



PIV-Station Installation Guide

PIV-Station™ Version 10.0



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1 Introduction to This Manual

This manual provides a simple step-by-step procedure for installing a PIV-Station Contact or Contactless CHUID Reader. It covers the entire process of connecting the reader, defining the network, and enrolling users.

This manual should be used in conjunction with the Bioscrypt provided PIV-Station Quick Start Guide and the PIV-Station Operator's Manual.

The following symbols may be found throughout this manual to denote special issues the user may encounter. Their definitions are given below.



DANGER: This symbol denotes warning to a condition that may cause death or excessive damage to property. Please be sure to carefully read the corresponding section in this manual.



WARNING: This symbol denotes warning to a condition that may cause severe injury or major damage to property. Please be sure to carefully read the corresponding section in this manual.



CAUTION: This symbol denotes caution to a condition that may cause injury or minor damage to property. Please be sure to carefully read the corresponding section in this manual.

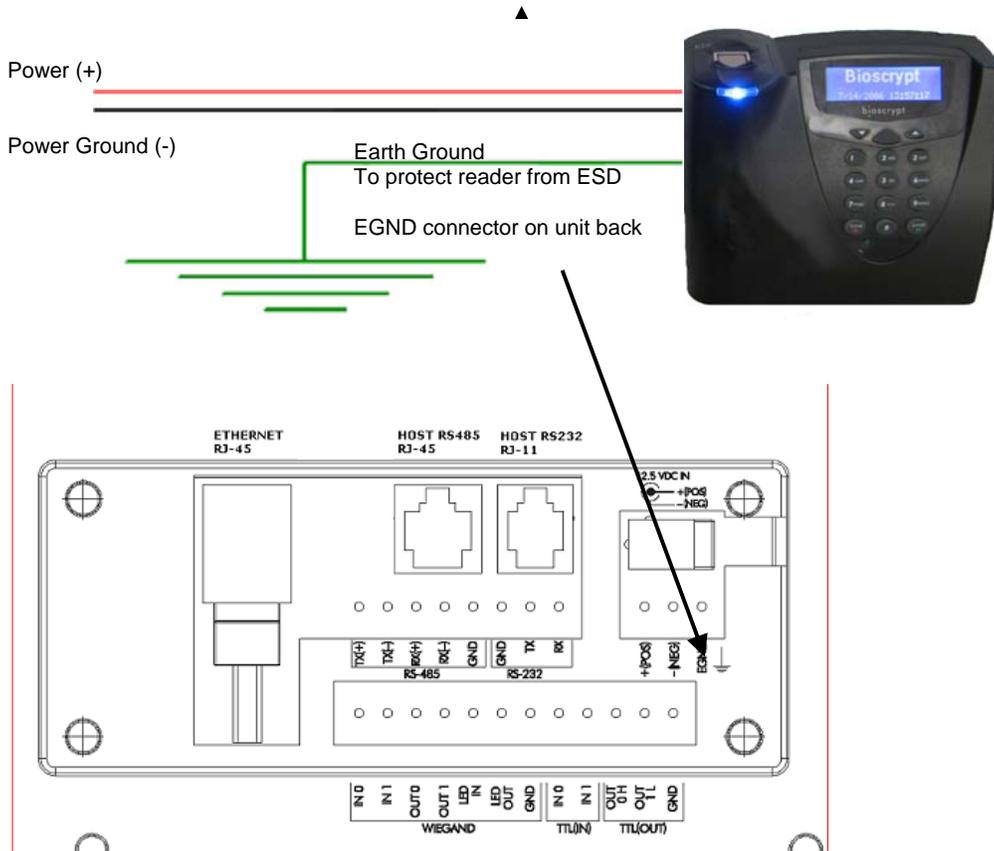


NOTICE: This symbol denotes notice of a situation needing additional advice to avoid incorrect usage. Please be sure to carefully read the corresponding section in this manual.

2 Earth Ground

It is extremely critical for proper operation of the Reader that the earth ground be properly connected to avoid damage by ESD. Connect the terminal labeled EGND to earth ground. This wire should not be connected to the neutral, the cable shield, or any other wire except earth ground. See Figure 1 (PIV-Station Contactless CHUID Reader shown) below.

- **EARTH GROUND:** A low impedance path to earth for the purpose of discharging lightning, static, and radiated energy, and to maintain the main service entrance at earth potential. Consult local codes for guidelines.
- **ESD:** Electrostatic Discharge (static electricity). The effects of a static discharge can degrade or destroy semiconductor junctions for an electronic device.



Comment [D1]: Need new picture?

Figure 1: Earth Ground Connections

3 About the PIV-Station Reader



Figure 2: PIV-Station (shown with Optional Contact CHUID reader)

- The PIV-Station with the optional contactless CHUID reader provides a one factor authentication based on the card's CHUID and does not perform biometric verification.
- The PIV-Station with the optional contact CHUID reader provides a three factor authentication based on the card's CHUID, the template stored on the card, and the user's finger-scan.
- The two optional readers are mutually exclusive and the contactless reader will not function when the contact reader is installed.
- The contactless CHUID reader may be upgraded to the contact reader.
- The PIV-Station with the optional contact CHUID reader is available for 1:1 Verification only and the template is stored on the card at the time of issuance and accessible only via the contact reader.

4 Steps in a Comprehensive Installation

Every installation is unique. Sometimes the issues are well defined and can be handled in a standard fashion; sometimes the issues are very specific and may not be immediately recognizable. This document addresses the issues that may be faced with during a standard installation. The steps for a successful installation are:

- **Planning the Installation** – Choose the type of hardware required, decide if a network is required, and the location and number of Readers required.
- **Unpack All Items** – Unpack all items and cross check against packing list.
- **Install Components** – Install the cabling and components needed to run system
- **Install Software** – Install the software needed to set up the Readers.
- **Configure ports on the PC** – Configure the PC ports to support reader.
- **Connect reader for configuration** – Connect Reader to USB cable and supply power to unit.
- **Mount Readers** – Mount the Readers in their final locations.
- **Power distribution and reader hook up** – Reader wiring via the back panel.
- **Power-up Procedure** – Check proper power connections and start system safely.
- **User interface** –Users can begin to use system.

This manual will provide more information on each of these steps in order.



WARNING. PIV-Station readers must be installed by a qualified technician. If at anytime you do not feel qualified to perform a task, call Bioscrypt technical support or contact a qualified installer.

5 Planning the Installation

Planning the installation is probably the single most important aspect to a successful installation. By the time you are installing the system all of these details should already be known. If not, take a moment to go through them now before beginning installation of any Readers. Planning for installation must take in to consideration: the access controller, the door locks, the readers, and the need for a network.

During the planning phase, you should determine:

- What type of authentication is required for your application?
- How many doors need to be protected? The PIV-Station readers control access to a controlled area; areas that do not require access control don't need readers.
- What type of reader will be on each door? Doors already inside a secure area may not need the same type or level of security.
- If multiple PIV-Station readers require networking for template distribution/management, then a dedicated PC is recommended to administer the system as well as an RS-485 – RS-232 converter and cabling for serial communications or cabling for Ethernet.
- Verify that the access controller supports any of the Wiegand formats supported by the PIV-Station readers.
- When planning the system, identify all wiring by the signal levels they are to carry. Use separate cable/conduit for different signal groups to avoid cross talk. Plan to separate them by the following groups:
 1. Power distribution: Wires carry power to readers, door strikes, etc.
 2. Data communication: RS-485, RS-232, USB, Wiegand, Ethernet, etc.
 3. Signal: Door contact, request to exit push button, alarm input, etc.
- Determine any distance limitation of each type of signal when planning reader placement and use repeaters as needed.
- Consider the environment where the equipment will operate, it may be necessary to protect the installation with a Bioscrypt approved weather shield.
- Available quality earth ground.

If you have any unresolved issues with the items on this list contact Bioscrypt Technical Support for additional information before beginning any installation.

6 Unpack All Items

6.1 Basic Components included

V-Station reader

Wall mounting plate / Mullion mounting plate

Tools:

1/8" security hex key

Hardware:

(4) #6-32 screws

(4) #6 self-tapping screws

(4) #4-8 wall anchors

(14) crimps

(1) plastic Aux port door

(2) #4-40 screws

(1) Coupler

(2) Security Screws

(2) Washers

Documentation:

PIV-Station Quickstart Guide

User documentation (included on CD)

Documentation provided with your new reader is installed onto your computer when you install the VeriAdmin software (also available online at <http://www.bioscrypt.com>). To view the documentation you can use Windows Explorer (available from the Start Menu under Programs) to navigate to C:\Program Files\Bioscrypt\VeriAdmin\Docs or another location that you defined during the installation procedure. The documentation is provided in Adobe® Acrobat® format (PDF). The Adobe Acrobat reader is available on the CD or on-line at www.adobe.com.

6.2 Basic Components required but not included

PC* with Windows XP and at least:

One available COM port (or Ethernet card)

USB Port

16 MB RAM

30 MB disk space

Power supply

Door controller

Networking cable

RS-232/RS-485 Converter with P/S*

7 Component Installation

7.1 Basic Component Installation

The PIV-Station readers do not have built-in relays that would allow them to control a door lock, and therefore, they must be part of a larger access control system. System component selection is very specific to each installation but a minimum system would consist of a finger-scan reader mounted on or near an access point, an electric lock, cabling, and the access controller. More complex systems might consist of readers on multiple access points, each with an electric door lock, a multi-point controller, networking and a PC to run the access controller and VeriAdmin Management Software. See Figure 3 below for an example (not for Ethernet).

