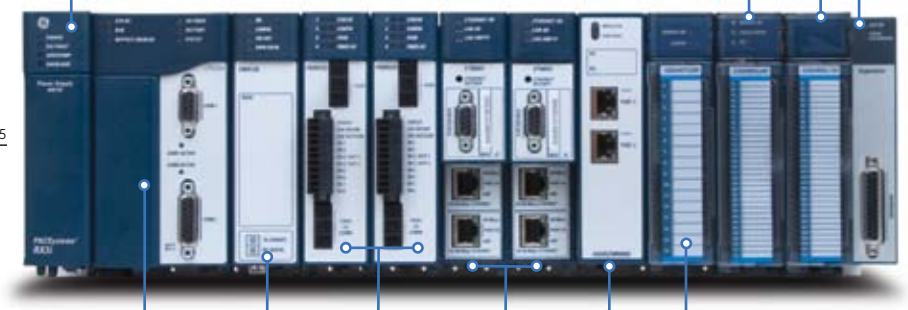
PACSystems RX3i Controllers

PACSystems RX3i is the high performance, modular and scalable control system that supports the PACSystem engine. This rack-based system is built on PCI standards and provides fast, consistent control between the modules. In addition to more than one hundred discrete and process I/O points, the PACSystems RX3i features:

- **PACSystems High Availability** – This scalable, synchronized, hot-standby redundancy control platform helps ensure uninterrupted control of your applications and processes — with total transparency.
- **PACMotion Controller** – Our versatile servo motion controller combines the benefits of a highly integrated motion and machine logic solution, with the performance, flexibility and scalability required for advanced machine automation.
- **Proficy Process Systems** – A scalable, fully integrated system for process automation and control.
- **Integrated PROFINET** provides real time control of distributed I/O.
- **Proficy Machine Edition** – Develop, configure and maintain all of your control functions including motion, visualization and networking with complete software package.

PACSystems RX3i also offers an outstanding migration path for moving any Series 90 application to the PACSystems architecture.



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Publication Reference Chart

GFK-2222	PACSystems CPU Reference Manual
GFK-2224	TCP/IP Ethernet Communications for PACSystems
GFK-2225	PACSystems Station Manager User's Manual
GFK-2259	C Programmer's Toolkit for PACSystems User's Manual
GFK-2308	PACSystems Hot Standby CPU Redundancy User's Manual
GFK-2314	PACSystems RX3i Hardware and Installation Manual

CPUs

The high-performance CPU is based on the latest technology processor with fast computation and high throughput. The controller can manage up to 32K of I/O in a number of standard languages. The powerful CPU enables complex applications to be easily solved with the high performance processor and up to 64 Mbytes of user memory. The RX3i supports multiple IEC languages and C programming to give you program flexibility. The RX3i increases machine cycle times, reduces downtime with its extensive diagnostics and hot swap capability, and enables you to store large amounts of data to reduce external hardware cost.

	IC695CPE305	IC695CPE310	IC695CPU320	IC695CPU315
Product Name	**RX3i CPU with built-in USB Master port, Ethernet port and serial port**	**RX3i CPU with built-in USB Master port, Ethernet port and 2 serial ports**	**RX3i CPU with two built-in serial ports**	**RX3i CPU with two built-in serial ports**
Lifecycle Status	Active	Active	Active	Active
Module Type	Controller	Controller	Controller	Controller
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Boolean Execution Speed (ms/K)	.072	.072	0.047	0.047
User Logic Memory	5Meg bytes	10Meg bytes	64Mega bytes	20Meg bytes
Battery Backed Real Time Clock	Yes	Yes	Yes	Yes
Dynamic Data Back-up	Energy Pack Support (Battery-less Backup)	Energy Pack Support (Battery-less Backup)	Battery Backup only	Battery Backup only
I/O Discrete Points	32K	32K	32K	32K
I/O Analog Points	32K	32K	32K	32K
Type of Memory Storage	SRAM, Flash	SRAM, Flash	SRAM, Flash	SRAM, Flash
Processor Speed (MHz)	1.1GHz	1.1GHz	1GHz	1GHz
USB -A 2.0 Master Port	Yes. CPU application upload/ download to a Thumb Drive or Smart Phone	Yes. CPU application upload/ download to a Thumb Drive or Smart Phone	No	No
Built-in Ethernet Ports	One RJ-45 port, 10/100Mbaud. SRTP support for programmer only	One RJ-45 port, 10/100Mbaud. SRTP support for programmer only		
Built-in Serial Ports	One RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)
Total Number of Local Racks	8	8	8	8
Communications Options	Serial, Genius, CMX (Reflective Memory), Ethernet			
Field Busses/Device Networks	Ethernet (Profinet, Ethernet Global Data, Channels, Modbus TCP Server and Client), Genius, Profibus DP, DeviceNet			
Software Programming Support	Proficy Machine Edition Logic Developer Professional edition 7.0 SIM 3 or above	Proficy Machine Edition Logic Developer Professional edition 7.0 SIM 3 or above	Proficy Machine Edition Logic Developer Professional edition 5.6 or above	Proficy Machine Edition Logic Developer Professional edition 5.6 or above
Program Languages Supported	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram
Internal Power Used	+3.3 VDC: 1.0 A +5 VDC: 1.0 A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.5A at startup, 0.1 A during run time (Applies only if Energy Pack is connected to the CPE305.)	+3.3 VDC: 1.0 A +5 VDC: 1.0 A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.5A at startup, 0.1 A during run time (Applies only if Energy Pack is connected to the CPE305.)	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC	1750 mA @ 3.3VDC; 1200 mA @ 5VDC (Check Data sheet)
Number of Slots Module Occupies on Backplane	1	2	2	2

High Availability Redundant Controllers

High Availability CPU Redundancy family allows critical application or process to continue operating if a failure occurs in any single component. A High Availability system uses two or more CPUs; an active unit that actively controls the process, and one or more backup units that are synchronized with the active unit and can take over the process should it becomes necessary.

An RX3i QuadPAC solution utilizes four CRU320QP controllers — one is a master controller and three are synchronized backup controllers. The QuadPAC solution features "Smart Redundancy," a patent pending algorithm that calculates the relative system availability in real time and identifies the most available controller as master. The I/O racks may be grouped into either single (one I/O rack), redundant (two I/O racks), or triple redundant (three I/O racks) rack configurations.

	IC695CRU320	IC695CRU320QP
Product Name	**RX3i Bumpless Redundant High Availability CPU with two built-in serial ports. (Requires IC695RMX128 Data Sync Module)**	**QuadPAC CPU for RX3i Bumpless Redundant High Availability CPU with two built-in serial ports. (Requires IC695RMX128 Data Sync Module AND Quad Redundancy Solution Code)**
Lifecycle Status	Active	Active
Module Type	Redundant Controller	Quad System Redundant Controller
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Boolean Execution Speed (ms/K)	0.047	0.047
User Logic Memory	64Meg bytes	64Meg bytes
Battery Backed Real Time Clock	Yes	Yes
I/O Discrete Points	32K	32K
I/O Analog Points	32K	32K
Type of Memory Storage	SRAM, Flash	SRAM, Flash
Dynamic Data Back-up	Battery Backup only	Battery Backup only
Processor Speed	1GHz	1GHz
Built-in Communication Ports	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)
Total Number of Racks	8	8
Communications Options	Serial, Genius, CMX, Ethernet, Profinet, Profibus, and DeviceNet	Serial, Genius, CMX, Ethernet, Profinet, Profibus, and DeviceNet
Field Busses/Device Networks	Ethernet (Ethernet Global Data, Channels, Modbus TCP Server and Client), Profibus DP, DeviceNet	Ethernet (Ethernet Global Data, Channels, Modbus TCP Server and Client), Profibus DP, DeviceNet
Software Programming Support	Proficy Machine Edition Logic Developer Professional edition 5.7 or above	Proficy Machine Edition Logic Developer Professional edition 7.0 SIM 8 or above
Program Languages Supported	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram
Redundancy Maximum amount of data in for Syncronization	Up to 2 Mbytes beginning and end of scan	Up to 2 Mbytes beginning and end of scan
Redundancy Typical Base Sweep Time (Reference Data Transfer List Impact)	3.66 msec: 1K Discrete I/O, 125 Analog I/O and 1K Registers 3.87 msec: 2K Discrete I/O, 250 Analog I/O and 2K Registers 4.30 msec: 4K Discrete I/O, 500 Analog I/O and 4K Registers 5.16 msec: 8K Discrete I/O, 1K Analog I/O and 8K Registers	3.66 msec: 1K Discrete I/O, 125 Analog I/O and 1K Registers 3.87 msec: 2K Discrete I/O, 250 Analog I/O and 2K Registers 4.30 msec: 4K Discrete I/O, 500 Analog I/O and 4K Registers 5.16 msec: 8K Discrete I/O, 1K Analog I/O and 8K Registers
Redundancy Switchover Time	Maximum 1 logic scan, minimum 3.133 msec.	Maximum 1 logic scan, minimum 3.133 msec.
CPU Scan Syncronization	Automatic Each Scan	Automatic Each Scan
Redundant Synch LAN	Yes	Yes
Redundant I/O LAN	Yes	Yes
Internal Power Used	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC
Number of Slots Module Occupies on Backplane	2	2

High Availability Data Synch

The Redundancy Memory Xchange (RMX) module operates as a dedicated link between CPUs in an RX3i Hot Standby CPU (IC695CRU320) Redundancy system. The RMX modules provide a path for transferring data between the two redundancy CPUs in the redundant system. A complete communications path consists of one RMX in the primary unit, one RMX in the secondary unit, and two high-speed fiber optic cables connecting them to each other. One or two redundancy links are supported per high availability CPU.

	IC695RMX128
Product Name	**RX3i Control Memory Xchange Module for Peer to Peer network. 128Megbytes of user shared memory.**
Lifecycle Status	Active
Module Type	High Availability Data Syncronization Link
Backplane Support	Universal Backplane Only. Uses PCI Bus.
Sync Link Speed	2.1 Gbits/s
Communications Data Rate	2.12Gbaud
Synchronzed Link Transfer Rate	43 Mbyte/s (4 byte packets) to 174 Mbyte/s (64 byte packets)
Maximum Data Syncronization	Up to 2 megabytes. Twice per Scan.
Bus Diagnostics	Network error detection.
Redundant RMX Support	Yes
Maximum Distance Between Redundant Controllers	300 meters
Connector Type	-Fiber optic LC type, conforms to IEC 61754-20 - Zirconium ceramic ferrule -Insertion loss: 0.35 dB (maximum) -Return loss: -30dB
Internal Power Used	660 mA @ +3.3 VDC 253 mA @ +5 VDC
Number of Slots Module Occupies on Backplane	1

Baseplates

RX3i baseplates are available in 7, 12 and 16 slot configurations to the meet the needs of your application. The RX3i Universal baseplates support hot swap capability to reduce downtime. Expansion bases are available in 5 and 10 slot versions to maximize flexibility.

	IC695CHS007	IC695CHS012	IC695CHS016	IC694CHS398	IC693CHS399	IC694CHS392	IC693CHS393
Product Name	**PACSystems RX3i 7 slot high speed controller base supports only 5 serial bus slots supported. Not expandable.**	**PACSystems RX3i 12 slot high speed controller base supports PCI and serial bus**	**PACSystems RX3i 16 slot high speed controller base supports PCI and serial bus**	**PACSystems RX3i serial 5-slot Expansion Baseplate (serial bus only)**	**PACSystems RX3i serial 5-slot Remote Baseplate (serial bus only)**	**PACSystems RX3i serial 10-slot Expansion Baseplate (serial bus only)**	**PACSystems RX3i serial 10-slot Remote Baseplate (serial bus only)**
Lifecycle Status	Active	Active	Active	Active	Active	Active	Active
Module Type	Universal Controller and I/O Base	Universal Controller and I/O Base	Universal Controller and I/O Base	Standard I/O	Standard I/O	Standard I/O	Standard I/O
Backplane Support	Supports both PCI and High Speed Serial	Supports both PCI and High Speed Serial.	Supports both PCI and High Speed Serial.	Supports High Speed Serial Only. No PCI support.	Supports High Speed Serial Only. No PCI support.	Supports High Speed Serial Only. No PCI support.	Supports High Speed Serial Only. No PCI support.
Module Hot Swap Support	Yes	Yes	Yes	No	No	No	No
Baseplate Option	Controller Base and Ethernet Expansion Base. No local base expansion	Controller Base and Ethernet Expansion Base	Controller Base and Ethernet Expansion Base	Expansion	Expansion	Expansion	Expansion
Distance	N/A	N/A	N/A	Up to 50 feet	Up to 700 feet	Up to 50 feet	Up to 700 feet
Number of Slots	7	12	16	5	5	10	10
Dimension (W x H x D) in. (mm)	10.43 x 5.57 x 5.80 (265 x 141.5 x 147.32)	18.01 x 5.57 x 5.80 (457.5 x 141.5 x 147.32)	23.7 x 5.57 x 5.80 (601.98 x 141.5 x 147.32)	10.43 x 5.12 x 5.59 (245 x 130 x 142)	10.43 x 5.12 x 5.59 (245 x 130 x 142)	17.44 x 5.12 x 5.59 (443 x 130 x 142)	17.44 x 5.12 x 5.59 (443 x 130 x 142)
Internal Power Used	600 mA @ 3.3 VDC; 240 mA @ 5 VDC	600 mA @ 3.3 VDC; 240 mA @ 5 VDC	600 mA @ 3.3 VDC; 240 mA @ 5 VDC	170 mA @ 5 VDC	480 mA @ 5 VDC	150 mA @ 5 VDC	460 mA @ 5 VDC

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. Advanced diagnostics and built-in smart switch fusing are among the other performance and safety features. The multipurpose power supplies can be configured for incremental capacity or redundancy.

	IC695PSA040	IC695PSD040	IC695PSA140	IC695PSD140
Product Name	**Power Supply, 120/240 VAC, 125 VDC (Can not be on the same backplane with more than one power supply)**	**Power Supply, 24 VDC (Can not be on the same backplane with more than one power supply)**	**Multipurpose Power Supply, 120/240 VAC, 125 VDC. Supports multiple multi-purpose power supplies.**	**Multipurpose Power Supply, 24 VDC. Supports multiple multipurpose power supplies.**
Lifecycle Status	Active	Active	Active	Active
Module Type	Universal Base Power Supply	Universal Base Power Supply	Universal Base Power Supply	Universal Base Power Supply
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	2	1	2	1
Power Source	100-240 VAC or 125 VDC	24 VDC	100-240 VAC or 125 VDC	24 VDC
Redundant and Added Capacity Support	No	No	Yes, Up to 4 Multipurpose power supplies supported on a Universal base	Yes, Up to 4 Multipurpose power supplies supported on a Universal base
Output Source	40 watts total. 30 watts max at 3.3 VDC; 30 watts max at 5 VDC; 40 watts at 24 VDC Relay, no 24 VDC isolated available.	40 watts total. 30 watts max at 3.3 VDC; 30 watts max at 5 VDC; 40 watts at 24 VDC Relay, no 24 VDC isolated available	40 watts total. 30 watts max at 3.3 VDC; 30 watts max at 5 VDC; 40 watts at 24 VDC Relay, no 24 VDC isolated available	40 watts total. 30 watts max at 3.3 VDC; 30 watts max at 5 VDC; 40 watts at 24 VDC Relay, no 24 VDC isolated available.
Number of Redundant Power Supplies Supported	N/A	N/A	Two Multipurpose Power Supplies are supported on the Universal Base configured for redundancy	Two Multipurpose Power Supplies are supported on the Universal Base configured for redundancy

Remote Base 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. RX3i power supplies are tied into the performance of the CPU for simplex, fail-safe, and fault tolerance. Advanced diagnostics and built-in smart switch fusing are among the other performance and safety features.

	IC694PWR321	IC694PWR330	IC694PWR331	IC693PWR332
Product Name	**Power Supply, 120/240 VAC, 125 VDC**	**Power Supply, 120/240 VAC, 125 VDC**	**Power Supply, 24 VDC**	**Power Supply, 12 VDC**
Lifecycle Status	Active	Active	Active	Active
Module Type	Expansion Power Supply	Expansion Power Supply	Expansion Power Supply	Expansion Power Supply
Backplane Support	Remote Bases Only	Remote Bases Only	Remote Bases Only	Remote Bases Only
Power Source	100-240 VAC or 125 VDC	100-240 VAC or 125 VDC	24 VDC	12 VDC
High Capacity	No	Yes	Yes	Yes
Output Source	30 watts total; 15 watts 5 VDC; 15 watts 24 VDC relay; 20 watts 24 VDC isolated	30 watts total; 30 watts 5 V; 15 watts 24 V relay; 20 watts 24 V isolated	30 watts total; 30 watts 5 V; 15 watts 24 V relay; 20 watts 24 V isolated	30 watts total; 30 watts 5 V; 15 watts 24 V relay; 20 watts 24 V isolated
Cable Length to Redundant Power Supply Adapter	N/A	N/A	N/A	N/A
Redundant Power Supply Adapter Rack Compatibility	N/A	N/A	N/A	N/A
24 VDC Output Current Capacity	0.8 A	0.8 A	0.8 A	0.8 A

Remote Base 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. RX3i power supplies are tied into the performance of the CPU for simplex, fail-safe, and fault tolerance. Advanced diagnostics and built-in smart switch fusing are among the other performance and safety features.

