

### Features & Benefits:

- ▶ The HFC Enhance® ISX-30XX Forward & Return Segmentation Solutions allow users to segment legacy/unsupported ISX-30XX nodes both cost-effectively & with minimal customer service disruption
- ▶ High sensitivity Forward Path Receivers (FPRs) & low noise, DFB-based Return Path Transmitters (RPTs) ensure optimum network performance is achieved
- ▶ Use of WDM / CWDM / DWDM technology allows for full segmentation up to full 4x4 without the requirement for additional fibers being run to the node
- ▶ ISX-3040 / ISX-3030: traditionally limited to Dual Redundant Forward Path Receivers (FPRs) / Single Return Path Transmitter (RPT) configuration or a Single FPR / Two RPTs configuration, HFC Enhance® 3040 Forward & Return Path Segmentation Solutions allow for up to a Two FPRs & Four RPTs segmentation of the ISX-3040 / 3040 without the requirement of additional fibers to the node
- ▶ ISX-3022: traditionally limited to a Single FPR / Single RPT configuration, the HFC Enhance® 3022 Forward & Return Path Segmentation Solutions allow for up to a Two FPRs & Four RPTs segmentation of the ISX-3022 without the requirement of additional fibers to the node

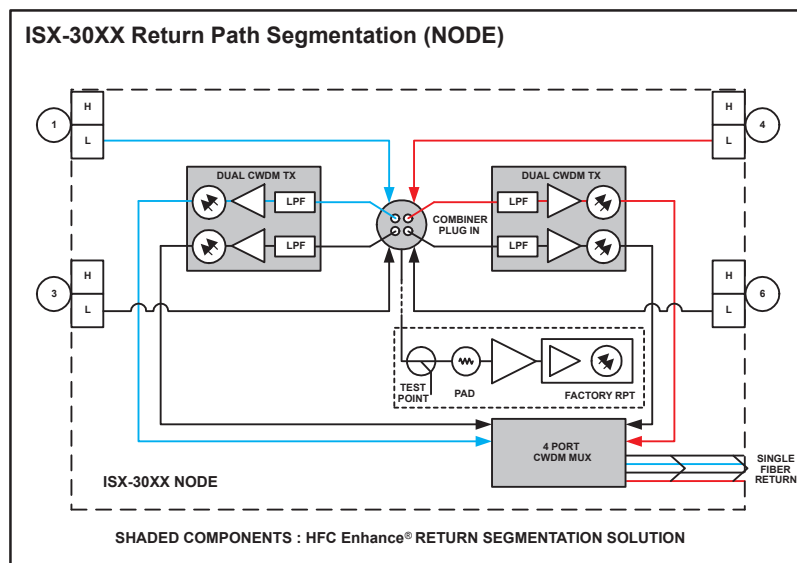
### Bottom Line:

- ▶ HFC Enhance® ISX-30XX Forward & Return Segmentation Solutions for the ISX-30XX nodes offers a solution which from a capital expenditure & labor standpoint is a far more cost-effective solution versus deploying new nodes
- ▶ HFC Enhance® ISX-30XX Forward & Return Segmentation Solutions are designed for easy installation so that customer service disruption time is minimized

### ISX-30XX Return Path Segmentation

The following diagram represents the return path portion of the ISX-30XX node with the HFC Enhance® 30XX Return Path Segmentation Solution installed in order to achieve a 4x return segmentation. The 30XX Return Path Segmentation Solution replaces the original combiner/configurator with a new one that distributes the return signals from each quadrant of the node to a new set of dual return path CWDM transmitter modules. If required a compact & inexpensive CWDM MUX can be included so that all return path transmitters can be multiplexed onto a single fiber.

