

smartBridges
to the future ...

Única solución Carrier Class "llaves en mano" del mercado

Emisoras Homologadas para administraciones públicas

TOPOLOGÍA

En el gráfico de ejemplo podemos ver una muestra de implantación flexible de red inalámbrica en un núcleo urbano grande.

En la parte central podemos observar un nodo central (kit

smartAxis) compuesto de tres airPoint Pro Outdoor, conectados entre sí por un Hub/Switch y equipados con antenas sectoriales.

En diversas áreas de la población podemos ver nodos de distribución (kits smartSpan) compuestos de

airPoint X02 de doble radio. Una de las radios del X02 irá conectada a una antena direccional que mantendrá una conexión punto-a-punto con el nodo central, y la otra radio irá conectada a una antena omnidireccional que dará cobertura en modo AP a los usuarios de la zona.

SERVICIOS DE RED INALÁMBRICA EN GRANDES POBLACIONES

La instalación de una red inalámbrica en una población, sea grande o pequeña, no es tarea sencilla y en el momento de definir la infraestructura debemos tener en consideración tres elementos críticos, la fiabilidad, la flexibilidad y los costes.

FIABILIDAD

No debemos olvidar que todo va a depender de la calidad de su infraestructura inalámbrica. Los sistemas de infraestructura inalámbrica de smartBridges están contruidos específicamente para los requerimientos de los

ISP y, a diferencia de la gran mayoría de fabricantes de equipamiento inalámbrico, los productos de smartBridges cumplen las máximas especificaciones Carrier Class que les permiten estar homologados para grandes infraestructuras públicas gubernamentales.

Todo, desde los conectores, la caja y los componentes electrónicos rebasan las más duras especificaciones industriales.

FLEXIBILIDAD

smartbridges ofrece al mercado de operadores wireless tanto productos unitarios como kits completos "llaves en mano" que incluyen todos los elementos necesarios para realizar instalaciones completas sin

grandes requerimientos técnicos.

La base de cualquier infraestructura inalámbrica urbana es el kit smartAxis y el producto que le permite ir creciendo en cobertura y densidad de usuarios es el smartSpan.

COSTES

En una infraestructura inalámbrica urbana los costes dependen linealmente de el precio del equipamiento, la cantidad de equipamiento

necesario y la posibilidad de incrementar la cobertura de forma escalonada y pareja al incremento de las necesidades.

Las características objetivas y mesurables de smartBridges la han convertido en la elección preferida por los profesionales de todo el mundo, prueba de ello el haber sido seleccionado mejor fabricante de productos para Wireless ISP por la Asociación Norteamericana de proveedores inalámbricos.

Más información en www.34t.com y en www.smartbridges.com.



airPoint X02

Dual Radio with built-in Bandwidth Management



- Wireless Repeater mode for high performance backhaul
- Client Bridge mode to provide Cell Extender functionality
- Dual Access Point mode for increased coverage
- Access Point with standby redundancy
- Additional Network Processor for sustained high performance

High Performance Dual Radio Configurations

- Bandwidth Management for high QoS
- Built-in RADIUS client for authentication and individual user SLA
- Independant upload/download control for each user
- Internal MAC table list for small networks
- Supports more clients per Access Point

Bandwidth Management

- Roaming support by external RADIUS control
- Seamless operation in PPPoE networks
- SNMP Access to MAC forwarding tables
- Access control list and IP filters for SNMP requests
- Advanced traffic statistics

Advanced Networking

- Powered by IEEE 802.3af compliant PoE Outdoor
- Surge suppression
- Regulatory compliant installations
- Weatherproof, rugged thermal design in NEMA4X enclosure
- Device Temperature monitoring by SNMP
- Dedicated Network Processor for secure device management

