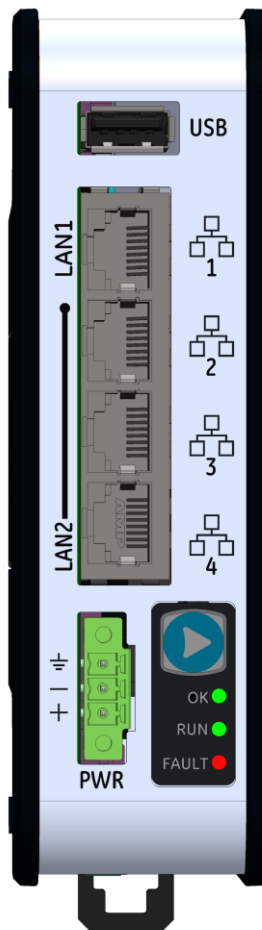


PACSystems™ RSTi-EP

CONTROLLER FIRMWARE RELEASE 10.05 and 10.06

EPSCPE100-ACAH^{1 2}

EPSCPE115-ABAE^{1 2}



¹ The last two characters of the catalog number suffix may not increment with every firmware release beginning with EPSCPE100-ACAH and EPSCPE115-ABAE 9.98.

² Includes conformal coat and low temperature module variants, if available.

Caution & Warning Notes as Used in this Publication

WARNING

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

CAUTION

Caution notices are used where equipment might be damaged if care is not taken.

Notes: Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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Overview

The controller firmware release 10.05 and 10.06 adds support for the Secure Remote STOP-HALT Restart Mechanism , Network and Memory Performance Monitoring Tool , DNP3 protocol configuration using PME(CPE115 Only) and addresses several PACSystems runtime common issues. Release 10.06 also introduces the conformal coated versions of EPSCPE100 & EPSCPE115 models. Before a firmware upgrade process is initiated, please pay special attention to all CAUTION instructions mentioned in the Firmware Upgrade Instructions document which is part of the upgrade kit.

Upgrade Strategy

Do not power down or reset the controller in operation until after the firmware update process is completed. This is required to minimize the possibility of the controller going into an unrecoverable state

EPSCPE100 firmware version v9.35(E8VE) or later is required before this upgrade kit can be applied. Visit our Customer Center Support website to download firmware, links to the related Landing Pages are provided below. Contact the technical support team if you need assistance.

Do not apply this upgrade kit if the EPSCPE100 controller in operation is running firmware versions v9.15(E707) or v9.30(E884) as this may place the controller in an unrecoverable state.

If the EPSCPE100 controller firmware version is prior to v9.35(E8VE), the upgrade requires a 2-step process:

Step 1 – Install firmware update kit that upgrades the controller to firmware version v9.35(E8VE).

Step 2 – Install firmware version v10.06(EET3) or above

If the EPSCPE100 / EPSCPE115 controller firmware version is v9.62(EAAL) OR later, the firmware can be upgraded directly to firmware version v10.06(EET3) or above – this controller does not require a 2-step process.

Note: Firmware version information can be found on PACSystems RSTi-EP Controller's homepage (e.g. <http://192.168.0.100>).

CPE100

Part Number: 41G2393-MS10-000-A8

File Name: 41G2393-MS10-000-A8.zip

Download Link: https://emerson-mas.force.com/communities/en_US/Article/EPSCPE1xx-Landing-Page

CPE115

Part Number: 41G2556-MS10-000-A5

File Name: 41G2556-MS10-000-A5.zip

Download Link: https://emerson-mas.force.com/communities/en_US/Article/EPSCPE1xx-Landing-Page

RSTi-EP PLC: New Features and Enhancements in Current Release

Rel 10.06:

- New conformal coated version of CPE100/115 models i.e EPSCPE100CA-ACAH and EPSCPE115CA-ABAE
- Achilles Level 1 Communications Certification³
- OPC UA GUI Management: Supports an integrated OPC UA GUI management interface in PAC Machine Edition (start, stop, restart, clear, etc.)

Rel 10.05:

- Secure Remote STOP-HALT Restart Mechanism: If a PACSystems CPU encounters a STOP-HALT condition, it automatically logs debug information about the STOP-HALT in non-volatile memory, reboots, and restarts in STOP-FAULT mode. RAM memory is cleared to its default state and, if configured, the user application stored in flash is restored. This allows a secure connection to the CPU to collect diagnostic information about the STOP-HALT condition and remotely restart the controller when safe to do so.
- Network and Memory Performance Monitoring Tool: System memory usage and system network performance statistics may now be actively monitored using the PACS Analyzer tool. This feature will help optimize CPU model selection, reduce troubleshooting time for application commissioning, monitor network statistics, and memory performance during operation.
- Configuration of DNP3 Outstation capabilities with CPE115 model is now possible using PAC Machine Edition Rel 9.70/9.80 SIM2 or later versions.

Current Release Information

| Catalog Number ¹ | Date | Firmware Version (Build Number) | Comments |
|----------------------------------|-----------|---------------------------------|--|
| EPSCPE100-ACAH EPSCPE115-ABAE | July 2020 | 10.06(EET3) | Initial release of conformal coated versions EPSCPE100CA-ACAH and EPSCPE115CA-ABAE |
| EPSCPE100-ACAH EPSCPE115-ABAE | June 2020 | 10.05(EEJN) | Security Enhancements and new features |

Release History

| Catalog Number ⁷ | Date | Firmware Version (Build Number) | Comments |
|-----------------------------|-------------|---------------------------------|--|
| EPSCPE100-ACAH | Feb 2020 | 9.98(ED8F) | Following Emerson's acquisition of this product, changes have been made to apply appropriate branding and registration of the product with required certification agencies. No changes to material, process, form, fit or functionality. |
| EPSCPE115-ABAE | Feb 2020 | 9.98(ED8F) | |
| EPSCPE100-ABAG | August 2019 | 9.85(EC3E) | C Blocks, Serial IO & resolved multiple customer issues |
| EPSCPE115-AAAD | August 2019 | 9.85(EC3E) | C Blocks, Serial IO & resolved multiple customer issues |
| EPSCPE100-ABAF | Nov 2018 | 9.71(EANF) | Resolved Case# CS0219107 |
| EPSCPE115-AAAC | Nov 2018 | 9.71(EANF) | Resolved Case# CS0219107 |
| EPSCPE100-ABAE | Sep 2018 | 9.62(EAAL) | Resolved Case# CS0219107 |
| EPSCPE115-AAAB | Sep 2018 | 9.62(EAAL) | Resolved Case# CS0219107 |
| EPSCPE115-AAAA | Apr 2018 | 9.45(E99P) | New CPU model |

³ Achilles L1 Communication Certification available in CPE100/115 R10.05

| | | | |
|----------------|------------|-------------|-------------------------|
| EPSCPE100-ABAD | Apr 2018 | 9.45(E99P) | New Features |
| EPSCPE100-ABAC | Dec 2017 | 9.35 (E8VE) | Resolve Case#: 00485554 |
| EPSCPE100-ABAB | Aug 2017 | 9.30 (E884) | Added MRP |
| EPSCPE100-ABAA | June 2017 | 9.15 (E7O7) | Hardware Enhancements |
| EPSCPE100-AAAA | April 2017 | 9.15 (E7O7) | Initial Release |

