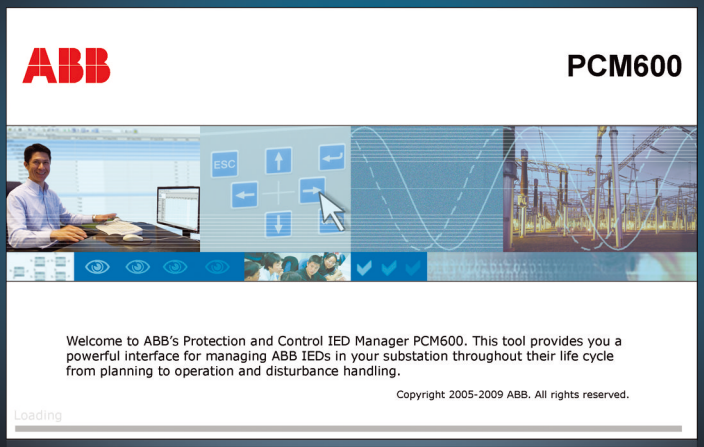

Protection and Control IED Manager PCM600 Product Guide

Power and productivity
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1. Description

The Protection and Control IED Manager PCM600 tool provides versatile functionalities for the entire life-cycle of all Relion® protection and control IED applications, at all voltage levels. This easy-to-handle tool helps the user to manage your protection and control equipment all the way from application and communication configuration to disturbance handling, including automatic disturbance reporting.

Designed to communicate, PCM600 interacts with IEDs over the fast and reliable TCP/IP via corporate LAN or WAN, or alternatively directly through the communication port at the front of the IED. PCM600 tool is able to read and write all configuration and setting data of an IED with a single command.

The user interface, workflow and the IEC 61850-based data model in PCM600 are designed according to the same philosophy as the Relion® protection and control IEDs, ensuring smooth and seamless integration between the tool and the IEDs.

PCM600 also secures the projects and data created with earlier versions of the PCM600 tool, which enables full backwards compatibility.

