

Industrial

IPU45 series

v2.7

50W/ External Power Supply for Industrial Purpose

The IPU45 series of AC/DC switching mode power supplies provide 50 Watts of continuous output power. All models meet FCC Part-15 class B and CISPR-22 class B emission Limits and are designed to comply with UL/c-UL marking conformity assessment. All units pass burn-in test at full load condition.



FEATURES:

- * Wide Operating Voltage 80 to 275 VAC, 47 to 63 Hz
- * IEC-320-C14 Input Inlet
- * Single to Triple Output
- * Crowbar Mode Over Voltage Protection
- * DoE VI (Dual to Triple output only)
- * 5 year warranty

APPLICATIONS:

- * POS System
- * AV Equipment
- * Industrial PC
- * Note PC
- * Charger
- * LED Lighting

GENERAL SPECIFICATION:

- * **Short Circuit Protection:** Auto Recovery
- * **Cooling:** Free Air Convection
- * **Protection Classes:** Class I
- * **Safety:** UL 60950-1:2nd Edition, CSA C22.2 No.60950-1-07, IEC 60950-1:2005 /A2:2013, EN60950-1:2006 /A2:2013

APPROVALS:



Electrical Characteristics:

Symbol	Characteristic	Condition	Min.	Typ.	Max.	Unit
Vins	Safety Approval Input Voltage Range	Safety Approval & Specification in Label	100		240	VAC
Vin	Input Operate Voltage Range	Detail to see Fig.1	80		275	VAC
Fi	Input Frequency	Sine wave	47		63	Hz
Po	Output Power Range	See Rating Chart			50	W
Iil	Low Line Input Current	Full Load, Vin=100VAC		1.35		A
Iih	High Line Input Current	Full Load, Vin=240VAC		0.56		A
Irl	Low Line Input Inrush Current	Full Load, 25°C, Cool start, Vin=100VAC			20	A
Irh	High Line Input Inrush Current	Full Load, 25°C, Cool start, Vin=240VAC			48	A
Ik	Safety Ground Leakage Current	Vin=240VAC, Fi=60Hz			0.75	mA
η	Efficiency	Full Load, Vin=230VAC, Detail to see Rating Chart	See Rating Chart			
Δ Voi	Line Regulation	Full Load, Vin=100~120VAC	0.5		1	%
Δ VoL	Load Regulation	Vin=230VAC, 10~90% Load Change at Condition	3		7	%
OVP	Over Voltage Protection	Over Voltage Protection	112		132	%
OLP	Over Load Protection	Recovers automatically after fault condition is removed	110		150	%
ttr	Time of Transient Response	Io=Full Load to Half Load, Vin=110VAC			4	ms
thu	Hold-Up Time	Full Load, Vin=100VAC	See Rating Chart			
ts	Start-up time	Full Load, Vin=100~240VAC			3	s
Tc	Temperature Coefficient	Full load, Vin=100~240VAC			± 0.04	%/°C
HV	Dielectric Withstanding Voltage (P-S)	Primary to Secondary			4242	VDC
Vpg	Dielectric Withstanding Voltage (P-G)	Primary to PE			2121	VDC
EMI	EMC Emission				B	Class

Environmental:

Symbol	Characteristic	Condition	Min.	Typ.	Max.	Unit
To	Operating Temperature	Detail to see Fig.2 (Derate linearly from 100% load at 40°C to 50% load at 70°C)	-20		70	°C
Ts	Storage Temperature	10 ~ 95% RH	-40		85	°C
Ho	Operating Humidity	non-condensing	0		95%	RH
Hs	Storage Humidity		0		95%	RH
ESDa	Electro Static Discharge	Air Discharge, IEC61000-4-2			8	kV
ESDc	Electro Static Discharge	Contact Discharge, IEC61000-4-2			4	kV
MTBF	Mean Time Between Failure	Operating Temperature at 25°C, Calculated per MIL-HDBK-217F	100k			h
ELEV	Operating Altitude (Elevation)	All condition			5000	m
VBR	Vibration	10 ~ 500Hz, 10min./1cycle, 60min. each along X, Y, Z axes			5	G
Vsl	Surge Voltage	Line-Neutral			1	kV
Vsg	Surge Voltage	Line-PE & Neutral-PE			2	kV

