

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

EMERSON

IC695CPE305CA IC695CPE305CA-BCAD

CONFORMAL COATED CPU MODULE

Used with the applicable PACSystems RX3i CPE305-Bxxx configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Emerson GFK-3248K, Bxxx and conformal-coated variants, p.1 footnote and pp.1 to 2 introduction

PACSystems™ RX3i CPU IC695CPE302-Bxxx, IC695CPE305-Bxxx, and IC695CPE310-Bxxx

IC695CPE302-BHAE^{1 2}

IC695CPE305-BHAE^{1 2}

IC695CPE310-BHAE^{1 2}

Firmware Version 11.01



¹ Includes conformal coat and low temperature module variants, if available.

² The last two characters of the catalog number suffix may not increment =with every firmware release beginning with IC695CPE302-BAAA, IC695CPE305-BAAA 10.60 and IC695CPE310-BAAA 10.70.

Warnings and Caution 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.

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

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met during installation, operation, and maintenance. The information is supplied for informational purposes only, and Emerson makes no warranty as to the accuracy of the information included herein. Changes, modifications, and/or improvements to equipment and specifications are made periodically and these changes may or may not be reflected herein. It is understood that Emerson may make changes, modifications, or improvements to the equipment referenced herein or to the document itself at any time. This document is intended for trained personnel familiar with the Emerson products referenced herein.

Emerson may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not provide any license whatsoever to any of these patents.

Emerson provides the following document and the information included therein as-is and without warranty of any kind, expressed or implied, including but not limited to any implied statutory warranty of merchantability or fitness for particular purpose.

Introduction

Important

This document is specific to CPE302-Bxxx, CPE305-Bxxx, CPE310-Bxxx, and later hardware platforms. For details about the CPE302-Axxx, CPE305-Axxx, and CPE310-Axxx, it is recommended to refer to the latest version of the document GFK-2714.

The PACSystems™ RX3i IC695CPE302-Bxxx / IC695CPE305-Bxxx / IC695CPE310-Bxxx can be used to perform real-time control of machines, processes, and material handling systems. The CPU communicates with the programmer or HMI/SCADA via the Ethernet ports or a serial port. It communicates with I/O and Intelligent Option modules over a dual PCI/Serial backplane. It can also communicate natively with remote I/Os over EGD Class1.

- Contains 2 MB of user memory and 2 MB of non-volatile flash user memory (CPE302-Bxxx).
- Contains 6 MB of user memory and 6 MB of non-volatile flash user memory (CPE305-Bxxx).
- Contains 13 MB of user memory and 13 MB of non-volatile flash user memory (CPE310-Bxxx).
- Supports battery-less retention of user memory when configured with an Energy Pack, IC695ACC400, to power the CPU long enough to write user memory to non-volatile storage (NVS) on system power loss.
- Supports programming in Ladder Diagrams, Structured Text, Function Block Diagram, and C.
- Supports up to 512 program blocks (The maximum size for a block is 128 KB).
- Supports auto-located Symbolic Variables that can use any amount of user memory.
- Equipped with reference table sizes to include 32 kbits for discrete %I and %Q and up to 32K words each for analog %AI and %AQ.
- Supports OPC UA communications with encrypted connections.
- Supports PME's GUI management interface for OPC UA configuration. integration (start, stop, restart, clear, and provisioning mode).
- Supports the PAC Security Center available for certificate trust management of clients and servers.
- Supports most Series 90-30 modules and expansion racks. For supported I/O, Communications, Motion, and Intelligent modules refer to the latest version of *PACSystems RX3i Hardware and Installation Manual*, GFK-2314.
- Supports the ability to set the IP address through the serial port.
- The embedded Ethernet interface provides two Gigabit Ethernet Ports.
- Supports up to 32 simultaneous SRTP Server connections, up to 16 simultaneous Modbus/TCP Server connections, and up to 16 simultaneous communications channels of either SRTP Channels or Modbus/TCP Client channels. For details, refer to the latest version of *PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual*, GFK-2224.
- Supports Ethernet Global Data, Class 1.
- Supports HART® Pass-Through.
- Time synchronization to SNTP Time Server on Ethernet network when used with a rack-based Ethernet module (IC695ETM001) version 5.0 or later.
- Enhanced ability to display the serial number and date code in PME's **Device Information Details**.
- Ability to transfer applications to and from USB 2.0 A type removable data storage devices, or **RDSs**.

HART® is a registered trademark of the HART Communication Foundation of Austin, Texas USA. Any use of the term HART hereafter in this document, or any document referenced by this document, implies the registered trademark.

