

Single 1 In, 8 Out / Dual 1 In, 4 Out 3G/HD/SD/ASI Reclocking/Non-Reclocking Distribution Amplifier



User Manual

IRT-6010-DDA

Single 1 In, 8 Out / Dual 1 In, 4 Out 3G/HD/SD/ASI Reclocking/Non-Reclocking Distribution Amplifier

Revision History:

[illegible]

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This instruction book applies to units fitted with firmware \geq Revision 2.1.

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.

openGear® INTRODUCTION

Developed by Ross Video, openGear® is a standard where various manufacturers can design their equipment to fit a common frame allowing the end user to mix and match the various openGear® cards available in the market place together in one frame. This allows a single frame to be used instead of multiple different vendor's frames that each would otherwise be using their own proprietary standard.

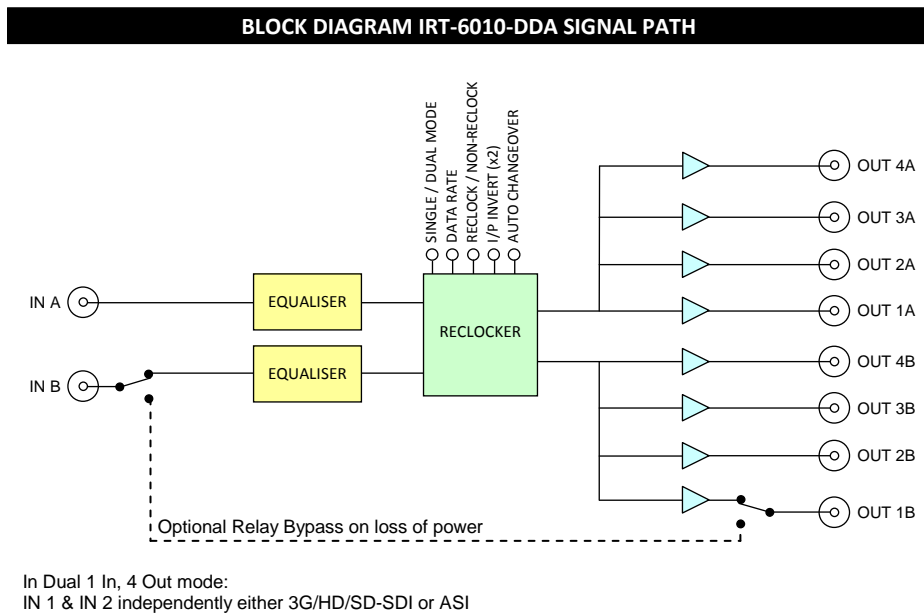
A simple to use monitoring and control software called DashBoard™ is a free program downloadable from the openGear® website (www.opengear.tv) that allows the user to remotely monitor and control an openGear® type card fitted within an openGear® frame that meets the openGear® standard for DashBoard™ control. A link is also supplied via the IRT Electronics website (www.irtelectronics.com) under the openGear® navigation section.

IRT Electronics' openGear® cards are designed to meet the openGear® standard for mounting within the openGear® OG3-FR frame and its earlier version DFR-8300 frame, and is fully compliant with DashBoard™ control.

The openGear® frame manual, DashBoard™ control software and information regarding the frame's power supplies, controller card and frame accessories are available for download at the openGear® website.

The term openGear® is a registered trade mark of Ross Video Limited.

DashBoard software Control™ is a trade mark of Ross Video Limited.



The IRT-6010-DDA serial digital data distribution amplifier provides the user with a single module to cover a wide range of distribution and monitoring functions for 3G/HD/ SD-SDI or ASI signals.

Two quad output reclocking / non-reclocking distribution amplifiers are provided on the one card. On board switch settings allow either of the inputs to feed all outputs to create a one in, eight out distribution amplifier.

Where non-reclocking is required, on-board switch settings select between reclocking and non-reclocking modes.

The IRT-6010-DDA will automatically reclock to match the input at either 3G-SDI, HD-SDI, SD-SDI or ASI rates, or can be fixed to operate at any one of these rates. Both sides of the IRT-6010-DDA can be run independently allowing a mixture of signal types to be used.

The IRT-6010-DDA is also configurable for automatic changeover from one input to the other on loss of input signal allowing for an input Main/Standby scenario.

Due to the nature of ASI signals being phase sensitive, signal inversion is also possible for situations where an inverted ASI signal needs to be corrected.

Front edge LEDs indicate when input signals are present and whether the outputs are locked to the inputs.

An optional relay bypass rear assembly is available to switch one of the Inputs to one Output in the event of a power failure.

The IRT-6010-DDA is designed to fit the openGear® standard 2RU frames which allow a mixture of cards from various manufacturers to be mounted within the same frame.

The DashBoard™ control software is available as a free download.

Standard features:

- Switch selectable for single 1 in, 8 out or dual 1 in, 4 out distribution amplifier operation.
- In-phase reclocked / non-reclocked outputs on each amplifier.
- Selectable for either 3G/HD/SD-SDI or ASI applications.
- Automatic output muting on no input. Front edge indicators provide monitoring of presence of inputs and lock status.
- Automatic changeover to second input on loss of primary input (selectable).
- Optional relay bypass on loss of power.
- DashBoard™ software monitoring and control.

