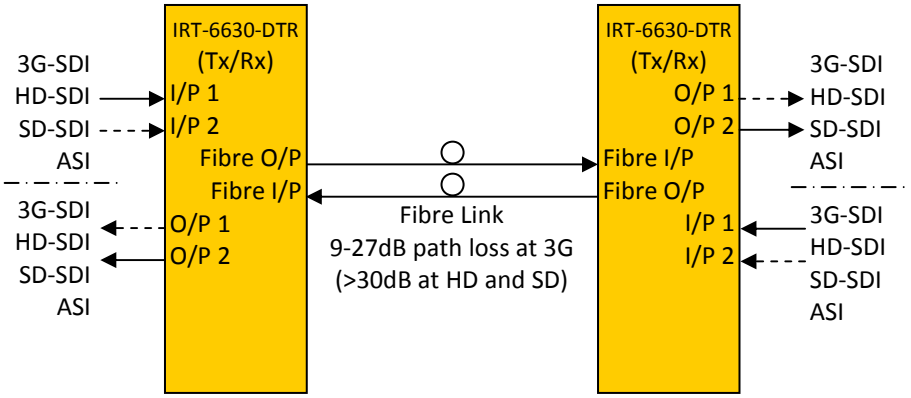
IRT-6630-DTR

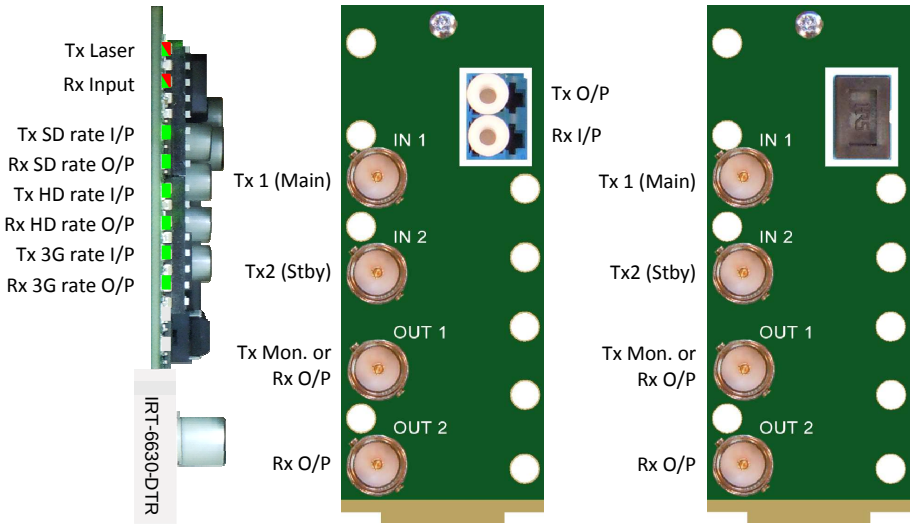
3G/HD/SD-SDI/ASI Fibre Optic Transceiver

FEATURES

- **Transports 3G-SDI, HD-SDI, SD-SDI or ASI signal rates.**
- **Single or bi-directional operation possible with independent transmit and receive functions on the one card.**
- **Path lengths up to 30 dB[1] optical path loss using 9/125µm single mode fibre.**
- **Automatic changeover switching of input for signal redundancy on Tx.**
- **Optional on-board WDM[2,3] optical combiner for use on a single common fibre.**
- **DashBoard® software monitoring and control.**

BLOCK DIAGRAM IRT-6630-DTR SIGNAL PATH





IRT-6630-DTR Rear Assembly (Standard)

IRT-6630-DTR Rear Assembly with WDM option

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.

3 With WDM option fitted, when operating as a pair, one IRT-6630-DTR must be fitted with a 1310nm laser and the other a 1550nm laser.

GENERAL

The IRT-6630-DTR is a transmit/receive (transceiver) module designed principally for use as a serial data fibre optic transmission link 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 link may be used for ASI transport streams for use with MPEG compressed video streams or other 270 Mb/s type data.

The transmitter section features automatic input cable equalisation. A “keep link alive” signal is available to maintain optical link operation when no electrical input is present.

Two inputs are provided with automatic changeover to input 2 on loss of input 1 for input signal redundancy.

The receiver section uses an APD detector with signal conditioning and reclocking circuits. The data rate is automatically set to match the 3G-SDI, HD-SDI or SD-SDI/ASI rates dependent on the actual input data rate to the transmitter.

The IRT-6630-DTR can be used as an independent transmitter and receiver at the same time allowing bi-directional operation over two single mode fibres. Being independent from each other, the transmit and receive signals can be of mixed signal types.

Optionally a 1310/1550nm WDM[2,3] optical combiner can be fitted to allow for combined use on a single fibre.

The IRT-6630-DTR 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.

IRT-6630-DTR

TECHNICAL SPECIFICATIONS

Transmitter:

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, with I/P 1 taking priority & I/P 2 automatically switching in on loss of I/P 1.
Output connector	1 x BNC (OUT 1) on rear panel, link selectable Tx input monitor, or nil if set as a second Rx output.

Receiver:

Number of outputs	2 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 assembly, or 1 x BNC if OUT 1 has been link selected as an input monitor.

Optical:

Optical output	0 dBm +4.5/-0 dB CWDM DFB laser.
Optical input	APD detector, -9 to -27 dBm input level at 3G-SDI, typically < -30 dBm at HD/SD-SDI.
Available wavelengths	1310nm or 1550nm. Other wavelengths available upon request.
Optical path loss[4, 5]	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 Tx and 1 Rx; 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-6630-DTR**	IRT-6630-DTR, programmed with DashBoard® control.
	WDM order codes	IRT-6630-DTR/1310/WDM & IRT-6630-DTR/1550/WDM.

NOTE:	**4**	Typical values based using DFB laser. Optical attenuator supplied for when optical path loss is less than 9dB for APD detector.
	5	With WDM option fitted for combined use on a single fibre, optical path loss is reduced by approximately 2dB.
	6	With WDM module fitted, when operating as a pair, one IRT-6630-DTR must be fitted with a 1310nm laser and the other a 1550nm laser.