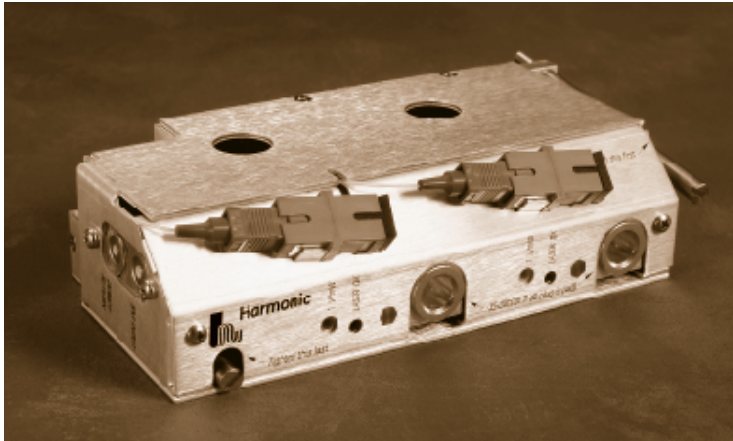


## Return Path Transmitter



### Product Description

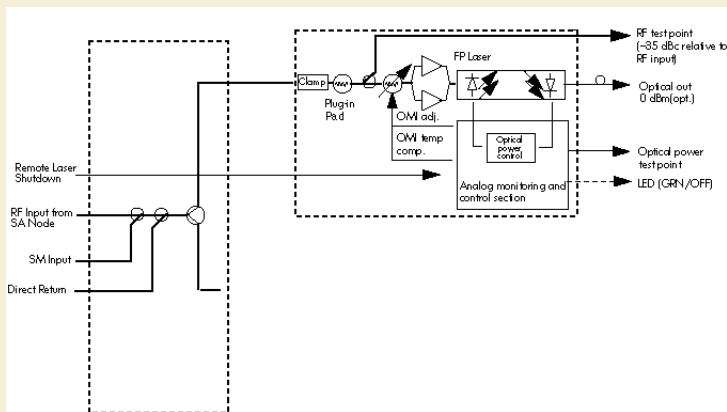
The RPT 3104-21, RPT 3104-22, RPT 3105-21, and RPT 3105-22 are high performance return transmitters for the Scientific-Atlanta 6920 node receiver. The RPT 3104-21 and RPT 3104-22 are based on a Fabry-Perot laser. The laser supplies 1 mW at 1310 nm, and the modulation index is stabilized to operate consistently over a wide temperature range. With 16% modulation index for two carriers, this transmitter is ideal for carrying modest data loads such as set top converter polling data, status monitoring polling data, or one channel of cable modem data.

The RPT 3105-21 and RPT 3105-22 are based on an uncooled DFB laser. This laser supplies 2 mW of output power and offers superior performance for high data loads.

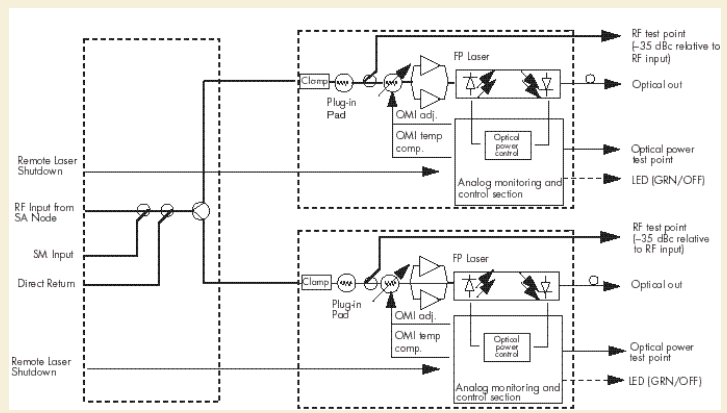
The RPT 310x-21 contains a single transmitter, while the RPT 310x-22 contains two independent transmitters for redundant networks. The RPT 310x-21 can be easily upgraded to a RPT 310x-22 by adding a RPT 310x-20.

All transmitters feature an RF test point, an optical power test point, a status LED, and a plug-in pad. The pad can be used to compensate for varying RF input levels. The test points and pads on the RPT 310x-22 are independent for each redundant transmitter.

