

Size: 6in x 4in x 1.52in
(152.4mm x 101.5mm x 38.6mm)

FEATURES

- 4:1 Wide Input Voltage Range
- Constant Current and Voltage
- Current Share
- Remote On/Off
- RoHS & REACH Compliant
- No Minimum Load Requirement
- Adjustable Output Voltage
- Wall Mount or DIN Rail Packaging
- Over Voltage, Over Current, Over Temperature, and Short Circuit Protection
- Under Voltage Protection
- 3000VAC Isolation Voltage
- Internal EN55032 Class A Filter
- IEC/UL/EN62368-1 and UL508 Safety Approvals
- EN50155 and EN45545-2 Standard Approvals

APPLICATIONS

- Railway
- Automation
- Datacom
- IPC
- Industrial
- Measurement
- Telecom
- Charger

DESCRIPTION

The DCWAF300 series of DC/DC converters offers 300 watts of output power in a 6" x 4" x 1.52" package. This series of single output models is suitable for a variety of applications and has a wide 4:1 input voltage range. Each model in this series features over voltage, over current, over temperature, and short circuit protection, as well as remote on/off, and no minimum load requirement. This series has IEC/UL/EN62368-1 and UL508 safety approvals, EN50155 and EN45545-2 standard approvals, and is RoHS & REACH compliant.

MODEL SELECTION TABLE

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current	No Load Input Current	Ripple & Noise	Efficiency	Output Power
DCWAF300-48S12	48VDC (18~75VDC)	12VDC	25A	30mA	100mVp-p	89%	300W
DCWAF300-48S15		15VDC	20A	30mA	100mVp-p	90%	
DCWAF300-48S24		24VDC	12.5A	30mA	200mVp-p	92%	
DCWAF300-48S28		28VDC	10.8A	30mA	200mVp-p	91%	
DCWAF300-48S48		48VDC	6.3A	30mA	300mVp-p	92%	
DCWAF300-110S12	110VDC (43~160VDC)	12VDC	25A	20mA	100mVp-p	89%	300W
DCWAF300-110S15		15VDC	20A	20mA	100mVp-p	90%	
DCWAF300-110S24		24VDC	12.5A	20mA	200mVp-p	91%	
DCWAF300-110S28		28VDC	10.8A	20mA	200mVp-p	91%	
DCWAF300-110S48		48VDC	6.3A	20mA	300mVp-p	92%	

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Input Voltage Range	48Vin (nom)	18	48	75	VDC
	110Vin (nom)	43	110	160	
Start-Up Voltage	48Vin (nom)			18	VDC
	110Vin (nom)			43	
Shutdown Voltage	48Vin (nom)	15.6	16.2	16.8	VDC
	110Vin (nom)	33.0	34.5	36.0	
Input Surge Voltage	1 Second, max.	48Vin (nom)		100	VDC
		110Vin (nom)		185	
Input Filter		Common Choke + Pi Type			
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy		-1		+1	%
Line Regulation	Low Line to High Line, @Full Load	-0.2		+0.2	%
Load Regulation	No Load to Full Load	-0.5		+0.5	%
Voltage Adjustability	Maximum output deviation is inclusive of remote sense	-20		+20	%
Remote Sense ⁽²⁾	% of Vout(nom)			10	%
Rated Output Power	Normal Vout and Iout	See Table			
Output Current	@Full Load	See Table			
Minimum Load		No Minimum Load Requirement			
Ripple & Noise (20MHz bandwidth)	12V and 15V Models		100	125	mVp-p
	24V and 28V Models		200	250	
	48V Models		300	350	
Transient Response Recovery Time	25% Load Step Change		250		µS
Start-Up Time	Constant Resistive Load, Power Up/Remote ON/OFF		140		mS
Temperature Coefficient		-0.02		+0.02	%/°C
Load Share Accuracy ⁽³⁾	Full Load	-10		+10	%

