



ERMS - Energy Reduction Maintenance Settings



Under specific circumstances, qualified professionals may need to access and work near energized equipment to perform testing, troubleshooting, and diagnostics. They are thereby subject to the risk of internal arc fault which is a growing concern. Current research shows that up to 80% of reported electrical injuries are caused by an electrical arc. In this context, the safety of personnel working on electrical power distribution systems has received increasing attention from a number of regulatory organizations in recent years ^[1].

MasterPact MTZ circuit breakers with the “Energy Reduction Maintenance Settings” digital module provide an answer to this issue. The ERMS function, when engaged, allows the MicroLogic X control unit to operate faster. Should an internal arc fault occur downstream to MasterPact MTZ, the reduced fault clearing time allows a decrease in the amount of energy generated by the electrical arc, and may limit the risk of injury.

Description

The ERMS function is used to reduce the LSIG protection settings in order to trip faster when an internal arc fault occurs. It is acknowledged as one of the recognized solutions to improve the protection of workers against internal arc-fault caused by faulty electrical equipment, abnormal environmental conditions, lack of maintenance, ingress of mice. It complies with the recommendations issued by the regulatory organisations ^[1] dealing with this concern.

As soon as the ERMS digital module is installed on MicroLogic X control unit, the ERMS function is enabled, but not engaged. Additional steps are then required to set the appropriate ERMS LSIG settings and to engage the ERMS function.

ERMS settings is an additional LSIG tripping curve in addition to dual settings. ERMS LSIG settings can be customized on site by means of a smartphone via Bluetooth, or with EcoStruxure Power Commission software running on a PC. Customization of ERMS settings with EcoStruxure Power Commission software or a smartphone is password-protected.

As soon as ERMS is engaged, the ERMS LSIG factory settings are automatically replaced by the ERMS LSIG customized settings:

ERMS can be engaged/disengaged through the Ecostruxure Power Device App app (there is a digital lock between Ecostruxure Power Device App app and MicroLogic X control unit). ERMS can also be engaged/ disengaged through an external lockable selector switch with the additional dedicated ESM hardware module (ERMS Switch Module) ^[3].

When ERMS is engaged, the corresponding information is made available as follows:

- on the MicroLogic X front face with the ERMS blue LED
- on the MicroLogic X embedded display with the blue backlight
- on an external light with the additional dedicated ESM hardware module
- on a PC with EcoStruxure Power Commission software
- through the customer communications network (Ethernet or Modbus SL)

Benefits

The ERMS function complies with the regulations concerning the protection of personnel against the effects of internal arc fault, when under specified condition it becomes necessary to work close to, or in the vicinity of, energized electrical equipment.

ERMS engaged status is visible at a distance thanks to the MicroLogic X HMI blue backlight. ERMS can be engaged/disengaged with your personal smartphone.

[1]

- NEC Section 240.87 – Acceptable Methods for Arc Energy Reduction
- NFPA 70E: National Fire Protection Association. Standard for Electrical Safety in the Workplace where there are recognized hazardous situations when working on energized electrical equipment.
- IEEE 1584: Guide for Performing Arc-Flash Hazard Calculations provides guidelines for conducting a formal arc flash study
- EN 50 110-1: Operation of electrical installations - General requirements

[2] ERMS LSIG factory settings.

[3] When the ESM hardware module is used, the M2C programmable contacts cannot be installed.



ERMS settings	Range	Factory settings ^[2]
Ir ERMS	Same as L protection	In
tr ERMS	Same as L protection	0.5
Isd ERMS	Same as S protection	1.5 Ir
tsd ERMS	Same as S protection	0
li ERMS	Same as I protection	2
li ERMS tripping mode	Same as I protection	fast
Ig ERMS	Same as G protection	0.2
tg ERMS	Same as G protection	0

