

RPS and Video Controller RS232



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RS232 Communication

RS232 control is not necessary for operation, but is a convenient way to control the Leyard Remote Power Supply and Leyard Video Controller from a control system at a distance. Plus, you can send inquiries to the system and find out the current settings and values. RS232 connections are made with standard straight-through cables.

Note: Serial communication can occur over RS232, USB-B or LAN. See the sections "Sending Serial Commands via USB" on page 24 and "Sending Serial Commands Via TCP or UDP" on page 33 for details on those physical connections.

Applicable Models

This RS-232 user manual applies to all Leyard RPS and Video Controller models. RS232 user manuals for other products can be found at www.planar.com/support/.

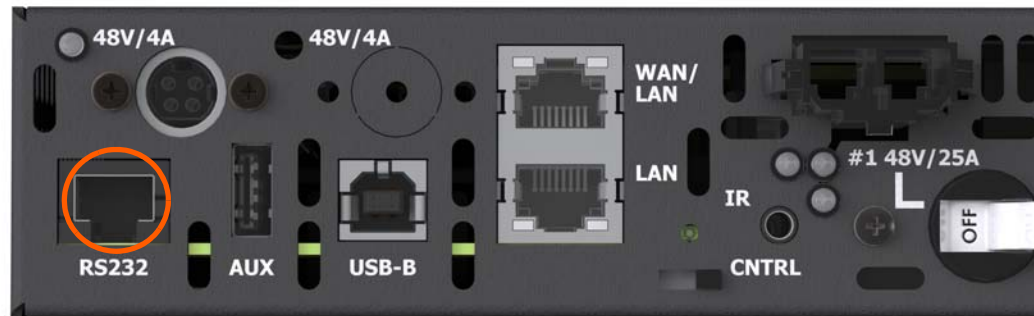
RS232 Setup

The RS232 connection must use the following settings:

- 19200 baud rate
- 8 data bits
- 1 stop bit
- No parity bit
- No HW (RTS/CTS) or SW (XON/XOFF) flow control

Connecting the RS232 Cable

The RS232 cable will connect to a PC or control system, depending on your setup.

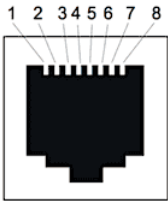


Remote Power Supply Models



Video Controller Models

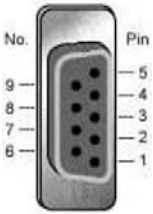
RJ45 and DB9 Standard RS232 Pinout



Rj-45 Jack
(Female)

Pin RJ45 Jack	Signal	Description
6	Rx	Receive
3	Tx	Transmit
4, 5	GND	Ground
1, 2, 7, 8		No Connect

Pin DB9	Signal	Description
2	Rx	Receive
3	Tx	Transmit
5	GND	Ground
1, 4, 6, 7, 8, 9		No Connect



RS232 Protocol

Command Structure

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

- OPCODE is the command code (e.g. "IR.CODE"). 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. "(STATIC)"]. 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 9). 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 9).
 - '#' reads the setting value in numeric form (see "Examples" on page 9).
 - '+' increments the setting value.
 - '-' decrements the setting value.
 - ':' indicates that the message is a response to one of the following operators: =?#+-
 - '!ERR' indicates that the message is a failure response. An error code will be listed after the "ERR", with a space before it. Error codes are as follows:
 - ERR 1: Invalid syntax
 - ERR 2: [Reserved for future use]
 - ERR 3: Command not recognized
 - ERR 4: Invalid modifier
 - ERR 5: Invalid operands
 - ERR 6: Invalid operator
 - '@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.
 - TIMEOUT indicates that a command was not received by a host piece of equipment. This may be due to disconnected equipment or a poor communication path.
 - [No operator] denotes an action. In this case, there's no operator and no operand.

- OPERAND indicates the data to be sent or the return 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 9).
- 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 9).
- 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.

Protocol Encoding

- All parts of the command structure are case insensitive (e.g. "SYSTEM.STATE", "system.state" and "System.StaTe" are all the same). Responses will always be in capital letters.
- Excessive white space is allowed (e.g. "AUTO.ON=0", "AUTO.ON = 0" and "AUTO.ON = 0" are all the same).
- Modifiers and operands can be separated by commas, spaces or both (e.g. "PANEL.ACTIVE=0 0 1280 720", "PANEL.ACTIVE=0,0,1280,720" and "PANEL.ACTIVE=0, 0, 1280, 720" are all the same). Responses will always separate with one space between modifiers and operands).

Examples

Note: [CR] is the ASCII carriage return character (0x0D). Not all commands shown are available.

Command	Response	Notes
ipv4.address(static)="10.15.0.220" [CR]	IPV4.ADDRESS(STATIC):"10.15.0.220" [CR]	Example command with a string operator
reset[CR]	RESET@ACK [CR]	Example action command (no operator or operand)
reset[CR]	RESET^NAK [CR]	Example action command that cannot be processed at this time
brightness @@ [CR]	BRIGHTNESS!ERR 1 [CR]	Example of an invalid syntax ("@" isn't a valid operator)
fake.command = 1 [CR]	FAKE.COMMAND!ERR 3 [CR]	Example of an invalid opcode ("FAKE.COMMAND" doesn't exist)
brightness(zone.999) = 100 [CR]	BRIGHTNESS(ZONE.999)!ERR 4 [CR]	Example of an invalid modifier ("ZONE.999" isn't a valid modifier for "BRIGHTNESS")
brightness="new value" [CR]	BRIGHTNESS!ERR 5 [CR]	Example of an invalid operand (the Brightness command doesn't accept a string operand)
model.id = 1 [CR]	MODEL.ID!ERR 6 [CR]	Example of an invalid operator (cannot write to this command)

RS232 Codes

Notes:

