WALKair 1000

Striding the last mile

WALKair 1000 is the ideal point-to-multipoint broadband wireless access system for Carriers servicing small/medium enterprises (SMEs), Multi-Tenant and Multi-Dwelling Units, (MTUs and MDUs), SOHOs, industrial, retail and residential subscribers.

Operating in the standard ETSI 3.5, 10.5 and 26 GHz frequency bands, WALKair 1000 maximizes data throughput volume by providing a total cell capacity of 256 Mbps at a 28 MHz frequency allocation and more than 512 Mbps at 56 MHz, using single polarization. A single WALKair 1000 Base Station can support up to 2048 Terminal Stations with peak data burst rates of 4 Mbps.

Product Highlights

WALKair 1000 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 enables rapid market penetration, increased subscription and enhanced value-added services.

○ Single platform combines all communication and information technologies, including IP, Ethernet, Frame Relay, Leased Line, POTS and ISDN.

○ Packet switching technology optimized for IP-based applications and "always on" connectivity.

○ Efficient backhall connectivity guarantees superior coverage for mobile and fixed narrowband wireless system Base Stations.

○ Multi-carrier FDD &TDMA system, up to 16 carriers per sector with single outdoor unit per sector

○ Highest spectral efficiency - 2.5 Bit/Sec/Hz.

○ IP QoS/CoS mapping to ATM QoS at the Base Station eliminates the need for multiple rooftop outdoor units.

○ QoS using IETF standard in differential service (diff-serv).

○ The 64 QAM modulation ensures higher capacity, coverage and availability.

○ Highly cost effective infrastructure and customer premises equipment.

○ Fast packet-based data transmission and toll quality for delay and jitter sensitive telephony.

○ Easy-to-use SNMP-based remote management system, enabling simple unit configuration and multiple simultaneous unit upgrading.

The patented WALKair 1000 AirLink protocol leverages Multi-Carrier TDMA-FDD Radio Access technology to deliver fast, reliable, asymmetrical and dynamic bandwidth allocation between the Base Station and Terminal Stations. This ensures consistent QoS for all Internet, data and voice services, including always-on Internet connectivity, VPNs, VLANs, VoIP, POTS, and ISDN - BRI & PRI.

WALKair 1000 provides an instant and independent infrastructure, which is immediately deployable with lower infrastructure construction and operating costs than any other solution on the market.

WALKair 1000 System Components

Terminal Station
Comprised of an indoor unit (BU) and an outdoor unit, the Terminal Station is typically installed at the customer site. The TS interfaces between the Customer Premises Equipment (CPE) and the designated BS providing a wide range of interfaces to the customer.

Terminal Station-Base Unit (TS-BU)
The TS-BU interfaces between the CPE and the WALKair TS RFU/Antenna, using the TDMA protocol to handle traffic to and from the BS. Supporting up to three interface cards, the TS-BU delivers a wide range of advanced voice and data services. The TS-BU is connected to the TS RFU/Antenna 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.

Each BU contains up to three telecom interfaces, such as E1, V35/X21, Ethernet10/100BaseT and ISDN-BRI, providing diverse voice and data services. The interface cards are installed on daughter boards, enabling maximum flexibility.

Each BU 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.

WALKair 1000 Base Station Equipment - Comprehensive coverage, maximum reach
Delivering superior flexibility in architecture and network deployment, WALKair ensures demand-based scalability combined with flexible modularity.

Base Station
Through dual polarization, the WALKair 1000 Base Station delivers a capacity of up to 256 Mbps at 2x28 MHz allocation.

The BS component of the WALKair system is located at the center of the cell linking the backbone and multiple WALKair Terminal Stations via E1 interfaces. The BS fits conveniently in standard ETSI and 19" racks.

Base Unit

Connecting the backbone and IF MUX of the BS, the Base Station - Base Unit leverages FDD duplexing for different Tx and Rx frequencies, while employing TDMA to handle traffic from up to 16 Terminal Stations. Topologies consisting of multiple BS-BUs enable the deployment of a multiple carrier scheme, providing each carrier with a 1.75 MHz slice of the spectrum.

The main building blocks of the BU are: the modem, the telecom interface cards and the IF module. Each BU converts the IF signals to telecom voice/data.

Each BU contains up to three telecom interfaces, such as E1, V35/X21, Ethernet10/100BaseTand ISDN-BRI, providing diverse voice and data services. The interface cards are installed on daughter boards, enabling maximum flexibility.

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 16 BS-BUs via the SMA ports.

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

RFU

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.

