



Model	Sensitivity (mV/A)	Peak current (A)	Noise max (mVp-p)	LF (-3dB) bandwidth (kHz)	Typical LF (<1%) bandwidth (kHz)	Peak di/dt (kA/μs)	HF (-3dB) bandwidth (MHz) <small>Coil length 1000mm</small>
CMC015	200.0	37.5	4.0	19.0	50.0	4.0	11.0
CMC03	100.0	75.0	4.0	6.0	15.0	8.0	13.0
CMC06	50.0	150.0	4.0	1.9	5.0	16.0	14.0

<b>Output</b>	±7.5V peak corresponding to 'Peak Current' into >100kΩ (e.g. DC 1MΩ oscilloscope)
<b>Accuracy</b>	Variation with conductor position in the coil typically ±3% of reading (for a 5cm <sup>2</sup> conductor) Linearity (with current magnitude) 0.05% of reading
<b>Calibration</b>	Calibrated to ±0.5% reading with conductor central in the coil loop
<b>DC offset</b>	±3mV maximum at 25°C
<b>Temperature</b>	Coil and cable -20°C to +90°C. Integrator 0 to +40°C
<b>di/dt ratings</b>	These are 'absolute maximum di/dt ratings' and values must not be exceeded: Absolute max. peak di/dt: 70kA/μs Absolute max. rms di/dt: 1.5kA/μs
<b>Coil voltage</b>	10kV peak Safe peak working voltage to earth. Rating established by a 15kVrms, 50Hz, 60sec flash test. Information about continuous use of the coils at high voltage can be obtained from 3RHUWHN.

## Key features

- 1 **Coil length (circumference)**  
500mm, 700mm, 1000mm - longer coils available on request
- 2 **Coil cross-section (thickness)**  
8.5mm max (14mm with removeable silicone sleeve – only for mechanical protection)
- 3 **Cable length**  
2.5m and 4m as standard (connecting cable coil to integrator)  
- longer cables available on request.
- 4 **Battery options**  
**B-Standard:** 4 x AA 1.5V alkali batteries. Lifetime typically 25 hours  
**R-Rechargeable:** 4 x AA 1.2V NiMH batteries. Lifetime typically 10 hours. External adaptor recharges batteries and powers unit.
- 5 **Socket for external power adaptor (1.3mm diameter)**  
(adaptor available from PRHUWHN as an option)
- 6 **Electronics enclosure**  
Dimensions H=183mm, W=93mm, D=32mm
- 7 **Output BNC socket**  
Supplied with 0.5m BNC:BNC cable.

1

2

3

6

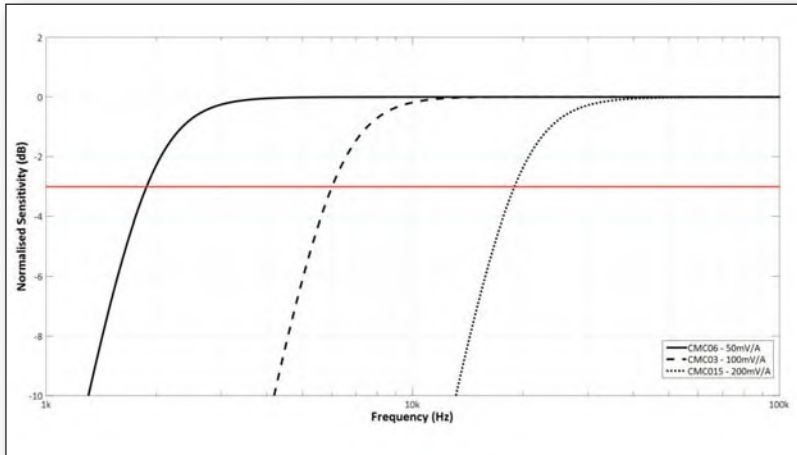
5

3

7

4

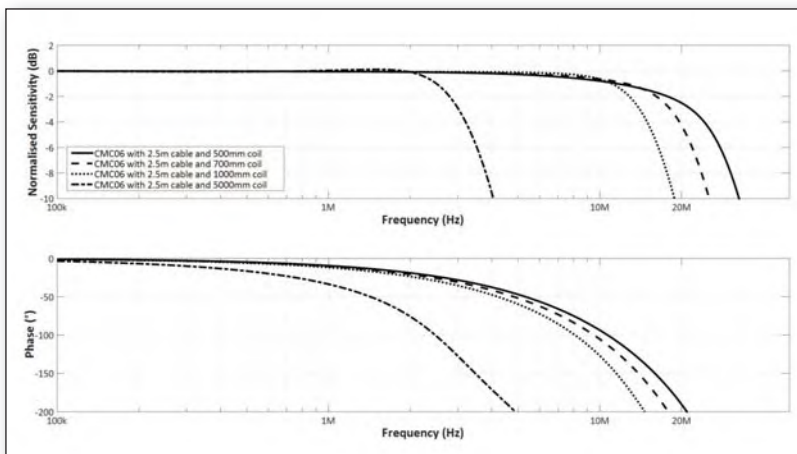
## Typical performance characteristics



### Low Frequency

The low frequency bandwidth is set to attenuate any large fundamental frequency currents and magnetic fields. The CMC06 integrator has a gain of typically -90dB at 50Hz, this means that if there is a 100Arms, 50Hz current passing through the coil the output of the CMC will be <math><0.2\text{mVrms}</math>.

