

APPLICATION ADVISORY

Volume. 2, Number 1

March 28, 1997

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.

ZPR68 / ZPR68-10 DIGITAL INTERFACE

The ZPR68 has a bidirectional data interface which allows control and reading of all functions by a personal computer, "dumb" terminal or other device. The ZPR68 will communicate with an RS232-type serial port configured for 9600 baud, 8 data bits, 1 stop bit, no parity, full duplex and no handshaking. Raw ASCII data is interchanged. Only three lines of the RS232 port are utilized, transmit data, receive data and data ground.

The cable required for the model ZPR68 is shown in **figure 1**. The cable required for the model ZPR68-10 is shown in **figure 2**.

In order to communicate with the ZPR68 (or ZPR68-10) using a personal computer, you will need a communications program such as Procomm for the PC or ZTerm for the Macintosh. Configure the program for 9600 baud, 8 data bits, 1 stop bit, no parity, full duplex and no handshaking. Determine which port you are going to use to communicate with the ZPR68 and configure the program for that port (COM1 or COM2 on the PC, MODEM or PRINTER on the Macintosh). On the PC, you will probably have a mouse plugged into one port, usually COM1. You will then have to use COM2 for the ZPR68.

With the cable plugged into the selected serial port and the ZPR68, turn everything on and run the program. Lock the CAPS LOCK key on your keyboard. Type the following keys, one-at-a-time, do not press ENTER or RETURN:

?01V= [question-mark, zero, one, capital-vee, equals-sign]

The monitor will show **?01V0** or **?01V1** or **?01V2** or **?01V3** or **?01V4**

Type the last digit shown on the monitor. For example if the monitor shows **?01V2**, type **2**.

The monitor will now show **?01V20** or **?01V21** or another digit between **2** and **9** (**?01V22** through **?01V29**).

Type the last digit shown on the monitor. For example if the monitor shows **?01V25**, then type **5**.

The ZPR68 will respond with a **+** if communications are satisfactory or it will respond with a **-** if there is a problem. The monitor will show **?01V25+** in this example.

What is the significance of all of these characters? In **?01V25+**, the **?** indicates that we are querying the ZPR68. We are determining what it is set to. The **01** indicates that we want to know something about output zone 1. The **V** indicates that we are interested in the volume level. The ZPR68 responds that the level is **25**. And, finally, the **+** indicates that the data exchanged are correct.

The output zones on a ZPR68 are factory preset 01 through 06 and EXP9 output zones are factory preset 07 through 15. They can, however, be programmed for other two-digit numbers.

The functions which can be queried, in addition to the volume (**V**), are the treble (**T**), the bass (**B**), the input source number (**I**), the state of the control out (**C**), and the mute (**M**).

Two digit numbers are used to indicate volume level and tone control settings. The volume and tone levels change at 2dB per step. The numbers are related to level in dB as shown in the examples in these tables:

VOLUME LEVEL (40 steps)

<u>LEVEL IN dB</u>	<u>ZPR68 SETTING</u>
0	40
-10	35
-20	30
-40	20
-80	00

TREBLE AND BASS LEVELS (24 steps)

<u>LEVEL IN dB</u>	<u>ZPR68 SETTING</u>
+12	12
0 (FLAT)	06
-12	00

The query form, **?01V=**, returns a two-digit answer for volume, **?01T=**, treble and **?01B=**, bass, as shown above. The query **?01I=** returns a single digit indicating the number of the input source.

If you query the control out, **?01C=**, it will return an **N** if the control out is off or a **Y** if the control out is on.

If you query the mute, **?01M=**, it will return an **N** if the mute is off. In other words, the mute is off if the audio is on. The query will return a **Y** if the mute is on (the audio is off).

COMMANDS

To send a command to the ZPR68, use an **!** (exclamation-point) instead of a **?** (question-mark). Try this example- To select source input 2 by zone 4, type **!04I2+** (exclamation-point, zero, four, capital-eye, two, plus). The ZPR68 will return and the monitor will display **!04I2+**.

Once an input is selected, it can be changed by repeating the **I** command sequence using a different number for the source input. The audio and the control out can be shut-off by using the **C** command.

For example, to shut-off the audio and the control out of zone 4 type **!04CN+**. To turn them back on, you must reselect the input by typing **!04I2+**. You cannot use **!04CY+**. It doesn't do anything. The video is not affected by the **C** command.

To set the volume of zone 4 to the maximum level, type **!04V40+**. The number following the **V** corresponds to the attenuation values shown in the table above. There are two ways to mute the audio without affecting the video. First, the volume can be set to zero by sending **!04V00+**. To return to the previous volume level, type the original volume level command, **!04V40+**, again.

