



V6271

Video Monitoring Distribution Amplifier and DAC

User Guide

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VISTEK V6271 Video Monitoring DA & DAC

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1 Description

The V6271 is a Serial Digital Video Distribution Amplifier with converters to analogue composite and component signals, which forms part of the Vistek V1600 range of interface products. It is a 3U high card, which is fitted into either a V1601, V1603 or V1606 rack, from which it gets its power and remote control. The module can also be housed in the 1-Box or 2-Box. A passive rear module, 16VR1B or 16VR3B, is required for all signal interconnections.

The unit is fully dual standard for both 625/50 and 525/60 D1 signals. It can automatically detect the input standard and operate accordingly, and it is also forced into a standard when there is no input.

The unit can produce the analogue composite and component signals in various formats.

The formats are: -

Composite

PAL, PAL N, PAL M, NTSC, NTSC-Japan

Component

YC (standard levels, Beta levels or US MII levels), with or without set-up

Y, Pb, Pr (standard levels, Beta levels or US MII levels), with or without set-up

GBR with or without set-up

An internal test pattern generator is also included for alignment purposes, producing either Colour Bars or Pluge.

In common with all Vistek V1600 modular units there is local control, which lets the user adjust all of the controls. In addition the module may be controlled remotely using the DART system. DART is the general purpose control architecture supplied by Vistek and other manufacturers, and enables full control and monitoring of this and all other V1600 units.

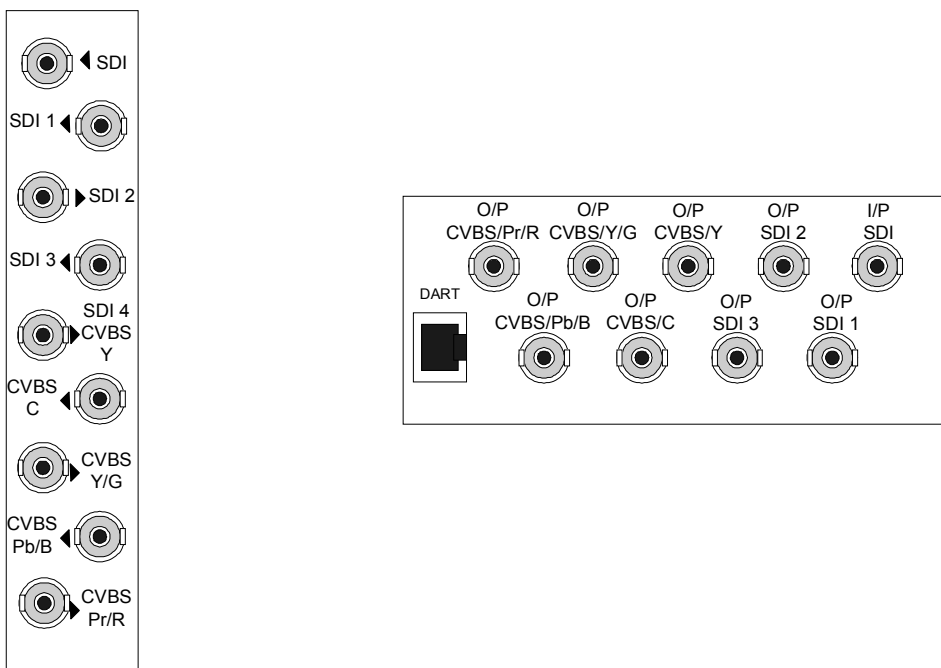
The front panel shows the status of the modules outputs and also has the Test Pattern on/off switch, which operates when in local mode. All other local controls are located on switches behind the front panel on the module. Local / Remote mode is also selected from a switch on the front panel.

2 Installation

2.1 Rear Panel Connections

The V6271 rear module connections are shown below.

3U Rear Module (16VR3B) 1U Rear Module (16VR1B)



2.2 Interfacing

SIGNAL		COMMENTS
Power	~3.5W	Supplied from rack
SDI I/P	BNC	Video to SMPTE 259M. Receive cable length up to 200m
SDI O/P 1 - 4	BNC	Video to SMPTE 259M. Drive cable length up to 200m
Outputs	BNC	Composite and Component Analogue Video Standards

