

## General

This commercial video router product provides a unique multi-pole switching function while maintaining an uncompromising combination of high performance, small size and low cost. The VSU1-4P6T video router has a six input, one output switching configuration, but with four "poles" being switched together at the same time (ganged). These four poles can be used for switching RGB&S type video signals, or other types of signals that need to be switched as a group.

Compact and high performance, the VSU1-4P6T provides a cost effective, flexible switching capacity for smaller installations providing choices of two different control configurations (serial only, or serial and Ethernet).

Complete control and status of the unit is available at both the front panel controls or remote interface(s). The front panel includes LED illuminated push-buttons (to control and status the unit), an LED illuminated super-twist LCD display, plus bi-color status LED's.

At the rear are BNC connectors, the user configurable serial port (RS-232C/422A/485), optional Ethernet port (10baseT), plus the universal AC power input and AC switch.



**Model VSU1-4P6T**  
Six input, 1 output (4 pole - RBGS)



## Applications

- Digital broadcast facilities or production studios
- Airborne surveillance systems
- Communication installations
- Imaging and animation production facilities
- NTSC, PAL, DS3, DVB or RBGS routing
- Security systems
- Factory automation monitoring

## Features

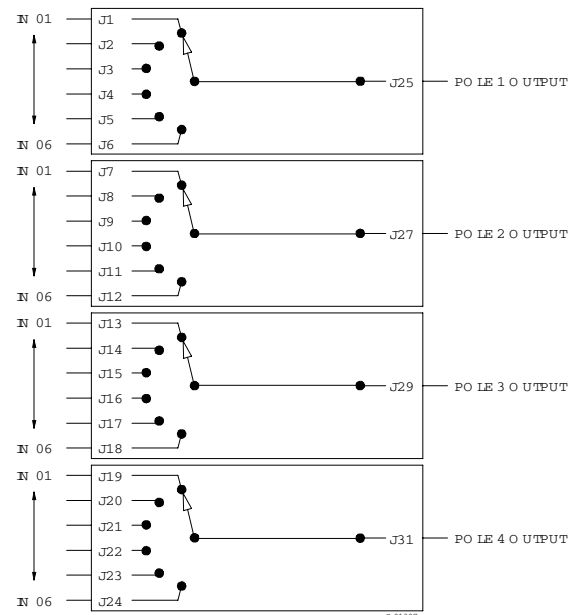
- High reliability solid-state switching
- >130MHz analog bandwidth
- High signal level capacity switching (~10V p/p)
- BNC signal connectors (75 ohm)
- Extra set of isolated output ports available
- Automatic "ganged" control for 4-levels
- Super-twist LED illuminated LCD display
- Field configurable serial port (RS-232C/422A/485)
- Optional Ethernet port (10baseT) with TCP/IP
- International AC power input, or optional DC
- Certified CE EN61010 (LVD)

## Configurations

Model	Configuration	Conn	Control
■ VSU1-4P6T	6 input, 1 output	BNC	Serial (note 1)
■ VSU1-4P6T-E10	6 input, 1 output	BNC	Serial/Ethernet

**NOTE 1:** The units are delivered "jumper configured" for RS-232C. The user must remove the cover and change configuration jumpers to configure the serial port for RS-422 or RS-485 protocol.

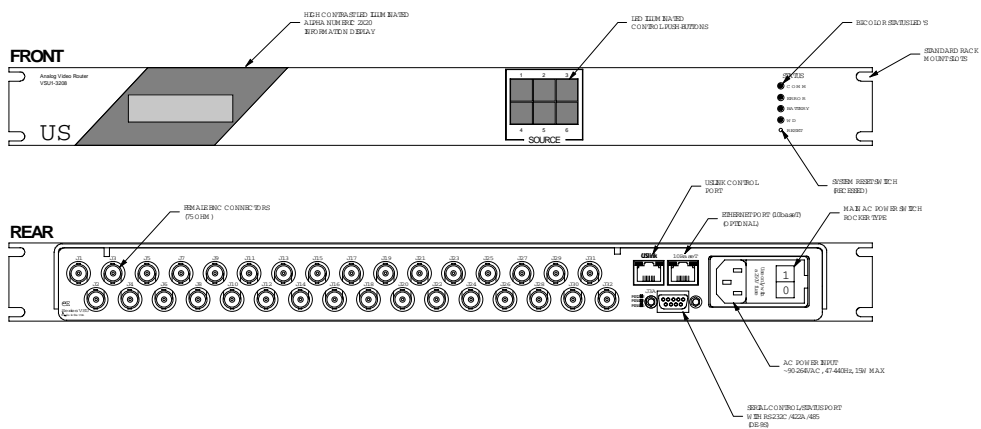
**NOTE 2:** Simplified functional schematic shown below. There is an "off" position not shown, and the signal path is active (terminations, switch element and amplifiers not show).



