

# PACSystems\*

## IC698ACC701C

### Smart Coin Cell Battery

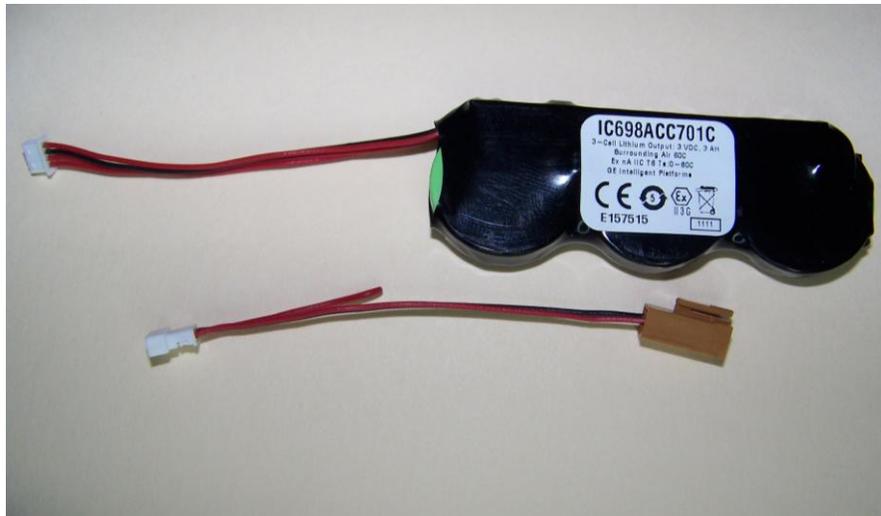
GFK-2723  
May 2011

The IC698ACC701C coin cell battery pack is an enhanced version of the IC698ACC701B battery pack. In addition to providing standard memory backup for PACSystems CPUs, the smart coin cell battery pack has a battery monitoring circuit that enables the user to detect the Low Battery state in advance before it is completely drained.

#### **Pre-installation Check**

Upon receiving the battery pack, verify the package contents, which include the following:

- IC698ACC701C (or later) Smart Coin Cell Battery pack having cable with four-pin female JAE connector
- Enabling adapter cable with four-pin male to two-pin female connector



#### **Date Code**

The date code is located on the product label at the right bottom edge. The date code consists of four digits, such as 1011. The first two digits represent the year of manufacture in the 21st century, such as 10 for the year 2010. The last two digits represent the fiscal week of manufacture for the indicated year; for example 11 stands for fiscal week 11.

GFK-2723

### Installation

1. While installing the battery to the CPU, first connect the four-pin Male JAE connector on the enabling adapter cable to the female four-pin JAE connector on the battery pack as shown in the following figure. (Installing the four-pin connector enables the battery.)



- Note1:** The battery will begin to drain immediately if attached to the CPU in Power OFF condition. To maximize battery life, it is recommended that you install the fresh battery after power has been turned ON to the attached CPU.
- Note2:** Once the enabling adapter cable is connected, the battery starts to drain, even if it is not attached to the CPU. So, it is recommended to disconnect the enabling adapter cable from the battery pack when the battery is not in use. Even though the discharge current would be negligible with just the enabling adapter cable connected, this can affect Battery life if left in this condition for long durations.

2. Connect the two-pin female connector of the enabling adapter cable to the CPU battery terminals.

<p><b>PACSystems RX3i</b></p> <p>Run the battery cable into the notch at the bottom of the battery compartment and close the battery door.</p>  <p>Battery Terminals</p> <p>Notch in battery compartment</p>	<p><b>PACSystems RX7i</b></p> <p>Run the battery cable through the slot on the battery door and reinstall the battery door.</p> <p>An earlier version of the RX7i CPU may not have a notch in its battery door. For these CPUs, replace the door (supplied with the IC698ACC701 replacement battery)</p>  <p>Slot in battery access door</p> <p>BATTERY ACCESS</p> <p><b>Be careful not to pinch the battery cable when closing the battery compartment cover.</b></p>
--	---

**EXPLOSION WARNING:** Do not install or replace battery pack unless the area is known to be non-hazardous.

### **Safe Handling and Disposal**

For Safe handling and disposal of dead battery modules, reference the manufacturer's Material Safety Data Sheet (MSDS) and the Battery Disposal Document that are included with this product.

**WARNING:** Risk of fire, explosion, and burns. Do not short-circuit, crush, incinerate, or disassemble battery.

GFK-2723

## Specifications

<b>Parameter</b>	<b>Specification</b>
Battery capacity	3.0 Amp-Hours
Lithium (Li) content	0.87 Grams (3 cells @0.29grams/cell)
Physical dimensions	3" long x 1.059" wide x 0.4822" high (76.2 x 26.92 x 12.25mm)
Weight	29.94 grams
Connection	2 "(50mm) twisted red/black 22 AWG, Rated 80°C leads with female 4-pin JAE connector.
Connector Assembly	2" (50mm) twisted Red/Black 22AWG with four-pin male to two-pin female adapter cable for compatibility with battery connectors on PAC Systems CPUs. Included in the Battery Pack
Operating temperature range	0 to +60°C
Nominal shelf life	5 years at Storage temperature of 20°C

## Nominal Memory Backup Life\*

The battery pack retains dynamic data in the controller SRAM and is only active when the system is not powered up. The number of days in the Nominal Battery Backup Life table below represents the approximate number of days the battery will back up the SRAM during times only when the CPU is not powered.