2.3 Insertion Delay

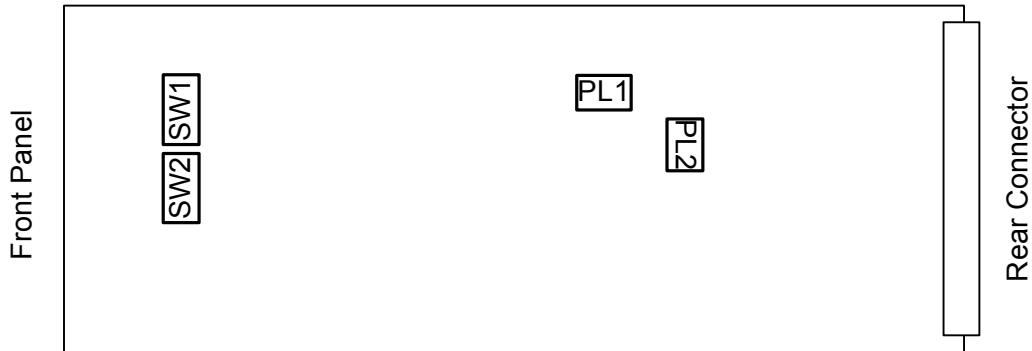
SDI Input to Analogue outputs	2.5 μ s	
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2.4 Hardware

The figure below shows diagrammatically the printed circuit board along with certain other components of interest. In particular it shows the position and orientation of the controls and switches, which set up Outputs when operated in Local control

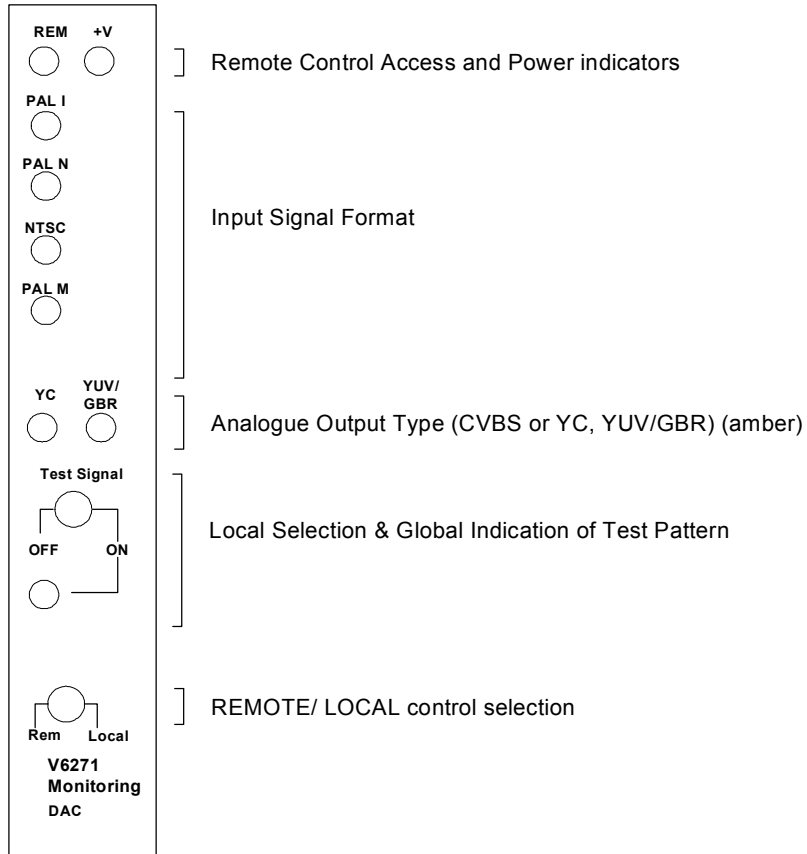


The purposes of the control switches are shown in the following table

Switch 1	Title	Left Position (Default)	Right Position
SW1 - 1	Default Rate	625 Lines	525 Lines
SW1 - 2	625 Standard	PAL	Pal N
SW1 - 3	525 Standard	NTSC	PAL M
SW1 - 4	NTSC Standard	NTSC	NTSC – Japan
SW1 - 5	Vertical Blanking	Pass	Blank
SW1 - 6	Ancillary Blanking	Always Blanked	
SW1 - 7	Horizontal Blanking	Narrow	Wide
SW1 - 8	Outputs A & B	CVBS	YC

Switch 2	Title	Left Position (Default)	Right Position
SW2 - 1	Test Pattern	Pluge	Colour Bars
SW2 - 2	In Screen Text	On	Off
SW2 - 3	Outputs C, D & E	CVBS	Component
SW2 - 4	Component Format	Y, Pb, Pr	GBR
SW2 - 5	Component Levels	N10	Beta
SW2 - 6	Feature 1	Black detect ON	Black detect Off
SW2 - 7	Feature 2	Audio Groups display On	Audio Group display Off
SW2 - 8	Feature 3	Reserved	-

2.5 Front Panel



The front panel shown above has three purposes:

Provide the user with indication of the operating conditions
Offer Local control of Test Signal
Select the control source

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2.5.1 Panel Indicators

The LEDs on the panel have these meanings

REM	Short blinks to indicate access by the DART controller, if fitted. It does not indicate that the unit is in one of its remote control modes.
+V	Indicates that 5V is present on the board. This is derived from the +15V distributed through the rack.
PAL I	Indicates that a 625/50 YC, YUV, GBR and/or PAL I format signal is being Output.
PAL N	Indicates that a 625/50 YC, YUV, GBR and/or PAL N format signal is being Output.
PAL M	Indicates that a 525/60 YC, YUV, GBR and/or PAL M format signal is being Output.
NTSC	Indicates that a 525/60 YC, YUV, GBR and/or NTSC or NTSC-Japan format signal is being Output.
YC	Indicates that a YC format signal is being Output on Outputs A & B.
YUV / GBR	Indicates that a YUV or GBR format signal is being Output on Outputs C,D & E.
Test Signal	Indicates that the Test Signal has been switched on.

