SIS Programming and Control

This section provides instructions on using the Extron Simple Instruction Set (SIS) commands, which you can use to set up and control the IPL T PCS4 from a host computer or other control system attached to the rear panel LAN port. The following topics are discussed:

- **Host-to-Interface Communication**
- **Using the Command and Response Table**
- **Symbol Definitions**
- **Command and Response Table for SIS Commands**

As shipped, the PCS4 works as a standalone interface, but cannot control any other devices until it is configured. You can set up and control the PCS4 by using the front panel, the web pages, or SIS commands. Both the web pages and the SIS methods are accessed via Ethernet LAN connection. The LAN port defaults are:

IPL T PCS4 IP address:	192.168.254.254
Gateway IP address:	0.0.0.0
Subnet mask:	255.255.0.0
DHCP:	Off

Host-to-Interface Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the PCS4 determines that a command is valid, it executes the command and sends a response to the host device. All responses from the interface to the host end with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. (A string is one or more characters.)

Messages Initiated by the IPL T PCS4

When a local event such as a front panel selection or adjustment takes place, the PCS4 responds by sending a message to the host. No response is required from the host. The following PCS4-initiated messages are sent (underlined):

(c) Copyright 20*nn*, Extron Electronics, IPL T PCS4 [or -PCS4i], *Vn.nn*, 60-544-*nn* ↵

Www, *DD Mmm* 2011 HH:MM:SS↵

The PCS4 sends the boot and copyright messages when it first powers on and is connected via Telnet or TCP/IP. *Vn.nn* is the firmware version number; 60-544-*nn* is the product part number. The current date and time are displayed. If you are using a Telnet connection, the copyright message, date, and time are followed by a password prompt.

Password Information

The ↵ `Password:` prompt is displayed only if there is a password defined in the unit. It requires a password (administrator level or user level) followed by a carriage return. The prompt is repeated if the correct password is not entered.

If the correct password is entered, the unit responds with ↵ `Login Administrator` ↵ or ↵ `Login User` ↵, depending on the password entered. If the passwords are the same for both administrator and user, the unit defaults to administrator privileges.

Error Responses

When the PCS4 receives a valid SIS command, it executes the command and sends a response to the host device. If the PCS4 is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host.

The error response codes and their descriptions are as follows:

`E12` – Invalid port number

`E13` – Invalid value (the number is out of range/too large)

`E14` – Not valid for this configuration

`E17` – System timed out

`E22` – Busy

`E24` – Privilege violation

`E25` – Device is not present

`E26` – Maximum number of connections has been exceeded

`E27` – Invalid event number

`E28` – Bad filename or file not found

Error Response References

The following superscripted numbers are used within the command descriptions in the Command and Response table to identify commands that may respond as shown:

^{14} = commands that give an `E14` (invalid command for this configuration) response if sent to an IPL product whose power configuration does not support the command.

^{24} = commands that give an `E24` (privilege violation) response if you are not logged in at the administrator level.

^{27} = commands that may yield an `E27` (invalid event number) response.

^{28} = commands that may give an `E28` (file not found) response.

Using the Command and Response Table

The PCS4 can be controlled via either a Telnet connection (port 23) or a web browser connection (port 80). The ASCII commands listed in the tables perform the same functions, but they are encoded differently to meet the requirements of each port (Telnet or browser). The ASCII to hexadecimal (HEX) conversion table below is for use with the command and response tables.

Space →

ASCII to Hex Conversion Table										Esc	1B	CR	ØD	LF	ØA
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	I	7C	}	7D	~	7E	DEL	7F

Figure 36. ASCII to Hex Conversion Table

The command and response table lists valid ASCII (for Telnet) command codes, the corresponding URL (universal resource locator) encoded (for web browsers) command codes, the interface responses to the host, and a description of the command function or the results of executing the command.

