ComAp
The heart of smart control

InteliSCADA

Monitoring tool for ComAp devices

SW version 2.9.0

Written by ComAp
Prague, Czech Republic
ComAp a.s., U Uranie 1612/14a,
170 00 Prague 7, Czech Republic
Tel: +420 246 012 111
E-mail: info@comap-control.com, www.comap-control.com

Global Guide

Table of contents

1 Document information

1.1 Clarification of Notation

Note: *This type of paragraph calls the reader's 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.

WARNING: 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.

1.2 About this guide

This Global Guide describes how to use InteliSCADA monitoring tool and contains general information about:

- How to install and uninstall InteliSCADA
- Application structure (Runtime and Designer)
  - Site management and monitoring
  - Device management
  - Screen management
  - Editor features
  - Preview functionality

1.3 Legal notice

This End User's Guide/Manual as part of the Documentation is an inseparable part of ComAp's Product and may be used exclusively according to the conditions defined in the "END USER or Distributor LICENSE AGREEMENT CONDITIONS – COMAP CONTROL SYSTEMS SOFTWARE" (License Agreement) and/or in the "ComAp a.s. Global terms and conditions for sale of Products and provision of Services" (Terms) and/or in the "Standardní podmínky projektů komplexního řešení ke smlouvě o dílo, Standard Conditions for Supply of Complete Solutions" (Conditions) as applicable.

ComAp's License Agreement is governed by the Czech Civil Code 89/2012 Col., by the Authorship Act 121/2000 Col., by international treaties and by other relevant legal documents regulating protection of the intellectual properties (TRIPS).

The End User and/or ComAp's Distributor shall only be permitted to use this End User's Guide/Manual with ComAp Control System Registered Products. The Documentation is not intended and applicable for any other purpose.

Official version of the ComAp's End User's Guide/Manual is the version published in English. ComAp reserves the right to update this End User's Guide/Manual at any time. ComAp does not assume any responsibility for its use outside of the scope of the Terms or the Conditions and the License Agreement.

Licensed End User is entitled to make only necessary number of copies of the End User's Guide/Manual. Any translation of this End User's Guide/Manual without the prior written consent of ComAp is expressly prohibited!

Even if the prior written consent from ComAp is acquired, ComAp does not take any responsibility for the content, trustworthiness and quality of any such translation. ComAp will deem a translation equal to this End User's Guide/Manual only if it agrees to verify such translation. The terms and conditions of such verification must be agreed in the written form and in advance.

For more details relating to the Ownership, Extent of Permitted Reproductions Term of Use of the Documentation and to the Confidentiality rules please review and comply with the ComAp's License Agreement, Terms and Conditions available on www.comap-control.com.

Security Risk Disclaimer

Pay attention to the following recommendations and measures to increase the level of security of ComAp products and services.

Please note that possible cyber-attacks cannot be fully avoided by the below mentioned recommendations and set of measures already performed by ComAp, but by following them the cyber-attacks can be considerably reduced and thereby to reduce the risk of damage. ComAp does not take any responsibility for the actions of persons responsible for cyber-attacks, nor for any damage caused by the cyber-attack. However, ComAp is prepared to provide technical support to resolve problems arising from such actions, including but not limited to restoring settings prior to the cyber-attacks, backing up data, recommending other preventive measures against any further attacks.

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. Production mode
   - Disable production mode BEFORE the controller is put into regular operation.
2. User accounts
   - Change password for the existing default administrator account or replace that account with a completely new one BEFORE the controller is put into regular operation mode.
   - Do not leave PC tools (e.g. InteliConfig) unattended while a user, especially administrator, is logged in.
3. AirGate Key
   - Change the AirGate Key BEFORE the device is connected to the network.
   - Use a secure AirGate Key – preferably a random string of 8 characters containing lowercase, uppercase letters and digits.
   - Use a different AirGate Key for each device.
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. By 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 using MODBUS/TCP in unprotected networks (e.g. Internet).

5. SNMP
   - The SNMP protocol (port UDP/161) version 1 and version 2 are not encrypted. They are intended to be used only in closed private network infrastructures.
   - Avoid using SNMP v1 and v2 in unprotected networks (e.g. Internet).

1.4 Document history

Revision number	Related sw. version	Date	Author
17	2.9.0	30.8.2024	Jakub Kutka
16	2.8.0	27.6.2024	Jakub Kutka
15	2.7.0	22.3.2024	Jakub Kutka
14	2.6.0	24.11.2023	Jakub Kutka
13	2.5.1	11.10.2023	Jakub Kutka
12	2.5.0	4.9.2023	Jakub Kutka
11	2.4.0	20.2.2023	Jakub Kutka
10	2.3.0	18.11.2022	Jakub Kutka
9	2.2.0	27.6.2022	Jaroslav Žmolík
8	2.1.2	28.2.2022	Dana Salingerová
7	2.1.1	10.12.2021	Vlastimil Petrucha
6	2.1.0	8.10.2021	Vlastimil Petrucha
5	2.0.0	17.6.2021	Vlastimil Petrucha
4	1.4.0	29.3.2021	Vlastimil Petrucha
3	1.2.6	27.10.2020	Vojtěch Skopal
2	1.1.0	26.6.2020	Vojtěch Skopal
1	1.0.48	9.4.2020	David Čermák

2 Getting started

back to Table of contents

2.1 Welcome

Welcome to ComAp's InteliSCADA global guide. InteliSCADA is a monitoring tool for ComAp devices (**see Supported ComAp devices on page 25**) and runs on Microsoft Windows operating system (**see Installation on page 12** for details). It supports both online and offline device connections. Devices can be connected either via the Ethernet connection, AirGate connection, direct connection (using RS232/485) or offline connection (device connected to the offline archive only). Devices are managed in sites. There are two applications accessible via pre-installed Windows Desktop shortcuts:

- **Designer (page 34)** – Used to manage sites, devices and custom screens
  - **Sites (page 37)** tab – Add, edit or delete a site
  - **Devices (page 42)** tab – Add, edit or delete a device of the particular site
  - **Editor (page 48)** tab – Add, edit, delete or design a screen of the particular site
  - **Preview (page 73)** tab – Preview the automatically generated screen or the custom screen, for long-term monitoring use the **Runtime (page 77)** instead
- **Runtime (page 77)** – used for long-term site monitoring:
  - **Sites (page 80)** tab – Lists all sites available on the server
  - **Devices (page 83)** tab – List of devices of the particular site. It is supported only for InteliSCADA Display License, see **Licenses (page 19)**
  - Opens particular site for monitoring (the site password is required)
  - Is used to monitor and control all devices of the particular site

2.2 Requirements

- Microsoft Windows 10 64-bit or Windows 10 IoT 64-bit. Keep your SW updated (e.g. Windows operating system, drivers, ...)
- Web browser Google Chrome or Mozilla Firefox if running InteliSCADA in the browser
- The latest firmware versions (valid on the day of release of InteliSCADA) for all ComAp devices and other modules (e.g. CM-Ethernet, IB-COM etc.) which will be connected to InteliSCADA.

Minimal hardware requirements:

- Intel® 6th Generation Core i3 CPU
- 80 GB SSD iSLC (5 GB available space)
- 4GB RAM used for example in ComAp industrial panel InteliVision 18Touch G2.

Note:
Installed InteliSCADA takes up 2 GB of disk space.

> **IMPORTANT: Regularly monitor your available storage when utilizing Trends (especially on devices with limited storage capacity such as the InteliVision 10Touch). This feature can consume disk space rapidly. (1 fully utilized Trend Source = ~24MB of disk storage)**

Performance recommendations:

The performance depends on the number and type of instruments on the screen and on the amount of communicated data (number of connected devices and data points). A high-performance site configuration for InteliVision 18Touch G2 contains about 16 devices and 400 instruments per screen.

2.3 Installation

2.3.1 Installation

1. Get the latest InteliSCADA installation package
2. Run it and follow the on-screen instructions
3. Read and accept terms in the license agreement to continue installation
4. Select components to install. It is recommended to use the default installation
5. Enter the port number used by InteliSCADA server to listen on, except for the reserved ports from the TCP and UDP list (Default = 8801)
6. If InteliSCADA is already installed on the computer, backup of user data is created automatically (see **Backup & restore (page 28)**)
7. Once the installation is finished, InteliSCADA service is started and following desktop shortcuts are created:
   a. InteliSCADA Designer
   b. InteliSCADA Runtime

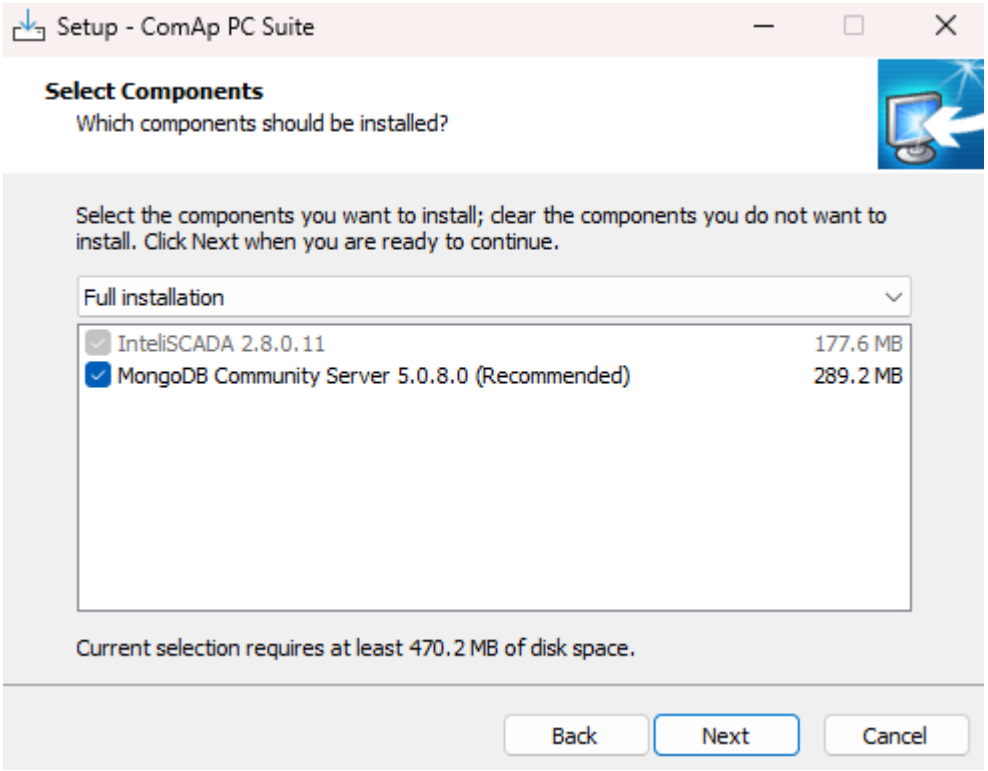
2.3.2 Installation of supported database software

> **IMPORTANT: It is recommended to use supported database software for InteliSCADA application.**

Supported database software is:

- MongoDB community server 5.0.8

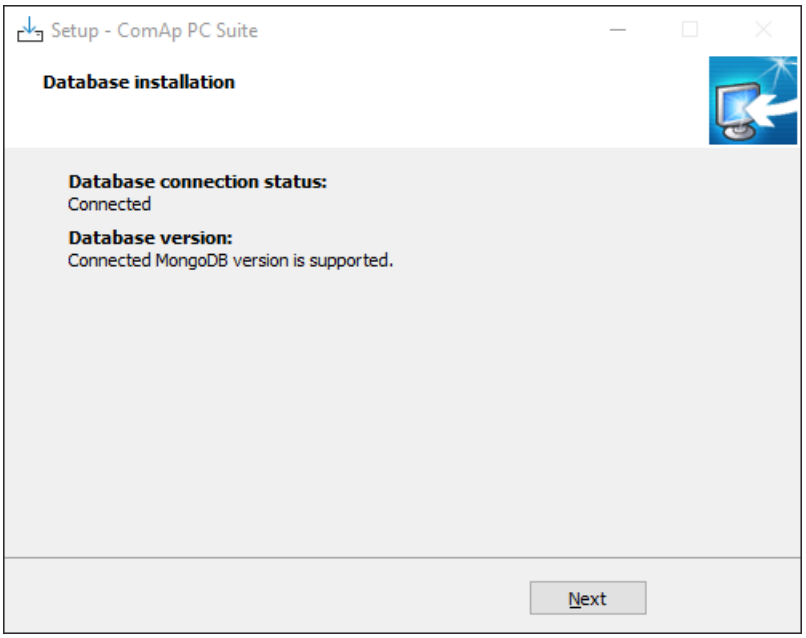
MongoDB community software is possible to install within InteliSCADA installation package. MongoDB community server installation is started automatically during the installation process, if it was selected as a component to be installed:



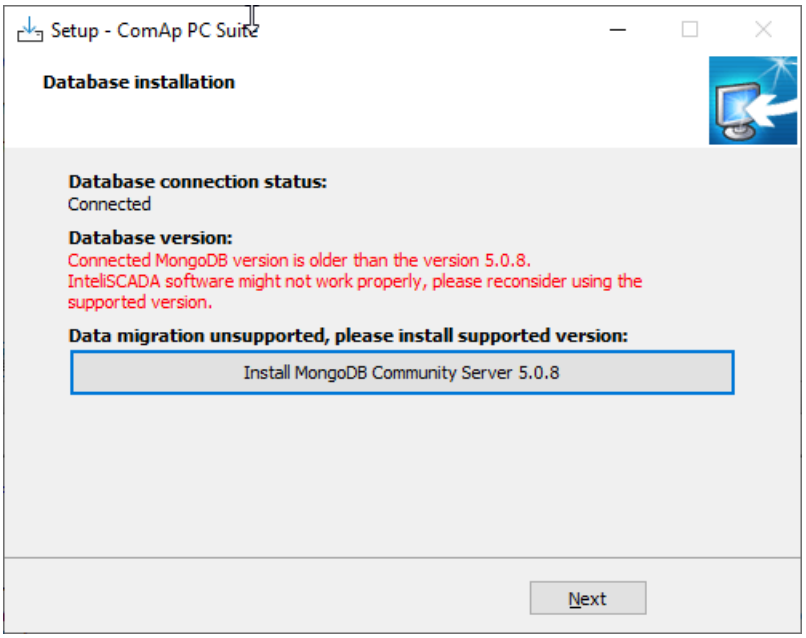
2.3.3 Automatic database data migration

The automatic database data migration provides a seamless transition from the old LiteDB to the new MongoDB database. It will not start if one of the following is true:

