

## NjCipSendPlcMemory

A Sysmac Function Block (FB) for using in NJ CPU's to SEND a block of data from one Omron Sysmac Controller to another Omron PLC or Sysmac Controller using Ethernet/IP (EIP) Units.

Operation is similar to PLC ladder SEND instruction, but using Common Industrial Protocol (CIP) rather than Omron FINS protocol. This means that a remote PLC can be accessed by IP address only and no FINS addresses need be set (FINS Networks and FINS Nodes). This provides an advantage in that it can overcome the FINS IP Conversion table limit (stored in EIP Unit) of 32 FINS nodes. Manual FINS IP tables are required if the IP Subnet is not Class C (255.255.255.0) – used for Auto Allocation of FINS Node to IP conversion.

The FB is written in Structured Text and can be used on Sysmac NJ CPU's with addition of CJ1W-EIP21. These FB's will NOT work through Sysmac CPU EIP port.

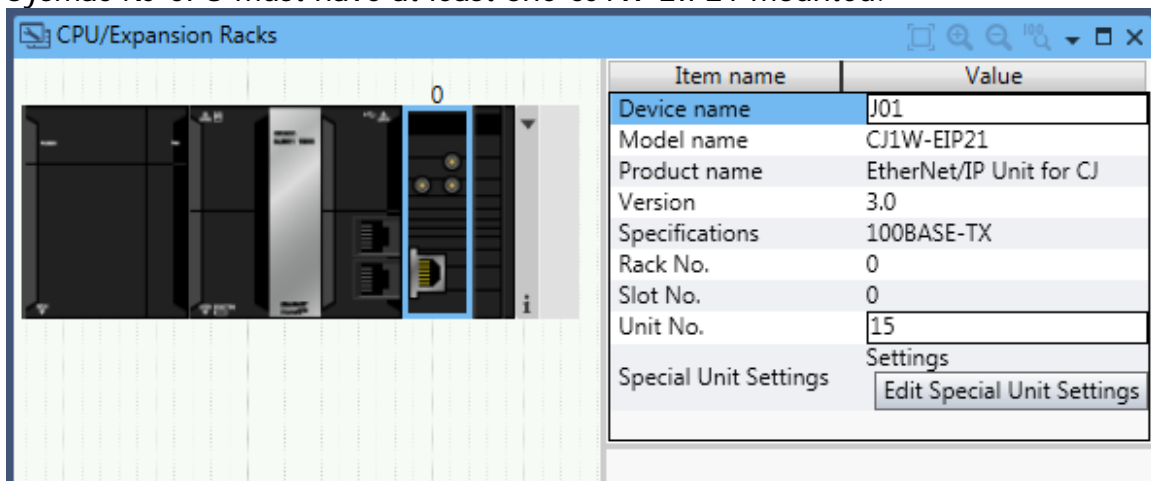
It can only be used with Ethernet/IP units (EIP). At time of writing this refers to CS1W-EIP21 (V2 & V3), CJ1W-EIP21 (V2 & V3), CJ2H-CPU6x-EIP and CJ2M-CPU3x.

The FB always assumes communication is to at least a V2 EIP unit.

It will not function with ETN Ethernet units.

### Pre-requisites.

Sysmac NJ CPU must have at least one CJ1W-EIP21 mounted.



---

**FB Parameters**

Function Block Parameter Name	Data Type	Details of function
<i>Inputs into Function Block</i>		
Enable	BOOL	Rising Edge to Trigger FB operation
EipUnitId	UINT	EIP Unit ID SIOU number set on rotary switch (0x0->0xF) (0->15)
DestIpAdr	STRING[256]	IP address of remote note to Send to ('xxx.yyy.zzz.uuu')
MemoryArea	NjCip\ecjMemoryAreas	Memory Area to Send To...
MemoryStartOffset	UINT	Start address to write at MemoryArea
RecvDataSize	UINT	Number of Words to Send (1 to 250 - although max may be less according to unit and internal 'route path')
<i>Outputs from Function Block</i>		
ENO	BOOL	Always SET during execution of FB
Busy	BOOL	FB Busy Status.
Done	BOOL	Completed OK
Error	BOOL	FB Failed (See Error information)
EndCode	WORD	End Code 0= No error For other values see FINS error codes (Manual W342)
CipErrorId	WORD	CIP specific End Code from partner (0000=No Error) Refer to EIP manual (W506)
CipErrorIdEx	DWORD	CIP detailed Error (See W506 for details)
<i>In/Out from Function Block</i>		
SendData	WORD[250]	Data to send to DestIP (Noof SendDataSize)