The second way is to use the **Q** (quiet) command. Type **!04QY+** to quiet the zone and **!04QN+** to restore the audio. The **Q** command will also turn the **CO** port off and on. Note that the **Q** command is not the same function as the **M** or mute. The **Q** can only be used as a command with an **!** and cannot be used as a query with a **?**. The **M** can only be used as a query with a **?** and cannot be used as a command with an **!**. There is no way to check the status of quiet (**Q**). There is no way to control the status of mute (**M**) via the digital interface. It can only be controlled via the infrared (**S**) input by a hand-held remote or a keypad.

To set the treble of zone 4 to flat response, type **!04T06+**. The number following the **T** corresponds to the amplification/attenuation values shown in the table above. To set the bass of zone 4 to flat response, type **!04B06+**.

GLOBAL COMMANDS

You can send global commands to control all zones at the same time. The only change from the previous examples is the use of 00 as the zone number. **!00CN+** will shut off all zones. **!00QY+** will quiet all zones and **!00QN+** will restore all zones.

If you send **!00V30+**, all zones will have a volume setting of 30 (-20dB). All tone settings will be set to flat by sending **!00T06+** and **!00B06+**.

You can select the same input source for all zones by sending **!00I3+**. All zones will now have source 3 as their input.

GLOBAL QUERIES

Global queries are not supported.

NOTICE - This is a preliminary document designed to be used as an aid in communicating with the Model ZPR68. This document may contain errors and all users are hereby forewarned. Comments and queries should be addressed to: Mike Robbins via FAX at 818 362-9506 or via email at mrobbins@xantech.com.

Figure 1 - ZPR68

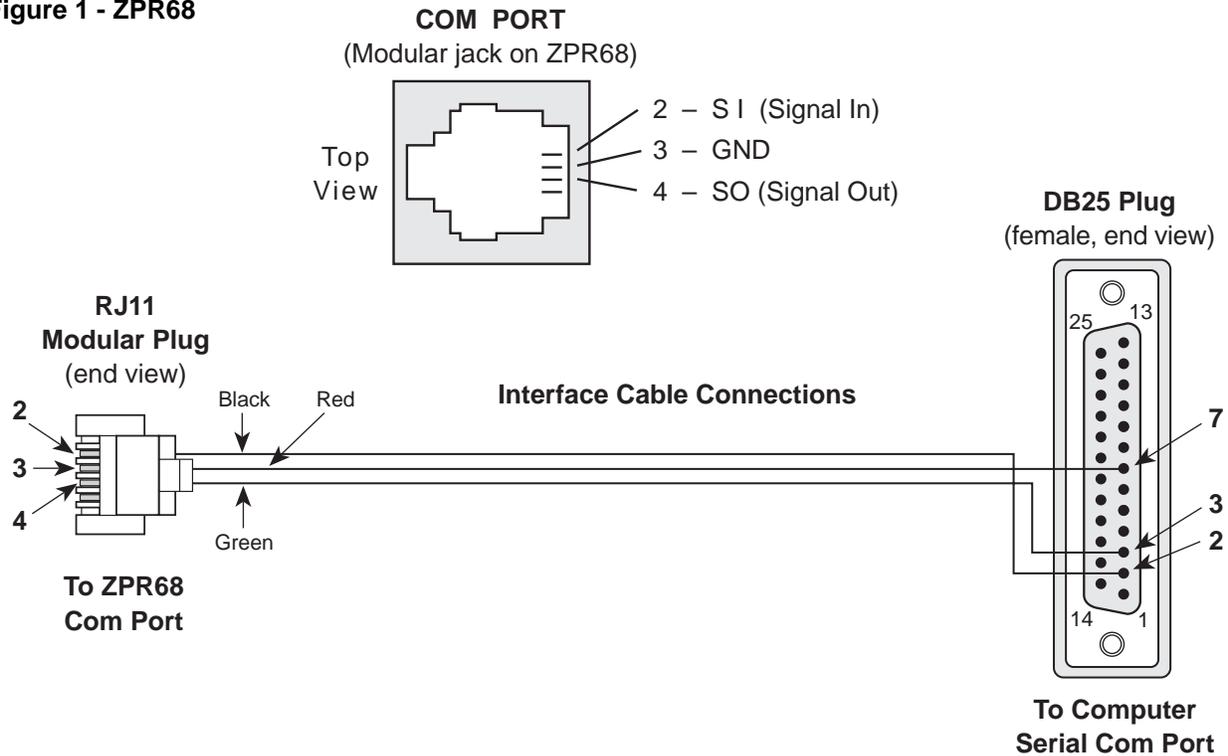


Figure 2 - ZPR68-10

