

NWCC SERIES USERS MANUAL

TRUE RMS CURRENT CONTROLLER



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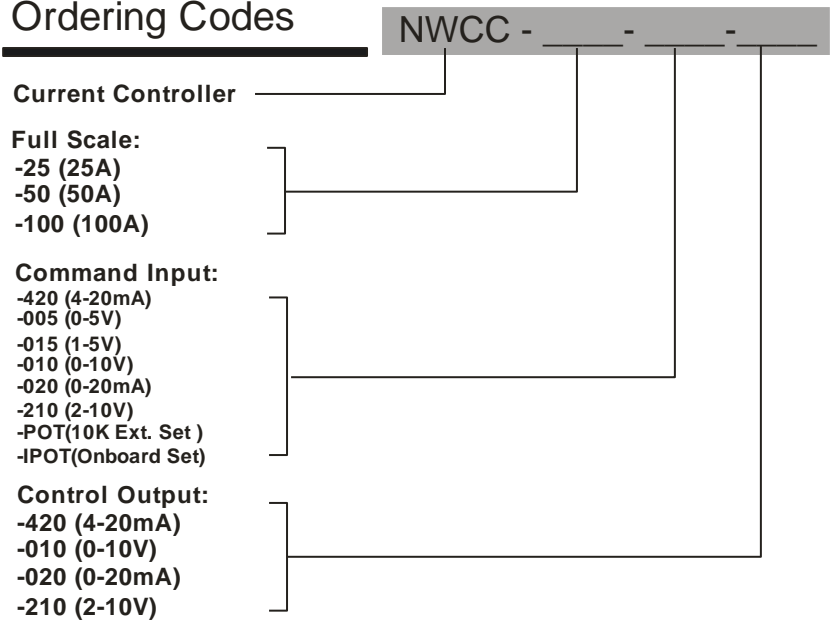
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1. Ordering Codes

Ordering Codes



2. Description

The NWCC is a closed loop current controller that provides PID control of a phase angle driven load circuit. The True RMS current is sensed by an on board isolated current transducer. The current setpoint is set by an external command signal or the on board potentiometer. The current command input accepts 0-5V, 0-10V, 4-20mA, Potentiometer, etc. The major advantage to the NWCC is that it can accurately sense and quickly control the True RMS current of phase controlled loads. This regulates the load current, limits inrush and current demand under load changes. The NWCC is designed to be used in conjunction with the NuWave SSRMAN-1P series phase controls or with any phase control.

Features

- True RMS PID Current Control of Phase Controlled Loads
- 4-20mA or 0-10V output
- Adjustable Onboard Setpoint
- Power/Overload Indicator LED
- Din Rail Mount
- Low Cost

3. Installation / Safety Information

Responsibility for determining suitability for use in any application / equipment lies solely on the purchaser, OEM and end user. Suitability for use in your application is determined by applicable standards such as UL, cUL and CE and the completed system involving this component should be tested to those standards.



WARNING: FIRE HAZARD!! Even quality electronic components **CAN FAIL KEEPING FULL POWER ON!** Provide a **SEPARATE (redundant) OVER TEMPERATURE SHUTDOWN DEVICE** to switch the power off if safe temperatures are exceeded.



WARNING: HIGH VOLTAGE!! This unit is installed in an electrical system with high voltage in it. This control must be installed in a **GROUND**ED enclosure by a qualified electrician in accordance with applicable local and national codes including NEC and other applicable codes. Provide a safety interlock on the door to remove power before gaining access to the device.

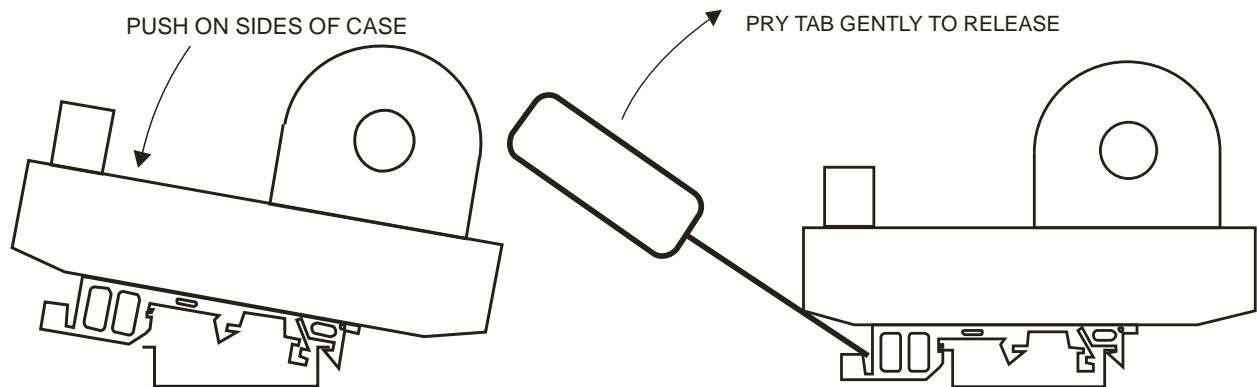
3.1 Limited Warranty

NuWave Technologies, Inc. warrant this product to be free from defect in workmanship and materials for a period of two (2) years from the date of purchase.

