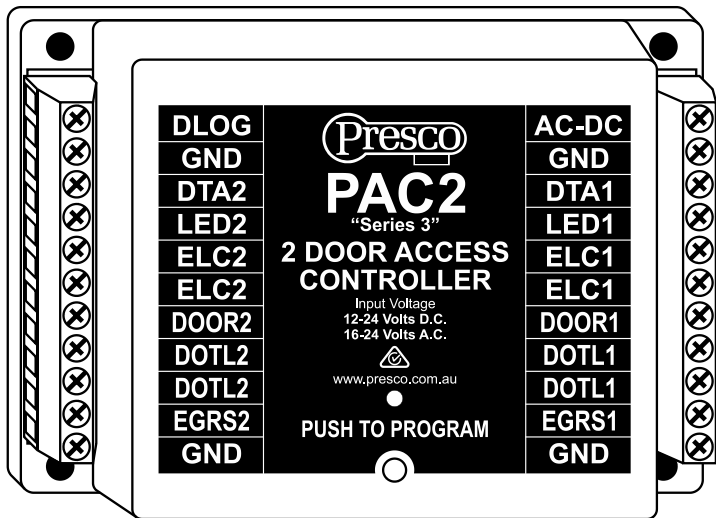




# PAC2

## Dual Door Access Controller "Series 3"

# INSTALLATION MANUAL



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## **INTRODUCTION**

The Presco Digital Door Access Decoder utilises the latest microprocessor technology to operate most electric door locking devices on the market. The decoder together with an encoder (Presco keypad (PSK16, PSC16, PTKR, VR43 or VR62) or a Presco Interface Module (PIM) with a Clock & Data (magnetic card format) or Wiegand output reader) offers access control to restricted areas.

## **FEATURES**

- Split system for maximum security (Encoder & Decoder).
- Door Forced Open detection.
- Door Open Too Long (DOTL) function.
- EGRESS function.
- Automatic door relock function.
- Easy on site programming using any Presco keypad.
- 800 client programmable users.
- Two Heavy Duty 5 Amp. relay contacts for lock control.
- Can operate Fail Safe or Fail Secure electronic locking mechanisms.
- Two 1 Amp Normally Open DOTL Alarm relay output.
- 10 year non volatile EEPROM memory.
- 36 month (3 year) manufacturer's warranty.
- Designed and manufactured in Australia.

## **CHANGES FROM SERIES 2**

1. The PAC2 now supports 800 user codes.
2. Egress inputs can now be programmed as edge triggered (momentary only) so that keeping the Egress input triggered will not keep the door open permanently.
3. User code programming has been simplified (refer to the supplied User Code Programming Manual).
4. Bulk adding of users is now supported.
5. Can be set to Series 2 compatible mode for use with existing PACDL installations.
6. Two Codes Mode is now called High Security Mode.
7. One DTA input (keypad or prox reader) can be used to control both doors or both DTA inputs can be used to control door 1. Refer to the DTA Input to Door Control section on page 8 for more information.

## **SPECIFICATIONS**

Voltage:	11-30 Volts D.C.
(absolute min-max) <sup>1</sup>	14-28 Volts A.C.
Current:	200 mA D.C. max.
	240 mA A.C. max.
<u>ELC</u> contacts:	30 Volt, 5 Amp A.C./D.C. SPST.
( <u>E</u> lectric <u>L</u> atch <u>C</u> ontrol)	Programmable as N.O. or N.C.
<u>DOTL</u> contacts:	30 Volt, 1 Amp A.C./D.C. SPST.
( <u>D</u> oor <u>O</u> pen <u>T</u> oo <u>L</u> ong)	
Operating Temperature:	0°C to 70°C.
Size:	104mm x 72mm x 27mm.
Weight:	150gms.

<sup>1</sup> Operating the unit at a voltage outside the specified range may cause intermittent operation or result in damage to the unit.

## TERMINAL DESCRIPTIONS

A general description for each terminal type is given below. An **x** has been used in place of a **1** or **2** where a terminal performs the same function for door 1 and door 2.