### Return Path Segmentation Functional Schematic

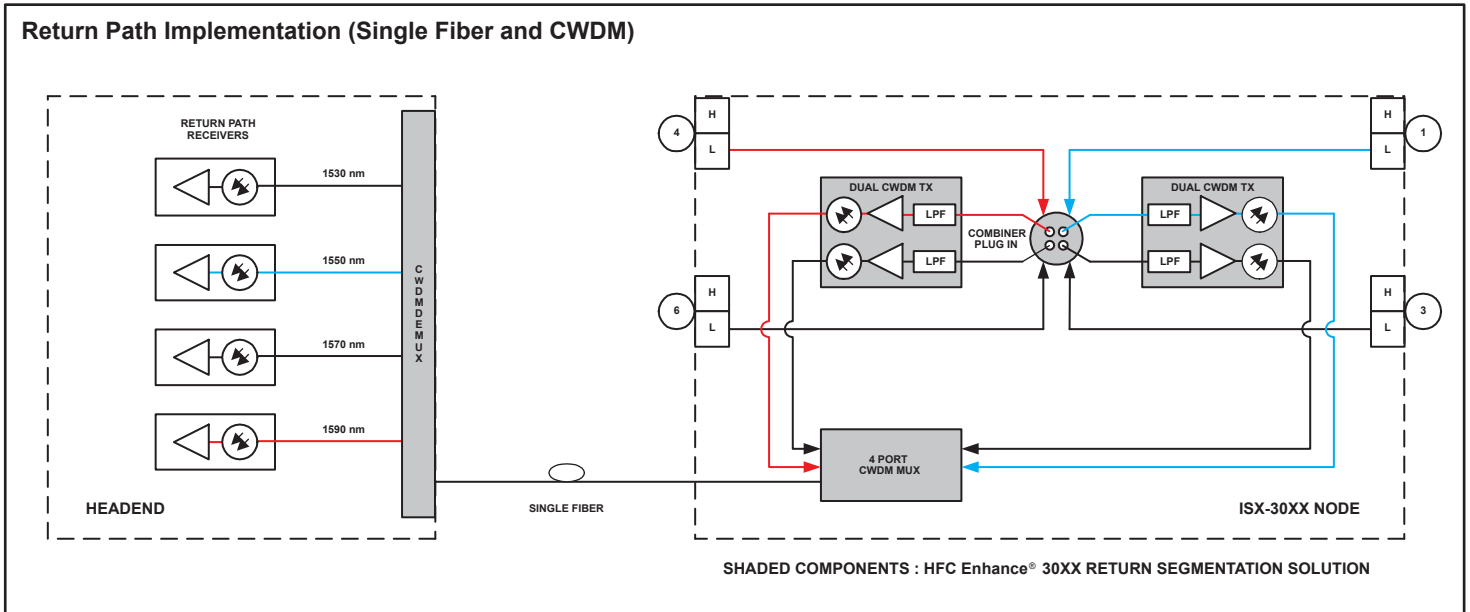


\*The ISX-30XX product name is the property of its owner in the United States and/or other countries.

### Return Path Implementation:

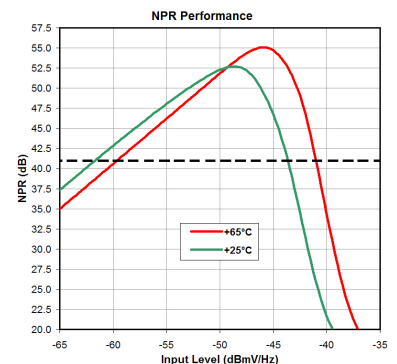
The following diagram shows the complete implementation of the *HFC Enhance® 30XX Return Segmentation Solution* from the node to the headend, where each of the 5-42 MHz segments from each quadrant of the node is received by a separate return path receiver after being demultiplexed with a CWDM DEMUX. ATX can also provide the LGX-style or 1RU rackmount CWDM DEMUX & optical accessories necessary for a complete end-to-end segmentation implementation.

