ORTRONICS®

# Ortronics Wireless Solutions

**Improve Productivity**

**Lower Total Cost of Ownership**

- Integration of copper, fiber, and wireless
- Advanced security
- High performance
- Quick, easy installation
- Simple centralized management

**The New Option in Structured Cabling Systems**

# Ortronics Is Ready to Change the Way You Think About Wireless

*Only Ortronics gives you a complete cabling system for copper, fiber, and centralized wireless.*

## Why Wireless Networking?

Wireless networking improves productivity by giving people mobility, flexibility, and the freedom to be connected at the office, airport, hotel, conference room…anywhere. As a recognized leader in advanced structured cabling solutions, Ortronics is the first company to offer a centralized wireless solution combined with copper and fiber, the only company to give you a comprehensive infrastructure for the enterprise with one clear benefit—lower total cost of ownership (TCO). Ortronics Wireless Solutions provide advanced security, high performance, simple centralized management, and quick and easy installation and maintenance. Avoid the hassles of multiple vendors and installers—one for structured cabling, one for wireless, one for firewalls—even as you gain a system that offers complete integration of all cabling media, including air.

Wireless Ethernet, as specified in IEEE 802.11, has evolved into a robust network that provides high-speeds, scalability, flexibility, and easy adoption. Ortronics Wireless Solutions integrate the firewalls and VPN support critical to network security, and additional advanced features to:

- *Detect denial of service attacks, network intrusions, unauthorized network probing and discovery, surveillance, and impersonation*
- *Permit real-time RF spectrum management for automatic calibration and load balancing*
- *Allow centralized control for increased multilayer security, powerful management, and simplified deployment*

## Why Ortronics?

As you know, a structured cabling system brings easier management, greater flexibility, higher performance, and peace of mind. So it becomes a natural extension to include wireless as part of your infrastructure planning and deployment.

*People like mobility: wireless connectivity untethers network users.*

There is no better choice than Ortronics to give you the seamless cabling system you need from the backbone to the desktop. Count on Ortronics to help get your system up and running and for the ongoing support to keep it that way:

- *System design assistance*
- *Custom site surveys for special installations*
- *Technical support*
- *Training*
- *System configuration/upgrades*
- *Maintenance contracts*

With our global presence and ever-growing group of certified installers, you can rely on Ortronics for great products and support whether you're cabling a single office or standardizing worldwide.

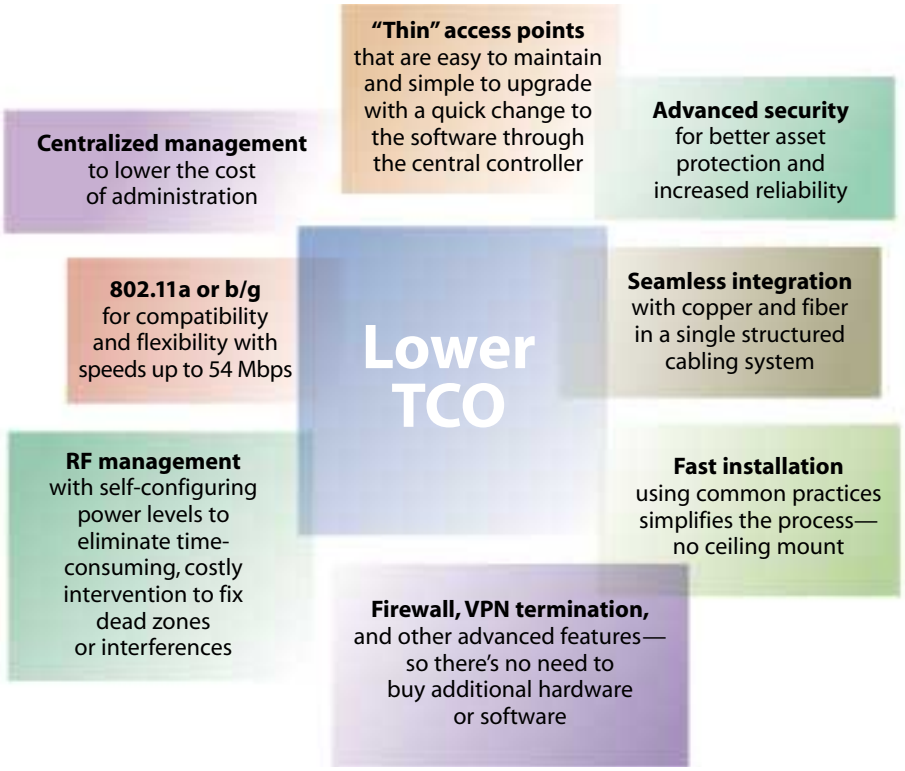
## Advanced Technology, Simplified Networks

The Ortronics wireless system continues the innovation you expect from us. Our wireless access points are the first to mount conveniently as a standard wall outlet, eliminating the high costs and complexities associated with installing and maintaining ceiling units. Copper and fiber ports can be added to the access point to maintain flexible connectivity. The access point becomes the outlet!