TECHNICAL SPECIFICATIONS

Inputs:

Number	2.
Impedance	75 Ω , BNC.
Type	3G-SDI, HD-SDI, SD-SDI or ASI (to SMPTE 424M, 292M and 259M-C standards; and DVB-ASI standard).
Return loss	15dB 5 MHz to 1.485 GHz, 10dB from 1.485 GHz to 2.97 GHz ¹ .
Equalisation Automatic	60 m at 3G-SDI rate with Belden 1694A ² ; 110 m at HD-SDI rate with Belden 1694 ^{2,3} , 80 m with Belden 8281 ^{2,3} ; 400 m at SD-SDI/ASI rate with Belden 1694 ³ , 300 m with Belden 8281 ^{3,4} .

Outputs:

Number	8 (1 in, 8 out; or (2x) 2 in, 4 out).
Type	Reclocked or non-reclocked, switch selectable.
Level	800 mV \pm 10%.
Impedance	75 Ω , BNC.
Return loss	15dB 5 MHz to 1.485 GHz, 10dB from 1.485 GHz to 2.97 GHz ¹ .

Performance:

Reclocking	Automatic or selectable for 3G-SDI, HD-SDI or SD-SDI / ASI operation.
Rise Time 3G/HD SD	< 135 ps at 2.97 Gb/s and 1.485 Gb/s; > 0.4 ns and < 1.5 ns at 270 Mb/s.
Intrinsic Jitter	< 0.3 UI at 2.97 Gb/s reclocked; < 0.2 UI at 1.485 Gb/s reclocked; < 0.1 UI at 270 Mb/s reclocked.

Power Requirements:

Voltage	+ 12 Vdc.
Power consumption	< 5 VA.

Other:

Temperature range	0 - 50° C ambient.
Mechanical	Suitable for mounting in an openGear® 2RU rack chassis.
Dimensions (openGear® standard)	33.6 mm x 2U x 325 mm.

Supplied accessories	Rear connector assembly.
Optional accessories	IRT-6010RL-ZDA relay bypass rear connector assembly.

Ordering	IRT-6010-DDA IRT-6010RL-ZDA	IRT-6010-DDA, programmed with DashBoard™ control; Relay bypass rear assembly suitable for 3G-SDI ¹ , HD-SDI and SD-SDI/ASI signals.
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NOTE	1	Return loss reduced by a couple of dB at 3G rate with optional bypass relay.
	2	Reduces to ~ 50m with optional bypass relay rear assembly.
	3	If two inputs are being inputted, cable equalisation is limited to that of the higher rate.
	4	Reduces to ~ 70m when SW1-4 (I/P A), SW2-4 (I/P B) is ON.

CONFIGURATION

The IRT-6010-DDA may be configured as a Dual 1 In, 4 Out or a Single 1 In, 8 Out distribution amplifier either locally via on board DIP switch settings, or remotely via DashBoard™.

To configure IRT-6010-DDA via DashBoard™, DIP switch Sw2-7 must be set to ON.

DIP Switch settings:



Input A signal type (rate set)	SW1-1	SW1-2
Auto Detect (3G/HD/SD/ASI rates)	OFF	OFF
SD-SDI / ASI only	ON	OFF
HD-SDI only	OFF	ON
3G-SDI only	ON	ON

- SW1-3** OFF Reclocking mode. DA behaves as a Reclocking DA.
ON Non-Reclocking mode (Reclocker bypassed). DA behaves as a Non-Reclocking DA.
- SW1-4** OFF I/P A Normal cable equalisation.
ON I/P A Reduced cable equalisation to ~ 70m for shorter cable for use in a noisy environment.
- SW1-5** OFF Single 1 In, 8 Out DA mode.
ON Dual 1 In, 4 Out DA mode (IN A → 'A' Outputs (OUT A1, OUT A2, OUT A3 & OUT A4);
(IN B → 'B' Outputs (OUT B1, OUT B2, OUT B3 & OUT B4).
- SW1-6** OFF Non-invert I/P A (Default position).
ON Invert⁵ I/P A.
- SW1-7** OFF Auto Changeover Function disabled.
ON Auto Changeover Function enabled.
- SW1-8** Not Used.

Input B signal type (rate set)	SW2-1	SW2-2
Auto Detect (3G/HD/SD/ASI rates)	OFF	OFF
SD-SDI / ASI only	ON	OFF
HD-SDI only	OFF	ON
3G-SDI only	ON	ON

- SW2-3** OFF I/P B Reclocking mode. DA behaves as a Reclocking DA.
ON I/P B Non-Reclocking mode (Reclocker bypassed). DA behaves as a Non-Reclocking DA.
- SW2-4** OFF I/P B Normal cable equalisation.
ON I/P B Reduced cable equalisation to ~ 70m for shorter cable for use in a noisy environment.
- SW2-5** OFF I/P A primary I/P of single 1 in, 8 out DA (IN A → All 8 Outputs).
ON I/P B primary I/P of single 1 in, 8 out DA (IN B → All 8 Outputs). Not applicable to Dual mode.
- SW2-6** OFF Non-invert I/P B (Default position).
ON Invert⁵ I/P B.
- SW2-7** OFF DIP Switch control. Settings as per DIP switch settings.
ON DashBoard™ control. Settings as per DashBoard™ settings.
- SW2-8** Not Used.

