INSTALLATION INSTRUCTIONS

MicroComm DXI

HHK-132 Magnetic Hookswitch Kit

1. Intent & Scope

This document describes the installation procedure for the HHK-132 Magnetic Hookswitch Kit.

2. Description

The panel mount HHK-132 Handset / Hookswitch kit is used with the MAI-420 or MAI-425 Master Audio Interface to provide an audio channel between the handset and the DXI system (we will use MAI-42x if the description applies to both the MAI-420 and MAI-425). The hookswitch provides a pair of wires from the contacts of a magnetic switch. When the handset is in the "on-hook" position the switch contacts are closed, and open when the handset is in the "off-hook" position.

The HHK-132 can be used with the most recent versions of the MAI-42x, designated by model numbers MAI-42x-11, or MAI-42x-21 (MAI-42x-A1).

Note: The magnetic hookswitch will only be activated when the handset is placed in the cradle in a vertical position.

3. Installation

3.1 Panel Preparation

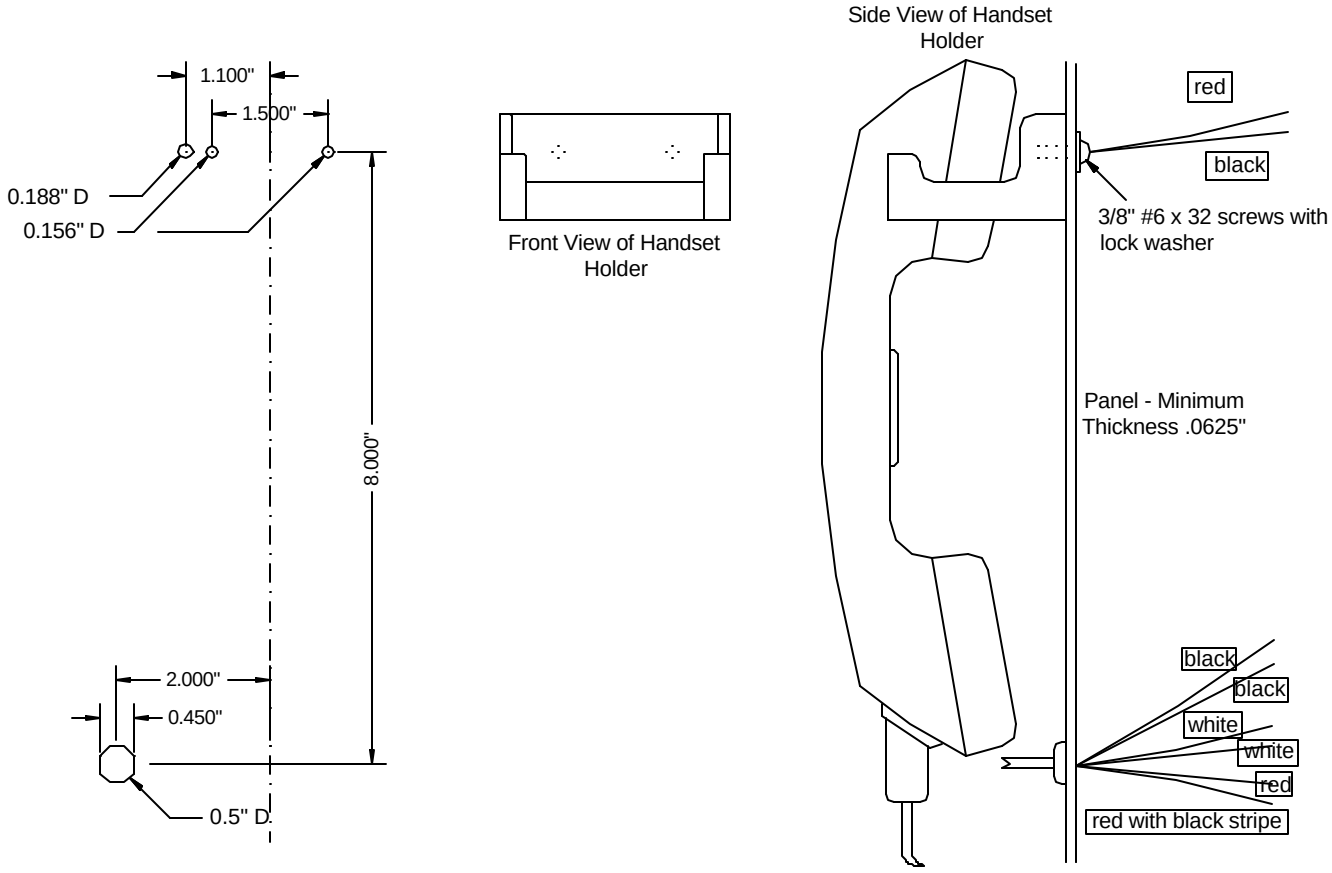
Mounting the cradle (and hookswitch) on the metal panel requires four holes through the panel:

i) Two 0.156" (5 / 32") holes for screws that attach the handset cradle to the metal panel,

ii) One 0.188" (3 / 16") hole to bring the wires from the magnetic switch through the panel,

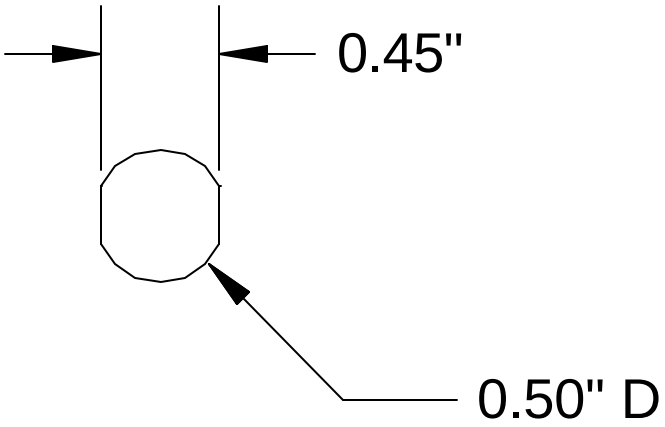
iii) One cutout to bring the wires from the handset cable through the panel. This cutout provides for the installation of a strain relief connection to the cable

The diagram on the next page gives the position, and size of the required holes. The position of the strain relief cutout can be moved if required, the indicated location is for a typical location.



Panel Hole Positions for Mounting Handset Cradle with Magnetic Hookswitch

Details for the cutout for the cable strain relief connection are shown below.



Detail of Cable Strain Relief Cutout

3.2 Handset Cradle Mounting

1. Feed the black and red leads through the 3/16” hole in the panel.
2. Attach the handset cradle to the panel with lock washers and two flat head 3/8” # 6 x 32 screws (provided in the kit).

3.3 Handset Cable Installation

1. Feed the wires of the handset through the strain relief cutout on the panel.

2. Place the strain relief onto the handset cable near the first coil in the cord and press it into the panel cutout.

3.4 Interface Terminal Block Installation

1. An eight point terminal block is included in the kit to allow the reach of the hookswitch to be extended to where the MAI has been installed.

2. Locate and position the terminal block within reach of both the handset and hookswitch wires. Clean the surface of the panel to insure that it is free of dirt and oil. Remove the paper backing from the tape on the back of the terminal block, and firmly press into place.

