

# Important Product Information

# PACSystems\* RX3i

IC695PNS001-BBBC

IC695PNS101-AAAA

IC695PNS001CA-BBBC

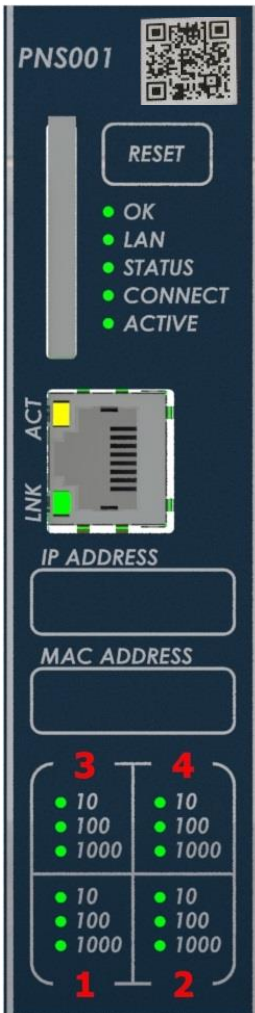
IC695PNS101CA-AAAA

GFK-2738Q

August 2018

## RX3i PROFINET Scanner

## RX3i Advanced PROFINET Scanner



The PNS001 & PNS101 share the same front panel markings except for the catalog number and QR code.

The PACSystems\* IC695PNS001 RX3i PROFINET Scanner and IC695PNS101 RX3i Advanced PROFINET Scanner modules connect a remote universal RX3i I/O rack of Series 90-30 or RX3i modules to a PROFINET I/O Controller. The PROFINET Scanner scans the modules in its rack, retrieving input data and providing output data, and exchanges that data on the PROFINET I/O LAN at the configured production rate.

The PNS manages PROFINET communication and module configuration between an I/O Controller and modules in the remote rack. If network communications are lost, the PNS manages I/O states according to the individual module configurations.

The PNS001 and PNS101 support 10/100/1000 Mbps Copper, 100/1000 Mbps Multi-mode Fiber, and 100/1000 Mbps Single-mode Fiber. PROFINET communications on the network require 100 or 1000 Mbps link speed. Although 10 Mbps cannot be used for PROFINET communications, 10 Mbps can be used for other types of Ethernet traffic such as PING.

Features of the RX3i PNS001 PROFINET Scanner include:

- Configuration services for all supported Series 90-30 and RX3i I/O Modules using Proficy\* Machine Edition (PME). For a list of currently supported I/O modules, refer to *Supported Modules, Power Supplies and Backplanes*.
- Support for daisy-chain/line, star, or ring (PROFINET Media Redundancy Protocol (MRP)) topologies.
- Four switched Ethernet ports - two 8-conductor RJ-45 shielded twisted pair 10/100/1000 Mbps copper interfaces and two Small Form-factor Pluggable (SFP) cages for user-supplied SFP devices.
- The network can include media interfaces of more than one type.
- Support for transfer of I/O Device Name to another PNS module using an SD card. This eliminates the need to connect a configuration tool, such as Proficy Machine Edition when replacing a module.
- A front panel Ethernet RJ-45 port for field firmware updates.

The RX3i PNS101 Advanced PROFINET Scanner includes all features of the PNS001 PROFINET Scanner and adds:

- Support for Sequence of Events recording with IRIG-B time synchronization of events accurate to 1ms. The PNS101 buffers up to 4000 events from up to four IC694MDL660 32 Circuit Discrete Input modules at a maximum rate of 400 events per second. Unmodulated IRIG B time signals are decoded using either an IC695HSC304 or IC695HSC308 High Speed Counter Module. The PNS101 may also be used as a standard PROFINET scanner when Sequence of Events is disabled.

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**Ordering Information**

|               |  |
|---------------|--|
| IC695PNS001   | PACSystems RX3i PROFINET Scanner Module 10/100/1000 with four Ports<br>(two SFP connections, two RJ45 connections)<br>Includes a blank SD card                           |
| IC695PNS001CA | Conformal Coated PACSystems RX3i PROFINET Scanner Module 10/100/1000 with four Ports<br>(two SFP connections, two RJ45 connections)<br>Includes a blank SD card          |
| IC695PNS101   | PACSystems RX3i Advanced PROFINET Scanner Module 10/100/1000 with four Ports<br>(two SFP connections, two RJ45 connections)<br>Includes a blank SD card                  |
| IC695PNS101CA | Conformal Coated PACSystems RX3i Advanced PROFINET Scanner Module 10/100/1000 with four Ports<br>(two SFP connections, two RJ45 connections)<br>Includes a blank SD card |
| IC695SPC100   | RX3i 10/100/1000Base-T copper SFP  |
| IC695SPF002   | RX3i 100Base-FX (fiber 2 km) SFP (Multi-mode fiber - MMF)  |
| IC695SPF550   | RX3i 1000Base-SX (fiber 550 m) SFP (MMF)   |
| IC695SPF010   | RX3i 1000Base-LX (fiber 10 km) SFP (Single-mode fiber - SMF)   |

**Specifications**

|   |   |   |
|---|---|---|
| <b>PROFINET Support</b>                               | PROFINET Version 2.3 Class A I/O Device<br>Redundantly controlled operation implements PROFINET V2.3 Type S-2 System Redundancy   |   |
| <b>Proficy Machine Edition Version Required</b>       | PNS001 & PNS101: Version 8.50 SIM 2 or later  |   |
| <b>Power Requirements</b>                             | PNS001-Bxxx or later:<br>PNS101-Axxx or later:<br>3.3 Vdc<br>0.6 A with no SFP devices installed<br>1.3 A maximum (two SFP devices installed, 0.35A per SFP)  | PNS001-Axxx:<br>3.3 Vdc<br>1.2 A with no SFP devices installed<br>1.9 A maximum (two SFP devices installed, 0.35A per SFP)  |
|   | PNS001-Bxxx or later:<br>PNS101-Axxx or later:<br>5Vdc: 0.7 A maximum   | PNS001-Axxx:<br>5Vdc: 1.1 A maximum   |
| <b>Operating Temperature Range</b>                    | PNS001-Bxxx or later:<br>PNS101-Axxx or later:<br>-25°C to 60°C<br>Derated to 57°C:<br><ul style="list-style-type: none"> <li>• If 100MB Fiber SFPs installed, or</li> <li>• If Copper SFPs operating at 1GB</li> </ul>   | PNS001-Axxx:<br>0°C to 60°C<br>Derated to 57°C:<br><ul style="list-style-type: none"> <li>• If 100MB Fiber SFPs installed, or</li> <li>• If Copper SFPs operating at 1GB</li> </ul> |
| <b>Number of Port Connectors</b>                      | Two RJ-45 and Two SFP Cages (SFP devices not included, available separately)  |   |
| <b>FW Upgrade Connector</b>                           | PNS001-Bxxx & PNS101-Axxx:<br>One RJ-45 Ethernet connector on front panel   | PNS001-Axxx:<br>One USB connector on front panel  |
| <b>SD Card</b>  | Supports SD and SDHC cards.   |   |
| <b>PNS001 Status and Control Bits</b>                 | 32 input status bits and 32 output control bits   |   |
| <b>PROFINET I/O production rate (I/O Update Rate)</b> | Configurable selections: 1ms, 2ms, 4ms, 8ms, 16ms, 32ms, 64ms, 128ms, 256ms or 512ms  |   |
| <b>Number of IP addresses</b>                         | PNS001-Bxxx & PNS101-Axxx: Two<br>One for PROFINET ports.<br>One for front panel port. Supports Classless Inter-Domain Routing (CIDR)   | PNS001-Axxx: One<br>One for PROFINET ports.   |
| <b>Number of MAC Addresses</b>                        | PNS001-Bxxx & PNS101-Axxx: Six<br>One front panel port, one for each of the four external ports, and one internal port.   | PNS001-Axxx: Five<br>One for each of the four external ports, and one internal port.  |
| <b>I/O Station Maximum Limits</b>                     | Number of I/O Modules per station   | Number of backplane slots minus one for the PNS and at least one for a power supply   |
|   | I/O data per station  | 2880 bytes total<br>1440 bytes of input data<br>1440 bytes of output data   |
| <b>Configuration</b>                                  | V2.3 GSDML file is available on the Support website <a href="http://support.qe-ip.com">http://support.qe-ip.com</a> for download and import into Proficy Machine Edition. The GSDML supporting a firmware release is part of the firmware upgrade kit available on the Support website. |   |