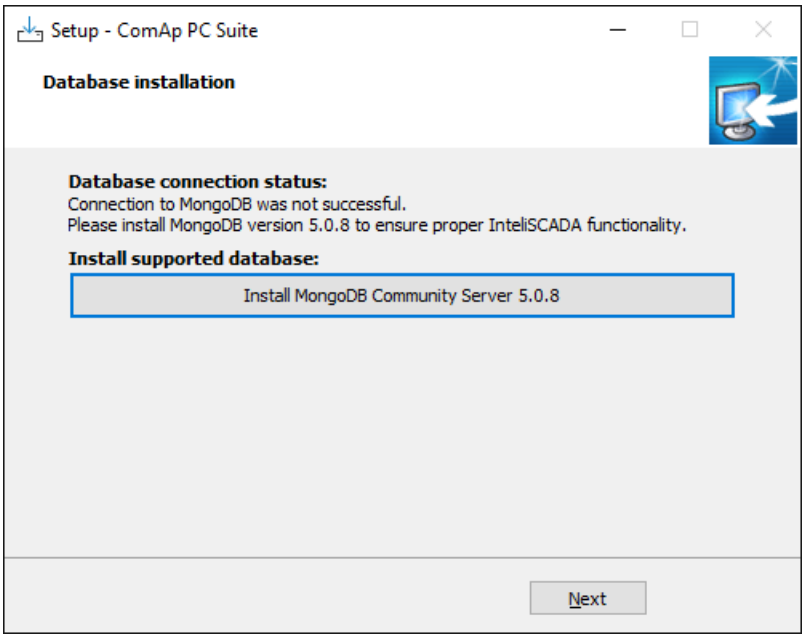
- There is no data to be migrated:



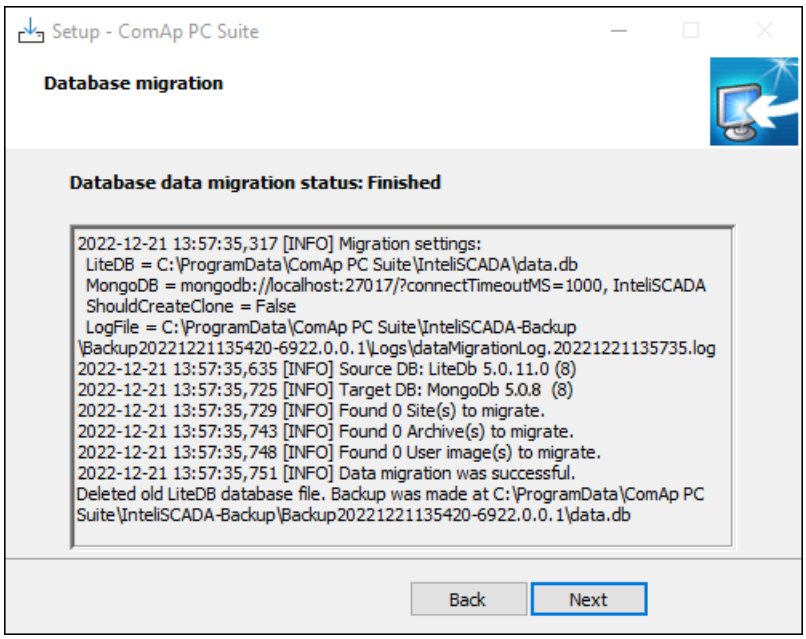
- The unsupported version of the MongoDB community server is running:



- It is not possible to connect to the MongoDB server:



If a supported version of MongoDB community server is connected and the original InteliSCADA data are stored in the application program folder, the migration starts. Information about the data migration process is displayed on installation page:

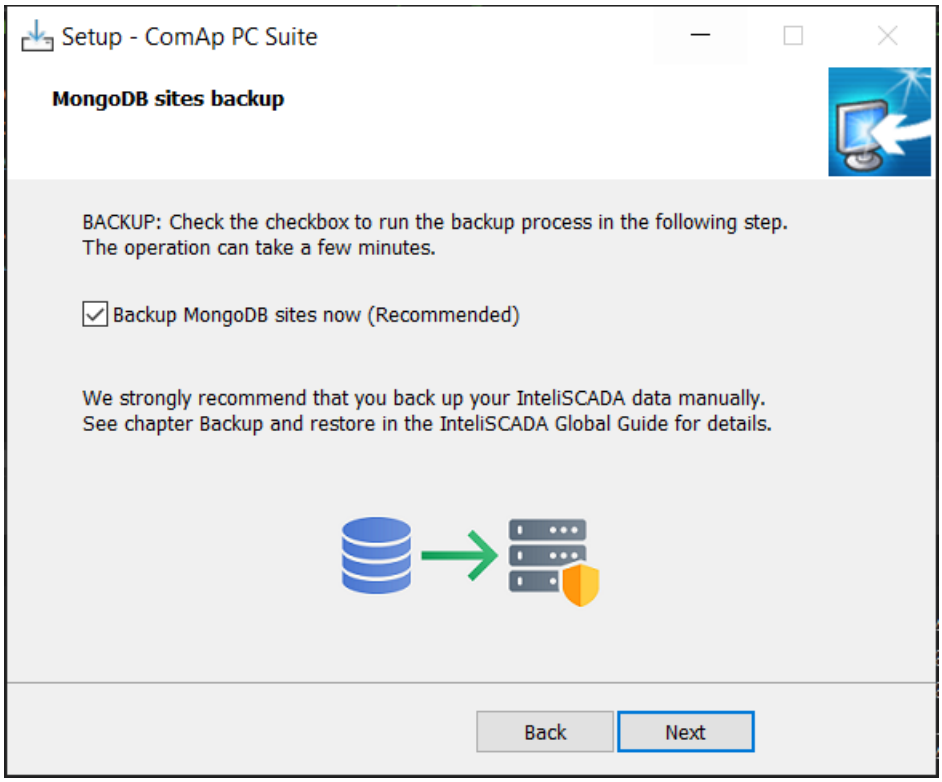


IMPORTANT: Only if data migration process was finished successfully and database file data.db was backed up during InteliSCADA installation process, migrated datafile is removed. Backup location is stated on the last line of migration process log.

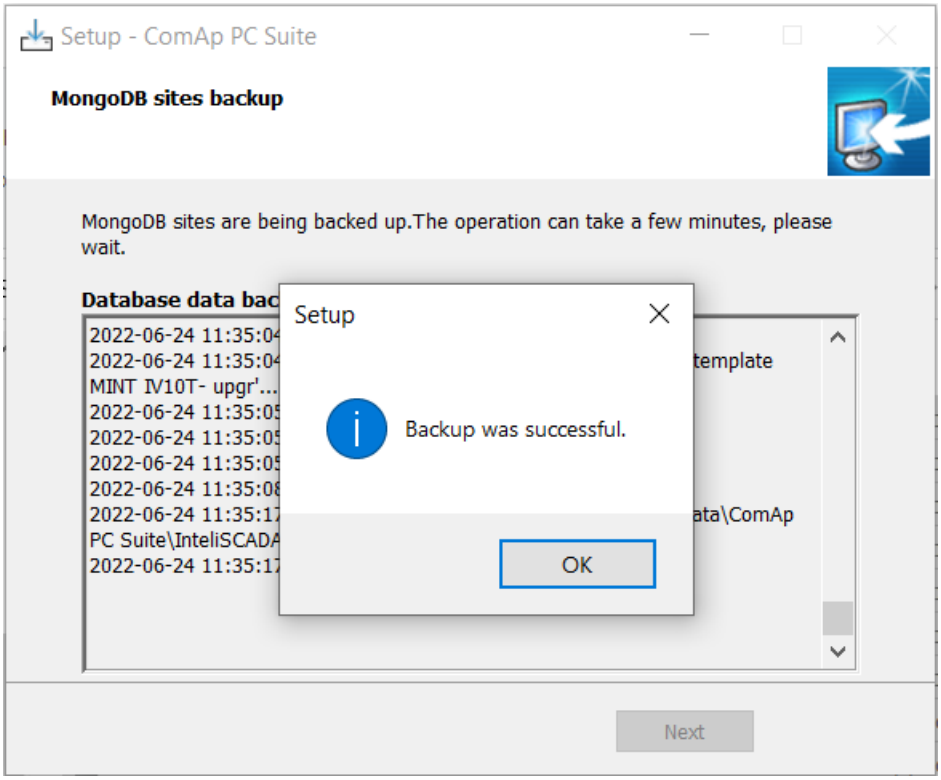
2.3.4 Database backup

If MongoDB is already installed and running on the device, sites stored in it are automatically backed up during the installation process.

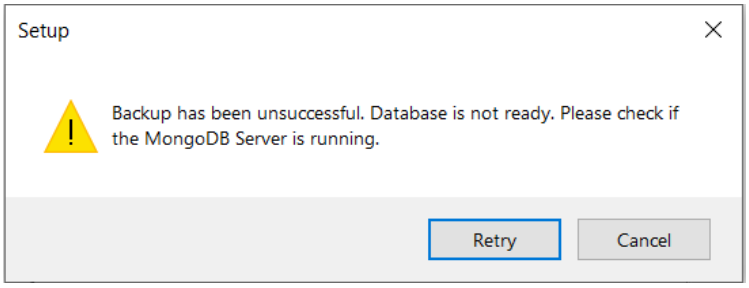
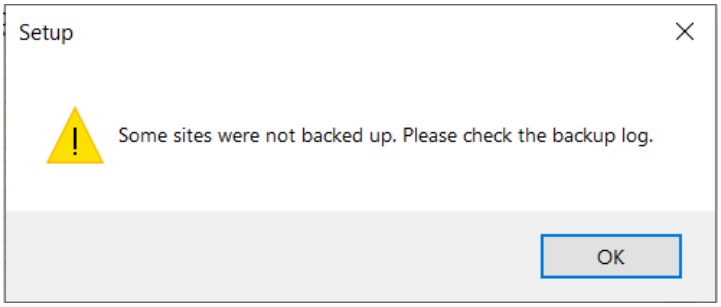
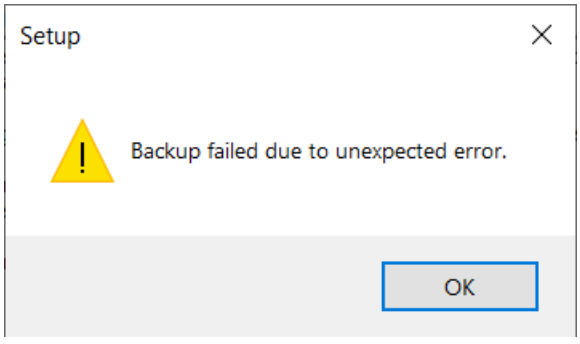
When there was a migration from older LiteDB database to MongoDB, it is possible to create a backup of the MongoDB by checking the checkbox on the following page.



The following message box is shown after a successfully finished backup.



The following issues may occur during backup.

Error	Information	Recommendation
	MongoDb service is stopped or MongoDb Server is not installed.	Make sure the MongoDb Server is installed and the service is running.
	Some sites were not backed up.	Try to back up the sites manually. See **How to back up the data (page 28)**
	Backup failed due to unexpected error.	Try to back up the sites manually. See **How to back up the data (page 28)**

2.3.5 Start Runtime or Designer

To start Runtime or Designer use desktop shortcuts that were created during the installation process.

- InteliSCADA Designer
- InteliSCADA Runtime

To toggle between the fullscreen and windowed mode, press the key F11 on the keyboard or use 'Fullscreen' button in Settings dropdown. Press the key F5, to manually refresh the active window.

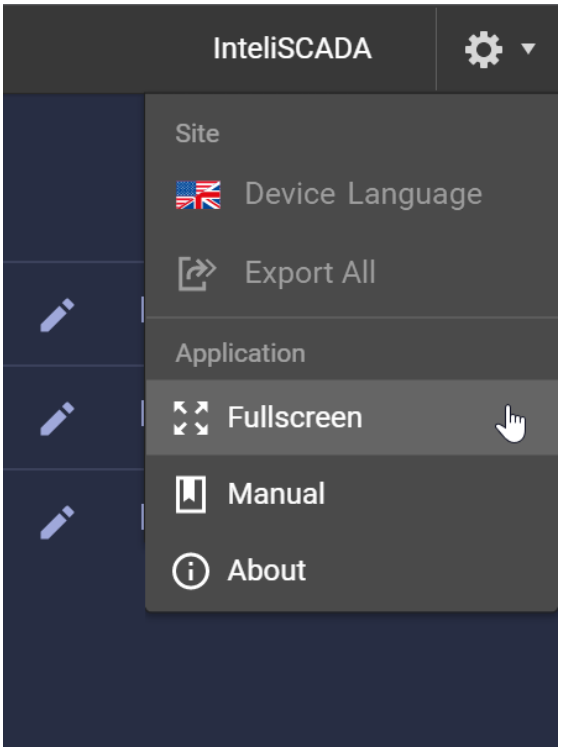


Image 2.1 Fullscreen button in settings dropdown

2.3.6 Custom branding

There is a possibility to customize InteliSCADA application.

If a custom logo or custom global guide is required, it has to be provided together with the installation package executable (InteliSCADA-Product-Suite-M.N.P.B.exe). If there is no requirement for customization, the default ComAp branding is applied.

The custom logo and global guide must be added properly following these procedures:

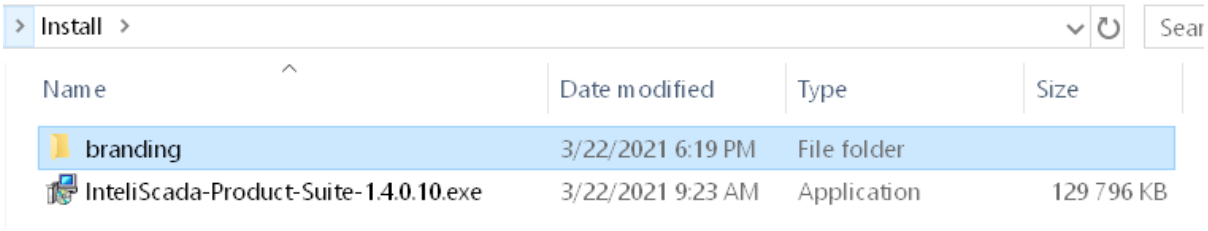
Custom global guide

- Name of the document must be GlobalGuide.pdf
- The document location must be as follows (path relative to the installation package):
  - .\branding\docs\GlobalGuide.pdf

Custom company logo

- the name of the logo must be company-logo.svg and the logo must in SVG format
- The logo location must be as follows (path relative to the installation package):
  - .\branding\images\company-logo.svg

See the branding folder for reference:



2.3.7 InteliSCADA as a service

In Microsoft Windows operating system InteliSCADA server starts as **ComApInteliSCADAService** service. The service is started automatically after each MS Windows restart. In case the service stops working, it is recommended to restart MS Windows.

