INSTALLATION INSTRUCTIONS

MicroComm DXI

TMM-440 Touchscreen Master Module

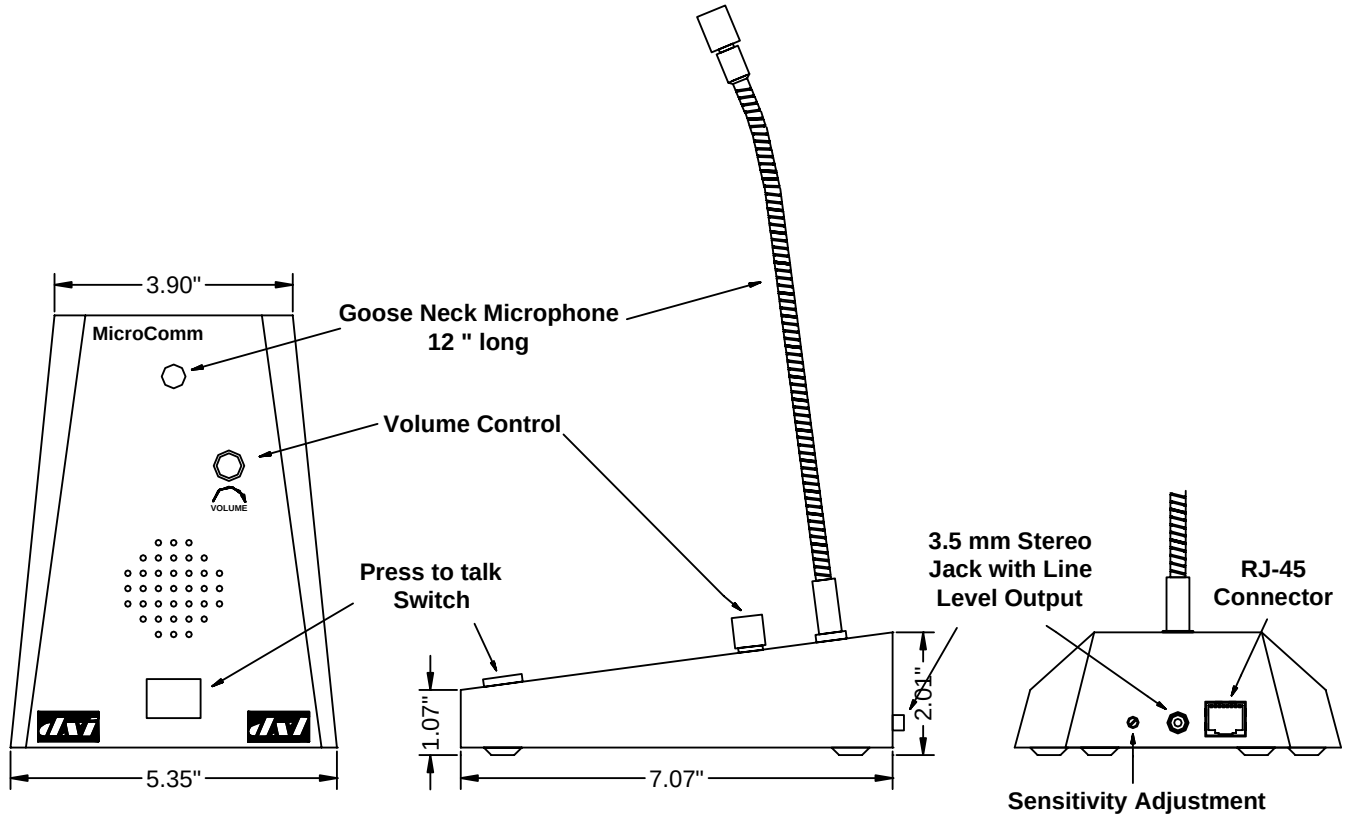
1 Intent & Scope

This document describes the installation procedure for the TMM-440 Touchscreen Master Module.

2 Description

The TMM-440 is a desktop unit consisting of a speaker, a gooseneck electret microphone, a push-to-talk (PTT) switch, a rotary knob volume control, and a screwdriver adjustment to set the microphone sensitivity. The unit has provisions to connect an external PTT switch and inputs to power a LED inside the PTT switch. The unit is designed to connect to channels 16 and Master Mic of the SAB-400 and SAB-401 or to any two adjacent channels on an SAB-400 or SAB-401 or to the master port of a DXL DCE or DCE.