The installation of the locks and access controllers should be completed according to the manufacturer's specifications and in accordance with all local codes. Final connections to the PIV-Station will be covered in more detail later.

Wiegand, RS-232, and power cabling for the system are minor aspects to the installation, requiring nothing more than planning the cabling route and pulling the cable through the building. It requires only that one is familiar with basic electrical installation theory.

Do not run any wires near utility AC power wiring, lightning rod grounding wire, and etc. to avoid externally generated transients. Grounding equipment is required for ESD protection and safety.

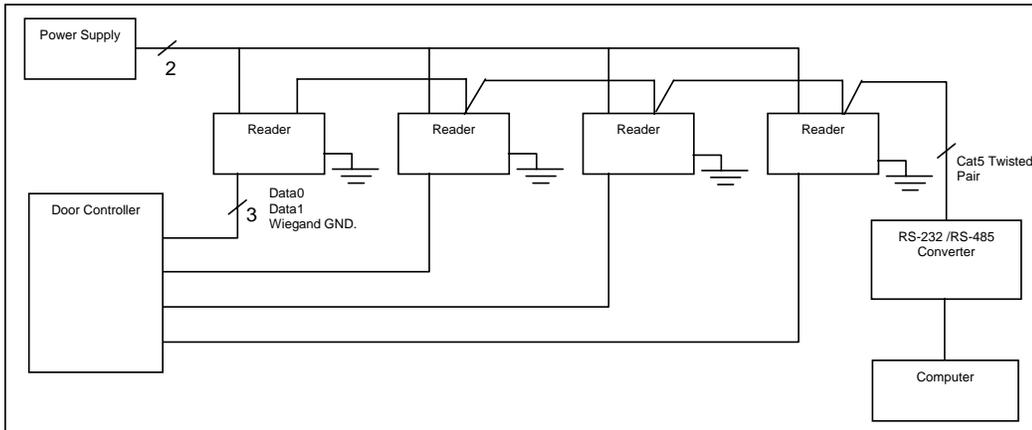


Figure 3: Complete System Overview

7.2 Choosing a Network Type

If your installation requires the use of network communications, then the choice of cable, the cable run length, the network topology, and termination of the network are very important aspects that must not be overlooked. Table 1 outlines the relevant differences between an RS-485 and RS-232 communications. If your system has one or a few readers each only a short distance away from the VeriAdmin PC then RS-232 could be used providing that each reader can have a dedicated RS-232 port.

Spec	RS-485	RS-232
Mode of Operation:	Differential DC Coupled	Single-ended DC Coupled
DC Isolation:	No	No
Max. Distance:	4000 ft.*	150 ft.*
Number of Readers on one line:	31	1
Max. Data Rate	56 kbps	56 kbps*
*Communications distances are dependent on baud rate (bps). For example, with RS-232 at 9600 baud, a distance of 150 feet is possible with shielded cable, but at 56 k-baud (kbps) a maximum of 20 feet is recommended.		

Table 1: RS-485 / RS-232 Communications Comparison

7.2.1 Basics of RS-485 networks

RS-485 is a networking specification similar to Ethernet, which is used for computer networks but RS-485 is not compatible with modern computer networks.

RS-485 has two distinct advantages over the more common RS-232. First, it allows you to connect up to 31 PIV-Station readers to a PC using an external RS-232 to RS-485 converter available from Bioscript. Second, the RS-485 specification allows for cable run lengths up to 4000 feet (1200 meters) at modest baud rates.

An RS-485 network is required instead of RS-232 if:

- There are multiple readers that must be connected together so that templates can be distributed among the readers
- There is only a single reader, but it is over 150 feet (45 meters) from the host PC.

7.3 RS-485 Cable Specification

The PIV-Station readers provide a 2-wire, half-duplex RS-485 interface. The main run cable should be low capacitance, twisted pair cable, with approximately 120-ohm characteristic impedance. Category 5 rated communications cable is used in RS-485 networks and is defined in Table 2. This is the recommended cabling for RS-485 communications. The cable connection includes a differential line (+ and -) and a GND connection.

Spec	Recommendation
Capacitance (conductor to conductor)	<20 pF/ft.
Characteristic Impedance	100 – 120 ohms
Nominal DC resistance	<100 ohms/1000 ft.
Wire gauge	24 AWG stranded
Conductors/Shielding	>2 pair (shielded optional)

Table 2: Cat 5 Cable Characteristics

In certain electrically noisy environments, a shielded cable may be required. It is often hard to determine if shielded cable is required in an application or not but since the cost difference between shielded and unshielded cables is very small, it's worth using the shielded type.

7.3.1 RS-485 Cable Lengths

The total length of the communication cable (adding up all of the segments of the run) should not exceed 1200 meters (4000 feet) as outlined in the specification for RS-485. Although the RS-485 specification calls out a maximum cable length of 1200 meters and a maximum baud rate well above that of the PIV-Station reader, a more conservative system should be configured for no more than 1000 meters and running at a baud rate of 9600 bits per second. After the network is configured and is running in a stable manner, the baud rate can be increased if faster network communications are desired.

Drops (down leads, stubs, T's, T-connections) to equipment are not recommended, but if required, should not exceed 0.5 meters (about 1.5 feet) and should use the same cable recommended above. On a long stub, a signal that travels down the wire reflects to the main line after hitting the input impedance of the reader at the end. This impedance is high compared with that of the cable and the net effect is degradation of signal quality on the bus.

7.3.2 RS-485 Network Topology

Communication cables for RS-485 should be laid out in a daisy chain (See Figure 4). Long stubs or drop downs (See 7.5 Cable lengths) and the star configuration should be avoided because they create discontinuities and degrade signal quality. The star configuration usually does not provide a clean signaling environment even if the cable runs are all of equal length. The star configuration also presents a termination problem, because terminating every endpoint will overload the driver. Terminating only two endpoints solves the loading problem but creates transmission-line problems at the un-terminated ends. A true cascade or daisy chain connection avoids these problems.

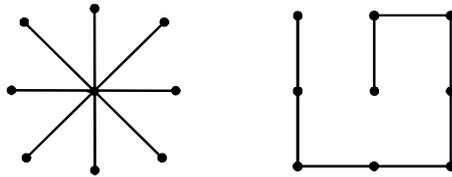


Figure 4: Network Topologies - Star and Cascade (Daisy Chain)

7.3.3 Extending the RS-485 Specification

Some systems require longer distances or higher numbers of nodes than supported by RS-485. Repeaters are commonly used to overcome these barriers. An RS-485 repeater can be placed in a system to divide the load into multiple segments. Each refreshed signal is capable of driving another 1200 meters (4000 feet) of cable and an additional 31 RS-485 reader loads. The PIV-Station readers represent a single reader load to the transmission line.

7.4 Ethernet Networks

If your system will be configured for use over Ethernet, the wiring will be slightly different. Communication cables for Ethernet logically form a straight line bus but the more devices on that bus the less efficient the network becomes due to increased collisions and the weaker the signal will get over distance. Repeaters can be used to boost the signal strength however a better solution is to place switches at intermediate positions along the bus. The most common Ethernet topology in use today is the star configuration (See Figure 4) with a hub or switch in the center.

8 Install Software

8.1 System Requirements

The following system requirements must be met for VeriAdmin Management Software to properly work:

- 30 MB hard-drive space
- 16 MB of RAM minimum
- CD-ROM Drive
- COM port and / or USB port
- V-Station CNV kit (RS-232/RS-485 converter) if RS-485 is to be used
- Windows 2000 or Windows XP (recommended by Bioscrypt)



VeriAdmin Management Software is no longer supported on the following platforms: Windows 95™, Windows 98™, Windows NT™, and Windows ME™. Bioscrypt does NOT accept responsibility for any issues with VeriAdmin Management Software Installations that may arise from use on unsupported platforms or platforms not mentioned in this document.

8.2 Install Software

1. Log into the PC as any user with Administrative privileges.
2. Insert the installation CD in to the CD-ROM drive.
3. InstallShield Wizard should start.
4. If you downloaded the software or install does not start, locate and double click on the **Setup.exe** file.
5. Step through the windows choosing to accept the default settings if possible.
6. You may accept the default path **C:\Program Files\Bioscrypt\VeriAdmin** or an alternate directory.
7. The installer prompts, "Do you want to remove the Fingerprint Image and Template Data?". Click **Yes** to install the FPF feature or **No** to disable this feature. The installer will prompt, "Are you sure?" click **OK**. Note that this will only affect non-PIV-Station readers used on this same install of VeriAdmin and will not affect any features of the PIV-Station.
8. Allow the installation to complete.
9. Launch VeriAdmin, if the message **VeriAdmin was not able to read from the Windows registry** is seen, log off PC, log on with Administrative privileges, and repeat steps one to eight.

8.3 Re-installing or Updating Software

1. Log into the PC as any user with Administrative privileges.
2. Make a back up copy of the **C:\Program Files\Bioscrypt\VeriAdmin** folder to another folder.
3. Insert the installation CD in to the CD-ROM drive.
4. Install Shield Wizard should start.
5. If you downloaded the software or install does not start, locate and double click on the **Setup.exe** file.
6. The software will prompt you to first remove the previous version, click **OK** to proceed.
7. Step through the windows choosing to accept the default settings if possible.
8. You may accept the default path **C:\Program Files\Bioscrypt\VeriAdmin** or an alternate directory.
9. The installer prompts, "Do you want to remove the Fingerprint Image and Template Data?". Click **Yes** to install the FPF feature or **No** to disable this feature. The installer will prompt, "Are you sure?" click **OK**. Note that this will only affect non-PIV-Station readers used on this same install of VeriAdmin and will not affect any features of the PIV-Station.
10. Allow the installation to complete.
11. The template and network configuration (UNITIDS.DAT) files must be copied from the backup folder made in step 2 to the new **C:\Program Files\Bioscrypt\VeriAdmin** folder.
12. Launch VeriAdmin, if the message **VeriAdmin was not able to read from the Windows registry** is seen, log off PC, log on with Administrative privileges, and repeat steps one to eleven.

