泰利電器實業股份有限公司
TAILI ELECTRIC CORPORATION

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30+ YEARS EXPERIENCE

CE EN/IEC 61558-1 EN/IEC 61558-2-13

MADE IN TAIWAN

VARIABLE TRANSFORMERS
(TL SLIDAC)

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A **Variable transformer**, commonly known as a **VARIAC (Slide regulator, SLIDAC)**, is a versatile electrical device used to adjust the voltage output in various applications. It functions as a type of auto-transformer with a continuously adjustable output, enabling precise voltage regulation for a range of electrical and electronic equipment.

The fundamental design of a variable transformer includes a toroidal core wound with a single winding. This core, often made of laminated silicon steel, provides an efficient magnetic path, reducing energy losses and enhancing performance. The transformer features a rotating brush or wiper arm that makes contact with different points along the winding. By adjusting this arm, users can vary the output voltage smoothly from zero to the maximum rating of the device.

Variable transformers are utilized extensively in laboratories, educational institutions, and industrial settings for tasks such as voltage testing, equipment calibration, and power supply regulation. They offer significant advantages, including precise control over output voltage, which is essential for accurate testing and experimentation. Moreover, these devices can handle a wide range of voltages and currents, making them suitable for diverse applications.

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L-type SLIDAC

TAILI has been committed to the development of L-type large customized voltage regulators.

Variable transformers are typically categorized by their cooling methods: air-cooled or oil-cooled. Air-cooled units are generally used for lower power ratings, while oil-cooled models are designed for higher power applications. The oil-cooled variants are capable of operating at or near their maximum current ratings for extended periods without significant overheating, thanks to the superior heat dissipation provided by the oil.

In terms of safety, variable transformers come equipped with features such as grounded cords and protective casings. It is crucial to ensure that the voltage and frequency of the power supply match the specifications of the transformer to prevent damage or safety hazards. Regular maintenance, including checking for wear or damage and ensuring proper ventilation, is also essential to maintain optimal performance and safety.

Overall, variable transformers are indispensable tools for controlling and regulating electrical power, providing flexibility and precision in various electrical applications. Their ability to offer a stable and adjustable voltage output makes them a valuable component in many testing and operational scenarios.

PRECAUTIONS

1. Verify Voltage and Frequency:

Ensure that the voltage and frequency of the power supply match the specifications and ratings of the unit before connecting power.

2. Use Proper Grounding:

The unit is equipped with a 3-conductor grounded cord and plug. It is recommended to connect it to a properly grounded receptacle. If using an adapter, ensure that the green neutral wire is properly grounded. DO NOT REMOVE THE GROUNDING PIN FROM THE PLUG!

3. Check Load Current:

Verify that the current drawn by the connected load does not exceed the current rating of the TAILI TL-series Variable Transformer.

4. Avoid Overloading:

Do not exceed the maximum power rating of the transformer. Overloading can cause overheating and potential damage to the unit or connected equipment.

5. Ensure Adequate Ventilation:

Make sure the transformer is installed in a well-ventilated area to prevent overheating. Avoid placing the unit in enclosed or poorly ventilated spaces.

6. Inspect for Damage:

Regularly check the transformer and power cords for any signs of damage. Do not use the unit if the power cord or plug is frayed or damaged.

7. Avoid Water and Moisture:

Keep the transformer dry and protect it from water or moisture. Electrical components exposed to water or moisture can pose serious hazards.

8. Follow TAILI's Instructions:

Always adhere to the manufacturer's guidelines and instructions for installation, operation, and maintenance to ensure safe and effective use of the transformer.

9. Disconnect Power Before Maintenance:

Always disconnect the power supply before performing any maintenance or adjustments on the transformer to prevent electrical shock or injury.

These precautions are designed to ensure the safe and reliable operation of the TAILI TL-series Variable Transformer and to prevent potential hazards.

