Deliver EtherNet/IP<sup>™</sup> solutions on your PC-based systems faster and more easily with BradCommunications<sup>™</sup> software tools.

A suite of solutions to embed EtherNet/IP into your applications

## EtherNet/IP<sup>™</sup> Software Tools

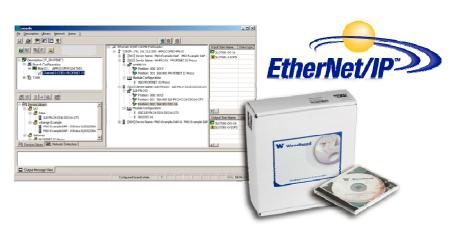
### **Features:**

- - Send & Receive explicit messages
    Client mode (Server mode on
  - request) ✓ DLL library for Windows 32-bit (XP / Vista)

#### • OEM Engineering Console for EtherNet/IP Scanner

- Allows configuration and diagnostics of EtherNet/IP devices
- ✓ Automatic device detection
- ✓ ODVA-approved EDS Parser
- ✓ Configuration manager
- ✓ Supports Rockwell devices such as FlexIO, PointIO
- ✓ Rack Optimization
- $\checkmark$  On-Line mode for diagnostics
- Diagnostic Tool
  - ✓ FREE limited version
     ✓ Supports 0xF5 TCP/IP and 0xF6
  - Ethernet Link objects

    Ideal to prepare for EtherNet/IP Plug
  - Selected by ODVA as the official tool for testing EtherNet/IP network objects



### Overview

Molex, Inc through its automation products is a recognized leader in industrial communication and connectivity solutions.

Molex provides a complete range of EtherNet/IP services, expertise and products, including training, protocol stacks, software tools, network interface cards, I/O modules, and infrastructure products.

Molex is the ideal partner to listen your requirements and turn your projects into successful, cost-effective solutions.

### Explicit Messaging DLL Driver kit (EIP\_Driver)

BradCommunications<sup>™</sup> EIP\_Driver provides EtherNet/IP Explicit Messaging (EM) functionality for applications developed for PC / Windows<sup>™</sup> platforms. The product consists of a user-mode DLL driver, sample client application source code that demonstrates use of the EIP\_Driver DLL API and its capabilities, and the user reference manual.

The EIP\_Driver is the fastest and easiest solution to implement Explicit Messaging communication in PC-based client applications such as:

- Configuration / Commissioning consoles
- Diagnostic / Monitoring tools
- HMI / Scada applications
- Custom software

The EIP\_Driver provides an Application Programming Interface (API) that simply send/receive buffer of data on the network with remote EtherNet/IP EM server devices. The EIP\_Driver is managing the complete CIP communication (connection / reconnection, etc) so the application software writer needs no special expertise in the EtherNet/IP protocol. The EIP\_Driver DLL library can be statically or dynamically linked with the target application.

The EIP\_Driver is distributed under a royalty-free site license.

Woodhead

ODVA

Active member of the ODVA interoperability plug fest and working groups.

# **Brad**Communications<sup>™</sup>

## EtherNet/IP<sup>™</sup> Software Tools



EIP_Driver Features						
Object Library	DLL Windows 32 bits (validated under the Windows XP and Windows Vista 32-bit environments)					
Explicit Messages       Client mode only         • Supports connected and unconnected messages         • Supports synchronous and asynchronous modes						
List Identify	This service provides a way to detect all EtherNet/IP <sup>™</sup> stations connected to the network					
Multi-Threading	The API is designed to be used in multi-threaded applications					
Multi-Process	Several applications can use the EIP_Driver simultaneously					

### **OEM Engineering Console Tool (EIP\_CT)**

BradCommunications<sup>™</sup> EIP\_CT is an OEM engineering Console Tool (CT) that is used to configure and diagnose an EtherNet/IP<sup>™</sup> network. It runs on Windows PC platforms.