8.4 Post-Install Software Configuration

Once the installation is complete, a shortcut icon (See Figure 5) for the Administration Software will appear on your desktop. This icon will also be found under **Start Menu > Program Files > Bioscrypt> VeriAdmin**.



Figure 5: VeriAdmin desktop icon

When you launch the software you will see one of two possible welcome screens.

- If re-installing or updating VeriAdmin, you will see the dialog shown below (See Figure 6). This message indicates that VeriAdmin has found the old network configuration file (UNITIDS.DAT). VeriAdmin will take advantage of your previous work and import this file for you if you click **Yes**. Selecting this option will bring up the Network Configuration Manager. Refer to the Operator's Manual for more information.



Figure 6: VeriAdmin Welcome Message (Update)

- If installing VeriAdmin for the first time, you will see the welcome message below (See Figure 7). This message is simply informing you that this is the first time the software has been installed and that all the necessary files have been created. Contact Bioscrypt Technical Support for troubleshooting assistance if this is not the first time you have installed this software.



Figure 7: VeriAdmin Welcome Message (New Install)

8.5 USB Driver Install

V-Station products feature a USB interface for the Aux port, utilizing a Serial-to-USB converter (CP210x USB to UART Bridge). In order to use this interface, the proper drivers must be installed. You should install the drivers BEFORE attaching any of the Readers to your computer's USB port for the first time.

1. Log into the PC as any user with Administrative privileges.
2. Locate the folder **USB_Driver_CP210x_Bridge** on the installation CD.
3. Double-click the file **CP210x_VCP_Win2K_XP.exe** and follow the prompts in the Wizard.
4. After the driver is installed, later connecting the first Reader to the computer will auto-locate the driver.
5. If the driver is not located you may be prompted to browse to the drivers in folder C:\SiLabs\MCU\CP210x\Win2K_XP.

Comment [D2]: Are we fixing this installer in this version?

9 Configure Ports

Bioscrypt PIV-Station readers communicate with the VeriAdmin software through the Host port or the USB Auxiliary (USB) port. Cables can be connected to either of the ports on the PIV-Station reader, but the reader can communicate through only one port at a time. The default settings are shown in Table 3.

V-Station Factory Defaults	
Network ID:	0
Port Mode:	N/A (defaults to RS-232 for Host)
Host Port Protocol:	RS-232
Host Port baud rate:	57600 baud
Aux Port baud rate:	57600 baud
IP Address:	0.0.0.0

Table 3: Factory Settings

The PIV-Station uses RJ-45 and RJ-11 connections at the rear of the reader for RS-485 and RS-232 respectively or these can be connected via the Weidmuller connector. The Host port can be either RS-232 or RS-485 as discussed in Section 7. This option is configured in the PIV-Station **Port Mode** section of **Communication** tab in the **Unit Parameters** dialog of VeriAdmin. After installing the software the ports are configured by following the instructions below (to return to this screen later and for more information, see the Operator's manual).

- 1) Close the Welcome screen by clicking **OK**.
- 2) The network settings screen will appear as shown in Figure 8.
- 3) Do not choose **Ethernet** unless you are using the Ethernet port.
- 4) Indicate which ports to use by clicking the **Use** box (by default all available ports are selected).
- 5) Select the desired **Port**.
- 6) Baud rate can be set manually or by automatic detection.
 - a. **NOTE:** The **Auto** option should not be used for RS-485. Manually set the Reader to the proper baud rate.
 - b. Initially set the baud rate to the defaults as shown in Table 3 above to allow start up communication. These can be changed later if desired.
 - c. If you know the baud rate, enter it for speed of set up even if using **Auto** as it is used for broadcasts.
- 7) After selecting which serial ports to use, click **OK**.

10 Connect Reader for Configuration

Once the ports are set up, the readers will need to be configured before being added to the network. In this section you will:

- Configure the reader using the USB port and a PC
- Set **Unit Network ID** to a unique number
- Set **Host Port Protocol**
- Set **Host Port Baud Rate**

10.1 Initial Reader Setup

1. When you click the **OK** button on the Network Setup Screen (in Section 9 Step 7).
2. The **Network Configuration Manager** dialog will appear. See Figure 9.
3. Supply power to the proper connectors on the rear of the PIV-Station Reader (Refer to Table 5 for a wiring diagram).
4. When power is applied, the front LED will glow blue, and the top LED will blink amber, and then turn off (It will remain on for Readers configured to 1:N).
5. Connect the Reader's USB bottom port to your PC's USB port using the USB programming cable provided with the Reader.
6. Check the USB com port as described in Section 10.2 if this is the first use of it.
7. Once a Reader is connected, you can now set the **Network ID** on the reader. Double-click on the icon for that Reader in the **Network Tree**, bringing up the **Unit Parameters** dialog.
8. In the **Communication** tab, type the desired ID number in the **Assign Unit Network ID** field. Press the **Apply** button to make the change. Note this will change the Network ID in flash on the reader and will also modify the Transmit ID that is being used by the PC so that you may continue to communicate. The **General** tab of this dialog box shows the current communication settings.
9. Select the appropriate baud rate from the **Host Port Baud Rate** dropdown list. Keep in mind that you are currently talking over the USB port, but you are changing the Host Port settings that will be used when you connect to the Reader through the Host Port wires on the back of the Reader.
10. The PIV-Station **Host Port** parameter, in the **Communication** tab in the **Unit Parameters** dialog in VeriAdmin, will allow the user to select the desired Host port. Options are Protocol (Either RS-485 or RS-232) and Baud Rate.
11. If this reader is being configured for Ethernet, click the **Advanced** button in the Advanced settings window. This will launch a window from which you can set the IP address and TCP port.
12. Select the COM port to which you are adding a Reader and click **ADD UNIT**.
13. Enter the **Transmit ID** that will be used for this Reader and a name if desired.
14. Click **Refresh**.
15. Repeat steps 3 through 14 for each Reader being added.



As with all removable USB hardware, care must be taken to properly stop the device before unplugging to avoid hanging the software. Bioscrypt recommends the following sequence of steps when temporarily using the USB Aux port to communicate with a VeriSeries reader:

1. Physically connect the reader to the PC via USB
2. Open VeriAdmin
3. Perform necessary operations
4. Close VeriAdmin
5. Disconnect Reader

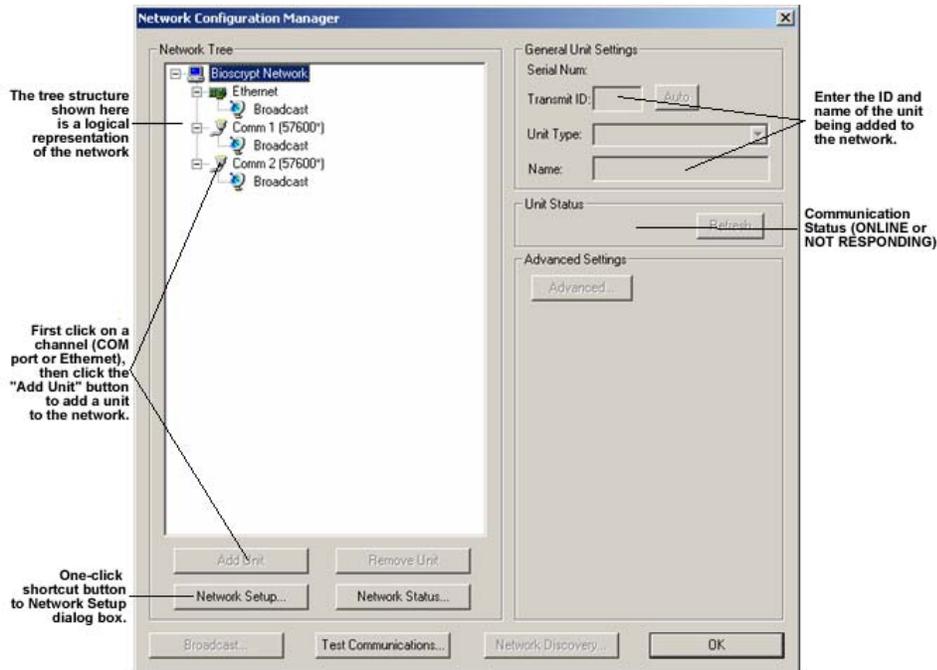


Figure 9: Network Configuration dialog

10.2 Check USB COM port.

1. Confirm Reader is connected to power.
2. Connect USB cable to reader then connect it to the PC.
3. The new hardware will be found and **Add Hardware Wizard** will launch.
4. Select **No, not at this time** then click **Next**.
5. Select **Search for the best driver in these locations**.
6. Uncheck **Search removable media**.
7. Check **Include this location** in the search - C:\SiLabs\MCU\CP210xWin2K_XP.
8. Click **Next**.
9. This will find the driver and install it.
10. The system will find the new hardware again and **Add Hardware Wizard** will launch.
11. Follow steps 4 to 8 again.
12. Go to **Device Manager** and confirm COM port number assigned to Reader.
13. If you can locate either of the drivers below skip to Step 23. If not, skip to step 14.
 - a. **CP210x USB to UART Bridge Controller** [in Ports (COM & LPT)].
 - b. **CP210x USB Composite Device** [in Universal Serial Bus Controllers].
14. Look at the **Other Devices** category as an **Unknown Device**.
15. Double-click on the **unknown device**.
16. Click on the **Driver** tab.
17. Click **Update driver**.
18. The **Hardware Update Wizard** will appear.
19. Select **Install from a list or specific location (Advanced)**.

