DX4010i

Security Systems

EN

Installation Instructions

RS-232 Serial Interface Module

BOSCH

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1.0 General Information

The DX4010i is a data terminal equipment (DTE) configured RS-232 serial device interface (SDI) module designed to operate with compatible control panels. It connects to the control panel through the option or SDI data bus.

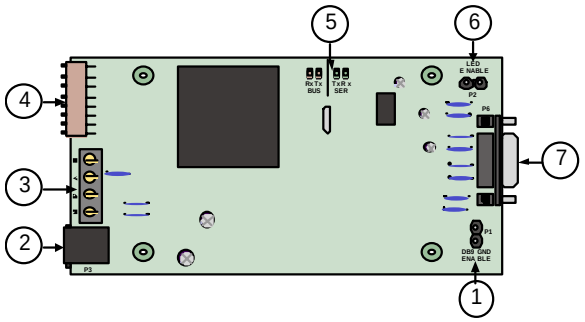
The DX4010i is used to connect a PC with RPS, BIS, PC 9000, CMS 7000, or other third party software that uses a serial conncetion to the supported control panels. The module also supports a serial printer (or parallel printer with a convertor box) for control panels that support a serial printer. The compatibility lists in *Table 1* show support information.

2.0 Specifications

Table 1: DX4010i Specifications

Operating Voltage	12 VDC
Current Draw	50 mA nominal, 55 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): D9412G, D7412G, D7212G, D9124, D9112, D7412, and D7212
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 (D9412G, D7412G, and D7212G) **CMS 7000:** supported on DS7400Xi Control Panels set at Mode 18 (v3.09 or higher) **Printers:** supported on compatible Option Bus control panel

Figure 1: DX4010i 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- DB9 DTE RS-232 connector (P6)

3.0 Installation Standards

Failure to follow the instructions in this manual can result in personal injury or damage to the equipment.

The DX4010i 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 DX4010i 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.

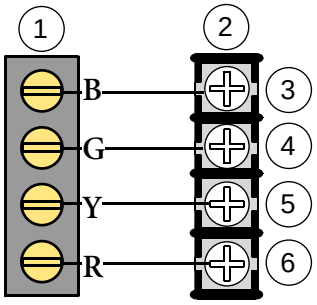
Wire Length Restrictions

- **0.8 mm (#22 AWG):** 305 m (1000 ft)
- **1.2 mm (#18 AWG):** 610 m (2000 ft)

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

Connect the DX4010i to the control panel data and auxiliary power sources as shown in *Figure 2*.

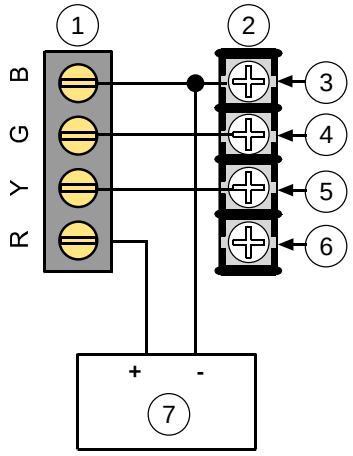
Figure 2: Control Panel Connections



1- DX4010i 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*.

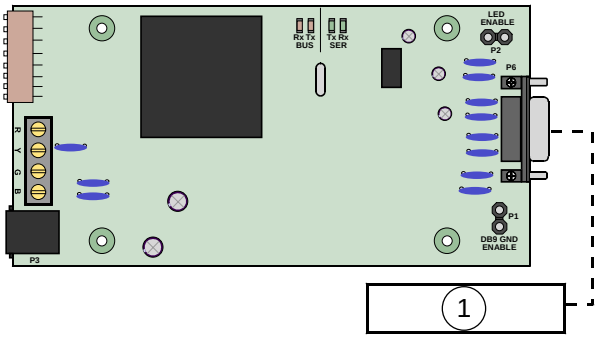
Figure 3: External Power Supply Connections



1- DX4010i 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-DX4010i connections using the DB9 DTE RS-232 connector (P6).

