AQD Series 12V/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
- Rated Amperage available at 12 or 24VDC output, Selectable
- Tolerates brownout or overvoltage input ± 15% of nominal voltage
- High efficiency: up to 90% at 24V output, full load
- Battery Charger Maximum Charge Current: 0.7A
- Dedicated 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
- DC Output is Class II Power Limited
- Lifetime Warranty

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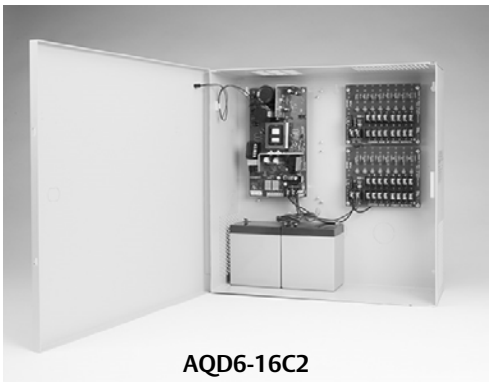


AQD6-16C2

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 AQDX series are heavy-duty, self-contained, efficient, clean, offline switching power supplies, with linear-type performance, and are jumper selectable between 12 VDC at 6A and 24 VDC at 6A. The AQDX 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 AQD2, 4, and 6 models allows these power supplies to be powered anywhere in the world. The AQDX series have exceptional brownout capability with operation down to 85% of nominal voltage. The AQDX 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, AQD6 is power limited only 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 AQDX 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)
- DC Output is Class II power limited
- Green LED for local "AC" on indication

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 AQDX cannot be used to power a mercantile bell.

Specifications

Model	**AQD1**	**AQD2**	**AQD4**	**AQD6**
AC Input	120 VAC (39W)	120 / 240 VAC (112W)	120 / 240 VAC (216W)	120/240VAC (240W)
AC Input Terminals	L,N,G – 3P Terminal Block with recessed hardware insulation accepts up to 12 AWG			
AC Frequency	60 Hz	50 to 60 Hz		
CAUTION: To prevent damage, the power supply board must be configured for the proper voltage before applying line voltage				
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 Output Voltage Selection	The jumper is located near the center of the power supply board and is marked "12V 24V" The jumper is moved to the appropriate pins to configure the output voltage			
CAUTION: To prevent damage, the DC load and battery(s) connections are removed before switching selector switch up or down.				
DC Outputs	1 output, 2 Pin terminal block			
Note: There is up to a 10 second delay for initial turn on				
Output voltage nominal	12VDC / 24VDC			
Output voltage typical	13.5 / 27.2 VDC	12.5 / 25.0 VDC		
Output range with rated load	13.5 / 27.2 VDC	12.5 / 25.0 VDC		
UL recorded range for compatibility on battery for 12 V configuration	9.26 – 13.2 VDC	9.7 – 13.2 VDC		
UL recorded range for compatibility on battery for 24 V configuration	19.04 – 26.4 VDC	19.5 – 26.4 VDC		
Output continuous current rating	1A	2A	4A	6A
Load regulation no load to max (no battery)	±0.2%			
Current overload short circuit protection	Yes	Yes	Yes	Yes
Thermal runaway protection	Yes	Yes	Yes	Yes
Power limited Output	Yes	Yes	Yes	Only when used with PDB
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 Pin terminal block marked "-BAT+"			
Caution: To avoid spark, AC must be applied before connecting battery cable to battery				
Fault reporting relay rating	<32VDC, <240VAC, 3A, resistive load only			
Note: 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–72AH			
UL evaluated battery	7Ah	12Ah	18Ah	72Ah
Battery(s) recharge	100 mA max	200 mA Max	500 mA max	700 mA max