	IC693PWR328
Product Name	**Power Supply, 48 VDC**
Lifecycle Status	Active
Module Type	Expansion Power Supply
Backplane Support	Remote Bases Only
Power Source	48 VDC
High Capacity	No
Output Source	30 watts total; 15 watts 5 V; 15 watts 24 V relay; 20 watts 24 V isolated
Cable Length to Redundant Power Supply Adapter	N/A
Redundant Power Supply Adapter Rack Compatibility	N/A
24 VDC Output Current Capacity	0.8 A

Discrete I/O Modules (Input)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694ACC300	IC694MDL230	IC694MDL250	IC694MDL231	IC694MDL240
Product Name	**PACSystems RX3i DC Voltage Input Simulator, 8/16 Points**	**PACSystems RX3i AC Voltage Input Module, 120 VAC Isolated, 8 Point Input**	**PACSystems RX3i AC Voltage Input Module, 120 VAC Isolated, 16 Point Input**	**PACSystems RX3i AC Voltage Input Module, 240 VAC Isolated, 8 Point Input**	**PACSystems RX3i AC Voltage Input Module, 120 VAC, 16 Point Input**
Lifecycle Status	Active	Active	Active	Active	Active
Module Type	Input Simulator	Discrete Input	Discrete Input	Discrete Input	Discrete Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1	1
Input Voltage Range	N/A	0-132 VAC	0-132 VAC	0-264 VAC	0-132 VAC
Input Current (mA)	N/A	14.5	14.5	15	12
Number of Points	16	8	16	8	16
Response Time (ms)	20 on/30 off	30 on/45 off	30 on/45 off	30 on/45 off	30 on/45 off
Trigger Voltage	N/A	74-132	74-132	148-264	74-132
Points per Common	16	1	1	1	16
Diagnostic Supported	N/A	N/A	N/A	N/A	N/A
Connector Type	Switches	Terminal Block (20 screws), included with module.	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	120 mA @ 5 VDC	60 mA @ 5 VDC	60 mA @ 5 VDC	60 mA @ 5 VDC	90 mA @ 5 VDC

Discrete I/O Modules (Input)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL260	IC694MDL241	IC694MDL632	IC694MDL634	IC694MDL645
Product Name	**PACSystems RX3i AC Voltage Input Module, 120 VAC, 32 Point Input**	**AC/DC Voltage Input Module, 24 VAC/VDC**	**PACSystems RX3i DC Voltage Input Module, 125 VDC Pos/Neg Logic, 8 Point Input**	**PACSystems RX3i DC Voltage Input Module, 24 VDC Pos/Neg Logic, 8 Point Input**	**PACSystems RX3i DC Voltage Input Module, 24 VDC Pos/Neg Logic, 16 Point Input**
Lifecycle Status	Active	Active	Active	Active	Active
Module Type	Discrete Input	Discrete Input	Discrete Input	Discrete Input	Discrete Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1	1
Input Voltage Range	0-132 VAC	0-30 VDC	0-150 VDC	0-30 VDC	0-30 VDC
Input Current (mA)	12	7	4.5	7	7
Number of Points	32	16	8	8	16
Response Time (ms)	30 on/45 off	12 on/28 off	7 on/7 off	7 on/7 off	7 on/7 off
Trigger Voltage	74-132	11.5-30	90-150	11.5-30	11.5-30
Points per Common	16	16	4	8	16
Diagnostic Supported	N/A	N/A	N/A	N/A	N/A
Connector Type	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Intern al Power Used	90 mA @ 5 VDC	80 mA @ 5 VDC; 125 mA @ 24 VDC	40 mA @ 5 VDC	45 mA @ 5 VDC; 62 mA @ 24 VDC Isolated Isolated	80 mA @ 5 VDC; 125 mA @ 24 VDC Isolated

Discrete I/O Modules (Input)

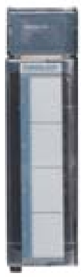
Input modules provide the interface between the PLC and external input devices such as proximity sensors, push buttons, switches, and BCD thumbwheels. Output modules provide the interface between the PLC and external output devices such as contactors, interposing relays, BCD displays and indicator lamps. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs

	IC694MDL646	IC694MDL654	IC694MDL655	IC694MDL660	IC695MDL664
Product Name	**PACSystems RX3i DC Voltage Input Module, 24 VDC Pos/Neg Logic, FAST, 16 Point Input**	**PACSystems RX3i DC Voltage Input Module, 5/12 VDC (TTL) Pos/Neg Logic, 32 Point Input**	**PACSystems RX3i DC Voltage Input Module, 24 VDC Pos/Neg Logic, 32 Point Input**	**PACSystems RX3i DC Voltage Input Module, 24 VDC Pos/Neg Logic, 32 Point Input**	**PACSystems RX3i DC Voltage Input Module, 24VDC Positive Logic, Advanced Diagnostics, 16 Point Input**
Lifecycle Status	Active	Active	Active	Active	Active
Module Type	Discrete Input	Discrete Input	Discrete Input	Discrete Input	Discrete Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	Universal PCI Slot Only
Number of Slots Module Occupies on Backplane	1	1	1	1	1
Input Voltage Range	0-30 VDC	0-15 VDC	0-30 VDC	0-30 VDC	0-30 VDC
Input Current (mA)	7	3.0 @ 5 V, 8.5 @ 12 V	7	7	12.2
Number of Points	16	32	32	32	16
Response Time (ms)	1 on/1 off	1 on/1 off	2 on/2 off	0.5ms, 1.0ms, 2.0ms, 5ms, 10ms, 50ms and 100ms, selectable per module. On and off.	0.5ms, 1.0ms, 2.0ms, 5ms, 10ms, 50ms and 100ms, selectable per module. On and off.
Trigger Voltage	11.5-30	4.2-15	11.5-30	11.5-30	0.5 × VIN VDC
Points per Common	16	8	8	8	8
Diagnostic Supported	N/A	N/A	N/A	N/A	Open Wire, Short to DC Negative Input Pulse Test Short to DC Plus
Connector Type	Terminal Block (20 screws), included with module.	Fujitsu Connector	Fujitsu Connector	IC694TBBx32 or IC694TBSx32. Sold Separately.	IC694TBB032 or IC694TBS032
Internal Power Used	80 mA @ 5 VDC; 125 mA @ 24 VDC Isolated	5 VDC -195 mA @ 5 VDC; 12 VDC -440 mA @ 5 VDC	195 mA @ 5 VDC	300 mA @ 5 VDC	225 mA @ 5 VDC; 95 mA @ 3.3 VDC

Analog I/O Modules (Input)

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

	IC694ALG232	IC694ALG233	IC695ALG600
Product Name	**PACSystems RX3i Analog Input, Voltage, High Density (16 Channel) 16 Bit with advanced diagnostics**	**PACSystemsRX3i Analog Input, Current, High Density (16 Channel) 16 Bit with advanced diagnostics**	**PACSystems RX3i Analog Input. Configurable per channel for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032). Cold Junction Compensation are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**
Lifecycle Status	Active	Active	Active
Module Type	Analog Input	Analog Input	Universal Analog Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1
Range	-10 V to +10 V, 0 to 10 V	0-20 mA, 4-20 mA, 4-20 mA Enhanced	Voltage: +50 mV, +150 mV, 0–5 V, 1–5 V, 0–10 V, +10 V; Current: 0–20 mA, 4–20 mA, +20 mA; Thermocouple Inputs: B, C, E, J, K, N, R, S, T; RTD Inputs: PT 385 / 3916, N 618 / 672, NiFe 518, CU 426: Resistance Inputs: 0 to 250 / 500 / 1000 / 2000 / 3000 / 4000 Ohms
HART Support	N/A	N/A	N/A
Channel-to-Channel Isolation	No	No	Two Groups of Four
Number of Channels	16 Single Ended, 8 Differential	16	8
Update Rate	Single Ended: 5 ms for all channels Differential: 3 ms all channels	6 ms all channels	10ms per Channel; 4 Channels = 40ms (1KHz filter) 127ms per Channel 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.
Resolution	16 bit; ±10 V, 0.3125 mV, 1 LSB; 0-10 V, 0.3125 mV, 1 LSB	16 bit; 0-20 mA, 0.625 @ 181A/bit; 4-20 mA, 0.5 @ 181A/bit; 4-20 mA Enhanced, 0.5 @181A/bit	11 to 16 bits, depending on configured range and A/D filter frequency
Accuracy	0.25% at 25°C (77°F)	0.25% at 25°C (77°F)	Calibrated Accuracy at 25°C. Better than 0.1% of range (except 10 ohm CU RTD) Accuracy depends on A/D filter, data format, input noise, and ambient temperature.
Input Impedance	500K Ohms (single-ended mode) 1 MegaOhms (differential mode)	250 ohms	Current 249 ohms ±1%
Input Filter Response	23 Hz (single-ended mode) 38 Hz (differential mode)	23 Hz	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 1000Hz
Notch Filter	N/A	N/A	Yes
Diagnostics	Under Range/Over Range, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	Under Range/Over Range, Open Wire, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	Open Wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low
Internal Power Used	112 mA (maximum) @ +5 VDC	120 mA @ +5 VDC	400 mA @ 5 V; 350 mA @ 3.3 V
External Power Requirement	110 mA (maximum) +24 VDC supply connected to TB1 on IC695CHSxxx	65 mA @ 24 VDC	N/A
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	IC694TBBx32 or IC694TBSx32. Sold Separately.



Analog I/O Modules (Input)

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

	IC695ALG608	IC695ALG616	IC695ALG628
Product Name	**PACSystems RX3i Analog Input. Configurable per channel for Current or Voltage. High Density (8 Channel) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**	**PACSystems RX3i Analog Input. Configurable per channel for Current or Voltage. High Density (16 Channel) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**	**PACSystems RX3i Analog Input with HART Communications. Configurable per channel for Current or Voltage. High Density (8 Channel) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**
Lifecycle Status	Active	Active	Active
Module Type	Analog Input	Analog Input	Analog Input with HART Communications
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1
Range	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V
HART Support	N/A	N/A	Get HART Device Information (Function 1) Simplified HART Pass-Thru Command (Function 2) Enterprise HART Pass-Thru Command (Function 3)
Channel-to-Channel Isolation	One Group of Eight	One Group of Sixteen	One Group of Eight
Number of Channels	8	16	8
Update Rate	All 8 Channels at 5 msec @ 500Hz. Performance is dependent on filtering.	All 16 Channels at 9 msec @ 500Hz. Performance is dependent on filtering.	All 8 Channels at 5 msec @ 500Hz. Performance is dependent on filtering and HART enabled channels could add 6 to 8 seconds.
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	Selectable per channel
Accuracy	Calibrated Accuracy @ 13°C – 33°C with 8 Hz, 12 Hz and 16 Hz filter; 0 to 10 V, ±10 V input types: 10 mV0 to 5 V, 1 to 5 V, ±5 V input types: 5 mV0 to 20 mA, 4 to 20 mA, ±20 mA input types: 20 µA	Calibrated Accuracy @ 13°C – 33°C with 8 Hz, 12 Hz and 16 Hz filter; 0 to 10 V, ±10 V input types: 10 mV0 to 5 V, 1 to 5 V, ±5 V input types: 5 mV0 to 20 mA, 4 to 20 mA, ±20 mA input types: 20 µA	Calibrated Accuracy @ 13°C – 33°C with 8 Hz, 12 Hz and 16 Hz filter; 0 to 10 V, ±10 V input types: 10 mV0 to 5 V, 1 to 5 V, ±5 V input types: 5 mV0 to 20 mA, 4 to 20 mA, ±20 mA input types: 20 µA
Input Impedance	Current 249 ohms ±1%	Current 249 ohms ±1%	Current 249 ohms ±1%
Input Filter Response	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 500Hz	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 500Hz	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 500Hz
Notch Filter	Yes	Yes	Yes
Diagnostics	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low
Internal Power Used	450 mA @ 5 V; 600 mA @ 3.3 V	450 mA @ 5 V; 600 mA @ 3.3 V	450 mA @ 5 V; 600 mA @ 3.3 V
External Power Requirement	N/A	N/A	N/A
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032 Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032 Sold Separately.	IC694TBBx32 or IC694TBSx32. Sold Separately.

Analog I/O Modules (Input)

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

	IC695ALG626	IC695ALG106	IC695ALG112
Product Name	**PACSystems RX3i Analog Input with HART Communications. Configurable per channel for Current or Voltage. High Density (16 Channel) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**	**PACSystems RX3i Isolated Analog Input Configurable per channel for Current or Voltage. High Density (6 Isolated Channels) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**	**PACSystems RX3i Isolated Analog Input. Configurable per channel for Current or Voltage. High Density (12 Isolated Channels) Requires High Density Terminal Block (IC694TBB032 or IC694TBS032).**
Lifecycle Status	Active	Active	Active
Module Type	Analog Input with HART Communications	Analog Input with Channel to Channel Isolation	Analog Input with Channel to Channel Isolation
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1
Range	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V	Current: 0 to 20 mA, 4 to 20 mA, ±20 mA; Voltage: ±10 V, 0 to 10 V, ±5 V, 0 to 5 V, 1 to 5 V
HART Support	Get HART Device Information (Function 1) Simplified HART Pass-Thru Command (Function 2) Enterprise HART Pass-Thru Command (Function 3)	N/A	N/A
Channel-to-Channel Isolation	One Group of Sixteen	Yes (250 VAC continuous, 1500 VAC for 1 minute per channel)	Yes (250 VAC continuous, 1500 VAC for 1 minute per channel)
Number of Channels	16	6	12
Update Rate	All 16 Channels at 9 msec @ 500Hz. Performance is dependent on filtering and HART enabled channels could add 6 to 8 seconds.	1 ms for all channels.	1 ms for all channels
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format
Accuracy	Calibrated Accuracy @ 13°C – 33°C with 8 Hz, 12 Hz and 16 Hz filter; 0 to 10 V, ±10 V input : types 10 mV0 to 5 V, 1 to 5 V, ±5 V input types: 5 mV0 to 20 mA, 4 to 20 mA, ±20 mA input types: 20 µA	±0.1% of span at 25°C, ±0.25% of span over operating temperature range	±0.1% of span at 25°C, ±.25% of span over operating temperature range
Input Impedance	Current 249 ohms ±1%	Current = 250 ohms ±1%, Voltage >= 500k Ohms	Current = 250 ohms ±1%, Voltage >= 500k Ohms
Input Filter Response	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 500Hz	Configurable low-pass: 8Hz, 12Hz, 16Hz, 40Hz, 250Hz, and 1000Hz	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 250Hz, and 1000Hz
Notch Filter	Yes	N/A	N/A
Diagnostics	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, under range, over range, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, under range, over range, positive/negative rate of change, High, High-High, Low, Low-Low
Internal Power Used	450 mA @ 5 V; 600 mA @ 3.3 V	400 mA @ 5 V; 600 mA @ 3.3 V	800 mA @ 5 V; 600 mA @ 3.3 V
External Power Requirement	N/A	19.2 V to 30 VDC, Current required: 500 mA	19.2 V to 30 VDC, Current required: 500 mA
Connector Type	IC694TBBx32 or IC694TBSx32. Sold Separately.	IC694TBBx32 or IC694TBSx32. Sold Separately.	IC694TBBx32 or IC694TBSx32. Sold Separately.

Analog I/O Modules (Input)

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

	IC694ALG220	IC694ALG221	IC694ALG222	IC694ALG223
Product Name	**PACSystems RX3i Analog Input, Voltage, 4 Channel**	**PACSystems RX3i Analog Input, Current, 4 Channel**	**PACSystems RX3i Analog Input,Voltage, High Density (16 Channel)**	**PACSystems RX3i Analog Input, Input, Current, High Density (16 Channel)**
Lifecycle Status	Active	Active	Active	Active
Module Type	Analog Input	Analog Input	Analog Input	Analog Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Range	-10 V to +10 V	4-20 mA, 0-20 mA	-10 V to ±10 V, 0 to 10 V	0-20 mA, 4-20 mA
HART Support	N/A	N/A	N/A	N/A
Channel-to-Channel Isolation	N/A	N/A	N/A	N/A
Number of Channels	4	4	1	16
Update Rate	4 ms all channels	2 ms all channels	13 ms all channels	13 ms all Channels
Resolution	12 bit; 5 mV/20 µA/bit	12 bit; 0-20 mA, 5 µA/bit; 4-20 mA, 4 µA/bit	12 bit; ±10 V, 5 mV/20 µA/bit; 0-10 V, 5 mV/20 µA/bit	12 bit; 0-20 mA, 5 µA/bit; 4-20 mA, 4 µA/bit; 4-20 mA Enhanced, 5µA/bit
Accuracy	±10 mV/40µA at 25°C (77°F)	0.1 % full scale	0.25% at 25°C (77°F)	0.25% at 25°C (77°F)
Input Impedance	>9 Megohms	250 ohms	250 ohms	250 ohms
Input Filter Response	17 Hz	325 Hz	200 Hz	200 Hz
Notch Filter	N/A	N/A	N/A	N/A
Diagnositics	N/A	N/A	N/A	N/A
Internal Power Used	27 mA @ 5 VDC; 98 mA @ 24 VDC Isolated	25 mA @ 5 VDC; 100 mA @ 24 VDC Isolated	112 mA @ 5 VDC; 4150 mA- User Supplied 24 VDC	120 mA @ 5 VDC; 65 mA-User Supplied 24 VDC
External Power Requirement	N/A	N/A	N/A	N/A
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.

Analog I/O Modules (Input)

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

	HE693ADC410	HE693ADC420
Product Name	**Isolated Analog Input Module, Voltage, 1500 VAC, Isolation**	**Isolated Analog Input Module, Current, 1500 VAC, Isolation**
Lifecycle Status	Active	Active
Module Type	Analog Input	Analog Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Range	±10 V	4-20 mA, ±20 mA
Number of Channels	4	4
Channel-to-Channel Isolation	1500 VAC (RMS), ±2000 VDC	1500 VAC (RMS), ±2000 VDC
Input Impedance	1 Megohm	100 ohms
A/D Type, Resolution	Integrating, 18 bits	Integrating, 18 bits
Useable Resolution	13 bits plus sign	13 bits plus sign
I/O Required	4 %AI, 4 %AQ, 16 %I	8 %AI, 8 %AQ, 16 %I
Sample Rate	45 channels/second	45 channels/second
Analog Filtering	1 KHz, 3 pole Bessel	1 KHz, 3 pole Bessel
Digital Filtering	1-128 samples/update	1-128 samples/update
Maximum Error	.05% full scale	.05% full scale
Common Mode Range	1500 VAC (RMS), ±2000 VDC	1500 VAC (RMS), ±2000 VDC
Common Mode Rejection	>100 dB	>100 dB
Power Consumption at Steady State, Maximum	.7 W @ 5 V, 1.2 W @ 24 V	.7 W @ 5 V, 1.2 W @ 24 V
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
External Power Requirement	N/A	N/A
Internal Power Used	140 mA @ 5 VDC; 50 mA @ 24 VDC Relay	140 mA @ 5 VDC; 50 mA @ 24 VDC Relay

Discrete I/O Modules (Output)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL310	IC694MDL330	IC694MDL340	IC694MDL390
Product Name	**PACSystems RX3i AC Voltage Output Module, 120 VAC, 0.5A, 12 Point Output**	**PACSystems RX3i AC Voltage Output Module, 120/240 VAC, 1A, 8 Point Output**	**PACSystems RX3i AC Voltage Output Module, 120 VAC, 0.5A, 16 Point Output**	**PACSystems RX3i AC Voltage Output Module, 120/240 VAC Isolated, 2A, 5 Point Output**
Lifecycle Status	Active	Active	Active	Active
Module Type	Discrete Output	Discrete Output	Discrete Output	Discrete Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Output Voltage Range	85-132 VAC	85-264 VAC	85-132 VAC	85-264 VAC
Number of Points	12	8	16	5
Isolation	N/A	N/A	N/A	Yes
Diagnostics	N/A	N/A	N/A	N/A
Load Current per Point	0.5 A	1 A	0.5 A	2:00 AM
Response Time (ms)	1 on 1/2 cy off	1 on 1/2 cy off	1 on 1/2 cy off	1 on 1/2 cy off
Output Type	Triac	Triac	Triac	Triac
Polarity	N/A	N/A	N/A	N/A
Points per Common	6	4	4	1
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	210 mA @ 5 VDC	160 mA @ 5 VDC	315 mA @ 5 VDC	110 mA @ 5 VDC

Discrete I/O Modules (Output)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL350	IC694MDL732	IC694MDL734	IC694MDL740
Product Name	**PACSystems RX3i AC Voltage Output Module, 120/240 VAC Isolated, 2A, 16 Point Output**	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Positive Logic, 0.5A, 8 Point Output**	**PACSystems RX3i DC Voltage Output Module, 125 VDC Pos/Neg Logic, 6 Point Output**	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Positive Logic, 0.5A, 16 Point Output**
Lifecycle Status	Active	Active	Active	Active
Module Type	Discrete Output	Discrete Output	Discrete Output	Discrete Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Output Voltage Range	74-264 VAC	12-24 VDC	11-150 VDC	12-24 VDC
Number of Points	16	8	6	16
Isolation	Yes	N/A	N/A	N/A
Diagnostics	N/A	N/A	N/A	N/A
Load Current per Point	Per Point 2A max. @ 30°C & 1A max. @ 60°C (Linear derating)	0.5 A	1 A	0.5 A
Response Time (ms)	1 on 1/2 cy off	2 on/2 off	7 on/5 off	2 on/2 off
Output Type	Triac	Transistor	Transistor	Transistor
Polarity	N/A	Positive	Positive/Negative	Positive
Points per Common	1	8	1	8
Connector Type	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	110 mA @ 5 VDC	50 mA @ 5 VDC	90 mA @ 5 VDC	110 mA @ 5 VDC

Discrete I/O Modules (Output)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL741	IC694MDL742	IC694MDL752	IC694MDL753
Product Name	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Negative Logic, 0.5A, 16 Point Output**	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Positive Logic ESCP, 1A, 16 Point Output**	**PACSystems RX3i DC Voltage Output Module, 5/24 VDC (TTL) Negative Logic, 0.5A, 32 Point Output**	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Positive Logic, 0.5A, 32 Point Output**
Lifecycle Status	Active	Active	Active	Active
Module Type	Discrete Output	Discrete Output	Discrete Output	Discrete Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Output Voltage Range	12-24 VDC	12-24 VDC	5, 12-24 VDC	12-24 VDC
Number of Points	16	16	32	32
Isolation	N/A	N/A	N/A	N/A
Diagnostics	N/A	N/A	N/A	N/A
Load Current per Point	0.5 A	1 A	0.5 A	0.5 A
Response Time (ms)	2 on/2 off	2 on/2 off	0.5 on/0.5 off	0.5 on/0.5 off
Output Type	Transistor	Transistor	Transistor	Transistor
Polarity	Negative	Positive	Negative	Positive
Points per Common	8	8	8	8
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Fujitsu Connector	Fujitsu Connector
Internal Power Used	110 mA @ 5 VDC	130 mA @ 5 VDC	260 mA @ 5 VDC	260 mA @ 5 VDC

Discrete I/O Modules (Output)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL754	IC695MDL765	IC694MDL930	IC694MDL916	IC694MDL931
Product Name	**PACSystems RX3i DC Voltage Output Module, 12/24 VDC Positive Logic with ESCP (Self Healing), 0.75A, 32 Point Output**	**RX3i DC Voltage Output Module, 24/125 volt DC 2A Smart Digital Output module, 16 Point Output**	**PACSystems RX3i AC/DC Voltage Output Module, Relay, N.O., 4A Isolated, 8 Point Output**	**PACSystems RX3i AC/DC Voltage Output Module, Relay, N.O., 4A Isolated, 16 Point Output**	**PACSystems RX3i AC/DC Voltage Output Module, Relay, N.C. and Form C, 8A Isolated, 8 Point Output**
Lifecycle Status	Active	Active	Active	Active	Active
Module Type	Discrete Output	Discrete Output	Discrete Output	Discrete Output	Discrete Output
Backplane Support	No Backplane Restrictions	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1	1
Output Voltage Range	12-24 VDC	18 to 30VDC 105 to 132 VDC	0 to 125 VDC, 5/24/125 VDC nominal 0 to 265 VAC (47 to 63 Hz), 120/240 VAC nominal	5 to 125 VDC 5/24/125 VDC nominal 5 to 250 VAC (47 to 63 Hz), 120/240 VAC nominal	0 to 125 VDC, 5/24/125 VDC nominal 0 to 265 VAC (47 to 63 Hz), 120/240 VAC nominal
Number of Points	32	16	8	16	8
Isolation	N/A	N/A	Yes	Yes	Yes
Diagnostics	Short Circuit Detection	• Output Pulse Test • Over temperature • Failed Switch Detection • Overload Detection and Shutdown • No-load Detection	N/A	N/A	N/A
Load Current per Point	0.75 A	2 A	2 A	4 A	8 A
Response Time (ms)	0.5 on/0.5 off	1 msec maximum	15 on/15 off	10ms maximum (At nominal voltage excluding contact bounce)	15 on/15 off
Output Type	Transistor	Transistor	Relay	Relay	Relay
Polarity	Positive	Positive	N/A	N/A	N/A
Points per Common	16	16	1	1	1
Connector Type	IC694TBBx32 or IC694TBSx32. Sold Separately.	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.
Internal Power Used	300 mA @ 5 VDC	540 mA @ 5.1 VDC; 152 mA @ 3.3 VDC	6 mA @ 5 VDC; 70 mA @ 24 VDC Relay	300 mA @ 5 VDC from backplane maximum (all outputs ON)	6 mA @ 5 VDC; 110 mA @ 24 VDC Relay

Discrete I/O Modules (Output)

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. GE offers a variety of modules that support different voltage ranges and types, current capacity, isolation and response time to meet your application needs.