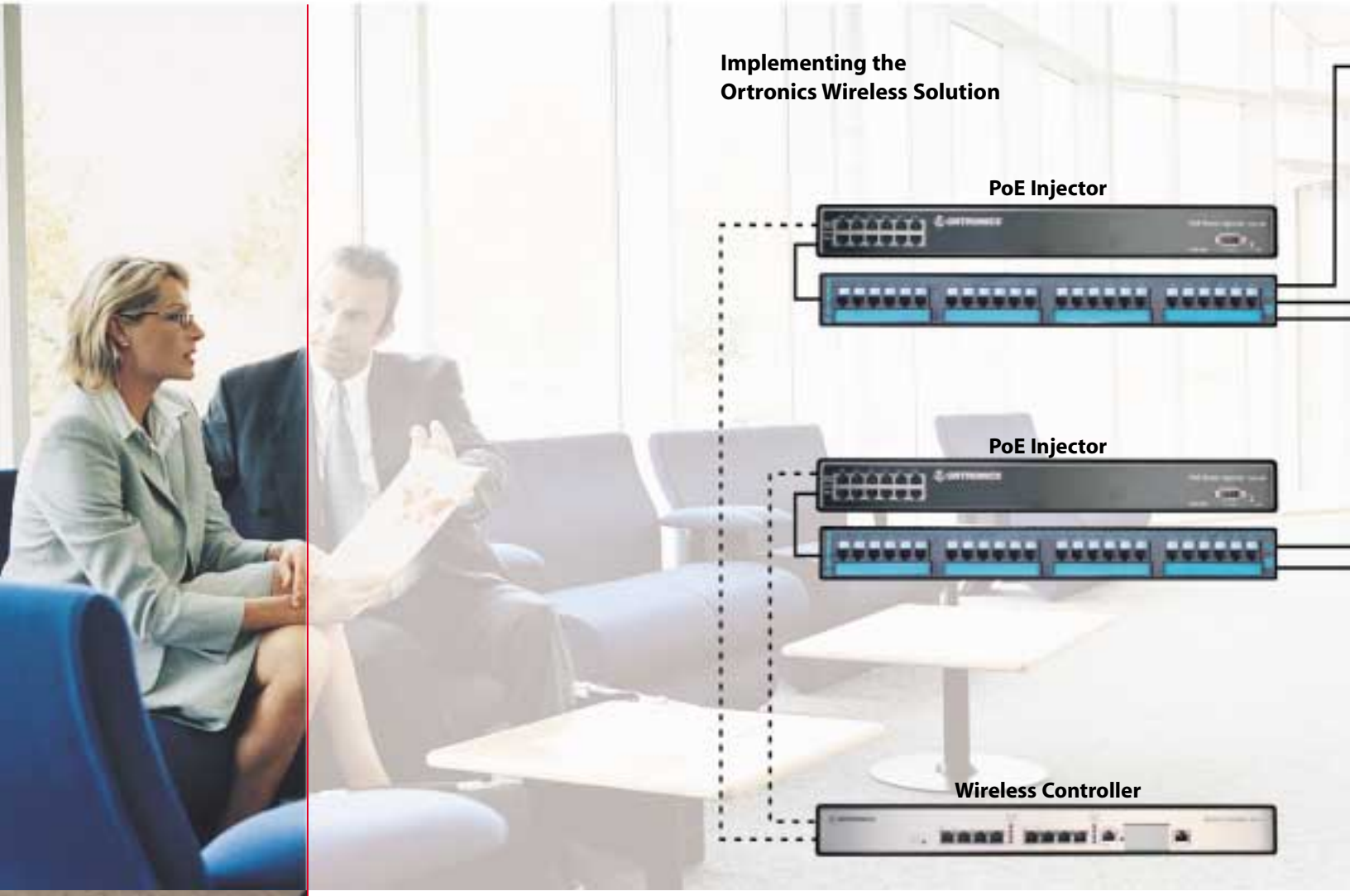
Centralized management and advanced RF performance and management allow dense deployment without the interference problems associated with less capable products.

## Lowering Your TCO

While numerous studies have pointed to the cost benefits of wireless, you can lower costs even further with Ortronics wireless integrated into your cabling system. Seamless integration of wired and wireless segments offers a high-performance cabling infrastructure that takes advantage of all communication needs of fiber, copper, and wireless into your existing copper and fiber infrastructure, while reducing installation and maintenance costs and reducing capital expenses. Ortronics makes powerful wireless easy, affordable, and, at last, risk free.



# Ortronics Wireless Solutions



*Wireless provides seamless roaming so that users can move throughout the area without losing the connection.*

Ortronics Wireless Solutions provide everything you need to create a wireless infrastructure and empower mobility.

