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IRT Eurocard
Triple
Video Distribution Amplifier

Type VA-761

Designed and manufactured in Australia

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

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Triple
Video Distribution Amplifier

Type VA-761

Instruction Book

Table of Contents

This instruction book applies to units later than S/N 9411000.

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.

GENERAL DESCRIPTION

The VA-761 is a high performance Eurocard video amplifier package containing three separate amplifiers. Each amplifier is equipped with a 75 Ω terminated input and three 75 Ω outputs.

The VA-761 is ideally suited for adjustment of gain and frequency response of multiple video signals at a central location, isolation of multiple monitoring points and RGB signal distribution or monitoring.

Gain and cable equalisation controls for each amplifier are accessible on the front panel.

The input cable equaliser characteristics are pre-set to compensate for a maximum of greater than 250 metres of 1% 75 Ω video cable.

An internal pre-set potentiometer sets the longitudinal hum reduction. This is adjusted at the factory and should not need to be re-adjusted in normal circumstances.

DC coupling is used throughout the circuit eliminating the need for clamping. This makes the module particularly suited to RGB and other signals which do not contain sync. However care should be taken to ensure that no stray DC potentials exist on input signals as these may upset the operation of the amplifier.

The VA-761 is a standard IRT Eurocard and is compatible with our other IRT Eurocard products.

TECHNICAL SPECIFICATIONS
IRT Eurocard Triple VDA
Type VA-761

Input/output connectors	BNC
Input impedance	Ground isolated, terminating into 75 Ω
Input signal range	0.7 to 2.0 V p-p video signal
Outputs	Three 75 Ω sourced, DC coupled
Maximum output	2.0 V p-p video
Overall gain	Set by front panel control Adj. from no output to a max. of +6 dB
Frequency response	±0.1 dB to 10 MHz +0.1/-0.5 to 20 MHz
Differential gain at 4.43 MHz	Less than 0.2% at 1V p-p
Differential phase at 4.43 MHz	Less than 0.2° at 1V p-p
Longitudinal hum reduction	With input grounds isolated better than 40 dB at 50 Hz (Internal pre-set adjustment)
Cable equalisation	Continuously variable front panel control. Equalising up to 250 m of 75 Ω cable

General:

Input power		28 Vac CT (14 - 0 - 14), (dual or single)
Temperature range		0 - 50° C ambient
Mechanical		Suitable for mounting in IRT Eurocard chassis
Finish:	Front escutcheon	APO grey powder coat, silk screened black lettering & red IRT logo
	Rear assembly	Detachable silk screened PCB with direct mount connectors to Eurocard and external signals
Dimensions		6 HP x 3 U x 220 mm IRT Eurocard
Standard accessories		Operation manual (1 supplied per order)
Optional accessories		TME-6 module extender card

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

TECHNICAL DESCRIPTION

The VA-761 contains three identical amplifier circuits. Only one will be described below. For the other circuits due note should be made of the relevant component numbering by comparison with the first channel.

Power supply

Low voltage power is supplied from a separate power supply in the rack frame. The incoming power is fused by fusible resistors F1 to F4. The VA-761 module has dual rectifiers fitted to take advantage of redundant power supplies where these are provided by the external PSU.
The filtered DC is supplied to regulator circuits to provide ±12V power to the amplifier circuit.

Video amplifier

Incoming video is terminated in 75 Ohms consisting of a parallel network of two resistors (R1 and R3) and a 500 Ohm potentiometer RV 1.

Longitudinal hum reduction is achieved by raising the input coaxial ground circuit above the equipment ground and feeding a variable amount of this signal to the feedback input of the input amplifier. In this way the "common mode" gain of the amplifier to hum signals present on the incoming video coaxial cable is set so that this signal is cancelled in the differential amplifier. Since this is only necessary at low frequencies C1 is included in the ground circuit to improve the high frequency response of the amplifier.

The output of the input amplifier is fed via gain control RV 2 to the output amplifier providing attenuation of the overall signal from the maximum +6 dB to zero output.

Feedback from the output to the inverting input of the output amplifier via R7 is used to set the gain of the amplifier. RV 3 which is included in the gain setting circuit of the amplifier introduces a frequency conscious component into the feedback gain. Changing this value by means of a network of resistors and capacitors, the gain of the amplifier can be changed with frequency and can thus compensate for coaxial cable losses. By adjustment of RV 3 the amount of equalisation can be varied to compensate for different lengths of cable. The equalisation network is factory set for YR23769 cable. To compensate other types of cable with different loss characteristics the network will need to be adjusted to suit.

