

# RF over Glass (RFoG)

## CP85xTU/UU/WU

### RFoG OBI-free MDU R-ONUs with 16-to-1 Optical Receiver Support

## FEATURES

- 36 dBmV RF output level supports multi-subscriber (MDU) applications while conforming to key elements of the SCTE174 RFoG Standard
- OBI-free technology enables high performance upstream operation in an RFoG environment
- 5 to 42, 65, or 85 MHz returns on 1610 nm wavelength
- Return path wavelength management supports up to 16 R-ONUs transmitting into a single optical receiver
- 51, 85, or 102 to 1002 MHz forward bandwidths on 1550 nm wavelength
- DFB laser transmitter supports full DOCSIS 3.0 operation
- PON pass-through and no PON pass-through options
- Low RIN and wide dynamic range
- RF test point facilitates ease of installation and troubleshooting
- DC power supported via RF port or dedicated power port
- Indoor and outdoor mounting options



## PRODUCT OVERVIEW

The ARRIS CP85xTU/UU/WU RFoG Optical Network Unit (R-ONU) is part of the ARRIS Optical Beat Interference elimination “OBI-free” technology family that supports cost-effective deployment of full interactive video, voice, and data services over an RFoG network. ARRIS OBI-free technology enables multiple simultaneous upstream RF channel transmissions, enabling multiple MAC domains and full DOCSIS® 3.0 channel usage to efficiently coexist, offering increased upstream bandwidth usage for RF returns as compared to non-OBI-free models.

The upstream wavelength management feature designed into the CP85xTU/UU/WU R-ONU enables up to 16 CP85xTU/UU/WU R-ONUs to be deployed transmitting into a single optical receiver. An internal rotary switch selects one of sixteen wavelength management options for the upstream optical receiver. The 36 dBmV RF output level supports a wide array of MDU splitter network designs, removing the need for distribution amplifiers. The units are available in bandwidth options; 5-42 MHz return with 51-1002 MHz forward; 5-65 MHz return with 85-1002 MHz forward; or 5-85 MHz return with 102- 1002 MHz forward, using 1550 nm downstream and 1610 nm upstream wavelengths. The R-ONUs support IEEE EPON and ITU GPON/XGPON overlay with RFoG across the same fiber network. PON pass-through versions include an integrated WDM and optical pass-through port for 10G/1G xPON on 1577/1490 nm forwards and 1270/1310 nm returns (CP85xWU) or 1G xPON on 1490 nm forward/1310 nm return wavelengths (CP85xUU), enabling direct PON connection to compatible CPE. Combined with the ARRIS portfolio of multiwavelength transmitters, a wide selection of optical passives, VHub™, low noise return receivers, and AgileMax® solutions, the CP85xTU/UU/WU-00 R-ONUs leverage existing HFC infrastructures and back office systems to provide cable operators with the ability to extend their fiber networks easily, incrementally, and economically.

## SPECIFICATIONS

Characteristics	Specification
<b>Physical</b>	
Dimensions	6.4" W x 4.2" H x 1.5" D (16.3 cm x 10.4 cm x 3.8 cm)
Weight	1.0 lb (0.45 kg)
<b>Environmental</b>	
Operating temperature range	-20° to +60°C (-4° to 140°F)
Storage temperature range	-40° to +85°C (-40° to 185°F)
Humidity	5% to 95% non-condensing
<b>Power Requirement</b>	
Input voltage range	+10.5 to 18 VDC from wall adapter or UPS. Recommended power supply: PS1921W-10 (ordered separately)
Power consumption, max	13.5 W max at turn on; 9 W max after 1 minute
<b>Connectors</b>	
Optical interface (RF)	IEC 61754-4 compliant SC/APC recessed female fiber connector for 1550/1610 nm RF
Optical interface (PON) (CP85xUU and CP85xWU Only)	IEC 61754-4 compliant SC/APC recessed female fiber connector. Passes 1 Gbps (1490/1310 nm) and 10 Gbps (1577/1270) nm downstream/upstream optical signals to compatible CPE. CP85xUU Limited to 1 Gbps only. This is a passive connection with no amplification or attenuation.
RF interface	75 ohm coax "F-female" connector
DC power interface	75 ohm coax "F-female" connector
Forward path RF -20 dB Test point	75 ohm coax "F-female" connector
<b>Downstream</b>	
<b>Optical Receiver</b>	
Input wavelength	1540–1565 nm
Input power range, nominal	+1 to -5 dBm
<b>RF Performance</b>	
RF passband	51 to 1002 MHz (CP851TU, CP851UU, CP851WU) 85 to 1002 MHz (CP854TU, CP854UU, CP854WU) 102 to 1002 MHz (CP859TU, CP859UU, CP859WU)
Channel loading	Analog NTSC (up to 550 MHz), 256 QAM at -6 dBc (550-1002 MHz)
RF output level, Nominal (@3.2% OMI)	36 dBmV/ch at 1002 MHz
Slope (51-1002 MHz)	6 dB linear
Flatness over the passband, excluding slope, max	± 1.5 dB
Output return loss	> 16 dB
Output level stability	± 2.0 dB (over +1 to -5 dBm input power)
Link performance	(CW loading to 550 MHz and 256 QAM loading above 550 MHz at -6 dBc)
CNR	> 48 dB (typical system performance, -5 dBm, 20 km, 1x32 splitter)
CSO	> -60 dB (at 0 dBm input power)
CTB	> -60 dB (at 0 dBm input power)

