L-1 IDENTITY SOLUTIONS™

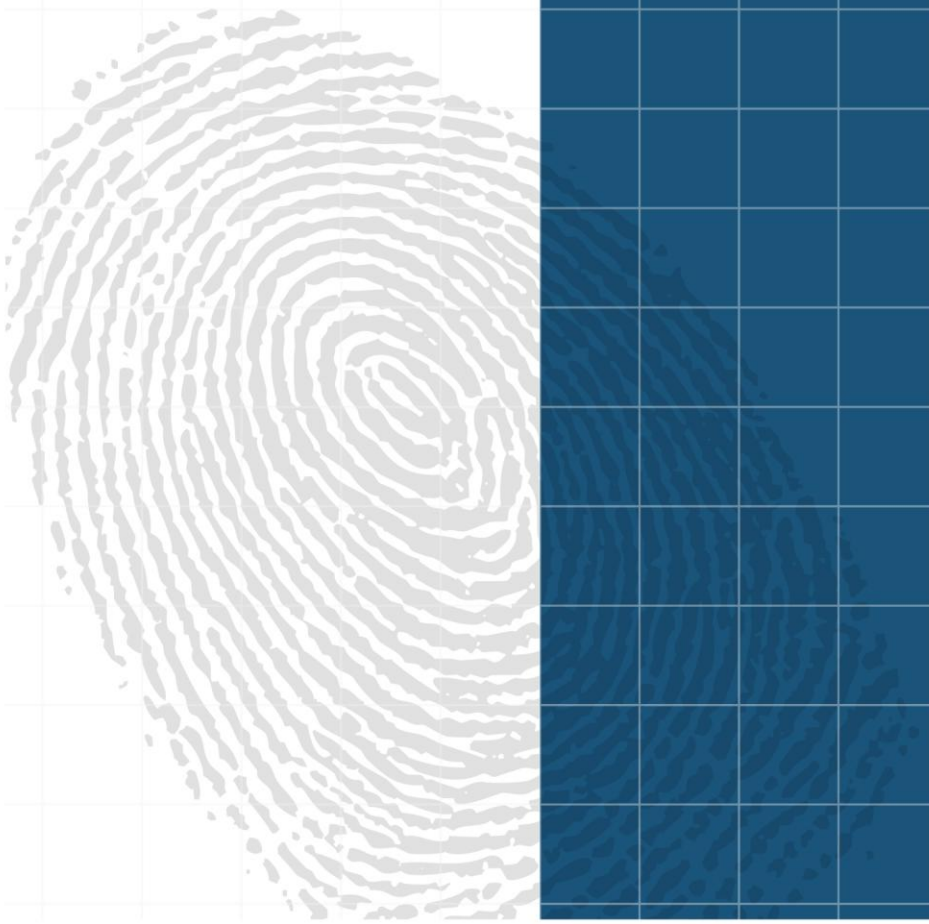
BIOSCRYPT
ENTERPRISE ACCESS SOLUTIONS

Biometric Smart Security Appliance

Engineering Specifications

V-Station™ 4G

VERSION 1.0



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1.0 DESCRIPTION

1. A SCOPE AND PURPOSE OF THIS DOCUMENT

This document shall include a general description of the The V-Station™4G product and information about its manufacturer. It shall also include the V-Station™4G mechanical specifications, specific features, and servers, workstations, as well as software requirements.

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1. B GENERAL DESCRIPTION

The V-Station™4G shall be equipped with biometric and multi-factor authentication, powerful on-board processing for rapid and accurate authentication, sophisticated storage, extensible memory, 802.11 wireless connectivity, and full-sized color LCD displays to keep employees and visitors informed with custom messaging.

The V-Station™4G shall incorporate innovative and powerful capabilities and shall be ready for future expansion as the security industry shall continue to evolve.

The V-Station™4G shall take biometric access control to the level of truly connected and intelligent security appliances The V-Station™4G shall have an intuitive interface and controls for personnel and administrators.

