RADIAL ARM MAZE

USER'S MANUAL

DOC-130
Rev. 1.4

notes

Table of Contents

CHAPTER 1 | HARDWARE

Hardware Guide

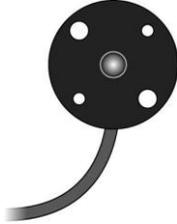*Figure 1.1 - IR Transmitter – Black Housing*

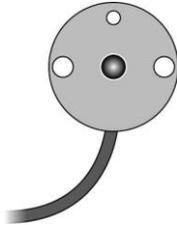*Figure 1.2 - IR Receiver – Silver Housing*

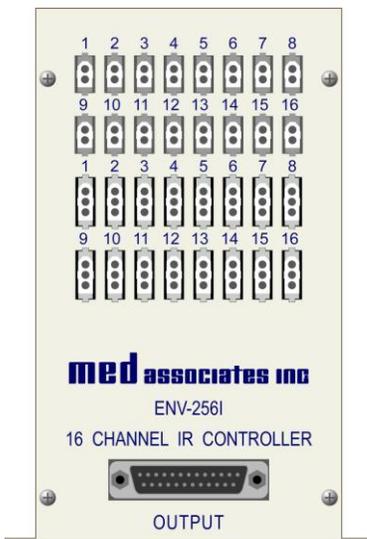*Figure 1.3 - ENV-256I IR Controller*

Figure 1.4 - SG-716B SmartCTRL Panel

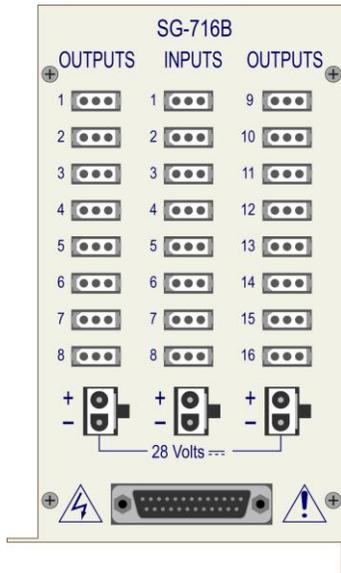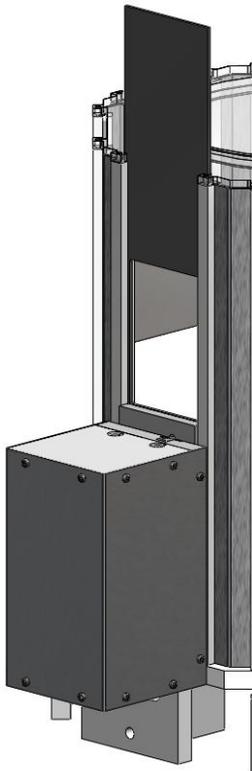*Figure 1.5 - Guillotine Door*

Figure 1.6 – SG-6080D Interface Cabinet with DIG-700G, DIG-713A, and DIG-716B Cards
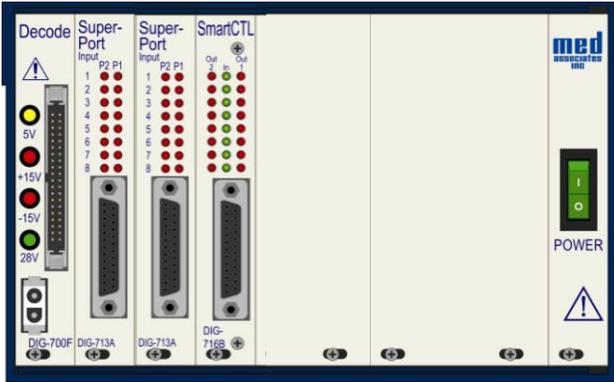

Figure 1.7 – Back of SG-6080D Interface Cabinet
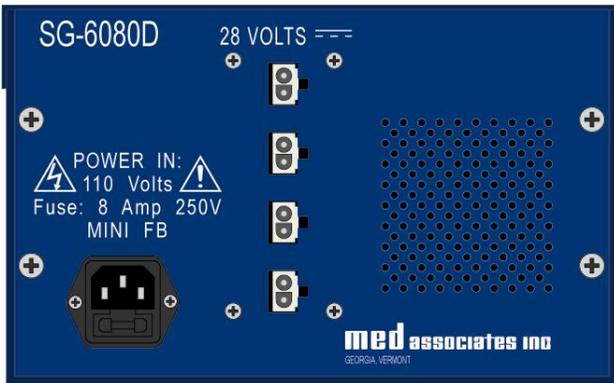
Figure 1.8 – Back of Computer with DIG-704PCI Card
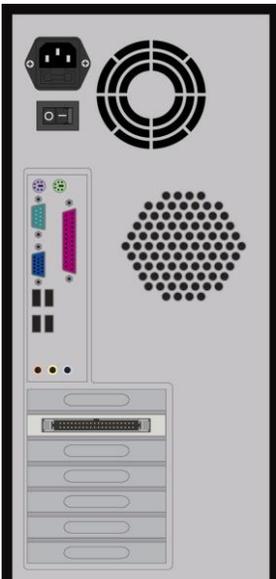
Figure 1.9 – Hubs shown with Automatic and Manual Guillotine Door

