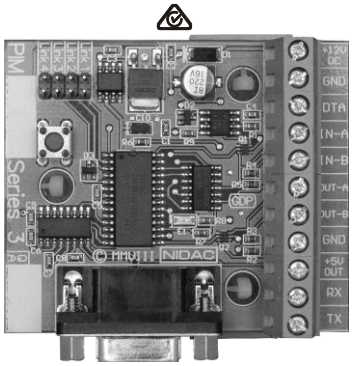
# PRESCO®
# PIM

## Presco Interface Module "Series 3"

Revision h

**Installation Manual 1st Edition**



## INTRODUCTION

The Presco Interface Module (PIM) can be used to convert commonly used data formats to NIDAC Presco, RS232, Clock & Data or Wiegand format data.

## FEATURES

- Converts from Wiegand, RS232, NIDAC Presco, Clock & Data (Magnetic Card) or Dallas iButton (commonly referred to as Silicon Key) format.
- Converts to NIDAC Presco, RS232, Clock & Data (Magnetic Card) or Wiegand format.
- Can convert to or from Wiegand 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 Wiegand.
- 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 settings using standard Prove keypad or via RS232 link (software for RS232 programming is available from NIDAC's website www.nidac.com).
- Compatible with **all** current NIDAC Prove encoders and Presco controllers.

## SPECIFICATIONS

| | | |
|---|---|---|
| Voltage: | | 10 to 15 Volts D.C. |
| Current: | | 30mA max (plus 5V output draw). |
| Dimensions: | | 66mm x 67mm x 23mm. |
| Weight: | | 45gms. |
| Wiegand | Pulse Width: | 50µs |
| | Pulse Separation: | 2ms |
| RS232: | Baud Rate: | 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 bps. |
| | Data bits: | 8 |
| | Parity: | None, Odd or Even. |
| | Handshaking: | Hardware or None. |

## TERMINAL DESCRIPTIONS

**+12V DC** 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.

**IN-A** Input A (Wiegand D0, Clock & Data RDP or iButton).

**IN-B** Input B (Wiegand D1 or Clock & Data RCP).

**OUT-A** Output A (Wiegand D0 or Clock & Data RDP).

**OUT-B** Output B (Wiegand D1 or Clock & Data RCP).

**+5V OUT** A 5 Volt D.C. power output for powering connected equipment (100mA. max.).

**RX** The RS232 Receive input **(DO NOT USE THIS TERMINAL WHEN USING THE RS232 DB9 CONNECTOR!)**.

**TX** The RS232 Transmit output.

## CABLING DISTANCES TO PIM

| Device | Cable type | Max length |
|---|---|---|
| RS232 | 7/020 shielded or CAT 5 UTP cable.<br>4 core (3 wires) required for no handshaking.<br>6 core (5 wires) required for hardware handshaking. | 10m |
| iButton | Telephone cable<br>Must be unshielded twisted pair.<br>2 core for reader only.<br>4 core for reader + LED control. | 10m |
| iButton | CAT 5 cable.<br>Use 1 **pair** for reader, any other wires for LED control. | 100m |
| Clock & Data | 7/020 shielded cable.<br>4 core for reader only.<br>6 core for reader + LED control.<br>Ground the shield at PIM end only. | 100m |
| Wiegand | 7/020 shielded cable.<br>4 core for reader only.<br>6 core for reader + LED control.<br>Ground the shield at PIM end only. | 100m |
| Prove PSK2 keypad | 7/020 unshielded cable.<br>2 core (figure 8) for data only, no LED control.<br>4 core for PSK2 with LED control. | 1000m |
| Prove PSE keypad without backlighting | 2 core (figure 8) 7/020 unshielded cable. | 1000m |
| Prove PSE keypad with backlighting | 4 core 7/020 unshielded cable.<br>**NOTE** decreased distance is due to extra current drawn by backlighting.<br>4 core 14/020 unshielded cable. | 500m<br><br>1000m |
| Prove PRO24, PSC2 or PSR2 proximity reader | 4 core 7/020 unshielded cable.<br>4 core 14/020 unshielded cable.<br>**NOTE** decreased distance is due to extra current drawn by powering the reader. | 350m<br>800m |
| Prove VR43 or VR62 keypad. | 4 core 7/020 unshielded cable.<br>4 core 14/020 unshielded cable.<br>**NOTE** decreased distance is due to extra current drawn by powering the keypad. | 350m<br>800m |

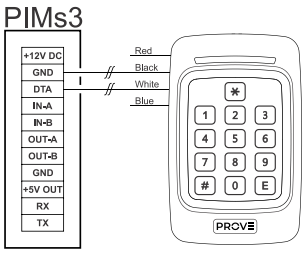
**NOTE** all distances are based on a supply voltage of 12.0V D.C. at the PIM.

