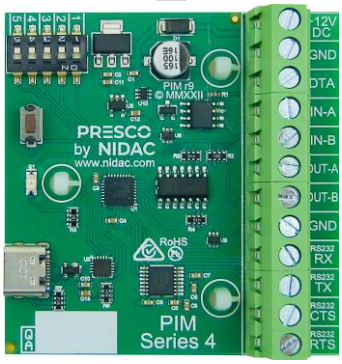
PRESCO® PIM

Presco Interface Module "Series 4"

Revision f

Installation Manual 1st Edition



INTRODUCTION

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

FEATURES

- Converts from Wiegand, RS232, USB, NIDAC Presco, Clock & Data (Magnetic Card) or Dallas iButton (commonly referred to as Silicon Key) format.
- Converts to NIDAC Presco, RS232, USB, Clock & Data (Magnetic Card) or Wiegand format.
- Can convert to or from Wiegand with up to 128 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 128 bits from Dallas iButton user memory or 64 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 USB-C link (software for USB programming, PIMs4, 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:		35mA max.
Dimensions:		61mm x 58mm x 23mm
Weight:		35g
Wiegand:	Pulse Width:	50µs
	Pulse Separation:	2ms
RS232:	Baud Rate:	1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 bps
	Data bits:	8
	Parity:	None, Odd or Even
	Handshaking:	Hardware or None
USB:	USB 2.0 on USB-C connector presents as VCP (Virtual Com Port) on PC	
	Baud Rate:	115200 bps
	Data bits:	8
	Parity:	None
	Handshaking:	None

TERMINAL DESCRIPTIONS

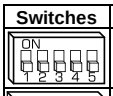
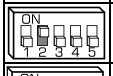
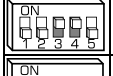
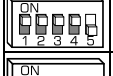
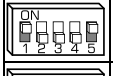
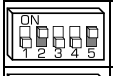
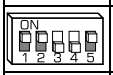
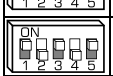
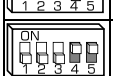
+12V DC	The positive D.C. power input.
GND	The Ground (or Negative) power input. This is also a common reference connection for all devices connected to the PIM. i.e. all devices connected to the PIM require their GNDs to be connected together.
DTA	Presco data input/output.
IN-A	Input A (Wiegand D0, 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).
RX	The RS232 Receive input.
TX	The RS232 Transmit output.
CTS	The RS232 CTS input.
RTS	The RS232 RTS output.

CABLING DISTANCES TO PIM

Device	Cable type	Max length
RS232	7/020 shielded 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
Wiegand	7/020 shielded cable. 4 core for reader only. 6 core for reader + LED control. Ground the shield at PIM end only.	100m
Prove PSK2 keypad	7/020 unshielded cable. 2 core (figure 8) for data only, no LED control. 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. **NOTE** decreased distance is due to extra current drawn by backlighting. 4 core 14/020 unshielded cable.	500m 1000m
Prove PRO24, PSC2 or PSR2 proximity reader	4 core 7/020 unshielded cable. 4 core 14/020 unshielded cable. **NOTE** decreased distance is due to extra current drawn by powering the reader.	350m 800m
Prove VR43 or VR62 keypad.	4 core 7/020 unshielded cable. 4 core 14/020 unshielded cable. **NOTE** decreased distance is due to extra current drawn by powering the keypad.	350m 800m

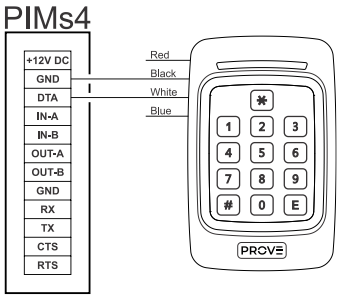
NOTE all distances are based on a supply voltage of 12.0V D.C. at the PIM.

