

## NX I/O EtherCAT Offline Setup Quick Start Guide

How to setup the NX I/O with EtherCAT Coupler offline using Sysmac Studio and downloading the configuration to the Sysmac NJ

Watch the corresponding video on YouTube: NX I/O EtherCAT Offline Setup <a href="http://youtu.be/uKsf4FDfino">http://youtu.be/uKsf4FDfino</a>



Document: QSG NX IO EtherCAT Offline Setup

Page 1 of 6





### 1. Create a Project in Sysmac Studio

### 2. Add EtherCAT Coupler to the Master



Document: QSG NX IO EtherCAT Offline Setup

Page 2 of 6



### 3. Add NX Devices



### 4. Create Device Variables

X 1 1 1 5 C 2	🗗 🔨 🐹 📰 🔺 🖕 4h Ri	ght Mouse Clic	k on the	NX-ECC	201
	Configurations and Setup	4c Select C	reate De	evice Varia	able
	Pos Port	Description	R/W Data T	vr Variable	1
Configurations and Setup	EtherC/A Network Configuration				^
■ ▼ 翻 EtherCAT	Et Noter				E
Node1 : NX-ECC201(E	N V NX-ECC201				
Unit 1 : NX-OD325	▼ Sysmac Error Sta	status on S	R BYTE		_
Unit 2 : NX-ID3443	Observation Copy		R BOOL		
Unit 3 : NX-PG0122	Minor Fault Paste		R BOOL		
Unit 4 : NX-EC0222	Partial Fault		R BOOL		
St CPU/Expansion Racks	Major Fault		R BOOL		
I/O Map	► NX Unit Registra	er the NX U	R ARRAY	10	
Controller Setup	NX Unit I/O Data	er the NX U	R ARRAY	10	
🔳 🕨 🍈 Motion Control Setup	Ur VNX-OD3257 Search	AU.			
🔳 🗆 🎸 Cam Data Settings	Output Bit 00	All	W BOOL		
Event Settings	put Bit 01 Create Davice Va	riphle	W BOOL		
4a Double Click	on I/O Man put Bit 02	+	W BOOL		
	UII I/ U IVIAU	16 ···			

Document: QSG NX IO EtherCAT Offline Setup



#### 5. Observe the Device Variables Created

S NJ	_NX_IO - new_Controller_0 - Sysmac St	udio									
<u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>Insert</u> <u>Project</u> <u>C</u> or	troller <u>S</u> imu	lation <u>T</u> ools <u>H</u> elp								
※ 🛍 🛍 つって 🛍 📑 🤸 🏭 🖾 🤮 👬 🖬 🔍 🗟 🆗 🛸 🖷 🔾											
	NJ_NX_IO										
	new_Controller_0 🔻	I/O Map × +									
		Pos	Port	Description	R/W	Data Ty	Variable				
2	onfigurations and Setup	N V	NX-ECC201				<u>^</u>				
	▼ 翻 EtherCAT		<ul> <li>Sysmac Error Status</li> </ul>	Sysmac error sta	R	BYTE	E001_Sysmac_Error_Status				
	Node1 : NX-ECC201(E		Observation	Observation	R	BOOL	E001_Observation				
	🗆 📋 Unit 1 : NX-OD325		Minor Fault	Minor fault	R	BOOL	E001_Minor_Fault				
N N	🛯 📕 Unit 2 : NX-ID3443		Partial Fault	Partial fault	R	BOOL	E001_Partial_Fault				
tivi.	Unit 3 : NX-PG0122		Major Fault	Major fault	R	BOOL	E001_Major_Fault				
Š	Unit 4 : NX-EC0222		NX Unit Registration Stat	Status whether	R	ARRAY	E001_NX_Unit_Registration_Status_:				
Ŧ	CPU/Expansion Racks		▶ NX Unit I/O Data Active 5	Status whether	R	ARRAY	E001_NX_Unit_I_O_Data_Active_Stat				
P I	📕 🗆 🦨 I/O Map	Ur	▼ NX-OD3257								
۳ [	Controller Setup		Output Bit 00	Output Bit 00	w	BOOL	N1 Output Bit 00				
	Motion Control Setup		Output Bit 01	Output Bit 01	w	BOOL	N1 Output Bit 01				
	🛛 🗆 🖌 Cam Data Settings		Output Bit 02	Output Bit 02	w	BOOL	N1_Output_Bit_02				
	Event Settings		Output Bit 03	Output Bit 03	w	BOOL	N1_Output_Bit_03				
	🛛 🗆 🌄 Task Settings 🛛 🗸	Ur	▼ NX-ID3443								
	< >		Toput Dit 00	Topout Dit 00	n	1001	NG Japut Bit 00				
	i Filter	<				_	>				

