Product Information

VaultGard™ Arc Reduction Maintenance System Indicating Diagnostic Module

Eaton introduces the Network Protector Arc Reduction Maintenance System - Indicating Diagnostic Module (NP ARM-IDM), a new version of the Indicating Diagnostic Module that can sense fault current in either forward or reverse direction in addition to providing the utmost in arc flash protection.

The ARM-IDM is preset to trip at 2.5 times the breaker CT rating and can actuate a trip in milli-seconds (ms). Coupled with the CM52 breaker clearing time the fault will be cleared in approximately 60 milli-seconds. Depending on system arrangement, this could translate into a Category 1 incident energy (4 cal/cm2) at 100kA (a category 1 rating means a reduced PPE requirement, giving greater mobility and still maintaining a safe level of incident energy exposure on 480V Network systems).

The ARM-IDM has its own unique communications address, allowing for remote engagement of the unit through communications. In the absence of communications, the NPARM can be activated by hard-wired switch mounted externally and mounted in the network vault.

In a spot network application where ARMs have been activated on each protector, a fault can be detected by each separate ARMs module to simultaneously open each protector individually.

When enabled, the innovative Arc Reduction Maintenance System establishes a preset instantaneous trip level that overrides the time delay function of traditional over current relays and schemes of the associated breaker. The trip initiation time is 4 ms and the device will respond both on the forward or reverse direction.

When the ARM-IDM is enabled, the protective sensing looks into both the line and load side of the network protector. By utilizing the communication link, the operator can set the ARM–IDM to Maintenance Mode prior to entering the vault, thereby protecting themselves from arc flash. Once the ARM-IDM has been reactivated, the MPCV relay continues with its reverse power sensing protection and the ARM-IDM functions as the original IDM controlling the trip voltage and motor control voltage.

Powering Business Worldwide

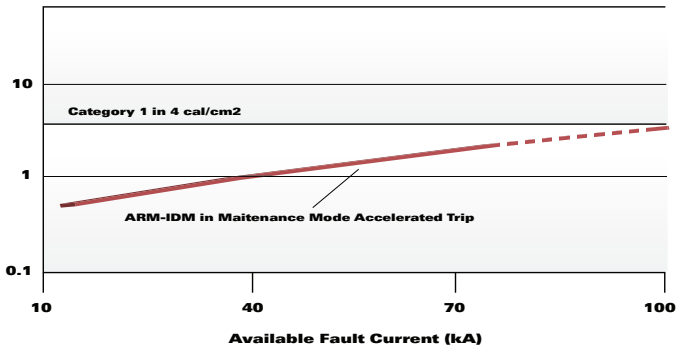
NFPA 70E

Hazard Risk Category	Clothing Description (Typical number of clothing layers in parentheses)	Required Minimum Arc Rating PPE*
0	Non-melting, flammable materials (i.e. untreated cotton, wool, rayon, silk, or blends of these materials) with a fabric weight of at least 4.5 oz/yd. (1)	N/A
1	FR Shirt and FR pants or FR coverall (1)	4
2	Cotton underwear, conventional short sleeve and briefs/shorts plus FR Shirt and FR pants (1 or 2)	8
3	Cotton underwear plus FR Shirt and FR pants plus FR coverall, or cotton underwear plus two FR coveralls (2 or 3)	25
Typical 480V Spot Network 4	Cotton underwear plus FR Shirt and FR pants with full multi-layer flash suit (3 or more)	40

*(cal/cm2)

Above: The graphic shows the nessecary amount of PPE needed at various incident energy points. The VaultGard™ ARM-IDM is preset to trip at 2.5 times the breaker CT rating and can actuate a trip in 4 milli-seconds (ms). This will translate into a reduced risk Category depending on system, instead of Category 4, incident energy meaning a reduced PPE requirement, giving greatear mobility and still maintaining a safe level of incident energy exposure on 480V Network systems.

CM52 using the ARM-IDM with 2.5 X CT rating



The graph depicts the ARM-IDM maintenance mode accelerated trip, having a tripsetting at 2.5 times the breaker CT rating. As the available fault current rises toward 100kA, we approach the category 1 rating of 4 cal/cm2.

Benefits of NPArm-IDM

1. Eliminates need for higher levels of costly Personal Protective Equipment (PPE) when activated.
2. Can be enabled only for the time required to perform the work.
3. Preserves the ARM-IDM operation once the ARM-IDM is de-activated.
4. Protects your workers from arc flash.

FEATURES

1. Group Activation for all Network Protectors in vault environment.
2. Supervisory Output feedback contact and LED provided for NPArm Maintenance mode activation.
3. Supervisory output feedback contact and LED provided for NPArm Trip.
4. Can be enabled with the network protector door closed by means of a communication system or an externally wired wall-mounted switch.
5. Can be field retrofitted for existing CM-52 Network Protectors.

APPLICATIONS

1. 480V Spot Network Applications
2. Hospitals
3. Wastewater
4. Universities

The ARM-IDM can be added upon order entry for new CM-52 units factory installed or purchased as a field retrofit kit style # NAS0427G01. In addition, optional external stack lights can be installed on the Network Protector. The mounted stack has green, red, and blue lights to indicate Network Protector OPEN (Green), Closed (Red), and ARM activated (Blue) upon connection.

According to the National Fire Protection Association (NFPA), an arc flash occurs when an electric current passes through air between ungrounded conductors or between ungrounded conductors and grounded conductors. Temperatures can reach 35,000°F, three times hotter than the temperature of the sun.

An arc flash event releases a tremendous amount of energy in the form of thermal heat, toxic fumes, pressure waves, blinding light, sound waves and explosions that can result in serious injury including critical burns, collapsed lungs, loss of vision, ruptured eardrums, puncture wounds and even death.

Eaton's innovative approach to electrical systems is creating ways to prevent arc flash events. Contact your Eaton representative today for more information.

For more information on Eaton's network protectors, **visit www.eaton.com/nwp.**

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