

NEC

Aspire Wireless

Installation Manual

02.15

Technical Support Web Site:
<http://ws1.necii.com> (registration is required)

This manual has been developed by NEC America. It is intended for the use of its customers and service personnel, and should be read in its entirety before attempting to install or program the system. Any comments or suggestions for improving this manual would be appreciated. Forward your remarks to:

NEC America, Inc., Corporate Networks Group
4 Forest Parkway, Shelton, CT 06484
cng.nec.com

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Introduction

The Repeater unit indicated in this document will be available in the near future. To provide area coverage for the Aspire Wireless (DECT) phones, install Base Stations where required.

Aspire Wireless (DECT) Phones

The Aspire system provides the ability to use 2.4 GHz Aspire Wireless/DECT (Digital Enhanced Cordless Telecommunication) phones. These phones provide you with the freedom and conveniences of a wireless phone, but in addition, you also have access to features provided by the Aspire system.

The Aspire Wireless (DECT) phone provides additional options as well. Refer to the user guide included with your phone for details on these features.

- Alphanumeric Display with Back Light
- LED Indication for Incoming and Unanswered Calls
- Telephone Book with 80 Number Memory Capacity
- Vibration
- Auto Log-In (roaming between different systems)
- 14 Messages Stored
- Stack for 10 Caller ID
- Silent Mode (mute all sounds)
- Redial (last 10 numbers)
- Programming Pause
- Programming of 2 Different Setups (indoor and outdoor)
- Adjustable Volume
- Key Lock
- 9 Different Ring Tones and Adjustable Ring Volume
- Microphone Mute
- Headset Connection
- Automatic Off-Hook (B-Answer)
- R-Key for Transfer and Special Services
- Detects other wireless devices and will temporarily block that frequency range until it becomes available (helps to prevent interference between devices)

Out-of-Range

When a Aspire Wireless phone receives an incoming call and the phone is considered out-of-range (Program 20-22-05 timer expires), what the system does with the call and what the caller hears depends on system programming.

- Extension callers will hear a lock-out tone and may see “Out of Range” on their display.
- DISA callers will following the programming set in Program 25-04-01 : DID/DISA Transfer Ring Group With No Answer/Busy.
- DID and DIL callers hear ringing and can then be transferred to voice mail or to another extension based on the settings in Program 15-15-05 and 15-15-06.
- Tie line callers will hear the lock-out tone.

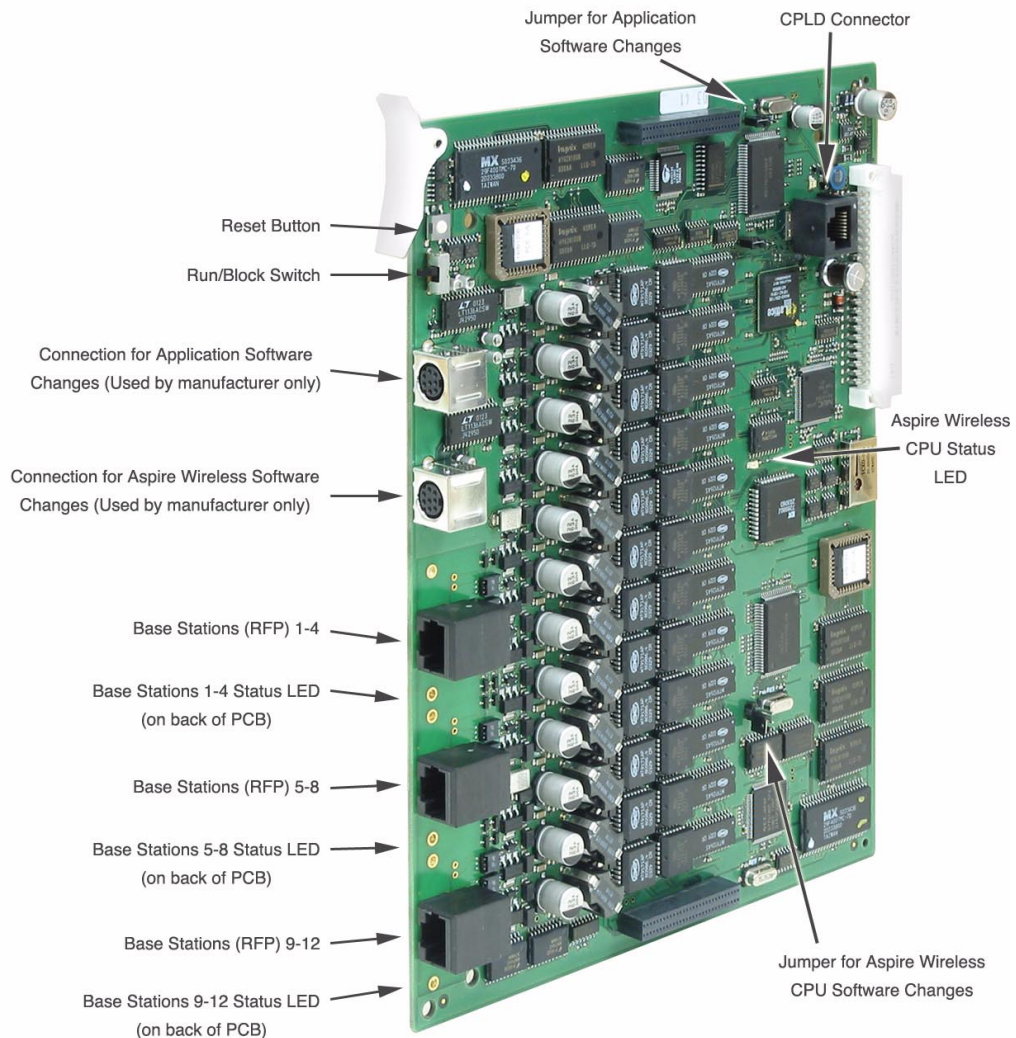
Introduction

The DSIU PCB

The 4DSIU, 8DSIU or 12DSIU PCB provides the ability to use Aspire Wireless (DECT) phones with the Aspire system. Each 4DSIU PCB allows up to 8 Base Stations to be connected, - the 8DSIU PCB allows up to 8 - the 12DSIU PCB allows up to 12. Each RFP connector on the PCB provides connection to 4 Base Stations. As the Base Stations are powered by the DSIU PCB, whenever a DSIU PCB is installed in an Aspire cabinet, **two power supplies must be installed**. Only one DSIU PCB can be installed in a system with a maximum of 120 handsets and 12 Base Stations connected.

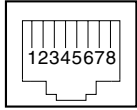
The load factor for each version of PCB is 10. In addition, each Base Station on the card adds an additional load factor of 2. So the total load factor for the 4DSIU = 18; the 8DSIU = 26; the 12DSIU = 34. (For example, with a 4DSIU, the PCB's load factor is 10. There are a maximum of 4 Base Stations which can be connected, each with a load factor of 2. The total load factor for the PCB (10) with all possible Base Stations connected (4 x 2=8) would be 18.) Refer to the Aspire M/L Hardware Manual (P/N 0893100) for details on the load factor restrictions.

The maximum number of B-channels supported is 32, which means that the DSIU PCB (any version) can support a maximum of 32 conversations at one time.

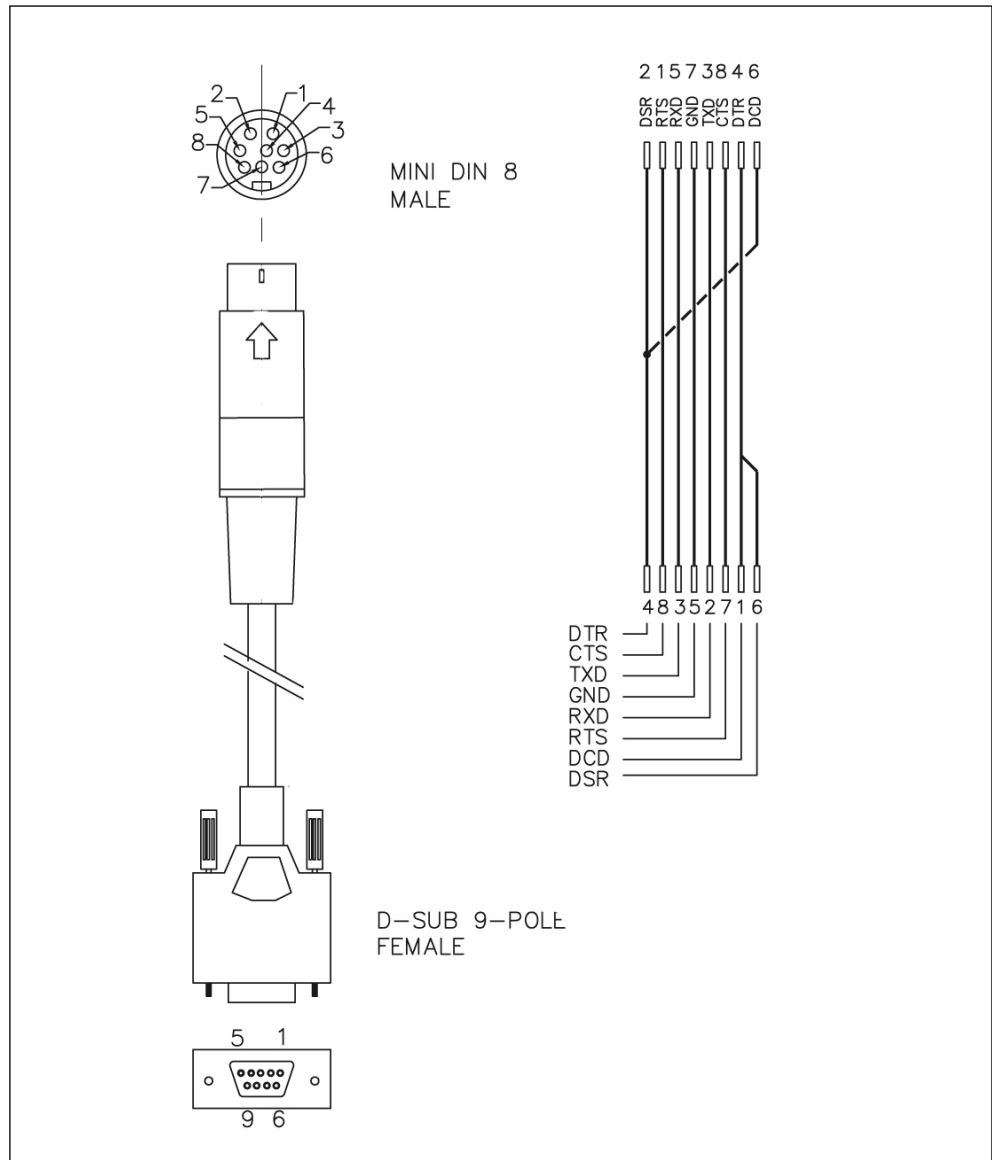


Cable Pin-Outs

Base Station Connector Pin-Out:

	Pin No.	Connection
	1	Base Station 4
	2	Base Station 3
	3	Base Station 2
	4	Base Station 1
	5	Base Station 1
	6	Base Station 2
	7	Base Station 3
	8	Base Station 4

Mini 8-Pin DIN Connector Pin-Out:



Introduction

The Base Station

The Base Station, also known as the Radio Fixed Part (RFP), provides the link from the Aspire Wireless (DECT) phone to the Aspire system. The Base Station is connected to the DSIU PCB using standard two wire (twisted pair) telephone cable, CAT 4 or CAT 5. The maximum distance from the DSIU to the Base Station should not exceed 6561'. No local power is required for the Base Station as it receives its power from the Aspire system. Up to 12 Base Stations can be connected to the system. Each Base Station supports 4 simultaneous Aspire Wireless (DECT) traffic channels at 32 Kbit/s.

