Important Product Information

VersaMax*
IC200CPUE05

CPU with Embedded Ethernet Interface

IC200CPUE05 shares the basic features of the other VersaMax* PLC CPUs. It provides powerful PLC functionality in a small, versatile system. CPUE05 can serve as the system controller for up to 64 modules with up to 2048 I/O points. Two serial ports provide RS-232 and RS-485 interfaces for serial communications. CPUE05 also provides a built-in Ethernet Interface. The RS-232 serial port can be configured for Local Station manager operation to provide access to diagnostic information about the Ethernet interface. CPUE05 has 128KB of configurable memory.

In addition, CPUE05 is compatible with the EZ Program Store device, which can be used to write, read, update, and verify programs, configuration, and reference table data without a programmer or programming software.

Features

- Supports up to 64 modules with up to 2048 I/O points

- Can be either auto-configured or configured from a programmer using configuration software

- 128KB of configurable memory for the application program, hardware configuration, registers (%R), analog inputs (%AI), and analog outputs (%AQ)

- Programming in Ladder Diagram and Instruction List

- Non-volatile flash memory for program storage

- Battery backup for program, data, and time of day clock

- Super capacitor provides power to memory for 1 hour

  - Over 1 hour, backup battery protects memory contents up to 6 months.

  - Backup battery has shelf life of 5 years when not in use.

- Run/Stop switch

- Floating point (real) data functions

- Embedded RS-232, RS-485, and Ethernet communications

- 70mm height when mounted on DIN rail with power supply (sold separately)

Product Information

Revision	IC200CPUE05-LU
Power Supply	Requires PWRx02
Firmware	Version 3.10
Programmer Compatibility	VersaPro software version 2.0 or later and Machine Edition Logic Developer.
Expansion I/O Compatibility	All types of I/O and communications modules can be used in expansion racks. Some analog modules require specific module revisions in expansion racks, as listed below:

Module	Module Revision
ALG320	B or later
ALG321	B or later
ALG322	B or later
ALG430	C or later
ALG431	C or later
ALG432	B or later

Specifications: IC200CPUE05

Size	Width: 4.95" (126mm) - along DIN rail Length: 5.04" (128mm) Depth: 2.72" (69.1mm)	
Program storage	System flash, battery-backed RAM	
Power Supply current consumption with no serial port converter or EZ Program Store device	5Vdc uses 220mA	3.3Vdc uses: 570mA
Power Supply current consumption with serial port converter or EZ Program Store device	5Vdc uses: 320mA	
Floating point	Yes	
Boolean execution speed	0.8 ms/K (typical)	
Real time clock accuracy (for timer functions)	100ppm (0.01%) or ±9sec/day	
Time of day clock accuracy	23ppm (0.0023%) or ±2sec/day @ 30°C. 100ppm (0.01%) or ±9sec/day @ full temperature range	
Embedded communications	RS-232, RS-485, Ethernet	
Configurable memory	128K bytes maximum	
Ethernet Interface Specifications		
Ethernet data rate	10Mbps (half- or full-duplex)	
Ethernet port	RJ-45, UTP	
Number of SRTP server connections	8	
Number of Ethernet Global Data (EGD) configuration-based exchanges	32	
EGD Exchange limits	100 data ranges per exchange 1400 bytes of data per exchange	
EGD Time Synchronization	Not Supported	
EGD Selective Consumption	Yes	
Load EGD configuration from PLC to programmer	Yes	
Remote Station Manager over UDP	Yes	
Local Station Manager (RS-232)	Via CPU Port 1	

EMC Installation Requirements

To meet EN 55011 and FCC Class A radiated emissions, the Control system in which the IC695PNC001 module is used shall be mounted in a metal enclosure when three or more IC695PNC001 modules are used. All surfaces of the enclosure must be adequately grounded to adjacent surfaces to provide electrical conductivity. Wiring external to the enclosure must be routed in metal conduit or the equivalent. The conduit must be mounted to the enclosure using standard procedures and hardware to ensure electrical conductivity between the enclosure and conduit.

When installing, operating, or maintaining the IC695PNC001, personnel must insure any electrostatic charge is discharged through the use of a grounded ESD strap or other means.

Installation Location

This product is intended for use with the VersaMax system. Its components are considered open equipment (having live electrical parts that may be accessible to users) and must be installed in an ultimate enclosure that is manufactured to provide safety. At a minimum, the enclosure shall provide a degree of protection against solid objects as small as 12mm (fingers, for example). This equates to a NEMA/UL Type 1 enclosure or an IEC60529 IP20 rating providing at least a pollution degree 2 environment. For details about installing VersaMax rack systems, refer to *VersaMax Modules, Power Supplies and Carriers User's Manual*, GFK-1504.

