The Link Wireless Telephone System™

Product Description

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SpectraLink

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1.0 Introduction

The Link Wireless Telephone System (Link WTS) is the most advanced workplace wireless telephone system available. The Link WTS combines the highest level of integration to enterprise telephone switching and networking systems with SpectraLink's sophisticated radio technology, to provide the best voice quality consistently throughout any size and type of facility. The Link WTS is designed for minimal training, maintenance, and administration. The six-ounce Wireless Telephones are extremely simple to use and are durable enough to withstand the rigors of workplace usage. The integration capabilities, superior radio performance, and scalable architecture of the Link WTS make it the most feature-rich, yet cost-effective wireless system available.

The Link WTS uses a micro-cellular design consisting of three components: a Master Control Unit (MCU), Base Stations and Wireless Telephones. The MCU interfaces directly with a PBX, Centrex or key/hybrid system through digital or analog extensions to provide the calling features and functionality of the host telephone system. The MCU also connects with the Base Stations, which are small radio transceivers located throughout the customer's facility that relay calls between the Wireless Telephones and the telephone system. Calls are handed off from one Base Station to another as users move throughout the facility.

1.1 Features

The Link Wireless Telephone System offers advanced features and capabilities available in no other wireless system. SpectraLink's state-of-the-art radio and integration technologies make the Link Wireless Telephone System the preeminent solution for mobile communication in the workplace.

1.1.1 LinkPlus ™ Digital Integration

The Link WTS is the only workplace wireless system that supports digital station interfaces to a wide variety of PBX and key telephone systems. SpectraLink's exclusive LinkPlus technology implements digital interfaces by emulating proprietary digital telephone sets, making switch features available to Wireless Telephone users without requiring any switch upgrades or enhancements. The Link WTS can even support multiple digital switch interfaces on single and multi-site systems. Features supported by the Link Wireless Telephone include display capabilities, such as calling party name and message waiting indication, multiple extensions or line appearances, and any other digital telephone set features supported by the host switch.

1.1.2 Durable Handset Design

The Link Wireless Telephone is designed specifically for use in commercial workplace applications. It is extremely durable, and unlike consumer-grade cellular phone designs used by other wireless providers, the Link Wireless Telephone has no moving parts, no external antenna, and no complex configuration menus. The handset has a rugged, monolithic design, with a large earpiece to provide comfort and seal out background noise. A wide variety of carrying cases and accessories are available to suit users in a wide variety of applications.

1.1.3 Secure Communication

The Link WTS meets or exceeds radio security requirements for commercial use. To provide an extremely high level of security from radio eavesdropping, the Link WTS uses a proprietary implementation of frequency hopping spread-spectrum transmission combined with TDMA channelization and digital signal processing.

1.1.4 Application Interface

The Link WTS supports SpectraLink's Open Application Interface (OAI), allowing Link Wireless Telephones to serve as two-way messaging devices. Applications such as MessageLink, from On-Site Communications provide interfaces to in-house paging systems, email, and client-server messaging. Other complementary system vendors such as nurse call, telemetry, alarm, and control system manufacturers are currently developing applications to interface with the Link WTS.

1.1.5 Scalable Architecture

The Link WTS grows gracefully from a handful of users to thousands, without requiring any ancillary switches or servers. Two different sizes of Master Control Units (MCUs) are available: the Link 150 MCU is designed for small to mid-sized applications requiring no more that 64 Wireless Telephone users, and the Link 3000 MCU is expandable to support mid to large applications up to 3,200 users. The MCU components support both line interfaces and Base Station interfaces, allowing the user capacity and coverage area to be expanded without requiring separate components.

1.1.6 Unlicensed Operation

The Link WTS operates in the 902-928 MHz frequency band, which is allocated by the FCC for unlicensed use. There are no licensing or frequency coordination requirements to install, expand, or relocate the Link system anywhere in North America. In addition, the Link WTS does not require any airtime or usage charges.

1.1.7 Advanced Radio Technology

The Link WTS uses SpectraLink's exclusive digital spread-spectrum radio technology. SpectraLink's radio technology has been field proven in more than 4,000 installations in North America to provide superior range, superior coverage, and interface immunity from collocated unlicensed radio systems. Overlapping coverage between Base Stations ensures that there are no "dead spots" or areas of weak coverage, and provides higher overall traffic capacity and system reliability.

1.1.8 Multi-site Networking

The Link WTS is the only wireless system available that can be distributed between multiple sites across a campus, across town, and even across the country. Multi-site system interconnection fits within existing enterprise-wide voice and data networking architectures using industry standard T1 facilities. Users who roam to remote sites continue to operate off their "host" telephone switch, preserving all line appearances and feature access.

