

Specifications

Model	Current Sensing Range
CMC100-5	125 mA - 5 A
CMC100-20	0.5 A - 20 A
CMC100-30	0.5 A - 30 A

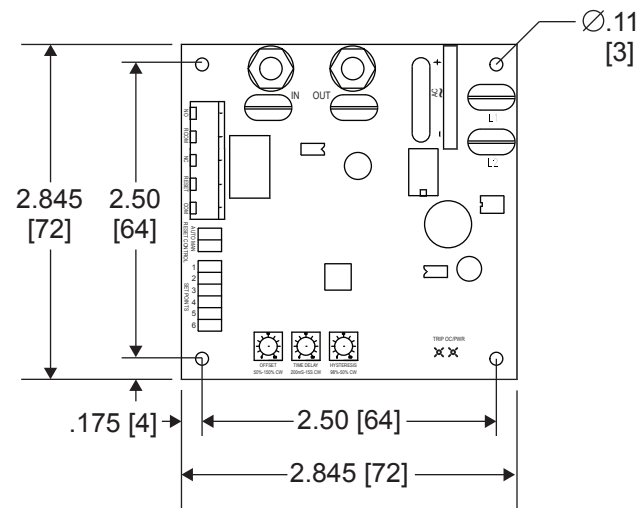
AC Line Voltage.....115/230 VAC $\pm$ 10%, 50/60 Hz, single phase
Offset Range.....50% to 150% of setpoint
Time Delay Range.....200 ms to 15 s
Hysteresis Range.....50% to 98% of setpoint
Relay Maximum Voltage.....125 VAC, 110 VDC
Relay Maximum Current.....0.5 amps at 120 VAC, 1.0 amp at 30 VDC

Safety Warnings

READ ALL SAFETY WARNINGS BEFORE INSTALLING THIS EQUIPMENT

- DO NOT INSTALL, REMOVE, OR REWIRE THIS EQUIPMENT WITH POWER APPLIED.** Have a qualified electrical technician install, adjust and service this equipment. Follow the National Electrical Code and all other applicable electrical and safety codes, including the provisions of the Occupational Safety and Health Act (OSHA), when installing equipment.
- Circuit potentials are at 115 or 230 VAC above earth ground.** Avoid direct contact with the printed circuit board or with circuit elements to prevent the risk of serious injury or fatality. Use a non-metallic screwdriver for adjusting the calibration trim pots. Use approved personal protection equipment and insulated tools if working on this drive with power applied.
- Reduce the chance of an electrical fire, shock, or explosion by proper grounding, over-current protection, thermal protection, and enclosure. Follow sound maintenance procedures.
- ACE strongly recommends the installation of a master power switch in the line voltage input.** The switch contacts should be rated for 250 VAC.
- Under no circumstances should power and logic level wires be bundled together.

Dimensions



ALL DIMENSIONS IN INCHES [MILLIMETERS]

Installation

Mounting

- Drive components are sensitive to electrostatic discharge. Avoid direct contact with the circuit board. Hold the drive by the chassis or heat sink only.
- Protect the drive from dirt, moisture, and accidental contact.
- Provide sufficient room for access to the terminals and calibration trim pots.
- Mount the drive away from heat sources. Operate the drive within the specified ambient operating temperature range.
- Prevent loose connections by avoiding excessive vibration of the drive.
- Mount the drive with its board in either a horizontal or vertical plane. Four 0.19" (5 mm) holes in the board accept #8 pan head screws.

Wiring

Use 18 - 24 AWG wire for logic wiring. Use 14 - 16 AWG wire for AC line and motor wiring.

Shielding Guidelines

As a general rule, ACE recommends shielding of all conductors. If it is not practical to shield power conductors, ACE recommends shielding all logic-level leads. If shielding of logic-level leads is not practical, the user should twist all logic leads with themselves to minimize induced noise. It may be necessary to earth ground the shielded cable. If noise is produced by devices other than the drive, ground the shield at the drive end. If noise is generated by the drive, ground the shield at the end away from the drive. Do not ground both ends of the shield.

Connections

POWER

Line Input

Connect the AC line power leads to terminals L1 and L2. ACE recommends the use of a double-throw, single-pole master power switch. The switch should be rated at a minimum of 250 VAC.

Motor

Connect one of the DC armature leads to terminal IN. Connect one of the motor leads to terminal OUT. Connect the remaining motor lead to the drive. If the motor does not spin in the desired direction, power down the drive and reverse the motor connections. The CMC card is fully regen capable.

The CMC100-5 has spade terminals. The CMC100-30 has ring terminals. The CMC100-20 has both spade and ring terminals. If using 15 amps or less, connect to the spade terminals. If using more than 15 amps, connect to the ring terminals.