	IC694MDL940	HE693RLY100	HE693RLY110
Product Name	**PACSystems RX3i AC/DC Voltage Output Module, Relay, N.O., 2A, 16 Point Output**	**DC/AC Voltage Relay Output Module High Current**	**DC/AC Voltage Relay Output Module High Current (fused)**
Lifecycle Status	Active	Active	Active
Module Type	Discrete Output	Discrete Output	Discrete Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Output Voltage Range	0 to 125 VDC, 5/24/125 VDC nominal 0 to 265 VAC (47 to 63 Hz), 120/240 VAC nominal	12-120 VAC, 12-30 VDC	12-120 VAC, 12-30 VDC
Number of Points	16	8	8
Isolation	N/A	N/A	Yes
Diagnostics	N/A	N/A	N/A
Load Current per Point	2 A	8 A	8 A
Response Time (ms)	15 on/15 off	11 on/11 off	11 on/11 off
Output Type	Relay	Relay	Relay
Polarity	N/A	N/A	N/A
Points per Common	4	N/A	1
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	7 mA @ 5 VDC; 135 mA @ 24 VDC Relay	180 mA @ 5 VDC; 200 mA @ 24 VDC Relay	180 mA @ 5 VDC; 200 mA @ 24 VDC Relay

Analog I/O Modules (Output)

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

	IC694ALG392	IC695ALG704
Product Name	**PACSystems RX3i Analog Output, Current/Voltage, 8 Channel**	**PACSystems RX3i Analog Output, Current/Voltage, 4 Channel**
Lifecycle Status	Active	Active
Module Type	Analog Output	Analog Output
Backplane Support	No Backplane Restrictions	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1
Diagnostics	N/A	High and Low Alarm, Ramp Rate Control Clamping, Overrange and Underrange
Protection	Reverse polarity and undervoltage on external power supply	N/A
Range	0 V to +10 V, -10 V to +10 V, 0-20 mA, 4-20 mA	Current: 0 to 20 mA, 4 to 20 mA; Voltage: ±10 V, 0 to 10 V
HART Support	N/A	N/A
Number of Channels	8	4
Channel-to-Channel Isolation	N/A	N/A
Update Rate	8 ms all channels	8 ms all channels
Resolution	16 bit; 0.312 mV/bit	±10 V: 15.9 bits; 0 to 10 V: 14.9 bits; 0 to 20 mA: 15.9 bits; 4 to 20 mA: 15.6 bits
Accuracy	0-20 mA, 4-20 mA ±0.1% at 25°C (77°F); 0-10 V, -10F + 10 V ±0.25 at 25°C (77°F)	Accurate to within 0.15% of full scale at 25°C. Accurate to within 0.30% of full scale at 60°C
Maximum Output Load	5 mA (2 K ohms)	Current -850ohm max @ Vuser = 20 V; Voltage -2k ohm max load (minimum resistance)
Output Load Capacitance	2000 pF, Inductance 1H	Current: 10uH max.; Voltage: 1uF max.
External Power Requirement	N/A	Voltage Range: 19.2 V to 30 V Current required: 160 mA
Connector Type	Terminal Block (20 screws), included with module.	IC694TBB032 or IC694TBS032. Sold Separately.
Internal Power Used	110 mA @ 5 VDC; 315 mA -User Supplied 24 VDC	375 mA @3.3 V (internal) 160 mA @24 V (external)

Analog I/O Modules (Output)

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

	IC695ALG708	IC695ALG728
Product Name	**PACSystems RX3i Analog Output, Current/Voltage, 8 Channel**	**PACSystems RX3i Analog Output with HART Communications, Current/Voltage, 8 Channel**
Lifecycle Status	Active	Active
Module Type	Analog Output	Analog Output with HART Communications
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1
Diagnostics	High and Low Alarm, Ramp Rate Control Clamping, Overrange and Underrange	High and Low Alarm, Ramp Rate Control, Clamping, Overrange and Underrange
Protection	N/A	N/A
Range	Current: 0 to 20 mA, 4 to 20 mA; Voltage: ±10 V, 0 to 10 V	Current: 0 to 20 mA, 4 to 20 mA; Voltage: ±10 V, 0 to 10 V
HART Support	N/A	-Get HART Device Information (Function 1) Simplified HART Pass-Thru Command (Function 2) -Enterprise HART Pass-Thru Command (Function 3)
Number of Channels	8	8
Channel-to-Channel Isolation	N/A	N/A
Update Rate	8 ms all channels	8 ms all channels and HART enabled channels could add 6 to 8 seconds.
Resolution	10 V: 15.9 bits; 0 to 10 V: 14.9 bits; 0 to 20 mA: 15.9 bits; 4 to 20 mA: 15.6 bits	±10 V: 15.9 bits; 0 to 10 V: 14.9 bits; 0 to 20 mA: 15.9 bits; 4 to 20 mA: 15.6 bits
Accuracy	Accurate to within 0.15% of full scale at 25°C. Accurate to within 0.30% of full scale at 60°C	Accurate to within 0.15% of full scale at 25°C. Accurate to within 0.30% of full scale at 60°C
Maximum Output Load	Current -850ohm max @ Vuser = 20 V; Voltage -2k ohm max load (minimum resistance)	Current -850ohm max @ Vuser = 20 V; Voltage -2k ohm max load (minimum resistance)
Output Load Capacitance	Current: 10uH max.; Voltage: 1uF max.	Current: 10uH max.; Voltage: 1uF max.
External Power Requirement	Voltage Range: 19.2 V to 30 V Current required: 315 mA	Voltage Range: 19.2 V to 30 V Current required: 315 mA
Connector Type	IC694TBB032 or IC694TBS032. Sold Separately	IC694TBB032 or IC694TBS032. Sold Separately.
Internal Power Used	375 mA @3.3 V (internal) 315 mA @24 V (external)	375 mA @3.3 V (internal) 315 mA@24 V (external)

Analog I/O Modules (Output)

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

	IC695ALG808	IC694ALG390	IC694ALG391
Product Name	**PACSystems RX3i Isolated Analog Output, Current/Voltage, 8 Isolated Channels**	**PACSystems RX3i Analog Output, Voltage, 2 Channel**	**PACSystems RX3i Analog Output, Current, 2 Channel**
Lifecycle Status	Active	Active	Active
Module Type	Analog Output with Channel to Channel Isolation	Analog Output	Analog Output
Backplane Support	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Diagnostics	High and Low Alarm, Ramp Rate Control, Clamping, Overrange and Underrange	N/A	N/A
Protection	N/A	N/A	N/A
Range	Current: 0 to 20 mA, 4 to 20 mA; Voltage: ±10 V, 0 to 10 V	-10 V to +10 V, 4-20 mA	1-5 V and 0-5 V, 0-20 mA, 4-20 mA
HART Support	N/A	N/A	N/A
Number of Channels	8	2	2
Channel-to-Channel Isolation	Yes (250 VAC continuous, 1500 VAC for 1 minute per channel)	N/A	N/A
Update Rate	8 ms all channels (1 msec per channel)	5 ms all channels	5 ms all channels
Resolution	±10 V @ 15.9 bits minimum 0 to 10 V @ 14.9 bits minimum 0 to 20 mA @ 15.9 bits minimum 4 to 20 mA @ 15.6 bits minimum	12 bit; 2.5 mV/bit	12 bit;0-20 mA, 5µA/bit
Accuracy	Accurate to within ±0.1% of span at 25C, ± 0.25% of span over operating temperature range	±5 mV at 25°C (77°F)	0-20 mA, ±8 µA at 25°C (77°F); 0-20 mA, 4-20 mA ±0.1% at 25°C (77°F)
Maximum Output Load	Current: 1350 ohm maximum resistance, 10uH max inductance Voltage: 2k Ohm minimum resistance, 1uF max capacitance	5 mA (2 K ohms)	5 mA (2 K ohms)
Output Load Capacitance	Current: 10uH max.; Voltage: 1uF max.	2000 pF	2000 pF, Inductance 1H
External Power Requirement	500 mA @ 24 VDC	N/A	N/A
Connector Type	IC694TBBx32 or IC694TBSx32 Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	450 mA @ 3.3 V Maximum, all channels on	32 mA @ 5 VDC; 120 mA @ 24 VDC Isolated	30 mA @ 5 VDC; 215 mA 24 VDC Isolated

Analog I/O Modules (Output)

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

	HE693DAC410	HE693DAC420
Product Name	**Isolated Analog Output Module, Voltage**	**Isolated Analog Output Module, Current**
Lifecycle Status	Active	Active
Module Type	Analog Output	Analog Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Diagnostics	N/A	N/A
Protection	N/A	N/A
Range	±10 V	4-20 mA or 0-20 mA
HART Support	N/A	N/A
Number of Channels	4	4
Channel-to-Channel Isolation	1500 VAC (RMS), ±2000 VDC	1500 VAC (RMS), ±2000 VDC
Update Rate	N/A	N/A
Resolution	1.2 5 mV	2.0 µA (4-20 mA); 2.5 µA (±20 mA)
Accuracy	N/A	N/A
Maximum Output Load	N/A	N/A
Output Load Capacitance	N/A	N/A
External Power Requirement	N/A	2-32 VDC
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	500 mA @ 5 VDC; 150 mA @ 24 VDC Relay	150 mA @ 5 VDC; 110 mA @ 24 VDC Relay

Analog Mixed I/O Modules (Input and Output)

The analog mixed modules (four in and two out) are available with or without advanced diagnostics. The advanced diagnostics includes alarms, open wire, rate of change, over range and under range. Additional features include 16 bit resolution, analog output clamp limits and output ramp mode option.

	IC694ALG542	IC694ALG442
Lifecycle Status	Active	Active
Module Type	**Analog Combination 4 In and 2 Out with Advanced Diagnostics, Output Clamp and Ramp Control**	**Analog Combination 4 In and 2 Out**
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Range	0 V to +10 V, -10 V to +10 V, 0-20 mA, 4-20 mA per Channel	0 V to +10 V, -10 V to +10 V, 0-20 mA, 4-20 mA per Channel
Channel-to-Channel Isolation	N/A	N/A
Number of Channels	4 in/2 out	4 in/2 out
Update Rate	2ms all channels	2ms all channels
Resolution	(Input)16 bit; 0 V to 10 V, 0.3125 mV/bit; -10 V to +10 V, 0.3125 mV/bit; 0-20 mA, 0.625 µA 4-20 mA 0.5 µA/bit (Output) 16 bit; 0 to 20 mA: 0.625 µA; 4 to 20 mA: 0.5 µA; –10 V to +10 V: 0.3125 mV; 0 to +10 V: 0.3125 mV	(Input)12 bit; 0 V to 10 V, 2.5 mV/bit; -10 V to +10 V, 5 mV/bit; 0-20 mA,4-20 mA 5&#0181A/bit (Output) 16 bit; 0.312 mV/bit; 4-20 mA 0.5 &#0181A/bit; 0-20 mA 0.625 &#0181A/bit
Accuracy	Current Input 0 to 20mA ±0.25% of full scale @25°C (77°F); ±0.5% of full scale over specified operating temperature range Current Input 4 to 20mA ±0.25% of full scale @25°C (77°F); ±0.5% of full scale over specified operating temperature range 4 to 20ma Enhanced Mode ±0.25% of full scale @25°C (77°F); ±0.5% of full scale over specified operating temperature range Current Output ±0.1% of full scale @ 25°C (77°F), typical ±0.25% of full scale @ 25°C (77°F), maximum ±0.5% of full scale over operating temperature range (maximum) Voltage Output ±0.25% of full scale @ 25°C (77°F), typical ±0.5% of full scale @ 25°C (77°F), maximum ±1.0% of full scale over operating temperature range (maximum)	(Input) 0.25 % at 25&#0176C (77&#0176F) (Output) 0-20 mA, 4-20 mA ±0.1% at 25&#0176C (77&#0176F)
Input Impedence	Current mode - 250 ohms Voltage mode - 800 K ohms	Current mode - 250 ohms Voltage mode - 800 K ohms"
Input Filter Response	Current mode - 55 Hz Voltage mode - 55 Hz	Current mode - 38 Hz Voltage mode - 38 Hz
Maximum Output Load	Voltage: 5 mA (2 K ohms) Current Inductance:1 H (maximum)	Voltage: 5 mA (2 K ohms) Current Inductance:1 H (maximum) "
Output Load Capacitance	Voltage:1 µF (maximum) Current: 2000 pF (maximum)	Voltage:1 µF (maximum) Current: 2000 pF (maximum)"
Diagnostics	Under Range/Over Range, Open Wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	N/A
Internal Power Used	95 mA @ 5 VDC; 150 mA external 24 VDC Isolated	95 mA @ 5 VDC; 150 mA external 24 VDC Isolated
External Power Requirement	24VDC: Current: 5 µA/V (typical), 10 µA/V (maximum) Voltage: 25 mV/V (typical), 50 mV/V (maximum)	24VDC: Current: 5 µA/V (typical), 10 µA/V (maximum) Voltage: 25 mV/V (typical), 50 mV/V (maximum)
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.

Millivolt I/O Modules

The Millivolt Input Modules allow Millivolt level signals, such as bridged strain gages (load cells) to be directly connected to the PLC without external signal processing (transducers, transmitters, etc.) All analog and digital processing of the signal is performed on the module.

	IC695ALG600 Millivolt	IC695ALG306 Millivolt
Product Name	**Universal Analog and configurable for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires Cold Junction Compensation; are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**	**Isolated Thermocouple Input module provides six isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**
Lifecycle Status	Active	Active
Module Type	Millivolt Input	Strain Gage Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1
Range	±150mV or ±50mV	±150mV or ±50mV
Diagnostics	Open wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	Open wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low
Channel-to-Channel Isolation	Two Groups of Four	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second
Number of Channels	8	6
Notch Filter	Yes	From 2.3 Hz to 28 Hz per channel
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format)	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format)
Accuracy	Calibrated Accuracy at 25°C. Better than 0.1% of range. Accuracy depends on A/D filter, data format, input noise, and ambient temperature.	±0.1% of voltage span at 25°C. ±0.25% of span over temperature range.
Input Impedance	>1M ohm	Voltage: >=500k ohm
I/O Required	N/A	N/A
A/D Conversion Type	Sigma Delta	Sigma Delta
A/D Conversion Time	(Assumes 2 ADC's running in parallel, no CJC or lead resistance) 10ms per Channel 4 Channels = 40ms (1KHz filter) 127ms per Channel 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	15 msec @ 28 Hz to 120 msec @ 2.3 Hz
Strain Gages Supported	Yes	Yes
Maximum Normal Voltage Input	N/A	N/A
Maximum Voltage Input	±14.5 VDC continuous	N/A
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.
Internal Power Used	400 mA @ 5 V; 350 mA @ 3.3 V	150 mA @ 5V; 400 mA @ 3.3V

Millivolt I/O Modules

The Millivolt Input Modules allow Millivolt level signals, such as bridged strain gages (load cells) to be directly connected to the PLC without external signal processing (transducers, transmitters, etc.) All analog and digital processing of the signal is performed on the module.

	IC695ALG312 Millivolt	HE693ADC409
Product Name	**Isolated Thermocouple Input module provides twelve isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**	**Analog I/O Module, Millivolt Input**
Lifecycle Status	Active	Active
Module Type	Strain Gage Input	Millivolt Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Range	±150mV or±50mV	±25 mV, ±50 mV and ±100 mV
Diagnostics	Open wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	N/A
Channel-to-Channel Isolation	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second	N/A
Number of Channels	12	4
Notch Filter	From 2.3 Hz to 28 Hz per channel	N/A
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	3 µV, 6µV, 9µV (respectively)
Accuracy	±0.1% of voltage span at 25°C ±0.25% of span over temperature range.	±0.5%
Input Impedance	Voltage: >=500k ohm	>20 Mohms
I/O Required	N/A	4% AI
A/D Conversion Type	Sigma Delta	Integrating
A/D Conversion Time	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	35 Channels/second
Strain Gages Supported	Yes	Bridged (load cells)
Maximum Normal Voltage Input	N/A	100 mV
Maximum Voltage Input	N/A	±35 V
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	Terminal Block (20 screws), included with module.
Internal Power Used	300 mA @ 5V; 400 mA @ 3.3V	100 mA @ 5 VDC

RTD I/O Modules

The RTD Input Modules provide RTD inputs that allow the direct connection of 2 and 3-wire RTD temperature sensors without using external signal processing (transducers, transmitters, etc.). All analog and digital processing of the RTD signal is performed on the module.

