

CWTMini50HF

The CWTMini50HF is a wide-band AC current probe with a fixed 0.5m BNC output to connect to most types of oscilloscope or data acquisition devices.

The CWTMini50HF offers a 50MHz (-3dB) bandwidth utilising a novel shielded clip-around coil of 100mm circumference and 3.5mm cross section diameter. The shield improves the performance of the current measurement in a circuit where the coil is exposed to fast dV/dt transients; e.g. when measuring rapid current transients in a semiconductor device with a high blocking voltage.



Coil on legs of TO-247



Different coil lengths available



Key Features

- **A novel electrostatic shielded Rogowski coil**
Excellent immunity to interference from fast local dV/dt transients or large 50/60Hz voltages.
- Wide operating temperature **-40°C to +125°C.**
- (-3dB) bandwidth up to **50MHz.**
- Rise-time **12.5ns.**
- Current ratings from **30A pk to 30kA pk.**
- Standard coil length (circumference) of **100mm** or **200mm.** *Longer coil lengths readily available.*
- Thin coils **3.5mm** cross section diameter for a **2kV pk** insulation and **4.5mm** for a **5kV pk** coil.



Applications

- Semiconductor switching waveforms (device loss).
- Switching current waveforms in power electronic circuits for example:
 - MOSFET or IGBT devices as small as TO-247.
 - Measuring power losses in semiconductors.
 - 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).
- Power converter development and diagnostics.
- Measuring high frequency sinusoidal, pulsed or transient currents in power frequency to rf applications.

Model	Sensitivity (mV/A)	Peak Current (A)	Noise ^{*1} (mVp-p)	Droop (%/ms)	LF (-3dB) (Hz)	Peak di/dt (kA/μs)	HF (-3dB) Bandwidth ^{*2} (MHz)	
							100mm	200mm
CWTMini50HF/015	200	30	20	85	150	2.0	50	36
CWTMini50HF/03	100	60	18	78	100	4.0	50	36
CWTMini50HF/06	50	120	12	70	75	8.0	50	36
CWTMini50HF/1	20	300	10	53	50	20	50	36
CWTMini50HF/3	10	600	15	11	12	40	50	36
CWTMini50HF/6	5.0	1.2k	15	5.5	6.0	80	50	36
CWTMini50HF/15	2.0	3.0k	12	2.8	3.0	80	50	36
CWTMini50HF/30	1.0	6.0k	12	1.5	1.5	100	50	36
CWTMini50HF/60	0.5	12.0k	10	1.0	1.0	100	50	36
CWTMini50HF/150	0.2	30.0k	8.0	1.0	1.0	100	50	36

*1 'Noise' is the internally generated integrator noise, this is predominantly the same frequency as the LF (-3dB) bandwidth.

*2 The HF(-3dB) is specified for a 1m cable and either a 100mm coil or 200mm coil as indicated, we can supply longer coils and cables on request.

di/dt ratings

These are 'Absolute maximum di/dt ratings' and values must not be exceeded.

Type	Abs. Max. peak di/dt	Abs. Max. rms di/dt
CWTMini50HF	100kA/μs	1.2kA/μs

Output

±6V pk corresponding to 'Peak Current' into $\geq 100\text{k}\Omega$ (recommended e.g. DC1M Ω oscilloscope).
The CWTMini50HF is not recommended for driving a 50 Ω load.

Accuracy

Calibrated to $\pm 0.2\%$ reading with conductor central in the Rogowski coil loop.
Conductor position in the coil (for a 2mm dia. conductor) typically $\pm 2\%$ reading.
Conductor position in the coil (for a 10mm dia. conductor) typically $\pm 1\%$ reading.
Linearity (with current magnitude) 0.05% reading.

DC offset

±3mV max. at 25°C

Temperature

Coil and cable -40°C to +125°C
Integrator electronics 0°C to +40°C

Coil voltage

2kV pk (3.5mm thick coil).
5kV pk (4.5mm thick coil).
Safe peak working voltage to earth.

Cable length

1m (length of cable from coil to electronics).
Longer cables are available on request.

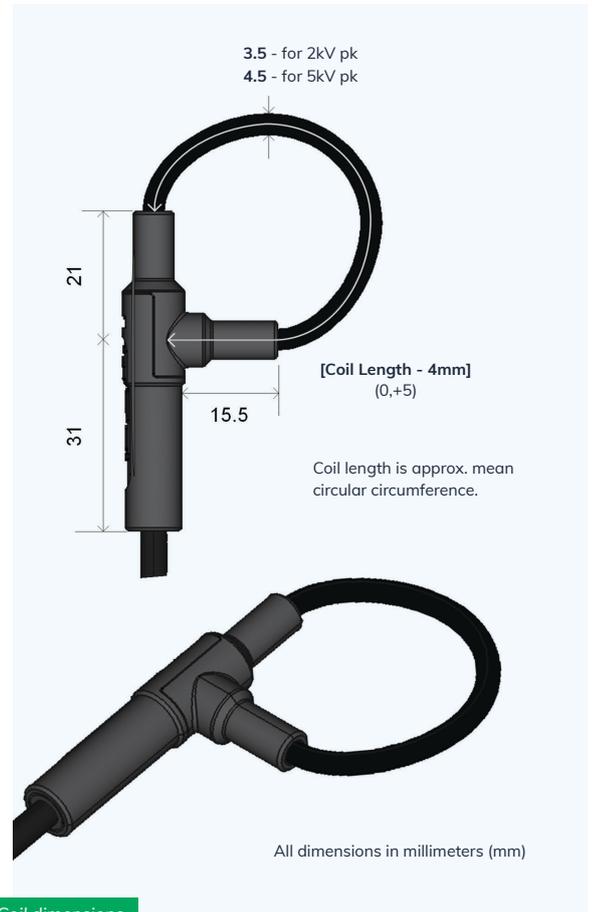
Coil length

100mm or 200mm.
Longer coils are available on request.

Battery Options

- B** **Alkaline Batteries** -- 4 x 1.5V AA alkaline batteries, 25 hour life.
External power adaptor disconnects batteries and powers unit.
- R** **Rechargeable Batteries** -- 4 x 1.2V NiMH batteries, 10 hour life.
External power adaptor trickle charges batteries and powers unit

External power adaptor available in **US, EURO, UK & AUS** versions as an optional extra.



1 2 3 4 5 6
CWTMini50HF / 06 / R / 1 / 100 / 5

Example part codes

CWTMini50HF/06/R/1/100/5

CWTMini50HF peak current 120A, Rechargeable batteries, 1m cable, 100mm coil, 5kV pk, 4.5mm thick coil.

CWTMini50HF/015/B/1/200/2

CWTMini50HF peak current 30A, Alkaline batteries, 1m cable, 200mm coil, 2kV pk, 3.5mm thick coil.

Generating the part code

- 1 **Model**
- 2 **Range**
- 3 **Battery Option**
- 4 **Cable Length (m)**
- 5 **Coil Length (mm)**
- 6 **Insulation (kV)**

Included as standard

- ✓ Carry Case
- ✓ Unit Model
- ✓ Batteries (B or R)
- ✓ 0.5m BNC Output Cable
- ✓ Calibration Certificate

Optional Extras

- + Longer Cable
- + Longer Coil
- + Power Adaptor (UK, EU, US, AU)



More detailed technical notes, dimensioned drawings, CAD files and quotation request for this product are available online.

PENI

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