- GND** Negative input (or ground) from the power supply.
- AC-DC** A.C. 16 - 24 Volt or D.C. 12 - 24 Volt positive input from the power supply.
- DTAx** Data line to encoder (white wire on keypads).
- LEDx** Output to drive a LED to indicate door unlocked.
- ELCx** (Electric Latch Control) 5 Amp relay output. The ELC relay is used to control the door locking/release mechanism. The relay can be programmed as either Normally Open for **fail secure** applications (power applied to **open** door) or Normally Closed for **fail safe** applications (power applied to **lock** door).
- DOORx** This input requires a normally closed switch connected to ground, typically a reed switch attached to the door. The DOOR input is used by the PAC2 to monitor when the door is physically open (not unlocked). In order to use this input, it must first be enabled (via memory 84, refer to page 17) and a normally closed (when the door is closed) door switch (or monitored lock contacts) must be connected between DOOR and GND. The DOOR input is used to detect when the door has been opened for use by the door forced open, Door Open Too Long and automatic relock functions.

- DOTLx** (Door Open Too Long) 1 Amp Normally Open relay output, operates when a DOTL or Door Forced Open alarm condition occurs.
- EGRSx** The EGRESS input can take either a normally open or normally closed switch between EGRESS and GND. When this input is activated the ELC relay will come on and remain on for the time that the EGRESS input is on. Once the EGRESS input is released the timing set for ELC will begin. The other selected features of the PAC2 (DOTL, Door Forced Open & Automatic Relock) will also become active at this time. Therefore, the EGRESS input can be used to hold the door open indefinitely with the use of a toggle switch, or with the use of a momentary type switch it can be used to release the door for a set time in exactly the same way that a momentary user code does.
- DLOG** Data input/output for connection to an optional PEL1 event logger or a PACDL when in Series 2 Compatible mode.



## PROGRAMMABLE FEATURES DESCRIPTION

### **Automatic Relock Function**

When the DOOR input is used then the Automatic Relock function can be used. This feature turns the ELC relay off 1 second after the door is opened (not unlocked) when a momentary code or the EGRESS input has been used (no matter how long the time for the ELC relay operation has been set for in memory 83). The purpose of this feature is to stop people following someone through the door by ensuring that the door locks once it closes.

### **Door Open Too Long**

The DOTL timer is used to warn if the door has been held open for too long after a valid access (either via a code or EGRESS). When the door has been opened a countdown timer is started (the time set in memory 85, refer to page 18). If the door has not closed again by the time this counter expires then the DOTL output will activate (contacts will close) and will remain active until the door is closed. **Note** that if a value of 0 has been set for the DOTL time then the door is allowed to remain open indefinitely.

### **Door Forced Open**

A door forced open condition is defined by the situation where the door has been opened but a code or EGRESS has not been used to gain access. When this condition occurs the DOTL output will activate (contacts will close) and will remain active for 30 seconds or until the door is closed again (whichever is the **longer** time). **Note** that the Door Forced Open feature must be disabled (set in memory 86, refer to page 18) if a free (unmonitored) inside door handle is used instead of an EGRESS button. When this feature is disabled the Door Open Too Long timer will be started when the PAC2 detects the door has been opened.

## One Minute Lockout

To increase security the PAC2 can be set to lock out all codes for a period of 1 minute after 5 incorrect codes have been tried (set in memory 87, refer to page 18). **Note** that this feature should not be enabled if access must be guaranteed in an emergency situation.

## High Security Mode

The PAC2 can be set up to operate in one of the four modes described below.

### Normal Mode (High Security Mode Disable)

Any one of the programmed user codes will operate the ELC relay.

### Any Two User Codes

Any two of the programmed user codes must be used together to operate the ELC relay.

### Code 000 or 001 and any other user code

The user code stored in memory 000 or 001 used together with any other valid user code will operate the ELC relay.

### Sequential Memory User Codes

Two user codes in sequential memory locations must be used together to operate the ELC relay. The paired code locations start with an even number, e.g. 000 & 001, 056 & 057, 138 & 139, etc.

**IMPORTANT NOTE:** When the PAC2 is set up to use any of the high security modes above, the ELC relay will only operate in ***Momentary (timed) Mode*** even if the codes are programmed as Toggle codes.

## **DTA Input to Door Control**

Normally the DTA1 input controls door 1 and the DTA2 input controls door 2. The Series 3 PAC2 allows for 2 new options of how the DTA inputs control the door outputs.

