Diversified Technologies, LLC

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DTC-2D-E02
Ethernet Interface
User's Manual

Rev A

Aug 2013

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Disclaimer

The information and specifications described in this manual are subject to change without notice.

Technical Support

For technical support, visit: **www.DTC-2D.com** or call +1 (585) 461-2110 during regular business hours EST.

Warranty and Terms of Sale

For Standard Warranty information, see: **www.DTC-2D.com/warranty.htm**

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THE DTC-2D-S01 SERIAL INTRFACE IS NOT DESIGNED, MANUFACTURED, OR INTENDED FOR USE OR RESALE AS ON-LINE CONTROL EQUIPMENT IN HAZARDOUS ENVIRONMENTS, REQUIRING FAIL-SAFE PERFORMANCE, SUCH AS IN THE OPERATION OF NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL, DIRECT LIFE SUPPORT MACHINES, OR WEAPONS SYSTEMS, IN WHICH THE FAILURE OF TECHNOLOGY COULD LEAD DIRECTLY TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE.

Statement of agency compliance

The DTC-2D-S02 conforms to the following Product Specifications:

FCC Compliance: FCC Part 15, Subpart B
The DTC-2D-S02 is RoHS compliant.

This certification applies to the DTC-2D-S02 as a stand-alone OEM industrial product and does not apply to the DTC-2D-S02 as an integrated module. When integrating the DTC-2D-S02 into another product, that product will still need to obtain any applicable certifications for the full or final product.

IMPORTANT: The DTC-2D-S02 and Microscan MS-2D scan engine are intended for connection to a UL-listed direct plug-in power unit marked Class II and rated 5 VDC at 5 Watts, or greater if using additional I/O and/or electrical accessories.

About this manual

The DTC-2D-E02 interface is an Ethernet communications accessory for Microscan's new, state-of-the-art OEM MS-2D Scan Engine and allows standard EIA RS-232 communications with the OEM engine unit. It is designed as a low-profile daughter card that would normally mount directly on top of the MS-2D scanner.

The DTC-2D-E02 RS-232 Ethernet interface permits the Microscan MS-2D OEM scan engine to be used in designs where the OEM, VAR, or end-user simply wants to use the MS-2D engine design without a costly design-integration into custom discrete circuitry.

The DTC-2D-E02 is a CMOS / TTL RS-232, to Standard Ethernet interface converter for the MS-2D engine. All other I/O and control signals are passed through directly.

This manual provides information on connecting the DTC-2D-E02 Ethernet interface card to the Microscan MS-2D scan engine. For scanner operations, please refer to the Microscan ***MS-2D Scan Engine User's Manual***. *P/N 84-000008 Rev A*, or the Microscan website, www.Microscan.com

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Table of Contents

DTC-2D-E02 Ethernet interface card

Getting Started

Caution: Be sure that all cables are connected **BEFORE** applying power to the system. Always power down **BEFORE** disconnecting any cables.

Important: The DTC-2D-E02 and Microscan MS-2D scan engine are intended for connection to a UL-listed direct plug-in power unit marked Class II and rated 5 VDC at 5 Watts, or greater if using additional I/O and/or electrical accessories.

Package contents

Item	Description	Part Number
1	DTC-2D-E02 Ethernet Interface card	DTC-2D-E02

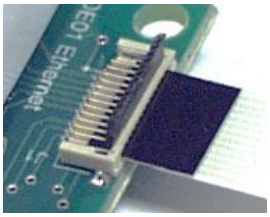
Attaching the DTC-2D-E02 interface card to the MS-2D scan engine.

To attach the included 2 inch flexible interface cable to the scanner engine board, first slide the end of the ribbon cable with exposed tin leads facing the circuit board (upward), into the housing. Then carefully push the ZIF connector hinged clamp mechanism downward so that it covers the contact points, as seen below.

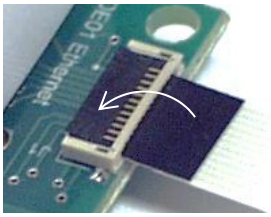
Do the same thing for the end of the flex cable that attaches to the 2D-S01 interface card. As shown below. Again, the exposed tinned leads must be facing the circuit card (downward).

Open

Insert flex cable



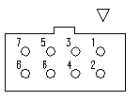
Close connector



Caution: The connector housing and clamp mechanism are fragile.

Attaching the DTC-2D-E02 interface to your host system.

To attach the DTC-2D-E02 Interface to your host, plug a cat-5 cable from your network into the DTC-2D-E02 and use the Molex I/O connector block interface a seen below.



