



ISO-9001

SYNCHROSCOPE

DATA SHEET NO. SYN/03/99



DESCRIPTION

'AE' SYNCHROSCOPE is categorized into two types A) Electro-mechanical and B) Electronic.

ELECTRO-MECHANICAL TYPE

It incorporates a POINTER and LED to indicate synchronising condition. If the generator- (II) frequency is higher or lower than that of mains- (I) the pointer rotates in clockwise or anti-clockwise direction respectively. The speed and direction of rotation depends upon difference in frequencies, which guides the operator to speed-up or slow-down the generator. Synchronising condition is determined by dark lamp method, wherein the pointer coincides with synchronising mark and the LED does not glow. The LED glows in accordance with difference in phase, frequency and amplitude of voltages. When the pointer is towards the bright LED, it indicates the antiphase condition. This synchroscope is available in two models:

1) SY96M 2) SY144M.

FEATURES

- ◆ Rugged construction.
- ◆ Easy serviceability.
- ◆ Wide operating voltage range.

ELECTRICAL SPECIFICATIONS

◆ TYPE	:	Electro-mechanical
◆ VOLTAGE AT SYNCHRONISM	:	110V ± 2%
◆ OPERATING VOLTAGE	:	110V ± 20% (for other voltages use separate PT box.)
◆ FREQUENCY	:	50/60Hz. ± 5%
◆ SYNCHRONISING CONDITION	:	Dark lamp method
◆ ACCURACY	:	2°
◆ ANGLE OF ROTATION	:	360°
◆ POWER CONSUMPTION	:	3VA for MAINS – (I), & 6VA for GENERATOR – (II)
◆ INSULATION RESISTANCE	:	Greater than 20M Ω at 500V. DC.
◆ DIELECTRIC TEST	:	2kV RMS for One minute
◆ OPERATING TEMP.	:	-10°C to 55°C
◆ STORAGE TEMP.	:	-20°C to 70°C
◆ HUMIDITY	:	Up to 95% RH
◆ INDICATION	:	Moving pointer & LED
◆ CONFORMS TO	:	I.S. 1248 / I.E.C. 60051. (Part 5)

MECHANICAL SPECIFICATIONS

◆ MODEL	:	SYN 96 M	SYN 144 M
◆ SIZE	:	96 X 96 X 85mm	144 X 144 x 60 mm
◆ PANEL CUTOUT	:	92 X 92 ^{+0.8} mm	138 X 138 ^{+1.0} mm
◆ WEIGHT	:	Approx.750gms.	1kg.

CAUTION: The meter is not to be left in circuit after synchronising.



ELETRONIC TYPE

It incorporates circle of LEDs which glows sequentially in either clockwise or anti-clockwise direction at variable speed in accordance with difference in frequencies of mains & generator. Synchronising condition is indicated by the glowing LED of "SYNCHRO ON" position. Antiphase condition is indicated by glowing LED of "SYNCHRO OFF" position at the bottom. This LED glows under following conditions :

- 1) Absence of mains-(I) phase and presence of generator voltage-(II). 2) If generator-(II) voltage crosses $\pm 20\%$
- When frequencies of both supplies are equal, phase angle between two voltages is indicated by glowing of LED at an approximate angle with respect to "SYNCHRO ON" position.

FEATURES

- ◆ Continuous operation.
- ◆ No moving parts.
- ◆ Low power consumption.
- ◆ Visible in dark.

ELECTRICAL SPECIFICATIONS

- ◆ TYPE : Electronic
- ◆ VOLTAGE AT SYNCHRONISM : $110V \pm 2\%$
- ◆ OPERATING VOLTAGE : $110V \pm 20\%$. (for other voltages use separate PT box.)
- ◆ FREQUENCY : $50/60Hz. \pm 5\%$
- ◆ SYNCHRONISING CONDITION : Glowing of "SYNCHRO ON" LED
- ◆ ACCURACY : 2°
- ◆ ANGLE OF ROTATION : 360°
- ◆ POWER CONSUMPTION : 2VA for MAINS – (I) & 0.25VA for GENERATOR – (II) .
- ◆ INSULATION RESISTANCE : Greater than $20M \Omega$ at 500V. DC.
- ◆ DIELECTRIC TEST : 2kV RMS for One minute
- ◆ OPERATING TEMP. : $-10^\circ C$ to $55^\circ C$
- ◆ STORAGE TEMP. : $-20^\circ C$ to $70^\circ C$
- ◆ HUMIDITY : Up to 95% RH
- ◆ INDICATION : Rotating LEDs
- ◆ CONFORMS TO : I.S. 1248 / I.E.C. 60051. (Part – 5)

MECHANICAL SPECIFICATIONS

- ◆ MODEL : SYN 96 E SYN 144 E
- ◆ SIZE : 96 X 96 X 75mm 144 X 144 X 60 mm
- ◆ PANEL CUTOUT : 92 X 92 $^{+0.8}$ mm 138 X 138 $^{+1.0}$ mm
- ◆ WEIGHT : Approx.450gms. 650gms.

Ordering information :

- 1) Type 2) Model 3) Operating voltage 4) Frequency