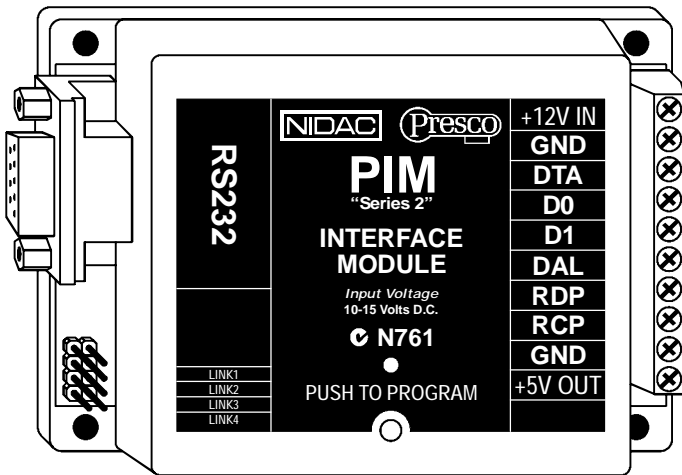




PIM

Presco™ Interface Module

“Series 2”
Revision E



Series 2 Revision History

Revision A

First release.

Revision B

Added Memory 031, the ability to ignore parity on received Weigand data.

Added Memory 042, the ability to read Clock & Data input from the end or start of the input stream.

Revision C

Added values of 2, 3, 4 & 5 to Memory 083, the ability to convert received Presco™ data to 4 or 8 bit burst mode Weigand (with or without * and # characters).

Revision D

Fixed bug when converting Weigand to RS232 when no site codes bits are specified..

Revision E

Added values of 2 & 3 to Memory 042, the ability to read Clock & Data input from the end or start of the input stream after a separator character has been read.

Added Memory 084, the time between sending burst mode data characters.

INTRODUCTION

The Presco™ Interface Module (PIM) can be used to convert commonly used data formats to Nidac Presco™, RS232 or Weigand format data.

FEATURES

- Converts from Weigand, RS232, Nidac Presco™, Clock & Data (Magnetic Card) or Dallas iButton™ (commonly referred to as Silicon Key) format.
- Converts to Nidac Presco™, RS232 or Weigand format.
- Can convert to or from Weigand with up to 64 bits of data, including up to 32 bit site code plus optional start and end parity bits.
- User programmable site code when converting to Weigand.
- Reads up to 64 bits from Dallas iButton™ user memory or 56 bits from factory ID.
- Reads up to 32 characters or digits from Track 1, 2 or 3 Clock/Data (magnetic card) format input.
- User programmable options using standard Presco™ PRE keypad or via RS232 link (software for RS232 programming is available from Nidac's website www.nidac.com).
- Compatible with **all** current Nidac Presco™ encoders and decoders.

SPECIFICATIONS

Voltage:	10 to 15 Volts D.C.
Current:	75mA max (plus 5V output draw).
Dimensions:	113mm x 72mm x 27mm.
Weight:	120gms.
Weigand	Pulse Width: 50µs Pulse Separation: 2ms
RS232:	Baud Rate: 300, 600, 1200, 2400, 4800, 9600, 19200 or 38400 bps. Data bits: 8 Parity: None, Odd or Even. Handshaking: Hardware or None.

TERMINAL DESCRIPTIONS

+12V IN	The positive D.C. power input.
GND	The Ground (or Negative) power input. This is also a common reference connection for all devices connected to the PIM. i.e. all devices connected to the PIM require their GNDs to be connected together.
DTA	Presco™ data input/output.
D0	Weigand Data 0 input/output.
D1	Weigand Data 1 input/output.
DAL	Dallas iButton™ input.
RDP	The R ead D ata P ulse input (for Clock/Data).
RCP	The R ead C lock P ulse input (for Clock/Data).
+5V OUT	A 5 Volt D.C. power output for powering connected equipment (100mA. max.).