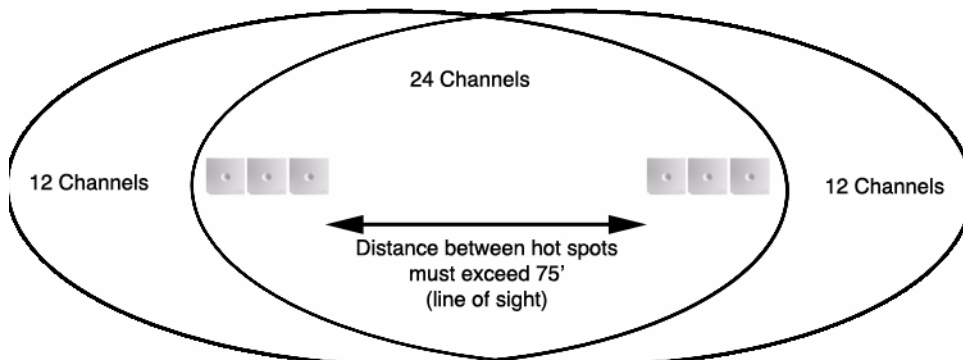
The load factor for the DSIU PCB is 10. In addition, each Base Station on the card adds an additional load factor of 2. So the total load factor for the 4DSIU = 18; the 8DSIU = 26; the 12DSIU = 34. (For example, with a 4DSIU, the PCB's load factor is 10. There are a maximum of 4 Base Stations which can be connected, each with a load factor of 2. The total load factor for the PCB (10) with all possible Base Stations connected (4 x 2=8) would be 18.) Refer to the Aspire M/L Hardware Manual (P/N 0893100) for details on the load factor restrictions.



Hot Spots

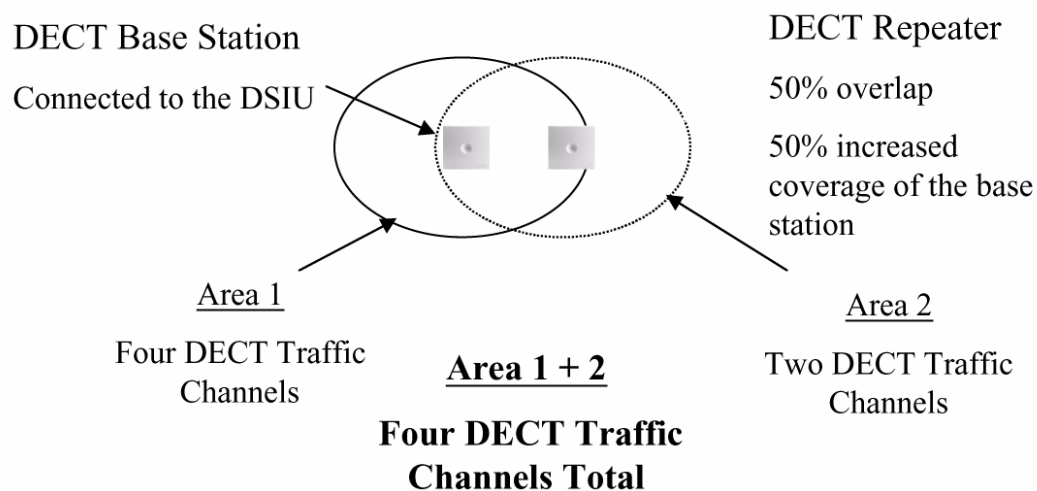
In areas of high traffic, you can increase traffic capacity by creating a Hot Spot with the Base Stations. Using more Base Stations in an area will increase the number of traffic channels available in a particular area. The number of Base Stations mounted next to each can not exceed 3.

If more than 12 channels - similar to 3 Base Stations are needed in a particular area, the distance to the next Base Station or next block of Base Stations must be at least 75' a line-of-site. It is not recommended to use multiple Repeaters in a Hot Spot area. As the Repeater uses 2 channels from a Base Station, it would be possible with multiple Repeaters connected in the Hot Spot that at some point 2 Repeaters could both connect to the same Base Station. This would leave no available channels from that Base Station for a call handover, preventing the call from continuing.

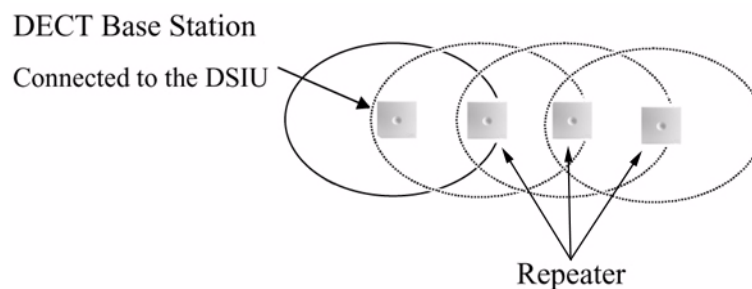


The Repeater

The Repeater, also known as the Wireless Radio Fixed Part (WRFP), provides extended coverage for low traffic areas not covered by a Base Station. Sufficient coverage for the main areas should be provided by the Base Stations. An external antenna can also be connected which extends the coverage area (maximum distance 3280'). Local power is required for the Repeater (within 6') and it must be synchronized with a Base Station in the zone in which it will be providing coverage. The Repeater is synchronized with the Base Station using the Repeater Programming Kit. This kit provides a cable with an RS232 connection which is used to connect the Repeater to a PC. A Windows application is then used to define the Base Station with which the Repeater should be synchronized. Each Repeater can support 2 simultaneous Aspire Wireless (DECT) traffic channels at 32 Kbit/s. As the Repeater is paired with the Base Station, these are not additional channels, but are available to handle calls from the Base Station as the user moves out the range from the Base Station to the Repeater's area. Repeaters should be placed at a minimum distance of 75' (line of site) between each other in order to prevent problems with the channels in use.



Each Base Station can have up to 6 Repeaters, but no more than 3 Repeaters can be used consecutively to form a linear line.



Introduction

The Repeater looks similar to the Base Station except that the modular jack on the back is used for connecting the local power source and there is a small plastic punch-out which provides the external antenna connection.

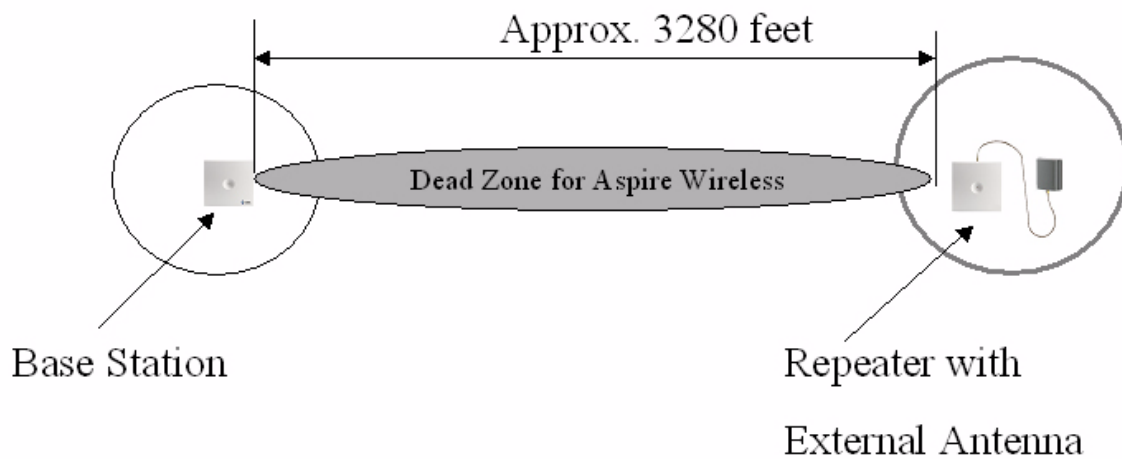


External Antenna

The external antenna is connected to the antenna connection on the back of the Repeater (a small plastic punch-out piece must be removed to access the connection).



When installing the External Antenna, direct it towards the Base Station to which the Repeater is paired.



Installation Steps

- Determine the deployment of the Base Stations and Repeaters.
- Evaluate the required RF channels needed (depends on the area and the number of handset).
- Install the PCB, Base Stations, and Repeaters.
- Use the Service Tool to register the Repeaters.
- Register the Aspire Wireless handsets.
- Measure the cable delay (Program 83-12-01).
- Test system performance by walking around the work area with a test handset or deployment tool. The Q value should be 52 or higher.
- Adjust Base Stations or Repeaters as needed.

Determining Base Station/Repeater Locations

The coverage of a Base Station is 164' to 492' (50m to 150m) depending on the building material and the building's layout. A clear line of site to the Base Station provides better coverage than if the signal has to pass through walls.

The units must be placed in such a way that overlapping radio coverage between units is established. A minimum distance of 32-49' is recommended. This allows the units to hand over calls as a user reaches the end one unit's covered area. Keep in mind that this overlap applies horizontally as well as vertically. If the next Base Station or Repeater is not found while in the overlapped area, call handover cannot take place the call will be disconnected once the user leaves the covered area.

Keep in mind that busy areas, such as conference rooms, cafeterias, etc., may need additional Base Stations connected to provide channels for the increased traffic.

Shadows

Be aware that "shadows" created by parts of the building (such as a cement column, fire door, etc.), can cause dead zones where the radio signals are not received. Place the Base Stations or Repeaters appropriately to reduce these shadows, or install additional units to cover the shadow area.

