



CWT LF SPECIFICATION

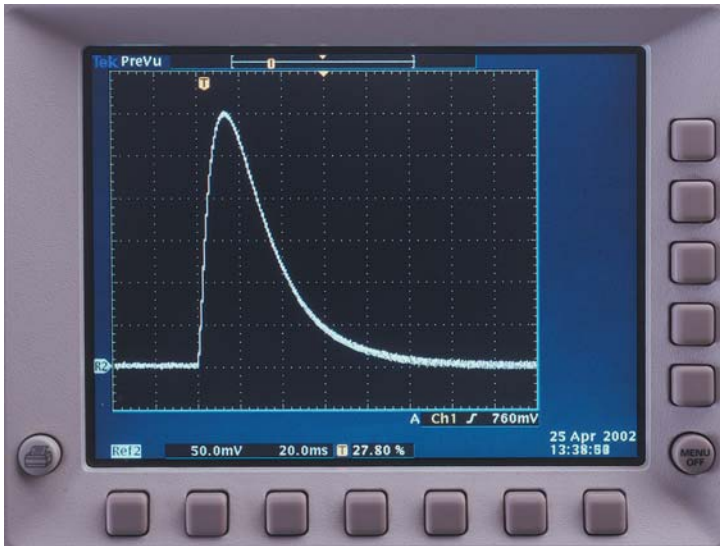
Extended Low Frequency

The **CWT LF** from *Power Electronic Measurements Ltd.* features an extended low frequency bandwidth.

This enables measurement of:

- small currents at 50/60Hz
- sinusoidal currents with significantly lower phase shift and...
- long pulses of current with significantly lower values of droop than the CWT standard or mini ranges.

The **CWT LF** can be specified with either a standard or miniature coil.



8kA Capacitor discharge measured by CWT60LF and coaxial shunt - 20ms/div.

Features

- Measuring ac currents **1A to 300,000A**
- Typical bandwidths from **0.1Hz to 6MHz**
- Very low 'droop' values
- Thin and flexible, 'clip-around' coil - **can be specified with either standard or mini coil** (see relevant specification sheet for more details)
 - ⇒ Easy to insert probe in confined spaces
 - ⇒ Non-intrusive – loading the circuit under test by only a few pH
- Instantaneous $\pm 6V$ peak to peak output to plug directly into scope, data acquisition equipment, DVM or power recorders
- CE Marked



PERFORMANCE CHARACTERISTICS

Type	Sensitivity (mV/A)	Peak current (kA)	Peak di/dt (kA/μs)	Noise max ¹ (mV _{pk-pk})	Droop typ. (%/ms)	LF (3dB) bandwidth typ. (Hz) f_L	Phase lead at 50Hz typ. (deg)	HF (3dB) bandwidth typ. (MHz) f_H *2	
								Coil Length 300mm	Coil Length 700mm

Standard Coils

CWT03LF	100.0	0.06	0.4	15.0	4.6	5.1	8.3	6.5	3.0
CWT06LF	50.0	0.12	0.8	15.0	2.3	2.6	4.2	6.5	3.0
CWT1LF	20.0	0.3	2.0	15.0	1.0	1.0	1.8	6.5	3.0
CWT3LF	10.0	0.6	4.0	15.0	0.5	0.55	0.85	6.5	3.0
CWT6LF	5.0	1.2	8.0	15.0	0.25	0.27	0.45	6.5	3.0
CWT15LF	2.0	3.0	11.0	15.0	0.1	0.11	0.18	6.5	3.0
CWT30LF	1.0	6.0	11.0	15.0	0.05	0.055	0.09	6.5	3.0
CWT60LF	0.5	12.0	11.0	15.0	0.025	0.022	0.045	6.5	3.0
CWT150LF	0.2	30.0	11.0	15.0	0.01	0.011	0.018	6.5	3.0
CWT300LF	0.1	60.0	11.0	10.0	0.007	0.008	0.012	6.5	3.0
CWT600LF	0.05	120.0	11.0	5.0	0.007	0.008	0.012	6.5	3.0
CWT1500LF	0.02	300.0	11.0	4.0	0.007	0.008	0.012	10.0	5.0

