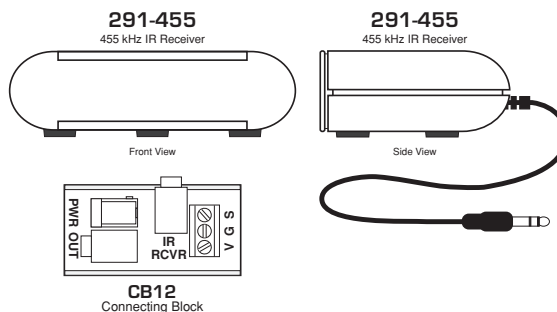


INSTALLATION INSTRUCTIONS

291-455 455 kHz HIDDEN LINK INFRARED RECEIVER

The 291-455, Fig. 1, is a single-frequency version of the 291-00 series IR receivers. It is designed specifically to accept the 455 kHz IR carrier frequency used on certain manufacturer's A/V products, such as Bang & Olufsen and Kenwood (some models).

- **NOTE: The 291-455 will not pass IR commands from remote controls with any other IR carrier frequency!**
- If you use lower frequency IR controlled components in the same system with the 291-455, you must use standard Xantech IR receivers, such as the 291-10 (side-by-side with the 291-455, if necessary), to repeat the lower frequency commands. Refer to Fig. 3.
- The 291-455 must be used in conjunction with the Model MS455, a 455 kHz IR Modulator, to complete the system.
- The attractive case of the 291P permits cabinet or shelf-top locations when wall-mounting an IR receiver is not practical.



PRINCIPLE OF OPERATION

The 291-455 down-converts the 455 kHz carrier to 40 kHz so that the IR signal can be passed along a standard 3-conductor cable to the equipment location. At the equipment location, the 3-conductor cable connects to the MS455, a 455 kHz IR Modulator. This device accepts the 40 kHz signal and "up-converts" it back to 455 kHz. It is then transmitted to the 455 kHz controlled product via a special shielded emitter (supplied with the MS455).

FEATURES AND SPECIFICATIONS

- IR carrier reception frequency: 455 kHz.
- IR carrier repeat frequency: 40 kHz.
- IR reception range: 30 feet on axis (actual range depends on levels of IR or EM interference).
- Nominal reception angle: $\pm 45^\circ$ off axis.
- Red talkback LED tests system for correct wiring as well as indicating infrared reception.
- Connections: Captive 7' cable with 3.5mm stereo mini plug. CB12 Connecting Block included for connection ease.

NOTE: The 291-455 will not operate in 2-wire Phantom Power mode.

- Requires the use of the MS455 Modulator and a 283SH shielded emitter to complete the repeater system.
- Recommended cable for use between the CB12 and the MS455: 3-conductor/24 gauge solid or stranded wire up to 200', 22 gauge up to 600', 20 gauge up to 2000' and 18 gauge up to 5000' (unshielded OK).
- Power Consumption: 12 volts DC @ 15 mA. (Powered from the MS455).
- 781C-00 Power Supply (not included) powers up to six 291-455's with one MS455.
- Dimensions: 3-1/4" W x 1" H x 2" D.

INSTALLATION

A basic installation, using one 291-455 in a typical 455 kHz IR controlled A/V receiver system located behind closed cabinet doors, is shown in Fig. 2.

- Make the 3-conductor, power supply & emitter connections to the MS455 Modulator as shown in Fig. 2.
- For 3-conductor cable recommendations, see Features and Specifications section.
- If needed, additional 291-455's, installed in other rooms, may be connected in parallel at the MS455 terminals (twelve 291-455's max). Use a 782-00 power supply when using more than six 291-455's.
- Fig. 2 shows a VCR and an LD player connected by serial links to the A/V receiver. This assumes that the VCR and the LD player are the same brand as the A/V receiver and that the serial link is compatible between the three components. Refer to the manufacturer of the units for details.
- The **283SH** Emitter wire is shielded between the plug and the junction point. This minimizes RF interference. To keep interference effects at a minimum, **do not extend the length of any part of this emitter lead assembly**.

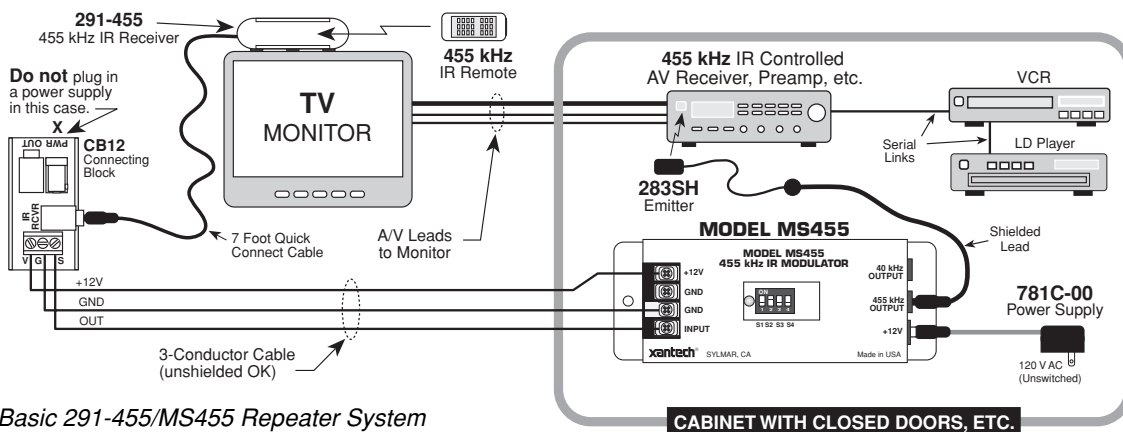


Fig. 2 Basic 291-455/MS455 Repeater System

A more advanced system is shown in Fig. 3. A 291-455 and a variety of other Xantech IR receivers and a key pad are connected to an MS455 and a 789-44 Connecting Block. It accomplishes the following:

1. Allows IR control of both a 455 kHz operated A/V Receiver and 40 kHz operated components from the main room. This is accomplished by using both high frequency (291-455) and low frequency (291-10 or 291-80) IR receivers in the same room.
2. The additional rooms have control over only the 40 kHz units, unless down converted commands are taught to learning devices. Refer to "**PROGRAMMING DOWN-CONVERTED COMMANDS**" in the MS455 Installation Instructions.
3. The down converted commands, for example, could be programmed into the SMART PAD shown in Fig. 3, room 3. Also, a learning remote, such as the Xantech URC-1, could be programmed in like manner. In this way, standard Xantech Key Pads, IR Receivers (such as the 490-00 shown in room 2, Fig. 3) and Controllers can be used in the system, where desired.
4. **NOTE:** 291-455's could also be used in any of the remote rooms (wired in parallel with the low frequency IR receiver and key pad), if control of the 455 kHz A/V Receiver using the 455 kHz remote is desired in those rooms.
5. The use of a 789-44 Connecting Block in the system allows more 40 kHz units to be controlled than would be possible by using only the 40 kHz output jack on the MS455.

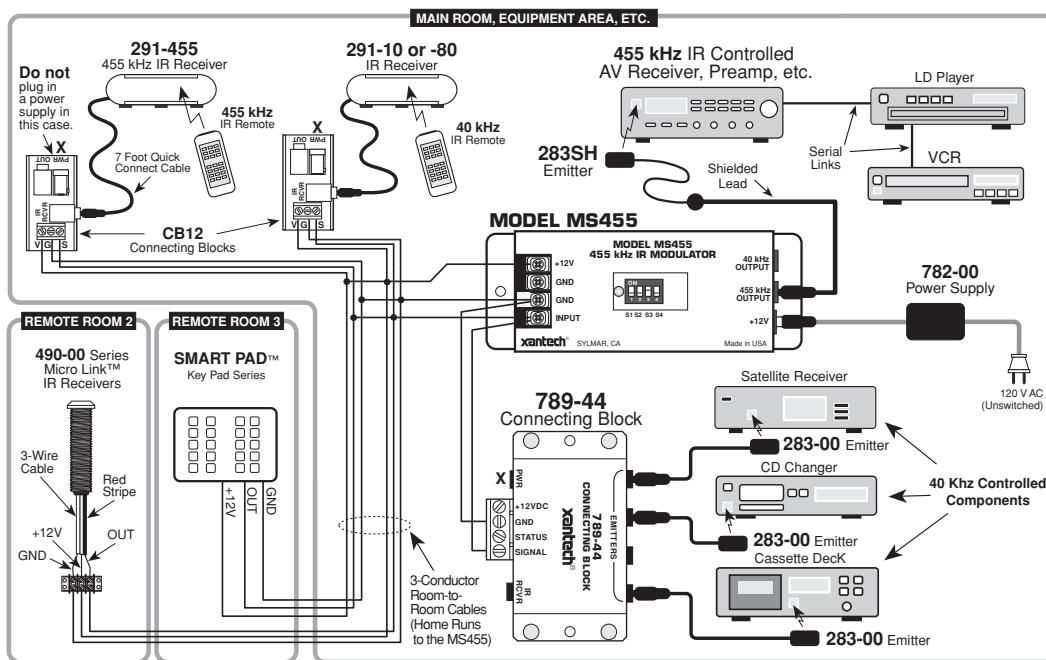


Fig. 3 Multi-Room Repeater System

TROUBLE SHOOTING

1. The 291-455 can be affected by various sources of IR and EM interference, such as the following:
 - Compact Fluorescent, Neon or Halogen lights, Neon Art, and light dimmers.
 - Direct or reflected sunlight.
 - Infrared security sensors (active types).
 - RF radiation from TV sets that may be close to the 291-455 IR Receiver.

In the presence of such interference, you may experience a reduction in range between the handheld remote control and the 291-455, or complete in-operation of the controlled unit.

2. To improve performance, you need to confirm the source of the interference. Do this by temporarily turning off TV sets, etc., moving the 291-455 from sunlight exposure, turning off all lights, light dimmers, Infrared security systems, etc. Then check for correct operation.

When you have isolated the interfering source, it will be necessary to move either it or the 291-455 IR Receiver to improve operation.

3. If the red Talk-Back LED on the 291-455 does not blink when you are sending IR commands from a remote control, check the following:
 - Make sure the power supply is plugged securely into a live 120V AC wall outlet.
 - Be sure the V, G and S terminals on the CB12 are correctly connected to the respective +12V, GND and INPUT terminals on the MS455.
 - Check to see that the emitter you are using is good, by substituting a known good emitter.
 - The Model 283SH Emitter will flash when a remote signal is sent, if the system is operating correctly.
 - Be sure the DIP switches on the MS455 are set correctly. See the MS455 instructions for details.
4. If you are sure the emitter is OK, but the component does not respond, reposition the emitter. It may not be located directly over the component's infrared receiving "window". Consult the owner's manual of the unit or the manufacturer for the exact location of the infrared "window".