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For Veridt Readers with Base Part Number:

900W2026
900W2027
900W2030
900W2031
900W2036
900W2037

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Safety Precautions

⚠ **WARNING**	WIRING THE READER INCORRECTLY MAY CAUSE PERMANENT DAMAGE TO THE READER AND WILL VOID THE WARRANTY.

⚠ **CAUTION**	Be sure to attach the black ground wire and red power wire to the appropriate connectors. Reversing power wires will void the warranty.

⚠ **WARNING**	Installation should be performed by qualified individuals who have the skills and knowledge related to the installation and operation of the equipment. These individuals must have received the proper safety training to recognize and avoid any hazards that may be involved.

⚠ **CAUTION**	This unit contains no user-replaceable parts. Do not attempt to open the unit or make repairs to the unit. Breaking a seal will void the warranty.

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Introduction to Stealth Series:

| Stealth Bio-Q PN 900W2031 | Stealth Bio PN 900W2030 | Stealth Dual PN 900W2036 | Stealth Dual Lite PN 900W2037 | Stealth PN 900W2026 | Stealth Lite PN 900W2027 |

Patent Pending

Reader Name	Stealth Bio-Q	Stealth Bio	Stealth Dual	Stealth	Stealth Dual Lite	Stealth Lite
Part Number	900W2031	900W2030	900W2036	900W2026	900W2037	900W2027
Multifactor	3-Factor	3-Factor	2-Factor	2-Factor	1-Factor	1-Factor
Biometrics	Facial Imaging	Fingerprint				
Keypad	√	√	√	√		
Contact	√	√	√	√		
Contactless	√	√	√	√	√	√
FIPS 201 Certified	APL# 101878	APL # 10092 EWAC -10031	APL # 10093 EWAC -10032	APL # 10095 EWAC -10034	APL # 10092 EWAC -10033	APL # 10096 EWAC -10034

Figure 1 • Stealth Series

General Installation Information

Veridt Stealth series readers are designed to be operated as a Class 1 access control system component for use without requirements to withstand a destructive attack. A Tamper Indicator switch is available to provide a supervisory indication to the PACS in the event the reader is removed from its installed location.

Veridt Stealth series readers are designed to meet the requirements of the National Electrical Code for Class 2 systems and are intended to be used with UL294 listed control equipment.

The installation of these readers, and the materials used for installation, should be in accordance with the location requirements and the wiring methods defined by the National Electrical Code for Class 2 systems. Connect only to a Listed Access Control/Burglary power-limited power supply.

The connections of the reader pigtail to the wiring system must ensure a thoroughly good physical connection without damaging the conductors and should be made by means of pressure connectors or pressure splices suitable for 18-gauge stranded copper wire.

Installation should be performed by qualified individuals who have the skills and knowledge related to the installation and operation of the equipment and have received the proper safety training to recognize and avoid any hazards that may be involved.

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Input Power

Stealth series readers are designed for an input power range of 12 VDC ± 1V. Operation above the maximum voltage of 13 VDC may damage the reader; operation below the minimum voltage of 11 VDC may cause intermittent or complete loss of reader operation.

Environment

Stealth readers are designed for use in a wide range of environmental conditions. Biometric readers should be mounted to protect the surface of the fingerprint sensor from accumulating water on its surface. A rain shroud may be required.

Stealth series readers have no user replaceable components. Any unit that does not operate properly must be returned to the factory for any service requirements.

Maintenance

Stealth series readers require no periodic maintenance or calibration. If it becomes necessary to clean the outer surfaces, use a moist, non-abrasive cloth with a mild detergent and gently wipe the external surfaces. Do not immerse the reader.

Operation

See the Stealth Users Guide for complete operation of all modes. Successful operation of the reader is indicated by the access control system granting access to a valid, registered card and denying access to an invalid or non-registered card.

Pre-Installation

Environmental

The Veridt Stealth series readers are sealed to keep the reader from exposure to ambient environmental conditions. In certain cases; depending on the summer and winter conditions, mounting the reader in a suitable enclosure may be required. Avoid locations in direct sunlight, where UV radiation is particularly powerful; or installations that may allow snow, ice, or water to accumulate on the fingerprint sensor.

