Powertek

EN-2022

Datasheet

CTA3ph

Flexible current sensing current transformers with 5A output

Allowing fast install without reconfiguring busbars and feeder cables
5VA rated output drives long cables up to 50ft/15.2m, model from 0-100A right up to 0-10000A

Flexible Rogowski current sensor

Uses the latest Flexible Core 5A output Rogowski Coil sensing technology

Compact high accuracy sensors

Current Sensors will fit in tight spaces

Split core clip-together for fast install

Quick fitting allows for live installs

5VA, optional 7.5VA rating

Capable of driving 50ft of 16 AWG / 2.5mm sq cable

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Company Profile

Powertek has two divisions; Powertek US Inc Holbrook NY USA, Powertek UK Ltd Reading United Kingdom. These offices support a network of worldwide service centers, distributors and representatives.

Powertek specializes in the design and manufacture of electrical power, voltage and current measuring instrumentation: Measurement Transducers, Current Probes, Wattmeters, Power Analyzers, phase measuring measurement equipment along with multifunction calibration standards. The Sensor Division offers a range of ac/dc current/voltage sensors, current shunts, wideband current probes, current transformers and ac/dc power related transducers. PC based software solutions allow the Powertek measuring instruments and transducers to be controlled via Ethernet, RS232, RS485 and IEEE-488 interfaces. Various display and storage options are available to suit the customer need. An “in house” software customization service is available.

Powertek’s customer base includes heavy industrial plants, avionics, positional control, military systems, power electronics & power conversion (inverters, switching power supplies, UPS, variable speed motor drives), single/three phase ac motors, ac generators, electroluminescent displays (EL displays), power transformers, electrical process control equipment, office and household appliance testing, electrical supply utilities and calibration.

All Powertek products are supplied CE marked with measurement uncertainties traceable to UKAS (UK) or NIST (USA) in accordance with ISO9001 2008. Our support includes application support, technical advice, servicing, repair and calibration.

Powertek US Inc is a CAGE coded Military supplier, Cage code 4S5P4. Read more about our activities with US Defense on https://www.sam.gov

The CTA3ph flexible current transformers are the world's first flexible 'clip-on' current probe with a 5A 5VA output, allowing compatibility with existing 5A metering circuits. Unlike conventional CTs, there are no open circuit hazards - ideal for retrospective metering projects and installations in confined spaces where installation of conventional iron core CTs is not possible. The CTA3ph 5A output Rogowski Coil current sensing, simplifies installation and eliminates the need for expensive LV/HV plant shutdowns. In addition, the CTA modules can be used to convert any voltage output current measuring device to a 1A or 5A secondary.

The CTA3ph flexible current transformers convert ac current to an isolated 0-5A current with available ranges from 100A to 10,000A. Because the current sensors are flexible split core, installation is possible without shutting down the LV electrical supply, avoiding expensive down-time costs. Typical applications are retrospective energy monitoring include hospitals, banks, offices buildings, where Energy Management, power, energy and current monitoring is important. For all CTA3ph current sensor models, a NIST/NPL (UKAS) traceable calibration certificate and certificate of conformance is supplied. All CTA3ph sensors use UL94V0 or CSA approved materials. The CTA3ph flexible current sensors are suited to permanent or semi permanent installation. The coil sensor is durable, lightweight, flexible and will easily clip-around a power cable - even in confined spaces. The 5A output from the CTA3ph current sensor connects direct to installed metering, rotary metering or current transducers.