- The examples are written with the command first and the *response in italics*.
Example:
 - Command: IPV4.ADDRESS(STATIC)=192.168.12.12
 - Response: *IPV4.ADDRESS(STATIC):192.168.12.12*
- 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 IPV4.ADDRESS command is STATIC, so the following two commands are identical:
 - IPV4.ADDRESS(STATIC)=192.168.12.12
 - IPV4.ADDRESS=192.168.12.12
- '!' 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	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Active Preset	PRESET. ACTIVE	2010	?		Integer	PRESET.ACTIVE? PRESET.ACTIVE:2	Returns the active displayed preset slot number. 0 (zero) indicates the current zone layout has been modified since the last preset was recalled, or that no preset has ever been recalled	No	4.0	Yes	No
Add Zone	ZONE.ADD	2605	=	Integer	Integer	ZONE.ADD(5)=0 0 1920 1080 ZONE.ADD(5):	Adds a zone number specified at in order: x pixel dimension from zero x position of wall, y pixel dimension from zero y position of wall, x pixel width, y pixel height. Only applicable to the active display/preset	No	4.0	Yes	No
Array Panel ID	MATRIX. LAYOUT. PANEL	602	?	Column# and Row#	Integer	MATRIX.LAYOUT.PANEL(1 3)? MATRIX.LAYOUT.PANEL(1 3):7	Returns the panel ID number for the specified column/row coordinate in a configured wall	No	4.0	Yes	Yes
Assign Input to Zone	ZONE.INPUT	2602	=?	Integer	VC#.IN#	ZONE.INPUT(5)=VC2.IN3 ZONE.INPUT(5):VC2.IN3	Gets / sets the source input for a specified zone. Only applicable to the active display/preset	No	4.0	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Auto Brightness	BACKLIGHT. MODE	1402	=?		0=AUTO 1=MANUAL (default)	BACKLIGHT.MODE=MANUAL BACKLIGHT.MODE:MANUAL	Gets / sets wall brightness adjustment mode, where AUTO enables the system to automatically change brightness based on ambient sensor value	No	4.0	Yes	No
Auto Genlock	GENLOCK. AUTO	1518	=?		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	GENLOCK.AUTO? GENLOCK.AUTO:ON	Gets / sets whether the equipment is set up to automatically genlock to a source	No	2.1	Yes	No
Auto Loop Routing	LOOP. ROUTE. AUTO	113	=?	VC#	0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	LOOP.ROUTE.AUTO(VC2)? LOOP.ROUTE.AUTO(VC2):TRUE	Gets / sets the loop out on the specified video controller will be overridden by zone setup signal requests	No	4.0	No	No
Automatic Panel Active Area	PANEL. ACTIVE. AUTO	1521	=?		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	PANEL.ACTIVE.AUTO? PANEL.ACTIVE.AUTO:YES	When enabled panel active rects are computed automatically. Disable to use PANEL.ACTIVE to override automatic active area	No	3.0	No	No
Auto Power On	AUTO.ON	1407	=?		0=DISABLED 1=POWER_ON 2=PREVIOUS_STATE	AUTO.ON=POWER_ON AUTO.ON:POWER_ON	Gets / sets if the system will turn on if the AC power is applied	No	1.x, 2.0 ¹	Yes	Yes
Big Picture Configure	QCONFIG	505	=?		VC#.IN#	QCONFIG=VC2.IN3 QCONFIG:VC2.IN3	Gets / sets Big Picture of wall to specified sources	No	2.0	No	No
Brightness Intensity	BACKLIGHT. INTENSITY	1400	=?+-		0-100	BACKLIGHT.INTENSITY? BACKLIGHT.INTENSITY:80	Gets / sets the intensity of the display	No	2.0	No	No
Cancel Factory Reset	RESET. CANCEL	2406	!			RESET.CANCEL RESET.CANCEL:@ACK	Cancels pending factory reset prior to reboot or AC cycle	No	2.0	Yes	Yes
Color Balance - Gray	GRAY. BALANCE. GAMMA	1504	=?	Panel IDand.... 0=RED 1=GREEN 2=BLUE 255=ALL	1.8..2.6	GRAY.BALANCE.GAMMA (1 red)? GRAY.BALANCE.GAMMA (1 RED):2.200000	Gets / sets the gray balance value (gamma) for the given LCD and color channel	No	4.0	No	No
Color Balance Rest	RESET. BALANCE	1506	!			RESET.BALANCE RESET.BALANCE:@ACK	Resets the color balance of all LCDs back to the last saved state	No	4.0	No	No
Color Temperature	COLOR. TEMP	1510	=?	PN# or integer NONE is all	0=3200K 1=5500K 2=6500K 3=8500K 4=9300K 5=NATIVE 6=CUSTOM	COLOR.TEMP? COLOR.TEMP=8500K	Gets / sets wall color temperature. Note: 5500K and NATIVE is for LCD products only and 9300K is for LED products only. To set a custom color temperature for LED, it must be set through the Leyard Control Software interface. A @NAK return indicates all panels are not set the same	No	4.0	Yes	No
Component ID	ID	1911	=?	VC# PS#	String	ID=4 ID:4	Gets / sets the ID of the component specified	No	1.x, 2.0 ¹	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Component MAC Address	NETWORK.MAC	1203	?		String	NETWORK.MAC? NETWORK.MAC:"12:34:56:AB:CD:EF"	Returns the master component MAC address	No	1.x	Yes	Yes
Component Model	MODEL.NAME	2306	?	PS# VC# PN#	String	MODEL.NAME? MODEL.NAME:"RPS220-3" MODEL.NAME(PN3)? MODEL.NAME(PN3):"MX55U"	Returns the directly connected equipment model name without modifier. Returns the specified equipment's model name with modifier	Yes	1.x, 4.0 ¹	Yes	No
Component Serial number	SERIAL.NUMBER	2303	?	PS# VC# PN#	String	SERIAL.NUMBER? SERIAL.NUMBER:"ABCD1234"	No modifier returns the directly attached component serial number. Using a modifier returns the serial number of the specified equipment	Yes	1.x 4.0 ¹	Yes	No
Custom Color Display	CUSTOM.COLOR	1314	=?	PN# 0=ALL (default)	0-1023	CUSTOM.COLOR(PN4)=100 255 10 CUSTOM.COLOR(PN4):100 255 10	Gets / sets in order: Red, Green, Blue color value. When set for a panel, also enables PATTERN(panel)=CUSTOM. When set for ALL, this command ONLY sets the custom color value and does not activate any PATTERN. PATTERN command equal to NONE required to remove	No	4.0	No	No
Default Gateway	IPV4.GATEWAY	1206	=?	0=ACTIVE 1=STATIC [None = ACTIVE (for reads only)] [None = STATIC (for writes only)]	String	IPV4.GATEWAY(0)? IPV4.GATEWAY(0):"10.15.0.1"	Gets / sets the gateway of the equipment	No	2.0	Yes	Yes
Delete Preset	PRESET.DELETE	2000	!	Integer		PRESET.DELETE(3) PRESET.DELETE(3):@ACK	Deletes specified preset from the system configuration	No	2.0	Yes	Yes
Delete Zone	ZONE.DELETE	2600	!	Integer		ZONE.DELETE(2) ZONE.DELETE(2):@ACK	Deletes specified zone from active display	No	4.0	Yes	No
Device Connected	CONNECTED	1426	?	PS# VC# PN#	0=NO 1=YES	CONNECTED(VC3)? CONNECTED(VC3):NO	Gets connected status of the indicated device. With no modifier, gets connected status of the directly connected device	Yes	4.0	Yes	No
DHCP	NETWORK.DHCP	1207	=?+-		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	NETWORK.DHCP? NETWORK.DHCP:ON	Toggles the equipment to use dynamic host configuration protocol	No	1.x	Yes	Yes
Disable Genlock	GENLOCK.DISABLE	1519	=?		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	GENLOCK.DISABLE=0 GENLOCK.DISABLE:FALSE	Gets / sets whether the genlock feature is disabled	No	2.1	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
DNS Server 1	NETWORK.DNS1	1212	=?	0=ACTIVE 1=STATIC [None = ACTIVE (for reads only)] [None = STATIC (for writes only)]	String	NETWORK.DNS1(0)? NETWORK.DNS1(0):"192.168.1.10"	Gets / sets the domain name server of the equipment	No	1.x	Yes	Yes
DNS Server 2	NETWORK.DNS2	1213	=?	0=ACTIVE 1=STATIC [None = ACTIVE (for reads only)] [None = STATIC (for writes only)]	String	NETWORK.DNS2(0)? NETWORK.DNS2(0):"192.168.1.20"	Gets / sets the backup domain name server of the equipment	No	1.x	Yes	Yes
Firmware Version	SYSTEM.VERSION	2302	?		String	SYSTEM.VERSION? SYSTEM.VERSION:"4.0.567"	Returns the software version of the system based on the master component	Yes	1.x 4.0 ¹	Yes	Yes
Front Keypad Lock	KEY.LOCK	1201	=?+-		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	KEY.LOCK=DISABLE KEY.LOCK:DISABLE	Toggles the equipment from responding to commands from the keypad	No	2.0	Yes	No
Genlock Reference Source	GENLOCK.REFERENCE	1516	=?	VC#	0=SYNC_IN 1=IN1 2=IN2 3=IN3 4=IN4 5=DP 6=INTERNAL	GENLOCK.REFERENCE=0 GENLOCK.REFERENCE:SYNC_IN	Gets / sets the sync reference source to be used with the connected equipment	No	2.1	Yes	No
Genlock Status	GENLOCK.LOCKED	1517	?	VC# or ALL	0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	GENLOCK.LOCKED(VC1)? GENLOCK.LOCKED(VC1):YES	Returns whether the equipment is locked to a sync source	No	2.1	Yes	No
Get Input Information	INPUT.INFO	300	?	VC#.IN#and optional.... 0=BRIEF (DEFAULT) 1=ALL	String	INPUT.INFO(VC1.IN4)? INPUT.INFO(VC1.IN4):TRUE 1440 900 P 59.89 INPUT.INFO(VC1.IN4 BRIEF)? INPUT.INFO(VC1.IN4BRIEF): TRUE 1440 900 P 59.89 INPUT.INFO(VC1.IN4 ALL)? INPUT.INFO(VC1.IN4 ALL): TRUE 1440 900 P 59.89 RGB 444 24 1904 934 55.934	Returns in order: input present, width, height, P (progressive)/ I (interlaced), vertical refresh, colorspace, subsampling, bits per pixel, H total, V total, H freq (kHz), pixel clock (MHz)	Yes	4.0	Yes	No
Get unit FW version	FIRMWARE.VERSION	2320	?	PS# VC# PN#	String	FIRMWARE.VERSION? FIRMWARE.VERSION:4.0.569	Gets current firmware version of the specified device	Yes	4.0	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Help	HELP	2300	=?	0 = FIRST 2147483647 = NEXT	String	HELP=OSD.STATUS HELP:"OSD.STATUS\ Numeric Value: 1308\ Operators: ?\ No Modifiers\ 1 Operand(s)\ Operand #1: Unsigned Integer\ DISABLE 0\ ENABLE 1\ OFF 0\ ON 1\ NO 0\ YES 1\ FALSE 0\ TRUE 1	Displays information for each command. To get a list of all commands, first enter the following command: HELP(FIRST)? Then enter the following command continuously until it returns NAK: HELP(NEXT)?	Yes	1.x	Yes	Yes
Identify Power Supply ID	IDENTIFY	1910	!	String	String	IDENTIFY(P52) IDENTIFY(P52):@ACK	Sends command to system for the system master control LED on the specified remote power supply to blink 3 times rapidly and cycle this behavior several times	No	2.0	Yes	No
IP Address	IPV4. ADDRESS	1204	=?	0=ACTIVE 1=STATIC [None = ACTIVE (for reads only)] [None = STATIC (for writes only)]	String	IPV4.ADDRESS? IPV4.ADDRESS:10.15.0.60	Sets or returns the equipment IP Address. Default is DHCP or network assigned IP Address	No	2.0	Yes	Yes
Justify Zone	ZONE. JUSTIFY	2611	=?	1-65535	0=CENTER 1=LEFT 2=RIGHT 3=TOP 4=BOTTOM 5=TOP.LEFT 6=TOP.RIGHT 7=BOTTOM.LEFT 8=BOTTOM. RIGHT	ZONE.JUSTIFY(3)? ZONE.JUSTIFY:TOP.LEFT	Gets / sets the reference edge(s) of a zone source. Only applicable to the active display/preset	No	4.0	Yes	No
LCD Backlight	BACKLIGHT. OFFSET	1424	=?+-	PN# 0=ALL	-100...100	BACKLIGHT.OFFSET(3)=10 BACKLIGHT.OFFSET(3):10	Gets / sets panel backlight offset values for brightness matching of LCDs	No	4.0	Yes	No
Load Preset	PRESET. RECALL	2001	!	Integer 1-999		PRESET.RECALL(4) PRESET.RECALL(4):@ACK	Assigns the specified preset slot as the active zone layout for the system	No	2.0	No	No
Loop Signal Output	LOOP.ROUTE	112	=?	VC#	1=IN1 2=IN2 3=IN3 4=IN4 5=DP	LOOP.ROUTE(VC2)=IN3 LOOP.ROUTE(VC2):IN3	Gets / sets the input that will be routed to the loop out on the specified video controller	No	4.0	Yes	No
Matrix Array Columns	MATRIX. LAYOUT. COLUMNS	600	?		Integer	MATRIX.LAYOUT.COLUMNS? MATRIX.LAYOUT.COLUMNS:6	Returns the number of columns in the configured wall	No	4.0	Yes	Yes
Matrix Array Rows	MATRIX. LAYOUT. ROWS	601	?		Integer	MATRIX.LAYOUT.ROWS? MATRIX.LAYOUT.ROWS:4	Returns the number of rows in the configured wall	No	4.0	Yes	Yes