CABLING DISTANCES TO PIM

Device	Cable type	Max length
RS232	7/020 or CAT 5 UTP cable. 4 core (3 wires) required for no handshaking. 6 core (5 wires) required for hardware handshaking.	10m
iButton™	Telephone cable Must be unshielded twisted pair. 2 core for reader only. 4 core for reader + LED control.	10m
iButton™	CAT 5 cable. Use 1 pair for reader, any other wires for LED control.	100m
Clock/Data	7/020 shielded cable. 4 core for reader only. 6 core for reader + LED control. Ground the shield at PIM end only.	100m
Weigand	7/020 shielded cable. 4 core for reader only. 6 core for reader + LED control. Ground the shield at PIM end only.	100m
Presco™ PRE keypad	7/020 unshielded cable. 2 core (figure 8) for data only, no LED control. 4 core for PRE with LED control.	1000m
Presco™ PSE keypad without backlighting	2 core (figure 8) 7/020 unshielded cable.	1000m

3

Device	Cable type	Max length
Presco™ PSE keypad with backlighting	4 core 7/020 unshielded cable. NOTE decreased distance is due to extra current drawn by backlighting.	500m
Presco™ proximity reader	4 core 14/020 unshielded cable. 4 core 7/020 unshielded cable. NOTE decreased distance is due to extra current drawn by powering the reader.	1000m 800m

NOTE all distances are based on a supply voltage of 12.0 VDC at the PIM.

SETTINGS SUMMARY

Links	Input	Output
LINK 1 LINK 2 LINK 3 LINK 4	Clock/Data	Presco™ (PDA, KC2 or KC6)
LINK 1 LINK 2 LINK 3 LINK 4	Clock/Data	RS232
LINK 1 LINK 2 LINK 3 LINK 4	Presco™ DLOG (from PAC1/2)	RS232
LINK 1 LINK 2 LINK 3 LINK 4	RS232	Presco™ DLOG (to PACDL)
LINK 1 LINK 2 LINK 3 LINK 4	Dallas iButton™	Presco™ (PDA, KC2 or KC6)
LINK 1 LINK 2 LINK 3 LINK 4	Dallas iButton™	RS232

4

Links	Input	Output
LINK 1 LINK 2 LINK 3 LINK 4	Weigand	Presco™ (PDA, KC2 or KC6)
LINK 1 LINK 2 LINK 3 LINK 4	Weigand	RS232
LINK 1 LINK 2 LINK 3 LINK 4	Clock/Data	Presco™ (PAC1 or PAC2)
LINK 1 LINK 2 LINK 3 LINK 4	Clock/Data	Weigand
LINK 1 LINK 2 LINK 3 LINK 4	RS232	Presco™ (all decoders)
LINK 1 LINK 2 LINK 3 LINK 4	Presco™	RS232
LINK 1 LINK 2 LINK 3 LINK 4	Dallas iButton™	Presco™ (PAC1 or PAC2)
LINK 1 LINK 2 LINK 3 LINK 4	Dallas iButton™	Weigand
LINK 1 LINK 2 LINK 3 LINK 4	Weigand	Presco™ (PAC1 or PAC2)
LINK 1 LINK 2 LINK 3 LINK 4	Presco™	Weigand

IMPORTANT NOTE: The required operational mode of the PIM (as set by the links above) **MUST** be set **BEFORE** applying power to the unit or exiting program mode.

5

Converting from CLOCK/DATA

When reading from a Clock & Data device the PIM accepts Track 1, 2 or 3 format Clock/Data inputs on the RDP and RCP terminals. The CLS signal from the reader is not used.

The PIM reads up to a maximum of 32 characters from the data stream, though the actual maximum is dependant upon the data conversion type.

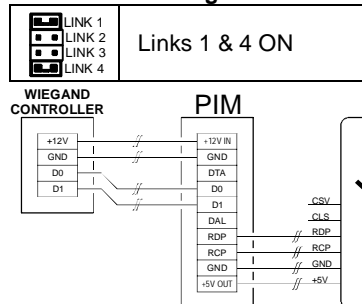
The characters read are either the starting characters or the ones directly before the first separator or end sentinel character.

Factory default characters to read = 8 (Memory 040)

Factory default data type = Track 2/Track 3 (Memory 041)

Factory default Read from Start or End = End (Memory 042)

Clock/Data to Weigand



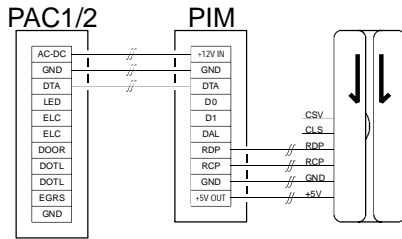
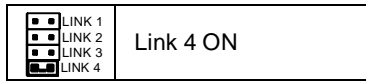
The PIM reads up to 32 characters from the data stream.

