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# CMV-E1X-4X and CMV-E2X-4X User Manual

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# NITRA CMV-E1X-4X and CMV-E2X-4X

The NITRA CMV-E1X-4X and CMV-E2X-4X

valve block supports Class 1 I/O Messaging as well as Class 3 Explicit and Unconnected Explicit Messaging. The standard EtherNet/IP TCP port of 44818 is used on this product.

# **EtherNet/IP Diagnostics:**

LED	Status	\$	Meaning
	OFF	0	No connection to the EtherNet/IP With power ON, the MS light flashes red and the NS light stays steady red
IN/OUT (link/act)	ON (green)	$\bullet$	The module is connected to the network but there is no data exchange.
	GREEN (flashing)	<b>※</b>	The module is communicating correctly with the network
	OFF	0	No power or communication initialization
	ON (green)	•	The module is operating correctly
	GREEN (flashing)	<del>بې</del> :	The module is connected but not configured correctly on the network
MS	GREEN RED (flashing)	* *	When switched on, the module performs an auto-test
	RED (flashing)	<b>.</b>	Configuration error, e.g. an IP address assignment error has been detected. Another user is using the same IP address in the network.
	ON (red)	•	Module operating fault
	OFF	0	Incorrect communication initialization or module configuration in the network
	ON (green)	•	Correct EtherNet/IP connection
NS	GREEN (flashing)	×	Communication with the controller network is down
	GREEN RED (flashing)	* *	When switched on, the module performs an auto-test
	RED (flashing)	<b></b>	The connection previously established with the network controller is timed out or discontinued. Connection can be resumed by restarting communication.

# **CMV Diagnostics:**

Valve module diagnostics are defined by both status of the Local Error LED and the Status Byte (byte # 4) of the Input Data block.

Local	Local Error LED Status		Diagnostic	Mooning			
Status	Power	<b>Local Error</b>	Codes	Meaning			
ON (green)	ightarrow	0	00	The module is operating correctly			
ON (green/red)	•	•	0x88	Overcurrent in the module			
GREEN (flashing)	<del>.</del>	0	0x80	No auxiliary power			
ON (green)			0x20 / 0x2F	Valve 1/16 faulty or missing*			
RED (flashing)		*	0x30 / 0x3F	Valve short circuit			

# I/O Messaging

The NITRA CMV-E1X-4X and CMV-E2X-4X supports multicast and unicast delivery for the T->O Input data. The 4 byte status header for the O->T Output data is required. The following parameters are required to communicate to the NITRA CMV-E1X-4X and CMV-E2X-4X:

# T->O Input Data:

- Assembly Instance/Connection Point value: 101 (0x65)
- Size: 5 bytes

# O->T Output Data:

- Assembly Instance/Connection Point value: 100 (0x64)
- Size: 2 bytes (not including the 4 byte status header)

# **Configuration Data:**

- Assembly Instance/Connection Point value: 3
- Size: 0
- If the Scanner device allows, it is also acceptable to not send the Configuration data segment in the Connection.

# Data:

	Input Data
Byte	Data
0	Run / Idle Header Value (1 = Run)
1	Reserved
2	Reserved
3	Reserved
4	Status Byte

# **Status Byte Definition:**

Hovedooimol		•		Bit Po	sitio	Mooning			
nexaueciliai	7	6	5	4	3	2	1	0	Meaning
0x00	0	0	0	0	0	0	0	0	No errors, everything is good.
0x88	1	0	0	0	1	0	0	0	Overcurrent error
0x80	0	0	1	0	х	x	х	х	Missing Valve power
0x20 - 0x2F	0	0	1	0	x	x	x	x	Valve fault. 0x20 represents an open circuit for the valve or the valve is not present. The lower nibble represents which valve is in error. There is an offset of 1. 0x20 means Valve 1 is in error. 16 is in error.
0x30 - 0x3F	0	0	1	1	x	x	x	x	Valve fault. 0x30 represents a short circuit for the valve. The lower nibble represents which valve is in error. There is an offset of 1. 0x30 means Valve 1 is in error. 0x3F means Valve 16 is in error.

