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DDC15 Series

DC-DC Power Supplies

XP Power

15 Watts

- 4:1 DC Input Range
- 3.3 V to 24 DC Outputs
- Low Profile Design
- Ambient Operation from -40 °C to +70 °C
- 1500 VDC Isolation
- Class B Conducted and Radiated Emissions
- High Efficiency – Up to 85%
- 3 Year Warranty



The DDC series is a range of DIN Rail mounting DC/DC converters designed to offer additional voltages in DIN Rail power systems, provide isolated outputs & noise immunity or support battery powered or battery backed applications. With a 4:1 wide input range the DDC series converters can be supplied by both a 12V or 24V nominal input and offer output voltages between 5VDC and 24VDC.

Dimensions:

DDC15:
0.71 x 3.58 x 2.22" (18.0 x 91.0 x 56.5 mm)

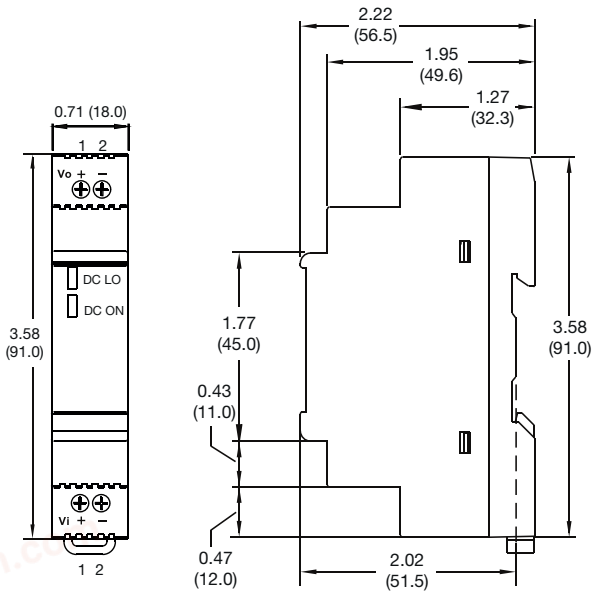
Models & Ratings

Output Voltage	Output Power	Output Current	Input Current, Typ Max	Maximum Capacitive Load	Typical Efficiency[1]	Model Number
3V3	11.5 W	3.50 A	0.62 A/1.8 A	3500 µF	79%	DDC1524S03
5V	13.5 W	2.70 A	0.70 A/1.9 A	3500 µF	80%	DDC1524S05
9V	13.5 W	1.50 A	0.70 A/1.9 A	2200 µF	81%	DDC1524S09
12V	15.0 W	1.25 A	0.76 A/2.1 A	1000 µF	82%	DDC1524S12
15V	15.0 W	1.00 A	0.76 A/2.1 A	1000 µF	83%	DDC1524S15
24V	15.0 W	0.63 A	0.76 A/2.1 A	470 µF	83%	DDC1524S24

Notes

1. Typical efficiency at nominal input and full load.

Mechanical Details



Pin Connector		
Conn	Pin	Designation
DC I/P	1	+Vin
	2	-Vin
DC O/P	1	+Vout
	2	-Vout

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		36	VDC	
Input Current					See Models and Ratings table
Inrush Current			95	A	at 36 V
Input Filter	Pi type				
Undervoltage Lockout	On at >8.5 V				
Input Surge			40	VDC	No Damage
Input Protection	T3.0A/63 VDC Internal Fuse				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		24	V	See Models and Ratings table
Initial Set Accuracy	0		±1	%	
Minimum Load	0			A	No minimum load required
Start Up Delay		50		ms	
Start Up Rise Time		11		ms	
Line Regulation			±1	%	
Load Regulation			±1.5, ±1	%	3V3 model, other models
Transient Response			4	% deviation	Recovery to within 1% in <1 ms for a 50% load change at 0.25 A/µs rate
Ripple & Noise			100	mV pk-pk	20 MHz bandwidth
Short Circuit Protection					Trip & Restart (hiccup mode), auto recovery
Overload Protection	110		165	%	Trip & Restart (hiccup mode)
Overvoltage Protection	115		135	%	Of nominal output voltage
Temperature Coefficient			0.03	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		82		%	See Models and Ratings table
Isolation	1500			VDC	Variable
Switching Frequency	150		300	kHz	
Power Density			2.7	W/in³	
Mean Time Between Failure	990			kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.143 (65.0)		lb (g)	
DC ON Indicator	90			%	Of nominal voltage. Green LED
DC Low Indicator	70		90	%	Of nominal voltage. Red LED

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+70	°C	See derating curve
Storage Temperature	-55		+85	°C	
Humidity	5		95	%RH	Non-condensing
Operating Altitude			4850	m	
Cooling					Natural convection
Shock	±3 shocks in each plane, total 36 shocks of 15 g : 11 ms halfsine. Conforms to EN60068-2-27				
Vibration	10-500 Hz at 2 g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6				