Installation in Hazardous Areas

The following information is for products bearing the UL marking for Hazardous Areas or ATEX marking for explosive atmospheres:

CLASS 1 DIVISION 2 GROUPS ABCD

- This equipment is an open-type device and is meant to be installed in an enclosure suitable for the environment that is only accessible with the use of a tool.
- Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations, or nonhazardous locations only.

⚠ **Warning** – EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

⚠ **Warning** – EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

ATEX Zone 2

This module must be mounted in an enclosure certified in accordance with EN60079-15 for use in Zone 2, Group IIC and rated IP54. The enclosure shall only be able to be opened with the use of a tool.

Quick Start

Installation and initial startup procedures for the CPUE05 include the following steps. Before installing and operating the CPUE05, refer to *VersaMax PLC User's Manual,* GFK-1503 for detailed information.

Pre-Installation check

Carefully inspect all shipping containers for damage. If any equipment is damaged, notify the delivery service immediately. Save the damaged shipping container for inspection by the delivery service. After unpacking the equipment, record all serial numbers. Save the shipping containers and packing material in case it is necessary to transport or ship any part of the system.

Module Installation

This equipment may be mounted on a horizontal or vertical DIN rail. If mounted on a vertical DIN rail, the CPU module must be located at the bottom. The CPU and connecting carriers must be installed on the same section of 35mm (1.38in) x 7.5mm (.3in) DIN rail, 1mm (.04in) thick. Steel DIN rail is recommended. The DIN rail must be electrically grounded to provide EMC protection. The rail must have a conductive (unpainted) corrosion-resistant finish. DIN rails compliant with DIN EN50022 are preferred. For vibration resistance, the DIN rail should be installed on a panel using screws spaced approximately 15.24cm (6in) apart.

Rated thermal specifications for the CPU module are based on a clearance of 50.8mm (2in) above and below the equipment and 25.4 mm (1 inch) to the left of the CPU module.

1. Allow sufficient finger clearance for opening CPU door.
2. Allow adequate clearance for serial port and Ethernet cables.
3. Allow adequate space for power wiring.

The CPU with power supply attached fits into a 70mm (2.76in) deep enclosure.

Installing the CPU on the DIN Rail

The CPU snaps easily onto the DIN rail. No tools are required for mounting or grounding to the DIN rail.


Before joining module carriers to the CPU, remove the connector cover on the right-hand side of the CPU. Do not discard this cover: you will need to install it on the last carrier, to protect the connector pins from contamination and damage during use.

Panel-Mounting

If excessive vibration is a factor, the CPU should also be screwed down to the mounting panel.

Note 1. Tolerances are ±0.13mm (0.005in) non-cumulative.

Note 2. 1.1-1.4Nm (10-12 in/lbs) of torque should be applied to M3.5 (#6-32) steel screw threaded into material containing internal threads and having a minimum thickness of 2.4mm (0.093in).
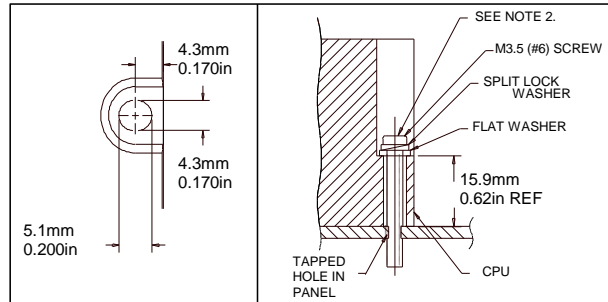

Removing the CPU from the DIN Rail

1. Turn off power to the power supply.
2. (If the CPU is attached to the panel with a screw) remove the power supply module. Remove the panel-mount screw.
3. Slide the CPU away from the other modules until the connector on the right side disengages from the next carrier.
4. With a small flathead screwdriver, pull the DIN rail latch outward while tilting the other end of the module down to disengage it from the DIN rail.

Activating or Replacing the Backup Battery

The CPU is shipped with a battery already installed. The battery holder is located in the top side of the CPU module. Before the first use, activate the battery by pulling and removing the insulator tab.
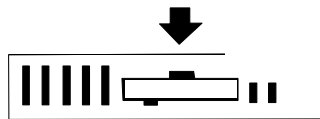
To replace the battery, use a small screwdriver to gently pry open the battery holder. Replace battery only withACC001 from your PLC supplier, or with Panasonic battery: BR2032. Use of another battery may present a risk of fire or explosion.

