“Blue Fairy” TL Series Flat PCB Mounting Power Transformers

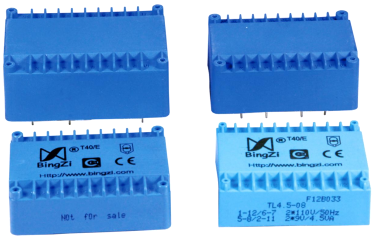
1. Features

① The fully-encapsulated printed circuit board can be directly welded and assembled, and has a perfect outline.

② It is compact in structure, solid, vibration-proof, moisture-proof, flame-resistant, and has high dielectric strength.

③ It is easy to use and reconfigure, and alternative input/output voltages can be obtained by changing the connections of the primary and/or secondary.

④ It is economical and affordable, with a competitive price.



2. Ambient Conditions

① Ambient temperature: -10℃～+40℃;

② Relative humidity: ≤90% at 40℃;

③ Atmospheric pressure: 860～1060mbar(650～800mmHg approximately).

3. Insulation Rating: Class B (130℃).

4. Safety Features

① Dielectric resistance: >1000MΩ in normal condition;

② Insulation withstand voltages: Better than GB/T15290 standard requirements.

③ Fire retardancy: In conformity with UL94-Vo;

④ Basis insulation impulse level: Continuously 10 times impact of 6KV (50HZ)/50μS;

5. Safety Certification: CE

6. Rated Power: 4.5VA

7. Rated Voltage

① Standard series:

Primary：2×110V±10%　　50Hz/60Hz

Secondary：2×6V, 2×7.5V, 2×9V, 2×12V, 2×15V, 2×18V, 2×21V, 2×24V, 2×27V

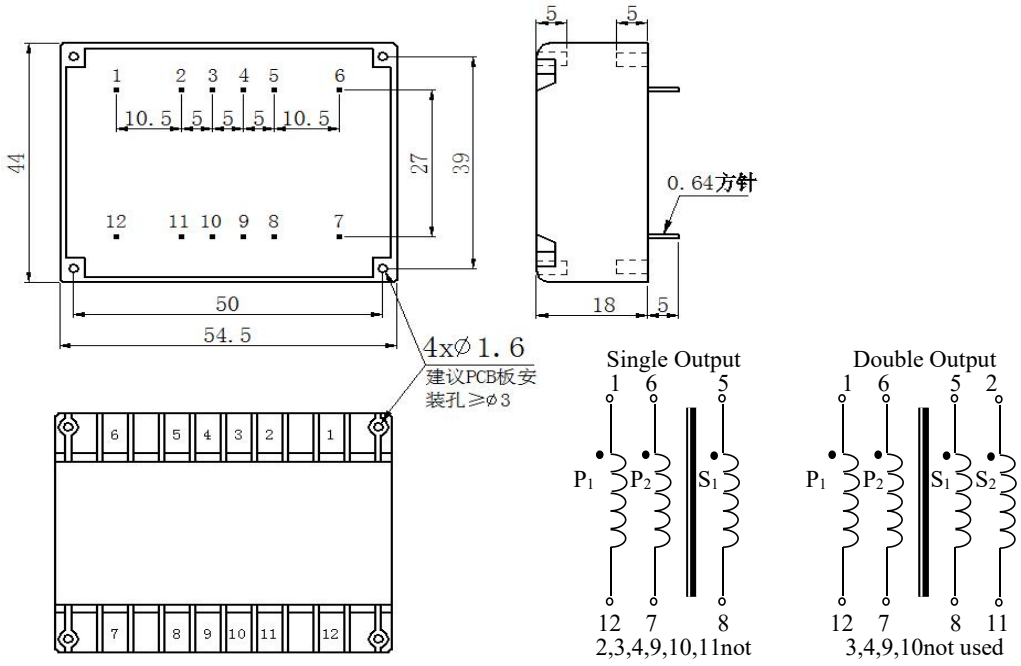
② Non-standard series: It can be customized based on customer's requirements.