RSTi-EP PLC: Functional Compatibility

| Subject | Description | | |
|--|---|---|-----------------------------------|
| | Feature | Minimum Version of PME Required | |
| Programmer Version Requirements | CPE115 functionality including Embedded Simplex PROFINET I/O Controller. | PAC Machine Edition (PME) 9.5 SIM 7 or later is required in order to create a new target configuration using a CPE115 Hardware Configuration | |
| | DNP3 Outstation configuration using PME(CPE115 only) | PAC Machine Edition (PME) 9.7 / 9.8 SIM 2 or later is required | |
| | CPE100 functionality including Embedded Simplex PROFINET I/O Controller. | PAC Machine Edition (PME) 9.5 SIM 1 or later is required in order to create a new target configuration using a CPE100 Hardware Configuration. | |
| | OPCUA GUI Management | PAC Machine Edition Logic Developer PLC 9.80 SIM 5 and PACSystems firmware version 10.06 or later is required to support the OPCUA GUI Management Interface in PME. | |
| Backwards Compatibility | To convert an existing project which uses any other PLC, use the Family Conversion feature in PME. Be aware of the constraints involved, as will be notified in PME. For instance, the first PROFINET Controller in an RX3i CPU320 application will be assigned to the embedded PROFINET Controller feature of the CPE100/CPE115. | | |
| SNTP support | SNTP feature is supported on CPE115 model only | | |
| PROFINET IO Compatibility | Feature | Minimum Version of CPE100 Required | Minimum Version of 3iPNS Required |
| | Remote Get HART Device Information COMMREQ ⁴ | 9.35 | 2.41 |
| | Extended PROFINET Subslot Numbers ⁵ | 9.35 | N/A |
| | Simplex (non-redundantly controlled) PROFINET IO ⁶ | 9.35 | N/A |
| Ethernet AUP File Support | The CPE100/CPE115 does not support Advanced User Parameter (AUP) files for its Embedded Ethernet interfaces. Instead, use PAC Machine Edition to set the Ethernet configuration parameters for advanced Ethernet Global Data applications. | | |
| Service Request 56 & 57 Logic Driven Read/Write to Flash Support | The internal super capacitor allows to save user memory to non-volatile storage when the CPE100 is powered off, and restores it to RAM when the CPE100 is turned on. Consequently, the CPE100 does not support Service Requests 56 & 57 Logic Driven Read/Write to Flash. The service request function block's ENO output returns no power flow if these service requests are executed. Whenever an application that uses service requests 56 & 57 is being migrated to a CPE100, the service requests should ideally be removed as the service requests themselves will have no effect. | | |
| Embedded PROFINET Controller HART Pass Through Support | HART Pass Through is not available on the CPE100. The PACSystems Field Device Tool (FDT), HART Device Type Managers (DTMs), and the PACSystems HART Multiplexer do not support the CPE100 Embedded PROFINET Controller at this time. | | |

⁴ Refer to the PACSystems RX3i System Manual, GFK-2314M or later for COMMREQ details.

⁵ With this feature, it is possible to configure 3rd party PROFINET devices that use subslot numbers up to 21845.

⁶ Refer to the PACSystems RX3i & RSTi-EP PROFINET IO Controller User Manual, GFK-2571G or later, for operational details.

| Subject | Description |
|---|---|
| Remote Get HART Device Information COMMREQ | <p>The Remote Get HART Device Information COMMREQ is supported by these products:</p> <ul style="list-style-type: none"> • RX3i CPUs with version 8.95 or later. • EPSCPE100 Standalone controller with version 9.35 or later. • EPSCPE115 Standalone controller with version 9.45 or later • IC695PNC001 RX3i PROFINET Controller version 2.26 or later • IC695PNS001 RX3i PROFINET Scanner version 2.41 or later • IC695PNS001 RX3i PROFINET Scanner GSDML-V2.3-GEIP-RX3iPNS-20160602.xml |
| Supported Browsers for CPE100/115 Firmware Update | <p>The CPE100/115 supports secure firmware update over Ethernet using a web browser. Supported browsers are listed below along with the minimum required version:</p> <ul style="list-style-type: none"> • Firefox: 41.0.2 (or later) • Chrome: 46.0.2490.80 m (or later) • Internet Explorer: 11.0.9600.18059IS (or later) • Safari: 9.0 (10601.1.56.2) (or later) |
| PACSystems Energy Pack Compatibility | <p>CPE100/115 does not support any kind of external Energy Packs, but it comes with the replaceable pack of internal Super Capacitors. This pack of Super Capacitors can be ordered separately using the below details: Part Number: EPSACC001. Description: RSTi-EP Standalone CPE100 Replacement Super Capacitor. Refer to the Quick Start Guide of RSTi-EP CPE100/CPE115, GFK-3012/GFK-3039 or GFK-2741F and follow the instructions in order to replace the pack of internal Super Capacitors.</p> |
| Ethernet Station Manager Compatibility | <p>Ethernet Station Manager Utility Version 1.3 Build 2 or later is recommended for use with the CPE100/115. Earlier versions are compatible; however, they may not display all CPE100/115 Ethernet parameters after issuing a parm all command. Should this issue occur, pressing enter, or issuing another command will cause the station manager to display the remaining parameters. CPE100/115 supports monitor only commands.</p> |
| RDS D Support | <p>RDS D support using a USB memory stick or a micro SD card is not available. The CPE100/115's USB ports and micro SD card slot are not active at this time.</p> |
| Set Temporary IP Address not supported | <p>The Set Temporary IP Address tool in PME is not supported by the CPE100/115</p> |
| Serial Ports | <p>CPE100/115 supports both RS-232 and RS-485 communications. The RS-485 port supports only two modes of operations; 2-Wire and 4-Wire. The serial ports are located on the underside of the controller and do not provide any type of isolation. It is recommended to use a suitable commercial-off-the-shelf device if an application demands additional port isolation.</p> |
| Hot Standby Redundancy | <p>Hot Standby Redundancy is not available on the CPE100/115</p> |
| Interrupt Blocks | <p>CPE100/115 does not support Interrupt Blocks at this time.</p> |
| Cimplicity and RX3i Subscription Size Incompatibility | <p>The RX3i OPC UA server supports up to 10 subscriptions with up to 12,500 monitored items each. Cimplicity OPC UA driver supports an unlimited number of subscriptions with a default limit of 500 monitored items per subscription, and a hard limit of 32,767 bits of data in a subscription. This means that it is not possible to subscribe to all 12,500 variables of the RX3i PLC with a Cimplicity HMI. The effective monitored item limit in Cimplicity is dependent on the size of the data being subscribed to. Other OPC UA clients with a larger monitored item per subscription limit can subscribe to the entire address space of variables, such as UA Expert.</p> |

RSTi-EP PLC: Problems Resolved in Release 10.06

| Subject | ID code | Description |
|----------------------------------|---------|--|
| Module Fails to upgrade firmware | DE6571 | Rarely, under network traffic storm conditions, module may fail to upgrade firmware. Heavy network traffic may lead firmware update webpage to timeout or a stop-halt condition. To avoid these potential failure conditions, user may want to isolate the module from outside of network traffic prior to attempting firmware update process. |

