

## Product Datasheet

# 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!

## PACSystems RX3i I/O

### 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<sup>2</sup> - 1.5mm<sup>2</sup> (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

## PACSystems RX3i I/O

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### 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

## PACSystems RX3i I/O

### I/O Family Comparison



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

### Ordering Information

| Part Number*          | Description                                                         |
|-----------------------|---------------------------------------------------------------------|
| <b>Power Supplies</b> |                                                                     |
| 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)

## PACSystems RX3i I/O

| 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)         |

## PACSystems RX3i I/O

| 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                                                                         |

## PACSystems RX3i I/O

| 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 modules LG728, 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                                                       |

## PACSystems RX3i I/O

## Product Datasheet

### Americas Support – Technical and Commercial

Phone: 1-888-565-4155 or 1-434-214-8532 (if toll free 800 option is unavailable)

Email for Technical Support: **support.mas@Emerson.com**

Email for Commercial Support: **customercare.mas@Emerson.com**

Primary language of support: English

### Europe, Middle East, & Africa Support – Technical and Commercial

Phone: +800-4-444-8001 or +420-225-379-328

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Email for Commercial Support Asia: **customercare.cn.mas@Emerson.com**

Primary languages of support: Chinese, English

**Support Website: [www.Emerson.com/IAC-support](http://www.Emerson.com/IAC-support)**

**Home Website: [www.Emerson.com/PACSystems](http://www.Emerson.com/PACSystems)**

# CONTACT US & SUPPORT

NEED A QUOTE OR TECHNICAL PARTS REPLACEMENT?

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## Our Service Guarantee:

- 100% Brand New Original & Factory Sealed Components
- 12-Month Quality Warranty on All Industrial Parts
- Worldwide Same-Day Fast Dispatch via DHL / FedEx

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