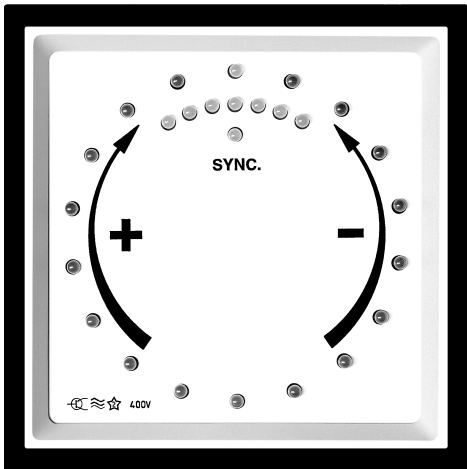


# Check Synchrosopes SAQ 96



- Circular display of  $D_j$  phase difference
- Magnified display of phase angle  $\Delta\varphi = \pm 15^\circ$
- Microprocessor processing
- Standard 96 x 96 mm DIN casing

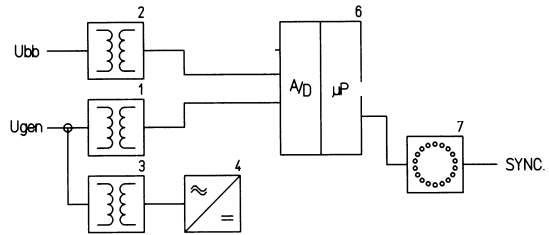
## Description

SAQ 96 is a synchroscope. It is intended for measuring phase difference  $\Delta\varphi$  between a bus-bar and a generator. A display consist LEDs of a circle for a display of phase difference. A magnifier which magnifies the measurement resolution is added within a synchronisation range  $\pm 15^\circ$ el.

## Description of operating

A sampling method of input voltages of generator  $U_{gen}$  and bus-bar  $U_{bb}$  with A/D converter in the microprocessor (6) is used in the instrument. Input voltages are electrically isolated via input transformers (1, 2). The microprocessor (6) controls complete operation of the synchroscope. It calculates rms values from samples of input voltages from the A/D converter and determines  $D_j$  phase difference between the generator and the bus-bar. Phase difference is indicated with a corresponding LED in a circular display (7). The synchroscope is supplied via transformer (3) and rectifier (4) from bus-bar.

1. Input bus-bar transformer  $U_{bb}$
2. Input generator transformer  $U_{gen}$
3. Power supply transformer
4. Rectifier
6. Microprocessor
7. Circular display



## Display

The instrument is equipped with a circular display of phase angle which consists of 18 LEDs. Momentary phase difference is displayed by LED. Within synchronisation range ( $D_j = 0^\circ$ , between  $-15^\circ$ el. and  $+15^\circ$ el.) resolution is increased to  $5^\circ$ el. If difference of frequency between input voltages exceeds 3 Hz, three LEDs above FAST ( $f_{gen} > f_{bb}$ ) or SLOW ( $f_{gen} < f_{bb}$ ) inscription are alternately lit. Green LED is lit when synchronisation conditions are met.

## Technische Daten

### Input voltage

Nominal voltage  $U_n$ , 57, 100, 230, 400 V  
Voltage range.  $U_n \pm 20\%$   
Frequency range. 45...65 Hz  
Self consumption (bus-bar).  $< 4$  VA  
Overload. continually 1.2  $U_n$  short 2  $U_n$ , 3s

### Measuring part

Resolution of phase difference display:  $20^\circ$ el.  
Magnifier rage:  $\pm 15^\circ$ el.  
Magnifier resolution:  $5^\circ$ el.  
Accuracy at  $D_j = 0$ :  $\pm 3^\circ$ el.

### Design

Case: poli arbonate, in compliance with UL 94 V0  
Protection: IP52 for case, IP00 for terminals  
Safety: in compliance with EN61010  
400 V: Installation category II, pollution degree 2  
300 V: Installation category III, pollution degree 2  
Weight: 0,5 kg

# LED SYNCHRONOSKOP SAQ 96

## Ambient conditions

Temperature

Reference range of operation 0...50°C

Nominal range of operation -10...55°C

Storing: -40...70°C

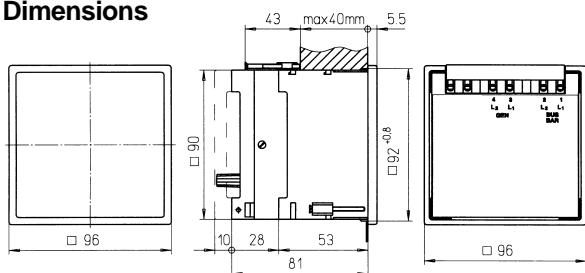
Humidity: bis 95% (ohne Betauung)

## Connection terminals

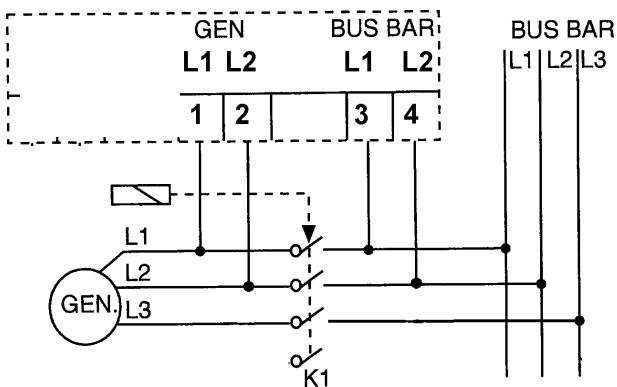
Klemmen: 4mm<sup>2</sup> (Einzelader)

2,5mm<sup>2</sup> (Feindrähtig)

## Dimensions



## Connection



## Data for ordering - exsample:

Type - nominal voltage

SAQ96, 400V