## Ortronics Wireless Controllers

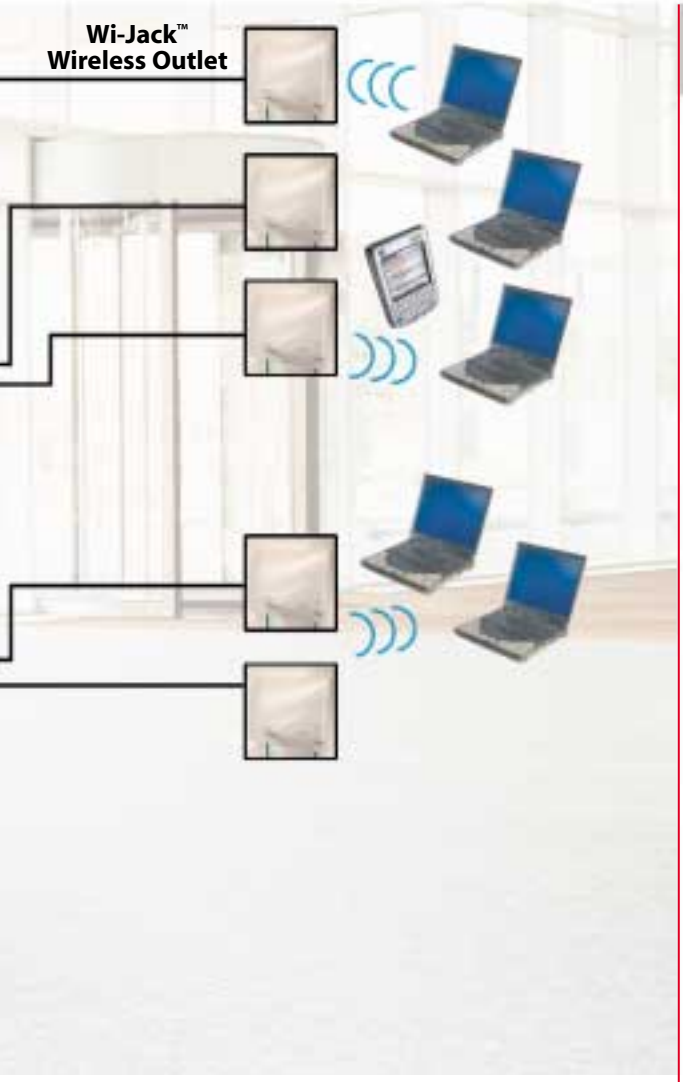
Ortronics Wireless Controllers allow advanced centralized management and monitoring of access points, with state-of-the-art firewall, intrusion detection, VPN terminations, and RF management, all in a single package. The controller is available in versions to support up to 5, 16, or 48 access points per wireless controller and scale to the enterprise level.

## Ortronics PoE Injectors

Power over Ethernet injectors are midspan devices providing power to the access points over Ethernet Cat 5e or 6 cable, eliminating the need for a separate power outlet at each workstation.

## Wi-Jack™ Wireless Wall Outlets

The innovative patent-pending wall-mount Wi-Jack outlets are access points supporting 802.11a or b/g. They mount to an outlet box, using the same installation practices as




for a wired outlet. Wi-Jacks are available in two versions:

- ***Wi-Jack/SA:*** *a stand-alone version allowing wireless connectivity for multiple simultaneous users*
- ***Wi-Jack/WS:*** *a workstation version allowing wireless connectivity and two additional modular ports to support Cat 5e/6, coax, or fiber*

The stylish, low-profile design of the Wi-Jack blends in easily with any office décor.

## Wi-Fi and 802.11

**The Standard for High-Performance Wireless**

The Wi-Fi Alliance is an industry consortium dedicated to promoting wireless networking to both businesses and consumers and ensuring interoperability among vendors' equipment. The Wi-Fi Alliance Certification provides compatibility among the growing number of wireless networks that offer access to the Internet, e-mail, and messaging at thousands of places worldwide.

Ethernet is the hands-down winner as the network of choice for the enterprise and is fast becoming a major contender in metro, first mile, and broadband services. The wireless version of Ethernet is standardized in IEEE 802.11. In terms of performance, three main flavors of wireless Ethernet have been defined:

- **802.11a: 54 Mbps in the 5-GHz band**
- **802.11b: 11 Mbps in the 2.4-GHz band**
- **802.11g: 54 Mbps in the 2.4-GHz band**

The b and g versions are the most popular, with widespread availability as standard equipment in laptops. 802.11a is becoming the preferred standard for enterprises. Ortronics Wireless Solutions support all three modes.

As a member of the Wi-Fi Alliance, Ortronics is committed to compliance and interoperability—even as we recognize the need for superior security and advanced management.

# Ortronics Puts You on the Fast Track to Wireless Productivity

*Wi-Jack™ outlets mount easily, conveniently, and discretely on the wall, blending with office décor.*

*The Wi-Jack installs quickly and easily, using standard cabling installation practices.*

## Getting Started is Easier than You Think

Wireless has come a long way in making deployment easy and simple. Even so, you can count on Ortronics' assistance in getting your wireless system up and running.