3. Connect the handset to terminals 1 through 6 and connect the hookswitch to terminals 7 and 8 as indicated in the following table

Terminal	Signal	Wire Color
1	Speaker +	White
2	Speaker -	White
3	PTT switch +	Black
4	PTT switch -	Black
5	Microphone +	Red
6	Microphone -	Red with Black Stripe
7	Hookswitch	Red
8	Hookswitch	Black

Terminal Block Connections

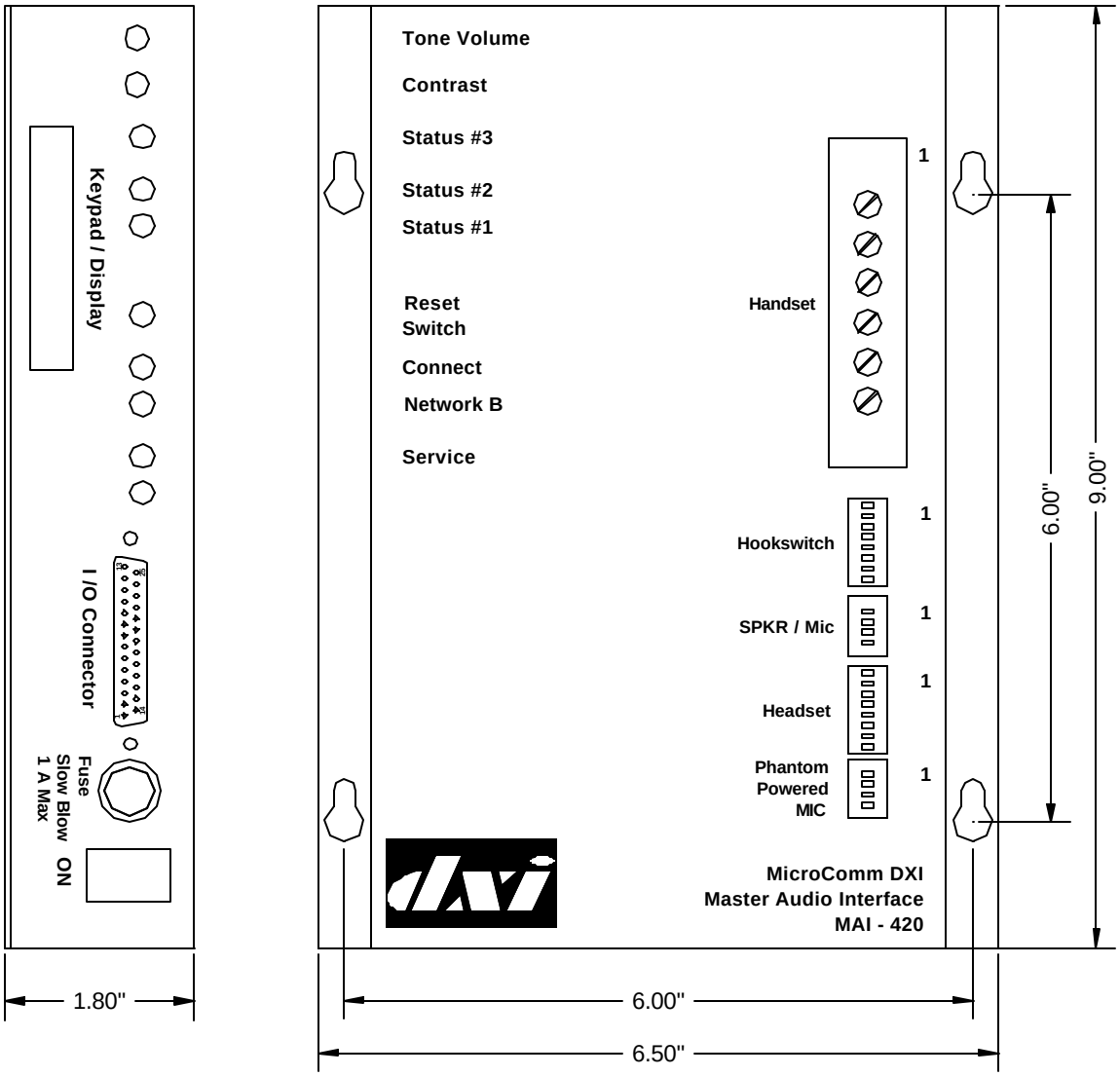
3.5 Extension Cables

1. Run an extension cable (not included) from the first six positions on the HHK -132 terminal block to the handset terminal block on the MAI. The MAI connections are in the same order as specified in the above table. The speaker and PTT switch are not polarity sensitive but the microphone connection is polarity sensitive.

