

®

pcProx SONAR

*Configuration Software for use with
pcProx[®] Sonar Proximity Readers*



User's Manual



www.RFIDeas.com

pcProx-Sonar

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If the returned board or unit is sent by mail, the purchaser agrees to pre-pay the shipping charges and insure the board or unit or assume the risk of loss or damage which may occur in transit. The purchaser is expected to employ a container equivalent to the original packaging.

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Thank You

Congratulations on the purchase of your pcProx-Sonar system. We at RF IDEas hope you enjoy using your new USB reader system as much as we enjoyed creating and developing it! Please share your comments and suggestions for our future solutions!

If you are interested in our OEM or Independent Developer's Programs, please call!

Thank you,
The Staff at RF IDEas

Need Assistance?

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Arlington Heights, IL 60004

pcProx-Sonar FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an output on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



**Tested To Comply
With FCC Standards**

FOR HOME OR OFFICE USE

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Proximity Activated Products

RF IDEas offers a variety of wireless products for hands-free or contact-less identification and security. Please review the following to choose which product best fits your need. If you do not see a solution, please contact us. There are several software developers licensing our technology and the solution you are looking for may already be developed.

We welcome your suggestions!

Product	FEATURE - BENEFIT
AIR ID Writer, Playback, or Enroll <i>(Passive Badge)</i>	<ul style="list-style-type: none"> ◆ Passive badges, no batteries contactless range is 5 inches. ISO 15693, 14443 A/B ◆ Economical solution ◆ Uses existing passive HID RFID proximity technology ◆ Read/write contactless smart card technology
	◆
AIR ID or pcProx Developer's Kit	<ul style="list-style-type: none"> ◆ Complete SDK Kit supporting AIR ID, AIR ID LT, and pcProx ◆ Platform independent ◆ Dynamic range adjustment ◆ Read/write ability with AIR ID ◆ Private label
pcProx USB/RS-232	<ul style="list-style-type: none"> ◆ pcProx desktop proximity reader compatible with USB ports. Configuration application sets devices as a keyboard, or for use with the AIR ID SDK.
AIR ID® LT <i>(Active Badge)</i>	<ul style="list-style-type: none"> ◆ Great for multiple users sharing a computer ◆ Economical solution ◆ Badge transmits, Base Unit receives ◆ Audit Trail ◆ TD2F™ Two-Factor Authentication
	◆
pcProx-Sonar	<ul style="list-style-type: none"> ◆ Proximity zone detector that send different keystrokes for walk-away and walk-up conditions.

pcProx Reader Choices

RF Ideas offers several proximity readers. The pcProx line is made of the following primary choices: the serial port and the USB port pcProx USB, and pcProx-Sonar. Within these groups there are several models that support the individual manufacturers proprietary technology (ex. HID, Motorola, Casi-Rusco, and AWID).

pcProx-Sonar

The pcProx & pcProx USB readers are a more complicated interactive design. The reader accepts commands as well as sends output data to the port. The serial port reader can operate in synchronous or asynchronous mode. The USB port reader may only operate in an asynchronous fashion. The SDK (software developer's kit) supports all readers and is available to developers.

The pcProx-Sonar is useful as a proximity detector as opposed to an identification readers. This device senses a user's presence and will send keystrokes to the computer to invoke an action. For example, when a user steps away from their computer, the appropriate keystrokes will be sent to issue a lock or logoff command.

Understanding Proximity

What is Sonar Proximity Detection?

This is an ultra-sonic proximity detector functioning as a USB keyboard. The primary purpose is for detecting users stepping away from a computer terminal they have un-locked (log-in active), and issuing keystrokes to lock or log-off the session on the computer.

Now when you walk away from your system, you will benefit from a hands-free means of locking your computer.

Why is it Necessary?

With the proliferation of PC's, cash machines, security systems, and electronic locks, users are increasingly dealing with computer security. There are two primary requirements for workstation access control to be effective:

1. Un-lock a locked station (log in), and
2. Lock or close the open (log in) session when the user steps way. This is where the real exposure exists since the terminal is open.