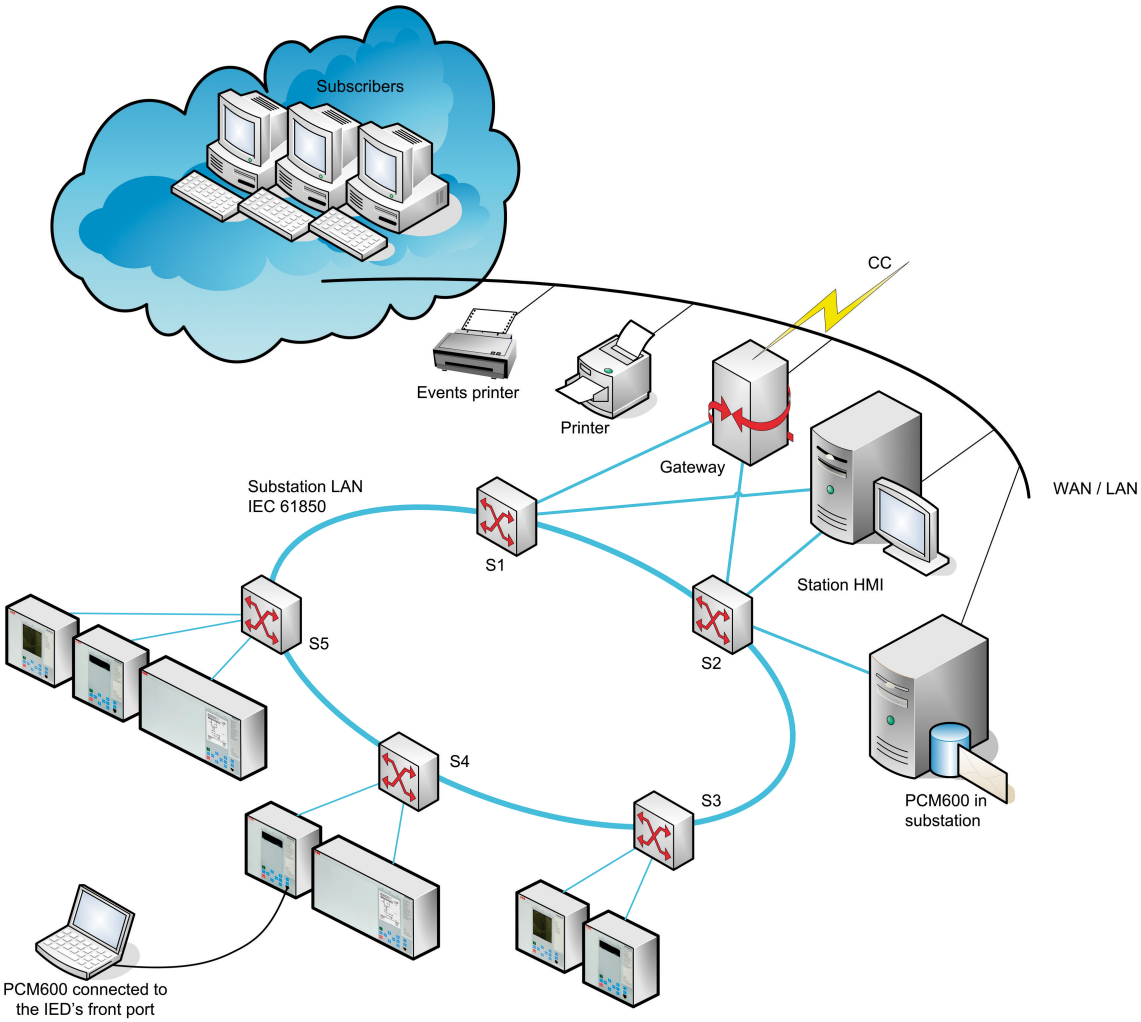

Figure 1. PCM600 connected locally or remotely to IEDs

2. Tool variants

PCM600 is available in three variants: PCM600, PCM600 Engineering and PCM600 Engineering Pro. PCM600 Engineering Pro includes PCM600 Engineering functionality, which again includes PCM600 functionality.

Table 1. Supported functions per tool variant

Function	PCM600	PCM600 Engineering	PCM600 Engineering Pro
Signal matrix	•	•	•
Parameter setting	•	•	•
Communication management	•	•	•
Disturbance handling	•	•	•
Signal monitoring	•	•	•
Event viewer	•	•	•
Creating/Handling projects	•	•	•
IED user management	•	•	•
XRIO parameter export/import	•	•	•
Graphical display editor	•	•	•
Hardware configuration	•	•	•
User management	•	•	•
Graphical application configuration	-	•	•
IEC 61850 communication configuration, incl. GOOSE	-	-	•

3. Connectivity packages

PCM600 incorporates ABB's connectivity package concept, which simplifies protection engineering and reduces the risk of errors. The Connectivity Packages, which are downloadable from ABB's web portal or available on CDs, make configurations and IED data readily available to the PCM600 tool. The packages further contain a comprehensive description of the IED, including data signals, parameters, protocol addresses and IED documentation.

4. Graphical application configuration

The state-of-the-art graphical application configuration functionality offers powerful ways to create, adapt and modify application configurations, which also can be made as

templates for later re-use. PCM600also enables presentation of the whole signal flow from input to output. It also assists the user during the creation of application configuration through colour indications of the function blocks to ensure that the mandatory inputs have been correctly connected. Before writing the configuration to an IED, the tool offers validation of the complete IED configuration which ensures that the configuration does not contain errors.

Additionally, the user can compare the configuration in the tool to the one in the IED. Further, the signal status on-line monitoring functionality helps to verify the real-time processes in the IED, which is extremely useful for troubleshooting.

