

# Portal Installation Guide

#### **Portal Installation Guide**

by Bob Hoang, Technical Writer, Olga Alexeenko, Technical Writer/Editor, and Mykone Saunders, Creative Producer Copyright © 2008 i<sup>3</sup>DVR International Inc.

All rights reserved. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher. Portal is a registered trademark of i<sup>a</sup>DVR International. i<sup>a</sup>DVR reserves the right to change the contents of this manual without notice.

#### Disclaimer

The Portal Installation Guide is provided as is, without warranty of any kind, expressed or implied, including but not limited to performance, merchantability, or fitness for any particular purpose. Neither i\*DVR International Inc. nor its dealers or distributors shall be liable to any person or entity with respect to any liability, loss, or damage, caused or alleged to have been caused directly or indirectly by this information. Furthermore i\*DVR International Inc. reserves the right to revise this publication, and to make changes to the content at any time, without notice.

This manual offers the easiest, most efficient way of wiring and configuring Portal Card Access system. In most cases, customization can be made at the installer's discretion. i<sup>a</sup>DVR will not be held responsible for system malfunctioning as a result of improper wiring and/or configurations. The Quick Setup function in Portal software application may only be used if the suggested wiring standards are followed.

The software installation section of the manual is consistent with Portal Card Access System software v. 2.0.

#### FCC

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.

#### Address:

i3DVR International Inc. • 780 Birchmount Road, Unit 16 • Scarborough • Ontario • Canada M1K 5H4

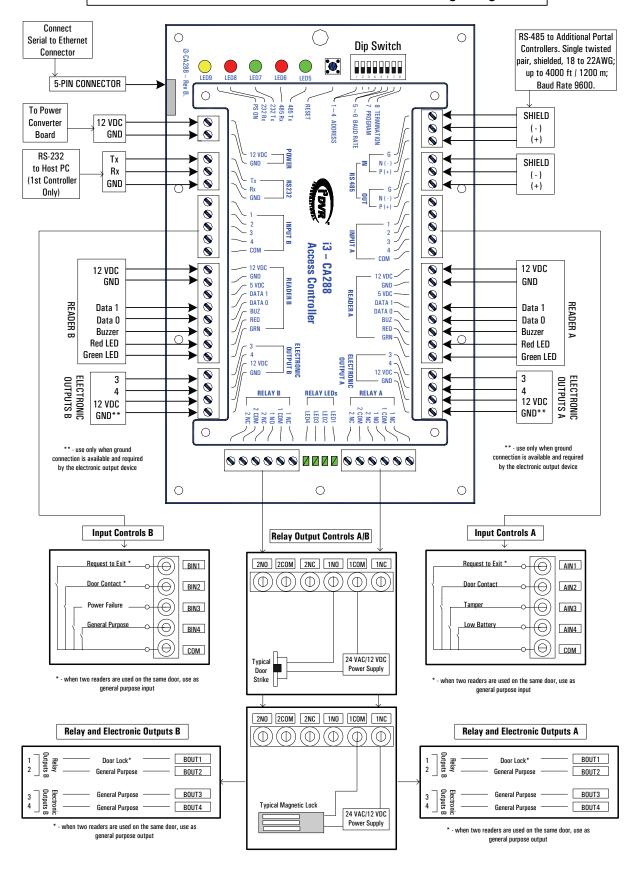
Tech Support: 1.877.877.7241

Web Site: www.i3dvr.com

## **Table of Contents**

1. Step-by-Step Installation Guide	1
1.1. Unpacking	2
1.2. Mounting Portal Card Access System	4
1.3. Grounding Portal Card Access System	
1.4. Configuring Controller ID	6
1.4.1. Controller Dip Switch	
1.5. Connecting Controller to Power Board	8
1.6. Connecting RS-232 DB9 Cable to First Controller	9
1.6.1. Serial to TCP/IP Converter Board	9
1.6.2. Configuring IP Address for TCP/IP Converter	9
1.7. Connecting Reader(s) to Controller	13
1.8. Connecting Multiple Controllers into a Network (RS-485)	15
1.9. Connecting Inputs to Controller	16
1.10. Connecting Outputs to Controller	18
1.11. Installing Portal Software on Host PC	19
1.12. Basic Portal Software Configuration	22
1.13. Tips and Reminders	26
2. Appendix	27
2.1. Portal Card Access System Specifications	28
2.2. Status LED's and Reset Button	29
2.2.1. Firmware Update	29
2.3. Glossary	30

## Portal Access Controller (i3 - CA288). Wiring Diagram





## **Step-by-Step Installation Guide**

#### **Topics Covered**

- Unpacking
- · Mounting Portal Card Access System
- Grounding Portal Card Access System
- · Configuring Controller ID
- Connecting Controller to Power Board
- Connecting RS-232 DB9 Cable to First Controller
- · Connecting Reader(s) to Controller
- Connecting Multiple Controllers into a Network (RS-485)
- Connecting Inputs to Controller
- Connecting Outputs to Controller
- Installing Portal Software on Host PC
- Basic Portal Software Configuration
- Tips and Reminders

(**j**) Tip

Take time to carefully label all connections, this will simplify the servicing procedure later on.



#### Warning

Do NOT apply power to the unit until all installation steps, including wiring, mounting and grounding have been correctly completed. Remember to turn the power OFF when servicing the panel.



#### Caution

Any deviations from recommended installation sequence may result in the loss of product warranty.

Thank you for purchasing Portal Card Access System, a product of i<sup>3</sup>DVR International.

This step-by-step manual describes the current installation considerations for the Portal Card Access system. The following document is designed to help a qualified technician to complete the installation safely and effectively. Before proceeding with the installation, please read the Installation Guide thoroughly and follow the instructions exactly. The following steps must be completed in order to set up the Portal Card Access system.