SWITCH SETTINGS SUMMARY

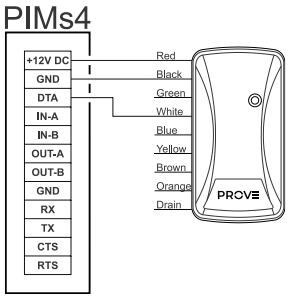
Switches	Input	Output
	DO NOT USE. Reserved for future use.	
	DO NOT USE. Reserved for future use.	
	Wiegand	Presco (PAC1/PAC2), Wiegand, RS232 & USB
	Wiegand	Presco (KCx or PDA), Clock & Data, RS232 & USB
	Wiegand	Extender
	Extender	Wiegand
	DO NOT USE. Reserved for future use.	
	DO NOT USE. Reserved for future use.	
	Clock & Data	Presco (PAC1/PAC2), Wiegand, RS232 & USB
	Clock & Data	Presco (KCx or PDA), Clock & Data, RS232 & USB
	Dallas iButton	Presco (PAC1/PAC2), Wiegand, RS232 & USB
	Dallas iButton	Presco (KCx or PDA), Clock & Data, RS232 & USB
	RS232	Wiegand
	RS232	Clock & Data
	RS232	Presco
	DO NOT USE. Reserved for future use.	
	Prove keypad or reader	Wiegand
	Prove keypad or reader	Clock & Data
	Prove keypad or reader	RS232
	Prove keypad or reader	USB
	Presco PEL1 or PACDL	USB (used for system testing purposes only)
	DO NOT USE. Reserved for future use.	
	DO NOT USE. Reserved for future use.	
	Use this combination to reset the PIM settings to defaults when unit is powered up with program button depressed.	
	USB	Wiegand
	USB	Clock & Data
	USB	Presco Controller
	USB	Presco DLOG on controller (for use with PIMs4-PAC software to PAC1 or PAC2)
	USB	For firmware updating of selected Presco controllers.
	USB	For firmware updating of selected Prove products.
	DO NOT USE. Reserved for future use.	
	DO NOT USE. Reserved for future use.	

Wiring Diagrams

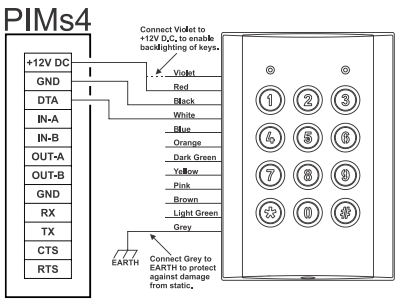
From Prove PSK2



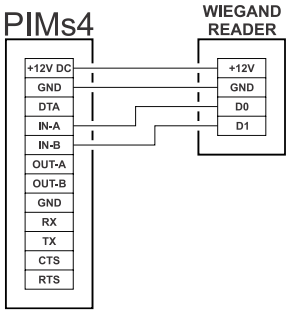
From Prove PRO24 (shown), PSC2 or PSR2



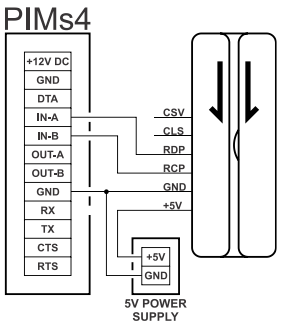
From Prove VR43 (shown) or VR62



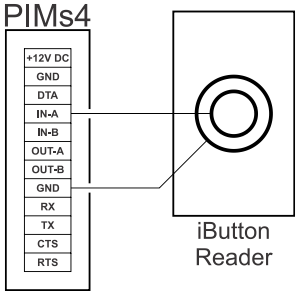
From Wiegand Reader



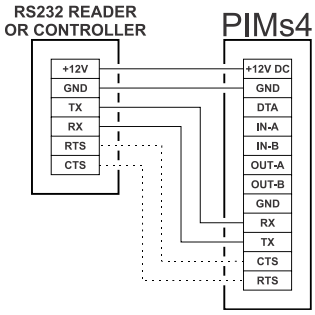
From Clock & Data Reader



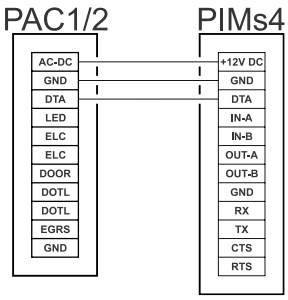
From Dallas iButton Reader



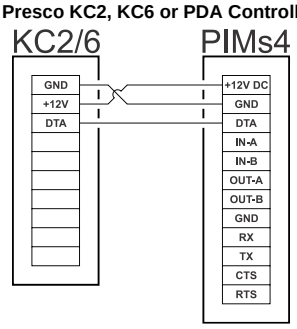
From RS232 reader or to RS232 input controller



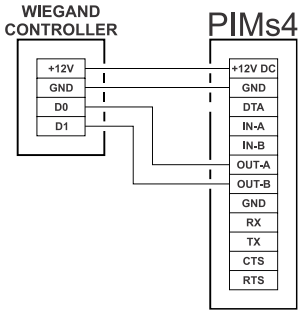
To Presco PAC1 or PAC2 Controller (not for using with PIMs4-PAC software)



