
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

8/10/2016

**SAFETY SYSTEM DIGITAL PLATFORM
- MELTAC (MITSUBISHI ELECTRIC TOTAL ADVANCED CONTROLLER) -
TOPICAL REPORT**

Mitsubishi Electric Corporation

TAC NO.: MF4228
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QUESTION NO.: 6 for JEXU-1041-1008, "Safety System Digital Platform – MELTAC"

With regard TR Page 54, in Section 4.1.4.1, Function Description, subsection b) states this activity is done with the central processing unit (CPU) Module in the Re-programming Chassis and therefore the controller status is off line; however; subsections c), d), & e) do not include similar statements. Please provide additional information regarding controller status in relation to performing functions described in subsections c), d), & e).

ANSWER:

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Impact on Topical Report

The answer above will be added to Section 4.1.4 of the Topical Report. See Attachment-1.

4.1.4 MELTAC Engineering Tool

The MELTAC engineering tool provides various functions aimed at steadier and more efficient software management during all system life cycle phases (including design, fabrication, test, adjustment and maintenance).

The MELTAC engineering tool is used to generate safety application software for the MELTAC controller, but the tool itself is non-safety software running on a non-safety personal computer (PC) using the Microsoft Windows Operating System. The MELTAC engineering tool was developed in accordance with the MELCO QAP for non-safety items. Safety application software generated by the MELTAC engineering tool must be qualified by independent V&V. Access is controlled by means of the PC password (BIOS, OS) and the MELTAC engineering tool password.

The application software execution data generated by the MELTAC engineering tool is downloaded to the controller via the Maintenance Network and is stored in the F-ROM of the CPU Module. The functions of the MELTAC engineering tool are described as follows. [These functions can be used only when the controller isn't performing a safety function.](#)

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4.1.4.1 Function Description

a) Creation of Application Software

FBDs that are created with a commercial Mitsubishi CAD software package called "RAPID" can be automatically converted to GBDs by the MELTAC engineering tool. (Access to RAPID is also controlled by a password.)

The MELTAC engineering tool is then used to automatically generate (compile) the application software execution data directly from the GBD.

This automated process eliminates human translation errors.

GBDs can also be manually created (drawn), based on legacy FBDs provided by the customer, using the MELTAC engineering tool's GUI editor.

Regardless of how the GBD is generated (automatically from RAPID or manually drawn with the MELTAC engineering tool's GUI editor), the assignment of GBDs to controllers and the assignment of I/O signals is manually configured using the MELTAC engineering tool.

GBDs (whether created automatically or manually) and the executable data output from the MELTAC engineering tool are confirmed through manual V&V activities.

b) Download

New application software, including logic changes or changes to setpoints or constants, can be downloaded to the controllers from the MELTAC engineering tool PC via the Maintenance Network. [

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The correct download is confirmed by a different MELTAC engineering tool function that checks the F-ROM data as discussed below.

c) Verifying F-ROM data

The MELTAC engineering tool provides a manually initiated function which automatically compares the basic software and application software data in the F-ROM of the controller, bit by bit, with the basic software data and application software data stored in the MELTAC engineering tool. This function is used after a new download and during periodic surveillance tests to confirm that the data in F-ROMs is the same as the data in the MELTAC engineering tool, and therefore has not changed. This function can be used for the CPU Module while installed in the on-line Chassis because this does not make any changes to the F-ROM of the CPU Module.

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d) Controller failure diagnosis display

The MELTAC engineering tool displays the self-diagnosis result of the controllers. It shows which module is in a failed state. This function can be used for the CPU Module while installed in the on-line Chassis because this does not make any changes to the F-ROM of the CPU Module.

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e) Temporary changes to the ~~field-change-eable-process-value-in~~ data table (Data Set)

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