

PACSystems* RXi

ICRXIBN0E000A and ICRXIBN0M000A

GFK-2798
June 2012

Industrial PCs

The PACSystems RXi family of industrial computers provides an advanced, high-performance computing platform. The PACSystems Box IPC delivers the flexibility of a PC with the industrial ruggedness of traditional automation controllers.

Built with an open and scalable architecture, the RXi platform enables easy connectivity and allows you to maximize application reusability—supporting your current and future needs for business growth.

These small form factor industrial PCs provide a number of features to support computing applications in demanding environments.

- **Dual core 1.0 GHz VIA processor**
- **Multiple Gigabit Ethernet interfaces** provide network implementation flexibility.
- **Built-in Data Storage** – Internal disks provide highly reliable local long-term data retention.
- **USB and SD Card** interfaces enable program loading, serial communications and removable data storage via standard devices.

Ordering Information

Catalog Number	Description
ICRXIBN0E000A	RXi Box IPC with Embedded 32GB mSATA SSD
ICRXIBN0M000A	RXi Box IPC with 250GB Magnetic SATA Hard Drive
ICRXIACCBPL	Optional Backplate for DIN rail mounting
IC690ACC001	Real Time Clock (RTC) battery, included with the Box IPC



Specifications

Dimensions:	IPC Backplate	191.8mm x 115.6mm x 81.3mm (7.55 in. x 4.55 in. x 3.2 in.) 226 mm x 137 mm x 12 mm (8.90 in. x 5.39 in. x 0.47 in.)
Weight:	IPC Backplate	1.814 Kg (4 lbs) 0.454 Kg (1 lb)
Processor		1.0 GHz VIA Eden dual core processor
RAM		4GB DDR3
Floating point		64 bit
Non-volatile storage		32GB mSATA SSD or 250GB SATA drive Non-volatile storage (NVS) can retain data indefinitely without loss of data integrity.
Time of day clock (RTC) accuracy		Maximum drift of ± 2 seconds/day at 25°C
Elapsed time clock (internal timing) accuracy		$\pm 0.01\%$ maximum
Video		Standard 15-pin VGA connector
Maintenance ports ¹		Two Type A USB 2.0 SD standard card slot Dual function Audio out/Microphone in jack (3.5mm four-pin TRRS)
Power requirements		1.8 A at 24 VDC (18–32 VDC)
Serial Communications		One RS-232 RJ-45 port
Ethernet Communications		Two Ethernet (10, 100, 1000 Mbit/s) RJ-45 ports

¹Intended only for temporary connection.

Environmental Specifications

Note: The Box IPC is intended only for indoor installation, not for outdoor use.

Vibration ¹	IEC60068-2-6, JISC0911	10 - 57 Hz, 0.006 in. displacement peak-peak 57 - 500 Hz, 1.0 g acceleration
Shock	IEC60068-2-27, JISC0912	15G, 11ms
Ambient Operating Temperature ² ICRXIBN0E000A ICRXIBN0M000A		-25° to +65° C: [inlet] (-13° F to 149°F) 0° to +40° C: [inlet] (32° F to 104°F)
Storage Temperature		-40° to +85° C (-40°F to 185°F)
Humidity		5% to 95%, non-condensing
Environment	UL60950-1	Pollution Degree 2
Altitude	UL60950-1	0–2000 m

¹Applies only to Box IPCs with solid state hard drive (ICRXIBNx000A)

²For ambient temperatures greater than 50°C (122°F), the unit must be installed in a *restricted access area*.

