

## Pro-Watch SNET Reader Support Guide



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## Scope of this document

This document describes the steps need to successfully configure Pro-Watch® to support PW-6000 Series controllers with SNET DKR and MSR series readers. It is intended for qualified Pro-Watch® engineers, with in depth knowledge of PW-Series controllers and legacy SNET wiring and configuration.

## Installation Pre-requisites

The following components as a minimum are required for SNET support on PW series panels.

- Operational Pro-Watch® 3.81 build 3.81.0.8475 or higher
- PW6KIC and PW6K1R2 panels
- PW6KIC firmware pw6k\_2\_5\_4\_0279.crc or higher
- PW6K1R2 firmware pw6k1r2\_appl\_1\_5\_8.aax or higher
- SNET capable readers
- New 32 bit PW5K Wiegand card format for DKR readers
- New 40 bit PW5K Magnetic Stripe card format for MSR readers

Supported Readers:

- DKR Readers  
(DR4201 / DR4203 / DR4205 / DR4205K / DR4208S / DR4208K / DR4220 / DR4238)
- MSR Readers  
(DR4201SC / DR4205SC / DR4205SCK / MSR5 /MSRK5)

## Integration Overview

The SNET readers can be integrated into the PW series architecture in 2 ways or a mix of both. Currently up to 8 SNET readers can be controlled by the PW-6000 Intelligent controller directly.

The first method allows one RS-485 port on the PW-6000 IC board to be used for SNET readers, the other RS-485 port is used to connected the PW series downstream devices. These can be I/O modules or additional reader boards.

The second method allows the SNET reader to be configured via a PW6KR2 board. This allows to SNET reader to be connected to the board using the RS-485 SNET protocol, instead of Wiegand. Each Wiegand port on the PW6KR2 allows the connection of 1 SNET reader on the fixed address 1.

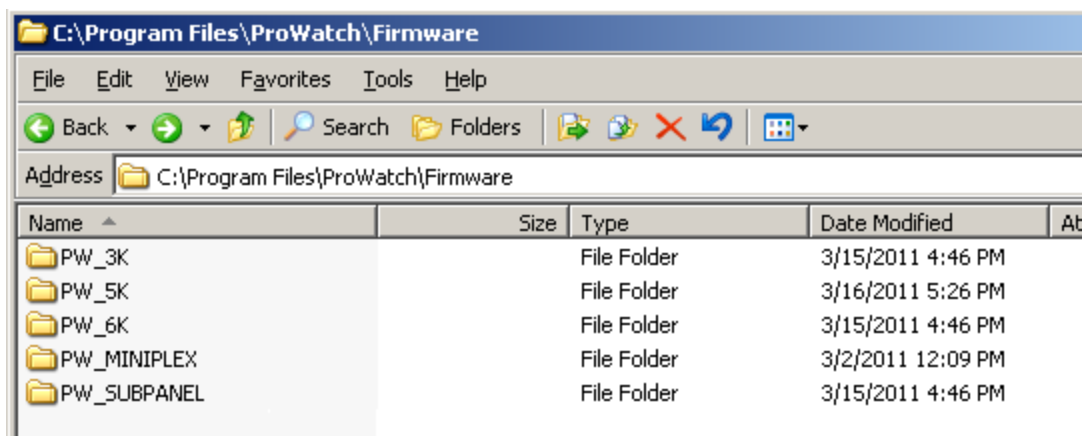
Both methods can also be combined, having readers controlled by the PW-6000 IC and also via a couple of PW6KR2 devices.

## Adding Firmware to Pro-Watch® firmware folder

The Pro-Watch® software needs to be at a minimum of build 3.1.8.0.8475 or higher to support the PW-6000 IC's with SNET. The PW-6000 IC panel itself requires firmware PW6K\_2\_5\_4\_0279 or higher. If the Pro-Watch® system does not come with this firmware, please contact technical support.