1. Either one of the DTA inputs can be used to control both outputs depending upon the code entered (or prox card/tag used). If the code is valid only for one of the doors (disabled for the other door) then that door will operate. If, however the code is valid for both doors then it will operate both doors at the same time using just the one code (or prox card/tag).
2. Both DTA inputs operate door 1. This option will only be useful in one of the following two scenarios.
  - a. A door has entry and exit keypads or prox readers, the PAC2 is connected to a PELSA1 or PEL1 Event Logger and a log of whether people are entering or exiting is required.
  - b. A door has entry and exit keypads or prox readers and different codes are required depending upon whether someone is entering or exiting.

Using this mode simplifies the wiring as only door 1 needs to be wired, thus eliminating the confusion often caused by trying to wire both door outputs to control the one physical door. It also allows the door input to be used to correctly detect door forced and door open too long events as well as implement automatic relock.

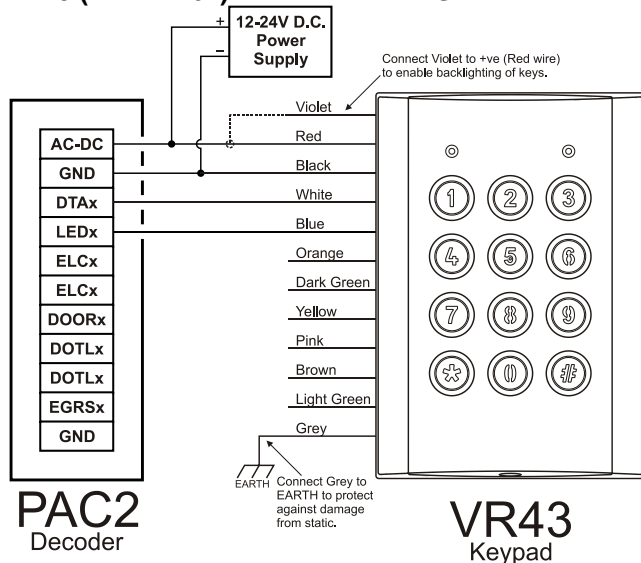
## INSTALLATION

Read all instructions carefully before installing, programming and using the system. It is vital that all power be disconnected during wiring.

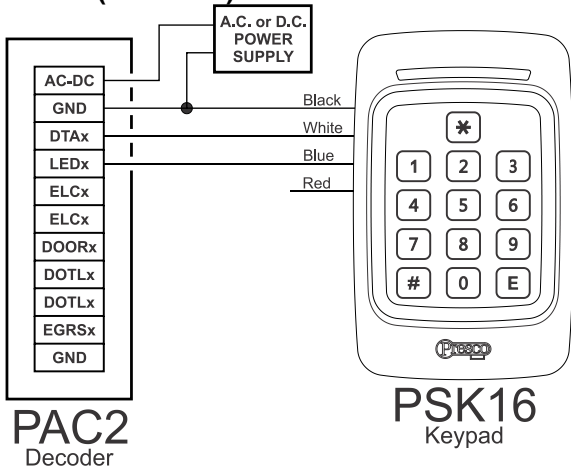
To maximise security, ensure that the decoder and encoder components are separated, and that the decoder is inaccessible to persons outside the restricted area. The decoder should be installed indoors and in a dry secure place. The maximum distance of separation between the decoder and encoder is 1 kilometre.

The wiring diagrams for installation are on the following pages.

