DV-228
1 x 8
3G/HD/SD SDI
Distribution Amplifier

Operation and Maintenance Manual

Revision 1.0

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SAFETY INSTRUCTIONS

Please review the following safety precautions. If this is the first time using this unit, then read this manual before installing or using the unit. If the unit is not functioning properly, please contact the ***ESE*** factory or system installer. Failure to follow these safety instructions could result in injury to you or damage to the unit.

Be careful with electricity:

- **Power outlet**: To prevent electric shock, be sure the electrical plug used on the unit's power cord matches the electrical outlet used to supply power to the unit. Only connect the power cord to a power source that operates between 85 – 264 VAC, 47 - 63 Hz. If option DC is ordered, only connect the power input to a power source that operates between +5 to +17 VDC. If option UL is ordered, only connect the wall wart adapter to a power source that operates between 90 - 264 VAC, 47 - 63 Hz.
- **Power cord**: Be sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Power overloading**: Avoid overloading electrical outlets or extension cords which otherwise could result in electric shock or fire.
- **Lightning**: For protection from lightning or when the unit is left unattended for a long period, disconnect it from the power source.
- **Protect other equipment**: Unplug the unit before connecting any other equipment. Connect all equipment to the unit before plugging in any power cords to the power source.

WARNING!

TO REDUCE THE RISK OF ELECTRICAL SHOCK, UNPLUG THE UNIT BEFORE REMOVING THE COVER
REFER SERVICING TO QUALIFIED PERSONNEL

Also follow these precautions:

- **Ventilation**: Do not block any ventilation holes on the unit or place any heavy object on top of it. Blocking the airflow could damage the unit. Arrange components so that air can flow freely around the unit. Ensure that there is adequate ventilation to the unit wherever it is placed. Put the unit in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating**: Avoid stacking the unit on top of a hot component.
- **Risk of Fire**: Do not place the unit on top of any easily combustible material, such as paper, carpet or fabric.
- **Proper Connections**: Be sure all cables and equipment are connected to the unit as described in this manual.
- **Object Entry**: To avoid electric shock, never stick anything in the holes on the enclosure or remove the cover.
- **Water Exposure**: To reduce the risk of fire or electric shock, do not expose the unit to rain or any other source of moisture.
- **Keep the unit out of the reach of children or it may fall, causing personal injury or damage to the unit**.
- **Always disconnect the power cord from the power outlet when you are not using the unit**. This reduces your risk of electric shocks or fire.
- **Always turn off the unit, disconnect it from the power outlet, and unplug all other cables from before moving the unit**. This reduces your risk of electric shocks or fire.

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1.0 INTRODUCTION

The DV-228 is a 1 x 8 3G/HD/SD SDI distribution amplifier with a loop through input. The unit provides cable equalization, reclocking and distribution. The unit automatically detects the data rate of the incoming video signal.

The DV-228 distributes one 3G, HD or SD SDI input signal to eight outputs with one loop through output. The video signal can be reclocked before distribution or distributed without re-timing the input signal. The DV-228 automatically detects and reclocks a 270Mb/s, 1.485Gb/s, or 2.970Gb/s signal. The loop through output is not reclocked. The SD LED on the top of the unit lights to indicate that the unit has detected and locked to an SD signal. The HD LED on the top of the unit lights to indicate that the unit has detected and locked to an HD signal. The 3G LED on the top of the unit lights to indicate that the unit has detected and locked to a 3G signal.

Non-SMPTE data rates may be distributed but are not reclocked even if the unit is set to Reclock mode. The DV-228 can pass non-SMPTE data rates of 143Mb/s, 177Mb/s, 360Mb/s and 540Mb/s without producing bit errors.

The DV-228 is DVB-ASI compliant at 270Mb/s. The unit automatically locks to the DVB-ASI signal. The DVB-ASI signal is reclocked if the unit is set to Reclock mode.

The input and the output BNCs are accessible on the top of the unit.

2.0 INSTALLATION & OPERATION

Installation of the DV-228 requires connecting equipment to the DV-228 and setting the internal RC (Reclocking) dip switch switch. Plug the unit in to 85 - 264 VAC (options DC and UL have different power requirements). The power LED on the top of the unit lights after power is supplied to the unit.

