



## ACION™ 230 RFOG Mini Optical Node

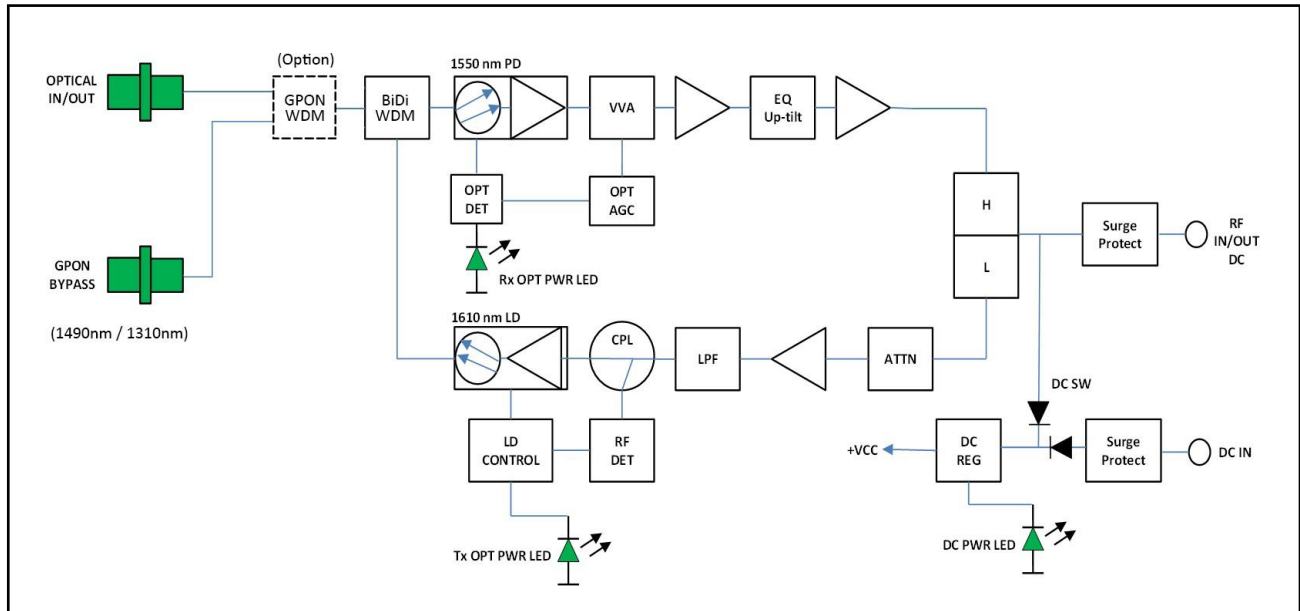
The ACION 230 RFOG mini optical node with burst mode upstream is a bi-directional optical node with wavelength multiplexing for single fiber transmission in an RFOG network. It is the ideal platform for delivering video (digital or analog) as well as high-speed data services in a deep fiber or FTTH network. The node has an option to have a GPON WDM filter built in for bypassing wavelengths such as 1490nm/1310nm for FTTH and RF overlay application.

This optical node incorporates superior proven technologies for the RF amplifier and optical components. In the forward receiver path, the node contains an Optical Automatic Gain Control (AGC) circuit to maintain the output level over an input optical power of -6 ~ 0dBm. In the return path, the Optical Control (AOC) circuit is designed to reduce the return noise effectively, to lower the power consumption and prolong the working life. The ACION 230 is very compact in size with excellent performance and has very high reliability required by FTTB/FTTH networks

### Features

- Forward and Return bi-directional optical transmission through single fiber with SC/APC connector
- Optional PON bypass WDM with SC/APC connector (for Acion230G model only)
- Return optical transmitter with burst mode operation
- Optical Automatic Gain Control (AGC) for forward path receiver
- Automatic Optical Control (AOC) circuit in return path for reducing return noise
- Receiver optical power LED indicator
- Receiver optical power DC test point
- Return transmitter optical power LED indicator
- Power on/off LED indicator
- Separate +12 VDC power supply port

# Block Diagram



# Specifications

ACI		ACION 230 RFoG Mini Optical Node				
PARAMETERS	CONDITIONS	UNITS	SPECIFICATION			NOTES
			Min.	Typ.	Max.	
Forward Receiver						
Optical Wavelength		nm	1540	1550	1565	
Monitor Voltage	$\lambda = 1550$	V/mW	-	1	-	
Optical Input Power	Continuous	dBm	-6	-	0	
Frequency Range		MHz	54	-	1002	
RF Out Level @ 54 MHz	0 to -6dBm Opt in, AGC on	dBmV	14	15	16	3.5% OMI
RF Out Level @ 1002 MHz	0 to -6dBm Opt in, AGC on	dBmV	18	-	21	3.5% OMI
RF Output Slope	54 to 1002 MHz	dB	4	5	6	
Frequency Response Flatness	54 to 1002 MHz	dB	-2	-	+2	
RF Output Return Loss		dB	16	17	-	
Optical Input Return Loss		dB	35	-	-	
CTB	@0 dBm optical in (no distortion contribution from Tx)	dB	-	-	-60	79ch NTSC + 450MHz digital loading @ -6dB OMI = 3% Ref to 1550nm DMTx
CSO		dB	-	-	-60	
CNR	@-6 dBm optical in	dB	47	-	-	
MER	@-4 dBm optical input 256QAM	dB	38	-	-	
BER	256QAM				$1 \times 10^{-9}$	
Equivalent Input Noise	Meas. at 55 MHz	$PA/(Hz)^{1/2}$	-	-	7	