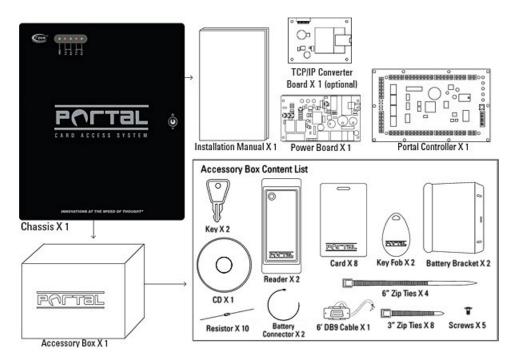
- Step 1. Unpacking the Portal Card Access system and identifying system components
- Step 2. Mounting Portal Card Access system on the wall
- Step 3. Grounding Portal Card Access system
- Step 4. Setting Portal Controller board(s) ID
- **Step 5.** Connecting Power board(s) to Controller board(s)
- **Step 6.** Connecting DB9 cable (RS-232) to *first* Controller board in the daisy chain
- **Step 7.** Connecting Readers to their respective Controller board(s)
- Step 8. Connecting multiple Controller boards into a daisy chain RS-485 network (if applicable)
- Step 9. Connecting Inputs to the Controller board
- Step 10. Connecting Outputs to the Controller board
- Step 11. Installing Portal Software on Host PC
- Step 12. Basic Portal Software configuration

With any further questions or concerns, visit our website at http://www.i3dvr.com or contact our technical support team at 1-877-877-7241.

## 1.1. Unpacking

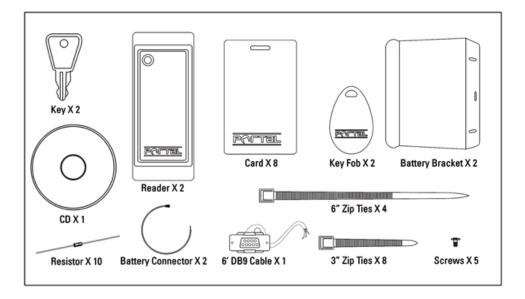
Make sure all the parts listed below have been included.

Power Board (P-PWR-U023) and Portal Controller boards (P-CA288) come pre-mounted inside the Portal chassis (P-PORTALCHASSIS). The accessory box (P-ACCESSORY) along with the installation manual (P-PORTALMANUAL) will be resting on top of the mounted boards inside the chassis.



Part No.	QTY	Description	
		Portal Chassis. CamLock Included, Equipped with a Tamper Switch.	
P-PORTALCHASSIS	1	Supports 1 x P-CA288, 1 x P-PWR-U023, 1 x I3-S2E (optional),	
		1 x Battery (not included)	
P-CA288	1	Portal Card Access Controller Board. Supports 2 Readers	
Power Converter Board. Converts 24-28VAC input to 12VDC		Power Converter Board. Converts 24-28VAC input to 12VDC;	
P-PWR-U023	1	supports Low Battery, Power Failure and Tamper inputs;	
charges the battery.		charges the battery.	
P-ALAHHIM24   7		Aladdin 24 Proximity Reader. Wiegand Output, 4 to 5.5 inch Read	
		Range, Metal Compensated, Mullion Width Indoor/Outdoor	
	Portal Accessory Box. Contains 2 x Keys, 5 x Screws,		
P-ACCESSORY	1	2 x Battery Brackets, 2 x Battery Connectors, 4 x 6" Zip Ties,	
		8 x 3" Zip Ties, 10 x Resistors, Software CD w/User Manual	
P-PORTALCARD	8	Badge Card. Pre-punched in Portrait Orientation	
P-PORTALKEYFOB	2	Proximity Key Tag	
P-PORTALDB9	1	6 foot serial 9-pin DB9 Cable to connect P-CA288 to PC/DVMS	
P-PORTALMANUAL	1	Printed Installation Manual for Portal Card Access System	
13-S2E	(1)	Serial to TCP/IP converter board for the Portal Card Access	
13-975	Optional	System	

#### **Accessory Box Content List**



#### Additional parts required for each Controller (not included in the package):

- 24-28 AC, 40 VA, 1-3 Amp Transformer
- 12V Battery, recommended 7.0 Ah

It is the installer's responsibility to purchase and install additional required parts. A 24-28 AC transformer is required to convert commercial 110 AC to 24 VAC accepted by power board (P-PWR-U023). Power board will then convert 24 VAC to 12 VDC accepted by Portal Controller board (P-CA288).

Compatible battery type: 12V rechargeable battery, recommended rating of 7.0 Ah. The unit will operate normally without a battery, however battery-operated power backup is highly recommended to prevent Portal system downtime due to power failure.

## 1.2. Mounting Portal Card Access System



Mounting screws are not included.

#### Mounting

- The operating environment for the Portal is  $0^{\circ}$  to  $70^{\circ}$ C (35°  $\sim$  150°F) and 20-80% RH non-condensing
- The dimension for the Portal chassis is: 14" H x 11 % " W x 3 %" D (35.56 cm H x 29.85 cm W x 8.26 cm D)
- Screw the Portal chassis onto a secure wall

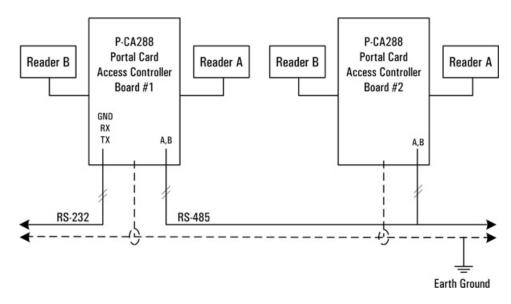
Mounting holes are:
- 1.5" (38 mm) from
the top/bottom
- 1.14" (29 mm) from
the side

## 1.3. Grounding Portal Card Access System

Grounding the Portal metal chassis box is very important to prevent damage due to lightning or static discharge. Direct grounding of the chassis is essential and can be done by connecting a 16 AWG or heavier cable to earth ground. The length of grounding cable must not exceed 50 feet (15 m). Each Portal chassis should be grounded individually to the earth ground.