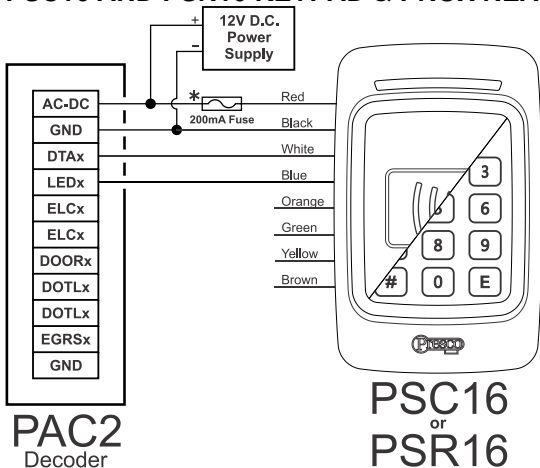
### VR43 (AND VR62) KEYPAD WIRING



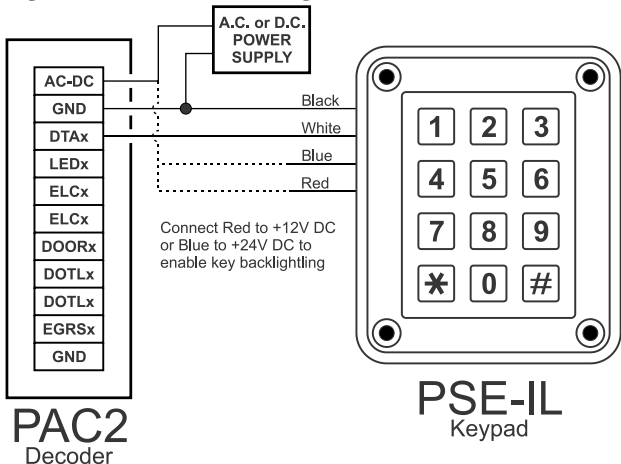
## PSK16 (AND PRE) KEYPAD WIRING



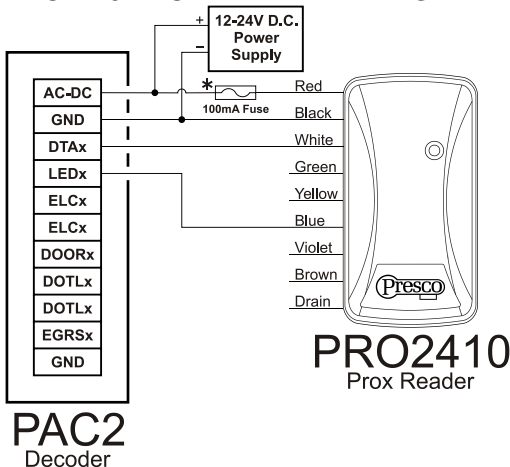
## PSC16 AND PSR16 KEYPAD & PROX READER WIRING



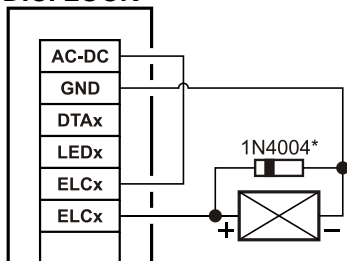
## PSE-IL KEYPAD WIRING



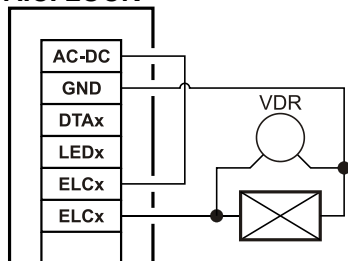
## PRO2410 PROX READER WIRING



## D.C. LOCK

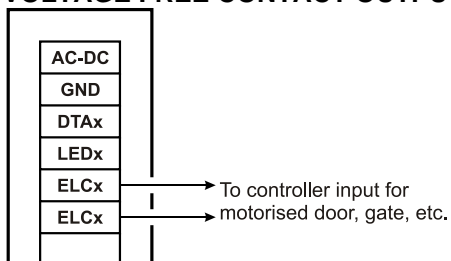


## A.C. LOCK

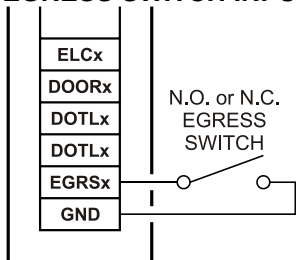


\* Use 1N4004 diode only when using a Door Strike, not a Magnetic Lock or Drop Bolt.

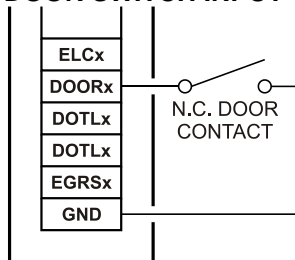
## VOLTAGE FREE CONTACT OUTPUT



## EGRESS SWITCH INPUT



## DOOR SWITCH INPUT



## PROGRAMMING

The most common method of programming is using a Presco keypad connected to DTA.

Alternatively, a PEL1 or PIM connected to DLOG can be used.

To enable programming with a keypad the PAC2 must first be put into program mode. This is accomplished by pressing the program button located in the bottom centre of the PAC2 below the "PUSH TO PROGRAM" text. When the program mode is entered the LED above the program button in the PAC2 will light up. Pressing the program button again will take the PAC2 out of program mode.

The PAC2 will remain in program mode for a period of 5 minutes after the button has been pressed. Each time the keypad is used to successfully enter information the 5 minute timeout period is restarted.

