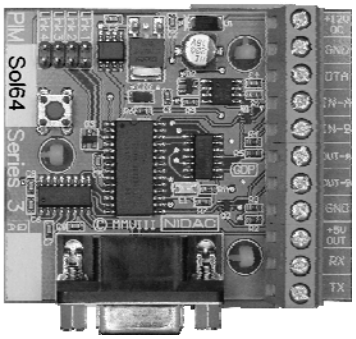
# PIM-Sol64

## Presco™ Interface Module for the Solution 64 with CM110

**"Series 3"**

**N761**




### INTRODUCTION

The PIM-Sol64 can be used to convert commonly used data formats to RS232 suitable for the Solution 64 panel when it is fitted with the optional CM110 4 way LAN relay output module.

### FEATURES

- Converts from Weigand, Nidac Presco™, Clock & Data (Magnetic Card) or Dallas iButton™ (commonly referred to as Silicon Key) format.
- Converts to RS232 suitable for Solution 64 Panel.
- Can convert from Weigand with up to 64 bits of data, including up to 32 bit site code plus optional start and end parity bits.
- Reads up to 64 bits from Dallas iButton™ user memory or 56 bits from factory ID.
- Reads up to 10 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 will be available from Nidac's website www.nidac.com.

### SPECIFICATIONS

| | | |
|---|---|---|
| Voltage: | | 10 to 15 Volts D.C. |
| Current: | | 30mA max (plus 5V output draw). |
| Dimensions: | | 66mm x 67mm x 23mm. |
| Weight: | | 45gms. |
| Weigand | Pulse Width: | 50µs |
| | Pulse Separation: | 2ms |
| RS232: | Baud Rate: | 9600 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-Sol64. i.e. all devices connected to the PIM-Sol64 require their GNDs to be connected together. |
| **DTA** | Presco™ data input/output. |
| **IN-A** | Input A (Weigand D0, Clock/Data RDP or iButton™). |
| **IN-B** | Input B (Weigand D1 or Clock/Data RCP). |
| **OUT-A** | **Unused** on the PIM-Sol64 model. |
| **OUT-B** | **Unused** on the PIM-Sol64 model. |
| **+5V OUT** | A 5 Volt D.C. power output for powering connected equipment (100mA. max.). |
| **RX** | **Unused** on the PIM-Sol64 model. |
| **TX** | The RS232 transmit output. This needs to be connected to the reader input on the CM110. |

### CABLING DISTANCES TO PIM-Sol64

| 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-Sol64 end only. | 100m |
| Weigand | 7/020 shielded cable.<br>4 core for reader only.<br>6 core for reader + LED control.<br>Ground the shield at PIM-Sol64 end only. | 100m |
| Presco™ PRE keypad | 7/020 unshielded cable.<br>2 core (figure 8) for data only, no LED control.<br>4 core for PRE with LED control. | 1000m |
| Presco™ PSE keypad without backlighting | 2 core (figure 8) 7/020 unshielded cable. | 1000m |
| Presco™ 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 |
| Presco™ 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 |
| Presco™ 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-Sol64.

### LINK SETTINGS SUMMARY

| Links | Input Type |
|---|---|
| Link 1 OFF, Link 2 OFF, Link 3 OFF, Link 4 OFF | Weigand |
| Link 1 OFF, Link 2 ON, Link 3 OFF, Link 4 OFF | Dallas iButton™ |
| Link 1 OFF, Link 2 OFF, Link 3 ON, Link 4 OFF | Clock/Data |
| Link 1 OFF, Link 2 OFF, Link 3 OFF, Link 4 ON | Presco™ |

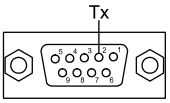
**IMPORTANT NOTES:**

1. When more than 1 link is on, the lowest numbered link has priority (i.e. when Link 2 is on Links 3 & 4 will be ignored).
2. Link 1 is always ignored.

### Connecting to the Solution 64 with CM110

The Solution 64 panel requires that the RS232 Transmit line (TX) be connected to the reader input on the CM110.

TX is bottom screw terminal on the PIM-Sol64 and it is also available via pin 2 on the DB9 female connector as shown below. Note that the GND pin doesn't need to be connected because the PIM-Sol64 is using power supplied by the Solution 64 panel.




