Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Scope

This specification applies to Model BS28A-H350/2.5L.
This product is back up unit to back up optional DC stabilized power supply H' series and 'UZP' series at black out.

General specification (Provided at normal temperature and humidity unless otherwise specified)

	Items	Specifications	Measurement condition etc.
Electrical cpecifications	Nominal battery power voltage	16.8V DC	Sealed nickel hydoride battery
	Rated capacity	2500mAh	10 hour rate
	Max.output capacity	230W (Peak 380W)	*1
	Power consumption	0.5W max.	*2
	Booster discharge output voltage	350V typ.	
	Over discharge protection	11.2V typ.	Back up operation shut down
	Charge Specification	0.25A typ.	27V DC max.
	Built-in fuse rating	30A	
Environment	Operating Temp./Humidity	0 to 50℃/20 to 90%	No condensation *3 Internal heater will operate at 20℃ typ. or less.
	Storage Temp./Humidity	-20 to 65℃/20 to 90%	
	Vibration	To endure the vibration acceleration of 2G with vibration frequency of 10 to 55Hz for 10 sweep cycles in each X-Y-Z direction.	JIS-C-60068-2-6 At no operation (With the normal packaging.)
	Mechanical shock	Lift one bottom edge up to 50mm and let it fall. Number of bumps: 3 each of 4 edges. There shall be no malfunction observed.	JIS-C-60068-2-31 At no operation (With the normal packaging.)
Others	Insulation resistance	Primary-Secondary-FG: 50MΩ or more	At 500V DC
	Dielectric strength	Primary-Secondary and FG : 1.5kV AC/1 minute Secondary-FG : 500V DC/1 minute	Cut-off current 10mA
	Dimensions	146(W)x41(H)x200(D)	Refer to the outline drawing in another page
	Weight	1.8 kg typ.	
	Reliability Grade	FA	To follow our standard
	Short lifetime component	Battery	
	Storage condition	*3	
	Warranty	One year after delivery. If defects belong to us, the defective unit shall be repaired or replaced at our cost.	Except the operation out of the specification

*1 : Peak output within 10ms. (Time ratio 10%) The effective value dies not exceed 230W.
*2 : After completing charging, the power of the BS 28A series alone during standby in the fully charged state
*3 : Re-charging once at least per year(or 6 months if available) is required for 6 months or longer storage.
When re-charging is not conducted beyond the period, the battery may not recover the enough capacity.
1 year or less storage : -20 to lower than 30℃/10 to 95%
Within 90 days storage : -20 to lower than 40℃/10 to 95%
Within 30 days storage : -20 to lower than 50℃ /10 to 95%
When input voltage in applied after long term storage, it may charge about 19 hours.

出図 '18.11.22 (株)ニプロン 技術管理

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	T.Ishikawa	K.arino	6208-01-4-520	1/10

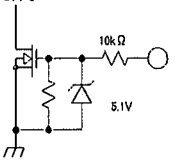
Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Input/Output signal specification

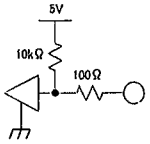
Input signal	Back-up ON/OFF control signal (R_ON)	Back up synchronizing signal with UZP series. With being applied with 5-36V from external, it shifts to backup stanby mode. *4
	Battery shut down signal for TTL (SHUT_DOWN_T)	Battery connection shuts off at 'L' input with 60ms or longer. (valid only at battery backup operation)
	Battery shut down signal for RS-232C (SHUT_DOWN_R)	Battery connection shuts off at 'Positive(+2.4V or more)' input with 60ms or longer. (valid only at battery backup operation) ADM232AARN(Analog Devices) or equivalent used.
	Mode switching signal (Jumper pin)	Switching between H mode(for H series) and U mode(for UZP series) (Short circuit between 2 - 3 pins:H mode, Short circuit between 1 - 2 pins:U mode)
Output signal	AC failure detection signal for TTL (AC_FAIL_T) *5	'OPEN' is delivered at backup operation due to a blackout.
	AC failure detection signal for RS-232C (AC_FAIL_R) *5	'Negative(-9V typ.)' is delivered at backup operation due to a blackout.
	Low battery signal for TTL (BATT_LOW_T) *5	'OPEN' is delivered when battery voltage falls down to 14.0V typ.
	Low battery signal for RS-232C (BATT_LOW_R) *5	'Negative(-9V typ.)' is delivered when battery voltage falls down to 14.0V typ. ADM232AARN(Analog Devices) or equivalent used.
	Battery level notification signal (BATT_E0~E2)	Battery remaining signal notification signal. Display in 3 levels (80% typ. max., 20 to 80 % typ., 20% typ. min.) by 'OPEN' output. *6
	Battery replacement time notification signal (BATT_LIFE)	Battery replacement timing notification signal. Output 'OPEN' signal due to deterioration of battery internal resistance and abnormality of charger.
	Fan monitor signal (FAN-M)	Outputs a rectangular wave signal of two cycles per rotation of the fan motor. Signal stops when "L" or "OPEN" delivered due to fan failure or the like.