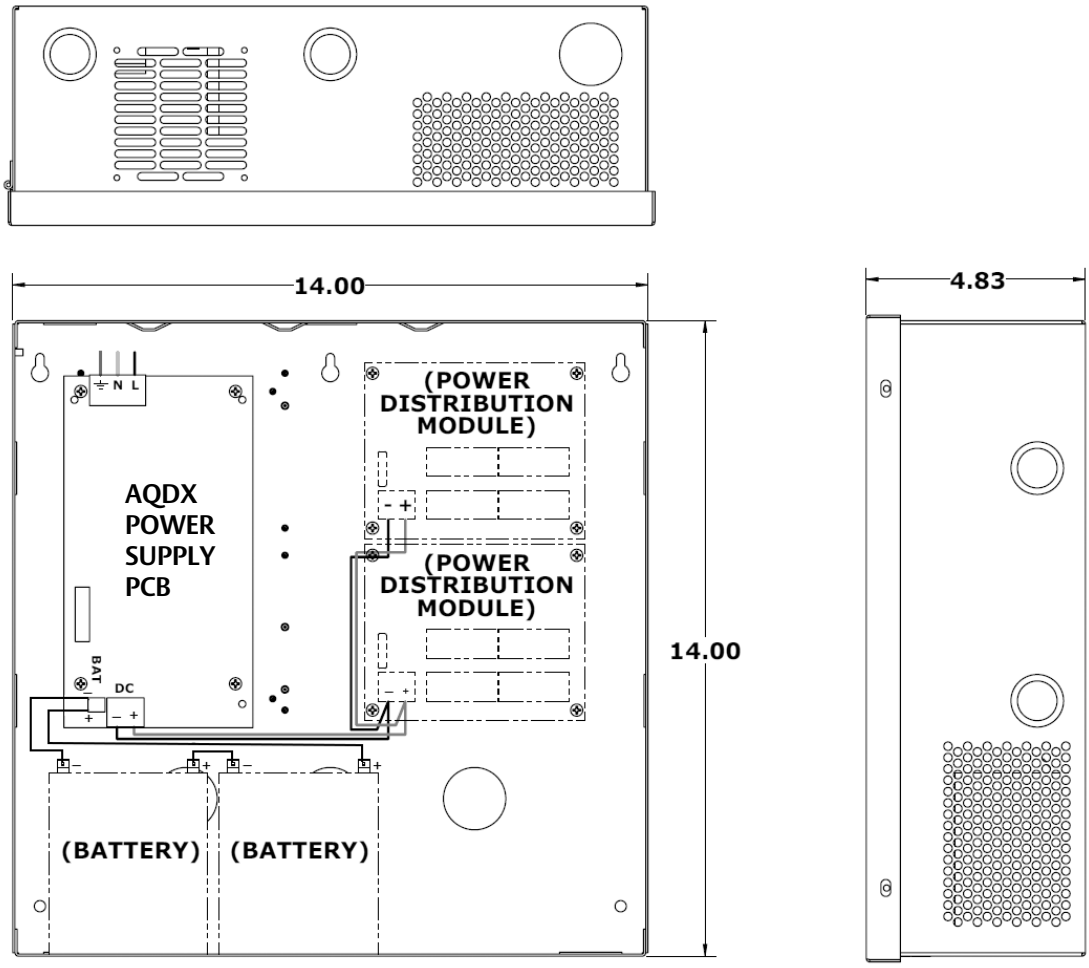
Battery(s) average recharging current	50 mA	75 mA	125 mA	250 mA
Battery(s) PTC self-resetting breaker	1A PTC	2A PTC	4A PTC	6A PTC
Model	**AQD1**	**AQD2**	**AQD4**	**AQD6**
Battery(s) Reverse hookup protection	Yes, 500 mA PTC	Yes, 1A PTC	Yes, 2A PTC	Yes, 4A PTC
AQD Supervised Added Features				
AC Status Output Relay	3Pin Terminal block			
AC Fail "C" contacts rating	<32VDC, <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)	13.7 VDC /27.4 VDC			
Battery Cutoff internal relay contacts	<32VDC, <240VAC, 3A, resistive load only			
Low Battery Cutoff	9V / 18 V for 12 V / 24V setting			
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	5.75" x 3.25" x 2.3"	4.88" x 3.75" x 2.06"	6.06" x 3.88" x 2.44"	7.36" x 4.04" x 1.75"
Note: Height Includes 7/16" standoffs, ½" standoffs minimum required				
Module in Enclosure Dimensions	14" x 14" x 4.83"			
Enclosure Weight	6.9 lbs			
UL Approvals				
UL 294 6th Edition	Listed	Listed	Listed	Listed
Line Security Level	1	1	1	1
Endurance Test Level	1	1	1	1
Attack test Level	1	1	1	1
Battery Standby Test Level	4	4	4	4
UL 603	Listed	Listed	Listed	Listed
ULC-S318	Listed	Listed	Listed	Listed
ULC-S533	Listed	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: AQDX 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. The enclosure shall be UL Listed to the above categories and shall have sufficient space to accommodate the standby batteries.				
Note 5: When using AQDXB modules in another enclosure, minimum standard spacing between live electrical circuits shall be taken into account				
Note 6: Model AQD1B power supply requires a low battery disconnect module (model# BDM) manufactured by Life Safety Power. This device is required to provide the required battery disconnection for ULC-S318.				
Note 7: 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 LED indicates trouble), DC ON Red.

2. CHECK output voltage with normal load (assures proper voltage to float charge batteries): For 12V setting, voltage should read between 13.6 VDC and 13.8 VDC; and for 24V setting, 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 setting and 24.0 VDC for 24V setting (checks standby batteries to be operational).
5. APPLY AC and VERIFY AC LED ON.



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

Warranty

The AQDX 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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