## LINK SETTINGS SUMMARY

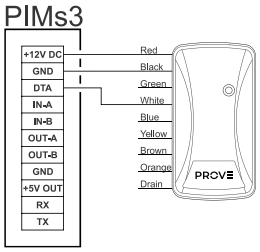
| Links | Input | Output |
|---|---|---|
| Link 1 Link 2 Link 3 Link 4 | Clock & Data | Presco (PAC1/PAC2), Wiegand and RS232 |
| Link 1 Link 2 Link 3 Link 4 | RS232 | Clock & Data |
| Link 1 Link 2 Link 3 Link 4 | Clock & Data | Presco (KCx or PDA), Clock & Data and RS232 |
| Link 1 Link 2 Link 3 Link 4 | Presco | Clock & Data |
| Link 1 Link 2 Link 3 Link 4 | RS232 | Presco |
| Link 1 Link 2 Link 3 Link 4 | Presco DLOG (from PACDL) | RS232 |
| Link 1 Link 2 Link 3 Link 4 | RS232 | Presco DLOG (to PAC1 or PAC2 for use with PIM-PAC software) |
| Link 1 Link 2 Link 3 Link 4 | Presco | RS232 |
| Link 1 Link 2 Link 3 Link 4 | Dallas iButton | Presco (PAC1/PAC2), Wiegand and RS232 |
| Link 1 Link 2 Link 3 Link 4 | Use this setting to reset the memories to defaults when unit is powered up with program button depressed. | |
| Link 1 Link 2 Link 3 Link 4 | Dallas iButton | Presco (KCx or PDA), Clock & Data and RS232 |
| Link 1 Link 2 Link 3 Link 4 | DO NOT USE. Reserved for future use. | |
| Link 1 Link 2 Link 3 Link 4 | Wiegand | Presco (PAC1/PAC2), Wiegand and RS232 |
| Link 1 Link 2 Link 3 Link 4 | RS232 | Wiegand |
| Link 1 Link 2 Link 3 Link 4 | Wiegand | Presco (KCx or PDA), Clock & Data and RS232 |
| Link 1 Link 2 Link 3 Link 4 | Presco | Wiegand |