The easiest to solve is '1'. Many company solve the '2' issue by either issuing a company policy requiring the user to remember lock their station, or relying on a time-out associated with a screensaver.

The Problem With Time-Outs Or Reliance On Users

When it comes to locking the unattended computer there are few choices. Most administrators are forced to either rely on the user to manually lock the computer, or on inactivity timeouts. Both of these methods are generally undesirable and unreliable. Users

often forget to lock the computer while leaving. Time-outs are often set too long thus creating a security risk or set to short and become a nuisance to the user.

How Does the System Work?

The concept of the pcProx-Sonar is easy to understand. The unit incorporates a sophisticated ultrasonic sensor to detect the presence of the user.

Your computer simply 'thinks' that the pcProx-Sonar is a USB keyboard that is attached to your system. The device sends programmable keystrokes to lock your computer when you leave the workspace. It's that simple. No more unattended and unlocked computers. The unit will lock the system for you...and you can now do this *hands-free!*

The objective is to detect two events. The most important is the detection of you leaving the defined work zone of your computer. When the pcProx-Sonar detects that you have left the work zone, the unit sends the keystrokes necessary to lock your systems. For example, when Windows 2000 users leave their workstations, they would normally hit the CTL-ALT-DEL-Enter key sequence to lock their systems. With the pcProx attached, the CTL-ALT-DEL-Enter keystrokes are automatically sent for the user.

The second event is when you return to your work zone. The pcProx can now detect this event and send some preparatory keystrokes for you. For example, on return to their computer, Windows 2000 users must hit the CTL-ALT-DEL key sequence to prepare the computer for the password entry. Again, with the pcProx

attached, it will now send those keystrokes for you.

Who Can Benefit Using the System?

Any company, institution, or hospital using passwords, biometrics or any form of computer access control that needs to secure stations without reliance on users of cumbersome time-outs.

What is Included with the pcProx Kit?

- pcProx-Sonar
- pcProx-Sonar Configuration Application for Windows 98 and Windows 2000/XP
- Installation and User Manual on CD.

What are the Minimum System Requirements?

- Windows 98se, ME, 2000 or XP
- Open USB port
- CDROM drive
- 200K free disk space

Note: If you do not have an available USB port, a USB hub will be needed.

The device is simple to install and fun to use...so let's get started!

Hardware Installation

Locate an open USB port on the system. Plug the USB connector into the PC's (or available on any peripheral) USB port.

Mounting pcProx Sonar

If your system meets these requirements then mounting the device in your workspace is the next step. RF IDEas recommends that the best location for the unit is on the top or side of your monitor. It is best to start by positioning it in the center of the monitor with the sensor pointing forward and unit level (See Figure 1).

Note: *Try mounting to the top lip of the monitor.*



Figure 1. Best location.

Use the provided “Glue Dots” to affix the unit to the monitor as shown. The “Glue Dots” provides a semi permanent bond between the unit and the monitor. The provided foam tape can be used, after you have configured and used the system for a period of time, for a more permanent bond.

Note that it is best to start with the sonar device pointed in a level position. On some monitors this may require you to adjust your monitor on its pedestal to a more downward angle. If the pcProx is at an excessive upward or downward angle when placed on your monitor top, it may be necessary to purchase the optional adjustable angle bracket from the RF IDEas web site (www.RFIDEas.com) for proper operation.

Once mounted, connect the pcProx USB cable to an open USB port on your computer.

Software Installation

Windows will load the appropriate USB keyboard drivers once the pcProx-Sonar is attached. If the USB Keyboard drivers are not currently resident on your system, you will be asked to place your Windows Operating System disk into your CDROM drive. Follow the directions provided by Windows during this install.

Note: There are no USB drivers provided on the pcProx Configuration Disk. All USB drivers will be provided by the Windows 98se, Windows 2000 or Windows XP operating systems.

Once the USB drivers have been loaded and activated by Windows, observe the LED (Light Emitting Diode) on the device. The LED will light once the device has been registered to the computer. It may take a minute to light. If after a minute the LED does not light, restart your computer by first properly shutting down Windows and then powering your system off. Restart and observe the LED.

