



# PACSystems RX3i Controller

The PACSystems\* RX3i controller is an incredibly powerful Programmable Automation Controller (PAC) in the innovative PACSystems family. The RX3i features a single control engine and a universal programming environment to provide application portability across multiple hardware platforms and deliver a true convergence of control.

With integrated critical control platforms, logic, motion, HMI, process control and high availability based on our Reflective Memory technology, the RX3i provides the performance and flexibility to give you an advantage. No matter the challenges your applications bring, PACSystems RX3i lets you take control.

## PACSystems RX3i Benefits:

The innovative technology of the PACSystems RX3i enables users to:

- Address major engineering and business issues, such as higher productivity and tighter cost control
- Boost the overall performance of their automation systems
- Reduce engineering and commissioning costs
- Easily integrate new technology into installed base systems
- Significantly decrease concerns regarding short- and long-term migration and platform longevity

## PACSystems RX3i Features:

- High-speed processor and patented technology for faster throughput without information bottlenecks
- Dual backplane bus support per module slot:
  - High-speed, PCI-based for fast throughput of new advanced I/O
  - Serial backplane for easy migration of existing Series 90-30 I/O
- Multiple CPU offerings meeting various performance criteria up to and including an Intel® 1 GHz CPU for advanced programming and performance with 64 Mbytes memory
- Memory for ladder logic documentation and machine documentation (Word, Excel, PDF, CAD and other files) in the controller to reduce downtime and improve troubleshooting
- Open communications support including Ethernet, GENIUS\*, Profibus™, HART, DeviceNet™ and serial

- Supports high density discrete I/O, universal analog (ITC, RTD, Strain Gauge, Voltage and Current configurable per channel), isolated analog, high-density analog, high-speed counter, and motion modules
- Expanded I/O offering with extended features for faster processing, advanced diagnostics and a variety of configurable interrupts
- Hot insertion for both new and migrated modules

## High Performance Control on One Platform:

The PACSystems RX3i provides logic, motion, HMI, and process control with open communications protocols.

- PACMotion modules can control up to 40 high speed axes in one rack
- PACSystems High Availability solution offers true dual redundancy data synchronization and bumpless transfer
- The Control Memory Xchange offers amazing data transfer at a rate of 2.12 Gbaud

## Universal Development Environment:

The common software platform across all GE controllers, award-winning Proficy\* Machine Edition\* software provides the universal engineering development environment for programming, configuration and diagnostics for the entire PACSystems family.

- Programming tools such as tag-based programming, a library of reusable code and a test edit mode for improved online troubleshooting
- User-friendly environment that can increase design flexibility and improve engineering efficiency and productivity



# PACSystems RX3i



## CPUs

The CMU310 is a High Availability redundant CPU that is configured using the MaxON software. The CMU310 has the same functionality as the CPU310. Synchronization of the CMU310s is via an Ethernet link.

## Baseplates

The RX3i Universal baseplates support hot swap capability to reduce downtime. Expansion bases are available in 5 and 10 slot versions to maximize flexibility.

## Universal Bases Power Supplies

The RX3i power supply modules simply snap in just like I/O, and they work with any model CPU. Each version provides auto-ranging so there is no need to set jumpers for different incoming power levels, and they are current limiting so a direct short will shut the power supply down to avoid damage to the hardware.

## Discrete I/O Modules

Input modules provide the interface between the PLC and external input devices such as proximity sensors, push buttons, switches, and BCD thumbwheels. Output modules provide the interface between the PLC and external output devices such as contactors, interposing relays, BCD displays and indicator lamps.

## Analog I/O Modules

GE offers easy-to-use analog modules and HART analog modules for control processes such as flow, temperature and pressure.

## Specialty Modules:

The RX3i features a wide range of Specialty Modules to address specific application requirements. These modules include:

- Millivolt and Strain Gage I/O
- Thermocouple I/O
- RTD I/O
- Resistive I/O
- Temperature Control
- Power Transducer

## Networks and Distributed I/O Systems

The RX3i features a variety of communications options for distributed control and/or I/O. Choose from Ethernet EGD, Profibus-DP, Genius and DeviceNet. These communication modules are easy to install and quick to configure.

## RX3i Pneumatic Module

This output module provides 11 pneumatic outputs and five 24 VDC sourcing outputs. For each pneumatic output, the module contains an internal 3-way solenoid-actuated valve and an associated output fitting. Solenoid power is supplied from an external 24 VDC source to the "DC Outputs" connector on the front panel.

## Expansion Modules for Local and Remote I/O

The RX3i supports various expansion options for local and remote I/O to optimize configurations. The RX3i can be expanded up to 8 expansion bases using local remote expansion module. The RX3i also supports Ethernet remote I/O using the RX3i Ethernet Network Interface module (IC695NKT001) Series 90-30 Ethernet Network Interface module (IC693NIU004) for more distributed I/O.