Note: A flashing standard LED indicates that there is no input.

2.5.2 Control Switches

The upper switch has two positions and selects the Test Pattern when in Local Control Mode:

Off / On	Switches on the Internal Test Pattern, Colour Bars or Pluge, when the unit is operating in Local Mode. (Has no effect in Remote Mode)
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The lower switch has two positions and selects the control source:

Rem	Control is from the DART system. This requires the use of an external controller running a suitable programme, which communicates with multiple racks using the Dartnet protocol.
Local	Control is from the front panel itself.

2.6 Initialisation

When the unit powers up it will be set itself to the conditions as set by the local control switches, but will update to the Remote control settings if enabled and present. In the Remote control mode any changes will be made by the control system, but in Local control mode they will be made on the switches behind the front panel.



3 Operation

3.1 Default Rate

This selection determines the default line rate when no input is present. If there is an input the module outputs will switch to the input line rate and standard defined below.

3.2 625 Standard

When there is no input and the default rate is set to 625 or there is a 625 line rate signal on the input, this switch will determine the output standard of the composite signals.

3.3 525 Standard

When there is no input and the default rate is set to 525 or there is a 525 line rate signal on the input, this switch will determine the output standard of the composite signals.

3.4 NTSC Standard

The NTSC standard is selected by this control to be either normal NTSC or the Japanese format of NTSC without pedestal.

3.5 Vertical Blanking

The Vertical Blanking control will remove all data during the vertical interval, such as Wide Screen signalling and Vertical Interval Test signals.

3.6 Ancillary Blanking

The Ancillary Blanking has no effect, as the outputs are always blanked horizontally.

3.7 Horizontal Blanking

The Horizontal Blanking control selects the width of the blanking to either digital video or analogue video standards.

3.8 Outputs A & B

The outputs A & B can be selected to be either composite video or YC components

3.9 Test Pattern

The internal Test pattern can be selected between Pluge (for monitor alignment) and Colour Bars.

3.10 In Screen Text

The In Screen Text can be selected to provide indication within the output active picture area, of the input SDI video status. This is useful as the module will provide a valid output picture even with no input, therefore the In Screen Text will indicate I/P Failed. Using the Feature switches the input at Black and Audio Groups can also be displayed.

3.11 Outputs C, D & E

The outputs C, D & E can be selected to be either composite video or YPbPr/GBR component video.

3.12 Component Formats

This control will select the format of the C, D & E outputs to be either Y, Pb, Pr or G, B, R, when they are operating in component mode.

3.13 Component Levels

The levels of the component signals can be set to be either N10 (standard Levels) or Beta Levels.

3.14 Feature 1

Feature 1 enables the display of in screen text when the input signal has been at black for about 10 seconds. The In Screen Text selection must also be on.

3.15 Feature 2

Feature 1 enables the display of in screen text of the Embedded audio groups on the input signal. The In Screen Text selection must also be on.



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3.16 Feature 3

Reserved.

4 DAC Calibration

The V6271 has two calibrations, one controls the CVBS, Y, C outputs and the other controls the Y, Pb, Pr, G, B, R outputs.

When in calibration mode the outputs are automatically selected to CVBS and Y, Pb, Pr and only the CVBS/Y (or the CVBS/C on a V6271/4) and Y/G outputs need to be monitored for adjustment.

4.1 Procedure

Connect a shorting link to PL1. (This will set the outputs to CVBS,Y,Pr,Pb and select the internal colour bar test signal.)

Monitor one of the CVBS channels.

Set SW2 switch

1	off
2	on
3	on
4	off

Set SW1 switches to obtain 1 V p-p between sync bottom and white bar.

Toggle SW2 switch 4 on and off twice to store value in Prom.

Monitor the Y output of the Y,Pb,Pr channels.

Set SW2 switch

1	on
2	off
3	on
4	off

Set SW1 switches to obtain 1 V p-p between sync bottom and white bar.

Toggle SW2 switch 4 on and off twice to store value in Prom.

Remove the link on PL1 and connect to PL2 momentarily to reset the module.

Return all switches to off except SW2 switch 1, 2 & 3 which should be on. Select the test pattern generator and check the two Y channel output levels, to ensure the calibration values have been stored in the PROM.