SIEMENS SIPROTEC 5 Arc Suppression Coil Control Instruction Manual

June 4, 2025

Contents [hide]

SIPROTEC 5 Arc Suppression Coil Control

“

Specifications:

- Product Name: SIPROTEC 5 – Arc-Suppression Coil Control
- Manufacturer: Siemens AG
- Model: SIPROTEC 5
- Control Type: Arc-Suppression Coil Control
- Website: siemens.com/asc-control

Product Information:

The SIPROTEC 5 Arc-Suppression Coil Control system integrates Petersen coil control into SIPROTEC 5 devices, eliminating the need for a separate ASC Control physical device.

The system is designed to enhance protection functions in compensated networks by controlling the plunger-core arc-suppression coil and parallel resistor. It offers flexibility in hardware and software configurations for complex applications.

Key Features:

- Enhances ground fault protection
- Supports up to four instances of arc-suppression coil function group
- Configurable via Global DIGSI 5 Library

Applications:

The Arc-Suppression Coil Control system has diverse applications

across various sectors, highlighting its versatility and importance in ensuring reliable and efficient energy supply.

Advantages:

Siemens AG Smart Infrastructure Electrification & Automation provides this innovative solution to improve energy automation processes, enhancing overall system reliability.

Product Usage Instructions:

1. Installation:

Ensure proper installation of the SIPROTEC 5 device according to the manufacturer’s guidelines.

2. Configuration:

Use the Global DIGSI 5 Library to configure the Arc-Suppression Coil Control system based on your network requirements.

3. Operation:

Monitor the system for sustained ground faults. When a fault is detected, the system will temporarily switch on the resistor to assist in determining the fault direction for better protection.

4. Maintenance:

Regularly inspect and test the system to ensure proper functioning and make any necessary adjustments as per the user manual.

Frequently Asked Questions (FAQ):

Q: Can the SIPROTEC 5 Arc-Suppression Coil Control system be used in all network configurations?

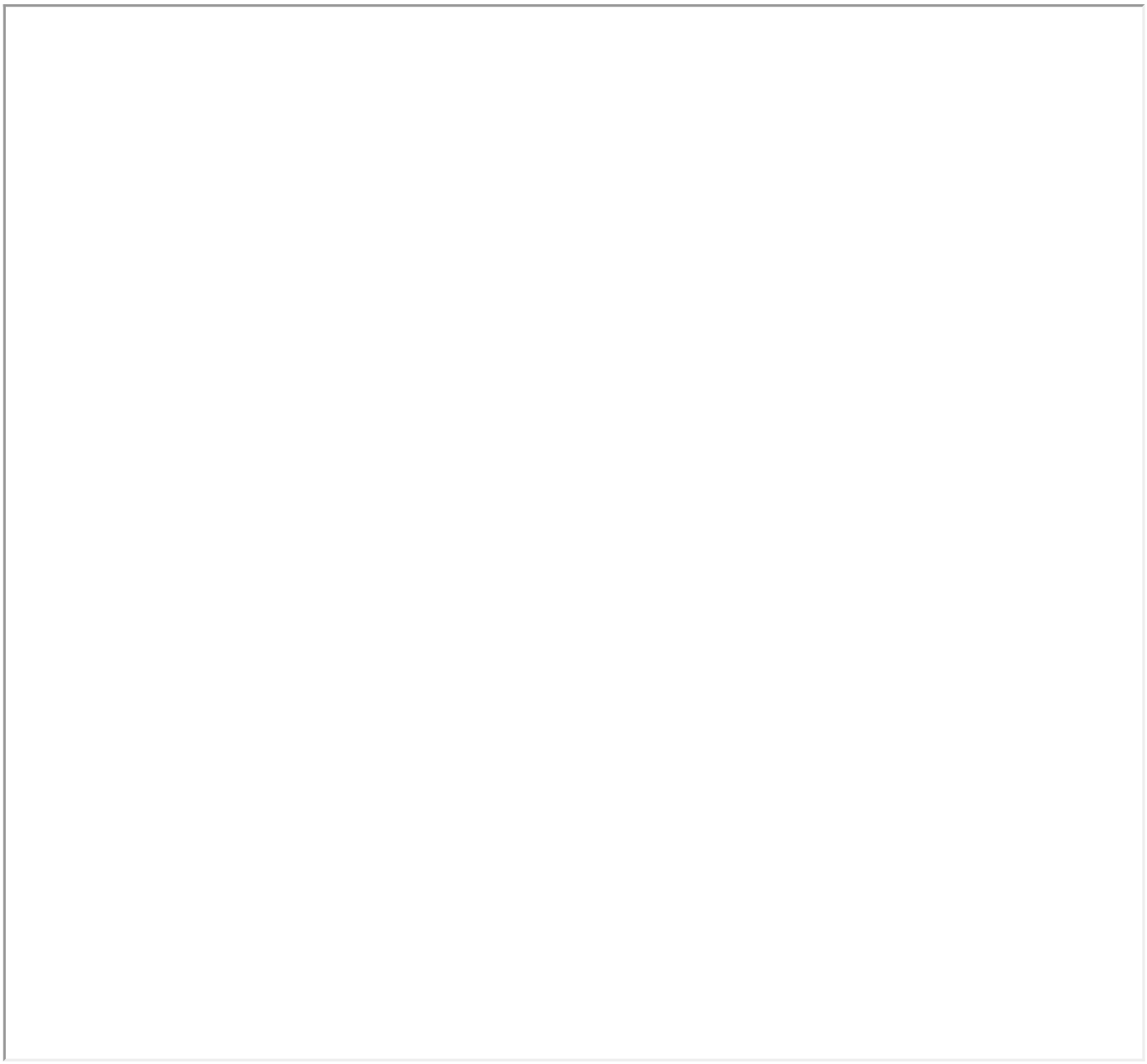
A: The ASC control is suitable for various network configurations and offers high flexibility in hardware and software for complex applications.