Carrier Class Reliability

airPoint XO²

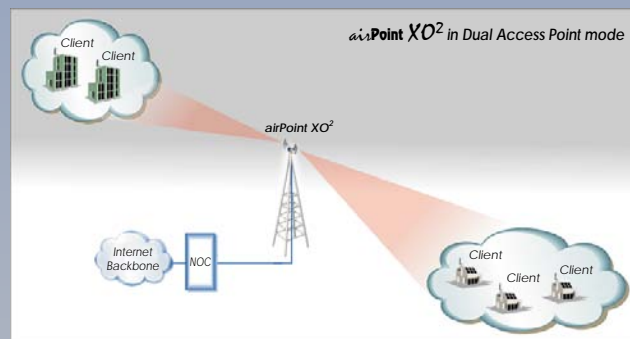
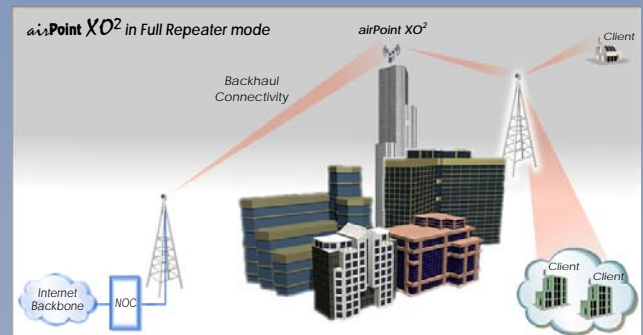
airPoint XO² is a dual-radio access point that offers all the features of the airPoint XO including Bandwidth Management, Advanced Networking and Carrier Class Features. In addition, modular control of the two radios enables many different configurations. The airPoint XO² can be used in high performance Cell Extender configuration for deploying low cost backhaul solution. It can be used as two Access Points in a box for simultaneous use to support large number of users or it can also be used as a highly reliable Access Point with Hot Standby for redundancy. The dual-radio design eliminates/minimises throughput loss that would typically occur in these configurations when operating with a single radio. The multimode functionality offered by airPoint XO² is unrivalled and simplifies the deployment of Wireless Wide Area Networks.

The flexibility of configurations that can be achieved with the airPoint XO² is quite unique and radically simplifies installations. These configurations (modes) make it possible to design and deploy efficient, high-performance wireless networks effortlessly and profitably.

Full Repeater mode

This mode is particularly useful to WISPs for covering very long distances without incurring throughput loss. In a typical scenario, if signals have to be repeated, the throughput is generally halved by the repeater. airPoint XO²'s Full Repeater mode overcomes the problems of lowered throughput and higher costs by configuring both back to back connected radios as repeaters.

- Eradicates throughput loss for repeaters
- Doubles signal relay distance



Dual Access Point mode, with Bandwidth Management

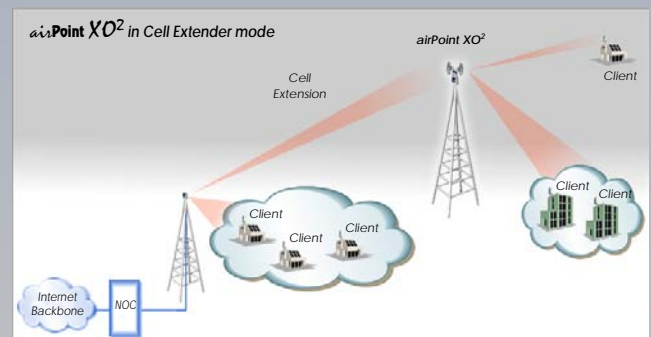
Using airPoint XO² a WISP can configure both the radios to access point mode in order to cover a larger geographical area. The Bandwidth management feature optimizes bandwidth utilization for each access point's client group, as well as manages bandwidth allocation between the two radios.

- Enhances geographical coverage from a single device
- Reduces number of required installations lowering infrastructure costs

Cell Extender mode, with Bandwidth Management

airPoint XO²'s dual radio system can be operated with one radio configured for dedicated backhaul connection to the NOC and the other radio configured as an access point.