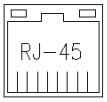
Board Plug View

2D-CBL03

I/O CONNECTOR

J2 POWER and I/O CONNECTOR

1	**Not Used**
2	**TRIGGER (LOW)**
3	**GOOD READ (LOW)**
4	**WAKE UP (LOW)**
5	**Power Down Signal**
6	**Beep (LOW)**
7	**+5 VDC POWER IN**
8	**DC GROUND**



RJ-45 ETHERNET INTERFACE

1	TX+
2	TX-
3	RX+
6	RX-
4	Not Used, Terminated
5	Not Used, Terminated
7	Not Used, Terminated
8	Not Used, Terminated
Sh	Chassis Ground

If your purchase included an MS-2D scan engine, the scanner communications have been preset to:

115.2 Kb, No Parity, 8 Data bits, 1 Stop bit.

Host Communications

The DTC-2D-E02 is a CMOS / TTL, to Standard Ethernet interface converter for the MS-2D engine. All other I/O and control signals are passed through directly.

The DTC-2D-E02 Ethernet interface is preset at the factory with the following settings:

RS-232 port to MS-2D :	Enabled		
	115.2 Kb [2]		
	8 Data bits		
	No parity		
	1 stop bit		
	No flow control		
Ethernet Port :	Static IP	:	192.168.56.90 [1]
	Subnet	:	255.255.255.0
	Gateway	:	-
	Port	:	2001

[1] The DTC-2D-E02's IP address is statically set for those cases where a DHCP server is not available during configuration. If you are using a Null Cat-5 connection, or you need to change the IP address of the module, it will be necessary to first temporarily change your local adapter settings to be compatible with the DTC-2D-E02's subnet. After which you can restore your local adapter's settings.

Alternately, it is recommended that you use the Assign IP Address wizard as described in the Section, *Assign IP Address wizard*, *or* *Web Configuration Ethernet Settings* if the 2DE01 is not on your local subnet, or you want to change it.

[2] If your MS-2D is not correctly configured for serial operations, or you want to change serial parameters, refer to the Section, *Web Configuration Serial Settings*.

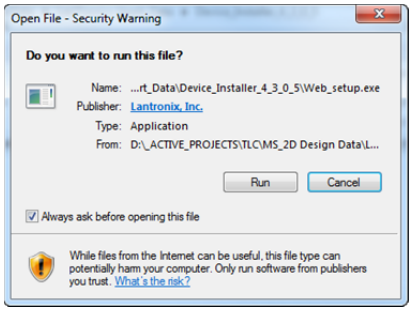
After initially applying power to the DTC-2D-E02 Ethernet interface, and if the MS-2D is configured correctly to match the RS-232 comm parameters of the DTC-2D-E02, you will immediately be able to communicate with the MS-2D scanner @ 192.168.056.90 on port 2001. If your MS-2D is not correctly configured for serial operations, or you want to change serial parameters, refer to the Section, *Web Configuration Serial Settings*.

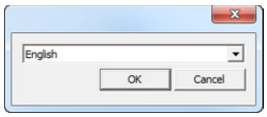
For additional information on the MS-2D, please read the Microscan MS-2D Engine User's Manual, or visit www.Microscan.com

Lantronix Device Installer Installation.

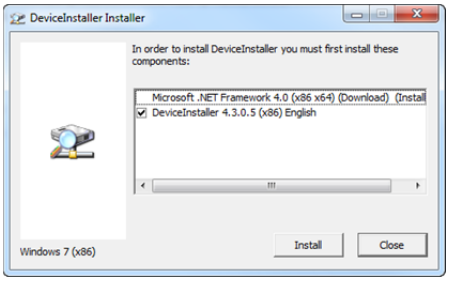
To configure the Ethernet port on the DTC-2D-E02 interface, you must first install the XportTM device installer application included with this product.

Below is the Windows-7 installation screen sequence for Web_setup.exe, the Lantronix Device Configuration installer program.

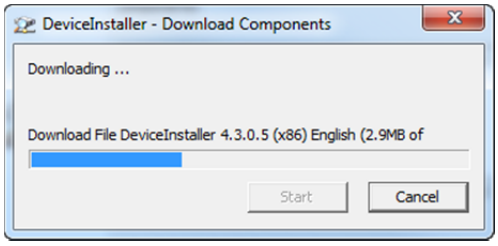


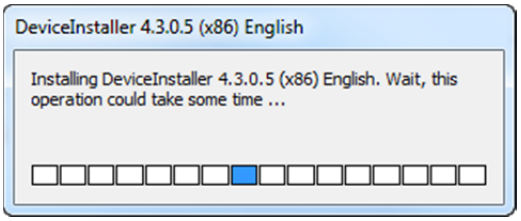


The .NET framework 4 is required.



