COM600 Station Automation Series
COM605, COM615 HMI 3.2

Configuration manual

Contents:

1. About this manual

1.1. Copyrights

1.2. Trademarks

1.3. General

This manual provides thorough information on the COM600 HMI and the central concepts related to it. For more information on each topic related to a specific protocol, refer to the list of related documents in 1.8, Related documents.

Information in this user's guide is intended for application engineers who install the servers and clients needed to configure the different components. As a prerequisite, you should have basic knowledge of client and server architectures in general. Note that the protocol specific server and client user's guides contain more detailed information and should be used to complement this manual.

1.4. Document conventions

The following conventions are used for the presentation of material:

- The words in names of screen elements (for example, the title in the title bar of a window, the label for a field of a dialog box) are initially capitalized.
- Capital letters are used for the name of a keyboard key if it is labeled on the keyboard. For example, press the ENTER key.
- Lowercase letters are used for the name of a keyboard key that is not labeled on the keyboard. For example, the space bar, comma key, and so on.
- Press CTRL+C indicates that you must hold down the CTRL key while pressing the C key (to copy a selected object in this case).
- Press ESC E C indicates that you press and release each key in sequence (to copy a selected object in this case).
- The names of push and toggle buttons are boldfaced. For example, click **OK**.
- The names of menus and menu items are boldfaced. For example, the **File** menu.
  - The following convention is used for menu operations: **MenuName** > **MenuItem** > **CascadedMenuItem**. For example: select **File** > **New** > **Type**.
  - The **Start** menu name always refers to the **Start** menu on the Windows taskbar.
- System prompts/messages and user responses/input are shown in the Courier font. For example, if you enter a value out of range, the following message is displayed:

```
Entered value is not valid. The value must be 0 to 30.
```

- You may be told to enter the string MIF349 in a field. The string is shown as follows in the procedure:

  MIF349
- Variables are shown using lowercase letters:

  sequence name

1.5. Use of symbols

This publication includes warning, caution, and information icons that point out safety related conditions or other important information. It also includes tip icons to point out useful information to the reader. The corresponding icons should be interpreted as follows.

The electrical warning icon indicates the presence of a hazard which could result in electrical shock.

The warning icon indicates the presence of a hazard which could result in personal injury.

The caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment or property.

The information icon alerts the reader to relevant facts and conditions.

The tip icon indicates advice on, for example, how to design your project or how to use a certain function.

1.6. Terminology

The following is a list of terms associated with the COM600 HMI that you should be familiar with. The list contains terms that are unique to ABB or have a usage or definition that is different from standard industry usage.

Term	Description
Alarm	An abnormal state of a condition.
Alarms and Events; AE	An OPC service for providing information about alarms and events to OPC clients.
Data Access; DA	An OPC service for providing information about process data to OPC clients.
Data Object; DO	Part of a logical node object representing specific information, e.g., status or measurement. From an object-oriented point of view a data object is an instance of a class data object. DOs are normally used as transaction objects; i.e., they are data structures.
Data Set	The data set is the content basis for reporting and logging. The data set contains references to the data and data attribute values.
Device	A physical device that behaves as its own communication node in the network, e.g. protection relay.
Event	Change of process data or an OPC internal value. Normally, an event consists of value, quality and timestamp.
Intelligent Electronic Device	A physical IEC 61850 device that behaves as its own communication node in the IEC 61850 protocol.
Logical Device; LD	Representation of a group of functions. Each function is defined as a logical node. A physical device consists of one or several LDs.

Term	Description
Logical Node; LN	The smallest part of a function that exchanges data. A LN is an object defined by its data and methods.
LON	A communication protocol developed by Echelon.
LON Application Guideline for substation automation; LAG	A proprietary method of ABB on top of the standard LON protocol.
OPC	Series of standards specifications aiming at open connectivity in industrial automation and the enterprise systems that support industry.
OPC item	Representation of a connection to the data source within the OPC server. An OPC item is identified by a string <object path>:<property name>. Associated with each OPC item are Value, Quality and Time Stamp.
Property	Named data item.
Report Control Block	The report control block controls the reporting processes for event data as they occur. The reporting process continues as long as the communication is available.
SPA	ABB proprietary communication protocol used in substation automation.
SPA device	Protection and/or Control Product supporting the SPA protocol version 2.5 or earlier.
Substation Configuration Language; SCL	XML-based description language for configurations of electrical substation IEDs. Defined in IEC 61850 standard.

1.7. Abbreviations

The following is a list of abbreviations associated with the COM600 HMI that you should be familiar with. See also 1.6, Terminology.

Abbreviation	Description
AE	Alarms and Events
ASDU	Application Service Data Unit
BRCB	Buffered Report Control Block
CET	Communication Engineering Tool
DA	Data Access
DMCD	Data Message Code Definition
DO	Data Object
GW	Gateway, component connecting two communication networks together
HMI	Human Machine Interface
IEC	International Electrotechnical Commission

Abbreviation	Description
IED	Intelligent Electronic Device
LAG	LON Application Guideline for substation automation
LAN	Local Area Network
LD	Logical Device
LMK	LonMark interoperable device communicating in LonWorks network. In this document the term is used for devices that do not support the ABB LON/LAG communication.
LN	Logical Node
LSG	LON SPA Gateway
NCC	Network Control Center
NV	Network Variable
OLE	Object Linking and Embedding
OPC	OLE for Process Control
P&C	Protection & Control
RTS	Request To Send
SA	Substation Automation
SCL	Substation Configuration Language
SLD	Single Line Diagram
SNTP	Simple Network Time Protocol
SOAP	Simple Object Access Protocol
RCB	Report Control Block
URCB	Unbuffered Report Control Block
XML	eXtended Markup Language

1.8. Related documents

Name of the manual	MRS number
COM600 User’s Guide	1MRS756125
DNP LAN/WAN Master (OPC)	1MRS756566
DNP Serial Master (OPC)	1MRS756567
DNP LAN/WAN Slave (OPC)	1MRS755496
DNP Serial Slave (OPC)	1MRS755495
External OPC Client Access	1MRS755564
IEC 60870-5-101 Slave (OPC)	1MRS755382

Name of the manual	MRS number
IEC 60870-5-103 Master (OPC)	1MRS752278
IEC 60870-5-104 Slave (OPC)	1MRS755384
IEC 61850 Master (OPC)	1MRS755321
LON-LAG Master (OPC)	1MRS755284
MNS *i*S Connectivity (OPC)	1MRS756569
Modbus Serial Master (OPC)	1MRS756126
Modbus TCP Master (OPC)	1MRS756445
SPA Master (OPC)	1MRS752275
SPA Router (OPC)	1MRS755497

1.9. Document revisions

Document version/date	Product revision	History
A/16.10.2006	3.0	Document created
B/22.1.2007	3.0	Document revised
C/8.6.2007	3.0	Document revised
D/21.12.2007	3.1	Document revised
E/17.06.2008	3.2	Document revised

2. Introduction

2.1. Product overview

Human Machine Interface (HMI) is a browser-based user interface that makes it possible for the operator to access the COM600 computer both locally and remotely through a built-in web server.