When the pcProx is properly working the LED will indicate its current state. The LED indicates three states of the pcProx. On leaving your computer the pcProx's LED will go through the sequence below, each color indicating the state the pcProx is in.

LED Status on the Walk-Away Event

Green: Person Detected within the "Distance" setting

Yellow: Person has left the range of the "Detection Distance" setting and the "Walk-Away" delay timer is counting down

Red: Person has left range of "Detection Distance" setting and pcProx has sent "Walk-Away" Key Sequence

When you return to your computer the pcProx's LED will go through the sequence below, each indicating the state it is in.

LED Status on the Walk-To Event

Red: Person not in range of "Detection Distance"

Yellow: Person has entered range of the "Detection Distance" setting and the "Walk-To" delay timer is counting down

Green: Person detected within the "Detection Distance" setting and "Walk-To" Key Sequence has been sent.

Software Installation

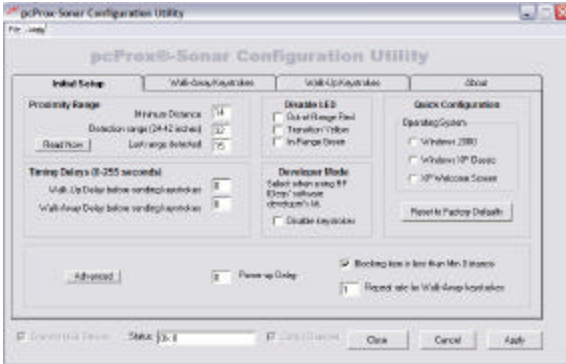
If there is a problem with the installation, allow the setup program to uninstall. Should you need to reinstall or remove the software, always use the Control Panel's Add/Remove Programs icon so the system is successfully removed.

Perform the usual entries associated with installing software.

From the Start button, find the Application and RF IDEas folder holding the pcProx-Sonar Configuration utility. Running the application will bring up the configuration screen with the section Tabs running across the top as shown below.

Software Configuration

In this section you will configure the pcProx settings. Along the bottom of each of the screens are the Connect, Error and Configuration Status fields, along with the OK, CANCEL, and APPLY buttons.



Device Connect

Connect USB Device

This check box is used to connect the Configuration application to the internal storage in the device. Once connected, you can read, modify, and write to the device. The device connect will be attempted at the start of the program's execution. If successful, the application will go out and retrieve the device's current configuration.

Status

This field is used to display any error messages.

Config Changed

This checkbox is selected by the program to indicate to the user any modifications made to the configuration that have not been written to the device.

Close Button

This will write any configuration changes to the device for permanent storage before closing the application.

CANCEL Button

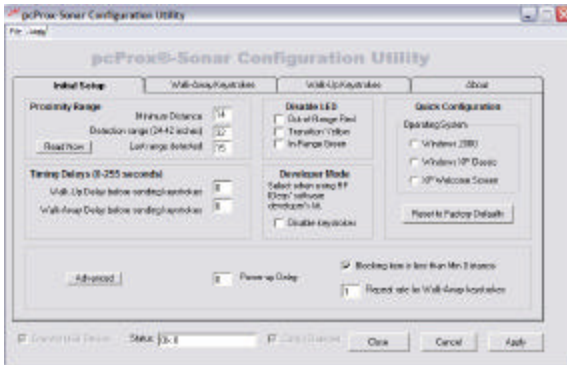
This will abort any configuration changes to the device for permanent storage before closing the application.

APPLY Button

This will write any configuration changes to the device for permanent storage leaving the application open.

Initial Setup Tab

This Tab allows the user to configure the device's basic range, timing, and LED status parameters.



Proximity Range

This section allows the user to set the trigger distance and force the device to read an object instantaneously.

Detection Range

The first order of business will be to set the “Detection range (24-42 inches)”. The pcProx can be set to detect a person between 24 inches and 42 inches¹. It is important to understand that the “Beam Angle” of the pcProx is approximately 60 degrees and the detectable distance is as specified in the configuration program.