RSTi-EP PLC: Problems Resolved in Release 10.05

| Subject | ID code | Description |
|------------------------|--|--|
| Cyber Security Updates | SFDC#813753 SFDC#814765 SFDC#815641 SFDC#815503 SFDC#831054 SFDC#774522 SFDC#1354827 SFDC#1622162 SFDC#1625246 SFDC#1627288 SFDC#1627185 SFDC#1628875 SFDC#1626362 SFDC#1623269 SFDC#1632653 SFDC#1640758 SFDC#1643315 SFDC#1796400 SFDC# 01613590 SFDC# 01623587 DE6359 DE6361 DE6200 DE6113 DE6161 DE6163 DE6171 DE6176 DE6257 DE6311 DE6313 DE6323 DE6337 DE6340 DE6364 DE6542 DE6544 | Added security enhancements to harden the product against a malicious actor, eliminating conditions that may result in CPU STOP HALT events. |

| | | |
|---|------------------------|--|
| OPC UA Server Restart Fails to complete | DE1326 | The OPC UA server may fail to restart after a large number of restart sequences (more than 200) without power cycle. When this occurs, the server restart bit stays on indefinitely. (A restart sequence occurs after a Run Mode or Stop Mode Store when published variables change and the OPC UA server is running.) The issue is contained to OPC UA server operation only. Power cycling the controller corrects this issue. |
| SNTP Faults When Network Time Sync is Disabled | DE6070 SFDC01105406 | Multiple "LAN system software fault; resuming" faults with Event Type 29H "SNTP network time protocol" may be logged in the PLC Fault Table after downloading hardware configuration regardless of whether the Network Time Sync setting is enabled or disabled. This issue occurs when the LAN 2 Mode on the CPU is configured for PROFINET, the LAN 2 ports are configured as Critical Network ports, and the LAN 2 ports are connected via a Gigabit connection. These faults do not impact CPU operation and may be ignored. |
| OPC UA Server Restarted Twice on Logic Download | DE6326 | The OPC UA server is automatically stopped and started after downloading logic to the CPU so that published variable changes are reflected in the OPC UA address space. In certain conditions, the server may stop and restart two times after downloading logic instead of once, as expected. |
| Published Variables Not in OPC UA Address Space | DE6334 | Rarely, after the OPC UA server is started, published variables may not be visible to OPC UA clients when browsing the server's address space. Should this issue occur, simply stop and start the OPC UA server using PAC Machine Edition or ladder logic service request 130. |
| 5193STOP HALT After Hardware Config Download | DE6360 | The controller may enter STOP HALT mode after downloading a hardware configuration that changes the IP address of LAN 1 or LAN 2 and has the OPC UA Server enabled. |
| Unable to Connect PME After EGD Run Mode Store | DE6526 | Placing a controller in STOP mode and clearing its RAM memory after performing a run mode store of EGD may cause the controller to disconnect from PAC Machine Edition. Subsequent attempts to connect to the controller with PME are not successful. Should this issue occur, power cycling the controller will allow PME to connect. |
| LAN 2 Broadcast EGD Production | DE5671 | Produced broadcast EGD exchanges for LAN 2 are not sent when LAN 2 is also configured for PROFINET. |
| Watchdog Timeout With Controller Comm Window Set to Limited | DE6362 | The CPU may enter STOP HALT mode due to either a Software or Hardware Watchdog Timeout when the Controller Communication Window is set to Limited mode and the user application contains the CPU is managing a high communications load. |

RSTi-EP PLC: Restrictions and Open Issues

CPE100/115 CPU & Embedded Ethernet

| Subject | ID code | Description |
|---|---------|--|
| Watchdog time out setting for maximum protocol load | DE6572 | When the PLC is configured to maximum protocol load and where there is high network traffic, it's strongly recommended to increase the WDT time out to 500ms. |
| PLC Fault Table Empty After Restart Due to Fatal Error | DE6573 | PAC Machine Edition may not display any faults in the PLC fault table if it is connected to a controller when it encounters a fatal error that results in an automatic restart. (STOP/HALT) Should this occur, the fault table is empty and the PME Fault Table Viewer indicates that zero faults out of X number of faults displayed. (EX: Displaying 0 of 11 faults, 11 Overflowed) Closing and re-opening the PME Fault Table View displays the faults correctly. |
| PLC Fault Table Faults Not Shown in Chronological Order | DE6574 | Faults in the PLC Fault Table may not be listed in chronological order following an automatic controller restart due to a fatal error. |

| Subject | ID code | Description |
|---|--------------------------|---|
| SRTP and Modbus TCP Client Retries | DE5687 | SRTP and Modbus TCP Client COMMREQs may require multiple TCP retries to establish a connection when a gateway is configured on both LAN 1 and LAN 2. Once a TCP connection is established, client operations proceed normally. Client communications occur without multiple retries if only one of the LANs has a gateway configured or if there are no gateways configured. |
| LLDP does not work when CPE100/115 is power cycled. | DE4177 | LLDP is not working when CPE100/115 powers up with stored configuration. Work around: After power cycle clear and re-download the configuration to start LLDP. |
| Ethernet COMMREQs not always delivered on the first logic sweep | ISS183540 / DE3753 | In certain instances, where User Logic is of sufficient size and a COMMREQ is issued on first logic sweep, a race condition existing between determination of the CPU Run/Stop state and logic-driven issuance of a COMMREQ which may cause the COMMREQ to be aborted before its transmission is attempted. To the user, it would appear as if the COMMREQ was never issued. The condition is much more observable on COMMREQs issued from the CPU's embedded Ethernet port. To avoid the possibility of encountering this condition, users should avoid issuing COMMREQs on first logic sweep. |
| Occasionally PME gets disconnected during download. | DE3798 | Occasionally PME may get disconnected after downloading the hardware configuration to the controller. User can reconnect to the programmer incase PME gets disconnected to the controller. |
| Firmware Update Login Timeout | DE196 DE205 DE2626 | The CPE100/115 enforces a 2-minute login activity timeout on the <i>Firmware Update</i> web page. Selecting an update package on the <i>Firmware Update</i> page and pressing the <i>Upload File</i> button after the timer expires initiates a firmware update. However, instead of displaying the firmware update status, one of these scenarios may occur: <ul style="list-style-type: none"> Another login page is presented. After entering the user name and password the update status is displayed. The web browser loses connection with the CPE100/115 and is unable to display update status because the CPU is automatically resetting while applying the firmware update. After the reset completes, pressing the refresh button in the browser shows the installed firmware version. An error message is displayed indicating the firmware update was not successful however, returning to the firmware update home page shows that the new firmware version was installed. These timeout issues may be avoided by having the firmware file ready so that the firmware update can be initiated immediately after logging in. |
| PME cannot display reference tables with Enhanced Security Enabled and OEM Locked | DE781 | When Enhanced Security is enabled and OEM protection is engaged, only reference areas specified within the Access Control List can be viewed by a programmer, or HMI, regardless of privilege level. For example, if viewing %R memory from words 1 to 400 then the Access Control List must include read access to %R words 1 to 400. A custom reference view table with smaller reference sizes may also be used. |
| Controller Communication Window Timer settings below 10 ms are ignored | DE845 | Normal sweep allows the configuration of the Controller Communications Window Timer for Limited operation and a time range from 0 to 255 ms (default 10 ms). However, the system is currently ignoring settings in the 0 to 9 ms range which results in an effective window time of 10 ms for this configuration range. This means a sweep impact of up to 10 ms may occur for some complex Controller Communication Window operations. If this operation is undesired then it is recommended to use a different sweep mode, such as Constant Sweep or Constant Window. |
| Must have Logic if Powering up from Flash | CR-4633 | If the application will configure the CPU to retrieve the contents of flash memory at power-up, be sure to include logic along with hardware configuration when saving to flash memory. |
| Possible PME inability to connect | CR-6067 | Infrequently, an attempt to connect a programmer to a PLC via Ethernet will be unsuccessful. The normal connection retry dialog will not be displayed. Rebooting the computer that is running the programmer will resolve the behavior. |