COM605 and COM615 use an embedded operating system and run in a dedicated industrial computer without moving parts.

The products are configured using a separate engineering PC that is connected via the local area network (LAN). For more information, refer to COM600 User's Guide.

2.2. Predefined user account

HMI has a predefined user account with administrator rights.

- User name: admin
- Password: adminadmin

When you log in for the first time as an administrator, you have to change the password before you can proceed using HMI. If you forget the new password, restore the factory settings with the Management tool in CET. After the factory settings have been restored, you can only log in with the predefined administrator password mentioned above.

3. Configuration

3.1. About this section

This section describes the configuration tasks for HMI.

3.2. Prerequisites

Before you start configuring the HMI, you should pay attention to the following:
1. Prepare the communication structure as instructed in the COM600 User's Guide.
2. Make sure that you have the necessary connectivity packages or SCL description files that can help you in the configuration process.
3. Outline the Single Line Diagram structure you want to create for your system.

Use the Management function to update the COM600 communication configuration at least once before you start the substation configuration. If you do not update the configuration, the statuses of objects in HMI Single Line Diagram can be bad or uncertain.

To fix the statuses of objects in Single Line Diagram:
1. Save the substation configuration.
2. Update the COM600 configuration with the Management function by changing any property in SLD Editor and by clicking **Apply**.
3. Update the COM600 configuration again using with the Management function.

3.3. Creating substation structure and communication structure

3.3.1. Creating substation and communication structures with SCL descriptions or connectivity packages

To create the substation and communication structures with SCL descriptions or connectivity packages:
1. Create Substation and Voltage level objects to the substation structure.
2. Create the OPC Server and communication channel objects to the communication structure.
3. Create the IED object below the communication channel and use either the connectivity package or IED SCL description file to automatically populate the structure below the IED. The substation structure is automatically populated with primary apparatus objects described in the connectivity package or SCL descriptions. You may be prompted to give some information to guide the process, for example choose a voltage level or give a bay name.
4. Repeat step 3 for each IED.

5. Fine tune the SLD layout (assign colors, specify incoming/outgoing feeders and so on) by modifying or adding objects. Additionally you might need to create busbar connections, see 3.3.2, Creating substation structure manually .
6. Download the configuration to the COM600 computer.

3.3.2. Creating substation structure manually

The following is an overview of creating a substation structure manually. For a more detailed description, see 3.3.3, Adding Gateway object, 3.3.4, Adding Substation, 3.3.5, Adding voltage level object, 3.3.6, Adding bay object and 3.3.7, Adding busbar object.

Before you can create a substation structure, you have to create a communication structure with OPC Server and communication channel objects, IEDs, Logical Devices, Logical Nodes and Data objects.

To create the substation structure manually:
1. Create Gateway, Substation and Voltage level objects to the substation structure.
2. Add bays and busbars, and design their layout using the SLD Editor. Connect your substation structure objects to communication structure (logical nodes) using the data connection function, see 3.5.1, General about Data connection .

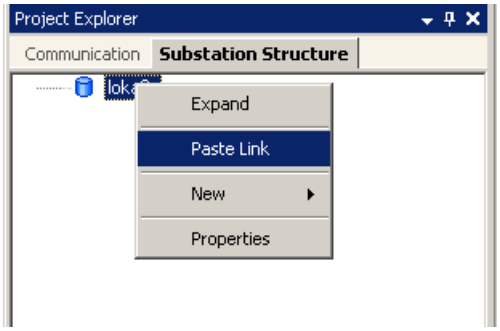
If the configurations of the bays are similar, you can copy the bay object and the data it contains. This way you do not have to add each bay separately to the substation structure.

3. Design your voltage level layout by connecting busbars and bays and relocating them with the SLD Editor. Open the SLD Editor by right-clicking the voltage level object.
4. Design your substation layout by connecting possible transformer windings between voltage levels. Relocate voltage levels with the SLD Editor. Open the SLD Editor by right-clicking the substation.
5. Fine tune SLD settings, for example fonts and colors, see 3.5.2, Settings .

3.3.3. Adding Gateway object

To link the Gateway object to the substation structure:
1. Select the Gateway object in the Communication structure.
2. Copy the Gateway object by selecting **Edit > Copy** or by right-clicking the object and selecting **Copy**.
3. Open the Substation structure.
4. Select the project name and right-click it.

5. Select **Paste Link**, see Figure 3.3.3-1.
6. Modify the Gateway properties if necessary.



linkGW.bmp

Figure 3.3.3-1 Linking a Gateway object

The object properties for the Gateway are presented in Table 3.3.3-1.

Table 3.3.3-1 Object properties for Gateway

Property/Parameter	Vale or Value range/Default	Description
Basic		
Audio Alarm Browser Enabled	True False Default: True	
Audio Alarm Local Enabled	True False Default: True	
Opc Server Tree Delimiter	\	
Watch Dog Enabled	True False Default: True	
DCOM		
IP		Node name for gateway

3.3.4. Adding Substation

After the Gateway object has been successfully added, you can continue building the object tree by adding substation objects.

To add a substation object:
1. Select the Gateway object and right-click it.
2. Add a substation object by selecting **New > Functional > Substation**.
3. Rename the new object. Note that the names of the substation objects have to be unique.
4. Modify substation properties if necessary.

You can define only one substation per project.

3.3.5. Adding voltage level object

After the substation object has been successfully added, you can continue building the object tree by adding voltage level objects.

To add a voltage level object:
1. Select the substation object and right-click it.
2. Add a voltage level object by selecting **New > Functional > Voltage Level**.
3. Rename the new object. Note that the names of the voltage level objects have to be unique.
4. Modify voltage level properties if necessary.

The object properties for voltage level are presented in Table 3.3.5-1.

Table 3.3.5-1 Object properties for voltage level

Property/Para-meter	Vale or Value range/Default	Description
Basic		
Voltage	20	Nominal voltage

3.3.6. Adding bay object

After the voltage level object has been successfully added, you can continue building the object tree by adding bay objects.

To add a bay object:
1. Select the voltage level object and right-click it.
2. Add a bay object by selecting **New > Functional > Bay**.
3. Rename the new object. Note that the names of the busbar objects have to be unique.
4. Modify bay properties if necessary.
5. Design the bay layout using SLD editor, see 3.4.1, Using the SLD Editor.
6. Use the data connection function, see 3.5.1, General about Data connection.

3.3.7. Adding busbar object

After the voltage level object has been successfully added, you can continue building the object tree by adding busbar objects.