NOTE: 5 Due to the nature of ASI signals being phase sensitive, signal inversion is possible with this switch for situations where an inverted ASI signal needs to be corrected.

Single 1 In, 8 Out Quick Set-up Guide:

ChAx8 - Input A to all 8 Outputs (4 x Output A and 4 x Output B) Reclocking DA:

Sw1-5 = OFF (Single 1 In, 8 Out DA mode).
Sw2-5 = OFF (Input A primary input).

Note that it is also possible to set Input B to all 8 Outputs, if desired.

ChBx8 - Input B to all 8 Outputs (4 x Output A and 4 x Output B):

Sw1-5 = OFF (Single 1 In, 8 Out DA mode).
Sw2-5 = ON (Input B primary input).

Data Rate:

For automatic detection of signal type so that the IRT-6010-DDA will pass 3G-SDI, HD-SDI and SD-SDI/ASI automatically:

Sw1-1 = OFF.
Sw1-2 = OFF.

For 3G-SDI only, HD-SDI only or SD-SDI/ASI only, see Sw1-1 and SW1-2 settings on page 8.

Note that Sw2-1 and Sw2-2 have no effect when being run in the Single 1 In, 8 Out mode.

Reclocking DA Mode:

Sw1-3 = OFF (Input reclocked. DA behaves as a reclocking DA).
Sw2-3 = Not Applicable.

Non-Reclocking DA Mode:

Sw1-3 = ON (Input non-reclocked. DA behaves as a non-reclocking DA).
Sw2-3 = Not Applicable.

Reduced equalisation in a noisy environment:

Sw1-4 = ON (Input A cable equalisation reduced).
Sw2-4 = ON (Input B cable equalisation reduced. Relevant only if Automatic Changeover enabled).

Automatic Changeover Mode:

On loss of primary input, secondary input will switch to all 8 outputs. See *Operation* section for complete description.

Sw1-7 = OFF (Auto Changeover disabled).
Sw1-7 = ON (Auto Changeover enabled).

Dual 1 In, 4 Out Quick Set-up Guide:

Note that in Dual 1 In, 4 Out mode, each half of the IRT-6010-DDA behaves as an independent DA, which means that each input can be set with different (or the same) data rate and Reclock/Non-Reclock mode settings.

Input A to 4 x Output A, and Input B to 4 x Output B:

Sw1-5 = ON (Dual 1 In, 4 Out mode).

Sw2-5 = Not Applicable.

Reclocking Mode:

Sw1-3 = OFF (Input A reclocked. A input behaves as a reclocking DA).

Sw2-3 = OFF (Input B reclocked. B input behaves as a reclocking DA).

Non-Reclocking Mode:

Sw1-3 = ON (Input A non-reclocked. A input behaves as a non-reclocking DA).

Sw2-3 = ON (Input B non-reclocked. B input behaves as a non-reclocking DA).

Reduced equalisation in a noisy environment:

Sw1-4 = ON (Input A cable equalisation reduced).

Sw2-4 = ON (Input B cable equalisation reduced).

Automatic Changeover Mode:

On loss of one input, other input will switch to all 8 outputs. See *Operation* section for complete description.

Sw1-7 = OFF (Auto Changeover disabled).

Sw1-7 = ON (Auto Changeover enabled).

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.

Installation in openGear® frame:

See details in separate manual downloadable from the openGear® website (www.opengear.tv).

Signal Inputs & Outputs:

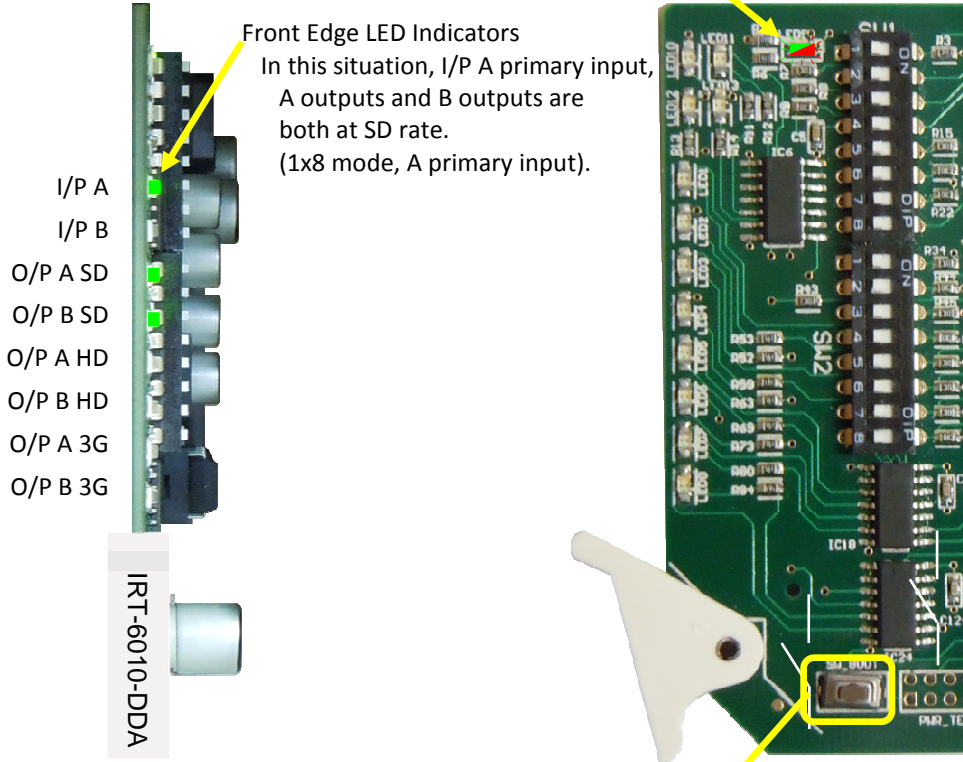
The IRT-6010-DDA can be configured as a single 1 IN, 8 OUT distribution amplifier, or as dual 1 IN, 4 OUT distribution amplifiers as described in the *Configuration* section of this handbook. If set up for a 1 IN, 8 OUT distribution amplifier, either input can be configured as the primary input. The other input is not used except when the automatic changeover function is enabled, in which case this becomes the secondary input. See the *Operation* section of this manual for a complete description.