When installing Portal, you MUST ground yourself to prevent static discharge. Do not apply power the unit before completing all installation steps and correctly grounding each Portal Controller Chassis (P-PORTALCHASSIS).

#### Grounding multiple Portal panels.



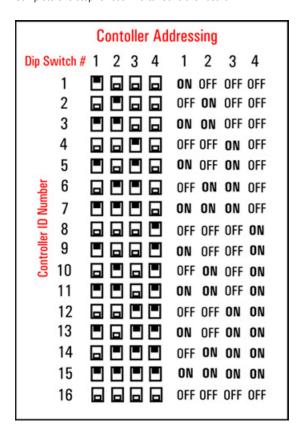
## 1.4. Configuring Controller ID

To locate the dip switch on the board, see the Card Access Controller Wiring Diagram.

Use the dip switch on the Portal Card Access board(s) to configure ID for each Controller board in the network. Portal Card Access System supports up to 16 Controller boards in a single network, each one must be assigned a unique ID from '1' to '16'.

Each Controller board has 8 dip switches, first 4 (four) are designated for configuring the Controller ID. Follow the table below to set the Controller ID.

Complete this step for each Portal Controller board.

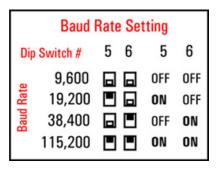


## 1.4.1. Controller Dip Switch

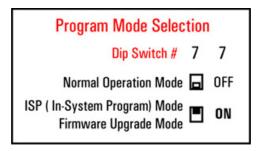
Aside from Controller addressing, the Controller dip switch is also used to configure Controller baud rate, enable system for firmware upgrade and to terminate the data transmission for longer cable runs.

Dip Switch	Function
1~4	Controller Address
5~6	Controller Baud Rate
7	Program Mode
8	Termination (RS-485)

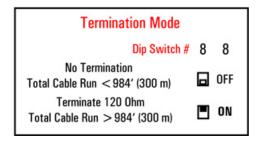
The baud rate used for Portal Card Access system is 9600, therefore dip switches 5 and 6 must be left in the OFF position on ALL Controllers in the network.



Dip switch 7 must be in the ON position *only* during the firmware update. For normal operation, dip switch 7 must remain in the OFF position.



Dip switch 8 is used when the total cable run in the daisy chain is longer than 984 ft (300 m). In this case, dip switch 8 must be in the ON position on the last Controller board in the chain, leave the dip switch in the OFF position for shorter cable runs. Dip switch 8 must stay in the OFF position at all times for all Controller boards except for the last one in the chain.





#### Warning

Electric door strike, magnetic lock, and all other peripheral devices must use external power supply. Although the Portal Card Access System comes with a power board (P-PWR-U023), it is designated for the Portal Controller board use ONLY.



A single transformer could be used for all Portal Controller boards in the network. The transformer rating needs to be adjusted according to the number of Portal Controller boards connected to it.

## 1.5. Connecting Controller to Power Board

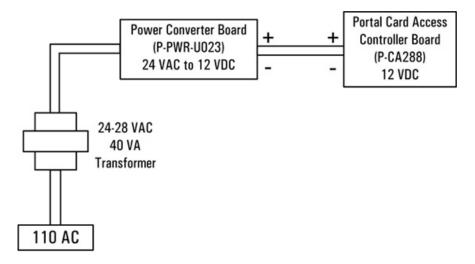
Power board converts the 24 VAC to 12 VDC. The Portal Controller board requires 10.8 to 13.2 volts DC and draws approximately 250mA.

Each Portal Card Access system comes with a Power board, pre-mounted inside the Portal chassis. Remember that the 24-28 AC, 40 VA, 1-3 Amp transformer is required to convert the 110 AC to 24 VAC accepted by Power board. Transformer is not shipped with the system and must be purchased separately by the installer.

Connect the 24VAC power transformer to the AC terminals on the Power board (P-PWR-U023). Then connect the Controller board (P-CA288) to the DC terminals on the P-PWR-U023. Follow the Card Access Controller Wiring Diagram to properly wire the Portal Controller board to Power board.

Next, install the 12V rechargeable battery (not included with the system) inside Portal Chassis. Connect the battery to the corresponding terminals on the Power board (P-PWR-U023). Note that each Portal Controller board requires a separate battery.

Complete these steps for each Portal Card Access panel.



# 1.6. Connecting RS-232 DB9 Cable to First Controller

Connect DB9 RS-232 cable (P-PORTALDB9) shipped with the system to the *first* Portal Controller board in the daisy chain. This cable will be later connected to the COM port on the Host PC in order to communicate with the installed Portal software application. Follow the Card Access Controller Wiring Diagram to properly wire the DB9 cable to the Controller board.

Complete this step only for the first Controller board in the network chain.

Follow the table below for maximum RS-232 cable runs. Since 9600 baud rate must be used with Portal Card Access system, the maximum RS-232 cable length may not exceed 150 feet (50 meters).

For longer cable runs, TCP/IP interface upgrade can be used. See section 1.6.1 TCP/IP Converter of the manual for more information.

Baud Rate	Maximum Cable Length (RS-232)
9,600	150 feet (50 meters)
19,200	50 feet (15 meters)
38,400	36 feet (12 meters)
115,200	12 feet (4 meters)

Communication to the host computer via RS-232 serial COM port.