The V-Station™4G shall address different deployment scenarios, changing business requirements, and future growth.

The V-Station™4G shall have a modular design and shall be easy to maintain.

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2.0 PRODUCTS

The V-Station™4G shall provide a verification of a live fingerprint with a stored biometric record. The V-Station™4G shall prevent unauthorized access via loaned, lost, stolen or copied passwords, credentials, and access cards by requiring the live authentication of a user's fingerprint against a stored biometric record.

The V-Station™4G shall provide, the ability to use extended memory searching (1:N) databases. The V-Station™4G shall provide optional at time of purchase iCLASS, MIFARE or Prox credentials.

1. The V-Station™4G shall allow:

    a. Enrolling, consisting in capturing, processing, compressing, and storing a user's biometric data in a biometric record. If the unit contains an embedded card reader, it will provide a means to encode the card credential(s) with biometric record data if the card credential(s) supports such actions.

    b. Authentication:

        i. The 1:N mode shall support single factor authentication via the presentation of a user's live finger evaluated against the on-board database of biometric records.

        ii. The 1:1 verification shall support two factor authentication via the use of a code or credential activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record.

        iii. The 1:1 verification shall support three factor authentication via the use of a code or credential activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record and then authentication of the user via a password entered via the keypad.

    c. Verification, which shall be the result of authentication, will result in either the activation of a single door relay, or a TTL output, or the output of Wiegand data to an access control panel as previously configured by the administrator.

2. The V-Station™4G shall provide a local on-device General User Interface (GUI), for the use of a unit administrator, capable of providing access to most product features without the use of secondary management software. The V-Station™ 4G shall provide enrollment, authentication, Wiegand upload and communication set-up via the on-device GUI.

3. The V-Station™4G shall ship with a single copy of the SecureAdmin™ management software. The SecureAdmin™ software will provide the administrator with a means to remotely manage the unit via networking protocols. The SecureAdmin™ software will provide a means to centrally store biometric records via the use of a central server.

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The software will allow multiple client applications pointing to a single central server. The SecureAdmin™ software will operate in either a SQL Server 2005 Express Edition or Oracle 10g Database.

4. The V-Station™4G shall have available an SDK (software development kit, SecureSDK™, for the use of developer(s) to integrate the V-Station™4G solution into a Physical Access Control (PAC) solution.

2.1 MANUFACTURER

The V-Station™4G shall be the Biometric Smart Security Appliance and shall be provided by L-1 Enterprise Access Solutions with a principal office at 505 Cochrane Drive, Markham, Ontario, Canada. The hardware manufacturer shall be a ISO 9001:2000 registered company.

2.2 MECHANICAL SPECIFICATIONS

2.2. A DIMENSIONS

The V-Station™4G reader dimensions shall be 6.27" (159 mm) long x 6.47" (165 mm) wide x 3.24" (82 mm) deep. The reader will ship partially assembled and shall be comprised of:

a. A wall plate that mounts directly to a wall.

b. A V-Station™4G Biometric Security Appliance.

2.2. B COLOR & LOGO

1. The V-Station™4G colors shall use two shades of gray:

   a. The casing and mount shall be dark gray .

   b. The front of the casing shall have at the top and at the bottom a light gray accent border.

   c. The V-Station™4G , “L-1 Enterprise Access Solutions” logo shall be located at the front of the V-Station™4G casing and shall be light gray .

2. The L-1 Identity Solutions logo shall be a proof of authenticity of the V-Station™4G.

2.2. C SENSORS:

1. Each V-Station™4G shall be equipped with a finger-scan sensor located at the top left-side of the unit. The V-Station™4G will have one of the following sensors:

   a. SECUGEN OPTICAL with Optical Fingerprint sensing, 258 x 336 Sensor Array 500 DPI, and +/- 15kV Air ESD Resistance.

   b. UPEK TCS1 Active Capacitive Fingerprint sensor with 256 x 360 Sensor Array 508 DPI, and +/- 15kV Air ESD Resistance.