The service can be started, stopped and restarted manually in Task manager:

1. Open Windows Start menu
2. Type "Task manager"
3. Click on "Task manager" application shortcut
4. Go to "Services" tab in Task manager
5. Right-click on "ComApInteliSCADAService" to display context menu

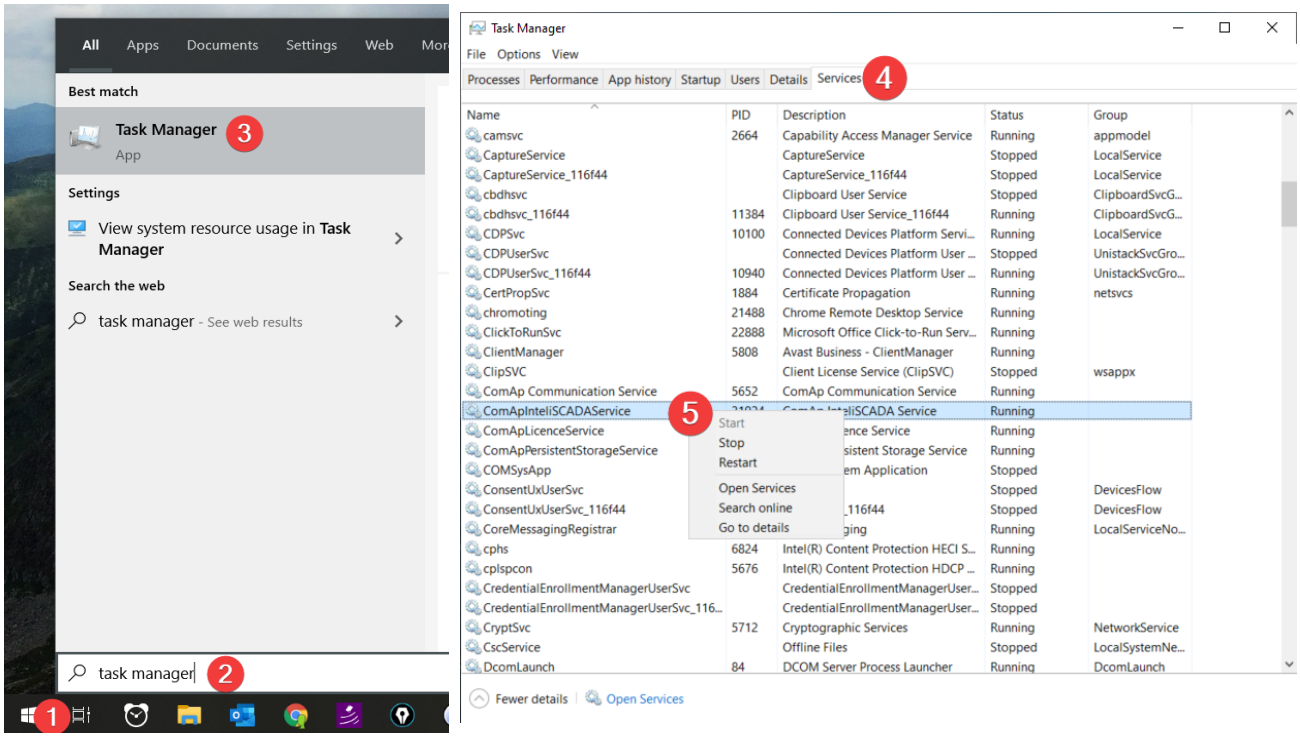


Image 2.2 InteliSCADA as service – task manager

2.4 Licenses

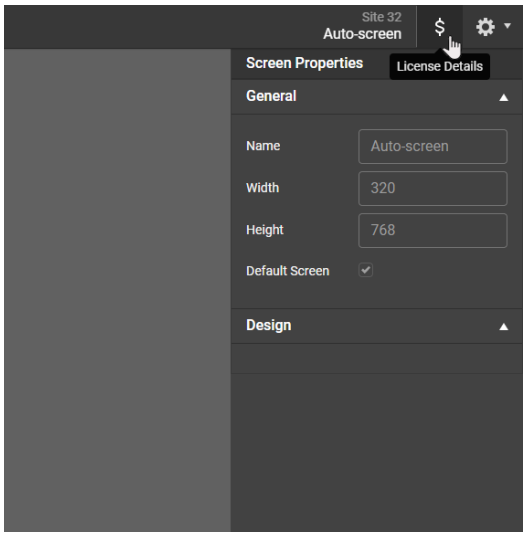
Runtime (page 77) supports 6 license types according to your data requirements. **Designer (page 34)** doesn't require any license activation). Currently available license types and their limits are listed in the table below.

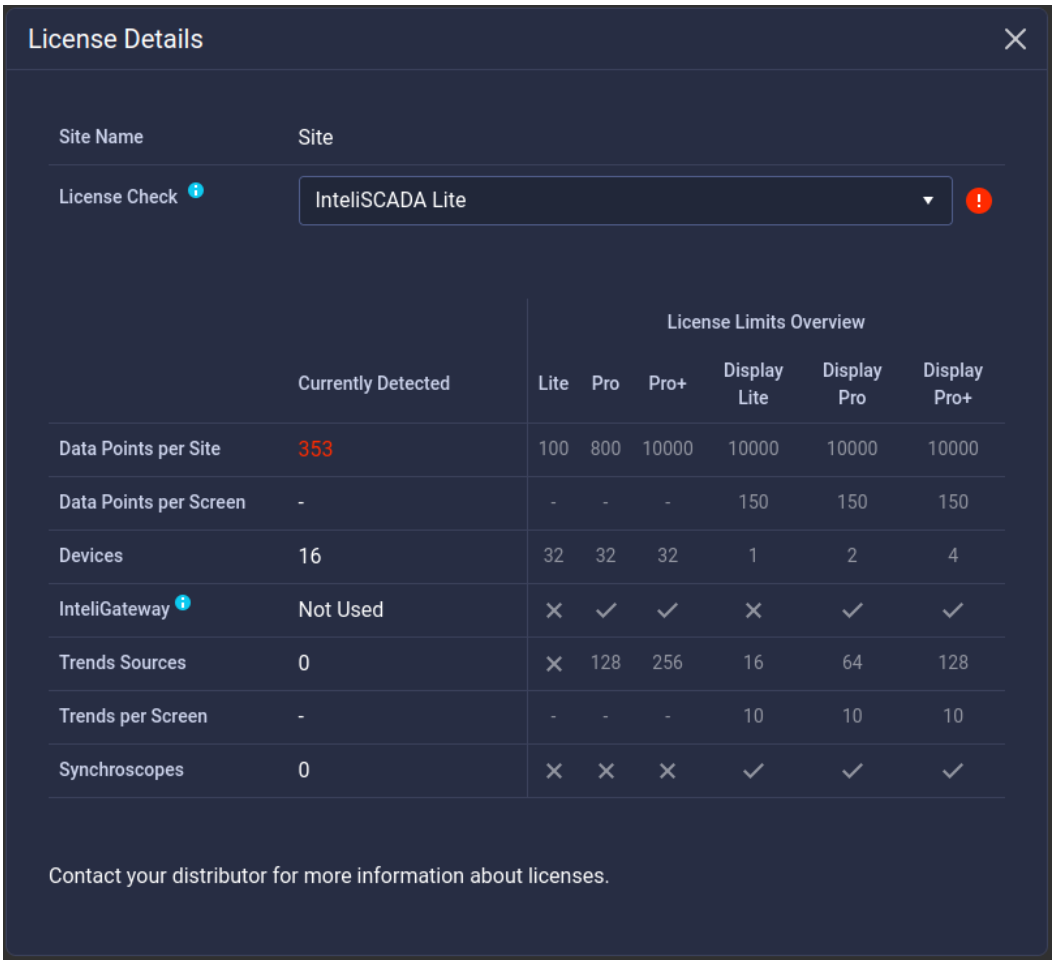
Maximum number per site	License Type					
	Lite	Pro	Pro+	Display Lite	Display Pro	Display Pro+
Data Points per Site	100	800	10000	10000	10000	10000
Data Points per Screen	-	-	-	150	150	150
Devices	32	32	32	1	2	4
InteliGateway	Unsupported	Supported	Supported	Unsupported	Supported	Supported
Trends Sources	Unsupported	128	256	16	64	128
Trends per Screen	-	-	-	10	10	10
Synchroscope	Unsupported	Unsupported	Unsupported	Supported	Supported	Supported

Note: *One data point from one device used on multiple instruments and/or screens counts as one data point.*

Note: *For minimal hardware requirements mentioned in **Requirements (page 11)** it is not recommended to use more than **10 Trends per Screen**.*

To see information about licenses go to Designer and open the License Details dialog from the toolbar in the Devices tab, Editor tab or Preview tab.





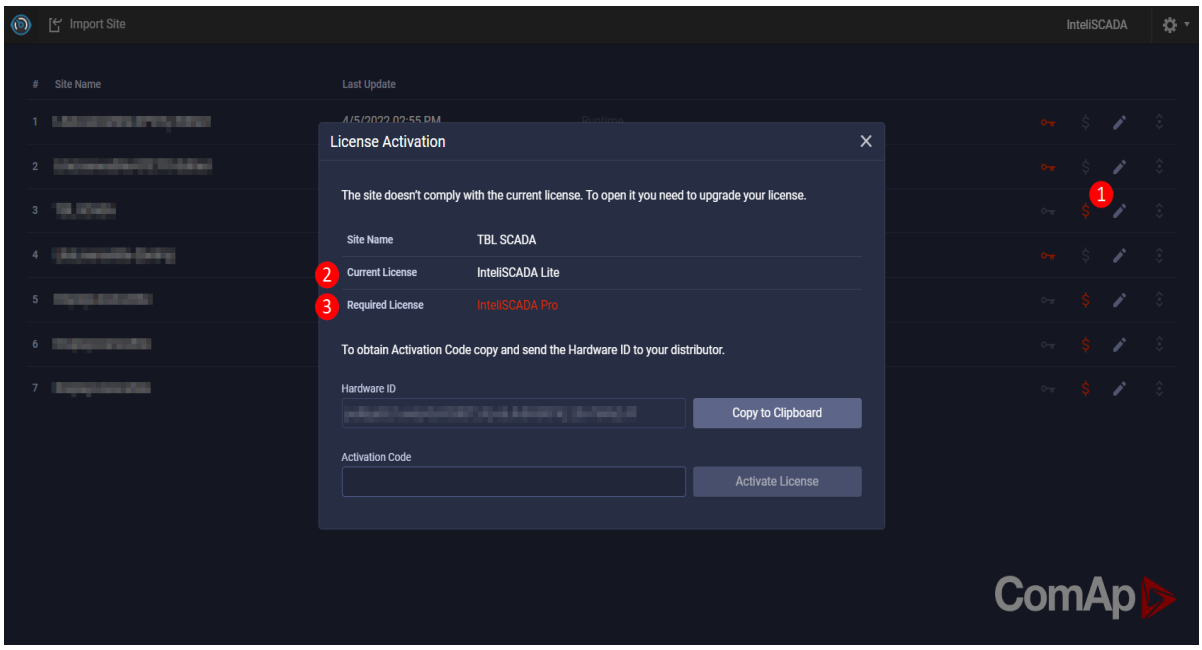
If any license limit is exceeded for a particular site, the License Dialog button in Designer is red, and it is not possible to open the site in Runtime until the "Required License" type is activated. However, it is still possible to work with the site in Designer. The information about the licenses limits for the particular site are displayed in the License Details dialog in Designer. The site can be checked against any available license. The required license for the particular site is displayed in the Sites tab in Runtime (**see Navigation in Runtime on page 78**).

These symbols indicate whether the site complies with the current license. They can be found in site list in Runtime and as License Dialog button in Designer.

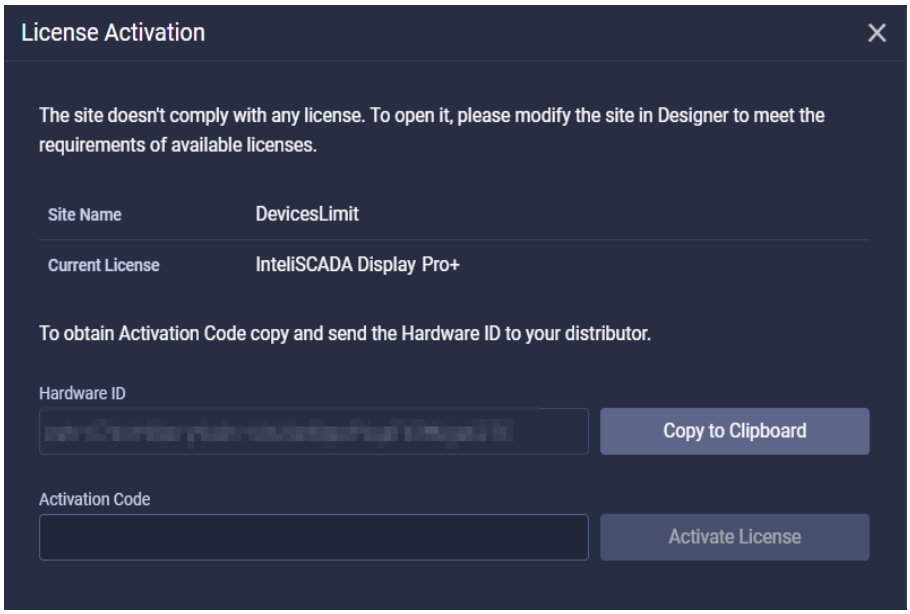
- The site complies with the current license (no limit exceeded)

- The site doesn't comply with the current license (any limit of currently used license exceeded)

To see the required license for a particular site 3 or current license 2 simply click on the red dollar button 1 in Runtime. It is possible to either activate higher license (see **License activation (page 22)**) or modify the site in Designer to comply with the current license limits



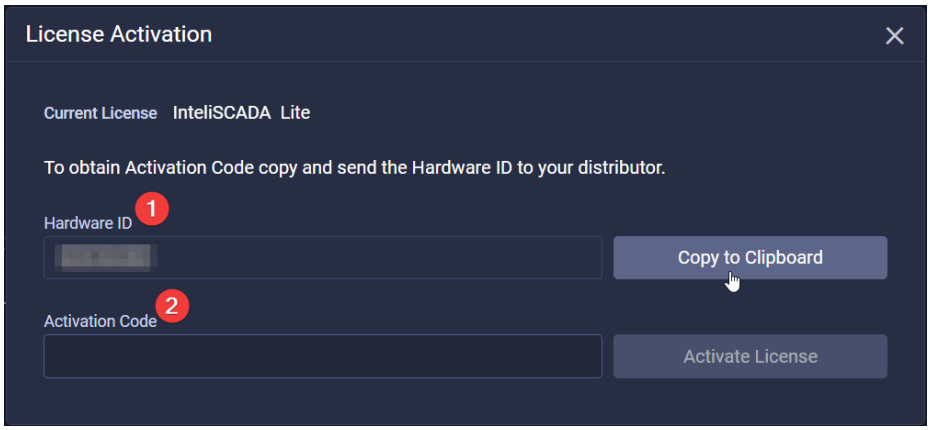
If no license fulfills the requirements, there will be no recommendation and it will not be possible to open the site in Runtime. To unlock the site, you will need to modify it in Designer to meet the requirements of available licenses.



