RCTi - Thin, flexible, clip-around, ac current transducer

The RCTi is a current transducer for permanent installation. Simple to install and easy to retrofit, the Rogowski (sense) coil is thin, lightweight, flexible and clip-around. The secondary output from the transducer is an instantaneous voltage proportional to the measured primary current providing an accurate, low cost, wide-band measurement of the primary current.

The RCTi is typically used with power and harmonic meters and analyzers, current meters, oscilloscopes, data-loggers, data acquisition cards, and in power quality applications.

The RCTi is a wide-band ac current transducer:
- Easy to retrofit
- Simple to install in applications where space is limited
- Non-intrusive - no power drawn from the primary circuit
- Wide-band up to 1MHz, to measure harmonic components or complex waveforms (e.g. induction heating, VF drives, power measurement)
- The size of the Rogowski coil can be specified independently of the primary current
- Does not suffer from magnetic saturation
- Intrinsically safe
- Equivalent to Class 1 CT or better
- Low cost monitoring for medium/large currents.
Further information

The RCTi can be configured to suit a great many applications. If your requirement is outside that listed in this datasheet please contact us to discuss your application.

More detailed technical advice is available at www.pemuk.com

**Features**

- Traceable calibration
  - Every unit is supplied with a traceable calibration certificate.
  - No magnetic materials means excellent linearity <0.1% reading.
- Fully isolated measurement
  - Isolated power supply 2kVdc
  - Coil rated at 2kVpeak (withstand test is 4kVrms / 50Hz / 60 sec).
- Small DIN rail (or panel mount) enclosure – UL94 V-0 rated.

**Options**

- IP65 die-cast aluminium panel mount enclosure (previously known as the IRF).
- Isolated BNC-BNC cable split option
  - Between coil and electronics to enable ease of installation e.g. threading through existing conduit.
  - Standard cable permanently fixed.

**Standards and Approvals**

- CE marked.
- Complies with EMC EN 61326-1 2006.
- PEM Ltd is an ISO9001:2008 registered company.

**Order code RCTi**

The RCTi order code can be generated as follows:

<table>
<thead>
<tr>
<th>Rated current (A)</th>
<th>Cable Length (m)</th>
<th>Coil Length (mm)</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>250A</td>
<td>1m</td>
<td>300mm</td>
<td>BC-BNC, Split in Cable</td>
</tr>
<tr>
<td>500A</td>
<td>2.5m</td>
<td>500mm</td>
<td>IRF-Die-cast aluminium enclosure</td>
</tr>
<tr>
<td>...</td>
<td>Custom lengths</td>
<td>Custom lengths</td>
<td>...</td>
</tr>
</tbody>
</table>

For example: RCTi/500 /1/700 /BC has a rated primary current 500A, 1m cable, 700mm coil and a BNC - BNC split in the cable.

**Connections**

RCTi

**Specifications**

**Dimensions**

**Rated current (rms)**

<table>
<thead>
<tr>
<th>Current (A)</th>
<th>250A</th>
<th>2500A</th>
<th>1600A</th>
</tr>
</thead>
<tbody>
<tr>
<td>250A</td>
<td>500A</td>
<td>800A</td>
<td>1000A</td>
</tr>
<tr>
<td>5000A</td>
<td>8000A</td>
<td>10000A</td>
<td>12000A</td>
</tr>
</tbody>
</table>

**Rated output (Full scale FS)**

<table>
<thead>
<tr>
<th>Output (Vrms)</th>
<th>±7.07V peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0Vrms</td>
<td>±10.6V peak</td>
</tr>
</tbody>
</table>

**Output limit**

<table>
<thead>
<tr>
<th>Limit</th>
<th>±10.6V peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>150% FS</td>
<td>±13.5V peak</td>
</tr>
</tbody>
</table>

**Supply voltage (Wide input)**

<table>
<thead>
<tr>
<th>Voltage (Vdc)</th>
<th>-10% to +20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>12Vdc</td>
<td>24Vdc</td>
</tr>
</tbody>
</table>

**Max. Input power**

| Power (W) | 0.4W |

**Operating temperature range**

| Range | -20°C to +60°C (Integrator electronics) |

**Bandwidth (-3dB)**

| Frequency | 0.6Hz to 1MHz (300mm) 600kHz (700mm) (2000A) | 0.2Hz to 1MHz (300mm) 600kHz (700mm) |

**Phase shift @50Hz**

<table>
<thead>
<tr>
<th>Phase shift</th>
<th>±0.1 degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt;2000A)</td>
<td>±0.1 degrees</td>
</tr>
<tr>
<td>(≥2000A)</td>
<td>±0.1 degrees</td>
</tr>
</tbody>
</table>

**Accuracy (typ.)**

| Accuracy | ±0.5% of reading (5% to 150% FS, 25°C) |

**Output load**

| Load (kΩ) | >10.0kΩ |

**Coil Length**

| Length (mm) | 300mm, 500mm or 700mm Custom lengths available |

**Cable Length**

| Length (m) | 1m or 2.5m Custom lengths available |

**Diameter (mm) = Coil Length (mm) / 3.2**