### Return Path Implementation Functional Schematic



### Return Path Transmitter Specifications

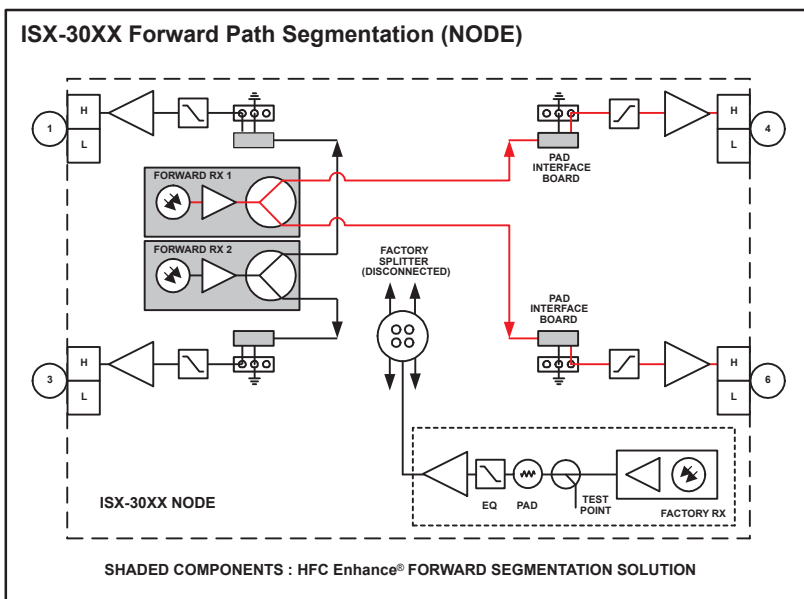
SPECIFICATIONS		RETURN TRANSMITTERS: DFB & CWDM
<b>RF INPUT &amp; PERFORMANCE PARAMETERS</b>		
FREQUENCY RESPONSE RANGE (+/- 1.0 dB)	5 - 220 MHz	
NPR (DFB/CWDM)*	> 15 dB over 41 dB NPR*	
NPR THRESHOLD (DFB/CWDM)*	-57 dBmV/Hz (@ 41 dB NPR Threshold)	
INPUT RETURN LOSS	> 16 dB	
INPUT LEVEL**	(see graph)**	
<b>OPTICAL OUTPUT PARAMETERS</b>		
OPTICAL OUTPUT (DFB)	1.0, 2.0 or 3.0 mW @ 1310 nm / 2.5 mW @ 1550 nm	
OPTICAL OUTPUT (CWDM)	2.5 mW @ 1470, 1490, 1510, 1530, 1550, 1570, 1590 or 1610 nm	
RETURN LOSS	> 60 dB with APC Connector	
OPTICAL CONNECTOR	SC/APC Standard; FC/APC Optional (8° APC); SC/UPC Optional	
<b>USER INTERFACE</b>		
OPTICAL OUTPUT LEVEL	1V/mW	
OPTICAL POWER ALARM	Green / Red LED	
INTERSTAGE RF PLUG-IN SXP PAD	7 dB to Control Input RF Signal Path to Laser	
<b>ELECTRICAL, ENVIRONMENTAL &amp; MECHANICAL PARAMETERS</b>		
OPERATING TEMPERATURE RANGE	-40°C to +70°C (-40°F to +158°F) (temperature at the mounting plate)	
POWER DISSIPATION	< 4 W	
<b>NOTES:</b>		
* Measured with 10 dB of fiber, full 35 MHz loading.		
** Call factory for assistance in determining optimum drive levels for your system.		



## ISX-30XX Forward Path Segmentation:

The following diagram illustrates the forward path section of the ISX-30XX node with the *HFC Enhance® 30XX Forward Segmentation Solution* installed in order to achieve a 2x (left / right) forward segmentation. After removal of the original splitter, the new *HFC Enhance® Dual Forward Path Receiver*, each with dual RF outputs, is installed into the node. As can be seen in the diagram, the forward RF signal from the output of the receivers is injected into each of the output port's individual plug-in RF attenuator locations.

