QUICK START GUIDE
GFK-2939A
Sep 2019

PACSystems™ RX3i

ENERGY PACK
(IC695ACC402)

EMERSON

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Caution, Warnings & Danger Notes as Used in this Publication

Warning

Warning Notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use. In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note: *Notes merely call attention to information that is especially significant to understanding and operating the equipment.*

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met during installation, operation, and maintenance. The information is supplied for

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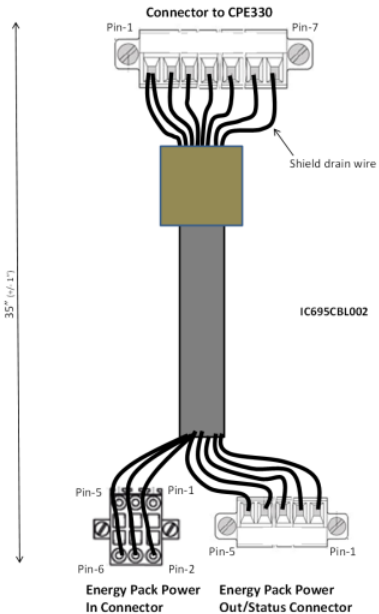
1. Overview

The ACC402 Energy Pack is used exclusively with the CPE330 RX3i CPU. It preserves user memory in the Controller during power fluctuations or outages.

If system power is lost, the Energy Pack maintains power long enough for the connected CPE330 to write its user memory contents to non-volatile memory. When system power is restored, the user memory is restored if the CPE330 is configured to power up from RAM.

The ACC402 Energy Pack is connected to the IC695CPE330 CPU via a dedicated cable IC695CBL002 (shown above). This arrangement allows the Energy Pack to source power from the RX3i backplane in order to charge its circuitry. The cable also allows the CPU to monitor the status of the Energy Pack. Upon loss of backplane power, the CPU automatically switches over to the Energy Pack power source, ensuring an orderly power-down sequence.

Figure 1.1: Connection Diagram



Ordering Information

IC695ACC402	CPE330-compatible Energy Pack. Includes Base, Cap Pack module, CPU connecting cable & ground strap.
IC695ACC412	Replacement Cap Pack module.
IC695CBL002	Replacement 1m (36”) CPU connecting cable.

2. Hardware Installation

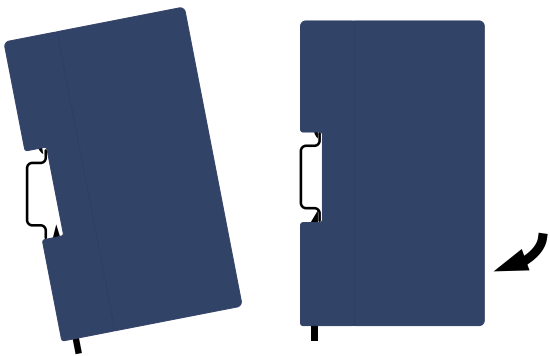
The ACC402 Energy Pack may be mounted on a standard EN50022 DIN rail or directly on an equipment panel. It is designed to be mounted adjacent to the CPE330 Controller and connected to the Controller using the 1m cable provided (IC695CBL002).

Heat dissipation: A minimum clearance of 25mm (1 inch) needs to be provided on all four sides of the unit (right, left, top and bottom).

Mounting the Energy Pack on a DIN Rail

The Energy Pack snaps easily onto the DIN rail. No tools are required.

Figure 2.1: Mounting on to DIN-Rail



Mounting the Energy Pack Directly on a Panel

Recommended fasteners:

The baseplate accommodates four M4-0.7 machine screws (8-36 UNF). Minimum length of 25mm (or 1”) is recommended. Secure with matching nuts.

⚠ CAUTION

Over tightening the mounting screws could crack the plastic housing.

Installation Location

This product is intended for use with the RX3i system. Its components are considered open equipment (having live electrical parts that may be accessible to users) and must be installed in an ultimate enclosure that is manufactured to provide safety. At a minimum, the enclosure shall provide a degree of protection against solid objects as small as 12mm (e.g. fingers). This equates to a NEMA/UL Type 1 enclosure or an IEC60529 IP20 rating providing at least a pollution degree 2 environment. For details about installing RX3i rack systems, refer to *PACSystems RX3i System Manual,* GFK-2314.

If you need technical help, contact Technical Support. For phone numbers and email addresses, see the back cover of this Guide.

Installation in Hazardous Areas

The following information is for products bearing the UL marking for Hazardous Areas or ATEX marking for explosive atmospheres:

CLASS 1 DIVISION 2 GROUPS ABCD

- This equipment is an open-type device and is meant to be installed in an enclosure suitable for the environment that is only accessible with the use of a tool.
- Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations, or nonhazardous locations only.

⚠ WARNING

- EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.
- WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES.

ATEX Zone 2

This module must be mounted in an enclosure certified in accordance with EN60079-15 for use in Zone 2, Group IIC and rated IP54. The enclosure shall only be able to be opened with the use of a tool.

3. Cable Connections

Figure 3.1: Cable Connection

Connecting to the Energy Pack

The two connectors on the ACC402 Energy Pack mate with the corresponding two pre-wired pig-tailed connectors of the IC695CBL002 cable assembly. Insert each keyed connector as shown above and secure using the captive screws provided.