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Maximize Zone	ZONE. MAXIMIZE	2604	!	Integer		ZONE.MAXIMIZE(3) ZONE.MAXIMIZE:@ACK	Sets a zone to display an image over the entire active area controlled by the system. Only applicable to the active display/preset	No	4.0	Yes	No
Maximum Brightness Setting	BACKLIGHT. MAXIMUM	1417	=?+-		40-100	BACKLIGHT.MAXIMUM=50 BACKLIGHT.MAXIMUM:50	Gets / sets maximum wall brightness	No	4.0	Yes	No
Name Preset	PRESET. NAME	2003	=?	Integer 1-999	String	PRESET.NAME(2)? PRESET.NAME(2):"4K Video" PRESET.NAME(2)=All 4K Sources PRESET.NAME(2):"All 4K Sources"	Gets / sets the user assigned name of the specified preset slot number	No	2.0	Yes	Yes
Network Change	NETWORK. CONFIG. MODIFIED	1216	?		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	NETWORK.CONFIG.MODIFIED? NETWORK.CONFIG.MODIFIED: TRUE	Returns whether the system network configuration has changed. If yes, a reboot is required	No	2.0	Yes	Yes
Network Ping	NETWORK. PING	1211	=		String	NETWORK.PING=10.15.0.60 NETWORK.PING:"0"	Pings other network IP addresses. "0" = Time out (10 seconds) "1" = Success	No	1.x	Yes	Yes
Number of Panels	PANEL. COUNT	1527	?		Integer	PANEL.COUNT? PANEL.COUNT:12	Returns the number of panels configured in the system	No	4.0	Yes	No
Number of Power Supplies	PS.COUNT	1428	?		Integer	PS.COUNT? PS.COUNT:4	Returns the number of power supplies configured in the system	No	4.0	Yes	No
Number of Video Controllers	VC.COUNT	1604	?		Integer	VC.COUNT? VC.COUNT:4	Returns the number of video controllers configured in the system	No	4.0	Yes	No
Number of Zones	ZONE. COUNT	2609	?		Integer	ZONE.COUNT? ZONE.COUNT:8	Returns the number of zones configured in the active display	No	4.0	Yes	No
OSD Offset	OSD. MARGIN	1313	=?+-		0-400	OSD.MARGIN=10 OSD.MARGIN:10	Gets / sets the OSD position in pixels away from edges set by OSD.POSITION. No effect on OSD.POSITION=CENTER	No	3.0	No	No
OSD Panel Display	MENU. PANEL	1311	=?		Integer	MENU.PANEL? MENU.PANEL:4	Gets /sets the panel ID on which the main OSD is displayed	No	2.0	No	No
OSD Popup	OSD.ALLOW. POPUP	1300	=?+-		0=DISABLE=OFF=NO=FALSE 1=ENABLE=ON=YES=TRUE	OSD.ALLOW.POPUP? OSD.ALLOW.POPUP:ON	Sets or gets whether the popup messages will be displayed on the panels	No	3.0	No	No
OSD Position	OSD. POSITION	1301	=?+-		0=CENTER 1=UPPER.LEFT 2=UPPER.RIGHT 3=BOTTOM.LEFT 4=BOTTOM.RIGHT	OSD.POSITION=2 OSD.POSITION:UPPER.RIGHT	Positions the OSDs on each panel to the indicated position on the panel	No	3.0	No	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
OSD Timeout	OSD.TIMEOUT	1304	=7+-		0=OFF 30=30.SECONDS 60=60.SECONDS 120=120.SECONDS 240=240.SECONDS	OSD.TIMEOUT? OSD.TIMEOUT:60	Gets / sets the OSD screen timeout. OFF will leave the OSD on the displays until a command to remove is sent	No	3.0	No	No
Panel Active Area	PANEL.ACTIVE	1522	=?	Integer	0-65535	PANEL.ACTIVE(1)? PANEL.ACTIVE(1):0 0 1280 720	Gets / sets the active area x, y, width, and height in panel pixel coordinates	No	3.0	No	No
Panel Array Position	PANEL.POSITION	1528	?	PN#	String	PANEL.POSITION(PN2)? PANEL.POSITION(PN2):3 2	Returns the column/row position in an array of the specified panel	No	4.0	Yes	No
Panel Display Area	PANEL.RECT	1529	?	Integer	String	PANEL.RECT(5)? PANEL.RECT(5):1920 1080 1920 1080	For specified panel in configured wall, returns in order: x offset dimension from zero x position in wall, y offset dimension from zero y position in wall, x display pixels, y display pixels	No	4.0	Yes	No
Panel ID List	PANEL.LIST	1526	?		String	PANEL.LIST? PANEL.LIST:1 2 3 5 6 7 8 9 10 PANEL.LIST(3)? PANEL.LIST:3 PANEL.LIST(4 8)? PANEL.LIST:4 5 6 7 8	Returns a list of up to 64 panel IDs that are currently recognized by the system. The optional modifiers enable listing when there are more than 64 panels. The first modifier gives the 1-based index into the list for the first returned value. If the second modifier is omitted, only one value is returned. When given, the second value specifies the end index of the returned values.	No	4.0	Yes	No
Panel Reset	RESET.PANEL	1523	!	0=ALL 1-65535		RESET.PANEL(3) RESET.PANEL(3):@ACK	Resets connected display equipment to factory state	No	3.0	Yes	No
Panel Sync Enabled	PANEL.SYNC.ENABLE	1520	=?		0=DISABLE=OFF= NO=FALSE 1=ENABLE=ON= YES=TRUE	PANEL.SYNC.ENABLE? PANEL.SYNC.ENABLE:YES	Gets / sets the scan line inversion for even row displays (LCD only)	No	2.1	No	No
Power Module Present	PS.PRESENT	1422	?	1-4	0=NOT_PRESENT 1=PRESENT 2=INVALID	PS.PRESENT(2)? PS.PRESENT(2):PRESENT	Returns if a power supply module is detected within the power supply	Yes	1.x	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Power Module Status	PS.STATUS	1423	?	1-4	String	PS.STATUS(3)? PS.STATUS(3):0x284A	<p>This command is used for critical health status of the RPSM, further diagnosis of an issue may need to be completed at the factory.</p> <p>Output will be in a hexadecimal format. Converting to binary and noting the position starting at the right (0 position) and noting the position of the non-zero character(s) up to the last (15) will indicate which faults were seen.</p> <p>Note: For the example shown, 284A, the hex value converts to 0010 1000 0100 1010. This indicates that 1, 3, 6, 11, and 13 were noted as fault conditions.</p> <p>0 = Unspecified fault 1 = Communication Memory Fault 2 = Module temperature may have exceeded the maximum 3 = VAC is below minimum 4 = IDC is above maximum 5 = VDC is above maximum 6 = Module DC is off 7 = Module is performing previously requested actions 8 = Unspecified fault 9 = Unspecified fault 10 = Fan failure 11 = Power status 12 = Unspecified Fault 13 = VAC fault warning 14 = IDC fault or warning 15 = VDC fault or warning 0xFFFFFFFF = Module not present, invalid or off</p>	Yes	1.x	Yes	No
Power Standby Mode	STANDBY.MODE	1425	=?		0=FAST.START 1=LOW.POWER	STANDBY.MODE? STANDBY.MODE:FAST.START	Gets / sets the power standby mode of the system	No	4.0	Yes	Yes
Power Supply Module Software Version	PS.VERSION	2318	?	1-4	String	PS.VERSION(2)? PS.VERSION(2):"1.0.600"	Returns the firmware version of the indicated power supply module within the directly connected power supply	Yes	1.x	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Power Supply ID List	PS.LIST	1427	?	Integer 1-PS.COUNT ...and/or... Integer 1-PS.COUNT	String	PS.LIST? PS.LIST:1 2 3 4 PS.LIST(3)? PS.LIST:3 PS.LIST(1 3)? PS.LIST:1 2 3	Returns a list of up to 64 power supply IDs that are currently recognized by the system. The optional modifiers enable listing when there are more than 64 power supplies. The first modifier gives the 1-based index into the list for the first returned value. If the second modifier is omitted, only one value is returned. When given, the second value specifies the end index of the returned values.	No	4.0	Yes	No
Preset List	PRESET.LIST	2008	?	Integer 1-PRESET.COUNT ...and/or... Integer 1-PRESET.COUNT	String	PRESET.LIST? PRESET.LIST:1 2 3 4 PRESET.LIST(3)? PRESET.LIST:3 PRESET.LIST(2 3)? PRESET.LIST:2 3	Returns a list of up to 64 preset slot numbers that are currently utilized (has a preset saved with that slot number). The optional modifiers enable listing when there are more than 64 saved presets. The first modifier gives the 1-based index into the list for the first returned value. If the second modifier is omitted, only one value is returned. When given, the second value specifies the end index of the returned values.	No	4.0	Yes	No
Preset Memory Slot	PRESET.SLOT	2011	=?	Integer 1-999	Integer 1-999	PRESET.SLOT(2)=1 PRESET.SLOT(2):1	Sets the memory slot location of a specified valid preset. Returns if a preset slot value is in use. See PRESET.STATUS AND PRESET.LIST.	No	4.0	Yes	No
Preset Status	PRESET.STATUS	2009	?	Integer 1-999	0=EMPTY 1=FULL	PRESET.STATUS(1)? PRESET.STATUS(1):FULL	Returns whether a specified preset slot currently has information stored	No	2.0	Yes	Yes
Remote Code	IR.CODE	1210	=?+-		0-65535	IR.CODE=12345 IR.CODE:12345	Retrieves or changes remote code to work with different remotes	No	1.x	Yes	Yes