○ R_ON signal input circuit



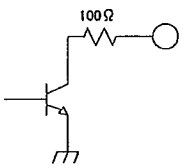
*4
VH=4.5~36V
VL=0.8V max

○ SHUT_DOWN_T signal input circuit



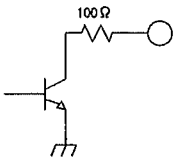
VH=4.5~5.25V
VL=0.8V max

○ AC_FAIL_T、BATT_LOW_T signal output circuit



← 5mA max
5.25V max

○ BATT_E0~E2、BATT_LIFE signal output circuit

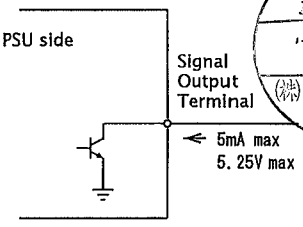


← 5mA max
5.25V max

○ BATT_E0~E2 Output pattern

20%typ. max.	—	E0=L, E1=OPEN, E2=OPEN
20 to 80%typ	—	E0=L, E1=L, E2=OPEN
80%typ. min.	—	E0=L, E1=L, E2=L

○ FAN-M signal output circuit



('L' <0.4V)

出図 '18.11.22 (株)ニプロン 技術管理

*4 :Contact us if you need to apply 36V or higher voltage.
*5 :When the power supply side PS_OFF or R_ON=L, detection is not performed and the state is maintained.
*6: After long-term storage, there is a possibility that it will not operate normally until after re-charging.

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	Ishikawa	Kanno	6208-01-4-520	2/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Connector pin assignment

Connector Name	Pin No.	Function	Note
Back-up connector	1	Back-up output +	
	2	-	
	3	Staet-up signal	
	4	-	
	5	-	
	6	on/off detection signal	Valid only U series
	7	Back-up output -	
	8	AC input detection signal	Valid only H series
	9	on/off detection signal	Valid only H series

Connector Name	Pin No.	Function	Note
Signal connector (SIG_T)	1	AC_FAIL_T	
	2	SHUT_DOWN_T	
	3	BATT_LOW_T	
	4	-	
	5	FAN-M	
	6	-	
	7	GND	
	8	-	
	9	-	
	10	VCC5V	Total output of Vcc 5V :20mA max.

Connector Name	Pin No.	Function	Note
Auxiliary connector	1	VCC5V	Total output of Vcc 5V :20mA max.
	2	R_ON	
	3	-	
	4	GND	
	5	Reserved	
	6	BATT+	20mA max.

Connector Name	Pin No.	Function	Note
Battery status connector	1	VCC5V	Total output of Vcc 5V :20mA max.
	2	BATT_E0	
	3	BATT_E1	
	4	BATT_E2	
	5	BATT_LIFE	

Connector Name	Pin No.	Function	Note
Communication connector	1	VCC5V	Total output of Vcc 5V :20mA max.
	2	Reserved	
	3	Reserved	
	4	Reserved	
	5	Reserved	
	6	GND	

18.11.22
㈱ニプロン
技術管理

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	T.Ishikawa	K.Kanno	6208-01-4-520	3/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Connector pin assignment

Connector Name	Pin No.	Function	Note
RS232C	1	VCC5V	Total output of Vcc 5V :20mA max.
	2	GND	
	3	BATT_LOW_R	
	4	SHUT_DOWN_R	
	5	AC_FAIL_R	

