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BCKP-0078

3U CompactPCI UPS

User Manual

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Document Revision Control

Revision	Comment	BY	Date
E0	Preliminary	TJ	8/25/01
E0.1	Comments	AF	9/4/01
E0.2	Release	TJ	9/4/01
E0.3	Updated COM Handshake Signals	TJ	9/25/01

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I. Introduction

The BCKP-0078 is a single-slot UPS used with 3U cPCI systems to allow planned shutdown of a processor during a power loss situation. It can be located on the cPCI bus or independent within the card cage. A single slot backplane is available for easy connectivity when used in standalone mode. The BCKP-0078 is optimized to run with Tenta PWRS-0720.

Communication with BCKP-0078 can be accomplished using standard COM port handshake signals or PCI bus.

The UPS board form factor, physical dimension and BUS interface comply with CompactPCI Specification PICMG 2.0 R2.1.

II. Ordering Information

Part No.	Description
AS00078-01	UPS Card with PCI interface
AS00078-02	UPS Card
AS01050-01	Backplane, single slot, with mating connector

III. Specifications

A. Physical Specifications

Criteria	Specifications
PCB Dimensions	100mm (3.9370”) Height X 160mm (6.2992”) Depth X 1.6mm (0.0629”) Thickness
Form Factor	Plug in Euro card, 3U Height, 8 HP Width (1 slot), IEEE (1101.1, 101.10 and P1101.11)
Connectors	Metric 2.0 mm grid, female connector type A is used for J1 (cPCI BUS – 01 model only) and J2 (Signal distribution)
Front Panel	128.5mm Height X 20.32mm Depth X 2.5 mm Thickness, with power and status indication LED’s
Weight	600 g

B. Environmental Specifications

Criteria	Specifications
Operating Temperature	15°C to 45°C – Charge 0°C to 50°C – Discharge
Storage	-40°C to 50°C
Humidity	5%-95% non-condensing

C. Front Panel Indicators

Label	Color	Function
+24 IN	Green	+24 VDC supply
+24 OUT	Green	+24 VDC to P/S
CHG	Orange	Battery charging
	Green	Battery fully charged
	Orange blinking	Fast charge pending
ON LINE	Orange solid	Enabled through COM handshake
	Orange blinking	Enabled through PCI bus

D. Power Specification

Criteria	Specification
Input	24-30 VDC
Backup	85 Watts for 2 minutes above 18V

E. J2 Signals

	Z	A	B	C	D	E	F
22	GND						GND
21	GND						GND
20	GND						GND
19	GND						GND
18	GND						GND
17	GND						GND
16	GND						GND
15	GND						GND
14	GND	+24VIN	COM	COM		+24VOUT	GND
13	GND	+24VIN				+24VOUT	GND
12	GND	+24VIN	COM	COM		+24VOUT	GND
11	GND	+24VIN				+24VOUT	GND
10	GND	+24VIN	COM	COM		+24VOUT	GND
9	GND	+24VIN			NT_CLSD	+24VOUT	GND
8	GND	+24VIN	COM	COM	RS_GND	+24VOUT	GND
7	GND	+24VIN			NT_SHTDWN_BUF	+24VOUT	GND
6	GND	+24VIN	COM	COM		+24VOUT	GND
5	GND						GND
4	GND						GND
3	GND						GND
2	GND						GND
1	GND						GND