A **restricted access area** is defined by:

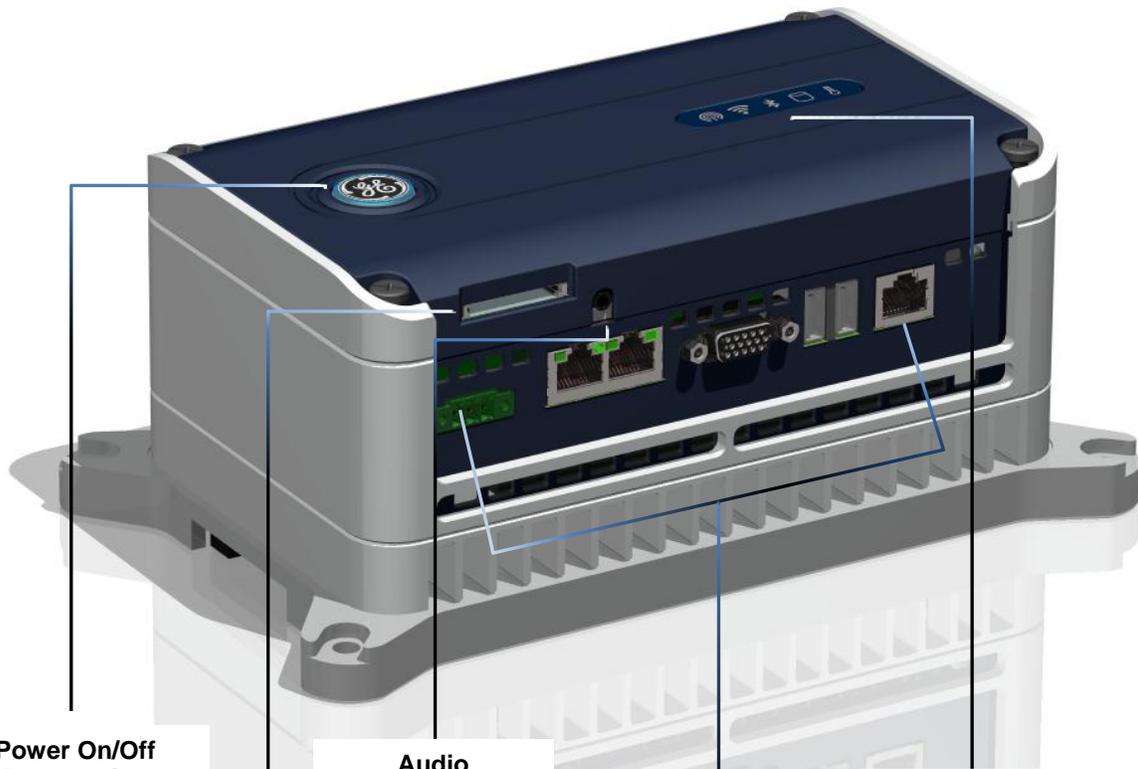
- Access can only be gained by **service persons** or by **users** who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken; and
- Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

A **Pollution Degree 2 environment** as defined by UL60950-1:

- Pollution Degree 2 applies where there is only non-conductive pollution that might temporarily become conductive due to occasional condensation.

For additional product standards, installation requirements and agency approvals, refer to the *PACSystems RXi Box IPC User's Manual*, GFK-2785.

Indicators and Connectors



Power On/Off
Switch and Status
Indicator



SD Card Slot

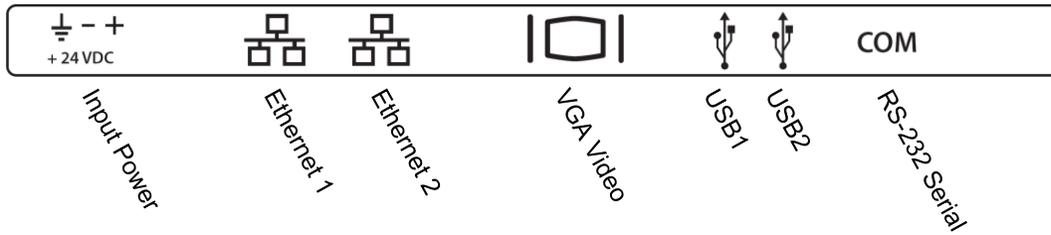
Audio
Connector

Indicators



Blue, blinking – Booting
Green, solid – Running
Red, solid – Fault

Connectors



Power On/Off Switch and Status Indicator Operation

<i>Normal Operation</i> ¹	<i>Action</i>
Power up the IPC	Press and hold the button for at least ½ second. If powering up from a no-power state, the ring LED blinks blue while the IPC is booting and is solid green when the IPC is up and running. If the system has been shut down, but power has not been cycled and is still applied, the ring LED immediately turns solid green.
Shut down the IPC	Press and hold the button for at least 100ms. The ring LED stays green while the IPC is shutting down and then turns off when the IPC is powered down.
Shut down immediately	Caution: Use this option only if the operating system is non-responsive. Press the button for at least 4 seconds. The ring LED turns off.

