Veridt Installation Guide

MultiMode Stealth Series Credential Readers

Veridt Reader Terminal Installation Guide
Compliance Statements

FCC 15.105
FCC (US)
(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:
Note: 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 his own expense.

Industry Canada ICES-003 Compliance

CAN ICES-3 (A)/NMB-3(A)

FCC 15.19
FCC (US):
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IC (Canada):
This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this devicemust accept any interference, including interference that may cause undesired operation of the device.
Cet appareil est conforme aux normes Industry Canada exemptes de licence RSS standard(s). Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit
accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable

FCC 15.21
IMPORTANT! Changes or modifications not expressly approved by Veridt, Inc could void the user's authority to operate the equipment.

IC (Canada):
IMPORTANT! Changes or modifications not expressly approved by Veridt, Inc could void the user's authority to operate the equipment.
IMPORTANT ! Les changements ou modifications non approuvés expressément par Veridt, Inc pourrait annuler l'autorité de l'utilisateur à faire fonctionner l'équipement.

CE STANDARDS
Testing for compliance to CE requirements was performed by an independent laboratory. The unit under test was found compliant to class B limits of part 15 of the FCC Rules.

Veridt Reader Terminal Installation Guide for MultiMode Stealth™ Reader Terminals

This document provides installation information for the Veridt reader hardware platforms described below

Veridt Fixed Reader Terminal Hardware Configurations

Reader P/N	Contactless	Contact	Key Pad	Biometric	H" x W" x D"
900W2030	X	X	X	X	7.0 X 3.0 X 1.6
900W2036	X	X	X		5.5 X 3.0 X 1.6
900W2037	X	X			5.5 X 3.0 X 1.6
900W2026	X		X		5.5X 3.0 X 1.6
900W2027	X				5.5X 3.0 X 1.6

900W2030

900W2036

900W2037

900W2026

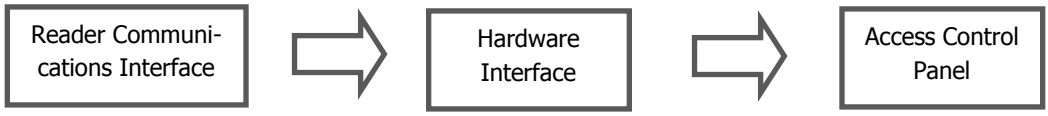
900W2027

Note 2: The mounting plate fits into a recessed area in the rear of the reader, so that the reader mounts flush to the wall and the mounting plate is completely concealed. The depth measurement includes that additional dimensional requirement of approximately 0.35 inches.

Veridt Reader Terminal Installation Guide
Reader Communications Options

All Veridt reader platforms are based on a common architecture and therefore installation instructions apply to all readers. This common architecture allows for multiple communications interface options as well as options for interfacing to third party software for High Assurance security solutions and Mode Control (setting the operational mode in multi-format readers; e.g., card + PIN, card + Bio, etc.). The reader is equipped with two communications interfaces: 1) Wiegand which can be configured up to 512 bits and 2) Serial RS-485 which can also be converted to Ethernet. The Wiegand output is typically pre-configured for the chosen application, but is also field configurable using the MultiMode SDK. Serial/Ethernet communications are typically preconfigured for the chosen application.

The feature set and application determines the combination of hardware and software required.



Communications Interface		Hardware Interface		Software
Wiegand		None		
Wiegand RS-485	Half duplex	None		
RS-485	Half duplex	Veridt EWACs		pivCLASS PACS Service Admin
RS-485	Half duplex	Veridt EWACs		Veridt Mode Control
RS-485	Full duplex	HID PAM		pivCLASS PACS Service Admin

Veridt EWAC
Communications Interface

HID
PAM

Veridt Reader Terminal Installation Guide
Reader Mode Selections for Communication Option Selected