- Compliant with EU RoHS Directive 2002/95/EC using the following exemptions identified in the Annex: 7(a), 7(c)-I and III, and 15.

Current Release Information

PACSystems RX3i CPU IC695CPE302-Bxxx, IC695CPE305-Bxxx, and IC695CPE310-Bxxx hardware Release -BHxx identifies a manufacturing change. There is no change to form, fit, or function. Firmware Release 11.01 delivers improved OPC UA server performance, increased OPC UA element count, adds support for configuring IC695PNC001-Bxxx Release 3.30 new features, and sending new COMMREQs for PROFINET asynchronous RDO read and write operations to the IC695PNS001-Bxxx. The firmware release also resolves issues found in the section *Problems Resolved in this Release*.

RX3i CPU Models	Firmware / Hardware Component	Version Number
CPE302/305/310-Bxxx	CPU Primary Firmware	Rel 11.01 Build EQVQ
CPE302/305/310-Bxxx	CPLD	Rel 03.00.01 Build N/A
CPE302/305/310-Bxxx	FPGA	Rel 01.07.03 Build N/A
CPE302/305/310-Bxxx CHS007/012/016-Hx (and earlier)	BOC	Rel 1.19 Build 43A1
CPE302/305/310-Bxxx CHS007/012/016-JC (and later)	BOC	Rel 3.02 Build 22A0
CPE302/305-Bxxx	BIOS	VC4D0109a6b5f5f54f29 20240604-1139 (04-JUN-2024)
CPE310-Bxxx	BIOS	VC4D1109a6b5f5f54f29 20240604-1139 (04-JUN-2024)

Field Upgrades

All versions of the CPE302/305/310-Bxxx are field upgradeable to this firmware release using the upgrade kits listed below. The upgrade kit is available via download from the support website. Links are available at the end of this document.

Release in line with software license compliance requirements.

Note: These upgrade kits are not compatible with the CPE302-Axxx, CPE305-Axxx, and CPE310-Axxx versions and should not be used for upgrading their firmware. Downgrading Firmware to versions prior to Release 10.91 (Build EMWX) is restricted once updated to this release (Release 11.01 (EQVQ)).

CPE302/305-Bxxx:

Part Number: 41G3109-MS10-000-A6

File Name: CPE30X-Bxxx_FW11_01_41G3109-MS10-000-A6.zip

CPE310-Bxxx:

Part Number: 41G3110-MS10-000-A4

File Name: CPE310-Bxxx_FW11_01_41G3110-MS10-000-A4.zip

Catalog Number	Date	FW Version	Description
IC695CPE302-BBAB IC695CPE305-BBAB IC695CPE310-BBAB	Nov 2022	10.76 (EKZY)	Resolved manufacturing component issues.
IC695CPE302-BAAA IC695CPE305-BAAA IC695CPE310-BAAA	Sept 2022	10.70 (EKPX)	CPE310-BXXX: Adds support for OPC UA 2D Array Access, a new hardware platform with a new layout of front panel LEDs, two COM Ports, and two Gigabit Ethernet Ports. Firmware is not compatible with previous hardware revisions (-AXXX). IC695CPE310-BXXX is Achilles Level 2 Certified. CPE302-BXXX and CPE305-BXXX: Adds support for OPC UA 2D Array Access, Security enhancements, and other minor bug fixes.
IC695CPE302-BAAA IC695CPE305-BAAA	Sept 2022	10.60 (EKMP)	New hardware platform with a new layout of front panel LEDs and provides two, Gigabit Ethernet Ports. Firmware is not compatible with previous hardware revisions (-AXXX). IC695CPE302-BXXX, IC695CPE305-BXXX is Achilles Level 2 Certified.

PLC CPU

PLC CPU Restrictions and Open Issues

Restriction/Open Issue	Description
PME Error Programmer already attached	When connected to a target, there is a field called the request timeout, which can be up to 240s. If you are connected to PME via a switch port, and you remove the ethernet cable and then re-attach it to a switched port, reconnect to PME, and try to enter programmer mode, the operation will fail. To enter programmer mode, you must wait for the request timeout amount of time to be able to enter programmer mode. You will see the following error in PME when trying to enter the programmer before the request timeout has expired: Error 8085: Programmer already attached [{PC name}]{user name}] To recover, you can wait for the request timeout amount of time, or you can reboot the PLC. To avoid this issue, make sure you press "Disconnect" before removing the ethernet cable from the switched port, or else, you will have to wait for the configured request timeout before you can re-enter programmer mode.