PACSystems™ RX3i I/O

Providing High Performance and Advanced Diagnostics

Introduction

The PACSystems RX3i family provides advanced diagnostics and high performance I/O. With a modular design and multiple expansion options, RX3i is the perfect I/O solution for your process, hybrid, and discrete applications.

Modular, High-Speed Performance

RX3i is a rack-based system with a wide range of modules covering digital, analog, and numerous other specialty I/O types. These pluggable and hot-swappable modules allow you to customize the right mix of I/O, with a variety of voltage ranges and current capacities supported to meet all your application needs. Regardless of the I/O mix you choose, RX3i is built on high speed interfaces to provide rapid and consistent data transfer.

Highly Scalable

With the ability to pair I/O, RX3i allows you to scale your system with ease. In addition to I/O that you can put on the main rack, you can expand locally or remotely to connect to additional racks of I/O. In fact, RX3i can support as few as 8 I/O points and up to 32 thousand I/O points in a single system. With 7 to 16 slot backplanes and 1 slot expansion options, you can create the perfect system to fit your needs.

Perfect Upgrade Path

Emerson PACSystems RX3i gives you a simple migration path and offers a quick and painless upgrade plan from legacy systems like Series 90-30, 90-70, and RX7i. RX3i allows you to re-use Series 90-30 modules on RX3i backplanes, so you can upgrade your I/O system without disturbing wires or buying new I/O. Upgrading to RX3i provides improved communications with integrated Ethernet along with modern USB for serial or memory sticks. With a smaller form factor, higher capacity, and speeds over 100 times faster than legacy controls, RX3i is an easy and cost effective upgrade to protect your investment without disruption. Upgrade in hours, not days!

For more information:
www.Emerson.com/PACSystems

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High Availability

Eliminate process interruptions with PACSystems RX3i I/O. Beyond just the high performance RX3i offers in simplex configurations, high availability configurations are also possible for maximum reliability. Both Ethernet Global Data (EGD) and PROFINET System Redundancy (PNSR) are supported. With gigabit speed and bumpless switchover, choosing RX3i high availability will prevent unexpected failure and costly downtime.

Rugged Connector Terminals

In the RX3i family all I/O modules have removal terminal blocks for easy commissioning and maintenance. This focus on ease of use is extended with the range of supported wire gauges. Depending on the Terminal block type chosen, the wire gauge ranges from 0.081mm^2 - 1.5mm^2 (28 - 14AWG) solid or stranded wire.

Spring style and box style modules are also both available for your preferred connection method. Terminal Block Quick Connect (TBQC) and positive retention are supported on both low density and high density terminal blocks to ensure confidence in wiring stability and a consistent commissioning experience.

Specifications

Mounting Format
- Panel Mount
- Rack Mount

Network Interfaces
- PROFINET
- Modbus/TCP
- Ethernet Global Data (EGD)
- Control Memory Exchange (CMX)
- PROFIBUS DP

Gateways / Bridges
- Serial Communications
- Modbus/RTU
- Modbus/TCP
- HART
- GENIUS
- DNP3 Serial/TCP
- IEC-61850
- IEC-104
- Reflective Memory
- PROFIBUS/Master
- CANOpen

Network Redundancy
- Media Redundancy Protocol (MRP)
- Dual LAN

System Redundancy
- PROFINET System Redundancy (PNSR)
- Ethernet Global Data (EGD)

I/O Redundancy
- Via Application Code

Media Support
- Copper
- SM Fiber
- MM Fiber

Media Connector
- 2x RJ45 and 2x SFP

I/O Types
- Digital
- Voltage
- TL
- Relay
- Analog
- Voltage/Current
- RTD
- Thermocouple

Specialty Modules
- Pulse Test (24, 125 Vdc)
- High Speed Counters
- Pulse With Modulation (PWM)
- Pulse Output
- Power Sync & Measure
- Strain Gauge
- SoE Inputs (application)

Isolation
- Galvanic Isolation
- DI, DO, AI, AO

Hot Swap
- Yes

Environmentals
- IP20
- 0°C to 60°C
- -40°C to 60°C options
- Conformal coat options

Agency Approvals
- UL
- UL HazLoc C1D2
- CE
- ATEX Zone 1

Marine (only select models)
- ABS
- BV
- DNV GL

Channel Density
- 2 - 32 points

Max Wire Gauge
- 12 (low density)
- 14 (high density)

