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instrumentation and software for research

SG-7000 SERIES TABLETOP INTERFACE CABINETS

SG-7108 SMALL TABLETOP INTERFACE CABINET

SG-7308 SMALL TABLETOP INTERFACE CABINET W/ POWER SUPPLY

SG-7316 LARGE TABLETOP INTERFACE CABINET W/ POWER SUPPLY

DIG-705 USB INTERFACE DECODER CARD

DOC-327
Rev. 1.0

Med Associates, Inc.
P.O. Box 319
St. Albans, Vermont 05478

Phone: 802.527.2343
Fax: 802.527.5095
www.med-associates.com

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CHAPTER 1 | INTRODUCTION

The Tabletop Interface Cabinet holds a decode card and up to eight or sixteen single width I/O (Input/Output) cards such as the DIG-718 SmartCtrl card. The decode card, e.g., the DIG-705 USB Interface Decoder Card, connects the Tabletop Interface Cabinet via USB to a PC running a Windows operating system. Up to four Interface Cabinets can be connected to one PC at the same time, either via a USB connection to the DIG-705 USB Interface Decoder Card or via a flat (ribbon) cable using a DIG-704 PCI-2 or DIG-704 PCIe Interface Card and the DIG-700G Decoder Card.

All SG-7000 Series Tabletop Interface Cabinets contain regulated power supplies with outputs of +/- 15 Volt DC and + 5 Volt DC. The SG-7308 and SG-7316 also contains a 28 Volt power supply with power connectors on the back side of the cabinet to power lights, retractable levers, pellet feeders and other devices. The SG-7308 provides 10 A and has 4 power connectors where the SG-7316 provides 20 A has 8 power connectors.

All SG-7000 Series Tabletop Interface Cabinets are equipped with a temperature-controlled fan to exhaust hot air from the back if needed. This fan is turned off under light loads but will always briefly spin up after power-on, which can be used to verify its correct function.

Specifications:

Dimensions (SG-7308 and SG-7108)

Total size (w x h x d) 9.5 x 6 x 11.7 inch
24.1 x 15.2 x 29.7 cm

Dimensions (SG-7316)

Total size (w x h x d) 16.7 x 6 x 11.7 inch
42.4 x 15.2 x 29.7 cm

Mains Power Requirements

SG-7108:
100-250 V AC 50-60 Hz 1 A
1 A GMA slow blow fuse (Med Part# HAR-FUSE-1-MINI)
SG-7308:
100-250 V AC 50-60 Hz 4 A
4 A GMA slow blow fuse (Med Part# HAR-FUSE-4A-SB-MINI)
SG-7316:
100-250 V AC 50-60 Hz 8 A
8 A GMA slow blow fuse (Med Part# HAR-FUSE-8A-SB-MINI

Figure 1.1 - SG-7308 cabinet with DIG-705, DIG-716 cards, and SG-716 connection panels