	IC695ALG600 RTD	IC695ALG508 RTD	HE693RTD600
Product Name	**Universal Analog and configurable for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires Cold Junction Compensation; are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**	**Isolated RTD Input module (also supports Resistive) provides eight isolated differential Resistive or RTD input channels. Each channel can be individually configured for 2, 3, 4 wire RTD or Resistance.**	**RTD Input Module, Low Resolution**
Lifecycle Status	Active	Active	Active
Module Type	RTD Input	RTD (and Resistive) Input Channel to Channel Isolation	RTD Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Number of Channels	8	8	6
RTD Types Supported	2 and 3 wire PT 385 / 3916, N 618 / 672, NiFe 518, CU 426	2, 3 and 4 wire 50, 100, 200, 500, and 1000 ohm Pt 385; 50, 100, 200, 500, and 1000 ohm Pt 391.6; 100, 200, 500, and 1000 ohm Ni 618; 120 ohm Ni 672; 604 ohm NiFe 518; 10, 50 and 100 ohm Cu 426	3-wire, Pt-100E, Pt-100C, Pt-100Z, Pt-1000, Cu-10, Cu-50, PT-100, Cu-53, Cu-100, Ni-120, TD5R, TD5R, Pt-90 (MIL-7990)
Diagnostics	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	N/A
Channel-to-Channel Isolation	Two Groups of Four	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second	N/A
Notch Filter	Yes	N/A	N/A
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	0.5ºC or 0.5ºF
Accuracy	Calibrated Accuracy at 25°C. Better than 0.1% of range. Accuracy depends on A/D filter, data format, input noise, and ambient temperature.	Calibrated Accuracy at 25°C. Typical is ±0.5%	±0.5ºC, typical
Input Impedance	>1M ohm	N/A	>1000 Megohms
I/O Required	N/A	N/A	6 %AI
Fault Protection	N/A	N/A	Zener Diode Clamp
Update Time	10ms per Channel; 4 Channels = 40ms (1KHz filter)127ms per Channel * 4 Channels = 508ms (8Hz filter)Channels that are disabled are not scanned, shortening scan time.	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	50 Channels/second
A/D Conversion Type	Sigma Delta	Sigma Delta	18 bit, integrating
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	Terminal Block (20 screws), included with module.
Internal Power Used	400 mA @ 5 V; 350 mA @ 3.3 V	150 mA @ 5V; 300 mA @ 3.3V	70 mA @ 5 VDC

RTD I/O Modules

The RTD Input Modules provide RTD inputs that allow the direct connection of 2 and 3-wire RTD temperature sensors without using external signal processing (transducers, transmitters, etc.). All analog and digital processing of the RTD signal is performed on the module.

	HE693RTD601	HE693RTD660
Product Name	**RTD Input Module, High Resolution**	**RTD Input Module, Isolated**
Lifecycle Status	Active	Active
Module Type	RTD Input	RTD Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Number of Channels	6	6
RTD Types Supported	3-wire, Pt-100E, Pt-100C, Pt-100Z, Pt-1000, Cu-10, Cu-50, PT-100, Cu-53, Cu-100, Ni-120, TD5R, TD5R, Pt-90 (MIL-7990)	3 wire, Pt-100E, Pt-100C, Ni-120, Cu-10, Pt-1000,TD5R Si
Diagnostics	N/A	N/A
Channel-to-Channel Isolation	N/A	5 VAC
Notch Filter	N/A	None
Resolution	0.125ºC , 0.1ºC, or 0.1ºF	0.05ºC, 0.05ºF, 0.1ºC, 0.1ºF, 0.5ºC or 0.5ºF
Accuracy	±0.5ºC, typical	±0.3ºC
Input Impedance	>1000 Megohms	>1000 Megohms
I/O Required	6 %AI	6% AI, 6% AQ, 16% I
Fault Protection	Zener Diode Clamp	Suppression Diode
Update Time	50 Channels/second	50 Channels/second
A/D Conversion Type	18 bit, integrating	18 bit, integrating
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	70 mA @ 5 VDC	200 mA @ 5 VDC

Strain Gage I/O Modules

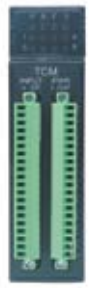
The Millivolt Input Modules allow Millivolt level signals, such as bridged strain gages (load cells) to be directly connected to the PLC without external signal processing (transducers, transmitters, etc.) All analog and digital processing of the signal is performed on the module.

	IC695ALG600 Strain Gage	IC695ALG306 Strain Gage	IC695ALG312 Strain Gage
Product Name	**Universal Analog and configurable for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires Cold Junction Compensation; are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**	**Isolated Thermocouple Input module provides six isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**	**Isolated Thermocouple Input module provides twelve isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**
Lifecycle Status	Active	Active	Active
Module Type	Strain Gage Input	Strain Gage Input	Strain Gage Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1
Range	±150mV or ±50mV	±150mV or ±50mV	±150mV or ±50mV
Diagnostics	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low
Channel-to-Channel Isolation	Two Groups of Four	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second
Number of Channels	8	6	12
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format
Accuracy	Calibrated Accuracy at 25°C. Better than 0.1% of range. Accuracy depends on A/D filter, data format, input noise, and ambient temperature.	±0.1% of voltage span at 25°C. ±0.25% of span over temperature range.	±0.1% of voltage span at 25°C. ±0.25% of span over temperature range.
Input Impedance	>1M ohm	Voltage: >=500k ohm	Voltage: >=500k ohm
I/O Required	N/A	N/A	N/A
A/D Conversion Type	Sigma Delta	Sigma Delta	Sigma Delta
A/D Conversion Time	(Assumes 2 ADC's running in parallel, no CJC or lead resistance) 10ms per Channel 4 Channels = 40ms (1KHz filter) 127ms per Channel 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	15 msec @ 28 Hz to 120 msec @ 2.3 Hz
Strain Gages Supported	Yes	Yes	Yes
Maximum Normal Voltage Input	N/A	N/A	N/A
Maximum Voltage Input	±14.5 VDC continuous	N/A	N/A
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.
Internal Power Used	400 mA @ 5 V; 350 mA @ 3.3 V	150 mA @ 5V; 400 mA @ 3.3V	300 mA @ 5V; 400 mA @ 3.3V

Strain Gage I/O Modules

The Millivolt Input Modules allow Millivolt level signals, such as bridged strain gages (load cells) to be directly connected to the PLC without external signal processing (transducers, transmitters, etc.) All analog and digital processing of the signal is performed on the module.

	IC695ALG412	HE693STG883	HE693STG884
Product Name	**Isolated Thermocouple Input module provides twelve isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV. Offers a 10 dB improvement in noise rejection compared to ALG312 thermocouple inputs.**	**Analog I/O Module, Strain Gage**	**Analog I/O Module, Strain Gage**
Lifecycle Status	Active	Active	Active
Module Type	Strain Gage Input	Strain Gage Input	Strain Gage Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Range	±50mV	N/A	N/A
Diagnostics	Open wire, Short Circuit, Positive/Negative rate of Change, High, High-High, Low, Low-Low	N/A	N/A
Channel-to-Channel Isolation	Channel to Channel Isolation. 250VAC Continuous; 1500VAC 1 minute; 2550VDC 1 second	N/A	N/A
Number of Channels	12	8	8
Resolution	32-bit IEEE floating point or 16 bit integer (in 32 bit field) input data format	0.6 µV, 0.8 µV, 0.9 µV (respectively)	0.8 µV, 1.6 µV, 3.2 µV (respectively)
Accuracy	± 0.1% of voltage sp+GC+GB59GD1+GC59163an at 25 °C. ± 0.25% of span over temperature range.	±0.3%	±0.3%
Input Impedance	Voltage: >=500k ohm	>1000 Mohms	>1000 Mohms
I/O Required	N/A	8% AI, 16% I, 8% AQ, 16% Q	8% AI, 16% I, 8% AQ, 16% Q
A/D Conversion Type	Sigma Delta	Integrating	Integrating
A/D Conversion Time	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	35 Channels/second	35 Channels/second
Strain Gages Supported	Yes	Bridged (load cells)	Bridged (load cells)
Maximum Normal Voltage Input		100 mV	100 mV
Maximum Voltage Input		±35 V	±35 V
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	425 mA @ 5V; 400 mA @ 3.3V	60 mA @ 5 VDC; 30 mA @ 24 VDC Relay	60 mA @ 5 VDC; 30 mA @ 24 VDC Relay



Temperature Control Modules

The Temperature Control Module (TCM), is a high performance control module providing eight channels of thermocouple input and eight channels of control output in a single RX3i module. Each channel can operate in closed or open loop mode relieving the PLC of providing the temperature control functions. The module also supports Autotuning.

	IC693TCM302	IC693TCM303
Product Name	**PACSystems RX3i Temperature Control Module, (8) T/C, (1) RTD and (8) 24 VDC Output**	**PACSystems RX3i Temperature Control Module, Extended Range, (8) T/C, (1) RTD and (8) 24 VDC Output**
Lifecycle Status	Mature	Mature
Module Type	Temperature Control	Temperature Control
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Number of Channels	8 T/C In/ 8 DC Out	8 T/C In/ 8 DC Out
Range	J=0-600°C K=0-1050°C L=0-600°C	J=0-450°C K=0-600°C L=0-450°C
Output Voltage Range	18 to 30 volts DC	18 to 30 volts DC
Load Current per Point	100 mA maximum sourcing	100 mA maximum sourcing
Diagnostics	Open thermocouple and reverse connection detection capability Detection and indication of out-of-tolerance temperature readings	Open thermocouple and reverse connection detection capability Detection and indication of out-of-tolerance temperature readings
Connector Type	Two 20 pin connectors (screw type)	Two 20 pin connectors (screw type)
Internal Power Used	150 mA @ 5 VDC	150 mA @ 5 VDC

Thermocouple I/O Modules

The Thermocouple Input Modules allow thermocouple temperature sensors to be directly connected to the PLC with external signal processing (transducers, transmitters, etc.). The module performs all analog and digital processing of the thermocouple signal. The enhanced thermocouple input modules add isolation or high-resolution. On these modules, each channel can be configured for a specific type of sensor wire. An autodetect external AD592 cold junction compensation feature is also available.

	IC695ALG600 Thermocouple	IC695ALG306	IC695ALG312	IC695ALG412
Product Name	**Universal Analog and configurable for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires Cold Junction Compensation; are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**	**Isolated Thermocouple Input module provides six isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**	**Isolated Thermocouple Input module provides twelve isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±150mV or ±50mV.**	**Isolated Thermocouple Input module provides twelve isolated differential thermocouple input channels. Each channel can be individually configured for inputs from: Thermocouple types: J, K, T, E, R, S, B, N, or C and Voltage: ±50mV. The ALG412 offers a 10dB improvement in noise rejection compared to the ALG312 thermocouple input module.**
Lifecycle Status	Active	Active	Active	ACtive
Module Type	Thermocouple Input	Thermocouple Input	Thermocouple Input	Thermocouple Input
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1	1
Range	B, C, E, J, K, N, R, S, T	J, K, T, E, R, S, B, N, or C	J, K, T, E, R, S, B, N, or C	J, K, T, E, R, S, B, N, or C
Diagnostics	Open wire, Short Circuit, Positive/ Negative Rate of Change, High, High-High, Low, Low-Low	Open wire, Short Circuit, Positive/ Negative Rate of Change, High, High-High, Low, Low-Low	Open wire, Short Circuit, Positive/ Negative Rate of Change, High, High-High, Low, Low-Low	Open wire, Short Circuit, Positive/ Negative Rate of Change, High, High-High, Low, Low-Low
Number of Channels	8	6	12	12
Channel-to-Channel Isolation	Two Groups of Four	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second
Common Mode Rejection	120dB minimum @ 50/60 Hz with 8 Hz filter 110dB minimum @ 50/60 Hz with 12 Hz filter	2.3 Hz filter, 50/60Hz: 100 dB 4 Hz filter, 50Hz: 100 dB 4.7 Hz filter, 60Hz: 100 dB	2.3 Hz filter, 50/60Hz: 100 dB 4 Hz filter, 50Hz: 100 dB 4.7 Hz filter, 60Hz: 100 dB	All filters, 50/60 Hz: 110 dB
Chanel to Channel Crosstalk		70 dB minimum	70 dB minimum	70 dB minimum
Notch Filter	Yes	From 2.3 Hz to 28 Hz per channel	From 2.3 Hz to 28 Hz per channel	From 2.3 Hz to 28 Hz per channel
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format
Accuracy	Calibrated Accuracy at 25°C. Better than 0.1% of range. Accuracy depends on A/D filter, data format, input noise, and ambient temperature.	±0.1% of voltage span at 25°C. ±0.25% of span over temperature range.	±0.1% of voltage span at 25°C ±0.25% of span over temperature range.	±0.1% of voltage span at 25°C ±0.25% of span over temperature range.
Update Rate	10ms per Channel; 4 Channels = 40ms (1KHz filter)127ms per Channel * 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	10ms per Channel; 4 Channels = 40ms (1KHz filter)127ms per Channel * 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	10ms per Channel; 4 Channels = 40ms (1KHz filter)127ms per Channel * 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	Configurable from 15 msec to 120 msec.
I/O Required	N/A	N/A	N/A	N/A
A/D Conversion Type	Sigma Delta	Sigma Delta	Sigma Delta	Sigma Delta
A/D Conversion Time	(Assumes 2 ADC's running in parallel, no CJC or lead resistance) 10ms per Channel 4 Channels = 40ms (1KHz filter) 127ms per Channel 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	15 msec @ 28 Hz to 120 msec @ 2.3 Hz	15 msec @ 28 Hz to 120 msec @ 2.3 Hz
Connector Type	IC694TB3x32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TB3x32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TB3x32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TB3x32, IC694TBSx32 or IC694TBC032. Sold Separately.
Internal Power Used	400 mA @ 5 V; 350 mA @ 3.3 V	225 mA @ 5V; 400 mA @ 3.3V	425mA @ 5V; 400 mA @ 3.3V	425mA @ 5V; 400 mA @ 3.3V

Thermocouple I/O Modules

The Thermocouple Input Modules allow thermocouple temperature sensors to be directly connected to the PLC with external signal processing (transducers, transmitters, etc.). The module performs all analog and digital processing of the thermocouple signal. The enhanced thermocouple input modules add isolation or high-resolution. On these modules, each channel can be configured for a specific type of sensor wire. An autodetect external AD592 cold junction compensation feature is also available.

	HE693THM166	HE693THM409	HE693THM449
Product Name	**Analog I/O Thermocouple Input Module**	**Analog I/O Thermocouple Input Module**	**Analog I/O Thermocouple Input Module**
Lifecycle Status	Active	Active	Active
Module Type	Thermocouple Input	Thermocouple Input	Thermocouple Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Range	J, K, N, T, E, R, S, B, C, X	J, K, N, T, E, R, S,	J, K, N, T, E, R, S,
Diagnostics	Yes	No	Yes
Number of Channels	16	4	4
Channel-to-Channel Isolation	N/A	N/A	N/A
Common Mode Rejection	N/A	N/A	N/A
Channel to Channel Crosstalk	N/A	N/A	N/A
Notch Filter	N/A	N/A	N/A
Resolution	0.5°C or 0.5°F	0.5°C or 0.5°F	0.5°C or 0.5°F
Accuracy	±0.5°C, typical (J, K, N, T)	±0.5°C, typical (J, K, N, T)	±0.5°C, typical (J, K, N, T)
Update Rate	N/A	N/A	N/A
I/O Required	16% AI, 16% I	4% AI	4% AI, 16% I
A/D Conversion Type	Integrating	Integrating	Integrating
A/D Conversion Time	40 Channels/second	40 Channels/second	40 Channels/second
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	80 mA @ 5 VDC; 30 mA @ 24 VDC Relay	80 mA @ 5 VDC; 60 mA @ 24 VDC Relay	80 mA @ 5 VDC; 60 mA @ 24 VDC Relay

Thermocouple I/O Modules

The Thermocouple Input Modules allow thermocouple temperature sensors to be directly connected to the PLC with external signal processing (transducers, transmitters, etc.). The module performs all analog and digital processing of the thermocouple signal. The enhanced thermocouple input modules add isolation or high-resolution. On these modules, each channel can be configured for a specific type of sensor wire. An autodetect external AD592 cold junction compensation feature is also available.

	HE693THM809	HE693THM884	HE693THM888	HE693THM889
	Analog I/O Thermocouple Input Module	**Analog I/O Thermocouple Input Module (Enhanced)**	**Analog I/O Thermocouple Input Module (Enhanced)**	**Analog I/O Thermocouple Input Module**
Product Name				
Lifecycle Status	Active	Active	Active	Active
Module Type	Thermocouple Input	Thermocouple Input	Thermocouple Input	Thermocouple Input
Backplane Support	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Range	J, K, N, T, E, R, S	J, K, N, T, E, R, S, B, C	J, K, N, T, E, R, S, B, C	J, K, N, T, E, R, S
Diagnostics	No	Yes	Yes	Yes
Number of Channels	8	8	8	8
Channel-to-Channel Isolation	N/A	N/A	N/A	N/A
Common Mode Rejection	N/A	N/A	N/A	N/A
Channel to Channel Crosstalk	N/A	N/A	N/A	N/A
Notch Filter	N/A	None	60 Hz	N/A
Resolution	0.5°C or 0.5°F	N/A	N/A	0.5°C or 0.5°F
Accuracy	±0.5°C, typical (J,K,N,T)	N/A	N/A	±0.5°C, typical (J,K,N,T)
Update Rate	N/A	N/A	N/A	N/A
I/O Required	8% AI	8% AI, 8% AQ, 16% I	8% AI, 8% AQ, 16% I	8% AI, 16% I
A/D Conversion Type	Integrating	Integrating	Integrating	Integrating
A/D Conversion Time	40 Channels/second	N/A	N/A	40 Channels/second
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	80 mA @ 5 VDC; 60 mA @ 24 VDC Relay	100 mA @ 5 VDC; 60 mA @ 24 VDC Relay	100 mA @ 5 VDC; 60 mA @ 24 VDC Relay	80 mA @ 5 VDC; 60 mA @ 24 VDC Relay

Resistive I/O Module

The Resistive module allows the user to easily connect to resistive loads without the need of external devices.

	IC695ALG600 Resistive	IC695ALG508 Resistive
Product Name	**Universal Analog and configurable for Current, Voltage, RTD, Thermocouple and Resistive. High Density (8 Channel) Requires Cold Junction Compensation; are available for Thermocouple configurations (IC695ACC600 contains 2 CJCs)**	**Isolated Resistive Input module (also supports RTD) provides eight isolated differential Resistive or RTD input channels. Each channel can be individually configured for 2, 3, 4 wire RTD or Resistance.**
Lifecycle Status	Active	Active
Module Type	Resistive Input	Resistive (and RTD) Input Channel to Channel Isolation
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1
Range	0 to 250 / 500 / 1000 / 2000 / 3000 / 4000 Ohms	250 / 500 / 1000 / 2000 / 3000 / 4000 Ohms
Diagnostics	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low	Open wire, short circuit, positive/negative rate of change, High, High-High, Low, Low-Low
Number of Channels	8	8
Channel-to-Channel Isolation	Two Groups of Four	250 VAC Continuous 1500 VAC 1 minute 2550 VDC 1 second
Notch Filter	Yes	N/A
Resolution	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format	32-bit IEEE floating point or 16-bit integer (in 32-bit field) input data format
Accuracy	Calibrated Accuracy at 25ºC. Better than 0.1% of range. Accuracy depends on A/D filter, data format, input noise, and ambient temperature.	Calibrated Accuracy at 25ºC. Typical is ± 0.5%
Input Impedance	>1M ohm	N/A
Input Filter Response	Configurable: 8Hz, 12Hz, 16Hz, 40Hz, 200Hz, 1000Hz	Configurable: 2.3Hz, 4Hz, 4.7Hz, 24Hz, 28Hz
A/D Conversion Type	Sigma Delta	Sigma Delta
A/D Conversion Time	(Assumes 2 ADC's running in parallel, no CJC or lead resistance) 10ms per Channel 4 Channels = 40ms (1KHz filter) 127ms per Channel 4 Channels = 508ms (8Hz filter) Channels that are disabled are not scanned, shortening scan time.	15 msec @ 28 Hz to 120 msec @ 2.3 Hz
Maximum Voltage Input	±14.5 VDC continuous	N/A
Connector Type	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.	IC694TBBx32, IC694TBSx32 or IC694TBC032. Sold Separately.
Internal Power Used	"400 mA @ 5 V; 350 mA @ 3.3 V	150 mA @ 5V; 300 mA @ 3.3V