Connecting the Energy Pack to the Controller

With power to the CPE330 Controller turned off, connect the 7-pin keyed connector of the IC695CBL002 cable assembly to the mating connector on the underside of the IC695CPE330 and secure using the captive screws provided.

4. Grounding

Proper grounding of this device is essential. The included ground strap wire must be pressed onto the spade lug connector on the left side of the ACC402. Cable assembly IC695CBL002 ties all internal cable shield drains to this ground.

The frame ground wiring used by both the CPE330 and ACC402 must be connected to a central ground point. The green and yellow ground strap wire (see figure 3.1), which attaches to the spade lug on the side of the ACC402 base plate, must be connected to the central ground point.

All ground wires from the host rack or panel must be as short as possible and terminated at the same grounding point.

5. Power-Up

When power is applied to the Energy Pack, the power-up process goes through the following steps:

1. The IN LED turns on green.
2. The Energy Pack performs a self-diagnostic test. If this test passes, output power to the Controller is turned on and the OUT LED turns on (green).
3. Charging of the Cap Pack begins and the STAT LED blinks green.

4. When charging of the Cap Pack is complete, the STAT LED turns on solid green and the Energy Pack signals to the controller that it can start run-time operation. The Controller will not start running its application until the Energy Pack signals that it is fully charged.
5. If the Energy Pack is faulty or is not communicating, the Controller will commence operations after a timeout period (90 sec).

6. LED Indications

LED	State	Energy Pack Status
IN	Green, solid	Input power is applied and within the specified range.
	Red, solid	Input power is outside the specified range.
	Off	Input power is not applied.
STAT	Green, blinking	Charging of Cap Pack is in progress. No fault exists.
	Green, solid	Cap Pack is fully charged and no fault exists.
	Amber, blinking	Cap Pack is nearing end-of-life. The Cap Pack must be replaced soon. Backup is still guaranteed.
	Red, blinking	Internal fault: Cycle power to the Energy Pack. If this does not clear the fault, contact Technical Support and replace the Energy Pack.
	Red, solid	Cap Pack has reached end-of-life. Replace the Cap Pack. Backup is ***not*** guaranteed.
	Off	No power applied.
OUT	Green, solid	Output power is within the specified range.
	Red, solid	Output power is present but is outside the specified range.
	Off	Output power is not present.

7. Firmware Updates

The firmware for the Energy Pack is automatically updated by the Controller. At power-up, the Controller checks the version of Energy Pack firmware to verify compatibility with the Controller firmware. If an update is needed, the Controller performs it automatically.

LED Indications for Firmware Updates

Firmware Update Mode	All three LEDs blink green
Failed to Load Firmware	All three LEDs blink red

8. Replacing the Cap Pack Module

The status of the Energy Pack is provided at %S0014 (#PLC_BAT) and %SA0011 (#LOW_BAT). User programs should monitor these status bits in order to alert for maintenance conditions. Refer to *PACSystems RX3i CPU Reference Manual*, GFK-2222V or later.

The Cap Pack may be removed and replaced while power is applied to the Energy Pack (hot swapped.)

⚠ CAUTION

When hot swapping Cap Packs, do not cycle power until the new Cap Pack is fully charged and operational. Cycling power before the STAT LED is solid green can result in Controller memory not being preserved. Do not hot remove/insert the Cap Pack during the firmware update process.

1. Loosen the four screws on the Cap Pack and carefully pull the Cap Pack off the base.
2. Install the new Cap Pack on the base, first engaging the module-to-base connectors and then pressing the Cap Pack into place.

Over

⚠ CAUTION

tightening the mounting screws could crack the plastic housing.

3. Use the four screws provided to secure the Cap Pack to the base.
4. When the Cap Pack is first inserted, the STAT LED blinks green while the Cap Pack is charging. Do not remove power to the Energy Pack while the Cap Pack is charging because this could result in Controller memory not being preserved.

   Following a hot swap insertion, the Cap Pack will draw only a small current in order not to disrupt overall power requirements. As a result, it may take up to 10 mins to reach its full charge. This is normal.

   The Energy Pack LEDs and the associated status bits indicate when charging is complete and the Energy Pack is ready to support backup.
5. To remove a Failed Battery fault and clear the associated status bits, clear the Controller Fault Table.

   For details on user programming based on status bit operation, refer to the *PACSystems RX3i CPU Programmer's Reference Manual*, GFK-2950.

9. Additional Information

PACSystems RX3i Power Sync and Measurement System, GFK-2748

PACSystems RX3i 1GHz 64MB CPU w/Ethernet Quick Start Guide, GFK-2941A

PACSystems Controllers: Battery and Energy Pack Manual, GFK-2741C or later

PACSystems RX3i Energy Pack IC695ACC402 Important Product Information, GFK-2940

PACSystems RX3i CPU Reference Manual, GFK-2222V or later

PACSystems RX3i System Manual, GFK-2314

PACSystems RX3i CPU Programmer's Reference Manual, GFK-2950

General Contact Information

Please visit us for product support or updated product information:

Technical Support:
http://www.emerson.com/industrial-automation-controls/support

General Information:
http://www.emerson.com/industrial-automation-controls