Inputs and Outputs are 75 Ω BNC type for connection with high quality 75 Ω coaxial cable. Inputs are self-terminating.

An optional relay bypass rear assembly (IRT-6010RL-ZDA) is available where one of the inputs (I/P B) is outputted to one of the outputs (OUT B1) on loss of power or removal of the card from the rear assembly itself. The bypass relay is suitable for all specified signals up to 3G-SDI. Note however that the cable equalisation at the 3G/HD-SDI rates and the return loss at the 3G-SDI rates is reduced through this relay. Note also that if operating with the relay bypass option in the 1x8 mode, the IRT-6010-DDA must be set up as I/P B being the primary input.

Front Edge LED and Switches Locations

Green/Red LED: GREEN – Communication with frame's Network card.
RED - No communication with Network card / No Network card.

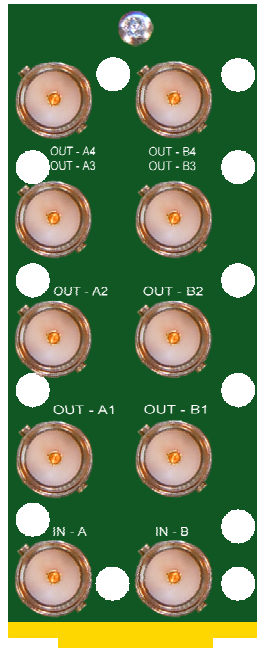


SW_boot switch: Default Reset Switch.

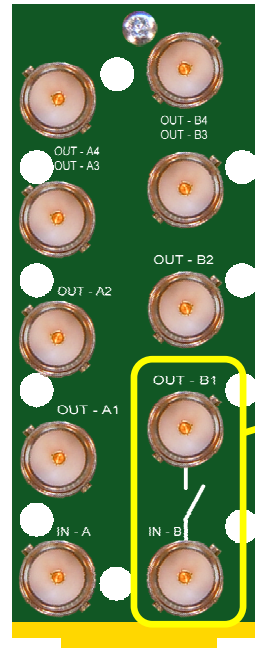
User set names and switch position are stored within memory so that in the event of a loss of power this information is restored on resumption of power.

If the default Reset Switch is pressed whilst powering or inserting the card, the IRT-6010-DDA will default to factory preset names and input position.

Rear Assembly Layouts



Standard
Rear Assembly
(IRT-6010-ZDA)



Optional
Relay Bypass Rear Assembly
(IRT-6010RL-ZDA)

IN B is relay bypassed to
OUT-B1 on loss of power
or removal of card.

OPERATION

Single 1 In, 8 Out Mode:

ChAx8: Input A to all 8 Outputs (4 x Output A and 4 x Output B):

With the IRT-6010-DDA set-up in the single 1 In, 8 Out mode with input 'A' as the primary input, 'IN A' goes to all 8 outputs. When an input signal is applied to the input A port, the corresponding INPUT A and both data rate A & B LEDs will illuminate.

In this example, the data rate has either been set up for either 'Auto Detect' or 'SD-SDI only' data rate and is being fed with an SD equivalent data rate signal such as SD-SDI or ASI. Unless Automatic Changeover mode has been implemented, even if a signal has been applied to the 'IN B' port, INPUT B will not illuminate. See Automatic Changeover description for explanation of how secondary INPUT LED (in this case, B) behaves.

If the input signal that is applied does not match the set data rate, the corresponding input and both detected data rate LEDs will flash and the outputs will be muted (unless the Automatic Changeover function has been implemented - see Automatic Changeover description).

In this example, if the data rate has been set for HD only application and an SD rate has been applied, both the INPUT A and SD A & B LEDs will flash.

ChBx8: Input B to all 8 Outputs (4 x Output A and 4 x Output B):

With the DDA-4010 set-up in the single 1 In, 8 Out mode with input 'B' as the primary input, 'IN B' goes to all 8 outputs. When an input signal is applied to the input B port, the corresponding INPUT B and both data rate A & B LEDs will illuminate.

In this example, the data rate has either been set up for either 'Auto Detect' or 'SD-SDI only' data rate and is being fed with an SD equivalent data rate signal such as SD-SDI or ASI. Unless Automatic Changeover mode has been implemented, even if a signal has been applied to the 'IN A' port, INPUT A will not illuminate. See Automatic Changeover description for explanation of how secondary INPUT LED (in this case, A) behaves.

