

WALKair™ 3000

Breaking the Boundaries

WALKair 3000, premium point-to-multipoint BWA solution delivers fiber-equivalent services at upstream and downstream rates of up to 36 Mbps. Developed for new and established carriers, WALKair 3000 provides proven last mile solutions for small and medium businesses and multi-dwelling and multi-tenant unit (MDU/MTU) applications. In addition, WALKair 3000 is the optimal solution for next generation cellular backhauling applications.

This WALKair 3000 system is based on industry-leading cluster of high spectral efficiency, frequency reuse and dynamic bandwidth allocation technologies, providing a Carrier Class IP solution over the air, including full IP and ATM QoS. Operating in the 10.5, 26 and 28GHz bands, WALKair 3000 is fully integrated and can be collocated with the WALKair 1000 system.





Product Highlights

WALKair 3000 delivers a comprehensive range of product features, ensuring fast, consistent and reliable data and voice services, including:

- Demand-based build-out, easy installation and low cost of ownership enable rapid market penetration, increased subscription and enhanced value-added services.
- Highly cost effective infrastructure and customer premises equipment.
- Single platform combines all communication and information technologies, including IP, Ethernet, Leased Line and TDM Voice.
- Packet switching technology optimized for IP-based applications and always on connectivity.
- Symmetrical and asymmetrical data rates up to 36 Mbps per customer (upstream and downstream) over 3.5 MHz, 7 MHz and 14 MHz channels
- Multi-carrier FDD & TDMA system, up to four carriers per sector with single outdoor unit per sector
- Dual modulation, 16QAM and QPSK with automatic switchover
- Highest spectral efficiency - 2.5 Bit/Sec/Hz
- Full end-to-end QoS supporting IP, IP QoS/CoS mapping to ATM QoS at the Base Station, QoS using IETF standard in differential service (diffserv).
- Flexible service provisioning combining committed and maximum information rates (CIR/MIR) and support for different classes of service levels
- CPE services: IP (2 x 10/100 Base-T), TDM and Leased Lines (up to 8 x E1)
- SNMP-based management system and powerful network planning tool
- Alvarix solution - co-location and full integration with WALKair 1000

WALKair 3000 System Components

Terminal Station Equipment- Quality convenience

Comprised of an Indoor and Outdoor Unit, the Terminal Station (TS) is installed at the customer premises in a temperature controlled environment and interacts between the Customer Premises Equipment (CPE) and the designated Base Station (BS) providing a wide range of interfaces to the customer.

Terminal Station - Indoor Unit (TS-IDU)

The TS-IDU interfaces between the CPE and the WALKair TS RFU/Antenna (ODU), using the TDMA protocol to handle traffic to and from the BS. Supporting several types of interface ports, the TS-IDU delivers a wide range of advanced voice and data services. The TS-IDU is connected to the TS RFU/Antenna (ODU) via a single coaxial cable, and can be easily mounted in a rack or on the wall, or fit conveniently on a desk. Once the IF signal reaches the RFU, it is converted to RF.



The Terminal Station IDU is equipped with 2 x 10/100 BaseT and up to 8 x E1 interfaces and an additional optional interface card comprising E1 or Ethernet ports, providing diverse voice and data services and their required QoS and CoS.

Each TS-IDU contains an LCI port to be used by the local craft terminal for installation and maintenance purposes. The TS is powered either by a DC standard source (48V) or an AC source to the Indoor Unit.

Base Station Equipment - Intelligent integration

Delivering superior flexibility in architecture and network deployment, WALKair 3000 ensures demand-based scalability combined with flexible modularity.

The key to structural flexibility is the adaptation of the WALKair base station indoor unit architecture in line with the actual technical and business case requirements. In addition, the base station architecture can be adapted to a specific deployment evolution phase. WALKair 3000 entry points are designed around two different base station platforms, as follows:

- WALKair 3000 BS-SA (base station stackable architecture unit)
- Alvarix solution - Integrated WALKair 1000 and 3000 base station

Base Station

Through dual polarization, the WALKair 3000 Base Station delivers a capacity of up to 1.152 Gbps at 112 MHz allocation for 8 sectors each 144 Mbps.

