IRT-6632-DDT & IRT-6632-DDR

Dual 3G/HD/SD-SDI / ASI Fibre Optic Link

User Manual

Revision History:

Revision	Date	By	Change Description	Applicable to:
00	06/08/2014	AL	Original Issue.	Firmware ≥ Revision 1.0

Table of Contents:

This instruction book applies to units fitted with firmware ≥ Revision 1.0.

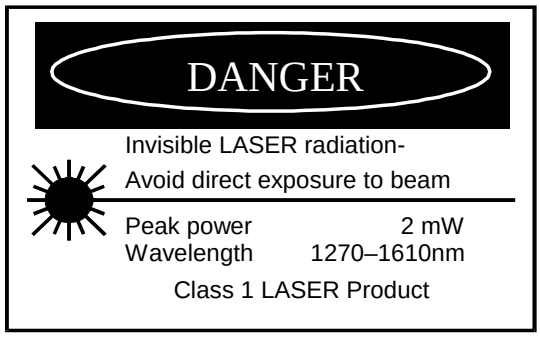
WARNING

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.

Optical Safety

The light emitted from the LASER diode used in this system is invisible and may be harmful to the human eye. Avoid looking directly into the fibre optic cable or connectors or into the collimated beam along their axis when the device is in operation. Operating the LASER diode outside of its maximum ratings may cause device failure or a safety hazard.



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.

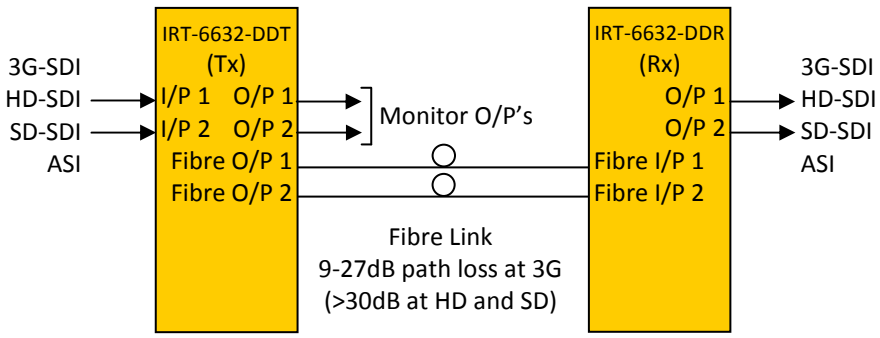
A simple to use monitoring and control software called DashBoard™ is a free program downloadable from the openGear® website (www.opengear.tv) that allows the user to remotely monitor and control an openGear® type card fitted within an openGear® frame that meets the openGear® standard for DashBoard™ control. 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.

GENERAL DESCRIPTION

BLOCK DIAGRAM IRT-6632-DDT & IRT-6632-DDR SIGNAL PATH



The IRT-6632-DDT and IRT-6632-DDR are dual transmit and receive modules designed principally for use as two independent serial data fibre optic transmission links for 3G-SDI, HD-SDI or SD-SDI applications conforming to SMPTE standards 424M, 292M and 259M-C using 9/125 µm single mode fibre. This enables the use of space saving fibre optic cable for reliable transmission of digital video signals over lengths greater than can be achieved with coaxial cable.

In addition, the links may be used for ASI transport streams for use with MPEG compressed video streams or other 270 Mb/s type data.

The transmitters feature automatic input cable equalisation and an active loop through monitoring port on each input.

Both the transmitter and receiver modules are configurable for automatic changeover to both outputs on loss of either input, if required.

The receivers use APD detectors with signal conditioning and reclocking circuits. The data rates are automatically set to match the 3G-SDI, HD-SDI or SD-SDI/ASI rates dependent on the actual input data rates to the transmitters.

The transmitter and receiver modules are compatible with IRT's single channel fibre cards for use as two independent fibre paths starting from or coming to a single location.

A link selectable "keep link alive" signal is available to maintain optical link operation when no electrical input is present.

Optionally a 1310/1550nm WDM[2] optical combiner can be fitted to allow for combined use on a single fibre.

The IRT-6632-DDT and IRT-6632-DDR are designed to fit the openGear® standard 2RU frames which allow a mixture of cards from various manufacturers to be mounted within the same frame.

DashBoard™ control software is available as a free download.

Standard features:

- **2 independent fibre links.**
- **Transports 3G-SDI, HD-SDI, SD-SDI or ASI signal rates.**
- **Transmitter (Tx) and receiver (Rx) can be used separately with 2 independent single channel fibre Rx and Tx cards.**
- **Path lengths up to 30 dB[1] optical path loss using 9/125µm single mode fibre.**
- **Optional on-board WDM[2] optical combiner for use on a single common fibre.**
- **DashBoard™ and SNMP software monitoring and control.**

NOTE: **1** 27dB path loss at 3G. Typically >30dB at HD and SD. Fitted with APD detector.
2 With WDM option fitted for combined use on a single fibre, optical path loss is reduced by approximately 2dB.

TECHNICAL SPECIFICATIONS

IRT-6632-DDT:

Input serial data signal	2.97 Gb/s (3G-SDI) to SMPTE 424M; 1.485 Gb/s (HD-SDI) to SMPTE 292M; 270 Mb/s (SD-SDI) to SMPTE 259M-C and DVB-ASI.
Input impedance	75 Ω.
Input return loss	> 15 dB 5 MHz to 1.5 GHz; > 10 dB 1.5 GHz to 2.97 GHz.
Automatic cable compensation	> 100 m at 2.97 Gb/s (3G-SDI) with Belden 1694A (typ. 110m); > 100 m at 1.485 Gb/s (HD-SDI) with Belden 1694A (typ. 160m); > 250 m at 270 Mb/s (SD-SDI/ASI) with Belden 8281 (typ. >300m).
Input connector	2 x BNC on rear panel, 1 per channel.
Output connector	2 x BNC on rear panel, monitor outputs.

IRT-6632-DDR:

Number of outputs	1 per channel, data reclocked, AC coupled.
Output level	800 mV ± 10%.
Output impedance	75 Ω.
Output return loss	> 15 dB 5 MHz to 1.5 GHz; > 10 dB 1.5 GHz to 2.97 GHz.
Output rise and fall time	< 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.
Output connector	2 x BNC on rear panel, 1 per channel.

Optical:

IRT-6632-DDT optical output	0 dBm +4.5/-0 dB CWDM DFB laser.
IRT-6632-DDR optical input	APD detector, -9 to -27 dBm input level at 3G-SDI, typically < -30 dBm at HD/SD-SDI.
Available wavelengths	CWDM DFB laser – 1310/1550nm (standard). Other wavelengths combinations available on request.
Optical path loss[3, 4]	9 to 27 dB at 3G-SDI, typically >30 dB at HD/SD-SDI, APD detector. (Optical path loss = Laser O/P power – Detector I/P power)
Optical fibre	Designed for use with 9/125 µm single mode fibre.
Optical connector	2 x LC/PC (standard) on rear – direct connection to main card, 1 per channel; 1 x SC/PC (standard) with WDM option fitted.

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.

Ordering	**IRT-6632-DDT**	IRT-6632-DDT, fitted with standard 1310/1550nm laser, programmed with DashBoard™ control.
	IRT-6632-DDT/1550	IRT-6632-DDT, fitted with CWDM DFB 1550/1550nm laser, programmed with DashBoard™ control.
	IRT-6632-DDT/WDM	IRT-6632-DDT, fitted with standard 1310/1550nm laser and on-board 1310/1550nm WDM combiner, programmed with DashBoard™ control.
	IRT-6632-DDR	IRT-6632-DDR, fitted with APD detectors, programmed with DashBoard™ control.
	IRT-6632-DDR/WDM	IRT-6632-DDR, fitted with APD detectors and on-board 1310/1550nm WDM de-combiner, programmed with DashBoard™ control.

	NOTE: 3	Typical values based using DFB laser. Optical attenuator supplied for IRT-6632-DDR when optical path loss is less 9dB for APD detector.
	4	With WDM option fitted for combined use on a single fibre, optical path loss is reduced by approximately 2dB.

CONFIGURATION

DIP Switch settings:

IRT-6632-DDT:

	DIP Switch	
Tx Input Rate	**SW1-1**	**SW1-2**
3G/HD/SD (Auto detect)	OFF	OFF
SD only	ON	OFF
HD and SD only	OFF	ON
Bypass Reclocker	ON	ON

	DIP Switch	
Tx Input Rate	**SW1-3**	**SW1-4**
3G/HD/SD (Auto detect)	OFF	OFF
SD only	ON	OFF
HD and SD only	OFF	ON
Bypass Reclocker	ON	ON

SW1-5 **OFF** Enable Laser - laser is always enabled: 'keep link alive' signal when no input signal is present.

ON Auto Laser – laser is enabled only when an input signal is present.