Connector Name	Pin No.	Function	Note
Power supply connector for heat retention heater (12V)	1	Power input for 12V heater	12V±5%
	2	GND	
	3	GND	
	4	-	

Connector Name	Pin No.	Function	Note
Power supply connector for heat retention heater (24V)*7	1	Power input for 24V heater	24V±5%
	2	GND	
	3	-	

Connector Name	Pin No.	Function	Note
Mode switching pin	1	Mode switching signal U mode : Short circuit between 1 and 2 pins. H mode : Short circuit between 2 and 3 pins.	This product has a short circuit plug between 2-3 pins, we will ship with attached.
	2		
	3		

*7 When using the heat retention heater with 12V power supply, please connect the attached short connector.

出図
'18.11.22
㈱ニプロン
技術管理

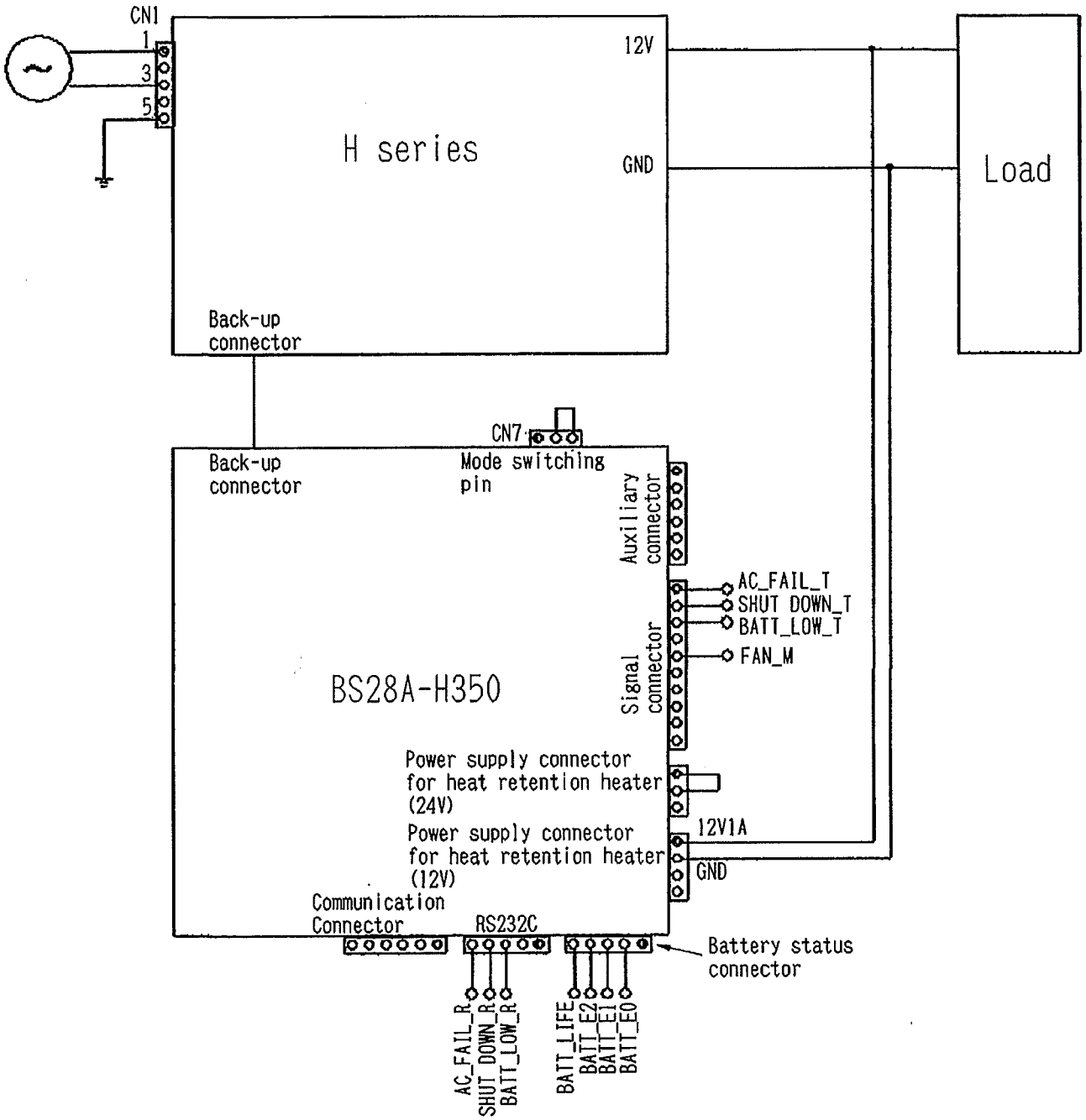
Drawn by	Checked by	Approved by	Drawing No.	
Yodo	Ishikawa	K.arimo	6208-01-4-520	4/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Connection diagram

