Universal Switching Corporation

Specification Sheet VSU1-001
Low Cost - High Performance 1RU
300MHz Analog Video Router
Model VSU1

CE

September 2006

General

This commercial line of video routers provides the systems professional with an uncompromising combination of high performance, small size and low cost. They are perfectly suited for NTSC, PAL, composite, RGB or RGBHV analog video signals up to 300MHz.

Compact and high performance, the VSU1 provides a cost effective, flexible switching capacity for smaller installations providing three different choices of full fan-out, non-blocking switching configurations with 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. Also included is our US-Link port for integrating multiple units together for common control (RGB/HV), or connecting our line of control panels (Series RCPA).

Applications

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

Features

- High reliability solid-state switching
- Full fanout non-blocking configurations
- >300MHz analog bandwidth
- BNC signal connectors (75 ohm)
- 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)
- LabVIEW drivers available

Configurations

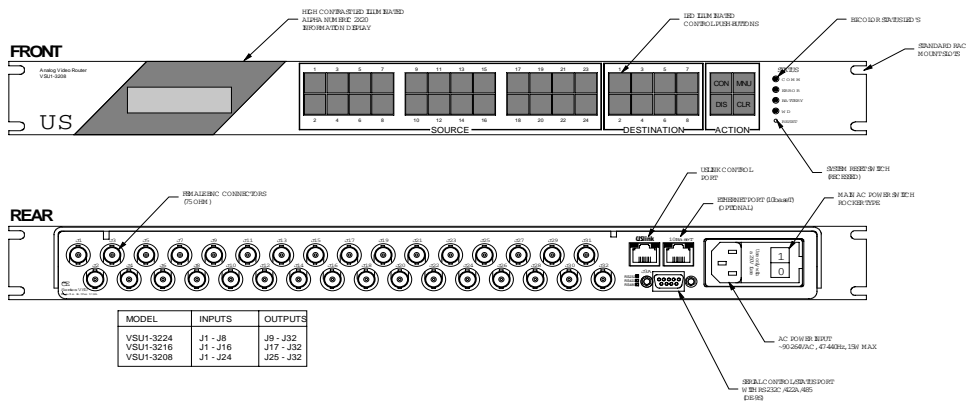| Model	Configuration	Conn	Control
VSU1-3208	24 input, 8 output	BNC	Serial (note 1)
VSU1-3216	16 input, 16 output	BNC	Serial (note 1)
VSU1-3224	8 input, 24 output	BNC	Serial (note 1)
VSU1-3208-E10	24 input, 8 output	BNC	Serial/Ethernet
VSU1-3216-E10	16 input, 16 output	BNC	Serial/Ethernet
VSU1-3224-E10	8 input, 24 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.*

Model VSU1-3208
24 input, 8 output

VSU1-001

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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:

Command	Description
Cxxxxxx	Connect a source port to a destination port
Dxxxxxx	Disconnect source port from destination port
Vxxxxxx	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
Ixx	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	

MODEL	INPUTS	OUTPUTS
VSU1-3224	J1 - J8	J9 - J32
VSU1-3216	J1 - J16	J17 - J32
VSU1-3208	J1 - J24	J25 - J32

VSU1 Specifications

Array sizes . . . . .24x8, 16x16 or 8x24
Switching technology . . . . . . .High reliability solid-state
Type of system . . . . .Non-blocking full fan-out MxN
Architecture . . . . .Fixed size array
Signal connector location . . . .Rear panel
Frequency response . . . . .DC-300MHz (1:1 connections)

Input Characteristics

Type . . . . .Single-ended
Signal connector . . . . .BNC female (75 ohm type)
Coupling . . . . .DC (AC coupling optional, call factory)
Impedance . . . . .75 ohm
Return loss 20dB
Nominal signal level . . . .$\pm$2VDC
Maximum input level . . . .$\pm$5.2VDC (no damage)

Output Characteristics

Type . . . . .Single-ended
Signal connector . . . . .BNC female (75 ohm type)
Coupling . . . . .DC (AC coupling optional)
Impedance . . . . .75 ohm
Maximum output level . . . .$\pm$2VDC (into 75 ohm load)

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 . . . .>175,000 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.