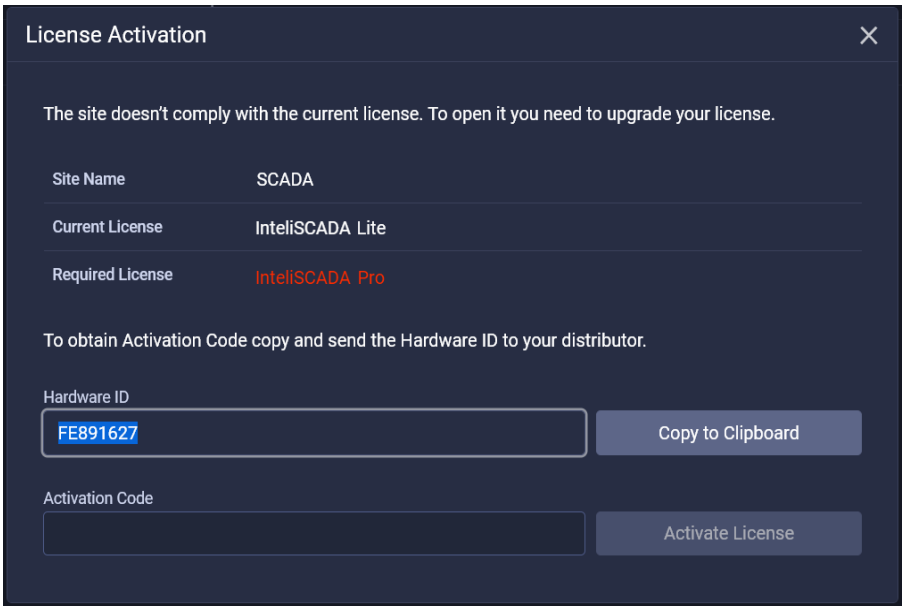
2.4.1 License activation

A license can be activated only from Runtime

- either using License Activation dialog, which can be opened from Settings section



- or using extended License Activation dialog, which can be opened from Sites of Runtime by clicking on the red dollar button of particular site



To activate a license follow this procedure:

- Copy the Hardware ID(1) and send it, including required type of license, to your distributor (e.g. by email)
- Distributor will send back the activation code. Copy and paste it to the Activation Code 2 input field
- Click on the Activate License button to activate the license
- There will be a notification in the dialog about the activation result and the Current License field will change accordingly

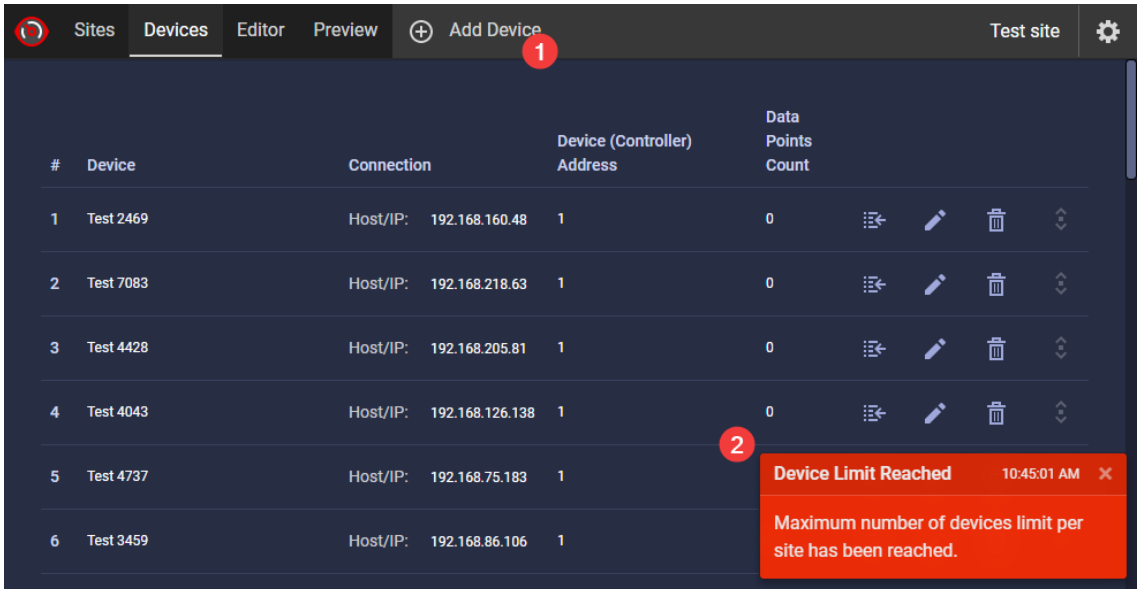
> **IMPORTANT: Activation Code is generated based on the Hardware ID, i.e. for the specified PC hardware, where InteliSCADA is installed. If any part of the hardware is changed, a new license activation code might be required.**

2.4.2 Clients limitation

Only one Designer and one Runtime can be opened at the same time. Any additional clients are rejected by the server and the information page is returned:

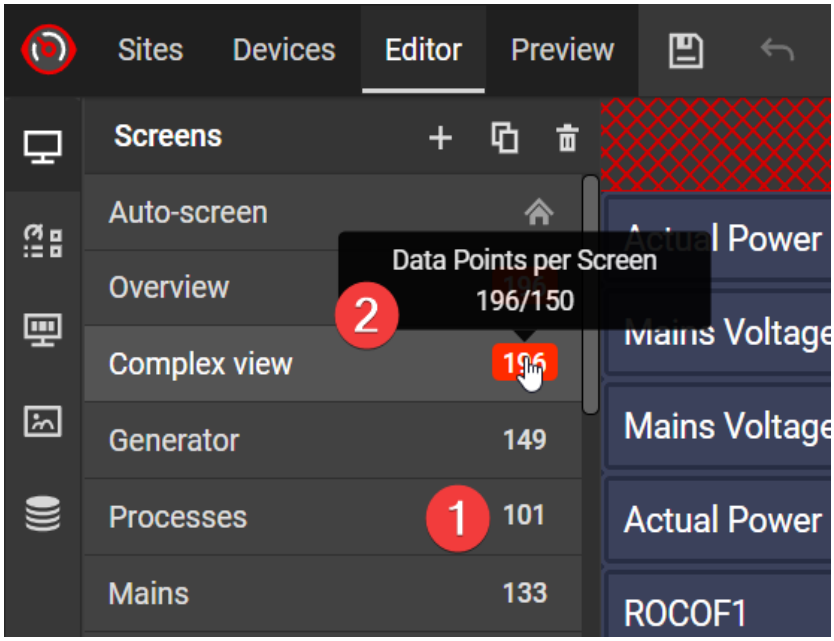
2.4.3 Site limitation

Up to 32 devices can be added into a site. If the user tries adding another device by clicking on the "Add Device"[1] button and there are already 32 devices in the site, a message[2] is displayed, see the picture below.



2.4.4 Data points per screen limitation

Count of data points per screen is displayed on screen's tab in Editor. If the number of data points exceeds license limit, the number is displayed in red.



1	Data points used in the screen	Uniquely defined data points count for each user defined screen
2	Tooltip with information about limit	Tooltip shows used/maximum number of data points in the screen

Note: *Each data point is unique. Even if used for two different instruments on the same screen, it counts as one single data point.*

2.5 Supported ComAp devices

Supported ComAp devices and related applications are listed in the tables below. Each device application displays predefined template on **Automatically generated screen (page 191)**.

Ensure that requirements related to ComAp devices mentioned in **Requirements (page 11)** are met.

2.5.1 Controllers

ComAp controller	Application
InteliATS 2 50	MM MG
InteliATS 2 70	MM MG
InteliDrive DCU Industrial	AS SS
InteliDrive DCU Marine	AUX CMB EME PRP
InteliGen 1000	SPtM MINT
InteliGen 1000 Marine ***Note:*** *The InteliGen 1000 Marine uses a combination of Application Types (AC and DC), and Application Modes (Generator and Energy Storage)*	AC Gen AC/DC DC/AC DC/DC
InteliGen 1000SC	MINT
InteliGen 200	SPtM MINT
InteliGen 500	SPtM MINT
InteliGen 500 G2	SPtM MINT PV
InteliGen GSC/GSC-C	SPtM MINT SPI
InteliGen NT/NTC	SPtM MINT SPI
InteliGen NT/NTC BaseBox	SPtM

ComAp controller	Application
	MINT SPI PSC
InteliGen NT/NTC BaseBoxGeCon LandBased	SPtM MINT SPI
InteliGen NT/NTC BaseBoxGeCon Marine	SPtM MINT SPI
InteliGen4 200	SPtM MINT
InteliLite 4 AMF 20	AMF
InteliLite 4 AMF 25	AMF Hybrid
InteliLite 4 AMF 25 LT	AMF
InteliLite 4 AMF 8	AMF
InteliLite 4 AMF 9	AMF
InteliLite 9	AMF
InteliLite AMF20	AMF
InteliLite AMF25	AMF
InteliMains 1010	MCB MGCB BTB
InteliMains 1010 Marine	AC Shore AC BTB DC Shore DC BTB DC Microgrid
InteliMains 1010SC	MC BTB
InteliMains 210	MCB MGCB BTB
InteliMains 210 G2	MCB MGCB BTB
InteliMains 510	MCB MGCB

ComAp controller	Application
	BTB
InteliMains NT	MCB MGCB BTB
InteliMains NT/NTC BaseBox	MCB MGCB BTB
InteliNano AMF 5 ***Note:*** *Only AirGate connection is supported over ethernet interface.*	AMF
InteliNeo 530 BESS	MINT
InteliNeo 5500	MPtM MINT
InteliNeo 6000	MPtM MINT
InteliSys 2000	SPtM MINT SPI
InteliSys Gas	SPtM MINT SPI
InteliSys GSC-C	SPtM MINT SPI
InteliSys NTC BaseBox	SPtM MINT SPI Combi PSC
InteliSys NTC BaseBoxGeCon LandBased	SPtM MINT SPI
InteliSys NTC BaseBox GeCon Marine	SPtM MINT SPI
InteliSys NTC Hybrid	MCB MGCB MINT

2.5.2 Communication modules

ComAp communication module	Notes
InteliGateway (IGW) InteliFieldbus Gateway	Provided data points are limited to values and setpoints. Other types like Alarm List or LEDs are not supported, therefore they are not available in the **Editor (page 48)**. Although more devices can be connected to the gateway, the gateway itself is considered as one device in InteliSCADA. Its default port is **502**. InteliGateway (IGW) provides LAN & WAN ports for connectivity. WAN port supports AirGate connection, LAN port supports Ethernet connection.

2.6 Backup & restore

> **IMPORTANT: Every time you uninstall, re-install, upgrade or downgrade InteliSCADA a backup folder with your data is automatically created.**

All backups are stored in `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup\` as separate .zip archives and folders identified by the timestamp. Each .zip archive contains the exported sites as individual files (*.isx), and each folder contains the various log text files (migration, backup, delete), which hold the information from how the installation proceeded

All archives used in the sites are included in an additional site "Archives.isx" (the password is "archives"). Therefore, to access any archive in the application, this file needs to be imported in InteliSCADA together with the rest of the backup sites. After the import, you can delete it.

A size of backup files depends on the sites configuration. Consider available free disk space for the new backup. It is also possible to back up the data manually, see the chapter **How to back up the data (page 28)**.

> ***Note:*** *(*)*
> *This is valid only for InteliSCADA version 2.2.0 or newer. For older versions the content of the backup directories may be different, please see the manual for the corresponding version of InteliSCADA.*

2.6.1 How to back up the data

To create a backup of data manually, run a console application called DatabaseMaintenanceTool with appropriate arguments. The application is available in the InteliSCADA installation folder, e.g. `C:\Program Files\ComAp PC Suite\InteliSCADA\Tools\DatabaseMigrationTool\`. The default folder to store backups is set to `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup\`.

> **Example:** Basic usage - create a new backup in the default folder
> *`DatabaseMaintenanceTool.exe -backup`*

> **Example:** Advanced usage - create a new backup in a custom folder
> *`DatabaseMaintenanceTool.exe -backup -backuppath "C:\CustomBackupFolder"`*

It is also possible to back up automatically exported sites stored in `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup\Sites\`. For more information **see Automatic site backup on page 29**.

> **IMPORTANT: We strongly recommend that you back up the data regularly to prevent potential data loss. Also consider storing your backups on a different device.**

2.6.2 How to restore the backed up data

> **IMPORTANT: The following procedure applies only for InteliSCADA 2.2.0 or newer. If you need to restore data for older version of InteliSCADA please see the corresponding manual.**

1. To find automatically backed up data, open Windows explorer and go to the specific backup folder: `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup\specific_backup_folder`.
   - The format of a backup folder name is `Backup[DD.MM.YYYY-HH-MM-SS]` where [DD.MM.YYYY-HH-MM-SS] is date and time of the creation.
   - If the backup was made manually as described in chapter **How to back up the data (page 28)** navigate to your custom backup folder.
2. The selected folder should contain files with exported sites (*.isx). There is also one extra file (archives.isx) which contains all exported archives.
   - If there are no *.isx files in the folder it might be a backup created in an older version of InteliSCADA. These backups are not compatible and cannot be restored in the current version of InteliSCADA.
3. To restore a specific site, import the corresponding file, **see Import site on page 41**. If the site uses offline archives import also the archives.isx file.
   - If it is required to restore more sites from one backup folder, the archives.isx file needs to be imported only once.

2.6.3 Automatic site backup

Each site edited in Designer is automatically backed up to the specific folder after the site is closed. The backup operation runs seamlessly in the background (temporary increase of the CPU and RAM usage may occur).

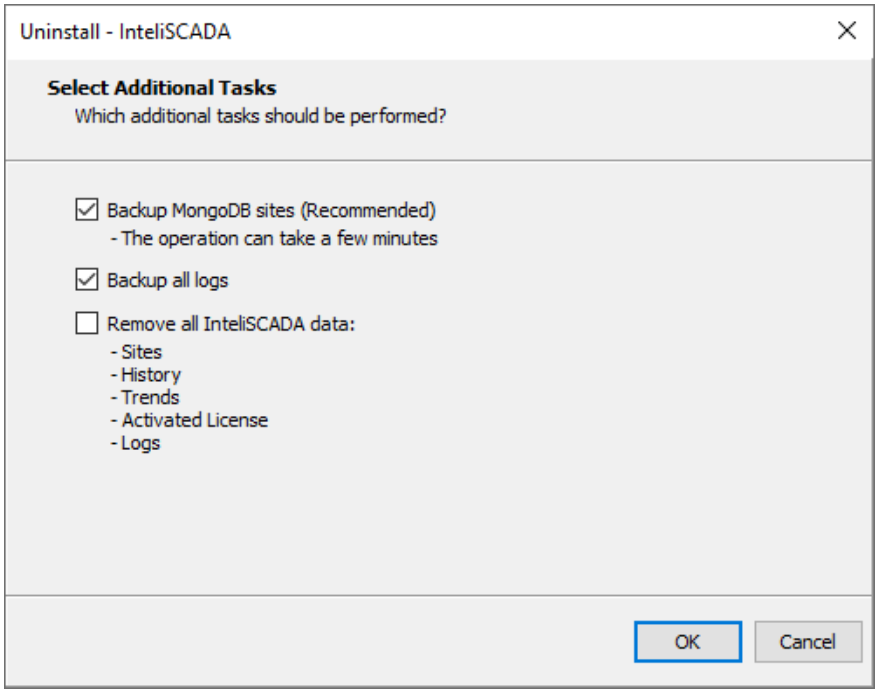
In case of corruption or loss of the site it is possible to restore it using the "Import site" feature, **see Import site on page 41**. Just select the site you want to recover from `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup\Sites\`

> **IMPORTANT: The automatic backup might not get created in some cases e.g. a sudden loss of power. Therefore, it is recommended to regularly back up your data.**

2.7 Uninstallation

1. Open the Start menu
2. Select ComAp PC Suite
3. Select Uninstall InteliSCADA

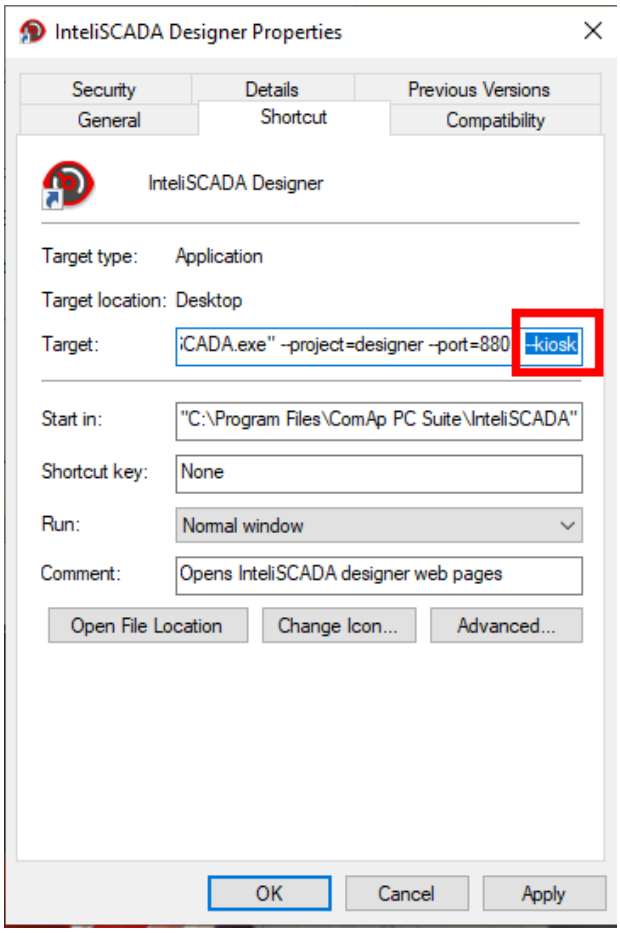
InteliSCADA uninstall form consists of 3 check-boxes as visible in the image:



- Backup MongoDB sites - This backs up all sites stored in MongoDB, which may take a few minutes but it is recommended to do so.
- Backup all logs - Uninstaller backs up all logs created by InteliSCADA
- Remove all InteliSCADA data - this option removes all InteliSCADAdata including all MongoDB data.This will not delete data/logs backup.