1.1.9 ccLink ™ Wireless Telephone System

The ccLink WTS is the only wireless telephone system that offers both digital integration with the host telephone switch, and advanced radio technology that supports the high-density traffic found in most call centers. Specialized administration and management functions used in automatic call distribution (ACD) telephone systems are supported by the high level digital integration. Call center agents can log in, log out, and check ACD status directly from their durable, lightweight Wireless Telephones.

1.1.10 Call Detail Recording and Alarm Recording

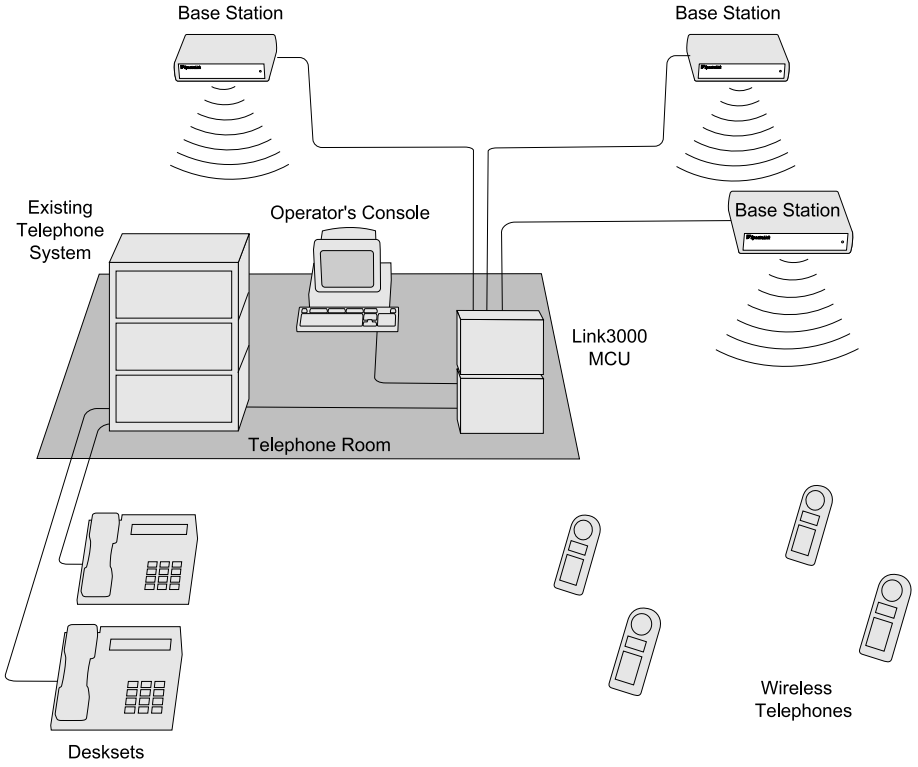
The Link 3000 MCU can provide Call Detail Recording (CDR) and Alarm Recording outputs for customers who wish to track wireless usage or alarms. Supplementary programs to record and process the CDR data to generate usage reports are provided to our customers free of charge.

2.0 System Description

The Link WTS is a wireless communication system that allows hand held Wireless Telephones to communicate using the facility's existing telephone systems.

The Link Wireless System's advanced micro-cellular architecture locates small radio transceivers, called Base Stations, throughout the facility to accommodate on-premise roaming. As a Wireless Telephone user moves within the coverage area the call is seamlessly passed between Base Stations. The system supports up to 3,200 users and millions of square feet of coverage, resulting in a scalable enterprise-wide wireless voice solution.

The Link Wireless Telephone System uses a micro-cellular design consisting of three components: The Master Control Unit (MCU), Base Stations, and Wireless Telephones. The following diagram shows a system overview.



Link Wireless Telephone System

2.1 The Master Control Unit

The Master Control Unit (MCU) is the processing center for calls to and from the Wireless Telephone system. Residing adjacent to the telephone switching equipment, the MCU operates as a stand alone, external system, while maintaining full PBX functionality for Wireless Telephone users.

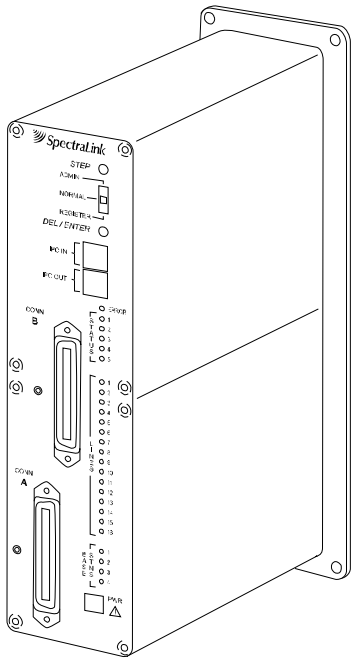
The MCU connects to the telephone system in two ways. The MCU can either interface with analog ports of the host telephone system or, in many cases, connect directly to the telephone system (PBX or key/hybrid system) via a digital interface. A digital interface provides the advantage that all switch features, such as call party name display and multiple line appearances are preserved for the end user.

