

## 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 <sup>*1</sup> (mVp-p)	Droop (%/ms)	LF (-3dB) (Hz)	Peak di/dt (kA/μs)	HF (-3dB) Bandwidth <sup>*2</sup> (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 $\Omega$  oscilloscope).  
The CWTMini50HF is not recommended for driving a 50 $\Omega$  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.**

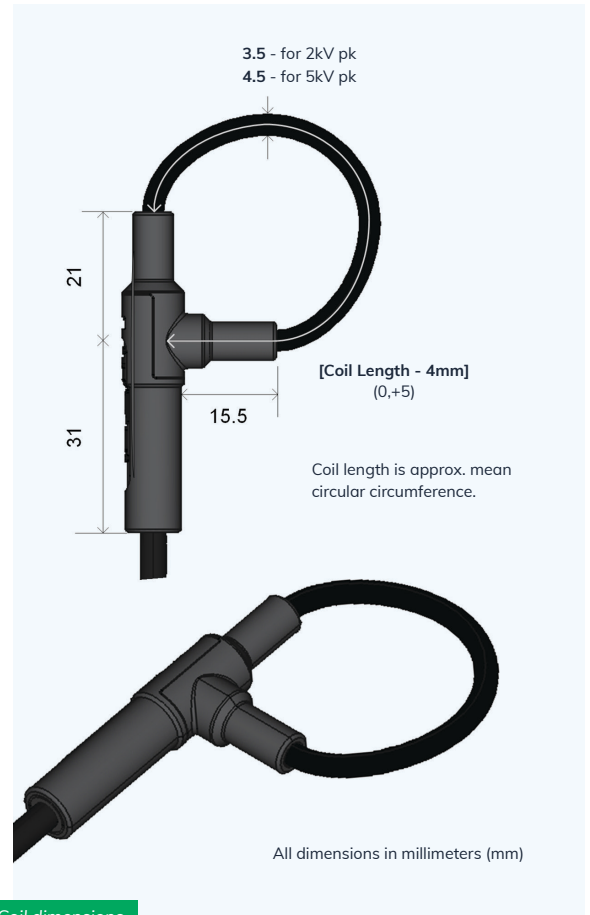
## Coil length

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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