2.8 Application launch settings

To set/modify application launch settings open the *Properties* tab of the application shortcut you want to modify (default location after the installation is Desktop).



Parameter	Description
--project=designer	Sets Designer as the startup application.
--project=runtime	Sets Runtime as the startup application.
--port=8801	Port number used by InteliSCADA server to listen on.
--kiosk	Opens the application in fullscreen mode (press F11 or use 'Fullscreen' button in Settings dropdown to toggle fullscreen mode, **see Start Runtime or Designer on page 17**).
--autoconnect	InteliSCADA automatically opens the first site when the application starts. In order to open the preview of a specific site, it must be unlocked or the password remembered. (**Unlock site (page 105)**).

2.9 AutoConnect mode

You can run the InteliSCADA Runtime in the AutoConnect mode which automatically opens the 1st site in the list. If there are no sites yet, the empty list of sites is displayed.

To open your site right away when your computer restarts, **see Automatic opening of InteliSCADA site on page 32**.

Note: *To enable autoconnect mode, run InteliSCADA.exe with parameter --autoconnect.*
(for example "C:\Program Files\ComAp PC Suite\InteliSCADA\Desktop\InteliSCADA.exe" --project=runtime --port=8801 --autoconnect)

Note: *The Unlock Site dialog is displayed if the first site is locked and the Remember this password option is not checked.*

2.9.1 Automatic opening of InteliSCADA site

If you want to display your site default screen directly after InteliSCADA restart, follow these steps:

1. Move your site to 1st position

   To move the site, you want to open automatically to the 1st position, use drag&drop in the site list of InteliSCADA Runtime or Designer.

2. *Optional step:* Remember password

   Check *Remember this password* option in the *Unlock Site* dialog to avoid displaying this dialog next time (e.g., after restart).

   Click the red key icon in the site list to open the dialog.

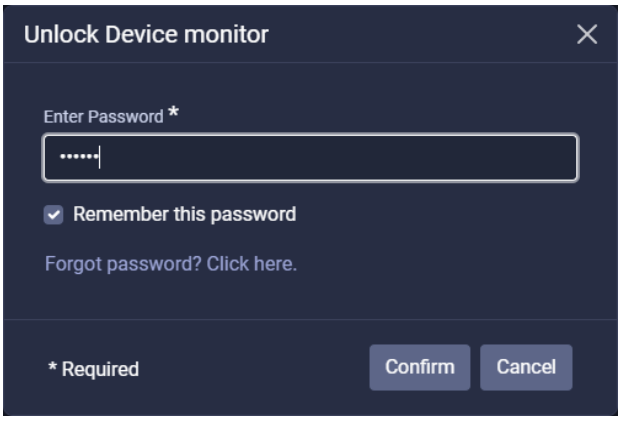


Image 2.3 Unlock Site dialog

3. Add shortcut to Windows startup

   a. Create a shortcut from InteliSCADA Runtime and name it InteliSCADA AutoConnect Runtime.

   b. Open the properties of the shortcut you just created and type **--autoconnect** into the target input box at the end. For a reference picture **see Application launch settings on page 30**.

   c. Copy the InteliSCADA AutoConnect Runtime shortcut you just created to the Windows startup folder using copy-and-paste or drag-and-drop. Programs in the Windows startup folder are launched automatically as soon as the system boots up.

Note: *Windows Startup folder is located*
*- for **all users** at C:\ProgramData\Microsoft\Windows\Start Menu\Programs\StartUp*
*- for the **current user** at C:\Users\Username\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup.*

Note: *When tablet mode is enabled on your computer, the InteliSCADA AutoConnect Runtime will start in a minimized window on a taskbar after approximately 15 seconds.*

Note: *The InteliSCADA AutoConnect Runtime shortcut enables the AutoConnect mode, which is necessary for the automatic opening of the 1st site (****see AutoConnect mode on page 31****).*

3 Designer

back to Table of contents

The first step in Designer is to create a site, **see Sites on page 37**. Once the site is created, devices can be added into this site, **see Devices on page 42**. Afterward, the **Automatically generated screen (page 191)** is updated and it is ready for monitoring. It is also possible to create custom screens in the **Editor (page 48)** using these devices.

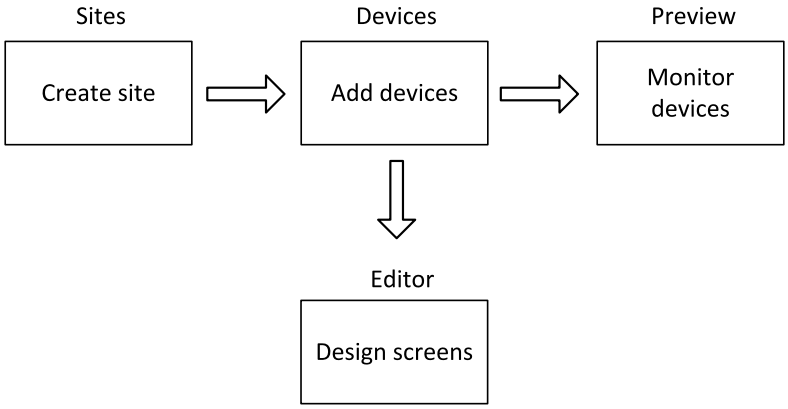
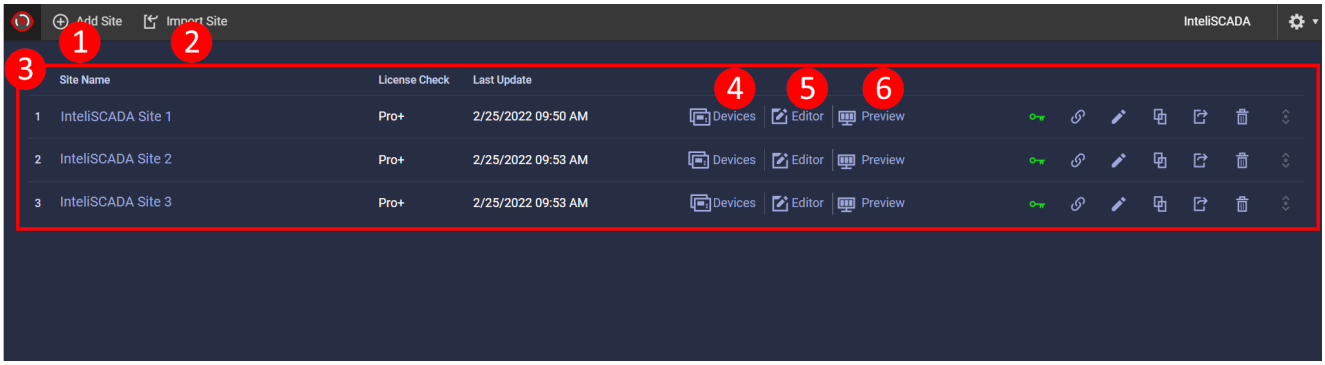


Image 3.1 Basic InteliSCADA Designer Workflow

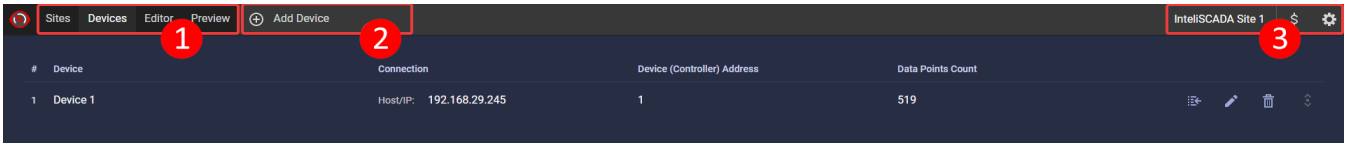
Welcome screen of Designer is the Sites tab (list of sites):

- Sites can be added, edited, deleted, imported and exported, **see Sites on page 37**
- 1 "Add Site" button – Creates a new site
- 2 "Import Site" button – Imports the site from the selected file (*.isx)
- 3 List of all sites available on the server
- Site can be opened by:
  - 4 Devices link – Opens the Devices tab for a particular site
  - 5 Editor link – Opens the Editor tab for the site
  - 6 Preview link – Opens the Preview tab with the default monitoring screen of the site



Designer toolbar:

- Once the particular site is opened, the toolbar is divided in 3 main parts:



	Toolbar sections	Description

1	Designer navigation	- Tabs to navigate through Designer
		- Active tab is underlined (for reference see the Devices tab in the picture above)
		  - Sites tab – Opens the list of sites
		  - Devices tab – Opens the list of a for the particular site
		  - Editor tab – Opens the editor with the last selected screen for the site
		  - Preview tab – Opens the preview of the screen opened in editor for the site

2	Tab specific buttons	Buttons specific for the currently active tab
		- Devices tab:
		  - "Add Device" button - Opens the dialog to add a new device
		- Preview tab:
		  - Setpoints button - Opens the dialog to monitor and edit setpoints of any device in the particular site
		  - Values button - Opens the dialog to monitor values of any device in the particular site
		  - History button - Opens the dialog with history records from all devices in the site, see **History (page 89)**
		  - Screens button - Opens the screens overview
		  - "Fit To Screen" button - Zooms the screen so the whole screen is visible and fits the screen size
		  - "Zoom 100%" button - Zooms the screen to the screen's original size

3	General	- Name of the open site - Name of the open screen (only if in the Editor tab or Preview tab) - Connection Status button (only if in the Preview tab) - License Details button (only if any site is open) - Opens the dialog with information about the required license for particular site - Settings button - Opens drop-down list with Settings

	Toolbar sections	Description
		options. For more information see **see Settings on page 100**

3.1 Sites

- The Sites toolbar contains "Add Site" button (**see Add site on page 38** for details) and "Import Site" button (**see Import site on page 41** for details).
- The Sites tab contains following information:

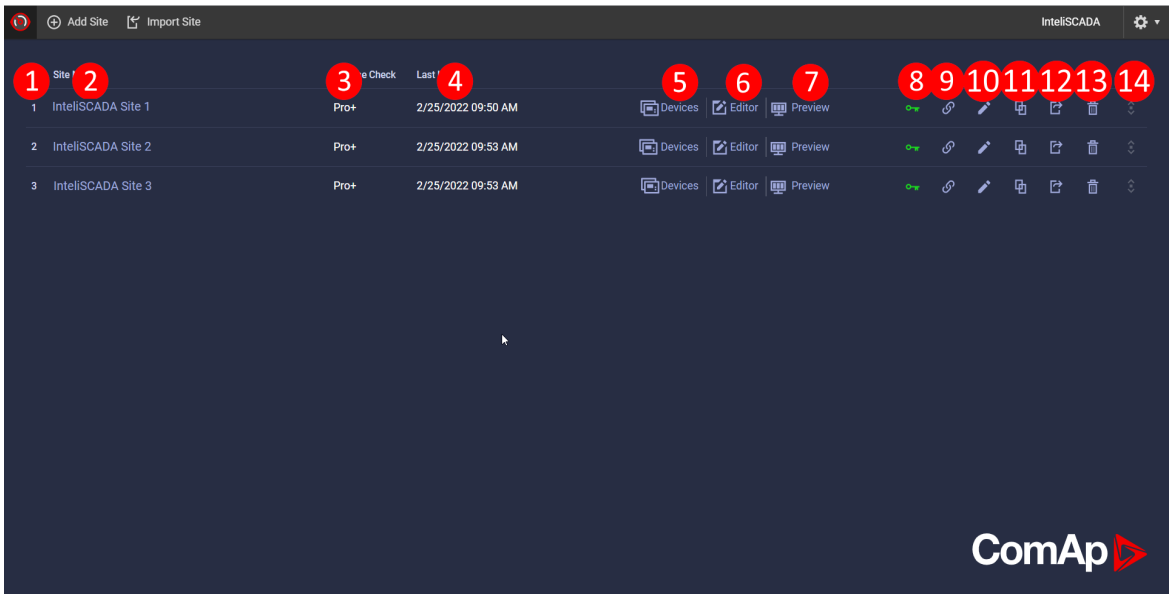


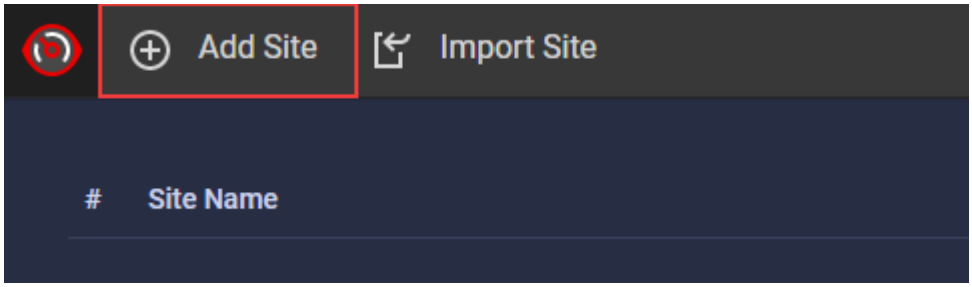
Image 3.2 Sites toolbar

1	#	Site order in the list of sites
2	Site Name	User defined site name
3	License Check	User defined site license check
4	Last Update	Date and time of the latest update
5	Devices link	Link to the Devices tab for of the site
6	Editor link	Link to the Editor tab with the default screen of the site
7	Preview link	Link to the Preview tab with the default screen of the site
8	"Lock/Unlock Site" button	Locks / unlocks the particular site. If the site is locked, it opens the **see Unlock site on page 105** dialog to unlock it, otherwise it locks the site
9	"Site Runtime Link" button	Shows the Runtime URL link to the default screen for the site
10	"Edit Site" button	Opens the dialog for editing the site details (site name, password)
11	"Clone Site" button	Creates a copy of the site with the same site password
12	"Export Site" button	Exports the site to a file (*.isx). Site, device archives and images are included. The exported site is protected