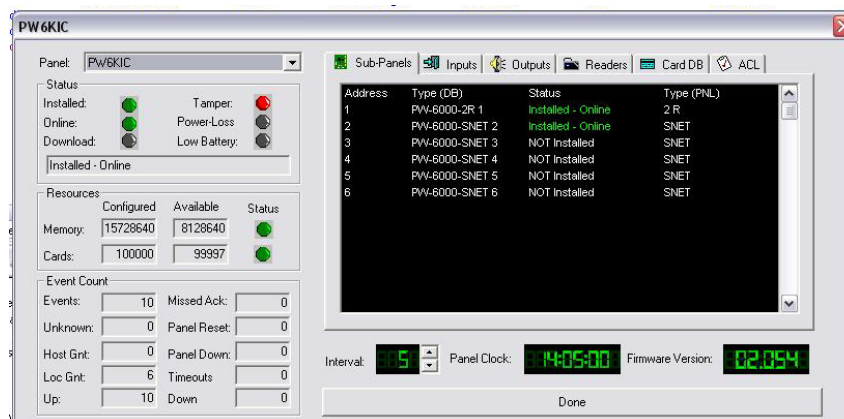
In order to be able to upgrade the firmware, the firmware files need to be placed in the C:\Program Files\ProWatch\Firmware folder.

1. Place the pw6k\_2\_5\_4\_0279.crc file in PW\_6K folder.
2. Place the pw6k1r2\_appl\_1\_5\_8.aax file in PW\_SUBPANEL folder



## Downloading new Firmware to the PW-6000 panel

To determine if the PW-6000 panel require a firmware update, go to *Hardware Configuration*. Expand the appropriate *Site* on which the panel is located and then go to *Panels*. Right click the appropriate panel and select status. In the lower right corner you will see the firmware version that is currently loaded in the panel.



## Downloading new Firmware to the PW-6000 panel - continued

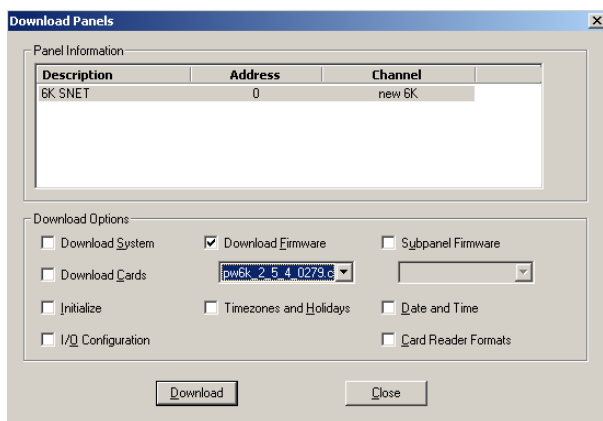
When the PW-6000 panel requires a firmware update, execute the following procedure:

- Go to Hardware Configuration-Site-Panels' folder and click on the pw series panel and select download.
- Uncheck Download System in the Download options
- Check download firmware
- Select pw6k\_2\_5\_4\_0279.crc file from the drop down list.
- Click the download button.
- Once the panel comes back online, the PW6KR2 firmware can be updated.

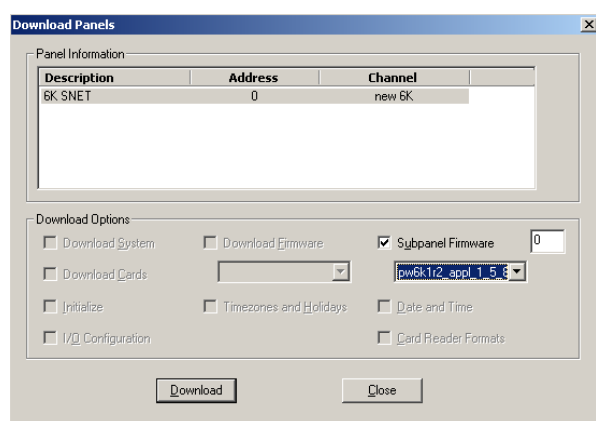
## Downloading new Firmware to the PW6KR2 sub panel.

Downloading the PW6KR2 firmware requires another download to the PW-6000 panel, instead of selecting Download Firmware, the Sub panel Firmware download checkbox need to be selected. Execute the following procedure:

- Go to Hardware Configuration-Site-Panels' folder and click on the pw series panel and select download.
- Uncheck Download System in the Download options
- Check download firmware
- Select pw6k1r2\_appl\_1\_5\_8.aax file from the drop down list.
- Click the download button.
- When the PW6KR2 comes back online again, the upgrade process is complete



Download Firmware



Download Sub panel Firmware

## Creating a new card format

The SNET protocol used with SEEP and CHIP panel types knows 2 different reader types, these are DKR and MSR readers. For a full list of each category see Appendix.