20. Click **Next**.
21. Select **Search for the best driver in these locations**.
 - a. Uncheck **Search removable media (floppy, CD-ROM...)**.
 - b. Check **Include this location in the search**.
 - c. Click **Browse**, select **C:\SiLabs\MCU\CP210x\Win2K_XP**.
 - d. Click **OK**.
 - e. Click **Next**.
22. Click **Finish**.
23. Once the COM port is created, double click it and select port settings.
24. Verify that the **bits per second** setting is set to 57600.
25. Click OK when done.

11 Mounting

11.1 Mounting Readers

The PIV-Station readers are designed to mount on either a double-gang electrical box or any flat surface. Consult with local professionals regarding the building and safety codes that will affect your installation. Bioscrypt provides wall plate for these applications. The following section describes the proper PIV-Station mounting. The mounting plate is detailed below in Figure 10.

Factors in determining the position of the reader on the wall should include mounting in-line with other switch plates or fixtures, approximately 54 inches from floor to top of reader, mounted on knob-side of door, and in accordance with the Americans with Disabilities Act.

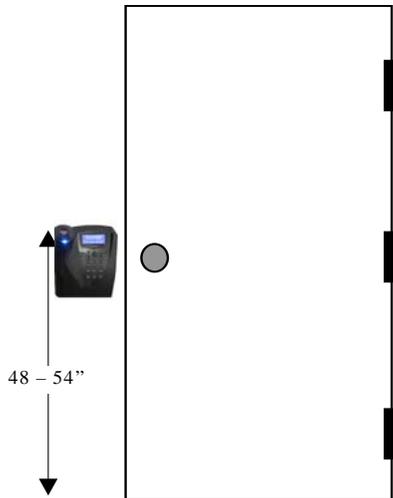


Figure 10: Mounting Height

All of the PIV-Stations and mounting plates are constructed out of durable ABS plastic. This system provides for a very lightweight, yet sturdy system.

11.2 Mounting Templates

- For mounting into wall anchors, wood or sheet metal use #4 flat head screws (<0.125 inch thread width, <0.250 inch head width).
- For mounting onto gang box, use #6-32 machine screws with flat head.
- All dimensions are in mm unless noted.
- Refer to Figure 13 for image of the PIV-Station mounting plate.
- Leave wires accessible for wiring of reader later.
- The Weidmuller connector will protrude approximately 24 mm (1 inch) past the wall plate and into the wall (depending on the connectors attached).
- The access hole must be at least the size of the hole in the wall plate (136mm (~5 3/8") wide by 69mm (~2 3/4") tall). Trace the edges of the hole in the wall plate in pencil before cutting.

11.3 Attaching Reader to Mount

Reader mounting is very simple when the time comes (See Section 12). The mounting plate (See Figure 12) is attached using screws and anchors to secure it in place. The reader body has tabs that slide into the wall plate.

Use the following procedure. Mounting is shown in Figure 11 below (V-Pass FX mount shown but procedure is same).

1. Align reader body with wall plate.
2. Slide reader body down, locking tabs into wall plate.
3. Set reader body in place with Phillips-head #4-40 screw.
4. Attach Aux. port door to bottom of reader with a twisting motion.
5. Secure door to reader with pin-in-hex #6-32 screw.
6. Secure reader to bracket with second pin-in-hex #6-32 screw on bottom right.



Figure 11: Mounting Procedures

Comment [D3]: Replace this one with the two for PIV

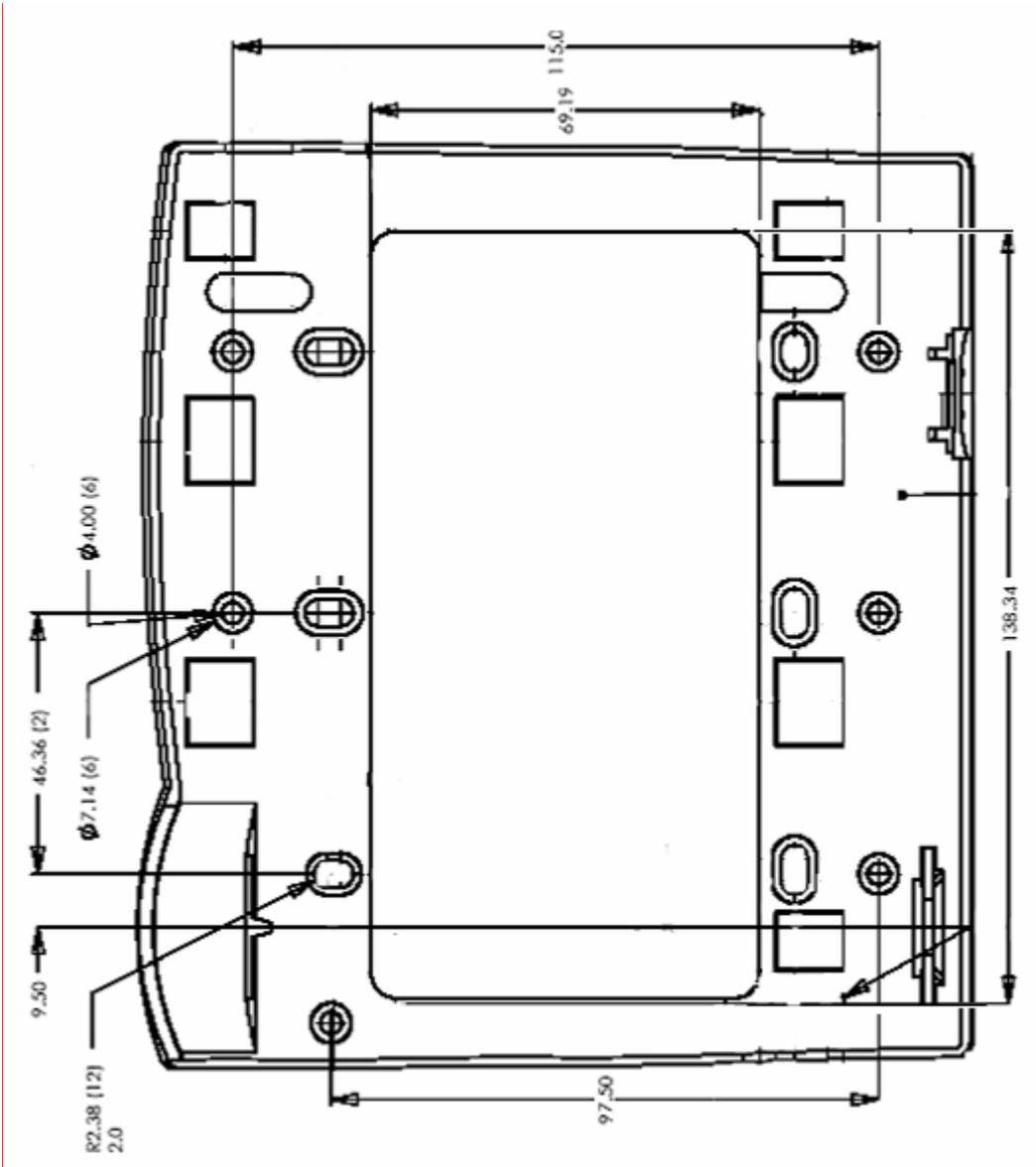


Figure 12: PIV-Station Mounting Template

12 Power Distribution & Reader Hookup

Each of the PIV-Station readers offers RS-232, RS-485, and USB communication channels for communicating with a PC or host controller. Each reader also uses the Wiegand protocol to interface with Access Control equipment, such as access controllers (outputs) or additional readers (inputs). The PIV-Station product will rely on power provided to the system for operation. In a small installation, power may be provided by means of an AC adapter placed near the PIV-Station reader itself. In larger installations, power will be distributed from either a central source or various sources.

12.1 V-Station Power

Power to the PIV-Station readers should be:

- Isolated from other equipment.
- Filtered.
- Protected by means of an uninterruptible power supply (UPS) or battery backup.
- If transient electrical surges are an issue in the location, a voltage suppression device is also recommended.

When planning a system, know the power requirement of each reader. If multiple readers are to share a common power supply, care must be exercised to avoid excessive voltage loss on the wires. Voltage loss can lead to communication problems when readers are talking and/or listening on different ground references.

Voltage loss is directly proportional to wire resistance and the current the wire carries. Place the power supply as close to the equipment as possible. Select appropriate wire size for the load. The PIV-Station readers run on DC power between 12.5 and 24 VDC. Power requirements are as listed in Table 4.

	V-Station (all models)
Power Requirement:	12 watts
Input Voltage Range:	12.5-24.0 VDC
Peak Current:	
12 VDC	1 A
24 VDC	500 mA

Table 4: PIV-Station Power Requirements

12.2 Selecting the Right Power Supply

Most power supplies in the market today provide good input/output isolation, however those which do not provide isolation (or have high leakage capacitance), coupled with accidental AC power line interchange, present serious ground fault problems for installers. With ground fault, the signal reference between subsystems may be 115 VAC apart. If these subsystems are interconnected, the large potential difference will cause equipment damage or personal injury. We recommend only the use of a 12.5 VDC, 1 A, isolated, UL-Listed Class II power supply.

