

Smart Clock Hardware and Accessory Installation, Operation and Maintenance (Out-of-the-Box™ Software Users)



Made in the
United States of America



Figure 1. Smart Clock items [50302](#), [50308](#) and [50275](#)

Description

The Smart Clock Time and Attendance System is an automated means of recording and reporting employee attendance data. The Smart Clock allows for the acquisition of employee punch data. Every time an employee punches into the Smart Clock, their punch data is saved within the Smart Clock's memory. With the Out-of-the-Box™ software, a supervisor may then poll the data stored within the Smart Clock. The software sorts and calculates the punch data by employee, department, and company pay policy information. The Out-of-the-Box™ software may then be used to generate management reports and export time information for the payroll department.

Use of the Smart Clock Time and Attendance System saves time, money, and improves attendance accuracy.

Available Smart Clock Models and Features

Item	Keypad	Magstripe	Barcode	Proximity	Fingerprint
50300		X			
50301			X		
50302				X	
50272		X			X
50274			X		X
50306	X				
50307	X	X			
50308	X		X		
50309	X			X	
50271	X				X
50273	X	X			X
50275	X		X		X
50270	X			X	X

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Features and Components

SMART CLOCK

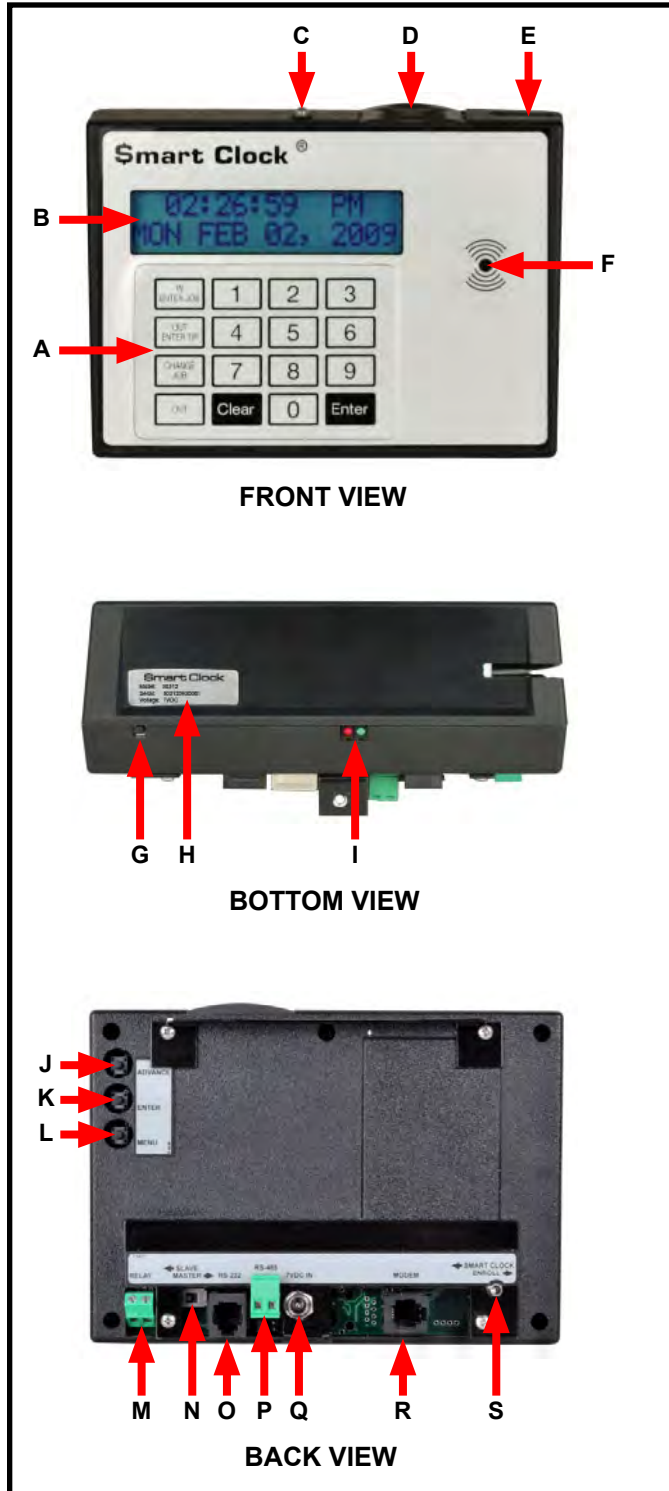


Figure 2. Smart Clock features and components

Note: The images above display all of the Smart Clock's available features. Certain features pertain to specific models. See the table on [page 1](#) for more information on the available models and their features.

A. Keypad: Employees manually enter their PIN by using the keypad.

B. LCD Display: Displays the day, date, time and clock configurations.

C. Fingerprint Status LED: Multi-colored LED that displays the status of the readings from the fingerprint reader.

When the clock is set to ENROLL mode:

Amber: Smart Clock is ready to read the user's fingerprint

Green: Fingerprint accepted

Red: Fingerprint not accepted

When the clock is set to SMART CLOCK mode:

Amber: Smart Clock is ready to read the user's fingerprint

Green: Fingerprint accepted and user's punch saved to the clock

Red: Fingerprint not accepted and user's punch not saved to the clock

D. Fingerprint Reader: Fingerprint is placed here for readings. See "SMART CLOCK WITH FINGERPRINT READER" on [page 13](#) for more information.

E. Magstripe / Barcode Reader: Reads either magstripe or barcode badges, depending on the model.

F. Proximity Reader: Reads proximity badges without contact.

G. Reset Button: Resets and re-initializes the Smart Clock when pressed. Resetting the clock does not erase its memory.

H. Serial Label: Lists the Smart Clock model number, serial number and input voltage.

I. Communication LEDs: Illuminate briefly when data is transmitted between the Smart Clock and PC.

Communication errors are indicated when one or both LEDs remain illuminated. Contact Technical Support if this occurs.

J. Advance Button: Changes the Smart Clock's configuration settings when in Setup Mode. See "SETUP MODE" on [page 9](#) for more information.

K. Enter Button: Accepts and advances to the next configuration setting when in Setup Mode. See "SETUP MODE" on [page 9](#) for more information.

L. Menu Button: Press and hold for approximately 20 seconds to enter the Smart Clock's Setup Mode. Press this button to save and exit Setup Mode when configuration is complete. See "SETUP MODE" on [page 9](#) for more information.

M. Relay Terminal: Can be integrated with electronic door locks, lights, buzzers, etc. Capable of switching up to 120 VAC or DC at no more than 2 amps of current. See "RELAY INSTALLATION" on [page 9](#) for more information.

N. Slave / Master Switch: Used when connecting a daisy chain. When in a daisy chain, the Smart Clock connected directly to the PC must be set to MASTER; all other Smart Clocks are set to SLAVE. See "DAISY CHAIN INSTALLATION" on [page 8](#) for more information.

O. RS-232 Communication Interface: Allows for direct connection to a PC or the [50320](#) Ethernet Board and [50321](#) Wireless Network Adapter accessories.

Note: The [50320](#) Ethernet Board, [50321](#) Wireless Network Adapter, and [50322](#) Internal Modem are recommended for Smart Clock installations in more than one building.

P. RS-485 Communication Interface: Allows for daisy chain connection of up to 32 Smart Clocks. See "DAISY CHAIN INSTALLATION" on [page 8](#) for more information.

Q. Power Jack: Designed for use with a 115 VAC, 60 Hz @ 10 W minimum power source.

Note: Smart Clock recommends that the clock not be installed on shared power lines when possible. DO NOT install the Smart Clock on the same power line with devices that contain an electric motor.

R. [50322](#) Internal Modem (optional): Allows the user to communicate and poll Smart Clocks through analog phone lines. See "[50322](#) INTERNAL MODEM" on [page 41](#) for more information.

S. Smart Clock / Enroll Switch (fingerprint models only): Sets the Smart Clock to "SMART CLOCK" or "ENROLL" mode. When set to "SMART CLOCK", the Smart Clock will record user punches. When set to "ENROLL", the Smart Clock saves fingerprint templates; user punches are not recorded. See "SMART CLOCK WITH FINGERPRINT READER" on [page 13](#) for more information.

Installation

MOUNTING THE SMART CLOCK

A steel backplate is included with every Smart Clock to provide security and expandability to your installation. Use 3 screws to install the backplate about 45 inches above floor level (see Figure 3 for screw placement).



Figure 3. Smart Clock backplate recommended screw placement

The backplate features 4 knockouts. Use the left knockout located on the bottom of the backplate to route the communication and power cables. Use the other knockouts as needed.

After securing the backplate, route any communication cables through the pre-punched knockout and connect them to the appropriate jacks on either the Smart Clock or Ethernet Board. Then, route the power cable through the pre-punched knockout and plug it into the power jack located on the back of the Smart Clock. Once these are securely connected, dock the Smart Clock onto the steel backplate. Make sure that the tab on the top of the backplate inserts into the provided slot on the back of the Smart Clock. Secure the Smart Clock to the bottom of the backplate using the provided screw (see Figure 4).

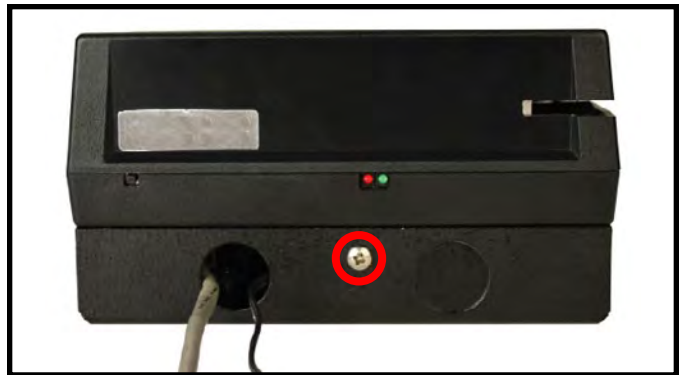


Figure 4. Securing the Smart Clock to the backplate

Power the Smart Clock by plugging the power supply into an electrical outlet up to 5 feet away.

DIRECTLY CONNECTING THE SMART CLOCK TO A PC

All Smart Clock models are packaged with a 25' long telephone cable and RS-232 / Serial Port Adapter. These items are used to establish a direct connection to a PC.

Note: The connection distance cannot exceed 200 feet if directly connecting the Smart Clock to the PC. Smart Clock recommends the [50320](#) Ethernet Board, [50321](#) Wireless Network Adapter, or [50322](#) Internal Modem for connections exceeding 200 feet.

- I. Connect one end of the included telephone cable into the "RS-232" jack located on the back of the Smart Clock.
- II. Connect the other end of the telephone cable into the RS-232 jack located on the RS-232 / Serial Port Adapter (see Figure 5).

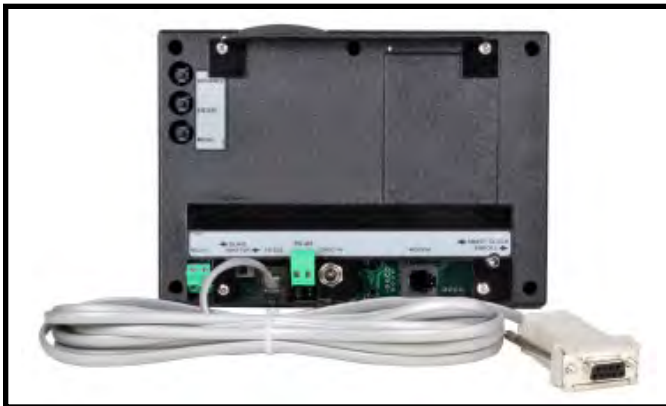


Figure 5. Connecting the telephone cord and RS-232 / Serial Port Adapter to the Smart Clock

- III. Connect the RS-232 / Serial Port Adapter to an available serial port located on your PC.
- IV. Open the Out-of-the-Box™ program and click "Browse" > "Smart Clock Configuration" > "Communication Lines" (see Figure 6).

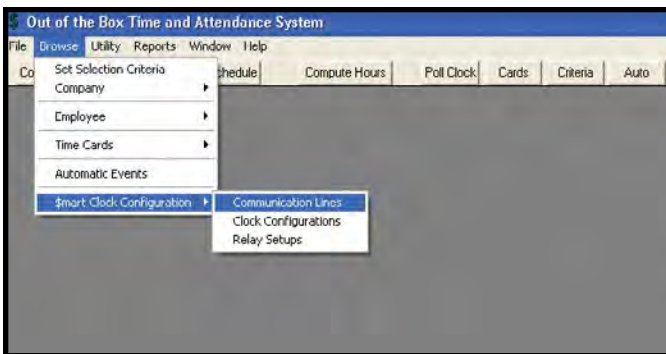


Figure 6. Out-of-the-Box™, Communication Lines

- V. Click the "Add" button in the "Browse Communication Lines" window (see Figure 7).

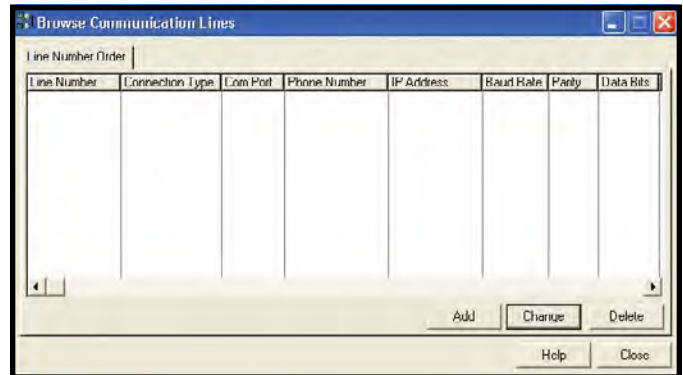


Figure 7. Out-of-the-Box™, Browse Communication Lines window

- VI. The "Adding New Communication Line" window will open. The following fields will have to be configured for direct connection use (see Figure 8):

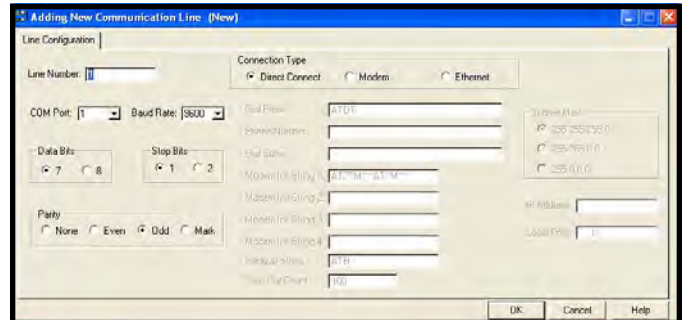


Figure 8. Out-of-the-Box™, Adding New Communication Line window

Line Number: Enter a line number, code or description to identify the line.

COM Port: This setting must match the COM port that is connected to your Smart Clock.

Baud Rate: The baud rate is the speed (bits per second) that the computer and the Smart Clock transmit and receive data across the telephone cable. The default for this field is 9600. This setting must match the baud rate setting in the Smart Clock's setup mode for communications to be established.

Connection Type: Direct Connect

Data Bits: 7
Stop Bits: 1
Parity: Odd

Note: If configuring a Smart Clock with Fingerprint Reader, use the following settings:

Data Bits: 8
Stop Bits: 1
Parity: None

VII. Click the “OK” button when completed and then close the “Browse Communication Lines” window afterward.

VIII. Click “Browse” > “Smart Clock Configuration” > “Clock Configurations” (see Figure 9).

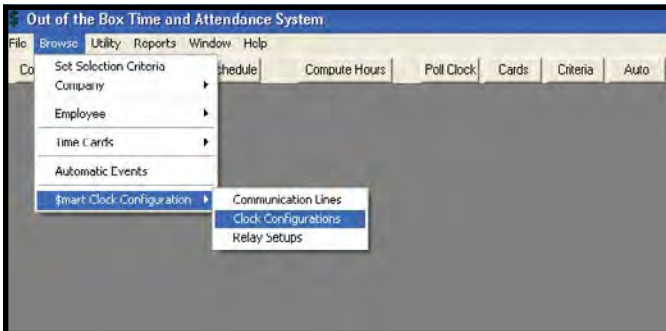


Figure 9. Out-of-the-Box™, Clock Configurations

IX. Click the “Add” button in the “Browse Clocks” window (see Figure 10).

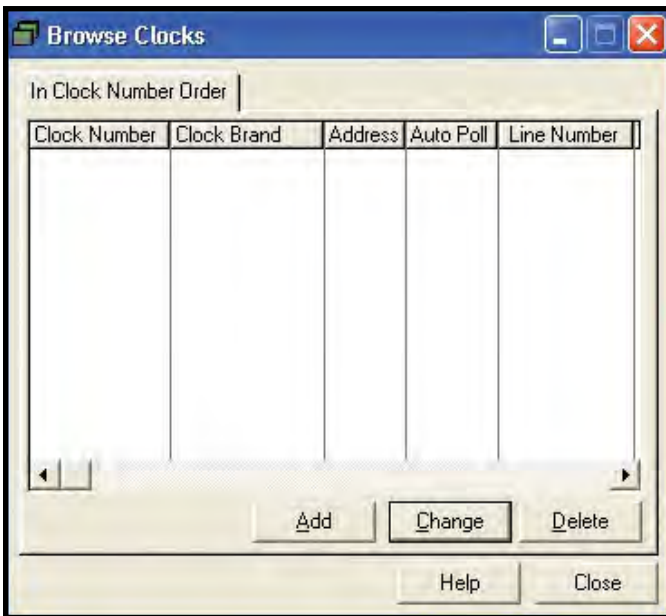


Figure 10. Out-of-the-Box™, Browse Clocks window

X. The “Record Will Be Added (New)” window will open. The following fields will have to be configured for direct connection use (see Figure 11):

Clock Number: Enter a unique clock number in this field. The default value is 101.

Address: Enter the address of the Smart Clock in this field. The valid addresses are 00-63. The default value is 00.

Note: This setting must match the Clock ID setting in the Smart Clock.

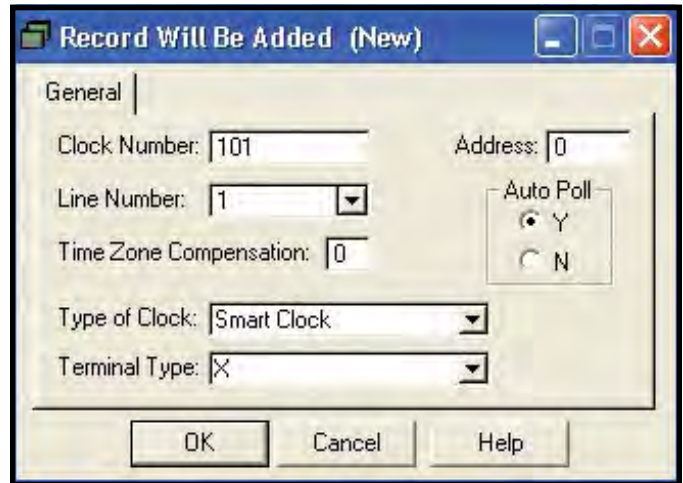


Figure 11. Out-of-the-Box™, Record Will Be Added window

Line Number: Select the communication line number that the program will use to communicate with the corresponding Smart Clock. Click the arrow button on the right side of the field to display a drop-down menu of the available line numbers.

Time Zone Compensation: This feature allows the program to synchronize all of your connected Smart Clocks across multiple time zones.

For example, if your company headquarters is located in Iowa (Central Time Zone), the “Time Zone Compensation” field for your Smart Clocks there will be set to 0. The “Time Zone Compensation” field will be set to -2 for Smart Clocks located in California (Pacific Time Zone) and 1 for Smart Clocks located in New York (Eastern Time Zone).

The value of this field represents the number of hours that will be added to or subtracted from your local time zone when setting the time for other time zones. If you do not have Smart Clocks setup in multiple time zones, set this field to 0.

Auto Poll: Selecting “Y” will include the given Smart Clock when using the automatic poll command. Selecting “N” will remove the given Smart Clock from the automatic poll command. This field also determines whether a Smart Clock will or will not be polled when using the Manual On-Line Data Gathering, Poll Clock, and Perform Clock I/O screens.

Type of Clock: Select “Smart Clock” if you are connecting to a Smart Clock without a fingerprint reader. Select “Smart Clock Bio” if you are connecting to a Smart Clock with Fingerprint Reader.

Terminal Type: This field will automatically configure to “X” when selecting “Smart Clock” in the “Type of Clock” field above and will configure to “Y” when selecting “Smart Clock Bio”.

- XI. Click the “OK” button when completed and then close the “Browse Clocks” window afterward.
- XII. The communication settings must then be checked via the “Perform Clock I/O” command. Begin by clicking “Utility” > “Perform Clock I/O” (see Figure 12).