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
REMOTE ON/OFF CONTROL⁽⁴⁾					
Positive Logic (Standard)	DC-DC ON	Open or 3~12VDC			
	DC-DC OFF	Short or 0~1.2VDC			
Negative Logic (Optional)	DC-DC ON	Short or 0~1.2VDC			
	DC-DC OFF	Open or 3~12VDC			
Input Current of CTRL		-0.5		1	mA
Remote OFF Input Current			4.0		mA
PROTECTION					
Short Circuit Protection		C.C. Mode, Automatic Recovery			
Over Load Protection ⁽⁵⁾	% of Iout rated; C.C. Mode	105		115	%
Over Voltage Protection	% of Vout(nom); Latch Mode	125		140	%
Over Temperature Protection			+105		°C
ENVIRONMENTAL SPECIFICATIONS					
Operating Case Temperature		-40		+100	°C
Maximum Case Temperature				+100	°C
Storage Temperature		-40		+105	°C
Thermal Impedance ⁽⁶⁾	Mounted on the Iron Base-Plate		1.1		°C/W
Relative Humidity		5		95	%RH
Thermal Shock		MIL-STD-810F			
Shock		EN61373, MIL-STD-810F			
Vibration		EN61373, MIL-STD-810F			
MTBF	MIL-HDBK-217F, Full Load		149,000		Hours
GENERAL SPECIFICATIONS					
Efficiency		See Table			
Switching Frequency	48Vin (nom)	203	225	248	kHz
	110Vin (nom)	180	200	220	
Isolation Voltage	1 minute (reinforced insulation)	Input to Output	3000		VAC
		Input (Output) to Case	2100		
Isolation Resistance	500VDC	1			GΩ
Isolation Capacitance			14000		pF
PHYSICAL SPECIFICATIONS					
Weight		31.74oz (900g)			
Dimensions (L x W x H)		6in x 4in x 1.52in (152.4mm x 101.5mm x 38.6mm)			
Case Material		Aluminum			
Potting Material		Silicone (UL94 V-0)			
SAFETY CHARACTERISTICS					
Safety Approvals		IEC/UL/EN62368-1 UL508		CB:UL (Demko)	
Standard Approvals		EN50155 EN45545-2			
EMI	EN55011, EN55032	Without External Component		Radiation Conduction	Class A
EMS	EN55035, EN50121-3-2				
ESD	EN61000-4-2	Air±8kV and Contact ±6kV			Perf. Criteria A
Radiated Immunity	EN61000-4-3	20V/m			Perf. Criteria A
Fast Transient	EN61000-4-4	±2kV			Perf. Criteria A
Surge	EN61000-4-5	EN55035 ±1kV and EN50121-3-2 ±2kV			Perf. Criteria A
Conducted Immunity	EN61000-4-6	10Vr.m.s			Perf. Criteria A
Power Frequency Magnetic Field	EN61000-4-8	100A/m continuous; 1000A/m 1 second			Perf. Criteria A