RS-232 Controller to Host PC Connection			
Controller DB9 Connector DB25 Connector			
Tx	PIN 2	PIN 3	
Rx	PIN 3	PIN 2	
GND	PIN 5	PIN 7	

## 1.6.1. Serial to TCP/IP Converter Board

If Serial to TCP/IP converter board (I3-S2E) was purchased as a part of the optional system upgrade, you will need to connect the converter to the 5-pin ethernet connector on the Controller board. See Card Access Controller Wiring Diagram to locate the ethernet connector on the P-CA288 board. Then connect the Ethernet connector to Local Area Network and connect the Host PC to LAN as well.

Set the converter's IP address with the dedicated software application found on the software CD that is shipped with the system. During Portal Card Access System software installation enter the converter's IP address and port number in the Controller Connection setup. The default port number is **10001**.

## 1.6.2. Configuring IP Address for TCP/IP Converter

The IP address of the TCP/IP converter is configured with the Lantronix software that can be found on Portal Card Access System CD that is shipped in the accessory box.

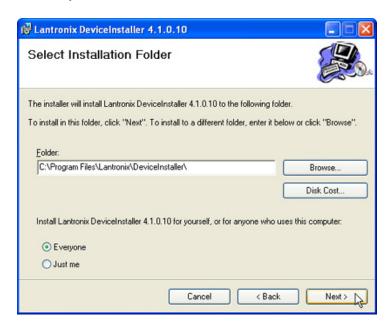
## Note

Skip this step if TCP/IP interface is used to connect first Controller to Host PC and go to section 1.6.1 for further instructions.

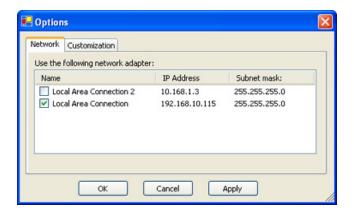
#### Follow these instructions to configure the IP address for TCP/IP converter:

- Connect the RJ45 network cable to LAN (switch, hub, etc.) on one side and to TCP/IP converter board on the other side.
- 2. Connect the TCP/IP converter board to the 5-pin connector on the Controller board.
- 3. Open the Portal Card Access System CD and locate Lantronix folder.
- 4. Double-click the **Launch.exe** file inside the Lantronix folder.
- 5. The Xport Direct Device Server wizard window will be displayed. Click on **DeviceInstaller** option.
- 6. Lantronix Device Installer wizard window will be displayed. Click **Next**.
- In Select Installation Folder screen, select installation drive and folder by clicking Browse... or keep the default installation folder (recommended).

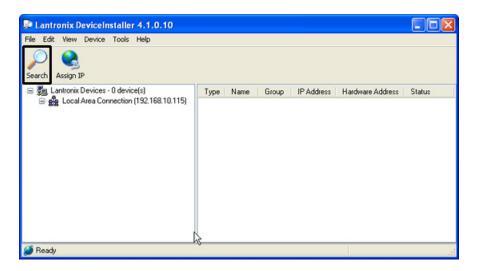
Select **Everyone** radio button and click **Next**.



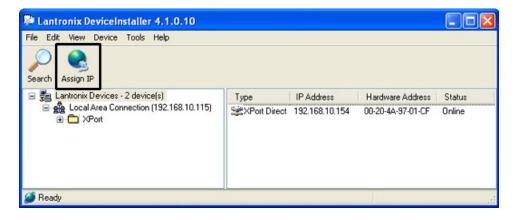
- 8. In Confirm Installation screen, click **Next** to proceed with the installation.
- 9. Wait while the Lantronix DeviceInstaller software is installing onto the local system.
- 10. Wait for the Installation Complete screen to be displayed and click **Close**.
- 11. **Go Start** -> **All Programs** -> **Lantronix** -> **DeviceInstaller** -> **DeviceInstaller** to launch the Lantronix DeviceInstaller application.
- 12. If you have multiple network adapters (network cards) on your PC, click **Yes** in the Multiple Network Adapters Present window, then check off the desired Local Area Connection to be used in conjunction with this application and click **OK**. This step does not apply if you have only one network adapter installed on your PC, the default available Local Area Connection will be selected automatically.



13. In the Lantronix DeviceInstaller application window, click the **Search** button to search for the TCP/IP converter on LAN.



14. The XPort Direct device will be displayed as shown in the image below. Write down the Hardware Address displayed for XPort Direct device in the right window pane, then click the **Assign IP** button.

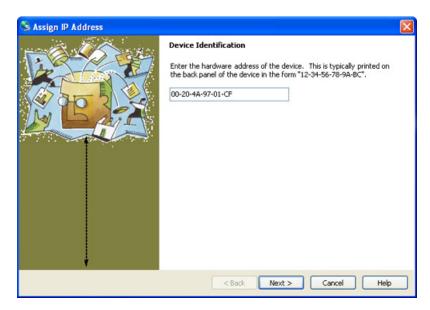




#### Tip

The Hardware Address is the MAC address, which is also printed on the TCP/IP converter device (I3-S2E).

15. In the Device Identification window, enter the Hardware Address noted in the previous step and click Next.



16. In the next window, select one of the two available options: **Obtain an IP address automatically** or **Assign a specific IP address** and click **Next**.

Select the first option to assign the IP address automatically, select the second option only if specific IP address is preferred.

If the first option is selected, simply click **Next** in the IP Discovery Settings window. If the second option is selected, enter **IP address**, **Subnet mask** and **Default gateway**, then click **Next**.

- 17. Click **Assign** button in the Assignment window and wait while the IP address is being assigned to the device.
- 18. Wait for the "Completed successfully" message to be displayed, then click Finish.
- 19. If the IP address was assigned automatically to the TCP/IP converter, make a note of the device IP address.
- 20. Close any Lantronix windows that may still be open.