2. Run an extension cable (not included) from the last two positions on the HHK-132 terminal block to the last two positions on the 8 pin MTA-100-08 connector included in the kit. The connector plugs into the header on the MAI labeled ‘Hookswitch’.

4. Connecting Hookswitch/Handset to the MAI-42x

The wall mounted MAI-420 or MAI-425 provides an intercom channel from audio devices to an exchange. The diagram on the next page shows the connectors and headers for a MAI-420 (the position and labeling for the connectors and headers for the MAI-425 is identical).

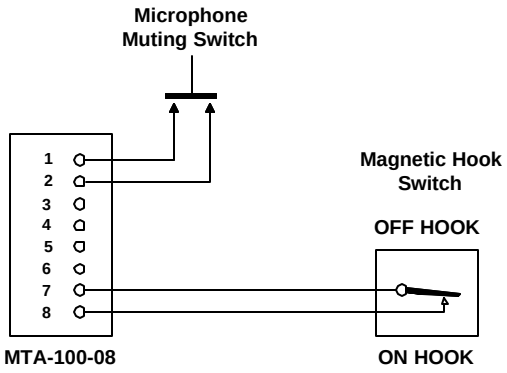


MAI Base Plate Showing Mounting Connector and Header Positions and Labels

4.1 Hookswitch Connections for MIA-420-A1

The MAI-42x-A1 can be configured to operate with either a mechanical or magnetic hook switch. The difference between the mechanical hookswitch and the magnetic hookswitch in the HHK-132 kit is that in the "on hook" position the mechanical switch is normally open while the magnetic switch for the HHK-132 is normally closed. The position of a jumper on the printed circuit board allows for the two possible hook switch configurations. The hook switch connections for a magnetic hook switch are given in the next figure. The magnetic hookswitch is open in the "on hook" position and closed in the "off hook" position. The connection wires from the hookswitch to the MAI are made to an 8-pin MTA-100-08 female connector that plugs into the 8-pin header on the MAI labeled "Hookswitch"

If a muting switch is required with the MAI then it is also connected to the same MTA-100-08 connector to pin positions 1 and 2. A muting switch is not part of the kit and is not required for handset operation.



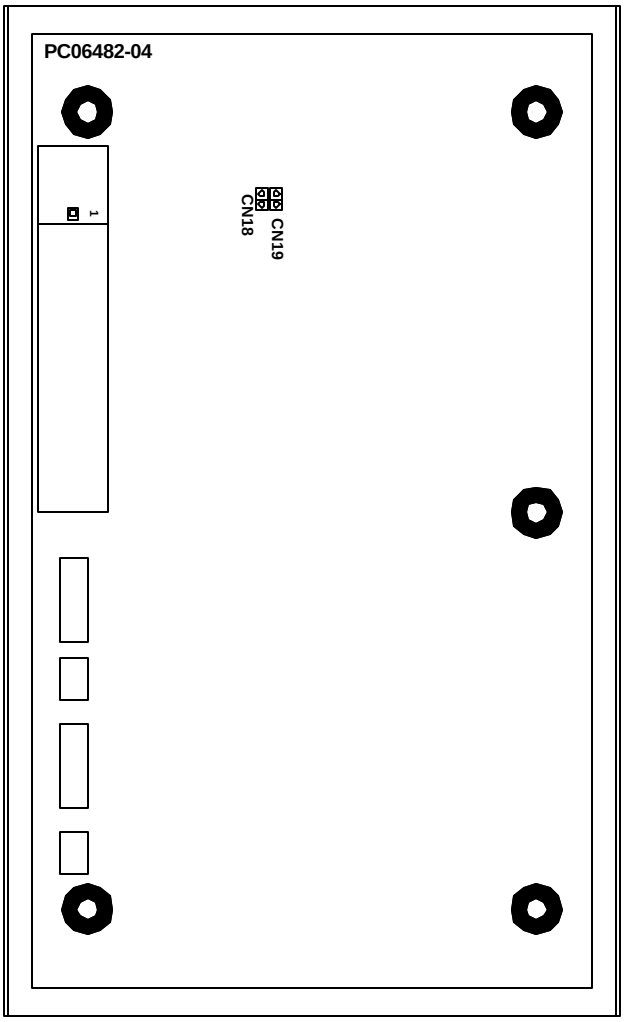
Hookswitch Connections from Magnetic Switch to MAI-42x-A1