- Upper- and lowercase characters can be used interchangeably in the command field unless otherwise specified.
- Commands may be sent back-to-back without spaces (for example, `2!65V1Z`).
- Numbers can be entered as 1, 2, or 3 digits (for example, `8V` = `Ø8V` = `ØØ8V`).
- There are a few differences in how to enter the commands, depending on whether you are using Telnet or a web browser.
  - When using these commands through a web browser, you can use the URL reference to shorten the examples. "URL" refers to the full address of the control interface and web page reference, including all path information (that is, `http://192.168.1ØØ.1Ø/`*`myform`*`.htm`).
  - To send any of the commands using a web browser you must prefix them with the full URL followed by `?cmd=`.
  - For control via a web browser, all non-alphanumeric characters must be represented as the hexadecimal equivalent, `%`*`xx`*, where *`xx`* represents the two-character hex byte. For example, a comma (,) would be represented as `%2C`. Characters such as %, +, and the space character must be encoded as hex bytes, or they will be misinterpreted by the interface.
  - Some characters differ depending on the method you use to send the commands:

Telnet	Web Browser
Escape (hex `1B`)	`W` (must **not** be hex encoded)
Carriage return (hex `ØD`)	Pipe character (`|`) (must **not** be hex encoded)

NOTES:
- With Telnet you can use either an `Escape` command or a `W` command, and the carriage return or the pipe character. With the web browser, you are required to use a `W` command and the pipe character.
- In either method, *`Data`* = Data that will be directed to a specified port and must be hex encoded if non-alphanumeric.

Symbol Definitions

↵ = CR/LF (carriage return + line feed) (hex ØD ØA)

← = Soft carriage return (no line feed, hex ØD)
(For web browser commands, use the | [pipe] character instead of the soft return.)

| = Pipe (vertical bar) character

• = Space

24 = The ^{24} superscript indicates commands that give an E24 (privilege violation) message if you are not logged in at the administrator level.

Esc = Escape key (hex 1B) (For web browsers, use W instead of Esc.)

X1 = Power receptacle (1-4)

X3 = Greenwich Mean Time (GMT) offset value
(-12.00 to +14.00) represents the time difference in hours and minutes (±*hh*:*mm*) relative to Greenwich, England. The plus sign and leading zero are optional. For example, 5:30 = +Ø5:3Ø.)

X5 = On or Off status
Ø = off or disabled
1 = on or enabled

X6 = Dirty memory status
1 = RAM needs to be saved to flash memory.
Ø = RAM has been saved to flash (OK to power off or reset).

X11 = Version (typically listed to two decimal places, that is, *n.nn)*

X12 = Unit name. The name of the PC1 is a text string of up to 24 characters drawn from the alphabet (A-Z), digits (Ø-9), and minus sign or hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case.

NOTE: The first character must be a letter. The last character must **not** be a minus sign or hyphen (-).

X13 = Local date and time format
Set format (*MM/DD/YY-HH:MM:SS*).
Example: 11/18/Ø3-1Ø:54:ØØ.
Read format (day of week, day month year *HH:MM:SS*).
Example: Tue, 18 Nov 2Ø11 18:19:33.

X14 = IP address (*nnn.nnn.nnn.nnn*). Leading zeros in each of four fields are optional in setting values, and they are suppressed in returned values.

X15 = E-mail domain name (for example: extron.com)

X18 = Hardware (MAC) address (*xx-xx-xx-xx-xx-xx*).

X19 = Subnet mask (*nnn.nnn.nnn.nnn*). Leading zeros are optional in setting values in each of four fields, and they are suppressed in returned values.

X22 For verbose response mode:
Ø = clear or none
1 = verbose mode
2 = tagged responses for queries
3 = verbose mode and tagged responses for queries
Default = Ø

NOTE: If tagged responses are enabled, all read commands return the constant string plus the data, like setting the value does.

Example:

Command: Esc CN ←
Response: Ipn • X12

X33 = Password (minimum length = 4 characters; maximum length = 12 characters.
No special characters are allowed.

X34 = Daylight saving time (DST) is a 1-hour offset to reflect the time during which clocks are set one hour or more ahead of local standard time, to provide more daylight at the end of the working day. Supported for the U. S. and parts of Brazil and Europe.

Example: Time in California is GMT -8:00 from March to November and GMT -7:00 from November to March. DST should be turned off in Hawaii, American Samoa, Guam, Puerto Rico, the Virgin Islands, the eastern time zone portion of the state of Indiana, and the state of Arizona (excluding the Navajo Nation).

Ø = off or ignore
1 = U. S.
2 = Europe
3 = Brazil

X41 = Reading password. Responds with four asterisks (****) in place of the password, if a password exists. Responds with an empty space if no password exists.