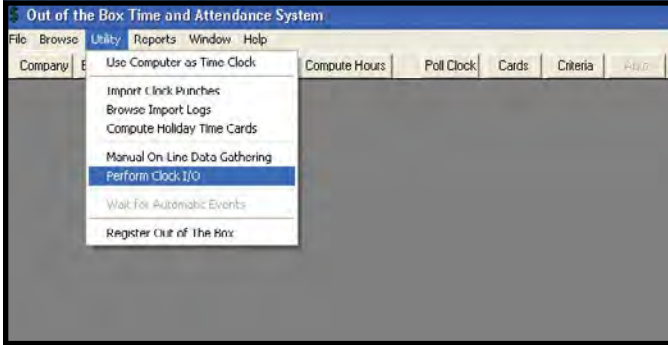


Figure 12. Out-of-the-Box™, Perform Clock I/O

- XIII. The “Clock Interface Control” window will open. Click on the drop down arrow next to the “Clock Number” field to display the list of available clocks to communicate with.

- XIV. Select the clock number that corresponds to your direct connection and click the “Connect” button. If a successful connection to the Smart Clock is established, the buttons in the window should become active (see Figure 13). If the buttons do not become active, review over steps I - XI or contact Technical Support.

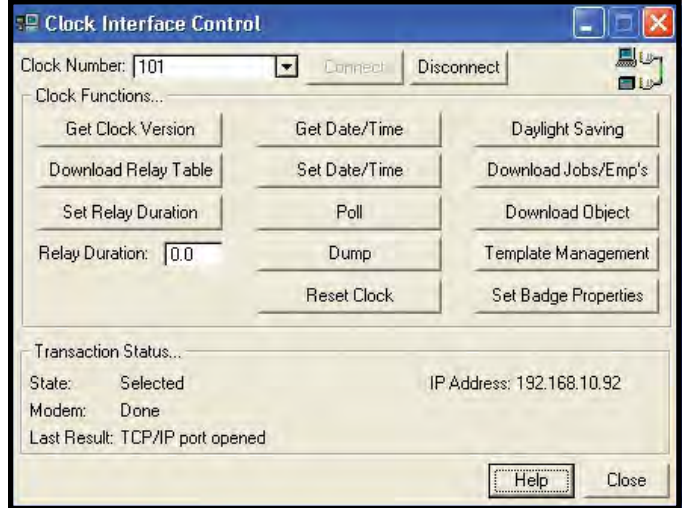


Figure 13. Out-of-the-Box™, Clock Interface window

DAISY CHAIN INSTALLATION

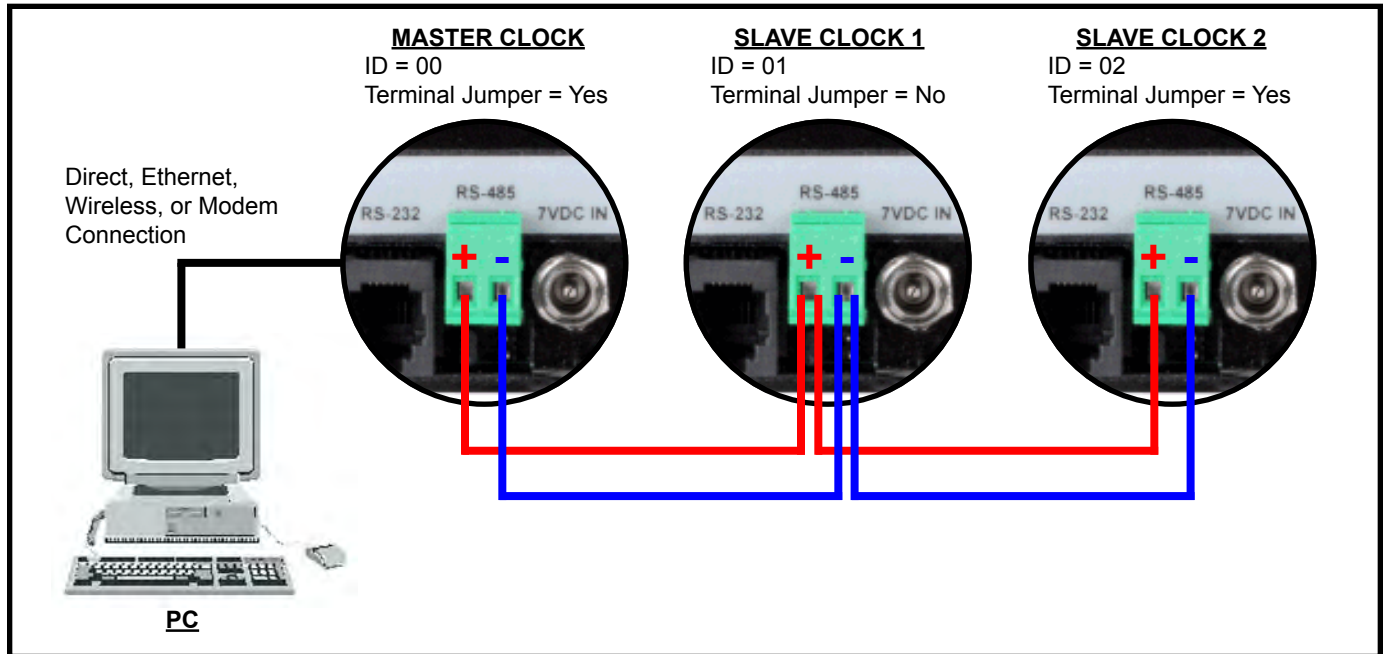


Figure 14. Connecting 3 Smart Clocks in a daisy-chain

• SLAVE / MASTER SWITCH

This switch located on the back of the Smart Clock sets the Smart Clock to either be a MASTER or SLAVE terminal on an RS-485 daisy chain. A MASTER CLOCK is defined as the first clock in the daisy chain. This clock is normally connected to the PC through direct, Ethernet, wireless, or modem connection and serves as an RS-232 / RS-485 converter. All other clocks connected to the MASTER CLOCK are considered SLAVE CLOCKS.

• RS-485 INTERFACE

The RS-485 interface built into the Smart Clock allows the user to daisy chain up to 32 clocks. The RS-485 interface requires standard 18 gauge wire routed from the master clock's RS-485 terminal and through the rest of the clocks on the daisy chain. The left terminal on the green RS-485 terminal block is positive (+) and the right terminal is negative (-) (see Figure 14).

The maximum overall length of cable between the master clock and last slave clock can be no longer than 4,000 feet.

An electrically clean path should be maintained for the total length of wire being routed for the RS-485 interface. A minimum distance of 3 feet parallel to any other cables should be maintained for the total length of the wire.

• INTERFACE PASS-THROUGH TECHNOLOGY

The Smart Clock has a unique feature called Interface Pass-Through Technology. This allows the Smart Clock to communicate with its RS-232 and RS-485 port simultaneously. It also allows for expansion of additional Smart Clocks on the same direct line (daisy chain) without the use of additional interface hardware.

Note: The installation of a daisy chain requires insulated 18 gauge wire. 1/4" of the insulation must be stripped at the ends when inserting into the RS-485 terminal blocks described in the procedure below.

- I. The master clock must be connected to the PC via a direct, Ethernet, wireless, or modem connection. The connection distance cannot exceed 200 feet if directly connecting the Smart Clock to the PC. Set the Slave / Master switch located on the back of the Smart Clock to "MASTER."
- II. Set the Slave / Master switch on the rest of the Smart Clocks in the daisy chain to "SLAVE."
- III. The first and last Smart Clocks on the daisy chain must have the jumper placed over the left set of terminals located below the RS-485 terminal block (see Figure 15). All Clocks in between must have the jumper removed.

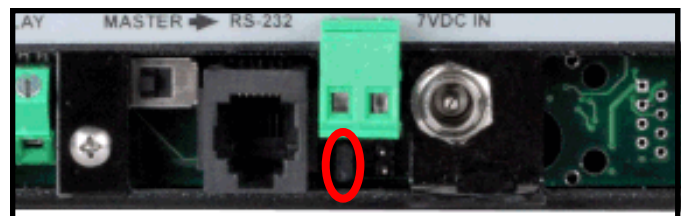


Figure 15. Daisy-chain terminal jumper

- IV. Each clock must have a different ID number. Begin with setting the master clock's ID to 00 and count your way up with the slave clocks (see Figure 14). Please refer to the "SETUP MODE" section on [page 9](#) for more details.

- V. The baud rate and parity of each Clock must match that of all of the other Clocks in the chain. Please refer to the "SETUP MODE" section on [page 9](#) for more details.
- VI. The port expand setting on each clock in the chain must be set to "YES." Please refer to the "SETUP MODE" section on [page 9](#) for more details.
- VII. Reset the power on all clocks when these changes have been made to the configurations.
- VIII. Use 18 gauge wire to connect all Smart Clocks in the same manner as illustrated in Figure 14. Color coded wire is recommended maintain polarity and ensure successful communication.

RELAY INSTALLATION

The Smart Clock's relay can be integrated with electronic door locks, lights, buzzers, etc. and is capable of switching up to 1A @ 30VDC or .5A @ 125 VAC.

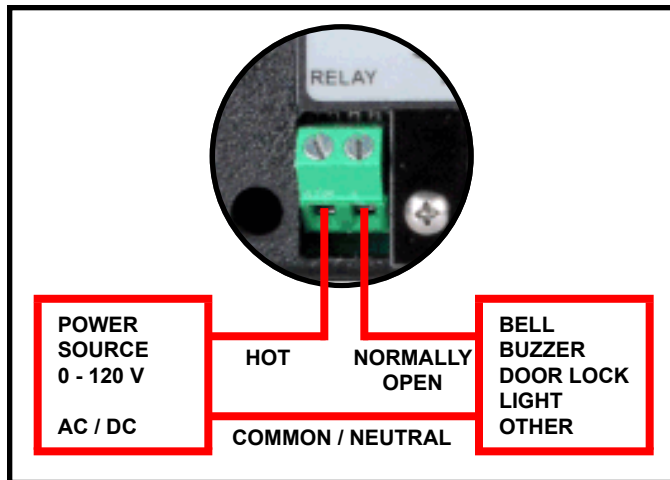


Figure 16. Relay installation

The relay can be used one of three ways:

1. The relay can be activated with any valid badge being swiped through the reader. When bell or buzzer times are not downloaded to the unit, the relay will switch on and then off after 3 seconds.
2. When connected to an electronic door lock, you may open a door with a slide of your badge. By downloading the employee badges to the memory of the Smart Clock you can prevent unauthorized access to a door. This employee download feature requires special programming in the Smart Clock.
3. When connected to a bell or buzzer, you can download up to 70 scheduled times per day that the bell or buzzer should be activated for breaks, lunch, etc. The open relay duration can also be adjusted from the default 3 seconds through the Out-of-the-Box™ program.

SETUP MODE

The 3 pushbuttons located on the back of the Smart Clock allow the user to change the configuration of the Smart Clock in "SETUP MODE."

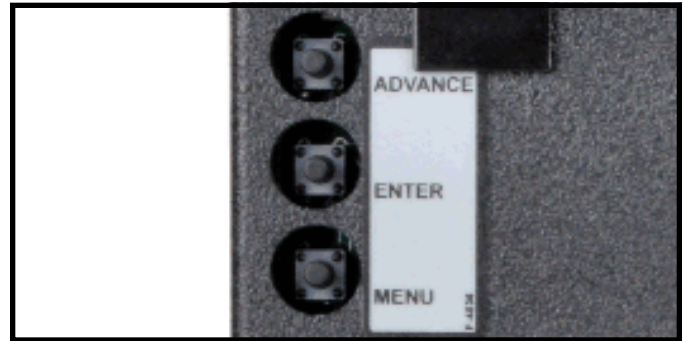


Figure 17. Smart Clock setup buttons

To enter SETUP MODE, push and hold the "MENU" button until the Smart Clock's display prompts with the message "SETUP MODE." This will take approximately 20 seconds.

The "ADVANCE" button is used to change the setting for the setup options listed below.

The "ENTER" button advances to the next menu option.

To save your settings once completed, press the "ENTER" button then the "MENU" button.

The following are the options when in Setup Mode (*factory setting):

- BAUD RATE: 9600*
VARIOUS SPEEDS
- PARITY: NONE
ODD*
EVEN
SPACING
MARKING
- CLOCK ID: 00* - 63
Equivalent to the "Clock Address" value in the "Clock Configuration" section of the software.
- DAYLIGHT SAVING: ENABLED
DISABLED*

In an effort to reduce the amount of energy used in the United States, the federal government enacted the Energy Act of 2005 which changed Daylight Saving Time. The date changes began in 2007. The Smart Clock contains a 100-year time clock chip that was programmed before the above legislation; therefore, the Daylight Saving feature is disabled at the factory and should not be enabled. This setting is only found in Smart Clocks prior to version 3.93.

PORT EXPAND: YES*
NO

RINGS COUNT: 1-9

Controls the number of rings before the line is answered on clocks equipped with the optional [50322](#) Internal Modem.

DECODE NUM: YES
NO

Allows the clock to decode proximity badges when used in conjunction with the Badge Properties option in your software. Please contact Technical Support for more information.

Note: When using HID proximity badges that will be decoded at the clock, this setting must be set to YES. When using Motorola proximity badges, this setting must be set to NO.

All proximity clocks are configured to decipher proximity badge information via these settings at the factory. If for some reason you need the software to handle the deciphering of proximity badge data, this field would need to be set to NO, and the appropriate settings entered in the "Company / Badge Type" section of the software.

READER: MAGSTRIPE*
WEIGAND26
WEIGAND35

When using either Motorola or HID proximity badges, this setting needs to be set to MAGSTRIPE.

ONLINE MODE: YES
NO*

Allows the clock to instantly transmit punches to the computer as badges are swiped at the clock. Please contact Technical Support for more information.

SMART CLOCK WITH KEYPAD



Figure 18. [50306](#) Smart Clock

Description

The Smart Clock with Keypad allows functions without the use of magstripe, barcode, or proximity badges. Users punch in and out at the Clock by manually entering their PIN on the keypad.

Note: This section of the manual corresponds to the [50306](#) Smart Clock model only.

Operation

Users should implement the following procedure on a daily basis to record their punch times:

- I. Press "Clear", enter your PIN, then press "Enter".
- II. The Smart Clock will beep once and display "HAVE A NICE DAY" to indicate a successful punch.

SMART CLOCK WITH MAGSTRIPE / BARCODE READER



Figure 19. [50308](#) Smart Clock

Description

The Smart Clock with Magstripe or Barcode Reader allows users to punch in and out with the single swipe of a magstripe or barcode badge.

Note: This section of the manual corresponds to the [50300](#), [50301](#), [50307](#), and [50308](#) Smart Clock models only.

The use of magstripe badges eliminates duplicate encoding by employees. The magstripe reader in the Smart Clock decodes ANSI X4.16 Track 2.



Figure 20. Smart Clock Magstripe Badge

Barcode badges are more durable than magstripe badges and are suitable for harsh environments such as dusty warehouses. The barcode reader in the Smart Clock can decode any barcode symbology including codes 39 and 128. The center of the barcode is located 1/2" from the bottom of the badge.



Figure 21. Smart Clock Barcode Badge

Operation

Users should implement the following procedure as required to record their punch times:

- I. Swipe the badge through the reader with the magstripe or barcode facing away from the user (see Figure 22).



Figure 22. Swiping the magstripe or barcode badge through the Smart Clock's reader

- II. If the badge is properly read, the Smart Clock will beep once and display "HAVE A NICE DAY" to indicate a successful punch.

If the badge is improperly read, the Smart Clock will beep 3 times and display "VOID". Swipe the badge again until you get an accepted reading.

SMART CLOCK WITH PROXIMITY READER



Figure 23. [50302](#) Smart Clock

Description

The Smart Clock with Proximity Reader allows users to punch in and out without contact between the badge and reader. The proximity reader embedded within the Smart Clock accommodates most existing proximity badges used in Access Control Systems.

Note: This section of the manual corresponds to the [50302](#) and [50309](#) Smart Clock models only.

The Smart Clock with Proximity Reader decodes HID brand proximity badges and are practically maintenance free with no parts to wear or adjust. The actual reader is located behind the sensor marking on the Smart Clock and uses radio wave technology to transmit data from the proximity badge.



Figure 24. HID Proximity Badge

Operation

Users should implement the following procedure on a daily basis to record their punch times:

- I. Hold the proximity badge about 1/2" in front of the sensor marking on the Smart Clock (see Figure 25).



Figure 25. Holding the proximity badge in front of the proximity reader

- II. Once the badge is read, the Smart Clock will beep once and display "HAVE A NICE DAY" to indicate a successful punch.

SMART CLOCK WITH FINGERPRINT READER

Description

The Smart Clock with Fingerprint Reader allows for the most secure and accurate collection of time and attendance data. The Smart Clock with Fingerprint Reader effectively eliminates “buddy-punching.” Users can only punch in by scanning their fingerprint on the Smart Clock’s fingerprint sensor.

Note: This section of the manual corresponds to the [50272](#), [50274](#), [50271](#), [50273](#), [50275](#), and [50270](#) Smart Clock models only.

Features and Components



Figure 26. Smart Clock with Fingerprint Reader features and components

Note: The images above display one of the six available Smart Clock with Fingerprint Reader models. See the table on [page 1](#) for more information on the available models and their features.

A. Fingerprint Status LED: Multi-colored LED that displays the status of the readings from the fingerprint reader.

When the clock is set to ENROLL mode:

Amber: Smart Clock is ready to read the user’s fingerprint

Green: Fingerprint accepted

Red: Fingerprint not accepted

When the clock is set to SMART CLOCK mode:

Amber: Smart Clock is ready to read the user’s fingerprint

Green: Fingerprint accepted and user’s punch saved to the clock

Red: Fingerprint not accepted and user’s punch not saved to the clock

B. Fingerprint Reader: Fingerprint is placed here for readings.

C. Smart Clock / Enroll Switch: Sets the Smart Clock to “SMART CLOCK” or “ENROLL” mode. When set to “SMART CLOCK”, the Smart Clock will record user punches. When set to “ENROLL”, the Smart Clock saves fingerprint templates; user punches are not recorded. This switch must be set to “ENROLL” when using the Bioscrypt Fingerprint program. Once the Bioscrypt enrollment procedure is completed, move the switch back to “SMART CLOCK” and reset the Smart Clock’s power.

Note: Smart Clock recommends that the following steps be completed before working through this section of the manual:

- Install and register your copy of the Out-of-the-Box™ software on your PC.
- Complete all company information data entry in your software.

Smart Clock recommends that this procedure be completed with the Smart Clock next to the PC. The recommended enrollment procedure requires that the Smart Clock be connected to the PC via the COM port. This also applies to Smart Clocks using Ethernet, wireless, and modem connections. Once communication and enrollment is established with the Smart Clock, it may then be moved to a preferred location.

Enrollment

Enrolling supervisors and users on the Smart Clock Fingerprint Model can be done in two different ways.

Smart Clock recommends that all customers use the Bioscrypt Fingerprint program when enrolling users.

This method requires the Smart Clock to be connected directly to an available COM port on the PC where the Out-of-the-Box™ software is installed. This also applies to Smart Clocks using Ethernet, wireless, and modem connections. Smart Clocks with modems can have the modem temporarily disabled via the jumper setting. See the “[50322 INTERNAL MODEM](#)” section on [page 43](#) for more information.

Once the enrollment is complete, users with modem or Ethernet units can reconfigure their clocks to make use of those communication options.

The other method requires enrollment to be done directly at the Smart Clock via the use of supervisor badges or keypad codes. This method is an alternative when your situation does not allow for the use of the Bioscrypt Fingerprint program. Bioscrypt can be used after the direct enrollment of all users at the Smart Clock and transfer of their fingerprint templates onto the PC using the Template Management option in the Out-of-the-Box™ program.

This manual will provide you with detailed instructions on both methods of enrollment. Enrollment Method 2 can be found on [page 20](#).

ENROLLMENT METHOD 1: ENROLLING THROUGH THE BIOSCRYPT PROGRAM

BIOSCRYPT INSTALLATION

- I. Download the Bioscrypt Fingerprint Software file by visiting [SmartClock.com](#). The download link can be found under “Technical Support” > “Downloads”.
- II. Save the BioscryptOEMDemo.exe file into your Smart Clock software’s directory folder. For example, in the Out-of-the-Box™ software, the directory may be C:\Otbwin.
- III. Once downloaded, close all open programs and run the BioscryptOEMDemo.exe file. Follow the on-screen steps to complete installation. Create a desktop shortcut to BioscryptOEMDemo.exe for quick access.

BIOSCRYPT SET-UP

- I. Disconnect the power to the Smart Clock.
- II. Insert one end of the included telephone cable into the RS-232 jack located on the included serial port adapter and the other end into the RS-232 jack located on the back of the Smart Clock (see Figure 27).



Figure 27. Connecting the telephone cord and RS-232 / Serial Port Adapter to the Smart Clock

- III. Connect the 9-pin adapter into an available COM port located on the back of your computer.
- IV. Power the Smart Clock. A “MV1200 OK” message should appear on Smart Clock’s display during boot up. This indicates proper communication between the Smart Clock and the fingerprint sensor.
- V. Toggle the switch located on the back of the Smart Clock to “ENROLL”.
- VI. Ensure that the Out-of-the-Box™ program is closed, and open the Bioscrypt Fingerprint program.
- VII. An error message may appear when first opening the program. Disregard this message and click the “OK” button. The home screen will become available (see Figure 28).

