Product Specification

Model	Date: September 27, 2011
BS14A-H24/2.5L	Created by: Engineering Headquarters

This specification applies to battery pack, BS14A-H24/2.5L
This unit is a battery pack for backup use at blackout, and is to be used with OZP series and GPSA series 24V output type power supply.

General Specification (Items are provided at normal temperature and humidity unless otherwise specified)

	Items	Specification / Standard	Measurement conditions, etc.
Electrical specification	Battery	1.2V 2500mA: 14 cells connected in series	Sealed Ni-MH battery
	Nominal battery voltage	DC16.8V	
	Rated capacity	2500mAh	
	Max. output power	170W Rated (240W Peak within 10 sec, Peak duty ratio max. 35%)	Average output power shall be within 170W
	Built-in booster Output voltage	DC24.0V	Enable to adjust by voltage adjustment volume for connecting power supply. (Voltage range shall be from 22.8V to 28.8V. In case of out of the range, it might not charge or backup)
	Output voltage accuracy	-10%, +5%	-10%, +5% voltage accuracy against the output voltage of OZP, GPSA series.
	Charge specification	0.25A typical (15 hours typical)	Timer charging method. The output of connecting power supply (24V) charges.(Refer to note 3)
	Heater	Work at battery temperature max. 20°C typ. Stop at max. 22°C typ. (It works with keeping battery temperature 20°C typ.) (At battery temperature 0°C to 20°C, it warms up because of the less rated capacity of battery discharge specification)(Note 1) (power consumption at heater working: about 13W)	The output of connecting power supply (24V) charges.(Refer to note 3)
	Embedded fuse rating	30A /32V	
Environment specification	Operating temperature/ humidity	0 to 50°C /10 to 90%	There shall be no condensation. At under 20°C typ., inside heater circulation works.
	Storage temperature/ humidity	Storage within one year: -20°C to less than 35°C /10 to 95% Storage within six months: -20°C to less than 45°C /10 to 95% Storage within a month: -20°C to less than 55°C /10 to 95% Storage within a week: -20°C to 65°C or less/10 to 95%	There shall be no condensation.
	Vibration	To endure displacement amplitude of 0.075mm with vibration frequency of 10 to 55Hz for 10 sweep cycles in the X-, Y-, and Z-direction for 45 minutes.	To follow JIS-C-60068-2-6 At no operation.
	Mechanical shock	Lift one bottom edge 50cm high with the opposite edge placed on a test bench, and let it fall. Repeat 3 times on other three edges as well and no malfunction shall be observed	To follow JIS-C-60068-2-31 At no operation.
	Dimensions	L211×W128×H41	Except protrusions.
	Weight	1.9kg typ.	
	Reliability grade	FA	To follow our standard.
	Short life expectancy components	Battery	Regular maintenance and replacement are required.
	Storage condition	For a long-term storage of six months or longer, re-charge the battery at least once a year (once every six months if available). (Note 2)	If the battery is not charged within the period as described on the left, the battery may not recover enough capacity even with recharging.
Others	Warranty	One year after delivery; however, if any faults belong to us, the defective unit shall be repaired or replaced at our cost Except for inside battery.	Except for defects caused by operations out of the specification.
	Materials attached	The general specification and outline drawing. Other technical documents shall not be released in principle.	
	Charge condition at shipment	The battery has been compulsively charged for 15 hours before shipment.	

(Note 1) The warm-up time from 0°C is approximately one hour.
(Note 2)Recharging method: Connect battery pack to power supply and start the output of power supply (24V). Then short between 1 Pin and 3 Pin min. 2 second to start about 15 hours forced charging. Do not keep forced charging more than necessary to avoid deteriorating the battery.
(Note 3)When battery package is connected to power supply, 20W typ. power is consumed due to charging battery package and heater function. At battery package connected, please reduce output load of power supply.