When using these readers with the PW-6000, an appropriate new card format needs to be created. Regardless how you will connect the SNET reader(s) to the PW-6000 panel, the appropriate card format will need to be created and assigned to the PW-6000 panel.

To create a card format for a DKR reader type, execute the following steps:

- Go to Database Configuration-card formats
- Right click and select new card format, select non PW2000 format.
- Provide a description e.g. 'SNET DKR Format'
- Select Format Type *PW5K Wiegand*
- Set Bits to 32
- Set Card number star to 0
- Set Card number length to 32
- Click OK to Finish

Property	Value
Format Type:	PW5K Wiegand
Id Offset:	0
Bits:	32
Flags:	0

Card Item	Start	Length
Facility Code	0	0
Card Number	0	32
Issue Code	0	0
Even Parity	0	0
Odd Parity	0	0

To create a card format for a MSR reader type, execute the following steps:

- Go to Database Configuration-card formats
- Right click and select new card format, select non PW2000 format.
- Provide a description e.g. 'SNET MSR Format'
- Select Format Type *PW5K Magnetic Stripe*
- Set Max Digits to 40
- Set Card number start to 0
- Set Card number length to 10
- Click OK to Finish

Property	Value
Format Type:	PW5K Magnetic Stripe
Id Offset:	0
Min. Digits:	0
Max. Digits:	40
Flags:	0

Card Item	Start	Length
Facility Code	0	0
Card Number	0	10
Issue Code	0	0

⚠ Assign the created card format(s) to the appropriate PW-6000 IC when finished.

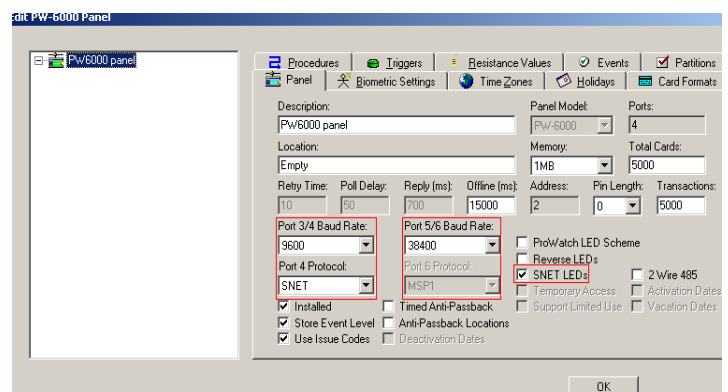


## SNET via PW-6000 IC

The following steps describe the configuration of SNET readers via a RS-485 connection from the PW-6000 IC. A new I/O Module can be created and assigned to the PW-6000 panel, beside the PW-6000 2 Reader board and 16IN/16Out boards. The new Module is called PW-6000-SNET. Up to 8 SNET Readers are support of a PW-6000 IC. It is recommended to reserve address 1 – 8 for the SNET readers as these addresses will need to match the address provided using the dip/rotary switches on the reader itself. Addresses 9 and higher can be used for I/O modules.

To configure the PW-6000 panel for use with SNET, execute the following steps:

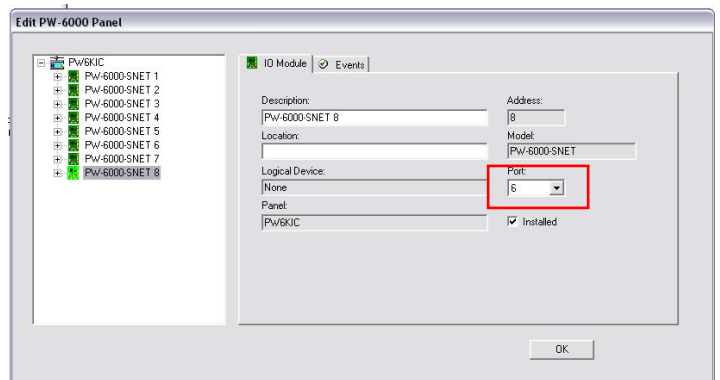
- Go to Hardware configuration
- Expand Site
- Go to Panels
- Double click the Panel
- Check the SNET LED box
- Set Port 3/4 to 9600 baud
- Set Port 3/4 protocol to SNET
- Set Port 5/6 to 384000
- Set Port 5/6 to MSP1