Automatic Guillotine Door   Manual Guillotine Door
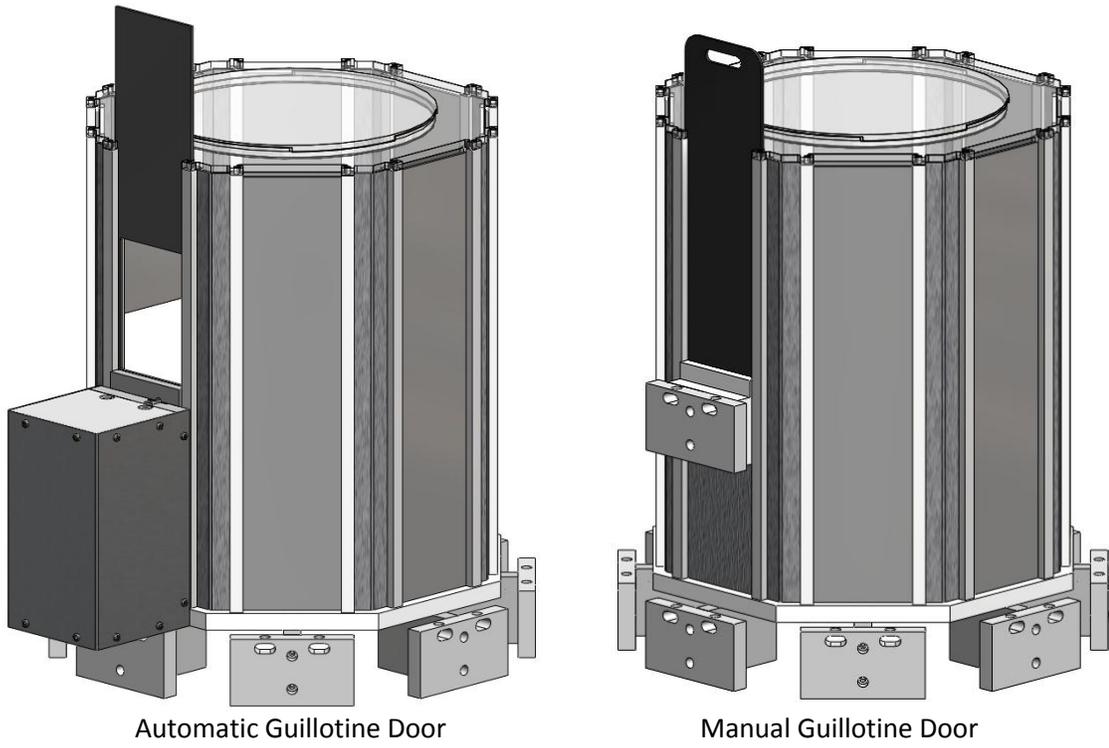
Figure 1.10 – Runway Assembly
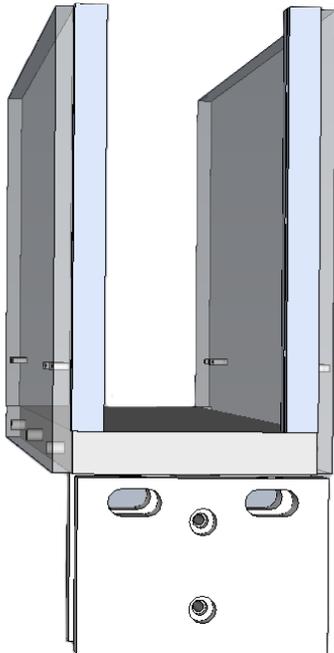
CHAPTER 2 | HARDWARE ASSEMBLY INSTRUCTIONS

Place all of the hardware included with the system in the desired location for the completed Radial Arm Maze, as the maze is very difficult to move once assembled. It should be a sturdy, level surface.

1. Locate the snaps on the bottom of the runway.

Figure 2.1 - Snaps on Bottom of Runway
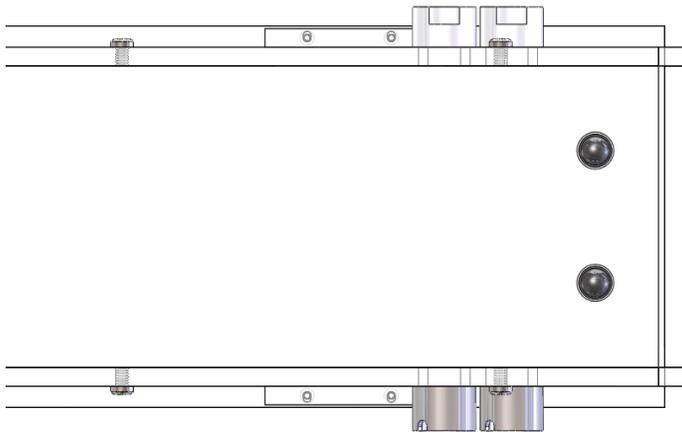
2. Select the hub mounting bracket to attach the runway to.

Figure 2.2 - Hub Mounting Bracket
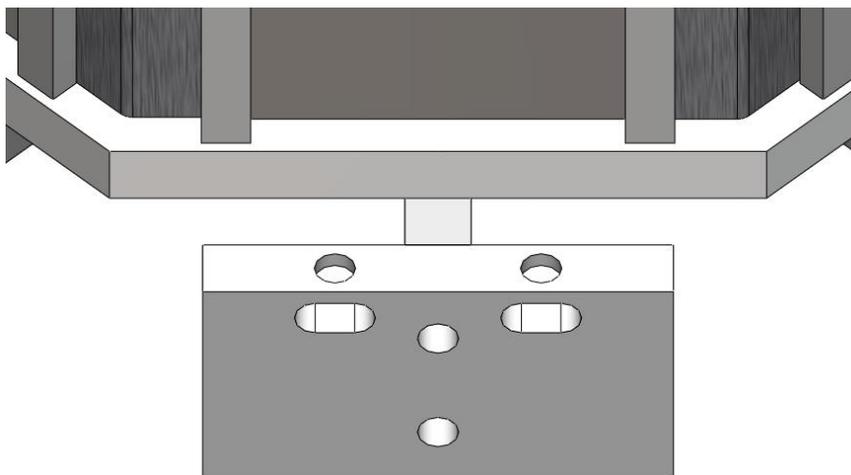
3. Align the snaps on the open end of the runway with the holes in the hub mounting bracket and snap into place.

Figure 2.3 - Snaps on Open End of Runway Aligned with Hub Mounting Bracket
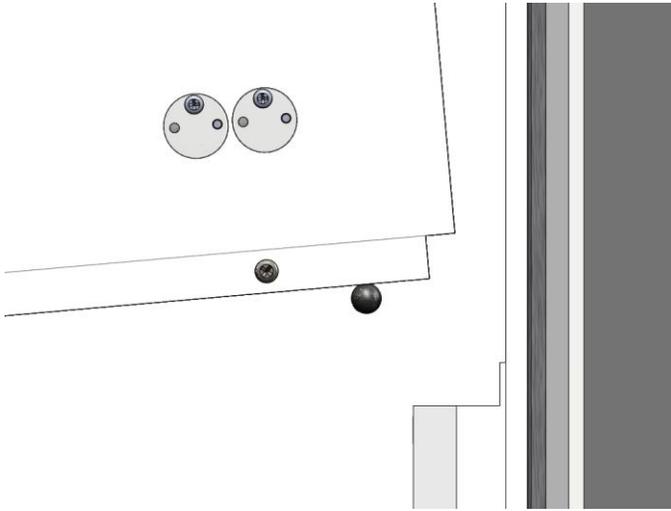
4. Align the runway base with the snaps in the distant end of the runway and snap into place.

Figure 2.4 - Runway Base
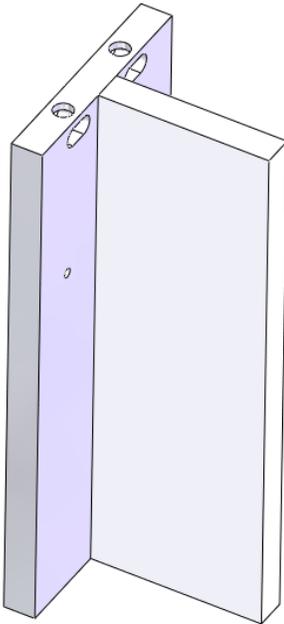
5. Repeat the steps above until all eight runways are securely attached to the hub.