Maximum Power Requirements

Table 1 • Maximum Power Requirements

Reader P/N	Max Current in mA
900W2031	500
900W2030	400
900W2036	300
900W2037	300
900W2026	300
900W2027	300

Note: Most access control panels and/or reader control units connected to access control panels DO NOT have adequate power for Stealth readers. Connect Stealth readers directly to the primary power supply that provides power to the panel. Doing so, ensures that adequate power is available to the reader for smooth operation. Connect the reader to only a Listed Access Control/Burglary power-limited power supply with sufficient current capacity.

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Mounting

Dimensions	900W2031	900W2030	900W2036, 900W2026 900W2037, 900W2027
	7.0" x 4.0" x 1.5" 17.78cm x 10.16cm x 3.81cm	7" x 3" x 1.5" 17.78cm x 7.62cm x 4.0cm	5.5" x 3.0" x 1.5" 13.97cm x 7.62 cm x 4.0 cm

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.
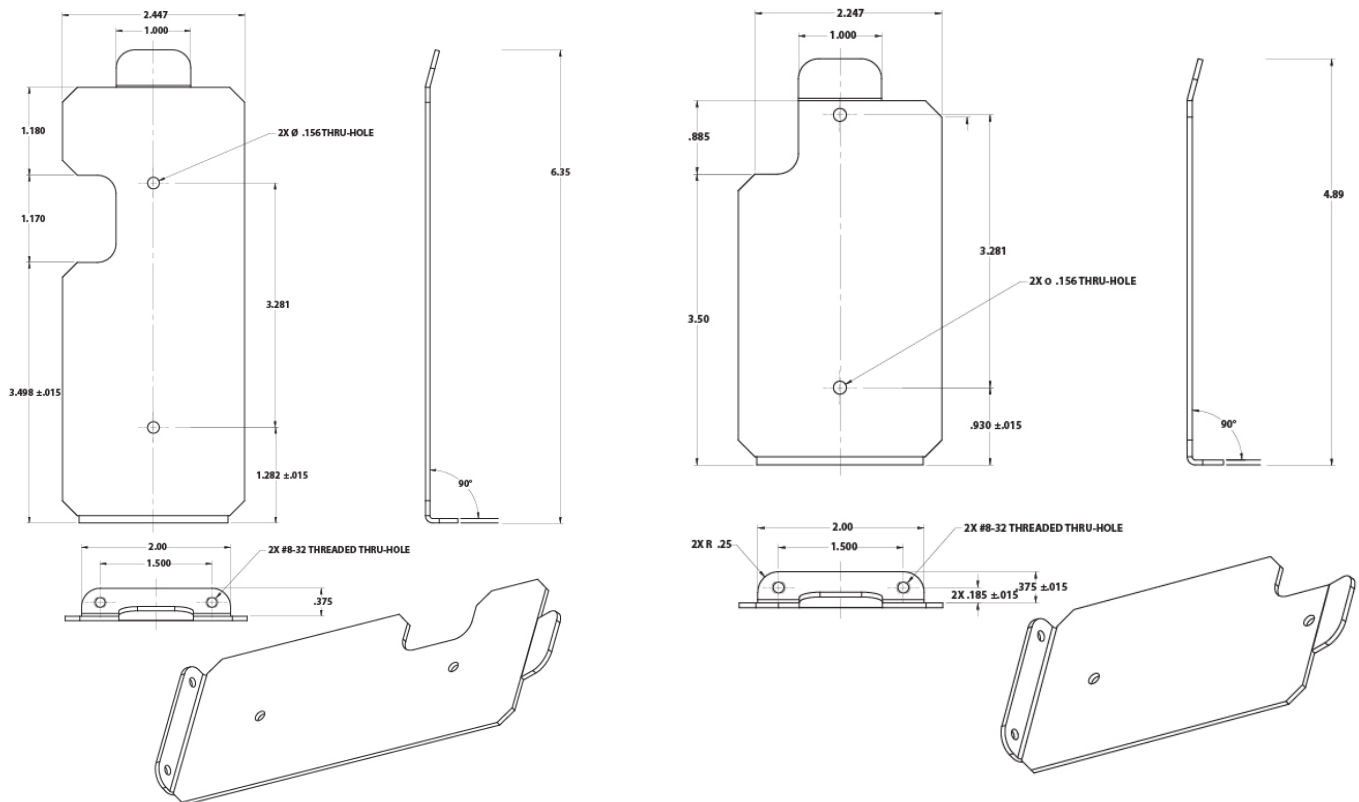