For installation and maintenance requirements, refer to *PACSystems RX3i/Series 90-30 Installation and Maintenance Requirements*, GFK-2975.

**PROFINET Scanner Status and Control Data**

The RX3i PROFINET Scanner provides 32 bits of input status data and receives 32 bits of output control data. The application program in the I/O Controller system can monitor the input status bits for the PNS module. The output control bits are reserved for future use and have no function at this time.

**Output Control Bits:**

PNS001 -Axxx hardware: The 32 bits of control output assigned to the PNS module are reserved for future use.

PNS001-Bxxx or later and PNS101-Axxx hardware: The 32-bits of control output assigned to the PNS module allow the IO Controller to dynamically control aspects of the scanner’s operation. All control bits are active high. Bit 1 is the least significant bit.

| Bit # | Name             | Description  |
|-------|------------------|--|
| 1     | FW Update in Run | A value of 1 allows the webpage firmware update to continue (and restart the PNS disrupting IO) while the PNS IO is actively controlled. |
| 2–32  | Reserved         | Set to 0   |

**Input Status Bits:**

The PROFINET Scanner’s 32 bits of input status provide information about the scanner. All status bits are active high. Bit 1 is the least significant bit.

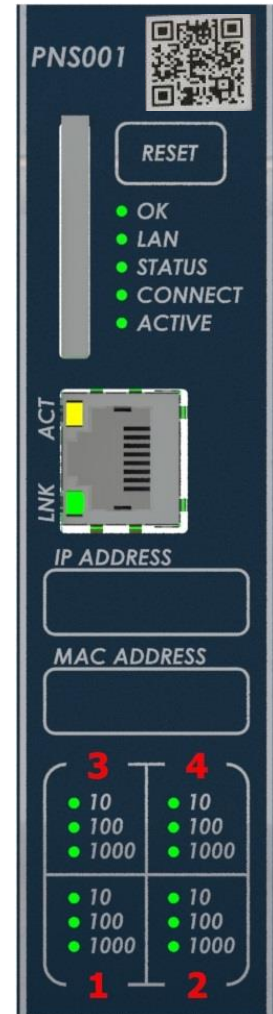
| Status Bits | Name          | Description  |
|-------------|---------------|--|
| 1           | Module OK     | Indicates the health of the module. A value of 0 indicates the module is powering up or has failed. A value of 1 indicates the module is functioning properly.   |
| 2           | Reserved      | Set to 0   |
| 3           | Port1 Link Up | 1 = port is connected to another device and is communicating.<br>0 = port is not connected to another device, or the port has some sort of error preventing communications.  |
| 4           | Port2 Link Up |  |
| 5           | Port3 Link Up |  |
| 6           | Port4 Link Up |  |
| 7-10        | Reserved      | Set to 0   |
| 11          | MRP Enabled   | Indicates whether MRP has been enabled or not. A value of 0 indicates that MRP is not enabled. A value of 1 indicates that MRP is enabled.   |
| 12          | MRP Role      | Indicates the MRP role the PNS is operating as when MRP is enabled. A value of 0 indicates that the PNS is currently an MRP Client. A value of 1 indicates that the PNS is currently an MRP Manager, however the PNS does not currently support MRP Manager configuration. If MRP is not enabled, then this bit will be set to zero. |
| 13          | Clock Sync’d  | PNS101: The internal clock has been sync’d to the IRIG-B clock source. This bit may take up to 90 seconds to turn on after the IRIG-B clock is available.<br>PNS001: Set to 0  |
| 14          | SoEs Avail    | PNS101: SoE Records are available for upload.<br>PNS001: Set to 0  |
| 15-32       | Reserved      | Set to 0   |

**LEDs on the PROFINET Scanner Module**

**Power-Up LED Patterns**

At power-up, the LEDs show the patterns described in the following table. The LEDs also blink diagnostic patterns for certain operating errors and for module identification.

| Step | LED/ Blink pattern  | Description  |
|------|---|--|
| 1    | All LEDs off  | Initial state  |
| 2    | ACTIVE LED solid green  | Normal operation   |
| 3    | CONNECT LED solid green   | Normal operation   |
| 4    | STATUS LED solid green  | Normal operation   |
| 5    | LAN LED solid green   | Normal operation   |
|      | OK LED blinks amber with special blink code                                 | Fatal initialization or diagnostics failure; H/W Module Identity Information not available                     |
|      | STATUS LED blinks amber with special blink code                             | Fatal initialization failure.  |
|      | STATUS and LAN LEDs blink green in unison (0.5 seconds ON/ 0.5 seconds OFF) | Internal update in process following a firmware update. Unit should complete update and restart automatically. |
| 6    | OK LED solid green  | Normal operation. Power-up completed.  |



**Note:** Under certain ambient operating temperatures, the PROFINET Scanner could momentarily display the over temperature pattern during power up, while it is calibrating its thermal protection functions. This indication can be ignored. For details, refer to the section entitled *Microprocessor Over-Temperature* in *PACSystems RX3i PROFINET Scanner Manual*, GFK-2737.



The PNS001 & PNS101 share the same front panel markings except for the catalog number and QR code.

**Normal Operation of Individual LEDs**

The PNS's LEDs can operate in tandem to indicate fatal error, module location/identification, microprocessor over-temperature, and update conditions. For details on these blink patterns, refer to *PACSystems RX3i PROFINET Scanner Manual*, GFK-2737.



