

InteliConfig

PC Configuration and Monitoring Tool

SW version 1.0.0

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1 Document information

1.1 Document information

1.1.1 Document history

Number	Related SW version	Date
1	1.0.0	9.1.2018

1.2 Clarification of notation

Note: This type of paragraph calls readers attention to a notice or related theme.

IMPORTANT: This type of paragraph highlights a procedure, adjustment etc., which can cause a damage or improper function of the equipment if not performed correctly and may not be clear at first sight.

Example: This type of paragraph contains information that is used to illustrate how a specific function works.

1.3 About this guide

This manual contains important instructions for IntelliConfig PC monitoring and configuration tool. It provides general information how to:

- ▶ Instal IntelliConfig to user PC
- ▶ Connect to supported controllers
- ▶ Configure supported controllers
- ▶ Monitor and control supported controllers

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Warning: Some forms of technical support may be provided against payment. There is no legal or factual entitlement for technical services provided in connection to resolving problems arising from cyber-attack or other unauthorized accesses to ComAp's Products or Services.

General security recommendations and set of measures

1. AccessCode

- Change the AccessCode BEFORE the device is connected to a network.
- Use a secure AccessCode – ideally a random string of 8 characters containing lowercase, uppercase letters and digits.
- For each device use a different AccessCode.

2. Password

- Change the password BEFORE the device enters a regular operation.
- Do not leave displays or PC tools unattended if an user, especially administrator, is logged in.

3. Controller Web interface

- The controller web interface at port TCP/80 is based on http, not https, and thus it is intended to be used only in closed private network infrastructures.
- Avoid exposing the port TCP/80 to the public Internet.

4. MODBUS/TCP

- The MODBUS/TCP protocol (port TCP/502) is an instrumentation protocol designed to exchange data between locally connected devices like sensors, I/O modules, controllers etc. From it's nature it does not contain any kind of security – neither encryption nor authentication. Thus it is intended to be used only in closed private network infrastructures.
- Avoid exposing the port TCP/502 to the public Internet.

5. SNMP

- The SNMP protocol (port UDP/161) version 1,2 is not encrypted. Thus it is intended to be used only in closed private network infrastructures.
- Avoid exposing the port UDP/161 to the public Internet.

2 Getting started

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2.1 Welcome

Welcome to IntelliConfig from ComAp a.s.

IntelliConfig is an on-line/off-line monitoring and configuration tool for use with various ComAp controllers, **see Supported controllers on page 10.**

IntelliConfig runs on various versions of Microsoft® Windows™, **see Installing IntelliConfig on page 11.**

The main four chapters of this guide reflect the primary functions of IntelliConfig:

- ▶ **Communication links (page 13)** - making the connection to the controller.
- ▶ **Monitoring (page 21)** - viewing real-time operation and making setpoint adjustments.
- ▶ **Configuration window (page 30)** - making fundamental hardware, software settings, language changes and firmware upgrades

2.2 Help and Manuals

Within IntelliConfig you can access content Help and Manuals in several ways:

- ▶ Latest Manuals for IntelliConfig or **Supported controllers (page 10)** are available in main menu: click at **Home**, choose the bookmark of **Manuals** and pick the required manual from the list of supported controllers.

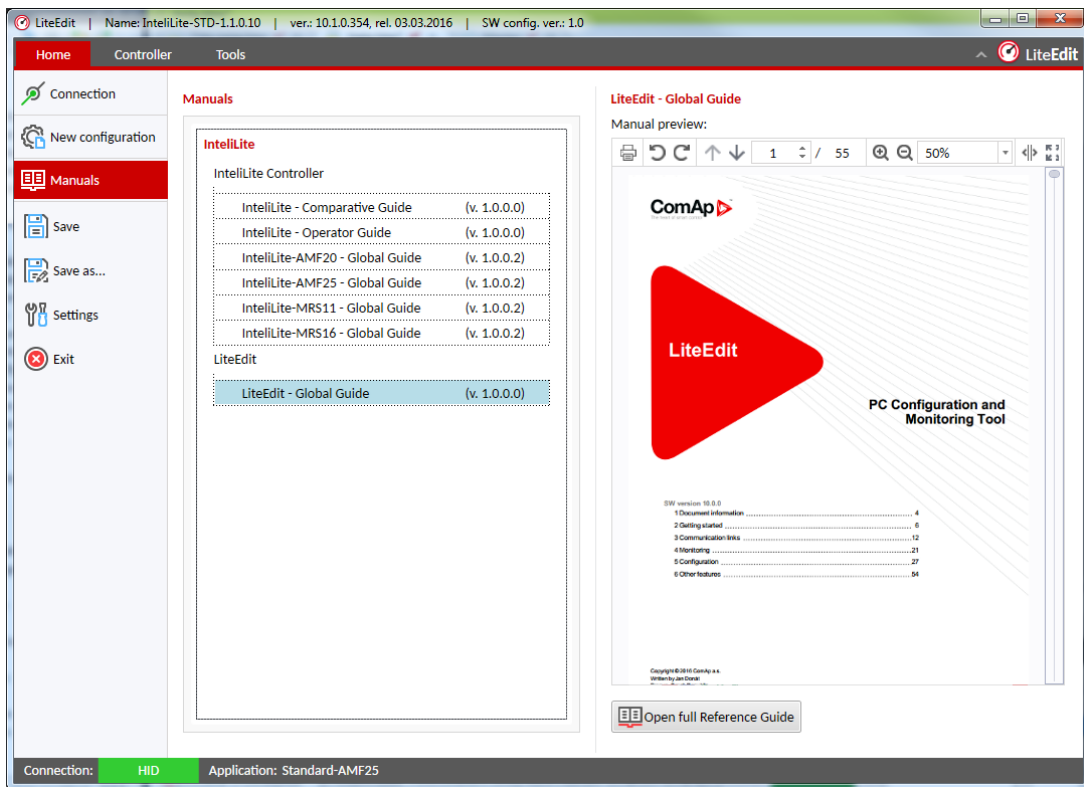









Image 2.1 Manuals in InteliConfig

Note: Chosen manual is automatically displayed in built-in PDF viewer. It is also possible to open the manual in your own PDF viewer in separated window by clicking at  **Open full Reference Guide**.

- ▶ For general information about the InteliConfig application itself, go to **Others** bookmark in ribbon and in the Help category click at
 -  **InteliConfig manual** icon for opening the latest manual in external PDF viewer
 -  **About** icon to open the About window containing basic information about InteliConfig version.
- ▶ For general information about the connected controller, go to **Others** bookmark in ribbon and in the Help category click at
 -  **Controller manual** icon for opening the latest relevant manual in external PDF viewer.
 -  **Controller help** icon for opening the relevant controller Help file.
 -  **Controller info** icon for opening the Controller info window containing information about the controller (Serial Number, Type of Application, version of HW and FW etc.).
- ▶ For further information about Setpoints, Values and Input/Output functions listings for the currently connected controller select the required Setpoint, Value or Input/Output within the InteliConfig  **Controller configuration** window:
 - Basic information will appear automatically in the right Info panel.
 - More detailed information can be shown by clicking at **Controller help** button in Info panel or just by pressing **F1** key on your keyboard.

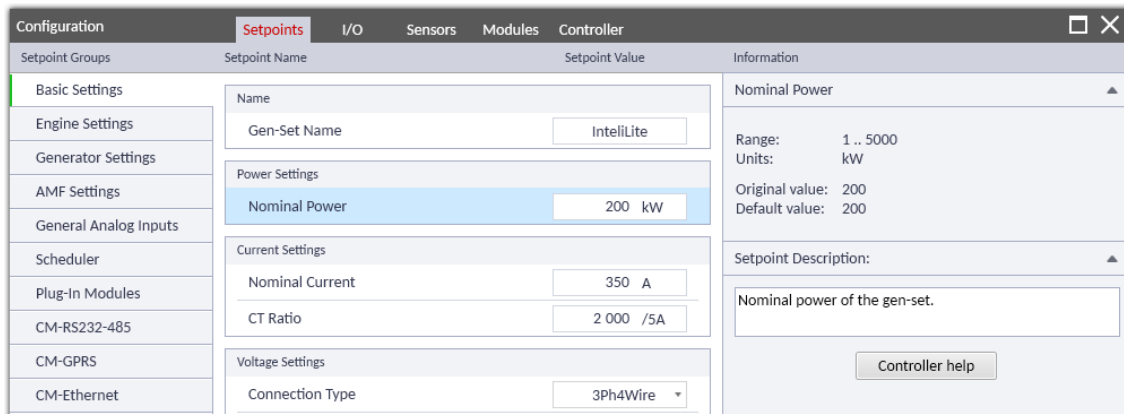




Image 2.2 Configuration of Setpoints with basic description in Info panel

2.3 Supported controllers

Intelliconfig can be used with the following controllers:

Supported controller	Description
IntelliLite AMF25	Advanced genset controller for single stand-by applications
IntelliLite AMF20	Standard genset controller for single stand-by applications
IntelliLite MRS16	Advanced genset controller for single prime move applications
IntelliLite MRS11	Standard genset controller for single prime move applications
IntelliGen 200 GC	New generation of Parallel Gen-set Controller

2.3.1 Supported communication modules

Module	Type	Order code	Description
CM-Ethernet	Plug-in	CM2ETHERXBX	Ethernet plug-in communication module for TCP/IP, TCP Modbus or SNMP connection. Support of  AirGate connection.
CM-GPRS	Plug-in	CM2GPRSXXBX	GSM/GPRS plug-in communication module for GPRS connection and SMS/E-Mail notification. Support of  AirGate connection.
CM-4G-GPS	Plug-in	CM14GGPSXBX	Combined module that offers fast speed 4G communication capability, including active SMS / Emails alerts and control. CM-4G-GPS also tracks GPS location.
CM-RS232-485	Plug-in	CM223248XBX	Serial link communication module with RS232 and RS485 for Direct, Modbus or ECU connection.

2.3.2 Supported extension modules

Module	Type	Order code	Description
EM-BIO8-EFCP	Plug-in	EM2BIO8EXBX	Combined extension plug-in module with 8 configurable terminals for binary inputs/outputs and CT input for Earth Fault Current Protection.

2.4 Installing IntelliConfig

2.4.1 Requirements

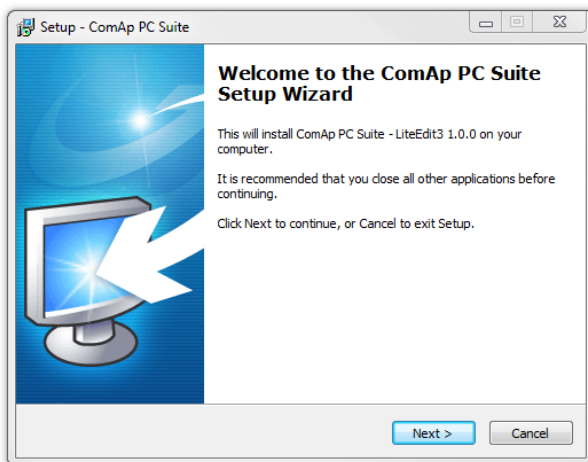
IntelliConfig can run on PCs equipped with any of the following versions of Microsoft® Windows™ and Microsoft® .NET Framework.

Operating System	Version of MS .NET Framework
Windows 7	recommended 4.7 or newer
Windows 8 and 8.1	recommended 4.7 or newer
Windows 10	4.7 or newer

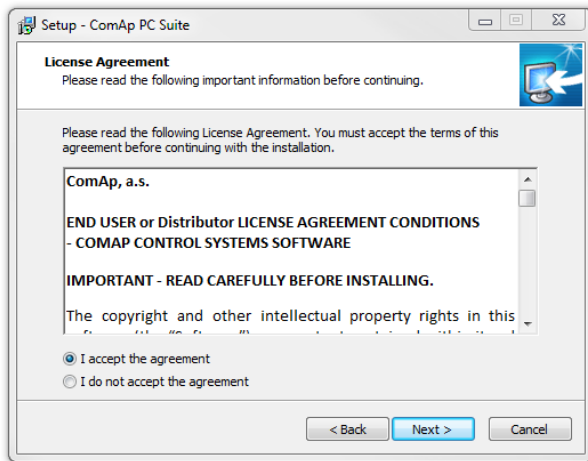
PC has to be equipped with USB 2.0 and other suitable communication interfaces (e.g. Internet connection), plus a minimum of 300 MB of free storage space.

2.4.2 Installation procedure

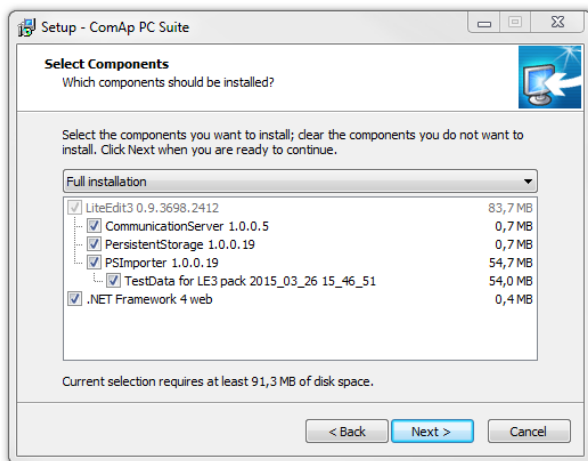
1. Download the ComAp PC Suite installation package from the ComAp website (www.comap.cz).
2. Execute the downloaded file and follow the on-screen instructions.



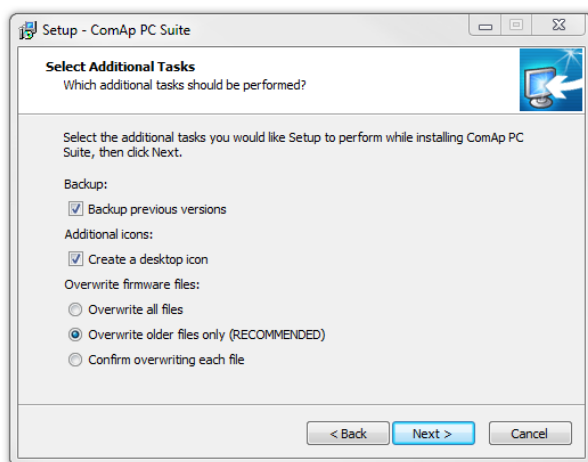
3. Read license agreement and accept them for continuing in installation.



4. Select components to install. It is recommended to use Full installation.



5. Select additional tasks before the installation. Click 2x to **Next** and **Install**.



Note: If your system already has IntelliConfig installed, the installation program will offer an upgrade (if your current version is older) or re-installation (if your current version is identical). If your current version is older, then it is recommended to perform the upgrade because the controller firmware that you are about to install may not be compatible with older IntelliConfig versions.

3 Communication links

- 3.1 Link types 13
- 3.2 AirGate 14
- 3.3 Direct connection 16
- 3.4 Detected controllers 17
- 3.5 Internet / Ethernet connection 18
- 3.6 Offline connection 19





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3.1 Link types

The following links can be used to connect IntelliConfig together with a supported controller:



3.1.1 Online connections

Online connection with the supported controller allowing configuration, parameter setting and on-line monitoring and control of the controlled device.

	AirGate - ComAp proprietary protocol connection, for more information see AirGate on page 14
	Internet / Ethernet - Internet or Ethernet connection, for more information see Internet / Ethernet connection on page 18
	Direct - Direct cable connection via RS232, RS485, for more information see Direct connection on page 16
	Detected controllers - Connection to automatically detected controllers via USB or Ethernet. For more information see Detected controllers on page 17




3.1.2 Offline connections





Offline connection allows to open the saved offline archive or prepare any configuration for the further usage.

	New configuration - Creating of new offline configuration, for more information see New Configuration on page 19
	Offline Archives - Open an archived configuration file, for more information see Offline archive on page 20



3.1.3 Connection in general

IntelliConfig can be connected with the supported controller via required link type from the **Home** overlay menu directly. Options are following:

1. To connect to the controller online use  **Connection** bookmark and in **Online Connection** tab you can:
 - a. Connect to the controller via  **AirGate**.
 - b. Connect to the controller via  **Internet / Ethernet** connection.

- c. Connect to the controller via  **Direct** connection.
 - d. Connect to the **Detected controller** via  USB or  LAN.
2. To create new configuration of the selected controller use  **New configuration** bookmark and here you can:
 - a. Create new configuration based on imported default archive in **Default** tab.
 - b. Create new configuration based on your previously created archive in **My configurations** tab.

Note: In the case there is imported any beta version of the controller firmware including its default beta archives, these archives appears in special **Beta versions** tab.

3. To open offline archived configuration use  **Connection** bookmark and in **Offline Archives** tab you can:
 - a.  **Open archive** from selected place in your PC.
 - b. Choose from **Recent archives**.
 - c. Find the archive in **Recent used places**.

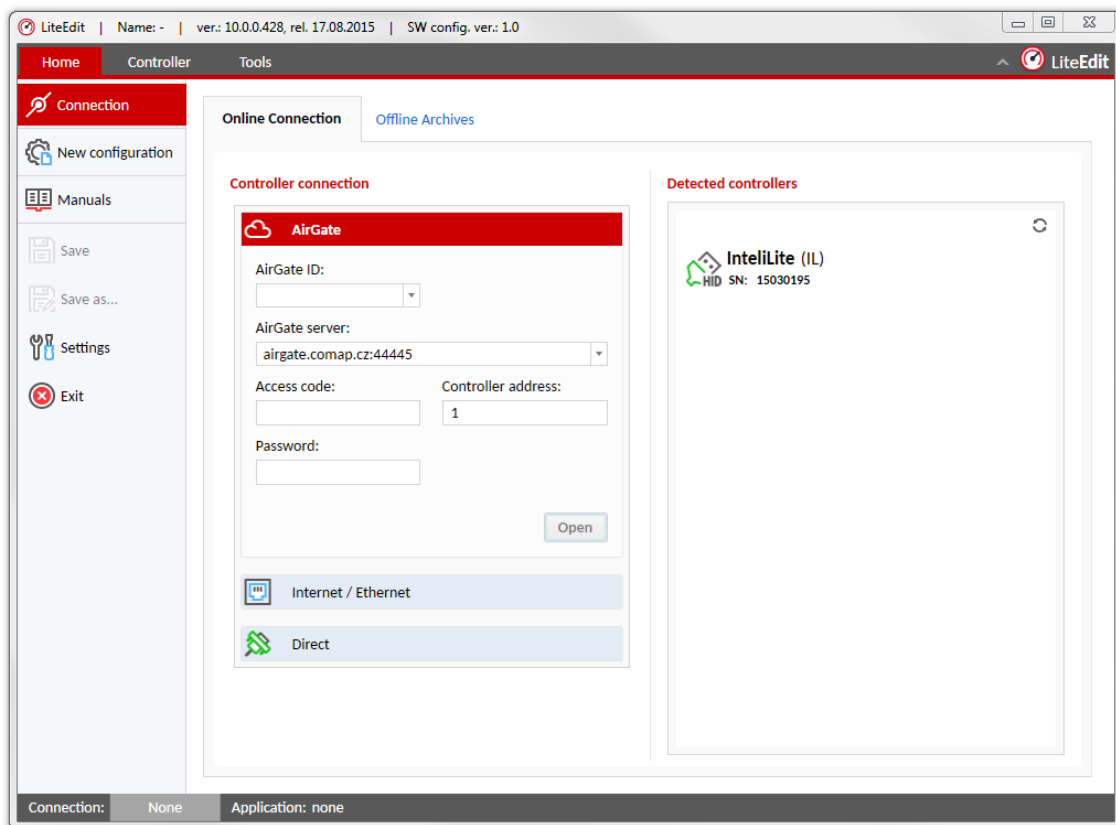


Image 3.1 Online Connection menu

3.2 AirGate

AirGate connection technology makes access to the ComAp controller via internet as simple as possible. AirGate technology was designed to overcome the issues commonly faced when trying to connect remote equipment using internet based communications.

AirGate allows ComAp's controllers to connect to the internet using the existing network infrastructure, negotiating firewalls and VPN systems and removing the requirement for static and public IP address.

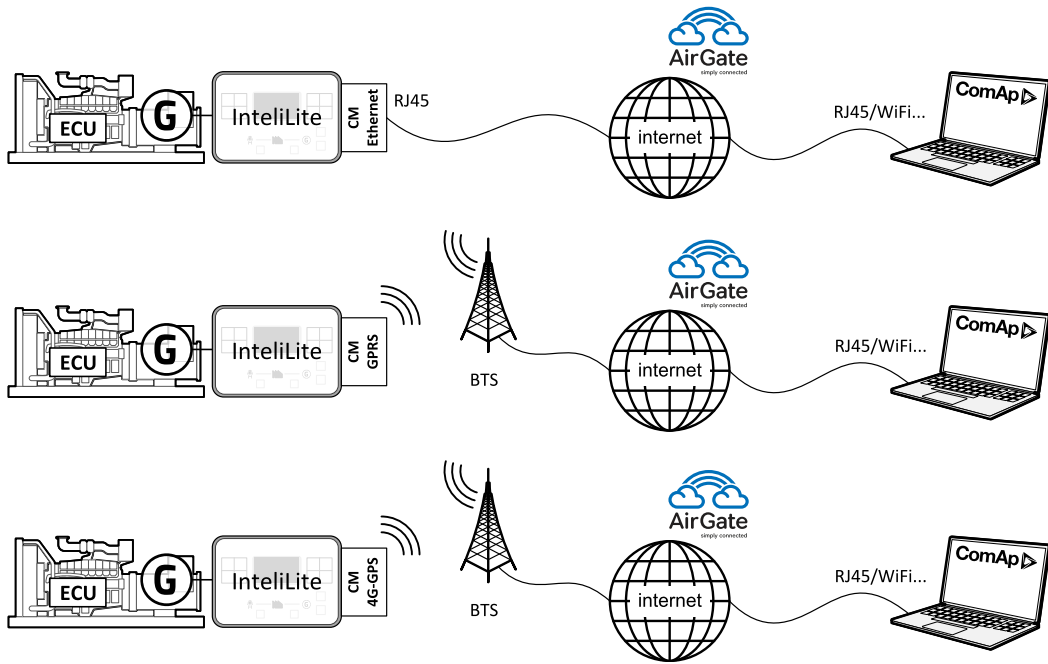





Image 3.2 Scheme of AirGate connection

3.2.1 To obtain an AirGate

1. Connect the communication module (CM-Ethernet or CM-GPRS) to the controller including the cable or antenna.
2. Turn on the controller and configure the communication modules according to their relevant guides.
3. Ensure the **AirGate** function is *ENABLED* and **AirGate** IP is set to *airgate.comap.cz*.
4. By using of  and  buttons on the controller get to AirGate screen and note the displayed AirGate ID.

3.2.2 To make an AirGate connection

1. On supported controller fit a suitable communication module (CM-Ethernet, CM-4G-GPS or CM-GPRS).
2. Power on the controller with 8 - 36 V DC power terminal.
3. Connect the controller and the PC. How to make direct connection see **Direct connection on page 16**
4. In the IntelliConfig go to **Home** menu → **Connection** bookmark → **Online Connection** and in section of **Controller connection** click at  **AirGate**, other parameter fields will roll down.
5. Enter the **AirGate ID**, **AirGate server** (enter "*airgate.comap.cz*" as standard), **Port** (use port "44445" as standard), **Access code** and optionally even the controller **Password**.

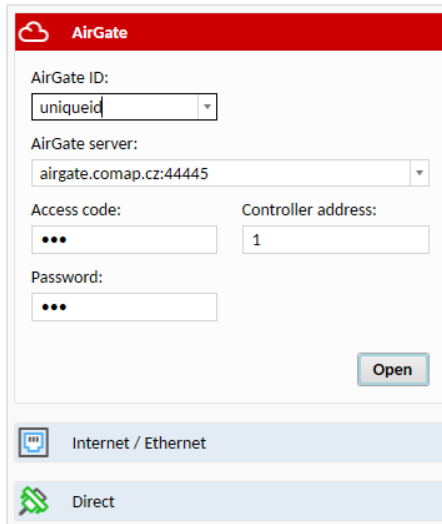





Image 3.3 Field for AirGate connection

6. Click at **Open** button to let the IntelliConfig to establish the connection.

3.2.3 To end an AirGate connection

1. In the IntelliConfig application click the  **Close connection** icon to terminate the connection.
2. You will be asked whether you really wish to close the connection. Click at  **Yes** button to close the connection.

IMPORTANT: Archive is not saved automatically. If you want to save the archive, click at  Save archive icon before closing the connection.

3.3 Direct connection

The following direct cable connections are supported by IntelliConfig:

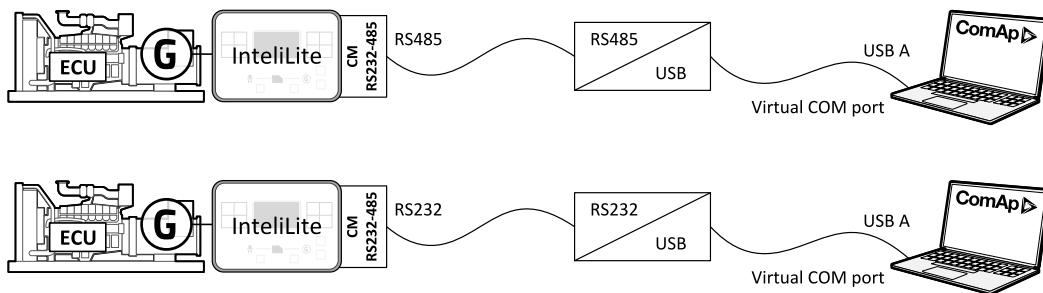



Image 3.4 Scheme of Direct connection

3.3.1 To make a Direct connection

1. Fit a suitable communication module to supported controller or use the built-in USB.



Note: While plugging-in the communication module, the controller has to be switched off (8 - 36 V DC Power terminals has to be disconnected).


2. Power on the controller with 8 - 36 V DC power terminal.
3. Connect an RS232 or RS485 cable between the controller and PC.
4. In the IntelliConfig application on the PC go to **Home** menu → **Connection** bookmark → **Online Connection** and in **Controller connection** click at  **Direct**, other parameter fields will roll down.
5. Choose the **COM port**, **Controller address** and optionally enter even the **Password**.

Note: Only COM ports that are actually installed and present in the computer will be displayed. If the USB connection is used (either external USB to RS232 converter or USB on board), the USB must be handled as a virtual COM port of your computer, which is created by the USB module driver.

6. Click to **Open** to let the IntelliConfig to establish the connection.

3.3.2 To end a Direct connection

1. In the IntelliConfig application click the  **Close connection** icon to terminate the connection.
2. You will be asked whether you really wish to close the connection. Click at  **Yes** button to close the connection.

IMPORTANT: Archive is not saved automatically. If you want to save the archive, click at  **Save** archive icon before closing the connection.

3.4 Detected controllers

IntelliConfig is able to automatically detect available supported controllers which are connected via:

- ▶ USB - controllers needs to be equipped with HID driver.
- ▶ LAN - controllers needs to be connected to the same Local Area Network as the PC.

The following connections can be automatically detected by IntelliConfig.

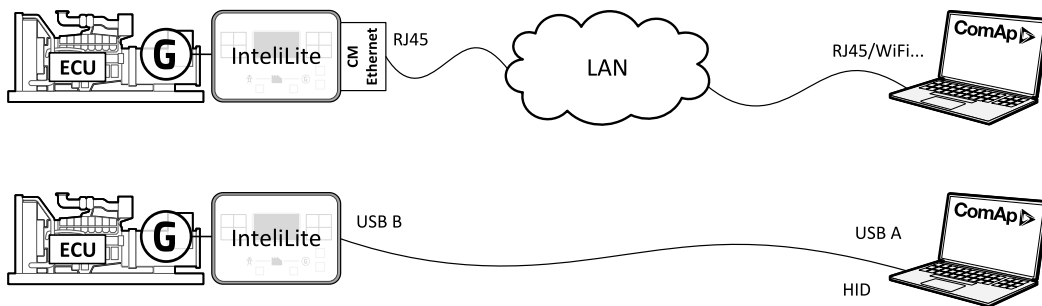





Image 3.5 Scheme of connections available for automatic detection

3.4.1 To make a connection with Detected controllers

1. On supported controller fit a suitable communication module.
2. Power on the controller with 8 - 36 V DC power terminal.
3. Make the required network links between the controller and the PC via a suitable network, USB or LAN.
4. In the IntelliConfig go to **Home** menu → **Connection** bookmark → **Online Connection** and in section of **Detected controllers** double click at the chosen controller.

Note: Controllers available via USB are marked with the  icon. Controllers available via LAN are marked with  icon. In case of connection via LAN the question of Access code will appear.

Note: In case there are no Detected controllers showed click at  icon for refreshing the list.

