AQS Series 12V or 24V Power Supply

ASSA ABLOY

Installation Instructions and Operating Manual

The global leader in door opening solutions

Features

- Small – Light – Efficient – Clean Power
- Field Selectable AC Input: 120/240 VAC
- Tolerates brownout or overvoltage input ± 15% of nominal voltage
- High efficiency: up to 90% at 24V output, full load
- Battery Charger Maximum Charge Current: 1.5A
- Dedicated Constant Current/ Constant Voltage battery charging circuit for Wet, AGM, and Sealed Lead Acid Batteries
- Power Limited Output with Thermal Protection
- Reverse Battery Protection
- Battery Online, No Drop or Switchover with AC Power Fail
- UL Listed Access Control & Burglar Alarm Systems
- Set of Form "C" Relay Contacts Indicates AC Power Status
- Set of Form "C" Relay Contacts Indicates Low Battery
- Amber LED Indicates Power Normal
- Available Class II Power Limited Outputs
- Lifetime Warranty

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AQS2410-16C2

How To Order

Select a power supply and up to two distribution boards in the 14" x 14" enclosure . All combinations of power supplies and distribution boards are UL Listed and are available in a number of possible configurations. Use the tables below to build the right solution for your needs.

Model Series	Output Type	Voltage	Output Power	Enclosure Style	Number of Outputs	Fuse Type	Number of Relays	Relays	Fuse Size
AQ	D		6	–	8	F	8	R	2
AQ	D Dual Voltage *	**Blank** Dual Voltage *	1 *	— In Enclosure	**Blank** One Output, No Distribution Board				
	S Single Voltage **	**12** 12VDC **	2 *	**B** Circuit Board Only	4	**F** Glass + Fuses	1	**R** Relays	**1** 1 Amp
		24 24VDC **	4 *		8	**C** PTC + Polyswitch	2		**2** 2 Amp
			6 *		12		8		
			10 **		16		9		
			16 **				16		

NOTES: * Dual Voltage Option Only ** Single Voltage Option Only + Fuse type and size must be the same for both distribution boards for standard ordering. For custom configurations, please contact the factory at 800.626.7590.

Description

The AQS series are heavy-duty, self-contained, efficient, clean, offline switching power supplies, with linear-type performance. The AQS series have a dedicated lead acid battery(s) charger that obtains maximum battery life while providing 12 VDC or 24 VDC uninterruptible power for access control security systems. The field selectable AC input on AQS models allows these power supplies to be powered anywhere in the world. The AQS series have exceptional brownout capability with operation down to 85% of nominal voltage. The AQ series have an extensive filtering system that provides linear output performance, and they are electronically protected against battery reversal, shorting, or overloading. All variants are Power limited output with thermal protection when used with a distribution board. Each of these protective features will self-restore.

NOTE: Before connecting load and battery(s), ensure the 12V/24V jumper is moved to the desired voltage.
CAUTION: Damage can occur when switching the DC output voltage. Proper voltage must be confirmed before connecting devices.

The AQS series are UL Listed and have additional supervisory features:

- Battery disconnect relay when battery(s) are depleted
- Set of Form "C" relay contacts that indicate AC power failure
- Set of Form "C" relay contacts that indicate low battery(s)
- Green LED for local "AC" on indication.
- DC Output is Class II power limited when used with distribution boards.

Note: If no distribution boards are used, Class 1 wiring is required on all outputs. If there is power limited and non-power limited wire there shall be a min of ¼ inch spacing between the power limited and non-power limited wire.

Depending on load, low battery trouble indicates 50–75% battery capacity remaining. Input wiring to the unit should be enclosed in conduit secured firmly to the enclosure. The AQS cannot be used to power a mercantile bell.

