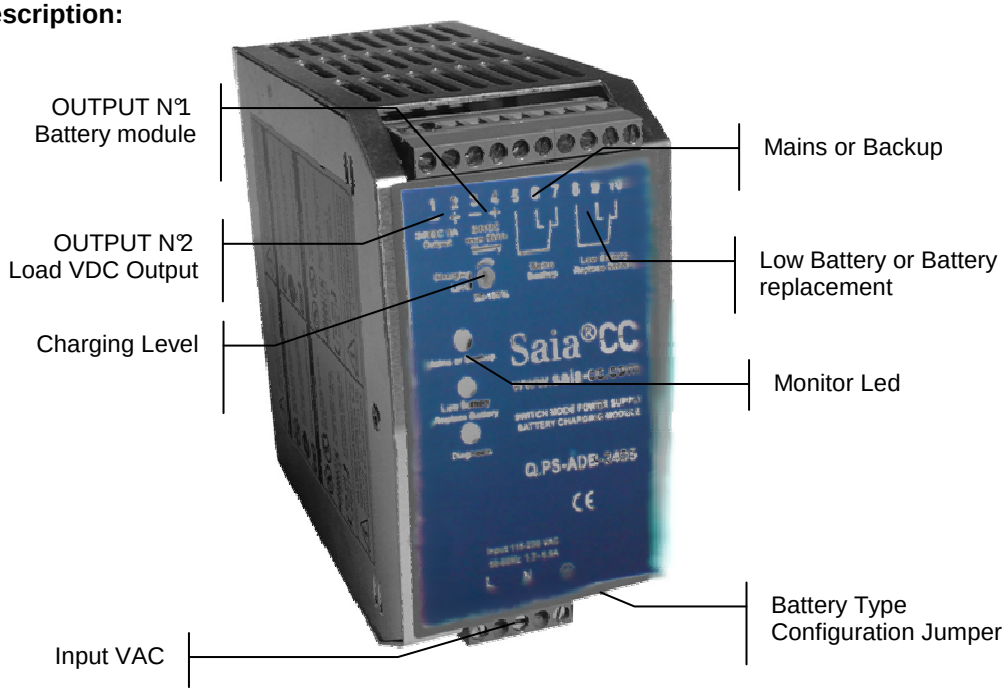
Q.PS-ADB-2405, Intelligent Battery Charger

Thank you for having chosen one of our products for your work. We are certain that it will give the utmost satisfaction and be a notable help on the job.

General Description:



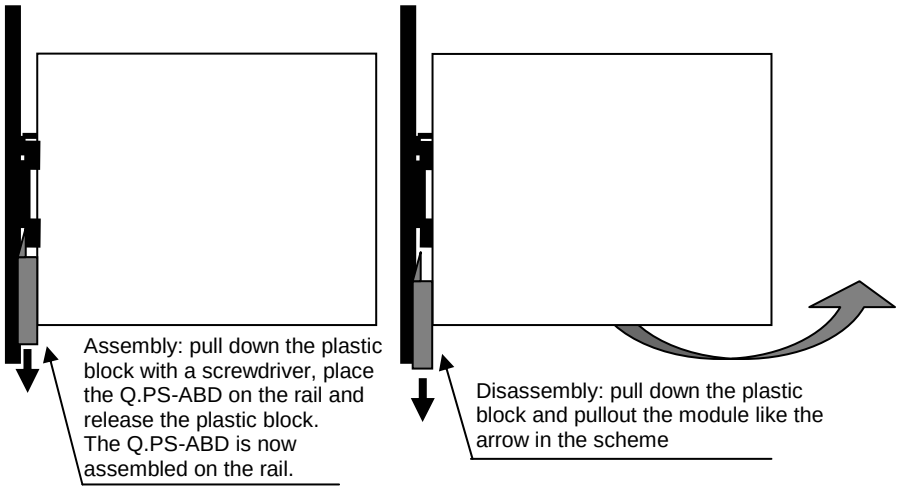
Application

Q.PS-ADB-2405 battery charger is a range of microprocessor-power supplies witch correctly charge sealed lead-acid batteries at all time maximizing performance and life span.
Charge the battery in multi-stage principle, Fast and Trickle and automatically the device, check the battery efficiency in a lifetime to prevent any risk of damage to the battery and allow leaving the charger permanently connected. Before begin the operations of installation consult the manual.

