

# PACSystems™ RX3i

## IC695PSD040

DC Power Supply, 40 Watts

GFK-2376A  
March 28, 2006

Power Supply IC695PSD040 is a 40-Watt supply that operates from an input voltage source in the range of 18 VDC to 30 VDC.

This power supply provides three outputs:

- +5.1 VDC output.
- +24 VDC relay output that can be used to power circuits on Output Relay modules.
- +3.3 VDC. This output is used internally by RX3i modules with IC695 catalog numbers.

### Caution

**Only one IC695PSD040 can be installed in a PACsystems RX3i (IC695 catalog number) Universal Backplane. This Power supply cannot be used with other RX3i power supplies in redundant or increased capacity modes.** Power Supply version IC695PSD040C or before may cause equipment damage if inadvertently installed in the same backplane as another RX3i power supply.

This DC Power Supply occupies one backplane slot. If the number of modules required exceeds the capacity of the Power Supply, the additional modules must be installed in Expansion or Remote backplanes or power supplies capable of increased capacity mode operation must be used.

The Power Supply indicates when an internal fault occurs so the CPU can detect loss of power or log the appropriate fault code.



### **The following information is for products bearing the UL marking for Hazardous Locations:**

- WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;
- WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND
- WARNING - EXPLOSION HAZARD - DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.
- EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C & D, DIV. 2 HAZARDOUS LOCATIONS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS LOCATIONS ONLY
- The tightening torque range for the control terminals is 9.6-11.5 in. lb. Use only wire rated for 90°C. Be sure to observe any additional ratings that are provided with the modules.
- **Batteries:** Replace Battery with Matsushita Part No. BR2477A Only. Use of another battery may present a risk of fire or explosion." "Caution, Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire". The correct battery type is available as Accessory Kit IC698ACC701.

## LEDs

Four LEDs on the Power Supply indicate:

- Power (Green/Amber). When this LED is green, it indicates power is being supplied to the backplane. When this LED is amber, power is applied to the Power Supply but the Power Supply switch is off.
- P/S Fault (Red). When this LED is lit, it indicates the Power Supply has failed and is no longer supplying sufficient voltage to the backplane.
- Over Temperature (Amber). When this LED is lit, it indicates the Power Supply is near or exceeding its maximum operating temperature.
- Overload (Amber). When this LED is lit, it indicates the Power Supply is near or exceeding its maximum output capability on at least one of its outputs.

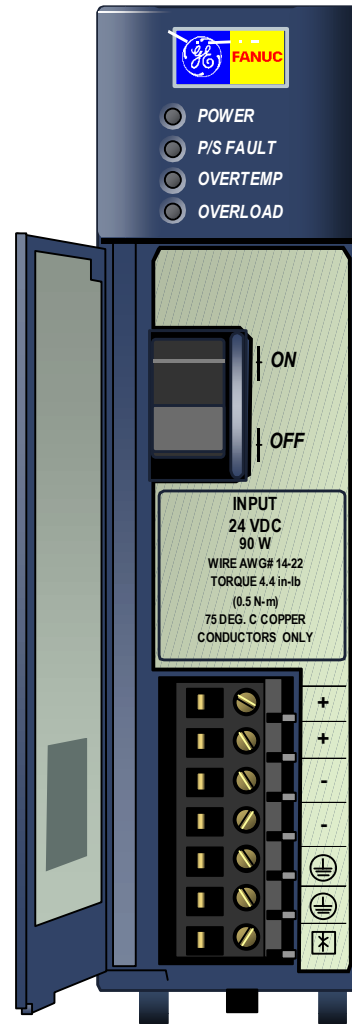
The CPU Fault Table shows a fault if any Overtemperature, Overload, or P/S Fault occurs.

## On/Off Switch

The ON/OFF switch is located behind the door on the front of the module. The switch controls the operation of the outputs of the supply. It does NOT interrupt line power. A projecting tab next to the switch helps prevent accidentally turning it on or off.

