



## ICM-8C, 16C, 24C, and 32C

### Intercom Control Master 8-32 Stations with All Page and Scan



## OPERATION AND INSTALLATION MANUAL



**Tech Works**®

*"Making Specialized Communication Easy"*

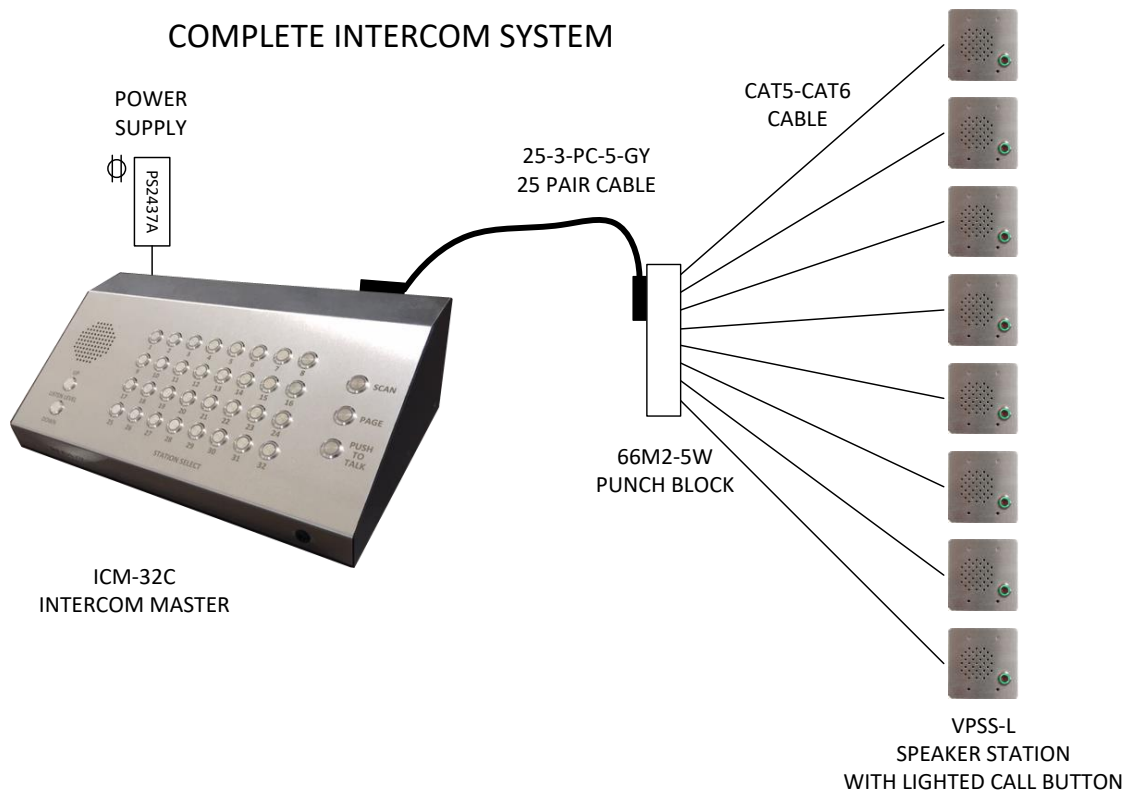
## Introduction:

The ICM-8, 16, 24, & 32C are complete Intercom Control Master, ruggedized for use in harsh environments such as correctional facilities while providing high quality audio communication with complete control. The ICM-\*C was designed to withstand physical attacks and deliberate abuse designed to disable the unit. These units feature a 12-gauge stainless steel faceplate, vandal resistant steel selector switches and vandal resistant LEDs. The integral speaker and microphone are mounted in such a way to prevent physical damage to the components from objects and liquids that could cause these components to stop working. The chassis is constructed of rugged, powder coated steel. Field wiring for speakers and call buttons is connected to the unit using an industry standard 50 pin connector. A metal “keeper” prevents users from unplugging the field wiring and thus disabling the unit.

The ICM employs our unique intercom amplifier with discrete dual channel operation. Separate Operator and Remote amplifiers, AGC, level, and reach controls are used to provide complete control and quality audio at 20 Watts of output into a 25Volt-industry standard speaker loads.

A Scan allows the operator to listen to each station sequentially when the intercom is not in use. As a station is scanned, the associated LED flashes and the operator automatically hears audio from the scanned station. If the operator hears something of interest, they press the button corresponding to that station and scanning is paused. When monitoring is complete, pressing the button a second time resumes scanning where it left off. Station Scanning is programmable for which stations and dwell or listen time.

