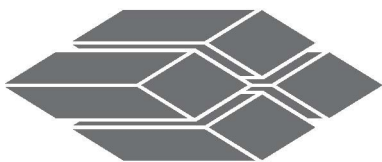


# *Ethernet*



Motion Control Products



ANIMATICS®

# About the Class4 Ethernet SmartMotor™

## Smartmotor -ETH Overview

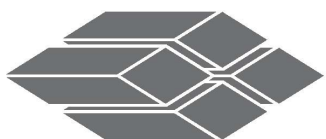
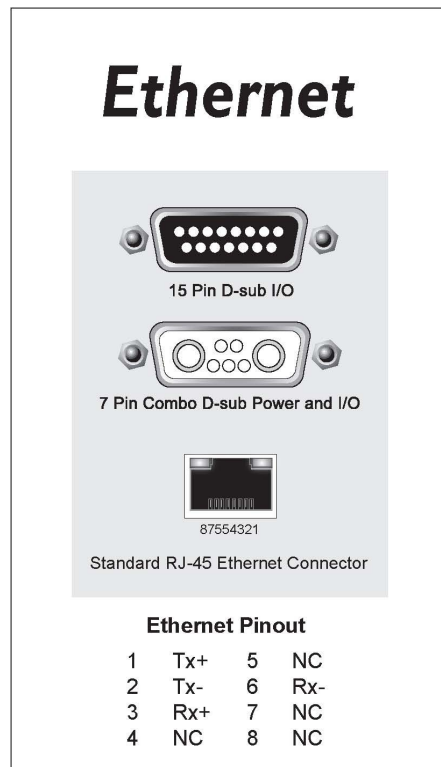
The -ETH option provides an Ethernet/RS485 converter to transfer ASCII data to the Smartmotor. Ethernet is the most common LAN in use today for exchange of information, and it supports many protocols. The Ethernet SmartMotor™ operates at 10/100 Mbps and responds to all Animatics ASCII commands sent from an Ethernet host via the Ethernet/RS485 port. Ethernet Hubs and Switches may be needed to separate subnets and optimize communications.

Note: EthernetIP, ModbusTCP and PowerLink protocols are not supported by the Class4 -ETH SmartMotors.

### Features Include:

- All SmartMotor commands are fully implemented via the Ethernet interface
- Standard TCP/IP to ASCII is provided via Ethernet port 10001
- Use of onboard I/O is available via Ethernet, the SmartMotor program, or the RS232 port
- Ability to run 1000 SmartMotor subroutines via Ethernet, the SmartMotor program, or the RS232 port
- Online diagnostics of the SmartMotor using SMI2 software via the Ethernet or the RS232 port
- Capable of Ethernet DHCP or Static IP addressing. SmartMotor RS232 addressing is determined by serial port daisy chain wiring.
- 250 micro second interrupt driven subroutine with the -PLSx firmware via PortG (F=64)