It enables an industrial products' manufacturer to easily provide a full range of configuration and diagnostics functions for an Ethernet/IP Scanner, in a branded and fieldtested application.

EIP\_CT is connected to a remote Scanner and within a few mouse clicks, a user can configure a complete EtherNet/IP™ network including Scanner parameters and device connections. The user configuration is downloaded to the Scanner using the FTP protocol.

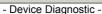
EIP\_CT includes an EDS parser equipment library that is used during the device detection step to build automatically the network topology.

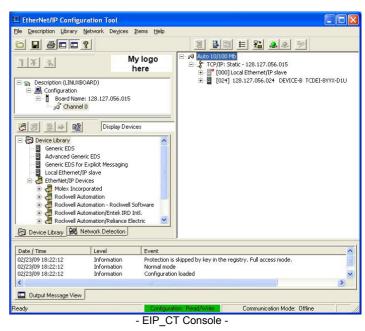
When EIP\_CT is running in ON\_LINE mode, the console provides useful diagnostic information (device parameters, module information, port configuration and I/O process data).

EIP\_CT can be customized very quickly through an XML template which defines the information such as: tool name, system platform name, product logo.

EIP\_CT is selected by ODVA to validate ESD file integrity and communication for EtherNet/IP interoperability testing.

Name	Value	Unit
Identification		
► Vendor ID	1	Refresh
⊨ Device Type	12	
► Product Code	108	
⊨ Revision	V2.3	
⊨ Serial Number	1A213671	
Product Name	1734-AENT Ethernet/IP Adapter	r
Here)		
🖻 Status		
⊨ Owned	FALSE	
⊢ Configured	TRUE	
⊨ Extended Device Status	No I/O connections established	
Hajor Unrecoverable Fault	FALSE	
► Major Recoverable Fault	FALSE	
⊨ Minor Unrecoverable Fault	FALSE	
⊨ Minor Recoverable Fault	FALSE	
		<u>R</u> eset Device
Description		





Chassis Type Available in the Device Lil	Set Chassis Size in the Module 2
734 Chassis 3	Get Chassis Size in the Module
vailable Modules for the Chassis :	Configured Modules : 💼 🛨 🖄
Module	Slot Device
1734-232ASC Revision 1.9	00 1734-AENT Revision 2.1
1734-232ASC/C Revision 3.1	01 1734-0B8/C
1734-485ASC Revision 1.9	02 1734-IB8/C
1734-485ASC/C Revision 3.1 1734-1A2/C	
1734-IB2/C	
1734-IB4/C	
1734-IB8/C	investigation of the second seco
1734-IE2C/C	⇒
1734-IE2V/C 1734-IJ/C	
1734-107C	
1734-IM2/C	
1734-IR2/C	
1734-IT2I/C	
1734-IV2/C 1734-IV4/C	
1734-1V4/C	
1734-0A2/C	
1734-0B2/C	
1734-0B2E/C	
1734-0B2EP/C 1734-0B4/C	
1734-0847C 1734-084E7C	

- Device Chassis Configuration -

### EDS Manager (EIP\_EDS-Manager)

BradCommunications<sup>™</sup> EIP\_EDS-Manager is a Windows software component that enables a product developer to implement an EtherNet/IP Scanner configuration console in proprietary engineering software.

EIP\_EDS-Manager includes an API library to handle:

- EDS file library
  - EDS import Wizard
  - EDS Remover
- EDS parser

Chassis configuration

Flex 8 slot chassis

1203 - SCANPort

Module

Chassis Type Available in the Device Library

Available Modules for the Chassis

- Display device properties
- Add/Remove a device into user configuration
  - Add/Remove modules in a device chassis
  - Support Rockwell FlexIO / PointIO
  - Support Rack optimization for Rockwell devices
- Configuration of Scanner connections
  - Add/Remove connection
  - Support of Exclusive Owner (EO), Listen Only (LO, and Input Only (IO)
- Automatic tag creation of I/O data
- Load/Save a user configuration (XML format)

EIP\_EDS-Manager is delivered with a Windows sample that illustrates the different calls of API library.