To add a busbar object:
1. Select the voltage level object and right-click it.
2. Add a busbar object by selecting **New** > **Functional** > **BusBar**.
3. Rename the new object. Note that the names of the busbar objects have to be unique.
4. Modify busbar properties if necessary.
5. Design the busbar layout using SLD editor, see 3.4.1, Using the SLD Editor.

3.4. Single Line Diagram

3.4.1. Using the SLD Editor

You can open the SLD Editor by selecting substation, voltage level, bus or bay object and right-clicking them and by selecting SLD Editor from the menu. The higher level contains the layout of the lower levels.

With the SLD Editor you can add objects to the Single Line Diagram, modify existing objects, and specify electrical connections. You can also fine-tune the diagram's layout and add and modify descriptive texts. You can drag and drop symbols needed in the SLD from the symbol library.

To open the SLD Editor Tool:
1. Click the Substation structure tab.
2. Select the Bay or the Busbar object.
3. Right-click on the Bay or the Busbar object and select **SLD Editor**.
   or
   From the main toolbar, select **Tools** > **SLD Editor**.

Creating a diagram with the SLD Editor

To create a diagram with the SLD Editor:
1. In the Symbols view, click the tabs to view the different sets of symbols, see Figure 3.4.1-1.
2. Click on a symbol you want to use and drag it with the mouse to the Single Line Diagram view.
3. Place Connectivity Nodes between switches and transformers that will be connected.
4. Select the Direct Link tool from the SLD toolbar and link the symbols together by clicking first the start and then the end point of a connection.

Symbols can be graphically grouped together by drawing a rectangle border around them by selecting the **Rectangle** button. This feature is only a visual aid and does not affect the functionality of the SLD.

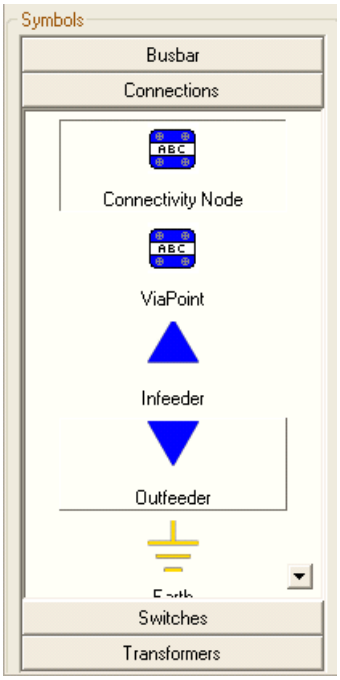


Figure 3.4.1-1 SLD symbols

Bay SLD

To create a bay SLD:

1. Add primary objects (Switchgear objects, measurement transformers and power transformers).
2. Rename the primary object using the name property in the property grid. This name will be used in HMI for the object.
3. Add primary Connection objects (e.g. feeders, earth symbols).
4. Add Connectivity Nodes.
   - Switchgears are connected to each other with a connectivity node.
   - Feeder objects are connected to switchgear objects with a connectivity node.
   - Transformer objects are connected to switchgear objects with a connectivity node.

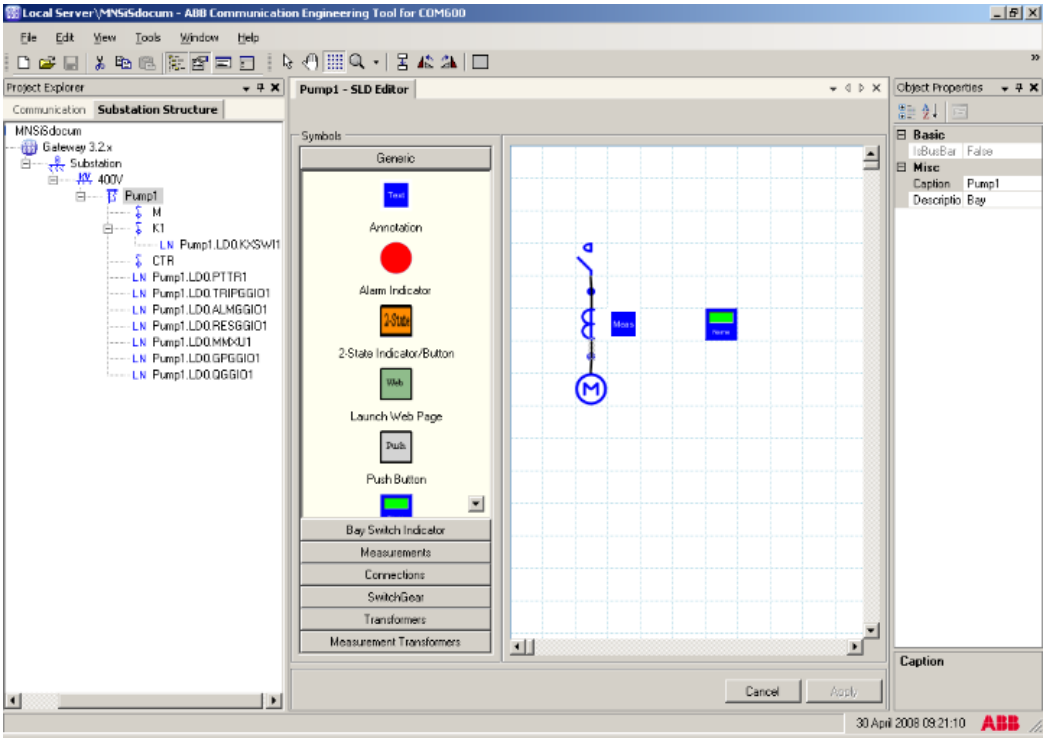
No connectivity nodes should be added for the connection between the busbar and the bay switchgears.

No connectivity nodes should be added between the earth symbol and the switchgear object (disconnector).

A connectivity node for connecting Power transformer to another bay should be created in the target bay (not in the bay where the power transformer is located).

5. Add Via points, if you want the line to follow a certain route.
6. Connect objects
   - Activate the Direct Link tool from the tool bar.
   - Link two objects together by selecting their link points.

   Additionally you can add a Bay Switch indicator, annotations and measurement text boxes.



Bay_SLD_32.png

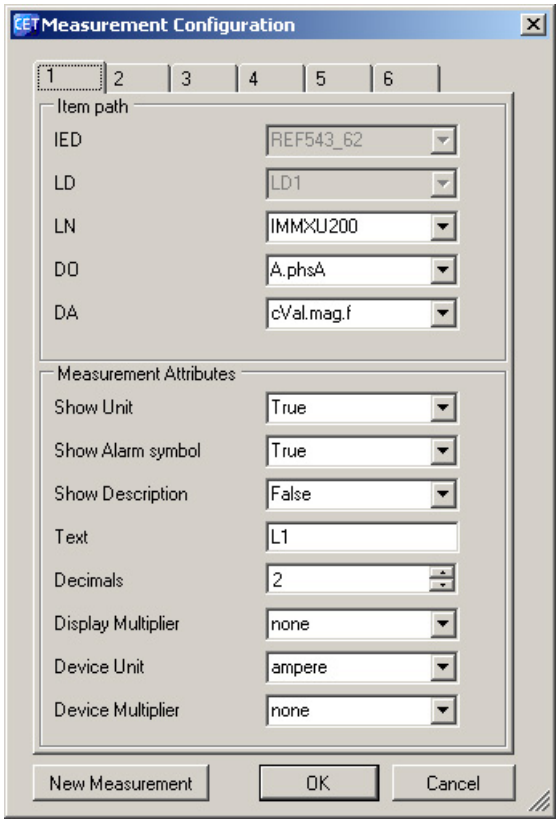
Figure 3.4.1-2 The Bay SLD view

Measurement text box configuration

To be able to configure the Measurement text box, you need to use the Data Connect function to connect the measurement logical nodes from the communication structure to the bay.