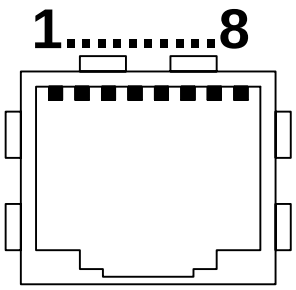
The TMM is connected via a cable with a male RJ-45 plug on the end that connects to the unit. The TMM-440 has a 8-pin female RJ-45 jack located on the back of the unit. It has a 3.5 mm stereo jack that provides line level output for external amplifier/speaker connections. When a plug is inserted into the jack the audio to the built in speaker is disconnected.



TMM-440 Showing RJ-45 Jack

3 Installation

The TMM-440 has an 8-pin female RJ-45 jack.



RJ-45 Female Jack

The pin outs for the RJ-45 are as follows. The wire colors are for cables that correspond to the T568A standard.

RJ-45 Pin Number	Function	T568A Standard
1	Spkr +	White/Green
2	Spkr -	Green
3	PTT +	White/Orange
4	LED -	Blue
5	LED +	White/Blue
6	PTT-	Orange
7	Mic +	White/Brown
8	Mic -	Brown

An external PTT switch can be connected to pins 3 and 6 of the RJ-45. This switch is in parallel with the PTT switch on the unit and functions the same as the built-in PTT switch. It can be added to provide for a more convenient operation.

The position of an internal jumpers determines if the LED is operated from an external voltage (provided through pins 4 and 5) or by the voltage across the speaker pair. Using the speaker pair this LED will indicate a power on condition.

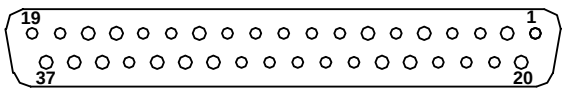
Typically a TMM-440 would be connected to a panel or wall mount RJ-45 jack with a Cat 5 cable. The two audio pairs from the wall or panel jack should be connected to the SAB terminal blocks (or master port terminal blocks for a DCC or DCE) using two 22 gauge shielded twisted pair cables.

With an SAB-400 or SAB-401 the shields should be connected to the terminal block (every third position) and in turn all the terminal block inputs (SAB side) labeled Gnd should be connected to terminals 45 and 48. The shielded wire should be left unconnected at the TMM jack.

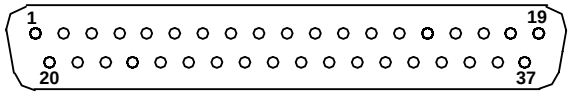
With a DCC or DCE the wire pairs for the cable connecting the DCC or DCE to the terminal blockcs are shielded. The shielded audio pair connected to the TMM jack and the corresponding shielded audio pair connected to the DCC or DCE master port should be connected together at the terminal blocks (including the shields). The shielded audio wire pairs should be left unconnected at the TMM jack.

3.1 Connecting to a DXI SAB-400 or SAB-401

The Station Audio Board SAB-400 or SAB-401 uses a female DB-37 connector to interface to the external audio lines. The Station Audio Board requires a CBL-190 cable to interface the audio inputs to the field wiring. It incorporates 18 individual pairs with a male DB-37 connector on one end (one of the pairs provides ground connection from the SAB-400 or SAB-401 to the terminal block).



Female DB-37 Connector



Male DB-37 Connector

The CBL-190 audio cable connects the audio input lines to the female DB-37 connector. The following table gives the pin numbers, wire colors, and terminal block position for each of the station audio board signals when a CBL-190 audio cable is used. The cable can be terminated on the terminal block in the fashion shown.

The Spkr+ and Spkr - pins are connected to an SAB Audio 16 pair and the Microphone pair is connected to the Master Mic pair. The shields should be left open at the TMM but connected to the power supply ground at the SAB. The shields are connected together on pin 48 when using Audio 16 and the Master Mic pair. Proper polarity must be maintained. The TMM audio lines can also be connected to any adjacent pair of ports on an SAB-400 or SAB-401 (1-2,2-3, 3-4, … 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.