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2.2. D WEIGHT:

The V-Station™4G shall weigh 1.325 lbs (602 grams) assembled (packaged weight for shipping shall be 2.22 lbs (1008 grams)).

2.2. E Certifications:

The V-Station™4G shall be FCC, CE, R&TTE compliant (when optional radios are included) , and RoHS certified.

2.2. F TEMPERATURE & ENVIRONMENT

1. The V-Station™4G shall be operational within a temperature range of 32° to 140°F (0° to 60°C).

2. The V-Station™4G will operate indoors only and shall not be deployed to outdoor locations without the use of a L-1 Enterprise Access Solutions certified enclosure to guard against damage from the elements.

3. The V-Station™4G will operate in 0-95% non-condensing humidity.

2.3 COMMON FEATURES

2.3. A POWER

1. The V-Station™4G will allow for a plug-in bullet connector or a two-wire flying lead terminated power supply. The two wire connector will be included with the product when shipped.

    a. The V-Station™4G voltage shall be 12 - 24V.

    b. The V-Station™4G current draw shall be 1A, @ 12 VDC.

2. Power Over Ethernet 100 Base T (PoE - 802.3af compliant) shall be standard on all V-Station™4G.

    a. PoE 802.3af shall require:

        i. an input voltage of 90-264 VAC, 60 Hz.

        ii. an Input current of 0.4A @ 100 VAC.

        iii. an output voltage of -48 VDC.

        iv. an output current of 0.32A.

        v. an output power of 15.36 W.

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2.3. B Network Connections

1. A 28 pin connector pigtail shall provide connection to the V-Station™4G for a RS-485 or RS-232 network. Installers shall select appropriate wire terminations for the chosen network.

2. Ethernet connections to the V-Station™4G fingerprint readers shall be made through standard RJ-45 connectors.

    a. V-Station™ 4G shall be able to accommodate DHCP or static IP addresses.

2.3. C Administrator Port

1. The V-Station™4G shall have an administrator port accessible from the bottom of the unit. The administrator port shall accept a USB-Mini-B connector. The administrator port shall be protected via a hard plastic cover of the same material as the main unit body, secured by a tamper resistant hex screw. The Administrator port shall provide standard USB communication to the unit.

2. The USB 2.0 Aux port shall allow the transfer of V-Station™4G audio, images, firmware, logs, and configuration files to and from the USB.

2.3. D Wiegand Input and Output

1. A 28 pin connector pigtail shall provide connection to the V-Station™4G for the purpose of connecting Wiegand communication cables. The V-Station™4G shall provide Wiegand input functionality and Wiegand output functionality.

2. The reader shall support Wiegand output functionality for connection to an Access Control System.

3. For Wiegand output, the V-Station™4G shall require a homerun connection to the Access Control System. An 18-22 AWG cable should be used for this connection. At 18 AWG, a distance of 500 feet is possible.

4. By default the V-Station™4G shall ship with no Wiegand output active. It will require activation via the local keypad interface or via the SecureAdmin™ software.

5. The V-Station™4G shall support outputs up to 512 bits and shall provide means, via SecureAdmin™, for an Administrator to define multiple unique output fields and parity assignments.

6. The SecureAdmin™ interface shall allow setting the V-Station™4G Wiegand Input format, Wiegand output for events, and upload custom Wiegand formats.

    a. The predefined Wiegand Formats are:

        i. Standard 26-bit.

        ii. Apollo 44-bit.

        iii. Northern 34-bit.

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iv. Northern 34-bit.

v. HID Corporate.

vi. Ademco 34-bit.

vii. HID 37-bit.

7. The SecureAdmin™ interface shall provide the V-Station™4G expanded Wiegand compatibility. It shall allow Administrators to define a Pass-Thru format with the following information:

a. Total bits - the number of Wiegand bits in the Wiegand string (maximum = 256 bits).

b. ID start bit - the start of the ID Field (where the first bit is Bit 0).

c. Total ID bits - the number of bits in the ID Field (must be adjoining bits).