#### Note

This step may also be completed after system mounting (section 1.2 of the manual )



All access cards (P-PORTALCARD) purchased from i<sup>3</sup>DVR are 46 bit i3DVR proprietary



#### Important

The cable run from the reader to Controller board must not exceed 1000 ft (305m). Shielded Straight 22 AWG 6 Stranded cable must be used for this connection.



Buzzer (optional) is used to sound local alarm in case of detected forced entry and door held open. Buzzer is also used to indicate that the card has been successfully read by the reader device.

## 1.7. Connecting Reader(s) to Controller

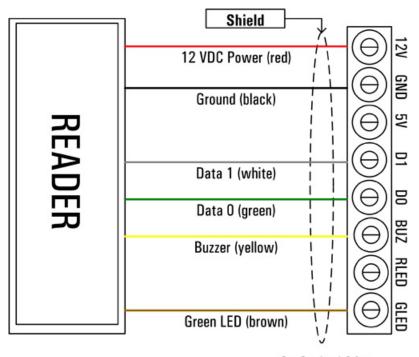
Each Portal Controller board supports up to 2 (two) proximity readers (P-ALADDIN24), readers A and B. The readers support Wiegand output, 26 bit and/or i3DVR proprietary format, 46 bit.

Follow the Card Access Controller Wiring Diagram as well as a wiring diagram below to properly connect each reader to Portal Controller board.

Complete this step for each Portal Controller boards.

#### Seven wires from each Reader must be connected to the Portal Controller board terminals:

Wire Color	Controller terminal	Purpose
orange	not used	cut and tape
violet	not used	cut and tape
blue	not used	cut and tape
red	12V	12VDC power
black	GND	ground
white	D1	Data 1
green	DO .	Data 0
yellow	BUZ	buzzer (optional)
brown	GLED	green LED
silver (shield)	shield	earth ground at panel



See Section 1.3 for grounding instructions

(j) Tip

To prevent interference, avoid mounting the readers back-to-back. Use shielding between back-to-back readers to prevent interferThe two supported readers may be used on two separate access points (doors) for the IN access to the premises or on a single access point (door) for IN access/OUT confirmation.

When installing two readers back-to-back on opposite sides of the wall at a doorway, interference may occur preventing the normal operation of the readers. Avoid installing the readers back-to-back, instead space them out along horizontal axis. In addition, insert metal between the back-to-back readers, for example, aluminum foil spread out in the space between the drywall, or a metal sheet (larger than the reader) between one reader and the wall behind it.

A metal shield behind a reader will shorten its read range in front of the reader.

Depending on whether readers are used on two or one access point (door), the designations for input and output devices will change. See Card Access Controller Wiring Diagram and sections 1.9 and 1.10 of the manual for more information.

Please also refer to Aladdin 24 Proximity Reader installation sheet for more instructions.



#### Note

Skip this step if only one (1) Portal Controller board is used.



#### Note

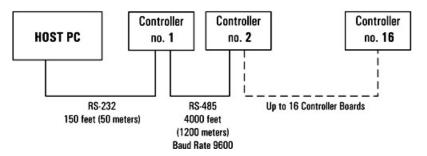
Up to 16 Controller boards can be used in a single network.

# 1.8. Connecting Multiple Controllers into a Network (RS-485)

Connect all Portal Card Access system into a single daisy-chain network. Follow the Card Access Controller Wiring Diagram to properly connect Controllers into a network. Use single twisted pair, shielded, 18 to 22AWG cable.

All used Controller boards must be connected into a daisy-chain network via RS-485 interface. The *first* Controller in the chain will be connected to the Host PC via RS-232 interface (See section 1.6 of the manual for more information). If the total RS-485 network cable run length exceeds 984 ft (300 m) but is still within allowed 4000 feet (1200 m), terminate the data transmission on *last* Controller in the chain with the dip switch #8. (See section 1.4.1 of the manual for more information)

Complete this step for the each Controller boards in the daisy chain.



Follow the table below for maximum RS-485 cable runs.

Baud Rate	Maximum Cable Length (RS-485)
9,600	4000 feet (1200 meters)
19,200	3000 feet (1000 meters)
38,400	3000 feet (1000 meters)

Communication between Controller boards via RS-485 connection.

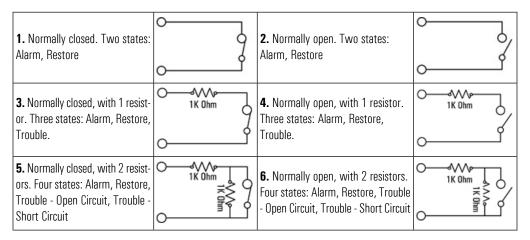
RS-485 Controller to Controller Connection		
Controller n	Controller n + 1	
G	G	
N (-)	N (-)	
P(+)	P(+)	

## 1.9. Connecting Inputs to Controller

Each P-CA288 Controller supports two sets (banks) of four inputs with one common terminal, one bank of inputs per each reader. Note that even if only one reader is used per Controller, all 8 inputs may still be used.

All inputs can be individually programmed in Portal software application via host PC.

## Six circuit types are supported. A log will be generated for each change of state in the Portal software application.



The Controller inputs are used for: **RTE** (**Request to Exit**) devices, **Door Contacts**, **Tamper**, **Low battery** and **Power failure** inputs as well as **General Purpose** inputs. Below is the standard wiring chart for both input banks. Follow this chart *exactly* to use the *Quick Setup* function when configuring the system inside Portal software application.

#### If each reader is used on a separate access point for IN access:

- Connect each reader's RTE device to AIN1 and BIN1 inputs on Controller board respectively. Skip this step if no RTE devices are used.
- Connect each reader's Door Contact to AIN2 and BIN2 inputs on Controller board respectively. Skip this step if no
  Door Contacts are used

Door Contact is a magnetic contact that is mounted on the frame of the controlled opening (e.g. door). Door contact is used to monitor the door status and to detect such occurrence as forced entry, door held open alarm/warning. The Portal software recognizes Door Contact states, generates emergency logs and uses the local alarm (if enabled) when forced entry or door held open is detected.