3.5 Internet / Ethernet connection

The following network connections are supported by IntelliConfig:

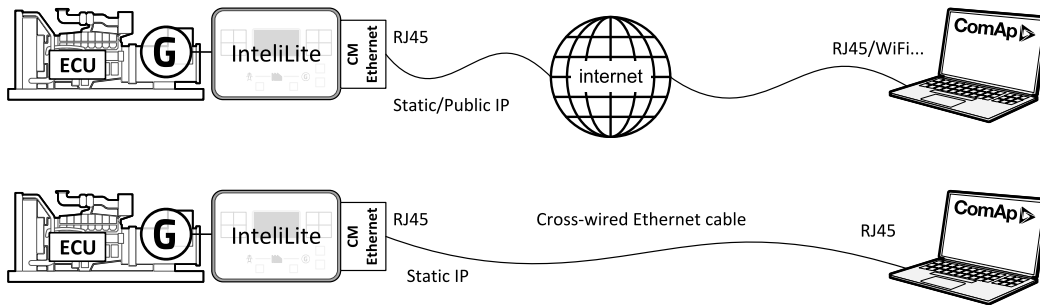





Image 3.6 Scheme of Internet / Ethernet connection


3.5.1 To make an Internet / Ethernet connection

1. Fit a suitable communication module to supported controller.
2. Power on the controller with 8 - 36 V DC power terminal.
3. Make the required network link(s) between the controller and the PC, either directly via a cross-over cable or via suitable network switches.
4. In the IntelliConfig application on the PC go to **Home** menu → **Connection** bookmark → **Online Connection** and in **Controller connection** click at  **Internet / Ethernet**, other parameter fields will roll down.
5. In the roll-down fields enter the **Controller address**, **IP address**, the **Access code** and optionally enter even the **Password**.
6. Click to **Open** to let the IntelliConfig to establish the connection.

Note: The final (separated) IP address is a public address dedicated for testing connection to controller situated in ComAp office. Feel free to try it.

3.5.2 To end an Internet / Ethernet connection

1. In the IntelliConfig application click the  **Close connection** icon to terminate the connection.
2. You will be asked whether you really wish to close the connection. Click at  **Yes** button to close the connection.

IMPORTANT: Archive is not saved automatically. If you want to save the archive, click at  **Save archive icon** before closing the connection.

3.6 Offline connection

The Offline connection option allows you to open, inspect and edit previously saved archive. Archive is a file which contain:

- ▶ configuration of the controller
- ▶ history of the controller

Offline connection means any opened archive of the controller which is not directly connected to the controller. It is used for preparing own configuration before using it in the controller, or just for an inspection of the archive from the real site.


It is possible to open such offline archive in several different ways:


- A. Creating of New configuration
- B. Opening of Offline Archives

3.6.1 New Configuration

Use New configuration option whenever you want to create brand new archive based on the default one. ComAp's default archives have timer proved settings which can be used on most gensets.

To open the New configuration:

1. Go to **Home** bookmark in the main Ribbon menu.
2. Choose **New configuration** in left menu.
3. In the **Default** bookmark choose the required type of the controller and click at  **Create new configuration** icon.

Note: The  **Create new configuration** icon is not active when other offline archive is already opened.

Note: In case you want to create a New configuration based on any earlier saved archive, go to the **My configurations** bookmark and choose any of earlier saved archives.

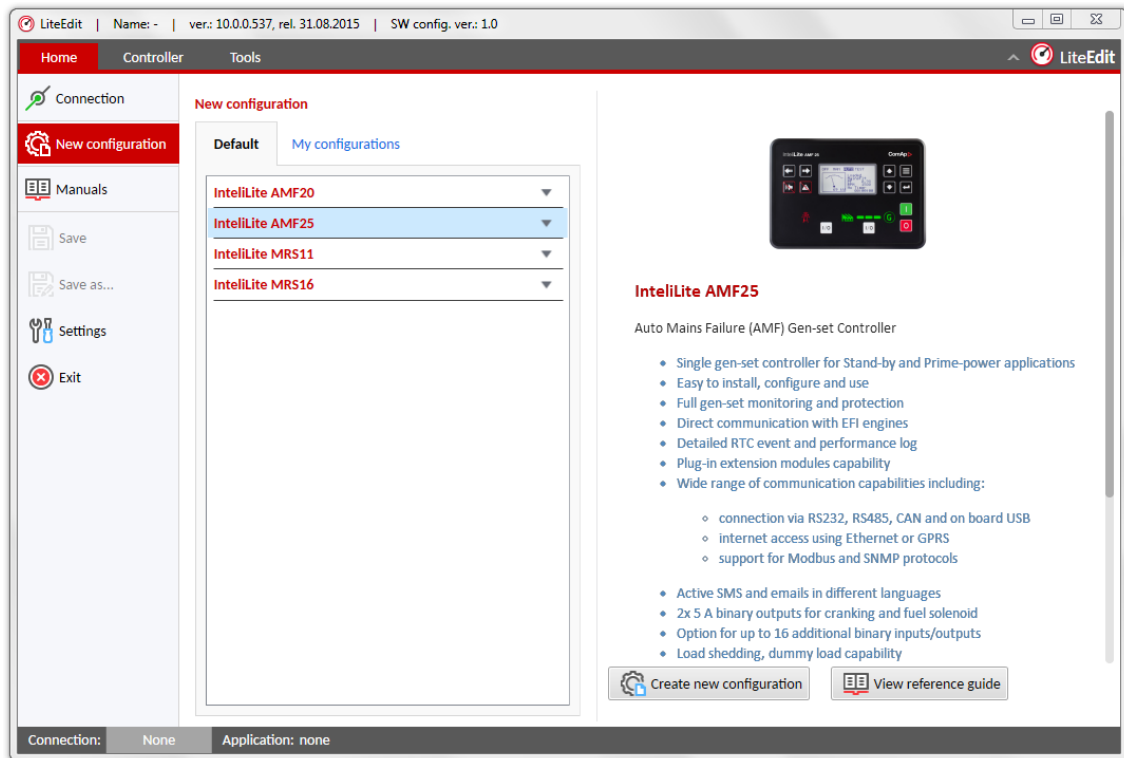




Image 3.7 Create New Configuration

3.6.2 Offline archive

For opening of offline archive:

1. Go to **Home** bookmark in the main Ribbon menu.
2. Choose **Connection** in left menu.
3. Choose the bookmark **Offline Archives** and here you can:
 - a. Open any archive from your PC by using of  **Open archive** icon.
 - b. Open any recently opened archive from the lists of Recent archives or Recent used places.

Note: The  **Open archive** icon is not active when other offline archive is already opened.

Note: Another way how to open the offline archive is just do double-click at the archive file in your PC equipped with IntelliConfig PC SW.

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4.1 General information

InteliConfig can be used to monitor and adjustment one of supported controllers:

- ▶ Online real-time monitoring via the Control window (SCADA) window.
- ▶ View and adjust Setpoints.
- ▶ View Values and History logs.
- ▶ View and setup Statistics.
- ▶ Export data for use within spreadsheets.

4.2 Ribbon bar

Most of InteliConfig's functions are accessible by clicking the various icons arranged along its main Ribbon bar:

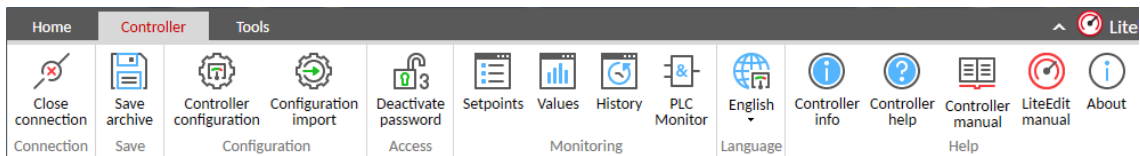











Image 4.1 Ribbon bar













Note: Ribbon bar can be hidden or displayed if necessary by clicking at "arrow" icon in the right upper corner.

4.2.1 Controller bookmark

Icon	Name	Category	Function	Link to Topic
	Close connection	Connection	Close the opened connection.	-
	Save archive	Save	Save configuration into the archive.	-
	Controller configuration	Configuration	Open the Controller configuration window.	Configuration window (page 30)
	Configuration import	Configuration	Open the window for Configuration import.	Configuration import (page 55)
	Enter password / Deactivate password	Access	Enter / Deactivate password.	Enter password (page 55) Deactivate password (page 56)
	Setpoints	Monitoring	Open the Setpoints window.	Setpoints window description (page 58)

	Values	Monitoring	Open the Values window.	Values window description (page 63)
	History	Monitoring	Open the History window.	History window description (page 66)
	PLC Monitor	Monitoring	Open the PLC Monitor window.	PLC Monitor (page 68)
	Language	Language	Language change - icon shows the name of the chosen language directly.	Language (page 68)
	Controller info	Help	Open the Controller info window.	
	Controller help	Help	Open the Controller help window.	
	Controller manual	Help	Open the window with Controller manual in PDF.	
	InteliConfig manual	Help	Open the InteliConfig manual help window.	
	About	Help	Open the About window.	

4.2.2 Tools bookmark

Icon	Name	Category	Function
	Create clone	Cloning	Open the Cloning window.
	Save clone	Cloning	Save connected controller for future cloning.
	Manage Clones	Cloning	Open the Import/Export clone window.
	Firmware upgrade	Firmware	Open the window for controller or plug-in module firmware upgrade.
	Set statistics	Statistics	Open the Set statistics window.
	Change password	Security	Open the Change password window.
	Change access code	Security	Open the Change access code window.
	Export to CSV	Data export	Open Export data window. Data can be selected by type and exported to .csv format.
	Generate Cfg image (COM)	Data export	Generate configuration image of communication objects.
	Generate Cfg image (MODBUS)	Data export	Generate configuration image of MODBUS objects.
	Generate SNMP MIB table	Data export	Generate SNMP MIB table.
	Reset	Reset from init state	Reset the controller from Init state.

4.3 Control window

The Control window is available whenever a valid link is made to a controller or when an offline connection to an archive files is open. The Control window provides a mixed overview of certain front panel items as well as key values and alarms.

4.3.1 Control window features

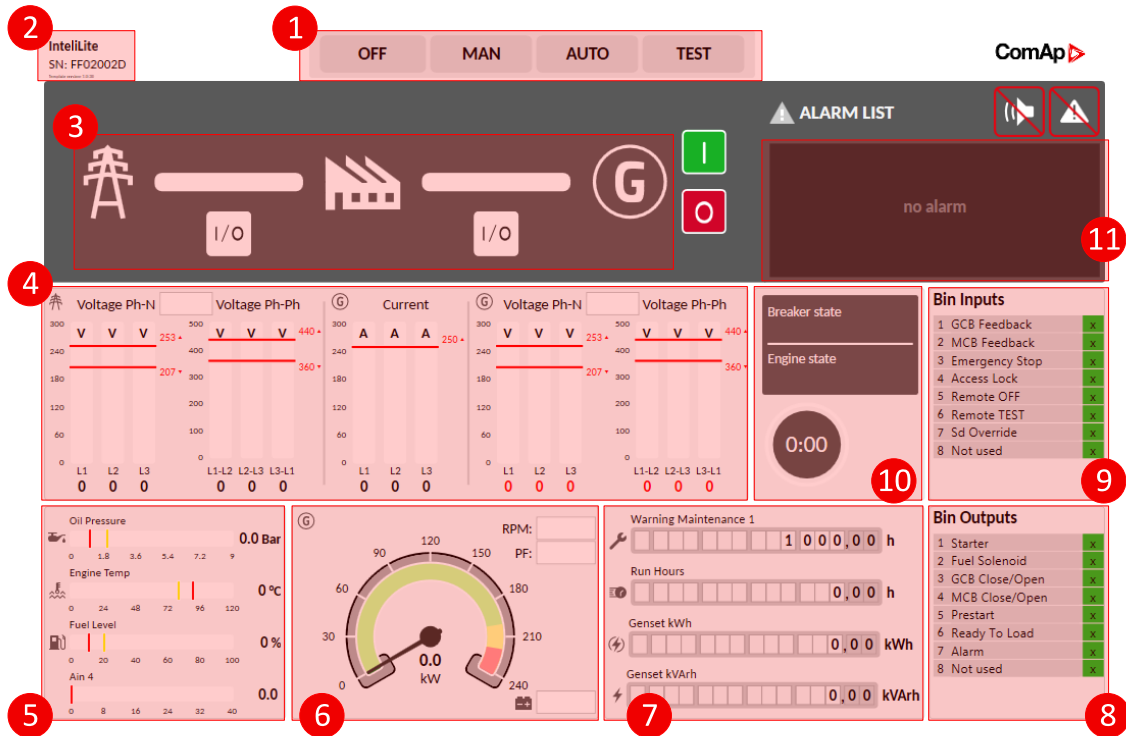


Image 4.2 Description of Control window

1	Mode indicator - directly mimics the current setting of the controller's mode indicator.
2	Basic controller info - shows controller's name and serial number.
3	Diagram panel - mimics the diagram of the application and allows to control some of controller buttons remotely.
4	Mains and Generator output values - provides voltage, current and general power factor readings.
5	Analogue measuring panel - shows current values and protection limits of configured analogue inputs.
6	Generator total output meter - provides an overall generator output meter reading for quick visual confirmation.
7	Statistic counters panel - shows a selection of important statistic values as Maintenance, Running hours, gen-set kWh and kVAh.
8	Binary outputs panel - displays the current values of the various binary outputs.

- 9 **Binary inputs panel** - displays the current values of the various binary inputs.

- 10 **Status message area** - mimics status messages of the engine and generator auto-mat related to status of breakers, generator and engine. It mimics also the controller's current process timer.

- 11 **Alarm list** - display a list of current alarms as issued by the controller or ECU.










4.3.2 Color highlights in the Control window

Color highlights are used in various areas of the Control window to provide quick visual feedback. The meanings of the highlights used differ slightly between areas, as follows:

Alarm list

Item color	Meaning
*Alarm event	Active and unconfirmed Yellow alarm (Warning)
Alarm event	Active but confirmed Yellow alarm (Warning)
*Alarm event	Inactivate but unconfirmed Yellow alarm (Warning)
*Alarm event	Active and unconfirmed Red alarm (Shutdown or BOC)
Alarm event	Active but confirmed Red alarm (Shutdown or BOC)
*Alarm event	Inactivate but unconfirmed Red alarm (Shutdown or BOC)
*Alarm event	Active and unconfirmed ECU alarm
Alarm event	Active but confirmed ECU alarm
*Alarm event	Inactivate but unconfirmed ECU alarm
*Alarm event	Active and unconfirmed Sensor fail
Alarm event	Active but confirmed Sensor fail
*Alarm event	Inactivate but unconfirmed Sensor fail

Diagram panel

Symbol / Color	Meaning
	Mains is OK.
	Mains failed.
	Generator is stopped and Ready.
	Generator is running. There are no Red alarms at generator side.
	Shutdown or BOC alarm at generator side. Generator is stopped or it is just stopping.
	Load is not powered up.
	Load is powered from the Mains or Generator.
	Breaker is opened.
	Breaker is closed.

Measuring gauges

Symbol color	Meaning
Green	Value is in preset limit
Yellow	Value is out of Yellow alarm limit. The Yellow alarm is announced also.

Red	Value is out of Red alarm limit. The Red alarm is announced also.
White	No values.

Table above is valid for following areas:

- ▶ Mains and Generator output values.
- ▶ Generator total output meter.
- ▶ Analog measuring panel.

4.4 Right Dock Panel

The Right Dock Panel (RDP) is here to help to monitor and set the controller more effectively. Through the RDP it is possible to open following windows:


- ▶ Setpoints
- ▶ Values
- ▶ History

Note: All of these windows have a possibility to be pinned-in by clicking at  **Pin** button.

4.4.1 To open a window from RDP

1. Initiate online or offline connection with the supported controller.
2. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **Setpoints** or **ValuesHistory** to open the selected window.
3. The selected window will roll over the Control window.

4.4.2 To pin a window to RDP

1. Open the supported window:
 - a. Setpoints
 - b. Values
 - c. History
2. Click at  **Pin** icon.

The window will be pinned to the Right Dock Panel. The Control window will automatically adapt its size to the screen.

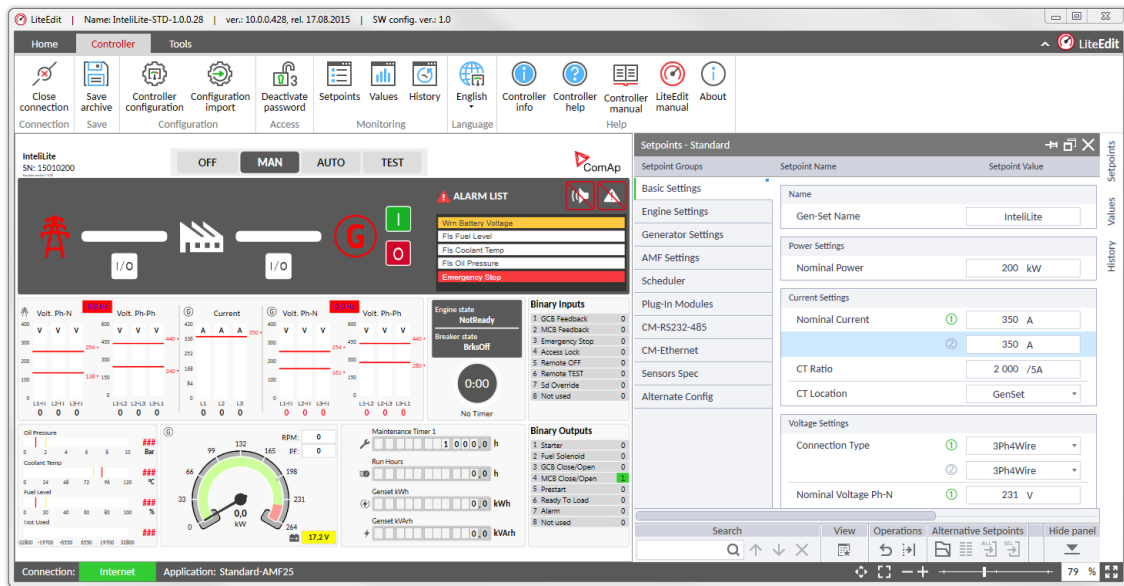


Image 4.3 Setpoints window pinned to the Right Dock Panel

Size of the Control window can be controller by changing of the width of the pinned window or by using of Control window zooming functions:

- ▶ Fit the height of the Control window.
- ▶ Fit the width of the Control window.
- ▶ Zoom in the Control window.
- ▶ Zoom out the Control window.

3. To unpin click at **Unpin** icon.

It is possible to pin-in more windows at once and to arrange them according to your needs by *drag&drop* function.

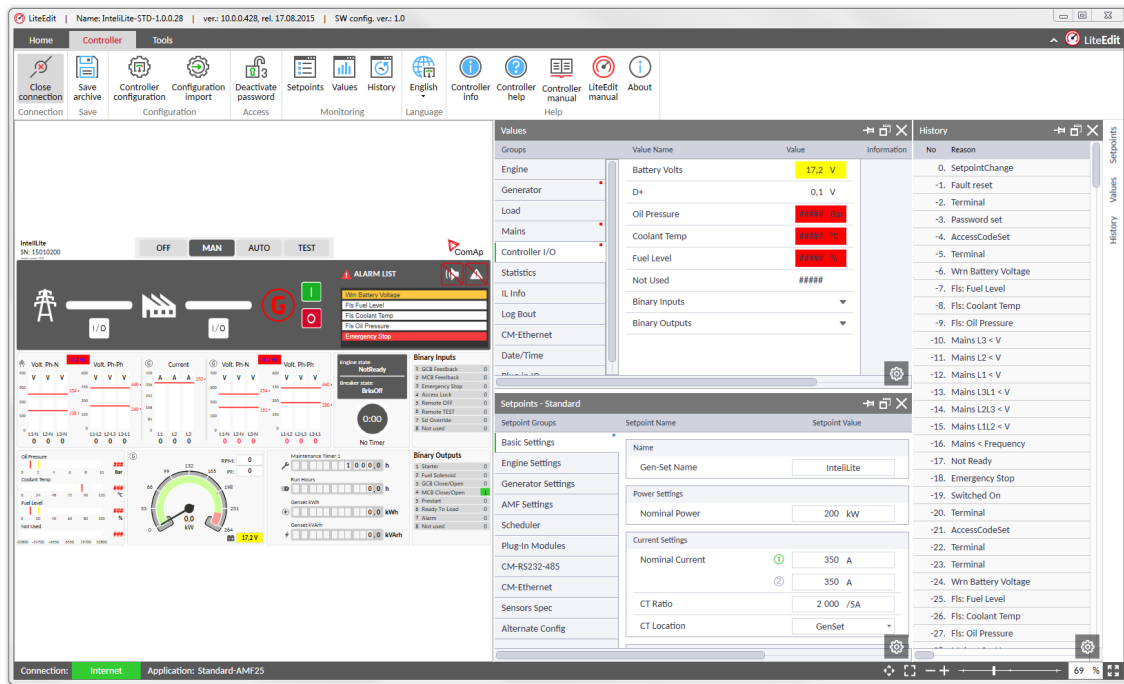


Image 4.4 Setpoints, Values and History windows pinned to the Right Dock Panel

4.5 Statistics

Statistic values (counters) are one of groups available in the **Values** (page 62). The difference from other values is that statistics can be reset to zero or be preset to some value and they are also retained in the controller even when the power is off.

4.5.1 To set Statistics

1. Initiate online or offline connection with the supported controller.
2. Select the **Others** bookmark and in the category of Access click at **Enter password** icon. Enter the Administrator password for the full access to the controller.
3. Select the **Tools** bookmark and in the category of Statistics click at **Set statistics** icon to display the Statistics setup window.


Statistics setup				
Value	Current value	Unit	New value	
1. Genset kWh	2341	-	<input type="text" value="2341"/>	<input type="button" value="Set"/>
2. Genset kVArh	2503	-	<input type="text" value="2503"/>	<input type="button" value="Set"/>
3. Num Starts	18	-	<input type="text" value="18"/>	<input type="button" value="Set"/>
4. Running Hours	46,0	-	<input type="text" value="46,0"/>	<input type="button" value="Set"/>
5. Total Fuel Consumption	2	-	<input type="text" value="2"/>	<input type="button" value="Set"/>
6. Mains kWh	2655	-	<input type="text" value="2655"/>	<input type="button" value="Set"/>
7. Mains kVArh	0	-	<input type="text" value="0"/>	<input type="button" value="Set"/>
8. Num E-Stops	0	-	<input type="text" value="0"/>	<input type="button" value="Set"/>
9. Shutdowns	3	-	<input type="text" value="3"/>	<input type="button" value="Set"/>

Image 4.5 Statistics setup window

4. For each parameter enter your new required value and either:
 - a. Click the **Set** button, or
 - b. Continue changing all required values and after that click the **Set all** button.
5. When finished, close the window.

IMPORTANT: All statistic values can be reset to zero using *Clear all* button.

4.5.2 To view Statistics

1. Initiate online or offline connection with the supported controller.
2. For opening the Values window you can either:
 - a. Select the **Others** bookmark and in the category of Monitoring click at  **Values** icon to open the Values window.
 - b. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **Values** to open the Values window.
3. Select the group of Statistics.

Values			
Groups	Value Name	Value	Information
Engine	Genset kWh	2341 kWh	Genset kWh
Generator	Genset kVArh	2503 kVArh	Range: -32768000 .. 32767000 Units: kWh
Load	Mains kWh	2655 kWh	Value Description: Counter of gen-set active power.
Mains	Mains kVArh	0 kVArh	Controller help
Controller I/O	Running Hours	46,0 h	
Statistics	Num Starts	18	
IL Info	Maintenance 3	982 h	
Log Bout	Rental 1	0 h	
Date/Time	Rental 2	0 day	
Plug-in IO	Num E-Stops	0	
	Shutdowns	3	
	Total Fuel Consumption	2 L	
	Time Till Empty	##### day	

Image 4.6 Statistics in Values window

5 Configuration

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5.1 General information

InteliConfig can be used to full configuration of one of supported controllers:


- ▶ Basic configuration of the controller in Configuration window.
 - Configuration of Setpoints.
 - Configuration of controller Inputs and Outputs.
 - Configuration of extension modules, CAN modules and ECU.
 - Configuration of additional functions - Languages, Access Rules etc.
- ▶ Import of the configuration.
- ▶ Upgrade of the controller firmware.
- ▶ Cloning of one controller configuration to another controller.

5.2 Configuration window

Configuration window enables you to view and adjust all parameters of configuration related to the supported controller from one place.

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6 back to Configuration	

5.2.1 To open the Configuration window

1. Initiate online or offline connection with the supported controller.
2. Select the **Others** bookmark and in the category of Configuration click at  **Controller configuration** icon to open the Configuration window.

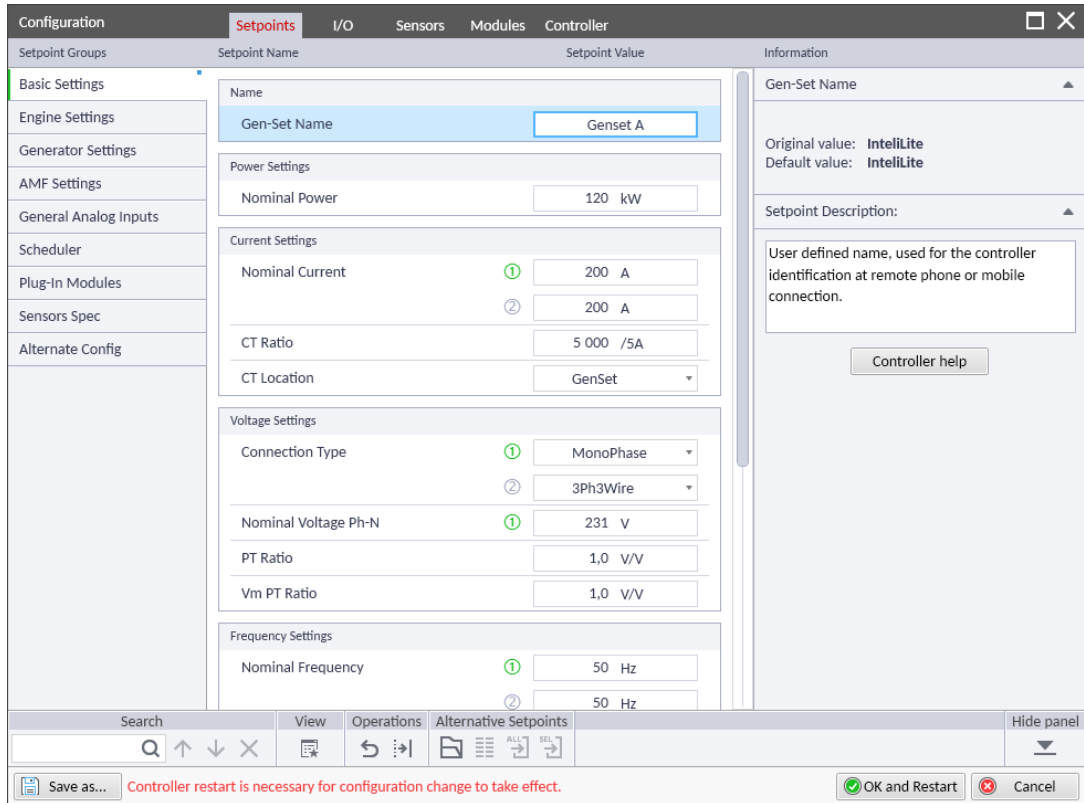


Image 5.1 Configuration window

5.2.2 Configuration window description

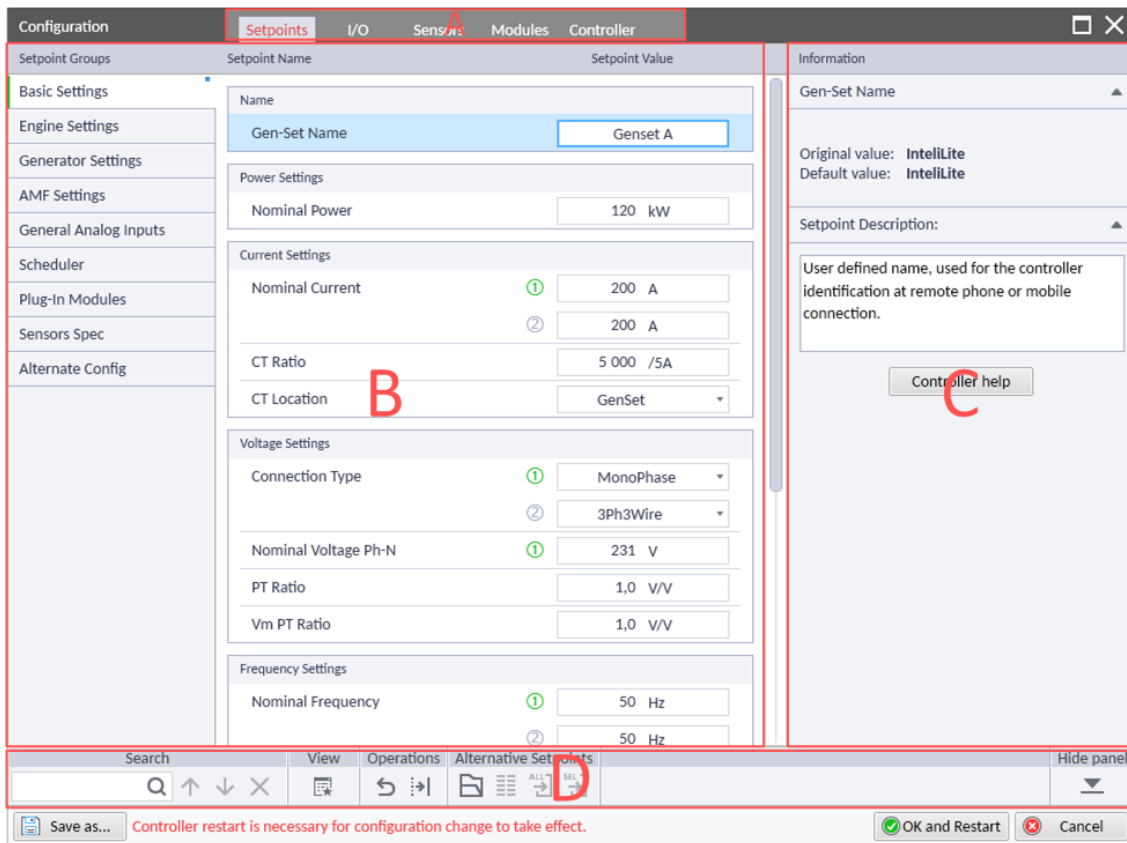


Image 5.2 Configuration window description

- A. **Configuration bookmarks** - bookmarks sort out the controller configuration to few categories:
 - ▶ Setpoints - configuration of Setpoints.
 - ▶ Controller I/O - configuration of binary and analog inputs or outputs.
 - ▶ Sensors - adjusting analog sensor curves.
 - ▶ Modules - configuration of extension modules, CAN modules and ECU.
 - ▶ PLC Editor - allows to add control logic, additional alarm functions or even new features to meet complex or unique requirements
 - ▶ Others- configuration of controller's additional functions: Init screen, Languages, Access rules and Units/Power format.
- B. **Configuration window** - main configuration window. The content may vary according to chosen bookmark.
- C. **Info panel** - contains basic information about the selected setpoint or Input/Output. Content and visibility of the panel may vary according to chosen bookmark.
- D. **Tool bar** - bar with handy tool while configuring setpoints. For more information see the chapter of **Setpoints (page 32)**

5.2.3 Setpoints

The Setpoints bookmark enables you to view and adjust each Setpoint present in the controller.