8. Universal Technical Parameters of TL Series Standard Product:

SN	Model	Output Power	Idle Current	Idle Loss	Voltage Regulation Ratio	Temperature Rise	Weight (g)
TL4.5	4.5VA	≤26mA	≤0.45W	≤28%	≤22℃	160	54.5×44×18
TL6	6VA	≤20mA	≤0.5W	≤28%	≤27℃	170	58.5×43.5×18.2
TL9	9VA	≤15mA	≤0.5W	≤20%	≤27℃	200	58.5×43.5×22.3
TL12	12VA	≤18mA	≤0.6W	≤20%	≤33℃	330	66×49×25.3

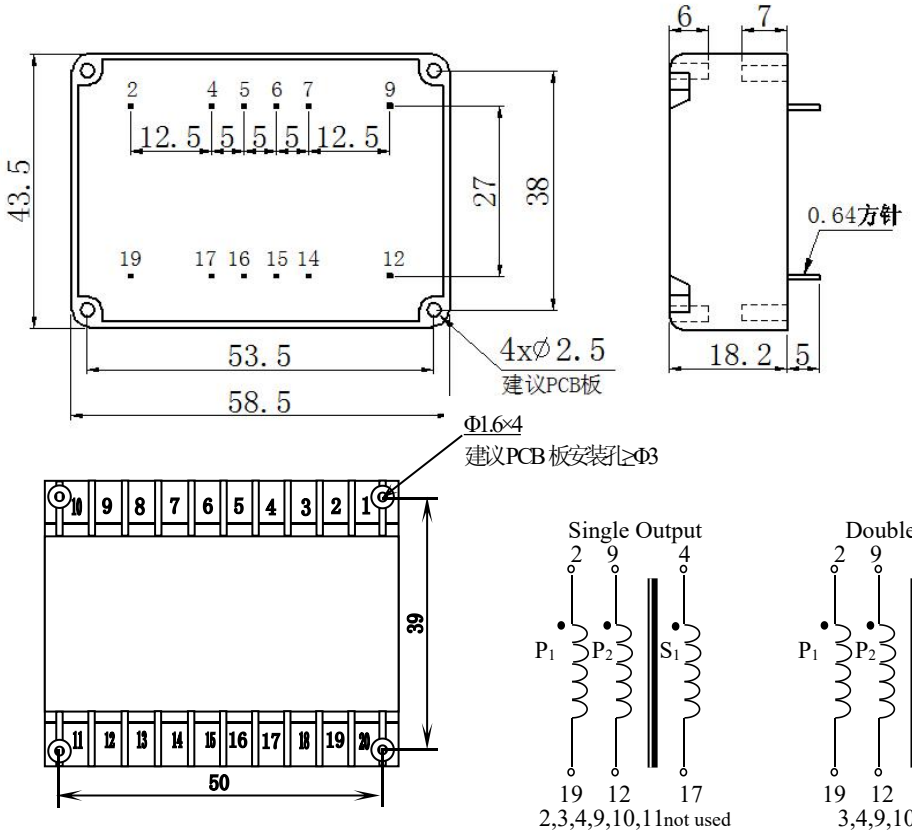
9.Outline, Installation Dimension and Detailed Technical Parameters of TL Series Standard Product

