

## Features

- Dual-band configuration supports two frequency bands in a single system.  
e.g., GSM900+WCDMA2100
- Full operation bandwidth system supports multi-operator or multi-network application.
- Single optical fiber between Master Optical Unit (MOU) and Remote Unit (RU)  
with built-in WDM.
- RU can be remotely controlled via the optical fiber link.
- The equipment enclosure of RU is designed for all-weather outdoor installation –  
Waterproof, damp-proof and omni-sealed (IP65).

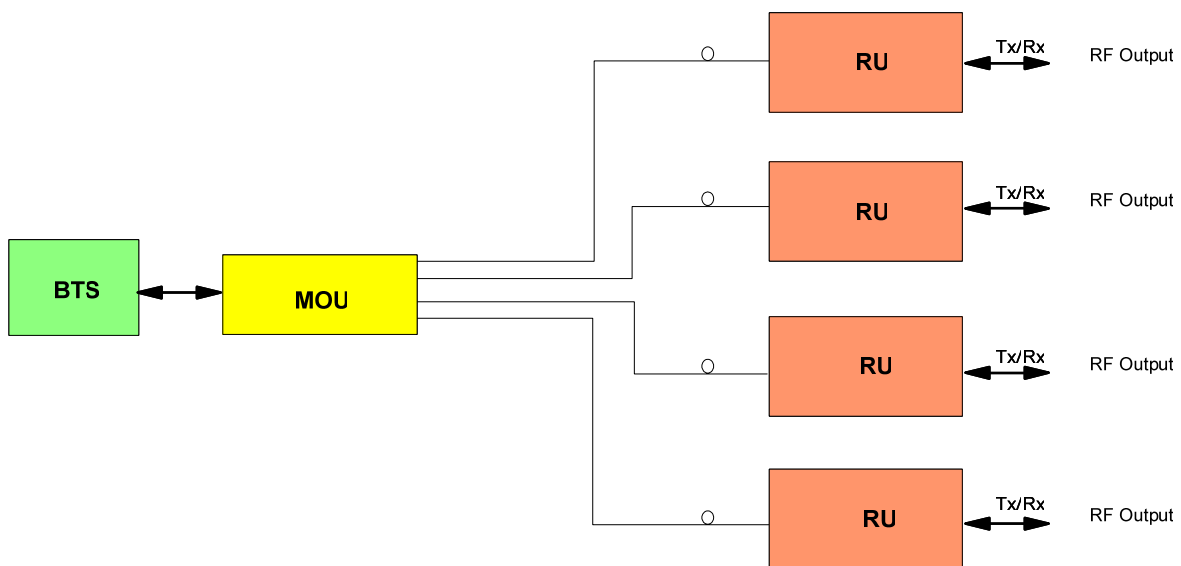


## Product Description

The RA-7600 Dual-band Fiber Optic Repeater is an integrated solution for coverage enhancement. The system consists of the 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 arrester allows product installation at any outdoor environment and powered by exposed power lines.

This solution is an effective point-to-multipoint distributed antenna system that provides effective coverage enhancement. It uses single-mode fibre and is suitable for applications where large signal coverage is required, such as citywide enhancement, highway and canyons, campus, underground tunnels, airports and convention centres, etc.

## Functional Block Diagram



**Technical Specifications**

System Specifications			
System			GSM900, WCDMA2100
Optical Fibre			Single Mode
Optical Wavelength	nm		1310, 1550 + WDM
Optical Link Frequency	MHz		800 – 2500
Max. Optical Path Loss	1MOU: 1 RU	dB	10
	1MOU: 2 RU		6.5
	1MOU: 3 RU		6.5/10
	1MOU: 4 RU		6.5
Maximum Remote Unit per Master Unit			4

Master Optical Unit (MOU)		GSM900	WCDMA2100
Optical Specifications			
Optical Wavelength	nm	1310 + WDM	
Optical Output Power	1MOU: 1 RU	dBm	0 – 4
	1MOU: 2 RU		- 3.5 – 0.5
	1MOU: 3 RU		- 3.5 – 0.5/0– 4
	1MOU: 4 RU		- 3.5 – 0.5
Optical Return Loss	dB	> 45	
Optical Link Gain	dB	0	