¹ The pcPROX can actually be set to 60”, however, 42” is the recommended maximum distance for best operation.

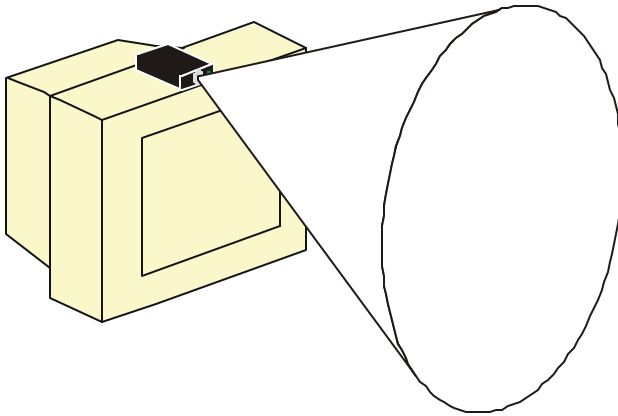


Figure 2 Reading Zone

Move around in your normal workspace and observe the LED. The LED should remain GREEN while you are in your normal computer work zone and should go RED when you leave this zone. Enter and exit your normal work zone and observe that the LED is changing from GREEN to RED when leaving the zone and from RED to GREEN when re-entering the zone. Lower the "Detection range" to the lowest value that allows you to be detected in your work zone. You can change the "Detection range" by typing the new value in the field and clicking the "Apply" button. Repeat the above LED test until proper operation is observed.

Note that if there are any "Walk-To" or "Walk-Away" delays set, the LED will go YELLOW before changing to the RED or GREEN state.

Last Range Detected

Pressing the button 'Read Now' will fill in the field 'Last range detected' with the current distance the closest object was read.

Note the device will not read distance less than 14 inches.

Note:

The pcProx detects people AND objects that are in this zone. Large objects, such as high backed chairs can be viewed by the pcProx as a person. It is important to understand this behavior and it may be necessary to reduce the “Detectable Distance” and/or raise the angle of the pcProx to a slightly higher bias. If you are using the pcProx in an office setting as opposed to a kiosk or standing workstation setting, be sure not to allow your chair to swing into the ‘view’ of the pcProx. It is also important not to set large objects on your desk that may be ‘viewed’ by the device. Once you have used the pcProx for a short period of time, you will quickly learn the view zone.

It is also important to understand that the pcProx will only reliably detect objects that are outside the minimum detectable distance of 14”. If users are approaching the computer and are often within this minimum distance, you may need to move the pcProx father away from the users for best performance.

Timing Delays (0-255 seconds)

The pcProx has programmable delays that suppress the immediate sending of the locking sequence. This is especially useful when using the pcProx in a private office setting where you may leave the work zone briefly and not want the system to lock. The maximum settable delay is 255 seconds. After this delay time has elapsed, the programmable key sequences are invoked.

Walk-Up Delay before sending keystrokes

The pcProx has separate delay to handle both the “Walk-Up” and “Walk-Away” events. Adjust the delay by specifying the value and clicking the “Apply” key. You can test these settings by observing the LED. When the LED is in a Yellow state, the pcProx is in the delay mode. Adjust the settings to delays that work best for your work habits.

Note: When using the pcProx in a kiosk or standing workstation that have many users changing logins, it is best to use the absolute shortest delay possible (i.e. zero). This will assure that the computer will lock prior to the next user walking into the detectable distance.

Walk-Away Delay before sending keystrokes

See *Walk-Up Delay* description above.

Disable LED

The user may find the LED indicator distracting. By using the following checkboxes, the user may choose to disable any or all of the LED states:

Green: Person Detected within the “Distance” setting.

Yellow: Person has left the range of the “Detection range” setting and the “Walk-Away” or “Walk-Up” delay timer is counting.

Red: Person has left range of “Detection Range” setting.

Disable Keystrokes

There are two reasons why you may need to disable keystrokes from the pcProx device.