X45 = E-mail event number (1 - 64)

X46 = E-mail recipient address (for example, JDoe@extron.com) for the person to whom messages will be sent.

X47 = Name (numeral) of e-mail file to be sent; for example: 1.eml, 2.eml, ... 64.eml

X49 = Default name: a combination of the model name and the last three pairs of the interface MAC address (for example: IPL-T-PCS4-ØØ-Ø2-3D).

X52 = Connection security level

11 = user
12 = administrator

X63 = Pulse time in 20 ms per count. If this parameter is missing or = Ø, then pulse length = default (25 = 500 ms). 35565 ms = max. pulse time.

X67 = Threshold settings for all ports

Ø = None
1 = Full
2 = Both (Full and Standby thresholds)

X69 = (Ethernet only) Number of seconds before timeout on IP connections (min. = 1, max. = 65ØØ, and default = 3Ø = 300 seconds).

If no data is received during the timeout period, the Ethernet connection is closed. Each step is 1Ø seconds. The response is returned with leading zeros.

X70 = The number (as an optional parameter) that is inserted into the e-mail message if the .eml file has an embedded command (with no parameters).

X701 = Condition that is monitored

Ø = receptacle off
1 = receptacle on
2 = reference: None
3 = reference: Standby
4 = reference: Full
5 = any change

X702 = Use alarm relay

Ø = no or disable
1 = yes or enable

X703 = E-mail to use 61-64

X704 = Enable and disable monitoring

Ø = disable monitoring
1 = enable monitoring
2 = enable with e-mail

X705 = Alarm status

Ø = inactive
1 = active
2 = silenced

X706 = Clear value
- Ø = condition no longer met
- 1 = clear with output off
- 2 = clear with output on
- 3 = clear with no threshold
- 4 = clear with standby threshold
- 5 = clear with full threshold
- 6 = clear with any change
- 7 = manual

X707 = Relay polarity
- Ø = normally open
- 1 = normally closed

X708 = Time to hold alarm active before canceling
- Ø = never times out
- 1-7 = 1 to 7 minutes

X709 = On timed value
- ØØ-15 (in 250 ms increments)

X710 = Off timed value
- ØØ-15 (in 250 ms increments)

X711 = Day of the week
- 1 = Sunday
- 2 = Monday
- 3 = Tuesday
- 4 = Wednesday
- 5 = Thursday
- 6 = Friday
- 7 = Saturday

X712 = Time in minutes (Ø-144Ø)
- Ø = 00:00 am (midnight)
- 144Ø = clear schedule
- **Example:** 1439 = 11:59
- Use the following formula (in 24-hour time format): **(*hour* x 60) + *minutes* = time in minutes**