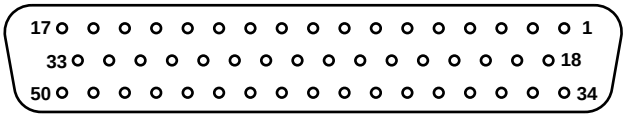
Wiring Table for Generic Terminal Block

DB37 Pin Number	Signal	SAB Cable Wire Color Provo 12110 18 Pair	SAB Cable Wire Color Belden Standard 19 Pair	Terminal Block Pin Number	
1	Audio 1 +	Blue	Black	1	
20	Audio 1 -	White	Red	2	
	Gnd			3	Audio Shield 1
2	Audio 2 +	Orange	Black	4	
21	Audio 2 -	White	White	5	
	Gnd			6	Audio Shield 2
3	Audio 3 +	Green	Black	7	
22	Audio 3 -	White	Green	8	
	Gnd			9	Audio Shield 3
4	Audio 4 +	Brown	Black	10	
23	Audio 4 -	White	Blue	11	
	Gnd			12	Audio Shield 4
5	Audio 5 +	Slate	Black	13	
24	Audio 5 -	White	Yellow	14	
	Gnd			15	Audio Shield 5
6	Audio 6 +	Blue	Black	16	
25	Audio 6 -	Red	Brown	17	
	Gnd			18	Audio Shield 6
7	Audio 7 +	Orange	Black	19	
26	Audio 7 -	Red	Orange	20	
	Gnd			21	Audio Shield 7
8	Audio 8 +	Green	Red	22	
27	Audio 8 -	Red	White	23	
	Gnd			24	Audio Shield 8
9	Audio 9 +	Brown	Red	25	
28	Audio 9 -	Red	Green	26	
	Gnd			27	Audio Shield 9
10	Audio 10 +	Slate	Red	28	
29	Audio 10 -	Red	Blue	29	
	Gnd			30	Audio Shield 10
11	Audio 11 +	Blue	Red	31	
30	Audio 11 -	Black	Yellow	32	
	Gnd			33	Audio Shield 11
12	Audio 12 +	Orange	Red	34	
31	Audio 12 -	Black	Brown	35	
	Gnd			36	Audio Shield 12
13	Audio 13 +	Green	Red	37	
32	Audio 13 -	Black	Orange	38	
	Gnd			39	Audio Shield 13
14	Audio 14 +	Brown	Green	40	
33	Audio 14 -	Black	White	41	
	Gnd			42	Audio Shield 14
15	Audio 15 +	Slate	Green	43	
34	Audio 15 -	Black	Blue	44	
18	Gnd	* Green	* Green	45	Audio Shield 15
16	Audio 16 +	Blue	Green	46	
35	Audio 16 -	Yellow	Yellow	47	
37	Gnd	* Yellow	* Orange	48	Audio 16 & Mic Shield
17	Master Audio Mic +	Orange	Green	49	
36	Master Audio Mic -	Yellow	Brown	50	

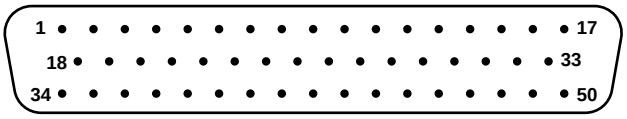
*Ground wire pair. All wiring is polarity sensitive. Pin 19 is also ground.

3.2 Connecting to an SAB-300

For Station Audio Board SAB-300 with assembly numbers of ASM-4671002-1 or higher a TMM-440 can be connected to the Audio Pair 16 and the Mic pair. The SAB-300 uses a female DB-50 connector to interface to the external audio lines. The Station Audio Board requires a CBL-180 cable to interface the audio inputs to the field wiring. It incorporates 17 individual shielded pairs with a male DB-50 connector on one end.



Female DB-50 Connector



Male DB-50 Connector

The CBL-180 audio cable connects the audio input lines to the female DB-50 connector. The following table gives the pin numbers, wire colors, and terminal block position for each of the station audio board signals when a CBL-180 audio cable is used. The cable can be terminated on the terminal block in the fashion shown.

The Spkr+ and Spkr - pins are connected to an SAB Audio 16 pair and the Mic+ and Mic- pins are connected to the SAB Master Mic pair.

