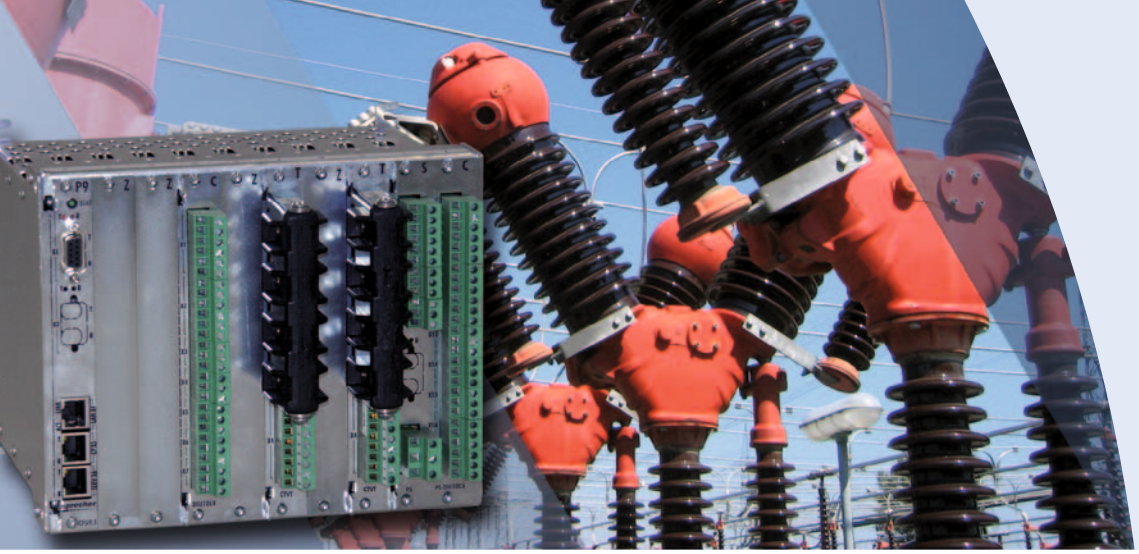
www.sprecher-automation.com

SPRECON®-E-C-SYNC

SYNCHRO-CHECK

sprecher automation



SPRECON-E-C-SYNC

The synchro-check device measures two voltages with regard to phase, frequency and voltage difference in order to interconnect grids which are under voltage.

SPRECON synchro-check may act as a decentralized or a centralized system. It can be either activated on request or used for continuous monitoring.

Various conditions can be defined for command output blocking. Beside the synchro-check function, the voltages can be simultaneously monitored.

Command initiation for the circuit breaker is finally approved by the synchro-check, which monitors the synchronising condition as well as the voltages. This allows a secure reconnection of separated networks. The status of the synchro-check can be simultaneously requested. In this mode, only the current status (synchronous, asynchronous, dead line, dead bus) is indicated.

Beside application of SPRECON-E-C-SYNC as a stand-alone device, the synchro-check functionality can be also integrated into a SPRECON-E-C bay computer together with other control functions. Six parameter sets can be changed via commands or directly out of process.

Synchronous comparison

Grids can be either synchronous or asynchronous (floating).

Synchronous mode

In synchronous mode, the differential frequency is lower than the adjustable limit. As an additional synchronising condition, the phase difference between line and busbar voltage must be within predefined limits.

Asynchronous mode

In asynchronous mode, the differential frequency is higher than the adjustable limit. Command initiation is approved at minimum angle difference. Program time, command time and circuit breaker operating time as well as the slip are simultaneously observed.

Frequency comparison between synchronising voltages

Operation mode (synchronous/asynchronous) as well as differential frequency exceedings are observed by frequency comparison. Both the limits for synchronous operation mode and permitted range of the differential frequency can be individually configured.

Phase comparison between synchronising voltages

The limits for the differential phase are individually configurable. A system-specific phase offset can be additionally integrated into the calculation (i. e. due to phase rotation within a transformer).

Voltage range monitoring

If one or both voltages exceed the limits, synchro-check can be blocked by voltage range monitoring. Both release of voltage range blocking and the limits can be individually configured.

Differential voltage detection

If the differential voltage exceeds the limits, synchronous comparison can be blocked by differential voltage detection. Both release of differential voltage blocking and the limits can be individually configured. Thereby, different values are allowed for synchronous or asynchronous comparison.

Zero-voltage detection

If one or both voltages are below a certain limit, synchro-check can be blocked. This function is realized by voltage monitoring of the synchronising voltages.

Blocking by voltage monitoring

If the live condition is not fulfilled, synchro-check can be by-passed by voltage monitoring. Both release of blocking and the limits can be individually configured.

Technical Data

Performance characteristics

- Voltage measurement
  - Nominal voltage: 100/110V AC
  - Operating range: 0 to 120%
  - Accuracy: 0.5%
- Frequency measurement
  - Operating range at 50Hz: 45 - 55Hz
  - Operating range at 16.7Hz: 14.7 - 18.7Hz
  - Accuracy: 1mHz
- Phase angle difference
  - Operating range: ±180°
  - Accuracy: 0.5°
- 6 parameter sets
- Max. number of inputs/outputs per slot
  - Up to 20 digital inputs
  - 24 to 220V DC and 110 to 230V AC/50/60Hz
  - Up to 20 digital outputs 250V AC/DC
  - Up to 10 digital control outputs 250V AC/DC
  - Up to 8 analog inputs or 4 outputs 0 to ±20mA
  - Up to 8 measurement inputs
    - 1A/2A/5A or 10A
    - 50V to 130V
    - 50Hz
- Power supply
  - 24 to 60V DC or 110 to 250V DC and 110 to 230V AC/50/60Hz

Communication protocols

- IEC 60870-5-101/-103/-104
- IEC 61850 (on request)
- Modbus

Communication interfaces

- LAN
  - 1/2 x Ethernet 10/100Mbit/s (RJ45) or
  - Ethernet switch for optical ring 2 x opt. (BFOC) and 1 electr. (RJ45)
- RS232
- RS422/485
- Fibre-optic

Tests

Acc. to EN 55022, IEC 60255 , IEC 60255-22, IEC 60870-2, IEC 61000-4, IEC 61000-6, CE designation

Environmental conditions

- Recommended temp.: -5 bis +55°C
- Limits: -25 to +70°C (on request)

HMI control panel

- Attached or detached mountable
- Full-graphical colour display (high resolution)
- 25 individually configurable LEDs

Sprecher Automation GmbH (Headquarters)

Franckstrasse 51, 4018 Linz, Austria
T: +43 732 6908-0, F: +43 732 6908-278

info@sprecher-automation.com
www.sprecher-automation.com

12.1.101.27en E