Command and Response Table for SIS Commands

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (Web) (Host to Switcher)	Response (Switcher to Host)
Power Receptacle Control / Current Sense			
Turn receptacle power on	Esc X1*1PC←	W X1 %2A 1PC|	Cpn X1•Ppc1↵
Turn receptacle power off	Esc X1*ØPC←	W X1 %2A ØPC|	Cpn X1•PpcØ↵
View receptacle power status	Esc X1 PC←	W X1 PC|	X5 ↵
Query receptacle current status	Esc X1 PS←	W X1 PS|	X9 ↵
Group receptacles	Esc X10[1] X10[2] X10[3] X10[4] GP←	W X10[1] X10[2] X10[3] X10[4] GP|	Pgp X10[1] X10[2] X10[3] X10[4] ↵
Ungroup receptacles	Esc ØØØØGP←	W ØØØØGP|	PgpØØØØ↵
View receptacles grouping	Esc GP←	W GP|	X10[1] X10[2] X10[3] X10[4] ↵
Set power up delay	Esc X16 DT←	W X16 DT|	Pdt X16 ↵
View power up delay	Esc DT←	W DT|	X16 ↵
Set individual full threshold	Esc X1*2TH←	W X1 %2A 2TH|	Ptf X1 ↵
Set individual standby threshold	Esc X1*1TH←	W X1 %2A 1TH|	Pts X1 ↵
Clear individual threshold	Esc X1*ØTH←	W X1 %2A ØTH|	Ptc X1 ↵
View threshold setting for all ports	Esc TH←	W TH|	X9[1],X9[2],X9[3],X9[4] ↵
Set Executive mode on	1X	1X	Exe1↵
Set Executive mode off	ØX	ØX	ExeØ↵
View Executive mode	X	X	X5 ↵
Power Receptacle Monitoring and Alarm Functions			
Set alarm conditions	Esc X1*X701*X702*X703 SA←	W X1 %2A X701 %2A X702 %2A X703 SA| Ast X1*X701*X702*X703*X704*X705 ↵	
View alarm conditions	Esc X1*SA←	W X1 SA| X701*X702*X703*X704*X705 ↵	
Monitoring enable or disable	Esc X1*X704 SA←	W X1 %2A X704 SA| Ast X1*X701*X702*X703*X704*X705 ↵	
Set Alarm mode	Esc X706*X707*X708*X708*X710 MA←	W X706 %2A X707 %2A X708 %2A X708 %2A X710 MA| Arl X706*X707*X708*X708*X710 ↵	
View Alarm mode	Esc MA ←	WMA| X706*X707*X708*X708*X710 ↵	
Power Receptacle Scheduling			
Set scheduling	Esc X1*X711*X5*X712 SS←	W X1 %2A X711 %2A X5 %2A X712 SS Set X1*X711*X5*X712 ↵	
View scheduling	Esc X1*X711*X5 SS←	W X1 %2A X711 %2A X5 SS|	X712 ↵
Alarm Relay Functions			
Turn alarm relay ON	1*10←	1 %2A 10|	Cpn1•Rly1↵
Turn alarm relay OFF	1*Ø0←	1 %2A Ø0|	Cpn1•RlyØ↵
View alarm relay state	10←	10|	X5 ↵
Pulse relay	1*3*X63 0←	1 %2A 3 %2A X63 0|	Cpn1•Rly1↵ *or* Cpn1•RlyØ↵
Toggle relay	1*20 ←		Cpn1•Rly1↵ *or* Cpn1•RlyØ↵
Ethernet Data Port Commands			
Set current connected port timeout	Esc Ø*X69 TC←	WØ %2A X69 TC|	PtiØ*X69 ↵
View current connected port timeout	Esc ØTC←	WØTC|	X69 ↵
Set global IP port timeout	Esc 1*X69 TC←	W1 %2A X69 TC|	Pti1*X69 ↵
View global IP port timeout	Esc 1TC←	W1TC|	X69 ↵

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (Web) (Host to Switcher)	Response (Switcher to Host)
Firmware Version, Part Number, and Information Requests			
Query firmware version	Q	Q	X11 ↵
Query firmware information	1Q	1Q	X11 ↵
Query bootstrap version	2Q	2Q	X11 ↵
Query factory firmware version	3Q	3Q	X11 plus (*web version – model – UL – date* and *time*) ↵
Query updated firmware version	4Q	4Q	X11 plus (*web version – model – UL – date* and *time*) ↵
Query verbose version information	ØQ	ØQ	*Sum of responses from* 2Q, 3Q, *and* 4Q ↵
NOTE: An asterisk (*) after a version number indicates the version that is currently running. Question marks (?.??) indicate that only the factory firmware version is loaded. A caret (^) indicates the firmware version that should be running; however, a mode 1 reset was executed and the factory default firmware version is currently loaded. An exclamation point (!) indicates corrupted firmware.			
Request interface part number	N	N	60-544-Ø7 or 60-544-Ø9↵
Request model name	1I	1I	IPL T PCS4 or IPL T PCS4i↵
Request model description	2I	2I	Lists four switched 110 VAC or 220 VAC receptacles with current threshold sensing.↵
Request system memory usage	3I	3I	*Number of bytes and Kbytes used out of the number of total Kbytes*↵
Request user memory usage	4I	4I	*Number of bytes and Kbytes used out of the number of total Kbytes*↵
E-mail Commands			
Configure e-mail events (mailbox)[24]	Esc X45,X46,X47 CR←	W X45 %2C X46 %2C X47 CR|	Ipr X45,X46,X47 ↵
Example:	Esc 5,jdoe@extron.com,7.emlCR←	W5%2Cjdoe%4Øextron%2Ecom%2C7%2EemlCR|	Ipr5,jdoe@extron.com,7.eml↵
View e-mail events (mailbox)	Esc X45 CR←	W X45 CR|	X46,X47 ↵
Send e-mail events (file named in mailbox)[24]	Esc X45 SM←	W X45 SM|	Eml X46 ↵
Send e-mail (using different file)[24]	Esc X45,X70,X47 SM←	W X45 %2C X70 %2C X47 SM|	Eml X46 ↵
Web Browser-specific Commands			
Read response from last URL cmd	Esc UB←	W UB|	*Response from command*↵
Mail Server Setup Commands			
Set mail server IP, unit domain name[24]	Esc X14,X15 CM←	W X14 %2C X15 CM|	Ipm•X14,X15 ↵
View mail server IP, unit domain name	Esc CM←	W CM|	X14,X15 ↵

