NJ/NX-series System-defined Variables

System-defined variables are assigned specific functions by the system. They are registered in the global variable table, or the local variable table for each POU, in advance.

These variables cannot be changed. Some of the variables start with an underbar and some start with ”P_”.

Some of the system-defined variables are read-only and some are read/write.

You read and write the variables with the user program, with communications from external devices, with the Sysmac Studio, or with an NS/NA-series PT.

Basically, system-defined variables are classified according to the function modules. The variables start with the following category names.

Function module	Category name
System-defined variables for the overall NJ/NX-series Controller	None
PLC Function Module	_PLC
	_CJB
NX Bus Function Module	_NXB
Motion Control Function Module	_MC, _MC1, and _MC2
EtherCAT Master Function Module	_EC
EtherNet/IP Function Module	_EIP, _EIP1, and _EIP2

The variables are described in the tables of this appendix as shown below.

Variable name	Meaning	Function	Data type	Range of values
This is the system-defined variable name. The prefix gives the category name.	This is the meaning of the variable.	The function of the variable is described.	The data type of the variable is given.	The range of values that the variable can take is given.

A version in parentheses in the *Variable name* column is the unit version of the CPU Unit when the system-defined variable was added.

Precautions for Correct Use

There are system-defined variables that are not supported or differ in specifications such as the number of arrays. Refer to *NJ/NX-series CPU Unit Software User’s Manual (Cat. No. W501)* for details on the specifications for individual system-defined variables.

System-defined Variables for the Overall NJ/NX-series Controller (No Category)

● Functional Classification: Clock

Variable name	Meaning	Function	Data type	Range of values
_CurrentTime	System Time	Contains the CPU Unit's internal clock data.	DATE_ AND_ TIME	• NX-series CPU Units DT#1970-01-01-00:00:00 to DT#2069-12-31-23:59:59 • NJ-series CPU Units DT#1970-01-01-00:00:00 to DT#2106-02-06-23:59:59

● Functional Classification: Tasks

Variable name	Meaning	Function	Data type	Range of values
*_TaskName_* Active	Task Active Flag	TRUE during task execution. FALSE when task execution is not in progress. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
*_TaskName_* LastExecTime	Last Task Execution Time	Contains the task execution time the last time the task was executed (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* MaxExecTime	Maximum Task Execution Time	Contains the maximum value of the task execution time (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* MinExecTime	Minimum Task Execution Time	Contains the minimum value of the task execution time (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* ExecCount	Task Execution Count	Contains the number of executions of the task. If 4294967295 is exceeded, the value returns to 0 and counting is continued. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	UDINT	Depends on data type.
*_TaskName_* Exceeded	Task Period Exceeded Flag	TRUE if the task period was exceeded. FALSE if task execution was completed within the task period. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
*_TaskName_* ExceedCount	Task Period Exceeded Count	Contains the number of times that the period was exceeded. If the present value exceeds the maximum value of the data type, the present value returns to 0 and the count is continued. If 4294967295 is exceeded, the value returns to 0 and counting is continued. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	UDINT	Depends on data type.

● Functional Classification: Errors

Variable name	Meaning	Function	Data type	Range of values
_ErrSta	Controller Error Status	TRUE if there is a Controller error. FALSE if there is no Controller error. **Note** Do not use this variable in the user program. There may be a delay in updating it and concurrency problems in relation to the error status of the function module. Use this variable only to access status through communications from an external device. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#C0F0
_AlarmFlag	User-defined Error Status	The bit corresponding to the event level is TRUE while there is a user-defined error. Bits 00 to 07 correspond to user fault levels 1 to 8. This variable contains 0000 hex when there is no user-defined error.	WORD	16#0000 to 16#00FF

● Functional Classification: SD Memory Card

Variable name	Meaning	Function	Data type	Range of values
_Card1Ready	SD Memory Card Ready Flag	TRUE when the SD Memory Card is recognized. FALSE when the SD Memory Card is not recognized. TRUE: The Card can be used. FALSE: The Card cannot be used.	BOOL	TRUE or FALSE
_Card1Protect	SD Memory Card Write Protected Flag	TRUE when the SD Memory Card is write-protected with the LOCK switch. TRUE: Write protected. FALSE: Not write protected.	BOOL	TRUE or FALSE
_Card1Err	SD Memory Card Error Flag	TRUE when an unusable SD Memory Card is inserted or a format error occurs. TRUE: There is an error FALSE: There is no error	BOOL	TRUE or FALSE
_Card1Access	SD Memory Card Access Flag	TRUE during SD Memory Card access. TRUE: Card is being accessed. FALSE: Card is not being accessed. The system updates the flag every 100 ms. Because of this, access to the SD Memory Card is shown by this flag with a delay of up to 100 ms. We therefore do not recommend the use of this variable in the user program.	BOOL	TRUE or FALSE
_Card1Deteriorated	SD Memory Card Life Warning Flag	TRUE when the life of the SD Memory Card is exceeded. TRUE: The life of the Card has been exceeded. FALSE: The Card can still be used.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_Card1PowerFail	SD Memory Card Power Interruption Flag	TRUE when the power supply to the CPU Unit was interrupted during access to the SD Memory Card. TRUE: Power was interrupted during SD Memory Card access. FALSE: Normal	BOOL	TRUE or FALSE

Variable name Member name	Meaning	Function	Data type	Range of values
_Card1BkupCmd (Ver.1.03)	SD Memory Card Backup Commands		_sBKUP_CMD	
ExecBkup	Execute Backup Flag	Change this variable to TRUE to back up Controller data to an SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
CancelBkup	Cancel Backup Flag	Change this variable to TRUE to cancel backing up data to an SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
ExecVefy	Execute Verify Flag	Change this variable to TRUE to compare the Controller data to a backup file in the SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
CancelVefy	Cancel Verify Flag	Change this variable to TRUE to cancel comparing the Controller data to a backup file in the SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
DirName	Directory Name	Used to specify the directory name in the SD Memory Card for which to back up or verify data. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	STRING(64)	Depends on data type.

Variable name / Member name	Meaning	Function	Data type	Range of values
_Card1BkupSta (Ver. 1.03)	SD Memory Card Backup Status		_sBKUP_STA	
Done	Done Flag	TRUE when a backup is completed. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Active	Active Flag	TRUE when a backup is in progress. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Err	Error Flag	TRUE when processing a backup ended in an error. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
_Card1VefySta (Ver. 1.03)	SD Memory Card Verify Status		_sVEFY_STA	
Done	Done Flag	TRUE when a verification is completed. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Active	Active Flag	TRUE when a verification is in progress. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
VefyRslt	Verify Result Flag	TRUE if the data was the same. FALSE if differences were found. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Err	Error Flag	TRUE when processing a verification ended in an error. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
_Card1PrgTransferCmd (Ver.1.11)	SD Memory Card Program Transfer Command		_sPRG-TRANS-FER_CMD	
Exec	Execute Program Transfer Flag	Change this variable to TRUE to transfer the data in a backup file on the SD Memory Card to the Controller by using the function to transfer programs from the SD Memory Card.	BOOL	TRUE or FALSE
DirName	Directory Name	Use this variable to specify the directory name in the SD Memory Card in which the backup file to be transferred is stored.	STRING(64)	Depends on data type.
Password	Password	Use this variable to specify the password that is used for verification when you start transferring the programs. The password is initialized every time you start transferring programs from the SD Memory Card.	STRING(33)	Depends on data type.
TargetUserProgram	User Program and Settings Transfer Flag	Change this variable to TRUE to set a user program or setting as the transfer target. Always set this variable to TRUE for transferring programs from SD Memory Card.	BOOL	TRUE or FALSE
TargetIPAdr	IP Address Transfer Flag	Change this variable to TRUE to include the IP address of the built-in EtherNet/IP port as the transfer target. The IP address means setting type, IP address, subnet mask, and default gateway.	BOOL	TRUE or FALSE

Variable name		Meaning	Function	Data type	Range of values
Member name					
	TargetVariable	Present Values of Variables with the Retain Attribute Transfer Flag	Change this variable to TRUE to set the present values of variables with the Retain attribute as the transfer target.	BOOL	TRUE or FALSE
	TargetMemory	Present Values of Memory Used for CJ-series Units with the Retain Attribute Transfer Flag	Change this variable to TRUE to set the present values of the memory used for CJ-series Units with the Retain attribute as the transfer target.	BOOL	TRUE or FALSE
_Card1PrgTransferSta (Ver.1.11)		SD Memory Card Program Transfer Status		_sPRGTRANSFER_STA	
	Done	Done Flag	TRUE when a program transfer is completed.	BOOL	TRUE or FALSE
	Active	Active Flag	TRUE when a program transfer is in progress.	BOOL	TRUE or FALSE
	Err	Error Flag	TRUE when a program transfer ended in an error.	BOOL	TRUE or FALSE

● Functional Classification: Backup

Variable name	Meaning	Function	Data type	Range of values
_BackupBusy (Ver. 1.03)	Backup Function Busy Flag	TRUE when a backup, restoration, or verification is in progress.	BOOL	TRUE or FALSE

● Functional Classification: Power Supply

Variable name	Meaning	Function	Data type	Range of values
_PowerOnHour	Total Power ON Time	Contains the total time that the power has been ON. Contains the total time that the CPU Unit has been ON in 1-hour increments. To reset this value, overwrite the current value with 0. The value is not updated after it reaches 4294967295. This variable is not initialized at startup.	UDINT	0 to 4294967295
_PowerOnCount	Power Interruption Count	Contains the number of times that the power supply has been interrupted. The value is incremented by 1 each time the power supply is interrupted after the first time that the power was turned ON. To reset this value, overwrite the current value with 0. The value is not updated after it reaches 4294967295. This variable is not initialized at startup.	UDINT	0 to 4294967295
_RetainFail	Retention Failure Flag	TRUE at the following time (failure of retention during power interruptions). • When an error is detected in the battery-backup memory check at startup. FALSE at the following times (no failure of retention during power interruptions). • When no error is detected in the battery-backup memory check at startup. • When the user program is downloaded. • When the Clear All Memory operation is performed. **Note** When the encoder home offset data is not retained, the status is given in the error status of the axis variable, and not in this flag.	BOOL	TRUE or FALSE

● Functional Classification: Programming

Variable name	Meaning	Function	Data type	Range of values
P_On	Always TRUE Flag	This flag is always TRUE.	BOOL	TRUE
P_Off	Always FALSE Flag	This flag is always FALSE.	BOOL	FALSE
P_CY	Carry Flag	This flag is updated by some instructions.	BOOL	TRUE or FALSE
P_First_RunMode	First RUN Period Flag	This flag is TRUE for only one task period after the operating mode of the CPU Unit is changed from PROGRAM mode to RUN mode if execution of the program is in progress. This flag remains FALSE if execution of the program is not in progress. Use this flag to perform initial processing when the CPU Unit begins operation. **Note** You cannot use this system-defined variable inside functions.	BOOL	TRUE or FALSE
P_First_Run (Ver.1.08)	First Program Period Flag	This flag is TRUE for one task period after execution of the program starts. Use this flag to perform initial processing when execution of a program starts. **Note** You cannot use this system-defined variable inside functions.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
P_PRGER	Instruction Error Flag	This flag changes to and remains TRUE when an instruction error occurs in the program or in a function/function block called from the program. After this flag changes to TRUE, it stays TRUE until the user program changes it back to FALSE.	BOOL	TRUE or FALSE

● Functional Classification: Communications

Variable name	Meaning	Function	Data type	Range of values
_Port_numUsingPort	Number of Used Ports	Gives the number of internal logical ports that are currently used. You can use this variable when you debug the user program.	USINT	0 to 32
_Port_isAvailable	Network Communications Instruction Enabled Flag	Indicates whether there is an available internal logical port. TRUE when an internal logical port is available. Otherwise FALSE.	BOOL	FALSE or TRUE
_FINSTCPConnSta	FINS/TCP Connection Status	Gives the FINS/TCP connection status.	WORD	16#0000 to 16#FFFF

● Functional Classification: Version

Variable name	Meaning	Function	Data type	Range of values
_UnitVersion (Ver.1.08)	Unit Version	The unit version of the CPU Unit is stored. The integer part of the unit version is stored in element number 0. The fractional part of the unit version is stored in element number 1. Example 1) If the unit version is 1.08, “1” is stored in element number 0 and “8” is stored in element number 1. Example 2) If the unit version is 1.10, “1” is stored in element number 0 and “10” is stored in element number 1.	ARRAY[0..1] OF USINT	0 to 99
_HardwareRevision (Ver.1.11)	Hardware Revision	The hardware revision of the CPU Unit is stored. Contains - if the hardware revision is in blank, and A to Z for other cases.	STRING[2]	- or A to Z

● Functional Classification: Self-diagnosis

Variable name	Meaning	Function	Data type	Range of values
_SelfTest_HighTemperature (Ver.1.10)	CPU Unit High Temperature Flag	TRUE when the internal temperature of the CPU Unit is too high. **Note** Always FALSE for an NX1P2 CPU Unit.	BOOL	TRUE or FALSE
_SelfTest_LowBattery (Ver.1.10)	Low Battery Flag	TRUE when the battery is disconnected or the battery voltage is dropped.	BOOL	TRUE or FALSE
_SelfTest_LowFanRevolution (Ver.1.10)	Low FAN Revolution Flag	TRUE when the fan is disconnected or the rotation speed of a fan is decreased. **Note** Always FALSE for an NX1P2 CPU Unit and NJ-series CPU Unit.	BOOL	TRUE or FALSE

● Functional Classification: PLC Built-in

Variable name	Meaning	Function	Data type	Range of values
_DeviceOutHoldCfg (Ver.1.13)	Device Output Hold Configuration	It is 16#A5A5 if you retain the target device output when the operating mode is changed or when downloaded. In the case other than 16#A5A5, the target device output is initialized when the operating mode is changed or when downloaded.	BOOL	16#0000 to 16#FFFF
_DeviceOutHoldStatus (Ver.1.13)	Device Output Hold Status	It is TRUE if the target device output is retained when the operating mode is changed or when downloaded. When the device output hold configuration is other than 16#A5A5, or when a major fault level Controller error occurs, the target device output is initialized and changes to FALSE.	BOOL	TRUE or FALSE

PLC Function Module, Category Name: _PLC

● Functional Classification: Debugging

Variable name / Member	Meaning	Function	Data type	Range of values
_PLC_TraceSta[0..3]			_sTRACE_STA	
.IsStart	Trace Busy Flag	TRUE when a trace starts. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.IsComplete	Trace Completed Flag	TRUE when a trace is completed. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.IsTrigger	Trace Trigger Monitor Flag	TRUE when the trigger condition is met. FALSE when the next trace starts. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.ParamErr	Trace Parameter Error Flag	TRUE when a trace starts, but there is an error in the trace settings. FALSE when the settings are normal. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE

● Functional Classification: Errors

Variable name	Meaning	Function	Data type	Range of values
_PLC_ErrSta	PLC Function Module Error Status	TRUE when there is a Controller error that involves the PLC Function Module. FALSE when there is no Controller error that involves the PLC Function Module. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0

● Functional Classification: Option Boards

Variable name / Member	Meaning	Function	Data type	Range of values
_PLC_OptBoardSta (Ver.1.13)	Option Board Status	Contains the status of Option Boards. This variable is commonly used regardless of the models of Option Boards. The array element 1 corresponds to the option board slot 1 and array element 2 corresponds to the option board slot 2. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY[0..2] OF _sOPT-BOARD_STA	
isDetect	Option Board Mounted	Indicates an Option Board is mounted to the option board slot. TRUE: Mounted. FALSE: Not mounted. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE

Variable name		Meaning	Function	Data type	Range of values
	Member				
	Run	Option Board Normal Operation	Indicates whether an Option Board is normally operating. To use device variables or communications instructions for an Option Board, program this member as an interlock condition in the user program. TRUE: Normally operating. FALSE: Initializing, changing settings, or an error occurred. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE
	Error	Option Board Error	Indicates whether an Option Board error occurred. TRUE: An error occurred. FALSE: An error not occurred. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE
_PLC_OptSerialErrSta (Ver.1.13)		Serial Option Board Error Status	Contains the error status of an transmission error for the Serial Communications Option Board. When the Serial communications mode of an Serial Communications Option Board is only set to Host Link (FINS), the value of each member is updated. Other than the above setting, the values of all members are FALSE. The array element 1 corresponds to the option board slot 1 and array element 2 corresponds to the option board slot 2. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY[0..2] OF _sOPTSERIALERR_STA	
	Error	Transmission Error	Indicates whether a transmission error occurred. TRUE: A parity error, framing error, or an overrun error occurred. FALSE: FALSE due to one of the following causes. • A parity error, framing error, or an overrun error not occurred. • A port is restarted. • The Serial communications mode is not set to Host Link (FINS). • The Option Board that is mounted is not a Serial Communications Option Board. • The Option Board is not mounted. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE

Variable name Member	Meaning	Function	Data type	Range of values
ParityErr	Parity Error	Indicates whether a parity error occurred. If this error occurs, it means that the serial communications settings may not apply to the remote device to connect. TRUE: A parity error occurred. FALSE: FALSE due to one of the following causes. • A parity error not occurred. • A port is restarted. • The Serial communications mode is not set to Host Link (FINS). • The Option Board that is mounted is not a Serial Communications Option Board. • The Option Board is not mounted. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE
FramingErr	Framing Error	Indicates whether a framing error occurred. If this error occurs, it means that the serial communications settings may not apply to the remote device to connect. TRUE: A framing error occurred. FALSE: FALSE due to one of the following causes. • A framing error not occurred. • A port is restarted. • The Serial communications mode is not set to Host Link (FINS). • The Option Board that is mounted is not a Serial Communications Option Board. • The Option Board is not mounted. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE
OverRun	Overrun Error	Indicates whether an overrun error occurred. If this error occurs, it means that the baud rate of an Option Board may be too large. TRUE: An overrun error occurred. FALSE: FALSE due to one of the following causes. • An overrun error not occurred. • A port was restarted. • The Serial communications mode is not set to Host Link (FINS). • The Option Board that is mounted is not a Serial Communications Option Board. • The Option Board is not mounted. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	BOOL	TRUE or FALSE

PLC Function Module, Category Name: _CJB

● Functional Classification: I/O Bus Status

Variable name	Meaning	Function	Data type	Range of values
_CJB_MaxRackNo	Largest Rack Number	Contains the largest rack number of the Expansion Racks that are detected by the Controller. **Note** You can use this system-defined variable only for NJ-series CPU Units.	UINT	0 to 3 0: Only CPU Rack.
_CJB_MaxSlotNo	Largest Slot Number	Contains one higher than the largest slot number with a CJ-series Unit on each of the Racks that are detected by the Controller. **Note** You can use this system-defined variable only for NJ-series CPU Units.	ARRAY [0..3] OF UINT	0 to 10 0: No CJ-series Unit mounted.

● Functional Classification: I/O Bus Errors

Variable name	Meaning	Function	Data type	Range of values
_CJB_ErrSta	I/O Bus Error Status	Gives the I/O bus error status. **Note** Do not use this variable in the user program. There may be a delay in updating it. Use this variable only to access status through communications from an external device. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for NJ-series CPU Units.	WORD	16#0000 to 16#C0F0
_CJB_MstrErrSta	I/O Bus Master Error Status	Gives the I/O bus master error status. **Note** Do not use this variable in the user program. There may be a delay in updating it. Use this variable only to access status through communications from an external device. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for NJ-series CPU Units.	WORD	16#0000 to 16#00F0
_CJB_UnitErrSta	I/O Bus Unit Error Status	Gives the error status of the I/O Bus Unit. **Note** Do not use this variable in the user program. There may be a delay in updating it. Use this variable only to access status through communications from an external device. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for NJ-series CPU Units.	ARRAY [0..3, 0..9] OF WORD	16#0000 to 16#80F0
_CJB_InRespTm	Basic Input Unit Input Response Times	Contains the response times of the Basic Input Units. **Note** You can use this system-defined variable only for NJ-series CPU Units.	ARRAY [0..3, 0..9] OF UNIT	0 to 320

● Functional Classification: Auxiliary Area Bits for CJ-series Units

Variable name	Meaning	Function	Data type	Range of values
_CJB_IOUnitInfo	Basic I/O Unit Information	Shows the status of the Basic I/O Unit alarm output (load short-circuit protection). TRUE: Load short-circuit FALSE: No load short-circuit **Note** You can use this system-defined variable only for NJ-series CPU Units.	ARRAY [0..3, 0..9, 0..7] OF BOOL	TRUE or FALSE
_CJB_CBU00InitSta to _CJB_CBU15InitSta	CPU Bus Unit Initializing Flags	The corresponding variable is TRUE during initialization of the CPU Bus Unit. The corresponding variable changes to FALSE when the initialization is completed. The numbers in the variables indicate the unit numbers of the applicable Units. **Note** You can use this system-defined variable only for NJ-series CPU Units.	BOOL	TRUE or FALSE
_CJB_SIO00InitSta to _CJB_SIO95InitSta	Special I/O Unit Initializing Flags	The corresponding variable is TRUE during initialization of the Special I/O Unit. The corresponding variable changes to FALSE when the initialization is completed. The numbers in the variables indicate the unit numbers of the applicable Units. **Note** You can use this system-defined variable only for NJ-series CPU Units.	BOOL	TRUE or FALSE
_CJB_CBU00Restart to _CJB_CBU15Restart	CPU Bus Unit Restart Bits	The CPU Bus Unit is restarted when the corresponding variable changes to TRUE. (It is changed to FALSE by the system after the CPU Bus Unit is restarted.) The numbers in the variables indicate the unit numbers of the applicable Units. If you change the Restart Flag to TRUE with an instruction, the restart process begins from refresh processing in the next task period. **Note** You can use this system-defined variable only for NJ-series CPU Units.	BOOL	TRUE or FALSE
_CJB_SIO00Restart to _CJB_SIO95Restart	Special I/O Unit Restart Bits	The Special I/O Unit is restarted when the corresponding variable changes to TRUE. (It is changed to FALSE by the system after the Special I/O Unit is restarted.) The numbers in the variables indicate the unit numbers of the applicable Units. If you change the Restart Flag to TRUE with an instruction, the restart process begins from refresh processing in the next task period. **Note** You can use this system-defined variable only for NJ-series CPU Units.	BOOL	TRUE or FALSE
_CJB_SCU00P1ChgSta to _CJB_SCU00P2ChgSta	Serial Communications Unit 0, Port 1/2 Settings Changing Flags	TRUE when the parameters of the specified port are being changed. FALSE after the parameters are changed. It is also possible for the user to indicate a change in serial port settings by turning ON the corresponding flag through the execution of an instruction or a user operation. **Note** You can use this system-defined variable only for NJ-series CPU Units.	BOOL	TRUE or FALSE
_CJB_SCU15P1ChgSta to _CJB_SCU15P2ChgSta	Serial Communications Units 1 to 15, Port 1/2 Settings Changing Flags		BOOL	TRUE or FALSE

NX Bus Function Module, Category Name: _NXB

● Functional Classification: NX Bus Function Module Status

Variable name	Meaning	Function	Data type	Range of values
_NXB_MaxUnitNo (Ver.1.13)	Largest Unit Number	Contains the largest NX Unit number of the NX Units on the CPU Unit that are detected by the NX Bus Function Module. If the Unit configuration information is registered by the Sysmac Studio, the value will be largest NX Unit number of the registered Unit configuration. Units that are set as unmounted Units are also included. If the Unit configuration information is not registered by the Sysmac Studio, the value will be the largest Unit number of an actual Unit configuration. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	UINT	0 to 8 0: No NX Unit mounted.
_NXB_UnitIOActiveTbl (Ver.1.13)	NX Unit I/O Data Active Status	Indicates whether I/O data in the NX Units on the CPU Unit is valid. This status is given as an array of BOOL data. The subscript of the array corresponds to the NX Unit number. A subscript of 0 indicates the NX Bus Function Module and it is always TRUE. TRUE: The I/O data in the NX Unit is valid. FALSE: The I/O data in the NX Unit is invalid. The status is FALSE for NX Units that are set as unmounted Units. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY [0..8] OF BOOL	TRUE or FALSE
_NXB_UnitMsgActiveTbl (Ver.1.13)	NX Unit Message Enabled Status	Indicates whether the NX Units on the CPU Unit can process message communications. This status is given as an array of BOOL data. The subscript of the array corresponds to the NX Unit number. A subscript of 0 indicates the NX Bus Function Module and it is always TRUE. TRUE: Message communications possible. FALSE: Message communications not possible. The status is FALSE for NX Units that are set as unmounted Units. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY [0..8] OF BOOL	TRUE or FALSE
_NXB_UnitRegTbl (Ver.1.13)	NX Unit Registration Status	Indicates whether the NX Units on the CPU Unit are registered in the Unit configuration. This status is given as an array of BOOL data. The subscript of the array corresponds to the NX Unit number. A subscript of 0 indicates the NX Bus Function Module. TRUE: Registered. FALSE: Not registered. If the Unit configuration information is not registered by the Sysmac Studio, the status is FALSE for all Units. The status is TRUE for NX Units that are set as unmounted Units. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY [0..8] OF BOOL	TRUE or FALSE

● Functional Classification: NX Bus Function Module Errors

Variable name	Meaning	Function	Data type	Range of values
_NXB_ErrSta (Ver.1.13)	NX Bus Function Module Error Status	Gives the NX Bus Function Module error status. This system-defined variable provides the collective status of the NX Bus Function Module Master Error Status and NX Bus Function Module Unit Error Status for all NX Units. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. Refer to *Meanings of Error Status Bits* for the meaning of the error status bits. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	WORD	16#0000 to 16#40F2
_NXB_MstrErrSta (Ver.1.13)	NX Bus Function Module Master Error Status	Gives the status of errors that are detected in the NX Bus Function Module of the CPU Unit. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. Refer to *Meanings of Error Status Bits* for the meaning of the error status bits. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	WORD	16#0000 to 16#40F2
_NXB_UnitErrStaTbl (Ver.1.13)	NX Bus Function Module Unit Error Status	Gives the status of errors that are detected in the NX Unit on the CPU Unit. This status is given as an array of BOOL data. The subscript of the array corresponds to the NX Unit number. **Note** We do not recommend the use of this variable in the user program. There may be a delay in updating it. Use these variables only to access status through communications from an external device such as an HMI. Refer to *Meanings of Error Status Bits* for the meaning of the error status bits. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY [1..8] OF BOOL	16#0000 to 16#40F2
_NXB_UnitErrFlagTbl (Ver.1.13)	NX Unit Error Status	Indicates whether errors occurred in the NX Unit on the CPU Unit. This status is given as an array of BOOL data. The subscript of the array corresponds to the NX Unit number. A subscript of 0 indicates the NX Bus Function Module and whether an event occurred that is detected by the NX Bus Function Module. TRUE: Error. FALSE: No error. The status is FALSE for NX Units that are set as unmounted Units. **Note** You can use this system-defined variable only for the NX1P2 CPU Units.	ARRAY [0..8] OF BOOL	TRUE or FALSE

Motion Control Function Module, Category Name: _MC

● Functional Classification: Motion Control Functions

Variable name	Meaning	Function	Data type	Range of values
_MC_ErrSta	Motion Control Function Module Error Status	Shows the status of errors that are detected in the Motion Control Function Module. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#40F0
_MC_ComErrSta	Common Error Status	Shows the status of errors that are detected in common processing for motion control. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_MC_AX_ErrSta	Axis Error Status	Shows the error status for each axis. The status of up to 256 axes[*1] is shown. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	ARRAY [0..255] OF WORD[*1]	16#0000 to 16#00F0
_MC_GRP_ErrSta	Axes Group Error Status	Shows the error status for each axes group. The error status for up to 64 axes groups[*2] is shown. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	ARRAY [0..63] OF WORD[*2]	16#0000 to 16#00F0
_MC_COM	Common Variable	Shows the status that is common to the Motion Control Function Module. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members.	_sCOMMON_REF	---
_MC_GRP	Axes Group Variables	NX701 CPU Units: Used to specify axes groups and shows multi-axes coordinated control status, and multi-axes coordinated control settings for motion control instructions used for motion control 1. NX1P2 CPU Units and NJ-series CPU Units: Used to specify axes groups and shows multi-axes coordinated control status, and multi-axes coordinated control settings for motion control instructions. When you create an axes group on the System Studio, a user-defined axes group variable with a different name is created. Normally, you use an Axes Group Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members.	ARRAY[0..63] OF _sGROUP_REF[*3]	---

Variable name	Meaning	Function	Data type	Range of values
_MC1_GRP	Axes Group Variables	Used to specify axes groups and shows multi-axes coordinated control status, and multi-axes coordinated control settings for motion control instructions used for motion control 1. When you create an axes group on the System Studio, a user-defined axes group variable with a different name is created. Normally, you use an Axes Group Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members. **Note** You can use this system-defined variable only for the NX701 CPU Units. You can access the same values of *_MC1_GRP* and *_MC_GRP* if the array element numbers of them are the same.	ARRAY[0..63] OF _sGROUP_REF	---
_MC2_GRP	Axes Group Variables	Used to specify axes groups and shows multi-axes coordinated control status, and multi-axes coordinated control settings for motion control instructions used for motion control 2. When you create an axes group on the System Studio, a user-defined axes group variable with a different name is created. Normally, you use an Axes Group Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY[0..63] OF _sGROUP_REF	---
_MC_AX	Axis Variables	NX701 CPU Units: Used to specify axes and shows single-axis control status, and single-axis control settings for motion control instructions used for motion control 1. NX1P2 CPU Units and NJ-series CPU Units: Used to specify axes and shows single-axis control status, and single-axis control settings for motion control instructions. When you create an axis on the System Studio, a user-defined axis variable with a different name is created. Normally, you use an Axis Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members.	ARRAY[0..255] OF _sAXIS_REF*4	---
_MC1_AX	Axis Variables	Used to specify axes and shows single-axis control status, and single-axis control settings for motion control instructions used for motion control 1. When you create an axis on the System Studio, a user-defined axis variable with a different name is created. Normally, you use an Axis Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members. **Note** You can use this system-defined variable only for the NX701 CPU Units. You can access the same values of *_MC1_AX* and *_MC_AX* if the array element numbers of them are the same.	ARRAY[0..255] OF _sAXIS_REF	---

Variable name	Meaning	Function	Data type	Range of values
_MC2_AX	Axis Variables	Used to specify axes and shows single-axis control status, and single-axis control settings for motion control instructions used for motion control 2. When you create an axis on the System Studio, a user-defined axis variable with a different name is created. Normally, you use an Axis Variable with a different name. Refer to the *NJ/NX-series Motion Control Instructions Reference Manual* (Cat. No. W508) for details on structure members. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY[0..255] OF _sAXIS_REF	---

*1 For the NX1P2 CPU Units, the error status of up to 16 axes is shown and the data type is ARRAY [0..15] OF WORD.
For NJ-series CPU Units, the error status of up to 64 axes is shown and the data type is ARRAY [0..63] OF WORD.
*2 For the NX1P2 CPU Units, the error status of up to 8 axes is shown and data type is ARRAY [0..7] OF WORD.
For NJ-series CPU Units, the error status of up to 32 axes groups is shown and the data type is ARRAY [0..31] OF WORD.
*3 For the NX1P2 CPU Units, the error status of up to 8 axes is shown and data type is ARRAY[0..7] OF _sGROUP_REF.
For NJ-series CPU Units, the error status of up to 32 axes groups is shown and the data type is ARRAY [0..31] OF _sGROUP_REF.
*4 For the NX1P2 CPU Units, the error status of up to 16 axes is shown and the data type is ARRAY [0..15] OF _sAXIS_REF.
For NJ-series CPU Units, the error status of up to 64 axes is shown and the data type is ARRAY [0..63] OF _sAXIS_REF.

