

ABB

PCM600



Welcome to ABB's Protection and Control IED Manager PCM600. This tool provides you a powerful interface for managing ABB IEDs in your substation throughout their life cycle from planning to operation and disturbance handling.

Copyright 2005-2009 ABB. All rights reserved.

Loading

Protection and Control IED Manager PCM600 Product Guide

Contents

1. Description.....	3	11. Disturbance handling.....	6
2. Project explorer.....	3	12. Communication management.....	6
3. Parameter setting.....	4	13. IEC 61850 configuration.....	6
4. Graphical application configuration.....	4	14. Connectivity packages.....	7
5. Signal matrix.....	5	15. User management.....	7
6. Graphical display editor.....	5	16. Integrated help menus.....	7
7. Hardware configuration.....	6	17. Data transfer.....	7
8. IED configuration comparison.....	6	18. System requirements.....	7
9. Signal monitoring.....	6	19. Ordering data.....	8
10. Event viewer.....	6	20. Document revision history.....	8

Disclaimer

The information in this document is subject to change without notice and should not be construed as a commitment by ABB. ABB assumes no responsibility for any errors that may appear in this document.

© Copyright 2013 ABB.

All rights reserved.

Trademarks

ABB is a registered trademark of the ABB Group. All other brand or product names mentioned in this document may be trademarks or registered trademarks of their respective holders.

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.

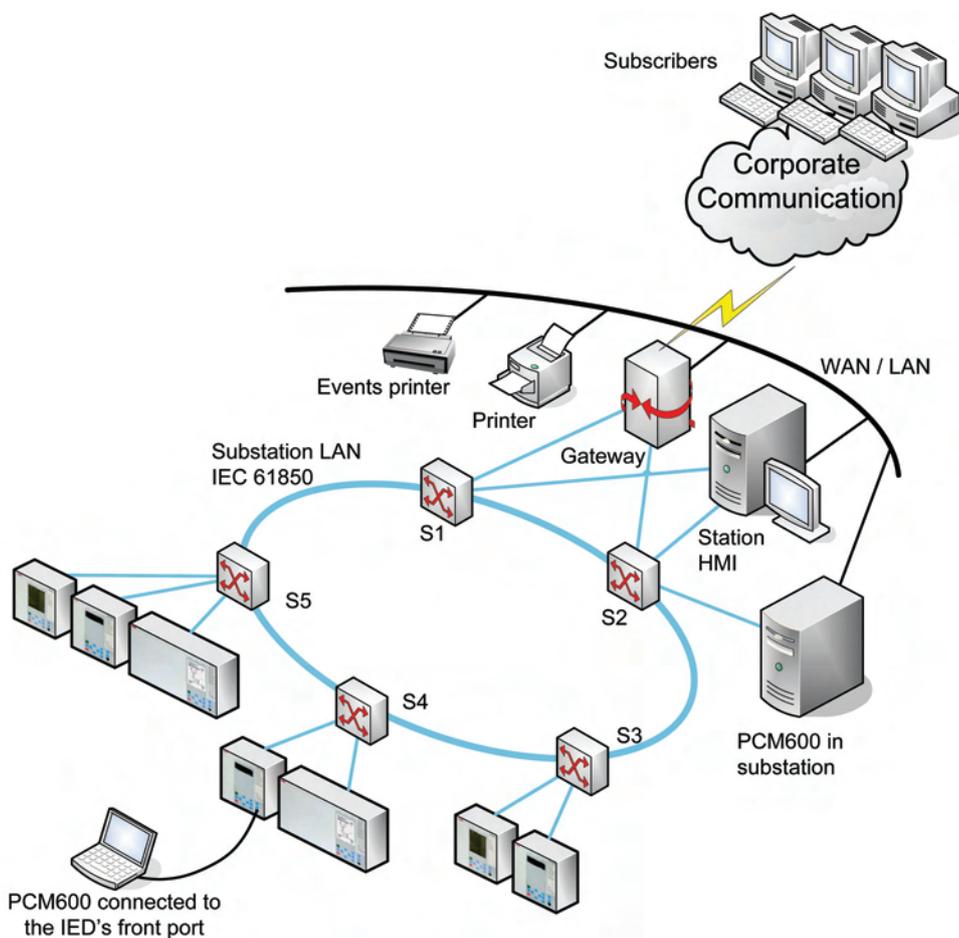


Figure 1. PCM600 connected locally or remotely to IEDs

2. 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.

