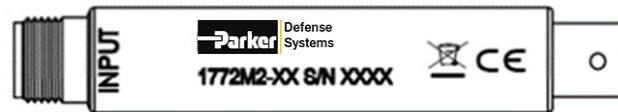


DIFFERENTIAL REMOTE CHARGE CONVERTER (DRCC)

Model 1772M2-XX



Product description

This specification describes the Parker Meggitt Model 1772M2 Differential Remote Charge Converters (DRCC) designed for high-temperature differential 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 1772M2 has a gain of 1, 2, 5 or 10. The sensitivity of the circuit is not affected by the PE transducer's and cable capacitances.

Model Number Definition:

1772M2-01 Fixed gain of 1 mV/pC

1772M2-02 Fixed gain of 2 mV/pC

1772M2-05 Fixed gain of 5 mV/pC

1772M2-10 Fixed gain of 10 mV/pC

Key features and benefits

- 4 gains: 1 mV/pC, 2 mV/pC, 5 mV/pC & 10 mV/pC
- Capable to operate with PEs having resistance ≥ 10 kΩ
- Two wire output: Output signal on same 2 wires that carry supply current from constant current power supply
- Operation over a constant current range of 4 to 16 mA and temperature range of - 4°F to +230°F (-20°C to +110°C).
- Radiation resistant: 1.0 MRads (integrated Gamma)
- Low Noise
- Small size and weight
- Compliance: Industrial CE Standard Class A & RoHS

Applications

- Operates with extreme high temperature Differential PE transducers having resistance of ≥ 10 kΩ
- Has a gain of 1, 2, 5 and 10



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Specifications

The following performance specifications are typical values, referenced at +75°F (+24°C) unless otherwise noted.

Electrical Characteristics Input characteristics Input Connection Source Resistance, R_{PE} Source Capacitance, C_{PE} Input Range	The input is 2-pin differential with cable shield connected to signal ground/case $R_{PE} \geq 10 \text{ k}\Omega$ $C_{PE} \leq 10,000 \text{ pF}$ 3500 pCpk (-01) and 1750 pCpk (-02), 700 pCpk (-05) and 350 pCpk (-10)																																			
Output characteristics Output Connections Output Impedance Capacitive Load DC Output Bias Maximum Output Voltage Electrical Noise at the output $C_{PE} = 1000 \text{ pF}$ Broadband noise (1 Hz - 10 kHz) Spectral density noise	The 2-wire 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 +11.0 Vdc to +16.0 Vdc over all temperature range 3.5 Vpk-, 7 Vpk-pk <table border="1"> <thead> <tr> <th></th> <th>(-01)</th> <th>(-02)</th> <th>(-03)</th> <th>(-04)</th> </tr> </thead> <tbody> <tr> <td>$\mu\text{V rms}$</td> <td>15</td> <td>20</td> <td>25</td> <td>40</td> </tr> <tr> <td>$\mu\text{V}/\sqrt{\text{Hz}}$</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1 Hz</td> <td>10</td> <td>17</td> <td>20</td> <td>15</td> </tr> <tr> <td>10 Hz</td> <td>1.6</td> <td>3</td> <td>3</td> <td>4</td> </tr> <tr> <td>100 Hz</td> <td>0.15</td> <td>0.2</td> <td>0.3</td> <td>0.5</td> </tr> <tr> <td>1 kHz</td> <td>0.05</td> <td>0.06</td> <td>0.15</td> <td>0.2</td> </tr> </tbody> </table>		(-01)	(-02)	(-03)	(-04)	$\mu\text{V rms}$	15	20	25	40	$\mu\text{V}/\sqrt{\text{Hz}}$					1 Hz	10	17	20	15	10 Hz	1.6	3	3	4	100 Hz	0.15	0.2	0.3	0.5	1 kHz	0.05	0.06	0.15	0.2
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Transfer Characteristics	Gain at 100 Hz -01: 1 mV/pC +2/-4% Gain at 100 Hz -02: 2 mV/pC +2/-4% Gain at 100 Hz -05: 5 mV/pC +2/-4% Gain at 100 Hz -10: 10 mV/pC +2/-4%																																			

Frequency Response (ref 100 Hz)

