PLANAR

User Manual

Planar Simplicity E Series Serial Commands

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Serial Commands

Serial commands are not necessary for operation but are a convenient way to control Planar Simplicity E Series displays from a computer at a distance. Most things you can do with the remote, you can do with serial commands. Plus, you can send inquiries to the displays and find out the current settings and values. RS232 connections are made with standard straight-through cables.

Note: Use of serial commands requires the display's **Power Down Mode** setting to be set to **Fast Startup**. See the "Power Down Mode" section of the *Planar Simplicity E Series User Manual*.

Note: Serial commands can be sent to the display over the RS232 port or over the network.

1. Applicable Models

This serial commands user manual applies to all Planar Simplicity E Series models.

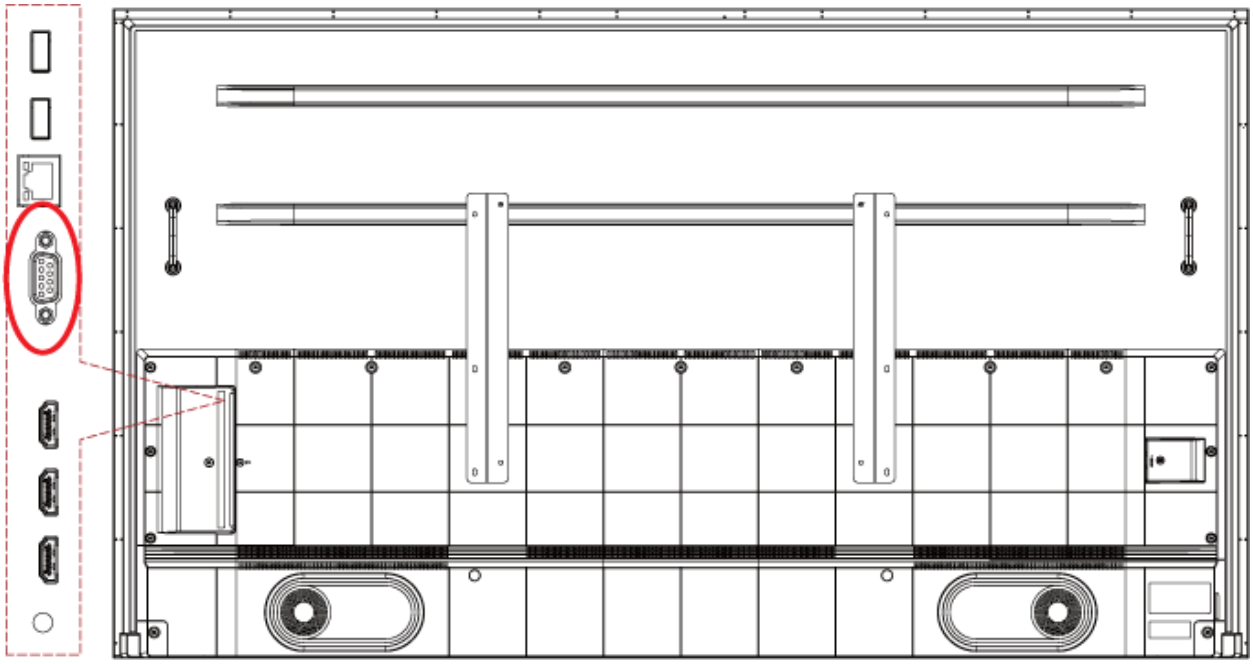
2. RS232 Port Setup

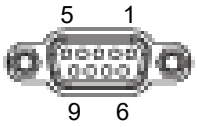
A serial connection to the RS232 In port requires the following settings:

- 115200 baud rate
- 8 data bits
- 1 stop bit
- No parity bit
- No HW (RTS/CTS) or SW (XON/XOFF) flow control

3. Connecting the RS232 Cable

The Female DB9 connector is wired as a Straight Through serial connection.