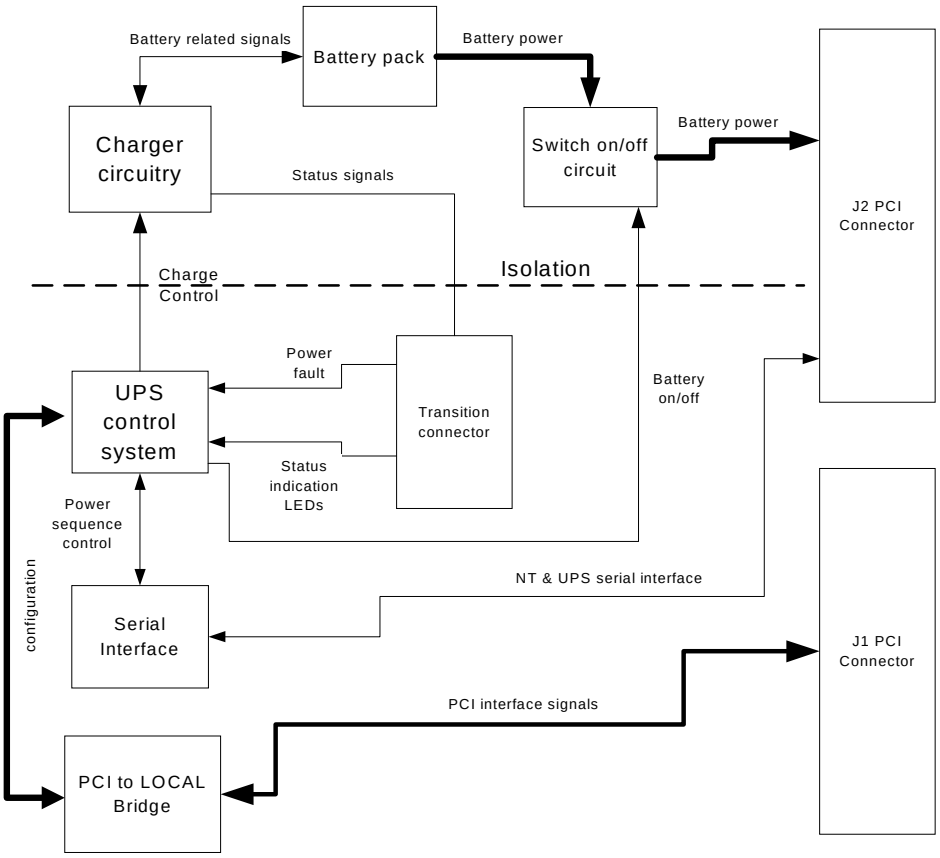
Legend:

Signal	Notes
+24VIN	Input power
+24VOUT	Output power to P/S
COM	24 VDC common
NT_SHTDWN_BUF	Shutdown COM handshake signal; connects to CTS (RS-232 Pin 8) Output for NT to shutdown
NT_CLSD	Shutdown COM handshake signal; connects to DTR (RS-232 Pin 4) Input indicates NT is closed
RS_GND	Logic GND

IV. Functionality

The UPS provides backup power during a power loss. The logic is dependent upon the driver installed. A driver for serial handshake and for a full PCI mode is available. In either case, a charge circuit continually monitors the battery and provides charging when needed. During a standard operating system shutdown, the UPS is not activated. During power loss, a shutdown under battery power is completed.

A. BCKP-0078 Block Diagram



B. Battery Backup

The battery pack is capable of powering an 85-Watt system for a minimum of 2 minutes. The battery pack can supply 3.5 amps for more than 2 minutes.