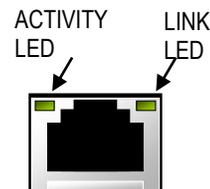
¹ The ring LED displays solid red to indicate a fault, including Overtemp condition.

IPC Status Indicators Operation

<i>Indicator</i>	<i>State</i>	<i>Description</i>
SATA Drive Status 	White, blinking	Read/write access on SATA drive.
Overtemp 	Red, solid	The IPC's internal temperature has exceeded the maximum allowable value. To recover, let the IPC cool, then press the Power On/Off switch.

Ethernet Port LEDs Operation

Each Ethernet port has two LED indicators, **ACTIVITY** and **LINK**.



<i>LED</i>	<i>LED State</i>	<i>Operating State</i>
ACTIVITY	 Blinking, Green	Traffic is detected at the port.
LINK	 On, Green	The link is operational.

Quickstart

Before you attempt to power up the IPC for the first time, inspect the unit for loose or damaged components. If damage is observed (for example, in the form of bent component leads or loose components), contact GE Intelligent Platforms for additional instructions. Depending on the severity of the damage, it may be necessary to return the product to the factory for repair.

Do not apply power to the unit if it has visible damage. Applying power to a unit with damaged components may cause additional damage.

Initial Startup

You will need the following:

24VDC, 48W power supply, Class 2 or LPS	VGA-compatible video monitor
Power cord with 28 AWG –16 AWG wires	USB-compatible keyboard
	USB-compatible mouse (optional)

The product is supplied with a Phoenix Contact part number 1827716 or 1851245 (spring loaded/quick release) power terminal block for use with a power supply. The power supply used must be a UL Listed Limited Power Source (LPS) or Class 2 power source.

1. Attach the power supply output to the IPC's power plug using 16 to 28 AWG (1.31 – 0.08mm²). For frame ground, use shortest length 16 AWG (1.31mm²) wire to ground.

Recommended wire stripping length is 7mm (0.28 in.).

Tighten the screws that hold the wires to 4 lb-in (0.452 Nm).

2. Insert the plug into the IPC's Input Power connector and securely tighten the attaching screws.

The torque range for the attaching screws is 1.95–2.21 lb-in (0.22–0.25 Nm).

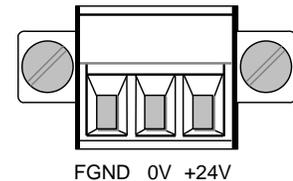
3. Connect a VGA-compatible video monitor and tighten down its attaching screws. Also attach a USB-compatible keyboard, and if desired, a USB-compatible mouse.

4. Power up the unit and check whether any concealed damage has been caused by incorrect transportation, operating/storage conditions or handling.

To power up the unit, press the Power On/Off switch for at least ½ second.

If you notice any damage, **remove power from the unit immediately** and secure it against unintentional use.

5. During normal power up and operation, the Power On/Off status indicator displays:
 - *Blinking blue* while the IPC is starting up
 - *Solid green* when the IPC has completed startup and is running
 - *Solid green* when the IPC is restarted without a loss of power



Note: The ICRXIBN0E000A and ICRXIBN0M000A models come with two hard drive options: a blank 32GB mSATA solid state drive or a blank 250GB SATA magnetic hard drive. You will need to load the desired operating system and associated drivers to fully utilize the I/O interfaces.

Shutting Down the Computer

1. To shut down the IPC, press the Power On/Off switch briefly (less than 4 seconds).
2. This provides a controlled shutdown of the operating system before removing power from the system. The status indicator stays green while the IPC is shutting down and then turns off when the IPC has finished powering down.

