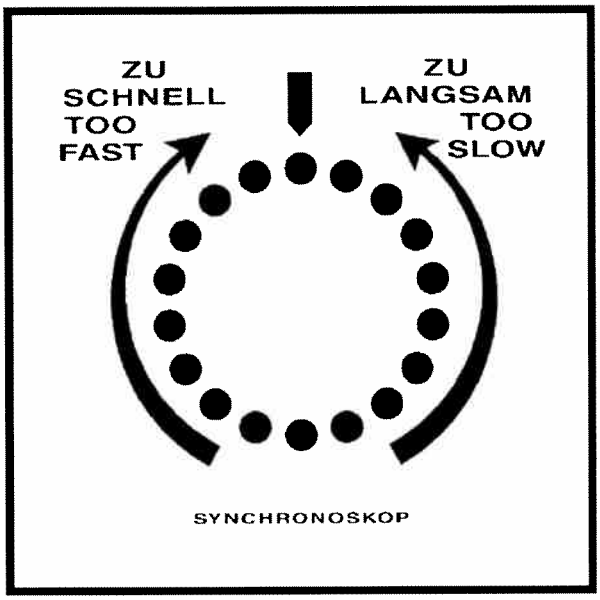
MULTIFUNKTIONALE ENERGIE SYSTEME

LED – Synchroscope VSL1

Vision04 31.10.2007



View 1

FEATURES

- compact design
  DIN casing Q96
- visual indication by LED

1.0 SCOPE OF APPLICATION

By means of the synchroscope VSL1 the difference frequency of two 3-phase systems is made visible during manual synchronizing. The LEDs are arranged in a circle, so that they will light clockwise or anticlockwise in sequence.

The application of this device is especially recommended for untrained operating staff.

For manual synchronizing additionally a double voltmeter and a double frequency meter should be available. So equal voltages and equal frequencies can than be checked.

2.0 METHOD OF OPERATION AND FUNCTION

2.1 Commissioning

The synchroscope has to be connected according to the connecting diagram (view 2).

Two seconds after connection of both voltage systems the measuring is enabled. The light of the red LEDs, installed on the front plate of the device, carry out a circular movement clockwise or anticlockwise.

2.2 Synchronizing

Premise for synchronizing is that both 3-phase systems have the same rotating field and the same phase sequence.

By means of the double voltmeter and the double frequency meter the generator values can be compared to the second 3-phase system.

The synchroscope indicates how the generator frequency has to be regulated to match the second system frequency. By means of the speed control switch or the speed control potentiometer the engine speed has to be regulated in a manner that the synchroscope LED light requires approximately 8 seconds for one circulation.

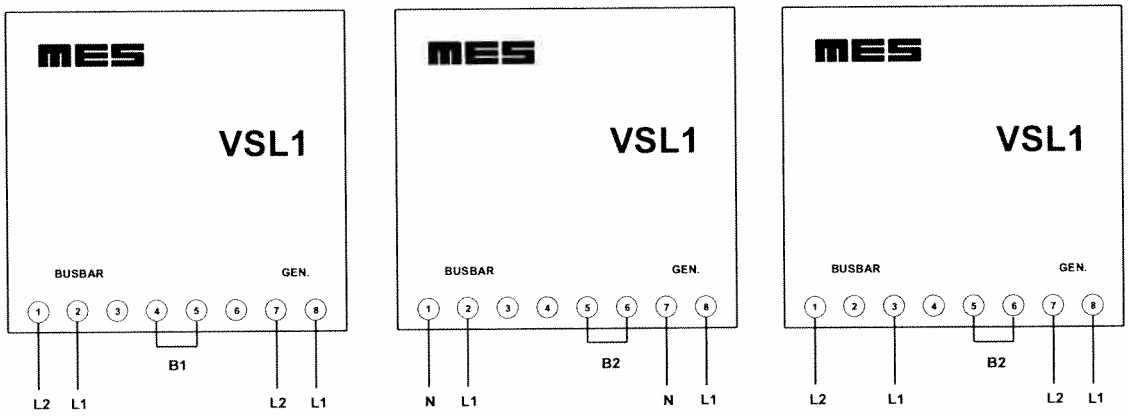
Examples of turning direction on the synchroscope:

"TOO FAST"	*= gen. frequency too high*	*= genset too fast*	→ *decrease revolutions*
"TOO SLOW"	*= gen. frequency too low*	*= genset too slow*	→ *increase revolutions*

When the synchroscope passes the upper point, a green LED will light. Now synchronism has established between both systems and the circuit breaker to be paralleled must be connected at this moment.

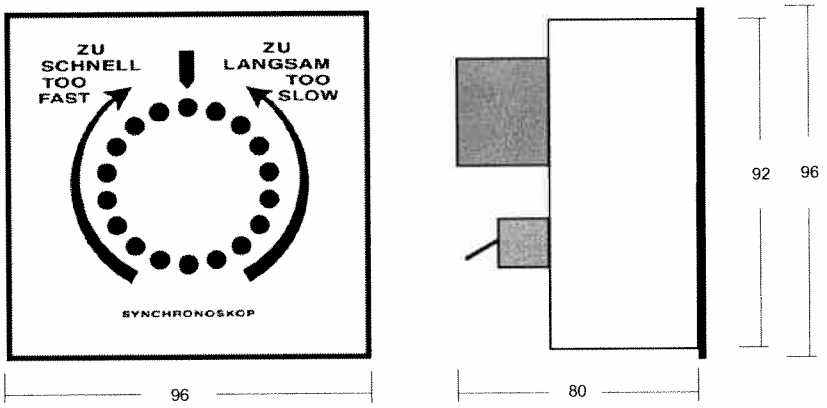
After successful paralleling the synchronizing instruments at hand should be switched off again.

3.0 CONNECTING DIAGRAM



View 2: 110 V 230 V 400 V

4.0 DIMENSIONS



View 3

4.0 TECHNICAL DATA

Generator-/ mains voltage	100 VAC, 230 VAC or 400 VAC, (+/- 10 %)
Auxiliary voltage	-
Inputs	potential separated
Power consumption	approx. 3 VA
Relay outputs	-
Test voltage	2.5 kV
Ambient temperature	0 ... +50 °C
Casing	sheet steel, plastic
Dimensions	W96 x H96 x mounting depth 78 mm
Cut-out	92 x 92 +0.8 mm
Mounting	measuring device – screw mounting
Degree of protection	Casing IP52
Regulations	VDE 0100, VBG4,
RFI emissions	EN 50081-2
Immunity	EN 61000-6-2

Subject to technical modifications!

This device is the replacement type of previous types MLS1-1.

MULTIFUNKTIONALE ENERGIE SYSTEME

Cargofresh AG
Business Unit Energy Systems
Brahmkoppel 4
D - 24558 Henstedt – Ulzburg
Tel. : + 49 4193 907 - 0
Fax : + 49 4193 907 – 201 distribution
E-mail : .@mes-energiesysteme.de
Internet : http://www.mes-energiesysteme.de