Figure 2 • Stealth Series Mounting plates

The Stealth series reader mounting plate can be mounted to a single gang box or directly to a wall or other flat surface using appropriate mounting hardware.

The installation of these readers, and the materials used for installation, should be in accordance with the location requirements and the wiring methods defined by the National Electrical Code for Class 2 system.

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Access Control Cable

Recommended Cable Type: Non-plenum unshielded unless specifications require plenum or other cable type. We recommend all-in-one design access control cable available by Remee:
PO Box 488 468 RT17A Florida, NY 10921. Website: www.remee.com
.

Cable Length

The left column is the amount of power required and the columns to its right are the maximum cable lengths for the wire gauge listed in the top row. For example, using a reader that requires 300 mA and 18-guage power cable, the cable can be no longer than 289 feet

Table 2 • Power Requirements and Cable Lengths

Power Req.	24 AWG	22 AWG	20 AWG	18 AWG	16 AWG	14 AWG	12 AWG
DC 100 mA	216 feet	342 feet	594 feet	867 feet	1,379 feet	2,197 feet	3,505 feet
DC 200 mA	108 feet	171 feet	297 feet	433 feet	689 feet	1,098 feet	1,755 feet
DC 300 mA	72 feet	113 feet	198 feet	289 feet	459 feet	732 feet	1,169 feet
DC 400 mA	54 feet	85 feet	148 feet	216 feet	344 feet	549 feet	877 feet
DC 500 mA	43 feet	68 feet	119 feet	173 feet	275 feet	439 feet	701 feet
DC 750 mA	28 feet	45 feet	79 feet	115 feet	183 feet	293 feet	467 feet
DC 1000 mA	21 feet	34 feet	59 feet	86 feet	137 feet	219 feet	350 feet

Grounding

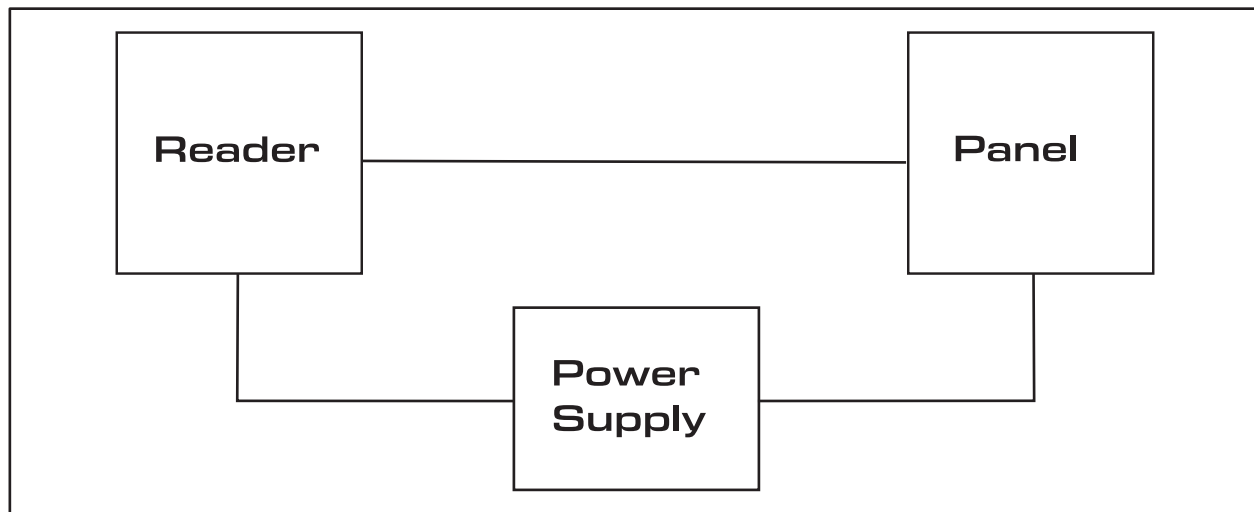**Traditional Reader/PACS controller configuration**

