

CBC-802 Plug-In Clutch/Brake Control with Solid State Switching

P-239-35
819-0409

Service & Installation Instructions



An Altra Industrial Motion Company

Brake (Red) and clutch (Green) indicator lights

Potentiometer for anti-overlap adjustment



Introduction

The CBC-802 is a solid-state clutch/brake control designed for operation of all Warner Electric 90 volt DC clutches and brakes with the exception of the high torque series. It should not be used to directly power Warner Electric permanent magnet electrically released brakes as the units require an adjustable current or voltage supply to provide optimum release.

The CBC-802 clutch/brake control is a direct plug-in replacement for the previous MCS-802-2 control. The difference between the two versions is that the CBC-802 has a potentiometer for adjustment of the anti overlap between clutch and brake where the MCS-802-2 was switch selectable for preset times only. Additionally, the fuse changed for a 3AG type for the MCS-802-2 to a 5mm type fuse on the CBC-802. Also included in the CBC-802 are LED indicators indicating when the brake or clutch is energized.

The CBC-802 clutch/brake control is designed to switch between a clutch/brake combination, two clutches or two brakes, one unit on at a time. Control design is such that on power up, the brake channel energizes initially, with normal switching inputs. The time delay feature is designed to minimize clutch/brake interaction by reducing clutch/brake torque overlap. Indicator LED's on the control show when the brake channel (RED) or clutch channel (GREEN) is energized. An internal fuse provides protection from overload conditions. Additionally the control is protected against output short circuit conditions. The control does not protect from AC ground loops or faults on the DC output side.

The control mounts in one of the two optional octal sockets which are purchased separately. Wiring is made at the socket terminals.

When used with the Warner Octal Sockets, the control meets the appropriate UL and CuL certifications.



⚠ WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

Specifications

Power Input	120VAC ±10% 50/60 HZ
Output	90 VDC full wave rectified. 0.50 amps maximum.
Fusing	1/2 amp, 250V, 5 x 20mm internal. Replacement 458-8001-086
Switching	Momentary contact, maintained contact, or solid state open collector logic. Minimum contact rating 20VDC resistive, 0.01 amps. Minimum input pulse – 1 millisecond.
Time Delay	Adjustable potentiometer for 0 to 130ms - both channels
Dimensions	Approx. 4" high x 3-1/2" wide x 1-1/2" deep.
Ambient Temperature Cycle Rate	-20° to +122°F (-29° to +50°C) Consult the Application Engineering section of Warner Electric's Master Catalog, P-1234, for capabilities in your application.

Model	Part No.
CBC-802	6002-448-001
Octal Socket, Foot Mounted	6001-101-001
Din Rail Mount Octal Socket	6001-101-002

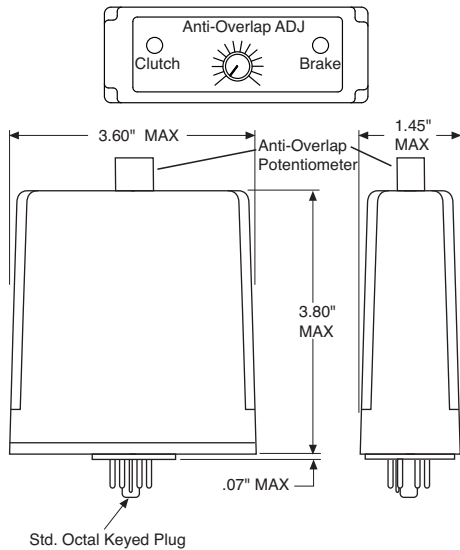
WARNING To avoid injury (or even death), always make certain all power is off before attempting to install this control or any electrical equipment. Do not touch the board if power is applied.

Installation

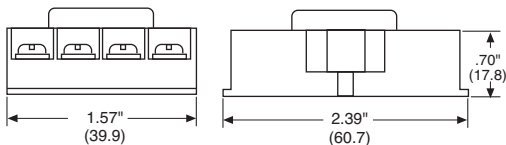
Mounting

1. Select a suitable location in the panel or cabinet where the CBC-802 will be located. Insure sufficient space is available for socket & wiring and control when plugged into the socket.
2. Mount the socket (foot mount) to the panel or attach the DIN Rail Mount to its track where it will be located. Make sure socket is properly secured.
3. Once socket is mounted and secured, proceed to the control wiring section.