The MCU provides connectivity from the telephone switch to the wireless system components. Telephony ports for each Wireless Telephone are commissioned from the telephone switch. Base Stations, which provide the radio frequency link to the Wireless Telephones, are wired directly to the MCU.

2.1.1 Link 150 Master Control Unit

The Link 150 Master Control Unit is a compact, modular unit designed for small installations. A Link 150 MCU provides interfaces for sixteen telephone ports and four Base Stations. Up to four Link 150 MCUs can be combined to support a maximum of sixty-four Wireless Telephone users and sixteen Base Stations.

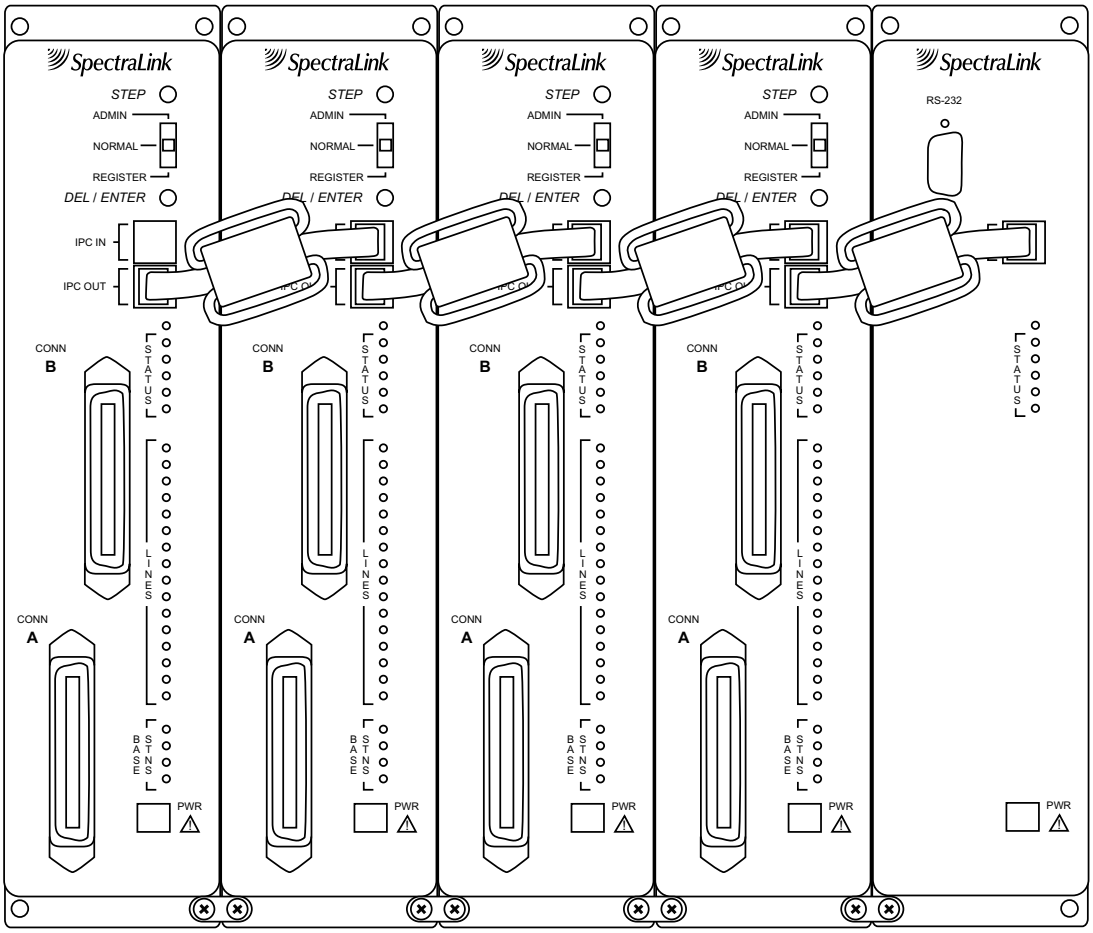
All administration and maintenance for the Link 150 MCU is done from the front panel. A combination of switches and LED displays are used to set up the system, register Wireless Telephones, and diagnose problems or component failures. The Link 150 MCU is shown below.



