CIP Modbus Object Write Example

BMXNOC0401 using
Explicit Messaging via DATA_EXCH

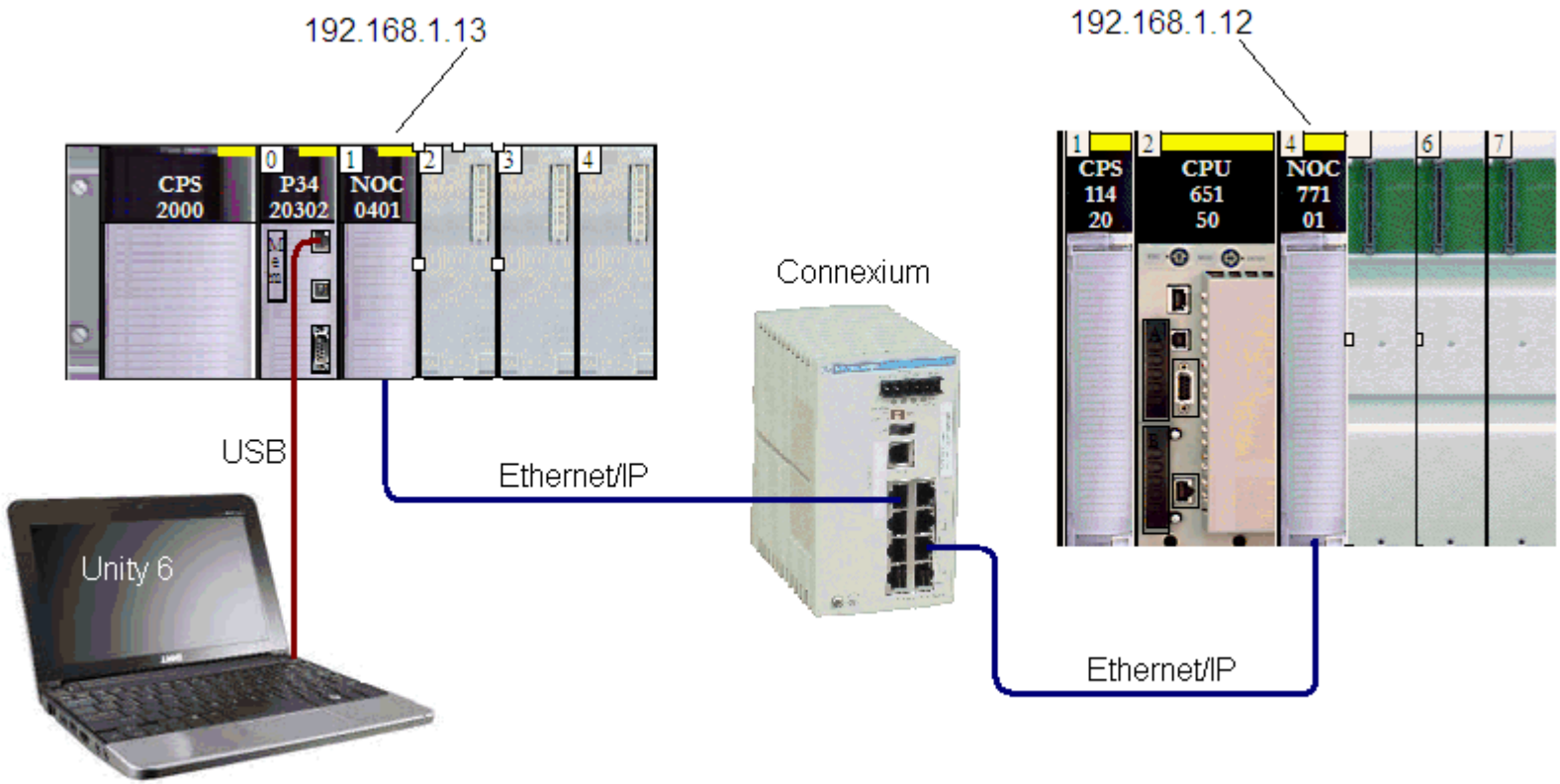
Dec. 15, 2012

Version 1.0

Schneider Electric

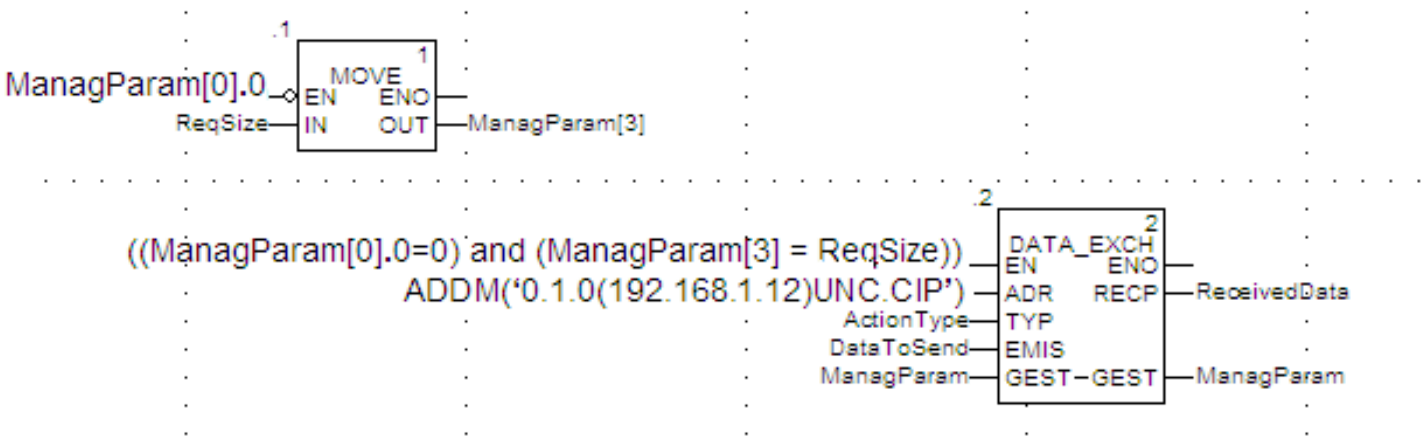
PLC Hardware Configuration

- BMXNOC0401 (192.168.1.13) to query NOC77101 (192.168.1.12) with Explicit Messaging CIP Modbus Object Write_Holding_Registers.
- The USB connection is for Unity to M340 PLC communications.



Unity Program

- Note to add the ‘Pin negation’ on the AND_BOOL IN1 input.



• Configuring the DATA_EXCH ADR Input:

ADDM(‘0.1.0{192.168.1.12}UNC.CIP’)

Rack = 0
Module (Slot Number) = 1
Channel = 0
Remote Device IP address = 192.168.1.12
Message Type = UNConnected
Protocol = CIP

DATA_EXCH Block Configuration Management Parameters, DataToSend

Name	Value	Type	Comment
ReqSize	12	INT	DataToSend Size (In Bytes)
ActionType	1	INT	Transmission, followed by await reception
DataToSend		ARRAY[0..5] OF...	
DataToSend[0]	16#0250	INT	HiByte=02 (Path Size); LowByte=50 (ServiceCode= Write Holding Reg)
DataToSend[1]	16#4420	INT	HiByte= 44 (Class); LowByte=20 (Class Segment)
DataToSend[2]	16#0124	INT	HiByte=01 (Instance); LowByte=24 (Instance Segment)
DataToSend[3]	0	INT	Location of First Word to WRITE at target (value + %MW1 = First Word)
DataToSend[4]	1	INT	Number of Words to WRITE
DataToSend[5]	13564	INT	Data to WRITE
ManagParam		ARRAY[0..3] OF...	
ManagParam[0]	16#2301	INT	System Response [MSB:Exchange #; LSB:bit 1=activity, bit 2=cancel]
ManagParam[1]	0	INT	System Response [Operation Report; Communication Report]
ManagParam[2]	2	INT	User Configuration [Function Block Timeout = 2 (200ms)]
ManagParam[3]	12	INT	Program Action [ReqSize Value MOVE to ManagParam[3]]