To completely shut down the IPC, switch off power at the circuit breaker supplying the IPC.

Note: The On/Off switch's power-off function can be disabled to avoid unplanned shutdown caused by accidentally pressing the On/Off switch. For details see page 7.

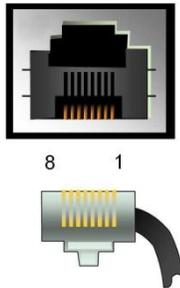
Installation

The IPC can be mounted on a DIN rail or panel-mounted using the ICRXIACCBPL Backplate (ordered separately). You can also mount the IPC directly onto a panel (without a Backplate).

The IPC has four captive machine screws in its base for attaching the unit to the Backplate or panel.

For installation guidelines and procedures, including required clearances for heat dissipation, refer to the *PACSystems RXi Box IPC User's Manual*, GFK-2785.

RS-232 Serial Port Pin Assignments



<i>RJ-45 Pin</i>	<i>Signal</i>	<i>Description</i>
8	0V	
7	NC	No connection
6	NC	No connection
5	0V	
4	NC	No connection
3	Rx	Receive
2	NC	No connection
1	Tx	Transmit

Note: The RJ-45 connector shell provides frame ground.

For connection details for other ports, refer to GFK-2785.

Release History

Catalog Numbers	Version	Date	Comments
ICRXIBN0E000A ICRXIBN0M000A	1.00	June 2012	Initial release

Important Product Information for this Release

Restrictions and Open Issues in this Release

- If the Box IPC overheats, it will shut down to protect critical components. When this happens, the overtemperature LED will only blink on red and then shut off quickly as the entire module shuts down. The GE On/Off LED goes off at the same time.
To recover, let the unit cool and then press the GE On/Off button to restart. The Box IPC will return immediately to what it was doing when shutdown occurred. If you initiate a complete power cycle instead of restarting immediately, the Box IPC performs the normal power up cycle.
- During shutdown or during power down, the overtemperature LED indicator will blink on and off just before the GE On/Off LED goes off.
- Box IPCs currently ignore the Restore after AC Power Loss BIOS setting. When power cycled, the Box IPC returns to its Last State.
- The Box IPC experiences an intermittent processor lockup when Wake from Hibernation (S4) is activated. To recover from this state, power cycle the unit.

Operational Notes

Disabling the On/Off Switch's Power Off Function

The current GE On/Off button operation requires only a 100ms press to request a system shutdown. This provides little protection against unplanned shutdowns caused by accidentally pressing the switch. To totally disable power off, it is recommended to use the SW1-1 switch setting as noted below.

The Box IPC provides a switch, SW1-1, on the underside of the front panel to disable power off using the Power On/Off switch. This feature allows you to prevent an unplanned shutdown caused by pressing the On/Off switch for any length of time. This only affects the ability to power down the unit, not the ability to use the switch to power on the unit.

To disable the On/Off switch from powering down the Box IPC, move SW1-1 from the default off position to ON.

Temperature Sensor Addresses

If you install an application to read the Box IPC's temperature sensors, you will need to know their addresses, which are:

Temp sensor #0 090h

Temp sensor #1 092h

On/Off Button Indications

When pressing the On/Off button, you will see different LED patterns on the On/Off button depending on the power state.

- If you press the On/Off button while powering the unit up from a no-power state, the LED will blink blue for approximately 60 seconds and then turn to a solid green.
- If the system has been shut down, but power has not been cycled and is still applied, when you press the On/Off button, it will immediately turn to solid green while starting the operating system.

Wake from Hibernation (S4) Function

The Box IPC intermittently does not respond to the Wake from Hibernation (S4) with keyboard function when used with a Dell SK-8135 keyboard.

GE Intelligent Platforms Contact Information

Americas: 1-800-433-2682 or 1-434-978-5100

Global regional phone numbers are available on our web site www.ge-ip.com

www.ge-ip.com