

## Smart grid ready regulator control delivers automation and efficiency



Easily integrate the new single- and multi-phase CL-7 regulator controls into your smarter grid system. This easy-to-use intelligent control is built to quickly adapt to emerging changes you can expect from the smarter grid. Available as a single- or multi-phase device, the CL-7 control is designed with a full suite of deployment options to enhance grid efficiency and power quality.

### Fully integrated control

Utilities, commercial and industrial facilities need intelligent solutions to improve system voltages and power factor in order to reduce generation demand to achieve significant energy savings. Regulators optimize these savings, improve power quality and minimize voltage fluctuations. In order to tie these great benefits into a smart grid system, an easy-to-use regulator control is needed.

Eaton's Cooper Power™ series CL-7 regulator control is the newest member of a line of fully integrated controls that features a modular, universal design, capable of being deployed with various communications configurations to meet differing application needs.

Available in both single- and multi-phase designs, the CL-7 smarter grid ready regulator control with modular, integral communications easily fits into your existing system. The multi-phase control expands on the intelligence of a single-phase control by adding modular hardware to provide monitoring and control of additional phases without additional controls. The CL-7 control has a common look and feel to CBC-8000 capacitor controls and Form 4D switchgear controls for ease of use and consistency across products.

### This smarter grid control is designed for:

- Increased efficiency in energy delivery
- Flexible, easy-to-use communications
- Improved productivity
- Enhanced power quality

### CL-7 regulator control— the smarter choice

The CL-7, a truly scalable regulator control, uses selectable control strategies and communications to enable users to control their systems in the optimum manner. The control is designed to adapt and grow as your system evolves. The CL-7 control strategy is based on field-proven algorithms, and utilizes Eaton's Cooper Power series standard front panel and ProView NXG™ application software.



The CL-7 control can be used with pad-mounted or overhead voltage regulators.



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The CL-7 control (single-phase panel shown) is easily integrated into a variety of systems and applications.

### Flexible, easy-to-use communications

The CL-7 control is specifically designed for remote operation and retrieval of field measurement data for analysis by integrated volt/var applications. Benefits from this highly flexible and programmable control include:

- Easy integration into radio networks and SCADA systems using a variety of communication radios and modems
- Communication loss fail-safe modes for grid stability
- Unsolicited reporting of state change, field alarms or threshold violations for easy monitoring
- Available radio-ready
- Increased security with password protection
- Control configurations upgradable or downloadable through Eaton's ProView NXG software
  - Locally utilizing the control's USB connection
  - Remotely from office using radio communications
- Meets IEC standards supporting 120/240 V and 50/60 Hz electrical systems for global applications
- Single access point communications for all three phases with multi-phase control



Whether on a new installation or retrofit (as shown above), the CL-7 three-phase control is easily programmed in the field.