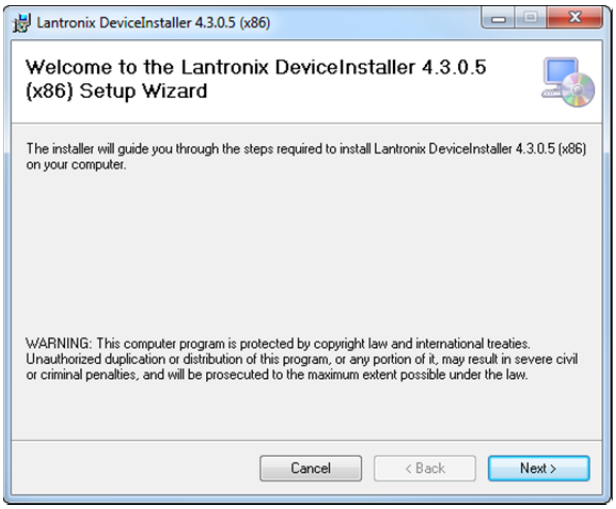
The installer will then download the latest files.

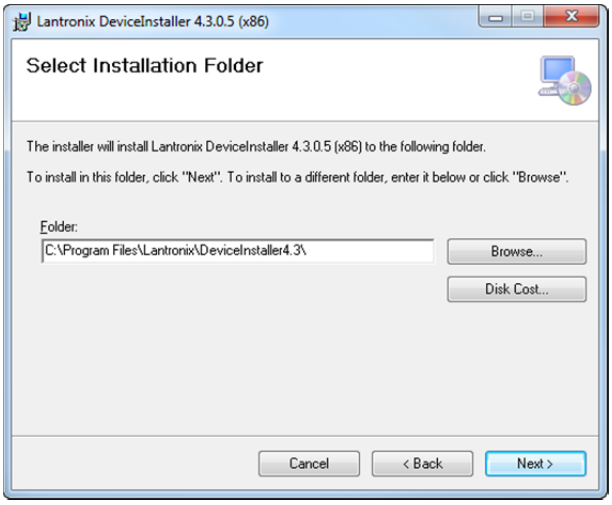


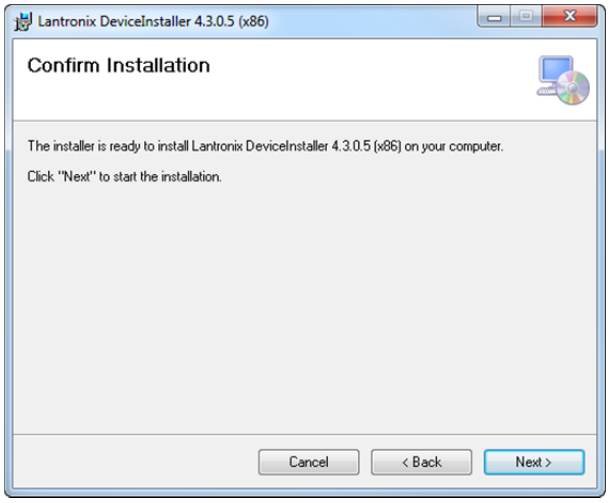


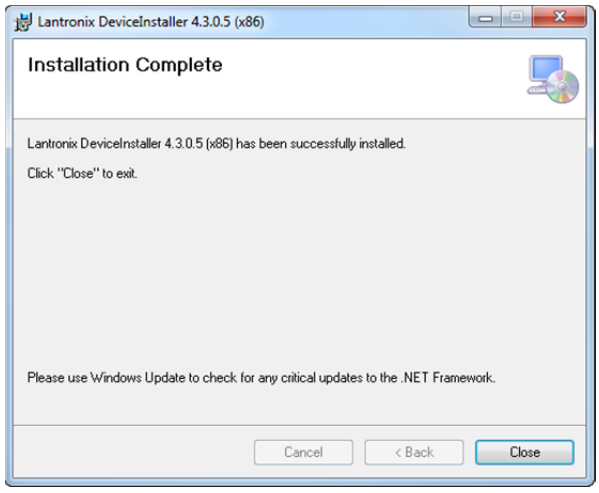
Lantronix Device Installer Installation. *Continued.*

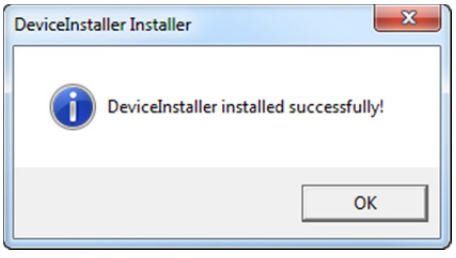
After extracting itself, the Lantronix Device Installer Setup program will run.







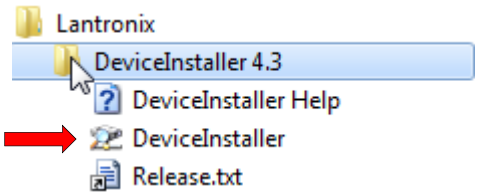




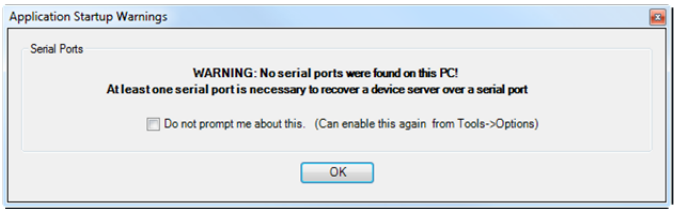
This completes the Lantronix Device Installer application.

