DATA SHEET

RF over Glass (RFoG)

CP86xTU/WU-01-00

High-Power RFoG 1.2 GHz OBI-free MDU R-ONU with 16-to-1 Optical Receiver Support

FEATURES

- High 48 dBmV RF output level for multi-subscriber (MDU) applications
- OBI-free return path wavelength management for up to 16 R-ONUs transmitting into a single optical receiver
- 42/54, 65/85 and 85/102 MHz band-split options with 1550 nm DS and 1610 nm US
- 10/10, 10/1, 2/1, 1/1 Gbps PON pass-through option
- DFB laser transmitter supports full DOCSIS® 3.0 operation
- RF output test point
- Integrated 100–240 VAC 50/60 Hz Power Supply

The CommScope CP86xTU/WU-01-00 RFoG Optical Network Unit (R-ONU) is part of the CommScope Optical Beat Interference elimination “OBI-free” technology family that provides cost-effective deployment of fiber to the premises over an RFoG network. CommScope OBI-free technology ensures OBI-free transmissions for up to 16 CP86xTU/WU R-ONUs transmitting into a single optical receiver, enabling multiple MAC domains and full DOCSIS 3.0 channel usage to coexist error free unlike non-OBI-free models.

The upstream wavelength management feature designed into the CP86xTU/WU R-ONU enables up to 16 CP86xTU/WU R-ONUs to be deployed transmitting into a single optical receiver, the internal rotary switch selects one of sixteen wavelengths for the upstream optical transmitter ensuring complete OBI-free performance. The high RF output level of 48 dBmV 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 54–1218 MHz forward; 5–65 MHz return with 85–1218 MHz forward; or 5–85 MHz return with 102–1218 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. The CP86xWU-01-00 includes PON pass-through via an integrated WDM optical port for 10/10G PON on 1577/1270 nm downstream/upstream (DS/US), 10G/1G PON on 1577/1310 nm DS/US, and 2/1 (Turbo) and 1/1 Gbps PON on 1490/1310 nm, enabling direct PON transmission to compatible CPE. Combined with the CommScope portfolio of multiwavelength transmitters, a wide selection of optical passives, VHub, low noise return receivers, and AgileMax® solutions, the CP86xTU/WU-01 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
Physical	
Dimensions	10.5” W x 6.01” H x 2.55” D (26.9 cm x 15.4 cm x 6.5 cm)
Weight	4.0 lb (1.8 kg)
Environmental	
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
Power Requirement	
AC Power	100 to 240 V_{AC} 50/60 Hz with IEC 60320-1/C16 inlet. Power cord must be ordered separately.
Power Consumption, max	25 W max
Connectors	
Optical Interface (RF)	SC/APC (IEC 61754-4 compliant)
Optical Interface (PON Pass-through)	SC/APC (IEC 61754-4 compliant)
RF Interfaces	F-type female
RF -20 dB Test point	F-type female
Downstream	
Optical Receiver	
Input Wavelength	1525 to 1563 nm
Input Power Range, Nominal	+1 to -5 dBm
RF Performance	
RF Passband	54 to 1,218 MHz (CP861TU, CP861WU) 85 to 1,218 MHz (CP864TU, CP864WU) 102 to 1,218 MHz (CP869TU, CP869WU)
Channel Loading	Analog NTSC (up to 550 MHz), 256 QAM at -6 dBc (550–1,218 MHz)
RF Output Level @ 3.1% OMI	48 dBmV/ch at 1,218 MHz nominal, adjustable with JXP pads
Slope (54 to 1,218 MHz)	9 dB linear, set with JXP equalizer
Flatness	± 1.5 dB maximum over specified band and excluding slope
Output Return Loss	14 dB minimum
Output Level Stability	± 2.0 dB maximum from +1 to -5 dBm optical input power
Link Performance	CW loading to 550 MHz and 256 QAM loading above 550 MHz at -6 dBc
CNR	> 47 dB (typical system performance, -5 dBm, 20 km, 1x32 splitter)
CSO	< -60 dB (at 0 dBm input power)
CTB	< -58 dB (at 0 dBm input power)

SPECIFICATIONS

Characteristics	Specification
Return Path	
Optical Transmitter	
Transmission Wavelength	1610 nm ± 10 nm
Output Power	3.0 dBm ± 1.0 dB
RF Performance	
Passband	5 to 42 MHz (CP861TU, CP861WU) 5 to 65 MHz (CP864TU, CP864WU) 5 to 85 MHz (CP869TU, CP869WU)
Squelch Threshold	5 dBmV
Dynamic Range @ 30 dB CNR	With -16 dBm input to OR3144H receiver: 5–42 MHz return: 20 dB (35 MHz loading) 5–65 MHz return: 18 dB (60 MHz loading) 5–85 MHz return: 17 dB (80 MHz loading)
Input Return Loss	> 16 dB (> 14 dB for CP869TU/WU)
PON Performance	**CP86xWU only**
Receive Input Wavelengths	1575 to 1580 nm (10 Gbps) and 1480 to 1500 nm (1 Gbps)
Transmission Wavelengths	1260 to 1280 nm (10 Gbps) and 1260 to 1360 nm (1 Gbps)
PON Pass-through Insertion Loss	1 dB maximum
Isolation – 1550 nm to PON	-18 dB minimum
Isolation – 1610 nm to PON	-55 dB minimum
Isolation – 1577/1490 PON to RFoG	-45 dB minimum
Isolation – 1310/1270 PON to RFoG	-55 dB minimum
Status Indicator LED	
Green (operating)	Optical input power ≥ -13 dBm (± 1 dB)
Red (not operating)	Optical input power < -13 dBm (± 1 dB)
Mounting	
	Direct mounting on an interior wall or in optional outdoor housing. Contact your CommScope representative regarding enclosures for indoor/outdoor mounting options.
Standards and Certifications	
	FCC Part 15 Radio Frequency Devices, Subpart B Unintentional Radiators
	CISPR 32/EN 55032
	CISPR 35/EN 55035
	EN 50083-2-1
	CAN ICES-3 (A)/NMB-3(A)
	IEC/EN/UL 62368-1
	CAN/CSA C22 NO. 62368-1
	IEC/EN 60825-1, -2 (Class 1 laser product)
	FDA 21 CFR 1040.10/11
	Compliant with surge requirements of EN61000-4-5, Class 3

ORDERING INFORMATION

Forward Path Reverse Path	54 to 1218 MHz 5 to 42 MHz	85 to 1218 MHz 5 to 65 MHz	102 to 1218 MHz 5 to 85 MHz
With 10G PON Pass-through	CP861WU-01-00	CP864WU-01-00	CP869WU-01-00
With 10G PON Pass-through	CP861TU-01-00	CP864TU-01-00	CP869TU-01-00
AC/Mains Power Cords	US	Europe	United Kingdom
	PL8001	PL8002	PL8003

NOTE:
AC/Mains Power Cords must be ordered separately. Packaged in quantities of 10 only.

RELATED PRODUCTS

OR3144H Quad Diplexer/Return Receiver	OR4178H Diplexer/Return Receiver
XE4202M Remote OLT (R-OLT)	NH2000, NH4000

Contact Customer Care for product information and sales:

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

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Note: Specifications are subject to change without notice.

1510794-RevH_CP86xTU-WU-01 High-Power OBI-free-MDU-RONU