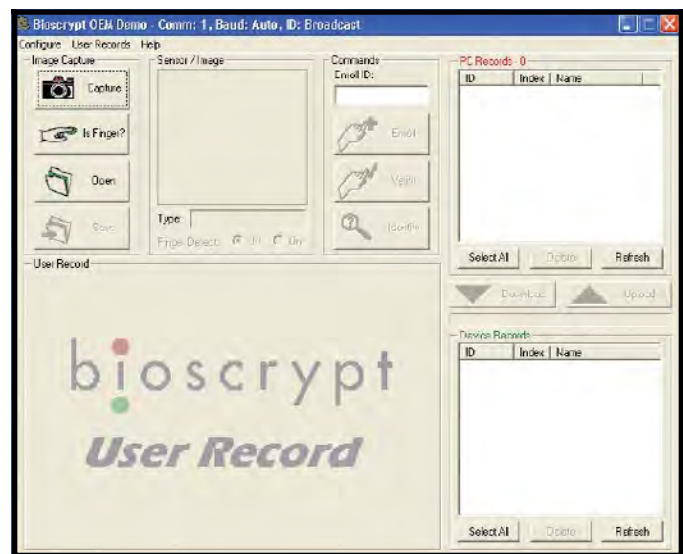


Figure 28. Bioscrypt, home screen

VIII. Click “Configure” > “Set Storage Directory” (see Figure 29).



Figure 29. Bioscrypt, Set Storage Directory

IX. A “Browse for Folder” window will open allowing you to select the fingerprint template folder in your PC. This is where all fingerprint templates will be saved (see Figure 30).

In Out-of-the-Box™, the path is
C:\Otbwin\Templates

Select the appropriate folder and click the “OK” button.



Figure 30. Bioscrypt, selecting the Templates folder

X. If the Smart Clock did not automatically connect with Bioscrypt, click “Configure” > “Communication Options” (see Figure 31).

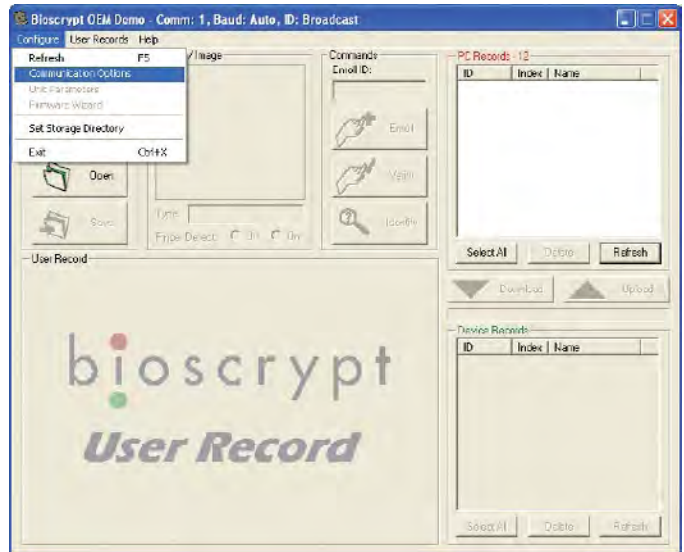


Figure 31. Bioscrypt, Communication Options

XI. A “Communication Options” window will open allowing you to correct your communication settings to the Smart Clock. If you do not know which COM port your Smart Clock is connected to, use the “Scan for Devices” button. Be sure to leave the “Transmit ID” to “Broadcast ID (-1)” (see Figure 32).

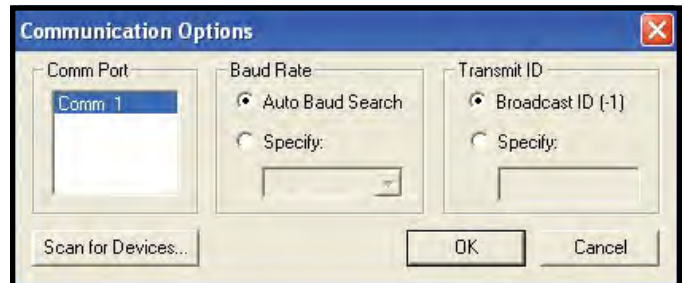


Figure 32. Bioscrypt, Communication Options window

XII. If the “PC Records” and “Device Records” windows are not displayed in Bioscrypt, click “User Records” > “Show Record Management” to make them appear (see Figure 33). These windows will be used when enrolling users.



Figure 33. Bioscrypt, Show Record Management

Enrolling Supervisors

All supervisors must be enrolled under number “989898” in the “Enroll ID” field located at the top of the Bioscrypt home screen (see Figure 34). This ID number will have a variety of fingerprints associated with it.

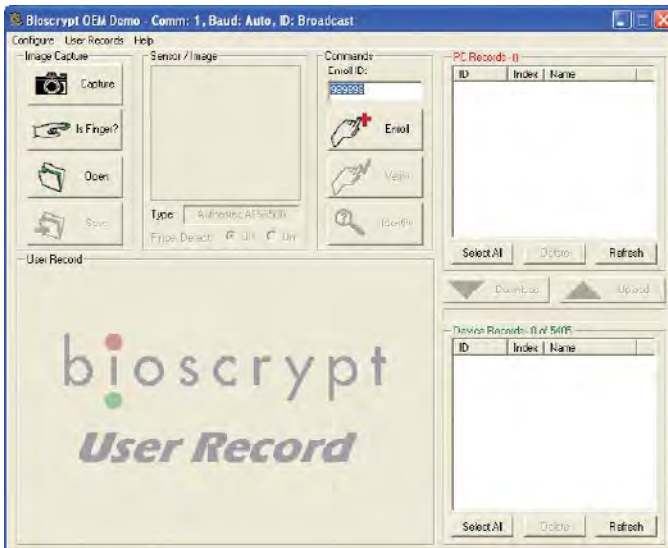


Figure 34. Bioscrypt, entering ID numbers in the Enroll ID field

Enrolling Users to a Smart Clock with a Magstripe, Barcode, or Proximity Reader

Enter the badge number for the user you wish to enroll in the “Enroll ID” field at the top of the screen and press the “Enroll” button. Make note of the badge number on the card you select. This is the same number you will enter in the employee window’s badge number field when using the Out-of-the-Box™ program.

Enrolling Users to a Smart Clock with PIN Entry

Enter the Personal Identification Number for the first user you wish to enroll in the “Enroll ID” field at the top of the screen and press the “Enroll” button. Make note of the PIN you select. This is the same number you will enter in the employee window’s badge number field when using the Out-of-the-Box™ program.

ENROLLMENT PROCEDURE (BIOSCRYPT)

- I. Enter either a badge number or PIN into the “Enroll ID” field then click “Enroll”. Bioscrypt will then prompt to place the user’s finger on the sensor.
- II. The index, middle, and ring fingers are recommended for use with the fingerprint reader. Avoid using the thumb and pinky fingers. These fingers can be awkward to position consistently on the reader (see Figure 35).

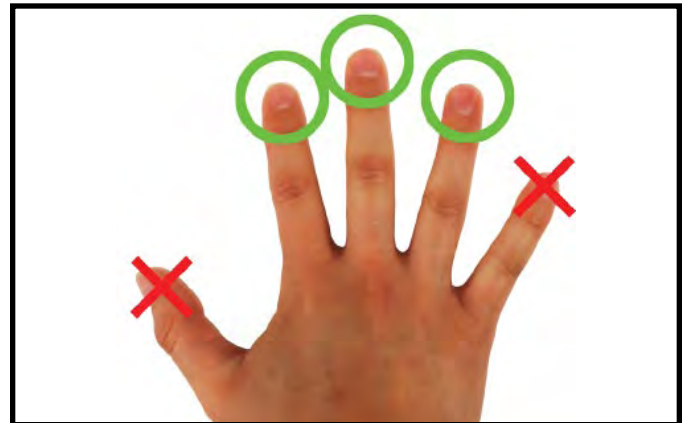


Figure 35. Recommended fingers for the fingerprint reader

Note: The right index finger is recommended as the first finger of enrollment. Enrollment of a minimum of two fingers is recommended for all users including the supervisor.

- III. The ridge-lock is the raised plastic piece located underneath the fingerprint reader (see Figure 36). Use the ridge-lock to discharge static electricity (see Figure 37) and as a guide to correctly position your finger onto the reader (see Figure 38).



Figure 36. Ridge-lock located on the fingerprint reader



Figure 37. Touching the ridge-lock to discharge static electricity



Figure 38. Aligning the finger to the ridge-lock

IV. The user or supervisor being enrolled will need to slide the first joint of their finger onto the ridge-lock without touching the sensor (see Figure 38). The first knuckle rests on the ridge-lock, the core of the finger lies on the reader and the tip of the finger lays on the semicircular cut out above the reader (see Figure 38). Apply moderate pressure. Completely covering the entire area of the sensor with their

fingerprint will provide the best performance. All users should apply this manner when enrolling and punching in / out.



Figure 39. Correctly placing the finger on the fingerprint reader

V. Figures 40 - 42 demonstrate how NOT to use the fingerprint reader.



Figure 40. DO NOT push down on the fingerprint sensor



Figure 41. DO NOT roll the finger



Figure 42. Unaligned fingerprint reading. Use the ridge-lock as a placement guide

- VI. The user must continue to hold their finger on the reader until the “Remove Finger” message appears on Bioscrypt.
- VII. The fingerprint reader grades on image “Quality” and “Content.” Smart Clock recommends that the quality score be greater than or equal to 40 and the content score be greater than or equal to 20. If either of the scores are below the recommended value, delete the fingerprint and retake the image capture. Alternate fingers may also be used.

The quality score indicates the clarity of the captured image. For the best image quality, ensure that the reader is clean of dirt and residue.

The content score indicates the amount of usable information in the fingerprint reading. Improper finger positioning and bland fingerprints can result in a low score.

- VIII. At this point, the user or supervisor is enrolled. The area in the lower left-hand corner of the screen contains important enrollment information, including an image of the actual fingerprint (see Figure 43).

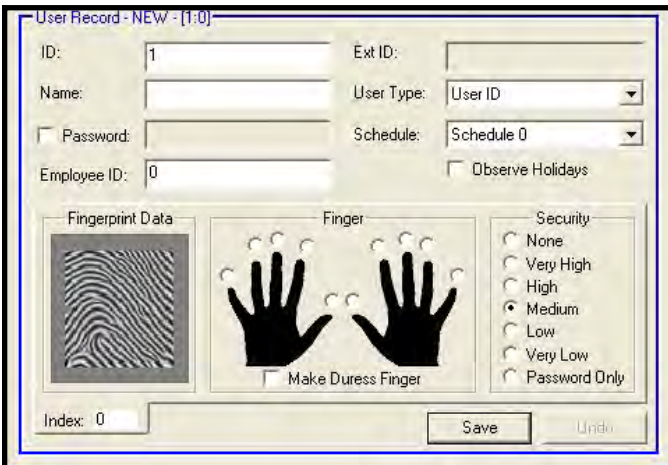


Figure 43. Bioscrypt, “User Record” section

This area enables you to see the fingerprint details including the actual fingerprint image and security settings.

In the lower left-hand corner of the “User Record” section, there is a field labelled “Index”. This field is important for both users and supervisors. Whenever you enroll more than one fingerprint for the same user or supervisor, you must give each fingerprint a different index number. For example, when you enroll your right index finger, it will have index 0. If you enroll your left index finger, you must make sure to change the index value to 1. If you do a third finger, you must enter index value 2, etc.

Refer to the figure below to guide you in choosing the most efficient fingerprint images.

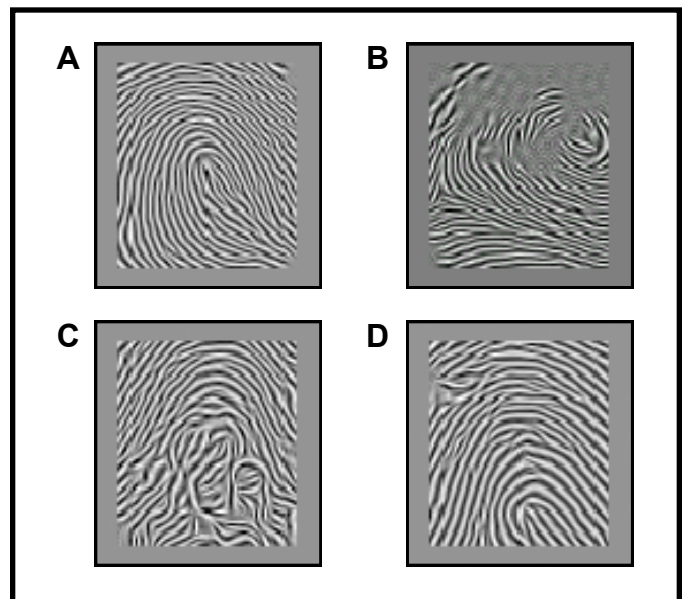


Figure 44. Bioscrypt, fingerprint examples

- A. Quality:** Good quality enrollment.
Content: Core is properly centered; surface area and ridge pattern are well defined.
- B. Quality:** User should apply more pressure to increase the fingerprint surface area in the image.
Content: Core is properly centered.
- C. Quality:** Bad quality enrollment. Ridges are not well-defined. User should try an alternate finger that provides better imagery.
Content: Core is properly centered but not well-defined. User should try an alternate finger that provides better imagery.

D. Quality: Good quality enrollment.

Content: Core is not properly centered. User should re-position finger by properly using the Ridge-Lock.

You may find some users who have followed all of the procedures correctly, but due to the condition of their fingerprints, you are unable to capture a good image. The security threshold within Bioscrypt can be adjusted to allow these problematic users to clock in (see Figure 45). This setting makes the template comparison more forgiving for that particular fingerprint and does not affect the security settings for the other users.

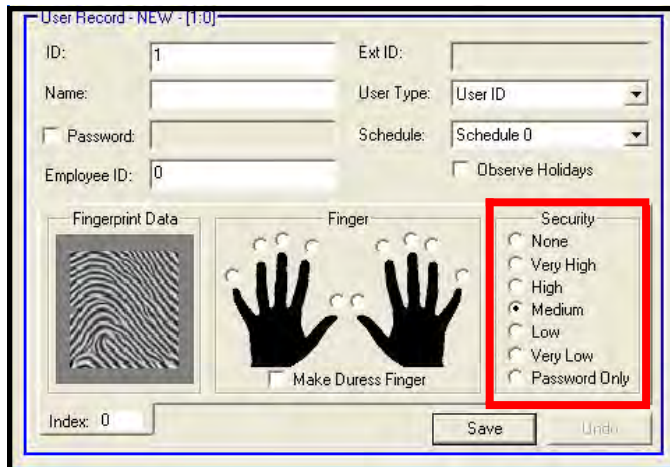


Figure 45. Bioscrypt, "Security" section

Once you have verified that the captured fingerprint image is good, click the "Save" button to save the template in the Smart Clock's memory. Bioscrypt will then be ready to enroll another user.

Note: Be sure to set the Smart Clock / Enroll switch back to "SMART CLOCK" and reset the power when the enrollment procedure is completed to allow users to clock in and out.

USING BIOSCRYPT TO MANAGE FINGERPRINT TEMPLATES ON THE PC

Copying fingerprint templates to your PC provides a backup in case of environmental damage or vandalism to the Clock. This procedure will also allow you to skip the enrollment procedure should new Smart Clocks with Fingerprint Readers be purchased and existing templates are to be uploaded to them.

Backing-up Fingerprint Templates to the PC

- I. Set the Smart Clock / Enroll switch to "ENROLL" and open the Bioscrypt Fingerprint program.
- II. Click the individual template files or use the "Select All" button located under the "Device Records" section of the program to select all the template files.

- III. Once selected, click the "Upload" button to copy the files over to your PC. These files will be saved in the folder specified in the "Configure" > "Set Storage Directory" setting of the program (see Figure 46).

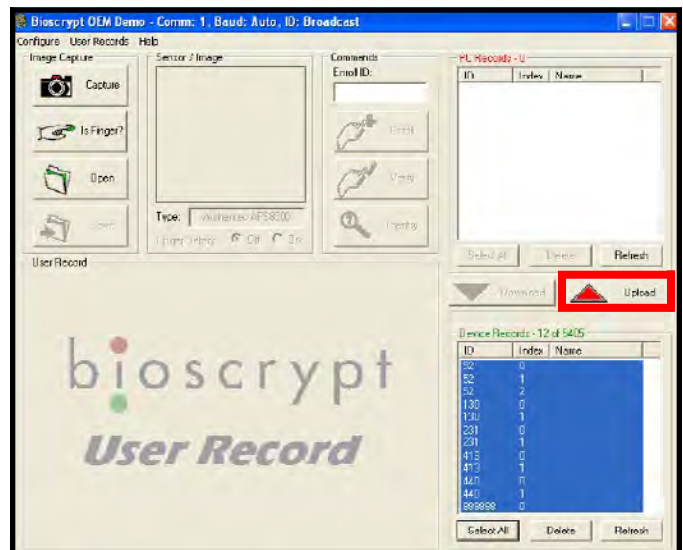


Figure 46. Bioscrypt, copying templates to the PC

Uploading Fingerprint Templates to the Smart Clock

- I. Set the Smart Clock / Enroll switch to "ENROLL" and open the Bioscrypt Fingerprint program.
- II. Click the individual template files or use the "Select All" button located under the "PC Records" section of the program to select all the template files.
- III. Once selected, click the "Download" button to copy the files over to Smart Clock (see Figure 47).

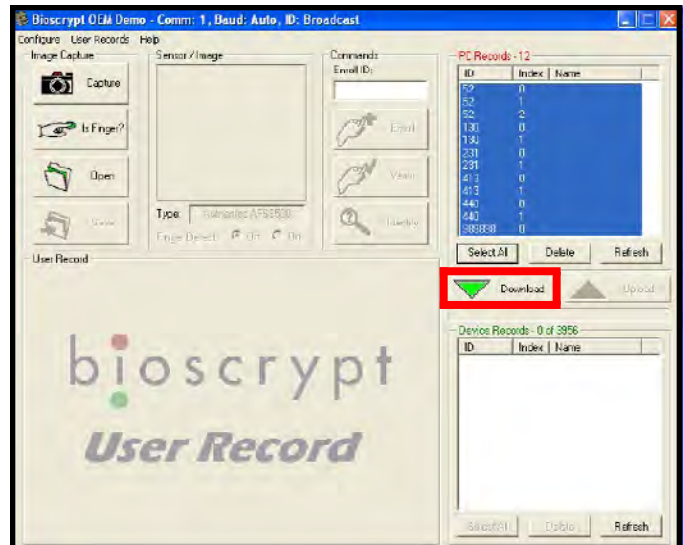


Figure 47. Bioscrypt, downloading templates to the Smart Clock

Deleting Fingerprint Templates from the Smart Clock

- I. Set the Smart Clock / Enroll switch to “ENROLL” and open the Bioscrypt Fingerprint program.
- II. Click the individual template files located under the “Device Records” section of the program, and click the “Delete” button to remove the template from the Smart Clock’s memory (see Figure 48).

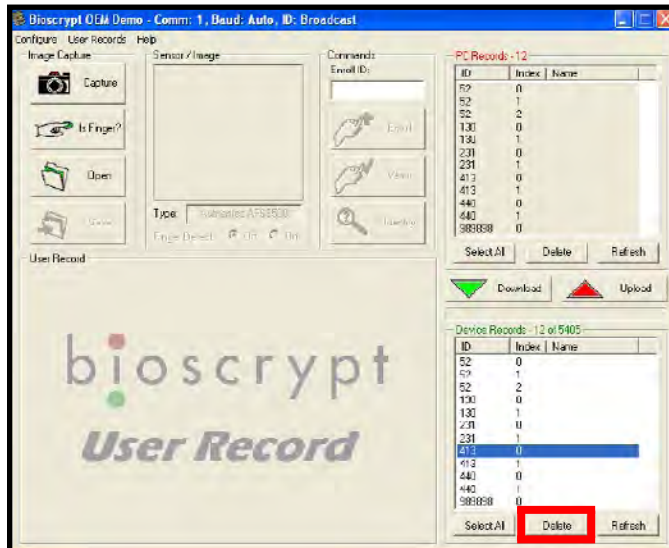


Figure 48. Bioscrypt, deleting templates from the Smart Clock

ENROLLMENT METHOD 2: ENROLLING DIRECTLY AT THE SMART CLOCK

Enrolling Supervisors

The supervisor is the person who will be in charge of enrolling and managing the employee badges and fingerprint templates at the Smart Clock. You can enroll various fingerprints for one supervisor or you can enroll several different supervisors for each clock. There is only one supervisor code number or supervisor badge and all supervisors will be tied to that number or badge. Please refer to the sealed supervisor envelope included with your Smart Clock for the code numbers to each procedure. These code numbers should not be revealed to the employees.

The enrollment procedure for the supervisor has a 10 second window and must be done at a quick pace. If you hesitate, the Smart Clock will time you out of the procedure, and you will need to start again from the beginning. Please read through the next section regarding the enrollment of users before enrolling the supervisor. It contains detailed information on the positioning of the finger and how to view fingerprints through the program that will also prove useful when enrolling the supervisor.

Note: The Smart Clock / Enroll switch must be set to “SMART CLOCK” during all enrollment done directly at the Smart Clock.