The PAC2 can be forced to exit program mode from the keypad by simply entering **# 9 9 E**.

When the PAC2 is in program mode the green or blue LED on an attached PSK16, PSC16, PTKR, VR43 or VR62 keypad will flash at a rate of once per second (provided it has been wired as shown in the wiring diagrams on pages 9 & 10).

Programming of memories 80 to 89 via a keypad use the following sequence:-

**\* "2 digit memory number" "door number"**  
**"memory value" E**

Programming of memories 90 to 99 via a keypad use the following sequence:-

**\* "2 digit memory number" "memory value" E**



## IMPORTANT NOTE.

The “**door number**” shown in the programming sequences must be replaced by a **1** for door 1 or **2** for door 2.

## KEYPAD RESPONSES

- warble (ringing) = successful programming operation finished.
- long beep = unsuccessful operation.

**NOTE** all keys in a sequence (up to and including the **E**) must be pressed within 10 seconds of each other. If incorrect keys are pressed wait 10 seconds and then enter the sequence again.

## USING A PRESCO KEYPAD WITHOUT **E** KEY

When using a keypad that does not have an **E** key (VR43, VR62, PTKR or PSE), simply use the **#** key instead of **E** at the end of the sequence, all other steps remain the same.

## DELETE ALL USER CODES.

All the user codes memories (000 to 799) can be cleared by the use of the following sequence.

**# 8 7 6 5 E**

## RESET TO FACTORY DEFAULTS.

The PAC2 can be reset to factory defaults by the use of the following sequence.

**# 8 7 6 5 4 3 2 1 E**

**WARNING:** Using this code will delete all user codes, the management code and reset memories 80 to 99 back to their factory default settings.

## BASIC SETUP SEQUENCE

- 1/ Enable/Disable SERIES 2 COMPATIBILITY (Currently disabled). [Memory 99, page 21]
- 2/ Select ELC RELAY TYPE (Currently N.O.). [Memory 82, page 17]
- 3/ Select EGRESS switch type (Currently N.O. level triggered). [Memory 81, page 16]
- 4/ Set ELC OPERATE TIME (Currently 10 seconds). [Memory 83, page 17]
- 5/ Enable/Disable DOOR INPUT (Currently disabled). [Memory 84, page 17]
- 6/ Set Door Open Too Long time (Currently 60 seconds). [Memory 85, page 18]
- 7/ Enable/Disable DOOR FORCED OPEN DETECTION (Currently enabled). [Memory 86, page 18]
- 8/ Enable/Disable AUTOMATIC RELOCK (Currently enabled). [Memory 80, page 16]
- 9/ Enable/Disable 1 MINUTE LOCKOUT (Currently disabled). [Memory 87, page 18]
- 10/ Enable/Disable HIGH SECURITY MODE (Currently disabled). [Memory 88, page 19]
- 11/ Set HIGH SECURITY MODE TIMING, if enabled in step 9 above (Currently 60 seconds). [Memory 89, page 19]
- 12/ Enable/Disable MOMENTARY CODES TURN OFF TOGGLE (Currently disabled). [Memory 91, page 20]
- 13/ Set DTA INPUT TO DOOR CONTROL (Currently each DTA input controls its door). [Memory 98, page 20]

## Automatic Relock

Memory 80

### (Factory Default: Enabled)

Disabling the Automatic Relock function prevents the ELC relay output from deactivating 1 second after the door is opened. This function is only valid when the DOOR input is being used.

To disable the Automatic Relock function...

**\* 8 0 "door number" 0 E**

To enable the Automatic Relock function...

**\* 8 0 "door number" 1 E**

## EGRESS Switch Type

Memory 81

### (Factory Default: Normally Open Level Triggered)

Either a normally open or normally closed EGRESS switch setting may be selected.

To set the EGRESS switch input to N.O. level triggered...

**\* 8 1 "door number" 0 E**

To set the EGRESS switch input to N.C. level triggered...

**\* 8 1 "door number" 1 E**

To set the EGRESS switch input to N.O. edge triggered...

**\* 8 1 "door number" 2 E**

To set the EGRESS switch input to N.C. edge triggered...

**\* 8 1 "door number" 3 E**

When level triggered is selected the door will remain unlocked whilst the egress is activated (button held on), once the input is released normal ELC timing will start.

When edge triggered is selected the door will unlock only for the time set for ELC regardless of how long the egress input is active for (button held on).

