Network Protectors

CM52 Network Protector

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CM52 Network Protector

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Network Protectors—CM52

Product Description

Network protectors are special self-contained air power breaker units having a full complement of current, potential and control transformers, as well as relay functions to protect the integrity of the low voltage network bus. The network protector can be in NEMA® housing, submersible housing, or suitable for mounting within a low voltage switchgear assembly. Several network protector models exist including the CM52, CMD and CM-22. The most recent model, the CM52 network protector, is highlighted in the following paragraphs.

Application Description

Network protectors are mainly used by utilities around the world. They are configured in either a spot or grid network. Most installations of network protectors are in underground vaults and require a submersible enclosure. Commercial applications also exist for customers that require highly reliable, stable power. These applications typically use a NEMA enclosure and are configured in a spot network. Some examples of commercial users are government buildings, hospitals, universities and industrial plants.

Features, Benefits and Functions

Eaton's Type CM52 is designed for improved safety, higher quality, ease of maintenance and inventory reduction.

CM52—Highlight of Relay Module

- Standardized breaker elements throughout entire electrical ratings allow for the use of common parts and accessories
- Smaller breaker element is less than half the weight of existing network designs
- The CM52 is the first network protector to pass 10 kV BIL, giving an additional measure of safety and performance
- Ratings of 800–6200A, 216–600V, internal or external fuses and NEMA

or submersible enclosures, completely cover the needs of the network protector industry

- Deadfront 4-position drawout breaker helps protect the user from accidental contact with live circuits and makes maintenance and troubleshooting easier
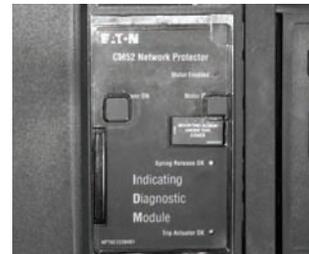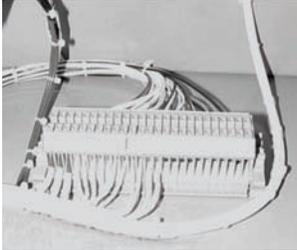

Deadfront, Drawout Breaker

- More diagnostics through the Indicating Diagnostic Module (IDM)

Indicating Diagnostic Module (IDM)

- Front-mounted test points give easy access and quick test cable connection
- Color-coded Teflon® wiring for easier troubleshooting

Color-Coded Wiring

- The CM52 breakers are all wired the same regardless of system voltage (216V, 480V and 600V)
- 3NO and 3NC dry contacts are standard as spare

Options

Arc Flash

VaultGard™ Arcflash Reduction Maintenance System™ Indicating Diagnostic Module

The CM52 Network Protector is available with the NPARMs module (Arcflash Reduction Maintenance System).

This device is internal to the Network Protector and can be remotely activated usually through a switch mounted at the vault entrance or through communications. This will enable the "ARMS" device on all CM52s in a spot network. Once activated, the NPARMs places the protectors in a sensitive mode, sensing both forward and reverse current directions. This device will actuate in 3–4 ms and call for all CM52 breakers to trip if a fault is sensed on an adjacent network protector or collector bus. It has been shown that this device limits the total incident energy to less than 8 cal/cm^2.

Remote Racking System

The CM52 Network Protector is also available with an integral remote racking system. The system remotely racks the breaker off the energized bus work while the door is still closed to the "test" position either through an external pendant or through communications.

Remote Racking System

Standards and Certifications

- Meets or exceeds the standards in IEEE® C57.12.44
- The CM52 Network Protector is UL labeled and approved in the NEMA housing at all ratings

Technical Data and Specifications

CM52 Ratings Comparison Table—Ratings Tested at 600V

Continuous Current Rating (Amperes)	Breaker Element Width in Inches (mm)	CM52 Interrupting Rating (kA)	CM52 Close and Latch Rating (kA)	IEEE/ANSI Interrupting Rating (kA)	IEEE/ANSI [1] Close and Latch Rating (kA)
800	17.00 (431.8)	42	35	30	25
1200	17.00 (431.8)	42	35	30	25
1600/1875	17.00 (431.8)	42	35	30	25
2000	17.00 (431.8)	42	35	35	35
2500/2825	22.00 (558.8)	65	45	60	40
3000	22.00 (558.8)	65	45	60	40
3500	35.00 (889.0)	85	65	60	40
4500	35.00 (889.0)	85	65	60	40
6200 [2]	35.00 (889.0)	85	65	Product not defined	Product not defined

Notes

[1] Close and latch ratings apply only to spring close and stored energy mechanisms. The CM22 does not have a close and latch rating.

