# **800MHz Fiber Optical Repeater**

RA-8000

## **Features**

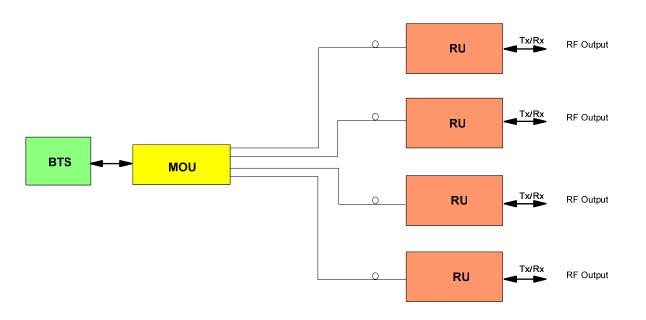
- 10W total downlink output power. •
- Single Fiber Working between Master Optical Unit (MOU) and Remote Unit (RU) • with built-in WDM.
- Modular design MOU allows flexible and scalable configuration.
- One MOU supports up to four RUs.
- Operation & Maintenance communication over optical fiber.
- Built-in wireless modem for remote controlling and monitoring.
- Passive cooling (no fan required).
- IP65 weatherproof RU with built-in surge protector.

#### **Product Description**

The RA-8000 Fiber Optical Repeater provides an effective solution for coverage enhancement. It uses single band fiber and is suitable for applications where large signal coverage is required, such as citywide enhancement, highway and canyons, campus, underground tunnels, airports and convention centers, etc.

The system consists of Master Optical Unit (MOU) and Remote Unit (RU). The MOU's modular design can support up to four RUs by adding additional optical interface card. The RU's fully weatherized enclosure with the built-in AC power surge protector. The RU is designed for installation at any outdoor environment. Product reliability and lower maintenance cost is achieved by advanced design.

## **Functional Block Diagram**







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# **Technical Specifications**

System Spe	ecifications					
System				Trunked 800MHz		
Optical Fiber				Single Mode		
Optical Waveleng	jth		nm	1310, 1550 + WDM		
Optical Link Freq			MHz	800 - 2200		
	•	1 MOU: 1 RU		10		
Maximum Optica	l Path Loss	1 MOU: 2 RU	dB	6.5		
		1 MOU: 3 RU	ub	6.5/10		
		1 MOU: 4 RU		6.5		
Maximum Numbe	er of RU:MOU			4		
Master Opt	ical Unit (M	IOU)				
Optical Spe		-				
Optical Wavelength			nm	1310 + WDM		
		1 MOU: 1 RU		0 - 4		
		1 MOU: 2 RU		-3.5 - 0.5		
Optical Output Po	ower	1 MOU: 3 RU	dBm	-3.5 - 0.5/0-4		
		1 MOU: 4 RU		-3.5 - 0.5		
Optical Return Lo	ISS	1110011110	dB	> 45		
Optical Link Gain			dB	0		
Electrical S	pecificatior	าร				
Uplink Output Po	wer		dBm	0		
• •		1 MOU: 1 RU		0		
Max. Gain		1 MOU: 2 RU		-7		
	Downlink	1 MOU: 3 RU	dB	-7/0		
		1 MOU: 4 RU		-7		
	Uplink			10		
Gain Adjustable I	Range (1dB step)		dB	0 - 30		
Absolute Maximu			dBm	10		
Input Coupling S				1x DL + 1x UL or 1x DL/UL		
Mechanical	Specificati	ons				
Dimensions, H x	WxD		mm	177 x 482 x 360 (19″ 4U)		
Weight (approx.)			kg	14		
Power Supply		AC110/220	VAC	85 - 264/47 - 63Hz		
		DC-48	VDC	-76 – -38		
Power Consumption (approx.)			W	40		
	kup Time (approx	)	hr	3		
Fiber Connectors				FC/ APC		
RF Connectors				SMA – Female		
Operating Tempe	rature		°C	-33 to +55		
Operating Humid	ity		%	≤ 85		
Environmental Class				IP65		
MTBF			hr	> 50,000		

Note: Typical specification at room temperature

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RA-8000

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# **Technical Specifications**