LOGIC

Relay NC

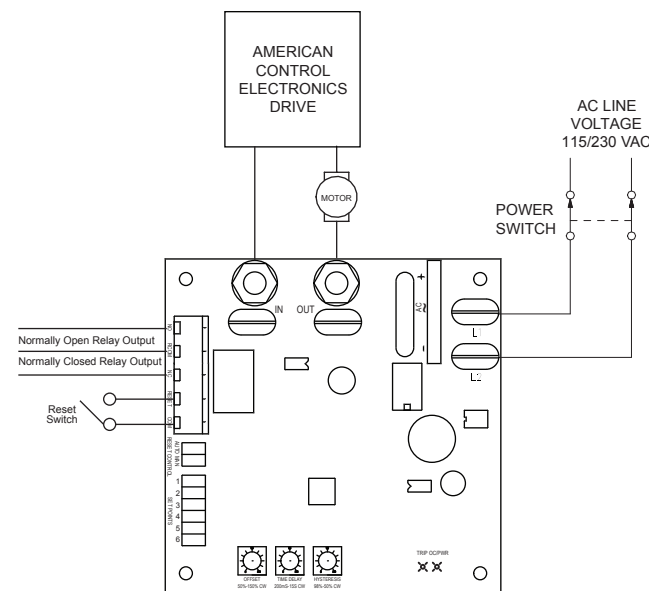
The CMC card has a normally closed connection between terminals NC and RCOM. When the CMC card detects a current pull by the motor that is larger than the CMC trip point, this connection will then open. This connection can be used as a switch to power other devices or as an input to a PLC.

Relay NO

The CMC card has a normally open connection between terminals NO and RCOM. When the CMC card detects a current pull by the motor that is larger than the CMC trip point, this connection will then close. This connection can be used as a switch to power other devices or as an input to a PLC.

Reset Switch

When the CMC card is set for MANUAL reset mode, this switch resets the relay outputs. If using a normally opened connection, the CMC card will look for a closed connection to reset. If using a normally closed connection, the CMC card will look for an open and then closed connection to reset.



Startup

SELECT JUMPERS

Base Set Point

Sets the base set point for the OFFSET trim pot. The OFFSET is adjusted from 50% below to 150% above the base set point to determine the current limit trip point. See the table below to determine the base set point on a CMC100-5, CMC100-20, and CMC100-30.

JUMPER Setting	CMC100-5 Amps	CMC100-20 Amps	CMC100-30 Amps
1	.25	1	1
2	.5	2.5	2.5
3	1	5	5
4	2	7.5	10
5	3	10	15
6	4	15	20

STARTUP

- Verify that no foreign conductive material is present on the printed circuit board.
- Ensure that all jumpers are properly set.

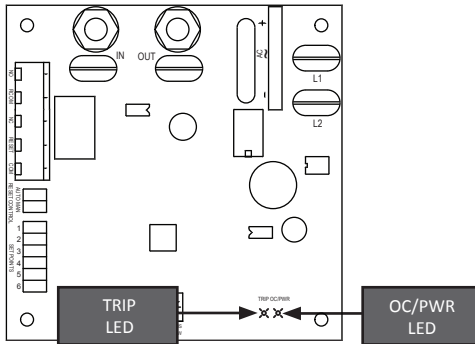
LEDs

OC/PWR: Green LED blinks whenever power is applied to the card.

Green LED turns solid whenever the current pull is above the current limit trip point.

TRIP: Red LED turns solid whenever the card toggles the relay outputs.

- If the OC/PWR LED is solid, but the TRIP LED is off, then the motor is pulling more current than the current limit trip point, but not longer than the TIME DELAY setting.



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Calibration

OFFSET: The OFFSET setting determines the current limit trip point in conjunction with the set point determined by the SET POINTS jumper. The OFFSET trim pot ranges between 50% and 150% of the set point. To calibrate the OFFSET trim pot (assuming you have already set the current limit on the American Control Electronics drive):

1. Set the SET POINT jumper to select the base current limit closest to the desired trip point. See the SET POINTS table
1. Set the OFFSET trim pot full clockwise. Set the TIME DELAY and HYSTERESIS trim pots full counterclockwise.
2. Stall the motor or apply a load heavy enough to cause the motor to pull more current than the current limit trip point.
3. Turn the OFFSET trim pot counterclockwise until the the OC/PWR LED turns solid.

TIME DELAY: The TIME DELAY determines how long a current limit condition must exist before the card toggles the relay outputs. Turning the trim pot clockwise increases the time the current must be above the set point before the card registers it as a current limit condition. You can either measure the current pull with an ammeter and relay outputs with an ohmmeter to measure the time between current limit and relay trip, or you can measure the time between LED changes. The OC/PWR LED will turn solid green once the current is above the set point. The TRIP LED will turn solid red once relay outputs have toggled. You can measure the time between these LED changes to determine the TIME DELAY setting.

HYSTERESIS: Once the card enters into a current limit status and togeeles the relay outputs, the HYSTERESIS determines how low the current level must drop before the card can toggle the relays back to normal if the card is reset while in AUTO mode. Turning the trim pot clockwise increases the difference the current level must drop (ie turning the HYSTERESIS trim pot full clockwise means the current level must drop to 50% of the trip point before the CMC100 card will reset the relay outputs).