---

<i>Timing</i>	
Enable	
Busy	
Done/Error	
CipErrorId	
CipErrorIdEx	

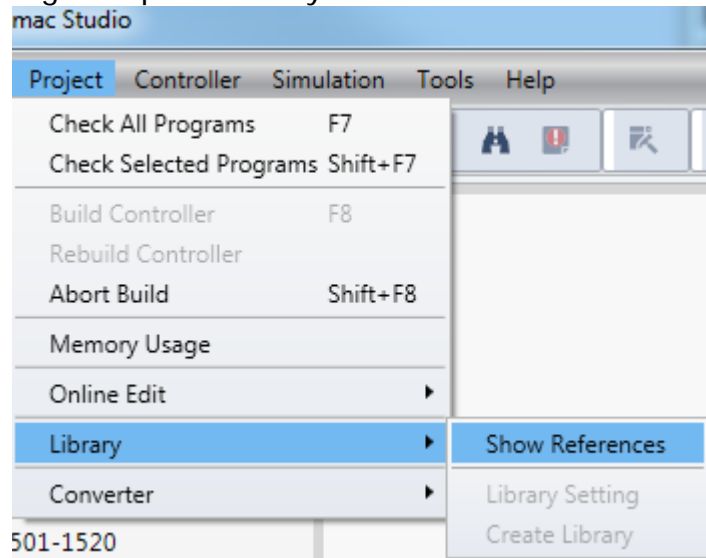
*Precautions*

**NB.** Max Size of data to Process is limited to remote PLC memory/capability.

### Library File

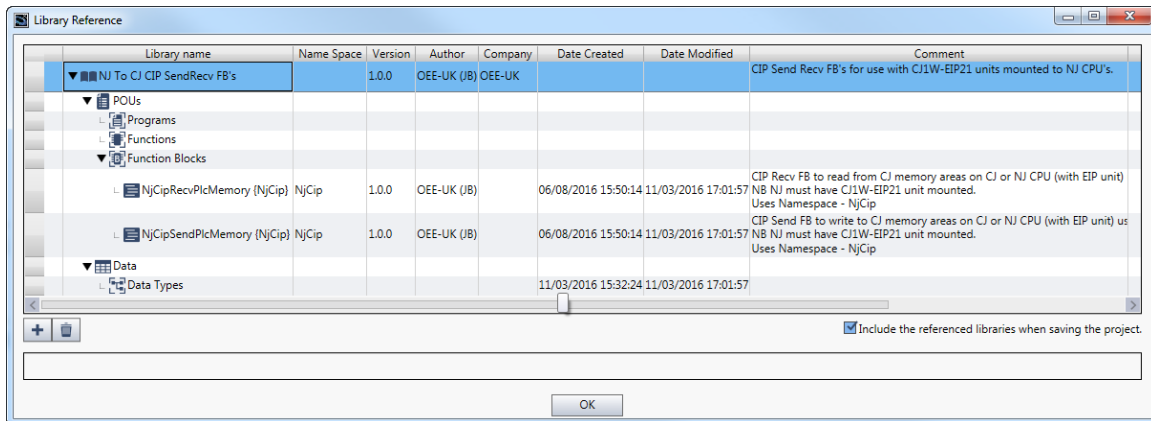
The Function Block for Sysmac is provided within a Sysmac library (Filename is "NJ To CJ CIP SendRecv FB's.slr").

The library must be imported into a Sysmac project. Once a new project is open, select the following to import a library:-