If reading from track 1 and a non numeric character is found in the data stream then the PIM will ignore the card.

The data read from the Clock/Data source is converted to a binary number. The bits above the number of bits specified for the Weigand user code are then discarded.

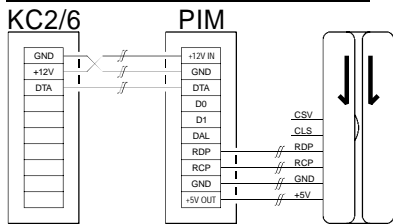
6

Clock/Data to PRESCO™ for PAC1 or PAC2



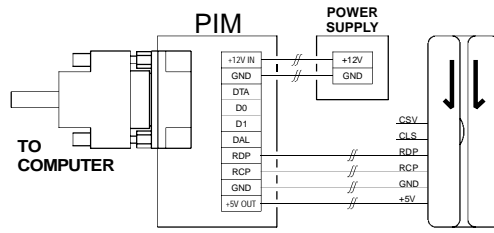
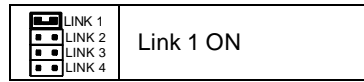
The PIM reads up to nine (9) digits from the data stream.
If reading from track 1 and a non numeric character is found in the data stream then the PIM will ignore the card.

Clock/Data to PRESCO™ for PDA, KC2 or KC6



The PIM reads up to seven (7) digits from the data stream.
If reading from track 1 and a non numeric character is found in the data stream then the PIM will ignore the card.

Clock/Data to RS232

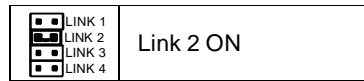


The PIM reads up to 32 characters from the data stream.

Converting from Presco™ DLOG

The information to and from the DLOG terminal on a PAC1 or PAC2 is normally monitored and controlled by the PACDL. This allows for adding, changing and deleting codes and setting options as well as monitoring code and input usage on the PAC1/PAC2.

Presco™ DLOG to RS232

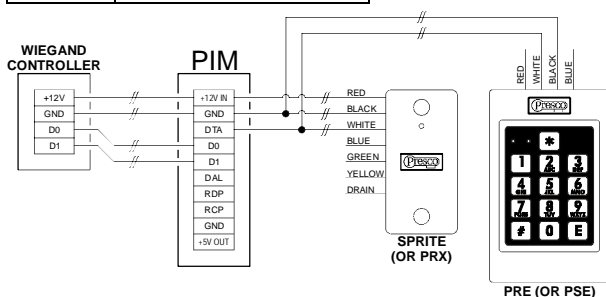
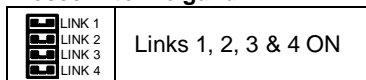


All information is sent unfiltered to and from the RS232 port.
NOTE: It is not recommended that this mode be used unless you have full details about the information sent to and from the DLOG communication I/O. This information is only supplied upon request to those with a reasonable usage.

Converting from Presco™

The PIM can read information from any of the Presco™ encoders, including PRE & PSE keypads and PRX & Sprite Proximity readers.

Presco™ to Weigand



Standard Weigand (non burst mode, Memory 083 = 0)

When converting from a keypad the number entered from the keypad is converted to the user code portion of the Weigand code. If the number entered is larger than that allowed by the number of bits specified for the Weigand user code then the maximum value for the user code will be sent.

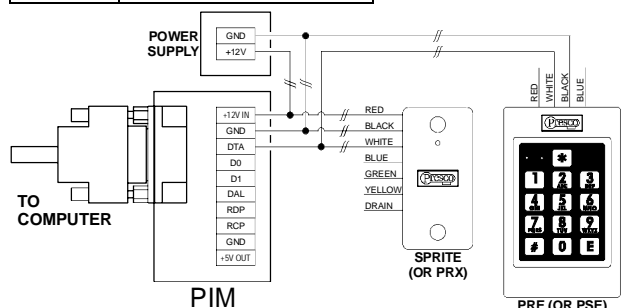
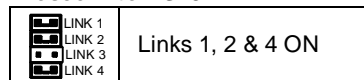
Conversion from a Presco™ Proximity reader to standard 26 bit Weigand will produce the same site and user code as if the Weigand output from the reader had been used. This is useful if wanting to cable a Weigand system further than 100m from reader to controller. If converting to a Weigand format other than standard 26 bit, the result is undefined.

