

## 'L' Band FM RF Fibre Optic Link

### USES

- TVRO Satellite antenna to control room 'L' band signal feeds (900 MHz - 2150 MHz).
- Multi-site satellite 'L' band distribution.
- In-building satellite 'L' band distribution.

### FIBRE OPTIC LINK BENEFITS INCLUDE

- Immunity from RFI.
- Low signal attenuation.
- Lightning immunity.
- Electrical isolation eliminates ground loop problems.
- Elimination of equalisers & amplifiers.

### GENERAL

The IRT RWT-3820 / RWR-3820 Wide Band RF Fibre Optic Link is a modular system for transmitting broadband RF 'L' band FM modulated signals over an optical fibre cable. The system response is from 900 - 2150 MHz.

The link is designed for transferring the down converted 'L' band signals from satellite dishes to main equipment buildings. Fibre optic cable provides low signal attenuation with no gain or cable equalisation requirements with the added benefit of immunity to RFI and EMI and protection against lightning strikes.

The system is designed for single mode fibre (9/125 μm) at 1300 nm with a path loss of up to 12 dB. The operating distance will depend upon the actual cable and connector losses.

RF signal connections are made to 75Ω SMC connectors on the rear panels. BNC and F adapters are provided.

Optical connections are made to SC/PC optical connectors on at the rear of the module.

#### RWT-3820 LASER Transmitter

Wide band amplifiers are used to drive the DFB LASER with the RF signals applied to the module input. The signal level is set by a front panel control for optimum signal to noise ratio. A pilot signal is added to the RF path to monitor the RF path integrity at the receiver.

Pilot signal level and laser output LED indicators are provided as well as a relay contact set for external alarm indication of laser power or DC supply loss.

LNB power can be applied through a connector on the rear panel.

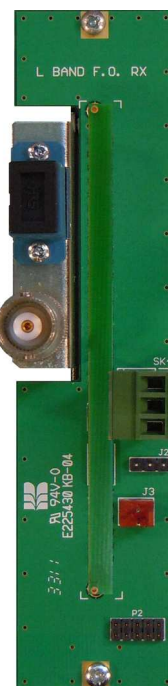
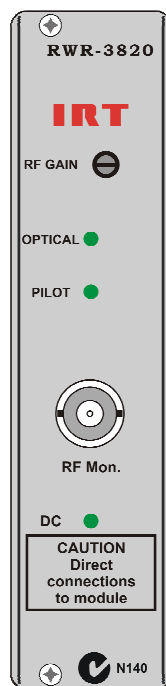
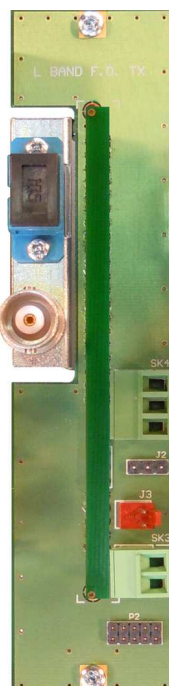
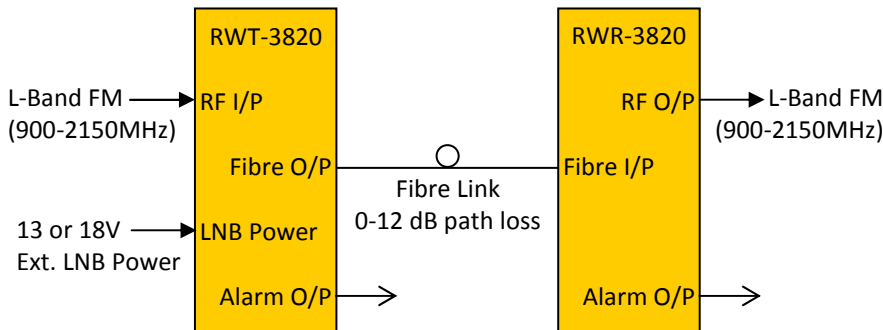
#### RWR-3820 Photo-detector Receiver

The receiver consists of an optical detector diode module followed by an adjustable gain stage and amplifiers to provide two RF outputs from the receiver.

The output signal level is adjusted to the required level as seen at the RF Mon connector. This level is the same as the rear output signal level.

Pilot and optical signal level LED indicators are provided as well as a relay contact set for external alarm indication of optical signal, pilot or DC supply loss.

### BLOCK DIAGRAM RWT-3820 & RWR-3820 SIGNAL PATH



**TECHNICAL SPECIFICATIONS**

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**RWT-3820:**

<b>RF signal connection</b>	75Ω SMC on module rear panel. (BNC and F adapters provided).
<b>RF Monitor connection</b>	BNC connectors front panels (allows easy setting up of RF levels).
<b>RF input level</b>	Adjustable in the range -40 dBm to -20 dBm total power.
<b>LNB power supply</b>	13 or 18V input to rear panel, SK3, can be applied.

**RWR-3820:**

<b>RF signal connection</b>	75Ω SMC on module rear panel. (BNC and F adapters provided).
<b>RF Monitor connection</b>	BNC connectors front panels (allows easy setting up of RF levels).
<b>RF output level</b>	Adjustable in the range -45 dBm to -20 dBm total power.

**Performance:**

<b>Input / output VSWR</b>	< 2: 1 (75Ω).
<b>System frequency response</b>	900MHz to 2150 MHz operation.
<b>500 MHz flatness</b>	± 1.5 dB.
<b>36 MHz flatness</b>	± 0.5 dB.
<b>System group delay</b>	±2 ns 900 MHz - 2150 MHz.
<b>Carrier to noise</b>	> 26 dB for 36 MHz bandwidth.
<b>Intermodulation products</b>	< 40 dBc.

**Optical:**

<b>RWT-3820 optical output power</b>	0 dBm.
<b>RWR-3820 optical input power</b>	-5 dBm to -15 dBm. (Note: 10 dB pad provided for back to back operation where path attenuation is less than 5 dB).
<b>System optical budget</b>	12 dB.
<b>Optical signal connections</b>	SC/PC (accessible from the rear of the module) for use with single mode (9/125 μm) fibre cable.

**Power Requirements:**

<b>Voltage</b>	28 Vac CT (14-0-14) or ±16 Vdc
<b>Power consumption</b>	6 VA for RWT-3820 and 5 VA for RWR-3820

**Other:**

<b>Mechanical</b>	Suitable for mounting in IRT 19" rack chassis with optical, RF & alarm connections at the rear.
<b>Finish:</b>	<b>Front panel</b> Grey background, black lettering & red IRT logo.
	<b>Rear assembly</b> Detachable silk-screened PCB with direct mount connectors to Eurocard and external signals.
<b>Dimensions</b>	32 mm x 3 U x 220 mm IRT Eurocard.

**NOTE:** All the parameters specified are only applicable when using single mode (9/125 μm) fibre cable with a return loss of ≥ 27 dB.