

350 Watt CRPS Front-End Power Supply
FEATURES

- 12Vdc Main Output
- 5Vdc Standby Output to 15W
- 80 Plus Certified Gold Efficiency
- AC & DC Input
- 1U Slim 150 x 50 x 40mm Size (5.9 x 1.97 x 1.57in)
- High Power Density of 19.5W/in³
- N+1 Redundancy (to 5+1), Hot Pluggable
- Full Digital Design
- Supports PMBus Version 1.2
- Normal and Optional Reverse Fan Airflow with Digital Smart Fan Speed Control
- Short Circuit, Over-Current, Over-Voltage & Over Temperature Protection



The AQ350A-120A-R is a rack-mount power supply that accepts AC line input voltage from 90Vac to 264Vac or DC voltage from 180Vdc to 330Vdc and provides 350 watts of 12Vdc main and 5Vdc standby power. It is hot pluggable with N+1 active current sharing capability to 5+1. For improved performance the highly efficient, high power density power supply is fully digital, supports PMBus communication protocol and is equipped with short circuit, over-current, over-voltage, and over-temperature protection.

Model Number	Output Voltage	Output Current	Total Power	Load Regulation	Ripple & Noise (P-P)
AQ350A-120A-R	+12V	0A - 29.2A	350W	± 5%	120mV
	5V standby	0A - 3.0A			50mV
Notes	All specifications defined are at ambient temperature of 25°C, unless otherwise specified.				

Specifications
Input

AC Voltage Range	90Vac to 264Vac
DC Voltage Range	180Vdc to 330Vdc
Frequency	47 to 63Hz
Inrush Current	<30A_peak @115Vac/25C cold start, <60A_peak @230Vac/25C cold start
Leakage Current	<3.5mA @240V/50Hz
Power Factor	>0.9 @230Vac/50%load
Total Harmonic Distortion	<20% @ 230Vac, 20%load <10% @ 230Vac, 50%load <5% @ 230Vac, 100%load
Efficiency	>88% @ 230Vac, 20%load >92% @ 230Vac, 50%load >88% @ 230Vac, 100%load

Output

Hold Up Time	10mS at Full Load
Redundant	N+1, Nmax=5
Current Share Accuracy	4%
Dynamic Load Regulation	±5% @50% maximum step load change

Protections

Over Current	+12V: 120% load (latch mode); 5Vstby: 120% load (auto recovery mode)
Over Voltage	+12V: 13.3V-15.6V (latch mode); 5Vstby: 6.0V-7.2V (auto recovery mode)
Under Voltage	+12V: 10.0V-11.0V (latch mode)
Over Temperature	Auto restart
Short Circuit	+12V: latch mode; 5Vstby: auto recovery mode

Environmental

Operating Temperature	0°C to +50°C
Operating Humidity	20% to 90%
Storage Temperature	-10°C to +70°C
Storage Humidity	5% to 95%
Operating Altitude	5000 meters

Safety, Emissions & Immunities

Harmonic Current Emission	EN61000-3-2 Class D		
Safety Standards	cULus 62368-1, TUV + CB IEC 62368-1, CCC, BSMI		
Emissions	FCC Part 15 Class A, EN 55032 Class A		
Immunities	Electrostatic Discharge Radiated Immunity Electrical Fast Transients Surge Conducted Immunity Voltage Dips	IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 IEC61000-4-11	4kV contact/8kV air 80-1000Mhz 3V/m, Criteria A 1KV, Criteria A AC Input, CM±2.0KV, DM±1.0KV 150KHz-80MHz, 3Vrms, Criteria A 30%/10mS Criteria A, 60%/100mS Criteria C, 95%/500mS Criteria C