## Wiring Terminals

Terminals for +24V and -24V power, ground, and MOV disconnect accept individual 14 to 22AWG wires.



**Specifications: IC695PSD040**

<b>Nominal Rated Voltage</b>	24 VDC
<b>Input Voltage Range</b>	18 to 30 VDC
<b>Start</b>	12 to 30 VDC
<b>Run</b>	
<b>Input Power</b>	60 Watts maximum at full load
<b>Inrush Current</b>	4 Amps, 100 milliseconds maximum *
<b>Output Power</b>	40 Watts maximum total of both outputs. 5.1 VDC = 30 Watts maximum 3.3 VDC = 30 Watts maximum Maximum output power depends on ambient temperature, as shown.
<b>Output Voltage</b>	5.1 VDC: 5.0 VDC to 5.2 VDC (5.1 VDC nominal) 3.3 VDC: 3.1 VDC to 3.5 VDC (3.3 VDC nominal)
<b>Output Current</b>	5.1 VDC: 0 to 6 Amps 3.3 VDC: 0 to 9 Amps
<b>Isolation</b>	NONE
<b>Ripple (all outputs)</b>	50 mV
<b>Noise (all outputs)</b>	50 mV
<b>Ride-through time</b>	10 ms This is the length of time the Power Supply maintains valid outputs if the power source is interrupted. If this Power Supply is used with IC694 and IC693 modules that have relay outputs, special precautions should be taken because dropouts in the source voltage will be seen by the module and may cause relay dropouts.
<b>Wiring Terminals</b>	Each terminal accepts one 14 AWG to 22 AWG wire.
<b>Terminal Current</b>	6 Amps
<b>Number of Daisy-Chained PSD040 Supplies</b>	Up to 2

