

Cooper Power Systems' economical, easy-to-use, one-way Capacitor Bank Controller for remote operation of distribution capacitors.

## CBC-3010 Power Line Communications Capacitor Bank Controller CBC-5010 900 MHz FLEX® Paging Capacitor Bank Controller

### Overview

The CBC-3010/5010 Capacitor Bank Controllers (CBC), are flexible, inexpensive, one-way terminals for remote control of distribution line capacitors or for other distribution automation applications requiring similar control capabilities.

The CBC-3010/5010 include the capability to close or trip based on locally set voltage conditions; however, this may be overridden from the Master Station.

Remote control is either via Cooper Power Systems' Yukon® Advanced Energy Services software or can be integrated with other software provider applications.

The Master Station can be tied to a SCADA/EMS system to implement closed loop VAR or voltage control. This capability can also be provided by the Yukon Advanced Energy Services software.

### Benefits

Remote control of capacitors offers the flexibility to implement remote switching based on individual capacitor bank control needs or by defined optimization strategies by area, substation, feeder or other system needs.

Remote scheduled control eliminates the need for time switches and reduces the cost of maintenance and site visits to change schedules, reset clocks or to switch banks manually on a seasonal basis.

Remote control optimizing power factor combined with the CBC's voltage over ride lowers system losses while improving the service voltage.

### Features

- Economical, remote control
- Selectable voltage over ride
- Advanced VERSACOM® and ExpressCom® protocol and addressing
- Standard 4-jaw socket mounting
- Local or remote trip-and-close using two 120 VAC 30-ampere relays for capacitor switch control
- Locally settable over- and under-voltage points for trip-and-close
- Locally settable close and reclose delay timers for personnel safety
- Six level hierarchical addressing with remote re-programmability
  - - More than 65,000 addressing groups
  - - Unique device control
- Socket mounted NEMA 3R polycarbonate enclosure with latch and sealing provisions
- Operations counter option
- LED indicators for control status
- LED indicators for capacitor bank status and cellular signal strength

# CBC-3010 CBC-5010

## Capacitor Bank Monitor and Controller Operation and Maintenance

### Enclosure



CBC-5010 - Front



CBC-5010 - Back

The standard enclosure is a four-jaw socket-mounted configuration, offering the following features:

- NEMA 3R rain-tight rating
- Utility seal and padlocking provisions
- Gray polycarbonate construction
- Front LED viewport
- Removable door for servicing of communications

### Control Protocol

VERSACOM or ExpressCom messages are used to control or program the CBC. Groups or unique devices may be taken in or out of service. Error Detection is via BCH coding on each word or message, depending on the communications.

### Addressing

The CBC uses VERSACOM or ExpressCom protocol with more than 65,000 groups in a six level hierarchical structure. This supports system operation using either geographical or electrical system addressing. Addresses are remotely or locally re-programmable (except for Utility and Unique IDs) and stored in nonvolatile memory in the CBC.

Utility ID:	254
Aux. Utility ID:	254
Section:	254
Class:	16
Division:	16
Unique:	4+ billion

### Operations Counter Option

For switch and bank maintenance, an internal electromechanical six digit non-resettable operations counter is available as an option for recording total trip operations.

### Over-Voltage/Under-Voltage Operation

The CBC can be configured to provide automatic trip-and-close of capacitor banks based on local over-voltage or under-voltage conditions referenced to the 120 VAC power source. To prevent hunting, over-voltage or under-voltages must exist for four minutes or more. Over-voltage or under-voltage operation may be remotely disabled or re-enabled. Settings are by selectable pin jumpers in one-volt increments:

Over-voltage:	Disable or 123-129 VAC
Under-voltage:	Disable or 111-117 VAC

### Operational Delay Timers

For local personnel safety, the CBC can be configured to provide selectable delay times for both close and reclose operations. Delays allow field personnel time to move away from the bank during actual control periods. Disabling the delay timer allows immediate operation of the bank in either local or remote mode. Settings are by made by selectable pin jumpers:

Close:	Disable, one, or three minutes
Reclose:	Disable, one, or five minutes

### Status/Data LED Indicators

The CBC features both internal and external LED indicators for bank status and CBC internal data:

Red:	Bank closed
Green:	Bank tripped or open
Amber:	Over-voltage or under-voltage condition exists
Data LED:	Externally visible LED provided for output of programmable VERSACOM switch data, readable by a receiver service unit.
Signal LED:	Externally visible LED used for communications signal detection or propagation checks.

### SPECIFICATIONS

#### Communication Options

Cannon Power Line Communications (PLC):  
Single frequency: 9.6 or 12.5 kHz

Commercial Paging:  
900 MHz FLEX® messaging

#### Environment

Temperature:  
-40° to 55° C for CBC-3010  
-40° to 85° C for CBC-5010

Relative Humidity:  
0% to 100% non-condensing

#### Power Requirements

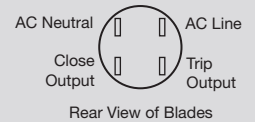
Voltage:  
120 VAC +10/-20%  
60 Hz +/- 2 Hz

Optional Battery:  
12 VDC rechargeable

#### Outputs

Two 120 VAC 30 ampere relays for trip-and-close. Type 1 Form C contacts interlocked and wired as two Form A outputs. 12 VDC coils. Activation times typically set for 30 seconds.

#### Electrical Connections (Rear View)



#### Surge Protection

ANSI C37.90A, IEEE 472-1974

#### Packaging

Socket Mount:  
10.9"H x 8.2"W x 5.9"D (27.6 x 20.8 x 14 cm)

Weight: 4.6 pounds (2.08 kg)