

Installation Instructions for the CTA1ph / CTA3ph 0-5A current output and CTV3ph voltage output Ver 1.6

Introduction

The CTA-5A module converts and conditions a CTA flexible current sensor voltage output to a 0-5Arms output. Useful for interfacing Powertek Rogowski coil current sense technology with traditional or 0-5A legacy metering. The CTA3ph will produce a linear 0-5A current output proportional to Flexible sensor output voltage. The actual CTA3ph current range is indicated on the transducer label. The CTA-5A uses a 1/5A current transformer to provide its 5Arms output and for double insulation. It is supplied with twin Din Rail power supplies creating $\pm 15.0\text{Vdc}$ to power the conditioning electronics. Typically the CTA3ph device is used when a voltage output current probe/current sensor requires connection to existing 1A or 5A metering circuits.

Installation and safety

Installation should be carried out by authorised personnel, familiar with potential danger of electric shock hazards. The CTA-5A transducer should only be used in dry indoor environments. To prevent damage, check for correct connection of the CTA-5A psu, inputs and outputs. Allow a minimum warm up period of 5 minutes. Ensure that the CTA casing ventilation slots are not obstructed otherwise the CTA3ph may go in overheat shutdown. If the internal fan cannot be heard running, or if the airflow cannot be felt, do not use the CTA3ph module.

Specification

Maximum input voltage is 18Vpk / Input impedance 100k ohm

Recommended measurement range is 5% to 100% range

Output rating is 5VA, eg the load circuit impedance (burden) should not exceed 0.2 ohms at 5Arms

Minimum dc power supply rail is 13.5Vdc, maximum dc power supply rail is 15.5Vdc

Accuracy class is $\pm 0.5\%$, $\pm 1\%$ or $\pm 3\%$, depending on model (temperature range $23^\circ\text{C} \pm 8^\circ\text{C}$)

Sensor insulation: 1000V CE Cat III and UL approved

Only install CTA-3ph sensors on dry, insulated cables and busbars

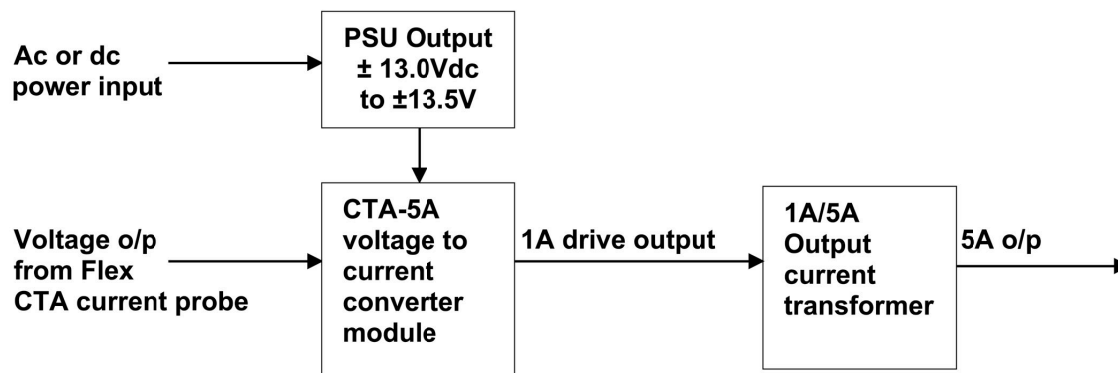
Connections and installation

Screw terminals are provided for the power input and output connections. The terminal block connections are labelled. Typically reference to a user manual is not required. The CTA-5A is DIN rail or wall mountable.

