Certification Test

CT.Sigma7.01.eLM.FSoE_ASM7_400V.CertificationTest

Student Name: _____

Company Name: _____

Address: _____

Phone: _____

Email: _____

Test Date: _____

Answers:

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Taking the Test

- The purpose of this test is to validate the learning experience corresponding to the applicable eLearning Modules. It is recommended to preview the questions before viewing the modules, and answer them as the modules progress. This test applies to the following eLearning modules.
    1. eLM.Sigma7.06.FSOE_ASM7_400V
    2. eLM.Sigma7.07.SafetyFuncs

- The test is open book. You may use any website, manuals, software, demo, etc. The test must be taken individually; you may not contact another person for help.

- Each question has only one correct answer unless otherwise noted. Please clearly record all answers on the answer sheet. All questions are equally weighted. A passing score is 90%.

Returning the Test

- Please return **only the first page** of the test (the answer sheet) with completed answers and contact information.

Option 1: Fax the answer sheet to **Yaskawa Technical Training Services** at **(847) 887-7185.**
Option 2: e-mail a scan, photo, or edited pdf of the answer sheet with all answers and contact information to **training@yaskawa.com**.

Receiving Your Score

You may review your answers only if a passing score is received. You will receive a system-generated email with your score. Please allow up to 5 business days.

Advanced Safety Module for Sigma-7 (ASM7): eLM.Sigma7.06.FSOE_ASM7_400V

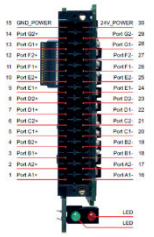
1. Which Sigma-7 amplifier is compatible with the ASM7 option cards?
   A. Single Axis, 200V, EtherCAT
   B. Single Axis, 200V, Sigma7Siec
   C. Single Axis, 400V, EtherCAT, FT91
   D. Single Axis, 400V, Sigmalogic7Compact, FT88

2. How many ASM7 option card variants are there?
   A. 1
   B. 2
   C. 3
   D. 4

3. What is FailSafe over EtherCAT (FSoE)?
   A. Motion and safety information are transmitted on the same EtherCAT Communication wire
   B. Motion is controlled by either the EtherCAT safety controller or EtherCAT motion controller
   C. Separate safety EtherCAT network can be used along with a normal EtherCAT network.

4. What can the ASM7 card “do” when a safety function is triggered?
   A. Monitor the motor
   B. Perform STO to disconnect the amplifier from the motor electrically
   C. Decelerate the motor to a stop
   D. A,B
   E. A,C
   F. All of the above
   G. None of the above

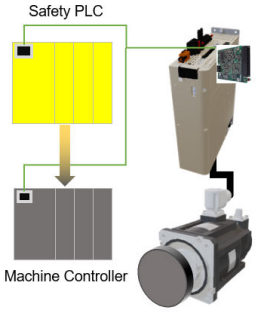
5. How many Dual Channel Digital Output ports are available on ASM7 with I/O option card?
   A. 2
   B. 4
   C. 6
   D. 7
   E. 10



Pin	Signal name	Description	Pin	Signal name	Description
16	Port A1-	Digital Input / Output	1	Port A1+	Digital Input / Output
17	Port A2-	Digital Input / Output	2	Port A2+	Digital Input / Output
18	Port B1-	Digital Input / Output	3	Port B1+	Digital Input / Output
19	Port B2-	Digital Input / Output	4	Port B2+	Digital Input / Output
20	Port C1-	Digital Input / Output	5	Port C1+	Digital Input / Output
21	Port C2-	Digital Input / Output	6	Port C2+	Digital Input / Output
22	Port D1-	Digital Input / Output	7	Port D1+	Digital Input / Output
23	Port D2-	Digital Input / Output	8	Port D2+	Digital Input / Output
24	Port E1-	Digital Input	9	Port E1+	Digital Input
25	Port E2-	Digital Input	10	Port E2+	Digital Input
26	Port F1-	Digital Input / Analog Input (0-10V)	11	Port F1+	Digital Input / Analog Input (0-10V)
27	Port F2-	Digital Input / Analog Input (0-10V)	12	Port F2+	Digital Input / Analog Input (0-10V)
28	Port G1-	Current Input (4-20mA)	13	Port G1+	Current Input (4-20mA)
29	Port G2-	RTD Input (PT100 / PT1000)	14	Port G2+	RTD Input (PT100 / PT1000)
30	24V_POWER	Ext. 24V Power Supply	15	GND_POWER	Ext. 24V Power Supply

6. What ASM7 option card information must be specified when creating a new project in the “YASKAWA Advanced Safety Module Parameter Editor”?
   A. ASM7 Module Type
   B. Serial Number of the ASM7 option card
   C. Will the Advanced Safety Module be connected to an FSoE Master?
   D. A,B
   E. B,C
   F. All of the above
   G. None of the above

7. Which piece of hardware in the system controls the motion of the motor when a safe function is activated?
   A. Safety PLC
   B. Machine Controller
   C. ASM7 option card
   D. A,B
   E. B,C
   F. All of the above



8. Which file from the “YASKAWA Advanced Safety Module Parameter Editor” is loaded on the ASM7 card?
   A. Binary file (.bin)
   B. ASM7 Project File (.ASM7)
   C. Executable file (.exe)
   D. Zip File (.zip)

9. How many safety functions are available on the ASM7 (FSoE only) option card?
   A. 4
   B. 10
   C. 14
   D. 16

10. How many safety slots are available on the ASM7 option cards?
    A. 4
    B. 10
    C. 14
    D. 16

11. Which safety options for the Sigma-7 amplifier are SIL3 certified?
    A. CN8 connector
    B. ASM5 option card
    C. ASM7 option cards w/o external encoder
    D. ASM7 option cards with external encoder
    E. A,C
    F. A,D
    G. A,C,D
    H. All of the above
    I. None of the above

12. Which safety option is required for the “Safe Motor Temperature” function?
    A. CN8
    B. ASM5
    C. ASM7 FSoE option card
    D. ASM7 FSoE with I/O option card

13. Which external encoder cards can be used for SIL 3 operation?
    A. Full Closed Loop
    B. Sigma-7 Serial Converters
    C. Feedback option Card
    D. A,B
    E. B,C
    F. All of the above
    G. None of the above

Safety Functions: eLM.Sigma7.07.SafetyFuncs

14. Which Safety function(s) are available as Safe Standstill functions?
    A. Safe Stop 1 (SS1)
    B. Safe Stop 2 (SS2)
    C. Safe Operating Stop (SOS)
    D. Safe Cam (SCA)
    E. Safe Limited Torque (SLT)
    F. D,E
    G. A,B,C
    H. A,B,D
    I. All of the above

15. Which safety function electrically disconnects the motor from the amplifier?
    A. Safe Torque Off (STO)
    B. Safe Stop 1 (SS1)
    C. Safe Stop 2 (SS2)
    D. Safe Operating Stop (SOS)

16. Which ASM7 safety function(s) only sets an output when violated?
    A. Safe Cam (SCA)
    B. Safe Motor Temperature (SMT)
    C. Safe Speed Monitor (SSM)
    D. A,B
    E. B,C
    F. A,C
    G. All of the above
    H. None of the above

17. What is required for Motion safety functions on the ASM7 option card to be SIL 3 certified? (excluding Safe Torque off, Safely-Limited Torque, and Safe Motor Temperature)
    A. External or Safe Encoder
    B. External Thermal Probe
    C. External Safety Controller
    D. All of the above
    E. None of the above