EtherCAT Master Function Module, Category Name: _EC

● Functional Classification: EtherCAT Communications Errors

Variable name	Meaning	Function	Data type	Range of values
_EC_ErrSta	Built-in EtherCAT Error	This system-defined variable provides the collective status of errors in the EtherCAT Master Function Module. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#40F0
_EC_PortErr	Communications Port Error	This system-defined variable provides the collective status of errors in the communications ports for the EtherCAT master. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_MstrErr	Master Error	This system-defined variable provides the collective status of EtherCAT master errors and slave errors detected by the EtherCAT master. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_SlavErr	Slave Error	This system-defined variable provides the collective status of all the error status for EtherCAT slaves. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_SlavErrTbl	Slave Error Table	This system-defined variable gives the error status for each EtherCAT slave. The error status is given for each slave in the actual system configuration. This variable array indicates slaves in which there are errors. Status is provided for each EtherCAT slave node address (1 to 512)*1. Refer to information on the meanings of the error status bits at the end of this appendix for details.	Array [1..512] OF WORD*1	16#0000 to 16#00F0
_EC_MacAdrErr	MAC Address Error	TRUE if there is an illegal MAC address.	BOOL	TRUE or FALSE
_EC_LanHwErr	Communications Controller Error	TRUE if there is a communications controller hardware error.	BOOL	TRUE or FALSE
_EC_LinkOffErr	Link OFF Error	TRUE if the communications controller link is not established.	BOOL	TRUE or FALSE
_EC_NetCfgErr	Network Configuration Information Error	TRUE if there is illegal network configuration information.	BOOL	TRUE or FALSE
_EC_NetCfgCmpErr	Network Configuration Verification Error	TRUE if the network configuration information does not match the actual network configuration.	BOOL	TRUE or FALSE
_EC_NetTopologyErr	Network Configuration Error	TRUE if there is a network configuration error (too many devices connected or ring connection).	BOOL	TRUE or FALSE
_EC_PDCommErr	Process Data Communications Error	TRUE if there is an unexpected slave disconnection or connection or if a slave WDT error is detected during process data communications.	BOOL	TRUE or FALSE
_EC_PDTimeoutErr	Process Data Reception Timeout Error	TRUE if a timeout occurs while receiving process data.	BOOL	TRUE or FALSE
_EC_PDSendErr	Process Data Transmission Error	TRUE if there is a process data transmission error (cannot send within the process data communications cycle or transmission jitter is over the limit).	BOOL	TRUE or FALSE
_EC_SlavAdrDupErr	Slave Node Address Duplicated Error	TRUE if the same node address is set for more than one slave.	BOOL	TRUE or FALSE
_EC_SlavInitErr	Slave Initialization Error	TRUE if there is an error in an initialization command addressed to a slave.	BOOL	TRUE or FALSE
_EC_SlavAppErr	Slave Application Error	TRUE if there is an error in the slave's application status register.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EC_MsgErr	EtherCAT Message Error	TRUE when a message is sent to a slave that does not support messages or when there is an error in the format of the response to a message that was sent to a slave.	BOOL	TRUE or FALSE
_EC_SlavEmergErr	Emergency Message Detected	TRUE if the master detects an emergency message that was sent by a slave.	BOOL	TRUE or FALSE
_EC_IndataInvalidErr (Ver.1.13)	Input Process Data Invalid Error	TRUE if the Input Data Invalid state continued for the following period because the EtherCAT master could not perform process data communications normally when it was in the Operational state. • When the task period is 10 ms or shorter: 100 ms • When the task period is longer than 10 ms: 10 periods o the task	BOOL	TRUE or FALSE
_EC_CommErrTbl	Communications Error Slave Table	Slaves are given in the table in the order of slave node addresses. The corresponding slave element is TRUE if the master detected an error for the slave.	Array [1..512] OF BOOL*2	TRUE or FALSE
_EC_CycleExceeded	EtherCAT Communications Cycle Exceeded	TRUE if the CPU Unit cannot establish communications within the set communications period at startup. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE

*1 For the NX1P2 CPU Units and NJ-series CPU Units, the node address is 1 to 192 and the data type is Array [1..192] OF WORD.
*2 For NJ-series CPU Units, the data type is Array [1..192] OF BOOL.

Additional Information

Typical Relationships for the Built-in EtherCAT Error Flags

Variable Name	Meaning	Variable Name	Meaning	Variable Name	Meaning	Event level
_EC_ErrSta	Built-in EtherCAT Error	_EC_PortErr	Communications Port Error	_EC_MacAdrErr	MAC Address Error	Partial fault level
				_EC_LanHwErr	Communications Controller Error	
				_EC_LinkOffErr	Link OFF Error	
		_EC_MstrErr	Master Error	_EC_NetCfgErr	Network Configuration Information Error	Minor fault level
				_EC_NetCfgCmpErr	Network Configuration Verification Error	
				_EC_NetTopologyErr	Network Configuration Error	
				_EC_PDCommErr	Process Data Communications Error	
				_EC_PDTimeoutErr	Process Data Reception Timeout Error	
				_EC_PDSendErr	Process Data Transmission Error	
				_EC_SlavAdrDupErr	Slave Node Address Duplicated Error	
				_EC_SlavInitErr	Slave Initialization Error	
				_EC_SlavAppErr	Slave Application Error	
				_EC_CommErrTbl	Communications Error Slave Table	
				_EC_CycleExceeded	EtherCAT Communications Cycle Exceeded	
				_EC_MsgErr	EtherCAT Message Error	Observation
				_EC_SlavEmergErr	Emergency Message Detected	
		_EC_SlavErr	Slave Error	_EC_SlavErrTbl	Slave Error Table	Defined by the slave.

Note The values of all system-defined variables that are related to errors in EtherCAT communications do not change until the cause of the error is removed and then the error in the Controller is reset with the troubleshooting functions of the Sysmac Studio or the ResetECError instruction.

● Functional Classification: EtherCAT Communications Status

Variable name	Meaning	Function	Data type	Range of values
_EC_RegSlavTbl	Registered Slave Table	This table indicates the slaves that are registered in the network configuration information. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave is registered.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_EntrySlavTbl	Network Connected Slave Table	This table indicates which slaves are connected to the network. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave has entered the network.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_MBXSlavTbl	Message Communications Enabled Slave Table	This table indicates the slaves that can perform message communications. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if message communications are enabled for it (pre-operational, safe-operation, or operational state). **Note** Use this variable to confirm that message communications are possible for the relevant slave before you execute message communications with an EtherCAT slave.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_PDSlavTbl	Process Data Communicating Slave Table	This table indicates the slaves that are performing process data communications. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if process data of the corresponding slave is enabled (operational) for both slave inputs and outputs. **Note** Use this variable to confirm that the data for the relevant slave is valid before controlling an EtherCAT slave.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_DisconnSlavTbl	Disconnected Slave Table	Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave was disconnected.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_DisableSlavTbl	Disabled Slave Table	Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave is disabled.	Array [1..512] OF BOOL*1	TRUE or FALSE
_EC_PDActive	Process Data Communications Status	TRUE when process data communications are performed with all slaves*. * Disabled slaves are not included.	BOOL	TRUE or FALSE
_EC_PktMonStop	Packet Monitoring Stopped	TRUE when packet monitoring is stopped.	BOOL	TRUE or FALSE
_EC_LinkStatus	Link Status	TRUE if the communications controller link status is Link ON.	BOOL	TRUE or FALSE
_EC_PktSaving	Saving Packet Data File	Shows whether a packet data file is being saved. TRUE: Packet data file being saved. FALSE: Packet data file not being saved.	BOOL	TRUE or FALSE
_EC_InDataInvalid	Input Data Invalid	TRUE when process data communications performed in the primary periodic task are not normal and the input data is not valid.	BOOL	TRUE or FALSE
_EC_InData1Invalid	Input Data1 Invalid	TRUE when process data communications performed in the primary periodic task are not normal and the input data is not valid. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EC_InData2Invalid	Input Data2 Invalid	TRUE when process data communications performed in the priority-5 periodic task are not normal and the input data is not valid. **Note** You can use this system-defined variable only for NX-series CPU Units. **Note** This variable is always TRUE for the NX1P2 CPU Units.	BOOL	TRUE or FALSE

*1 For the NX1P2 CPU Units and NJ-series CPU Units, the data type is Array [1..192] OF BOOL.

Note All system-defined variables that are related to the status of EtherCAT communications give the current status.

● Functional Classification: EtherCAT Communications Diagnosis/Statistics Log

Variable name	Meaning	Function	Data type	Range of values
_EC_StatisticsLogEnable (Ver.1.11)	Diagnosis/Statistics Log Enable	Changes to TRUE when the diagnosis/statistics log is started. Changes to FALSE when the diagnosis/statistics log is ended.	BOOL	TRUE or FALSE
_EC_StatisticsLogCycleSec (Ver.1.11)	Diagnosis/Statistics Log Cycle	Specifies the interval to write the diagnostic and statistical information of the diagnosis/statistics log in units of seconds. When 0 is specified, the diagnostic and statistical information is written only once when the diagnosis/statistics log is ended. **Note** The write interval does not change even if you change the value of this system-defined variable while the diagnosis/statistics log operation is in progress.	UINT	0, or 30 to 1800
_EC_StatisticsLogBusy (Ver.1.11)	Diagnosis/Statistics Log Busy	TRUE while the diagnosis/statistics log operation is in progress.	BOOL	TRUE or FALSE
_EC_StatisticsLogErr (Ver.1.11)	Diagnosis/Statistics Log Error	TRUE when the diagnosis/statistics log failed to start or it is impossible to write into the log. The value of this flag is determined when *_EC_StatisticsLogBusy* (Diagnosis/Statistics Log Busy) changes to FALSE after the diagnosis/statistics log operation is started. The error end is caused by the following. • Another records cannot be added in the log file because the capacity of the SD Memory Card is fully used. • The SD Memory Card is write protected. • There is no SD Memory Card. • The function cannot be started because the value specified for *_EC_StatisticsLogCycleSec* (Diagnosis/Statistics Log Cycle) is invalid.	BOOL	TRUE or FALSE

EtherNet/IP Function Module, Category Name: _EIP

● Functional Classification: EtherNet/IP Communications Errors

Variable name	Meaning	Function	Data type	Range of values
_EIP_ErrSta	Built-in EtherNet/IP Error	This is the error status variable for the built-in EtherNet/IP port. NX-series CPU Units: Represents the collective status of the following error flags. • *_EIP1_PortErr* (Communications Port1 Error) • *_EIP2_PortErr* (Communications Port2 Error) • *_EIP1_CipErr* (CIP Communications1 Error) • *_EIP2_CipErr* (CIP Communications2 Error) • *_EIP_TcpAppErr* (TCP Application Communications Error) NJ-series CPU Units: Represents the collective status of the following error flags. • *_EIP_PortErr* (Communications Port Error) • *_EIP_CipErr* (CIP Communications Error) • *_EIP_TcpAppErr* (TCP Application Communications Error) **Note** Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP_PortErr	Communications Port Error	This is the error status variable for the communications port. NX-series CPU Units: Represents the collective status of the following error flags. • *_EIP1_MacAdrErr* (Port1 MAC Address Error) • *_EIP1_LanHwErr* (Port1 Communications Controller Error) • *_EIP1_EtnCfgErr* (Port1 Basic Ethernet Setting Error) • *_EIP1_IPAdrCfgErr* (Port1 IP Address Setting Error) • *_EIP1_IPAdrDupErr* (Port1 IP Address Duplication Error) • *_EIP1_BootpErr* (Port1 BOOTP Server Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) NJ-series CPU Units: Represents the collective status of the following error flags. • *_EIP_MacAdrErr* (MAC Address Error) • *_EIP_LanHwErr* (Communications Controller Error) • *_EIP_EtnCfgErr* (Basic Ethernet Setting Error) • *_EIP_IPAdrCfgErr* (IP Address Setting Error) • *_EIP_IPAdrDupErr* (IP Address Duplication Error) • *_EIP_BootpErr* (BOOTP Server Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0

Variable name	Meaning	Function	Data type	Range of values
_EIP1_PortErr	Communications Port1 Error	This is the error status variable for the communications port. It represents the collective status of the following error flags. • *_EIP1_MacAdrErr* (Port1 MAC Address Error) • *_EIP1_LanHwErr* (Port1 Communications Controller Error) • *_EIP1_EtnCfgErr* (Port1 Basic Ethernet Setting Error) • *_EIP1_IPAdrCfgErr* (Port1 IP Address Setting Error) • *_EIP1_IPAdrDupErr* (Port1 IP Address Duplication Error) • *_EIP1_BootpErr* (Port1 BOOTP Server Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for NX-series CPU Units.	WORD	16#0000 to 16#00F0
_EIP2_PortErr	Communications Port2 Error	This is the error status variable for the communications port. It represents the collective status of the following error flags. • *_EIP2_MacAdrErr* (Port2 MAC Address Error) • *_EIP2_LanHwErr* (Port2 Communications Controller Error) • *_EIP2_EtnCfgErr* (Port2 Basic Ethernet Setting Error) • *_EIP2_IPAdrCfgErr* (Port2 IP Address Setting Error) • *_EIP2_IPAdrDupErr* (Port2 IP Address Duplication Error) • *_EIP2_BootpErr* (Port2 BOOTP Server Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for the NX701 CPU Units.	WORD	16#0000 to 16#00F0

Variable name	Meaning	Function	Data type	Range of values
_EIP_CipErr	CIP Communications Error	This is the error status variable for CIP communications. NX-series CPU Units: Represents the collective status of the following error flags. • *_EIP1_IdentityErr* (CIP Communications1 Identity Error) • *_EIP1_TDLinkCfgErr* (CIP Communications1 Tag Data Link Setting Error) • *_EIP1_TDLinkOpnErr* (CIP Communications1 Tag Data Link Connection Failed) • *_EIP1_TDLinkErr* (CIP Communications1 Tag Data Link Communications Error) • *_EIP1_TagAdrErr* (CIP Communications1 Tag Name Resolution Error) • *_EIP1_MultiSwONErr* (CIP Communications1 Multiple Switches ON Error) NJ-series CPU Units: Represents the collective status of the following error flags. • *_EIP_IdentityErr* (Identity Error) • *_EIP_TDLinkCfgErr* (Tag Data Link Setting Error) • *_EIP_TDLinkOpnErr* (Tag Data Link Connection Failed) • *_EIP_TDLinkErr* (Tag Data Link Communications Error) • *_EIP_TagAdrErr* (Tag Name Resolution Error) • *_EIP_MultiSwONErr* (Multiple Switches ON Error) **Note** If a Tag Name Resolution Error occurs, it is recorded in the event log and this variable changes to TRUE. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP1_CipErr	CIP Communications1 Error	This is the error status variable for CIP communications 1. It represents the collective status of the following error flags. • *_EIP1_IdentityErr* (CIP Communications1 Identity Error) • *_EIP1_TDLinkCfgErr* (CIP Communications1 Tag Data Link Setting Error) • *_EIP1_TDLinkOpnErr* (CIP Communications1 Tag Data Link Connection Failed) • *_EIP1_TDLinkErr* (CIP Communications1 Tag Data Link Communications Error) • *_EIP1_TagAdrErr* (CIP Communications1 Tag Name Resolution Error) • *_EIP1_MultiSwONErr* (CIP Communications1 Multiple Switches ON Error) **Note** If a Tag Name Resolution Error occurs, it is recorded in the event log and this variable changes to TRUE. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for NX-series CPU Units.	WORD	16#0000 to 16#00F0