**Note: This option DOES NOT apply to all Models. Check with your distributor.**



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# Connections at a Glance



15 Pin D-sub I/O



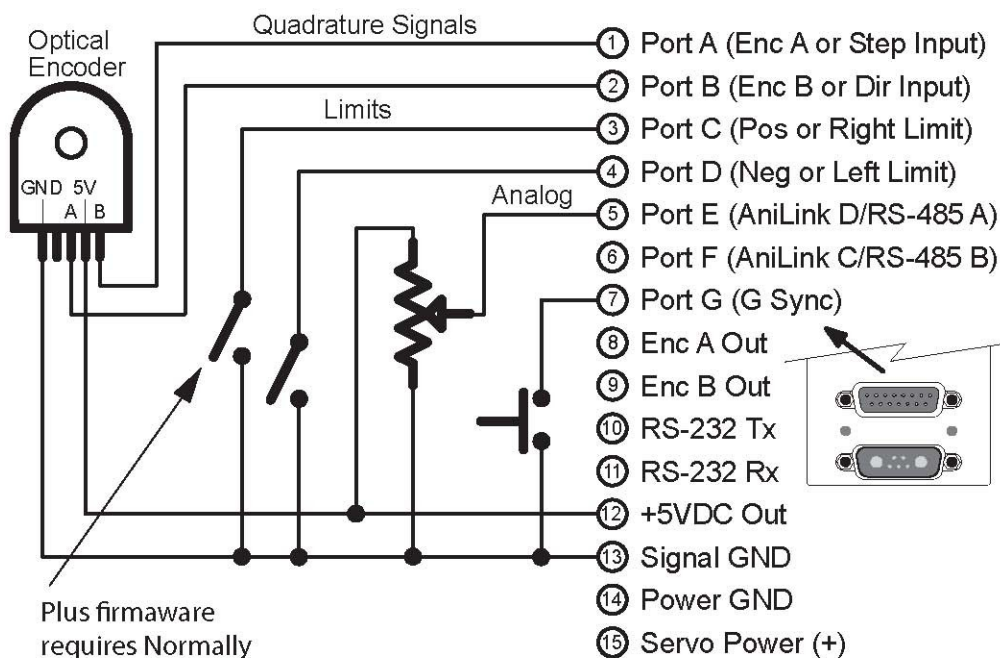
Pin Combo D-sub Power and I/O

## 7 Pin Combo D-Sub Power and I/O:

- A1 +20V to +48V DC
- A2 Power Ground
- 1 Sync or I/O G
- 2 +5V Out
- 3 RS232 Transmit
- 4 RS232 Receive
- 5 RS232 Ground

## 15 Pin D-Sub I/O:

- 1. I/O A
- 2. I/O B
- 3. I/O C
- 4. I/O D
- 5. I/O E
- 6. I/O F
- 7. I/O G
- 8. Encoder A Out
- 9. Encoder B Out
- 10. SM RS232 Transmit
- 11. SM RS232 Receive
- 12. +5V Out
- 13. Ground
- 14. Power Ground
- 15. Power



# Required Code and IP Addressing

## Required Code

The following code is required to be in the SmartMotor for operation of the Ethernet Gateway.

```
OCHN(RS4,1,N,19200,1,8,C)  
END
```

Note: If -PLS firmware is used and over travel limit switches are not connected, use the following.

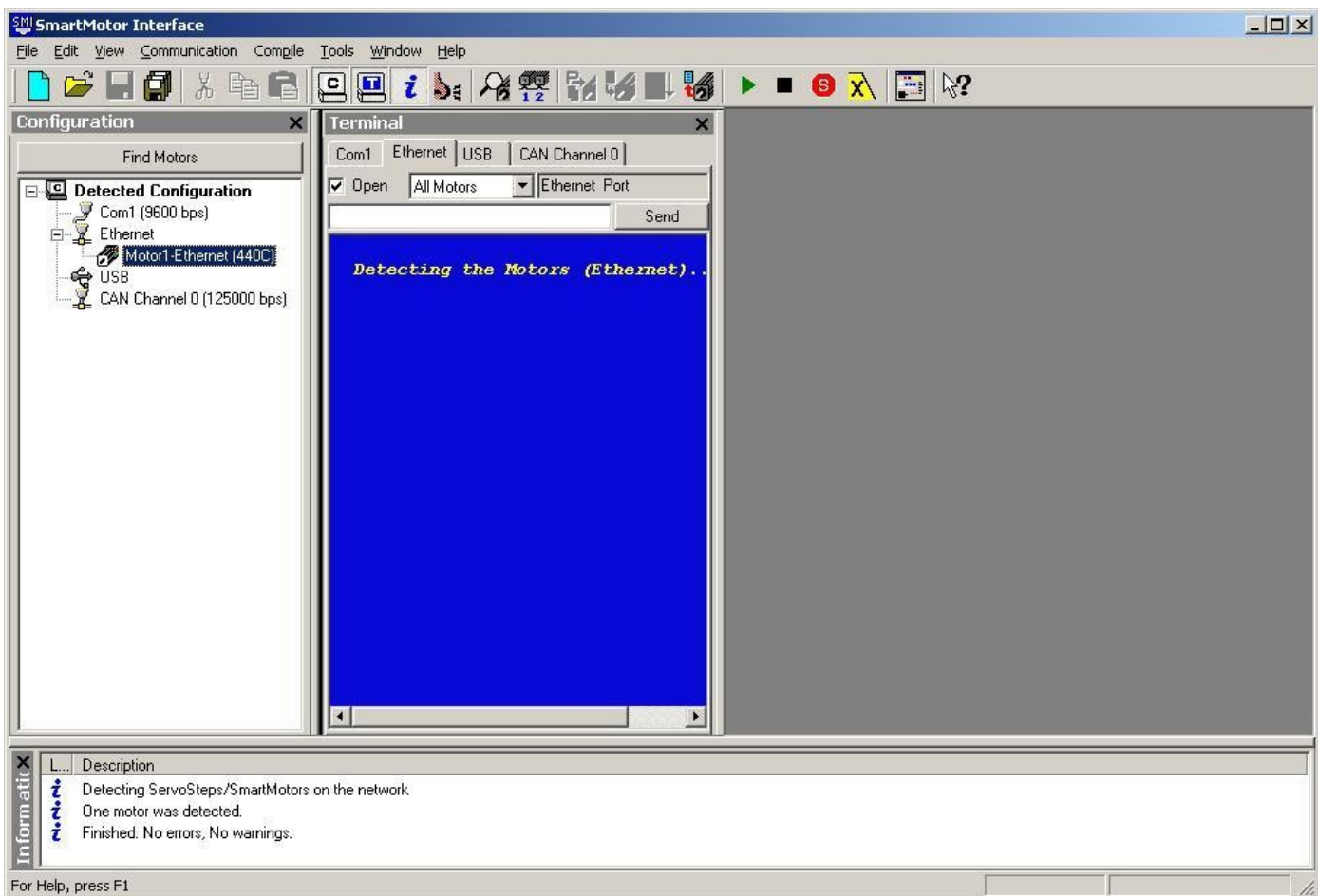
```
OCHN(RS4,1,N,19200,1,8,C)  
UCI  
UDI  
ZS  
END
```