1. Should unit malfunction, return it to the factory. If defective it will be repaired or replaced at no charge.
2. There are no user serviceable parts on this unit. This warranty is void if the unit shows evidence of being tampered with or subjected to excessive heat, moisture, corrosion or other misuse / misapplication.
3. Components which wear or damage with misuse are excluded, e.g. relays.
4. NuWave Technologies, Inc. shall not be responsible for any damage or losses however caused, which may be experienced as a result of the installation or use of this product. NuWave Technologies, Inc. liability for any breach of this agreement shall not exceed the purchase price paid E. & O.E.

3.2 Mounting Instructions

The NWCC fits most dinrail tracks: DIN EN 50022, 50035, and 50045. To mount, simply interlock the non-tabbed end and then push the tabbed end onto the dinrail. To remove, pry tab using a small screwdriver.



3.3 Electrical Connections

See the WIRING DIAGRAMS at the end of this document. Make sure the unit ordered is the correct unit for the application before wiring.

4. Operation

4.1 Power Supply

The NWCC power requirement is 24V AC/DC +/-15% 47-400Hz.

4.2 24V Power Fusing

Fusing may be accomplished by fusing each unit separately or fusing groups of the units with either primary or secondary fusing. The current draw of each NWCC is 40mA max.

4.3 Power/Overload LED

The NWCC's power indicator will stay on steady when the power is applied. If the current level should exceed the input range of the on board analog to digital converter, the power LED will flash.

4.4 Adjustment

4.4.1 Setpoint Adjustment

The Setpoint adjustment is the leftmost potentiometer. The setpoint adjustment potentiometer is only used if the on-board setpoint option is selected from the ordering code. The setpoint adjustment will adjust the controllers setpoint from 0 – 100% of full scale current (amps).

4.4.2 Span Adjustment

The Span adjustment is the middle potentiometer.

The Span adjustment potentiometer is set at the factory for the full scale current option selected from the ordering code. This may be adjusted by the user for a custom full scale. To raise the full scale current, lower the sensitivity by turning the Span POT CCW.

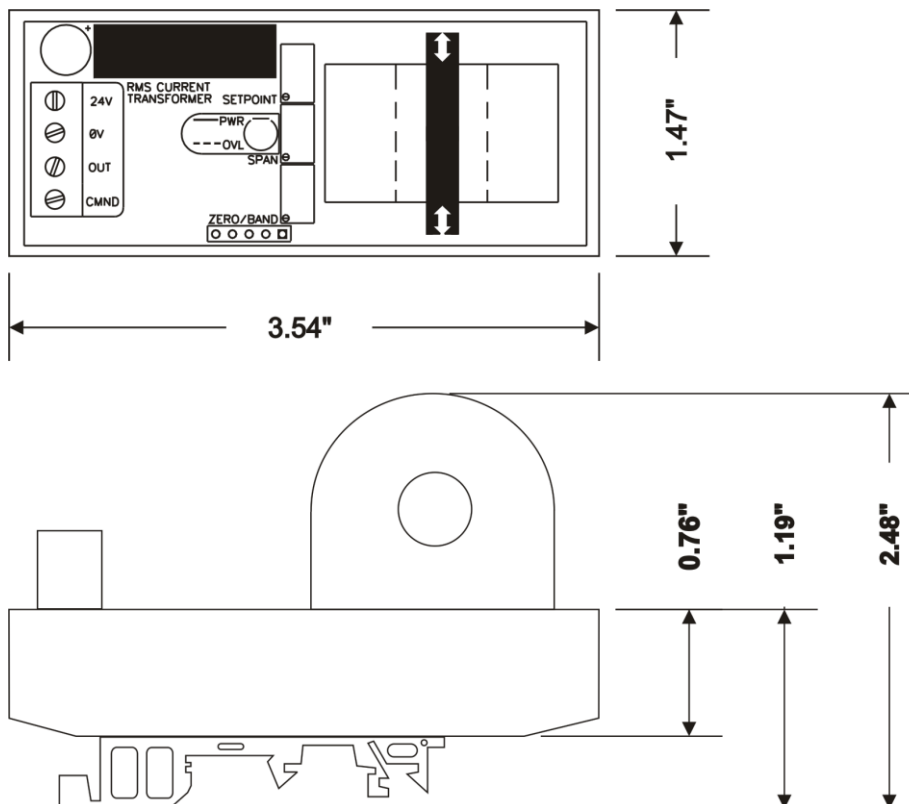
4.4.3 Zero/Band Adjustment

The Band adjustment is the rightmost potentiometer. The Band adjustment is only used for adjusting the proportional band (or $\sim 1/\text{gain}$). Turning the potentiometer CW increases the gain (decreases the band). The Band adjustment should be turned CW until the current just starts to oscillate slightly at which point it should be turned CCW 2-3 full turns. This will give the best performance. More gain results in faster response and less stability.

