Model 3410
Multivert

10 Channel Composite Encoder

Instruction Manual

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INFORMATION TO USERS IN EUROPE

NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. 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.

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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.

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Jun 00
1.1	Added information about Setup Pedestal Jumper	Jul 01
1.2	Correct error in Feature	Sep 03

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1. OVERVIEW

The Multivert, a 10 channel composite encoder, was designed for monitor wall applications where multiple SDI component video signals need to be converted to composite analog. With all ten encoders and both power supplies mounted inside the compact 1RU chassis, the Multivert proves itself to be a much better alternative to the use of expensive dongle based converters that use wall mounted or brick based power supplies. Each of the ten channels has two composite analog video outputs as well as a single regenerated SDI component video output.

The Multivert is a compact 1RU, 7.75 inches deep rack mountable frame with both front and rear panel LED status displays for each of its ten channels. Thanks in part to its compact size; the Multivert is capable of being mounted in the rear of the monitoring wall equipment rack. Further, by having status LED's on both the rear panel as well as the front panel, it allows the cables to be installed facing the rear of the rack thus providing for both status monitoring as well as convenient cabling.

Having the Multivert mounted in the rear of the monitor racks eliminates the need for long analog cable runs from modular converters in the equipment rack room to the monitors, thus eliminating the need for analog equalizing DA's.

Features:

- 10 independent converters in a 1RU enclosure
- 2 NTSC/PAL analog composite color outputs per converter
- NTSC Setup pedestal jumper selectable
- 1 re-clocked 4:2:2 serial output per converter
- Ideal for monitoring serial component signals with inexpensive composite analog monitors
- Reversible rack ears allow for mounting in rear of monitor racks
- Dual power supply option
- Each channel has front panel LED's for PAL, NTSC and signal presence
- Each channel has a rear panel LED for signal presence (viewable from rear of frame)