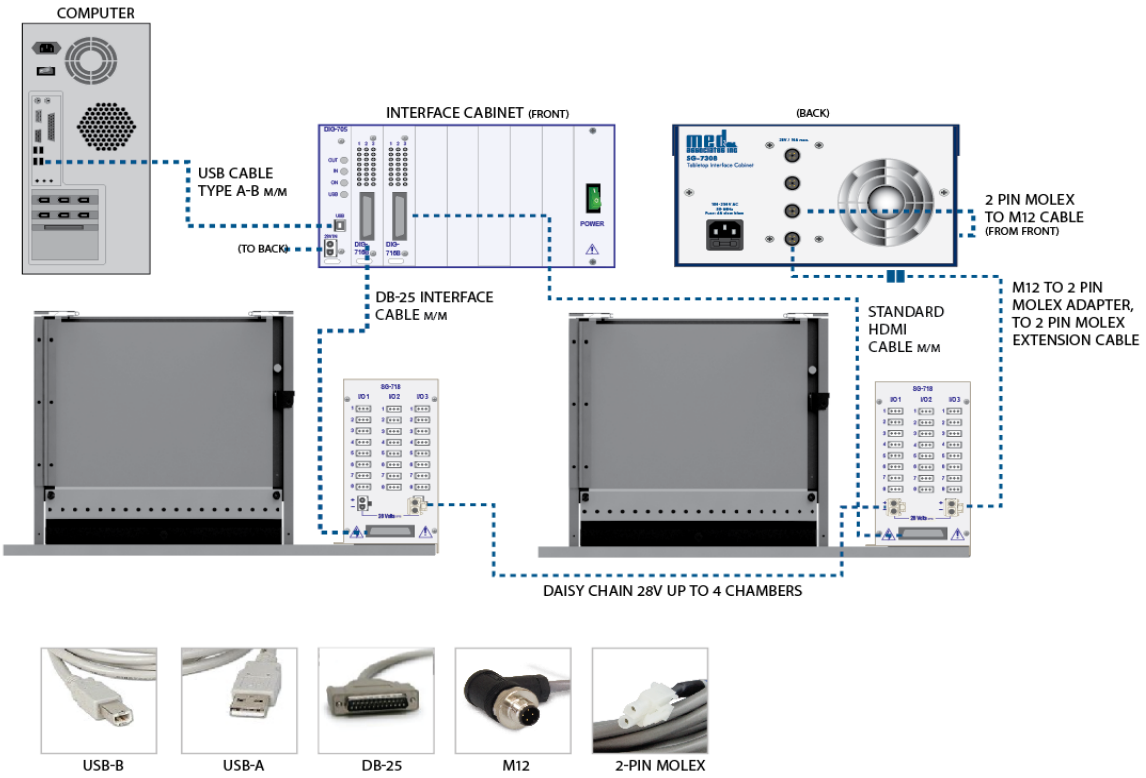
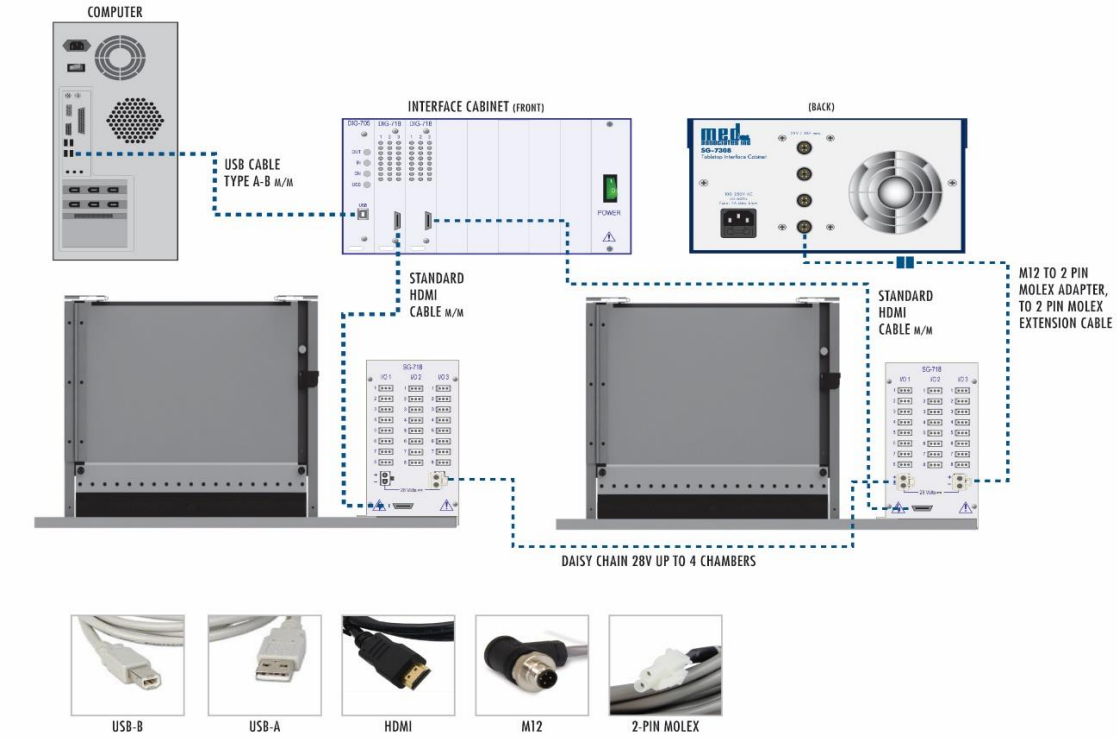