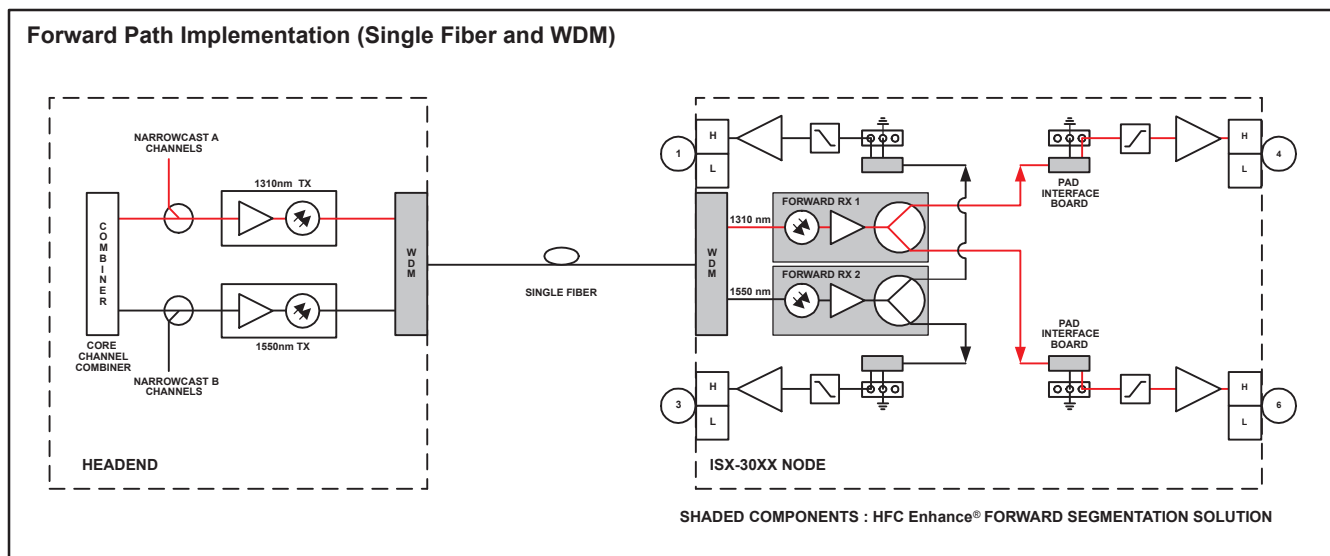
### Forward Path Segmentation Functional Schematic



## Forward Path Implementation

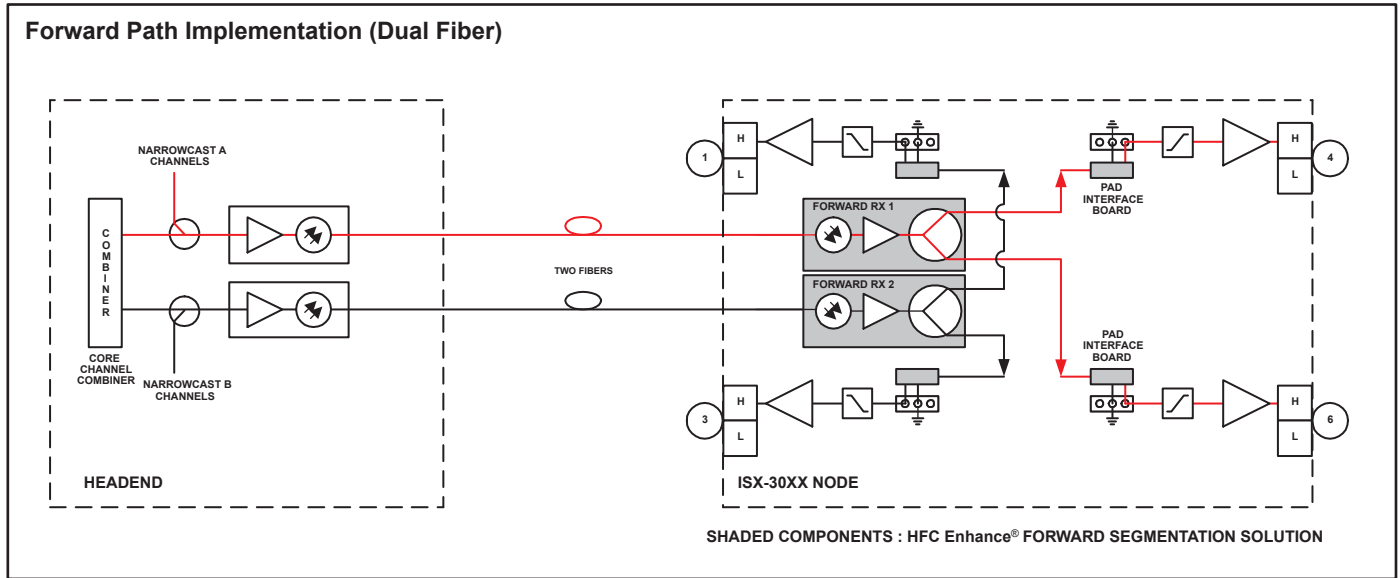
The following diagrams illustrate the complete implementation of the *HFC Enhance® 30XX Forward Segmentation Solution* from headend to node, utilizing one or two forward fibers. In the case where a single fiber solution is required, a compact & inexpensive WDM DEMUX can be installed in the ISX-30XX node. In this application a WDM MUX is required in the headend. ATX can also provide the WDM MUX in an LGX or 1RU rack mount package along with all other optical accessories in order to achieve a complete end-to-end segmentation implementation.

