

TVA1421 Series Miniature Precision AC Voltage and Current Transformers

LI031V1/2008-EN

1. Features

- ① It can be used as either a voltage transformer or a current transformer.
- ② It is capable of being directly welded onto a PCB.
- ③ It is highly accurate, has a wide sampling range, and is flexible in its applications.
- ④ It is fully encapsulated, has strong mechanical and environmental endurance, strong dielectric strength, and an elegant outline.

2. Ambient Conditions

- ① Ambient temperature: $-55^{\circ}\text{C} \sim +85^{\circ}\text{C}$;
- ② Relative humidity: $\leq 90\%$ at 40°C ;
- ③ Atmospheric pressure: $860 \sim 1060\text{mbar}$ (about $650 \sim 800\text{mmHg}$).

3. Operating Frequency Range : 20Hz~20kHz

4. Insulation Thermal Class: Class B (130°C)

5. Safety Features:

- ① Dielectric resistance: $>1000\text{M}\Omega$ in normal condition;
- ② Insulation withstand voltages: $3\text{KV } 50\text{Hz}/1\text{min}$ (used as a voltage transformer);
 $6\text{KV } 50\text{Hz}/1\text{min}$ (used as a current transformer);
- ③ Fire retardancy: In conformity with UL94-V0.



6. Outline Drawing, Installation Dimension and Coil Diagram:

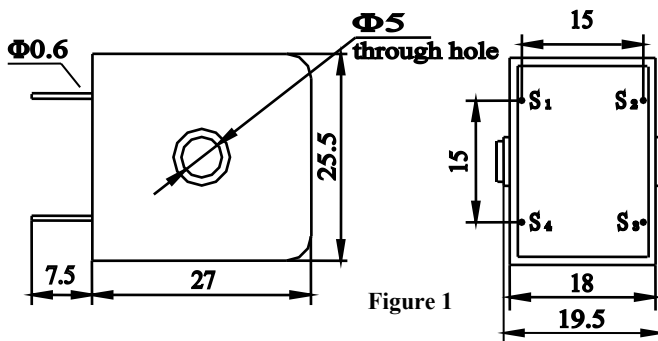
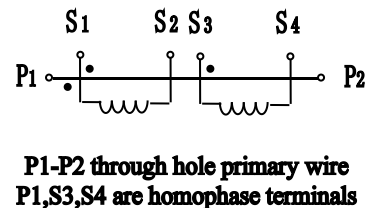


Figure 1



P1-P2 through hole primary wire
P1,S3,S4 are homophase terminals

Figure 2

7. Typical Usage and Technical Parameters

① Used as a voltage transformer

TVA1421 model is actually a current-type voltage transformer when it is used as a voltage transformer. Fig.3 and Fig.4 show the two typical applications, respectively. The parameters are shown in Table 1.

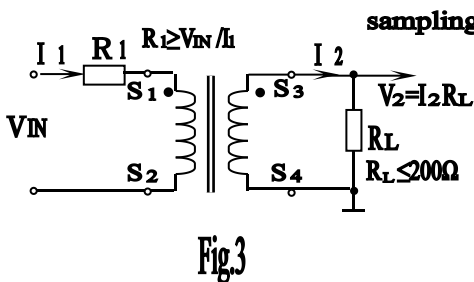


Fig.3

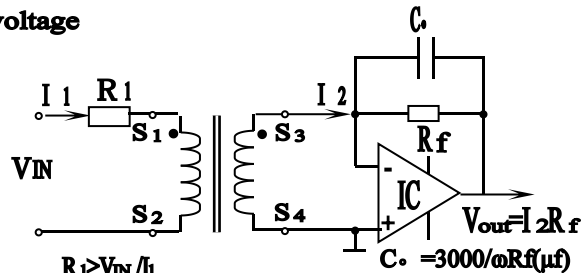


Fig.4

Table 1:

Usage	Model	Input Voltage	Output Voltage	Phase Shift	Non Linearity	Linear Range	Rated Current	Withstand Voltage
Used as in Fig.1	TVA1421-01	≤1000Vac	≤1.2V	≤30'	≤0.2%	1.5 times of the rated value	6mA/6mA	≥3KV
	TVA1421-01M	≤1000Vac	≤1.5V	≤40'	≤0.25%			
Used as in Fig.2	TVA1421-01	≤1000Vac	≤1/2 IC's power supply	≤5'	≤0.1%	2 times of the rated value		
	TVA1421-01M	≤1000Vac		≤5'	≤0.1%			

② Used as a current transformer

With a through hole wire inserted as primary input, TVA1421 model can be used as a current transformer, which derives four applicable connections in output as shown in Fig.5, Fig.6, Fig.7 and Fig.8. The parameters are given in Table 2 and Table 3.

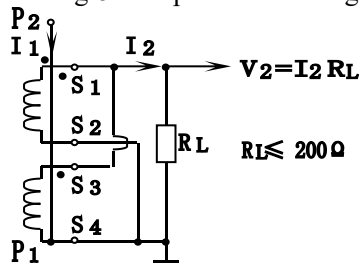


Fig.5

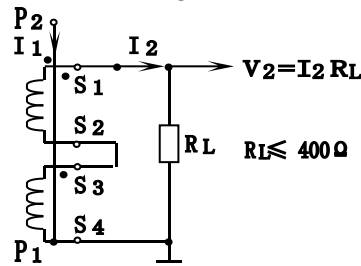


Fig.6

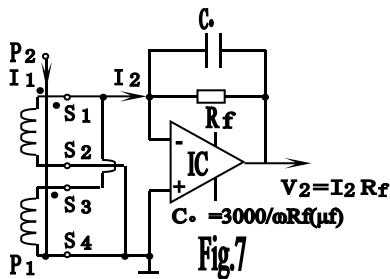


Fig.7

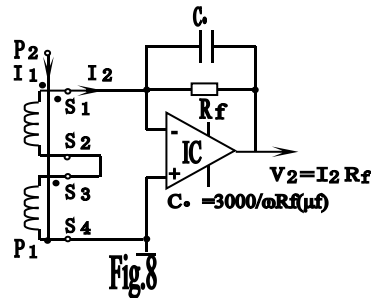


Fig.8

Table 2:

Usage	Model	Rated Input Current	Rated Output Current	Rated Sampling Resistance	Rated Sampling Voltage	Phase Shift	Non Linearity	Linear Range	Withstand Voltage
Used as in Fig.3	TVA1421-01	9A	6mA	200Ω	1.2V	≤30'	≤0.2%	1.5 times of the rated value	≥6KV
	TVA1421-01M		6mA	250Ω	1.5V	≤40'	≤0.25%		
Used as in Fig.4	TVA1421-01	18A	6mA	400Ω	2.4V	≤20'	≤0.2%		
	TVA1421-01M		6mA	500Ω	3V	≤27'	≤0.25%		

Table 3:

Usage	Model	Rated Input Current	Rated Output Current	Rated Sampling Voltage	Phase Shift	Non Linearity	Linear Range	Withstand Voltage
Used as in Fig.5	TVA1421-01	9A	6mA	≤1/2 times of IC power supply	≤5'	≤0.1%	2 times of the rated value	≥6KV
	TVA1421-01M		6mA					
Used as in Fig.6	TVA1421-01	18A	6mA					
	TVA1421-01M		6mA					

8. Attention

Whether used as a voltage transformer or current transformer, it is fundamentally a current-type transformer in principle. Therefore, an open circuit is not permitted in the secondary circuit. For this reason, do not connect any fuse in the secondary circuit.