Figure 1.2 - SG-7308 cabinet with DIG-705, DIG-718 cards, and SG-718 connection panels



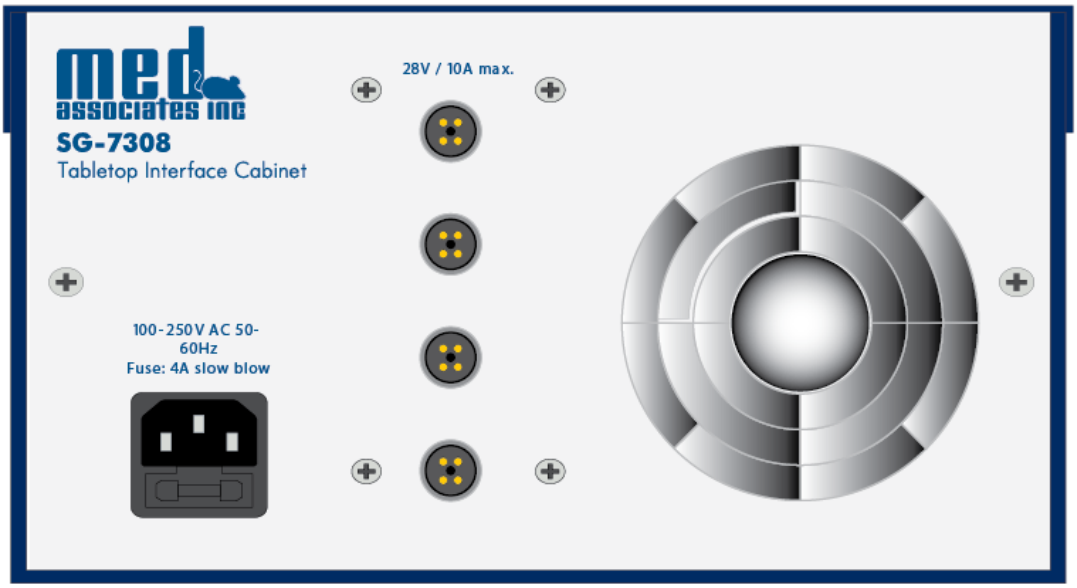
CHAPTER 2 | POWER CONNECTIONS

Mains Power

The Tabletop Interface Cabinet is connected to an outlet via the provided 3-conductor power cable. The Tabletop Interface Cabinet will automatically adjust to the mains voltage (100-250 V) and frequency (50-60 Hz).

NOTE: The cabinet's EMI filter relies on the ground connection to divert electromagnetic interference. The cabinet is therefore best to be plugged directly into a grounded outlet and not be used with a power strip or other indirect connection.