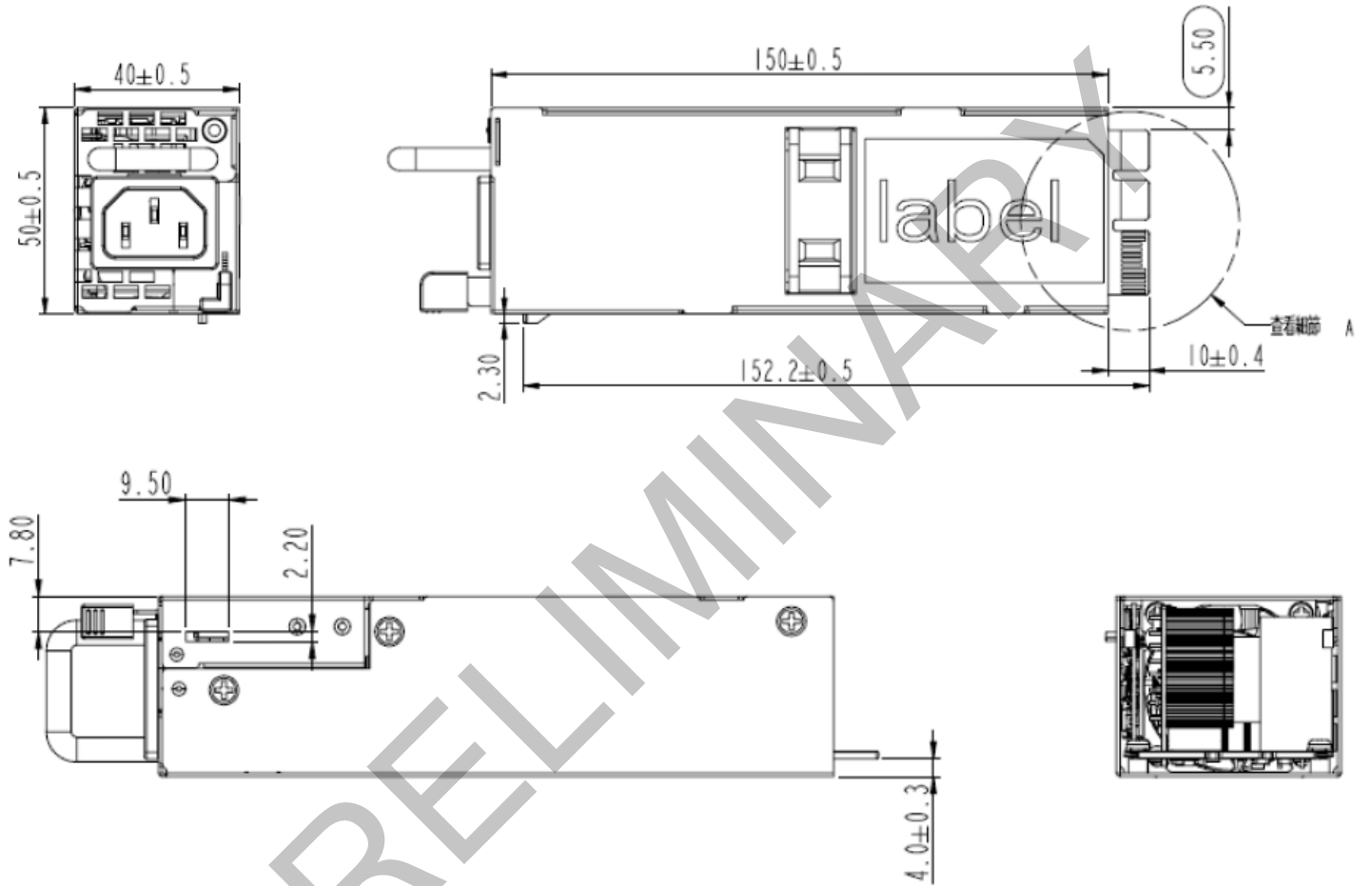
Notes	All specifications defined are at ambient temperature of 25°C, unless otherwise specified.
--------------	--