To configure the Measurement text box:
1. Right-click the object and select Configure Measurement function from the menu.
2. Using the configuration dialog, select the measurements to be shown in HMI.

If the IED does not provide a unit for the measurement, it is possible to specify the unit here.



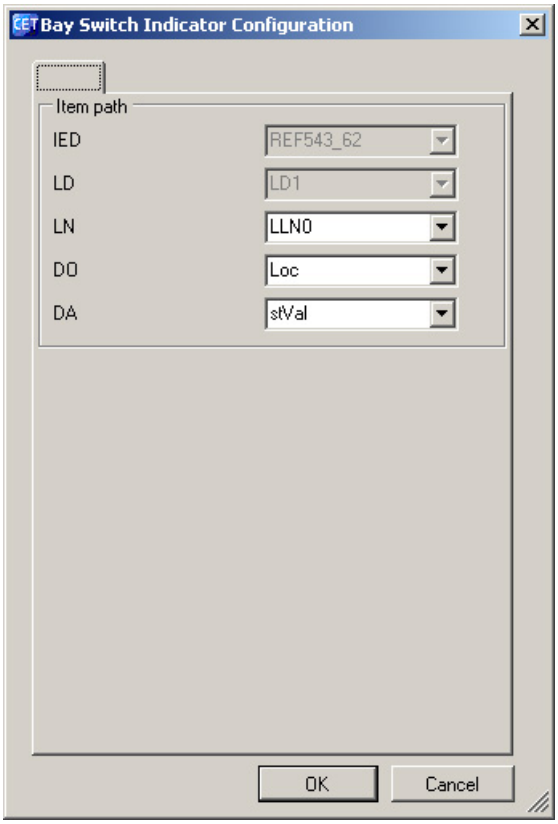
Measurement_configuration.jpg

Figure 3.4.1-3 The Measurement Configuration dialog

Bay Switch Indicator configuration

To be able to configure the Bay Switch Indicator, you need to use the Data Connect function to connect the logical node containing the Loc information (LLN0) from the communication structure to the bay.

To configure the Bay Switch Indicator:
1. Right-click the object and select **Configure Bay Switch Indicator** from the menu.
2. Using the configuration dialog, select the source for the local remote switch indication (for example LLN0.Loc.stVal) to be used in HMI.



Bay_Switch_indicator_configuration.jpg

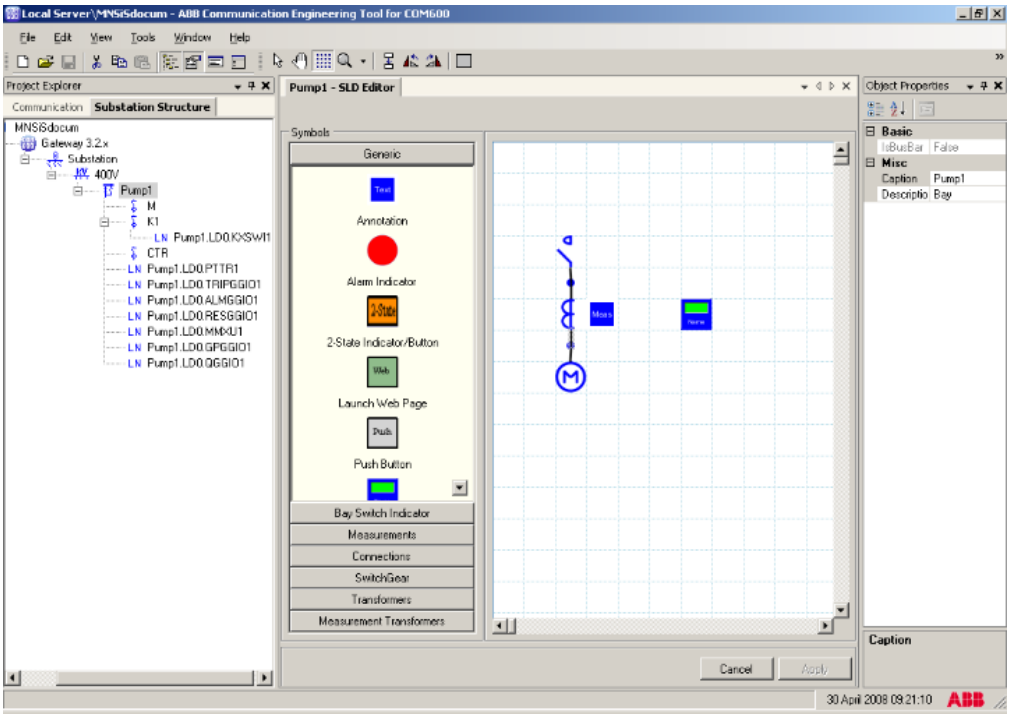
Figure 3.4.1-4 The Bay Switch Indicator configuration dialog

Busbar SLD

To create a busbar SLD:
1. Add Busbar start and end objects (only one start and end point is allowed).

2. Add a Connectivity Node (one connectivity node is enough to connect all bays to this busbar).
3. Connect the objects.
   - Activate the Direct Link tool from the tool bar.
   - Two objects linked together by selecting their link points.

You can adjust the size of busbar in the bay and voltage level views as well as the busbar view. You can also add annotations.



Bay_SLD_32.png

Figure 3.4.1-5 The Busbar SLD view

Busbar Coloring

Busbar Coloring is automatically configured when the SLD is drawn. Connecting switchgear objects together specifies their electrical connections, which is used during runtime to calculate the proper coloring. **Settings** tool in the substation gateway object has tab page for the Busbar coloring, where, for example, the used colors can be modified. The value of the voltage property on the voltage level object is used for the voltage level based busbar coloring mode.

