

APPLICATION ADVISORY

Volume. 1, Number 1

June 15, 1996

Xantech's **Application Advisory** defines and clarifies specific applications for our products to enable you to maximize their performance advantages. With a better understanding of the abilities and limitations of the product, you will know exactly which model to spec out for a given application. As with any type of product, each model will have its own unique abilities and limitations. Knowing these facts will save you time, money and unnecessary frustration. Please feel free to contact our Technical Support Department with any questions you may have.

Controlling Pioneer 1.125 MHz ISC (GUI) Products

780P ? 291P ? PMS12 ? 283SH ? PEA1 ?

Q: Which of the above models do I need to order to control the new Pioneer GUI products?

A: You will need (1) 780P or 291P IR Receiver for every remote room (unless you program the Pioneer GUI commands into a learning device as shown in Fig. 3). The 780P is a single gang "J" box model while the 291P is a stand alone, shelf-type unit. Regardless of the number of "P" version IR receivers installed, you will only need (1) PMS12 in a single zone system. *Please remember that you will not need to order a 283SH Emitter! One is included with the PMS12.* Additional 283SH Emitters are available, however, for replacement purposes.

Q: How do these models work together to repeat the new Pioneer GUI remote control commands? Also, are there any pitfalls I should be aware of?

A: The 780P/291P and PMS12 were developed to repeat the very high frequency 1.125 MHz IR carrier of the newer Pioneer ISC (GUI) receivers. In order to have high noise immunity, they were designed to pass only this high frequency carrier. *Consequently, they will not pass IR carriers from any remote control system that is lower (or higher) in frequency!* (e.g. 30-100 kHz, 300-455 KHz, etc.).

After receiving the Pioneer remote commands, the 780P/291P down-converts the 1.125 MHz to 40 kHz and sends it to the PMS12. This down-conversion is necessary to prevent AM radio interference and to allow the signal to pass down long cable lengths.

At the special PMS12 Modulator block, the signal is then up-converted and sent to the 283SH shielded emitter to flash the front of the Pioneer GUI component. Once you flash the front of the Pioneer, you can control standard 40 KHz source equipment using Xantech Emitters connected to the MINI-REPEATER jacks (not the MAIN REPEATER jack) on the back of the Pioneer.

You actually have a couple of options to control standard equipment with lower frequency carriers:

1. Use the pre-programmed commands of the Pioneer ISC system to control associated components with the GUI remote through the 40 KHz emitter (MINI-REPEATER) jacks on the back of the Pioneer. If a particular component's commands are not pre-programmed into the ISC, you can teach them to the ISC and then use the GUI for control. See Fig. 1.
2. Certain components, however, such as a VCR, are difficult to fully control through the GUI (i.e.