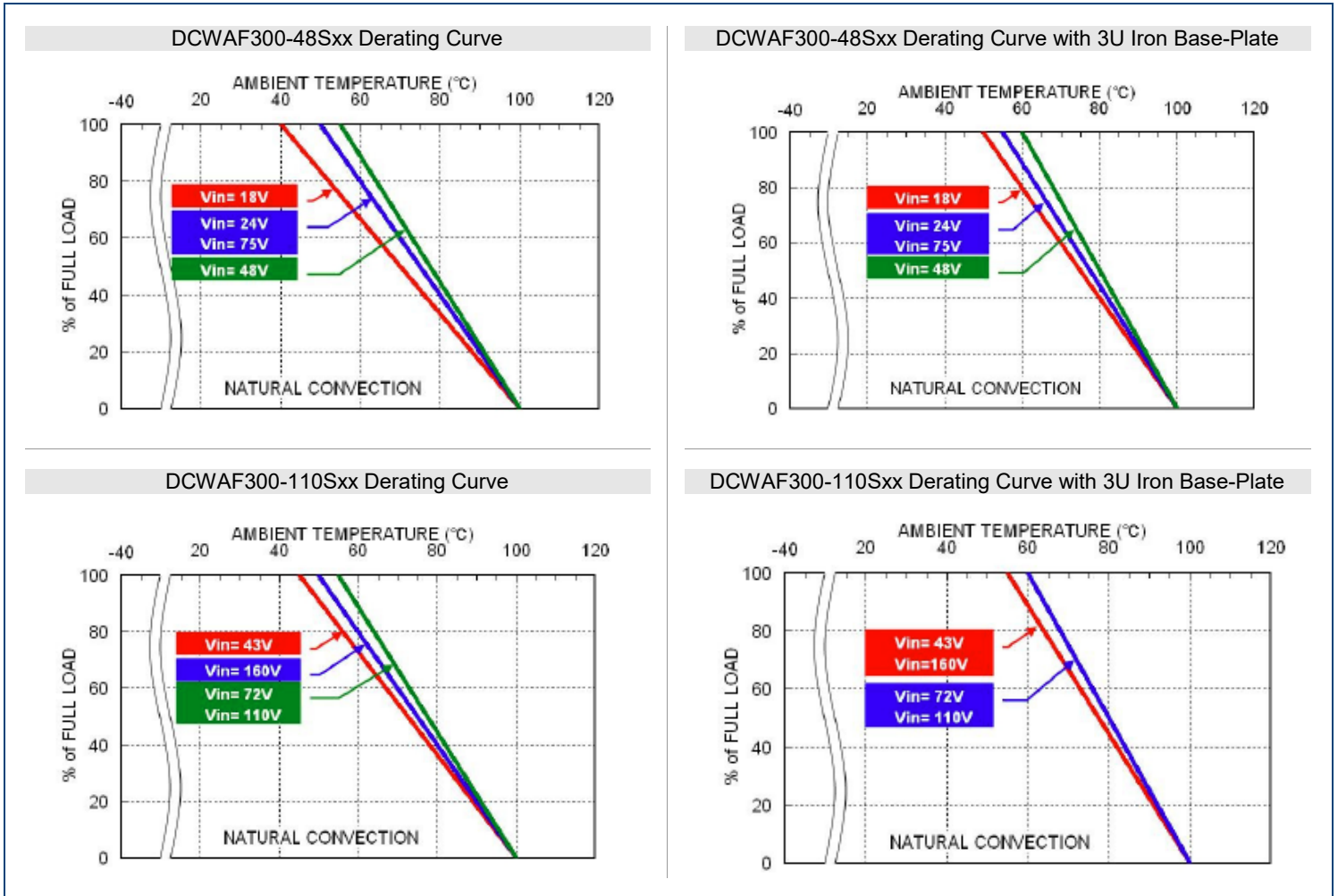
NOTES

- DIN Rail case option is available for this series. To indicate DIN Rail model, add "D" to end of model number. Negative Logic is optional for this series. To indicate Negative Logic Option, add "N" to end of product model number. Load Share is optional for this series. To indicate Load Share Option, add "S" to end of product model number.
- If remote sense is not being used, sense terminals should be connected to corresponding polarity Vout terminals.
- Connect the LS (Terminal 11) from each converter
The converter can parallel to increase output current. It has internal load share function in this converter (only for "S" suffix)
- Referred to -Vin.
- "C.C. Mode" is "Constant Current Mode" and test by nominal input.
- The iron base-plate dimension is 19" x 5.25" x 0.063" and the height is the EIA standard 3U.