[2] Open frame only, tested at 500V.

MPCV Communications Relay

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Description

Network Relay—MPCV

Network Relay—MPCV

Product Description

Type MPCV Network Protector Communications Relays for 216V and 480V Systems

- Eaton's programmable MPCV network relay brings the proven performance of microprocessor-based technology to new network protectors...or those already in service regardless of age or manufacturer
- The MPCV contains industry exclusive features such as:
  - Gull Wing Trip Characteristic
  - Remote Protective Close
  - Anti-Pumping Algorithm
- With the MPCV, you can select the characteristic curves to monitor and control the network protector through Eaton products such as the VaultGard, DNPMINT and NPView

Application Description

Factory or Field Installation

Eaton can factory mount MPCV relays on new network protectors...or personnel can easily field mount them on these existing network protectors:

- Eaton Types CM52, CMD, CM-22 or CMR-8
- General Electric® Types MG-8, MG-9 or MG-14

Field installation is accomplished without breaker modification or any rewiring of the breaker control harness. MPCV relays operate on 216V and 480V systems. Relay potential transformers are required for 480V applications.

Features, Benefits and Functions

Communications Capability

Each MPCV relay has the capability of communicating information and allowing control over a shielded twisted pair communications wire. Communications can be provided by a Web-enabled interface or direct DNP 3.O to SCADA systems. Eaton has multiple choices for communication interfaces such as VaultGard for total vault communications, NPView- simple Web server or DNPMINT.

For localized access, the MPCV relay has the capability of wireless communication, monitoring and control with the Eaton wireless products.

- The MPCV is built for the harshest environments, with an operation temperature of –40°F (–40°C) up to 257°F (125°C). The MPCV is housed in a 0.25-inch (6.35 mm) thick solid cast brass can
- Access and display information from the MPCV such as: voltage, current, power, power factor, date and time stamped trip events, internal temperature and operations counter of breaker

- Through auxiliary inputs on the MPCV relay, operators can monitor other vault environment parameters such as transformer top oil temperature, water in the network vault, fire alarm or network enclosure pressure
- Event trending, threshold alarms and e-mail forwarding
- Multiple MPCVs can be connected together either as a daisy chain, T-configuration or a combination.

MPCV Communications Relay for Eaton Network Protectors

MPCV Communications Relay for General Electric Network Protectors

Rebuild Program

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Network Protector Rebuild and Parts Program

Network Protector Rebuild and Parts Program

Parts
- Renewal parts for all network protector models:
  - Eaton, Westinghouse®: CM-22, CMD, CM52 and CMR-8
  - General Electric: MG-8, MG-9 and MG-14
- 24-hour shipment when required for parts in stock

Rebuild Services

Eaton's Electrical Sector is setting the standard of reliability with a reconditioning process that involves total breaker and enclosure disassembly, material specific component cleaning, detailed inspection and state-of-the-art testing, all done to uniform documented specifications.

Eaton offers a CM52 retrofit breaker for legacy CMD and GE Network Protectors. The breaker can be installed in existing network protector enclosures without having to remove the enclosure from the vault or having to remove the secondary cable connections, saving both time and money.

Quick Ship

Eaton can build and ship brand new CM-22 or CMD network protectors in 4 to 6 weeks.
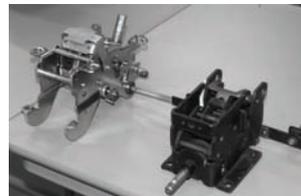
Retrobuild Before

Retrobuild After

Parts

Parts