

Wi-Net Window™

v1.20 Addendum to
Operating Instructions

Features:

- **Wired Equivalent Privacy (WEP) Encryption**
- **Important Note Regarding Battery Installation**
- **Variable Scan Rate and Hidden SSID Connectivity**

WEP Encryption Setup

The Wi-Net Window now supports interactive operation with wireless networks that have 64-bit or 128-bit Wired Equivalent Privacy (WEP) encryption. This is the originally specified form of wireless encryption and consequently is supported by most existing hardware.

On the Wi-Net Window you define one WEP key to use when communicating with encrypted wireless networks. This key is applied to all networks that are detected as being encrypted. To enter the WEP key you need to specify the key size (64 or 128 bit), the authentication type (Open System or Shared Key), the active key position (1-4) and the hex digits that comprise the key value. When in doubt as to the authentication type, choose Open System to start.

From the Encryption submenu, press SEL to view and edit the WEP Encryption setup. Use the down arrow to scroll through the Encryption submenus. Press SEL to view or edit the corresponding WEP Encryption choices.

Hex digit entry is similar to entering an IP address on the Wi-Net Window. Use the right/left arrow keys to position the cursor beneath the digit you wish to change. Press the up or down arrow key to increment or decrement the value of the corresponding digit. Digit entry supports rollover so you can increment from an 'F' to a '0' and vice versa.

When entering a 128-bit WEP value there are 3 "pages" for entering the 26 hex digits. Scrolling right or left off of one page connects to the next. The current page number (1-3) is displayed as a fixed number above the WEP value.

Once the WEP value is entered, press SEL to always save changes and return to the next Encryption submenu. Press the SETUP, SCAN or PING key to exit WEP editing and start the selected operation. When exiting in this manner, if the WEP key value has changed, you are presented with the option to save the changes (SEL), discard the changes (Down Arrow) or cancel and return to WEP editing (Up Arrow).

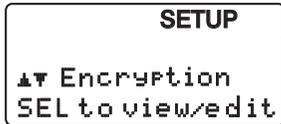
```
Save changes?  
SEL=Y,Down=N,Up=C
```

Your WEP settings are retained while the Wi-Net Window is off and even during a battery change.

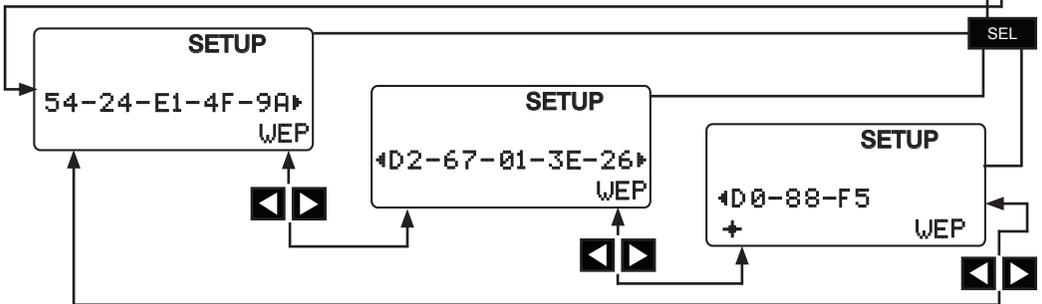
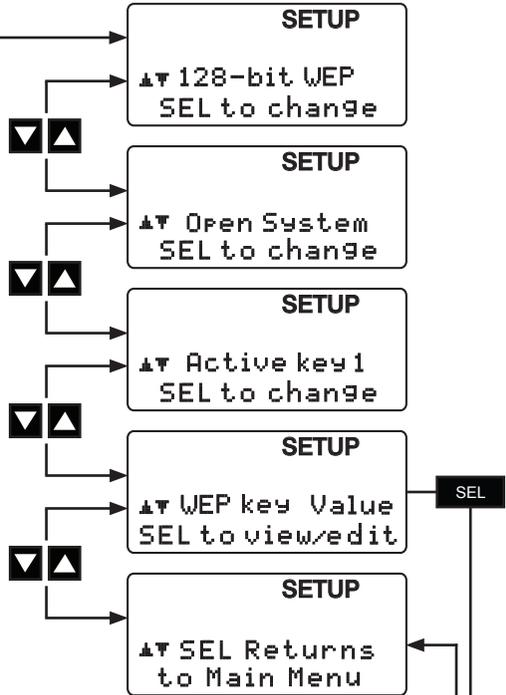
You need to know your encryption parameters whenever you setup a wireless client or connect with the Wi-Net Window. For convenience you should make a note of them so you don't need to read them from the AP each time. It is also good to write down the Access Point's IP address so you can quickly connect with it for review or to make changes. Many Access Point manuals have a place for jotting this information down. Of course since these are your network's security settings, they should be kept in a protected location.