- Faster speeds, better throughput
- Bandwidth management at PoP
- Reduced processing and protocol conversion overheads



High Reliability Access Point mode, with Standby Redundancy

airPoint XO² is built to reinforce service reliability in outdoor wireless networks so as to enhance user satisfaction. WISPs can configure one of the radios to access point mode to provide broadband coverage to a designated area. The second radio can be configured as a hot standby for this access point.

- Enhanced network reliability and uptime
- Built in redundancy in the network

Bandwidth Management for increased ROI

The airPoint XO² provides bandwidth throttling of upload/download streams. The bandwidth control can be done using static tables or dynamically by RADIUS, along with authentication. The Wireless ISP can profile subscribers based on speed limits and identify bandwidth usage patterns. This opens up customer segmentation possibilities, leading to revenue maximization. The airPoint XO² provides traffic statistics. This helps the WISP to observe the behavior of network devices, traffic load fluctuations and other events, making it much easier to troubleshoot any problems, which might occur. The information available helps the WISP to optimize bandwidth utilization. WISPs can now easily provide services to more subscribers.

Easy Scalability & Roaming

By distributing the bandwidth management function from the centralized NOC out to individual airPoint XO² access points, it is now possible to design scalable wide area networks. Bandwidth traffic policies can be set remotely from a central NOC. This avoids the need for backhauling all the data traffic to a single place, thus averting a choke point. All access points in the network controlled by one NOC not only brings convenience to network management but also enables mobile users to avail easy roaming facility. Roaming users can cross over seamlessly from one cell to another within the same WISP network, without the need for authentication at every cross-over.

Remote Management, Upgrades and Control

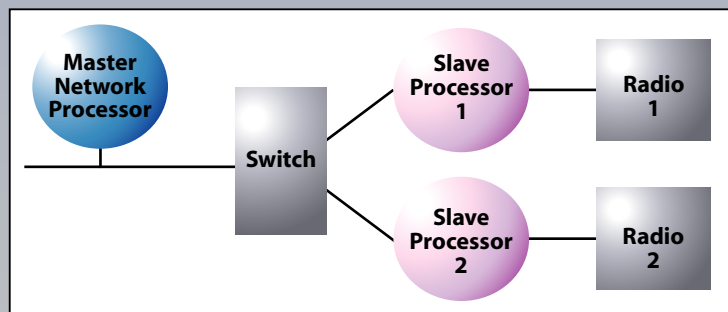
airPoint XO² has built-in features to make device management both convenient and secure. It can provide access control lists and filters for SNMP traffic, as well as IP filtering. The airPoint XO² supports remote setting of radio parameters, firmware upgrade and restore defaults through SNMP. Further, the WISP can also monitor the temperature of the unit through the thermal sensing facility, which is policy based. The product supports SNMP based remote monitoring and management through simpleNMS and simpleMonitor and has an embedded SNMP MIB.

Carrier Class Features

Housed in a NEMA 4X weatherproof casing, and using industrial grade components, the airPoint XO² is built to perform reliably under all climatic conditions, withstanding temperatures anywhere between -40 C and +60 C (-40 F to 140 F). The device has built-in sanity timers for automatic reset at periodic interval. Power to the radio can be remotely controlled. These housekeeping resets means very robust and self-healing Wide Area Networks. The product has heavy duty/built-in Gas Discharge Tube for surge suppression capability. Used along with the **PoE Outdoor** (standard accessory), the airPoint XO² is an extremely robust outdoor device for WISPs. The airPoint XO² complies with CE and FCC standards for wireless installations.

Reinforced Processing Capability for higher network loads

airPoint XO², with more raw processing power, surpasses other available devices allowing it to take on bigger network loads. The two radios with their individual slave processors coupled with the master processor can support enormous network loads. This makes the network robust enough to withstand load spikes thereby ensuring infrastructure reliability.