		1772M2-01	1772M2-02	1772M2-05	1772M2-10
$R_{PE} > 20 \text{ k}\Omega$	$\pm 5\%$	$\leq 9 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 9 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 22 \text{ Hz} - \geq 30 \text{ kHz}$
	$\pm 10\%$	$\leq 6.5 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 6.5 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 8 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 15 \text{ Hz} - \geq 30 \text{ kHz}$
	-3dB	$\leq 3 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 3 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 4 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 8 \text{ Hz} - \geq 30 \text{ kHz}$
$R_{PE} = 20 \text{ k}\Omega$	$\pm 5\%$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 8 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 22 \text{ Hz} - \geq 30 \text{ kHz}$
	$\pm 10\%$	$\leq 7 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 8 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 6 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 15 \text{ Hz} - \geq 30 \text{ kHz}$
	-3dB	$\leq 4 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 4 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 4 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 8 \text{ Hz} - \geq 30 \text{ kHz}$
$R_{PE} = 10 \text{ k}\Omega$	$\pm 5\%$	$\leq 15 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 12 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 16 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 25 \text{ Hz} - \geq 30 \text{ kHz}$
	$\pm 10\%$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 12 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 18 \text{ Hz} - \geq 30 \text{ kHz}$
	-3dB	$\leq 5 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 5 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 6 \text{ Hz} - \geq 30 \text{ kHz}$	$\leq 10 \text{ Hz} - \geq 30 \text{ kHz}$

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Specifications

Gain Stability

With Temperature	The gain will change less than $\pm 1\%$ referred to the $+25^{\circ}\text{C}$ gain over the temperature range
Total Harmonic Distortion	Less than 1% for output signals

Power requirements

The remote charge converter is designed to be powered from a positive constant current supply

Current Requirement	+4 mA to +16 mA
Voltage Supply	+23 Vdc to +30 Vdc
Warm Up Time	10 seconds to meet 7 V pk-pk output voltage

Physical

Dimensions	See Outline Drawing
Weight	Maximum 2.0 oz (56.7 grams)
Case material	
Case Material	Stainless steel
Input Connector	2 pin receptacle 70082
Output Connector	BNC Coaxial Connector

Environmental

Temperature	
Operating Temperature	-4°F to $+230^{\circ}\text{F}$ (-20°C to $+110^{\circ}\text{C}$)
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 half-sine pulse
Radiation	1.0 MRads (integrated Gamma)
Compliance	Industrial CE standard class A

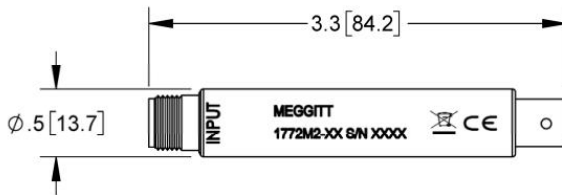
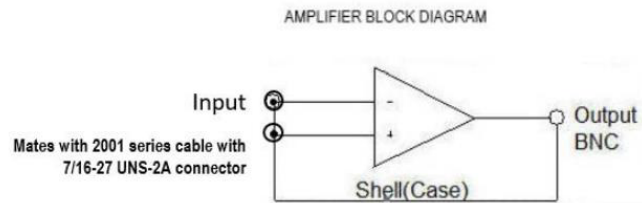
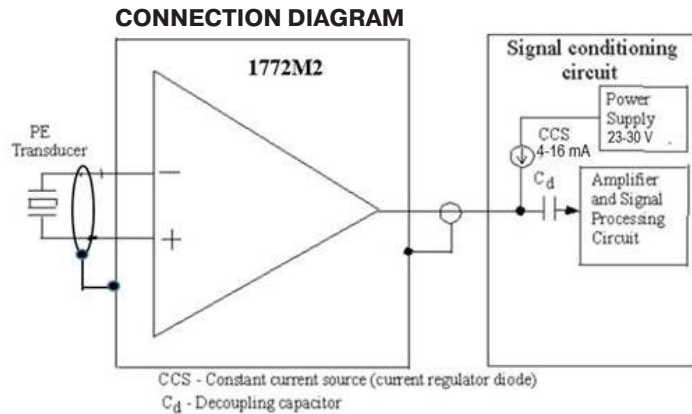
Accessories	OPTIONAL: Model 2001M1-XXX Cable assembly 10 ft, for under $+392^{\circ}\text{F}$ (200°C)
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Defense
Systems

DIFFERENTIAL REMOTE CHARGE CONVERTER (DRCC)

Model 1772M2-XX



STANDARD TOLERANCE

INCHES	[MILLIMETERS]
.XX = ± .02	[.X = ± .5]
.XXX = ± .010	[.XX = ± .25]

OUTLINE DRAWING



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

