



Tek-COM® IR-704B / IR-704BD PK-724 Installation Instructions

IN-537
Section C
Rev. 13 - 09/2009

APPLICATION

Tek-COM IR704B/BD Intercom provides fast, natural-voice, room-to-room communications. The **MONITOR** function permits listening to any room but may be released to obtain full privacy. Door answering is made simple by an automatic, hands-free reply circuit. A number of optional accessories are available to provide a complete home signaling and communications system.

PROCEDURE

1. Read the installation instructions for each unit to determine equipment locations and installation methods.
2. Install the housings and wiring.
3. Install the equipment.
4. Check all wiring and connections.
5. Apply power and check system operations.

HOUSING INSTALLATION AND EQUIPMENT LOCATION

Inside Stations (IR-704B, IR-704BD)

Locate stations where needed at a convenient speaking height—about 4.5' (1.4 m) from the finished floor. **Do not install stations back-to-back or on a common wall between rooms.** Install IH102 rings for IR704B/BD stations as shown in *Figure 1a*. Reverse the ring for mounting on finished walls. Install IH110R housings with IR804A stations as shown in *Figure 1b*.

Outside Stations

Locate door stations at a convenient speaking height on exterior walls near an entrance. The front of the housing must be flush with the finished wall to ensure weather protection. Install IH101 housings with OR-101, OR-103, and OR502 stations (*Figure 1c*). Use standard single-gang rings (*Figure 1d*) for mounting OR-601, OR-603, and OR-604AW stations. Install surface OH-700 box with OR-101/OR-103 for surface mount.

Amplifier (PK724, PK-724)

PK-724 is designed to be surface mounted and must be located away from any source of direct heat or cold and in an accessible location. **Keep it at least 3' (1 m) away from transformers, light dimmers, and other electrical devices or wiring.**

Transformer

The PS-20A plug-in type transformer must be provided with an electrical outlet at a convenient location, and should be located within 50' (15 m) of the amplifier. If the PS-3A pigtail type transformer is used, it may be installed on the fuse panel or other accessible source of 117VAC, preferably within 50' (15 m) of the amplifier.

Accessories

Optional accessories are to be installed where needed. The DO-001 electric door release is installed in the door jamb in place of the regular door strike plate.

Figure 1 — Station Housings

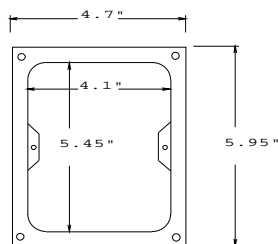


Figure 1a
IH-102

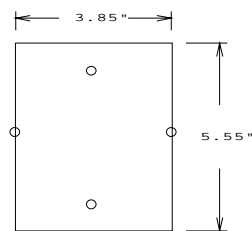


Figure 1c
IH-101

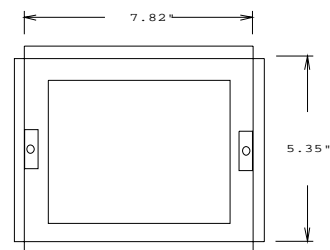


Figure 1b
IH-110R

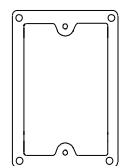


Figure 1d
Single Gang Box

WIRING INSTALLATION

Route all cables away from AC power wiring, transformers, fluorescent lighting, light dimmers, or other electrical devices. If AC/RF interference is a concern, use shielded cables throughout the system. Protect the cables from damage during installation.

Inside Stations

Run two twisted pair #22 cables from station to station and to the amplifier. The cable length is limited by the number of stations per cable, as shown in *Figure 2*. Additional cables may be used to serve other stations (see *Figure 3*).

Outside Stations

Run 3 conductor #22 twisted cable from the outside station to the amplifier (*Figure 3*). The maximum cable length is 150' (45 m) and the maximum number of stations is two.

Music Input

Run 2 conductor #22 shielded cable from the music input source to the amplifier.

Door Release

IR704BD inside stations must be used if door release function is needed. Run 2 conductor #18 cable from inside station to inside station and to the amplifier. Run 2 conductor #18 cable from the door release location to the amplifier. Keep cables away from station wiring.

