DX4010V2

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1.0   General Information

The DX4010V2 is a data terminal equipment (DTE) configured RS-232/USB serial device interface. This module is designed to operate with compatible control panels. It connects to the control panel through the Option or SDI data bus.

The DX4010V2 is used to connect a PC with RPS, BIS, PC 9000, CMS 7000, or other third party software that uses a serial connection to the supported control panels. The module also supports a serial printer (or parallel printer with a converter box) for control panels that support a serial printer. The compatibility lists in *Table 1* show support information.

2.0   Specifications

Table 1: DX4010V2 Specifications	
Operating Voltage	12 VDC nominal
Current Draw	55 mA nominal, 60 mA with diagnostic LEDs enabled
Communication Configuration	Programmable through the control panel. Refer to the appropriate control panel programming instructions.
☑️	The baud rate for the printer output on a DS7400Xi must be greater than 300 baud.
Operating Temperature	0°C to +50°C (+32°F to +122°F)
Relative Humidity	5 to 85% @ +30°C (+86°F) non-condensing
Control Panel Compatibility	Option bus control panels: D6412, D4412, DS7240, DS7220, DS7400Xi (v2.02 or higher)
	SDI bus control panels (v6.0 or higher): D9412GV2, D7412GV2, D7212GV2, D9412G, D7412G, D7212G, D9124, D9112, D7412, and D7212

Table 1: DX4010V2 Specifications (continued)	
Application Compatibility	**RPS:** Supported on all compatible control panels.
	PC 9000: Supported on SDI Bus control panels (D9412G, D7412G, D7212G, D9112, D7412, and D7212).
	BIS: Supported on SDI Bus control panels, v6.3 and higher (D9412GV2, D7412GV2, D7212GV2, D9412G, D7412G, and D7212G).
	CMS 7000: Supported on DS7400Xi Control Panels set at Mode 18 (v3.09 or higher).
	Printers: Supported on compatible control panel.

Figure 1: DX4010V2 Component Layout
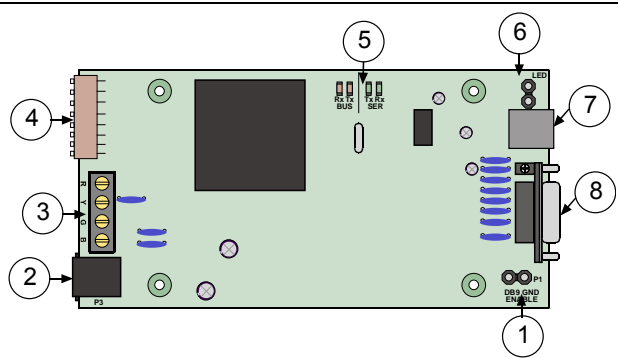
1- *DB9 GND enable pins (P1)*
2- *RJ-16 data bus connector (P3)*
3- *Data bus (TS1)*
4- *Address DIP switches (S1)*
5- *Diagnostic LEDs*
6- *Diagnostic LED enable pins (P2)*
7- *USB Connector (P7)*
8- *DB9 DTE RS-232 connector (P6)*

3.0   Installation Procedure

⚠️	Failure to follow the instructions in this manual can result in personal injury or damage to the equipment.
🚫	The DX4010V2 contains static-sensitive components and must be handled with care. Follow anti-static procedures when handling the modules.
☑️	Test according to NFPA 72 if used in fire applications.

1. Disconnect power to the control panel by unplugging the transformer and removing the red battery lead.
2. Remove screws from enclosure cover to access the DX4010V2 board.
3. Connect circuit wiring and install jumper pins. Refer to *Section 4.0 Wiring* on page 5.
4. Replace enclosure cover.
5. Connect a serial cable to the serial device. Refer to *Section 7.0 DB9 DTE RS-232 Connector (P6)* on page 10.
6. Reapply power to the control panel.

4.0   Wiring

⚠️ Remove all power to the control panel (AC and standby battery) before making or breaking any connections. Failure to do so can result in personal injury or damage to the equipment.
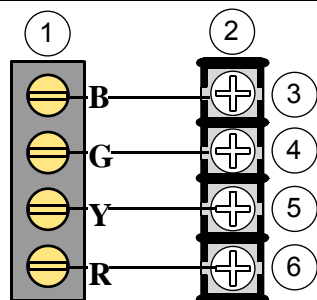
Wire Length Restrictions

- **0.8 mm (#22 AWG):** 305 m (1000 ft)

- **1.2 mm (#18 AWG):** 610 m (2000 ft)

- **USB or Serial Cables** are not to exceed 2 meters (6 ft) in length.