Variable name	Meaning	Function	Data type	Range of values
_EIP2_CipErr	CIP Communications2 Error	This is the error status variable for CIP communications 2. It represents the collective status of the following error flags. • *_EIP2_IdentityErr* (CIP Communications2 Identity Error) • *_EIP2_TDLinkCfgErr* (CIP Communications2 Tag Data Link Setting Error) • *_EIP2_TDLinkOpnErr* (CIP Communications2 Tag Data Link Connection Failed) • *_EIP2_TDLinkErr* (CIP Communications2 Tag Data Link Communications Error) • *_EIP2_TagAdrErr* (CIP Communications2 Tag Name Resolution Error) • *_EIP2_MultiSwONErr* (CIP Communications2 Multiple Switches ON Error) **Note** If a Tag Name Resolution Error occurs, it is recorded in the event log and this variable changes to TRUE. Refer to information on the meanings of the error status bits at the end of this appendix for details. **Note** You can use this system-defined variable only for the NX701 CPU Units.	WORD	16#0000 to 16#00F0
_EIP_TcpAppErr	TCP Application Communications Error	This is the error status variable for TCP application communications. It represents the collective status of the following error flags. • *_EIP_TcpAppCfgErr* (TCP Application Setting Error) • *_EIP_NTPSrvErr* (NTP Server Connection Error) **Note** Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP_MacAdrErr	MAC Address Error	NX-series CPU Units: Indicates that an error occurred when the MAC address was read on the communications port 1 at startup. TRUE: Error FALSE: Normal NJ-series CPU Units: Indicates that an error occurred when the MAC address was read at startup. TRUE: Error FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_MacAdrErr	Port1 MAC Address Error	Indicates that an error occurred when the MAC address was read on the communications port 1 at startup. TRUE: Error FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_MacAdrErr	Port2 MAC Address Error	Indicates that an error occurred when the MAC address was read on the communications port 2 at startup. TRUE: Error FALSE: Normal **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_LanHwErr	Communications Controller Error	NX-series CPU Units: Indicates that a communications controller failure occurred on the communications port 1. TRUE: Failure FALSE: Normal NJ-series CPU Units: Indicates that a communications controller failure occurred. TRUE: Failure FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_LanHwErr	Port1 Communications Controller Error	Indicates that a communications controller failure occurred on the communications port 1. TRUE: Failure FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_LanHwErr	Port2 Communications Controller Error	Indicates that a communications controller failure occurred on the communications port 2. TRUE: Failure FALSE: Normal **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_EtnCfgErr	Basic Ethernet Setting Error	NX-series CPU Units: Indicates that the Ethernet communications speed setting (Speed/Duplex) for the communications port 1 is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal NJ-series CPU Units: Indicates that the Ethernet communications speed setting (Speed/Duplex) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_EtnCfgErr	Port1 Basic Ethernet Setting Error	Indicates that the Ethernet communications speed setting (Speed/Duplex) for the communications port 1 is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_EtnCfgErr	Port2 Basic Ethernet Setting Error	Indicates that the Ethernet communications speed setting (Speed/Duplex) for the communications port 2 is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_IPAdrCfgErr	IP Address Setting Error	NX-series CPU Units: Indicates the IP address setting errors for the communications port 1. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal NJ-series CPU Units: Indicates the IP address setting errors. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. • The default gateway settings are not correct. FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_IPAdrCfgErr	Port1 IP Address Setting Error	Indicates the IP address setting errors for the communications port 1. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_IPAdrCfgErr	Port2 IP Address Setting Error	Indicates the IP address setting errors for the communications port 2. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal **Note** You can use this system-defined variable only for NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_IPAdrDupErr	IP Address Duplication Error	NX-series CPU Units: Indicates that the same IP address is assigned to more than one node for the communications port 1. TRUE: Duplication occurred. FALSE: Other than the above. NJ-series CPU Units: Indicates that the same IP address is assigned to more than one node. TRUE: Duplication occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP1_IPAdrDupErr	Port1 IP Address Duplication Error	Indicates that the same IP address is assigned to more than one node for the communications port 1. TRUE: Duplication occurred. FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_IPAdrDupErr	Port2 IP Address Duplication Error	Indicates that the same IP address is assigned to more than one node for the communications port 2. TRUE: Duplication occurred. FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_DNSCfgErr*1	DNS Setting Error	Indicates that the DNS or hosts settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP_BootpErr	BOOTP Server Error	NX-series CPU Units: Indicates that a BOOTP server connection failure occurred on the communications port 1. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server. NJ-series CPU Units: Indicates that a BOOTP server connection failure occurred. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server.	BOOL	TRUE or FALSE
_EIP1_BootpErr	Port1 BOOTP Server Error	Indicates that a BOOTP server connection failure occurred on the communications port 1. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_BootpErr	Port2 BOOTP Server Error	Indicates that a BOOTP server connection failure occurred on the communications port 2. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_IPRTblErr	IP Route Table Error	NX-series CPU Units: Indicates that the default gateway settings or IP router table settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal NJ-series CPU Units: Indicates that the IP router table or hosts settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP_IdentityErr	Identity Error	NX-series CPU Units: Indicates that the identity information for CIP communications 1 (which you cannot overwrite) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal NJ-series CPU Units: Indicates that the identity information (which you cannot overwrite) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_IdentityErr	CIP Communications1 Identity Error	Indicates that the identity information for CIP communications 1 (which you cannot overwrite) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_IdentityErr	CIP Communications2 Identity Error	Indicates that the identity information for CIP communications 2 (which you cannot overwrite) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkCfgErr	Tag Data Link Setting Error	NX-series CPU Units: Indicates that the tag data link settings for CIP communications 1 are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal NJ-series CPU Units: Indicates that the tag data link settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_TDLinkCfgErr	CIP Communications1 Tag Data Link Setting Error	Indicates that the tag data link settings for CIP communications 1 are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TDLinkCfgErr	CIP Communications2 Tag Data Link Setting Error	Indicates that the tag data link settings for CIP communications 2 are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkOpnErr	Tag Data Link Connection Failed	NX-series CPU Units: Indicates that establishing a tag data link connection for CIP communications 1 failed. TRUE: Establishing a tag data link connection failed due to one of the following causes. • The information registered for a target node in the tag data link parameters is different from the actual node information. • There was no response from the remote node. FALSE: Other than the above. NJ-series CPU Units: Indicates that establishing a tag data link connection failed. TRUE: Establishing a tag data link connection failed due to one of the following causes. • The information registered for a target node in the tag data link parameters is different from the actual node information. • There was no response from the remote node. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP1_TDLinkOpnErr	CIP Communications1 Tag Data Link Connection Failed	Indicates that establishing a tag data link connection for CIP communications 1 failed. TRUE: Establishing a tag data link connection failed due to one of the following causes. • The information registered for a target node in the tag data link parameters is different from the actual node information. • There was no response from the remote node. FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_TDLinkOpnErr	CIP Communications2 Tag Data Link Connection Failed	Indicates that establishing a tag data link connection for CIP communications 2 failed. TRUE: Establishing a tag data link connection failed due to one of the following causes. • The information registered for a target node in the tag data link parameters is different from the actual node information. • There was no response from the remote node. FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkErr	Tag Data Link Communications Error	NX-series CPU Units: Indicates that a timeout occurred in a tag data link connection for CIP communications 1. TRUE: A timeout occurred. FALSE: Other than the above. NJ-series CPU Units: Indicates that a timeout occurred in a tag data link connection. TRUE: A timeout occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP1_TDLinkErr	CIP Communications1 Tag Data Link Communications Error	Indicates that a timeout occurred in a tag data link connection for CIP communications 1. TRUE: A timeout occurred. FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TDLinkErr	CIP Communications2 Tag Data Link Communications Error	Indicates that a timeout occurred in a tag data link connection for CIP communications 2. TRUE: A timeout occurred. FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TagAdrErr	Tag Name Resolution Error	NX-series CPU Units: Indicates that tag resolution for CIP communications 1 failed (i.e., the address could not be identified from the tag name). TRUE: Tag resolution failed (i.e., the address could not be identified from the tag name). The following causes are possible. • The size of the network variable is different from the tag settings. • The I/O direction that is set in the tag data link settings does not agree with the I/O direction of the variable in the CPU Unit. • There is no network variable in the CPU Unit that corresponds to the tag setting. FALSE: Other than the above. NJ-series CPU Units: Indicates that tag resolution failed (i.e., the address could not be identified from the tag name). TRUE: Tag resolution failed (i.e., the address could not be identified from the tag name). The following causes are possible. • The size of the network variable is different from the tag settings. • The I/O direction that is set in the tag data link settings does not agree with the I/O direction of the variable in the CPU Unit. • There is no network variable in the CPU Unit that corresponds to the tag setting. FALSE: Other than the above.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_TagAdrErr	CIP Communications1 Tag Name Resolution Error	Indicates that tag resolution for CIP communications 1 failed (i.e., the address could not be identified from the tag name). TRUE: Tag resolution failed (i.e., the address could not be identified from the tag name). The following causes are possible. • The size of the network variable is different from the tag settings. • The I/O direction that is set in the tag data link settings does not agree with the I/O direction of the variable in the CPU Unit. • There is no network variable in the CPU Unit that corresponds to the tag setting. FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TagAdrErr	CIP Communications2 Tag Name Resolution Error	Indicates that tag resolution for CIP communications 2 failed (i.e., the address could not be identified from the tag name). TRUE: Tag resolution failed (i.e., the address could not be identified from the tag name). The following causes are possible. • The size of the network variable is different from the tag settings. • The I/O direction that is set in the tag data link settings does not agree with the I/O direction of the variable in the CPU Unit. • There is no network variable in the CPU Unit that corresponds to the tag setting. FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_MultiSwONErr	Multiple Switches ON Error	NX-series CPU Units: Indicates that more than one switch turned ON at the same time in CIP communications 1. TRUE: More than one data link start/stop switch changed to TRUE at the same time. FALSE: Other than the above. NJ-series CPU Units: Indicates that more than one switch turned ON at the same time. TRUE: More than one data link start/stop switch changed to TRUE at the same time. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP1_MultiSwONErr	CIP Communications1 Multiple Switches ON Error	Indicates that more than one switch turned ON at the same time in CIP communications 1. TRUE: More than one data link start/stop switch changed to TRUE at the same time. FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_MultiSwONErr	CIP Communications2 Multiple Switches ON Error	Indicates that more than one switch turned ON at the same time in CIP communications 2. TRUE: More than one data link start/stop switch changed to TRUE at the same time. FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TcpAppCfgErr	TCP Application Setting Error	TRUE: At least one of the set values for a TCP application (FTP, NTP, SNMP) is incorrect. Or, a read operation failed. FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP_NTPSrvErr	NTP Server Connection Error	TRUE: The NTP client failed to connect to the server (timeout). FALSE: NTP is not set or the connection was successful.	BOOL	TRUE or FALSE
_EIP_DNSSrvErr	DNS Server Connection Error	TRUE: The DNS client failed to connect to the server (timeout). FALSE: DNS is not enabled. Or, DNS is enabled and the connection was successful.	BOOL	TRUE or FALSE

*1 With the NJ-series CPU Unit, this variable can be used with the unit version 1.11 or later.

Hierarchical Relationship of System-defined Variables Related to EtherNet/IP Errors in the NJ-series CPU Unit

The system-defined variables that are related to EtherNet/IP errors have the following hierarchical relationship. For example, if the value of any of the *_EIP_PortErr*, *_EIP_CipErr*, or *_EIP_TcpAppErr* variables in the second level is TRUE, then the *_EIP_ErrSta* variable in the first level also changes to TRUE. Therefore, you can check the values of system-defined variables in a higher level to see if an error has occurred for a variable in a lower level.

Level 1		Level 2		Level 3	
Variable	Name	Variable	Name	Variable	Name
_EIP_ErrSta	Built-in EtherNet/IP Error	_EIP_PortErr	Communications Port Error	_EIP_MacAdrErr	MAC Address Error
				_EIP_LanHwErr	Communications Controller Error
				_EIP_EtnCfgErr	Basic Ethernet Settings Error
				_EIP_IPAdrCfgErr	IP Address Setting Error
				_EIP_IPAdrDupErr	IP Address Duplication Error
				_EIP_BootpErr	BOOTP Server Error
				_EIP_DNSSrvErr	DNS Server Connection Error
				_EIP_IPRTblErr	IP Route Table Error
		_EIP_CipErr	CIP Communications Error	_EIP_IdentityErr	Identity Error
				_EIP_TDLinkCfgErr	Tag Data Link Setting Error
				_EIP_TDLinkOpnErr	Tag Data Link Connection Failed
				_EIP_TDLinkErr	Tag Data Link Communications Error
				_ EIP_TagAdrErr	Tag Name Resolution Error
				_EIP_MultiSwONErr	Multiple Switches ON Error
		_EIP_TcpAppErr	TCP Application Communications Error	_EIP_TcpAppCfgErr	TCP Application Setting Error
				_EIP_NTPSrvErr	NTP Server Connection Error

Hierarchical Relationship of System-defined Variables Related to EtherNet/IP Errors in the NX-series CPU Unit

The system-defined variables that are related to EtherNet/IP errors have the following hierarchical relationship. For example, if the value of any of the *_EIP1_PortErr*, *_EIP2_PortErr*, *EIP1_CipErr*, *_EIP2_CipErr*, and *_EIP_TcpAppErr* variables in the second level is TRUE, then the *_EIP_ErrSta* variable in the first level also changes to TRUE. Therefore, you can check the values of system-defined variables in a higher level to see if an error has occurred for a variable in a lower level.

Level 1		Level 2		Level 3	
Variable	Name	Variable	Name	Variable	Name
_EIP_ErrSta	Built-in EtherNet/IP Error	_EIP1_PortErr	Communications Port1 Error	_EIP1_MacAdrErr	Port1 MAC Address Error
				_EIP1_LanHwErr	Port1 Communications Controller Error
				_EIP1_EtnCfgErr	Port1 Basic Ethernet Setting Error
				_EIP1_IPAdrCfgErr	Port1 IP Address Setting Error
				_EIP1_IPAdrDupErr	Port1 IP Address Duplication Error
				_EIP1_BootpErr	Port1 BOOTP Server Error
				_EIP_DNSCfgErr	DNS Setting Error
				_EIP_DNSSrvErr	DNS Server Connection Error
				_EIP_IPRTblErr	IP Route Table Error
		_EIP2_PortErr	Communications Port2 Error	_EIP2_MacAdrErr	Port2 MAC Address Error
				_EIP2_LanHwErr	Port2 Communications Controller Error
				_EIP2_EtnCfgErr	Port2 Basic Ethernet Setting Error
				_EIP2_IPAdrCfgErr	Port2 IP Address Setting Error
				_EIP2_IPAdrDupErr	Port2 IP Address Duplication Error
				_EIP2_BootpErr	Port2 BOOTP Server Error
				_EIP_DNSCfgErr	DNS Setting Error
				_EIP_DNSSrvErr	DNS Server Connection Error
				_EIP_IPRTblErr	IP Route Table Error
		_EIP1_CipErr	CIP Communications1 Error	_EIP1_IdentityErr	CIP Communications1 Identity Error
				_EIP1_TDLinkCfgErr	CIP Communications1 Tag Data Link Setting Error
				_EIP1_TDLinkOpnErr	CIP Communications1 Tag Data Link Connection Failed
				_EIP1_TDLinkErr	CIP Communications1 Tag Data Link Communications Error
				_EIP1_TagAdrErr	CIP Communications1 Tag Name Resolution Error
				_EIP1_MultiSwONErr	CIP Communications1 Multiple Switches ON Error
		_EIP2_CipErr	CIP Communications2 Error	_EIP2_IdentityErr	CIP Communications2 Identity Error
				_EIP2_TDLinkCfgErr	CIP Communications2 Tag Data Link Setting Error
				_EIP2_TDLinkOpnErr	CIP Communications2 Tag Data Link Connection Failed
				_EIP2_TDLinkErr	CIP Communications2 Tag Data Link Communications Error
				_EIP2_TagAdrErr	CIP Communications2 Tag Name Resolution Error
				_EIP2_MultiSwONErr	CIP Communications2 Multiple Switches ON Error
		_EIP_TcpAppErr	TCP Application Communications Error	_EIP_TcpAppCfgErr	TCP Application Setting Error
				_EIP_NTPSrvErr	NTP Server Connection Error

Note You can access the same values of the system-defined variables whose variable names with *_EIP1* and the system-defined variables whose variable names with *_EIP*. For example, you can access the same values of *_EIP1_PortErr* (Communications Port1 Error) and *_EIP_PortErr* (Communcations Port Error).