Networks and Distributed I/O Systems

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

	IC695ETM001	IC695PNC001	IC695CMX128	IC695PBM300
Product Name	**PACSystems RX3i Ethernet TCP/IP 10/100Mbits, two RJ-45 ports with built-in switch**	**PROFINET Controller (PNC) module, connects a PACSystems RX3i controller to a high-speed PROFINET local area network. It enables the RX3i controller to communicate with IO-Devices on the LAN.**	**RX3i Control Memory Xchange Module for Peer to Peer network. 128Megbytes of user shared memory.**	**PACSystems RX3i Profibus Master Module, Supports DPV1 Class 1 and Class 2.**
Lifecycle Status	Active	Active	Active	Active
Module Type	Ethernet	PROFINET Controller	Reflective Memory	Profibus Master
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1	1	1	1
Protocol Support	SRT, Ethernet Global Data (EGD), Channels (Client and Server), Modbus TCP (Client and Server)	PROFINET	None Required	Profibus DPV1
Entity Type	Client/Server	Master	Deterministic Peer to Peer. Programmable Interrupt support.	Master
Communication Ports	Two RJ-45 ports one MAC Address	Two RJ-45 and Two SFP Cages (Not included, available separately). Only one MAC address.		PROFIBUS DB-9 connector
Bus Speed	10/100Mbaud	10/100/1000Mbaud	Network link speed of 2.1 Gigabits/ sec. Network transfer rate of 43 Mbyte/s (4 byte packets) to 174 Mbyte/s (64 byte packets)	12Mbaud
I/O Device Update Rate	N/A	Configurable: 1 ms to 512 ms		
Maximum I/O Memory	N/A	128 Kbytes of combined input/output memory per PROFINET Controller		
System Maximum Limits	N/A	Up to 4 PNC001 per CPU IO- Devices per I/O Controller - 64 IO-Devices per Network - 128 per network, across up to 8 I/O controllers IO-Devices per CPU - 128 across 4 Profinet controllers Profinet Slots per device - 256 Number of Profinet Subslots per slot - 256 Number of Profinet Submodules per CPU - 2048		
Network Distance	Network Dependent	100 meters for cooper Up to 70,000 meters with Fiber	Multimode Fiber up to 300 meters between nodes. 10Km when HUB is used	Baud Rate Dependent. Supports all standard data rates (9.6 kBit/s, 19.2 kBit/s, 93.75 kBit/s, 187.5 kBit/s, 500 kBit/s, 1.5 MBit/s, 3 MBit/s, 6 MBit/s and 12 MBit/s)
Bus Diagnostics	Yes	Yes	Network error detection.	Yes, Slave Status Bit Array Table, Network Diagnostic Counters, DP Master Diagnostic Counters, Firmware Module Revision, Slave Diagnostic Address
Number of Drops Supported	Network Dependent	64 Drops 256 Subslots	256	Up To 125 (Requires repeater every 25 nodes)
Message Size	N/A		Up to 128 Mbytes reflective memory with parity. Dynamic packet sizes of 4 to 64 bytes, automatically controlled by the CMX module	244 bytes of input and 244 bytes of output for each slave. Not to exceed 3584 bytes input and 3584 bytes outputs total for the system.
Connector Type	Two RJ-45	Two RJ-45 and two optional SFP plug connectors for copper or fiber connections	Fiber optic LC type, conforms to IEC 61754-20; Zirconium ceramic ferrule; Insertion loss 0.35 dB (maximum); Return loss -30 dB	Profibus Connector
Internal Power Used	840 mA @ 3.3 VDC; 614 mA @ 5 VDC	3.3 V: 0.5 A with no SFP devices installed 1.2 A maximum (two SFP devices installed, 0.35 A per SFP device) 5 V: 1.5 A maximum	660 mA @ +3.3 VD 253 mA @ +5 VDC	420 mA @ 5 VDC

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.

	IC695PBS301	IC694BEM331	IC694DNM200
Product Name	**PACSystems RX3i Profibus Slave Module, Supports DPV1 Class 1 and Class 2.**	**PACSystems RX3i Genius Bus Controller**	**PACSystems RX3i DeviceNet Master Module**
Lifecycle Status	Active	Active	Active
Module Type	Profibus Slave	Genius Bus Controller	DeviceNet Master
Backplane Support	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions	CPU Rack Only
Number of Slots Module Occupies on Backplane	1	1	1
Protocol Support	Profibus DPV1	Genius	DeviceNet
Entity Type	Slave	Master	Master
Communication Ports	PROFIBUS DB-9 connector	Screw Terminal	Screw Terminal
Bus Speed	12Mbaud	153.6Kbaud	500Kbaud
I/O Device Update Rate			
Maximum I/O Memory			
System Maximum Limits			
Network Distance	Baud Rate Dependent. Supports all standard data rates (9.6 kBit/s, 19.2 kBit/s, 93.75 kBit/s, 187.5 kBit/s, 500 kBit/s, 1.5 MBit/s, 3 MBit/s, 6 MBit/s and 12 MBit/s)	7500 feet (2286 meters) at 38.4 Kbaud; 4500 feet (1371 meters) at 76.8 Kbaud; 3500 feet (1066 meters) at 153.6 Kbaud extended; 2000 feet (609 meters) at 153.6 Kbaud standard. Maximum length at each baud rate also depends on cable type.	500Kbaud 100 meters to 125Kbaud 500 meters. Maximum length at each baud rate also depends on cable type.
Bus Diagnostics	Yes, Alarms	Yes	Yes
Number of Drops Supported	N/A	32	64
Message Size	244 bytes of input and 244 bytes of output	128 bytes	127 bytes
Connector Type	Profibus Connector	Screw Terminal	Screw Terminal
Internal Power Used	420 mA @ 5 VDC	300 mA @ 5 VDC	300 mA @ 5 VDC

Co-Processor and Serial Communications Modules

RX3i features a wide range of Specialty Modules to meet all of your application needs. From temperature controls, high-speed counters, I/O processors, coprocessors, to PID auto-tuning modules, these Specialty Modules are designed to meet the demand for versatile industrial solutions.

	IC695CMM002	IC695CMM004	IC695PRS015	HE693ASC900
Product Name	**Two Port Serial Module**	**Four Port Serial Module**	**Pressure Transducer Module supporting Honeywell LG1237 Smart Sensors**	**Horner ASCII Basic Module**
Lifecycle Status	Active	Active	Active	Active
Module Type	Serial Communications 2 Isolated Serial Ports	Serial Communications 4 Isolated Serial Ports	Serial Communications	Serial Communications 4 Isolated Serial Ports ASCII Basic Co-Processor
Backplane Support	Universal Backplane Only. Uses PCI Bus	Universal Backplane Only. Uses PCI Bus	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Protocols Supported	Serial Read/Write Modbus Master/Slave DNP 3.0 Master/ Slave CCM Slave and Custom Protocols	Serial Read/Write Modbus Master/Slave DNP 3.0 Master/ Slave CCM Slave and Custom Protocols	Pressure Transducer Honeywell LG1237 Smart Pressure Transducer sensors (Up to 15 sensors)	N/A
Programming Languages	None required. Communications set up in Proficy Machine Edition	None required. Communication set up in Proficy Machine Edition		BASIC
Program Storage	FLASH	FLASH	FLASH	EEPROM
Communication Ports	(2) Isolated RS-232 or RS-485/422	(4) Isolated RS-232 or RS-485/422	(1) RS-485	RS-232, RS-232/485
Network Data Rate	Selectable Baud Rates: 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K, 115.2K	Selectable Baud Rates: 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K, 115.2K	375K baud	N/A
Internal Power Used	0.7 Amps maximum @ 3.3 VDC 0.115 Amps maximum @ 5 VDC	0.7 Amps maximum @ 3.3 VDC 0.150 Amps maximum @ 5 VDC	0.7 Amps maximum @ 3.3 VDC 0.115 Amps maximum @ 5.0 VDC	375 mA @ 5 VDC

Motion Control (High Speed Counting)

The High Speed Counters can be used for a wide range of applications. The following types are supported.
Type A - Up or Down-Independent Pulse-4 counters

Type B - Both Directions-A QUAD B Encoder Inputs-2 Counters

Type C - Difference Between 2 changing values-A QUAD B Encoder Inputs -1 Counter

Type D - provides homing capability with count inputs and a Home Marker input. In A quad B mode, the counter detects quadrature errors

Type E - Pre-defined Counter Type that occupies two of the module's internal counters, primarily a down counter, but can handle up counts to account for A quad B jitter

Type E counter counts down to zero, it uses a second counter block to turn on a dedicated output for a configurable time. Type E can be set up for sequenced strobing, which links all four strobes on so that they are all triggered by strobe input 1

Type Z - Two regular Clock inputs, a software controlled Preload and a special Clock Input Z. The Z input triggers a store of the Accumulator value to the Strobe 1 register. After the store, the counter can optionally reset the Accumulator to 0. It can then either restart immediately or after wait until the Clock Input Z is no longer set User-Defined Counter Type - Create a customized counter type by selecting High-Speed Counter features that are suited to the application. This counter type provides a Clear input that can be used to immediately reset the Accumulator to the starting value.

	IC694APU300	IC695HSC304	IC695HSC308	IC694APU305
Product Name	**PACSystems RX3i High Speed Counter**	**PACSystems RX3i High Speed Counter**	**PACSystems RX3i High Speed Counter**	**PACSystems RX3i I/O Processor Module**
Lifecycle Status	Active (Enhancement Mode Available June 2012)	Active	Active	Active
Module Type	High Speed Counter (*Enhanced Mode support: 1Mhz input frequency, expanded filtering, single ended, differential encoders, 32 bit counters, Z counter and windowing)	High Speed I/O Processing (4 counters) Module supports High Speed Counting, PLS (Programmable Limit Switch), Camming, Input Interrupts and Pulse Width Timing	High Speed I/O Processing (8 counters) Module supports High Speed Counting, PLS (Programmable Limit Switch), Camming, Input Interrupts and Pulse Width Timing	I/O Processor Module
Backplane Support	No Backplane Restrictions	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1	1
Input/Output Type	Positive Logic	Positive Logic	Positive Logic	N/A
Off State Leakage Current	10 µA per point	200 µA	200 µA	10 µA per point
Output Protection	3 Amp Fuse for all points, Enhanced Module will have ESCP protection	1.5 A maximum per channel, 10.5 A maximum per module	1.5 A maximum per channel, 10.5 A maximum per module	5 A Fuse for all points
Counter Operation	Type A, Type B, and Type C Enhanced Mode Type Z	Type A, Type B, Type C, Type D, Type E, Type Z and User-Defined Counter	Type A, Type B, Type C, Type D, Type E, Type Z and User-Defined Counter	Gray Code Encoder or A Quad B Encoder every 500 microseconds
CPU Interrupt Support	No	Yes	Yes	N/A
PLS and Camming Support	No	Yes	Yes	N/A
Input Filters (Selectable)	High Frequency Filter - 2.5 µs; Low Frequency Filter - 12.5 ms; *Enhancement Mode: 5 ms, 500 µs, 10 µs and no filter	30 Hz, 5 KHz, 50 KHz, 500 KHz, 5 MHz	30 Hz, 5 KHz, 50 KHz, 500 KHz, 5 MHz	N/A
Count Rate	High Frequency - 80 kHz; Low Frequency - 20 Hz; *Enhanced Mode Up to 1MHz with 2MHz internal Oscillator	High Frequency 1.5 MHz (internal 2 MHz oscillator)	High Frequency 1.5 MHz (internal 2 MHz oscillator)	30 kHz (Absolute Encoder) 200 kHz (A Quad B Encoder)
Counter Range	-65,535 to 65,535 ; *Enhanced Mode -2,147,483,648 to 2,147,483,647 with roll over detection	-2,147,483,648 to 2,147,483,648	-2,147,483,648 to 2,147,483,648	N/A
Selectable On/Off Output Presets	Each Counter has 2 present points, On and Off; *Enhanced Mode up to 4 configurable outputs	Each Counter has 4 present points, On and Off	Each Counter has 4 present points, On and Off	N/A
Counters per Timebase	Each counter stores the number of counts that have occurred in a specified time. A timebase value measurement from 1 ms to 65535 ms is configurable.	A Timebase from 100 nanoseconds to 429,496 milliseconds can be selected for each counter.	A Timebase from 100 nanoseconds to 429,496 milliseconds can be selected for each counter.	N/A
Strobe Register	Each counter has one or more strobe registers that capture the current accumulator value when a strobe input transition in the direction selected during the last configuration of the module.	Each counter has one or more strobe registers that capture the current accumulator value when a strobe input transition in the direction selected during the last configuration of the module.	Each counter has one or more strobe registers that capture the current accumulator value when a strobe input transition in the direction selected during the last configuration of the module.	N/A
Local Fast Inputs	(12) 5 VDC or 10 to 30 VDC	(8 inputs) 5 VDC nominal: 4.7 VDC to 5.5 VDC 12 to 24 VDC nominal: 10 VDC to 26.4 VDC Inputs are mapped to any counter or to the controller as interrupts.	(16 inputs) 5 VDC nominal: 4.7 VDC to 5.5 VDC 12 to 24 VDC nominal: 10 VDC to 26.4 VDC Inputs are mapped to any counter or to the controller as interrupts.	(12) 8.0 VDC (non-VTTL), 1.5 VDC (TTL)
Local Fast Outputs	(4) 10 to 30 VDC @ 500 mA maximum 4.75 to 6 VDC @ 20 mA maximum	(7 outputs) 4.7 to 40 VDC 1.5 A maximum per channel, 10.5 A maximum per module Outputs can be used by the counters or as standard outputs from the controller.	(14 outputs) 4.7 to 40 VDC 1.5 A maximum per channel, 10.5 A maximum per module Outputs can be used by the counters or as standard outputs from the controller.	Continuous Output Current (10°V30 VDC supply) 1.0 A (each output 1-V4) 0.5 A (each output 5-V8)
Connector Type	Terminal Block (20 screws), included with module.	IC694TBBx32 or IC694TBSx32. Sold Separately.	IC694TBBx32 or IC694TBSx32. Sold Separately.	Terminal Block (20 screws), included with module.
Internal Power Used	250 mA @ 5 VDC	64 mA maximum @ 5 V; 457 mA maximum @ 3.3 V	94 mA maximum @ 5 V; 561 mA maximum @ 3.3 V	360 mA @ 5 VDC

PACMotion Servo Control

The PACMotion controller is a versatile servo motion controller that combines the benefits of a highly integrated motion and machine logic solution with the performance, flexibility and scalability required for advanced machine automation. PACMotion is designed to deliver unsurpassed machine productivity required for today's high-speed machines and lean manufacturing environments. 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. Add to that world-class reliability of FANUC servos and you have a motion system designed to give you the best productivity and accuracy possible. Please see GE Intelligent Platforms Motion Solutions Catalog GFA-483 for more information about motion offerings.

	IC695PMM335
Product Name	**PACMotion Module**
Lifecycle Status	Active
Module Type	Servo Motion
Backplane Support	Universal Backplane Only. Uses PCI Bus.
Number of Slots Module Occupies on Backplane	1
Motion Path Planning	1 ms, Consistent update regardless of the number of axes in the system
Position Loop Update Rate	500 µs, All axes in the RX3i rack are updated simultaneously
Velocity Loop Update Rate	125 µs, All axes in the RX3i rack are updated simultaneously
Torque Loop Update Rate	62.5 µs, All axes in the RX3i rack are updated simultaneously
Controlled Axes/Module	4 ßi, ßHVi or aHVi series servos are supported via a fiber optic interface
Master Axes/Module	1, Can be a virtual time-based or incremental encoder master
Servo Command Interface	Fiber Optic 50 Mb/s FANUC Serial Servo Bus (FSSB)
Fiber Terminal Block Cable Length	Max. 100 meters between nodes 400 meters maximum for a 4 axis system
Maximum Axes per RX3i	DC Power Supplies: 40 + 10 master axes (Requires 16 slot backplane, CPU and 4 DC power supplies) AC Power Supplies: 32 + 8 master axes (Requires 16 slot backplane, CPU and 3 AC power supplies)
Position Resolution	aHVi Series 1,048,576 counts/rev, ßi and ßHVi Series 65,536 or 131,072 counts/rev. ß2i and larger motors support the higher resolution.
Feedback Type	Incremental/Absolute Serial Encoder. Optional battery backup required for absolute feedback mode.
Faceplate I/O	24V General Purpose Inputs: 4 optically isolated; source/sink 24V High-Speed Inputs: 2 optically isolated; source/sink Open circuit detection; can be used to connect a quadrature master encoder (500 kHz max) 24V General Purpose Inputs/Outputs: 2 optically isolated; source/sink 125 mA maximum output current each "Connecto" Plug-on Screw Terminal
Floating Point Support	Yes, Double precision IEEE 754.
Module Hot Insertion/Removal	Yes
Cam Profiles per Module	256 at one time. Up to 2048 profiles can be stored in the RX3i file system for use by any module.
Synch/Delayed Start	Up to 8 axes Axes can be on any module and are synchronized over the backplane.
High Speed Position Capture	±2 Inputs per axis: ±1 count = 10 µs jitter
Connector Type	Plug-on Screw Terminal and Fiber
Internal Power Used	5 VDC 0.45A @ 5 VDC; 1.1A & 3.3 VDC

PACMotion I/O Fiber Terminal Block

The optional Fiber Terminal Block enables PACMotion controller to connect remote I/O over a fiber cable. The Fiber Terminal Block is DIN rail mounted and can be up to 100 meters away from the PACMotion module. The module is configurable per point for 5 VDC, 24 VDC and analog I/O. The Fiber Terminal Block provides a unique ID that prevents connection to wrong PACMotion modules. The module supports up to 5 incremental encoders without marker or 4 encoders with marker pulse.

	IC695FTB001
Product Name	**PACMotion I/O Fiber Terminal Block**
Lifecycle Status	Active
Module Type	I/O Terminal Block for PACMotion
Mounting/Dimensions	35 mm DIN Rail (5.56 W x 4.94 H x 2.46 D inches; 141.2 W x 125.5 H x 62.5 D mm)
Interface to PACMotion Module	Fiber Optic Cable. Maximum cable length is 100 meters; Interface uses a unique ID for each PMM/FTB pair to prevent cross-connection.
Power Requirements	19.2 VDC —28.8 VDC; 0.45 Amps @ 24 V
24 V Outputs (differential)	Eight optically isolated; source; open load & short detection. 2 groups of 4; 0.5 A max. per point; 4 A max. per group
24 V General Purpose Inputs	Sixteen optically isolated; source/sink 4 groups of 4
5 V Outputs (differential)	Four RS422 Line Driver with short circuit protection; 48 mA max.
5 V Inputs (differential/single-ended)	Six RS422 / RS485 Line Receiver with fault detection
5 V Inputs (differential)	Six RS422 / RS485 Line Receiver with fault detection
Analog Inputs	Two, ±10V differential 14 bit resolution
Analog Outputs	Two, ±10V differential 14 bit resolution
24 V Power Output	Reverse polarity protected by replaceable fuse
5 V Power Output	0.5 amp max. electronic overload protected
Quad Encoder Open Circuit Detection	Yes
I/O Function Assignment	Configurable I/O functions are assigned during module hardware configuration
Terminal Header Options	IC694TBxx32

Motion Control (Servo Control)

Motion control integrated into the RX3i fosters high performance point-to-point applications. GE Motion Control modules can be flexibly applied to a variety of digital, analog, and stepper motion applications.

	IC694DSM324	IC694DSM314
Product Name	**PACSystems RX3i Digital Servo Module, 4-Axis (Fiber Optic Interface to Amplifiers)**	**PACSystems RX3i Digital Servo Module, 4-Axis**
Lifecycle Status	Active	Active
Module Type	Servo Motion	Servo Motion
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Drive	Beta i Series Digital Servos	Alpha and Beta Series Digital and Analog Servos
Drive Interface	Fiber Optic, Up to 100 meters between amplifiers with total length of 400 meters.	Digital for Alpha and Beta Series; ±10 V velocity or torque command for analog
Axes	4 Digital	2 Digital and 1 Analog or 4 Analog
Master Encoder Support	Incremental Master (1Mhz)	Incremental Master (1Mhz)
Electronic Cam	Yes	Yes
Velocity Feed-Forward	Yes	Yes
Encoder Feedback (Serial)	Yes	Yes
Temposonic Feedback	Yes	Yes
Number of Programs	15 Kbytes (10 + 40 Subroutines)	15 Kbytes (10 + 40 Subroutines)
User Memory (Number of Programs)	15 KBytes	15 KBytes
Feedback Inputs	3	3
Encoder Input Type/Maximum Rate	TTL Diff/Single, 175kHz	TTL Diff/Single, 175kHz
Analog Inputs	2	4 - In Digial Mode 8 - In Analog Mode
Analog Outputs	2	4 - In Digial Mode 0 - In Analog Mode
Internal Power Used	1360 mA @ 5 VDC	1300 mA @ 5 VDC

Power Measurement Modules

The Power Transducer Module (PTM) and Power Synchronization and Measurement (PSM) module measure and calculate critical data for control of electrical power systems and synchronization of power grids. Both the PTM and PSM connect to user supplied current and potential transformers, which translate power grid signals to proportionate, low-level signals for measurement and analysis. The PTM module is not intended to provide a protective relay function or be used for energy billing purposes. The PSM module provides ANSI protective relay calculations and revenue grade monitoring for a complete genset, paralleling switchgear or infrastructure management solution. Both the PTM and PSM consist of a processing module that plugs into the PLC backplane, an interface module for field wiring connections, and cables to interconnect the two modules. The PTM and PSM can be used with Wye or Delta type three-phase power or with single-phase power systems.

