



**Features**

- . Input voltage 176 ~ 264VAC 50/60Hz or 200~360VDC
- . Output voltage select able from 3.3V to 24Vdc constant voltage
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . Long life and high reliability and free air convection cooling
- . 100% full load burn-in test for 2Hrs to make every unit reliable
- . Low cost solution and LED indicator for power on
- . Efficiency is no less than 78% and 2 years guarantee.

**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 9VDC 2.8A 25W single output switching power supply solution with 176-264Vac or 200 - 360Vdc input and designed strictly according to the international safety standards. The output voltage is adjustable by the potentiometer by +/-10% of output voltage. This 9Vdc 2.8A switch mode power supply is suitable for various types of injection molding machine, embroidery machine, vending machine, industrial automation machinery, industrial control system and so on. This switching power supply utilizes aluminum alloy housing with cellular shape cover which is better for free air convection cooling with dimensions of 110 \* 78\* 35mm .

**Technical Specification**

Typ. Model	TL-25S-3.3	TL-25S-5	TL-25S-9	TL-25S-12	TL-25S-24
<b>Output</b>					
Output Voltage	3.3VDC	5VDC	9VDC	12VDC	24VDC
Rated Current	5A Max.	5A Max.	2.8A Max.	2.1A Max.	1A Max.
Current Range	0 ~ 5A	0 ~ 3A	0 ~ 2.8A	0 ~ 2.1A	0 ~ 1A
Output Power	16.5W Max.	25W Max.	25W Max.	25W Max.	24W Max.
Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
Ripple & Noise	80mVp-p	80mVp-p	100mVp-p	100mVp-p	150mVp-p
<b>Input</b>					
Input voltage	176 - 264Vac or 200- 360Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Input Current	0.5Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	40A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	70%	75%	78%	80%	82%
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)	110.0 x 78.0 x 35.0mm (4.35 x 3.07 x 1.18 inch)				
Unit Weight	150g±10 grams				
Packing Information	60pcs/ Carton, carton dimensions:47*37*20cm, 10.5kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	100mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	67mVp-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	-0.05% ~ +0.05% of output voltage	P
4	LOAD REGULATION	-3% ~ +3% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.92% ~ +0.92% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.8%	P
6	SET UP TIME	2000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	1330 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	26 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	162V~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	78% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	78.39%	P
4	AVERAGE EFFICIENCY	>76%	I/P:230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	76.62% (230VAC)	P
5	AC CURRENT	0.5A (Max)	I/P:230VAC & O/P:FULL LOAD Ta:25°C	0.39A	P
6	INRUSH CURRENT	<40A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	27.71A	P
7	LEAKAGE CURRENT	< 0.5mA	I/P:230VAC & O/P:Min LOAD Ta:25°C	L-FG:0.37mA N-FG:0.35mA	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	120.1% 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:3.82mA I/P-FG: 3.63mA O/P-FG: 2.84mA 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>