Voltage level SLD

To create a voltage level SLD:

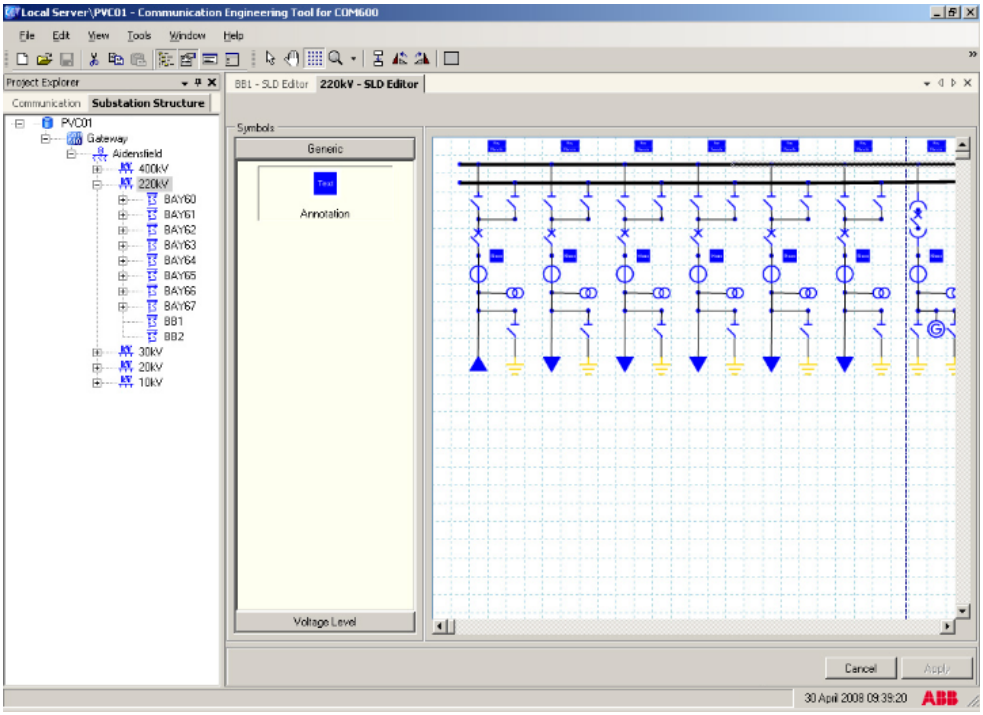
1. Drag the bays to correct locations in the SLD (name of the selected bay can be seen in the property grid).

2. Connect bays to busbars. Select a bay, right-click it and select **Connect to a Busbar** from the menu.
3. In the configuration dialog, select the corresponding switchgear and the busbar object to connect them.

Although the SLD Editor shows the lines between the bays and the busbar connected to the same point in the busbar, they will be drawn to separate locations in HMI.

4. If you want to fine tune the SLD Editor layout for the connection lines, you can add a StopAt object from menu of the line. Move the SoptAt point to the correct location in the busbar.

You can also add annotations.



Voltage_level_SLD_32.png

Figure 3.4.1-6 The voltage level SLD view

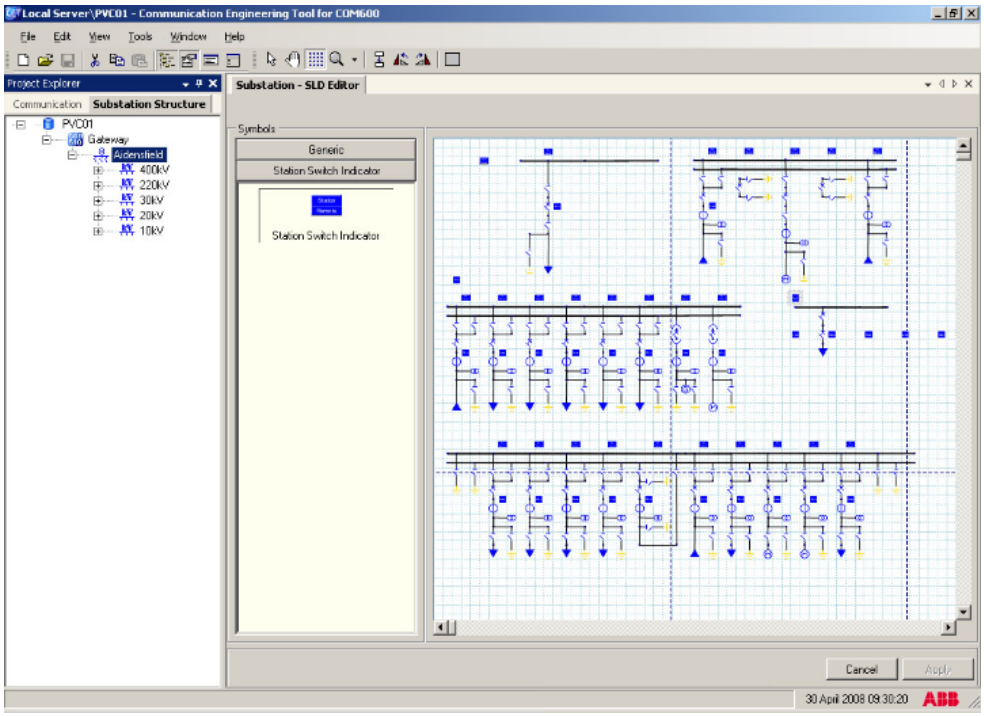
Substation SLD

To create a substation SLD:

1. If you have more than one voltage level object, drag the objects to correct locations in the SLD.
2. Voltage levels are connected to each other via a power transformer. Select a voltage level containing the transformer, right-click it and select **Connect Winding** to a bay function from the menu.

3. Using the configuration dialog, you can select winding and the target bay/connectivity node.
4. Add Station switch indicator (local/remote) Configuration.

To configure the Station Switch Indicator, use the Data Connect function to connect the logical node containing the information (SPS CDC) from the communication structure to the substation.