**OK LED**

The OK LED indicates whether the module is able to perform normal operation.

|   |           |        |
|---|-----------|--------|
|  | Green, on | OK     |
|  | Off       | Not OK |



**LAN LED**

The LAN LED indicates access to and activity on the PROFINET network. The LAN LED indicates network packets are being processed by the network interface (not just passing through the embedded switch).

|   |             |  |
|---|-------------|--|
|  | Blinking on | The module's network interface is active |
|  | Off         | No activity                              |




**STATUS LED**

The STATUS stays Green during normal operation.

|   |               |  |
|---|---------------|--|
|  | Green, on     | Normal Operation   |
|  | Red, blinking | A MAC address read from nonvolatile memory is invalid. Ports with invalid MAC addresses remain disconnected from the Ethernet network. |

**CONNECT LED (CONN on -AXXX versions)**



The CONN LED indicates the status of PROFINET connections.

|   |                 |  |
|---|-----------------|--|
|    | Green, on       | At least one PROFINET connection (AR) exists with an I/O Controller. |
|  | Amber, blinking | No device name configured.   |
|  | Off             | No PROFINET connection (AR) exists.                                  |




**Port LEDs**

The PROFINET Scanner has four LEDs that indicate link speed, link connection and link activity corresponding to the four possible external Ethernet ports.




**Port Number LED**

|   |         |  |
|---|---------|--|
|  | Red, on | Port 3 and 4 only: Error such as incompatible SFP. |
|  | Off     | No Port error.                                     |




**1000 Speed LED**

|   |                |   |
|---|----------------|---|
|  | Green on       | Link connected, 1000 Mbps   |
|  | Green blinking | Port active, 1000 Mbps  |
|  | Off            | The associated Ethernet port is not connected to an active link at 1000Mbps |

**100 Speed LED**



|   |                 |  |
|---|-----------------|--|
|  | Green, on       | Link connected, 100 Mbps.  |
|  | Green, blinking | Port active, 100 Mbps  |
|  | Off             | The associated Ethernet port is not connected to an active link at 100Mbps |

**10 Speed LED**

|   |                 |   |
|---|-----------------|---|
|  | Green, on       | Link connected, 10 Mbps.  |
|  | Green, blinking | Port active, 10 Mbps  |
|  | Off             | The associated Ethernet port is not connected to an active link at 10Mbps |



**ACTIVE LED**

The active LED indicates the Scanner is connected to a PROFINET I/O Controller that is controlling the I/O data for the PNS's I/O modules.

|   |           |   |
|---|-----------|---|
|  | Green, on | PNS is connected to a PROFINET I/O Controller that is controlling I/O Module IO data. |
|  | Off       | PNS is not connected to a PROFINET I/O Controller.                                    |




**Front Panel LNK LED**

The Front Panel LNK LED indicates link established on the front Ethernet port.

|   |           |                            |
|---|-----------|----------------------------|
|  | Green, on | Ethernet link established. |
|  | Off       | No Ethernet link           |

**Front Panel ACT LED**

The front panel ACT LED indicates activity on the front Ethernet port when blinking.

|   |                 |   |
|---|-----------------|---|
|  | Amber, blinking | Activity on front panel Ethernet port.                    |
|  | Amber, On       | No activity on front Ethernet port, but link is connected |
|  | Off             | No link is connected.                                     |

### Quick Start Guide

Installation and initial startup procedures for the PNS include the following steps. Before installing and operating the PNS, refer to *PACSystems RX3i PROFINET Scanner Manual*, GFK-2737, for detailed information.

#### 1. Pre-installation check

Upon receiving your RX3i equipment, carefully inspect all shipping containers for damage. If any part of the system is damaged, notify the carrier immediately. The damaged shipping container should be saved as evidence for inspection by the carrier.

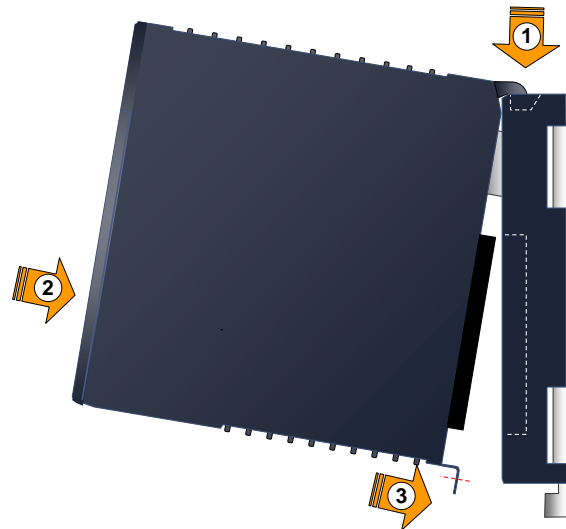
As the consignee, it is your responsibility to register a claim with the carrier for damage incurred during shipment. However, GE Intelligent Platforms will fully cooperate with you, should such action be necessary.

After unpacking the RX3i equipment, record all serial numbers. Serial numbers are required if you should need to contact Customer Care during the warranty period. All shipping containers and all packing material should be saved should it be necessary to transport or ship any part of the system.

#### 2. Installing the PNS in an RX3i backplane

The Scanner can be installed in slot 1 or 2 of a 7, 12, or 16-slot RX3i Universal Backplane, or in slot 6 of a 7-slot RX3i Universal Backplane. The installation slot must match the slot that is selected in the module's hardware configuration.

- RX3i rack power must be turned off. The PNS does not support insertion/removal while power is applied to the system (hot swap).
- Holding the module firmly, align the module with the correct slot and connector.
- Engage the module's rear pivot hook in the notch on the top of the backplane (1).
- Swing the module down (2) until the module's connector engages the backplane's backplane connector.
- Visually inspect the module to be sure it is properly seated.
- Secure the bottom of the module to the backplane using the machine screws provided with the module (3).

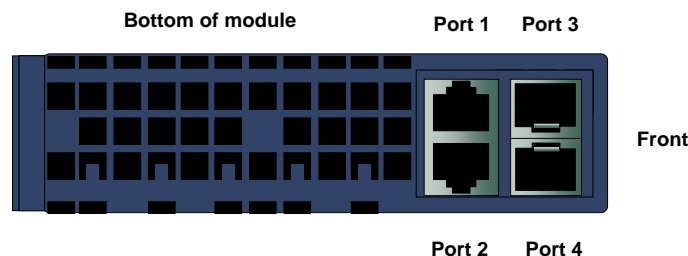


#### 3. Connecting the PNS to the PROFINET network and to a 10BaseT, 100BaseTX or 1000BaseT IEEE 802.3 network for general Ethernet communications



Do not connect two or more ports on the PNS to the same device, either directly or indirectly.

Each port on an RX3i PNS operates independently, so devices that operate at different speeds and/or duplex modes may be attached to the ports. By default, all ports, including empty, unconfigured SFP cages, are set for Automatic, which enables auto-negotiation for the widest range of options supported by the port. For other options, refer to *PACSystems RX3i PROFINET Scanner Manual*, GFK-2737.





#### 4. Installing SFP devices



Optical SFPs use an invisible laser to generate a fiber-optic signal. Always keep the port covered if a cable is not installed. Do not look into the open port if a cable is not installed.



If the surrounding air operating temperature of the PNS is greater than 40 °C, SFP devices could have operating temperatures over 70°C (158 °F). Under these conditions, for your safety, do *not* use bare hands to remove an SFP device from the SFP cage. Use protective gloves or a tool (needle-nose pliers) to avoid handling the hot SFP device directly when removing the SFP device.

For a list of SFP module types and network cabling details, refer to the section entitled *SFP Modules for Ethernet Ports in PACSystems RX3i PROFINET Scanner Manual, GFK-2737*.