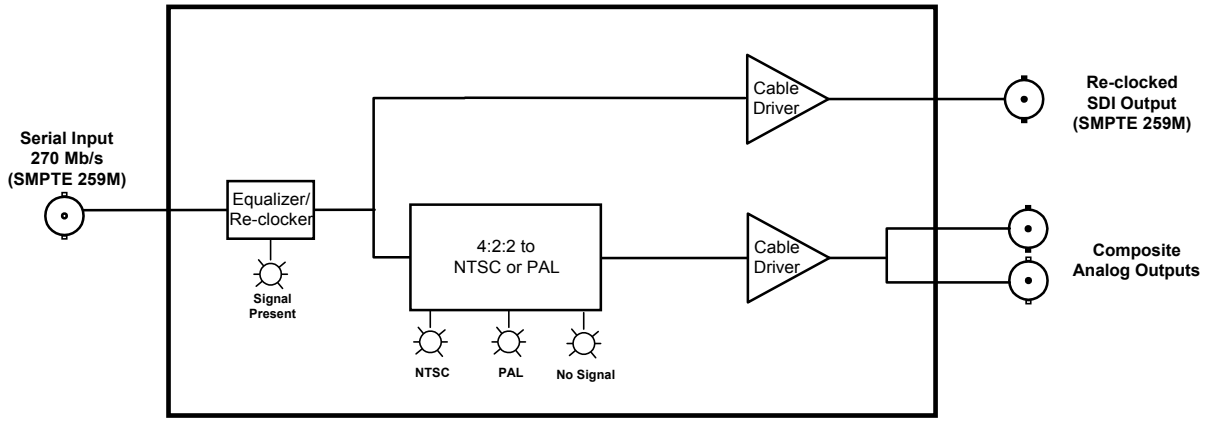

Figure 1: Block Diagram

2. INSTALLATION

2.1. REAR PANEL

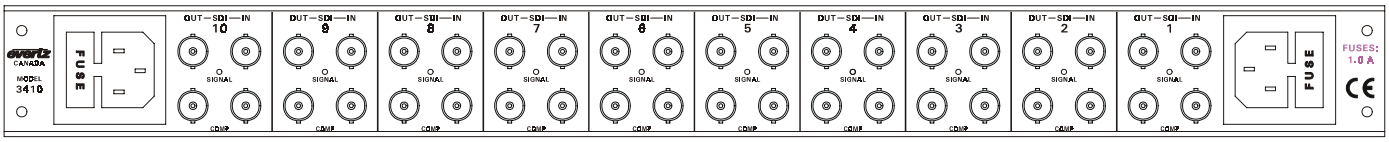

Figure 2: Rear Panel

The following sections describe the purpose of the rear panel connectors of the 3410. Sections 2.1.1 to 2.1.2 describe the specific generator, reader, character inserter, and telecine signals that should be connected to the 3410.

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2.1.1. Video Connections

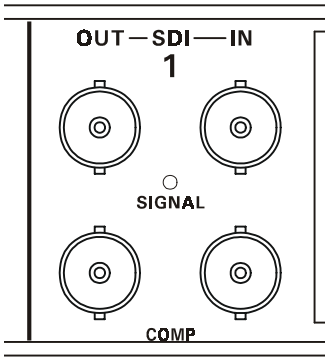

Figure 3: Video Inputs and Outputs for One Channel

SDI IN Input BNC connector for component serial digital video signals, compatible with the SMPTE 259M-C standard.

SDI OUT Ontput BNC connector for serial component video. This video is a reclocked output from the SDI IN connector

COMP These 2 BNC connectors are a composite analog output derived from the SDI input video and are normally connected to an anlog monitor or video recorder. When the input video is in the 525 line format the analog output will be NTSC. When the input video is in the 625 line format the analog output will be PAL.

2.1.2. Power Connections

LINE: The model 3410 Multivert has one or two (redundant supply is optional) universal power supplies that operate on either 115 Volt / 60 Hz or 230 Volt / 50 Hz AC. The PSU STATUS LEDs on the front panel indicate if the power supplies are operating normally.

2.2. MOUNTING

The Multivert is equipped with rack mounting angles and fits into a standard 19 inches by 1.75 inches by 7.75 inches (483 mm x 45 mm x 196mm) rack space. The mounting angles may be removed and installed from the rear if mounting at the back of an equipment rack is desired. For front mount applications, a rear support bracket (part 3400RS) can be ordered if additional support is required due to the weight of the cables. Figure 4 and Figure 5 show the two methods of mounting the Multivert in your rack frame.

It is recommended that at least ½ rack unit space be left between the Multivert and adjacent units to allow for airflow required for convection cooling.

