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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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9/23/2016

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

**Mitsubishi Electric Corporation**

**TAC NO.:** MF4228  
**RAI NO.:** #1  
**DATE OF RAI ISSUE:** 6/29/2016

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**QUESTION NO.: 3 for JEXU-1041-1018, "Summary of Compliance to the IEEE Std. 603 and IEEE Std. 7-4.3.2"**

Page 12, Table 3, IEEE 603, 6.6 & 6.7, Operating and Maintenance Bypasses. Confirm for the NRC staff that the generic platform has the capability to complete these two requirements. It is understood by the NRC staff that specific operating bypasses are defined on a plant specific basis as well as plant specific Technical Specifications govern the use of the maintenance bypass feature.

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**ANSWER:**

The "Assessment" entry for Section 6.6 in Table 3 will be revised as follows:

This is an application specific requirement that is dependent on the plant design. The generic MELTAC application program function symbols shown in Appendix B of the JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report" are suitable for generating operating bypass permissive interlocks and automatic removal of operating bypass by plant condition.

The "Assessment" entry for Section 6.7 in Table 3 will be revised as follows:

This is an application specific requirement that is dependent on the plant design. The MELTAC application program function symbols shown in Appendix B of JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report" and the inter-division Data Link are suitable for:

- (1) generating a maintenance bypass interlock to prevent multiple bypasses of the same process parameters measured in multiple safety divisions.

- (2) generating a voting logic that ensures that a safety function can be accomplished while a maintenance bypass is in effect.

The MELTAC platform also provides the capability to automatically initiate maintenance bypasses for self-detected failure condition. For example, the MELTAC platform has the capability for detecting communication failures, as described in JEXU-1041-1015, "MELTAC Platform ISG-04 Conformance Analysis". When any communication error is detected, the affected measurement channel(s) can be bypassed automatically. In addition, the MELTAC platform has the capability for detecting analog input failures, as described in Section 4.1.5.5.1 of JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report". When an I/O module failure is detected, the affected measurement channel can be bypassed automatically.

Figure 1 shows the failure detection capability of the MELTAC platform for automatic maintenance bypass in a typical system configuration. Any automatic maintenance bypass is subject to any application interlocks that may prohibit the automatic maintenance bypass if a channel from another division is already bypassed.

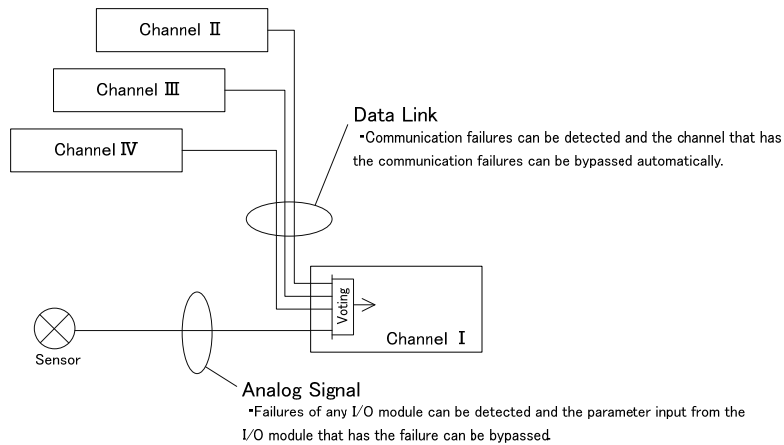


Figure 1 Failure detection capability for maintenance bypass

### Impact on Technical Report

Table 3 of JEXU-1041-2080, "Summary of Compliance to the IEEE Std. 603 and IEEE Std. 7-4.3.2" will be revised by adding the above evaluation (see Attachment-1).

Table 3 IEEE Std. 603 (1991) Compliance Matrix

Section	Title	Assessment	References <Document Number Sections>
6.2	Manual Control	This is an application specific requirement that is dependent on a plant design. Therefore this requirement is not addressed for the MELTAC platform.	None
6.3	Interaction Between the Sense and Command Features and Other Systems	This is an application specific requirement that is dependent on a plant design. Therefore this requirement is not addressed for the MELTAC platform.	None
6.4	Derivation of System Inputs	This is an application specific requirement that is dependent on a plant design. Therefore this requirement is not addressed for the MELTAC platform.	None
6.5	Capability for Testing and Calibration	The MELTAC platform contains Self-diagnosis features to identify failures.  Testing and calibration during system operation can be accomplished by the appropriate MELTAC platform system configuration. This is an application specific item that is dependent on the plant design.	<u>JEXU-1041-1008</u> 4.1.5, 4.2.3, 7.0 <u>JEXU-1041-1030</u> <u>JEXU-1041-1027</u>
6.6	Operating Bypasses	This is an application specific requirement that is dependent on a plant design. <del>Therefore this requirement is not addressed for the MELTAC platform.</del> <u>The MELTAC application program function symbols, shown in Appendix B of JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report" are suitable for generating operating bypass permissive interlocks and automatic removal of operating bypass by plant condition.</u>	<del>None</del> <u>JEXU-1041-1008</u> <u>Appendix B</u>

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Table 3 IEEE Std. 603 (1991) Compliance Matrix

Section	Title	Assessment	References <Document Number Sections>
6.7	Maintenance Bypass	<p>This is an application specific requirement that is dependent on a plant design. <del>Therefore this requirement is not addressed for the MELTAC platform.</del> The MELTAC application program function symbols shown in Appendix B of JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report" and the inter-division Data Link are suitable for:</p> <p>(1) <u>generating a maintenance bypass interlock to prevent multiple bypasses of the same process parameters measured in multiple safety divisions.</u></p> <p>(2) <u>generating a voting logic that ensures that a safety function can be accomplished while a maintenance bypass is in effect.</u></p> <p>The MELTAC platform also provides the capability to <u>automatically initiate maintenance bypasses for self-detected failure condition. For example, the MELTAC platform has the capability for detecting communication failures, as described in JEXU-1041-1015, "MELTAC platform ISG-04 Conformance Analysis". When any communication error is detected, the affected measurement channel(s) can be bypassed automatically. In addition, the MELTAC platform has the capability for detecting analog input failures, as described in Section 4.1.5.5.1 of JEXU-1041-1008, "Safety System Digital Platform - MELTAC - Topical Report". When an I/O module failure is detected, the affected measurement channel can be bypassed automatically.</u></p>	<p><del>None</del></p> <p><u>JEXU-1041-1008</u> <u>4.1.5.5.1, Appendix B</u> <u>JEXU-1041-1015</u></p>

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