| Subject | ID code | Description |
|--|----------------------|--|
| Sequence Store Failure | CR-6586 ISS176888 | When downloading projects with very large hardware configuration or which use large amounts of user memory, it is possible to encounter a <i>PLC Sequence Store Failure</i> error when writing the project to flash. To work around this error, either or both of the following actions may be helpful: 1. Perform an explicit clear of flash prior to performing the write. Increase the operation timeout used by PME prior to performing the write. This is done by expanding the Additional Configuration in the Inspector window for the target controller, and adjusting the Request Timeout. The timeout may need to be increased to as much as 60000 ms, depending on the amount of memory used and the condition of the flash memory. |
| Multiple Log Events | CR-2014 | The Ethernet Interface sometimes generates multiple exception log events and PLC Fault Table entries when a single error condition occurs. Under repetitive error conditions, the exception log and/or PLC Fault Table can be completely filled with repetitive error messages. |
| SRTP channel transfers may take up to 20 seconds after power cycle | ISS155214 | When SRTP communications are interrupted by a power cycle, the Ethernet interface may require up to 20 seconds to reestablish TCP connection used for SRTP communications. |
| Station Manager <i>parm</i> command help text is wrong | ISS181788 | Although the <i>parm v</i> Station Manager command works correctly, the “v” subsystem code (SRTP server) is not shown as supported by the online help. |

CPE100/115 Embedded PROFINET Controller Restrictions & Open Issues

| Subject | ID code | Description |
|---|--------------------|---|
| STXPNS001 Firmware revision is not displayed correctly when viewed using PME PROFINET Explorer | DE568 ISS182843 | Firmware revision information for the STXPNS001 does not display correctly using PAC Machine Edition. The correct firmware revision information can be viewed on the module using HyperTerminal. |
| Loss of IOC and Backplane Communications Faults after Clearing Hardware Configuration with Mismatched STXPNS001 Configuration | DE569 ISS182293 | Clearing the CPU’s hardware configuration after downloading a mismatched RSTi STXPNS001 PROFINET Network Adapter configuration causes a Loss of IOC and a Backplane communications with Controller fault; lost request fault to be recorded in the fault table. Communication with PAC Machine Edition is also lost. If this issue occurs, power cycle both the CPU and STXPNS001. (When power cycling the CPU, disconnect its energy pack if one is connected.) Then, correct the STXPNS001 hardware configuration in PME so that it matches the physical hardware in the IO node and download the updated hardware configuration to the CPU. |
| IOC SW Fault with large configurations | DE838 | When storing a PROFINET configuration that is close to the upper limit of the CPU’s user memory the store may fail with an IOC Software Fault logged in the I/O Fault Table. Clearing the PLC’s existing Hardware Configuration (and I/O Fault Table if the controller is Faulted) before attempting the store should allow the store to succeed. |
| Watchdog timer elapses when Target is uploaded in run mode with MRP make & brake test scenario. | DE4353/ DE4727 | When a CPE100/115 watchdog timer is configured to 200mSec and running System test (Full load test on both the LAN interfaces running PROFINET with MRP, MODBUS/TCP, SRTP, & EGD) and executing MRP make & break test scenario, now if user performs the target upload in run mode, the CPU occasionally goes into STOP HALT mode due to watchdog timer elapse. It also logs a Fatal fault in the fault table stating Watchdog Timer Elapsed. A similar issue has been observed when using PROFINET communications with PACMotion VFD units during power-cycling of the VFD. Work around: Set the configuration of Watchdog timer to appropriate value. For example, in the above scenario this issue is not observed when configured to 500mSec. |

| Subject | ID code | Description |
|---|---------|---|
| FW upgrading issue for CPE100 when upload is slow | DE4751 | On rare occasions, the CPU may fail to complete firmware upgrade when update is done remotely with slow network speeds. Work around: Make sure either module directly connected, if there is a non-direct connection make sure the network speed is appropriate. |

Operational Notes: CPE100/115 CPU & Embedded Ethernet

| Subject | Description | | | | | | | | | | | | |
|---|--|---------|------|------|--------------------|---------------|---------|---------------------|---------------|---------|-----------------|---------|---------|
| Default IP addresses for CPE100 /115 Embedded Ethernet | <p>The default IP addresses programmed at the factory are:</p> <table border="1"> <thead> <tr> <th></th> <th>LAN1</th> <th>LAN2</th> </tr> </thead> <tbody> <tr> <td>IP Address:</td> <td>192.168.0.100</td> <td>0.0.0.0</td> </tr> <tr> <td>Subnet Mask:</td> <td>255.255.255.0</td> <td>0.0.0.0</td> </tr> <tr> <td>Gateway:</td> <td>0.0.0.0</td> <td>0.0.0.0</td> </tr> </tbody> </table> <p>Note: LAN2 will not be operational unless it is configured from the programmer with a valid IP address.</p> | | LAN1 | LAN2 | IP Address: | 192.168.0.100 | 0.0.0.0 | Subnet Mask: | 255.255.255.0 | 0.0.0.0 | Gateway: | 0.0.0.0 | 0.0.0.0 |
| | LAN1 | LAN2 | | | | | | | | | | | |
| IP Address: | 192.168.0.100 | 0.0.0.0 | | | | | | | | | | | |
| Subnet Mask: | 255.255.255.0 | 0.0.0.0 | | | | | | | | | | | |
| Gateway: | 0.0.0.0 | 0.0.0.0 | | | | | | | | | | | |
| Configuring Temporary IP address of CPE100/115 | <p>Setting of the temporary IP address from within PME does not work. Powering up CPE100 /115 with the push button pressed and waiting until the OK LED flashes twice forces the CPE100/115 to use default IP address of 192.168.0.100.</p> <p>⚠ CAUTION</p> <p>Resetting to the default IP address using the above procedure also erases the stored hardware configuration, logic, privilege level passwords and contents of the backup RAM.</p> | | | | | | | | | | | | |
| Station Manager Commands | The embedded Ethernet interfaces of the CPE100/115 support a subset of Station Manager Commands (monitor only commands). Refer to PACSystems TCP/IP Ethernet Communications Station Manager Manual, GFK-2225, for details. | | | | | | | | | | | | |
| CPE100/115 Power-up Time | <p>The CPE100/115 requires at a minimum 35 to 40 seconds to complete power-up. When power is applied, all the Ethernet Port LEDs blink once. When power up is complete, the OK LED turns on and remains steady whereas the RUN LED indicates the current run mode.</p> <p>Whenever the internal super capacitors are completely discharged, the CPE100 might take approximately 105 seconds to complete the power-up sequence. Typically, this occurs when the unit is without power for a few days.</p> | | | | | | | | | | | | |
| Avoid Overlapping IP Subnets when Configuring CPE100/115 IP Address and Subnet Mask | <p>The CPE100/115 contains two LAN interfaces, each one supporting a unique IP Address. Care must be taken when assigning IP Addresses and subnet masks to each LAN so that an overlapping IP subnet is not created. Intermittent or no Ethernet communication may result if an overlapping IP subnet is created and the two interfaces are NOT connected (cabled) to the same physical network.</p> <p>By default, PME prohibits configuring both LAN interfaces on an overlapping IP subnet. (This may be changed by going to Controller General Options and changing the Multiple Embedded LANs on Same Subnet to Show as Warning.)</p> | | | | | | | | | | | | |
| Avoid Overlapping Remote IP Networks when Configuring CPE100/115 IP Address and Subnet Mask | The CPE100/115 contains multiple LAN interfaces, each one supporting a unique IP address. Care must be taken when assigning IP Addresses and subnet masks to each LAN so that each network does not overlap any remote subnets in the network infrastructure. Intermittent or no Ethernet communication may result if the local networks on the CPE100/115 overlap a remote subnet. | | | | | | | | | | | | |