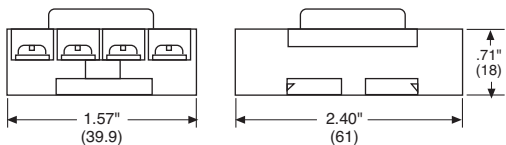
Dimensions



Octal Socket
 P/N 6001-101-001 Purchased Separately

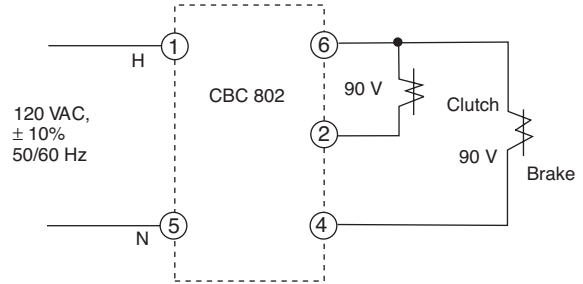


DIN Rail Mount Socket
 P/N 6001-101-002 Purchased Separately



Wiring Hook-up

The CBC-802 clutch/brake control is interchangeable with its predecessor, the MCS-802-2, but is not directly interchangeable with other Warner Electric plug-in controls. Before actual installation of the CBC-802 into its socket, insure all external wiring conforms to the following hook-ups:



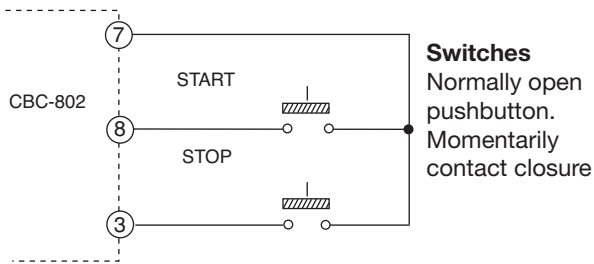
Power and Load Wiring

1. Connect the hot side of the 120 VAC power to terminal 1 of the socket and secure tightly.
 2. Connect the neutral side of the 120 VAC power to terminal 5 of the socket and secure tightly.
- Note:** The "hot line" must be connected to terminal 1. This line measures 120 VAC to conduit ground. The "neutral" line (color coded white or natural-gray) is grounded at the 120 VAC transformer and must be connected to terminal 5. This line measures zero VAC to conduit ground. A chassis ground should be provided as non-current conducting ground wire (color coded green).
3. Connect the two (2) wires from the clutch to terminal 2 and terminal 6 of the socket. Secure terminal 2 tightly.
 4. Connect the two (2) wires from the brake to terminal 4 and terminal 6 of the socket. Securely tighten both terminals.

CAUTION This is a floating type power supply and is not referenced to AC ground. Under no circumstances should any of the output wire leads be connected to earth or chassis ground as the unit will be destroyed.

There are switching options that can be used with the CBC-802 clutch/brake control. Determine which switching option you will be using and wire the switching inputs for that option.

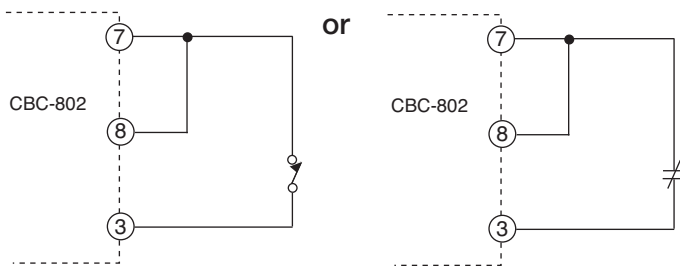
Option 1 – Momentary Push Button Switches



- 1. Connect the normally open start switch contacts to terminals 7 and 8 of the socket. Tighten terminal 8 securely.
- 2. Connect the normally open stop switch contacts to terminals 7 and 3 of the socket. Tighten both terminals securely.
- 3. This completes the wiring of the CBC-802. Double check all terminal wiring at this time

Proceed to the start-up section of this manual.