	IC693PTM101	IC694PSM001
Product Name	**Power Transducer Module Processing Module interface board (a panel mounted circuit board). This board interfaces between the Power Transducer module and the input transformers (current and potential), 1.0 meter Interface cable that connects the module to the Interface board.**	**Power Synchronization and Measurement Module and Interface Module (a panel mounted terminal block). The interface module translates power grid signals from external, user supplied potential and current transformers (PT's and CT's) to low voltage signals suitable for the processing module. 2.0 meter Interface cables connect the processing module to the Interface module.**
Lifecycle Status	Mature	Active
Module Type	Power Transducer Modules	Power Synch and Measurement Module
Input Voltage Range	10-120 VAC (nominal)	20-600 VAC (nominal)
Power Measurement Configurations	Grids / Circuits 1 / 0 0 / up to 4	Grids / Circuits 2 / 0 1 / up to 3 0 / up to 6
Current Input Range	0 to 7.5 Amps RMS (5 A RMS nominal)	0 to 7.5 Amps RMS (5 A RMS nominal)
Frequency Range	35Hz to 70Hz	40Hz to 70Hz
Output Rating	N/A	150 VAC/VDC, 1 A
Number of Outputs	0	1 (provided as redundant, isolated, solid-state contacts)
Data	Data availability • Data calculation rate: 20ms @ 50Hz, 16.67ms @ 60Hz • Data latency: 15ms @ 50Hz, 16.67ms @ 60Hz Measured Data • RMS voltage of phase A, B, and C (in Volts x 10) • RMS currents of phase A, B, C, and Neutral (in Amperes x 1000) for each grid • DC component of measured RMS voltages (in Volts x 10) • Frequency of phase A grid 1 (in Hz x 100) • Phase angle between phase A grid 1 and phase A grid 2 (in degrees x 10) Power and Energy Data • Active and reactive power reported per phase and total in Watts, Volt-Amperes-Reactive (VAR) • Active and reactive total energy consumption in Watt-Seconds and Volt-Amperes-Reactive-Seconds (updated once per second), re-settable by the user • Total power factor • Average real and reactive power consumption (sliding 15 minute window updated once per second)	Data availability • Data measurement rate: 20ms @ 50Hz, 16.67ms @ 60Hz. • Data latency: 8ms Measured Data • RMS voltage of phase A, B, and C (in Volts x 10) • RMS currents of phase A, B, C, and Neutral (in Amperes x 1000) for each grid • DC component of measured RMS voltages (in Volts x 10) • Frequency of phase A grid 1 and phase A grid 2 (in Hz x 100) • Phase angle between phase A grid 1 and phase A grid 2 (in degrees x 10) Calculated Data • Real and reactive power reported per phase and total in Watts, Volt-Amperes-Reactive (VAR) • Real and reactive total energy consumption, integrated over the past 1-second, in Kilo Watt-Hours (kWh) and Kilo Volt-Amperes-Reactive-Hours (kVARh) • Total power factor • Average real and reactive power consumption (sliding 15 minute window updated once per second)
Status and Diagnostics	• Module Heartbeat (indicates module health) • Utility Phase A voltage present • Phase polarity valid • Voltage measurements valid • Current measurements valid	• Module Heartbeat (indicates module health) • Field connection OK • Any grid alarm (single bit indication of power grid health) • Grid Voltage fault • Grid Current fault • Mixed Polarity fault • ANSI Protection Relay Calculations Grid Synchronization (ANSI 25) Phase Shift OK Voltage Difference OK Frequency Difference OK Close Relay OK Under Voltage alarm (ANSI 27) Reverse Power alarm (ANSI 32) Negative Sequence alarm (ANSI 46) Over Current alarm (ANSI 50) Over Voltage alarm (ANSI 59) VA Imbalance alarm (ANSI 60) Under Frequency alarm (ANSI 81U) Over Frequency alarm (ANSI 81O)
Internal Power Used	400 mA @ 5 VDC	190 mA @ 5 VDC

RX3i Pneumatic Module

This IC693MDL760 output module provides eleven 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, which is located on the front panel. When an output is turned ON, its internal valve connects a user supplied pressure source (100 psi maximum) to the output fitting. The pressure source is connected to the fitting on the bottom of the module. When the output is turned OFF, the valve's output port is vented to atmosphere inside the module. Solenoid power is supplied from an external 24 VDC source to the "DC Outputs" connector on the front panel.

	IC693MDL760
Product Name	**RX3i Solenoid Module**
Lifecycle Status	Active
Number of Points	(11) Pneumatic Outputs (5) 24 VDC Outputs
Pneumatic Outputs	11
Supply Pressure	100 PSI
Pressure Drop	25 psi max.@ 0.25scfm
External Solenoid Power	21.6-26.4 VDC, 24 VDC nominal
ON Response Time/Off Response Time	12ms max. ON 12ms max. OFF
Solenoid Inrush Current	33 mA/valve @ 24 VDC
Solenoid Holding Current	13 mA/valve @ 24 VDC
Output Fitting	Threaded for 10-32 adapter, 1/16" hose barb provided
Supply Fitting	Threaded for 10-32 adapter, 1/8" hose barb provided
Load Current per Point	0.5A @ 30 VDC per point, 2.0A total for all five points
Response Time (ms)	0.5 on/0.5 off
Output Type	Transistor
Polarity	Positive
Internal Power Used	75 mA from 5 VDC bus (solenoid LEDs are powered from external power source)

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.

	IC695LRE001	IC695NKT001	IC693NIU004
Product Name	**PACSystems RX3i Expansion Module**	**PACSystems RX3i Ethernet Remote I/O Expansion Kit. Kit includes a NIU001 with two built-in serial ports and ETM001**	**PACSystems RX3i Ethernet Remote I/O Expansion (Slave)**
Lifecycle Status	Active	Active	Active
Module Type	High Speed Serial Expansion Module	Ethernet Communications (Supports redundant Ethernet modules)	Ethernet Communications
Backplane Support	Universal Backplane Only	Universal Backplane Only. Uses PCI Bus.	Compatible with Series 90-30 bases only
Number of Slots Module Occupies on Backplane	No I/O slot used	3 (2 for NIU and 1 for Ethernet module)	N/A
Built-in Communication Ports	N/A	RJ-45 with built-in switch. 1 RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master	N/A
I/O Discrete Points	N/A	2048 Inputs/2048 Outputs maximum	2048 Inputs/2048 Outputs maximum
I/O Analog Points	N/A	1264 Inputs and 512 Outputs maximum	1264 Inputs and 512 Outputs maximum
User Logic Memory	N/A	5Kbytes of local logic	No local logic
Network Data Rate	1 Mbaud	10/100Mbit ports (RJ-45)	10/100Mbit ports (RJ-45)
Entity Type	Master	Slave	Slave
Network Distance	Up to 700 feet (213 meters)	Network Dependent	Network Dependent
Bus Diagnostics	Yes	Supported	Supported
Number of Drops Supported	Supports 7 local expansion racks. Discrete I/O: Maximum 320 In, 320 Out, Analog I/O: Maximum 160 In, 80 Out per base	Network Dependent Each Ethernet NIU can also support up to 7 additional local I/O racks (IC694CHSxxx)	Network Dependent Each Ethernet NIU can also support up to 7 additional local I/O racks (IC694CHSxxx)
Internal Power Used	132 mA @ 5 VDC	1250 mA @ 3.3 VDC; 1000 mA @ 5 VDC for NIU controller and 840 mA @ 3.3 VDC; 614 mA @ 5 VDC for each Ethernet module	1.4 Amps @ 5 VDC

Accessories

IC694TBB032	High Density 32 Point Terminal Block Box Style	Active
IC694TBB132	High Density 32 Point Terminal Block Box Style with Extended Shroud for Large Wiring Bundles	Active
IC694TBS032	High Density 32 Point Terminal Block Spring Style	Active
IC694TBS132	High Density 32 Point Terminal Block Spring Style with Extended Shroud for Large Wiring Bundles	Active
IC694TBC032	High Density 32 Point Terminal Block with a 40 pin Fujitsu connector. Compatible with DC Inputs, Analog Modules only. Not compatible with DC or AC output modules.	Target April 2012
IC694ACC310	Filler Module, Blank Slot	Active
IC694ACC311	Terminal blocks, 20 terminals (qty 6) for IC694xxx low density modules	Active
IC695ACC600	RX3i Cold Junction Compensation Kit (Contains 2 CJCs) for Universal Analog and Thermocouple Input Modules	Active
IC698ACC701	Lithium Batter pack that installs in CPU for CPU310 and CMU310 only (28 days of continuous battery backup)	Active
IC693ACC302	External High capacity battery pack. (1.3 years of continuous battery backup for CPU310/CMU310 and 1 month for CPU320/CRU320.)	Active
IC690RBK001	Rechargeable battery kit. Includes battery (IC690RBT001) and battery charger (IC690CRG001). The rechargeable battery is compatible with PAC controllers CPU310,CPU315, CPU320 and CRU320 only. Also compatible with Series 90-30 and Series 90-70 CPUs.	Active
IC690CRG001	Battery charger. Compatible with rechargeable battery (IC690RBT001) only. The rechargeable battery is compatible with PAC controllers CPU310,CPU315, CPU320 and CRU320 only. Also compatible with Series 90-30 and Series 90-70 CPUs.	Active
IC690RBT001	Rechargeable battery is compatible with IC690CRG001 battery charger only. The rechargeable battery is compatible with PAC controllers CPU310, CPU315, CPU320 and CRU320 only. Also compatible with Series 90-30 and Series 90-70 CPUs., Series 90-30 and Series 90-70.	Active
IC690ACC001	Real Time Clock Battery for CPE305 and CPE310	Active
IC695ACC400	CPE305 and CPE310 CPU Battery-less Energy Pack for backing up dynamic data	Active
IC695CBL001	Energy Pack Cable	Active
IC690ACC901	Mini-Converter Kit with cable (RS-485/RS-232)	Active
IC690ACC903	RS-485 Port Isolator	Active
IC693CBL316	RS-232 cable for RX3i CPE305 programming port and also the Station Manager Cable for the Ethernet ETM001	Active
IC690CDR002	User Manuals, InfoLink CD-ROM Documentation, single-user license	Active
IC693ACC307	I/O Bus Terminator Plug	Active
IC693ACC311	Series 90-30 style IC693 I/O modules Terminal Blocks, 20 terminals (qty 6)	Active

External Power Supplies

IC690PWR024	24 VDC, 5 Amp Output Power and 120/230 VAC Input Power Power Supply	Active
IC690PWR124	24 VDC, 10 Amp Output Power and 120/230 VAC Input Power Power Supply	Active

Terminal Block Quick Connect

Terminal Block Quick Connect (TBQC) for selected I/O modules enables the user to easily connect interposing terminal blocks. The TBQC consists of an I/O faceplate adapter that includes a 24 pin Fujitsu male connector (the faceplate replaces the 20 screw terminal connector on front of I/O module, not compatible with the high density 36 screw terminals), cable and interposing terminal block.

TBQC I/O Module Face Plate Adapter

IC693ACC334	I/O module face plate adapter for 20 screw type I/O modules. Faceplate provides a 24 pin male Fujitsu connector.	Active

TBQC Interposing Terminal Block

IC693ACC329	Interposing terminal block base for IC694MDL645, IC694MDL646, and IC694MDL240. The base can also be used with any 20 point terminal discrete or analog modules not listed.	Active
IC693ACC330	Interposing terminal block base for IC694MDL740 and IC694MDL742	Discontinued
IC693ACC331	Interposing terminal block base for IC694MDL741	Discontinued
IC693ACC332	Interposing terminal block base for IC694MDL940	Active
IC693ACC333	Interposing terminal block base for IC694MDL340	Active
IC693ACC337	Interposing terminal block base for IC693MDL654/655/752/753 and IC694MDL654/655/752/753	Active

TBQC Cables

IC693CBL327	Cable, Left Side, One -24 Pin 90 Degree Connector, 3 Meter. Cable has a connector on only one end and open on the other. Cable used with TBQC I/O Face Plate Adapter or Fujitsu style I/O modules.	Active
IC693CBL328	Cable, Right Side, One -24 Pin 90 Degree Connector, 3 Meter. Cable has a connector on only one end and open on the other. Cable used with TBQC I/O Face Plate Adapter or Fujitsu style I/O modules.	Active
IC693CBL329	Cable, Left Side, One -24 Pin 90 Degree Connector, 1 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active
IC693CBL330	Cable, Right Side, One -24 Pin 90 Degree Connector, 1 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active
IC693CBL331	Cable, Left Side, One -24 Pin 90 Degree Connector, 2 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active
IC693CBL332	Cable, Right Side, One -24 Pin 90 Degree Connector, 2 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active
IC693CBL333	Cable, Left Side, One -24 Pin 90 Degree Connector, 0.5 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active
IC693CBL334	Cable, Right Side, One -24 Pin 90 Degree Connector, 0.5 Meter. from TBQC I/O Face Plate Adapter to TBQC Interposing Terminal Block.	Active

High Density Terminal Block Quick Connect (32 point I/O terminals)

High Density Terminal Block Quick Connect (TBQC) for selected I/O modules enables the user to easily connect interpossing terminal blocks. The HDTBQC consist of a I/O module terminal block with a 40 pin Fujitsu male connector, cable and interposing terminal block. The HDTBQC is compatible with modules that accept IC694TBC032 (24 VDC discrete inputs and analog input and output modules. The HDTBQC is not compatible with discrete output modules).

HDTBQC I/O Module Face Plate Adapter

IC694TBC032	High Density 32 Point Terminal Block with a 40 pin Fujitsu connector. Compatible with DC Inputs, Analog Modules only. Not compatible with DC or AC output modules.	Active

HDTBQC Interposing Terminal Block

IC694RTB032	Remote Terminal Block 36 Pin DIN-Rail mount	Target April 2012
HDTBQC Remote Terminal Base		
IC694CBL005	.5 meter Cable between IC694TBC032 and IC694RTB032	Target April 2012
HDTBQC Cables		
IC694CBL010	1.0 meter Cable between IC694TBC032 and IC694RTB032	Target April 2012
IC694CBL030	3.0 meter Cable between IC694TBC032 and IC694RTB032	Target April 2013
IC694CBL130	3 meter Cable with IC694TBC032 connector on one end and open wire on other end	Target April 2014

RMX and CMX Reflective Memory Fiber Optic Cables

Simplex LC to LC connector, Fiber-Optic Cable – Multimode 62.5 Micron core.
Simplex (single) cabling is used for daisy chaining Tx to Rx to/from another node until final device circles back to beginning node.
Each CMX module requires two Simplex cables per module.

CBL-000-F5-000	.5 feet (0.15 m)	Active
CBL-000-F5-001	1 foot (.31 m)	Active
CBL-000-F5-002	5 feet (1.52 m)	Active
CBL-000-F5-003	10 feet (3.04 m)	Active
CBL-000-F5-004	25 feet (7.62 m)	Active
CBL-000-F5-005	50 feet (15.24 m)	Active
CBL-000-F5-006	80 feet (24.40 m)	Active
CBL-000-F5-007	100 feet (30.49 m)	Active
CBL-000-F5-008	150 feet (45.72 m)	Active
CBL-000-F5-009	200 feet (60.98 m)	Active
CBL-000-F5-010	250 feet (76.20 m)	Active
CBL-000-F5-011	350 feet (106.68 m)	Active
CBL-000-F5-012	500 feet (152.15 m)	Active
CBL-000-F5-014	656 feet (200 m)	Active
CBL-000-F5-015	820 feet (250 m)	Active
CBL-000-F5-016	1,000 feet (304.30 m)	Active

Duplex LC to LC connector, Fiber-Optic Cable - Multimode 62.5 Micron core.
Duplex cabling is generally used with RMX system and is also good for CMX module to HUB connections. Duplex has a pair of cables connected together.
Each CMX module requires one Duplex cable per module to a hub.

CBL-000-F6-000	3 feet (0.9144 m)	Active
CBL-000-F6-001	6 feet (1.8288 m)	Active
CBL-000-F6-002	10 feet (3.048 m)	Active
CBL-000-F6-003	16 feet (4.8768 m)	Active
CBL-000-F6-004	32 feet (9.7536 m)	Active
CBL-000-F6-005	66 feet (20.1168 m)	Active
CBL-000-F6-006	98 feet (29.8704 m)	Active
CBL-000-F6-007	164 feet (49.9872 m)	Active
CBL-000-F6-008	230 feet (70.104 m)	Active
CBL-000-F6-009	328 feet (99.9744 m)	Active
CBL-000-F6-010	393 feet (119.7864 m)	Active
CBL-000-F6-011	426 feet (129.8448 m)	Active
CBL-000-F6-012	492 feet (149.9616 m)	Active
CBL-000-F6-013	557 feet (169.7736 m)	Active
CBL-000-F6-014	656 feet (199.9488 m)	Active
CBL-000-F6-015	721 feet (219.7608 m)	Active
CBL-000-F6-016	754 feet (229.8192 m)	Active
CBL-000-F6-017	820 feet (249.936 m)	Active
CBL-000-F6-018	885 feet (269.748 m)	Active
CBL-000-F6-019	984 feet (299.9232 m)	Active

Reflective Memory Interface Modules for PCs

PMC 5565 Reflective Memory PMC Module

PMC-5565PIORC-110000	PMC, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PMC-5565PIORC-111000	PMC, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4 K FIFOs, Single Mode Transmission	Active
PMC-5565PIORC-210000	PMC, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PMC-5565PIORC-211000	PMC, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4 K FIFOs, Single Mode Transmission	Active

PCI 5565 Reflective Memory PCI Module

PCI-5565PIORC-110000	PCI, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PCI-5565PIORC-111000	PCI, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4K FIFOs, Single Mode Transmission	Active
PCI-5565PIORC-210000	PCI, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PCI-5565PIORC-211000	PCI, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4K FIFOs, Single Mode Transmission	Active

PCI Express 5565 Reflective Memory PCIE Module

PCIE-5565RC-100000	PCI Express, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PCIE-5565RC-101000	PCI Express, 2 GIGA Baud RM w/FO Options, 128 Mbyte Memory, 4K FIFOs, Single Mode Transmission	Active
PCIE-5565RC-200000	PCI Express, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4K FIFOs, Multimode Transmission	Active
PCIE-5565RC-201000	PCI Express, 2 GIGA Baud RM w/FO Options, 256 Mbyte Memory, 4K FIFOs, Single Mode Transmission	Active

CMX and RMX Reflective Memory HUB (Contact GE for additional HUB configurations)

HUB-5595-308	DIN-Rail Mount Reflective Memory Hub. 21 -32 VDC Power supply, 1x 10BaseT Ethernet, 1x RS232, 8x Multimode Pluggable transceivers	Active
HUB-5595-380	DIN-Rail Mount Reflective Memory Hub. 21 -32 VDC Power supply, 1x 10BaseT Ethernet, 1x RS232, 8x Single mode Pluggable transceivers	Active
ACC-5595-208	Rack Mount or Desktop Reflective Memory Hub. Universal power supply, 1x 10BaseT Ethernet, 1x RS232, 8x multimode pluggable transceivers	Active
ACC-5595-280	Rack Mount or Desktop, 8 Single mode Pluggable Transceivers. And no Multimode Pluggable Transceivers	Active

Starter Kits (Only one starter kit per customer per customer site)