#### Typical low frequency amplitude response

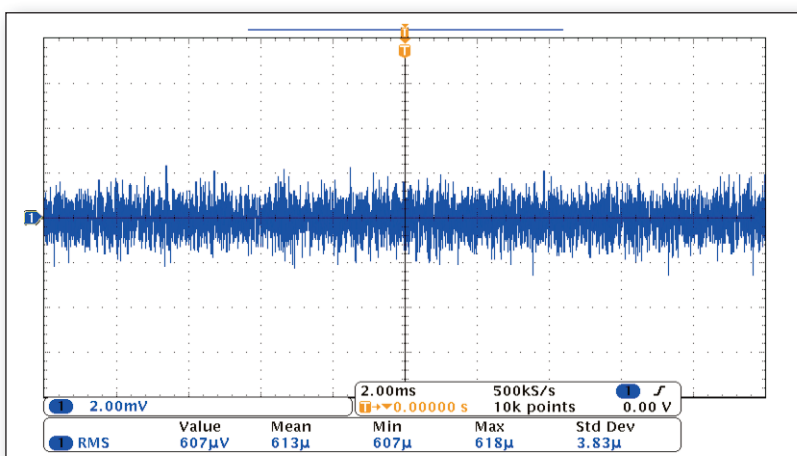


### High Frequency

The high frequency bandwidth of the CMC is determined by the coil length, the cable length and the integrator design. The high frequency bandwidth for each model is quoted for a 2.5m cable and a 1000mm coil in the specification table.

#### Typical high frequency response -- Model CMC06 -- 50mV/A

Showing the variation of HF performance with coil length, 500mm coil up to 5000mm coil



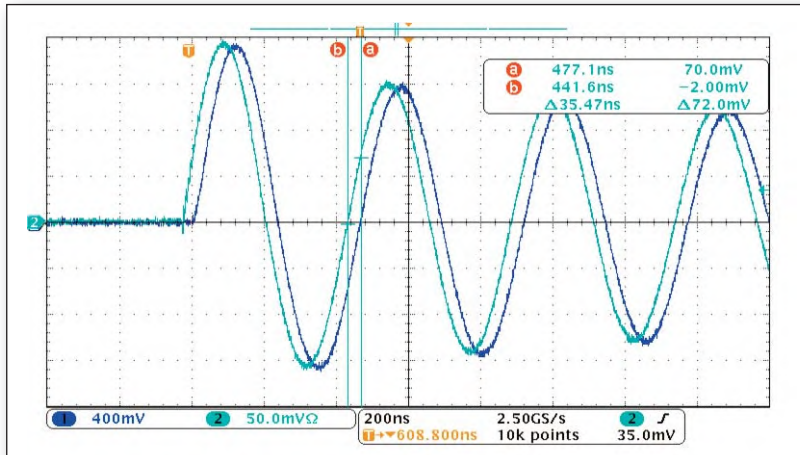
### Noise

The low noise integrator design allows better measurement accuracy of high frequency currents and enables a wide dynamic measurement range.

#### Typical noise – Model CMC03

Ch1 - CMC03/B/2.5/1000  
(Peak current 75A, Sensitivity 100mV/A)  
Timebase 2ms/div

# Performance



## Delay

The trace shows the CMC03 measuring a 2MHz sinusoidal current source compared with a coaxial shunt measurement of the same current. There is a delay between the actual current and the output of the CMC which is predictable and is determined by the coil and cable length as well as the integrator design. The predicted delay for the CMC03B/2.5/1000 is 35ns.

### 2MHz damped sinusoidal current 16Apk

#### Ch1

- CMC03/B/2.5/1000 (Peak current 75A, Sensitivity 100mV/A)

#### Ch2

- Co-ax shunt 2GHz Timebase 200ns/div

# Generating the order code

Type	/	Power supply	/	Cable length (m)	/	Coil circumference (mm)
e.g. CMC06 – 50mV/A battery supply, 2.5m cable from coil to integrator, 1000mm circumference coil						
CMC06	/	B	/	2.5	/	1000

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

www.powertek.com  
October 2018



For UK & European sales, support, service and deliveries:  
Powertek UK 19 Cornwallis Road, Bilton, Rugby CV22 7HL UK  
New Tel: 01788 519911 Fax: 0870 0940135  
Int'l Tel: +44 1788 519911 Int'l Fax: +44 870 0940135  
Email: info@powertekuk.com www.powertekuk.com

For USA sales, support, service and deliveries:  
Powertek US Inc. 7 Third Street, Holbrook, NY 11741 USA  
Tel: +1 631 615 6279 Fax: +1 973 273 5893  
Email: info@powertekus.com www.powertekus.com