## Wiring Diagrams

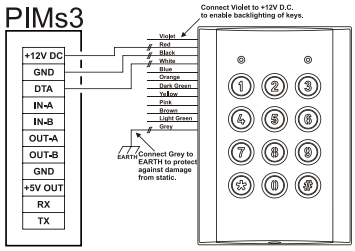
**From Prove PSK2**



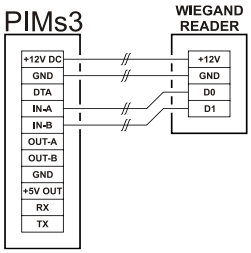

**From Prove PRO24 (shown), PSC2 or PSR2**



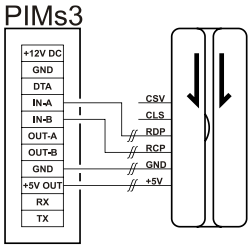

**From Prove VR43 (shown) or VR62**



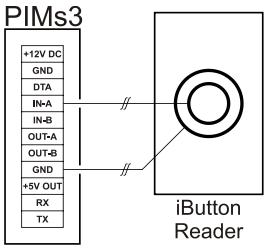
**From Wiegand Reader**



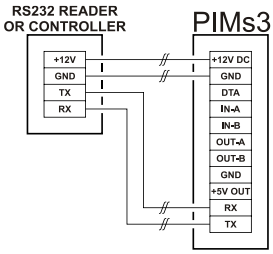

**From Clock & Data Reader**



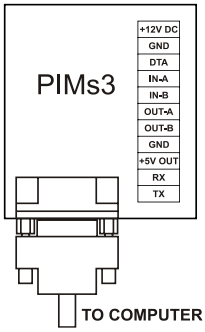

**From Dallas iButton Reader**



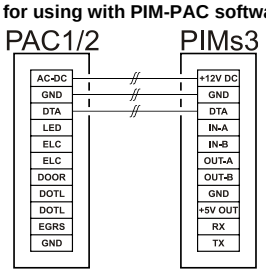

**From RS232 reader or to RS232 input controller**



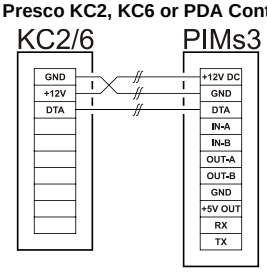

**To or from RS232 computer port**



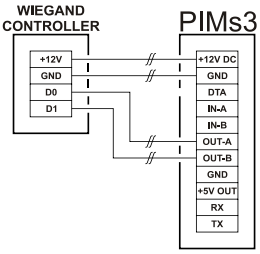

**To Presco PAC1 or PAC2 Controller (not for using with PIM-PAC software)**



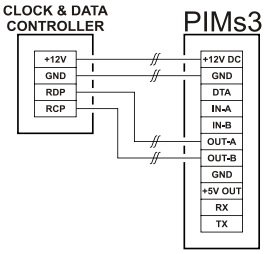

**To Presco KC2, KC6 or PDA Controller**



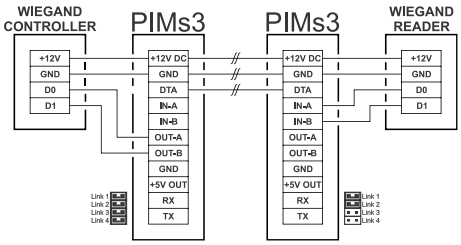

**To Wiegand Input Controller**




**To Clock & Data Input Controller**




**Wiegand Extender Wiring**




Set memory 023 to1 on both PIMs for this configuration.

## Converting from Presco

The PIM can read information from any of the Prove encoders, including PSK2, PSC2, PRE, VR43, VR62 & PSE keypads and PSR2, PRO24, Sprite & PRX Proximity readers.

**Note** that no information is sent from a Prove keypad until the [E] key is pressed (use [#] on keypads that don't have an [E] key).

It can then convert the information to Wiegand, Clock & Data or RS232.

**Presco to RS232**


Links 2, 3 & 4 ON

Once the data has been entered at a Prove keypad or prox reader (code then [E] or [#] pressed on keypad or card presented at reader) 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 021. The default setting is to make the encoder respond with a single beep.

Data sent to the RS232 port can be either filtered (only the code digits are sent) or unfiltered (preamble characters, code and enter character are sent). The default setting is to filter the data.

Further settings are available for RS232 data. Please refer to the RS232 SETTINGS MEMORIES section.

**Presco to Wiegand**


All Links ON

The Presco data can be converted to either standard wiegand or burst mode wiegand. There are several settings for both these modes that can be set, please refer to the WIEGAND TRANSMIT SETTINGS MEMORIES section.

In standard mode the code entered from the keypad will become the user code of the wiegand data and the site code will be taken from memories 125 to 128.

When converting to standard 26 bit wiegand from a Prove proximity reader the PIM will produce the same site and user codes as if the Wiegand output from the reader had been used. This is useful if wanting to cable a Wiegand system further than 100m from reader to controller. If converting to a Wiegand format other than standard 26 bit, the result is undefined.

The PIM automatically makes the Prove device respond with the noise as set in memories 021 and 022 for good and bad inputs respectively (a bad input is when a number too large to convert to the user code is entered from a keypad).

**Presco to Clock & Data**


Links 3 & 4 ON

The Presco data can be converted to 1 to 32 digits of track 1, 2 or 3 format Clock & Data. Please refer to the CLOCK & DATA TRANSMIT SETTINGS MEMORIES section for these settings.

## Converting from Wiegand

The PIM can read up to 64 bits of Wiegand data with or without start and/or end parity bits. It also allows for a site code of up to 32 bits. The default settings are for the PIM to read standard 26 bit wiegand.

