# DSR4x1
# DSR8x1

4-Input and 8-Input
HD/SD Video Switchers with
Analog Reference Video Input

**Manual Version 1.01**


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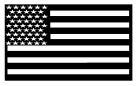

Made in USA

Four/Eight Input HD/SD SDI Switcher

## Introduction

Congratulations on your purchase of the DSR4x1/ DSR8x1 HD/SD SDI Video Switcher with Analog Reference Input. This manual will explain the various functions of these models (as well as operational use of the RS232 and DTMF options). Unless otherwise stated, all functions of the DSR4x1 are identical to that of the DSR8x1.


## Overview

The model DSR4x1 is a four (4) input, full bandwidth digital HD and SDI switcher (DSR8x1 is an eight (8) channel switcher). The front panel switches are labeled to correspond with the appropriate video input, an LED indicates the currently selected active

channel. If an analog video input (composite sync or tri-level sync) is present on the Ref Input port, then clean switching between video sources can be accomplished when your digital sources are synchronous with the analog video.

## Operation

Simply depress one of the front panel switches to select a video input. The button you have pressed will illuminate an embedded LED to indicate the channel is selected. If an analog video signal (black burst or tri-level sync) is connected to the Ref Input port, the digital video signal will switch during the vertical interval cycle of the reference video. This change takes place at approximately line 10 of the analog video signal. It is strongly suggested that your digital video sources also receive the same analog reference video signal. As with analog vertical interval video switchers, your digital video sources should be genlocked.


On the rear panel of the DSR8x1, the Ref Input port can be configured as a secondary video output. To

change to a dual output you will need only flip the toggle switch, that is recessed in the rear panel, from Ref to Dual. This will negate clean switching between video inputs because there will no longer be an analog video signal (or tri-level sync) for the switcher to reference.

## Power

These units are powered from an external 12Vdc source. Polarity of the included power supply is center positive, but the units can also operate with center negative. Only use a DC power supply, **do not use an AC power source.** You may damage the unit and will void all warranties.

## Remote Control via RS232 (R Version)

An option that can be installed by the factory is RS232 control via computer. The unit is fitted with a proprietary connector and shipped with a serial port adapter and RJ11 cable. The unit communicates at a selectable baud rate. This product default baud rate is 2400 8N1. To change this baud rate, remove the front panel and slide the top cover off. Directly behind the front panel keyboard switches is a small 4-pole piano switch. Change switch #1 and #2 in the following manor to configure the baud rate.

| | | |
|---|---|---|
| SW#1 Open, SW#2 Open | = | 2400 Baud |
| SW#1 Closed, SW#2 Closed | = | 9600 Baud |
| SW#1 Open, SW#2 Closed | = | 19.2k Baud |
| SW#1 Closed, SW#2 Open | = | 19.2k Baud |

NOTE: Leave SW#3 and SW#4 in the OPEN position. Closing these switches will stop the unit from transmitting status commands to the computer.

Any terminal emulator (i.e. Windows Hyperterminal or

Procomm) is all that is required to communicate with the switcher. The command set for the DSR4x1 consists of a two character command followed by a carriage return (<CR>). The first character can be either upper or lower case.

| Command | Function | Status sent to computer |
|---|---|---|
| V1<CR> | Switches to Channel #1 | (V1+) |
| V2<CR> | Switches to Channel #2 | (V2+) |
| V3<CR> | Switches to Channel #3 | (V3+) |
| V4<CR> | Switches to Channel #4 | (V4+) |

The video switcher will also echo “V#” (where “#” is the channel number currently selected) back to the computer to indicate its status.

The command set for the DSR8x1 consists of a two character command followed by a carriage return (<CR>). The first chatacter can be either upper of lower case.

| Command | Function | Status sent to computer |
|---|---|---|
| V1<CR> | Switches to Channel #1 | V1 |
| V2<CR> | Switches to Channel #2 | V2 |
| V3<CR> | Switches to Channel #3 | V3 |
| V4<CR> | Switches to Channel #4 | V4 |
| V5<CR> | Switches to Channel #5 | V5 |
| V6<CR> | Switches to Channel #6 | V6 |
| V7<CR> | Switches to Channel #7 | V7 |
| V8<CR> | Switches to Channel #8 | V8 |

## Active Input Switch Status

To determine which input is active, send the following command;

AV<CR>

The DSR switcher will respond with V# (where "#" is the input channel currently selected).

