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POWERBOX Defense Line
ECDA Series
Single Output
AC/DC Baseplate Power Supply

ECDA – a powerful baseplate cooled power supply suitable for defense applications that require an IP classified enclosure. Designed to meet MIL-STD 461 as an off-the-shelf product. A ruggedized product suitable for applications in harsh environments.

Features

Conductive cooling
IP 65 enclosure
Conformal coating
Vibration/shock according to MIL-STD-810H
EMC according to MIL-STD-461 CE102, RE102
Meet MIL-STD-1399-300
Power Good, Remote On/Off
OCP, OVP, OTP, SCP

Input

Voltage range	85-305VAC (Nominal: 100-277) at 47-63Hz 85-200VAC at 400Hz ⁵⁾
Input voltage DC	No
Frequency	47-63Hz (Nominal: 50/60), 400Hz ⁵⁾
Protection class	I (with ground)
Power factor	0.98/0.95 (115VAC/230VAC)
Inrush current	40A typical
Input current	@115/230VAC ECD500A12 : 5.4A / 2.8A ECD500A28 : 5.3A / 2.7A ECD700A12 : 7.5A / 3.8A ECD1000A28: 11.0A / 5.2A
Hold up time	> 20ms
Input fuse	Yes
Turn on time	600ms typical (Remote on: 100ms)
Leakage current	< 1.5mA at 277VAC/60Hz

Output

Output volt. /cur./power	See table
Output peak power	N/A
Minimum load	0A
Line regulation	0.5% maximum
Load regulation	4.0% maximum 10-90% load change
Temperature coefficient	± 0.02%/°C
Ripple & noise (20MHz BW)	1.5%
Maximum output power	ECD500A12: 504W ECD500A28: 504W ECD700A12: 696W ECD1000A28: 1008W (896W at 400Hz ⁵⁾)



Environmental

Operating temperature (Baseplate temperature)	-40°C to +75°C
Operating temperature (Ambient temperature)	-40°C to +75°C
Derating	No derating
Operating humidity	20-95%RH (Non condensing)
Altitude operation	Maximum 5000m
Storage temperature	-40°C to +85°C
Storage humidity	20-95%RH (Non condensing)
Vibration	MIL-STD810H, Method 514.8, Figure 514.8E-1
Shock	MIL-STD-810H, Procedure 1, 20G 11ms

Mechanical

Size W x H x D	204 x 50.8 x 326 mm
IP class	IP65
Weight	3.6kg typical
Connectors	Input : D38999/24FD5PA Output : MS3474L18-32S Signals : MS3474L10-6S

The mating connector is shown in the Mechanical dimensions.

Genera

MTBF Telcordia	>1,800,000h @ 25°C, full load
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Part Number	Output Current	Output Voltage ¹⁾	Efficiency 115VAC/230VAC
ECD500A12	~0-42A	12.4VDC typ.	85.0% / 87.0%
ECD500A28	~0-18A	28.3VDC typ.	87.5% / 89.5%
ECD700A12	~0-58A	12.5VDC typ.	84.0% / 86.0%
ECD1000A28	~0-36A ~0-32A at 400Hz ⁵⁾	28.4VDC typ.	87.0% / 90.0%

Protection Circuit and Others

Over current protection	Yes, works over 105% of rating auto recovery.
Type of current limit	Constant current ³⁾
Over voltage protection	Yes
Over temp. protection	Yes
Remote ON/OFF	Yes
Other functions ²⁾	Remote sense Voltage adjustment Adjustable constant current limit Parallel operation

Control and Communication

Power Good	Yes, Normal operation: Low
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Isolation

Input -Output, RC	3000VAC
Input-FG	2000VAC
Output-FG	500VAC
Output - RC, PG	100VAC

Safety Standards

Test report	UL62368-1 3 rd ed. 2019
According to	CSA 22.2 No. 62368-1:19 3 rd ed. IEC62368-1:2018 EN62368-1:2020+A11:2020 BS EN62368-1:2020+A11:2020
RoHS	Yes, Directive 2011/65/EU (2015/863)

