

PSS® PDMS

Protection Device Management System

At a glance

PSS® PDMS (Protection Device Management System) is a universal program to centrally manage protection devices and their settings. All data is stored in a central relational database and is available for data exchange with other programs, such as relay parameterization software.

The challenge

Numerous settings are needed to parameterize different functions of a modern protection device (overcurrent time protection, overload protection, impedance protection, sporadic ground-fault protection, monitoring measurements, etc.). At any point in time starting from the setting calculation, parameterization and testing the settings and the accompanying documents must be traceable and the workflow state clearly indicated. Considering the involvement of different staff members during the workflow and the changing network configurations with corresponding parameter sets and handling of different firmware, the management of protection data is a complex process.

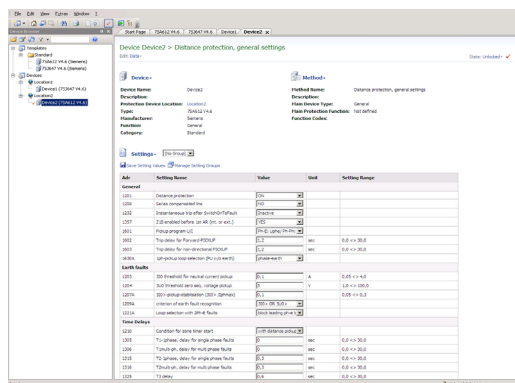


Figure 1: PSS® PDMS user interface

Our solution

PSS® PDMS is based on customer requirements and was developed to support the protection engineer in the management of protection devices and their settings.

Figure 1 shows the PSS® PDMS user interface and Figure 2 typical protection data flows in a utility.

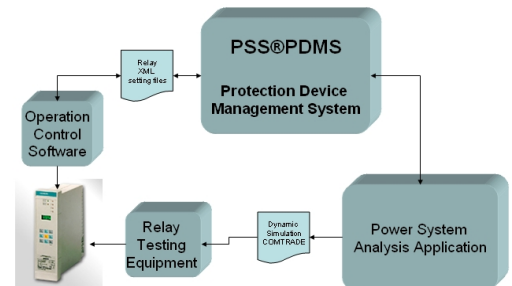


Figure 2: Protection data flows

PSS® PDMS key features

- Multi-user enterprise application
- All data stored in one central relational database (either Microsoft® Access®, Oracle® Database or Microsoft® SQL Server®)
- Modern Microsoft® Windows® user interface for optimal data management
- Protection devices modeled comprehensively with all functions and settings, including different parameter sets for the same relay
- Settings checked against setting ranges
- Creation and management of protection device templates which can be used to generate protection devices
- Extensive functions for relay import and export
- Easy connection to external documents (parameter files, descriptions of protection devices etc.)

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- Specification and customization of access rights (user roles) according to the company's needs
- Supports user defined workflows (e.g. planned, approved or active settings), including historical settings
- Data exchange with PSS[®]SINCAL enables the planner to verify the settings directly in the network model

User interface

PSS[®]PDMS offers a graphical user interface (GUI) with multiple windows or tabbed documents. A browser allows easy selection of relay parameter templates and protection devices by location.

A simple toggle enables the user to switch between configuration and settings.

Different parameter sets of one relay can be easily compared showing them side by side in a spreadsheet (see Figure 3).