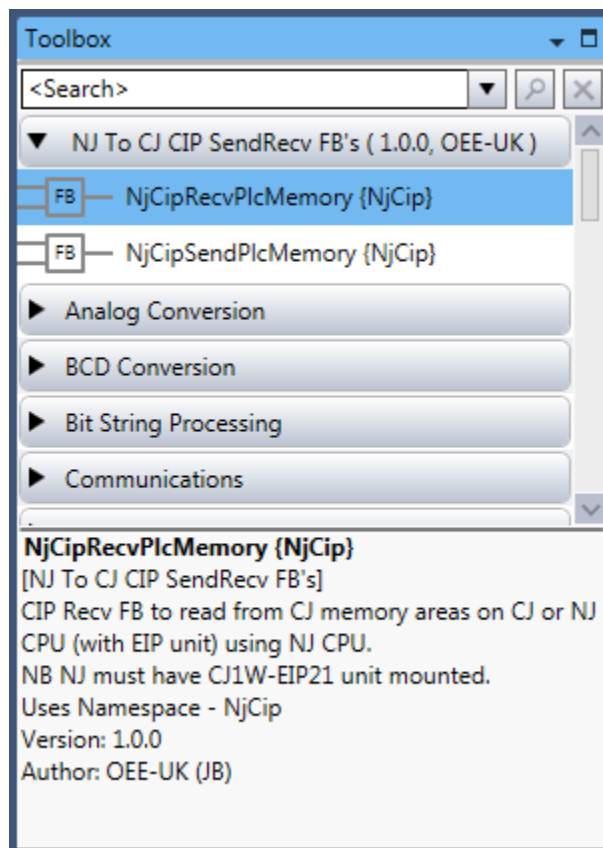


Select the library file (\*.slr).

Once following screen is shown allowing user to verify correct FB import.



After OK is pressed, then the Function Blocks are available for use like any other FB from within the 'Toolbox'.

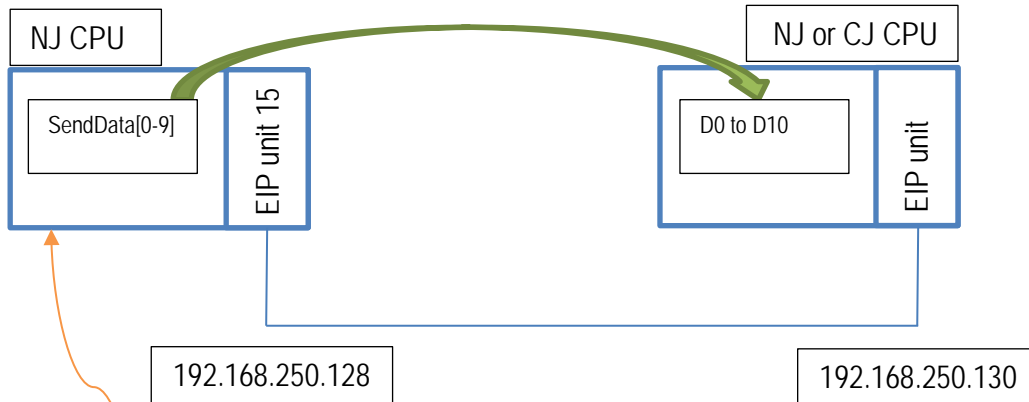


Please note that a Namespace of NjCip is used. Either specify the namespace in all datatype operations ( \\NjCip\ ) or add a 'Using' reference within POU assignment.

**Example use of Function block, used within ladder:-**

Example:

Send 10 words from SendData[0..9] to D0 thru D9 at 192.168.250.130



The screenshot shows a ladder logic program in a software environment. The title bar reads 'CipSendSample - Program0'. The 'Namespace - Using' section shows 'NjCip' selected with a red arrow. The main ladder logic consists of a single rung starting with a 'TriggerSend' normally open contact. This rung is connected to the 'NjCipSendFb' function block. The block's inputs are: 'Enable' (connected to ENO), 'EipUnitId' (set to '16#F'), 'DestIpAdr' (set to '192.168.250.130'), 'MemoryArea' (set to 'eCjMemoryAreas#eDmArea'), 'MemoryStartOffset' (set to '0'), 'SendDataSize' (set to '10'), and 'SendData' (connected to the 'SendData' variable). The block's outputs are: 'Busy' (connected to 'Enter Variable'), 'Error' (connected to 'Enter Variable'), 'Done' (connected to 'Enter Variable'), 'CipErrorId' (connected to 'Enter Variable'), and 'CipErrorIdEx' (connected to 'Enter Variable').

## Reference Manuals

W465 Ethernet/IP Units Operation Manual

W342 CS/CJ/CP/NSJ Communication Commands Reference Manual

W503 NJ/NX-series - Troubleshooting Manual

W506 NJ/NX-series - CPU Unit Built-in EtherNet/IP Port User's Manual

<b>Revision History</b>		
V1.00	04 Nov 2016	Original Production

---