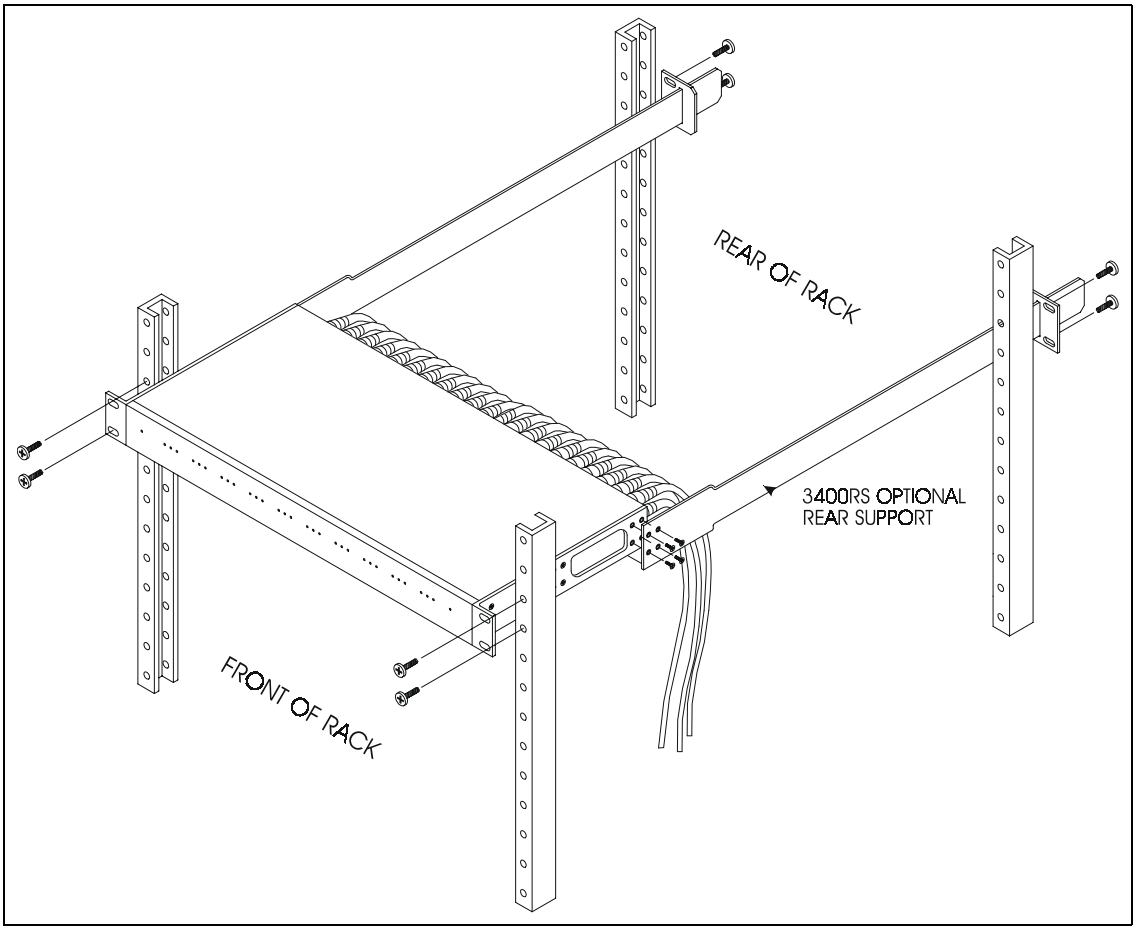

Figure 4: Front Mounting

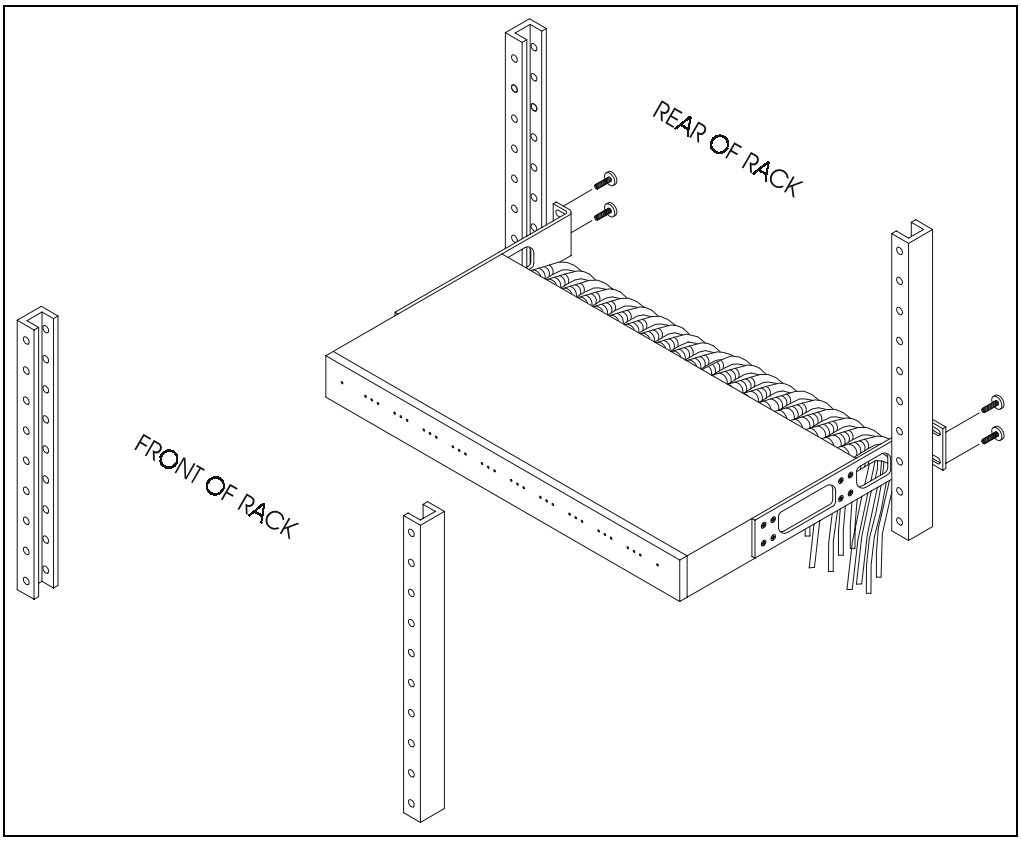

Figure 5: Rear Mounting

2.3. POWER REQUIREMENTS

2.3.1. Selecting the Correct Mains Voltage

Power requirements are 115 or 230 volts AC at 50 or 60 Hz. The Multivert has a universal power supply (and may have an optional redundant supply) that automatically senses the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to each power entry module on the rear panel. The power cord should be minimum 18 AWG wire size; type SVT marked VW-1, maximum 2.5 m in length.

Extreme caution should be used if the top cover is removed. There is risk of shock from exposed live metal parts. Servicing should only be performed by a qualified technician. If the Multivert is fitted with dual power supplies, make sure that power is removed from both supplies before performing any work on the unit.

The power entry module combines a standard power inlet connector, two 5 x 20 mm fuse holders and an EMI line filter.

2.3.2. Changing the Fuse

The fuse holder is located inside the power entry module. To change the fuses, disconnect the line cords from the power entry modules and pull out the fuse holder from the power entry module using a small screwdriver. The fuse holder contains two fuses, one for the line and one for the neutral side of the mains connection. Pull out the blown fuse and place a fuse of the correct value in its place. Use slo blo (time delay) 5 x 20 mm fuses rated for 250 Volts with a current rating of 1 amp. Carefully reinsert the fuseholder into the power entry module.

Never replace with a fuse of greater value.

2.4. CONNECTING THE VIDEO