Set	Setting Name	Value	Value (M Group)	Value (A)	Value (C)	Value (D)	Unit	Setting Range
1251	Distance protection	On	On	On	On	On		
1258	Series compensated line	NO	NO	NO	NO	NO		
1252	Distances trip after Sustained Fault	Inactive	Inactive	Inactive	Inactive	Inactive		
1257	ICP enabled before set (on, or not)	NO	NO	NO	NO	NO		
1401	Phase sequence	Ph-E, LOPH	Ph-E, LOPH	Ph-E, LOPH	Ph-E, LOPH	Ph-E, LOPH		
1602	Trip delay for Forward FSDCLP	1.2	1.2	1.2	1.2	1.2	sec	0.0 <= 30.0
1603	Trip delay for non-directional FSDCLP	1.2	1.2	1.2	1.2	1.2	sec	0.0 <= 30.0
1630A	IGP pickup loop selector (PU with set)	phase-earth	phase-earth	phase-earth	phase-earth	phase-earth		
Earth faults								
1203	300 threshold for residual current pickup	0.1	0.1	0.1	0.1	0.1	A	0.05 <= 4.0
1204	300 threshold zero seq. voltage pickup	5	5	5	5	5	V	0.0 <= 200.0
1207A	300+ pickup stabilization (300+ scheme)	0.1	0.1	0.1	0.1	0.1		0.05 <= 0.2
1209A	operation of earth fault recognition	300+ OR 300+	300+ OR 300+	300+ OR 300+	300+ OR 300+	300+ OR 300+		
1221A	loop selection with 3rd-f. fault	block leading phase	block leading phase	block leading phase	block leading phase	block leading phase		
Time Delays								
1210	Condition for same time start	with distance pickup	with distance pickup	with distance pickup	with distance pickup	with distance pickup		
1205	T0 delay, delay for single phase faults	0	0	0	0	0	sec	0.0 <= 30.0
1206	T1 delay, delay for multi phase faults	0	0	0	0	0	sec	0.0 <= 30.0
1215	T2 delay, delay for single phase faults	0.3	0.3	0.3	0.3	0.3	sec	0.0 <= 30.0
1216	T3 delay, delay for multi phase faults	0.3	0.3	0.3	0.3	0.3	sec	0.0 <= 30.0
1207	T4 delay	0.6	0.6	0.6	0.6	0.6	sec	0.0 <= 30.0
1208	T5 delay	0.9	0.9	0.9	0.9	0.9	sec	0.0 <= 30.0
1214	T6 delay	0.9	0.9	0.9	0.9	0.9	sec	0.0 <= 30.0
1209	T7 delay, delay for single ph. fault	0	0	0	0	0	sec	0.0 <= 30.0

Figure 3: Data comparison

Product information

PSS[®]PDMS is part of the Power System Simulator (PSS[®]) product suite by Siemens Power Technologies International (Siemens PTI). Siemens PTI provides network planning software, network consulting and training services within the Siemens Energy Sector.

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Management features and workflows

PSS[®]PDMS is a fully-fledged multi-user application. It includes a user role security system with assigned access and permission rights for different user groups.

The Workflow Manager allows for tracking all historical changes for each protection device. Therewith it safeguards up-to-date setting information along the complete relay setting process from early planning until final commissioning.

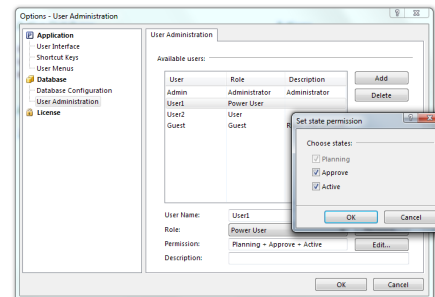


Figure 4: Definition of user roles

Document Management System

A built-in Document Management System facilitates the handling of global documents, such as relay manuals or test reports, as well as relay specific documents, such as setting files.

Template concept

PSS[®]PDMS works on the basis of a template concept. This means that a library of relay types can be set up (by importing the different relay types via XML-file) and customized. These templates can be used to create the setting structures for each relay. A direct import via XML-file from a vendor setting software, for instance DIGSI[®], is also possible.

XML exchange and vendor adaptors

PSS[®]PDMS offers the import and export of templates and settings from vendor specific setting software such as DIGSI[®]. It also supports a partly reconfiguration of the relay (incremental update). Even the merging with an existing DIGSI[®] XML setting file is possible, which allows to directly transfer the file to the relay. Specific vendor adaptors can be implemented during the setup phase.

Verification of settings through software integration with PSS[®]SINCAL

Settings can be exchanged between the power system analysis software PSS[®]SINCAL and PSS[®]PDMS by linking the equipment to a unique equipment ID like Master Resource ID (MRID). A direct call - import of data - on both sides with workflow control is supported (see Figure 5). Exchanging data to PSS[®]SINCAL allows the graphical coordination of protection device settings before commissioning.

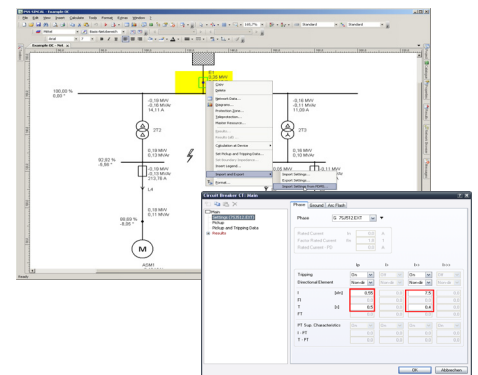


Figure 5: Synchronization of relay settings with protection simulation in PSS[®]SINCAL