SW1-6 **OFF** Enable automatic input changeover to both Tx optical outputs on loss of either input.
IN 1 → both Tx1 & Tx2 optical outputs on loss of IN 2, or
IN 2 → both Tx1 & Tx2 optical outputs on loss of IN 1).

ON Disable automatic input changeover.

SW1-7 **OFF** DIP switch control.

ON DashBoard™/SNMP control.

SW1-8 Not used.

SW2-1 to SW2-8 Not Used.

IRT-6632-DDR:

	DIP Switch	
Rx Output Rate	**SW1-1**	**SW1-2**
3G/HD/SD (Auto detect)	OFF	OFF
SD only	ON	OFF
HD and SD only	OFF	ON
Bypass Reclocker	ON	ON

	DIP Switch	
Rx Output Rate	**SW1-3**	**SW1-4**
3G/HD/SD (Auto detect)	OFF	OFF
SD only	ON	OFF
HD and SD only	OFF	ON
Bypass Reclocker	ON	ON

SW1-5 Not used.

SW1-6 **OFF** Disable automatic input changeover.
ON Enable automatic input changeover to both Rx outputs on loss of either optical input.
Rx 1 → both OUT 1 & OUT 2 signal outputs on loss of optical Rx 2, or
Rx 2 → both OUT 1 & OUT 2 signal outputs on loss of optical Rx 1).

SW1-7 **OFF** DIP switch control.
ON DashBoard™/SNMP control.

SW1-8 Not used.

SW2-1 to SW2-8 Not Used.

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 Connections:

IRT-6632-DDT:

The default settings of the IRT-6632DDT are to automatically operate at either **2.97 Gb/s 3G-SDI**, **1.485 Gb/s HD-SDI** or **270 Mb/s SD-SDI / ASI** signals and do not require any adjustment prior to use, with the exception of DIP switch options described in the *Configuration* section of this manual that also allow SD only, HD/SD only or reclocker bypass modes of operation.

The two transmitter sections of the IRT-6632-DDT act independently from each other in that the signal rates are both independently set.

The serial digital signal connections are made to the BNC connectors on the rear panel. IN 1 is the input to the Tx1 transmitter and IN 2 is the input to the Tx2 transmitter. With DIP switch SW1-6 OFF, if either of the inputs, IN 1 or IN 2, are absent or invalid, the valid input will switch in automatically to drive both Tx1 and Tx2 optical outputs. Upon restoration of a valid signal to the absent/invalid port, the optical transmitter automatically restores back to the condition of IN 1 feeding Tx1 and IN 2 feeding Tx2. With SW1-6 ON, automatic changeover is disabled and only the transmitter with the valid signal present will be outputted.

The OUT 1 BNC connector acts as a monitor port for IN 1, whilst the OUT 2 BNC connector acts as a monitor port for IN 2.

IRT-6632-DDR:

The default settings of the IRT-6632-DDR are to automatically operate at either **2.97 Gb/s 3G-SDI**, **1.485 Gb/s HD-SDI** or **270 Mb/s SD-SDI / ASI** signals and do not require any adjustment prior to use, with the exception of DIP switch options described in the *Configuration* section of this manual that also allow SD only, HD/SD only or reclocker bypass modes of operation.

The serial digital signal connections are made to the BNC connectors on the rear panel. Two signal outputs, OUT 1 and OUT 2, are provided. OUT 1 is the signal output of receiver Rx1, whilst OUT 2 is the signal output of receiver Rx2. With DIP switch SW1-6 ON, if either of the optical inputs, Rx 1 or Rx 2, is absent the valid input will switch in automatically to drive both OUT 1 and OUT 2 signal outputs. Upon restoration of a valid signal to the absent Rx fibre port, the receiver automatically restores back to the condition of Rx1 feeding OUT 1 and Rx2 feeding OUT 2. With SW1-6 OFF, automatic changeover is disabled and only the receiver with the valid signal present will be outputted.

Note that BNC connectors IN 1 and IN 2 are not used.

Fibre Optic Connections:

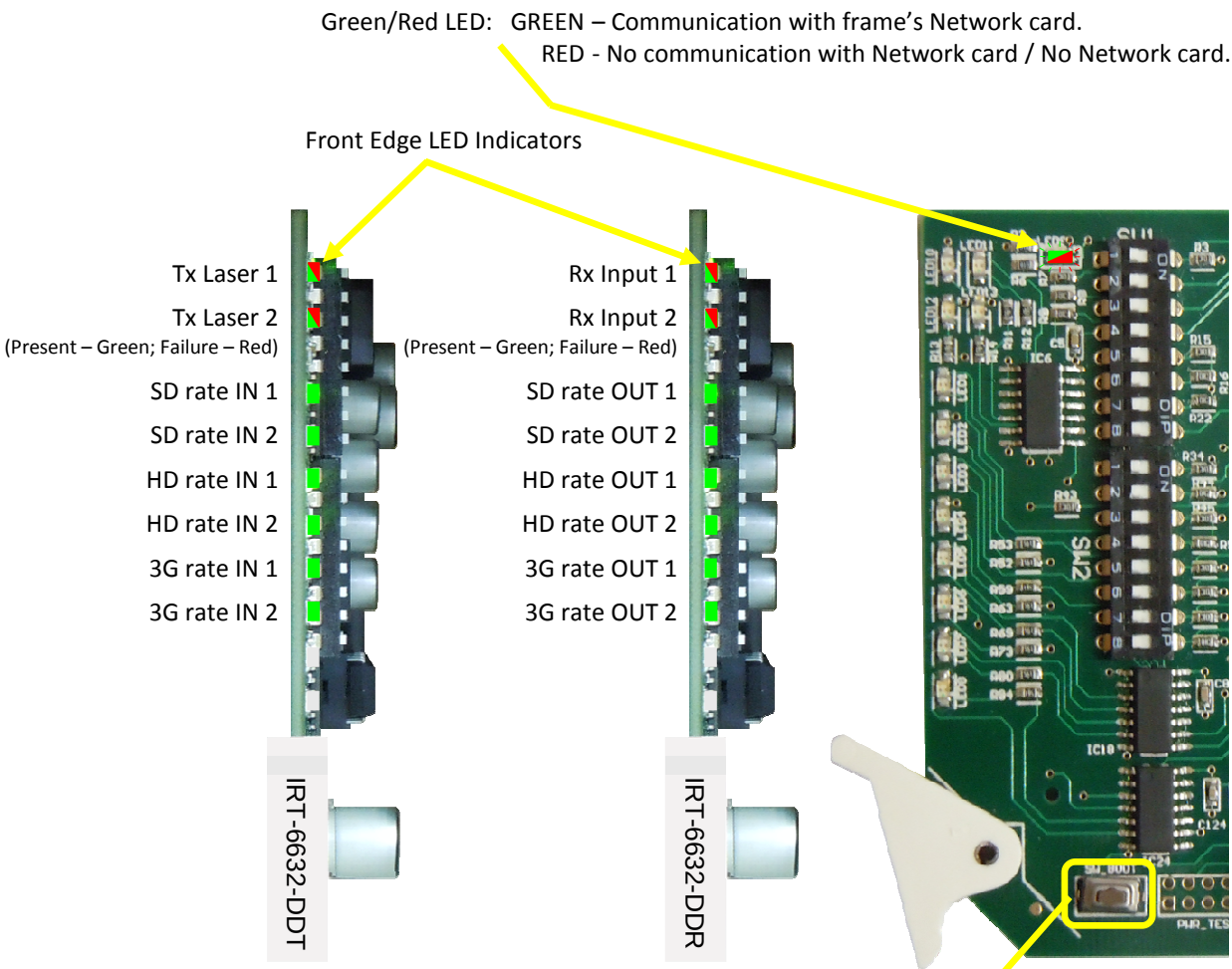
Optical connections are made to the panel adapter mounted on a bracket at the rear of the module. Care must be taken to provide a clean surface on the optical connectors and in inserting the plug of the external fibre to prevent damage to the alignment ferrule of the panel adapter. Type of fibre used must be single mode type.

The standard configurations for the IRT-6632-DDT and IRT-6632-DDR have separate LC/PC optical connectors for the two transmitter (Tx1 & Tx2) and receiver (Rx1 & Rx2) sections. The IRT-6632-DDT Tx1 optical output connector is the upper half of the optical connector, whilst the Tx2 optical output connector is the lower half. Likewise the IRT-6632-DDR Rx1 input connector is the upper half of the optical connector, whilst the Rx2 optical input connector is the lower half.

If the IRT-6632-DDT and IRT-6632-DDR are fitted with the optional 1300/1550nm wave division multiplexer (WDM), only one common SC/PC optical connector is provided with both IRT-6632-DDT Tx1 and Tx2 functions and IRT-6632-DDR Rx1 and Rx2 functions occurring on a single fibre. When operating the IRT-6632-DDT with the WDM option fitted, Tx1 is fitted with a 1310nm laser and Tx2 with a 1550nm laser.