Specifications

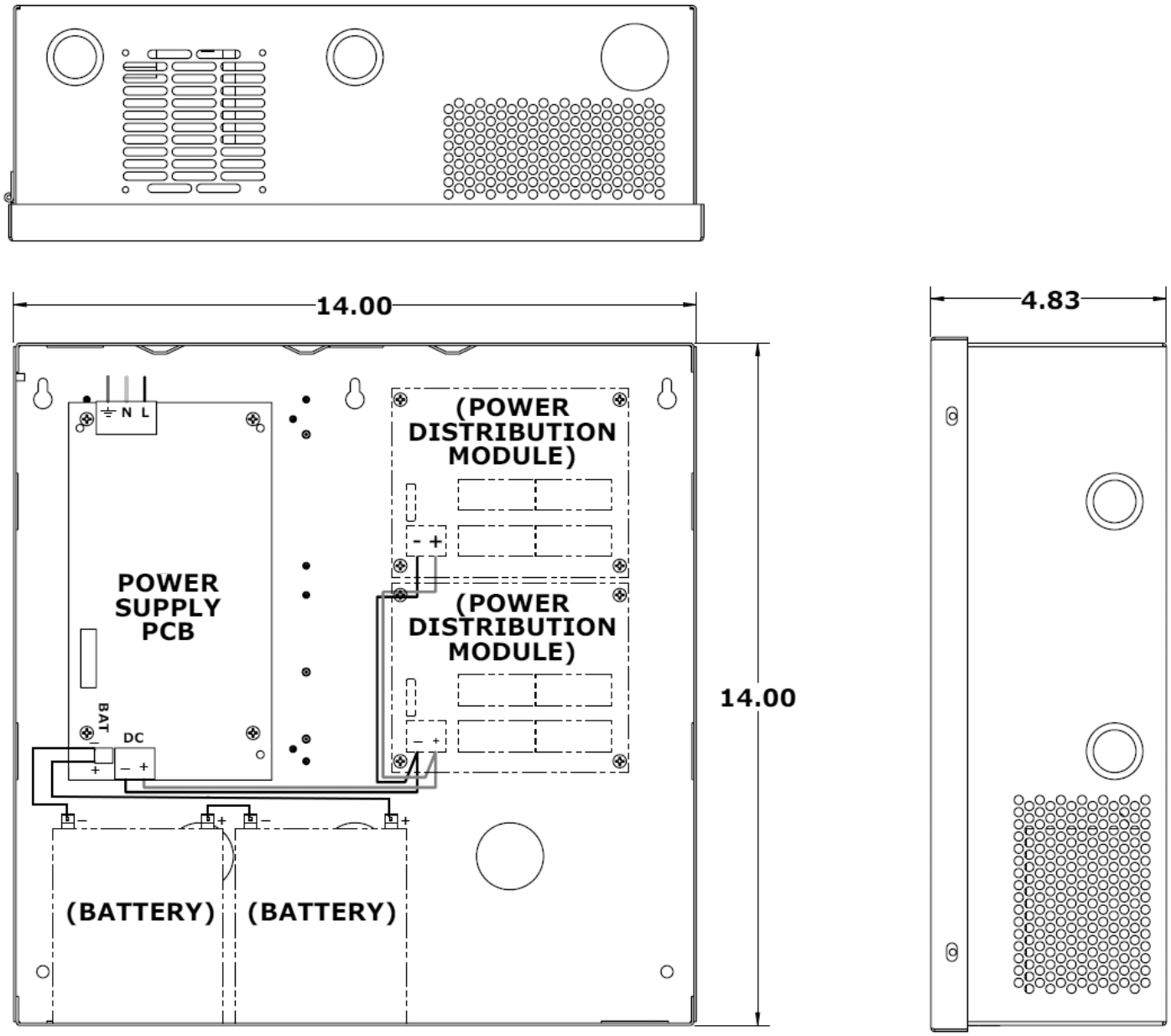
Model	**AQS1210**	**AQS1216**	**AQS2410**
AC Input	120 / 240 VAC (456W)	120 / 240 VAC (696W)	120 / 240 VAC (624W)
AC Input Terminals	L,N,G -3P Terminal Block. Safety block Safety block with recessed hardware insulation accepts up to 12 AWG		
AC Frequency	50 to 60 Hz		
AC Fuse Rating	15A / 32V ATM	20A / 32V ATM	15A / 32V ATM
CAUTION: To prevent damage, the power supply board must be configured for the proper voltage before applying line voltage **CAUTION:** for continued protection against risk of fire, replace only with fuse of the same type and having the same electrical ratings.			
Note: There is a removable link on the top of the power supply board. This link is cut and removed to convert to 240VAC. Once cut, there is no conversion back to 120 VAC			
DC Outputs	1 output, 2 Pin terminal block		
Note: There is up to a 10 second delay for initial turn on			
Output voltage nominal	12 VDC		24 VDC
Output voltage typical	12.5 VDC		25.5 VDC
Output range with rated load	12.5 VDC		25.5 VDC
UL recorded output range for compatibility on battery	9.8 - 13.2 VDC		18.7 – 26.4 VDC
Output continuous current rating	10	16	10
Load regulation no load to max (no battery)	±0.2%		
Current overload short circuit protection	Yes	Yes	Yes
Thermal runaway protection	Yes	Yes	Yes
Power limited Output	Yes	Yes	Yes
Note: Current overload and thermal shutdown will auto-restart without removing load			
Ambient operating temperature range	"+4F to +122F (-20C to +50C)		
Note: UL verified +32F to +120F (0C to +49C), not evaluated for outdoor use			
DC LED Indicator	Green		
Battery Charging	2 spade terminal block marked "-Bat+"		
Caution: To avoid spark, AC must be applied before connecting battery cable to battery			
Fault reporting relay rating	30VDC, 240VAC, 3A, resistive load only		
The battery charger is precision set to float charge 12V or 24V sealed or wet lead acid batteries. A 12-inch battery cable assembly is provided that plugs from module to battery: Red (+), Black (–) Neg.			
Battery(s), any type of lead acid	12V / 24V, 4 AH–40 AH		
UL evaluated battery	120 Ah	120 Ah	2 x 120 Ah
Battery(s) recharge	1.5A max	1.5A max	1.5A max
Battery(s) average recharging current	1A	1A	1A
Battery(s) PTC self-resetting circuit breaker	2A	2A PTC	4A PTC
Battery(s) Reverse hookup protection	Yes, 500mA PTC	Yes, 1A PTC	Yes, 2A PTC