Running the Lantronix DeviceInstaller setup program.

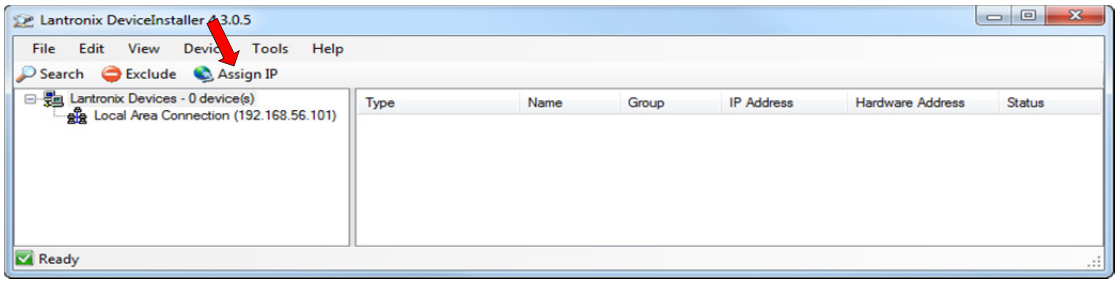
In the Windows Start Menu, you will find the Lantronix folder as seen below.
Double Left-click on the Device Installer icon to launch the application.



If your machine does not have any detectable serial ports, you will get the following message. Click OK to continue.



The main window will appear as seen below.



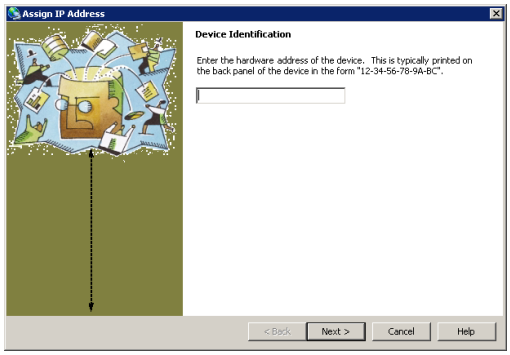
Initially, the DeviceInstaller searches for devices. If no devices (yours) are found, as seen above, you will need to assign or change the IP address of the DTC-2D-E02. To do this, left-click on the Assign IP icon as seen above.

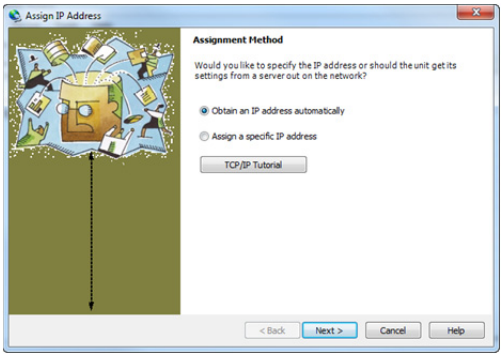
Running the Lantronix DeviceInstaller setup program. *Continued.*

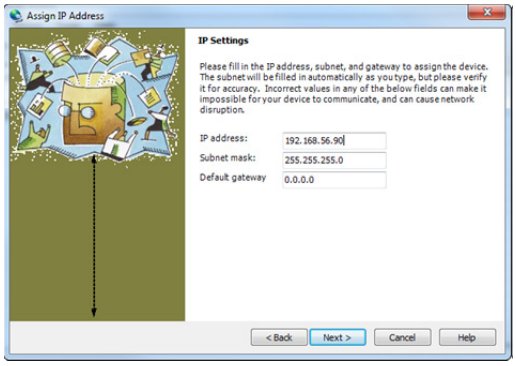
Assign IP Address wizard.

If you selected Assign IP Address, the following screen will appear. Follow the prompts to assign your desired parameters into the module.

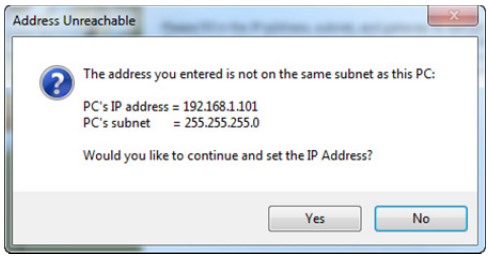
If no Lantronix modules were detected upon the startup search, you will need to first enter the MAC address printed on the module or product label.







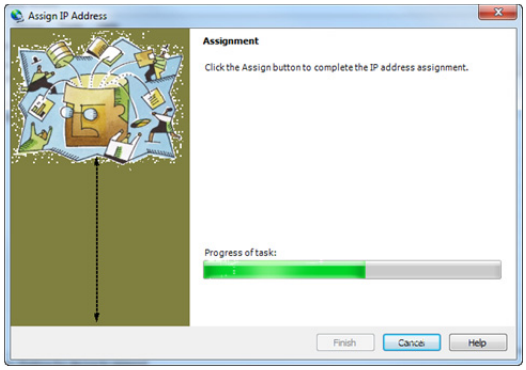
You may encounter this message, depending on your local conditions. It is OK to proceed.



