

9-3-2 Event Codes for Errors and Troubleshooting Procedures

This section describes the errors (events) that can occur and how to troubleshoot them.

Error Table

The errors (i.e., events) that can occur in the Communications Interface Units are given on the following pages. The following abbreviations are used in the *Level* column.

Abbreviation	Meaning
Maj	Major fault level
Prt	Partial fault level
Min	Minor fault level
Obs	Observation
Info	Information

Symbol	Meaning
S	Event levels that are defined by the system.
U	Event levels that can be changed by the user. *1

*1. This symbol appears only for events for which the user can change the event level.

Refer to the *NJ-series Troubleshooting Manual* (Cat. No. W503) for all NJ-series event codes.

Event code	Event name	Meaning	Assumed cause	Level					Reference
				Maj	Prt	Min	Obs	Info	
00200000 hex	Non-volatile Memory Hardware Error	An error occurred in non-volatile memory.	<ul style="list-style-type: none"> Non-volatile memory failure 			S			P. 9-8
10410000 hex	Control Parameter Error in Master	An error occurred in the control parameters that are saved in the master.	<ul style="list-style-type: none"> There is an error in the area of the non-volatile memory in the Communications Coupler Unit in which the Unit operation settings for the NX Unit are saved. The power supply to the NX Unit was turned OFF or Sysmac Studio communications were disconnected while writing the Unit operation settings was in progress. 			S			P. 9-9
40200000 hex	NX Unit Processing Error	A fatal error occurred in an NX Unit.	<ul style="list-style-type: none"> An error occurred in the software. 			S			P. 9-10

Event code	Event name	Meaning	Assumed cause	Level					Reference
				Maj	Prt	Min	Obs	Info	
80200000 hex	NX Unit I/O Communications Error	An I/O communications error occurred between the Communications Coupler Unit and the NX Unit.	<ul style="list-style-type: none"> An NX Unit is not mounted properly. The power cable for the Unit power supply is disconnected. Or, the wiring from the Unit power supply to the NX Units is incorrect. The power cable for the Unit power supply is broken. The voltage of the Unit power supply is outside the specified range. Or, the capacity of the Unit power supply is insufficient. There is a hardware error in the NX Unit. 			S			P. 9-11
80240000 hex	NX Unit Clock Not Synchronized Error	An error occurred in the clock information between the EtherCAT Coupler Unit and the NX Unit.	<ul style="list-style-type: none"> There is a hardware error in the NX Unit. There is a hardware error in the EtherCAT Coupler Unit. 			S			P. 9-12
85400000 hex	Data Discarded Due to Full Internal Buffer	The internal buffer is full. The input data is discarded.	<ul style="list-style-type: none"> If the internal buffer for received data is full, the task period was too short to read the received data. If the internal buffer for transmission data is full, the transmission data was too large or there are too many send requests. 			S	U		P. 9-13
80220000 hex	NX Message Communications Error	An error was detected in message communications and the message frame was discarded.	<ul style="list-style-type: none"> The message communications load is high. The communications cable is disconnected or broken. Message communications were cut off as the result of executing a synchronization or restoration operation on the Sysmac Studio or as the result of disconnecting an EtherCAT slave. 				S		P. 9-14
85410000 hex	Parity Error	A parity error occurred.	<ul style="list-style-type: none"> The communications settings and baud rate setting do not agree with those of the remote device. Noise 			U	S		P. 9-15
85420000 hex	Framing Error	A framing error occurred.	<ul style="list-style-type: none"> The communications settings and baud rate setting do not agree with those of the remote device. Noise 			U	S		P. 9-15
85430000 hex	Overrun Error	An overrun error occurred.	<ul style="list-style-type: none"> The next data was received during processing of received data because the baud rate is too high. 			U	S		P. 9-16
90400000 hex	Event Log Cleared	The event log was cleared.	<ul style="list-style-type: none"> The event log was cleared by the user. 					S	P. 9-17

Error Descriptions

This section describes the information that is given for individual errors.

● Controller Error Descriptions

The items that are used to describe individual errors (events) are described in the following copy of an error table.

