



**Features**

- . Input voltage 176 ~ 264VAC 50/60Hz or 200~360VDC
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . Output voltage selectable from 12Vdc to 48Vdc for 500W series
- . The output voltage adjustable by +/-10% of rated output
- . Forced air cooling by built-in DC ball bearing fan
- . All using high quality 105°C long life electrolytic capacitors
- . Operation temperature from -10 °C to +60 °C

**Safety Standards**

- . IEC62368-1 CB report for worldwide use
- . EN 62368-1:2014/A11:2017 for European Union
- . UL62368-1 + CAN/CSA 62368-1 for USA and Canada
- . 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 high reliable 24Vdc 20A 480W 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 with high reliable components and operating temperature suitable from -10 °C to +60 °C. The switching power supply utilizes aluminum alloy housing built-in a on/off controllable DC fan. This 24Vdc 20A power supply is suitable for various types of industrial robots, laser galvanometer, CNC machining, conventional fire alarm panel, DCS systems, electrical cabinet, industrial & commercial energy system and so on.

**Technical Specification**

Typ. Model	TL-500S-12	TL-500S-24	TL-500S-48	TL-600S-24	TL-600S-48
<b>Output</b>					
Output Voltage	12VDC	24VDC	48VDC	24VDC	48VDC
Rated Current	42A Max.	20A Max.	10A Max.	25A Max.	12.5A Max.
Current Range	0 ~ 42A	0 ~ 20A	0 ~ 10A	0 ~ 25A	0 ~ 12.5A
Output Power	504W Max.	480W Max.	480W Max.	600W Max.	600W Max.
Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
Ripple & Noise	150mVp-p	200mVp-p	400mVp-p	250mVp-p	400mVp-p
<b>Input</b>					
Input voltage	110 / 230 Vac or 200- 360Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Input Current	9A Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	60A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	82%	83%	85%	85%	87%
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	-10°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)	250.0 x 160.0 x 87.0mm (9.84 x 6.30 x 3.43 inch)				
Unit Weight	550g±40 grams				
Packing Information	20pcs/ Carton, carton dimensions:47*37*20cm, 12.2kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	200mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	164mVp-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	-0.09% ~ +0.09% of output voltage	P
4	LOAD REGULATION	-3% ~ +3% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-1.12% ~ +1.13% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.95%	P
6	SET UP TIME	2000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	1770 mS	P
7	RISE TIME	50 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	38 mS	P
8	HOLD UP TIME	10 mS (Min)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	14 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	168V~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	>83% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	83.99%	P
4	AVERAGE EFFICIENCY	>81%	I/P:230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	81.54% (230VAC)	P
5	AC CURRENT	5.0A (Max)	I/P:230VAC & O/P:FULL LOAD Ta:25°C	4.42A	P
6	INRUSH CURRENT	<60A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	48.32A	P
7	LEAKAGE CURRENT	< 0.5mA	I/P:230VAC & O/P:Min LOAD Ta:25°C	L-FG:0.40mA N-FG:0.39mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 ~ 140% (Typ)	I/P:230VAC & O/P:TESTING Ta:25°C	123.13% 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:5.98mA I/P-FG: 5.71mA O/P-FG: 4.15mA 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>