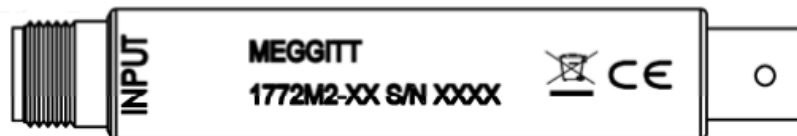


## DATA SHEET

# Differential Remote Charge Converter (DRCC)

Model 1772M2-XX



## 01 Description

This specification describes the MEGGITT Model 1772M2 Differential Remote Charge Converters (DRCC) designed for high-temperature differential 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

## 02 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  $\geq 10 \text{ k}\Omega$
- 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

## 03 Applications

- Operates with extreme high temperature Differential PE transducers having resistance of  $\geq 10 \text{ k}\Omega$
- Has a gain of 1, 2, 5 and 10

## 04 Contact

1-833-HITEMP1  
TMCSR.MSSOC@meggitt.com

## DATA SHEET

# DIFFERENTIAL REMOTE CHARGE CONVERTER (DRCC), Model 1772M2-XX

## 05 Specifications

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

### Electrical Characteristics

#### Input characteristics

Input Connection	The input is 2-pin differential with cable shield connected to signal ground/case
Source Resistance, $R_{PE}$	$R_{PE} \geq 10 \text{ k}\Omega$
Source Capacitance, $C_{PE}$	$C_{PE} \leq 10,000 \text{ pF}$
Input Range	3500 pCpk <b>(-01)</b> and 1750 pCpk <b>(-02)</b> , 700 pCpk <b>(-05)</b> and 350 pCpk <b>(-10)</b>

#### Output characteristics

Output Connections	The 2-wire output is single ended with one side connected to signal ground
Output Impedance	50 Ohm maximum
Capacitive Load	The output is direct coupled and requires capacitive decoupling for resistive loads
DC Output Bias	+11.0 Vdc to +16.0 Vdc over all temperature range
Maximum Output Voltage	3.5 Vpk-pk, 7 Vpk-pk
Electrical Noise at the output	

$C_{PE} = 1000 \text{ pF}$

Broadband noise (1 Hz - 10 kHz)	$\mu\text{V rms}$	<b>(-01)</b>	<b>(-02)</b>	<b>(-03)</b>	<b>(-04)</b>
Spectral density noise	$\mu\text{V}/\sqrt{\text{Hz}}$				
	1 Hz	15	20	25	40
	10 Hz	10	17	20	15
	100 Hz	1.6	3	3	4
	1 kHz	0.15	0.2	0.3	0.5
		0.05	0.06	0.15	0.2

## DATA SHEET

# DIFFERENTIAL REMOTE CHARGE CONVERTER (DRCC), Model 1772M2-XX

### 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
<b>R<sub>PE</sub> &gt;20kΩ</b>	±5%	≤ 9 Hz - ≥30 kHz	≤ 9 Hz - ≥30 kHz	≤10 Hz - ≥30 kHz	≤22 Hz - ≥30 kHz
	±10%	≤ 6.5 Hz - ≥30 kHz	≤ 6.5 Hz - ≥30 kHz	≤ 8 Hz - ≥30 kHz	≤15 Hz - ≥30 kHz
	-3dB	≤ 3 Hz - ≥30 kHz	≤ 3 Hz - ≥30 kHz	≤ 4 Hz - ≥30 kHz	≤ 8 Hz - ≥30 kHz
<b>R<sub>PE</sub> =20kΩ</b>	+5%	≤ 10 Hz - ≥30 kHz	≤ 10 Hz - ≥30 kHz	≤8 Hz - ≥30 kHz	≤22 Hz - ≥30 kHz
	+10%	≤ 7 Hz - ≥30 kHz	≤ 8 Hz - ≥30 kHz	≤6 Hz - ≥30 kHz	≤15 Hz - ≥30 kHz
	-3dB	≤ 4 Hz - ≥30 kHz	≤ 4 Hz - ≥30 kHz	≤4 Hz - ≥30 kHz	≤8 Hz - ≥30 kHz
<b>R<sub>PE</sub> =10kΩ</b>	+5%	≤ 15 Hz - ≥30 kHz	≤ 12 Hz - ≥30 kHz	≤16 Hz - ≥30 kHz	≤25 Hz - ≥30 kHz
	+10%	≤ 10 Hz - ≥30 kHz	≤ 10 Hz - ≥30 kHz	≤12 Hz - ≥30 kHz	≤18 Hz - ≥30 kHz
	-3dB	≤ 5 Hz - ≥30 kHz	≤ 5 Hz - ≥30 kHz	≤6 Hz - ≥30 kHz	≤10 Hz - ≥30 kHz

### Gain Stability

With Temperature                      The gain will change less than ±1% referred to the +25°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