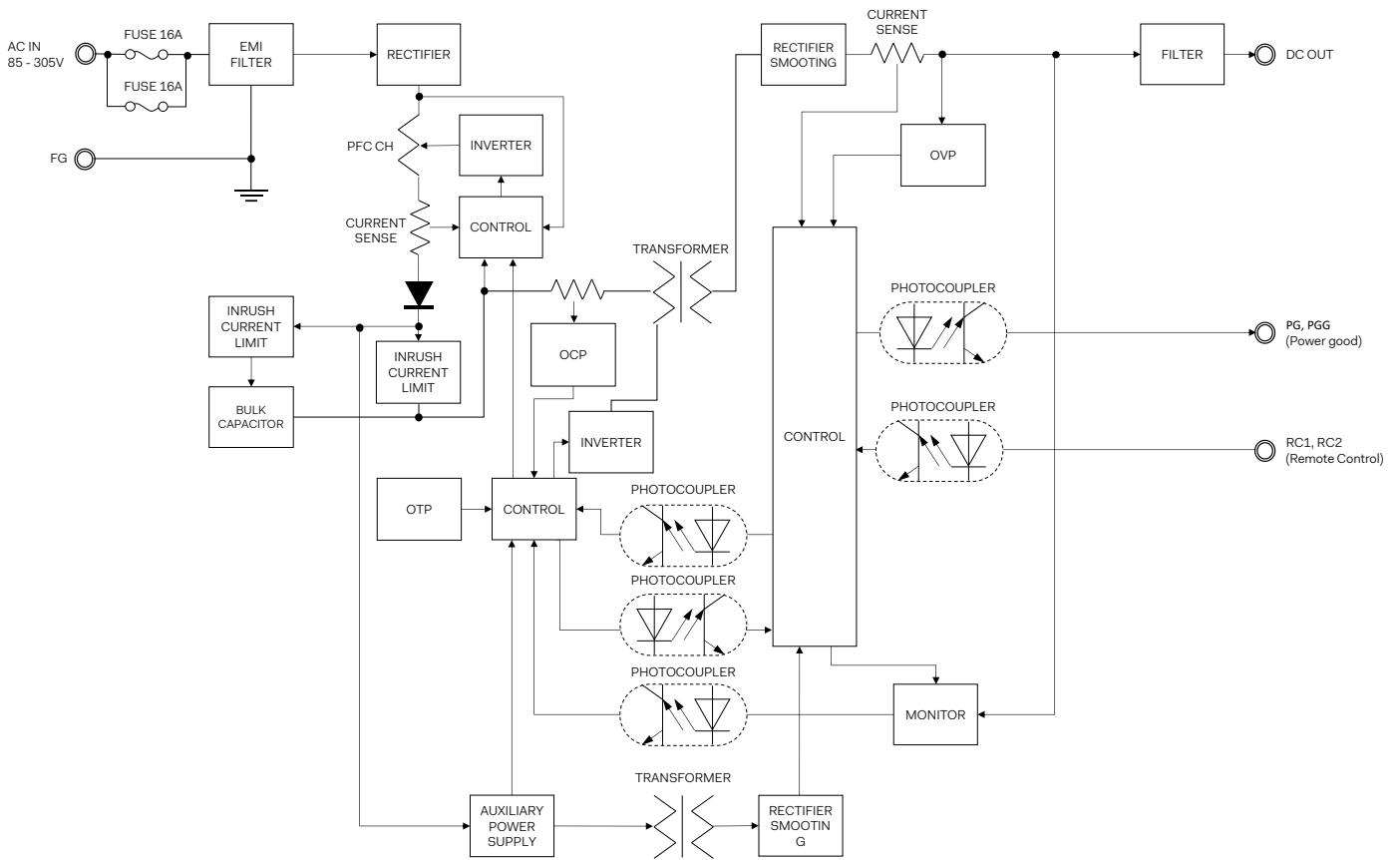
EMC (Excluding 400Hz)

Harmonic attenuator	EN61000-3-2 class A ⁴⁾	
Flicker	EN61000-3-3	
Conducted noise	MIL-STD-461, CE102	
Radiated noise	MIL-STD-461, RE102	
EMS immunity	Standards	Criterion
	EN61000-4-2	A
	EN61000-4-3	A
	EN61000-4-4	B
	EN61000-4-5	B
	EN61000-4-6	B
	EN61000-4-8	A
	EN61000-4-11	B
Conducted susceptibility	MIL-STD-461F CS101	
	MIL-STD-461F CS114	
	MIL-STD-461F CS115	
	MIL-STD-461F CS116	

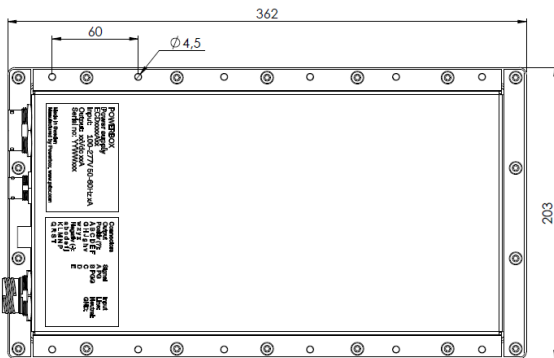
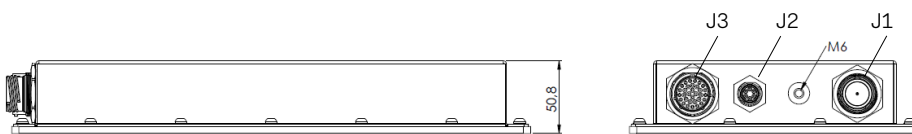
Note

1. Factory setting voltage at room temperature and full load. Adjusting to specified voltage can be available. Please contact us for more information.
2. Following features can be made available. Please contact us for more information.
3. For ECD1000A28, type of the over current protection will be changed from constant current to hiccup below 95VAC input.
4. Only ECD1000A28 also meets to class C with more than 60% load.
5. See manual for more information

Block diagram



Mechanical dimensions



J1: Input
 Mating connector:
 D38999/26FD5SA

A	AC/N
B	AC/L
C	NC
D	Earth
E	NC

J2: Signal
 Mating connector:
 MS3475L10-6P

A	RC-A
B	RC-B
C	RC-C
D	PG
E	PGG
F	NC

J3: Output
 Mating connector:
 MS3475L18-32P

A	J	+Vout
B	V	
C	W	
D	X	
E	Y	
F	Z	
G	g	
H	h	
K	U	-Vout
L	a	
M	b	
N	c	
P	d	
R	e	
S	f	
T	j	