3. Parameter setting

The parameter setting of PCM600 enables viewing and setting IED parameters offline (stored in the tool) and online (stored in both the tool and the 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 parameters can be exported and imported for test sets in the XRIO format (for example, Omicron Test Universe) or exported in the CSV format to be easily read and reused.

The parameter setting function can be used in two different modes. The normal mode allows a quick viewing and changing of the most commonly used parameters, whereas the advanced mode unveils all parameters that can be set.

PCM600 further offers a filtering function that allows the viewing of all IED parameters or the parameters related to a specific function block. In addition, it can be chosen 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.

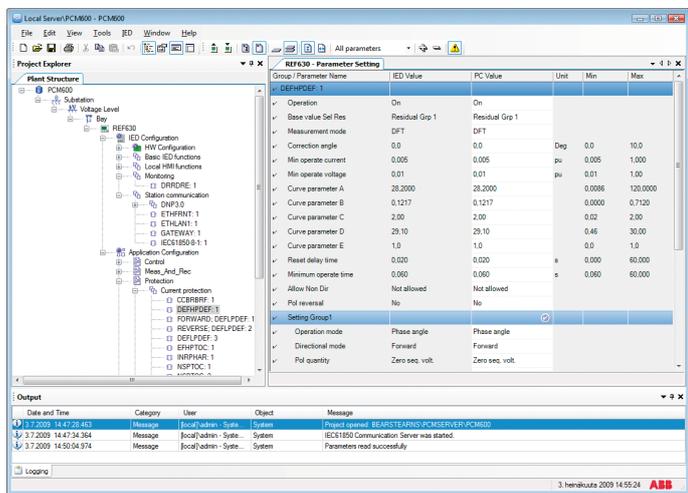


Figure 2. Parameter setting view

The graphical representation of the distance protection function supports in the visual verification of the parameter setting of the distance protection function.

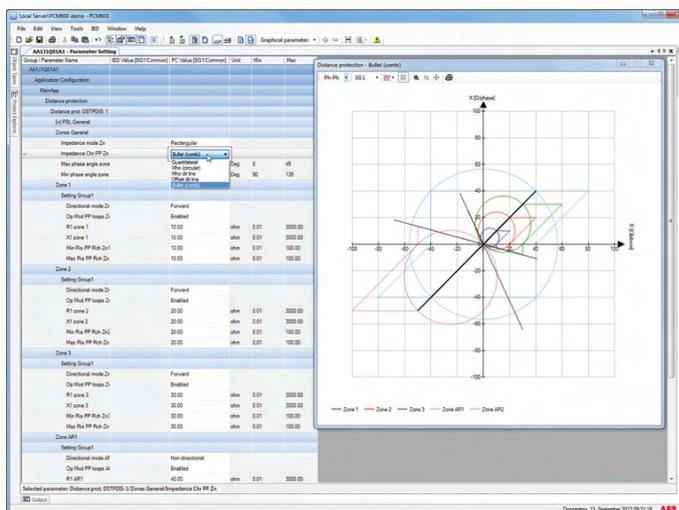


Figure 3. Graphical representation of the distance protection function

4. Graphical application configuration

The 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. PCM600 also 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.