| Subject | Description |
|--|--|
| CPE100/115 Ethernet Gateway Operation | <p>The CPE100/115 allows configuration of an Ethernet gateway on both LAN1 and LAN2. Since the CPE100/115 contains two LAN interfaces, each one supporting a unique IP Address, only one gateway is active at a time:</p> <ul style="list-style-type: none"> If a gateway is configured on only one of the two LAN interfaces and the other is not configured (0.0.0.0) then, the single gateway is shared by both interfaces. <p>If a gateway is configured on both LAN interfaces, then the LAN1 gateway is given priority over the LAN2 gateway as long as LAN1 is functional. If, for example, the LAN1 cable is disconnected then the CPE100/115 will use the LAN2 gateway as a backup.</p> |
| CPE100/115 Multiple Consumptions of Multicast EGD Exchanges | <p>In the event that the Embedded LANs are physically connected to the same Ethernet network then any multicast EGD consumer exchanges may be consumed multiple times (once per each Ethernet interface) if the LAN interfaces use the same multicast IP addresses.</p> <p>This multiple consumption occurs because the CPU has more than one LAN interface and it is possible for the CPU to see duplicate multicast packets (one from each interface) and consume each. If this occurs, issuing a stat g station manager command shows that the multicast consumer exchange updates at a rate that is faster than producer sends it.</p> <p>To avoid this issue, connect each Embedded LAN to physically separate Ethernet networks (i.e. no Ethernet switches in common).</p> |
| PME Connection Lost After Configuration Download that Swaps IP Addresses Between LAN 1 & LAN 2 | <p>PAC Machine Edition may lose connection with a CPE100 that has PROFINET enabled on LAN 2 if a configuration that swaps the IP addresses between LAN 1 and LAN 2 is downloaded. Even though the connection is lost, the store operation completes successfully. Re-connecting using the newly configured IP addresses shows the hardware configuration and logic are equal.</p> |
| CPE100/115 LAN Interface Status Bits | <p>The CPE100/115 uses the similar LAN Interface Status Bit definition as the IC695CPE330. Refer to Section - Monitoring the Ethernet Interface Status Bits in PACSystems RX7i, RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual, GFK-2224 for additional information.</p> |
| Reserved IP Subnet 192.168.180.x | <p>The IP subnet 192.168.180.x is reserved on the CPE100/115. It is not available for configuration on any of the CPU's Ethernet ports.</p> |
| CPE100/115 Modbus TCP & SRTP Client COMMREQ Function Block SYSID & TASK | <p>The CPE100/115 supports both Modbus TCP Client and SRTP Client Channels. Set the COMMREQ SYSID to 0x0000 and TASK to 0x10000 in order to use these functions on the CPE100.</p> |
| NaN Handled Differently in CPE100/115 | <p>Mathematical operations resulting in Not A Number will always be a positive NaN.</p> |
| LED Operation During Firmware Update | <p>During a firmware update, the CPE100/115 does not blink any of the module LEDs. The firmware upgrade status is shown on the web page only.</p> |
| Constant Sweep Mode Performance | <p>In the CPE100/115, an individual sweep time may occasionally exceed the configured constant sweep value by up to 5 ms. A fault will be reported only when the configured constant sweep time is exceeded by more than 5ms in an individual sweep.</p> |
| Modbus / SRTP Performance with PROFINET slaves | <p>Modbus / SRTP performance and data transfer rates gets impacted when PROFINET slaves are added.</p> |
| Supercap Life Expectancy | <p>The super capacitor's life is based on unit's ambient temperature. If the unit's ambient temperature is maintained between 25°C and 45°C, the super capacitor is expected to last 12 to 15 years. Every 10°C increase in the unit's ambient temperature above 45°C decreases the super capacitor life expectancy. For additional information please refer to section 2.4.5 of PACSystems RX7i, RX3i and RSTi-EP CPU Reference Manual GFK-2222Z.</p> |

| Subject | Description |
|--|---|
| Recovery from HALT mode | To recover CPE100/115 from STOP-HALT mode, for CPE100 please refer to section 9 in QSG document (GFK-3012) and for CPE115 please refer to section 9 in QSG document (GFK-3039). |
| LAN2 usage with MRP | When CPE100/115 is configured for MRP only Ethernet Port2 & Port3 of LAN2 can be used to form a ring. Ethernet Port4 of LAN2 can still be used to connect either Programmer, simplex PROFINET device or any other supported Ethernet protocols. |
| Firmware downgrade from current 9.62 release is not allowed | Any attempt to downgrade the firmware from current 9.62 release will fail with the module left in boot mode. To recover the board, the user must perform a factory reset for the downgraded firmware to be effective. It's been recommended to use firmware version 9.62 or later on failed module. |
| In Profinet networking, it's been recommended to use Switch instead of hub | In all of the Profinet network topologies(star, ring, line), it's been recommended to use Switch device between CPU and Profinet node. |