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Remote Key Codes	KEY	1200	=?		0=UP 1=DOWN 2=MENU 3=SOURCE 5=VOLUME.PLUS 6=VOLUME. MINUS 9=EXIT 12=LEFT 13=ENTER 14=PREV 15=RIGHT 17=KEY.1 18=KEY.2 19=KEY.3 20=KEY.4 21=KEY.5 22=KEY.6 23=KEY.7 24=KEY.8 25=KEY.9 26=MUTE 32=KEY.0 256=STDBY. TOGGLE 257=STDBY. ENTER 258=STDBY.EXIT 259=MENU.PREV 260=TOP 261=PRESETS 262=PRESET1 263=PRESET2 264=PRESET3 265=PRESET4 266=ZONE1 267=ZONE2 268=ZONE3 269=ZONE4 270=PIPMODE 271=PIPSWAP 272=HDMI1 273=HDMI2 274=HDMI3 275=HDMI4 276=DISPLAY. PORT 277=DVI 278=VGA 279=OPS 280=WALL 281=COLOR 282=MISC 283=ARROW.LEFT 284=ARROW. RIGHT 285=STAR.STAR 286=IR 287=KEYPAD	KEY=262 KEY:262	0=UP 1=DOWN 2=MENU 3=SOURCE 5=VOLUME.PLUS 6=VOLUME.MINUS 9=EXIT 12=LEFT 13=ENTER 14=PREV 15=RIGHT 17=KEY.1 18=KEY.2 19=KEY.3 20=KEY.4 21=KEY.5 22=KEY.6 23=KEY.7 24=KEY.8 25=KEY.9 26=MUTE 32=KEY.0 256=STDBY.TOGGLE 257=STDBY.ENTER 258=STDBY.EXIT 259=MENU.PREV 260=TOP 261=PRESETS 262=PRESET1 263=PRESET2 264=PRESET3 265=PRESET4 266=ZONE1 267=ZONE2 268=ZONE3 269=ZONE4 270=PIPMODE 271=PIPSWAP 272=HDMI1 273=HDMI2 274=HDMI3 275=HDMI4 276=DISPLAY.PORT 277=DVI 278=VGA 279=OPS 280=WALL 281=COLOR 282=MISC 283=ARROW.LEFT 284=ARROW.RIGHT 285=STAR.STAR 286=IR 287=KEYPAD	No	2.0	Yes	Yes
Remote Lock	IR.LOCK	1202	=?+-		0=DISABLE=OFF= NO=FALSE 1=ENABLE=ON= YES=TRUE	IR.LOCK=ENABLE IR.LOCK:ENABLE	Toggles the equipment from responding to commands sent by a remote	No	1.x	Yes	Yes

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Restore Zone	ZONE.RESTORE	2607	!	Integer		ZONE.RESTORE(5) ZONE.RESTORE(5):@ACK	Undo of the last zone modification performed on the specified zone. Zone specified must have had the last action performed	No	4.0	Yes	No
Save Preset	PRESET.SAVE	2002	!	Integer 1-999		PRESET.SAVE(8) PRESET.SAVE(8):@ACK	Saves the specified preset slot number with the active zone layout. Overwrites any existing saved preset with specified slot number, or makes a new preset with specified slot number if needed.	No	2.0	No	No
Saved Presets	PRESET.COUNT	2006	?		Integer	PRESET.COUNT? PRESET.COUNT:8	Returns the number of configured presets in the system	No	2.0	Yes	Yes
Send Zone to Back	ZONE.BACK	2613	=?		Integer	ZONE.BACK? ZONE.BACK:3	Gets / sets the zone at bottom of the zone overlapping display area for the active display	No	4.0	Yes	No
Send Zone to Front	ZONE.FRONT	2614	=?		Integer	ZONE.FRONT=2 ZONE.FRONT:2	Gets / sets the zone at the top of the zone overlapping display area for the active display	No	4.0	Yes	No
Serial Baud Rate	SERIAL.DEVICE	1220	=?		9600 19200 38400 57600 115200	SERIAL.DEVICE? SERIAL.DEVICE:19200	Gets / sets the baud rate for the connected component. Default is 19200. Note: Data bits, parity and stop bits are always 8, N, 1.	Yes	2	Yes	Yes
Set Panel ID	PANEL.ID	1524	=	1-65535	1-65535	PANEL.ID(5)=3 PANEL.ID(5):3	Sets an existing panel ID to a new panel ID. If there are duplicate IDs, the first found will be changed	No	3.0	No	No
Set Zone ID	ZONE.ID	2601	=	1-65535	1-65535	ZONE.ID(5)=3 ZONE.ID(5):3	Sets an existing zone ID to a new zone ID. If there are duplicate IDs, the first found will be changed. Only applicable to the active display/preset	No	4.0	Yes	No
Source Connected	INPUT.PRESENT	302	?	VC#.IN#	0=FALSE 1=TRUE	INPUT.PRESENT(VC3.IN4)? INPUT.PRESENT(VC3.IN4): FALSE	Returns if a source is active on the specified input	Yes	4.0	Yes	No
Subnet Mask	IPv4.NETMASK	1205	=?	0=ACTIVE 1=STATIC [None = ACTIVE (for reads only)] [None = STATIC (for writes only)]	String	IPv4.NETMASK(0)? IPv4.NETMASK(0):"255.255.254.0"	Gets / sets the subnet of the equipment	No	2.0	Yes	Yes
System Alert Count	ALERT.COUNT	2319	?		Integer	ALERT.COUNT? ALERT.COUNT:21	Returns the number of system alerts	No	2.0	Yes	Yes
System Power	SYSTEM.POWER	1408	=?+-		0=DISABLE=OFF= NO=FALSE 1=ENABLE=ON= YES=TRUE	SYSTEM.POWER=ON SYSTEM.POWER:ON	Toggles system power between on and off	No	1.x	Yes	Yes

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
System Reboot	SYSTEM.REBOOT	2402	!			SYSTEM.REBOOT SYSTEM.REBOOT:@ACK	Reboots the system and all system powered connected components	No	2.0	Yes	Yes
System State	SYSTEM.STATE	2310	?		0=STANDBY 1=POWERING.ON 2=ON 3=POWERING.DOWN 4=BACKLIGHT.OFF 5=FAULT	SYSTEM.STATE? SYSTEM.STATE:STANDBY	Indicates the current state of the system -STANDBY: The system is in its lowest power mode. Not all function are available -POWERING.ON: The system is transitioning from the STANDBY state to the ON state -ON: The system is on with the displays on -POWERING.DOWN: The system is transitioning from the ON state to the STANDBY state -BACKLIGHT.OFF: The system is on and the displays are off -FAULT: A system failure has occurred	No	1.x	Yes	Yes
Test Pattern	PATTERN	1307	=?		0=NONE 1=BLACK 2=WHITE 3=RED 4=GREEN 5=BLUE 6=CYAN 7=MAGENTA 8=YELLOW 9=GRAY 10=CUSTOM_COLOR 11=RED_SCALE 12=GREEN_SCALE 13=BLUE_SCALE 14=GRAY_SCALE 15=LOGO 16=GRID 18=CONTRAST 20=COLOR_BARS	PATTERN? PATTERN:GREEN	Gets / sets the test pattern displayed for all displays connected to the system	No	2.0	No	No
Unit Connected Reboot	DEVICE.REBOOT	2405	!			DEVICE.REBOOT DEVICE.REBOOT:@ACK	Reboots the connected device	Yes	2.1	Yes	No
Update Firmware	FIRMWARE.UPDATE	2200	=?!		String	FIRMWARE.UPDATE? FIRMWARE.UPDATE:	Checks the attached USB drive for latest firmware .pkg file in numeric order. Applies to the attached equipment	Yes	1.x, 2.1 ¹	Yes	No

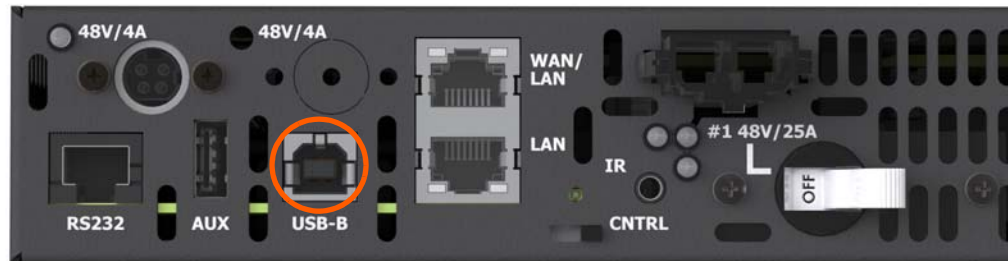
Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Video Controller ID List	VC.LIST	1603	?	Integer 1-VC.COUNT ...and/or... Integer 1-VC.COUNT	String	VC.LIST? VC.LIST:1 2 3 4 VC.LIST(3)? VC.LIST:3 VC.LIST(2 4) VC.LIST:2 3 4	Returns a list of up to 64 video controller IDs that are currently recognized by the system. The optional modifiers enable listing when there are more than 64 video controllers. The first modifier gives the 1-based index into the list for the first returned value. If the second modifier is omitted, only one value is returned. When given, the second value specifies the end index of the returned values.	No	4.0	Yes	No
White Balance Setting	WHITE. BALANCE	1525	=?	Panel IDand.... 0=RED 1=GREEN 2=BLUE 255=ALL	0.0 - 100.0	WHITE.BALANCE(1 RED)? WHITE.BALANCE(1 RED): 100.000000	Gets / sets the white balance value for the given LCD and color channel	No	4.0	No	No
Zone Aspect Ratio	ZONE. ASPECT	2610	=?	Integer	0=FULL 1=CROP 2=16X9 3=4X3 4=NATIVE 5=AUTO	ZONE.ASPECT(5)? ZONE.ASPECT(5):16X9	Gets / sets the how to scale/zoom of source that does not fit the aspect ratio of a specified zone. Only applicable to the active display/preset	No	4.0	Yes	No
Zone Capture in Pixels	ZONE. CAPTURE. PIXEL	2618	=?	Integer	Integer	ZONE.CAPTURE.PIXEL(5)=480 270 1440 810 ZONE.CAPTURE.PIXEL(5):480 270 1440 810	Gets / sets for specified source in zone in order: x offset pixel from zero x position in zone, y offset pixel from zero y position in zone, source x pixel capture area, source y pixel capture area. Numbers are based on overall source pixels. Only applicable to the active display/preset	No	4.0	Yes	No
Zone Capture in %	ZONE. CAPTURE. PERCENT	2612	=?	Integer	0.00 - 100.00	ZONE.CAPTURE.PERCENT(5)=2 5 25 75 75 ZONE.CAPTURE.PERCENT(5):25 25 75 75	Gets / sets for specified source in zone in order: x offset percentage from zero x position in zone, y offset percentage from zero y position in zone, source x percent capture area, source y percent capture area. Numbers are based on percentage of overall source dimensions. Only applicable to the active display/preset	No	4.0	Yes	No