● H series (exsample)



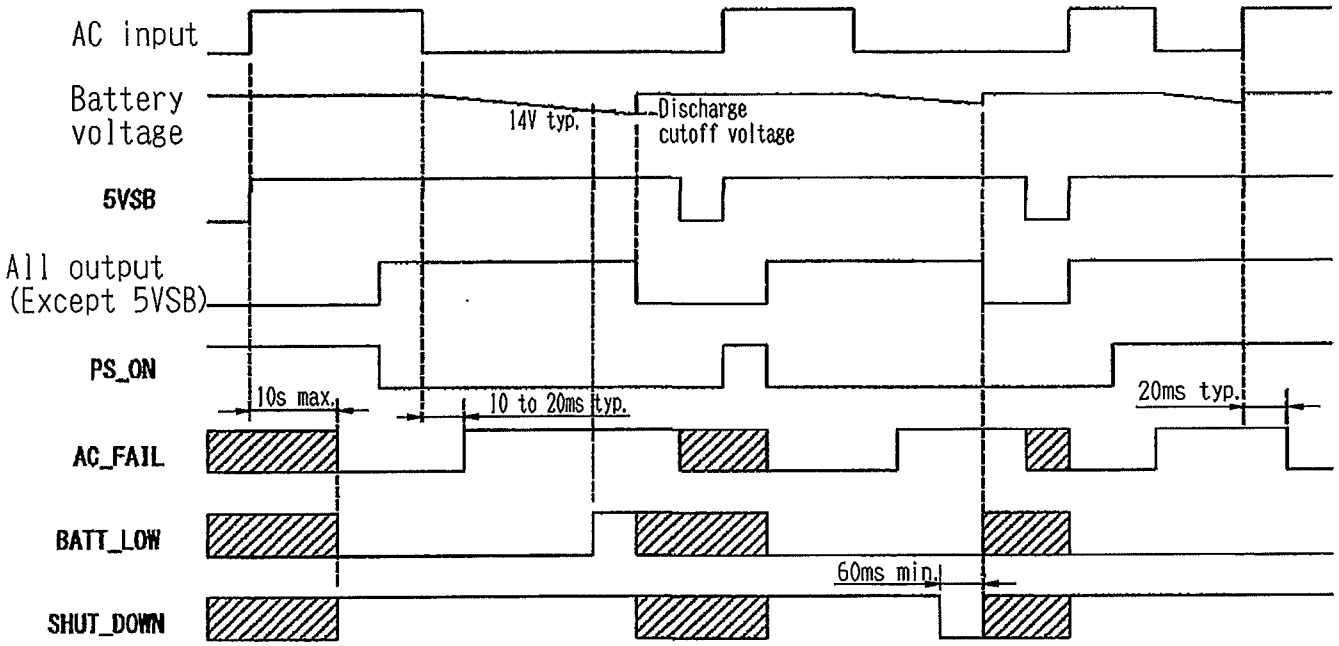
出図
'18.11.22
㈱ニプロン
技術管理

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	Ishikawa	K.anno	6208-01-4-520	5/10

