

McGraw-Edison®

CRA Regulator Controls



Clean. Compatible. And Controlled.

**COOPER** Power Systems

Cooper Control with a Solid Reputation

Exceptional Quality

The CRA is designed for all operating conditions and all climate conditions. Every single control assembly undergoes rigorous, thorough testing. Every manufacturing process is checked and rechecked. And checked again. We use the highest quality materials, paints and processes. Like all Cooper Power Systems and McGraw-Edison® products, the CRA is made to live in a world of extremes. It will stand up and deliver. We make it that way.

Experience You Can Count On

Exceptional performance is what you can expect from our products — and our people. Cooper Power Systems backs our products with outstanding service and support. Count on our team of engineers to give you fast, reliable support. Keeping you up and running is our commitment to you.



Cooper CRA controlling pole-mounted Siemens regular outside Boise, Idaho.



CRA— Complete in Every Way

The CRA comes complete with the latest CL-series control and enclosure, a detailed installation & operations manual and a function code card. Our universal mounting bracket mounts easily to your existing regulator — with no holes to drill. All the hardware and brackets you need are included to make installation quick and easy.

Handles Ours, Handles Theirs

The Most Versatile Control Ever Made for a Voltage Regulator

We designed the Control Replacement Assembly (CRA) to manage McGraw-Edison® brand voltage regulators -- and all domestically manufactured, single-phase, 32-step regulators, regardless of size or capacity*. The CRA retrofits GE®, Siemens® and Allis Chalmers® regulators -- easily and reliably. Whether you use one of these brands or all of them, you'll find the CRA is the most adaptable, functional and easy to maintain control available. We've proven it.

* The following signals are needed to achieve functionality of the CRA unless otherwise noted as optional:

- Control voltage or load side voltage signal
- Operations counter
- CT current signal (optional)
- Neutral light (optional)
- Motor raise and lower circuits
- Common or ground
- Source side voltage signal (optional)
- Drag hand reset (optional)



Short Box

Dependable Control

The Short Box has virtually every standard feature you will need for reliable operation — and room for one accessory.

Room to Expand

If your application requires two accessories, the Long Box provides the extra space you'll need. Choose from a 2179 interface board, 2179 modem interface, DNP 3.0 Interface, SCADA relay or a heater. Accessories can be factory installed or retrofitted using the pre-tapped holes on the rear plate.



Long Box

Efficient in Every Way



Simple Installation in Both Shop and Field

The CRA is equipped with easy-to-identify terminals that accept existing cable terminations of all three manufacturers (McGraw-Edison, GE, Siemens). Simple installation can take place in a substation, on a pole or in the shop, using easy-to-follow, step-by-step instructions. An experienced technician can retrofit the CRA in less than one hour; successive installations take only 15 to 30 minutes.



The Cooper CRA combines easy installation, easy operation and minimized training costs across all manufacturer platforms - at a competitive price.



(Clockwise from upper left: CRA shop installation on a Siemens regulator; CRA with Siemens regulator nameplate; field installation of CRAs on GE regulators in a substation; completed shop installation of CRAs on GE regulators.)

Easier to Work On

Technicians will find the CRA easier to service because the work area is confined to the control end of the control cable. This eliminates the need to enter the regulator tank to perform any type of control service. (In-service regulators should be properly bypassed before attempting to service the regulator.)

Reduces Inventory *and* Training Costs

Reduce your regulator control inventory from several models to just one - and save money. Stocking this one standardized regulator control panel means that your field technicians need only be trained on one control - not several.

Speeds Service and Data Acquisition

We incorporated highly operational Function Codes that are simple to understand and operate. It's much faster than "scrolling," and makes support via phone with factory experts quick and easy.

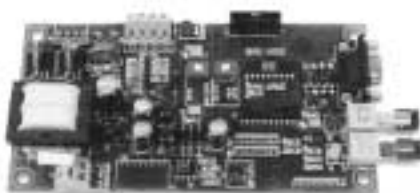
Unmatched Flexibility

Accessory Mounting Made Simple

Cooper Power Systems offers a number of accessories for your custom applications. Accessories can be factory installed or retrofitted using the pre-tapped holes on the rear plate.

Data Reader and Modem Interface

With the McGraw-Edison Data Reader, you can download control readings from as many as 25 different regulators. To download, simply connect the Data Reader to your control via a Data Reader cable (which is supplied with the Data Reader). You can also install a modem card and transmit data via your phone, or use enhanced communications by installing an RS-232/fiber optic interface board to meet your communications needs.



2179 Interface Board

Provides either fiber optic or RS-232 interface with DATA 2179 communications output. *(An RS-485 version is also available.)*

2179 Modem Interface

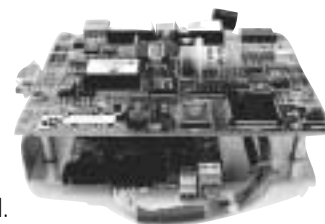
Provides modem/fiber optic interface with DATA 2179 communications output.

DNP 3.0

Provides either fiber optic or RS-232 interface with DNP 3.0 communications output. *(An RS-485 version is also available.)*

SCADA Relay

For analog SCADA operations, the SCADA relay enables remote tap changer control.



Heater

A thermostatically controlled heater assembly for use in high-humidity areas.