Specifications

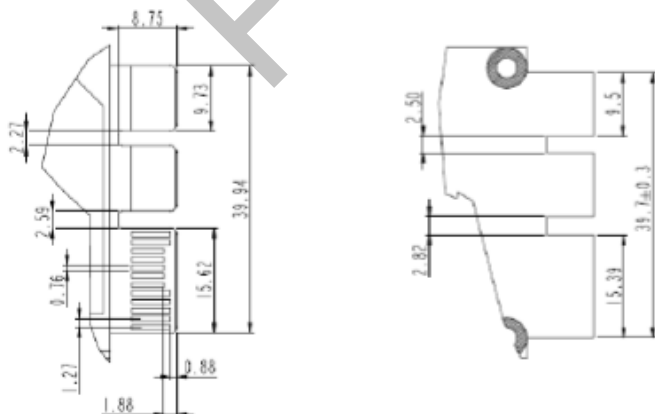
Mechanicals

Dimensions (L x W x H)	150mm (5.91in) x 50mm (1.97in) x 40mm (1.57in)
AC Input	IEC 320 C14 inlet

Outline Drawing



Output Connector



Specifications

Output Pin Assignment

TOP		BOTTOM	
P3	GND	P2	+12V
P4	GND	P1	+12V
S24	5Vstby	S12	5Vstby
S23	5Vstby	S11	5Vstby
S22	A2 (address)	S10	A1 (address)
S21	Reserved	S9	PW_OK
S20	Reserved	S8	PS_ON
S19	AC_OK	S7	PS_KILL
S18	Reserved	S6	SCL
S17	Reserved	S5	SDA
S16	Reserved	S4	SMB_ALERT
S15	A0 (address)	S3	I_SHARE
S14	PRESENT	S2	+12VRS-
S13	Reserved	S1	+2VRS+

Control Signals

Parameter	Value
AC_OK	Output Signal AC_OK HIGH to indicate Input AC/DC OK
PW_OK	Output Signal PW_OK HIGH to indicate the output rail OK
PS_ON	Input Signal PS_ON H2L to turn on +12V and clear fault
PS_KILL	Input Signal PS_KILL L2H to turn off +12V
SMB_ALERT	Output Signal SMB_ALERT LOW to indicate warning event
SDA	PMBus Data
SCL	PMBus Clock
+12VRS+	Input Signal +12V rail remote sense positive, maximum 200mV
+12VRS-	Input Signal +12V rail remote sense negative, maximum 200mV
A0 (address)	Address pin 0
A1 (address)	Address pin 1
A2 (address)	Address pin 2
I_SHARE	Active current share bus I_Share Voltage = 7V*load% Maximum 10.5V @150% load
PRESENT	Power supply present signal
LED	Solid Green: normal mode Blinking Amber: fault mode

Specifications
Timing

Parameter	Value
5Vstby high to +12V high	5mS-300mS
+12V/5Vstby rise time	2mS-20mS
+12V high to PW_OK high	100mS-500mS
PW_OK low to +12V low	1mS-10mS
+12V low to 5Vstby low	>5mS
AC/DC turn off to PW_OK low	>10mS
AC/DC turn on to +12V high	<2000mS
PS_ON high to PW_OK low	12mS-20mS
PS_OK low to +12V high	<350mS
AC_OK low to PW_OK low	>4mS
AC_OK low to 5Vstby low	>150mS
AC/DC turn on to AC_OK high	<1700mS
5Vstby high to AC_OK high	<20mS

PMBus Accuracy

Parameter	Value
PMBus Revision	Version1.2, 100kHz
Input Voltage Accuracy	±2%
Input Current Accuracy	±0.1A, input current under 2A ±5%, input current over 2A
Input Power Accuracy	±5W, input power under 100W ±5%, input power over 100W
+12V Output Voltage Accuracy	±2%
+12V Output Current Accuracy	±0.5A, input current under 5A ±10%, input current over 5A
5Vstby Output Voltage Accuracy	±2%
5Vstby Output Current Accuracy	±0.3A
Total Output Power Accuracy	±15W