CONNECTIONS

Before making the connections, make certain that the wires are free from shorts or grounds. Make the connections as shown in *Figure 4* and as detailed in the following instructions.

Inside Stations

1. Connect terminals 1 and 2 on the inside stations to terminals 1 and 2 of other inside stations, and to terminals 1 and 2 on the PK-724 amplifier.
2. Connect terminals 3 and 4 on the inside stations to terminals 3 and 4 of other inside stations, and to terminals 3 and 4 of the amplifier. Do not reverse the polarity of these wires.
3. If an electric door release is used, connect terminals D and T on IR704BD inside stations to terminals D and T on other IR704BD stations. See the door release section below for further connections.

Outside Stations

1. Connect the speaker terminals of OR-103/OR-203/OR-603/OR603W outside stations to terminals A and G on the amplifier. Connect the station terminal Z to terminal F on the amplifier if the two-tone **FRONT** chime is used, or to terminal R on the amplifier if the single **REAR** tone is needed. Add the jumper shown in *Figure 4a* **only** for OR501B and OR502 stations.

2. For the installation of OR101 and OR601 stations, connect the red wire to terminal A and the black wire to terminal G on the amplifier.
3. For the installation of OR604AW stations, connect terminal A to terminal A and terminal G to terminal G on the amplifier. Connect the terminal labeled Z to terminal F on the amplifier if the two-tone **FRONT** chime is desired, or to the R terminal if the single **REAR** tone is desired. Finally, if lighted push button is desired, connect the supplied 680 ohm resistor (TekTone® part #RC025) between LP and Z.

Transformer

1. Connect the transformer's 16 VAC terminals to the amplifier's T and S terminals. Do not use this transformer to power an electronic chime, security alarm, or other device.
2. Do not plug the PS-20A transformer into an electrical outlet or connect the PS-3A transformer primary to 117 VAC until the entire installation is complete and checked out.

Music Input

1. Connect the music input source to terminals M and G on the amplifier, or connect to a VC704 stereo output adapter.

Door Release

1. Connect one wire coming from the door release to the PK-724 amplifier terminal S.
2. Connect the other wire from the door release to terminal D on the IR-704BD station.
3. Connect a wire from the IR-704BD station T terminal to terminal T on the amplifier.

FINISHING THE INSTALLATION

Install the stations in their housings, being careful not to overtighten any screws. Install the amplifier in its predetermined location, and install any accessory devices as needed. The PS-20A transformer may now be plugged into an outlet, or if a PS-3A transformer is used, the primary may be connected to 117 VAC. Be sure to observe local electrical codes.

Figure 2 — Maximum Cable Length Chart

# of Stations	Length (ft/m)
1	600 / 180
2	300 / 90
3	160 / 50

Maximum 3 stations per cable; maximum 20 stations and 600 ft. cable length per system.

NOTE: If more than 10 stations are installed on the system, only 10 may be turned fully ON at one time.

Figure 3 — Wiring Diagram

NOTES:

1. Use an IR704BD indoor station when a door release is needed (wiring shown as dotted lines). Route the door release wiring away from station wiring.
2. Use an OR603, OR501B, OR501S, OR502, or OR502S outdoor station if the chime (call) signal is needed. If no chime is needed, use an OR601 or OR101 outdoor station (without push button). Use an OR604AW outdoor station if a lighted push button is desired.

