Sifam Tinsley Synchronizing Units

- For synchronizing three-phase generators to 50/60Hz power networks
- Connect to 400V direct, 400kV thru potential transformer
- Display phase, frequency and voltage difference
- Signal generator or network voltage outside 80-120% of range
- Programmable settings of synchronizing parameter values for relay activation
- Measure min/max voltage and frequency
- RS-485 Modbus option

KS3-2 ▶

◀ KS3-1

CE

SPECIFICATIONS

Measured Value:	Range	Basic Error
Input Voltage:	100.0/110.0/240.0/400.0V	±(0.2% rdg + 0.1% range)*
Input with PT:	400kV max., 4000 count	
Frequency:	5.0-500.0 Hz;	±(0.5% rdg + 2d)*
Voltage difference:	±20%;	KS3-1: ±(0.5% rdg. + 2d) KS3-2: ±(0.5% range + 1 segment)
Frequency difference:	±10%	KS3-1: ±(0.5% rdg. + 2d) KS3-2: ±(0.2% range + 1 segment)
Phase shift:	0-360°;	±1°
KS3-2 resolution:	Phase shift: 5° for the circle, ±2° for zero indication; Frequency difference: 0.3%; Voltage difference 0.6%	
Relay:	Form A (NO) contacts, load capacity: 0.5A/250V AC	
RS-485 Interface:	MODBUS RTU and ASCII; 4.8, 9.6 & 19.2 kbit/s	
Display:	KS3-1: 4 x 5 LED digits, 14 mm, red color. KS3-2: synchroscope circle with 72 diodes; voltage & differential frequency bargraphs (68 diodes, zero center)	
Protection:	Front: IP40; from terminal side: IP10	
Supply voltage:	18-30V DC/AC 40-400Hz or 85-250V DC/AC 40-400Hz	
Input power:	Supply circuit: ≤12 VA; Voltage circuit: ≤0.5 VA	
Input overload:	Continuous: 1.2x rated for voltage & frequency Short duration (5 sec): 2x rated (max. 1000V)	
Voltage peak:	Crest factor 2 max.	
Frequency:	15-500 Hz, sinusoidal (THD <8%)	
Operating temperature:	0-55°C, 25-95% RH non-condensing	
Installation:	Category III, 600V AC maximum phase-to-earth operating voltage	
Dimensions:	144 x 144 x 77 mm (panel cut-out: 138+0.5 x 138+0.5 mm)	

*in KS3-2, monitored values available through interface.

ORDERING INFORMATION

To Order—Insert Code for Each Letter to Select Catalog Number.

KS3- [A] [B] [C] [D] 008 Example: KS3-10310008

A	Display	
	1	LED digits
	2	Bargraphs
B	Input Voltage	
	01	100V
	02	110V
	03	240V
	04	400V
C	Digital Output	
	0	None
	1	RS-485 Modbus
D	Supply Voltage	
	0	85 - 250V AC/DC
	1	24V AC/DC

Sifam Tinsley Synchroscopes

- Rotating LEDs indicate frequency & phase difference between generator & bus voltages
- Green SYNC LEDs indicate frequency & phase match

CE

SQ94 ▶

SPECIFICATIONS

Measured quantity:	Frequency & Phase difference
Power consumption:	6 VA max.
Insulation class:	Group A according to VDE 0110
Insulation voltage:	660V; 2kV Proof voltage
Frequency range:	35-70 Hz
Pull in / drop out:	±9 Hz
Installation catogory:	300V CAT III (IEC1010)
Insulation resistance:	>50 Mohm at 500V DC
Enclosure code:	IP52 case, IP00 for terminals
Temperature:	-10 to 50°C operating; <75% average RH, non-condensing
Case material:	Glass filled polycarbonate UL94 V-0 housing; Glass front
Connections:	Hexagonal studs, M4 screws & wire clamps E3
Protection:	IP 52 case (IEC 529), IP 00 for terminals
Dimensions:	SQ94: 96 x 96 x 112 mm; SQ14: 144 x 144 x 120 mm

ORDERING INFORMATION

For Meter size 96x96:	
SQ94-V02XXNXWAW0ST	Synchroscope 100V or 127V
SQ94-V03XXNXWAW0ST	Synchroscope 110V or 100V
SQ94-V04XXNXWAW0ST	Synchroscope 127V or 120V
SQ94-V05XXNXWAW0ST	Synchroscope 240V or 220V
SQ94-V06XXNXWAW0ST	Synchroscope 380V or 415V
SQ94-V07XXNXWAW0ST	Synchroscope 380V or 440V
SQ94-V08XXNXWAW0ST	Synchroscope 400V
SQ94-V12XXNXWAW0ST	Synchroscope 480V or 415V
SQ94-V13XXNXWAW0ST	Synchroscope 57.8V
SQ94-V14XXNXWAW0ST	Synchroscope 63.5V
For Meter size 144x144:	
SQ14-V01XXNXWAW0ST	Synchroscope 100V or 120V
SQ14-V02XXNXWAW0ST	Synchroscope 100V or 127V
SQ14-V03XXNXWAW0ST	Synchroscope 110V or 100V
SQ14-V04XXNXWAW0ST	Synchroscope 127V or 120V
SQ14-V05XXNXWAW0ST	Synchroscope 240V or 220V
SQ14-V06XXNXWAW0ST	Synchroscope 380V or 415V
SQ14-V07XXNXWAW0ST	Synchroscope 380V or 440V
SQ14-V08XXNXWAW0ST	Synchroscope 400V
SQ14-V12XXNXWAW0ST	Synchroscope 480V or 415V
SQ14-V13XXNXWAW0ST	Synchroscope 57.8V
SQ14-V14XXNXWAW0ST	Synchroscope 63.5V