⚠	**Caution** **Battery may explode if mistreated.** **Do not recharge, disassemble, heat above 100°C (212°F), or incinerate.**

Switching the PLC Operating Mode

The CPU Run/Stop mode switch is located behind the module door. This switch can be used to place the CPU in Stop or Run mode. It can also be used to block accidental writing to CPU memory and forcing or overriding discrete data. Use of this feature is configurable. The default configuration enables Run/Stop mode selection and disables memory protection.
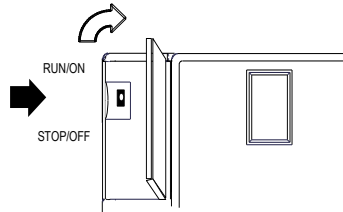
If Run/Stop mode switch operation is enabled, the switch can be used to place the CPU in Run mode.

If the CPU has non-fatal faults and is not in Stop/Fault mode, placing the switch in Run position causes the CPU to go to Run mode. Faults are NOT cleared.

If the CPU has fatal faults and is in Stop/Fault mode, placing the switch in Run position causes the Run LED to blink for 5 seconds. While the Run LED is blinking, the CPU switch can be used to clear the fault table and put the CPU in Run mode. After the switch has been in Run position for at least ½ second, move it to Stop position for at least ½ second. Then move it back to Run position. The faults are cleared and the CPU goes to Run mode. The LED stops blinking and stays on. This can be repeated if necessary.

If the switch is not toggled, after 5 seconds the Run LED goes off and the CPU remains in Stop/Fault mode. Faults stay in the fault table.

Ethernet Restart Pushbutton

The Ethernet Restart pushbutton is located on the right side of the module.
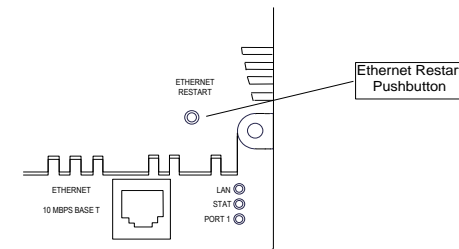
The Ethernet Restart pushbutton has two functions:

- When pressed for less than 5 seconds, it resets the Ethernet hardware, tests the Ethernet LEDs, and restarts the Ethernet firmware. This disrupts any Ethernet communications that are presently underway.

- When pressed for at least 5 seconds, it toggles the function of Port 1 between its configured operation and forced local Station Manager operation.

Observing the Module LEDs

The CPU contains two sets of LEDs, one in the upper left corner and one in the lower right corner.

PWR ◎
OK ◎
RUN ◎
FAULT ◎
FORCE ◎
PORT 1 ◎
PORT 2 ◎

The LEDs in the upper left corner indicate the presence of power and show the operating mode and status of the CPU.

POWER	ON when the CPU is receiving 5Vdc power from the power supply. Does not indicate the status of the 3.3Vdc power output.
OK	ON indicates the CPU has passed its powerup diagnostics and is functioning properly. OFF indicates a CPU problem. Fast blinking indicates that the CPU is running its powerup diagnostics. Slow blinking indicates the CPU is configuring I/O modules. (Simultaneous blinking of this LED and the green Run LED indicates that the CPU is in boot mode and is waiting for a firmware update through Port 1.)
RUN	Green when the CPU is in Run mode. Amber when the CPU is in Stop/IO Scan mode. If this LED is OFF but OK is ON, the CPU is in Stop/No IO Scan mode. If this LED is flashing green and the Fault LED is ON, the module switch was moved from Stop to Run mode while a fatal fault existed. Toggling the switch will continue to Run mode.
FAULT	ON if the CPU is in Stop/Faulted mode because a fatal fault has occurred. To turn off the Fault LED, clear both the I/O Fault Table and the PLC Fault Table. If this LED is blinking and the OK LED is OFF a fatal fault was detected during PLC powerup diagnostics. Contact PLC Field Service.
FORCE	ON if an override is active on a bit reference.
PORT 1 PORT 2	Blinking indicates activity on that port. (Note: does not blink to indicate local Station Manager activity, see PORT 1 LED below.)

LAN ◎
STAT ◎
PORT 1 ◎

The LEDs in the lower right corner show the operating mode and status of the Ethernet port. The Ethernet LEDs turn ON briefly, first amber then green, whenever a restart is performed in the Operational state by pressing and releasing the Restart pushbutton (see below). This allows you to verify that the Ethernet LEDs are operational. All three LEDs blink green in unison when a software load is in progress.