## IP Addressing

The Ethernet SmartMotor will default to using Dynamic Host Control Protocol (DHCP). If a DHCP server is available, the SmartMotor will use the IP Address given to it by the host (server).

If a Static IP is desired, the SMI2 software should be used to set the IP Address.

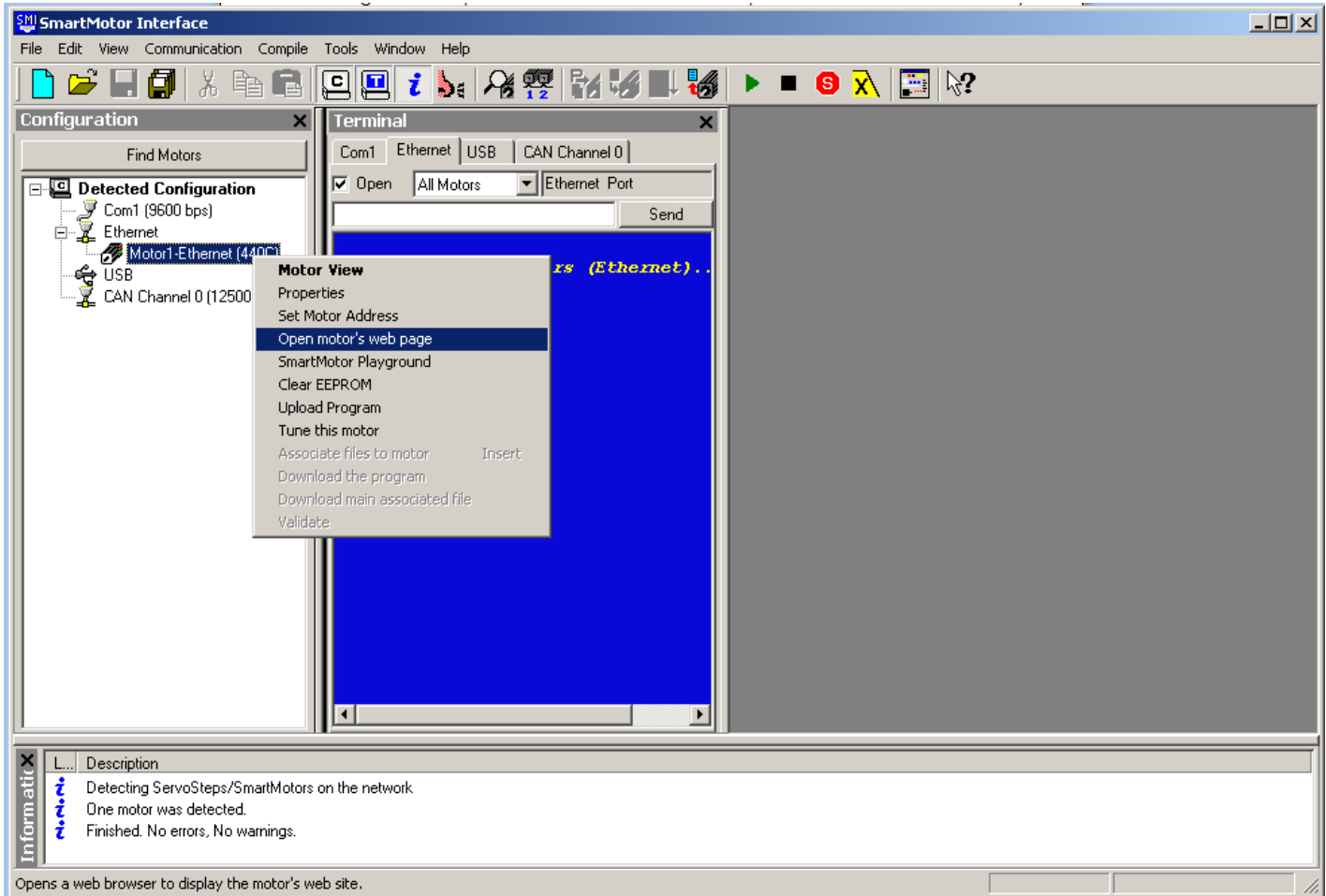
Note: Whether Static or Dynamic Addressing is used, the SMI2 software should be used for startup. The following image shows detection of the Ethernet SmartMotor using SMI2.