Figure 2.5 - Assembled Runway
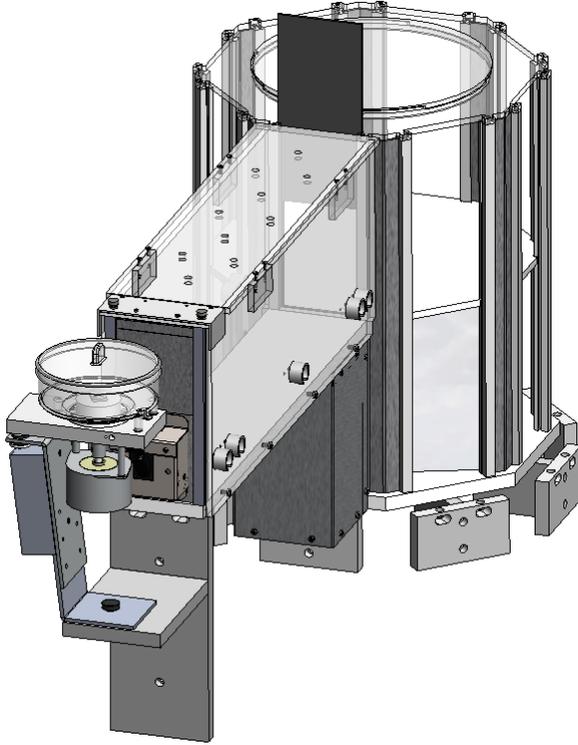
CHAPTER 3 | WIRING INSTRUCTION S

Begin the process of wiring the Radial Arm Maze by designating a runway as Runway 1. The runways will be wired in clockwise order.

IR Connections

1. It is important to begin by noting the difference between the IR Transmitters and Receivers. The IR Transmitters (shown in Figure 1.1) are in black housings and have a 2-prong plug. The IR Receivers (shown in Figure 1.2) are in silver housings and have a 3-prong plug. Each IR pair consists of one transmitter and one receiver.

2. Next, locate the Proximal IR pairs by referring to Figure 3.1. The Proximal IR pairs are closest to the hub on each runway. The clockwise numbering system that is used to identify the runways is also used to identify the IR pairs; therefore Proximal IR Pair 1 is on Runway 1.

Figure 3.1 - Proximal IR Pairs
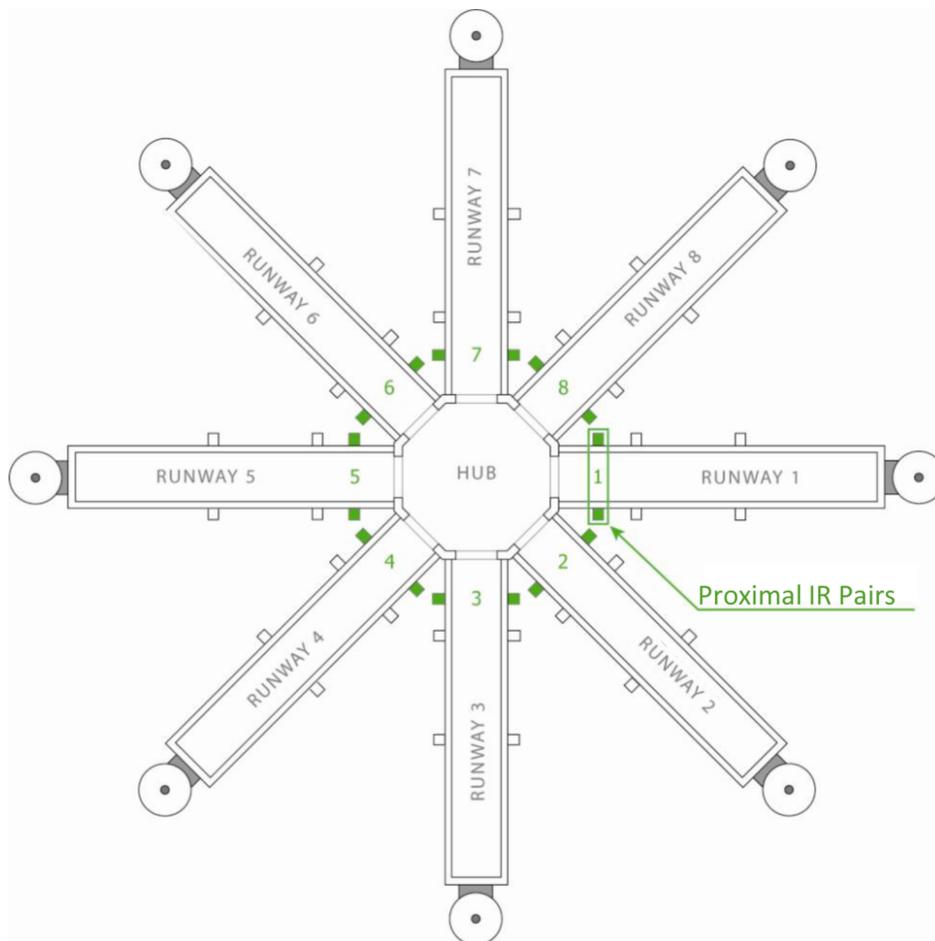
3. Beginning with Proximal IR Pair 1, connect the IR Transmitter into the 2-pin port labeled "1" on the ENV-256I and the IR Receiver into the 3-pin port labeled "1".

Figure 3.2 - ENV-256I with Connections Labeled
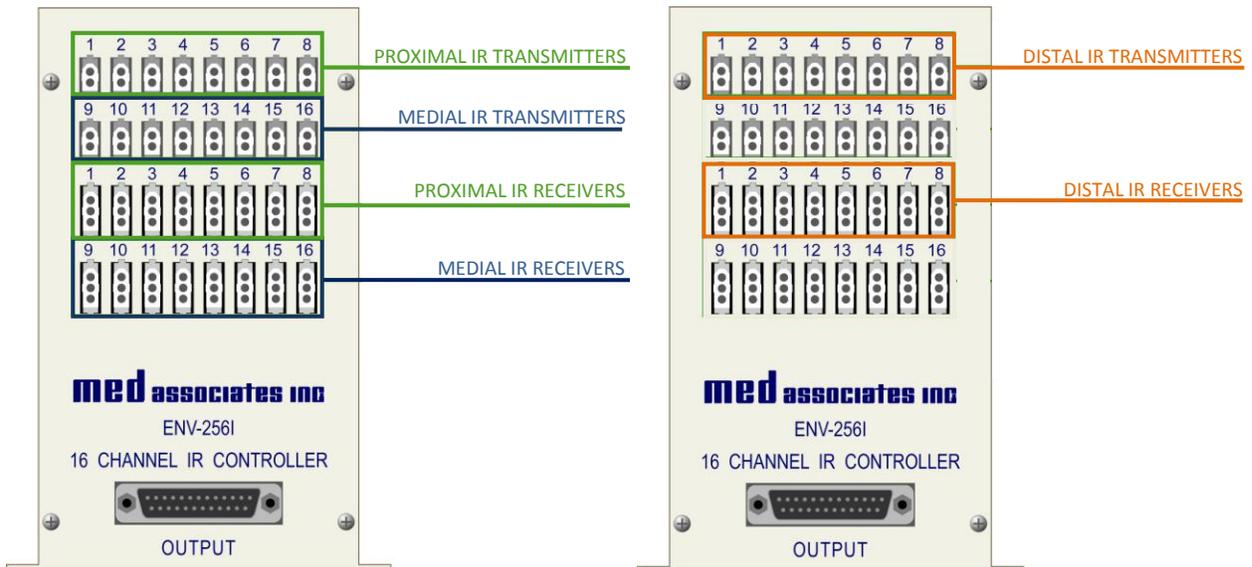
4. Repeat the previous step on each Proximal IR pair, until all eight pairs have been connected to the corresponding ports on the ENV-256I.