Only one Door Contact input should be used per access point (door), therefore if both readers are used on the same access point, only **AIN2** terminal should be used for Door Contact device.

- Connect **Tamper** input to **AIN3** input on Controller board. Portal Card Access chassis (P-PORTALCHASSIS) already
  comes with a N/C tamper switch for tamper detection, no additional hardware is needed. Skip this step if you choose
  not to use Tamper input.
- Connect Low battery sensor to AIN4 input on Controller board and to the appropriate terminals on Power board (P-PWR-U023). Skip this step if no Low battery input is used.

In case when a low battery level is detected by Power board (P-PWR-U023), **AIN4** Input on Controller board will be triggered and an emergency log will be generated by the Portal software.

 Connect Power Failure (AC) sensor to BIN3 input on Controller board and to the appropriate terminals on Power board (P-PWR-U023). Skip this step if no Power Failure input is used.

In case when AC power failure is detected by Power board (P-PWR-U023), **BIN3** Input on Controller board will be triggered and an emergency log will be generated by the Portal software.

Note that the compatible battery must be purchased and installed in order to keep the system online during the general AC power failure. If no battery is used with Portal Card Access system, AC power failure will be undetectable from the software point of view as no power will be available to trigger the corresponding sensor and to send information back to the host PC.

• Connect general purpose input devices to **BIN4** input on Controller board.

#### If both readers are used on the same access point for IN access/OUT confirmation:

- No RTE devices will be used
- Only one Door Contact will be used (AIN2 input) as only one door contact per access point is required
- Connect general purpose input devices to AIN1, BIN1 and BIN2 inputs on Controller board

#### Inputs – Bank A Request to Exit \* -AIN1 **Door Contact** AIN<sub>2</sub> Tamper AIN3 Low Battery AIN4 Inputs - Bank B Request to Exit \* -BIN1 Door Contact \* BIN<sub>2</sub> Power Failure BIN3 **General Purpose** BIN4

<sup>\* -</sup> when two readers are used on the same door, use as general purpose input

## 1.10. Connecting Outputs to Controller

Each P-CA288 Controller board supports two sets (banks) of relay outputs and two banks of electronic outputs split equally between two readers. Note that even if only one reader is used per Controller, all 8 outputs may still be used.

All outputs can be individually programmed in Portal software application via host PC.

The Controller inputs are used for: **Door Lock** contacts as well as **General Purpose** outputs. Below is the standard wiring chart for both output banks. Follow this chart *exactly* to use the *Quick Setup* function when configuring the system inside Portal software application.

#### If each reader is used on a separate access point for IN access,

• Connect Door Lock contacts for each reader to their respective relay Output 1 (**AOUT1** and **BOUT1**) terminals on Controller board. Skip this step if no Door Lock output is used.

Follow the Card Access Controller Wiring Diagram for instructions on how to connect door strike and/or magnetic lock to the Portal Controller board.

 Use relay Outputs 2 on both readers (AOUT2 and BOUT2) as well as all electronic Outputs (AOUT3, AOUT4, BOUT2, BOUT3, and BOUT4) terminals on Controller board for general purpose output devices. Follow the device specifications to properly connect them to the Portal Controller board.

#### If both readers are used on the same access point for IN access/OUT confirmation,

Use BOUT1 relay output terminal on Controller board for general purpose output since only one Door Lock output
per access point is required.

#### Outputs - Bank A

Relay Outputs A	Door Lock [ General Purpose [	AOUT1
Electronic Outputs A		AOUT3

### Outputs - Bank B

~ 0

1 _	Relay utputs B	_	Door Lock* General Purpose	[	BOUT1 BOUT2
3	Elect Outp		General Purpose	[	BOUT3
4 _	tronic uts E		General Purpose	[	BOUT4

\* - when two readers are used on the same door, use as general purpose output

Once all the above steps have been completed and carefully verified, apply power to the system.

#### 1

#### Caution

Please confirm with your local fire bylaw code before installing any door strike or magnetic lock

## Warning

Remember never to use Portal power board (P-PWR-U023) to power electric door strike, magnetic lock, and/or any other peripheral devices. External power supply must be used for all door lock outputs and general purpose output devices.

## 1.11. Installing Portal Software on Host PC

In order to program installed hardware and to operate the Card Access System, install Portal software onto the host PC.

#### **Host PC hardware requirements:**

- Window XP
- 512 RAM
- Pentium III, 500 MHz
- Super VGA Video Card
- 40 GB Hard drive
- CD/DVD drive
- COM or Serial port
- Network interface card if RS-232 is unavailable
- .NET Framework 3.0 installed (available on Portal software CD included with the system)

Host PC must be connected to the *first* Controller in the daisy chain network via RS-232 or TCP/IP (optional upgrade) connection.

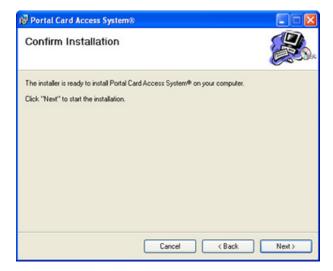
- Connect the P-PORTALDB9 cable to the serial COM port on the host PC. If the optional TCP/IP interface is used, connect the network cable from Portal TCP/IP converter to the RJ45 port on the motherboard or the network card of the host PC. Remember that the maximum RS-232 cable length may not exceed 150 feet (50 meters).
- 2. Locate and open the Portal software CD that was shipped with the Portal Card Access system.
- 3. Run the Portal software installation file: setup.exe.
- 4. In the first Setup Wizard window, click Next.