For more detailed information about how access points are configured for WEP, see the Wi-Net Window Application Notes posted on our web site:
http://www.test-um.com/product_detail.asp?itemno=WP150.

Main Setup Menus



Encryption Setup Sup-Menu



Important Note Regarding Battery Installation

If your unit does not power on, please check the batteries to make sure they are firmly seated in the battery cage and all contacts are touching.

Occasionally, the initial stiffness in the battery cage will prevent the battery terminals from making good contact with the positive battery terminal.

Variable Scan Rate and Hidden SSID Connectivity

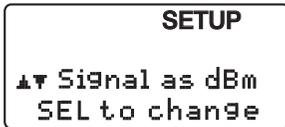
The Wi-Net Window now supports three new advanced features based on customer feedback. These features include alternate signal strength measurement units, a variable scan rate and support for connectivity to access points with hidden SSIDs. All of these are controlled via a new Expert Setup sub-menu. The following sections describe these additions in detail.

Signal Strength

The Wi-Net Window displays signal strength as a percentage value. This value represents an overall signal quality based on several measured parameters. This format was selected because it is widely understood by most people.

For more technical users a signal strength measurement in dBm is sometimes preferred. dBm is an abbreviation for the power ratio in decibel (dB) of the measured power referenced to one milliwatt (mW). It is used in radio, microwave and fiber optic networks as a convenient measure of absolute power because of its capability to express both very large and very small values in a short form. Zero dBm equals one milliwatt. A 3 dB increase represents roughly doubling the power, which means that 3 dBm equals roughly 2 mW. For a 3 dB decrease, the power is reduced by about one half, making -3 dBm equal to about 0.5 milliwatt.

For these more technical users, an option to display signal strength in dBm has been added to the Wi-Net Window. This is accessed via the Expert Setup sub-menu (see menu navigation chart in a later section).



Press the SEL key to cycle between dBm and percentage (%). When dBm is selected the **CAL** icon is shown on the scan display. The 10 LEDs on the Wi-Net always indicate the percentage signal strength.

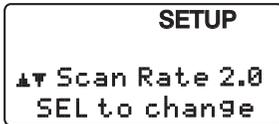


For wireless networks the signal strength ranges from around -20 dBm to -90 dBm. When the AP is out-of-range the signal strength is displayed as -99 dBm.

Scan Rate

The Wi-Net Window actively scans for existing wireless networks. Active scanning is much quicker and more responsive than passive scanning. By default the Wi-Net scans the current (i.e. displayed) network once every two seconds and scans for all networks once every six seconds. If a hidden SSID is specified (see section below), it is scanned every four seconds. Since active scanning requires more power, these rates were chosen as a reasonable balance between functionality and battery life.

For some users the two second scan rate is not fast enough for their application. Consequently an optional set of scan rates has been added to the Wi-Net Window. These are accessed via the Expert Setup sub-menu (see menu navigation chart in a later section).



Note that the faster scan rates can potentially decrease battery life.

