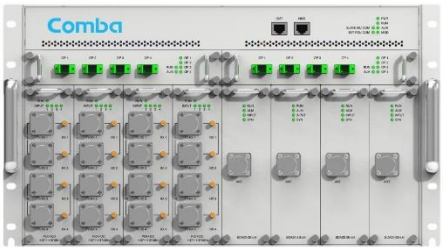
ComFlex NG Series Distributed Antenna System

ComFlex NG Industrial Signal Booster

Features



- Coverage Today, Capacity Tomorrow!
- 5G Ready Analog DAS – Supports 2500BRS and C-Band.
- Modularized Master Unit supports field upgrades and independent gain control.
- Active antenna solution for simple design and installation.
- Multi-Band, Multi-Operator Support – Up to 64 RF Inputs per Sector.
- Off-Air integrated BDA cards for quick building coverage.
- Flexible POI cards for all FDD bands for a single operator.
- RF modules support both simplex and duplex input.
- Supports 194MHz IBW on 2500TDD and 280MHz IBW on C-Band.
- Optical link auto gain control.
- RF link automatic calibration to the Antenna.
- Web based GUI for intelligent commissioning and configuration.
- Self-Commissioning BDA Cards for Off-Air Coverage.
- Power over coax to the antenna – no extra conductors needed!

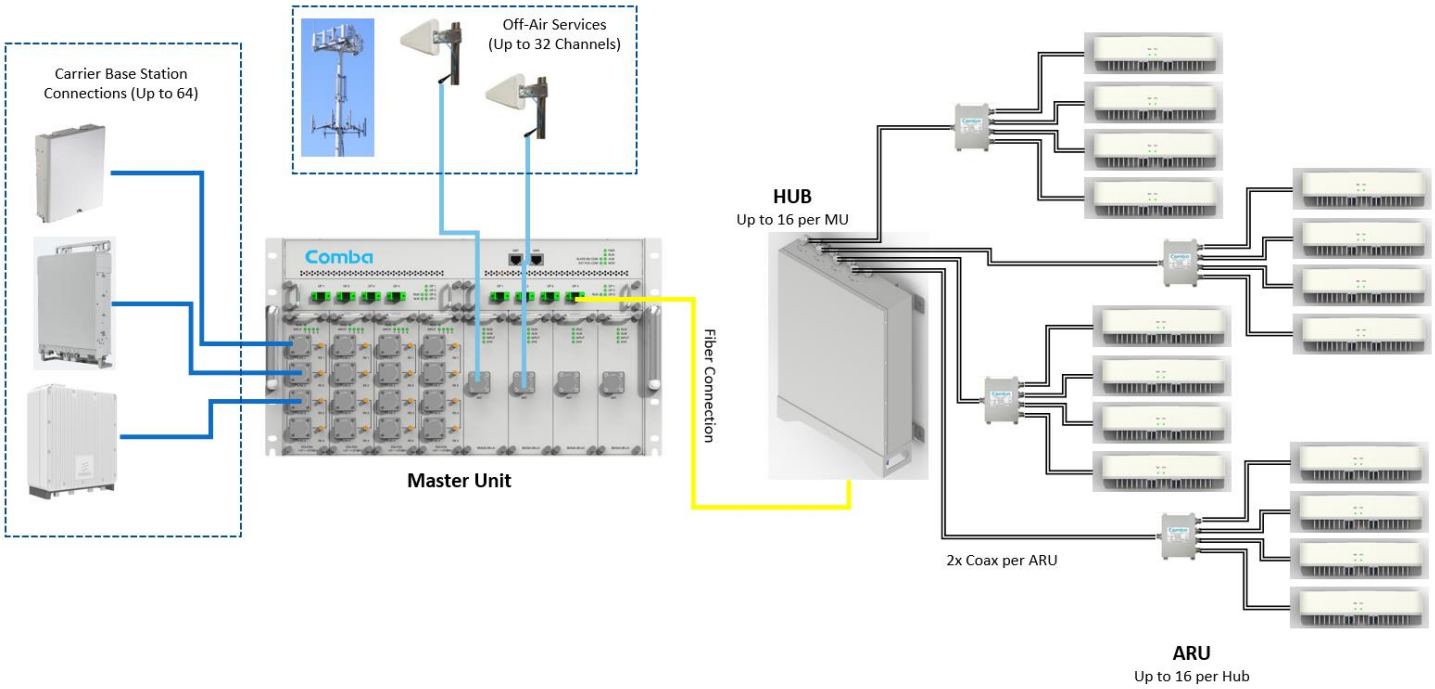
Product Description

The ComFlex NG series Distributed Antenna System is the Next Generation of Comba Analog DAS. This is an RF over fiber to RF + Power over coaxial cable solution that enhances a wireless network's coverage by extending cellular services from existing cell sites to an indoor environment. The system consists of the Master Unit (MU), Fiber Expansion Unit (HUB) and Active (Antenna) Remote Unit (ARU). The MU includes the Chassis with an integrated power supply, Fiber Optical Unit (FOU) and RF Units consisting of BDA Cards and POI cards. With a modular design, it can support up to 64 independent RF inputs, 16 HUBs, and 256 ARU. The ARU is designed with a compact and slim form factor for easy installation; it is an integrated design which supports 6 independent bands, LTE 700MHz, CELL 850 MHz, PCS 1900MHz, EAWS, BRS 2500TDD, and C-Band 3700 TDD.

