



strand RS232 Serial Port Interface User Manual

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**RS232 SERIAL
PORT INTERFACE
USER MANUAL**

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Important Safeguards



When using electrical equipment, basic safety precautions should always be followed including the following:

- a. READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
- b. Do not use outdoors.
- c. Do not mount near gas or electric heaters.
- d. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- e. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- f. Do not use this equipment other than intended use.
- g. Refer service to qualified personnel.

SAVE THESE INSTRUCTIONS.



WARNING: You must have access to the main circuit breaker or other power disconnect device before installing any wiring. Be sure that power is disconnected by removing fuses or turning the main circuit breaker off before installation.

Installing the device with power on may expose you to dangerous voltage and damage the device. A qualified electrician must perform this installation.

WARNING: Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to persons.

CAUTION: Wire openings MUST have fittings or lining to protect wires/cables from damage. Use 90° C copper wire only!

OVERVIEW

Vision.net System Overview The Vision.net System is designed to control architectural lighting by distributing both power and intelligence. The system provides processing power and control at each respective Push button, Fader or Touch Screen Station, eliminating the need for a central processor. Fader Stations provide individual control for up to 15 channels, 8 scenes plus "Off," all with adjustable fade times. By combining Vision.net Fader Stations, Vision.net Preset Stations and Vision.net Touch Screens, the system provides remote access to scenes, Master Raise/Lower control, Multi-room partition control, or Master Station Lockout. Vision.net Stations are compatible with Philips Strand Lighting A21, R21, C21 and EC21 Dimming Cabinets. Vision.net products are controlled by the Vision.net System protocol. All Vision.net control devices must be connected to the Vision.net system and given a unique ID (or address) in order to interact properly. The ID identifies the device on the network and allows the device to avoid network collisions when transmitting data.

USB / RS232 Serial Interface Port Overview

The Vision.net USB/RS232 Serial Interface Port (Strand Part No: 63035USB) allows integration with the Vision.net Network using standard RS232 communication. The USB / RS232 Interface has the ability to receive and transmit data in two modes: Vision.net Protocol (binary) and Show Control Protocol (standard ASCII). The

unit will sense the incoming protocol and automatically switch to the proper mode. The VN RS232/USB Interface Station is designed to provide remote access into the VN/485 Network. It also provides for System updates (Room/Presets/Channels) when the system is first powered up or whenever a device (Rack, Touchscreen, etc) needs Room/Preset/Channel updates. It can also provide Room Status information to a connected Building Management System through its RS232 or USB ports. Room Status includes Room Active, Preset, Sweep, and Combined status. Additionally, it now supports VND configuration (Fixed ID, Mode, etc). This unit replaces the older VN RS232 Interface (Part Number 63035).

VN RS232/USB Features

Allows VN and non-VN devices to connect to the VN/485 Network through either its RS232 or USB Port
Can be configured by VN Designer over the VN/485 Network, the RS232 Port, or the USB Port (VN4.5)
VN Designer can set its ID
VN Designer can set its Mode
VN Designer can Enable/Disable its System Update capability
Code can be Re-flashed over RS/485 Network, RS232, or USB port (using Designer Flash)

Unit now has a Fixed ID

Set by VN Designer 4.5 (previous units would use random unused IDs)

Sets ID by pressing and holding unit's programming button when VN Designer is pinging system (same as keypads)

Makes station ID unique When set up as an ASCII interface, VN command now uses Fixed ID to better identify where command originated

Provides 4 Modes of Operation

1. Normal ASCII

- RS232 and USB operate in Parallel
- RS232/USB Transmits/Receives VN ASCII commands (9600 baud)

2. Normal VN

- RS232 and USB operate in Parallel
- RS232/USB Transmits/Receives VN Network commands (19200 baud)

3. Shade Control / ASCII

- RS232 and USB operate separately
- RS232 Transmits MechoShade Control ASCII commands (19200 baud)
- USB Transmits/Receives VN ASCII commands (9600 baud)

4. Shade Control / VN

- RS232 and USB operate separately
- RS232 Transmits MechoShade Control ASCII commands (19200 baud)
- USB Transmits/Receives VN Network commands (19200 baud)

Other Vision.net Features

The unit keeps track of Room/Presets/Channels and Room Combines
EEPROM backed

Tracks all 255 Rooms and Presets

Tracks all 255 Room/Channel toggle status (only channels 1-32)