If the input signal that is applied does not match the set data rate, the corresponding input and both detected data rate LEDs will flash and the outputs will be muted (unless the Automatic Changeover function has been implemented - see Automatic Changeover description).

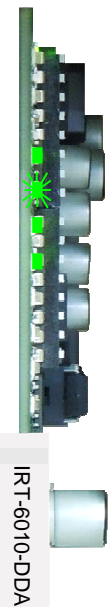
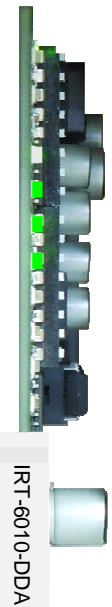
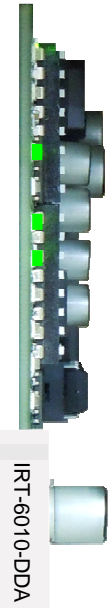
In this example, if the data rate has been set for HD only application and an SD rate has been applied, both the INPUT B and SD A & B LEDs will flash.

Automatic Changeover Mode:

With the Automatic Changeover mode enabled, provided a secondary input is present at the correct set data rate, on loss of the primary input the outputs will automatically switch to the secondary input. The presence of a secondary input, in this example 'IN B', is indicated by the corresponding INPUT LED flashing.

Note that when the data rate is set for 'Auto Detect', or the DA is set-up for non-reclocking mode, Automatic Changeover will take place regardless of the secondary input's data rate.

If the secondary input data rate does not match the set data rate, both the secondary INPUT LED and its corresponding data rate LED will flash.



Non-Reclocking Mode:

The rate set only applies to the reclocking mode. In non-reclocking mode the reclocker is bypassed allowing other data rates to pass through. Whilst in the non-reclocking mode, if an input signal is present, the corresponding front INPUT LED will illuminate, but the 3G, HD and SD LEDs will not except in the case where the input data rate actually corresponds to a 3G, HD or SD rate. Likewise, in the reclocking mode, if an input is not at one of the standard 3G, HD or SD rates the INPUT LED will flash and none of the 3G, HD or SD LEDs will illuminate or flash.

Relay Bypass Option:

With the IRT-6010-DDA fitted with the optional IRT-6010RL-ZDA relay bypass rear assembly, on loss of power or removal of the card from the frame, the INPUT B signal is automatically routed via a relay to the output 'OUT B1' port. Therefore if using the optional relay bypass rear assembly and using the IRT-6010-DDA as a 1x8 DA, it should be configured with INPUT B as the primary input.

Dual 1 In, 4 Out Mode:

Input A to 4 x Output A, and Input B to 4 x Output B:

With the IRT-6010-DDA set-up in the dual 1 In, 4 Out mode, the IRT-6010-DDA is essentially two independent distribution amplifiers each with a single input and 4 outputs:

Input signal 'IN A' goes to outputs 'OUT A1', 'OUT A2', 'OUT A3' and 'OUT A4'; and

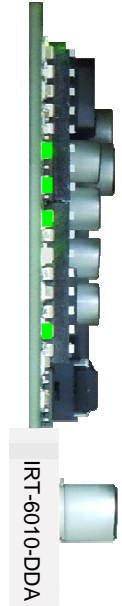
Input signal 'IN B' goes to outputs 'OUT B1', 'OUT B2', 'OUT B3' and 'OUT B4'.

Each of the input's data rates can be set independently from each other, either 'Auto Detect' for automatic detection of 3G/HD/SD-SDI or ASI rates, '3G-SDI only', 'HD-SDI only' or 'SD-SDI/ASI only' rates. Either side can also be individually configured as a reclocking or non-reclocking distribution amplifier.

When an input signal is applied, the corresponding INPUT and data rate LEDs will illuminate.

In this example, INPUT A has been set up for either 'Auto Detect' or 'SD-SDI/ASI only' data rate and is being fed with a 270Mb/s data rate signal such as SD-SDI or ASI, and INPUT B has either been set up for either 'Auto Detect' or 'HD-SDI only' data rate and is being fed with an HD equivalent data rate signal such as HD-SDI.

If an input signal that is applied does not match the set data rate, the corresponding input and detected data rate LEDs will flash and the corresponding outputs will be muted (unless the Automatic Changeover function has been implemented - see Automatic Changeover description).



Automatic Changeover Mode:

With the Automatic Changeover mode enabled, provided the other DA input is present at the correct set data rate of the current DA, on loss of either input the outputs will automatically switch to the other DA's outputs.

On loss of INPUT A, INPUT B takes control of A outputs as well as its own B outputs.

Non-Reclocking Mode:

The rate set only applies to the reclocking mode. In non-reclocking mode the reclocker is bypassed allowing other data rates to pass through. Whilst in the non-reclocking mode, if an input signal is present, the corresponding front panel INPUT LED will illuminate, but the 3G, HD and SD LEDs will not except in the case where the input data rate actually corresponds to a 3G, HD or SD rate. Likewise, in the reclocking mode, if an input is not at one of the standard 3G, HD or SD rates the INPUT LED will flash and none of the 3G, HD or SD LEDs will illuminate or flash.