LAN	Indicates the status and activity of the Ethernet network connection. ON/blinking green indicates Ethernet interface is online. When the network is not connected (offline), the LED will be in the OFF state.
STAT	Indicates the general status of the Ethernet interface. ON green indicates no "exception" detected. ON amber indicates an exception. Blinking amber indicates error code. Blinking green indicates waiting for configuration or waiting for IP address.
PORT 1	ON amber indicates Port 1 is available for local Station Manager use (either by configuration or forced). OFF indicates PLC CPU is controlling Port 1.

Using the CPU Serial Ports

The CPU's two serial ports are software-configurable for SNP slave, RTU slave, Serial I/O operation, or local Station Manager operation (Port 1 only). If a port is being used for RTU, it automatically switches to SNP slave mode if

necessary. Both ports' default configuration is SNP slave mode. If configured for Serial I/O, a port automatically reverts to SNP slave when the CPU is in Stop mode.

An external device can obtain power from Port 2 if it requires 100mA or less at 5Vdc.
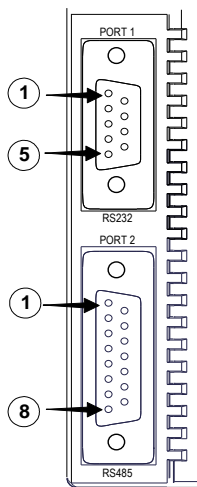
Port 1 is an RS-232 port with a 9-pin female D-sub connector. The pinout of Port 1 allows a simple, straight-through cable to connect with a standard AT-style RS-232 port. Cable shielding attaches to the shell. Port 1 screw locks are threaded #4-40. Port 1 can be configured for either CPU serial communications (SNP, RTU, Serial I/O), or local Station Manager use. If Port 1 has been configured for CPU use, it can be forced to local Station Manager operation using the Ethernet Restart pushbutton. Port 1 remains in that mode until the PLC is power cycled, or the Ethernet Restart pushbutton is pressed.

If Port 1 is configured as a local Station Manager, it cannot be used for CPU serial communications and the Ethernet Restart pushbutton will NOT toggle it to the CPU serial protocols.

Port 2 is an RS-485 port with a 15-pin female D-sub connector. This can be attached directly to an RS-485 to RS-232 adapter (IC690ACC901). Port 2 can be used for program, configuration, and table updates with the EZ Program Store module. Port 2 screw locks are threaded (metric) M3x0.5).

Pin Assignments for Port 1

Pin	Signal	Direction	Function
1	n/c		--
2	TXD	Output	Transmit Data output
3	RXD	Input	Receive Data input
4	n/c		--
5	GND	--	0V/GND signal reference
6	n/c		--
7	CTS	Input	Clear to Send input
8	RTS	Output	Request to Send output
9	n/c		--
Shell	SHLD	--	Cable Shield wire connection / 100% (Continuous) shielding cable shield connection

Cable Diagram for Attachment to a PC
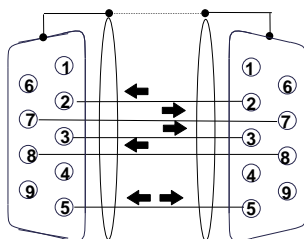
PC 9-Pin Serial Port	CPU Port 1
9-pin female	9-pin male
(2) RXD ————	(2) TXD
(3) TXD ————	(3) RXD
(5) GND ————	(5) GND
(7) RTS ————	(7) CTS
(8) CTS ————	(8) RTS

The shield must attach to shell of connectors on both ends of the cable.

Connector and Cable Specifications for Port 1

Vendor Part numbers below are provided for reference only. Any part that meets the same specification can be used.