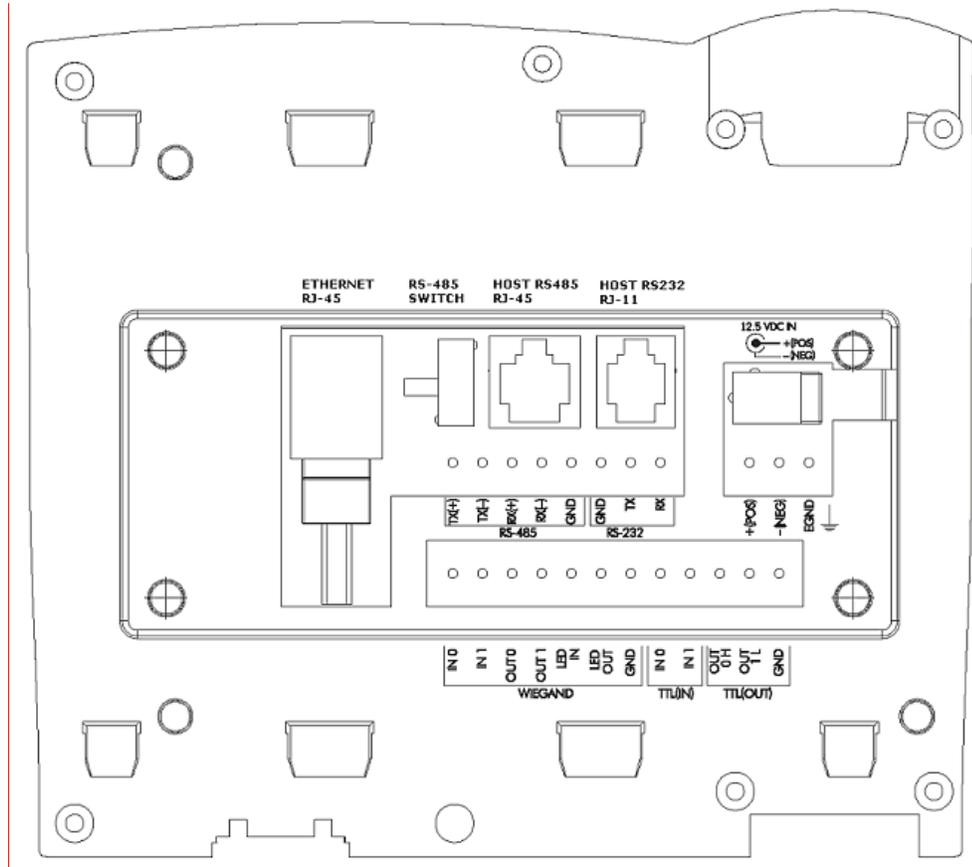
All factory supplied power supply assemblies are either switching or regulated linear supplies and are isolated for safety and to minimize ground loop problems.

The readers are connected to other components of an integrated system through the rear of the reader. This is made up of the connections described in Table 5.

Pin	Group	Label	Signal Description
8-Pin Connector:			
1	RS-485	TX(+)	Transmit +
2		TX(-)	Transmit -
3		RX(+)	Receive +
4		RX(-)	Receive -
5		GND	RS-485 Signal Ground
6	RS-232	GND	RS-232 Signal Ground
7		TX	Transmit
8		RX	Receive
3-Pin Connector:			
1	Power/Ground	+(POS)	12.5 – 24 VDC +
2		-(NEG)	12.5 – 24 VDC -
3		EGND	Earth Ground
12-Pin Connector:			
1	Wiegand	IN 0	Data 0 In
2		IN 1	Data 1 In
3		OUT 0	Data 0 Out
4		OUT 1	Data 1 Out
5		LED IN	LED In
6		LED OUT	LED Out
7		GND	Wiegand Ground
8	TTL (IN)	IN 0	TTL Data 0 In
9		IN 1	TTL Data 1 In
10	TTL (OUT)	Out 0H	TTL Data 0 Out
11		OUT 1L	TTL Data 1 Out
12		GND	TTL Ground

Table 5: PIV-Station Weidmuller Connections

Comment [D4]: Check these.



Comment [D5]: Needs update?

Figure 13: PIV-Station Reader Pin Out (Reader Back View)

Group	PIN	Signal
Ethernet RJ-45	1	Receive +
	2	Receive -
	3	Transmit +
	4	NC
	5	NC
	6	Transmit -
	7	NC
	8	NC
RS-485 RJ-45	1	Transmit +
	2	Transmit -
	3	Ground
	4	Receive +
	5	Receive -
	6	NC
	7	NC
	8	NC
RS-232 RJ-11	1	TX
	2	RX
	3	RTS*
	4	CTS*
	5	Ground
	6	NC

Table 6: PIV-Station Ethernet, RJ-45, and RJ-11 Connections

*Not connected but may be used in the future.

12.3 Wiegand Connections

Wiegand output lines should be connected to a Wiegand compatible controller. When connecting Wiegand output to a controller, you must make sure that the connection is using Data0, Data1, and a common Ground reference. See Table 5 above for the wiring of the Wiegand and Figure 14 for the layout on the back of the PIV-Station.

12.4 ESD Shield Earth Ground Requirement

The finger mask (conductive plastic surrounding the finger-scan sensor) is sometimes referred to as an ESD Shield. The cable (14-18 AWG) that should be used for the ESD Shield is dependent on length. EGND on the unit should be connected in a direct (homerun) configuration to a solid Earth Ground such as a cold water copper pipe or a building ground. See Section 2 for details. **Do not connect the ESD Shield to Power Ground!** The solid Earth Ground connection chosen should measure less than 4 ohm resistance when measured against a known Earth Ground.

12.5 RS-485

RS-232, RS-485, and USB can be used for communication with a PC running PIV-Station compatible software (such as our VeriAdmin software). RS-232 and USB communication is only used for a single reader at a time. If readers are networked, RS-485 connection protocol must be used. For a PC that is administering a RS-485 network, a RS-232 to RS-485 converter is required. RS-485 connections among various readers should be made by connecting the (+) and (-) lines of the differential RS-485 in a daisy chain manner. For instance, from V-Prox to V-Prox, the (+) line from one V-Prox is connected to the (+) line of the next V-Prox and so on; likewise for the (-) lines. Additionally, connect the grounds from each V-Prox reader back to the signal ground connection for the PC. Figure 14 below shows the wiring of an RS-232 to RS-485 converter (Shown with optional VeriSeries readers for reference.)



Figure 14: Wiring Diagram for RS-232 to RS-485 Converter

12.6 Network Operation Issues:

- Use Category 5 cabling for a RS-485 network.
- Choose one twisted pair of conductors to use for RS-485 differential connection, other conductors should be used for Signal Ground (RS-485 GND on Weidmuller connection).
- RS-232/RS-485 Converter must support **sense data** to switch from send to receive mode.
 - Check each reader/cabling for ground fault before connecting to RS-485 network.
 - Each reader should have its ESD Shield Ground (EGND) connected to Earth Ground.
 - Once all readers are configured and connected to the RS-485 network, the baud rate can be increased to highest supported rate (some experimentation required).
- Reader will return a **busy** signal (error -104) if communication cannot be processed due to current processing – usually enroll or verify.

13 System Turn-Up Procedures

System turn-up must follow a step-by-step procedure to avoid difficult troubleshooting. Never wire up a system and apply power to it all at once.

13.1 System Turn up Overview

The following steps should be followed in order:

1. Do not apply power to any readers.
2. Check all wiring and reader configurations.
3. Disconnect all readers from communication line.
4. Check the supply voltage for correct voltage.
5. Power up the PC running the PIV-Station software.
6. Power up the RS-232 to RS-485 converter (if installed).
7. Configure the PC software.
8. Complete ground fault check in Paragraph 13.3 below for the converter (if installed).
9. Connect the PC and converter (if installed) to the communication line.
10. Verify that a reader powers up correctly, but DO NOT connect it to the communication line.
11. Complete ground fault check for this reader in Paragraph 13.4 below (if using RS-485).
12. Connect this reader to the communication line.
13. Verify that it communicates with the PC software.
14. If there are more readers, add the subsequent readers by repeating steps 10-13.

13.2 Reader Configuration Check

Readers must be configured correctly before they can communicate. Common problems include not correctly selecting the correct HOST Port, failure to change mode setting to RS-485 (when used), mismatched baud rates, and incorrect Unit Network ID. Each reader sharing the communication line must have a unique Unit Network ID.

13.3 Ground Fault Converter Check

Before a reader is connected to an RS-485 subsystem, it must be checked for ground fault. An uncorrected ground fault can damage all readers connected to the RS-485 communication line.

To check if there is ground fault on the RS-232 to RS-485 converter, follow the steps below:

1. Apply power to the RS-232 to RS-485 converter.
2. Connect the signal ground of the RS-485 line through a 10-k Ω current limiting resistor to the signal ground of the RS-232 to RS-485 converter.
3. There should be no more than 1 volt across the resistor. Otherwise find and clear the fault.

13.4 Ground Fault Reader Check

To check if there is ground fault for a new reader, follow the steps below:

1. Apply power to all readers already successfully connected to the RS-485 line.
2. Power up the new reader but DO NOT connect it to the RS-485 line.
3. Connect the signal ground of the RS-485 line through a 10-k Ω current limiting resistor to the signal ground of the PIV-Station reader.
4. There should be no more than 1 volt across the resistor. Otherwise find and clear the fault.
5. Repeat the steps in 1 to 3 with each of the RS-485 signal lines (+ and -).
6. Connect the new reader to the RS-485 line only if no ground fault is found.

14 User Interface

Once the system is installed using the PIV-Station is a simple procedure.