Mains Characteristic

- Nominal Input Voltage: 115 - 230 VAC
- OUTPUT 1: for connection to Battery
- OUTPUT 2: for connection to Load
- Fast and trickle battery charge In according to DIN 41773
- Signaling: replace battery, low battery, mains or buffering
- Overload and short circuit protections
- Safety isolation in according with EN 60950
- Output 24 VDC 5 A @ 50℃ also without mains
- Protection degree IP20
- DIN-rail mounting

Rail mounting:



Other modules must have a minimum vertical distance of 10 cm to this power supply in order to guarantee sufficient auto convection.

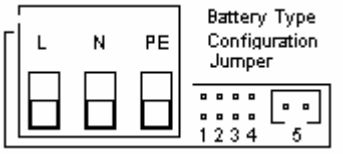
Use and Connections

Caution: Switch off the system before connecting the module.
Never work on the machine when it is live.

Charging Level: Adjust with trimmer from 20% to 100% of I_n. Select the maximal battery charge current estimated from 10 to 25% of the nominal Battery capacity.
Battery module (Output 1): Terminal 3 negative polarity, terminal 4 positive polarity
Out Load (Output 2): 1-2 Pin: Terminal 1 negative polarity, terminal 2 positive polarity.
Mains or Backup: LED indicates if supply is by mains (LED off and contact 5/6 closed) or by backup (LED on and contact 5/7 closed).
Low Battery or Battery replacement: Normal condition with battery functional, LED is off and contact 8/9 closed. With low battery capacity, LED is on and contacts 8/10 closed. Battery replacement, when supply by mains, LED on and contact 8/10 closed (see diagnosis LED too).
Life Test Battery: In trickle charge condition the internal impedance of the battery will be checked every 4 hours (5 blinking Diagnosis Led)
Diagnosis Led:

- Very fast blinking = recovery charging (when the battery is too low, Under 20 VDC);
- Fast blinking = fast charge.
- Slow blinking = trickle charge (floating charge)
- 1 blinking = Reverse polarity battery; Bad input voltage battery.
- 2 blinking = Battery not connected.
- 3 blinking = Short circuit battery element.
- 4 blinking = Over Load.
- 5 blinking = Bad battery.(Internal impedance Bad or Bad battery wire connection)

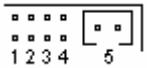
Battery Type Configurations



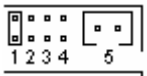
Caution: Switch off the system before setting the jumper.

Position jumper setting:

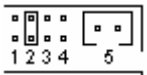
Open lead (charge): Trickle = 2.23, fast = 2.40/cell



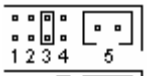
Sealed Lead (charge): Trickle = 2.25, fast = 2.40/cell



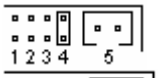
Sealed Lead (charge): Trickle = 2.27, fast = 2.40/cell



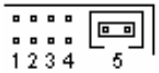
Gel battery (charge): Trickle = 2.30, fast = 2.40/cell



Battery life-test

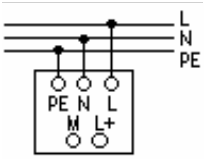


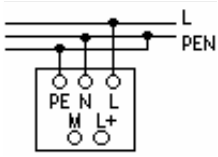
No jumper on position 5 disable the fast charge mode

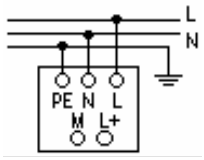


Cable connection

The following cable cross-sections may be used:
At the Input: 0.2÷2.5 mm^2 solid / stranded wire
At the Output: 0.2÷2.5 mm^2 solid / stranded wire
Strip the wire-ends 7mm
Input: The input connection is made by the screw terminals L, N, ⏚.