IC695STK001	RX3i Controller PACkage 1 Starter Kit includes RX3i with software. (includes one each IC695CPU305, IC695CHS012, IC695LRE001, IC695PSA040, IC695ETM001, IC694ACC300, IC694MDL940 and IC646MPP001.) Limited one RX3i starter kit per customer site.	Active
IC695STK002	RX3i with Control and View. Power PACkage 2 Starter Kit includes RX3i and QuickPanel View 6" STD with software. (includes one each IC695CPU305, IC695CHS012, IC695LRE001, IC695PSA040, IC695ETM001, IC694ACC300, IC694MDL940, IC754VSI06STD, BC646MQP001, IC646MPP001 and DC power supply for QuickPanel) Limited one RX3i starter kit per customer site.	Active
IC695STK003	RX3i, The Complete PACkage with Control, Motion and View. Power PACkage 3 Starter Kit includes RX3i, motion module (Servo and Amplifier sold separately) and QuickPanel View 6" STD with software. (includes one each IC695CPU305, IC695CHS012, IC695LRE001, IC695PSA040, IC695ETM001, IC694DSM314, IC694ACC300, IC694MDL940, IC754VSI06STD, BC646MQP001, IC646MPP001 and DC power supply for QuickPanel) Limited one RX3i starter kit per customer site.	Active
IC695STK004	RX3i Power PACkage 4 Starter Kit includes (one each IC695CPU305, IC695CHS012, IC695PSA040, IC695ETM001, IC646MPP101)	Active
IC695STK005	RX3i Power PACkage 5 Starter Kit includes (one each IC695CPU305, IC695CHS012, IC695PSA040, IC646MPP101)	Active
IC695STK006	RX3i Power PACkage 6 Starter Kit includes (one each IC695CPU305, IC695CHS012, IC695PSD040, IC695ETM001, IC646MPP101)	Active
IC695STK007	RX3i Power PACkage 7 Starter Kit includes (one each IC695CPU305, IC695CHS012, IC695PSD040, IC646MPP101)	Active
IC695STK010	RX3i Profinet Power PACkage 10. Kit includes CPE305, 7 slot base, AC power supply, input and output module, Profinet controller, VersaMax Profinet slave, combination I/O and Proficy Machine Edition. (one each IC695CPU305, IC695CHS007, IC695PSA040,IC694ACC300, IC694MDL740, IC200PNS001, IC200PWR102, IC200MDD844, IC200ACC302, IC200CHS002, IC646MPP101)	Active

Demo Cases

IC695DEM001	RX3i Power PACkage 1 Demo Case that includes CPU, P/S, discrete I/O and analog I/O, high speed counter, Ethernet and analog simulator. Proficy Machine Edition Professional Edition included.	Active
IC695DEM002	RX3i Power PACkage 2 Demo Case that includes RX3i and QP Control/View. Includes CPU, P/S, discrete I/O and analog I/O, Ethernet, analog simulator, 6" TFT QuickPanel View/Control. Proficy Machine Edition Professional Edition included.	Active
IC695DEM004	Beta i Series 1-Axis Motion Demo Case. Demo case is a self contained table top demo that includes a DSM324i module, Beta i motor and amplifier prewired for connection to a DSM324i motion module. The cables (1 meter) for connection to the DSM324i 5 V I/O and FSSB fiber optic command interface are included. Demo includes an E-stop push button and toggle switches for 5 DSM324i I/O points.	Active

IC694 Rack to Rack Expansion Cables

IC693CBL300	Cable, I/O Base Expansion, 1 Meter, Shielded	Active
IC693CBL301	Cable, I/O Base Expansion, 2 Meters, Shielded	Active
IC693CBL302	Cable, I/O Base Expansion, 15 Meter, Shielded with built-in terminator	Active
IC693CBL312	Cable, I/O Base Expansion, 0.15 Meter, Shielded	Active
IC693CBL313	Cable, I/OBase Expansion, 8 Meters, Shielded	Active
IC693CBL314	Cable, I/O Base Expansion, 15 Meters, Shielded with no built-in terminator	Active
IC693ACC307	I/O Bus Terminator Plug	Active

Configuration Guidelines

When configuring a RX3i the following guidelines should be considered:

1. IC695 part numbers can only be installed in a Universal Rack (IC695CHSxxx).
2. CPU, NIU and AC Power Supply require 2 slots each on the base plate.
3. IC695 I/O modules and high density IC694 I/O modules require a terminal block assembly. IC694TBSxxx (spring clamp termination) or IC694TBBxxx (box style termination) are required.
4. If the CPU is powered down frequently a high capacity battery should be considered. (IC693ACC302)

Examples of Typical Application

Configuration for Controller (Example application requiring (120) 24 VDC inputs and (80) Relay outputs AC power supply)

Backplane Slots Required	Power Supply Current Required (mA)	Qty	Part Number	Description
2	1000mA@ 3.3VDC; 1000mA@ 5VDC	1	IC695CPE310	CPU with two built-in serial ports
2		1	IC695PSA040	120/240 VAC, 125 VDC Power Supply, current available 9 Amps @ 3.3 VDC; 6 Amps @ 5 VDC; 1.6 Amps @ 24 VDC maximum
	600 mA@ 3.3 VDC; 240 mA@ 5 VDC	1	IC695CHS016	16 Slot Universal Base
4	1200 @ 5 V	4	IC694MDL660	Discrete Input Module, 24 VDC Positive Logic, 32 points (Requires terminal block)
5	35 mA @ 5 V; 110 mA @ 24 VDC Relay	5	IC694MDL940	Discrete Output Module, Relay 2.0 A per point Form A, 16 points (Terminal block included).
		4	IC694TBB032	Terminal Block, Box Style
		1	IC646MPP001	Logic Developer -PLC Professional
13	Total current from power supply required: 2475 mA @ 5 V; 1600 @ 3.3 V; 110 mA @ 24 VDC Relay. Only one power supplied needed.			

Options to consider

	840 mA @ 3.3 VDC; 614 mA @ 5 VDC	1	IC695ETM001	Ethernet module 10/100Mbits
		1	IC690PWR024	24 VDC, 5 Amp Output Power and 120/230 VAC Input Power Power Supply
		1	IC754VSI06STD	QuickPanel View Intermediate 6 inch STN Touch Operator Interface

Configuration for Controller	(100) 24 VDC inputs, (50) 24 VDC Outputs with ESCP protection, (20) Relay outputs also (2) 4 to 20 mA Analog Inputs, (3) Type J Thermocouple, (1) RTD, (5) Strain Gage, (12) 4 to 20 mA Analog Outputs and 24 VDC power supply. Also requires Profibus Master and Ethernet communications.			
Backplane Slots Required	**Power Supply Current Required (mA)**	**Qty**	**Part Number**	**Description**
2 on Universal Base	1000 mA@ 3.3 VDC; 1000 mA@ 5 VDC	1	IC695CPE310	CPU with two built-in serial ports
1 on Universal Base		1	IC695PSD040	24 VDC Power Supply, current available 9 Amps @ 3.3 VDC; 6 Amps @ 5 VDC; 1.6 Amps @ 24 VDC maximum
	600 mA@ 3.3 VDC; 240 mA@ 5 VDC	1	IC695CHS016	16 Slot Universal Base
4 expansion base slots	1200 @ 5 VDC	4	IC694MDL660	Discrete Input Module, 24 VDC Positive Logic, 32 points (Requires terminal block)
2 expansion base slots	600 mA @ 5 VDC	2	IC694MDL754	Discrete Output Module, 24 VDC Output with ESCP, 32 points (Requires terminal block)
2 expansion base slots	35 mA @ 5 VDC; 110 mA @ 24 VDC Relay	2	IC694MDL940	Discrete Output Module, Relay 2.0 A per point Form A, 16 points (Terminal block included).
2 on Universal Base	700 mA @ 3.3 VDC; 800 mA @ 5 VDC	2	IC695ALG600	Universal Analog Input module, supports Thermocouple, RTD, Voltage, Current and Strain Gage, 8 channels (Requires terminal block)
2 on Universal Base	220mA @ 5VDC 630mA @ 24VDC user supply	2	IC694ALG392	Analog Output module, supports voltage and current, 8 channels
1 on Universal Base	840 mA @ 3.3 VDC; 614 mA @ 5 VDC	1	IC695ETM001	Ethernet module 10/100Mbits
1 on Universal Base	420 mA @ 5 VDC	1	IC695PBM300	Profibus Master module, supports V1
	150 mA @ 5 VDC	1	IC694CHS392	High Speed Serial 10 slot expansion rack (Only IC694xxx modules can go in rack)
		1	IC694PWR331	24 VDC Power Supply for High Speed Serial base,
		1	IC693CBL312	Rack Expansion Cable, 0.15 meters
		1	IC693ACC307	I/O Bus Terminator Plug
	132 mA @ 5 VDC	1	IC695LRE001	Universal Base High Speed Serial expansion module (Module does not occupy a I/O slot)
		8	IC694TBB032	Terminal Block, Box Style
		1	IC646MPP001	Logic Developer -PLC Professional
9 slots on Universal base and 8 slots of standard base	In the above configuration, all of the modules can not go into one base. Therefor the I/O modules are divided into two bases. The IC695xxx part numbers will be used on the Universal base and the IC694 part numbers will use the standard high speed serial bus base. The Universal base can accept both IC695xxx and IC694xxx modules but the standard base will only accept IC694xxx and IC693xxx modules. Total current from Universal base power supply: 3140mA @ 5VDC ; 3140 @ 3.3VDC. Only one power supplied needed. Total current from Standard base power supply: 1985mA @ 5VDC; 110mA @ 24VDC			

Options to consider

	2	IC695PSD140	Multipurpose 24 VDC power supply. By adding two IC665PSD140 the system would have redundant power supplies for maximum availability.
	1	IC690PWR024	24 VDC, 5 Amp Output Power and 120/230 VAC Input Power Power Supply
	1	IC754VSI06STD	QuickPanel View Intermediate 6 inch STN Touch Operator Interface

Redundant Controller Configuration	requiring (100) 24 VDC inputs, (50) 24 VDC Outputs with ESCP protection, (20) Relay outputs also (2) 4 to 20 mA Analog Inputs, (3) Type J Thermocouple, (1) RTD, (5) Strain Gage, (12) 4 to 20 mA Analog Outputs and 24 VDC power supply. Also requires Profibus Master in I/O rack to talk to (3) Variable Frequency Drives. Ethernet communications is also required to connect to HMIs.

Redundant Controllers Configuration

Backplane Slots Required	Power Supply Current Required (mA)	Qty	Part Number	Description
2 slots per Universal Base	1250 mA @ 3.3 VDC; 1000 mA @ 5 VDC	2	IC695CMU310	Redundant Controller, CPU with two built-in serial ports
1 slot per Universal Base		2	IC695PSD040	24 VDC Power Supply, current available 9 Amps @ 3.3 VDC; 6 Amps @ 5 VDC; 1.6 Amps @ 24 VDC maximum
	600 mA @ 3.3 VDC; 240 mA @ 5 VDC	2	IC695CHS012	12 Slot Universal Base
2 slots per Universal Base	840 mA @ 3.3 VDC; 614 mA @ 5 VDC	4	IC695ETM001	Ethernet module 10/100Mbits
		1	IC646MXN001	Redundant Controller configuration software. Max-ON Extended Software for PACSystems Rx3i Hot Standby Redundancy

Note: The above configuration has two separate racks. Each rack has its own power supply, redundant CPU, Ethernet communications to remote I/O and another Ethernet module for LAN connections to HMIs. GE highly recommends that the Ethernet I/O be separated from the enterprise network to minimize data traffic issues.

I/O for Redundant Controllers

3 on Universal Base (2 for the NIU and 1 for the Ethernet Module)	1250 mA @ 3.3 VDC; 1000 mA @ 5 VDC	1	IC695NKT001	Ethernet Remote I/O Expansion Kit. Kit includes a IC695NIU001 and a IC695ETM001
1 on Universal Base		1	IC695PSD040	24 VDC Power Supply, current available 9 Amps @ 3.3 VDC; 6 Amps @ 5 VDC; 1.6 Amps @ 24 VDC maximum
	600 mA @ 3.3 VDC; 240 mA @ 5 VDC	1	IC695CHS016	16 Slot Universal Base
4 expansion base slots	1200 @ 5 VDC	4	IC694MDL660	Discrete Input Module, 24 VDC Positive Logic, 32 points (Requires terminal block)
2 expansion base slots	600 mA @ 5 VDC	2	IC694MDL754	Discrete Output Module, 24 VDC Output with ESCP, 32 points (Requires terminal block)
2 expansion base slots	35 mA @ 5 VDC; 110 mA @ 24 VDC Relay	2	IC694MDL940	Discrete Output Module, Relay 2.0 A per point Form A, 16 points (Terminal block included).
2 on Universal Base	700 mA @ 3.3 VDC; 800 mA @ 5 VDC	2	IC695ALG600	Universal Analog Input module, supports Thermocouple, RTD, Voltage, Current and Strain Gage, 8 channels (Requires terminal block)
2 on Universal Base	750 mA @ 3.3 VDC	2	IC695ALG708	Analog Output module, supports voltage and current, 8 channels (Requires terminal block)
1 on Universal Base	420 mA @ 5 VDC	1	IC695PBM300	Profibus Master module, supports V1
	150 mA @ 5 VDC	1	IC694CHS392	High Speed Serial 10 slot expansion rack (Only IC694xxx modules can go in rack)
		1	IC694PWR331	24 VDC Power Supply for High Speed Serial base,
		1	IC693CBL312	Rack Expansion Cable, 0.15 meters
		1	IC693ACC307	I/O Bus Terminator Plug
	132 mA @ 5 VDC	1	IC695LRE001	Universal Base High Speed Serial expansion module (Module does not occupy an I/O slot)
		10	IC694TBB032	Terminal Block, Box Style
		1	IC646MPP001	Logic Developer -PLC Professional
9 slots on Universal base and 8 slots of standard base	In the above configuration, all of the modules can not go into one base. Therefore the I/O modules are divided into two bases. The IC695xxx part numbers will be used on the Universal base and the IC694 part numbers will use the standard high speed serial bus base. The Universal base can accept both IC695xxx and IC694xxx modules but the standard base will only accept IC694xxx and IC693xxx modules. Total current from Universal base power supply: 2460 mA @ 5 VDC; 3300 @ 3.3 VDC. Only one power supplied needed. Total current from Standard base power supply: 1985 mA @ 5 VDC; 110 mA @ 24 VDC			

Options to Consider

	IC695PSD140	Multipurpose 24 VDC power supply. By adding two IC665PSD140 the system would have redundant power supplies for maximum availability on the Un.
	IC690PWR024	24 VDC, 5 Amp Output Power and 120/230 VAC Input Power Power Supply
	IC693ACC302	Long term battery for CPU
	IC754VSI06STD	QuickPanel View Intermediate 6 inch STN Touch Operator Interface

α and β*i* Series Servo Amplifiers

All Digital Servo Systems Offer High Performance and Reliability. FANUC HV*i*s and β*i* Series Servo Drives, based on over five million axes installed worldwide, offer superior reliability and performance for unprecedented mean time between failure. The HV*i*s and β*i* Series Servos are available in a wide range of ratings for use with the PACMotion motion controller.

High-Performance Serial Encoders

Standard serial encoders built into the motors provide exceptional feedback resolution of 64K or 128K counts per revolution for *i*s Series motors and one million counts per revolution for HV*i*s Series motors. Serial encoders support higher resolutions at high motor velocities than standard quadrature encoders and are more immune to noise. An optional battery connection provides absolute position feedback, eliminating the need to home the system after a power shutdown.

Reduced Tuning and Setup

There is no need for potentiometer tuning or personality modules; little tuning is required for properly sized drives. All drive parameters are stored in the controller in a standard motor database. Configuration settings are not stored in the drive, making it possible to replace drives with little set-up time. Stored drive and machine parameters are quickly transferred to repeat production machines.

All-Digital System

All control loops—current, velocity, and position—are closed in the GE PACMotion controller. High-speed microprocessors and/or digital signal processors (DSPs) in the controller provide loop update times of 250 µs. The high response servo system can compensate for machine design limitations, yielding faster acceleration/deceleration rates and better responses to load changes.

Series	Motor Series	Controllers	Command Interface	Continuous Torque Range		Power Supply
				In-lb	Nm	
α*i*HV	α*i*HV, α*i*HV*i*s	PMM335	Fiber Optic	195-664	22-75	Separate PSM
β*i*	β*i*s	PMM335	Fiber Optic	3.5-177	0.4-20	Built-in
β*i*HV	β*i*HV*i*s	PMM335	Fiber Optic	17.7-177	2-20	Built-in

All-Digital Servo Command Signals

The PMM335 PACMotion Controller and β*i* or α*i* Series amplifiers use a high speed fiber optic command interface. This digital interface improves efficiency by varying the on-time of the transistor switches that control motor voltage and current. With its superior noise immunity, both of these FANUC digital command interfaces allows for an increased signal to noise ratio for improved accuracy and performance.

Agency Approvals

UL, IEC rating and CE mark compliant

INFO

For application, installation, and tuning information, consult the Services website at www.ge-ip.com.

VersaMotion

VersaMotion is a family of servo motors and amplifiers that can easily be connected to the RX3i DSM 314. The VersaMotion amplifier supports high speed pulse and direction commands from the controllers. The VersaMotion servo drive is simple to use and maintain with the added diagnostics and removable terminal strips. Amplifier setup can be accomplished using the VersaMotion software included with Proficy Machine Edition or using the convenient front panel keypad.