This solution is an effective point-to-multipoint distributed antenna system that provides effective coverage enhancement. The Comba DAS offers service providers an optimal solution for multiple applications from a single building to a campus, apartment complex, office building, warehouse, or more! This is the perfect single sector solution for up to 750,000 square feet or multi-sector solution for a campus environment.

The ComFlex NG can be installed as a Part 20 Consumer or Industrial DAS. When installed as Part 20 Consumer, you can turn signal on over-the-air in your building immediately, then convert to industrial and connect a signal source when a signal source becomes available. This hybrid solution is perfect for enterprise applications! For Consumer Signal Booster information, refer to the ComFlex NG Consumer Signal Booster Datasheet.

Functional Block Diagram



Coaxial Cable Specifications

Cable Type*	Description	Loss / 100 ft	Max Run Single ARU	Max Run 4 ARU with 2-Way Splitter
Comba CS-F38Px	3/8" Foam Dielectric, Plenum	9.71 dB	463 ft	355 ft
		At 3980 MHz		

***Supports all 50-ohm cable types. Maximum loss to each ARU is 45 dB at 3980MHz.**

Specifications

Optical			
Operating Frequency			600MHz-1GHz,1.7GHz-2.2GHz, 3.3GHz-4GHz
Optical Fiber			Single Mode
Optical Wavelength		nm	1310, 1550 + WDM
Optical Output Power	Master Unit	dBm	-2 to +2
	Hub		6 to 8
End-to-End Reflectance		dB	< -60
End-to-End Optical Loss		dBo	< 8
Optical Automatic Gain Control Range		dB	8
Fiber Connectors			SC/APC
Max Remote Units (Hubs) per Master Unit			16 (with FOU expansion)

Specifications

Electrical								
			700MHz SMH	850MHz CELL	1900MHz PCS	2100MHz EAWS	2500MHz BRS	3700MHz C-Band
Uplink Frequency Range		MHz	698-716 777-787	824-849	1850-1915	1710-1780	2496-2690	3700-3980
Downlink Frequency Range			728-756	869-894	1930-1995	2110-2180	2496-2690	3700-3980
Operating Bandwidth		MHz	28	25	65	70	194	280
Uplink Output Power	Low Power POI	dBm	-40	-40	-40	-40	-40	-40
	High Power POI		-50	-50	-50	-50	-50	-50
	BDA Card		19	19	19	19	22	N/A
Downlink Output Power	POI Card	dBm	19	19	19	19	22	22
	BDA Card		10dBm/5MHz	10dBm/5MHz	10dBm/5MHz	10dBm/5MHz	22	N/A
ARU Antenna Gain		dBi	3.34	3.68	6.79	6.52	7.07	6.33
Maximum Downlink EIRP (POI)		dBm	22.34	22.68	25.79	25.52	29.07	28.33
Maximum Downlink EIRP (BDA)		dBm	17	17	17	17	29.07	N/A
Uplink Maximum Gain	Low Power POI	dB	10					
	High Power POI		0					
	BDA Card		80					
Uplink Max Input Power at ARU		dBm	-10					
Uplink Noise Figure at Max Gain		dB	≤ 10					
Downlink Input Range	Low Power POI	dBm	+10 to +23					
	High Power POI		+20 to +37					
	BDA Card		-95 to -55 (RSRP)					
Downlink Maximum Gain	Low Power POI	dB	10					
	High Power POI		0					
	BDA Card		80					
Downlink Max Input Power	Low Power POI	dBm	23					
	High Power POI	dBm	37					
	BDA Card	dBm	-10					
ATT Adjustable Range (1dB step)		dB	MU: 0-30; ARU: 0-20					
Pass Band Ripple (p-p)		dB	≤ 4	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
Spurious emission			FCC	FCC	FCC	FCC	FCC	FCC
System Delay (BDA Card)		µsec	≤ 10					
System Delay (POI Card)		µsec	≤ 3					
VSWR			≤ 1.8					

Mechanical---MU			
Dimensions, H x W x D	Chassis	in.	10.5” x 19.0” x 15.5”
Power Supply		VAC	100-240/50-60Hz
Power Consumption (max)		W	< 500
RF Connectors			4.3-10 – Female (BDA Card, POI Card TX) QMA – Female (POI Card RX)
Fiber Connectors			SC/APC
Operating Temperature		°F	+32 to +113
Operating Humidity			≤ 85%
Ingress protection			IP30
Enclosure Cooling			Chassis Fan Cooling
Installation Type			19” Rack