- I. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the SUPERVISOR ENROLL badge through the Smart Clock. The Smart Clock will prompt “ENTER SUPERVISOR BADGE”. Swipe the SUPERVISOR badge through the reader.

If using a Smart Clock with PIN Entry or Proximity Reader, press “Clear”, enter the supervisor enroll code and press “Enter”. The clock will prompt “ENTER SUPERVISOR BADGE”. Press “Clear”, enter the supervisor code number and press “Enter”.

- II. The Smart Clock will display “ENROLLING SUPERVISOR” then “PLACE FINGER ON SENSOR”. The Fingerprint Status LED will illuminate amber indicating that the clock is waiting for a finger to be placed on the sensor.

The index, middle, and ring fingers are recommended for use with the fingerprint reader. Avoid using the thumb and pinky fingers. These fingers can be awkward to position consistently on the reader (see Figure 49).

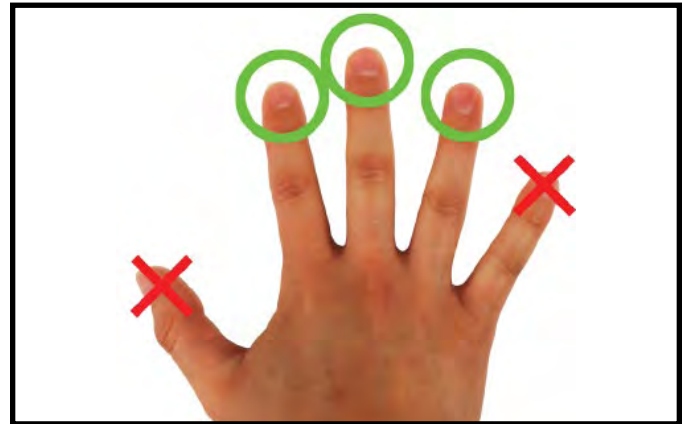


Figure 49. Recommended fingers for the fingerprint reader

Note: The right index finger is recommended as the first finger of enrollment. Enrollment of a minimum of two fingers is recommended for all users including the supervisor.

- III. The ridge-lock is the raised plastic piece located underneath the fingerprint reader (see Figure 50). Use the ridge-lock to discharge static electricity (see Figure 51) and as a guide to correctly position the user’s finger onto the reader (see Figure 52).



Figure 50. Ridge-lock located on the fingerprint reader



Figure 51. Touching the ridge-lock to discharge static electricity



Figure 52. Aligning the finger to the ridge-lock

IV. The supervisor being enrolled will need to slide the first joint of their finger onto the ridge-lock without touching the sensor (see Figure 52). The first knuckle rests on the ridge-lock, the core of the finger lies on the reader and the tip of the finger lays on the semicircular cut out above the reader (see Figure 53). Apply moderate pressure. Completely covering the entire area of the sensor with their fingerprint will provide the best performance. All users should apply this manner when enrolling and punching in / out.



Figure 53. Correctly placing the finger on the fingerprint reader

V. Figures 54 - 56 demonstrate how NOT to use the fingerprint reader.



Figure 54. DO NOT push down on the fingerprint sensor



Figure 55. DO NOT roll the finger



Figure 56. Unaligned fingerprint reading. Use the ridge-lock as a placement guide

- VI. After placing your finger firmly on the fingerprint reader for a few seconds, “REMOVE FINGER” will appear on the display.

If the enrollment is unsuccessful, “FAILED TO VERIFY” will appear on the display and the Fingerprint Status LED will illuminate red. You will have to begin the procedure again if this occurs.

If the enrollment is successful, “ENROLL PASSED” will appear on the display quickly followed by the quality and content scores. The Fingerprint Status LED will illuminate green to indicate a successful enrollment.

- VII. The fingerprint reader grades on image “Quality” and “Content.” Smart Clock recommends that quality score be greater than or equal to 40 and the content score be greater than or equal to 20. If either of the scores are below the recommended value, delete the fingerprint and retake the image capture. Alternate fingers may also be used.

The quality score indicates the clarity of the captured image. For the best image quality, ensure that the reader is clean of dirt and residue.

The content score indicates the amount of usable information in the fingerprint reading. Improper finger positioning and bland fingerprints can result in a low score.

- VIII. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the SUPERVISOR ENROLL badge through the Smart Clock to end the enrollment procedure. “ENROLLMENT COMPLETED” will appear on the display.

If using a Smart Clock with PIN Entry or Proximity Reader, press “Clear”, enter the supervisor enroll code and press “Enter” to end the enrollment procedure. “ENROLLMENT COMPLETED” will appear on the display.

Enrolling Users

After the supervisor is enrolled, the supervisor can enroll the employees who will be using the Clock. It is imperative that the enrollment process be handled correctly in order for the Smart Clock to function properly.

- I. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the SUPERVISOR ENROLL badge through the Smart Clock. The Smart Clock will prompt “ENTER SUPERVISOR BADGE”. Swipe the SUPERVISOR badge through the reader.

If using a Smart Clock with PIN Entry or Proximity Reader, press “Clear”, enter the supervisor enroll code and press “Enter”. The clock will prompt “ENTER SUPERVISOR BADGE”. Press “Clear”, enter the supervisor code number and press “Enter”.

- II. The Smart Clock will display “PLACE FINGER ON SENSOR”. The Fingerprint Status LED will illuminate amber indicating that the Clock is waiting for the supervisor’s finger to be placed on the sensor.

Note: The supervisor has approximately 10 seconds to place his / her finger on the fingerprint reader. If time expires, the supervisor will have to begin the procedure again.

- III. After the supervisor places his / her finger firmly on the fingerprint reader for a few seconds, “REMOVE FINGER” will appear on the display.

If the reading is unsuccessful, “FAILED TO VERIFY” will appear on the display and the Fingerprint Status LED will illuminate red. The supervisor will have to begin the procedure again if this occurs.

If the reading is successful, "VERIFY PASSED" will appear on the display. The Fingerprint Status LED will illuminate green to indicate a successful verification. "ENTER BADGE TO BE ENROLLED" will display.

- IV. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the badge for the first user you wish to enroll. Make note of the badge number on the card you select. This is the same number you will enter in the employee record's "Badge Number" field when using the Out-of-the-Box™ program.

If using a Smart Clock with PIN Entry or Proximity Reader, press "Clear", enter the user's Personal ID Number and press "Enter". This is the same number you will enter in the employee record's "Badge Number" field when using the Out-of-the-Box™ program.

- V. "PLACE FINGER ON SENSOR" will display and the Fingerprint Status will illuminate amber.

Note: The user has approximately 10 seconds to place his / her finger on the fingerprint reader. If time expires, the user will have to begin the procedure again.

- VI. The user should follow the same fingerprint placement procedure that is discussed in Steps II - VII of the previous "Enrolling Supervisors" section.

- VII. Once a successful enrollment is completed, the "ENTER BADGE TO BE ENROLLED" prompt will again appear on the display.

If using a Smart Clock with a Magstripe or Barcode Reader, the supervisor may swipe the same user badge to enroll a different finger or a different user badge to continue with a different user.

If using a Smart Clock with PIN Entry or Proximity Reader, the supervisor may enter the same user PIN to enroll a different finger or a different user PIN to continue with a different user.

- VIII. If using a Smart Clock with a Magstripe or Barcode Reader, the process must be closed with the SUPERVISOR ENROLL badge. Once the badge is swiped, "ENROLLMENT COMPLETED" will appear on the display.

If using a Smart Clock with PIN Entry or Proximity Reader, press "Clear", enter the supervisor enroll code and press "Enter" to end the enrollment procedure. "ENROLLMENT COMPLETED" will appear on the display.

USING OUT-OF-THE-BOX™ TO MANAGE FINGERPRINT TEMPLATES ON THE PC

Copying fingerprint templates to your PC provides a backup in case of environmental damage or vandalism to the clock. This procedure will also allow you to skip the enrollment procedure should new Smart Clocks with Fingerprint Readers be purchased and existing templates are to be uploaded to them.

Note: Communication between the Smart Clock and PC must be established in order to follow this procedure. This can be done using the direct telephone cable, Ethernet Board, Wireless Network Adapter, or Internal Modem.

Backing-up Fingerprint Templates to the PC

- I. Open the Out-of-the-Box™ program, and click "Utility" > "Perform Clock I/O" (see Figure 57).

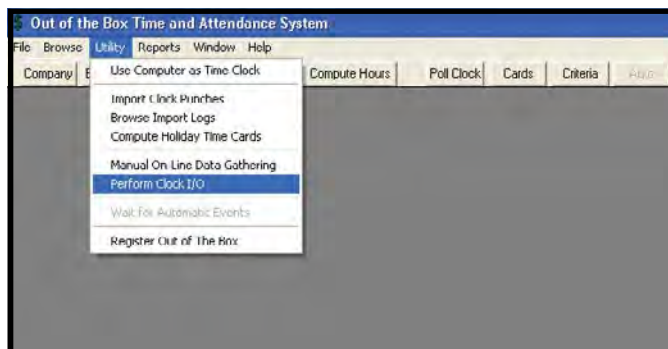


Figure 57. Out-of-the-Box™, Perform Clock I/O

- II. The "Clock Interface Control" window will open. Click on the drop down arrow next to the "Clock Number" field to display the list of available clocks to communicate with.
- III. Select the clock number that corresponds to your Smart Clock with Fingerprint Reader and click the "Connect" button. Once connection is established, click the "Template Management" button (see Figure 58).

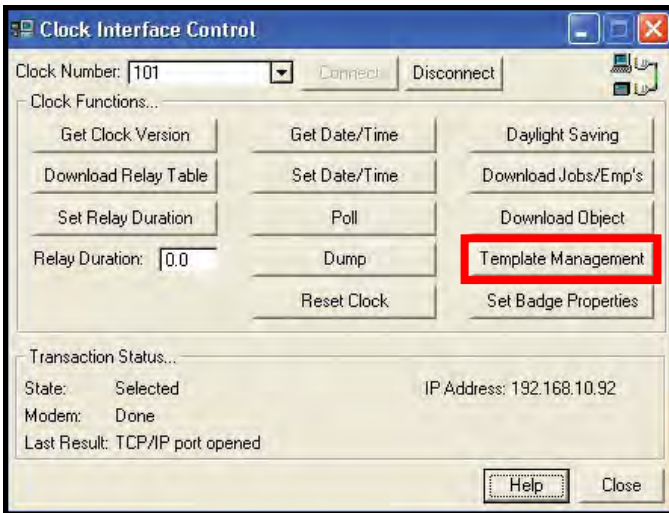


Figure 58. Out-of-the-Box™, Clock Interface window

- IV. After a brief delay, the window below will appear to confirm that communication is established. Click the “OK” button.



Figure 59. Out-of-the-Box™, Status window

- V. The “Template Management” window will open (see Figure 60). This window will allow you to easily copy your templates from the Smart Clock to your PC for safe-keeping. Please note that while this window is open, users will not be able to punch in or punch out at the Clock. “MAINTENANCE PLEASE WAIT” will be displayed on the clock’s screen.

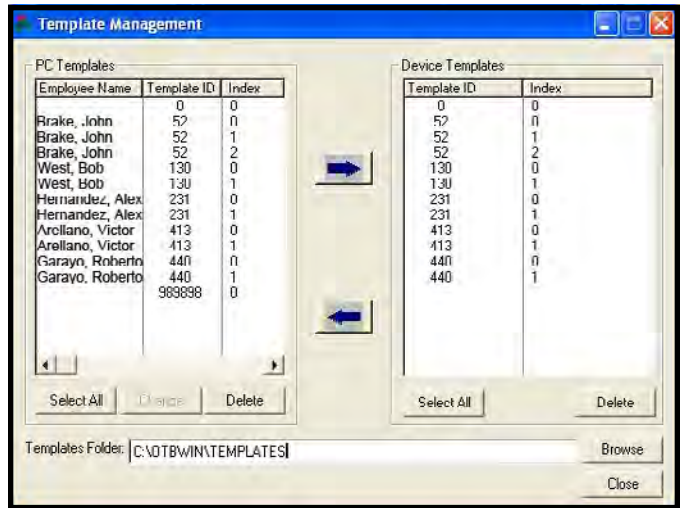


Figure 60. Out-of-the-Box™, Template Management window

- VI. Confirm that the “Templates Folder” is set to the Templates subdirectory in your program. In Out-of-the-Box™, the path is C:\OTBWIN\TEMPLATES. If your program is installed in a drive other than C:\, change the drive letter to the one you are using by clicking the “Browse” button.
- VII. To save a template ID, click on the ID you want in the “Device Templates” section to highlight it. Then, click on the arrow in the center of the window that points toward the “PC Templates” section. The selected template will then appear in the “PC Templates” section. Internally, the program is saving your selected template to a .vur file in the folder you specified in the “Templates Folder” field.

By highlighting multiple template ID’s prior to pressing the arrow button, you can move over groups of ID’s into the PC Templates section. You can also use the “Select All” button to quickly select all of the ID’s for easy transfer.

- VIII. The same concepts apply for moving template ID’s from the “PC Templates” section to the Smart Clock (represented by the “Device Templates” section of the window). If you purchase an additional Smart Clock with Fingerprint Reader at a later date, you will be able to skip the normal enrollment procedures by utilizing this window (if the same employees or a portion of the employees whose ID’s you saved will be using the new Clock). Once you establish communication with your new Smart Clock, you will be able to copy selected template ID’s or all ID’s from the PC Templates section to it.

You may notice that there is a template ID that appears with the number “0” in the Template Management window. Template ID’s with a “0” are special because they are designated for

supervisors. Please do not erase these template ID's unless you are specifically trying to delete the supervisor(s). If you delete them, you will need to enroll a supervisor at the clock once again. Without at least one supervisor, you will be blocked from adding or deleting users at the clock.

- IX. The "Change" button located in the "PC Templates" section allows you to change the template ID number (PIN or badge number) for a user. This feature is commonly used when a user's badge is lost and you want to assign a new badge without having to enroll the fingerprint again. The new number can simply be typed in the "Changing Template ID Saved on PC" window and saved. After making the change, you will need to copy the updated template ID to the Smart Clock following the same guidelines discussed in Steps VII and VIII.

It is good practice to always upload any revised templates to the PC in order to keep your backup up-to-date.

Note: The fingerprint image on the "Changing Template ID Saved on PC" window is not an actual image of the user's fingerprint; it is only an example.

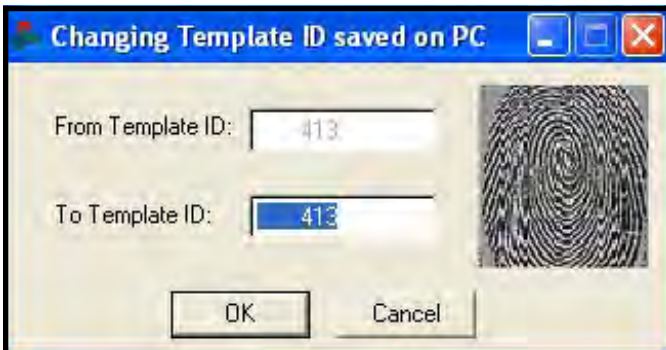


Figure 61. Out-of-the-Box™, Changing Template ID Saved on PC window

DELETING USERS FROM THE SMART CLOCK

Deletion of fingerprint templates from the Smart Clock is normally done when a user is no longer employed. Using the delete feature also helps when wanting to remove a faulty fingerprint template or prevent a user from using the Smart Clock. Keep in mind that you can also delete users from both the Smart Clock and PC by using the Bioscrypt Fingerprint Software or Template Management window within the Out-of-the-Box™ program.

- I. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the SUPERVISOR DELETE badge through the Smart Clock. The Smart Clock will prompt "ENTER SUPERVISOR BADGE". Swipe the SUPERVISOR badge through the reader.

If using a Smart Clock with PIN Entry or Proximity Reader, press "Clear", enter the supervisor delete code and press "Enter". The clock will prompt "ENTER SUPERVISOR BADGE". Press "Clear", enter the supervisor code number and press "Enter".

- II. The Smart Clock will display "PLACE FINGER ON SENSOR". The Fingerprint Status LED will illuminate amber indicating that the clock is waiting for the supervisor's finger to be placed on the sensor.

Note: The supervisor has approximately 10 seconds to place his / her finger on the fingerprint reader. If time expires, the supervisor will have to begin the procedure again.

- III. After the supervisor places his / her finger firmly on the fingerprint reader for a few seconds, "REMOVE FINGER" will appear on the display.

If the reading is unsuccessful, "FAILED TO VERIFY" will appear on the display and the Fingerprint Status LED will illuminate red. The supervisor will have to begin the procedure again if this occurs.

If the reading is successful, "VERIFY PASSED" will appear on the display. The Fingerprint Status LED will illuminate green to indicate a successful verification. "ENTER BADGE TO BE DELETED" will display.

- IV. At this point, the supervisor has two choices:

If using a Smart Clock with a Magstripe or Barcode Reader:

- The supervisor may delete a single user by swiping the user's badge. Once confirmation of the deletion is displayed, the supervisor may continue to swipe other selected user badges.
- The supervisor may delete ALL users (this also includes the supervisor) by swiping the SUPERVISOR DELETE ALL badge.

If using a Smart Clock with PIN Entry or Proximity Reader:

- The supervisor may delete a single user by pressing "Clear", then entering the user's PIN, then "Enter". Once confirmation of the deletion is displayed, the supervisor may continue to enter other selected users' PIN's.
- The supervisor may delete ALL users (this also includes the supervisor) by pressing "Clear", then entering the SUPERVISOR DELETE ALL code, then "Enter".

Note: Deleting a user removes all of their fingerprint entries. If a user is accidentally deleted, the supervisor will have to re-enroll all of their fingerprints again.

- V. If using a Smart Clock with a Magstripe or Barcode Reader, swipe the SUPERVISOR DELETE badge to complete the procedure. "DELETION COMPLETED" will appear on the display.

If using a Smart Clock with PIN Entry or Proximity Reader, press "Clear", then enter the SUPERVISOR DELETE code, then press "Enter" to complete the procedure. "DELETION COMPLETED" will appear on the display.

Operation

Users should implement the following procedure as required to record their punch times:

- I. If using a Smart Clock with a Magstripe, Barcode, or Proximity Reader, swipe your badge through or by the reader.

If using a Smart Clock with PIN Entry, press "Clear", enter your PIN, then press "Enter".

- II. The Smart Clock will display "PLACE FINGER ON SENSOR". The Fingerprint Status LED will illuminate amber indicating that the clock is waiting for the user's finger to be placed on the sensor.

Note: The user has approximately 10 seconds to place their finger on the fingerprint reader. If time expires, they will have to begin the procedure again.

- III. After the finger is placed firmly on the fingerprint reader for a few seconds, "REMOVE FINGER" will appear on the display.

If the reading is successful, "VERIFY PASSED" will appear on the display. The Fingerprint Status LED will illuminate green, the buzzer will beep once to indicate a successful verification, and the Smart Clock will store the punch.

If the reading is unsuccessful, "VOID" will appear on the display. The Fingerprint Status LED will illuminate red and the buzzer will beep 3 times. The Smart Clock will not store the punch.

Note: Depending on the programming of your Smart Clock, the messages on the display indicating success or failure may vary.

50320 ETHERNET BOARD

Description

The optional Smart Clock [50320](#) Ethernet Board allows the Smart Clock to communicate over a TCP / IP network connection. This compact unit is hidden from view behind the Smart Clock. If purchased with your Smart Clock, this compact unit can be found mounted inside the Smart Clock's steel backplate.

Features and Components



Figure 62. Smart Clock [50320](#) Ethernet Board features and components

A. RS-232 Communication Interface: Use the included RS-232 cable to connect the Ethernet Board to the Smart Clock.

B. Hardware Address: Use to distinguish and locate a given Ethernet Board on a network. All hardware addresses are written in a 00-20-4A-XX-XX-XX format.

C. Ethernet Jack: Connect the Ethernet cable from your network into this jack.

Installation

- I. Unpackage your Smart Clock.
- II. Remove the Smart Clock from the steel backplate by removing the screw located at the bottom of the unit.
- III. Insert one end of the included RS-232 cable into the RS-232 jack located on the Ethernet Board and the other end into the RS-232 jack located on the back of the Smart Clock (see Figure 63).



Figure 63. Connecting the Ethernet Board to the Smart Clock

- IV. Insert an active Ethernet cable into the Ethernet jack located on the Ethernet Board.
- V. Power the Smart Clock by connecting its power supply. Once powered, a red LED located on the Ethernet Board should illuminate.
- VI. Re-secure the Smart Clock to the steel backplate.

IP ADDRESS CONFIGURATION

Smart Clock Ethernet Boards are shipped with a default IP address of 0.0.0.0 which automatically enables DHCP with the unit. If there is a DHCP server on your network, the board will be able to pick up an IP address, gateway address and subnet mask when it boots up.

LANTRONIX DEVICE INSTALLER

The Lantronix Device Installer program allows the user to locate and configure the Ethernet Board's IP address on a given network. This program can be downloaded and installed from the [SmartClock.com](#) website.