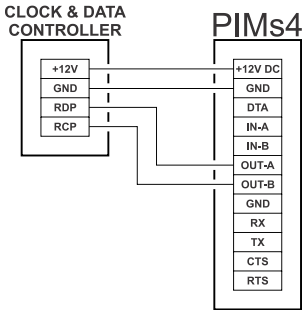
To Presco KC2, KC6 or PDA Controller



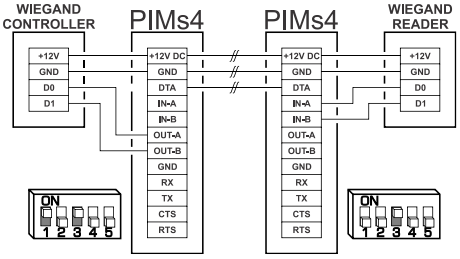
To Wiegand Input Controller



To Clock & Data Input Controller



Wiegand Extender Wiring



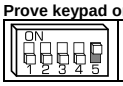
Converting from Prove Keypads & Readers

The PIM can read information from any of the Prove keypads and proximity readers as well as older Presco keypads and 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, USB or RS232.

Prove keypad or reader to Wiegand



Switch 5 ON

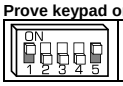
The Presco data can be converted to either standard Wiegand or burst mode Wiegand. There are several settings for both these modes that can be set, please refer to the WIEGAND TRANSMIT SETTINGS MEMORIES section.

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).

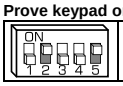
Prove keypad or reader to Clock & Data



Switches 1 & 5 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.

Prove keypad or reader to RS232



Switches 2 & 5 ON

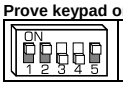
Once the data has been entered at a Prove keypad or prox reader (code then [E] or [#] pressed on keypad or card presented at reader) it will be sent to the RS232 port.

The PIM can then optionally make the encoder respond with a noise as set by the *good return character* in memory 021, or the return beep code can be sent back via the RS232 port within 3 seconds. The default settings are 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.

Prove keypad or reader to USB



Switches 1, 2 & 5 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 USB port.

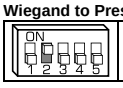
The PIM can then optionally make the encoder respond with a noise as set by the *good return character* in memory 021, or the return beep code can be sent back via the USB port within 3 seconds. The default settings are to make the encoder respond with a single beep.

Data sent to the USB 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. Please refer to the USB SETTINGS MEMORIES section.

Converting from Wiegand

The PIM can read up to 128 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

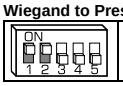


Switch 2 ON

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.

e.g. Site Code = 083, User Code = 02845
PIM code = 08302845
this is the number to program into the PAC1 or 2.

Wiegand to Presco for PDA, KC2 or KC6

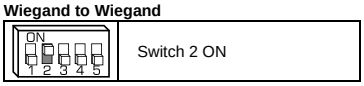


Switches 1 & 2 ON

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.

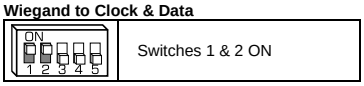
e.g. Site Code = 183, User Code = 02845
PIM code = 8302845
this is the number to program into the PDA, KC2 or KC6.

Wiegand to Wiegand



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



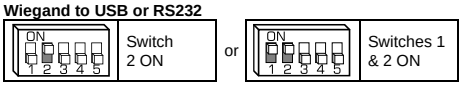
The PIM creates code from the Wiegand data that consists of the site code (converted to decimal) then the user code (converted to decimal). It then combines these 2 together and transmits the last n digits of the code, where n is the value set in memory 080. When receiving 26 bit Wiegand it converts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

e.g. 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 USB or RS232



The data can be sent to the USB and 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 USB & RS232 data. Please refer to the USB and RS232 SETTINGS MEMORIES sections.

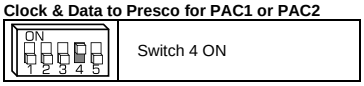
Converting from Clock & Data

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 number of characters 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).

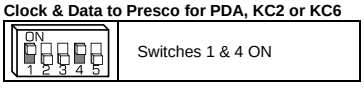
Clock & Data to Presco for PAC1 or PAC2



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.

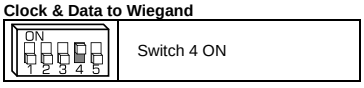
Clock & Data to Presco for PDA, KC2 or KC6



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

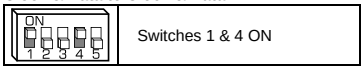


The PIM reads up to 32 characters from the data stream.

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

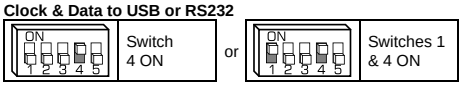
The data read from the Clock & Data source is converted to a binary number. The bits above the number of bits specified for the Wiegand user code are then discarded.