Typical Mode of operation for Hardware / Software Combinations

	Wiegand	Wiegand RS-485	Wiegand RS-485/Vlinx pivCLASS	RS-485 EWACs pivCLASS	RS-485 EWACs Mode Control	RS-485 HID PAM
1	Card Only	Card Only (no PKI)	CHUID (TWIC)	CHUID (TWIC)	Card Only (no PKI)	CHUID(PIV)
2		Card + PIN (no PKI)	CAK(TWIC)	CAK(TWIC)	Card + PIN (no PKI)	CAK(PIV)
3		Card + PIN + BIO (no PKI)	CHUID + BIO (TWIC)	CHUID + BIO (TWIC)	Card + PIN + BIO (no PKI)	PKI+ PIN (PIV)
4			CAK + BIO (TWIC)	CHUID + CAK + BIO (TWIC)		PKI+ PIN + BIO (PIV)
5				CHUID (PIV)		
6				CHUID + PKI (PIV)		
7				CHUID + PKI + BIO (PIV)		
8				CAK (PIV)		
9				CHUID + CAK (PIV)		
10				Card Only (no PKI)		
11				Card + PIN (no PKI)		
12				Card + PIN + PACS PIN (no PKI)		
13				Card + PIN +BIO (no PKI)		

Optionally available Legacy Prox Feature is configured with readers when P/N 920FW0PR is specified.

MultiMode Stealth™ reader configured for legacy Prox 125KHz operation: includes sub-license, firmware and additional hardware for 125KHz operation. Specify Legacy Card. Specify reader P/N. Cannot be used with HID PAM configured readers.

Veridt Reader Terminal Installation Guide
Credential Options

Veridt Readers are programed to operate in a multi-format mode to dynamically recognize a broad array of credentials: reads GSC-IS compliant containers, PIV & PIV I, TWIC, CAC cards and any data model based on MIFARE®, DESfire® or ISO 1443A/B cards, and ISO 7816.

ISO Standard	Card Type Identifier	Card Type
ISO 14443 A/B	MIFARE, DESFire, DESFire EV1	Generic
ISO 7816		Generic
Dual	Oberthur ID-One 128 v5.5 Dual	CAC/CAC endpoint
Dual	Gemalto TOP DL GX4 144K	CAC/PIV endpoint
Dual	Gemalto GCX4 72K DI	CAC/PIV endpoint
Dual	Oberthur ID One V5.2 Dual	CAC/PIV endpoint
Dual	Gemalto GCX4 72K DI	CAC/PIV transitional
Dual	Oberthur ID One V5.2 Dual	CAC/PIV transitional
ISO 7816	Gemalto Access 64KV2	CAC
ISO 7816	Oberthur ID one V5.2	CAC
Dual	Gemalto TOP GX4 FIPS 144K	PIV
Dual	Oberthur ID-One Cosmo 128 D v5.5	PIV
Dual	None	TWIC v1.0
Dual	None	TWIC v2.0
Dual	Gemalto TOP GX4 FIPS 144K	PIV I; PIV C (CIV)
Dual	Oberthur ID-One Cosmo 128 D v5.5	PIV I; PIV C (CIV)
Dual	Gemalto TOP GX4 FIPS 144K	FRAC
Dual	Oberthur ID-One Cosmo 128 D v5.5	FRAC
ISO 15693	None	HID Prox, AWID, Indala

Card Standards:

- ISO 14443A/B (13.56MHz) standard for contactless interface based smartcards
- ISO 7816 standard for contact interface based smartcards
- Dual contains both contactless and contact card read interfaces
- ISO 15693 (125KHz) standard for contactless proximity cards

Environmental: Readers have been designed to withstand outdoor environments and are sealed from exposure to ambient environmental conditions. However, depending on the summer and winter conditions, mounting the reader in a suitable enclosure is recommended and in certain cases may be required. Particular attention should be given to locations in direct sunlight where UV radiation is particularly powerful and extreme weather conditions such as the cold when readers may be intended to operate at below zero temperatures.

Power requirements: Veridt reader terminals operate at 12 VDC. Power consumption will vary based on the hardware configuration of the reader; e.g. fingerprint sensor, digital display, etc. Power requirements for each reader is listed below.