☑️ SDI option bus wiring is limited to 305 m (1000 ft).

Connect the DX4010V2 to the control panel data and auxiliary power sources as shown in *Figure 2*.
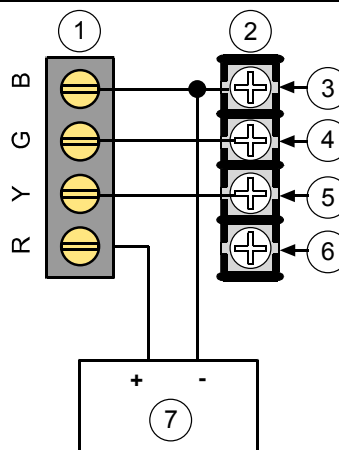
Figure 2: Control Panel Connections

1- *DX4010V2 data bus*
2- *Control panel data bus*
3- *Option AUX common/SDI common (black)*
4- *Option data/SDI B (green)*
5- *Option data/SDI A (yellow)*
6- *Option AUX power +/SDI power (red)*

If an external 12 VDC power supply is used, wire as shown in *Figure 3*.

Figure 3: External Power Supply Connections

1- *DX4010V2 data bus*
2- *Control panel data bus*
3- *Option AUX common/SDI common (black)*
4- *Option data/SDI B (green)*
5- *Option data/SDI A (yellow)*
6- *Option AUX power +/SDI power (red)*
7- *External 12 VDC power supply*

Figure 4 shows serial device-to-DX4010V2 connections using the DB9 DTE RS-232 connector (P6).

Figure 4: Serial Device Connections
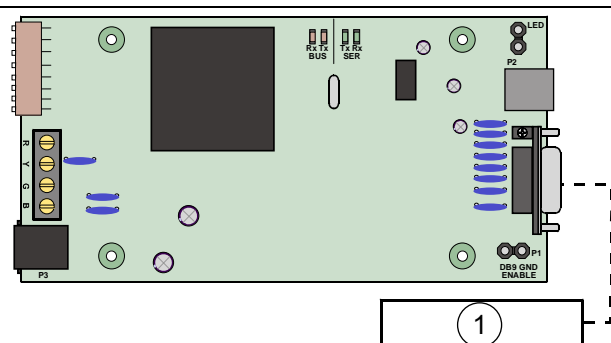
1- *Serial (RS-232) device such as a PC (with RPS, BIS, PC9000, or other third party application) or a serial printer for supported control panels.*

☑️ Refer to *Section 7.0 DB9 DTE RS-232 Connector (P6)* on page 10 for additional information.

Figure 5 shows a parallel printer connected to the serial output of the DX4010V2. This type of connection requires the use of a serial to parallel converter, such as the BlackBox PI045A serial to Centronics parallel converter cable. The cable is available from BlackBox® (www.blackbox.com).
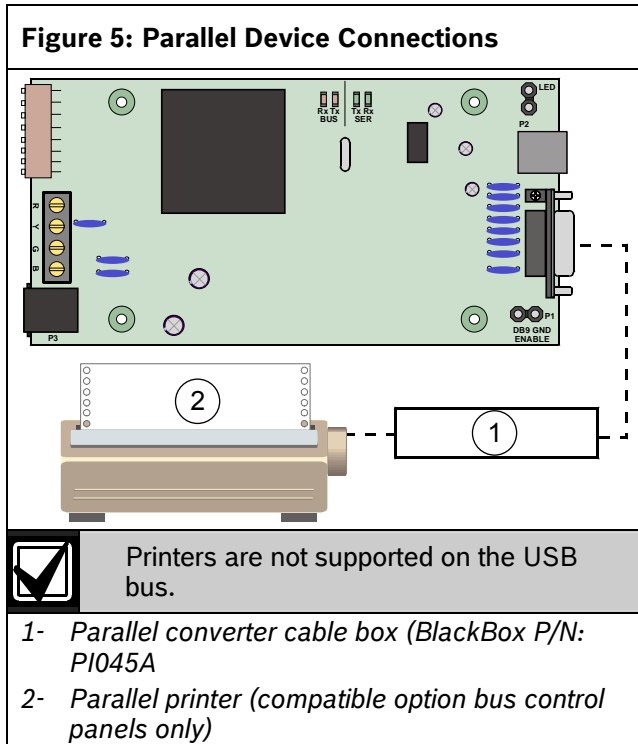
Figure 5: Parallel Device Connections

Printers are not supported on the USB bus.