## Planning

As with any project, planning is the first step. We can help, beginning with you providing us with information such as:

- *Number of simultaneous users*
- *Building dimensions and layout*
- *Coverage requirements*
- *Data rate*
- *Future expansion expectations*
- *Standard: 802.11 a, b/g, or both*

## Deploying

Deploying wireless networking into your infrastructure involves two tasks:

- *Installation*
- *RF management*

In a new install, wireless is included as part of the cabling system. Normal mounting is in a workstation outlet. Access points are available with or without additional copper or fiber ports for voice or other additional needs.

In a retrofit, an existing network outlet can be used. The faceplate is removed and the access point is attached to the outlet, and connected to the existing network cable. Additional cables can be accommodated in the Wi-Jack/Workstation.

Forget about the previous challenges of tuning and diagnosing problems in the RF spectrum. Ortronics RF Management software automates the configuration and ongoing management of the spectrum based on real-time environment information. The guesswork is gone. So is the need for expensive equipment or wireless experts.

## Setting Up

The wireless controller provides the intelligence to the wireless network. It configures the access points for optimum performance. It handles the important issues of encryption, security, firewalls, and management of the RF spectrum. Configuration can be done with the help of Ortronics experts throughout North America.

## Supporting and Managing

Administering a wireless system has never been easier.

The controller includes Aruba Wireless Network's software, the most advanced management tool for wireless networks. You get complete and sophisticated monitoring and control of your network. In addition, the controller contains SNMP V2c-compatible MIBs to allow for supervision of the wireless network with large-scale management software such as OpenView.

# Wi-Jack Wireless Wall Outlets

## Performance Plus Stylish Wall-Mount Design

Beyond offering an access point with superb wireless performance, we designed the Wi-Jack™ wireless outlet with five additional goals in mind:

- *Wall mounting to make the installation and care easier, and to avoid the unsightly view of ceiling-mounted access points*
- *Stylish design: the access points integrate smartly into office décors*
- *Cable integration: the Wi-Jack/Workstation allows the addition of copper or fiber ports with our modular TracJack® inserts*
- *Dense application: multiple Wi-Jack outlets can be installed in a small area without interfering with one another for more reliable operation.*
- *Easy replacement of an existing wall jack with a Wi-Jack wireless outlet*

## Plug-and-Play Simplicity

Wi-Jack outlets can be attached to any existing Ethernet port regardless of any subnet boundary. Once connected, the Wi-Jack self-configures by automatically building a tunnel (generic routing encapsulation or GRE) to the Ortronics wireless controller. The wireless controller automatically configures access points based on the policies and configuration set by the administrator. Setup and operation is simplified, and the need for configuring VLANs for Wi-Jack access points is eliminated.

*The Wi-Jack/Workstation offers additional ports for copper and fiber, allowing complete workstation connectivity.*

## Features and Benefits

The Wi-Jack lowers TCO by cutting capital costs and lowering the cost of installing units, administering, managing, and maintaining the network, and protecting your network and business through advanced security.

| | |
|---|---|
| **Multiband, multispeed operation: 802.11a, b, g** | Complete compatibility with Wi-Fi-certified wireless clients<br>The same access point can handle either 802.11a or 802.11b/g |
| **Dense deployment possible** | No interference: faster setup<br>Easier roaming with fast handoffs<br>More flexibility in handling high changing user loads (load sharing)<br>Better spectrum management<br>Simplifies future upgrades |
| **Remotely managed** | Simplified design for cost-effective centralized management<br>Lower cost hardware<br>Advanced security<br>Easily configured, reconfigured, or upgraded |
| **Air monitoring** | Additional security<br>Detection and protection from rogue access points, denial of service attacks, and man-in-the-middle attacks |
| **Programmable** | Easy to modify existing features/capabilities<br>Easy to add new features/capabilities |
| **Small form factor** | Unobtrusive |
| **Integrated antenna** | Reduced footprint<br>Faster installation<br>Less damage<br>Aesthetically pleasing |
| **Stylish** | Blends into office décor and does less damage<br>Fog white color to complement office |
| **Wall mounting** | Easy to install<br>Easy to maintain<br>Attaches to work area outlet box |
| **Optional copper/fiber ports** | Complete connectivity<br>Easy integration of copper, fiber, and wireless in a seamless solution<br>Outlet serves as access point |
| **Trac Jack modules for optional ports** | Universal solution<br>Wide choice of styles, colors, and interfaces for Cat 5e/6, multimode fiber, and coax |
| **PoE (802.3af) compatible** | Power over Ethernet eliminates need for separate power feed or additional electrical work<br>Maximum flexibility in locating access point |
| **110 standard punchdown** | Easy, fast termination of cable into access point<br>Channel testing possible |

**Part Numbers**

| *Style* | *Color* | *Part Number* |
|---|---|---|
| Wi-Jack/Stand-alone | Fog white | OR-AP |
| Wi-Jack/Workstation | Fog white | OR-APWS |

