Accelerometer Charge Conversion

The 55CA Charge Amplifier conditions and amplifies charge mode accelerometer signals. It is a rugged device designed to be used in engine test cells and other environments where charge mode accelerometers are used to measure machinery vibration.

Each 55CA Charge Amplifier provides one (1) channel of charge amplification, and provides a buffered acceleration output signal as well as an integrated (velocity) signal output. Both single-ended and differential outputs are provided.

Input type, mounting style, gain, and filter settings are specified at the time of order, and configured at the MTI Instruments factory to match accelerometer type, sensitivities, and testing requirements.

Features

**Input Signal**
- Differential or single-ended charge

**Input Connector**
- Single-ended: Microdot S-50
- Differential: MS3102A-10SL-3P

**Output Signals**
- Single-ended velocity and acceleration
- Differential velocity and acceleration

**Output Connector**
- DB-15 male (pins)

At time of order choose options:

**Gain**
- 1, 4, or 10 mV/pC

**High Pass Filter**
- 0, 10, 15, 20, or 25 Hz

**Low Pass Filter**
- 10K, 5K, 2K, or 500 Hz

Product Options

<table>
<thead>
<tr>
<th>P/N</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>8000-6426-001</td>
<td>55CA Differential Charge Amp – Plain Lid</td>
</tr>
<tr>
<td>8000-6426-002</td>
<td>55CA Differential Charge Amp – DIN Rail</td>
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<tr>
<td>8000-6426-003</td>
<td>55CA Differential Charge Amp – Flange Mount</td>
</tr>
<tr>
<td>8000-6502-001</td>
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Specifications

**Charge Input**
- **Connector**: Single-ended: Microdot S-50
- **Differential**: MS3102A-10SL-3P
- **Maximum Charge**: 10,000 pC peak
- **CMMR (differential)**: >40dB @ 500Hz

**Outputs**
- **Connector**: DB-15 male (pins)
- **Output Impedance**: <50Ω
- **DC Output Offset**: <10 mV
- **Linear Output Voltage**: 20 V peak-peak
- **Output Current**: 10 mA maximum
- **Residual Noise (RTD)**:
  - <1.0 mV RMS maximum at gain = 1 mV/pC
  - <4.0 mV RMS max at gain = 10 mV/pC

**Transfer Characteristics**
- **Gain**: 1, 4, or 10 mV/pC
- **Gain Error**: < ±1% (nominal) ±2% (max)
- **Temperature Stability**: Better than ±1% over operating range

**Frequency Response**
- **High Pass (-3dB point)**: 10 / 15 / 20 / 25 Hz ±10% (4th order Butterworth)
- **Low Pass (-3dB point)**: 10k / 5k / 2k / 500 Hz ±5% (1st order)

**Power Requirements**
- Two input power options:
  - #1: 20-30 VDC @ 80 mA operational
  - #2: ±12 VDC @ ±60 mA operational
- **Warm-up Time**: 60 seconds

**Physical Characteristics**
- **Dimensions**: 1.6” H X 2.6” W X 4.77” D
- **Weight**: 7.7 oz. (0.2 kg)
- **Case Material**: Aluminum
- **Mounting**: Flange (DIN optional)

**Environmental Characteristics**
- **Operating Temperature**: -4ºF to 140ºF (-20ºC to 60ºC) No frost
- **Storage Temperature**: -40ºF to 212ºF (-40ºC to 100ºC)
- **Humidity**: 95% relative humidity, non-condensing
- **Vibration**: 8 G peak from 20 Hz to 1 kHz
- **Shock**: 50 G peak