Note that for path lengths ≤ 9 dB for APD detectors, or ≤ 3 dB for PIN detectors, an optical attenuator must be used to avoid over driving the IRT-6632-DDR.

Front Edge LED and Switch Locations



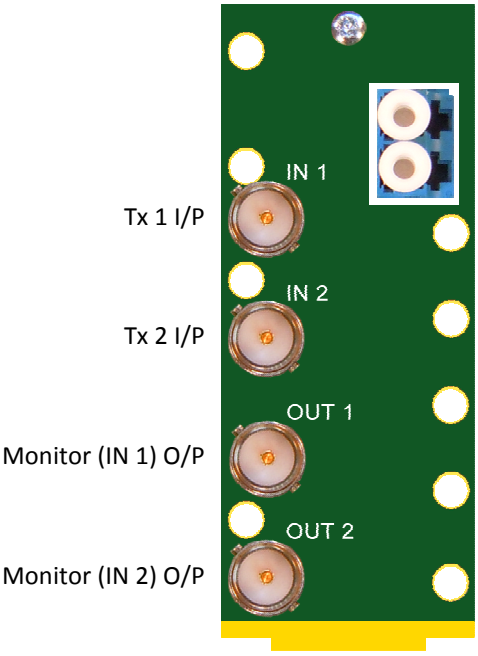
SW_boot switch: Default Reset Switch.
User set names and switch position are stored within memory so that in the event of a loss of power this information is restored on resumption of power.

If the default Reset Switch is pressed whilst powering or inserting the card, the card will default to factory preset settings.

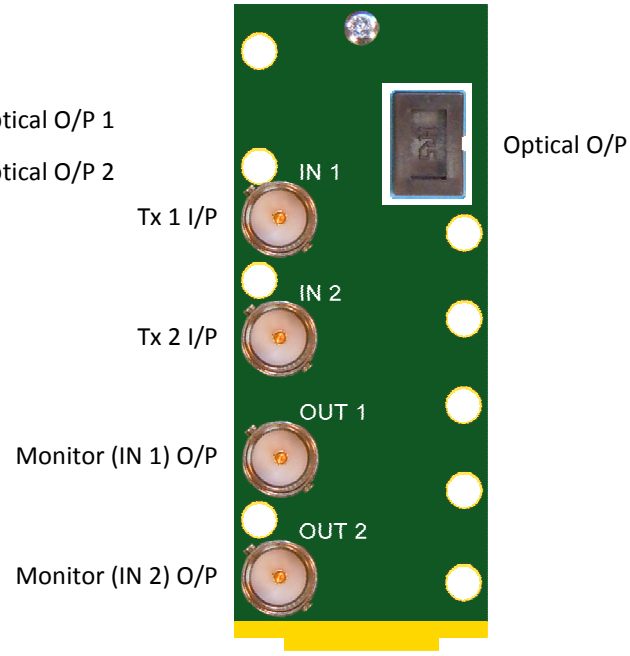
Rear Assembly Layouts

The IRT-6632-DDT and IRT-6632-DDR share the same type of rear assembly. Consequently the IN 1 and IN 2 BNC connectors on the IRT-6632-DDR are not used.

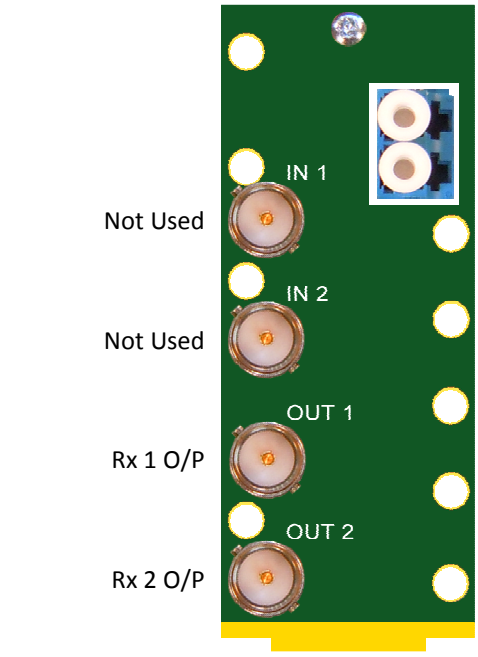
The OUT 1 and OUT 2 BNC connectors of the IRT-6632-DDT are used for signal monitoring of the input signals IN 1 and IN 2 respectively.



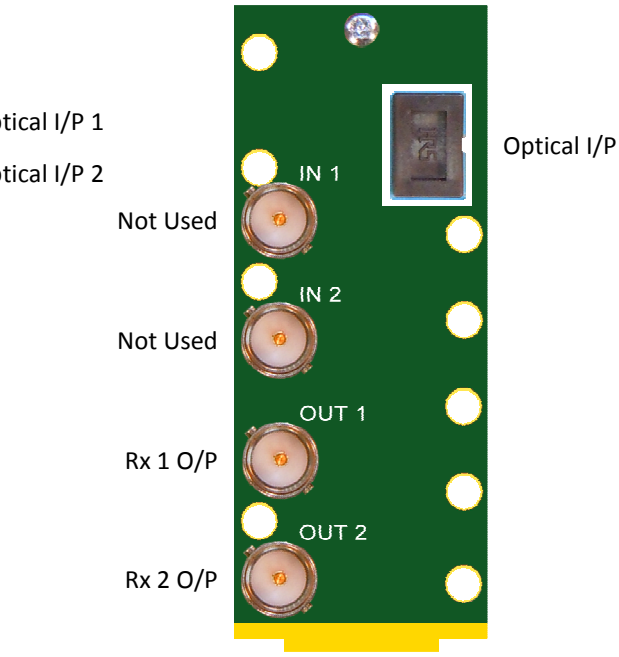
IRT-6632-DDT
Rear Assembly



IRT-6632-DDT/WDM
Rear Assembly



IRT-6632-DDR
Rear Assembly



IRT-6632-DDR/WDM
Rear Assembly

OPERATION

The IRT-6632-DDT is a dual electrical to optical transmitter with two separate laser drivers on the one card. Each laser driver is independent in its operation from the other and is fed with its own independent single channel 3G-SDI, HD-SDI or SD-SDI (or ASI) electrical signal. The standard laser wavelengths are 1310 nm (corresponding to input 1) and 1550 nm (corresponding to input 2), which allow the outputs to be optically multiplexed through a wave division multiplexer (WDM), if required. Other wavelength combinations are available on request.

Likewise the IRT-6632-DDR is a dual optical to electrical receiver with two separate optical detectors on the one card. Each optical detector is independent in its operation from the other and outputs its own independent single channel 3G-SDI, HD-SDI or SD-SDI (or ASI) electrical signal. The detector types available are either dual APD (standard) or dual PIN. The APD detector allows a greater optical path loss, which allows a farther distance optical path, compared to PIN detectors. However, for optical path lengths less than 9dB for APD detectors, or 3dB for PIN detectors, optical attenuators are required so as to not overload the detectors, else damage to the detectors themselves may also occur.

Both the IRT-6632-DDT and IRT-6632-DDR are fully operable with previous IRT single channel 3G, HD or SD fibre links.

Two optical LC/PC connectors (standard) are directly connected to the main card via the rear of the unit. The order of the optical connectors correspond to the same order as the electrical BNC connectors as labelled on the rear assembly.

Optionally a two channel wave division multiplexer (WDM) can be directly fitted to both the IRT-6632-DDT and IRT-6632-DDR to allow simultaneous transmission / reception of optical signals on a single fibre.

The default settings of the IRT-6632-DDT and IRT-6632-DDR are set to automatically operate at either 2.97 Gb/s 3G-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s SD-SDI (or ASI). However, either DIP switch or DashBoard™/SNMP settings allow the units to be independently set for SD only, SD/HD only or reclocker bypass modes.

2.97 Gb/s 3G-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s (ASI or SDI) type of signals are connected to two 75 Ω BNC connectors (IN 1 and IN 2) of the rear assembly of the IRT-6632-DDT fibre optic transmitter. Front edge LEDs indicates the presence and data rates of valid input signals. OUT 1 and OUT 2 BNC connectors of the IRT-6632-DDT monitor the respective IN 1 and IN 2 signals.

If one of the inputs is not present or if its rate does not match the preset rate of the channel, the other input, if valid, can be automatically switched (if enabled) to both the optical outputs. On resumption of a valid signal the optical transmitters automatically switches back to their respective inputs.

With the data rate set for bypassed mode, the reclocker is bypassed allowing signals other than 3G-SDI, HD-SDI or SD-SDI to pass through. If the data rate does not match that of 3G-SDI, HD-SDI or SD-SDI all front panel signal data rate LED's will flash to indicate that an unknown data rate has been detected. Likewise an 'unknownPresent' data rate is reported via DashBoard™ & SNMP.