Operational Notes for All PACSystems CPUs

| The following apply generically to any PACSystems CPU: | |
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| SRTP or Modbus Channel COMMREQ Error Response with Gateway | SRTP & Modbus TCP Channel commands on RX3i CPUs with embedded Ethernet (IC695CPE3xx and IC695CPE4xx and EPSCPE1xx) and the IC695ETM001 RX3i Ethernet module provide different COMMREQ error codes whenever a request is sent to an unreachable server. When an Ethernet gateway is configured, the COMMREQ returns error code 0290H; when a gateway is not configured, the COMMREQ returns error code AA90H. |
| Cannot Clear Controller Passwords Loaded in Flash | <p>⚠ WARNING</p> <p>Passwords loaded to Flash (including OEM Password) cannot be cleared using clear Flash or by downloading new firmware. Users MUST document the password as it is not possible for the user to restore a unit to the default, no passwords condition (NULL).</p> |
| OEM Protection not enforced on power-up from User Flash unless engaged before power cycle. | The OEM Protection Lock must be explicitly set before power down in order to ensure the OEM lock will be set on power-up regardless of the type of security being used. |
| When passwords are set with Enhanced Security, connecting with PME or establishing SRTP connections can cause a temporary increase in sweep times. | Due to the complex math involved with Enhanced Security authentication, creating SRTP connections and changing privilege levels will take additional sweep time (several milliseconds) not required when passwords are set with legacy security. If consistent sweep time is important to the application, then it is recommended to configure the sweep mode for Constant Sweep. Alternately, Constant Window or a Normal Sweep with both Limited Backplane Window and Limited Controller Comm Windows can be configured. These sweep modes will limit the sweep impact of Enhanced Security authentication and result in authentication processing across multiple sweeps. |
| LD-PLC operations | Machine Edition LD-PLC no longer supports a function that connects to the PLC, downloads, and then disconnects from the PLC. The connect and download functions are now separate. To perform a download to the PLC, you must first connect to the PLC. |
| IL and SFC | IL and SFC are not available. |
| Changing IP Address of Ethernet Interface while Connected | Storing a hardware configuration with a new IP Address to the RX3i / RSTi-EP while connected via Ethernet will succeed, then immediately disconnect because the RX3i / RSTi-EP is now using a different IP Address than the Programmer. You must enter a new IP Address in the Target Properties in the Machine Edition Inspector window before reconnecting. |

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| Timer Operation | <p>Care should be taken when timers (ONDTR, TMR, and OFDTR) are used in program blocks that are NOT called every sweep. The timers accumulate time across calls to the sub-block unless they are reset. This means that they function like timers operating in a program with a much slower sweep than the timers in the main program block. For program blocks that are inactive for large periods of time, the timers should be programmed in such a manner as to account for this catch up feature.</p> <p>Related to this are timers that are skipped because of the use of the JUMP instruction. Timers that are skipped will NOT catch up and will therefore not accumulate time in the same manner as if they were executed every sweep.</p> |
| Constant Sweep | <p>Constant Sweep time, when used, should be set at least 10 ms greater than the normal sweep time to avoid any over-sweep conditions when monitoring or performing on-line changes with the programmer. Window completion faults will occur if the constant sweep setting is not high enough.</p> |
| Proper IP Addressing is Always Essential | <p>The PACSystems Ethernet Interface must be configured with the correct IP Address for proper operation in a TCP/IP Ethernet network. Use of incorrect IP Addresses can disrupt network operation for the PACSystems and other nodes on the network. Refer to PACSystems RX7i, RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual, GFK-2224 for important information on IP Addressing. When storing a new HW configuration to the RX3i, be sure that the HW configuration contains the proper Ethernet addressing data (IP Address, Subnet Mask, and Gateway IP Address) for the RX3i.</p> <p>Note: <i>Machine Edition programming software maintains the target IP Address (used to connect the programmer to the target) independent of the contents of the HW Configuration for that target). The target IP Address is set in the Target Properties in the Machine Edition Inspector window. Storing a HW Configuration whose Ethernet addressing data contains an IP Address that is different from the RX3i target IP Address will change the IP Address used by the target RX3i as soon as the Store operation is completed; this will break the Programmer connection. Before attempting to reconnect the Programmer, you must change the target IP Address in the Target Properties in the Machine Edition Inspector window to use the new IP Address. To regain communication at the former IP Address, use the manual corrective action described above. Storing a HW Configuration containing an incorrect Ethernet addressing data to the PACSystems RX3i will result in loss of the Programmer connection and will require manual corrective action as described above.</i></p> |
| Network Architecture and Overload | <p>The hub or switch connections in an Ethernet network must form a tree and not a ring; otherwise duplication of packets and network overload may result. In this situation, the RX3i Ethernet modules will continually reset.</p> <p>⚠ CAUTION</p> <p>The hub or switch connections in an Ethernet network must form a tree and not a ring; otherwise duplication of packets and network overload may result.</p> |
| Reporting of Duplicate IP Address | <p>The PACSystems RX3i does not log an exception or a fault in the PLC Fault Table when it detects a duplicate IP Address on the network.</p> |
| SRTP Connections Remain Open after IP Address Changed | <p>The Ethernet Interface does not terminate all open SRTP connections before changing its IP Address. Once the local IP Address has changed, any existing open TCP connections are unable to normally terminate. This can leave SRTP connections open until their underlying TCP connections time out.</p> |
| Send Information Report (COMMREQ 2010) requests may fail at minimum intervals less than 200 ms from embedded Ethernet port. | <p>Send Information Report COMMREQ requests, with a minimum interval between host accesses of 200 ms or less, may fail if issued from the CPU's embedded Ethernet port. A COMMREQ Status Word value of 0290H, Period expired before transfer completed; still waiting on transfer indicates this condition occurred. To work around this issue, the user can set the minimum interval between host accesses to a value greater than 200 ms if issuing a Send Information Report COMMREQ from the embedded Ethernet port of the CPU.</p> |

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| Modbus TCP Client Channels require at least a 10 ms delay between bulk channel close and bulk channel open processing | On CPUs with embedded Ethernet ports, a delay of at least 10 ms must occur between logic-driven attempts to close sixteen Modbus TCP Channels simultaneously and then re-open sixteen Modbus TCP Channels. This delay is necessary to provide external Modbus TCP Servers sufficient time to close all channels before the Client issues channel open requests. |
| Incorrect COMMREQ Status for Invalid Program Name | The program name for PACSystems is always LDPROG1. When another program name is used in a COMMREQ accessing %L memory, an Invalid Block Name (05D5) error is generated. |
| COMMREQ Status Words Declared in Bit Memory Types must be Byte-Aligned | In previous releases, the CPU allowed configuration of COMMREQ Status Words in bit memory types on a non-byte-aligned boundary. Even though the given reference was not byte-aligned, the firmware would adjust it the next-lowest byte boundary before updating status bits, overwriting the bits between the alignment boundary and specified location. To ensure that the application operates as expected, release 3.50 requires configuration of COMMREQ Status Words in bit memory types to be byte-aligned. For example if the user specified status bit location of %I3, the CPU aligns the status bit location at %I1. Release 3.50 firmware requires the user to specify the appropriate aligned address (%I1) to ensure that the utilized location is appropriate for their application. Note that the actual reference location utilized is not changed, but now is explicitly stated for the user. |
| STOP and RUN Mode Transition Priority | The PACSystems CPU receives requests to change between stop and run mode from many different sources. These include (but are not limited to) PACMachine Edition, HMIs, the user application, and the RUN/STOP switch. Since there are many potential sources for a mode change request, it is possible to receive a new mode change request while another is already in progress. When this scenario occurs, the CPU evaluates the priority of the new mode change request with the mode change that is in progress. If the new mode change request has an equal or higher priority than the one already in progress, the CPU transitions to the new mode instead of the one in progress. If, however, the new mode change request has a lower priority than the one in progress, the new mode request is discarded and the CPU completes the mode change that is in progress. The sweep mode priorities are (listed from highest to lowest priority) STOP HALT, STOP FAULT, STOP, and RUN. (NOTE: The IO ENABLED/DISABLED state is not part of the mode priority evaluation.) |
| Uploaded Controller Supplemental Files lose date and time | Controller Supplemental Files uploaded from the CPU are time stamped as 8/1/1980 12:08AM regardless of PC or PLC time. |
| CPU Parameters Reset to Default Values After Replacing CPU Module in PME | When replacing CPU modules in PAC Machine Edition, some parameters may be reset to default values. After replacing a CPU module, it is recommended that all parameters are evaluated for application compatibility including the Controller Communication Window Mode, Controller Communications Window Timer, Backplane Communication Window Mode, and Backplane Communications Window Timer. |