The “Page” button allows the operator to make announcements to All Stations or selected “Zone” stations. Zone Paging is programmable and can include any combination of stations including All stations at one press of the “Page” button.



### Answering a call:

1. When the call-in button is depressed on a remote station, the ICM panel will beep and the call-in LED on the ICM will flash to show the station that placed the call.
2. Pressing the station selector button with the flashing LED selects the station to take the call. You are now listening to the remote location. Station selection can be set to "Press and Hold" or "Latch" (see set up and configuration below). Pressing the station select button again or releasing the button automatically cancels the call.
3. To talk to the remote station, select the Calling station by pressing the station selector button, then press and hold the "Push to Talk" button. Releasing the "Push to Talk" button returns you to listen mode.
4. Pressing a selected station or releasing the station selector button automatically cancels the call and restores the system to standby mode.

The Call Tone is silenced when a call is in progress.

### Calling a remote station:

1. Press the station selector button for the station you wish to call. You will be listening to the remote location.
2. To talk to the remote station, press and hold the "Push to Talk" (PTT) button while speaking in a normal voice. Releasing the "Push to Talk" button returns you to listen mode.
3. Pressing the selected station selector button automatically cancels the call and restores the system to standby mode.

### Page:

Paging on the ICM is programmable so you can Page just some stations or All stations (see Programming later in this manual). Default is All Page. To make a paging announcement:

1. Press and hold the "Page" selector button
2. While holding the "Page" button, talk in a normal voice to make your announcement.
3. Releasing the "Page" selector button automatically cancels the page and restores the system to standby mode.

### Station Scan:

To activate stations scanning simply press the Scan button. When a Station is selected (Listened to) during scanning the Station Indicator flashes once per second. Stations are Scanned in order by station number (*Lowest Number to Highest Number*). Groups of stations to be Scanned is programmable (see Programming later in this manual) and can be any combination of stations.

**Note:** *If the operator hears something of interest, they can press the button corresponding to that Station and scanning is paused, the station is selected for Communications. When monitoring is complete, pressing the button a second time resumes scanning where it left off.*

# Installation Instructions for ICM-xC Intercom Control Panel

## SET UP AND CONFIGURATION –

The ICM intercom comes complete and ready to use. Station selection can be “Press and Hold” operation or a “Latching” press and release operation. To change these configurations simply remove the top cover by removing the screws. Inside you will see the ICR-18 control board pictured below.