If the laser is set for permanent operation, on loss of a valid input signal, a 54MHz oscillator is switched into the optical output so that the optical receiver still recognizes the optical link as being valid. This 54MHz signal does not affect the signal reclocking detector circuitry of the receiver, which is used in signal presence / alarm indication on detection or absence of a valid 3G, HD or SD signal.

Through the use of DashBoard™ or SNMP (see separate sections of this manual) it is possible to remotely monitor and control various functions not available via the local DIP switch control. Such as, for example, it is possible to individually disable the channels on either the IRT-6632-DDT and IRT-6632-DDR locking out an end user's functionality should this be desired. When a channel has been disabled, should an electrical signal be present, the corresponding channel LED will flash - not to be confused with situation where the data rate does not match the set data rate as described above.

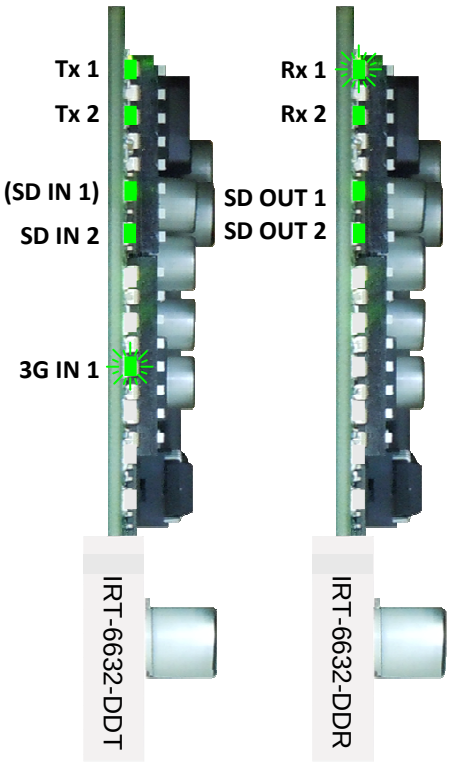
The BNC outputs, OUT 1 and OUT 2, of the IRT-6632-DDR receiver are the same signals that were originally inputted to the opposite IRT-6632-DDT transmitter. Front edge green LEDs indicate the presence of a valid locked 3G-SDI, HD-SDI, or an SD-SDI type of output signal. IN 1 and IN 2 BNC connectors of the IRT-6632-DDR card are not used.

Front Edge LED Indicators:
If the Tx (or Rx) input signal rate does not match the set rate the corresponding LED will flash.

In this example the Tx1 section has been set for either HD/SD only or SD only with its input (IN 1) is being fed with a 3G-SDI source. The 3G LED of Tx1 will flash indicating that its input is at the 3G-SDI rate. The input (IN 2) of Tx2 is being fed with an SD-SDI signal as indicated by the Tx2 SD (SD IN 2) LED being illuminated. In this particular case the SD LED of Tx1 (SD IN 1) is also being illuminated indicating that the automatic changeover function is enabled with IN 2 feeding both Tx1 and Tx2 outputs.

Laser failures on the IRT-6632-DDT are indicated by red illuminated LASER LEDs. In the above example there are no laser failures as indicated by the green illuminated LASER LEDs.

Optical present, optical low, and optical input failures, on the IRT-6632-DDR are indicated by bi-colour illuminated OPTICAL LEDs. In this example the OPTICAL LED of Rx 1 is flashing and is illuminated green, but so is the received SD OUT 1 signal LED illuminated green. This indicates that an SD signal is being received even though the OPTICAL alarm LED is illuminated and flashing, thus the OPTICAL alarm LED of Rx 1 is indicating that the optical signal level is low, or approaching the minimum signal strength allowed before signal failure takes place, whence the receiver output will be muted. Note however that it is still possible for the optical signal strength to be low and still allow an errored data signal to be received before signal muting takes place. The optical low trigger point can vary between the plug-in receivers, so if operating at signal paths close to the recommended maximum specified threshold, signal analysis should be performed to check the accuracy of the received signal if the OPTICAL LED is flashing green.



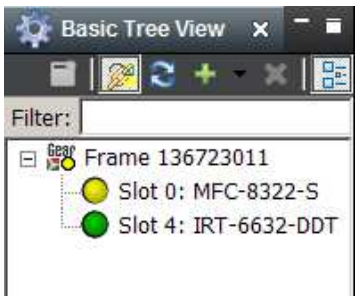
SD only, HD/SD only modes:
Note that it is possible to set the unit to operate as an SD rate only or HD/SD rate only mode by use of the DIP switch configuration controls. However in situations where it is desired that the end user does not have control over the intended setup, it is possible to set the unit to the desired rate via SNMP control and to lock it to SNMP only control so that the end user cannot override the setup parameters by use of the DIP switches. This is intended for situations where a link has been leased to a customer who is only paying for a certain data rate path such as SD only or HD/SD only as opposed to the full 3G rate.

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-6632-DDT 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 4 is IRT-6632-DDT. When selected, all sections and tabs to the right of the basic tree view now relate to the card in slot position 4. The name of the card, in this case IRT-6632-DDT, can be set under its 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).

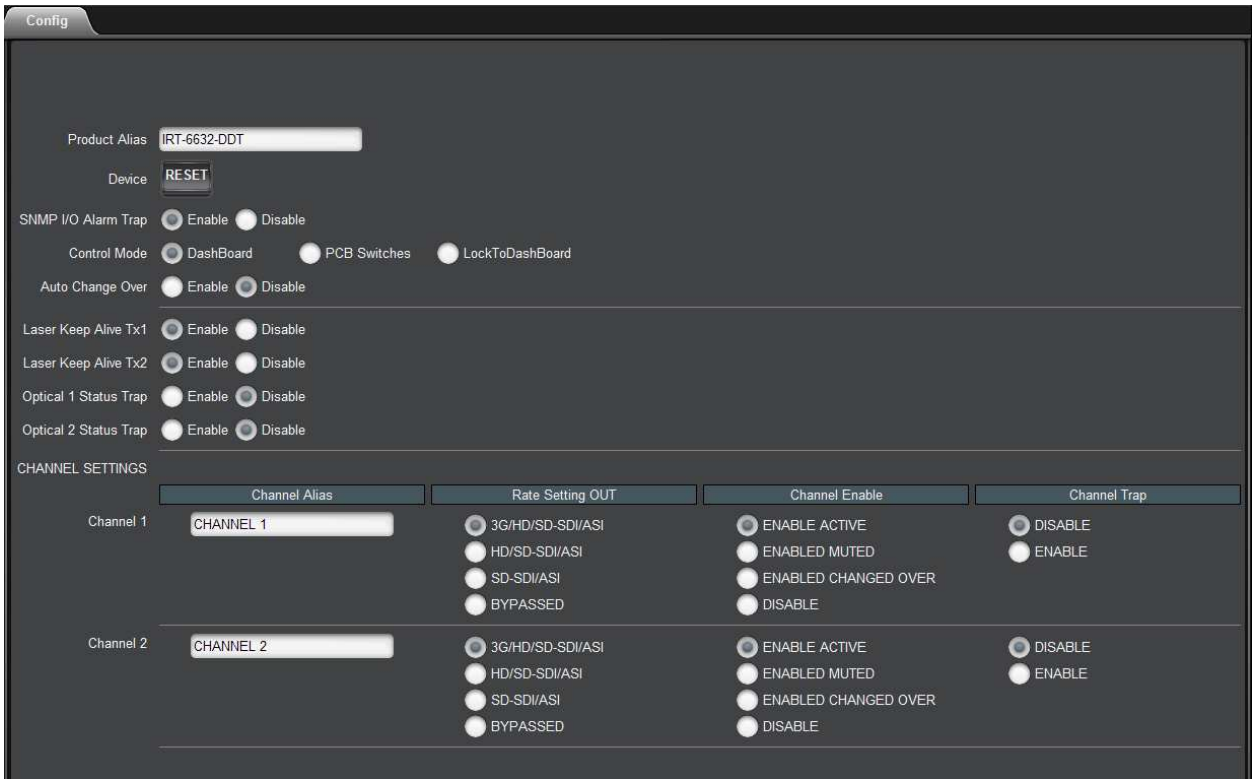
The input signal status and optical status is also shown. In this example, Channel 1, which corresponds to the input IN 1, and Channel 2, which corresponds to the input IN 2, both have a 270 Mb/s rated type of signal present, such as either SD-SDI or ASI; and the lasers fitted to the IRT-6632-DDT is a dual 1550nm wavelength and its optical status is good. No I/O alarms are present and the card is plugged into the correct rear assembly.