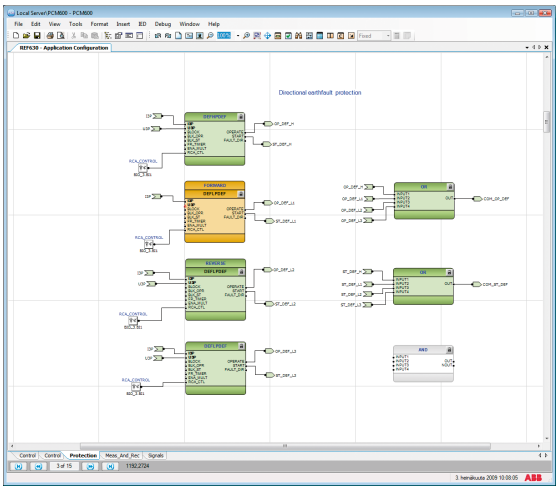

Figure 3. Application configuration, visual indication of the configuration

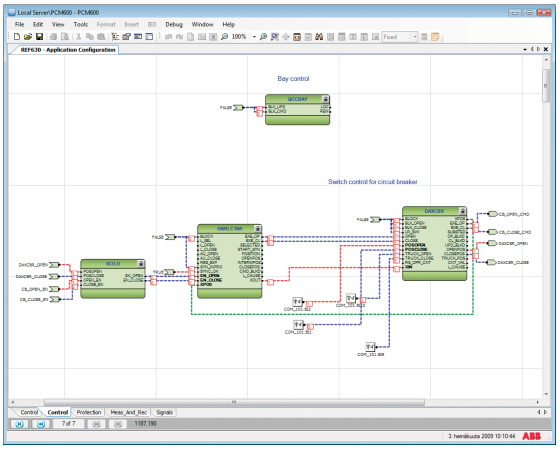

Figure 2. Application configuration, Online monitoring

5. Signal matrix

The graphical signal matrix of PCM600 allows the user to efficiently connect CTs, VTs, binary input and output signals to the configuration. The configuration can also be changed from here. The tool can also be used for connecting the LEDs on the IED as well as for connection of the GOOSE signals between the IEDs.

In addition to the standard functions of PCM600, the Engineering Pro variant offers means to connect the GOOSE (Generic Object Oriented Substation Events) signals between the IEDs. In a system based on IEC 61850, GOOSE messaging is used for time critical messages.

Once the IEDs have been configured and parameterized, PCM600 enables the configuration of the horizontal bay-to-bay communication for station-wide interlocking, and sends the complete IED description to a system engineering tool.

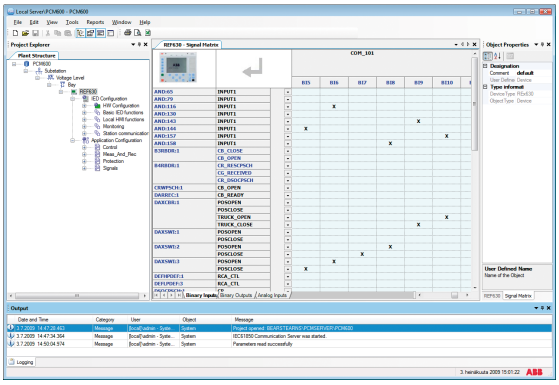

Figure 4. Signal matrix tool view

6. Graphical display editor

The graphical display editor is used for configuring the display of an IED. The graphical display consists of one or more pages. A display page contains the drawing area where the actual display configuration is made. A display is configured by dragging predefined graphical symbols from a library onto the drawing area. The directed link tool can be used to draw connections between symbols. Every symbol type has a corresponding representation in both the ANSI and the IEC symbol palettes. Symbols can be connected to the application configuration.

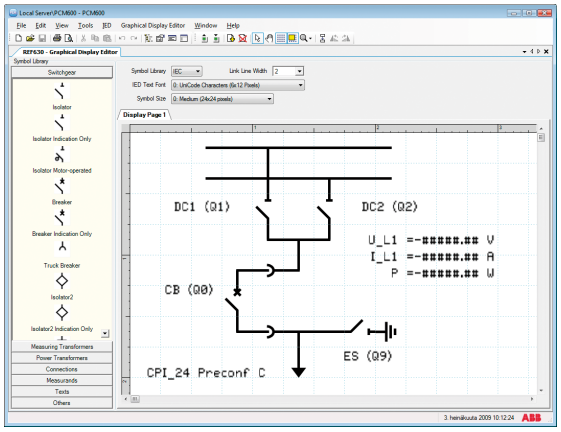

Figure 5. Graphical display editor, configuring the display of an IED

7. Hardware configuration

The hardware configuration can be used to get a quick overview of an IED and to add or change hardware modules. It is possible to view the front and back of the IED including card information and their slot position. Furthermore it is possible to compare the hardware configuration used in the tool to the actual one in the IED.