8. The SecureAdmin™ interface shall allow the V-Station™4G to create customized formats by selecting:

a. The ID number of bits.

b. The site code.

c. The parity bits.

2.3. E GENERAL PURPOSE INPUT/OUTPUT

The V-Station 4G shall provide General Purpose Input and Output as follows:

1. Three General Purpose Inputs.

a. The General Purpose Inputs shall be configurable through the SecureAdmin™ interface with the following options:

i. No Action.

ii. Verify.

iii..Enroll.

iv. Delete Template(s).

v. Reboot Device.

vi. Alarm.

Add in new options

2. Three General Purpose Outputs.

a. The V-Station™4G General Purpose Inputs shall be configurable through the SecureAdmin™ interface with the following trigger options:

i. No Action.

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ii. Enroll Completed.

iii. Enroll Initiated.

iv. Verify/Identify Passed.

v. Verify/Identify Failed.

vi. Finger Not Detected.

vii. V-Station Admin mode.

viii. Delete Attempted.

ix. Device Boot-up.

x. File Transfer Complete.

Add in new options

2.3. F SINGLE-DOOR CONTROL

1. The V-Station™4G shall have a built-in relay with a max amperage of 170 mA.

2. The V-Station™4G fingerprint shall support Integrated Door Access Control (Relay, REX, Contact Monitor).

a. The V-Station™4G shall need:

i. A dead bolt or door strike.

ii. A snubber diode to protect regulated DC power supply from inductive kickback (1 N4007 diode or equivalent recommended).

iii. A separate power supply for the dead bolt or door strike based on supplier's recommendations.

iv. An optional external relay for locks that are higher than 170 mA.

b. The Single-Door Control option shall not require Wiegand Output signals.

2.3. G TAMPER SWITCH

The V-Station™4G shall have a tamper switch.

1. The V-Station™4G tamper switch shall be a push-button that will signal that the V-Station™4G has been tampered with when the switch shall not be in its normal depressed state.

2. The V-Station™4G tamper switch shall trigger protection sounds, or an audio alert, or shall flash LEDs, or shall send a predefined Wiegand string to the control panel, or shall disable biometrics, according to the unit's preset configuration from the SecureAdmin™ interface or shall erase the biometric database onboard.

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2.3. H WIRELESS LAN

The V-Station 4G shall have an optional Wireless LAN connection that shall allow setting up the V-Station 4G on a wireless network through the SecureAdmin™ interface or the "On Device" GUI.

1. The V-Station 4G shall support the 802.11 b and 802.11g standards.

2. The V-Station 4G shall support the WEP open, WPA, and WPA2 protocols.

2.3. I LEDS

1. The top of the V-Station™4G shall have two tricolor LEDs that shall be visual indicators The default LED successful confirmation event color shall be green; the default LED unsuccessful confirmation event color shall be red; the default LED place finger or place card events color shall be orange. The SecureAdmin™ software interface LED Table tab shall allow the modification of default colors and the association of specific LED colors with the specific events listed below:

    a. Successful (Pass - access granted) confirmation.

    b. Unsuccessful (Fail - access denied) confirmation.

    c. Place finger, and place card events.

    d. Remove Finger Events

2. The V-Station™4G shall have, at the front, a power LED that shall be blue when power is on.

2.3. J DISPLAY

At the front, the V-Station™4G shall have a 2.5" QVGA Color LCD to display and select option settings menu, customizable messages, graphics, wallpaper, slideshows, and audio to users.

1. The V-Station™4G 2.5" QVGA Color LCD shall allow Administrators, using the "On Device" GUI, to adjust the LCD's contrast and brightness and to program the V-Station™4G settings on the device. The font size shall also be managed via this interface.

2. The Display Settings menu of the SecureAdmin™ application shall allow Administrators to adjust the LCD's contrast and brightness and to program the V-Station™4G settings.