#### 5. Assigning an I/O Device Name to the PNS

Before attempting to connect to or configure the RX3i PNS, the I/O Device Name must be set with a Discovery and Configuration Protocol (DCP) tool, such as the Proficy Machine Edition Discovery Tool.

#### 6. Configuring the PNS and its I/O Modules on a PROFINET network

Proficy Machine Edition is the primary tool used to configure an RX3i PROFINET network. The PNS must be installed in the slot that is selected in the module's hardware configuration. The GSDML file for the RX3i PNS is included in the firmware upgrade kit. If the version of the GSDML file in the firmware upgrade kit is not already present in the Proficy Machine Edition tool chest, import the newer GSDML into PME to enable new features.

#### Supported Modules, Power Supplies and Backplanes

The following modules can be used with this release of the RX3i PROFINET Scanner I/O Device:

| Catalog Number                | Module Description                                     | Distinguishing Classes <sup>1</sup> |
|-------------------------------|--|-------------------------------------|
| <b>Discrete Input Modules</b> |  |                                     |
| IC693ACC300                   | Input Simulator Module (8pt & 16pt operation)          | 8 in, 16 in                         |
| IC693MDL230                   | 8 Circuit Input 120 Vac Isolated                       | 8 in                                |
| IC693MDL231                   | 8 Circuit Input 240 Vac Isolated                       | 8 in                                |
| IC693MDL240                   | 16 Circuit Input 120 Vac                               | 16 in                               |
| IC693MDL241                   | 16 Circuit Input 24 Vac / Vdc                          | 16 in                               |
| IC693MDL250                   | 16 Circuit Isolated Input 120 Vac, Input Filtering Off | 16 in                               |
| IC693MDL250                   | 16 Circuit Isolated Input 120 Vac, Input Filtering On  | none                                |
| IC693MDL260                   | 32 Circuit Input 120 Vac, Input Filtering Off          | 32 in                               |
| IC693MDL260                   | 32 Circuit Input 120 Vac, Input Filtering On           | 32 in/out                           |
| IC693MDL632                   | 8 Circuit Input 125 Vdc Positive / Negative Logic      | 8 in                                |
| IC693MDL634                   | 8 Circuit Input 24 Vdc Positive / Negative Logic       | 8 in                                |
| IC693MDL635                   | 16 Circuit Input 125 Vdc Positive / Negative Logic     | 16 in                               |
| IC693MDL645                   | 16 Circuit Input 24 Vdc Positive / Negative Logic      | 16 in                               |

<sup>1</sup> The PNS cannot distinguish between modules within the same Distinguishing Class type. This means that any module physically present that is within the same class as the one configured will not alert the user with a System Configuration Mismatch fault on the Controller Fault Table. Refer to the section entitled *CPU operation during System Configuration Mismatch Faults in PACSystems RX7i and RX3i CPU Reference Manual, GFK-2222*.

| Catalog Number                 | Module Description   | Distinguishing Classes <sup>1</sup> |
|--------------------------------|--|-------------------------------------|
| IC693MDL646                    | 16 Circuit Input 24 Vdc Positive / Negative Logic Fast                 | 16 in                               |
| IC693MDL648                    | 16 Circuit Input 48 Vdc Positive / Negative Logic Fast                 | 16 in                               |
| IC693MDL654                    | 32 Circuit Input 5/12 Vdc Positive / Negative Logic                    | 32 in                               |
| IC693MDL655                    | 32 Circuit Input 24 Vdc Positive / Negative Logic Fast                 | 32 in                               |
| IC693MDL660                    | 32 Circuit Input 24 Vdc Positive / Negative Logic, Input Filtering Off | 32 in                               |
| IC693MDL660                    | 32 Circuit Input 24 Vdc Positive / Negative Logic, Input Filtering On  | 32 in/out                           |
| IC694ACC300                    | Input Simulator Module (8pt & 16pt Mode)                               | 8 in, 16 in                         |
| IC694MDL230                    | 8 Circuit Input 120 Vac Isolated                                       | 8 in                                |
| IC694MDL231                    | 8 Circuit Input 240 Vac Isolated                                       | 8 in                                |
| IC694MDL240                    | 16 Circuit Input 120 Vac   | 16 in                               |
| IC694MDL241                    | 16 Circuit Input 24 Vac / Vdc  | 16 in                               |
| IC694MDL250                    | 16 Circuit Input 120 Vac Isolated                                      | none                                |
| IC694MDL260                    | 32 Circuit Input 120 Vac   | none                                |
| IC694MDL632                    | 8 Circuit Input 125 Vdc Positive / Negative Logic                      | 8 in                                |
| IC694MDL634                    | 8 Circuit Input 24 Vdc Positive / Negative Logic                       | 8 in                                |
| IC694MDL635                    | 16 Circuit Input 125 Vdc Positive / Negative Logic                     | 16 in                               |
| IC694MDL645                    | 16 Circuit Input 24 Vdc Positive / Negative Logic                      | 16 in                               |
| IC694MDL646                    | 16 Circuit Input 24 Vdc Positive / Negative Logic Fast                 | 16 in                               |
| IC694MDL648                    | 16 Circuit Input 48 Vdc Positive / Negative Logic Fast                 | 16 in                               |
| IC694MDL654                    | 32 Circuit Input 5/12 Vdc Positive / Negative Logic                    | 32 in                               |
| IC694MDL655                    | 32 Circuit Input 24 Vdc Positive / Negative Logic Fast                 | 32 in                               |
| IC694MDL658                    | 32 Circuit Input 48 Vdc Positive / Negative Logic Fast                 | 32 in                               |
| IC694MDL660                    | 32 Circuit Input 24 Vdc Positive / Negative Logic                      | none                                |
| IC695MDL664                    | 16 Circuit Smart Input 24 Vdc Positive Logic <sup>2</sup>              | none                                |
| <b>Discrete Output Modules</b> |  |                                     |
| IC693MDL310                    | 12 Circuit Output 120 Vac 0.5A   | 16 out                              |
| IC693MDL330                    | 8 Circuit Output 120/240 Vac 2A  | 8 out                               |
| IC693MDL340                    | 16 Circuit Output 120 Vac 0.5A   | 16 out                              |
| IC693MDL350                    | 16 Circuit Output 120/240 Vac Isolated                                 | 16 out                              |
| IC693MDL390                    | 5 Circuit Output 120/240 Vac 2A Isolated                               | 8 out                               |
| IC693MDL730                    | 8 Circuit Output 12/24 Vdc 2A Positive                                 | 8 out                               |
| IC693MDL731                    | 8 Circuit Output 12/24 Vdc 2A Negative                                 | 8 out                               |
| IC693MDL732                    | 8 Circuit Output 12/24 Vdc 0.5A Positive                               | 8 out                               |
| IC693MDL733                    | 8 Circuit Output 12/24 Vdc 0.5A Negative                               | 8 out                               |
| IC693MDL734                    | 6 Circuit Output 125 Vdc 1A Positive/Negative                          | 8 out                               |
| IC693MDL740                    | 16 Circuit Output 12/24 Vdc 0.5A Positive                              | 16 out                              |
| IC693MDL741                    | 16 Circuit Output 12/24 Vdc 0.5A Negative                              | 16 out                              |
| IC693MDL742                    | 16 Circuit Output 12/24 Vdc 1A Positive                                | 16 out                              |
| IC693MDL748                    | 8 Circuit Output 48 Vdc 0.5A Positive                                  | 8 out                               |
| IC693MDL752                    | 32 Circuit Output 5/24 Vdc 0.5A Negative                               | 32 out                              |
| IC693MDL753                    | 32 Circuit Output 12/24 Vdc 0.5A Positive                              | 32 out                              |
| IC693MDL754                    | 32 Circuit Output 24 Vdc 0.75A Positive with ESCP, Diagnostics Off     | 32 out                              |