## Motion Control

### PACMotion

The PACMotion controller is a versatile 4-axis servo motion controller that provides the scalability and flexibility to cover a full range of motion applications from small material handling applications to complex multi-axis machines and electronic line shaft applications. PACMotion provides real-time synchronization of all axes in an RX3i rack. A separate RX3i fast logic scan enables fast deterministic event response and synchronization, and the demand driven data exchange model between the RX3i CPU and PACMotion module many significantly reduce scan time impact. The 4-axis servo motion controller is built on a high performance hardware platform, with a new enhanced motion engine, operating system, and open standard integrated programming paradigm.

## Servo Control

Our advanced line of Digital Servo Motion (DSM) control integrated into the RX3i fosters high performance point-to-point applications. Motion Control modules can be flexibly applied to a variety of digital, analog, and stepper motion applications and support centralized, distributed or hybrid control system architectures. They are easy to program and configure and include extensive built-in diagnostics.

## High Speed Counters

The High Speed Counters can be configured for a wide range of counter types (Types A, B, C, D, E, Z, and user-defined types of counters), generate Controller interrupts and Camming/PLS (Programmable Limit Switch).

## Ordering Information

	Part Number	Description	Part Number	Description
CPUs	IC695CPU320†	1 GHz CPU, 64 Mbytes of memory, two serial ports	IC695CRU320†	Redundant High Availability bumpless 1 GHz CPU, 64 Mbytes of memory, two serial ports
	IC695CPU310†	300 MHz CPU, 10 Mbytes of memory, two serial ports (requires 2 slots)	IC695CMU310†	Redundant Hot Standby 300 MHz CPU, 10 Mbytes of memory, two serial ports
Baseplates	C695CHS012	Universal Backplane, 12 Universal Slots	IC695CHS016	Universal Backplane, 16 Universal Slots
Baseplates	C695CHS012	Universal Backplane, 12 Universal Slots	IC695CHS016	Universal Backplane, 16 Universal Slots
Expansion Bases	IC693CHS393	Base, Remote Expansion, 10 Slots (700 ft.)	IC694CHS398	Base, Expansion, 5 Slots
	IC694CHS392	Base, Expansion, 10 Slots	IC693CHS399	Base, Remote Expansion, 5 Slots (700 ft.)
Universal Base Power Supplies	IC695PSA140	Multipurpose Power Supply, 120/240 VAC, 125 VDC, 40 Watts	IC695PSD140	Multipurpose Power Supply, 24 VDC, 40 Watts
	IC695PSA040†	Power Supply, 120/240 VAC, 125 VDC, 40 Watts (requires 2 slots)	IC695PSD040†	Power Supply, 24 VDC, 40 Watts (requires 1 slot)
Remote Base Power Supplies	IC693PWR332	Power Supply, 12 VDC, Standard, 30 Watts (Use with Expansion Base)	IC693PWR328	Power Supply, 48 VDC, Standard, 30 Watts (Use with Expansion Base)
Expansion Power Supplies	IC694PWR321	Power Supply, 120/240 VAC, 125 VDC, Standard, 30 Watts (Use with Expansion Base)	IC693ACC341	Redundant Power Supply Base with 0.5 meter cable to connect to Power Supply Adapter Module (Use with Expansion Base)
	IC694PWR330	Power Supply, 120/240 VAC, 125 VDC, High Capacity, 30 Watts (Use with Expansion Base)	IC693ACC350	Redundant Power Supply Adapter (RPSA) Module; replaces power supply on expansion base and connects to a Redundant Power Supply Base. (Use with Expansion Base)
	IC694PWR331	Power Supply, 24 VDC, High Capacity, 30 Watts (Use with Expansion Base)		
Discrete Input Modules	IC694MDL230	120 VAC Isolated Input (8 Points)	IC694MDL634	24 VDC Input, Neg/Pos Logic (8 Points)
	IC694MDL231	240 VAC Isolated Input (8 Points)	IC694MDL645	24 VDC Input, Neg/Pos Logic (16 Points)
	IC694MDL240	120 VAC Input (16 Points)	IC694MDL646	24 VDC Input, Neg/Pos Logic, 1 msec Filter (16 Points)
	IC694MDL241	24 VAC/VDC Input (16 Points)	IC694MDL654	5/12 VDC (TTL) Input, Neg/Pos Logic, (32 Points)
	IC694MDL250	120 VAC Isolated Input (16 Points)	IC694MDL655	24 VDC Input, Neg/Pos Logic, 1 ms, (32 Points)
	IC694MDL260	120 VAC Input (32 Points)**	IC694MDL660	24 VDC Input (32 Points)**