Figure 3 • Stealth Series Grounding—Reader to Panel, Reader & Panel to Power Supply

To avoid grounding problems. The reader, power supply and panel must share a common ground. Failure to do this may create a floating ground that could create high voltages at reader inputs thereby damaging them.

Low Voltage Power Drop

For both AC and DC low voltage; generally, the maximum acceptable voltage drop is 10%. The cable lengths in Table 2 take into consideration this voltage drop.

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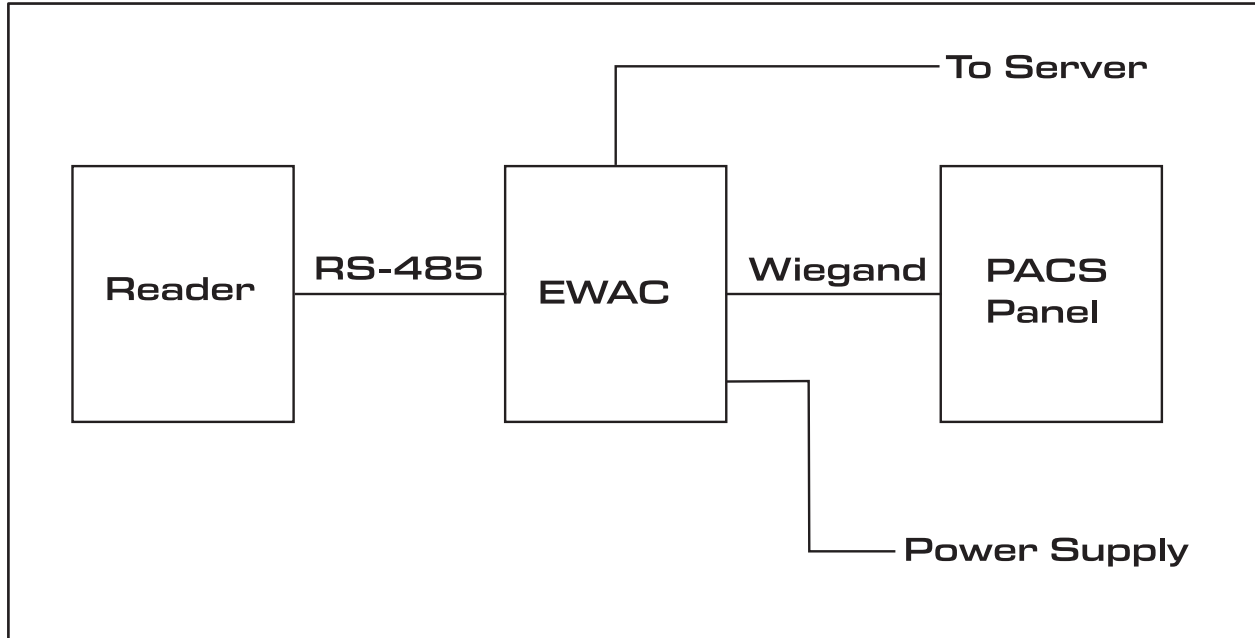
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Reader to EWAC, EWAC to Panel, EWAC to Power Supply & Network

Figure 4 • Stealth Series Grounding—Reader to EWAC, EWAC to Panel, EWAC to Power Supply.