# Setting a Static/Dynamic IP Address

Using the SMI2 Software to change IP Addressing.

Right click the Ethernet label in the Configuration window. Select "Detect Network Motors".



When a SmartMotor is detected, it will be listed below the Ethernet label. Right click on the label for a popup window with available options.

## Configuration Using the Ethernet SmartMotor Web Browser

The Ethernet SmartMotor IP Address is set using a web browser (your default browser will be used). The following pages show the steps to change between Static and Dynamic IP addressing.



# Setting a Static/Dynamic IP Address

Note: The address 192.168.0.156 is indicated in the lower left corner of the window. The address used in this networking example is Static. The submenu "Motor Control" is selected and offers 3 options. Network Settings will be selected for this example.


Animatics SmartMotor with Ethernet Connectivity - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Most Visited Animatics OEM Dynamics SummerFiles Knoxville Weather

AVG Search Active Surf-Shield Search-Shield AVG Info Get More

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ANIMATICS®  
*Defining the Future in Motion*

Motor Control

About SmartMotor

Language

Network Settings


Motor Information

Talk to Motor

## About SmartMotor

Block

INTEGRATED



Servo  
Motor  
Controller  
Amplifier

The SmartMotor is a complete, compact and user-friendly integrated control system that features a brushless DC servo motor, motion controller, encoder and amplifier.

Our line of integrated motion control products feature multi-axis coordinated motion, network bus capabilities of RS232, RS485, DeviceNet™ and ProfiBus, and highly flexible on-board and expandable I/O. Any SmartMotor can control an entire machine. Frame sizes range from standard NEMA 17 to NEMA 56 with speeds in excess of 10,000 RPM.

| Motor Control | About SmartMotor |

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http://192.168.0.156/index\_en.html

# Setting a Static/Dynamic IP Address

Animatics SmartMotor with Ethernet Connectivity - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Most Visited Animatics OEM Dynamics SummerFiles Knoxville Weather

AVG Search Active Surf-Shield Search-Shield AVG Info Get More

Animatics - Integrated Motion Control. ... OEM Dynamics - Catalog Animatics SmartMotor with Ethe...

## Network Settings

Block

☐ Obtain a dynamic IP address automatically

☒ Specify a static IP address:

IP Address:192.168.0.156

Subnet Mask:255.255.255.0

Update

**Note 1:** This page contains a Java Applet. You may need to install a Java virtual machine (version 1.2 or later). You can download one from Sun's Java web site.

**Note 2:** If you change the IP address you must reload the browser with the new IP address.

**Note 3:** Click here for an explanation about IP address and subnet mask.

### Dynamic IP address setting

It is recommended that you select the option **"Obtain a dynamic IP address automatically"**, when you want to connect the motor to a network with a server, because the DHCP server makes sure that the motor and the computers are on the same subnet. In this case, the motor tries to find a server on power up. If a DHCP server is found, the motor gets an IP address from the server. Otherwise, if a DHCP server is not found on the network, the motor uses a procedure called "Auto-IP" to select an IP address from the range: 169.254.0.1 .. 169.254.255.1.

Even after an IP address has been assigned using Auto-IP, the motor keeps looking for a DHCP server, getting a new IP address from the DHCP server when one is found.

### Using a Static IP address

If you select the option **"Specify a static IP address:"**, and enter an IP address, you need to make sure that:

- The motor's IP address is in the same subnet of the computers on the network (usually this means that the first 3 numbers of the motor and computer IP addresses are the same), and
- No other device on the network is using that IP address.

