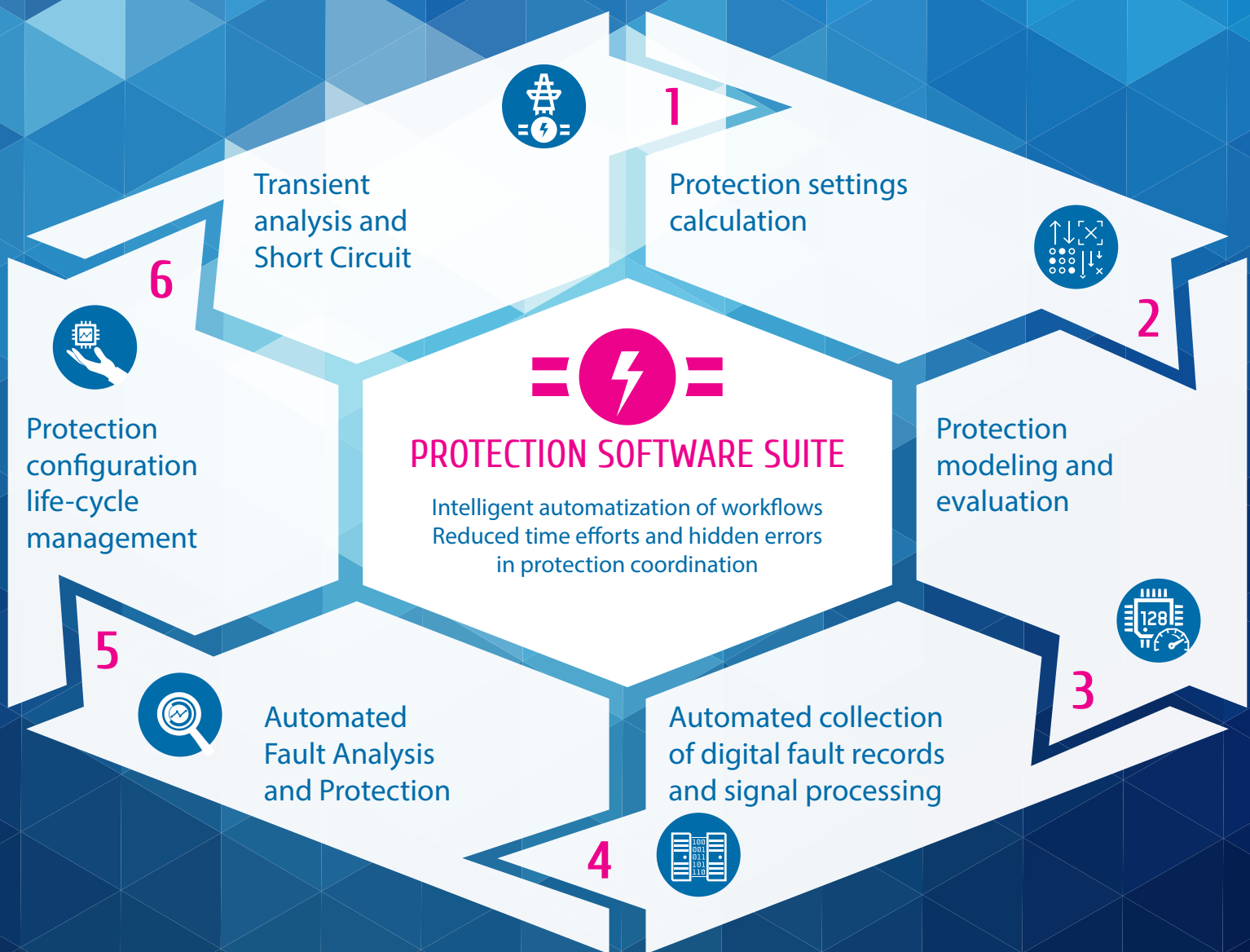


PROTECTION SUITE FUNCTIONAL OVERVIEW

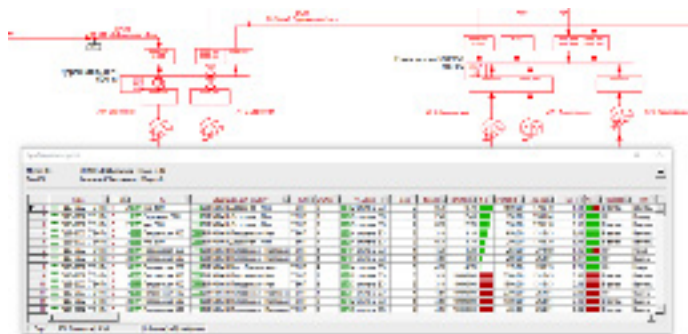


Automated reporting for

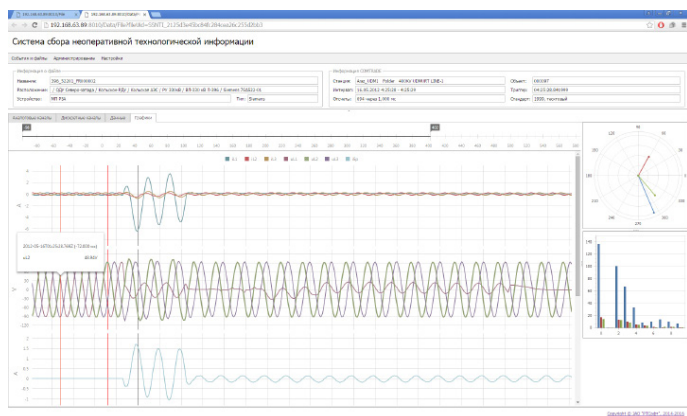
- Measured values
- Pickup event
- Tripping time
- Sensitivity factor
- Settings

of all protection devices and stages for the given number of short circuit locations, types and conditions.

Step-by-step protection actions modeling and tracing. Each stage of tripping is considered as a step with iterative calculation of network parameters (currents, voltages etc.) and analysis of corresponding changes in subsequent protection tripping. Network topology changes are visualized after each tripping step.



Automated collection of digital fault records and signal processing



Flexible automatic retrieval of disturbance wave records from substations. Automatic notifications on new disturbances come with user options for “automatic” or “on request” digital fault records collection in the central repository in the control center.

Buffering the data of substation client while communication interruptions with high level of automatic retrieval of digital fault data when communication link reestablishes.

Centralized repository for time-synchronized fault data with secure role-based WEB access.

Graphical representation of digital fault records, protection events (pickup, tripping, circuit breaker openings, etc.), phasor diagrams and harmonics.

Automated fault analysis and Protection performance estimation

Detailed analysis and fault location estimation from collected digital fault records.

Calculation of an ideal modeled protection behavior for given fault conditions (network topology, fault location and type etc.).

Support of comparison of a real protection pickups and tripping time to a modeled one for investigation of potential deviations and hidden failures.

Protection configuration life-cycle management

Storing and recording all settings associated with protection devices, including multiple settings groups, range checks, descriptions, and units of measurement. All changes regarding settings, devices, and locations are stored in an audit trail. Specified information about protection devices and their setting is stored, managed from single repository.

Protection configuration files in vendor specific formats (XML, XRIO, DAT, TXT, etc.) can be converted to a standardized format and imported into DB. Protection settings files can be viewed and managed independently of their manufacturer software. Converters provide the ability to import and export settings files directly for further processing. The ever-growing selection of converters

contains 30+ import and 15+ export converters.

A built-in document management system supports easy access to device manuals, test reports, native settings files or additional documentation such as substation diagrams

Support of input, configuration and printing of protection settings sheets.

Configuration of protection life cycle management with corresponding role assignments and regular tasks (periodicity of testing, technical support, version updates etc.)

Protection sensitivity and selectivity analysis for any planned or changed network conditions.

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