Connections to the DV-228 may be made at any time. Connect the SDI video signal to the input BNC. The loop and any or all of the eight outputs may be connected to appropriate equipment. If the outputs need to be reclocked, turn the internal RC dip switch on. Turn the internal RC dip switch off to bypass the reclocking stage.

The DV-228 automatically recognizes the incoming signal data rate. When the unit is locked, the corresponding LED on the front panel lights to indicate the data rate of the incoming video signal.

3.0 ENCLOSURE

The unit is housed in a small yellow die cast box, which is ideal for tucking away in the most convenient location. The power requirements for the unit are 85 – 264 VAC, 47 – 63 Hz, 15 W maximum. A 2-amp fuse is accessible from the top of the unit.

4.0 STANDARD FEATURES

4.1 Top Panel

4.1.1 SD LED

This green LED lights when the DV-228 has detected and locked to a SD (270Mb/s) video signal.

4.1.2 HD LED

This green LED lights when the DV-228 has detected and locked to a HD (1.485Gb/s) video signal.

4.1.3 3G LED

This green LED lights when the DV-228 has detected and locked to a 3G (2.97Gb/s) video signal.

4.1.4 Power LED

This green LED lights solid when power is supplied to the DV-228. This LED does not light in the absence of power.

4.1.5 Input BNC

This BNC accepts the incoming SDI video signal.

4.1.6 Loop BNC

This BNC outputs a non-reclocked input signal. When the unit is locked to an incoming video signal, the slew rate of this output will match the slew rate of the input. If the unit cannot lock

to an incoming SD signal, the slew rate of this output is set to the faster HD slew rate by default. If the user requires the slower SD slew rate, turn the internal SD dip switch on.

4.1.7 Output BNCs

Eight output BNCs are provided. These BNCs provide identical outputs. When the unit is locked to an incoming video signal, the slew rate of these outputs will match the slew rate of the input. If the unit cannot lock to an incoming SD signal, the slew rate of these outputs is set to the faster HD slew rate by default. If the user requires the slower SD slew rate, turn the internal SD dip switch on.

4.2 Internal Features

4.2.1 SD Dip Switch

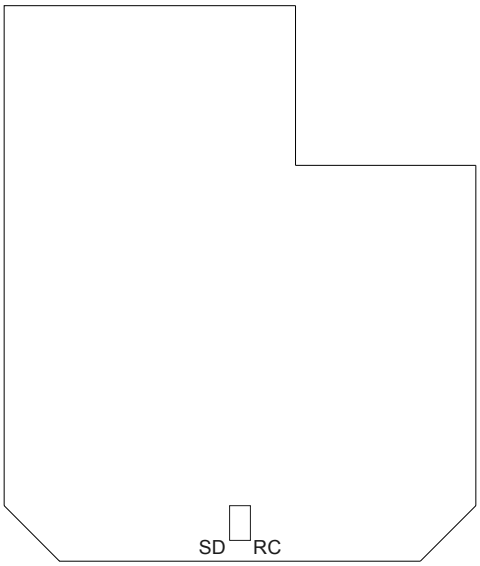
This dip switch allows the user to set the slew rate of the output BNCs. When the unit is locked to an incoming video signal, the slew rate of the outputs will match the slew rate of the input. If the unit cannot lock to an incoming SD signal, the slew rate of the outputs is set to the faster HD slew rate by default. If the user requires the slower SD slew rate, turn the internal SD dip switch on. This switch is off by default.

4.2.2 RC Dip Switch

This dip switch allows the user to bypass the reclocking stage. When the dip switch is on, the unit is set to Reclock Mode and the incoming video signal is re-timed. When the dip switch is off, the incoming video signal is not re-timed. This switch is on by default.

4.2.3 Location of Dip Switches

The drawing below shows the location on the board of the two dip switches.



5.0 OPTIONS

5.1 Available Options

DC: When this option is specified, the unit is configured to operate from +5 to +17 VDC exclusively. The DC voltage applied to the unit is via a 4-pin male XLR connector. Pin 1 is the - Input and pin 4 is the + Input. Note: When the DC Option is specified, the unit is NOT operable from AC.