Remote Unit (RU)					
<b>Optical Specifications</b>	•				
Optical Wavelength		nm	1550 + WDM		
Optical Output Power		dBm	0 - 4		
Optical Return Loss		dB	> 45		
Optical Link Gain		dB	0		
<b>Electrical Specificatio</b>	ns				
	Downlink	MHz	851 - 869		
Frequency Range	Uplink		806 - 824		
Downlink Output Power		dBm	40		
Operating Bandwidth		MHz	18		
Maximum Gain	Downlink	dB	65		
Maximum Gain	Uplink	uв	55		
Gain Adjustable Range (1dB step	)	dB	0 - 30		
Pass Band Ripple (p-p)		dB	≤ 5		
Spurious Emission*	9KHz – 1GHz	dBm	-36		
(out of band 10MHz)	1GHz - 12.75GHz	UDIII	-30		
Uplink Noise Figure at Maximum	Gain	dB	≤ 6		
Input VSWR			≤ 1.5		
System Group Delay		μsec	≤ 0.5		
Absolute Maximum Input RF Pow	/er	dBm	10		
Mechanical Specificat	ions				
Dimensions, H x W x D		mm	615 x 330 x 200		
Weight (approx.)		Kg	32		
Power Supply		VAC	85 – 264/45 – 65Hz		
Power Consumption (approx.)		W	130		
Power Up Waiting Time (approx.)	)	sec	60		
MCU Battery Backup Time (appro	ox.)	hr	3		
RF Connectors	,		N – Female		
Fiber Connectors			FC/APC		
Operating Temperature		°C	-33 to +55		
Operating Humidity		%	≤ 95		
Environmental Class			IP65		
MTBF		hr	> 50,000		

Note: Typical specification at room temperature.

\* Parameters test at 10dB optical loss.

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#### **Operation and Maintenance**

Installation, commissioning and monitoring of the RA-8000 can be accomplished by the OMT software via direct connection to a PC that facilitates remote monitoring and parameter adjustment. An optional Operations and Maintenance Center (OMC) software can be incorporated for central monitoring of Comba Products with SNMP interface.

The MOU and RU is communicated over the optical Fiber, hence, the RUs can be remotely controlled by connection to MOU locally or remotely.

Adjustable parameters include: Uplink Gain Setting, Downlink Gain Setting, Alarm Threshold Setting, etc.

Monitored parameters include: Downlink Output Power, Temperature, Optical TX/RX etc.

Alarm parameters include: Output Power Low, Door Open, Temperature, etc.

Coperation And Maintenance Terminal								
System * Communication * Maintenance Communet (75)	-	No Online Help (F1)						
Equipment Information D 8 ×	Hoster Alarm							
B-Y Al Info.	Alarm Paramet	er Information						
B-Y Common Info.	Parameter Groupie	m / 1						
B-Y RFInto.								
-V Alarm Control	Item Select	Parameter Name /	Status	Enable	Update Time			
<ul> <li>Miscellaneous</li> </ul>	El Parameter Group			-				
Gain		aster Slave Monitor Link Alam	Normal	R	2006-11-10 16:26:08			
-V Power	Parameter Group			-				
-Y Alarm Threshold		Sapter Alarm	Nomal		2006-11-10 16:26:08			
-Y Pre-ATT		CU Battery Fault Alarm	Normal	R	2006-11-10 16:26:00			
Switch	E Parameter Group							
Alerminto.		ovnlink Input Overload Alam	Normal	9	2006-11-10 16:26:08			
Channel Alarm		ing: Pover Supply Alam		_				
B-Y Properties Info.		ower Supply Down Alarm	Nomal		2006-11-10 16:26:08			
Equipment ID	- P	ower Supply Fault Alam	Normal	R	2006-11-10 16:26:08			
✓ Firmware Info.     ✓ Equipment Info.     ✓ ✓ Comm. Config     ✓ Comm. Config								
Current Alem D B ×								
Parameter Name / Status								
<no data="" deplay="" to=""></no>		Bead	Gonfig	Clear Sele	ction Refresh	<u>?</u> 1949		