# Wireless Controller

## Advanced Intelligence for Superior Security and Easier Management

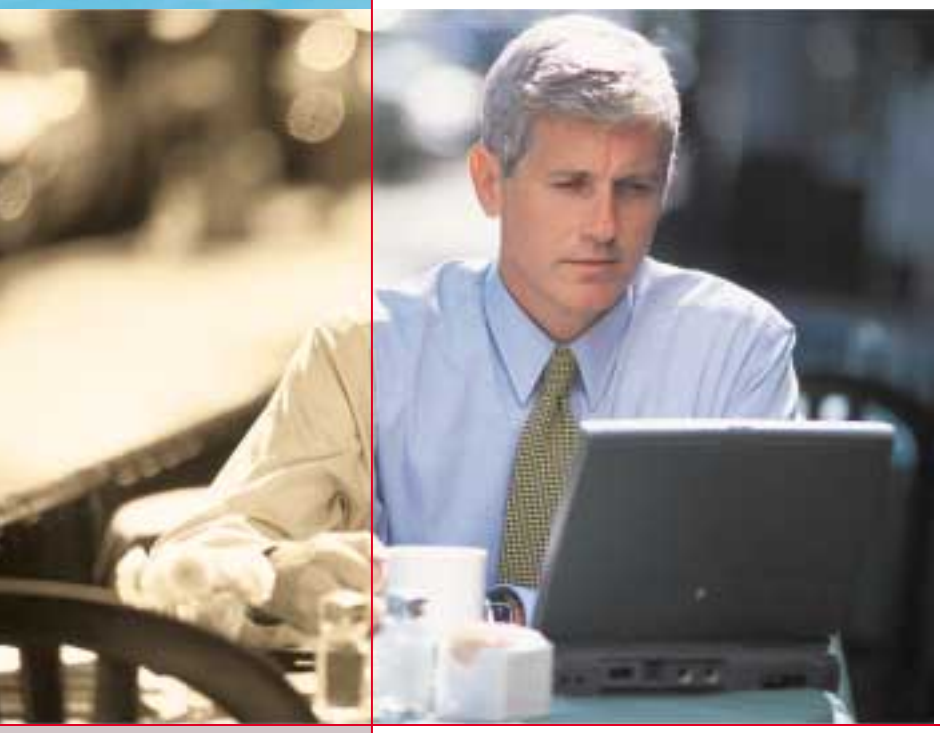
The wireless controller brings new levels of intelligent security, management, and control to wireless networks. The Ortronics controllers give you everything you want—and need—in your wireless network:

- *Advanced RF management*
- *Standards-based authentication and encryption (802.1x and 802.11i)*
- *Comprehensive security features*
- *Secure voice over Wi-Fi (VoFi)*

**Part Numbers**

| *Access Points Supported* | *Part Number* |
|---|---|
| Up to 5 | OR-WCU-5 |
| Up to 16 | OR-WCU-16 |
| Up to 48 | OR-WCU-48 |

*Wireless Controller*



## Centralized Management for Increased Flexibility and Control

By moving management and control functions out of the access point and into the controller, you not only ease the task of administering your wireless network, you centralize all security and value-added services. You gain greater visibility into your network and finer control. Upgrades to new features, new capabilities, or new standards are done in the controller—a far easier task than maintaining individual access points—to reduce operational expenses.

Each controller supports up to 48 Wi-Jack™ outlets and hundreds of users. Controllers are stackable to permit easy scaling to any size wireless network. A GBIC port permits linking to the cable network at 1 or 2 Gbps.

The controller supports VPNs and firewalls, providing you with VPN termination and per-user application-aware stateful firewalls, capable of supporting hundreds of simultaneous users at air speed. The VPN and firewall software makes use of the high performance crypto- and data processors built into Ortronics wireless controllers.

## Secure Voice over Wireless

Our Secure Voice is a complete solution that enables enterprises to securely operate and scale voice over Wi-Fi. Secure Voice solution delivers advanced security and quality of service, fast handoffs, battery life management, E-911 support, and seamless VoIP integration. The controller's firewall is able to automatically identify, classify, and prioritize different traffic types, such as SIP, SVP, H.323, etc. This allows mixed voice and data traffic coming from a single device, such as a laptop or PDA, to be automatically identified and prioritized without having to alter the infrastructure in any way.

## Advanced Management, Advanced Features

The operating system and application engine, standard with every controller, includes seamless mobility with fast roaming, sophisticated RF planning and RF analysis tools, centralized configuration and management, controller redundancy, traffic load balancing, and much more.

Ortronics wireless controllers give you unprecedented security and control over the entire wireless environment from a single point. Detect and disable rogue APs, identify and thwart malicious attacks and impersonations, eliminate coverage holes and interference, and create stateful user role-based security and firewall policies that protect the network as users roam.

## PoE Injector: Power over Ethernet

IEEE 802.3af provides a standard means of supplying power over an Ethernet cable to a remote device. The Ortronics PoE injector, available as a 6- or 12-port rack-mount midspan device, powers Wi-Jack™ wireless access points over the same cable that connects the outlet into the cabling system. So there's no need for a separate power supply, outlet, or new electrical wiring. The injector delivers 48 Vdc to the Wi-Jack outlets or other PoE-ready device.