Tracks all 255 Room Sweep status

Tracks all 255 Room Combine status

Can respond to requests for System Updates over VN/485 network (usually from Racks being powered up)

Sends Start Preset and Set Channel commands to reset system status

System Updates can be Disabled or Enabled by VN Designer

When VN Designer sends a Disable Update command to the unit, the unit will first clear its tracking database and then restart is tracking of Room status (but will not process any System Updates command over the VN/485 Network)

The unit can also clear the database through RS232/USB ASCII commands Can respond to requests for System Updates over RS232/USB ports using ASCII commands
 Room/Presets updates over RS232/USB in ASCII mode is always available (whether Network Updates are Disabled or Enabled)
 Rooms not being addressed in 10 days will be removed from the Active Room database
 The USB/RS232 Interface Port accepts standard 9-pin RS232 serial cable connections of up to 25 feet as well as a 6 foot USB Type-A to B cable.

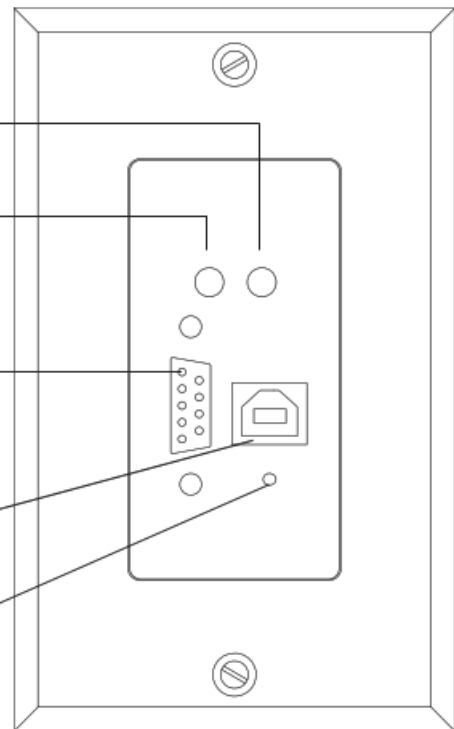
LED Indicator - Multiple functions see section **Unit LEDs Display Status**.

LED Indicator - Multiple functions see section **Unit LEDs Display Status**.

RS232 Connector - Standard RS232 serial port connector for input of ASCII or Vision.net protocol.

USB Connector - Standard USB Type B connector for input of ASCII or Vision.net protocol.

Button - input to select mode and other functions, see section **Set Mode At Unit**.



Unit LEDs Display Status

- LED over RS232
 - Red Flash – Received a message on RS232 port
 - Green Flash – Received a message on VN Network
- LED over USB
 - Red Flash – Received a message on the USB port
 - Green Flash – Received a message on VN Network
- Power up LED Status (LED over RS232)
 - Orange>Red>Off – Unit is in Normal ASCII mode
 - Orange>Green>Off – Unit is in Normal VN mode
 - Orange>Red>Orange>Red>Off – Unit is in Shade Control / ASCII mode
 - Orange>Green>Orange>Green>Off – Unit is in Shade Control / VN mode
- Tap Unit's button will flash its current mode

Set Mode at Unit

- Press and Hold unit's Button for 3 seconds until Beep
- Tap 1 time – sets Normal ASCII mode
- Tap 2 times – sets Normal VN mode
- Tap 3 times – sets Shade Control / ASCII mode
- Tap 4 times – sets Shade Control / VN mode

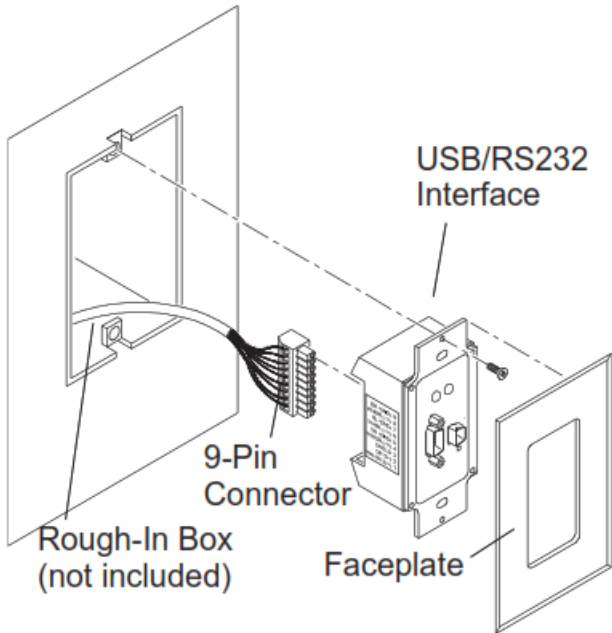
INSTALLATION

The Vision.net Network consists of a single CAT5e cable connecting all modules in a daisy chain manner. All units connect to the network using a 9-pin plug-in connector (included).

