEGGITT maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. 010121

Parker Defense Systems

Note: Due to continuous process improvement, specifications are subject to change without notice. TCO Review # 353