CHP Max
Headend Optics Platform

CHP D2RRX
Dual Optical Input
Digital Return Path Receivers

FEATURES

- Digital Return technology for ease of set-up and simplified operation—no need to fine tune optical inputs with plug in optical pads
- Product family supports 2x42, 2x65, 1x85, and 2X85 MHz bandwidths
- CHP D2RRX provides “truckless” electronic segmentation without the need to roll a truck or pull new fiber at the node
- Remote monitoring of Opti Max™/Trans Max® products with Digital Element Management System (DEMS)
- CORView™ Lite graphical user interface (GUI) controls monitoring, configuration, and firmware upgrades

PRODUCT OVERVIEW

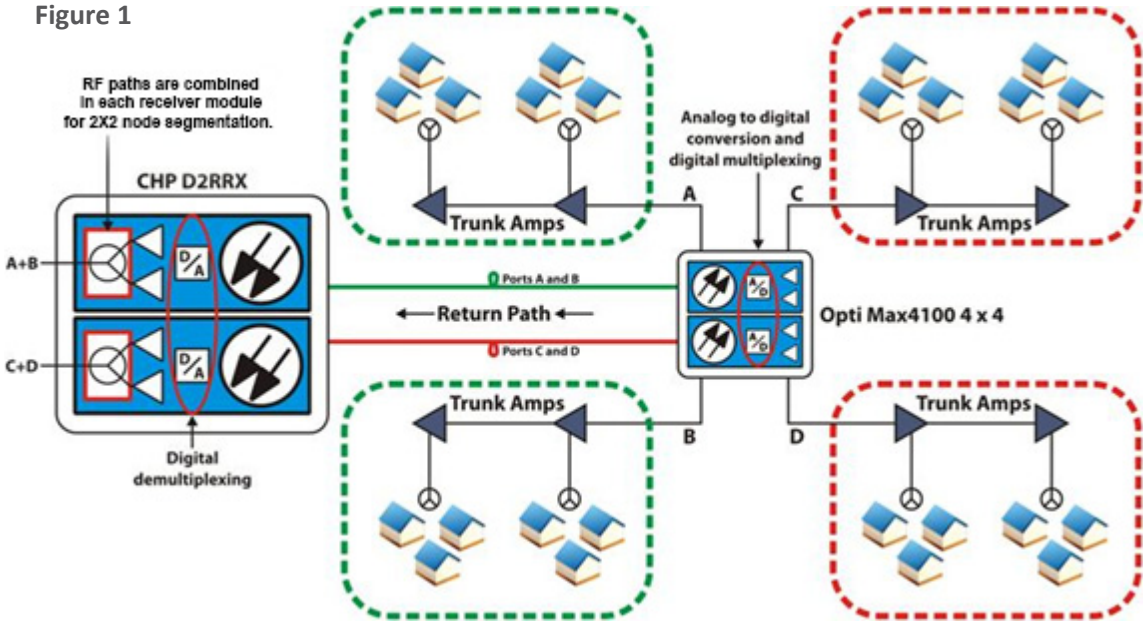
As part of the ARRIS node-based digital solutions for the return path, the complementary CHP Digital Return Path Receivers provide longer reach, better performance, and reduced complexity in the network. By using CHP Digital Return Path Receivers, operators can extend Optical links up to 100 km without additional optical amplification, reducing CAPEX and system complexity. In addition, CHP D2RRX digital return path receivers feature dual density, with two independent receivers in one CHP module. This allows operators to enable up to 40 RF ports per 2RU chassis and up to 800 RF ports per 40 RU rack.

The CHP D2RRX receiver supports optional remote monitoring of Opti Max™/Trans Max® products equipped with digital return transmitters (42 MHz currently) via the CORView™ EMS software. The CHP D2RRX 42 MHz solution also supports service group aggregation, a cost-effective way for operators to supply service groups with triple play services while conserving backbone fiber, optical bandwidth, headend real estate, and key data processing components for other services. In addition, CHP D2RRX receivers can be selected with 2 RF outputs activated (internal electronic combining) to support future segmentation without truck rolls or pulling new fiber.