Reader Interface Signals

Reader Back

Pin	Color	Connection
1	Pink	Not Used I/O
2	Brown	LED/Access Granted
3	White	Wiegand D1
4	Yellow	RS-485 Data + (4-wire TX+)
5	Gray w/White Stripe	RS-485 RX+ (4 wire)
6	Black	Ground
7	Red	Power +12 VDC
8	Gray	Input 1
9	Orange	Tamper Switch
10	Green	Wiegand D0
11	Blue	RS-485 Data - (4-wire TX-)
12	Purple	RS-485 RX- (4 wire)

Pigtail Wire Color & Signals

Figure 5 • Reader Pins, Wire Colors, and Signals

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PACS Wiring Diagrams

PACS Infastructure	Stealth Wiring Connections
AMAG Wiegand	See High Assurance Configuration on page 15 **Table:** <table><tr><td>Stealth Reader</td><td>Wire Color</td><td>4DR Controler Label</td></tr><tr><td>Ground</td><td>Black</td><td>0V</td></tr><tr><td>+12V DC</td><td>Red</td><td>12V</td></tr><tr><td>Access Granted</td><td>Brown</td><td>Green LED</td></tr><tr><td>Wiegand 0</td><td>Green</td><td>0</td></tr><tr><td>Wiegand 1</td><td>White</td><td>1</td></tr></table>

AMAG Wiegand — See High Assurance Configuration on page 15

Stealth Reader	Wire Color	4DR Controler Label
Ground	Black	0V
+12V DC	Red	12V
Access Granted	Brown	Green LED
Wiegand 0	Green	0
Wiegand 1	White	1

Galaxy Wiegand — See High Assurance Configuration on page 15

Stealth Reader	Wire Color	600 Series Board
Ground	Black	GND
+12V DC	Red	12V
Access Granted	Brown	LED
Wiegand 0	Green	0
Wiegand 1	White	1
RS485 -	Blue	B
RS485 +	Yellow	A
Ground	Black	Ground

Gallagher OSDP

See also Open Supervised Device Protocol (OSDP) below.

See OSDP Wiring of Tamper Switch on page 15

For instructions on how to configure this product, please refer to the User Guide Command Centre Configuration Client, which can be found on the Gallagher Command Centre Installation DVD in the Documentation folder.

Genetec OSDP

Reader Signal	Wire Color	Mercury 4502 Label
Ground	Black	0V
RS-485 -	Blue	D0
RS-485 +	Yellow	D1
+12V DC	Red	12V

WIRING THE READER INCORRECTLY MAY CAUSE PERMANENT DAMAGE TO THE READER AND WILL VOID THE WARRANTY

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Genetec Wiegand

Stealth Reader	Wire Color	Mercury 4502 Label
Ground	Black	GND
+12V DC	Red	12V
Access Granted	Brown	LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

Identive OSDP

Reader Signal	Wire Color	OCTBUS
Ground	Black	G
RS-485 +	Yellow	B1
RS-485 -	Blue	A1
+12V DC	Red	V(12V)

See OSDP Wiring of Tamper Switch on page 15

Identive Wiegand

Stealth Reader	Wire Color	MX-1 Label
Ground	Black	GND
+12V DC	Red	12V
Access Granted	Brown	LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

JCI Wiegand

Stealth Reader	Wire Color	RDR2SA Label
Ground	Black	GND
+12V DC	Red	12V
Access Granted	Brown	LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

Lenel OSDP

Reader Signal	Wire Color	Mercury 4502 Label
Ground	Black	0V
RS-485 -	Blue	D0
RS-485 +	Yellow	D1
+12V DC	Red	12V

See OSDP Wiring of Tamper Switch on page 15

Lenel Wiegand

Stealth Reader	Wire Color	Mercury 4502 Label
Ground	Black	GND
+12V DC	Red	12V
Access Granted	Brown	LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

WIRING THE READER INCORRECTLY MAY CAUSE PERMANENT DAMAGE TO THE READER AND WILL VOID THE WARRANTY
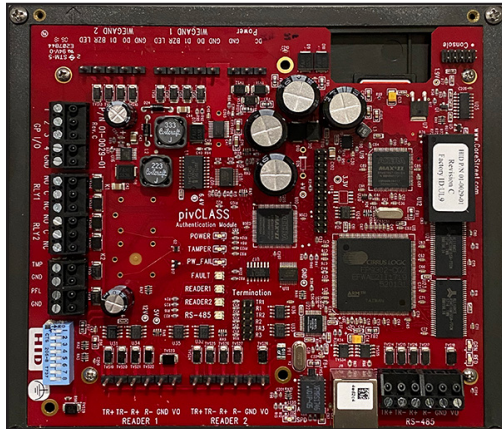
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Software House Ultra OSDP

