

CTRCT-1 CTRCT-2



CTRCT-1 and CTRCT-2 Current Regulator Boards

Features:

Isolated
Current Transformer
Feedback

Automatic Crossover

Current Trip with
Automatic or
Manual Reset

Optional Voltage
Regulation
(CTRCT-2 Only)

Soft-Start and
Soft-Stop

For Single-Phase
and 3-Phase Systems

Applications:

Battery Chargers

Motor Controllers

Magnet Power
Supplies

UPS Systems

Transformer Primary
Controllers

Description

The CTRCT-1 and CTRCT-2 regulator boards are current trip regulators with current transformer (CT) feedback. Both boards provide current regulation in ac controller configurations with a latching overcurrent trip that may be configured for automatic or manual reset. The CTRCT-2 provides enhanced functionality with optional voltage regulation, potentiometer-adjustable ramp time, transistorized status signals indicating overcurrent, current limit, and trip reset.



The CTRCT-1 and CTRCT-2 boards utilize current feedback from CTs on the single-phase or three-phase mains. A diode rectifier and burden resistor generates the current feedback signal required for the regulator circuit.

Operational Features

Feedback Signal Isolation: Current transformers provide galvanic isolation between the regulator circuit and the ac mains. The CTRCT-2 derives voltage feedback from an attenuator connected to the feedback voltage.

Load Current or Voltage Regulation: Limit amplifiers respond to the difference between the either feedback signal and the corresponding limit commands. The resulting signal is the SCR delay angle command signal, SIG HI. The CTRCT-2 may be configured to regulate load voltage in addition to providing overcurrent trip.

Overcurrent Trip with Manual or Automatic Reset: A current trip feature inhibits the SCR firing board when the current exceeds the threshold set by the board-mounted potentiometer. This feature shuts down the system in the event of a short circuit. The regulator board may be configured to automatically reset after a predetermined dead time (typically several seconds) or latch until a manual reset is asserted.

Soft-Start Ramp: The CTRCT-2 includes a ramp potentiometer which controls the soft-start ramp time. The soft-start or soft-stop time constants are determined by a resistor and capacitor.

CTRCT-2 Status Interface: The CTRCT-2 includes an auxiliary connector with three open-collector transistors indicating the status of the overcurrent, manual trip, and current limit signals. Connections to the circuit common, +12 and +24 V rails are provided to drive lamps, relay coils, or other monitoring apparatus.

Current Command Signal: The current command signal (or voltage command signal, if configured for the CTRCT-2) may be configured for a variety of common ranges including 0-12 V, 0-10 V, or 4-20 mA.

Board Construction: All circuit boards are assembled at the Enerpro plant in Goleta, California and are manufactured by a UL-approved fabricator from 2.4 mm thick FR4 fire resistant fiberglass epoxy laminate. All boards are conformal coated (MIL-1-46058, Type UR).

Enerpro applications engineers are available by e-mail or fax for applications assistance.

| Product Datasheet | | |
|---|------------------|--|
| Maximum Ratings | | |
| AC mains voltage | | 600 Vac |
| Operating temperature range | | -5 C to 85 C |
| Board DC supply voltage | | 30 V DC |
| 12 V regulator output current | | 20 mA |
| Characteristics | | |
| Current command signal (or voltage command signal, CTRCT-2 only) | | 0-12 V, 0-10 V, 4-20 mA, or as specified |
| Soft-start/stop time | | 0.4 - 2.0 s, independently configurable |
| Features | | |
| Current | Limit | CTRCT-1, CTRCT-2 |
| | Regulation | CTRCT-1, CTRCT-2 |
| | Trip | CTRCT-1, CTRCT-2 |
| Voltage | Limit | CTRCT-2 Only |
| | Regulation | CTRCT-2 Only |
| | Trip | No |
| Onboard status indicators | Current Limit | CTRCT-1, CTRCT-2 |
| | Overcurrent Trip | CTRCT-1, CTRCT-2 |
| | Reset | CTRCT-1, CTRCT-2 |
| External status indicators | Current Limit | CTRCT-2 Only |
| | Overcurrent Trip | CTRCT-2 Only |
| | Manual Reset | CTRCT-2 Only |
| Trip latch reset | | Manual or timed automatic reset |
| Board dimensions | | 191 x 84 x 24 mm (L x W x D) |
| Conformal coating | | per MIL-1-46058, Type UR |

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