SLD_Editor_Tool_32.png

Figure 3.4.1-7 Substation SLD view

3.5. Data connection

3.5.1. General about Data connection

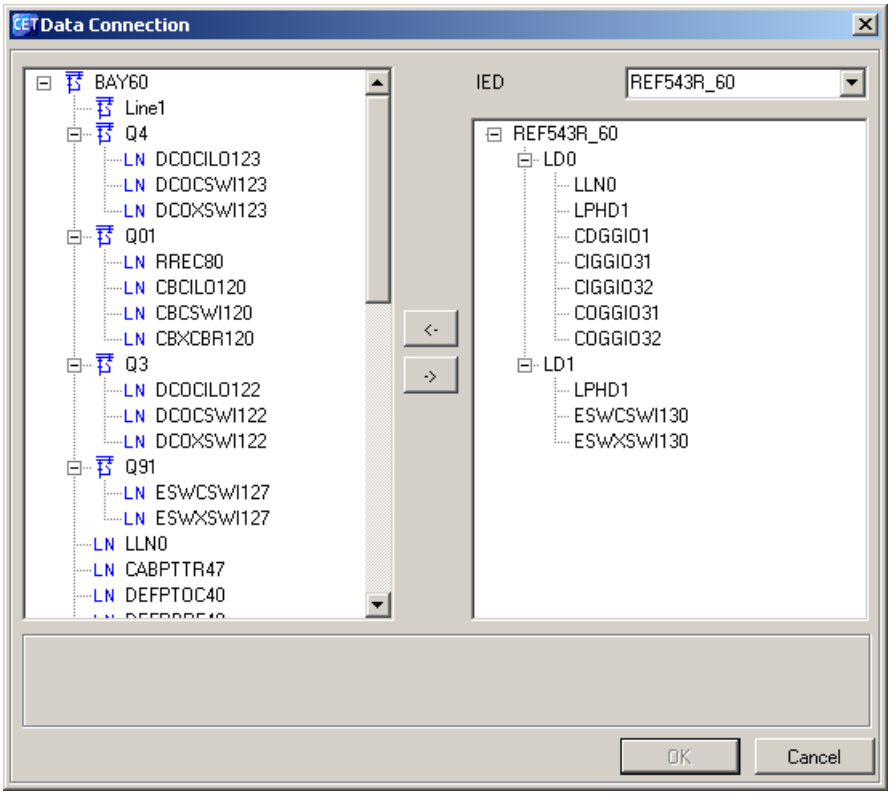
The Data Connection function is used to connect the substation structure objects to the communication structure. Process data values based on the communication structure objects are used to update the symbol states in HMI. It is also used to get object descriptions based on the substation structure names to the alarm and event lists.

Any data object that has event class defined in the communication structure, should be linked to the substation structure to get the proper description to the alarm and event.

Before you can use the Data connection function, you have to create the communication structure, see 3.3.1, Creating substation and communication structures with SCL descriptions or connectivity packages. Then you have to link the symbols together in the SLD Editor Tool, see 3.4.1, Using the SLD Editor.

To connect the substation structure objects to the communication structure:

1. In the Substation structure select a Substation, Bay or Voltage level object and right-click it. Select **Data Connection** to open the Data connection function.
   The objects linked together in the Single Line Diagram are presented on the left side of the Data connection window. The logical nodes that can be attached to the objects are presented on the right side of the Data connection window.
2. Click on an equipment on the left side of the Data connection window. The logical nodes are listed in the structure on the right side of the window.
3. Double-click the logical node to attach/detach it to the correct equipment/object.
4. Click **Apply** to save the changes.



Data_connection.jpg

Figure 3.5.1-1 The Data connection window

3.5.2. Settings

You can define SLD settings in the **Settings** dialog. To open the **Settings** dialog, right-click the **Gateway** object and select **Settings**.

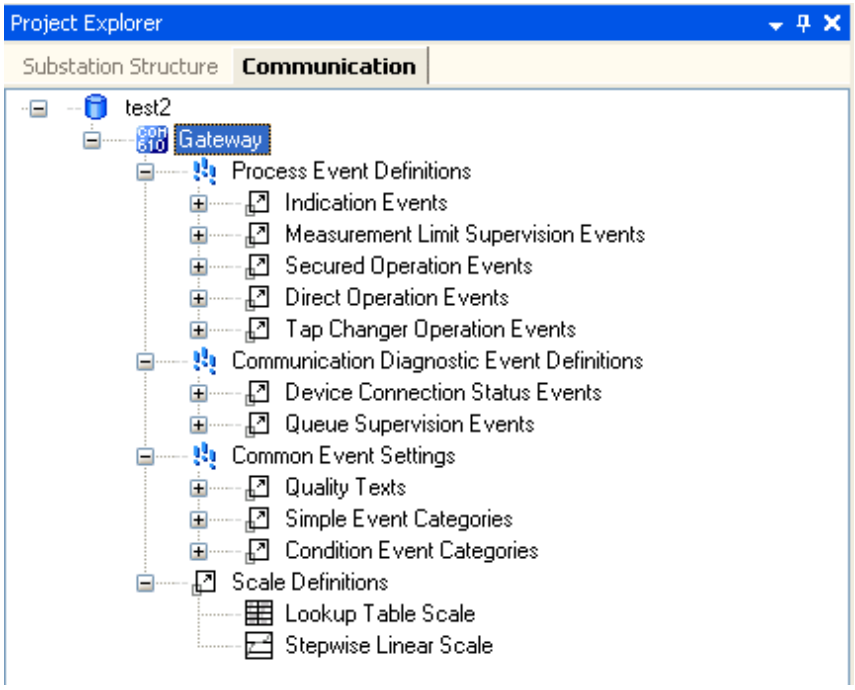
The Settings dialog contains the following tabs:
- **Generic**: You can define general settings, for example the symbol set (ANSI or IEC) and element size.
- **Alarm Settings**: You can define color settings and appearance for the alarms.
- **Measurement Status**: You can define color settings for different alarm levels.
- **Default Colors**: You can modify the default colors of devices.
- **Fonts**: You can modify the font definitions.
- **Measurement Precisions**: You can adjust the precision settings of the measurements.
- **Bus Bar Settings**: You can define busbar colors and busbar settings.

3.6. Alarm and event handling

3.6.1. General about alarm and event objects

Alarm and event objects define the types of events and alarms that are generated and the alarm and event messages displayed in HMI. It is possible to modify existing alarm and event objects (see 3.6.2, Modifying existing alarm and event objects) and to create new objects (see 3.6.3, Creating new alarm and event objects).

The communication structure contains the following event groups:
- Process Event Definitions
- Communication Diagnostic Event Definitions
- Common Event Settings
- Scale Definitions



event_classes.png

Figure 3.6.1-1 Event groups

3.6.2. Modifying existing alarm and event objects

To modify existing alarm and event objects:

1. Select the event class in the communication tree structure.
2. Select the desired event object from the list.
3. Right-click the event object and select **Properties**.
4. Make the necessary modifications to the event object in the **Object Properties** window.

3.6.3. Creating new alarm and event objects

To create new alarm and event objects:

1. Select the event class group in the communication structure and right-click it.
2. Select **New > Event Classes**.
3. Select the desired event class type from the list. The new object is added to the communication structure. Rename the object.
4. Right-click the event object and select **Properties**.
5. Make the necessary modifications to the event object in the **Object Properties** window.

3.6.4. Creating and modifying links between alarm or event objects and data objects

You can modify links between alarm or event objects and data objects by creating new event class objects or by modifying the existing event class objects. You can also delete and create new links.

Data objects are linked to event classes by selecting the used event class from the properties of the data object. Depending on the data class, the object may have an event class property both for indication and control events or only one of them. These properties define the event classes that will be used with the data object.