The 3410 Multivert comprises ten identical channels of composite monitoring.

The input SDI video should be connected to the SDI In connector. A reclocked output of the input video is available on the SDI OUT connector and may be connected to downstream SDI devices. The SIGNAL LED located in the middle of the four BNC connectors will come on when the Multivert has detected a valid video input on the SDI In connector.

Common Name	Frame Rate (Frms per Sec)	Lines per frame	Output video format
525i/59.94	29.97 (30/1.001)	525	NTSC
625i/50	25	625	PAL

Table 1: Video Formats

The COMP OUT outputs contain a composite analog copy of the input video. These outputs are normally connected to analog video recorders or video monitors. The Multivert automatically senses the standard of the incoming video and adjusts its output accordingly.

2.4.1. Controlling the NTSC Setup Pedestal

In some NTSC countries such as Japan, the setup pedestal is not used. A jumper is provided on the main circuit card inside the 3410 to control whether the setup pedestal is present or not on the NTSC outputs. The 3410 ships from the factory with the setup pedestal enabled on the NTSC outputs. To disable the setup pedestal, change the jumper as follows:

1. Remove the power from both power inputs.

If power is being supplied to the 3410, a shock hazard exists when you remove the top cover. Make sure that you have removed power from both power cords before opening the unit.

2. Remove the top cover screws and carefully place them aside.

3. The Setup Pedestal jumper J45 is located near the center of the board at the front of the unit. To turn off the pedestal, position on the header so that the shorting jumper is on pins 2 and 3 as shown in the picture.