Link 150 Master Control Unit

2.1.2 Link 150 OAI Gateway

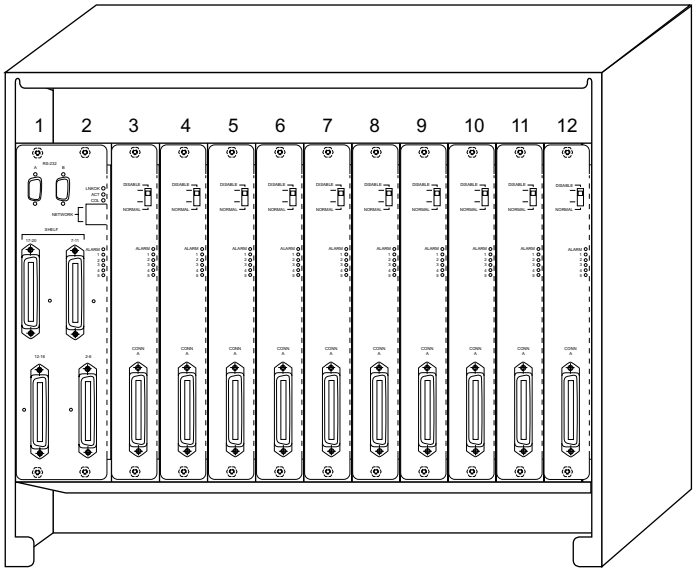
An optional OAI Gateway provides the RS-232 serial connection to support third party messaging applications using SpectraLink's Open Application Interface (OAI) protocol. The OAI Gateway connects to the Link 150 MCU using the same inter-processor connection used to connect multiple Link 150 MCUs. The diagram below shows how multiple Link 150 MCUs and the OAI Gateway are connected on the front of the units.