Reader P/N	Current in mA
900W2030	400
900W2036	300
900W2037	300
900W2026	300
900W2027	300

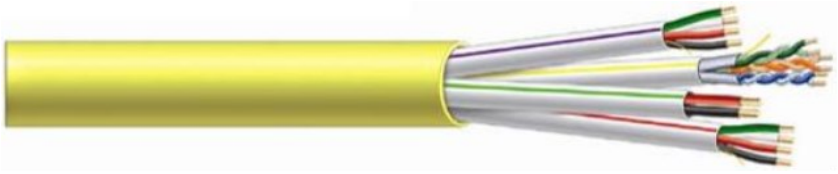
Most access control panels and/or reader control units connected to access control panels ***DONOT* have adequate power for reader devices of this type.**

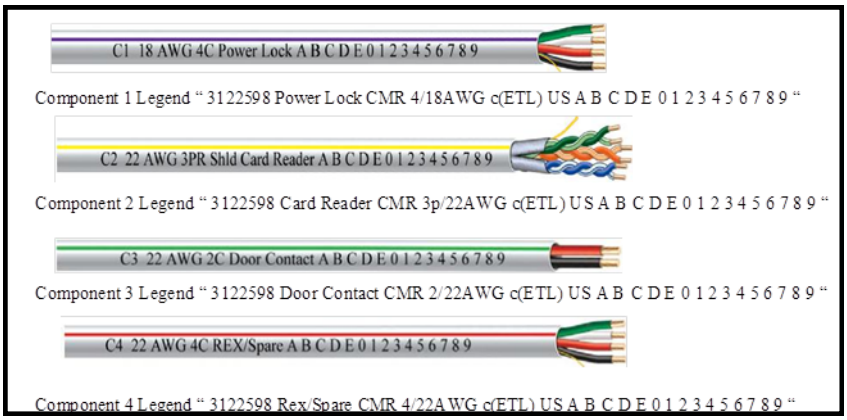
Power to the reader should be supplied by connecting the reader directly to the primary power supply that provides power to the panel. This will insure adequate power is available to the reader for smooth operation. Be sure to order right-sized power supplies.

Veridt Reader Terminal Installation Guide
Access Control Cable

We recommend all-in-one design access control cable available by Remee:
PO Box 488 468 RT17A Florida, NY 10921
Customer Service: 800-431-3864
Website: www.remee.com

The cable is available in both Plenum and Non-Plenum configurations.





Non-Plenum

Remee #	Description	Cable Components	Cable O.D.
R00907 ETL Listed CMR	Sub components are individually jacketed. Overall yellow PVC Jacket	18-4 Stranded conductor Unshielded 22-3 Pairs Stranded Shielded 22-2 Stranded conductor Unshielded 22-4 Stranded conductor Unshielded	.445 Nominal 122pds/Mft
Component 1 Component 2 Component 3 Component 4	Sub components are individually jacketed. Overall yellow PVC Jacket	Power Lock 4/18AWG Card Reader 3 PAIR 22AWG Door Contact 2/22AWG Rex/Spare 4/22AWG	White w/purple stripe White w/yellow stripe White w/green stripe White w/red stripe

Cable Length Guide

Maximum Distances for Various Wire Gauges – for Veridt Readers

Source Voltage	13.05											
Reader Voltage	12.05											
Accetable vDrop	1.00			Res per 100'	2.567	1.284	1.614	0.807	1.015	0.508	0.639	0.319
				Wire(s) - Gauge	1 - 24	2 - 24	1 - 22	2 - 22	1 - 20	2 - 20	1 - 18	2 - 18
		Reader mA	max Res.									
P/N 900W1026	maxCurrent	156	6.41		125	250	199	397	316	632	502	1004
P/N 900W1020	maxCurrent	360	2.78		54	108	86	172	137	274	218	435
P/N 900W0099	maxCurrent	436	2.29		45	89	71	142	113	226	180	359

Wiring diagrams for each communication option summarized on page 3 are described in this section.

Wiegand formats are typically preconfigured for each specific application and can range from 48 bits, 72 bits, 75 bits, 128 bits or 200 bits. All readers are configurable up to 512

Communications interface: Wiegand plus RS-485
When RS-485 no used, blue and yellow wires are not connected.

