



Treotech®



SPS

**Synchronous Parallelism
Supervisor**

**PRODUCT
CATALOG**

treotech.com.br

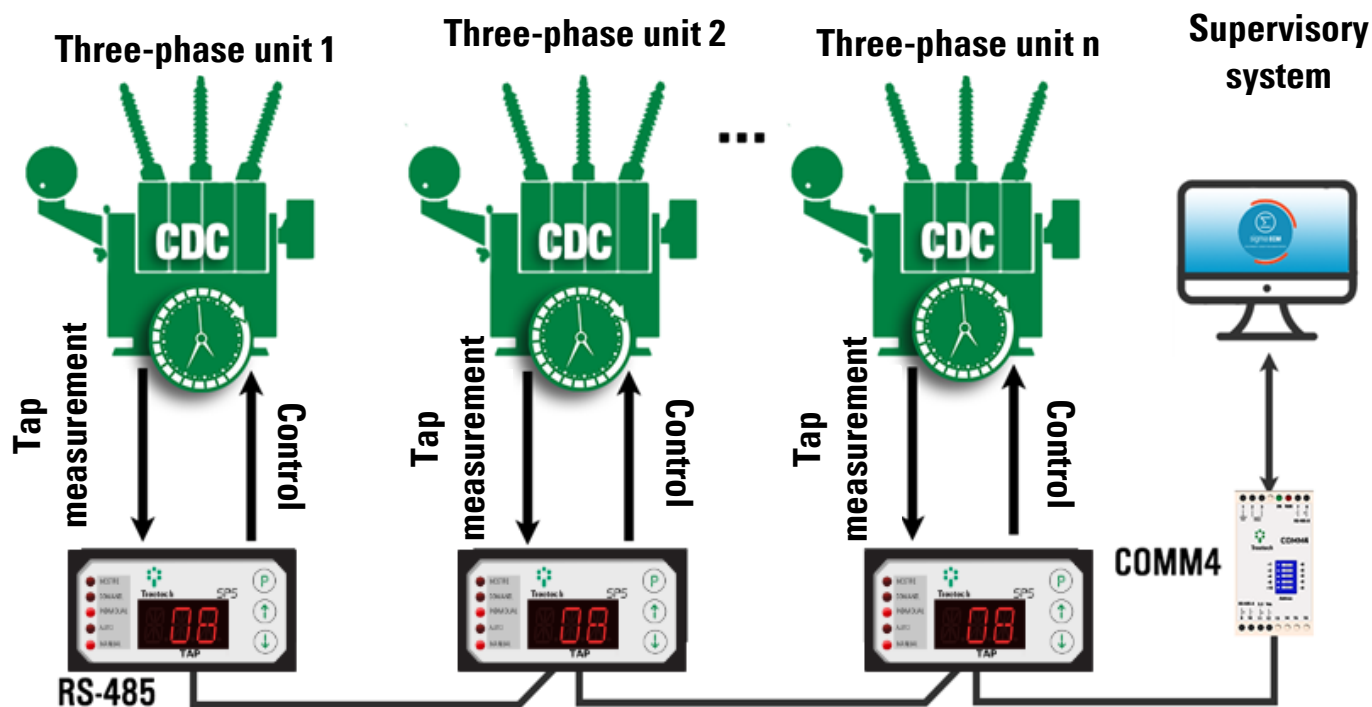
PARALLELISM BETWEEN TRANSFORMERS



The SPS Synchronous Parallelism Supervisor is a device developed by Treetech to control and supervise the parallel operation of power transformers equipped with on-load tap changers. The SPS integrates the functions of various devices previously used for transformer parallel control—such as position indicators, auxiliary relays for electromechanical logic, and selector switches (Master/Follower/Individual, Manual/Automatic, Local/Remote, and Raise/Lower)—into a single unit. This significantly reduces control wiring and the number of components, thereby greatly enhancing overall

reliability, cutting down on installation and testing labor time, and simplifying maintenance.

SYSTEM TOPOLOGY



FEATURES AND FUNCTIONS

PARALLELISM BETWEEN TRANSFORMERS

Control and supervision of the parallel operation of single-phase and/or three-phase power transformers equipped with tap changers.

TAP INDICATION

Indication of the tap position on the equipment's front panel and via communication protocol.

OLTC CONTROL

The user selects the OLTC control mode between local/remote and manual/automatic.