PARAMETERS	CONDITIONS	UNITS	SPECIFICATION			NOTES
Return Transmitter			Min.	Typ.	Max.	
Optical Wavelength (option 1)	-	nm	1290	1310	1330	
Optical Wavelength (option 2)	-	nm	1580	1590	1598	
Optical Wavelength (option 3)	-	nm	1600	1610	1620	
Optical Output Power	-	dBm	2	3	4	
Optical Monitor Voltage	$\lambda = 1310, 1590, 1610$	V/mW	-	1	-	
Frequency Range	For 42/53 MHz split	MHz	5	-	42	
RF Input Level	4ch	dBmV/ch	20	-	45	
Total Composite RF Input Level	-	dBmV	-	-	50	
Flatness of Frequency Response	5 to 42MHz	dB	-1	-	+1	
NPR	10dB Dynamic range minimum	dB	38	-	-	
RF Input Return Loss	5 to 42 MHz	dB	16	17	-	
Optical Output Return Loss	-	dB	35	-	-	
Burst Mode**						
RF Input Transmit OFF=>ON	-	dBmV	13	-	16	
RF Input Transmit ON=>OFF	-	dBmV	-	8	-	
OFF Optical Output Power	Transmitter OFF	dBm	-	-	-30	
Time to 90% optical ON		$\mu s$	-	1.3	-	
Time for optical falls to 10%		$\mu s$	-	1.6	-	
General Parameters						
Power supply voltage	DC	V	+10	+12	+18	
Total Current Consumption (DC)	@ +12 VDC	mA	-	170	500	
Power consumption		Watt		2.0	6.0	
Operating Temperature		°C	-40	-	+60	
Storage Temperature		°C	-40		+85	
Operating Humidity		%	5		95	

\*\*Burst mode parameters can be adjusted according to customer's request.

# Part Number Ordering Matrix

## ACION 230 Configuration Sheet

Customer: \_\_\_\_\_

Created By: \_\_\_\_\_

Order Date: \_\_\_\_\_

### ORDERING MATRIX

2019/3/7

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>PART NUMBER</b>	<b>A</b>	<b>2</b>	<b>3</b>	<b>0</b>												

- |   |   |
|---|---|
| <p>5 <input type="checkbox"/> <b>WDM OPTION</b><br/>"Blank": Without WDM<br/>"G": With GPON WDM</p>                                   | <p>12 <input type="checkbox"/> <b>RETURN TRANSMITTER TYPE</b><br/>D = DFB Laser</p>   |
| <p>6 <input type="checkbox"/> <b>CONFIGURATION</b><br/>1 = Bi-directional, Single Fiber, Burst Mode</p>                               | <p>13 <input type="checkbox"/> <b>RETURN OUTPUT POWER</b><br/>2 = 2mW (3dBm)</p>  |
| <p>7 <input type="checkbox"/> <b>Forward RF Frequency (Maximum)</b><br/>1 = 1002 MHz<br/>2 = 1218 MHz</p>                             | <p>14 <input type="checkbox"/> <b>RETURN TRANSMITTER WAVELENGTH</b><br/>3 = 1310nm<br/>5 = 1590nm<br/>6 = 1610nm</p>  |
| <p>8 <input type="checkbox"/> <b>DIPLEX FREQUENCY SPLIT</b><br/>4 = 42/53 MHz<br/>6 = 65/85 MHz<br/>8 = 85/105 MHz</p>                | <p>15 <input type="checkbox"/> <b>AC/DC TRANSFORMER TYPE</b><br/>0 = None<br/>1 = North America<br/>2 = International / Europe<br/>3 = Japan<br/>4 = Australia<br/>5 = Argentina<br/>X = Other (contact product area agent)</p> |
| <p>9 <input type="checkbox"/> <b>FORWARD OUTPUT LEVEL</b><br/>1 = 18 dBmV @ 1002MHz (Minimum)<br/>2 = 19 dBmV @ 1218MHz (Minimum)</p> |   |
| <p>10 <input type="checkbox"/> <b>RETURN INPUT LEVEL</b><br/>2 = 20 dBmV / ch (Minimum)</p>   | <p>16 <input type="checkbox"/> <b>CUSTOM FEATURE</b><br/>0 = None<br/>X = Determined by product manager</p>   |
| <p>11 <input type="checkbox"/> <b>OPTICAL CONNECTOR TYPE</b><br/>1 = SC/APC<br/>2 = SC/UPC</p>  |   |

### NOTES:



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