Figure 2.1 - Backside of the SG-7308 cabinet with (4) 28V power connectors



28V DC power *(SG-73XX only)*

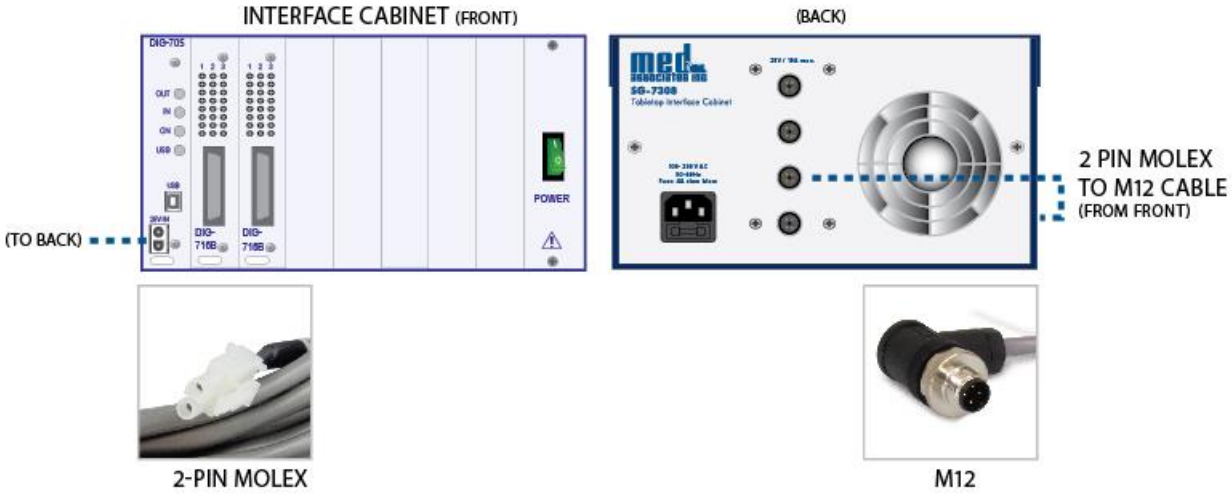
On the back of the SG-7308 Tabletop Interface Cabinet there are four 28 V DC connectors that can be connected to SG-718 Connection Panels to power lights, retractable levers, pellet feeders and other devices. SG-716 Connection Panels can also be used via a converter cable (Med Product # SG-210CP-M12-4M)

SG-718 Connection Panels can be connected in series to share one 28 V connector on the SG-7308 Tabletop Interface Cabinet. The total current consumption of all the Connection Panels combined cannot exceed 2.5 A. In practice that limits the number of connection panels to 2 fully loaded SG-718-24 boxes or up to 4 lightly loaded SG-718-12's.

Loopback power cable *(SG-73XX to DIG-705 or DIG-700G)*:

If the Tabletop Interface Cabinet is used with legacy 28V cards such as the DIG-716 SmartCtrl, DIG-726 Super Port Output, or DIG-712 Super Port input cards, the 28V power needs to be connected from the back of the cabinet into the DIG-705 or DIG-700 Decoder cards. When only using DIG-718 SmartCtrl, DIG-726 TTL Super Port or ANL-926 Programmable Audio Generator cards this connection is not necessary.

Figure 2.2 - SG-7308 with DIG-705 and Loopback power cable



NOTE: When using a separate 28V power supply and DIG-716 and older 28V cards such as the DIG-712 and DIG-726, all power supplies need ground wire connected in one place (and one place only), specifically the cabinet with the DIG-716 SmartCtrl card and SG-716 connection panel the cabinet need to share the same ground. **Therefore, a ground wire needs to connect the cabinet and the additional 28V power supply. The DIG-718 / SG-718 does not require this additional ground wire.**

CHAPTER 3 | DIG-705 USB INTERFACE DECODER CARD

USB Connection

The USB connection on the front of the DIG-705 USB Interface Decoder Card should be connected to the USB port of the PC using a USB 2.0 Type-A Male to Type-B male cable (Med PN# CAB-USB-AM-BM-10). It is recommended to connect the DIG-705 directly to the PC, without the use of USB hubs or extenders. Using these devices might impact the performance of the DIG-705 resulting in longer latency times.

Figure 3.1 - DIG-705 USB Interface Decoder Card

Indicator Lights

The DIG-705 USB Interface Decoder Card contains 4 indicator lights, from top to bottom:

OUT

This light briefly blinks, indicating when any output command is being transferred from the PC.