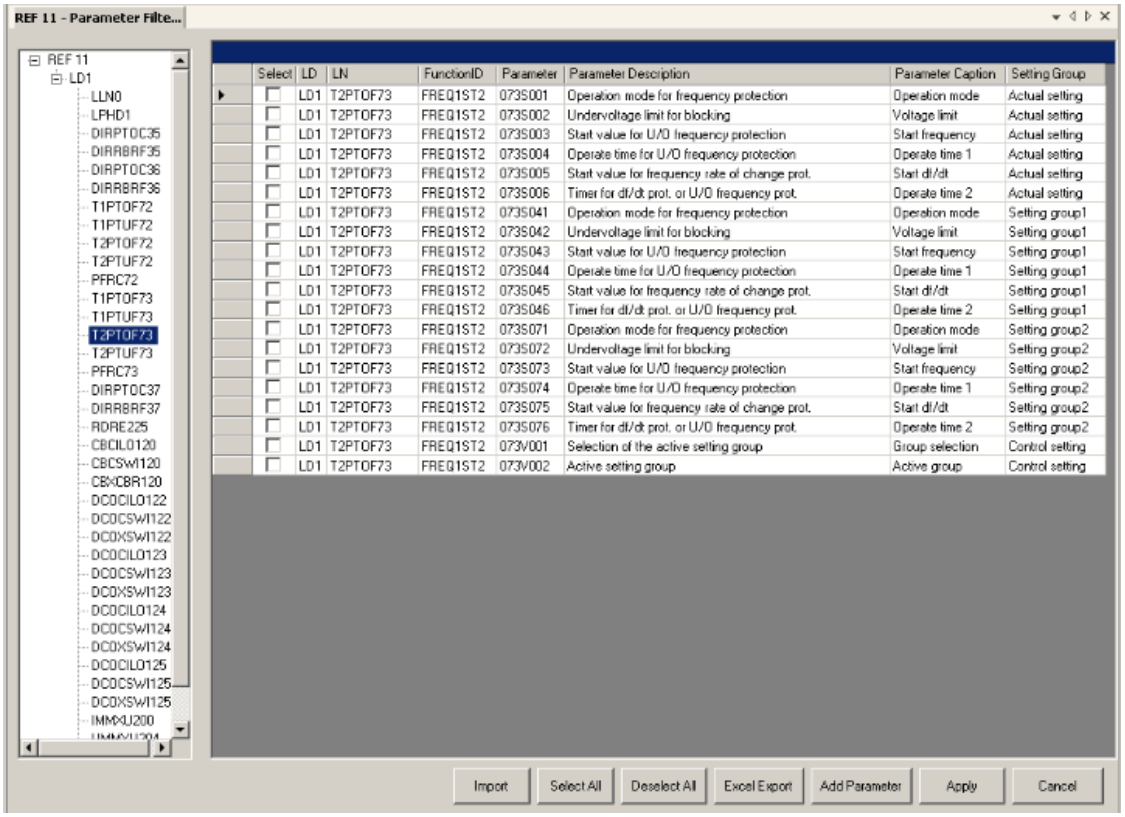
3.7. Customizing IED parameter settings

In order to have the parameters of an IED added automatically to the selections list, the connectivity package for the IED that supports the parameter information should be installed.

With the Parameter Selection tool of CET, you can select the parameters that are shown in the Parameter Setting view in HMI. This option helps you to create a user-friendly view for HMI.

Selecting parameters

To select parameters:
1. Click the Communication tab on the left.
2. Right-click the IED object and select **Parameter Filtering Tool**. A Parameter Filtering view opens. All the logical nodes the device contains are displayed on the left side of the Parameter Filtering view.
3. Click on a logical node to view all the possible parameters.
4. Select the check box of the parameters you want to be displayed in the Parameter Setting view of HMI, see Figure 3.7-1. To select all parameters, click **Select**. To clear all parameters, click **Deselect**.
5. Click **Apply** to save the selected parameters.



parameter_selection_tool.bmp

Figure 3.7-1 Parameter Selection Tool

Importing parameters

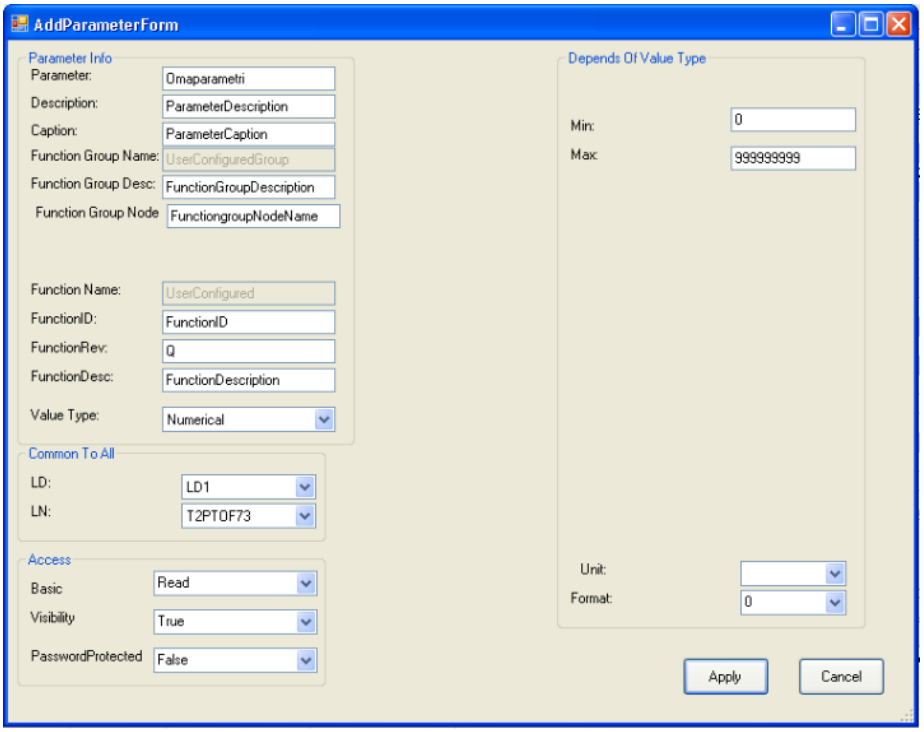
With this function it is possible to import an existing Parameter Filtering Tool configuration for example from another computer.

Adding new parameters

You can add a new parameter to the Parameter Filtering view.

To add a new parameter:

1. Click **Add Parameter** in the Parameter Filtering view. The **Add Parameter Form** window opens, see Figure 3.7-2.
   In the **Add Parameter Form** window you can fill in the information on the parameter you want to add or select a suitable option from a drop-down list.
2. After you have added all necessary information, click **Apply** to add the parameter to the Parameter Filtering view.



Add_parameter_form.bmp

Figure 3.7-2 The Add Parameter Form window

If a parameter row has been selected in the Parameter Filtering view, the **Add Parameter** button opens the selected parameter. The changes will be made to the selected parameter.

Exporting parameters

You can export the information of the selected parameters to an Excel file.

To export the parameter selection:
1. Select the parameters you want to export.
2. Click **Excel Export**. The **Excel Export File** window opens.
3. Select the folder where you want to export the file and click **Save**.