5. Electrical Specifications

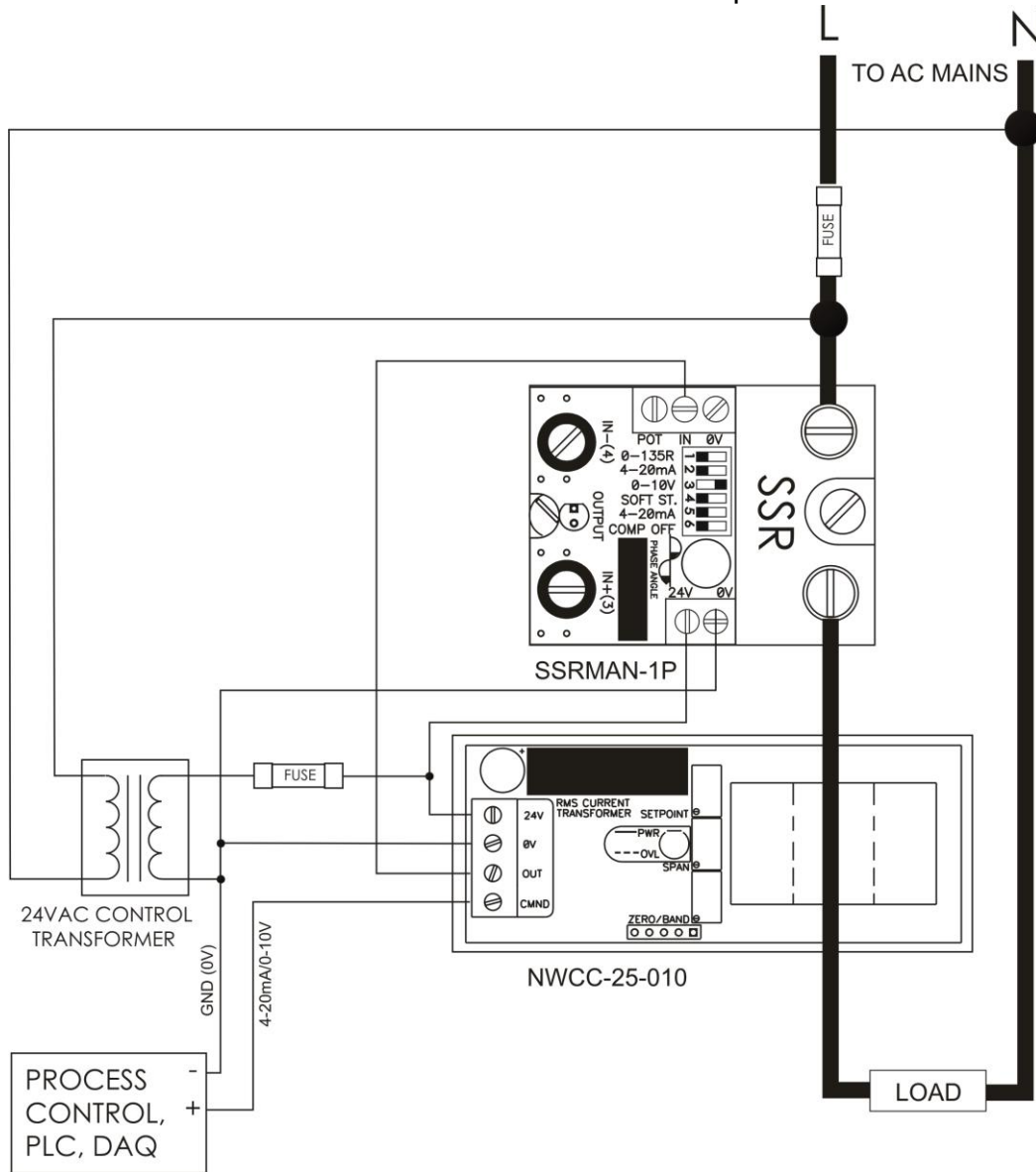
Output	4-20mA, 0-10V, 0-20mA, 2-10V
Response Time	20mS
Accuracy	+/-2% of FS
Ambient Temperature Range	0 to 50 °C
Power Supply	24VAC/DC +15/-15%, Power consumption < 2 Watts
Line Frequency Range	47-400 Hz