Press the SEL key to cycle through the list of rates (in seconds): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0

Service Set Identifier (SSID)

A Service Set Identifier (SSID) is a 32-character name that, along with a channel number, identifies a wireless Access Point (AP). The SSID is used to identify the various wireless networks available and allows selecting the one to connect to. Thus when you turn on your laptop you can choose to connect to a wireless network named “Joe’s Coffeehouse” or “Bob’s Insurance”. The default SSID for an

AP is typically set to the manufacturer’s name such as “Linksys” or “Belkin”. It is always a good idea to change the SSID from the default to a unique one for your situation. Otherwise you risk interference with other APs using the same default SSID. Also it makes it much easier for you to locate and connect to your own wireless network.

Hidden SSID

Most Access Points have an option to not broadcast, or hide, their SSID (see figure below). By not publicly revealing its name, the wireless network becomes “invisible” to casual users. In order to connect to a hidden AP you need to already know its SSID.

Wireless Settings

Wireless Network

Name (SSID):

Region:

Channel:

Wireless Access Point

- Enable Wireless Access Point
 - Allow Broadcast of Name (SSID)
-

The most common reason for hiding an SSID is to increase network security. There is an ongoing debate amongst security experts as to the viability of SSID hiding for security. Naturally both sides feel strongly that their position is the correct one. It must be acknowledged that there are several readily available software packages that can uncover the SSID of a hidden network.

Ever since the release of version 1.05, the Wi-Net Window has been able to detect networks with hidden SSIDs. Because the SSID is not known, these networks are represented by a sequence of 10 asterisks, similar to a hidden password on a computer.



```
10 *****
58% b [E] ap 3+
```

Since these networks are typically revealed via passive scanning, the signal strength update rate can be erratic. Additionally, the Wi-Net Window is unable to connect to a hidden network because its SSID is unknown. Without a connection, the Wi-Net cannot negotiate for an IP address or interact with other systems on the network.

With this latest firmware release (v1.20), the Wi-Net Window is now able to connect to a specified hidden network. This is achieved by entering a target SSID into the Wi-Net's setup parameters. When a target SSID is specified, the Wi-Net initiates scans for that network by name. If the hidden network is located, it is displayed with its SSID enclosed in parentheses.



```
10(Office-WLAN)
76% b [E] ap 3+
```

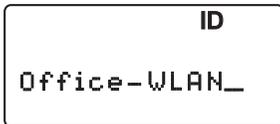
Note that the parentheses are only shown if a general scan reveals the same AP (based on MAC addresses) broadcasting without an SSID.

Entering an SSID

The SSID for a hidden network is accessed from the Expert Setup sub-menu via the main Setup Menu (see menu navigation chart in the following section).



Press the SEL key to activate an editing screen that contains the current SSID, if any, and displays the ID icon.



An underline cursor is initially placed at the end of the SSID. Scrolling right and left (◀▶) moves the cursor under the character to change. Scrolling up and down (▲▼) rotates through all the characters for that position. Character entry supports rollover so you can seamlessly move in either direction through the character list. The character list is composed of the alphabet, with interleaved upper and lower case letters, followed by symbols and numbers:

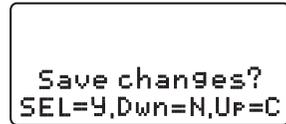
AaBbCcDdEeFfGgHhIi
JjKkLlMmNnOoPpQqRr
SsTtUuVvWwXxYyZz
!"#\$%&'()*+,-./:;=<>
?@[]\^_{}|~0123456789

Starting with a blank (space) character, scroll up (▲) to increment through the alphabet with each letter appearing as an upper/lower case pair. Otherwise, scroll down (▼) to decrement through the digits (9-0) followed by the set of symbols.

Hold down an arrow key to initiate automatic scrolling in the corresponding direction. The right and left arrow keys wait a second before starting.

There are several 2-key combinations that allow for more efficient movement and editing. To delete to the left, hold down the right arrow key and press the left arrow. Continue to hold the left arrow and it becomes an auto-delete to the left (after a one second delay). To move to the end of the SSID, hold down the left arrow key and press the right arrow. When auto scrolling with the up arrow key, press the down arrow to leap upward by 10 characters. When auto scrolling with the down arrow key, press the up arrow to leap downward by 10 characters. For these last two, if you hold the second key the auto scrolling is temporarily suspended so you can see where you are in the character list.