1- *Parallel converter cable box (BlackBox P/N: PI045A*
2- *Parallel printer (compatible option bus control panels only)*

5.0 DX4010V2 Jumper Pin Settings

5.1 Enable LED Jumper Pins (P2)

Use the diagnostic LEDs for troubleshooting. To enable the LEDs, place a jumper plug across the jumper pins labeled P2.

Refer to *Figure 6* for jumper pin settings.

The DX4010V2 draws more current when the diagnostic LEDs are enabled. Do not enable the diagnostic LEDs under normal operating conditions.
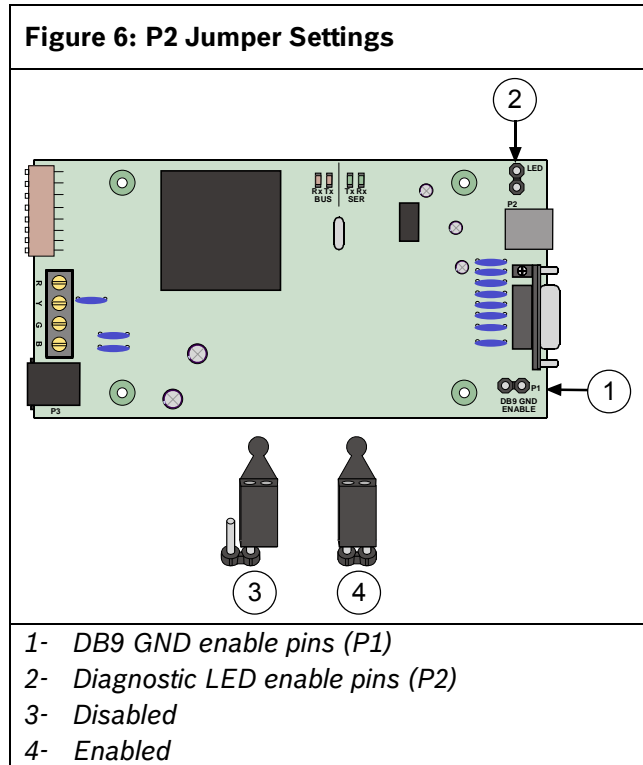
Figure 6: P2 Jumper Settings

1- *DB9 GND enable pins (P1)*
2- *Diagnostic LED enable pins (P2)*
3- *Disabled*
4- *Enabled*

Table 2: Diagnostic LED Functions

Diagnostic LED	Function
BUS RX	Data bus receives data from control panel
BUS TX	Data bus transmits data to control panel
SER RX	RS-232 receives data from serial device
SER TX	RS-232 transmits data to serial device

5.2 DB9 Ground Enable Pins (P1)

Some devices connected to the DB9 DTE RS-232 connector (P6) can cause a ground fault condition on the control panel. If this occurs, removing the plug across the P1 jumper pins clears the ground fault condition.

Some devices might still cause a ground fault even if the P1 jumper plug is removed.

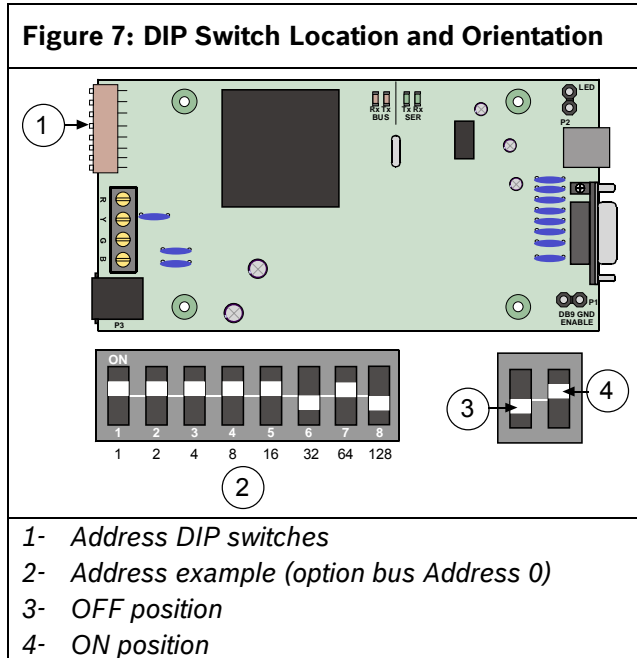Refer to *Figure 6* for jumper pin settings.

5.3   Address DIP Switches

The address DIP switches are used to assign an address to the DX4010V2.

Refer to *Table 3* on page 8 for DIP switch option bus address settings.

Refer to *Table 4* on page 9 for DIP switch SDI bus address settings.

Refer to *Figure 7* for proper DIP switch orientation.