The PIM automatically makes the Presco™ device respond with the noise as set in memories 081 and 082 for good and bad inputs (a bad input is when a number too large for the user code is entered from a keypad).

Burst Mode Weigand

The PIM can output 4 or 8 burst mode Weigand from a Presco™ input by setting Memory 083 to a value of 2, 3, 4 or 5. In burst mode each Presco™ digit received is sent as an individual Weigand burst character at a rate of 1 character per second. **Note** that when using a keypad no data is sent until the E key is pressed (# key on a PSE). Memory 084 set the time between sending burst mode characters.

Presco™ to RS232



Once the data has been entered at a Presco™ encoder (card presented at reader or code then E pressed on keypad) it will be sent to the RS232 port.

The PIM can then optionally make the encoder respond with a noise as set by the *good return character* in memory 081. Data sent from to the RS232 port can be either filtered (only the code digits are sent) or unfiltered (preamble characters, code and enter character are sent).

Factory default filter selection = Filter data and automatically send return character to generate an audible response on the encoder (Memory 080)

Converting from Dallas iButton™

Either the unique factory ID code or the user memory (selected iButton™s only) can be read.

When reading the factory ID up to 56 bits can be read, 8 bit family code + 48 bit serial number.

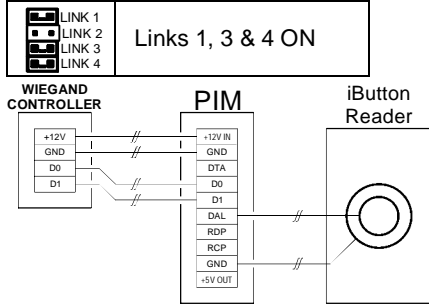
Up to 64 bits of user memory can be read.

NOTE: The PIM will not read an iButton™'s memory that contains all 0s or all 1s for the number of bits being read.

Factory default bits to read = 32 (Memory 060)

Factory default data to read = factory ID (Memory 061)

Dallas iButton™ to Weigand



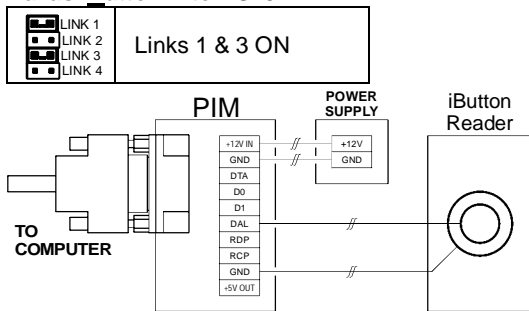
If the number of bits read from the iButton™ is less than the number of bits specified for the Weigand user code then the user code will be padded with zeroes (0).

If the number of bits read from the iButton™ is more than the number of bits specified for the Weigand user code then the extra bits will be ignored and only the lower bits will be sent as the Weigand user code.

11

The PIM reads the number of bits specified and converts them to a decimal number. The lowest 7 digits of this number are sent as the code.

Dallas iButton™ to RS232



The data can be sent to the RS232 port as either raw binary data, ASCII encoded decimal or ASCII encoded Hexadecimal.

Factory default send format = ASCII encoded Hex (Memory 064)

Converting from Weigand

The PIM can read up to 64 bits of Weigand data with or without start and/or end parity bits. It also allows for a site code of up to 32 bits.

Factory defaulted to read 26 bit Weigand

Factory default Site Code Bits = 8 (Memory 024)

Factory default User Code Bits = 16 (Memory 025)

Factory default Start Parity Bits = 12 (Memory 026)

Factory default End Parity Bits = 12 (Memory 027)

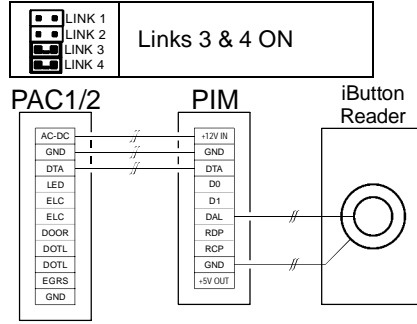
Factory default Start Parity Polarity = Even (Memory 028)

Factory default End Parity Polarity = Odd (Memory 029)

Factory default Check Received Parity = Check (Memory 031)

13

Dallas iButton™ to PRESCO™ for PAC1 or PAC2



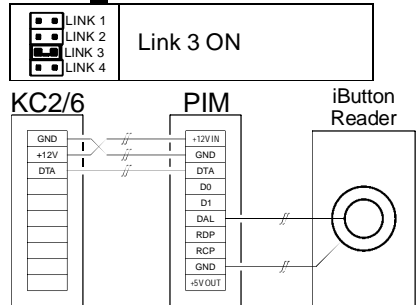
The PIM reads the number of bits specified and converts them to a either a decimal or base 12 number. The lowest 9 digits of this number are sent as the code.