Event name	Gives the name of the error.		Event code	Gives the code of the error.		
Meaning	Gives a short description of the error.					
Source	Gives the source of the error.		Source details	Gives details on the source of the error.	Detection timing	Tells when the error is detected.
Error attributes	Level	Tells the level of influence on control. *1	Recovery	Gives the recovery method. *2	Log category	Tells which log the error is saved in. *3
Effects	User program	Tells what will happen to execution of the user program. *4	Operation	Provides special information on the operation that results from the error.		
Indicators	Gives the status of the built-in EtherNet/IP port and built-in EtherCAT port indicators. Indicator status is given only for errors in the EtherCAT Master Function Module and the EtherNet/IP Function Module.					
System-defined variables	Variable	Data type	Name	Lists the variable names, data types, and meanings for system-defined variables that provide direct error notification, that are directly affected by the error, or that contain settings that cause the error.		
Cause and correction	Assumed cause	Correction	Prevention	Lists the possible causes, corrections, and preventive measures for the error.		
Attached information	This is the attached information that is displayed by the Sysmac Studio or an HMI. *5, *6					
Precautions/Remarks	Provides precautions, restrictions, and supplemental information. If the user can set the event level, the event levels that can be set, the recovery method, operational information, and other information are also provided.					

*1. One of the following

Major fault: Major fault level
 Partial fault: Partial fault level
 Minor fault: Minor fault level
 Observation
 Information

*2. One of the following

Automatic recovery: Normal status is restored automatically when the cause of the error is removed.
 Error reset: Normal status is restored when the error is reset after the cause of the error is removed.
 Cycle the power supply: Normal status is restored when the power supply to the Controller is turned OFF and then back ON after the cause of the error is removed.
 Controller reset: Normal status is restored when the Controller is reset after the cause of the error is removed.
 Depends on cause: The recovery method depends on the cause of the error.

*3. One of the following:

System: System event log
 Access: Access event log

*4. One of the following:

Continues: Execution of the user program will continue.
 Stops: Execution of the user program stops.
 Starts: Execution of the user program starts.

*5. "System information" indicates internal system information that is used by OMRON.

*6. Refer to the appendices of the *NJ-series Troubleshooting Manual* (Cat. No. W503) for the applicable range of the HMI Troubleshooter.

● Error Descriptions

Event name	Non-volatile Memory Hardware Error		Event code	0020 0000 hex	
Meaning	An error occurred in non-volatile memory.				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing
					When power is turned ON to the NX Unit
Error attributes	Level	Minor fault	Recovery	Restart the Slave Terminal and then reset all errors in Controller.	Log category
					System
Effects	User program	Continues.	Operation	Writing to non-volatile memory will not be possible.	
System-defined variables	Variable		Data type	Name	
	None		---	---	
Cause and correction	Assumed cause		Correction	Prevention	
	Non-volatile memory failure		Replace the NX Unit.	None	
Attached information	None				
Precautions/Remarks	None				

Event name	Control Parameter Error in Master		Event code	10410000 hex	
Meaning	An error occurred in the control parameters that are saved in the master.				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing When power is turned ON to the NX Unit
Error attributes	Level	Minor fault	Recovery	When the fail-soft operation for the Communications Coupler Unit is set to stop, restart the NX Unit and then reset all errors in Controller. When the fail-soft operation for the Communications Coupler Unit is set to fail-soft, restart the NX Unit and then reset errors in Communications Coupler Unit.	Log category System
Effects	User program	Continues.	Operation	I/O refreshing for the NX Unit stops.	
System-defined variables	Variable	Data type		Name	
	None	---		---	
Cause and correction	Assumed cause		Correction		Prevention
	There is an error in the area of the non-volatile memory in the Communications Coupler Unit in which the Unit operation settings for the NX Unit are saved. The power supply to the NX Unit was turned OFF or Sysmac Studio communications were disconnected while writing the Unit operation settings was in progress.		Download the Unit operation settings of the NX Unit again and restart the Communications Coupler Unit. If the error occurs again even after you make the above correction, replace the Communications Coupler Unit.		Do not turn OFF the power supply to the NX Unit or disconnect Sysmac Studio communications while transfer of the Unit operation settings for the NX Unit or execution of the NX_SaveParam is in progress.
Attached information	None				
Precautions/Remarks	None				