Operation and Instructions

1. Connect the Power Source:

- Ensure Safety First: Before making any connections, ensure that the power source is turned off to prevent any electrical hazards.
- Connect to Input Terminal: Locate the input terminal on the variable transformer. Connect the power source cables to this terminal. The connections should be secure and correctly aligned to avoid any loose connections or potential electrical faults.

2. Connect the Output Device:

- Prepare the Output Device: Ensure that the output device you intend to test or power is properly prepared and in a safe state for connection.
- Connect to Output Terminal: Attach the output device to the output terminal of the variable transformer. Ensure that these connections are also secure and correctly aligned. This will help prevent any potential issues with power delivery to the output device.

3. Power On:

Turn On Power Supply: Once all connections are securely made, turn on the power supply to the variable transformer. This action activates the transformer and prepares it for voltage adjustment.

4. Adjust the Voltage:

- Manual Adjustment (if applicable): Use the manual control mechanism to set the desired output voltage. This typically involves rotating a dial or adjusting a knob. Monitor the voltage display to achieve the precise setting required.
- Motorized Adjustment (if applicable): For models equipped with automatic adjustment features, set the desired voltage using the control panel or remote interface. Follow the manufacturer's instructions for configuring and operating the automatic adjustment feature.

5. Conduct Power Testing:

- Verify Voltage: Before proceeding with any tests, confirm that the output voltage is set correctly according to your specifications.
- Perform Testing: With the output device connected and the voltage correctly adjusted, carry out the necessary electrical tests or operations on the device. Ensure all tests are performed safely and in accordance with any relevant guidelines or standards.

6. Additional Notes:

- Regular Maintenance: Periodically check connections and the condition of the variable transformer to ensure reliable operation.
- Safety Precautions: Always follow safety guidelines when working with electrical equipment. If any issues arise during operation, disconnect the power source immediately and address the problem before resuming use.

These instructions will guide you through the correct installation and operation of the variable transformer to ensure optimal performance and safety during its use.

Exterior

1-phase

Single phase square type

Single phase octagonal type

Single phase big square type

Single phase motorized type

Single phase multi-layer motorized type (with cabinet)

3-phase

Three phase square type

Three phase octagonal type

Three phase big square type

Three phase motorized type

Three phase multi-layer motorized type (with cabinet)

Customized Items

These two sample are fully equipped.
The last word of type no. is “A”.
E.g. TL-235HA

Specially for equipment voltage adjusting and testing

TL variable transformer is designed to provide large range for power equipment testing. It can be adjusted and stabilized voltage, covering manual, automatic, single phase and 3 phase and is the best choice for equipment of voltage adjustment.

Features

1. Japanese-Made Iron Core

Equipped with a high-quality Japanese-made iron core, offering exceptional efficiency and stability, ensuring a longer service life.

2. Motorized Drive Adjustment with Controller

Adopting an electric drive system, with linear voltage adjustment and high torque, it can also be paired with a controller to precisely adjust the three-phase voltage according to customer requirements.

3. Speed Adjustment Function

The speed of the motorized drive can be adjusted during voltage changes to control the boost or buck speed.

4. Large Capacity Design

Supports large-capacity design, catering to the voltage regulation needs of high-power equipment.

5. Heat Dissipation Design

Equipped with an excellent heat dissipation design, effectively reducing heat buildup during operation to ensure stability and prolonged use.

6. Wide Application

Suitable for various applications requiring three-phase voltage regulation, providing flexible adjustments based on specific needs.

Applications

Motor Testing Equipment

Engineering Testing Equipment

Producing Test Equipment

Winding Equipment

Load Testing Power

Electronics Manufacturing Plant Production Equipment

Technical Information

All the data listed below can be adjusted or combined according to the customer's needs.