The conversion type (decimal or base 12) can be selected via memory 065.

Note: PIM series 1 converted 32 bits to base 12.

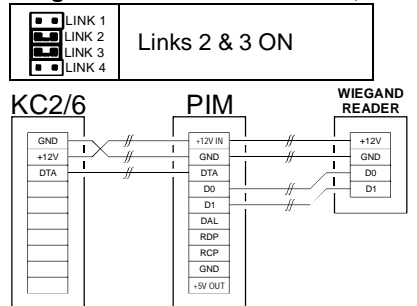
Factory default conversion type = Base 12 (Memory 065)

Dallas iButton™ to PRESCO™ for PDA, KC2 or KC6



12

Weigand to PRESCO™ for PDA, KC2 or KC6



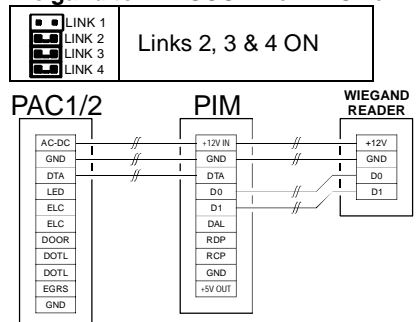
The PIM creates a 7 digit number from the Weigand data. It converts the site code to a decimal number and takes the lowest 2 digits then it converts the user code to a decimal number and takes the lowest 5 digits.

eg. Site Code = 183, User Code = 02845

PIM code = 8302845

this is the number to program into the PDA, KC2 or KC6.

Weigand to PRESCO™ for PAC1 or PAC2



The PIM creates an 8 digit number from the Weigand data. It converts the site code to a decimal number and takes the

14

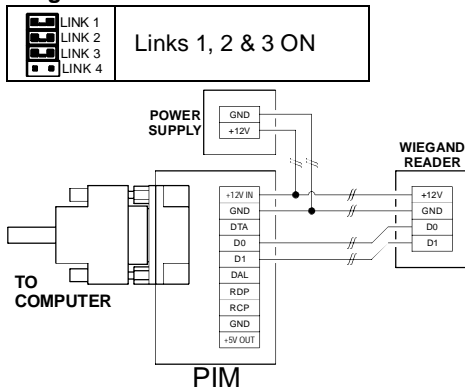
lowest 3 digits then it converts the user code to a decimal number and takes the lowest 5 digits.

eg. Site Code = 183, User Code = 02845

PIM code = 18302845

this is the number to program into the PAC1 or PAC2.

Weigand to RS232



The data can be sent to the RS232 port as either raw binary data, ASCII encoded decimal or ASCII encoded Hexadecimal. The site and user codes are converted and sent as separate numbers, site code is sent first.

Factory default send format = ASCII encoded Decimal (Memory 030)

PROGRAMMING

Several options are available through the use of memories, these include RS232 port settings, Weigand data and site code settings and others.

Default values are shown in *italics* where a list is given and in square brackets [] plus *italics* for other settings.

Programming of all memories can be done via a Presco™ PRE keypad connected to the DTA terminal or through the RS232 port.

NOTE that if you program a memory with a value outside those specified for it, or you program an unlisted memory, the functionality of the PIM cannot be guaranteed.

Refer to page 20 for programming procedures.

RS232 SETTINGS MEMORIES

000 Baud rate: 0 = 300, 1 = 600, 2 = 1200, 3 = 2400, 4 = 4800, 5 = 9600, 6 = 19200, 7 = 38400.

001 Parity: 0 = Even, 1 = Odd, 2 = None.

002 Handshaking: 0 = None, 1 = Hardware (RTS/CTS).

003 Send data config: 0 = code only, 1 = code + start char, 2 = code + end char, 3 = code + start & end chars, 4 = code + start, separator & end chars.