Specifications

Mechanical--- ARU-HUB-AC			
Dimensions, H x W x D (approx.)		in	18.0” x 12.5” x 5.0”
Weight (approx.)		lb	23
Power Supply	AC110/220V	VAC	100-240/47-63Hz
Power Consumption		W	<800W (with 16 ARU connected)
RF Connectors			N-Female
Fiber Connectors			SC/APC
Operating Temperature		°F	+32 to +113
Operating Humidity			≤ 85%
Ingress protection			IP30
Enclosure Cooling			Chassis Fan
Installation Type			Wall

Mechanical--- ARU-6B-Internal			
Dimensions, H x W x D (approx.)		in	9.75” x 9.75” x 3”
Dimensions below ceiling (hardlid or drop tile mount)			9.75” x 9.75” x 1.5”
Weight (approx.)		lb	7
Power Supply	DC-48	VDC	-53 (from ARU-HUB-AC, no local power required)
Power Consumption		W	<45
RF Connectors			N-Female
Operating Temperature (Normal Operation)		°F	+23 to +113
Operating Temperature (Degraded Operation)		°F	-4 to +131
Operating Humidity			≤ 95%
Ingress protection			IP30
Enclosure Cooling			Natural Cooling
Installation Type			Ceiling/Wall

Note: Typical Specs for all equipment at room temperature

Certifications

Master Unit	
UL Certification	UL 62368-1
FCC Certification	PX8CFNG-MU
ARU-HUB-AC	
UL Certification	UL 62368-1
ARU-6B-Internal	
UL Certification	UL 62368-1
FCC Certification	PX8CFNG-ARU
Plenum Rating	UL2043-2013 (R2018)

Ordering Information

	P/N	Description
Master Unit	MU-Chassis-AC	Master Unit Rack. Supports 8 RF Units, 2 Fiber Optical Units. Includes Power Supply and Modem for Remote Connection
	MU-FOU	Fiber Optical Unit – 4 Optical Ports, 600-4000 MHz
	MU-BDA20-2B-LH	Master Unit BDA Card - Part 20 Consumer Capable. 2 Channels - One low band (700/850) and one high band (1900/2100)
	MU-BDA20-2B-HH	Master Unit BDA Card - Part 20 Consumer Capable. 2 Channels – Two high band channels (1900/2100)
	MU-BDA-2500TDD	Master Unit BDA Card - 2500TDD Full Band
	MU-POI-LP-FDD	Master Unit POI Card - 4 Ports, FDD Bands (700/850/1900/2100), 10-23dBm Input
	MU-POI-HP-FDD	Master Unit POI Card - 4 Ports, FDD Bands (700/850/1900/2100), 20-37dBm Input
	MU-POI-LP-2500TDD	Master Unit POI Card - 4 Ports, 2500 TDD (2496-2690 MHz), 10-23dBm Input
	MU-POI-HP-2500TDD	Master Unit POI Card - 4 Ports, 2500 TDD (2496-2690 MHz), 20-37dBm Input
	MU-POI-LP-3700TDD	Master Unit POI Card - 4 Ports, 3700 TDD (3700-3980 MHz), 10-23dBm Input
	MU-POI-HP-3700TDD	Master Unit POI Card - 4 Ports, 3700 TDD (3700-3980 MHz), 20-37dBm Input
Fiber Hub Unit	ARU-HUB-AC	ComFlex NG Remote Fiber Hub for ARU – Supports up to 16 ARU
Active Antenna	ARU-6B-Internal	Active Remote Unit - 6 Band Support (700/850/1900/2100/2500/3700) - 19dBm (FDD) / 22dBm (TDD)
	PSW-HS2NXD	Power Splitter, Wilkinson, Dual 2-Way, 555-6000MHz, N-type, DC Pass
Plenum Cable	CS-F38PA	Super Flexible 3/8” Air Dielectric Cable, UL CMP Rated. A / V+ / TX. 1000’ Spool
	CS-F38PB	Super Flexible 3/8” Air Dielectric Cable, UL CMP Rated. B / V- / RX. 1000’ Spool
	HB-F38D	3/8” Dual Coax Hanger Block (10 set / pack)
	AP-F38	Auto Prep Tool for CS-F38Px Cable and CN-Nx-F38 Connectors
	CN-NM-F38	Connector, N-Male for Super Flexible 3/8” Air Dielectric Cable
	CN-NF-F38	Connector, N-Female for Super Flexible 3/8” Air Dielectric Cable

Application Note

The ComFlex NG series Distributed Antenna System can be installed as a Part 20 Consumer DAS or as an Industrial Cellular DAS. This datasheet is for Industrial applications only. Refer to the Comflex NG Consumer Signal Booster Datasheet for more information.

When ComFlex NG is installed as an Industrial Cellular DAS, applicable operator retransmit agreements are required to operate the DAS.