## RS232 Error Codes

| Code | Description |
|---|---|
| KE | Keyboard Error (invalid command sent) |
| KT | Keyboard Timeout (too long between keystrokes) |

## Remote Control via RC8x1 (DSR8x1 opt RC)

An optional remote control unit called the RC8x1 can be mated with the DSR8x1. The RC8x1 is a small enclosure with eight (8) illuminated switches that commands the DSR8x1. This unit is powered by the DSR8x1 through the included unwired control cable. The DSR8x1 is fitted with a special locking connector to counteract high vibration (such as ENG trucks or helicopters). Operation of the RC8x1 is the same as the DSR8x1, just depress the appropriate switch for the input video channel you wish to select. The RC8x1 will brighten the depressed switch and will also change the DSR8x1 front panel switch LED to the selected input.

## Remote Control via DTMF (DSR8x1 opt. T)

Another option that can be modified into the DSR8x1 is DTMF tone control. This option works with the audio tones generated from a touchtone telephone system, or a tone generator capable of creating DTMF tones. A 3.5mm jack is installed on the rear panel to facilitate interface with the tone generator that you provide. The DSR8x1 is ID addressable by holding down one of the front panel switches when you turn on power (i. e. holding pushbutton #1 during power up will address the unit as #1, holding pushbutton #6 during power up

will address the unit as #6). After an ID is set the DSR8x1 will flash the embedded LED beneath the input channel number 5 times at power up. To command the unit to switch, the unit ID and input channel will need to be sent in the format of “UnitID # Channel *”.

Example;

1#5* = Unit ID 1 will switch to Channel 5

6#2* = Unit ID 6 will switch to Channel 2

# Specifications

**SDI Input Connectors:** DSR8x1 – 8 BNC Input
DSR4x1 – 4 BNC Input

**Supported SDI Input/Outputs:**
SMPTE 292M, SMPTE 259M, SMPTE 344M compliant, 143, 177, 270, 360, 540, 1483.5/ 1485 Mbps, DVB-ASI at 270 Mbps

**SDI Input Characteristics:**
Levels (HD/SD SDI) – 25 to 1V p-p signal level
Terminated – 75 ohms
DC offset permitted is: -0.5 to 2VDC

**REF Connector:**
1 – BNC

**REF Input Characteristics:**
Analog NTSC/PAL composite video
Analog HD Y channel with tri-level syncs
Terminated – 75 ohms
Level – 0.5 to 2V p-p

**Switch Point:**
With REF input – approximately line 10 of REF input signal
No REFerence input – random switching

**SDI Output Connectors:**
2 – BNC (Differential Output of single output)

**SDI Output Characteristics:**
Levels (HD/SD SDI) – 800mV nominal
Re-clocked Jitter – HD 0.06 UI; SD 0.02UI

**Matrix Configurations:**
DSR8x1 – 8 inputs x 1 output
DSR4x1 – 4 inputs x 1 output
Inputs can be mixed standards

**Local Controls:**
4 or 8 momentary switches with LED indicators for input select
Toggle ON/OFF switch

**Front Panel Indicators:**

LED for standard detection (HD)
POWER LED

**Remote Controls:**

RS-232 Serial control; 8N1; 2400b, 9600b, or 19.2Kb (internal switch selectable) – OR
DTMF per ANSI T1.401-1988

**Power Supply:**

Unregulated 12Vdc @ 1A – OR
OPTIONAL Regulated 5Vdc @ 1A

**Power Draw:**

| | |
|---|---|
| 12Vdc @ 650mA | (7.8W) |
| OPTIONAL 5Vdc @ 650mA | (3.25W) |

**Environmental:**

0 to 98% humidity non-condensing
0 to 40C operating
-20 to 65C storage

**Mechanical:**

Dimensions

| | |
|---|---|
| DSR8x1 - | 5.6W x 1.5H x 7.3D (inches) |
| | 14.2W x 3.81H x 18.54D (cm) |
| DSR4x1 - | 4.2W x 1.5H x 5.5D (inches) |
| | 10.67W x 3.81H x 13.97 (cm) |

Weight

| | |
|---|---|
| DSR8x1 - | 1.5 (lbs) |
| | 0.68 (kg) |
| DSR4x1 - | 1 (lbs) |
| | 0.45 (kg) |