## ELC Relay Type

Memory 82

### (Factory Default: Normally Open)

The electronic latch control (ELC) relay can be set to operate as either Normally Open (N.O.) for fail secure or Normally Closed (N.C.) for fail safe.

To set the ELC relay type to normally open...

**[\*]** **[8]** **[2]** “door number” **[0]** **[E]**

To set the ELC relay type to normally closed...

**[\*]** **[8]** **[2]** “door number” **[1]** **[E]**

## ELC Operating Time

Memory 83

### (Factory Default: 10 seconds)

The electronic latch control (ELC) relay can be set to operate for 1 second to 255 seconds in 1 second increments.

To change the ELC operate time...

**[\*]** **[8]** **[3]** “door number” “the time in seconds” **[E]**

## Door Input Enable

Memory 84

### (Factory Default: Disabled)

If the “Door Open Too Long” and “Door Forced Open” functions are required, then the input from the door switch must be enabled. Note: enable only if your door has a reed switch or the latch is monitored.

To disable the door input...

**[\*]** **[8]** **[4]** “door number” **[0]** **[E]**

To enable the door input...

**[\*]** **[8]** **[4]** “door number” **[1]** **[E]**

## Door Open Too Long Timer

Memory 85

**(Factory Default: 60 seconds)**

The time allowed for the door to be open before a DOTL alarm is generated can be set from 1 to 9999 seconds. A time of zero seconds will disable this function.

To change the DOTL time...

**\* 8 5 “door number” “the time in seconds” E**

Note that time of 0 seconds will disable the DOTL function.

## Door Forced Open Detection

Memory 86

**(Factory Default: Enabled)**

Disabling the Door Forced Open function prevents the DOTL output from activating (contacts closing) when the door is opened without a valid code or EGRESS switch having been used.

To disable Door Forced Open Detection...

**\* 8 6 “door number” 0 E**

To enable Door Forced Open Detection...

**\* 8 6 “door number” 1 E**

## One Minute Lockout

Memory 87

**(Factory Default: Disabled)**

Enabling the 1 minute lockout function means that the system will not accept any codes for 1 minute after 5 successive invalid codes have been entered.

To disable the one minute lockout...

**\* 8 7 “door number” 0 E**

To enable the one minute lockout...

**\* 8 7 “door number” 1 E**

## High Security Mode

Memory 88

### (Factory Default: Normal Mode)

The high security mode memory is used to select the mode that the PAC2 operates in. The value programmed into memory 88 selects either Normal Mode, Any Two User Codes, Code 000 or 001 and any other user code or Sequential Memory User Codes. For a description of each of these operating modes refer to the **High Security Mode** section on page 7.

To select Normal Mode (High Security Mode Disabled)...

\* 8 8 “door number” 0 E

To select Any Two User Codes mode...

\* 8 8 “door number” 1 E

To select Code 000 or 001 and any other user code mode...

\* 8 8 “door number” 2 E

To select Sequential Memory User Codes mode...

\* 8 8 “door number” 3 E

**IMPORTANT NOTE:** When the PAC2 is set up to use any of the high security modes above (not Normal Mode) the ELC relay will only operate in **Momentary (timed) Mode** even if the codes are programmed as Toggle codes.

## High Security Mode Timing

Memory 89

### (Factory Default: 60 seconds)

If the PAC2 is set up to operate in any of the High Security Modes above, then the two codes must be entered within the time specified in memory 88. This time may be set between 1 and 255 seconds.

To set the time allowed between two codes...

\* 8 9 “door number” “the time in seconds” E

## Momentary Codes Turn Off Toggle (Factory Default: Disabled)

Memory 91

When a toggle (latching) code has been used to unlock the door and keep it unlocked, a toggle code must be used again to relock it. If this memory is enabled, then any programmed user code (momentary or toggle) can be used to relock the door. **Note** that this will affect both doors.

To disable momentary codes from turning off toggle...

\* 9 1 0 E

To Enable momentary codes to turn off toggle...

\* 9 1 1 E

## DTA Input to Door Control

Memory 98

(Factory Default: Each DTA inputs controls its door)

This memory determines how codes received from each of the DTA inputs controls the doors. For more information about this setting refer to the “DTA Input to Door Control” section on page 8.

To select each DTA input to control its corresponding door...

