INSTALLATION INSTRUCTIONS

MicroComm DXI

IMS-440 and IMS-445 Intercom Master Stations

1. Intent & Scope

This document describes the installation procedure for the IMS-440 and IMS-445 Intercom Master Stations.

2. Description

Intercom master stations are offered in three basic models -- rack mounted, panel mounted, and desktop. Each can support optional telephone handsets, headsets, gooseneck microphones, and foot operated press-to-talk switches.

The IMS-440 and IMS-445 are desktop Intercom Master Stations, designed to be connected to the intercom system via an SAB-300, SAB-400 or SAB-401 Station Audio Board. The IMS-440 has a standard sized LCD display while the IMS-445 has a large display. The units are compact, sturdy and can be permanently fixed to the millwork if required.

3. Desktop Intercom Master Stations

The desktop master station provides the functions of a master intercom station in a single desktop package complete with internal speaker, microphone, and PTT switch. It may also include an optional telephone handset, headset jack, and/or gooseneck microphone. The IMS-440 provides the operator with audio communications, paging, control over monitoring functions, and alerts the operator when alarms or events occur. Control panel audio functions permit the operator to receive and place calls, put calls on hold, make public address and station call announcements, and manage system background music operations. Control functions include the ability to acknowledge, cancel, and reset incoming alarms and to monitor, activate and deactivate output points.

IMS-440 Intercom Master Station

All of the controls, status indicators, and I/O connections to the desktop master station are on the rear of the main body. After installing the desktop master station the display contrast should be adjusted to provide the best visibility in its normal operating position when viewed from the operators normal location.

The IMS-440 provides interface connectors for a telephone handset, hookswitch, speaker, microphone, and headset. Any combination of these audio devices can be used. It supports both electret and phantom powered microphones. If more than one audio/input device is connected to the MAI the hookswitch and speaker/headset switch will determine which speaker receives audio and which microphone is active. If the hookswitch is off hook the speaker audio is connected to the handset speaker and handset microphone audio is connected to the microphone audio lines. If the hookswitch is on hook the speaker audio is connected to either the headset or hands free speaker depending on the state of the speaker/headset switch.

The IMS-440 has a front panel key marked HEAD for headset. This key normally toggles the unit to switch between hands free operation using the built in speaker/microphone or the headset speaker and microphone. As shipped from the factory this switch is disabled and the unit will operate only in hands free mode or with the handset.

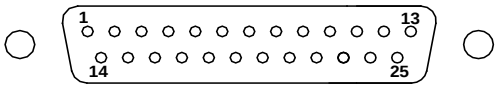
SPEAKER/HEADSET SWITCH	HOOKSWITCH ON HOOK	HOOKSWITCH OFF HOOK
CLOSED	HEADSET	HANDSET
OPEN	HANDS FREE	HANDSET

Back of IMS-440 Intercom Master Station Showing Location of DB-25 Connector

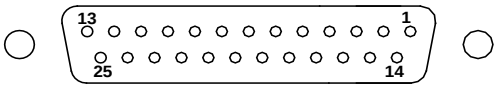
All of the electrical connections to the desktop master station are made with a single DB-25 connector (located at the rear) and headset/microphone jack located on the right hand side of the master station.

3.1 DB-25 Connector

The desktop master station has a male connector and the mating cable requires a female DB-25 connector.