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (Web) (Host to Switcher)	Response (Switcher to Host)
IP Setup Commands			
Set the unit name[24]	Esc X12 CN←	W X12 CN|	Ipn•X12 ↵
Set unit name to factory default[24]	Esc•CN←	W %2Ø CN|	Ipn•X49 ↵
View unit name[24]	Esc CN←		X12 ↵
Set date and time[24]	Esc X13 CT←		Ipn•X13 ↵ *Example:* 11/16/1Ø-1Ø:54:ØØ ↵
View date and time	Esc CT←	W CT|	X13 ↵ *Example:* Tues, 16 NOV 2Ø11 1Ø:1Ø:54:ØØ ↵
Set GMT offset[24]	Esc X3 CZ←	W X3 CZ|	Ipz X3 ↵
View GMT offset	Esc CZ←	W CZ|	X3 ↵
Set daylight savings time[24]	Esc X34 CX←	W X34 CX|	Ipx X34 ↵
View daylight savings time	Esc CX←	W CX|	X34 ↵
Set DHCP on[24]	Esc 1 DH↵	W 1 DH|	Idh 1↵
Set DHCP off[24]	Esc Ø DH↵	W Ø DH|	Idh Ø↵
View DHCP mode	Esc DH↵	W DH|	X5 ↵
Set IP address[24]	Esc X14 CI←	W X14 CI|	Ipi• X14 ↵
View IP address	Esc CI←	W CI|	X14 ↵
View hardware (MAC) address	Esc CH←	W CH|	X18 ↵
Set subnet mask[24]	Esc X19 CS←	W X19 CS|	Ips• X19 ↵
View subnet mask	Esc CS←	W CS|	X19 ↵
Set gateway IP address[24]	Esc X14 CG←	W X14 CG|	Ipg•X14 ↵
View gateway IP address	Esc CG←	W CG|	X14 ↵
Set verbose mode[24]	Esc X22 CV←	W X22 CV|	Vrb X22 ↵
NOTE: The IPL T PCS4 can send out unsolicited information (such as notice of a power level change). This is called a *verbose* (wordy) relationship between the interface and a connected device. When the IPL T PCS4 is connected to the computer via Ethernet, verbose mode is disabled (by default) in order to reduce the amount of communication traffic on the network. If you want to use the verbose mode with the PCS4 connected via Ethernet, this mode must be set to On each time you reconnect to the network.			
View verbose mode status	Esc CV←	W CV|	X22 ↵
Get connection listing	Esc CC←	W CC|	*Number of connections*
Password and Security Settings			
Set administrator password[24]	Esc X33 CA←	W X33 CA|	Ipa•X41 ↵
Clear administrator password[24]	Esc•CA←	W %2Ø CA|	Ipa•↵
NOTE: A user password cannot be assigned if an administrator password does not exist. If the administrator password is cleared (removed), the user password is also removed.			
View administrator password[24]	Esc CA←	W CA|	X41 ↵
Set user password[14 24]	Esc X33 CU←	W X33 CU|	Ipu•X41 ↵
Clear user password[24]	Esc•CU←	W %2Ø CU|	Ipu•↵
View user password[24]	Esc CU←	W CU|	X41 ↵
Query session security level	Esc CK←	W CK|	X52 ↵