Link 150 MCUs with OAI Gateway

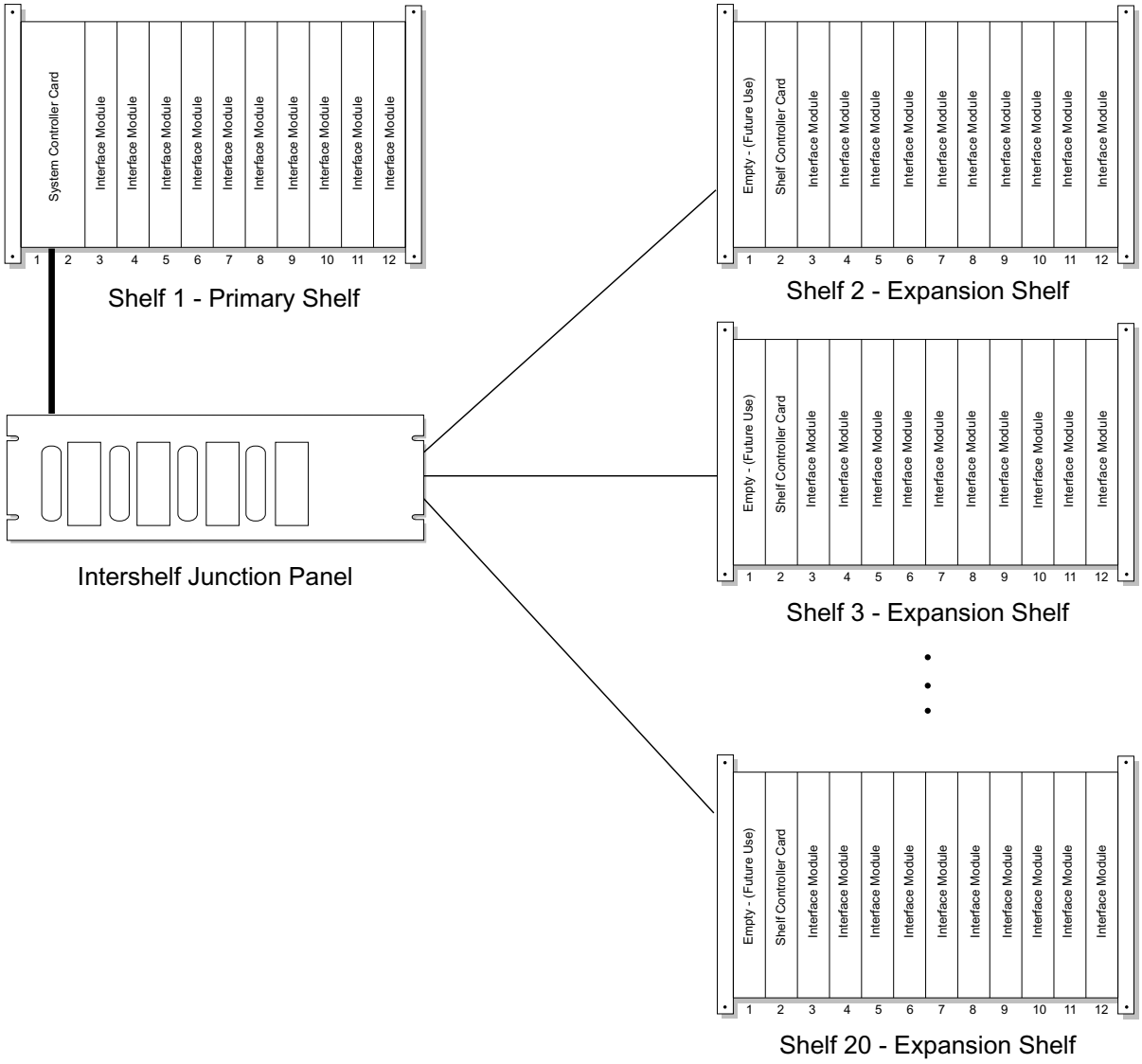
2.1.3 Link 3000 Master Control Unit

The Link 3000 MCU consists of one or more rack- or wall-mounted shelves equipped with plug-in modules. Up to twenty shelves can be combined to support a maximum of 3200 Wireless Telephones and 1000 Base Stations. The Link 3000 MCU shelf is shown below.



Link 3000 Master Control Unit Shelf

Multiple shelves in the Link 3000 MCU can be networked in a star topology. At the hub is the primary shelf, containing the system controller which manages the call processing for the wireless network. Expansion shelf controllers at the spokes manage intra-shelf calling and work with the system controller to pass calls within the wireless network and to the telephony switch. All shelves provide universal slots for a combination of up to 10 Interface Modules and T1 Remote Modules. Interface Modules connect Base Stations and Wireless Telephones to the system. T1 Remote Modules allow expansion shelves to be installed at remote locations. The following diagram illustrates the sample star topology of the Link 3000 MCU.



Link 3000 MCU Shelf Star Topology

2.1.3.1 Link 3000 MCU Shelf

Shelves are designed for nineteen-inch rack or wall mounting. Each shelf has twelve card slots. The first two slots are reserved for controller cards and T1 Remote Modules, and the remaining ten slots are universal card slots for Interface Modules and T1 Remote Modules. Cabling to each card is terminated on the front panel. Power is 48 Volt DC through the back or side panel of each shelf.

2.1.3.2 Link 3000 System Controller

Each system requires one system controller card, which occupies two slots (slot 1 and 2) of the primary shelf. The System Controller supports call routing within the system. There are six models of System Controller cards, supporting a different number of expansion shelves with or without OAI.

Two RS-232 serial ports are provided on the system controller. Serial ports can be used for multiple purposes, including local administration, remote administration and diagnostics (via modem), Open

Application Interface (OAI) applications and call detail recording. One standard 10-base T Ethernet port is also provided (for future use).

2.1.3.3 Link 3000 Expansion Shelf Controller

An Expansion Shelf Controller (CSC-300) resides in slot two of each expansion shelf. The Expansion Shelf Controller manages intra-shelf traffic and communicates with the system controller. There are two models of Expansion Shelf Controller, with or without OAI. If a system is OAI enabled, then all controller cards must be OAI enabled. The Expansion Shelf Controller also has an RS-232 port. This port may be used to obtain call detail recording or alarm recording.

2.1.3.4 Link 3000 Interface Modules

Telephone line and Base Station connections are made to the Interface Module. Each card provides sixteen line (Wireless Telephone) interfaces and six Base Station interfaces. Interface Modules are installed in slots 3 - 12 on a shelf. There are four types of Interface Modules: Analog (CPA-316), Universal (CPU-316), Universal 4-Wire (CPF-316), and Mitel interface (CPM-316). Interface Modules of different interface types can be inter-mixed within a shelf.

Interface Modules are “hot swappable”; they can be removed and replaced without affecting service on the rest of the system. To hot swap an Interface Module, a disable switch is available on the front of the card. This will lock (busy out) the card to prevent calls form being disconnected during a hot swap.

2.1.3.5 Link 3000 Intershelf Junction Panel

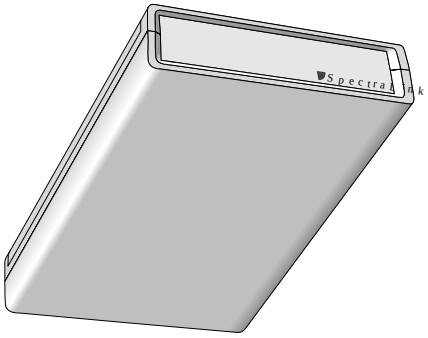
The Intershelf Junction Panel (JPI-300) connects Expansion Shelf Controllers on expansion shelves to the System Controller. The Intershelf Junction Panel physically connects the network, converting RJ-21 connections from the System Controller to the RJ-45 connection on the Shelf Controller.

2.1.3.6 Link 3000 Operator’s Console

The Link 3000 MCU uses a proprietary software program for administration and maintenance. The software is loaded to the Operator’s Console, an IBM-compatible personal computer. The personal computer may access the system via an RS-232 connection or via remote access over a modem connection to the Link 3000 MCU. The Operator’s Console is used to register each Wireless Telephone and Base Station, enter user information, monitor system operations, and initiate remote diagnostics.