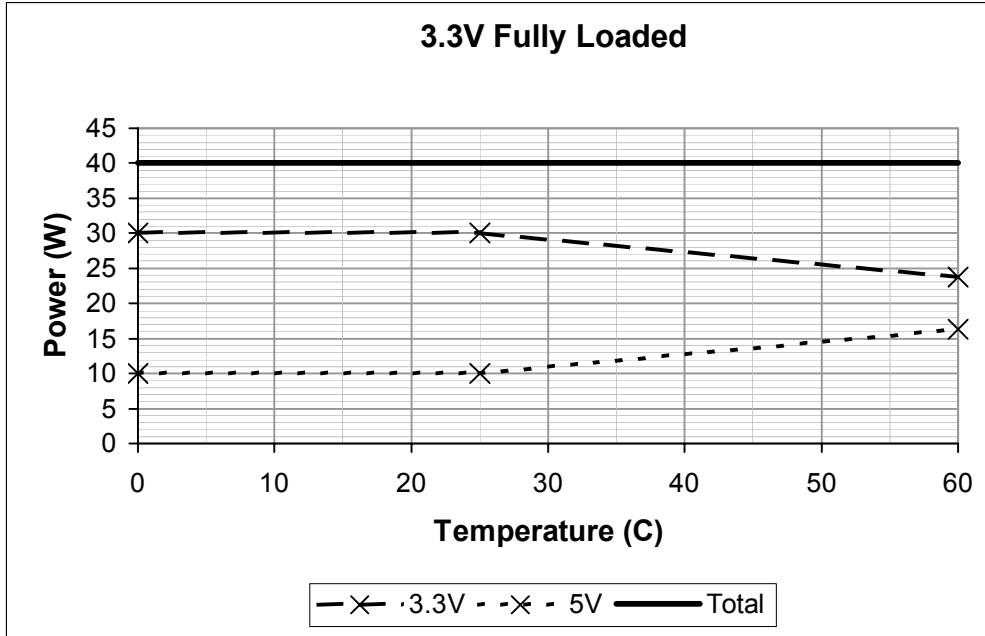
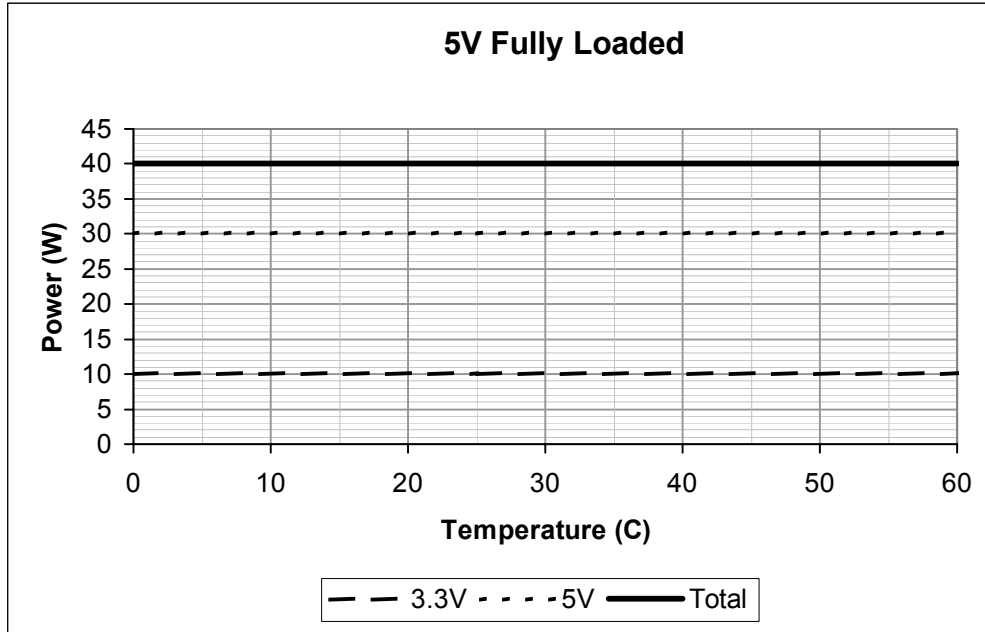
\* The Inrush Current specification is given as a guide for sizing the external power source for the IC695PSD040. Peak inrush current may be higher for shorter durations.

**Important Product Information**

<b>Module Version</b>	IC695PSD040E						
<b>Change for this Update</b>	The previous version of this Power Supply (C695PSD040D) incorrectly reported that it was a PSD140 power supply, causing a Configuration Mismatch error.  The E version and versions prior to D report their identification correctly.						
<b>Compatibility</b>	When the following modules in an RX3i backplane are powered by Power Supply IC695PSD040:  <table style="margin-left: 40px;"> <tr> <td>IC693MDL930</td> <td>IC694MDL930</td> </tr> <tr> <td>IC693MDL931</td> <td>IC694MDL931</td> </tr> <tr> <td>IC693MDL940</td> <td>IC694MDL940</td> </tr> </table> and the 24Vdc input power to the power supply could experience a momentary loss of power, special precautions should be taken. A momentary loss of input power will cause a momentary loss of +24V relay power. This loss of +24V relay power may cause the module relays to momentarily drop out. Power dropouts of up to 10mS do not affect the 5Vdc and 3.3Vdc power outputs.	IC693MDL930	IC694MDL930	IC693MDL931	IC694MDL931	IC693MDL940	IC694MDL940
IC693MDL930	IC694MDL930						
IC693MDL931	IC694MDL931						
IC693MDL940	IC694MDL940						

### Thermal Deratings: PSD040

The maximum output power for Power Supply PSD040 depends on the ambient temperature, as shown below. Full output power is available up to at least 40°C (89.6°F).