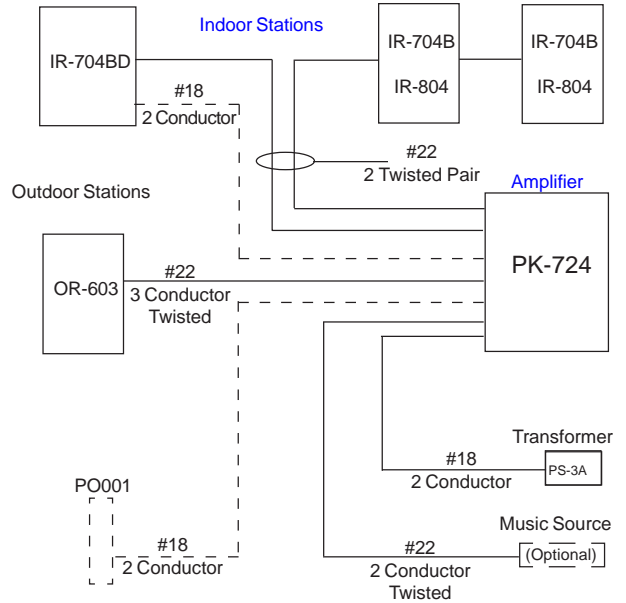
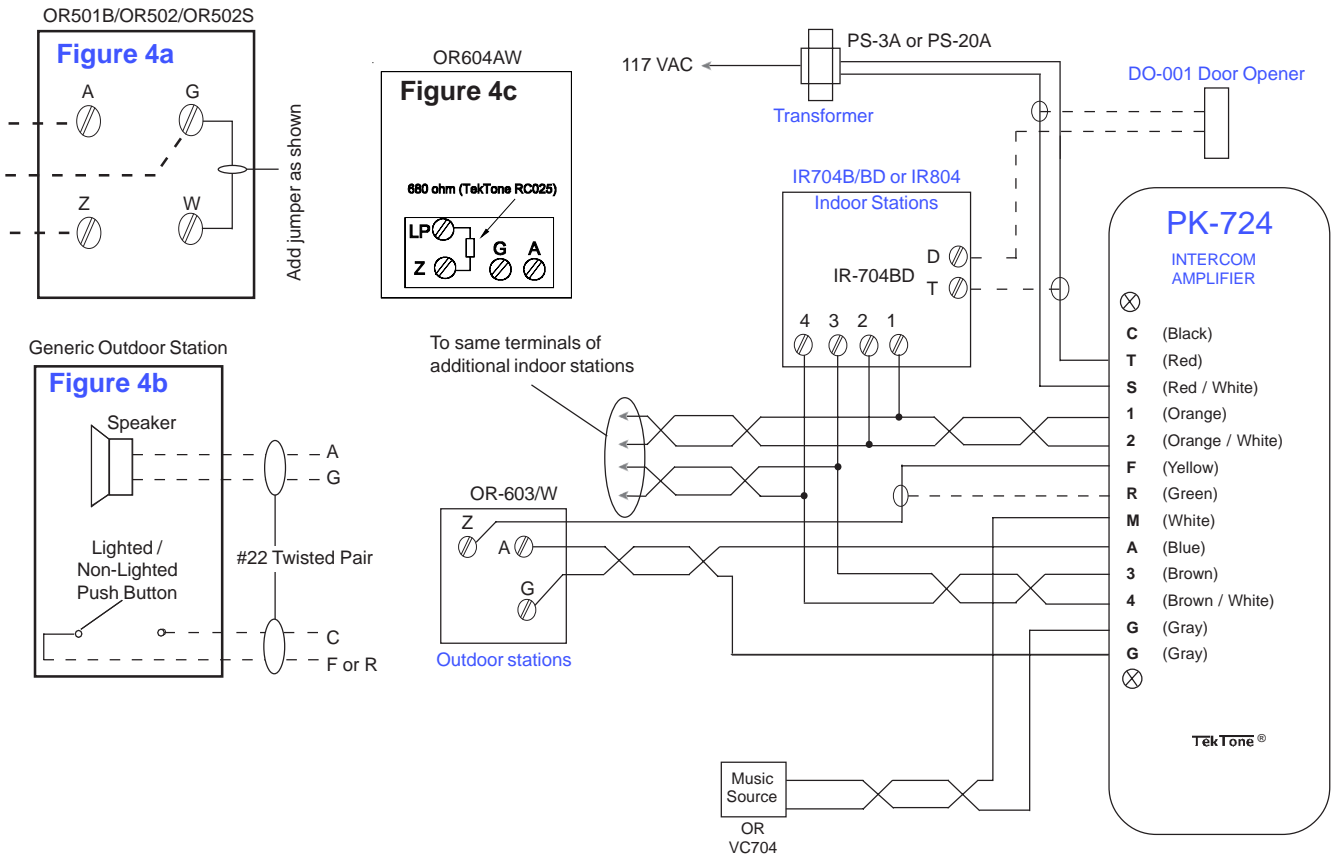


Figure 4 — Connections Diagram



NOTES:

1. Use twisted pair wiring where shown. Terminals T and D (for the door release function) are found on IR704BD stations only.
2. For OR101 and OR601 stations, connect the red wire (speaker +) to terminal A on the PK724 amplifier and the black wire (speaker -) to terminal G. For a generic outdoor station (such as in Fig. 4b), connect the speaker wires in the same manner and connect one wire from the push button to either terminal F or terminal R, and another wire from the button to the C terminal on the amplifier.
3. If shielded cable is used, connect the drain wire to the C terminal on the amplifier. Shielded cable is recommended for the music input.