# Command Protocol

The control command protocol for the unit is simple and streamlined, yet powerful and comprehensive for a switch of its size. All commands are standard ASCII strings, and must be terminated with a <CR>. The "x"s below represent digits specific to the command. The following commands are available:

- Cxxxxx Connect a source port to a destination port
- Dxxxxx Disconnect source port from destination port
- Vxxxxx Verify the status of connection
- STxxx Store switching configuration
- RExxx Recall switching configuration
- clear Clear all connections
- DLOAD Download switch configuration
- RESET Reset the system to factory default (clear all configuration data)
- VER Request for firmware version
- MON Enables Serial port output of commands from other ports
- MOF Disables monitoring of commands from other ports
- lxx Sets the baud rate of the serial communications port
- LCK Locks the front panel controls
- UNL Unlocks the front panel controls
- BPx Controls conditions for internal beeper usage
- RON Enables the system "Auto Restore" mode
- ROF Disables the system "Auto Restore" mode
- Axx Changes the RS-485 address



## Serial Pin Assignment

### RS-232C Version

Pin	Function	Designation
1	Not Used	
2	Transmit Data	TXD
3	Receive Data	RXD
4	Not Used	
5	Signal Ground	GND
6	Not Used	
7	Clear To Send	CTS
8	Ready To Send	RTS
9	Not Used	

### RS-422A Version

Pin	Function	Designation
1	Transmit Data (-)	TXD -
2	Transmit Data (+)	TXD +
3	Receive Data (+)	RXD +
4	Receive Data (-)	RXD -
5	Signal Ground	GND
6	Clear To Send (-)	CTS -
7	Clear To Send (+)	CTS +
8	Ready To Send (+)	RTS +
9	Ready To Send (-)	RTS -

### RS-485 Multidrop Version

Pin	Function	Designation
1	TR Data (-)	485 -
2	TR Data (+)	485 +
3	Not Used	
4	Not Used	
5	Signal Ground	GND
6	Not Used	
7	Not Used	
8	Not Used	
9	Not Used	

**NOTE:** The Ethernet versions use a different control protocol from shown above. Contact the factory for additional information.

## VSU1 Specifications

- Array size . . . . .Quad channel (ganged) 6x1
- Switching technology . . . . .High reliability solid-state
- Type of system . . . . .Nx1
- Architecture . . . . .Fixed size array
- Signal connector location . . . . .Rear panel
- Frequency response . . . . .DC-130MHz (-3dB)  
DC-100MHz (-1dB)
- Crosstalk isolation . . . . .>75dB @ 5MHz
- Gain . . . . .Unity (nominal)

### Input Characteristics

- Type . . . . .Single-ended
- Signal connector . . . . .BNC female (75 ohm type)
- Coupling . . . . .DC
- Impedance . . . . .75 ohm
- Return loss . . . . .>20dB
- Nominal signal level . . . . .±4VDC
- Maximum input level . . . . .±5.5VDC (no damage)

### Output Characteristics

- Type . . . . .Single-ended
- Signal connector . . . . .BNC female (75 ohm type)
- Coupling . . . . .DC
- Impedance . . . . .75 ohm
- Maximum output level . . . . .±4.5VDC (into 75 ohm load)
- DC offset . . . . .<50mV

## General Specifications

- Switching . . . . .Asynchronous
- Power supply section . . . . .Universal type (non-redundant)
- Power supply monitoring . . . . .Included
- Remote control interfaces . . . . .Serial (RS-232C, RS-422A or RS-485 multi-drop)
- Serial port connector . . . . .DE-9S (D-Type female)
- US-Link connector . . . . .RJ-45
- Ethernet (optional) . . . . .RJ-45
- Status LED's . . . . .Bi-Color on front panel
- Front panel display . . . . .2x20 LED illuminated super-twist LCD
- Configuration memory . . . . .Lithium-back RAM
- Memory retention . . . . .>10 years
- Cooling . . . . .Convection
- AC power requirements . . . . .90-264VAC, 47-440Hz, 15Watts (max)
- Power cord . . . . .6-foot (Belden 17250)
- Fuse protection . . . . .2A, 5mm (dual), AC models only
- Weight . . . . .7 lbs
- Size . . . . .1.75H x 9.55D x 19.00W (1RU)
- Operating temp . . . . .0 to +60C
- Non-operating temp . . . . .-20 to +85C
- Humidity . . . . .0 to 95% (NC @ +25C)
- MTBF . . . . .>170,000 hours
- Certifications . . . . .CE EN61010

Universal Switching's policy is one of continuous development. Consequently, the company reserves the right to vary from the descriptions and specifications shown in this publication.