

# Managing Relion<sup>®</sup> IEDs

## Protection and control IED manager PCM600

# Efficient management of Relion® protection and control IEDs

The protection and control IED manager PCM600 tool provides versatile functionalities for the entire life-cycle of Relion® protection and control IED applications, at all voltage levels. This easy-to-handle tool helps you 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 a corporate LAN or WAN, or alternatively directly through the communication port at the front of the IED. The PCM600 tool is able to read and write all configuration and setting data of an IED with a single command.

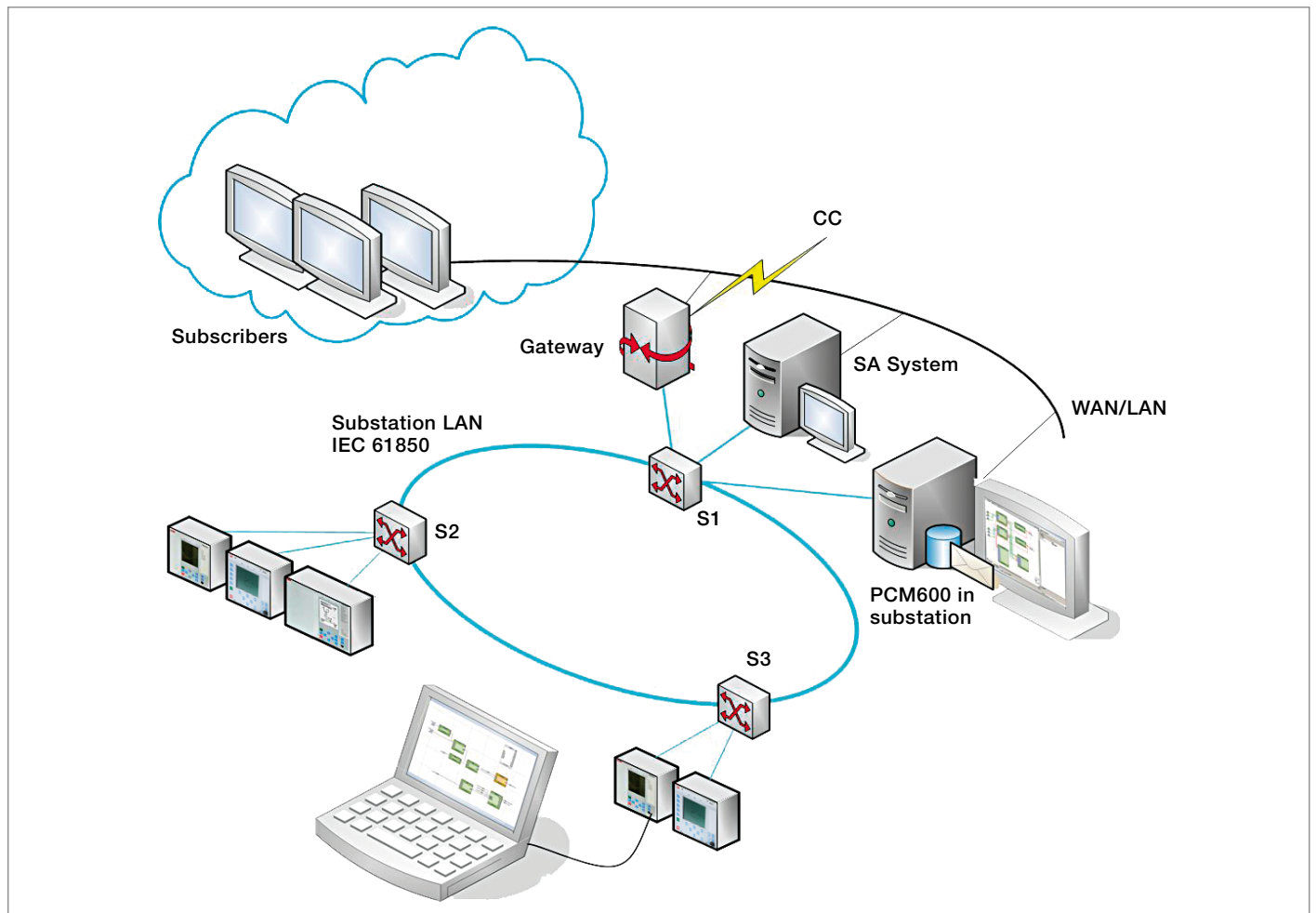
The user interface, workflow and the IEC 61850-based data model in the PCM600 are designed according to the same

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 backwards compatibility.