Note You can use the system-defined variables whose variable names with *_EIP2* only for the NX701 CPU Units.

● Functional Classification: EtherNet/IP Communications Status

Variable name	Meaning	Function	Data type	Range of values
_EIP_EtnOnlineSta	Online	NX-series CPU Units: Indicates that the built-in EtherNet/IP port's communications can be used via the communications port 1 (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status. NJ-series CPU Units: Indicates that the built-in EtherNet/IP port's communications can be used via the communications port (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status.	BOOL	TRUE or FALSE
_EIP1_EtnOnlineSta	Port1 Online	Indicates that the built-in EtherNet/IP port's communications can be used via the communications port 1 (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_EtnOnlineSta	Port2 Online	Indicates that the built-in EtherNet/IP port's communications can be used via the communications port 2 (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkRunSta	Tag Data Link Communications Status	NX-series CPU Units: Indicates that at least one connection is in normal operation in CIP communications 1. TRUE: Normal operation FALSE: Other than the above. NJ-series CPU Units: Indicates that at least one connection is in normal operation. TRUE: Normal operation FALSE: Other than the above.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_TDLinkRunSta	CIP Communications1 Tag Data Link Communications Status	Indicates that at least one connection is in normal operation in CIP communications 1. TRUE: Normal operation FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TDLinkRunSta	CIP Communications2 Tag Data Link Communications Status	Indicates that at least one connection is in normal operation in CIP communications 2. TRUE: Normal operation FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkAllRunSta	All Tag Data Link Communications Status	NX-series CPU Units: Indicates that all tag data links are communicating in CIP communications 1. TRUE: Tag data links are communicating in all connections as the originator. FALSE: An error occurred in at least one connection. NJ-series CPU Units: Indicates that all tag data links are communicating. TRUE: Tag data links are communicating in all connections as the originator. FALSE: An error occurred in at least one connection.	BOOL	TRUE or FALSE
_EIP1_TDLinkAllRunSta	CIP Communications1 All Tag Data Link Communications Status	Indicates that all tag data links are communicating in CIP communications 1. TRUE: Tag data links are communicating in all connections as the originator. FALSE: An error occurred in at least one connection. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TDLinkAllRunSta	CIP Communications2 All Tag Data Link Communications Status	Indicates that all tag data links are communicating in CIP communications 2. TRUE: Tag data links are communicating in all connections as the originator. FALSE: An error occurred in at least one connection. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_RegTargetSta[255]	Registered Target Node Information	NX-series CPU Units: Gives a list of nodes for which built-in EtherNet/IP connections are registered for CIP communications 1. This variable is valid only when the built-in EtherNet/IP port is the originator. *Array[x]* is TRUE: The connection to the node with a target node ID of x is registered. *Array[x]* is FALSE: The connection to the node with a target node ID of x is not registered. NJ-series CPU Units: Gives a list of nodes for which built-in EtherNet/IP connections are registered. This variable is valid only when the built-in EtherNet/IP port is the originator. *Array[x]* is TRUE: The connection to the node with a target node ID of x is registered. *Array[x]* is FALSE: The connection to the node with a target node ID of x is not registered.	ARRAY [0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_RegTargetSta [255]	CIP Communications1 Registered Target Node Information	Gives a list of nodes for which built-in EtherNet/IP connections are registered for CIP communications 1. This variable is valid only when the built-in EtherNet/IP port is the originator. *Array[x]* is TRUE: The connection to the node with a target node ID of x is registered. *Array[x]* is FALSE: The connection to the node with a target node ID of x is not registered. **Note** You can use this system-defined variable only for NX-series CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP2_RegTargetSta [255]	CIP Communications2 Registered Target Node Information	Gives a list of nodes for which built-in EtherNet/IP connections are registered for CIP communications 2. This variable is valid only when the built-in EtherNet/IP port is the originator. *Array[x]* is TRUE: The connection to the node with a target node ID of x is registered. *Array[x]* is FALSE: The connection to the node with a target node ID of x is not registered. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_EstbTargetSta [255]	Normal Target Node Information	NX-series CPU Units: Gives a list of nodes that have normally established EtherNet/IP connections for CIP communications 1. *Array[x]* is TRUE: The connection to the node with a target node ID of x was established normally. *Array[x]* is FALSE: The connection to the node with a target node ID of x was not established, or an error occurred. NJ-series CPU Units: Gives a list of nodes that have normally established EtherNet/IP connections. *Array[x]* is TRUE: The connection to the node with a target node ID of x was established normally. *Array[x]* is FALSE: The connection to the node with a target node ID of x was not established, or an error occurred.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP1_EstbTargetSta [255]	CIP Communications1 Normal Target Node Information	Gives a list of nodes that have normally established EtherNet/IP connections for CIP communications 1. *Array[x]* is TRUE: The connection to the node with a target node ID of x was established normally. *Array[x]* is FALSE: The connection to the node with a target node ID of x was not established, or an error occurred. **Note** You can use this system-defined variable only for NX-series CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_EstbTargetSta [255]	CIP Communications2 Normal Target Node Information	Gives a list of nodes that have normally established EtherNet/IP connections for CIP communications 2. *Array[x]* is TRUE: The connection to the node with a target node ID of x was established normally. *Array[x]* is FALSE: The connection to the node with a target node ID of x was not established, or an error occurred. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_TargetPLCModeSta [255]	Target PLC Operating Mode	NX-series CPU Units: Shows the operating status of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP port as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. If the corresponding Normal Target Node Information is FALSE, the Target Node Controller Operating Information indicates the previous operating status. *Array[x]* is TRUE: This is the operating state of the target Controller with a node address of x. *Array[x]* is FALSE: Other than the above. NJ-series CPU Units: Shows the operating status of the target node Controllers that are connected with the built-in EtherNet/IP port as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. If the corresponding Normal Target Node Information is FALSE, the Target Node Controller Operating Information indicates the previous operating status. *Array[x]* is TRUE: This is the operating state of the target Controller with a node address of x. *Array[x]* is FALSE: Other than the above.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP1_TargetPLCModeSta [255]	CIP Communications1 Target PLC Operating Mode	Shows the operating status of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP port as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. If the corresponding Normal Target Node Information is FALSE, the Target Node Controller Operating Information indicates the previous operating status. *Array[x]* is TRUE: This is the operating state of the target Controller with a node address of x. *Array[x]* is FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_TargetPLC-ModeSta [255]	CIP Communications2 Target PLC Operating Mode	Shows the operating status of the target node Controllers that are connected for CIP communications 2, with the built-in EtherNet/IP port as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. If the corresponding Normal Target Node Information is FALSE, the Target Node Controller Operating Information indicates the previous operating status. *Array[x]* is TRUE: This is the operating state of the target Controller with a node address of x. *Array[x]* is FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_TargetPLCErr [255]	Target PLC Error Information	NX-series CPU Units: Shows the error status (logical OR of fatal and non-fatal errors) of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP ports as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. The immediately preceding value is retained if this variable is FALSE. *Array[x]* is TRUE: A fatal or non-fatal error occurred in the target Controller with a target node ID of x. *Array[x]* is FALSE: Other than the above. NJ-series CPU Units: Shows the error status (logical OR of fatal and non-fatal errors) of the target node Controllers that are connected with the built-in EtherNet/IP ports as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. The immediately preceding value is retained if this variable is FALSE. *Array[x]* is TRUE: A fatal or non-fatal error occurred in the target Controller with a target node ID of x. *Array[x]* is FALSE: Other than the above.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP1_TargetPLCErr [255]	CIP Communications1 Target PLC Error Information	Shows the error status (logical OR of fatal and non-fatal errors) of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP ports as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. The immediately preceding value is retained if this variable is FALSE. *Array[x]* is TRUE: A fatal or non-fatal error occurred in the target Controller with a target node ID of x. *Array[x]* is FALSE: Other than the above. **Note** You can use this system-defined variable only for NX-series CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_TargetPLCErr [255]	CIP Communications2 Target PLC Error Information	Shows the error status (logical OR of fatal and non-fatal errors) of the target node Controllers that are connected for CIP communications 2, with the built-in EtherNet/IP ports as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. The immediately preceding value is retained if this variable is FALSE. *Array[x]* is TRUE: A fatal or non-fatal error occurred in the target Controller with a target node ID of x. *Array[x]* is FALSE: Other than the above. **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_TargetNodeErr [255]	Target Node Error Information	NX-series CPU Units: Indicates that the connection for the Registered Target Node Information for CIP communications 1 was not established or that an error occurred in the target Controller. The array elements are valid only when the Registered Target Node Information is TRUE. *Array[x]* is TRUE: A connection was not normally established with the target node for a target node ID of x (the Registered Target Node Information is TRUE and the Normal Target Node Information is FALSE), or a connection was established with the target node but an error occurred in the target Controller. *Array[x]* is FALSE: The target node is not registered for a target node ID of x (the Registered Target Node Information is FALSE), or a connection was normally established with the target node (the Registered Target Node Information is TRUE and the Normal Target Node Information is TRUE). An error occurred in the target Controller (the Target PLC Error Information is TRUE). NJ-series CPU Units: Indicates that the connection for the Registered Target Node Information was not established or that an error occurred in the target Controller. The array elements are valid only when the Registered Target Node Information is TRUE. *Array[x]* is TRUE: A connection was not normally established with the target node for a target node ID of x (the Registered Target Node Information is TRUE and the Normal Target Node Information is FALSE), or a connection was established with the target node but an error occurred in the target Controller. *Array[x]* is FALSE: The target node is not registered for a target node ID of x (the Registered Target Node Information is FALSE), or a connection was normally established with the target node (the Registered Target Node Information is TRUE and the Normal Target Node Information is TRUE). An error occurred in the target Controller (the Target PLC Error Information is TRUE).	ARRAY [0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_Target-NodeErr [255]	CIP Communications1 Target Node Error Information	Indicates that the connection for the Registered Target Node Information for CIP communications 1 was not established or that an error occurred in the target Controller. The array elements are valid only when the Registered Target Node Information is TRUE. *Array[x]* is TRUE: A connection was not normally established with the target node for a target node ID of x (the Registered Target Node Information is TRUE and the Normal Target Node Information is FALSE), or a connection was established with the target node but an error occurred in the target Controller. *Array[x]* is FALSE: The target node is not registered for a target node ID of x (the Registered Target Node Information is FALSE), or a connection was normally established with the target node (the Registered Target Node Information is TRUE and the Normal Target Node Information is TRUE). An error occurred in the target Controller (the Target PLC Error Information is TRUE). **Note** You can use this system-defined variable only for NX-series CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP2_Target-NodeErr [255]	CIP Communications2 Target Node Error Information	Indicates that the connection for the Registered Target Node Information for CIP communications 2 was not established or that an error occurred in the target Controller. The array elements are valid only when the Registered Target Node Information is TRUE. *Array[x]* is TRUE: A connection was not normally established with the target node for a target node ID of x (the Registered Target Node Information is TRUE and the Normal Target Node Information is FALSE), or a connection was established with the target node but an error occurred in the target Controller. *Array[x]* is FALSE: The target node is not registered for a target node ID of x (the Registered Target Node Information is FALSE), or a connection was normally established with the target node (the Registered Target Node Information is TRUE and the Normal Target Node Information is TRUE). An error occurred in the target Controller (the Target PLC Error Information is TRUE). **Note** You can use this system-defined variable only for the NX701 CPU Units.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_NTPResult	NTP Operation Information	Use the GetNTPStatus instruction to read the NTP operation information from the user program. Direct access is not possible.	_sNTP_RESULT	

Variable name	Meaning	Function	Data type	Range of values
.ExecTime	NTP Last Operation Time	Gives the last time that NTP processing ended normally. The time that was obtained from the NTP server is stored when the time is obtained normally. The time is not stored if it is not obtained from the NTP server normally. **Note** Do not use this variable in the user program. There may be a delay in updating it. Use this variable only to access status through communications from an external device.	DATE_AND_TIME	Depends on data type.
.ExecNormal	NTP Operation Result	TRUE: Indicates an NTP normal end. FALSE: Indicates that NTP operation ended in an error or has not been executed even once. **Note** Do not use this variable in the user program. There may be a delay in updating it. Use this variable only to access status through communications from an external device.	BOOL	TRUE or FALSE

Additional Information

Communications Status with Target Node

The communications status with the target node of an NJ/NX-series Controller is shown by the combination of the values of four system-defined variables.

- *_EIP_RegTargetSta* (Registered Target Node Information)
- *_EIP_EstbTargetSta* (Normal Target Node Information)
- *_EIP_TargetPLCErr* (Target PLC Error Information)
- *_EIP_TargetNodeErr* (Target Node Error Information)

Value of *_EIP_RegTargetSta*	Value of *_EIP_EstbTargetSta*	Value of *_EIP_TargetPLCErr*	Value of *_EIP_TargetNodeErr*	Communications status with target node
TRUE	TRUE	FALSE	FALSE	A connection with the target node was established normally and there is no error in the target PLC.
		TRUE	TRUE	A connection with the target node was established but there is an error in the target PLC.
	FALSE	Disabled	TRUE	A connection with the target node was not established normally.
FALSE	Disabled	Disabled	Disabled	The information is not valid because the target node is not registered.

For the NX-series Controller, the communications status of CIP communications 1 and CIP communications 2 is shown by the combination of the values of four system-defined variables in the same way as shown in the above table.

- CIP Communications 1
  - *_EIP1_RegTargetSta* (CIP Communications1 Registered Target Node Information)
  - *_EIP1_EstbTargetSta* (CIP Communications1 Normal Target Node Information)
  - *_EIP1_TargetPLCErr* (CIP Communications1 Target PLC Error Information)
  - *_EIP_TargetNodeErr* (Target Node Error Information)
- CIP Communications 2
  - *_EIP2_RegTargetSta* (CIP Communications2 Registered Target Node Information)
  - *_EIP2_EstbTargetSta* (CIP Communications2 Normal Target Node Information)
  - *_EIP2_TargetPLCErr* (CIP Communications2 Target PLC Error Information)
  - *_EIP_TargetNodeErr* (Target Node Error Information)

● Functional Classification: EtherNet/IP Communications Switches

Variable name	Meaning	Function	Data type	Range of values
_EIP_TDLinkStart-Cmd	Tag Data Link Communications Start Switch	NX-series CPU Units: Change this variable to TRUE to start tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation starts. NJ-series CPU Units: Change this variable to TRUE to start tag data links. It automatically changes back to FALSE after tag data link operation starts. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically.	BOOL	TRUE or FALSE
_EIP1_TDLinkStart-Cmd	CIP Communications1 Tag Data Link Communications Start Switch	Change this variable to TRUE to start tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation starts. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE
_EIP2_TDLinkStart-Cmd	CIP Communications2 Tag Data Link Communications Start Switch	Change this variable to TRUE to start tag data links for CIP communications 2. It automatically changes back to FALSE after tag data link operation starts. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE
_EIP_TDLinkStop-Cmd	Tag Data Link Communications Stop Switch	NX-series CPU Units: Change this variable to TRUE to stop tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation stops. NJ-series CPU Units: Change this variable to TRUE to stop tag data links. It automatically changes back to FALSE after tag data link operation stops. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically.	BOOL	TRUE or FALSE
_EIP1_TDLinkStop-Cmd	CIP Communications1 Tag Data Link Communications Stop Switch	Change this variable to TRUE to stop tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation stops. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically. **Note** You can use this system-defined variable only for NX-series CPU Units.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP2_TDLinkStop-Cmd	CIP Communica-tions2 Tag Data Link Communications Stop Switch	Change this variable to TRUE to stop tag data links for CIP communications 2. It automatically changes back to FALSE after tag data link operation stops. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically. **Note** You can use this system-defined variable only for the NX701 CPU Units.	BOOL	TRUE or FALSE

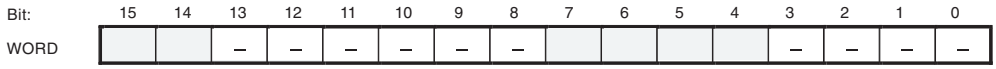
Meanings of Error Status Bits

The meanings of the individual bits in the following error status are the same.