- I. Open the Lantronix DeviceInstaller program. The home screen will open (see Figure 64).

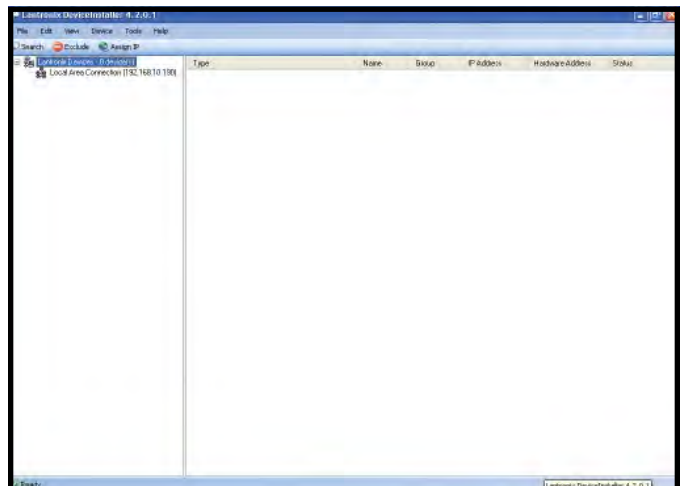


Figure 64. DeviceInstaller home screen

- II. Click on the “Search” button located at the top of the window.
- III. After a few moments, “XPort-03” should appear on the screen along with its assigned IP address and designated hardware address (see Figure 65). If it does not appear, check all connections from the Ethernet Board to the Smart Clock and verify that both are powered.

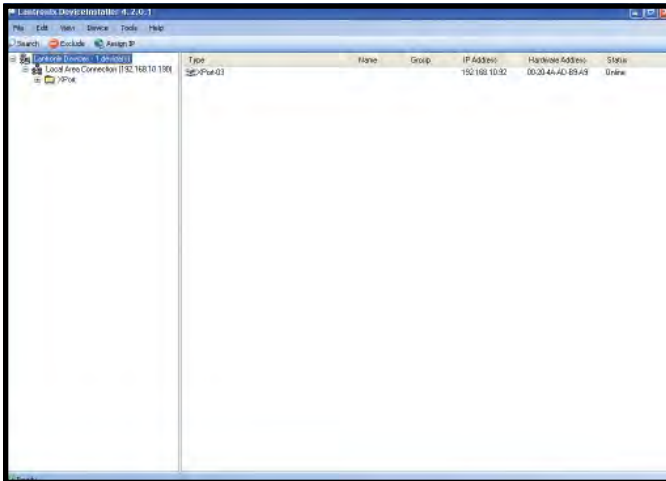


Figure 65. DeviceInstaller search results

Note: Device Installer cannot locate Smart Clock Ethernet Boards across different subnets. Either the Ethernet Board must be on the same subnet for configuration purposes or DeviceInstaller must be installed on a computer connected to that subnet. The Out-of-the-Box™ program is not required to configure the Ethernet Board, so it does not have to be installed on the other subnet.

- IV. If you would like to assign your own IP address to the Ethernet Board, continue to steps V - IX. If you would like to keep the current IP address, please skip to the “PING DEVICE” section on the next page.

ASSIGNING A CUSTOM IP ADDRESS

- V. Click on the “Assign IP” button located at the top of the window. The “Assign IP Address” window will open (see Figure 66).

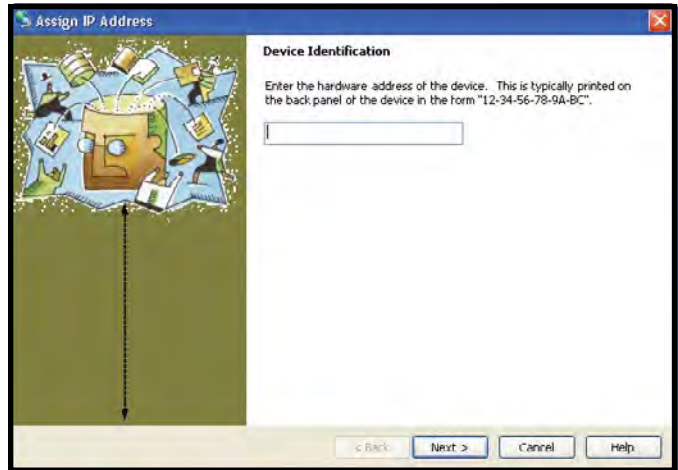


Figure 66. Assign IP Address, Device Identification Window

- VI. Type in your Ethernet Board’s hardware address then click on the “Next >” button.
- VII. Select “Assign a specific IP address” then click on the “Next >” button (see Figure 67).

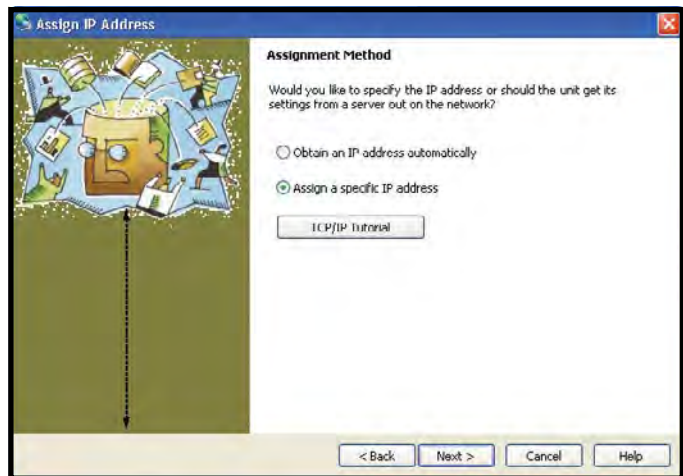


Figure 67. Assign IP Address, Assignment Method window

- VIII. Enter the IP address and Subnet mask. The Default gateway is optional. Click “Next >” when complete (see Figure 68).

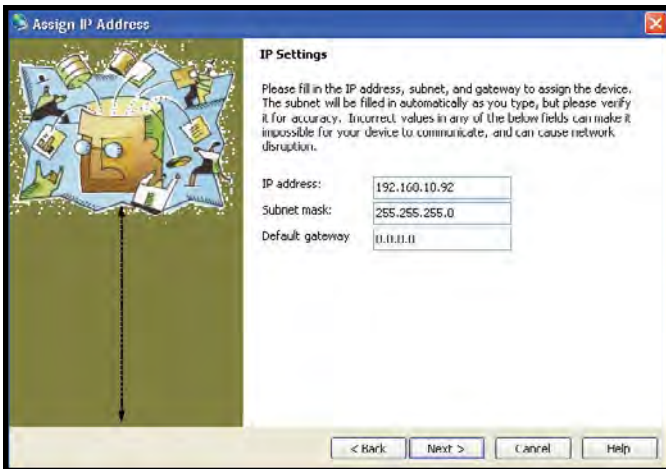


Figure 68. Assign IP Address, IP Settings window

- IX. Click "Assign" (see Figure 69). DeviceInstaller will then configure the Ethernet Board. Click "Finish" when complete. If successful, skip to the "PING DEVICE" section of this procedure.

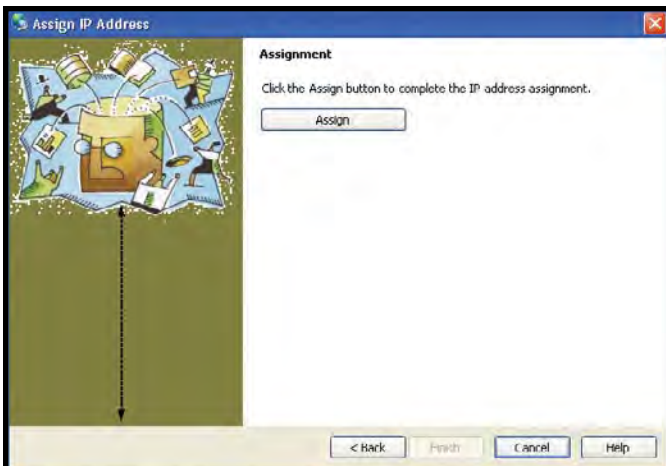


Figure 69. Assign IP Address, Assignment window

If unsuccessful, the user may follow the ARP Procedure to assign the IP address.

ARP PROCEDURE

- I. Open the Windows command prompt by clicking "Start" > "Run..." and entering "CMD" in the prompt.
- II. From the DOS command prompt, enter the IP address and MAC address as shown below:
ARP-S 192.168.xxx.xxx 00-20-4A-xx-xx-xx
- III. Press the ENTER key
- IV. At the next command prompt, telnet to the same IP address using port 1:
Telnet 192.168.xxx.xxx 1
- V. Press the ENTER key. The message 'failed to connect' should appear within 2 to 3 seconds.

- VI. At the next command prompt, telnet to the same IP address using port 9999:
Telnet 192.168.xxx.xxx 9999
- VII. Press the ENTER key. You will be prompted to "Press Enter to go into Setup Mode".
- VIII. Press the ENTER key to access the configuration choices.
- IX. Select 0 for server configuration.
- X. Manually enter the IP address. This permanently assigns the IP address.
- XI. Manually enter the gateway address (optional).
- XII. Manually enter the subnet mask.
- XIII. Select 9 to save and exit. If the IP address does not change, please contact technical support.

PING DEVICE

- I. Verify proper communication to the Ethernet Board by clicking "Tools" then "Ping" located at the top of the window (see Figure 70).

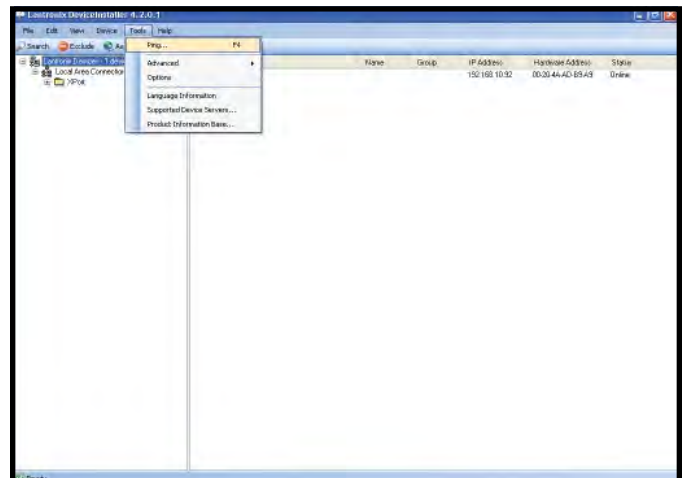


Figure 70. Selecting the Ping command

- II. If the Ping is successful the "Ping Device" window will display four "Reply from" messages (see Figure 71). If you do not receive these four messages, proper communication was not established. Make sure that the Ethernet Board is correctly connected to your network and that the IP address is valid within the network. Click the "Close" button and exit DeviceInstaller. Continue to the "CONFIGURING THE SETTINGS FROM THE WEB BROWSER" procedure.

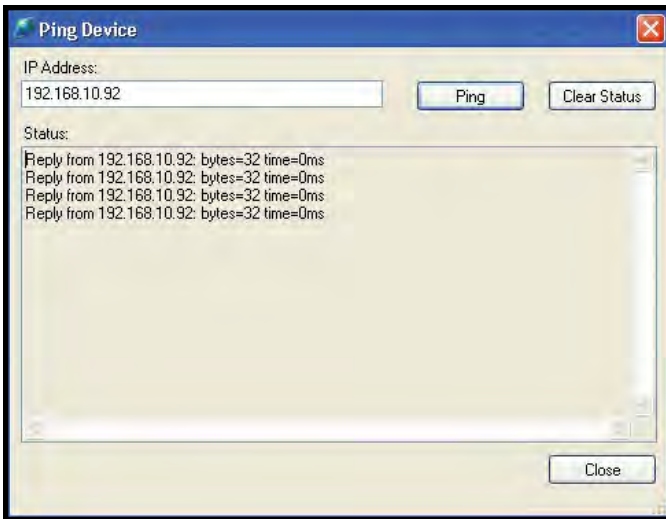


Figure 71. Ping Device window

CONFIGURING THE SETTINGS FROM THE WEB BROWSER

- I. Open your computer's web browser and type in the Ethernet Board's IP Address into the address field. Hit the Enter key.
- II. A prompt will appear (see Figure 72). Click the "OK" button without entering a User Name or Password. A User Name and Password may be created later to prevent unauthorized access to the Ethernet Board's settings.



Figure 72. User name and Password prompt

- III. The configuration web page will open. Click on the "Channel 1 Serial Settings" link located in the left-hand margin (see Figure 73).

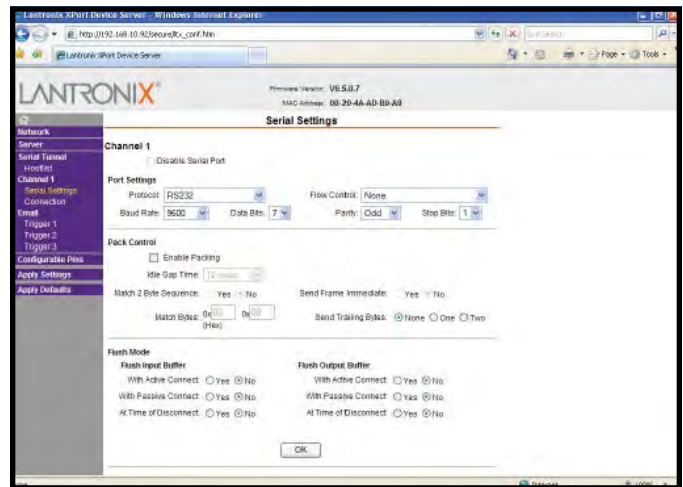


Figure 73. Channel 1 Serial Settings

- IV. Configure the fields to the following settings:

Baud Rate: 9600
 Data Bits: 7
 Parity: Odd
 Stop Bits: 1
 Flow Control: None

Note: If configuring a Smart Clock with Fingerprint Reader, use the following settings:

Baud Rate: 9600
 Data Bits: 8
 Parity: None
 Stop Bits: 1
 Flow Control: None

Click the "OK" button when complete.

- V. Click on the "Channel 1 Connection" link located in the left-hand margin (see Figure 74).

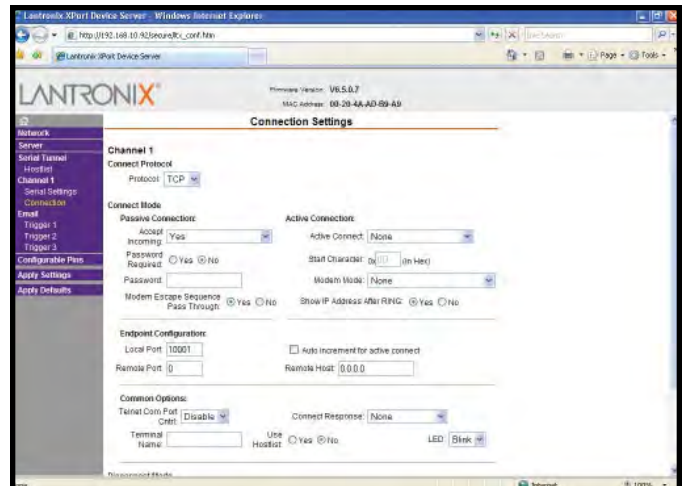


Figure 74. Channel 1 Connection Settings

- VI. Locate the “Endpoint Configuration” section on the page. Set the “Local Port” field to “10001”. Click the “OK” button at the bottom of the page when complete. Click on the “Apply Settings” link located in the left-hand margin then close the web browser after the update is complete. Continue to the “CONFIGURING THE SETTINGS IN THE OUT-OF-THE-BOX™ PROGRAM” procedure.

CONFIGURING THE SETTINGS IN THE OUT-OF-THE-BOX™ PROGRAM

- I. Open the Out-of-the-Box™ program and click “Browse” > “Smart Clock Configuration” > “Communication Lines” (see Figure 75).

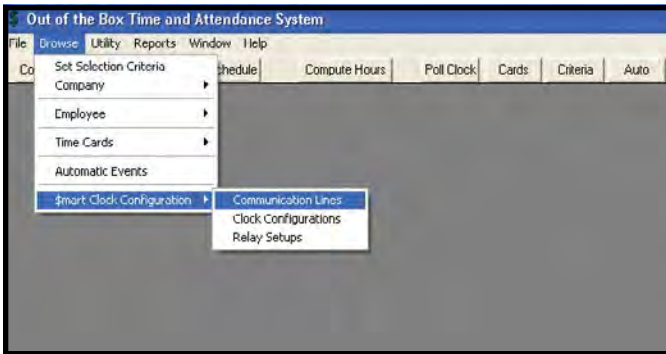


Figure 75. Out-of-the-Box™, Communication Lines

- II. Click the “Add” button in the “Browse Communication Lines” window (see Figure 76).

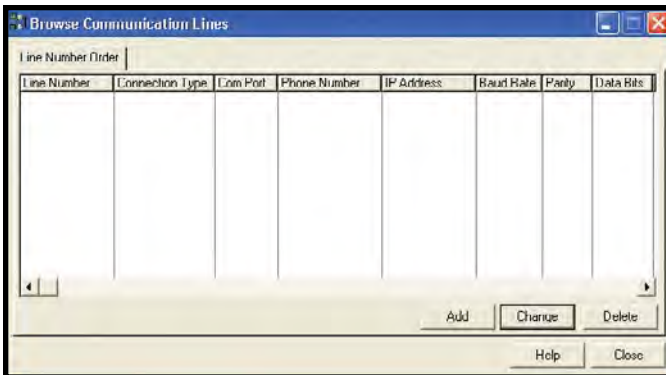


Figure 76. Out-of-the-Box™, Browse Communication Lines window

- III. The “Adding New Communication Line” window will open. The following fields will have to be configured for Ethernet use (see Figure 77):

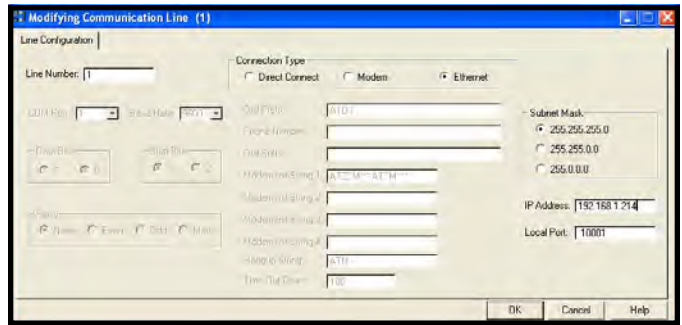


Figure 77. Out-of-the-Box™, Adding New Communication Line window

Line Number: Enter a line number, code or description to identify the line.

Connection Type: Ethernet

Subnet Mask: Select the appropriate subnet mask.

IP Address: Enter the IP address you configured on the Ethernet Board.

Local Port: Enter 10001 as the local port setting.

- IV. Click the “OK” button when completed, and then close the “Browse Communication Lines” window.

- VIII. Click “Browse” > “Smart Clock Configuration” > “Clock Configurations” (see Figure 78).

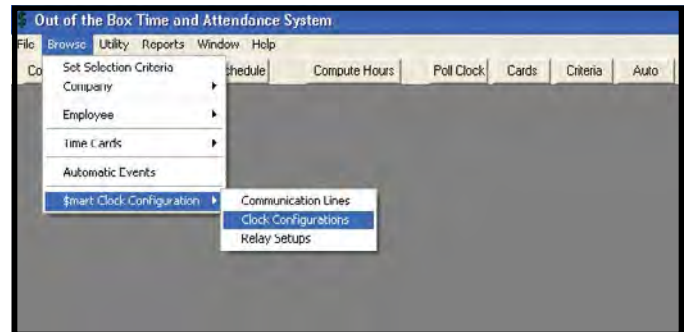


Figure 78. Out-of-the-Box™, Clock Configurations

- IX. Click the “Add” button in the “Browse Clocks” window (see Figure 79).