Cable: Belden 9610	Computer cable, overall braid over foil shield 5 conductor[1] 30 Volt / 80°C (176°F) 24 AWG tinned copper, 7x32 stranding			
9 Pin Male Connector:	<u>Type:</u> Crimp	<u>Vendor:</u> ITT/Cannon AMP	<u>Plug:</u> DEA9PK87F0 205204-1	<u>Pin:</u> 030-2487-017 66506-9
	Solder	ITT/Cannon AMP	ZDE9P 747904-2	-- --

Connector Shell:	Kit[2] – ITT Cannon DE121073-54 [9-pin size backshell kit]:
	    Metal-Plated Plastic (Plastic with Nickel over Copper)[1]
	    Cable Grounding Clamp (included)
	    40° cable exit design to maintain low-profile installation
	Plus – ITT Cannon 250-8501-010 [Extended Jackscrew]:
	    Threaded with #4-40 for secure attachment to port[1]
	    Order Qty 2 for each cable shell ordered			

Pin Assignments for Port 2

Pin	Signal	Direction	Function
1	SHLD	--	Cable Shield Drain wire connection
2, 3, 4	n/c		--
5	P5V	Output	+5.1Vdc to power external level converters (100mA max.)
6	RTSA	Output	Request to Send (A) output
7	GND	--	0V/GND reference signal
8	CTSB'	Input	Clear to Send (B') input
9	RT	--	Resistor Termination (120Ω) for RDA'
10	RDA'	Input	Receive Data (A') input
11	RDB'	Input	Receive Data (B') input
12	SDA	Output	Transmit Data (A) output
13	SDB	Output	Transmit Data (B) output
14	RTSB	Output	Request to Send (B) output
15	CTSA'	Input	Clear to Send (A') input
Shell	SHLD	--	Cable Shield wire connection / 100% (Continuous) shielding cable shield connection

Connector and Cable Specifications for Port 2

Vendor Part numbers below are provided for reference only. Any part that meets the same specification can be used.

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[1] Critical Information – any other part selected should meet or exceed this criteria.
[2] Use of this kit maintains the 70mm (2.76in) installed depth.

Cable: Belden 8105	Low Capacitance Computer cable, overall braid over foil shield 5 Twisted-pairs[1] Shield Drain Wire [1] 30 Volt / 80°C (176°F) 24 AWG tinned copper, 7x32 stranding Velocity of Propagation = 78% Nominal Impedance = 100Ω[1]			
15 Pin Male Connector:	Type: Crimp	Vendor: ITT/Cannon AMP	Plug: DAA15PK87F0 205206-1	Pin: 030-2487-017 66506-9
	Solder	ITT/Cannon AMP	ZDA15P 747908-2	-- --

Connector Shell:	Kit[2]– ITT Cannon DA121073-50 [15-pin size backshell kit]:
	    Metal-Plated Plastic (Plastic with Nickel over Copper) [1]
	    Cable Grounding Clamp (included)
	    40° cable exit design to maintain low-profile installation
	Plus – ITT Cannon 250-8501-009 [Extended Jackscrew]:
	    Threaded with (metric) M3x0.5 for secure attachment[1]
	    Order Qty 2 for each cable shell ordered			

Cable Lengths

Maximum cable lengths and the total number of feet from the CPU to the last device attached to the cable are:

Port 1 (RS-232) = 15 meters (50 ft.)
Port 2 (RS-485) = 1200 meters (4000 ft.)

Serial Port Baud Rates

	Port 1	Port 2
RTU protocol	1200, 2400, 4800, 9600, 19.2k, 38.4k[3], 57.6k[3]	1200, 2400, 4800, 9600, 19.2k, 38.4k[3], 57.6k[3]
Serial I/O protocol	1200, 2400, 4800, 9600, 19.2k, 38.4k[3], 57.6k[3]	1200, 2400, 4800, 9600, 19.2k, 38.4k[3], 57.6k[3]
SNP protocol	4800, 9600, 19.2k, 38.4k[3]	4800, 9600, 19.2k, 38.4k[3]
Local Station Manager (this is independent of serial protocol baud rate)	1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k	N/A
Firmware upgrade	1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k	N/A

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[3] Only available on one port at a time.

Using the Ethernet Port

The built-in Ethernet interface makes it possible to communicate on a 10BaseT network. The CPUE05 supports half-duplex and full-duplex operation; operation is automatically sensed without user configuration. Using 10/100 hubs allows communication on a network containing 100Mb devices.
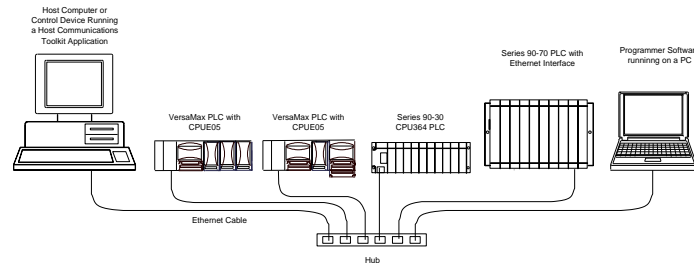

The Ethernet interface can be used to:

- Send and receive Ethernet Global Data. Ethernet Global Data can be used for highly efficient periodic data transfer on the LAN. The CPU supports up to 32 simultaneous Ethernet Global Data exchanges. Global Data exchanges are configured using the PLC programming software, then stored to the PLC. Both Produced and Consumed exchanges may be configured. Supports up to 1200 data ranges across all Ethernet Global Data exchanges, and supports selective consumption of Ethernet Global Data exchanges.