Config TAB:

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

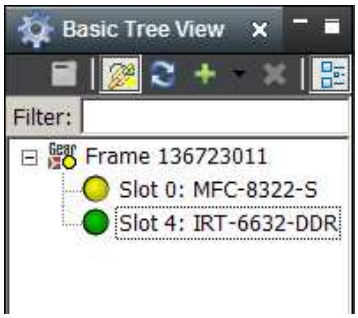
If set for DashBoard™ control, as indicated by the Control Mode setting, parameters such as Auto Change Over, Laser Keep Alive signals, data Rate Settings and Channel Enable can be set.

Trap enable & disable functions can be set regardless of Control Mode state.



IRT-6632-DDR DashBoard™ Screenshots:

Basic Tree View:



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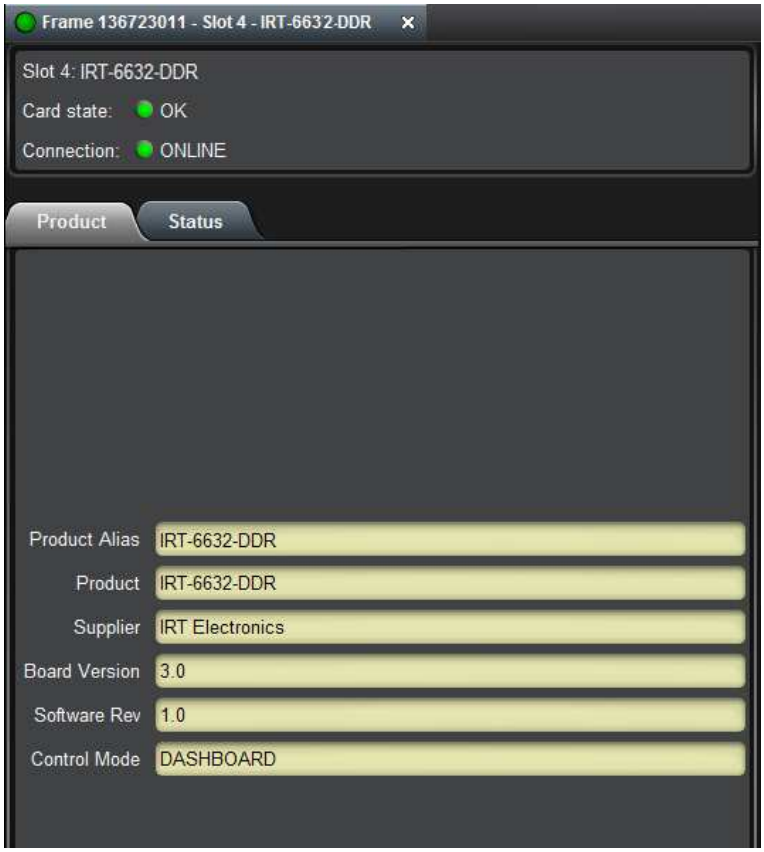
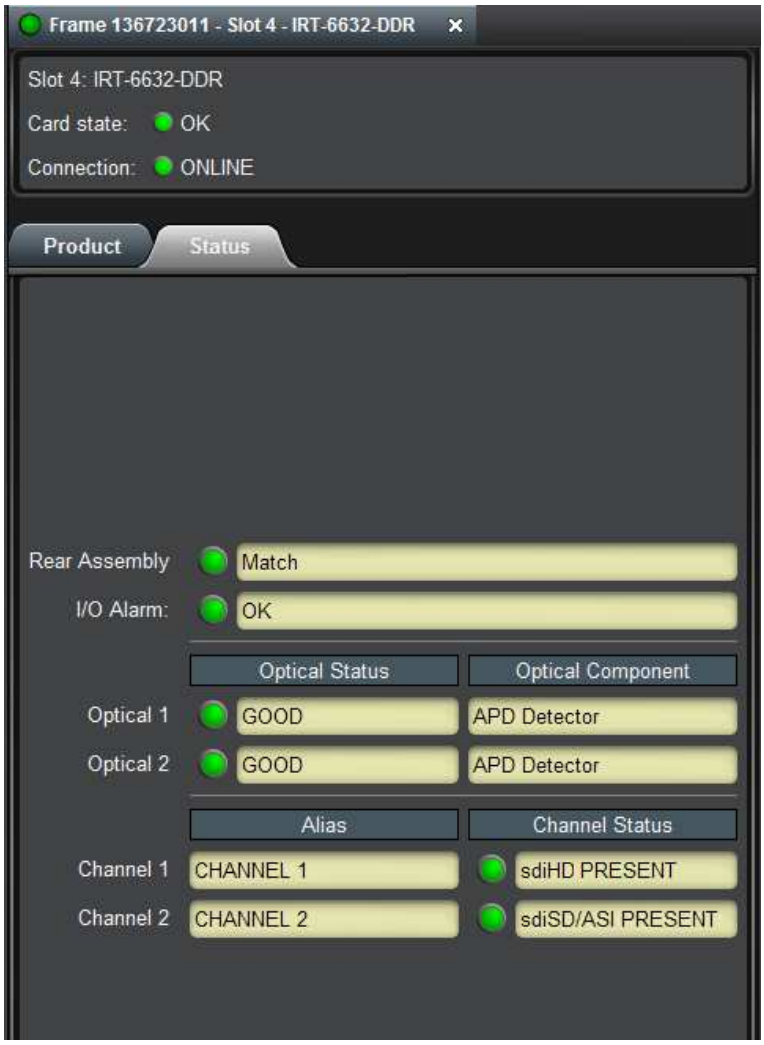


Status TAB:

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

The received channel signal status and optical status is also shown. In this example, Channel 1, which corresponds to the Optical 1 received signal, and Channel 2, which corresponds to the Optical 2 received signal, have a 270 Mb/s rated type of signal present, such as either SD-SDI or ASI; and the receiver fitted to the IRT-6632-DDR is a dual APD type and its optical status is good. No I/O alarms are present and the card is plugged into the correct rear assembly.

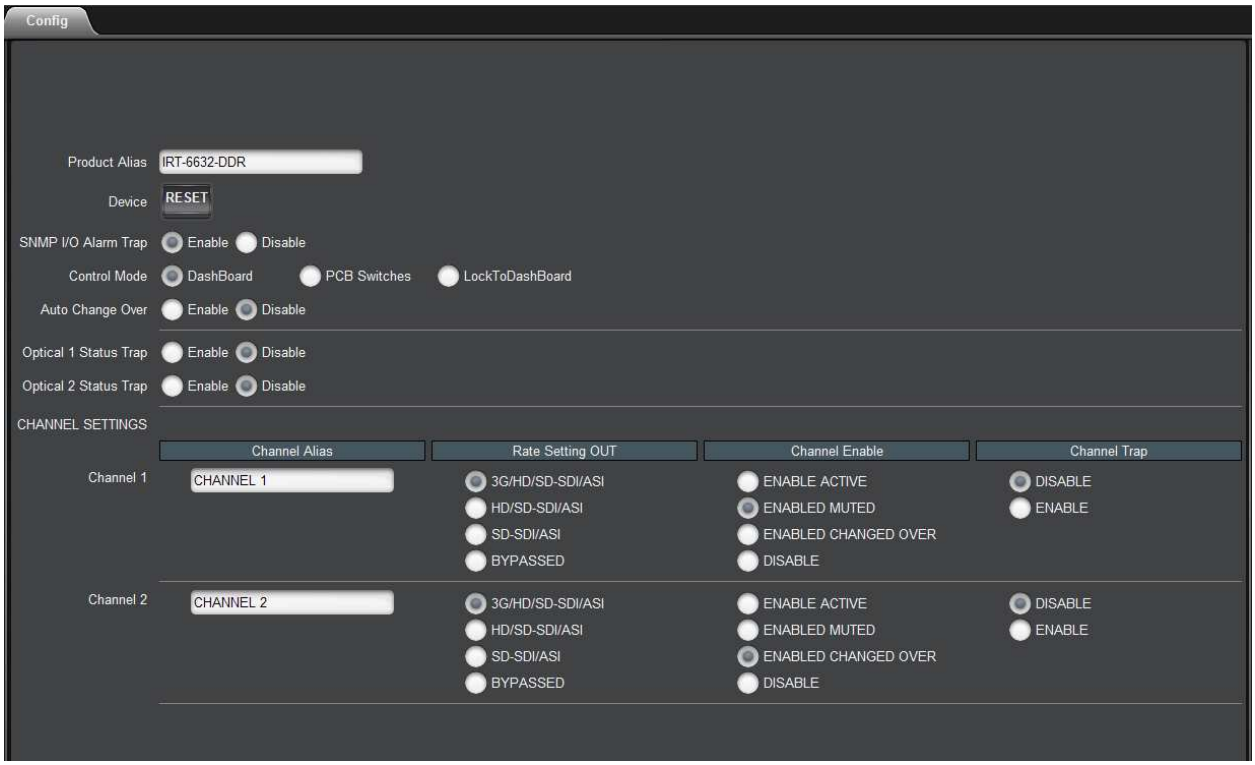


Config TAB:

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

If set for DashBoard™ control, as indicated by the Control Mode setting, parameters such as Data Rate Settings and Channel Enables can be set.