Setting	Command Code	Numeric Command Code	Operators	Modifiers	Operands	Example	Notes	Standalone Component Command	Firmware Version Active	Functional in Fast Start Standby	Functional in Low Power Standby
Zone Display Area	ZONE.RECT	2606	=?	Integer	String	ZONE.RECT(5)? ZONE.RECT(5):1920 1080 1920 1080	Gets / sets for specified zone in configured wall in order: x offset pixel from zero x position in wall, y offset pixel from zero y position in wall, zone x area pixel size, zone y area pixel size. Only applicable to the active display/preset	No	4.0	Yes	No
Zone ID List	ZONE.LIST	2603	?	Integer 1-ZONE.COUNT ...and/or... Integer 1-ZONE.COUNT	String	ZONE.LIST? ZONE.LIST:1 2 3 5 6 7 8 9 10 ZONE.LIST(3)? ZONE.LIST:3 ZONE.LIST(4 8)? ZONE.LIST:4 5 6 7 8	Returns a list of zone IDs associated with the active display. The optional modifiers enable listing when there are more than 64 zones. The first modifier gives the 1-based index into the list for the first returned value. If the second modifier is omitted, only one value is returned. When given, the second value specifies the end index of the returned values.	No	4.0	Yes	No
Zone Input	ZONE.SOURCE	2608	=?	Integer	String	ZONE.SOURCE(1)? ZONE.SOURCE(1):"HDMI VC2.IN2"	Gets / sets the input routed to a zone. Only applicable to the active display/preset	No	4.0	Yes	No
Zone Source Height	ZONE.EXPECTED.SOURCE.HEIGHT	2617	=?	Integer	Integer	ZONE.SOURCE.HEIGHT(3)? ZONE.SOURCE.HEIGHT(3):2160	Gets / sets the input resolution height of the zone source. Only applicable to the active display/preset	No	4.0	Yes	No
Zone Source Width	ZONE.EXPECTED.SOURCE.WIDTH	2616	=?	Integer	Integer	ZONE.SOURCE.WIDTH(3)? ZONE.SOURCE.WIDTH(3):3840	Gets / sets the input resolution width of the zone source. Only applicable to the active display/preset	No	4.0	Yes	No
Zone Stack Order	ZONE.ORDER	2615	=?	Integer	String	ZONE.ORDER(5)? ZONE.ORDER(5):-4	Gets / sets the order position of the specified zone in the zone stack. Smaller numbers are toward the back. Only applicable to the active display/preset	No	4.0	Yes	No

¹Updated

Sending Serial Commands via USB

The USB-B connector accepts the same serial command set as RS232. As most PCs no longer have RS232 connections, using the USB-B connector becomes a convenient method for performing serial communication with the display.



Remote Power Supply Models



Video Controller Models

Installing the RPS USB drivers

Before using USB for serial communication, the USB drivers must be installed. This section describes the steps necessary to install the USB drivers. You can skip this section if you have already installed the USB drivers on your computer.

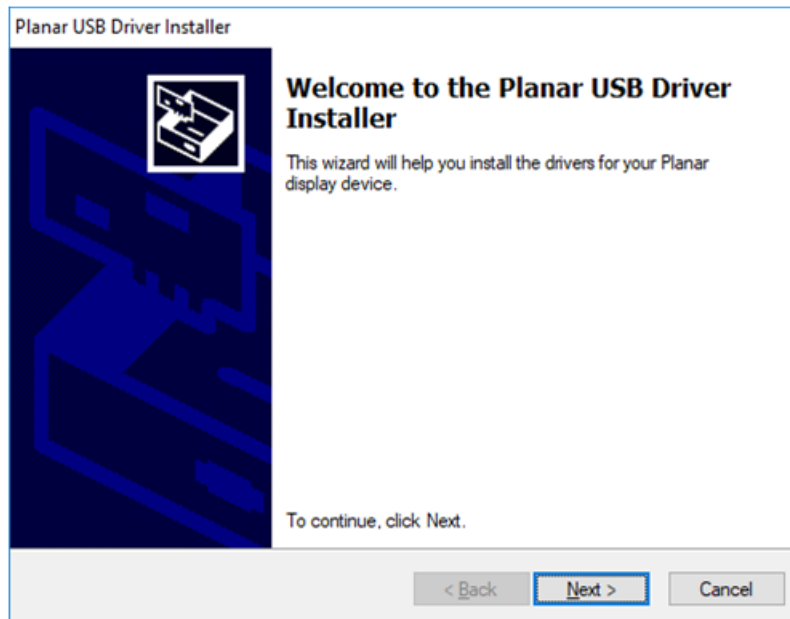
Automatically installing the USB drivers

In most cases, the USB driver installation can be performed using the automated driver installation program included on the USB flash drive in your accessory kit.

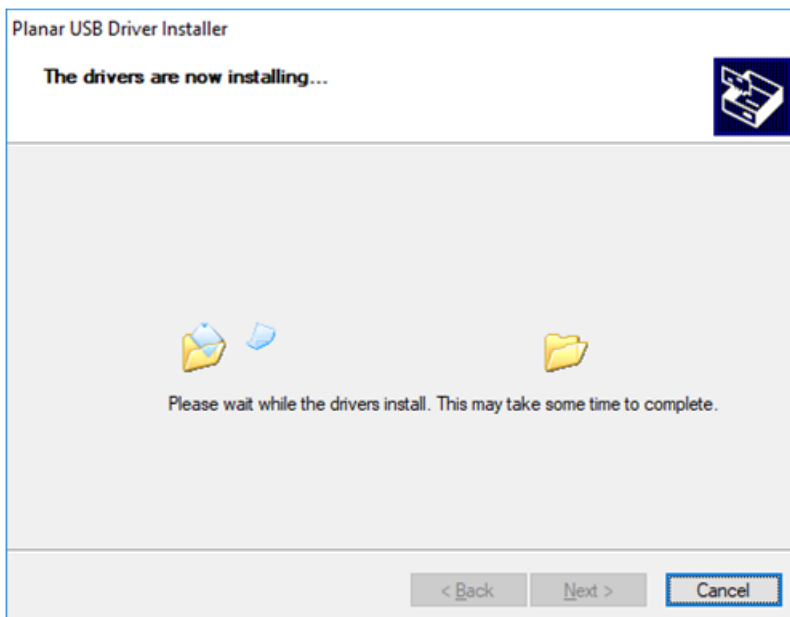
- If using a 64-bit version of Windows, use the CP210xVCPInstaller_x64.exe installation program.
- If using a 32-bit version of Windows, use the CP210xVCPInstaller_x86.exe installation program.

If you're unsure whether your machine is 32-bit or 64-bit, try both installation programs. If the selected program is for a different architecture, the installer will inform you to use the other installation program.

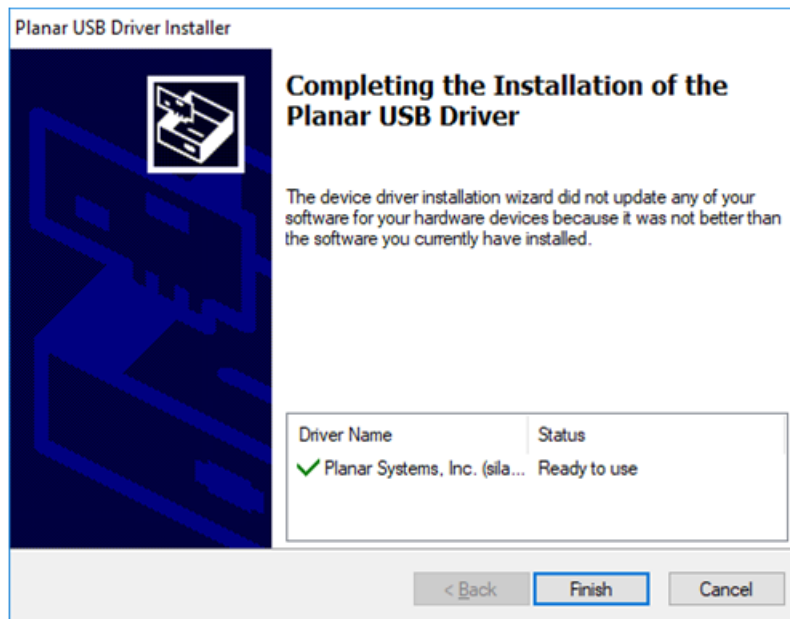
- 1 When the Planar USB Driver Installer page opens, click "Next".



- 2 The USB drivers will be automatically installed.



- 3 When the installation completes, click "Finish". The USB driver installation process is now complete.



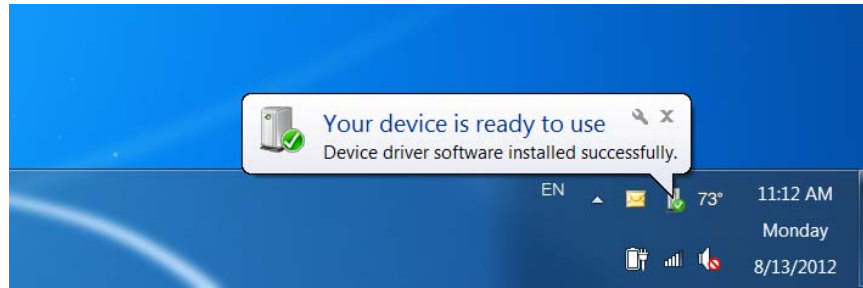
Manually installing the USB drivers

If the automatic USB driver installation doesn't succeed, you can follow the steps below to manually install the USB drivers. The USB flash drive in your accessory kit contains the USB drivers for manual installation.

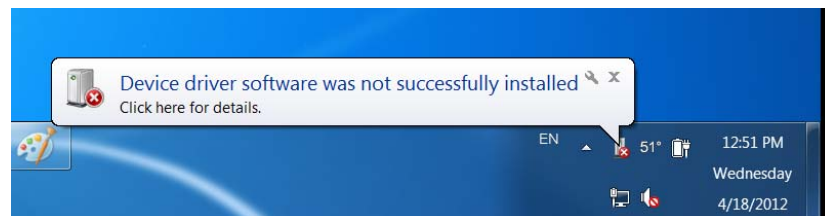
- 1 Plug in the USB cable to your computer and to the desired component.
- 2 Windows will detect the new hardware and attempt to install the drivers on its own. If you do not see the "Installing device driver software" message, then the driver installation previously failed. Skip to step 5.