- Access CPU data from a host computer or other PLC. CPU supports up to eight simultaneous SRTP Server connections for use by other SRTP client devices on the Ethernet network.

- Communicate simultaneously to multiple devices. The multiplexing capabilities of the Ethernet interface, along with the Ethernet network's high capacity, allow the CPU to communicate with several other devices at the same time.

- Indirectly attach to other Local Area Networks and/or wide area networks via third party IP routers. Communicate with remote PLCs and other nodes via an IP Router.

- Communicate with remote computers via PPP (Point-to-Point Protocol) or SLIP (Serial Line Protocol) using modems and/or serial lines. Using third party PPP or SLIP devices, a remote host computer can be attached to a TCP/IP network.

Ethernet LAN Port

The 10BaseT twisted pair shielded cable must meet applicable IEEE 802 standards. Category 5 is recommended.
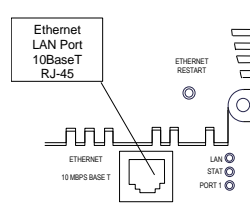
Station Manager Functionality

Built-in Station Manager functionality permits on-line diagnostic and supervisory access through either Port 1 or via Ethernet. Station Manager services include:

- An interactive set of commands for interrogating and controlling the station.

Unrestricted access to observe internal statistics, an exception log, and configuration parameters

- Password security for commands that change station parameters or operation.

- Use of the Station Manager function requires a separate computer terminal or terminal emulator.

Release History

Revision	Firmware Revision	Date	Description/Features
CPUE05-LU	CPU FW - 3.10 (35A1) Enet FW- 3.19 (33A1)	Nov 2018	Ethernet Firmware 3.19 (33A1) addresses the following issues: 1. Fault table getting flooded with 'LAN system software fault' if EGD producers are configured but respective consumers are not physically present in the network. 2. EGD producers do not produce multicast packets if a valid gateway IP address is configured. **Firmware release 3.10 through 3.19 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 through 3.19 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-LT	CPU FW - 3.10 (35A1) Enet FW- 3.18 (47A1**)**	Dec 2016	Ethernet Firmware 3.18 (47A1) addresses the issue where the EGD producers pauses for a brief 6 -18 for every 18 – 20 min of operation when there are more than 11 IC200CPUE05 are in network. **Firmware release 3.10 through 3.18 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 through 3.18 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-LS	CPU FW - 3.10 (35A1) Enet FW- 3.17 (33A1)	Aug 2016	Ethernet Firmware 3.17 (33A1) addresses the issue where the EGD producers stops producing after 7-15 mins of operation. **Firmware release 3.10 through 3.17 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 through 3.17 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-LR	CPU FW - 3.10 (35A1) Enet FW- 3.16 (26A1)	July 2016	Improvements are made to daughter card assembly
CPUE05-KR	CPU FW - 3.10 (35A1) Enet FW- 3.16 (26A1)	June 2016	Ethernet Firmware 3.16 (26A1) addresses the issue where the SRTP connection of IC200CPUE05 resets after 49 days of operation. **Firmware release 3.10 through 3.16 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 through 3.16 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-KQ	CPU FW - 3.10 (35A1) Enet FW- 3.14 (53A1)	Mar 2016	FPGA updated. No changes to features, functions or compatibility
CPUE05-JP	CPU FW - 3.10 (35A1) Enet FW- 3.14 (53A1)	Jan 2016	Ethernet Firmware 3.14 addresses firmware upgrade issue, for details refer IPI GFK-1892T. Firmware revisions are CPU firmware version:3.10 (35A1) and Ethernet daughterboard firmware version: 3.14 (53A1). **Firmware release 3.10 through 3.14 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 through 3.14 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-JN	CPU FW - 3.10 (35A1) Enet FW- 3.13 (49A1)	Dec 2015	Ethernet Firmware 3.13 addresses EGD production issue, for details refer IPI GFK-1892S. Firmware revisions are CPU firmware version:3.10 (35A1) and Ethernet daughterboard firmware version: 3.13 (49A1). **Firmware release 3.10/3.13 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10/3.13 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.