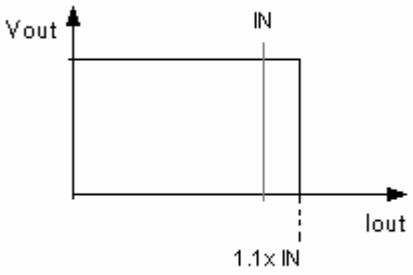


Protection

On the primary side: the device is equipped whit an internally fuse T 4 A/250 VAC. If this fuse brakes then probably an internal fault causes it. If happen, the device must be checked in the factory.
On the secondary side battery and load: The device is electrically protected against short circuits and overload.
Inversion of battery polarity: The module is protected against inversion of battery polarity.
Over current and output short circuit: The unit limits the output current at max. 12 A in normal rating.
Deep discharge of the battery: A deep discharge is not possible. The unit disconnects the battery when a minimum voltage level is reached.
Battery Test: Automatically every 20 sec. check polarity and battery. In trickle charge operation, every 4 hours a test of the battery efficiency will be made. The fault is signalized with relay operation and diagnosis led blinking.

Characteristic Curves

Short circuit and overload
The output of the device is electrically protected against overload and short circuit. At nominal voltage the device can supply 1.1 x the nominal Current without switching off. In the case of higher overload, the operating point traces the curve illustrated in figure. As the overload increases, the output voltage is reduced until zero.



Thermal behaviour
The rated maximal air temperature @ nominal current is 50℃. For ambient temperature above 50℃, the output current must be reduced by 2.5% per Kelvin increase in temperature. At the temperature of 70℃ the output current will be 0.5 x In. The equipment does not switch off in case of ambient temperature above 70℃ or thermal o verload.

Standards and Certification

Electrical safety
The device must be installed in according with EN60950. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle.
General Standard
Immunity in according with EN50082-2, level 4, class B
Radio interference suppression in according with EN 55011 class A (industrial areas)

Features

Input Data

Nominal input voltage (2 x VAC)	110- 230 VAC
Input voltage range	93 ÷ 264 VAC
Inrush current (V_n – I_n)	≤ 14 ≤ 5 msec.
Frequency	47 ÷ 63 Hz
Input current (nominal input voltage)	1,5 - 0.9 A
Internal fuse	F 4 A
External fuse (recommended)	Fast 6 A

Output Data

Output voltage battery bulk charge / nominal current	Max 28.8 VDC / 5 A
Output voltage battery trickle charge / nominal current	Max 27.0 VDC / 5 A
Adjustment range of charge (I_n adj)	20 ÷ 100% I_n
Output voltage in backup mode	27 ÷ 22 VDC
Type of charging characteristic	U/I
End of charging voltage (bulk charge)	Max 28.8 VDC
End of charging current (bulk charge)	0.3 A
Type battery up to	50 Ah
Start up with capacity load	≤ 30.000 µF
Switching on after applying mains voltage	2,5 sec. max
Current max.	1.1 x I_N ± 5%
Residual ripple	≤ 60 mV_{pp}
Minimum load	No
Efficiency	≥ 81 %
Short-circuit protection	Yes
Over load protection	Yes
Over voltage output protection	Yes
Reverse battery protection	Yes

Climatic Data

Ambient temperature (operation)	-10 ÷ + 50 ℃
Ambient temperature (storage)	-25 ÷ + 85 ℃
Humidity; no moisture condensation	95 % @ 25℃

General Data

Isolation voltage (input/ output)	3000 VAC
Input ground insulation	1605 VAC
Electrical safety	EN 60950
Degree of protection	IP 20
Protection class	I with PE connected
Dimension (w-h-d)	65x115x135
Weight	0.6 kg approx

In according to EMC 89/336/EEC and low voltage 93/68/EEC	CE

All specifications are subject to change without notice

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