<sup>2</sup> The PNS currently does not support *Fault Reporting* from this module.

| Catalog Number                | Module Description  | Distinguishing Classes <sup>1</sup> |
|-------------------------------|---|-------------------------------------|
| IC693MDL754                   | 32 Circuit Output 24 Vdc 0.75A Positive with ESCP, Diagnostics On | 32 in/out                           |
| IC693MDL758                   | 32 Circuit Output 12/24 Vdc 0.5A Positive with ESCP <sup>2</sup>  | 32 out                              |
| IC693MDL760                   | Solenoid Valve Output Module                                      | 16 out                              |
| IC693MDL916                   | 16 Circuit Output 4A Relay  | 16 out                              |
| IC693MDL930                   | 8 Circuit Output 4A Relay Isolated                                | 8 out                               |
| IC693MDL931                   | 8 Circuit Output Relay Form BC Isolated                           | 8 out                               |
| IC693MDL940                   | 16 Circuit Output 2A Relay  | 16 out                              |
| IC694MDL310                   | 12 Circuit Output 120 Vac 0.5A                                    | 16 out                              |
| IC694MDL330                   | 8 Circuit Output 120/240 Vac 2A                                   | 8 out                               |
| IC694MDL340                   | 16 Circuit Output 120 Vac 0.5A                                    | 16 out                              |
| IC694MDL350                   | 16 Circuit Output 120/240 Vac Isolated                            | none                                |
| IC694MDL390                   | 5 Circuit Output 120/240 Vac 2A Isolated                          | 8 out                               |
| IC694MDL732                   | 8 Circuit Output 12/24 Vdc 2A Positive                            | 8 out                               |
| IC694MDL734                   | 6 Circuit Output 125 Vdc 1A Positive/Negative                     | 8 out                               |
| IC694MDL740                   | 16 Circuit Output 12/24 Vdc 0.5A Positive                         | 16 out                              |
| IC694MDL741                   | 16 Circuit Output 12/24 Vdc 1A Negative                           | 16 out                              |
| IC694MDL742                   | 16 Circuit Output 12/24 Vdc 1A Positive                           | 16 out                              |
| IC694MDL752                   | 32 Circuit Output 5/24 Vdc 0.5A Negative                          | 32 out                              |
| IC694MDL753                   | 32 Circuit Output 12/24 Vdc 0.5A Positive                         | 32 out                              |
| IC694MDL754                   | 32 Circuit Output with ESCP                                       | none                                |
| IC694MDL758                   | 32 Circuit Output 12/24 Vdc 0.5A Positive with ESCP <sup>2</sup>  | none                                |
| IC694MDL916                   | 16 Circuit Output 4A Relay  | none                                |
| IC694MDL930                   | 8 Circuit Output 4A Relay Isolated                                | 8 out                               |
| IC694MDL931                   | 8 Circuit Output Relay Form BC Isolated                           | 8 out                               |
| IC694MDL940                   | 16 Circuit Output 2A Relay  | 16 out                              |
| IC695MDL765                   | 16 Circuit Smart Output 24/125 Vdc 2A Positive Logic <sup>2</sup> | None                                |
| <b>Discrete Mixed Modules</b> |   |                                     |
| IC693MAR590                   | 8 Circuit Mixed 120 Vac Input / Relay Output                      | 8 in/out                            |
| IC693MDR390                   | 8 Circuit Mixed 24 Vdc Input / Relay Output                       | 8 in/out                            |
| <b>Analog Input Modules</b>   |   |                                     |
| IC693ALG220                   | 4 Point Analog Voltage Input                                      | ALG IN 4                            |
| IC693ALG221                   | 4 Point Analog Current Input                                      | ALG IN 4                            |
| IC693ALG222                   | 16 Point Analog Voltage Input                                     | ALG IN 16                           |
| IC693ALG223                   | 16 Point Analog Current Input                                     | ALG IN 16                           |
| IC694ALG220                   | 4 Point Analog Voltage Input                                      | ALG IN 4                            |
| IC694ALG221                   | 4 Point Analog Current Input                                      | ALG IN 4                            |
| IC694ALG222                   | 16 Point Analog Voltage Input                                     | ALG IN 16                           |
| IC694ALG223                   | 16 Point Analog Current Input                                     | ALG IN 16                           |
| IC695ALG106                   | 6 Point Isolated Analog Input Current/Voltage <sup>3</sup>        | none                                |
| IC695ALG112                   | 12 Point Isolated Analog Current/Voltage Input <sup>3</sup>       | none                                |

<sup>3</sup> PNS currently does not support *Fault Reporting* or *Interrupts* from this module. Also, only Type A and Type B counters are supported.