Cooper Control Interface Software (CCI)

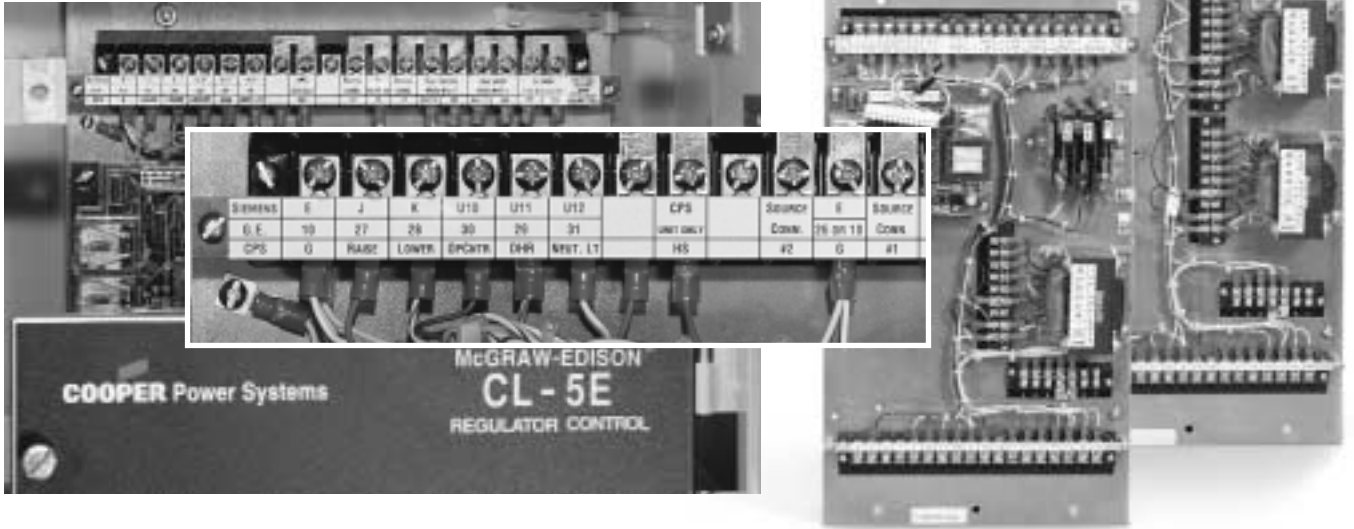
When you install Windows®-based CCI Software to your laptop or desktop computer, you can establish control settings, upload settings, download readings, provide output of settings and readings, reset metering, block automatic operation and even operate the tap changer. You can also export the data to another spreadsheet or database program.



Unparalleled Versatility

Easy, Convenient Adaptability

The CRA terminal board is clearly labeled for GE or Siemens wiring terminations. Easy-to-access terminals provide convenient hook-up of the motor circuit; the potential and current circuits; and the auto inhibit and voltage reduction circuits, making it easy to connect existing analog (discrete) SCADA systems.



Compatible Yesterday, Today and Tomorrow



CL-2A

CL-4C

CL-5A

CL-5C

CL-5D

CL-5E

Today's CRA, like the first one we produce in 1988, is designed with standardization in mind. From the beginning, we took into account the specifications of domestically manufactured regulators: Cooper/McGraw-Edison, Siemens and GE. We also designed the CRA to be backward - and forward - compatible with every Cooper CL-series control panel ever made.

In fact, in an emergency you could remove any CL-series control panel from the CRA, replace it with any of the control panels shown above, and obtain all the functionality of the replacement control panel. That's part of Cooper's ongoing commitment to the concept of universal regulator control — yesterday, today and tomorrow.

Compatible Up & Down the Line

CONTROL FEATURE COMPARISON	CL-2A	CL-4C	CL-5A	CL-5C	CL-5D	CL-5E
Voltage Limiting		▲	●	●	●	●
Metering		▲	●	●	●	●
Time-tagged Demand (Fwd & Rev)			▲	●	●	●
Profile Recorder			▲	●	●	●
Fwd & Rev Source Voltage Demand added						▲
Reverse Power Operation		▲	●	●	●	●
Reverse Operation without IDPT				▲	●	●
Configurable Profile Recorder						▲
Co-Generation Mode Redefined					▲	●
Reactive Bi-Directional Mode added					▲	●
Source Voltage Calculator				▲	●	●
Tap Position Tracking			▲	●	●	●
Voltage Reduction		▲	●	●	●	●
Pulse Mode			▲	●	●	●
SCADA (Distribution Automation)						
Discrete Auto Inhibit & Motor Control	●	●	●	●	●	●
Digital Communications Capable		▲	●	●	●	●
Resident Communications Protocol			▲	●	●	●
Data Retrieval (Data Port)		▲	●	●	●	●
Security Override			▲	●	●	●
Quik-Drive Tap Changer Support					▲	●
Line Drop Compensation	●	●	●	●	●	●
Expanded limits +/- 96V					▲	●
Tap To Neutral						▲
SOFT ADD-AMP						▲
Operations Counter						
7 Resettable Operations Counters						▲

● = STANDARD FEATURE ▲ = NEW STANDARD FEATURE

Cooper Power Systems manufactures a wide range of high-quality medium voltage electrical equipment, components and systems that help bring electric power to homes, industries, businesses and institutions throughout the world. With our strong customer focus, superior products, controls and systems applications expertise, nobody does a better job than Cooper Power Systems of supporting your ability to profitably supply your customer with clean, reliable power.

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