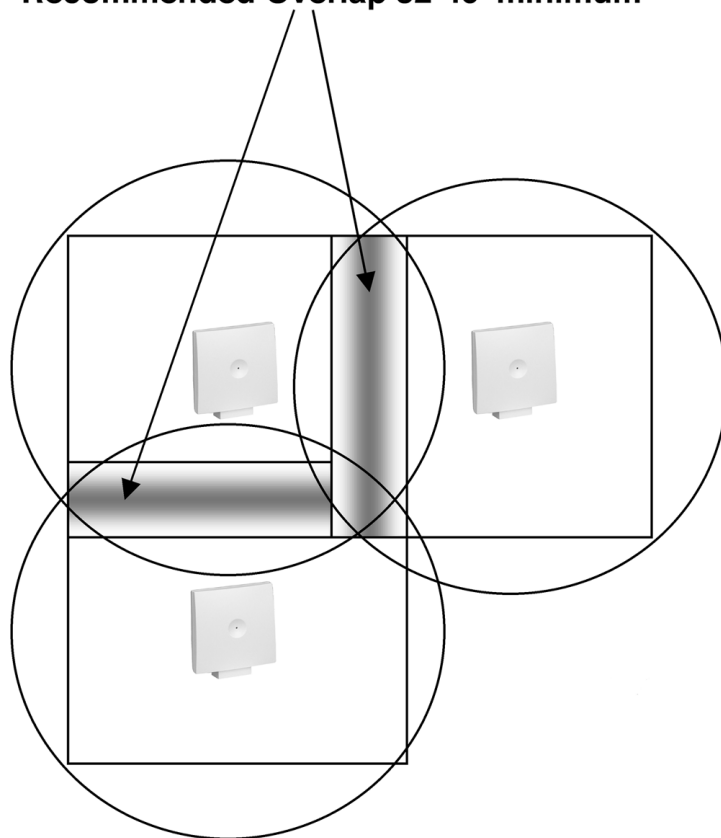
Weather Conditions/Seasons

Different weather conditions can have an influence regarding radio coverage. As soon as parts of the building get wet, the material can act as a shield, preventing or reducing coverage.

Different seasons can also have an influence on the radio coverage. For example, in the summer with all the leaves on the trees, radio coverage may change due to the shielding caused by the leaves.

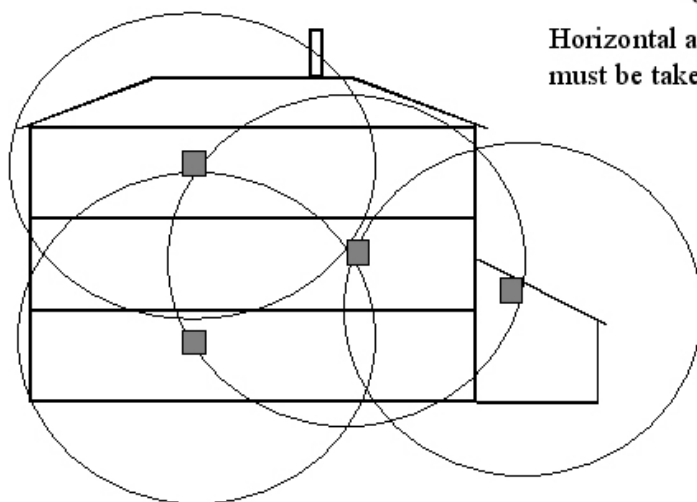
Neither the Base Station or Repeater are rated for outdoor use. When installing either unit outdoors, make sure to use a *plastic* enclosure in which to install the units. A metal enclosure should *not* be used!

Recommended Overlap 32-49' minimum



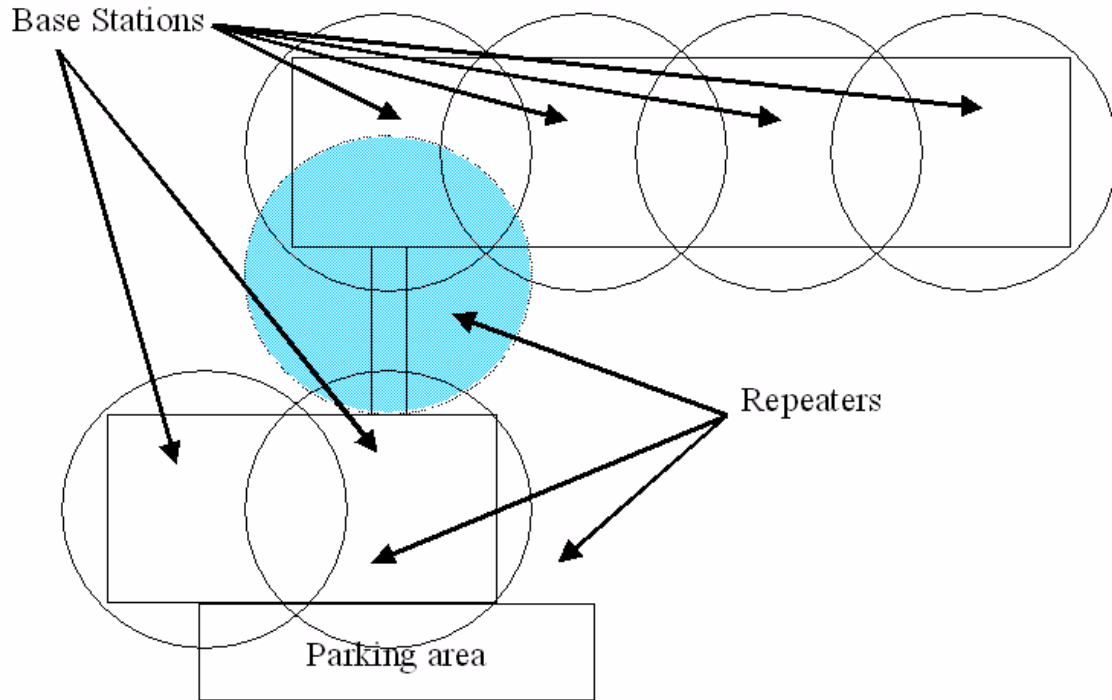
Placement in buildings

Horizontal and vertical overlap must be taken into consideration.



■ = RFP

Areas with low traffic rate



Using an Aspire Wireless for Base Station/Repeater Placement

- Using an available Aspire Wireless telephone, place the phone in test mode by pressing *99989* then press the **OK** key. Press the **ON-HOOK/OFF-HOOK** key.

Measuring coverage is done with the phone in an off-hook condition.

The display should indicate something similar to the following:

RPN:	02			
RSS:	91			
00	64	>1	170	

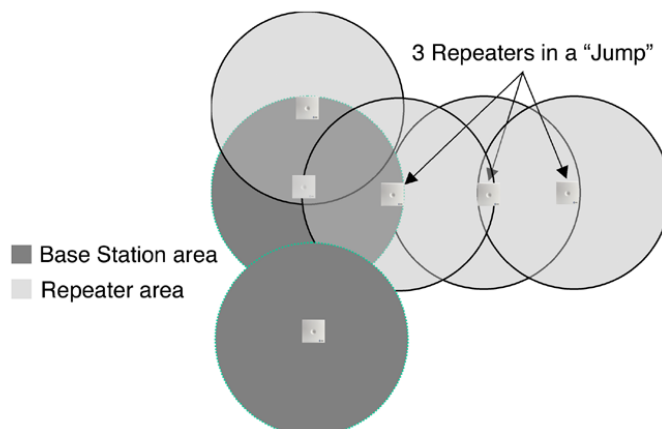
The RPN number indicates the hex number of the base station and RSSI indicates the RSSI value. The third row has four groups of numbers. The second value (“64” as shown above) is the Q-52 value. This is the main value that should be used to determine the location for the Base Station (RFP) or Repeater (WRFP). The Q-value indicates the bit failure rate in the communication between the RFP/WRFP and the handset. As soon as the Q-value goes below 52, the handset will ask for a handover to an alternative RFP/WRFP.

The third value (“>1” as shown above) is the RSSI value. This value indicates the field strength - the signal from the RFP/WRFP. The RSSI-value is only used to select an alternative RFP/WRFP. The handset will choose the RFP/WRFP in the area which has the strongest RSSI signal. The recommended value for the outer range of the RSSI should be 65.

- Move away from the Base Station/Repeater to find the outside of the estimated coverage area for the unit. The Q-value should be 52 or higher and the RSSI should be 65 or higher. This is the point of coverage that you want to place another Base Station. A Repeater can be used if it is a low traffic area.

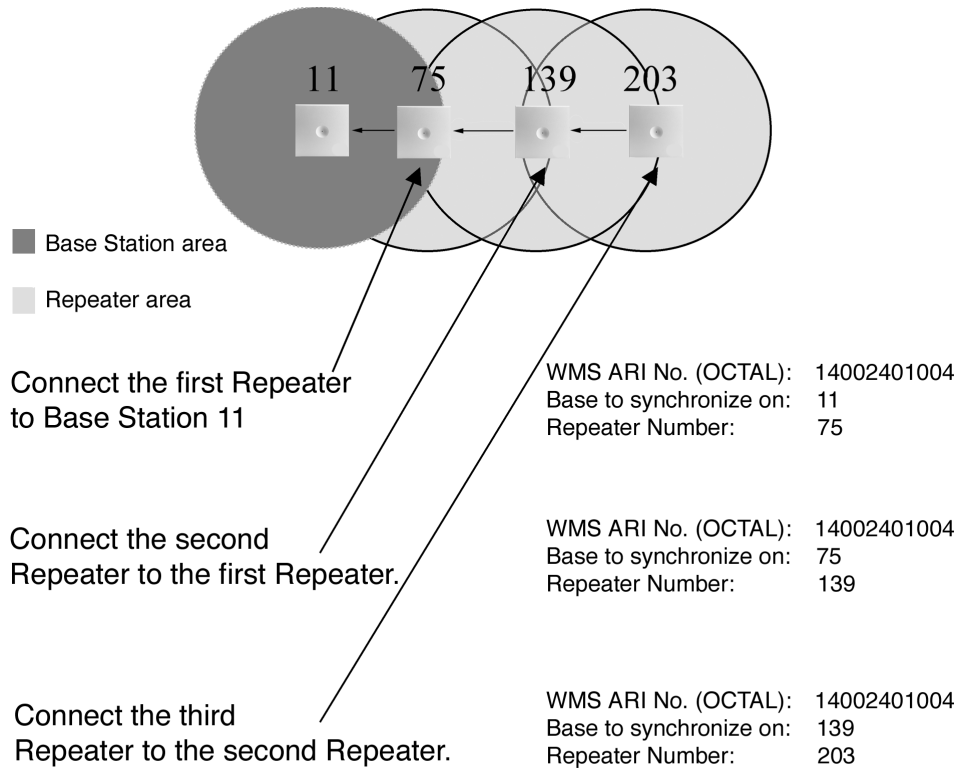
While measuring the radio coverage, it is important to simulate the influence of people. This can be done either by shielding the phone with your hand or by turning the handset and yourself in a way to achieve a “worst case” situation for reception from the Base Station. In both situations, it is important that the Q-value and the RSSI-value be stable and not fluctuating.