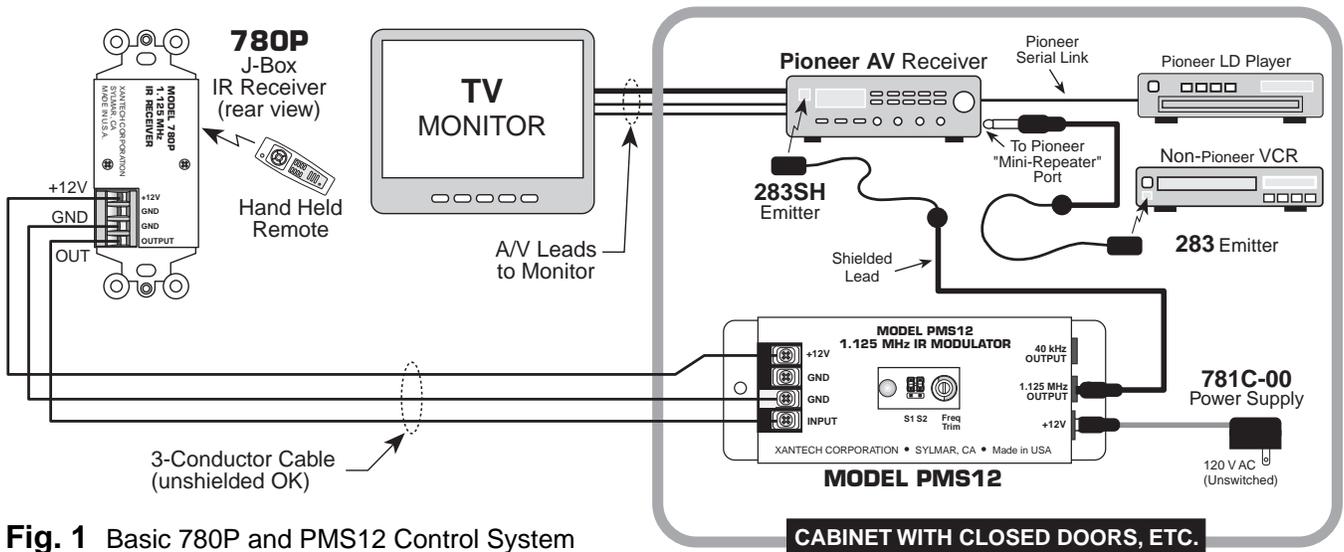


Fig. 1 Basic 780P and PMS12 Control System

VCR programming). In these situations, install a standard Xantech IR receiver in addition to the P-Series model. Connect them both, via 3-conductor cables, to the +12V, GND and INPUT terminals on the PMS12 as shown in Fig. 2.

Adding Emitters

a) The 40 KHz OUTPUT port on the PMS12 can directly drive a single or a dual emitter.

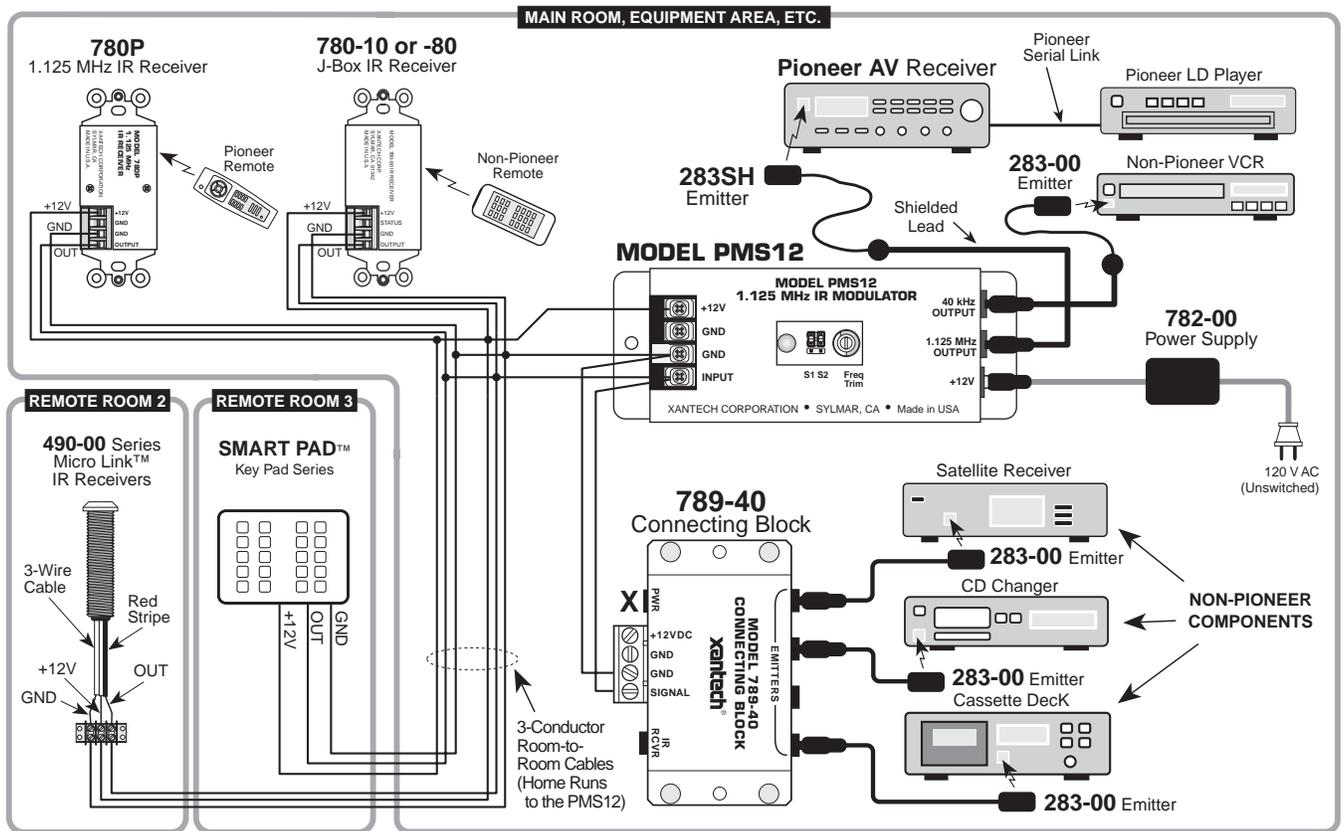


Fig. 2 Multi-Room Repeater System

b) If you need to control more than two components, you may add a 789-40 Connecting Block wired in parallel to the +12V, GND and INPUT terminals on the PMS12, as shown in Fig. 2, to drive up to 4 single or 4 dual emitters. *Do not use a power supply on the 789-40 in this case.*