## Efficient engineering

PCM600 is compliant with IEC 61850. This simplifies IED engineering and enables information exchange with other IEC 61850-compliant tools. PCM600 uses the familiar Windows® Explorer look and feel for easy navigation and understanding of functions. It provides efficient features, such as drag and drop, for creating projects according to the real power system topologies. It also allows you to easily access the functionality in the protection and control IEDs and to filter information.



PCM600 utilizes ABB's unique Connectivity Package concept, which [simplifies IED engineering and reduces the risk of errors](#). This package makes configuration and other IED data automatically available in the PCM600. It further contains a comprehensive description of the IED, consisting of data signals and parameters as well as the IED documentation.

### Powerful application configuration

The state-of-the-art graphical application configuration functionality offers [powerful ways to create, adapt and modify application configurations](#). The application configurations can also be saved as templates for later re-use. PCM600 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 any syntax errors.

Additionally, you 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.

PCM600 features a powerful copy paste and export import functions that allows you to [efficiently reuse existing IEDs, bays or substations](#). All data associated with the IEDs, bays or substations, such as settings, graphical configuration or bay/substation topology, will be automatically copied to the new plant structure.

### Flexible connection of signals

The graphical signal matrix of PCM600 allows you to [efficiently connect CTs, VTs and binary input and output signals without changing the configuration](#). This is especially helpful during commissioning in case the connection from the process to the IED terminal blocks needs to be changed. The signal matrix is also used for connection of the GOOSE signals between the IEDs.

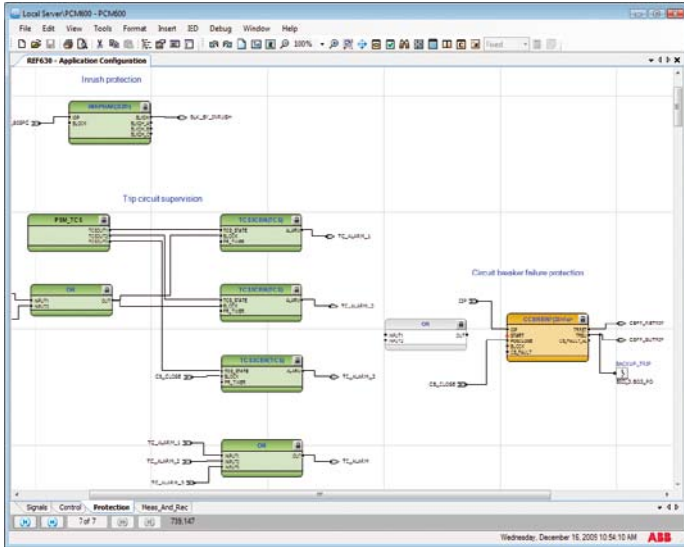
Additionally, any change made to the signal matrix is reflected in the graphical configuration. Also, the changes made in the graphical configuration affecting the signal matrix are automatically visible in the signal matrix. This provides you with a consistent view of the complete IED configuration all the time.

### Efficient communication engineering

PCM600 features facilities for efficient engineering of communication over IEC 61850-8-1 and other protocols. For IEC 61850 communication, PCM600 provides the necessary data (SCL files) for system or communication engineering tools. Further, it has the facilities needed for handling the IED-related configuration of the bay-to-bay communication. In an IEC 61850-based system, the bay-to-bay communication (Generic Object Oriented System-Wide Events, GOOSE) is important as it is often used for time-critical messages, such as trip signals and station-wide interlocking. Thus, PCM600 allows you to [benefit from the world-leading GOOSE performance of ABB's Relion protection and control IEDs](#).