- *_ErrSta* (Controller Error Status)
- *_PLC_ErrSta* (PLC Function Module Error Status)
- *_CJB_ErrSta* (I/O Bus Error Status)
- *_CJB_MstrErrSta* (I/O Bus Master Error Status)
- *_CJB_UnitErrSta* (I/O Bus Unit Error Status)
- *_NXB_ErrSta* (NX Bus Function Module Error Status)
- *_NXB_MstrErrSta* (NX Bus Function Module Master Error Status)
- *_NXB_UnitErrStaTbl* (NX Bus Function Module Unit Error Status)
- *_MC_ErrSta* (Motion Control Function Module Error Status)
- *_MC_ComErrSta* (MC Common Error Status)
- *_MC_AX_ErrSta* (Axis Error Status)
- *_MC_GRP_ErrSta* (Axes Group Error Status)
- *_EC_ErrSta* (Built-in EtherCAT Error)
- *_EC_PortErr* (Communications Port Error)
- *_EC_MstrErr* (Master Error)
- *_EC_SlavErr* (Slave Error)
- *_EC_SlavErrTbl* (Slave Error Table)
- *_EIP_ErrSta* (Built-in EtherNet/IP Error)
- *EIP_PortErr* (Communications Port Error), *_EIP1_PortErr* (Communications Port1 Error), and *_EIP2_PortErr* (Communications Port2 Error)
- *_EIP_CipErr* (CIP Communications Error), *_EIP1_CipErr* (CIP Communications1 Error), and *_EIP2_CipErr* (CIP Communications2 Error)
- *_EIP_TcpAppErr* (TCP Application Communications Error)

The meaning of the bits are shown in the following table.
However, do not use the following variables in the user program:*_ErrSta* (Controller Error Status), *_CJB_ErrSta* (I/O Bus Error Status), *_CJB_MstrErrSta* (I/O Bus Master Error Status), *_CJB_UnitErrSta* (I/O Bus Master Unit Status), *_NXB_ErrSta* (NX Bus Function Module Error Status), *_NXB_MstrErrSta* (NX Bus Function Module Master Error Status), and *_NXB_UnitErrStaTbl* (NX Bus Function Module Unit Error Status). There may be a delay in updating them and concurrency problems in relation to the error status of the function module.

Use these variables only to access status through communications from an external device.



Bit	Meaning
15	Master-detected error: This bit indicates whether the master detected a Controller error in the Unit/slave for the error status of the Controller error. TRUE: The master detected a Controller error. FALSE: The master has not detected a Controller error. (Valid for *_CJB_U_ErrSta*)
14	Collective slave error status: This bit indicates if a Controller error was detected for levels (e.g., a Unit, slave, axis, or axes group) that are lower than the event source (i.e., for a function module). TRUE: A Controller error has occurred at a lower level. FALSE: A Controller error has not occurred at a lower level. (Valid for *_CJB_ErrSta, _MC_ErrSta,* and *_EC_ErrSta*.)
8 to 13	Reserved.
7	This bit indicates whether a major fault level Controller error has occurred. TRUE: A major fault level Controller error has occurred. FALSE: A major fault level Controller error has not occurred.
6	This bit indicates whether a partial fault level Controller error has occurred. TRUE: A partial fault level Controller error has occurred. FALSE: A partial fault level Controller error has not occurred.
5	This bit indicates whether a minor fault level Controller error has occurred. TRUE: A minor fault level Controller error has occurred. FALSE: A minor fault level Controller error has not occurred.
4	This bit indicates whether an observation level Controller error has occurred. TRUE: An observation level Controller error has occurred. FALSE: An observation level Controller error has not occurred.
0 to 3	Reserved.

NY-series System-defined Variables

System-defined variables are assigned specific functions by the system. They are registered in the global variable table, or the local variable table for each POU, in advance.

These variables cannot be changed. Some of the variables start with an underbar and some start with ”P_”.

Some of the system-defined variables are read-only and some are read/write.

You read and write the variables with the user program, with communications from external devices, with the Sysmac Studio, or with an NS/NA-series PT.

Basically, system-defined variables are classified according to the function modules. The variables start with the following category names.

Function module	Category name
System-defined variables for the overall NY-series Controller	None
PLC Function Module	_PLC
Motion Control Function Module	_MC
EtherCAT Master Function Module	_EC
EtherNet/IP Function Module	_EIP, _EIP1, and _EIPIn1

The variables are described in the tables of this appendix as shown below.

Variable name	Meaning	Function	Data type	Range of values
This is the system-defined variable name. The prefix gives the category name.	This is the meaning of the variable.	The function of the variable is described.	The data type of the variable is given.	The range of values that the variable can take is given.

A version in parentheses in the *Variable name* column is the unit version of the NY-series Controller when the system-defined variable was added.

Precautions for Correct Use

There are system-defined variables that are not supported or differ in specifications such as the number of arrays. Refer to *NY-series Industrial Panel PC / Industrial Box PC Software User's Manual (Cat. No. W558)* for details on the specifications for individual system-defined variables.

System-defined Variables for the Overall NY-series Controller (No Category)

● Functional Classification: Clock

Variable name	Meaning	Function	Data type	Range of values
_CurrentTime	System Time	Contains the Controller's internal clock data.	DATE_ AND_ TIME	DT#2000-01-01-00:00:00 to DT#2099-12-31-23:59:59

● Functional Classification: Tasks

Variable name	Meaning	Function	Data type	Range of values
*_TaskName_* Active	Task Active Flag	TRUE during task execution. FALSE when task execution is not in progress. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
*_TaskName_* LastExecTime	Last Task Execution Time	Contains the task execution time the last time the task was executed (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* MaxExecTime	Maximum Task Execution Time	Contains the maximum value of the task execution time (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* MinExecTime	Minimum Task Execution Time	Contains the minimum value of the task execution time (unit: 0.1 μs). **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	TIME	Depends on data type.
*_TaskName_* ExecCount	Task Execution Count	Contains the number of executions of the task. If 4294967295 is exceeded, the value returns to 0 and counting is continued. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	UDINT	Depends on data type.
*_TaskName_* Exceeded	Task Period Exceeded Flag	TRUE if the task period was exceeded. FALSE if task execution was completed within the task period. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
*_TaskName_* ExceedCount	Task Period Exceeded Count	Contains the number of times that the period was exceeded. If the present value exceeds the maximum value of the data type, the present value returns to 0 and the count is continued. If 4294967295 is exceeded, the value returns to 0 and counting is continued. **Note** You cannot use this system-defined variable in the user program. It is used only to access task status for data tracing from the Sysmac Studio.	UDINT	Depends on data type.

Functional Classification: Errors

Variable name	Meaning	Function	Data type	Range of values
_ErrSta	Controller Error Status	TRUE if there is a Controller error. FALSE if there is no Controller error. **Note** Do not use this variable in the user program. There may be a delay in updating it and concurrency problems in relation to the error status of the function module. Use this variable only to access status through communications from an external device. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#C0F0
_AlarmFlag	User-defined Error Status	The bit corresponding to the event level is TRUE while there is a user-defined error. Bits 00 to 07 correspond to user fault levels 1 to 8. This variable contains 0000 hex when there is no user-defined error.	WORD	16#0000 to 16#00FF

Functional Classification: SD Memory Card

Variable name	Meaning	Function	Data type	Range of values
_Card1Ready	SD Memory Card Ready Flag	TRUE when the Virtual SD Memory Card is recognized in an NY-series Controller. FALSE when the Virtual SD Memory Card is not recognized. TRUE: The Card can be used. FALSE: The Card cannot be used.	BOOL	TRUE or FALSE
_Card1Protect	SD Memory Card Write Protected Flag	The NY-series Controller does not use this variable. The value is always FALSE.	BOOL	TRUE or FALSE
_Card1Err	SD Memory Card Error Flag	The NY-series Controller does not use this variable. The value is always FALSE.	BOOL	TRUE or FALSE
_Card1Access	SD Memory Card Access Flag	The NY-series Controller does not use this variable. The value is always FALSE.	BOOL	TRUE or FALSE
_Card1Deteriorated	SD Memory Card Life Warning Flag	The NY-series Controller does not use this variable. The value is always FALSE.	BOOL	TRUE or FALSE
_Card1PowerFail	SD Memory Card Power Interruption Flag	TRUE when the power supply to the Controller was interrupted during access to the Virtual SD Memory Card. TRUE: Power was interrupted during Virtual SD Memory Card access. FALSE: Normal	BOOL	TRUE or FALSE

Variable name / Member name	Meaning	Function	Data type	Range of values
_Card1BkupCmd	SD Memory Card Backup Commands		_sBKUP_CMD	
ExecBkup	Execute Backup Flag	Change this variable to TRUE to back up Controller data to a Virtual SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
CancelBkup	Cancel Backup Flag	Change this variable to TRUE to cancel backing up data to a Virtual SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
ExecVefy	Execute Verify Flag	Change this variable to TRUE to compare the Controller data to a backup file in the Virtual SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
CancelVefy	Cancel Verify Flag	Change this variable to TRUE to cancel comparing the Controller data to a backup file in the Virtual SD Memory Card. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
DirName	Directory Name	Used to specify the directory name in the Virtual SD Memory Card for which to back up or verify data. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	STRING(64)	Depends on data type.

Variable name / Member name	Meaning	Function	Data type	Range of values
_Card1BkupSta	SD Memory Card Backup Status		_sBKUP_STA	
Done	Done Flag	TRUE when a backup is completed. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Active	Active Flag	TRUE when a backup is in progress. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Err	Error Flag	TRUE when processing a backup ended in an error. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
_Card1VefySta	SD Memory Card Verify Status		_sVEFY_STA	
Done	Done Flag	TRUE when a verification is completed. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Active	Active Flag	TRUE when a verification is in progress. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
VefyRslt	Verify Result Flag	TRUE if the data was the same. FALSE if differences were found. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE
Err	Error Flag	TRUE when processing a verification ended in an error. **Note** You cannot use this system-defined variable in the user program. Use it in CIP message communications when sending a command from an HMI or host computer.	BOOL	TRUE or FALSE

● Functional Classification: Backup

Variable name	Meaning	Function	Data type	Range of values
_BackupBusy	Backup Function Busy Flag	TRUE when a backup, restoration, or verification is in progress.	BOOL	TRUE or FALSE

● Functional Classification: Power Supply

Variable name	Meaning	Function	Data type	Range of values
_PowerOnHour	Total Power ON Time	Contains the total time that the power has been ON. Contains the total time that the Controller has been ON in 1-hour increments. To reset this value, overwrite the current value with 0. The value is not updated after it reaches 4294967295. This variable is not initialized at startup.	UDINT	0 to 4294967295
_PowerOnCount	Power Interruption Count	Contains the number of times that the power supply has been interrupted. The value is incremented by 1 each time the power supply is interrupted after the first time that the power was turned ON. To reset this value, overwrite the current value with 0. The value is not updated after it reaches 4294967295. This variable is not initialized at startup.	UDINT	0 to 4294967295
_RetainFail	Retention Failure Flag	TRUE at the following time (failure of retention during power interruptions). • When an error is detected by checking the battery-backup memory or non-volatile memory at power ON. FALSE at the following times (no failure of retention during power interruptions). • When no error is detected by checking the battery-backup memory or non-volatile memory at power ON. • When the user program is downloaded. • When the Clear All Memory operation is performed. **Note** When the encoder home offset data is not retained, the status is given in the error status of the axis variable, and not in this flag.	BOOL	TRUE or FALSE
_SelfTest_UPSSignal	UPS Signal Detection Flag	TRUE when a temporary power interruption signal from UPS is detected.	BOOL	TRUE or FALSE
_RequestShutdown	Request Shutdown Flag	TRUE when the power supply button is pressed while running.	BOOL	TRUE or FALSE

● Functional Classification: OS (Windows)

Variable name	Meaning	Function	Data type	Range of values
_OSRunning	OS Running Flag	TRUE when the Controller observes that OS (Windows) is running.	BOOL	TRUE or FALSE
_OSHalted	OS Halted Flag	TRUE when the Controller observes that OS (Windows) is stopped.	BOOL	TRUE or FALSE
_OSErrorState	OS Error State Flag	TRUE when the Controller determines that an error occurred in OS (Windows).	BOOL	TRUE or FALSE

● Functional Classification: Programming

Variable name	Meaning	Function	Data type	Range of values
P_On	Always TRUE Flag	This flag is always TRUE.	BOOL	TRUE
P_Off	Always FALSE Flag	This flag is always FALSE.	BOOL	FALSE
P_CY	Carry Flag	This flag is updated by some instructions.	BOOL	TRUE or FALSE
P_First_RunMode	First RUN Period Flag	This flag is TRUE for only one task period after the operating mode of the Controller is changed from PROGRAM mode to RUN mode if execution of the program is in progress. This flag remains FALSE if execution of the program is not in progress. Use this flag to perform initial processing when the Controller begins operation. **Note** You cannot use this system-defined variable inside functions.	BOOL	TRUE or FALSE
P_First_Run	First Program Period Flag	This flag is TRUE for one task period after execution of the program starts. Use this flag to perform initial processing when execution of a program starts. **Note** You cannot use this system-defined variable inside functions.	BOOL	TRUE or FALSE
P_PRGER	Instruction Error Flag	This flag changes to and remains TRUE when an instruction error occurs in the program or in a function/function block called from the program. After this flag changes to TRUE, it stays TRUE until the user program changes it back to FALSE.	BOOL	TRUE or FALSE

● Functional Classification: Version

Variable name	Meaning	Function	Data type	Range of values
_UnitVersion	Unit Version	The unit version of the Controller is stored. The integer part of the unit version is stored in element number 0. The fractional part of the unit version is stored in element number 1. Example 1) If the unit version is 1.08, “1” is stored in element number 0 and “8” is stored in element number 1. Example 2) If the unit version is 1.10, “1” is stored in element number 0 and “10” is stored in element number 1.	ARRAY[0..1] OF USINT	0 to 99
_HardwareRevision	Hardware Revision	The hardware revision of the Controller is stored. Contains - if the hardware revision is in blank, and A to Z for other cases.	STRING[2]	- or A to Z

● Functional Classification: Self-diagnosis

Variable name	Meaning	Function	Data type	Range of values
_SelfTest_HighTemperature	CPU Unit High Temperature Flag	TRUE when the internal temperature of the Controller is too high.	BOOL	TRUE or FALSE
_SelfTest_LowBattery	Low Battery Flag	TRUE when the battery is disconnected or the battery voltage is dropped.	BOOL	TRUE or FALSE
_SelfTest_LowFanRevolution	Low FAN Revolution Flag	TRUE when the fan is disconnected or the rotation speed of a fan is decreased.	BOOL	TRUE or FALSE