Q: How many instances of the arc-suppression coil function group does the system support?

A: The system supports up to four instances of the arc-suppression coil function group, providing scalability for different setups.

“`

View Fullscreen



ENERGY AUTOMATION PRODUCTS

SIPROTEC 5 – Arc-Suppression Coil Control rethought

Petersen coil contol in SIPROTEC 5 devices integrated siemens.com/asc-control

Arc-Suppression Coil Control

The Arc-Suppression Coil (ASC) Control (also known as Petersen Coil Control) is now available and can be easily integrated into the SIPROTEC 5 devices, saving a dedicated ASC Control physical device.

How it works

The platform function Arc-Suppression Coil Control provides a user-friendly and efficient solution for coil tuning in compensated electrical power systems. It is available as a standalone device or integrated into the SIPROTEC 5 series. This control function is

particularly useful in compensated grids with arc suppression coils (especially plunger core coils). The arc-suppression coil provides an inductive current to compensate the capacitive ground-fault current during a 1-phase-to-ground fault. When a transient 1-phase-to-ground fault occurs, the arc-suppression coil can reduce the reactive component of the current to a level at which the arc extinguishes itself, which ensures a stable power supply. The adjustable plunger-core arc-suppression coil suits a multi-feeder system where the capacitive current varies when different feeders are switched on or off. The arc-suppression coil is installed between the neutral point and the ground in a resonant-grounded system.

When a sustained ground fault occurs, the faulty feeder should be tripped by the protection function of the feeder or switched off by the operator (after the fault is located). In a compensated network, a resistor can be installed in parallel to the arc-suppression coil. When a sustained ground fault is detected, the resistor is switched on temporarily to increase the ohmic ground-fault current so that the feeder`s protection function can better determine the direction of the fault.
The function group Arc-Suppression Coil (ASC) is used to control the plunger-core arc-suppression coil and the parallel resistor. The ASC control is suitable for various network configurations and offers high flexibility in hardware and software for complex applications. It supports up to four instances of the arc-suppression coil function group and can be configured via the Global DIGSI 5 Library.