Electrical Specifications			
Uplink Output Power	dBm	0	-10
Max Gain	Downlink	1MOU: 1 RU	0
		1MOU: 2 RU	-7
		1MOU: 3 RU	-7/0
		1MOU: 4 RU	-7
	Uplink		10
Gain Adjustable Range (1dB step)	dB	0 – 15	
Absolute Max. Input RF Power	dBm	10	
Input Coupling Signal		1x Dual-band DL + 1x Dual-band UL or 1x DL/UL+1x DL/UL	

Mechanical Specifications			
Dimensions, H x W x D	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	35	
MCU Battery Backup Time (approx.)	hr	3	
Fiber Connectors		FC - APC	
RF Connectors		SMA – Female	
Operating Temperature	°C	-20 to +40	
Operating Humidity	%	≤ 95	
Environmental Class		Indoor	
MTBF	hr	> 50,000	

Note: Typical specification at room temperature

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Technical Specifications

Remote Unit (RU)		GSM900		WCDMA2100		
<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 Specifications</b>						
Frequency Range	Uplink	MHz	890 - 915		1920 - 1980	
	Downlink		935 - 960		2110 - 2170	
Operating Bandwidth	MHz	25		60		
Downlink Output Power	dBm	37	40	37	39	
Maximum gain	Uplink	dB	50		50	
	Downlink		60		60	
Gain Adjustable Range(1dB step)	dB	0 - 15				
Pass Band Ripple (p-p)	dB	≤ 6				
Spurious* (out of band 10MHz)	9KHz-1GHz	dBm	≤ -36		3GPP TS 25.143	
	1GHz-12.75GHz		≤ -30			
Downlink OIP3	dBm	≥ 55				
Uplink Noise Figure at Maximum Gain	dB	≤ 6				
System Group Delay	μsec	≤ 0.5				
<b>Mechanical Specifications</b>						
Dimensions, H x W x D	mm	760 x 370 x 215				
Weight (approx.)	kg	47				
Power Supply	VAC	85 - 264 / 47 - 63Hz				
Power Consumption (approx.)	W	230				
Power Up Waiting Time (approx.)	sec	60				
MCU Battery Backup Time (approx.)	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 and 10dB optical loss

## Operation and Maintenance

Installation and commissioning of RA-7600 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.

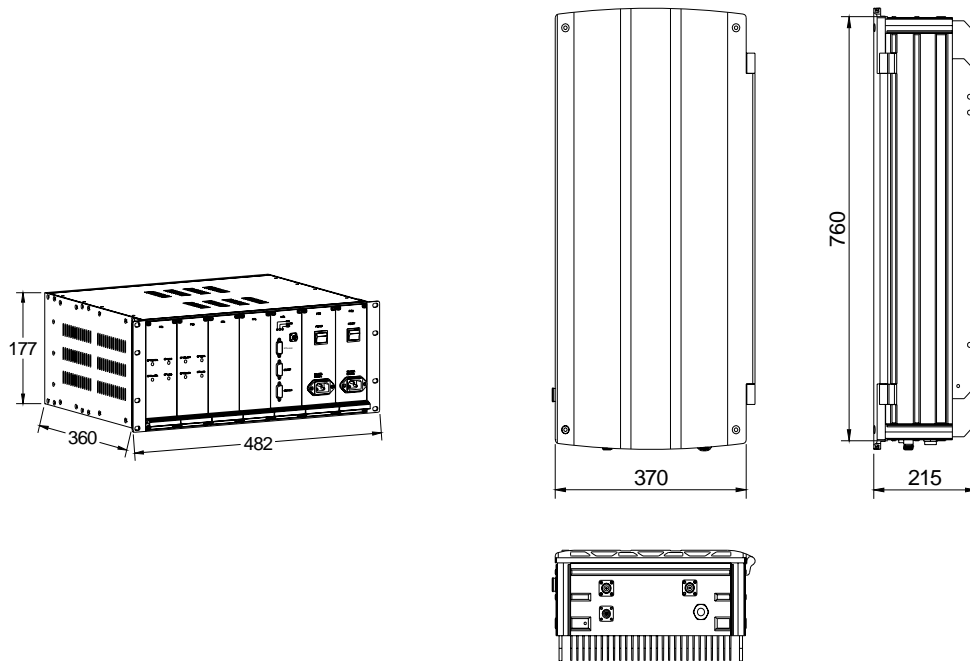
The MOU and RU are communicated over the optical Fiber, hence, the RUs can be remotely controlled by connection to MOU locally or remotely

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

Monitored parameters include: Downlink Output Power, Temperature, etc.

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

## Outline Drawing



Note: Not to scale