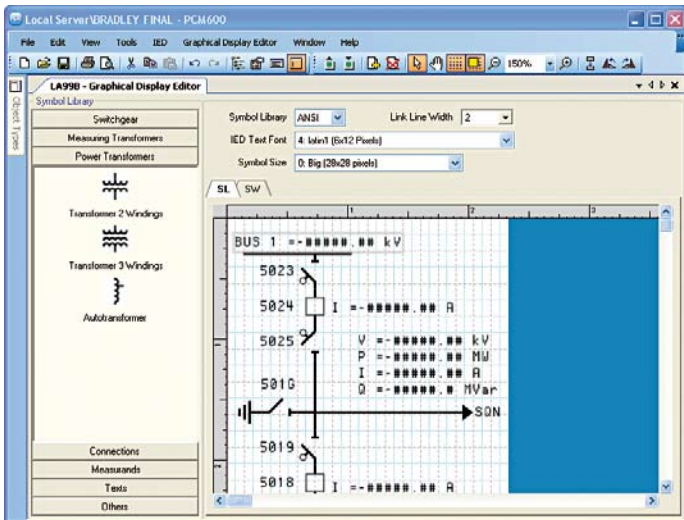
# Functionalities for efficient engineering



Application configuration allows you to easily create, change or view an IED configuration. The colors of the function blocks give direct indication of the function status in the configuration: unconnected (gray), partially connected (yellow) or fully connected (green).

Signal Name	Line	Line CT	Line CT	Line CT	CT Comp	CT 3R	Line VT	Line VT	Line VT	Bus VMI	Bus VMI
Busk_00100000_00_00	Bus 1										
Busk_00100000_00_01	Bus 2										
Line CT 000000_00_00	Line 1										
Line CT 000000_00_01	Line 2										
Line CT 000000_00_02	Line 3										
Line CT 000000_00_03	Line 4										
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With the signal matrix you can connect the process termination with any I/O connection point in the configuration in the same way as the traditional trip matrix.



With the graphical display editor you can easily engineer the single line diagram according to the switchgear arrangement for the IED HMI.

Group / Parameter Name	IED Value	PC Value	Unit	Min	Max
Current protection					
PHIPTOC1(3I>>>(1): 1					
3I>>>(1)					
Operation	on	on			
Num of start phases	1 out of 3	1 out of 3			
Reset delay time	20	20	ms	0	60000
Setting Group 1					
Start value	1.00	1.00	xIn	1.00	40.00
Start value Mult	1.0	1.0		0.8	10.0
Operate delay time	20	20	ms	20	200000
Setting Group 2					
Start value	2.00	2.00	xIn	1.00	40.00
Start value Mult	1.8	1.8		0.8	10.0
Operate delay time	200	200	ms	20	200000
Setting Group 3					
Start value	1.00	1.00	xIn	1.00	40.00
Start value Mult	1.0	1.0		0.8	10.0
Operate delay time	20	20	ms	20	200000
Setting Group 4					
Start value	1.00	1.00	xIn	1.00	40.00
Start value Mult	1.0	1.0		0.8	10.0
Operate delay time	20	20	ms	20	200000

The parameter setting tool allows you to change or view all the parameters that an IED has, for all the setting groups. When reading the parameters from the IED, the user can easily compare the values in the PC with the ones in the IED.

# For optimum operation of your fault clearance system

## Advanced management of parameter setting

PCM600 features advanced filtering for handling parameter settings. A normal mode allows the relay engineer to quickly view and change the most important parameters, whereas an advanced mode presents all parameters. Parameter settings can be stored in the PCM600 as primary quantities, which will simplify the setting calculations.

PCM600 provides you with [full control over the updated parameters](#). You can read the current settings from the IED to the tool while the IED is in service. After changing the desired parameters, the filtering functionality of PCM600 allows you to compare them easily with the initial IED settings. This way you can [ensure that the intended settings have been modified and that the values are correct before the new settings are written to the IED](#).