CPUE05-JM	CPU FW-3.10 (35A1) Enet FW – 3.12 (43A1)	Nov. 2015	Firmware update to address SRTP connection issue, for details refer to IPI GFK-1892R. Firmware revisions are CPU firmware version: 3.10 (35A1) and Ethernet daughterboard firmware version: 3.12 (43A1). **Firmware release 3.10 is ONLY compatible with versions –Jx and later. (i.e. Firmware 3.10 is incompatible with hardware versions -AA through –HK). For future revision product users who want to install the new firmware, a firmware upgrade kit is available for download at** http://ge-ip.com/support.
CPUE05-JL	3.00	Aug. 2015	Hardware and firmware change to address Ethernet daughter board processor obsolescence issue. Firmware revisions are CPU firmware version: 3.00 (21A1) and CPU Bootloader Version: 3.20 (26A1) Ethernet daughterboard firmware version: 3.00 (25A2). **Firmware 3.10 (25A2) is not compatible with any hardware revision prior to IC200CPUE05-JL** Network Time Protocol (NTP) is not supported in this release.
CPUE05-HK	2.38	Apr. 2013	Hardware update to resolve component obsolescence issues. No changes to features, functions or compatibility.
CPUE05-GK	2.38	Mar. 2012	For details, refer to *IPI, CPU with Embedded Ethernet Interface IC200CPUE05*, GFK-1892M.
CPUE05-GJ	2.36	Nov. 2011	Hardware and firmware update to address a component obsolescence issue. No changes to compatibility, functions or performance.
CPUE05-FH	2.36	Mar. 2011	Labeling change. No changes to compatibility, functions or performance.
CPUE05-EH CPUE05-DH	2.36	June 2010	For details, refer to *IPI, CPU with Embedded Ethernet Interface IC200CPUE05,* GFK-1892J.
CPUE05-EG	2.35	Mar. 2010	Changed manufacturing location. No changes to compatibility, functionality or performance.
CPUE05-DG	2.35	Oct. 2008	Updated Power Supply OK signal circuit.
CPUE05-CG	2.35	Jan. 2006	For details, refer to *IPI, CPU with Embedded Ethernet Interface IC200CPUE05,* GFK-1892E.
CPUE05-CF	2.34	June 2004	For details, refer to *IPI, CPU with Embedded Ethernet Interface IC200CPUE05,* GFK-1892D.
CPUE05-BE	2.32	June 2003	ATEX approval for Group 2, Category 3 applications.
CPUE05-AD	2.31	Mar. 2003	Support for Modbus RTU Master
CPUE05-AC	2.30	not released	
CPUE05-AB	2.20	Mar. 2002	Added new serial I/O baud rates
CPUE05-AA	2.10	Mar. 2001	Initial Product Release

Important Product Information for this Release

Upgrades

CPU Firmware version 3.00 through 3.10 is incompatible with CPUE05-HK-and earlier version of this module. Conversely, CPUE05-JL or later is compatible with CPU Firmware version 3.00 through 3.10 only.

This release is therefore NOT available as a firmware upgrade kit for prior versions.

For future situations, where users want to install the current firmware, upgrade kit 41G1937-MS10-000-A8 can be downloaded from http://support.ge-ip.com.

The firmware resides in FLASH memory, and is upgraded by serial download from a Windows PC via CPU port 1. Port 2 cannot be used.

New Features and Enhancements

None.

Problems Resolved in This Release

Issue	Description
EGD stops producing Multicast packets when a gateway IP address is configured	IC200CPUE05 fails to produce multicast packets, when it has been configured for EGD production with a valid gateway IP address. This issue was not observed when the gateway IP address was not configured.
Fault table is getting flooded with "LAN system software fault"	Fault table is getting flooded with "LAN system software fault" logs, when the IC200CPUE05 has been configured for EGD production and the required consumers are not physically present in the network.

Functional Compatibility

Subject	Minimum Version Required
Programmer version requirements	VersaPro software version 2.0 or later and Machine Edition Logic Developer.
CPUE05 Firmware Compatibility	CPUE05 Firmware version 3.00 through 3.10 is compatible with CPUE05-JL or later. It is not compatible with CPUE05-HK or earlier and cannot be downloaded into the older hardware platforms.
Network Time Protocol (NTP) not supported	Network Time Protocol (NTP) is not supported by CPUE05 firmware version 3.00.