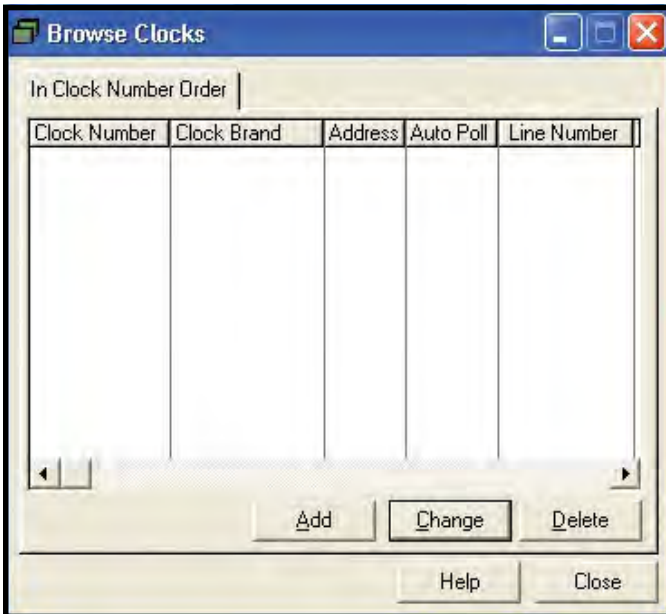


Figure 79. Out-of-the-Box™, Browse Clocks window

- X. The “Record Will Be Added (New)” window will open. The following fields will have to be configured for modem use (see Figure 80):

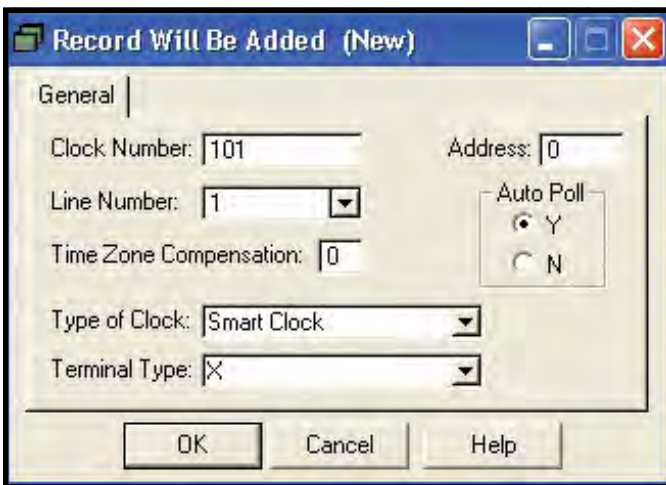


Figure 80. Out-of-the-Box™, Record Will Be Added window

Clock Number: Enter a unique clock number in this field. The default value is 101.

Address: Enter the address of the Smart Clock in this field. The valid addresses are 00-63. The default value is 00.

Note: This setting must match the Clock ID setting in the Smart Clock.

Line Number: Select the communication line number that the program will use to communicate with the corresponding Smart Clock. Click the arrow button on the right side of the field to display a drop-down menu of the available line numbers.

Time Zone Compensation: This feature allows the program to synchronize all of your connected Smart Clocks across multiple time zones.

For example, if your company headquarters is located in Iowa (Central Time Zone), the “Time Zone Compensation” field for your Smart Clocks there will be set to 0. The “Time Zone Compensation” field will be set to -2 for Smart Clocks located in California (Pacific Time Zone) and 1 for Smart Clocks located in New York (Eastern Time Zone).

The value of this field represents the number of hours that will be added to or subtracted from your local time zone when setting the time for other time zones. If you do not have Smart Clocks setup in multiple time zones, set this field to 0.

Auto Poll: Selecting “Y” will include the given Smart Clock when using the automatic poll command. Selecting “N” will remove the given Smart Clock from the automatic poll command. This field also determines whether a Smart Clock will or will not be polled when using the Manual On-Line Data Gathering, Poll Clock, and Perform Clock I/O screens.

Type of Clock: Select “Smart Clock” if you are connecting to a Smart Clock without a fingerprint reader. Select “Smart Clock Bio” if you are connecting to a Smart Clock with Fingerprint Reader.

Terminal Type: This field will automatically configure to “X” when selecting “Smart Clock” in the the “Type of Clock” field above and will configure to “Y” when selecting “Smart Clock Bio”.

- XI. Click the “OK” button when completed, and then close the “Browse Clocks” window.
- XII. The communication settings must then be checked via the “Perform Clock I/O” command. Begin by clicking “Utility” > “Perform Clock I/O” (see Figure 81).

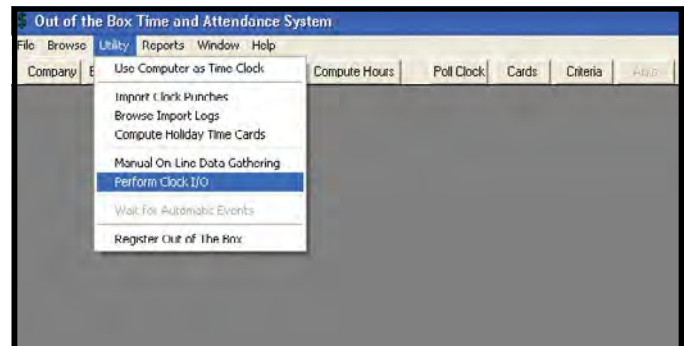


Figure 81. Out-of-the-Box™, Perform Clock I/O

XIII. The "Clock Interface Control" window will open. Click on the drop down arrow next to the "Clock Number" field to display the list of available clocks to communicate with.

XIV. Select the clock number that corresponds to your Ethernet connection and click the "Connect" button. If a successful connection to the Smart Clock is established, the buttons in the window should become active (see Figure 82). If the buttons do not become active, review over steps I - XI or contact Technical Support.

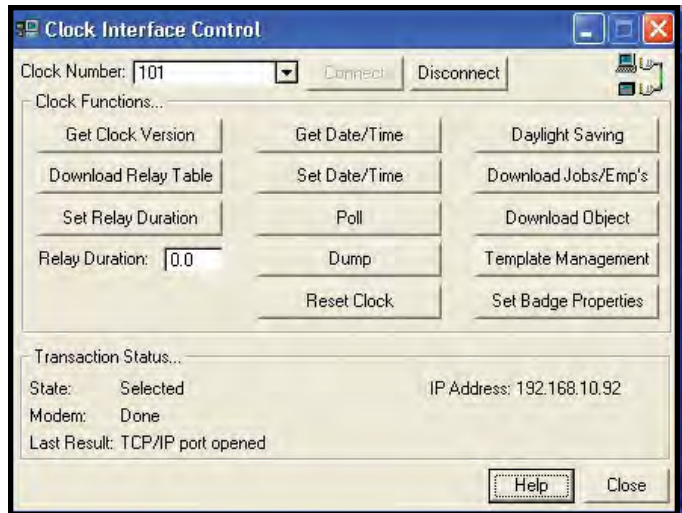


Figure 82. Out-of-the-Box™, Clock Interface window

50321 WIRELESS NETWORK ADAPTER

Description

The optional Smart Clock [50321](#) Wireless Network Adapter allows the Smart Clock to communicate over a wireless TCP / IP network connection. The Wireless Network Adapter can communicate with a wireless router up to 390 feet away. This compact unit is designed to be mounted inside the Smart Clock's steel backplate.

Features and Components

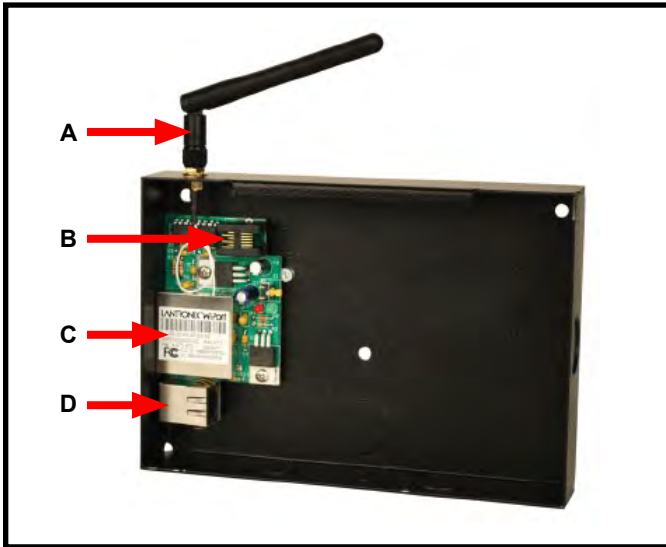


Figure 83. Smart Clock [50321](#) Wireless Network Adapter features and components

- A. Antenna:** Adjust the antenna so it points in the direction of the wireless router.
- B. RS-232 Communication Interface:** Use the included RS-232 cable to connect the Wireless Network Adapter to the Smart Clock.
- C. Hardware Address:** Use to distinguish and locate a given Wireless Network Adapter on a network. All hardware addresses are written in a 00-20-4A-XX-XX-XX format.
- D. Ethernet Jack:** Connect the Ethernet cable from your network into this jack during initial setup. No cable should be plugged into this jack during wireless operation.

Installation

CONNECTIONS

- I. Disconnect the power to the Smart Clock.
- II. Insert one end of the included RS-232 cable into the RS-232 jack located on the Network Adapter and the other end into the RS-232 jack located on the back of the Smart Clock (see Figure 84).



Figure 84. Connecting the Wireless Network Adapter to the Smart Clock

- III. Insert an active Ethernet cable into the Ethernet jack located on the Network Adapter.
- IV. Power the Smart Clock by connecting its power supply. Once powered, a red LED located on the Network Adapter should illuminate.

IP ADDRESS CONFIGURATION

Smart Clock Wireless Network Adapters are shipped with a default IP address of 0.0.0.0 which automatically enables DHCP with the unit. If there is a DHCP server on your network, the board will be able to pick up an IP address, gateway address and subnet mask when it boots up.

LANTRONIX DEVICE INSTALLER

The Lantronix DeviceInstaller program allows the user to locate and configure the Wireless Network Adapter's IP address on a given network. This program can be downloaded and installed from the SmartClock.com website.

- I. Open the Lantronix DeviceInstaller program. The home screen will open (see Figure 85).

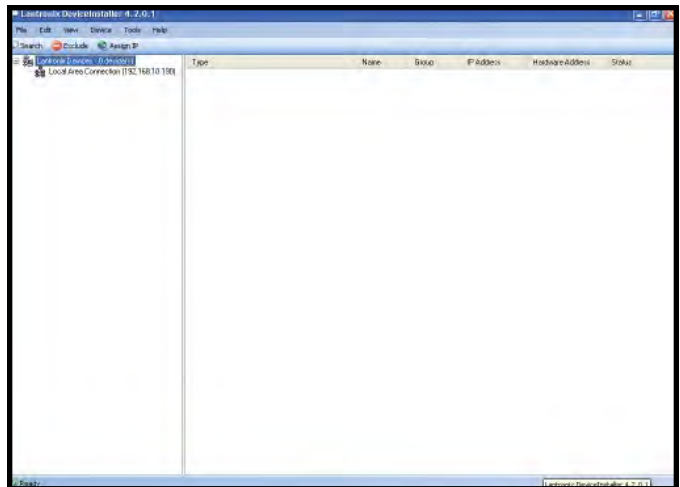


Figure 85. DeviceInstaller home screen

- II. Click on the “Search” button located at the top of the window.
- III. After a few moments, “WiPort b/g” should appear on the screen along with its assigned IP address and designated hardware address (see Figure 86). If it does not appear, check all connections from the Network Adapter to the Smart Clock and verify that both are powered.

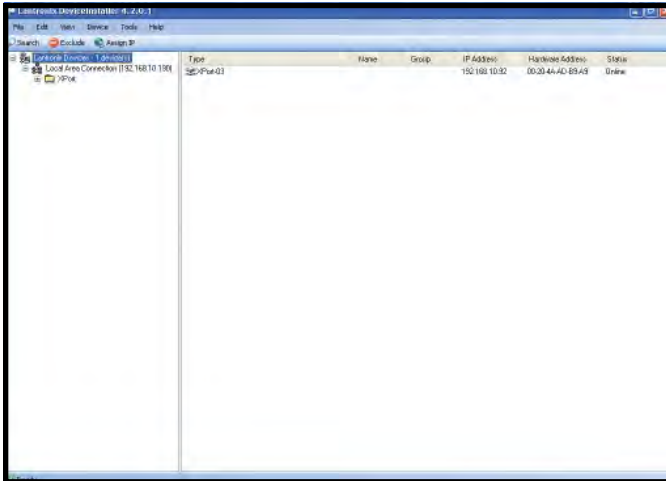


Figure 86. DeviceInstaller search results

Note: DeviceInstaller cannot locate Smart Clock Network Adapters across different subnets. Either the Network Adapter must be on the same subnet for configuration purposes or DeviceInstaller must be installed on a computer connected to that subnet. The Out-of-the-Box™ program is not required to configure the Network Adapter, so it does not have to be installed on the other subnet.

- IV. If you would like to assign your own IP address to the Network Adapter, continue to steps V - IX. If you would like to keep the current IP address, please skip to step X.

ASSIGNING A CUSTOM IP ADDRESS

- V. Click on the “Assign IP” button located at the top of the window. The “Assign IP Address” window will open (see Figure 87).

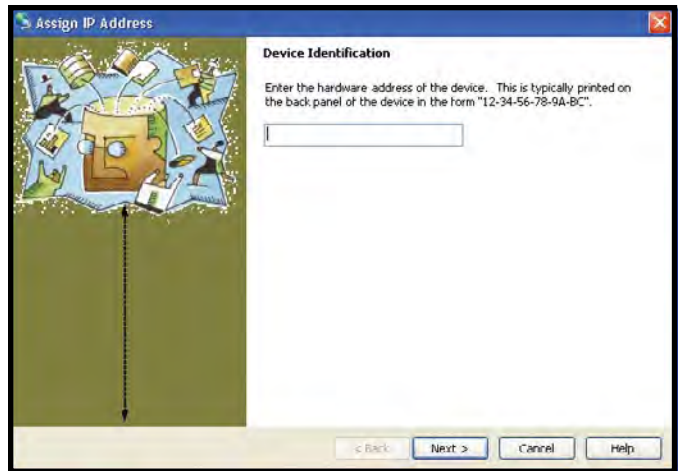


Figure 87. Assign IP Address, Device Identification Window

- VI. Type in your Network Adapter’s hardware address then click on the “Next >” button.
- VII. Select “Assign a specific IP address” then click on the “Next >” button (see Figure 88).



Figure 88. Assign IP Address, Assignment Method window

- VIII. Enter the IP address and Subnet mask. The Default gateway is optional. Click “Next >” when complete (see Figure 89).

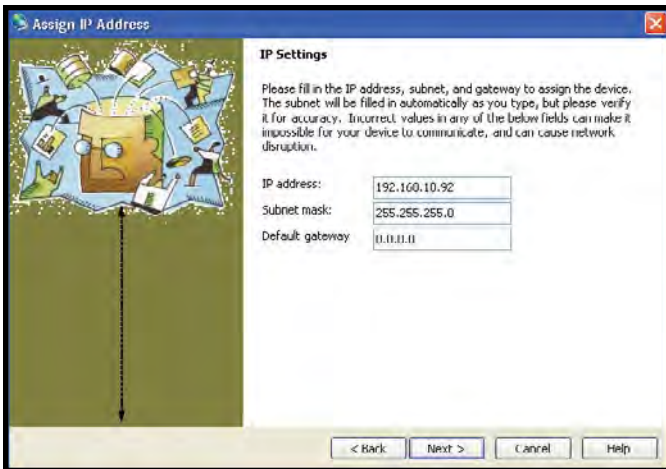


Figure 89. Assign IP Address, IP Settings window

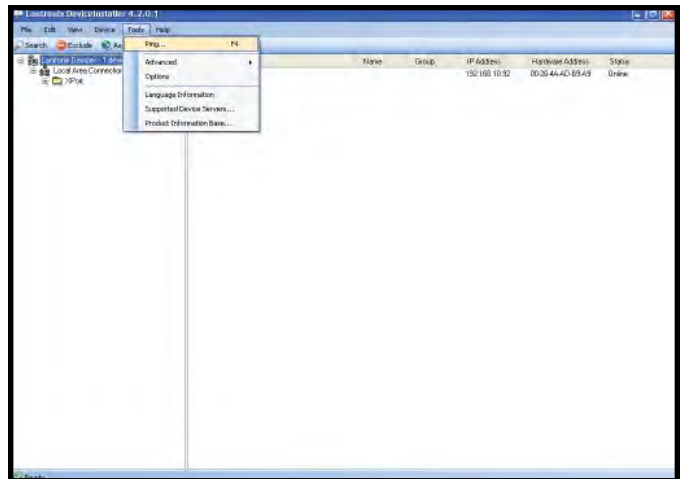


Figure 91. Selecting the Ping command

IX. Click “Assign” (see Figure 90). DeviceInstaller will then configure the Network Adapter. Click “Finish” when complete. Contact Technical Support if the IP Address does not change.

XI. If the Ping is successful the “Ping Device” window will display four “Reply from” messages (see Figure 92). If you do not receive these four messages, proper communication was not established. Make sure that the Network Adapter is correctly connected to your network and that the IP address is valid within the network. Click the “Close” button and exit DeviceInstaller. Continue to the “CONFIGURING SETTINGS FROM THE WEB BROWSER” procedure.

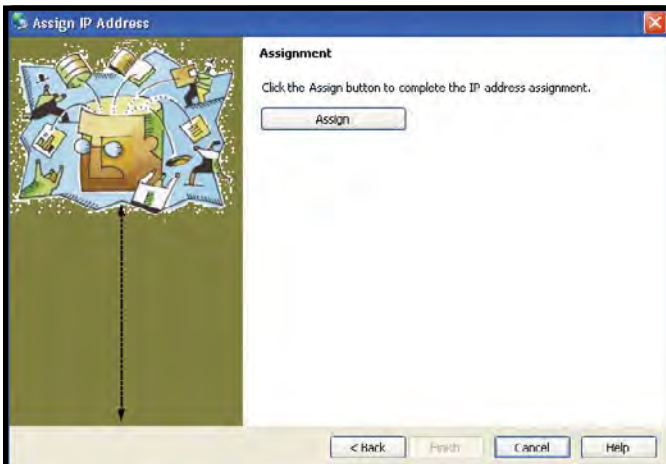


Figure 90. Assign IP Address, Assignment window

X. Verify proper communication to the Network Adapter by clicking “Tools” then “Ping” located at the top of the window (see Figure 91).

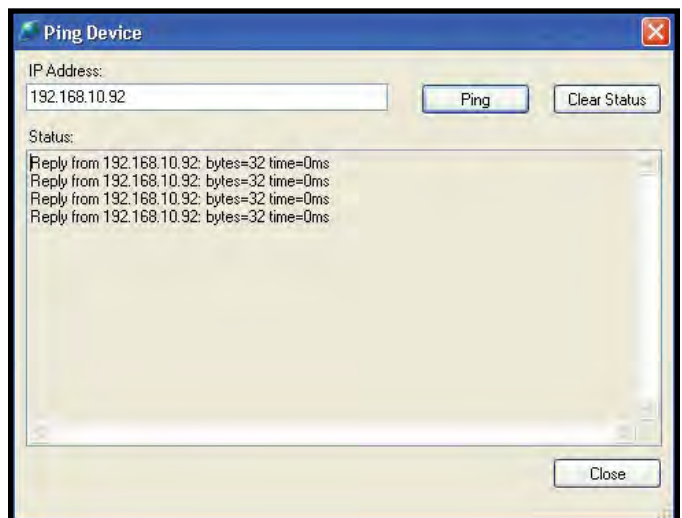


Figure 92. Ping Device window

CONFIGURING SETTINGS FROM THE WEB BROWSER

- I. Open your computer's web browser and type in the Network Adapter's IP Address into the address field. Hit the Enter key.
- II. A prompt will appear (see Figure 93). Click the "OK" button without entering a User Name or Password. A User Name and Password may be created later to prevent unauthorized access to the Network Adapter's settings.



Figure 93. Username and Password prompt

- III. The configuration web page will open. Click on the "Channel 1 Serial Settings" link located in the left-hand margin (see Figure 94).

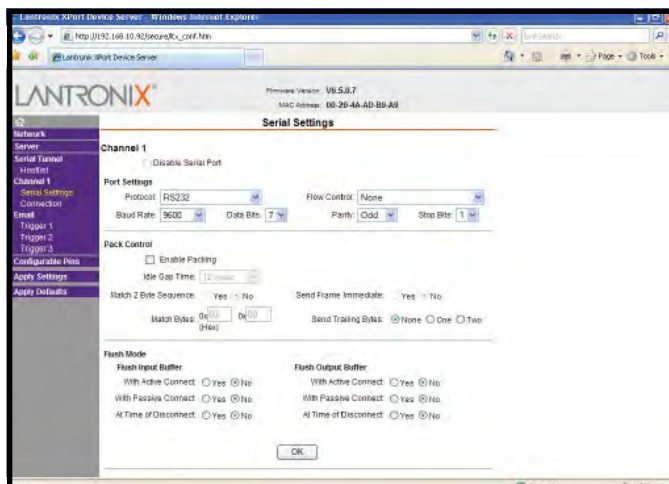


Figure 94. Channel 1 Serial Settings

- IV. Configure the fields to the following settings:
 Baud Rate: 9600
 Data Bits: 7
 Parity: Odd
 Stop Bits: 1
 Flow Control: None

Note: If configuring a Smart Clock with Fingerprint Reader, use the following settings:

- Baud Rate: 9600
 Data Bits: 8
 Parity: None
 Stop Bits: 1
 Flow Control: None

Click the "OK" button when complete.

- V. Click on the "Channel 1 Connection" link located in the left-hand margin (see Figure 95).