As the PW6KIC has no I/O points one Port will need to be configured as SNET and one port as MSP1. Port 3/4 baud rate field is set to 9600 and Port 4 protocol to SNET when using SNET DKR/MSR readers. This port refers to Port 2 on the PW6KIC. Port 5/6 is set to baud rate 384000 and Port 6 protocol is set to MSP1 for normal PW series downstream RS-485 modules. Port 6 is referring to Port 3 on the PW6KIC.

To add the PW-6000-SNET devices, continue with the following steps:

- Right click in the hardware tree
- Select appropriate address
- Select type PW-6000-SNET
- Click OK
- Repeat these steps for each SNET device
- Add I/O boards



⚠ Once all PW-6000-SNET devices have been created, select each device and make sure that the Port is set to the appropriate SNET configured port.

⚠ Make sure the I/O modules are configured on the MSP1 configured port.

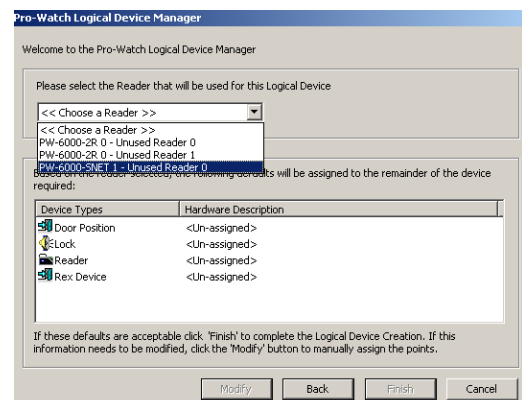
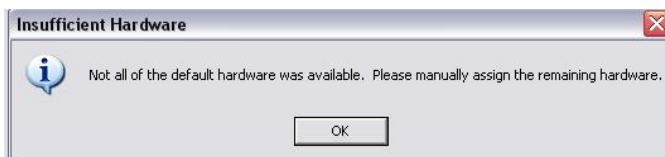
The next step would be to create Logical Devices with the SNET readers. The creation of the Logical Devices is no different from adding Logical Devices using the standard Wiegand configuration. It is recommended that you setup the hardware templates before adding hardware.

To add a Logical device, execute the following steps:

- Go to Hardware configuration
- Right click on reader's folder
- Select New - Logical device.
- Enter name for the logical device description.
- Select the appropriate hardware templates (e.g. Door Typical ACR)
- Control panel is the panel where reader is being configured on.
- Select the appropriate hardware class ( e.g. Readers )

The Pro-Watch Logical Device Manager appears. Select the PW-6000-SNET reader you want to use. Please note that the number behind PW-6000-SNET in the drop down list indicates the SNET reader address.

A message pops up saying that “Not all of the default hardware was available. Please manually assign the remaining hardware”.



You will need to manually assign the other I/O hardware to the logical device. Alternatively do not use the Logical Device Wizard and assign all hardware manually.

Configured the Logical Device with the settings as described in the *Reader Settings* section.

**! Make sure that you have configured your hardware templates accordingly before creating logical devices. Please refer to the section *Reader Settings* for configuration options.**

## SNET via PW-6000 2 Reader board (PW6KR2)

The following steps describe the configuration of SNET readers via a PW6KR2 Reader board connected on a PW-6000 IC panel. If the reader board is not at the latest firmware version, please refer to the *Downloading new Firmware to the PW6KR2 sub panel* section.