Relay Bypass Option:

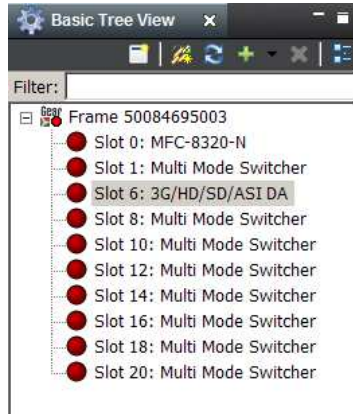
With the IRT-6010-DDA fitted with the optional IRT-6010RL-ZDA relay bypass rear assembly, on loss of power or removal of the card from the frame, the INPUT B signal is automatically routed via a relay to the output 'OUT B1' port. INPUT A is not relay protected. Space limitations on the rear assembly only allowed one relay to be fitted.

DashBoard™ SOFTWARE CONTROL

The DashBoard™ Control and Monitoring System is a free application designed for remote control and monitoring of the openGear® platform. This is a free application downloadable from the openGear® website (www.opengear.tv). As such, configuration of the DashBoard™ program will not be described here. The DashBoard™ manual is also downloadable from the openGear® website.

IRT-6010-DDA DashBoard™ Screenshots:

Basic Tree View:



On the left the basic tree view shows the frame. With the tree structure expanded a list of cards within the frame is shown. In this example, slot position 6 is highlighted. All sections and tabs to the right of the basic tree view now relate to the card in slot position 6, in this case the IRT-6010-DDA 3G/HD/SD/ASI DA. The name of the DA, in this case 3G/HD/SD/ASI DA, can be set under the Configuration TAB setting.

Product TAB:

Self explanatory. Note that the Product Alias field can be set under the Configuration TAB setting.



Status TAB:

Status TAB shows the set input names corresponding to each input channel number, these being set under the Configuration TAB in the second half of the DashBoard™ frame (see next screenshot).

The input signal status is also shown. In this example, IN-A has a 270Mb/s SD rated signal present, IN-B has an unknown signal present (this is due to the second input not being monitored due to the DA's configuration state).

Slot 6: 3G/HD/SD/ASI DA

Card state: ● OK

Connection: ● ONLINE

Product

Status

Settings

Input Monitor

Input Channel	Input Name	Input Signal Status
IN-A	CHANNEL 1	● SD
IN-B	CHANNEL 2	● Unknown

Alarm Monitor

General I/O Alarm: ● OK

OUT-A Alarm: ● OK

OUT-B Alarm: ● OK

Config TAB:

Under the Configuration TAB parameters such as Product Alias (name) and channel names (Input 1 and Input 2) can be user set. Click computer mouse into the field to change and type new name.

The screenshot shows the 'Config' tab of a web interface. At the top, there are two tabs: 'Outputs' and 'Config', with 'Config' being the active tab. The main area is dark grey. In the center, there are four input fields: 'Product Alias' with the value '3G/HD/SD/ASI DA', 'Input 1 Name' with 'CHANNEL 1', and 'Input 2 Name' with 'CHANNEL 2'. Below these is a 'SNMP Traps' section with two radio buttons: 'Enable' (selected) and 'Disable'. At the bottom, there is a 'Device' label and a 'RESET' button.

SNMP Traps can also be enabled from the Configuration TAB, as well as a device reset button that resets the on board micro-controller.

Settings TAB:

DA configuration is set by on-board DIP switches. This TAB shows how the switcher has been configured. In this case the DA has been set up as a single DA with the primary input being input A. Auto changeover mode (input B) has been disabled and the control mode is via the DIP switch controls as described in the configuration section of this manual.

The screenshot shows the 'Settings' tab of a web interface. At the top, there are three tabs: 'Product', 'Status', and 'Settings', with 'Settings' being the active tab. Above the tabs, there is a status section showing 'Slot 6: 3G/HD/SD/ASI DA', 'Card state: OK' (with a green dot), and 'Connection: ONLINE' (with a green dot). The main area is dark grey. Below the tabs, there are three settings: 'DA Mode' set to 'Single DA Mode A', 'Auto Changeover' set to 'Disabled', and 'Control Mode' set to 'Dipswitch Control'. Each setting is displayed in a yellow box.

Outputs TAB:

Under this TAB, remote user monitoring and control (if enabled) of the DA takes place.

Information is shown as to the set input rate and alarm conditions such as whether the card has been plugged into the wrong type of rear assembly and the signal status of the output.

In this example, the DA has been set up as a single 1x8 DA with the primary input being input A. If the DA has been set up for DashBoard™ control, parameters such as auto changeover, cable EQ and signal inversion can also be controlled.