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 USB or RS232



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

Further settings are available for USB & RS232 data. Please refer to the USB and RS232 SETTINGS MEMORIES sections.

Converting from Dallas iButton

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

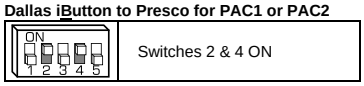
When reading the factory ID up to 64 bits can be read, 8 bit CRC, 8 bit family code + 48 bit serial number.

Up to 128 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.

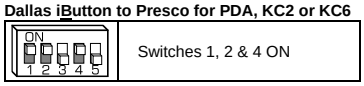
The default setting is to read 32 bits from the factory ID.

Dallas iButton to Presco for PAC1 or PAC2



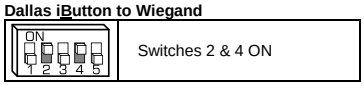
The PIM reads the number of bits specified and converts them to either a decimal or base 12 number (refer to memory 044). The lowest 9 digits of this number are sent as the code. The default setting is to convert to base 12.

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.

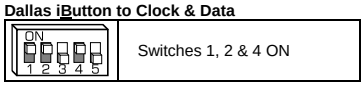
Dallas iButton to Wiegand



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).

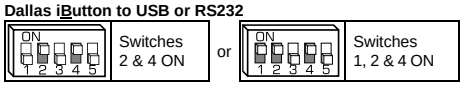
If the number of bits read from the iButton is more than the number of bits specified for the Wiegand user code then only the lower bits will be sent as the Wiegand user code.

Dallas iButton to Clock & Data



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

Dallas iButton to USB or RS232



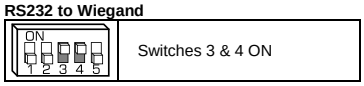
The data can be sent to the USB and RS232 port as either raw binary data, ASCII encoded decimal or ASCII encoded Hexadecimal. The default setting is to send the data as ASCII encoded decimal.

Further settings are available for USB & RS232 data. Please refer to the USB and RS232 SETTINGS MEMORIES sections.

Converting from RS232

The PIM converts from RS232 to Wiegand, clock & data or Presco.

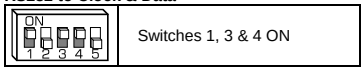
RS232 to Wiegand



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 character 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 character as specified in memory 005. If the data contains a separator character 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.

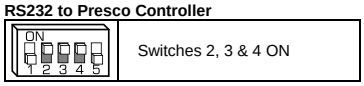
When the PIM is set to transmit burst mode Wiegand the output is undefined.

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 character as specified in memory 004 then the characters to be sent as clock & data followed by the end character 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 character 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.

RS232 to Presco Controller

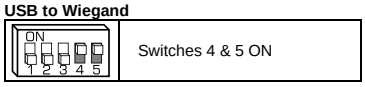


The data sent via the RS232 input needs to be formatted correctly for the PIM to output Presco. First the PIM needs to receive the start character as specified in memory 004 then the characters to be sent as Presco followed by the end character as specified in memory 005. The correct preamble and end characters need to be included in the data.

Converting from USB

The PIM converts from USB to Wiegand, clock & data, Presco or Presco DLOG.

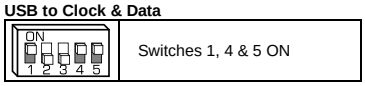
USB to Wiegand



When the PIM is set to transmit standard format Wiegand the data sent via the USB input needs to be formatted correctly. First the PIM needs to receive the start character as specified in memory 014 then the data to be converted to Wiegand (as a decimal number represented by ASCII coded digits) followed by the end character as specified in memory 015. If the data contains a separator character as specified in memory 016 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.

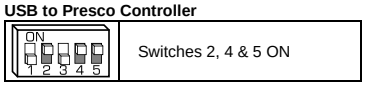
When the PIM is set to transmit burst mode Wiegand the output is undefined.

USB to Clock & Data



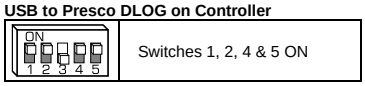
The data sent via the USB input needs to be formatted correctly for the PIM to output Clock & Data. First the PIM needs to receive the start character as specified in memory 014 then the characters to be sent as clock & data followed by the end character as specified in memory 015. If the data contains any separator chars as specified in memory 016 then these will be converted to the appropriate separator character 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.

USB to Presco Controller



The data sent via the USB input needs to be formatted correctly for the PIM to output Presco. First the PIM needs to receive the start character as specified in memory 014 then the characters to be sent as Presco followed by the end character as specified in memory 015. The correct preamble and end characters need to be included in the data.

