

IRT Eurocard Type

DVA-3007 270 Mb/s ASI/SDI 8 O/P Reclocking Distribution Amplifier

Designed and manufactured in Australia

IRT can be found on the Internet at: http://www.irtelectronics.com

DVA-3007

270 Mb/s ASI/SDI 8 O/P Reclocking Distribution Amplifier

Instruction Manual

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This instruction manual applies to DVA-3007 later than S/N 0304001

Operational Safety:

WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Note that under certain conditions dangerous potentials may exist in some circuits when power controls are in the **OFF** position. Maintenance personnel should observe all safety regulations.

Do not make any adjustments inside equipment with power **ON** unless proper precautions are observed. All internal adjustments should only be made by suitably qualified personnel. All operational adjustments are available externally without the need for removing covers or use of extender cards.

Description



The DVA-3007 270 Mb/s serial digital video distribution amplifier provides the user with a single standard module to cover a wide range of distribution and monitoring functions for SDI or ASI signals.

Due to the fact that standard loop through techniques used in the analogue domain are unsuitable to the digital domain most digital equipment comes with no facility to route the input signal to other locations.

As a result a VDA is required at almost every point in the digital chain.

Serial digital signals also suffer severe deterioration over relatively short cable distances. The DVA-3007 provides a means of extending the working distances that can be achieved by equalising, reclocking and re-transmitting the data mid route.

Where a large number of reclocked outputs are required the DVA-3007 may be used to provide reclocking and its outputs fed to one or more DVA-3006 non reclocking DA's to provide the number of outputs required.

This provides a more economic solution than using multiple reclocking DA's and minimises jitter increase due to unnecessary re-clocking.

An optional rear assembly, ZVA-3006RL (sold separately), provides a bypass relay to switch the Input (SK1) to Output 1 (SK2) in the event of a power failure. When this bypass rear assembly is used, the number of outputs is reduced to 6.

The DVA-3007 may be mounted in IRT's 1 RU or 3 RU frames with other analogue or digital modules.

Features:

- For use as buffer or distribution amplifier.
- 8 x in-phase 270 Mb/s ASI or SDI reclocked outputs.
- Automatic input equalisation to 250 metres.
- Automatic output muting on no input.
- May be used in conjunction with non-reclocking DA's to provide multiple reclocked outputs.
- Front panel indicators provide monitoring of presence of input signal at 270 Mb/s.

Technical Specifications DVA-3007

Video input:

Number	I	1.	
Impedanc	e	75 Ω.	
Return los	SS	>20 dB 5 MHz to 270 MHz.	
		(>15 dB with optional ZVA-3006RL bypass rear assembly)	
Equalisation		Automatic, better than 250 metres at 270 Mb/s for Belden 8281 or equivalent cable. (reduces to 200m when LK2 is closed).	
Video o	utputs:		
Number		8 ASI or SDI plus one front panel monitoring output.	
Туре		Reclocked.	
Level		800 mV $\pm 10\%$ into 75 Ω .	
Impedanc	e	75 Ω.	
Return los	3 S	>20 dB 5 MHz to 270 MHz.	
		(>15 dB with optional ZVA-3006RL bypass rear assembly)	
DC offset		Nil.	
Perform	nance:		
Reclockin	g	Factory set for 270 Mb/s operation.	
Rise time		<1.0 ns, (700 ps typically).	
Residual j	itter	<0.1 UI (measured with up to 300m of Belden 8281 or equivalent cable).	
Connec	tors:	BNC 75 Ohms.	
Indicate	ors:		
Power		LED (green) for $+5$ V.	
Signal present		LED (green) when valid ASI/SDI signal present.	
Alarm			
Signal los	S	Contact closure. Link selectable NO/NC.	
Power r	aquirament.		
Voltage	cyun chient.	28 Vac CT $(14.0.14)$ or ± 16 Vdc	
Consump	tion	2.5 VA (including ZVA-3006RL optional rear assembly)	
		2.5 VI (moruaning 2 VI Sobores optional real assembly).	
Other:		0.500 Combined	
1 emperature range		0 - 50° C ampient.	
Mechanic	al	suitable for mounting in IKI 19 rack chassis with input, output and power	
Finish	Eront nonal	Connections on the rear panel.	
гшіяі.	Profit parter	Detachable silk screened DCP with direct mount connectors to Europard and	
	iteal assellibly	external signals	
Dimensio	ns	6 HP x 3 II x 220 mm IRT Eurocard	
Standard accessories		Rear connector assembly with matching connector for alarm output	
Optional accessories		$ZVA-3006RL$ relay bynass rear assembly (6 Ω/P)	
Sprionar		2 vii soosid remy oypus rem useniery (o or).	

Due to our policy of continuing development, these specifications are subject to change without notice.

Technical Description

The input circuit of the DVA-3007 consists of an adaptive cable equaliser IC, which automatically adapts to equalise any cable length from zero metres to lengths that attenuate the signal by 40 dB at 200 MHz. This corresponds to 300 metres of Belden 8281 cable. When link LK2 is closed equalisation is reduced to 200m for use in noisy environments or when a short cable is used. A carrier detect and output mute circuit is used to mute the output when no signal is present. The DVA-3007 is insensitive to the pathological patterns that can be present in the serial digital video signal.

The DVA-3007 also features an OUTPUT MONITOR point on the front panel. The output monitor is an isolated copy of the signal present at the rear panel outputs.