The screenshot displays the 'Outputs' configuration window for the IRT-6010-DDA. The interface is divided into several sections:

- Rear Assembly:** A green indicator light is shown next to the 'Match' button.
- Output Monitor:** This section contains two rows for 'Output Channel A' and 'Output Channel B'. Each row has three buttons: 'OUT-A Status' (with a green indicator), 'Reclocker Mode OUT-A', and 'Rate Setting OUT-A'.
- Channel Settings:** This section contains two rows for 'Channel A' and 'Channel B'. Each row has four buttons: 'Rate Setting OUT-A' (with a dropdown menu showing 'Auto Detect', '270 Mbps', 'HD', and '3G'), 'Bypass Reclocker A' (with a dropdown menu showing 'Reclock' and 'Bypass'), 'Cable EQ IN-A' (with a dropdown menu showing 'Normal' and 'Reduced'), and 'Invert IN-A' (with a dropdown menu showing 'Disabled' and 'Enabled').
- General Settings:** This section contains two rows: 'Mode Selection' (with radio buttons for 'Dual DA Mode', 'Single DA Mode A', and 'Single DA Mode B') and 'Auto Changeover' (with radio buttons for 'Disabled' and 'Enabled').

SNMP SOFTWARE CONTROL

Control via SNMP (Simple Network Management Protocol) is possible via a third party Network Management System (NMS) provided the openGear® frame is fitted with a relevant Network Management card. In the case of the OG3-FR frame the MFC-8322-NS network management card is required for SNMP control. In the case of either the DFR-8310 or DFR-8321 frames either the MFC-8310-NS or MFC-8320-NS cards are required for SNMP control. Relevant frame MIBs and card MIB required to interface to NMS software - see IRT Electronics website (www.irtelectronics.com) for MIB download.

IRT-6010-DDA SNMP Functions:

The following SNMP functions are capable of being controlled and monitored by an NMS:

irt6010DDACardObjects:

irt6010DDANumberOfCards - An indication of the quantity of IRT-6010-DDA cards fitted in the openGear® frame.

irt6010DDAProductTable: - A table containing product information for all IRT-6010-DDA cards at this node.

productAlias - An indication and control of the Alias (Name) of this card.

boardRev - An indication of the revision of board.

channelAAlias - An indication and control of the Alias (Name) of the signal inputted to IN-A.

channelBAlias - An indication and control of the Alias (Name) of the signal inputted to IN-B.

irt6010DDAOutputsTable: - A table containing output status for all IRT-6010-DDA cards at this node.

rearAssembly - An indication of Rear Assembly Match/Mismatch status for the card.

(1) match – card fitted to correct rear assembly within the frame;

(2) mismatch – card fitted to wrong rear assembly within the frame.

irt6010DDAStatusTable: - A table containing output status for all IRT-6010-DDA cards at this node.

generalIOAlarm - An indication of the General IO Alarm status for the card.

(0) noAlarm – no alarm is present;

(1) rearAssemblyMismatch – card is plugged into wrong rear assembly;

(2) AandBAbsentOrMuted – Both A and B outputs are absent or muted;

(4) PrimaryAorBAbsentOrMuted – Primary input channel (A or B) absent or muted;

(8) PrimariesInvalidSecondariesCrossedOver – Secondary input crossed over on loss of, or invalid, primary input.

chanAAlarm - An indication of the Channel A Alarm status for the card.

(0) noAlarm – no alarm is present for Channel A;

(1) chanAAbsentOrMuted – Channel A is absent or muted;

(2) chanAAbsentOrMutedAndChanBPresentButInvalidForA – Although Channel A is absent or muted, and Channel B is present, it is invalid for Channel A's settings.

(4) nonUrgentChanAAbsentOrMutedButChanBPresent – Non-urgent alarm. Channel B is present as a change-over signal in place of an absent or invalid Channel A.

(8) nonUrgentChanAInvalidForOutB – Channel A is invalid for Channel B's settings.

chanBAlarm

- An indication of the Channel B Alarm status for the card.

(0) noAlarm – no alarm is present for Channel A;

(1) chanBAbsentOrMuted – Channel B is absent or muted;

(2) chanBAbsentOrMutedAndChanAPresentButInvalidForB – Although Channel A is absent or muted, and Channel B is present, it is invalid for Channel A's output setting.

(4) nonUrgentChanBAbsentOrMutedButChanAPresent – Non-urgent alarm. Channel B is present as a change-over signal in place of an absent or invalid Channel A.

(8) nonUrgentChanBInvalidForOutA – Channel B is invalid for Channel A's output setting.