Max I/O per Drop
- 448

I/O Family Comparison

Product	PACSystems RSTi-EP	VersaPoint	VersaMax Modular	RSTi-OM	PAC8000	PACSystems RX3i
Type	Distributed Slice	Distributed Slice	Chassis Based	On-machine Distributed	Intrinsically Safe	Chassis Based
Network Interfaces	PROFINET P ROFIBUS DP Modbus/TCP EtherCAT Ethernet/IP	PROFINET PROFIBUS DP Modbus/TCP DeviceNet	PROFINE PROFIBUS DP Modbus/TCP EGD DeviceNet GENIUS	PROFINET Modbus TCP OPC UA MQTT (simultaneous on same device)	PROFINET Modbus/TCP	PROFINET PROFIBUS DP Modbus/TCP EGD CMX
System Redundancy	PROFINET PROFIBUS DP	-	PNSR, EGD or GENIUS	-	PNSR or Modbus/TCP	PNSR or EGD
Hot Swap	Yes	Yes	Yes	Yes	Yes	Yes
Environmentals	IP20 -20°C to 60°C	IP20 -20°C to 55°C	IP20 0°C to 60°C -40°C to 60°C (opt.) Conformal Coat (opt.)	IP67 -20°C to 60°C	IP20 -40°C to 70°C Conformal Coat	IP20 0°C to 60°C -40°C to 60°C (opt.) Conformal Coat (opt.)
Agency Approvals	PROFINET PROFIBUS DP	UL UL HazLoc C1D2 CE ATEX Zone 2 TUVSIL3	UL UL HazLoc C1D2 CE ATEX Zone 2	UL UL HazLoc C1D2 CE ATEX Zone 2	UL UL HazLoc C1D1 CE ATEX Zone 1 Intrinsically Safe	UL UL HazLoc C1D2 CE ATEX Zone2
Marine	DNV GL	-	ABS, BV, DNVGL, LR (only select models)	-	LR	ABS, BV, DNVGL (only select models)
I/O Module Size (W x H x D)	11.5 x 120 x 76mm	12 x 120 x 70mm	66.8 x 163.5 x 70mm	65 x 212 x 29.8mm	42 x 110 x 106mm	34 x 145 x 140mm
Typical Applications	Machine Control Light Process Control General Automation	Functional Safety	Machine and Light Process Control General Automation	On-machine Cabinetless I/O	Harsh Environment Process Control	Complex Machine Process Control Motion Control General Automation
Level of Diagnostics	Better	Best	Better	Better	Best	Best

Ordering Information

Part Number*	Description
Power Supplies	
IC695PSA040	Power Supply 120/240 Vac 125 Vdc 40W
IC695PSD040	Power Supply 24 Vdc 40W
IC695PSD140	Power Supply 24 Vdc 40W Multi-purpose
IC695PSA140	Power Supply 120/240 Vac 125 Vdc 40W Multi-Purpose
IC694PWR321	Power Supply 120/240 Vac 125 Vdc 30W Serial Expansion
IC694PWR330	Power Supply 120/240 Vac 125 Vdc 30W High Capacity Serial Expansion
IC694PWR331	Power Supply 24 Vdc 30W High Capacity Serial Expansion
IC695PSD180	Power Supply 24 Vdc 80W Multi-purpose