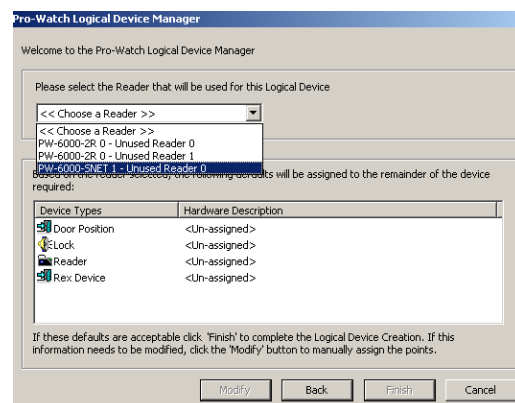
The PW6KR2 allows the connection of 2 SNET readers. The advantage is that I/O hardware is already located on this board. Each SNET reader will be connected to one reader port on the PW6KR2 and each SNET reader must have address 1 configured using the dip/rotary switches. Multi-drop SNET is not supported from these reader ports. The reader boards are added to the PW-6000 IC as normal.

To add a Logical device, execute the following steps:

- Go to Hardware configuration
- Right click on reader's folder
- Select New - Logical device.
- Enter name for the logical device description.
- Select the appropriate hardware templates (e.g. Door Typical ACR)
- Control panel is the panel where reader is being configured on.
- Select the appropriate hardware class (e.g. Readers)

The Pro-Watch Logical Device Manager appears. Select the appropriate reader from the Reader board that you want to use. The hardware is automatically assigned as the reader board contains I/O points. Click Finish to complete the logical device creation.

Configured the Logical Device with the settings as described in the *Reader Settings* section.



⚠ Make sure that you have configured your hardware templates accordingly before creating logical devices. Please refer to the section *Reader Settings* for configuration options.

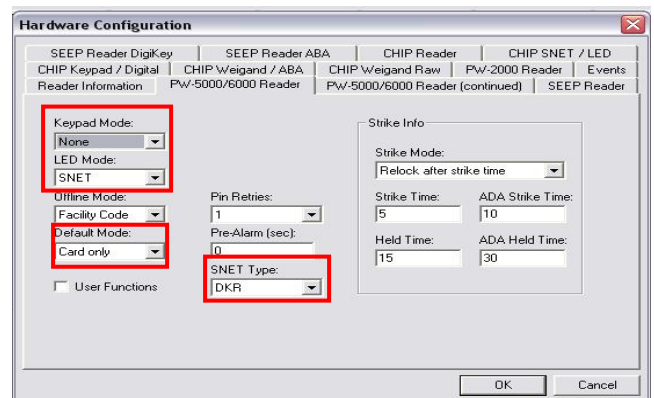
⚠ SNET readers configured on a PW6KR2 reader board always use SNET Address 1.

## Reader Settings

Depending on the SNET reader type that is being used, various reader settings will need to be configured. These settings can be configured at the logical device or they can be pre-configured in the hardware templates. The advantage of using the hardware template is that the configured settings are applied each time that a new logical device is created, hence it saves time when these are configured with the settings that you want to use.

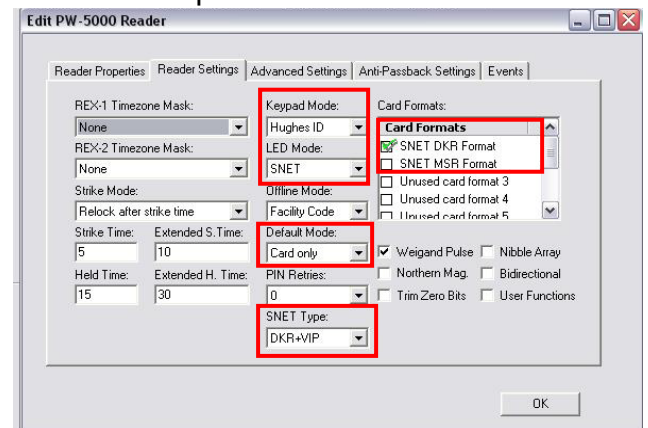
To configure the settings in the Hardware Template, execute these steps:

- Go to *Hardware Configuration*
- Select *Hardware Templates*
- Double click the appropriate template
- Select the tab *Device types*
- Double click on *Reader*
- Select the tab *PW-5000/6000 Reader*



To configure the settings on the Logical Device, execute these steps:

- Go to *Hardware Configuration*
- Expand the appropriate Site
- Select the appropriate Class (e.g. Readers)
- Double click the Logical Device
- Select the tab *Logical Device Details*
- Double Click on *Reader*
- Select the tab *Reader Settings*



### DKR Reader without Keypad:

When using DKR readers models without keypad (see Appendix DKR readers a-f) the following settings will need to be configured in the Reader settings. Configuration options in both Hardware Template and Logical Device is indicated by ○, Logical Device configuration only is indicated by ●

- Keypad Mode                None
- LED Mode                 SNET
- SNET Type                DKR
- Default Mode             Card Only
- Card Format                SNET DKR Format

## Reader Settings - continued

### **DKR Reader with Keypad:**

When using DKR readers models with keypad (see Appendix DKR readers g-h) the following settings will need to be configured in the Reader settings. Configuration options in both Hardware Template and Logical Device is indicated by ○, Logical Device configuration only is indicated by ●

- |                |                 |
|----------------|-----------------|
| ○ Keypad Mode  | Hughes          |
| ○ LED Mode     | SNET            |
| ○ SNET Type    | DKR + VIP       |
| ○ Default Mode | Card and PIN    |
| ● Card Format  | SNET DKR Format |

The default mode can also be any of the other available options, e.g. Card or PIN, PIN only etc.

### **MSR Reader without Keypad:**

When using MSR readers models without keypad (see Appendix MSR readers A-C) the following settings will need to be configured in the Reader settings. Configuration options in both Hardware Template and Logical Device is indicated by ○, Logical Device configuration only is indicated by ●

- |                |                 |
|----------------|-----------------|
| ○ Keypad Mode  | None            |
| ○ LED Mode     | SNET            |
| ○ SNET Type    | MSRK            |
| ○ Default Mode | Card Only       |
| ● Card Format  | SNET MSR Format |

### **MSR Reader with Keypad:**

When using MSR readers models without keypad (see Appendix MSR readers D-E) the following settings will need to be configured in the Reader settings. Configuration options in both Hardware Template and Logical Device is indicated by ○, Logical Device configuration only is indicated by ●

- |                |                 |
|----------------|-----------------|
| ○ Keypad Mode  | Hughes          |
| ○ LED Mode     | SNET            |
| ○ SNET Type    | MSRK            |
| ○ Default Mode | Card and PIN    |
| ● Card Format  | SNET MSR Format |

The default mode can also be any of the other available options, e.g. Card or PIN, PIN only etc.

## SNET Reader from PW-6000 IC

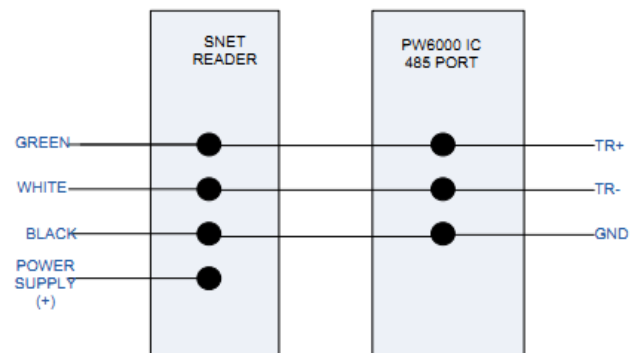
Using this configuration the PW6KIC board uses one of its two RS-485 ports to connect SNET readers. The other RS-485 port is used to connect the PW series I/O Modules.

When using this configuration, the following rules apply:

- Allows SNET reader to be multi dropped
- Up to 8 readers are supported.
- SNET address 1 – 15 can be used
- Readers need to be powered separately