CTA3ph Connections

Lo 3	Hi 3	Lo 2	Hi 2	Lo 1	Hi 1	n/c	n/c	n/c	n/c	n/c	Lo 3	Hi 3	Lo 2	Hi 2	Lo 1	Hi 1	-15V	Gn	n/c	n/c	n/c	+15V	
1A Outputs (connect to o/p CT for 5A)						Not Used					Current sense coil inputs						DC Power						
<div><div><div>Powertek</div><div>Transducer Model: CTA3ph/3000/5/3/160</div><div><div>Input: 0-3000A 45-400Hz</div><div>Output: 0-1Arms (5A with ext. transformer) 5VA</div></div><div><div>Power Supply: ±13.0Vdc</div><div>Serial Number: 13358</div></div><div>Powertek US Inc Tel: 631 615 6279 info@powertekuk.com</div><div>CE</div></div></div>																							

CTA3ph Block diagram of operation – for clarity shown as 1phase



CTA3ph Protection

Max input voltage is 18Vac/dc. Only use with Powertek CTA Sense Rogowski coils. Accidental connection of input/output terminals to either a dc or ac voltage source, >18Vpk, may result in damage. Note:

On the signal conditioner, there is no electrical isolation between any of the terminals, all terminals are referenced to an internal ground. The internal drive amplifier has thermal shutdown protection.

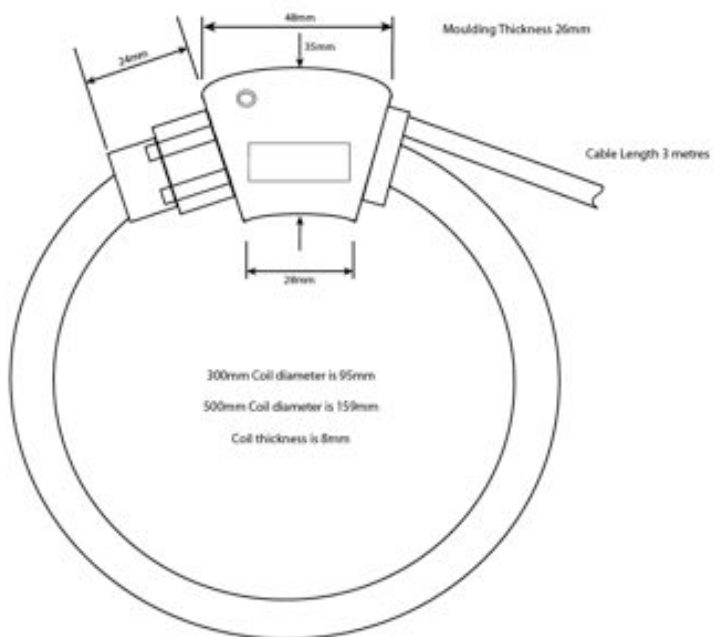
CTA3ph Connections

Lo 3	Hi 3	Lo 2	Hi 2	Lo 1	Hi 1	n/c	n/c	n/c	n/c	n/c	Lo 3	Hi 3	Lo 2	Hi 2	Lo 1	Hi 1	-15V	Gn	n/c	n/c	n/c	+15V	
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Gain and Offset adjust and calibration

The CTA1ph 0-5A, CTA3ph 0-5A and CTV3ph 0-100mV signal conditioners, current sensor and associated output transformers are supplied calibrated and certified. Internal adjustment of dc offset and gain is possible. These adjustments should only be carried out by trained personnel using the correct calibration standards and procedures.

Although yearly calibration adjustment is not required, it is recommended that yearly comparisons are made to known calibration standards. Refer to maintenance manual