- Up to 256 Repeaters minus the number of Base Stations can be connected.
- “Jumps” can be established. Up to 3 Repeaters can be connected in a “chain”.



Installation

Using the Windows-compatible ServiceTool program, the Repeaters would be associated as shown below. For details on using the ServiceTool, refer to **Using the Repeater Programming Kit** (page 16).



3. Repeat this process for any additional Base Station/Repeater positioning.
4. To exit the test mode, either hold down the < key or press and hold the **OK** key for 3 seconds. The phone turns off. Press the **ON-HOOK/OFF-HOOK** key to turn the phone back on.

Use the Deployment Tool for Base Station/Repeater Placement

Before installing the Aspire Wireless equipment, the deployment and diagnostics tool can be used to find the best place for the Base Stations by measuring the area of coverage of a Base Station within the building. Proper placement for the equipment is required for complete Aspire Wireless phone coverage.

In a building which has multiple telephone systems installed, the Deployment Tool can see all the systems to determine if there are too many systems running (too much radio activity in the air). It can be set to find all current Station Stations running, but it is possible, by making a selection of the RFPI number, to search for a particular group of bases. If you wish to check the range of a particular base in a multi-base system, the Deployment Tool is able to lock onto the Base Station to avoid handover to any other units. You can also use the Deployment Tool to see channels with noise levels from -90 dBm to -60 dBm in jumps of 5 dBm.

The antenna is mounted on the Deployment Tool's handset using a simple plug. This allows it to be used for installing external antennas - it would simply be plugged into the Deployment Tool's handset.

Deployment Tool Handset

Finding and correcting faults in an Aspire Wireless setup can be done easily with the Deployment Tool Handset. The handset contains various features which simplify fault finding in an existing Aspire Wireless setup so it can be adjusted for proper communication, or allows for correct placement prior to system installations.

Charger

The charger enables you to simultaneously charge the handset and a battery. The two small indicators placed on the front of the charger show the status of charging. Connect the charger through the DC jack on the back of the charger and the AC/DC power supply to an outlet.

The temperature limit for normal use is between +10 Celsius and +45 Celsius. The battery is too cold (below +10) if the indicator flashes red simultaneously with a steady green light. The unit will maintain its current charge (charging maintenance) until the correct temperature is reached. The battery is defective or too hot (more than +45) if the indicator constantly flashes red on and off. In this case, the unit will not be charged.

The telephone stand is used as follows:

- Put the handset in the charger and control its position.
- make sure that the left indicator has a red light, which indicates the unit is being charged.
- When normal charging has completed (approximately 8 hours), the left indicator will display as a constant green light. The charger then changes automatically to charging maintenance, keeping the battery fully charged until the handset is removed.

Installing the PCB

1. Attach a grounded wrist strap to your wrist and a grounded metal object (such as CEU ground).
2. Remove the cover from the common equipment cabinet by unscrewing the two front panel retaining screws. Slide the cover to the right, then pull straight off.
3. ***Before proceeding further, make sure the switch SW3 on the NTCPU is set to OFF in order to retain the current system programming.***
4. Insert the DSIU PCB into an available slot.

The white PCB Pull Tab should always be positioned closet to the top of cabinet.

5. The Base Station requires one pair cable from the DSIU connection. A standard CAT 5 cable from the RFP connector to a 66 block can be used. From the 66 block, connect one pair of wires to each Base Station installed (each DSIU connector provides connection to 4 Base Stations and requires 4 available ports). Refer to the RJ61 pin-out information below.

Use standard two wire (twisted pair) telephone cable to connect to the phone system. To prevent disturbances from other equipment, it is necessary to use twisted pair (e.g. Cat. 4 or Cat. 5).

The two-wire cable has a maximum cable length of 6561 feet (0.5mm cable) from the DSIU PCB to the Base Station.

Pin No.	Connection
1	Base Station 4
2	Base Station 3
3	Base Station 2
4	Base Station 1
5	Base Station 1
6	Base Station 2
7	Base Station 3
8	Base Station 4

6. Check **Program 90-27 : DECT System ID** to be sure the PCB has been recognized before proceeding. When a PCB is recognized, the program displays an 11-digit ID number.

This ID number is for viewing only - it cannot be edited.

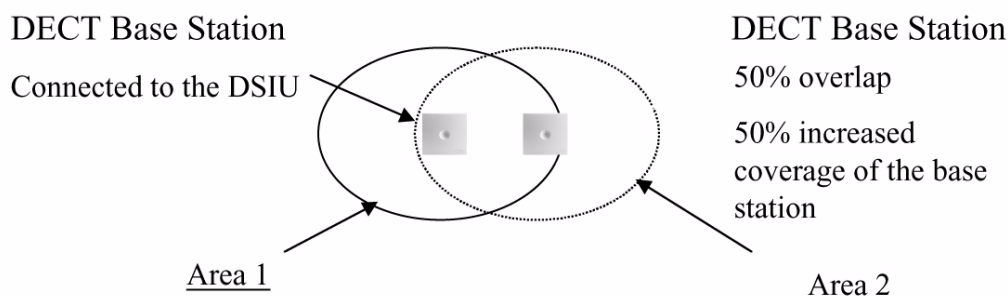
DSIU PCB Base Station LED Indications:

Flashing=Idle, Off=Synchronized, On Steady=Channel in Use
7. Once the red light on the Base Station lights up (this could take a couple of minutes), continue with Phone Subscribing below to register the Aspire Wireless (DECT) phones with the PCB.
8. Connect additional Base Stations or Repeaters as required to provide adequate signal coverage. Refer to **Determining Base Station/Repeater Locations** (page 8).

The coverage of a Base Station is 164' to 492' (50m to 150m) depending on the building material and the building's layout. A clear line of site to the Base Station provides better coverage than if the signal has to pass through walls.
9. Wall mount the Base Stations and Repeaters (if used) at the top of the wall for best reception. Use the two wood screws included to attach the wall-mount bracket to the wall and slide the Base Station or Repeater onto the bracket and push until it clicks into place.
10. Replace the front cover on the Aspire cabinet and tighten the two front panel retaining screws.

Phone Subscribing

1. Enter Program 91-06-01.
*The display shows **Port(0:Auto)?**.*
2. To have the system automatically assign a port number to the phone, press “0” then HOLD. This assigns an available port within the range of 256-512.
To manually select a port number, enter an available port number (002-512) then press HOLD.
*The display shows **IPEI?**. The IPEI (International Portable Equipment Identity) is a unique number embedded into each Aspire Wireless phone.*
3. Enter the IPEI number for the Aspire Wireless phone or enter * as a wild character and the system will automatically retrieve the number for the phone being set up. Press HOLD. When the display shows “Ready?(1:Yes)”, press 1 then HOLD.
The IPEI number is the 13-digit serial number which is located on the label in the phone’s battery compartment.
4. The display shows the port number assigned to the phone and the 4-digit AC (Authentication Code) number. **DO NOT PRESS HOLD** at this point or the subscription will be cancelled.
5. Using the Aspire Wireless phone to be registered, press the Menu key then press the Left Arrow key twice to display the **Login** option. Press OK.
6. Press the Right Arrow key once to display the **Subscription Create** option. Press OK.
7. The Aspire Wireless phone will search for the DSIU PCB and display the PCB’s ID number once found.
This may take a few seconds. If the ID number does not appear, check Program 90-27-01 to make sure the PCB is recognized.
8. Press OK.
9. Enter the 4-digit AC number displayed in Step 4 (Program 91-06-01) and press OK.
10. Once the phone has been registered, the phone will beep and ((,)) will appear in the lower left-hand corner. Program 91-06-01 will now show COMPLETED. Press HOLD and register another phone if required or continue with the next step.
*Prior to deleting an Aspire Wireless (DECT) phone from the system using **Program 91-07-01 : DECT Subscription - Delete**, make sure the DSIU PCB is installed in the system. If the DSIU is removed when Program 91-07-01 is run, the system will retain the DECT setting. This will prevent the Aspire Wireless phone(s) from being registered in the system again.*
11. Program 83-12-01 : DECT Cable Measurement is used to measure the length of cables connecting the PCB and Base Stations so that the system can find the best signal transmitting timing for handover. Enter Program 83-12-01, press 1 then HOLD. The system will then restart all Base Stations/RFPs and use the best timing possible.
12. Continue with additional programming or exit system programming.

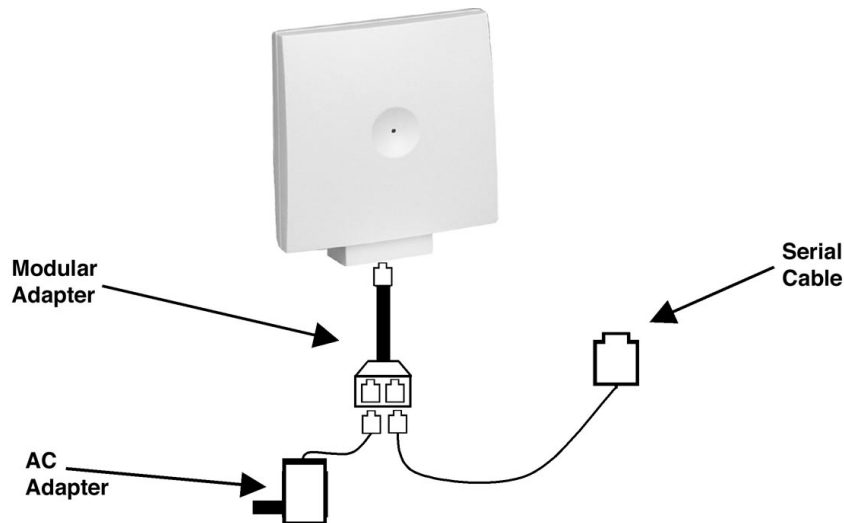


Installation

Using the Repeater Programming Kit

The Repeater Programming Kit contains a serial cable and a modular connector adapter cable. In addition to these items, the latest version of the Service Tool program is required. This can be downloaded from the Downloads page within the NEC Technical Support web site (<http://ws.necii.com>). This web site requires registration with the NEC Sales Support. Contact them by phone (1-800-365-1928) or EMail (ubsdsupport@necinfrontia.com) in order to register. These items are used to set up the Aspire Wireless Repeaters. The Repeaters must be configured to connect to the DSIU PCB within the Aspire system.

1. Connect the serial cable's modular plug into the modular connector on the right of the adapter cable.
2. Connect the Repeater's AC adapter into the modular connector on the left modular connector on the adapter cable.
3. Connect the opposite end of the AC adapter to an outlet.



4. Install the Service Tool program.
5. Open the Service Tool program.
6. Refer to **Service Tool Application** (page 18) for details on setting up the Repeaters.

