albentia systems

PROFESSIONAL SOLUTIONS
POINT-TO-POINT

ARBA link is Albentia Systems' Point-to-Point radiolink family. It includes carrier-class radiolinks ARBA link-100, which deliver 35 Mbps in the 4.9-5.875 GHz license-exempt and 3.3-3.9 GHz licensed bands, and ARBA link-350 radiolinks, offering up to 180 Mbps real thorughput in license-exempt 5GHz bands and ARBA link Serie Cero, with all the advantages of link family at the best price.

Applications

Corporate access

Backhaul for cellular and access networks

Video transmission

Professional applications

Wireless bridges

Professional radiolinks

ARBA link Point-to-Point solutions meet all kinds of connectivity needs, as they can be used as simple wireless bridges or as backhaul systems for cellular or WiMAX access networks, corporate access or carrier-class video transmission radiolinks.

The ARBA link-100 equipment series has been specifically designed for professional applications demanding fine-grained latency and Quality of Service control, such as those implementing multiservice voice, video and data transmissions. The MIMO-based ARBA link-300 is focused on applications requiring elevated throughput levels and long distances radiolinks.

ARBA link Cero Series is specially conceived for local networks extension, building interconnection or link between remote points, among other applications.

Main Characteristics

Professional OFDM wireless point-to-point solution
Real throughput up to 180 Mbps
Available in the 4.9GHz security band
IEEE 802.16-2012 standard solution
Long-range coverage > 50 km
Low power consumption < 4.5W
Latency control
QoS and differentiated services
Robustness against interference
Full-outdoor equipment IP67/55
* according to the model

arba link

System Components

Radiolink
ARBA link-100

The ARBA link-100 series has been designed for carrier-class applications demanding very high efficiency, accuracy and quality standards. Compliant with the IEEE802.16-2012 standard, each radiolink delivers up to 35Mbps real throughput using a narrow channel bandwidth of 10MHz. It also implements advanced QoS, service-differentiation and latency-control mechanisms.

Available in the 5GHz license-exempt band, the 4.9GHz security band (LNK-150) and the 3.3-3.9GHz licensed band (LNK-130), the ARBA link-100 series is highly recommended for wireless network backhaul, corporate access links and video transmission systems.

IEEE 802.16-2012 Technology

Compliant with the IEEE802.16 standard, the ARBA link-100 series stands out as the most reliable solution for professional applications. The OFDM physical layer has been specifically designed to cover long distances and perform in strong multipath propagation conditions. On the other hand, ARBA link-100 is a True-TDMA system guaranteeing accurate control over real traffic performance. It also allows for high spectral efficiency levels, differentiated services at layer 2, as well as fine-grained QoS control over capacities for each individual service.

High Spectral Efficiency

The ARBA link-100 series uses 10MHz channel bandwidths to deliver up to 35Mbps real throughput. By using channels which are 4 or 8 times narrower than other wireless solutions, this equipment helps avoid potential interference risks and improves link's performance. Such advantage is specially useful on 5GHz license-exempt saturated scenarios where several wireless systems compete for the same spectrum. In the 3.3-3.9GHz licensed band, using such narrow channels also allows for a better use of the spectrum, leading to more cost-efficient results.

QoS Control and Service Differentiation

TDMA-OFDM synchronous technologies allow control over real traffic allocated to each differentiated uplink or downlink service. Multiple data, voice or video services can therefore be transmitted through independent logical channels according to different capacity and latency requirements. Such mechanisms make it possible to accurately control latency levels, resulting in the industry's lowest jitter on saturated scenarios, which is a must when transmitting critical services such as voice or video. The quality of ARBA link-100 solution is only comparable to PDH/SDH technologies.

Radiolink
ARBA link-300

ARBA link-300 series is Albentia Systems' high-capacity point-to-point radiolink for the 5GHz license-exempt band. Delivering up to 300 Mbps gross throughput and featuring low latency levels, this series is specially suited for backhauling access networks and wireless bridging applications.