**NOTE:** If more than 1 valve is in error, only the lowest valve in error's bit will indicate. If multiple valves are in error, you will not be able to see which other valves are in error until the lowest one has been corrected.

Short circuit behavior: When a valve is in short circuit, the appropriate status bits defined in the table above will come on when the output is turned on. The alarm will stay on even when the output is turned off. If the short circuit is corrected, the status bit will turn off upon next activation of that output.

Open circuit behavior: When a valve is open, the appropriate status bits defined in the table above will come on when the output is turned on. This status bit will remain on until the valve has been power cycled or if the problem is corrected.

Outpu	ıt Data				Bit Po	sition			
Byte	Data	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit O
0	Valves 1 - 8	Valve 8	Valve 7	Valve 6	Valve 5	Valve 4	Valve 3	Valve 2	Valve 1
1	Valves 9 - 16	Valve 16	Valve 15	Valve 14	Valve 13	Valve 12	Valve 11	Valve 10	Valve 9

# **Explicit Messaging:**

As mentioned above, Explicit Messaging can be performed Connected (Class 3) or Unconnected.

**NOTE:** When performing Connected Explicit Messaging and controlling the outputs of the valve, if the connection is lost (either abruptly or purposely), the outputs will shut off automatically. If you send an unconnected message turning on the Outputs, they will remain ON until another unconnected message is sent turning them off or the valve is power cycled. If you are controlling outputs and using Unconnected Messaging, consideration in the design should be taken for events when communications are disrupted. An example may be to read status constantly back from the valve and if no replies are received in a certain amount of time, use discrete outputs to shut power down to the valves themselves.

The following parameters are required to do Explicit Messaging to the valve:

#### Input Data:

- Service ID: Get Attribute Single: 14 (0x0e)
- Class ID: 4
- Instance ID: 101
- Attribute ID: 3
- Size: 1 byte

#### **Output Data:**

- Service ID: Set Attribute Single: 16 (0x10)
- Class ID: 4
- Instance ID: 100
- Attribute ID: 3
- Size: 2 bytes

# Data:

	Input Data
Byte	Data
0	Status Byte

# **Status Byte Definition:**

llevedeeimel				Bit Po	sitior	Meening			
Hexadecimal           0x00           0x88           0x80           0x20 - 0x2F	7	6	5	4	3	2	1	0	Meaning
0x00	0	0	0	0	0	0	0	0	No errors, everything is good.
0x88	1	0	0	0	1	0	0	0	Overcurrent error
0x80	1	0	0	0	0	0	0	0	Missing Valve power
0x20 - 0x2F	0	0	1	0	x	x	x	x	Valve fault. 0x20 represents an open circuit for the valve or the valve is not present. The lower nibble represents which valve is in error. There is an offset of 1. 0x20 means Valve 1 is in error. 16 is in error.
0x30 - 0x3F	0	0	1	1	x	x	x	x	Valve fault. 0x30 represents a short circuit for the valve. The lower nibble represents which valve is in error. There is an offset of 1. 0x30 means Valve 1 is in error. 0x3F means Valve 16 is in error.

**NOTE:** If more than 1 valve is in error, only the lowest valve in error's bit will indicate. If multiple valves are in error, you will not be able to see which other valves are in error until the lowest one has been corrected.

Outpu	Bit Position								
Byte	Data	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit O
0	Valves 1 - 8	Valve 8	Valve 7	Valve 6	Valve 5	Valve 4	Valve 3	Valve 2	Valve 1
1	Valves 9 - 16	Valve 16	Valve 15	Valve 14	Valve 13	Valve 12	Valve 11	Valve 10	Valve 9