Operational Notes: CPE100/115 Embedded PROFINET Controller

| Subject | Description |
|--|---|
| Update rates supported by Embedded PROFINET Controller | To prevent overloading of the Embedded PROFINET Controller, the recommended update rate to be used with I/O devices is 16ms. Using update rates lesser than 16ms is not recommended and it may have an adverse impact on the overall performance of CPE100/115. |

| Subject | Description | | | | | | | | | | | | | | | | |
|---|---|--------------------------------|-------------|--------------------------------|--|----|---|-------|---|-------|-------|--------------------------------|---|---|-------|------|---|
| Configuring Ethernet & Embedded PROFINET Controller Operation with CPE100 /115 LAN 2 Mode | <p>The CPE100/115's LAN 2 Ethernet ports may be configured either for Ethernet or PROFINET controller operation using the LAN 2 Mode parameter on the CPE100/115 hardware configuration Settings tab in PME.</p> <p>When LAN 2 is configured for Ethernet, these ports support SRTP Client/Server, Modbus TCP Client/Server, and EGD. All PROFINET controller services (Including Explore PROFINET Networks) are disabled when LAN 2 is configured for Ethernet. Configuring LAN 2 for PROFINET retains standard Ethernet operation and enables PROFINET controller services.</p> | | | | | | | | | | | | | | | | |
| Embedded PROFINET Controller Duplicate IP Address | <p>The CPE100/115's Embedded PROFINET Controller is able to detect that a network device has the same IP Address as its own. When a duplicate IP Address is detected, the Embedded PROFINET Controller behaves as follows.</p> <p>In each case, the system has an active PROFINET network with a PROFINET Controller connected to at least one PROFINET Device:</p> <ol style="list-style-type: none"> 1. If a second PROFINET Controller with an identical IP Address to the active PROFINET Controller is added to the network, the second controller will not enter the network and will log a Duplicate IP Detected fault. The first Controller will maintain all device connections. 2. If a device with an identical IP Address to an active PROFINET Controller is added to the network, the Controller will log a Duplicate IP Detected fault and maintain all device connections. 3. If a device with an identical IP Address to an active PROFINET Device is added to the network, the Controller will log a Duplicate IP Detected fault and maintain all device connections. | | | | | | | | | | | | | | | | |
| IC695GCG001 Genius Communication Gateway COMMREQs | <p>The Embedded PROFINET Controller is able to send Communication Requests (COMMREQs) to the IC695GCG001 RX3i Genius Communication Gateway. When sending requests to the GCG001, the COMMREQ function block inputs must be set as follows:</p> <table border="1" data-bbox="441 1050 1497 1470"> <thead> <tr> <th data-bbox="441 1050 704 1092">COMMREQ Input</th> <th data-bbox="704 1050 1497 1092">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="441 1092 704 1150">(enable)</td> <td data-bbox="704 1092 1497 1150">Permissive logic that controls power flow to the COMMREQ function block.</td> </tr> <tr> <td data-bbox="441 1150 704 1255">IN</td> <td data-bbox="704 1150 1497 1255">The memory location of the Command Block containing the specific COMMREQ command information. The Command Block may be located in any word-oriented area of memory (%P, %L, %R, %AI, %AQ, or %W).</td> </tr> <tr> <td data-bbox="441 1255 704 1402">SYSID</td> <td data-bbox="704 1255 1497 1402"> A two-byte hex value that gives the rack and slot location of the Embedded PROFINET Controller. <table border="1" data-bbox="841 1318 1377 1402"> <thead> <tr> <th data-bbox="841 1318 932 1360">Rack#</th> <th data-bbox="932 1318 1023 1360">Slot#</th> <th data-bbox="1023 1318 1377 1360">Resulting SysID Hex Word Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="841 1360 932 1402">0</td> <td data-bbox="932 1360 1023 1402">0</td> <td data-bbox="1023 1360 1377 1402">0000h</td> </tr> </tbody> </table> </td> </tr> <tr> <td data-bbox="441 1402 704 1470">TASK</td> <td data-bbox="704 1402 1497 1470">The task is always "20084h" (hexadecimal) for the Embedded PROFINET Controller.</td> </tr> </tbody> </table> | COMMREQ Input | Description | (enable) | Permissive logic that controls power flow to the COMMREQ function block. | IN | The memory location of the Command Block containing the specific COMMREQ command information. The Command Block may be located in any word-oriented area of memory (%P, %L, %R, %AI, %AQ, or %W). | SYSID | A two-byte hex value that gives the rack and slot location of the Embedded PROFINET Controller. <table border="1" data-bbox="841 1318 1377 1402"> <thead> <tr> <th data-bbox="841 1318 932 1360">Rack#</th> <th data-bbox="932 1318 1023 1360">Slot#</th> <th data-bbox="1023 1318 1377 1360">Resulting SysID Hex Word Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="841 1360 932 1402">0</td> <td data-bbox="932 1360 1023 1402">0</td> <td data-bbox="1023 1360 1377 1402">0000h</td> </tr> </tbody> </table> | Rack# | Slot# | Resulting SysID Hex Word Value | 0 | 0 | 0000h | TASK | The task is always "20084h" (hexadecimal) for the Embedded PROFINET Controller. |
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| Rack# | Slot# | Resulting SysID Hex Word Value | | | | | | | | | | | | | | | |
| 0 | 0 | 0000h | | | | | | | | | | | | | | | |
| TASK | The task is always "20084h" (hexadecimal) for the Embedded PROFINET Controller. | | | | | | | | | | | | | | | | |
| PROFINET Command Line Interface | The CPE100/115 Embedded PROFINET Controller does not support the Command Line Interface (CLI) at this time. | | | | | | | | | | | | | | | | |

