

LED SYNCHROSCOPE with CHECH SYNC RELAY

HOBUT

3 Functions:

- Precision LED Synchroscope
- Check Synchroscope-Live Bus
- Check Synchroscope-Dead Bus

Introduction:

In addition to the Optical Synchroscope, the 90LCSYNC has extra protection against synchronising out of phase which is achieved by electronically detecting the phase difference and using a relay output to control the synchronising process.

The relay may be used as:

- 1) A protection against operator error by only allowing synchronisation whilst in a fixed window of operation.
- 2) If this window is quite small, the operator may hold on the synchronising switch so when the relay energises, it closes the breaker. This is called Semi-Automatic synchronising, and is done by setting the relay to a small Electrical Degrees of say $5^{\circ}E$, with a short delay time. With a small "slip" or differential speed, a good degree of accuracy is obtained.

Modes of Operation

1) Synchroscope

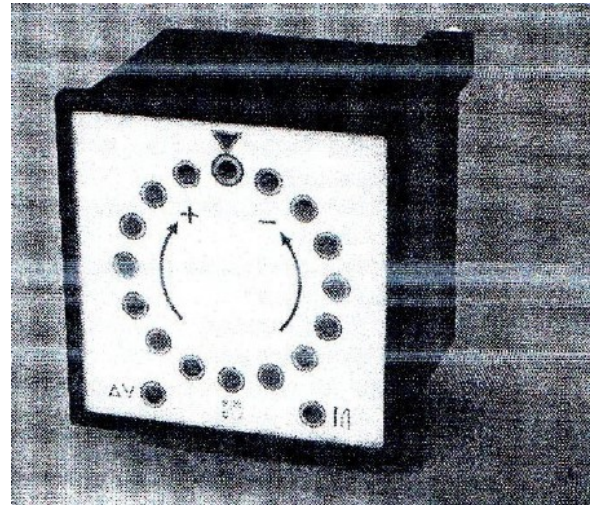
The Synchroscope has the same specification as the LED synchroscope, but, in addition has a status indication of the differential voltage and output relay. If the busbar voltage is outside the preset range, the relay will NOT energise and the differential voltage LED will flash on and off, and the output relay will only energise if all parameters are within the preset limits.

2) Normal Mode—Live Bus

As a check synchronising relay, adjustments are made from the rear for $0-20^{\circ}E$ and contact delay of 0-20 secs.

3) Dead Busbar Mode

The 96LCSYNC is powered by the generator supply and when no low frequency AC voltage is detected on the busbar, the relay will energise. Immediately after connection the voltage will rise to its own value and frequency and the function will revert to "Live" bus operation and the relay will stay energised.



Specifications:

Input Voltage (Vn)	400V (380/415) $\pm 20\%$
Optional Volts (Vn)	110V (110/120V) 230V (220/240V) 440-500V (Special)
Burden	1.8VA Max
Frequency Range	30...440Hz
LED Specifications	As 96LSYNC overleaf
Differential Voltage Range	0...20%
Relay Time Delay	0...2 Seconds
Accuracy	$\pm 0.5^{\circ}$
Relay contacts	1 Pole Changeover
Contact rating	8A @ 240V AC 30V DC
Humidity	5 to 85% Non Condensing
Operating Temperature	-10...60°C
Storage Temperature	-40...70°C
Weight	0.43kg

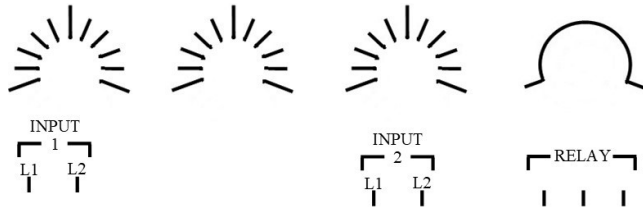
Our policy is one of continuous development and therefore specifications may change without notice.

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Adjustments and Settings



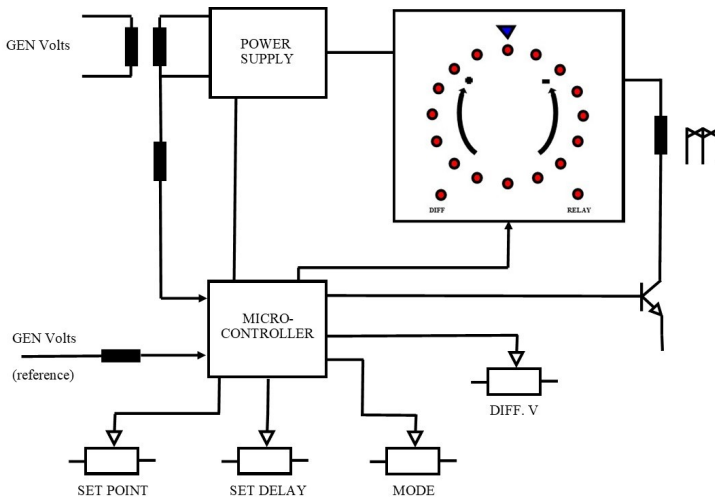
In addition to the 16 LEDs used in the synchroscope, there are 2 green status LEDs.

- 1) the Diff.V LED will be ON when inside the preset limits and will flash when just GEN voltage is applied or outside the limits
- 2) The relay LED will only be ON when the relay is energised.

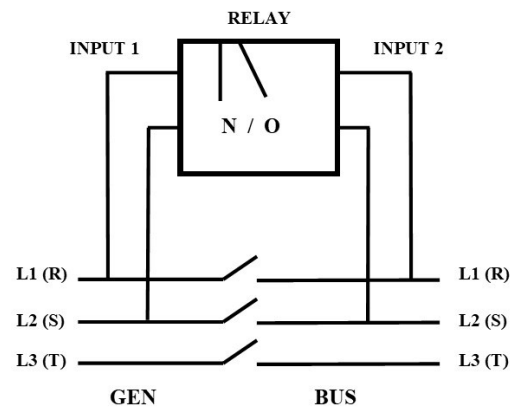
The green LED at 0° geometric will be on between 358°....2° (0° ± 2°E)

The Relay must be set by the customer to their individual requirements. The selection of Mode, Differential voltage, Electrical Angle and Relay Time Delay is made by the adjustment of the potentiometer spindles on the rear of the meter.

Block Diagram



Connection Diagram



Ordering Information / Stock items

When ordering please specify:

Type: Voltage

Item: 96-LCSYNC : 400V

Standards:

IEC 255-4 Designed to comply with single input energising quantity measuring relays with dependent specific time.

CE Conforms to Low Voltage Directive 73/23/EEC

EN50081-1	Emissions: Radiated 30-1000MHz
EN55022:1987	Emissions: Domestic, Class B. Emissions: Mains Terminal, Class B.
EN50082-2	Immunity: Industrial, Class B
IEC801-2	Immunity: Electrostatic discharge 9kV
IEC801-4	Immunity: Transients 2kV 5/ 50nS, Class B.
ISO 9002	Registered with ISOQAR No. 1744/98

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