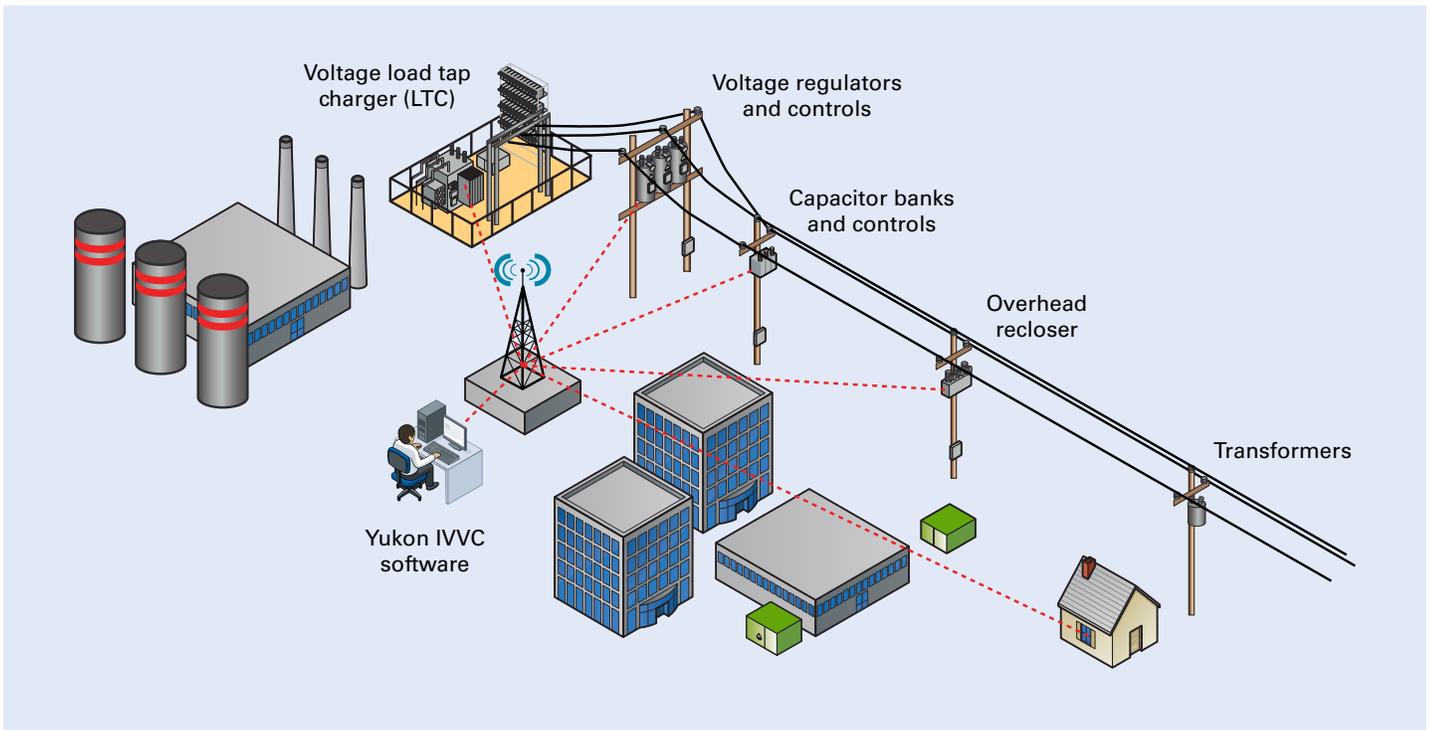
### Improved productivity

Reduce time in the field and operating costs with remote control, scanning, programming and data log downloads over a secure network.

- Remote, over-the-air settings updates:
  - Simplified installation
  - Less training needed
  - Highly flexible operational settings
- Remote retrieval of data:
  - Engineers can select nearly 400 data points
  - Data logged into data log/sequence of events (SOE)

### Three-phase power quality measurements with one multi-phase CL-7 control

- Monitors every aspect of site's health with full three-phase voltage, current, var and harmonic monitoring as well as monitoring via analog inputs for greater accuracy
- Offers refined power quality event monitoring—in the event of problems or grid anomalies that may need detailed analysis
- Monitors and improves power quality
- Allows customizable solutions to system imbalance with advanced features



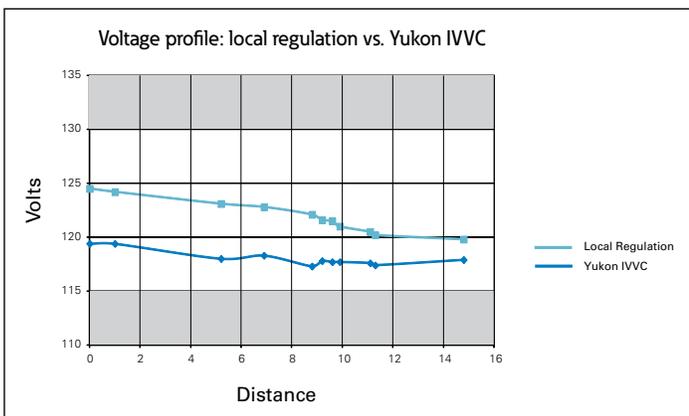
### Distribution automation solution

Eaton offers the full suite of power quality software and apparatus to support your volt/var management solution. With unparalleled expertise to make your automation seamless we offer:

- CBC-8000 capacitor bank control
- Yukon™ Volt/Var management automation software
- Capacitor banks
- CL-7 voltage regulator controls
- Voltage regulators