5. Next locate the Medial IR Pairs shown in Figure 3.3. The clockwise numbering system that is used to identify the runways is used to identify the Medial IR pairs. However, notice that the Medial IR pairs are numbered 9-16.

Figure 3.3 - Medial IR Pairs

6. Beginning with the first Medial IR Pair, connect the IR Transmitter into the 2-pin port labeled "9" on the ENV-256I and the IR Receiver into the 3-pin port labeled "9".

7. Repeat the previous step on each Medial IR pair, until all eight pairs have been connected to the corresponding ports on the ENV-256I.

8. Next locate the Distal IR Pairs by referring to Figure 3.4. The clockwise numbering system that is used to identify the runways is used to identify the Distal IR pairs. However, notice that the Medial IR pairs are numbered 17-24. These IR pairs will be plugged into the 2nd ENV-256I IR Controller.

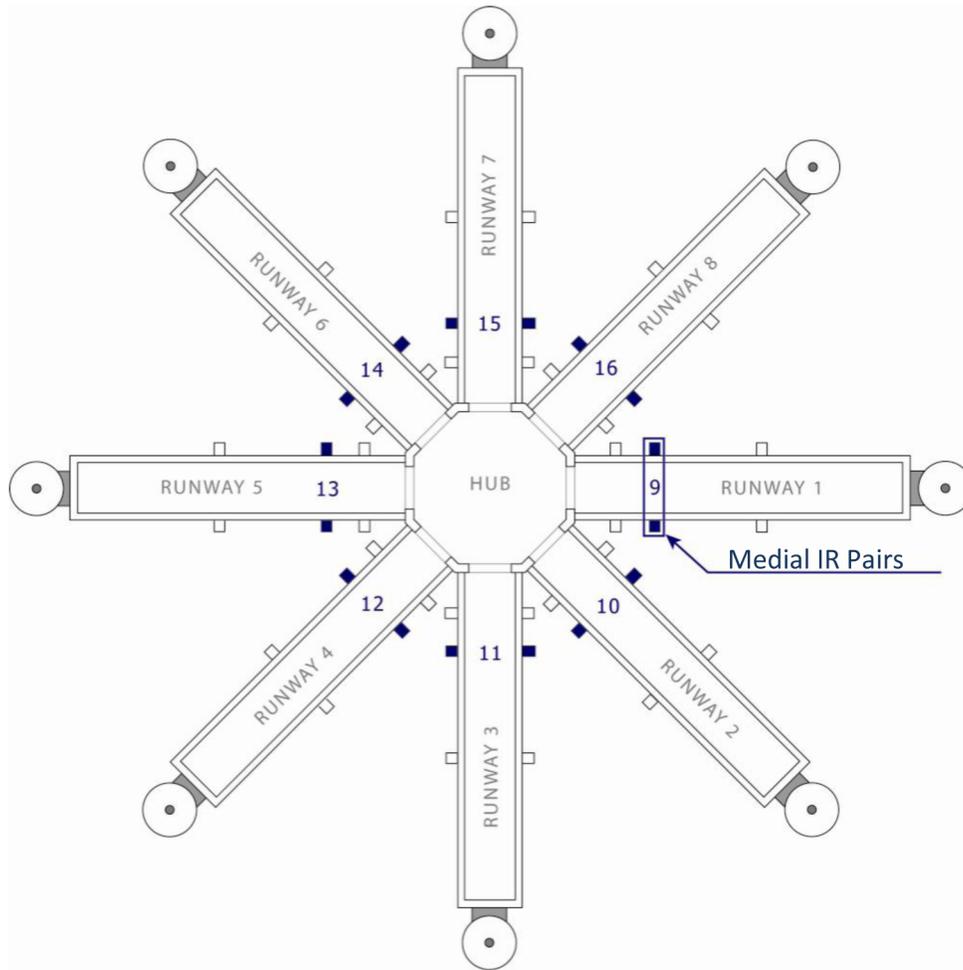Figure 3.4 - Distal IR Pairs

9. Beginning with Distal IR Pair 17, connect the IR Transmitter into the 2-pin port labeled "1" on the 2nd ENV-256I and the IR Receiver into the 3-pin port labeled "1".
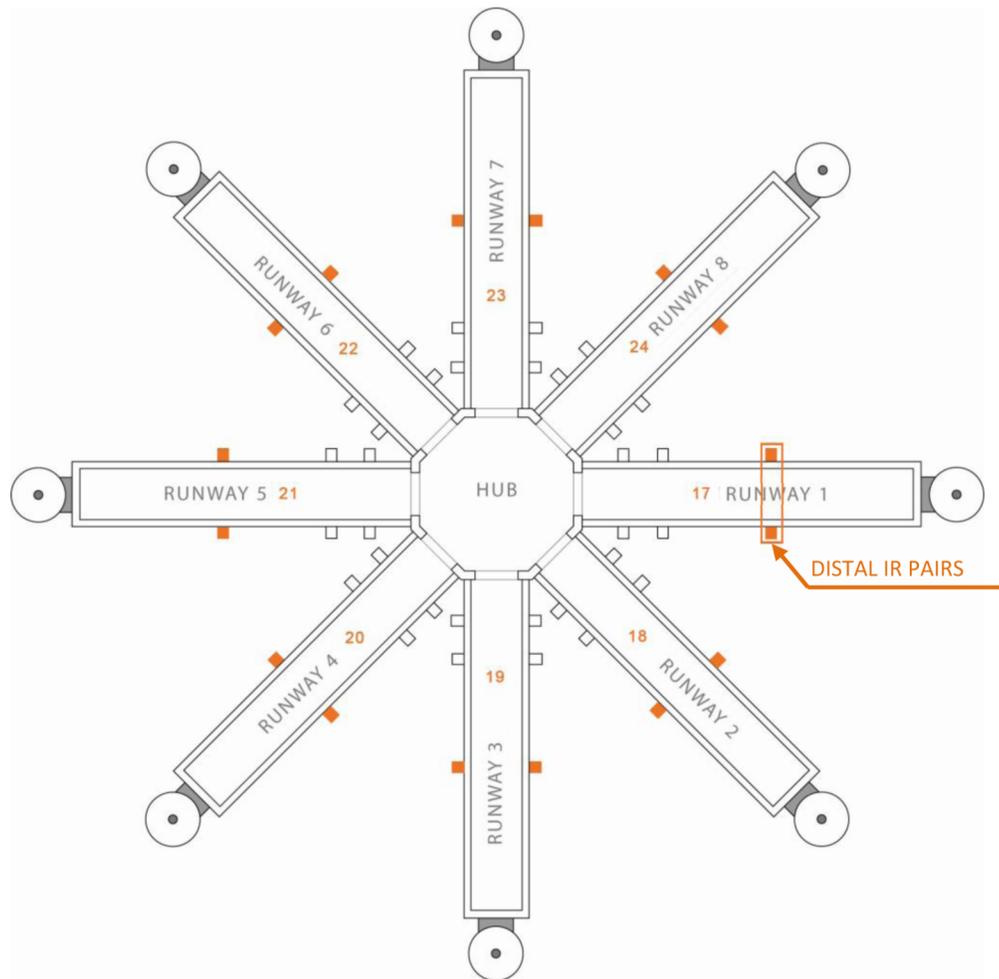
10. Repeat the previous step on each Distal IR pair, until all eight pairs have been connected to the respective ports on the ENV-256I (17 to 1, 18 to 2, 19 to 3, etc).