Event name	NX Unit Processing Error		Event code	4020 0000 hex		
Meaning	A fatal error occurred in an NX Unit.					
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing	Continuously
Error attributes	Level	Minor fault	Recovery	Restart the NX Unit.	Log category	System
Effects	User program	Continues.	Operation	I/O refreshing for the NX Unit stops. Messages cannot be sent to the NX Unit.		
System-defined variables	Variable	Data type		Name		
	None	---		---		
Cause and correction	Assumed cause		Correction		Prevention	
	An error occurred in the software.		Contact your OMRON representative.		None	
Attached information	Attached information 1: System information Attached information 2: System information Attached information 3: System information Attached information 4: System information					
Precautions/Remarks	None					

Event name	NX Unit I/O Communications Error		Event code	80200000 hex	
Meaning	An I/O communications error occurred between the Communications Coupler Unit and the NX Unit				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing Continuously
Error attributes	Level	Minor fault	Recovery	When the fail-soft operation for the Communications Coupler Unit is set to stop, reset all errors in Controller. When the fail-soft operation for the Communications Coupler Unit is set to fail-soft, reset errors in Communications Coupler Unit and NX Unit.	Log category System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. Input data: Inputs are stopped. Output data: Outputs are stopped.	
System-defined variables	Variable		Data type	Name	
	None		---	---	
Cause and correction	Assumed cause		Correction	Prevention	
	The NX Unit is not mounted properly.		Mount the NX Units and End Cover securely and secure them with End Plates.	Mount the NX Units and End Cover securely and secure them with End Plates.	
	The power cable for the Unit power supply is disconnected. Or, the wiring from the Unit power supply to the NX Units is incorrect.		Correctly wire the Unit power supply to the NX Units.	Correctly wire the Unit power supply to the NX Units.	
	The power cable for the Unit power supply is broken.		Replace the power cable between the Unit power supply and the NX Units.	None	
	The voltage of the Unit power supply is outside the specified range. Or, the capacity of the Unit power supply is insufficient.		Correctly configure the power supply system according to the power supply design methods.	Correctly configure the power supply system according to the power supply design methods.	
	There is a hardware error in the NX Unit.		If the error occurs again even after you make the above correction, replace the NX Unit.	None	
Attached information	None				
Precautions/Remarks	None				

Event name	NX Unit Clock Not Synchronized Error		Event code	8024 0000 hex	
Meaning	An error occurred in the clock information between the EtherCAT Coupler Unit and the NX Unit.				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing Continuously
Error attributes	Level	Minor fault	Recovery	Restart the NX Unit.	Log category System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. Input data: Inputs are stopped. Output data: Outputs are stopped.	
System-defined variables	Variable	Data type		Name	
	None	---		---	
Cause and correction	Assumed cause		Correction		Prevention
	There is a hardware error in the NX Unit. There is a hardware error in the EtherCAT Coupler Unit.		If the error occurred in only a specific NX Unit in the Slave Terminal, replace the NX Unit. If the error occurred in all of the NX Units on the Slave Terminal except for the System Units, replace the EtherCAT Coupler Unit.		None
Attached information	None				
Precautions/Remarks	None				

Event name	Data Discarded Due to Full Internal Buffer		Event code	85400000 hex		
Meaning	An internal buffer is full. The input data is discarded.					
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing	Continuously
Error attributes	Level	Minor fault	Recovery	Reset error in NX Unit.	Log category	System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. If the internal buffer for received data is full, the received data is discarded. If the internal buffer for transmission data is full, the transmission data is discarded.		
System-defined variables	Variable	Data type		Name		
	None	---		---		
Cause and correction	Assumed cause		Correction		Prevention	
	If the internal buffer for received data is full, the task period was too short to read the received data. If the internal buffer for transmission data is full, the transmission data was too large or there are too many send requests.		Reduce the amount of data sent and received with serial devices or increase the number of bytes assigned to the PDOs.		Reduce the amount of data sent and received with serial devices or increase the number of bytes assigned to the PDOs.	
Attached information	Attached information 1: Port where error occurred 0001 hex: Port 1 0010 hex: Port 2 Attached information 2: Buffer where error occurred 0001 hex: Internal buffer for transmission data 0010 hex: Internal buffer for received data					
Precautions/Remarks	You can change the event level to the observation level.					