Using the ServiceTool Kit

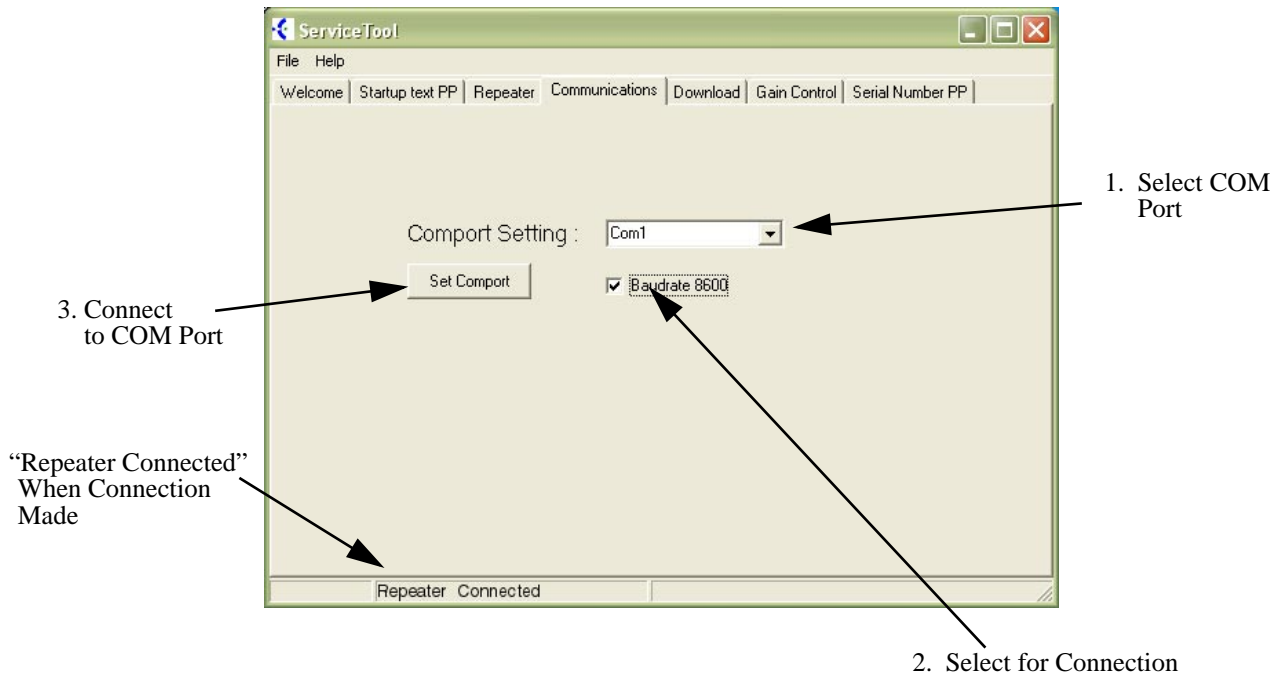
The Service Tool Kit contains a uniquely configured serial cable and a special charging unit. In addition to these items, the latest version of the Service Tool program is required. This can be downloaded from the Downloads page within the NEC Technical Support web site (<http://ws.necii.com>). This web site requires registration with the NEC Sales Support. Contact them by phone (1-800-365-1928) or EMail (ubsdsupport@necinfrontia.com) in order to register.

These items are used to set up special functions. When connected to a handset, the volume can be adjusted, the start-up text can be altered, new flash code and menus can be loaded, and the gain levels of the microphone and loudspeaker for the handset can be adjusted.

1. Connect the serial cable's modular plug into the special charging unit provided in the Service Tool Kit.
2. Connect the opposite end into a PC's serial connector.
3. Place the handset to be programmed into the charging unit.
4. Install the Service Tool program.
5. Open the Service Tool program.
6. Refer to **Service Tool Application** (page 18) for details on the screens available.

Installation

Service Tool Application



The following screen is used to set up the Repeaters.

The screenshot shows the 'Repeater' configuration window in ServiceTool. The window has a menu bar with 'File' and 'Help', and a toolbar with buttons for 'Welcome', 'Startup text PP', 'Repeater', 'Communications', 'Download', 'Gain Control', and 'Serial Number PP'. The main area contains several input fields and buttons:

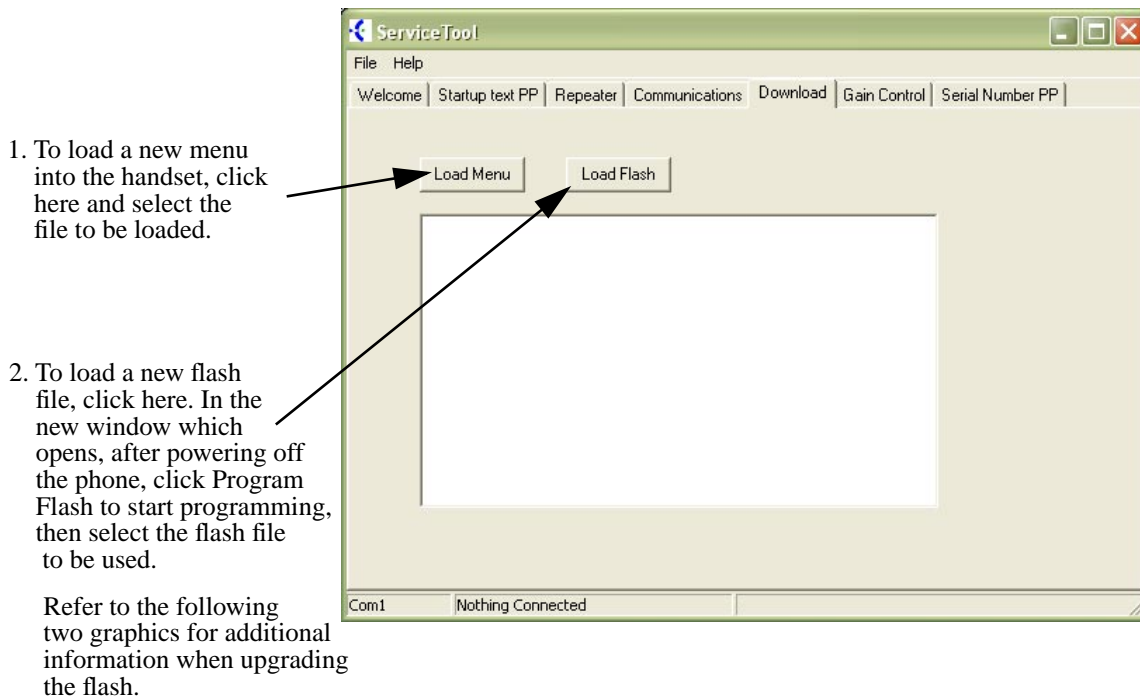
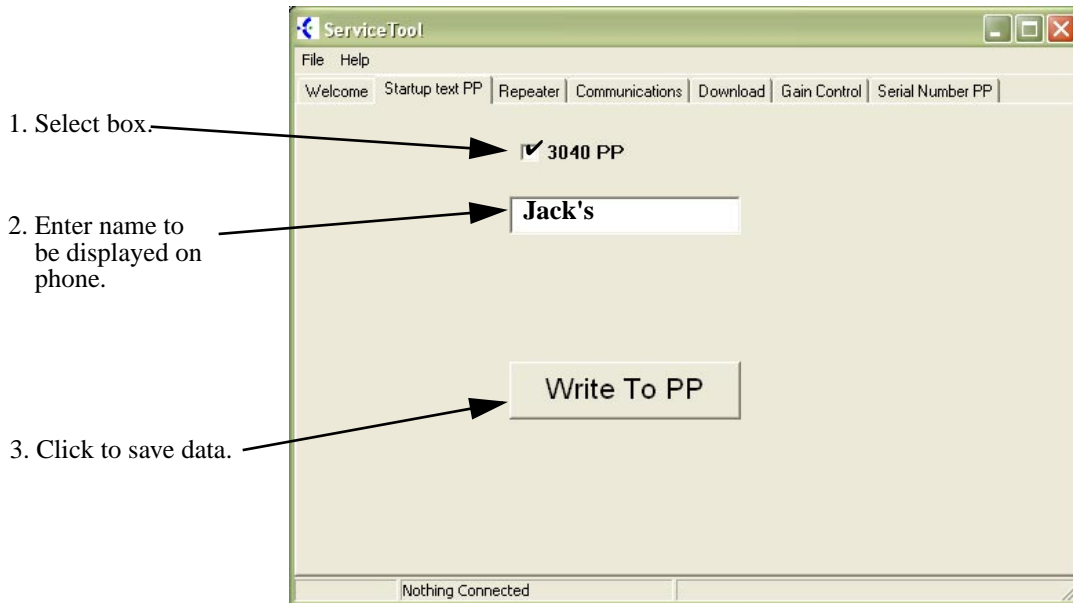
- CCFP 1500 :** A text input field with 'OCTAL' to its right. An arrow points to it from the text '11-Digit ARI Number From DSIU PCB Label'.
- Base to synchronize on :** A text input field with 'Dec(0-255)' to its right. An arrow points to it from the text 'Base/Repeater to Synchronize On'.
- Busy Bit :** A text input field with '2' and 'Dec(1,2,3)' to its right.
- Repeater number :** A text input field with 'Dec(0-255)' to its right. An arrow points to it from the text 'Base Number Must Be 64 Higher Than the Base/Repeater to Which Unit Synchronized On (For example, the first Base Station is "0" - the Repeater number should be set to "65").'.
- Debug Bip:** A checkbox.
- Buttons:** 'Read from Repeater', 'Write to Repeater', 'New', and 'Residential base'. Arrows point to these buttons from the text 'Read Previously Stored Data From the Repeater', 'Write New Data to the Repeater', 'Clear Data Fields', and 'Do Not Use' respectively.

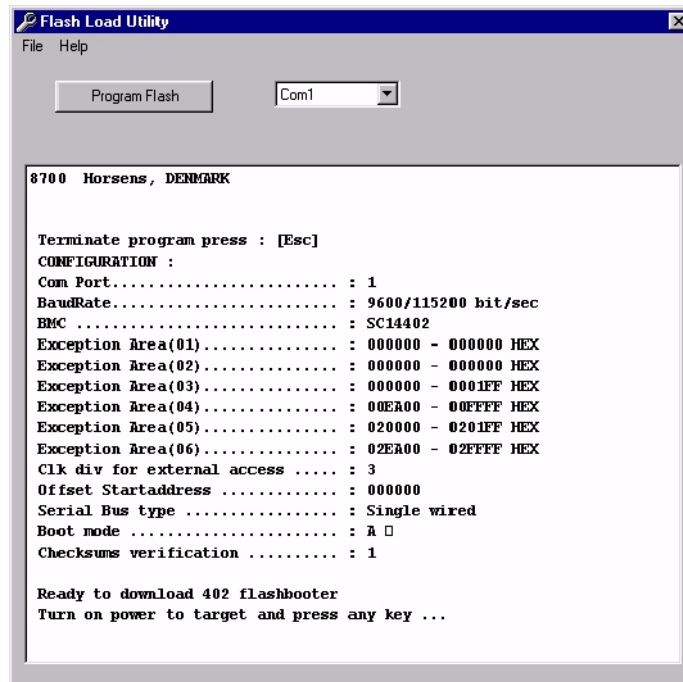
A red-bordered warning box in the center reads: 'If Handsets of the type PP1 is registrated on the system the range of numbers for repeaters must be limited into 0-31. Otherwise the handsets is not able to registrate the repeater.'