The product consists of a user-mode DLL component, sample client application source code that demonstrates use of the EIP\_EDS-Manager DLL API and its capabilities, and the user reference manual.

EIP\_EDS-Manager uses the same core engine of EIP\_CT engineering console selected by ODVA to validate ESD file integrity and communication for EtherNet/IP interoperability testing (PlugFest).

•

Configured Modules

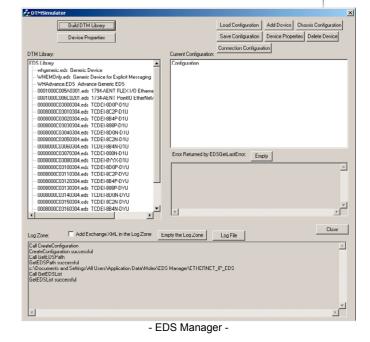
1794-AENT FLEX I/O Ethernet Adap

Slot Device

n/a

<u>?</u> ×

1 I X



? × Configured Connections Connections Parameters 1794-AENT FLEX I/O Ethernet / Name Unit Value DISPLAY CONN 0 Online Parameters
 A Rack Optimization tion Identifie Rack Optimization Rack Optimization General Check Identity Configuration Setting Type Is Generic False 30 Request Packet Interval (RPI) ms Hequest Packet in Input T->0 Input Mode Input Type Input Priority InputTrigger Type Output O->T Output Mode Dutput Mode 🛃 Items Multicast 1794 - 16 Point 120V AC Output Fixed Online Parameters
 Rack Optimization Scheduled Cyclic General Check Identity Configuration Setting Point to Point Output Type Output Priority Fixed Scheduled 🧕 Item: 1794 - 16 Point 24V DC Input, S III Online Parameters Rack Optimization ÷ General Check Identity Configuration Setting 遵 Item: 16 Point 120V AC Outpu - 🔝 Online Parameters 1 ٦I Add Remove Device Data for Debug ΟK Cancel



1794 - 16 Point 120V AC Output 1794 - 16 Point 120V AC Output 16 Point 24V DC Input, Sink 1793-IB16/A 16 Point 24V DC Input, Sink 1793-IV16/A 01 16 Point 24V DC Protected Output, Sink 179 16 Point 24V DC Protected Output, Source 1 02 03 1794 - 16 Point 24V DC Input, Sink 16 Point 24V DC Protected Output, Source 1 16 Point NAMUR 8V DC Input/Counter 04 05 1794 - 10 Input/6 Output 24V DC, Sink/Sour 1794 - 12 Channel Analog Input 06 ⇒ 07 1794 - 12 Channel Analog Output 1794 - 16 Input/16 Output 24V DC, Sink/Pro 1794 - 16 Point 120V AC Input 1794 - 16 Point 120V AC Output 1794 - 16 Point 24V de Diagnostie Input Moc 1794 - 16 Point 24V dc Diagnostic Output Mc 1794 - 16 Point 24V DC Input, Sink 1794 - 16 Point 24V DC Input, Source 1794 - 16 Point 24V DC Output, Sink 1794-0 1794 - 16 Point 24V DC Output, Source 1794 - 16 Point 24V DC Protected Output 1794 - 16 Point 48V DC Input 1794 - 16 Point 48V DC Output, Source 1794 - 2 Channel 24V DC Incremental Encoc 1794 - 2 Channel 24V DC Incremental Encoc Ð 0K Cancel - Chassis Configuration -

### Diagnostic Tools (EIP\_DiagTools)

BradCommunications<sup>™</sup> EIP\_Tools provides a set of EtherNet/IP utilities that enable a user or product developer to test CIP objects. EIP\_Tools consists of an executable application for PC / Windows<sup>™</sup> platforms.

