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MEGGITT

DATA SHEET

Remote Charge Converter

Model 1772M1-X

01 Description

This specification describes the MEGGITT Model 1772M1 Remote Charge Converters are designed for high-temperature 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

02 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

03 Applications

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

04 Contact

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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 single ended with one side connected to signal ground Input
Source Impedance	
Source Resistance, R_{PE}	$R_{PE} \geq 10\ k\Omega$
Source Capacitance, C_{PE}	$C_{PE} \leq 1000$ pF
Input Range	5000 pCpk (**-1**) and 2500 pCpk (**-2**)

Output characteristics

Output Connections	The output is single ended with one side connected to signal ground Output
Output Impedance	50 Ohm maximum
Capacitive Load	The output is direct coupled and requires capacitive decoupling for resistive loads
DC Output Bias	+11.5 Vdc to +16.0 Vdc over all temperature range
Maximum Output Voltage	5 Vpk-pk, 10 Vpkpk
Electrical Noise at the output	

C_{PE} = 50 pF

		(**-1**)	(**-2**)
Broadband noise			
(1 Hz - 10 kHz)	µV rms	10	15
Spectral density noise	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

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Transfer Characteristics

Gain **-1**: 1 mV/pC ±2.5%
Gain **-2**: 2 mV/pC ±2.5%

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

Gain Stability

With Temperature	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)
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 +20 mA
Voltage Supply	+24 Vdc to +30 Vdc
Warm Up Time	3 minutes to meet 10 V pk-pk output voltage

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Physical

Dimensions	See Outline Details, inch[mm]
Weight	Maximum 2.0 oz
Case material	
Case Material	Stainless steel
Input Connector	Microdot Connector, S-50 series or equivalent
Output Connector	BNC Coaxial Connector

Environmental

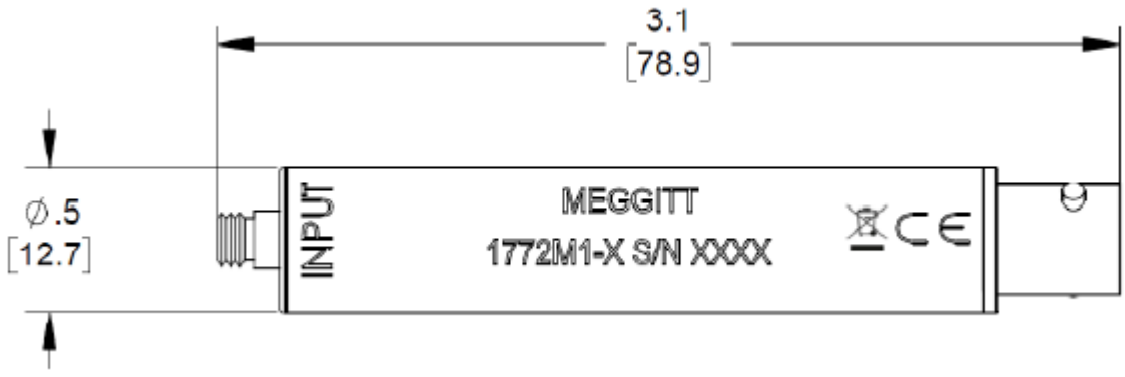
Temperature	
Operating Temperature	+14°F to +212°F (-10°C to +100°C)
Humidity	The unit will withstand 95% relative humidity.
Vibration	20 g pk level with frequency sweep from 55 Hz to 2000 Hz
Shock	100g pk amplitude with 3.6ms haver-sine pulse
Radiation	1.0 MRads (integrated Gamma)
Compliance	Industrial 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),

06 Outline details



Note:

APPLIES TO CALIFORNIA FACILITY