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Sequence specifications

●H mode



出図
'18.11.22
(株)ニプロン
技術管理

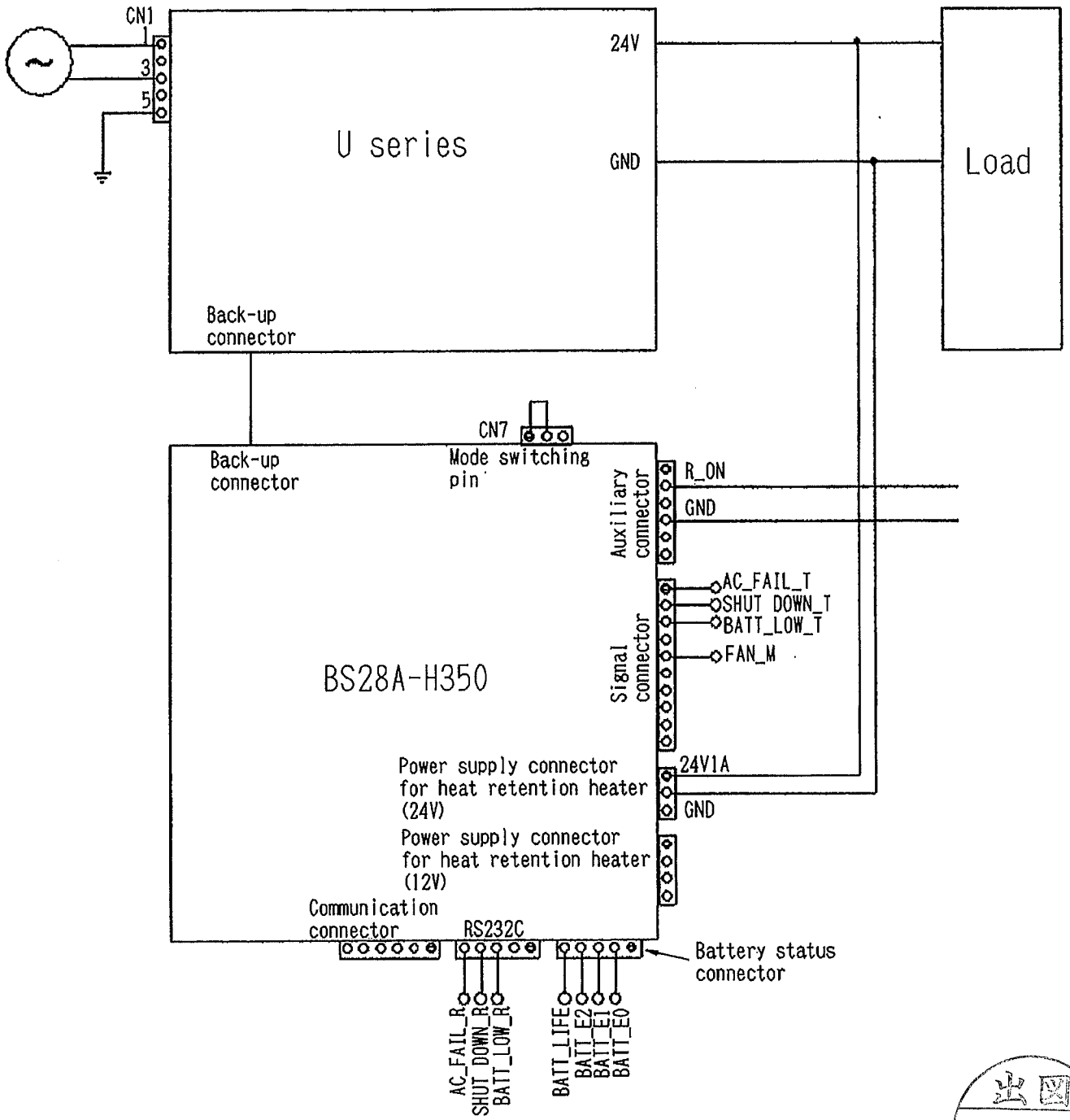
Drawn by	Checked by	Approved by	Drawing No.	
Yodo	T.Ishikawa	K.onino	6208-01-4-520	6/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Connection diagram

● U series (exsample)