1. On the Contactless model, users simply place their PIV card on the reader.
2. On the Contact reader model, initiate verifications by inserting the PIV card into the reader.
 - o The unit will prompt for PIN.
 - o When the screen says **Place Finger** they may then place their finger.
3. The LCD will then say either "Accepted" (top LED will turn green) or "Rejected" (top LED turns red).
 - o If accepted, the verification actions specified by the administrator will be executed.
 - o If rejected, the reader returns to its idle state.
4. When reader returns to idle state, the top LED will turn off.

1.1. Consistent Finger Placement

One key to trouble-free finger-scan recognition is consistent finger placement.

Bioscrypt has designed the Ridge-Lock to create simple user instruction and consistent finger position. The pictures below show the V-Prox FX but the procedure is the same.

1. Wait for the **amber** light (LED) to be illuminated.



Figure 15: Amber LED

2. With the fingertip raised rest the tip on the Ridge-Lock at a right angle.



Figure 16: Fingertip on Ridge-Lock

3. Slide the finger across the **Ridge-Lock** keeping the fingertip raised so as not to touch the sensor.



Figure 17: Slide Finger Across Ridge-Lock

4. Position the finger where the first joint of the finger meets the Ridge-Lock



Figure 18: Position Finger on Sensor

- Lower the finger onto the sensor and apply moderate pressure as if pressing a computer key. Too much pressure may cause smudging of the fingerprint. Too little pressure may not allow the sensor to recognize the presence of a finger.

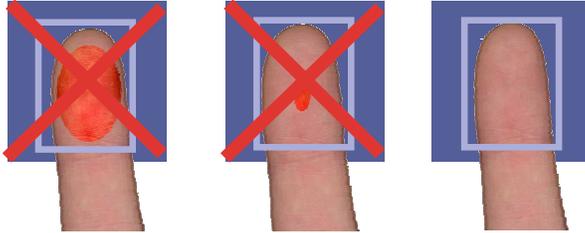


Figure 19: Apply Correct Pressure

- Keep the finger on the sensor until the top LED turns **green**.



Figure 20: Wait for Green LED

- Lift the finger up and off the sensor.



Figure 21: Lift Finger Up and Off Sensor

- Have the user practice this a few times before enrollment so that they can have a feel for how they should use the reader on a daily basis. The goal is to have consistent placement so the PIV-Station Reader sees approximately the same information each time.

1.2. Proper Finger Orientation

Cover the entire area of the sensor with the fingertip to provide the most information.



Figure 22: Cover Entire Sensor

Do not touch the sensor as if pressing a button or it will create an image that lacks core data.



Figure 23: Incorrect Placement

Place the finger as close to the center position of the sensor to increase acceptance rate.

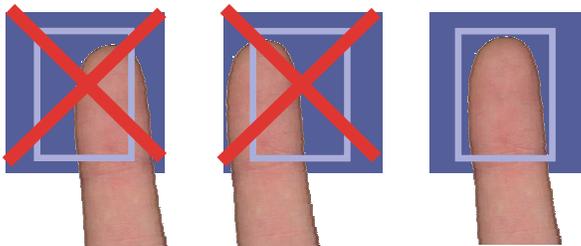


Figure 24: Place Finger Close to Center

Finger rotation should be kept to a minimum during enrollment and verification/identification

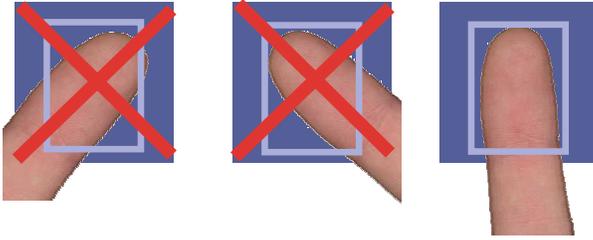


Figure 25: Do Not Rotate Finger

1.3. Center the core

A finger core is the area located within the *inner most re-curving ridge*. Normally it is located in the **middle** of the finger. When enrolling, place the finger on the sensor where the **entire core** can clearly be seen in the *Fingerprint Image* window. The **green** dots represent the center of the core. **Every attempt should be made to ensure that the core is positioned in the center of the captured image.**

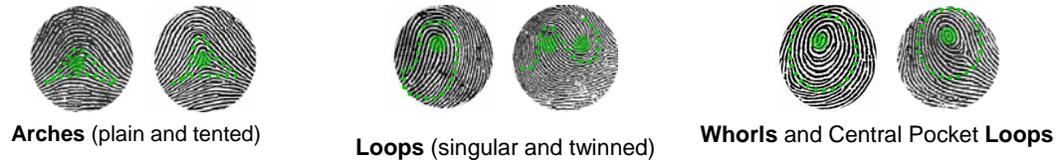


Figure 26: Finger Core

15 Appendix A: Notices

The PIV-Station product line has been tested for compliance with all applicable international standards. The resulting approvals are listed below, and are additionally printed on the labeling located on the rear panel of the product.

The power supply offered by Bioscrypt is CE approved and UL listed.

V-Station, U, G, R

V-Station, U, GC, R

V-Station, U, G, GC, R

15.1 FCC Information to Users

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

15.2 FCC Class B Unintentional Radiators

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

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

Warning: Changes or modifications not expressly approved by Bioscrypt Inc. could void the user's authority to operate the equipment.

15.3 CE Information to Users

All PIV-Stations readers have the CE mark, for compliance with CISPR22 /EN 55022 requirements. For European Union (EU) countries, PIV-Station, U, G, R and PIV-Station, U, GC, R and PIV-Station U, G, GC, R are compliant with CE under the R&TTE Directive, related to the radio transceivers that are part of their design. More information can be found regarding the CE R&TTE directive online at the European Union web site:

<http://www.europa.eu.int/comm/enterprise/rtte/index.htm>

15.4 V-Station,U,G,R; V-Station,U,GC,R; V-Station,U,G,GC,R: Information for Users

The PIV-Station, U, G, R and PIV-Station, U, G, GC, R shall include an embedded Gemplus Gemprox C2 MIFARE contactless smart card reader. This device shall be a radio-tranciever with the following characteristics:

- Operating Frequency Range: 13.553 – 13.567 MHz
- RF Power Rating: 0.0 Watts
- RF Output Impedence: 50 Ohms

16 Appendix B: E. U. Certification Documentation

This appendix contains data related to the PIV-Station product line regarding the test procedures and Declarations of Conformity as required under the R&TTE directive by the European Union for all devices containing radio transmitters. The following Bioscrypt products contain radio transmitters:

Comment [D6]: Update this section

Name	Model Number
V-STATION, U, G, R	V-Stn, U, G, R
V-STATION, U, G, GC, R	V-Stn, U, G, GC, R

Comment [D7]: Update model numbers

Hereby, Bioscrypt declares that the PIV-Station, A, P, R and PIV-Station, A, G, R are in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

16.1 Restrictions of Use

16.1.1 V-Station, U, G, R and PIV-Station, U, GC, R and PIV-Station, U, G, GC, R

Bioscrypt has notified and gained approval to sell the PIV-Station, A, P, R and PIV-Station, A, G, R in all EU countries except the ones listed below. **There shall be no restrictions of use in all EU countries except the following for the PIV-Station, U, G, R and PIV-Station, U, GC, R and PIV-Station, U, G, GC, R readers:**

- Bulgaria
- Croatia
- Romania

For latest product approval status and updates, please refer to the Bioscrypt web page at: <http://www.bioscrypt.com>.

**DECLARATION OF CONFORMITY
FOR THE R&TTE DIRECTIVE 1999/5/EC**

APPLICATION OF COUNCIL DIRECTIVE(S): R&TTE Directive 1999/5/EC

MANUFACTURER'S NAME/ADDRESS: **Bioscrypt Inc.**
505 Cochrane Drive
Markham, Ontario.
Canada L3R 8E3

**EUROPEAN REPRESENTATIVE'S
NAME/ADDRESS:** Neil McDonald
35 Jackson Crt., Hazlemere, High Wycombe
Buckinghamshire, England
HP157TZ

TEST LABORATORIES: UltraTech EMC Labs Inc. (ITI (UK) accredited test facilities)
3000 Bristol Circle
Oakville, Ontario, Canada L6H 6G4

EQUIPMENT TYPE/ENVIRONMENT: Short Range Device
TRADE NAME / MODEL NO. : V-Station, A, P, R Model V-Strn, A, P, R

GRANTEE'S NAME: Bioscrypt Inc.

MAXIMUM H-FIELD @ 10m: -0.6 dBµA/m

TX FREQUENCY RANGE: 124.33 to 127.70 kHz

Rx FREQUENCY RANGE: 124.33 to 127.70 kHz

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

Emission Designation: 2K07P0N

Duty Cycle: ASK 20% duty cycle @ 100 mS (Duty Class: 4)

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:

European Telecommunications Standards Institute (ETSI) ETSI EN 300-330-1 V1. 4. 1 (2005-06) – Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The R&TTE Directive 1999/5/EC.

Manufacturer



Shiraz Kapadia
Vice President Hardware & Operations
Markham, ON Canada
November 23, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
November 23, 2006

**DECLARATION OF CONFORMITY
FOR THE EMC DIRECTIVE 89/336/EEC**

APPLICATION OF COUNCIL DIRECTIVE(S): EMC Directive 89/336/EEC

MANUFACTURER'S NAME/ADDRESS: Bioscrypt Inc.
505 Cochrane Drive
Markham, Ontario.
Canada L3R 8E3

EUROPEAN REPRESENTATIVE'S NAME/ADDRESS: Neil McDonald
35 Jackson Crt., Hazlemere, High Wycombe
Buckinghamshire, England
HP157TZ

TEST LABORATORIES: UltraTech EMC Labs Inc. (ITI (UK) accredited test facilities)
3000 Bristol Circle
Oakville, Ontario, Canada L6H 6G4

EQUIPMENT TYPE/ENVIRONMENT: Short Range Device
TRADE NAME / MODEL NO. : V-Station, A, P, R Model V-Strn, A, P, R

GRANTEE'S NAME: Bioscrypt Inc.