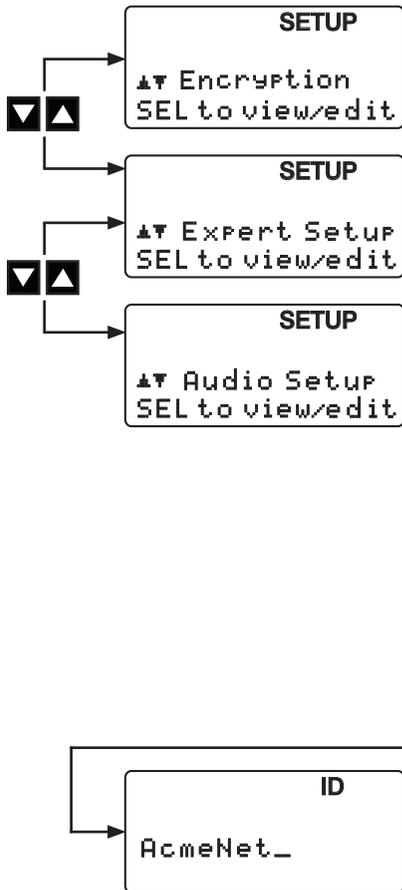
Once an SSID is entered, press SEL to always save changes and return to the next Expert sub-menu item. Press the SETUP, SCAN or PING key to exit SSID editing and start the selected operation. When exiting in this manner, if the SSID has changed, you are presented with the option to save the changes (SEL), discard the changes (Down Arrow) or cancel and return to SSID editing (Up Arrow).



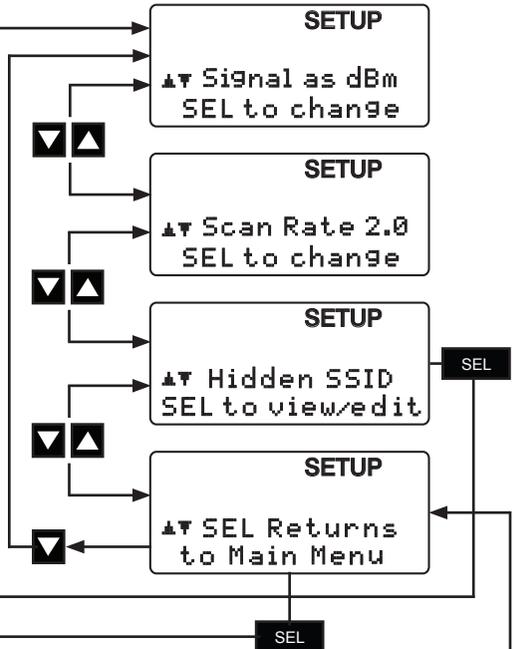
```
Save changes?  
SEL=Y,Down=N,Up=C
```

The SSID name is retained while the Wi-Net Window is off and even during a battery change.

Main Setup Menu



Expert Setup Sub-Menu



	<p>Use the left/right arrow keys to move the underline cursor. Line 1 wraps down to second line for 32-character editing.</p>
	<p>Hold the right arrow down and press the left arrow to delete to the left.</p>
	<p>Hold the left arrow down and press the right arrow to jump to the end.</p>
	<p>Use the up/down arrows to increment/decrement the character list.</p>
	<p>Hold the up arrow and press the down arrow to jump 10 characters in the list (hold down both arrows to suspend the scroll).</p>
	<p>Hold the down arrow and press the up arrow to jump 10 characters in the list (hold down both arrows to suspend the scroll)</p>
	<p>Save the edit</p>
 	<p>Discard the edit</p>
	<p>Hold an arrow key to auto scroll in that direction. Left and right arrow keys wait a second before starting.</p>

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TEST SOLUTIONS BY JDSU

808 Calle Plano

Camarillo, CA 93012

Phone (805) 383-1500 / Fax (805) 383-1595

www.JDSU.Test-Um.com