### Wiring Diagram

#### Between SNET reader and PW6000 IC 485 Port

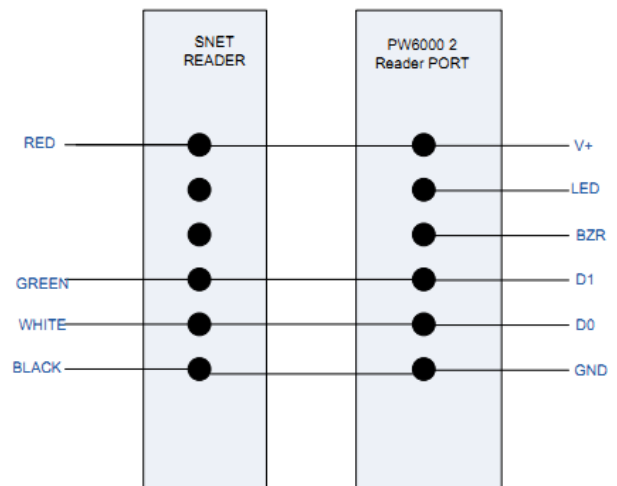


## SNET Reader from PW-6000 2-Reader board

Using this configuration the PW6KR2 can connect one SNET reader to each Wiegand port on the 2 reader board. In total 2 SNET reader can be connected to this board.

- One-to-One configuration
- 2 readers can be connected to the PW6KR2 board
- 1 SNET reader per Wiegand Port
- SNET address 1 can be used only!
- Readers may be powered from the IC.

#### Between SNET reader and PW6000 2-Reader board Port



⚠ Some DKR/MSR readers work with 24VDC only. Please consult your readers manual to see if the reader supports 12 VDC.

⚠ In case the reader does not support 12VDC, power needs to be applied separately to the readers.

## PW6KIC vs Star Panel SNET Reader Behaviour

The reader is the most visible item to users of an access control system, hence users are used to a certain behavior of the reader type that encounter every day. Making the transition from SEEP/CHIP panel to a PW-6000 IC panel with SNET reader support will come with different reader behavior. The following list provide an overview of the differences in SNET reader behavior between the PW6KIC and SEEP/CHIP Panels.

	SEEP/CHIP behavior	PW6KIC behavior
Door Forced Open	The reader would beep continiously when the pre-alert was configured	The reader will not beep on door forced
Door Held Open	The reader would beep intermittent x seconds before a door held open alarm would be raised, at the door held open time it would beep continuously until the door was closed	The reader will not beep at all
Reader + Keypad mode	The LED turns yellow awaiting PIN entry after card presentation	The LED turns yellow awaiting PIN entry after card presentation
Reader + Keypad mode	The LED turns yellow awaiting card presentation after entering PIN	The LED turns yellow after 1 <sup>st</sup> PIN digit entry. After entering the full PIN, the LED turns RED awaiting card presentation
Reader Offline Mode:Facility	Not a SEEP/CHIP feature	When the reader board loses communication to the PW6KIC, the reader board will grant access to all card. The LED mode will be RED and does not turn Green. After some time the LED turns off completely. Recommend to use offline mode: LOCKED
Reader Offline Mode: Unlocked	Not a SEEP/CHIP feature	Door unlocks, LED remains RED
Reader Offline Mode:Locked	Not a SEEP/CHIP feature	Door remains Locked, LED remains RED
PIN only Mode	Keypad LED was RED	Keypad LED is Yellow
Building Mode LED indication	SEEP/CHIP specific feature	Not a PW6KIC feature
Require 2 Card Control	Not a SEEP/CHIP feature	After 1 <sup>st</sup> card presentation the LED will blink Green/Off

## **SNET features not available on PW6KIC**

Reade Range
Verification Reads
Verification Time
Beeper On/Off/Combined
Forward digicode to ACU one
Continue Forwarding digicode
Star 2 LED color configuration

## **PW6KIC new features compared to SEEP/CHIP Panels**

Secure Mode	Allows an operator to monitor access on a door and manually Grant/Deny access.
Card or PIN	Allow the use of either a card or PIN to gain access to a door
ADA card option	Allow a user to use an extended unlock time e.g wheelchair access
Pin Exempt	Allow a user to be exempted from entering a PIN on a Card reader with keypad.



## Appendix

### DKR Readers:

- a) DR4201
- b) DR4203
- c) DR4205
- d) DR4208S
- e) DR4220
- f) DR4238
- g) DR4205K        - with Keypad
- h) DR4208K        - with Keypad

### MSR Readers:

- A) DR4201SC        - Mifare / Legic Reader
- B) DR4205SC        - Mifare / Legic Reader
- C) MSR42            - Magstripe Reader
- D) DR4205SCK       - Mifare / Legic Reader w Keypad
- E) MSRK42           - Magstripe Reader w Keypad