Figure 4: Serial Device Connections

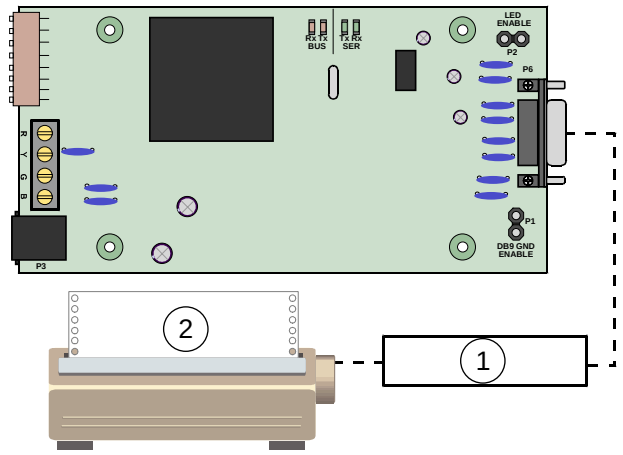


1- Serial (RS-232) device such as a PC (with RPS, BIS, PC9000, or other third party application) or a serial printer for supported control panels.

See *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 DX4010i. 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



1- Parallel converter cable box (BlackBox P/N: PI045A

2- Parallel printer (compatible option bus control panels only)

5.0 DX4010i Jumper Pin Settings

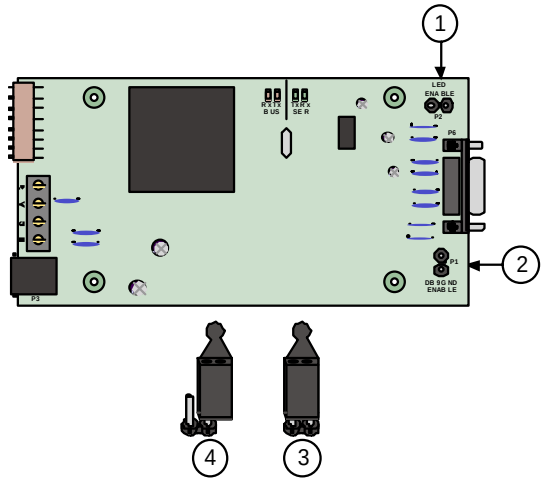
5.1 Enable LED Jumper Pins (P2)

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 DX4010i 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- Diagnostic LED enable pins (P2)

2- DB9 GND enable pins (P1)

3- Enabled

4- Disabled

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 can clear 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

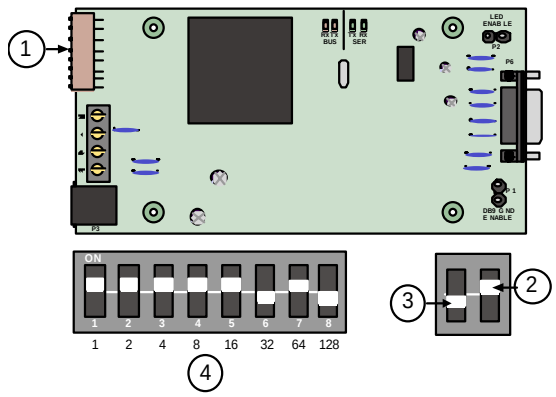
The address DIP switches are used to assign an address to the DX4010i.

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

Refer to *Table 4* 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- ON position
3- OFF position
4- Address example (option bus Address 0)

6.0 Remote Programming Direct Connection

The DX4010i 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

	DIP Switch Settings							
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)
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 DX4010i

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): D9412G, D7412G, D7212G, D9124, D9112, D7412, and D7212.

7.0 DB9 DTE RS-232 Connector (P6)

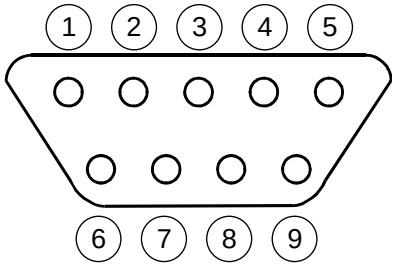
The DX4010i serial port is wired as a DTE device.

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



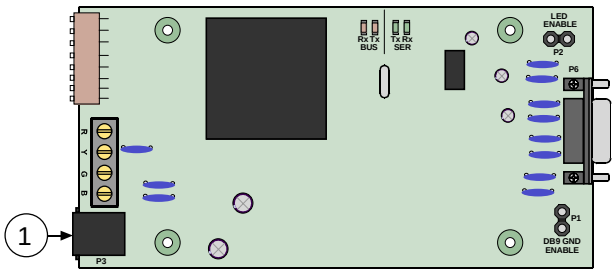
1- DCD	*6- DSR*
2- RxD	*7- RTS*
3- TxD	*8- CTS*
4- DTR	*9- RI*
5- GND	

Table 5: Alternate Wiring Configuration

DX4010i 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 or DS7240) or the RJ-16 to spade lugs for terminal strip connections (such as the D9412).

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