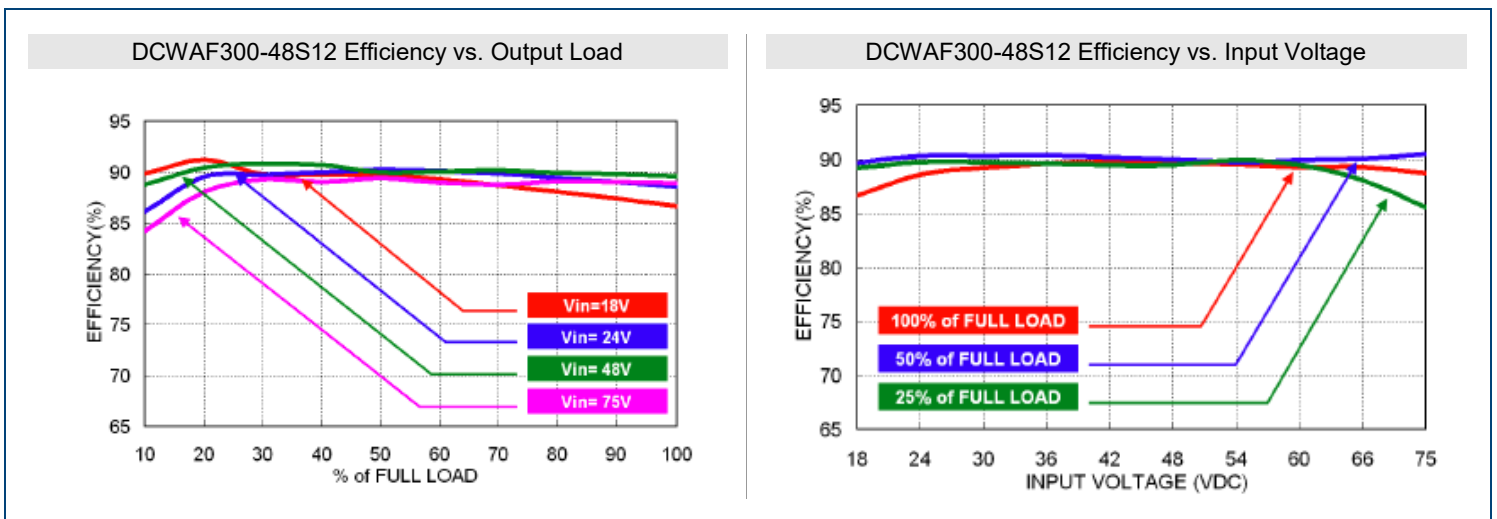
CAUTION: This power module is not internally fused. An input line fuse must always be used.

*Due to advances in technology, specifications subject to change without notice.

DERATING CURVES

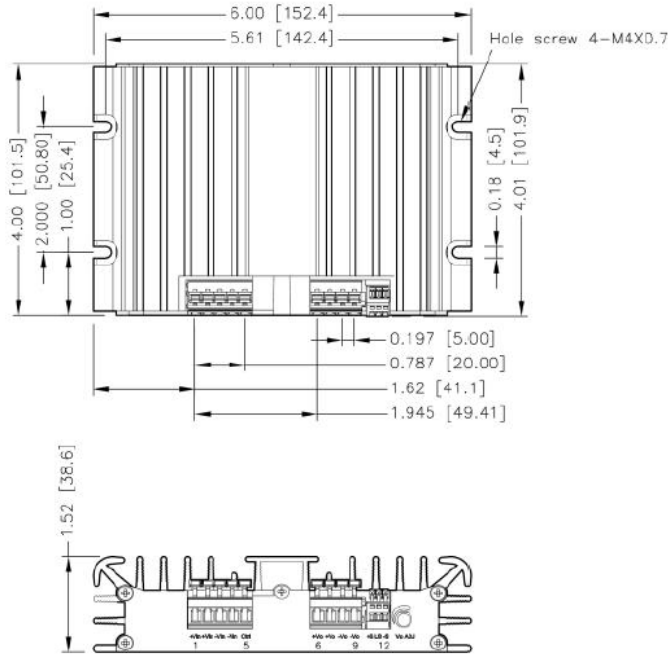


EFFICIENCY GRAPHS



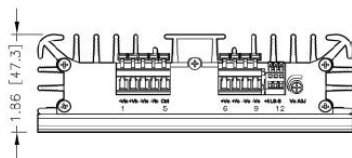
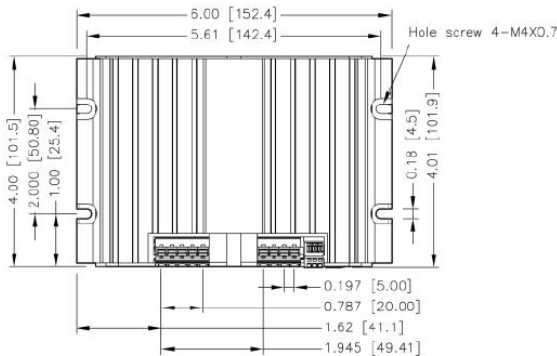
MECHANICAL DRAWINGS

Wall Mounted Type

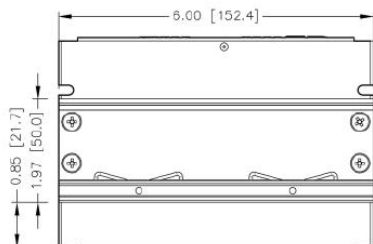


FRONT VIEW

DIN Rail Type ("DN" Suffix)



