

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

### FEATURES

- 2 independent fibre links.
- Transports 3G-SDI, HD-SDI, SD-SDI or ASI signal rates.
- Path lengths up to 30 dB<sup>1</sup> optical path loss using 9/125µm single mode fibre.
- LED indicators and external alarm contacts.
- Transmitter (Tx) and receiver (Rx) can be used separately with 2 independent single channel fibre Rx and Tx cards.
- Remote monitoring via SNMP.
- Optional on-board WDM<sup>2</sup> optical combiner for use on a single common fibre.

### GENERAL

The IRT DDT-4632 and DDR-4632 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.

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 features 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 receiver uses a choice of either a PIN photodiode or 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 transmitter.

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.

LED indicators are provided on both modules for digital signal presence type, laser or optical failure, and power.

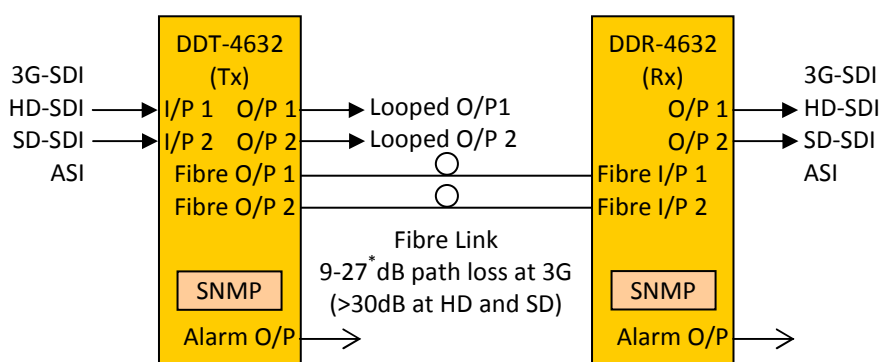
A link selectable "keep link alive" signal is available to maintain optical link operation when no electrical input is present.

Relay contact outputs are also provided for external use of alarm signals on both modules.

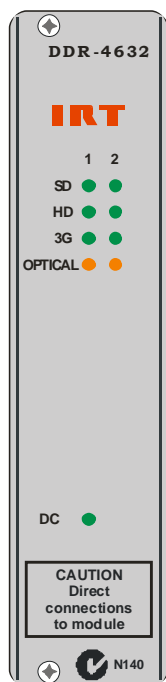
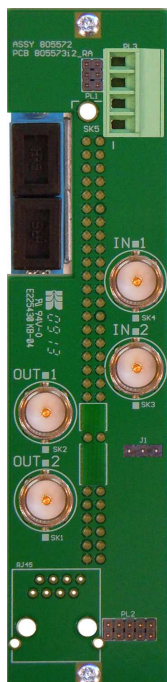
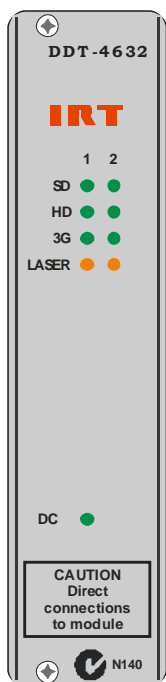
Optionally a 1310/1550nm WDM<sup>2</sup> optical combiner can be fitted to allow for combined use on a single fibre.

SNMP (Simple Network Management Protocol) is available for remote monitoring when used in conjunction with an IRT frame fitted with SNMP capability.

### BLOCK DIAGRAM DDT-4632 & DDR-4632 SIGNAL PATH



NOTE: \* Fitted with APD detector. 3-18dB when fitted with PIN detector.



#### DDR-4632:

\* IN 1 & IN 2 BNC connectors not used.

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.

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

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## TECHNICAL SPECIFICATIONS

## DDT-4632:

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 $\Omega$ .
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.

## DDR-4632:

Number of outputs	1 per channel, data reclocked, AC coupled.
Output level	800 mV $\pm$ 10%.
Output impedance	75 $\Omega$ .
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:

DDT-4632 optical output	0 dBm +4.5/-0 dB CWDM DFB laser.
DDR-4632 optical input	APD detector, -9 to -27 dBm input level at 3G-SDI, typically < -30 dBm at HD/SD-SDI. PIN detector, -3 to -18 dBm input level at 3G-SDI, typically < -20 dBm at HD/SD-SDI.
Available wavelengths	CWDM DFB laser – 1310/1550nm (standard). Other wavelengths combinations available on request.
Optical path loss <sup>3, 4</sup>	9 to 27 dB at 3G-SDI, typically >30 dB at HD/SD-SDI, APD detector; 3 to 18 dB at 3G-SDI, typically >20 dB at HD/SD-SDI, PIN detector. (Optical path loss = Laser O/P power – Detector I/P power)
Optical fibre	Designed for use with 9/125 $\mu$ m single mode fibre.
Optical connector	2 x SC/PC (standard) on rear – direct connection to main card, 1 per channel; 1 x SC/PC (standard) with WDM option fitted.

## Power Requirements:

Voltage	28 Vac CT (14-0-14) or $\pm$ 16 Vdc.
Power consumption	DDT-4632 <5.0 VA, DDR-4632 <5.0 VA.

## Other:

Temperature range	0 - 50° C ambient.
Mechanical	For mounting in IRT 19" rack chassis with input, output and power connections on the rear panel.
Finish	Grey, black lettering & red IRT logo.
Front panel	Detachable silk-screened PCB with direct mount connectors to Eurocard and external signals.
Rear assembly	
Dimensions	6 HP x 3 U x 220 mm IRT Eurocard.
Optional accessories	On-board 1310/1550nm WDM combiner.
WDM option order codes	DDT-4632/WDM & DDR-4632/WDM.

NOTE:	3	Typical values based using DFB laser. Optical attenuators supplied for DDR-4632 when optical path loss is less than 3dB for PIN detector and 9dB for APD detector.
	4	With WDM option fitted for combined use on a single fibre, optical path loss is reduced by approximately 2dB.