Installation Steps

- Step 1. Unpack unit and inspect for any signs of shipping damage. Ensure that two mounting screws are included.
- Step 2. Connect Vision.net Network Cable to 9-pin connector at back of USB/RS232 Interface Port.

9-Pin Connector Wiring



9-Pin Connector Wiring

Pin	Signal
1	WH/OR (+ Data)
2	OR (- Data)
3	SHIELD
4	WH/GN (+ Volts)
5	GN (Ground)
6	WH/BL (+ Volts)
7	BL (Ground)
8	WH/BR (+ Volts)
9	BR (Ground)

- Step 3. Insert USB/RS232 Interface Port into the standard deep rough-in box (not included). Secure with two supplied mounting screws.
- Step 4. Snap faceplate into place.
- A standard Windows-compatible computer can be connected to the Vision.net Network using the USB/RS232 Interface Port. The port accepts a standard one-to-one 9-pin serial cable up to 25 feet in length or a USB Type-A to B extension cable up to 6 feet in length.

USB/RS232 Interface Port	PC Computer
Pin 1 (NU)	Pin 1 (NU)
Pin 2 (TX)	Pin 2 (RD)
Pin 3 (RX)	Pin 3 (TD)
Pin 4 (NU)	Pin 4 (NU)
Pin 5 (GND)	Pin 5 (GND)
Pin 6 (NU)	Pin 6 (NU)
Pin 7 (CTS)	Pin 7 (RTS)
Pin 8 (RTS)	Pin 8 (CTS)
Pin 9 (NU)	Pin 9 (NU)

OPERATION

Communication Modes

The Vision.net USB/RS232 Serial Interface Port operates in one of two modes: Vision.net (binary) or Show Control (ASCII).

Vision.net Mode	Show Control Mode
8 Bit	8 Bit
1 Stop Bit	1 Stop Bit
19200 Baud	9600 Baud
Protocol: Binary	Protocol: ASCII

ASCII Codes For Vision.net Show Control Protocol

Vision.net Command	RS232 Protocol
Start Preset	SP rrr pp tt<cr>
Toggle Down	TD rrr ccc<cr>
Toggle Up	TU rrr ccc<cr>
Learn Preset	LP rrr pp<cr>
Slider Level	SL rrr ccc lll<cr>
Learn Submaster	LS rrr ss<cr>
Manual	MN rrr ggg lll ... lll<cr>
Expander Group	EG rrr ee<cr> EG rrr ee ff lll ... lll<cr>
Start Raise	RA rrr qqq<cr>
Start Lower	LW rrr qqq<cr>
Stop Raise/Lower	ST rrr qqq<cr> *

Record Blind	RB rrr pp ggg ll ... ll<cr>
Lock Button	LB sid n<cr>
Unlock Button	UB sid n<cr>
Smart On	SN sid n<cr>
Smart Off	SF sid n<cr>
Define Room Link	DR x fff rrr ... rrr<cr>
Submaster Level	SB rrr ss ll<cr>
Take Control (sub)	TC rrr ggg ll ... ll<cr>
Set Channel	SC rrr ccc ll rr<cr>
Set Mode	SM mm<cr>
Send Mimic	MC sid n a<cr>
Console Button	CB cid n a<cr>
Console LED	CL cid n a<cr>

* Sending a second <cr> after a RA or LW command will automatically send the proper ST command

where:

rrr	Room (1 – 255)	qqq Coded Channel
pp	Preset (1 – 32) [0 = off]	(0: Reserved
tt	Rate Index	1 – 127: Channels 1 to 127
ccc	Channel (1-127)	128: All Channels in room
ll	Level (0 – 255)	129 – 255: Channel in Preset: 1 – 126
ss	Submaster Index (1 – 16)	255 current preset channels)
ggg	Grand Master Level (0 – 255)	x 0 = Clear All Links, 1 = Do not clear
ee	Expander Group (0 – 15)	mm Mode (0 = All modes)
ff	Index of First Channel (1 – 127)	fff First Room (1-255)
sid	Station ID	
n	Button/LED (1-255)	

a Action (0/1= Off/On or Button Up/Down for Send Mimic Command)