6. Mechanical Dimensions



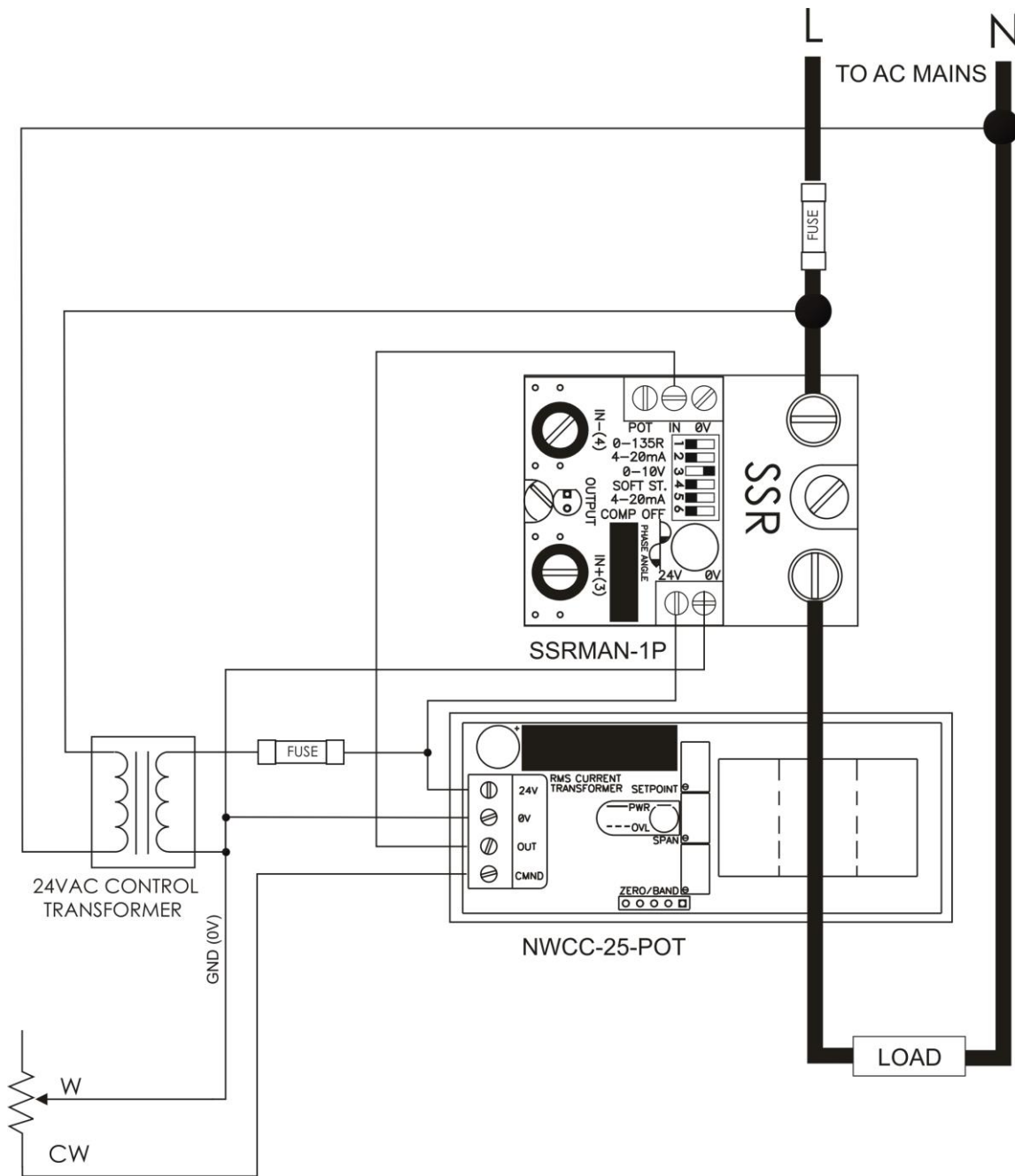
7. WIRING DIAGRAM #1

EXAMPLE WIRING DIAGRAM – Shows NWCC-25-010 used to provide regulated current control of a load that needs to be modulated from a process controller.



8. WIRING DIAGRAM #2

EXAMPLE WIRING DIAGRAM – Shows NWCC-25-POT used to provide regulated current control of a load. Current is set with an external 10K Ohm potentiometer.



10K POTENTIOMETER
 SETS AC CURRENT VALUE
 AC CURRENT IS REGULATED
 AGAINST CHANGES IN
 LOAD OR LINE VOLTAGE