| Subject | Description | | | | | | |
|--|--|--|--|-----------------------------|--|---------|------|
| <p>Embedded PROFINET Controller Duplicate IP Address</p> | <p>The Embedded PROFINET Controller is able to detect that a network device has the same IP address as its own. When a duplicate IP address is detected, the Embedded PROFINET Controller behaves as follows. In each case, the system has an active PROFINET network with a PROFINET Controller connected to at least one PROFINET Device:</p> <ol style="list-style-type: none"> 1. If a second PROFINET Controller with an identical IP address to the active PROFINET Controller is added to the network, the second controller will not enter the network and will log a Duplicate IP Detected fault. The first Controller will maintain all device connections. 2. If a device with an identical IP address to an active PROFINET Controller is added to the network, the Controller will log a Duplicate IP Detected fault and maintain all device connections. 3. If a device with an identical IP address to an active PROFINET Device is added to the network, the Controller will log a Duplicate IP Detected fault and maintain all device connections. | | | | | | |
| <p>Minimum IO Update Rates for Bumpless Operation in a Ring Topology</p> | <p>If your application requires the PROFINET IO to operate bumplessly (no Loss of Device faults and no defaulting of IO) through a break in the ring, then the IO Update Rates of all of the devices in that ring must be no smaller than the Minimum IO Update Rate.</p> <p>Refer to section 6.1.6 of GFK-2571 for more details on this topic.</p> | | | | | | |
| <p>Third-party MRP Manager Use with Embedded PROFINET Controller as MRP Client</p> | <p>When using a third-party MRP Manager, it is recommended to set the MRP Manager Test Monitoring Interval and Count to 10 ms and 2 respectively and/or connect the PROFINET Controller client directly to a device that provides fast link down detection.</p> <p>Failure to follow these recommendations may result in degraded MRP Ring update performance for bumpless operation, due to the speed at which ring breaks are detected. Use the table below as a guide when choosing to disregard these recommendations.</p> <table border="1" data-bbox="461 1079 1476 1218"> <thead> <tr> <th colspan="2" data-bbox="461 1079 1476 1146">Bumpless Operation Using Third-party MRP Manager Without Recommended Test Monitoring Interval/Count</th> </tr> <tr> <th data-bbox="461 1146 815 1182">Ring Port Connection</th> <th data-bbox="815 1146 1476 1182">Minimum Recommended I/O Update Rate</th> </tr> </thead> <tbody> <tr> <td data-bbox="461 1182 815 1218">100Mbps</td> <td data-bbox="815 1182 1476 1218">16ms</td> </tr> </tbody> </table> | Bumpless Operation Using Third-party MRP Manager Without Recommended Test Monitoring Interval/Count | | Ring Port Connection | Minimum Recommended I/O Update Rate | 100Mbps | 16ms |
| Bumpless Operation Using Third-party MRP Manager Without Recommended Test Monitoring Interval/Count | | | | | | | |
| Ring Port Connection | Minimum Recommended I/O Update Rate | | | | | | |
| 100Mbps | 16ms | | | | | | |
| <p>MRP Ring Ethernet Traffic Storm Prevention</p> | <p>The CPE100's LAN 2 Ethernet ports may be used as a MRP Ring Manager. (MRM) The physical ring must not be connected until a MRM configuration is stored to any Ethernet node on the ring including the CPE100/115.</p> <p>Failure to have an active MRM configured in an Ethernet ring will result in an Ethernet traffic storm caused by the ring's network loop topology. The Ethernet traffic storm will prevent communication to all Ethernet nodes connected to the ring until the ring is broken or a MRM is configured.</p> <p>If the CPE100/115 had been previously configured as a MRM, it maintains its MRM status after a hardware configuration clear and a power-cycle. However, after clearing hardware configuration, and before power-cycling, it is always a best practice to break the ring by physically disconnecting an Ethernet port on any network node in the ring.</p> | | | | | | |

Operational Notes: All PACSystems PROFINET Controllers

| Subject | Description |
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| <p>PROFINET DCP – Direct Connection indicates that “no valid Ethernet adapters are available for PROFINET DCP discovery (must run PME as Administrator to use this feature)”</p> | <p>The PME PROFINET DCP tool requires elevation to administrator privilege to run when it is launched by right-clicking on a PROFINET Controller. Since the PME installation does not setup PME or any of its internal tools to run at the administrator privilege level, you will have to inform Windows that you want it to run PME as an administrator. There are two ways do this:</p> <ol style="list-style-type: none"> 1. Right click on the PME icon (and any other shortcuts associated with PME) and select properties. Then select the Compatibility tab and check the checkbox for “Run this program as an administrator.” 2. Right click on the PME icon and select properties. Then select the Advanced button and check the checkbox “Run as administrator.” This method shows “Run as administrator” in bold when you right click on the icon in the future. <p>You may also launch the PROFINET DCP tool from the Utilities tab menu in PME. However, this launch method does not provide full functionality of the tool. That is, it does not compare I/O devices found to any configuration in the PME Project. Also, if PME was not launched as an administrator, this method of launching the DCP tool requests the user’s permission to elevate access to administrator privilege.</p> |
| <p>PNIO_DEV_COMM Function Block Usage</p> | <p>The PNIO_DEV_COMM function block may require multiple logic scans to return the status of an I/O device. It must continue to receive power flow until:</p> <ol style="list-style-type: none"> a) The ENO output turns on indicating that the function block’s parameters are successfully validated and the PROFINET Controller completed its first attempt to connect to the specified I/O device or; b) The OK output turns on indicating the PROFINET Controller is successfully communicating with the I/O device |
| <p>Storing Updated Media Redundancy Protocol (MRP) Configurations to Large Operating MRP Ring Networks with Fast IO Update Rates Configured Can Result in PROFINET IO Device Loss/Add Faults</p> | <p>When storing Media Redundancy Protocol (MRP) configuration updates to an operating MRP ring network, users may infrequently observe one or more pairs of Loss of Device and subsequent Addition of Device faults regarding PROFINET IO Device faults on the network. This is expected behavior and is more likely to occur on ring networks with a large number of PROFINET IO Devices acting as Media Redundancy Clients (MRC) with very fast IO Update Rates configured.</p> <p>Because changing MRP configuration settings requires each MRC to break and reconnect its own connections to the ring network, IP packets on the network may be lost as this flurry of connection breaks/ reconnects occur on the network. A PROFINET IO Device is considered lost if it misses three consecutive IO data transactions. Thus, whenever three consecutive IO data packets from a particular PROFINET IO Device are lost due to network reconfiguration, the device will appear to be lost to the PROFINET Controller and a Loss of IO Device is logged. When the network stabilizes, the PROFINET Controller will be able to reestablish connection with the lost IO Device and an Addition of IO Device fault will be logged.</p> |

Product Documentation

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|--|----------|
| PACSystems RSTi-EP EPSCPE100 CPU Quick Start Guide | GFK-3012 |
| PACSystems RSTi-EP EPSCPE115 CPU Quick Start Guide | GFK-3039 |
| PACSystems RX3i and RSTi-EP CPU Reference Manual | GFK-2222 |
| PACSystems RX3i CPU Programmer's Reference Manual | GFK-2950 |
| PACSystems RX3i System Manual | GFK-2314 |
| PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual | GFK-2224 |
| PACSystems RX3i & RSTi-EP PROFINET IO Controller User Manual | GFK-2571 |
| PACSystems RXi, RX3i and RSTi-EP Controller Secure Deployment Guide | GFK-2830 |
| PACSystems TCP/IP Ethernet Communications Station Manager Manual | GFK-2225 |
| PROFINET I/O Devices Secure Deployment Guide | GFK-2904 |
| PACSystems RSTi-EP Controllers Performance Evaluation | GFK-3086 |
| <i>PACSystems DNP3 Outstation User Manual</i> | GFK-3103 |

User manuals, product updates and other information sources are available on the Emerson support website, <https://www.emerson.com/Industrial-Automation-Controls/support>.

Contact Information

Home link: <http://www.emerson.com/industrial-automation-controls>

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Note: If the product is purchased through an Authorized Channel Partner, please contact the seller directly for any support.

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