Long Range™ Radio Performance and Flexible Antenna Options

airPoint XO² features LongRange™ wireless radio that provides enhanced power to deliver high data throughput and long operating range. With a suitable antenna airPoint XO²'s range easily extends to 34 kilometers (21 Miles) and it supports 128 clients per radio. The airPoint XO² has been FCC certified with many antenna configurations normally used by WISPs and outdoor wireless installers. Software controlled "Dial-a-Power" lets the installer control radio power output. Together, these features provide the much-needed flexibility to choose the right antenna with the pattern and gain characteristics conforming to local regulatory limits as well as coverage area requirements.

Technical Specifications

Model No	SB5100
LAN Interface	10/100BaseT Ethernet Auto MDX cross-over-1 foot outdoor rated CAT5 cable connected to the device and terminated into a weather-proof connector
Network Standards	IEEE 802.11b, 802.3, 802.3af
Data Rates Supported	Can be adjusted in steps of 64Kbps, upto max throughput
Frequency Band	2400 to 2483.5Mhz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DSSS with CCK / DQPSK / DBPSK
Operating Channels	11 FCC, 13 ETSI, 14 Japan, 4 France, Other countries 3 non-overlapping channels
Receive Sensitivity	-92dBm at 1Mbps / -83dBm at 11 Mbps
Number of Outputs(radio)	2
Transmitter Output Power (Device/Radio)	+17.5 dBm max at the N-Connector, adjustable to 11.5dBm min using software control "Dial a Power"
Range	Up to 34 km (21miles) with proper antenna
Antenna Connector, Impedence	N (Female) Bulkhead Mount, 50 ohms
Compliance	Europe: ETSI 300-328, CE Marked
Under Certification	USA: FCC 47 CFR Part 15C, Section 15.247 - FCC Certification- ID: PWG SPEEDTRAP
SNMP Compliance	MIB I and MIB II
Management	SNMP ver 1 (MIB, Traps); TFTP (FW download), simpleNMS
Encryption Key Length	64-bit & 128-bit WEP
Remote Configuration Support	simpleMonitor, simpleDeploy, simpleNMS
Dimension (W x D x H)	180 mm x 180 mm x 60 mm (7.08 inches x 7.08 inches x 2.36 inches)
Unit Weight	~ 1.2 Kg (2.6 lbs) / Shipping ~ 2.0 Kg (4.4 lbs)
Operating Temperature	-40 deg C to +60 deg C (-40 F to +140 F)
Relative Humidity	Operating: 0 to 70% (non-condensing) Storage: 10 to 90% (non-condensation)
Mounting	Pole or wall mount via 2 pc U-Bolts & clamps (supplied)
Power Consumption	~ 18W
LEDs	Power, Ethernet, BW Controller, Activity, RF
Power Supply	48V Input , through PoE Outdoor (IEEE 802.3af compliant)

Standard Accessories

AC Adapter	90~264V AC in , 48V DC out , DeskTop Ver
PoE Outdoor	48V DC in , Ethernet in , PoE out, Surge Protection Built in

Package Contents

1. airPoint XO² (with weatherproof connector)
2. PoE Outdoor (with 48 V power adapter and Wall Mount)
3. Earthing tag
4. Wall mount brackets (attached to airPoint XO² unit)
5. Wall/Pole mount kit
6. Installation CD
7. Quick Install Guide

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Global Customer Support Center

Comprehensive technical support is available on our Internet website (<http://www.smartbridges.com/support/>).

Our technical support sections is regularly updated to provide the latest technical information. For 24 x 7 support, send an e-mail to: support@smartbridges.com

Please visit us at the Web at www.smartbridges.com



Additional Product Certifications are provided on the user manual
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HyperGain® HG2415U-PRO

2.4 GHz Professional 15 dBi Omnidirectional Antenna

Professional Performance

The HyperGain® HG2415U-PRO is a high gain omnidirectional base station antenna designed and optimized for the 2.4 GHz ISM band. This antenna is ideally suited for IEEE 802.11b/g wireless LANs, Bluetooth and other multipoint applications where long range and wide coverage is desired.