Key Features:

- Versatile analog or pulse command interface
- Position/Speed/Torque modes
- Dual control modes
- Internal single-axis position control
- Electronic gearing
- External JOG function
- Speed/Torque limit operation
- Built-in keypad/display for setup and diagnostics
- Motor settling time below 1 ms
- Low speed stability and performance: less than 0.5% error at 1 RPM
- 10msec acceleration time from running without load -/+ 3000 RPM
- High speed inertia corrections (16 levels of system stiffness and responsiveness)

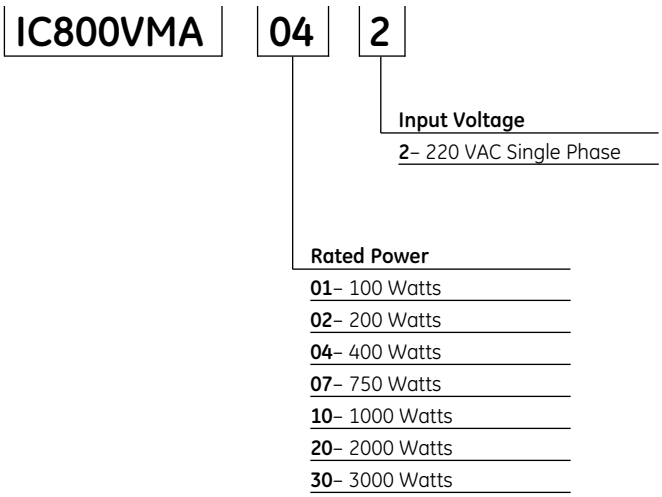
Built-in Functions:

- Point-to-Point single axis position control
- Simple stand-alone positioning function with 8 internal stored position settings
- Move to Home function
- Position Teaching capability
- Incremental encoder feedback (2500 ppr)
- User-definable Acceleration/Deceleration with jerk limiting (s-curve)
- Feed step control function
- Modbus Slave serial port (RS-485/RS-422) for reading and writing parameters from Machine Edition

Machine Edition VersaMotion Set-up Features:

- Configuration Parameter Editor (clear, read, write functions) and initial configuration wizard
- Calculation tools to determine proper conversion from encoder counts to desired user programming units
- Three channel digital oscilloscope to display and record drive status on-line
- Alarm history and status monitor diagnostic screens
- Digital I/O set-up and monitoring

Servo Amplifier Part Number Sequence



Example: IC800VMA042 is a 400 watt 220 VAC servo amplifier

Amplifiers Technical Data

Permissible Frequency Fluctuation	50 / 60 Hz ±5%
Resolution/Quadrature Feedback Counts	2500 ppr /10000 cpr
Control Modes	Position/Velocity/Torque
Dynamic Brake	Built-in
Position Control Mode:	
Maximum Input Pulse Frequency	500KPPS (Line Driver) / Maximum 200KPPS (Open Collector)
Pulse Type	Pulse/Direction; CW/CCW; A/B Phase
Command Source	External pulse train/ Internal parameters
Torque Limit Operation	Yes
Feed Forward Compensation	Yes
Analog Commands: Voltage Range	0 to ±10 VDC
Torque and Velocity Control Mode: Command Source	External analog signal / Internal parameters
Speed Control Range	1:5000
Speed Control Frequency Response	Maximum 450 Hz
Torque Control Mode Permissible Time for Overload	8 seconds under 200% rated output
Communications Interface	RS-232 / RS-485 /RS-422
Environmental Altitude	Altitude 1000 meters above sea level or lower
Environmental Operating Temperature	0 to 55°C (Forced cooling for operation above 55°C)
Environmental Storage Temperature	-20°C to 65°C
Environmental Humidity	0 to 90% (Non condensing)
Vibration	<20 Hz: 9.8 m/sec/sec (1G); 20 to 50 Hz: 5.88 m/sec/sec (0.6 G)
Standards	IEC/EN 61800-5-1, UL 508C, TUV, C-tick

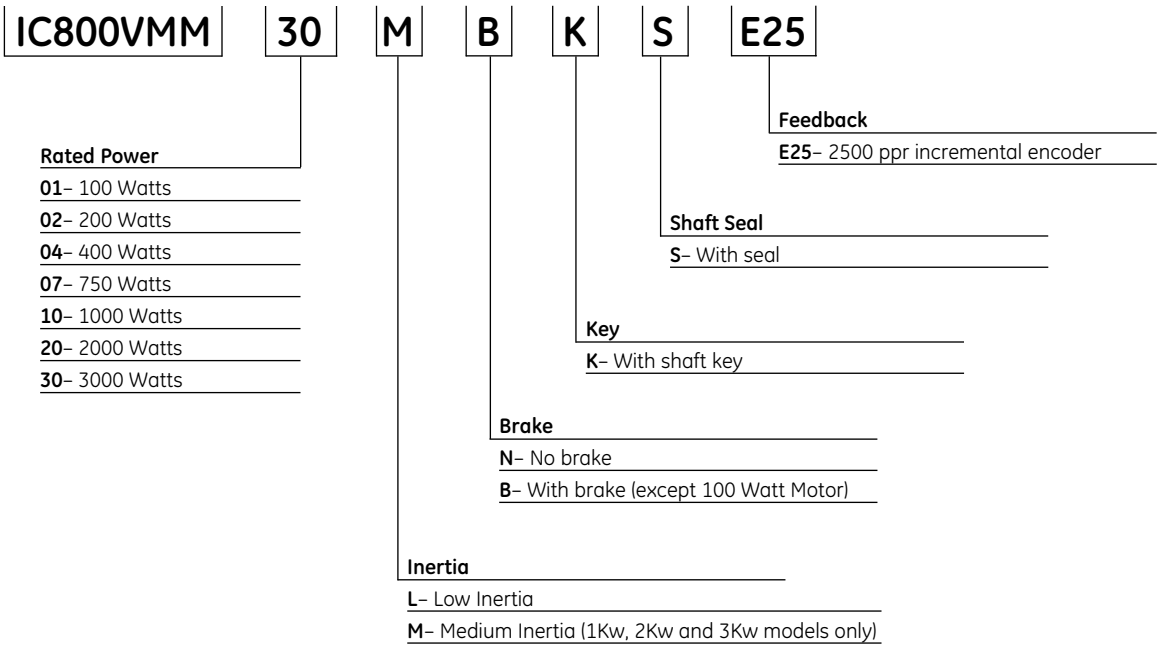
Amplifiers

The VersaMotion family of servo amplifiers offers a cost effective solution for a broad range of motion applications. These versatile amplifiers support simple stand-alone positioning capability using up to 8 stored motion profiles or can be connected to any motion controller using an analog or pulse command interface. A built-in touchpad and display provides convenient access to configuration parameters and system information. The serial interface supports multi-drop system configurations and Modbus communication protocol.

	IC800VMA012	IC800VMA022	IC800VMA042	IC800VMA072
Product Name	**VersaMotion Amplifier**	**VersaMotion Amplifier**	**VersaMotion Amplifier**	**VersaMotion Amplifier**
Lifecycle Status	Active	Active	Active	Active
Rated Output Power	100W	200W	400W	750W
Voltage/Frequency	Three-phase or Single-phase 220 VAC 50/60 Hz	Three-phase or Single-phase 220 VAC 50/60 Hz	Three-phase or Single-phase 220 VAC 50/60 Hz	Three-phase or Single-phase 220 VAC 50/60 Hz
Permissible Voltage Fluctuation	Three-phase: 170 ~ 255 VAC Single-phase: 200 ~ 255 VAC	Three-phase: 170 ~ 255 VAC Single-phase: 200 ~ 255 VAC	Three-phase: 170 ~ 255 VAC Single-phase: 200 ~ 255 VAC	Three-phase: 170 ~ 255 VAC Single-phase: 200 ~ 255 VAC
Cooling System	Convection	Convection	Convection	Fan Cooling
Electronic Gear Ratio	Gear Ratio = N/M where N: 1~32767, M: 1:32767 (1/50<N/M<200)	Gear Ratio = N/M where N: 1~32767, M: 1:32767 (1/50<N/M<200)	Gear Ratio = N/M where N: 1~32767, M: 1:32767 (1/50<N/M<200)	Gear Ratio = N/M where N 1~32767, M: 1:32767 (1/50<N/M<200)

	IC800VMA102	IC800VMA202	IC800VMA302
Product Name	**VersaMotion Amplifier**	**VersaMotion Amplifier**	**VersaMotion Amplifier**
Lifecycle Status	Active	Active	Active
Rated Output Power	1KW	2KW	3KW
Voltage/Frequency	Three-phase or Single-phase 220 VAC 50/60 Hz	Three-phase 220 VAC 50/60 Hz	Three-phase 220 VAC 50/60 Hz
Permissible Voltage Fluctuation	Three-phase: 170 ~ 255 VAC Single-phase: 200 ~ 255 VAC	Three-phase: 170 ~ 255 VAC 50/60 Hz	Three-phase: 170 ~ 255 VAC 50/60 Hz
Cooling System	Fan Cooling	Fan Cooling	Fan Cooling
Electronic Gear Ratio	Gear Ratio = N/M where N: 1~32767, M: 1:32767 (1/50<N/M<200)	Gear Ratio = N/M where N: 1~32767, M: 1:32767 (1/50<N/M<200)	Electronic gear N/M multiple N: 1~32767, M: 1:32767 (1/50<N/M<200)

Servo Motor Part Number Sequence



Example: IC800VMM30MBKSE25 is a 3000 watt medium Inertia motor with 2500 ppr encoder, brake, keyway and shaft seal.

Motors Technical Data

Insulation Class	Class B
Insulation Resistance	>100M ohm, 500 VDC
Insulation Strength	1500 VAC, 50Hz, 60 seconds
Vibration Grade (um)	15
Brake Power (VDC)	24
Operating Temperature (C)	0°~40°
Storage Temperature (C)	-10°~80°
Humidity	20~90%RH (non condensing)
Vibration	2.5G
IP Rating	IP65 (except shaft and connector)

Motors

The VersaMotion family of servo motors offers high servo performance in a compact package. The motors range from 100 W to 3 kW with continuous torque ratings from 0.3 Nm to 14.3 Nm. All motors have metric mounting configurations and include a shaft key and oil seal. For vertical axes or applications that need to hold position during power loss motors with 24 VDC holding brakes are available. Motors are matched with the VersaMotion amplifiers.

	IC800VMM01L	IC800VMM02L	IC800VMM04L	IC800VMM07L
Product Name	**VersaMotion 100 Watt**	**VersaMotion 200 Watt**	**VersaMotion 400 Watt**	**VersaMotion 750 Watt**
Lifecycle Status	Active	Active	Active	Active
Rated Output (kW)	0.1	0.2	0.4	0.75
Rated Torque (Nm)	0.32	0.64	1.27	2.39
Maximum Torque (Nm)	0.96	1.92	3.82	7.16
Rated Speed (RPM)	3000	3000	3000	3000
Maximum Speed (RPM)	5000	5000	5000	5000
Rated Current (Amps)	0.9	1.55	2.6	5.1
Maximum Current (Amps)	2.7	4.65	7.8	15.3
Rotor Moment of Inertia ($Kg.m^2 \times 10^{-4}$)	0.037	0.177	0.277	1.13
Mechanical Time Constant (msec)	0.75	0.8	0.53	0.63
Torque Constant - KT (Nm)	0.36	0.41	0.49	0.47
Voltage Constant - KE (mV/rmp)	13.6	16	17.4	17.2
Armature Resistance (Ohm)	9.3	2.79	1.55	0.42
Armature Inductance (mH)	24	10.84	6.84	3.53
Electrical Time Constant (msec)	2.58	3.89	4.43	8.37
Maximum Radial Shaft Load (Newton)	78.4	196	196	245
Maximum Thrust Shaft Load (Newton)	39.2	68	68	98

Motors

The VersaMotion family of servo motors offers high servo performance in a compact package. The motors range from 100 W to 3 kW with continuous torque ratings from 0.3 Nm to 14.3 Nm. All motors have metric mounting configurations and include a shaft key and oil seal. For vertical axes or applications that need to hold position during power loss motors with 24 VDC holding brakes are available. Motors are matched with the VersaMotion amplifiers.

	IC800VMM10L	IC800VMM10M	IC800VMM20L	IC800VMM20M	IC800VMM30M
Product Name	**VersaMotion 1000 Watt**	**VersaMotion 1000 Watt**	**VersaMotion 2000 Watt**	**VersaMotion 2000 Watt**	**VersaMotion 3000**
Lifecycle Status	Active	Active	Active	Active	Active
WattRated Output (kW)	1.0	1.0	2.0	2.0	3.0
Rated Torque (Nm)	3.18	4.77	6.37	9.55	14.32
Maximum Torque (Nm)	9.54	14.32	19.11	28.66	42.96
Rated Speed (RPM)	3000	2000	3000	2000	2000
Maximum Speed (RPM)	5000	3000	5000	3000	3000
Rated Current (Amps)	7.3	5.6	11.3	11.0	16.1
Maximum Current (Amps)	21.9	24.9	33.9	33.0	48.3
Rotor Moment of Inertia ($Kg.m^2 \times 10^{-4}$)	2.65	9.14	4.45	15.88	55
Mechanical Time Constant (msec)	0.74	1.64	0.66	1.05	1.06
Torque Constant - KT (Nm/A)	0.44	0.85	0.53	0.87	0.89
Voltage Constant - KE (mV/rpm)	16.8	31.9	19.2	31.8	32
Armature Resistance (Ohm)	0.20	0.465	0.14	0.174	0.052
Armature Inductance (mH)	2.0	5.99	1.53	2.76	1.38
Electrical Time Constant (msec)	10.26	12.88	10.63	15.86	26.39
Maximum Radial Shaft Load (Newton)	490	490	490	490	1470
Maximum Thrust Shaft Load (Newton)	98	98	98	98	490
Amplifier Model	IC800VMA102	IC800VMA102	IC800VMA202	IC800VMA202	IC800VMA302

VersaMotion Accessories

Amplifier Connectors

IC800VMACONCN1	CN1 I/O Connector	Active
IC800VMACONCN2	CN2 Encoder Connector	Active
IC800VMACONCN3	CN3 Communication Connector	Active
IC800VMACONACP	AC Power Connector (100W to 1kW models only)	Active
IC800VMACONMTRP	Motor Power Connector (100W to 1kW models only)	Active
IC800VMADBR001	External Braking Resistor Connector (100W to 1kW models only)	Active

Motor Connectors

IC800VMMCONP001	Motor Power Connector for 100 Watt to 750 Watt motors without brake	Active
IC800VMMCONP002	Motor Power Connector for 100 Watt to 750 Watt motors with brake	Active
IC800VMMCONP003	Motor Power Connector for 1000 Watt or 2000 Watt motors with or without brake	Active
IC800VMMCONP004	Motor Power Connector for 3000 Watt motors with or without brake	Active
IC800VMMCONE001	Encoder Connector for 100 Watt to 750 Watt motors	Active
IC800VMMCONE002	Encoder Connector for 1000 Watt and larger motors	Active

Motor Power Cables

IC800VMCP030	Power Cable for 100 Watt to 750 Watt servo motor without brake, 3 m (9.8 feet)	Active
IC800VMCP050	Power Cable for 100 Watt to 750 Watt servo motor without brake, 5 m (16.4 feet)	Active
IC800VMCP100	Power Cable for 100 Watt to 750 Watt servo motor without brake, 10 m (32.8 feet)	Active
IC800VMCP200	Power Cable for 100 Watt to 750 Watt servo motor without brake, 20 m (65.7 feet)	Active
IC800VMCP1030	Power Cable for 1000 Watt servo motor without brake, 3 m (9.8 feet)	Active
IC800VMCP1050	Power Cable for 1000 Watt servo motor without brake, 5 m (16.4 feet)	Active
IC800VMCP1100	Power Cable for 1000 Watt servo motor without brake, 10 m (32.8 feet)	Active
IC800VMCP1200	Power Cable for 1000 Watt servo motor without brake, 20 m (65.7 feet)	Active
IC800VMCP2030	Power Cable for 2000 Watt servo motor without brake, 3 m (9.8 feet)	Active
IC800VMCP2050	Power Cable for 2000 Watt servo motor without brake, 5 m (16.4 feet)	Active
IC800VMCP2100	Power Cable for 2000 Watt servo motor without brake, 10 m (32.8 feet)	Active
IC800VMCP2200	Power Cable for 2000 Watt servo motor without brake, 20 m (65.7 feet)	Active
IC800VMCP3030	Power Cable for 3000 Watt servo motor without brake, 3 m (9.8 feet)	Active
IC800VMCP3050	Power Cable for 3000 Watt servo motor without brake, 5 m (16.4 feet)	Active
IC800VMCP3100	Power Cable for 3000 Watt servo motor without brake, 10 m (32.8 feet)	Active
IC800VMCP3200	Power Cable for 3000 Watt servo motor without brake, 20 m (65.7 feet)	Active

Brake and Motor Power Cables

IC800VMCB030	Brake and Motor Power Cable for 200 Watt to 750 Watt servo motor with brake, 3 m (9.8 feet)	Active
IC800VMCB050	Brake and Motor Power Cable for 200 Watt to 750 Watt servo motor with brake, 5 m (16.4 feet)	Active
IC800VMCB100	Brake and Motor Power Cable for 200 Watt to 750 Watt servo motor with brake, 10 m (32.8 feet)	Active
IC800VMCB200	Brake and Motor Power Cable for 200 Watt to 750 Watt servo motor with brake, 20 m (65.7 feet)	Active
IC800VMCB1030	Brake and Motor Power Cable for 1000 Watt servo motor with brake, 3 m (9.8 feet)	Active
IC800VMCB1050	Brake and Motor Power Cable for 1000 Watt servo motor with brake, 5 m (16.4 feet)	Active
IC800VMCB1100	Brake and Motor Power Cable for 1000 Watt servo motor with brake, 10 m (32.8 feet)	Active
IC800VMCB1200	Brake and Motor Power Cable for 1000 Watt servo motor with brake, 20 m (65.7 feet)	Active
IC800VMCB2030	Brake and Motor Power Cable for 2000 Watt servo motor with brake, 3 m (9.8 feet)	Active
IC800VMCB2050	Brake and Motor Power Cable for 2000 Watt servo motor with brake, 5 m (16.4 feet)	Active
IC800VMCB2100	Brake and Motor Power Cable for 2000 Watt servo motor with brake, 10 m (32.8 feet)	Active
IC800VMCB2200	Brake and Motor Power Cable for 2000 Watt servo motor with brake, 20 m (65.7 feet)	Active
IC800VMCB3030	Brake and Motor Power Cable for 3000 Watt servo motor with brake, 3 m (9.8 feet)	Active
IC800VMCB3050	Brake and Motor Power Cable for 3000 Watt servo motor with brake, 5 m (16.4 feet)	Active
IC800VMCB3100	Brake and Motor Power Cable for 3000 Watt servo motor with brake, 10 m (32.8 feet)	Active
IC800VMCB3200	Brake and Motor Power Cable for 3000 Watt servo motor with brake, 20 m (65.7 feet)	Active

Encoder Cables

IC800VMCE030	Encoder Cable for 100 to 750 Watt, 3 m (9.8 feet)	Active
IC800VMCE050	Encoder Cable for 100 to 750 Watt, 5 m (16.4 feet)	Active
IC800VMCE100	Encoder Cable for 100 to 750 Watt, 10 m (32.8 feet)	Active
IC800VMCE200	Encoder Cable for 100 to 750 Watt, 20 m (65.7 feet)	Active
IC800VMCE1030	Encoder Cable for 1000 Watt and greater, 3 m (9.8 feet)	Active
IC800VMCE1050	Encoder Cable for 1000 watt and greater, 5 m (16.4 feet)	Active
IC800VMCE1100	Encoder Cable for 1000 watt and greater, 10 m (32.8 feet)	Active
IC800VMCE1200	Encoder Cable for 1000 watt and greater, 20 m (65.7 feet)	Active

I/O Terminal Block

IC800VMTBC005	I/O Terminal Block Breakout Board and 0.5 m (1.6 feet) Cable	Active

External Braking Resistors

IC800VMBR040	40 Ohm, 400 Watt External Braking (Regeneration) Resistor	Active
IC800VMBR020	20 Ohm, 1000 Watt External Braking (Regeneration) Resistor	Active

Communications and I/O Interface Cables

IC800VMCS030	Communications Cable from servo amplifier to PC, 3 m (9.8 feet)	Active
IC800VMCI010	Flying lead I/O interface cable, 1 meter	Active
IC800VMCI030	Flying lead I/O interface cable, 3 meter	Active

Software Configuration Tool

IC646MPM101	Proficy Logic Developer - PLC Nano/Micro and VersaMotion, Programming Cable (No Upgrades included)	Active
BC646MPM101	Proficy Logic Developer - PLC Nano/Micro and VersaMotion, Programming Cable (Includes 15 months of upgrades)	Discontinued

Examples of Typical Application using a PACSystems RX3i

Application: 1000 Watt Low Inertia Motor with Brake. Configuration for Controller (Example application requiring (120) 24 VDC inputs and (80) Relay outputs AC power supply)

Qty	Part Number	Description
		Controller, I/O and Display
1	IC695CPU310	CPU with two built-in serial ports
1	IC695PSA040	120/240 VAC, 125 VDC Power Supply, current available 9 Amps @ 3.3 VDC; 6 Amps @ 5 VDC; 1.6 Amps @ 24 VDC maximum
1	IC695CHS016	16 Slot Universal Base
4	IC694MDL660	Discrete Input Module, 24 VDC Positive Logic, 32 points (Requires terminal block)
5	IC694MDL940	Discrete Output Module, Relay 2.0 A per point Form A, 16 points (Terminal block included)
4	IC694TBB032	Terminal Block, Box Style
1	IC693DSM314	Servo Motion Module, 4 analog axes supported per module
1	IC693ACC336	DSM Analog Servo Interface Terminal Board
1	IC693CBL324	DSM Analog TB Interface Cable, 1 m (3.28 feet)
1	IC800VMCI010	VersaMotion flying lead I/O interface cable, 1 m (3.28 feet)
		Servo Amplifier and Motor
1	IC800VMM10LBKSE25	VersaMotion 1000 Watt Low Inertia Servo Motor with brake. Motor has keyway and oil seal
1	IC800VMA102	Servo Amplifier, 1000 Watts, 220 VAC
1	IC800VMCB1030	Brake and Power Cable for 1000 Watt servo motor with brake, 3 m (9.8 feet)
1	IC800VMCE1030	Encoder Cable for 1000 Watt and greater, 3 m (9.8 feet)
1	IC800VMTBC005	I/O Terminal Block and Cable (0.5 meters)
1	IC800VMCS030	Communications Cable from Servo Driver to PC, 3 m (9.8 feet)
		Programming Software for Control, Display and Motion
1	BC646MPP001	Machine Edition Professional Development Suite with Proficy GlobalCare Complete. Includes VersaMotion configuration tool, View Development for QuickPanel and PLC Standard with programming cable. Proficy GlobalCare with 15 months of free upgrades which is renewable on an annual basis.