The output signal is DC coupled to resistors R12, R13 and R14 which set the output impedance of the amplifier to 75 Ohms.

INTERNAL ADJUSTMENTS

The following adjustable resistors are factory set and should not be adjusted unless a component has been changed. They are not 'operational' controls. Before adjusting any of these controls allow time for the VA-761 to reach temperature stability.

RV 1 "Channel 1” Common Mode Rejection.
Adjusted to reduce input common mode signals to a minimum at the output of the VA-761.

RV 4 "Channel 2” Common Mode Rejection.
Adjusted to reduce input common mode signals to a minimum at the output of the VA-761.

RV 7 "Channel 3” Common Mode Rejection.
Adjusted to reduce input common mode signals to a minimum at the output of the VA-761.

CONFIGURATION

The VA-761 requires no configuration other than setting the front panel gain and equalisation controls as necessary. These are factory set for a transfer gain of 1 into a 75 Ohm load and for 1 metre of input cable. For most applications these will not require adjustment and unless proper test equipment is on hand they should not be altered.

INSTALLATION

Pre-installation:

Handling:

This equipment may contain or be connected to static sensitive devices and proper static free handling precautions should be observed.

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.

Power:

AC mains supply: Ensure that operating voltage of unit and local supply voltage match and that correct rating fuse is installed for local supply.

DC supply: Ensure that the correct polarity is observed and that DC supply voltage is maintained within the operating range specified.

Earthing:

The earth path is dependent on the type of frame selected. In every case particular care should be taken to ensure that the frame is connected to earth for safety reasons. See frame manual for details.

Signal earth: For safety reasons a connection is made between signal earth and chassis earth. No attempt should be made to break this connection.

Video inputs:	differential type not connected directly to signal or chassis earth.
Video outputs:	Internally connected to reference earth.

Installation in frame or chassis:

See details in separate manual for selected frame type.

Connections:

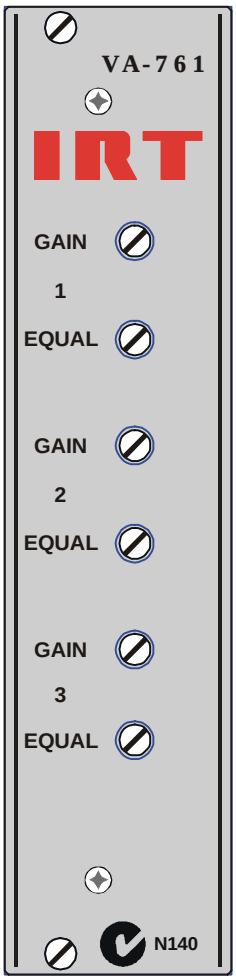
The inputs of the VA-761 are terminated in 75 Ω and no loop through facility is provided.
The outputs are 75 Ω sourced and will not provide correct level or response unless correctly terminated in 75 Ω by the connected equipment.

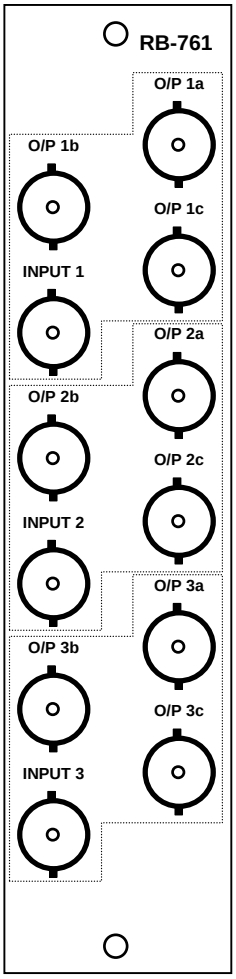
If more than three outputs are required outputs a & b from the VDA 1 should be fed to VDA 2 & 3 inputs to provide six outputs. Output c of VDA 1 should not be used to feed other than another VA-761 as there will be a slight timing difference between this output and that of the outputs from VDA's 1 & 2.

If more than six outputs are required consideration should be given to using another type of VDA better suited to this purpose such as the VA-700 with ten outputs.

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.





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 1 hour's labour, at IRT's current labour charge rate, 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 1 hour's labour will apply, whether the equipment is within the warranty period or not. Contact IRT for current hourly rate.