FRONT VIEW



TERMINAL CONNECTION

Terminal	Define	Recommended Matching Wire
1, 2	+Vin	12-16AWG
3, 4	-Vin	12-16AWG
5	Ctrl	12-28AWG
6, 7	+Vout	12-16AWG
8, 9	-Vout	12-16AWG
10	+Sense	20-28AWG
11	LS (option)	20-28AWG
12	-Sense	20-28AWG

- * The current rating of the terminal block is 15amps/pole.
- * Using 2 poles at the same time when operating is recommended if the total current is more than 15 amps or choose optional 2-way splitter. (Please refer to the diagram below)
- * Input voltage vs. Input terminal, refer to the table below.

Output Power	Input Voltage	Input Terminal
300W; Full Load	≥32V	1 pole
	<32V	2 poles
400W; C.C. Mode	≥32V	1 pole
	<32V	2 poles

1. All dimensions in inch [mm]
2. Tolerance: $x.xx \pm 0.02$ [$x.xx \pm 0.5$]
 $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]
3. The screw locked torque: MAX 14kgf-cm/1.37N.m

FUSE CONSIDERATION

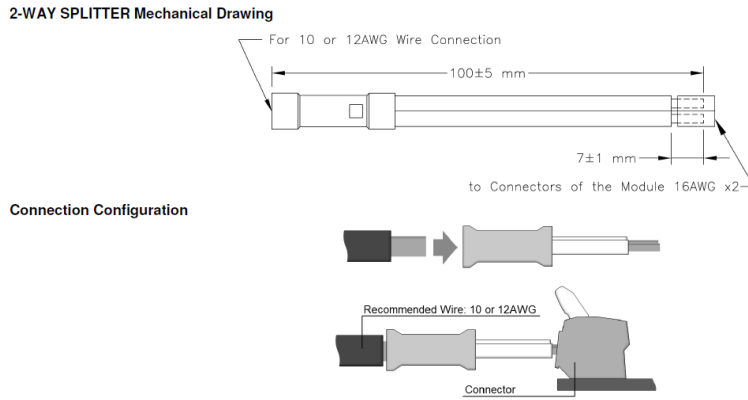
This power module is not internally fused. An input line fuse must always be used. This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture. To maximum flexibility, internal fusing is not included; however to achieve maximum safety and system protection, always use an input line fuse. The input line fuse suggest as below:

Model	Fuse Rating (A)	Fuse Type
DCWAF300-48Sxx	25	Fast-Acting
DCWAF300-110Sxx	12	Fast-Acting

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin.

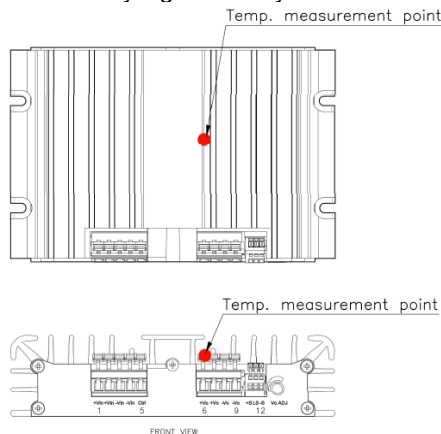
2-WAY SPLITTER (OPTIONAL ACCESSORY)

The 2-way splitter can be used for transforming a thick wire into 2 thin wires to the terminal block. The 2-way splitter P/N:5J-C0045-F.



THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed “Maximum Case Temperature”. When operating, adequate cooling must be provided to maintain the test point temperature at or below “Maximum Case Temperature”. You can limit this temperature to a lower value for extremely high reliability.



MODEL NUMBER SETUP

DCWAF	300	-	110	S	12	-	D	N	S
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage		Case Type	Remote Control Option	Load Share Option
			48: 18~75VDC 110: 43~160VDC	S: Single	12: 12VDC 15: 15VDC 24: 24VDC 28: 28VDC 48: 48VDC		Blank: Wall Mount Type D: DIN Rail	Blank: Positive Logic N: Negative Logic	Blank: None S: Load Share

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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