albentia systems

PROFESSIONAL SOLUTIONS POINT-TO-MULTIPOINT

ARBA pro is Albentia Systems 802.16 wireless point-to-multipoint Family of products designed for professional applications and vertical markets.
This equipment delivers real capacities of 35Mbps in 10MHz with guaranteed traffic per terminal, while assuring a highly efficient use of the spectrum and strong security levels. Such advantages make ARBA pro the perfect solution for all industry sectors, including advanced security and corporate connectivity applications.

Applications

Video surveillance and CCTV

Traffic control

Mining and Industry

Oil & Gas

Guaranteed corporate connectivity

Extension of fiber optic networks

Mobile broadband services

Broadband connectivity for watercraft

arba pro

Reliable, Efficient & with QoS Guarantee

ARBA pro combines the robustness and security levels required by military-grade equipment, the mechanisms to guarantee adequate throughputs for real-time broadcast-quality video transmission and the efficiency required by the carrier-class market. This combination results in a wireless solution specially recommended for professional applications demanding high performance and reliability standards.

Main Characteristics

Professional OFDM wireless point-to-multipoint system
Real capacity up to 35 Mbps
Available in the 4.9-5.9 GHz bands
IEEE 802.16-2012 standard solution
Long-range coverage > 50 km
Low power consumption < 4.5W
Guaranteed throughput per terminal and differentiated service
"True-TDMA" with layer 2 QoS
Low latency < 5ms
Configuration and provisioning web interface
TDD synchronization to avoid inter-sector interference
Anti-jamming mechanisms against interference
Robust and reliable full-outdoor IP67
Wireless solution for professional mobility applications
Soft-handover capability for on board solutions

Our Advantages

Extraordinary Spectral Efficiency

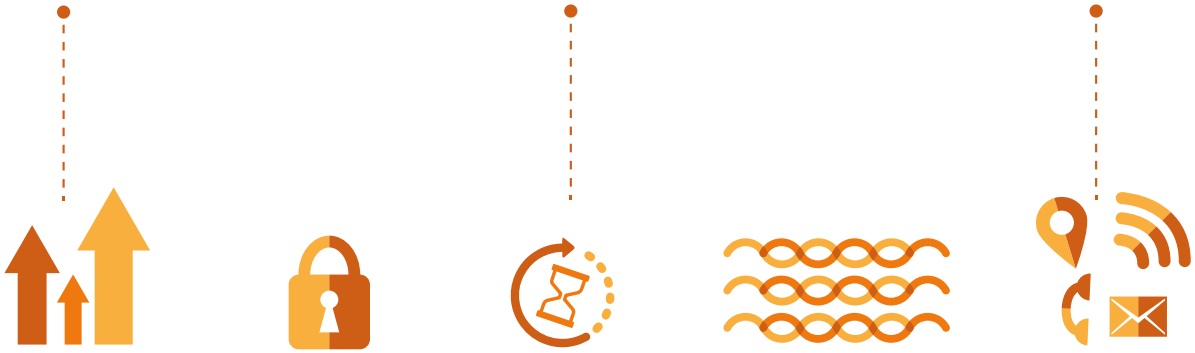
The ARBA pro family includes a wide range of base stations with different capacity and frequency band configurations. They deliver up to 140Mbps net throughput aggregating 4 sectors and 35 Mbps per suscriber unit.
By using deterministic TDMA algorithms, ARBA pro delivers an unprecedented net spectral efficiency of 3.5 bps/Hz.
Such capacities can be allocated either for the uplink or downlink transmission services; up to 85% of the total capacity can be uplink-allocated for video surveillance applications.

Accurate Latency Control

According to the IEEE 802.16 standard, ARBA pro is based on TDMA-OFDM technologies implemented at hardware level ('True-TDMA'), which allows for a fine-grained control over the real traffic allocated to each subscriber station.
This highly efficient TDMA mechanisms make it possible to accurately control latency levels and allow for the industry's lowest packet jitter in saturated scenarios, which is a must for video transmission deployments.

Quality of Service QoS

ARBA pro also implements advanced Quality of Service (QoS) mechanisms, a common feature in carrier-class technologies, in order to guarantee capacities for competing differentiated services such as video or VoIP.
Such mechanisms avoid conflicts between services being offered by the same subscriber station and help minimize the number of base stations and radio spectrum needed to deliver the same Quality of Service.



High Security Levels

One of the key features defining ARBA pro are its strong security mechanisms. By implementing AES256 encryption and X.509 certificates, the equipment both protects data traffic confidentiality and validates the proof of identity of subscriber stations. They also prevent denial of service attacks, one of the weakest points in video surveillance wireless networks.

Interference Mitigation Mechanisms

ARBA pro also includes anti-jamming and frequency diversity mechanisms used in defense sector technologies. These help mitigate interferences and assure an adequate transmission in scenarios presenting highly saturated spectrums. Finally, the system allows synchronization of TDMA frames in order to avoid interference, specially those resulting from TDD duplexing.