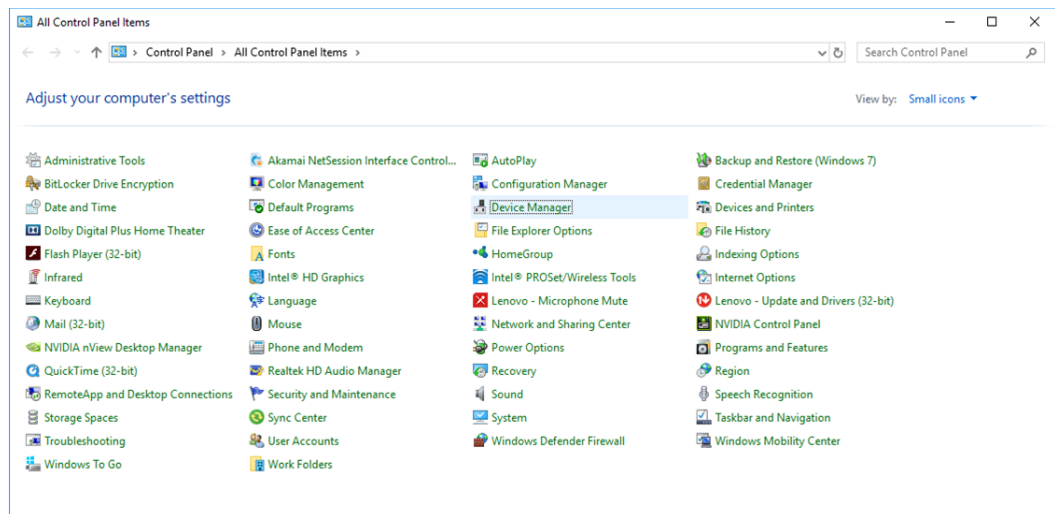
- 3 If driver installation succeeds, you will see a message like the one shown below. If so, driver installation is complete.



- 4 If Windows' attempt at installing the drivers fails, you will need to manually install the drivers using the steps below.

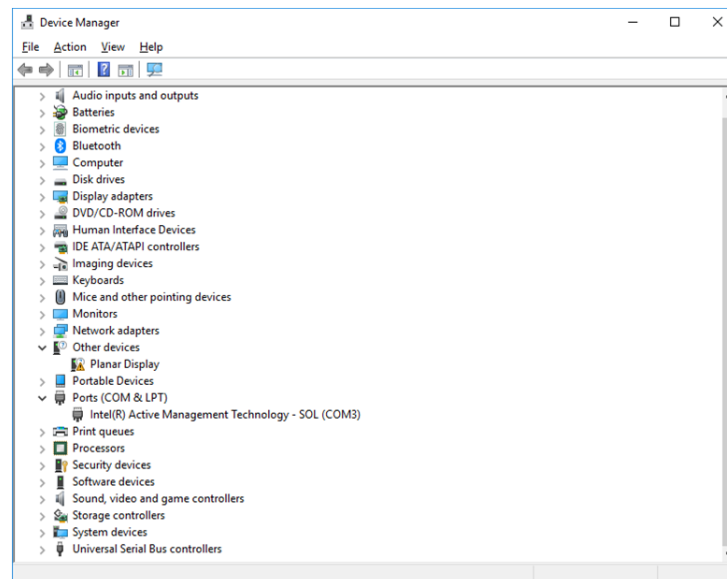


5 Open the Start menu and select “Control Panel”.

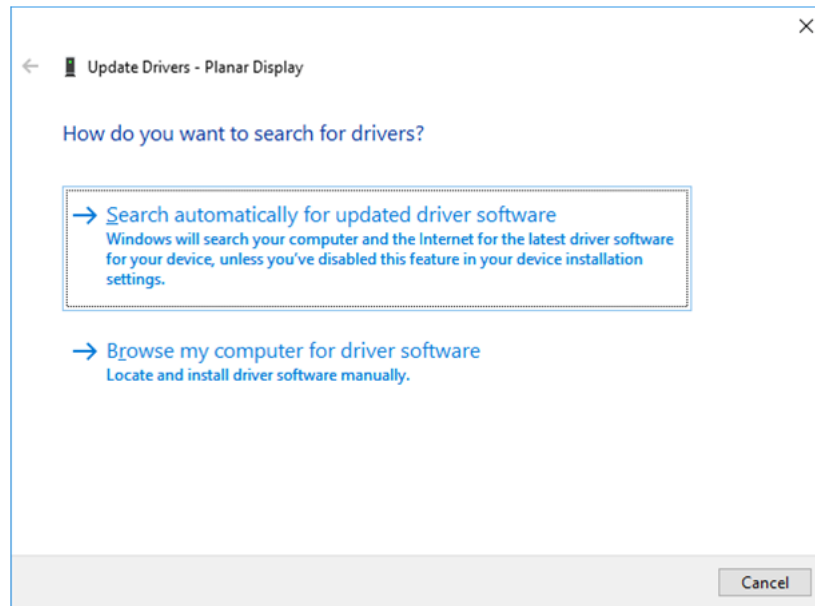


6 Select “Device Manager”.

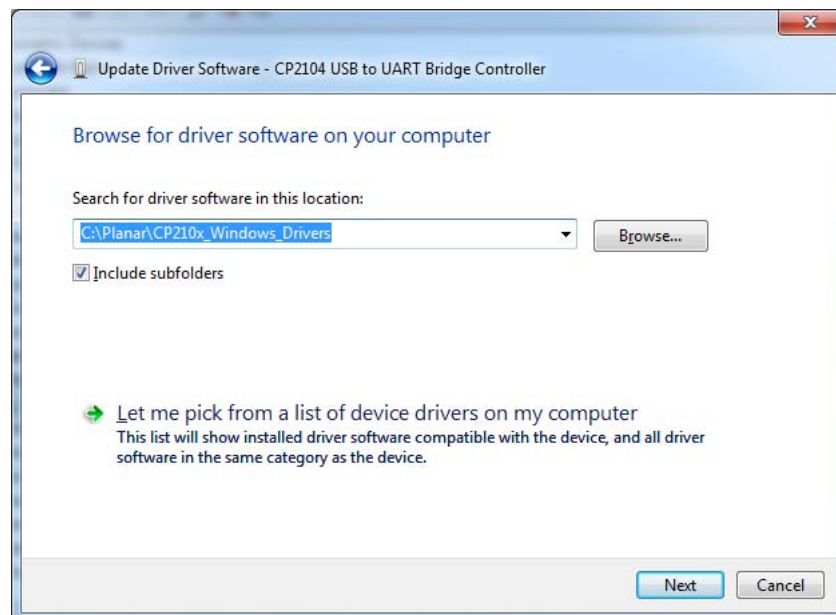
7 In the Device Manager, there will be a “Planar Display” item in the “Other Devices” section. Right-click on Planar Display and select “Update Driver Software”.



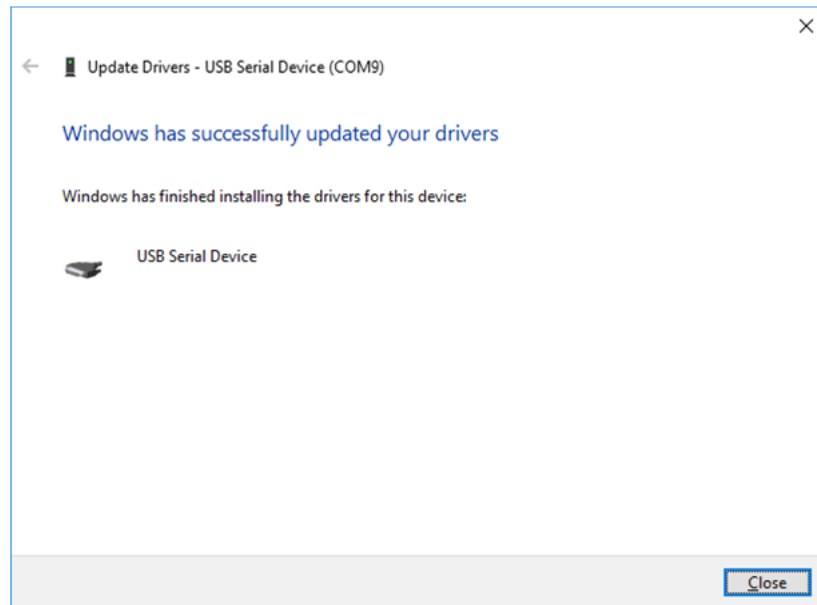
- 8 Follow the steps defined in the Update Driver Software wizard as follows.
- a On the initial screen, select “Browse my computer for driver software”.



- b Make sure the “Include subfolders” checkbox is checked. The USB drivers are included on the USB flash drive in the accessory kit; they can also be obtained from <http://www.planar.com/support>. Use the “Browse” button to locate the directory where the USB drivers are located. Click “Next”.



- c When the installation completes, click "Close". The USB driver installation process is now complete.