**add 'LT' suffix for low temp version, add 'CA' suffix for conformal coated version (not applicable for all modules)*

Discrete Input Modules	
IC694ACC300	Input Simulator Module
IC694MDL230	Input 120 Vac 8-Pt Isolated
IC694MDL231	Input 240 Vac 8-Pt Isolated
IC694MDL240	Input 120 Vac 16-Pt
IC694MDL241	Input 24 Vac 16-Pt
IC694MDL250	Input 120 Vac 16-Pt Isolated
IC694MDL260	Input 120 Vac 32-Pt Grouped
IC694MDL632	Input 125 Vdc 8-Pt Pos/Neg Logic
IC694MDL634	Input 24 Vdc 8-Pt Pos/Neg Logic
IC694MDL635	Input 125 Vdc 16-Pt Pos/Neg Logic
IC694MDL645	Input 24 Vdc 16-Pt Pos/Neg Logic
IC694MDL646	Input 24 Vdc 16-Pt Pos/Neg Fast
IC694MDL648	Input 48 Vdc 16-Pt Pos/Neg Logic, 1ms filter
IC694MDL654	Input 5/12 Vdc (TTL) 32-Pt Pos/Neg
IC694MDL655	Input 24 Vdc 32-Pt Pos/Neg
IC694MDL658	Input 48 Vdc 32-Pt Pos/Neg Logic
IC694MDL660	Input 24 Vdc 32-Pt High-Density
IC695MDL664	Input 24 Vdc, 16-Pt, Pos Logic
Discrete Output Modules	
IC694MDL310	Output 120 Vac 0.5A 12-Pt
IC694MDL330	Output 120/240 Vac 2A 8-Pt
IC694MDL340	Output 120 Vac 0.5A 16-Pt
IC694MDL350	Output 120/240 Vac Isolated 16-Pt
IC694MDL390	Output 120/240 Vac 2A 5-Pt Isolated
IC694MDL730	Output 12/24 Vdc 2A 8-Pt Positive Logic
IC694MDL732	Output 12/24 Vdc 0.5A 8-Pt Positive Logic
IC694MDL734	Output 125 Vdc 1A 6-Pt Isolated Pos/Neg
IC694MDL740	Output 12/24 Vdc 0.5A 16-Pt Positive Logic
IC694MDL741	Output 12/24 Vdc 0.5A 16-Pt Negative Logic
IC694MDL742	Output 12/24 Vdc 1A 16-Pt Positive Logic ESCP
IC694MDL752	Output 5/24 Vdc (TTL) 0.5A 32-Pt Negative Logic
IC694MDL753	Output 12/24 Vdc 0.5A 32-Pt Positive Logic
IC694MDL754	Output 24 Vdc 32-Pt High-Density
IC694MDL758	Output 12/24 Vdc 0.5A 32-Pt Positive Logic with ESCP per group
IC695MDL765	Output 2 Amp 16-Pt Positive Logic
IC694MDL916	Output 4 Amp 16-Pt Relay
IC694MDL930	Output Relay N.O. 4 A 8-Pt Isolated
IC694MDL931	Output Relay N.C. and Form C 3 A 8-Pt Isolated
IC694MDL940	Output Relay N.O. 2 A 16-Pt
Discrete Mixed Modules	
IC694APU300	High-Speed Counter Module
IC694APU305	Special I/O Processor
IC695HSC304	High-Speed Counter Module, 1.5MHz, 8 Inputs, 7 Outputs
IC695HSC308	High-Speed Counter Module, 1.5MHz, 16 Inputs, 14 Outputs
IC694MDR390	Mixed I/O 24 Vdc Input (8-Pt) N.O. Relay Output (8-Pt)