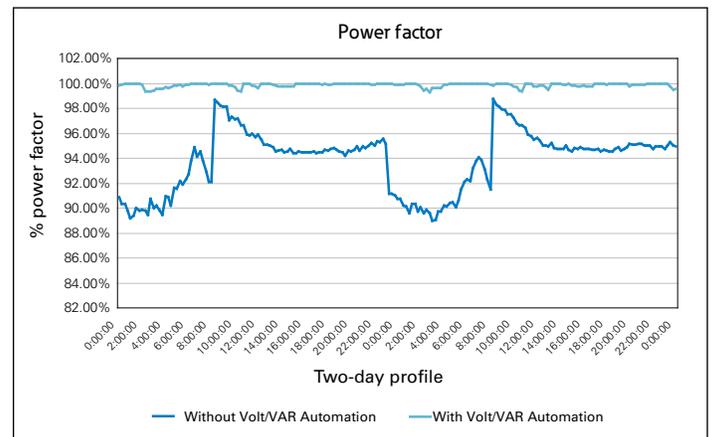
### Optimal feeder voltage

Yukon Volt/Var Control (IVVC) software uses capacitors and regulators to flatten the feeder voltage profile. The regulator works in conjunction with the capacitor to deliver the optimal feeder voltage profile. The graph below represents the Yukon IVVC software flattening the voltage profile—resulting in a reduction in bus voltage from 122 to 118 volts.



### Power factor correction

Power factor correction is a crucial element in improving energy efficiency and reducing losses. Regulators are used to correct the distribution feeder voltage. The graph below represents before and after effective implementation of Yukon Volt/Var management software.



### Power system studies for optimized results

Maximize the benefits from implementing a volt/var management application with Eaton’s CYME™ Engineering Services team. We offer power system studies to identify the best combination of regulation equipment to optimize feeder voltage profiles and substation var management.

The CL-7 control is specifically designed to operate voltage regulating apparatus. This highly flexible control can be deployed in a number of operational strategies using site metrics that include voltage and current.

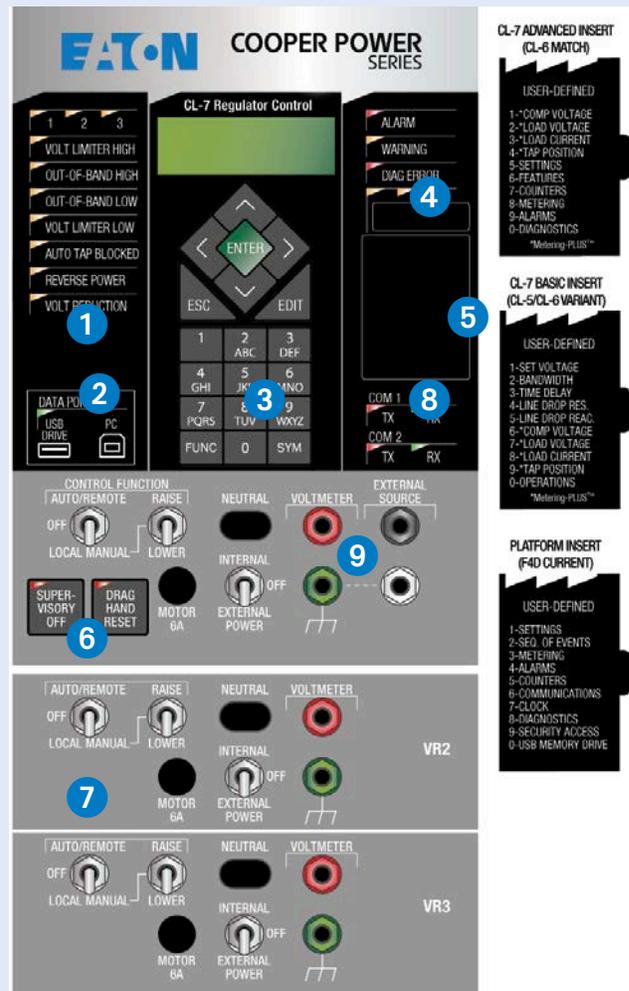
### Key operating features

- Single- or multi-phase control
- Local or remote control of regulators
- Multiple operating profiles
- Fully programmable preventative maintenance tools
- Battery backup options to maintain communications

### Key two-way communication features

- Single-access communications
- Real-time scanning
- Site alarm notifications
- Radio-ready control

- 1 Left-side LEDs to indicate regulator functionality
- 2 USB data ports
- 3 Ten-key programming area with LCD display
- 4 Right-side LEDs to indicate control information
- 5 Metering-PLUS™ legend
- 6 Bottom color-coded area for operating the control
- 7 Additional manual controls for multi-phase applications
- 8 Communication status LEDs
- 9 External power source and voltmeter test terminals



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