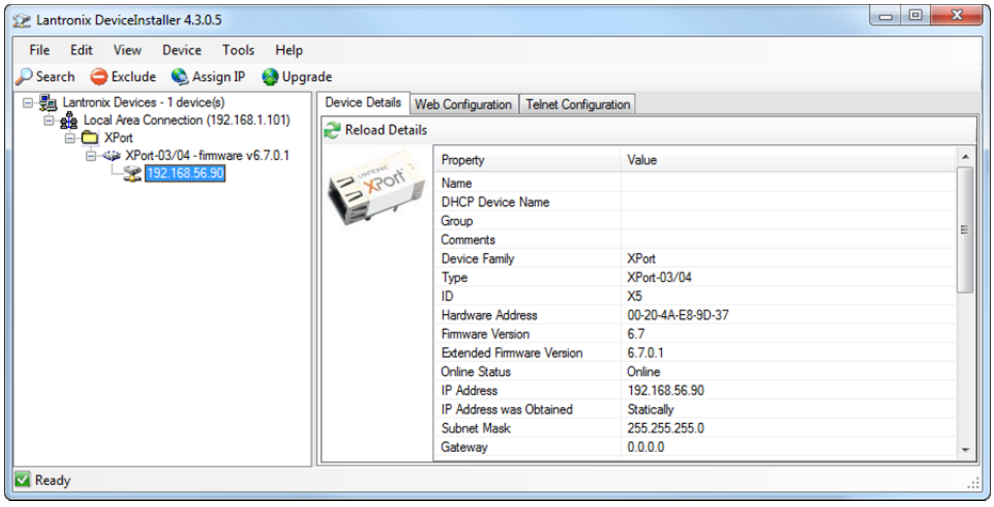
Running the Lantronix DeviceInstaller setup program. *Continued.*

Assign IP Address wizard. *Continued.*

To complete the assignment, click the finish button.



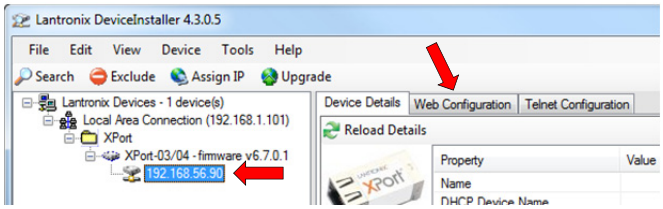
After assignment, you will be able to see your device in the tree and main view of the DeviceInstaller program.

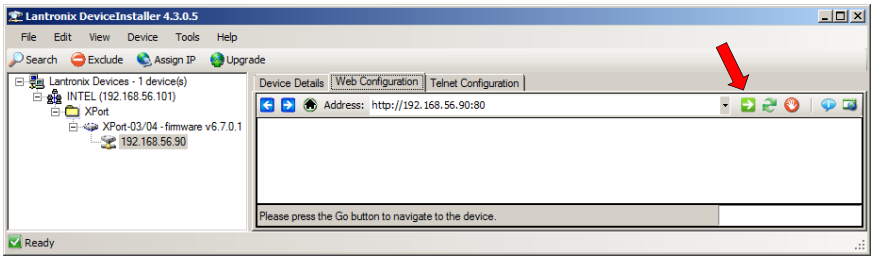


Running the Lantronix DeviceInstaller setup program. *Continued.*

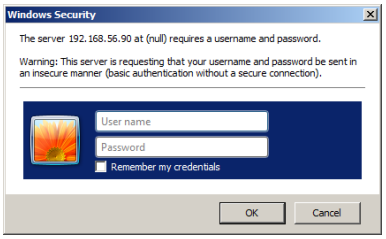
Web Configuration wizard.

With your DTC-2D-E02 powered and connected to the network, select your device in the tree view and then left-click on the Web Configuration tab.





There is no password assigned in the module when shipped. Change it at your own risk. Click OK to proceed.

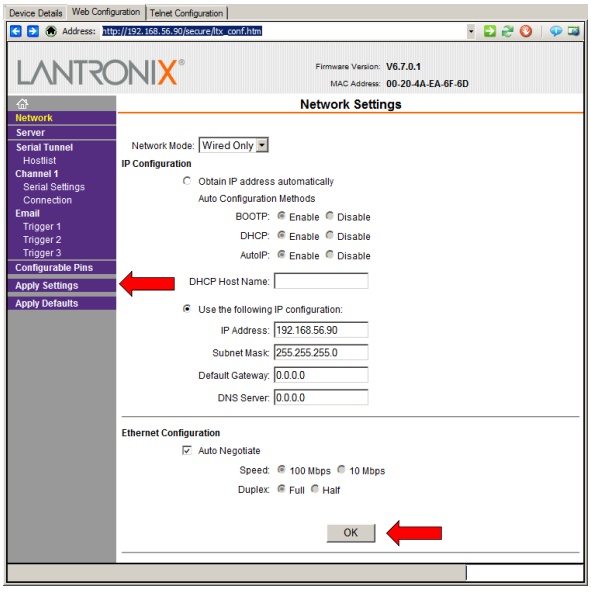


Running the Lantronix DeviceInstaller setup program. *Continued.*

Web Configuration wizard. *Continued.*

This is the home page for your device. From here, you can change all aspects of the Lantronix XPort module.