At the bottom of the window, it says 'Nothing Connected'.

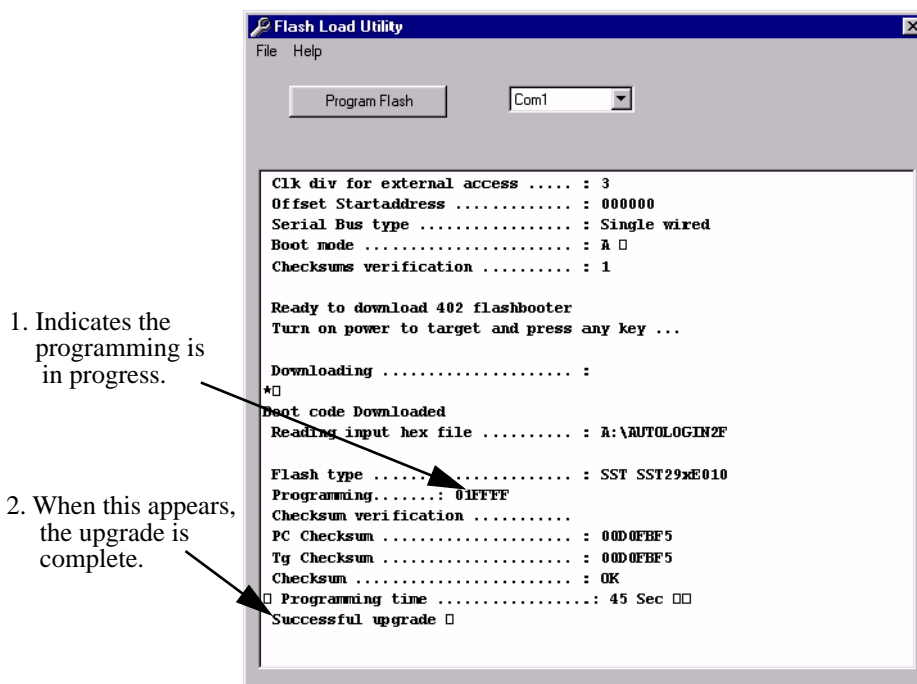
Installation

The following screens are used with the Service Tool Kit.





1. Turn the power on the handset and press any key on the PC at the same time.



Installation

Press when a new handset is connected.

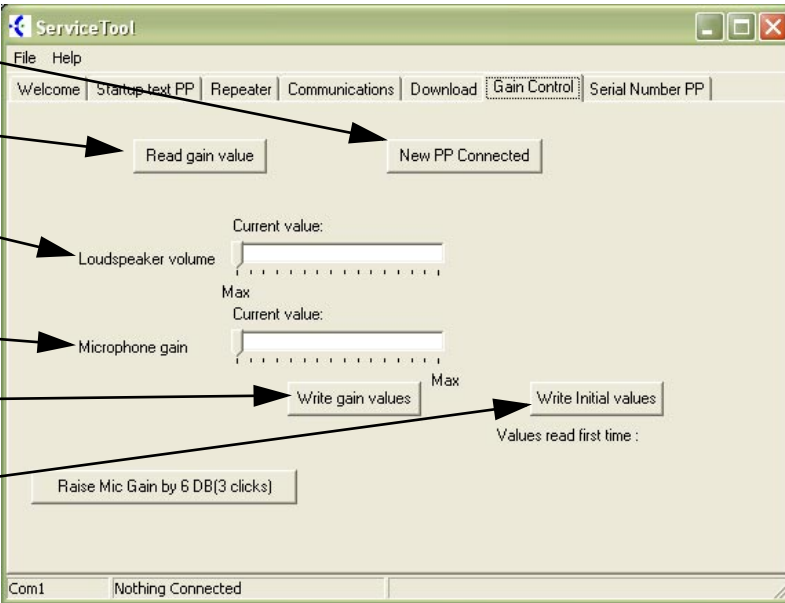
Read the current gain settings for the handset.

Adjust the loudspeaker volume (Max=0) in 1 dB steps.

Adjust the mic gain (Max=F) in 2 dB steps.

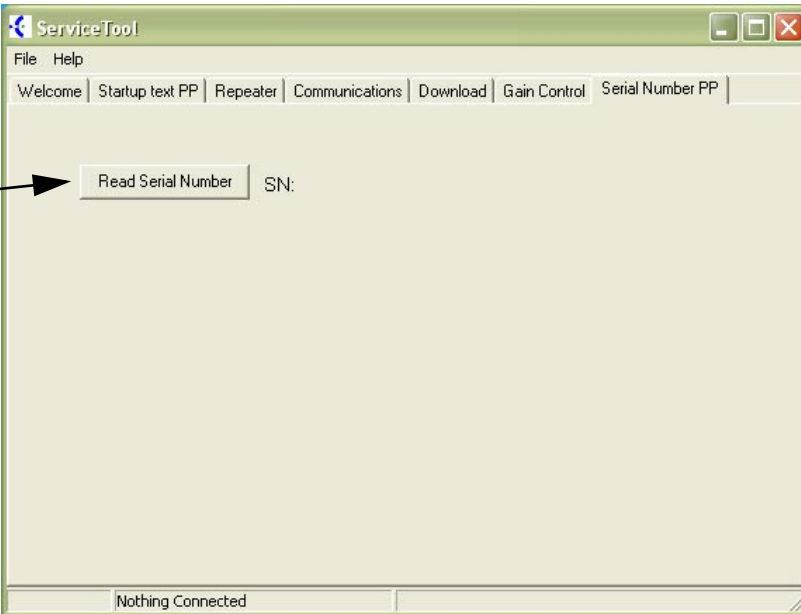
Write new settings to the handset.

If desired, save these settings as the initial values.



The screenshot shows the ServiceTool application window with the 'Gain Control' tab selected. The interface includes a menu bar (File, Help), a toolbar (Welcome, Startup text PP, Repeater, Communications, Download, Gain Control, Serial Number PP), and a main area with several controls. A 'New PP Connected' button is at the top right. Below it are two sliders: 'Loudspeaker volume' and 'Microphone gain'. The 'Loudspeaker volume' slider has a 'Current value' field and a 'Max' label. The 'Microphone gain' slider has a 'Current value' field and a 'Max' label. Below the sliders are two buttons: 'Write gain values' and 'Write Initial values'. A 'Raise Mic Gain by 6 DB(3 clicks)' button is at the bottom left. A status bar at the bottom shows 'Com1' and 'Nothing Connected'. Arrows from the text on the left point to the 'New PP Connected' button, the 'Read gain value' button, the 'Loudspeaker volume' slider, the 'Microphone gain' slider, the 'Write gain values' button, and the 'Write Initial values' button.

Click to read the serial number of the handset currently connected.



The screenshot shows the ServiceTool application window with the 'Serial Number PP' tab selected. The interface includes a menu bar (File, Help), a toolbar (Welcome, Startup text PP, Repeater, Communications, Download, Gain Control, Serial Number PP), and a main area with a 'Read Serial Number' button and an 'SN:' label. A status bar at the bottom shows 'Nothing Connected'. An arrow from the text on the left points to the 'Read Serial Number' button.

Programming

- **11-11-42 : Service Code Setup (for Setup/Entry Operation) - DECT Transferring When Out of Range**

Customize the service code to be used when setting a Aspire Wireless phone to transfer calls when out of range (default: 189).
- **15-03-01 : Single Line Telephone Basic Data Setup, SLT Signaling Type**

Set all Aspire Wireless extensions to “0” (Dial Pulse). This will allow for additional digits to be dialed after a call is connected (like with voice mail or other automated call answering feature). This program change is automatically performed when the Aspire Wireless phone is registered when using system software 1.13 or higher. When upgrading software from prior versions, the previous default of '1' will be saved from the prior database so this option must be changed manually.
- **15-14-01 : Programmable One-Touch Keys**

For each Aspire Wireless phone to use the Transfer When Out of Range feature, enter the destination number (up to 24 digits) and name (up to 12 characters) into One-Touch bin 10. Make sure to add any required trunk access codes for outside numbers. If this bin information is changed either through 15-14-01 or through user programming, the destination for the transferred calls is also changed.
- **15-15-01 : DECT Terminal Basic Data Setup - IPEI**

The IPEI (International Portable Equipment Identity) is a unique number embedded into each Aspire Wireless (DECT) phone. The IPEI number is the 13-digit serial number which is located on the label in the phone’s battery compartment. Use this program to display the IPEI number assigned to a Aspire Wireless phone during the phone subscription. This program is read only.
- **15-15-02 : DECT Terminal Basic Data Setup - Authentication Code**

This program displays the 4-digit AC (Authentication Code) assigned to the Aspire Wireless (DECT) phone during the phone subscription. This program is read only.
- **15-15-03 : DECT Terminal Basic Data Setup - Terminal Capability**

This program displays the capability of the Aspire Wireless (DECT) phone displaying the options below. This program is read only.