This antenna features an integral N-Female connector. The mounting system consists of a pair of steel brackets and 2.7 inch U-bolts, allowing installation on masts up to 2.0 inches in diameter.

Electrical Specifications

Model	HG2415U-PRO
Frequency	2400-2500 MHz
Gain	15 dBi
Polarization	Vertical
Vertical Beam Width	8°
Horizontal Beam Width	360°
Impedance	50 Ohm
Max. Input Power	100 Watts
VSWR	< 1.5:1 avg.
Weight	3.3 lbs (1.5kg)
Length	40.5 in. (1.03m)
Radome Material	Gray Fiberglass
Mounting	2.0" diameter mast max.
Wind Survival	up to 150 MPH
Operating Temperature	-45° C to +80° C
Connector	Integral N-Female



HyperGain® HG2414P

2.4 GHz 14 dBi Flat Patch Antenna

Directional Flat Patch Antenna

The HG2414P is a high performance directional flat patch antenna suitable for indoor and outdoor applications in the 2.4 GHz ISM band, including IEEE 802.11b/g and Bluetooth. This antenna is lightweight and features an aesthetic UV-stable white plastic radome. It can be installed for horizontal or vertical polarization. Can be wall or ceiling mounted, as well as mast-mounted using U-bolts.



Electrical Specifications

Frequency	2400-2500 MHz
Gain	14 dBi
Horizontal Beam Width	30 degrees
Vertical Beam Width	30 degrees
Impedance	50 Ohm
VSWR	< 1.5:1 avg.

Mechanical Specifications

Weight	.95 lbs. (.43 Kg)
Dimensions	8.5 x 8.5 x 1 (inches) 216 x 216 x 26 (mm)
Radome Material	UV-inhibited Polymer
Mounting	Four ¼ in. (.63 mm) Holes
Polarization	Horizontal or Vertical
Wind Survival	>150 MPH (241 KPH)

Available Connectors

This antenna features a 12 inch coax lead that can be terminated with any of the connectors listed in the table or drop-down menu below. Specify the desired connector by choosing the appropriate part number.

Standard Connectors

The following standard connectors are available from stock:

Connector Type	Part Number
N Female	HG2414P-NF

Special Order Connectors

This antenna is also available with any of the following connectors by special order at a nominal additional charge. If you do not see your connector listed please contact our sales department.

Connector Type	Part Number
N Male	HG2414P-NM
TNC Female	HG2414P-TF
TNC Male	HG2414P-TM
Reverse Polarity TNC Female	HG2414P-RTF
Reverse Polarity TNC Male	HG2414P-RTM
Reverse Polarity N Female	HG2414P-RNF
Reverse Polarity N Male	HG2414P-RNM
SMA Male	HG2414P-SM
Reverse Polarity SMA Female	HG2414P-RSF

Mounting Options

Hyperlink's patch antennas offer several unique mounting options. They can be mounted flat against a wall, or to a mast using a pair of 2 inch U-bolts. The antennas also accept most tilt-and-swivel security camera brackets equipped with standard 1/4-20 threads.



HGX-PMT02: Small Metal Tilt-and-Swivel Mounting Bracket for indoor wall mounting. Includes wall-mounting hardware.



HGX-PMT03: Medium Plastic Tilt-and-Swivel Mounting Bracket for indoor wall mounting. Includes wall-mounting hardware.



HGX-PMT04: Large Metal Tilt-and-Swivel Mounting Bracket for indoor and outdoor wall or mast mounting. Includes wall-mounting hardware.



HGX-UMOUNT: Universal Antenna Mount powder coated galvanized steel "DSS-style" arm for outdoor wall mounting. Requires a pair of 2 inch U-bolts (sold separately).