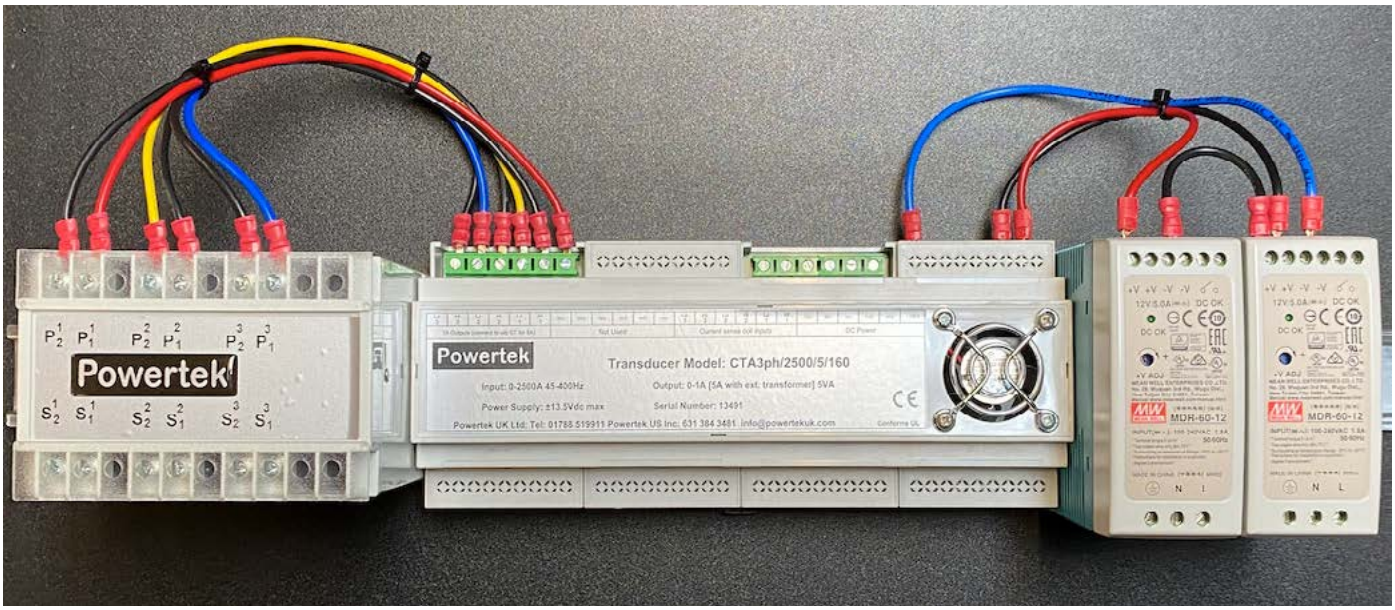
CTA3ph facts and important application information

- Uses the latest 5A output Rogowski Coil current sensing technology
- Suitable for single or three phase systems
- Available sense coil diameters 100mm, 150mm, 200mm, 300mm
- Isolated measurement output
- 0-5Arms metering compatible output at 5VA (0.2 ohm burden max)
- 1kV insulation continuous (tested 7.4kV)
- Available in 0.5%, 1% and 3% accuracy class
- Wide measurement range from 1% to 125% of range
- Flat frequency response from 25Hz to 500Hz
- 110Vac-240Vac power supply, optional 24Vdc, 48Vdc or 125Vdc
- Operating range -20°C to +45°C, sensors 80°C
- Safety EN61010-1 1000Vac CATIII, 600Vac CATIV CE marked, UL94V0 flame retardant
- Options for Power Monitoring and Power Quality Analysis
- Allows for live install
- Accreditation certificate and calibration data

CTA3ph Metering applications

- Live installs are possible, no open circuit voltage CT hazards
- Install without shutting down the LV electrical supply, avoiding expensive down-time costs
- Retrospective energy monitoring include hospitals, banks, server farms, shipping
- Allowing compatibility between Energy Management Systems and older legacy metering
- Power, energy and current monitoring on renewables
- Fast response feedback signal for active harmonic filters
- The CTA3ph flexible current sensors are suited to permanent or semi permanent installation
- The coil sensor is durable, lightweight, flexible and will easily clip-around a busbar or power cable
- Great for installation in confined spaces

CTA3ph flexible “rope-type” current transformer, sensing current from 100A to 10,000A with 5A secondary **Capable of driving 50ft of 16 AWG cable Capable of driving 32ft of 18 AWG cable Not frequency sensitive**



