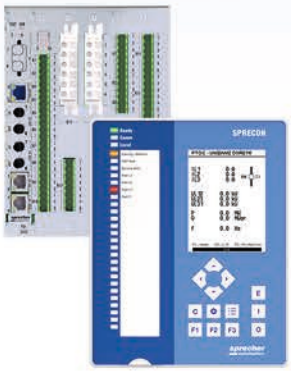


SPRECON®-E-P DS..6-0

Overcurrent-Time Protection

www.sprecher-automation.com

sprecher automation

INTRODUCTION

With SPRECON-E-P DS6-0, Sprecher Automation offers a compact line of overcurrent-time protection devices with control function. In addition to the small case, the device also features a detachable control panel.

The compact SPRECON-E-P DS6-0 protection devices are equipped with standardised hardware modules and use the same firmware as the approved SPRECON-E-P series.

The standard basic functionalities can be extended by packages which include additional protection functions.

RANGE OF FUNCTIONS

The implemented protection functions allow selective protection as well as main or back-up protection of one-end and two-end fed lines (underground and overhead lines). The devices also feature motor protection.

Beside protection and collection of measured values, the compact protection devices also control circuit breakers.

Furthermore, the SPRECON-E-P DS6-0 devices also support functions such as system decoupling or voltage and frequency protection.

Some extra protection functions such as Q-V< (reactive power undervoltage protection) and active power direction-dependent FLS (frequency load shedding) are implemented in the firmware as autonomous protection functions.

EXTENSION PACKAGES

- Package 1: Automatic reclosing (AR), teleprotection (TP), intermittent earth fault
- Package 2: Fault locator (FL), Q-V< protection, voltage/frequency protection, FLS, Frequency change protection
- Package 3 = Package 1 + Package 2
- Package 4 = Package 1 + Package 2 + Synchrocheck

APPLICATION

Due to the comprehensive range of implemented protection functions, the SPRECON-E-P DS6-0 devices are applicable for most different protection tasks of the energy sector as well as industries.

Because of their specific design, the compact protection devices can be easily installed into various bays – as space-saving as it gets.

Because of the comprehensive extra functions the devices are especially qualified for solutions in the following application fields:

- Industrial switchgears
- Protection devices for utilities (MV)
- Protection devices for utilities (HV) as backup
- Municipal utilities

CONFIGURATION

All functions can be configured separately. By separating protection configuration from control configuration, all different kinds of requirements of different applications can be met.

The protection-specific functions are separately activated or deactivated depending on the respective application.

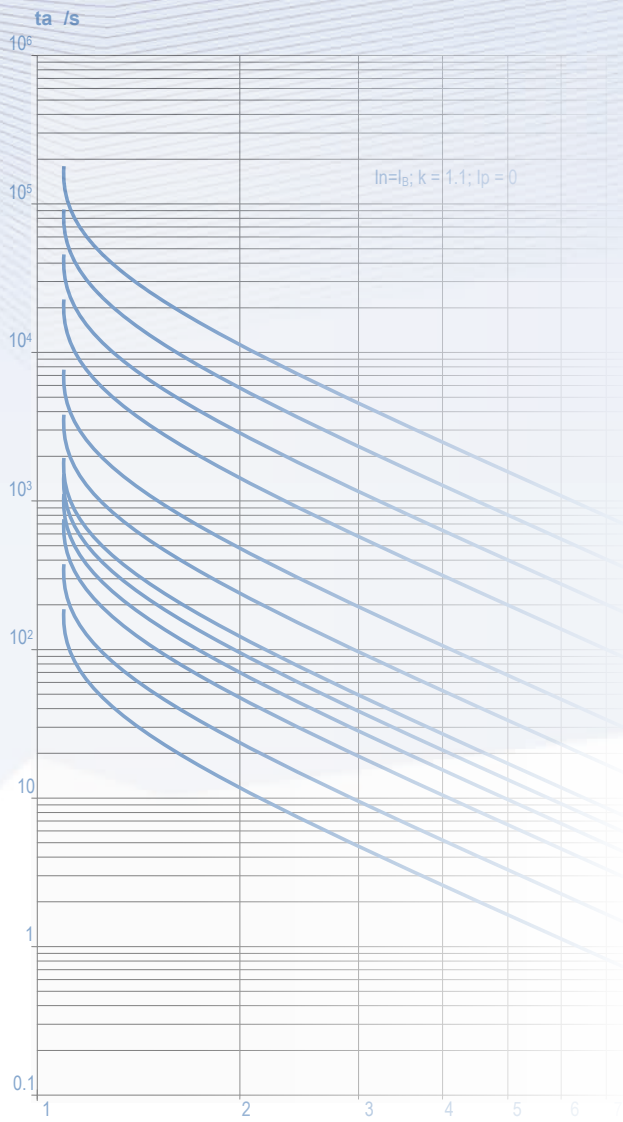
Irrelevant functions are hidden and inactive which allows simple and structured configuration of the devices.