The Setpoints bookmark in Configuration window shows the same parameters as main Setpoints window described in the separated chapter, **see Setpoints on page 56**.

IMPORTANT: The difference in both Setpoints windows is in the approach of parameter changing. In case of separated Setpoints window the change of the parameter is immediately written into the controller. Contrary to that any changes in parameters in Setpoints as a part of Configuration window are written into the controller after pressing of OK and Restart button only.

5.2.4 Controller Inputs and Outputs

Controller I/O bookmark enables to configure Binary Inputs, Binary Outputs and Analog Inputs available at the supported controller.

To configure Inputs and Outputs:

1. In the Configuration window select the bookmark **Controller I/O**.
2. In displayed window choose what do you want to configure:
 - a. Binary inputs (page 34)
 - b. Binary outputs (page 35)
 - c. Analog inputs (page 36)
3. Configure the controller according to required wiring.
4. Once all changes within the Configuration window have been made click the **OK and Restart** button to write the configuration to the controller. Once the configuration is uploaded the controller will automatically restart and new connection will be automatically established.

Inputs and Outputs window description

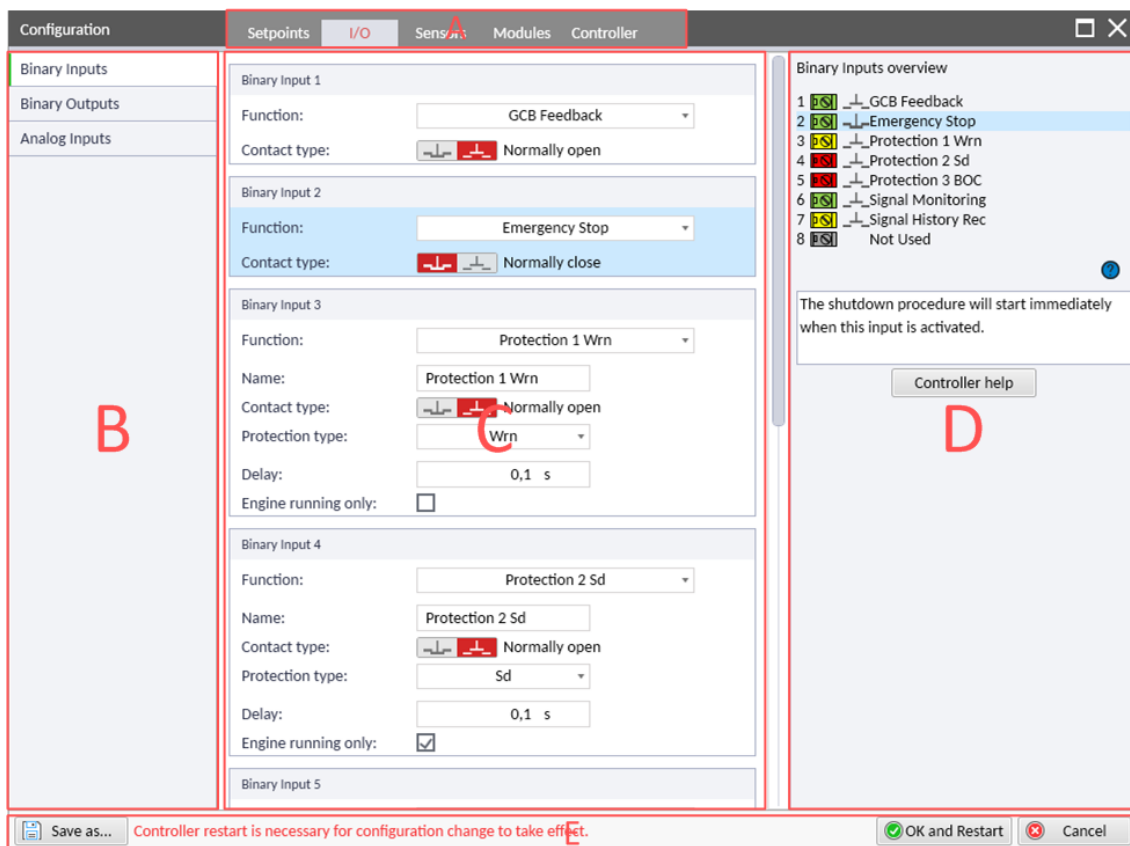

















Image 5.3 Controller I/O window description

- A. **Configuration bookmarks** - bookmarks sort out the controller configuration to few categories.
- B. **I/O Group panel** - contains groups of inputs and outputs available in control unit itself.
- C. **Configuration panel** - main configuration window with available inputs/outputs.
- D. **Info panel** - contains basic information about the selected parameter. It shows:
 - ▶ Inputs/Outputs overview - overview of all available inputs/outputs including their description and type. It contains following symbols:
 -  Terminal is used for the function without any protection.
 -  Terminal is used for the function including the Warning protection.
 -  Terminal is used for the function including the Shutdown protection.
 -  Terminal is not used.
 -  Normally open binary input.
 -  Normally close binary input.
 -  Normally open binary output.
 -  Normally close binary output.
 - ▶ Short description of the selected parameter.
 - ▶ Controller help button for opening full context help for the selected parameter.
- E. **Tool bar**
 - ▶  **Save as...** button - Saves the current configuration to the archive file.
 - ▶  **OK and Restart** button - Confirms the configuration and writes it to the controller. While the configuration is written properly the controller will restart.
 - ▶  **Cancel button** - Closes the Configuration window without any change.

Binary inputs

While configuring Binary inputs there are available 3 different options - in the field of **Function** choose:

- A. **Not Used** - for the case that the Binary input is not wired or you don't want to use it.
- B. **Controller function** - prepared functions directly in the controller as breaker feedbacks, external buttons etc.. In this case it is possible in advanced to configure only:
 - ▶ **Contact type** as  Normally close or  Normally open.
- C. **General protection** - in case you choose the general protection (as a default named as "BIN Protection #) it is possible to predefined other values such as:
 - ▶ **Name** - Filled name will appear in case of activation in the Alarm list or History.
 - ▶ **Contact type** -  Normally close or  Normally open.
 - ▶ **Protection type** of the activated binary input:
 - **Monitoring** - it is possible to see the value in the Controller, in SCADA or in LE Values window but no action is executed.
 - **HistRecOnly** - activating of such a binary input will cause the record to the History (including all other values) but no alarm will be announced in Alarm list.
 - **Wrn** - Warning, activating of the binary input will cause the Warning alarm which is visible at the controller and IntelliConfig side too. Warning alarm is immediately written to the History.

- **Sd** - Shutdown, activating of the binary input will cause the Shutdown alarm (immediate stop of the engine). This alarm is visible at the controller and IntelliConfig side too. Shutdown alarm is immediately written to the History.
 - **BOC** - Breaker Open and Cool Down, activating of the binary input will cause the BOC alarm (immediate opening of the GCB, cooling of the engine and shutting down). This alarm is visible at the controller and IntelliConfig side too. Shutdown alarm is immediately written to the History.
- ▶ **Delay** of the protection.
- ▶ **Engine running only** means that the protection is active only after proper engine start.

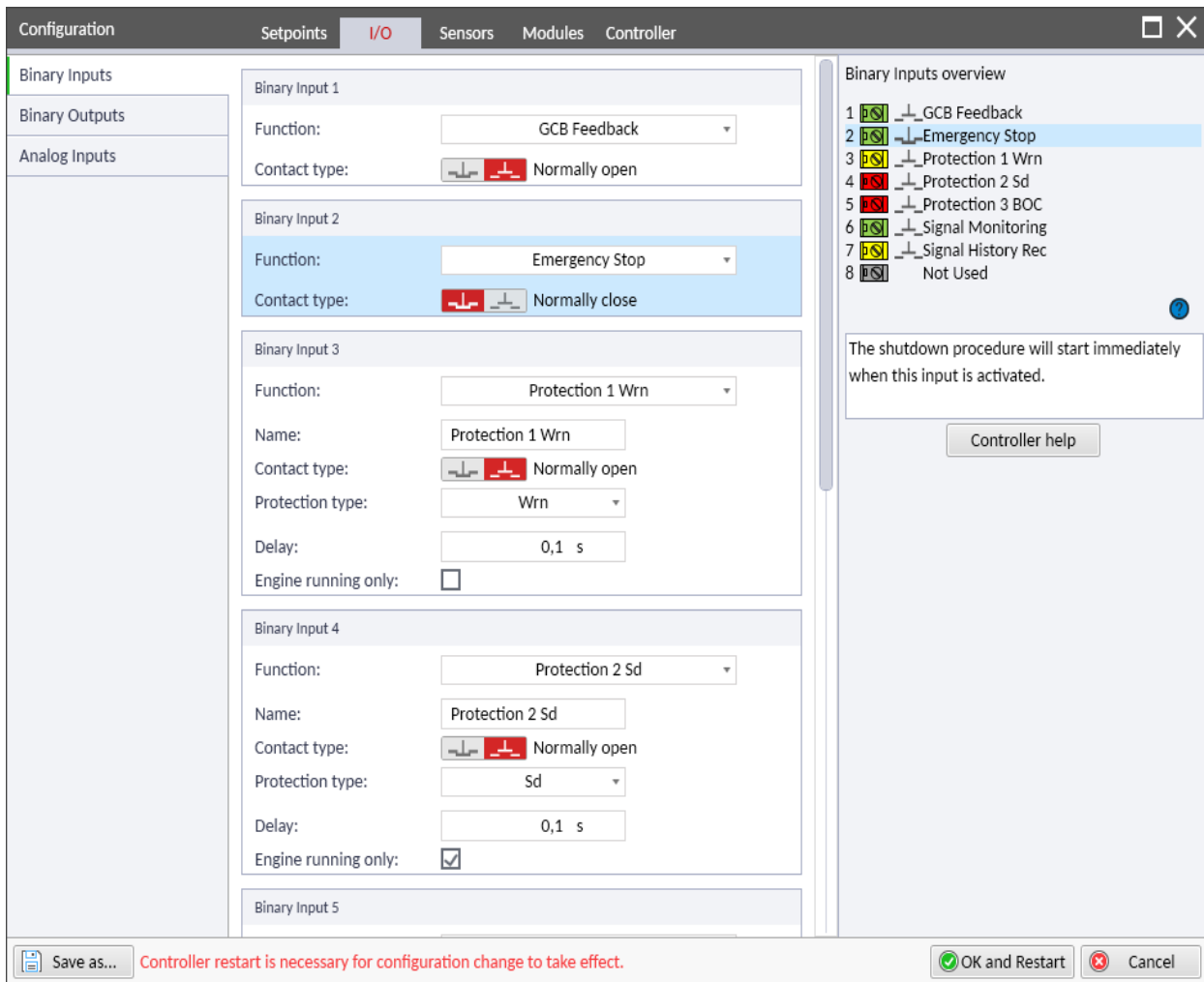


Image 5.4 Binary inputs configuration

Binary outputs

While configuring Binary outputs it is possible to configure the Function as:

- Not Used** - for the case that the Binary input is not wired or you don't want to use it.
- Controller function** - prepared functions directly in the controller as Starter, Fuel Solenoid, breaker control signals etc. In this case it is possible in advanced to configure:
 - ▶ **Contact type** as Normally close or Normally open.

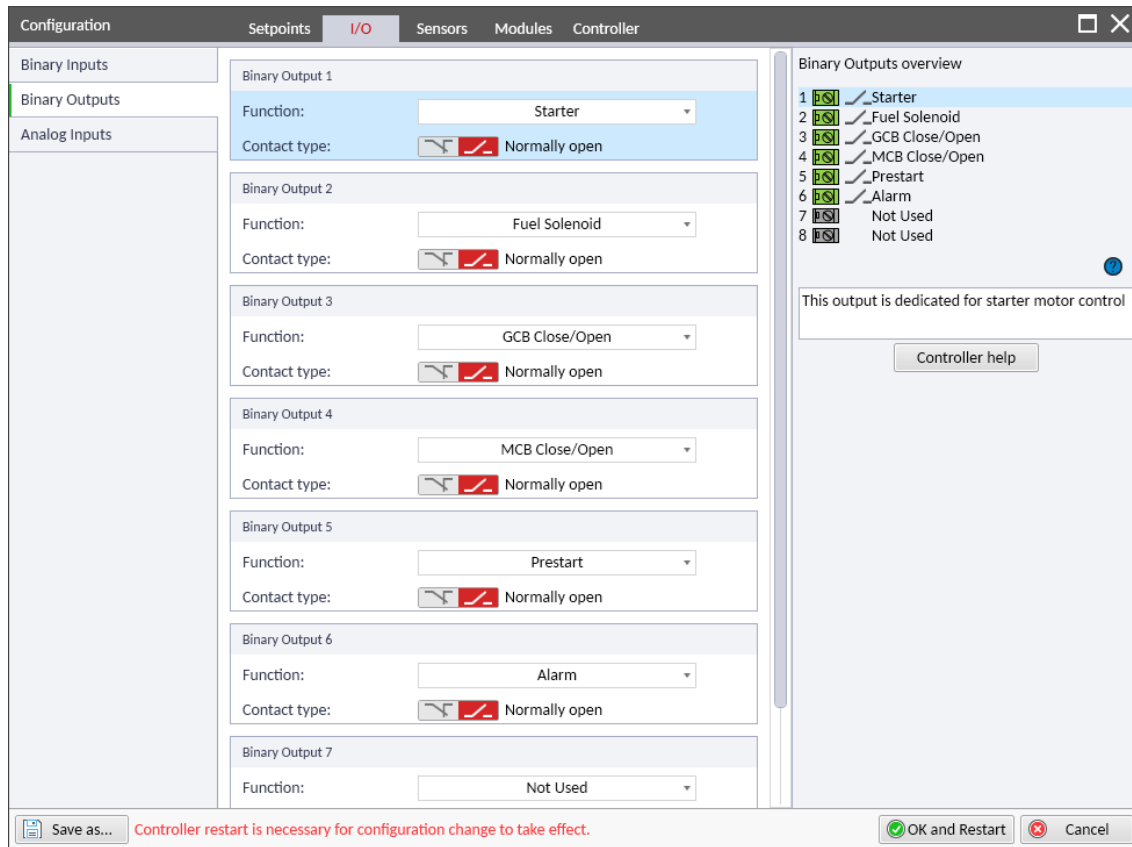


Image 5.5 Binary outputs configuration

Analog inputs

While configuring Analog inputs there are available 3 different options - in the field of **Function** choose:

- A. **Not Used** - for the case that the Analog input is not wired or you don't want to use it.
- B. **Controller function** - prepared functions directly in the controller as Oil Pressure, Coolant Temp and Fuel Level. In this case it is possible in advanced to configure:
 - ▶ **History abbreviation** - shortcut of the function in the History
 - ▶ **Sensor** - choice of the curve for used analog sensor. For more information about sensors and theirs configuration **see Sensors on page 38**.
 - ▶ **Protection type** of the activated analog input:
 - **Monitoring** - it is possible to see the value in the Controller, in SCADA or in LE Values window but no action is executed.
 - **HistRecOnly** - exceeding of preset *Hst* value will cause the record to the History (including all other values) but no alarm will be announced in Alarm list.
 - **Wrn** - Warning, exceeding of preset *Wm* value will cause the Warning alarm which is visible at the controller and IntelliConfig side too. Warning alarm is immediately written to the History.
 - **Wrn+BOC** - Warning and Breaker Open and Cool Down, exceeding of preset *Wm* value will cause the Warning alarm and exceeding of preset *BOC* value will cause the BOC alarm. Both are visible at the controller and IntelliConfig side too. Both alarms are immediately written to the History.

- **BOC** - Breaker Open and Cool Down, exceeding of preset *BOC* value will cause the BOC alarm (immediate opening of the GCB, cooling of the engine and shutting down). This alarm is visible at the controller and IntelliConfig side too. BOC alarm is immediately written to the History.
- **Wrn+Sd** - Warning and Shutdown, exceeding of preset *Wrn* value will cause the Warning alarm and exceeding of preset *Sd* value will cause the Shutdown alarm. Both are visible at the controller and IntelliConfig side too. Both alarms are immediately written to the History.
- **Sd** - Shutdown, exceeding of preset *Sd* value will cause the Shutdown alarm (immediate stop of the engine). This alarm is visible at the controller and IntelliConfig side too. Shutdown alarm is immediately written to the History.

▶ **"AI Name" Delay** - delay of the protection.

Note: Parameter visibility depends on the setting of Protection type

▶ Setpoint values of:

- **"AI Name" Hst** - limitation value for History Record.
- **"AI Name" Wrn** - limitation value for Warning.
- **"AI Name" BOC** - limitation value for BOC.
- **"AI Name" Sd** - limitation value for Shutdown.

Note: Setpoints visibility depends on the setting of Protection type.

▶ **Alarm** parameter describes the condition of the alarm. It is visible only when the protection is activated:

- **Under Limit**: alarm is activated if the value is lower than the preset setpoint.
- **Under Limit+FIs**: alarm is activated if the value is lower than the preset setpoint or when the value is out of sensor range.
- **Over Limit**: alarm is activated if the value is higher than the preset setpoint.
- **Over Limit+FIs**: alarm is activated if the value is higher than the preset setpoint or when the value is out of sensor range.

Note: Parameter visibility depends on the setting of Protection type.

▶ **Engine running only** means that the protection is active only after proper engine start.

Note: Parameter visibility depends on the setting of Protection type.

C. **AIN Switch** - this analog input controls logical binary output Analog Switch. In case of Analog switch it is possible to configure:

- ▶ **History abbreviation** - shortcut of the function in the History.
- ▶ **Sensor** - choice of the curve for used analog sensor. For more information about sensors and theirs configuration **see Sensors on page 38**.

IMPORTANT: Value for activation and deactivation of the logical binary output is done by the relevant setpoint of Analog Switch in the group of General Analog Inputs.

D. **AIN Protec** - analog input is used for any protection based on analog value. It is possible to configure:

- ▶ **Name** - Filled name will appear in case of activation in the Alarm list or History.
- ▶ **History abbreviation** - shortcut of the function in the History.
- ▶ **Sensor** - choice of the curve for used analog sensor. For more information about sensors and theirs configuration **see Sensors on page 38**.

- ▶ **Protection type** of the activated analog input. Same protection types as in Controller functions described above.
- ▶ Limitation setpoints, Alarm type and Engine running only option are the same as in Controller function described above.

Note: Parameters visibility depends on the setting of Protection type.

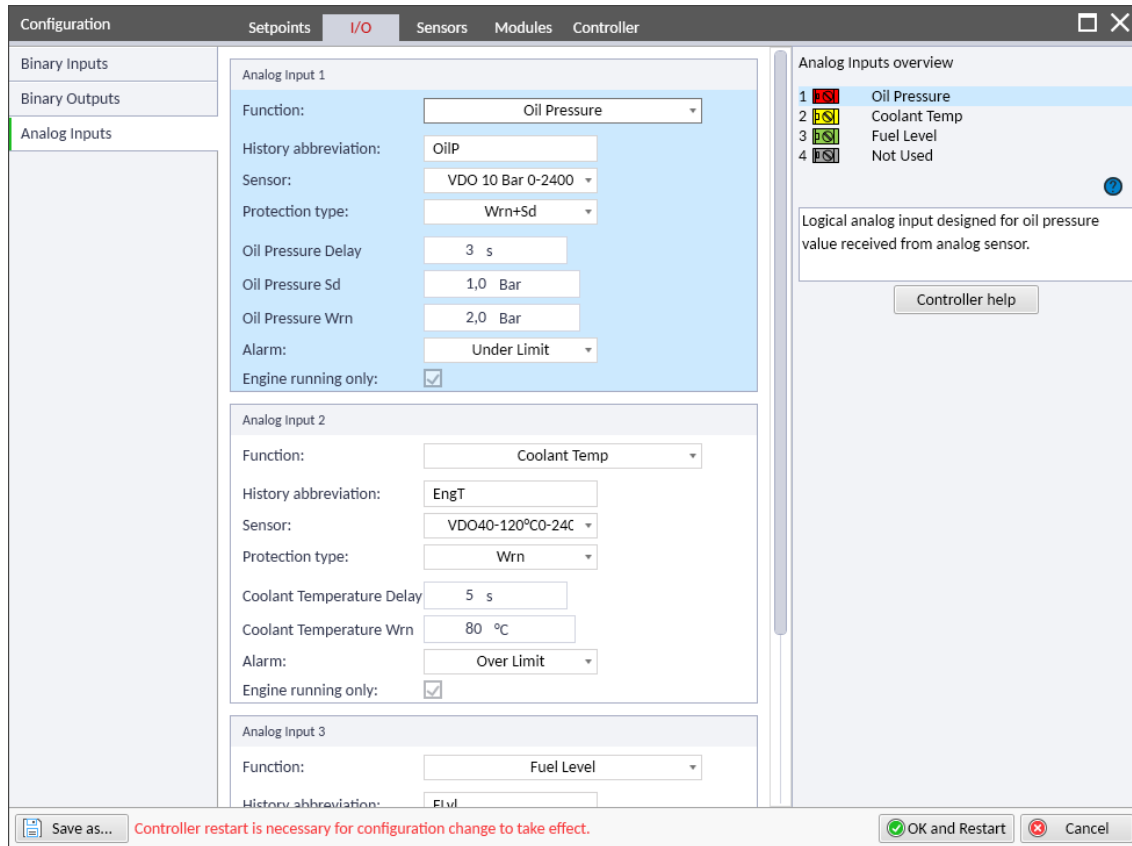


Image 5.6 Analog inputs configuration

5.2.5 Sensors

Curves in the Sensors bookmark are used to accurately determine how external analog electrical signal should be converted to internal numerical values. By adjusting the curve you can ensure that the controller behaves correctly across the range of values.

To adjust an analog sensor curve

1. In Configuration window select the bookmark **Sensors**.
2. In the left panel choose which sensor curve you want to adjust. It is possible to choose from the list of typical (default) curves - e.g. VDO, or from the list of general curves.

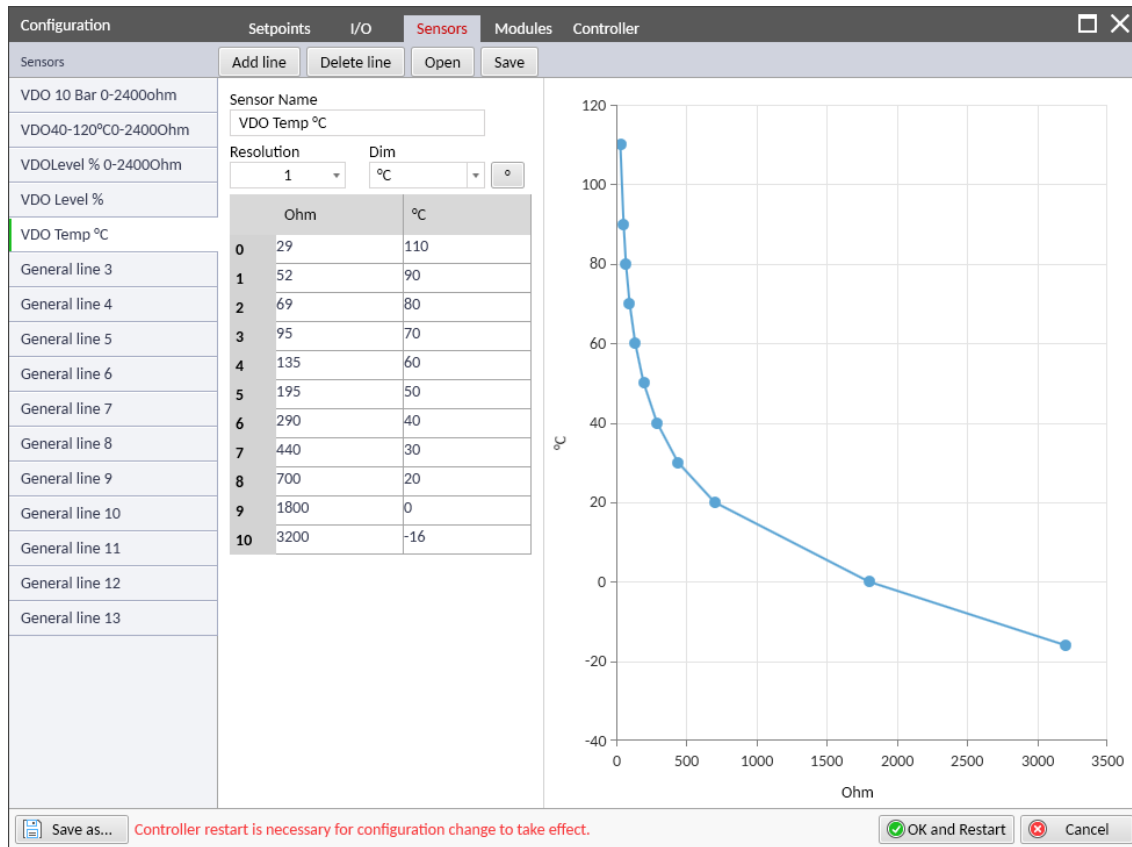


Image 5.7 Sensor curve configuration




- Use options within the Sensor window to make necessary adjustments:
 - ▶ **Add line** - to add new row in the table.
 - ▶ **Order** - to automatically arrange rows in the table from the lowest to highest number.
 - ▶ **Delete line** - to delete the chosen row in the table.
 - ▶ **Open** - to open saved curve.
 - ▶ **Save** - to save the current curve.
 - ▶ **HW configuration** - select physical (HW) configuration of analog input
 - ▶ **Sensor Name** - customizable name of the sensor curve.
 - ▶ **Resolution and Dimension** of the curve.
- Once all changes within the Configuration window have been made click the **OK and Restart** button to write the configuration to the controller. Once the configuration is uploaded the controller will automatically restart and new connection will be automatically established.

5.2.6 Modules

Plug-in modules




There are two different approaches in configuration of **Supported communication modules (page 10)**.

- ▶ Communication plug-in modules - while assembled in the controller there appear relevant Group in Setpoints window. Usage of plu
- ▶ Extension plug-in modules - configuration should be made via the Configuration window:

1. Open the online/offline connection with the controller.
2. Go to  **Controller configuration** and choose the bookmark of **Modules**.
3. Choose the relevant slot (A or B).
4. Pick the wanted plug-in module from the list and click at  **Add module** icon.
5. Set required Plug-in module properties.
6. Go to I/O Configuration for added Plug-in module and set I/O configuration for this module.
7. Click at  **OK and Restart** to take the configuration into effect.

Engine Control Unit - ECU

In case your engine is using ECU, it is necessary to configure it properly in the controller:


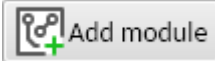
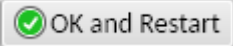
1. Open the online/offline connection with the controller.
2. Go to  **Controller configuration** and choose the bookmark of **Modules**.
3. Click on ECU field in left column.
4. Select right ECU list from the list.
5. From the shown list of ECUs choose the same ECU as is used by your engine and click at  **Add module** icon.
6. Set proper ECU settings.
7. If necessary, go to I/O Configuration for ECU and change configuration
8. Click at  **OK and Restart** to take the configuration into effect.

Note: In case there is no ECU listed choose the used ECU list in the field of Electronic Control Unit.

CAN modules

In case your controller supports CAN modules (external modules connected via CAN link), you can add supported modules to offered CAN slots. Number of slots and list of supported modules depends on default configuration provided by ComAp.

To add CAN module(s):

1. Open the online/offline connection with the controller.
2. Go to  **Controller configuration** and choose the bookmark of **Modules**.
3. Choose the relevant CAN slot.
4. Select wanted CAN module from the list and click at  button.
5. Set required CAN module properties. Pay attention to correct settings on module itself, usually described on picture of module.
6. Go to I/O Configuration for added CAN module and set I/O configuration for this module.
7. Click at  button to take the configuration into effect.

5.2.7 PLC

PLC Editor is powerful tool which helps you to create your own PLC scheme. It has graphical interface to have user interface easy to use.