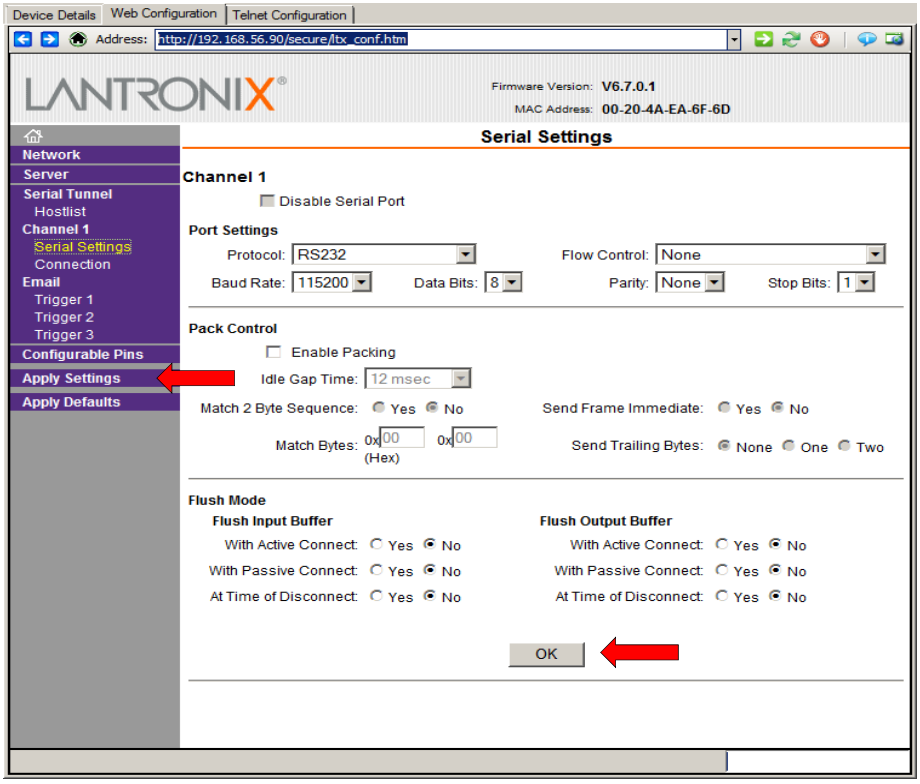
Web Configuration Network Settings.



The *Network Settings* page will allow you to change the Xport's external IP settings. When done, click the OK button at the bottom and then click the Apply button to finish. Afterwards, re-search to update the DeviceInstaller tree view.

Running the Lantronix DeviceInstaller setup program. *Continued.*

Web Configuration Serial Settings.



The *Serial Settings* page will allow you to change the Xport's serial port settings.

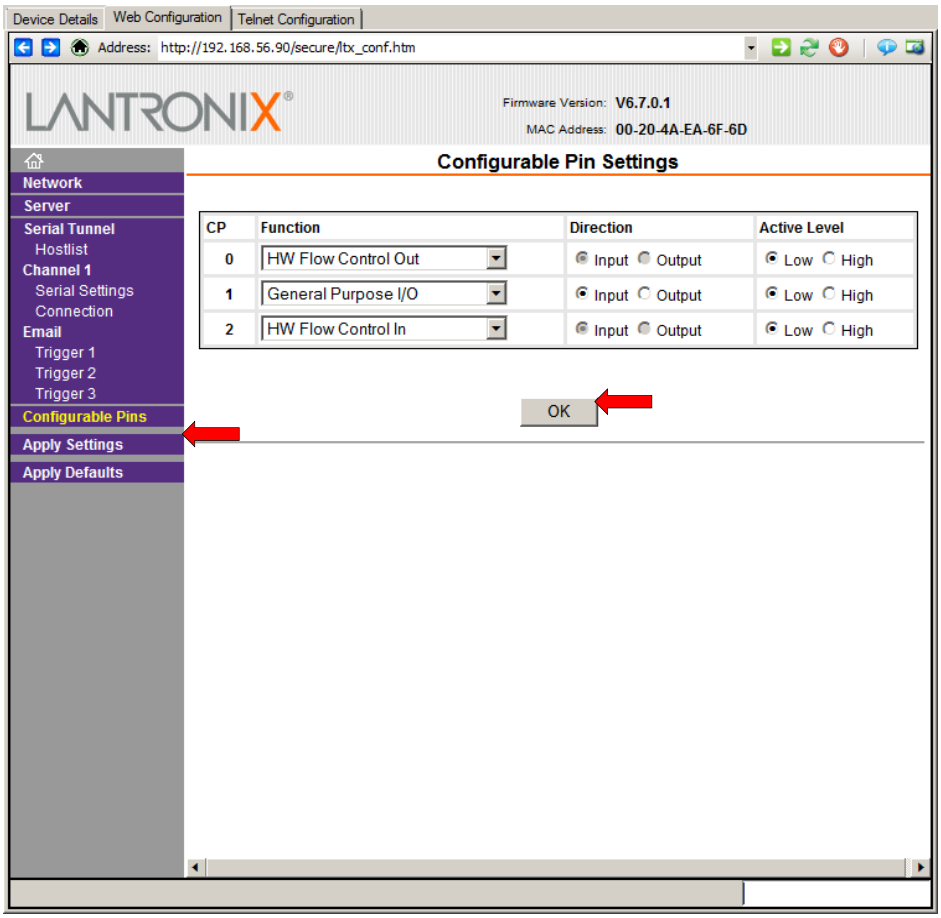
Caution: The serial settings of the Xport must match that of the MS-2D engine. If not, you will not be able to communicate with the scanner.