The output of the input stage is coupled to reclocking circuit, which then feeds cable driver circuits to provide the eight isolated in phase outputs from the DVA-3007.

The input cable equaliser circuit U1 and reclocking circuit U2 incorporate carrier detection circuits to mute the output when no signal is applied to the unit. The carrier detect signal and lock signal of U2 are used to energise relay, RL1 via a transistor, Q1, when locked carrier is present. The relay contacts are connected to SK10 on the rear panel to give a failure alarm in the form of a make (or break) to ground on failure as set by a link LK1, on the circuit board.

The dual AC inputs are rectified and then regulated by a switch mode regulator circuit to provide the +5V operating voltage for the unit.

+5Vdc is fed to pin 32a of the rear Euro-connector via a polyfuse, JP2. The +5V is to provide power for a signal bypass relay on the optional ZVA-3006RL bypass rear assembly, should one be used. The polyfuse protects the +5V power rail by going high impedance should pin 32a be shorted to ground. This protects against the accidental insertion of the DVA-3007 in anything other than its standard rear assembly or the optional ZVA-3006RL rear assembly.

Installation

Handling:

The DVA-3007 contains static sensitive devices and proper static free handling precautions should be observed.

When individual modules are stored, they should be placed in antistatic bags and proper antistatic procedures should be followed when inserting and removing cards from these bags.

Power:

Ensure that the voltage selection of the IRT mounting frame used to house the DVA-3007 and the local AC mains supply voltage match and that the correct rating fuse is installed in the mounting frame power supply.

Earthing:

Chassis earth connection of the equipment mounting frame is via the earth connection on the three pin (IEC) AC mains supply inlet. This is a safety earth and must be connected.

Installation in frame or chassis:

See details in separate manual for selected frame type.

LK1 is factory set for a contact <u>make</u> to ground on signal failure at SK10 pin 2 on the rear panel, move LK1 from the normally closed (N/C) to the normally open (N/O) position for a break to ground on signal or power loss.

Link LK2 closed reduces the input equalisation to 200m for use in noisy environments or when a short input cable is used.

The presence of 270 Mb/s locked signal is indicated by the 'SIGNAL PRESENT' front panel LED (green).

The presence of the internal +5 Vdc supply is indicated by the front panel LED (green).

It is recommended that unused outputs on the rear panel be terminated with 75-ohm termination plugs.

Front & rear panel connector diagrams

The following front panel and rear assembly drawings are not to scale and are intended to show relative positions of connectors, indicators and controls only.



Note that the ZVA-3006RL is an optional relay bypass rear assembly (sold separately), which bypasses the input direct to output 1 in the event of a power failure. This optional rear assembly is only compatible with both the DVA-3006 and DVA-3007 ASI distribution amplifiers and not the previous ASI/SDI distribution amplifiers, DVA-3001 to DVA-3005.

Maintenance & storage

Maintenance:

No regular maintenance is required.

Care however should be taken to ensure that all connectors are kept clean and free from contamination of any kind. This is especially important in fibre optic equipment where cleanliness of optical connections is critical to performance.

Storage:

If the equipment is not to be used for an extended period, it is recommended the whole unit be placed in a sealed plastic bag to prevent dust contamination. In areas of high humidity a suitably sized bag of silica gel should be included to deter corrosion.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

Warranty & service

Equipment is covered by a limited warranty period of three years from date of first delivery unless contrary conditions apply under a particular contract of supply. For situations when "**No Fault Found**" for repairs, a minimum charge of \$A100.00 will apply, whether the equipment is within the warranty period or not.

Equipment warranty is limited to faults attributable to defects in original design or manufacture. Warranty on components shall be extended by IRT only to the extent obtainable from the component supplier.

Equipment return:

Before arranging service ensure that the fault is in the unit to be serviced and not in associated equipment. If possible, confirm this by substitution.

Before returning equipment contact should be made with IRT or your local agent to determine whether the equipment can be serviced in the field or should be returned for repair.

The equipment should be properly packed for return observing antistatic procedures.

The following information should accompany the unit to be returned:

- 1. A fault report should be included indicating the nature of the fault
- 2. The operating conditions under which the fault initially occurred.
- 3. Any additional information which may be of assistance in fault location and remedy.
- 4. A contact name and telephone and fax numbers.
- 5. Details of payment method for items not covered by warranty.
- 6. Full return address.
- 7. For situations when "**No Fault Found**" for repairs, a minimum charge of \$A100.00 will apply, whether the equipment is within the warranty period or not.

Please note that all freight charges are the responsibility of the customer.

The equipment should be returned to the agent who originally supplied the equipment or, where this is not possible, to IRT direct as follows.

Equipment Service IRT Electronics Pty Ltd 26 Hotham Parade ARTARMON N.S.W. 2064 AUSTRALIA

 Phone:
 61 2 9439 3744
 Fax:
 61 2 9439 7439

 Email:
 service@irtelectronics.com
 Fax:
 61 2 9439 7439

Drawing Index

Note: Components marked n/c on the diagrams are optional and are not included on standard production units. They are shown to assist with interpretation of additional or optional functions, which may be included or are necessary for factory set-up procedures.

Drawing #	Sheet #	Description
804516	1	DVA-3007 Circuit Schematic
804673		ZVA-3006RL Bypass Relay Rear Assembly (optional).