**Wiegand to Presco for PAC1 or PAC2**


Links 1 & 2 ON

The PIM creates an 8 digit number from the Wiegand data. When receiving 26 bit wiegand it converts the site code to a 3 digit decimal number, then it converts the user code to a 5 digit decimal number and combines these to create the 8 digit code.

eg. Site Code = 183, User Code = 02845
PIM code = 18302845
this is the number to program into the PAC1 or 2.

Optionally the site code portion can be discarded by setting memory 105 to 0 so that a 5 digit code is sent.

**Wiegand to Presco for PDA, KC2 or KC6**


Links 1, 2 & 3 ON

The PIM creates a 7 digit number from the Wiegand data. When receiving 26 bit wiegand it converts the site code to a 3 digit decimal number and takes the lowest 2 digits then it converts the user code to a 5 digit decimal number and combines these to create the 7 digit code.

eg. Site Code = 183, User Code = 02845
PIM code = 8302845
this is the number to program into the PDA, KC2 or KC6.

Optionally the site code portion can be discarded by setting memory 105 to 0 so that a 5 digit code is sent.

**Wiegand to Wiegand**


Links 1 & 2 ON

The PIM can be used to convert from one format of wiegand to another or, by setting memory 105 to 0, it can be used to replace the site of the received wiegand and retransmit in the same format (or another) but with the site code that is stored in the PIM in memories 125 to 128.

**Wiegand to Clock & Data**


Links 1, 2 & 3 ON

The PIM creates code from the Wiegand data that consists of the site code (converted to decimal) then the user code (converted to decimal). It then combines these 2 together and transmits the last n digits of the code, where n is the value set in memory 080. When receiving 26 bit wiegand it converts the site code to a 3 digit decimal number, then it converts the user code to a 5 digit decimal number and combines these to create an 8 digit code.

eg. Site Code = 183, User Code = 02845
Memory 080 = 8
Clock & Data code = 18302845

Optionally the site code portion can be discarded by setting memory 105 to 0 so that the clock & data code in the example above becomes 00002845.

If value set in memory 080 is more than the number of digits created by the code conversion leading 0s will be sent to make up the number.

**Wiegand to RS232**


Links 1 & 2 ON

or


Links 1, 2 & 3 ON

The data can be sent to the RS232 port as either raw binary data, ASCII encoded decimal or ASCII encoded Hexadecimal (see memory 007). The site and user codes are converted and sent as separate numbers with the site code being sent first. The default setting is to send the data as ASCII encoded decimal.

Further settings are available for RS232 data. Please refer to the RS232 SETTINGS MEMORIES section.

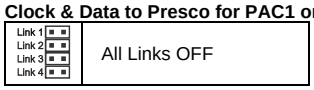
## Converting from Clock & Data

When reading from a Clock & Data device the PIM accepts Track 1, 2 or 3 format Clock & Data inputs using just the RDP and RCP signals.

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

The PIM can read characters from several different locations depending upon the settings of memories 062 & 063. The default it setting is to read characters directly before the first separator character (or end sentinel if no separator was found).

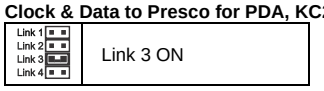
**Clock & Data to Presco for PAC1 or PAC2**




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.

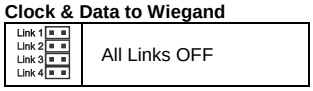
**Clock & Data to Presco for PDA, KC2 or KC6**




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 Wiegand**

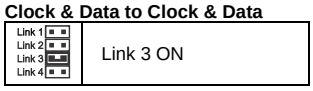



The PIM reads up to 32 characters from the data stream.

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

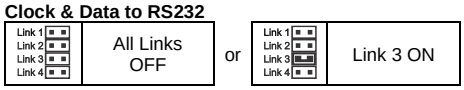
The data read from the Clock & Data source is converted to a binary number. The bits above the number of bits specified for the Wiegand user code are then discarded.

**Clock & Data to Clock & Data**




The PIM can be used to convert between Track 1 & Track 2 or 3 data format and can be used to manipulate the received data and resend only the required part.

