

Features

- 4:1 Wide Input Range
- Operating Temperature Range: -40~105°C
- Approved to UKCA, CE, RoHS & REACH
- Approved to IEC/UL/EN62368-1 & EN50155
- Efficiency upto 92%
- EMC Class A
- Single 300W Output Models
- OCP, OTP, OVP, SCP & UVP



Ideal Power's 43WAF300-xSyW 300W Series DIN Rail DC/DC Converters are certified to cURus, UKCA, CE, RoHS, REACH & IEC/UL/EN 62368-1, EN 50155 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Video & Audio, Railway Industries and customised solutions are available upon request.

Part Number Structure

43WAF300	-	48	S	05	W	-	N	S
Series Name		Output Power (VDC)	Output Quantity	Output Voltage (VDC)	Input Range		Remote Control Options	Load Share Options
		48: 18 ~ 75 110: 43 ~ 160	S: Single	12: 12 15: 15 24: 24 28: 28 48: 48	4 : 1		□ : Positive Logic N: Negative Logic	□ : None S: Load Share

Models

Model Number	Input Range VDC	Output Voltage VDC	Output Current @ Full Load mA	Input Current @ No Load %	Efficiency %
43WAF300-48S12W	18 ~ 75	12	25	30	89
43WAF300-48S15W	18 ~ 75	15	20	30	90
43WAF300-48S24W	18 ~ 75	24	12.5	30	92
43WAF300-48S28W	18 ~ 75	28	10.8	30	91
43WAF300-48S48W	18 ~ 75	48	6.3	30	92
43WAF300-110S12W	43 ~ 160	12	25	20	89
43WAF300-110S15W	43 ~ 160	15	20	20	90
43WAF300-110S24W	43 ~ 160	24	12.5	20	91
43WAF300-110S28W	43 ~ 160	28	10.8	20	91
43WAF300-110S48W	43 ~ 160	48	6.3	20	92

Input Specifications

Parameter	Conditions	Min	Typ	Max	Unit	
Operating 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	34.5	36		
Start-up time	Constant resistive load	Power up		140	ms	
		Remote ON/OFF				
Input surge voltage	100 ms, max.	48Vin(nom)		100	VDC	
		110Vin(nom)		185		
Input filter		Common choke + Pi type				
Remote ON/OFF	Referred to -Vin pin	Positive logic (Standard)	DC-DC ON	Open or 3.0 ~ 12VDC		mA
			DC-DC OFF	Short or 0 ~ 1.2VDC		
		Negative Logic (Option)	DC-DC ON	Short or 0 ~ 1.2VDC		
			DC-DC OFF	Open or 3.0 ~ 12VDC		
		Input current of Ctrl pin		-0.5	-0.5	
Remote off input current		2.5				

Output Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Rated Output Power	Normal Vout and Iout		300		W
Voltage accuracy		-1.0		+1.0	
Line regulation	Low Line to High Line at 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	% Of Vout(nom) If remote sense is not being used, Sense terminals should be connected to corresponding polarity Vout terminals.			10	
Ripple and Noise	Measured by 20MHz bandwidth	12Vout, 15Vout	100	125	mVp-p
		24Vout, 28Vout	200	250	
		48Vout	300	350	
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% Load step change		250		µs
Over voltage protection	% Of Vout(nom); Latch mode	105		140	
Overload protection	% Of Iout rated * "C.C. Mode" is "Constant Current Mode" and test by nominal input.	105		115	%
Short circuit protection					C.C. mode, automatic recovery
Load Share accuracy	Full Load *Connect the LS (Terminal 11) from each converter. The converter can parallel to increase output current. It has internal load sharefunction in this converter. (This function is only for suffix "-S" part.)	-10		-10	%

General Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Isolation voltage	1 minute	Input to Output	3000		V DC
		Input (Output) to Case	2100		
Isolation resistance	500VDC	1			GΩ
Isolation capacitance			14000		
Switching frequency	48V DC Input	203	225	248	kHz
	110V DC Input	180	200	220	
Safety approvals	IEC/ EN/ UL62368-1				UL:E193009 UL:E468443 CB:UL (Demko)
Standard approvals	EN50155 EN45545-2				
Case material					Aluminum
Potting material					Silicone (UL94 V-0)
Weight					900g (31.74oz.)
MTBF	MIL-HDBK-217F, Full load				1.490 x 10 ⁵ hrs

Environmental Specifications

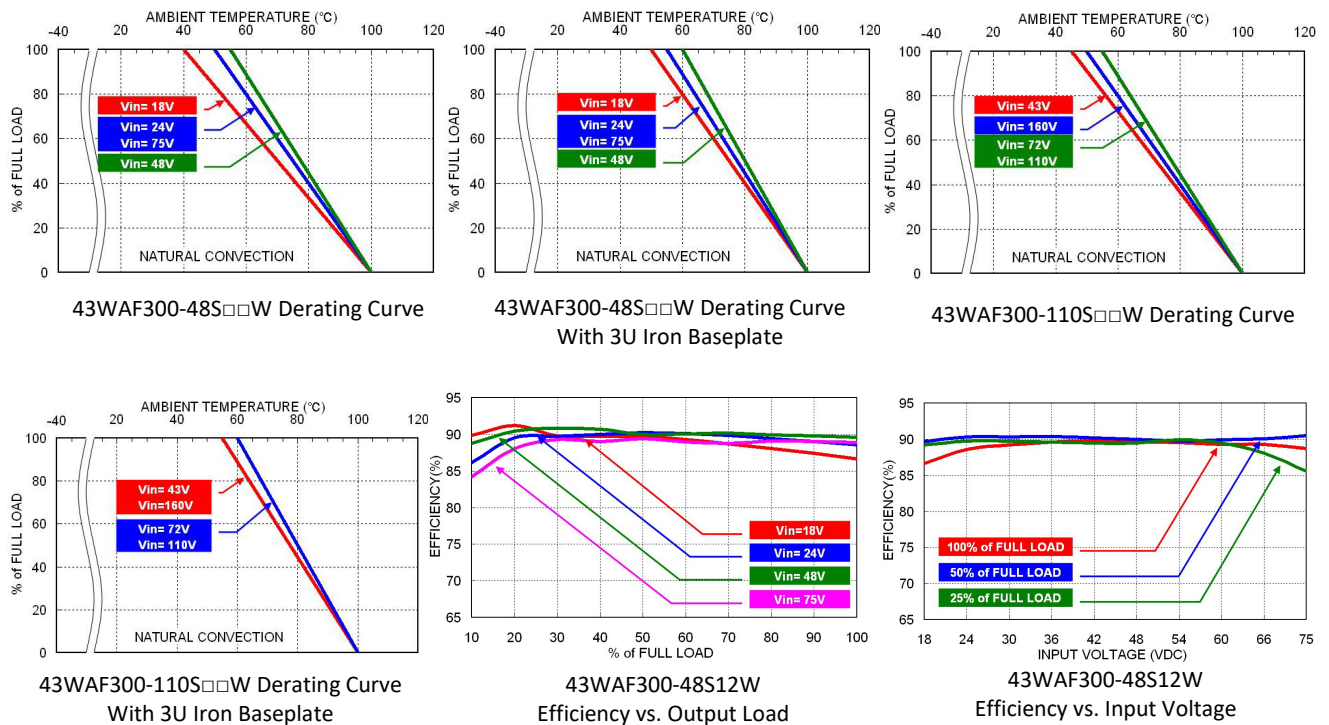
Parameter	Conditions	Min	Typ	Max	Unit
Operating ambient temperature		-40		+100	
Maximum case temperature				100	°C
			150		
Storage temperature range		-40		+105	
Thermal impedance	Mounted on the iron baseplate * The iron base-plate dimension is 19" X 5.25" X 0.063" (The height is EIA standard 3U).		1.1		°C/W
Thermal Shock					MIL-STD-810F
Shock					EN61373, MIL-STD-810F
Vibration					EN61373, MIL-STD-810F
Relative humidity					5% to 95% RH