# **PLC Examples:**

# **Productivity Series IO Messaging:**

Hardware Configuration		×
▲ 🛃 🚼 🖕 • 🥥		-
CPU GS Drives EtherNet	t/IP CPOE ProNET	
		EtherNet/IP Device
	EtherNet/IP Client Properties	Generic Client
	Vuse Structure nitra_valve1	
NITRA Valve1	Device Name NITRA Valve1 TCP Connected TCPConnected TCPConnected	
10.11.0.229	Ethernet Port CPU-ETH-Ext	
	IP Address 10.11.0.229 Vendor ID VendorID 👻	
	TCP Port Number 44818 TCP/IP Error TcpIpError +	
	Close unused CIP Session after 30 secs	
	Swap Byte Order	
	No messages have been defined	
	Monitor OK Cancel Help	
1		

Go to the Hardware Configuration, click on the "EtherNet/IP" tab and drag over the "Generic Client" on the right hand side pane to create a new EtherNet/IP Client. Enter in the IP address of the Nitra CMV-E1X-4X or CMV-E2X-4X. Click on the "+" to "Add IO Message":

		Vse Structure	nitra_valve1		
Device Name	NITRA Valve1	TCP Connected	TCPConnected		1
Ethernet Port	CPU-ETH-Ext 👻	Adapter Name	AdapterName		
IP Address	10.11.0.229	Vendor ID	VendorID		10
CP Port Number	44818	TCP/IP Error	TcpIpError		
Enable Msg1En	4SG1 [I/O]	Connection Online	Msg1ConnOnline	Ŧ	[
Enable Msg 1En	able 🔻 📖	Connection Online	Msg1ConnOnline	Ŧ	[
		General Status	Msg1GenStatus		
Enable Rout	ing Slot Number 0	Extended Status	hitra_v1_ext_Stat	•	
		Status Description	Msg1StatusDesc		
Target To Ori	ginator (INPUT) Data Delivery Option [ RPI Time (msec) [	Multicast  250 101	(0x65)		

On the "T->O (Input)" configure as shown in the image above. An 8 bit array should be created that is at least 5 elements. The data returned will be in the format shown in the tables located in the beginning of this document. The Multicast or Unicast option will work. It is recommended to configure an RPI time no faster than is required for the application.

			1		-
		Use Structure	nitra_valve1	•	
Device Name	NITRA Valve1	TCP Connected	TCPConnected	Ŧ	
Ethernet Port	CPU-ETH-Ext 🔻	Adapter Name	AdapterName	T	
IP Address	10.11.0.229	Vendor ID	VendorID	Ŧ	
CP Port Number	44818	TCP/IP Error	TcpIpError		
Swap Byte Or	rder MSG1 [I/O] MSG2 [EXP]				
Enable Msg1En	able 🔹 🐨	Connection Online	Msg1ConnOnline	-	
		General Status	Msg1GenStatus	-	
Enable Rou	ting Slot Number	0 Extended Status	nitra_v1_ext_Stat	•	
		Status Description	Msg1StatusDesc	-	
T->0 (IN	PUT) O->T (OUTPUT)	CONFIG DATA			
Originator To Assemb	Target (OUTPUT) Data RPI Time (msec ly Instance/Connection Poir Datatype	c) 250 ht 100 e: Integer, 8 Bit Unsigned, 1D Arra	(0x64) ay		
	Data Arra	iy nitra_v1_IODataOutpu 👻			
		): 2			
	Message Size (bytes				

Configure the "O->T (Output)" tab as shown in the image above. The Output data is formatted as illustrated in the tables towards the beginning of this document. The "Include Status Header" option is required for the NITRA CMV-E1X-4X and CMV-E2X-4X. It is recommended to configure an RPI time no faster than the application requires.