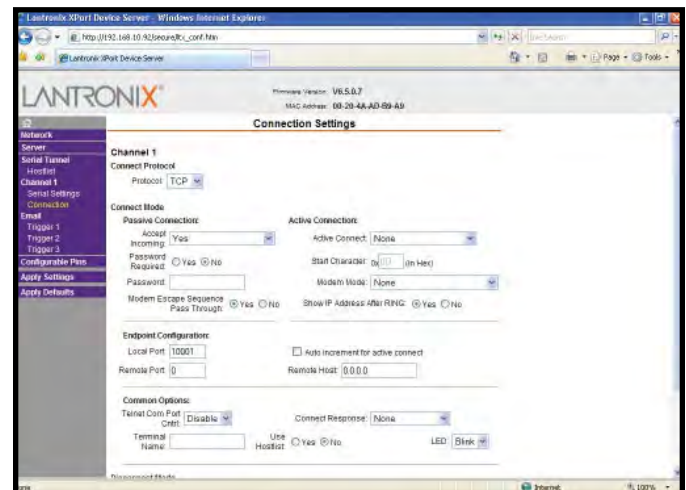


Figure 95. Channel 1 Connection Settings

- VI. Locate the "Endpoint Configuration" section on the page. Set the "Local Port" field to "10001". Click the "OK" button at the bottom of the page when complete.

- VII. Click on the "WLAN" link located in the left-hand margin (see Figure 96).

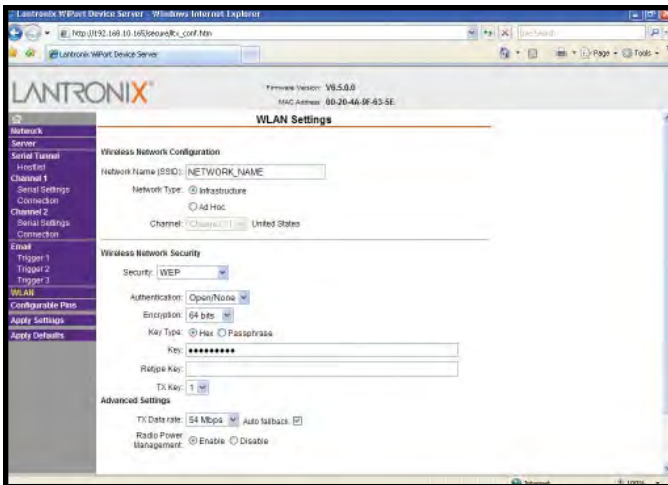


Figure 96. WLAN Settings

This window will allow you to configure the Wireless Network Adapter to your wireless network. These settings need to be configured by someone familiar with the setup of your network.

Network Name (SSID)

Enter the name of the wireless network (SSID) you would like to connect to.

Security

If your wireless network has security enabled, you will need to select the type of authentication it is set to for connection. You can enable WEP or WPA security in infrastructure mode (which consists of an access point acting as a hub for the network with each client communicating through it) or WEP security for ad hoc mode (working off a 'peer-to-peer' style of communication; often found in smaller home networks). The security is disabled on the board by default. Without adequate protection, your wireless network is susceptible to unauthorized users, so a secure method is recommended. If security is not enabled on your wireless network, set this field to "None" so none of the security fields will be enabled.

Encryption

Select the encryption type the wireless network is using: 64 bits or 128 bits.

Key

Enter in the security key. This can be done as the simple paraphrase or the more complex hex key depending on which Key Type option you select.

Retype Key

Retype the security key to ensure that it was not mistyped in the "Key" field above.

Click the "OK" button at the bottom of the page when complete.

VIII. Click on the "Network" link located in the left-hand margin (see Figure 97). Change the "Network Mode" from "Wired Only" to "Wireless Only" to enable only the wireless network connectivity for the Wireless Network Adapter.

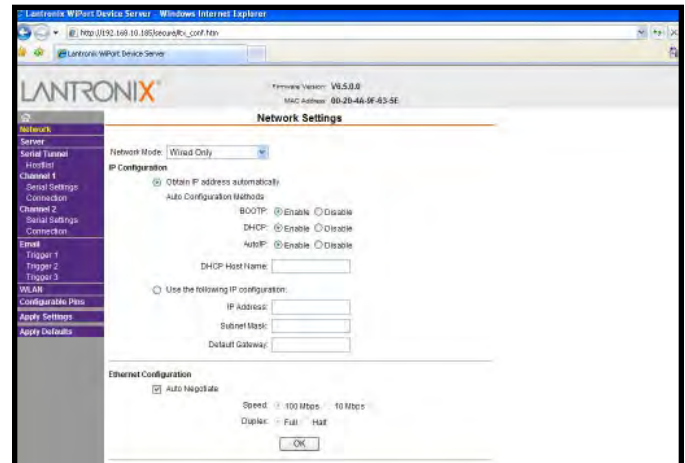


Figure 97. Network Settings

Note: Be sure that all WLAN settings are correct before clicking the "OK" button at the bottom of the screen and the "Apply Settings" link in the left-hand margin. The rest of the configuration must be made in the Out-of-the-Box™ program. See "CONFIGURING THE SETTINGS IN THE OUT-OF-THE-BOX™ PROGRAM" on [page 31](#) for more information.

The Wireless Network Adapter can only communicate to your PC through wireless or direct Ethernet connection, not both at the same time. Once the WLAN settings are confirmed, the Wireless Network Adapter will no longer communicate via the Ethernet cable.

If a mistake is made in your settings, you will not be able to communicate with the Wireless Network Adapter through Ethernet or wireless signal. Access can only be gained by using the included powered serial connector (see Figure 98). Continue to "POWERED SERIAL CONNECTOR" to view the procedure.

POWERED SERIAL CONNECTOR

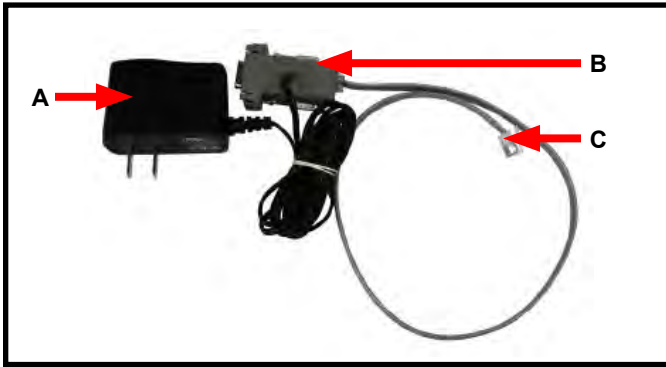


Figure 98. Powered Serial Connector

- I. Disconnect the RS-232 cable that connects the Wireless Network Adapter to the Smart Clock.
- II. Insert the Powered Serial Connector's telephone cable (Figure 98, C) into the Wireless Network Adapter's RS-232 communication jack (Figure 18, B).
- III. Connect the Powered Serial Connector's serial adapter (Figure 98, B) into an available COM port located on the back of your PC.
- IV. Connect the Powered Serial Connector's power supply (Figure 98, A) into a power outlet.
- V. Click the "Start" button on your Windows' desktop, then select "Run".
- VI. Type in "hypertrm" in the "Run" window then click the "OK" button (see Figure 99).

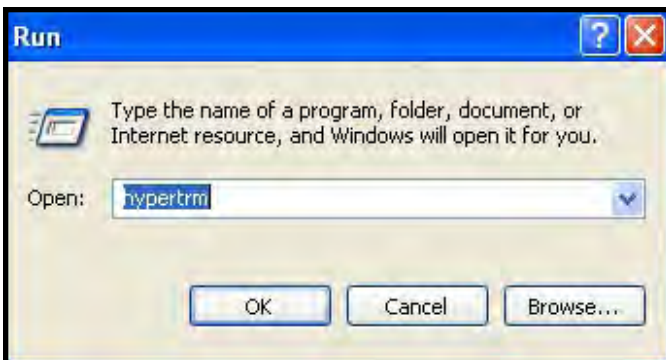


Figure 99. Typing "hypertrm" in Window's Run terminal

- VII. Windows HyperTerminal Communication Program will open. Type in any name at the "Connection Description" window then click the "OK" button (see Figure 100).

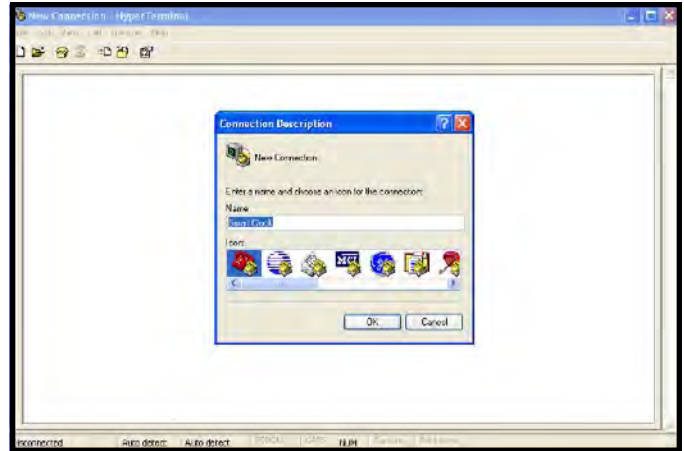


Figure 100. Windows Hyperterminal Communication Program

- VIII. In the "Connect To" window, select the used COM port in the drop down list then click the "OK" button (see Figure 101).

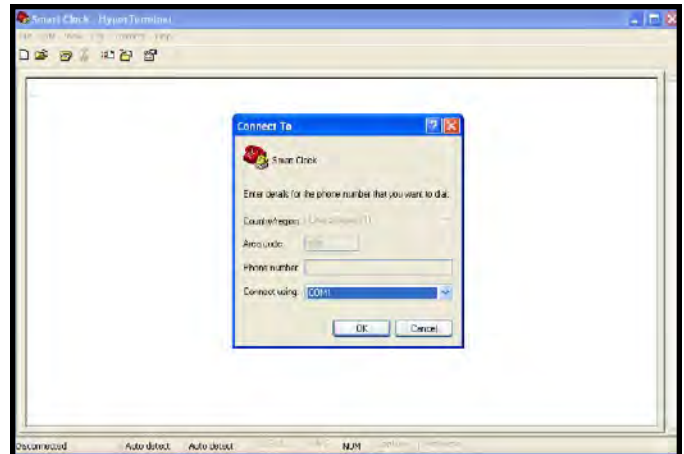


Figure 101. "Connect To" prompt

- IX. In the "Port Settings" window, be sure to enter the same communication settings that were entered in the Channel 1 Serial options of the Wireless Network Adapter's web browser interface (see Figure 102). Click the "OK" button when complete.

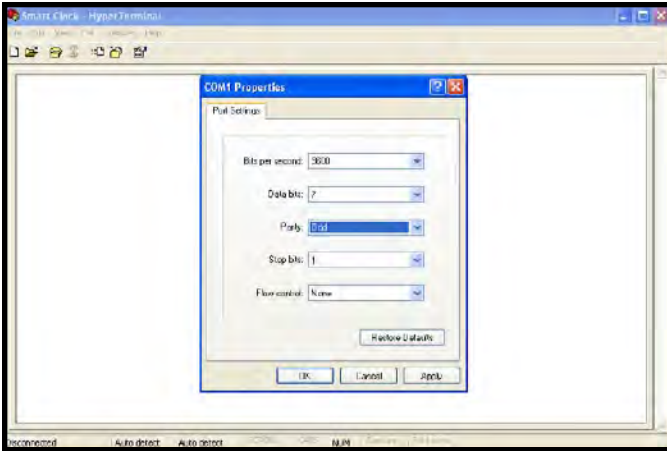


Figure 102. "Port Settings" prompt

- X. In the Windows HyperTerminal Communication Program, select "File > Properties > Settings > ASCII Setup". Ensure that the following options are selected (see Figure 103). Click the "OK" button and return to the main HyperTerminal window.

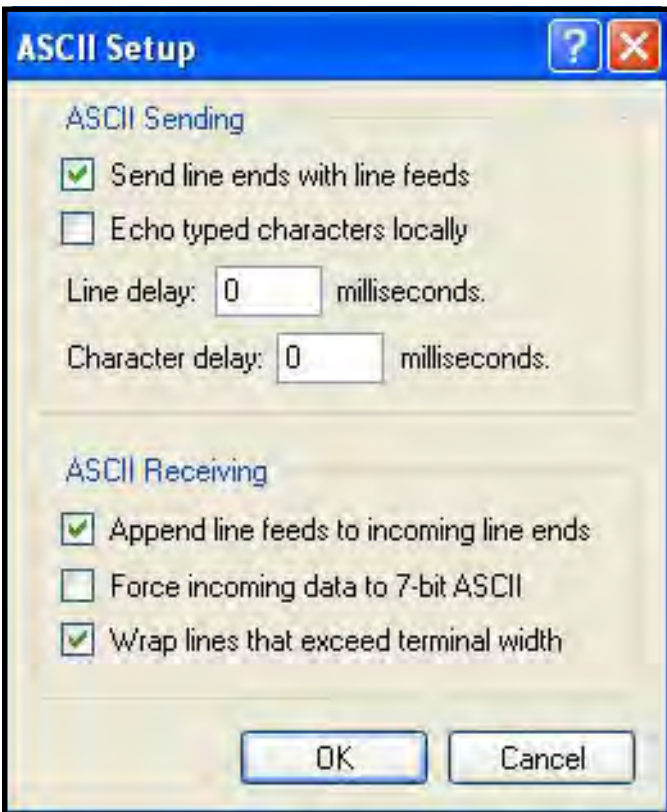


Figure 103. ASCII Setup in Windows Hyperterminal

- XI. Reset the Wireless Network Adapter by disconnecting the powered serial connector's telephone cable then reconnecting it. Upon reset of the device, immediately enter three lowercase x characters (xxx) into the HyperTerminal screen.

Note: The easiest way to enter Setup Mode is to hold down the "x" key on your keyboard while resetting the unit. This must be done within 3 seconds of resetting the Wireless Network Adapter.

- XII. Upon connection, the following information is displayed:

MAC address 00204A9F635E (example)
 Software version 05.3 (040129) WPT
 Press Enter to begin Setup Mode

- XIII. To enter Setup Mode, press "Enter" within 5 seconds. The connection will fail if "Enter" is not pressed within 5 seconds, and you will have to reboot the Wireless Network Adapter again.

The setup menu will display:

Change Setup:
 0 Server
 1 Channel 1
 2 Channel 2
 3 Email
 4 WLAN
 5 Expert
 6 Security
 7 Factory defaults
 8 Exit without save
 9 Save and exit Your choice?

- XIV. Type "4" then hit the "Enter" key. Set to WLAN to "N" for NO. You will have to press "Enter" through various fields to return to the main menu.

When completed, save the new configuration (option 9 Save and exit). The unit will then reboot.

- XV. Disconnect the power from the serial adapter, disconnect the serial adapter from the PC and the telephone cable from the Wireless Network Adapter. Re-connect the wireless board to the clock, connect an Ethernet cable to the RJ45 jack on the wireless board and power up the clock. After the clock initializes itself, you should be able to access the board once again via the assigned IP address in your web browser to modify any of the incorrect settings and try the wireless connection again. Continue to the "CONFIGURING THE SETTINGS IN THE OUT-OF-THE-BOX™ PROGRAM" procedure.

CONFIGURING THE SETTINGS IN THE OUT-OF-THE-BOX™ PROGRAM

- I. Open the Out-of-the-Box™ program and click “Browse” > “Smart Clock Configuration” > “Communication Lines” (see Figure 104).

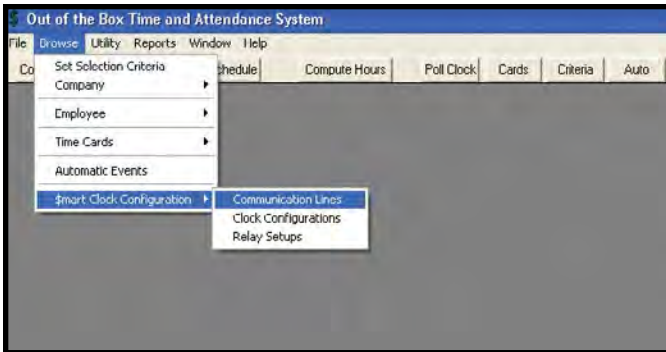


Figure 104. Out-of-the-Box™, Communication Lines

- II. Click the “Add” button in the “Browse Communication Lines” window (see Figure 105).

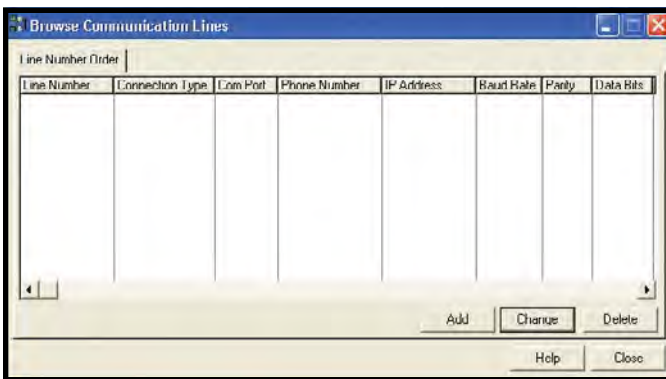


Figure 105. Out-of-the-Box™, Browse Communication Lines window

- III. The “Adding New Communication Line” window will open. The following fields will have to be configured for Wireless Network Adapter use (see Figure 106):

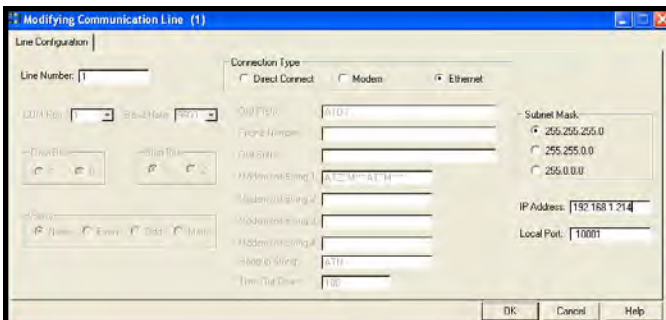


Figure 106. Out-of-the-Box™, Adding New Communication Line window

Line Number: Enter a line number, code or description to identify the line.

Connection Type: Ethernet

Subnet Mask: Select the appropriate subnet mask.

IP Address: Enter the IP address you configured on the Wireless Network Adapter.

Local Port: Enter 10001 as the local port setting.

- IV. Click the “OK” button when completed, and then close the “Browse Communication Lines” window.

- VIII. Click “Browse” > “Smart Clock Configuration” > “Clock Configurations” (see Figure 107).

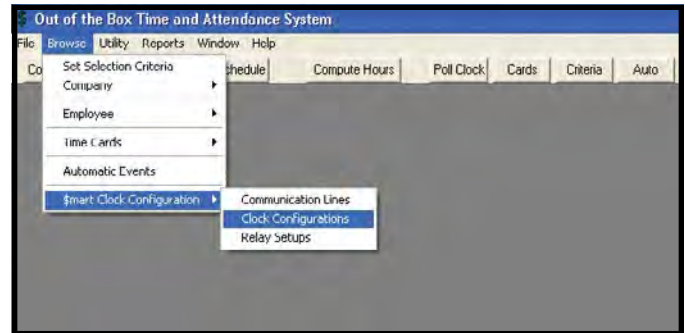


Figure 107. Out-of-the-Box™, Clock Configurations

- IX. Click the “Add” button in the “Browse Clocks” window (see Figure 108).

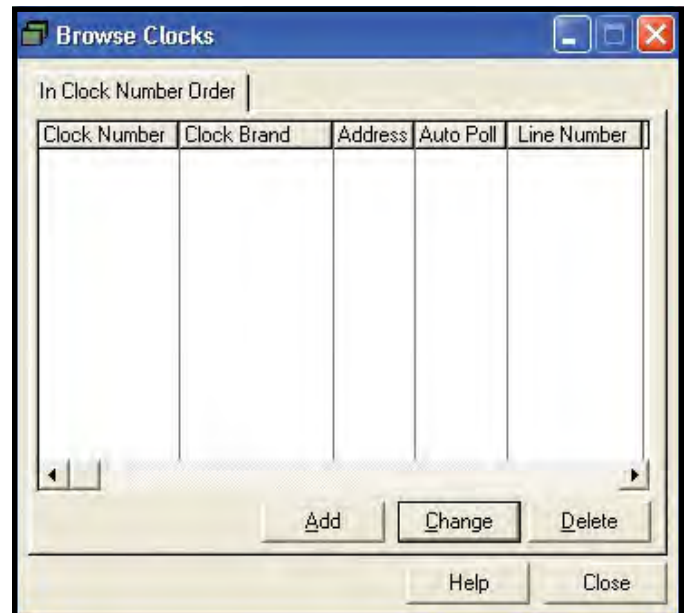


Figure 108. Out-of-the-Box™, Browse Clocks window

- X. The “Record Will Be Added (New)” window will open. The following fields will have to be configured for wireless network use (see Figure 109):



Figure 109. Out-of-the-Box™, Record Will Be Added window

Clock Number: Enter a unique clock number in this field. The default value is 101.

Address: Enter the address of the Smart Clock in this field. The valid addresses are 00-63. The default value is 00.

Note: This setting must match the Clock ID setting in the Smart Clock.

Line Number: Select the communication line number that the program will use to communicate with the corresponding Smart Clock. Click the arrow button on the right side of the field to display a drop-down menu of the available line numbers.

Time Zone Compensation: This feature allows the program to synchronize all of your connected Smart Clocks across multiple time zones.

For example, if your company headquarters is located in Iowa (Central Time Zone), the “Time Zone Compensation” field for your Smart Clocks there will be set to 0. The “Time Zone Compensation” field will be set to -2 for Smart Clocks located in California (Pacific Time Zone) and 1 for Smart Clocks located in New York (Eastern Time Zone).