APPLICATION DIAGRAMS

Truckless Segmentation

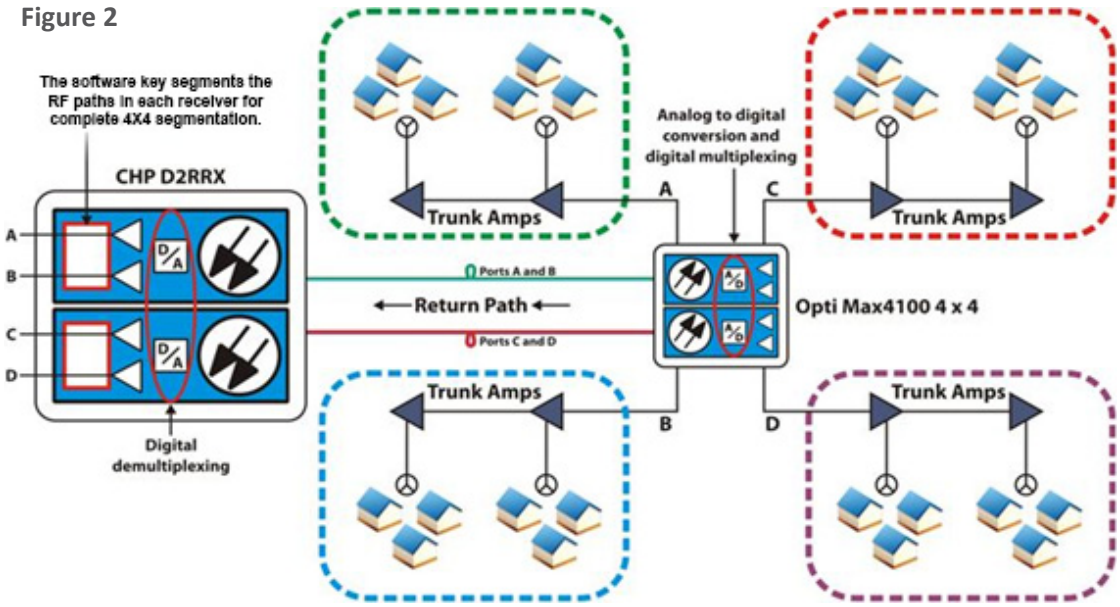
Figure 1



To accommodate future subscriber growth, operators have the option of deploying the OM4100 as a fully segmented node, but choosing to combine RF paths to the CMTS from the output of the CHP D2RRX receiver. When required, the operator can electronically decombine the four RF segments within the receiver, achieving 4x4 node segmentation without the additional cost of a truck roll to the node or pulling additional fiber.*

* "D" versions require additional software key.