(0/1= LED Off/On for Console LED Command)

“a Action:

0 = Down (momentary down)

1 = Up (momentary up)

2 = Deactive (latching macro off)

3 = Active (latching macro on)

4 = LED On (LED on with no action)

5 = LED Off (LED off with no action)

CB cid n a- Console button/ share button

"cid is less than or equal to 20: Console Button (Palette consoles)

Vision.net takes no action.

"cid is greater than 20: Share Button

Share button index = div 256 +21 (integer division)

"n is Share button index mod 256

Any button with a matching Shared Button Index take the action defined as a.

Examples:

Activate latched shared button 12: CB 21 12 3

Press down momentary shared button 711: CB 23 199 0

New ASCII Commands Include

• 'PR rrr rrr v' – Poll Rooms

– if only one rrr is entered, only the status of one room is returned

– if both rrr's are entered, the status of a range of rooms will be returned

– if v=1 is entered the response will be Verbose

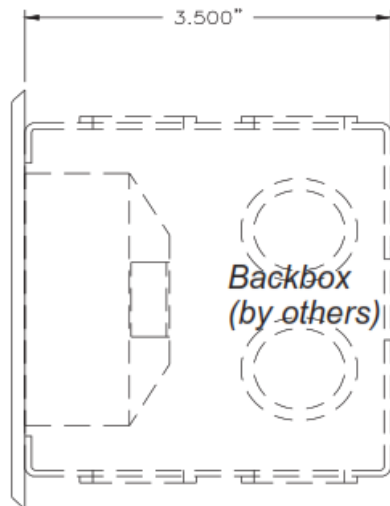
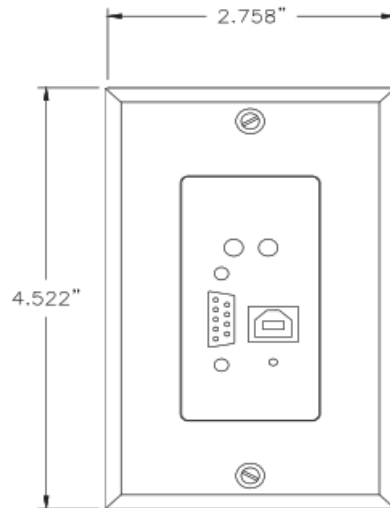
- All rooms (active and inactive, plus Sweep and Combined will be included)
 - if v=0 is entered (or not entered at all) only active Rooms and Presets will be included in the response
 - Response messages include:
- 'pr 1 2' <– Room 1 is set to Preset 2
- 'pr 1 M' <– Room 1 is set to Manual
- 'pr 123 12 S C(120)' <– Room 123 is set to Preset 12, Room is in Sweep mode, and Room is Combined with Room 120
- 'pr 123 12 – -' <– Room 123 is set to Preset 12, Room is NOT in Sweep mode or combined with another room
- 'PR RESET' – Clears Room/Preset/Channel/Sweep database and restart the tracking of Room Status
- 'DR RESET' – Resets saved Room Combines
- 'VR' – Returns Firmware Version
 - 'vr 1.07.006' – Firmware Version response
- 'ID' – Returns Fixed ID
 - 'id 123' – ID response
- 'ID 123' – Sets Fixed ID (used when VN Designer not available)
 - 'ID 0' – Returns unit to Floating ID (used when VN Designer not available)
- 'SY' – Returns System Update Status response
 - 'sy 0' – System Updates over RS485 are Disabled
 - 'sy 1' – System Updates over RS485 are Enabled
- SY 0' – Disables System Updates over RS485
- 'SY 1' – Enables System Updates over RS485

SPECIFICATIONS

Electrical:

- Input Power: +18-26 VDC (powered from Vision.net network)

- Current: 20mA
- Temperature
 - Storage: -25° to 85° C
 - Operating: 0° to 40° C
 - Relative Humidity: 30-90% (non-condensing)
- Communications:
 - Vision.net Protocol (binary)
 - ASCII
- Mechanical:
 - See graphic to the right



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