**Part Numbers**

| *Style* | *Ports* | *Part Number* |
|---|---|---|
| Rack-Mount | 6 | OR-POE-6M |
| | 12 | OR-POE-12M |
| Discrete | 1 | OR-POE-1M |

## Superior Security

The advanced security capabilities of the Ortronics Wireless System provide the most comprehensive security in the industry:

- Integrated ICSA certified firewall
- Policy-based access control
  - Fine grain control for user and device access
- 802.1x authentication and encryption
- 802.11i security
- Wireless intrusion detection/protection
  - Denial of service (DOS) attack detection
  - Access point and station policies
  - Rogue AP classification and containment
  - Probing and network discovery
  - Client intrusion
  - Network intrusion detection
  - Surveillance
  - Impersonation detection and protection
- VPN
  - Termination of 100s of users simultaneously
  - Works with a variety of VPN software

*PoE Injector*

# Specifications

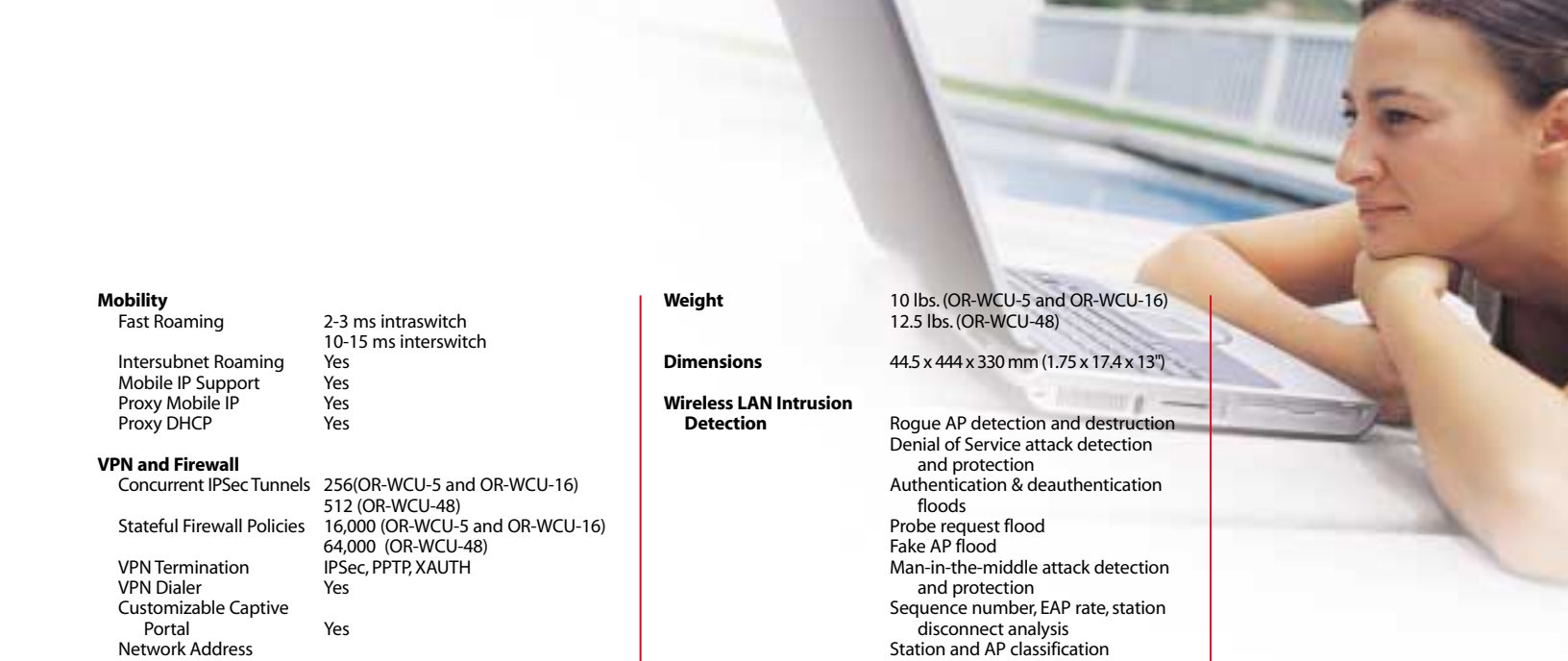
For complete specifications, see the device data sheet or visit www.ortronics.com