Tx pin on DB9 Female connector on PIM-Sol64

### Converting from Presco™

| | |
|---|---|
| Link 1 OFF, Link 2 OFF, Link 3 OFF, Link 4 ON | Link 4 ON |

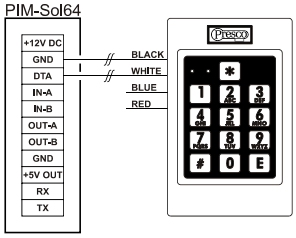
The PIM-Sol64 can read information from any of the Presco™ encoders, including PRE, VR43, VR62 & PSE keypads and Sprite & PRX Proximity readers.

**Note** that no information is sent from a Presco™ keypad until the [E] key is pressed on a PRE or the [#] key on a VR43, VR62 or PSE.

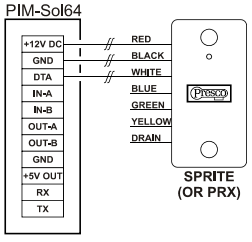
Once the data has been entered at the Presco™ encoder (card presented at reader or code then [E] or [#] pressed on keypad) it will be sent via the RS232 port to the Solution 64.

The PIM-Sol64 then instructs the encoder to respond with a noise as set by the *good return character* in memory 021.

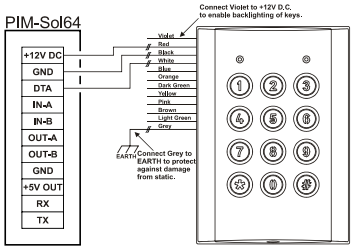
**Presco™ PRE (shown) or PSE wiring**




**Presco™ Sprite wiring**




**Presco™ VR43 (shown) or VR62 wiring**



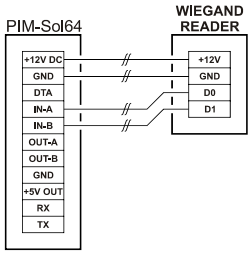
## Converting from Weigand


The PIM-Sol64 can read up to 64 bits of Weigand data with or without start and/or end parity bits including a site code of up to 32 bits. The default settings are for the PIM-Sol64 to read standard 26 bit weigand.

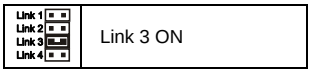
The PIM-Sol64 creates a 10 digit number from the Weigand data. When receiving 26 bit weigand it converts the site code to a 3 digit decimal number, then it converts the user code to a 5 digit decimal number and combines these to create an 8 digit code, leading zeroes are then added to make a 10 digit code.

eg. Site Code = 183, User Code = 02845
PIM-Sol64 code = 0018302845
this is the number to program into the Solution64.

Optionally the site code portion can be discarded by setting memory 105 to 0 so that only the user code (plus any required leading zeroes) is sent.



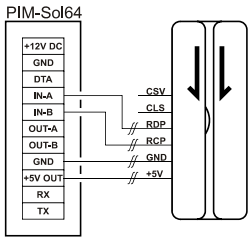

## Converting from CLOCK/DATA




When reading from a Clock & Data device the PIM-Sol64 accepts Track 1, 2 or 3 format Clock/Data inputs RDP and RCP on the IN-A and IN-B terminals respectively. The CLS signal from the reader is not used.

The PIM-Sol64 reads up to a maximum of 10 characters from the data stream.

The PIM-Sol64 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).





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## Converting from Dallas iButton™

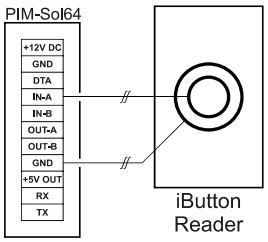

Either the unique factory ID code or the user memory (selected iButton™s only) can be read.

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-Sol64 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.




## PROGRAMMING

Several options are available through the use of memories to set the PIM-Sol64 to receive 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 Presco™ 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-Sol64 cannot be guaranteed.

### PROGRAMMING USING A PRESCO™ KEYPAD

1. Disconnect all wires from the DTA terminal (except the white wire from the Presco™ keypad).
2. Connect the Presco™ 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-Sol64. When the red LED on the PIM-Sol64 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.

### 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-Sol64 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-Sol64 is attached to.
5. Press the program button on the PIM-Sol64. When the red LED on the PIM-Sol64 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-Sol64 via RS232 will be available from Nidac's website www.nidac.com in the Downloads->Software section.

### PRESCO™ SETTINGS MEMORIES

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

### 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]***.

### 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-Sol64 will skip this number of characters before reading any data.

### WEIGAND RECEIVE SETTINGS MEMORIES

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

**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-Sol64 will ignore all settings in memories 100 to 105 and 111 to 113 and will receive weigand data until either is has received 64 bits of data or 8 milliseconds has elapsed since it received it's 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 weigand 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 option requires a high understanding of Weigand 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]***