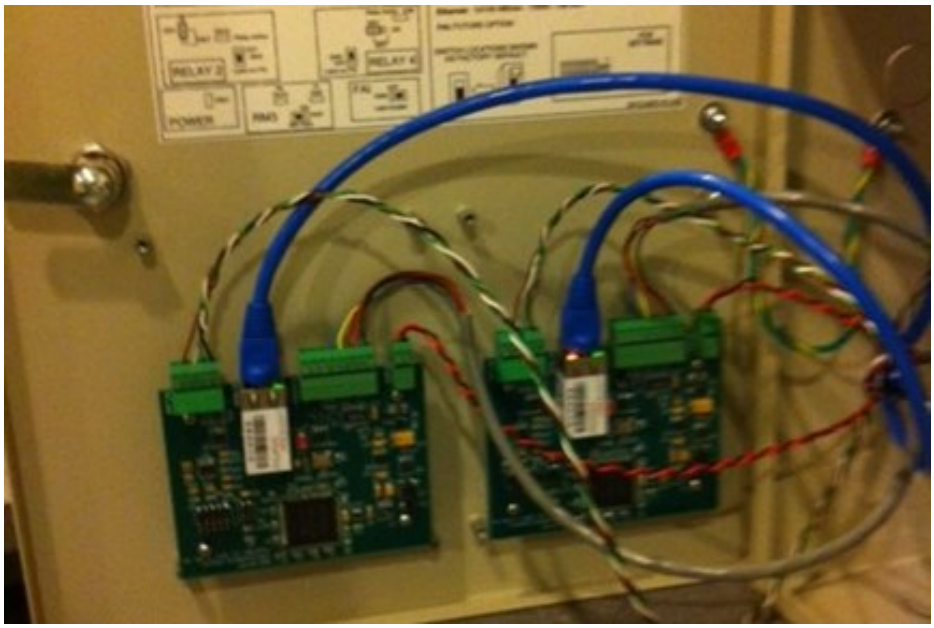
Wiring from panel to reader	
Color	Connection
Black	GND
Red	Power + 12 VDC
Brown	Access Granted
Blue	RS485 Data+
Yellow	RS485 Data-
Green	Wiegand zero
White	Wiegand one
Orange	Tamper Switch

Communications interface: RS-485 with EWACs

The MultiMode Stealth™ Reader Terminals can be configured to support comprehensive array of features and functionality when configured with EWACs. The Encrypted Wiegand and Communications Interface Unit (EWAC-IU) utilizes a RS-485 connection from the reader to the EWACs which is located at the PACS panel. The EWACs serves to:

1) provide a single connection to the reader (RS485)
2) provide bidirectional communication to the reader to set the authentication mode, request information on the credential, send and receive status information
3) provide a mechanism for encrypting all data to and from the reader ensuring data is secured on the "attack-side" of the perimeter, gate, door, etc. The encryption scheme employs 128 bit AES with "anti-playback" protection eliminating the potential of capture and "reply" of data as well as simplifying key management. Encryption algorithms are highly embedded and conform FIPS 140-2 requirements. The encryption feature can be selected ON/OFF through jumper settings on the EWACs.
4) provide a mechanism for transmitting data to either the PACS panel or server. After the data has been decrypted and assembled, the type of data is determined, Wiegand or Ethernet, it is forwarded onward. Data forwarded via Ethernet follows SSL cryptographic protocols.
5) provides a single power source to the reader.

EWACs can be configured for either Mode Control pivCLASS software suite. That configuration provides a seamless transition to HSPD-12 or FIPS-201 compliance by leveraging a facility's physical access control system for card validation, authentication, and registration.



Two reader control panel configured with EWACs (each reader requires an EWAC board). Note, Power connections and those to the panel are shown here.

Communications interface: Configuring EWACs

The EWACs provides power directly to the reader. The EWACs requires 12VDC at 100 mA. This means the total power requirement will be the reader current requirement + 100mA. For example, for a two reader control panel with two Bio-metric readers for high assurance (e.g., P/N 900W1030), the total power requirement will be 1100Ma at 12 VDC [(450Ma per reader + 100Ma per EWAC) X 2)]. The most reliable operation is insured with a separate power source.

To reader port on panel

PIN Signal	Wire Color
1) ground	Black
2) Wiegand 0	Green
3) Wiegand 1	White
4) Digital I/O (LED)	Tan
5) not in use	

Ethernet to LAN

To Reader

PIN Signal	Wire Color
1) ground	Black
2) +12V	Red
3)Digital I/O LED)	Tan
4) RS485 +	Yellow
5) RS485 -	Blue
6) not in use	
7) not in use	
8) not in use	