1	Use Structure	nitra_valve1	•	
Device Name NITRA Valve1	TCP Connected	TCPConnected	Ŧ	1
Ethernet Port CPU-ETH-Ext 👻	Adapter Name	AdapterName	Ŧ	] [
IP Address 10.11.0.229	Vendor ID	VendorID	Ŧ	
CP Port Number 44818	TCP/IP Error	TcpIpError	×	
MSG1 [I/O]				-
Enable Msg1Enable + C	Connection Online	Msg1ConnOnline	Ŧ	
	General Status	Msg1GenStatus		
		nitra ul ovt Stat		1
Enable Routing Slot Number 0	Extended Status	Ind_vi_ext_stat	<u> </u>	•
Enable Routing Slot Number     0     S	Extended Status	Msg1StatusDesc	*	
Enable Routing Slot Number     O      S      T->O (INPUT) O->T (OUTPUT) CONFIG      Configuration Data      Ø Enable Configuration Data      Assembly Instance/Connection Point      Database Jakase	Extended Status tatus Description DATA	(0x3)	*	
Enable Routing Slot Number     O      S      T->O (INPUT) O->T (OUTPUT) CONFIG      Configuration Data      Penable Configuration Data      Assembly Instance/Connection Point      Datatype: Intege      Data Array mitra	Extended Status tatus Description	(0x3) (0x3)		
Enable Routing Slot Number     S     T->O (INPUT) O->T (OUTPUT) CONFIG     Configuration Data     W Enable Configuration Data     Assembly Instance/Connection Point     Datatype: Intege     Data Array nitra_     Message Size (bytes): 0	Extended Status tatus Description DATA , 8 Bit Unsigned, 1 v1_ConfigData	(0x3) D Array		
Enable Routing Slot Number     O      S      T->O (INPUT) O->T (OUTPUT) CONFIG      Configuration Data      Ø Enable Configuration Data      Assembly Instance/Connection Point      Datatype: Intege      Data Array nitra      Message Size (bytes): 0      Number of Elements	Extended Status tatus Description DATA 3 r, 8 Bit Unsigned, 1 v1_ConfigData 0	(0x3) D Array	· · · · · · · · · · · · · · · · · · ·	

Configure the "CONFIG" tab as shown in the image above. There is no configuration data required for the NITRA CMV-E1X-4X and CMV-E2X-4X, so use a value of 0 for the number of elements and 3 for the Connection Point.

#### **Productivity Series Explicit Messaging:**

	I lee Structure	nitra valve t	-	11
	- 03e 30 detare	Inda_vaive1	•	IJ
Device Name NITRA Valve1	TCP Connected	TCPConnected	Ŧ	
Ethernet Port CPU-ETH-Ext 💌	Adapter Name	AdapterName	×	
IP Address 10.11.0.229	Vendor ID	VendorID	Ŧ	
CP Port Number 44818	TCP/IP Error	TcpIpError		
Close unused CIP Session after 30 secs				
Swap Byte Order				
MSG1 [I/O] MSG2 [EXP]				
Enable Msg2Enable -	Connection Online	Msg2ConnOnline	-	
RPI Time (msec) 250	General Status	Msg2GenStatus	+	
Enable Routing Slot Number 0	Extended Status	nitra_v1_ext_Stat_EXP	•	
	Status Description	Msg2StatusDesc	+	

In the Hardware Configuration, click on the "EtherNet/IP" tab and drag over a "Generic Client" to create an EtherNet/IP client. Click on the "+" to "Add Explicit Message". Be sure to enter the IP address of the NITRA CMV-E1X-4X and CMV-E2X-4X. It is recommended to configure an RPI time no faster than the application requires.

			Use Structure	nitra_v1_EM_In	•	
Device Name	NITRA Valve1	-]	In Progress	InProgress	· •	
Connection	MSG2 [EXP]	•	Complete	Complete		[
Service	Assy:Get Single	Attribute 👻	Success	Success	+	
Se	rvice ID	14 (0xE)	Error	Error		····
	Class ID	4 (0x4)	Timeout	Timeout	+	[
🕖 Use Attri	oute ID	3 (0x3)	Exception	ExcResponse	*	[
Inst	ance ID	101 (0x65)	Response String			-
Numb	er Elements	1				
0->T (OUTI	PUT)					
	Output					
Enable	eoutput					
Enable	Datatype:					
Enable	Datatype: Data Array		· · · · ·			
Message S	Datatype: Data Array ize (bytes): 0	*	*			
Enable Message S Numb	Datatype: Data Array ize (bytes): 0 er Elements	1	*			

Two instructions are required for Explicit Messaging: 1 for Input data and 1 for Output data. Configure the "EtherNet/IP Explicit Message (EMSG) instruction as shown above for Input data. Select the Device Name of the EtherNet/IP client that was created in the Hardware Configuration. Choose the Connection that was created in that same Device. The data format will be as shown in the tables at the beginning of this document.

