

Certification Test

CT.MotionWorksIEC.01.eLM.HardwareConfig.CertificationTest



Student Name: _____

Company Name: _____

Address: _____

Phone: _____

Email: _____

Test Date: _____

Answers:

1	_____	26	_____	_____	_____
2	_____	27	_____	_____	_____
3	_____	28	_____	_____	_____
4	_____		_____	_____	_____
5	_____		_____	_____	_____
6	_____		_____	_____	_____
7	_____		_____	_____	_____
8	_____		_____	_____	_____
9	_____		_____	_____	_____
10	_____		_____	_____	_____
11	_____		_____	_____	_____
12	_____		_____	_____	_____
13	_____		_____	_____	_____
14	_____		_____	_____	_____
15	_____		_____	_____	_____
16	_____		_____	_____	_____
17	_____		_____	_____	_____
18	_____		_____	_____	_____
19	_____		_____	_____	_____
20	_____		_____	_____	_____
21	_____		_____	_____	_____
22	_____		_____	_____	_____
23	_____		_____	_____	_____
24	_____		_____	_____	_____
25	_____		_____	_____	_____

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Taking the Test

- 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.

Basic Concepts

1. In which situation is it useful to add servo axes to the offline configuration?
 - A. When the servo axes are available
 - B. When the servo axes are not yet available
2. A project is opened in MotionWorks IEC. Where is the **offline** configuration stored?
 - A. In the configuration sets of the controller
 - B. In the project folder of the PC
 - C. In the controller SRAM
3. A project is opened in MotionWorks IEC. Where is the **online** configuration stored?
 - A. In the configuration sets of the controller
 - B. In the project folder of the PC
 - C. In the controller SRAM
4. The CNFG switch on at system power-up refreshes which xml configuration files in the controller?
 - A. Default
 - B. Disco
 - C. Startup
5. The INIT switch on at system power-up forces the controller to use which xml configuration files in the controller?
 - A. Default
 - B. Disco
 - C. Startup
6. Given the following scenario, which is the correct choice when the “Configuration Differences Detected” dialog appears?
A controller is deployed in the field, but the machine is not working as it was before. You connect to the controller and save the project archive for backup. You are absolutely sure you have the correct project and configuration.
 - A. Use Offline Configuration
 - B. Use Startup Configuration
7. In the scenario above, does the selection choice result in a permanent change to the project or controller?
 - A. Permanent change to project only
 - B. Permanent change to controller only
 - C. Permanent change to both project and controller
 - D. No permanent change

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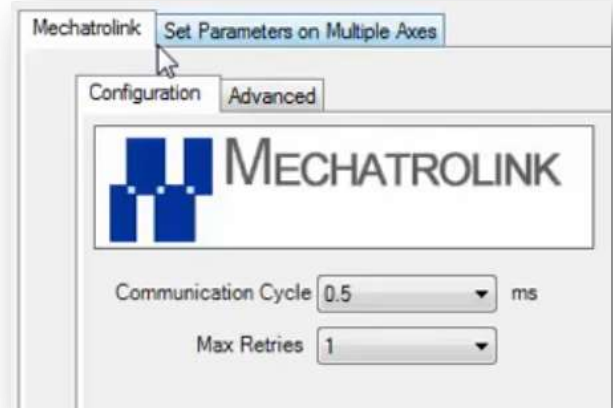
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Basic Axis Configuration

8. What is true about setting the Mechatrolink-III Communication Cycle to a **lower** value, such as shown in the graphic?

- A. Data will be transmitted to the servos at a faster rate
- B. Data will be transmitted to the servos at a slower rate
- C. More time is available to execute the application code
- D. Less time is available to execute the application code
- E. Answers A and D
- F. Answers B and C

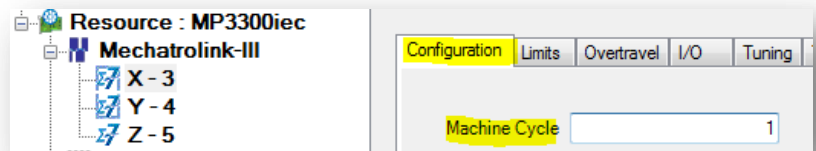


9. What is the recommended setting for Mechatrolink-III response time once the system is in use?

- A. Measured Response Time
- B. Maximum Measured Response Time
- C. Default Response Time

10. In MotionWorks IEC Hardware Configuration, servo axis "Configuration" tab, what is the required setting of **Machine Cycle** for a 10mm/rev ballscrew actuator when Parameter # 1807 (**Load Type**) is set to "Linear"?

- A. Required value for Machine Cycle = 10
- B. Required value for Machine Cycle = 1
- C. Required value for Machine Cycle = 0
- D. Required value for Machine Cycle = 0.10
- E. A or B
- F. Any value for Machine Cycle (between 1 and 1012) because it is not used.



11. What are the required settings of Parameter Pn50A.3 and Pn50B.0 in order to disable the over-travel feature and allow the motor to move in either direction?

