# Table of Contents

1 Legal 5
   1.1 Trademarks 5
   1.2 Software License Agreement 5
   1.2.1 Limited Warranty 5
   1.2.2 Remedy 6

2 Introduction 7
   2.1 About this Manual 7

3 Installation 8
   3.1 Software Installation 8
   3.2 Hardware Installation 8
   3.2.1 Installing G-Series Control Panels 8
   3.2.2 Installing D6600 Receiver 15
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2 Introduction

Building Integration System (BIS) is a private Internet building management solution. It combines building management systems and access control into a single user interface. You can also manage intrusion, CCTV, fire, and other building systems using BIS. Developed using OPC (Object Linking and Embedding for Process Control) standards, BIS instantly integrates OPC-compliant systems.

2.1 About this Manual

This guide covers topics including software and hardware installation specific to the installation of the BIS 2.2 Security Engine. You can find general BIS 2.2 installation information in the BIS 2.2 Installation Manual (P/N F01U028709). After the installation is complete, configure BIS 2.2 using the BIS Manager configuration software, as described in the BIS Configuration online help.
3 Installation

3.1 Software Installation

For information regarding the installation of BIS software, refer to the *BIS 2.2 Installation Manual* (P/N F01U028709).

3.2 Hardware Installation

3.2.1 Installing G-Series Control Panels

NOTE! G-Series Control Panels require Firmware version 6.0 or newer for proper operation with BIS.

To prepare a G-Series control panel to operate with BIS:

1. Configure the control panel with RPS or a D5200 Programmer. Perform the hardware setup to allow the following:
   - Automation interfaces on the control panel:
     - Set **RADXAUX1 → SDI Automation → Enable SDI Automation**? to *Yes*
   - Points to exist:
     - Set **Points (RADXPNTS) → Point Assignments → Point Index** to a value other than *0*
   - Point texts to exist:
     - In **Points (RADXPNTS) → Point Assignments**, enter text in the **Point Text** fields
   - Doors to exist:
     - Configure **Access Control (RADXAXS)**
   - On-board relays to exist
   - Off board relays to exist
   - Authority levels to exist:
     - Configure **User Interface (9000MAIN) → Authority Levels** and **Passcodes (RADXUSR1/RADXUSR2) → Passcodes & Authority Levels**
2. Establish a connection between the control panel and the BIS server on which the OPC server is running.

To establish a direct serial connection using a DX4010i RS-232 Serial Interface Module with the control panel, refer to the DX4010i Installation Instructions (P/N: 4998141106) and to Figure 3.1.

![Direct Serial Connection of PC to Panel](image)

**Fig. 3.1** Direct Serial Connection of PC to Panel

To establish a TCP/IP connection using a DX4020 Network Interface Module, refer to the DX4020 Installation Instructions (P/N: 49522).

**NOTE!** The following example uses an IP address of 172.16.17.76 and a MAC Address of 00-20-4a-51-01-a7. Consult with your Network Administrator for your actual network settings.
a. Open a DOS window by clicking **Start** and selecting **All Programs → Accessories → Command prompt**.

A command prompt window appears.

![Command Prompt](image)

**Fig. 3.2** Command Prompt

b. At the **C:\>** prompt, type `arp -s (IP ADDRESS) (PANEL MAC ADDRESS)`, then press `[ENTER]`.

For example, type `arp -s (space) 172.16.17.76 (space) 00-20-4a-51-01-a7`, then press `[ENTER]`.

c. At the **C:\>** prompt, type `telnet`, then press `[ENTER]`.

d. At the **Microsoft Telnet>** prompt, type `OPEN (space) IP ADDRESS (space) PORT NUMBER` (use 1).

For example, type `open 172.16.17.76 1`, then press `[ENTER]`.

e. The connection fails the first time. This failure is normal. At the prompt enter the same sequence but use port **9999** instead of **1**.

For example, `open 172.16.17.76 9999` [ENTER].

f. Press [ENTER] to view the DX4020 setup menu.

g. Select **0 Server configuration**.

h. Enter the desired IP address.

If the DX4020 Network Interface was already programmed with an IP address, the address appears in parentheses.

To properly program the IP address 172.16.17.76, type: `172 [ENTER] 16 [ENTER] 17 [ENTER] 76` [ENTER].
i. See your network administrator for the proper gateway address settings.

j. If the subnet mask must be changed from the default, enter the number of bits that correspond to the subnet mask your network uses. See your network administrator for more information. Press [ENTER] after entering the correct number of bits for the subnet mask. Refer to Table 3.1.

<table>
<thead>
<tr>
<th>Number of Host Bits</th>
<th>Netmask</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>255.255.255.254</td>
</tr>
<tr>
<td>2</td>
<td>255.255.255.252</td>
</tr>
<tr>
<td>3</td>
<td>255.255.255.248</td>
</tr>
<tr>
<td>4</td>
<td>255.255.255.240</td>
</tr>
<tr>
<td>5</td>
<td>255.255.255.224</td>
</tr>
<tr>
<td>6</td>
<td>255.255.255.192</td>
</tr>
<tr>
<td>7</td>
<td>255.255.255.128</td>
</tr>
<tr>
<td>8</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>9</td>
<td>255.255.254.0</td>
</tr>
<tr>
<td>10</td>
<td>255.255.252.0</td>
</tr>
<tr>
<td>11</td>
<td>255.255.248.0</td>
</tr>
<tr>
<td>12</td>
<td>255.255.240.0</td>
</tr>
<tr>
<td>13</td>
<td>255.255.224.0</td>
</tr>
<tr>
<td>14</td>
<td>255.255.192.0</td>
</tr>
<tr>
<td>15</td>
<td>255.255.128.0</td>
</tr>
</tbody>
</table>