8. Parameter setting

The parameter setting of PCM600 allows the user to view and set IED parameters offline (stored in the tool) and online (stored in both, tool and IED). The parameters can be read from the IED to PCM600 or written from PCM600 to the IED while the IED is in service. In addition, the user can export and import the parameters for test sets in XRIO format (e.g. Omicron Test Universe).

The parameter setting function can be used in two different modes. The normal mode allows the IED protection engineer to quickly view and change the most commonly used parameters, whereas the advanced mode unveils all parameters that can be set.

PCM600 further offers a filtering function allowing the user to view all IED parameters or the parameters related to a specific function block. In addition, the user can choose to only view parameters that have been changed or parameters with values deviating from the IED's setting. Changed parameters with different values in the tool and in the IED are clearly indicated.

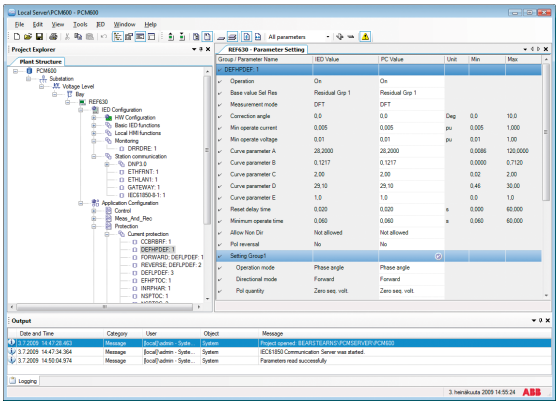

Figure 6. Parameter setting view

9. Signal monitoring

The signal monitoring function provides the user with online information about the measured values and displays the status of binary input and output signals of an IED. Furthermore, PCM600 facilitates commissioning and testing of physical connections via the signal monitoring tool (forcing of signals).

10. Event viewer

The event viewer of PCM600 enables the user to view the IEDs' sequence of events information including timestamps. The event log facilitates detailed post-fault analyses of faults and disturbances.

11. Disturbance handling

PCM600 offers effective handling and monitoring of disturbance records from the IEDs. The disturbance files stored in the standard COMTRADE format allow the user to view the disturbance record using Wavewin™ software or any commercially available disturbance analyzer supporting the COMTRADE format. If required, the report layout and contents can be adapted to user-specific needs.

By means of the task scheduler of PCM600, the records can be set to be automatically read from the IED. The task scheduler is an independent process and does not require PCM600 to be activated. After receiving the file, PCM600 automatically creates a disturbance report, which can immediately be forwarded to subscribers by e-mail. Such a notification shortens the time from disturbance detection to corrective action.

12. Communication configuration

PCM600 incorporates two communication tools: the communication management tool and the communication configuration tool.

The communication management tool is used to configure the following protocols for an IED: DNP3, IEC 60870-5-103 or Modbus®. The communication configuration tool, available in PCM600 Engineering Pro, is used for configuring the IEC 61850 substation control or inter-bay communication.

13. Project explorer

The project explorer can be used to navigate to the used IEDs within a project / substation and furthermore within an IED to navigate to the different functionality of an IED. The user is able to create a plant structure with a substation, voltage levels, bays and IEDs.

New IEDs can also be created by use of IED templates. This enables the reuse of existing IED configurations. IEDs, bays, voltage levels or a whole substation can be copied and pasted in the plant structure. Selection of a specific IED in the project explorer gives access to the IED's tools. The function of importing and exporting descriptions of IEC 61850 substation configurations, configured devices and device functionality allows information to be shared with other engineering and system integration tools. By using the filtering feature of the project explorer the user can filter information of other tools according to the selection made.