11. The Proximal IR pairs should now be connected to ports 1-8, and the Medial IR pairs should be connected to ports 9-16 on the first ENV-256I. The Distal Pair in ports 1-8 on the second ENV-256I.

Pellet Dispenser

1. Locate the Pellet Dispensers by referring to Figure 3.5. The clockwise numbering system that is used to identify the runways will also be used to identify the Pellet Dispensers.

Figure 3.5 – Pellet Dispensers
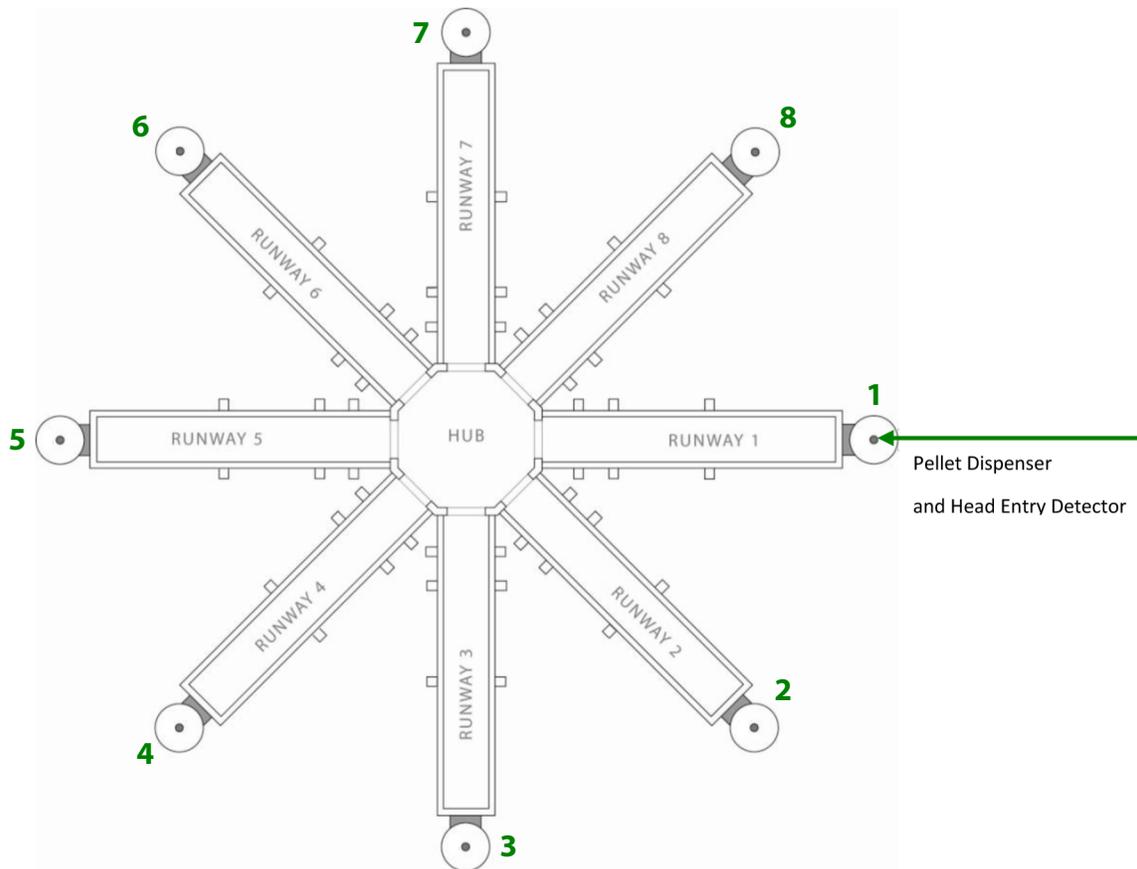
2. Each pellet dispenser has one wire that terminates with 3-pin Molex connectors. The Operate cable controls the dispensing of pellets.

Operate Cable

Molex Pin #	Function	Wire Color
1	28V Ground	Black
2	Operate	White
3	+28 Volts	Red

Numbered Molex Connector
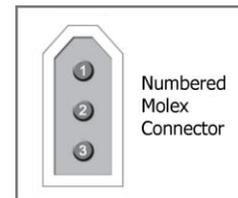
3. Beginning with Pellet Dispenser 1, connect the Operate cable to the OUTPUT port labeled "9" on the SG-716B.

4.   Repeat the previous step for each Pellet Dispenser, until all eight Operate cables have been connected to Outputs 9-16 on the SG-716B. Refer to Figure 3.6.

Head Entry Detector

The Response cable sends an input signal when a head entry is detected.

Response Cable

Molex Pin #	Function	Wire Color
1	28V Ground	Black
2	Detection Response	White
3	Not Used	

1.   Beginning with Head Entry Detector 1, connect the Response cable for the Head Entry Detectors to the INPUT port labeled "1" on the SG-716B.