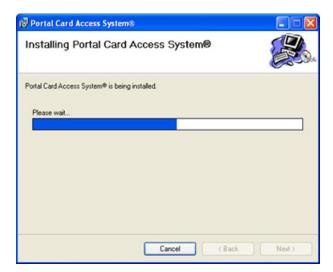
5. In the second Setup Wizard window, select the software installation folder by clicking **Browse** or leave the default installation folder. Select **Everyone** or **Just me** radio button to specify who will have access to Portal software application (if you have multiple users on your PC).



6. Click **Next** in the Confirm Installation window to proceed with the software installation.



7. Wait while the software is installing on the PC.



Tip
Company name may later be edited in the
Portal software setup.

8. Enter the  $\pmb{\text{Company name}}$  in the next window and click  $\pmb{\text{OK}}.$ 



9. Wait for the Installation Complete window to be displayed. Click **Close** to complete the installation.

## 1.12. Basic Portal Software Configuration

To interface the installed hardware with Portal Card Access System software, follow these instructions.

1. After the portal software was successfully installed onto your Host PC, locate the Portal Card Access System software



icon on the Desktop and launch the software application. System®

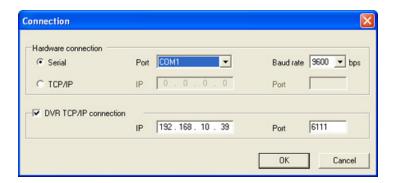
2. In the login window, enter the default user name and password: i3dvr / i3dvr



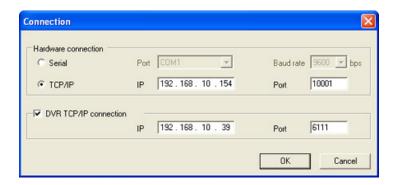
3. Click **Yes** in the System setup window to configure hardware connection settings.



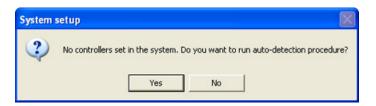
- 4. The Connection window will be displayed. Configure the connection type to either Serial, if RS-232 connection is used between host PC and the Controller, or to TCP/IP if the converter board (I3-S2E) is used.
  - a. For Serial connection, select the serial **COM** port used for RS-232 connection. Make sure that **9600** baud rate is selected, to match Controller setting.



b. For TCP/IP connection, enter the **IP address** and the **Port** number of the converter. The default port number is **10001**. See section 1.6.2 of the manual for information on how to configure IP Address for TCP/IP Converter.



5. Click Yes in the next System setup window to auto-detect all Controllers connected to the host PC.



6. Wait while Portal software checks for connected Controllers.



7. Click **Setup** button next to the first detected Controller to configure it.



Quick Controller Setup Important: Default wiring instructions must be followed to use quick setup. Genera Controller 1 SE Corner Address Access points per controller 2 (one reader per door)
 1 (two readers per door) Access Point A Access Point B South Door East Door Request To Exit (RTE) ▼ Request To Exit (RTE) ▼ Door Contact (DC) ▼ Door Contact (DC) Door Lock ▼ Door Lock Other functions ▼ Tamper ✓ Low battery Power failure Advanced Setup OK Cancel

8. Quick Controller Setup window will be displayed.



To use this setup window, you must abide by default wiring recommendations in sections 1.9-1.10 of the manual. If the devices were wired differently, use Advanced Setup.

- a. Name the Controller. It is good practice to name the Controller according to its physical location in the facility. This will simplify the servicing procedure later on.
- b. Depending on whether both readers are used on the same access point (door) or on different doors, select the appropriate radio button in **Access points per Controller**. If **1 (two readers per door)** option is selected, Access Point B will be disabled below as well as RTE device for Access Point A (since Reader B will be essentially used as RTE device).
- c. Check off all the devices connected to Access Point A and/or B: Request to Exit, Door Contact, and Door Lock.

If both readers are being used on the same door, make sure to wire Door Contact input and/or Door Lock output to Reader A.

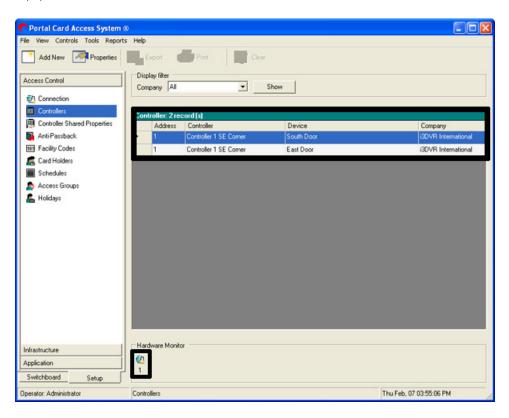
Note that to be able to check these devices in the Quick Setup, you must abide by default wiring recommendations in section 1.9-1.10 of the manual.

d. Check off all used devices under **Other functions category**: Low battery, Power failure, Tamper.

Please note that an additional battery must be purchased to use **Low battery** and **Power failure** functions. Portal Card Access chassis (P-PORTALCHASSIS) comes with a N/C tamper switch for **Tamper** detection. All these inputs must be properly connected to the Controller board in accordance with wiring recommendations in sections 1.9-1.10 of the manual.

- e. Click **OK** once the Controller setup is complete.
- f. Repeat above steps for all detected Controllers.

9. The configured access points will be added as separate entries in the **Controller** setup. The Controller panel will be displayed in the **Hardware Monitor** below.



This completes the Controller installation. See Portal Card Access System software manual for more setup information.

## 1.13. Tips and Reminders

- Ground each Portal Chassis (P-PORTALCHASSIS) to Earth Ground.
- Do not exceed recommended cable lengths specified in this manual.
- The RS-485 network must be connected as a daisy chain.
- When Portal Card Access system has more than one Controller and the RS-485 cable run exceeds 300 m turn dip switch 8 to the ON position on the *last* Controller board in the daisy chain.