				Use Structure	nitra_v1_EM_Out	•
Device Name	NITRA Valve	1 🔻		In Progress	s InProgress	-
Connection	MSG2 [EXP]	•	]	Complete	Complete	-
Service	Assy:Set Sin	gle Attrib	ute 🔻	Success	s Success	
Se	rvice ID	16	(0x10)	Erro	Error	•
	Class ID	4	(0x4)	Timeou	t Timeout	+
🕖 Use Attri	oute ID	3	(0x3)	Exception	ExcResponse	+
Inst	ance ID	100	(0x64)	Response String	]	
Message S	Data Array [ Size (bytes): 0	í	1			
Message S Numb	Data Array [ Size (bytes): 0 er Elements [ PUT) e Output		1			
Message S Numb O->T (OUTI	Data Array [ Size (bytes): 0 er Elements [ PUT) e Output Datatype: II	nteger, 8	1 Bit Unsigned,	1D Array		
Message S Numb O->T (OUTT	Data Array [ jize (bytes): 0 er Elements [ PUT) e Output Datatype: I Data Array [	nteger, 8 nitra_v1_	1 Bit Unsigned, EM_DataOutp	1D Array		
Message S Numb O->T (OUTI I Enable Message S Numb	Data Array [ jize (bytes): 0 er Elements [ PUT) e Output Datatype: I Data Array [ jize (bytes): 2 er Elements [	nteger, 8 nitra_v1_!	1 Bit Unsigned, EM_DataOutp	1D Array		
Message S Numb	Data Array [ Size (bytes): 0 er Elements [ PUT) a Output Datatype: 1 Data Array [ Size (bytes): 2 er Elements [	nteger, 8 hitra_v1_i	1 Bit Unsigned, EM_DataOutp 2	1D Array		

Configure the "EtherNet/IP Explicit Message (EMSG) instruction as shown above for Output data. Select the Device Name of the EtherNet/IP client that was created in the Hardware Configuration. Choose the Connection that was created in that same Device. The data format will be as shown in the tables at the beginning of this document.

**NOTE:** You may select "Unconnected MSG" in the Connection option. In this case, be aware that the outputs on the NITRA valves will remain in the last state written to if communications are lost between the PLC and the valve. Proper precautions must be taken to deal with this possibility (such as using a hardwired output of the PLC for control of the valve 24VDC).

MSG		<ul> <li>Send EtherNet/IP Messa</li> </ul>
evice @IntEIPClient	▼	Create Data Block
IP Address	Use Request Service Data Buffer	
• Fixed 10 . 11 . 0	. 229  C Req is String Structure	SS0
Variable D0	🕫 Reg is Numeric Data Block	
TCP Port Number 44818	Reg Start	D0
Path	Req Number of BYTEs	4
Class 0x4	Ilee Response Service Data Buffe	
Instance 0x65	C Res is String Structure	550
✓ Use Attribute 0x3	Res is Numeric Data Block	000
Service	Res Start	VO
Specific Service Get Attribute (14, 0x0E)	Res Length in BYTEs	D2
Generic Service D0	Res Max Length in BYTEs	1
Enable	General Status Code	D3
Once on Leading Edge	Extended Status	20
C Continuous on Power Flow at Interval	C Ext is String Structure	SS0
Constant hr h min m sec s ms ms	Ext is Numeric Data Block	1
C Variable D0 ms	Ext Start	D0
In Success: @ Set bit C .IMP to Stage	<ul> <li>Ext Length in BYTEs</li> </ul>	D0
On Success Counter	Ext Max Length in BYTEs	4

# **Do-More Explicit Messaging:**

Two instructions are required for Explicit Messaging: 1 for Input data and 1 for Output data. Configure the "Send EtherNet/IP Message (EIPMSG) instruction as shown above for Input data. The data format will be as shown in the tables at the beginning of this document.