The hookswitch pair connects to pins 7 and 8 on a female 8-pin AMP MTA-100 series connector that plugs onto the header labeled "Hookswitch". To make these connections you should use an AMP Handle Assy 58074-1 tool with a 58246-1 head. The cable should be cut to length and the outer jacket should be trimmed back about 1/2 inch.

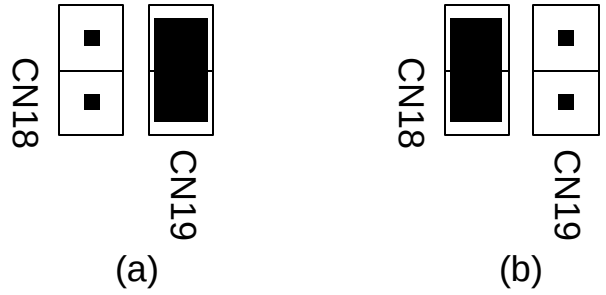
To insert the signal wires into the connector you remove the white cover from the connector, insert the connector into the tool from the left side (it will travel through the tool in the direction indicated by the arrow), pull the trigger once to load the connector. Then insert the signal wire for pin 1 (only if you are connecting a muting switch) into the hole on the top of the tool and pull the trigger to insert the wire into the connector. If a wire is not required for a pin just pull the trigger to advance to the next position. Then repeat to install the other signal wires (do not strip the wires). Finally, remove the connector from the tool, replace the cover, and then slide the connector onto the header pins on the MAI.

When shipped from Harding Instruments a shorting jumper is located across CN19, while CN18 is open, and the MAI is configured to work with a hookswitch that is normally open in the “on hook” position. When the “on hook” switch position is normally closed the shorting jumper is placed across CN18, while the CN19 pins remain open To change the jumper position between CN19 and CN18 you will have to remove the top cover of the MAI-42x. The printed circuit board is attached to the top cover by standoffs and a simplified view of the printed circuit board appears as shown in the diagram on the right The location of the two connectors CN18 and CN19 is shown on the diagram. The printed circuit board used for the MAI-42x-AB is identified by the designation PC06482-04. The following table summarizes the jumper positions for the various types of hookswitch kits.

Type of Hookswitch	Jumper CN18	Jumper CN19
HHK-130	NO	YES
HHK-131	NO	YES
HHK-132	YES	NO
HHK-133	NO	YES



Location of CN18 and CN19



Jumper Positions (a)CN18 open, CN19 shorted

(b)CN19 open, CN18 shorted

4.2 Handset Connections

The telephone handset is wired to the interface module terminal block through the extension cable according to the following table:

Pin	Signal
1	Speaker +
2	Speaker -
3	PTT Switch
4	PTT Switch
5	Microphone +
6	Microphone -

Interface Module Handset Connector

The telephone handset must have an electret (or condenser) microphone. Connect the speaker (or receiver) wires to pins 1 and 2, and the Microphone (or transmitter) wires to pins 5 and 6. The PTT switch is connected to pins 4 and 5. Note the speaker connections are not polarity sensitive, however the electret microphone connections are polarity sensitive and must have the correct polarity connection for proper operation.