Figure 7: DIP Switch Location and Orientation

1- *Address DIP switches*
2- *Address example (option bus Address 0)*
3- *OFF position*
4- *ON position*

6.0   Remote Programming Direct Connection

The DX4010V2 can be used to create a local direct connection for remote programming of a compatible control panel.

Option Bus: Set the address DIP switches to Address 0. Refer to *Table 3* on page 8.

SDI Bus: Set the address DIP switches to Address 88. Refer to *Table 4* on page 9.

Consult your control panel's installation guide for specific wiring connections.

A DB9 to DB9 null-modem cable is required when using the direct connection method.

Table 3: Option Bus Address DIP Switch Settings

> ☑ Some automation software packages might require that you restart the application if USB connection is lost during use.

DIP Switches	DIP Switch Settings							
	S1	S2	S3	S4	S5	S6	S7	S8
Module Address	1	2	4	8	16	32 (Mode)	64 (Option/SDI)	128 (Checksum +1)
0*	ON	ON	ON	ON	ON	OFF	ON	OFF
1	OFF	ON	ON	ON	ON	OFF	ON	OFF
2	ON	OFF	ON	ON	ON	OFF	ON	OFF
3	OFF	OFF	ON	ON	ON	OFF	ON	OFF
4	ON	ON	OFF	ON	ON	OFF	ON	OFF
5	OFF	ON	OFF	ON	ON	OFF	ON	OFF
6	ON	OFF	OFF	ON	ON	OFF	ON	OFF
7	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
8	ON	ON	ON	OFF	ON	OFF	ON	OFF
9	OFF	ON	ON	OFF	ON	OFF	ON	OFF
10	ON	OFF	ON	OFF	ON	OFF	ON	OFF
11	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
12	ON	ON	OFF	OFF	ON	OFF	ON	OFF
13**	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
14**	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
15	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
134	ON	ON	OFF	ON	ON	ON	ON	ON
135	OFF	ON	OFF	ON	ON	ON	ON	ON
136	ON	OFF	OFF	ON	ON	ON	ON	ON
137	OFF	OFF	OFF	ON	ON	ON	ON	ON
138	ON	ON	ON	OFF	ON	ON	ON	ON
139	OFF	ON	ON	OFF	ON	ON	ON	ON
140	ON	OFF	ON	OFF	ON	ON	ON	ON
141	OFF	OFF	ON	OFF	ON	ON	ON	ON
142	ON	ON	OFF	OFF	ON	ON	ON	ON
143	OFF	ON	OFF	OFF	ON	ON	ON	ON
144	ON	OFF	OFF	OFF	ON	ON	ON	ON
145	OFF	OFF	OFF	OFF	ON	ON	ON	ON
250	ON	ON	ON	ON	ON	ON	ON	ON
251	OFF	ON	ON	ON	ON	ON	ON	ON
252	ON	OFF	ON	ON	ON	ON	ON	ON
253	OFF	OFF	ON	ON	ON	ON	ON	ON

* Installer's mode: Use for direct connection of remote programming and diagnostic tools.

** DS7412 emulation

The DS7400Xi (USA) only supports one DX4010V2.

> ☑ Option bus control panels: D6412, D4412, DS7240, DS7220, DS7400Xi (v2.02 or higher).

Table 4: SDI Bus Address DIP Switch Settings

	SDI DIP Switch Settings							
SDI DIP Switches	S1	S2	S3	S4	S5	S6	S7	S8
Module Address	1	2	4	8	16	32 (Mode)	64 (Option/SDI)	128 (Checksum +1)
80*	ON	ON	ON	ON	OFF	OFF	OFF	OFF
81	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
82	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
83	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
84	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
85	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
86	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
87	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
88**	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
89	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
8A	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
8B	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
8C	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
8D	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
8E	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
8F	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Positions 5, 6, and 8 are not used for SDI bus.

* Used for BIS, PC 9000, and other third party applications.

** Used for RPS and alternate communication.

SDI bus control panels (v6.0 or higher): D9412GV2, D7412GV2, D7212GV2, D9412G, D7412G, D7212G, D9124, D9112, D7412, and D7212.

7.0 DB9 DTE RS-232 Connector (P6)

The DX4010V2 serial port is wired as a DTE device.

- If the connected device is a data carrier equipment (DCE) device (most common, such as an external modem), use a straight through 9-pin to 9-pin, or (DTE to DCE) 9-pin to 25-pin cable.

- If the connected device is a DTE device (such as a PC serial port), a null-modem (DTE to DTE) 9-pin to 9-pin, or null-modem 9-pin to 25-pin cable is required.