# **Appendix**

### **Topics Covered**

- Portal Card Access System Specifications
- Status LED's and Reset Button
- Glossary

## 2.1. Portal Card Access System Specifications

- Power Requirements: 12 VDC
- Current Consumption per Controller: 250mA
- Flash ROM: 64 Kbytes
- Firmware Upgrade from PC: supports In-System Program (ISP) via RS-232
- Number of Readers supported per Controller: two (2): Wiegand 26 bit format or i3DVR proprietary 46 bit format
- Number of Controllers per Network: sixteen (16)
- Cardholder Database Capacity: 2000 cards
- Event Log Capacity per Controller: 2000 events
- Network Connection: RS-232: Controller to Host PC

RS-485: Controller to Controller

- Control Outputs: four (4) form C dry contact relay outputs and four (4) electronic outputs
- Sensor Inputs: eight (8) digital inputs
- Real Time Clock (RTC) Support: battery backup on Controller
- **Portal Chassis Dimensions:** 14" H x 11 ¾ " W x 3 ¼" D (35.56 cm H x 29.85 cm W x 8.26 cm D)
- Operating Temperature:  $0^{\circ}$  to  $70^{\circ}$  C ( $35^{\circ} \sim 150^{\circ}$  F)
- Operating Humidity: 20 to 80% RH (non-condensing)

Chapter 2. Appendix Status LED's and Reset Button

## 2.2. Status LED's and Reset Button

There are five LED light indicators that are visible on the Portal Card Access chassis. (See Card Access Controller Wiring Diagram)

#### From left to right:

**LED 9:** Power ON

**LED 8:** RS-232 Receive (Rx) **LED 7:** RS-232 Transmit (Tx)

**LED 6:** RS-485 Receive (Rx) **LED 5:** RS-485 Transmit (Tx)

Reset Button is used to erase RAM

## 2.2.1. Firmware Update

Portal Card Access system is always shipped with the newest available firmware and does not need a firmware update. However, in the unlikely event that the firmware will need to be upgraded in the future, follow the instructions below.

For firmware update, use Philips LPC2000 utility located on the software CD shipped with your Portal system.

Firmware may only be updated via RS-232 connection, therefore in case of a network with multiple Portal Controllers, you may only upgrade firmware of the *first* Controller on the network through the Host PC. To upgrade the firmware on the remaining Controllers, it is recommended to use a portable laptop with previously installed Philips LPC2000 utility.

- 1. Connect the serial COM port on the laptop to the RS-232 port on the Controller.
- 2. Run the Philips LPC2000 Flash utility on the laptop.
- 3. In the utility, select the correct COM port number.
- 4. Turn the dip switch 7 to the ON position on Controller board.
- 5. Click **Read Device ID** button in the LPC2000 utility. A popup window will be displayed with the following message: "Please reset your LPC2000 board now and then press OK!".
- 6. Press down the **Reset Button** on the Controller board for 3 seconds, and click **OK**, the status will display: "Read Part ID Successfully."
- Locate and select the \*.hex firmware file to be uploaded. For example: D:\CardAccess\cardAsw\CA20070307\ca4.hex
- 8. Click **Upload to Flash**; wait for status to change to "File Upload successfully completed"
- 9. Turn the dip switch 7 to the OFF position on Controller board.
- 10. Press down the **Reset Button** on the Controller board for 3 seconds again. This completes Controller firmware upgrade.

Important

If TCP/IP Converter board (I3-S2E) is used with the Controller board, it must be disconnected from Controller board (P-CA288) before firmware can be uploaded.

Chapter 2. Appendix Glossary

## 2.3. Glossary

**Access Card** - a card used in conjunction with a Reader to grant or deny access. Two access card formats are supported by Portal Card Access system: Wiegand 26 bit (less secure) and i<sup>3</sup>DVR proprietary 46 bit (more secure). The cards for Portal Card Access must be ordered from i<sup>3</sup>DVR International.

Access Point - a controlled opening (e.g. door). One or two readers may be used per access point.

**Controller (Board)** - the "brain" of the Portal Card Access System. Each board accepts a maximum of 2 readers and 8 digital inputs. The Controller contains 4 form C dry contact relay outputs and 4 electronic outputs. The board establishes a two-way communication with Portal Card Access software via Serial or TCP/IP communication. The Controller board ID is assigned by the Controller ID dip switch.

**Controller ID Dip Switch** - located on the Controller and used to assign ID number to the Controller, set the Controller baud rate, set the Controller to firmware upgrade mode and to terminate data transmission in case of a longer cable run.

**Door Contact** - a magnetic contact mounted on the frame of the controlled opening. Door Contact should be connected to AIN2 and BIN2 input terminals on the Controller board. Only one Door Contact should be used per access point (door), therefore if both readers are used on the same access point, only AIN2 terminal should be used for Door Contact input.

**Electronic Locking Device** - releases when a valid access card is presented to the reader. One Door Lock output must be enabled for each access point. Only one electronic locking device should be used per access point (door), therefore if both readers are used on the same access point, only AOUT1 terminal should be used for electronic locking device output.

**Network** - consists of linear-connected Controller boards (daisy-chain network). A single network supports up to 16 Controller boards and up to 32 readers. Controller board network can be connected to the user PC or DVR via serial or TCP/IP connection. The latter requires a converter.

**Reader (Card Reader)** - a hardware device that is connected directly to the Controller board and is mounted **outside and/or inside** of the secured area (door/cage). Each Controller board accepts a maximum of two readers, Reader A and Reader B.

**Request to Exit (RTE)** - a device that is connected directly to the Controller board's input terminal and is mounted **inside** the secured area (e.g. an exit button, motion detector, etc.). RTE device allows releasing the door without having to scan the card.