irt6010DDASettingsTable:	- A table containing output settings status for all IRT-6010-DDA cards at this node.
daMode	<ul style="list-style-type: none"> - An indication and control of the DA Mode settings for the card. <ul style="list-style-type: none"> (0) dualDAMode – Card set up as a dual 1 IN, 4 OUT distribution amplifier; (1) singleDAModeA – Card set up as a single 1 IN, 8 OUT distribution amplifier with IN-A acting as the primary input; (2) singleDAModeB – Card set up as a single 1 IN, 8 OUT distribution amplifier with IN-B acting as the primary input.
autoXoverMode	<ul style="list-style-type: none"> - An indication and control of the automatic change-over function between primary and secondary inputs of the card. <ul style="list-style-type: none"> (0) disabled – No automatic changeover from primary to secondary input of loss of primary signal; (1) enabled – Automatic changeover from primary to secondary input of loss of primary signal.
controlMode	<ul style="list-style-type: none"> - An indication of how the card parameters are set up. <ul style="list-style-type: none"> (0) dashboardControl – Card set up as per DashBoard™ or SNMP control; (1) dipswitchControl – Card set up as per the DIP switch settings.
enableSNMPtraps	<ul style="list-style-type: none"> - Enable or disable SNMP Traps. <ul style="list-style-type: none"> (0) disabled – SNMP Traps disabled; (1) enabled – SNMP Traps enabled.
reset	<ul style="list-style-type: none"> - Reset the micro-controller of the card. <ul style="list-style-type: none"> (0) normal; (1) reset.
channelInputGroup:	
channelInputCount	- An indication of the number of inputs (always reports 2). For table structure only.
channelInputTable:	- A table containing information about each input.
chanNum	- An indication of the input channel number (1 or 2).
chanAlias	- An indication of the given input channel name.
chanPresent	- An indication of whether a signal is present (and its rate) or absent on the channel.
channelOutATable:	- A table containing information about A outputs.
chanOutA	- Index only - for table structure.
outAstatus	- An indication of signal activity on A's output channel (IN-A, IN-B or Muted).
outAreclocker	<ul style="list-style-type: none"> - An indication of whether A's outputs are reclocked or not. <ul style="list-style-type: none"> (0) reclocking – A outputs are reclocked; (1) bypassed - Reclocker bypassed for non-reclocked outputs; (2) notApplicable – Not applicable.
outArateSetting	<ul style="list-style-type: none"> - An indication of A outputs rate setting. <ul style="list-style-type: none"> (0) autoDetect – Output A automatically reclocks to the incoming 3G, HD or SD stream; (1) sdiSD-ASI – Output A reclocker set to 270Mb/s rate suitable for SD-SDI & ASI; (2) sdiHD – Output A reclocker set to 1.485Gb/s rate suitable for HD-SDI; (3) sd3G - . Output A reclocker set to 2.97Gb/s rate suitable for 3G-SDI; (4) notApplicable – Not applicable.
selectOutArateSetting	<ul style="list-style-type: none"> - Control of A outputs rate setting. <ul style="list-style-type: none"> (0) autoDetect – Output A automatically reclocks to the incoming 3G, HD or SD stream; (1) sdiSD-ASI – Output A reclocker set to 270Mb/s rate suitable for SD-SDI & ASI; (2) sdiHD – Output A reclocker set to 1.485Gb/s rate suitable for HD-SDI; (3) sd3G - . Output A reclocker set to 2.97Gb/s rate suitable for 3G-SDI;
bypassReclockerA	<ul style="list-style-type: none"> - Control of bypass feature of A outputs reclocker. <ul style="list-style-type: none"> (0) reClock – Output A reclocker active; (1) byPass – Output A reclocker bypassed for non-reclocking of signal.

channelInputATable:	- A table of Channel A input parameters.
chanInputA	- Index only - for table structure.
inputAequalisation	- An indication and control of input A's equaliser. (0) normal – Input A's equaliser set for full range; (1) reduced – Input A's equaliser set for reduced mode for use in a noisy environment with short input cable lengths.
invertInputA	- An indication and control of whether input A is inverted or not (for use where a phase sensitive ASI signal needs to be inverted). (0) disabled – Input A is not inverted (that is, in phase with the output); (1) enabled - Invert input A (that is, 180° out of phase with the output).
channelOutBTable:	- A table containing information about B outputs.
chanOutB	- Index only - for table structure.
outBstatus	- An indication of signal activity on B's output channel (IN-A, IN-B or Muted).
outBreclocker	- An indication of whether B's outputs are reclocked or not. (0) reclocking – B outputs are reclocked; (1) bypassed - Reclocker bypassed for non-reclocked outputs; (2) notApplicable – Not applicable.
outBrateSetting	- An indication of B outputs rate setting. (0) autoDetect – Output A automatically reclocks to the incoming 3G, HD or SD stream; (1) sdiSD-ASI – Output A reclocker set to 270Mb/s rate suitable for SD-SDI & ASI; (2) sdiHD – Output A reclocker set to 1.485Gb/s rate suitable for HD-SDI; (3) sd3G - . Output A reclocker set to 2.97Gb/s rate suitable for 3G-SDI; (4) notApplicable – Not applicable.
selectOutBrateSetting	- Control of B outputs rate setting. (0) autoDetect – Output A automatically reclocks to the incoming 3G, HD or SD stream; (1) sdiSD-ASI – Output A reclocker set to 270Mb/s rate suitable for SD-SDI & ASI; (2) sdiHD – Output A reclocker set to 1.485Gb/s rate suitable for HD-SDI; (3) sd3G - . Output A reclocker set to 2.97Gb/s rate suitable for 3G-SDI;
bypassReclockerB	- Control of bypass feature of A outputs reclocker. (0) reClock – Output A reclocker active; (1) byPass – Output A reclocker bypassed for non-reclocking of signal.
channelInputBTable:	- A table of Channel B input parameters.
chanInputB	- Index only - for table structure.
inputBequalisation	- An indication and control of input B's equaliser. (0) normal – Input B's equaliser set for full range; (1) reduced – Input B's equaliser set for reduced mode for use in a noisy environment with short input cable lengths.
invertInputB	- An indication and control of whether input B is inverted or not (for use where a phase sensitive ASI signal needs to be inverted). (0) disabled – Input B is not inverted (that is, in phase with the output); (1) enabled - Invert input B (that is, 180° out of phase with the output).

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 directly. Details of IRT’s direct address can be found at IRT Electronics’ website.

Web address: www.irtelectronics.com

Email: sales@irtelectronics.com