



VDD-102

**Reclocking Serial Digital
Video Distribution Amplifier**



Statement of Warranty

The ISIS Group, Inc. warrants its products for a period of seven (7) years from the date of shipment to be free from defects in materials and workmanship and meets applicable published specifications. Equipment which has been operated within its ratings and has not been subjected to mechanical or other abuse or modification by the purchaser, its agents, and/or employees, will, at the option of The ISIS Group, be replaced or repaired if it is returned, freight prepaid, to ISIS. Equipment that fails under conditions other than described herein will be repaired at the price of components and labor in affect at the time of repair.

This warranty is in lieu of all other warranties, expressed or implied, with respect to the condition or performance of any ISIS Group product, its merchantability or fitness for a particular purpose. ISIS is not liable for any consequential damages.

FCC Compliance

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.

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Part Number 71-0029

Installation and Operation Manual

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SECTION I

VDD-102

General Description

The VDD-102 is a modular, high performance serial digital distribution amplifier intended for studio quality distribution of SMPTE 259M (NTSC/PAL) and 540Mbps 4:4:4:4 signals. It is designed to be operated from the ISIS VMF-100 mounting frame, and it is also pin-compatible with the Leitch* FR-6801 and 6802 video mounting frames.

The module is configured as a one-input by eight-output amplifier, using 75Ω BNC connectors.

The data rate is recognized and automatically adjusted to clock and recovery rate. Four front-mounted LED lamps indicate the current signal data rate on the input BNC connector. The amplifier input stage automatically equalizes up to 300 meters of Belden 8281 or 120 meters of Cat5 UTP cable.

Each module has its own on-board voltage regulators with fuse protection. Any failure of a single module will not affect any other module in the frame.

*Leitch is a trademark of Leitch Technology International, Inc.

SECTION II

VDD-102

Specifications

Input:

Impedance	75Ω
Connector type	BNC per IEC 169-8 (Differential)
Signal level	800mV ±10%
Data Rate	40Mbps to >400Mbps
Return Loss	19dB @ 270 MHz
Equalization	120 meters Cat5 UTP

Outputs:

Channels	1
Outputs per channel	8
Impedance	75Ω
Return Loss	19dB @ 270MHz
Signal level	800mV ±10%
DC Offset	0V

Performance:

Serial Operating Standards	SMPTE 259M serial digital interface NTSC/PAL 4:2:2 component and wide screen
Rate Indication	LED (143Mbps/177Mbps/270Mbps/360Mbps)
Output Muting	Automatic on "No Signal" detection
Jitter	180ps/pp @270Mbps

Temperature:

Performance	5-40° C
Operating	0-50° C
Power Dissipation	<2W

SECTION III

VDD-102

Installation and Operation

The VDD-102 serial digital video distribution amplifier is designed to be mounted in either the ISIS VMF-100 video mounting frame, (up to ten modules), or a Leitch* video frame (such as the FR-6801 or FR-6802). There are no special cooling requirements, although care should be taken to ensure that extremely hot equipment is not installed directly beneath the frame.

It is recommended that when redundant power supplies are included in the frame, the two power cords be connected to different AC supplies. In this way the frame will continue to operate even if there is a partial failure of plant power.

For optimal performance, high quality coaxial cables and connectors (e.g. Belden 8281 or equivalent) should be used.

The LED lamps at the front edge of the module indicate the data rate present (SMPTE 259M) on the input BNC connector.

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SECTION IV

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Circuit Description

The serial digital input signal is AC coupled into the differential inputs of the cable equalizing IC, U1, where it is automatically equalized as necessary (up to 300 meters). U1 contains logic to detect valid "signal presence", which is used to mute the output when the input signal is invalid.

Pull-up resistors at the output of U1 provide ECL levels to the input of the retiming PLL IC, U6, where the data and clock are recovered. An auto-rate select circuitry within the IC automatically recognizes the incoming data rate (SMPTE 259M standard) and adjusts accordingly for clock and data recovery. The data rate of the input signal is indicated by the front-mounted LEDs. The retimed differential data output signal is presented to the inputs of the cable drivers, U2 and U4. Each output driver IC accepts the signal from U6 and produces a 1.6V p-p signal (800mv terminated) on each of its four outputs. The eight 75 ohm outputs are AC coupled.