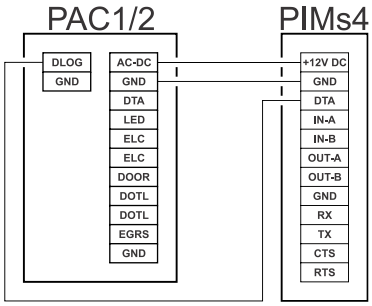
USB to Presco DLOG on Controller



PAC1/2 Programming Software

Presco controller programming software is 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, PIMs4-PAC, is available from NIDAC's website www.nidac.com.



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 either with a Prove keypad connected to the DTA terminal or via the USB port using the PIMs4 software.

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 black wire to GND, white wire to DTA and red wire to +12V.
3. Press the program button on the PIM. When the red LED on the PIM starts flashing the unit is in program settings mode.
4. Press [*] <3 digit memory number> <1-3 digit memory value> [E] (press [#] instead of [E] if using a Prove keypad without an [E] key).
5. Repeat step 3 for each setting memory to be programmed.

6. Press the Program button again. When the red LED stops flashing the PIM is no longer in program settings mode.
7. Remember to reconnect all wires back to the DTA terminal that were removed in step 1.
8. To reset all the memories back to factory default press [*] [9] [8] [7] [6] [5] [4] [E] (press [#] instead of [E] if using a Prove keypad without an [E] key) whilst in program settings mode.

PROGRAMMING USING THE USB-C & PC

1. Connect a USB-A to USB-C cable from the PC's USB port to the PIM.
2. Run the PIMs4 programming software on the PC.
3. Select the COM port the PIM is attached to.
4. Press the program button on the PIM. When the red LED on the PIM starts flashing the unit is in program settings mode.
5. To get the current PIM settings press the "Get Settings From PIMs4" button.
6. Use the software to set or change the memory values.
7. Press the "Send Settings To PIMs4" to update the PIM with the new settings.
8. Press the Program button again. When the red LED stops flashing the PIM is no longer in program settings mode.
9. Exit the software.
10. Disconnect the USB-C cable, if no longer required.

The PIMs4 software for programming the PIM via USB is available from NIDAC's website www.nidac.com.

RS232 SETTINGS MEMORIES

000 Baud rate: 0 = 1200, 1 = 2400, 2 = 4800, ***3 = 9600***, 4 = 19200, 5 = 38400, 6 = 57600, 7 = 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 = start + code,
2 = code + end,
3 = start + code + end,
4 = start + code with separator + end,
5 = code + <CR><LF>,
6 = start + code + <CR><LF>,
7 = code + <CR><LF> + end,
8 = start + code + <CR><LF> + end,
9 = start + code with separator + <CR><LF> + end.

NOTE: options 5-9 are only available from firmware revision 4f onwards.

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.

Designed and manufactured by
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Burwood Victoria
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+61 3 9808 6244
www.nidac.com
sales@nidac.com

USB SETTINGS MEMORIES

013 Send data config: ***0 = code only***,
1 = start + code,
2 = code + end,
3 = start + code + end,
4 = start + code with separator + end,
5 = code + <CR><LF>,
6 = start + code + <CR><LF>,
7 = code + <CR><LF> + end,
8 = start + code + <CR><LF> + end,
9 = start + code with separator + <CR><LF> + end.

NOTE: options 5-9 are only available from firmware revision 4f onwards.

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.

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

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

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

017 USB conversion format (only affects iButton & Wiegand reads):
0 = Raw,
1 = Decimal,
2 = Hex,
3 = ASCII encoded Binary.

PRESCO SETTINGS MEMORIES

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

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.

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 128 ***[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.

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 128 ***[16]***.

102 Number of bits for start parity (0 = no start parity bit, 128 or greater = use half the total number of data bits) ***[255]***.

103 Number of bits for end parity (0 = no end parity bit, 128 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 values = Do transmit.

Note that this memory has no effect when transmitting USB or 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 128 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 & 128 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 128 ***[16]***.

122 Number of bits for start parity (0 = no start parity bit, 128 or greater = use half the total number of data bits) ***[255]***.

123 Number of bits for end parity (0 = no end parity bit, 128 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 & 128 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 15. ***[255]***

141 Default custom Wiegand pattern byte 14. ***[255]***

142 Default custom Wiegand pattern byte 13. ***[255]***

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153 Default custom Wiegand pattern byte 2. ***[255]***

154 Default custom Wiegand pattern byte 1. ***[255]***

155 Default custom Wiegand pattern byte 0. ***[255]***

Memories 140 to 155 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.