



**Features**

- . Input voltage 176 ~ 264VAC 50/60Hz or 200~360VDC
- . Output voltage select able from 5Vdc to 48Vdc for 200W series
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . 100% full load burn-in test for 2Hrs to make every unit reliable
- . Efficiency is no less than 85% and 2 years guarantee
- . Output voltage is adjustable by +/-10% of the rated output
- . All using high quality 105°C long life electrolytic capacitors

**Safety Standards**

- . IEC62368-1 CB report for worldwide use
- . UL62368-1 + CAN/CSA 62368-1 for USA and Canada
- . EN 62368-1:2014/A11:2017 for European Union
- . AS/NZS 62368.1:2018 for Australia and New Zealand
- . J62368-1 for Japan and GB4943.1 for China market.



**Product Description:**

It is a low cost and reliable 48Vdc 4.2A 200W single output constant voltage switching power supply solution with 176-264Vac or 200 - 360Vdc input. The product is designed and manufactured strictly according to the international safety standards. The output voltage is adjustable between 43.2V and 52.8V. This 48Vdc 4.2A power supply is suitable for various types of electronic instruments, equipments or apparatus, incubators, EV Charging stations, surge protectors, boiler controllers, integrated POS, sleep apnea machines and so on. The switching power supply utilizes aluminum alloy housing with cellular shape cover which is better for free air convection cooling.

**Technical Specification**

Typ. Model	TL-200S-5	TL-200S-9	TL-200S-12	TL-200S-24	TL-200S-48
<b>Output</b>					
Output Voltage	5VDC	9VDC	12VDC	24VDC	48VDC
Rated Current	40A Max.	22A Max.	17A Max.	8.3A Max.	4.2A Max.
Current Range	0 ~ 40A	0 ~ 22A	0 ~ 17A	0 ~ 8.3A	0 ~ 4.2A
Output Power	200W Max.	200W Max.	194W Max.	200W Max.	200W Max.
Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
Ripple & Noise	100mVp-p	100mVp-p	150mVp-p	200mVp-p	250mVp-p
<b>Input</b>					
Input voltage	176 - 264Vac or 200- 360Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Input Current	2.5Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	60A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	79%	80%	82%	83%	85%
Leakage Current	≤0.5mA @ full input range				
<b>Protections</b>					
Over current	110~130% rated output power. Auto-Recovery when the fault is removed				
Short Circuit	No damage. Auto-Recovery when the fault is removed				
Over temperature	Shut down o/p voltage, re-power on to recover				
<b>Environmental</b>					
Operation Temperature	0°C to +45°C, 20%RH to 90%RH				
Storage Temp, Humidity	-45~ +85°C, 10%RH to 95%RH				
Operation Altitude	≤2000m @ full load and rated operating temperatures				
MTBF	≥50000Hrs @ full load and rated operating temperatures				
<b>Mechanical</b>					
Dimensions (W x L x H)	199.0 x 110.0 x 50.0mm (7.83 x 4.33 x 1.97 inch)				
Unit Weight	380g±20 grams				
Packing Information	28pcs/ Carton, carton dimensions:47*37*20cm, 11.5kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	250mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	198mVp-p	P
2	VOLTAGE TOLERANCE	-5% ~ +5% (Max)	I/P:176VAC~264VAC O/P:FULL~MIN. LOAD / Ta:25°C	-2% ~ +2% of output voltage	P
3	LINE REGULATION	-1% ~ +1% (Max)	I/P:176VAC ~264VAC O/P:FULL LOAD / Ta:25°C	-0.08% ~ +0.08% of output voltage	P
4	LOAD REGULATION	-3% ~ +3% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.92% ~ +0.96% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.98%	P
6	SET UP TIME	2000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	1650 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	25 mS	P
8	HOLD UP TIME	10 mS (Min)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	15 mS	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	VOLTAGE RANGE	176VAC~264VAC	I/P:TESTING O/P:FULL LOAD / Ta:25°C	165V~264V	P
2	FREQUENCY RANGE	50HZ - 60HZ (Typ) NO DAMAGE OSC	I/P: 176VAC ~ 240VAC O/P:FULL~MIN LOAD / Ta:25°C	TEST: OK	P
3	EFFICIENCY	85% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	85.99%	P
4	AVERAGE EFFICIENCY	>83%	I/P:230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	82.74% (230VAC)	P
5	AC CURRENT	2.5A (Max)	I/P:230VAC & O/P:FULL LOAD Ta:25°C	2.39A	P
6	INRUSH CURRENT	<60A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	45.11A	P
7	LEAKAGE CURRENT	< 0.5mA	I/P:230VAC & O/P:Min LOAD Ta:25°C	L-FG:0.37mA N-FG:0.36mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 ~ 130% (Typ)	I/P:230VAC & O/P:TESTING Ta:25°C	119.93% HICCUP MODE	P
2	OVER VOLTAGE PROTECTION	115 ~ 135% (Typ)	I/P:230VAC O/P:MIN LOAD & Ta:25°C	Hiccup mode, recovers automatically after fault condition is removed	P
3	SHORT PROTECTION	SHORT OUTPUT 1 HOUR NO DAMAGE	I/P:264VAC O/P:FULL LOAD & Ta:25°C	NO DAMAGE HICCUP MODE	P

### SAFETY TEST & E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 1.5KVAC/min I/P- FG: 1.5KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 1.8 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P:4.95mA I/P-FG: 4.89mA O/P-FG: 3.71mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 9999MΩ I/P-FG: 9999MΩ O/P-FG:9999 MΩ NO DAMAGE	P
3	CONDUCTION	BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN	I/P: 230 VAC (50HZ) O/P: FULL/50% LOAD Ta: 25°C	PASS Test by certified Lab	P
4	RADIATION	BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN	I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab	P
5	SURGE	BS EN/EN61000-4-5 LIGHT INDUSTRY L-N: 1KV	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA B	P
6	E.S.D	BS EN/EN61000-4-2 LIGHT INDUSTRY AIR: 8KV / Contact: 4KV	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA B	P

TEST RESULT	TESTER	REVIEW	APPROVAL
<b>PASS</b>	<b>ZHU LI</b>	<b>WANG LW</b>	<b>ZHANG DL</b>