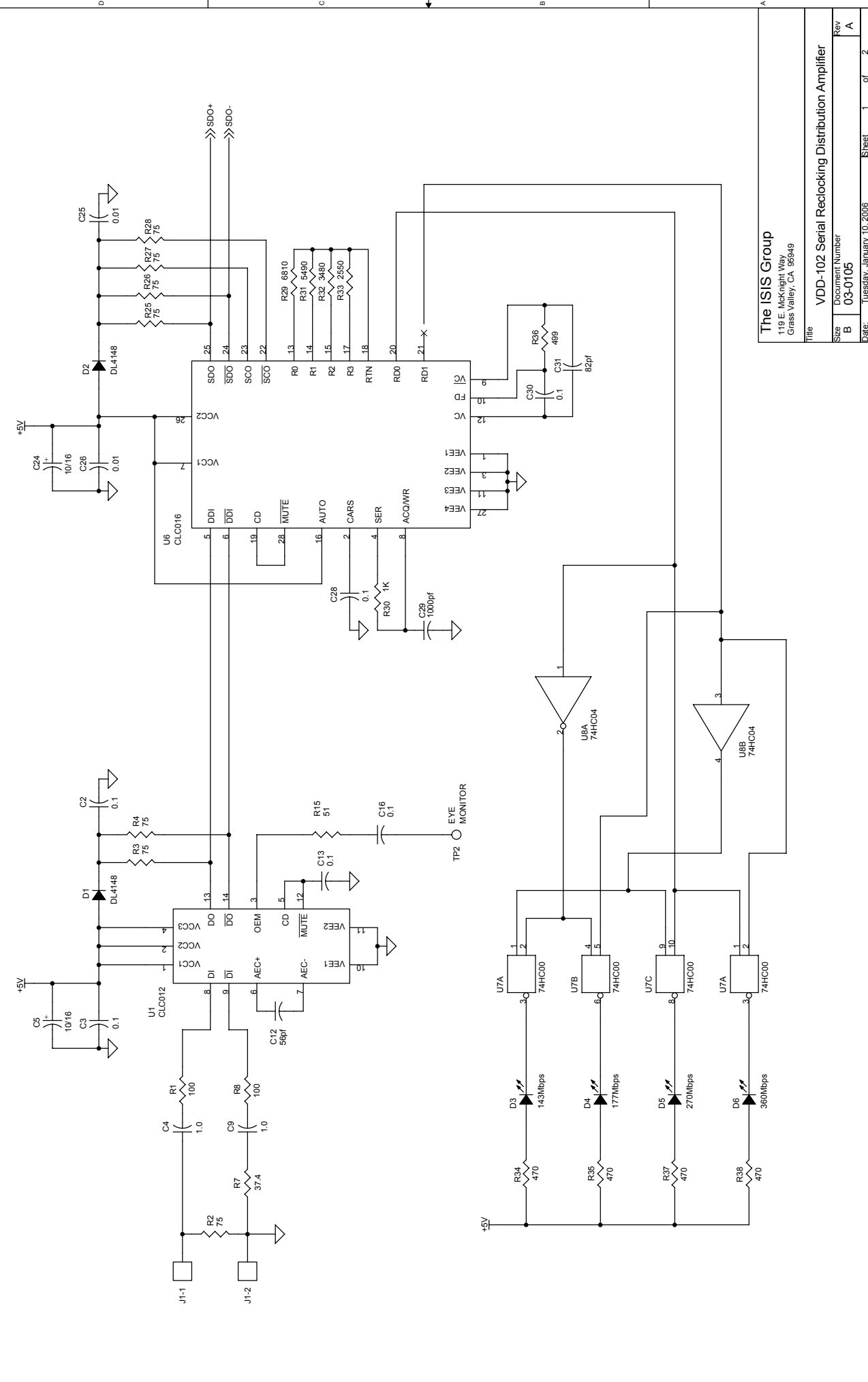
The power for the module uses a +5VDC low drop-out regulator IC U5 that receives +6.5VDC from the DA frame power supply. As the circuitry operates in PECL mode, the +5VDC is used to power the entire module.

SECTION V

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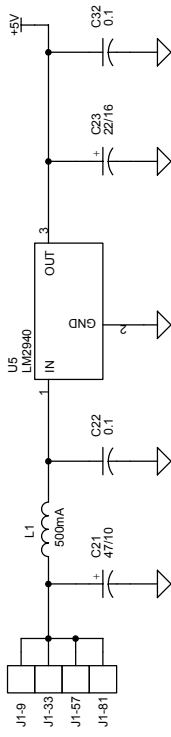
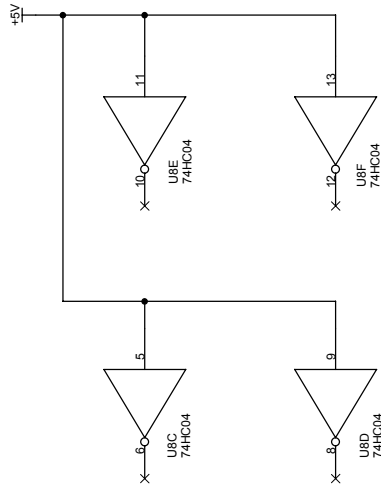
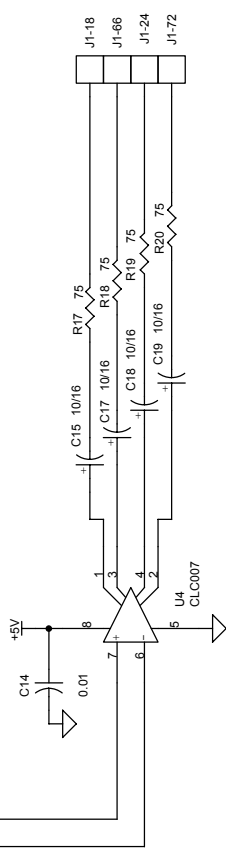
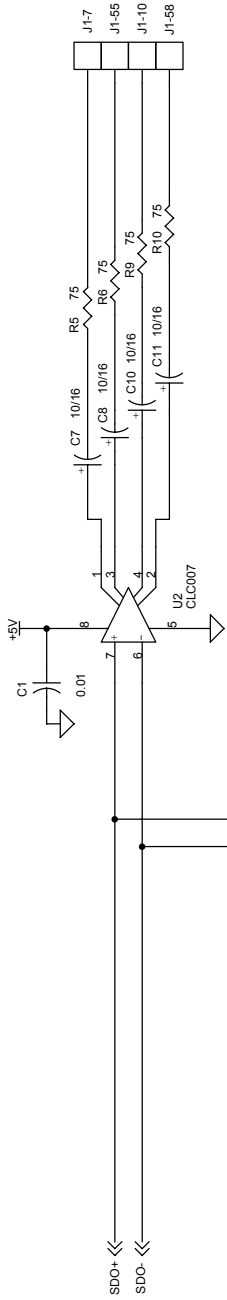
Diagrams

VDD-102 VIDEO DISTRIBUTION AMPLIFIER



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