The ARBA Link-300 series ranks among the industry's top point-to-point equipment in the 5GHz band thanks to its MIMO2x2-based technology, comprehensive functionality, high transmission power, extraordinary throughput, low latency and cost-efficiency capacities.

High Capacity and Transmission Power

This equipment implements a series of advanced mechanisms which offer optimal connectivity in long-distance point-to-point deployments. Among other features, this is possible thanks to the powerful 28dBm radio it implements and the possibility to use either integrated or external antennas.

This radiolink is available either with 23dBi integrated dual polarization antenna or two N-type connectors for external antennas. Both types deliver real aggregated capacities of up to 180 Mbps (300 Mbps gross throughput).

Comprehensive Functionality and MIMO Technology

Equipped with high-capacity mechanisms, this radiolink is able to transmit up to 60000 pps. Additionally, ARBA link-300 equipment implements AES128 encryption to create secure networks, while including Ethernet-level comprehensive networking functionalities.

The MIMO 2x2-based ARBA Link-300 series uses several radio streams in order to duplicate channel capacities and minimize interference risks in adverse propagation conditions.

Radiolink
Link Serie Cero

Serie Cero is the entry line to Albentia Systems' radiolinks. It includes all the advantages of ARBA link family in terms of bandwidth, capacity and standardization, with full functionality and at the best price.
Cero Series products are specially conceived for local networks extension, building interconnection or link between remote points, among other applications.

IEEE 802.16-2012 Technology

Cero Series radiolinks comply with the IEEE802.16-2012 standard, which implies a guarantee of reliability and adaptation to the applications for which they have been targeted. This technology, unlike proprietary solutions, follows the recommendations of international regulatory bodies. In addition, it is the standard recommended by the IEEE for professional and outdoor use.

QoS Control and Service Differentiation

Based on TDMA-OFDM synchronous technologies implemented at hardware level (True-TDMA), allow for fine-grained control over real traffic allocated to each differentiated uplink or downlink service. Multiple data, voice or video services can therefore be transmitted through independent logical channels according to different capacity, jitter and latency requirements. The integrated Protocol Analyzer allows real time monitoring of each service's usage.

Robustness against interferences

TBIM technology dynamically adapts modulation according to the conditions of the link. Thus, it forces to use the more robust modulation that can meet the traffic requirements. The Dynamic ARQ system allows recovering of any package lost in the air.
Thanks to the integrated link analyzer and automatic distance measurement, this equipment estimates propagation losses, comparing them with the real losses and thus allowing detection of possible position or obstruction problems and evaluation of the interference floor.

- **TBIM technology** adapts modulation to guarantee maximum robustness in the signal, reducing the impact of interferences.
- The **Dynamic ARQ** system allows recovery of any package lost in the air.
- The integrated link **analysis system** allows detection of possible pointing or obstruction problems and evaluation of the interference floor.
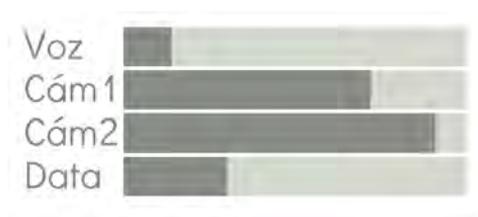
TDMA-OFDM synchronous technologies with synchronous implementation in hardware **(True-TDMA)** allows for fine-grained.

System Specifications

Radio Parameters

Radio Parameters	LNK-LU150	LNK-LU130	LNK-LU350	LNK-050
Frequency band	4900-5875 MHz	3300-3900 MHz	5150-5915 MHz	4900-5875 MHz
Modulation	OFDM IEEE 802.16-2012		OFDM, MIMO 2x2 IEEE 802.11n	OFDM IEEE 802.16-2012
Supported channel bandwidth	10 / 7 / 5 / 3.5 / 1.75 MHz		40 / 20 MHz	10 / 7 / 5 / 3.5 / 1.75 MHz
Adaptive modulation	BPSK, QPSK, 16QAM and 64QAM			
FEC	Reed-Solomon and Convolutional Code			
Maximum RF power	23dBm		28dBm (+/- 2)	28dBm (+/- 2)
Transmission power control	30 dB	50 dB	30 dB	> 25 dB
Duplexing technique	TDD (Time Domain Duplexing)			
Uplink/downlink allocation	Programmable from 85-15% to 90-10%		Dinámica	Programable 85-15% and 90-10%
DFS	Yes			
Antenna	23dBi integrated or N-type connector	20dBi integrated or N-type connector	23dBi integrated or N-type connectors (x2)	Integrated 15 dBi
Sensitivity	-92 dBm / -74 dBm	-93 dBm / -74 dBm	-94 dBm / -72 dBm	-92 dBm / -74 dBm