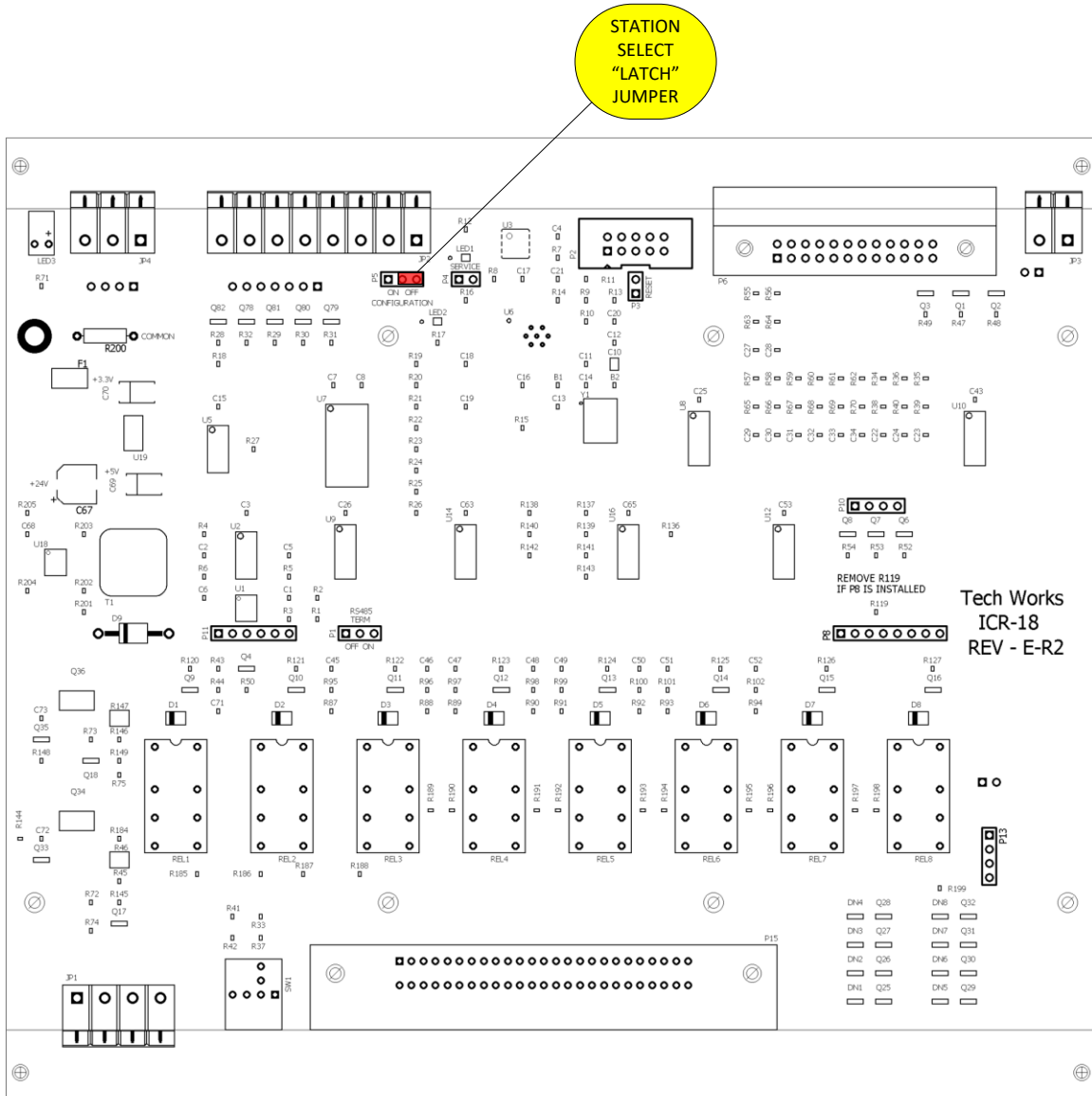


Diagram 1 Internal Latch / Hold Jumper

When the “CONFIGURATION” jumper P5 is in the “OFF” position the intercom functions as a press and release to select a station and press and release to deselect a station. When the jumper is placed in the “ON” position the intercom will function as a “Press and Hold” to select a station and “Release” to deselect a station.

The ICM-xC has Station Scanning and Zone Paging available. Both functions are programmable. You can set which stations are scanned and how long the channel is “Held” for listening. The time the audio channel is held on during scanning is set by the Scan Dwell. You can set which stations are included in a “Scan”, and also what stations are included in a “Page” when the Page button is pressed.

### Entering Programming Modes:



With No Station Selected  
*And no other Activity taking place*  
Press and Hold the “TALK” Switch for ~5 Seconds

One of the Station Indicators, 1 to 8, will turn on Steady. The Default is station 3. This is the Scan Dwell time indicator.

#### **Set Dwell Time:**

Select the Dwell Time 1 to 8 (Interlocking) using the Station Switches  
Each station switch represents a preset amount of “Dwell” time that the scan will stop on each station. The Dwell time in seconds is as follows: Button #1 is 1 second, Button #2 is 2, Button #3 is 3, Button #4 is 4, Button #5 is 5, Button #6 is 6, Button #7 is 7, Button #8 is 8 seconds.



#### **Programming, Stations to be included in a Page:**

To set the stations to be included in a Page, while in Program mode, press the Page button and the Page Indicator will start Flashing.  
The Indicators of the selected Stations to be included in a Page will be On Steady Select or De-Select Stations using the Station Selection Switches (Toggle Action)

Press and Hold the “TALK” Switch for ~5 Seconds will end programming mode and store your changes. The Settings are retained even when power is removed



#### **Programming, Scan of Stations to be listened to:**

To set the stations to be included in a Scan, while in Program mode, press the Scan button and the Scan Indicator will start Flashing.  
The Indicators of the selected Stations to be scanned will be On Steady Select or De-Select Stations using the Station Selection Switches (Toggle Action)

Press and Hold the “TALK” Switch for ~5 Seconds will end programming mode and store your changes. The Settings are retained

***If no button is pressed within 10 seconds during programming mode, programming will exit automatically saving your current programming and return to normal standby system operation.***