The BS components of the WALKair 3000 system are located at the center of the cell linking the backbone and multiple WALKair Terminal Stations via Ethernet or nxE1.



WALKair 3000 operates in the 10.5, 26 and 28GHz bands, using the multi-carrier TDMA/FDD access method. The Base Station-Base Unit leverages FDD duplexing for varying Tx and Rx frequencies, while employing TDMA to handle traffic from up to 64 Terminal Stations per carrier. Topologies consisting of multiple BS-BUs enable the deployment of a multiple carrier scheme, providing each carrier with a 3.5 MHz, 7 MHz and 14 MHz slice of the spectrum at data rates of 36 Mbps each.

The Indoor Unit is located in a temperature-controlled environment. The Outdoor Unit, which includes the RF head and antenna, is located on a pole with a clear line of sight to the Outdoor Units of the Terminal Stations.

An IF-cable connects the BS-SA to the BS Outdoor Unit (ODU) via the IF-MUX. It supports both the uplink and downlink IF signals and provides the ODU with DC power.



Base Station - Indoor Units

BS-SA

Optimized solution for initial entry level or for a single sector with one or two carriers of 36Mbps each towards a single ODU. Such a solution serves 64 - 128 customer locations the architecture of BS-SA is also tailored for long term growth.

Network connectivity options include:

- Ethernet port
- 4 or 8 E1 lines

The WALKair 3000 Base Station is composed 2 parts:

- The IDU - BS-SA with optional IF-MUX
- The ODU - RFU and the Ant.

This base station structure provides a solution on a sector basis. Each sector contains up to 4 carriers (BS-SA), an IF MUX, RFU and an antenna. The Indoor Unit is located in a temperature-controlled environment. The Outdoor Unit, which includes the RF head and antenna, is located on a pole with a clear line of sight to the Outdoor Units of the Terminal Stations. An IF-cable connects the BS-SA to the BS Outdoor Unit (ODU) via optional IF-MUX. It supports both the uplink and downlink IF signals and provides the ODU with DC power.

IF Mux

The IF MUX multiplexes the Tx signals from the BS-BUs and combines the output signal with a 48V DC power supply. The IF signal is sent to the RFU, located near the Antenna, via a coaxial cable, applying the reverse process for Rx signals. The IF MUX interfaces between the RFU and the BS-BUs and can connect to up to 4 BS-SA via the IP ports.

The IF MUX supports both WALKair 3000 and WALKair 1000 BS-BUs for integrated deployments with an option of ODU redundancy.