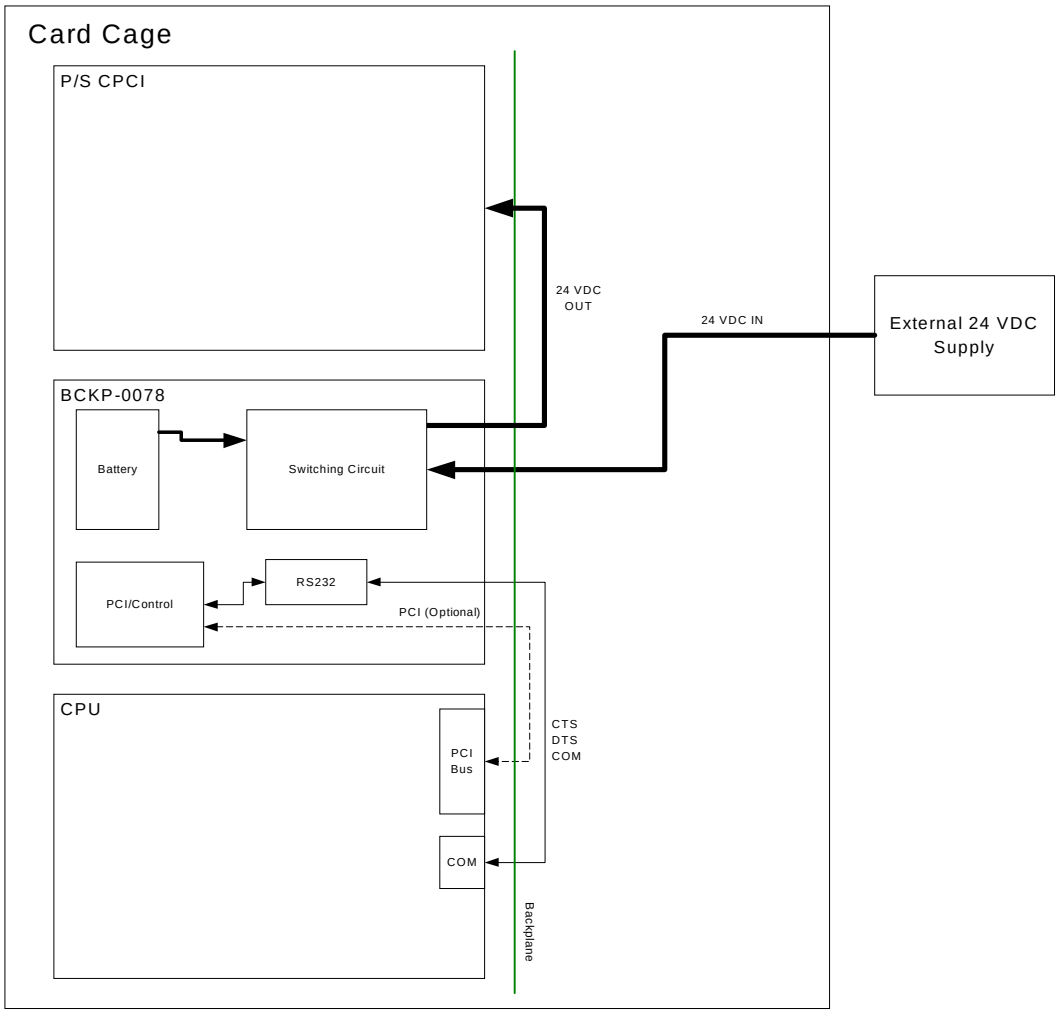
Charging time of fully discharged battery pack lasts 2.5 hours maximum. Typical charging time is 1.5 hours.

C. Power Loss Detection

The power failure detection circuit is responsible for identifying a power failure and switching the Backup. During a short power loss, the logic may rely on internal capacitance to ensure continuous operation rather than aborting to a shutdown mode.

A power loss is determined by monitoring +24Vin. If it drops below a predetermined level, a power failure is identified. The operating system is then signaled to shutdown.

D. Installation Diagram



Notes:

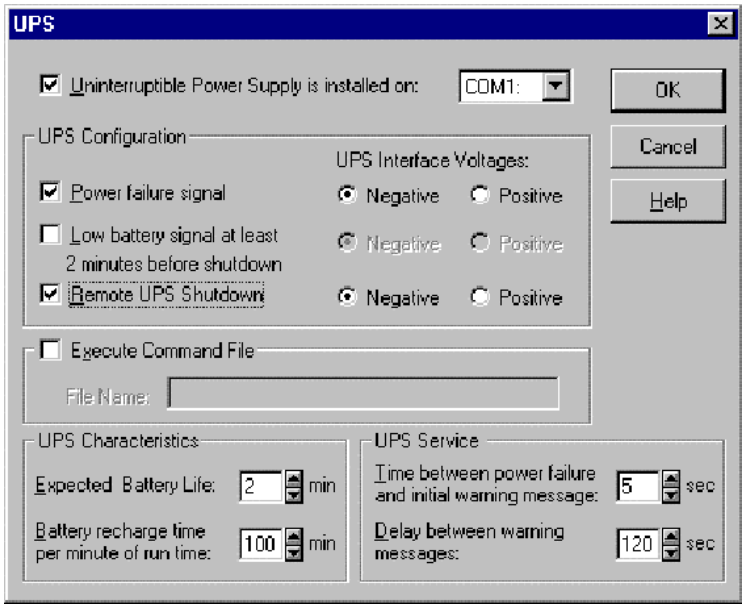
- This diagram only indicates signals relevant to the BCKP-0078.
- No additional protection is needed on the 24 VDC IN line.
- Communication with the CPU is either over the RS-232 (no TTL) or PCI bus (optional).