If you need to change the scanner settings, do that first with ESP software, then change the Xport serial settings to match those of the MS-2D engine.

When done, click the OK button at the bottom and then click the Apply button to finish.

Running the Lantronix DeviceInstaller setup program. *Continued.*

Web Configuration Serial Handshake Settings.

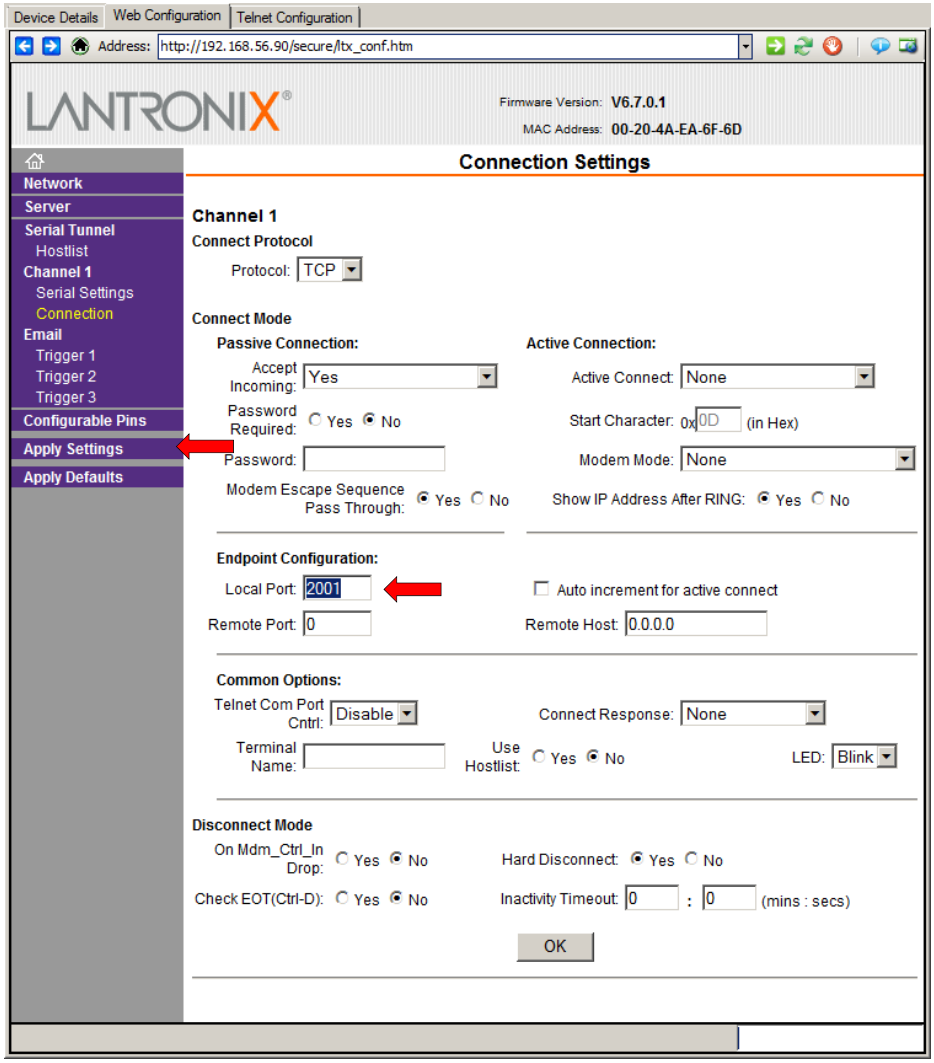


If your application requires hardware a hand shake with the MS-2D engine, change the MS-2D engine settings first with ESP software then set the *Configurable Pins* CP0, and CP2 to RTS and CTS respectively as seen above.