2.   Repeat the previous step for each Head Entry Detector until all eight Response cables are connected to the corresponding Input on the SG-716B. Refer to Figure 3.6.
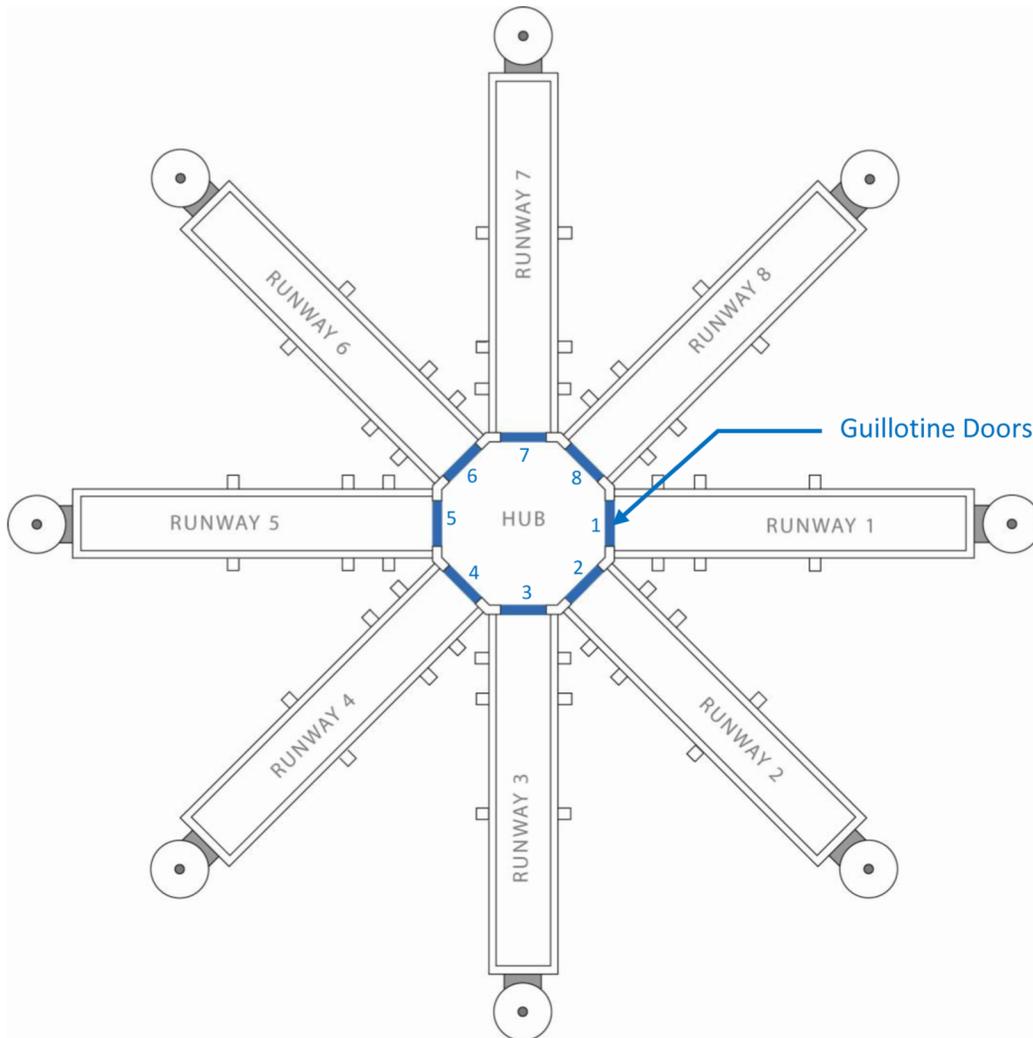
Figure 3.6 - Pellet Dispenser and Head Entry Detector SG-716B Connections Labeled
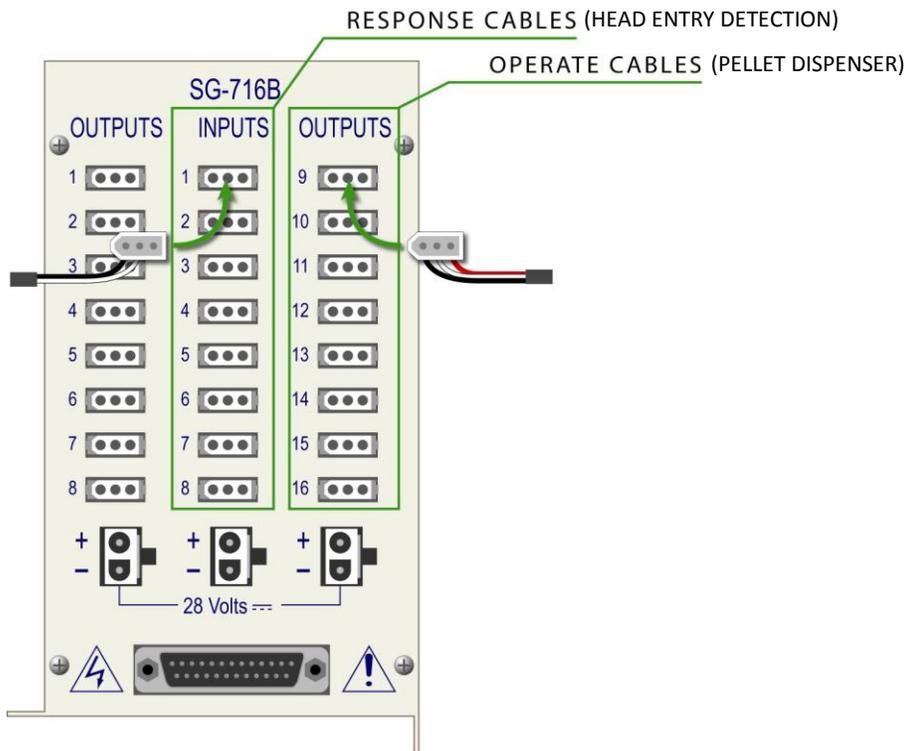
Automatic Guillotine Door Connections

1. Begin by locating Guillotine Door 1 by referring to Figure 3.7.

Figure 3.7 - Guillotine Doors

2. Connect Guillotine Door 1 to the OUTPUT port labeled "1" on the SG-716B (Figure 3.8).

3. Repeat the previous step for each of the Automatic Guillotine Doors, connecting each to the corresponding OUTPUT on the SG-716B.
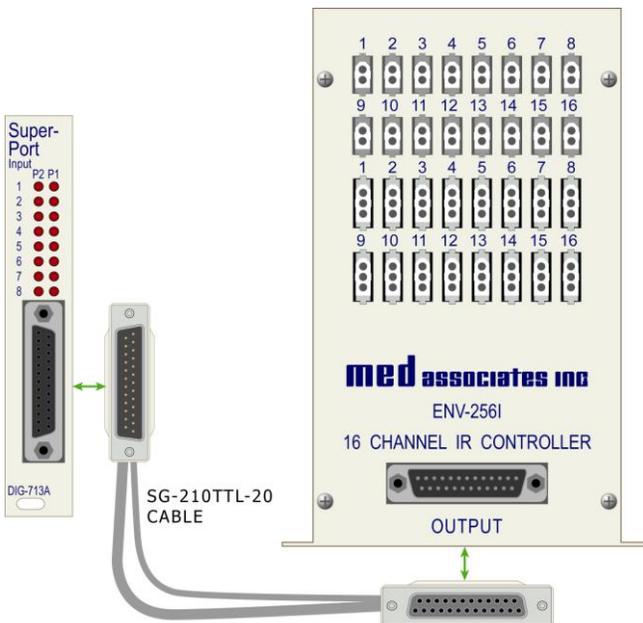
Figure 3.8 - Automatic Guillotine Doors SG-716B Connections Labeled
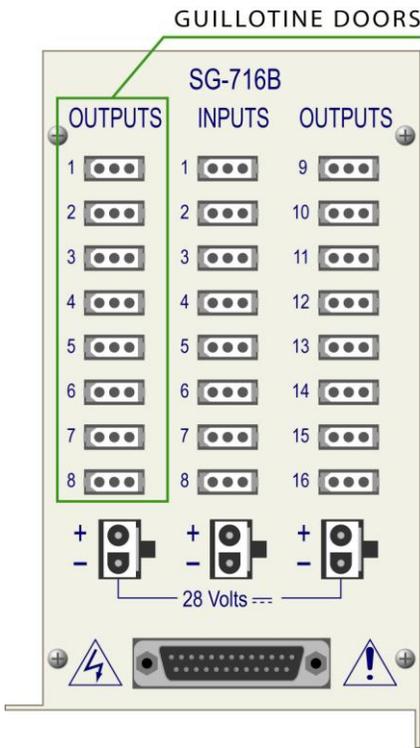