Reader Signal	Wire Color	Ultra ACM Label
Ground	Black	0V
RS-485 +	Yellow	D+
RS-485 -	Blue	D-
+12V DC	Red	12V

See OSDP Wiring of Tamper Switch on page 15

Software House Ultra Wiegand

Stealth Reader	Wire Color	Ultra ACM Label
Ground	Black	GND
+12V DC	Red	Power
Access Granted	Brown	Green LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

Software House iStar Edge Wiegand

Stealth Reader	Wire Color	iStar Edge Label
Ground	Black	GND
+12V DC	Red	Power
Access Granted	Brown	Green LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

Viscount Wiegand

Stealth Reader	Wire Color	Bridge Label
Ground	Black	GND
+12V DC	Red	Power
Access Granted	Brown	LED
Wiegand 0	Green	D0
Wiegand 1	White	D1

Viscount FICAM

Stealth Reader	Wire Color	Bridge Label
GND	Black	0V
+12V DC	Red	Power
Access Granted		
RS-485 -	Blue	T-
RS-485 +	Yellow	T+
GND	Black	0V

WIRING THE READER INCORRECTLY MAY CAUSE PERMANENT DAMAGE TO THE READER AND WILL VOID THE WARRANTY

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Veridt Reader Terminal Installation Guide Wiring Diagrams

Communications interface: for HID PAM

Color Wiring from reader to HID PAM	Wiring from reader to HID PAM Reader 1 or Reader 2
Black	GND
Red	Power + 12 VDC
Brown	No Connection
Purple	RS-485 Rx-
Yellow	RS-485 Tx+
Blue	RS-485 Tx_
Gray w/ white stripe	RS-485 Rx+
Orange	No Connection

Software House Active Mode Change

Stealth Wire Color	Signal
Black	Ground
Green	Wiegand 0
White	Wiegand 1
Orange	Tamper Switch
Brown	Access Granted
Grey	To RM Module
Red	+ 12V DC

Monitor Dynamics FICAM

Stealth Reader	Stealth Wire Color	DDC3 Com3 Signal
Ground	Black	Ground
RS-485 -	Blue	X-
RS-485 +	Yellow	X+
+12V DC	Red	+12V DC

Stealth Standard Pigtail Wiring

Wire Color	Signal
Black	Ground
Blue	RS-485 -
Yellow	RS-485 +
Green	Wiegand 0
White	Wiegand 1
Orange	Tamper Switch
Brown	Access Granted
Red	+ 12V DC

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Standard Wiegand	Wire Color	Signal
	Black	Ground
	Green	Wiegand 0
	White	Wiegand 1
	Orange	Tamper Switch
	Brown	Access Granted
	Red	+ 12V DC

Stealth Standard Serial RS-485	Wire Color	Signal
	Black	Ground
	Blue	RS-485 -
	Yellow	RS-485 +
	Orange	Tamper Switch
	Red	+ 12V DC

WIRING THE READER INCORRECTLY MAY CAUSE PERMANENT DAMAGE TO THE READER AND WILL VOID THE WARRANTY

OSDP Wiring of Tamper Switch
The tamper switch is not required for OSDP applications and should not be connected.

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High Assurance Configuration with EWAC

Veridt Encrypted Wiegand and Communications (EWAC) Interface

The EWAC interface provides a bi-directional RS-485 interface to the PACS panel and a network interface that can allow a secure server to control door access. Install the EWAC interface in or near the PACS panel.