3.8. Disturbance data upload

The basic support for the disturbance data upload (data upload and conversion to COMTRADE format) will be implemented to each OPC Server. Protocol and device specific differences will be hidden from the OPC client. The files will be stored temporarily to the COM600 computer, where they can be transferred further using for example

ftp. COM615 will have a possibility to activate the disturbance data upload from the IED and to receive the file into the computer where HMI is run.

If the IED and the OPC server used for communication support disturbance data upload, the properties for configuring the function can be found from the corresponding OPC server user's manual, see 1.8, Related documents.

3.9. Project-specific localization

With CET you can modify the project specific texts that are displayed in HMI. Static HMI texts, for example menus and headers, can be translated by the local ABB. For more information on localization, contact your local ABB representative.

To localize objects in the substation structure or communication tree:
1. Select the object you want to modify.
2. Right-click the object and select **Rename**.
3. Modify the name of the object.

To localize object properties:
1. Select the object you want to modify in the Substation or Communication structure.
2. Right-click the object and select **Properties**. The **Object properties** window opens.
3. Modify the text properties of the object.

Appendix 1

Single Line Diagram symbols

Table A1-1 Single Line Diagram symbols

Description	ANSI representation	IEC representation	Remarks
Annotation			
Alarm Indicator			Alarm indicator in a branch of the substation. Use at any level in the structure to indicate alarms generally, or a specific alarm. The indicator is not visible in the web view when there are no active alarms.
Two State Switch			Binary indicator (on/off, automatic/manual, X/not-X, etc.). It can also be used to send a command.
Launch Web Page			Hyperlink to external information source, such as a web page or a local file on COM600. Files should be stored under C:\Program Files\COM610 GW SW\WebHMI\UserDocs\. The total size of the files should not exceed 100 MB. Link syntax for local files is: http://<COM600 IP address>/HMI/UserDocs/<filename>
Push Button			Use to send a single command to one target.
Application Launch			Use to launch an application external to COM600
Measurement Text Box			
ViaPoint			
Connectivity Node			

Description	ANSI representation	IEC representation	Remarks
Circuit breaker – Intermediate position			
Circuit breaker – Open position			
Circuit breaker – Closed position			
Circuit breaker – Bad (faulty) position			
Disconnector – Intermediate position			
Disconnector – Open position			
Disconnector – Closed position			
Disconnector – Bad (faulty) position			
Truck – Intermediate position			
Truck – Open position			
Truck – Closed position			
Truck – Bad (faulty) position			
Load breaker – Intermediate position	Use IEC representation		
Load breaker – Open position	Use IEC representation		
Load breaker – Closed position	Use IEC representation		
Load breaker – Bad (faulty) position	Use IEC representation		
Contactor – Intermediate position	Use IEC representation		
Contactor – Open position	Use IEC representation		

Description	ANSI representation	IEC representation	Remarks
Contactor – Closed position	Use IEC representation		
Contactor – Bad (faulty) position	Use IEC representation		
Power Transformer with two Windings and no Tap Changer			Primary winding: on top. Secondary winding: below. All composing elements exist as individual symbols.
Power Transformer with two Windings and Tap Changer			Primary winding: on top. Secondary winding: below. All composing elements exist as individual symbols.
Power Transformer with three Windings and no Tap Changer			Primary winding: on top. Secondary winding: below left. Tertiary winding: below right. All composing elements exist as individual symbols.
Power Transformer with three Windings and Tap Changer			Primary winding: on top. Secondary winding: below left. Tertiary winding: below right. All composing elements exist as individual symbols.
Voltage Transformer (measurement)			
Current Transformer (measurement)			
Capacitor			
Reactor			
Generator			
Motor			
In-feeder		Use ANSI representation	
Out-feeder		Use ANSI representation	
Earth symbol		Use ANSI representation	

Description	ANSI representation	IEC representation	Remarks
Bay Switch Indicator		Use ANSI representation	
Station Switch Indicator		Use ANSI representation	

Appendix 2

CET Toolbar

Symbol	Description
	Displays the Substation and Communication Structure in the Project Explorer window.
	Displays the Object Properties window.
	Displays the messages in the Output window.
	Displays a list of the object types.
	Selects an object in the SLD Editor window.
	Enables navigation of the SLD Editor window using a mouse.
	Displays a grid view in the SLD Editor window.
	Zooms in/out the SLD Editor window.
	Opens the direct link tool.
	Rotates the selected objects left in the SLD Editor window.
	Rotates the selected objects right in the SLD Editor window.
	Used to draw rectangles around grouped objects

Appendix 3

Logical nodes and primary objects

Logical nodes can be connected to primary objects according to the following table. If no specific function is written in the Comment column, the connection will be used for displaying the substation structure based on identification for the events and alarms.

Table A3-1 Locigal node classes and primary objects

Primary object	LN Class	Mandatory	Comment
Substation			
	LLN0		Loc data used for station/remote switch state
	SIMG		
	CALH		
	M*		
	G*		
	Q*		
Voltage Level			
	SIMG		
	CALH		
	M*		
	G*		
	Q*		
Bay			
	LLN0		Loc data used for bay local/remote switch state
	LPHD		
	SIMG		
	SARC		
	SIML		
	SPDC		
	CALH		
	M*		
	P*		
	R*		

Primary object	LN Class	Mandatory	Comment
	G*		
	T*		
	Q*		
Circuit Breaker (CBR)			
	XCBR		
	CSWI	Mandatory	Pos data used for switch device position and control.
	RREC		
	RSYN		Rel data used for synchronism-check status in control dialogs.
	CILO		EnaOpn and EnaCls data used for interlocking status in control dialogs.
	PTRC		
	SIML		
	CALH		
	G*		
Disconnector (DIS)			
	XSWI		
	CSWI	Mandatory	Pos data used for switch device position and control.
	RREC		
	RSYN		Rel data used for synchronism-check status in control dialogs.
	CILO		EnaOpn and EnaCls data used for interlocking status in control dialogs.
	PTRC		
	SIML		
	CALH		
	G*		
Voltage Transformer (VTR)			
	TVTR		

Primary object	LN Class	Mandatory	Comment
	CALH		
	G*		
Current Transformer (CTR)			
	TCTR		
	SARC SPDC CALH		
	G*		
	Q*		
Power Overhead Line (LIN)			
	ZLIN		
	CALH		
	G*		
Rotating Reactive Component (RRC)			
	ZRRC		
	CALH		
	G		
Surge Arrestor (SAR)			
	ZSAR		
	CALH		
	G		
Thyristor controlled frequency converter (TCF)			
	ZTCF		
	CALH		
	G		
Thyristor controlled reactive component (TCR)			
	ZTCR		
	CALH		
	G*		

Primary object	LN Class	Mandatory	Comment
Power Transformer Winding (PTW)			
	G*		
Incoming Feeder Line (IFL)			
	CALH		
	G*		
	Q*		

Index

A

B

C

D

E

G

L

M

O

P

S

V

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