14. User management

PCPCM600 tool supports access management both for the tool and the IEDs. The user accounts in PCM600 can be linked to Windows user accounts or be defined as separate user accounts for PCM600. The user management feature allows the administrator to create user groups with different access rights and profiles.

The access management for the IEDs can be enabled or disabled with the IED user management tool in PCM600. This tool is also used for setting and changing passwords for the IED's different user levels.

15. Integrated help menus

All the necessary instructions for using the tool are integrated in PCM600. Context sensitive help menus and tool tips provide the user with information about the selected tools. The IED documentation and guides available from the connectivity package can be directly accessed from the help menus.

16. Data transfer

PCM600 offers improved data transfer between the IEDs and the IED management tool. The IEDs can be accessed remotely using the TCP/IP protocol via a local area network (LAN) and standard Ethernet cables, a secured wide area network (WAN), a secured wireless network (WLAN) or, locally, using the IEDs' front communication port.

17. System requirements

Table 2. Hardware requirements

Hardware	Minimum	Recommended
CPU	1.0 GHz	2.2 GHz
RAM	1 GB	3 GB
Free hard disk space	2 GB	4 GB
Monitor	1024 x 768	1280 x 1024
Ethernet port	required	required

Table 3. Supported operating systems

Operating system	Version
Microsoft XP Professional Edition	SP3 or later
Microsoft Windows Server 2003	SP2
Microsoft Windows Vista Business	SP1

Table 4. Communication

Protocols
TCP/IP via LAN or WLAN
Serial Port (RS-232) or USB/RS-232 converter if SPA based communication is used
Opto/electrical (RS-232) cable for front communication if SPA based communication is used

18. Selection table and ordering data

The selection table can be used to choose the right tool variant for an IED – for the latest supported IEDs please visit www.abb.com/substationautomation

To order PCM600, PCM600 Engineering or PCM600 Engineering Pro use the ordering data in the ordering code table.

	Signal matrix	Parameter setting	Communication management	Disturbance handling	Signal monitoring	Event viewer	Creating/Handling projects	IED user management	XRIO parameter export/import	Graphical display editor	Hardware configuration	Graphical application configuration	IEC 61850 communication configuration, incl. GOOSE
670 series	•	•	•	•	•	•	•	•	•	•	•	•	•
650 series	•	•	•	•	•	•	•	•	•	•	•	•	•
630 series	•	•	•	•	•	•	•	•	•	•	•	•	•
615 series	•	•	•	•	•	-	•	•	•	-	-	-	•
610 series	-	•	-	•	•	-	•	-	-	-	-	-	-
RE_541/543/545	-	•	-	•	•	•	•	-	-	-	-	-	-
REF 542plus	-	•	-	•	-	-	•	-	-	-	-	-	-
REX 521	-	•	-	•	•	•	•	-	-	-	-	-	-
SPACOM series [1]	-	•	-	-	•	-	•	-	-	-	-	-	-
PCM600													
PCM600 Engineering													
PCM600 Engineering Pro													

1) SPAD 346 C, SPAJ 140 C, SPAJ 141 C, SPAJ 142 C, SPAJ 144 C, SACO 16D1, SACO 16D3 and SACO 64D4

Figure 7. Selection table

Table 5. Ordering codes

Product	Order number
PCM600 2.2	PCM600-22
PCM600 Engineering 2.2	PCM600E-22
PCM600 Engineering 2.2 Company [1]	PCM600E-22-C
PCM600 Engineering Pro 2.2	PCM600EP-22
PCM600 Engineering Pro Company [2]	PCM600EP-22-C

1) Includes 10 PCM600 Engineering 2.2 licenses
2) Includes 10 PCM600 Engineering Pro 2.2 licenses

19. Document revision history

Document revision/date	Product version	History
A/20.12.2007	2.0	First release
B/30.05.2008	2.0 SP1	Content updated
C/03.03.2009	2.0 SP2	Content updated
D/06.07.2009	2.1	Content updated to correspond to the product version
E/06.11.2009	2.2	Content updated to correspond to the product version

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