Response Data

Name	Value	Type	Comment
ReqSize	12	INT	DataToSend Size (In Bytes)
ActionType	1	INT	Transmission, followed by await reception
DataToSend		ARRAY[0..5] OF...	
DataToSend[0]	16#0250	INT	HiByte=02 (Path Size); LowByte=50 (ServiceCode= Write Holding Reg)
DataToSend[1]	16#4420	INT	HiByte= 44 (Class); LowByte=20 (Class Segment)
DataToSend[2]	16#0124	INT	HiByte=01 (Instance); LowByte=24 (Instance Segment)
DataToSend[3]	0	INT	Location of First Word to WRITE at target (value + %MW1 = First Word)
DataToSend[4]	1	INT	Number of Words to WRITE
DataToSend[5]	13564	INT	Data to WRITE
ManagParam		ARRAY[0..3] OF...	
ManagParam[0]	16#2301	INT	System Response [MSB:Exchange #; LSB:bit 1=activity, bit 2=cancel]
ManagParam[1]	0	INT	System Response [Operation Report; Communication Report]
ManagParam[2]	2	INT	User Configuration [Function Block Timeout = 2 (200ms)]
ManagParam[3]	12	INT	Program Action [ReqSize Value MOVE to ManagParam[3]]
ReceivedData		ARRAY[0..49] O...	
ReceivedData[0]	16#00D0	INT	Response [Service Code and MSB REsponse bit = 00D0]
ReceivedData[1]	16#0000	INT	Response [Service Response, 0 = success]
ReceivedData[2]	0	INT	Response [Location of First Word to WRITE = DataToSend[3]]
ReceivedData[3]	1	INT	Response [Number of Words to WRITE = DataToSend[4]]

ManagParam, DataToSend Notes

Name	Value	Type	Comment
ReqSize	12	INT	DataToSend Size (In Bytes)
ActionType	1	INT	Transmission, followed by await reception
DataToSend		ARRAY[0..5] OF...	
DataToSend[0]	16#0250	INT	HiByte=02 (Path Size); LowByte=50 (ServiceCode= Write Holding Reg)
DataToSend[1]	16#4420	INT	HiByte= 44 (Class); LowByte=20 (Class Segment)
DataToSend[2]	16#0124	INT	HiByte=01 (Instance); LowByte=24 (Instance Segment)
DataToSend[3]	0	INT	Location of First Word to WRITE at target (value + %MW1 = First Word)
DataToSend[4]	1	INT	Number of Words to WRITE
DataToSend[5]	13564	INT	Data to WRITE
ManagParam		ARRAY[0..3] OF...	
ManagParam[0]	16#2301	INT	System Response [MSB:Exchange #; LSB:bit 1=activity, bit 2=cancel]
ManagParam[1]	0	INT	System Response [Operation Report; Communication Report]
ManagParam[2]	2	INT	User Configuration [Function Block Timeout = 2 (200ms)]
ManagParam[3]	12	INT	Program Action [ReqSize Value MOVE to ManagParam[3]]
ReceivedData		ARRAY[0..49] O...	
ReceivedData[0]	16#00D0	INT	Response [Service Code and MSB REsponse bit = 00D0]
ReceivedData[1]	16#0000	INT	Response [Service Response, 0 = success]
ReceivedData[2]	0	INT	Response [Location of First Word to WRITE = DataToSend[3]]
ReceivedData[3]	1	INT	Response [Number of Words to WRITE = DataToSend[4]]

ReqSize in Bytes

Response will always be 4 words

Number of words to WRITE starts at DataToSend[5]

ActionType will always be = 1