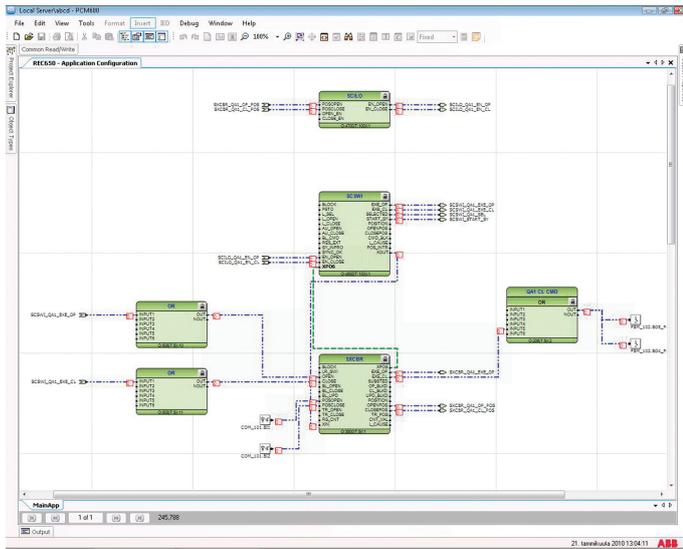


Figure 4. Application configuration, Online monitoring

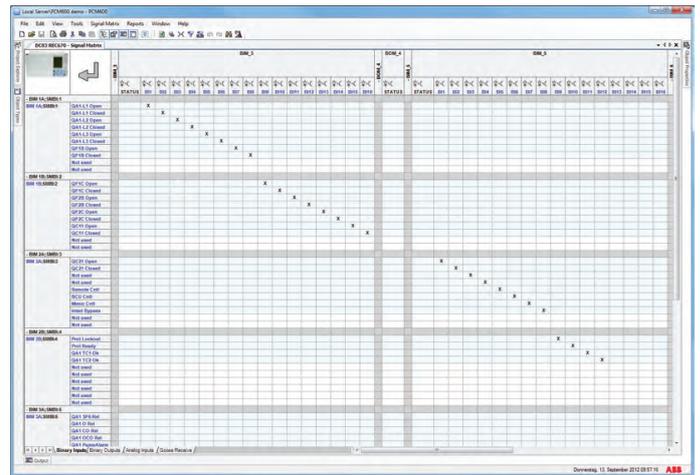


Figure 6. Signal matrix tool view

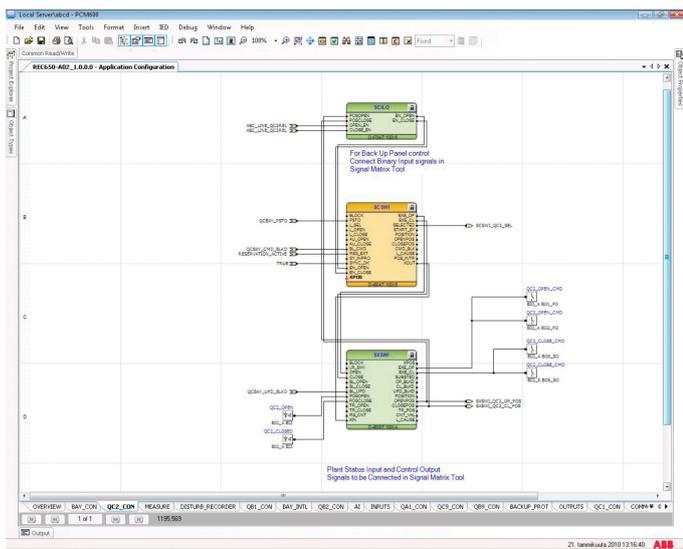


Figure 5. Application configuration, visual indication of the configuration

5. Signal matrix

The graphical signal matrix of PCM600 allows connecting efficiently 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.

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.

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 to 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.

The graphical display editor also supports the reuse of display page templates made for other IEDs.

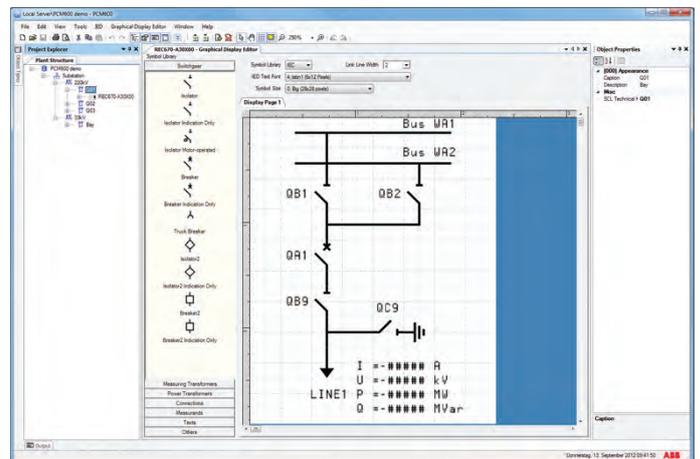


Figure 7. Graphical display editor, configuring the display of an IED

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. IED configuration comparison

IED comparison is used for comparing configurations of two IEDs of the same kind. Comparison can be made offline regardless of the IEDs being in the same PCM600 project or not. Additionally, the configuration of an IED can be compared to a loose PCMI file. When connected to the IED, it is possible to compare the configurations between the IED and the PCM600 online. A report of the differences between the two different IED configurations is provided as a result of the comparison.