LED DISPLAY

High-brightness, 3-digit LED displays for easy viewing under any lighting conditions.

COMMUNICATION

RS-485 serial communication port with Modbus® RTU protocol

COMPACT AND VERSATILE

The SPS features compact dimensions, resulting in space and installation cost savings.

ROBUST HARDWARE

The SPS design exceeds EMC (Electromagnetic Compatibility) standards to withstand the harsh electromagnetic conditions of substations and an operating temperature range of -40 to 85°C.

MODULAR SYSTEM

System expandable according to application requirements, with a capacity of up to six three-phase units, either three-phase transformers or single-phase banks.

SELF-DIAGNOSIS

Detection of internal faults and integration faults with peripheral equipment, indicated by self-diagnosis relays.

TECHNICAL DATA

INFORMATION	RANGE/DESCRIPTION
Supply voltage:	38...265 Vdc/Vac 50/60Hz
Power consumption:	< 5 W
Operating temperature:	-10...+70 °C
Protection rating:	IP 40
Mounting:	Flush panel mounting
Tap measurement input:	Potentiometric, 3-wire
Number of tap changer positions:	2 to 50
Total resistance of the potentiometer transmitter (SPS):	9.4...1000 Ω
Resistance per step of the potentiometer transmitter (SPS):	4.7 to 20 Ω , 1% class or better
Tap measurement input (SPS-I):	Current loop, 2-wire
Current loop input standards (SPS-I):	0 ... 1 mA 0 ... 5 mA 0 ... 10 mA 0 ... 20 mA 4 ... 20 mA
Current loop input impedance:	1mA = 4.7 k Ω 5, 10, 20mA = 238 Ω
Analog output options and maximum load:	0 ... 1 mA - 12000 Ω 0 ... 5 mA - 2400 Ω 0 ... 10 mA - 1200 Ω 0 ... 20 mA - 600 Ω 4 ... 20 mA - 600 Ω
Maximum analog output error:	0.5% of full scale
Output contacts:	Potential-free
Maximum switching power:	70 W / 250 VA
Maximum switching voltage:	250 VDC/VAC (Non-inductive)
Maximum conduction current:	2.0 A
Serial communication port:	01 (one) RS-485 for connection to the COMM04

Communication Protocol with the COMM04:	Modbus RTU (slave)
Three-phase banks or transformers in parallel:	Maximum of 6 (six)

TYPE TESTS

SURGES AND TRANSIENTS (IEC 60255-6)

1st cycle peak value:	2.5 kV
Frequency:	1.1 MHz
Time:	2 s
Repetition rate:	400 (surges/s)
50% decay:	5 cycles

IMPULSE (IEC 60255-5)

Waveform:	1.2/50 μ s
Amplitude:	5 kV
Number of pulses:	3 negative and 3 positive with a 5-second interval between pulses
Energy:	0.5J

APPLIED VOLTAGE (IEC 60255-5)

Nominal power-frequency withstand voltage:	2.0 kVrms, 60 Hz, for 1 minute between circuits and mounting panel
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ELECTROMAGNETIC SUSCEPTIBILITY (IEC 61000-4-3)

Severity level:	3
Frequency:	20 to 2000MHz
Field strength:	10 V/m

ELECTROSTATIC DISCHARGE (IEC 61000-4-2)