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川政	田中	松原	2893-01-4-522	1／5

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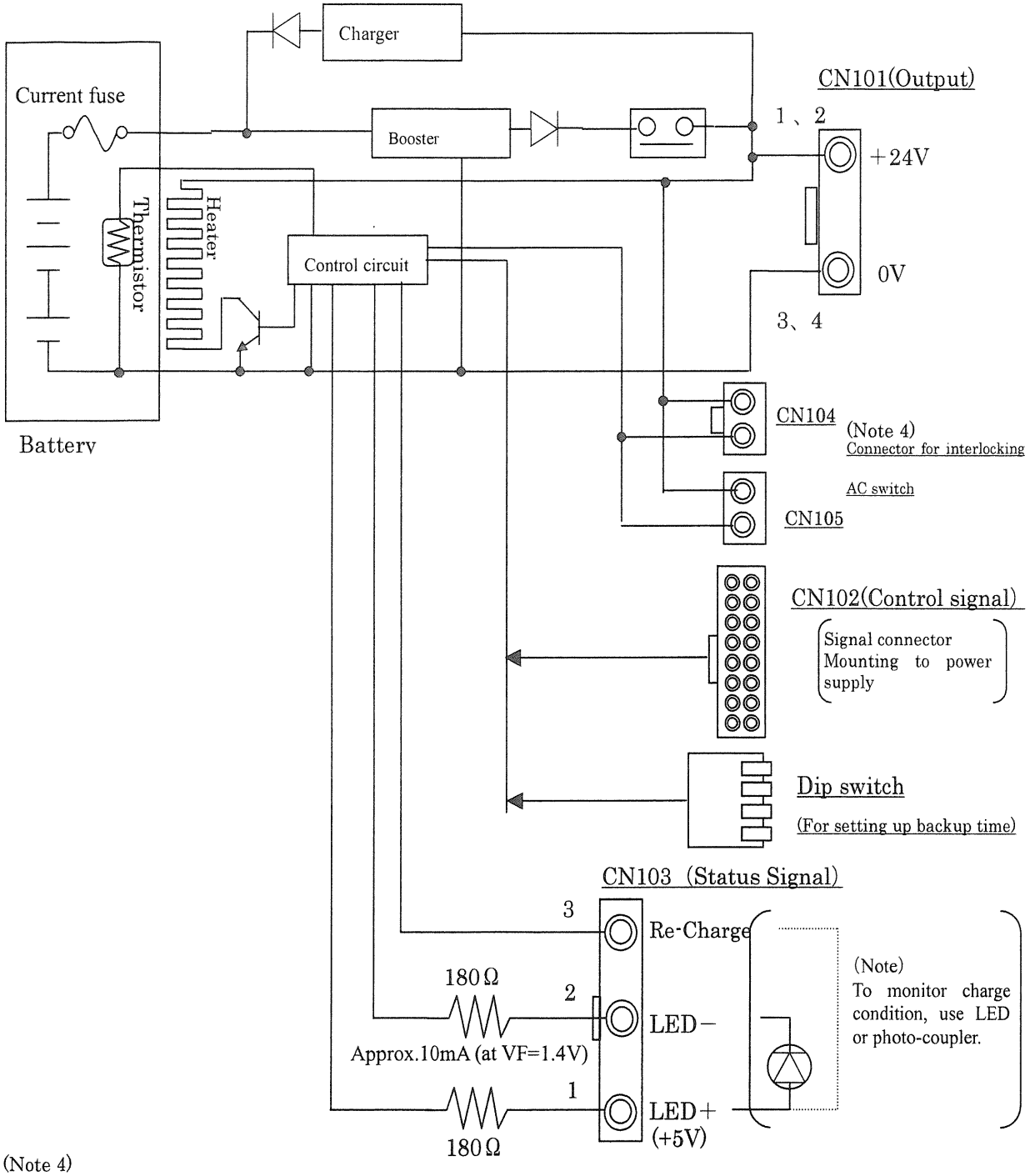
Circuit Block Diagram



(Note 4)

When you use AC switch of power supply unit, take shorting connector: CN105 and use CN104 so that CN104 shorts when AC switch is ON and CN104 is open when AC switch is OFF.
(Please note that if AC switch is flipped without CN104, backup function works (When CN105: shorting connector is used)

LED display when LED is connected between Pin 1 and 2 of CN103

- In Charging: Lighting
- In Discharging: Blinking (0.25sec ON, 0.25sec OFF)
- In Auxiliary Charging: Flashing (0.1sec ON every 10 seconds)

(Auxiliary Charge: Charge to compensate self-discharge)