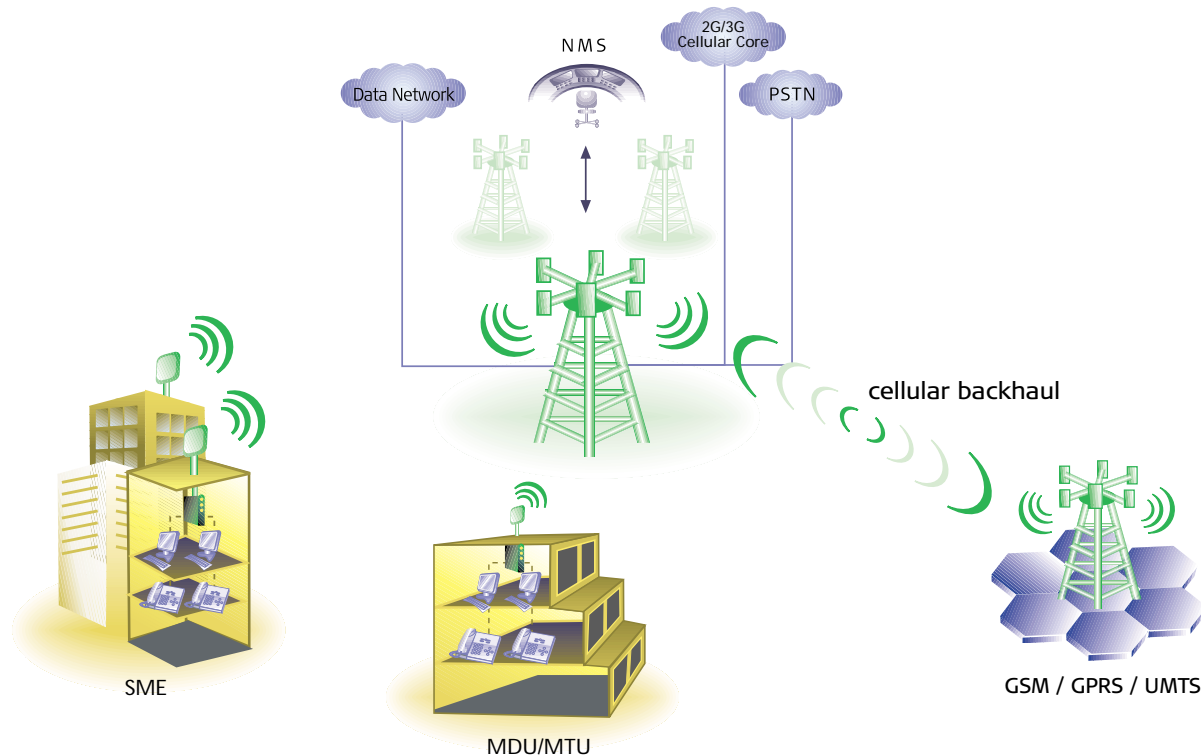
Base Station - Outdoor Units

RFU and Antenna

The RFU interfaces between the IF MUX and the Antenna. The RFU converts the IF signal, received from the IF MUX, to an RF signal. The signal is then amplified for transmission via the Antenna. The RFU is connected to the IF MUX and Antenna with a single coaxial cable.

Multi-Service Platform

WALKair 3000 features a single Wireless Access Point that combines all business communication services, including Internet, VPN, Leased Line, Ethernet and TDM voice with their required QoS and CoS.



Specifications

Base Station	Terminal Station
RF Bands	
10.5, 26, 28GHz	10.5, 26, 28GHz, 33 cm dish
Indoor Unit	
Width: Fits in a 19 inch or ETSI rack	
Height: 4.4cm (1U)	
Depth: 23cm	
Outdoor Unit	
A single Coaxial cable connects the indoor to outdoor device, at distances of more than 100 m@26 GHz	
28x25x12 cm	28x20x10 cm including antenna
Weight: 5.5kg	Weight: 2.5kg
Interfaces	
Ethernet (10/100BaseT) 4 or 8 E1s	2xEthernet (10/100 BaseT) 4 or 8 E1s
Service	
IP, nxE1	IP, Leased Line, TDM Voice
Power	
Power consumption for typical fully loaded shelf: 500W	Power consumption: 20W
Power supply: -36 to -72 DC	Power supply: -36 to -72 DC or 110/ 220 VAC 60/ 50Hz

General

- Frequency bands: 10.5, 26, 28 GHz
- Supported distance:
up to 5 km @ 10.5, 26, 28 GHz
- Radio access method:
Multi Carrier - TDMA/FDD
- Standard compliance: ETSI TM4
- Channel Spacing: 3.5 MHz, 7 MHz and 14 MHz

Capacity

- Base Station capacity Up to 1.152 Gbps @ 112 MHz allocation
- Bandwidth per single user:
64 Kbit/s to 36 Mbps

Radio

- Spectral efficiency: 2.5 bit/sec/Hz.
Dual Modulation & coding technique:
16QAM&QPSK @ Reed Solomon FEC
- Base Station Sectors:
90° or 45° per sector
- TM4 Standard Compliance

Environmental

- Indoor device: -5°c 45°c
- Outdoor device: -45°c to 55°c
- ETS 300019 Compliance