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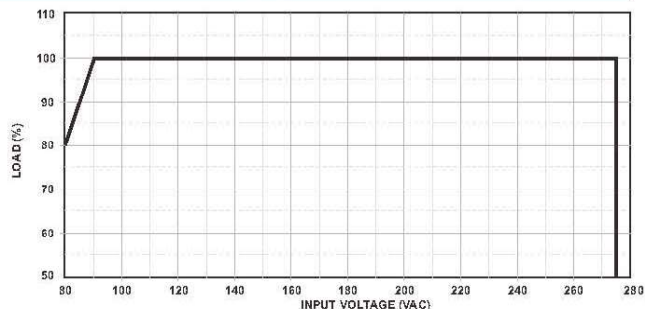
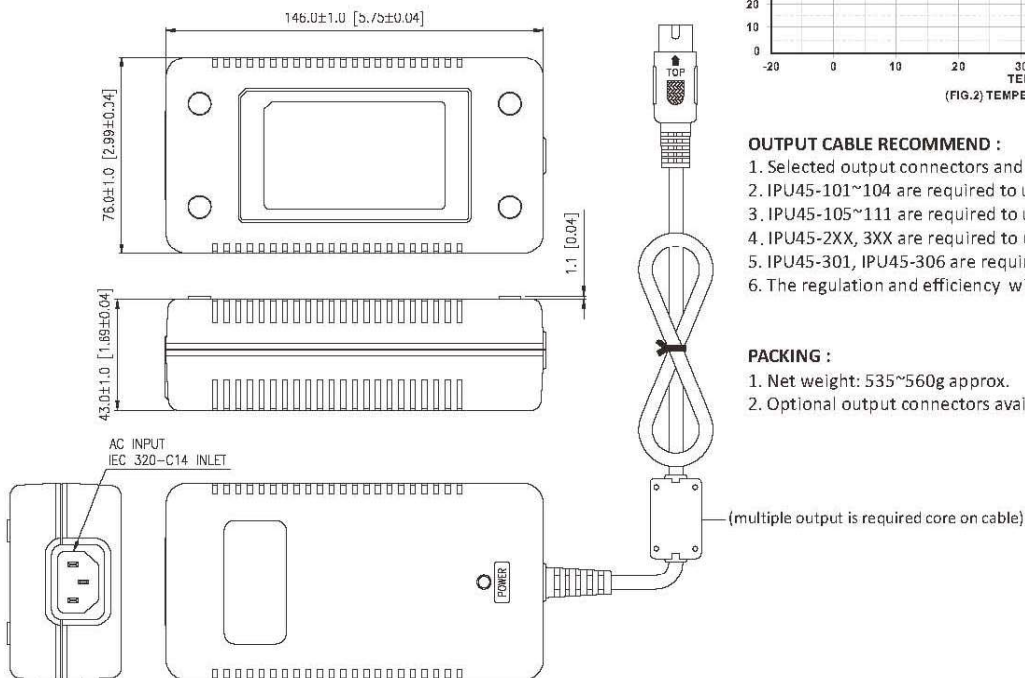
V2.7

50W External Power Supply for Industrial Purpose

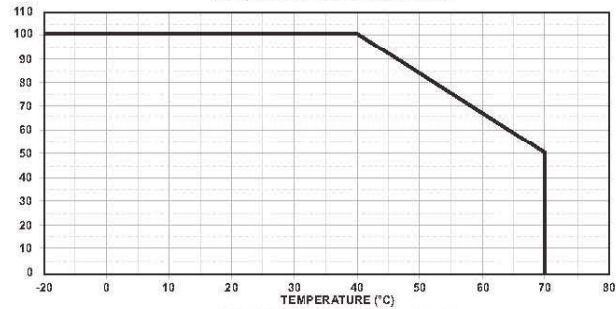
SPECIFICATION NOTE :

1. Output can provide up to peak load when the power supply starts up. Continuous staying in more than rated load is not allowed.
2. At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
3. Line regulation is defined by changing $\pm 10\%$ of input voltage from nominal line at rated load.
4. Load regulation is defined by changing $\pm 40\%$ of measured output load from 60% rated load.
5. The ripple is measured from peak to peak with a bandwidth-limit of 20MHz (Measured at the output connector with a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor).
6. Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
7. Efficiency is measured at rated load, and nominal line.

MECHANICAL DIMENSIONS: (UNIT: mm [inch])



(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE

OUTPUT CABLE RECOMMEND :

1. Selected output connectors and wire, please refer to Appendix.
2. IPU45-101~104 are required to use AWG#18X4C/4FT output cable.
3. IPU45-105~111 are required to use AWG#18X2C/4FT output cable.
4. IPU45-2XX, 3XX are required to use AWG#16X5C/4FT+core output cable.
5. IPU45-301, IPU45-306 are required to use AWG#16X5C/1.5FT+core output cable.
6. The regulation and efficiency will be changed by modified output cable.

