

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

GE VERSAMAX

IC200CPUE05-CG

ETHERNET CPU MODULE

Used with the applicable VersaMax controllers configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: GE official manufacturer documentation

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	

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.

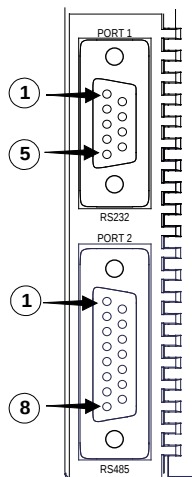
The CPU with power supply attached fits into a 70mm (2.76in) deep enclosure.

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.



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.

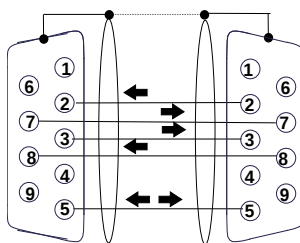
If Port 1 is configured as a local Station Manager, it cannot be used for CPU serial communications and the Ethernet Restart pushbutton will NOT toggle it to the CPU serial protocols.

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.

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.

Release History

Revision	Firmware Revision	Date	Description/Features
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

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 <i>Run Hardware configuration from Flash</i>. 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 <i>Backplane Communication Fault</i> 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.

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