### Forward Path Implementation Functional Schematics

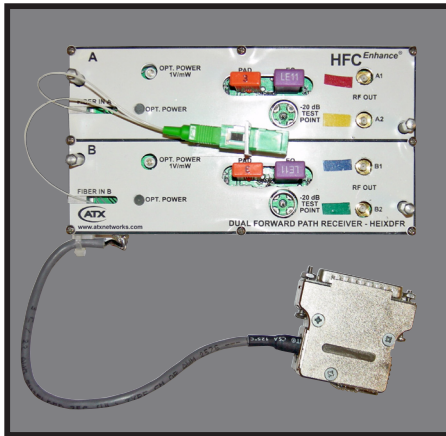


## Forward Path Implementation

### Forward Path Implementation Functional Schematics (cont'd)



### Dual Forward Path Receiver Specifications



SPECIFICATIONS	
<b>RF OUTPUT &amp; PERFORMANCE PARAMETERS</b>	
FREQUENCY RANGE (+/- 1.0 dB)	54-1000 MHz (NTSC) or 85-1000 MHz (PAL)
OUTPUT LEVEL (@ -1 dBm, 3.2% OMI)	+23 dBmV
RETURN LOSS	> 14 dBmV
CNR / CSO / CTB (@ -1 dBm, 3.2% OMI)**	> 54 dB / > 65 dBc / > 68 dBc
RF GAIN ADJUSTMENT	JXP Pad
RF SLOPE ADJUSTMENT	JXP EQ
RF TEST POINT (Forward)	-20 dB; Type F (external)
<b>OPTICAL PARAMETERS</b>	
WAVELENGTH	1280-1610nm
OPTICAL INPUT POWER RANGE	-4 to +3 dBm
OPTICAL INPUT POWER TEST POINT	1 V/mW (external)
RETURN LOSS	> 60 dB with APC Connector
OPTICAL CONNECTOR	SC / APC Standard; FC / APC Optional; 8° APC
<b>ELECTRICAL, ENVIRONMENTAL &amp; MECHANICAL PARAMETERS</b>	
OPERATING TEMPERATURE RANGE	-40°C to +70°C (-40°F to +158°F) (temperature at the mounting plate)
<b>NOTE:</b> ** Typical. 77 NTSC channels to 550 MHz & digital loading to 870 MHz (-6 dB below analog).	

### Ordering Information

Part Number	Description
	Call Factory for Quote



Specifications subject to change without notice.