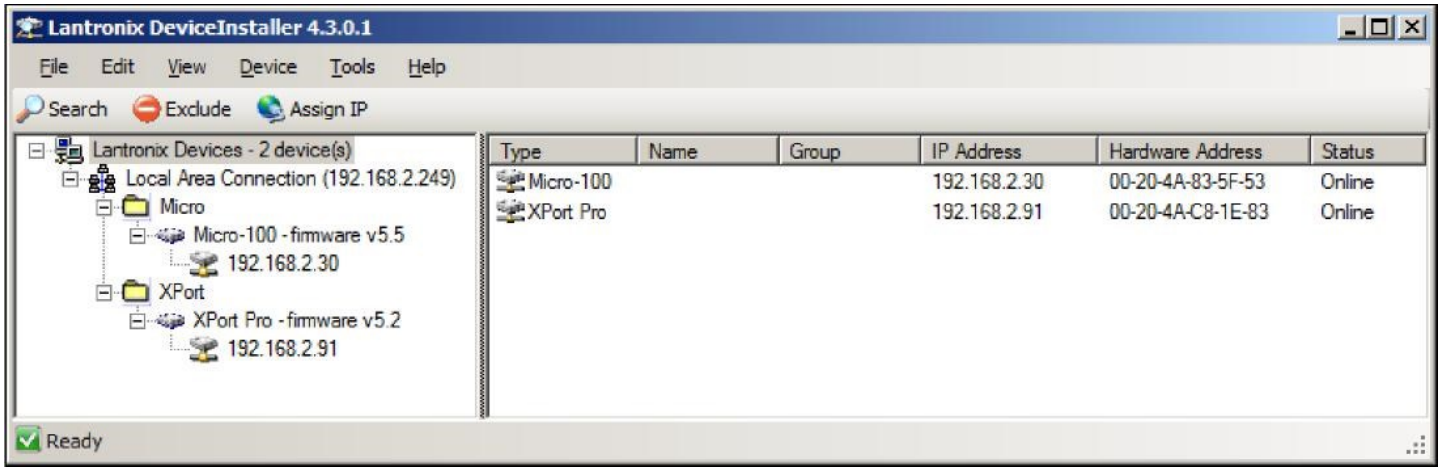
Power

PIN Signal	Wire Color
1) ground	Black
2) +12V	Red

Communications interface: IP Configuration for EWACs Lantronix

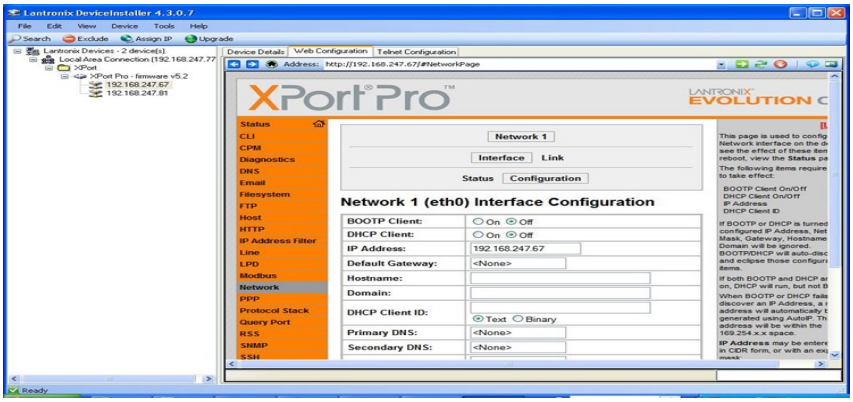
1 To configure the EWAC board with an IP address on the same subnet, you will need to download and install the Lantronix Device Installer. http://www.lantronix.com/ftp/DeviceInstaller/Lantronix/4.3/4.3.0.2/Installers/Download_Web/setup.exe