Consult the operating manual provided with your compatible device for wiring requirements.

If you are using an alternate configuration, you must make a custom cable (refer to *Figure 8* and *Table 5)*.

Figure 8: DB9 Connector Layout

1- DCD	6- DSR
2- RxD	7- RTS
3- TxD	8- CTS
4- DTR	9- RI
5- GND	
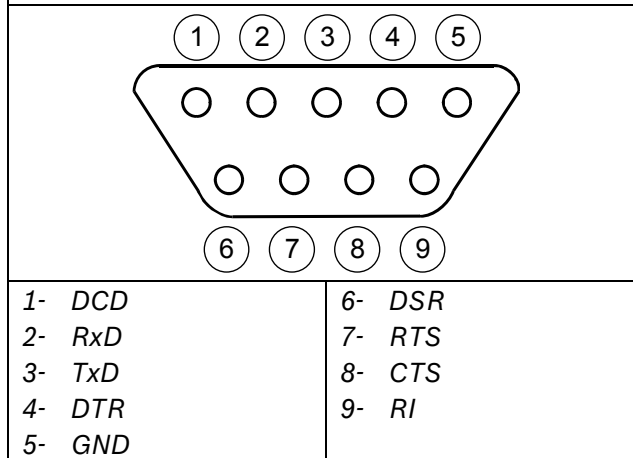
Table 5: Alternate Wiring Configuration

DX4010V2 9-Pin DTE Connector	DCE (9-pin)	DTE (9-pin)	DCE (25-pin)	DTE (25-pin)
1: DCD (not used)	1: DCD	1: DCD	8: DCD	8: DCD
2: RxD	2: RxD	3: TxD	3: RxD	2: TxD
3: TxD	3: TxD	2: RxD	2: TxD	3: RxD
4: DTR	4: DTR	6: DSR	20: DTR	6: DSR
5: GND	5: GND	5: GND	7: GND	7: GND
6: DSR	6: DSR	4: DTR	6: DSR	20: DTR
7: RTS	7: RTS	8: CTS	4: RTS	5: CTS
8: CTS	8: CTS	7: RTS	5: CTS	4: RTS
9: RI (not used)	9: RI	9: RI	22: RI	22: RI

8.0 RJ-16 Data Bus Connector (P3)

Figure 9: P3 Connector

1- RJ-16 data bus connector (P3)
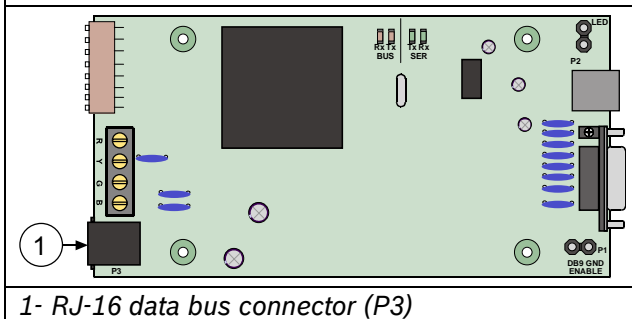
For remote programming connection, use one of the two cables supplied: RJ-16 to molex for control panels with the data bus provided on a header (such as the D6412, DS7240, or the GV2 control panels). If no data bus header is present, use the RJ-16 to spade lugs for terminal strip connections.

9.0 USB Data Bus Connector
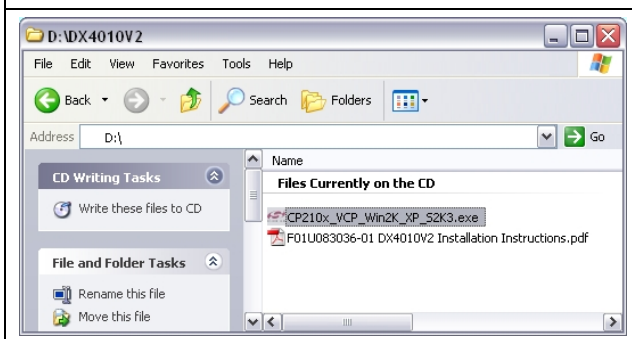
Uses a standard USB type A→B cable. One cable is provided with the DX4010V2.
If the computer does not recognize the USB port, add the drivers located on the supplied disk.

9.1 Installing USB Drivers

Install the drivers.
1. Double-click CP210x_VCP_Win2K_XP_S2K3.exe.