出図
'18.11.22
㈱ニプロン
技術管理

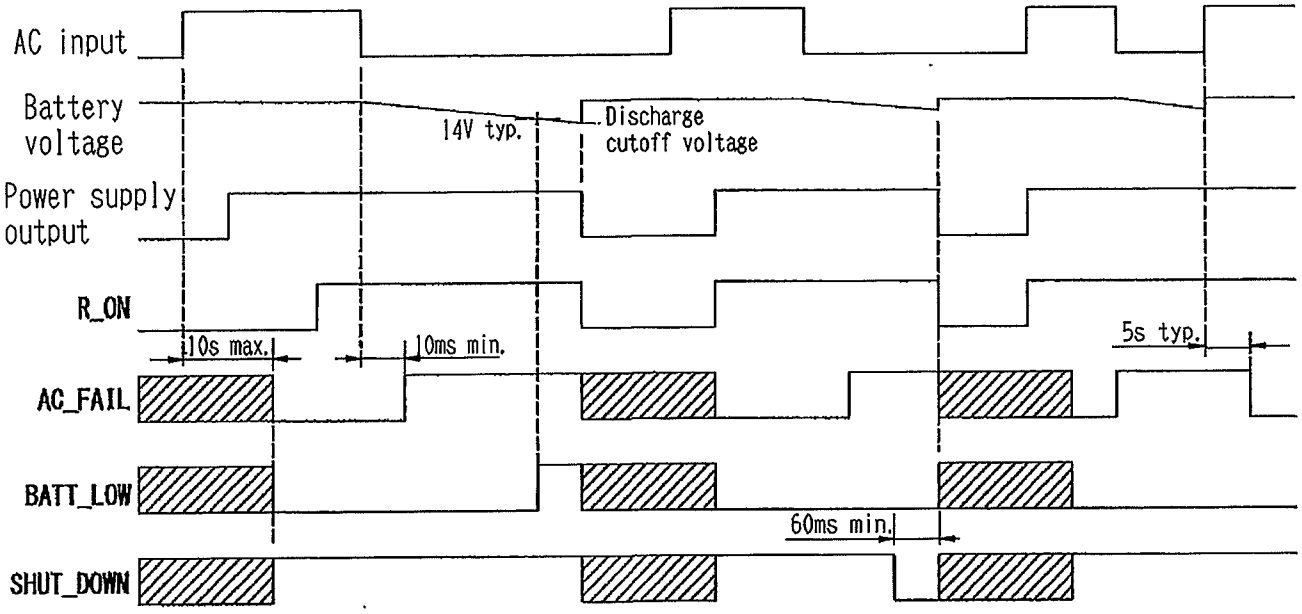
Drawn by	Checked by	Approved by	Drawing No.	
Yodo			6208-01-4-520	7/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Sequence specifications

●U mode



出図
'18.11.22
㈱ニプロン
技術管理

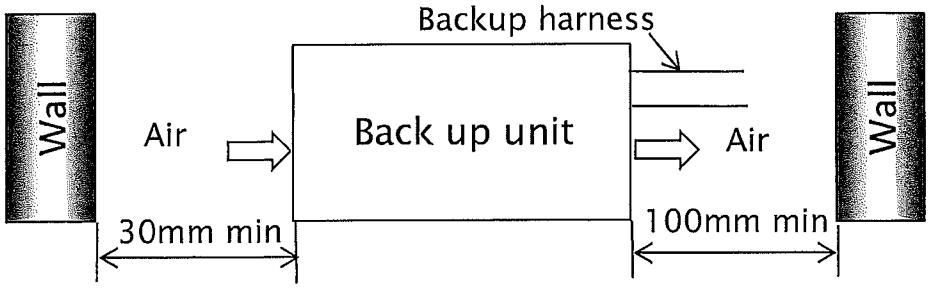
Drawn by	Checked by	Approved by	Drawing No.	
Yodo	Ishikawa	Kanno	6208-01-4-520	8/10

Product Specification

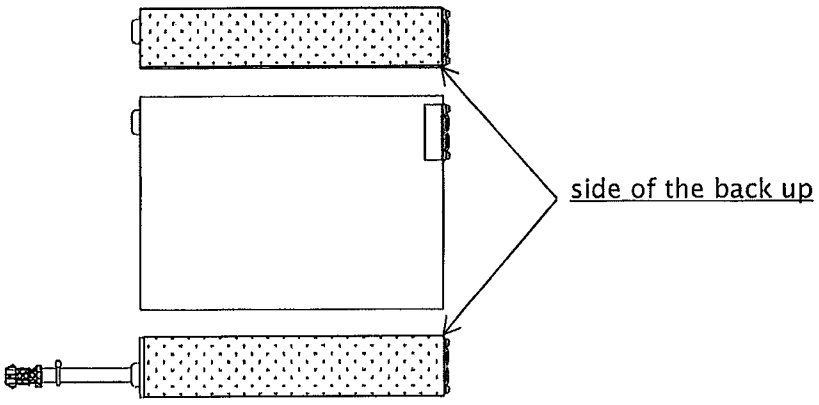
Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Insulation condition

1. This back up unit should be installed with the clearance as shown below from the wall to its air inlet and outlet.
2. Temperature around the air inlet area of the back up unit should not exceed the maximum operating temperature.

