

NEMA motor protection Water/wastewater solutions



Taking control of your demanding water treatment process

Eaton delivers a global leading line of motor protection and monitoring products that are specifically designed to handle the demanding water and wastewater applications. All of Eaton's products carry industry-leading reliability, space-saving designs and are up-to-date with the latest industry standards and certifications.

Reliable	Energy efficient	Ease of use	Service and support
- Open and enclosed solutions with NEMA® 1/3R/12 options for demanding environments - Superior electrical and mechanical life up to 5 and 20 million operations, respectfully - Built-in motor protection capabilities include: - Motor protection - Load protection - Line protection - Monitoring and diagnostics - Surge and sag ride-through capabilities	- Compact line of components allows for the use of smaller panels - C440/C441/C445 provide a faster response time than standard electromechanical devices to enhance the protection of the motor - Motor protection relays allow for reduced inventory and cost to support the same applications - Analyze energy consumption in real time	- Engineered for easy and fast wiring via straight-through designs - Full line of snap-on accessories - Local and remote monitoring capabilities - Communication modules offered in all protocols - Status LEDs allow for quick and accurate trip indication - C445 user interface equipped with advanced monitoring, parameter setting, fault diagnostics and optional control	- Standard 1-year warranty after installation with extension available - Conveniently located contacts and coil terminals for ease of inspection or change - Installation manuals available as a guide for field repairs - Instructor-led training available



Protection

- **Motor protection**—C440 and C441 overload relays and C445 motor management relay provide thermal overload, phase loss and ground fault protections monitored in real time to help minimize the damage to your motor
- **Advanced protection**—C441 and C445 offer enhanced motor, load and line protection to provide greater system protection and reduce energy consumption
- **Power**—C445 offers protection via power, voltage and current monitoring, allowing the customer to understand the true behavior of their motor and pump
- **Surge and sag protection**—the C441 provides surge and sag withstand to keep your system running during applications where poor power quality and high line conditions are present



Monitoring

- **Communication monitoring**—C440 and C441 are equipped to support Modbus® RTU, DeviceNet™, PROFIBUS®, Modbus TCP and EtherNet/IP communications; C445 is equipped to support Modbus RTU, PROFIBUS, Modbus TCP, EtherNet/IP and USB, allowing for diverse system integration
- **Current monitoring**—C440 offers the widest FLA range in the industry; C440, C441 and C445 are able to monitor the current on each phase to help minimize overheating of the motor; C441 and C445 offer undercurrent/overcurrent trip to further support current monitoring and protection
- **Voltage monitoring**—C441 and C445 are able to additionally monitor voltage on each phase and undervoltage/overvoltage trip to help ensure that the line is protected
- **System monitoring**—the monitoring features allow for maximum system functionality and improved system life



Efficiency

- **Inventory reduction**—an integral design including various feature sets allows for the user to eliminate stocking multiple overloads and heater packs
- **Reduced downtime**—real-time monitoring helps the user stay one step ahead of potential issues to maximize uptime
- **Fast response time**—electronic overload and motor management relays allow maintenance to react quicker to system problems, prolonging your load life



Service

- **Compact footprint**—multiple integrated features within the overload relay eliminate the need for additional monitoring devices, reducing your overall panel size
- **Safe troubleshooting**—C441 and C445 are offered with a door or panel-mounted display for safe, behind-closed-doors troubleshooting; C445 user interface also allows for parameter setting, fault diagnostics and optional control
- **Quick troubleshooting**—C441 status LEDs and LED display provide simplified, immediate trip indication, eliminating the need to memorize fault codes; C445 advanced fault diagnostics give users complete fault descriptions, a fault snap-shot and queue immediately on the user interface or over the network
- **Easy retrofits**—the ability to mount the starters horizontally and vertically allows for easy retrofit applications in your existing panel
- **Remote reset**—C440, C441 and C445 allow for the user to reset and test the starters and overload relays remotely to keep your maintenance crew safe

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