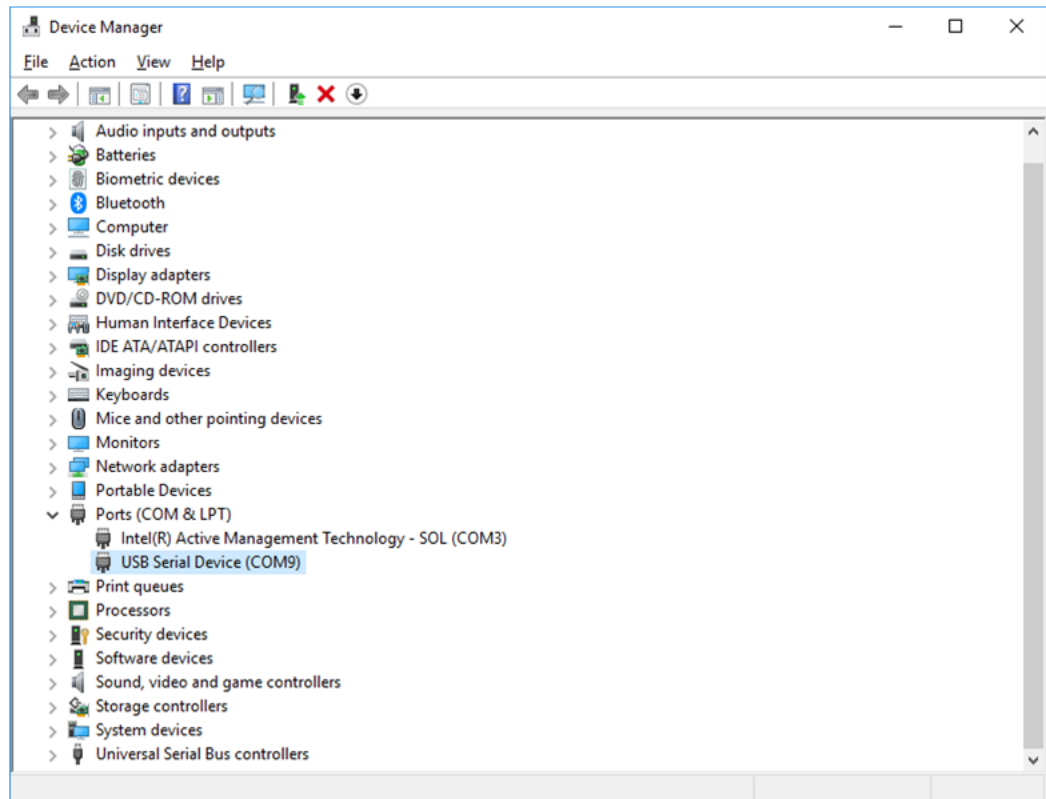
Note: Beginning with the release of Windows 10 v.1607, all drivers must be digitally signed by the Windows Hardware Developer Center Dashboard (WHDCD) portal. Leyard/Planar is currently in process of having this driver signed by the WHDCD. If there are issues stating that no compatible driver is found when trying to recognize the device, a manual installation will be required. Follow these steps to enable the installation of the driver:

- 1 Click the **Start Menu** and select **Settings**.
- 2 Click **Update and Security**.
- 3 Click **Recovery**.
- 4 Click **Restart Now** under **Advanced Setup**.
- 5 Click **Troubleshoot**.
- 6 Click **Advanced Options**.
- 7 Click **Startup Settings**.
- 8 Click **Restart**.
- 9 When the Startup Settings screen appears, press either 7 or F7 to disable driver signature enforcement.

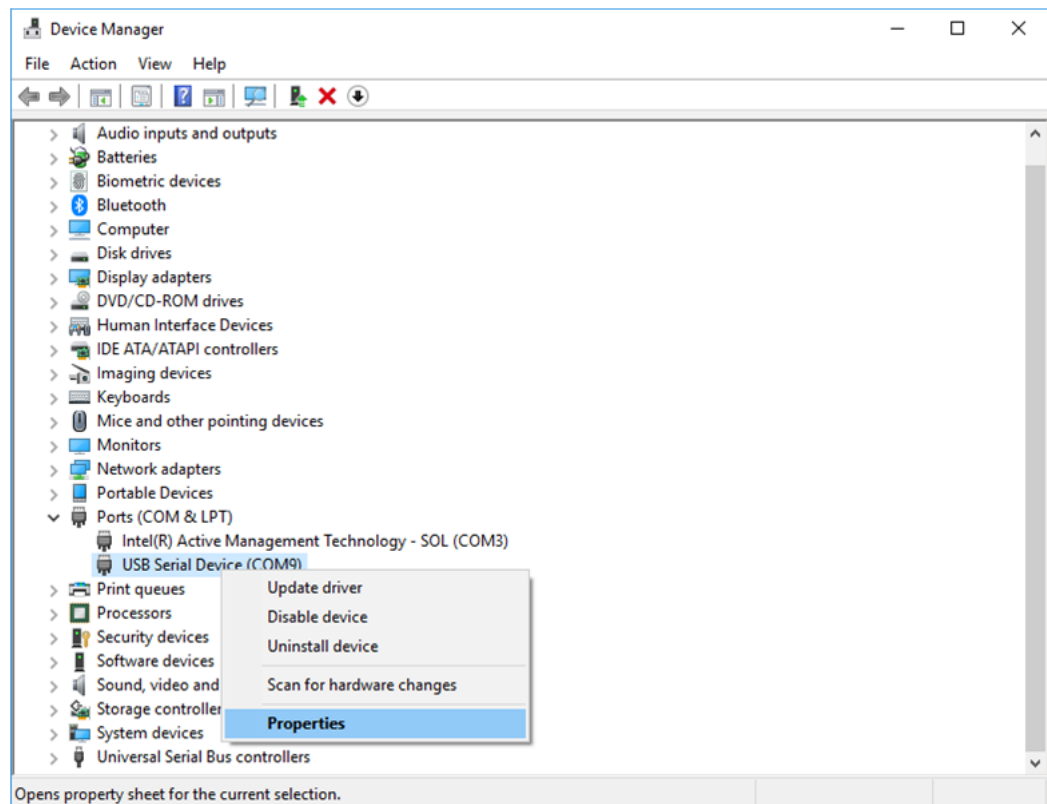
Once the computer reboots, it will be able to load unsigned drivers through the WHDCD until the next reboot of the PC.

Using the RPS USB Connection

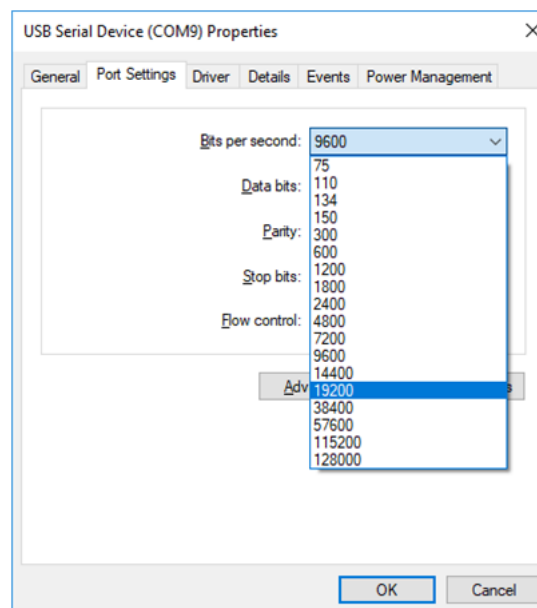
Once the USB drivers are installed, the PC will recognize the USB-B connection as a regular serial port. The USB-B connection will appear in the COM port list of each serial terminal program. Any terminal program such as Tera Term can be used to test the connection.



The baud rate on the serial connection is set by default to 19200 on the hardware, so it may be necessary to update the baud rate in the software. From the Device Manager, right-click and select Properties.



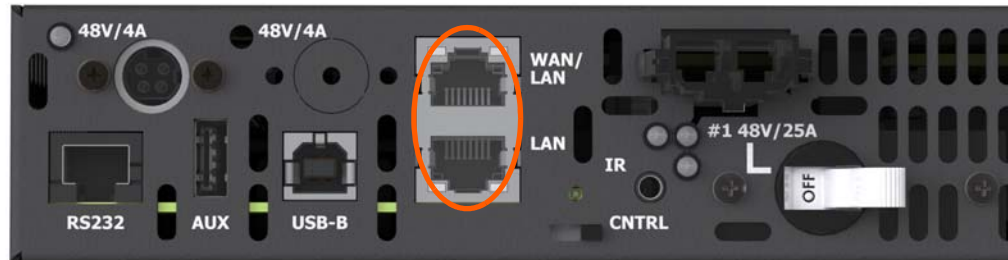
Select the Port Settings tab from the window that opened and from the pull down menu under Bits per second select 19200.



Click OK and exit out of the Device Manager.

Sending Serial Commands Via TCP or UDP

The TCP and UDP port 57 accepts serial commands the same as the above methods. It is convenient for IP control applications and can be tested with a TCP terminal program such as Tera Term or a UDP terminal program such as Hercules; however, any Telnet program will work.