Figure 10: Select File

2. Click **Run.**

Figure 11: Security Warning
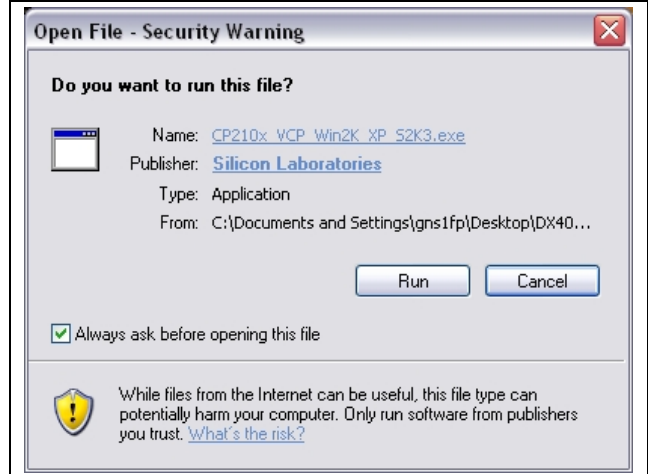
3. Click **Next** to continue.

Figure 12: Install Shield
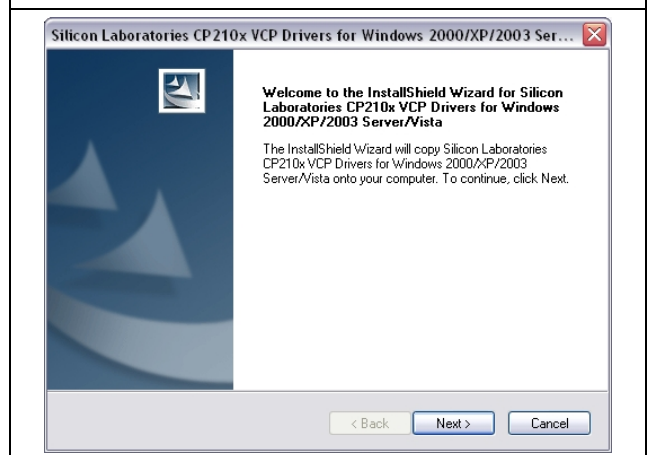
4. Click **I accept the terms of the license agreement**. Then click **Next**.

Figure 13: Security Warning
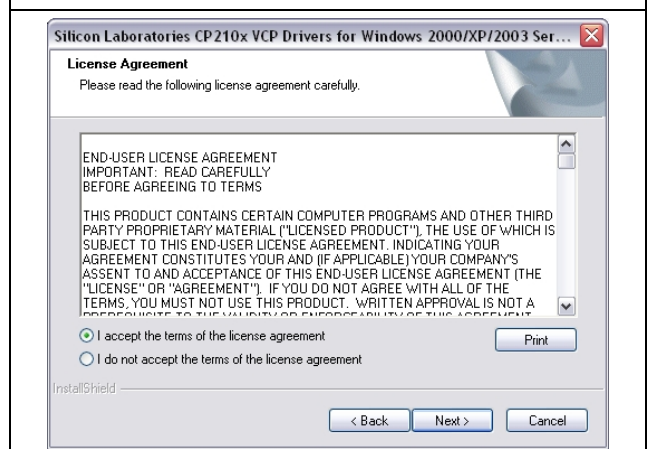
5. Click **Next** to accept the default location.
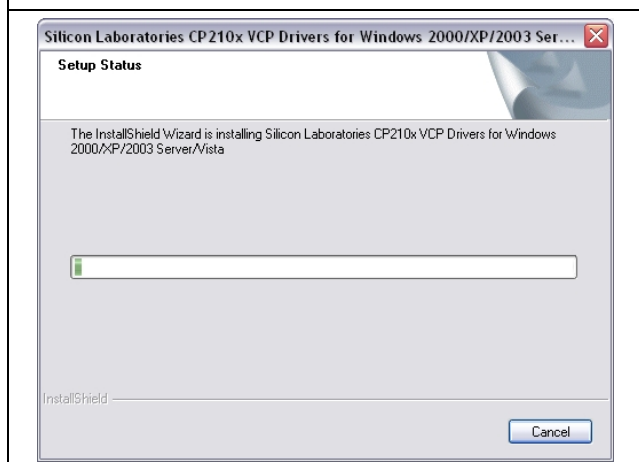
Figure 14: Destination Location
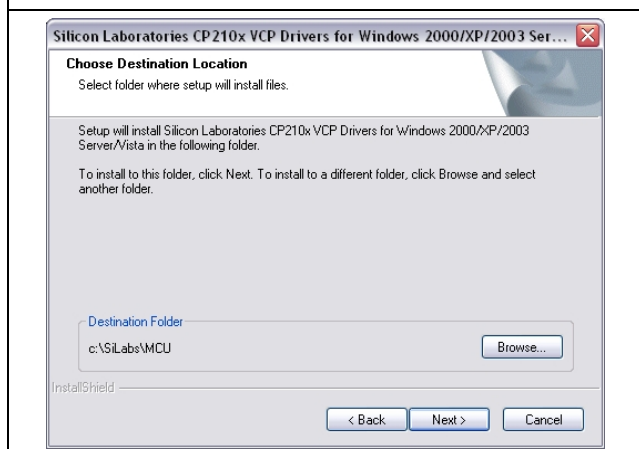
6. Click **Install**.