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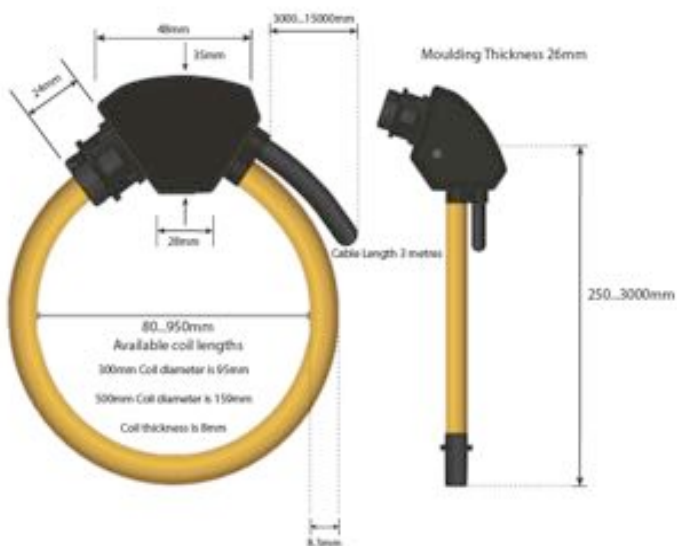
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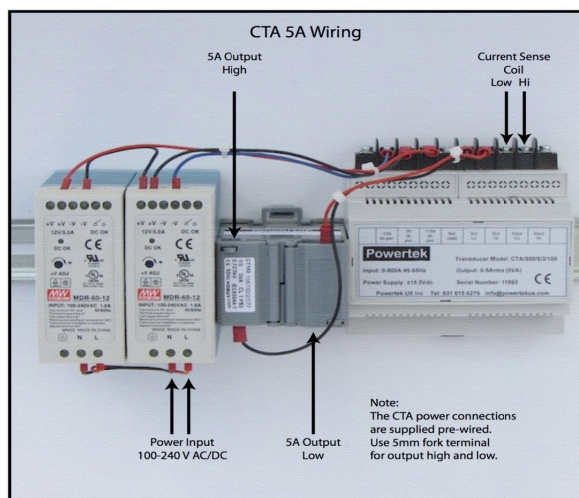
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CTA1ph Signal Conditioner for 0-1A and 0-5A (CTA1ph 0-5A pictured)
Use for single phase ac current input from Rogowski Current sense coil



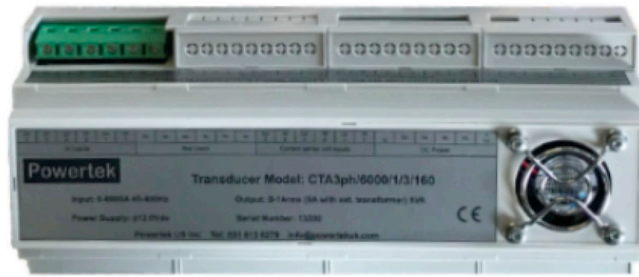
CTA1ph Label. The product label will reflect terminations, current range and output

-15 Vdc pwr	0V dc pwr	+15 Vdc pwr	N/c	N/c	N/c	N/c	N/c	N/c	I/p Lo	I/p Hi	Out Lo	Out Hi
Powertek Transducer Model: CTA1ph/7000A/1A/3/300 Input: 0-7000A 50-400Hz Output: 0-1Arms (5VA) use cap on o/p!! Power Supply: ± 13 Vdc Serial Number: 13571  Powertek USA Tel: 631 384 3481 usainfo@powertekuk.com												

CTV3ph label: connections for current input to mV output

Lo3	Hi 3	Lo2	Hi 2	Lo 1	Hi 1	n/c	n/c	n/c	n/c	n/c	Lo 3	Hi 3	Lo 2	Hi 2	Lo1	Hi 1	-15V aux	Gn	24V Lo	24V Hi	n/c	+15V aux	
Output: 0-100mV [Min ohmic load 25kohm]						Not Used					Current sense coil inputs						24Vdc DC Power						
<div><div>Powertek</div><div>Transducer Model: CTA3ph/5A/100m/SC/2/SCCT Mag Core</div><div>Input: 0- 5A</div><div>Output: 0-100mV [Min ohmic load 25kohm]</div><div>Power Supply: 24Vdc max</div><div>Serial Number: 13568</div><div><div></div><div></div></div><div>Powertek US Inc Tel: +1 631 384 3481 info@powertekus.com Conforms UL</div></div>																							

CTA3ph and CTV3ph three phase Integrator signal conditioner – product label will depict the function of each terminal. CTV3ph units do not use an output transformer



Warning: For cooling purposes the clip-in terminal access panels should be configured like the above image, where air enters from the top left and lower left clip in panels, then exits from fan. All clip in panels should be fitted in this configuration to ensure correct airflow and optimum cooling.