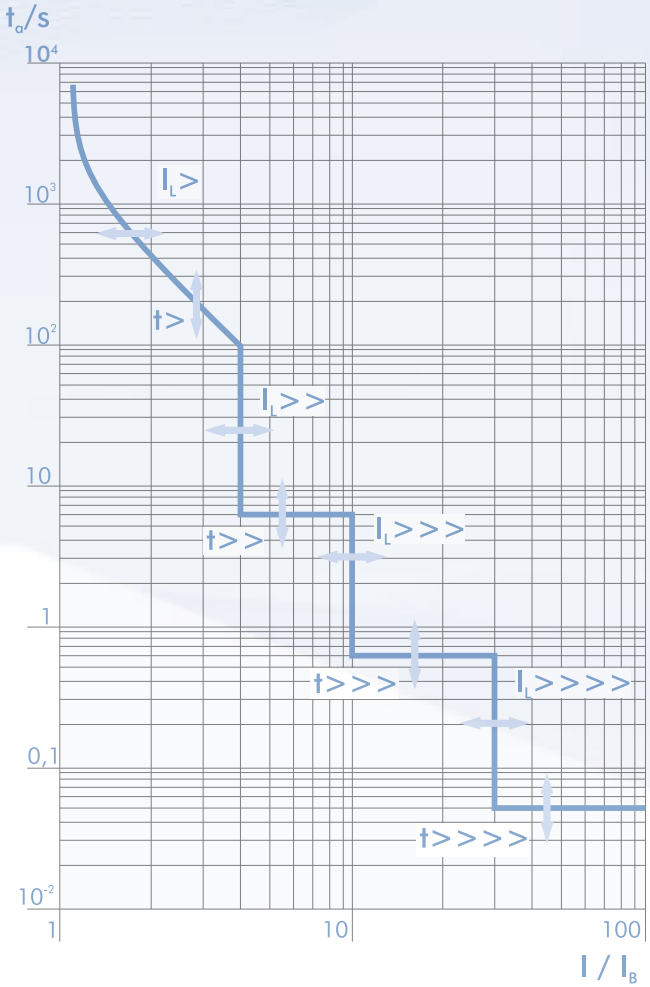
OPERATING

In order to meet the requirements of efficient system management, all operations can be accomplished with the detachable HMI control panel. Hence, protection configurations can be carried out locally without using the operating program "COMM-3".

All relevant information about processes and devices is shown on the fully graphical display of the control panel. Additionally, configurable LEDs are available for signalling.

Separated navigation keys allow clear user guidance through the various pages and submenus. Furthermore, they facilitate simple configuration of extensive protection functions.





SPRECON-E-P DS..6-0 – TECHNICAL DATA (EXCERPT)