## SPECIFICATIONS CONTINUED

Characteristics	Specification
<b>Return Path</b>	
<b>Optical Transmitter</b>	
Transmission wavelength	1610 nm $\pm$ 10 nm
Output power	3.0 $\pm$ 1.0 dBm
<b>RF Performance</b>	
Passband	5-42 MHz (CP851TU, CP851UU, CP851WU) 5-65 MHz (CP854TU, CP854UU, CP854WU) 5-85 MHz (CP859TU, CP859UU, CP859WU)
RF input range	7-25 dBmV
Squelch threshold	5 dBmV
Dynamic range @ 30 dB CNR	-20 dBm input to OR3144H receiver); 5-42 MHz return: 18 dB (35 MHz loading); 5-65 MHz return: 15.8 dB (60 MHz loading); 5-85 MHz return: 15 dB (80 MHz loading)
Input return loss	> 16 dB (within passband)
<b>PON Performance</b>	
<b>CP85xUU and CP85xWU only</b>	
Receive input wavelengths	1575 – 1580 nm (10 Gbps) and 1480 – 1500 nm (1 Gbps); (CP85xUU limited to 1480 – 1500 nm 1 Gbps only)
Transmission wavelengths	1260 – 1280 nm (10 Gbps) and 1260 – 1360 nm (1 Gbps); (CP85xUU limited to 1260 – 1360 nm 1 Gbps only)
Transmit wavelengths	
Isolation – 1550 nm to PON, min	-50 dB
Isolation – 1610 nm to PON, min	-15 dB
Isolation – 1577/1490 PON to RFoG	-50 dB
Isolation – 1310/1270 PON to RFoG	-25 dB
<b>Status Indicator LED</b>	
Green = optical input power	$\geq$ -11 dBm ( $\pm$ 1 dB)
Red = optical input power	< -13 dBm ( $\pm$ 1 dB)
<b>Mounting</b>	
Direct mounting on an interior wall or in optional outdoor housing. Contact your ARRIS representative regarding enclosures for other indoor/outdoor mounting options.	
<b>Standards and Certifications</b>	
EMI/EMC complies with FCC Class B and ANSI/SCTE 174 2010	
CE mark certified	
US/C 60950-1, IEC/EN 60950-1	
Class 1 laser product per IEC 60825-1 and FDA 21 CFR 1040.10/11	
Compliant with surge requirements of ANSI/SCTE 174 2010	

## ORDERING INFORMATION

Forward Path (MHz) Reverse Path (MHz)	54 – 1002 5 – 42	85 – 1002 5 – 65	102 – 1002 5 - 85
RF + 1 Gbps PON Pass-through	CP851UU-01-00	CP854UU-01-00	CP859UU-01-00
RF + 10/1 Gbps PON Pass-through	CP851WU-01-00	CP854WU-01-00	CP859WU-01-00
RF Only (no PON Pass-through)	CP851TU-01-00	CP854TU-01-00	CP859TU-01-00

Power Supply Units must be ordered separately.

## RELATED PRODUCTS

OR3144H Quad Diplexer/Return Receiver	OR4168H Diplexer/Return Receiver
PS1921W-00 Power Adapter	PS1921W-10 Power Adapter (Meets USA DOE Class VI efficiency requirements, and features screw-support mount for USA version and F-type DC connector)

**Note:** Specifications are subject to change without notice.

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