If unfiltered data from Presco™ or binary data from Weigand or iButton™ is being sent, code only mode (0) is always used no matter what is set for this memory.

004 Start data character: Used to indicate the start of a data sequence [2 = STX].

005 End data character: Used to indicate the end of a data sequence [3 = ETX].

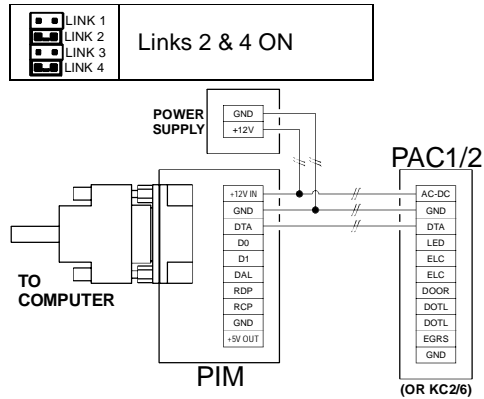
006 Separator character: Used to indicate the end of the site code and start of user code for Weigand conversion [23 = ETB].

Converting from RS232

All information is sent unfiltered to and from the RS232 port.

NOTE: It is not recommended that these modes be used unless you have full details about the information sent to and from the DTA or DLOG lines. This information is only supplied upon request to those with a reasonable usage.

RS232 to Presco™



This mode is used to emulate a Presco™ encoder when connected to a decoder. All characters must be sent to the attached decoder, this includes preamble, code and enter characters.

RS232 to Presco™ DLOG



Connect to DT1, 2, 3 or 4 port on a PACDL and use to emulate a Presco™ PAC1 or PAC2 decoder.

WEIGAND SETTINGS MEMORIES

020 Site code byte 0 (bits 24 to 31): 0 to 255 [0].

021 Site code byte 1 (bits 16 to 23): 0 to 255 [0].

022 Site code byte 2 (bits 8 to 15): 0 to 255 [0].

023 Site code byte 3 (bits 0 to 7): 0 to 255 [1] (used for standard 8 bit site code, when using 26 bit Weigand).

024 Number of bits in site code: 0 to 32 [8].

025 Number of bits in user code: 8 to 64 [16].

026 Number of bits for start parity (0 = no start parity bit) [12].

027 Number of bits for end parity (0 = no end parity bit) [12], this is usually site code bits + user code bits - start parity bits.

028 Start parity polarity: 0 = Even, 1 = Odd.

029 End parity polarity: 0 = Even, 1 = Odd.

030 RS232 conversion format: 0 = Binary, 1 = Decimal, 2 = Hex.

031 Check received parity: 0 = Do not check, 1 = Check (new memory for revision B).

CLOCK/DATA SETTINGS MEMORIES

040 Number of characters to read: 1 to 32 [8].

041 Data type: 0 = Track 1, 1 = Track 2/Track 3.

042 Read from start or end: 0 = Read from start, 1 = Read from end, 2 = Read from start after separator, 3 = Read from end after separator (new memory for revision B, options 2 & 3 added for revision E).

iButton™ SETTINGS MEMORIES

060 Data bits to read: 0 = Factory ID, 1 = User memory (LSB stored first).

061 Number of bits to read: 8 to 64 [32].

062 Memory read address high byte: 0 to 255 [default = 0].

- 063 Memory read address low byte: 0 to 255 [default = 0].
- 064 RS232 conversion format: 0 = Binary, 1 = Decimal, 2 = Hex.
- 065 Presco™ conversion format: 0 = Decimal, 1 = Base 12.