1. TL4.5(4.5VA) （Tolerance±0.5mm）



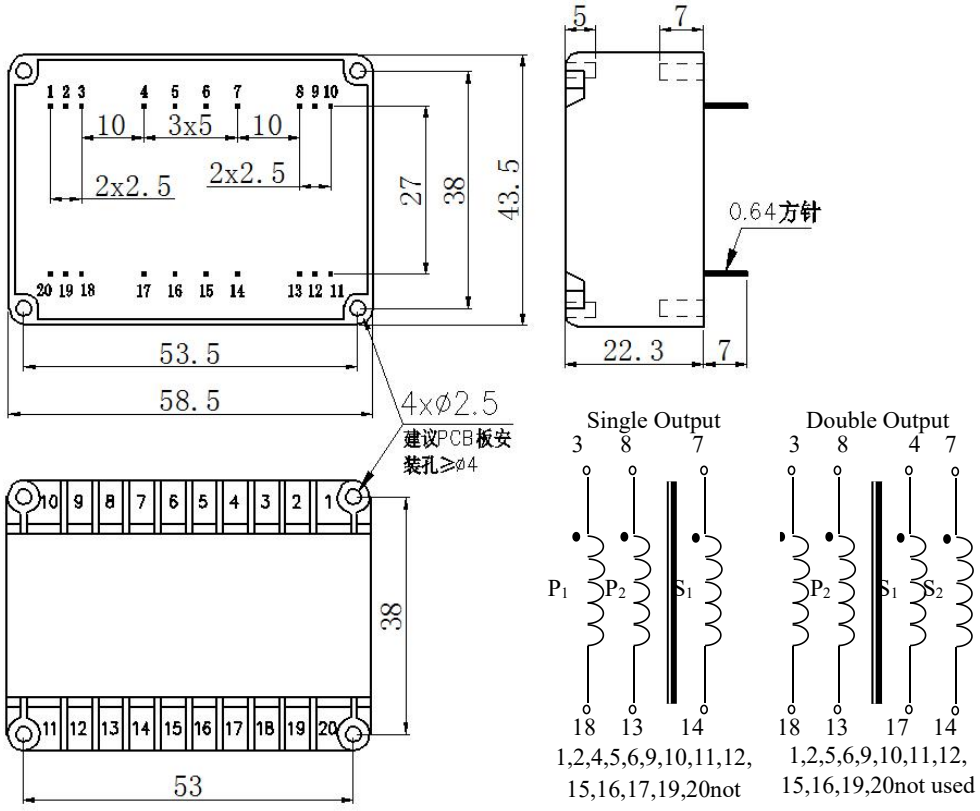
Model	Primary Voltage	Primary Operating Current		Secondary Voltage		Secondary Current (mA)	Equivalent Internal Resistance (Ω)
		Idle	Full Load	Idle	Full Load		
TL4.5-01	2×110V ±10% 50Hz/60Hz	≤26mA	≤40mA	8.7V	6V	750	3.2
TL4.5-01B				10.9V	7.5V	600	5.1
TL4.5-02				13.1V	9V	500	7.4
TL4.5-03				17.4V	12V	375	13
TL4.5-04				21.8V	15V	300	20
TL4.5-05				26.1V	18V	250	29.2
TL4.5-05B				30.6V	21V	214	40.3
TL4.5-06				34.8V	24V	187.5	51.9
TL4.5-06B				39.2V	27V	166	65.9
TL4.5-07	2×110V ±10% 50Hz/60Hz	≤26mA	≤40mA	2×8.7V	2×6V	2×375	2×6.5
TL4.5-07B				2×10.9V	2×7.5V	2×300	2×10.2
TL4.5-08				2×13.0V	2×9V	2×250	2×12.0
TL4.5-09				2×17.4V	2×12V	2×187.5	2×26.5
TL4.5-10				2×21.8V	2×15V	2×150	2×41
TL4.5-11				2×26.1V	2×18V	2×125	2×60
TL4.5-11B				2×30.6V	2×21V	2×107	2×83
TL4.5-12				2×34.8V	2×24V	2×93.7	2×108
TL4.5-12B				2×39.2V	2×27V	2×83	2×136