HGX-PMT06: 60 Degree Tilt-and-Swivel Mounting Kit for mast mounting. Includes stainless steel mounting hardware.

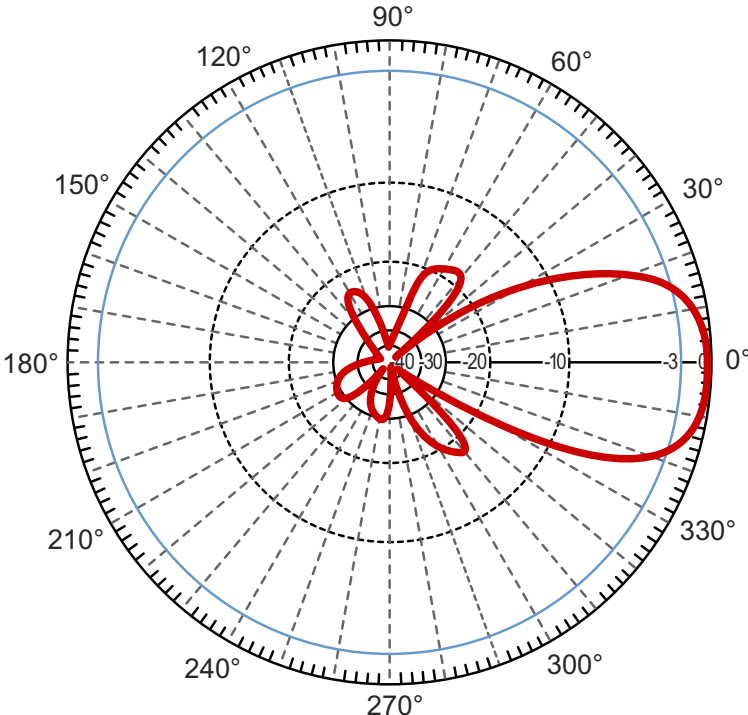


HGX-PMT07: Stationary Mounting Kit for mast mounting. Includes U-Bolts, nuts and mast clamp.

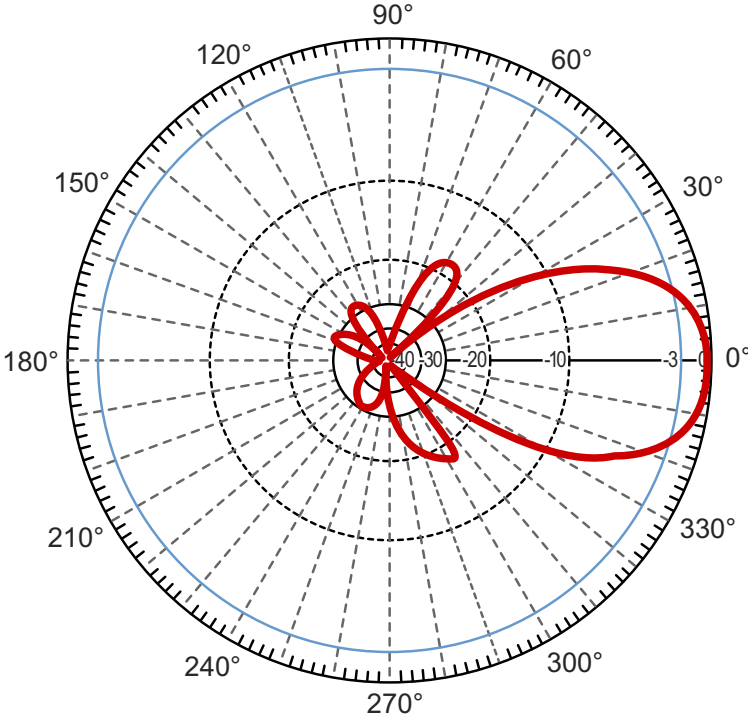


HGX-PMT08: Window Mounting Kit Includes suction cups and mounting hardware.

HG2414P



Vertical



Horizontal