advanced media technologies®

MODEL

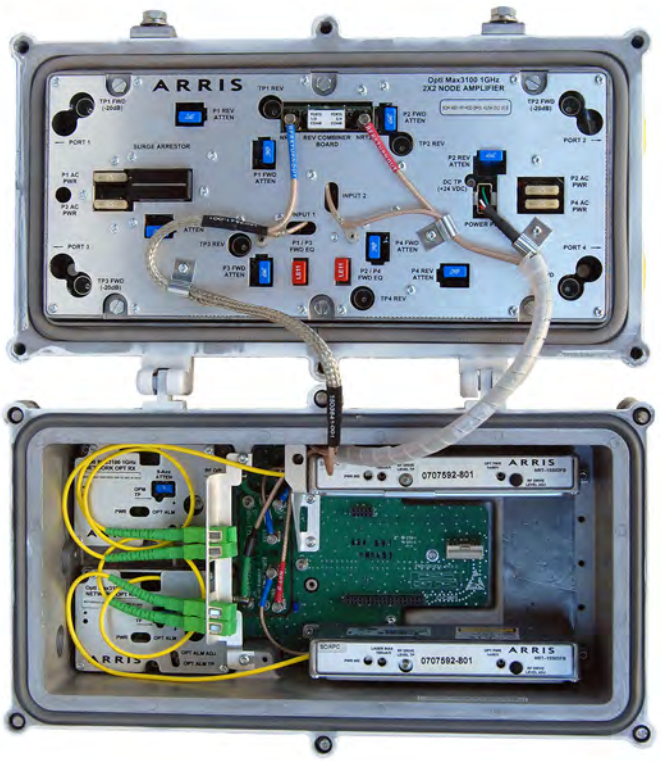
OM3100

2X2 SEGMENTABLE NODE, OPTI MAX ™ OPTICAL NODE SERIES

ARRIS™

FEATURES

- 1 GHz optional GaN technology delivers higher output and enhanced reliability
- Supports CWDM, DWDM, and CORWave® multiwavelength technologies
- SFP based digital return expands upstream bandwidth and enables service group aggregation
- Lid upgrades enable amplifiers to be seamlessly converted to nodes for cost saving cascade reductions
- Integrated optical passive design for multiwavelength support and ease of installation
- Value Max transponder with HMS/AM protocol support



PRODUCT OVERVIEW

The ARRIS Opti Max™ OM3100 1 GHz 2x2 segmentable node enables cable operators to increase forward capacity for HDTV, Video on Demand (VOD), VoIP, Internet, and other service offerings. 2x2 segmentation in both the forward and return path provides the ability to reduce a service group size by 50% for increased capacity and more targeted services when needed, without having to run new trunk fiber or install additional nodes. Thoughtfully designed drop in lid upgrades* enable service group segmentation by converting amplifiers or older nodes to 1 GHz nodes. The OM3100 accepts legacy PADs and Equalizers to minimize stocking requirements. Optional Digital Return transmitters utilizes pluggable SFPs in 1310, 1550, CWDM and DWDM wavelengths to provide easier truck stocking.

The OM3100 supports ARRIS CWDM, DWDM, and CORWave® multiwavelength technologies for maximization of the available optical spectrum. In addition, the node's high-gain receiver and GaN technology provide support for fiber deep applications. The node's optional digital return path transceivers, when they are combined with the CHP digital return receivers in the headend, allow operators to increase distances in the return path and change return segmentation from the headend without a costly truck roll. Value Max transponders are available for EMS support.

* Lid upgrades for Diamond Net node, Opti Max 3000 node, Flex Max™ 601 amplifier, Diamond Line I,II, III amplifiers, GNA/TNA series amplifiers

