Scalable intelligence made easy

Eaton's C400 series of advanced motor protection features three easy-to-use products with varying levels of capability. From basic monitoring and protection to advanced motor management, the C400 series has the exact solution to meet the needs of your application.

Product	C440 Overload Relay	C441 Motor Insight™	Power Xpert™ C445 Motor Management Relay
Ideal applications	Compact and fully featured for a basic overload relay—C440 provides a lower cost option for small or less critical motors in motor control centers. It is also ideal for stand-alone panels of any size used in HVAC or commercial applications.	The addition of power monitoring and protection detects under-loaded conditions like a dead-headed pump. Combined with a simple user interface for setup and monitoring, C441 is ideal for stand-alone pump or fan panels in industries such as mining and irrigation.	Advanced motor management, extensive communications, superior diagnostics, integrated logic, ground fault detection and protection make C445 ideal for critical motor applications where uptime is key. An intuitive interface allows users to access C445 safely from outside the motor control center or enclosure door.
Range	0.3–1500 A Up to 690 Vac (50/60 Hz)	1–540 A Up to 600 Vac (50/60 Hz)	0.3–800 A Up to 690 Vac (20–80 Hz) Up to 4160 Vac w/PTs
Features	Selectable trip class (10A, 10, 20, 30), ground fault and phase imbalance protections Flexible communication options for both monitoring and control 5:1 FLA range	Highly configurable line (voltage), load (power) and motor (current) monitoring and protection Optional remote user interface allows user to configure and monitor without opening a panel door All-in-one design reduces inventory costs by covering 1–540 A applications with only two SKU numbers	Configurable load and motor system coverage using advanced monitoring and protection algorithms Commissioning and monitoring tools include a remote-mount user interface, free software tool and web pages Multiple predefined operating modes with corresponding control station options Integrated logic engine with expandable digital I/O, analog I/O, thermocouple and platinum thermocouple input Built-in residual and pulse ground fault detection. Ground fault module for high resistance and zero sequencing ground fault protection
Benefits	Extends the life of plant assets with selectable motor protection features Status LED provides added assurance that valuable assets are protected by indicating the overload operational status Industry-leading FLA range reduces part numbers required	Advanced diagnostics allow for quick and accurate identification of the root source of motor, pump or power quality faults Configurable low-power trip capability provides superior protection for smaller motors, slow speed motors and lightly loaded large motors	Extensive current, voltage, power and system operating data coupled with real-time clock enhances user understanding of their application Multiple embedded fieldbus options allow integration of a wide range of industrial networks without additional modules or supply power User interface provides advanced monitoring, parameter setting, fault diagnostics and optional control with no specialty tools or knowledge required Integrated logic allows for local motor protection and control, local logic and I/O expansion Ground fault monitoring—the measurement module can be configured to determine residual, pulse detection Addition of an optional ground fault module—the high resistance and zero sequence ground can be monitored for faults Motor current measurement frequency range (20 to 80 Hz) allows use of the C445 with drive outputs

F·T·N

Powering Business Worldwide

Protection

Features	C440	C441	C445
Thermal overload	■	■	■
Phase loss	■	■	■
Selectable trip class	■	■	■

Ground fault current:
  Residual current
  Pulse detection
  High resistance and
    zero sequence
	■	■	■
			■
			■

Current unbalance	—	■	■
Voltage unbalance	—	■	■
Phase reversal	—	■	■
Jam	—	■	■
Under/overpower trip	—	■	■
Under/overvoltage trip	—	■	■
Under/overcurrent trip	—	■	■
Under/overfrequency	—	—	■
Stall	—	—	■
Instantaneous overcurrent	—	—	■
PTC (motor temperature)	—	—	■
Energy deviations	—	—	■
Voltage loss restart	—	—	■

Monitoring

Features	C440	C441	C445
Thermal capacity	■	■	■
Phase currents	■	■	■
Current unbalance	■	■	■

Ground fault current:
  Residual current
  Pulse detection
  High resistance and
    zero sequence
	■	■	■
			■
			■

Frequency	—	■	■
Voltage unbalance	—	■	■
Phase voltages	—	■	■
Real power (kW)	—	■	■
Under/overpower trip	—	■	■
Under/overvoltage trip	—	■	■
Under/overcurrent trip	—	■	■
Motor start time/count	—	—	■
Motor efficiency	—	—	■
Motor torque	—	—	■
Energy (kWh)	—	—	■
Apparent power (kVA)	—	—	■
Trip snapshot	—	—	■

Control

Features	C440	C441	C445
Hard wire/local reset	■	■	■
Network/electronic reset	■	■	■
Programmable alarms	—	■	■
Programmable trips	—	■	■
Multiple operation modes	—	—	■
User interface control	—	—	■
Logic engine	—	—	■
Digital I/O expansion	—	—	■
Analog I/O expansion	—	—	■
Platinum thermocouple and thermocouple input	—	—	■

Communications

Features	C440	C441	C445
Modbus® RTU	■	■	■
PROFIBUS®	■	■	■
Modbus TCP	■	■	■
EtherNet/IP	■	■	■
DeviceNet™	■	■	—
USB	—	—	■

Motor control center availability

Features	C440	C441	C445
IEC—Power Xpert CX™	■	—	■
IEC—Power Xpert CXH™	■	—	■
NEMA®—Freedom	■	■	■
NEMA—FlashGard™	■	■	■
NEMA—Freedom ARC	■	■	■
NEMA—Aftermarket buckets	■	■	■

Supporting documentation

Publication number	Description
CA08100006E	Motor Control and Protection Catalog
MN04209001E	C441 User Manual
MN042001EN	C445 User Manual
MZ042003EN	C445 Quick Start Guide
MZ042004EN	User Interface Infographic
MN181001EN	EIP-Assist Tag Generation Tool User Manual
BR04302001E	FlashGard NEMA MCC Brochure
BR043003EN	Power Xpert CX IEC MCC Brochure
BR043008EN	Power Xpert CXH IEC MCC Brochure
AP042007EN	Application paper on Grounding Systems and Faults
PA042004EN	Motor Management Intelligence Made Easy

For more information, visit
Eaton.com/C445   Eaton.com/MCC   Eaton.com/CXH

Follow us on social media to get the latest product and support information.

F·T·N
Powering Business Worldwide