2. TL6(6VA) （Tolerance±0.5mm）



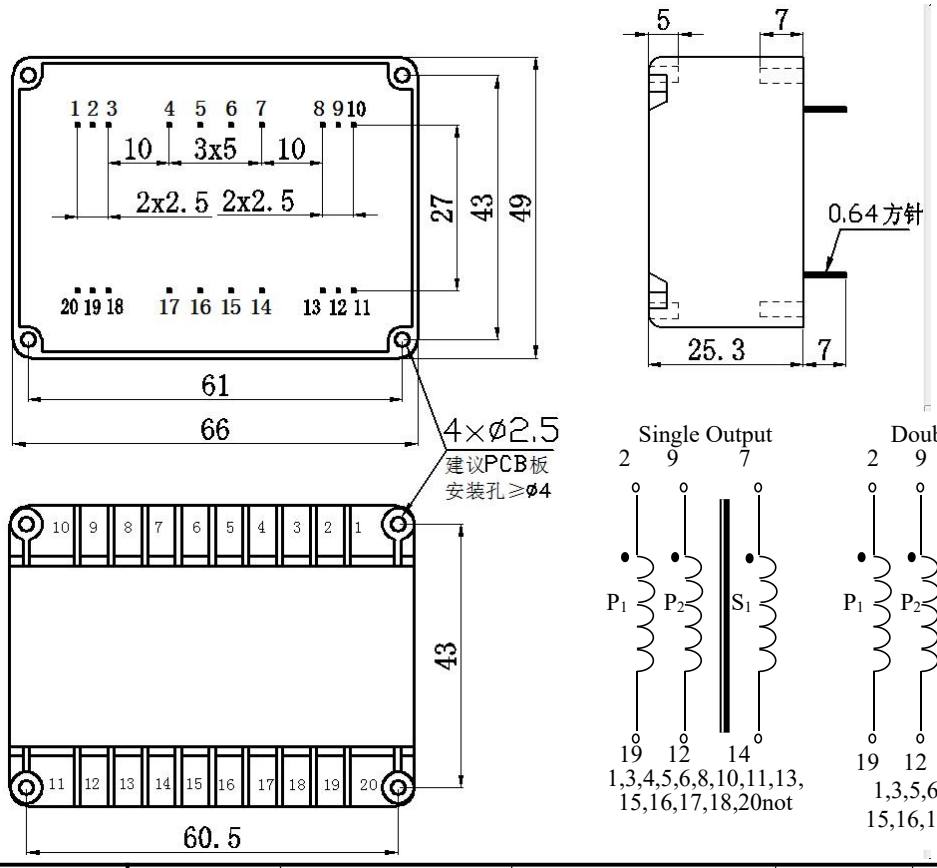
Model	Primary Voltage	Primary Operating Current		Secondary Voltage		Secondary Current (mA)	Equivalent Internal Resistance (Ω)
		Idle	Full Load	Idle	Full Load		
TL6-01	2×110V ±10% 50Hz/60Hz	≤ 20mA	≤ 30mA	7.6V	6V	1000	1.6
TL6-01B				9.6V	7.5V	800	2.6
TL6-02				11.6V	9V	667	3.8
TL6-03				15.4V	12V	500	6.9
TL6-04				19.3V	15V	400	11.0
TL6-05				23.0V	18V	333	15.2
TL6-05B				26.8V	21V	286	20.5
TL6-06				30.8V	24V	250	27.3
TL6-06B				34.9V	27V	222	35.7
TL6-07	2×110V ±10% 50Hz/60Hz	≤ 20mA	≤ 30mA	2×	2×6V	2× 500	2× 3.5
TL6-07B				2×9.6	2×7.5V	2× 400	2× 5.3
TL6-08				2×11.5	2×9V	2× 333	2× 7.3
TL6-09				2×15.2	2×12V	2× 250	2× 12.9
TL6-10				2×	2×15V	2× 200	2× 19.6
TL6-11				2×22.9	2×18V	2× 167	2× 29.8
TL6-11B				2×27.0	2×21V	2× 143	2× 42.1
TL6-12				2×30.9	2×24V	2× 125	2× 54.7
TL6-12B				2×34.6	2×27V	2× 111	2× 69.0