**Clock & Data to RS232**




The PIM reads up to 32 characters from the data stream and sends the data to the RS232 ports as ASCII characters.

Further settings are available for RS232 data. Please refer to the RS232 SETTINGS MEMORIES section.

## Converting from Dallas iButton

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

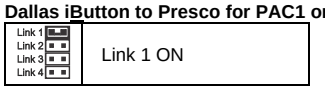
When reading the factory ID up to 56 bits can be read, 8 bit family code + 48 bit serial number.

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.

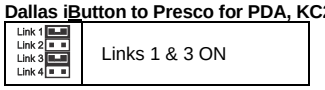
The default setting is to read 32 bits from the factory ID.

**Dallas iButton to Presco for PAC1 or PAC2**



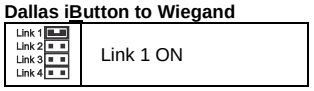

The PIM reads the number of bits specified and converts them to a either a decimal or base 12 number (refer to memory 044). The lowest 9 digits of this number are sent as the code. The default setting is to convert to base 12.

**Dallas iButton to Presco for PDA, KC2 or KC6**




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.

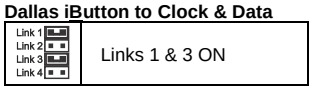
**Dallas iButton to Wiegand**




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

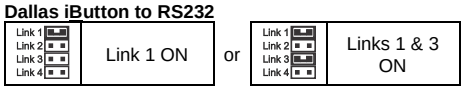
If the number of bits read from the iButton is more than the number of bits specified for the Wiegand user code then the extra bits will be ignored and only the lower bits will be sent as the Wiegand user code.

**Dallas iButton to Clock & Data**




The PIM reads the number of bits specified and converts them to a either a decimal number. The lowest n digits, where n is the value of memory 080, of this number are sent as the clock & data code.

**Dallas iButton to RS232**



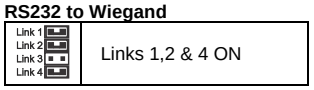

The data can be sent to the RS232 port as either raw binary data, ASCII encoded decimal or ASCII encoded Hexadecimal. The default setting is to send the data as ASCII encoded decimal.

## Converting from RS232

The PIM can convert from RS232 to wiegand, clock & data, Presco or Presco DLOG.

Only the wiegand and clock & data conversions are described here as the Presco modes are provided for use with the Presco controller programming software available from NIDAC.

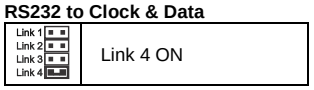
**RS232 to Wiegand**




When the PIM is set to transmit standard format wiegand the data sent via the RS232 input needs to be formatted correctly. First the PIM needs to receive the start char as specified in memory 004 then the data to be converted to wiegand (as a decimal number represented by ASCII coded digits) followed by the end char as specified in memory 005. If the data contains a separator char as specified in memory 006 then the digits after the start but before the separator will be converted to the site code and the digits after the separator will be converted to the user code. When no separator if sent all digits will be converted to the user code and the site code stored in the PIM will be sent.

When the PIM is set to transmit burst mode wiegand the PIM will convert each ASCII coded digit received on the RS232 and transmit it as burst mode.

**RS232 to Clock & Data**




The data sent via the RS232 input needs to be formatted correctly for the PIM to output Clock & Data. First the PIM needs to receive the start char as specified in memory 004 then the characters to be sent as clock & data followed by the end char as specified in memory 005. If the data contains any separator chars as specified in memory 006 then these will be converted to the appropriate separator char for the track type being transmitted and sent with the other characters. The PIM will automatically transmit the correct start & end sentinels for the track type being transmitted as well as the LRC.

## PROGRAMMING PIM SETTINGS

Several settings are available through the use of memories to set the PIM to receive & transmit data in a specific manner.

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

Programming of all memories can be done via a Prove 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.