Event name	NX Message Communications Error		Event code	80220000 hex	
Meaning	An error was detected in message communications and the message frame was discarded.				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing
Error attributes	Level	Observation	Recovery	---	Log category
Effects	User program	Continues.	Operation	Not affected.	
System-defined variables	Variable	Data type		Name	
	None	---		---	
Cause and correction	Assumed cause	Correction		Prevention	
	The message communications load is high.	Reduce the number of times that instructions are used to send NX messages. Refer to the appendix of the <i>NJ-series Instructions Reference Manual</i> (Cat. No. W502) for information on the instructions that send messages.		Reduce the number of times that instructions are used to send NX messages.	
	The communications cable is disconnected or broken. This cause does not apply if attached information 2 is 0 (NX bus).	Connect the communications cable securely.		Connect the communications cable securely.	
	Message communications were cut off as the result of executing a synchronization or restoration operation on the Sysmac Studio or as the result of disconnecting an EtherCAT slave.	---		---	
Attached information	Attached information 1: System information Attached information 2: Type of communications where error occurred 0: NX bus 1: EtherCAT 2: Serial communications (USB) 3: EtherNet/IP 65535: Internal Unit communications (routing)				
Precautions/Remarks	None				

Event name	Parity Error		Event code	85410000 hex		
Meaning	A parity error occurred.					
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing	Continuously
Error attributes	Level	Observation	Recovery	---	Log category	System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. The received data may not be correct.		
System-defined variables	Variable		Data type		Name	
	None		---		---	
Cause and correction	Assumed cause		Correction		Prevention	
	The communications settings and baud rate setting do not agree with those of the remote device.		Use the same communications settings and baud rate setting for the remote device.		Use the same communications settings and baud rate setting for the remote device.	
	Noise		Implement noise countermeasures.		Implement noise countermeasures.	
Attached information	Attached information 1: Port where error occurred 0001 hex: Port 1 0010 hex: Port 2					
Precautions/Remarks	You can change the event level to the minor fault level. If you change the level to the minor fault level, the <i>Recovery</i> column above will be changed to "Reset error in NX Unit."					

Event name	Framing Error		Event code	85420000 hex		
Meaning	A framing error occurred.					
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing	Continuously
Error attributes	Level	Observation	Recovery	---	Log category	System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. The received data may not be correct.		
System-defined variables	Variable		Data type		Name	
	None		---		---	
Cause and correction	Assumed cause		Correction		Prevention	
	The communications settings and baud rate setting do not agree with those of the remote device.		Use the same communications settings and baud rate setting for the remote device.		Use the same communications settings and baud rate setting for the remote device.	
	Noise		Implement noise countermeasures.		Implement noise countermeasures.	
Attached information	Attached information 1: Port where error occurred 0001 hex: Port 1 0010 hex: Port 2					
Precautions/Remarks	You can change the event level to the minor fault level. If you change the level to the minor fault level, the <i>Recovery</i> column above will be changed to "Reset error in NX Unit."					

Event name	Overrun Error		Event code	85430000 hex		
Meaning	An overrun error occurred.					
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing	Continuously
Error attributes	Level	Observation	Recovery	---	Log category	System
Effects	User program	Continues.	Operation	The NX Unit will continue to operate. The received data may not be correct.		
System-defined variables	Variable	Data type		Name		
	None	---		---		
Cause and correction	Assumed cause		Correction		Prevention	
	The next data was received during processing of received data because the baud rate is too high.		Reduce the baud rate.		Reduce the baud rate.	
Attached information	Attached information 1: Port where error occurred 0001 hex: Port 1 0010 hex: Port 2					
Precautions/Remarks	You can change the event level to the minor fault level. If you change the level to the minor fault level, the <i>Recovery</i> column above will be changed to "Reset error in NX Unit."					

Event name	Event Log Cleared		Event code	90400000 hex	
Meaning	The event log was cleared.				
Source	Depends on where the Sysmac Studio is connected and the system configuration.		Source details	NX Unit	Detection timing When commanded from user
Error attributes	Level	Information	Recovery	---	Log category Access
Effects	User program	Continues.	Operation	Not affected.	
System-defined variables	Variable		Data type		Name
	None		---		---
Cause and correction	Assumed cause		Correction		Prevention
	The event log was cleared by the user.		---		---
Attached information	Attached information 1: Events that were cleared 1: The system event log was cleared. 2: The access event log was cleared.				
Precautions/Remarks	None				