Trap enable & disable functions can be set regardless of Control Mode state.



SNMP SOFTWARE CONTROL

Control via SNMP 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.

The MIB file for the IRT-6632-DDT and IRT-6632-DDR is a common MIB file for the family of IRT-6630 fibre links and is named IRT-663x-Dxx. Not all parameters in the MIB file relate to these cards.

IRT-6632-DDT SNMP Functions:

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

irt663xDxxProductTable: A table containing product info for all IRT-6632-DDT cards at this node.

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

boardRev - An indication of the hardware (board) revision of this card.

softwareRev - An indication of the software revision of this card.

irt663xDxxStatusTable: A table containing alarm status for all IRT-6632-DDT cards at this node.

rearassembly - An indication whether the card is inserted into the correct rear assembly or not:

(1) match: Card is inserted into correct rear assembly.
(2) mismatch: Card is inserted into incorrect rear assembly.

ioAlarm - An indication of the alarm status of this card:

(0) noAlarm: No alarms present.
(1) urgent-1-OpticalFail: Transmitter 1 laser has failed.
(2) urgent-2-OpticalFail: Transmitter 2 laser has failed.
(3) urgent-1-2-OpticalFail: Both Transmitter 1 & Transmitter 2 lasers have failed.
(4) nonUrg-ValidSignalAbsent: No valid signal is present on the primary input (IN 1).
(5) urgent-1-OpticalFail-nonUrg-ValidSignalAbsent: Transmitter 1 laser has failed and no input or invalid signal present on input IN 2.
(6) urgent-2-OpticalFail-nonUrg-ValidSignalAbsent: Transmitter 2 laser has failed and no input or invalid signal present on input IN 1.
(7) urgent-1-2-OpticalFail-nonUrg-ValidSignalAbsent: Both Transmitter 1 & Transmitter 2 lasers have failed and no input or invalid inputs on either inputs IN1 or IN 2.
(8) non-Urg-OpticalLow: Not applicable to the IRT-6632-DDT.
(9) urgent-1-OpticalFail-nonUrg-OpticalLow: Not applicable to the IRT-6632-DDT.
(10) urgent-2-OpticalFail-nonUrg-OpticalLow: Not applicable to the IRT-6632-DDT.
(11) urgent-1-2-OpticalFail: Both Transmitter 1 & Transmitter 2 lasers have failed (duplicate entry for table structure).
(12) nonUrg-ValidSignalAbsent-OpticalLow: Not applicable to the IRT-6632-DDT.
(13) urgent-1-OpticalFail-nonUrg-validSignalAbsent-opticalLow: Not applicable to the IRT-6632-DDT.
(14) urgent-2-OpticalFail-nonUrg-validSignalAbsent-opticalLow: Not applicable to the IRT-6632-DDT.
(15) urgent-1-2-OpticalFail-nonUrg-ValidSignalAbsent: Both Transmitter 1 & Transmitter 2 lasers have failed and no input or invalid inputs on either inputs IN1 or IN 2 (duplicate entry for table structure).

irt663xDxxSettingsTable: A table containing configuration settings for all IRT-6632-DDT cards at this node.

controlMode - An indication of the control settings made as per the PCB DIP switch setting:
- (0) dashboardSNMP: Card settings can be controlled via DashBoard™ or SNMP.
- (1) pcbSwitches: Card settings as per DIP switch settings only.
- (2) lockedtoDashboardSNMP: Lock module to DashBoard™ or SNMP control – overrides SW1-7 position. Note that SW1-7 must be initially ON to be able to set to Lock to SNMP mode. To release send either a (0) or (1).

ioAlarmTrapEnable - An indication and control of Trap enable/disable function of input/output alarms:
- (0) ioAlarmTrapDisable: Disable input/output alarm Traps.
- (1) ioAlarmTrapEnable: Enable input/output alarm Traps.

reset - Unit reset control:
- (0) normal: when queried reset control returns a 'normal' state.
- (1) reset: system reset causes a reset of the card.

autoChangeOver - Enable or Disable Automatic Changeover to switch either Tx 1 or Tx 2 optical output from its input to the other input on loss of valid input (if other input is both present and valid):
- (1) disable: Automatic Changeover mode disabled.
- (2) enable: Automatic Changeover mode enabled.

monitorPort - *Not applicable to the IRT-6632-DDT.*

keepAliveTx1 - A substitution of a 54 MHz signal in place of no input signal to keep the Tx 1 optical link active at the receiver end:
- (1) enable: Keep Alive signal enabled.
- (2) disable: Keep Alive signal disabled.

keepAliveTx2 - A substitution of a 54 MHz signal in place of no input signal to keep the Tx 2 optical link active at the receiver end:
- (1) enable: Keep Alive signal enabled.
- (2) disable: Keep Alive signal disabled.

optical1TrapEnable - An indication and control of Trap enable/disable function of the Tx 1 laser state:
- (0) disable: Disable laser Trap alarms.
- (1) enable: Enable laser Trap alarms.

optical2TrapEnable - An indication and control of Trap enable/disable function of the Tx 1 laser state:
- (0) disable: Disable laser Trap alarms.
- (1) enable: Enable laser Trap alarms.

opticalSettingsTable: A table containing information about the optical components fitted to the card.

optical1Component - Wavelength information about the Tx 1 section:

(1) nm1470Laser: IRT-6632-DDT Tx 1 fitted with a 1470nm wavelength laser.
(2) nm1490Laser: IRT-6632-DDT Tx 1 fitted with a 1490nm wavelength laser.
(3) nm1510Laser: IRT-6632-DDT Tx 1 fitted with a 1510nm wavelength laser.
(4) nm1530Laser: IRT-6632-DDT Tx 1 fitted with a 1530nm wavelength laser.
(5) nm1550Laser: IRT-6632-DDT Tx 1 fitted with a 1550nm wavelength laser.
(6) nm1570Laser: IRT-6632-DDT Tx 1 fitted with a 1570nm wavelength laser.
(7) nm1590Laser: IRT-6632-DDT Tx 1 fitted with a 1590nm wavelength laser.
(8) nm1610Laser: IRT-6632-DDT Tx 1 fitted with a 1610nm wavelength laser.
(9) nm1310Laser: IRT-6632-DDT Tx 1 fitted with a 1310nm wavelength laser.
(10) unknown: IRT-6632-DDT Tx 1 fitted with a wavelength laser not matching any of the above.
(11) pinDetector: Not applicable to the IRT-6632-DDT.
(12) apdDetector: Not applicable to the IRT-6632-DDT.
(13) na: Not applicable to the IRT-6632-DDT.

optical1Status - An indication of the status of the Tx 1 output:

GOOD
FAIL.

optical2Component - Wavelength information about the Tx 2 section:

(1) nm1470Laser: IRT-6632-DDT Tx 2 fitted with a 1470nm wavelength laser.
(2) nm1490Laser: IRT-6632-DDT Tx 2 fitted with a 1490nm wavelength laser.
(3) nm1510Laser: IRT-6632-DDT Tx 2 fitted with a 1510nm wavelength laser.
(4) nm1530Laser: IRT-6632-DDT Tx 2 fitted with a 1530nm wavelength laser.
(5) nm1550Laser: IRT-6632-DDT Tx 2 fitted with a 1550nm wavelength laser.
(6) nm1570Laser: IRT-6632-DDT Tx 2 fitted with a 1570nm wavelength laser.
(7) nm1590Laser: IRT-6632-DDT Tx 2 fitted with a 1590nm wavelength laser.
(8) nm1610Laser: IRT-6632-DDT Tx 2 DDT fitted with a 1610nm wavelength laser.
(9) nm1310Laser: IRT-6632-DDT Tx 2 fitted with a 1310nm wavelength laser.
(10) unknown: IRT-6632-DDT Tx 2 fitted with a wavelength laser not matching any of the above.
(11) pinDetector: Not applicable to the IRT-6632-DDT.
(12) apdDetector: Not applicable to the IRT-6632-DDT.
(13) na: Not applicable to the IRT-6632-DDT.

optical2Status - An indication of the status of the Tx 2 output:

GOOD
FAIL.

inputPresentTable: A table containing information about the input status and settings.

channel1Present - An indication of the status of the signal connected to the IN 1 input:
sdi3G PRESENT
sdiHD PRESENT
sdiSD/ASI PRESENT
UNKNOWN PRESENT
NOT PRESENT

channel2Present - An indication of the status of the signal connected to the IN 2 input:
sdi3G PRESENT
sdiHD PRESENT
sdiSD/ASI PRESENT
UNKNOWN PRESENT
NOT PRESENT

channelTxPresent - *Not applicable to the IRT-6632-DDT.*

channelRxPresent - *Not applicable to the IRT-6632-DDT.*

channelTx2Present - *Not applicable to the IRT-6632-DDT.*

channelEnableTable: A table containing information about the channel state settings.