EMC Specifications

Parameter	Conditions	Level
EMI	EN55032, EN50121-3-2 Without external components	Radiation Conduction Class A
EMS	EN55024, EN50121-3-2	
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge	EN61000-4-5 EN55024 ±1kV and EN50121-3-2 ±2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

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

Characteristic Curve



Fuse Consideration

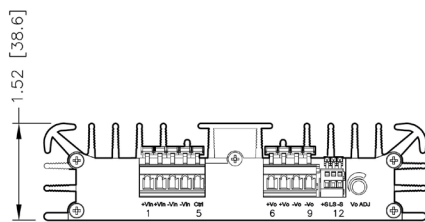
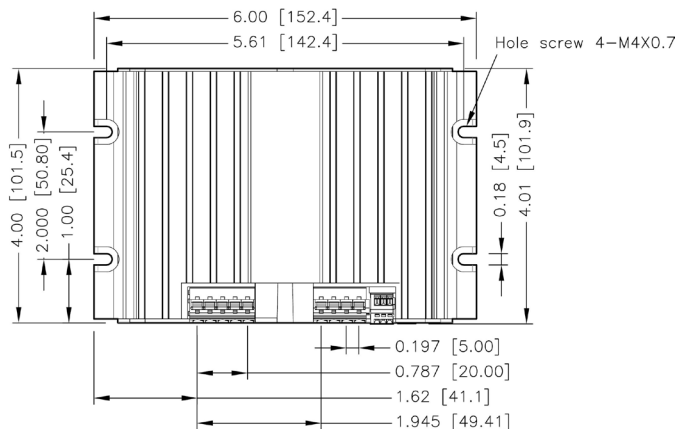
This power module is not internally fused. An input line fuse must always be used.

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	Fuse Type
43WAF300-48S□□W	25	Fast-Acting
43WAF300-110S□□W	12	Fast-Acting

Mechanical Drawing



FRONT VIEW

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

Terminal Connection

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

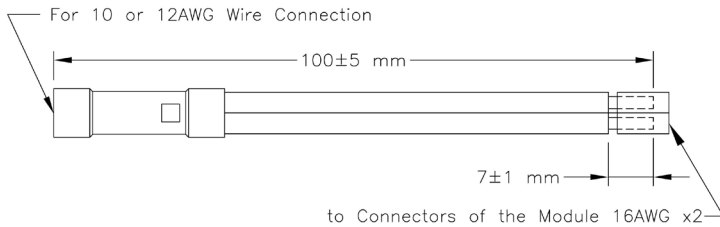
- * The current rating of the terminal block is 15 amps/pole.
- * Using 2 poles at the same time when operating is recommended if the total current are more than 15 amps or choose optional 2-way splitter. (Please refer to the diagram below)
- * Input voltage vs. Input terminal, refer to the table below.

Output power	Input voltage	Input terminal
300W; Full load	$\geq 23V$	1 pole
	$< 23V$	2 poles
400W; C.C. mode	$\geq 32V$	1 pole
	$< 32V$	2 poles

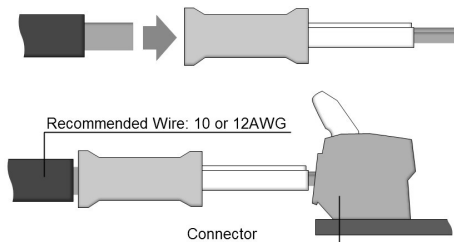
2-Way Splitter (Optional Accessory)

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.

2-Way Splitter Mechanical Drawing



Connection Configuration



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.