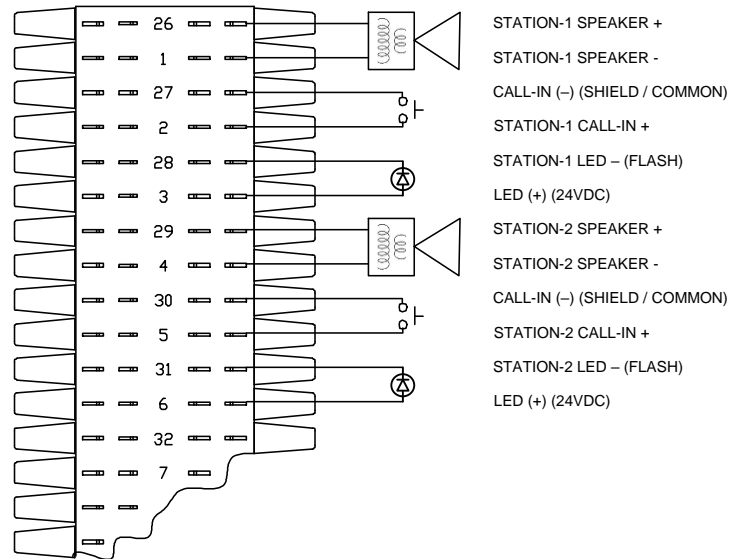
The ICM has the ability to listen to multiple stations at the same time. By Default, the ICM is shipped in the Station Interlock Mode, meaning if you select a station and then select another station, the first station is automatically disconnected and the second station is connected. To deactivate Interlock Mode, and turn on Multi-Station Select Mode, remove power, hold in the Talk button while restoring power. Do not release the Talk button until 3 beeps are heard from the speaker. After hearing the 3 beeps, release the Talk button, the ICM will function in Multi-Station Select Mode allowing the operator to simultaneously Listen and Talk to as many stations as they prefer. To return to Station Interlock Mode, repeat the procedure of holding in the talk button while cycling power.

Programming will not change if power is interrupted. Once set it will stay the same even when power is removed.

## Connections

### Field wiring connections:

Station wires are connected to the ICM via 66 style punch block connections:



Punch blocks connect to the ICM via 25 pair cables with 50 pin connectors. Each group of 8 stations has its own 25 pair Amphenol connector that is laid out the same for station connections. So, if you have 16 stations there will be 2 of the 25 pair connectors and if you have 24 stations there will be 3 connectors and for 32 stations there will be 4 connectors.

### Connection steps:

1. Remove wiring from an existing intercom selector switch on the old control panel.
2. Connect a set of station wires from the 25 pair ICM cable to the field wiring associated with the existing intercom speaker and selector switch. Refer to attached diagram for connection information and wire color code.
3. Connect the rest of the remote intercom field wiring to the ICM.
4. **Do not connect station wiring connector to ICM yet.** Make power connections next.

## Station Wiring Connection –

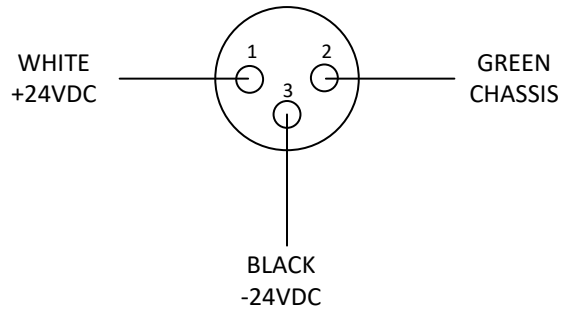
A 25 pair cable is provided for connecting up to 8 stations to the ICM. Connections are made to existing field wiring according to the following connection diagram.