## Overcurrent Protection

The 5.1 VDC output is electronically limited to 7 Amps. The 3.3 VDC output is limited to 10 Amps. If an overload (including short circuits) occurs, it is sensed internally and the Power Supply shuts down. The Power Supply continually tries to restart until the overload condition is removed. An internal fuseable link in the input line is provided as a backup. The Power Supply usually shuts down before the fuse blows. The fuse also protects against internal supply faults. The CPU Fault Table shows a fault if any Overtemperature, Overload, or P/S Fault occurs. There is no additional indication if the Power Supply fuse blows.

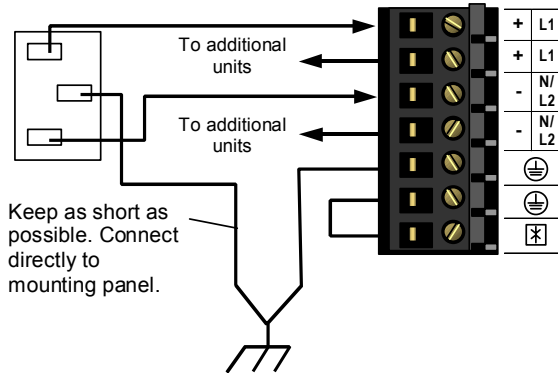
## Field Wiring: IC695PSD040

### Power Source and Ground Connections

The wires from the power source and ground connect to the terminals on the Power Supply as shown at right.

**Warning**

If the same external DC power source is used to provide power to two or more power supplies in the system, connection polarity must be identical at each RX3i power supply. A resulting difference in potential can injure personnel or cause damage to equipment. Also, each backplane must be connected to a common system ground.



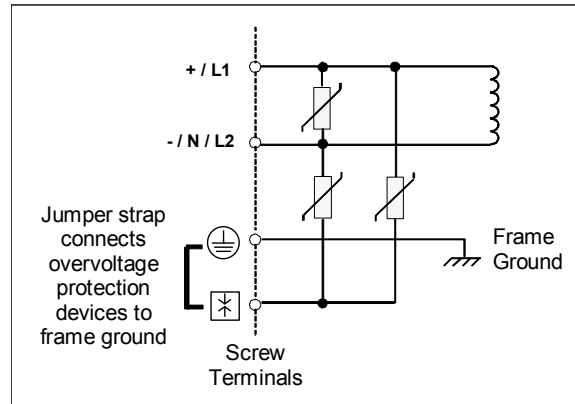
### Input Overvoltage Protection

The bottom terminal is normally connected to frame ground with a user-installed jumper as shown at lower right. If overvoltage protection is not required or is supplied upstream, no jumper is required.

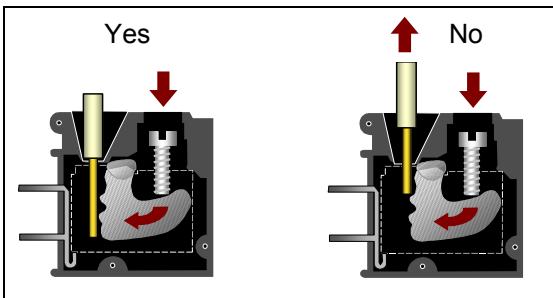
To Hi-pot test this supply, overvoltage protection must be disabled during the test by removing the jumper. Re-enable overvoltage protection after testing by reinstalling the jumper.

**Warning**

This power supply is not isolated and is therefore not compatible with floating or positive grounded systems.



### Power Supply Field Wiring Terminals



Each terminal accepts one AWG 14 to AWG 22 wire. The end of each wire should be stripped at least 3/8-inch (9mm). The terminal can accept a wire that is stripped up to 11 mm (.433 in) while providing full seating of the insulator. The wire must be fully inserted as shown at left, so that the insulation meets the insulation stop position inside the terminal. Tightening the terminal screw pivots the clamp firmly against the stripped end of the wire, holding it in place. If the wire is not fully inserted as shown at right, tightening the terminal screw may push the wire upward so that it is not connected.