Traffic and throughput

Maximum over-the-air rate	50 Mbps		300 Mbps	50 Mbps
Net Ethernet traffic	35 Mbps		180 Mbps	10Mbps
Maximum PPS	10000		60000	10000
ARQ support	Yes. Selected by service		Yes	Yes. Selected by service
Encryption	AES256, AES128 y 3DES		AES128	AES256, AES128 y 3DES

Quality of Service (QoS)

QoS	Layer 2 QoS. Guaranteed min/max capacity per service flow		N/A	QoS Layer 2. Guaranteed min/max per service flow. IEEE 802.16-2012
Layer 2	MAC source/destination address, EtherType, VLAN tag		N/A	MAC source/destination address, EtherType, VLAN tag
Service differentiation Layer 3	DSCP ToS, IP source/destination and subnet, protocol type		N/A	DSCP ToS, IP source/destination and subnet, protocol type
Layer 4	TCP, UDP source/destination port range		N/A	TCP, UDP source/destination port range
Service flows per user	Unlimited		N/A	Unlimited

Management

Management interfaces	HTTP / HTTPS / SSH / XML-RPC SNMP v1/2/3, XML-RPC		HTTP / HTTPS / SSH / SFTP SNMP v1/2/3	HTTP / HTTPS / SSH / XML-RPC SNMP v1/2/3, XML-RPC

Networking functionality

Layer 2 functionality	Bridging (IEEE 802.1), VLAN (IEEE 802.1q)		Bridging (802.1), VLAN (802.1q), ISL, MPLS	Bridging (IEEE 802.1), VLAN (IEEE 802.1q)
Layer 3 functionality	Dynamic/static routing, NAT, DHCP server/client		N/A	Dynamic/static routing, NAT, DHCP server/client
Data interface	10/100 Base-T Ethernet RJ45		10/100/1000 Base-T	10/100 Base-T Ethernet RJ45

Physical Features

Operating temperature range	From -30 °C to +55 °C (working environment temperature)			
PoE Supply	100-240 VAC 50/60Hz input, 24 DCV 1 A output. (Optional DC 18-72 DCV)		100-240 VAC 50/60Hz input, 48 DCV output (Optional DC 10-30 DCV or 36-72 DCV input)	110-240 VAC 50/60 Hz input, 24 VDC 1 A output. (Optional DC input 10-24 VDC)
Power consumption	< 4.5 W (100% traffic)		< 10 W (100% traffic)	< 4.5 W (100% traffic)

Standards

Protocolo	IEEE 802.16-2012		Proprietary	IEEE 802.16-2012
Radio	ETSI EN 301 893 V1.5.1 (5GHz), ETSI EN 302 502 V1.2.1 (5.8GHz), ETSI EN 302 326-2			
Environment	ODU: IP67 (protection), ETSI EN 60950-1: 2006 (security). IDU: IEC 61000-4-2 (ESD), IEC 61000-4-5 (Surge)			ODU: protection (IP55), ETSI EN 60950-1: 2006 (security). IDU: IEC 61000-4-2 (ESD), IEC 61000-4-5 (Surge)
EMC	ETSI EN 301489-1 V1.8.1 (EMC), ETSI EN 50383 (2002) (SAR), ETSI EN 50385 (EMF)			

All Albentia Systems products are designed and manufactured in the EU

ARBA link Product Brief

albentia systems

www.albentia.com