\* 9 8 0 E

To select either one of the DTA inputs to control both doors...

\* 9 8 1 E

To select both DTA inputs to control door 1...

\* 9 8 2 E

## Series 2 Compatibility

## Memory 99

### (Factory Default: Disabled)

Enabling this memory forces the PAC2 Series 3 to become a Series 2 version for compatibility when used with a PACDL. When this memory is enabled the number of user codes is reduced to 400, the Egress Switch Type (mem 81) cannot be Edge Triggered and Momentary Code cannot turn off toggle (mem 91).

To disable Series 2 compatibility...

\* 9 9 0 E

To enable Series 2 compatibility...

\* 9 9 1 E



## INSTALLATION PROGRAMMING SUMMARY

**Note:** The **d** shown in the programming sequences must be replaced by a **1** for door 1 or **2** for door 2.

**Enable/Disable Automatic Relock.** (default = enabled)

\* 8 0 d x E. x = 0 for disabled,  
x = 1 for enabled.

**Select EGRESS switch type.** (default = N.O.)

\* 8 1 d x E. x = 0 for N.O. level,  
x = 1 for N.C. level,  
x = 2 for N.O. edge,  
x = 3 for N.C. edge.

**Select ELC relay type.** (default = N.O.)

\* 8 2 d x E. x = 0 for N.O. (fail secure),  
x = 1 for N.C. (fail safe).

**Set ELC operating time.** (default = 10 seconds)

\* 8 3 d xxx E. xxx = 1 to 255 (seconds).

**Enable/Disable DOOR input.** (default = disabled)

\* 8 4 d x E. x = 0 for disabled,  
x = 1 for enabled.

**Set DOTL timer.** (default = 60 seconds)

\* 8 5 d xxxx E. xxxx = 0 to 9999 (seconds).

**Enable/Disable Door Forced detection.** (default = enabled)

\* 8 6 d x E. x = 0 for disabled,  
x = 1 for enabled.

**Enable/Disable 1 minute lockout. (default = disabled)**

\* 8 7 d x E. x = 0 for disabled,  
x = 1 for enabled.

**Select High Security Mode. (default = Normal Mode)**

\* 8 8 d x E. x = 0 for Normal Mode,  
x = 1 for Any Two User Codes,  
x = 2 for Code in 000 or 001 and  
any other,  
x = 3 for Sequentially Stored User  
Codes.

**Set High Security Mode timing. (default = 60 seconds)**

\* 8 9 d xxx E. xxx = 1 to 255 (seconds).

**Enable/Disable Momentary Codes Turn Off Toggle. (default = disabled)**

\* 9 1 x E. x = 0 for disabled,  
x = 1 for enabled.

**Select DTA Input to Door Control. (default = 0)**

\* 9 8 x E. x = 0 for each DTA input controls its  
own door,  
x = 1 for both doors controlled from  
either DTA input,  
x = 2 for both DTA inputs control  
door 1.

**Enable/Disable Series 2 compatibility. (default = disabled)**

\* 9 9 x E. x = 0 for disabled,  
x = 1 for enabled.

**Exit Program Mode.**

# 9 9 E.

## **WARRANTY**

The manufacturer will replace or repair this product if proven to be faulty (excluding accidental or malicious damage) under the 36 month warranty offered from the date of purchase.

As NIDAC Security Pty. Ltd. or its agents do not perform the final installation, inspection or training in the use of this product, they cannot be held liable for injury, loss or damage directly or consequentially arising from the use or misuse of this product.

The software design of the NIDAC Presco is protected internationally. Design improvement and specification changes are subject to change without notice. All designs are copyright protected.

## **ACCESSORIES AND OTHER MODELS**

- PSK16** Indoor keypad for Presco decoder.
- PSR16** Indoor proximity reader.
- PSC16** Indoor combo keypad & proximity reader.
- VR43** 4x3 Surface Mount vandal and weather resistant keypad.
- VR62** 6x2 Surface Mount architrave style vandal and weather resistant keypad.
- PSE** 4x3 Semi Flush Mount vandal and weather resistant keypad for Presco decoders.
- PRO2410** Indoor/Outdoor Proximity reader.
- PIM** Interface Module for Dallas iButton, Clock & Data (Magnetic Card) or Wiegand readers.
- PAC1** Single Door Access Controller with 600 users.



Designed and Manufactured by:

**NIDAC SECURITY PTY. LTD.**

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