| Catalog Number                                   | Module Description   | Distinguishing Classes <sup>1</sup> |
|--|--|-------------------------------------|
| IC695ALG600                                      | 8 Point Universal Analog Input Module <sup>3</sup>                               | none                                |
| IC695ALG608                                      | 8 Point Analog Input Current / Voltage Input <sup>3</sup>                        | none                                |
| IC695ALG616                                      | 16 Point Analog Current / Voltage Input <sup>3</sup>                             | none                                |
| IC695ALG626                                      | 16 Point Analog Current / Voltage Input <sup>3</sup> (HART <sup>4</sup> Support) | none                                |
| IC695ALG628                                      | 8 Point Analog Current / Voltage Input <sup>3</sup> (HART <sup>4</sup> Support)  | none                                |
| <b>Analog Output Modules</b>                     |  |                                     |
| IC693ALG390                                      | 2 Point Analog Voltage Output  | ALG OUT 2                           |
| IC693ALG391                                      | 2 Point Analog Current Output  | ALG OUT 2                           |
| IC693ALG392                                      | 8 Point Analog Current / Voltage Output  | ALG OUT 8                           |
| IC694ALG390                                      | 2 Point Analog Voltage Output  | ALG OUT 2                           |
| IC694ALG391                                      | 2 Point Analog Current Output  | ALG OUT 2                           |
| IC694ALG392                                      | 8 Point Analog Current / Voltage Output  | ALG OUT 8                           |
| IC695ALG704                                      | 4 Point Analog Current / Voltage Output <sup>3</sup>                             | none                                |
| IC695ALG708                                      | 8 Point Analog Current / Voltage Output <sup>3</sup>                             | none                                |
| IC695ALG728                                      | 8 Point Analog Current / Voltage Output <sup>3</sup> (HART <sup>4</sup> Support) | none                                |
| IC695ALG808                                      | 8 Point Isolated Analog Current / Voltage Output <sup>3</sup>                    | none                                |
| <b>Analog Mixed Modules</b>                      |  |                                     |
| IC693ALG442                                      | 4 Input / 2 Output, Current / Voltage  | ALG IN 4, ALG OUT 2                 |
| IC694ALG442                                      | 4 Input / 2 Output, Current / Voltage  | ALG IN 4, ALG OUT 2                 |
| <b>RTD Input Modules</b>                         |  |                                     |
| IC695ALG508                                      | 8 Channel Isolated RTD Input <sup>3</sup>  | none                                |
| <b>Thermocouple Input Modules</b>                |  |                                     |
| IC695ALG312                                      | 12 Point Isolated Thermocouple Input <sup>3</sup>                                | none                                |
| IC695ALG412                                      | 12 Point Isolated High Speed Thermocouple Input <sup>3</sup>                     | none                                |
| <b>High-speed Counter Modules</b>                |  |                                     |
| IC695HSC304                                      | High-speed Counter Module - 4 Counters <sup>3</sup>                              | None                                |
| IC695HSC308                                      | High-speed Counter Module - 8 Counters <sup>3</sup>                              | None                                |
| <b>Specialty Modules</b>                         |  |                                     |
| IC694PSM001                                      | Power Sync and Measurement Module  | none                                |
| <b>Power Supply Modules</b>                      |  |                                     |
| IC695PSA040                                      | Universal 120/240 Vac, 125Vdc 40W Power Supply                                   | none                                |
| IC695PSA140                                      | Multifunctional 120/240 Vac, 125Vdc 40W Power Supply                             | none                                |
| IC695PSD040                                      | 24Vdc 40W Power Supply   | none                                |
| IC695PSD140                                      | Multifunctional 24Vdc 40W Power Supply   | none                                |
| <b>Small Form-factor Pluggable (SFP) Modules</b> |  |                                     |
| IC695SPC100                                      | 10/100/1000Base-T Copper SFP   | none                                |
| IC695SPF002                                      | 100Base-FX (fiber 2km) SFP   | none                                |
| IC695SPF010                                      | 1000Base-LX (fiber 10km) SFP   | none                                |

<sup>4</sup> PNS firmware version 2.30 or later supports the HART Pass Through capabilities of this module. PNS firmware version 2.41 or later supports Remote Get HART Device Information COMMREQ support only (no HART variables in IO Data). HART-compatible CPU and PNC001 versions are required.

| Catalog Number | Module Description           | Distinguishing Classes <sup>1</sup> |
|----------------|------------------------------|-------------------------------------|
| IC695SPF550    | 1000Base-SX (fiber 550m) SFP | none                                |

The RX3i PROFINET Scanner can be used in the following PACSystems backplanes:

| Catalog Number | Backplane Type <sup>5</sup>      |
|----------------|----------------------------------|
| IC695CHS007    | 7-Slot RX3i Universal Backplane  |
| IC695CHS012    | 12-Slot RX3i Universal Backplane |
| IC695CHS016    | 16-Slot RX3i Universal Backplane |

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<sup>5</sup> The PNS001 cannot distinguish between the different rack sizes. Choosing the wrong type will not generate a System Configuration Mismatch fault on the Controller Fault Table.

**Release History**

| <b>Version</b>                       | <b>Firmware Revision</b> | <b>Date</b> | <b>Comments</b>   |
|--------------------------------------|--------------------------|-------------|---|
| IC695PNS001-BBBC<br>IC695PNS101-AAAA | 3.10                     | Aug 2018    | Initial release of the IC695PNS101 Advanced PROFINET Scanner. Added support for the IC695HSC304 High Speed Counter Module with 4 Counters. Resolves issues described in the section titled Problems Resolved by this Revision.  |
| IC695PNS001-BBBB                     | 3.01                     | Jan 2018    | Hardware change which increases isolation between Earth ground and signal ground. Removes incorrect statement in IPI revision N regarding RX3i backplane compatibility.   |
| IC695PNS001-BABB                     | 3.01                     | Aug 2017    | Addresses issue with SDCard communication on some assemblies.   |
| IC695PNS001-BABA                     | 3.00                     | Feb 2017    | New hardware platform with new layout of front panel LEDs and Ethernet connector replaces front panel USB for firmware update. Firmware not compatible with previous hardware revisions (-AXXX).<br>IC695PNS001-BABA is Achilles Level 1 Certified.   |
| IC695PNS001-ABAK                     | 2.41                     | Jun 2016    | Added support for the Remote Get HART Device Information COMMREQ. Information from a HART device connected to an RX3i Analog Module in an IC695PNS001 RX3i PROFINET Scanner may be read into the user application using the Remote Get HART Device Information COMMREQ.                                       |
| IC695PNS001-ABAJ                     | 2.40                     | Nov 2015    | Added support for additional RX3i I/O modules (ALG106, ALG312, ALG314, ALG608, ALG628, ALG704, and MDL758)  |
| IC695PNS001-ABAH                     | 2.30                     | May 2015    | Added support for HART® Pass Through feature set using HART-capable RX3i Analog modules. Also added support for I/O Module Version information via Explore PROFINET Networks in PME.  |
| IC695PNS001-ABAG                     | 2.20                     | Jun 2014    | Added support for IC695ALG600 (Universal Analog Input Module) and IC694PSM001 (Power and Sync Measurement Module).  |
| IC695PNS001-ABAF                     | 2.10                     | Apr 2014    | Added support for IC695HSC308 (High-speed Counter – 8 Counters). Resolution of ALG508, ALG616, and ALG708 modules larger configuration causing an IOC Software - Module Firmware Fault when more than three were placed in a PNS001 rack.   |
| IC695PNS001-ABAE                     | 2.00                     | Mar 2014    | Added PROFINET System Redundancy (S2 NAP – supports Redundant connections from two IO Controllers).<br>Resolution of PROFINET connection losses and RX3i PNS001 connection issues, described below.<br>Added support for additional RX3i I/O modules (ALG112, ALG626 (No HART), ALG728 (No HART), and ALG808) |
| IC695PNS001-ABAD                     | 1.11                     | Nov 2013    | Resolution to Analog Output Anomaly issue, described in <i>PACSystems RX3i PROFINET Scanner IPI</i> , GFK-2738D.  |
| IC695PNS001-ABAC                     | 1.10                     | Jul 2013    | Support for additional RX3i I/O modules (MDL664, MDL765, ALG508, ALG616, ALG708).   |
| IC695PNS001-ABAA                     | 1.00                     | Jun 2013    | Hardware update for improved manufacturability. No changes to features, functions or compatibility  |
| IC695PNS001-AAAA                     | 1.00                     | Mar 2013    | Initial release.  |

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**Important Product Information for this Release**

**Field Upgrade**

Upgrade Kit: 41G2416-FW01-000-A2.zip

Only IC695PNS001-Bxxx and IC695PNS101-Axxx or later revisions are field upgradable to this release using the upgrade kit listed above. IC695PNS001-Axxx modules cannot be upgraded with this kit due to hardware and firmware design changes in the PNS001-Bxxx revision.

**New Features and Enhancements**

- Initial release of the IC695PNS101 Advanced PROFINET Scanner with Sequence of Events support.
- Added support for the IC695HSC304 High Speed Counter Module with 4 Counters.

