



IN-BUILDING SOLUTIONS FIBER OPTICS

Modular Fiber Optic Distributed Antenna System for Multiple Wireless Services



Converged Wireless Enterprise Network for In-building Coverage

Modular Platform for Multiple Wireless Services allows property owners and service providers to not only expand and add services easily but also offer selected services to specific corporate customers.

Key Benefits

- Cost Effective
- Scalability of investments
- Broadband 800MHz to 6GHz – supporting future needs
- Simple Maintenance
- Easy Monitoring (NMS)
- High Quality Coverage
- Reduces operators' network deployment costs by enabling them to share common infrastructure components
- Maximizes wireless usage and revenues in all types of buildings
- Extends multiple mobile voice and data services into office building, malls, airports, campuses and parking areas
- Upgrade to 3G, UMTS, WLAN, without requiring any additional infrastructure
- Provide comprehensive coverage for current and future wireless applications

Main Features

- Supports multiple services: CDMA, TDMA, GSM, Paging, iDEN, SMR, UMTS
- Interoperable with Fiber Optic-800 series Wireless LAN
- Shared passive components (antennas, fiber and coax cabling)
- Separate and unique active components
- Up to 8 Remote Units per Base Unit and 4 antennas per Remote Unit



Converged Wireless Enterprise Networks for Large Buildings and Campuses

Whether an enterprise needs a few wireless services or many, our products are available to meet the needs of enterprises of all sizes and application requirements.

Modular 2000 Series:

- Multi-service, modular system providing ubiquitous voice and data coverage throughout a large building or campus
- Consists of a Base Unit (BU) and Modular Remote Cabinets (MRC)
- Ideal for applications where 10+ wireless services may ultimately be desired
- Can simultaneously support ALL wireless services over a single infrastructure
- Provides for low cost and flexible modular expansion as new services are desired or new frequency bands are employed



Base Unit (BU):

- BU converts RF signals from the source (Base Stations/off-air repeater) to an optical signal using direct modulation technology
- BU is connected via a single mode fiber optic cable to the MRC's



The 1000 Series:

Similar in functionality and architecture to the Modular 2000 Series, it is an expandable solution that allows enterprises to deploy up to 3 voice services plus 802.11 a/b/g. Using common fiber and coax cabling, new services are added by simply 'stacking' additional 1200 Series service modules.



The 850 Series:

- Extends WLAN coverage over a shared use and passive broadband antenna network
- Ideal for stand alone WLAN deployments or in concert with 2000 Series or 1000/1200 Series deployments
- Secures WLAN Access Points in centralized and maintainable locations
- Allows flexible deployments of Wi-Fi capacity with up to four 802.11 a/b/g Aps per module supporting 1-4 antennas
- Compatible with all standard IEEE 802.11x access points



The 300 Series:

This is a broadband, point-to-point solution for transporting wireless signals over single-mode fiber-optics, allowing one or several units in different buildings to be remotely connected to one main site-up to a distance of 20 kilometers between the main building and the remote buildings. It enables campus-wide networking.



The NMS:

- Sophisticated monitoring and control platform for all our products
- Monitors system functionality and alarms
- Controls system parameters and optimizes performance
- Warehouses all data relative to the installed system