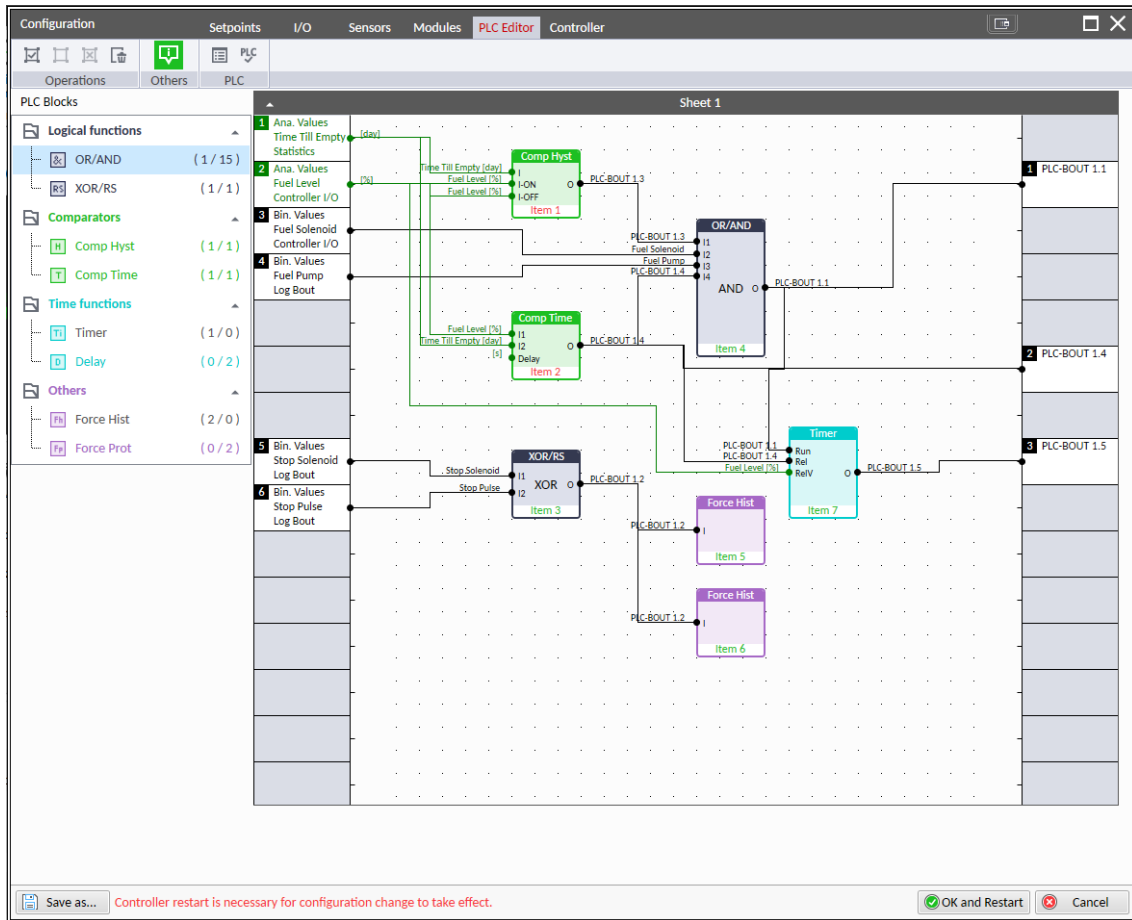


Image 5.8 PLC Editor main page

List of available PLC blocks

PLC block	Number of blocks
OR/AND	16
XOR/RS	2
Comparator with hysteresis (Comp Hyst)	2
Comparator with delay (Comp Time)	2
Timer	1
Delay	2
Force history record (Force Hist)	2
Force protection (Force Prot)	2

Number of blocks are for IntelLite AMF25. Number of blocks can be different according to controller version.

Working with the editor

If the currently opened archive does not contain any PLC program, then an empty drawing is created automatically when you select the PLC Editor. The procedure of creation of a PLC drawing (program) contains following essential steps:

- ▶ Adjust the sheet to your needs. See **Working with sheets (page 42)** for more information.
- ▶ Add PLC blocks into the sheets. See **Adding PLC blocks (page 42)** for more information.
- ▶ Define inputs and outputs of the PLC program. See **Define inputs and outputs (page 43)** for more information.
- ▶ Create connections between inputs, blocks and outputs. See **Creating wires (page 46)** for more information.
- ▶ Adjust properties of the blocks. See **List of PLC blocks (page 80)** for more information about blocks.

Working with sheets

Drag the sheet edges to re-size the sheet according to your needs.

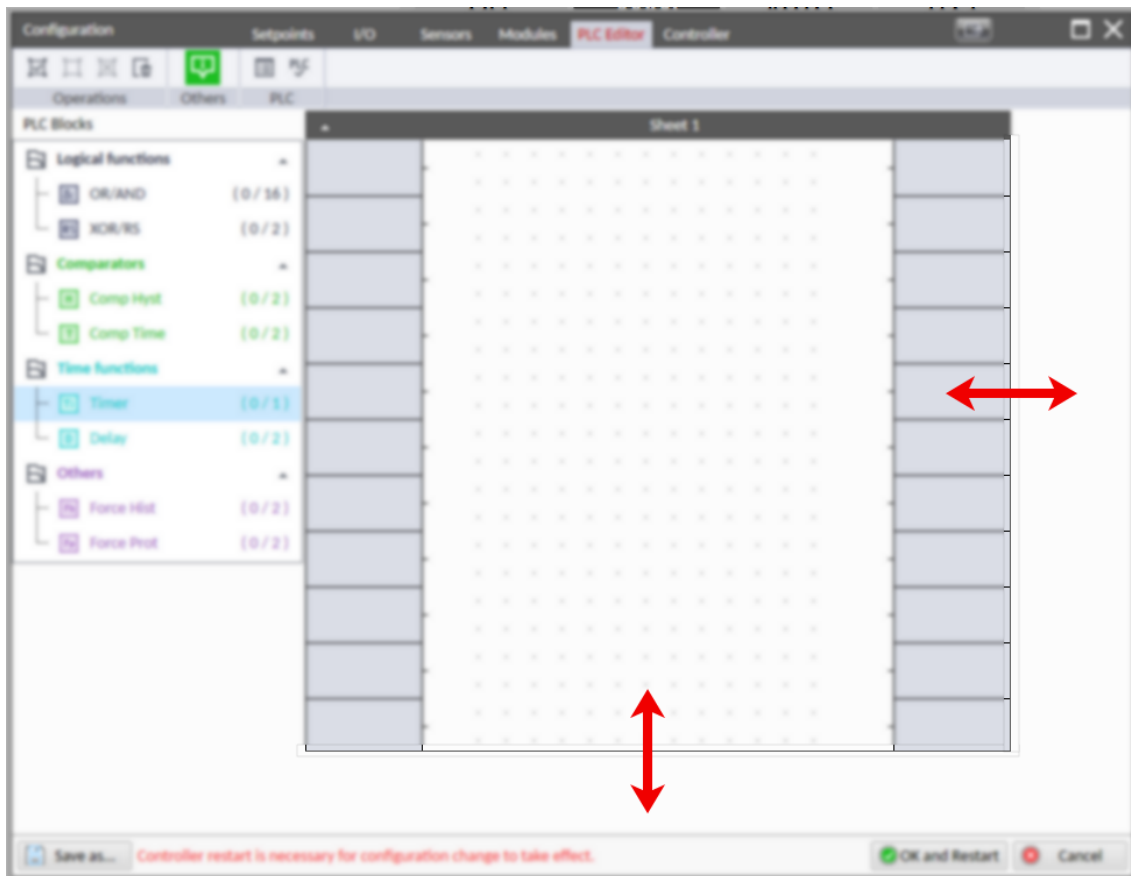


Image 5.9 Adjusting PLC sheet

Adding PLC blocks

Adding PLC block is simple and intuitive. Follow the procedure below to add PLC block.

- ▶ Select required block from the list of available PLC blocks at the left and drag it into the sheet
- ▶ Double-click on the block and adjust properties of the block. See **List of PLC blocks (page 80)** for more information about blocks.

- ▶ Connect the block inputs and outputs by drawing wires in the sheet. See **Define inputs and outputs** (page 43) for more information. It is also possible to connect inputs and outputs via properties of selected PLC block.

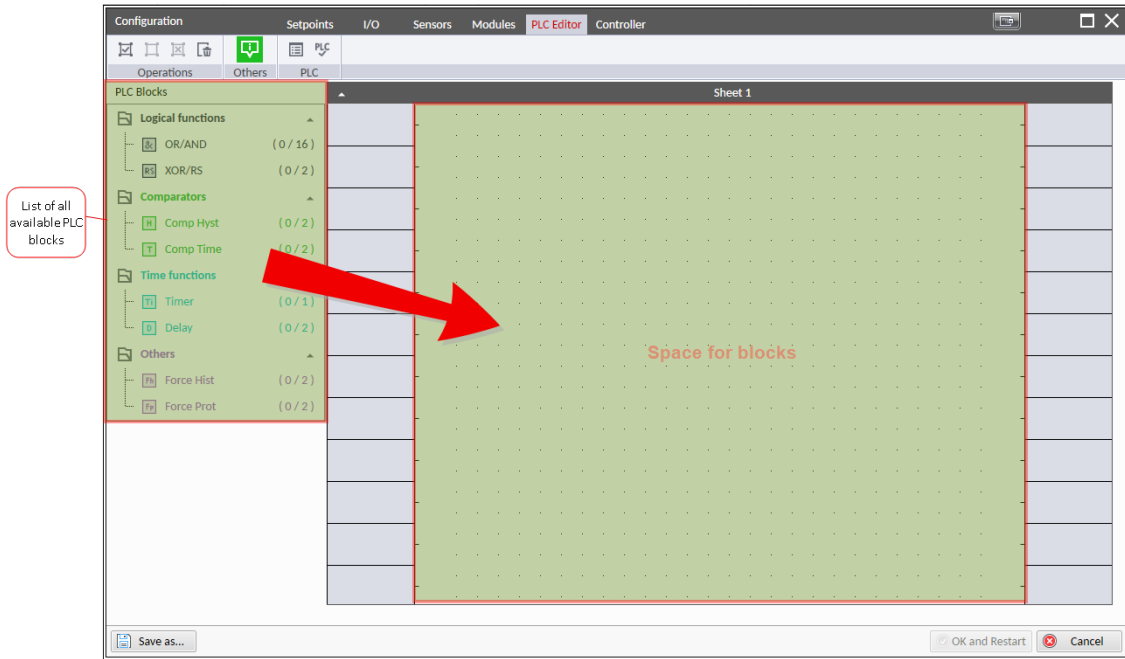


Image 5.10 Adding PLC blocks

Note: To delete PLC block just click on it and press delete button. Also delete selection function can be used.

Note: To see context help for selected PLC block just press F1 button.

Define inputs and outputs

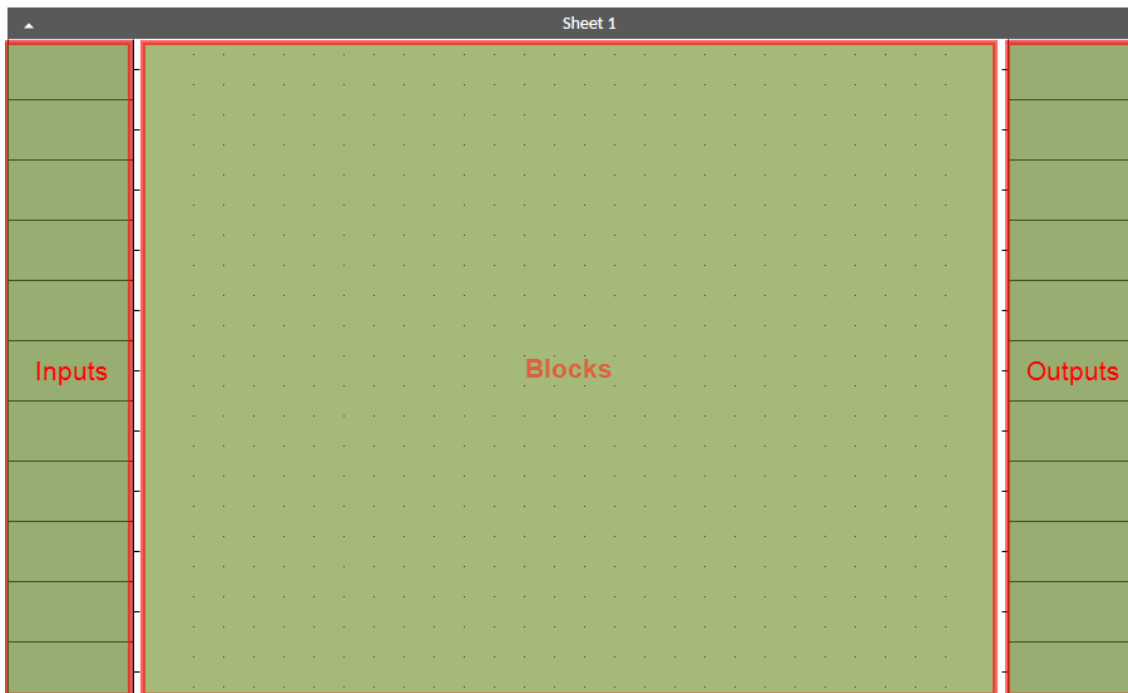


Image 5.11 Blank sheet of PLC editor

Inputs

Sheet inputs are located at the left side of a sheet. Follow the procedure below to add or edit an input.

- ▶ Double-click on a free input position or existing input to add new input or edit the existing one.
- ▶ Select the source for the input.
 - If you create a binary input, you can select a source from following categories:
 - Bin. Values - this category contains all binary values available in the controller as binary inputs, logical binary outputs etc.
 - PLC Outputs - this category contains all PLC blocks binary outputs available in the controller
 - If you create an analog input, you can select a source from following categories:
 - Ana. Values - this category contains all analog values available in the controller as analog inputs, electrical values, values from ECU etc.
 - All Setpoints - this category contains all setpoints of the controller except the dedicated PLC setpoints. Names, resolutions and dimensions of these setpoints can not be modified
 - PLC Setpoints - this category contains a group of setpoints which are dedicated for using in the PLC program. PLC setpoints can be renamed, their dimension, resolution and limits can be modified according to need of PLC blocks where they are used

PLC Setpoint name:	Dimension:	Resolution:	Low limit:	High limit:	Apply
<input type="text"/>	<input type="text"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	

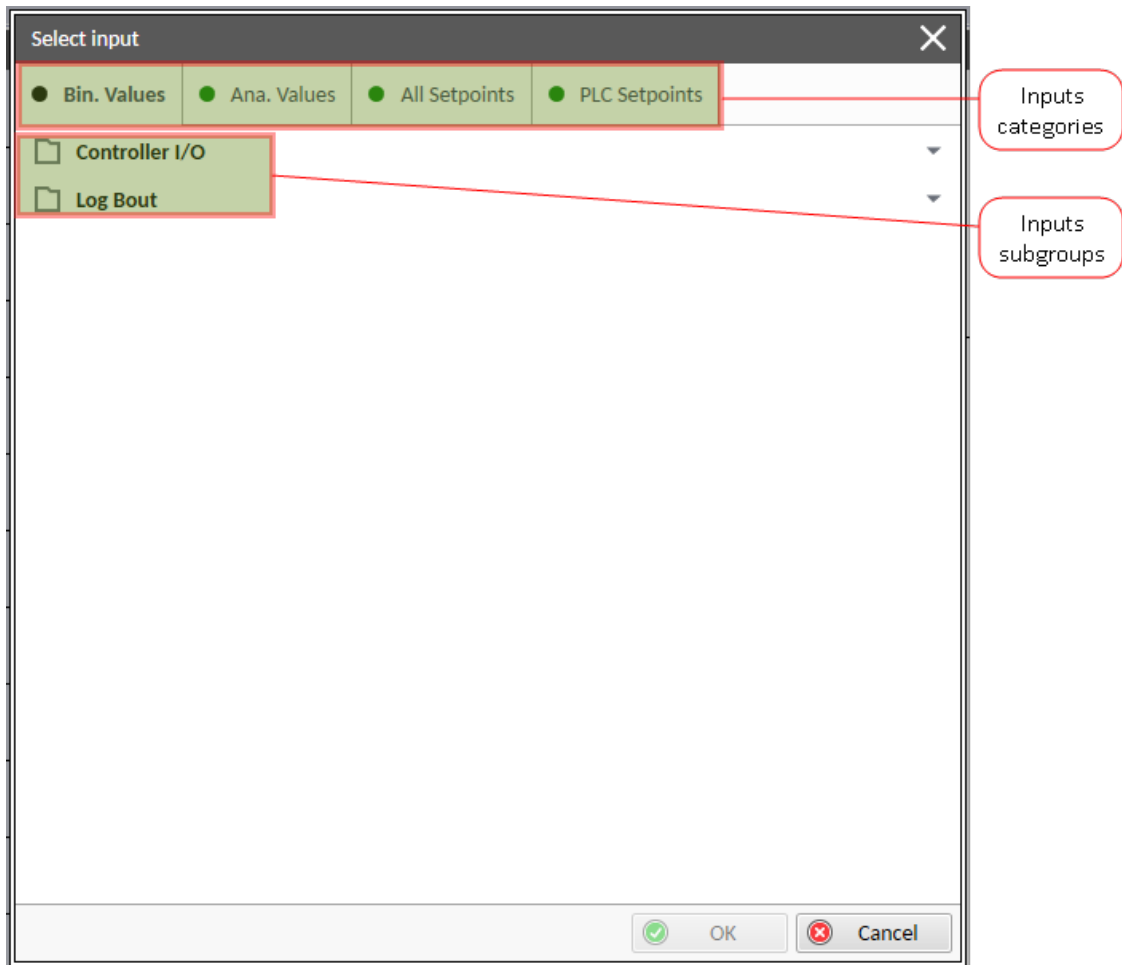


Image 5.12 PLC inputs

Outputs

Sheet outputs are located at the right side of a sheet. Follow the procedure below to add or edit an input.

- ▶ Doubleclick on a free output position to add new sheet output
- ▶ Doubleclick on an already created output to configure the output onto a controller output terminal or a logical binary input (first of all some PLC block output has to be connected to this output to enable configuration of output)

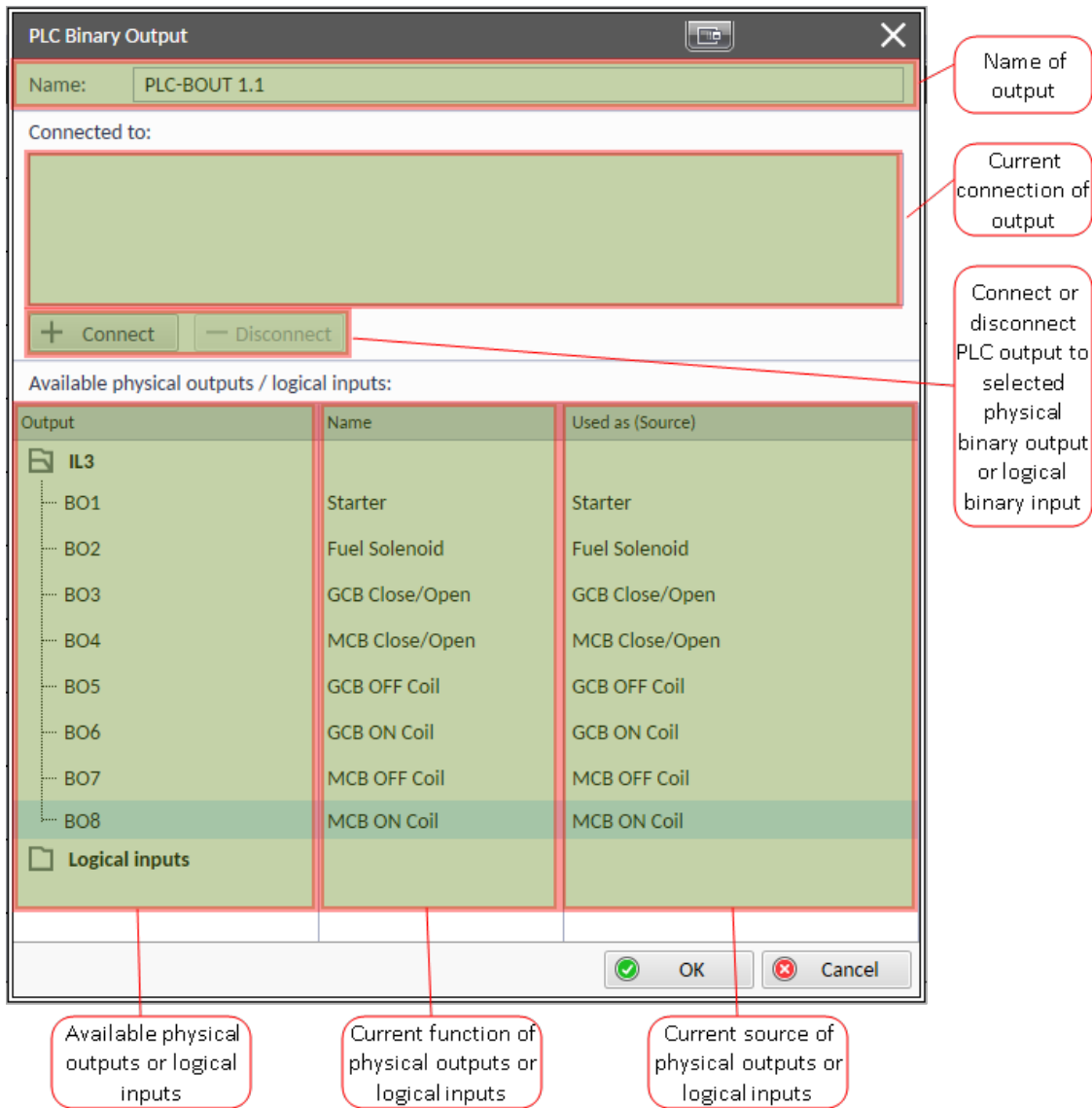


Image 5.13 PLC outputs

IMPORTANT: It is necessary to click on **Connect** button after selecting the output. Otherwise PLC output is not connected to output.

Creating wires

Wires can be create between PLC inputs and PLC blocks and between PLC blocks and PLC outputs.

IMPORTANT: Keep the order of starting and finishing connection points. Wires between inputs and blocks have to start from inputs. Wires between blocks and outputs have to start from blocks.

Follow the procedure below to create wire.

- ▶ Locate the mouse pointer over the starting point of the wire. If the area under the mouse pointer is a connection point, the pointer will change the color (fill of pointer will be white).
- ▶ Press and hold the left mouse button and drag the wire to the destination of required connection point. If you point over a valid connection point, the connection point will be marked with a red circle.
- ▶ Release the left mouse button to create a wire between the two points. The wire is routed automatically.

Note: It is possible to make connection only between the outputs and inputs with the same type of value (binary or analog). Binary values are marker by black pointer, analog values are marked with green pointer.

Note: To delete wire just click on it and press delete button. Also delete selection function can by used.

PLC logic execution rules

The PLC program is executed every 100ms. The blocks are executed in order according to block numbers (item numbers), which are indicated in each block. The block numbers are assigned automatically according to position on sheet.

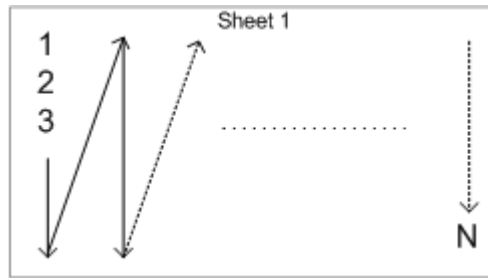
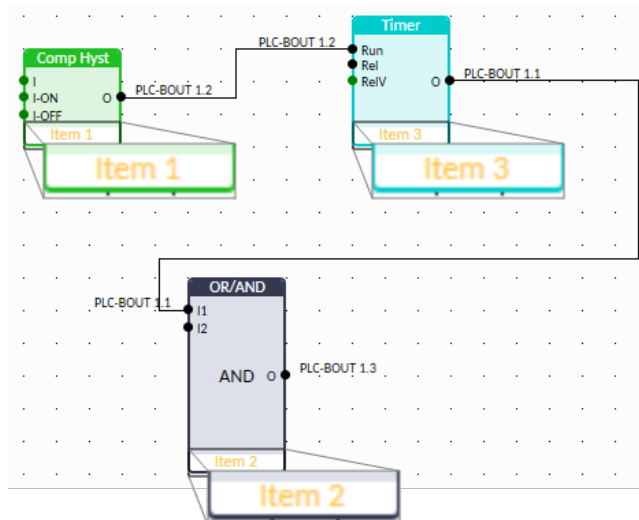
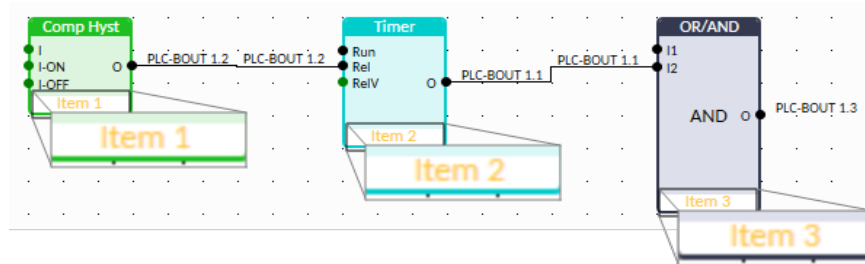


Image 5.14 PLC execution logic

IMPORTANT: Please always check that the blocks are ordered correctly, especially if you use direct feedbacks from outputs to inputs within one sheet. Wrong order may lead to incorrect results!!!



Other functions

Consistency check

Use this function to check if all inputs and outputs of PLC block are connected.

Delete whole content of sheet

Use this function to delete the whole content of sheet (including blocks, wires, inputs, outputs, etc...).

Hints

Use this function to enable or disable quick hints for blocks (controller help is not affected by this function).

PLC monitor

PLC monitor is a powerful tool for monitoring your PLC. Just click on PLC monitor button on main IntelliConfig page to see you PLC. Active inputs and outputs have blue color. Also wires with active signals have blue color.

IMPORTANT: It is not possible to edit PLC in PLC monitor tool.



5.2.8 Others

In the Configuration window use the bookmark of Controller for the advanced configuration, you can either:

- ▶ Change the Init screen. For more information **see Init screen on page 48**.
 - Change the Languages of the controller. For more information **see Languages on page 48**.
- ▶ Change the Access rules. For more information **see Access rules on page 51**.
- ▶ Change the Units/Power format. For more information **see Units/Power format on page 53**.

Init screen

Init screen is shown each time when the controller is started up when enabled. Here you can change the message you want to be shown during the controller start up.


1. Open the online/offline connection with the controller.
2. Go to  **Controller configuration** and choose the bookmark of **Others**
3. Go to the group of **Init screen**.
4. Enable Init screen by ticking off the **Enable Init screen** field.
5. Choose the language.
6. Enter the content of Init screen.
7. Click at  **OK and Restart** to take the configuration into effect.


Languages tab

In this tab it is possible to manage list of languages in configuration and make own translations.

Languages

ComAp controllers support different languages. For their configuration:

1. Open the online/offline connection with the controller.
2. Go to  **Controller configuration** and choose the bookmark of **Others**
3. Go to the group of **Languages**.

- Left column shows Available languages, Right column shows Languages presented in the controller (in the configuration). By using Add or Remove buttons or by drag&drop functionality choose those languages which you want to have presented in the controller.
- Click at  **OK and Restart** to take the configuration into effect.

Note: First language, English, is a basic language of the controller and can't be removed.

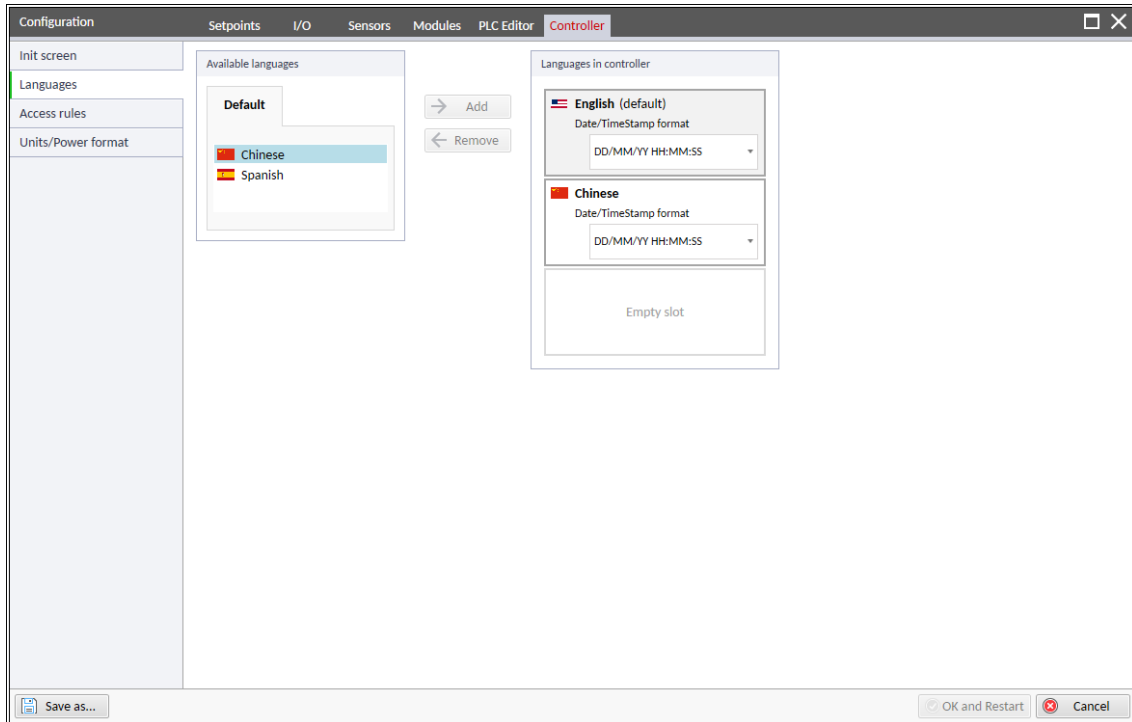




Image 5.15 Adding/Removing Languages to the Controller

Translator

Translator allows user translation of any text in controller configuration.