## Wi-Jack Wireless Wall Outlets

| | |
|---|---|
| **Operation** | 802.11a or 802.11b/g |
| 802.11a | |
| Frequency Bands | 5.150 to 5.250 GHz, 4 channels<br>5.250 to 5.350 GHz, 4 channels<br>5.725 to 5.825 GHz, 4 channels |
| Radio Technology | OFDM |
| Modulation | BPSK, QPSK, 1 QAM, 64 QAM |
| MAC | CSMA/CA with ACK |
| Channels | 12: US and Canada<br>5: Japan |
| Data Rates | 6, 9, 12, 18, 36, 48, 54 Mbps per channel |
| 802.11b | |
| Frequency Band | 2.4 to 2.483 GHz: US, Canada, ETSI<br>2.4 to 2.497 GHz: Japan |
| Radio Technology | DSSS |
| Modulation | CKK, BPSK, QPSK |
| MAC | CSMA/CA with ACK |
| Channels | 11: US and Canada<br>12: ETSI<br>14: Japan<br>2: Spain<br>13: France |
| Data Rates | 1, 2, 5.5, 11 Mbps per channel |
| 802.11g | |
| Frequency Band | 2.412 to 2.462 GHz: US and Canada<br>2.412 to 2.472 GHz: ETSI<br>2.412 to 2.484 GHz: Japan<br>2.475 to 2.462 GHz: Spain<br>2.457 to 2.472 GHz: France |
| Radio Technology | OFDM |
| Modulation | BPSK, QPSK, 16 QAM, 64 QAM |
| MAC | CSMA/CA with ACK |
| Channels | 11: US and Canada<br>13: ETSI<br>14: Japan<br>2: Spain<br>13: France |
| Data Rates | 6, 9, 12, 18, 36, 48, 54 Mbps per channel |
| **Antenna** | 2 internal dual-band omnidirectional diversity |
| **Power** | |
| Input | 48 Vdc @ 150 mA<br>802.3af-compliant Power over Ethernet |
| Output | User configurable up to 100 mW |
| **Management** | |
| Parameters | All 802.11 |
| Interface | Command line<br>Web GUI<br>SNMPv2 |
| Scope | Networkwide<br>Geographical location<br>BSSID<br>Radio type |
| Encryption | 40, 64, 128, 152 bits<br>WEP, TKIP, AES |
| **Interfaces** | |
| Network | 10/100BASE-TX autosensing<br>Polarity detection (MDI/MDX) |
| Wi-Jack/WS | Accepts up to two Ortronics TracJack modules to accommodate additional copper and fiber interfaces |
| **Mode** | 802.11a, 802.11b/g, or air monitor |
| **Dimensions** | |
| Wi-Jack/SA | 165 x 117 x 41 mm (6.50 x 4.625 x 1.625") |
| Wi-Jack/WS | 165 x 140 x 35 mm (6.50 x 5.52 x 1.38") |
| **Environmental** | |
| Temperature | 0° to 40°C (32° to 104°F) operating<br>0 to 70 C (32° to 158°F) storage |
| Humidity | 5% to 95% noncondensing |

## Wireless Controller

| | |
|---|---|
| **Configuration** | |
| Form | 1U, rack mount |
| 10/100 Ports | 8 (OR-WCU-5 and OR-WCU-16)<br>24 (OR-WCU-48) |
| Power over Ethernet | Yes |
| Serial over Ethernet | Yes |
| Uplink Port | 1 GBIC (OR-WCU-5 and OR-WCU-16)<br>2 GBICs (OR-WCU-48) |
| Switching | Layer 2/Layer 3 |
| Encryption | Dedicated cryptoprocessor |
| RS-232 Serial Console | RJ-45 port |
| Users per Switch | 256 max (OR-WCU-5 and OR-WCU-16)<br>512 max (OR-WCU-48) |
| Max APs per Controller | 5, 16, or 48 |
| Throughput | 200 Mbps (OR-WCU-5 and OR-WCU-16)<br>400 Mbps (OR-WCU-48) |
| Controller Throughput | 1 Gbps (OR-WCU-5 and OR-WCU-16)<br>2 Gbps (OR-WCU-48) |
| **Fault Tolerance** | VRRP for controller failover<br>Automatic AP rehoming<br>Multiple redundant uplinks |
| **802.11 Transport, Authentication, and Encryption** | |
| Transport | 802.11a, b/g |
| Port-Based Access Control | 802.1x |
| Encryption Types | WEP<br>WPA<br>Dynamic WEP<br>TKIP (WPA-1)<br>3DES<br>AES-CCMP |
| EAP Types | PEAP<br>TLS<br>TTLS<br>LEAP |
| MAC Address Authentication | Yes |
| Encryption Upgradeable | Yes, to new protocols |
| Interoperability | Wi-Fi Certified |
| **RF Management and Control** | |
| Multiple ESSIDs | Up to 16 per AP |
| 3-Dimensional RF Site Survey | Yes |
| Automatic AP Calibration | Distributed and centralized |
| Self-Healing around Failed APs | Yes |
| Load Balancing | By number of users<br>By utilization load |
| Detection | Coverage holes<br>Interference |
| Wireless RMON/ Packet Capture | Yes |
| Third-Party Analysis Tool Plug-ins | Ethereal, Airopeek |
| Timer-Based AP Access Control | Yes |



**Mobility**

| | |
|---|---|
| Fast Roaming | 2-3 ms intraswitch<br>10-15 ms interswitch |
| Intersubnet Roaming | Yes |
| Mobile IP Support | Yes |
| Proxy Mobile IP | Yes |
| Proxy DHCP | Yes |