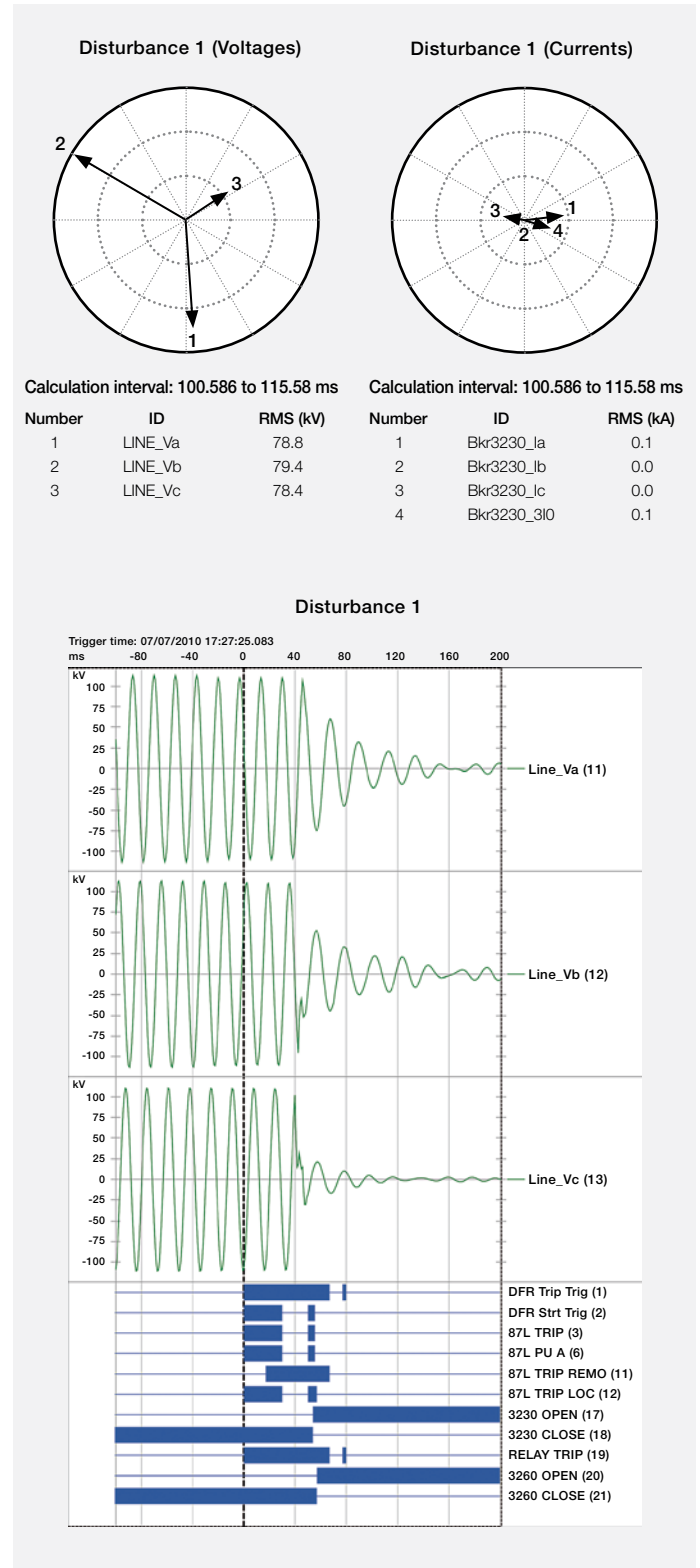
PCM600 features the presentation of settings in different setting groups side-by-side, which enables [easy comparison and coordination of settings between the groups](#). These features reduce the time needed for commissioning and maintenance. PCM600 permits the restoring of verified default settings to the IED anytime after the IED has been taken into operation.

## Integrated disturbance handling

Disturbance handling is vital through the entire life-cycle of a substation. PCM600 scans and retrieves disturbance information for automatic report file generation. Automatic reporting allows relay engineers to concentrate on disturbance analysis instead of collecting data. The report layout and contents can be adapted to meet the needs of different subscribers. This feature [significantly reduces the time required for the handling of disturbance reports](#) and allows the relay engineers to spend more time on complicated disturbances demanding special attention.

The disturbance files are stored in IEDs in COMTRADE, the de-facto standard format. This allows you to view the disturbance record using ABB or any commercially available software tool you prefer. Disturbances stored in the IED can be read using a scheduler. After the transfer of disturbance files, [PCM600 is able to automatically generate a disturbance report, which will immediately be sent to subscribers by e-mail](#). This shortens the time from disturbance detection to corrective actions.