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

MAXIMUM H-FIELD @ 10m: -0.6 dBµA/m

Tx FREQUENCY RANGE: 124.33 to 127.70 kHz

Rx FREQUENCY RANGE: 124.33 to 127.70 kHz

Emission Designation: 2K07P0N

Duty Cycle: ASK 20% duty cycle @ 100 mS (Duty Class: 4)

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:

European Telecommunications Standards Institute (ETSI) EN 301 489-1 V1. 6. 1 (2005-09) & EN 301 489-3 V1. 4. 1 (2002-08) – Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) Operating on Frequencies Between 9 kHz and 40 GHz

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The EMC Directive 89/336/EEC.

Manufacturer



Shiraz Kapadia
Vice President Hardware & Operations
Markham, ON Canada
November 23, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
November 23, 2006

**DECLARATION OF CONFORMITY
FOR THE LOW VOLTAGE SAFETY DIRECTIVE 73/23/EEC**

APPLICATION OF COUNCIL DIRECTIVE(S): Low Voltage Safety Directive 73/23/EEC

MANUFACTURER'S NAME/ADDRESS: Bioscrypt Inc.
505 Cochrane Drive
Markham, Ontario.
Canada L3R 8E3

EUROPEAN REPRESENTATIVE'S NAME/ADDRESS: Neil McDonald
35 Jackson Crt., Hazlemere, High Wycombe
Buckinghamshire, England
HP157TZ

TEST LABORATORIES: TÜV America Inc.
10040 Mesa Rim Road
San Diego, CA 92121

EQUIPMENT TYPE/ENVIRONMENT: Short Range Device
TRADE NAME / MODEL NO. : V-Station, A, P, R Model V-Strn, A, P, R

GRANTEE'S NAME: Bioscrypt Inc.

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

MAXIMUM H-FIELD @ 10m: -0.6 dBµA/m

Tx FREQUENCY RANGE: 124.33 to 127.70 kHz

Rx FREQUENCY RANGE: 124.33 to 127.70 kHz

Emission Designation: 2K07P0N

Duty Cycle: ASK 20% duty cycle @ 100 mS (Duty Class: 4)

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:
EN 60215: 1996+A1: 1996 – Safety Requirements for Radio Transmitting. However product was tested according to IEC 60950-1: 2001 (1st Edition) and EN 60950-1: 2001/A11: 2004 with reference to Clause 2. 2 SELV Circuits under CB Report reference No. 095-602924-000

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The Low Voltage Safety Directive 73/23/EEC.

Manufacturer



Shiraz Kapadia
Vice President Hardware & Operations
Markham, ON Canada
November 23, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
November 23, 2006

**DECLARATION OF CONFORMITY
FOR THE R&TTE DIRECTIVE 1999/5/EC**

APPLICATION OF COUNCIL DIRECTIVE(S): R&TTE Directive 1999/5/EC

MANUFACTURER'S NAME/ADDRESS: **Bioscrypt Inc.**
505 Cochrane Drive
Markham, Ontario.
Ontario L3R 8E3

**EUROPEAN REPRESENTATIVE'S
NAME/ADDRESS:** Neil McDonald
35 Jackson Crt., Hazlemere, High Wycombe
Buckinghamshire, England
HP157TZ

TEST LABORATORIES: UltraTech EMC Labs Inc. (ITI (UK) accredited test facilities)
3000 Bristol Circle
Oakville, Ontario, Canada L6H 6G4

**EQUIPMENT TYPE/ENVIRONMENT:
TRADE NAME / MODEL NO.:** Short Range Device
V-Station, A, G, R Model V-Stn A, G, R

GRANTEE'S NAME: Bioscrypt Inc.

MAXIMUM H-FIELD @ 10m: -12.3 dBµA/m

Tx FREQUENCY RANGE: 13.56 MHz

Rx FREQUENCY RANGE: 13.56 MHz

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

Emission Designation: 2K88A1D

Duty Cycle: 100%

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:

European Telecommunications Standards Institute (ETSI) ETSI EN 300-330-1 V1.5.1 (2006-04) – Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The R&TTE Directive 1999/5/EC.

Manufacturer



Shiraz Kapadia
Vice President Engineering
Markham, ON Canada
December 12, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
December 12, 2006

**DECLARATION OF CONFORMITY
FOR THE EMC DIRECTIVE 89/336/EEC**

APPLICATION OF COUNCIL DIRECTIVE(S): EMC Directive 89/336/EEC

MANUFACTURER'S NAME/ADDRESS: Bioscrypt Inc.
505 Cochrane Drive
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TEST LABORATORIES: UltraTech EMC Labs Inc. { ITI (UK) accredited test facilities}
3000 Bristol Circle
Oakville, Ontario, Canada L6H 6G4

EQUIPMENT TYPE/ENVIRONMENT: Short Range Device
TRADE NAME / MODEL NO.: V-Station, A, G, R Model V-Stn A, G, R

GRANTEE'S NAME: Bioscrypt Inc.

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

MAXIMUM H-FIELD @ 10m: -12.3 dBµA/m

Tx FREQUENCY RANGE: 13.56 MHz

Rx FREQUENCY RANGE: 13.56 MHz

Emission Designation: 2K88A1D

Duty Cycle: 100%

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:

European Telecommunications Standards Institute (ETSI) EN 301 489-1 V1.6.1 (2005-09) & EN 301 489-3 V1.4.1 (2002-08) – Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) Operating on Frequencies Between 9 kHz and 40 GHz

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The EMC Directive 89/336/EEC.

Manufacturer



Shiraz Kapadia
Vice President Engineering
Markham, ON Canada
December 12, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
December 12, 2006

DECLARATION OF CONFORMITY
FOR THE LOW VOLTAGE SAFETY DIRECTIVE 73/23/EEC

APPLICATION OF COUNCIL DIRECTIVE(S): Low Voltage Safety Directive 73/23/EEC

MANUFACTURER'S NAME/ADDRESS: Bioscrypt Inc.
505 Cochrane Drive
Markham, Ontario.
Ontario L3R 8E3

EUROPEAN REPRESENTATIVE'S NAME/ADDRESS: Neil McDonald
35 Jackson Crt., Hazlemere, High Wycombe
Buckinghamshire, England
HP157TZ

TEST LABORATORIES: TÜV America Inc.
10040 Mesa Rim Road
San Diego, CA 92121

EQUIPMENT TYPE/ENVIRONMENT: Short Range Device
TRADE NAME / MODEL NO.: V-Station, A, G, R Model V-Stn A, G, R

GRANTEE'S NAME: Bioscrypt Inc.

PRODUCT CLASS: 1 (integral inductive loop antenna with area < 30 m²)

RECEIVER CLASS: 3

MAXIMUM H-FIELD @ 10m: -12.3 dBµA/m

Tx FREQUENCY RANGE: 13.56 MHz

Rx FREQUENCY RANGE: 13.56 MHz

Emission Designation: 2K88A1D

Duty Cycle: 100%

STANDARD(S) TO WHICH CONFORMITY IS DECLARED:

EN 60215:1996+A1:1996 – Safety Requirements for Radio Transmitting. However product was tested according to IEC 60950-1:2001 (1st Edition) and EN 60950-1:2001/A11: 2004 with reference to Clause 2.2 SELV Circuits under CB Report reference No. 095-602924-100

I, the undersigned, hereby declare that the equipment under test as listed above complies with the applicable standards as specified by The Low Voltage Safety Directive 73/23/EEC.

Manufacturer



Shiraz Kapadia
Vice President Hardware & Operations
Markham, ON Canada
December 12, 2006

Legal Representative in Europe



Neil McDonald
Director of Sales, EMEA
High Wycombe, England
December 12, 2006

17 Appendix C: Product Documents

This appendix contains the following product documents in the order listed:

1. Trademark Disclosure
2. Disclaimer
3. Bioscrypt One Year Limited Warranty Policy
4. Bioscrypt Return Policy and Procedures
 - a. Billable Repair Policy
 - b. 30 Day Return for Credit
5. Notes

C.1 Trademark Disclosures

Bioscrypt has made every effort to provide disclosures when using trademarks owned by other companies. Trademarked designations appear throughout this publication. The publisher states that it is using the designations only for editorial purposes, and to the benefit of the trademark owner with no intent to infringe upon that trademark. The following trademarks are found in this manual:

- PIV-Station™ is trademarks of Bioscrypt, Inc.
- Microsoft™, Windows 95™, Windows 98™, Windows NT™, Windows ME™, Windows 2000™, and Windows XP™ are trademarks of Microsoft Corporation.

C.2 Disclaimer

The instructions in this document have been carefully checked for accuracy and are presumed to be reliable. Bioscrypt Inc. and its writers assume no responsibility for inaccuracies and reserve the right to modify and revise this document without notice.

It is Bioscrypt's goal to supply accurate and reliable documentation. If you discover a discrepancy in this document, please e-mail your comments to support@bioscrypt.com, or contact Bioscrypt Technical Support at the telephone number listed below.

No part of this publication may be placed in a retrieval system, transmitted, or reproduced in any way, including, but not limited to, photograph, photocopy, computer disk or other record, without prior agreement and written permission from:

Bioscrypt Inc.