 - Display Capabilities
 - Tone Capabilities
 - Echo Parameters
 - Portable Part Ambient Noise Rejection (N-REJ)
 - Adaptive Volume Control Provision (A-Vol)
 - Slot Type Capability
 - Number of Stored Display Characters
 - Number of Lines in Display
 - Number of Characters Per Line
 - Scrolling Behavior Field
 - GAP/PAP Support
 - DECT/GSM Interworking Profile Supported
 - ISDN Support
 - Data Services Profile E Class 2
 - Data Services Profile A/B Class 2
 - Multi-Bearers Support for Data Services Profile
 - Data Services Profile C Class 2
 - Data Services Profile D Class 2
 - Data Services Profile F Class 2
 - DECT/GSM Interworking - GSM Bearer Service
 - DECT/GSM Interworking - GSM SMS Service
 - DECT/GSM Interworking - GSM Facsimile Service
 - Control Codes
 - ISO8859-1 Support

- **15-15-04 : DECT Terminal Basic Data Setup - Model Identifier**

This program shows the model identifier that the Aspire Wireless (DECT) terminal uses. The model identifier contains the following items: Manufacturer Identification Code (MANIC) and Model Identification Code (MODIC). This program is read only.
- **15-15-05 : DECT Terminal Basic Data Setup - Voice Mail Answering When Out of Range**

This program enables (1) or disables (0) the ability for calls to be transferred to voice mail if the Aspire Wireless (DECT) phone is out of range (Default = disabled). If Program 15-15-05 and 15-15-06 are both enabled, Program 15-15-05 takes priority. If both programs are disabled, the caller hears a lock-out tone and the may see “Out of Range” on their display.
- **15-15-06 : DECT Terminal Basic Data Setup - Call Transferring When Out of Range**

This program enables (1) or disables (0) the ability for calls to be transferred to another extension if the Aspire Wireless (DECT) phone is out of range (disabled by default). If Program 15-15-05 and 15-15-06 are both enabled, Program 15-15-05 takes priority. If both programs are disabled, the caller hears a lock-out tone and the may see “Out of Range” on their display.
- **20-03-03 : System Options for Single Line Telephones, SLT DTMF Dial to Trunk Lines**

When using a 3rd-party external paging device, set this option to “1”. In addition, set Program 20-03-04 to “1”. These programs must be set in order for Aspire Wireless users to be able to break dial tone on an analog trunk that is used for paging.
- **20-03-04 : System Options for Single Line Telephones, Dial Sending Start Time for SLT or ARS**

When using a 3rd-party external paging device, set this option to “1”. In addition, set Program 20-03-03 to “1”.
- **20-22-05 : System Options for DECT Service - Out-of-Range Judging Time**

Use this program to defines the time the system waits before determining the Aspire Wireless phone is out of range. For incoming calls, the timer begins when the call is received. If the time defined here expires before the Aspire Wireless phone starts to ring, the system determines the phone is out of range and provides the out-of-range services (indicates out-of range, transfers the call to voice mail or to another extension) (Default = 8 seconds, Range: 0=64800).
- **83-11-01 : DECT Configuration - Location Area Level (MF Level)**

Use this program to define the location area - whether the Base Stations/RFPs are all in the same area or whether each Base Station in located in a different area (Default = 0 [whole area], Range: 0=whole area, 1=each different).
- **83-11-02 : DECT Configuration - Authentication (MF Level)**

This program enables (1) or disables (0) the authentication procedure for the phone when placing and receiving calls (0=disabled, 1=enabled).
- **83-11-03 : DECT Configuration - Encryption (MF Level)**

This program enables (1) or disables (0) encryption for the phone when placing and receiving calls (0=disabled, 1=enabled).
- **83-12-01 : DECT Measurement (MF Level)**

This program measures the length of cables connecting the PCB and Base Stations so that the system can find the best signal transmitting timing for handover. Enter Program 83-12-01, press 1 then HOLD. The system will then restart all Base Stations/RFPs (this takes 3-5 minutes) and then they will use the best timing possible. This program should be used any time the Base Station configuration is changed (adding or deleting Base Stations or changing connecting cables).
- **90-27-01 : DECT System ID**

Use this program to view or delete the ID number associated with the DSIU PCB. The system ID is a unique number embedded into the DSIU PCBs. This program data cannot be edited, but it can be viewed or deleted. After deleting the ID, the Aspire Wireless (DECT) PCB will be reset by the system. When exchanging DSIU PCBs, the system ID for the first PCB must first be deleted before installing the new PCB as each PCB has its own number.

➤ 91-06-01 : DECT Subscription, New (SA Level)

This program is used when registering a Aspire Wireless (DECT) phone to the system. You can select the port number to which the new phone will be subscribed, or you can enter “0” to have the system automatically assign an available port. This program is also used to enter the IPEI number assigned to the phone. Possible error messages seen while in this program are detailed below. Refer to **Phone Subscribing** (page 15) for more details on this program.

Prompt	Meaning
Rejected	The subscription procedure was rejected.
Canceled	You stopped the subscription procedure before it completed by pressing HOLD.
Canceled by Timer	The subscription procedure took longer than 10 minutes.
DECT has Not Worked	The DSIU PCB is not working.
Already Subscribed	The port number chosen is in use by another terminal.
No Port to Subscribe	There are no available port numbers.
Used by Port xxx	The Aspire Wireless (DECT) phone which has the IPEI you entered is subscribed to another port.

➤ 91-07-01 : DECT Subscription, Delete (SA Level)

Use this program to remove an Aspire Wireless (DECT) phone from the system. You can delete an individual phone by entering its port number or you can remove all the Aspire Wireless phones by entering “0”.

Prior to deleting an Aspire Wireless (DECT) phone from the system, make sure the DSIU PCB is installed in the system. If the DSIU is removed when Program 91-07-01 is run, the system will retain the DECT setting. This will prevent the Aspire Wireless phone(s) from being registered in the system again.

Related Features

Call Forwarding

If the Transferring When Out of Range feature and a Call Forward option (such as No Answer) are both programmed for the Aspire Wireless (DECT) phone, the call is sent to the destination based on which option’s timer expires first.

Programming

Service Codes

The Aspire Wireless (DECT) phone provides many of the same Aspire features available to a single line set, however, there are a few changes. The following additional service codes are available with the Aspire Wireless phone:

Program 11-10:

04: Storing Common Abbreviated Dial (853)

05: Storing Group Abbreviated Dial (854)

Program 11-11:

42: DECT Transferring When Out of Range (853)

The following service codes are **not** available:

<p>Program 11-10:</p> <p>26: Forced Trunk Disconnect (*3)</p> <p>27: Trunk Port Disable (145)</p> <p>Program 11-11:</p> <p>12: Alarm Clock</p> <p>41: Tandem Ringing (no entry)</p> <p>43: Headset Ringing Mode Switch (no entry)</p> <p>Program 11-12:</p> <p>21: Meet Me Answer to Specified Internal Paging Group (864)</p> <p>23: Meet Me Answer in Same Paging Group (863)</p> <p>44: Callback Test for SLT (899)</p> <p>48: Account Code (##)</p> <p>Program 11-13:</p> <p>01: ACD Log In/Log Out (for KTS) (*5)</p> <p>02: ACD Log Out (for SLT) (155)</p> <p>03: Set ACD Temporary Release (for SLT) (156)</p> <p>04: Cancel ACD Temporary Release (for SLT) (157)</p> <p>05: Set ACD Off Duty (for SLT) (158)</p> <p>06: Cancel ACD Off Duty for SLT) (159)</p>	<p>Program 11-14:</p> <p>01: Set DND for Own Extension (127)</p> <p>02: Cancel DND for Own Extension (128)</p> <p>03: Set DND for Other Extension (129)</p> <p>04: Cancel DND for Other Extension (130)</p> <p>05: Set Wake Up Call for Own Extension (131)</p> <p>06: Cancel Wake Up Call for Own Extension (132)</p> <p>07: Set Wake Up Call for Other Extension (133)</p> <p>08: Cancel Wake Up Call for Other Extension (134)</p> <p>09: Set Room to Room Call Restriction (135)</p> <p>10: Cancel Room to Room Call Restriction (Hotel) (136)</p> <p>11: Change toll Restriction Class for Other Extension (137)</p> <p>12: Check-In (138)</p> <p>13: Check-Out (139)</p> <p>14: Room Status Change for Own Extension (140)</p> <p>15: Room Status Change for Other Extension (141)</p> <p>17: Hotel Room Monitor (175)</p> <p>18: Hotel PMS Toll Restriction Set (166)</p>
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Operation

Answering Calls

Answering Outside Calls:

1. Press the **ON-HOOK/OFF-HOOK** key.
If Caller ID has been enabled in the system, the display shows the calling party's information.

Answering Intercom Calls:

1. Press the **ON-HOOK/OFF-HOOK** key to speak.

Picking up calls not ringing your phone . . .

Answering a call ringing Paging after hours:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial # + 0.

When a call is ringing a co-worker's phone:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial ** + Co-worker's extension.

Placing Calls

Placing an Outside Call:

1. Press the **ON-HOOK/OFF-HOOK** key.
Listen for dial tone.
To preview the number first, press the ON-HOOK/OFF-HOOK key after step 2 instead of pressing it first.
2. Dial 9 + Outside number.
When behind a PBX, you may have to dial another 9 before your number.
OR
Dial 804 + Line group number (1-9 or 001-200) + Outside number.
When behind a PBX, you may have to dial 9 before your number.
OR
Dial #9 + Line number (e.g., 005 for line 5) + Outside number.
When behind a PBX, you may have to dial 9 before your number.

Calling a Co-Worker, Voice Mail and Paging

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial co-worker's extension number.
Your call will ring or voice-announce. If you hear ringing, wait for an answer. If you hear two beeps, begin speaking. Dialing 1 changes mode.
OR
2. For Paging, dial *1 + 0 for All Call or 1-64 for zones.
OR
2. To call your mailbox, dial the *8.

Abbreviated Dialing: Common and Group (Speed Dial)

Store Common or Group Abbreviated Dialing numbers:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial 853 (for Common).
OR
Dial 854 (for Group).
3. Dial Abbreviated Dialing bin number.
Ask your Communications Manager for your bin numbers.
4. Dial phone number to store + the **R (HOLD/RECALL)** key.
*The number can be up to 24 digits, using 0-9, # and *.*

Dial your stored Abbreviated Dial number:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial #2 + Bin (for Common).
OR
#4 + Bin (for Group).

Use the Phone's Telephone Book for Personal Numbers

Store a number in the Telephone Book:

1. While idle, dial the number to be stored.
2. Press the > key + the **OK** key.
3. Enter the name associated with the number + the **OK** key.
Up to 80 numbers with name can be stored in the Telephone Book. A name is required with each number. A "Memory Full" message indicates that a number must be deleted before making another entry.

Dial a number from the Telephone Book:

1. Press the > key.
2. Use the < or > keys to display the number to be called or press the first letter in the name using digits 1-9.
3. Press the **ON-HOOK/OFF-HOOK** key to place the call.

Call Forwarding

Forward your calls to a co-worker:

1. Press the **ON-HOOK/OFF-HOOK** key + *2.
2. Dial Call Forwarding condition:
 - 2 = Busy or not answered
 - 4 = Immediate
 - 6 = Not answered
 - 7 = Immediate w/simultaneous ringing (not for Voice Mail)
 - 0 = Cancel
3. Dial destination extension or Voice Mail master number.
4. Dial Call Forwarding Type:
 - 2 = All calls
 - 3 = Outside calls only
 - 4 = Intercom calls only

Call Forwarding, Off-Premise

Forward your calls to an outside telephone number:

1. Press the **ON-HOOK/OFF-HOOK** key + *4.
2. Dial 6 and the trunk access code.
 - Trunk access codes are 9 (ARS/Trunk Group Routing), 804 + Line Group (1-9, 01-99 or 001- 100) or #9 + Line number (e.g., 05 or 005 for line 5).*
3. Dial the outside number to which your calls should be forwarded.
4. Press the **ON-HOOK/OFF-HOOK** key.
 - Stutter dial tone is heard when the On-Hook/Off-Hook key is pressed.*

To cancel Call Forwarding Off-Premise

1. Press the **ON-HOOK/OFF-HOOK** key + *4.
2. Dial 6.
3. Press the **ON-HOOK/OFF-HOOK** key.

Camp On / Callback

If you heard a busy signal when calling a co-worker, use Camp On or Callback:

1. Dial 2 to Camp On (wait without hanging up).
(Intercom calls) If you hear two beeps, you can speak. If you hear busy/ring, dial 6 to send a Voice Over.
(Outside calls) When you hear new dial tone, place your call again.
OR
Dial 2 and hang up to leave a Callback for a free line or extension.
Wait for the system to call you back.
2. Press the **ON-HOOK/OFF-HOOK** key when the system rings you back.
(Outside calls) Place your call again.
(Intercom calls) Speak to co-worker.