Male DB-25 Connector



Female DB-25 Connector

The pin configuration for the DB-25 connector is as follows:

Pin	Signal	Pin	Signal
1	Main V +	14	Main V +
2	Main V - (Gnd))	15	Main V - (Gnd)
3	Network B +	16	Network B -
4	Earth Ground	17	Speaker -
5	Speaker +	18	Microphone -
6	Microphone +	19	Push to Talk Input
7	Relay 2 NO	20	Relay 2 COM
8	Relay 2 NC	21	Relay 1 NO
9	Relay 1 COM	22	Relay 1 NC
10	Earth Ground	23	Network A -
11	Network A+	24	Backup V- (Gnd)
12	Backup V - (Gnd)	25	Backup V +
13	Backup V +		

DB-25 Pin Signals

The IMS-440 or IMS-445 can be ordered for either 12 Vdc or 24 Vdc operation. For a 24 Vdc unit the main power should be connected to a 24 Vdc power supply, which must provide 14.5–26.4 Vdc at the master station power terminals under load. Full load current, with the back lighting at maximum brightness, is 0.5 A. For a 24 Vdc ±10% power supply, and a single 22 gauge wire feed, the power supply should be located within 480 feet (145 meters) of the master station. For a 12 Vdc unit, and a single 22-gauge wire feed, the power supply should be located within 175 (53 meters) of the master station. Ensure that the power switch on the master is turned off whenever the DB-25 connector is connected or disconnected.

The pins labeled Backup V+ and Backup V- (Gnd) can be used to connect a redundant power supply. This supply acts as a standby power source if the main supply fails. The backup supply must have the same voltage as the main supply.

The Echelon LonWorks connection is made to the pins labeled Network A+ and Network A-. The LonWorks network cable is connected to one of the free topology ports at the SAC computer. A second redundant LonWorks

connection can be made to the pins labeled Network B+ and Network B-. If the Network A connection cannot be made the IMS-140 will attempt to make connections on Network B.

The Speaker and Microphone audio pairs connect to two SAB audio ports through the cross connect blocks. This connection is made with two shielded pair cables.

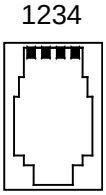
When the desk top master station is used with the SAB-400, SAB-401 or SAB-300 the Speaker pair is connected to the SAB Audio 16 pair and the Microphone pair is connected to the Mic pair. The shields should be left open at the desktop master station end and connected to the power supply ground terminal at the BIX block end. The shields are connected together on pin 48 when using the Audio 16 and the Mic pair. With the SAB-400 or SAB-401 (but not with the SAB-300) the desk top master stations can also be connected to any adjacent audio ports (1-2, 2-3, 3-4, 4-5, … 15-16) with the Speaker pair connected to the first SAB-400 (SAB-401) audio port, the Microphone pair connected to the second SAB-400 (SAB-401) audio port, and the shields connected to the individual shield terminals.

The two relay outputs are controlled by setting parameters in the Master Station software configuration. They can be programmed to close if the internal buzzer is activated. These contacts can be used to turn on an external buzzer (This buzzer must be externally powered).

The Push to Talk (PTT) input is referenced to V- (Gnd) (as are other PTT inputs), i.e. a PTT switch is connected between the PTT input and V-. The Main V- and Backup V- are connected inside the desktop master station. Note that the desktop master station has a PTT pushbutton switch. This switch activates the PTT action while it is pressed.

3.2 RJ-11 Headset Jack

The 4-pin female headset jack is located on the right hand side of the desktop Master Station. The connector schematic is shown below:



RJ-11 Headset Jack

The pin configuration for the RJ-11 connector is as follows:

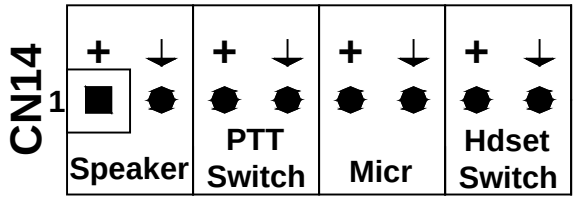
Pin Number	Signal
1	Head Mic- (Gnd)
2	Spkr- (Gnd)
3	Spkr+
4	Head Mic+

RJ-11 Pin Signals

If the unit is ordered with a handset then the handset must be on hook before the headset speaker can be activated.