IN

This light indicates any inputs are being read by the PC. Note that MED-PC continuously reads all the inputs and therefore this light will remain on when Med-PC is running, and any inputs have been configured in the Hardware Configuration Manager.

ON

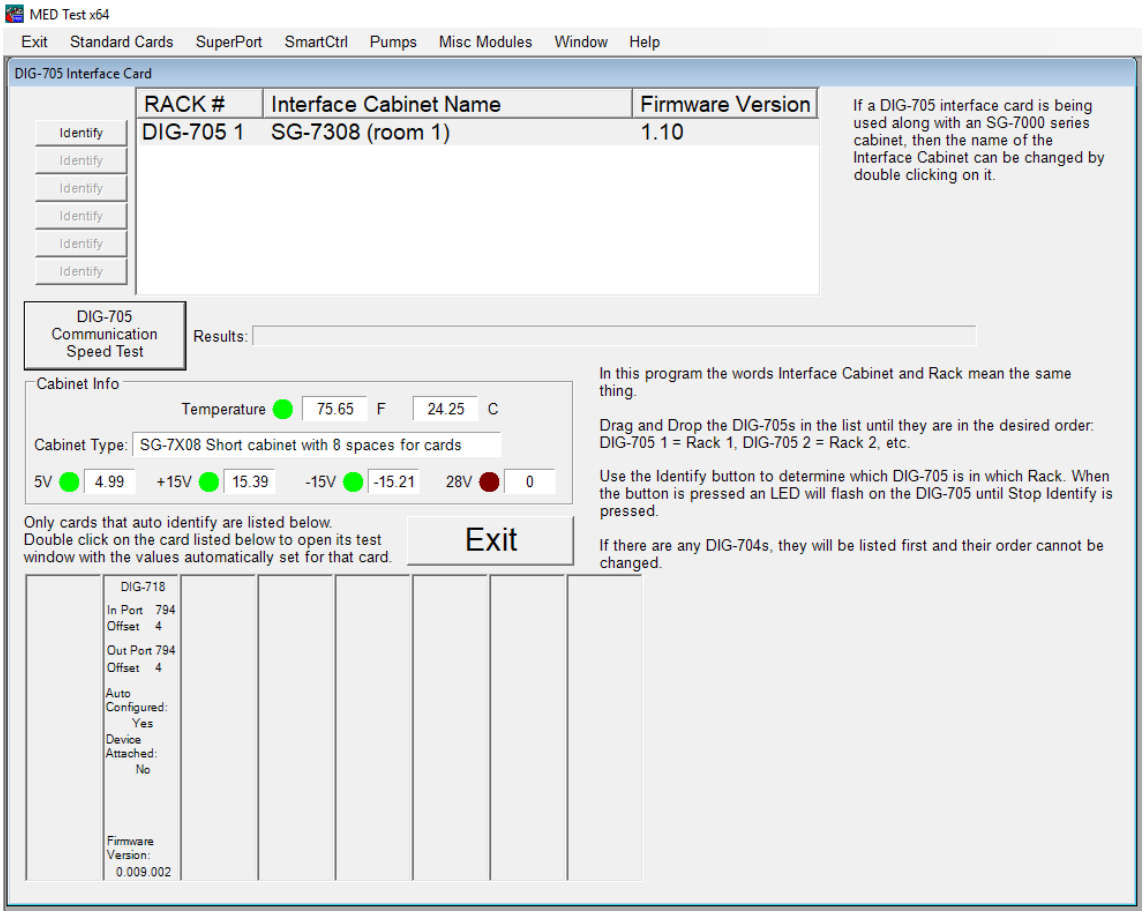
This light indicates the power (specifically the 5V power) is on for the DIG-705.

USB

This light indicates that there is a USB cable to the PC, and the PC provides power via this connection. Some computers leave the power on the USB connector even though they are turned off, other computers will only provide power when turned on.