- Open the online/offline connection with the controller.
- Go to  **Controller configuration** and choose the bookmark of **Others**
- Go to the group of **Languages**.
- Go to the tab Translator. Update translations for languages in configuration.
- Click at  **OK and Restart** to take the configuration into effect.

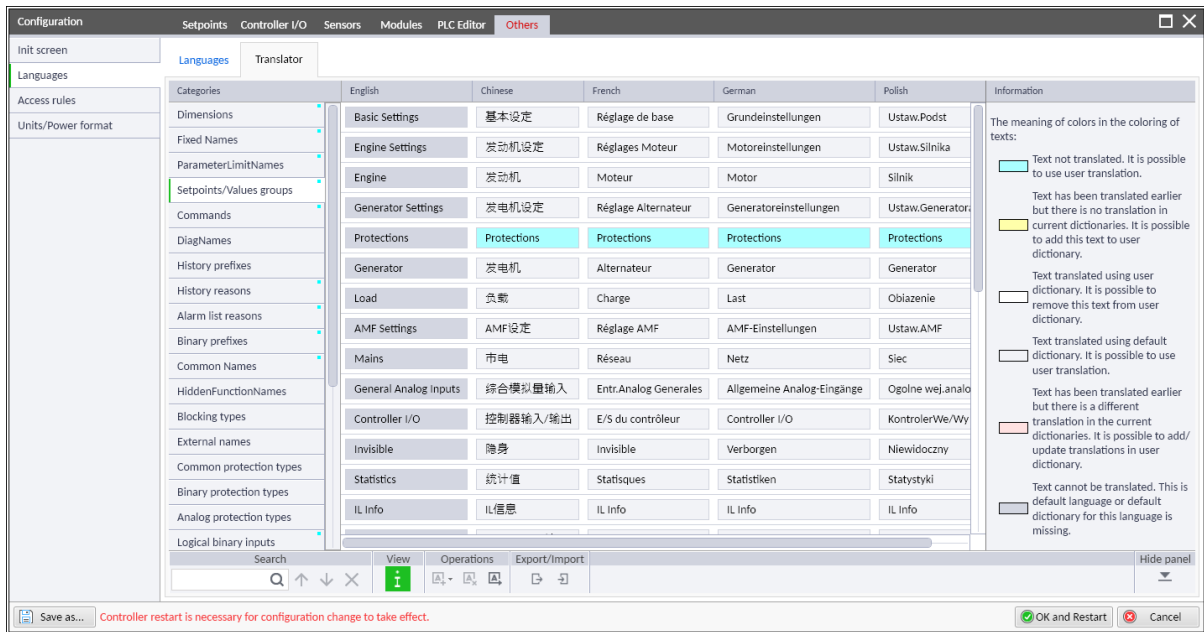













Image 5.16 Translator

Each available language has its own Default dictionary with translations prepared by ComAp. If there is no translation in this dictionary or user wants to use different translation, automatically is created User dictionary for specific language to store all user translations. The User dictionary takes precedence over the Default dictionary. The User dictionary can be exported to disk and imported on another PC. But only one User dictionary for each language can exist on PC.



Translator uses color indication for each text to indicate different states:

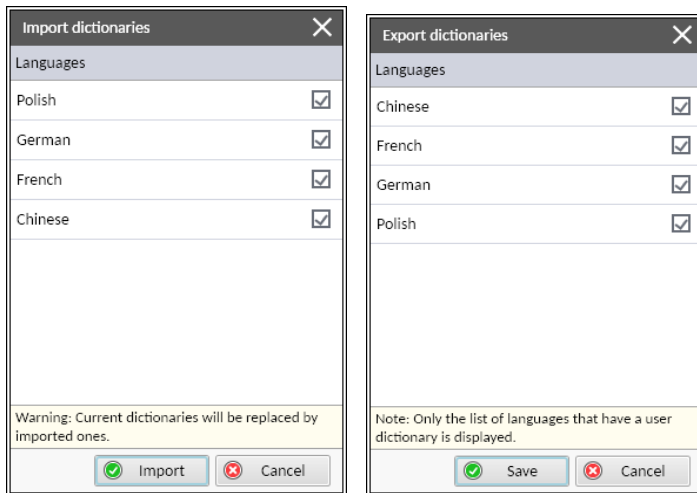
	Text not translated. It is possible to use user translation. Text in specific language is the same as in English and does not exist in User or Default dictionary.
	Text has been translated earlier but there is no translation in current dictionaries. It is possible to add this text to user dictionary. Text in specific language is different from English (text was translated earlier by different user) and there is no translation in User or Default dictionary.
	Text translated using user dictionary. It is possible to remove this text from user dictionary.
	Text translated using default dictionary. It is possible to use user translation.
	Text has been translated earlier, but there is a different translation in the current dictionaries. It is possible to add/update translations in user dictionary.
	Text cannot be translated. This is default language or default dictionary for this language is missing. Because User dictionary is connected with Default dictionary for specific language, it cannot exist when there is no Default dictionary.

Operations with texts available in translator:

	Add selected text to the user dictionary.
	Add all yellow-marked texts to the user dictionary.
	Add all red-marked texts to the user dictionary.
	Delete selected translation from the user dictionary. Text is automatically translated using Default dictionary. If there is no translation, text is replaced by english text.
	Translate all texts in all languages.

Operations with User dictionaries

	Export dictionaries to file.
	Import dictionaries from file.



It is possible to export dictionaries to the disk as package (extension is .psidict). User can select which dictionaries will be included into package. Displayed are only languages where User dictionary exists. Exported is always pair of dictionaries (User nad Default)- It is useful, if it is required to copy Used dictionaries from one PC to another.

During import (allowed are only packages with extension .psidict) can user select which dictionaries will be imported. It is not necessary to import all dictionaries contained in package.

Note: When importing dictionaries, existing dictionaries are rewritten by imported ones.

Access rules

ComAp controllers support at least 2 different user approaches to the controller - without the password and with the password. Protected approach can be differentiated to another 3 different groups. Setting of access rules:

1. Open the online/offline connection with the controller.
2. Go to **Controller configuration** and choose the bookmark of **Others**
3. Go to the group of **Access rules**.
4. Within all setpoints, organized by groups, select the access right for each user:
 - ▶ No password - User 0
 - User 0 can be allowed to either read only or read and write the setpoint
 - User 0 can be disallowed to perform selected commands
 - ▶ Password level 1 - User 1
 - User 1 can be allowed to either read only or read and write the setpoint
 - User 1 can be disallowed to perform selected commands
 - ▶ Password level 2 - User 2
 - User 2 can be allowed to either read only or read and write the setpoint
 - User 2 can be disallowed to perform selected commands
 - ▶ Password level 3 - Administrator
 - Administrator is allowed to change any setpoint without any limitation
 - Administrator has the full access to all commands

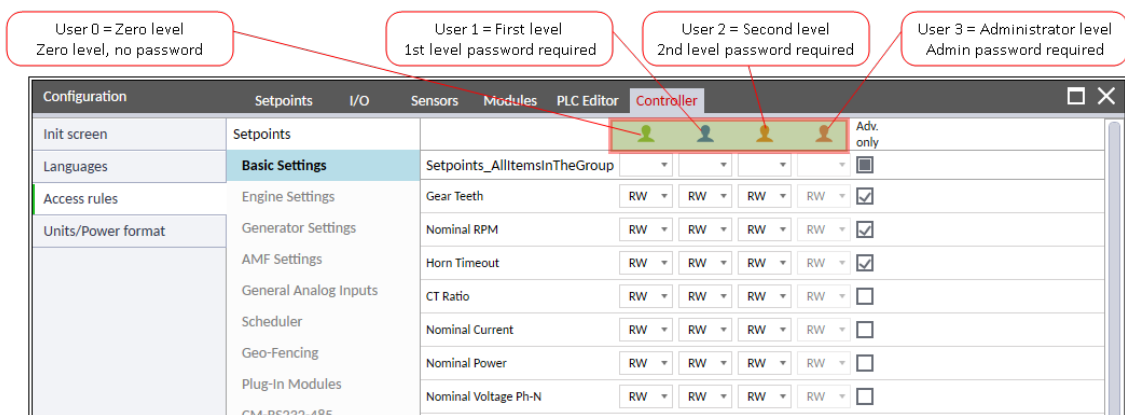


Image 5.17 Access rules window - description

It is possible to set following rights:

- ▶ Read Only
 - the user is able to see the value of the setpoint but he is not allowed to change it
 - ▶ Read and Write
 - the user is allowed to see and change the value of the setpoint
 - ▶ In addition it is possible to choose the visibility of the Setpoint, it can be either:
 - ▶ Standard
 - the setpoint is visible all the time
 - ▶ Advanced only
 - the setpoint is visible at the controller only when switched to Advanced mode
5. Click at **OK and Restart** to take the configuration into effect.

For the information how to set up Password and define user levels see **Change access code on page 73**.

IMPORTANT: IntelliConfig PC SW is in the group of Basics Settings showing in the fact some of Setpoints from the group of Alternate Configuration - e.g. Nominal frequency, Nominal current, Nominal voltage etc. Please consider this fact during configuration of Access rules.

Units/Power format

IntelliConfig supports both Metric and US Units/Power format. In this tab you can also define required Power format.

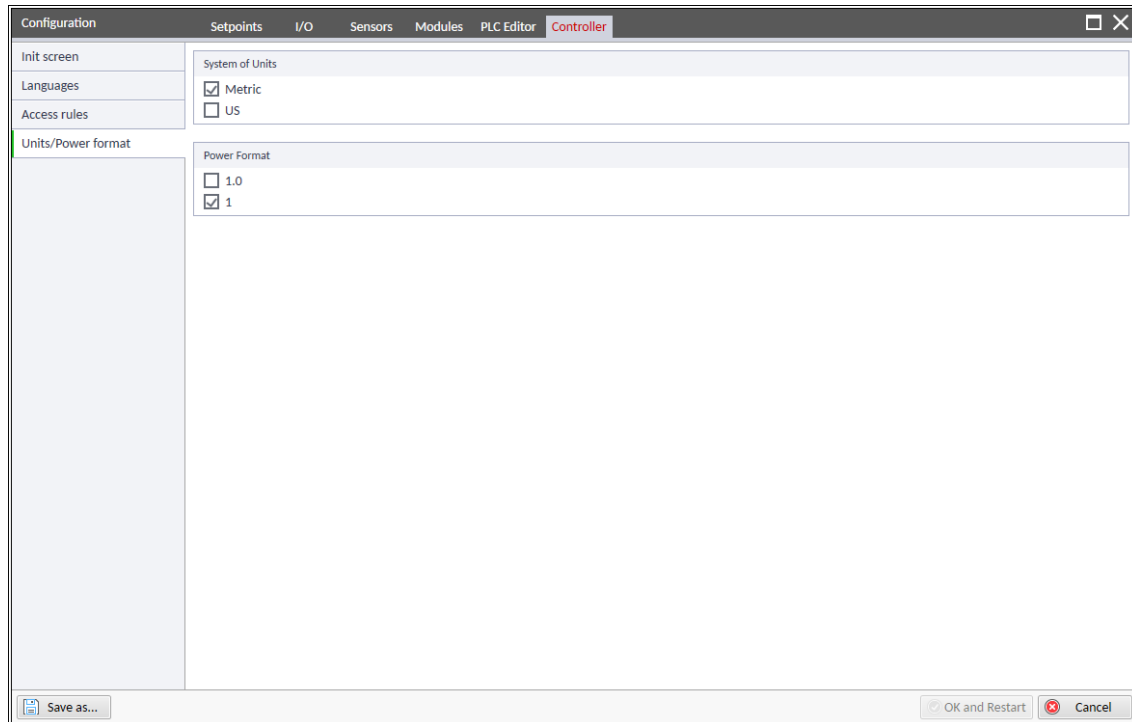


Image 5.18 Units/Power format setting

MODBUS

IntelliConfig supports create user definition of MODBUS registers

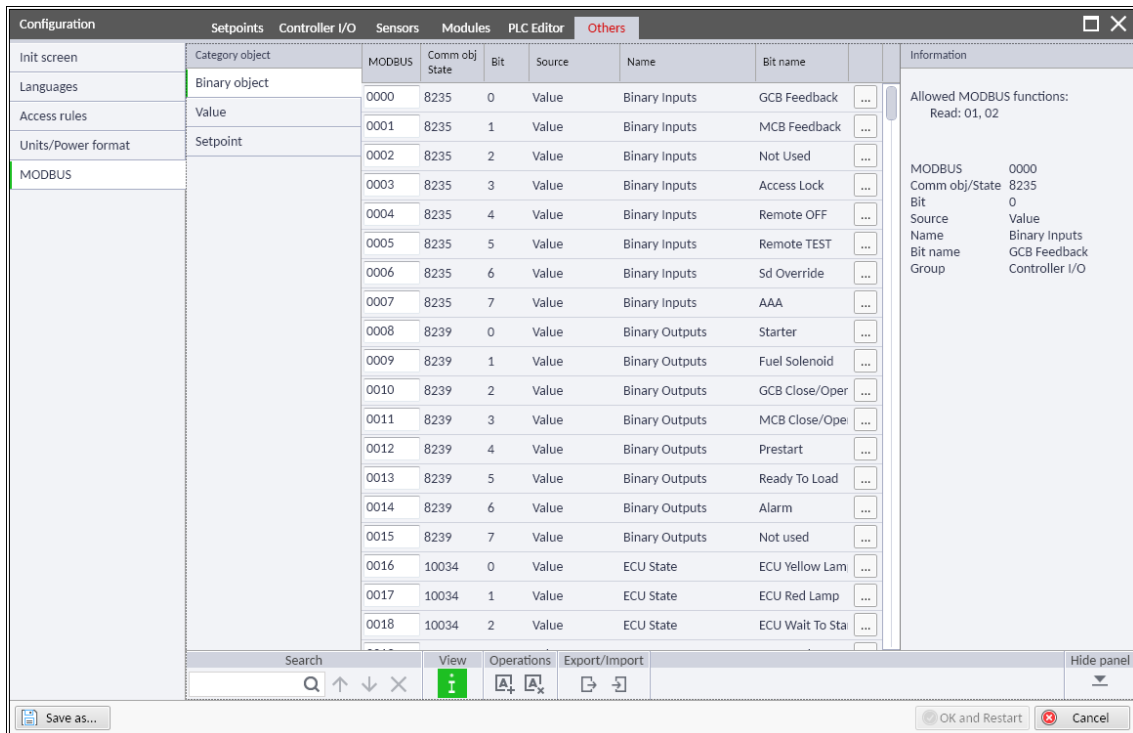


Image 5.19 MODBUS definition

Controller supports access to most its objects using MODBUS protocol. This window allows to define list of MODBUS registers and its meaning (connection MODBUS register <->controller object).

In configuration are three groups of objects. Each group has assigned range of MODBUS registers.

- ▶ Binary objects: <0...999>
- ▶ Values: <1000...2999>
- ▶ Setpoints: <3000...3999>

Default controller configuration may contain some MODBUS definition. This definition can be modified based on user needs. If there is no definition (group is empty), definition could be created.

Available operations:

- Add new MODBUS register. Free MODBUS register is predefined as default, can be changed in allowed range. Controller object is selected from the list.

- Delete selected MODBUS register.

- Edit already defined MODBUS register

- Export MODBUS definition to file

- Import MODBUS definition from file. This replaces while MODBUS definition in configuration (remove all defined MODBUS registers and import MODBUS registers from file).

Each MODBUS register can contain 2 bytes of data. In controller exists object, which are bigger than 2 bytes (statistics values, text setpoints...). It is necessary to use more MODBUS registers for this objects. When configuring MODBUS register for this object, only first MODBUS register is chosen by user. System automatically use following registers for other bytes (MODBUS register is increased by +1). There must be enough free space in MODBUS table definition to allow create appropriate number of MODBUS registers.

Otherwise MODBUS register cannot be added. This MODBUS registers are in gray, it means cannot be edited or deleted separately.

There is example of MODBUS definition for setpoint Gen-Set name:

Setpoints	Controller I/O	Sensors	Modules	PLC Editor	Others
Category object	MODBUS	Comm obj State	Name	Dim	
Binary object	3000	8637	Gen-Set Name		...
Value	3001	8637	Gen-Set Name		
Setpoint	3002	8637	Gen-Set Name		
	3003	8637	Gen-Set Name		
	3004	8637	Gen-Set Name		
	3005	8637	Gen-Set Name		
	3006	8637	Gen-Set Name		
	3007	8637	Gen-Set Name		

It is allowed to have more different MODBUS registers for the same object.

MODBUS registers definition table is automatically sorted by MODBUS column.



In window is available Search functionality. This will find any text in definition table in selected group.

5.3 Configuration import

In case of opened online connection it is possible to write into the controller other configuration from the prepared archive - import of the configuration:

1. Open the online connection with the controller.

Note: Not every type of online connection needs to be supported, e.g. AirGate via GPRS module...

2. Go to **Others** bookmark and in the category of Configuration click at  **Configuration import** icon.
3. In the opened Explorer window find the wanted archive and click at Open.
4. The new Configuration window will appear. Now you can check the needed configuration and in the case you want to use it click at  **OK and Restart** to take the configuration into effect.

5.4 Access


Access bookmark allows users activate or deactivate password. IntelliConfig contains 4 Access levels. For more information about Access rules see **Access rules on page 51**.

5.4.1 Enter password

If is Password activated, Access tab indicates red lock  icon and it is a need to Enter password.

Note: How to Change password see **Change password on page 72**.

5.4.2 Deactivate password

If Password is deactivated, the Access tab indicates a green unlock  icon. After required configuration, the user can deactivate the password and lock the Configuration.

InteliConfig contains 4 user levels. The Access tab can display these levels.

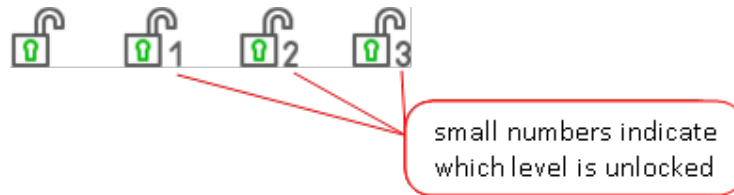


Image 5.20 Unlocked access level

Note: How to Change password see **Change password on page 72**.

5.5 Monitoring



5.5.1 Setpoints

The Setpoint window enables you to view and adjust each Setpoint present in the controller. It is possible to choose whether some or all Setpoints require password protection from unauthorized changes. When displayed within the window, any password-protected Setpoint will be shown with a gray background and will remain uneditable until a password of proper level is entered. In off-line mode, Setpoints can be altered without a password, however, a password will be required later when the modified archive is written into the controller.

In cases where you need to copy across one or more Setpoint values from an archive file, use the **Alternative setpoints** feature to provide assistance **Control window (page 23)**.

Note: For AirGate connections, when retrieving the history from the controller, the Setpoint window will be disabled until the History has been fully downloaded.

To open the Setpoints window

1. Initiate online or offline connection with the supported controller.
2. For opening the Setpoints window you can either:
 - a. Select the **Others** bookmark and in the category of Configuration click at  **Controller configuration** icon to open the Configuration window. Now select the bookmark **Setpoints**.
 - b. Select the **Others** bookmark and in the category of Monitoring click at  **Setpoints** icon to open the Setpoints window.
 - c. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **Setpoints** to open the Setpoints window.

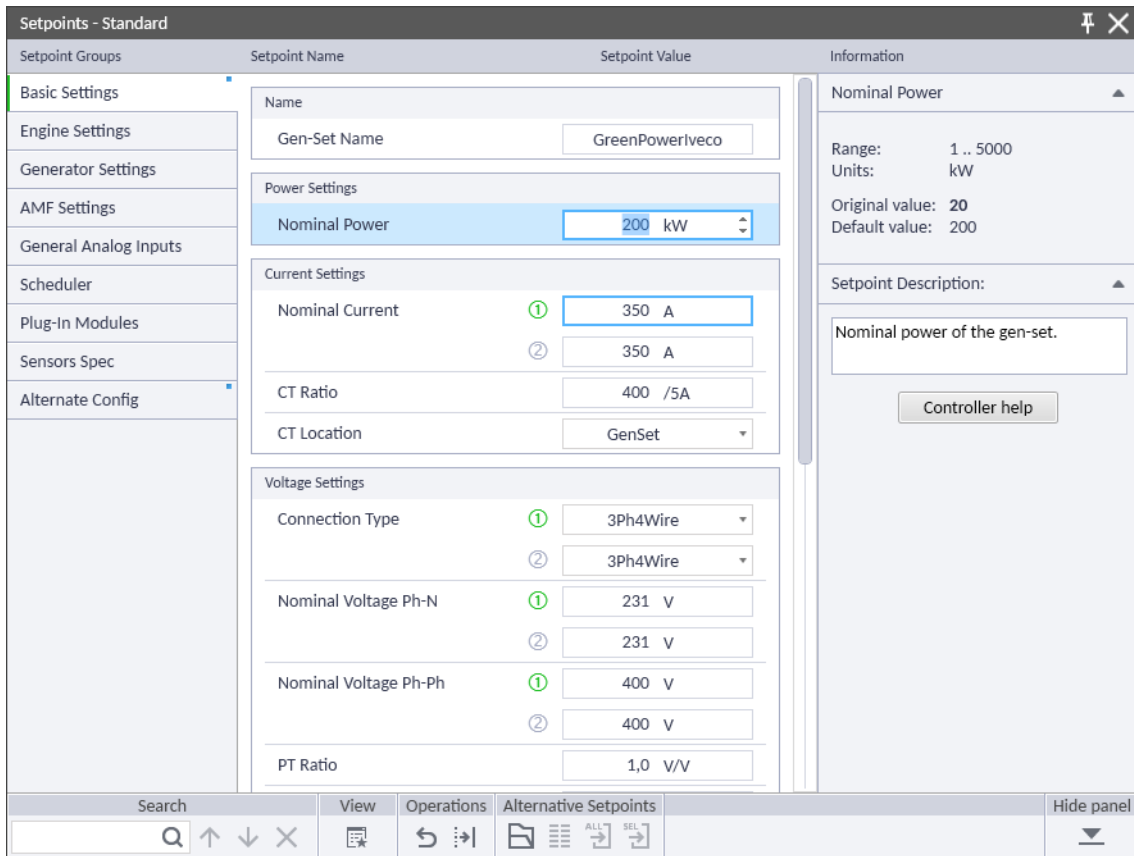


Image 5.21 Setpoints window

IMPORTANT: For opening of Controller configuration window for the online connected controller it is necessary to enter the password. To enter the password select the Others bookmark and in Access category click at Enter password.

Note: In case of changing parameters in the Setpoints window (opened by clicking at Setpoints icon or at Setpoints bookmark in Right Dock Panel) the affect is immediate after confirmation of the change by Enter key or by clicking to another parameter. In case of changing parameters in the Configuration window (opened by clicking at Controller configuration icon) it is necessary to confirm all changes by pressing the OK and Restart button.

Setpoints window description

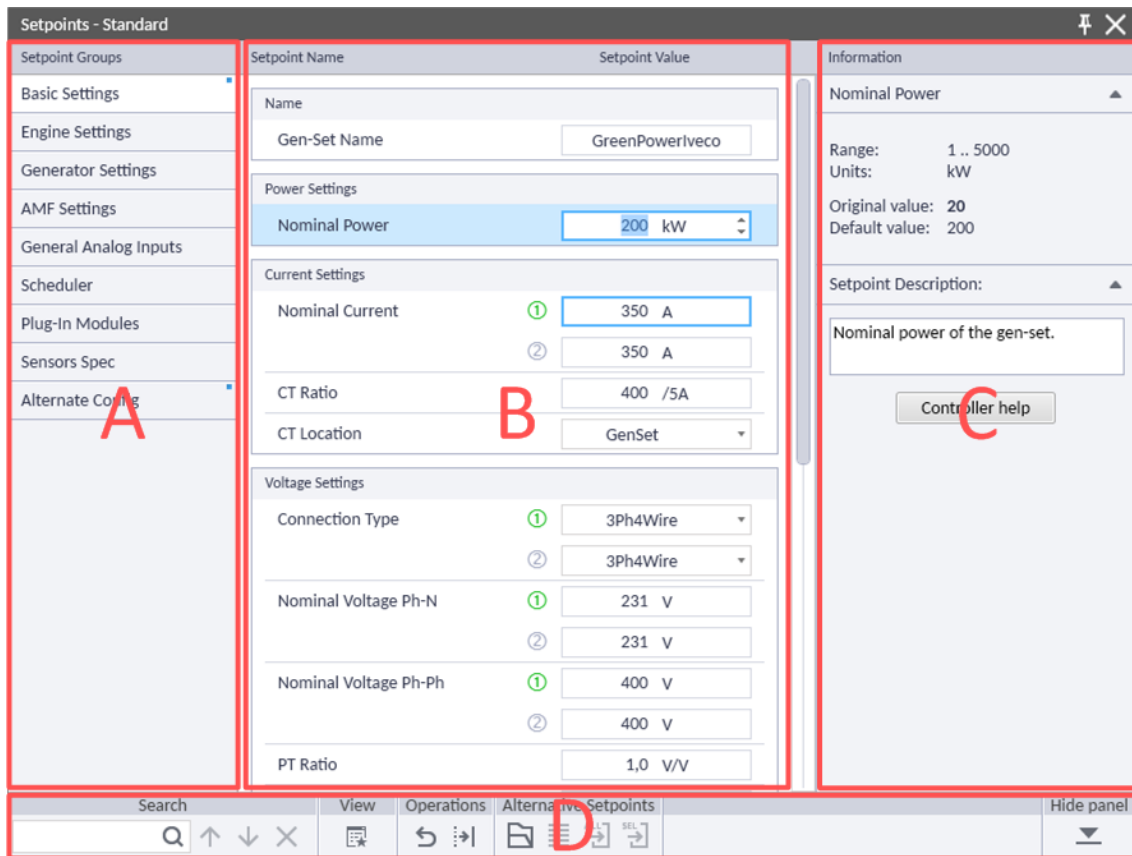

















Image 5.22 Setpoints window description

- A. **Setpoint group panel** - contains all visible groups for the current type of controller.
- B. **Setpoints panel** - contains all visible setpoints (parameters) within the selected group. This panel can contain following parts of parameters:
 - ▶ Name of the setpoint.
 - ▶ Value of the setpoint and unit.
 - ▶ Numbers of the alternative - ① or ②. Some setpoints have two different alternatives which are switchable by the configured Logical Binary Input.
- C. **Info panel** - contains basic information about the selected setpoint. It shows:
 - ▶ Parameter range.
 - ▶ Parameter units.
 - ▶ Original value of the setpoint - this value resets always after the new connection.
 - ▶ Default value of the setpoint - value of the default configuration prepared by ComAp.
 - ▶ Short description of the setpoint - basic information about the purpose of the setpoint.
 - ▶ Controller help button for opening full context help for the selected setpoint.

D. **Tool bar** - bar with handy tool while configuring setpoints. It contains following functions:

- ▶ Search
 -  Search panel.
 -  Go to previous occurrence.
 -  Go to next occurrence.
 -  Cancel search.
- ▶ View
 -  Turn on/off hiding functionality - setpoints are appeared/hidden
- ▶ Operations
 -  Set all setpoints to default value - this option will reset all made changes and will set all setpoints to default values.
 -  Reset original values - this option will reset all made changes back to original values.
- ▶ Alternative setpoints
 -  Show alternative setpoints - this icon will open the explorer window where it is possible to find the configuration for the setpoint comparison.
 -  Hide alternative setpoints - in case of opened Alternative setpoints this option will close it.
 -  Show/Hide alternative setpoint names - this option will show or hide names of alternative setpoints to show possible differences.
 -  Import all alternative values - this option will rewrite all setpoints of the opened connection by those from the alternative configuration.
 -  Import selected alternative value - this option will rewrite the selected setpoint of the opened connection by the relevant value from the alternative configuration.
- ▶ Hide panel
 -  Hide panel - this option will hide the whole Tool bar. In case of hidden Tool bar only the icon of  is shown in the right bottom corner of the Setpoints window. After click at this icon the Tool bar will appear again.

Note: The separate Setpoints window is possible to pin to the **Right Dock Panel** (page 25) by using of  **Pin** icon.

To edit a setpoint

1. In the Setpoint window, click the required **Group** name to display all related setpoints.
2. In the Setpoint value column, click the cell adjacent to the required setpoint in order to highlight it (in light blue).

Note: If the cell has a dark gray highlight then it is password protected and you'll first need to enter a valid password (see Password protection).

3. Change the setpoint by writing new value, increasing or decreasing the value by using of arrows or just by choosing from the offered list.

Note: In cases where you need to copy across one or more setpoint values from an archive file, use the **Alternative setpoints** feature to provide assistance.

Note: In cases where you need to use the Original or Default value just double-click at this value in the info panel and it will be automatically written in the required setpoint. If the Original or Default value differs from the actual value of the setpoint it is highlighted with bold font.