Characteristics

Key Features

The Arc-Suppression Coil Control system is characterized by
· automatic calculation of the resonance curve in when the network configuration changes
· automatic tuning of the coil to always ensure compensation (or defined tuning position over-/undercompensation) of the grid
The system undergoes an automatic calibration process to determine key parameters such as higher and lower end positions, motor speed, coil overrun, and linearity error of the potentiometer. The coil position is measured/acquired by a measuring-transducer input, e.g. the “ANAI-CE-2EL Revision 2” module with potentiometer input or “ANAI-CA-

4EL” or via a fast-measuring transducer input from a module such as “IO210” or “IO212” with 0 – 20mA analog value. The modules had interfaces with various measuring points, including VN for neutral-point displacement voltage, Vbus for reference voltage, and optional 1-phase current for measuring the neutral-point current. The system offers various control models, including direct with normal security, SBO (Select Before Operate) with normal security, direct with enhanced security, and SBO with enhanced security, providing different levels of control and feedback monitoring. Manual linearization is supported to improve accuracy in converting percent values to ampere values. The system also includes an emergency stop function that can halt the coil`s movement during tuning or calibration processes, ensuring safety.

Applications

The Arc-Suppression Coil Control system has diverse applications across various sectors.

· In utilities, it optimizes optimizes reliabbility of power supply by precisely compensating for ground-fault currents, thus enabling the grid to continue operating even in the case of an earth fault.

· In industrial plants, it provides a constant and stable power supply essential for sensitive production processes, minimizing disruptions and equipment damage.

These applications highlight the system`s versatility and importance in ensuring reliable and efficient energy supply.

· Automatic and Manual Tuning: Automatic tuning is triggered by jumps in the zero seq. voltage caused by changes of the Ice of the grid / of the grid configuration, while manual tuning can be initiated via binary inputs, function keys, Web UI, or control center.

· Automatic Calibration: Before connecting the arc-suppression coil to the network, the calibration (of the controller) is performed to determine.

· Built-in Supervision Functions: Continuous monitoring of neutral-point displacement voltage, coil position, and motor movement.

· Parallel Resistor Control: Switching a resistor on and off via a time-based or thermal model when a sustained 1-phase-toground fault is detected.

· Flexible Configuration: Supports up to four instances of the arc-suppression coil function group.

· Motor Control: Adjusts the coil position through motor control with commands for higher and lower movements.

· Emergency Stop Function: Allows stopping the coil movement during tuning or calibration processes.
· Recording Functions: Supports slow-scan and continuous recording functions for capturing signals and measured values for later analysis.
Advantages
· Enhanced Reliability of Power Supply: The arc-suppression coil reduces the reactive component of the current during a 1-phase-to-ground fault, ensuring a stable power supply.
· Fault Detection and Power Supply: Despite a detected earth fault, the grid is compensated according to the current grid status and the power supply can continue..
· Comprehensive Supervision: Built-in supervision functions monitor key parameters such as neutral-point displacement voltage, coil position, and motor movement, enhancing reliability.
· Efficient Calibration: Automatic calibration ensures accurate determination of key parameters, reducing manual intervention and improving efficiency.
· Safety Features: The system includes an emergency stop function and supervision of motor speed and coil position, ensuring safe operation.
· Recording Capabilities: Slow-scan and continuous recording functions enable detailed analysis of system performance, aiding in troubleshooting and optimization.
· Only one device: by integrating the controller into a SIPROTEC 5 protection device, you save on additional hardware in the form of an ASC control unit.

Siemens AG Smart Infrastructure Electrification & Automation Mozartstrasse 31c 91052 Erlangen, Germany

For the U.S. published by Siemens Industry Inc. 3617 Parkway Lane Peachtree Corners, GA 30092 United States

Documents / Resources

	SIEMENS SIPROTEC 5 Arc Suppression Coil Control [pdf] Instruction Manual SIPROTEC 5, SIPROTEC 5 Arc Suppression Coil Control, Arc Suppression Coil Control, Suppression Coil Control, Coil Control

References

- User Manual

SIEMENS

Arc Suppression Coil Control, Coil Control, SIEMENS, SIPROTEC 5, SIPROTEC 5 Arc Suppression Coil Control, Suppression Coil Control

Leave a comment

Your email address will not be published. Required fields are marked *

Comment *

Name

Email

Website

Save my name, email, and website in this browser for the next time I comment.

Post Comment

Search:

e.g. whirlpool wrf535swhz

Search