Pin #	Signal
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC

4. Serial Command Protocol

4.1 Command Structure

```
[OPCODE](MODIFIERS)[OPERATOR][OPERANDS][TERM]
```

- OPCODE is the command code (e.g. “GAIN”). This can be written either using the named command code (see the “Command Code” column in the table) or the numeric command code (see the “Numeric Command Code” column in the table).
- MODIFIERS are modifier values [e.g. “(ZONE.1, ALL)”]. There are zero or more modifiers for each command. The modifiers can be written either with their named value or their numeric value (see "Examples" on page 7). See the “Modifiers” column in the table.
- OPERATOR is the action to be performed. See the “Operators” column in the table.
  - ‘=’ writes the setting value.
  - ‘?’ reads the setting value in name form (see "Examples" on page 7).
  - ‘#’ reads the setting value in numeric form (see "Examples" on page 7).
  - ‘+’ increments the setting value.
  - ‘-‘ decrements the setting value.
  - ‘:’ indicates that the message is a response to one of the following operators: =?#+-
  - ‘@ACK’ indicates that the message is an acknowledgment (ACK) to a command that has no operator.
  - ‘^NAK’ indicates that the message is a negative acknowledgment (NAK) to a command. This indicates that the command was received but cannot be processed at this time.
  - [No operator] denotes an action. In this case, there’s no operator and no operand.
- OPERAND indicates the data to be sent with the message. In some cases, there can be multiple operands. See the “Operands” column in the table.
  - Enumerated operands can be written either with their named value or their numeric value (see "Examples" on page 7).
  - String operands are written with quotation marks at the beginning and end. Example: “this is a string operand”. Special characters, [CR], [LF], “ and \ can be included in a string by escaping them with the \ character (see "Examples" on page 7).
  - Integer (or signed integer / unsigned integer) are always numeric values.
  - Fixed point operands are numeric values with fractional parts. They use decimal point notation.
  - Note that enumerated and integer values can be written either in decimal or hexadecimal. For example, a decimal value of ‘50’ can be written in hexadecimal as ‘0x32’.
- TERM is the termination character for the command. This can either be the ASCII carriage return character (0x0D), the ASCII line feed character (0x0A) or a semicolon. The response will use the same termination character.
- **Note:** Invalid use of the serial command protocol will not return a response.

4.2 Protocol Encoding

- All parts of the command structure are case insensitive (e.g. “BRIGHTNESS”, “brightness” and BrIgHtNeSs” are all the same). Responses will always be in capital letters.
- Excessive white space is allowed (e.g. “BRIGHTNESS=50”, “BRIGHTNESS = 50” and “BRIGHTNESS = 50” are all the same).
- Modifiers and operands can be separated by commas, spaces or both (e.g. “GAIN=100,100,100”, “GAIN=100 100 100” and “GAIN=100, 100, 100” are all the same). Responses will always separate with one space between modifiers and operands).

4.3 Examples

Note: [CR] is the ASCII carriage return character (0x0D).

Command	Response	Notes
brightness = 100 [CR]	BRIGHTNESS:100 [CR]	Sets the Brightness value to 100
brightness = 100;	BRIGHTNESS:100;	Also sets the Brightness value to 100, but uses the ‘;’ termination character instead of [CR]. The response uses the same termination character.
200=100 [CR]	200:100 [CR]	“200” is the numeric command code for “BRIGHTNESS”
brightness+ [CR]	BRIGHTNESS:101 [CR]	Increments the current Brightness value
brightness- [CR]	BRIGHTNESS:100 [CR]	Decrements the current Brightness value
gain = 101 102 103 [CR]	GAIN:101 102 103 [CR]	Example command with multiple operators (sets Red Gain to 101, Green Gain to 102 and Blue Gain to 103, on the current zone)
gain(current red)+	GAIN(CURRENT RED):102	Increments the Red Gain on the current zone
gain(zone.1, all) = 104,105,106	GAIN(ZONE.1 ALL):104 105 106	Example command with multiple modifiers, multiple operators and different separators between the modifiers and operators (sets Red Gain to 104, Green Gain to 105 and Blue Gain to 106, on Zone 1)
ipv4.address(static)=”10.15.0.220” [CR]	IPV4.ADDRESS(STATIC)=”10.15.0.220” [CR]	Example command with a string operator
reset(user) [CR]	RESET(USER)@ACK [CR]	Example action command (no operator or operand)