### 6. Rebuild Controller (compile)

e X	Edit View Insert	Check All Pr Check Selec	rograms ted Program	F7 F7 Is Shift+F7	A D	ί 🔺 🕺	63	¢∂ ¶►	°= 0		
10.		Build Contro	F8								
N	Rebuild Controller				Setup 📋 🔍 🖄						
new Controller 0				Shift+F8							
Configurations and Se Online Edit		Memory Usage		ort	Description R/W Data T		Data Tv	Variable	1		
		-		201					1		
				Error Status	Sysmac error sta	R	BYTE	E001_Sysmac_Error_Status	-		
■ ▼ ■ Node1: N				•	rvation	Observation	R	BOOL	E001_Observation		
	Unit 1 : NX-OD325 Mind		or Fault	Minor fault	R	BOOL	E001_Minor_Fault				
Unit 2 : NX-ID3443			Partial Fault Major Fault		Partial fault	R	BOOL	E001_Partial_Fault			
Unit 3 : NX-PG0122						Major fault	R	BOOL	E001_Major_Fault		
	🗆 🛯 📕 Unit 4 : N		NX Unit	t Registration Stat	Status whether	R	ARRAY[	E001_NX_Unit_Registration_Status_			
	E S CPU/Expansion	Racks		NX Unit	t I/O Data Active !	Status whether	R	ARRAY[	E001_NX_Unit_I_O_Data_Active_Stat		
	🗆 🚅 I/O Map	I/O Map		V NX-0	DD3257						
Controller Setup			Outp	ut Bit 00	Output Bit 00	w	BOOL	N1_Output_Bit_00			
	Notion Control	Setup	-	Outp	ut Bit 01	Output Bit 01	W	BOOL	N1_Output_Bit_01		
	🗆 🖌 Cam Data Settin	ngs 👘		Outp	ut Bit 02	Output Bit 02	W	BOOL	N1_Output_Bit_02		
	💷 🕨 Event Settings		Outp		ut Bit 03	Output Bit 03	W	BOOL	N1_Output_Bit_03		
	🗆 🗠 Task Settings	$\sim$	Ur	V NX-I	D3443						
<		>		Tonut	nit 00	Toput Dit 00	n	ROOI	NO Toput Bit 00	100	
i	Filter	1						-		2	

Document: QSG NX IO EtherCAT Offline Setup

Page 4 of 6



### 7. Go Online (default is USB)

<b>S</b>	U_NX_IO - new_Controller_0 - Sysmac St	tudio	- • ×
<u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>I</u> nsert <u>P</u> roject <u>C</u> or	troller <u>S</u> imulation <u>T</u> ools <u>H</u> elp	
	X 🗓 🗎 🗴 さ 🖻	≝<  ▲  <b< th=""><th></th></b<>	
	NJ_NX_IO	Configurations and Setup	T 0 0
	new_Controller_0	I/O Map × + Monitor type Bit order	
	Configurations and Setup		
	■ ▼ 翻 EtherCAT		×
	■ ▼ ■ Node1 : NX-ECC201(E	Output × Build ×	
7	Unit 1 : NX-OD325	🔀 0 Errors 🔥 0 Warnings	
L L	Unit 2 : NX-ID3443	Description Program Location	
Nev.	Unit 3 : NX-PG0122		
	St CPU/Expansion Backs		
Po	I v v I/O Map		
ġ	Controller Setup		
	Motion Control Setup		
	🔳 🗉 🎸 Cam Data Settings		
	L Event Settings		
	📕 🗆 🍡 Task Settings 🔍		
	< >		
	👔 Filter 📝		