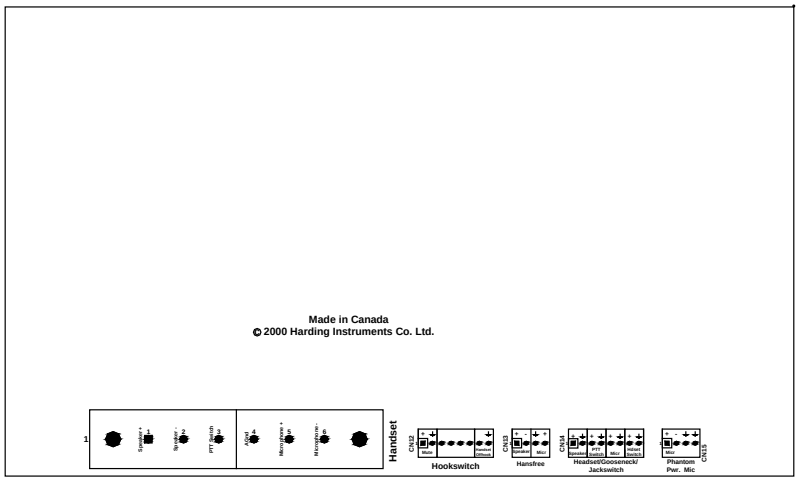
If a unit is ordered with both a speaker/microphone and a headset the **HEAD** switch on the IMS front panel is used to toggle between these two operations.

In order to activate this switch a jumper must be placed across pins 7 and 8 (the two pins labeled Hdset Switch) of the Headset/Goosneck/Jackswitch connector CN 14. A jumper is provided but as shipped from the factory is set so that it is connected to only one of the pins.



Headset/Gooseneck/ Jackswitch

To access the CN 14 connector you will need to remove the cover of the IMS. A partial drawing of the printed circuit board is shown below. As viewed from the front of the unit the circuit board will appear as follows.



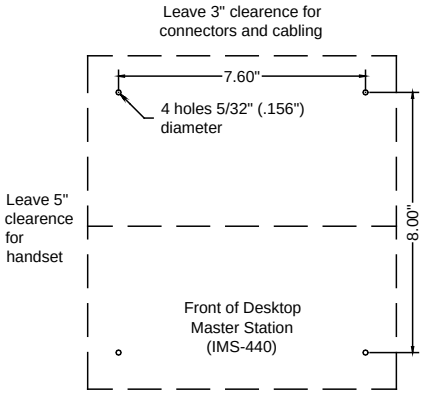
Partial Diagram of MAIB Printed Circuit Board

4. Permanently mounting master station to millwork

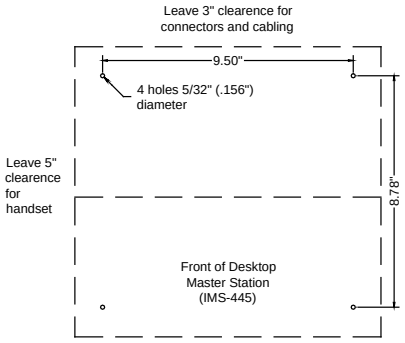
The IMS-440 or IMS-445 can be mounted permanently to millwork. The following diagrams give the hole locations for mounting the desktop master stations. The directions given below outlines the steps to be followed.

1. Remove rubber feet on IMS-440 (or IMS-445), retain the rubber feet and discard screws.
2. Drill holes in millwork as shown. Allow sufficient clearance for handset and connectors.
3. Use #6-32 machine screws through millwork to mount unit. Correct screw length is countertop thickness +1/2".
4. Install screws through millwork, install rubber feet, and line up mounting holes on the base of the IMS-440 (IMS-445) and secure unit to millwork.

Note: A full size template for drilling the holes is available, and can be received as an e-mail attachment by contacting Harding Instruments technical support staff.



Drill pattern for securing IMS-440 to millwork



Drill pattern for securing IMS-445 to millwork

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.