Example: If the CPU is powered down only on weekends, the Battery will last 63 days in Good State and 52 days in Low State. The total battery life will be approximately 115 days before it should be replaced. Unscheduled power outages and temperature changes will reduce the number of days and should be considered when calculating the duration of the battery life.

<b>CPU Model</b>	<b>Battery Back-up Life in Good State</b>	<b>Battery Back-up Life in Low State</b>	<b>Total Back-up Battery Life</b>
PACSystems RX3i IC695CPU310, IC695CMU310	18 days	15 days	33 days
PACSystems Rx7i IC698CPE010, IC698CPE020, IC698CRE020	15 days	15 days	30 days

\*The nominal backup values are estimated at 20°C. Backup time increases approximately 17% at 60°C and decreases approximately 32% at 0°C.

**Note:** The CPU detects the low battery condition only while the CPU has power. If a low battery condition occurs while the CPU is powered down, the CPU logs a *Low Battery* fault upon powerup as soon as it detects the signal from the smart battery.

However, because the current drain on the battery is negligible with the CPU powered up, logging of a *Low Battery* fault is not likely to occur, unless a good battery is replaced with a low battery while the CPU has power. This would indicate to the user that a good battery has been accidentally replaced with a depleted battery.

The *Battery* LED or the fault table indicates the battery status. For details on the operation of specific CPU models, refer to the PACSystems CPU Reference Manual, GFK-2222.

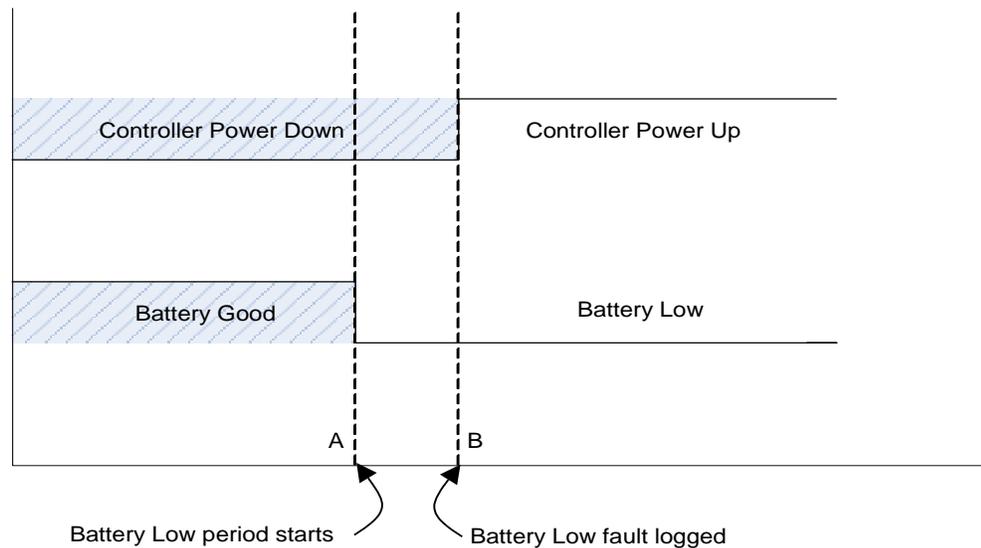
### Smart Battery Operation

The battery output voltage is  $> 2.5$  V when the battery is operating in its good state. At the end of the battery good period, the battery output drops to  $< 2.5$  V for the battery low state. The period for the battery low state is 15 days for all CPU models. Once battery output voltage drops to  $< 2.5$  V, the PACSystems CPU detects this as a battery low condition, a Low Battery fault is logged in the CPU fault table and the Battery LED on the CPU starts blinking in red (depending upon the CPU).

Once the battery low state is active, the user has 15 days of accumulative battery backed energy left for CPU RAM retention during power loss. If the battery is not replaced within 15 days of accumulative power loss, the CPU RAM memory contents will be lost as the battery output voltage drops to 0V.

If the Battery Low condition occurs when the controller is in the Power OFF state, a low battery fault will be logged in the Fault table only at the time when the controller is powered ON. The Battery Low period of 15 days is counted as soon as the Battery Good period is over, but not necessarily when the low battery fault is logged.

Consider the following scenario.



The Battery Low period of 15 days starts at Point A, but the low battery fault is logged only at Point B, once the controller is powered ON. So, the user should make a note that the timestamp of the Low Battery fault may not give the exact start of the 15 days Battery Low period.

**Note:** This battery is not supported on all the PACs CPUs. The table shown below lists the compatible CPU models.

<i>Family</i>	<i>CPU type</i>
Rx3i	CPU310/CMU310
Rx7i	CPE010
	CPE020/CRE020

GFK-2723

**Agency Certifications**

This product is a Listed Accessory for the PACSystems Rx3i and Rx7i family of PLCs and has been evaluated to the following standards for ordinary and hazardous areas.

- UL 2054:2004
- ANSI/ISA 12.12.01: 2007 (UL File E157515)
- EN 60079-0:2006
- EN 60079-15:2005

In order to maintain agency certifications this product must be mounted in an enclosure with mechanical impact strength equal or greater than 3.5 Joules.

**ATEX Marking and Information**

II 3 G Ex nA IIC T6 Ta: 0-60C