XXX?		C
EIPMSG		<ul> <li>Send EtherNet/IP Message</li> </ul>
Device @IntEIPClient -		Create Data Block
IP Address         IP Address           © Fixed         10         11         0         229         •           C Variable         D0	<ul> <li>Use Request Service Data Buffe</li> <li>Req is String Structure</li> <li>Req is Numeric Data Block</li> <li>Req Start</li> </ul>	SS0 V5 •
Path	Req Number of BYTEs	2 *
Class         0x4         •           Instance         0x64         •           If Use Attribute         0x3         •	C Use Response Service Data Bu C Res is String Structure C Res is Numeric Data Block	ffer SS0
Service      Specific Service     Set Attribute (16, 0x10)      Generic Service	Res Start Res Length in BYTEs Res Max Length in BYTEs	D0 D0 4
Enable © Once on Leading Edge	General Status Code	D0
Continuous on Power Flow at Interval Constant 00 h 00 m 00 s 000 ms	C Ext is String Structure C Ext is Numeric Data Block	SS0
On Success:         Image: C2         Image: C2	Ext Start Ext Length in BYTEs Ext Max Length in BYTEs	D0 4
On Error Counter		

Configure the "Send EtherNet/IP Message (EIPMSG) instruction as shown above for Output data. The data format will be as shown in the tables at the beginning of this document.

**NOTE:** At the time of writing this documentation, Do-more does only Unconnected Explicit Messaging. Be aware that the outputs on the NITRA valves will remain in the last state written to if communications are lost between the PLC and the valve. Proper precautions must be taken to deal with this possibility (such as using a hardwired output of the PLC for control of the valve 24VDC).

# Allen Bradley CompactLogix IO Messaging (Generic):

Ente	er Search Text for Module Ty	pe	Cle	ear	Filte	rs		Hide Filters	*
	Module Type Category Filt	ers		*	V	Module Type	Vendor Filters		-
<ul><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></ul>	A-B Analog AC Drive Device Analog CIP Motion Converter				<ul><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></ul>	Allen-Bradley Advanced Ene Advanced Mic Advantech Co	ergy Industries, Inc. ro Controls Inc. (AMCI) poration		
•	III			III	•				
Cat	talog Number	Description					Vendor	Category	-
•	Catalog Number Description ETHERNET-BRIDGE ETHERNET-MODULE Generic EtherNet/IP CIP E ETHERNET-PANELVIEW EtherNet/IP Panelview ETHERNET-SAFETY-ST Generic EtherNet/IP Safe EX250-SEN1 Ethernet Valve Manifold S			je nd S	itand	ard Module	Allen-Bradley Allen-Bradley Allen-Bradley Allen-Bradley SMC Corporation	Communication Communication HMI Safety,Other Communication	

Create a "Generic Ethernet Module".

Туре:	ETHERNET-MODULE Generic Ether	net Module			
Vendor:	Allen-Bradley				
Parent:	Local	Connection Para	ameters		
Description:	NITRA_Valve1		Assembly Instance:	Size:	
boomption.	^	Input:	101	5	(8-bit)
	*	Output:	100	2	(8-bit)
Comm Format	t: Data - SINT 👻	Configuration	3	0	(8-bit)
Address / H	Host Name	oornigaration.		· · · ·	(o bit)
IP Addre	ess: 10 . 11 . 0 . 229	Status Input:			
⊚ Host Na	ame:	Status Output:			

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Enter in the parameters as shown above.