Model	AQS1210	AQS1216	AQS2410
AQS Supervised Added Features			
AC Status Output Relay	3Pin Terminal block		
AC Fail "C" contacts rating	30VDC, 240VAC, 3A, resistive load only		
Note: AC fail relay is a three position AC fail terminal block marked "NO, C, NC" are shown in the Normal, energized, AC ON condition.			
Battery LED Indicator	Red		
Battery Max. Charge Voltage (no load)	13.6 VDC		27.2 VDC
Battery Cutoff internal relay contacts	30VDC, 240VAC, 3A, resistive load only		
Low Battery Cutoff	9 VDC		18 VDC
Note: Battery Cutoff Relay is normally energized for fail-safe operation. **Note:** Sealed lead acid batteries have a typical life of 3 to 5 years. Make sure to mark batteries with the date they are installed. **Note:** All power supplies are required to have a min of a 48 Hr recharge period to provide standby power of minimum 4 Hrs 15 Min of alarm under full load conditions. Standby power has been evaluated in accordance with UL 1076 proprietary burglar alarm systems.			
Physical			
Module Dimensions	7.75" x 4.125" x 2.94"		
Note: Height Includes 1/2" min standoffs			
Module in Enclosure Dimensions	14" x 14" x 4.83"		
Enclosure Weight	6.9 lbs		
UL Approvals			
UL 294 6th Edition	Listed	Listed	Listed
Line Security	1	1	1
Endurance Test Level	1	1	1
Attack test Level	1	1	1
Battery Standby Test Level	4	4	4
UL 603	Listed	Listed	Listed
ULC-S318	Listed	Listed	Listed
ULC-S533	Listed	Listed	Listed
Compliance Notes:			
Note 1: For UL294 Compliance when using 8 output PDB boards with fire trigger: Fire Alarm disconnect wire length must be less than 98.5 ft (30m)			
Note 2: For ULC-S318 compliance, the power supply battery fail line must be connected to and monitored by a control panel trouble zone			
Note 3: AQS Series uses a standard power supply enclosure, not an attack proof enclosure. As such, they should not be used to power a mercantile bell			
Note 4: When using a battery that is not housed inside the power supply enclosure, the battery leads require protection from the enclosure via the use of conduit. For UL compliance the enclosure used must be listed to the categories Listed above and shall have sufficient space to house the standby batteries.			
Note 5: When using AQS#B modules in another enclosure, minimum standard spacing between live electrical circuits shall be taken into account.			
Note 6: Power supplies shall be installed in accordance with the National Electrical Code, ANSI/NFPA 70, Canadian Electrical Code, or any other applicable codes			

Maintenance

The power supply and standby batteries should be tested at least once a year as follows:

1. CHECK LEDs for normal state: AC ON Green, Trouble Normal ON Green (Amber indicated trouble), DC ON Red.
2. CHECK output voltage with normal load (assures proper voltage to float charge batteries): For 12V units, voltage should read between 13.6 VDC and 13.8 VDC; and for 24V units, voltage should read between 27.1 VDC and 27.6 VDC.
3. DISCONNECT AC input: AC LED should be off, and all other LED's should remain normal.
4. CHECK DC output to be above 12.0 VDC for 12V units and 24.0 VDC for 24V units (checks standby batteries to be operational).
5. APPLY AC and VERIFY AC LED ON.



AQS in an enclosure with two PDBs in a 24V Configuration

Warranty

The AQS is covered by the MagnaCare® lifetime replacement no fault warranty. No registration is required. Product will be replaced forever, for any reason, including but not limited to installation error, vandalism, or act of God. Replacement product is shipped at Securitron's expense next day air, if needed.

For more information, visit www.assaabloyesh.com

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