Analog Input Modules	
IC695ALG106	Analog Input Module, 6 Channel Isolated Voltage/Current
IC695ALG112	Analog Input Module, 12 Channel Isolated Voltage/Current
IC694ALG220	Input Analog 4pt Voltage
IC694ALG221	Input Analog 4pt Current
IC694ALG222	Input Analog 16 Single-Ended/8 Differential Voltage
IC694ALG223	Input Analog 16 Single-Ended Current
IC694ALG232	Input Analog 16 Channel Current
IC694ALG233	Input Analog 16 Channel Voltage
IC695ALG306	Isolated Thermocouple Input Module, 6 Channels
IC695ALG312	Isolated Thermocouple Input Module, 12 Channels
IC695ALG412	Isolated Thermocouple Input Module, 12 Channels
IC695ALG508	Isolated RTD Input Module, 8 Channels
IC695ALG600	Universal Analog Input Module, Voltage, Current, Resistance, RTD, TC
IC695ALG608	Analog Input Module, 8 Channel Non-Isolated / 4 Channel Differential
IC695ALG616	Analog Input Module, 16 Channel Non-Isolated / 8 Channel Differential
IC695ALG626	Analog Input Module, 16 Channel Non-Isolated / 8 Channel Differential with HART Communications
IC695ALG628	Analog Input Module, 8 Channel Non-Isolated / 4 Channel Differential with HART Communications
Analog Output Modules	
IC694ALG390	Output Analog Voltage 2 Channels
IC694ALG391	Output Analog Current 2 Channels
IC694ALG392	Output Analog Current/Voltage 8 Channels
IC695ALG704	Output Analog Current/Voltage 4 Channels
IC695ALG708	Output Analog Current/Voltage 8 Channels
IC695ALG728	Output Analog Current/Voltage 8 Channels with HART Communications
IC695ALG808	Analog Output Current/Voltage 8 Channels, Isolated
Analog Mixed I/O Modules	
IC694ALG442	Analog Module, 4-Inputs, 2-Outputs, Current/Voltage
IC694ALG542	Analog Module, 4-Inputs, 2-Outputs, Current/Voltage with Advanced Diagnostics
Interface and Special Purpose Modules	
IC694BEM320	I/O Link Interface Module
IC694BEM321	I/O Link Master Module
IC694BEM331	Genius Bus Controller Module
IC695CMM002	Serial Communications Module, 2 Ports
IC695CMM004	Serial Communications Module, 4 Ports
IC695CMX128	Memory Exchange Module
IC694DNM200	DeviceNet Master Module
IC694DSM314	DSM314 Motion Controller
IC694DSM324	DSM324 Motion Controller
IC695ECM850	IEC 61850 Ethernet Communication Module
IC695EDS001	RX3i DNP3 Outstation Module
IC695EIS001	RX3i Ethernet 104 Server Module
IC695ETM001	Ethernet Transmitter Module
IC695GCG001	Genius Communications Gateway
IC695LRE001	Serial Bus Transmitter Module
IC695NIU001	Ethernet Network Interface Unit Module
IC695PBM300	PROFIBUS Master Module

Interface and Special Purpose Modules	
IC695PBS301	PROFIBUS Slave Module
IC695PMM335	PACMotion Multi-Axis Motion Controller
IC695PNC001	PROFINET Controller Module
IC695PNS001	PROFINET Scanner Module
IC695PNS101	PROFINET Scanner Module for RX3i Sequence of Events
IC695PRS015	Pressure Transducer Module
IC695RMX128	Redundancy Memory Xchange Module, Multi-Mode Fiber
IC695RMX228	Redundancy Memory Xchange Module, Single-Mode Fiber
Backplanes	
IC695CHS016	RX3i 16-Slot Universal Backplane
IC695CHS012	RX3i 12-Slot Universal Backplane
IC695CHS007	RX3i 7-Slot Universal Backplane
IC695CHS016PCIONLY	RX3i 16-Slot Backplane PCI only
IC695CHS012PCIONLY	RX3i 12-Slot Backplane PCI only
IC695CHS007PCIONLY	RX3i 7-Slot Backplane PCI only
IC694CHS392	RX3i 10-Slot Serial Expansion Backplane
IC694CHS398	RX3i 5-Slot Serial Expansion Backplane
IC693CHS392	Series 90-30 10-Slot Expansion Backplane
IC693CHS398	Series 90-30 5-Slot Expansion Backplane
IC693CHS393	Series 90-30 10-Slot Remote Expansion Backplane
IC693CHS399	Series 90-30 5-Slot Remote Expansion Backplane
IC695CEE001	RX3i CEE001 Expansion Carrier
IC695CEP001	RX3i CEP001 Expansion Carrier with RJ-45 Copper
Accessories	
IC694ACC003	RX3i Door labels for the IC694MDLxxx I/O modules
IC694ACC300	RX3i DC Voltage Input simulator module
IC694ACC310	RX3i Blank filler module
IC694ACC311	RX3i Terminal blocks, 20 terminal (qty 6) for IC694xx I/O modules only.
IC695ACC002	RX3i Replacement plastic cases for RX3i CPU and AC PS, quantity 4. Does not include front cover.
IC695ACC003	RX3i Door labels for RX3i IC695xxx I/O modulesLG728, IC695HSC304, IC695HSC308
IC695ACC302	RX3i Auxiliary Smart Battery Module
IC695ACC600	RX3i Cold Junction Compensation Kit \ for Universal Analog Input IC695ALG600
IC695ACC650	RX3i Series 90-70 to RX3i Mechanical Frame
IC695ACC651	RX3i SERIES 90-70 TO RX3I I/O ADAPTER CARD
IC695ACC652	RX3i Series 90-70 to RX3i 5-Slot Conv Rack

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