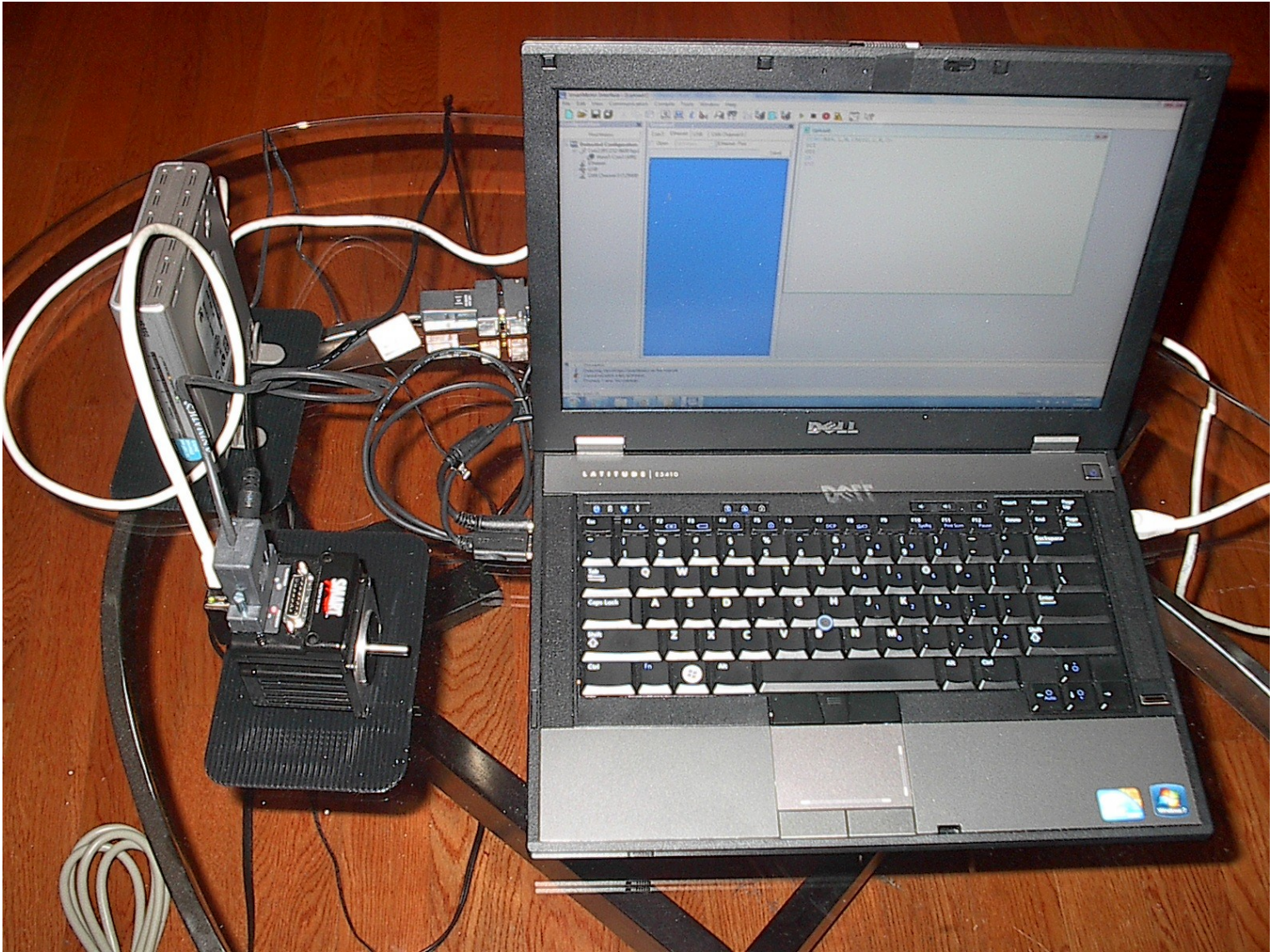
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Applet Network started



# Preferred Cabling for Setting up a New Class4–ETH Motor.



A 5 Port Ethernet Hub, 2 Ethernet cables, a Laptop with both Ethernet and RS232 ports, and a powered SM2316D–ETH motor is shown. It is recommended to have an RS232 connection. The RS232 is useful for setting up and addressing a motor for the first time and for troubleshooting. Note: You can monitor the SmartMotor via RS232 while your Ethernet Host controls the motor's operation and I/O.

## Troubleshooting... why can't I connect?.

1. Windows Firewall can block access to the SmartMotor. Change the firewall settings and try again.
2. The SmartMotor must have the OCHN(RS4,1,N,19200,1,8,C) command for communications with the built in Ethernet/RS485 converter.
3. EthernetIP, PROFINET, ModbusTCP and PowerLink protocols are not supported by the Class4–ETH SmartMotors