UL: When Option “UL” is specified, the unit’s power transformer is external to the unit, i.e.: a “wall wart” type UL/CSA approved transformer is supplied. This option allows the DV-228 to be installed in facilities requiring “UL” (or equivalent) approved equipment.

Custom: The DV-228 is designed with ESE’s typical flexibility that allows the unit to be modified with user-defined features. Consult the ESE factory with your custom requirements.

6.0 SPECIFICATIONS

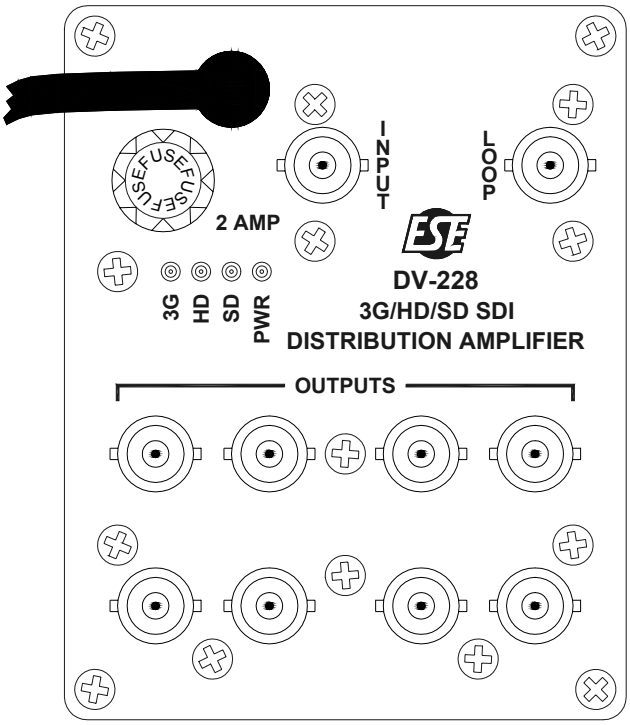
6.1 General

POWER:	85 – 264 VAC, 47 – 63 Hz, 15 W maximum
MECHANICAL:	4.7” x 3.7” x 2.2” die cast box
VIDEO STANDARDS:	SMPTE 259M-C, SMPTE 292M and SMPTE 424M compliant
VIDEO INPUT:	1 BNC
LOOP THROUGH:	1 BNC
CABLE EQUALIZATION:	2.97Gb/s: 140m (Belden 1694A cable) 1.485 Gb/s: 200m (Belden 1694A cable) 270 Mb/s: 400m (Belden 1694A cable)
VIDEO OUTPUTS:	8 BNCs
WEIGHT:	1.5 lbs.
OPTIONS:	DC, UL, Custom

6.2 Optional

DC:	+5 to +17 VDC, 15 W
UL:	Wall wart power supply Input: 90 – 264 VAC, 47 – 63 Hz, 15 W Output: 3.3 VDC, 4000 mA

7.0 TOP VIEW



8.0 RoHS COMPLIANCE

The DV-228 complies with the restriction of the use of certain hazardous substances in electrical and electronic equipment regulations set forth in European Union Directive 2008/35/EC. This unit complies with the requirements for allowable content of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE), subject to the allowable exemptions.

9.0 FCC NOTE

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

10.0 WARRANTY

This unit is warranted free of mechanical, electrical and workmanship defects for five years from the date of shipping to the original purchaser. Extended warranties are available. Please consult the factory for more information.

Upon examination, the unit will be replaced or repaired without charge if found defective under normal operating conditions and when used as intended. The unit should be returned to ESE intact with all shipping charges prepaid. This should be done within five years of the date of sale.

This warranty does not apply if the equipment has been subject to misuse, neglect, accident, improper installation or repairs or alterations outside the ESE factory. This warranty also does not apply if the unit has been damaged by lightning, excess current and/or all contingencies commonly called acts of God.

This warranty excludes appearance items, which will be the sole responsibility of the purchaser at the time of purchase.

No other warranty is expressed or implied and ESE is not liable for consequential damages.

Permission must be obtained directly from ESE for warranty repair returns. No liability will be accepted if any equipment is returned without such permission.

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11.0 REVISION HISTORY

Revision 1.0 (6/12/13): First version.