**Problems Resolved by this Revision**

RX3i PROFINET Scanner Release 3.10 resolves the following issues:

| <b>Subject</b>                | <b>Description</b>  |
|-------------------------------|---|
| <b>Cyber Security Updates</b> | Security enhancements were made to the PNS001-Bxxx to harden the product against an attacker. |

**Functional Compatibility**

The following CPU firmware, programming software and backplane hardware versions are required to use the features introduced in the most recent PNS release:

| Subject                         | Description  |   |  |
|---------------------------------|--|---|--|
|                                 | Feature  | Minimum PNS Version Required  | Minimum Version Required   |
| Firmware Version                | PNS101<br>Sequence of Events   | PNS101 Release 3.10   | CPE330 Release 9.60  |
|                                 | PNS001-Bxxx  | PNS001-Bxxx Release 3.00  | CPU320/CPU315 Release 8.95<br>CPE310/CPE305 Release 8.95<br>CRU320 Release 8.95<br>CPE330 Release 8.95<br>CPE400 Release 9.00<br>CPL410 Release 9.55<br>CPE100 Release 9.15<br>CPE115 Release 9.45<br>RXi Controller Release 7.80 <sup>6</sup> |
|                                 | PNS001-Axxx<br>(Most Recent Release)   | PNS001-Axxx Release 2.41  | CPU320/CPU315 Release 8.95<br>CPE310/CPE305 Release 8.95<br>CRU320 Release 8.95<br>CPE330 Release 8.95<br>CPE400 Release 9.00<br>CPL410 Release 9.55<br>CPE100 Release 9.15<br>CPE115 Release 9.45<br>RXi Controller Release 7.80 <sup>6</sup> |
| Programmer software             | PNS001 & PNS101: Proficy Machine Edition version 8.50 SIM 2 or later                                   |   |  |
| GSDML Version                   | PNS101   | PNS101 Release 3.10   | GSDML-V2.3-GEIP-RX3iPNS-20180724.xml   |
|                                 | IC695HSC304  | PNS001-Bxxx Release 3.10<br>PNS101 Release 3.10                                     | GSDML-V2.3-GEIP-RX3iPNS-20180724.xml   |
|                                 | PNS001-Bxxx  | PNS001-Bxxx Release 3.00  | GSDML-V2.3-GEIP-RX3iPNS-20170109.xml   |
|                                 | PNS001-Axxx<br>(Most Release Release)  | PNS001-Axxx Release 2.41  | GSDML-V2.3-GEIP-RX3iPNS-20160602.xml   |
| RX3i PNC001 PROFINET Controller | PNS001-Axxx<br>(Most Recent Release)<br><br>PNS001-Bxxx<br><br>PNS101<br>(Sequence of Events Disabled) | PNS001-Axxx Release 2.41<br><br>PNS001-Bxxx Release 3.00<br><br>PNS101 Release 3.10 | IC695PNC001 Release 2.26   |

<sup>6</sup> HART Pass Through COMMREQ feature not supported on RXi Controller. Refer to future RXi Controller IPI for updates.



|  |   |                  |                  |                    |                    |                           |                           |                             |                             |
|--|---|------------------|------------------|--------------------|--------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| <b>RX3i backplane hardware</b>             | <p>The following <b>minimum</b> backplane hardware revision <b>must</b> be used:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">IC695CHS012-BAMP</td> <td style="width: 50%;">IC695CHS016-BAMP</td> </tr> <tr> <td>IC695CHS012CA-BAMP</td> <td>IC695CHS016CA-BAMP</td> </tr> </table> <p>or</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">IC695CHS012-CA (or later)</td> <td style="width: 50%;">IC695CHS016-CA (or later)</td> </tr> <tr> <td>IC695CHS012CA-CA (or later)</td> <td>IC695CHS016CA-CA (or later)</td> </tr> </table> <p>or</p> <p>IC695CHS007-AA (or later)</p> <p>When installing, operating, or maintaining the PNS, personnel must ensure any electrostatic charge is discharged through the use of a grounded ESD strap or other means.</p> | IC695CHS012-BAMP | IC695CHS016-BAMP | IC695CHS012CA-BAMP | IC695CHS016CA-BAMP | IC695CHS012-CA (or later) | IC695CHS016-CA (or later) | IC695CHS012CA-CA (or later) | IC695CHS016CA-CA (or later) |
| IC695CHS012-BAMP                           | IC695CHS016-BAMP  |                  |                  |                    |                    |                           |                           |                             |                             |
| IC695CHS012CA-BAMP                         | IC695CHS016CA-BAMP  |                  |                  |                    |                    |                           |                           |                             |                             |
| IC695CHS012-CA (or later)                  | IC695CHS016-CA (or later)   |                  |                  |                    |                    |                           |                           |                             |                             |
| IC695CHS012CA-CA (or later)                | IC695CHS016CA-CA (or later)   |                  |                  |                    |                    |                           |                           |                             |                             |
| <b>Rx3i AC Power Supply Compatibility</b>  | <p>For new installations using AC power supplies, the PNS requires an IC695PSA040H or IC695PSA140D (or higher) revision power supply to ensure compatibility.</p> <p>For retrofit installations using AC power supplies, the PNS may require an IC695PSA040H or IC695PSA140D (or higher) revision power supply depending on the total current load in the backplane. If the total current load exceeds the existing power supply's minimum current threshold, no power supply change is required.</p>   |                  |                  |                    |                    |                           |                           |                             |                             |
| <b>Small form-factor pluggable modules</b> | <p>IC695SPC100A or later<br/>                 IC695SPF002A or later<br/>                 IC695SPF550A or later<br/>                 IC695SPF010A or later</p>   |                  |                  |                    |                    |                           |                           |                             |                             |
| <b>RX3i modules</b>                        | <p>For a complete list, refer to <i>Supported Modules, Power Supplies and Backplanes</i>.</p>   |                  |                  |                    |                    |                           |                           |                             |                             |

**Restrictions and Open Issues**

| <b>Subject</b> | <b>Description</b> |
|----------------|--------------------|
| N/A            | N/A                |