When done, click the OK button at the bottom and then click the Apply button to finish.

Running the Lantronix DeviceInstaller setup program. *Continued.*

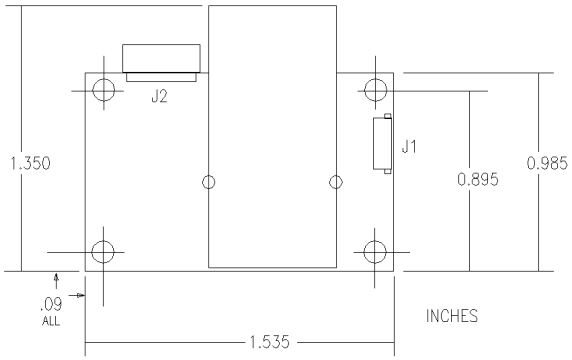
Web Configuration TCP Port Settings.

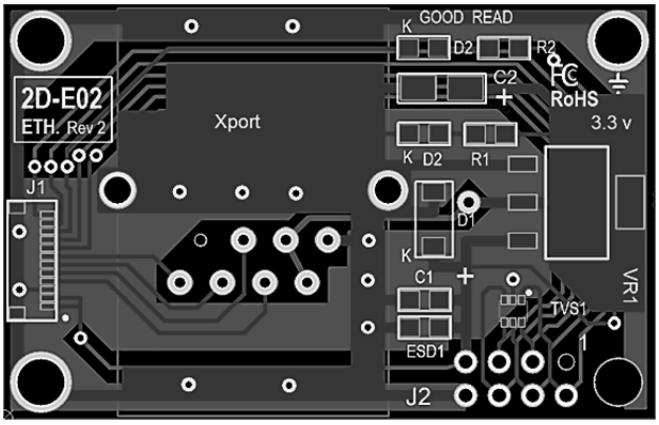


The Default port used in the ESP programming software is 2001 as seen above. This page allows full control of this aspect if desired.

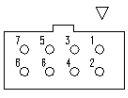
When done, click the OK button at the bottom and then click the Apply button to finish.

DTC-2D-E02 Specifications.





DTC-2D-E02 Specifications	
Power In	External +5 VDC, Reverse Polarity Protected
Current Draw w/Scanner	2.8 watt, 550 mA. Max, 210 mA typical
Dimensions	0.98 in. (D) x 1.53 in. (W) x 0.63 in.(H) { 25 x 39 x 6.4 mm. }
Weight	14 grams
Operating Environment	-4 to 50 °C (0 to 131 °F), 5-95% RH, non-condensing
Host Interface	TCP/IP Ethernet RJ-45
User Interface	Molex 8 pos. socket for trigger and I/O



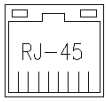
Board Plug View

2D-CBL03

I/O CONNECTOR

J2 POWER and I/O CONNECTOR

1	**Not Used**
2	**TRIGGER (LOW)**
3	**GOOD READ (LOW)**
4	**WAKE UP (LOW)**
5	**Power Down Signal**
6	**Beep (LOW)**
7	**+5 VDC POWER IN**
8	**DC GROUND**



RJ-45 ETHERNET INTERFACE

1	TX+
2	TX-
3	RX+
6	RX-
4	Not Used, Terminated
5	Not Used, Terminated
7	Not Used, Terminated
8	Not Used, Terminated
Sh	Chassis Ground

Appendix – 1 Common MS-2D Data Matrix Configuration Symbols

C3

M0149_01

RS-232 Raw Mode (Default)

B1

M0027_01

RS-232 115200 Baud (Default)

A4

M0026_01

RS-232 57600 Baud

A3

M0025_01

RS-232 38400 Baud

A2

M0024_01

RS-232 19200 Baud

A1

M0023_01

RS-232 9600 Baud

E1

M0019_01

RS-232 8 Data Bits (Default)

D4

M0018_01

RS-232 7 Data Bits

B4

M0030_01

RS-232 No Parity (Default)

B2

M0028_01

RS-232 Even Parity

B3

M0029_01

RS-232 Odd Parity

C1

M0031_01

UART Flow Control None (Default)

C2

M0032_01

UART Flow Control Hardware

Appendix – 1 Common MS-2D Data Matrix Configuration Symbols. *Continued.*

E2  M0136_02 Postamble - CR (Serial Only)	**E4**  M0138_02 Postamble - LF (Serial Only)	**A1**  M0139_02 Postamble - CR LF (Serial Only)

E1

M0166_01

Save Settings

For the full command set, refer to the Microscan ***MS-2D Scan Engine User's Manual***. *P/N 84-000008 Rev A.*