3. TL9(9VA) （Tolerance±0.5mm）



Model	Primary Voltage	Primary Operating Current		Secondary Voltage		Secondary Current (mA)	Equivalent Internal Resistance (Ω)
		Idle	Full Load	Idle	Full Load		
TL9-01	2×110V ±10% 50Hz/60Hz	≤15mA	≤ 60mA	7.3V	6V	1500	0.9
TL9-01B				9.2V	7.5V	1200	1.4
TL9-02				11.1V	9V	1000	2.1
TL9-03				14.7V	12V	750	3.9
TL9-04				18.3V	15V	600	5.5
TL9-05				22.2V	18V	500	8.4
TL9-05B				25.3V	21V	428.6	10.0
TL9-06				29.5V	24V	375	14.7
TL9-06B				33.2V	27V	333.3	18.6
TL9-07	2×110V ±10% 50Hz/60Hz	≤ 15mA	≤60mA	2× 7.3V	2×6V	2× 750	2× 1.7
TL9-07B				2×9.2 V	2×7.5V	2× 600	2× 2.8
TL9-08				2×11.5	2×9V	2× 500	2× 5.0
TL9-09				2×14.7V	2×12V	2× 375	2× 7.2
TL9-10				2×	2×15V	2× 300	2× 11.0
TL9-11				2×22.2	2×18V	2× 250	2× 16.8
TL9-11B				2×25.3	2×21V	2× 214.3	2× 20.0
TL9-12				2×29.5	2×24V	2× 187.5	2× 29.3
TL9-12B				2×33.2	2×27V	2× 166.7	2× 37.2

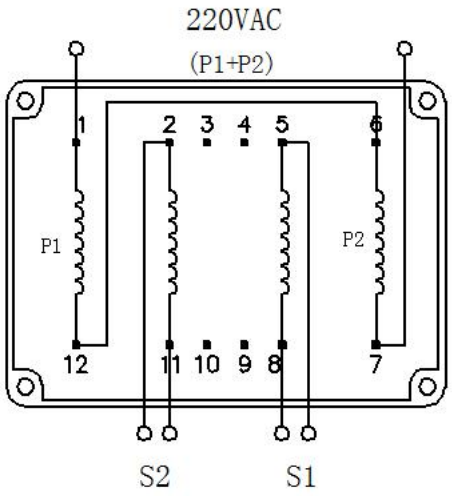
4. TL12(12VA) （Tolerance±0.5mm）



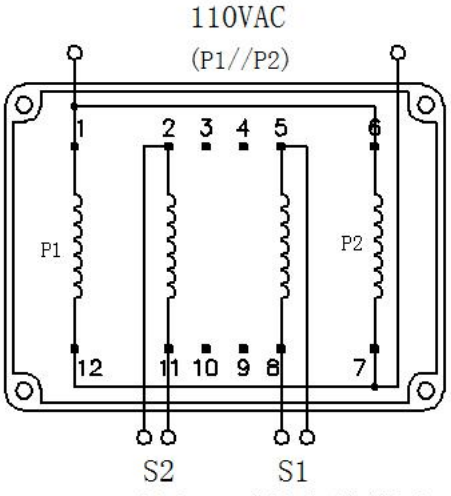
Model	Primary Voltage	Primary Operating Current		Secondary Voltage		Secondary Current (mA)	Equivalent Internal Resistance (Ω)
		Idle	Full Load	Idle	Full Load		
TL12-01	2×110V ±10% 50Hz/60Hz	≤18mA	≤ 80mA	7.1V	6V	2000	0.6
TL12-01B				8.8V	7.5V	1600	0.8
TL12-02				10.6V	9V	1333	1.2
TL12-03				14.0V	12V	1000	2.0
TL12-04				17.7V	15V	800	3.4
TL12-05				21.1V	18V	666.7	4.6
TL12-05B				24.8V	21V	571.4	6.7
TL12-06				28.3V	24V	500	8.6
TL12-06B				31.9V	27V	444.4	11.0
TL12-07	2×110V ±10% 50Hz/60Hz	≤ 18mA	≤ 80mA	2× 7.1V	2×6V	2× 1000	2× 1.1
TL12-07B				2×8.8 V	2×7.5V	2× 800	2× 1.6
TL12-08				2×10.6 V	2×9V	2× 666.7	2× 2.4
TL12-09				2×14.0 V	2×12V	2× 500	2× 4.0
TL12-10				2× 17.7V	2×15V	2× 400	2× 6.8
TL12-11				2×21.1 V	2×18V	2× 333.3	2× 9.3
TL12-11B				2×24.8 V	2×21V	2× 285.7	2× 13.3
TL12-12				2×28.3V	2×24V	2× 250	2× 17.2
TL12 -12B				2×31.9V	2×27V	2× 222.2	2× 22.1