c) If even more emitters are needed, a 791-40 Amplified Connecting Block may be used. In this case, connect a "mono-mini-plug-to-bare-wire" cable between the 40 KHz OUTPUT port on the PMS12 and the INPUT and GROUND terminals on the 791-40. *Do not connect the 791-40 in parallel with the PMS12 input as shown for the 789-40 in Fig. 2.* To do so will cause signal loss to the PMS12 and possible in-operation.

NOTE: It is possible to connect a 789-40 to the 40 KHz OUTPUT on the PMS12, but the signal level may not be sufficient to drive dual emitters in all cases.

The 791-40, since it is an amplified block, can drive single **or** dual emitters when used in this application. Don't forget to order a 781C power supply if you opt for the 791-40!

Q: I want to teach the Pioneer GUI Remote commands into learning devices, such as the 730 Smart Pad and URC-1 remote control. Is this possible?

A: Yes. Current shipments of the PMS12 now include a device called the Programming Emitter Assembly (Model PEA1, Fig. 3). This device permits the Pioneer codes to be memorized after they have been down-converted to the 40 KHz carrier frequency (it plugs into the 40 KHz OUTPUT jack on the PMS12). *Pioneer codes cannot be memorized at 1.125 MHz!*

The PEA1 is simply attached (temporarily) to the learning window of the learning device, using the adhesive surface on the PEA1. The commands are then "taught" to the device in the usual manner, except the Pioneer GUI Remote is pointed at the 780P IR Receiver rather than at the learning window on the learning device.

Fig. 4 below shows a typical application of this technique to "teach" a 730 Smart Pad.

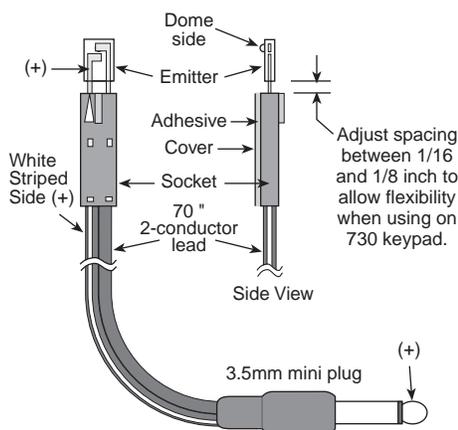


Fig. 3 The PEA1 Programming Emitter Assembly (included with PMS12)

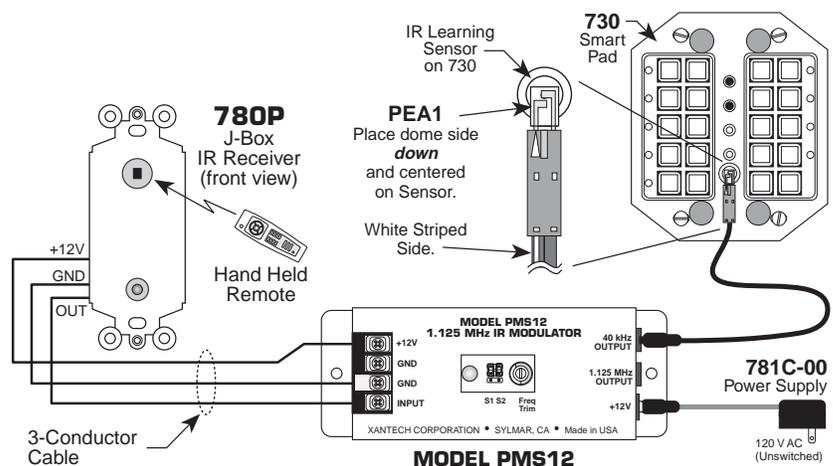


Fig. 4 Programming Pioneer GUI Commands Into a 730 Smart Pad Using the PEA1