SPECIFICATIONS

	42/54 MHz	85/105 MHz
General		
Number of Active RF/AC Ports	4 (3 for 1 x 3 RF module)	
Number of AC Only Ports	2 (1 for 1 x 3 RF module)	
Housing Passband, MHz	1002	
Port Impedance, Ω	75	
AC Current Passing, A (All Ports)	15	
Operating Temperature Range, °C	–40 to 60	
Forward Path Specifications		
Optical Specifications		
Optical Input Wavelength, nm	1290 to 1600	1290 to 1600
Optical Input Range, dBm[1]	–3 to 3	–3 to 3
RF Specifications		
Operating Passband, MHz	54 to 1002	105 to 1002
Output Level @ 1006 MHz, –3 dBm input, 3.5% OMI, dBmV, min.	53.5 (Standard Gain NOR), 58 (High Gain NOR)	53.5
Level Stability, dB, max.	± 1.5	± 1.5
Gain Slope, dB[2]	9.5, 11.5, 12.5, 14.5, 16.5 ± 1.0	9.8, 11.5, 12.5, 14.5, 16.5 ± 1.0
Flatness @ Gain Slope, dB	± 1.5	± 1.5
Return Loss, dB, min. (All RF Ports)	16.0	16.0
Port to Port Isolation, dB, typ.	60	60
Test Points		
Forward Output, Directional, dB	–20 ± 0.75	–20 ± 0.75
Receiver (NOR) Input Optical Level Test Point	1V/mW ± 10%	1V/mW ± 10%
79 NTSC Channel Performance[3,4,5]		
Frequency, MHz	1002/870/550/54	1002/870/550/105
Output Level, dBmV[5]	53.5/51.2/45.7/37 GaAs; 56/53.7/48.2/39.5 GaN	53.5/51.2/45.7/37.9
Carrier to Noise Ratio, 4 MHz, 75 Ω, dB	57 (GaAs), 59.5 (GaN), 0 dBm input	57, 0 dBm input
Composite Triple Beat, –dBc	73	73
Composite 2IM, –dBc	67	67
Cross Modulation, per NCTA std., –dB	70	70
Composite Intermodulation Noise, dB[6]	62.5 (GaAs), 60 (GaN)	62.5
Composite Intermodulation Noise, dB[7]	68.5 (GaAs), 65 (GaN)	68.5
All Digital Loading GaN Performance[3]		
Channel Loading, # of 256-QAM channels, NTSC[10]	154	
Frequency, MHz	1002/870/550/54	
Analog Output Level, dBmV[8]	56.0/53.7/48.1/39.5	
Digital Output Level, dBmV	50.0/47.7/42.1/33.5	
Carrier to Noise Ratio, 4 MHz, 75 Ω, dB	59.5, 0 dBm input	
Composite Intermodulation Noise CIN, dB[11]	56	
Chrominance to Luminance Delay		
Channel 2, ns max./3.58 MHz	20	N/A
Channel 3, ns max./3.58 MHz	10	N/A
Channel 4, ns max./3.58 MHz	7	N/A
Channel 5, ns max./3.58 MHz	4	N/A
Chrominance to Luminance Delay[2]		
Channel 98, ns max./3.58 MHz	N/A	15
Channel 99, ns max./3.58 MHz	N/A	9
Hum Modulation, time domain @ 15 A		
54–1002 MHz, –dBc	60	
Gain Control, plug-in PADs[12]	10-Ax-WC (0–26 dB); 9-A0-S to 9-A9-S in 1 dB steps (NOR)	
Equalization[12]		
1 GHz	GEQL-1GHZ-000-1 (0 dB), GEQL-1GHZ-020-1 to GEQL-1GHZ-130-1 (2–13 dB)	
870 MHz	GEQL-870-020-1 to GEQL-870-130-1 (2–13 dB)	

SPECIFICATIONS (CONTINUED)

Return Path Specifications	5 to 42	5 to 85
RF Specifications		
Operating Passband, MHz	5 to 42	5 to 85
Optimum RF Input Level, dBmV/6 MHz	12	12
Gain Slope, dB	± 1.0	± 1.0
Flatness @ Gain Slope, dB	± 1.0	± 1.0
RF Stability, dB	± 2.5	± 2.5
Return Loss, dB (All RF Ports)	16.0	16.0
Port to Port Isolation, dB, typ.	50	50
Test Points		
RF Input, Directional, dB	–20 ± 0.75	–20 ± 0.75
Transmitter Output Optical Power	1V/mW ± 10%	1V/mW ± 10%
Group Delay		
5.5 to 7 MHz, ns, max.	62	62
38.5 to 40 MHz, ns, max.	20	20
Hum Modulation (Time Domain @ 15 A)		
5 to 10 MHz, dB	55	55
11 to 42 MHz, dB	60	60
Gain Control, plug-in PADs[12]	10-A0-WC to 10-A19-WC (0–19 dB, in 1 dB steps) or Amini-0 to Amini-20 (0 to 20 dB, in 1 dB steps)	10-A0-WC to 10-A19-WC (0–19 dB, in 1 dB steps) or Amini-0 to Amini-20 (0 to 20 dB, in 1 dB steps)

NOTES:

1. Circuit resiliency to 5 dBm.
2. Typical slope is 6.5 dB with no EQ installed. Slope is defined as the difference between the highest and lowest specified frequency on a straight line determined by applying a best fit/least squared formula to the measured response.
3. The distortion values listed are for the node only. To obtain a particular link performance, combine the listed node performance values with the applicable transmitter performance values.
4. Analog channels occupying the 54 to 550 MHz frequency range with digitally compressed channels or equivalent broadband noise to 1002 MHz at levels 6dB below equivalent video channels.
5. At the specified operational tilt of 16.5 dB, the maximum output level for 870 MHz or 1002 MHz loading is 56.5 dBmV (GaAs)/59 dBmV (GaN) at the highest frequency.
6. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 1002 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 MHz frequency spectrum.
7. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 870 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 MHz frequency spectrum.
8. At the specified operational tilt of 16.5 dB, the maximum output level for 870 MHz or 1002 MHz loading is 59 dBmV at the highest frequency.
9. Systems operating with digitally compressed channels or equivalent broadband noise from 250 to 1002 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 250 MHz frequency spectrum.
10. Digital channels occupy 54 to 1002 MHz with 3 channels replaced by analog channels for CCNR measurement.
11. Systems operating with digitally compressed channels or equivalent broadband noise from 54 to 1002 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise relative to any remaining analog channels.
12. ARRIS accessories should be used for guaranteed performance; using third party accessories may result in degraded and/or intermittent performance.
13. Measured at the output of the bulkhead connector.
14. All performance specifications measured over a 6 dB (pure glass) fiber link using 40 MHz noise loading with an optical receiver causing no degradation to performance.
15. Bit Error Rate (BER) performance is measured with QPSK loading over 6 dB pure fiber link for a BER of 10^{-6}. All measurements are typical.
16. DC current draw requirements for Value Max transponder and daughter card: add 55 mA @ 24 V. All values assume the use of a 1 GHz NOR receiver; the use of a legacy NOR will increase the DC current draw by 140 mA each.

RELATED PRODUCTS

Digital Return Transmitter	Optical Patch Cords
SFPs	Optical Passives
Fiber Service Cable	Installation Services

Note: Specifications are subject to change without notice.

OM3100_DS_02MAR15

Rev 03.2015