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

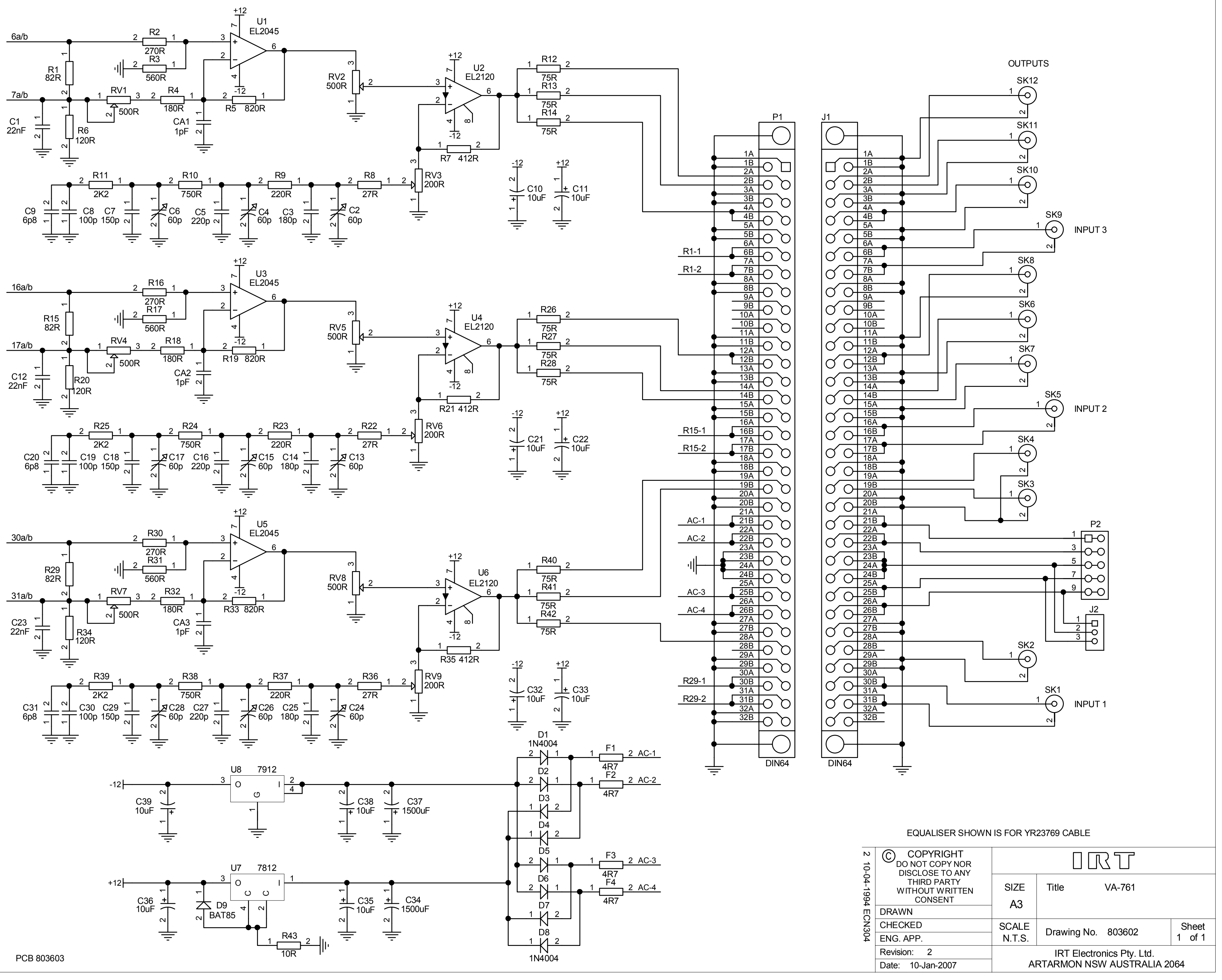
The equipment should be returned **to the agent who originally supplied the equipment** or, where this is not possible, to IRT direct as follows.

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

Drawing List Index

Drawing #	Sheet #	Description
803602	1	VA-761 Triple VDA circuit diagram



EQUALISER SHOWN IS FOR YR23769 CABLE

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CHECKED	SCALE N.T.S.	Drawing No. 803602	Sheet 1 of 1
ENG. APP.			
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