Product Code	Product Description
2000 Series	
2000-RC-RP	Remote Cabinet – all services, Remote powering
2000-RC-LP	Remote Cabinet all services
2000-IDEN-PCS	Dual Band iDEN/PCS RF Module, Ready to support a future service Add-on unit
2000-SMR-PCS	Dual Band SMR-Paging 900/PCS RF Module, Ready to support a future service Add-on unit
2000-CELL-PCS	Dual Band CELL/PCS RF Module, Ready to support a future service Add-on unit
2000-CELL-DCS	Dual Band CELL/DCS RF Module, Ready to support a future service Add-on unit
2000-GSM-DCS	Dual Band CELL/DCS RF Module, Ready to support a future service Add-on unit
2000D-CL-M-DCS4	Dual Band Cell Multi-operator/DCS 1 port ready for add-on units
2000-GSM-DCSV	Dual Band GSM/DCS 1 port ready for add-on units
Universal Base Units (1000, 1200, 2000 support)	
WB-B8U	Wide Band Base 8 Unit supporting 8 RHUs
WB-B4U	Wide Band Base 4 Unit supporting 4 RHUs
1000 RHUs (ready for add-on units)	
1000D-IDEN-PCS4	Dual Band-iDEN/PCS, 4 ports
1000D-SMR-PCS4	Dual Band-SMR/PAGING/PCS, 4ports
1000D-CELL-PCS4	Dual Band-Cell/PCS, 4 ports
1000D-CELL-DCS4	Dual Band Cell/DCS 4P ready for add-on units
1000D-CL-M-DCS4	Dual Band Cell multi operator/DCS 4P ready for add-ons units
1000D-GSM-DCS4	Dual Band GSM/DCS 4P ready for add-on units
1200 RHU	
1200-PCS-SA-1	Stand Alone high power PCS, one port
1200-UMTS-SA-1	Stand Alone high power UMTS, one port RHU
1200-PCS-AO	Add-on RHU supporting a PCS service
1200-UMTS-AO	Add-on RHU supporting UMTS service
1200 RHU (Litenna UMTS Ready compatible)	
12L-UMTS-AO	Add-on RHU supporting UMTS service LBC
800 Series Wireless LAN	
810	WLAN Module supporting one AP @802.11b/g
840	WLAN Module supporting 1-4 AP @802.11 b/g/a
850	WLAN Module supporting 1-4 AP @802.11 b/g/a Enhanced
300 Series Broadband Pt-2-Pt Transport Unit	
300-MB-1-W-48	Main Site-1 Remote Building-48VDC PS
300-MB-1-W-110	Main Site-1 Remote Building-110VAC PS
300-MB-2-W-48	Main Site-2 Remote Buildings-48VDC PS
300-MB-2-W-110	Main Site-2 Remote Buildings-110VAC PS
300-RB-W-48	Remote Site-48VDC PS
300-RB-W-110	Remote Site-110VAC PS
300-TX-1310	Transmitter 1310nm laser (spare)
300-TX-1550	Transmitter 1550nm laser (spare)
300-RX	Receiver module (spare)
300-WDM	WDM module (Spare)
300-PS-110	Power Supply Unit-110VAC (spare)
300-PS-48	Power Supply Unit-48VDC (spare)
Network Controller	
410	Network Controller-Serial Interface (dial-up)
430	Network Controller-Ethernet/IP Interface
Network Management System	
NMS-SW-SERVER	GUI and server S/W package (one per site)
NMS-SW-MFEE	NMS annual S/W maintenance fee (per 430-CTLR)
Radio Interface Unit	
RIU-IM	Radio Interface Unit
RIU-BTSC-CELL	BTS Conditioner for Cellular
RIU-BTSC-IDEN	BTS Conditioner for iDEN
RIU-BTSC-PCS	BTS Conditioner for PCS
RIU-BTSC-SMR	BTS Conditioner for SMR-Paging
RIU-BTSC-GSM	BTS Conditioner for GSM 900Mhz
RIU-BTSC-DCS	BTS Conditioner for DCS 1800Mhz
RIU-BTSC-UMTS	BTS Conditioner for UMTS 2100Mhz
Power Supply	
LPS-48V-40W	Local AC/DC Converter 40W
LPS-48V-100W	Local AC/DC Converter 100W
RPS-200-N-48	Non-redundant 200W 110/220V Wall Mount
RPS-500-R-48	Redundant 500W 110/220V Chassis Mount
RPS-1000-R-48	Redundant 1000W 100/220V Chassis Mount
RPS-14-50W-48	Remote power supply, 14 modules of 50W, 48V

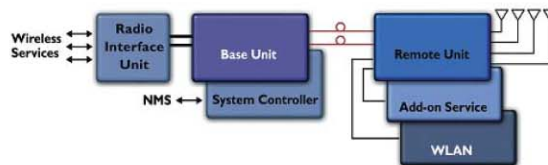
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System Overview

Based on a hybrid fiber co-axial (HFC) technology, Hybrid Fiber Optic Distributed Antenna System forms the foundation of an expandable architecture.

- Use common fiber, coax and antennas to support multiple services
- Interface simply with any wireless service provider's network
- Voice and data services are added to the network without requiring any additional infrastructure
- Wireless LAN services are seamlessly integrated with voice services on the same cabling and antennas



The Radio Interface Unit (RIU) and the Base Unit seamlessly connect to wireless service providers' networks, and then convert the cellular voice and data services from Radio Frequency (RF) to optical signals. Remote Units are located throughout the building or campus, and connected to the Base Unit/RIU with fiber-optic cabling

Applications

- Corporate Enterprise
- Hospitals and Healthcare
- Airports
- Shopping Mall
- University/Education Campuses
- Exhibition/Convention Centers



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