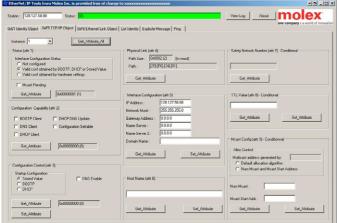
A **FREE limited version** is available on request to access objects such as:

- 0x01 Identify Object
- 0xF5 TCP/IP Object
- 0xF6 EtherNet/IP Link Object

The full version supports:

- List Identify; automatic detection of EIP devices connected to network
- Explicit Message; allows to send and receive Explicit Messages in unconnected and connected modes
- Ping service

EIP\_Tool is selected by ODVA to validate 0xF5 and 0xF6 objects during EtherNet/IP Interoperability tests (Plug fest).



- 0xF5 TCP/IP Object -

ation: 128.127.58.88	Status : Dk		View Log About MOLEX		
01 Identity Object DuF5 TCP/IP D	bject   DuF6 Ethemet Link Object   List Identity   Exp	Acite Message Ping			
Instance 1	Get_Attribute_At	(0) Power Cycling C (1) Factory Defai	ut Reset		
Vendor ID (attr 1)	Serial Number (attr 6)	1			
Giet_Attribute 243	Gel_Attribute 0x5400510A (1409306890)	Configuration Consistency Value (attr 9)	Semaphore (attr 14)		
Device Type (attr 2)	Product Name (attr 7)				
Get_Amibute 12	Get_Attribute 140 NOC77100	Heartbeat Interval (attr 10)			
Device Code (attr 3)	State (attr 8)		Assigned_Name (altr 15)		
Get_Amibute 1	Non existent     Device Sell Testing				
Revision (altr 4)	C Standby C Operational	Active Language (attr 11)			
Major Revision 1	C Major Recoverable Fault C Major Unrecoverable Fault				
Minor Revision	C Reserved		Assigned_Description (attb 16)		
Get Attribute	C Default for GetAthbutresAll				
	Get_Attribute				
Status (attr 5)	-Extended Device Status				
Configured	Value Ox6 (6)	Cupported Language List (attr 12)	Geographic Location (attb 17)		
Minor Recoverable Fault	C Self-Testing or Unknown	Subbrune calibrate cur (and 12)	Geographic_cocaron (and) 171		
Minor Unrecoverable Fault	C Firmware Update in Progress				
Major Unrecoverable Fault	C At least one faulted I/O connection C No I/O connections established				
0x0064 (100)	C Non-Volatile Configuration bad C Major Fault	International Product Name (attr 13)	Modbus Identity Info (attrb 18)		
Get Athibute	At least one I/O connection in Run     At least one I/O connection established	International Product Name (altr 13)	Modous roenary into (areb 18)		