### PROGRAMMING USING A PROVE KEYPAD

1. Disconnect all wires from the DTA terminal (except the white wire from the Prove keypad).
2. Connect the Prove keypad's white wire to DTA and black wire to GND.
3. Ensure that LINK 4 is **ON**.
4. Press the program button on the PIM. When the red LED on the PIM starts flashing the unit is in program mode.
5. Press [*] <3 digit memory number> <memory value> [E] (press [#] instead of [E] if using a VR43, VR62 or PSE).
6. Repeat step 3 for each memory to be programmed.
7. Press the Program button again. When the red LED stops flashing all the new values are saved to memory.
8. Remember to set the LINK 4 back to how it was and reconnect all wires to the DTA terminal.
9. To reset all the memories back to factory default press [*] [9] [8] [7] [6] [5] [4] [E] (press [#] instead of [E] if using a VR43, VR62 or PSE).

### PROGRAMMING USING THE RS232 PORT & PC

1. Disconnect all wires from the RX terminal.
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 PIMs3 programming software on the PC.
4. Select the COM port the PIM is attached to.
5. Press the program button on the PIM. When the red LED on the PIM starts flashing the unit is in program mode.
6. Use the software to set or change the memory values.
7. Press the Program button again. When the red LED stops flashing all the new values are saved to memory.
8. Exit the software.
9. Disconnect the serial cable, if no longer required.

The software for programming the PIM via RS232 is available from NIDAC's website www.nidac.com.

### RS232 SETTINGS MEMORIES

**000** Baud rate: 0 = 300, 1 = 600, 2 = 1200, 3 = 2400, 4 = 4800, ***5 = 9600***, 6 = 19200, 7 = 38400, 8 = 57600, 9 = 115200.

**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 Wiegand 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 Wiegand conversion ***[23 = ETB]***.

**007** RS232 conversion format (only affects iButton & Wiegand reads):

0 = Raw,
***1 = Decimal***,
2 = Hex,
3 = ASCII encoded Binary.

### PRESCO SETTINGS MEMORIES

**020** To RS232 filter: 0 = No filtering, 1 = Filter off preamble & enter characters, ***2 = Filter + automatically send a good response char***.

**021** Good response character ***[69 = 1 beep]***.

**022** 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.

**023** Wiegand conversion mode:
***0 = standard***,
1 = Wiegand extender mode.

The Wiegand extender mode uses 2 PIMs between the Wiegand reader and controller to allow for separation distances of up to 1km. The PIM closest to the reader reads up to 64 bits of wiegand data (plus start & end parity), converts the data to a special Presco format and the second PIM converts it back to the original Wiegand. There is no need to tell either PIM the format of the wiegand data.

### iButton SETTINGS MEMORIES

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

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

**042** Memory read address high byte: 0 to 255 ***[0]***.

**043** Memory read address low byte: 0 to 255 ***[0]***.

**044** Presco PAC conversion format: 0 = Decimal, ***1 = Base 12***.

### CLOCK & DATA RECEIVE SETTINGS MEMORIES

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

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

**062** 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.

**063** Number of characters to skip from start ***[0]***. When reading from the start or the start after separator the PIM will skip this number of characters before reading any data.



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### CLOCK & DATA TRANSMIT SETTINGS MEMORIES

**080** Number of characters to transmit: 1 to 32 ***[8]***.

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

### WIEGAND RECEIVE SETTINGS MEMORIES

The default memory settings are to receive standard 26 bit wiegand.

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

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

**102** Number of bits for start parity (0 = no start parity bit, 64 or greater = use half the total number of data bits) ***[255]***.

**103** Number of bits for end parity (0 = no end parity bit, 64 or greater = use half the total number of data bits) ***[255]***.

**104** Parity polarity:
0 = Start & End Even,
1 = Start Odd & End Even,
***2 = Start Even & End Odd***,
3 = Start & End Odd,
4 = Do not check parity.

**105** Transmit received site code: ***[255]***
0 = Don't transmit the received site code,
***All other vales = Do transmit***.

**Note** that this memory has no effect when transmitting RS232 data.

**110** Custom total number of receive bits ***[255]***.

When this memory is set to 0 the PIM will ignore all settings in memories 100 to 105 and 111 to 113 and will receive wiegand data until either is has received 64 bits of data or 8 milliseconds has elapsed since it received its last data bit. All these bits will be treated as the user code with no site code data.

When this memory contains a value that specifies a total number of data bits of between 8 & 64 then the custom wiegand receive mode is enabled (if start and/or end parity is specified in memories 102 & 103 then these bits need to be taken into account when specifying the total number of bits).

