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RE : Commissioning checklist for the Muting Safety Module AI (CE-SA-015-0001__2)

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1. Introduction

The Muting Safety Module AI is a safety device realizing safety logic.
Therefore, it is essential to verify that it is correctly integrated and that the safety functions that it supports are performed as expected.

2. Supported safety functions

System emergency stop output at the Safety OUT connector from the Safety IN port:
When the OSSD signals of the input unit connected to the safety IN port go low, the OSSD signals at the Safety OUT port go low.
This function is latched. It means that the OSSD signals at the safety OUT port cannot be closed until a reset is requested.

System emergency stop output at the Safety OUT connector from a Safety Device port:
When a device with OSSD signals at either of the Safety Device ports go low, the OSSD signals at the Safety OUT port go low.
This function is latched. It means that the OSSD signals at the safety OUT port cannot be closed until a reset is requested.

System reset propagation from the Safety IN port to the Safety OUT port:
When a reset signal is received from the Safety IN port, a reset signal is sent to the Safety OUT port.

Muting function:
Muting is the temporary suspension of the protective function of the connected light curtain or area scanner. Muting lets materials travel through the detection device without stopping the Vention safety chain.

3. Checklist

Compliance to the requirements of table 1 shall be verified

Table 1 Commissioning checklist for safety

Requirement	Description	YES	NO	N/A	Comments / Reference
System ES from detection devices	4.1				
System ES from Safety IN	4.2				
System reset propagation	4.3				
Muting function	4.4				

Signature

Name	
Function / Title	
Signature	

4. Procedures

4.1. System ES from detection devices

For each of the utilized device ports, the following verification shall be conducted

Procedure :

- Break the detection device (area scanner or light curtain)
- Unbreak the detection device
- Press the reset button of a connected estop-reset-module (CE-SA-007-0001)

Behavior :

Following the above procedure, the system emergency stop shall be activated and reseted :

- When breaking the detection device, the LED shall turn flashing red and the connected end effectors (Machine Motion and robot) shall goes in emergency stop;
- When unbreaking the detection device, the LED should keep flashing red;
- When pressing the reset button, the LED should go back to solid green

4.2. System ES from Safety IN

The state of the redundant safety signal of the Safety IN port is propagated to the Safety OUT port. This safety function shall be verified as per the following procedure.

Procedure :

If a estop-reset-module is installed upstream to the module (Safety IN port):

- Press the emergency stop button;
- Release the emergency stop button;
- Press the reset button of the estop-reset-module.

Behavior :

Following the above procedure, the system emergency stop shall be activated and reseted :

- When pressing the emergency button or activating the system emergency stop at the Safety IN port, the LED shall turn solid red and the connected end effectors (Machine Motion and robot) shall goes in emergency stop;
- When releasing the emergency button or restoring the system emergency stop signal at the Safety IN port, the LED should turn flashing red;
- When pressing the reset button, the LED should go back to solid green

4.3. System reset propagation

The reset propagation is verified with the reset of other modules or the MachineMotion.

When performing 4.1 and 4.2, verify if other modules and the MachineMotion (if applicable) reset.

4.4. Muting function

For each of the utilized muting functions (device 3 / 4) the following shall be verified.

4.4.1. 2 seconds initiation sequence

A maximum delay of 2 seconds is allowed between activation of a Sensor A and a Sensor B. If the delay is exceeded, the muting function is not activated.

Procedure :

- Break one of the A sensors
- Wait for 2 seconds
- Break one of the B sensors
- Break the detection device (light curtain or area scanner) while keeping both sensors down

Behavior:
Following the above procedure, the muting feature shall not be activated :

- When breaking sensor B, the LED shall not turn into flashing blue; and
- The LED should turn flashing red when breaking the detection device.

4.4.2. 10 second timeout

The muting function is active for a maximum of 10 seconds.

Procedure :

- Break one of the A sensors
- Within 2 seconds, break one of the B sensors
- Break the detection device while keeping both sensors down
- Wait 10 seconds

Behavior:
Following the above procedure, the muting feature shall be activated during only 10 seconds :

- When breaking sensor B, the LED shall turn into flashing blue;
- When breaking the detection device, the LED shall keep flashing blue;
- After 10 seconds, the LED should turn flashing red.