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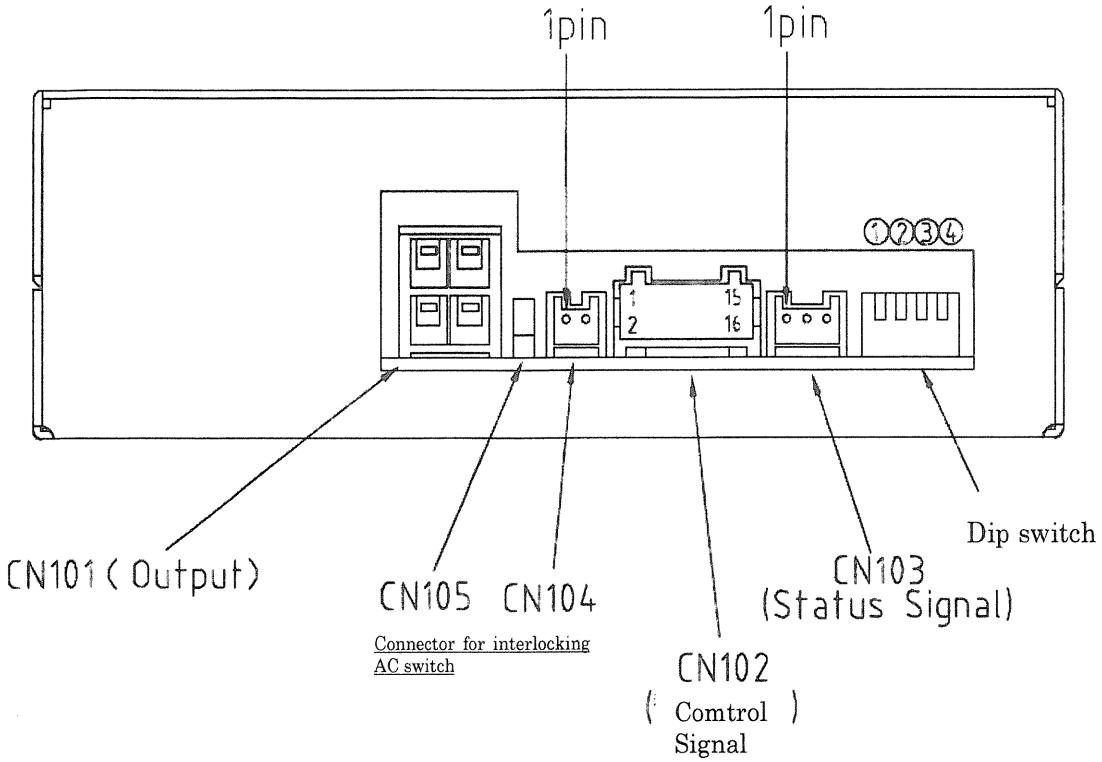
Connector pin assignment



Dip switch configuration

By the configuration of dip switch, The backup time can be set per the table below.(configuration time error ±10%)

(※At shipping configuration, the pattern will be 16)

pattern	①	②	③	④	Discharging time
1	1	1	1	1	1 min.
2	0	1	1	1	5 min.
3	1	0	1	1	10 min.
4	0	0	1	1	15 min.
5	1	1	0	1	20 min.
6	0	1	0	1	25 min.
7	1	0	0	1	30 min.
8	0	0	0	1	35 min.
9	1	1	1	0	Until discharge cutoff voltage
10	0	1	1	0	
11	1	0	1	0	
12	0	0	1	0	
13	1	1	0	0	
14	0	1	0	0	
15	1	0	0	0	
16	0	0	0	0	

1: Switch ON
0: Switch OFF

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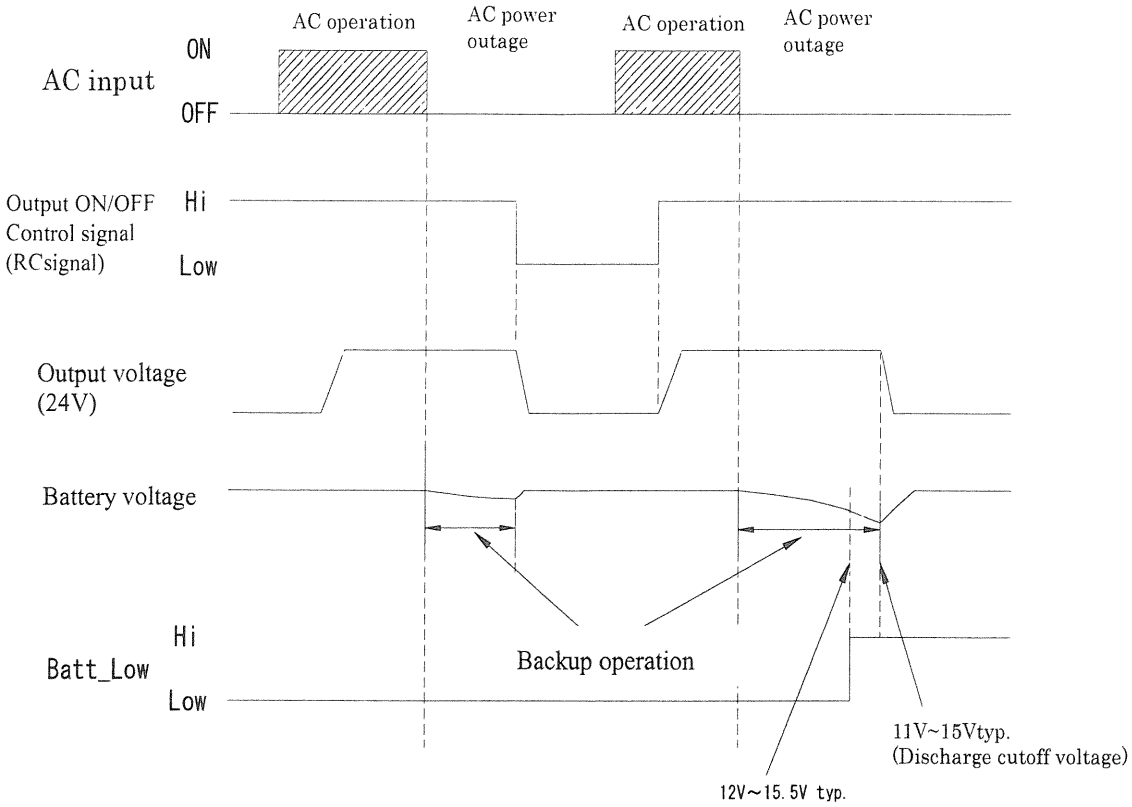
Signal input/output timing diagram