Interface Connections

1. Using the SG-210TTL Cable, connect the DIG-713A SuperPort Card to the OUTPUT port on the ENV-256I IR Controller. Repeat for the 2nd DIG-713A and ENV-256I set.

Figure 3.9 – Connect the DIG-713A to the ENV-256I Using the SG-210TTL Cable
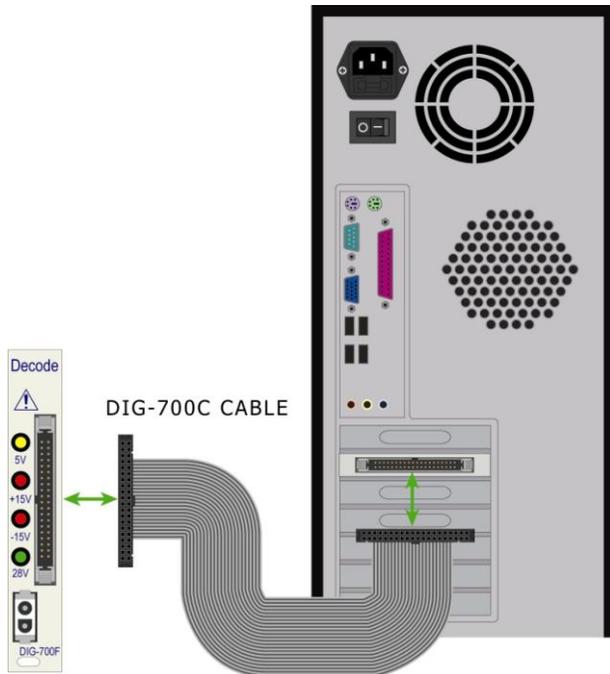
2. Using the SG-210CB Cable connect the DIG-716B SmartCTRL card to the SG-716B Interface Panel.

Figure 3.10 – Connect the DIG-716B to the SG-716B Using the SG-210CB Cable
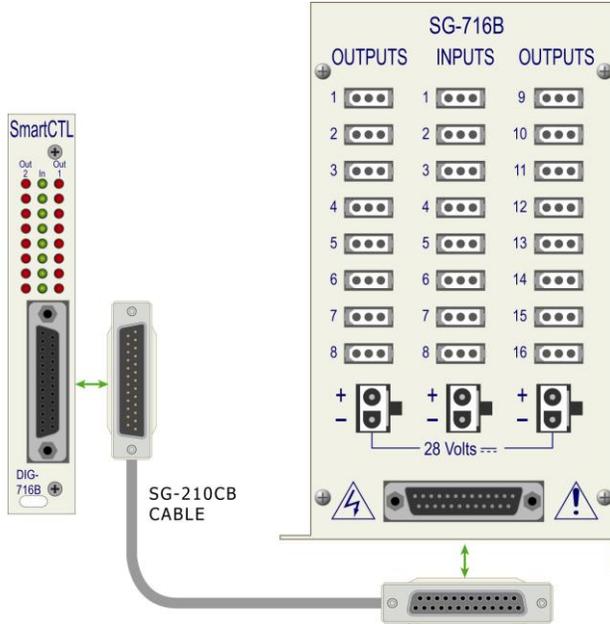
3. Using the DIG-700C Ribbon Cable, connect the DIG-700F Decoder Card to the DIG-704PCI card located in the computer.
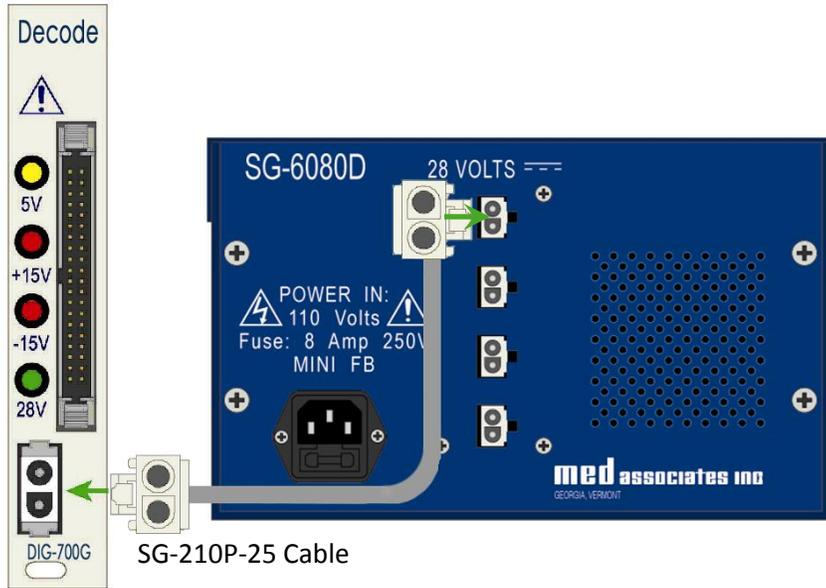
Figure 3.11 – Connect the DIG-700F to the DIG-704PCI Using the DIG-700C Ribbon Cable

Power Supply Connections

1. Using the SG-210CP-2 cable, connect the DIG-700F Decoder Card to the 28-Volt Power Supply.

Figure 3.12 – Connect the DIG-700G to the Power Supply Using the SG-210CP-2 Cable

SG-210P-25 Cable

2. Using the SG-210CP-25 Cable, connect the SG-716B Interface Panel to the 28-Volt Power Supply.

Figure 3.13 - SG-716B SmartCTRL Panel with SG-210CP-25 Cable Connected TO 28V Power