PLC Function Module, Category Name: _PLC

● Functional Classification: Debugging

Variable name / Member	Meaning	Function	Data type	Range of values
_PLC_TraceSta[0..3]			_sTRACE_STA	
.IsStart	Trace Busy Flag	TRUE when a trace starts. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.IsComplete	Trace Completed Flag	TRUE when a trace is completed. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.IsTrigger	Trace Trigger Monitor Flag	TRUE when the trigger condition is met. FALSE when the next trace starts. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE
.ParamErr	Trace Parameter Error Flag	TRUE when a trace starts, but there is an error in the trace settings. FALSE when the settings are normal. **Note** You cannot use this system-defined variable in the user program. It is used only to monitor the status of data tracing from the Sysmac Studio.	BOOL	TRUE or FALSE

● Functional Classification: Errors

Variable name	Meaning	Function	Data type	Range of values
_PLC_ErrSta	PLC Function Module Error Status	TRUE when there is a Controller error that involves the PLC Function Module. FALSE when there is no Controller error that involves the PLC Function Module. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0

Motion Control Function Module, Category Name: _MC

● Functional Classification: Motion Control Functions

Variable name	Meaning	Function	Data type	Range of values
_MC_ErrSta	Motion Control Function Module Error Status	Shows the status of errors that are detected in the Motion Control Function Module. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#40F0
_MC_ComErrSta	Common Error Status	Shows the status of errors that are detected in common processing for motion control. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_MC_AX_ErrSta	Axis Error Status	Shows the error status for each axis. The status of up to 64 axes is shown. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	ARRAY [0..63] OF WORD	16#0000 to 16#00F0
_MC_GRP_ErrSta	Axes Group Error Status	Shows the error status for each axes group. The error status for up to 32 axes groups is shown. You can use this variable directly in the user program. Refer to information on the meanings of the error status bits at the end of this appendix for details.	ARRAY [0..31] OF WORD	16#0000 to 16#00F0
_MC_COM	Common Variable	Shows the status that is common to the Motion Control Function Module. Refer to the *NY-series Motion Control Instructions Reference Manual* (Cat. No. W561) for details on structure members.	_sCOMMON_REF	---
_MC_GRP	Axes Group Variables	NY-series Controller: Used to specify axes groups and shows multiaxes coordinated control status, and multiaxes coordinated control settings for motion control instructions. When you create an axes group on the System Studio, a user-defined axes group variable with a different name is created. Normally, you use an Axes Group Variable with a different name. Refer to the *NY-series Motion Control Instructions Reference Manual* (Cat. No. W561) for details on structure members.	ARRAY[0..31] OF _sGROUP_REF	---
_MC_AX	Axis Variables	NY-series Controller: Used to specify axes and shows single-axis control status, and single-axis control settings for motion control instructions. When you create an axis on the System Studio, a user-defined axis variable with a different name is created. Normally, you use an Axis Variable with a different name. Refer to the *NY-series Motion Control Instructions Reference Manual* (Cat. No. W561) for details on structure members.	ARRAY[0..63] OF _sAXIS_REF	---

EtherCAT Master Function Module, Category Name: _EC

● Functional Classification: EtherCAT Communications Errors

Variable name	Meaning	Function	Data type	Range of values
_EC_ErrSta	Built-in EtherCAT Error	This system-defined variable provides the collective status of errors in the EtherCAT Master Function Module. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#40F0
_EC_PortErr	Communications Port Error	This system-defined variable provides the collective status of errors in the communications ports for the EtherCAT master. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_MstrErr	Master Error	This system-defined variable provides the collective status of EtherCAT master errors and slave errors detected by the EtherCAT master. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_SlavErr	Slave Error	This system-defined variable provides the collective status of all the error status for EtherCAT slaves. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EC_SlavErrTbl	Slave Error Table	This system-defined variable gives the error status for each EtherCAT slave. The error status is given for each slave in the actual system configuration. This variable array indicates slaves in which there are errors. Status is provided for each EtherCAT slave node address (1 to 512). Refer to information on the meanings of the error status bits at the end of this appendix for details.	Array [1..512] OF WORD	16#0000 to 16#00F0
_EC_MacAdrErr	MAC Address Error	TRUE if there is an illegal MAC address.	BOOL	TRUE or FALSE
_EC_LanHwErr	Communications Controller Error	TRUE if there is a communications controller hardware error.	BOOL	TRUE or FALSE
_EC_LinkOffErr	Link OFF Error	TRUE if the communications controller link is not established.	BOOL	TRUE or FALSE
_EC_NetCfgErr	Network Configuration Information Error	TRUE if there is illegal network configuration information.	BOOL	TRUE or FALSE
_EC_NetCfgCmpErr	Network Configuration Verification Error	TRUE if the network configuration information does not match the actual network configuration.	BOOL	TRUE or FALSE
_EC_NetTopologyErr	Network Configuration Error	TRUE if there is a network configuration error (too many devices connected or ring connection).	BOOL	TRUE or FALSE
_EC_PDCommErr	Process Data Communications Error	TRUE if there is an unexpected slave disconnection or connection or if a slave WDT error is detected during process data communications.	BOOL	TRUE or FALSE
_EC_PDTimeoutErr	Process Data Reception Timeout Error	TRUE if a timeout occurs while receiving process data.	BOOL	TRUE or FALSE
_EC_PDSendErr	Process Data Transmission Error	TRUE if there is a process data transmission error (cannot send within the process data communications cycle or transmission jitter is over the limit).	BOOL	TRUE or FALSE
_EC_SlavAdrDupErr	Slave Node Address Duplicated Error	TRUE if the same node address is set for more than one slave.	BOOL	TRUE or FALSE
_EC_SlavInitErr	Slave Initialization Error	TRUE if there is an error in an initialization command addressed to a slave.	BOOL	TRUE or FALSE
_EC_SlavAppErr	Slave Application Error	TRUE if there is an error in the slave's application status register.	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EC_MsgErr	EtherCAT Message Error	TRUE when a message is sent to a slave that does not support messages or when there is an error in the format of the response to a message that was sent to a slave.	BOOL	TRUE or FALSE
_EC_SlavEmergErr	Emergency Message Detected	TRUE if the master detects an emergency message that was sent by a slave.	BOOL	TRUE or FALSE
_EC_CommErrTbl	Communications Error Slave Table	Slaves are given in the table in the order of slave node addresses. The corresponding slave element is TRUE if the master detected an error for the slave.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_CycleExceeded	EtherCAT Communications Cycle Exceeded	TRUE if the Controller cannot establish communications within the set communications period at startup.	BOOL	TRUE or FALSE

Additional Information

Typical Relationships for the Built-in EtherCAT Error Flags

Variable Name	Meaning	Variable Name	Meaning	Variable Name	Meaning	Event level
_EC_ErrSta	Built-in EtherCAT Error	_EC_PortErr	Communications Port Error	_EC_MacAdrErr	MAC Address Error	Partial fault level
				_EC_LanHwErr	Communications Controller Error	
				_EC_LinkOffErr	Link OFF Error	
		_EC_MstrErr	Master Error	_EC_NetCfgErr	Network Configuration Information Error	Minor fault level
				_EC_NetCfgCmpErr	Network Configuration Verification Error	
				_EC_NetTopologyErr	Network Configuration Error	
				_EC_PDCommErr	Process Data Communications Error	
				_EC_PDTimeoutErr	Process Data Reception Timeout Error	
				_EC_PDSendErr	Process Data Transmission Error	
				_EC_SlavAdrDupErr	Slave Node Address Duplicated Error	
				_EC_SlavInitErr	Slave Initialization Error	
				_EC_SlavAppErr	Slave Application Error	
				_EC_CommErrTbl	Communications Error Slave Table	
				_EC_CycleExceeded	EtherCAT Communications Cycle Exceeded	
				_EC_MsgErr	EtherCAT Message Error	Observation
				_EC_SlavEmergErr	Emergency Message Detected	
		_EC_SlavErr	Slave Error	_EC_SlavErrTbl	Slave Error Table	Defined by the slave.

Note The values of all system-defined variables that are related to errors in EtherCAT communications do not change until the cause of the error is removed and then the error in the Controller is reset with the troubleshooting functions of the Sysmac Studio or the ResetECError instruction.

● Functional Classification: EtherCAT Communications Status

Variable name	Meaning	Function	Data type	Range of values
_EC_RegSlavTbl	Registered Slave Table	This table indicates the slaves that are registered in the network configuration information. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave is registered.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_EntrySlavTbl	Network Connected Slave Table	This table indicates which slaves are connected to the network. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave has entered the network.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_MBXSlavTbl	Message Communications Enabled Slave Table	This table indicates the slaves that can perform message communications. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if message communications are enabled for it (pre-operational, safe-operation, or operational state). **Note** Use this variable to confirm that message communications are possible for the relevant slave before you execute message communications with an EtherCAT slave.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_PDSlavTbl	Process Data Communicating Slave Table	This table indicates the slaves that are performing process data communications. Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if process data of the corresponding slave is enabled (operational) for both slave inputs and outputs. **Note** Use this variable to confirm that the data for the relevant slave is valid before controlling an EtherCAT slave.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_DisconnSlavTbl	Disconnected Slave Table	Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave was disconnected.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_DisableSlavTbl	Disabled Slave Table	Slaves are given in the table in the order of slave node addresses. The element for a slave is TRUE if the corresponding slave is disabled.	Array [1..512] OF BOOL	TRUE or FALSE
_EC_PDActive	Process Data Communications Status	TRUE when process data communications are performed with all slaves*. * Disabled slaves are not included.	BOOL	TRUE or FALSE
_EC_PktMonStop	Packet Monitoring Stopped	TRUE when packet monitoring is stopped.	BOOL	TRUE or FALSE
_EC_LinkStatus	Link Status	TRUE if the communications controller link status is Link ON.	BOOL	TRUE or FALSE
_EC_PktSaving	Saving Packet Data File	Shows whether a packet data file is being saved. TRUE: Packet data file being saved. FALSE: Packet data file not being saved.	BOOL	TRUE or FALSE
_EC_InDataInvalid	Input Data Invalid	TRUE when process data communications performed in the primary periodic task are not normal and the input data is not valid.	BOOL	TRUE or FALSE
_EC_InData1Invalid	Input Data1 Invalid	TRUE when process data communications performed in the primary periodic task are not normal and the input data is not valid.	BOOL	TRUE or FALSE

Note All system-defined variables that are related to the status of EtherCAT communications give the current status.

● Functional Classification: EtherCAT Communications Diagnosis/Statistics Log

Variable name	Meaning	Function	Data type	Range of values
_EC_StatisticsLogEnable	Diagnosis/Statistics Log Enable	Changes to TRUE when the diagnosis/statistics log is started. Changes to FALSE when the diagnosis/statistics log is ended.	BOOL	TRUE or FALSE
_EC_StatisticsLogCycleSec	Diagnosis/Statistics Log Cycle	Specifies the interval to write the diagnostic and statistical information of the diagnosis/statistics log in units of seconds. When 0 is specified, the diagnostic and statistical information is written only once when the diagnosis/statistics log is ended. **Note** The write interval does not change even if you change the value of this system-defined variable while the diagnosis/statistics log operation is in progress.	UINT	0, or 30 to 1800
_EC_StatisticsLogBusy	Diagnosis/Statistics Log Busy	TRUE while the diagnosis/statistics log operation is in progress.	BOOL	TRUE or FALSE
_EC_StatisticsLogErr	Diagnosis/Statistics Log Error	TRUE when the diagnosis/statistics log failed to start or it is impossible to write into the log. The value of this flag is determined when *_EC_StatisticsLogBusy* (Diagnosis/Statistics Log Busy) changes to FALSE after the diagnosis/statistics log operation is started. The error end is caused by the following. • Another records cannot be added in the log file because the capacity of the Virtual SD Memory Card is fully used. • There is no Virtual SD Memory Card. • The function cannot be started because the value specified for *_EC_StatisticsLogCycleSec* (Diagnosis/Statistics Log Cycle) is invalid.	BOOL	TRUE or FALSE

EtherNet/IP Function Module, Category Name: _EIP

● Functional Classification: EtherNet/IP Communications Errors

Variable name	Meaning	Function	Data type	Range of values
_EIP_ErrSta	Built-in EtherNet/IP Error	This is the error status variable for the built-in EtherNet/IP port. NY-series Controllers: Represents the collective status of the following error flags. • *_EIP1_PortErr* (Communications Port1 Error) • *_EIPIn1_PortErr* (Internal Port1 Error) • *_EIP_CipErr* (CIP Communications Error) • *_EIP_TcpAppErr* (TCP Application Communications Error) **Note** Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0

Variable name	Meaning	Function	Data type	Range of values
_EIP_PortErr	Communications Port Error	This is the error status variable for the communications port. NY-series Controllers: Represents the collective status of the following error flags. • *_EIP1_MacAdrErr* (Port1 MAC Address Error) • *_EIP1_LanHwErr* (Port1 Communications Controller Error) • *_EIP1_EtnCfgErr* (Port1 Basic Ethernet Setting Error) • *_EIP1_IPAdrCfgErr* (Port1 IP Address Setting Error) • *_EIP1_IPAdrDupErr* (Port1 IP Address Duplication Error) • *_EIP1_BootpErr* (Port1 BOOTP Server Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP1_PortErr	Communications Port1 Error	This is the error status variable for the communications port. It represents the collective status of the following error flags. • *_EIP1_MacAdrErr* (Port1 MAC Address Error) • *_EIP1_LanHwErr* (Port1 Communications Controller Error) • *_EIP1_EtnCfgErr* (Port1 Basic Ethernet Setting Error) • *_EIP1_IPAdrCfgErr* (Port1 IP Address Setting Error) • *_EIP1_IPAdrDupErr* (Port1 IP Address Duplication Error) • *_EIP1_BootpErr* (Port1 BOOTP Server Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIPIn1_PortErr	Internal Port1 Error	This is the error status variable for the internal port 1. It represents the collective status of the following error flags. • *_EIPIn1_IPAdrCfgErr* (Internal Port1 IP Address Setting Error) • *_EIP1_IPAdrDupErr* (Internal Port1 IP Address Duplication Error) • *_EIP_DNSCfgErr* (DNS Setting Error) • *_EIP_DNSSrvErr* (DNS Server Connection Error) • *_EIP_IPRTblErr* (IP Route Table Error) **Note** If a Link OFF Detected or Built-in EtherNet/IP Processing Error occurs, it is recorded in the event log and then the corresponding bit turns ON. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0