	IC694MDL632	125 VDC Input (8 Points)	IC694ACC300	Input Simulator Module (8 Points)
	IC694MDL310	120 VAC Output, 0.5 Amp (12 Points)	IC694MDL740	12/24 VDC Output, 0.5 Amp, Positive Logic (16 Points)
Discrete Output Modules	IC694MDL330	120/240 VAC Output, 1 Amp (8 Points)	IC694MDL741	12/24 VDC Output, 0.5 Amp, Negative Logic (16 Points)
	IC694MDL340	120 VAC Output, 0.5 Amp (16 Points)	IC694MDL742	12/24 VDC Output, 1 Amp, Positive Logic (16 Points), Fused
	IC694MDL350	120/240 VAC Output, 2 Amp (16 Points)	IC694MDL752	5/12/24 VDC (TTL) Output, Negative Logic, (32 Points)
	IC694MDL390	120/240 VAC Isolated Output, 2 Amp (5 Points)	IC694MDL753	12/24 VDC Output, Positive Logic (32 Points)
	IC694MDL732	12/24 VDC Output, 0.5 Amp, Positive Logic (8 Points)	IC694MDL754	12/24 VDC Output w/ ESCP, 0.75 Amp (32 Points)**
	IC694MDL734	125 VDC Output (6 Points)		
	IC694MDL930	Relay Output, Isolated, 4 Amp (8 Points)	IC694MDL940	Relay Output, 2 Amp (16 Points)
	IC694MDL931	Relay Output, 8 Amp Form B/C contacts, Isolated in 2 Groups of 4 (8 Points)	IC694MDL916	Relay Output, 4 Amp (16 Points)
Analog Input Modules	IC694ALG220	Analog Input, Voltage/Current, (4 Channels)	IC695ALG628†**	Analog Input with HART Communications, Voltage/Current, Configurable, (8 Channels)
	IC694ALG221	Analog Input, Current, (4 Channels)	IC695ALG626†**	Analog Input with HART Communications, Voltage/Current, Configurable, (16 Channels)
	IC694ALG222	Analog Input, Voltage (16 Single ended /8 Differential Channels)	IC695ALG106†**	Isolated Analog input module, configurable for voltage and current (6 Channels).
	IC694ALG223	Analog Input, Current, (16 Single Channels)	IC695ALG112†**	Isolated Analog input module, configurable for voltage and current (12 Channels).
	IC695ALG600†**	Analog Input, Universal, Voltage/Current/RTD/TC/Strain Gauge, (8 Channels)	IC695ALG508†**	Isolated RTD and resistance input channels. Supports 2, 3, 4 wire RTD or Resistance, (8 Channels) .
	IC695ALG608†**	Analog Input, Voltage/Current, Configurable, (8 Channels)	IC695ALG306†**	Isolated Thermocouple Input, Supports type J, K, T, E, R, S, B, N, or C and Voltage: ±150 mV or ±50 mV. (6 Channels)
	IC695ALG616†**	Analog Input, Voltage/Current, Configurable, (16 Channels)	IC695ALG312†**	Isolated Thermocouple Input, Supports type J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV. (12 Channels)
	IC694ALG390	Analog Output, 2 Channels, Voltage	IC695ALG704†**	Analog Output, Voltage/Current, (4 Channels)
Analog Output Modules	IC694ALG391	Analog Output, Current (2 Channels)	IC695ALG708†**	Analog Output, Voltage/Current, (4 Channels)
	IC694ALG392	Analog Output, Voltage or Current (8 Channels)	IC695ALG728†**	Analog Output with HART Communications, Voltage/Current, (8 Channels)
	IC695ALG808†**	Isolated Analog Output module, voltage/current, (8 Channels)		
	IC694ALG442	Analog Combo Module (4IN/2OUT)		
Mixed Analog Modules	IC693TCM302	(8) T/C, (1) RTD and (8) 24 VDC Output	IC693TCM303	Extended Range, (8) T/C, (1) RTD and (8) 24 VDC Output Modules
Temperature Control	IC693TCM302	(8) T/C, (1) RTD and (8) 24 VDC Output	IC693TCM303	Extended Range, (8) T/C, (1) RTD and (8) 24 VDC Output Modules
Serial Communications	IIC695CMM002**	Two Isolated Serial Ports. Supports Modbus Master/Slave, Serial Read/Write, DNP 3.0 Master/Slave and Custom protocols.	IC695CMM004**	Four Isolated Serial Ports. Supports Modbus Master/Slave, Serial Read Write, DNP 3.0 Master/Slave and Custom protocols.
Motion Control	IC695PMM335**	PACMotion Controller, 4 Axes Digital Servo (Fiber Optic Interface to Amplifiers)	IC694DSM314	Digital Servo Motion Controller, 1-2 Axis of Digital Servo or 1-4 Axis Analog Servo
	IC693APU305	I/O Processor Module	IC694DSM324	Digital Servo Motion Controller, 4 Axis (Fiber Optic Interface to Amplifiers)
	IC694APU300	High Speed Counter (HSC)	IC695HSC308†**	High Speed Counter, 1.5 KHz (8 counters)
	IC695HSC301†**	High Speed Counter 1.5 KHz (4 counters)		

