

SIPROTEC 7SS50 Numerical Busbar and Breaker Failure Protection

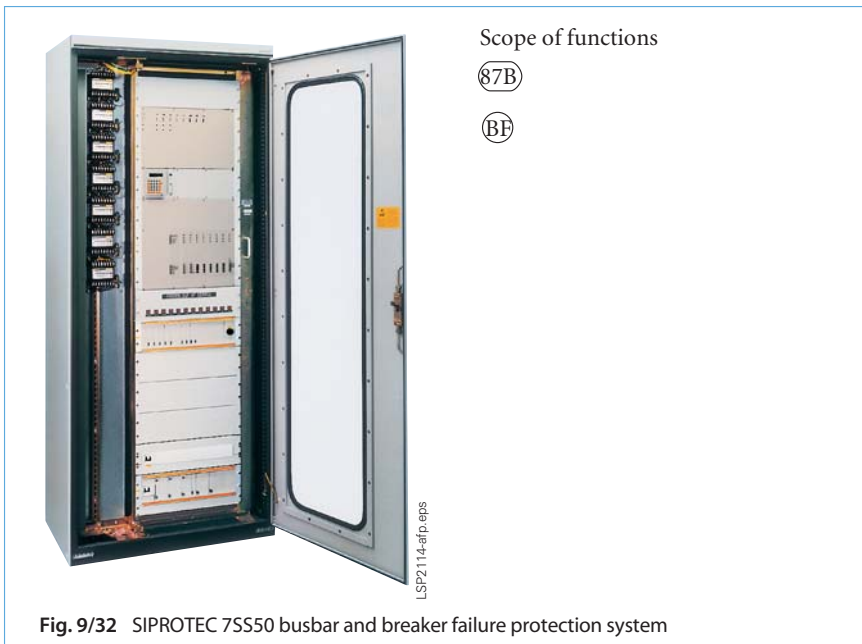


Fig. 9/32 SIPROTEC 7SS50 busbar and breaker failure protection system

Description

The SIPROTEC 7SS50 numerical station protection is a selective, reliable and fast protection for busbar faults and breaker failure in medium, high and extra-high voltage substations with various possible busbar configurations.

The protection is suitable for all switchgear types with iron-core or linearized current transformers.

The short tripping time is especially advantageous for applications with high fault levels or where fast fault clearance is required for power system stability.

The modular hardware construction allows the protection to be optimally matched to the busbar configuration.

The system is designed to include up to 8 busbar sections and 32 feeders.

The busbar may include up to 16 sectionalizing isolators and 4 bus couplers (a bus coupler is equivalent to two feeders).

Function overview

Busbar protection functions

- Low-impedance busbar differential protection
- Selective zone tripping
- Very short tripping time (< 15 ms)
- Extreme stability against external fault, even in case of saturated CT
- Integrated check zone
- Summation transformer measuring principle
- Bay-selective intertripping
- 32 bays can be configured
- 8 busbar sections can be protected

Breaker failure protection functions

- 3 operation modes
- Separate parameterization for busbar and line faults
- Single or two-stage time delay of the busbar trip command
- Intertrip facility (via teleprotection interface)

Measurement and monitoring functions

- Differential current supervision
- Isolator plausibility time check
- Isolator runtime supervision
- Self-supervision of the relay
- Operational measured values
- 40 event logs
- 1 oscillographic fault record

Selection and ordering data

| Description | Order No. | | | | | |
|---|---------------------|---|---|---|---|---|
| <i>7SS50 numerical busbar/breaker failure protection (with summation current transformer)</i> | 7SS50□□-□□□□□0-□□A□ | | | | | |
| <i>Single busbar</i> | | ↑ | ↑ | ↑ | ↑ | ↑ |
| 2 tripping contacts per bay, bay out of service | 0 | | | | | A |
| 4 tripping contacts per bay, bay out of service | 0 | | | | | B |
| 6 tripping contacts per bay, bay out of service | 0 | | | | | C |
| 2 tripping contacts per bay, bay out of service and intertrip | 0 | | | | | D |
| 4 tripping contacts per bay, bay out of service and intertrip | 0 | | | | | E |
| 6 tripping contacts per bay, bay out of service and intertrip | 0 | | | | | F |
| <i>Double busbar without transfer bus</i> | | | | | | |
| 2 tripping contacts per bay, bay out of service | 1 | | | | | A |
| 4 tripping contacts per bay, bay out of service | 1 | | | | | B |
| 6 tripping contacts per bay, bay out of service | 1 | | | | | C |
| 2 tripping contacts per bay, bay out of service and intertrip | 1 | | | | | D |
| 4 tripping contacts per bay, bay out of service and intertrip | 1 | | | | | E |
| 6 tripping contacts per bay, bay out of service and intertrip | 1 | | | | | F |
| <i>Double busbar with transfer bus</i> | | | | | | |
| 2 tripping contacts per bay, bay out of service and intertrip | 2 | | | | | A |
| 4 tripping contacts per bay, bay out of service and intertrip | 2 | | | | | B |
| 6 tripping contacts per bay, bay out of service and intertrip | 2 | | | | | C |
| <i>Triple busbar without transfer bus</i> | | | | | | |
| 2 tripping contacts per bay, bay out of service and intertrip | 3 | | | | | A |
| 4 tripping contacts per bay, bay out of service and intertrip | 3 | | | | | B |
| 6 tripping contacts per bay, bay out of service and intertrip | 3 | | | | | C |
| <i>Triple busbar with transfer bus, quadruple busbar without transfer bus</i> | | | | | | |
| 2 tripping contacts per bay, bay out of service and intertrip | 4 | | | | | A |
| 4 tripping contacts per bay, bay out of service and intertrip | 4 | | | | | B |
| 6 tripping contacts per bay, bay out of service and intertrip | 4 | | | | | C |
| <i>Rated auxiliary voltage supply for DC/DC converter and for binary inputs</i> | | | | | | |
| 60 V DC | 2 | | | | | |
| 110 V DC | 3 | | | | | |
| 125 V DC | 4 | | | | | |
| 220 V DC | 5 | | | | | |
| Please indicate the converter voltage and the indication input voltage in plain text | 9 | | | | | |
| <i>Unit version</i> | | | | | | |
| Busbar protection in one 8 MF cubicle | | | | | | A |
| Busbar protection in two 8 MF cubicles | | | | | | B |
| <i>Equipped for</i> | | | | | | |
| 4 bays | | | | | | A |
| 8 bays | | | | | | B |
| 12 bays | | | | | | C |
| 16 bays | | | | | | D |
| 20 bays | | | | | | E |
| 24 bays | | | | | | F |
| 28 bays | | | | | | G |
| 32 bays | | | | | | H |

see next page

Selection and ordering data

| Description | Order No. |
|---|---------------------|
| <i>7SS50 numerical busbar/breaker failure protection (with summation current transformer)</i> | 7SS50□□0-□□□□0-□□A□ |
| <i>Wired-up for a maximum of:</i> | |
| 4 bays | 0 |
| 8 bays | 1 |
| 12 bays | 2 |
| 16 bays | 3 |
| 20 bays | 4 |
| 24 bays | 5 |
| 28 bays | 6 |
| 32 bays | 7 |
| <i>Mounting location of interposing transformers</i> | |
| In station protection cubicle | 0 |
| Accommodated externally | 1 |
| <i>Language</i> | |
| German | 0 |
| English | 1 |

Accessories

| | |
|-------------------------|---------------------------|
| <i>Manual for 7SS50</i> | |
| English | E50410-A0009-U501-A2-7691 |