

Cooper Power Systems feature-rich VAR Sensing controller with communications expandability is designed to operate as a stand-alone device, yet can be easily upgraded in the future to become integrated into an automated control strategy.

CBC-7100 Stand-Alone VAR Sensing Capacitor Bank Controller

Overview

The CBC-7100 is the industry's premier VAR sensing, stand-alone Capacitor Bank Controller (CBC) with operational set point control strategies based on VARs, time, temperature and voltage set points. These set points can be combined to optimize feeder site power factor.

The CBC-7100 incorporates numerous features that all electric utilities desire such as VAR optimization, voltage protection, adaptive voltage, neutral current sensing and data logging. The truly universal design offers maximum flexibility at an economical price.

Uncompromising Flexibility

Purchase the full-featured DNP 3.0 stand-alone controller today—confident that it can be upgraded with a wide range of cost-effective communications options tomorrow. Pluggable SelectComm communications modules provide the ultimate in utility communications flexibility.

Data Logging

The CBC-7100 maintains data logs for the following types of information: voltages, VARs, trip-and-close operations, temperature, neutral current and alarm events.

Features

Operation

- Multiple operation strategies including combinations of VAR time/temperature and voltage override strategies
- Multiple season and weekend schedules
- Perpetual calendar for holiday operations
- Time zone and daylight saving time

Voltage

- Over voltage and under voltage thresholds for trip-and-close operations
- Emergency over and under voltage thresholds for trip-and-close operations
- Adaptive voltage can be enabled to inhibit a trip or close operation based on the action causing a voltage threshold violation

Data Logging

- Data logging of line voltage, high, low and adaptive voltages for accurate on-site voltage analysis
- kVAR, PF, kVA and Watts

Standard Features

LED indicators

- Programmable front panel or service tool available
- Trip, close-and-reclose delay timers for personnel safety
- Operations counter with lockout violation features
- Three analog inputs
- Inputs for neutral current sensor
- Temperature sensor
- Grounding lug
- USB service port

Optional Features

- Optional four-jaw, six-jaw or surface mount configurations
- Optional neutral current sensor
- Optional Bluetooth service connection
- Optional spare fuse and fuse holder
- Optional SelectComm communications modules

Local control of Capacitor Banks

A variety of local conditions are monitored and can be used to activate local control actions:

- Local control based on VAR
- Local control based on temperature
- Local control based on neutral current
- Local control based on line voltage
- Local control based on a time-of-day schedule
- Any combination of the above local control actions
- Local site control for maintenance

120 VAC Line Voltage Monitoring

This monitors the 120 VAC source voltage used to power the CBC. Alarm set points for low and high voltage levels are locally configurable.

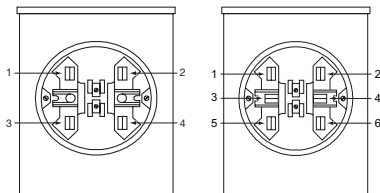
Neutral Current Sensor

- Indicates normal operation, open circuits and failed operations
- Configurable for a variety of capacitor bank sizes
- Violations are logged

The neutral current sensor is installed on the neutral lead. The neutral current can be used to log violations as well as locking out an unbalanced capacitor bank.

Mounting Styles

The following graphics and table illustrate the supported four-jaw, six-jaw and surface mount socket styles:



(view looking into the socket)

	Jaw 1	Jaw 2	Jaw 3	Jaw 4	Jaw 5	Jaw 6
Style 1	Line	Neutral	Trip	Close	-	-
Style 2	Line	Neutral	Close	Trip	-	-
Style 3	CSL	Neutral	Line	Trip	CSH	Close
Style 4	Line	Neutral	CSL	CSH	Trip	Close
Style 5	Line	Neutral	NSL	NSH	Trip	Close
Style 7	Surface Mount					

CSH=Line Current Signal High, CSL=Line Current Signal Low, NSH=Neutral Current Signal High, NSL=Neutral Current Signal Low

Order #C7102X2T0000100 (no RS232 radio port)
 Order #C7124X2T0000100 (includes RS232 radio port)
 (X = Mounting style from table)
 Contact Cooper Power Systems for order numbers with Bluetooth or Neutral Current Sensor

Adaptive Voltage Algorithm

Prevents the execution of a control command if the operation will cause an over voltage or under voltage condition.

Operational Delay Timers

The unit can be configured with delay times for trip, close-and-reclose operations. The delay times give field personnel time to move away from the bank after initiating control and before the switch operates. The operational delay times can be set locally or from the CBC 7000 Series service tool.

Status/Data LED Indicators

The CBC features LEDs for bank status and CBC internal data:

- | | |
|---------------|--------------------------------------|
| Local Tripped | Local control mode |
| OV/UV | Switch tripped |
| | Over voltage/under voltage condition |
| Closed | Switch closed |
| Power | AC power present |
| RSSI | Receive Signal Strength Indicator |
| Receive | Receiving data |
| Transmit | Transmitting data |

Enclosure Housing

The enclosure is available in surface mount, four-jaw or six-jaw socket configurations, offering the following features:

- NEMA 4 rain-tight rating
- Utility seal and padlocking provisions
- Gray fiberglass construction

COMMUNICATION UPGRADES

One-Way SelectComm Modules

- 900 MHz FLEX Paging - One-way communication using public paging networks directly to the CBC.

Two-Way SelectComm Modules

- Cellular GSM/GPRS
- Cellular CDMA/1xRTT
- RS232 Serial DNP 3.0
- Ethernet TCP/IP
- Landis+Gyr Gridstream RF

(All two-way SelectComm modules support DNP 3.0)

SPECIFICATIONS

Temperature: -40°F to 185°F (-40°C to 85°C)

Cellular Modules Temperature: -22°F to 140°F (-30°C to 60°C)

Relative Humidity: 5 to 95% non-condensing

Power Requirements

Voltage: 100 to 135 VAC; 60 Hz
 Optional Battery: 12 VDC rechargeable

Power Test

EFT per IEC61000-4-4 at 4kV
 100 kHz Ring per IEEEC62.41 at 6 kV (.5 kA)
 1.2/50 (8/20) Combination Waveform per IEEEC62.41 at 6 kV (3 kA)

I/O Test

EFT per IEC61000-4-4 at 4 kV
 1.2/50 (8/20) Combination Waveform per IEC61000-4-5 at 4 kV (100 A)

Electrostatic Discharge

ESD per IEC61000-4-2 discharge through contact at 8 kV.
 ESD per IEC61000-4-2 discharge through air at 15 kV.

Outputs

Two 120 VAC 30 Ampere relays for trip-and-close with selectable operation time.

Inputs

Three analog inputs for control or monitoring.

Test Points

Four test points for trip, close, line and neutral values.