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<b>Power Transducer Modules</b>	<b>IC693PTM100</b>	120/240 VAC, 1 Point, 0.5 meter Interface cable	<b>IC693PTM101</b>	120/240 VAC, 1 Point, 1.0 meter Interface cable
<b>Pneumatic Module</b>	<b>IC693MDL760</b>	RX3i Solenoid Module		
<b>Networks and Distributed I/O Systems</b>	<b>IC694BEM331</b>	Genius Bus Controller (Supports I/O and Datagrams)	<b>IC695ETM001†</b>	Ethernet Module, 10/100 base T/TX ports (requires 1 slot)
	<b>IC694DNM200†</b>	DeviceNet Master Module	<b>IC695CMX128†</b>	Control Memory Xchange Module 128Megabytes of user shared memory
	<b>IC695PBM300†</b>	Profibus Master Module	<b>IC695RMX128†</b>	RX3i Redundant Memory Xchange synchronization module for RX3i High Availability redundant controllers.
	<b>IC695PBS301†</b>	Profibus Slave Module		
<b>Expansion Modules</b>	<b>IC695LRE001†</b>	Local Expansion Module (requires no universal slots)	<b>IC693NIU004</b>	Ethernet Remote I/O Interface for IC694CHSxxx Expansion Racks
	<b>IC695NKT001</b>	Ethernet Remote I/O Expansion Kit		
<b>Terminal Blocks</b>	<b>IC694TBB032</b>	High Density Terminal Block Box Style (36 Terminals)	<b>IC694TBS032</b>	High Density Terminal Block Spring Style (36 Terminals)
	<b>IC695FTB1B032</b>	PACMotion Fiber I/O terminal block with screw terminal headers	<b>IC695FTB1S032</b>	PACMotion Fiber I/O terminal block with spring clip terminal headers
<b>Accessories</b>	<b>Part Number</b>	<b>Description</b>	<b>Part Number</b>	<b>Description</b>
	<b>IC693ACC302</b>	High Capacity Battery Pack (mounts externally)	<b>IC693CBL312</b>	Rack to Rack Expansion Cable, 0.15 Meters, Shielded
	<b>IC693CBL300</b>	Rack to Rack Expansion Cable, 1 Meter	<b>IC693CBL313</b>	Rack to Rack Expansion Cable, 8 Meters
	<b>IC693CBL301</b>	Rack to Rack Expansion Cable, 2 Meters	<b>IC693CBL314</b>	Rack to Rack Expansion Cable, 15 Meters, Shielded
	<b>IC693CBL302</b>	Rack to Rack Expansion Cable, 15 Meters	<b>IC694ACC310</b>	Blank Filler Module
	<b>IC694TBB132</b>	High Density 32 Point Terminal Block Box Style with Extended Shroud for Large Wiring Bundles	<b>IC694TBS132</b>	High Density 32 Point Terminal Block Spring Style with Extended Shroud for Large Wiring Bundles
	<b>IC695ACC600</b>	RX3i Cold Junction Compensation Kits for Universal Analog Input Module	<b>IC698ACC701</b>	Lithium Battery pack that installs in CPU
	<b>IC690ACC901</b>	Mini-Converter Kit with cable	<b>IC690ACC903</b>	RS-485 Port Isolator
	<b>IC693ACC307</b>	I/O Bus Terminator Plug	<b>IC693ACC311</b>	Terminal Blocks, 20 terminals
	<b>VMICBL-000-F5-0xx</b>	Fiber optic cable for CMX and RMX where 0xx distinguishes different lengths		
<b>Programming and Troubleshooting Tools</b>	<b>IC646MPP001</b>	Logic Developer - PLC Professional		

Availability varies per module, please check with your GE representative for release dates and availability.  
 †Compatible with IC695CHS 012/016 base only.

\*\*Requires either Box Style (IC694TBB032 or IC694TBB132) or Spring Clamp (IC694TBS032 or IC694TBS132) high density terminal block.

## Training

GE offers a wide range of training options that equip you and your staff with the product knowledge you need to maintain, configure and troubleshoot your systems—decreasing downtime and increasing throughput. Our world-class technical training increases productivity and ensures proper product utilization.

### About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit [www.ge-ip.com](http://www.ge-ip.com).

### GE Intelligent Platforms Contact Information

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