- Continue with other changes. Setpoints are written to the controller immediately after pressing of Enter key or right after choosing another setpoint.

IMPORTANT: In case of changing Setpoints in  Configuration window all changes will take effect after pressing  OK and Restart button only.

Additional functions of Setpoints window

Setpoints window of IntelliConfig offers different highlighting of groups, parameters or values to help the user to find all needed information.

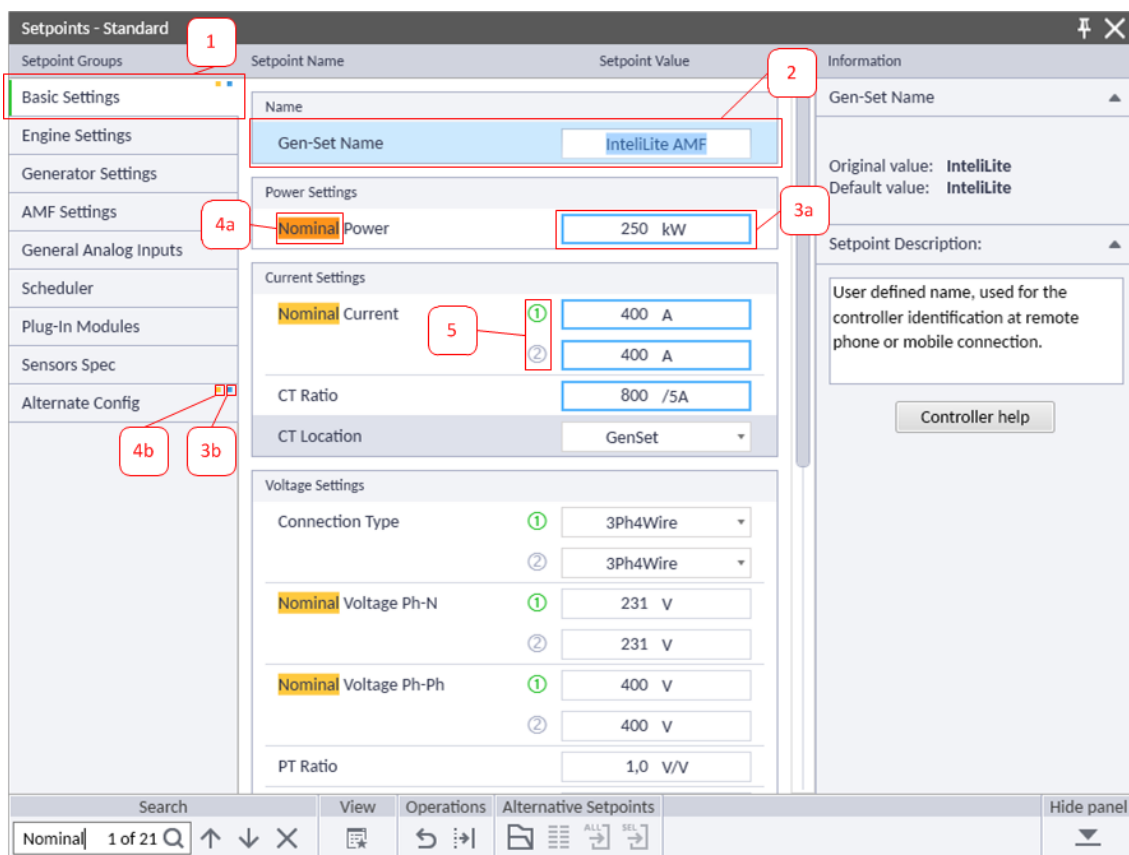


Image 5.23 Functions of Setpoints window

#	Meaning
1	Active group of setpoints.
2	Active setpoint. Basic info about the Active setpoint available in the Information panel on the right.
3a	Changed setpoint from its original value.
3b	Indication of the group which contains any changed setpoint.

4a	Searched word via the Search panel in the Tool bar.
4b	Indication of the group which contains any searched words.
5	Indication of setpoints which have its alternate option. Green number indicates the active value. See Alternate Configuration chapter.

Table 5.1 Functions of Setpoints window

Alternative setpoints

Alternative setpoints is a IntelliConfig feature that can help to compare two different configurations and to import one or more setpoint values from another archive.

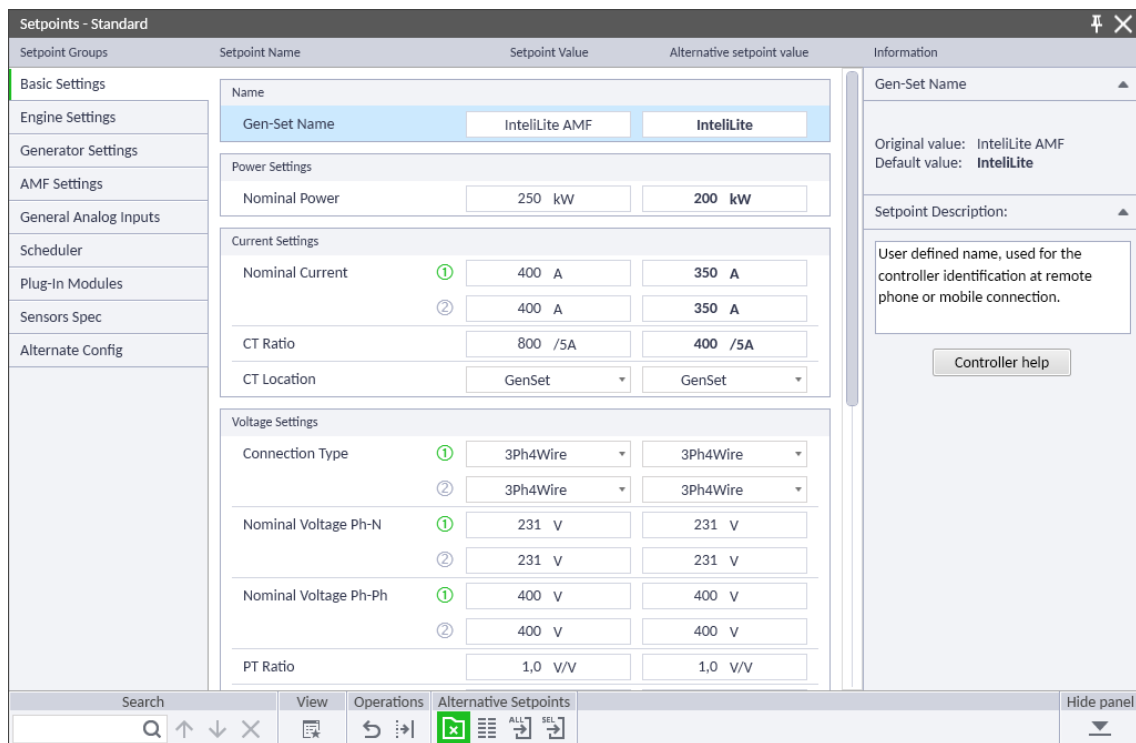



Image 5.24 Setpoints window with Alternative setpoints

To open Alternative setpoints

1. Establish the online connection with the controller or open the offline archive.
2. Open the Setpoint window.
3. In the bottom Tool bar in the Setpoints window click at  **Show/Hide alternative setpoints** icon.
4. Open the chosen configuration archive and click at Open.

Advanced functions of Alternative setpoints

- To copy the value from alternative setpoints = Double-click at the relevant value of alternative setpoint.
= Select the value which you want to change and click at **Import selected alternative value** icon.
- To copy all values from alternative setpoints = Click at **Import all alternative values** icon.
- To show alternative setpoint names = Click at **Show/Hide alternative setpoint names** icon.
- To close alternative setpoints = Click at **Show/Hide alternative setpoints** icon.

5.5.2 Values

The Values window allows you to view current measured and computed values. The values are separated into groups according to their meaning.

To open the Values window

1. Initiate online or offline connection with the supported controller.
2. For opening the Values window you can either:
 - a. Select the **Others** bookmark and in the category of Monitoring click at **Values** icon to open the Values window.
 - b. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **Values** to open the Values window.

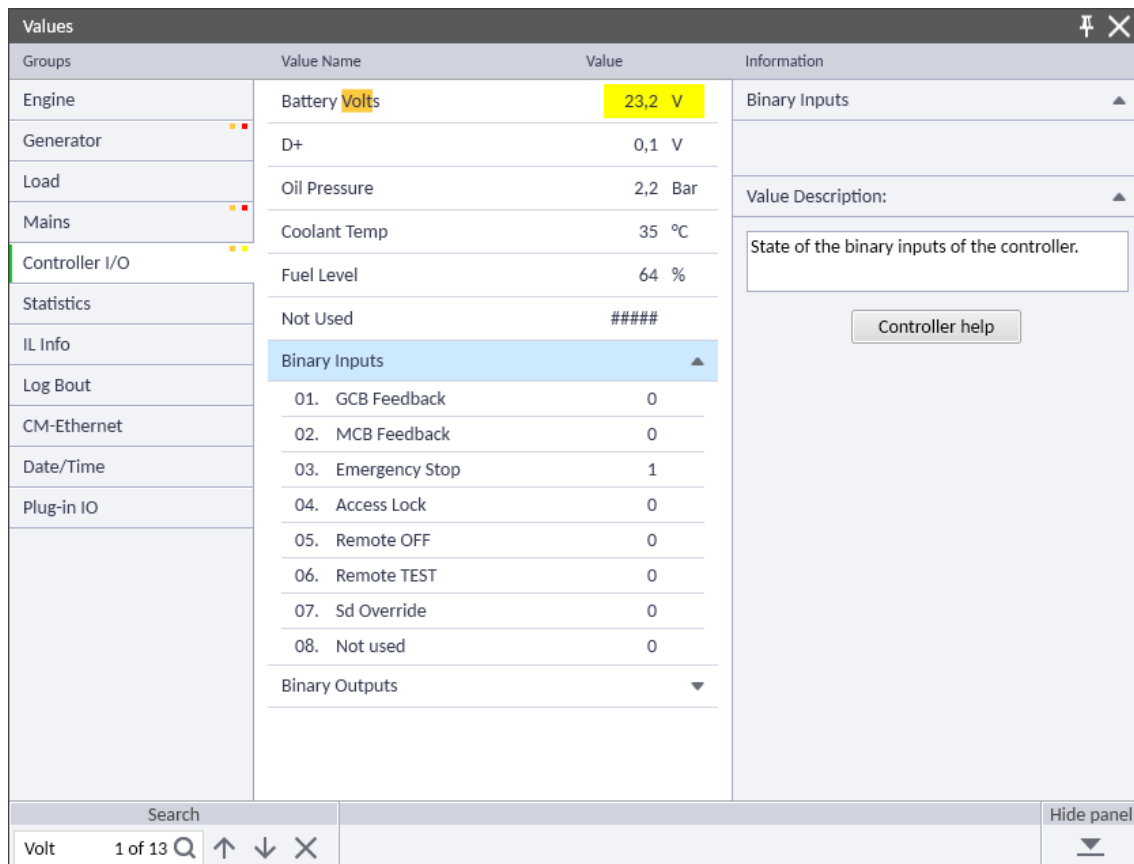


Image 5.25 Values window

Values window description

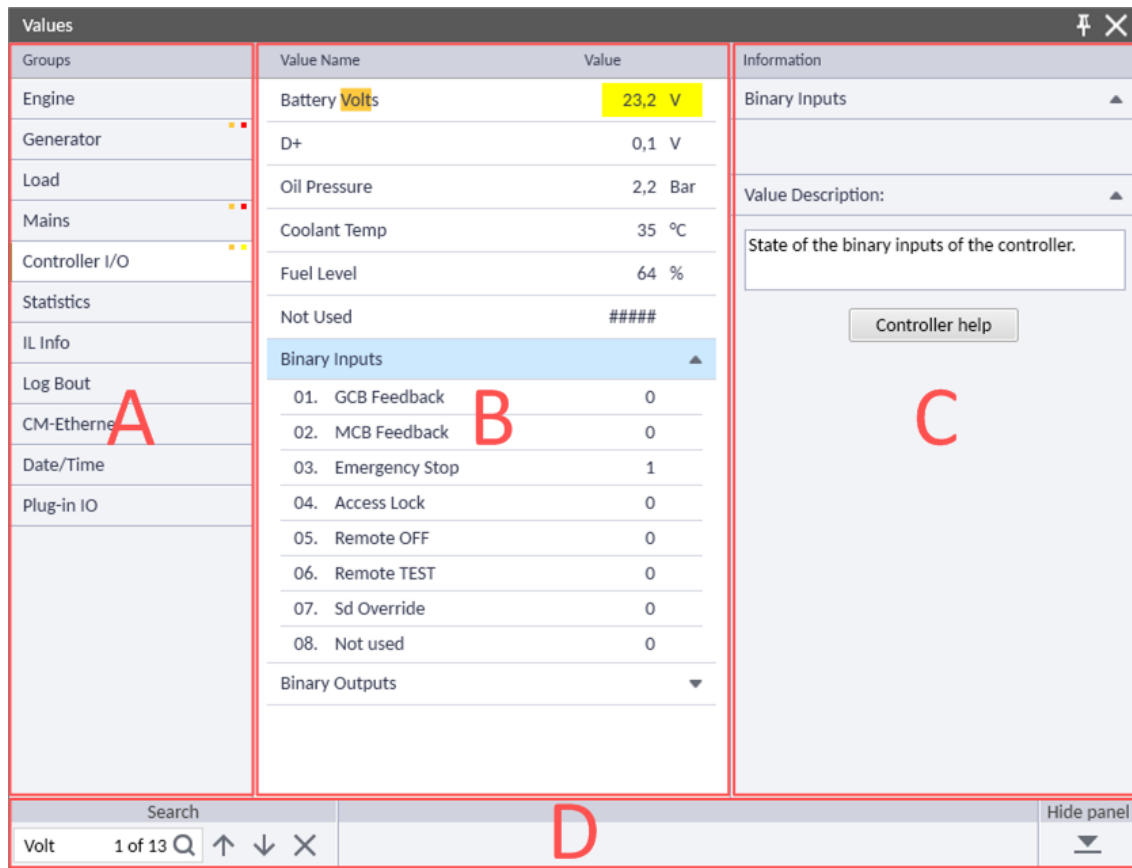



Image 5.26 Values window description

- A. **Values group panel** - contains all visible groups for the current type of controller.
- B. **Values panel** - contains all visible values within the selected group. This panel can contain following parts of values:
 - ▶ Value Name.
 - ▶ Value, including the unit if available.
- C. **Info panel** - contains basic information about the selected value. It shows:
 - ▶ Value range, if available.
 - ▶ Value unit, if available.
 - ▶ Short description of the value.
 - ▶ Controller help button for opening full context help for the selected value.
- D. **Tool bar** - it contains following functions:
 - ▶ Search
 - Search panel.
 - Go to previous occurrence.
 - Go to next occurrence.
 - Cancel search.

► Hide panel

- ▾ Hide panel - this option will hide the whole Tool bar. In case of hidden Tool bar only the icon of  is shown in the right bottom corner of the Setpoints window. After click at this icon the Tool bar will appear again.

Note: The Values window is possible to pin to the Right Dock Panel (page 25) by using of  Pin icon.

Additional functions of the Values window

Values window of IntelliConfig offers different highlighting of groups or values to help the user to find all needed information.

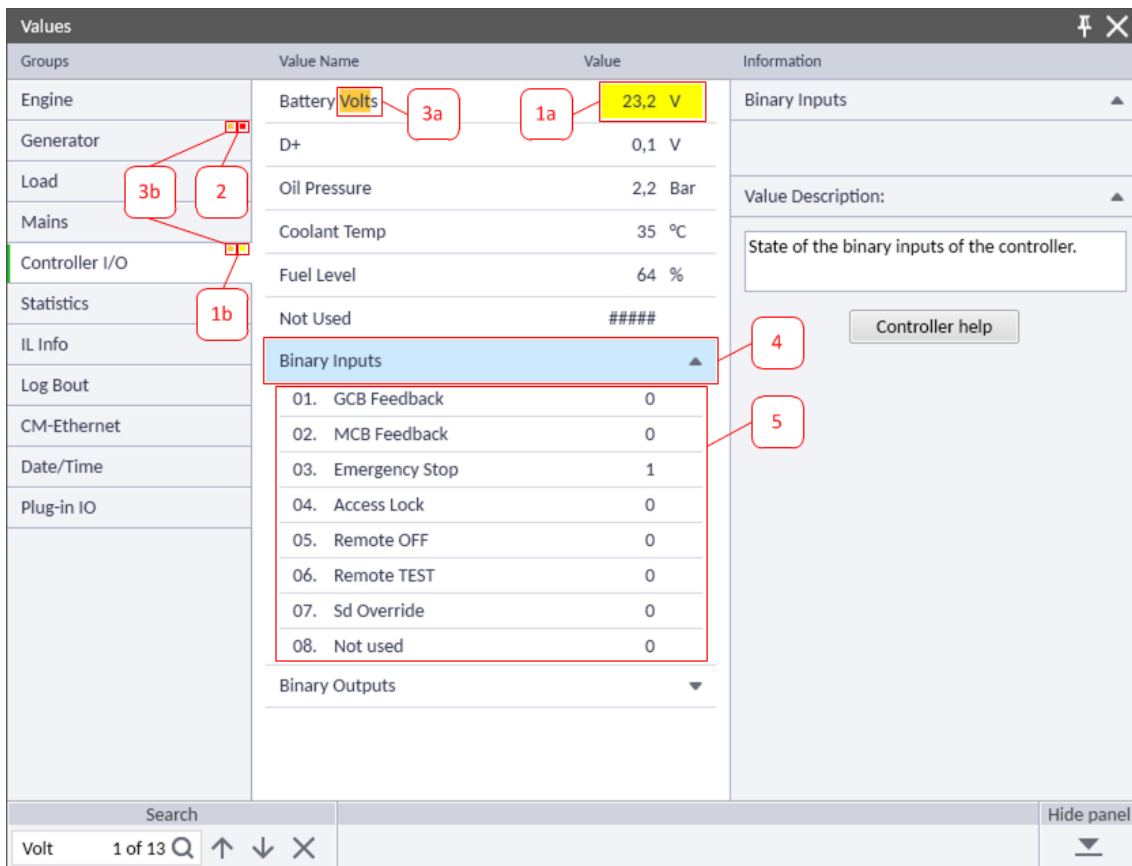


Image 5.27 Functions of Values window

#	Meaning
1a	Value which is out of warning limit.
1b	Indication of the group which contains any value which is out of warning limit.
2	Indication of the group which contains any value which is out of shutdown limit. Value which is out of shutdown limit is colored with red background.
3a	Searched word via the Search panel in the Tool bar.
3b	Indication of the group which contains any searched words.
4	Chosen value. Basic info about the chosen value available in the Information panel on the right.
5	Rolled down field of Binary Inputs/Outputs which contains detailed info about the status of configured inputs/outputs.


Table 5.2 Functions of Values window

5.5.3 History

The History window displays the history log held within the controller. The history log is displayed as a table, where each row contains one record (event) and the columns contain data values recorded in the moment that the event occurred.

Columns of history are partially customizable. It is possible to add or delete some of columns associated with ECU, External or Plug-in modules. This can be done by ticking the 'Add to history' option when configuring ECU, External or Plug-in modules in Configuration window.

To open the History window

1. Initiate online or offline connection with the supported controller.
2. For opening the History window you can either:
 - a. Select the **Others** bookmark and in the category of Monitoring click at  **History** icon to open the History window.
 - b. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **History** to open the History window.

No	Reason	Date	Time	RPM	Pwr	Q	PF	LChr	Gfrq	Vg1	Vg2	Vg3	Vg12
0.	Not Ready	11.08.2015	18:11:15	0	0	0	0,00		0,0	0	0	0	0
-1.	GCB Opened	11.08.2015	18:11:07	1421	0	0	0,00		47,8	230	229	230	397
-2.	Gen-set Stop	11.08.2015	18:11:07	1440	0	0	0,00		48,0	232	233	232	403
-3.	Emergency Stop	11.08.2015	18:11:07	1440	0	0	0,00		48,0	232	233	232	403
-4.	Time Stamp	11.08.2015	18:10:00	1440	16	0	1,00	R	48,0	232	233	232	403
-5.	GCB Closed	11.08.2015	18:09:55	1441	16	0	1,00	R	48,0	232	233	232	403
-6.	Loaded	11.08.2015	18:09:55	1439	16	0	1,00	R	48,1	232	233	232	403
-7.	Running	11.08.2015	18:09:52	1440	16	0	1,00	R	48,4	232	232	232	401
-8.	Terminal	11.08.2015	18:09:52	T=USB HID Start command									
-9.	Cooling	11.08.2015	18:09:48	1440	16	0	1,00	R	48,0	232	233	232	403
-10.	Terminal	11.08.2015	18:09:48	T=USB HID Stop command									
-11.	GCB Opened	11.08.2015	18:09:43	1440	16	0	1,00	R	48,0	232	233	232	403
-12.	GCB Closed	11.08.2015	18:06:55	1441	0	0	0,00		48,0	232	233	232	403
-13.	Loaded	11.08.2015	18:06:55	1441	0	0	0,00		48,0	232	233	232	403
-14.	MCB Opened	11.08.2015	18:06:52	1441	0	0	0,00		48,0	232	233	232	403
-15.	Running	11.08.2015	18:06:33	1000	0	0	0,00		33,6	154	154	153	267
-16.	Idle Run	11.08.2015	18:06:21	382	0	0	0,00		0,0	0	0	0	0
-17.	ECU Wait To Start	11.08.2015	18:06:18	0	0	0	0,00		0,0	0	0	0	0
-18.	Manual Start	11.08.2015	18:06:17	0	0	0	0,00		0,0	0	0	0	0
-19.	Terminal	11.08.2015	18:06:17	T=USB HID Start command									
-20.	Ready	11.08.2015	18:06:14	0	0	0	0,00		0,0	0	0	0	0

Image 5.28 History window

History window description

No	Reason	Date	Time	RPM	Pwr	Q	PF	LChr	Gfrq	Vg1	Vg2	Vg3	Vg12
0.	Not Ready	11.08.2015	18:11:15	0	0	0	0,00		0,0	0	0	0	0
-1.	GCB Opened	11.08.2015	18:11:07	1421	0	0	0,00		47,8	230	229	230	397
-2.	Gen-set Stop	11.08.2015	18:11:07	1440	0	0	0,00		48,0	232	233	232	403
-3.	Emergency Stop	11.08.2015	18:11:07	1440	0	0	0,00		48,0	232	233	232	403
-4.	Time Stamp	11.08.2015	18:10:00	1440	16	0	1,00	R	48,0	232	233	232	403
-5.	GCB Closed	11.08.2015	18:09:55	1441	16	0	1,00	R	48,0	232	233	232	403
-6.	Loaded	11.08.2015	18:09:55	1439	16	0	1,00	R	48,1	232	233	232	403
-7.	Running	11.08.2015	18:09:52	1440	16	0	1,00	R	48,4	232	232	232	401
-8.	Terminal	11.08.2015	18:09:52	T=USB HID Start command									
-9.	Cooling	11.08.2015	18:09:48	1440	16	0	1,00	R	48,0	232	233	232	403
-10.	Terminal	11.08.2015	18:09:48	T=USB HID Stop command									
-11.	GCB Opened	11.08.2015	18:09:43	1440	16	0	1,00	R	48,0	232	233	232	403
-12.	GCB Closed	11.08.2015	18:06:55	1441	0	0	0,00		48,0	232	233	232	403
-13.	Loaded	11.08.2015	18:06:55	1441	0	0	0,00		48,0	232	233	232	403
-14.	MCB Opened	11.08.2015	18:06:52	1441	0	0	0,00		48,0	232	233	232	403
-15.	Running	11.08.2015	18:06:33	1000	0	0	0,00		33,6	154	154	153	267
-16.	Idle Run	11.08.2015	18:06:21	382	0	0	0,00		0,0	0	0	0	0
-17.	ECU Wait To Start	11.08.2015	18:06:18	0	0	0	0,00		0,0	0	0	0	0
-18.	Manual Start	11.08.2015	18:06:17	0	0	0	0,00		0,0	0	0	0	0
-19.	Terminal	11.08.2015	18:06:17	T=USB HID Start command									
-20.	Ready	11.08.2015	18:06:14	0	0	0	0,00		0,0	0	0	0	0

Image 5.29 History window description

- A. **Fixed history columns** - basic columns of the history log which are fixed
- B. **History columns** - logged values which belong to specific events. All values are arranged to columns helping easy orientation in it.

C. **Tool bar** - bar with handy tool while configuring setpoints. It contains following functions:

▶ Search

- Search panel.
- Go to previous occurrence.
- Go to next occurrence.
- Cancel search.

▶ History

- Move to first column.
- Move to last column.
- Edit columns - this option opens the window with additional functions of history columns.
- Export the history to MS Excel (.XLS) file.

▶ Hide panel

- Hide panel - this option will hide the whole Tool bar. In case of hidden Tool bar only the icon of is shown in the right bottom corner of the Setpoints window. After click at this icon the Tool bar will appear again.

Note: The separate Setpoints window is possible to pin to the **Right Dock Panel** (page 25) by using of **Pin** icon.

Additional functions of the History window

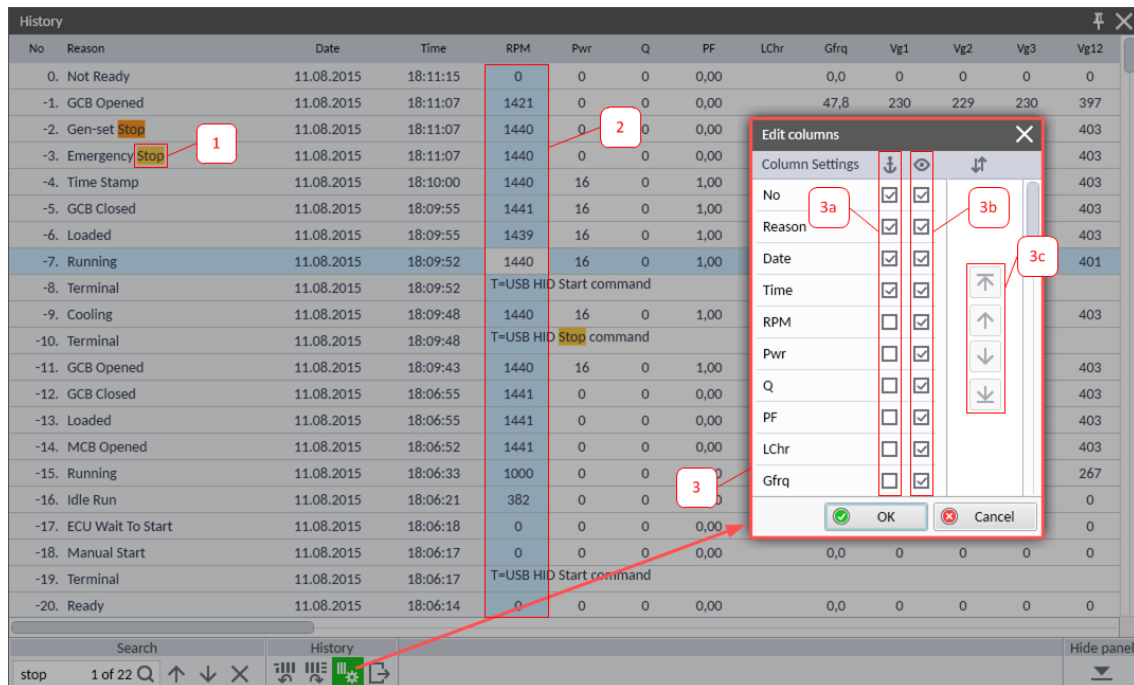


Image 5.30 Functions of History window









#	Meaning
1	Searched word via the Search panel in the Tool bar.
2	Selected column. When any column is selected buttons of  Move to first column and  Move to last column are activated.
3	History column edit window opened by  Edit columns button .
3a	Selecting of columns which will be fixed.
3b	Selecting of columns which will be visible.
3c	Control buttons for changing of the selected column position:  Move to the top ,  Move up ,  Move down and  Move to the bottom .

Table 5.3 Functions of History window


5.5.4 PLC Monitor

PLC Monitor displays PLC Monitor window. How configure PLC **see PLC on page 41**.

5.6 Language

To configure language is possible directly from Ribbon bar. Click on  Language button and select required language.