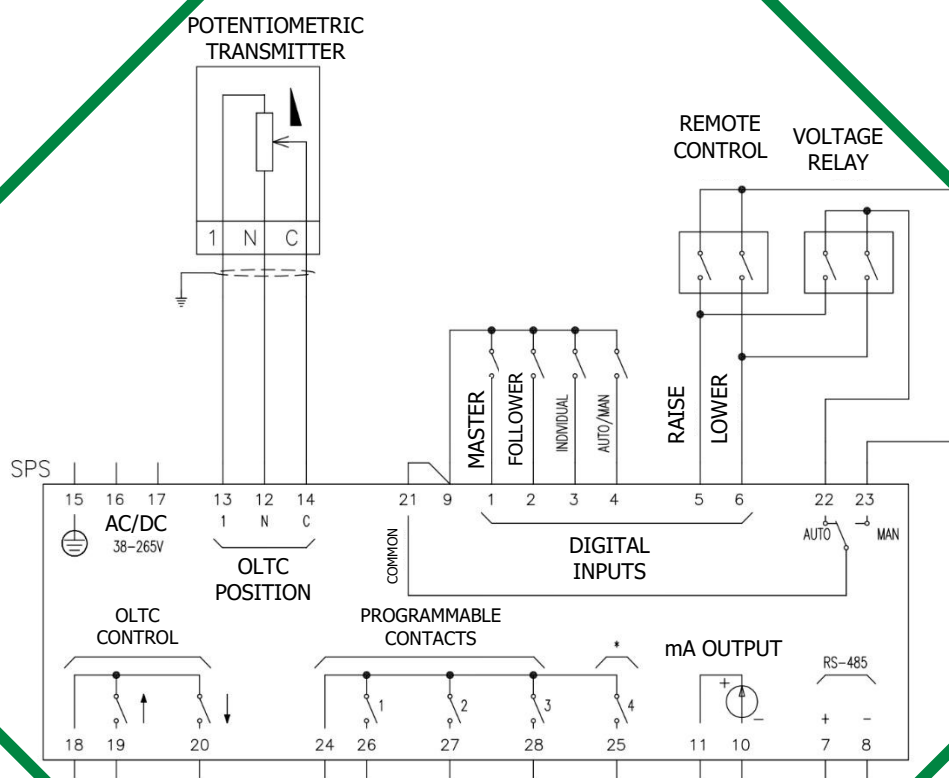
Air mode:	10 discharges level 3 (8 kV)
Contact mode:	10 discharges level 3 (8 kV)

ELECTRICAL FAST TRANSIENTS (IEC 61000-4-4)

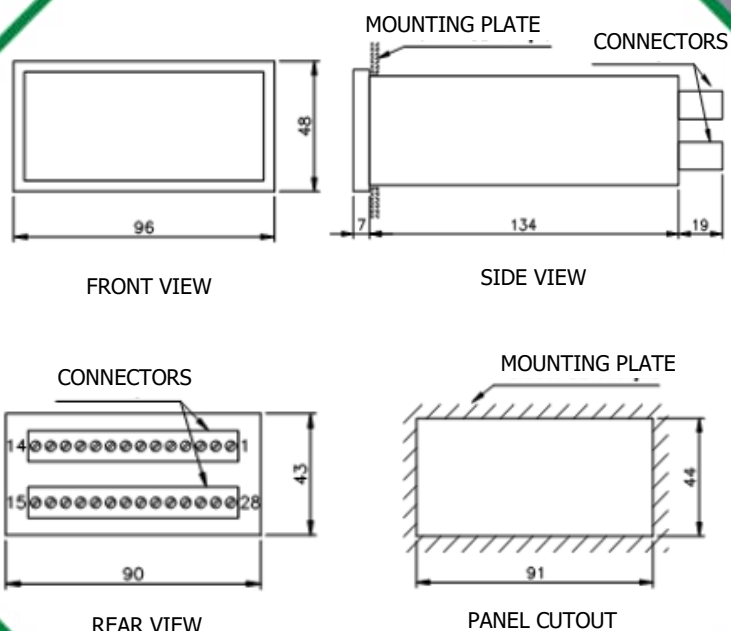
Severity level:	4
Power input test:	4kV
Input/output test:	2kV

CLIMATIC TEST (IEC 60068-2-14)

Temperature range:	-10...+70 °C
Test duration:	6 hours



WIRING
DIAGRAM

PRODUCT
DIMENSIONSPRODUCT
FRONT VIEW

ESSENTIAL ACCESSORIES



COMMUNICATION MODULE – COMM04

The COMM04 is a communication module designed for the management and exchange of information between devices such as the SPS/SPS-I (Synchronous Parallelism Supervisor) or the PI (Tretech Tap Position Indicator).

RECOMMENDED ACCESSORIES



SIGMA ECM® MONITORING SOFTWARE

In addition to online temperature monitoring of your assets, our monitoring system and specialized team enable you to track the exact condition of your assets—going beyond mere data readings.

Monitoring based on analyses of information collected by IEDs installed on your assets.

ORDER SPECIFICATION

When ordering the product, it is necessary to specify:

- ✓ Product name;
- ✓ Quantity;
- ✓ Indicate whether the COMM04 module is required;
- ✓ Specify the communication protocol.





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Check the list of our distributors at:

www.treotech.com.br/contato/representantes/