To cancel your Callback:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial 870 + Hang up.

Conference

Establishing a Conference Call:

1. Place or answer call + the **R (HOLD/RECALL)** key + #1.
2. Place/answer next call + the **R (HOLD/RECALL)** key + #1.
You may have up to 32 callers. Your software determines if there is any restriction on the number of outside parties. Repeat this step to add more parties.
3. After adding all parties, press the **R (HOLD/RECALL)** key twice to set up the Conference.

Do Not Disturb

Using Do Not Disturb:


1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial 847.
3. Dial the DND option code (0-4).
1 = Blocks outside calls
2 = Blocks Paging, Intercom calls, Call Forwards and Transferred outside calls.
3 = Blocks all calls
4 = Blocks Call Forwards
0 = Cancels DND

Turning off your handset:

1. Press the **OK** key for 3 seconds.
The phone will beep and the display will go blank when the phone is off.

Turning your handset on:

1. Press the **ON-HOOK/OFF-HOOK** key.

When the handset is on,  is shown in the lower left corner of the display if the handset has been subscribed to a system.

Hold

Placing a call on Hold:

1. Do not hang up + press the **R (HOLD/RECALL)** key + Do not hang up.

This puts your call on Exclusive Hold.

To place the call on Group Hold (so only those in your Department can pick up the call), dial 832 after pressing the R (Hold/Recall) key.

Intercom calls automatically go on Exclusive Hold when you press the R (Hold/Recall) key.

Retrieving a call from Hold:

1. Press the **R (HOLD/RECALL)** key.

To retrieve a call from Group Hold, dial 862 instead of pressing the R (Hold/Recall) key.

Last Number Redial

Quickly redial your last outside call:

1. Press the **ON-HOOK/OFF-HOOK** key + #5.

The system selects an outside line.

Dial a number from the phone's stored Redial and CLIP numbers:

The handset stores up to 10 redial numbers and 10 Caller ID numbers in memory.

1. Press the **Left Arrow** key.

2. Press the **Left Arrow** key to scroll through the numbers.

Numbers are displayed newest to oldest.

Use the key to scroll forward if needed.

To delete a number, press OK twice. To store a number in the Phone Book, press OK + > + OK + Enter name + OK.

3. Press the **ON-HOOK/OFF-HOOK** key to place the call.

Message Waiting (Direct Messaging)

Leave a Message Waiting:

1. Do not hang up + 0.
Your co-worker's MW flashes fast.

Answer a Message Waiting:

1. Press the **ON-HOOK/OFF-HOOK** key + *0.
To cancel all your messages (those you left and those left for you), dial 873.

Name Entry:

The dial pad digits are used for writing the name to be placed in the Phone Book. For example, press the digit 2 key once for A, twice for B, three times for C, etc.

The arrow keys can be used to move the cursor left or right. The left arrow key can also be used for deleting a character by holding it down for 1 second.

Pressing a new key or pausing for more than 1 second automatically moves the cursor to the next position.

Key	
1	Æ Ø Å @ Ä Ö ß Ü 1
2	A B C @ Ä Å Ä 2
3	D E F 3
4	G H I I I 4
5	J K L 5
6	M N O Ö Ö Ö 6
7	P Q R S ß 7
8	T U V Ü Ü Ü Ü 8
9	W X Y Z 9
0	Space . , _ - + : ? ! 0
*	* # / \ () = &
#	Upper/lower-case

Park

Park a call in orbit:

1. Do not hang up.
Park a call in a System Orbit
2. Press the **R (HOLD/RECALL)** key + #6 + Park Orbit.
Park Orbits are 01-64.
Park a call at your extension using Personal Park
Dial 857.
3. Page your co-worker to pick up the call.
*For Paging, dial *1 + 0 for All Call or *1 + 1-64 for zones.*
4. Hang up.

Pickup up a call in Park:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. For a Call Parked in a System Orbit:
Dial *6 + Park Orbit.
Park Orbits are 01-64.
OR
For a Call Parked in a Personal Park Orbit
When Parked at your phone:
Dial 857 + your extension number.
When Parked at a co-worker's phone:
** + Announced extension.

Park and Page

Use Park and Page to be paged for calls while away from your desk

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Press *47 + Record your Personal Greeting.
3. #7 + Record the Page.
For Personal Greeting only, press # then 2 (Busy/No Answer), 4 (Immediate), or 6 (No Answer) + extension to receive calls + 2 (All) or 3 (CO) and hang up.
4. # + Dial the Page Zone (e.g. 801 + 1).
5. Press 2 (All calls) or 3 (CO calls).

To Cancel:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Press *47 3.
3. Press the **ON-HOOK/OFF-HOOK** key.

Answer Park and Page:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Press ** + Announced extension.

Personal Greeting

Use Personal Greeting to record a message for the caller and then forward the call:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Press *47 + Record your Personal Greeting.
3. Press # + 2 (Busy/No Answer), 4 (Immediate), or 6 (No Answer).
4. Dial the extension to receive calls + 2 (All calls) or 3 (CO calls).
5. Press the **ON-HOOK/OFF-HOOK** key.

Save

Save your call for quick dialing later on:

1. While on a call, press the **R (HOLD/RECALL)** key + 815.

Quickly redial your saved number:

1. Press the **ON-HOOK/OFF-HOOK** key + 815.

*When redialing, the system selects an outside line for you. To clear a saved number:
Press the ON-HOOK/OFF-HOOK key + 885.*

Transfer

Transferring your call to a co-worker:

1. Press the **R (HOLD/RECALL)** key + Dial your co-worker's extension.
*To transfer the call to a co-worker's mailbox, dial the *8 before their extension.*
2. (Optional) Announce the call when your co-worker answers.
3. Press the **ON-HOOK/OFF-HOOK** key.

Transferring When Out of Range

To Set the Transferring When Out of Range Option:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial the Transfer When Out Of Range Service Code (by default: 189).
3. **Skip this step if using the pre-defined destination from Program 15-14-01.**
*Enter the telephone number which should be the destination of the forwarded call
Make sure to include any required trunk access codes (ex: 9 or #9 + trunk number)
when transferring to an outside number.
Entering any new number overwrites the previously defined information entered manually or through system programming (15-14-01).*
4. Press the **ON-HOOK/OFF-HOOK** key.

To Clear the Transfer Destination:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial the Transfer When Out Of Range Service Code (by default: 189).
3. Press the **R (HOLD/RECALL)** key.
4. Press the **ON-HOOK/OFF-HOOK** key.

To Cancel the Transferring When Out of Range Option:

1. Press the **ON-HOOK/OFF-HOOK** key.
2. Dial the Transfer When Out Of Range Service Code (by default: 189).
3. Press the **ON-HOOK/OFF-HOOK** key.

Specifications

Base Station (LxHxD):	3.93" x 3.93" x 1" (100 x 100 x 25.4 mm)
Number of Speech Channels	
Base Station:	4
Base Station with Repeater:	2
Repeater:	2
Coverage:	164' to 492' (50m to 150m) depending on building material
Maximum Distance from KSU:	6561' (2000m)
Supports 4 simultaneous Aspire Wireless (DECT) traffic channels (32 Kbit/s)	
Minimum voltage at the end of the cable where the Base Station is connected must not go below 25Vdc with respect to the reset limit (18Vdc). The current consumption of the Base Station is approximately 18mA (0.8W).	

Repeater (LxHxD):	3.93" x 3.93" x 1" (100 x 100 x 25.4 mm)
Two internal antennas	
Handles simultaneously two speech channels	
Powered by external power adapter	
Weight:	5.1 ounces (160g)
Coverage:	164' to 492' (50m to 150m) depending on building material
Maximum Number of Repeaters in a Jump:	3
Maximum Distance from Base Station to Repeater (with external antenna installed)	3,280' (1000m)

Specifications

Specifications

Handset (LxHxD):	5.62" x 1.88" x 1.02" (143 x 48 x 26mm)
Weight (including battery):	4.26 ounces (121g)
Speech Time:	12 hours
Stand-By Time:	120 hours
Battery:	600 mAh, Ni-MH

Frequency Band:	2400-2497 MHz
Output Power:	250 mW
Frequency Deviation:	186 KHz
Bit Rate:	1.024 Mbit/s
Receiver Sensitivity:	< -86dBm
RF Channels:	79
Voice Channels per RF:	9
Total Number of Voice Channels:	711
Data Throughput:	256 Kbit/s
Wireless Protocol:	RTX MARS++
Maximum Base Stations:	12
Maximum Handsets:	120

Part Numbers

0891090	Aspire Wireless (DECT) 2.4G 4-Port Interface PCB
0891091	Aspire Wireless (DECT) 2.4G 8-Port Interface PCB
0891092	Aspire Wireless (DECT) 2.4G 12-Port Interface PCB
780004	Aspire Wireless (DECT) 2.4G Handset with Battery
780148	Leather Cover w/Clip for Aspire Wireless (DECT) Handset
780136	Aspire Wireless (DECT) 2.4G Base Station
780137	Aspire Wireless (DECT) 2.4G Charging Cradle
780138	Aspire Wireless (DECT) 2.4G Repeater
780139	Aspire Wireless (DECT) 2.4G AC Adapter
780140	Aspire Wireless (DECT) 2.4G Battery (NMh)
780141	Aspire Wireless (DECT) 2.4G Handset Belt Clip
780142	Aspire Wireless (DECT) 2.4G Repeater Programming Kit
780143	Aspire Wireless (DECT) 2.4G Service Tool Kit
780144	Aspire Wireless (DECT) 2.4G Deployment Tool
780145	External Antenna w/Cable for Repeater

NEC

NEC America, Inc., Corporate Networks Group
4 Forest Parkway, Shelton, CT 06484
Tel: 800-365-1928 Fax: 203-926-5458
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Other Important Telephone Numbers

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NEC America, Inc., Corporate Networks Group
4 Forest Parkway, Shelton, CT 06484
TEL: 203-926-5400 FAX: 203-929-0535
cng.nec.com



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