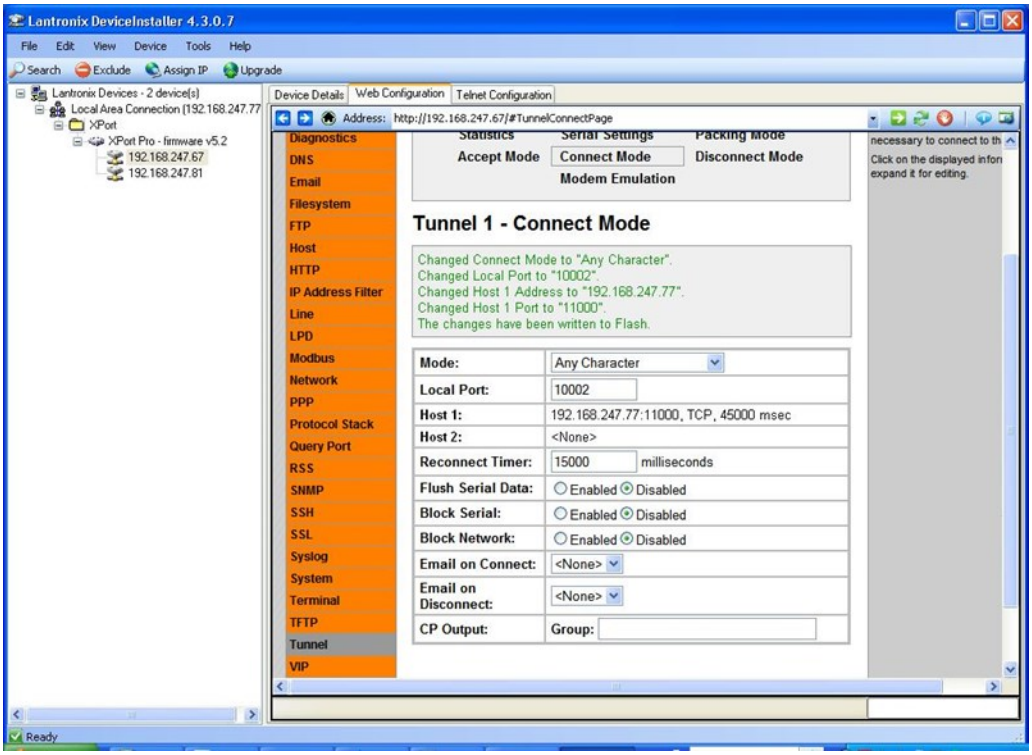
2 After downloading the Lantronix Device Installer, install and run it on a computer on the same network as the EWAC board.



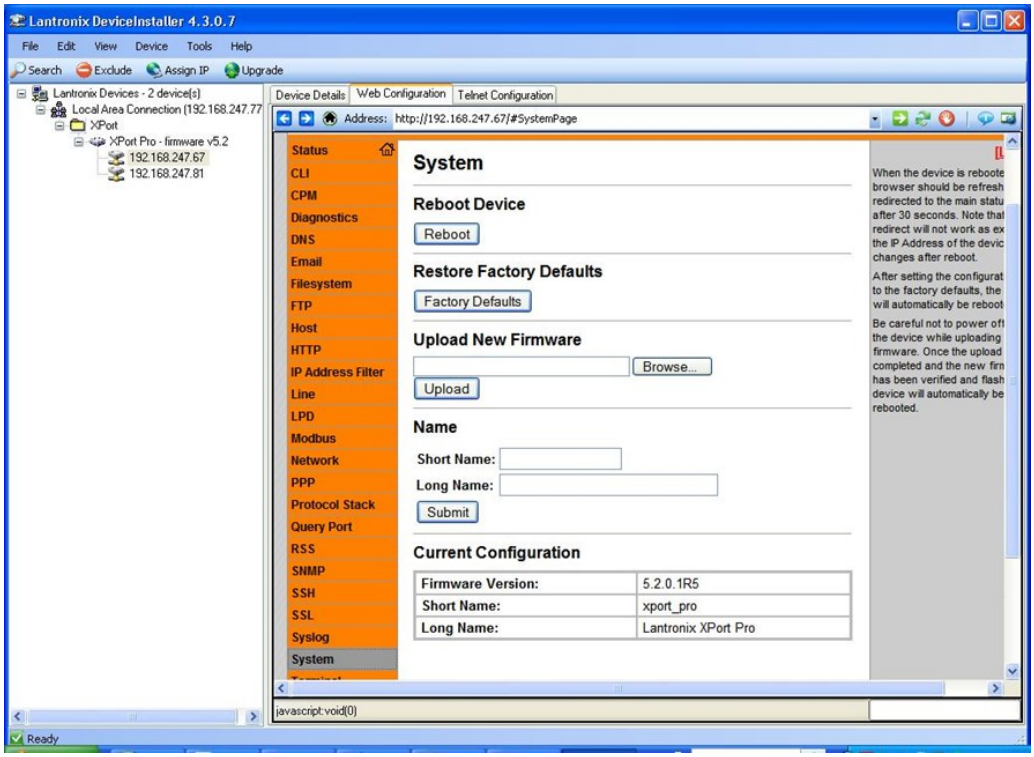
3 You should see something similar to the display above.
4 The two Lantronix devices depict the panel and the EWAC board, respectively.
5 Click on the IP address of the device you want to configure, and click on the *Assign IP* button to launch the wizard.
6 Once you have assigned an IP address, click on the IP address in the left pane and then select the *Web Configuration* tab in the main window. Enter admin for User Name and PASS for password

7 Click on Network then Configuration. You should see the IP address of the EWAC module. If not change the IP address to the correct address.