Command	Response	Notes
reset(user) [CR]	RESET(USER)^NAK [CR]	Example action command that cannot be processed at this time
aspect? [CR]	ASPECT:AUTO [CR]	The name for the Aspect Ratio setting value is returned
aspect# [CR]	ASPECT:0 [CR]	The number for the Aspect Ratio setting value is returned
aspect=fill [CR]	ASPECT:FILL [CR]	Sets the Aspect Ratio to Fill
aspect=3 [CR]	ASPECT:3 [CR]	Also sets the Aspect Ratio to Fill
display.name = “Name containing \” and \\”	DISPLAY.NAME:”Name containing \” and \\”	The name will appear on the remote monitor as Name containing “ and \
power.on.delay = .1	POWER.ON.DELAY:0.1	Example of a fixed point operand. Sets the Power On Delay to 0.1 seconds.

5. Serial Command Codes

Notes:

- The examples are written with the command first and the response in italics. Example:
  - Command: ASPECT(ZONE.1)=AUTO
  - Response: *ASPECT(ZONE.1):AUTO*
- In many instances, a modifier may be omitted and the display will replace it with a default value. For example, the default modifier for the ASPECT command is CURRENT, so the following two commands are identical:
  - ASPECT(CURRENT)=AUTO
  - ASPECT=AUTO
- '!' in the Operators column indicates that the command accepts the execute operator, which uses no operator symbol. The '!' symbol is not included in the command.

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Available in Standby	Example	Notes
Display Power	DISPLAY.POWER	1408	=?		0 = OFF 1 = ON	Yes	DISPLAY.POWER=ON *DISPLAY.POWER:ON*	
Key	KEY	1200	=		[See separate table on page 11.]	No	[To send the MENU key] KEY=MENU *KEY:MENU*	See separate table on page 11 for key codes
Mute	AUDIO.MUTE	1002	=		0 = OFF 1 = ON	No	AUDIO.MUTE=ON *AUDIO.MUTE:ON*	
OSD Rotation	ORIENTATION	1302	=?		0 = LANDSCAPE 1 = PORTRAIT	No	ORIENTATION=LANDSCAPE *ORIENTATION:LANDSCAPE*	See Settings > System > Display Orientation
Source Select	SOURCE.SELECT	101	=?		Source 1 = HDMI.1 2 = HDMI.2 3 = HDMI.3	No	SOURCE.SELECT=HDMI.2 *SOURCE.SELECT:HDMI.2*	See the Source menu
Volume	AUDIO.VOLUME	1006	=?		0-100	No	AUDIO.VOLUME=50 *AUDIO.VOLUME:50*	See Settings > Display & Sound > Sound > Volume. When Mute is on, AUDIO.VOLUME? will return AUDIO.VOLUME:MUTE.

5.1 Key

The “Equivalent Remote Control” column references buttons that are present on the remote included in the SLE accessories kit.

Value	Name	Equivalent Remote Control Button	Description
0	UP	UP	Navigate up
1	DOWN	DOWN	Navigate down
2	MENU	MENU	Opens the menu
3	SOURCE	Source	Opens the input menu
12	LEFT	LEFT	Navigate left
13	ENTER	ENTER	Selects the current menu item
14	PREV	PREV	Returns to the previous menu
15	RIGHT	RIGHT	Navigate right
266	ZONE1	Source	Opens the input menu

6. Sending Serial Commands Over a Network Connection

6.1 Sending Serial Commands Via TCP

The IP Control setting needs to be enabled on the display for a TCP connection. This setting can be found by navigating to Settings > System > Security > IP Control. TCP port 6688 accepts the same serial command set as the RS232 port. It is convenient for IP control applications and can be tested with a TCP terminal program such as Tera Term or Hercules.

Notice the following in the TCP example below using Tera Term:

- The IP address is 10.18.0.83
- Port 6688 is selected
- Service is set to “Other” to indicate that TCP is being used without Telnet or SSH