The first is a matter of convenience. It can become annoying during the configuring of the device to have keystrokes sent 'live'.

The second reason is targeted to those interested in integrating the pcProx device with their own software application. RF IDEas offers a SDK (Software Developer's Kit) for use with the pcProx. The SDK allows software developers to use the pcProx device as a vehicle to deliver the proximity data directly to the user created software application. The SDK gives the programmer complete control over the configuration and data received from the device.

Disable sending card data as keystrokes

This checkbox is used to prevent keystrokes during configuration of the device.

Quick Configuration

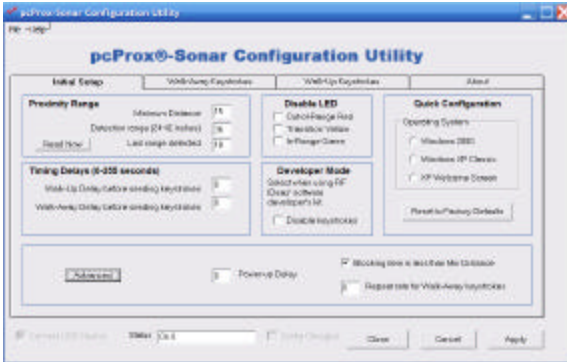
Choose one of the radio button selections for a quick configuration of keystrokes for the various operating systems choices.

Reset to defaults

This button is used to put the device back into a know state. All configuration settings are set back to their factory defaults.

Advanced Button

Click this to open more advanced settings.



Power-up Delay

Leave set to '0' unless you have a PC power-up problem with the USB device. Some machines may exhibit a continual power up recycling phenomena with their USB port. Use this advanced setting to cure this type of problem.

Blocking item is less than Min Distance

Select this if you would like to detect someone placing an object inside the minimum distance such as a piece of tape or Dixie cup over the sensor. When detected, and after waiting the 'Delay before detecting blockage', the Walk-Away keystrokes will be issued.

Repeat rate for Walk-Away keystrokes

After the delay of a detected blocking item, the Walk-Away keystrokes are issued. When this value (in seconds) is greater than zero, the Walk-Away Keystrokes will be sent at this periodic rate (in seconds).

Walk-Away Keystrokes

As stated, the primary function of the pcProx is to detect two events; when you walk away from the computer and when you return. The most important of these events occur when you when you leave your computer.

You will typically use this to set keystrokes to invoke the locking or log-off of the current session For example under Windows 2000 this would be Ctrl-Alt-Del (keystroke 1), followed by K (keystroke 2).

At this event, pcProx can send to the computer a series of keystrokes that are configured in the device. These keystrokes can be up to 5 characters. Each of these characters can be combined with modifiers such as ALT, CTL, or Shift. Click on the “Walk-Away” tab and you will see the screen below.



Keystroke 1 – Keystroke 5

Each keystroke may be defined individually. As you can see, you may select using the left or right hand side of the keyboard for the modifiers since these are different codes when sent from the actual keyboard.

Key Delay

This parameter represents the delay between each keystroke. It is the dead time between each keystroke pressed, in milliseconds. The default is 512. It is only useful to change if you are having a problem. Note: Min = 64, max = 16320.

Walk-Up Keystrokes

As described above, the primary function of the pcProx is to detect two events; when you walk away from the computer and when you return. The least important of these events occur when you when you arrive at your computer.



You will typically use this to set keystrokes to call up the log-on dialog box for the new user. This is particularly useful when applied to biometric or other log-on technologies.

At this event, pcProx can send to the computer a series of keystrokes that are configured in the device. These keystrokes can be up to 5 characters. Each of these characters can be combined with modifiers such as ALT, CTL, or Shift. Click on the “Walk-Up” tab and you will see the screen below.

Keystroke 1 – Keystroke 5

Each keystroke may be defined individually. As you can see, you may select using the left or right hand side of the keyboard for the modifiers since these are different codes when sent from the actual keyboard.