channel1Enable - An indication and control of the transmitter IN 1 channel:
(1) disabled: Disable the transmitter. IN 1 will not be sent. Writing either a 2, 3, 4 or 5 will enable the channel.
(2) enabledActive: IN 1 input is enabled and active.
(3) enabledMuted: IN 1 input is active and muted due to either rate not matching the set rate or no signal is present at the IN 1 port.
(4) enabledChangedOver: IN 1 input is active but transmitter has switched to IN 2 input due to either IN 1 rate not matching the set rate or no signal is present at the IN 1 port.
(5) na: Not applicable to the IRT-6632-DDT.

channel2Enable - An indication and control of the transmitter IN 2 channel:
(1) disabled: Disable the transmitter Tx 2. IN 2 will not be sent. Writing either a 2, 3, 4 or 5 will enable the channel.
(2) enabledActive: IN 2 input is enabled and active.
(3) enabledMuted: IN 2 input is active and muted due to either rate not matching the set rate or no signal is present at the IN 2 port.
(4) enabledChangedOver: IN 2 input is active but transmitter Tx 2 has switched to IN 1 input due to either IN 2 rate not matching the set rate or no signal is present at the IN 2 port.
(5) na: Not applicable to the IRT-6632-DDT.

channelTxEnable - *Not applicable to the IRT-6632-DDT.*

channelRxEnable - *Not applicable to the IRT-6632-DDT.*

channelTx2Enable - *Not applicable to the IRT-6632-DDT.*

channelAliasTable: A table containing information about the channel aliases.

channel1Alias - Set and read the Alias (name) for the transmitter Tx 1 signal IN 1.

channel2Alias - Set and read the Alias (name) for the transmitter Tx 2 signal IN 2.

channelTxAlias - *Not applicable to the IRT-6632-DDT.*

channelRxAlias - *Not applicable to the IRT-6632-DDT.*

channelTx2Alias - *Not applicable to the IRT-6632-DDT.*

channelTrapTable: A table containing information about the channel Traps.

channel1TrapEnable - Set and read the Trap enable state for the transmitter Tx 1 signal IN 1:
- (0) disabled: Disable IN 1 Trap alarms.
- (1) enabled: Enable IN 1 Trap alarms.

channel2TrapEnable - Set and read the Trap enable state for the transmitter Tx 2 signal IN 2:
- (0) disabled: Disable IN 1 Trap alarms.
- (1) enabled: Enable IN 1 Trap alarms.

channelTxTrapEnable - *Not applicable to the IRT-6632-DDT.*

channelRxTrapEnable - *Not applicable to the IRT-6632-DDT.*

channelTx2TrapEnable - *Not applicable to the IRT-6632-DDT.*

chanDataRateTable: A table containing information about the channel data rates.

channel1DataRateSet - Set and read the data rate setting for the transmitter Tx 1 signal IN 1:
- (1) sdi3G-HD-SD-ASI: Reclocker set for 3G/HD/SD-SDI/ASI rates.
- (2) sdiHD-SD-ASI-only: Reclocker set for HD/SD-SDI/ASI rates only. 3G-SDI blocked.
- (3) sdiSD-ASI-only: Reclocker set for SD-SDI/ASI rate only. 3G-SDI & HD-SDI blocked.
- (4) bypassed: Reclocker bypassed. All rates, including non-standard rates, will pass.
- *(5) na: Not applicable to the IRT-6632-DDT. Writing 5 will default to sdi3G-HD-SD-ASI setting.*

channel2DataRateSet - Set and read the data rate setting for the transmitter Tx 2 signal IN 2:
- (1) sdi3G-HD-SD-ASI: Reclocker set for 3G/HD/SD-SDI/ASI rates.
- (2) sdiHD-SD-ASI-only: Reclocker set for HD/SD-SDI/ASI rates only. 3G-SDI blocked.
- (3) sdiSD-ASI-only: Reclocker set for SD-SDI/ASI rate only. 3G-SDI & HD-SDI blocked.
- (4) bypassed: Reclocker bypassed. All rates, including non-standard rates, will pass.
- *(5) na: Not applicable to the IRT-6632-DDT. Writing 5 will default to sdi3G-HD-SD-ASI setting.*

channelTxDataRateSet - *Not applicable to the IRT-6632-DDT.*

channelRxDataRateSet - *Not applicable to the IRT-6632-DDT.*

channelTx2DataRateSet - *Not applicable to the IRT-6632-DDT.*

IRT-6632-DDR SNMP Functions:

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

irt663xDxxProductTable: A table containing product info for all IRT-6632-DDR cards at this node.

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

boardRev - An indication of the hardware (board) revision of this card.

softwareRev - An indication of the software revision of this card.

irt663xDxxStatusTable: A table containing alarm status for all IRT-6632-DDR cards at this node.

rearassembly - An indication whether the card is inserted into the correct rear assembly or not:

(1) match: Card is inserted into correct rear assembly.
(2) mismatch: Card is inserted into incorrect rear assembly.

ioAlarm - An indication of the alarm status of this card:

(0) noAlarm: No alarms present.
(1) urgent-1-OpticalFail: Optical input to the Rx 1 receiver's detector is below its minimum threshold or has failed.
(2) urgent-2-OpticalFail: Optical input to the Rx 2 receiver's detector is below its minimum threshold or has failed.
(3) urgent-1-2-OpticalFail: Optical input to both Rx 1 & Rx 2 receiver's detector is below its minimum threshold or has failed.
(4) nonUrg-ValidSignalAbsent: No valid signal has been received by one or both of the receivers.
(5) urgent-1-OpticalFail-nonUrg-ValidSignalAbsent: Optical input to the Rx 1 receiver's detector is below its minimum threshold or has failed and no valid signal has been received by the Rx 2 receiver.
(6) urgent-2-OpticalFail-nonUrg-ValidSignalAbsent: Optical input to the Rx 2 receiver's detector is below its minimum threshold or has failed and no valid signal has been received by the Rx 1 receiver.
(7) urgent-1-2-OpticalFail-nonUrg-ValidSignalAbsent: Not applicable to the IRT-6632-DDR.
(8) non-Urg-OpticalLow: Optical detector of either Rx 1 or Rx 2 receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength. **NOTE:** Detectors can vary in their reporting of optical low state. It is recommended to confirm that the received signal is error free if an Optical Low alarm has been raised.
(9) urgent-1-OpticalFail-nonUrg-OpticalLow: Optical input to the Rx 1 receiver's detector is below its minimum threshold or has failed, and optical detector of either Rx 2 receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength.
(10) urgent-2-OpticalFail-nonUrg-OpticalLow: Optical input to the Rx 2 receiver's detector is below its minimum threshold or has failed, and optical detector of either Rx 1 receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength.
(11) urgent-1-2-OpticalFail: Optical input to the Rx 2 receiver's detector is below its minimum threshold or has failed (duplicate entry for table structure).
(12) nonUrg-ValidSignalAbsent-OpticalLow: No valid signal has been received by either receiver and optical detector of either receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength. **NOTE:** Detectors can vary in their reporting of optical low state. It is recommended to confirm that the received signal is error free if an Optical Low alarm has been raised.
(13) urgent-1-OpticalFail-nonUrg-validSignalAbsent-opticalLow: Optical input to the Rx 1 receiver's detector is below its minimum threshold or has failed, and optical detector of Rx 2 receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength, and no valid signal has been received by the Rx 2 receiver.

(14) urgent-2-OpticalFail-nonUrg-validSignalAbsent-opticalLow: Optical input to the Rx 2 receiver's detector is below its minimum threshold or has failed, and optical detector of Rx 1 receiver is reporting that the optical input signal is approaching its minimum, or has exceeded its, allowable signal strength, and no valid signal has been received by the Rx 1 receiver.