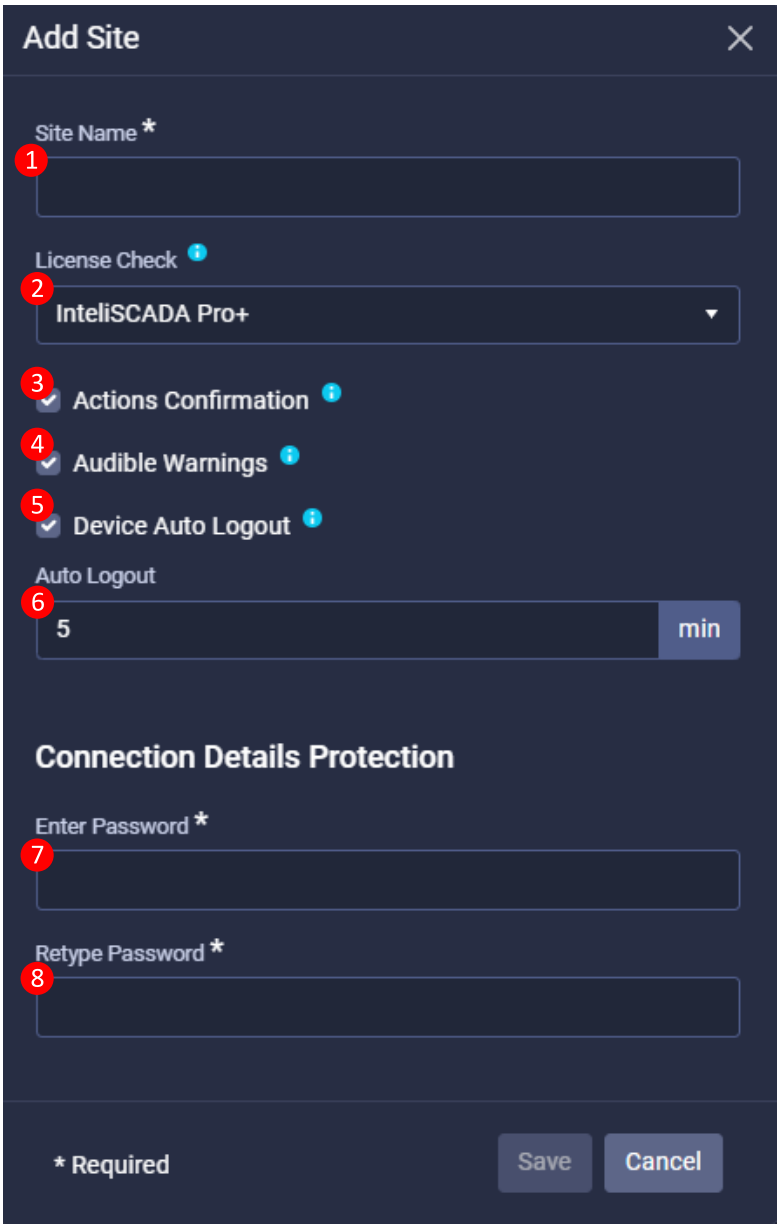
		by the site password.
13	"Delete Site" button	Deletes the particular site. Important: Even the locked site can be deleted.
14	"Move Up/Down" button	Drag & drop to change the site's order in the list of sites

3.1.1 Add site

- Click on the "Add Site" button to add a new site

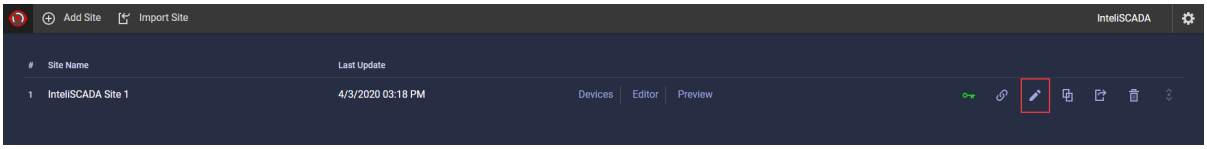


- Required fields:
  - 1 "Site Name" – User defined site name (supported up to 32 characters)
  - 2 "License Check" – This site will be cross-checked against the license you select. In case the site's parameters exceed its limits, an indication will be displayed in License Details - **see Licenses on page 19** and in Sites Tab.
  - 3 "Actions Confirmation" – When checked, a confirmation dialog will be displayed whenever an instrument of the button type is pressed
  - 4 "Audible Warnings" - When checked, the InteliSCADA application will audibly warn the user about certain events, such as communication loss with a device or a device being unlocked.
  - 5 "Device Auto Logout" - When checked, the automatic logout feature enables a session termination for devices signed in under any user account other than the default, automatically reverting to the default user after a predetermined period of inactivity
  - 6 "Auto Logout [min]" - A set period of time, determined in minutes, for the "Device Auto Logout" feature, where the minimum value is 1, the maximum value is 100 and the default value is 5
  - 7 "Enter Password" – User defined password, see password requirements and its purpose in **Security (page 104)**
  - 8 "Retype Password" - Enter the password again



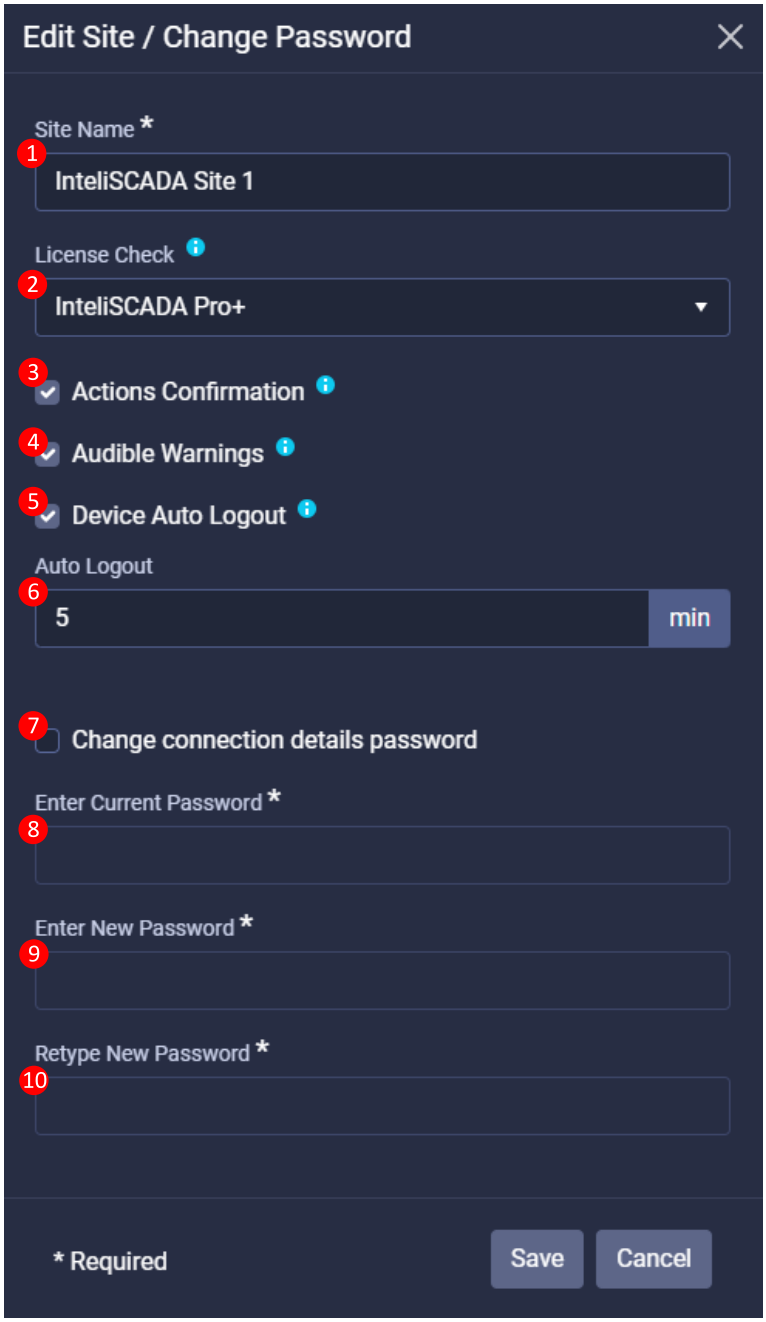
3.1.2 Edit site

Click on the "Edit Site" button to change the particular site details.



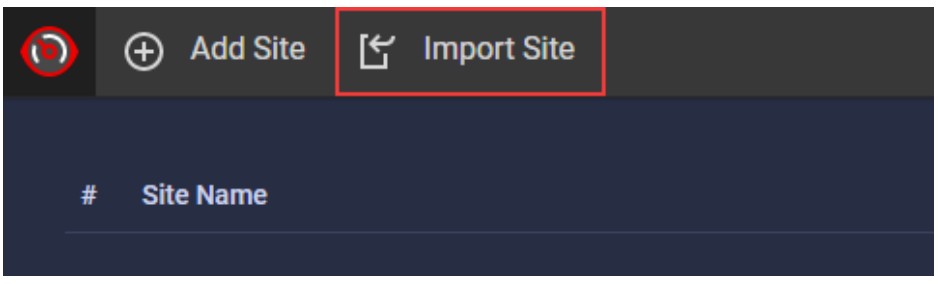
- To change the site name only:
  - Keep the "Change connection details password" tick box 7 unchecked
  - Enter Site Name 1
- To change the auto logout only:
  - Keep the "Change connection details password" tick box 7 unchecked
  - Check/uncheck the "Device Auto Logout" tick box 5 or change the period in "Auto Logout [min]" 6

- To change the license check only:
  - Keep the "Change connection details password" tick box 7 unchecked
  - Select License 2
- To change the actions confirmation only:
  - Keep the "Change connection details password" tick box 7 unchecked
  - Check/uncheck the "Actions Confirmation" tick box 3
- To turn the audible warnings on/off:
  - Keep the "Change connection details password" tick box 7 unchecked
  - Check/uncheck the "Audible Warnings" tick box 4
- To change the site password:
  - It is necessary to check the "Change connection details password" tick box 6
  - 7 Enter Current Password (required)
  - 8 Enter New password (required)
  - 9 Retype New Password (required)

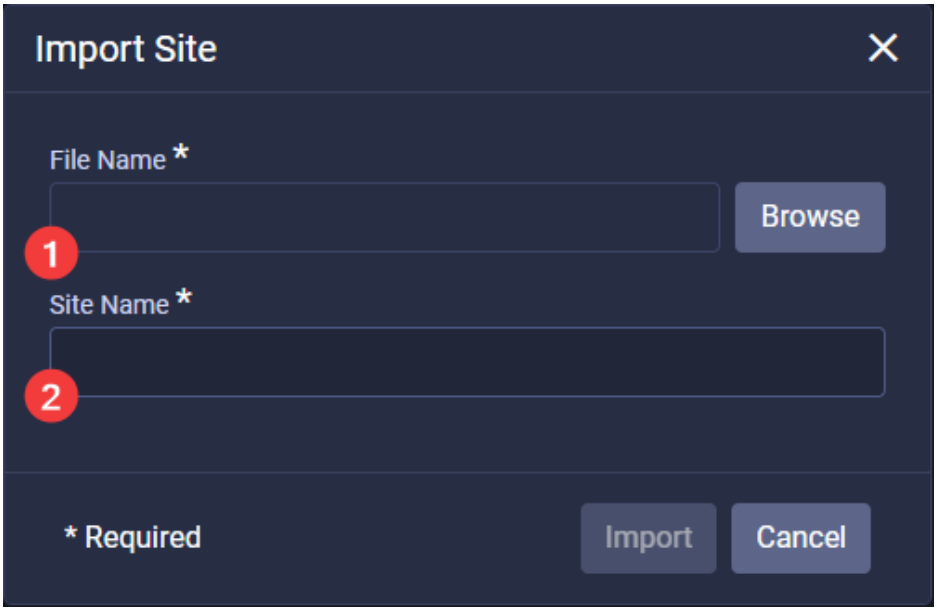


3.1.3 Import site

Click on the "Import Site" button to import a site from the file (*.isx). The imported site will be locked and it is necessary to know the password to unlock it. Usually, the site is prepared on the designer's laptop and then it is imported to the client's laptop.