2.2 Base Stations

Base Stations provide the communication channel between the MCU and the Wireless Telephones. The Base Station and Wireless Telephone use digital spread-spectrum radio transmission in the 902-928 MHz frequency band.



Base Station

Each Base Station supports multiple users and can cover a transmission area in excess of 50,000 square feet. The signal propagation is dependent upon transmission obstructions within the building. A call is passed from one Base Station to another as the user walks throughout the coverage area. The Link Wireless System is designed to provide seamless coverage, enabling real-time hand-off of active calls.

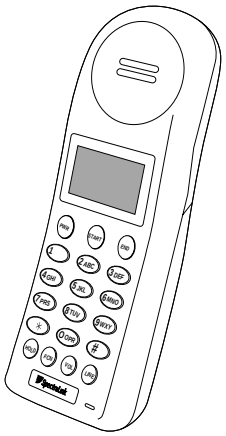
High Density Base Stations have been designed to meet the needs of extremely high call capacity requirements. The ccLink WTS makes use of the High Density Base Stations to achieve the simultaneous call capacity demanded by call centers, densely populated wireless offices, emergency response centers, and conference centers. These Base Stations may be placed in close proximity to achieve the high call capacity.

Base Stations are designed for mounting at or near the ceiling. A weatherproof outdoor enclosure is available for installing Base Stations outdoors or in wet environments.

2.3 Wireless Telephones

The Link Wireless Telephone is a durable mobile telephone that operates with all the functionality of a wired desk phone. Weighing only six ounces and ergonomically designed, the Wireless Telephone is comfortable and easy to use. The monolithic design of the Wireless Telephone, with no moving parts, will withstand a physically demanding work environment. The Wireless Telephone's alphanumeric display supports messaging from either the telephone switching equipment or an external data application. Wireless Telephone battery packs provide up to four hours of talk time and eighty hours of standby between recharges.

When the Link Wireless System is connected to the telephone system using analog ports, the Wireless Telephone will provide many of the calling features of a desk phone, including transfer, conference calling, and hold. When the system is digitally interfaced to the phone system, the Wireless Telephone will also support the advanced features of the host telephone system such as calling party name display and multiple line appearances.



The Link Wireless Telephone

Each Wireless Telephone requires a line appearance (port) from the telephone system. Typically, the Wireless Telephone extension number corresponds with the user's internal telephone extension number. On most switching systems, the user's desk phone and the Wireless Telephone port can be bridged so that incoming calls ring both phones simultaneously.

3.0 Operation

The Wireless Telephone operates as a full-duplex telephone capable of making and receiving calls. The MCU establishes and maintains a call path between the host switch and the Wireless Telephone by connecting the switch port to the appropriate Base Station, depending on the Wireless Telephone location and traffic loading.

3.1 Incoming calls

When a ring signal is detected from the PBX, the MCU broadcasts a message addressed to the Wireless Telephone associated with the ringing port assignment. The Wireless Telephone establishes a radio link with a Base Station and starts to ring. If the user answers the call, the appropriate off-hook signal is provided to the host PBX by the MCU and the call is connected. If the user does not answer, the PBX forwards the call as appropriate.

3.1.1 MCU to Base Station

The MCU communicates with the Wireless Telephone through Base Stations installed throughout the facility. Each Base Station is connected to the MCU by a dedicated high-speed serial data interface. Four full duplex digital channels and a common signaling channel make up the interface between the MCU and Base Station. The signaling channel is shared by all Wireless Telephones in the system, allowing multiple Wireless Telephones to be called or initiate calls simultaneously.

3.1.2 Base Station to Wireless Telephone

When entering the transmission area of a given Base Station, the Wireless Telephone determines the optimal channel within the Base Station coverage area by listening to all available channels and selecting the one with the best signal criteria. The Wireless Telephone sends a message to the MCU over the signaling channel to request a connection to the preferred channel.

To establish the call path to the Wireless Telephone, the MCU maps a connection from the PBX port to the selected Base Station interface using the requested channel. When the path is completed, the Wireless Telephone begins ringing. The entire process, from the time that the PBX generates the ring signal until the Wireless Telephone begins ringing, takes less than two seconds to complete.

When the user answers a call on the Wireless Telephone, the voice path is completed from the PBX to the Wireless Telephone.

3.2 Outgoing Calls

A Wireless Telephone user initiates a call by pressing the ***START*** button on the handset. The Wireless Telephone searches for an acceptable channel from a nearby Base Station, then sends a request to the MCU to establish a path from the selected Base Station to the Wireless Telephone's corresponding PBX port. The MCU takes the PBX port off-hook and dial tone is provided by the PBX.