J3 Power
    Pin 1: GROUND
    Pin 2: +12 VDC
J4 Stealth Reader
    Pin 1: GROUND
    Pin 2: +12 VDC
    Pin 3: Digital IO
    Pin 4: RS-485 +
    Pin 5: RS-485 –
J5 Wiegand
    Pin 1: GROUND
    Pin 2: WIEGAND 0
    Pin 3: WIEGAND 1
    Pin 4: Digital IO
J6 Network
    Ethernet to LAN

Figure 6 • EWAC Interface Unit

The EWAC unit provides power directly to the reader. The EWAC unit requires 100 mA at 12 VDC. This means the total power requirement is the reader current requirement + 100 mA. Ensure the power supply can provide sufficient power

Note:	Most PACS controllers DO NOT have adequate power both reader and the EWACS. Use an appropriately sized power supply for the PACS panel. For example, for an eight-door panel, the power supply must be rated for at least 6 A (apply a 50 percent margin when sizing the power supply).

Tamper Switch

The optional tamper switch allows the PACS to monitor the installed state of the reader.

The tamper switch is closed when the reader is attached to the wall and open when the reader is removed from the wall. When the switch is closed, the tamper switch input signal is switched to GROUND. When the switch is open, pull the input signal to a logical High state by the PACS to detect the tamper condition.

The tamper switch is Normally Open (NO) and rated at 20 VDC @ 350 mA.

Communications Interface

To configure the EWAC board with an IP address on the same subnet, download and install the Lantronix device installer on a computer on the same network as the EWAC board. The Device Installer applications is currently located at https://www.lantronix.com/products/deviceinstaller

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IP Configuration for EWAC Lantronix

Note:	Most PACS controllers DO NOT have adequate power both reader and the EWACS. Use an appropriately sized power supply for the PACS panel. For example, for an eight-door panel, the power supply must be rated for at least 6 A (apply a 50 percent margin when sizing the power supply).

1. Start the Lantronix Device Installer. The application should display a screen like the one shown here.

Figure 7 • Lantronix Device Installer Opening Window

The two Lantronix devices depict two different EWAC board.

2. At the main window, select the IP address that you want to configure.
3. Select the Web Configuration tab in the right pane.
4. When the login dialog displays, enter your Username and Password.
5. The default Username is **admin**. The default Password is **PASS**.
6. The right panel that displays should resemble the one shown below

Figure 8 • IP Configuration

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7. From the list of options in the left pane, select **Network**; then click the **Configuration** button. The IP address of the EWAC module should display.

8. If the IP address is incorrect, turn off **BOOTP Client** and the **DHCP Check** and enter the correct static IP address.

9. Next select the **Tunnel** option, click the button on the Tunnel 1 Connect Mode window

Figure 9 • IP for Host Address

10. Select the **Host 1 IP** address and change it to the IP address of the HID pivCLASS PACS Administration

Figure 10 • Lantronix Device Installer Opening Window

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11. To lock-in the new configuration settings, select System from the list of options in the right pane and then click the Reboot button.

12. The reboot sets the EWAC to the new configuration.

13. Refer to the HID documentation when configuring the pivCLASS PACS Administration software to complete the System configuration

Reader Troubleshooting

Please have the following information available before calling Veridt

Table 3 • Reader Information

Serial Number		Date of Manufacture (Month/Year)
Voltage/Current		
Reader from Power Distance		Power Supply Voltage & Current Ratings
Feet		VDC | Amps
Wire Gauge (e.g. 18, 22, etc.)		No Load Voltage (Reader Idle)
AWG		VDC

Reference Voltages

Wiegand Lines

DO to Ground		D1 to Ground
VDC		VDC

LED Line

Brown Wire to Ground (LED = Red)		D1 to Ground
VDC 4.5-5.0 VDC		VDC-0.00 VDC

Power Supply and Wire Gauge

ACM (Panel) & Power Supply Distance		Power Supply Voltage & Current Ratings
Feet		VDC | Amps
Wire Gauge (e.g. 18, 22, etc.)		

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Multi-Technology Readers

A common problem that occurs with multi-technology readers is not measuring load voltages and currents versus no load (when the equipment is idle) with readers that draw more current than typical prox on simple contactless readers.

Typical prox readers draw between 110-150 mA and are typically powered by the panel. Issues, such as common grounding and measurements at load, are not relevant. For readers that draw more current, faults can occur when the system is running because the voltage is inadequate.

