CWT SPECIFICATION

The CWT from Power Electronic Measurements Ltd. is a state of the art wide-bandwidth ac current probe.

The CWT is ideal for power electronics development work because it combines an easy to use thin, flexible, clip-around coil with an ability to accurately replicate fast switching current waveforms be they sinusoidal, quasi-sinusoidal or pulsed.

Applications
- Monitoring current waveforms for semiconductor switches
- Development and servicing of power electronic equipment
- Monitoring high frequency sinusoidal currents
- Measuring fault currents or circuit breaker interruption currents
- Measuring pulses of current
- Measuring ac currents superimposed on large dc currents
- Measuring harmonic current components
- Measuring signal or earth leakage currents in 3-phase supply systems

Features
- Measurement range from 300mA to 300,000A
- Typical bandwidths from 0.1Hz to 16MHz
- The DC offset is no greater than 2mV over the operating temperature range.
- Thin and flexible, 'clip-around' coil in lengths from 300mm to 1000mm – other lengths available as custom designs
  - Easy to insert probe in confined spaces
  - Robust lockable 'clip-in' mechanism
  - Non-intrusive – loading the circuit under test by only a few pH
- Coil peak voltage isolation capability up to 10kV
- Instantaneous ±6V peak to peak output to plug directly into scope, data acquisition equipment, DVM or power recorders
- CE Marked
- Accuracy of ±1% of reading

A 2700A current pulse with a 6700A/s falling edge measured by a CWT15 with a 500mm coil and a very high bandwith coaxial shunt - 100/s/div.
## PERFORMANCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Sensitivity (mV/A)</th>
<th>Peak current (kA)</th>
<th>Peak $di/dt$ (kA/µS)</th>
<th>Noise max† (mV/$\mu$V[p-p])</th>
<th>Droop typ. (%/ms)</th>
<th>LF (3dB) bandwidth typ. (Hz) $f_0$</th>
<th>Phase lead at 50Hz typ. (deg)</th>
<th>HF (3dB) bandwidth typ. (MHz) $f_0$ ‡</th>
<th>Cable Length (m)</th>
<th>Coax Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW...</td>
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<tr>
<td>CWT015</td>
<td>200.0</td>
<td>0.03</td>
<td>0.2</td>
<td>6.5</td>
<td>130</td>
<td>150</td>
<td>2.0 @ 6kHz</td>
<td>6</td>
<td>4</td>
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<tr>
<td>CWT03</td>
<td>100.0</td>
<td>0.06</td>
<td>0.4</td>
<td>4.5</td>
<td>90</td>
<td>105</td>
<td>2.0 @ 4kHz</td>
<td>10</td>
<td>6.5</td>
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<tr>
<td>CWT06</td>
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<td>0.12</td>
<td>0.8</td>
<td>3.0</td>
<td>70</td>
<td>80</td>
<td>2.0 @ 3kHz</td>
<td>16</td>
<td>10</td>
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<tr>
<td>CWT1</td>
<td>20.0</td>
<td>0.3</td>
<td>2.0</td>
<td>2.5</td>
<td>40</td>
<td>50</td>
<td>1.9 @ 2kHz</td>
<td>16</td>
<td>10</td>
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<tr>
<td>CWT1N</td>
<td>20.0</td>
<td>0.3</td>
<td>2.0</td>
<td>2.0</td>
<td>20</td>
<td>25</td>
<td>1.9 @ 1kHz</td>
<td>10</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CWT3</td>
<td>10.0</td>
<td>0.6</td>
<td>4.0</td>
<td>8.0</td>
<td>3.0</td>
<td>3.5</td>
<td>1.0 @ 300Hz</td>
<td>16</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

† Distributed around the $f_0$ (3dB) bandwidth.
‡ For 2.5m cable length. Contact PEM for values of $f_0$ for other coil and cable lengths

### TYPICAL ACCURACY

Traceable calibration to ±0.2% with conductor central in the loop variation with conductor position in the coil loop typically ±1%

### TYPICAL LINEARITY

±0.05% (Full Scale)

### COIL AND CABLE

1. COIL CIRCUMFERENCE
   - 300, 500, 700 or 1000mm
2. COIL CROSS SECTION (max)
   - 8.5mm - (14mm with sleeve)
3. PEAK COIL VOLTAGE ISOLATION
   - 10kV
   - Safe peak working voltage to earth. The coil is flash tested at 15kV rms for 10 seconds. The coil is supplied with a removable silicone sleeve which provides additional mechanical protection. Information about continuous use of the coil at high voltage can be obtained from PEM.
4. TEMPERATURE RANGE
   - For derating due to temperature cycling please consult PEM
   - -20°C to 100°C
5. CABLE LENGTH (from box to coil)
   - 2.5m or 4m

### INTEGRATOR

1. POWER SUPPLY
   - Battery 4 x AA (1.5V standard alkaline batteries)
   - 2.5/2.5mm socket for 12 to 24V (±10%) DC input
   - Typical life 70hrs
   - Battery is charged whenever DC supply present

2. INTegrator BOX DIMENSIONS
   - Width 183mm, Depth 93mm, D = 32mm

3. OUTPUT SOCKET
   - BNC (Output impedance 50Ω - unit supplied with 0.5m BNC - BNC coaxial cable)

4. MIN. OUTPUT LOADING
   - 100Ω (for rated accuracy)

5. TEMPERATURE RANGE
   - 0°C to 40°C

### ORDERING

<table>
<thead>
<tr>
<th>Type + Power supply</th>
<th>Cable Length</th>
<th>Coil Circumference</th>
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</thead>
<tbody>
<tr>
<td>CWT30 B</td>
<td>4</td>
<td>700</td>
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