Option 2 - 2-wire Maintained Switching



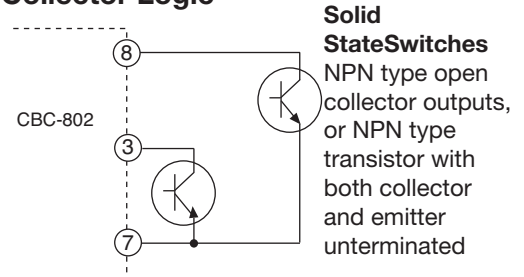
When using option 2 for switching input, the switch wiring must be such that in normal state the contacts are closed at power-up to insure brake output is energized. Switching can be either through a maintained type switch or relay contacts as shown above.

- 1. Connect a jumper wire from terminal 7 to terminal 8 of the socket. Tighten terminal 8 securely.
- 2. Connect the normally closed switch or normally closed relay contacts to terminal 7 and terminal 3 of the socket. Tighten both terminals securely.

- 3. This completes the wiring of the CBC-802. Double check all terminal wiring at this time.

Proceed to the start-up section of this manual.

Option 3 - Solid State Switching – NPN Open Collector Logic



CAUTION When using solid state switching, the emitter or output common of the switching device cannot be grounded. If the outputs are grounded, then either different switching devices must be used or an input isolation transformer on the AC input to the CBC-802 must be used, or the CBC-802 will be destroyed.

- 1. Connect the collector of the NPN output transistor or switching device to terminal 3 of the socket for stop input. Tighten terminal 3 securely.
- 2. Connect the collector of the NPN output transistor or switching device to terminal 8 of the socket for start input. Tighten terminal 8 securely.
- 3. Connect the emitter of the NPN output transistors or switching device common for both stop and start to terminal 7 of the socket. Tighten terminal 7 securely.
- 4. This completes the wiring of the CBC-802. Double check all terminal wiring at this time.

Proceed to the start-up section of this manual.

Start-Up

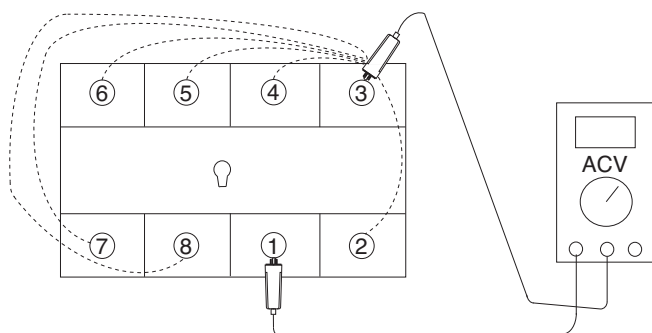
The following procedure may be used to check out the socket and wiring installation prior to plugging in and powering the CBC-802. This procedure will check for any grounding problem and prevent the control from being blown. To carry out this test, a digital voltmeter set to measure AC voltage with a range of 250 VAC is needed.

- 1. With the CBC-802 control still unplugged from the socket, apply the 120 VAC to the control socket.
- 2. Place one test lead of the meter to terminal 1 (hot side of 120 VAC input power) and with the other test lead of the meter measure to the other terminals of the socket.

A zero volt reading should be observed between terminal 1 and all other terminals except terminal 5 which should measure the AC line voltage to the socket.

A reading of other than (0) zero volts to any of the terminals (except 1 to 5) indicates some type of leakage or grounding condition and **MUST** be removed or the control will potentially be destroyed on power up.

- 3. Once test is complete, turn off AC power.



- 5. With control installed in socket, apply power to the CBC-802. On power up, the brake output LED (Red) should be on, and the brake should be energized.
- 6. Cycle the control between clutch/brake channels and observe that the channel output lights switch between brake and clutch (Red LED to Green LED) and insure brake and clutch are energizing properly.
- 7. Start the machine and allow unit to cycle. Make any adjustment on anti-overlap potentiometer while machine is running. Adjust only enough to eliminate any interaction from one unit turning off and other unit turning on.

Note: If time delay is set too high, a delay between one unit turning off and other unit turning on will be noticed. This could cause loss of control in machine function momentarily.

- 8. This completes the installation of the CBC-802.

Term 1-2 0V
 Term 1-3 0V
 Term 1-4 0V
 Term 1-5 (line voltage 120V)
 Term 1-6 0V
 Term 1-7 0V
 Term 1-8 0V

Note: Voltages other than zero indicates problems.

- 4. After completion of ground fault checks is done and power off to the control socket, insert the CBC-802 into the octal socket.

Note: The socket is keyed, so control will only go in one way.

Warranty

Warner Electric LLC warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC's prior consent.

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A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

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