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (Web) (Host to Switcher)	Response (Switcher to Host)
Remapping Port Designations			
NOTE: Duplicate port number assignments are not permitted; that is, Telnet and web cannot be the same). Entering duplicate port assignments results in an E13 (invalid parameter) error message.			
Set Telnet port map[24]	Esc *port#* MT←	W *port#* MT|	Pmt *port#*↵
Reset Telnet port map[24]	Esc 23MT←	W 23MT|	Pmt 00023↵
Disable Telnet port map[24]	Esc ØMT←	W ØMT|	Pmt 00000↵
View Telnet port map	Esc MT←	W MT|	*port#*↵
Set web port map[24]	Esc *port#* MH←	W *port#* MH|	Pmh *port#*↵
Reset web port map[24]	Esc 8ØMH←	W 8ØMH|	Pmh 0008Ø ↵
Disable web port map[24]	Esc ØMH←	W ØMH|	Pmh 00000 ↵
View web port map	Esc MH←	W MH|	*port#*↵
Directory Commands			
Change or create a directory	Esc *path*/*directory*/CJ←	W *path*/*directory*/CJ|	Dir•*path*/*directory*/↵
NOTE: A directory does not truly exist until a file has been copied into the path.			
Move back to root directory	Esc /CJ←	W %2F CJ|	Dir•/↵
Move up one directory	Esc..CJ←	W %2E %2E CJ|	Dir•*path*/*directory*/↵
View current directory	Esc CJ←	W CJ|	*path*/*directory*/↵
File Erase Commands			
Erase user-supplied web page or file[24, 28]	Esc *filename* EF←	W *filename* EF|	Del•*filename*↵
Erase current directory and its files[24, 28]	Esc /EF←	W %2F EF|	Ddl↵
Erase current directory and subdirectories[24, 28]	Esc //EF←	W %2F %2F EF|	Ddl↵
File Listing Commands			
List files from current directory	Esc DF←	W DF| (See below.) **Telnet text responses:** *filename x* • *date*/*time* • *length*↵ *filename x* • *date*/*time* • *length*↵ *filename x* • *date*/*time* • *length*↵ ... *space_remaining* • *Bytes Left*↵ ↵ **Web responses — HTML sample code:** Var file – new Array (); File [1] = '*filename1*, *date1*, *filesize1*'; File [2] = '*filename2*, *date2*, *filesize2*'; ... File [*n*] = '*filename n*, *date n*, *filesize n*'; File [*n*+1] = '*space remaining*, *Bytes left*'	

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (Web) (Host to Switcher)	Response (Switcher to Host)
File Listing Commands (continued)			
List files from current directory and below	Esc LF ←	W LF |	(See below.) **Telnet text responses:** *path/directory/filename x* • *date/time* • *length* ↵ *path/directory/filename x* • *date/time* • *length* ↵ *path/directory/filename x* • *date/time* • *length* ↵ ... *space_remaining* • *Bytes Left* ↵ **Web responses — HTML sample code:** Var file – new Array (); File [1] = '*filename1*, *date1*, *filesize1*'; File [2] = '*filename2*, *date2*, *filesize2*'; ... File [*n*] = '*filename n*, *date n*, *filesize n*'; File [*n*+1] = '*space remaining, Bytes left*'
NOTE: The response to this command is the same as for the "List files from current directory" command (DF), except that *path/directory* precedes filenames for files from subdirectories below the current directory.			
Stream Files via Port 80			
Load file to user flash memory[24] [28]	Use a POST on port 80 followed by the delimited data to be written to the flash file memory.		
Retrieve files from user flash memory[24] [28]	Send a page GET on port 80 followed by WSF |		*Raw unprocessed data in file*
Example:	http://192.168.254.254/mypage.html?cmd=WSF		
Stream Files via Telnet			
Load file to user flash memory[24] [28]	Esc + UF *filesize*, *filename* ←	*Raw unprocessed data in file up to file size*	Upl ↵
Retrieve file from user flash memory[24] [28]	Esc *filename* SF ←	1B *filename* SF ØD	Four bytes of *file size* + *raw unprocessed data in file*
Reset (Zap) and Erase Commands			
Erase the user flash memory[24] (files only)	Esc ZFFF ←	W ZFFF |	Zpf ↵
Reset all device settings to factory default[24]	Esc ZXXX ←	W ZXXX |	Zpx ↵
Absolute system reset[24]	Esc ZQQQ ←	W ZQQQ |	Zpq ↵