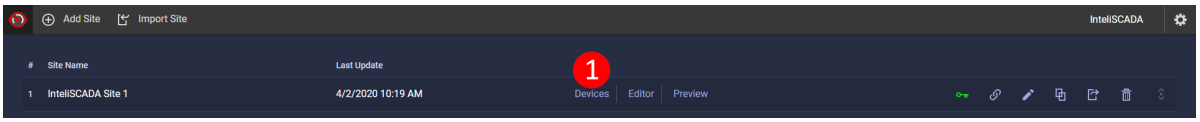


- Required fields:
  - 1 File Name – Click the Browse button to browse the file to be imported
  - 2 Site Name – Enter the site name (up to 32 characters)
- Validation errors can appear during the import process
  - Unsupported version of the file – Either the export file version or the export file content data version is not supported
  - Bad format of the file – The file is corrupted or contains malformed data

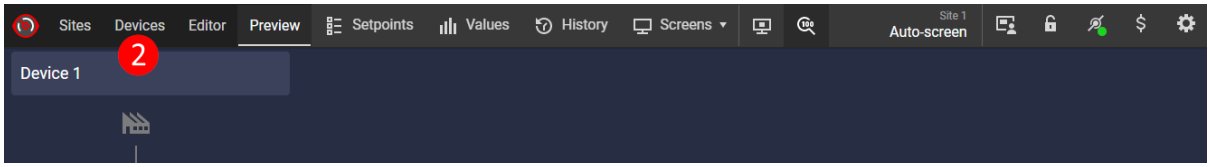


3.2 Devices

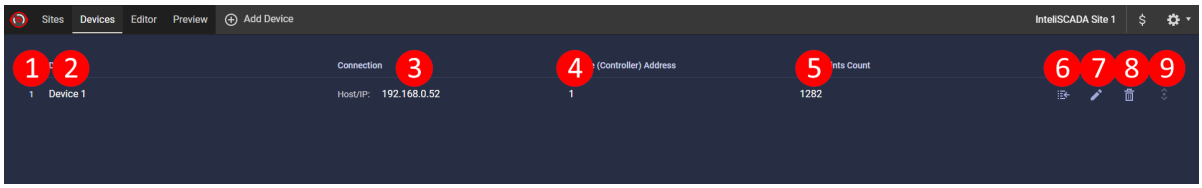
- List of devices for the particular site can be accessed by:
  - 1 Clicking on the Devices link from the list of sites in Designer



  - 2 Clicking on the Devices tab from Designer



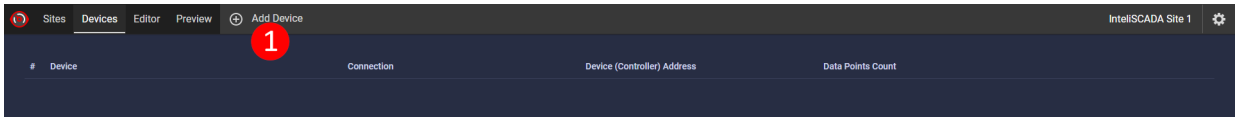
- The Devices tab contains following information:



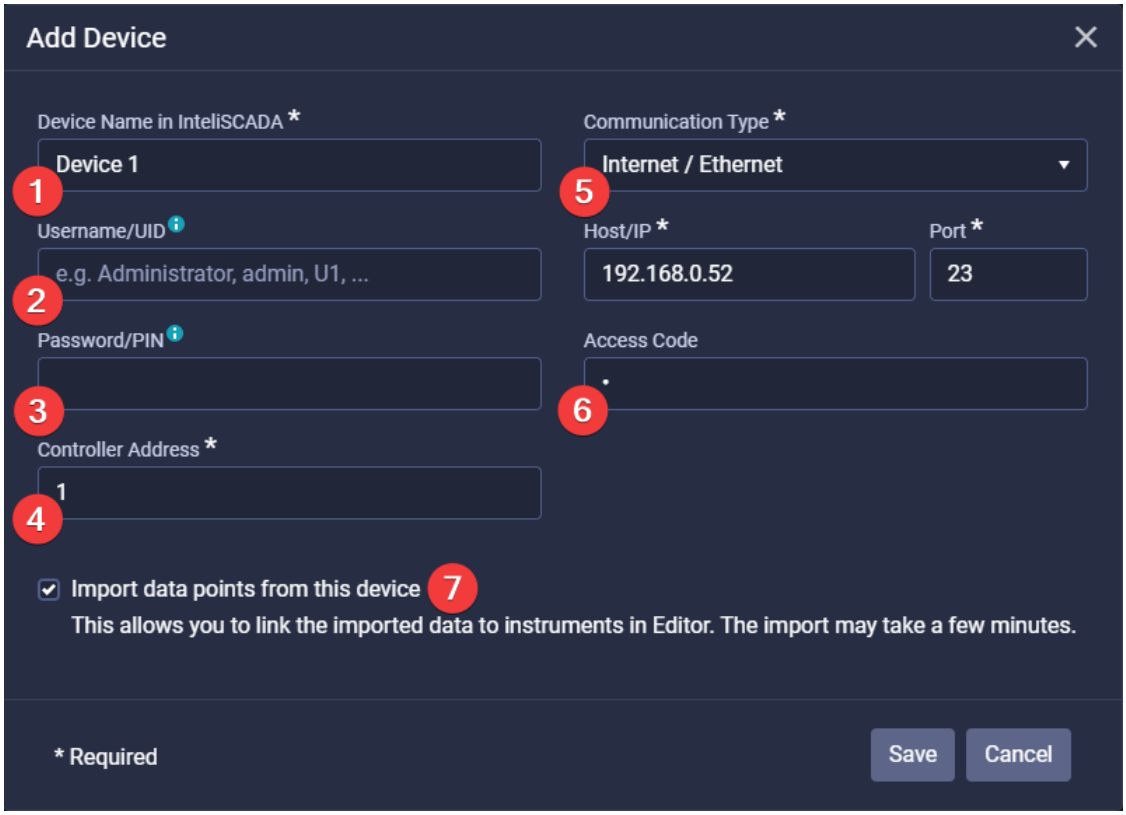
1	#	Device order in the list of devices. It also defines device template order on **Automatically generated screen (page 191)** (template for device # 1 is placed as first from the left side of the screen)
2	Device	User defined device name entered when creating or updating device
3	Connection	Communication type + detail (eg. IP: 10.72.0.205 or AirGate : xxxxxxx)
4	Device (Controller) Address	Device CAN bus address
5	Data Points Count	Total number of imported data points
6	Import Data Points button	Tries to connect and re-import data points from the device
7	Edit Device button	Opens a dialog for device details editing
8	Delete Device button	Deletes the device
9	Move Up/Down button	Drag & drop to change the device order in the list of devices

3.2.1 Add device

- To add a new device click on the "Add Device" button 1



- Fill in all required fields:



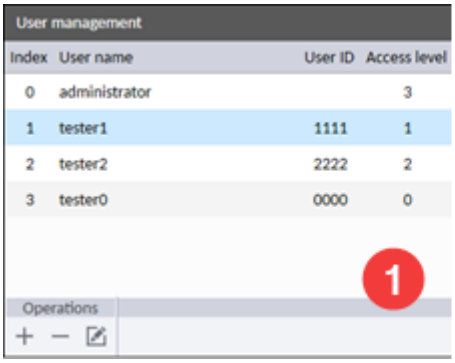
1	Device Name in InteliSCADA	User defined device name in InteliSCADA
2	Username/UID	Necessary if a specific Username/Password, or Password/PIN access level should be applied (valid only for some controller types, e.g. IGS-NT, IM-NT, InteliLite 4, InteliGen 1000, InteliMains 1010) (**see Setting up controller username and password on page 44** for details).
3	Password/PIN	Device Password/PIN (**see Setting up controller username and password on page 44** for details)
4	Controller Address	CAN address (for ComAp controllers 1 - 32)
5	Communication Type	Communication type options › Internet / Ethernet: Host/IP + port (default: 23) › AirGate: AirGate ID, AirGate Key, AirGate server (default servers are pre-filled based on the AirGate ID provided.) › Serial: COM number (eg. "COM8") › Archive: browse the offline archive you want to attach to » supported archive files are .ant, .aid, .ail3, .ail4, .aig3, .ail, .accg. ***Note:*** *Always check the device's manual for supported connectivity. See also* ***Supported ComAp devices (page 25)***
6	Access Code	Device access code
7	Import data points from this device	Once the device is added into the site it will try to connect to that device and import data points from it automatically (checked by default)

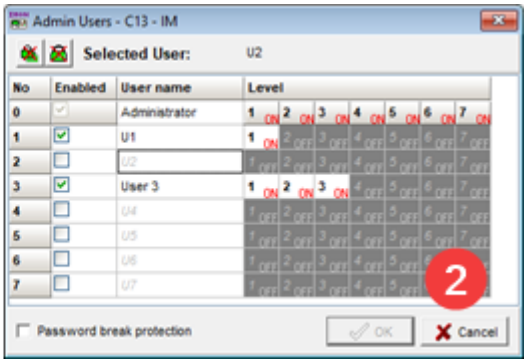
3.2.2 Setting up controller username and password

The process of logging in can vary depending on a controller type. Some types of controllers (e.g. IGS-NT family, IM-NT family, InteliLite 4, InteliGen 1000, InteliMains 1010) require the username and password to log in, others (e.g. InteliLite, InteliGen 200, InteliGen 500, InteliMains 210, most of InteliDrive) require just the password. The combination of UID and PIN can be used instead of Username and Password on trusted interface.

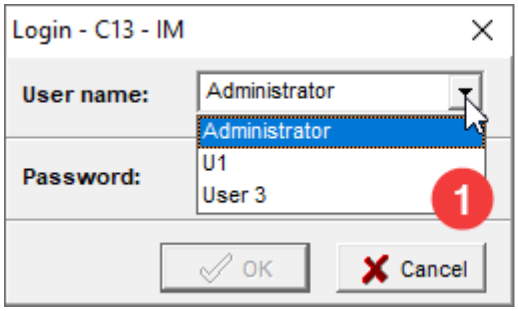
› Connecting to the controller is generally possible with or without logging in to the controller. By logging in to the controller, its levels of access rights can be used.

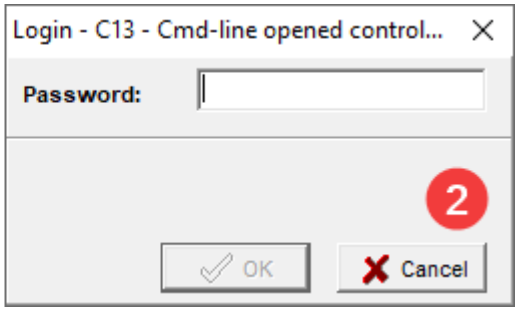
› The controller usernames are defined using InteliConfig (User management) 1 or InteliMonitor (Admin users) 2 based on the controller type.





- The list of usernames is also available in InteliMonitor in the Login (Enter password…) dialog for online connection [1]. List of usernames are not available for Archives [2].

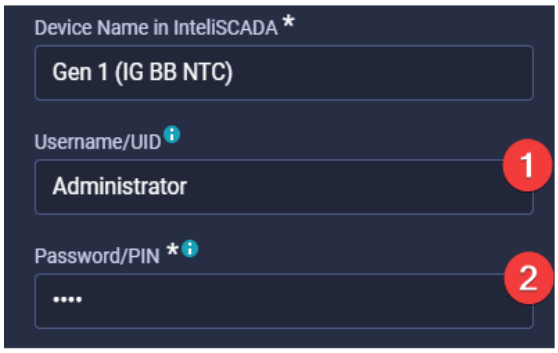




- The Username and Password are case sensitive.
- The default administrator username also depends on the controller type and can be changed as well. Therefore it is recommended to verify the current usernames in the controller before logging in InteliSCADA.
- The entered credentials are protected by the site password (**see Security on page 104**for details).
- Most types of controllers can be also connected without logging in. This can be done by leaving Username and Password fields empty. Access to data is restricted accordingly.
- Logging in is mandatory for controllers with the new version of user management (e.g. InteliLite 4, InteliGen 1000) when connected via the untrusted interface (*).
- In InteliSCADA it is not possible to log in after establishing a connection (there is no Login button as in other ComAp tools). The login data is defined in the Device form in Designer and it is used when establishing a connection.

Here are some username and password setting examples for different ComAp controllers families

- IGS-NT family + IM-NT family

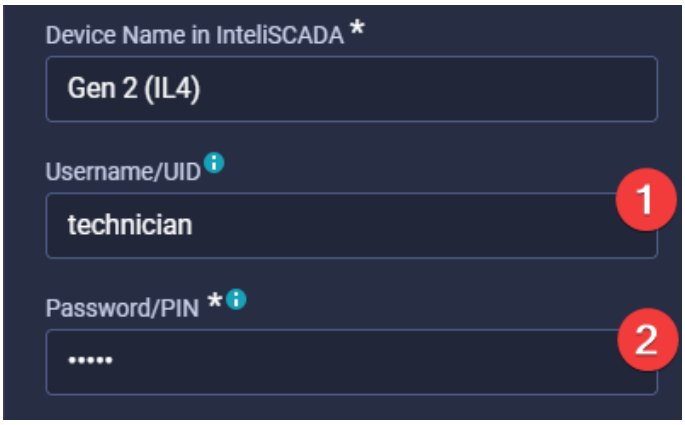


	Logged in	Not logged in
[1] **Username**	required	empty
[2] **Password**	required	empty

- IG 200, IG 500, IM 210, InteliLite, InteliLite NT and most of InteliDrive controllers

	Logged in	Not logged in
1 **Username**	empty	empty
2 **Password**	required	empty

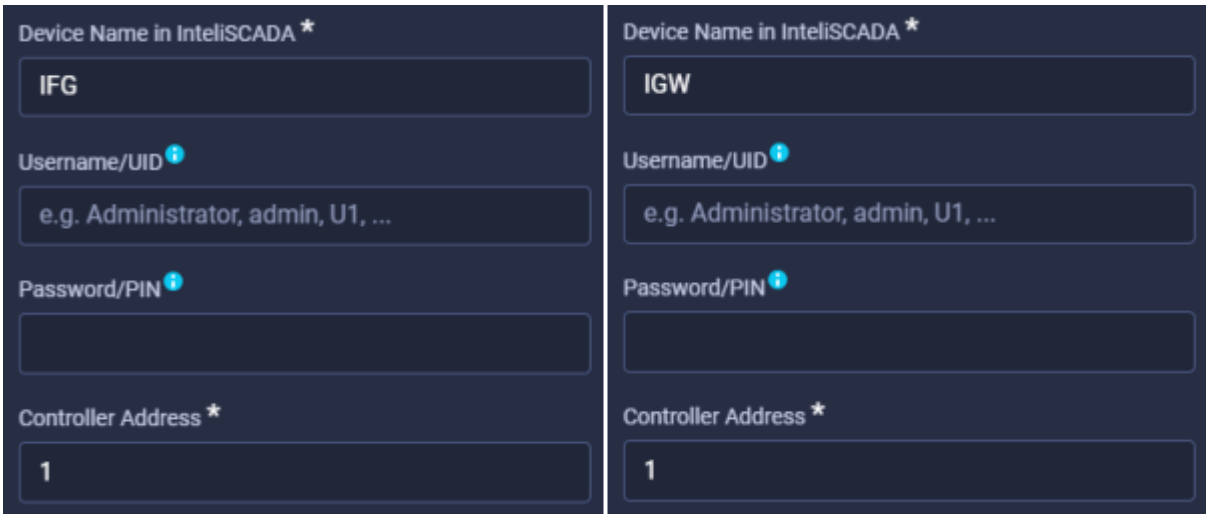
- InteliLite 4, InteliGen 1000, InteliMains 1010



	Logged in		Not logged in	
Interface (*)	Trusted	Untrusted	Trusted	Untrusted
1 **Username**	required	required	empty	not supported
1 **UID**	required	not supported	empty	not supported
2 **Password**	required	required	empty	not supported
2 **PIN**	required	not supported	empty	not supported

Note: *(*)*
See a controller global guide for more information about the trusted and untrusted interfaces.

