

# SWT 3000 7VR58

## Teleprotection

### Description

The high voltage grid network protection disconnects the faulty part of the system as quick as possible in a selective way.

High demands are placed on network protection systems in terms of reliability and availability.

Therefore, network distance protection systems need a reliable and fast transmission system for the transfer of information between the substations.

SWT 3000 for teleprotection signaling in communication networks offers the required maximum security and reliability together with shortest command transmission time.



SWT 3000 device, equipped with IEC 61850 command and fiber optic line interface

Main application	Transmission of distance protection signals
Command interfaces	Binary I/O for up to 16 commands; IEC 61850 ETH electrical/optical I/O; Signaling for up to 16 commands
Line Interfaces	Digital X.21, G703.1, G703.4, ETH; Fiber short -, long range, C37.94; Analog 2/4 wire; Path protection
Hardware	Flexible assembly for commands interface, line interface type, path protection and power supply
Standards	IEC 60834-1

### Fields of Application

The SWT 3000 protection signaling system utilizes the command transmission for protection devices according to the IEC 60834-1 standard. Several types of teleprotection command schemes like permissive, intertripping (direct or transfer) as well as blocking protection schemes are applicable.

In particular requirements for security, dependability and transmission time are essential for operation.

Dependability is defined as the probability for missed commands and security is defined as the probability for unwanted commands.

The transmission time of the teleprotection system is the time elapsed between the change at the command input and the corresponding change in state at the command output, excluding propagation time.

# Fast and Reliable

## Functions / Features

- Bidirectional and independent transmission of commands
- Up to 16 commands with digital line interfaces
- Up to 4 commands with analog line interfaces or PLC
- Command Interface for normal contact load (IFC-P, fast)  
4 inputs and 4 relay outputs (max. 4 modules)
- Command Interface module for high contact load (IFC-D)  
4 inputs and 4 relay outputs (max. 4 modules)
- Interface module for binary command signaling (IFC-S)  
8 relay outputs (max. 2 modules)
- Command interface module IEC 61850 electr. or optical
- Line Interface modules
  - 2x X.21, 2x G703.1, 2xG703.6 (DLE)
  - 2x fiber, short range SM (FOS1), short range MM (FOS2), long range (FOL1) or C37.94 (FOS3)
  - 1x Analog 2or 4 wire (CLE)
  - 1x Ethernet electrical or optical (TPoP)
- Interface module for alarm signaling (ALR)
  - 3 relay outputs, 1 input for time synchronization
- Configuration via element manager application
  - USB and ETH interface
- Command Input configuration
  - voltage range (24-250V DC)
  - pulse suppression

- input command limitation and extension
- Command Output configuration
  - output or signaling allocation
  - input command limitation and extension
- Power Supply
  - 2 wide range supplies (DC, AC/DC)
  - redundant assembly
- Event recorder and command counter
- Path protection via 2 different line interfaces in any combination
- Network management SNMP interface

## Benefits

- Keeps downtimes to an absolute minimum
- Supports IEC 61850 interfaces as well as conventional binary interfaces and the conversion in both directions.
  - Binary Mode
  - GOOSE Mode
  - Mixed Mode
  - Interchange Mode
- Performance according to IEC 60834-1
- Flexible integration into various customer communication networks
- Integration into PLC system - PowerLink



**Siemens AG 2018**  
Energy Management Division  
Freyeslebenstraße 1  
91058 Erlangen, Germany  
[www.siemens.com/Steckbrief\\_family](http://www.siemens.com/Steckbrief_family)

SWT 3000 Profile.docx  
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E-Mail: [support.energy@siemens.com](mailto:support.energy@siemens.com)  
Tel: +49 180 524 70 00

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