Other way of changing Language is from Home bookmark

1. Go to Home bookmark
2. Click on  Settings button → IntelliConfig - Settings window appears
3. Select Language panel
4. Choose both IntelliConfig Language and Others Language

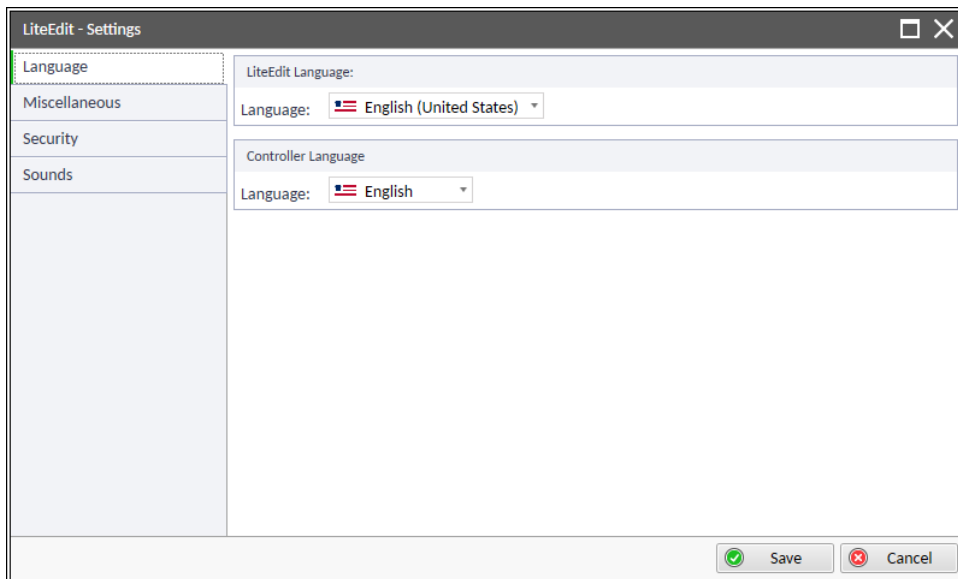


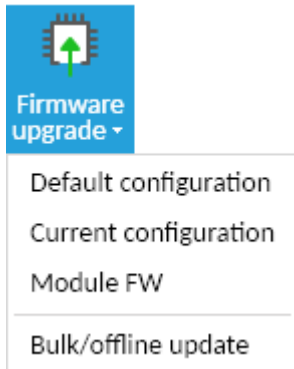
Image 5.31 Language Settings

5.7 Firmware upgrade new

InteliConfig can be used for upgrading firmware in controller and plug-in modules.

There are several ways to upgrade a firmware.

Firmware update is accessible via Firmware upgrade icon in Tools:




5.7.1 Default configuration

This option upload selected firmware into the controller with default configuration.

Note: User configuration is replaced with default configuration.

1. Open the online connection with the controller.

Note: Not every type of online connection needs to be supported for firmware upgrade, e.g. AirGate via GPRS module...

2. Go to **Others** bookmark and in the category of Access set the administrator password (Password level 3).
3. Go to Tools bookmark and in the category of Firmware click at  **Firmware upgrade** icon and select Default configuration.
4. The Controller firmware upgrade - default configuration window will appear with the list of supported firmwares available in your PC.
5. Pick desired firmware and click at OK.

Note: You will be asked to save the original configuration. It is recommended to do that.

Note: Default configuration is uploaded to the controller during Firmware upgrade.


IMPORTANT: In case there is no required firmware available in the list it is necessary to import this to your computer. Download the relevant .PSI file and execute it with double click. The import procedure will begin. After the successful firmware import try the Firmware upgrade procedure once again.

5.7.2 Current configuration

This option is used to update controller with configuration to newer version. Controller configuration is not replaced by default but is imported into new archive. After upgrading process the controller has new version of firmware and archive with user settings from old archive.

1. Open the online connection with the controller.

Note: Not every type of online connection needs to be supported for firmware upgrade, e.g. AirGate via GPRS module...

2. Go to **Others** bookmark and in the category of Access set the administrator password (Password level 3).
3. Go to Tools bookmark and in the category of Firmware click at  **Firmware upgrade** icon and select Current configuration.
4. The Controller firmware upgrade - existing configuration window will appear with the list of supported firmwares available in your PC.
5. Pick the desired firmware and click at Next.
6. If source version is different from target version, you can see report from upgrade configuration process. If everything is OK, press OK button to write new firmware and configuration into controller.

Note: You will be asked to save the original configuration. It is recommended to do that.


Note: Updated configuration is uploaded to the controller during Firmware upgrade.

Note: It is possible to upgrade configuration to newer version only. This utility unable to downgrade configuration to older version.

IMPORTANT: In case there is no required firmware available in the list it is necessary to import this to your computer. Download the relevant .PSI file and execute it with double click. The import procedure will begin. After the successful firmware import try the Firmware upgrade procedure once again.


5.7.3 Module FW

This option allow user upgrade firmware in plug-in modules.

1. Open the online connection with the controller.
2. Go to **Others** bookmark and in the category of Access set the administrator password (Password level 3).
3. Go to Tools bookmark and in the category of Firmware click at  **Firmware upgrade** icon and select Module FW.
4. The Plug-in modules firmware update window will appear with the list of supported firmwares available in your PC. On the bottom there is a list of installed modules and current firmware displayed.
5. Pick the wanted firmware and click at OK.

5.7.4 Bulk/offline update

This option allow user to upgrade archives offline. Source is list of archives selected by user, target is set archives in new version with user configuration. There is no need to have any configuration opened or connected to any controller.

1. Go to Tools bookmark and in the category of Firmware click at  **Firmware upgrade** icon and select Bulk/offline update.
2. The Configuration upgrade - stored configurations window will appear.
3. Add archive from disk to be upgraded. It is possible to add more archives.
4. For each selected archive there is a target automatically assigned to the newest compatible default archive. You can change this target archive for each user separately.
5. Select output folder.


6. Click OK to proceed upgrade.
7. Final report is displayed after finish. If there is any problem, you can see it in report.

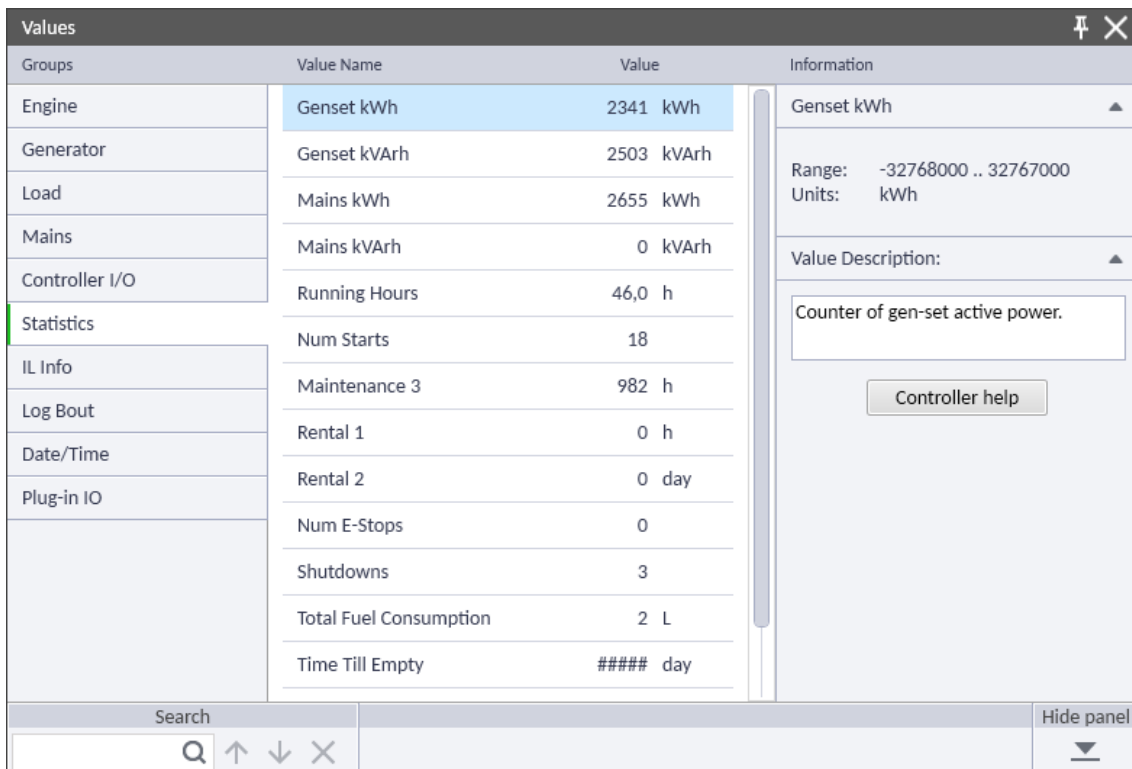
Note: Upgraded archives are automatically saved into selected folder. The name of archives consists from name of source archive + "_m.n.p.b" where m.n.p.b is version of target (final) archive.

5.8 Statistics

Statistic values (counters) are one of groups available in the **Values (page 62)**. The difference from other values is that statistics can be reset to zero or be preset to some value and they are also retained in the controller even when the power is off.

5.8.1 To view Statistics



1. Initiate online or offline connection with the supported controller.
2. For opening the Values window you can either:
 - a. Select the **Others** bookmark and in the category of Monitoring click at  **Values** icon to open the Values window.
 - b. Select the bookmark **Others** or **Tools** and in the **Right Dock Panel (page 25)** click at the bookmark **Values** to open the Values window.
3. Select the group of Statistics.

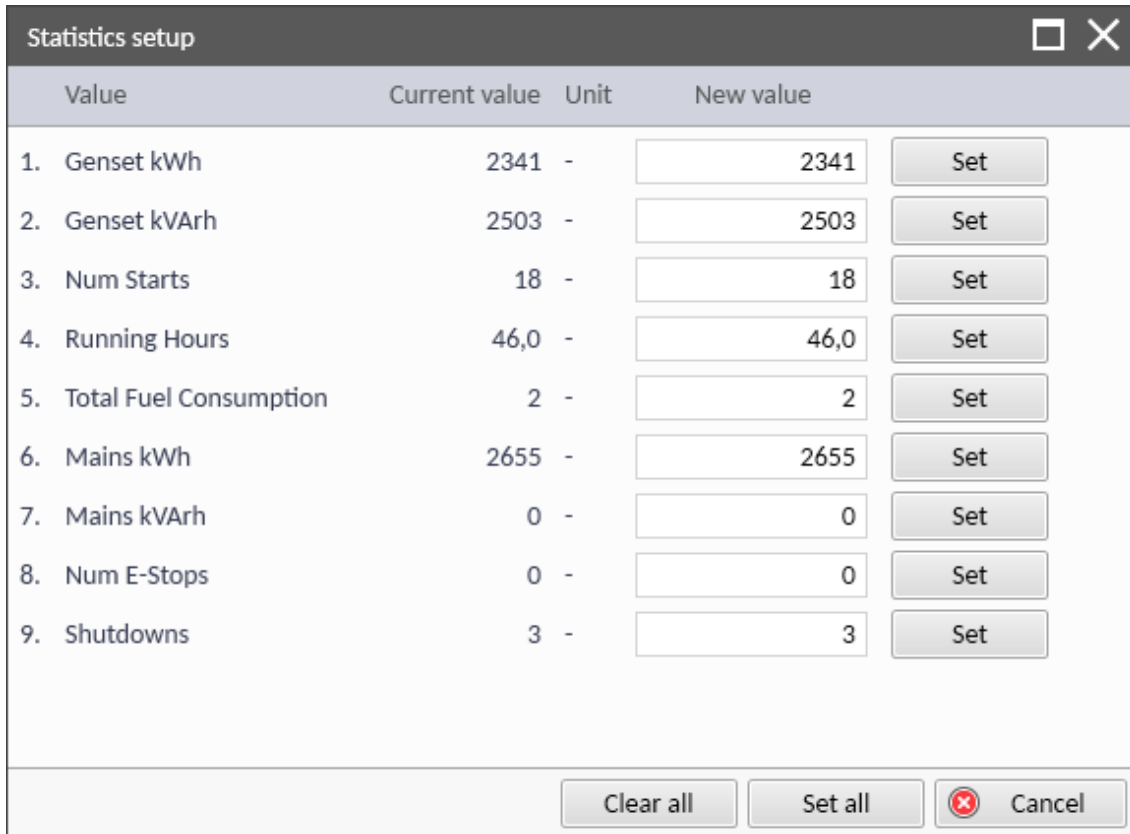


Groups	Value Name	Value	Information
Engine	Genset kWh	2341 kWh	Genset kWh
Generator	Genset kVArh	2503 kVArh	Range: -32768000 .. 32767000 Units: kWh
Load	Mains kWh	2655 kWh	Value Description: Counter of gen-set active power.
Mains	Mains kVArh	0 kVArh	Controller help
Controller I/O	Running Hours	46,0 h	
Statistics	Num Starts	18	
IL Info	Maintenance 3	982 h	
Log Bout	Rental 1	0 h	
Date/Time	Rental 2	0 day	
Plug-in IO	Num E-Stops	0	
	Shutdowns	3	
	Total Fuel Consumption	2 L	
	Time Till Empty	##### day	

Image 5.32 Statistics in Values window

5.8.2 To set Statistics

1. Initiate online or offline connection with the supported controller.
2. Select the **Others** bookmark and in the category of Access click at  **Enter password** icon. Enter the Administrator password for the full access to the controller.
3. Select the **Tools** bookmark and in the category of Statistics click at  **Set statistics** icon to display the Statistics setup window.



Value	Current value	Unit	New value	
1. Genset kWh	2341	-	<input type="text" value="2341"/>	<input type="button" value="Set"/>
2. Genset kVArh	2503	-	<input type="text" value="2503"/>	<input type="button" value="Set"/>
3. Num Starts	18	-	<input type="text" value="18"/>	<input type="button" value="Set"/>
4. Running Hours	46,0	-	<input type="text" value="46,0"/>	<input type="button" value="Set"/>
5. Total Fuel Consumption	2	-	<input type="text" value="2"/>	<input type="button" value="Set"/>
6. Mains kWh	2655	-	<input type="text" value="2655"/>	<input type="button" value="Set"/>
7. Mains kVArh	0	-	<input type="text" value="0"/>	<input type="button" value="Set"/>
8. Num E-Stops	0	-	<input type="text" value="0"/>	<input type="button" value="Set"/>
9. Shutdowns	3	-	<input type="text" value="3"/>	<input type="button" value="Set"/>

Image 5.33 Statistics setup window

4. For each parameter enter your new required value and either:
 - a. Click the **Set** button, or
 - b. Continue changing all required values and after that click the **Set all** button.
5. When finished, close the window.

IMPORTANT: All statistic values can be reset to zero using *Clear all* button.

5.9 Security


Security bookmark allows to **Change password** (page 72) and to **Change access code** (page 73).

Note: For the information how to activate password see **Enter password on page 55** or how to deactivate password see **Deactivate password on page 56**.

5.9.1 Change password

InteliConfig allows to Change password, to set up user passwords and to assign Passwords level.

The Password set is saved in the controller. Can be changed or set from the front panel or IntelliConfig. It is not changed with upload of configuration.

For configuration in IntelliConfig go to **Tools** bookmark and in section **Security** click on **Change password** icon . A window Change password appears.

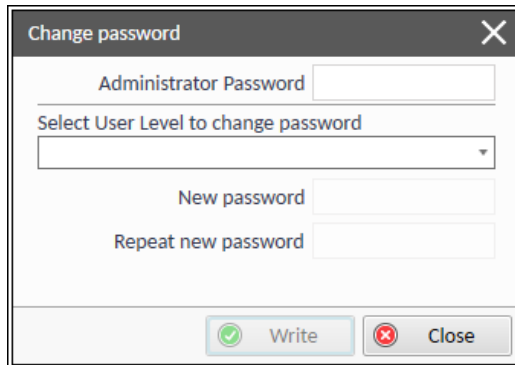



Image 5.34 Change password window

1. Fill in Administrator Password.
 - a. Default value of Admin. Password is 0 (zero).
 - b. Password consists of 4 numbers 0-9999
2. Select the level to be changed
3. Insert required new Password
4. Repeat required new Password again

Note: The Admin password is required for change any password of the password set

5.9.2 Change access code

Access code is required for remote access to the Controller.

For configuration in IntelliConfig go to **Tools** bookmark and in section **Security** click on Change access code icon . A window Change access code appears.

Note: Default Access code is 0 (zero)

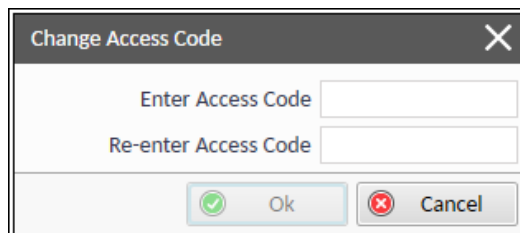







Image 5.35 Change access codewindow

6 Other features

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6.1 Help section


The Help section includes:

- ▶ Controller info  - detail information about Controller
- ▶ Controller help  - full help of Controller in HTML5 format
 - external web browser is needed
- ▶ Controller manual  - PDF full Controller manual
- ▶ IntelliConfig manual  - PDF full IntelliConfig manual
- ▶ About  - detail information about IntelliConfig version

6.2 Cloning

Cloning feature allows user to clone one controller or Plug-in modules configuration and firmware to another controller.

6.2.1 Create clone

To create new clone click on  Create clone icon. Following window appears.

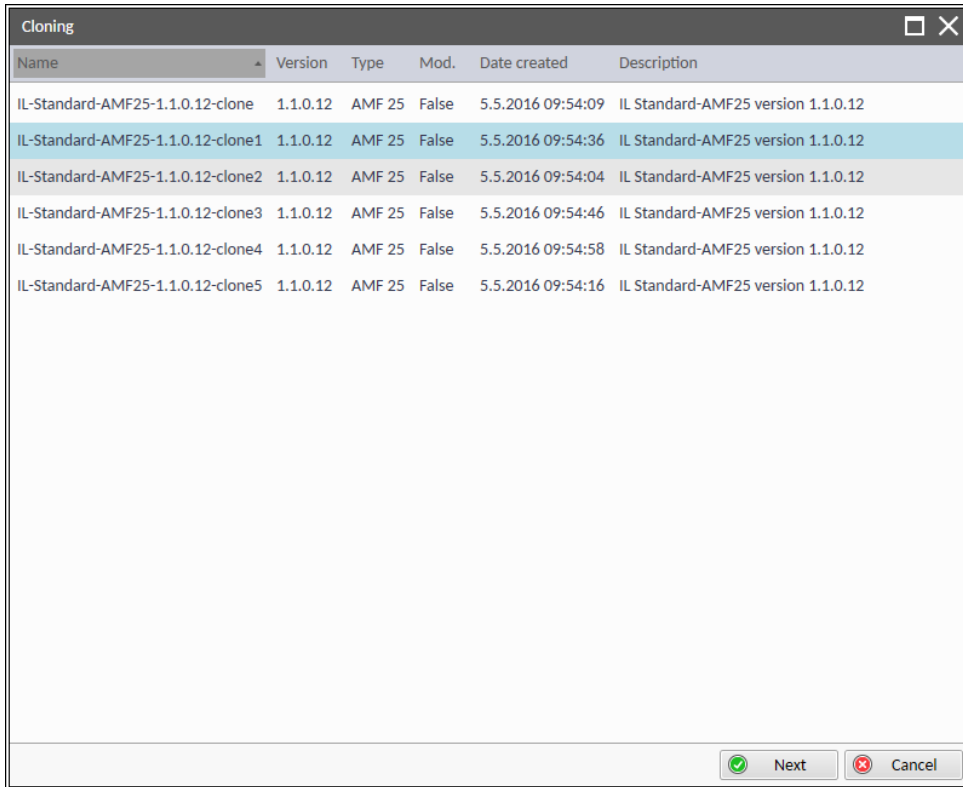
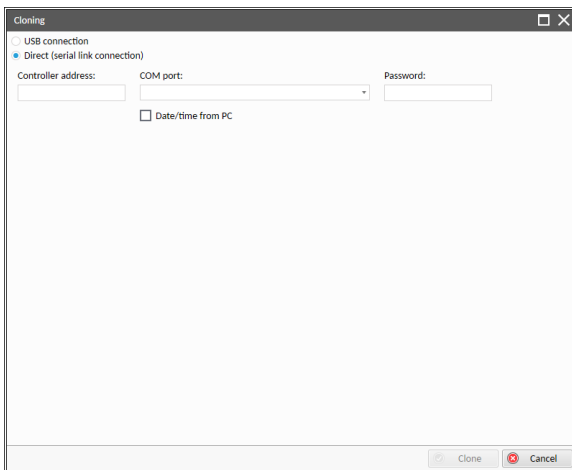


Image 6.1 Create clone

1. Select required clone and click on Next button
2. Following window appears



3. Select required Connection type
4. Fill in Password
5. Click on Clone button

6.2.2 Save the clone

To save controller configuration as clone click on  Save clone icon. The following window appears.

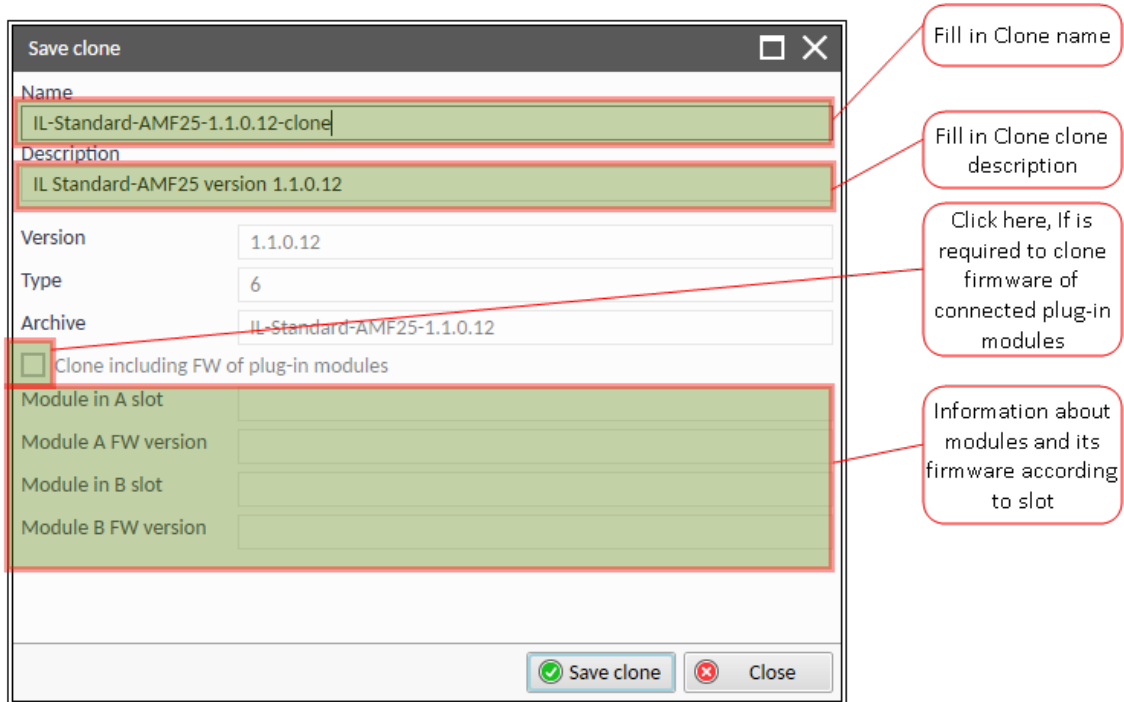


Image 6.2 Save the clone

6.2.3 Manage clones

Click on Manage Clones icon for managing clones. Following window appears.

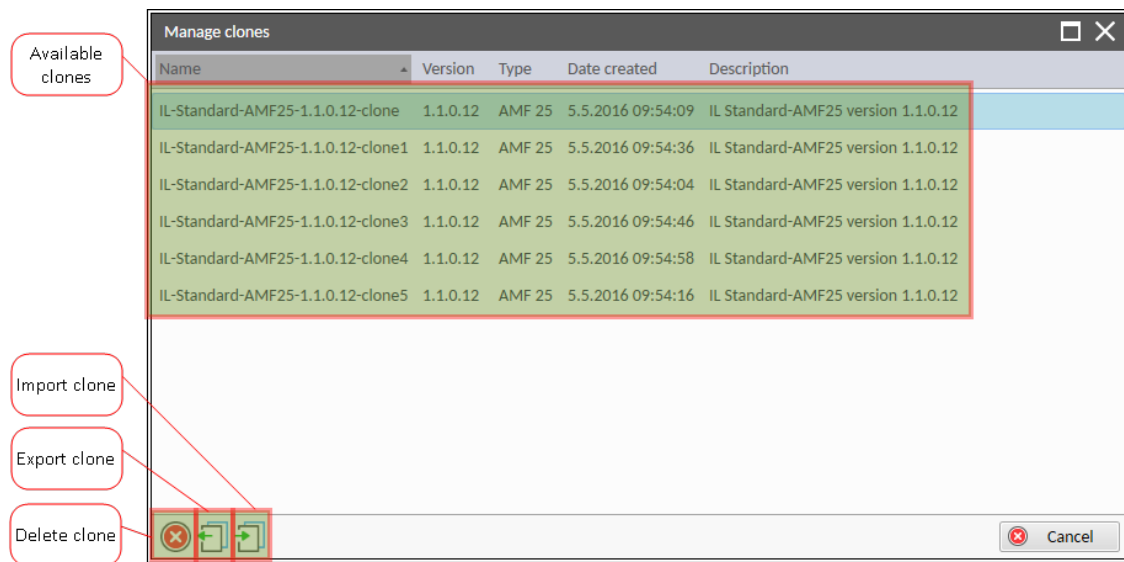


Image 6.3 Manage Clones

Exporting clone

It is possible to export clone from IntelConfig software into any location. To export the clone click on Export clone icon. Following window appears.

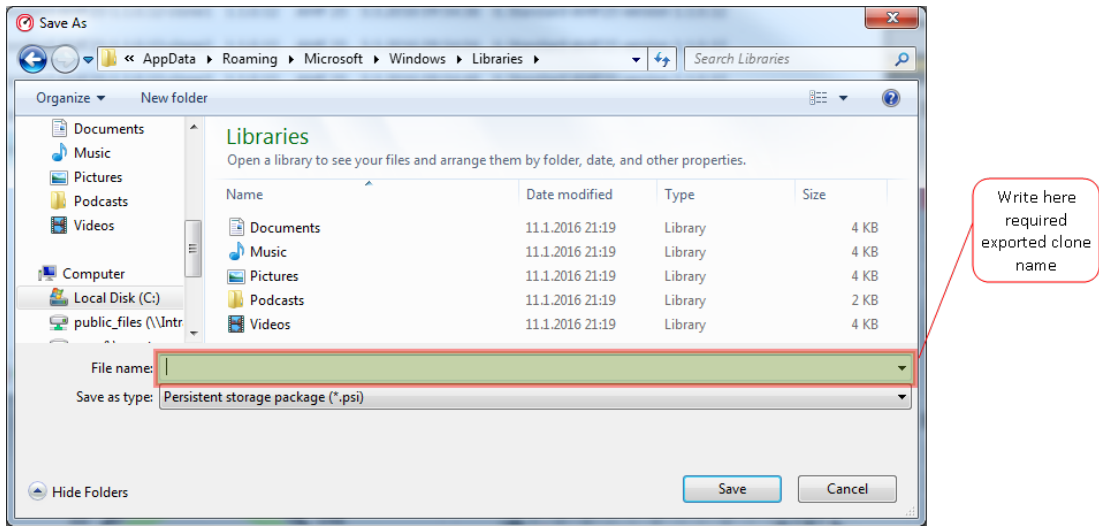



Image 6.4 Save as clone

1. Type required clone name into File name bar
2. Choose required folder
3. Click on Save button

Importing clone

It is possible to import clone from any location. For importing the clone click on  Import clone icon. Following window appears.

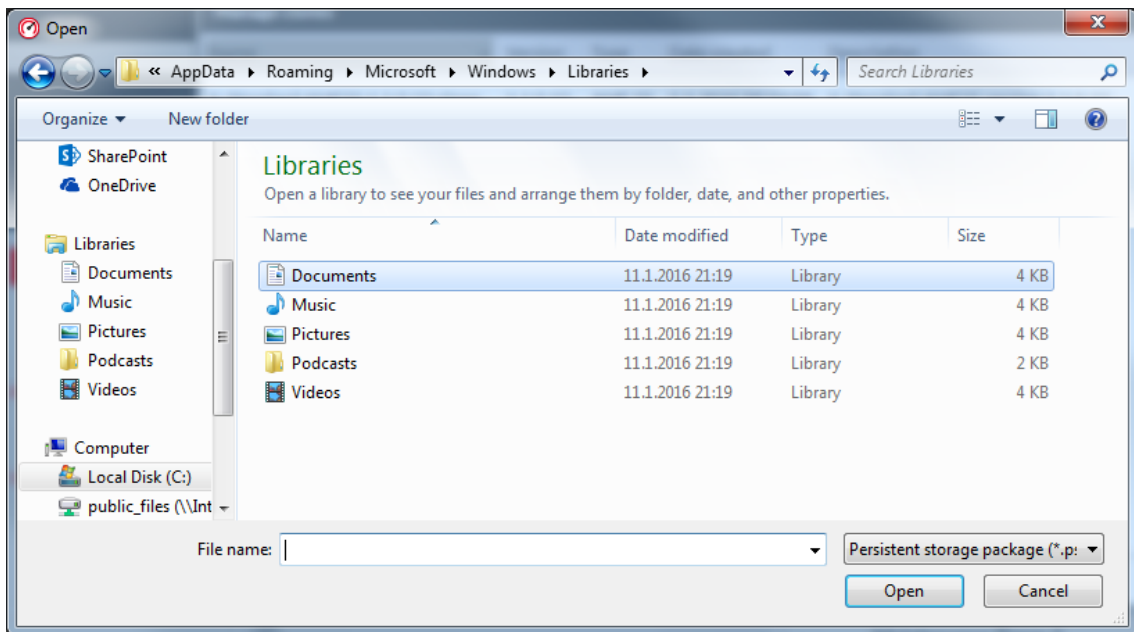



Image 6.5 Open clone

1. Go to location where is required clone saved
2. Select the clone
3. Click on Open button

6.3 Data export

InteliConfig allows user to export following data:

► Setpoints and values

- To export Setpoints or Values click on  Export to CSV icon
- For more information see **Exporting Setpoints or Values on page 78**

► Generate Configuration image

- (COM) - To generate configuration image click on  Generate Cfg image (COM) icon
- (MODBUS) To generate configuration image click on  Generate Cfg image (MODBUS) icon

► Generate SNMP MIB table

- To Generate SNMP MIB table click on  icon

6.3.1 Exporting Setpoints or Values

To export Setpoints or Values click on  Export to CSV icon. Following window appears.