8 Click on the Tunnel tab, then Click on Connect Mode.
9 Click on the Host 1 IP address. Change the IP address to the IP address of the HID pivClass PACS Administration Service.
10 Click on System, then Reboot. This will reboot the EWACS to the new settings.



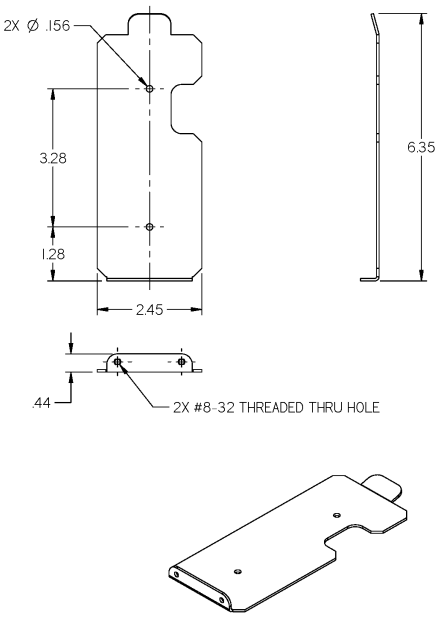
When configuring with pivCLASS PACS Administration Software,
please refer to the HID documentation

Communications interface: HID PAM

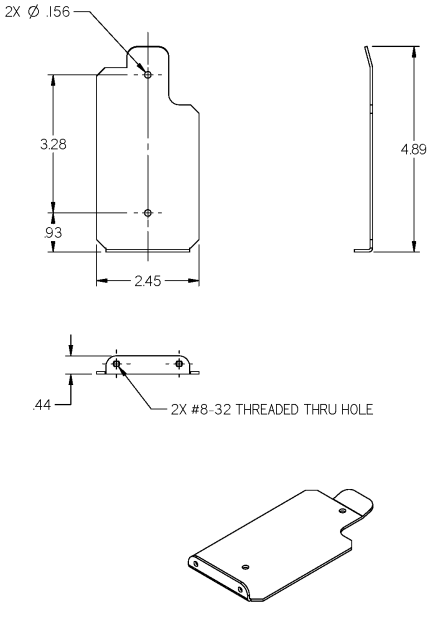
HID PAM employs a RS485 full duplex (2 twisted pairs) for communication. This configuration is used in conjunction with the high assurance solution comprised of pivCLASS Reader Services, pivCLASS Registration Engine and Certificate Manager.

Color	Wiring from reader to HID PAM
Black	GND
Red	Power + 12 VDC
Blue	RS485 Tx-
Yellow	RS485 Tx+
Gray	RS485 Rx+
Purple	RS485 Rx-
Orange	Tamper Switch

Stealth Bio (900W2030) Bracket Dimensions



Stealth (900W2036,900W2037,900W2026,900W2027) Bracket Dimensions



Veridt Reader Terminal Installation Guide

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VERIDT designs, develops and markets integrated reader products combining fingerprint biometrics and applied technologies for enterprise applications, and physical/logical access security requirements. VERIDT products conform to standard protocols established for United States government sector ID programs such as HSPD-12 (FIPS-201), TSA (TWIC) and DOD (CAC) ID by utilizing VERIDT proprietary protocols and algorithms. Applied technologies combined with fingerprint biometrics include smart card technologies, other data storage forms and applications specific communication protocols to create fixed based as well as mobile, wireless and portable biometric based solutions. VERIDT products can provide functionality ranging from fingerprint capture to on-board dedicated ID verification.

Wireless handheld readers in production

Made in America

Built and Tested in Middleton, Wisconsin

Cold weather testing in the snow at minus 2 degrees F

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