2.3. K KEYS AND KEYPADS

1. At the front, the V-Station™4G shall have an illuminated keypad with three rows of three alphanumeric keys.

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a. The keys of the V-Station™4G illuminated keypad shall allow Administrators to configure, with the "On Device" GUI, most of the common set-up functions of the V-Station™4G.

b. The keys of the V-Station™4G illuminated keypad shall allow users to enter their PIN numbers, BIN numbers, and passwords.

c. The LED Settings screen Low Intensity and High Intensity Values of the "On Device" GUI and SecureAdmin™ software shall controls the brightness of the keypad when the V-Station™4G is idle or in use.

2. At the front, of the V-Station™4G function keys, the V-Station™4G shall have an illuminated navigation keypad with right, left, up, and down arrows as well as an OK button.

a. The V-Station™4G navigation keypad shall allow users to move left, right, up, and down through the V-Station™4G LCD GUI display to add device menu options.

b. The central OK button shall let them enter or confirm a selection or entered data.

c. The "On Device" GUI and SecureAdmin™ software shall control the light intensity and brightness of the V-Station™4G when idle or in use.

2.3. L RIDGE LOCK

A Ridge-Lock shall be located at the top of the V-Station™4G. The Ridge-Lock shall position the user's finger on the V-Station™4G, before touching the sensor, to ensure accuracy in the authentication and verification processes.

2.3. M FIELD REPLACEABLE SENSOR

The V-Flex™4G shall include a field replaceable sensor that upon failure can be swapped out for a similar sensor module without violation of the warranty term. L-1 EAS shall provide sensors separately for the purpose of replacement at a moderate cost. This feature shall allow the unit to be retained in its field environment for service recovery. The sensor shall be easy to replace in a three step method as follows:

1. Unlock the unit from its mount.
2. Unscrew the two screws securing the sensor to the unit, decouple the cable.
3. Reverse the operation for the new sensor.

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2.4 SPECIFIC FEATURES

The V-Station™4G shall have options where the standard product will be enhanced or altered via the use of additional components to provide features in addition to the common features listed above. The optional components shall be as listed below and will provide specific operations as listed under the appropriate product flavor section.

1. Each V-Station™4G shall have option to have a wireless ethernet via the use of an additional embedded antenna placed in the unit at time of factory configuration.

2. Each V-Station™4G shall have option to have an embedded HID® Proximity reader; when embedded it will be commonly referred as V-Station™4G Prox.

3. Each V-Station™4G shall have option to have an embedded HID® ICLASS; when embedded it will be commonly referred as V-Station™4G ICLASS.

4. Each V-Station™4G shall have option to have an embedded MIFARE reader; when embedded it will be commonly referred as V-Station™4G MIFARE.

2.4. A V-STATION™4G (BASE)

The Base model shall support both 1:N and 1:1 modes

1. The 1:N mode shall support single factor authentication via the presentation of a user's live finger evaluated against the on-board database of biometric records.

2. The 1:1 verification shall support two factor authentication via the use of a code or credential activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record.

3. The 1:1 verification shall support three factor authentication via the use of a code or external Wiegand activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record, and then authentication of the user via a password entered via the keypad.

4. Biometric Record Options:

   a. Default Template Configuration - 1:1 BUR.

      i. Max Default Template storage - 500,000 Biometric Records.

   b. 1:1 Biometric Record Options configurable via SecureAdmin™ or from the panel:

      i. TEM (1:1) - 500,000 templates.

      ii. VUR (1:1) - 500,000 templates.

      iii. BUR (1:1) - 500,000 templates.

      iv. MTM (1:N) 200 templates.

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v. TMS (1:N) 500 templates.

vi. 1:N BUR (1:N) 10,000 templates.

5. Extended Search with binning:

a. Default Template - 1:N BUR

b. Max Template Storage - 50,000 templates.

6. Time and Attendance mode

The V-Station™4G shall allow limited time and attendance functions when used with the four function keys on the right side of the display. These functions keys will provide for up to 16 function coding allowing an administrator to program specific clock-in/clock-out actions associated with the keys.