- A. 1
- B. 2
- C. 7
- D. 8
- E. A
- F. B

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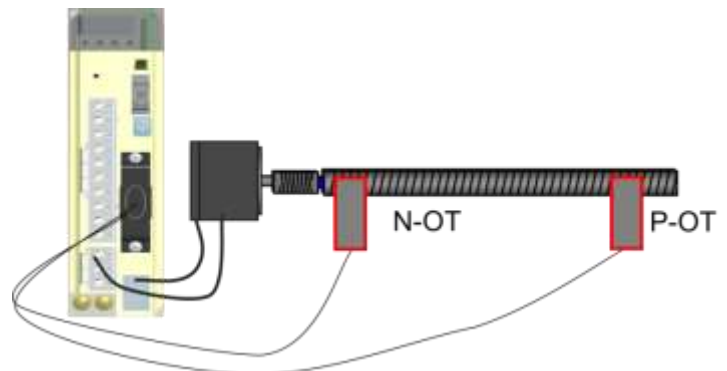
12. What parameter sets the absolute encoder of the Sigma-5 to be used as incremental?
- A. Pn000
 - B. Pn002
 - C. Pn008
 - D. Pn205

Test Move

13. In MotionWorks IEC Hardware Configuration, SGDV-Rotary Configuration tab, the Feed Constant was entered while online. But the Test Move does not move the motor the correct distance. Which of the following may be a possible solution?
- A. Reboot the controller with CNFG off
 - B. Save the hardware configuration ONLINE
 - C. Save the hardware configuration OFFLINE
 - D. Reboot the controller
 - E. Change the User Units field
 - F. All of the above
 - G. B and E only
 - H. B and D only
 - I. None of the above

Servo Options

14. Which parameters configure the holding brake output?
- A. Pn50A
 - B. Pn50B
 - C. Pn50F
 - D. Pn506
 - E. All of the above
 - F. A and B only
 - G. C and D only
15. What parameters control the Over-Travel function for Sigma-7?
- A. Pn50A, Pn50B, Pn00D
 - B. Pn00D, Pn000, Pn205
 - C. Pn406, Pn600, Pn00B



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16. What stopping methods are possible for Sigma-7 over-travel stop?
- A. Stopping torque/force of Pn406
 - B. Stopping time of Pn30A
 - C. Dynamic brake stop
 - D. Coast to stop with friction
 - E. All of the above
 - F. A and B only
 - G. C and D only
17. What stopping methods are possible for Sigma-7 group 1 alarm stop?
- A. Stopping torque/force of Pn406
 - B. Stopping time of Pn30A
 - C. Dynamic brake stop
 - D. Coast to stop with friction
 - E. All of the above
 - F. A and B only
 - G. C and D only
18. What parameter(s) configure the Sigma-7 amplifier for the connected regeneration resistor?
- A. Pn52B
 - B. Pn600, Pn603
 - C. Pn402, Pn404, Pn405
 - D. All of the above
 - E. A and B only
 - F. None of the above
19. What parameter(s) can limit the Sigma-7 motor maximum speed?
- A. Pn304
 - B. Pn30C
 - C. Pn316
 - D. Pn383
 - E. Pn385
 - F. All of the above
 - G. A and C only
 - H. C and E only
 - I. None of the above

Absolute Encoder

20. Where is the absolute encoder battery physically located?
- A. MPiec Controller
 - B. Mechatrolink-III Cable
 - C. Servo Amplifier
 - D. Encoder Cable
 - E. Motor

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21. Which scenario will NOT result in the absolute encoder alarm A.810?
- A. Encoder cable removed from motor
 - B. Encoder battery replaced while power off
 - C. Encoder battery replaced while power on
 - D. Encoder battery voltage is too low
22. The SGD V displays alarm A.810 after first power on. The absolute encoder battery is connected and has tested good voltage. What action is required to clear the alarm in MotionWorks IEC Hardware Configuration?
- A. "Clear" button
 - B. "Reset Absolute Encoder" button
 - C. Reboot (or cycle amplifier control power)
 - D. Reset parameters to factory default
 - E. None of the above
 - F. A & B only
 - G. B & C only
 - H. C & D only
23. What data is sent from the encoder to the servo amplifier?
- A. Absolute Position
 - B. Zero point offset
 - C. User Units
 - D. Answers A and B
 - E. None of the above
24. What is the position of the absolute encoder after a "Reset Absolute Encoder" and system reboot is performed?
- A. The absolute position remains unchanged
 - B. The absolute position resets to zero
 - C. The absolute position within 1 turn
25. What is the expected service life of the absolute encoder battery?
- A. 1 year
 - B. 2 years
 - C. 5 years
 - D. 7 years
 - E. 10 years
 - F. None of the above

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26. The absolute encoder battery is connected through the CN-1 connector of the amplifier and the amplifier power is off. Which scenarios will result in absolute encoder alarm A.810 when control power is applied again?
- A. Encoder battery replaced
 - B. Encoder cable removed from motor
 - C. Encoder cable removed from the amplifier
 - D. Amplifier removed or replaced
 - E. CN-1 connector removed from the amplifier
 - F. All of the above
 - G. Answers A and B only
27. Which parameter can be set to allow the amplifier to produce a “low battery” warning code?
- A. Pn001
 - B. Pn002
 - C. Pn008
 - D. Pn205
28. What value for Pn205 is appropriate for a rotary table axis configuration shown?
- A. 1
 - B. 10
 - C. 11
 - D. 12
 - E. 28
 - F. 29
 - G. 30
 - H. 31
 - I. 65535

The screenshot shows the 'Configuration' tab of a Yaskawa parameter setting window. The 'Machine Cycle' is set to 360. The 'Feed Constant' is set to 360, with units '1 Rev' and 'X' indicated. The 'Gear Ratio' is set to 11, with 'Output' and 'Input' indicated. The 'Units' field is set to 'X'.

Parameter #	Parameters	Current Value	Units	
1300	Moving Average Filter 1 Enable	False		
1301	Moving Average Filter 1 Time Constant	0.1	s	0
1807	Load Type	Rotary		0
1809	Axis Name	Z		
1831	Logical Axis Number	5		1
2028	Enable Timeout	300	ms from i	5
Pn205	Multi-Turn Limit Setting	65535	Revolutic	0