TEST AND CHECKOUT

1. **At all inside stations, make certain the MONITOR button is in the OFF position** (press the **INSIDE** button to disengage the **MONITOR** function). Turn the volume control fully ON. If more than 10 stations are installed on the system, only 10 may be turned fully ON at one time.
2. Check each unit in the system for operation in accordance with the operating instructions.
3. If feedback occurs between stations (squealing, howling, etc.), reduce the volume on the stations. The amplifier volume may be readjusted as necessary with a small screwdriver or television tuning tool.
4. If the music input is used, adjust the control volume at the source of the music as needed. Excessive music input volume will cause distortion (see Specification Sheet IL538).

NOTE: The warranty is void if this system is installed or used in any manner other than as described in this Tek-COM® IR704B Installation Instruction—IN-537.

OPERATING INSTRUCTIONS

Inside Stations (IR-704B, IR-704BD)

Call: Press and hold the **INSIDE** talk button and speak in a normal voice. The call will be heard at all inside stations that are turned ON and not switched to **MONITOR**. Release the button to listen for the reply.

Reply: Push the **INSIDE** talk button and speak in a normal voice. Release the button after speaking.

Answer the Door Station: Push and hold the **OUTSIDE** talk button and speak in a normal voice. Release the button to hear the reply. The reply is automatic and does not require the operation of any controls.

Monitor a Room: Push the **MONITOR** button on the room station where listening is desired. Sounds from that room will be heard at any inside station that is turned ON. A maximum of three stations may be monitored at one time.

Privacy: Release the **MONITOR** button to the OFF position by partially pressing the **INSIDE** button, and it will be impossible to listen to that station from other locations. Turn the **VOLUME** control OFF for complete privacy.

Outside Stations

Call: Push the button on the outside station to sound a call tone. The call tone will be heard on all inside stations that are turned ON.

Music Input

Operate the music system according to the manufacturer's instructions. Music will be heard on all inside stations that are turned ON and not switched to **MONITOR**. The music will automatically be silenced when the **MONITOR**

function at any station is in operation. To operate the intercom system without music being heard on the stations, turn the volume on the music source control panel to the OFF position.

Door Release

If an electric door release is installed, it may be operated from any IR704BD station by pushing the button marked **DOOR**. The door release will buzz while operating, indicating permission to enter.

TROUBLESHOOTING

If the system fails to operate as required, review the operating instructions. If the equipment fails to operate as indicated in the instructions, check the following.

Entire system dead: 16VAC at transformer secondary, wiring between transformer and amplifier, connections at amplifier terminals T and S, 117 VAC at transformer primary.

No sound from one speaker: Speaker volume turned down, **MONITOR** button engaged, wiring to terminals 3 and 4 of station's amplifier.

Low volume: Speaker volume set too low, PK-724 amplifier volume set too low.

Squealing or howling: PK-724 amplifier volume set too high, stations installed too close or on a common wall between rooms, twisted pair wiring not used.

Unable to talk to door: Connections to outside stations, wiring to A and G amplifier terminals, volume set too low.

Unable to listen to door: Wiring to terminals 1 and 2 of amplifier and stations (look for shorts to ground), volume set too low.

No call tone: Connections at outside station push button (A, G, Z) wiring to amplifier terminals (A, F, R).

Radio interference on system: Connection from amplifier terminal 4 to electrical ground. **NOTE:** This connection is not shown because the situation is not always improved by adding it. If the problem persists, contact a service representative.

Hum or buzz: Station wiring installed too close to power wiring or electrical devices.

If these checkpoints fail to indicate the problem, there could be an equipment fault. Contact the factory or a qualified service representative.

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