●parallel operating

Because of the current balance circulation in this battery pack, several battery can output (rated output ×unit number×0.9)W by connecting in parallel.
(Connect at output shutdown)

※Contact us if you need over 3 units parallel operating.

・When CN104: AC interlocking switch is used, connect 1 battery pack.
・In the time configuration of dip switch, the shortest time configuration of parallel operated battery packs is applied by priority.
・Use our special harness at parallel operating (For CN101, CN102)
・At backup operation, the Batt_Low signal and the discharge cutoff voltage of the lowest battery voltage are detected.
・ Every battery packs are designed charging circuit and heater circuit.

At parallel operating, please reduce the output power calculated by the number of battery packs×appro.20W.

Connecting example

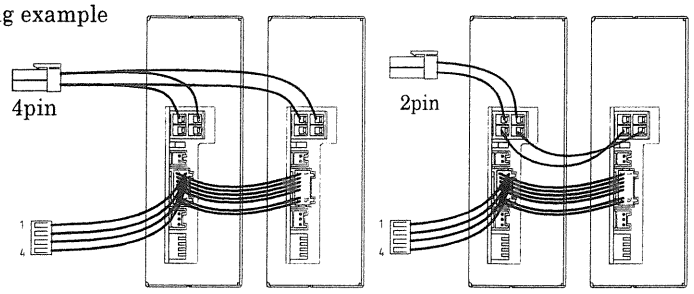


Figure A Figure B

Note)
In the case of Figure A, they can be used at (Rated output×2×0.9) (PSU side connector shall be 4 pins)

In the case of Figure B, they ca output 200W continuous as total output power of 2 batteries. (PSU side connector shall be 2 pins)

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Precaution before use

1. Disassembling ※ Danger

   Never disassemble the battery pack. The electrolyte inside is strong alkaline and it may damage your skin and clothes. Particularly, if the electrolyte is caught in your eyes, you may lose your sight. Should the electrolyte come into contact with your eyes accidentally while disassembling, wash immediately with clean water and go to your doctor. Do not rub your eyes. Also, if disassembled, its electrodes inside may catch fire reacting to oxygen in the atmosphere. NEVER DISASSEMBLE THE BATTERY PACKAGE.

2. Short circuit ※ Danger

   Do not touch the terminal area of the battery package or PCB portion with metal pieces or metal bars. It may damage the equipment or generate heat from the battery, resulting in burn injury.

3. Throwing into flame and heating ※ Danger

   Do not throw the battery package into flame or heat it up. The battery may explode as a result.

4. Charging in the reversed position ※ Danger

   When recharging the battery with a different charger other than the designated one, do not charge the battery in the reversed position. It may generate gas rapidly inside to increase gas pressure, resulting in electrolyte leakage, swell, or explosion

5. Installation in equipment ※ Danger

   When installing the battery into equipment, never seal it. In some cases, hydrogen and oxygen gas may be produced, which is likely to cause burst or explosion ignited by sparks from the switch and motor, etc. Even if the installation space is an open structure, remaining gas and positioning of an ignition spot may lead to the same danger. Therefore, provide degassing holes or block off the ignition sources, such as motors and switches, in a proper way.

6. Diversion to other applications ※ Danger

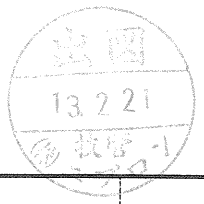
   Do not use the battery package for other applications. It may damage the batteries or equipments due to different specifications.

7. Soaking in water and water leakage ※ Warning

   Do not soak the battery in water/seawater as it may generate heat and rust, resulting in malfunction.

8. Others ※ Caution

   For items that are not specified in this specification too, follow the 'Precautions before use' for general sealed Ni-MH battery to use properly on your own responsibility. Be aware that wrongful use of the battery causes leaking, heating, and exploding, which will lead to a serious accident to personnel.



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