Miniature Coils

	Sensitivity (mV/A)	Peak current (kA)	Peak di/dt (kA/μs)	Noise max ¹ (mV _{pk-pk})	Droop typ. (%/ms)	LF (3dB) bandwidth typ. (Hz) f_L	Phase lead at 50Hz typ. (deg)	Coil Length 100mm	Coil Length 200mm
								CWT03LF	100.0
CWT06LF	50.0	0.12	0.8	16.0	5.1	5.6	9.3	12.0	7.5
CWT1LF	20.0	0.3	2.0	15.0	2.2	2.3	4.0	12.0	7.5
CWT3LF	10.0	0.6	4.0	15.0	1.0	1.1	1.7	12.0	7.5
CWT6LF	5.0	1.2	8.0	15.0	0.5	0.55	0.85	12.0	7.5
CWT15LF	2.0	3.0	14.0	15.0	0.2	0.22	0.35	12.0	7.5
CWT30LF	1.0	6.0	14.0	15.0	0.1	0.11	0.18	12.0	7.5
CWT60LF	0.5	12.0	14.0	15.0	0.05	0.055	0.09	12.0	7.5
CWT150LF	0.2	30.0	14.0	15.0	0.02	0.022	0.035	12.0	7.5
CWT300LF	0.1	60.0	14.0	15.0	0.01	0.011	0.018	12.0	7.5
CWT600LF	0.05	120.0	14.0	10.0	0.007	0.008	0.012	12.0	7.5

¹ Distributed around the f_L (-3dB) bandwidth.

² For 2.5m cable length. Contact PEM for values of f_H for other coil and cable lengths

TYPICAL ACCURACY Traceable calibration to $\pm 0.2\%$ with conductor central in the loop
 Variation with conductor position in the coil loop typically $\pm 1\%$ for STANDARD COILS
 Variation with conductor position in the coil loop typically $\pm 2\%$ for MINIATURE COILS

TYPICAL LINEARITY $\pm 0.05\%$ (Full Scale)

ABSOLUTE MAXIMUM VALUES OF di / dt (kA/μs) (value must not be exceeded)	(Standard coil) (Miniature coil)	PEAK 11.0 PEAK 14.0	RMS 0.8 @ 70°C RMS 0.85 @ 70°C (Further information available on request)
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COIL AND CABLE

Please refer to **CWT** and **CWT Mini** specification sheets for details about

- Coil length/Peak coil insulation voltage
- Cable length between Rogowski coil and integrator

INTEGRATOR

④ POWER SUPPLY

B Battery 4 x AA (1.5V standard alkali batteries)
-plus-
 2.1/2.5mm socket for 12 to 24V ($\pm 10\%$) DC input

Typical life 70hrs
 Battery inoperative with DC supply present

R Rechargeable battery 4 x AA (rechargeable NiMH batteries)
-plus-
 2.1/2.5mm socket for 12 to 24V ($\pm 10\%$) DC input

Recharge time 40hrs, Typical life 30hrs
 Battery is charged whenever DC supply present

⑤ **INTEGRATOR BOX DIMENSIONS** H = 183mm, W = 93mm, D = 32mm

⑥ **OUTPUT SOCKET** BNC (output impedance 50Ω - unit supplied with 0.5m BNC - BNC coaxial cable)

MIN. OUTPUT LOADING 100kΩ (for rated accuracy)

TEMPERATURE RANGE 0°C to 40°C

ORDERING

Type + Power supply

Cable Length

Coil Circumference

Insulation

e.g. order code

CWT30LF R

4

100 M

2

If you have any queries regarding the **CWT** or require specifications outside our standard ranges please do not hesitate to contact us.