(15) urgent-1-2-OpticalFail-nonUrg-ValidSignalAbsent: Not applicable to the IRT-6632-DDR (duplicate entry for table structure).

irt663xDxxSettingsTable: A table containing configuration settings for all IRT-6632-DDR cards at this node.

controlMode - An indication of the control settings made as per the PCB DIP switch setting:
- (0) dashboardSNMP: Card settings can be controlled via DashBoard™ or SNMP.
- (1) pcbSwitches: Card settings as per DIP switch settings only.
- (2) lockedtoDashboardSNMP: Lock module to DashBoard™ or SNMP control – overrides SW1-7 position. Note that SW1-7 must be initially ON to be able to set to Lock to SNMP mode. To release send either a (0) or (1).

ioAlarmTrapEnable - An indication and control of Trap enable/disable function of input/output alarms:
- (0) ioAlarmTrapDisable: Disable input/output alarm Traps.
- (1) ioAlarmTrapEnable: Enable input/output alarm Traps.

reset - Unit reset control:
- (0) normal: when queried reset control returns a 'normal' state.
- (1) reset: system reset causes a reset of the card.

autoChangeOver - Enable or Disable Automatic Changeover to switch either Rx 1 or Rx 2 optical input to both OUT 1 and OUT 2 on loss of either optical input:
- (1) disable: Automatic Changeover mode disabled.
- (2) enable: Automatic Changeover mode enabled.

monitorPort - *Not applicable to the IRT-6632-DDR.*

keepAliveTx1 - *Not applicable to the IRT-6632-DDR.*

keepAliveTx2 - *Not applicable to the IRT-6632-DDR.*

optical1TrapEnable - An indication and control of Trap enable/disable function of the Rx 1 optical receiver state:
- (0) disable: Disable laser Trap alarms.
- (1) enable: Enable laser Trap alarms.

optical2TrapEnable - An indication and control of Trap enable/disable function of the Rx 2 optical receiver state:
- (0) disable: Disable laser Trap alarms.
- (1) enable: Enable laser Trap alarms.

opticalSettingsTable: A table containing information about the optical components fitted to the card.

optical1Component - Detector type of the Rx 1 receiver:
- *(1) nm1470Laser: Not applicable to the IRT-6632-DDR.*
- *(2) nm1490Laser: Not applicable to the IRT-6632-DDR.*
- *(3) nm1510Laser: Not applicable to the IRT-6632-DDR.*
- *(4) nm1530Laser: Not applicable to the IRT-6632-DDR.*
- *(5) nm1550Laser: Not applicable to the IRT-6632-DDR.*
- *(6) nm1570Laser: Not applicable to the IRT-6632-DDR.*
- *(7) nm1590Laser: Not applicable to the IRT-6632-DDR.*
- *(8) nm1610Laser: Not applicable to the IRT-6632-DDR.*
- *(9) nm1310Laser: Not applicable to the IRT-6632-DDR.*
- *(10) unknown: Not applicable to the IRT-6632-DDR.*
- (11) pinDetector: IRT-6632-DDR Rx 1 receiver fitted with a PIN detector.
- (12) apdDetector: IRT-6632-DDR Rx 1 receiver fitted with an APD detector.
- *(13) na: Not applicable to the IRT-6632-DDR.*

optical1Status - An indication of the status of the Rx 1 receiver optical input:
GOOD
LOW
FAIL.

optical2Component - Detector type of the Rx 2 receiver:
- *(1) nm1470Laser: Not applicable to the IRT-6632-DDR.*
- *(2) nm1490Laser: Not applicable to the IRT-6632-DDR.*
- *(3) nm1510Laser: Not applicable to the IRT-6632-DDR.*
- *(4) nm1530Laser: Not applicable to the IRT-6632-DDR.*
- *(5) nm1550Laser: Not applicable to the IRT-6632-DDR.*
- *(6) nm1570Laser: Not applicable to the IRT-6632-DDR.*
- *(7) nm1590Laser: Not applicable to the IRT-6632-DDR.*
- *(8) nm1610Laser: Not applicable to the IRT-6632-DDR.*
- *(9) nm1310Laser: Not applicable to the IRT-6632-DDR.*
- *(10) unknown: Not applicable to the IRT-6632-DDR.*
- (11) pinDetector: IRT-6632-DDR Rx 2 receiver fitted with a PIN detector.
- (12) apdDetector: IRT-6632-DDR Rx 2 receiver fitted with an APD detector.
- *(13) na: Not applicable to the IRT-6632-DDR.*

optical2Status - An indication of the status of the Rx 2 receiver optical input:
GOOD
LOW
FAIL.

inputPresentTable: A table containing information about the received signal status.

channel1Present - An indication of the status of the Rx 1 signal received:
sdi3G PRESENT
sdiHD PRESENT
sdiSD/ASI PRESENT
UNKNOWN PRESENT
NOT PRESENT

channel2Present - An indication of the status of the Rx 2 signal received:
sdi3G PRESENT
sdiHD PRESENT
sdiSD/ASI PRESENT
UNKNOWN PRESENT
NOT PRESENT

channelTxPresent - *Not applicable to the IRT-6632-DDR.*

channelRxPresent - *Not applicable to the IRT-6632-DDR.*

channelTx2Present - *Not applicable to the IRT-6632-DDR.*

channelEnableTable: A table containing information about the channel state settings.

channel1Enable - An indication and control of the Rx 1 receiver output (OUT 1):
(1) disabled: Disable the Rx 1 output. OUT 1 will not be sent. Writing either a 2, 3, 4 or 5 will enable the channel.
(2) enabledActive: OUT 1 output is enabled and active.
(3) enabledMuted: OUT 1 output is active and muted due to either rate not matching the set rate or no signal is present at the OUT 1 port.
(4) enabledChangedOver: OUT 1 output is active but receiver has switched to Rx 2's received signal due to either Rx 1's received signal rate not matching the set rate or no signal is present within the Rx 1 received optical signal.
(5) na: Not applicable to the IRT-6632-DDT.

channel2Enable - An indication and control of the Rx 1 receiver output (OUT 1):
(1) disabled: Disable the Rx 2 output. OUT 2 will not be sent. Writing either a 2, 3, 4 or 5 will enable the channel.
(2) enabledActive: OUT 2 output is enabled and active.
(3) enabledMuted: OUT 2 output is active and muted due to either rate not matching the set rate or no signal is present at the OUT 2 port.
(4) enabledChangedOver: OUT 2 output is active but receiver has switched to Rx 1's received signal due to either Rx 2's received signal rate not matching the set rate or no signal is present within the Rx 2 received optical signal.
(5) na: Not applicable to the IRT-6632-DDT.

channelTxEnable - *Not applicable to the IRT-6632-DDR.*

channelRxEnable - *Not applicable to the IRT-6632-DDR.*

channelTx2Enable - *Not applicable to the IRT-6632-DDR.*

channelAliasTable: A table containing information about the channel aliases.

channel1Alias - Set and read the Alias (name) for the OUT 1 output signal.

channel2Alias - Set and read the Alias (name) for the OUT 2 output signal.

channelTxAlias - *Not applicable to the IRT-6632-DDR.*

channelRxAlias - *Not applicable to the IRT-6632-DDR.*

channelTx2Alias - *Not applicable to the IRT-6632-DDR.*

channelTrapTable: A table containing information about the channel Traps.

channel1TrapEnable - Set and read the Trap enable state for the OUT 1 received signal:
(0) disabled: Disable received channel Trap alarms.
(1) enabled: Enable received channel Trap alarms.

channel2TrapEnable - Set and read the Trap enable state for the OUT 2 received signal:
(0) disabled: Disable received channel Trap alarms.
(1) enabled: Enable received channel Trap alarms.

channelTxTrapEnable - *Not applicable to the IRT-6632-DDR.*

channelRxTrapEnable - *Not applicable to the IRT-6632-DDR.*

channelTx2TrapEnable - *Not applicable to the IRT-6632-DDR.*

chanDataRateTable: A table containing information about the channel data rates.

channel1DataRateSet - Set and read the data rate setting for the received OUT 1 signal:
(1) sdi3G-HD-SD-ASI: Reclocker set for 3G/HD/SD-SDI/ASI rates.
(2) sdiHD-SD-ASI-only: Reclocker set for HD/SD-SDI/ASI rates only. 3G-SDI blocked.
(3) sdiSD-ASI-only: Reclocker set for SD-SDI/ASI rate only. 3G-SDI & HD-SDI blocked.
(4) bypassed: Reclocker bypassed. All rates, including non-standard rates, will pass.
(5) *na: Not applicable to the IRT-6632-DDR. Writing 5 will default to sdi3G-HD-SD-ASI setting.*

channel2DataRateSet - Set and read the data rate setting for the received OUT 2 signal:
(1) sdi3G-HD-SD-ASI: Reclocker set for 3G/HD/SD-SDI/ASI rates.
(2) sdiHD-SD-ASI-only: Reclocker set for HD/SD-SDI/ASI rates only. 3G-SDI blocked.
(3) sdiSD-ASI-only: Reclocker set for SD-SDI/ASI rate only. 3G-SDI & HD-SDI blocked.
(4) bypassed: Reclocker bypassed. All rates, including non-standard rates, will pass.
(5) *na: Not applicable to the IRT-6632-DDR. Writing 5 will default to sdi3G-HD-SD-ASI setting.*

channelTxDataRateSet - *Not applicable to the IRT-6632-DDR.*

channelRxDataRateSet - *Not applicable to the IRT-6632-DDR.*

channelTx2DataRateSet - *Not applicable to the IRT-6632-DDR.*

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