**VPN and Firewall**

| | |
|---|---|
| Concurrent IPSec Tunnels | 256(OR-WCU-5 and OR-WCU-16)<br>512 (OR-WCU-48) |
| Stateful Firewall Policies | 16,000 (OR-WCU-5 and OR-WCU-16)<br>64,000 (OR-WCU-48) |
| VPN Termination | IPSec, PPTP, XAUTH |
| VPN Dialer | Yes |
| Customizable Captive Portal | Yes |
| Network Address Translation | Yes |
| ACLs | Standard and extended |

**Subscriber Management**

| | |
|---|---|
| Per-User/Per-Role Assignments | Firewall policies<br>Bandwidth contracts<br>Session prioritization<br>VLAN assignment |
| Role Derivation | Based on authentication, ESSID, encryption, OUI |
| Location-Based Access Control | Yes |

**Quality of Service**

| | |
|---|---|
| Bandwidth Contracts | Per-user & per-role |
| Traffic Classification/ Prioritization | Application-aware based |
| 802.1p Support | Yes |
| Control Protocol Support | DSCP tagging |

**Authentication Servers**

| | |
|---|---|
| Local RADIUS | Yes |
| AAA Server Interoperability | Microsoft Active Directory<br>Microsoft IAS Radius Server<br>Cisco ACS Radius Server<br>Funk Steel Belted Radius Server<br>RSA ACEserver, Infoblox<br>Interlink Radius Server |
| LDAP | Yes |

| | |
|---|---|
| **Management** | Web-based GUI<br>Console, telnet, SSH<br>Syslog<br>SNMP v2c<br>Ortronics private MIB<br>MIB-II |
| **Standards Supported** | IEEE 802.1x<br>IEEE 802.3 10BASE-T<br>IEEE 802.3u 100BASE-T<br>IEEE 802.1Q<br>IEEE 802.3af<br>IEEE 802.11a/b/g<br>IEEE 802.11d<br>IEEE 802.11i (draft version) |

**Power**

| | |
|---|---|
| Power Consumption | 200 W (OR-WCU-5 and OR-WCU-16)<br>300 W (OR-WCU-48) |
| AC Input Voltage | 100-127 Vac or 200-240 Vac/47-63 Hz |

**Environmental**

| | |
|---|---|
| Temperature | 0° to 40°C operating (32° to 104°F)<br>10° to 70°C storage (50° to 158°F) |
| Humidity | 5 to 95%, noncondensing |

| | |
|---|---|
| **Weight** | 10 lbs. (OR-WCU-5 and OR-WCU-16)<br>12.5 lbs. (OR-WCU-48) |
| **Dimensions** | 44.5 x 444 x 330 mm (1.75 x 17.4 x 13") |
| **Wireless LAN Intrusion Detection** | Rogue AP detection and destruction<br>Denial of Service attack detection and protection<br>Authentication & deauthentication floods<br>Probe request flood<br>Fake AP flood<br>Man-in-the-middle attack detection and protection<br>Sequence number, EAP rate, station disconnect analysis<br>Station and AP classification<br>Station blacklisting<br>Manual, Authentication Failure, Man-in-the-middle attack<br>Rogue or valid AP classification based on customer database of MAC addresses<br>AP misconfiguration protection<br>Station and AP impersonation<br>Bad/weak WEP keys & initialization vectors<br>Ad-hoc network detection & prevention<br>Unauthorized NIC types (OUI)<br>Signature analysis<br>Upgradeable to support new signatures and attacks<br>Multi-tenant policies<br>Wireless bridge detection<br>Works with third-party WLANs |

## PoE Injector

**Output Specification**

| | |
|---|---|
| Pin Assignments/Polarity | 4/5 (+), 7/8 (-) |
| Output Voltage | 48 Vdc |
| User Port Power | 15.4 W min. |
| Aggregate Power | 100 W (6 ports)<br>200 W (12 ports) |

**Input Power**

| | |
|---|---|
| Voltage | 90 to 264 Vac/47 to 63 Hz |
| Current | 0.3 A at 110 Vac, 0.15 A at 240 Vac (OR-POE-1M)<br>3.5 A at 110 Vac, 1.8 A at 240 Vac (OR-POE-6M and OR-POE-12M) |

| | |
|---|---|
| **Ports** | 1, 6, or 12 |
| **Data Rates** | 10/100 Mbps |
| **Dimensions** | Discrete: 44.4 x 106 x 140 mm (1.75 x 4.17 x 5.5")<br>Rack mount: 44 x 432 x 302 mm (1.75 x 17 x 11.9") |

**LED Indicators**

| | |
|---|---|
| System | AC Power |
| Per Port | Channel Power Active |

| | |
|---|---|
| **Connectors** | Shielded RJ-45, EIA 568A and 568B |

**Environmental**

| | |
|---|---|
| Temperature | 0° to 40°C (32° to 104°F)<br>-20° to 75°C (-4° to 167°F) |
| Humidity | 5% to 90%, noncondensing |

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