### 8. Synchronize

<b>S</b>	NJ_NX_IO - new_Controller_0 - Sysmac St	udio	
<u>F</u> ile	e <u>E</u> dit <u>V</u> iew <u>I</u> nsert <u>P</u> roject <u>C</u> on	troller <u>S</u> imulation <u>T</u> ools <u>H</u> elp	
	※ ● @ 前 ち ぐ @	🗗 🗙 🖾 🛱 📕 🗷 🔺 🎗 😣 🔗 🛸 🖬 🔾	
	NJ_NX_IO	Configurations and Setup	Π Θ Θ
	new_Controller_0	I/O Map × + Monitor typeBit order	
	Configurations and Setup		
	■ ▼ 翻 EtherCAT		×
	Node1 : NX-ECC201(E	🗗 Output 🛛 🗙 Kalid 🛛 🕹	
	Unit 1 : NX-OD325	🔀 0 Errors 🚹 0 Warnings	
	Unit 2 : NX-ID3443	Description Program Location	
Ti si	Unit 3 : NX-PG0122	· · ·	
W	Unit 4 : NX-EC0222		
р <mark>Р</mark>	CPU/Expansion Racks		
Pre	📕 🗆 🛹 I/O Map		
	Controller Setup		
	Motion Control Setup		
	Cam Data Settings		
	Event Settings		
	📕 L 🖷 Task Settings 🗸 🗸		
	Filter		

Document: QSG NX IO EtherCAT Offline Setup

Page 5 of 6



### 9. Transfer To Controller

Synchronization
Computer: Data Name Computer: Update DaController: Update Da Controller: Data Name Compare
Legend:         Synchronized         Different         Exists only on one side         Not checked
<ul> <li>Clear the present values of variables with Retain attribute (Valid for Transfer to Controller).</li> <li>Do not transfer the program source (Valid for Transfer to Controller). All data will be re-transferred when this option is ch</li> <li>Do not transfer the following. (All items are not transferred.)</li> <li>CJ-series Special Unit parameters and EtherCAT slave backup parameters</li> <li>Slave Terminal Unit operation settings and NX Unit application data.</li> <li>All data will be transferred because the controller has periodata.</li> </ul>
Transfer To Controller     Transfer Erom Controller     Recompare     Close

### 10. Go to Run Mode

	N.	IJ_NX_IO - new_Controller_0 - Sysmac St	udio									x
	<u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>I</u> nsert <u>P</u> roject <u>C</u> on	troller <u>S</u> ir	nulation <u>T</u> ools <u>H</u> elp								
	γ	X 🛍 🛱 🗴 つ d 🖬	<b>a</b> 4	x 🙃 🖀 A 関	R		X E	6a 🏟 🖡	· "	0		
		NJ_NX_IO	🔧 Confic	urations and Setup				Π @ (		Toolbox		
ŀ		new_Controller_0	I/O Ma	ap × +	Date	Data Ta	Malua	L Mar	10a	. – Select F	Run Mode	
		Configurations and Setup		Description Major fault	R/W	BOOI	FALSE	FOO1 M				
		■ ▼ 7 Therefore	125 tus 12	Status whether the NX U Status whether the NX U	R R	ARRAY[( ARRAY[(		E001_NX_U E001_NX_U	Uni 🗆 Uni			
	Multi	Unit 1 : NX-OD325	_	Output Bit 00	w	BOOL	TRUE	N1_Outpu	t_B			
	view E	Unit 4 : NX-EC0222		Output Bit 02	W	BOOL	FALSE	N1_Outpu	t_B		~	Toolb
	xplore	CPU/Expansion Racks		Output Bit 03	W	BOOL	FALSE	1_Outpu	t_B ✓			×
	-	<ul> <li>Controller Setup</li> <li></li></ul>	• 10b. 10c.	– Double Click – Monitor & Fo	on orce	I/O N e I/O (	Map On/(	Off	MSB			
		<ul> <li>L P Event Settings</li> <li>L B Task Settings</li> </ul>	1000							Controller Status	× K	
		Filter	<b>⊟</b> iOu	tput × A	Buil	d		×	×	ONLINE ERR/ALM	192.168.250.1 RUN mode	
L												

# This completes the Quick Start for the Offline Setup of the NX I/O with the EtherCAT Coupler.

#### Please visit our YouTube Channel for Omron Quick Tip and other videos: <u>https://www.youtube.com/user/OmronAutomationTech</u>

Document: QSG NX IO EtherCAT Offline Setup

Page 6 of 6