In addition to the 4 indicator lights on the DIG-705, the DIG-705's test screen available in the Med-Test Software also provides accurate readings of all voltages, temperature, cabinet info, as well as testing.

Figure 3.2: Med-Test, showing cabinet voltages in the Cabinet Info section.



CHAPTER 4 | HARDWARE INSTALLATION

This chapter will explain how to install new cards in the cabinets. For addressing of I/O cards, please refer to the Med Test manual (DOC-200) or the I/O cards respective manuals.

Card Compatibility

The SG-7108 is compatible with the following cards:

- DIG-705, DIG-700G Decode cards.
- TTL (5v) SuperPort I\O cards.
- ANL-926 Audio Stimulus cards.
- ENV-413, ENV-414, ENV-410x Aversive Stimulus cards.
    - ❖ With and additional external 28V power supply*: Standard, SuperPort, and SmartCtrl cards.

The SG-7308 and SG-7316 are compatible with all cards supported by the SG-7108, and includes the 28V power supply for:

- Standard I\O cards.
- SuperPort I\O cards.
- SmartCtrl cards.

NOTE: The SG-7316 requires a DIG-705 card (if used) to be revision 1.2 or higher.

Removing cards from the Tabletop Interface Cabinet

Turn off the cabinet and remove power cable from the back of the cabinet when removing cards from the Tabletop Interface Cabinet.

Only touch the card on the edges, and do not touch the components on the cards as these can be damaged by static electricity (ESD).

1. Remove the screw from the bottom of the face panel with a #1 Phillips head screwdriver.
2. The DIG-718 SmartCtrl card has a designated shoulder bolt aiding in the removal of this card. For other cards, the screw connection of the cable connector may be used.

NOTE: Six sided "Torx" screws are used on some cards to attach the face panel to the card. These should never be removed by the customer.

Inserting cards into the Tabletop Interface Cabinet

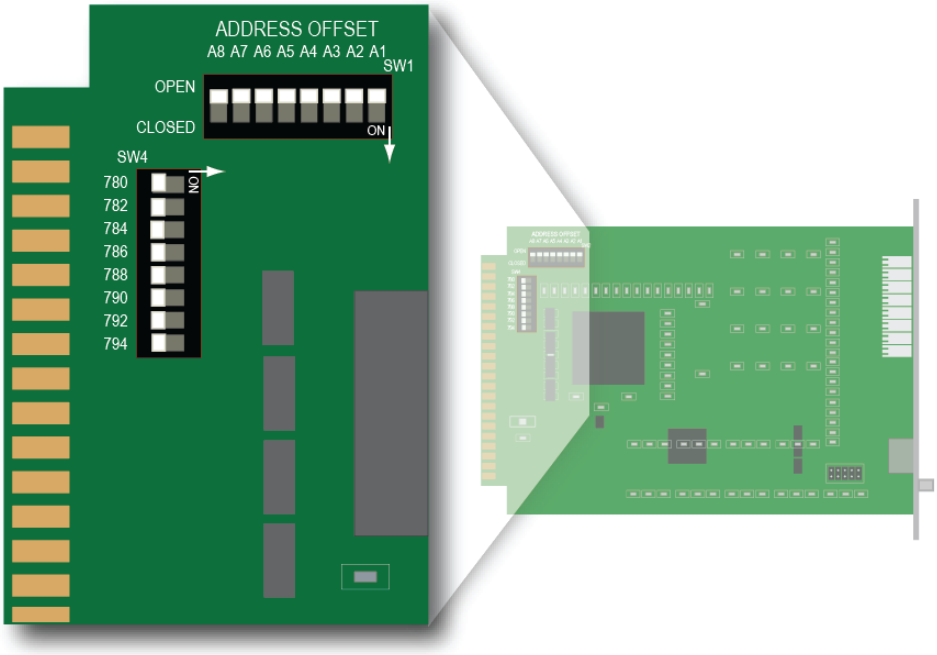
Turn off the cabinet and remove power cable from the back of the cabinet when inserting cards into the Tabletop Interface Cabinet.