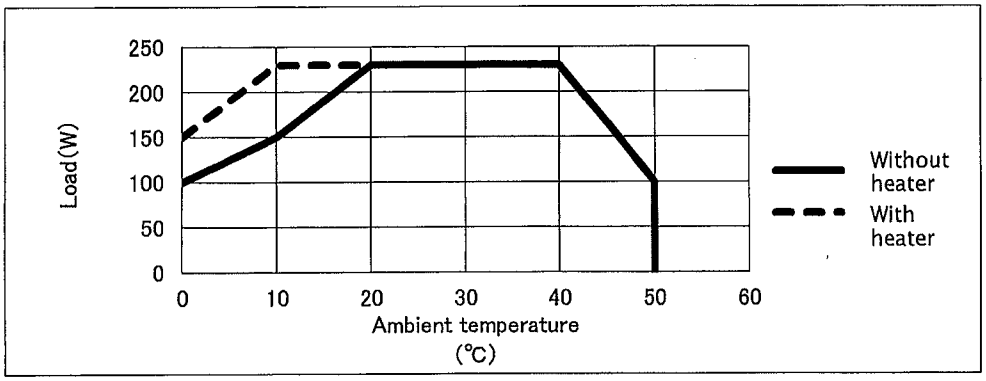


3. Make sure that sufficient conduction is obtained on the side of the back up unit
If there is no conduction, sufficient characteristics may not be obtained for noise c



Derating condition

When the ambient temperature adjacent to the air inlet falls below 20 ℃ or exceeds 40℃, follow the load shown below for continuous and peak rating.



※Please verify the warm-up time aith actual equipment with the following guidelines.
- Load of 100W to 150W: the warm-up time about 1 hour.
- Load of 150W or more: the warm-up time about 24 hours.

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	T.Ishikawa	K.Arino	6208-01-4-520	9/10

Product Specification

Model	Created:November 8th, 2018
BS28A-H350/2.5L	

Precautions before use

⚠ Hazard

Electrical shock hazards

This back up unit is designed for intergrating. High potentials exist inside the back up unit.
When integrating the back up unit into an instrument or system,
use appropriate safe procedure to avoid electrical shock hazards.

Heat

This product consists of some components which become high temperature at operation.
Please cool it with appropriate measures.

Output short circuit

Do not get output terminals shorted. When shorted, internal capacitors discharge at once to cause serious accident due to spark, etc. resulting in shortening lifetime of this unit.

Wire connection

High potentials exist inside this back up unit.
For operator safety, be sure to insertion and extraction of connectors should be done after complete discharge.

⚠ Warning

Water proof/dust proofing

Do not sink or wet this product with water or seawater. It causes heat or fault.

⚠ Caution

Usage to other devices

This product is dedicated device used for backup at blackout,
to the applicable power supplies.
Do not use it for other devices or other application.
These differences of specifications may cause damages to battery or device.

Operation noise

Occasionally noise may be heared under specified operating conditions,
but it is due to the low-frequency components of switching,
and therefore it is normal operation.

Operating temperature

This product uses Sealed nickel hydoride battery.
Please use heater, when used in low temperature environment.
Please use after warming the battery for 24 hours or more,
when using at low temperature environment or high load.

Battery level notification signal

Depending on the discharge rate, battery temperature, etc., the battery level notification signal may be stopped by the overdischarge prevention function even if the remaining capacity remains.

Before using

Although it is in a fully charged state at the time of manufacture,
the backup time may be shortened by spontaneous discharge.
Please use it after fully charging when using the first time.

出図
'18.11.22
㈱ニプロン
技術管理

Drawn by	Checked by	Approved by	Drawing No.	
Yodo	T.Ishikawa	K.amino	6208-01-4-520	10/10