Wiring Table for Generic Terminal Blocks

DB50 Pin Number	Signal	SAB Cable Wire Color	Terminal Block Pin Number
1	Audio 1 +	Black	1
18	Audio 1 -	Red	2
34	Audio 1 Shield	BR Shield	3
2	Audio 2 +	Black	4
19	Audio 2 -	White	5
35	Audio 2 Shield	BW Shield	6
3	Audio 3 +	Black	7
20	Audio 3 -	Green	8
36	Audio 3 Shield	BG Shield	9
4	Audio 4 +	Black	10
21	Audio 4 -	Blue	11
37	Audio 4 Shield	BBl Shield	12
5	Audio 5 +	Black	13
22	Audio 5 -	Yellow	14
38	Audio 5 Shield	BY Shield	15
6	Audio 6 +	Black	16
23	Audio 6 -	Brown	17
39	Audio 6 Shield	BBr Shield	18
7	Audio 7 +	Black	19
24	Audio 7 -	Orange	20
40	Audio 7 Shield	BO Shield	21
8	Audio 8 +	Red	22
25	Audio 8 -	White	23
41	Audio 8 Shield	RW Shield	24
9	Audio 9 +	Red	25
26	Audio 9 -	Green	26
42	Audio 9 Shield	RG Shield	27
10	Audio 10 +	Red	28
27	Audio 10 -	Blue	29
43	Audio 10 Shield	RBl Shield	30
11	Audio 11 +	Red	31
28	Audio 11 -	Yellow	32
44	Audio 11 Shield	RY Shield	33
12	Audio 12 +	Red	34
29	Audio 12 -	Brown	35
45	Audio 12 Shield	RBr Shield	36
13	Audio 13 +	Red	37
30	Audio 13 -	Orange	38
46	Audio 13 Shield	RO Shield	39
14	Audio 14 +	Green	40
31	Audio 14 -	White	41
47	Audio 14 Shield	GW Shield	42
15	Audio 15 +	Green	43
32	Audio 15 -	Blue	44
48	Audio 15 Shield	GBl Shield	45
16	Audio 16 +	Green	46
33	Audio 16 -	Yellow	47
49	Audio 16 & 17 Shield	GY Shield & GBr Shield	48
17	Master Mic Audio +	Green	49
50	Master Mic Audio -	Brown	50

Master (Audio 16 and Master Mic) wiring is polarity sensitive.

3.3 Connecting to a DXL DCC or DCE master port

The MCC cable (CBL-MST-A) provides a male DB-15 connector with screw locks on one end and open wires on the other end to be punched down onto terminal blocks. The DB-15 pins and cable wire colors are given in the following table. The signal pairs labeled Master 1 Mic and Master 1 Spk are used to connect to an TMM. Depending on the MCC configuration one or the other of these two sets of connections can be used. The same holds for the signals labeled Master 2. If the unit has been ordered for one IMS/TMM master and one TSM master the IMS/TMM master is connected to the signals labeled Master 1 and the TSM master is connected to the signals labeled Master 2.

Note: when connecting an IMS master the Spk and Mic connections are polarity sensitive.

DB-15	Signal	CBL-MST Wire Color	Terminal Block Pin Number
1	Master 1 Mic+	Red	
9	Master 1 Mic-	Black	
2	Gnd	Red/BlackShield & White/Black Shield	
10	Master 1 Tip	White	
3	Master 1 Ring	Black	
11	Master 1 Spk+	Green	
4	Master 1 Spk -	Black	
12	Gnd	Green/Black Shield & Blue/Black Shield	
5	Master 2 Spk-	Black	
13	Master 2 Spk+	Blue	
6	Master 2 Ring	Black	
14	Master 2 Tip	Yellow	
7	Gnd	Yellow/Black Shield & Brown/Black Shield	
15	Master 2 Mic-	Black	
8	Master 2 Mic+	Brown	

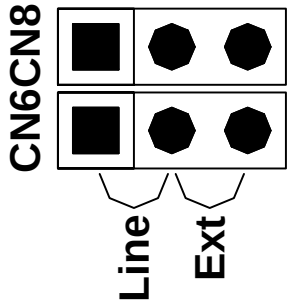
Pin Numbers and Wire Color for CBL-MST-A cable

4 Sensitivity Adjustment

Turning the sensitivity adjustment control fully counterclockwise makes the microphone the most sensitive. Turning the sensitivity control clockwise decreases the microphone sensitivity, which can accomodate close talking operation.

5 Jumper Position for External Power LED

The LED inside the PTT switch can either turned on by the line voltage across the speaker pair or by an external voltage applied across the LED + and LED – contact on the RJ-45 connector. As shipped from the factory the LED will be turned on by the dc voltage across the speaker pair. If you wish to have the LED operate from an external voltage you will need to move the two jumpers located on CN6 and CN8.



The jumpers will need to be moved the from the Line position to the Ext positition. The external DC voltage to operate the LED can be from 5 to 24 Vdc. The position of the connectors CN6 and CN8 are shown on the following partial diagram of the printed circuit board.