V. Operation

A. Serial Driver

The BCKP-0078 can communicate through standard UPS COM handshaking. Windows NT provides built-in UPS capabilities to control the BCKP-0078 through the 'UPS' Control Panel icon. All communication between the processor and UPS is through COM handshaking.

The UPS should be configured as follows:

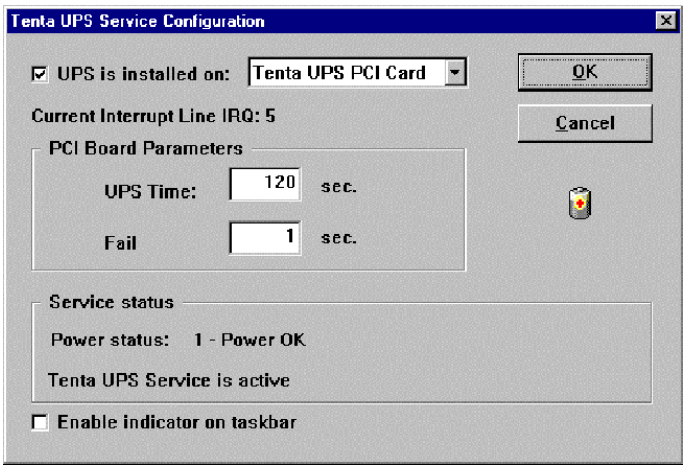


Typical Windows NT UPS Settings

B. PCI Driver

A Windows NT driver is provided to manage all UPS functions. After installation, the driver will run as a background service, and provides access to all set up parameters through the 'TentaUPS' Control Panel icon. All communication between the processor and BCKP-0078 is through the PCI bus.

Default for UPS Time is 120 s.
Default for Fail Time is 1 s.



Typical PCI Driver Settings

C. COM Handshake Signals

The following table logically describes using the COM handshake signals to control UPS directly:

Input	Condition	Output
NT_CLSD		**NT_SHDWN_BUF**
0 (+8V)	First 120 sec on power up Battery backup is disabled	0 (+8V)
0 (+8V)	After power up Battery backup is enabled	0 (+8V)
1 (-8V)	Disable battery backup	0 (+8V)
0 (+8V)	Power failure (>96 ms) occurs UPS signals NT to shutdown	1 (-8V)
0 (+8V)	Power failure (>120 s) UPS powers off	1 (-8V)
1 (-8V)	NT indicates shutdown complete UPS powers off	1 (-8V)

D. Charging Cycle

On power up, the UPS driver task starts automatically. Assuming that the UPS driver is installed and activated through the Control Panel utility, the UPS is enabled and begins charging. CHG will be orange. Upon completion of charging cycle, CHG will turn green.

E. Shutdown Cycle

The system continuously checks for a power failure. A voltage loss for less than Fail Time will have no effect on the system. A voltage loss for Fail Time or greater will result in System Shutdown with battery backup assistance.

All programs will be shut down, and the Registry will be saved. The UPS will monitor this activity, and upon completion will turn off the System.

If for any reason this does not happen, i.e., the operating system locks up, the UPS will turn off the System after a time period of UPS Time.

VI. Warranty

Tenta Technology warrants the original purchaser for two years from the date of delivery for any defect in the product, material or workmanship. Product should be used in suitable installation environment and for the purposes it was designed. Any damages caused by natural disasters such as: fire, flood, wind and lightning are not covered. For more information, please contact Tenta Technology customer support (see locations on front page). Tenta Technology hardware and software are not intended for use in any manner when human life or safety is at risk and not for use in life support equipment.