Variable name	Meaning	Function	Data type	Range of values
_EIP_CipErr	CIP Communications Error	This is the error status variable for CIP communications. NY-series Controller: Represents the collective status of the following error flags. • *_EIP_IdentityErr* (Identity Error) • *_EIP_TDLinkCfgErr* (Tag Data Link Setting Error) • *_EIP_TDLinkOpnErr* (Tag Data Link Connection Failed) • *_EIP_TDLinkErr* (Tag Data Link Communications Error) • *_EIP_TagAdrErr* (Tag Name Resolution Error) • *_EIP_MultiSwONErr* (Multiple Switches ON Error) **Note** If a Tag Name Resolution Error occurs, it is recorded in the event log and this variable changes to TRUE. Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP_TcpAppErr	TCP Application Communications Error	This is the error status variable for TCP application communications. It represents the collective status of the following error flags. • *_EIP_TcpAppCfgErr* (TCP Application Setting Error) • *_EIP_NTPSrvErr* (NTP Server Connection Error) **Note** Refer to information on the meanings of the error status bits at the end of this appendix for details.	WORD	16#0000 to 16#00F0
_EIP_MacAdrErr	MAC Address Error	NY-series Controller: Indicates that an error occurred when the MAC address was read on the communications port 1 at startup. TRUE: Error FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_MacAdrErr	Port1 MAC Address Error	Indicates that an error occurred when the MAC address was read on the communications port 1 at startup. TRUE: Error FALSE: Normal	BOOL	TRUE or FALSE
_EIP_LanHwErr	Communications Controller Error	NY-series Controller: Indicates that a communications controller failure occurred on the communications port 1. TRUE: Failure FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_LanHwErr	Port1 Communications Controller Error	Indicates that a communications controller failure occurred on the communications port 1. TRUE: Failure FALSE: Normal	BOOL	TRUE or FALSE
_EIP_EtnCfgErr	Basic Ethernet Setting Error	NY-series Controller: Indicates that the Ethernet communications speed setting (Speed/Duplex) for the communications port 1 is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP1_EtnCfgErr	Port1 Basic Ethernet Setting Error	Indicates that the Ethernet communications speed setting (Speed/Duplex) for the communications port 1 is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP_IPAdrCfgErr	IP Address Setting Error	NY-series Controller: Indicates the IP address setting errors for the communications port 1. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP1_IPAdrCfgErr	Port1 IP Address Setting Error	Indicates the IP address setting errors for the communications port 1. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal	BOOL	TRUE or FALSE
_EIPIn1_IPAdrCfgErr	Internal Port1 IP Address Setting Error	Indicates the IP address setting errors for the internal port 1. TRUE: • There is an illegal IP address setting. • A read operation failed. • The IP address obtained from the BOOTP server is inconsistent. FALSE: Normal	BOOL	TRUE or FALSE
_EIP_IPAdrDupErr	IP Address Duplication Error	NY-series Controller: Indicates that the same IP address is assigned to more than one node for the communications port 1. TRUE: Duplication occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP1_IPAdrDupErr	Port1 IP Address Duplication Error	Indicates that the same IP address is assigned to more than one node for the communications port 1. TRUE: Duplication occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIPIn1_IPAdrDupErr	Internal Port1 IP Address Duplication Error	Indicates that the same IP address is assigned to more than one node for the internal port 1. TRUE: Duplication occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_DNSCfgErr	DNS Setting Error	Indicates that the DNS or hosts settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP_BootpErr	BOOTP Server Error	NY-series Controller: Indicates that a BOOTP server connection failure occurred on the communications port 1. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server.	BOOL	TRUE or FALSE
_EIP1_BootpErr	Port1 BOOTP Server Error	Indicates that a BOOTP server connection failure occurred on the communications port 1. TRUE: There was a failure to connect to the BOOTP server (timeout). FALSE: The BOOTP is not enabled, or BOOTP is enabled and an IP address was normally obtained from the BOOTP server.	BOOL	TRUE or FALSE
_EIP_IPRTblErr	IP Route Table Error	NY-series Controller: Indicates that the default gateway settings or IP router table settings are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP_IdentityErr	Identity Error	NY-series Controller: Indicates that the identity information for CIP communications 1 (which you cannot overwrite) is incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP_TDLinkCfgErr	Tag Data Link Setting Error	NY-series Controller: Indicates that the tag data link settings for CIP communications 1 are incorrect. Or, a read operation failed. TRUE: Setting incorrect or read failed FALSE: Normal	BOOL	TRUE or FALSE
_EIP_TDLinkOpnErr	Tag Data Link Connection Failed	NY-series Controller: Indicates that establishing a tag data link connection for CIP communications 1 failed. TRUE: Establishing a tag data link connection failed due to one of the following causes. • The information registered for a target node in the tag data link parameters is different from the actual node information. • There was no response from the remote node. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_TDLinkErr	Tag Data Link Communications Error	NY-series Controller: Indicates that a timeout occurred in a tag data link connection for CIP communications 1. TRUE: A timeout occurred. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_TagAdrErr	Tag Name Resolution Error	NY-series Controller: Indicates that tag resolution for CIP communications 1 failed (i.e., the address could not be identified from the tag name). TRUE: Tag resolution failed (i.e., the address could not be identified from the tag name). The following causes are possible. • The size of the network variable is different from the tag settings. • The I/O direction that is set in the tag data link settings does not agree with the I/O direction of the variable in the Controller. • There is no network variable in the Controller that corresponds to the tag setting. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_MultiSwONErr	Multiple Switches ON Error	NY-series Controller: Indicates that more than one switch turned ON at the same time in CIP communications 1. TRUE: More than one data link start/stop switch changed to TRUE at the same time. FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_TcpAppCfgErr	TCP Application Setting Error	TRUE: At least one of the set values for a TCP application (FTP, NTP, SNMP) is incorrect. Or, a read operation failed. FALSE: Normal	BOOL	TRUE or FALSE
_EIP_NTPSrvErr	NTP Server Connection Error	Always FALSE for an NY-series Controller.	BOOL	TRUE or FALSE
_EIP_DNSSrvErr	DNS Server Connection Error	TRUE: The DNS client failed to connect to the server (timeout). FALSE: DNS is not enabled. Or, DNS is enabled and the connection was successful.	BOOL	TRUE or FALSE

Hierarchical Relationship of System-defined Variables Related to EtherNet/IP Errors in the NY-series Controller

The system-defined variables that are related to EtherNet/IP errors have the following hierarchical relationship. For example, if the value of any of the *_EIP1_PortErr*, *_EIPIn1_PortErr*, *_EIP_CipErr*, and *_EIP_TcpAppErr* variables in the second level is TRUE, then the *_EIP_ErrSta* variable in the first level also changes to TRUE. Therefore, you can check the values of system-defined variables in a higher level to see if an error has occurred for a variable in a lower level.

Level 1		Level 2		Level 3	
Variable	**Name**	**Variable**	**Name**	**Variable**	**Name**
_EIP_ErrSta	Built-in EtherNet/IP Error	_EIP1_PortErr	Communications Port1 Error	_EIP1_MacAdrErr	Port1 MAC Address Error
				_EIP1_LanHwErr	Port1 Communications Controller Error
				_EIP1_EtnCfgErr	Port1 Basic Ethernet Setting Error
				_EIP1_IPAdrCfgErr	Port1 IP Address Setting Error
				_EIP1_IPAdrDupErr	Port1 IP Address Duplication Error
				_EIP1_BootpErr	Port1 BOOTP Server Error
				_EIP_DNSCfgErr	DNS Setting Error
				_EIP_DNSSrvErr	DNS Server Connection Error
				_EIP_IPRTblErr	IP Route Table Error
		_EIPIn1_PortErr	Internal Port1 Error	_EIPIn1_IPAdrCfgErr	Internal Port1 IP Address Setting Error
				_EIPIn1_IPAdrDupErr	Internal Port1 IP Address Duplication Error
				_EIP_DNSCfgErr	DNS Setting Error
				_EIP_DNSSrvErr	DNS Server Connection Error
				_EIP_IPRTblErr	IP Route Table Error
		_EIP_CipErr	CIP Communications Error	_EIP_IdentityErr	Identity Error
				_EIP_TDLinkCfgErr	Tag Data Link Setting Error
				_EIP_TDLinkOpnErr	Tag Data Link Connection Failed
				_EIP_TDLinkErr	Tag Data Link Communications Error
				_ EIP_TagAdrErr	Tag Name Resolution Error
				_EIP_MultiSwONErr	Multiple Switches ON Error
		_EIP_TcpAppErr	TCP Application Communications Error	_EIP_TcpAppCfgErr	(TCP Application Setting Error)
				_EIP_NTPSrvErr	NTP Server Connection Error

Note You can access the same values of the system-defined variables whose variable names with *_EIP1* and the system-defined variables whose variable names with *_EIP*. For example, you can access the same values of *_EIP1_PortErr* (Communications Port1 Error) and *_EIP_PortErr* (Communcations Port Error).

● Functional Classification: EtherNet/IP Communications Status

Variable name	Meaning	Function	Data type	Range of values
_EIP_EtnOnlineSta	Online	NY-series Controller: Indicates that the built-in EtherNet/IP port's communications can be used via the communications port 1 (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status.	BOOL	TRUE or FALSE
_EIP1_EtnOnlineSta	Port1 Online	Indicates that the built-in EtherNet/IP port's communications can be used via the communications port 1 (that is, the link is ON, IP address is defined, and there are no errors). TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status.	BOOL	TRUE or FALSE
_EIPIn1_EtnOnlineSta	Internal Port1 Online	Indicates that the built-in EtherNet/IP port's communications can be used via the internal port 1 (that is, the link is ON, IP address is defined, and there are no errors.) TRUE: The built-in EtherNet/IP port's communications can be used. FALSE: The built-in EtherNet/IP port's communications is disabled due to an error in initial processing, restart processing, or link OFF status.	BOOL	TRUE or FALSE
_EIP_TDLinkRunSta	Tag Data Link Communications Status	NY-series Controller: Indicates that at least one connection is in normal operation in CIP communications 1. TRUE: Normal operation FALSE: Other than the above.	BOOL	TRUE or FALSE
_EIP_TDLinkAllRunSta	All Tag Data Link Communications Status	NY-series Controller: Indicates that all tag data links are communicating in CIP communications 1. TRUE: Tag data links are communicating in all connections as the originator. FALSE: An error occurred in at least one connection.	BOOL	TRUE or FALSE
_EIP_RegTargetSta[255]	Registered Target Node Information	NY-series Controller: Gives a list of nodes for which built-in EtherNet/IP connections are registered for CIP communications 1. This variable is valid only when the built-in EtherNet/IP port is the originator. *Array[x]* is TRUE: The connection to the node with a target node ID of x is registered. *Array[x]* is FALSE: The connection to the node with a target node ID of x is not registered.	ARRAY[0..255] OF BOOL	TRUE or FALSE
_EIP_EstbTargetSta[255]	Normal Target Node Information	NY-series Controller: Gives a list of nodes that have normally established EtherNet/IP connections for CIP communications 1. *Array[x]* is TRUE: The connection to the node with a target node ID of x was established normally. *Array[x]* is FALSE: The connection to the node with a target node ID of x was not established, or an error occurred.	ARRAY[0..255] OF BOOL	TRUE or FALSE

Variable name	Meaning	Function	Data type	Range of values
_EIP_TargetPLC-ModeSta [255]	Target PLC Operating Mode	NY-series Controller: Shows the operating status of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP port as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. If the corresponding Normal Target Node Information is FALSE, the Target Node Controller Operating Information indicates the previous operating status. *Array[x]* is TRUE: This is the operating state of the target Controller with a node address of x. *Array[x]* is FALSE: Other than the above.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_TargetPLCErr [255]	Target PLC Error Information	NY-series Controller: Shows the error status (logical OR of fatal and non-fatal errors) of the target node Controllers that are connected for CIP communications 1, with the built-in EtherNet/IP ports as the originator. The array elements are valid only when the corresponding Normal Target Node Information is TRUE. The immediately preceding value is retained if this variable is FALSE. *Array[x]* is TRUE: A fatal or non-fatal error occurred in the target Controller with a target node ID of x. *Array[x]* is FALSE: Other than the above.	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_TargetNodeErr [255]	Target Node Error Information	NY-series Controller: Indicates that the connection for the Registered Target Node Information for CIP communications 1 was not established or that an error occurred in the target Controller. The array elements are valid only when the Registered Target Node Information is TRUE. *Array[x]* is TRUE: A connection was not normally established with the target node for a target node ID of x (the Registered Target Node Information is TRUE and the Normal Target Node Information is FALSE), or a connection was established with the target node but an error occurred in the target Controller. *Array[x]* is FALSE: The target node is not registered for a target node ID of x (the Registered Target Node Information is FALSE), or a connection was normally established with the target node (the Registered Target Node Information is TRUE and the Normal Target Node Information is TRUE). An error occurred in the target Controller (the Target PLC Error Information is TRUE).	ARRAY [0..255] OF BOOL	TRUE or FALSE
_EIP_NTPResult	NTP Operation Information	---	_sNTP_RESULT	
.ExecTime	NTP Last Operation Time	NY-series Controller: No change from the initial value.	DATE_AND_TIME	Depends on data type.
.ExecNormal	NTP Operation Result	NY-series Controller: No change from the initial value.	BOOL	TRUE or FALSE

Additional Information

Communications Status with Target Node

The communications status with the target node of an NY-series Controller is shown by the combination of the values of four system-defined variables.

- *_EIP_RegTargetSta* (Registered Target Node Information)
- *_EIP_EstbTargetSta* (Normal Target Node Information)
- *_EIP_TargetPLCErr* (Target PLC Error Information)
- *_EIP_TargetNodeErr* (Target Node Error Information)

Value of *_EIP_RegTargetSta*	Value of *_EIP_EstbTargetSta*	Value of *_EIP_TargetPLCErr*	Value of *_EIP_TargetNodeErr*	Communications status with target node
TRUE	TRUE	FALSE	FALSE	A connection with the target node was established normally and there is no error in the target PLC.
		TRUE	TRUE	A connection with the target node was established but there is an error in the target PLC.
	FALSE	Disabled	TRUE	A connection with the target node was not established normally.
FALSE	Disabled	Disabled	Disabled	The information is not valid because the target node is not registered.

● Functional Classification: EtherNet/IP Communications Switches

Variable name	Meaning	Function	Data type	Range of values
_EIP_TDLinkStartCmd	Tag Data Link Communications Start Switch	NY-series Controller: Change this variable to TRUE to start tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation starts. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically.	BOOL	TRUE or FALSE
_EIP_TDLinkStopCmd	Tag Data Link Communications Stop Switch	NY-series Controller: Change this variable to TRUE to stop tag data links for CIP communications 1. It automatically changes back to FALSE after tag data link operation stops. **Note** Do not force this switch to change to FALSE from the user program or from the Sysmac Studio. It changes to FALSE automatically.	BOOL	TRUE or FALSE

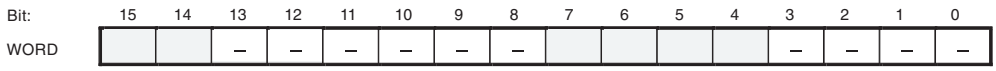
Meanings of Error Status Bits

The meanings of the individual bits in the following error status are the same.

- *_ErrSta* (Controller Error Status)
- *_PLC_ErrSta* (PLC Function Module Error Status)
- *_MC_ErrSta* (Motion Control Function Module Error Status)
- *_MC_ComErrSta* (MC Common Error Status)
- *_MC_AX_ErrSta* (Axis Error Status)
- *_MC_GRP_ErrSta* (Axes Group Error Status)
- *_EC_ErrSta* (Built-in EtherCAT Error)
- *_EC_PortErr* (Communications Port Error)
- *_EC_MstrErr* (Master Error)
- *_EC_SlavErr* (Slave Error)
- *_EC_SlavErrTbl* (Slave Error Table)
- *_EIP_ErrSta* (Built-in EtherNet/IP Error)
- *EIP_PortErr* (Communications Port Error), *_EIP1_PortErr* (Communications Port1 Error)
- *_EIP_CipErr* (CIP Communications Error)
- *_EIP_TcpAppErr* (TCP Application Communications Error)

The meaning of the bits are shown in the following table.
However, do not use the following variables in the user program:*_ErrSta* (Controller Error Status). There may be a delay in updating them and concurrency problems in relation to the error status of the function module.

Use these variables only to access status through communications from an external device.



Bit	Meaning
15	Reserved.
14	Collective slave error status: This bit indicates if a Controller error was detected for levels (e.g., a Unit, slave, axis, or axes group) that are lower than the event source (i.e., for a function module). TRUE: A Controller error has occurred at a lower level. FALSE: A Controller error has not occurred at a lower level. (Valid for *_MC_ErrSta,* and *_EC_ErrSta*.)
8 to 13	Reserved.
7	This bit indicates whether a major fault level Controller error has occurred. TRUE: A major fault level Controller error has occurred. FALSE: A major fault level Controller error has not occurred.
6	This bit indicates whether a partial fault level Controller error has occurred. TRUE: A partial fault level Controller error has occurred. FALSE: A partial fault level Controller error has not occurred.
5	This bit indicates whether a minor fault level Controller error has occurred. TRUE: A minor fault level Controller error has occurred. FALSE: A minor fault level Controller error has not occurred.
4	This bit indicates whether an observation level Controller error has occurred. TRUE: An observation level Controller error has occurred. FALSE: An observation level Controller error has not occurred.
0 to 3	Reserved.