2.4. B V-STATION™4G (PROX)

The V-Station™4G (Prox), with an integrated Prox Card Reader, shall provide a single (finger only), two-factor (finger and PIN number or Prox card), or three-factor (finger, PIN number, and Prox card) authentication.

1. The 1:N mode shall support single factor authentication via the presentation of a user's live finger evaluated against the on-board database of biometric records.

2. The 1:1 verification shall support two factor authentication via the use of a code or credential activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record.

3. The 1:1 verification shall support three factor authentication via the use of a code or credential activation of the biometric record, then real-time evaluation of the presented finger against the stored biometric record and then authentication of the user via a password entered via the keypad.

4. The V-Station™ 4G (Prox) shall accommodate the following templates:

a. Default Configuration:

i. Default Template - 1:1 BUR.

ii. Max Template storage - 500,000 templates.

b. Biometric Record Options:

i. Default Template Configuration - 1:1 BUR.

ii. Max Default Template storage - 500,000 Biometric Records.

c.1:1 Biometric Record Options configurable via SecureAdmin™ or the front panel:

i. TEM (1:1) - 500,000 templates.

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ii. VUR (1:1) - 500,000 templates.

iii. BUR (1:1) - 500,000 templates.

iv. MTM (1:N) 200 templates.

v. TMS (1:N) 500 templates.

vi.1:N BUR (1:N) 10,000 templates.

5. Extended Search with binning.:

a. Default Template - 1:N BUR.

b. Max Template Storage - 50,000 templates.

. Time and Attendance mode

The V-Station™4G shall allow limited time and attendance functions when used with the four function keys on the right side of the display. These functions keys will provide for up to 16 function coding allowing an administrator to program specific clock-in/clock-out actions associated with the keys.

2.4. C V-STATION™4G (SMART CARD)

The V-Station™4G (Smart Card), with either an integrated iClass or MIFARE/DESfire Card Reader, shall provide a two-factor (Contactless Smart Card and then user's fingerprint).

The iClass or MIFARE/DESfire readers shall allow templates to be stored on the cards (and not in the V-Station™4G) which shall allow a limitless number of users.

1. The 1:N mode shall support single factor authentication via the presentation of a user's live finger evaluated against the on-board database of biometric records.

2. The iClass Smart Card shall accommodate the following templates:

a. Default Configuration:

i. Default Template – TEM.

b. 1:1 Mode – The iClass Smart Card shall accommodate the following templates:

i. TEM (1:1): 2 templates with 16 Kilobyte cards.

ii. VUR (1:1): 2 templates with 16 Kilobyte cards .

iii. BUR (1:1): 2 templates with 32 Kilobyte cards.

Add in 1:N mode section

3. The MIFARE/DESfire Smart Card shall accommodate the following templates:

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a. Default Configuration:

i. Default Template – TEM.

b. 1:1 Mode – MIFARE/DESfire Smart Card shall accommodate the following templates:

i. TEM (1:1): 2 templates with 1, 2, 3, or 4 Kilobyte cards.

ii. VUR (1:1): 2 templates with 1, 2, 3, or 4 Kilobyte cards.

iii. BUR (1:1): 2 templates only with 4 Kilobyte cards.

2.4. D RECORDS AND TEMPLATES

The V-Station™4G shall use:

1. The Biometric User Record (*.bur) shall be a tag-based, variable length record used on the V-Station™4G for the following authentication purposes:

a. 1:1 Verification.

b. 1:10K Identification.

c. 1:50K Identification (

d. Binning (only with 1:50K Identification),

i. Binning shall provide a quicker way of searching and finding a user by splitting the V-Station™4G database.

ii. The administrator shall assign a BIN number (between 0 and 9) to a user during enrollment for 1:10 and 1:50k V-Station™4G Templates.