3.3 Call Hand-off Between Base Stations

Wireless Telephone users can move throughout the facility while maintaining an uninterrupted telephone conversation. When the Wireless Telephone reaches an area where the signal from the Base Station begins to degrade, the Wireless Telephone automatically searches for a Base Station signal that is acceptable. Depending on the location of the Base Stations and the Wireless Telephone, the optimal Base Station may or may not be the one closest to the user.

Once the Wireless Telephone has found an acceptable channel assignment, it sends a request to the MCU over the signaling channel. The MCU then maps the new call path to the requested Base Station. The hand off to the new Base Station is done without interruption to the voice channel.

3.4 Messaging Applications

Applications that use the Open Application Interface (OAI) to communicate with the Wireless Telephones communicate with the Link WTS through a dedicated RS-232 serial port. Applications communicate with the Wireless Telephones by sending messages via the OAI port. The MCU establishes a connection with the Wireless Telephone for OAI messages in the same manner as done for connecting to the PBX for a telephone call. Conversely, when the Wireless Telephone user presses ***START*** to initiate a session with an OAI application, the MCU establishes the connection through the appropriate Base Station in the same way that is done to initiate a telephone call.

4.0 System Engineering

A unique aspect of workplace wireless systems is that the number and location of the Base Stations must be determined in order to provide an accurate system configuration for a price quotation and for a satisfactory installation. The size, layout, and construction of the facility, along with anticipated Wireless Telephone traffic requirements must be analyzed in detail to accurately predict the optimal number of Base Stations.

4.1 Coverage Area

A Standard Base Station has a coverage radius of less than 50 to over 700 feet, depending on the mounting location and the number and type of obstructions in the coverage area. High Density Base Stations typically have a coverage radius of 50 feet.

SpectraLink has developed a unique system engineering methodology that insures high-quality radio coverage of all required areas. Unlike other wireless system providers that require on-site surveys of each customer location to determine base station locations, SpectraLink uses a worst-case analysis based on facility floorplans. Worst-case Base Station coverage areas are determined based on extensive real world testing in a variety of customer environments. These design rules are then applied to the facility floorplans to determine the number and location of the Base Stations.

The ceiling height, or height that the Base Station will be mounted, is one factor in determining expected coverage area. Base Stations that are mounted higher provide more coverage due to fewer obstructions. Interior wall material is also a factor in anticipating coverage area. Open areas, such as manufacturing floors and cubicle office space, allow greater Base Station coverage because of fewer obstructions to reduce or block the radio signal. Different types of wall materials have different radio signal propagation characteristics. By identifying these factors on the facility floorplans, SpectraLink's system engineers can determine the optimal Base Station locations with a high degree of certainty.

SpectraLink guarantees that the quoted number of Base Stations is sufficient for comprehensive, overlapping coverage. If additional Base Stations are required to meet coverage objectives once the system is installed, SpectraLink will provide the additional Base Stations and any additional common equipment at no cost to the customer or reseller.

4.2 Traffic Requirements

Each Base Station supports four simultaneous calls. In most cases, this is sufficient to support the anticipated number of users in the Base Station coverage area. Additionally, SpectraLink's facility analysis methodology provides generous overlap of Base Station coverage areas such that most areas are within range of multiple Base Stations.

Recognizing that certain areas may have a higher density of users, the Link WTS can be engineered with additional Standard Base Stations or High Density Base Stations to provide additional call capacity. Traditional telephony traffic analysis can be used to determine the number of Base Stations required based on the expected busy-hour traffic loading within the facility.

4.3 System Expansion

The Link WTS is designed to allow expansion of the coverage area and number of users without impacting the existing installation. Additional MCU components can be added without affecting service, minimizing service disruption during expansion. The same facility analysis conducted for an initial installation is performed to determine the Base Station locations for a system expansion.

5.0 Installation and Maintenance

The Link WTS is designed to be easy to install and maintain. All interfaces use standard telephony cables and connectors, allowing telecommunications personnel to provide system wiring and system administration with minimal training.

5.1 Installation

5.1.1 MCU Installation

The MCU is typically installed near the telephone switch, allowing existing cross-connects and cabling to be used. The Link 150 MCU(s) are designed for placement on a wall. The Link 3000 MCU shelves can be wall mounted or installed in a standard EIA 19-inch rack.

The Link 150 MCUs require standard 120 Volt AC power. The Link 3000 MCU requires 48 Volt DC, which is typically used for PBX systems.

Connections from the host switch to the MCU and from the MCU to the Base Stations are done through standard 66, 110, or Bix punch-down blocks, simplifying the installation process and maintenance.