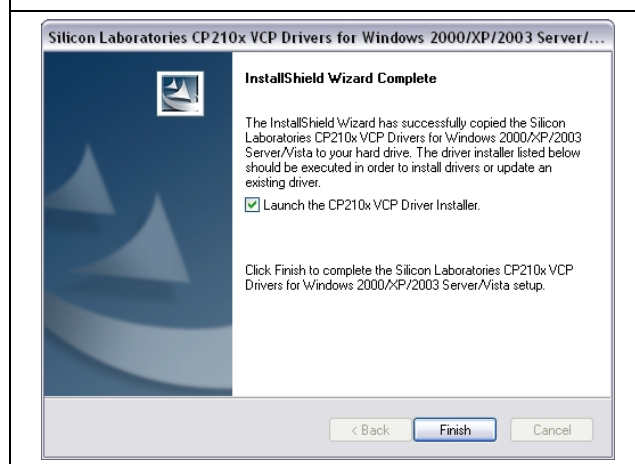**Figure 15: Ready to Install**
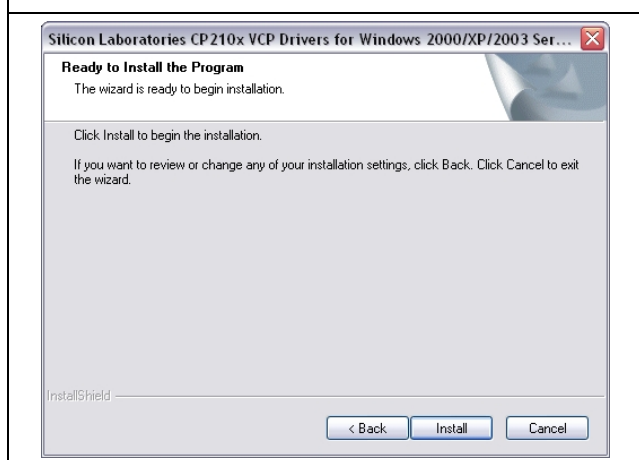
7. The drivers install.

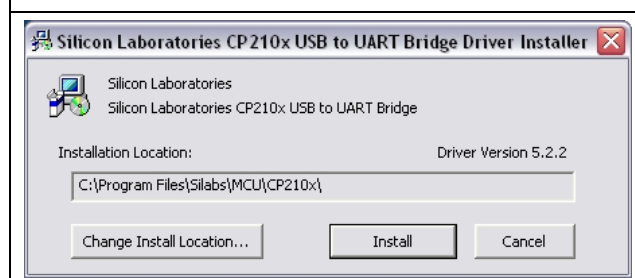**Figure 16: Setup Status**

8. Select **Launch the CP210x VCP Driver Installer**, then click **Finish**.
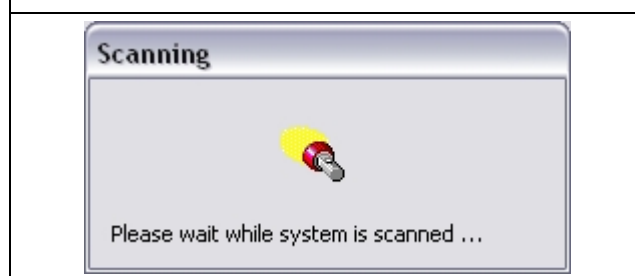
Figure 17: Installation Complete