Indicators of insufficient voltage at load include the following:

• A fault occurs at specific locations.

• A fault occurs under specific conditions, such as cardholder traffic or specific times of the day.

• The reader cycles through its startup cycle repeatedly.

The above fault types are strong indicators of insufficient voltage at load coupled with current limitations that depend on the number of devices connected to a specific power supply.

The voltage drop table (see Table 2) defines the maximum length of cable for a specific gauge wire before a 10 percent drop in voltage occurs. When the cable exceeds the listed length, voltage drops below levels at which the reader operates reliably, and various faults occur that require resetting the unit.

The cable lengths apply to any device. When both the reader and bridge are powered on the same power supply, the bridge is similarly affected.

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 device must 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'interferences et (2) cet appareil doit accepter toute interference, y compris les interferences susceptibles de provoquer un fonctionnement indesirable.

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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 approuves expressement par Veridt, Inc pourrait annuler l'autorite de l'uti-lisateur a faire fonctionner l'equipement.

UL-294
The products listed in this Guide meet Standard UL 294 ED 8.

3.1.1 ACCESS CONTROL - The monitoring or control of traffic through portals of a protected area by identifying the requestor and approving entrance or exit.

Veridt's Stealth series readers are designed to be operated as a Class 1 Access control system component with no requirement to withstand a destructive attack. A Tamper Indicator switch is available to provide a supervisory indication to the PACS in the event the reader is removed from its installed location.

Veridt's Stealth series readers are designed to meet the requirements of the National Electrical Code for Class 2 systems and are intended to be used with UL294 listed control equipment.

The installation of these readers, and the materials used for installation, should be in accordance with the location requirements and the wiring methods defined by National Electrical Code (NFPA70) for Class 2 environments. Connect only to a Listed Access Control / Burglary power-limited power supply.

The connections of the reader pigtail to the wiring system must insure a thoroughly good physical connection without damaging the conductors and should be made by means of pressure connectors or pressure splices suitable for 18 to 26 gauge stranded copper wire.

Installation should be performed by qualified individuals who have the skills and knowledge related to the installation and operation of the equipment and have received the proper safety training to recognize and avoid any hazards that may be involved.

Stealth series readers are designed for an input power range of 11VDC to 13VDC. Operation above the maximum voltage of 13VDC may damage the reader, and operation below the minimum voltage of 11VDC may cause intermittent or complete loss of reader operation.

Stealth series readers are designed for use in a wide range of environmental conditions. Fingerprint Biometric readers should be mounted to protect the surface of the finger print sensor from accumulating water on its surface. A rain shroud may be required.

Stealth series readers have no user replaceable components. Any unit that does not operate properly must be returned to the factory for any service requirements

Stealth series readers require no periodic maintenance or calibration. If it becomes necessary to clean the outer surfaces, use a moist, non-abrasive cloth with a mild detergent and gently wipe the external surfaces. Do not immerse the reader.

RS-485 capability not verified to UL 294 by Intertek

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CE STANDARDS

Stealth readers are designed to comply with EU regulatory requirements necessary to support the CE marking.

See the Stealth Users Guide for complete operation of all modes. Successful operation of the reader is indicated by the access control system granting access to a valid, registered card and denying access to an invalid or non-registered card.

Document Control

Date	Revisions	Description
December 2, 2024	Rev 08	Addition of Bio-Q info and other minor updates
July 19, 2021	Rev 07	New PAM wiring colors
February 25, 2021	Rev 06	Corrected PAM wiring
April 24, 2020	Rev 05	Minor corrections
April 6, 2020	Rev 04	Sections added for additional PACS panels
January 6, 2019	Rev 03	Section added for Entry Point Reader Service
November 27, 2017	Rev02	Significant new and updated information
March 23, 2016	Rev 01	Correction to RS-485 signal labels
May 16, 2014	Rev 00	Initial Release

Contact Information

For more information, contact:
sales@veridt.com
Veridt, Inc.
7182 US Highway 14,
Ste 401
Middleton, WI 53562
Tel: 608-833-1840
FAX 608 833-1806
www.veridt.com

PN: 269-201008   21