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 viewing the IED sequence of events information including timestamps. The event log facilitates detailed post-fault analyses of faults and disturbances. Event viewer additionally enables reading the security events from the IED.

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 management

The Communication Management tool is used to configure different communication protocols for an IED. DNP3, IEC 60870-5-101/103/104 or Modbus® are the communication protocols that can be engineered. Depending on the used protocol, the tool provides different views and capabilities to support in the selection or mapping of communication signals.

13. IEC 61850 configuration

The IEC 61850 configuration tool of PCM600 provides the viewing or engineering of the dataset and dataflow configuration for a vertical or horizontal IEC 61850 communication.

In the view mode, the tool supports the viewing of the IEC 61850 configuration, whereas in the engineering mode it is possible to configure IEC 61850 datasets and dataflow for the horizontal and vertical communication.

Table 1. Recommendations for using the IEC 61850 configuration tools

	IEC 61850 tools in a Substation automation system (SAS)	
	No external tool	IET600 or 3 rd party system tool
ABB Relion IEDs	Engineering mode ¹⁾	View mode ²⁾
ABB and 3 rd party IEDs	View mode ²⁾	View mode ²⁾

1) Engineering mode of IEC 61850 configuration tool of PCM600 is recommended for simple applications. Advanced applications require an IEC 61850 system tool like IET600 and view mode.

2) View mode of IEC 61850 configuration tool of PCM600 for the transparency of IEC 61850 configuration made by an external IEC 61850 system tool like IET600.

14. Connectivity packages

PCM600 incorporates ABB's connectivity package concept, which simplifies protection engineering and reduces the risk of errors. The connectivity packages can be downloaded and installed using the PCM600 Update Manager tool.

Furthermore, the IED connectivity packages for the 670 and 650 series are also available on a separate IED Connectivity Package DVD that is delivered with the IEDs, whereas the IED connectivity packages for the 630, 620, 615, 611 and 610 series, RIO600, REX521, RE_54_, SPACOM and REF 542plus can be downloaded from the www.abb.com/substationautomation portal.

15. User management

PCM600 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.

16. 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.

17. 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.

18. 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 × 768	1280 × 1024
Ethernet port	Required	Required

Table 3. Supported operating systems

Operating system	Version
Microsoft Windows XP (32-bit)	SP3
Microsoft Windows Server 2003 (32-bit)	SP2
Microsoft Windows Vista (32-bit)	SP2
Microsoft Windows 7 (32-bit/64-bit)	SP1
Microsoft Windows 8 (32-bit/64-bit)	-

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

Protection and Control IED Manager	1MRS756448 K
PCM600	
Product version: 2.6	

19. Ordering data

To order the protection and control IED manager PCM600, use the ordering data in the ordering code table.

Table 5. Ordering code

Product name	Order code
PCM600 2.6	PCM600-26

20. Document revision history

Document revision/date	Product version	History
A/2007-12-20	2.0	First release
B/2008-05-30	2.0 SP1	Content updated
C/2009-03-03	2.0 SP2	Content updated
D/2009-07-06	2.1	Content updated to correspond to the product version
E/2009-11-23	2.2	Content updated to correspond to the product version
F/2010-05-28	2.3	Content updated to correspond to the product version
G/2011-04-08	2.4	Content updated to correspond to the product version
H/2013-01-10	2.5	Content updated to correspond to the product version
K/2013-12-10	2.6	Content updated to correspond to the product version

Contact us

ABB Oy

**Medium Voltage Products,
Distribution Automation**

P.O. Box 699

FI-65101 VAASA, Finland

Phone +358 10 22 11

Fax +358 10 22 41094

ABB AB

Substation Automation Products

SE-721 59 Västerås, Sweden

Phone +46 (0) 21 32 50 00

Fax +46 (0) 21 14 69 18

www.abb.com/substationautomation