9. Click **Install**.
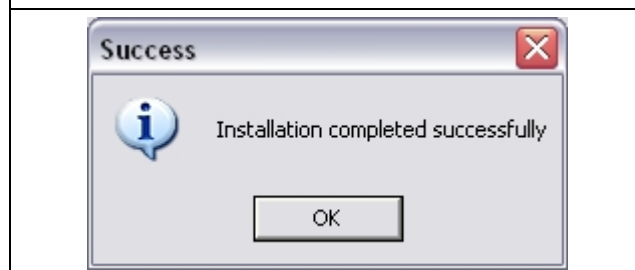
Figure 18: USB Driver Installer

10. The program will look for the file location.

Figure 19: Scanning

11. When the installation completes successfully, click **OK**.

Figure 20: Installation Complete

10.0   Configuring the DX4010V2

☑ Before configuring the DX4010V2, be sure to connect the DX4010V2 to the USB port and the control panel. Be sure that the address is correct and that the red LEDs are flashing (if enabled).
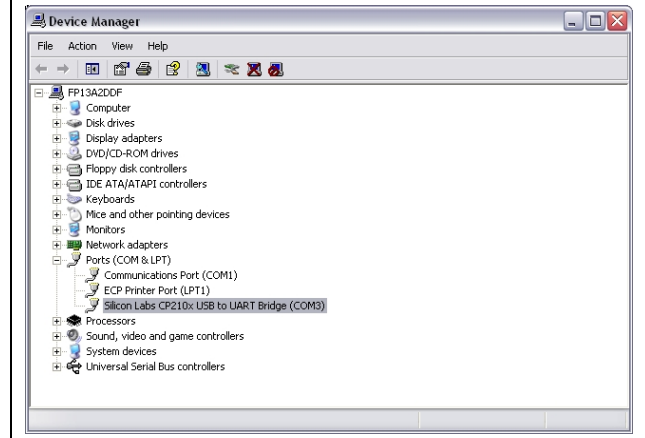
1. Select **Start → Settings → Control Panel,** then double-click **System**.
2. Select the **Hardware** tab.
3. **Click Device Manager**.

Figure 21:   System Properties
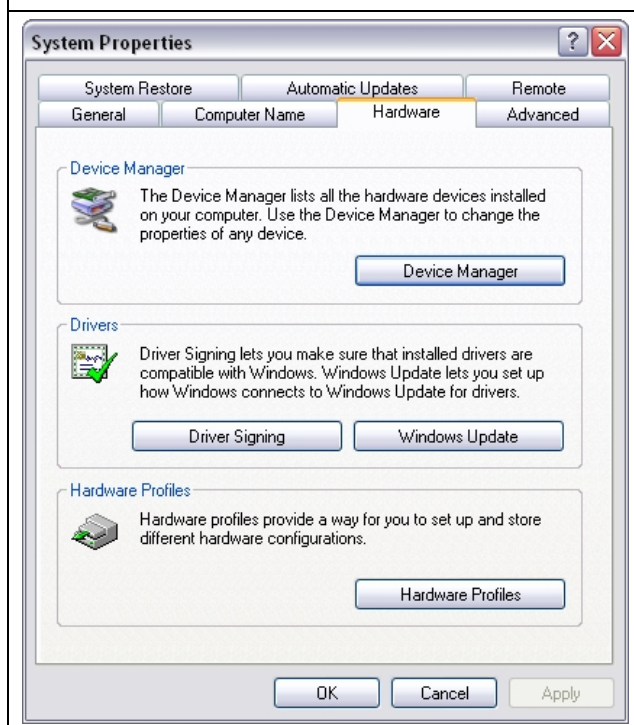
4. Expand **Ports**.
5. Note the COM port number, in parentheses, after **Silicon Labs CP210x USB to UART Bridge**. In this example, the COM port number is **3**.

Figure 22:   Device Manager

6. Select **Enhanced Direct** from the **Connect Via** drop down menu.
7. Enter the COM Port number from Step 5 in the **Com Port** field.
8. Make sure the DX4010V2 is connected to a USB Port, then click **Connect.**
9. The installation process is complete.

Figure 23:   Panel Communication
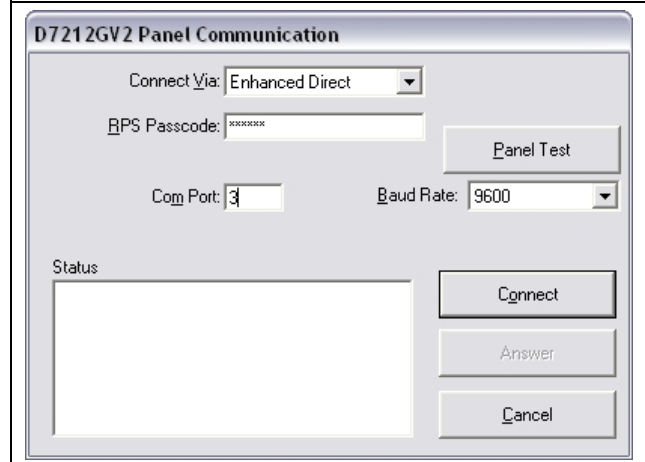
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