



SPRECON[®]-E-C-AVR

AUTOMATIC VOLTAGE REGULATOR



SPRECON-E-C-AVR

Transformers with motor-driven tap changers can be controlled with automatic voltage regulators. Actuation of the motor drive leads to a voltage change by one tap. If the difference between actual voltage and set-point exceeds a certain limit, a regulation command ("up", "down") is initiated.

SPRECON-E-C-AVR can be adapted to customer-specific requirements to the greatest possible extent. Moreover, several units can be operated in parallel mode, which is based on the master/follower principle. Thereby, the circulating reactive current is monitored.

The AVR unit allows five different set point values that can be selected both locally or remotely.

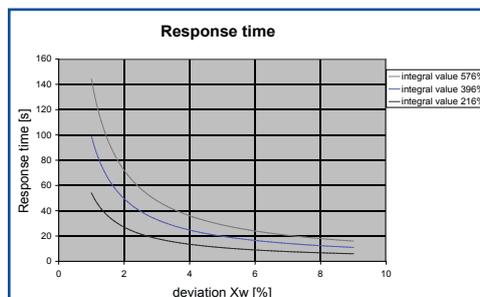
Reliable operation is guaranteed by staggered monitoring of under- and overvoltage with automatic tap changing to the demand voltage, by function monitoring of both the motor drive and the tap changer and by integrated overcurrent blocking.

Setting data is stored into programmable memory (FLASH), which therefore still contains the data after a voltage failure. Auxiliary supply for data back-up is not required.

Beside application of SPRECON-E-C-AVR as a stand-alone device, automatic voltage regulation can be also integrated into a SPRECON-E-C bay computer together with other control functions.

AVR FUNCTIONS

- Voltage regulation
 - Definite time-delay
 - Inverse time-delay
- Monitoring of tap changer
- Monitoring of motor operation time
- Monitoring of tap changer limits
- Monitoring of external limits
 - Overvoltage monitoring
 - Undervoltage monitoring
 - Overcurrent monitoring
- Line drop compensation (LDC)
- Z-compensation
- Accelerated tap changing
- Regulator blocking
- Parallel operation of transformers
- Operation modes (manual, automatic)
- Tap changing (up, down)
- Off voltage auto return



Graphical scheme of response time

TECHNICAL DATA

PERFORMANCE CHARACTERISTICS

- Voltage measurement
 - Operating range: 70 - 140%
 - Accuracy: 0.5%
- Detection of tap position
 - BCD code
 - Binary code
 - Ghilmetti code
- 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/0 to ±10V
 - Up to 8 PT100 inputs for 2-wire or 4-wire circuit
 - Up to 8 measurement inputs
 - 1A/2A/5A or 10
 - 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)

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. 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

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