The value of this field represents the number of hours that will be added to or subtracted from your local time zone when setting the time for other time zones. If you do not have Smart Clocks setup in multiple time zones, set this field to 0.

Auto Poll: Selecting “Y” will include the given Smart Clock when using the automatic poll command. Selecting “N” will remove the given Smart Clock from the automatic poll command. This field also determines whether a Smart Clock will or will not be polled when using the Manual On-Line Data Gathering, Poll Clock, and Perform Clock I/O screens.

Type of Clock: Select “Smart Clock” if you are connecting to a Smart Clock without a fingerprint reader. Select “Smart Clock Bio” if you are connecting to a Smart Clock with Fingerprint Reader.

Terminal Type: This field will automatically configure to “X” when selecting “Smart Clock” in the the “Type of Clock” field above and will configure to “Y” when selecting “Smart Clock Bio”.

- XI. Click the “OK” button when completed, and then close the “Browse Clocks” window.
- XII. The communication settings must then be checked via the “Perform Clock I/O” command. Begin by clicking “Utility” > “Perform Clock I/O” (see Figure 110).

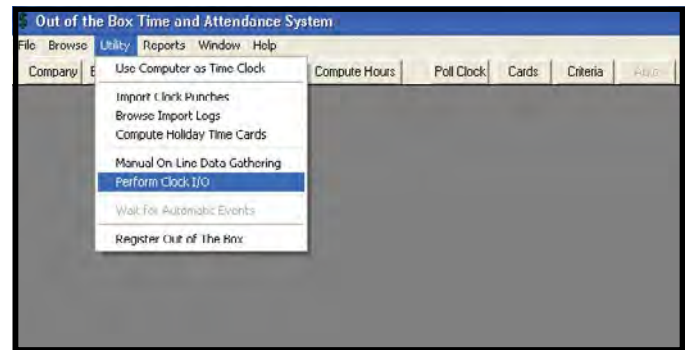


Figure 110. Out-of-the-Box™, Perform Clock I/O

- XIII. The “Clock Interface Control” window will open. Click on the drop down arrow next to the “Clock Number” field to display the list of available clocks to communicate with.
- XIV. Select the clock number that corresponds to your Wireless Network connection and click the “Connect” button. If a successful connection to the Smart Clock is established, the buttons in the window should become active. If the buttons do not become active, review over steps I - XI or contact Technical Support.

50322 INTERNAL MODEM

Description

The Smart Clock [50322](#) Internal Modem allows the Smart Clock to communicate over an analog phone line. When this feature is ordered with the Smart Clock, the [50322](#) modem is embedded within the Smart Clock's case. In order to establish a proper connection, a modem is also required at the PC that is to communicate with the desired Smart Clock with Internal Modem.

Features and Components

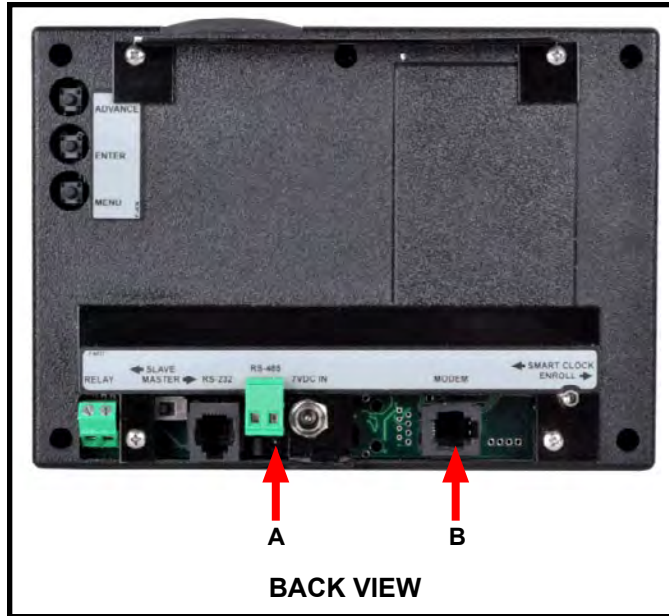


Figure 111. Smart Clock [50322](#) Internal Modem features and components

A. Modem Terminal Jumper: This jumper located on the right side allows the user to activate the modem circuit within the Smart Clock. Leave the jumper on the pins to activate the modem and remove the jumper when a direct PC RS-232 connection is desired.

B. Modem Phone Jack: Insert one end of a telephone cable into this jack. The other end of the cord must connect into an analog phone line jack.

Installation

CONNECTIONS

- I. Disconnect the power to the Smart Clock.
- II. Ensure that the Modem Terminal Jumper is applied to the Smart Clock (see Figure 111).

- III. Insert one end of a telephone cable into the Modem Phone Jack located on the back of the Smart Clock. Insert the other end into an analog phone line jack.
- IV. Ensure that the modem on the PC that will communicate with the Smart Clock is properly connected to an analog phone line.
- V. Power the Smart Clock.

Out-of-the-Box™ MODEM CONFIGURATION

- I. Open the Out-of-the-Box™ software.
- II. Click “Browse” > “Smart Clock Configuration” > “Communication Lines” (see Figure 112).

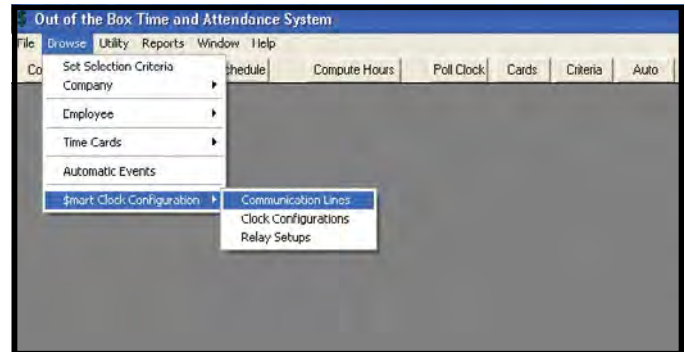


Figure 112. Out-of-the-Box™, Communication Lines

- III. Click the “Add” button in the “Browse Communication Lines” window (see Figure 113).

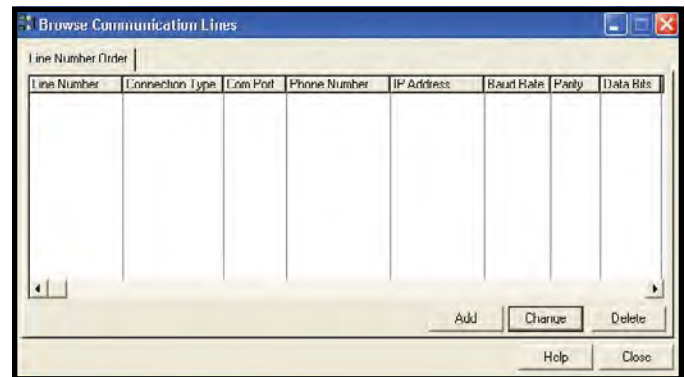


Figure 113. Out-of-the-Box™, Browse Communication Lines window

- IV. The “Adding New Communication Line” window will open. The following fields will have to be configured for modem use (see Figure 114):

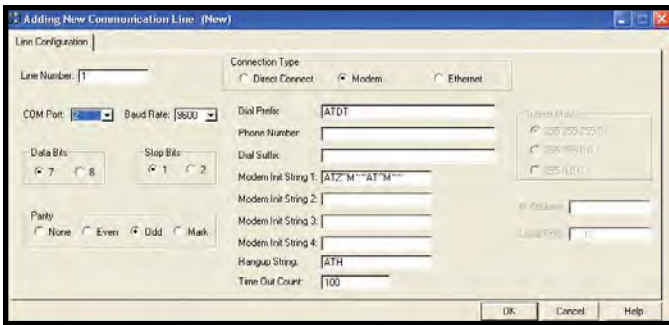


Figure 114. Out-of-the-Box™, Adding New Communication Line window

Line Number: Enter a line number, code or description to identify the line.

COM Port: This setting must match the COM port of the computer's modem.

Baud Rate: The baud rate is the speed (bits per second) that the computer and the Smart Clock transmit and receive data across the phone line. The default for this field is 9600. This setting must match the baud rate setting in the Smart Clock for communication to be established.

Connection Type: Modem

Dial Prefix: The dial prefix refers to the AT command to dial a phone number. Leave this field at its default setting.

Phone Number: Enter the phone number of the phone line that the Smart Clock is connected to. Do not use spaces or dashes. Commas may be entered for pauses and asterisks for extensions.

Dial Suffix: This field is used if additional numbers are to be dialed after the phone number.

Modem Init Strings 1-4: These fields are preset to work with a variety of modems. Leave these fields at their default settings.

Hangup String: Leave this field at its default setting.

Time Out Count: The default value for this field is 100. Increase this value to increase the time out count should your computer modem time out when attempting to communicate with the Smart Clock. The maximum value is 2000.

Data Bits: 7
Stop Bits: 1
Parity: Odd

Note: If configuring a Smart Clock with Fingerprint Reader, use the following settings:

Data Bits: 8
Stop Bits: 1
Parity: None

- V. Click the "OK" button when complete. Then close the "Browse Communication Lines" window.
- VI. Click "Browse" > "Smart Clock Configuration" > "Clock Configurations" (see Figure 115).

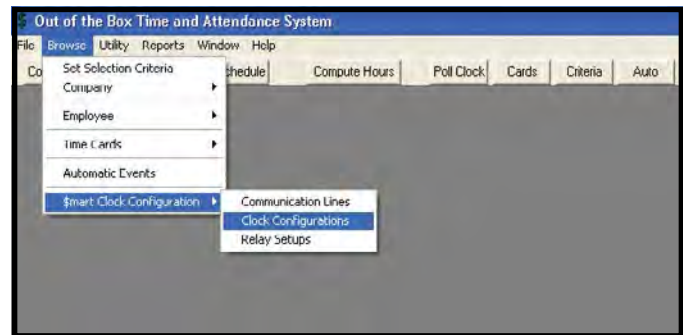


Figure 115. Out-of-the-Box™, Clock Configurations

- VII. Click the "Add" button in the "Browse Clocks" window (see Figure 116).

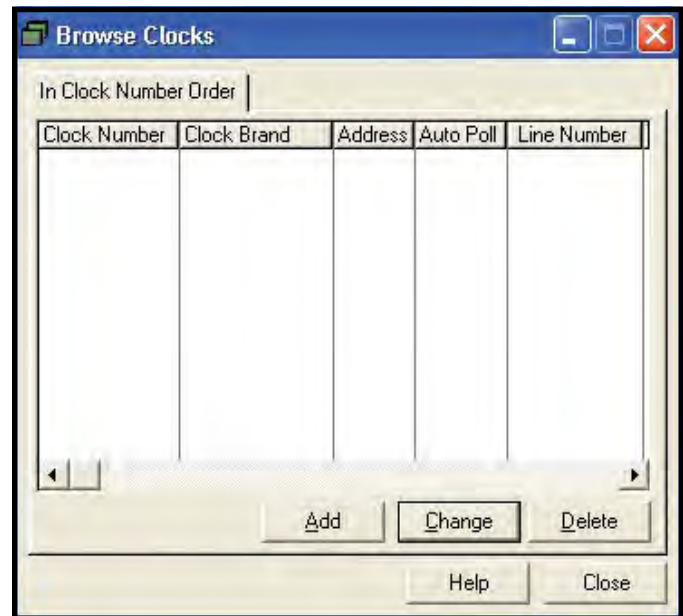


Figure 116. Out-of-the-Box™, Browse Clocks window

- VIII. The "Record Will Be Added (New)" window will open. The following fields will have to be configured for modem use (see Figure 117):

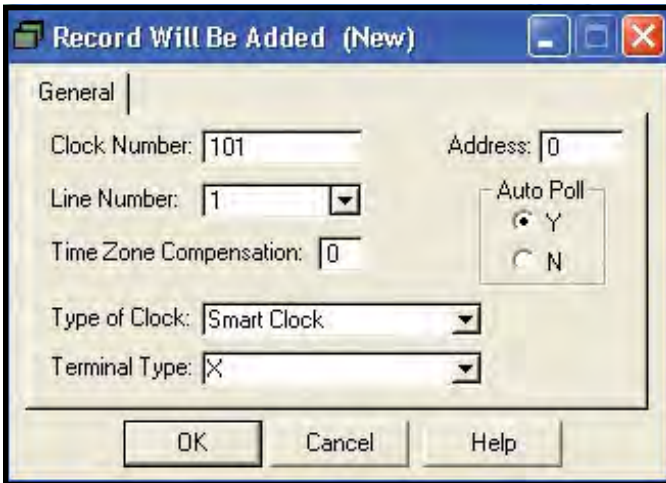


Figure 117. Out-of-the-Box™, Record Will Be Added window

Clock Number: Enter a unique clock number in this field. The default value is 101.

Address: Enter the address of the Smart Clock in this field. The valid addresses are 00-63. The default value is 00.

Note: This setting must match the Clock ID setting in the Smart Clock.

Line Number: Select the communication line number that the program will use to communicate with the corresponding Smart Clock. Click the arrow button on the right side of the field to display a drop-down menu of the available line numbers.

Time Zone Compensation: This feature allows the program to synchronize all of your connected Smart Clocks across multiple time zones.

For example, if your company headquarters is located in Iowa (Central Time Zone), the “Time Zone Compensation” field for your Smart Clocks there will be set to 0. The “Time Zone Compensation” field will be set to 2 for Smart Clocks located in California (Pacific Time Zone) and -1 for Smart Clocks located in New York (Eastern Time Zone).

The value of this field represents the number of hours that will be added to or subtracted from your local time zone when setting the time for other time zones. If you do not have Smart Clocks setup in multiple time zones, set this field to 0.

Auto Poll: Selecting “Y” will include the given Smart Clock when using the automatic poll command. Selecting “N” will remove the given Smart Clock from the automatic poll command. This field also determines whether a Smart Clock will or will not be polled when using the Manual On-Line Data Gathering and Poll Clock screens.

Type of Clock: Select “Smart Clock” if you are connecting to a Smart Clock without a fingerprint reader. Select “Smart Clock Bio” if you are connecting to a Smart Clock with Fingerprint Reader.

Terminal Type: This field will automatically configure to “X” when selecting “Smart Clock” in the the “Type of Clock” field above and will configure to “Y” when selecting “Smart Clock Bio”.

- IX. Click the “OK” button when complete. Then close the “Browse Clocks” window.
- X. The communication settings must then be checked via the “Perform Clock I/O” screen. Begin by clicking “Utility” > “Perform Clock I/O” (see Figure 118).

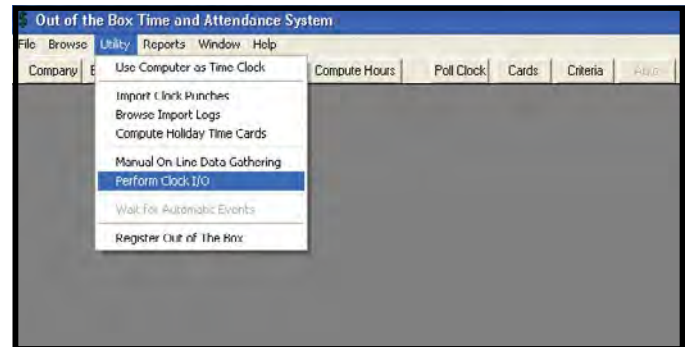


Figure 118. Out-of-the-Box™, Perform Clock I/O

- XI. The “Clock Interface Control” window will open. Click on the drop down arrow next to the “Clock Number” field to display the list of available clocks to communicate with.
- XII. Select the clock number that corresponds to your modem connection and click the “Connect” button. If a successful connection to the Smart Clock is established, the buttons in the window should become active (see Figure 119). If the buttons do not become active, review over steps I - IX or contact Technical Support.

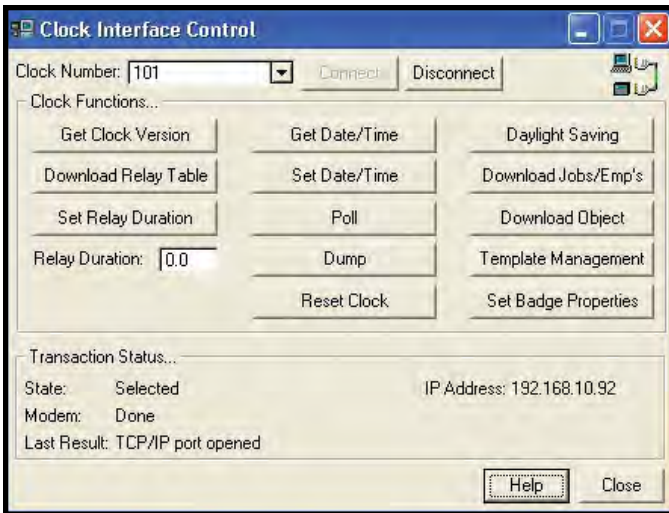


Figure 119. Out-of-the-Box™, Clock Interface window

50325 BACK-UP BATTERY

Description

The optional Smart Clock [50325](#) Back-up Battery provides up to 3 hours of power to the Smart Clock and its connected accessories should power a failure occur. A dual lock fastener set is included to allow for easy installation and removal to the steel backplate.

The Smart Clock Back-up Battery has a 1-year warranty and is not covered under the Smart Clock Maintenance Agreement. Due to the nature of this device, it cannot be repaired and must be completely replaced if it malfunctions.

Features and Components



Figure 120. Smart Clock [50325](#) Back-up Battery features and components

A. Power Switch: Toggle the switch to “ON” to turn on the Back-up Battery unit. Toggle the switch to “OFF” to turn off the Back-up Battery unit.

B. Status LEDs: Displays the status of the Back-up Battery unit via the illumination of these 3 LEDs.

ON: Indicates that the Back-up Battery is turned on, the batteries have the ability to be charged and are charging properly. Illumination of this LED plus the “LOW” LED indicates failure of one or several of the batteries inside the unit.

BATTERY: Indicates that the Smart Clock is being powered by the Back-up Battery and not its power supply. This LED will illuminate when there is power failure at the Smart Clock. The Smart Clock and its connected accessories will remain operational for approximately 3 hours when it runs on power from a fully-charged Back-up Battery.

LOW: Indicates that the battery power is low. There are approximately 15 minutes of power left once this LED illuminates. Illumination of this LED plus the “ON” LED indicates failure of one or several of the batteries inside the unit.

C. Power Plug: Insert into the power jack located at the back of the Smart Clock.

D. Power Jack: Insert the Smart Clock’s power supply into this jack.

Installation

- I. Peel off the tape located on the back of the Smart Clock Back-up Battery to expose the adhesive on the fastener set.
- II. Adhere the Back-up Battery to the inside of the steel backplate. Place as far to the right as possible and approximately 1/3” from the top (see Figure 121).



Figure 121. Installing the Smart Clock Back-up Battery into the steel backplate

III. Toggle the power switch located at the top of the Smart Clock Back-up Battery to “ON”.

IV. Insert the Smart Clock’s power supply into the power jack located on the left side of the Back-up Battery.

Note: Do not use any other power supply other than the one that was included with the Smart Clock. Using another power supply may damage the unit.

V. Insert the Back-up Battery’s power plug into the power jack located at the back of the Smart Clock (see Figure 122).



Figure 122. Connecting the Smart Clock Back-up Battery

VI. Plug the power supply into an electrical outlet.

All 3 LEDs should illuminate when the Smart Clock Back-up Battery is powered up for the first time. The red "LOW" LED should turn off after a few minutes. This indicates that the Back-up Battery has received enough charge to function. The Smart Clock may be used at this point, but it is recommended to let the Back-up Battery charge for 8-12 hours before use.

TECHNICAL SUPPORT

- Find the answers to the most frequently asked technical questions by visiting the Smart Clock FAQ webpage:
SmartClock.com/FAQ.aspx
- Find the latest downloads for your Smart Clock Time and Attendance System by visiting the Smart Clock Downloads webpage:
SmartClock.com/Downloads.aspx
- Find more information on purchasing a Smart Clock Annual Maintenance Agreement by visiting this webpage:
SmartClock.com/pdf/AnnualMaintenanceAgreement.pdf

Limited Warranty

Smart Clock expressly warrants that for a period of 90 days from the date of purchase, Smart Clock products, hardware only, will be free of defects in material (parts) and workmanship (labor). An extended warranty is available for purchase. Within the warranty period, a unit will be tested, repaired or replaced at Smart Clock's option, free of charge. Call our Customer Service Department at 909-664-9980 (Chino, CA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Please include a copy of your original packing slip, invoice, or other proof of date of purchase. Any unit under warranty should be shipped prepaid to the Smart Clock factory. Warranty replacements will take approximately 1 week.

If your unit is out of warranty and you would like to have it extended, call our Customer Service Department at 909-664-9980 (Chino, CA) for a maintenance agreement renewal. If the unit is not under warranty and you would like it repaired, contact the Customer Service Department for a Return Material Authorization (RMA) and proper shipping instructions and address. Smart Clock will quote repair charges necessary to bring your unit up to factory standards.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

In no event will Smart Clock or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.