FULL Technical Specification

Phase	Single phase	Three phase
I/P(V)	110, 220, 380V (depends)	220, 380V (depends)
O/P(V)	depends	depends
Current(A)	No limit	
Capacity(W)	No limit	
Frequency	50/60Hz	
Efficiency	>=98%	
Power factor	0.95	
Overload Capability	300% for 10 secs/150% for 120 secs	
THD	<=1%	
Ambience	Temp.: 0~45°C/Humidity: 0~95% (Non-condensable)	
Multi-sets Paralleling	Y (It depends on the capacity.)	
Motor control	Y (optional)	

BASIC Technical Specification

	Single phase series			Three phase series	
	110V	220V	380V	220V	380V
Model No. (TL-) & Capacity	105／5A 108／8A 110／10A 112／12A 115／15A 120／20A 125／25A 130／30A 135／35A 140／40A	203／3A 205／5A 207／7A 210／10A 215／15A 220／20A 225／25A 230／30A 235／35A 240／40A	1402／2A 1403／3A 1405／5A 1407／7A 1410／10A 1415／15A 1420／20A 1425／25A	305／5A 308／8A 310／10A 312／12A 315／15A 320／20A 325／25A 330／30A 335／35A 340／40A	3403／3A 3405／5A 3408／8A 3410／10A 3415／15A 3420／20A 3425／25A 3430／30A 3435／35A 3440／40A
Input Voltage	Single phase 110V, 220V, 380V			Three phase 220V, 380V	
Output Voltage	Single phase 0～130V, 0～260V, 0～440V			Three phase 0～260V, 0～440V	
Frequency	50/60Hz				
Efficiency	≧98%				
Power Factor	0.95				
Overload Capability	300% for 10 seconds, 150% for 120 seconds				
THD	≦1%				
Environment	Temperature: 0℃～45℃ Humidity: 0%～95% (non-condensing)				
Multi-sets Paralleling	Yes (depends on the capacity)				
Motor Control	Yes (option)				

Def. of code

TL – □□□□ (The type of coil) (The type of adjustment)

(N/A) : Normal type
L : L-type

(N/A) : Manual type
M : Motorized type
SM : Stepper Motorized type

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Basic Type specs.

All the data listed below are NOT full specs.
which can also be adjusted or combined according to the customer's needs.

1-Phase Variable Transformers

(N/A) : Manual type
M : Motorized type
SM : Stepper Motorized type

Type No.	I/P (V)	O/P (V)	Current (A)	Weight (Kg)	Fig-No.	Frame No.
YN-103	110	0~130	3	2	80	
YN-105	110	0~130	5	3.8	107	
TL-105	110	0~130	5	5	164-215	1
TL-108	110	0~130	8	5.8	164-215	1
TL-110	110	0~130	10	6.5	164-215	1
TL-112	110	0~130	12	7.3	164-215	1
TL-115	110	0~130	15	10	164-215	2
TL-120	110	0~130	20	11	164-215	2
TL-125	110	0~130	25	13	240-300	1
TL-130	110	0~130	30	23	240-300	2
TL-135	110	0~130	35	25	240-300	3
TL-140	110	0~130	40	27	240-300	3
TL-150L	110	0~130	50	35	370-1	
TL-150L-2~9P	110	0~130	100~450	70~315	370-2~9P	
YN-202	220	0~260	2	3.8	107	
TL-202	220	0~260	2	5	164-215	1
TL-203	220	0~260	3	6	164-215	1
TL-205	220	0~260	5	6.5	164-215	1
TL-207	220	0~260	7	7.6	164-215	1
TL-210	220	0~260	10	11	164-215	2
TL-215	220	0~260	15	13	164-215	2
TL-220	220	0~260	20	20	240-300	2
TL-225	220	0~260	25	23	240-300	2
TL-230	220	0~260	30	27	240-300	3
TL-235	220	0~260	35	30	240-300	3
TL-235L	220	0~300	35	35	370-1	
TL-240L	220	0~260	40	35	370-1	
TL-250L	220	0~260	50	38	370-1	
TL-150L-2~8PS	220	0~300	50~200	70~280	370-2~8PS	
TL-235L-2~9P	220	0~300	70~315	70~315	370-2~9P	
TL-240L-2~9P	220	0~260	80~360	70~315	370-2~9P	
TL-250L-2~9P	220	0~260	100~450	76~342	370-2~9P	
TL-1401	380	0~440	1	6.1	164-215	1
TL-1402	380	0~440	2	6.6	164-215	1
TL-1403	380	0~440	3	8.1	164-215	1
TL-1405	380	0~440	5	11	164-215	2
TL-1407	380	0~440	7	13	164-215	2
TL-1410	380	0~440	10	23	240-300	2
TL-1415	380	0~440	15	25	240-300	3
TL-1420	380	0~440	20	27	240-300	3
TL-1425L	380	0~440	25	35	370-1	
TL-235L-2~8PS	380	0~600	35~140	70~280	370-2~8PS	
TL-240L-2~8PS	380	0~520	40~160	70~280	370-2~8PS	
TL-250L-2~8PS	380	0~520	50~200	76~304	370-2~8PS	