PRESCO™ SETTINGS MEMORIES

- 080 To RS232 filter: 0 = No filtering, 1 = Filter off preamble & enter characters, 2 = Filter + automatically send a good response char.
- 081 Good response character [69 = 1 beep].
- 082 Bad response character [66 = blarp (long beep)].
Valid response characters are:
65 = 2 beeps, 66 = blarp, 67 = 5 beeps, 68 = silence,
69 = 1 beep, 70 = warble, 71 = 3x2 blips,
73 = 3 beeps, 74 = 4 beeps, 75 = 2 blips,
76 = 2x2 blips, 77 = ramp up, 78 = ramp down.
- 083 Weigand conversion mode: 0 = standard, 1 = Weigand extender mode, 2 = 4 bit burst mode, 3 = 4 bit burst mode ignoring * and # keys, 4 = 8 bit burst mode, 5 = 8 bit burst mode ignoring * and # keys (values of 2, 3, 4 & 5 new for revision C).
The Weigand extender mode uses 2 PIMs between the Weigand reader and controller to allow for separation distances of up to 1km. The PIM closest to the reader converts the Weigand data to a special Presco™ format and the second PIM converts it back to the original Weigand.
In 4 or 8 bit burst mode each Presco™ digit received is sent as an individual Weigand burst character at a rate of 1 character per second. **Note** that when using a keypad no data is sent until the E key is pressed (# key on a PSE).
- 084 Burst Mode Delay, the delay between sending burst mode characters in 0.1 second increments (new memory for revision C). [10]

19

OTHER MODELS AND ACCESSORIES

- CAB-SERIAL** 1.8m serial cable to connect PIM to PC RS232 port.
- USB-RS232** USB to serial RS232 port converter with 1.5m cable.
- PRE** Indoor keypad encoder for Presco™ decoder with 2 LEDs and buzzer.
- PSE-NI** Presco™ Indoor/outdoor, metal, vandal and weather resistant keypad.
- PSE-IL** Presco™ Back lit (12V or 24V DC), indoor/outdoor, metal, vandal and weather resistant keypad.
- SPRITE** Indoor/outdoor proximity reader with Presco™ and Weigand outputs, LED and buzzer.
- PAC1** Door Access Controller, 400 programmable user codes, 5 Amp. 30 Volt Electric Latch Control relay, 1 Amp. 30 Volt alarm relay, 12 to 24 Volt D.C. or 16 to 24 Volt A.C. operation.
- PAC2** 2 Door Access Controller, 400 programmable user codes, 2 x 5 Amp. 30 Volt Electric Latch Control relays, 2 x 1 Amp. 30 Volt alarm relays, 12 to 24 Volt D.C. or 16 to 24 Volt A.C. operation.
- PACDL** Data logger to record events with time & date stamping from up to 4 PAC1 or PAC2 decoders.
- CS-KEYRDR** Dallas iButton™ receptacle in metal plate with LED.
- CS-KEYRDR-PR** Dallas iButton™ receptacle.

PAC1/2 Programming Software

Presco™ decoder programming software is also available to use with the PIM. This software will allow you to connect a PAC1 or PAC2 to a PIM that is connected to a PC and program all settings and users codes. It also allows the extraction of settings and user codes from existing programmed decoders.

The decoder programming software is available from Nidac's website www.nidac.com.

21

PROGRAMMING USING A PRESCO™ PRE KEYPAD

1. Connect the PRE white wire to DTA and black wire to GND.
2. Ensure that LINK 1 is **ON**.
3. Press the Program button on the PIM. When the RED LED above the Program button lights, the PIM is in program mode.
4. Press * <3 digit memory number> <memory value> E .
5. Repeat step 3 for each memory to be programmed.
6. Ensure links are set for required function.
7. Press the Program button again. When the RED LED goes off all the new values are saved to memory.

PROGRAMMING USING THE RS232 PORT & PC

1. Ensure that LINK 1 is **OFF**.
2. Connect a straight through male to female DB9 cable from the PIM to PC's COM port. The cable requires the wires for RX, TX, GND, RTS and CTS, pins 2, 3, 5, 7 & 8.
3. Run the PIM programming software on the PC.
4. Select the COM port the PIM is attached to.
5. Press the Program button on the PIM so that the RED LED above the button is lit.
6. Use the software to set or change the memory values.
7. Ensure links are set for required function.
8. Press the Program button again. When the RED LED goes off all the new values are saved to memory.
9. Exit the software.
10. Disconnect the serial cable, if no longer required.

The software for RS232 programming is available from Nidac's website www.nidac.com.

20

WARRANTY

NIDAC SECURITY PTY. LTD. will repair or replace 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 it's 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.

Presco™ is a Trade Mark belonging to NIDAC SECURITY PTY. LTD. The Presco™ Keypad system is protected by patents granted in various countries including Australia.

The software design is protected internationally and remains the intellectual property of NIDAC SECURITY PTY. LTD.

Design improvement and specification are subject to change without notice. All designs are copyright NIDAC SECURITY PTY. LTD. 1992 to 2004.



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