CWT MiniHF  NEW

- New model featuring
  - A novel electrostatic shielded Rogowski coil providing excellent immunity to interference from fast local dV/dt transients or large 50/60Hz voltages
  - Extended (-3dB) high frequency bandwidth 30MHz for a 100mm coil
  - Peak di/dt capability up to 100kA/µs
  - Wide operating temperature from -40°C to +125°C
  - 4.5mm thick Rogowski coil with 5kV peak insulation.

Rogowski benefits
Both versions offer the advantages of a CWT Rogowski probe, including:
- simple to use and easy to insert into difficult to reach parts of the circuit
- practically zero insertion impedance
- freedom from flying leads
- isolated measurement
- peak-current ratings from 30A to 300kA
- ±6V into 1MΩ and now with 50Ω drive capability

3kV CWT MiniHF coil through the legs of a TO-247 device

CWT Mini
- Improvements to the existing range
  - Extended (-3dB) low frequency bandwidth typically less than 1Hz
  - Extended (-3dB) high frequency bandwidth up to 20MHz for a 100mm coil
  - Improved peak di/dt up to 40kA/µs
  - 3.5mm thickness with 2kVpeak, and 4.5mm thickness with 5kVpeak insulation coils

Applications
- Semiconductor switching waveforms (device loss)
- Measuring high frequency sinusoidal, pulsed or transient currents from power frequency to rf applications
- Power converter development and diagnostics for example:
  - MOSFET/IGBT devices as small as TO-247 or around the terminals of large power modules
  - monitoring currents in small inductors, capacitors, snubber circuits, etc
- Measuring small AC currents in the presence of large DC currents (e.g. monitoring capacitor ripple)
- Measuring current in motor drives and in particular power quality measurements in VSD, UPS or SMPS circuits
**Performance**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensitivity (mV/A)</th>
<th>Peak current<strong>1</strong> (kA)</th>
<th>Noise max*2 (mVp-p)</th>
<th>Droop (%/ms)</th>
<th>LF (-3dB) bandwidth (Hz)</th>
<th>PEAK<strong>1</strong> dl/dt (kA/µs)</th>
<th>HF (-3dB) bandwidth<strong>3</strong> (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWT MiniHF 200</td>
<td>0.03</td>
<td>15</td>
<td>85</td>
<td>150</td>
<td>2.0</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>CWT MiniHF 100</td>
<td>0.06</td>
<td>11</td>
<td>78</td>
<td>100</td>
<td>4.0</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>CWT MiniHF 60</td>
<td>0.12</td>
<td>8.0</td>
<td>70</td>
<td>75</td>
<td>8.0</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>CWT Mini 20</td>
<td>0.3</td>
<td>5.0</td>
<td>33</td>
<td>50</td>
<td>20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>CWT Mini 10</td>
<td>0.6</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>40</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>CWT Mini 5</td>
<td>1</td>
<td>12</td>
<td>4.5</td>
<td>4.8</td>
<td>2.5</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>CWT Mini 3</td>
<td>1.2</td>
<td>10</td>
<td>0.8</td>
<td>0.9</td>
<td>10</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>CWT Mini 1</td>
<td>3.0</td>
<td>10</td>
<td>0.8</td>
<td>0.9</td>
<td>10</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>CWT Mini 0.5</td>
<td>5.0</td>
<td>6.0</td>
<td>0.2</td>
<td>0.2</td>
<td>5.0</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>CWT Mini 0.2</td>
<td>10</td>
<td>12.0</td>
<td>0.0</td>
<td>0.0</td>
<td>12.0</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>CWT Mini 0.1</td>
<td>15</td>
<td>15.0</td>
<td>0.0</td>
<td>0.0</td>
<td>15.0</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>CWT Mini 0.05</td>
<td>20</td>
<td>20.0</td>
<td>0.0</td>
<td>0.0</td>
<td>20.0</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>CWT Mini 0.02</td>
<td>25</td>
<td>25.0</td>
<td>0.0</td>
<td>0.0</td>
<td>25.0</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>CWT Mini 0.01</td>
<td>30</td>
<td>30.0</td>
<td>0.0</td>
<td>0.0</td>
<td>30.0</td>
<td>60</td>
<td>20</td>
</tr>
</tbody>
</table>

**Notes:**
- Higher current ratings are available, CWT300: Peak current 600A, CWT600: Peak current 1200A, CWT1200: Peak current 3000A etc.
- Noise max. is the internally generated integrator noise which is at a maximum at LF(-3dB) bandwidth
- The High Frequency HF(-3dB) is quoted for a 2.5m cable between coil and integrator.

**Output:**
- ±6V peak corresponding to “Peak Current” into = 100Ω (e.g. DC1MΩ oscilloscope).
- ±3V peak corresponding to “Peak Current” into = 50Ω (for long cable runs > 2m).

**Accuracy:**
- Conductor position in the coil (for a 2mm² conductor) typically ±2% reading.
- Linearity (with current magnitude) ±0.5% reading.

**Calibration:**
- Calibrated to ±2% reading with conductor central in the coil loop.

**DC offset:**
- ±3mV at 25°C.

**Temperature:**
- Coil and Cable: -40°C to +125°C - (CWT MiniHF).
- Cable and Integrator: 0°C to +40°C - (CWT Mini).

**di/dt ratings:**
- These are ‘Absolute maximum di/dt ratings’ and values must not be exceeded.

<table>
<thead>
<tr>
<th>Type</th>
<th>Abs. Max. peak di/dt</th>
<th>Abs. Max. rms di/dt</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWT MiniHF</td>
<td>1.2kA/µs</td>
<td>1.26kA/µs</td>
</tr>
<tr>
<td>CWT Mini</td>
<td>400A/µs</td>
<td>700A/µs</td>
</tr>
</tbody>
</table>

**Coil length:**
- 100 or 200mm – longer coils available on request.

**Insulation:**
- 2kV peak (3.5mm thick coil - CWT Mini models ONLY).
- 5kV peak (4.5mm thick coil).

**Cable length:**
- 1, 2, 5 or 4m – length of cable from coil to electronics longer cables available on request.

**Power Options:**
- B - Standard: 4 x AA 1.5V alkaline batteries. Lifetime 25 hours. External adaptor disconnects batteries and power unit.
- R - Rechargeable: 4 x AA 1.2V NiMH batteries. Lifetime 10 hours. External adaptor recharges batteries and powers unit.

**External power adaptor:**
- US, EURO, UK versions available.

**Generating the part code:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Power option</th>
<th>Cable length (m)</th>
<th>Insulation (kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWT MiniHF 200</td>
<td>R</td>
<td>100 or 200</td>
<td>5</td>
</tr>
<tr>
<td>CWT MiniHF 100</td>
<td>R</td>
<td>100 or 200</td>
<td>5</td>
</tr>
<tr>
<td>CWT MiniHF 60</td>
<td>R</td>
<td>120 or 240</td>
<td>5</td>
</tr>
</tbody>
</table>

**Notes:**
- i.e. a CWT MiniHF, peak current 120A, Rechargeable battery, 2.5m cable, 100mm circumference coil, 5kV peak coil, 4.5mm thick.
- All units are supplied with factory calibration certificate, hard carry case, 0.5m BNC-BNC output cable.

If you have any inquiries regarding the CWT Mini range or require specifications outside our standard ranges please contact us.

www.pemuk.com
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