



**Features**

- . Input 115V / 230VAC selectable by switch, 50~60Hz
- . Output voltage selectable from 9V to 70Vdc constant voltage
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . 100% full load burn-in test for 2Hrs to make every unit reliable.
- . All using 105°C long life electrolytic capacitors
- . High efficiency, long life and high reliability with 2 year warranty
- . LED indicator for power on and withstand 5G vibration test

**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 highly reliable and ultra-thin 400W public safety battery back up power supply with 115Vac or 230Vac input selected by switch and designed strictly according to the international safety standards. The entire series supplies different models with output voltages ranging between 9Vdc and 70Vdc that can satisfy the demands for various types of communication devices, public safety battery back up system, industrial equipment, laser related machine, measurement instruments and so on. This 400W switching power supply enclosed type utilizes aluminum alloy housing with temperature controlled fan for force air convection cooling to make low temperature rise.

**Technical Specification**

Typ. Model	TL-400S-9	TL-400S-12	TL-400S-24	TL-400S-48	TL-400S-70
<b>Output</b>					
Output Voltage	9VDC	12VDC	24VDC	48VDC	70VDC
Rated Current	44A Max.	33A Max.	16.6A Max.	8.3A Max.	5.7A Max.
Current Range	0 ~ 44A	0 ~ 33A	0 ~ 16.6A	0 ~ 8.3A	0 ~ 5.7A
Output Power	396W Max.	396W Max.	398W Max.	398W Max.	399W Max.
Voltage Tolerance	±5%	±5%	±5%	±3%	±2%
Ripple & Noise	200mVp-p	200mVp-p	250mVp-p	300mVp-p	350mVp-p
<b>Input</b>					
Input voltage	115V / 230Vac or 220- 374Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Input Current	9A Max. @ 115Vac 50/60Hz input				
Inrush Current	80A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	78%	80%	82%	84%	85%
Leakage Current	≤0.5mA @ full input range				
<b>Protections</b>					
Over current	110~135% 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)	252.0 x 103.0 x 65.0mm (9.92 x 4.06 x 2.56 inch)				
Unit Weight	720g±30 grams				
Packing Information	20pcs/ Carton, carton dimensions:47*37*20cm, 15.5kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	150mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	128mVp-p	P
2	VOLTAGE TOLERANCE	-5% ~ +5% (Max)	I/P:115VAC / 230VAC O/P:FULL~MIN. LOAD / Ta:25°C	-2% ~ +2.3% of output voltage	P
3	LINE REGULATION	-1% ~ +1% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD / Ta:25°C	-0.12% ~ +0.15% of output voltage	P
4	LOAD REGULATION	-3% ~ +3% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.68% ~ +0.89% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.85%	P
6	SET UP TIME	3000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	2500 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	24mS	P
8	HOLD UP TIME	10 mS (Min)	I/P: 115VAC O/P:FULL LOAD / Ta:25°C	15 mS	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	VOLTAGE RANGE	85VAC ~ 132VAC 176VAC ~ 265VAC	I/P:TESTING O/P:FULL LOAD / Ta:25°C	84V~132VAC 163V ~ 265VAC	P
2	FREQUENCY RANGE	50HZ - 60HZ (Typ) NO DAMAGE OSC	I/P: 100VAC ~ 240VAC O/P:FULL~MIN LOAD / Ta:25°C	TEST: OK	P
3	EFFICIENCY	78% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	78.39%	P
4	AVERAGE EFFICIENCY	>76%	I/P:115/230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	76.53% (115VAC) 77.30% (230VAC)	P
5	AC CURRENT	9.0A (Max)	I/P:100VAC & O/P:FULL LOAD Ta:25°C	8.15A	P
6	INRUSH CURRENT	<80A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	58.95A	P
7	LEAKAGE CURRENT	<0.5mA	I/P:240VAC & O/P:Min LOAD Ta:25°C	L-FG:0.36mA N-FG:0.37mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	OVER LOAD PROTECTION	115 ~ 135% (Typ)	I/P:230VAC & O/P:TESTING Ta:25°C	125.3% 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:6.11mA I/P-FG: 5.78mA O/P-FG:4.02mA 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 A	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 A	P

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