2101 Rosecrans Ave, Suite 1250

El Segundo, CA 90245

Phone: 310. 760. 4130

Toll Free: 866. 304. 7180

Web: <http://www.bioscrypt.com>

Email: support@bioscrypt.com

C.3 Bioscrypt One Year Limited Warranty Policy

Bioscrypt warrants to the original consumer purchaser ("Customer") that new Bioscrypt products will be free from defects in material and workmanship for one year from the date the product was shipped from Bioscrypt. For replacement products the warranty on the replacement reader is the remainder of the warranty on the original product or ninety (90) days, whichever is longer. The Customer is responsible for making any claims for shipment damage (evident or concealed) with the freight carrier. Bioscrypt must be notified within thirty days of shipment of incorrect materials.

If a defect is discovered, Bioscrypt's sole obligation shall be to repair or replace the Bioscrypt product(s) at its sole discretion at no charge, provided it is returned to Bioscrypt during the warranty period and is shipped freight and insurance prepaid. Merchandise must be properly packaged to prevent damage during shipping. Before returning a Bioscrypt product, contact Bioscrypt Technical Service to obtain a Return Material Authorization (RMA) number. No product may be returned whether in warranty or out of warranty without first obtaining approval from Bioscrypt. The model number, invoice number, and serial number may be required for warranty service.

This warranty shall not apply to any product or any part of a product, which in the judgment of Bioscrypt, has been subjected to misuse, negligence, alteration, accident, improper maintenance, or damage by excessive physical or electrical stresses. Tampering, such as opening the housing of a biometric reader or replacing parts will void this warranty. The warranty is void if the serial number of the Bioscrypt product has been defaced, altered, or removed or if the product has been modified. Repair and replacement parts will be furnished on an exchange basis and may be either reconditioned or new. All replaced parts or products become the property of Bioscrypt. This warranty may also be voided for failure to comply with Bioscrypt's return policy.

The warranty is not applicable to:

- Abnormal wear and tear.
- Damage caused during installation.
- Damage caused by the equipment or system with which the biometric reader is used.
- Damage caused by modifications or repairs not made or authorized by Bioscrypt.
- Damage caused by improper packaging.
- Damage caused by lack of ESD protection.
- Merchandise that is determined to be stolen.

All PIV-Station readers have an operating temperature range of 0°-60° Celsius (32°-140° Fahrenheit). In addition, the PIV-Station product line has a relative humidity operating range of 0-95% non-condensing. Any reader used outside that temperature or humidity range requires an enclosure with thermal or humidity control that can maintain a consistent environment within the stated operating ranges.

The newest Bioscrypt PIV-Station products are designed to be weather resistant but no sensor technology exists today that can work in all weather environments. If a Bioscrypt PIV-Station product is not used in a completely indoor environment, then a protective enclosure is required to shield the reader from moisture, dust, other contaminants and temperatures outside the stated operating range. Product failures resulting from exposure to the conditions are not covered under the product warranty.

For outdoor installations, Bioscrypt does offer an enclosure to protect the reader from exposure to moisture, dust, other contaminants and temperatures outside stated operating range. To maintain the Bioscrypt warranty, the PIV-Station reader must be installed in a Bioscrypt certified outdoor enclosure. When used properly, this enclosure will protect PIV-Station readers in most environments, but not all. The Customer is responsible for determining whether the offered enclosure will appropriately shield PIV-Station readers in their specific installation. Products failures resulting from exposure to moisture, dust, other contaminants and temperatures outside stated operating range, even if an enclosure is used, are not covered under the product warranty.

This warranty is exclusive and in lieu of all others, whether oral or written, expressed or implied. Bioscrypt specifically disclaims any and all implied warranties, including without limitation, warranties of merchantability and fitness for any particular purpose. No Bioscrypt dealer, agent, or employee is authorized to make any modification, extension or addition to this warranty.

C.4 Bioscrypt Return Policy and Procedures

Bioscrypt must be notified within thirty days of the date that a defect is discovered. Bioscrypt will then issue a Return Material Authorization (RMA) number which the Customer must include with all correspondence and display on the outside of the shipping container when returning the product. Any products returned later than 30 days after issuance of an RMA may be subject to review as to whether the authorization to return is still warranted.

All Bioscrypt products must be shipped freight and insurance prepaid, in the original shipping container or equivalent. A written description of the defect together with a copy of the invoice and the name of the Dealer who sold the Bioscrypt product must be shipped with the product. All defects must be reproducible at Bioscrypt's location to qualify for this limited warranty.

For shipping addresses and return merchandise authorization contact Bioscrypt Technical Support. Warranty repairs do not re-initiate the warranty period. For repaired or replaced products the warranty on the replacement reader is the remainder of the warranty on the original product or 90 days, whichever is longer. All repairs are completed on a First-in; First-out (FIFO) basis.

Bioscrypt will return a repaired or replacement product via ground freight and insurance prepaid. If the Customer desires an airfreight or other expedited return shipping method, then they must agree to pay for the expedited shipping. Returned products that are found to be free of defects may be subject to a \$150.00 handling fee and will be returned at the Customer's expense.

Billable Repair Policy

By shipping product to Bioscrypt using the RMA provided by the Technical Support Department, you are agreeing to the following terms:

For all non-warranty repairs or billable repairs, the customer will be responsible for charges associated with parts, labor and shipping/freight to and from the Bioscrypt repair facility. Once the product is evaluated/inspected by a repair technician, Bioscrypt will provide the customer via e-mail with a written estimate of the aforementioned charges.

If any discrepancies arise between the final cost and the initial estimate, the customer will be notified.

The customer shall approve any estimate for non-warranty repairs or billable repairs and shall pay the estimated charges before the equipment is repaired. In the event the customer fails to either: (a) pay the estimated charges within 60 days of such estimate; or (b) arrange for return of the un-repaired equipment to the customer at customer's cost, Bioscrypt will consider the equipment abandoned and will dispose of the equipment.

30 Day Return for Credit

Bioscrypt is a leading biometric company, specializing in finger-scan and verification systems. We are confident that customers will be pleased with Bioscrypt products. However, if you are not, and you purchased your merchandise directly from Bioscrypt, new products can be returned for credit within the first 30 days under the following conditions:

- You have received an RMA from Bioscrypt Technical Support and the item is returned in accordance with the Bioscrypt Return Policy and Procedures.
- Return Items are accompanied by proof of purchase.
- All original materials (accessories, manuals, CDs) are returned with the item.
- The item is in re-sellable condition. If there are any questions regarding re-sellable condition Bioscrypt will have the final decision as to whether an item can be returned, exchanged, and if a restocking fee will apply.

If you did not purchase your product directly from Bioscrypt Inc, please contact your retailer for their return policy.

C.5 Important Note Regarding UL 294

PIV-Station Information for Users

These Readers are intended to be used with Listed (UL 294) control equipment as specified in the control unit manufacturer's installation/operation documents. The PIV-Station, U, G, R and PIV-Station, U, GC, R and PIV-Station, U, G, GC, R shall comply with the standard for Access Control System Units for UL294 and with CSA C22.2 No. 205 for the cUL mark. If using Ethernet as the primary communications port, the product shall comply with UL294 if, and only if, the user installs the specified Ethernet Coupler part (Bioscrypt part number 668-00135-00R). This part shall be packaged with any PIV-Station, U, G, R or PIV-Station, U, GC, R or PIV-Station, U, G, GC, R product.

Comment [D8]: Update model numbrs.

V-Station battery Information



DANGER! RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO LOCAL ORDINANCES.

This equipment is provided with a replaceable battery and replacement by an incorrect type may result in an explosion. Note: These batteries are not field replaceable. If replacement is required, this Reader should be returned to Bioscrypt Service for replacement of the battery.

18 References

B & B Electronics offers an Application Note on RS-485 devices, system configuration, and termination.

B & B Electronics
 707 Dayton Road
 P. O. Box 1040
 Ottawa, IL 61350
 (815)433-5100
<http://www.bb-elec.com>

Robust Data Comm provides services and a vast amount of information at their WWW site.

Robust Data Comm, Inc.
 St. Paul, MN 55112
 (612)628-0533
<http://www.robustdc.com>

The Specification is formally named TIA/EIA-485-A and can be purchased from Global Engineering Documents:

<http://global.ihs.com>

National Semiconductor provides a number of Application Notes:

<http://www.national.com/an/AN/>

Belden Wire and Cable Company offers a variety of cables suitable for RS-485 use and has a number of technical papers:

<http://www.belden.com>

Alpha Wire Company offers a variety of cables suitable for RS-485 use and has a number of technical papers:

<http://www.alphawire.com>

Cisco Systems, Inc. provides a comprehensive guide to Ethernet 802. x standards and implementation issues:

http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ethernet.htm

Charles Spurgeon provides an excellent online Ethernet resource:

<http://www.ethermanage.com/ethernet/ethernet.html>

The CE R&TTE directive is outlined on the EU website at:

<http://www.europa.eu.int/comm/enterprise/rtte/index.htm>

19 Bioscrypt Contact Information

20 Bioscrypt Contact Information

Bioscrypt, Inc. is available to provide information and assistance. Before contacting Technical support please copy down the following version information about your reader:

Software

DLL

Algorithm

Kernel

PIC

ESI (if applicable)

Communication Manager (CM) (if applicable)

Kit (if applicable)

This can be found in the Help menu under "About VeriAdmin".

Technical Support Contact Information:

Telephone: +1 866.304.7180 (toll free for Canada and US)

+1 310.760.4130 (direct)

Fax: +1 310.760.4137

Email: support@bioscrypt.com

Web: <http://www.bioscrypt.com>

Hours: 5:30A – 5:00P PST (Monday – Friday)

Address: Bioscrypt Inc
Technical Support / RMA Dept
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F +1 925.401.0011