Base Stations
ARBA pro-1100

These base stations are available in several frequency bands (5.4 GHz, 5.8 GHz and 4.9-5.9 GHz) and provide a real throughput of 35Mbps in 10MHz under SISO configuration. There are several models to meet the requirements of each project: 60/90/120° integrated antennas or N-type connector for external antenna.

Subscriber Units
ARBA pro-1100

ARBA pro subscriber unit is able to manage up to 35Mbps with unlimited differentiated services. It includes 20/23dBi directive antenna, or N-type connector for external antenna.
PRO-SU-1100 subscriber units use one single 10MHz channel to deliver up to 35Mbps real throughput.

Sector Control Units
SCU-4S

In order to avoid interference between sectors in deployments with several base stations co-ubicated, the Sector Control Unit provides a synchronism reference based on GPS or internal reference which synchronizes the base stations' TDMA frames.
Additionally, the SCU allows remote managing of power supplies and redundant N+1 and stand-by configurations.

Network Management System
AMS

AMS is an optional network management system designed to further help monitor and configure networks including multiple ARBA Pro base stations.
The system provides the full FCAPS range of functionality, including fault and alarms, performance, stock management, location maps of base stations and a front-end layer, in order to optimize the network performance.

Subscriber Units
ARBA pro-100

This subscriber unit is able to manage up to 35Mbps with unlimited differentiated services. They include 15/19/23dBi directive antenna, or N-typecon-nector for external antenna. ARBA pro-100 SU have plastic enclosure and are IP55, except the 23dBi antenna model, which is IP67. PRO-SU-100 subscriber units use one single 10MHz channel to deliver up to 35Mbps net.

System Specifications

	Base Stations			Subscriber Units		
Radio Parameters	PRO-BS-1154	PRO-BS-1158	PRO-BS-1150	PRO-SU-1150	PRO-MU-1150	PRO-SU-150
Frequency band [MHz]	5470-5725	5725-5875	4900-5875			
Net capacity	35 Mbps					
Maximum channel bandwidth	10 / 7 / 3.5 / 1.75 MHz		10 / 7 / 5 / 3.5 / 1.75 MHz			
Net spectral efficiency	3.5 bps/Hz					
Sensitivity	-92dBm		-74dBm			
Maximum transmission power	26dBm		23dBm			
Integrated antenna	N-type connector		N-type connector or 60/90/120° sector	N-type connector or 20/23dBi	2 N-type connector	N-type connector or 15/19/23 dBi
Modulation	OFDM IEEE 802.16-2012					
Subcarrier modulation	BPSK, QPSK, 16QAM and 64QAM (7 levels depending on FEC combination)					
FEC	Yes, Reed-Solomon concatenated with convolutional coding, according to IEEE 802.16-2012					
DFS	Yes					
Downlink/uplink allocation	From 90/10 to15/85 en BS, standard or dynamic			From 100/0 to 0/100, standard or dynamic		
Access control protocol	Synchronous TDMA with hardware implementation					
Duplexing technique	TDD (Time Domain Duplexing)					
TDD Synchronization	Yes			N/A		

Quality of Service	
QoS control	Layer 2 QoS. Guaranteed min/max capacity per differentiated service flow
Service flows per SU	Unlimited
Layer 2 service differentiation	MAC source/destination address, EtherType, VLAN tag
Layer 3 service differentiation	DSCP ToS, IP source/destination address, subnet, protocol type
Layer 4 service differentiation	TCP or UDP source/destination port

Networking	
Layer 2 functionality	Bridging 802.1, VLAN 802.1q
Layer 3 functionality	Dynamic/static router, NAT, DHCP server/client
Encryption	AES256, AES128 y 3DES
Latency	Typical 5ms end-to-end. Typical jitter < 0.5ms
X.509 certificates	Yes
Data interface	Ethernet 10/100 Base-T
Networking modes	Bridding and Routing

Other				
Radio standards	ETSI EN 301 893 V1.5.1 (5GHz), ETSI EN 302 502 V1.2.1 (5.8GHz), ETSI EN 302 326-2			
Enveloping ODU	Painted aluminium ADC12			Plastic ABS
Environmental standards	ODU Protection IP67, ETSI EN 60950-1: 2006 (Security) IDU IEC 61000-4-2 (ESD), IEC 61000-4-5 (Surge)			ODU ProtectionIP55/ IP67 (according to the model) ETSI EN 60950-1:2006 (Security) IDU IEC 61000-4-2 (ESD), IEC 61000-4-5 (Surge)
Temperature range	From -30°C to +55°C (working environment temperature)			
PoE supply	PoE input 100-240 VAC 50/60Hz, output 56VDC (Optional DC 18-72VDC)		12-24VCD	PoE input 100-240VAC 50/60Hz – output 24VDC (Optional DC 10-24V)
Power consumption	< 18W	< 4.5W	< 30W	< 4.5W

Network Gateway (optional only for soft handover)	
Format	Rack 19" 1U
Network interface	3 x Ethernet 10/100 Base-T
Interconnection	Layer 2 bridge between network and mobile devices

All Albentia Systems products are designed and manufactured in the EU

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