## Disturbance report

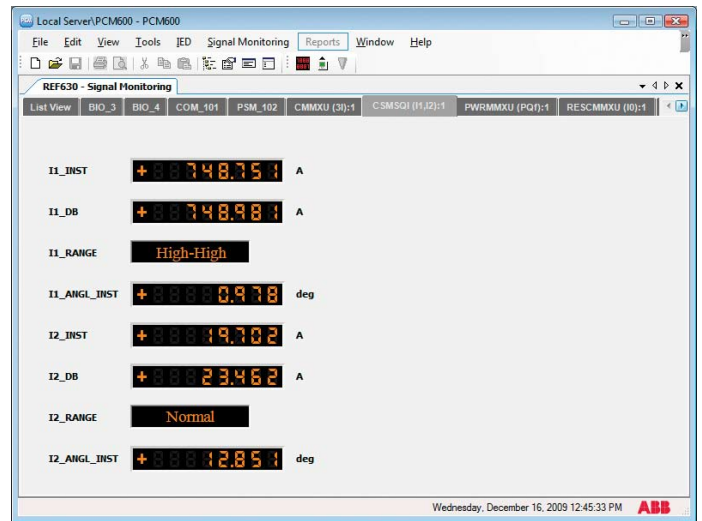


### Simplify your daily work

In addition to the new way of handling disturbance reports, PCM600's Microsoft Windows®-based user interface makes your daily work easier and more efficient. The many familiar and easy-to-use functions add to operating comfort. All necessary instructions for using PCM600 are integrated in the tool itself. The tool's [context sensitive and interactive on-line help provides users with step-by-step instructions](#). A powerful search function serves you quickly by offering solutions for any problem situation you may face. You can also print out any page from the on-line help. Similar to any Windows® application, you can [access information related to a selected item by pressing the F1 function key on your keyboard](#).

As a PCM600 user, you will also get additional help from screen tips when using functions via toolbars. Additionally, you can [access the IED documentation by a mouse click directly from your PCM600 tool](#).

### Monitoring and disturbance handling during operation



The signal monitoring function gives you on-line information about the measured quantities and status of binary input and output signals.

PCM600 Selection Table

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

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

### Features and functions

- Flexible tool architecture
- Easy to adapt IEDs to power system requirements
- Support for easy re-use of base engineering with Substation Configuration description Language (SCL) import/export
- Extensive on-line help and screen tips
- Context sensitive menus and toolbars
- Update manager for easy handling of updates and add-ons
- User management and authority handling
- Project handling; import/export/copy/paste/rename
- Scheduled polling of disturbance files
- Automatic disturbance reporting
- Freely configurable templates for disturbance reports
- Advanced graphical application configuration tool with validation of the complete IED configuration
- Signal matrix for flexible connection of signals
- Powerful support for graphical configuration of IED application, for instance colour indications facilitate assigning the signals correctly to the physical I/O and provide clear overview of the assigned/ unassigned signals
- Graphical on-line monitoring of application internal binary and analogue signals
- On-line monitoring of LED indications
- Filtering of parameters for different users
- Parameter Export / Import in XRIO format
- Full control of all parameter setting updates
- Documentation of configuration and settings
- Support for IEC and ANSI units and symbols
- Forced control of binary outputs (availability depends on the capability of IED)

### Communication

- Fast and reliable TCP/IP communication
- Remote connection
  - via LAN/WAN (Ethernet)
  - via dial-up modem; direct (SPA communication within a substation)
- FTP file transfer via LAN/WAN (Ethernet)

### Supported protection and control products

- Relion family: 670, 650, 630, 615 and 610 series
- REX 521 and RE\_54\_ series
- Selected SPACOM relays

### Supported operating systems

- Microsoft Windows 2000 SP4
- Microsoft XP Professional Edition, service pack 2 or later
- Microsoft Windows 7
- Microsoft Windows Vista

### Hardware requirements, minimum/recommended

- Processor: Pentium 900Mhz / Pentium 2 GHz
- Physical RAM Memory: 1GB / 3GB
- Free Hard disk space: 1GB / 4GB
- Monitor: 1024 x 768 / 1280 x 1024
- Communication: Ethernet port
- 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

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