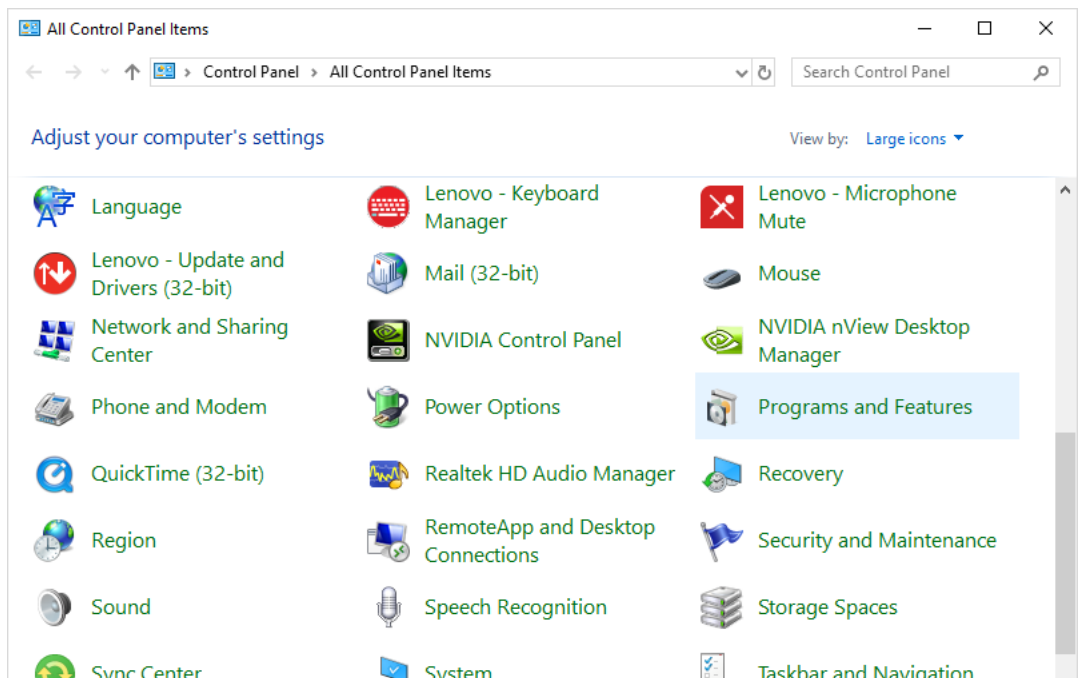
Remote Power Supply Models



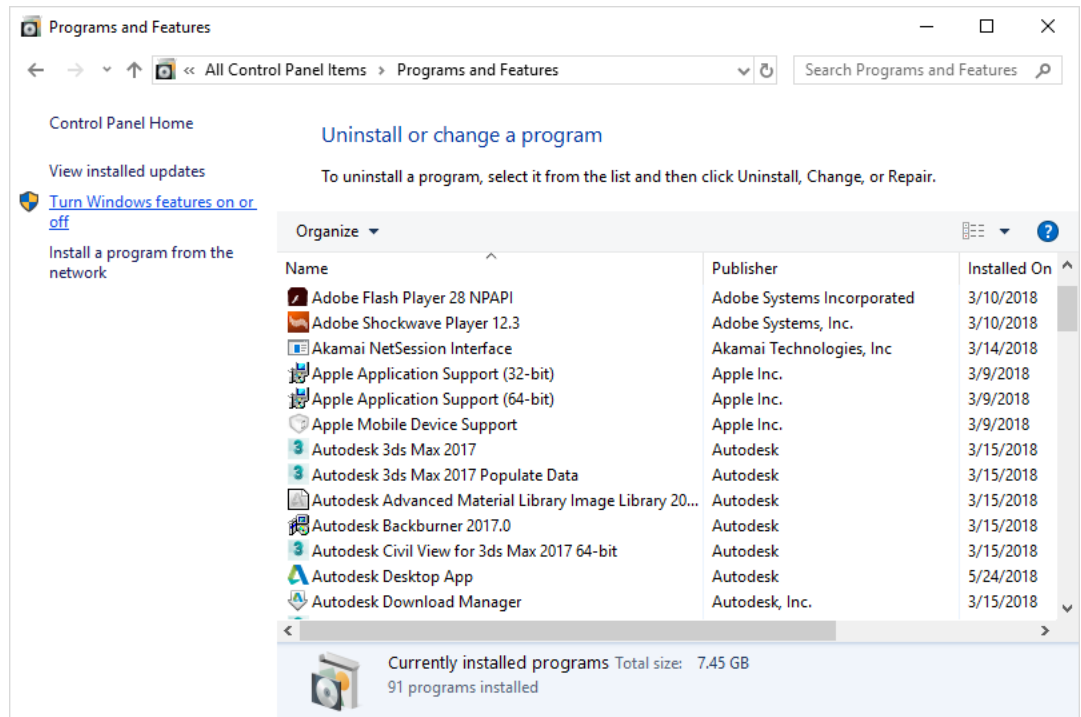
Video Controller Models

Note: Windows 10 has a command line based telnet capability that is not installed by default. To install, follow the instructions below:

1 Open **Control Panel**.

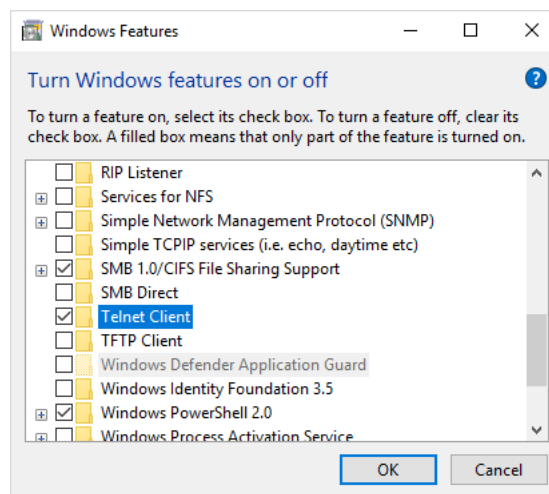


2 Open **Programs and Features**.

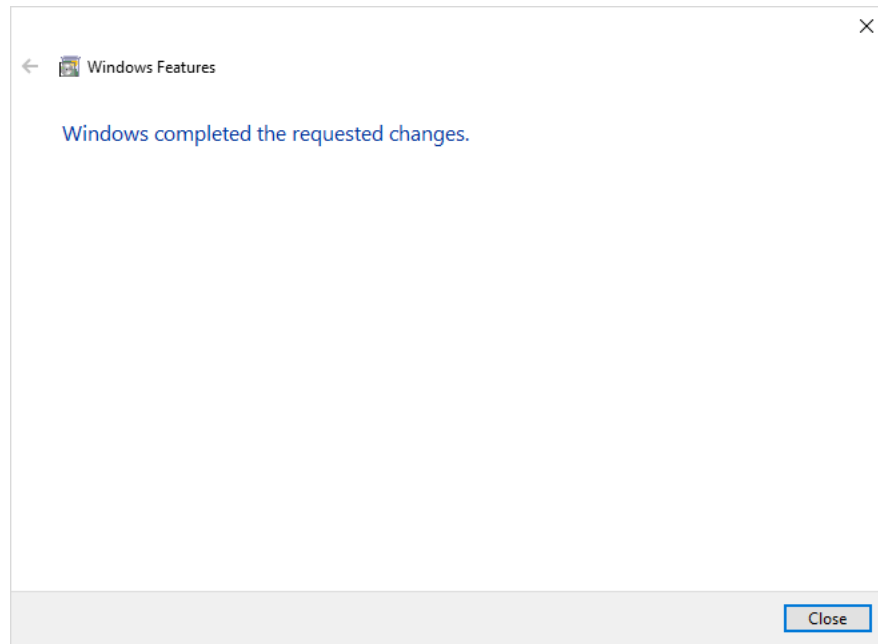


3 Select the **Turn Windows features on or off** option.

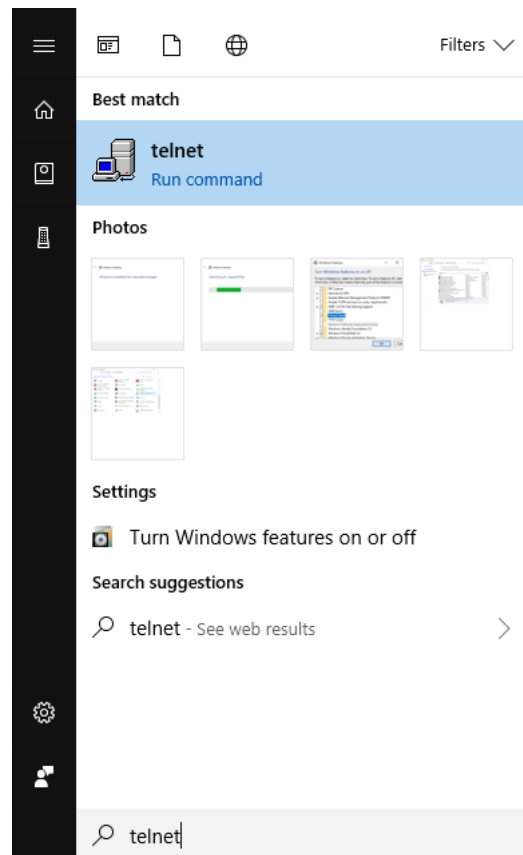
4 Select the **Telnet Client** check box.



- 5 Click **OK**. A box will appear that says “Windows feature” and “Searching for required files.” When complete, the Telnet client should be installed.

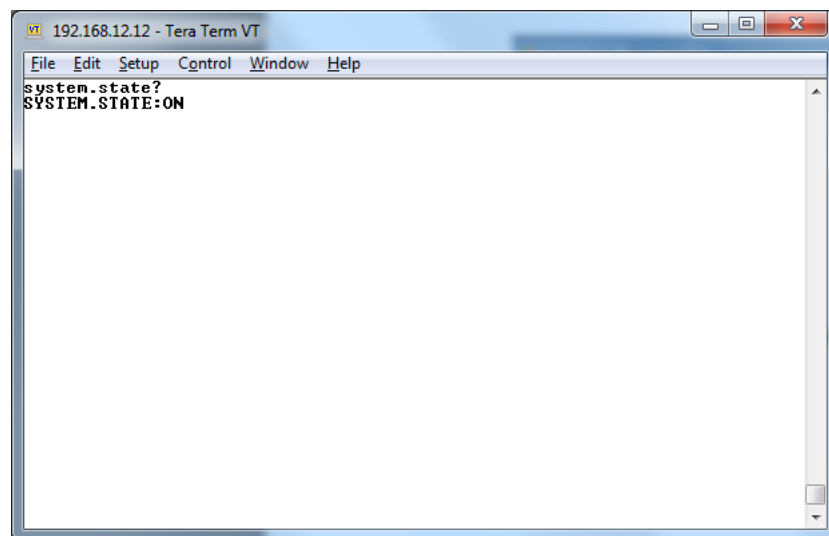
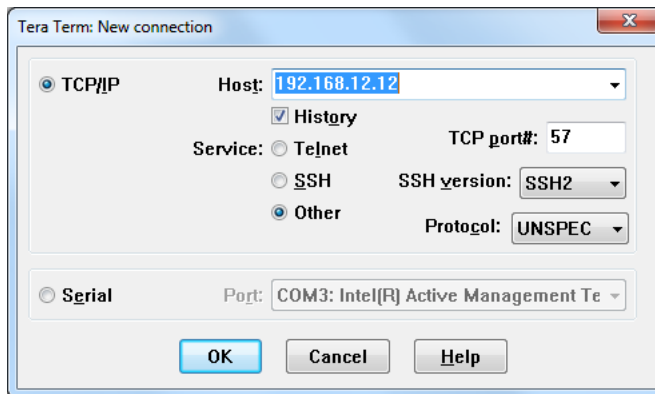


6. Open the program by searching from the **Start** menu.



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

- The default IP address is 192.168.12.12; however, if connected to a WAN, the IP address assigned by the network can be used.
- Port 57 is selected
- Service is set to "Other" to indicate that TCP is being used without Telnet or SSH



Notice the following in the UDP example below using Hercules:

- The default IP address is 192.168.12.12; however, if connected to a WAN, the IP address assigned by the network can be used.
- Port 57 is selected
- "73797374656d2e73746174653f0d0a" in the Send box is hex for "system.state?"

Note: Most UDP terminal programs won't automatically send the [CR] at the end of the command, so the hex command is used to do this manually.