Name	FW Version	Application	Date	App. Ver.	Ser. Num.
IntelliLite	IntelliLite-STD-1.1.0.12	Standard-AMF25	5.5.2016	1.1.0.12	FF020043
Group	Name	Value	Dimension	Com. Obj.	Low limit
Engine	RPM	0	RPM	10123	0
Engine	ECU State	000	-	10034	
Engine	ECU FreqSelect	####		12926	0
Engine	Engine Speed	####	RPM	10153	0
Engine	Fuel Rate	####	L/h	10154	0.0
Engine	CoolantTemp	####	°C	10155	-20
Engine	Intake Temp	####	°C	10156	-20
Engine	Oil Press	####	bar	10157	0.00
Engine	P-ChargeAir	####	bar	10158	0.00
Engine	Load	####	%	10159	0
Engine	T-Lube Oil	####	°C	10160	-20
Engine	Not Used	####		10161	-32768
Engine	TotalFuelUsed	####	L	10173	0
Engine	DPF1 Soot Load	####	%	12484	0
Engine	DPF1 Ash Load	####	%	12483	0
Engine	Speed Request	50.0	%	10137	0.0
Engine	SpeedReq RPM	900	RPM	10006	0
Generator	Generator Frequency	0.0	Hz	8210	0.0
Generator	Generator Voltage L1-N	0	V	8192	0
Generator	Generator Voltage L2-N	0	V	8193	0
Generator	Generator Voltage L3-N	0	V	8194	0
Generator	Generator Voltage L1-L2	0	V	9628	0
Generator	Generator Voltage L2-L3	0	V	9629	0
Generator	Generator Voltage L3-L1	0	V	9630	0
Load	Load kW	0	kW	8202	0
Load	Load kW L1	0	kW	8524	0
Load	Load kW L2	0	kW	8525	0

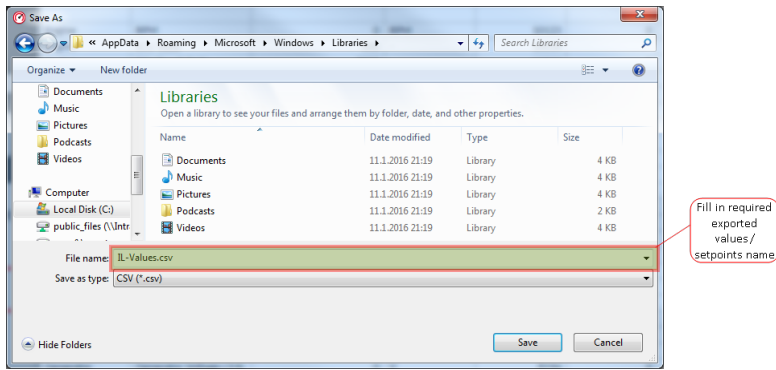
Data type: Values

Save Close

Select required data type to

1. Select required Data type
2. Click on Save button

3. Following window appears



4. Type required exported file name and click on Save button

Note: Exported data are saved in *.csv format.

7 Appendix

7.1 PLC

7.1.1 List of PLC blocks

Group: Basic logical functions

OR/AND80
 XOR/RS82

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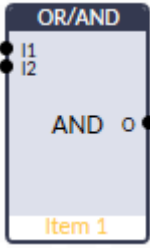
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7.1.2 Group: Basic Logical functions

OR/AND

PLC group	Basic logical functions				
Related FW	10.5.0				
Related applications	AMF, MRS MINT, SPtM				
Comm object	1				
Inputs					
Input	Type	Negation	Range	Function	
Input 1..8	Binary	Yes	0/1	Inputs 1..8	
Outputs					
Output	Type	Negation	Range	Function	
Output	Binary	Yes	0/1	Result of the logical operation	

Description

The block performs logical operation OR / AND of 2 - 8 binary operands. The inputs as well as the output can be inverted.

Function OR

Input 1	Input 2	Output
0	0	0
0	1	1
1	0	1
1	1	1

Function AND

Input 1	Input 2	Output
0	0	0
0	1	0
1	0	0
1	1	1

There have to be at least 2 inputs every time. There may be up to 8 inputs configured.

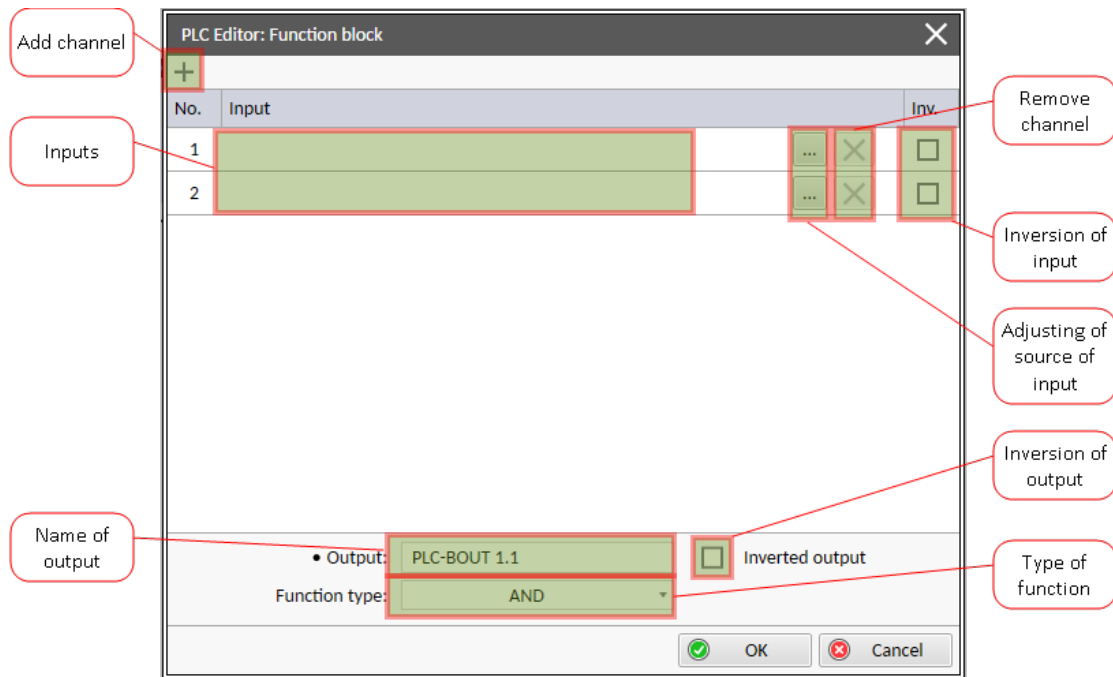
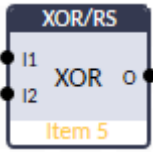


Image 7.1 Configuration of OR/AND block

XOR/RS

PLC group	Basic logical functions	
Related FW	10.5.0	
Related applications	AMF, MRS MINT, SPTM	
Comm object	2	

Inputs

Input	Type	Negation	Range	Function
Input 1..2	Binary	Yes	0/1	Inputs 1..2

Outputs

Output	Type	Negation	Range	Function
Output	Binary	Yes	0/1	Result of the logical operation

Description

The block provides logical function of two values - XOR or RS flip-flop. Both inputs and output can be inverted.

Function XOR

Input 1	Input 2	Output
0	0	0
0	1	1
1	0	1
1	1	0

Function RS

R	S	Q _{n+1}
0	0	Q _n
0	1	1
1	0	0
1	1	0

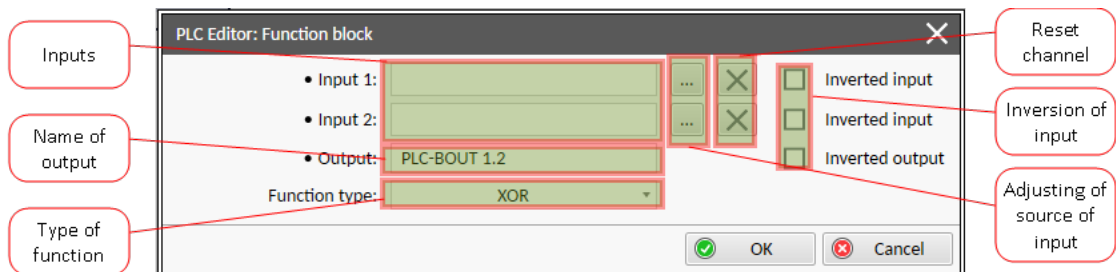
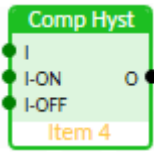


Image 7.2 Configuration of XOR/RS block

7.1.3 Group: Comparison of analog inputs

Comparator With Hysteresis

PLC group	Comparison of analog inputs	
Related FW	10.5.0	
Related applications	AMF, MRS MINT, SPtM	
Comm object	3	

Inputs				
Input	Type	Negation	Range	Function
Input	Analog	No	Any	Compared value
Input ON	Analog	No	Same as Input	Comparative level for switching on
Input OFF	Analog	No	Same as Input	Comparative level for switching off

Outputs				
Output	Type	Negation	Range	Function
Output	Binary	No	0/1	Comparator output

Description

The block compares the input value with the comparative levels. The behavior depends on whether the ON level is higher than OFF level or vice versa.

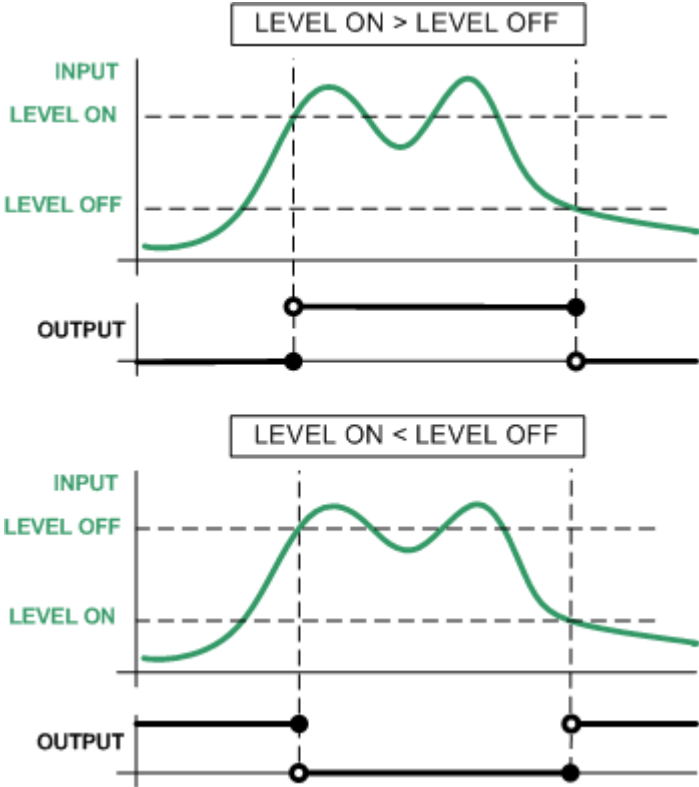


Image 7.3 Different On and Off levels

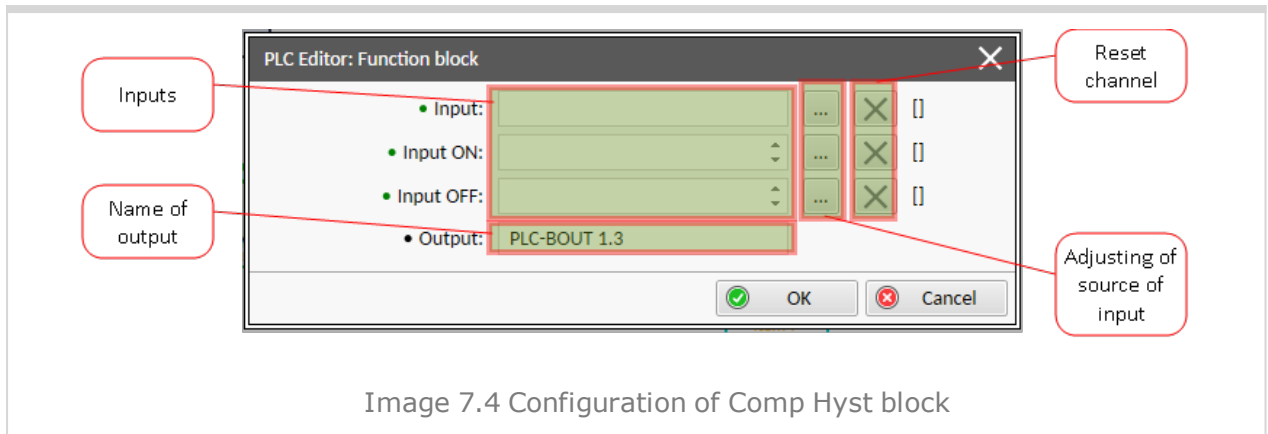



Image 7.4 Configuration of Comp Hyst block

Note: Level On and Level Off can be constants or values from controller.

IMPORTANT: In case that values on inputs have different decimal numbers than the values are converted and the name of block is red. It is strongly recommended to use values with the same decimal numbers.

Comparator With Delay

PLC group	Comparison of analog inputs	
Related FW	10.5.0	
Related applications	AMF, MRS MINT, SPtM	
Comm object	4	

Inputs

Input	Type	Negation	Range	Function
Input 1	Analog	No	Any	Compared value
Input 2	Analog	No	Same as Input 1	Comparative level
Delay	Analog	No	0.0..3000,0 [s]	Comparative delay

Outputs

Output	Type	Negation	Range	Function
Output	Binary	No	0/1	Comparator output

Description

The block works as an analog switch. It compares the input value with the comparative level. The output will switch on if the input is equal or higher than the comparative level for time longer than the delay.

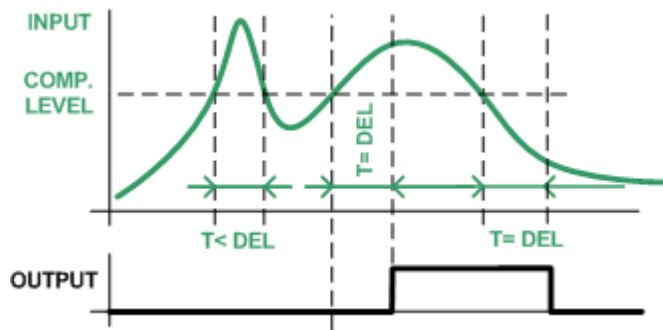


Image 7.5 Principle of delay

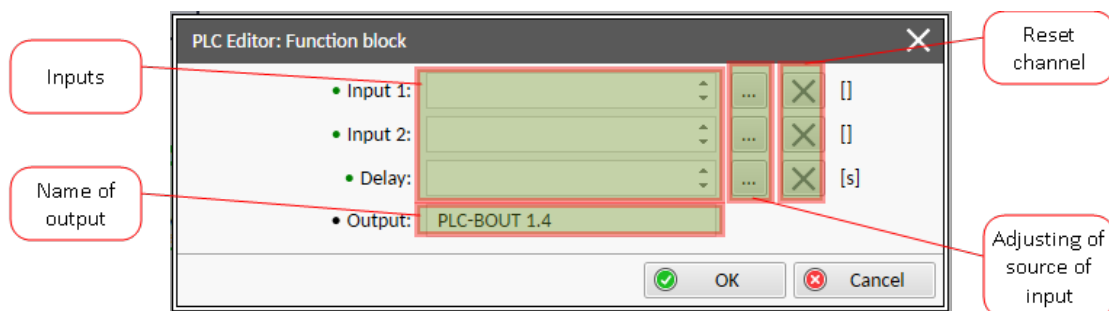
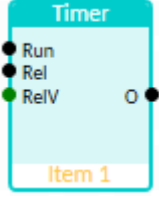


Image 7.6 Configuration of Comp Time block

Note: Input 2 and Delay can be constants or values from controller.

7.1.4 Group: Time functions

Timer

PLC group	Time functions	
Related FW	10.5.0	
Related applications	AMF, MRS MINT, SPtM	
Comm object	14	

Inputs				
Input	Type	Negation	Range	Function
Run	Binary	No	0/1	The timer runs only if this input is active or not connected
Reload	Binary	No	0/1	This input reloads the timer to the initial value
Reload value	Analog	No	0,0..3276,7 [s]	Initial value of the timer

Outputs				
Output	Type	Negation	Range	Function
Output	Binary	No	0/1	Timer output

Description

The block works as a countdown timer which is decreased by 1 every PLC cycle. The timer initial value is adjustable by the "Reload value" input. The timer is automatically reloaded with the initial value when it reaches zero or it can be reloaded in any other moment using the "reload" input. The timer is held at reload value until the reload input is deactivated. The timer output is inverted always when the timer is reloaded.

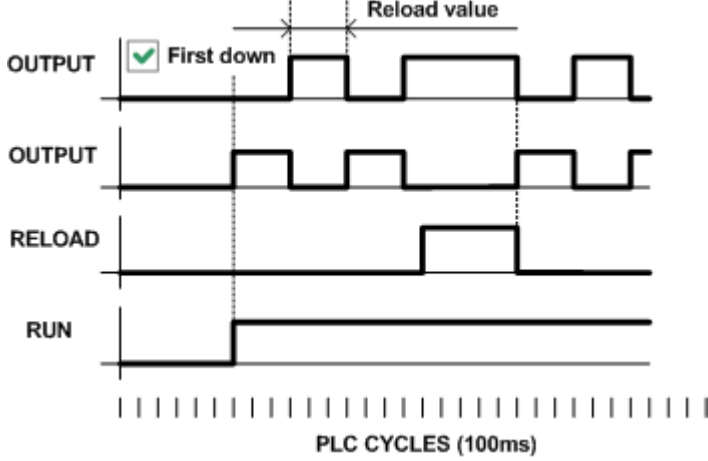


Image 7.7 Principle of timer

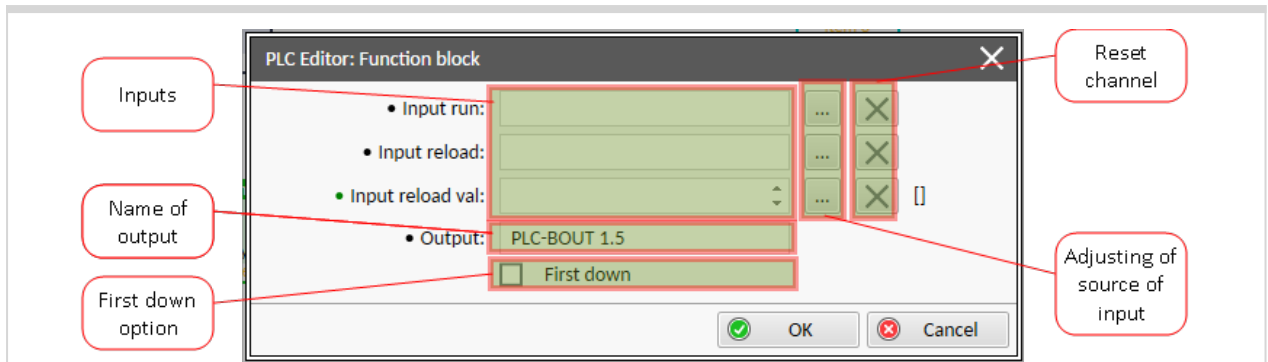


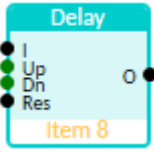
Image 7.8 Configuration of Timer block

Note: *Input reload value can be constant or value from controller.*

Note: *If you want the output to start at logical 0, tick First down option. Otherwise the output will start at logical 1.*

IMPORTANT: In case that inputs are not connected and First down option isn't tick, than output is active.

Delay

PLC group	Time functions			
Related FW	10.5.0			
Related applications	AMF, MRS MINT, SPtM			
Comm object	33			
Inputs				
Input	Type	Negation	Range	Function
Input	Binary	No	0/1	Input signal to be delayed
Input time up	Analog	No	-3200,0..3200,0 [s, m, h]	Delay of the rising edge resp. pulse length generated by rising edge of the input
Input time down	Analog	No	-3200,0..3200,0 [s, m, h]	Delay of the falling edge resp. pulse length generated by falling edge of the input
Input reset	Binary	No	0/1	Resets the output to logical 0. The output remains in logical 0 until new rising edge appears on Input (when Input reset is deactivated already)
Outputs				
Output	Type	Negation	Range	Function
Output	Binary	No	0/1	Output signal
Description				
<p>This block can work in two modes of operation:</p> <ul style="list-style-type: none"> ▶ Delay mode - the rising edge at the output is generated with delay of "input time up" when a rising edge at the input is detected. The falling edge at the output is generated with delay of "input time down" when a falling edge at the input is detected. If the delayed falling edge at the output came earlier than the delayed rising edge, then no pulse would be generated at the output. ▶ Pulse mode - a pulse of "input time up" length is generated at the output when a rising edge is detected, a pulse of "input time down" length is generated at the output when a falling edge is detected. 				

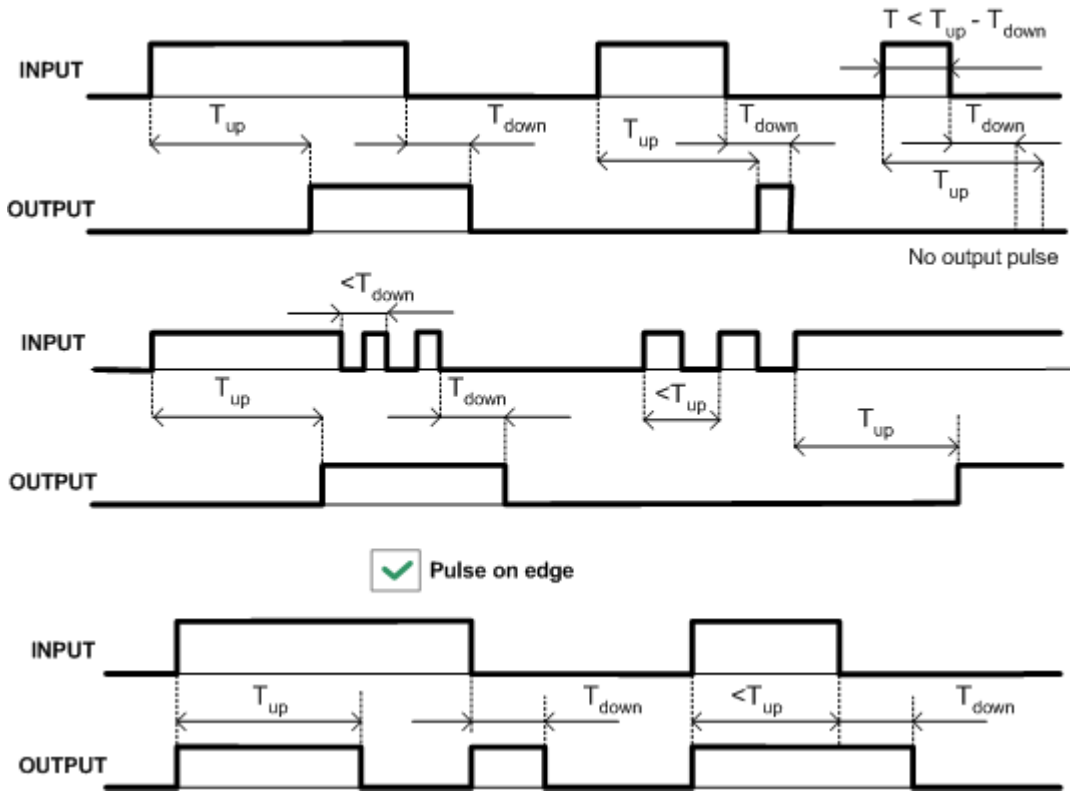


Image 7.9 Delay modes principles

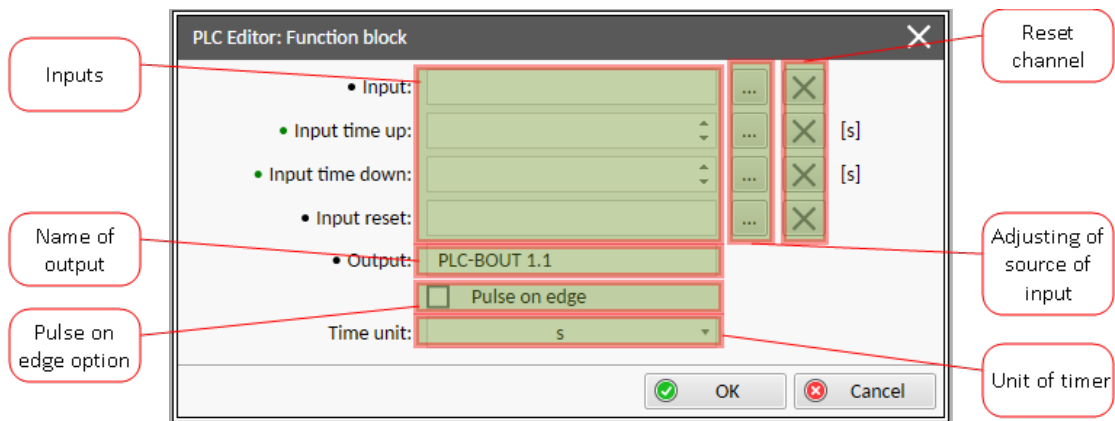


Image 7.10 Configuration of Delay block

Note: If Input time up or Input time down value is <0 , this input is internally set to zero.

Note: Input time up and Input time down values can be constants or values from controller.

Note: Use Pulse on edge option to choose between delay and pulse mode.

7.1.5 Group: Other functions

Force History Record


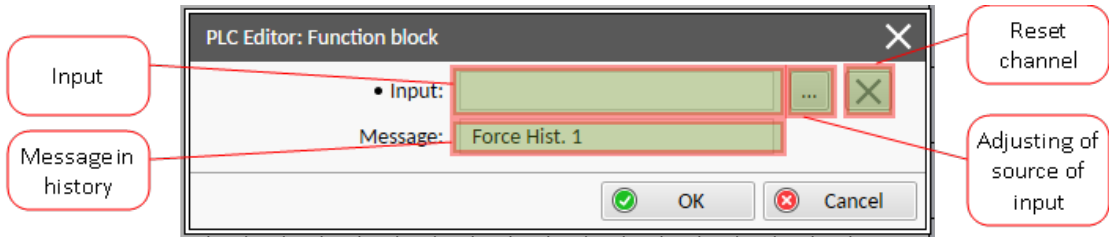
PLC group	Other functions			
Related FW	10.5.0			
Related applications	AMF, MRS MINT, SPtM			
Comm object	9			
Inputs				
Input	Type	Negation	Range	Function
Input	Binary	No	0/1	A record with configured text is recorded into the controller history when the input is activated.
Outputs			No outputs.	
Description			<p>This block writes a record with defined text into the history when the input is activated.</p> 	
Note:			Maximal number of characters for history message is 15.	

Image 7.11 Configuration of Force Hist block

Force Protection

PLC group	Other functions	
Related FW	10.5.0	
Related applications	AMF, MRS MINT, SPtM	
Comm object	10	

Inputs

Input	Type	Negation	Range	Function
Lvl 1	Binary	No	0/1	The input activates yellow level of the configured protection if it is configured
Lvl 2	Binary	No	0/1	The input activates red level of the configured protection if a red level protection is configured
Fls	Binary	No	0/1	The input activates sensor fail if a fls protection is configured

Outputs

No outputs.

Description

This block issues alarms of configured type and text when appropriate binary input is activated.

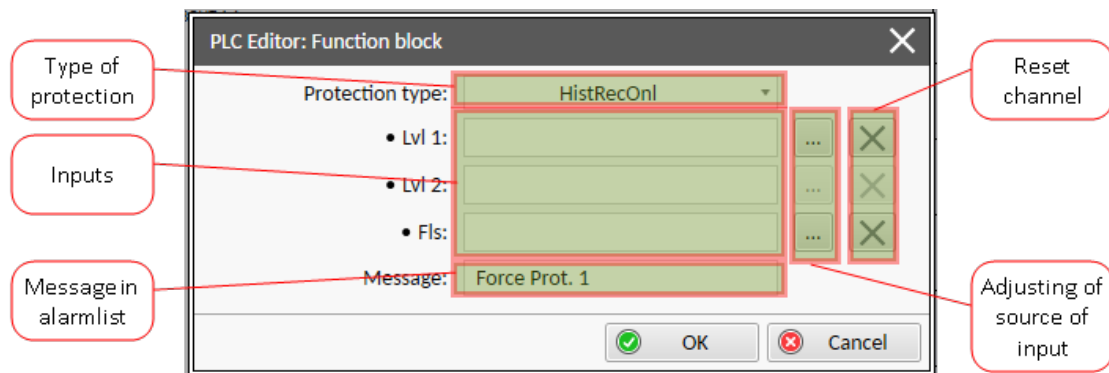


Image 7.12 Configuration of Force Prot block

Available protections are:

- ▶ Monitoring
- ▶ HistRecOnl
- ▶ AL Indic
- ▶ Wrn
- ▶ Wrn+BOC
- ▶ BOC
- ▶ Wrn+Sd
- ▶ Sd

Note: Maximal number of characters for alarmlist message is 15.

Note: Prefix of protection (e.g. Wrn, Sd, BOC) is added automatically into alarmlist message.