**Operational Notes**

| <b>Subject</b>  | <b>Description</b>  |
|---|---|
| <p><b>Invalid Module Configurations will cause the respective RX3i I/O module to fail configuration</b></p>                     | <p>When the PNS rejects the configuration of an individual I/O module, that configuration is not delivered to the I/O module, leaving the module in an un-configured state. In many modules, this is indicated by the OK Led on the I/O Module blinking. In addition, I/O point faults will be asserted for that module's I/O. Correct the configuration of the I/O module and store HWC again.</p> <p>Refer to the section entitled RX3i PROFINET Scanner Configuration Validation in PACSystems RX3i PROFINET Scanner Manual, GFK-2737.</p>   |
| <p><b>Analog Modules do not configure if Alarms are outside High and Low Scale Value Engineering Units.</b></p>                 | <p>For analog input and output modules that support alarms, the PNS limits alarm values to the range specified by the High and Low Engineering Unit values. If the High and Low Scale A/D Unit values are not the full range of the analog signal, runtime values reported in Engineering Units may exceed the High or Low Engineering range. Alarms cannot be configured for this range outside of the Engineering Units range.</p> <p>For example, consider an input channel with Range Type as Voltage/Current and Range selection of -10V to +10V, 16-bit Integer format. If High and Low Scale Eng Units are set to 8500 and -8500 and the High and Low Scale A/D Units are set to 8 and -8, the alarm range will be limited to a range of -8500 to 8500. Analog input signals of -10V and +10V correspond to Engineering Unit values of -10625 and 10625. To support alarm values at all possible values of the analog signal, scaling values should be chosen such that the A/D Units are specified as the high and low limits for the analog signal. In this example, the High and Low Engineering units would be 10625 and -10625 with High and Low A/D Units of 10 and -10.</p> |
| <p><b>IOPS of power supplies do not update when power supply is switched off</b></p>  | <p>The IOPS (status) of a power supply is marked good or bad at the start of each PROFINET I/O connection. The IOPS is not updated when the power supply is turned on and off.</p>  |
| <p><b>PROFINET Alarms are not supported</b></p>   | <p>PROFINET Alarms are not issued from the RX3i PNS in this release.</p>  |
| <p><b>Some power supplies use two backplane slots, but this is not indicated in the change module list interface of HWC</b></p> | <p>Note that the IC695PSA040 and IC695PSA140 each utilize two backplane slots but are shown using only one slot in the Change Module List interface for the RX3i PNS. Configuring a module for the already utilized slot will result in a Loss of I/O Module fault.</p>   |
| <p><b>PNS module supported in certain backplane slots only.</b></p>   | <p>The RX3i PROFINET Scanner module is configurable for use in Slot 1, Slot 2, and when installed in the IC695CHS007 backplane, also Slot 6.</p>  |
| <p><b>SFP modules do not support hot swap</b></p>   | <p>SFP modules do not support hot swap. This means that if an SFP module is hot-inserted into the RX3i PNS, no Fault Table entry will be logged, and configuration parameters will not be applied to the SFP until the RX3i PNS is power cycled. Until the RX3i PNS is power cycled, the SFP will remain enabled and active with auto negotiation turned on.</p>  |
| <p><b>I/O modules hot inserted while an invalid configuration is stored require re-insertion or power cycle to recover</b></p>  | <p>If an invalid configuration for an I/O module in the PNS is stored to the CPU, such as a default value outside the engineering units range, and the I/O module using that configuration is hot inserted in the PNS, the hot insertion process fails. No Addition of I/O Module fault is generated, and the module is left at its default operation. The configuration of that module will not be retried until the module is re-inserted or the PNS rack is power cycled, even if the configuration is corrected in the CPU.</p>   |

| <b>Subject</b>   | <b>Description</b>   |
|--|--|
| <b>Quickly changing data may not be detected in PLC Logic solve</b>  | Quickly changing I/O or Module Data such as event flags on a High Speed Counter module may not be detected in the CPU logic scan. Only event data which is latched and acknowledged or persists for the Update I/O Rate plus the CPU Logic Scan rate is guaranteed to be detectable from logic.  |
| <b>Connecting Ethernet Ports Not Configured as Ring Ports to the MRP Ring May Inhibit Ring-Break Detection</b> | In order to insure correct MRP ring-break detection, it is important to connect the correct Ethernet ports of the RX3i PNS to the MRP ring. The ports connected to the ring must be the same ports configured as MRP Ring Ports. Failure to connect the configured ports will prevent the PNS from correctly participating in the MRP ring, may inhibit ring-break detection, and may result in losses of IO Devices upon ring-break events. It is recommended during system commissioning that the physical network connections be verified with the system configuration for ring ports in system's hardware configuration. Refer to section "Media Redundancy Protocol Support" of PACSystems RX3i PROFINET Scanner Manual, GFK-2737, for details on recommended MRP configuration. |
| <b>Reset Password returns HTTP ERROR 503, service unavailable, after restart.</b>                              | On power-up, the PNS generates a local security certificate to use with HTTPS communications. Until this process has completed, attempts to enter the secure webpages used to reset the password will fail with error 503. This can take from 15-120 seconds.  |
| <b>ALG616, ALG626, &amp; ALG628 Terminal Block Present Status Bit</b>  | IC695ALG616-Fx, IC695ALG626-Fx, and IC695ALG628-Fx (and later hardware revision) analog modules may not set the terminal block present status bit in their module status after a PNS firmware update completes, even if the terminal block is installed. Normal operation of the terminal block present status bit may be restored by removing and reinstalling the terminal block or power cycling the rack.  |
| <b>MDL660 does not show correct firmware revision after PNS firmware update</b>                                | IC694MDL660 may report incorrect primary and boot firmware through the Explore PROFINET Networks dialogs in Proficy Machine Edition in a PNS rack after firmware update of the PNS. Correct versions will be reported after the next power cycle of the MDL660 module either through a power cycle of the entire rack or removing and reinstalling the MDL660 module.  |
| <b>QR Code may not link automatically link to product landing page</b>   | Some older mobile QR Code Scanner/Reader applications may not correctly link to the target site. This behavior has not been identified to exist on some new QR Scanner apps. An example of one that has been verified to work correctly is the QR Code Scanner in Google Chrome for Android and iOS.   |
| <b>PNS001-Axxx Reset or Power Supply Fault with PSA140</b>   | <p>These issues may occur in a PNS001-Axxx remote IO drop with two IC695PSA140 Multifunctional 120/240 VAC, 125VDC 40W Power Supplies when either of the power is turned off and back on:</p> <ol style="list-style-type: none"> <li>1. The PNS001-Axxx resets and does not power back on.</li> <li>2. The P/S Fault LED on PSA140 that was not powered off and back on turns on and no power is supplied to the modules in the RX3i rack.</li> </ol> <p>If this issue occurs, it may be resolved by turning both power supplies off and back on. This issue only applies to the PNS001-Axxx.</p>  |
| <b>Rx3i DC Power Supply Wiring Recommendations</b>   | The negative side of the 24V input must be connected to earth ground when using RX3i DC power supplies. Refer to <i>PACSystems RX3i System Manual</i> , GFK-2314 for additional information.   |

**Additional Information**

For additional information, please refer to the manuals listed below. Manuals can be downloaded from the support website, <http://support.ge-ip.com>.

|   |          |
|---|----------|
| <i>PACSystems RX7i, RX3i, and RSTi-EP CPU Reference Manual</i>                    | GFK-2222 |
| <i>PACSystems RX3i &amp; RSTi-EP PROFINET I/O Controller User Manual</i>          | GFK-2571 |
| <i>PACSystems RX3i PROFINET Controller Command Line Interface Manual</i>          | GFK-2572 |
| <i>PACSystems RX3i PROFINET IO-Scanner User Manual</i>                            | GFK-2737 |
| <i>PACSystems RX3i CEP PROFINET Scanner User Manual</i>                           | GFK-2883 |
| <i>PROFINET I/O Devices Secure Deployment Guide</i>                               | GFK-2904 |
| <i>PACSystems RXi, RX3i, RX7i, and RSTi-EP Controller Secure Deployment Guide</i> | GFK-2830 |
| <i>PACSystems HART Pass Through User Manual</i>                                   | GFK-2929 |
| <i>PACSystems RX3i System Manual</i>  | GFK-2314 |
| <i>PACSystems RX3i Sequence of Events User Manual</i>                             | GFK-3050 |



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