

## *Appendix N*

### *Jupiter ASCII Communications Protocol*

#### **Revision E 1/11/2000**

Hardware connections for an external computer are shown on page 2–79.

Set-up in the Jupiter Control System File Server includes defining one or more port pairs as being ASCII in the Serial Protocol Table (page 5–25).

The control computer is identified on the MPK Devices table (page 5–129). You will need to define each port as being type “Serial”, and give each port a CP Level, Input, and Output Set. These sets will determine which levels, inputs, and outputs are available to each ASCII port to control and status.

The ASCII Computer Interface is assigned to a SC 3000, SI 3000, or VM 3000 serial port pair and uses a simple ASCII data format defined below. The serial protocol defaults to 9600 Baud, 8 Data Bits, No Parity, and 1 Stop Bit. Baud rates of 2400, 4800, 19.2K and 38.4K are also user-configurable from the Jupiter Control System File Server. The control port uses XON (0x11) and XOFF (0x13) to control command pacing if necessary.

All commands are in upper case ASCII. Space (0x20) characters are optional and will be ignored. Each command is followed by a carriage return (0x0D). If a line feed (0x0A) is included it must follow the carriage return.

The controlling computer must take care to wait for a ZY or ZN response after each command before attempting to send a subsequent command. Failure to do so will result in a ZN response, and possibly an XOFF condition. If switcher status is received, wait for all levels to be statused before sending another command.

Here is a key to help you understand the following command descriptions:

OOO —> Router Switcher OUTPUT. This corresponds with the “Selection” number defined in this ASCII port’s CP Output Set. The range is from 000 to 999. (Previous releases had a range from 000 to 249.)

III ———> Router Switcher INPUT. This corresponds with the “Selection” number defined in this ASCII port’s CP Input Set. (Previous releases had a range from 000 to 249.)

LLLLLL —> Router Switcher LEVELS. This corresponds with a logical position in this ASCII port's CP Level Set. The range is from 1 to 7. For example, 1 refers to the first entry in the CP Level Set, and 5 refers to the fifth entry in that same set. If no levels are specified, then the take is assumed to apply to all levels defined in that set. Level number entries are NOT position-dependent.

#### ASCII General Purpose Commands

<b>ZA</b>	Acknowledge	This command is used to see if the ASCII interface exists and is running. A response of <b>ZA</b> is returned whenever a <b>ZA</b> is received.
<b>ZZ</b>	Reset	This command forces the ASCII controller to reset. This causes the interface to cancel all previous <b>ZP</b> , <b>ZV</b> , and <b>ZW</b> commands. A <b>ZX</b> response is returned to the external computer upon command completion. This <b>ZX</b> is also returned whenever the interface is manually reset.
<b>ZY</b>	Command Accepted (ACK)	This response is returned after the serial port has successfully parsed the command and in the case of a switch command has successfully issued the TAKE to the system and received a switch response back from the system. <i>This does NOT mean that the command was successfully executed.</i> The remote computer should not issue a new command until receiving a <b>ZY</b> or <b>ZN</b> from the current command. The amount of time for the response will vary depending on system complexity and current system activity. Also the number of switches involved in the command will affect the amount of time it takes to receive the <b>ZY</b> response. Multiple switches sent in one command may result in <b>ZR</b> response(s) being returned before the <b>ZY</b> response.
<b>ZN</b>	Command Rejected (NAK)	A <b>ZN</b> will be issued when a condition occurs where the current command cannot be executed. A <b>ZN</b> response can be issued for several reasons such as an invalid com-

mand, an invalid command format, or an invalid input, output or level. Invalid inputs, outputs and levels are logged to the system logger. Also if the system is busy a **ZN** will be issued followed by **XOFF**. When it is again ready for the next command a **XON** will be issued. Note that after the **XON**, response(s) from the prior command may be issued (e.g. **ZR** response(s)).

## Router Switcher Control and Status Commands

### ZSOOOIIIIIIIIII Switch Request

This command causes the interface to issue a TAKE Switch Request to the routing switcher control system and affects a single routing switcher output. If no levels are specified, then ALL defined levels are assumed.

Note: Passwords are not honored by automation protocol handling.

A remote computer can send a command with multiple Switch Requests (older releases do not have this capability). A single command can be up to 180 characters long which allows switching of from 12–22 outputs (depending on the specified levels). An example of a multiple Switch Request follows:

```
ZS00000112ZS00100212ZS00200312<CR>
```

This example command would switch outputs 0, 1, and 2 on levels 1 and 2.

### ZROOO Status Request

This command requests current switcher status for a single output. The response is in the format:

```
ZROOOIIIIIIIIII.
```

If the status for the output is “split”, multiple responses will be returned.

### ZWOOO Watch Output

This command causes the interface to watch the specified output for any changes and report such changes. A request to watch output “999” is a request to watch all defined

outputs in that port's serial output set. All responses are in the "**ZR**" format described above. When issued, this command also may result in an immediate **ZR** response for the requested output(s). No **ZR** response(s) will be returned if the requested output(s) do not have any inputs assigned to them.

ZPOOO	Lock Output	This command LOCKS the specified output from being changed by <i>any</i> system control device.
ZVOOO	Protect Output	This command PROTECTS the specified output from being changed by <i>any other</i> system control device.
ZUOOO	Unlock Output	This command removes the LOCK or PROTECT from the specified system output. If another system control device or interface locked or protected this output, this command will fail.

ZJOOO	Report Lock Status	This command will return a code based on which kind of system control device or interface LOCKED or PROTECTED the specified output. If the output is not locked or protected, no response will be sent. The response codes are as follows:
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ZJ000	Jupiter Control Panel
ZJ001-004	Party Line Control Panel
ZJ999	THIS ASCII INTERFACE

Note: Lock status returned for the first level only in the CP Level Set for this ASCII port.