All the data listed below are NOT full specs.
which can also be adjusted or combined according to the customer's needs.

(N/A) : Manual type
M : Motorized type
SM : Stepper Motorized type

3-Phase Variable Transformers

Type No.	I/P (V)	O/P (V)	Current (A)	Weight (Kg)	Fig-No.	Frame No.
TL-305	220	0~260	5	5	164-215-3PY	1
TL-308	220	0~260	8	5.8	164-215-3PY	1
TL-310	220	0~260	10	6.5	164-215-3PY	1
TL-312	220	0~260	12	7.3	164-215-3PY	1
TL-315	220	0~260	15	10	164-215-3PY	2
TL-320	220	0~260	20	11	240-300-3PY	1
TL-325	220	0~260	25	13	240-300-3PY	1
TL-330	220	0~260	30	23	240-300-3PY	2
TL-335	220	0~260	35	25	240-300-3PY	3
TL-340	220	0~260	40	27	240-300-3PY	3
TL-150L-3~9PY	220	0~260	100~450	70~315	370-3~9PY	
TL-3402	380	0~440	2	5	164-215-3PY	1
TL-3403	380	0~440	3	6	164-215-3PY	1
TL-3405	380	0~440	5	6.5	164-215-3PY	1
TL-3408	380	0~440	8	7.6	164-215-3PY	2
TL-3410	380	0~440	10	11	164-215-3PY	2
TL-3415	380	0~440	15	13	240-300-3PY	1
TL-3420	380	0~440	20	20	240-300-3PY	2
TL-3425	380	0~440	25	23	240-300-3PY	2
TL-3430	380	0~440	30	27	240-300-3PY	3
TL-3435	380	0~440	35	30	240-300-3PY	3
TL-235L-3~9PY	380	0~600	35~105	110~330	370-3~9PY	
TL-240L-3~9PY	380	0~600	40~120	110~330	370-3~9PY	
TL-250L-3~9PY	380	0~600	50~150	120~360	370-3~9PY	

Fig-No.

1-phase (Manual Type)

Fig-No. 80

Fig-No. 107

Fig-No. 164-215
Opposed(Embedded)

Fig-No. 164-215
Positive(Standard)

Fig-No. 240~300

Fig-No. 370-2~8PS

Fig-No. 370-2~9P

1-phase (Motorized)

Fig-No. M164-215

Fig-No. M240~300

Fig-No.M370-1

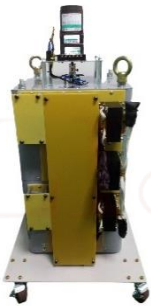

Fig-No. M370-2~8PS

Fig-No. M370-2~9P

3-phase (Manual Type)

Fig-No. 164~215-3PY

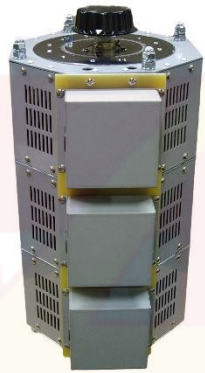

Fig-No. 240~300-3PY

Fig-No. 370-3~9PY

3-phase (Motorized)

Fig-No. M164~215-3PY

Fig-No. M240~300-3PY

Fig-No. M370-3~9PY

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專注研發製造各式電壓調整器

TAILI focuses on the research and development of various voltage regulators.

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