Restrictions and Open Issues

Issue	Description
When configuration is downloaded to IC200CPUE05 having EGD, if user selects download and run button of programmer, EGD is not producing.	When configuration is downloaded to IC200CPUE05 having EGD, if user selects "Download and Start Active Target" button EGD Productions will not produce. To avoid this issue, the user should download the configuration using separate action commands "Download Active Target" and then transition to run using "Start Active Target". Doing this with two separate actions EGD Productions will produce as expected.

Should the user select "Download and Start Active Target" with a configuration that contains EGD, the user should take the PLC out of run mode using "Stop Active Target" and put back into run mode using "Start Active Target" to get EGD productions to produce. |
SRTP Server timeout takes almost 15 minutes.	When a cable gets disconnected at the SRTP client side, the PLC takes 15 minutes to close the connections. The original specification is 7 minutes.
Multicast EGD consumer exchanges take longer to download.	When the user downloads Hardware Configurations having EGD Consumer Exchanges, it takes a longer time to download to the Ethernet daughter card. If a user transitions from Stop to Run mode immediately after the Hardware Configuration is downloaded, exchanges may not consume. To avoid this issue, wait around 40 sec for a maximum of 32 consumer exchanges. This issue would not be applicable under circumstances where the PLC is powered and is configured to *Run Hardware configuration from Flash*. This is applicable to IC200CPUE05-JL and later versions.
Longer power-up sequence due to new Ethernet daughterboard.	In IC200CPUE05-JL, the Ethernet daughter card takes an additional 6 seconds to power up.
Occasional "Backplane Communications Fault" after cycling power.	Occasionally, a *Backplane Communication Fault* may be logged on an intelligent I/O module after power-cycling the main or expansion rack. This is a diagnostic fault that can be cleared.
Network Time Protocol (NTP) not supported.	NTP is not supported in this release.
Occasional log of "LAN system software fault" when new consumer gets added into configuration.	This is a diagnostic fault and it occurs occasionally when a new consumer gets added into the configuration. This fault can be ignored and cleared.

Operational Notes

Operational Note	Description
Configuration for Receive to Transmit delay in RTU Master Configuration COMMREQ	Applies to RTU Master Only

This configuration provides option for user to select 'receive to transmit delay' for Master. The device will force this delay after the last byte is received or last frame is transmitted out of current port.

Receive to transmit delay configuration is not linked to End of Frame timeout. User has to take care of inter-operability of these configurations.

Receive to transmit delay can be configured at Word 23 of RTU Master Configuration COMMREQ. This is 8-bit configuration having 10 ms units. The value range is 0 to 255. The default value is 0, which configures this delay as 3.5 character times at current baud rate. |
| **Configuration for End of Frame timeout in RTU Slave Configuration COMMREQ** | Applies to RTU Slave Only

This feature will allow the user to configure 'end of frame' timeout in RTU Slave configuration COMMREQ.

This configuration can be set at Word 19 of RTU Slave Configuration COMMREQ. This is 16-bit configuration with unit of 100 µs and Value range from 0 to 65535. The default value is 0, which configures this delay as 3.5 character time at current baud rate. The minimum value for this configuration is 3-character time at current baud rate. |

Operational Note	Description
Smart recognition of End of Frame by calculating expected number of bytes	Applies to RTU Master & Slave
	This feature will allow the device operating as either RTU Master or Slave, to ignore garbage data appended to any valid RTU message. The RTU Master will compare the received bytes with expected number of bytes. The expected number of bytes in the Master is calculated while the COMMREQ information is processed to create the query.
	The RTU Slave will determine the message length by examining the Function code in the query message during reception. The slave will determine the expected query message length after receiving at least two characters and no more than seven characters of the message.
Different Error Code for Incomplete Frame & CRC Error	Applies to RTU Master Only
	If the Master receives the incomplete frame and if the CRC is invalid then the error code 0607H would be returned as a status.
Enhancing transmit sequence in Master	The frame transmitting sequence from the master is modified so as to handle the broken frames. This enhancement in transmit sequence will add robustness to the system.

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.

VersaMax PLC User's Manual	GFK-1503
VersaMax Modules, Power Supplies and Carriers User's Manual	GFK-1504
VersaMax I/O and Industrial Networking Application Guide	GFK-1563
VersaPro Programming Software User's Guide	GFK-1670
VersaMax System Ethernet Network Interface Unit User Manual	GFK-1860
VersaMax PLC Station Manager User's Manual	GFK-1876
VersaMax IP Installation Manual	GFK-2307
VersaMax Controllers Secure Deployment Guide	GFK-2955