

# Texmate TLY series

## TLY-S1101-X Pointer Synchroscope Meter Manual



The single or three-phase Synchroscope indicates the synchronization status between a power generator and the network. When the voltage and frequency on both sides are nearly identical, the pointer rotates clockwise and slowly stops at the inverted triangle mark, signaling synchronization. At this point, the power generator can be connected to the network.

The Synchroscope also displays the differences in frequency and phase angle between the two systems.

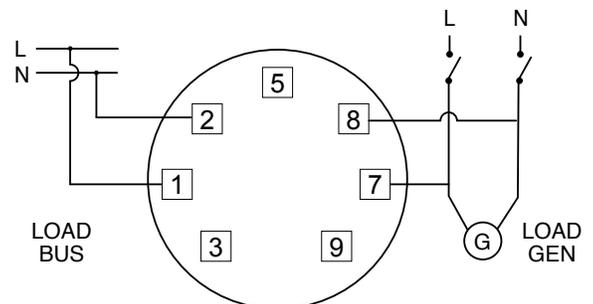
### I. Specifications

1. **Nominal Voltage:** 57.7V, 60V, 100V, 110V, 120V, 220V, 230V, 240V, 380V, 400V, 415V, 440V.
2. **Accuracy Class:** 2.5 (Applicable to synchronization inverted triangle mark; fiducial value: 90 electrical degrees).
3. **Response Time:**  $\leq 4s$ .
4. **Continuous Overload:** 1.2 times rated voltage.
5. **Short-time Overload:** 2 times rated voltage (5 seconds, one time).
6. **Protection:** Front panel IP40 (customizable to IP52, IP54, or IP56); Other components IP20.
7. **Shock:** 15g, 11ms.
8. **Vibration:** 2Hz to 13.2Hz (displacement amplitude  $\pm 1mm$ ); 13.2Hz to 100Hz (acceleration amplitude  $\pm 7m/s^2$ ).
9. **Material:** All plastic parts are non-combustible material, UL94 V0.
10. **Power Consumption:**  $\leq 5VA$ .
11. **Reference Conditions:** Temperature:  $(23 \pm 2)^\circ C$ ; Humidity: 40%–60% RH.
12. **Operating Conditions:** Temperature:  $-10^\circ C$  to  $+55^\circ C$ ; Humidity:  $< 95\%$  RH (non-condensing).
13. **Storage Conditions:** Temperature:  $-25^\circ C$  to  $+70^\circ C$ ; Humidity:  $< 95\%$  RH (non-condensing).
14. **Security Requirements:** CAT III 600V; Pollution degree: 2.

### II. Usage Precautions

- **15.1 Electrical Isolation:** Must be applied between the power network and generator circuits.
- **15.2 Frequency Difference ( $< 1.5Hz$ ):** The pointer must provide correct rotation (Clockwise: Generator Frequency  $>$  Network Frequency; Anti-clockwise: Generator Frequency  $<$  Network Frequency).
- **15.3 Steady State:** The pointer rotation should remain in a steady state when the frequency difference is less than 1.5Hz.
- **15.4 Circuit Integrity:** Under reference conditions, if circuits to the synchroscope from the generator, network, or both are broken, the pointer must not stop within the  $30^\circ$  sectors of either arrow sign.

### III. Wiring Diagram



#### IV. Instructions

Once the required connections are complete, power on both the generator and network circuits. Adjust the generator's excitation until the voltages for both the generator and the network are equal.

Next, tune the generator's rotation speed. Allow the pointer to rotate clockwise until it slows down and stops near the synchronization mark (with a deviation of less than the 30° sector of the arrow sign). Once both sides are synchronized, you may connect the generator to the network.

#### V. Operating Standard

1. GB/T 7676-1998: Direct acting indicating analogue electrical measuring instruments and their accessories
2. GD 01-2006: Guidelines for Type Approval Test of Electric and Electronic Products
3. GB 4793.1-2007: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
4. GB/T 2423: Environmental testing for electric and electronic products
5. GB/T 4208-2008: Degrees of protection provided by enclosure (IP code)

#### VI. Caution

1. Please DO the connection properly according to the wiring diagram.
2. Please cut off the power before any connection.
3. DO NOT apply voltage over than the range of the suggested voltage; otherwise the instrument will malfunction.
4. DO NOT use the instrument under the condensation environment.
5. DO NOT touches any part of the applied voltage when you use the instrument near the area of the exposed live parts, wearing the insulated hand gloves is recommended.

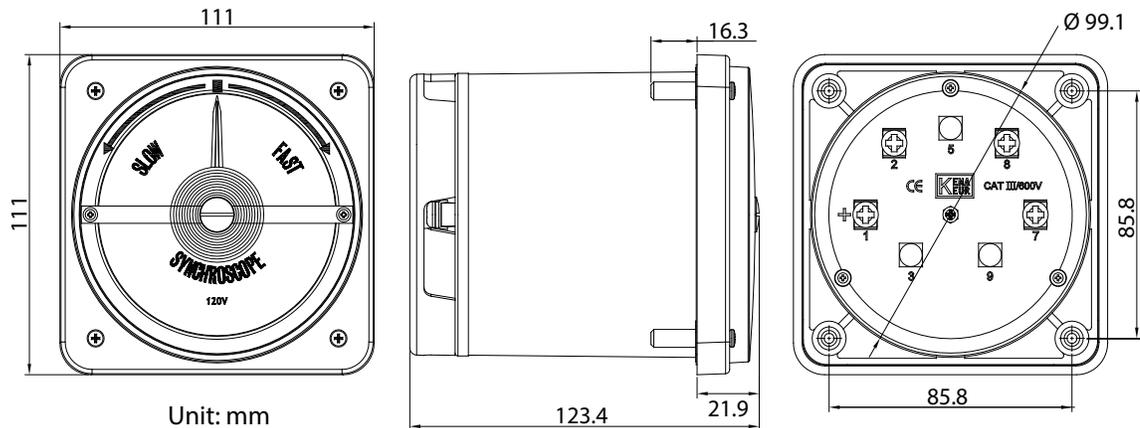
#### WARNING:

**AC and DC input signals and power supply voltages can be hazardous. Do not connect live wires to screw terminal plugs, and do not insert, remove or handle screw terminal plugs with live wires connected.**



**Do Not apply voltage over suggested range.**

#### TLY-1101 Series Case Dimensions



#### Warranty and User's Responsibility

##### WARRANTY

Texmate warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment. Texmate's obligations under this warranty are limited to replacement or repair, at its option, at its factory, of any of the products which shall, within the applicable period after shipment, be returned to Texmate's facility, transportation charges pre-paid, and which are, after examination, disclosed to the satisfaction of Texmate to be thus defective. The warranty shall not apply to any equipment which shall have been repaired or altered, except by Texmate, or which shall have been subjected to misuse, negligence, or accident. In no case shall Texmate's liability exceed the original purchase price. The aforementioned provisions do not extend the original warranty period of any product which has been either repaired or replaced by Texmate.

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