MITSUBISHI ELECTRIC

TECHNICAL BULLETIN

[Issue No.] FA-A-0026
[Title] Safety guidelines for MELSEC programmable controllers
[Date of Issue] July 2016
[Relevant Models] MELSEC programmable controllers

Thank you for your continued support of Mitsubishi programmable controllers.
We will inform you of precautions for designing and maintenance to use programmable controllers safely.

Under some circumstances, failure to observe the precautions may lead to serious consequences such as electric shock, fire, injury, malfunction, and damage to or deterioration of the product. Before using programmable controllers, please read "SAFETY PRECAUTIONS" described in manuals for the module and the relevant manuals introduced in those manuals carefully along with the technical bulletin, and pay full attention to safety to handle the product correctly.

[Design precautions]

1. Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Failure to do so may result in an accident due to an incorrect output or malfunction.

(1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.

(2) Outputs may be incorrect if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller.

(3) Outputs may remain on or off due to a failure of a component such as a relay and transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.

2. When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.

[Maintenance precautions]

1. Refer to the check items described in manuals for the modules used and perform the daily inspection and periodic inspection securely to properly use a programmable controller in optimal condition at all times.
2. Power off the programmable controller system that is not run for a long time to prevent the accidents such as the leak because of the life or deterioration and insulation failure.
3. Before the useful life of a programmable controller is over, consider replacing the module used with a new module or the latest series module in light of preventive maintenance. The useful life is the period that the programmable controller satisfies the predefined functions and performance. The useful life of a programmable controller except the service life limited component (such as aluminium electrolytic capacitor) is ten years as a guide.

For the preventive maintenance of programmable controllers, refer to the following.
Technical bulletin No.FA-A-0018 "Recommendation of preventive maintenance and inspection for MELSEC programmable controllers"