Access Point

WALKair 1000 features a single Wireless Access Point that combines all business communication services, including Internet, VPN, Leased Line, Ethernet, Frame Relay, POTS and ISDN. WALKair 1000 - Enhanced capacity, superior coverage.
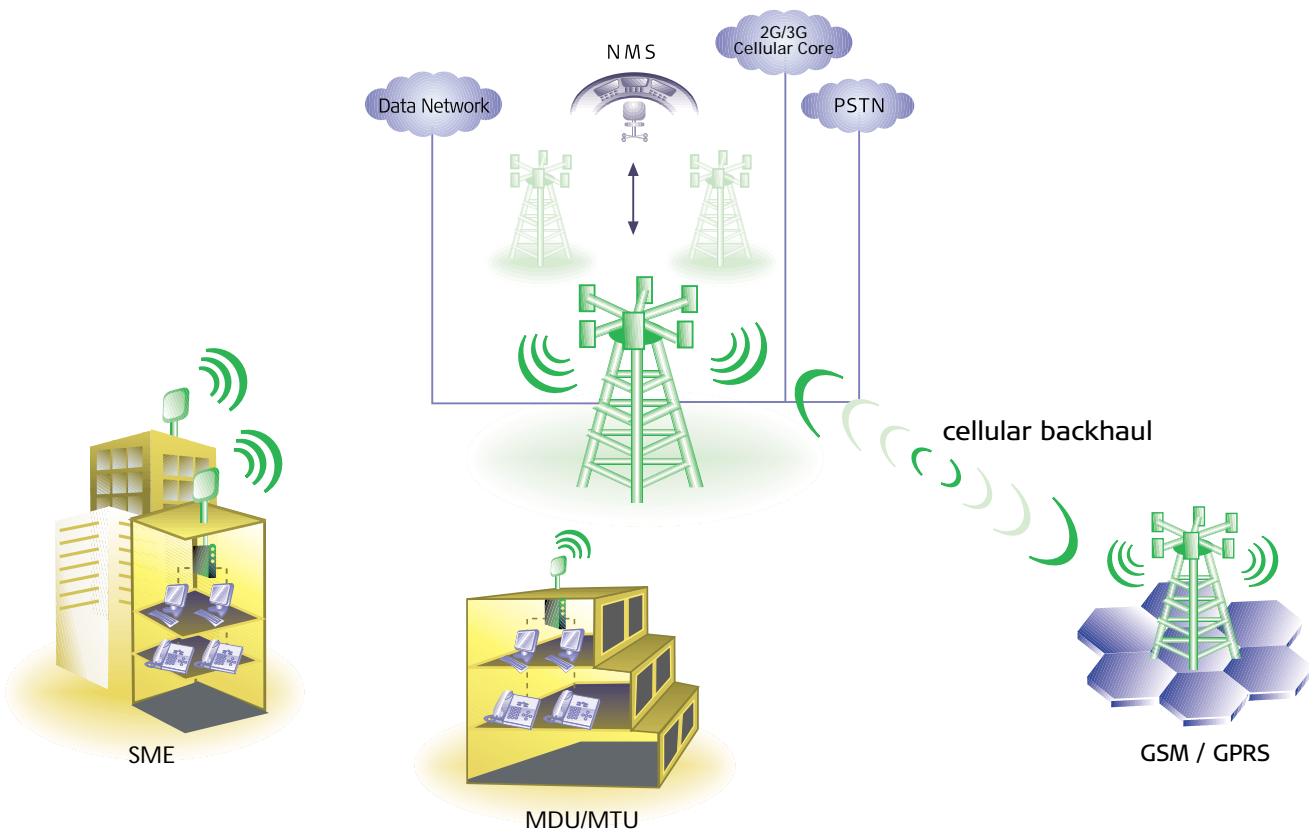
Specifications

Base Station	Terminal Station
Antenna	
3.5 GHz: 50x15x7 cm	27x27x8 cm (including RF Unit)
10.5 GHz: 75x11x10 cm	
26 GHz: 20 cm horn	33 cm dish

Base Station	Terminal Station
Indoor Unit	
One or more stackable units, 48cm (19") Width, 4.4cm(1U) Height, 23cm depth These are rack (19″ or ETSI) mount devices	48cm (19") Width, 4.4(1U) height, 23cm Depth Weight: 3kg •Either rack mount, (19″ or ETSI) wall mount or desktop

Outdoor Unit A single Coaxial cable connects the indoor to oudoor device, at distances of more than 100m

Base Station	Terminal Station
3.5 GHz, 10.5 GHz	
36x15x24 cm, not including the antenna Weight: 10kg • Pole mount device	27x27x8 cm including antenna Weight: 4kg
26 GHz	
28x25x12 cm Weight: 5.5kg	28x20x10 cm Weight: 4.5kg

Base Station	Terminal Station	
Interfaces		
• E1/G.703 • V35/X.21	• E1/ G. 703	• V. 35/ X. 21
• Ethernet (10/100 BaseT) • E1-FR	• ISDN BRI	• Ethernet: (10/100 BaseT)
• V35/X.21-FR	• E1-FR	• V.35/X.21-FR
		• Up to 64 x POTS

Base Station	Terminal Station	
Service		
Each stackable Unit supports up to 3 telecom interfaces	• ISDN PRI/ BRI	
• ISDN PRI • Leased Lines	• Leased Lines	• IP
• Frame Relay • IP	• Frame Relay	• POTS

Base Station	Terminal Station
Power	
Power consumption for a single stackable	Power consumption: 40W
• unit: 40W • Power supply: 48VDC	Power supply: 48VDC or 110/ 220VAC 60/ 50Hz

Base Station	Terminal Station
Signalling	
V5.2	V5.1

General

- Frequency bands:
  3.5 GHz, 10.5 GHz, 26 GHz
- Supported distance: 10 km @ 3.5 GHz and 10.5 GHz, 4 km @ 26 GHz
- Radio access method: Multi Carrier-TDMA/FDD
- Standard compliance: ETSI TM4
- Channel Spacing: 1.75 MHz

Capacity

- Base Station capacity (single polarization): 130 Mbps @ 2x28 Mhz allocation
  Capacity may be increased significantly by applying second polarization
- Bandwidth per single user: 64Kbps to 4 Mbps

Radio

- Spectral efficiency:
  2.5 bit/ sec/ Hz.
- Modulation & coding technique: 64 QAM @ Trellis Coding Modulation
- Base Station Sectors: 90°, 60° or 45° per sector
- TM4 Standard Compliance

Environmental

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