10.Windings

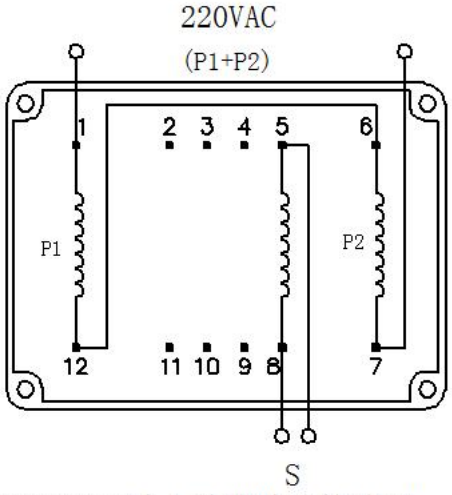
1. TL4.5(4.5VA)



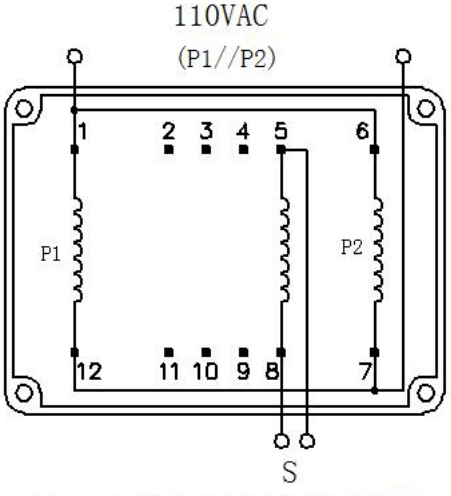
220VAC输入双路输出接线图



110VAC输入双路输出接线图

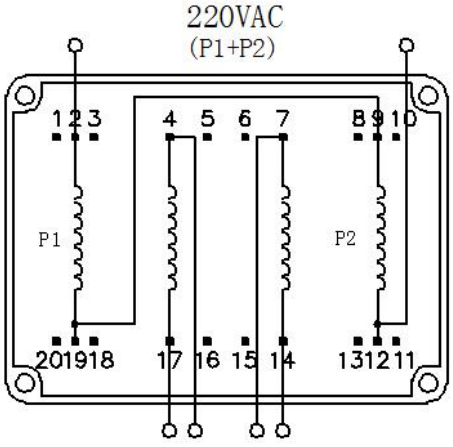


220VAC输入单路输出接线图

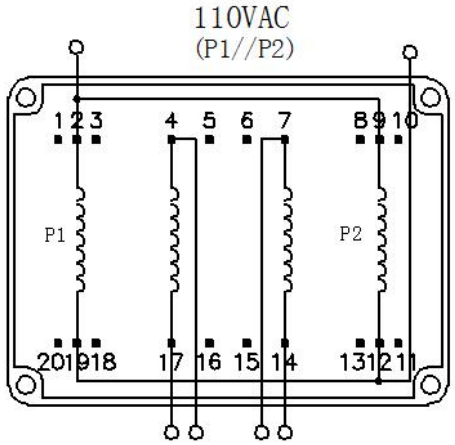


110VAC输入单路输出接线图

