ISOVLCL-3

Features:

Isolates Voltage and Current Feedback Signals

Automatic Crossover Between Regulation Modes

Current Trip with Automatic Reset

Soft-Start

Scaled Current and Voltage Read-Back Signals

Applications:

Battery Chargers

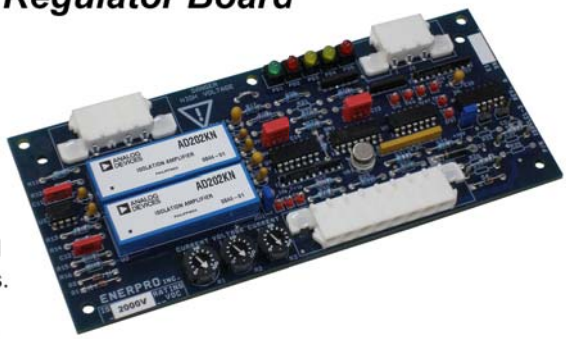
Electro-chemical Process Power Supplies

Motor Controllers

Magnet Power Supplies

UPS Systems

ISOVLCL-3 Isolated Current and Voltage Regulator Board



Description

The ISOVLCL-3 is an isolated current and voltage regulator board intended specifically for use with Enerpro SCR firing boards. In a typical configuration, the regulator board accepts current and voltage feedback and command signals. The regulator circuit drives the firing board's delay angle command signal to produce the output current or voltage specified by the command signals.

Feedback signals for the regulator board are typically derived from a 0-50 mV current shunt and a 0-4 V DC full scale voltage signal (as supplied through an external attenuator).

Operational Features

Isolated Voltage and Current Feedback Signals: The current and voltage feedback signals are galvanically isolated from the regulator board by Analog Devices AD202KN isolation amplifiers (1500 Vrms, ±2000 V peak).

Load Voltage or Current Limit: Limit amplifiers respond to the difference between either feedback signal and the corresponding limit commands. The resulting signal is the SCR delay angle command signal, SIG HI.

Current and Voltage Limit Automatic Crossover: A diode OR circuit provides automatic crossover between voltage and current limiting. The ISOVLCL-3 operates in either current or voltage regulating mode depending on which limit command setting is lowest.

Overcurrent Trip with Automatic Reset: A board-mounted potentiometer sets the current trip level. The current trip resets the soft-start circuit; its response time to an overcurrent event is approximately 3 milliseconds. If the over-current condition persists, the current trip will automatically reset and trip, cycling continuously until cleared.

Soft-Start and Soft-Stop: The soft-start circuit ramps the gate delay command voltage input to the firing board up to the preset level in approximately 2 seconds; the soft-stop ramps the command down in a similar fashion. Other soft-start times may be specified.

Polarity Reversing Compatability: The current and voltage feedback signals are processed by precision absolute value circuits, avoiding positive feedback and permitting operation with polarity reversing applications.

Voltage and Current Read-Back Signals: Scaled analog voltage and current signals are available from a dedicated connector.

Onboard or Offboard Voltage and Current Commands: Users may command the desired voltage or current level using board-mounted potentiometers or through externally applied voltage and current commands. Several command voltage or current ranges are available, including 0-12 V, 0-10 V, and 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
Maximum Isolation Voltage		2000 V peak
Operating temperature range		-5 C to 85 C
Board DC supply voltage		30 V DC
12 V regulator auxiliary output current		20 mA
Characteristics		
Delay angle command signal (SIG HI)		0.85-5.85 V
Voltage and Current Limit Command		0-12 V, 0-10 V, 4-20 mA (or as specified)
Soft-start/stop time		0.4 - 2.0 s, independently configurable
Functions		
Current	**Limit**	Yes
	Regulation	Yes
	Trip	Yes
Voltage	**Limit**	Yes
	Regulation	Yes
	Trip	No
On-Board Indication	**Limit/Regulation**	Yes
	Trip	Yes
External Indication	**Limit/Regulation**	Yes
	Trip	Yes
Trip Latch		No
Compatible with polarity reversing systems		Yes
Board dimensions		171 x 84 x 18 mm (L x W x D)
Minimum creepage distance between isolated circuits		18 mm
Conformal coating		per MIL-1-46058, Type UR

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