The number of bits for the site & user code are still as specified in memories 100 & 101 but the starting position of the site & user codes within the received bits can be specified via memories 112 & 113.

**Note** that using this setting requires a high understanding of Wiegand data. NIDAC will only offer limited support for this feature.

**111** Expect LSB first in custom mode: ***[255]***
1 = LSB is received first when in custom mode,
***All other values = MSB received first***.

**112** The bit number within the received data that the site code data starts at (only used when in custom receive mode), note that the first bit received is bit 1. ***[255]***

**113** The bit number within the received data that the user code data starts at (only used when in custom receive mode), note that the first bit received is bit 1. ***[255]***

### WIEGAND TRANSMIT SETTINGS MEMORIES

The default memory settings are to transmit standard 26 bit wiegand.

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

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

**122** Number of bits for start parity (0 = no start parity bit, 64 or greater = use half the total number of data bits) ***[255]***.

**123** Number of bits for end parity (0 = no end parity bit, 64 or greater = use half the total number of data bits) ***[255]***.

**124** Parity polarity:
0 = Start & End Even,
1 = Start Odd & End Even,
***2 = Start Even & End Odd***,
3 = Start & End Odd.

**125** Site code byte 3 (bits 24 to 31): 0 to 255 ***[0]***.

**126** Site code byte 2 (bits 16 to 23): 0 to 255 ***[0]***.

**127** Site code byte 1 (bits 8 to 15): 0 to 255 ***[0]***.

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

**130** Wiegand transmit mode:
***0 = standard***,
1 = 4 bit burst mode,
2 = 4 bit burst mode ignoring [*] and [#] keys,
3 = 8 bit burst mode,
4 = 8 bit burst mode ignoring [*] and [#] keys,
5 = 4 bit burst mode and a [#] at end of code,
6 = 8 bit burst mode and a [#] at end of code.

In 4 or 8 bit burst mode each digit received is sent as an individual Wiegand burst character at a rate determined by memory 131.

**Note** that when using a Prove keypad no data is sent until the [E] key is pressed ([#] key on a VR43, VR62 or PSE).

**Note:** setting options 5 & 6 are only valid when converting from Presco and are only available with firmware revision 3d or greater.

**131** Burst Mode Delay, the delay between sending burst mode characters in 0.1 second increments. ***[2]***

**132** Custom total number of transmit bits ***[255]***.

When this memory contains a value that specifies a total number of data bits of between 8 & 64 then the custom wiegand transmit mode is enabled (if start and/or end parity is specified in memories 122 & 123 then these bits need to be taken into account when specifying the total number of bits).

The number of bits for the site & user code are still as specified in memories 120 & 121 but the starting position of the site & user codes within the transmitted bits can be specified via memories 134 & 135.

**Note** that using this setting requires a high understanding of Wiegand data. NIDAC will only offer limited support for this feature.

**133** Send LSB first in custom mode: ***[255]***
1 = LSB is transmitted first when in custom mode,
***All other values = MSB received first***.

**134** The bit number within the transmitted data that the site code data starts at (only used when in custom transmit mode), note that the first bit transmitted is bit 1. ***[255]***

**135** The bit number within the transmitted data that the user code data starts at (only used when in custom transmit mode), note that the first bit transmitted is bit 1. ***[255]***

**140** Default custom wiegand pattern byte 7. ***[255]***

**141** Default custom wiegand pattern byte 6. ***[255]***

**142** Default custom wiegand pattern byte 5. ***[255]***

**143** Default custom wiegand pattern byte 4. ***[255]***

**144** Default custom wiegand pattern byte 3. ***[255]***

**145** Default custom wiegand pattern byte 2. ***[255]***

**146** Default custom wiegand pattern byte 1. ***[255]***

**147** Default custom wiegand pattern byte 0. ***[255]***

Memories 140 to 147 specify the default pattern to be used when transmitting in custom wiegand mode (refer memory 132). These are the bits that will be transmitted when the data bits (including site, user & parity) are not being sent.

### PAC1/2 Programming Software

Presco controller 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 user codes. It also allows the extraction of settings and user codes from existing programmed controllers.

The PAC controller programming software is available from NIDAC's website www.nidac.com.