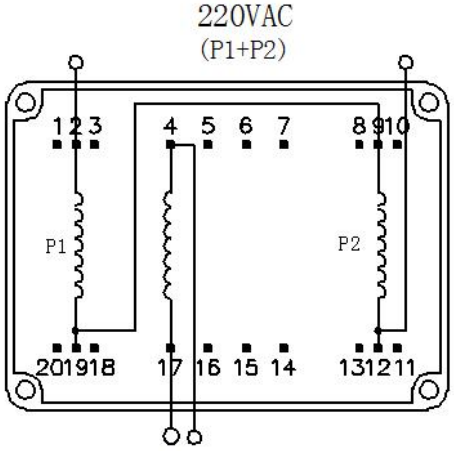
2. TL6(6VA)



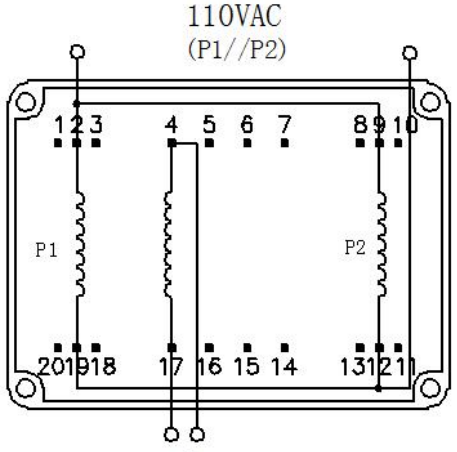
220VAC输入双路输出接线图



110VAC输入双路输出接线图

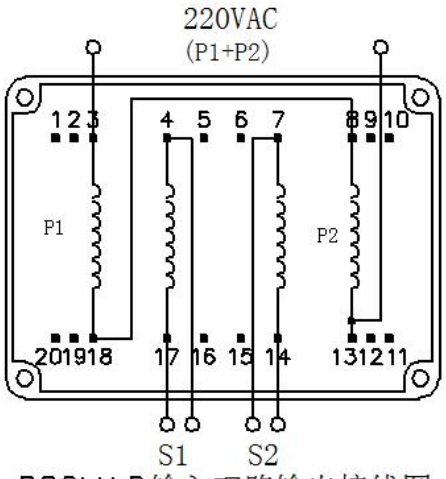


220VAC输入单路输出接线图

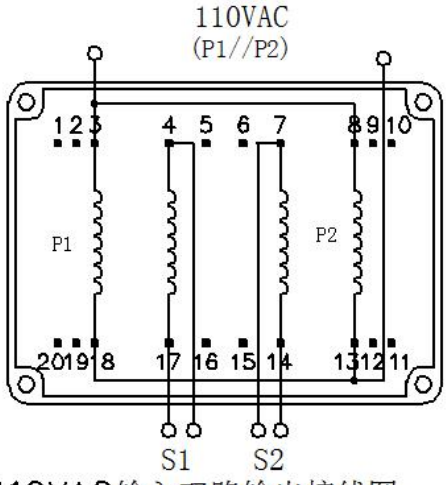


110VAC输入单路输出接线图

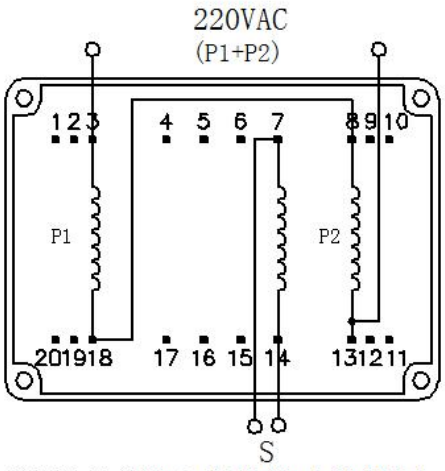
3. TL9(9VA)