Key Delay

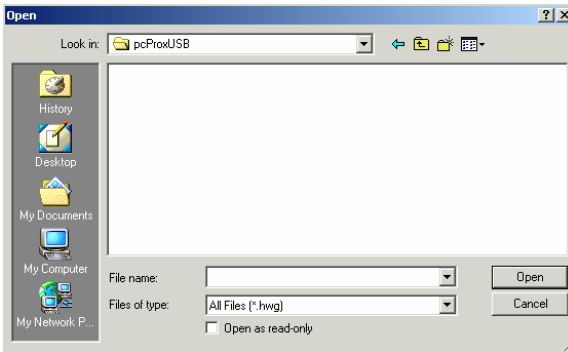
This parameter represents the delay between each keystroke. It is the dead time between each keystroke pressed, in milliseconds. The default is 512. It is only useful to change if you are having a problem. Note: Min = 64, max = 16320.

File Menu

File Open

This allows the user to retrieve a configuration previously saved. The SNR file is useful when more than one template is helpful.

All data associated with the configuration selections are saved.



File Save

All data associated with the configuration selections are saved to the *Default.SNR* file.

Save As

All data associated with the configuration selections are saved to the *user specified filename (.SNR)* file.

About

This screen describes the version of the software as well as the firmware. The firmware represents the version of the pcProx-Sonar.



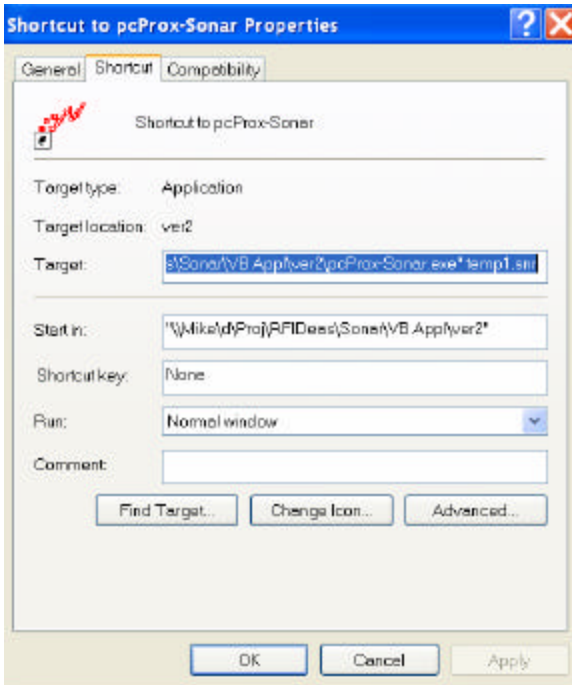
pcProx-Sonar

Auto-Run Operation

In auto mode, the user specifies a configuration file (ex. Default.snr) using a shortcut properties link as defined in the Windows environment. This is useful when you need a method to automatically re-configure any of the devices features such as the distance or keystrokes.

First, the user makes all desired configuration settings.

Second, once the settings are defined, the user creates a (.SNR) by using the Save As selection under the File menu system.



Third, the user needs to create a shortcut link and specify the (.SNR) configuration file in this

link. Shortcut links can be created using the Windows Explorer, selecting the pcProx-Sonar.exe file and then using a right-click of the mouse. You will see a 'Create Shortcut' menu item.

Fourth, once the shortcut is created, the Properties need to be modified by adding the filename of the (.SNR) file after the quote in the target field as shown above (filename used is temp1.snr).

Troubleshooting

If your system is not working it could be for one of the following reasons:

No pcProx USB Device Attached

1. Check to be sure the pcProx unit is plugged into the USB port. When the PC is on and no card being read, you will see the LED is red. A valid proximity card will cause the led to turn green, provided you have not set the configuration to read only certain bit lengths.
2. Verify you have the correct model (pcProx-Sonar) and the software configuration screen agrees with the reader attached.
3. Verify the USB Port agrees with the connector on the PC.
4. If trouble continues, unplug the pcProx unit, use the Control Panel's Add/Remove Hardware to remove 'General USB Device', and reboot the PC. When your system is started, re-attach the pcProx USB and the OS should re-install the Windows driver automatically.

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