Only touch the card on the edges and do not touch the components on the cards as these can be damaged by static electricity (ESD).

The Decode Card (e.g., DIG-705) should be inserted in the left most card slot. The remaining card slots can be used for any other cards listed at the top of this Chapter.

When using a DIG-705 USB Interface Decode card in combination with DIG-718 SmartCtrl cards, make sure all DIP-switches on the DIG-718 cards are in the factory default "OFF" position. This enables automatic addressing based on the position of the card in the Tabletop Interface Cabinet.

Figure 4.1 – DIG-718 card with all DIP-switches in the factory default "OFF" position.



When using other cards, the cards need to be configured via DIP-switches or jumpers to have the correct address. The correct way to address these cards can be found in their respective user's manual or in the Med Test manual (DOC-200) for all cards.

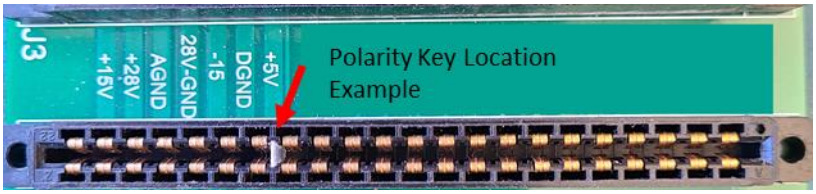
1. Make sure the card is inserted right side up, i.e., all text is readable from the front of the cabinet. Line the top and bottom of the card up with the card slots in the cabinet and slide the card into the cabinet until the face plate touches the enclosure.

NOTE: Your cabinet may be "keyed" preventing users from inserting cards upside down or in the wrong location. Older cards are not compatible with the keys and the key can be removed with needle nose pliers to accommodate these older cards. See Figure 4.2 and 4.3 below.

2. Insert the screw from the bottom of the face panel with a #1 Phillips head screwdriver.

The cabinet is now ready to be used with the new card installed. It is recommended to test the functionality of the new card with the Med-Test program to ensure correct working of the card. Note that the new card may need to be configured via software in the Hardware Configuration Utility, see DOC-303 MED-PC V User's Manual.

Figure 4.2 - Removing the key from the backplane connector.



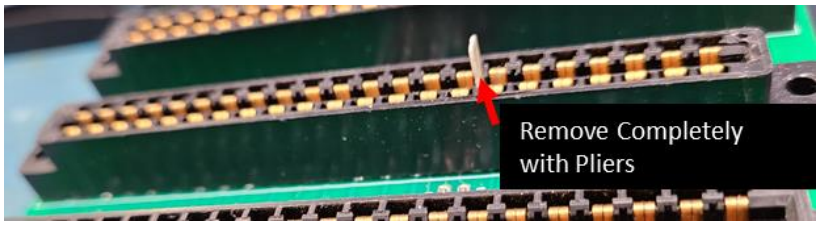
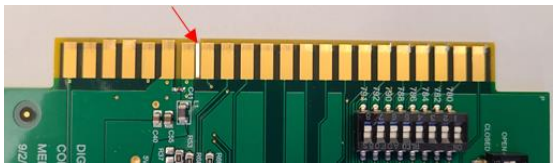
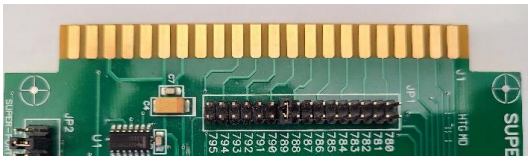


Figure 4.3 - (LEFT) card with a keyed backplane connector. (RIGHT) card without a keyed backplane connector requiring removal of the backplane key if present.





APPENDIX A | CONTACT INFORMATION

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

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

For Sales questions, email sales@med-associates.com.

Visit our website at www.med-associates.com.