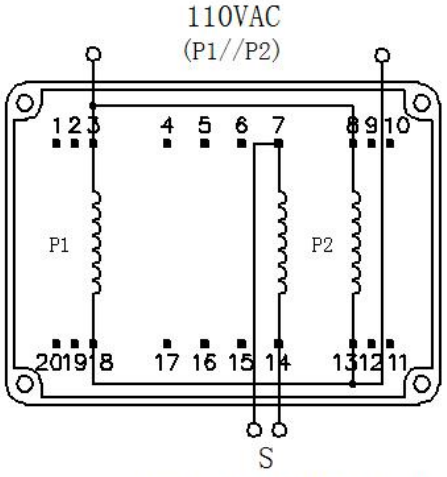
220VAC输入双路输出接线图



110VAC输入双路输出接线图

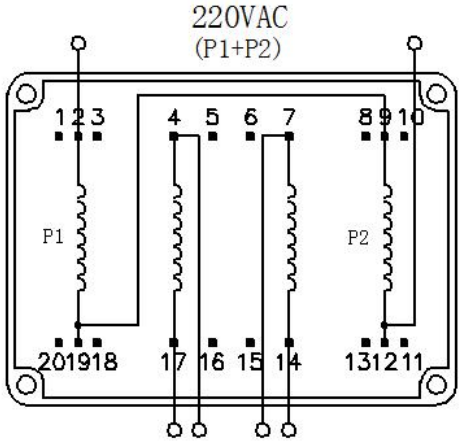


220VAC输入单路输出接线图

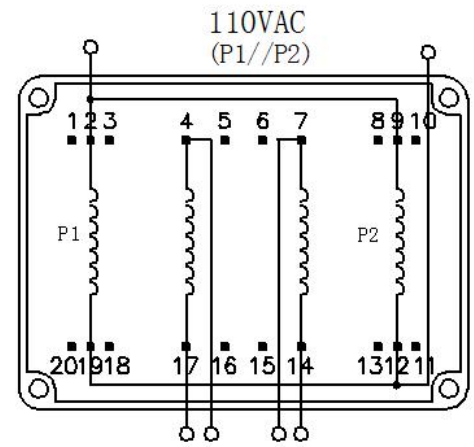


110VAC输入单路输出接线图

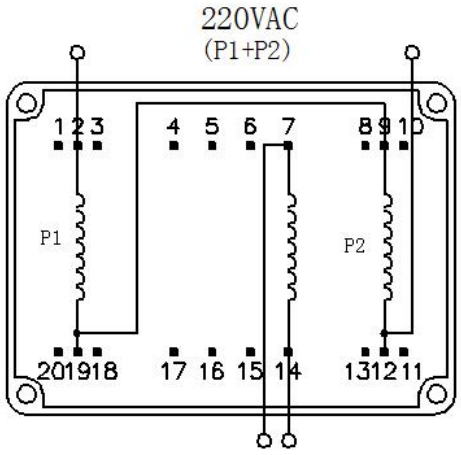
4. TL12(12VA)



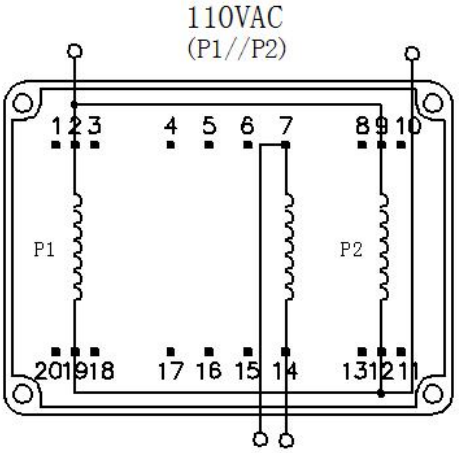
220VAC输入双路输出接线图



110VAC输入双路输出接线图



220VAC输入单路输出接线图



110VAC输入单路输出接线图

11.Attention

Since this transformer product has many leadouts and the leadouts are relatively hard, in order to facilitate plug-in, it is suggested that when designing the PCB, leave some tolerance for the size of the transformer pin holes (if the leadout is 0.8mm, the pin hole size can be designed to 1.2mm; if the leadout is 1mm, the pin hole size can be designed to 1.5mm).