## DATA SHEET

# DIFFERENTIAL REMOTE CHARGE CONVERTER (DRCC), Model 1772M2-XX

### 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

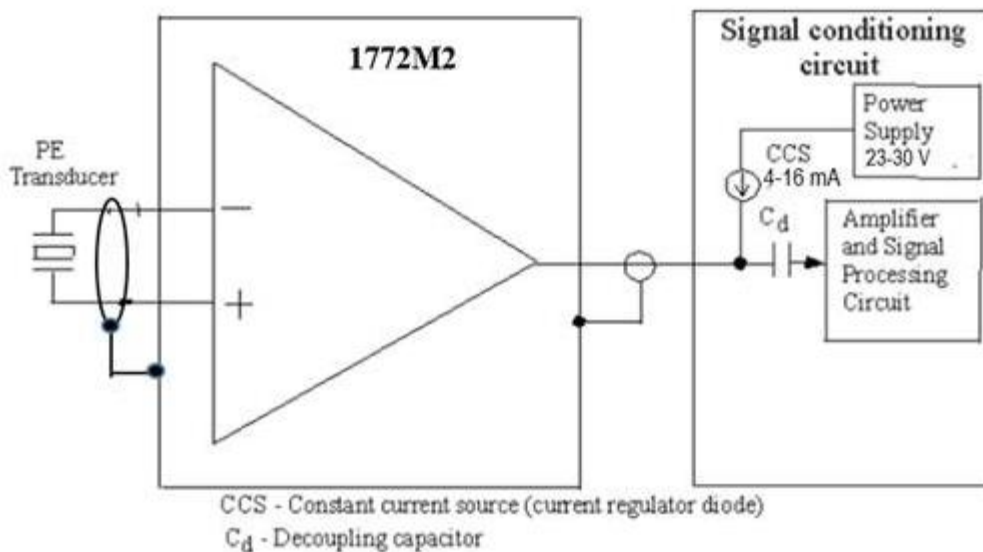
### Environmental

Temperature	
Operating Temperature	-4°F to +230°F (-20°C to +110°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

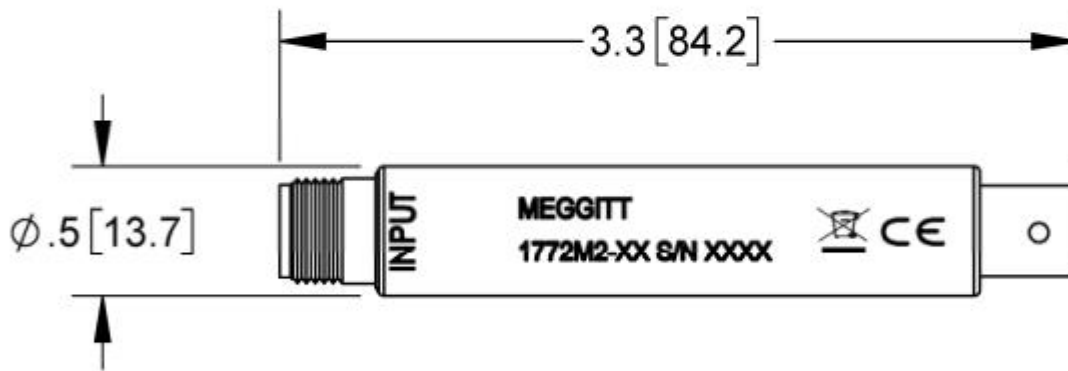
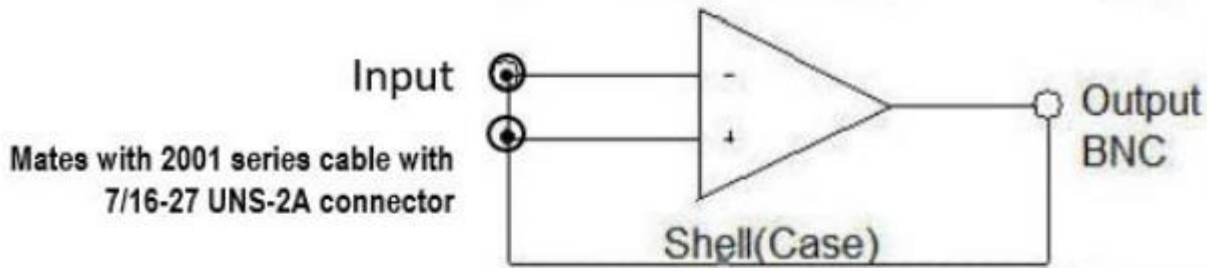
OPTIONAL:  
Model 2001M1-XXX Cable assembly 10 ft, for under +392°F (200°C)

### 06 Outline details



CONNECTION DIAGRAM

AMPLIFIER BLOCK DIAGRAM



STANDARD TOLERANCE

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

OUTLINE DRAWING

Note:



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, support of stringent Quality Control requirements, and compulsory corrective action procedures. 060724

Note: Due to continuous process improvement, specifications are subject to change without notice. TCO Review #316