# Universal Switching Corporation

**Specification Sheet DVSU1-001**
Low Cost  - High Performance 1RU
Serial Digital Video Router
Model DVSU1

CE

September 2006

## General

This aggressive line of digital video routers provides the systems professional with an uncompromising combination of high performance, small size and low cost. They are specifically designed to route digital video per SMPTE 259M (-ABCD) spanning standard data rates 143, 177, 270 and 360Mb/s.

**NOTE:** A companion product (VSU1) can switch analog signals for NTSC, PAL, composite, RGB or RGBHV analog video signals up to 300MHz.

Compact and high performance, the DVSU1 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 female BNC connectors (75 ohm), the user configurable serial port (RS-232C/422A/485), optional Ethernet port (10baseT), plus the universal AC power input and AC switch.

## Applications

- Digital broadcast facilities or production studios
- Airborne surveillance systems
- Communication installations
- Imaging and animation production facilities
- SMPTE 259M (-ABCD) signals
- Security systems
- Factory automation monitoring

## Features

- High reliability solid-state digital switching
- Full fanout non-blocking configurations
- 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

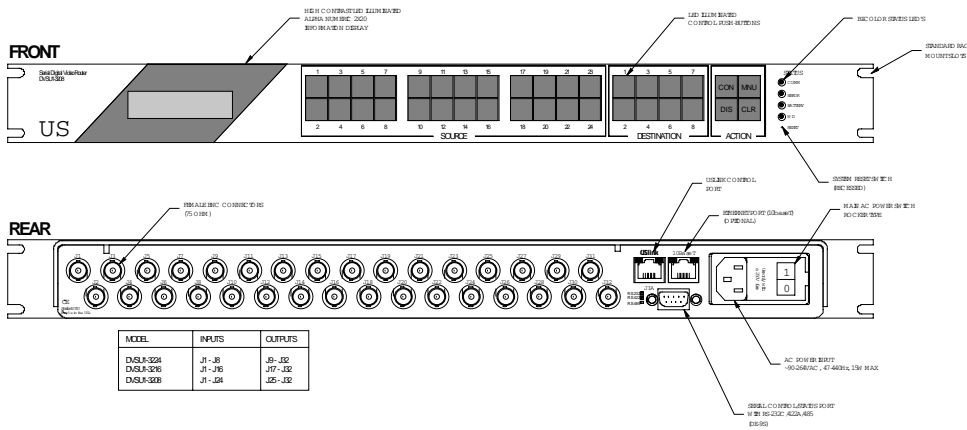| Model | Configuration | Conn | Control |
|---|---|---|---|
| DVSU1-3208 | 24 input, 8 output | BNC | Serial (note 1) |
| DVSU1-3216 | 16 input, 16 output | BNC | Serial (note 1) |
| DVSU1-3224 | 8 input, 24 output | BNC | Serial (note 1) |
| DVSU1-3208-E10 | 24 input, 8 output | BNC | Serial/Ethernet |
| DVSU1-3216-E10 | 16 input, 16 output | BNC | Serial/Ethernet |
| DVSU1-3224-E10 | 8 input, 24 output | BNC | Serial/Ethernet |

**NOTE:** 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. To have the unit delivered pre-configured for RS-422A, order with the option OPT-422. To have the unit delivered pre-configured for RS-485, order with the option OPT-485.

**Model DVSU1-3208**
24 input, 8 output

DVSU1-001

7671 North San Fernando Road  |  Burbank CA 91505  USA
Phn: +1 818-381-5111     Fax: +1 818-252-4846     Email: sales@uswi.com     Web: uswi.com

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# Serial Command Protocol

The serial 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:

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 |
|-------|--------|---------|
| DVSU1-3224 | J1 - J8 | J9 - J32 |
| DVSU1-3216 | J1 - J16 | J17 - J32 |
| DVSU1-3208 | J1 - J24 | J25 - J32 |

## DVSU1 Specifications

Array sizes . . . . . . . . . . . . . . . . . .24x8, 16x16 or 8x24
Switching technology . . . . . . .High reliability solid-state ECL
Type of system . . . . . . . . . . . . .Non-blocking full fan-out MxN
Architecture . . . . . . . . . . . . . . .Fixed size array
Signal connector location . . . .Rear panel
Signal type . . . . . . . . . . . . . . . .Serial Digital Video SMPTE-259M (-ABCD)
                                        (143/177/270/360Mb/s)
Reclocking . . . . . . . . . . . . . . . .Included

### Input Characteristics

Type . . . . . . . . . . . . . . . . . . . .Single-ended
Signal connector . . . . . . . . . . .BNC female (75 ohm type)
Impedance . . . . . . . . . . . . . . .75 ohm
Cable equalizer . . . . . . . . . . . .Automatic (300 meters Beldon 8281)
Return loss . . . . . . . . . . . . . . . .19dB

### Output Characteristics

Type . . . . . . . . . . . . . . . . . . . . .Single-ended
Signal connector . . . . . . . . . . .BNC female (75 ohm type)
Impedance . . . . . . . . . . . . . . .75 ohm

### General Specifications

Power supply section . . . . . . . .Universal type (non-redundant)
Power supply monitoring . . . . .Included
Remote control interfaces . . . .Serial (RS-232C, 422A or 485) opt Ethernet
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