5.1.2 Base Station Installation

Base Stations are typically installed at high points to maximize coverage. The Base Stations are powered by the MCU, so power at the Base Station location is not required. Standard twisted-pair telephone cable, category III or higher, is used between the MCU and Base Stations. The cable is terminated at the Base Station with an RJ-45 eight-pin modular connector, providing high reliability and simplifying installation by eliminating solder and screw-down connections. Both, Standard and High Density Base Stations operate and are installed in this fashion.

5.1.3 Wireless Telephones

Wireless Telephones require registration on the MCU to operate. The registration process assigns the Wireless Telephone to a specific switch port, and prevents unauthorized use if a Wireless Telephone is lost or stolen. All class of service, line assignment, and feature access for the Wireless Telephone is provisioned on the host telephone switch, eliminating the need to program individual Wireless Telephones.

5.2 Maintenance

The Link WTS requires minimal maintenance and is designed to allow rapid diagnosis and resolution of component failures. Maintenance activities consist of Wireless Telephone registration and periodic review of the system status.

5.2.1 MCU Maintenance

MCU components are field replaceable. For Link 150 MCUs, a failed unit can be replaced by disconnecting the cable connections to the host switch and Base Stations, installing a new unit, and reconnecting the cables. In a system with multiple Link 150 MCUs, all configuration information is automatically downloaded to the replacement unit from the remaining MCUs.

For the Link 3000 MCU, Interface Modules can be replaced without affecting service on other modules in the system. A failed Interface Module can be replaced by disabling the Interface Module, disconnecting the 25-pair cable, and replacing the Interface Module and 25-pair cable. All configuration

information is maintained in the system and automatically downloaded to the replacement Interface Module.

5.2.2 Base Station Maintenance

Base Stations do not require any ongoing maintenance and are designed for extremely high reliability, recognizing that they are often installed in hard to reach locations. In the event of a Base Station failure, the failed unit is replaced by simply unplugging it from the cable and removing it from its mounting hardware. The new Base Station is then mounted and the cable is plugged into the 8-pin modular jack. The MCU automatically initializes the new Base Station and resumes service.

5.2.3 Wireless Telephone Maintenance

Wireless Telephones do not require any maintenance other than replacing and recharging Battery Packs. Wireless Telephones can be cleaned by wiping off the handset with a damp towel. Most household cleaning products can be used to clean the Wireless Telephone if necessary.

If a Wireless Telephone is replaced due to breakage or loss, the replacement handset automatically takes on all the attributes of the original handset when registered. All class of service, line assignment, and feature access is provisioned on the host switch and therefore, maintained for the replacement handset.

6.0 Specifications

6.1 Wireless Telephone

Radio Frequency:	902 – 928 MHz
FCC Certification:	Part 15.247
Transmit Power:	100 mW peak, 12.5 mW average
Transmission Type:	Frequency hopping spread-spectrum
Display:	2 x 16 character alphanumeric, plus line and status indicators
Dimensions:	5.9” L x 2.0” W x 1.0” H
Weight:	6.0 ounces, maximum
Battery Capacity:	
Standard (NiCad)	2 hours talk, 40 hours standby
High Capacity (NiMH)	4 hours talk, 80 hours standby

6.2 Base Station

Radio Frequency:	902 – 928 MHz
FCC Certification:	Part 15.247
Transmit Power:	100 mW peak, 50 mW average
Channelization:	Four time division multiple access (TDMA) channels
Transmission Type:	Frequency hopping spread spectrum
Cable Connection:	4 pair, twisted pair category 3 or higher (2 or 3 pair may be used within specified distance limitations)
Dimensions:	8.8” L x 5.4” W x 1.5” D
Weight:	1.5 pounds
Operating Temperature:	0 – 40º C or 32º -104º F (standard version) -20 – 50º C or -4º - 122º F (outdoor version)

6.3 Master Control Unit

6.3.1 Link 150 MCU

System Capacity:	64 Wireless Telephones 16 Base Stations 32 simultaneous calls
Area Coverage:	Up to 1.5 million square feet, depending on environment
Power:	120 VAC
Base Station Interface:	High-speed digital
Cable Type:	22/24 AWG, 25-pair cable
Cable Connection:	RJ-21 Amphenal cable connector
Dimensions:	7.0” D x 3.0” W x 13.0” H
Weight:	5 lbs., maximum
Administration Interface:	Front panel

6.3.2 Link 3000 MCU Shelf

System Capacity:	3,200 Wireless Telephones 1,000 Base Stations 1,600 simultaneous calls
Area Coverage:	Up to 100 million square feet, depending on environment
Switch Interface:	25-pair Amphenal cable connector
Power:	48 VDC
Base Station Interface:	High-speed digital
Cable Type:	22/24 AWG, two-pair
Cable Connection:	RJ-21 Amphenal cable connector
Dimensions:	9” D x 19” W x 15” H
Weight:	33 lbs., maximum (single shelf)
Administration Interface:	IBM-compatible PC