2. User Records (.vur) shall include:

a. Global data - This shall be information relevant to the entire record (ID, name, password, for example). Some fields shall be needed while others shall be optional.

b. Enrollment data - This will be data belonging only to a particular finger. It will be a section of data that contains compressed fingerprint information with specific information about that enrollment (for example: sensor, finger, security level for the finger, and the index). A User Record will be able to contain more than one enrolled finger when stored on the unit.

c. User data - This will be a user-defined variable length block of data that will either be global or enrollment specific. Data in this block will be accessed all at once, rather than being divided into separately named fields.

3. A 348-byte template (*.tem) contains a unique ID, usually associated with a single individual. The same ID, but a unique index value (0-255), shall define each enrollment under that ID in case of multiple enrollments for added fingers of the same person.

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a. The template's size shall be 348 bytes. Out of these, User Data (Template ID, Name, for example) shall use 64 bytes. Fingerprint data, also called in-phase data, shall use the remaining 284 bytes.

4. A 1:200 searching template (*.mtm) shall contain the entire 1:1 template, which shall be 348 bytes, adding 2004 bytes of data needed for searching functionality, making the total length of 1:200 searching template 2352 bytes.

a. In 1:200 searching mode, the flash memory of the V-Station™4G shall store a maximum of 200 templates.

5. A 1:500 searching template (*.tms) shall contain the entire 1:1 template, which will be 348 bytes, with the addition of 2140 bytes of data needed for the searching functionality. The total length of this searching template shall be 2488 bytes.

a. In 1:500 searching mode, the flash memory of the V-Station™4G shall store a maximum of 500 templates.

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3.0 SERVERS, WORKSTATIONS, AND SOFTWARE

3.1 SECUREADMIN™ REQUIREMENTS

The SecureAdmin ™ administrative interface shall require:

1. PC Workstation with:
    a. 1 GHz Intel® processor or equivalent.
    b. 1 GB RAM (2 GB recommended).
    c. CD-ROM drive.
    d. One available USB port.
    e. Ethernet or COM port.
    f. 1024 X 768 high color video display.
2. SecureAdmin™ Client with:
    a. 10 MB hard disk space minimum.
    b. SecureAdmin™ Server.
    c. 25 MB hard disk space minimum.
3. Operating Systems shall be either:
    a. Windows Server® 2003 R2.
    b. Windows Server® 2008.
    c. Windows Vista™
    d. Windows XP Service Pack 2 or higher.
4. The Database shall be either:
    a. SQL Server™ 2005 Express Edition with:
        i. 350 MB hard disk space for the recommended installation.
        ii. 425 MB additional hard disk optional.
    b. Oracle® 10G Express with:
        i. 1.6 GB hard disk space for server.
        ii. 75 MB hard disk space for client.
5. Additional Components
    a. Microsoft® .NET Framework 3.5

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3.2 SOFTWARE

The V-Station™4G "On Device" GUI shall provide administrators the possibility to set up, program, and retrieve information from the V-Station™4G without using a computer and the SecureAdmin™ administrative interface.

1. The V-Station™4G shall provide extensive Information management capability (SecureAdmin™) using Microsoft .NET Framework V3.5. SecureAdmin™ shall be able to operate In a Client/Server configuration and communicate to the server via a Fast Ethernet 10/100, TCP/IP network. The SecureAdmin™ Interface shall be intuitive, customizable, and the Administration Operator interface shall be able to control the following:

    a. The V-Station™4G readers.

    b. Configuration of the V-Station™4G personnel records, operators, operator privileges, and specific needs.

    c. The V-Station™4G system variables.

    d. Import/Export of V-Station™4G objects, including images.

    e. The V-Station™4G system functions (event command and control, actions, schedules, and logs).

    f. Display of a list of V-Station™4G objects in a grid which shall have their values modified and shall respond to real-time status changes and specific needs.

    g. Monitoring of V-Station™4G system settings and performance.

    h. Broadcast to all, groups, users, or individual V-Station™4G of all or selected unit settings or subsets of settings.

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