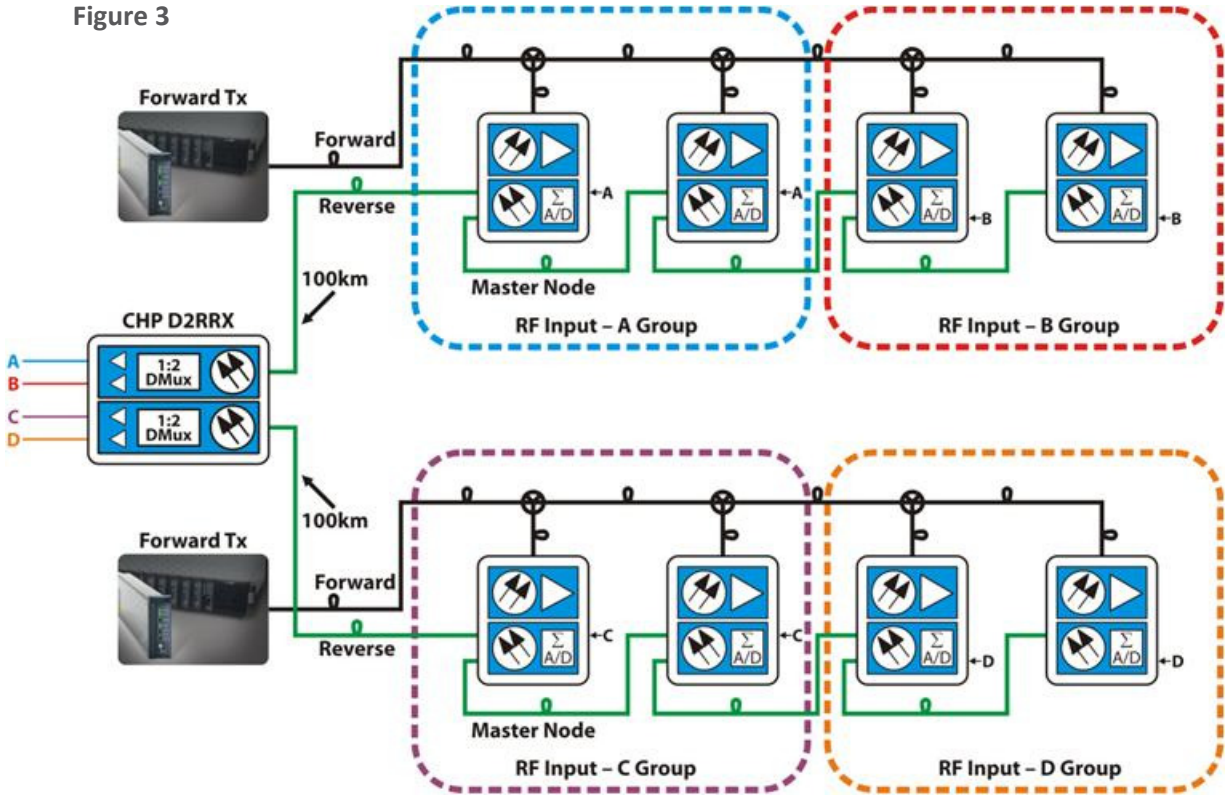
Figure 2



Service Group Aggregation

Operators can aggregate multiple service groups by daisy chaining nodes serially. In this process, signals from service groups—typically four nodes—are digitally multiplexed at each node and fed upstream to the master node. Each node has two RF input ports, using 2:1 digital transmitter technology, per return transmitter. The Small Form Pluggable (SFP) at the first three nodes can be a lower cost 1310 nm transceiver. At the master node, all the nodes in the daisy chain are digitally encoded onto a single optical path for transmission to the CHP D2RRX return receiver module. Here a DWDM transceiver would be used in order to achieve the optimum distance and wavelength aggregation requirements. Once the CHP D2RRX receives the signals, they are digitally demultiplexed into four RF service groupings, which are then sent to the CMTS for processing.

Figure 3



RELATED PRODUCTS	
CHP Chassis	Optical Patch Cords
Power Supplies	Optical Passives
Control Module	Installation Services

SPECIFICATIONS

	CHP-D2RRX-42	CHP-D2RRX-65	CHP-D2RRX-85	CHP-D2RRX-85-XQ/XG
Optical				
Digital Return Transmitter Protocol	ARRIS	ARRIS	ARRIS	Motorola
Input Wavelength Range	1200 to 1620 nm			
Optical Power Input Range				
PIN: CHP-D2RRX-XX-MD	–22 to 0 dBm [1]	–18 to 0 dBm [1]	–22 to 0 dBm [1]	
PIN: CHP-D2RRX-XX-MQ	–22 to 0 dBm [1]	–18 to 0 dBm [1]		
APD: CHP-D2RRX-XX-XD	–31 to –10 dBm [2,3]	–27 to –10 dBm [2]	–29 to –10 dBm [2]	
APD: CHP-D2RRX-XX-XQ	–31 to –10 dBm [2,3]	–27 to –10 dBm [2]		–20 to –10 dBm [3,4]
APD: CHP-D2RRX-XX-XG				–20 to –10 dBm [3,4]
Optical Connector (≥55 dB Optical Return Loss)	SC/APC (8 degrees)			
RF				
RF Output Bandpass (75Ω)	5 to 42 MHz	5 to 65 MHz	5 to 85 MHz	5 to 85 MHz
Time Domain Multiplexing (TDM)	2X	2X	1X	2X
Output Level, max., OM4100/OM3100	44/42 dBmV	44/42 dBmV	41/39 dBmV	42 dBmV/6 MHz or 53 dBmV (total)
Gain Stability over Temperature	± 0.75 dB	± 0.5 dB	± 1.0 dB	± 1.0 dB
Flatness	±0.50 dB			
Output and Test Point Return Loss, min.	16 dB			
RF Test Point	–20 dB ± 0.5 dB			
Redundancy and Attenuator				
Redundancy Switching Time	<50 ms			
Programmable RF Attenuator Range	0 to 30.0 dB in 1.0 dB steps			
Performance				
Noise-Power Ratio (NPR), typical/min.	50/48 dB			
Dynamic Range, typical @ ≥40 NPR, typical/min.	18/17 dB	17/16 dB	16/15 dB	16/15 dB
BER Dynamic Range, @ ≥10–[6] BER	28 dB (64–QAM) 34 dB (16-QAM)	26 dB (64–QAM) 32 dB (16-QAM)	26 dB (64–QAM) 32 dB (16-QAM)	26 dB (64–QAM) 32 dB (16-QAM)
Nominal RF Link Gain, 0dB input attenuation at Tx, max. gain at Rx, [5] OM4100/OM3100	33 /31 dB	33 /31 dB	30/28 dB	25/25 [6]
Link Flatness, typical/min.	±0.75 dB/±1.0 dB			
Power				
Power Consumption (typical/max.)	13.0/16.0 W	13.0/16.0 W	10.0/13.0 W	13.0/16.0 W
Mechanical				
Dimensions (W x H x D)	3.18 x 8.74 x 46.99 cm (1.25 x 3.44 x 18.5 in)			
Weight	1.35 kg (3.0 lbs)			
Environmental				
Operational Ambient Temperature Range, °C (°F)	0 to 50 (32 to 122)			
Operating Relative Humidity, non-condensing	5 to 95%			

Notes:

1. Tested with 60 km fiber, DWDM SFP in a transmitter.
2. Tested with 100 km fiber, DWDM SFP in a transmitter.
3. Typical reported optical input power monitor accuracy is ±1 dB at optical input levels >-31dBm and ±2 dB at optical input levels <-32dBm. Optical power measurements are calibrated in the 1550-nm region.
4. Tested with 50 km fiber, CWDM SFP in a transmitter, or 80 km fiber, DWDM SFP in a transmitter.
5. Measured from the input of a node to the output of a receiver with maximum gain (at receiver).
6. Measured with a factory-installed 6 dB PAD at the input of an SG4 node transmitter.

Customer Care

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

Note: Specifications are subject to change without notice.

CHP D2RRX_DS_23OCT14

(rev 10-2014)