PACKING :

1. Net weight: 535~560g approx.
2. Optional output connectors available contact sales for details.

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Rating Chart: (Single Output)

MODEL NO.	Setting Voltage Range (Factory setting, can't be adjusted)		Output Current (Based on the output volt.)		Maximum Output Power {W}	Ripple & Noise {mVp-p}	Total Regulation {%}	Typ. Efficiency {%}	Typ. No Load Consumption {W}	Hold-Up Time {ms}	Protection Mode
	min {VDC}	max {VDC}	min {A}	max {A}							
*IPU45-101	3.0	5.0	8.00		40	50	±7	65	4	12	Hiccup
*IPU45-102	5.0	6.0	6.66	8.00	42	50	±5	70	4	12	Hiccup
*IPU45-103	6.0	8.0	5.25	7.00	42	65	±5	70	4	12	Hiccup
*IPU45-104	8.0	11.0	4.00	5.63	45	80	±5	70	4	12	Hiccup
*IPU45-105	11.0	13.0	3.46	4.00	45	100	±5	70	4	12	Hiccup
*IPU45-106	13.0	16.0	2.81	3.46	45	100	±5	70	4	12	Hiccup
*IPU45-107	16.0	21.0	2.38	2.75	50	100	±5	70	4	12	Hiccup
IPU45-108	21.0	27.0	1.85	2.30	50	100	±3	70	4	12	Hiccup
*IPU45-109	27.0	33.0	1.51	1.85	50	100	±3	70	4	12	Hiccup
*IPU45-110	33.0	40.0	1.25	1.51	50	100	±3	70	4	12	Hiccup
*IPU45-111	40.0	50.0	1.00	1.25	50	100	±3	70	4	12	Hiccup

IPU45-101~111 are not in compliance with DoE VI.
[*]=MOQ is required. Please contact sales.

Rating Chart: (Multi Output)

MODEL NO.	Setting Voltage Range (Factory setting, can't be adjusted)	Output Current (Based on the output volt.)		Maximum Output Power {W}	Ripple & Noise {mVp-p}	Total Regulation {%}	Typ. Efficiency {%}	Typ. No Load Consumption {W}	Hold-Up Time {ms}	Protection Mode																																																																																																																										
		min {A}	max {A}																																																																																																																																	
*IPU45-200	+3.3	0.5	5.0	40	66	±7	83.8	0.3	12	Hiccup																																																																																																																										
	+12.0	0.3	2.0		120	±5					*IPU45-201	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup	+12.0	0.3	2.0	120	±5	*IPU45-202	+5.0	0.8	5.0	42	50	±7	84.2	0.3	12	Hiccup	+15.0	0.3	1.5	150	±5	IPU45-203	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup	+24.0	0.1	1.0	240	±5	*IPU45-204	+3.3	0.5	5.0	26.5	66	±7	80.7	0.3	12	Hiccup	+5.0	0.2	2.0	50	±5	IPU45-209	+12.0	0.3	3.0	42	120	±5	84.2	0.3	12	Hiccup	-12.0	0.1	1.0	120	±10	IPU45-210	+15.0	0.2	2.0	42	150	±5	84.2	0.3	12	Hiccup	-15.0	0.1	1.0	150	±10	*IPU45-215	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup	-24.0	0.1	1.0	240	±10	*IPU45-216	+5.1	0.0	1.0	23.82	50	±5	79.9	0.3	12
*IPU45-201	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup																																																																																																																										
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Rating Chart: (Multi Output)

MODEL NO.	Setting Voltage Range (Factory setting, can't be adjusted)	Output Current (Based on the output volt.)		Maximum Output Power (W)	Ripple & Noise (mVp-p)	Total Regulation (%)	Typ. Efficiency (%)	Typ. No Load Consumption (W)	Hold-Up Time (ms)	Protection Mode
		min	max							
		(VDC)	(A)							
*IPU45-300	+3.3	1.0	5.0	42	66	±7	84.2	0.3	12	Hiccup
	+12.0	0.3	2.0		120	±5				
	-12.0	0.1	0.8		120	±5				
*IPU45-301	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup
	+12.0	0.2	2.0		120	±5				
	-5.0	0.0	0.8		50	±5				
*IPU45-302	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup
	+12.0	0.2	2.0		120	±5				
	-12.0	0.0	0.8		120	±5				
IPU45-303	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup
	+15.0	0.4	2.0		150	±6				
	-15.0	0.0	0.8		150	±5				
*IPU45-304	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup
	+24.0	0.2	1.0		240	±5				
	-24.0	0.0	0.5		240	±5				
*IPU45-305	+5.0	0.5	5.0	42	50	±5	84.2	0.3	12	Hiccup
	+24.0	0.1	1.0		240	±5				
	-12.0	0.0	0.8		120	±5				
*IPU45-306	+3.3	0.5	5.0	40	66	±7	84.2	0.3	12	Hiccup
	+12.0	0.4	2.0		120	±5				
	-5.0	0.0	0.8		50	±5				

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