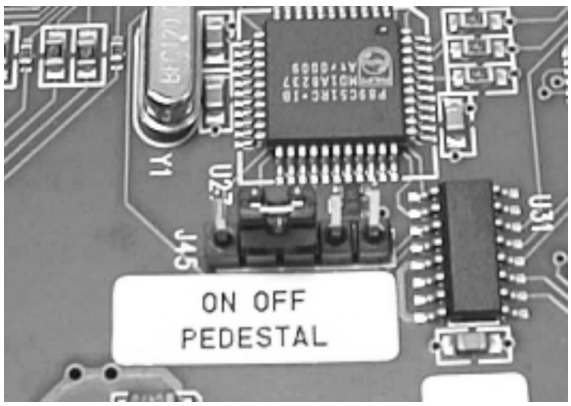

Figure 6: Setting the NTSC Setup Pedestal Jumper

4. Replace the top cover and reinstall the screws.

5. Apply power to the unit. When you connect 525 line video to the Multivert, the NTSC output will have the setup pedestal removed.

2.5. FRONT PANEL LED STATUS INDICATORS

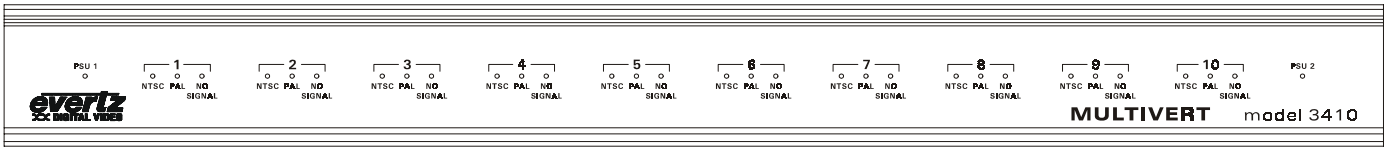

Figure 7: Front Panel

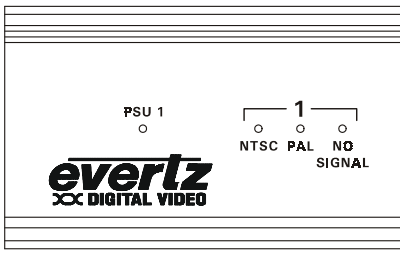

Figure 8: Close up of Front Panel

NTSC This green LED indicates that the 525 line SDI signal is present on the SDI IN connector and there is NTSC video available at the COMP output BNC connectors.

PAL This green LED indicates that the 625 line SDI signal is present on the SDI IN connector and there is PAL video available at the COMP output BNC connectors.

NO SIGNAL This red LED indicates that there is no valid SDI signal is present on the SDI IN connector.

PSU 1, 2 These LED's will be On to indicate that their corresponding power supply is functioning normally. On units fitted with a single power supply the PSU 2 LED will be Off all the time.

2.6. SPECIFICATIONS

The Multivert has ten identical channels. The number of inputs and outputs shown are per channel.

2.6.1. Serial Video Inputs

Standard:	SMPTE 259M-C – 525 and 625 component.
Connector:	BNC per IEC 169-8
Equalization:	Automatic to 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss:	> 15 dB up to 540 Mb/s
Impedance:	75 ohm

2.6.2. Serial Video Outputs

Standards:	Serial component 270 Mb/s (SMPTE 259M-C)
Connectors:	1 BNC per IEC 169-8
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB
Wide Band Jitter:	< 0.15 UI

2.6.3. Analog Video Outputs

Number of Outputs:	2 Per Channel
Standards:	Analog composite NTSC if input is 525i/59.94 video Analog composite PAL if input is 625i/50
Connectors:	2 BNC per IEC 169-8
Signal Level:	1 V p-p nominal, internally adjustable
DC Offset:	0V ±0.1V
Return Loss:	> 45 dB up to 6 MHz
Impedance:	75 ohm

NTSC Setup: Pedestal is jumper selectable

2.6.4. Electrical

Power: 115/230 V AC 50/60 Hz, 30 VA
Safety: ETL listed, complies with EU safety directive
EMI/RFI: Complies with FCC part 15, class A and EU EMC Directive

2.6.5. Physical

Dimensions: 19“W x 1.75”H x 7.75”D
(483mm W x 45mm H x 196mm D)
Weight: 6.7 lbs (3 Kg) -with two power supplies