### Standard Configuration RPT 310x-21



### Standard Configuration RPT 310x-22

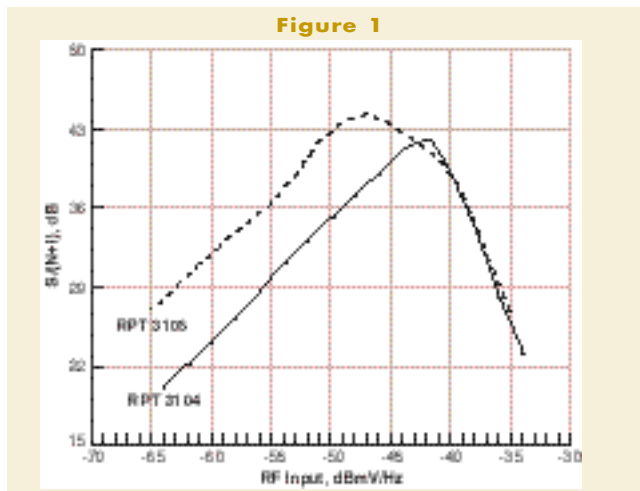


### Advantages

- Temperature stabilized Fabry-Perot or uncooled DFB laser provides consistent modulation index.
- Hot plug-in capability allows easy installation.
- RPT 310x-21 can be easily upgraded to the RPT 310x-22 at any time.
- Compact modules with low power consumption offer easy installation and operation.
- Plug-in pad allows simple adjustment of modulation index for each transmitter.
- Convenient RF test point for each transmitter.

### Applications

- Element management
- Pay-per-view
- Video-on-demand
- Telephony
- Security
- Alternate access
- Local origination
- Direct customer feeds



### Link Performance

RPT 3104-21 and RPT 3104-22:

Video<sup>1</sup>:

CNR: 41 dB  
C/IMD2: 35 dB  
C/IMD3: 47 dB

Data:

See Figure 1

RPT 3105-21 and RPT 3105-22:

Video<sup>1</sup>:

CNR: 50 dB  
C/IMD2: 46 dB  
C/IMD3: 59 dB

Data:

See Figure 1

### RF Input

Input level to achieve 16% modulation index<sup>2</sup>:

Main: 33 dBmV  
SM: 43 dBmV  
Direct Return: 43 dBmV

Operational bandwidth: 5-52 MHz

Flatness:

10-52 MHz: ± 0.75 dB  
5-52 MHz: ± 1.5 dB

RF attenuator: Plug-in pad model NPD 38XX  
(3 dB factory supplied)

Impedance: 75

Return loss: >16 dB

Connector type: Multipin connector to Scientific-Atlanta 6920  
node receiver

### Optical Output

Laser type:

RPT 3104-21/22: Fabry-Perot  
RPT 3105-21/22: uncooled DFB

Output power: 1 mW minimum

Number of outputs:

RPT 310x-21: One  
RPT 310x-22: Two (independent transmitters)

Connector type:

RPT 3104-21-US: SC/UPC  
RPT 3104-22-US: SC/UPC  
RPT 3105-21-AS: SC/APC  
RPT 3105-22-AS: SC/APC

Wavelength: 1310 ±20 nm

Modulation index: 16% at 33 dBmV/channel input<sup>2</sup>

Maximum variation of OMI over full temperature range: 11-16%

### User Interface

For each transmitter within the RPT 310x-21 and RPT 310x-22:

RF test point: -35 dB from input to the transmitter  
Laser output power test point: 1 V/mW  
Green LED: Laser output >0.5 mW

### Element Management System - NETWatch™

Via status transponder installed in node in which the transmitter is mounted.<sup>3</sup>

Parameters available for monitoring: Optical output power

Parameters available for control: Laser on/off

### Power Requirements

Power supplied by node in which the transmitter is mounted

Consumption:

RPT 310x-21: <5 W  
RPT 310x-22: <10 W

### Environmental

Node ambient temperature: -40° to 60° C / -40° to 140° F

Storage temperature: -40° to 70° C / -40° to 158° F

Relative humidity: 100%

### Physical

Dimensions: 6.56" W x 3.39" H x 1.61" D /  
16.66 cm W x 8.61 cm H x 4.09 D cm

Weight: 0.5lbs. / 0.2 kg

Mounting: Within the Scientific-Atlanta 6920 node receiver

#### Notes:

- 1) 2 channels (OMI of 16% each), 10 dB of fiber loss; 4 MHz of video bandwidth
- 2) With 3 dB pad installed
- 3) Parameters which can be monitored and controlled are dependent upon the status transponder used within the node