

Benefits

Reliability and Improved Uptime

- C440 provides the users with peace of mind knowing that their assets are protected with the highest level of motor protection and communication capability in its class
- Extends the life of plant assets with selectable motor protection features such as trip class, phase unbalance and ground fault
- Protects against unnecessary downtime by discovering changes in your system (line/load) with remote monitoring capabilities
- Status LED provides added assurance that valuable assets are protected by indicating the overload operational status

Flexibility

- Available with NEMA, IEC and DP contactors
- Improves return on investment by reducing inventory carrying costs with wide FLA adjustment (5:1) and selectable trip class
- Design incorporates built-in ground fault protection thus eliminating the need for separate CTs and modules
- Flexible communication with optional I/O enables easy integration into plant management systems for remote monitoring and control
- Available as an open component and in enclosed control and motor control center assemblies

Monitoring Capabilities

- Individual phase currents RMS
- Average three-phase current RMS
- Thermal memory
- Fault indication (overload, phase loss, phase unbalance, ground fault)

Safety

- IP 20 rated terminal blocks
- Available in Eaton's industry leading FlashGard MCCs
- Tested to the highest industry standards such as UL, CSA, CE and IEC
- RoHS compliant

Standards and Certifications

- UL
- CSA
- CE
- NEMA
- IEC/EN 60947 VDE 0660
- ISO 13849-1 (EN954-1)
- RoHS
- ATEX directive 94/9/EC
- Equipment Group 2, Category 2



Electronic Overload Education

Description	Definition	Cause	Effect if not Protected	C440/XT Protection
Motor Protection				
Thermal overload	Overload is a condition in which current draw exceeds 115% of the full load amperage rating for an inductive motor.	<ul style="list-style-type: none"> • An increase in the load or torque that is being driven by the motor. • A low voltage supply to the motor causes the current to go high to maintain the power needed. • A poor power factor causing above normal current draw. 	<ul style="list-style-type: none"> • Increase in current draw leads to heat and insulation breakdown, which can cause system failure. • Increase in current can increase power consumption and waste valuable energy. 	<ul style="list-style-type: none"> • Thermal trip behavior is defined by UL, CSA and IEC standards. • Trip class is settable from 10A, 10, 20, 30
Ground fault	A line to ground fault.	A current leakage path to ground.	An undetected ground fault can burn through multiple insulation windings, ultimately leading to motor failure, not to mention risk to equipment or personnel	Fixed protective setting that takes the starter offline if ground fault current exceeds 50% of the FLA dial setting, that is, if the FLA dial is set to 12A, the overload relay will trip if the ground current exceeds 6A.
Unbalanced phases (voltage and current)	Uneven voltage or current between phases in a three-phase system.	When a three-phase load is powered with a poor quality line, the voltage per phase may be unbalanced.	Unbalanced voltage causes large unbalanced currents and as a result this can lead to motor stator windings being overloaded, causing excessive heating, reduced motor efficiency and reduced insulation life.	Fixed protective setting that takes the starter offline if a phase drops below 50% of the other two phases.
Phase loss—current (single-phasing)	One of the three-phase voltages is not present.	Multiple causes, loose wire, improper wiring, grounded phase, open fuse, etc.	Single-phasing can lead to unwanted motor vibrations in addition to the results of unbalanced phases as listed above.	Fixed protective setting that takes the starter offline if a phase is lost.

1-5A OL with CTs

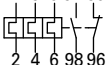
**XT Electronic Overload Relays for use with Large Frame XT Contactors (L-R)**

Use CTs and 1-5A **XT** overload relay. CT kit does not include overload relay (order separately).

XT Contactor Frame	For Use with IEC Contactor Amp Range (AC-3)	CT Range (Amps)	Description	CT Kit Catalog Number	Terminal Size	Overload Relay Catalog Number	Overload Relay with Ground Fault Catalog Number
L, M	185–500A	60-300	300: 5 panel-mount CT kit with integrated lugs	ZEB-XCT300	750 kcmil (2) 250 kcmil 3/0 Cu/Al	XTOE005CCSS	XTOE005CGSS
M, N	300–820A	120-600	600: 5 panel-mount CT kit with integrated, pass through holes	ZEB-XCT600	(2) 750 kcmil 3/0 Cu/Al	XTOE005CCSS	XTOE005CGSS
N	580–1000A	200-1000	1000: 5 panel-mount CT kit with integrated, pass through holes	ZEB-XCT1000	(3) 750 kcmil 3/0 Cu/Al	XTOE005CCSS	XTOE005CGSS
R	1600A	300-1500	1500: 5 panel-mount CT kit with integrated, pass through holes	ZEB-XCT1500	(4) 750 kcmil 1/0 Cu/Al	XTOE005CCSS	XTOE005CGSS

45 mm XT for Separate Mount

**XT Electronic Overload Relays for Separate Mount**

Overload Range (Amps)	Frame Size	Contact Sequence	Type	Overload Relay Catalog Number	Overload Relay with Ground Fault Catalog Number
Overload Relay					
0.33–1.65	45 mm	1 3 5 97 95	ZEB32-1,65/KK	XTOE1P6CCSS	XTOE1P6CGSS
1–5			ZEB32-5/KK	XTOE005CCSS	XTOE005CGSS
4–20			ZEB32-20/KK	XTOE020CCSS	XTOE020CGSS
9–45			ZEB32-45/KK	XTOE045CCSS	XTOE045CGSS
20–100	55 mm		ZEB150-100/KK	XTOE100GCSS	XTOE100GGSS
35–175	110 mm		ZEB150-175/KK	XTOE175GCSS	XTOE175GGSS

XT Electronic Overload Relay for Pass-Through Design

Pass-through design does not include any lugs to land wires. Terminate motor leads directly on contactor.

Overload Range (Amps)	Frame Size	Contact Sequence	Type	Overload Relay Catalog Number	Overload Relay with Ground Fault Catalog Number
35–175	110 mm	1 3 5 97 95	ZEB150-175/PT	XTOE175GCSP	XTOE175GGSP
		