- 0x01 Identity Object -

											one company > a world of inn
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					-						
Se	end List Identity R	loquest	N	lumber of de	rvice : 3	0					
/ension	IP Address	Vendor ID	Dev Type	Prod Code	Revision	Status	Serial Number	State	Product Name		
Dx01	128.127.58.34	0x243	0×00	0x02	0x02	0x70	0x0007A624	0xFF	applicom/0 EtherNet/IP Scanner	_	
Dx01	128.127.58.38	0x243	0x0C	0x02	0x02	0x70	0x0007A62F	0.FF	applicanIO EtherNet/IP Scanner		
0x01	128 127 58 32	0x243	0.00	0x02	0x02	0x70	0x0007A627	0.FF	applican/O EtherNet/IP Scanner		
0.01	128.127.58.88	0.F3	0.00	0.01	0x01	0.64	0x5400510A	0x3	140 N0C77100		
Dx01	128.127.58.52	0xF3	0x00	0x8A5	0x02	0x74	0x42261254	0x3	STB NIC 2212 In4 Out1		
0x01	128.127.58.74	0x01	0x0C	0x6C	0x02	0x34	0x1A213648	0x3	1734-AENT Ethemet/IP Adapter		
0x01	128.127.58.10	0x08	0x0C	0x380	0x01	0x64	0./FFFFFFFF	0xFF	TS7800-EIP-SCA		
)M)1	128.127.58.71	0x01	0x0C	0x6C	0x02	0x34	0x1A213671	0x3	1734-AENT Ethemel/IP Adapter		
0x01	128.127.58.58	0+01	0.07	0x112	0x01	0x30	0x8026A119	0x3	1732E-16CFGM12 16 DC In/Dut M12		
0.001	128.127.58.68	0x28	0M0C	0x155	0x02	0x34	0x0E01F582	0.FF	WAGO Ethemet(10/100MBit) STD		
Dx01	128.127.58.60	0x01	0x0C	0x5A	0x02	0x80	0x002C4149	0x3	1794-AENT/A		
Dx01	128.127.58.64	0x01	0x0C	0x5A	0x01	0x80	0x000F8DF5	0x3	1794-AENT		
Dx01	128.127.58.65	0xF3	0x0C	0x0A5	0x02	0x74	0x42171254	0x3	STB NIP 2212 In4 Out1		
Dx61	128.127.58.67	0x28	0x0C	0x155	0x02	0x24	0xDE01F5A7	0xFF	WAGO Ethemet(10/100MBR)- STD		
Dw01	128.127.58.62	0x01	0x0C	0x6C	0x01	0x34	0x00202AF7	0x3	1734-AENT Ethemet/IP Adapter		
Dw01	128.127.58.61	0x01	0x0C	Dx6C	0x01	0x34	0x00215E1F	0x3	1734-AENT Ethemet/IP Adapter		
0x01	128.127.58.59	0x1A	0x0C	0x32CA	0x01	0x130	0x00030080	0xFF	CPX-FB32 Remote I/0		
Dx01	128.127.58.69	0x232	0.00	0x1FE5	0x01	0x74	0x05C19392	0.FF	FL IL 24 BK ETH/IP PAC		
0.01	128.127.58.70	0.232	0.00	0x1FE5	0x01	0x74	0x05C1928F	0.FF	FL IL 24 BK/ETH/IP/PAC		

- List Identify -

### **Ordering Information**

Part Number	SAP Number	Description
SDK-EIP-EML	1121065008	BradCommunications EtherNet/IP Explicit Messaging DLL Driver kit, Client mode (EIP_Driver)
SDK-EIP-SCA-CNF-U	1121065011	BradCommunications EtherNet/IP OEM Configuration Console, USB Dongle, 1 license (EIP_CT)
SDK-EIP-DIAG	Consult Us	BradCommunications EtherNet/IP Diagnostic Tools (EIP_DiagTools)
SDK-EIP-EDSM	Consult Us	BradCommunications EtherNet/IP EDS Manager DLL Driver kit (EIP_EDS-Manager)

Other related EtherNet/IP products					
Part Number	SAP Number	Description			
SDK-EIP-ADP	1121060000	BradCommunications EtherNet/IP Adapter Protocol Software Development Kit (stack)			
SDK-EIP-ADP -SAF	1121170001	BradCommunications EtherNet/IP CIP Safety Adapter Protocol Software Development Kit (stack)			
SDK-EIP-SCA	1121065003	BradCommunications EtherNet/IP Scanner/Adapter Protocol Software Development Kit (stack)			
SDK-EIP-EDS	8600000141	BradCommunications Engineering Development Support for EtherNet/IP Software Development Kits			
SDK-EIP-TRN	8600000143	BradCommunications EtherNet/IP Software Development Kit Training & Implementation (2 + 1 days)			
DRL-EIP-PCU	1120005030	BradCommunications EtherNet/IP Scanner/Adapter PCI Universal 5V/3.3V interface card			



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