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EMC: Emissions

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Conducted	EN55032	Class B		
Radiated	EN55032	Class B		

EMC: Immunity

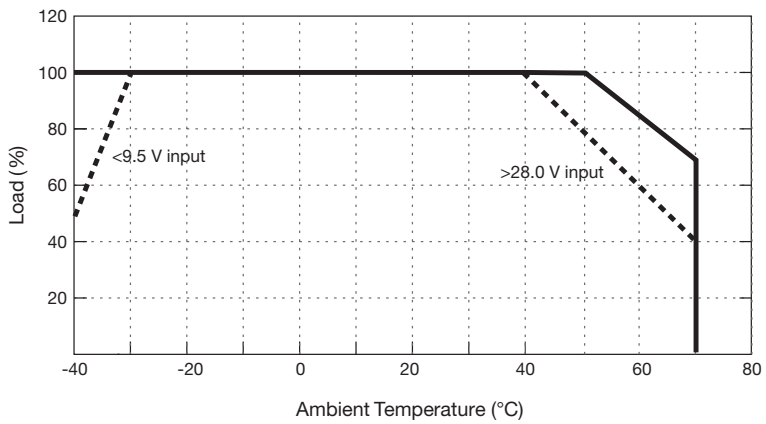
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	6 kV	B	Contact
		8 kV		Air Discharge
Radiated Immunity	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	2	B	
Surge	EN61000-4-5	1	A B/C	
Conducted	EN61000-4-6	10 V	A	
Magnetic Fields	EN61000-4-8	4	A	

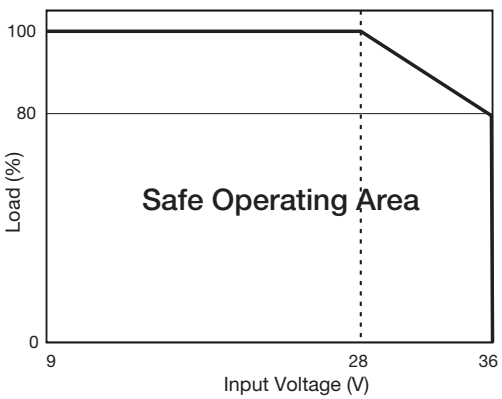
Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL508, UL62368-1:2014	Industrial Control Equipment
TUV	EN62368-1:2014/A11:2017	Information Technology
CB	IEC60950-1 +A2:2013	Information Technology

Application Notes

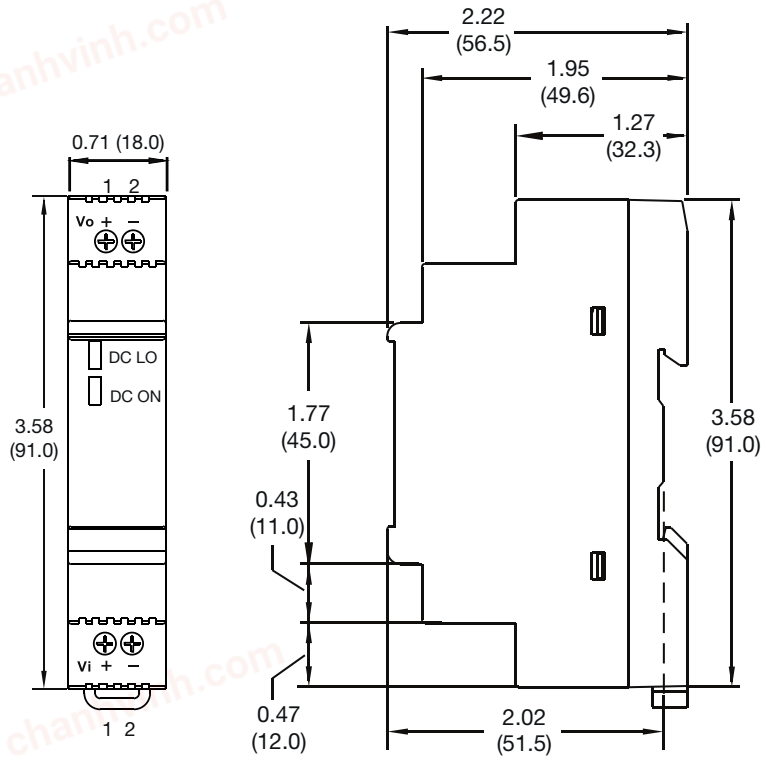
Derating Curves





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Mechanical Details



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Notes

1. All dimensions in inches (mm)
2. Weight: 0.143 lbs (65 g)
3. Tolerance: ±0.02 in (±0.5 mm)
4. Screw terminal: 12-26 AWG cables size.
5. Connection screw maximum torque: Input: 5 lbs-in (0.56 Nm)