PIN	COLOR	FUNCTION
1	BLUE-WHITE	STATION-1 SPEAKER +
26	WHITE-BLUE	STATION-1 SPEAKER -
2	ORANGE-WHITE	STATION-1 CALL-IN -
27	WHITE ORANGE	STATION-1 CALL-IN +
3	GREEN-WHITE	STATION-1 LED -
28	WHITE-GREEN	STATION-1 LED +
4	BROWN-WHITE	STATION-2 SPEAKER +
29	WHITE-BROWN	STATION-2 SPEAKER -
5	SLATE-WHITE	STATION-2 CALL-IN -
30	WHITE-SLATE	STATION-2 CALL-IN +
6	BLUE-RED	STATION-2 LED -
31	RED-BLUE	STATION-2 LED +
7	ORANGE-RED	STATION-3 SPEAKER +
32	RED-ORANGE	STATION-3 SPEAKER -
8	GREEN-RED	STATION-3 CALL-IN -
33	RED-GREEN	STATION-3 CALL-IN +
9	BROWN-RED	STATION-3 LED -
34	RED-BROWN	STATION-3 LED +
10	SLATE-RED	STATION-4 SPEAKER +
35	RED-SLATE	STATION-4 SPEAKER -
11	BLUE-BLACK	STATION-4 CALL-IN -
36	BLACK-BLUE	STATION-4 CALL-IN +
12	ORANGE-BLACK	STATION-4 LED -
37	BLACK-ORANGE	STATION-4 LED +
13	GREEN-BLACK	STATION-5 SPEAKER +
38	BLACK-GREEN	STATION-5 SPEAKER -
14	BROWN-BLACK	STATION-5 CALL-IN -
39	BLACK-BROWN	STATION-5 CALL-IN +
15	SLATE-BLACK	STATION-5 LED -
40	BLACK-SLATE	STATION-5 LED +
16	BLUE-YELLOW	STATION-6 SPEAKER +
41	YELLOW-BLUE	STATION-6 SPEAKER -
17	ORANGE-YELLOW	STATION-6 CALL-IN -
42	YELLOW-ORANGE	STATION-6 CALL-IN +
18	GREEN-YELLOW	STATION-6 LED -
43	YELLOW-GREEN	STATION-6 LED +
19	BROWN-YELLOW	STATION-7 SPEAKER +
44	YELLOW-BROWN	STATION-7 SPEAKER -
20	SLATE-YELLOW	STATION-7 CALL-IN -
45	YELLOW-SLATE	STATION-7 CALL-IN +
21	BLUE-VIOLET	STATION-7 LED -
46	VIOLET-BLUE	STATION-7 LED +
22	ORANGE-VIOLET	STATION-8 SPEAKER +
47	VIOLET-ORANGE	STATION-8 SPEAKER -
23	GREEN-VIOLET	STATION-8 CALL-IN -
48	VIOLET-GREEN	STATION-8 CALL-IN +
24	BROWN-VIOLET	STATION-8 LED -
49	VIOLET-BROWN	STATION-8 LED +
25	SLATE-VIOLET	NOT USED
50	VIOLET-SLATE	NOT USED

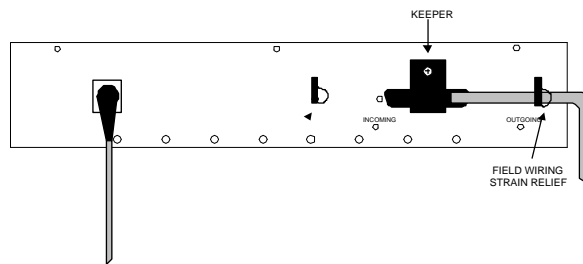
## Power Connection –

THIS UNIT OPERATES ON 24VDC. DO NOT CONNECT 120VAC DIRECTLY TO ICM. CONNECTING 120VAC POWER TO UNIT WILL BURN UP POWER SUPPLY AND CIRCUIT BOARDS AND VOID THE WARRANTY.

1. Connect provided 3 conductor power cable to 24 VDC power supply. The power supply should produce a minimum of 3.5 amps of power.
2. Connect ICM power cable WHITE to positive (+), BLACK to negative (-) on the power supply.



3. If remote station wiring is run between buildings or outside of the building where the ICM is located, a Chassis ground is recommended. A separate green wire of at least 12 AWG should be used to connect the Green wire, chassis ground, to the nearest Earth Ground.
4. Plug 25 pair station cable into ICM-xC. After station cable is connected, plug power connector into ICM-xC and apply 24 Volts DC.
5. Run power supply cable and station cable under Velcro strain relief and secure strain relief.
6. Install the metal “keeper” over 25 pair connector and screw in to chassis using supplied screw.
7. After power has been applied to the ICM-xC, test each station for proper operation. If required, incoming and outgoing talk volume can be adjusted without removing the cover using a small, flat blade screwdriver. Refer to diagram 5 for volume controls.



## Volume Adjustment –

In the event you need to adjust outgoing or incoming volume, refer to the drawing below. Volume adjustments affect all stations, so raising the volume for one station raises the volume for all stations.

The only volume adjustment that will need to be made in most cases is to raise the “Incoming” control. If the remote stations are having trouble hearing then adjust the “Outgoing” volume control.