Table 3.1 Netmask Address
### Table 3.1  Netmask Address

<table>
<thead>
<tr>
<th>Number of Host Bits</th>
<th>Netmask</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>255.255.0.0</td>
</tr>
<tr>
<td>17</td>
<td>255.254.0.0</td>
</tr>
<tr>
<td>18</td>
<td>255.252.0.0</td>
</tr>
<tr>
<td>19</td>
<td>255.248.0.0</td>
</tr>
<tr>
<td>20</td>
<td>255.240.0.0</td>
</tr>
<tr>
<td>21</td>
<td>255.224.0.0</td>
</tr>
<tr>
<td>22</td>
<td>255.192.0.0</td>
</tr>
<tr>
<td>23</td>
<td>255.128.0.0</td>
</tr>
<tr>
<td>24</td>
<td>255.0.0.0</td>
</tr>
<tr>
<td>25</td>
<td>254.0.0.0</td>
</tr>
<tr>
<td>26</td>
<td>252.0.0.0</td>
</tr>
<tr>
<td>27</td>
<td>248.0.0.0</td>
</tr>
<tr>
<td>28</td>
<td>240.0.0.0</td>
</tr>
<tr>
<td>29</td>
<td>224.0.0.0</td>
</tr>
<tr>
<td>30</td>
<td>192.0.0.0</td>
</tr>
<tr>
<td>31</td>
<td>128.0.0.0</td>
</tr>
</tbody>
</table>

k. Press [N] to leave the telnet config password as **No**.

l. Select **7** for **Factory defaults**, then press [ENTER].
m. Press 1 [ENTER] to enter setup Channel 1 configuration. Refer to Table 3.2 for the Channel 1 configuration.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud rate</td>
<td>Must match the baud rate configured in BIS.</td>
</tr>
<tr>
<td>I/F Mode</td>
<td>4C</td>
</tr>
<tr>
<td>Flow</td>
<td>00</td>
</tr>
<tr>
<td>Port No.</td>
<td>Must match the port number configured in BIS. Refer to Step 3, page 14.</td>
</tr>
<tr>
<td>ConnectMode</td>
<td>C0</td>
</tr>
<tr>
<td>Remote IP Address</td>
<td>000.000.000.000</td>
</tr>
<tr>
<td>Remote Port</td>
<td>Normally 00000. If access is only allowed from one IP address, enter that IP address here.</td>
</tr>
<tr>
<td>DisConnMode</td>
<td>01</td>
</tr>
<tr>
<td>FlushMode</td>
<td>00</td>
</tr>
<tr>
<td>DisConnTime</td>
<td>00:00</td>
</tr>
<tr>
<td>SendChar1</td>
<td>00</td>
</tr>
<tr>
<td>SendChar2</td>
<td>00</td>
</tr>
</tbody>
</table>

Table 3.2 Channel 1 Configuration

n. Select 9 Save and Exit, then press [ENTER].

o. At the Microsoft Telnet prompt, type quit, then press [ENTER].
p. Activate the automation interface in RPS or the D5200 Programmer by connecting to the control panel, selecting **RADXAUX1**, and setting **Enable SDI automation?** to **Yes**.

q. Connect the PC to the LAN using a router, hub, or switch. The PC and the control panel are now connected to the LAN (**Figure 3.3**).

**Fig. 3.3** PC and Control Panel to LAN Interconnect Diagram

3. Make the new control panel known to BIS:

   **NOTE!** The following steps need to be performed only once on any BIS server.

   a. Start the BIS Manager.

   **NOTE!** The default BIS Manager operator name and password is **Administrator**.

   b. Click **Start** Configuration Browser.

   c. Click **New configuration**.

   d. Under **Group**, select **Security Engine**.

   e. Under **Name**, select either **Default_6600** or **Default_9412**.

   f. Click **Make New Folder**, then give the folder a unique name.
3.2 Installing D6600 Receiver

1. Configure the receiver.

2. Connect the D6600 Receiver to the BIS remote server, where the D6600 OPC server is running.

4. Configure the associations as described in the BIS Configuration online help:
   a. Define the messages that BIS generates.
   b. Specify if BIS should execute automatic controls.

5. Map devices as described in the BIS Configuration online help and the Security Engine Configuration online help.

3.2.2 Installing D6600 Receiver

1. Configure the receiver.

2. Connect the D6600 Receiver to the BIS remote server, where the D6600 OPC server is running.
3. Make the new receiver known to BIS using the BIS Manager:
   a. From the Configuration Browser's Connections tab, right-click the server to which the control panel will connect and select Add subsystem....
   b. In the Select new subsystem dialog, click D6600 family.
   c. In the Subsystem name field, enter a name for the receiver, then click OK.
   d. BIS adds the receiver connection below the server. Right-click on the receiver and select Properties....
   e. Click the Launch button.
   f. In the OPC3Tconfig window, click Add.
   g. In the Receiver configuration window, enter the new receiver's parameters (name, type, communication parameters, and so on), then click OK.
   h. Close the OPC3Tconfig window. When asked to save changes, click Yes, then click OK.
   i. Click OK to close the Subsystem properties dialog.
   j. At the top of the Configuration Browser's Connections tab, click Connect.
   k. Click Start in the Browse OPC servers window. The OPC server starts, establishing connections with all receivers and querying the connected hardware.

4. Configure the associations as described in the BIS Configuration online help:
   a. Define the messages that BIS generates.
   b. Specify if BIS should execute automatic controls.

5. Map devices as described in the BIS Configuration online help.