IMPLEMENTED PROTECTION FUNCTIONS	REFERENCE		TYPE	
	IEEE C37.2	IEC 61850-7-4	DS6 3 x I_L, 1 x I_E	DSREY6 3 x I_L, 1 x I_E, 4 x U
BASIC FUNCTIONS				
Overcurrent protection				
I_L> DT/IDMT, 4 stages	50, 51	PIOC, PTOC	✓	✓
Correction of zero current for I_L > DT/IDMT			✓	✓
I_E> DT/IDMT, 4 stages	50N, 51N, 51Ns	PIOC, PTOC	✓	✓
Differential protection for I_E > DT/IDMT	87N	PDIF	✓	✓
Switch on protection (SOTF)	50, 50N	PIOC	✓	✓
Inrush restraint		PHAR	✓	✓
Short circuit direction detection	67	PTOC, RDIR		✓
Directional earth fault	67N	PTOC		✓
Phase selective earth fault detection	64	PHIZ		✓
Earth fault direction detection	67Ns	PTOC		✓
EDIR – enhanced earth fault direction detection Transient, harmonical, stationary, pulse methods	67Ns		(Option)	Option
Admittance, conductance & susceptance protection	67Ns (21N)	PTOC		✓
Capture of ext. earth fault direction annunciation		(PTEF, PSDE)	✓	✓
Directional power protection (P, Q), 2 stages each	32	PDOP, (PDUP)		✓
Negative sequence system I_{neg}>, 2 stages	46	PTOC	✓	✓
Overload protection for phases/neutral earthing transformer	49, 49N	PTTR	✓	✓
Starting protection (motor protection) Locked rotor (motor protection)	49R, 66, 48, 51LR	PMRI, PMSS	✓	✓
Underload protection (motor protection)	37	PTUC	✓	✓
Reclosing lockout	86	PMRI	✓	✓
Circuit breaker failure protection (CBF)	50BF	PTOC, RBRF	✓	✓
Current annunciation stages (2x $I_{L>an}$, 2x $I_{E>an}$)			✓	✓
dI annunciation stages (2x $I_{L>an}$, 2x $I_{E>an}$)*			✓	✓
CB TRIP by an external signal		(PTRC)	✓	✓
Phase sequence reversal			✓	✓
Phase sequence direction	47	(PPBV)	✓	✓
Pulse shaper stage (programmable logic)			✓	✓
Trip circuit supervision	74TC		✓	✓
Parameter sets			4	4
Logic + time stages for optocoupler inputs			✓	✓
Virtual digital inputs/control inputs			30/15	30/15
Logic + operating time for output relays			✓	✓
Measurands, short report			✓	✓
Event logging, non-volatile		RDRE	✓	✓
Disturbance data recording, non-volatile		RADR, RBDR	✓	✓
Statistics			✓	✓
Measurand checks, self supervision			✓	✓
Assistance for testing and commissioning			✓	✓
IN-/OUTPUTS				
Digital inputs			15	15
Digital outputs			14	14
EXTENSION PACKAGE 1				
Automatic reclosing (AR), 3-pole	79	RREC	Option	Option
Teleprotection (TP)	85	PSCH	Option	Option
Intermittent earth fault			Option	Option
EXTENSION PACKAGE 2				
Overvoltage (U>, U_{NE}>), 2 stages each	59, 59N	PTOV		Option
Undervoltage (U<), 2 stages	27	PTUV		Option
Frequency protection (f< 4 stages, f>2 stages)	81	PTUF, PTOF		Option
Frequency change protection df/dt 4x falling, 2x rising	81R	PFRC		Option
Frequency load shedding (FLS)		PTUF, PTOF		Option
Reactive power undervoltage protection (Q-V<)				Option
Fault locator (FL)	21FL	RFLO		Option
EXTENSION PACKAGE 3 = PACKAGE 1 + 2				
EXTENSION PACKAGE 4 = PACKAGE 1 + 2 +				Option
Synchrocheck	25	RSYN		Option

*in preparation

DIMENSIONS & WEIGHT

- Dimensions: 131 x 176 x 160 mm (W x H x D) incl. connections
- Weight: < 4 kg

GENERAL FUNCTIONS

- Remote maintenance and configuration
- Time synchronisation with DCF77, GPS, station and remote control
- Diagnosis via webserver
- CP with a fully graphical display with 3-coloured LEDs

COMMUNICATION

- IEC 60870-5-103/-104, IEC 61850
- RS232, RS422/485, fibre-optic, 10/100 Mbit Ethernet
- 2 additional optical Ethernet interfaces for redundant ring
- Connection via leased or dialup line

ADDITIONAL PROTECTION FUNCTIONS

- Internal earth fault module EDIR with various earth fault detection methods
- Phase preference for double earth faults
- Pulse shaper stages
- Separation of protection event recording from control data
- Nominal current selection (1/5 A) via terminal connection
- Settings via control panel and PC through menu-assisted plain text me
- Control and monitoring of switching devices and process elements
- Command output either directly or by SBO (select before operate)
- Configurable logic
- Switching device interlocking
- Signal and measured value blocking
- Average calculation
- Maximum value calculation (non-return pointer)
- Metered value capturing
- Event recording

Sprecher Automation GmbH (Headquarters)

Franckstrasse 51
4020 Linz, Austria
T: +43 732 6908-0
F: +43 732 6908-278
info@sprecher-automation.com
www.sprecher-automation.com

Austria • Germany • The Netherlands • Poland
Slovakia • Switzerland • United Arab Emirates

12.1.101.43en E