SG-210P-25 Cable
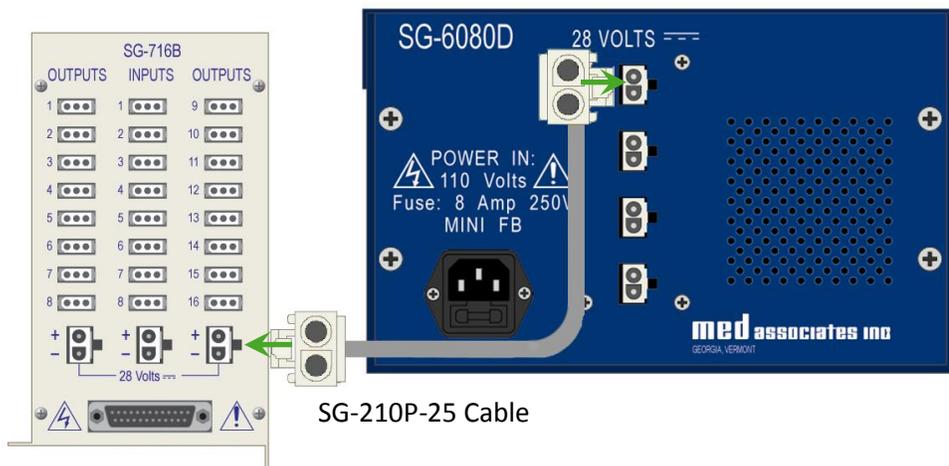
CHAPTER 4 | HARDWARE TEST

The functionality of the IR Pairs, the Automatic Guillotine Doors and any other device that is connected to the SG-716B SmartCtrl Panel can be tested using MED Test Software. Begin by opening the MED Test Software Application.

To test the IR Pairs select **SuperPort | Input Card (DIG 712/713)** from the MED Test menu bar, as shown in Figure 4.1. The screen shown in Figure 4.2 will appear. When the beam between an IR Pair is broken, the corresponding indicator on the screen will turn on. The column of indicators on the screen labeled P1 corresponds to IR Pairs 1 – 8 and the column of indicators labeled P2 corresponds to IR Pairs 9 – 16.

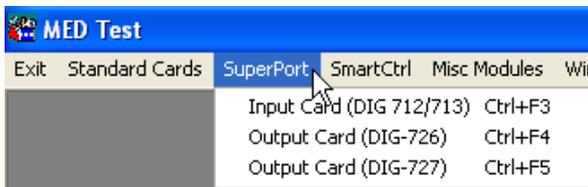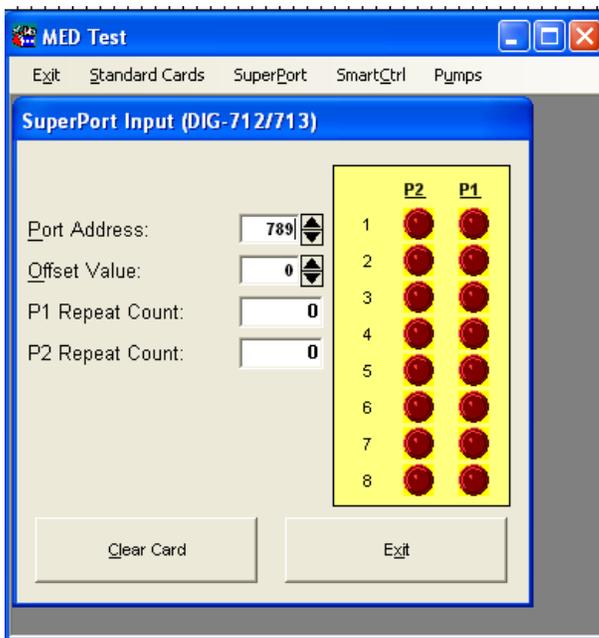*Figure 4.1 - MED Test SuperPort Menu*

Figure 4.2 – MED Test SuperPort Input Screen

To test IR Pairs 17 – 24 (Distal), change the Offset Value to 2. The column of indicators on the screen labeled P1 corresponds to IR Pairs 17 – 24 and the column of indicators labeled P2 are empty.

To test the Automatic Guillotine Doors (and any additional devices connected to the SG-716B Smart Ctrl Panel) select SmartCtrl | DIG-716B from the MED Test menu bar, as shown in Figure 4.3. The screen shown in Figure 4.4 will appear. The column of indicators labeled Out 1 corresponds to Outputs 1 – 8 on the SG-716B and the column of indicators labeled Out 2 corresponds to Outputs 9 – 16 on the SG-716B.

To sequentially test the Automatic Guillotine Doors, click on the **Toggle P1 Bits** button. Automatic Guillotine Door 1 will open. Clicking **Toggle P1 Bits** again will cause Door 1 to close and Door 2 to open, etc.

Clicking **Toggle P2 Bits** will sequentially activate any devices connect to Outputs 9 – 16 on the SG-716B.

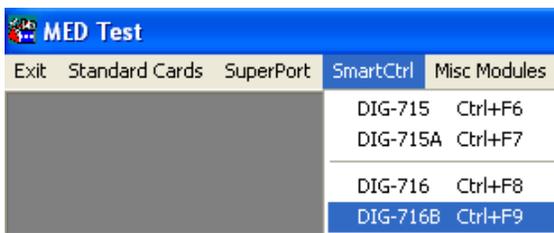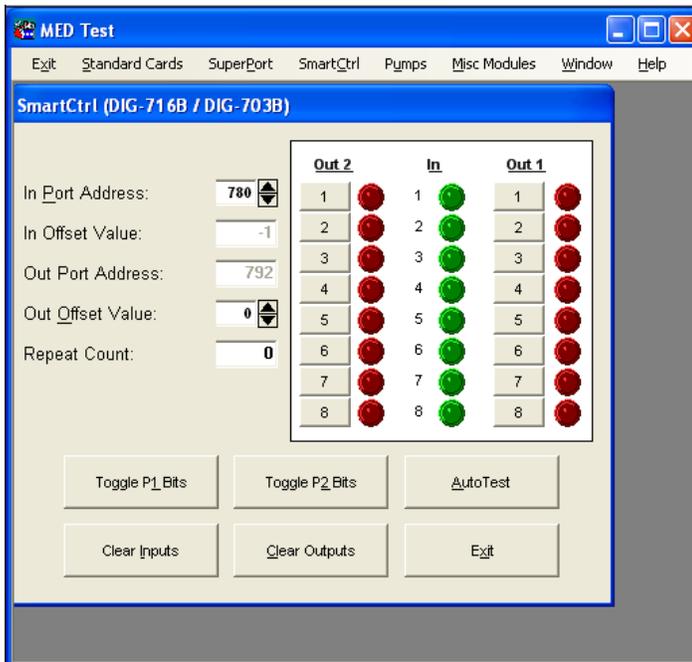*Figure 4.3 – MED Test SmartCtrl Menu*

Figure 4.4 – MED Test SmartCtrl (DIG-716B) Screen

Appendix A | Contact Information

Please contact MED Associates, Inc. for information regarding any of our products.

Visit our website at www.med-associates.com for contact information.

For technical questions, email support@med-associates.com.