CTA3ph Din Rail Assembly: Output transformer / Conditioner Power Supplies /

CTA3ph Models and order codes

CTA3ph/100/5A/2/100	**CTA3ph/1600/5A/2/100**
CTA3ph/200/5A/2/100	**CTA3ph/1800/5A/2/100**
CTA3ph/300/5A/2/100	**CTA3ph/2000/5A/2/100**
CTA3ph/400/5A/2/100	**CTA3ph/2500/5A/2/100**
CTA3ph/500/5A/2/100	**CTA3ph/3000/5A/2/100**
CTA3ph/600/5A/2/100	**CTA3ph/3500/5A/2/100**
CTA3ph/700/5A/2/100	**CTA3ph/4000/5A/2/100**
CTA3ph/800/5A/2/100	**CTA3ph/5000/5A/2/100**
CTA3ph/900/5A/2/100	**CTA3ph/6000/5A/2/100**
CTA3ph/1000/5A/2/100	**CTA3ph/7000/5A/2/100**
CTA3ph/1200/5A/2/100	**CTA3ph/8000/5A/2/100**
CTA3ph/1500/5A/2/100	**CTA3ph/10000/5A/2/100**

Cable lengths from sensor to conditioner, available up to 15m 49.2ft

CTA3ph / Arms current / 5A output / cable length / coil diameter mm / Accuracy Class

Optional voltage input versions (no sensor) TA3ph/5V-5A and TA1ph/5V-5A

CTA3ph 0-5A output “Rope Type” Flexible Current Sensor Specifications

The Powertek CTA3ph flexible sensor & conditioning module are supplied as calibrated sets with a traceable calibrated 0-5Arms output. In addition, these modules can be configured to convert any voltage output current measuring device to a 1A or 5A secondary.

Current Sense coil

Diameters: 100mm/3.85” or 160mm/62”, 220mm/8.6”, and 300mm/11.7”
clip-around sensor, split core construction
Thickness: 8mm / 0.31”
Material: Flexible Thermoplastic rubber, flame retardant UL94V0
Working voltage: 1000V at 50/60Hz CAT III, tested 7400V 50/60Hz 1 minute

Cable

1000V UL style 20940, 5mm dia, 3metre length

Conditioner-amplifier

Casing: Din Rail module UL94V0 and CSA approved polycarb, 250mm total length
Fundamental Frequency: 20Hz to 500Hz
Bandwidth: 20Hz-500Hz CTA3ph 5A
Bandwidth: 20Hz-2500Hz CTA3ph 1A
Output rating: 5VA (0.2 ohm burden)
Phase shift: 0.04° at 50/60/400Hz
Accuracy: <1.0% accuracy
Input impedance: 100kohm (applies to TA3ph/5V-5A only)
Accurate with waveform crest factors: 1 - 5
Input ranges: From 0-100A to 0-10,000Arms
Power: 110Vac-240Vac power, optional 24Vdc, 48Vdc and 125Vdc
Includes: Din Rail, PSU and output CT (5A)

Environmental

Operational range -20°C to +65°C

Available sensor styles from 100mm to 300mm dia

All products have CE, IEC, EN, ASME or BS approvals

Example: With 4 meters between current transformer and ecosine active sync, the line length in the CT circuit is 8 meters. If 2.5mm² cables are used, the CT output power need to be at least 2.86VA.

Table 18 Power consumption of the CT lines valid for copper wires

Cross section	**AWG**	Distance **between current transformer and ecosine active sync vs.** CT 1 Amp **Secondary Burden in** VA **(Twin Wire)** (Consider forward and return lines!)					
		10 m	**20 m**	**40 m**	**60m**	**80 m**	**100m**
1.0 mm²	18	0.35	0.71	1.43	2.14	2.85	3.57
1.5 mm²	16	0.23	0.46	0.92	1.39	1.85	2.31
2.5 mm²	14	0.14	0.29	0.57	0.86	1.14	1.43
4.0 mm²	12	0.09	0.18	0.36	0.54	0.71	0.89
6.0 mm²	10	0.06	0.12	0.24	0.36	0.48	0.60
10.0 mm²	8	0.04	0.07	0.14	0.21	0.29	0.36

Example: With 20 meters between current transformer and ecosine active sync, the line length in the transformer circuit is 40 meters. If 1.5mm² cables are used, the CT output power need to be at least 1.85VA.

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