General Connection* Modul	Local (ETHERNET-MODULE 1.001)
Requested Packet Interval (R Inhibit Module Major Fault On Controller If Vuse Unicast Connection of	Pi): 250 mm (1.0 - 3200.0 ms) Connection Fails While in Run Mode ver EtherNet/IP
Module Fault	
Status: Offline	OK Cancel Apply Help

Either Unicast or Multicast is supported. It is recommended to raise the RPI time as high as the application can support. Input and Output tags will be created after completing this step. The data format for the Input and Output is illustrated in the tables at the beginning of this document.

# Allen Bradley CompactLogix IO Messaging (EDS file method):

Follow the documentation for the Rockwell software (Studio5000 or RS Logix) on importing EDS files.

After completing the EDS file import, do a search for Nitra:

NIT	RA		<u>C</u>	ear	Filte	S		Hide Filters	*
	Module Type Category F	Iters		*	<b>V</b>	Module Typ	e Vendor Filters		-
<ul> <li></li> &lt;</ul>	A-B Analog AC Drive Device Analog CIP Motion Converter			-	<ul><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></ul>	Allen-Bradley Advanced E Advanced M Advantech (	/ inergy Industries, Inc. licro Controls Inc. (AMCI) Corporation		
•	m		Þ		•		III	ŀ	
Cat	alog Number	Description			Ven	lor	Category		
	CMV-E_X-4X	Nitra CMV EtherNet/IP			Meta	l Work SpA	Communications Adapter		
1.45	507 Module Types Found							Add to Favor	ites

Choose this module and click on the Create button.

aeneral" Conn	ection	Module Info	Internet Protocol	Port Configuration	Network	
Type:	Nitra	000 Nitra				
Vendor:	Auton	nationdirect.com	m			
Parent:	Local					
Name:	NITE	IA_Valve1			Ethernet Address	
Description:					Private Network:	192.168.1.
				<u> </u>	IP Address:	10 . 11 . 0 . 229
					O Host Name:	
				Ŧ		
Module Defin	ition					
Revision:		1.001				
Electronic Ke	sying:	Compatible M	odule			
Connections		Exclusive Ov	vner			
			(	Change		

Enter in the IP address for the NITRA valve. The Connection parameters are already configured.

eneral*	Connection*	Module Info	Internet Protocol	Port Confi	guration Network				
Name Exclusive Owner			Requested	Connection over EtherNet/IP		Input Trigger			
				250.0 ≑	Unicast 🗸		Cyclic		
Tabib	it Modulo								
Inhib	iit Module r Fault On Cont	roller If Conn	ection Fails While i	n Run Mode					

Adjust the RPI time and choose either Unicast or Multicast on the "Connection" tab. It is recommended to raise the RPI time as high as the application can support.

#### Allen Bradley CompactLogix Explicit Messaging:

onfiguratio	n* Con	munication Ta	g			
Message	Type:	CIP Gener	с		•	
Service	Get Att	ribute Single		•	Source Element:	
The.					Source Length:	0 (Bytes)
Ser <u>v</u> ice Code:	e	(Hex) Class:	4	(Hex)	Destination	NitraInputData 🚽
Instance:	101	Attribute:	3	(Hex)	Element:	Ne <u>w</u> Tag
) Enable	() En	able Waiting	() St	art	O Done	Done Length: 0

To retrieve Input data from the NITRA CMV-E1X-4X and CMV-E2X-4X with Explicit Messaging, fill in the MSG instruction as shown above. Note that the Destination Element array must be at least 5 elements in length and choose the SINT data type.

Message	Type:	CIP Gener	ic		•		
Service	Set Attr	ribute Single		•	Source Element:	NitraOutputData 🗸	
The.					Source Length:	2	(Bytes)
Service Code:	10	(Hex) Class:	4	(Hex)	Destination		-
<u>I</u> nstance:	100 Attri <u>b</u> ute: 3 (				Element:	New Tag	
) Enable	() En	able Waiting	O S	tart	○ Done	Done Length: 0	

To send Output data to the NITRA CMV-E1X-4X and CMV-E2X-4X with Explicit Messaging, fill in the MSG instruction as shown above. Note that the Source Element array should be 2 bytes in length and choose the SINT data type.