- InteliFieldbus Gateway (IFG), InteliGateway (IGW), InteliGateway 100 (IGW100), InteliGateway 101 (IGW101), InteliGateway 300 (IGW300), InteliGateway 301 (IGW301)

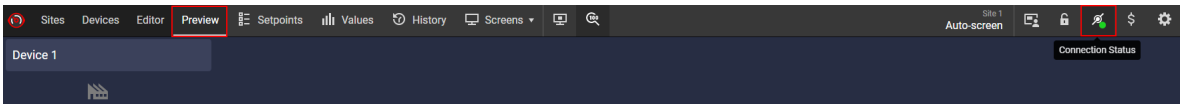


- For both InteliFieldbus Gateways (IFG) and Inteli Gateways (IGW) use empty Username and Password
- For InteliFieldbus Gateway use Communication Type AirGate1 only and Access Code instead of Username and Password

3.2.3 Connection status

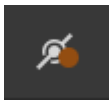
There is an overview of all devices, which are configured in the site with their current connection status. The "Connection Status" dialog can be opened:

- from the toolbar in Preview in Designer

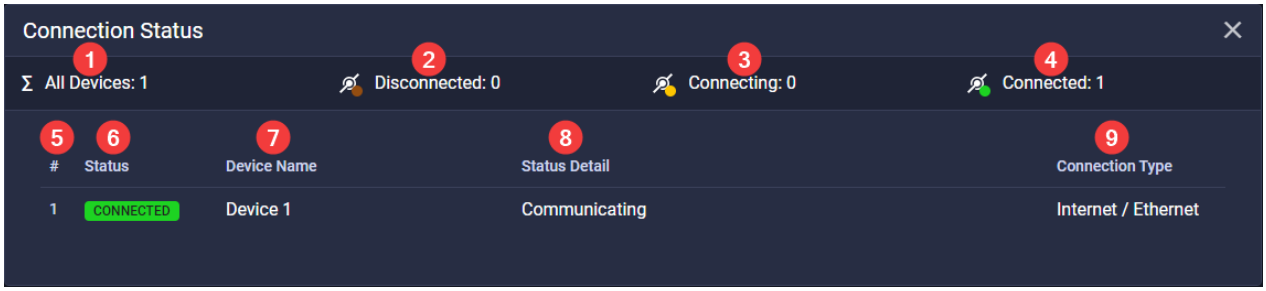


- from the toolbar in Runtime (**see Runtime on page 77**)

Connection Status button indicates overall status of devices

	Disconnected – At least one device is disconnected
	Connecting – At least one device is still connecting while others may be already connected
	Connected – All devices are connected

The "Connection Status" dialog provides this information:



1	All Devices – Total number of devices configured in the particular site
2	Disconnected – Total number of disconnected devices
3	Connecting – Total number of connecting devices
4	Connected – Total number of connected devices
5	# – Device order in the list of devices
6	Status – Device connection status › Disconnected – device is disconnected › Connecting – device is connecting › Connected – device is connected
7	Device Name – User defined device name used in InteliSCADA
8	Status Detail – Device detail connection status or connection error description, see also **Communication error notifications: (page 236)**
9	Connection Type – Device communication type

3.3 Editor

Editor provides tools to:

- Manage screens (by default every site contains one **Automatically generated screen (page 191)** and one custom screen)
- Place the instruments on the screen canvas, see **How to add instrument on the screen (page 65)**
- Edit the properties of the screens and the instruments using the **Properties panel (page 57)**
- To check how the edited screen looks and works online, see **Preview (page 73)**

3.3.1 Data points

InteliSCADA data point is a core component and represents data object, which refers to the single value or setpoint of any device, but also represents more complex data objects like commands, alarm list data, LEDs, etc. This concept allows to connect any instrument to any data point of any device.

To use data points in Editor the data points have to be imported first, see **Importing data points (page 48)**

3.3.2 Importing data points

> **IMPORTANT: if you want to connect an instrument to a device, it is necessary the device to be defined and its data points imported:**

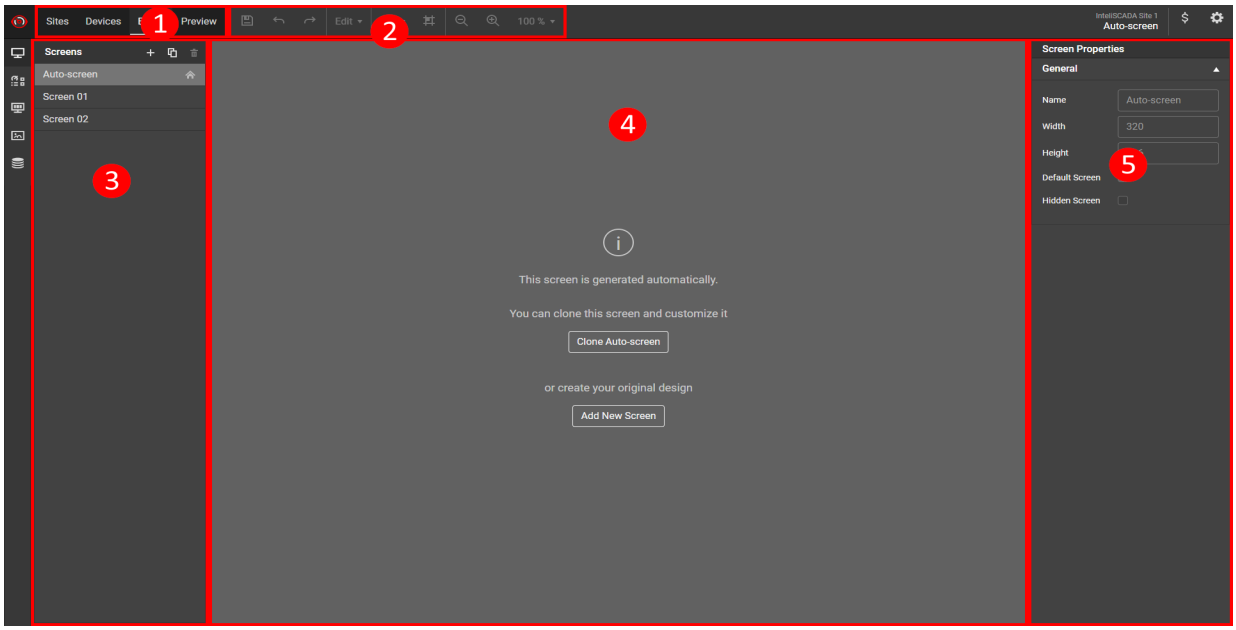
There are two options how to import the data points

- Manually for already existing device
  - Open the Devices tab
  - Click on the "Import Data Points" button for the particular device
    - It will try to connect to the device and import data points automatically

- Automatically when a new device is added, see **Add device (page 43)**

> **IMPORTANT: If any error occurred during the data point import, the error notification is displayed (see Error and warning notifications (page 235)**

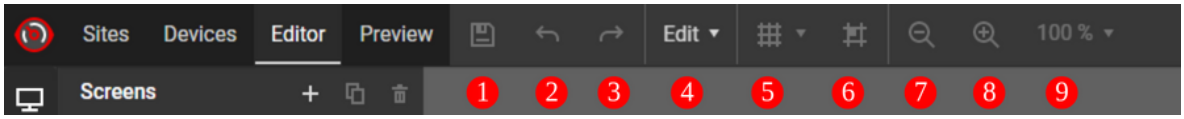
3.3.3 Navigation in Editor



	Tab	Description
1	Navigation	Navigation tabs through Designer
2	Toolbar	Editor specific buttons (see details below)
3	Sidebar	Buttons can open panels for: › **Screens panel (page 54)** › **Instruments panel (page 55)** › **Screen Content panel (page 55)** › **Image gallery panel (page 59)** › **Trends Sources panel (page 61)**
4	Canvas	Screen space to place instruments on (except for the **Automatically generated screen (page 191)**)
5	Properties	Properties panel for the selected screen or instrument

3.3.4 Toolbar

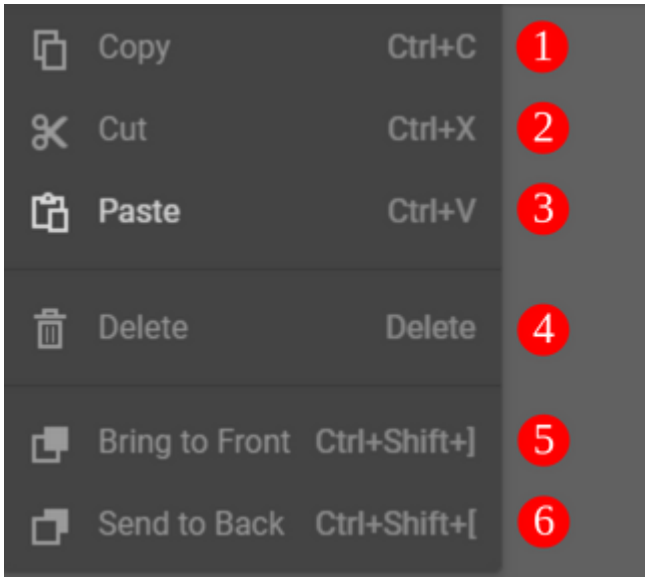
The toolbar can be useful especially when designing custom screens since the **Automatically generated screen (page 191)** is read only.



	Tab	Description
1	Save	Saves changes in the screen (changes are also automatically saved every 3 seconds)
2	Undo	Takes back 1 step in the screen history
3	Redo	Moves forward 1 step in the screen history
4	Edit	Opens the Edit menu, which contains all the options needed for editing the screen.
5	Grid Density	Allows to set the density of the grid, hide the grid completely, or set any custom value. The color of the grid is set automatically to a color contrasting to the Background Color of the screen.
6	Snap to Grid	Enables or disables the snap to grid feature. If the feature is enabled, instruments are automatically snapped to the grid when they are being created, moved or resized.
7	Zoom Out	Decreases the zoom value by 10 %
8	Zoom In	Increases the zoom value by 10 %
9	Zoom Menu	Opens the Zoom menu, which contains options for modifying the zoom values, as well as setting a custom one.

Edit Menu

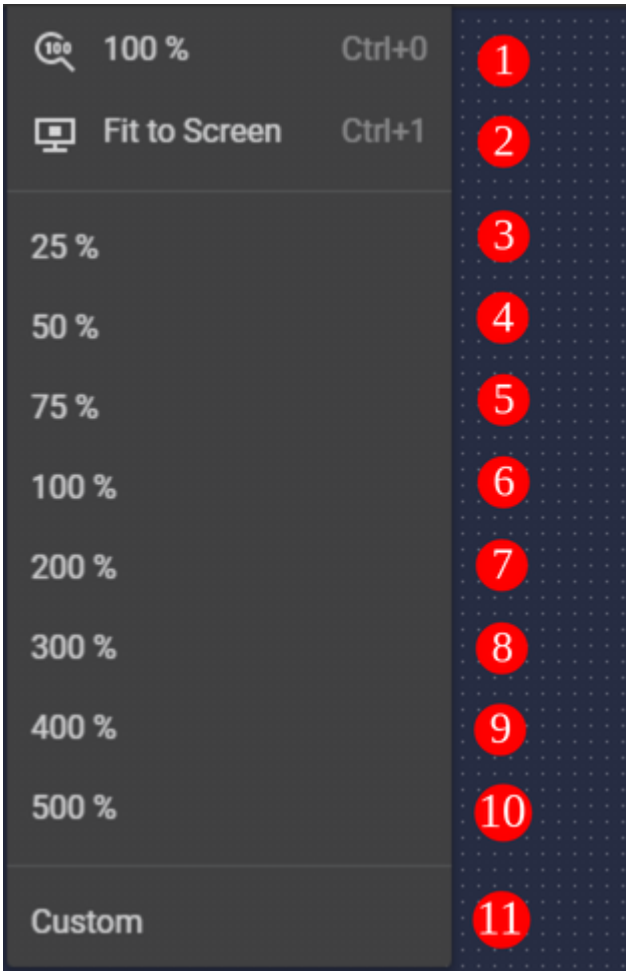
As it was mentioned previously, edit menu contains all the options that are needed to edit the screen.



	Tab	Description
1	Copy	Copies the selected instrument or instruments into the clipboard.
2	Cut	Cuts the selected instrument or instruments into the clipboard.
3	Paste	Pastes the instrument or instruments that were copied last (not supported in Firefox, use the Ctrl+V shortcut instead).
4	Delete	Deletes the instrument or instruments from the screen.
5	Bring to Front	Brings the selected instrument in front of every other instrument.
6	Send to Back	Sends the selected instrument behind every other instrument.

Zoom Menu

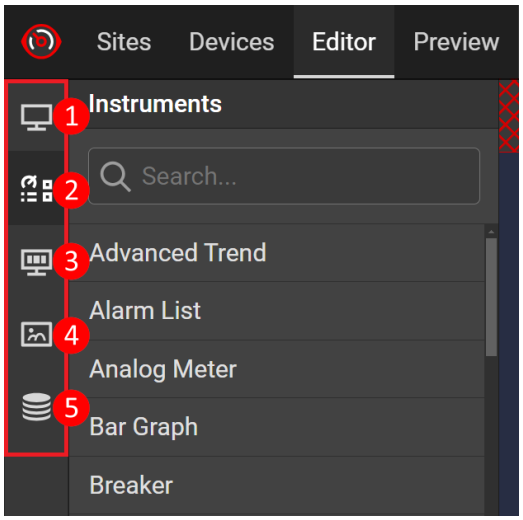
As it was mentioned previously, zoom menu contains options for modifying the zoom values as well as setting a custom one.



	Tab	Description
1	100%	Sets the zoom value of the canvas to 100%
2	Fit to Screen	Sets the zoom value of the canvas to "Fit to Screen", so a value that makes the canvas fit into the screen.
3	25%	Sets the zoom value of the canvas to 25%
4	50%	Sets the zoom value of the canvas to 50%
5	75%	Sets the zoom value of the canvas to 75%
6	100%	Sets the zoom value of the canvas to 100%
6	200%	Sets the zoom value of the canvas to 200%
6	300%	Sets the zoom value of the canvas to 300%

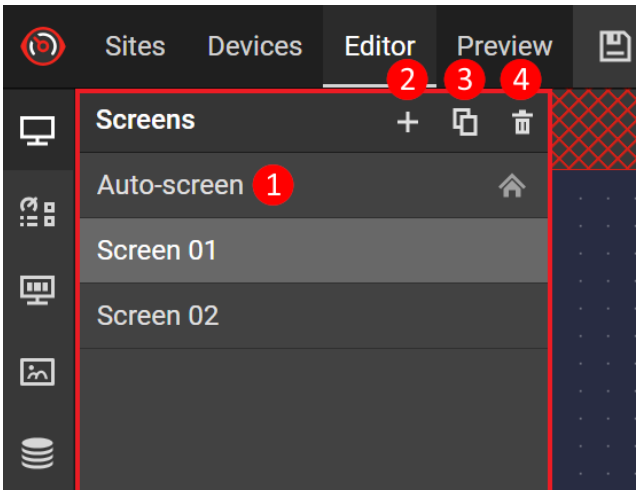
	Tab	Description
6	400%	Sets the zoom value of the canvas to 400%
6	500%	Sets the zoom value of the canvas to 500%
6	Custom	Opens a modal window where it is possible to set a custom zoom value.

3.3.5 Sidebar



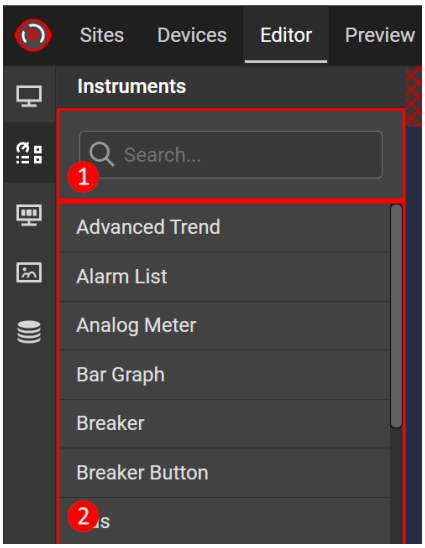
	Tab	Description
1	Screens button	Opens **Screens panel (page 54)**
2	Instruments button	Opens **Instruments panel (page 55)**
3	Screen Content button	Opens **Screen Content panel (page 55)**
4	Image Gallery button	Opens **Image gallery panel (page 59)**
5	Trends Sources button	Opens **Trends Sources panel (page 61)**

3.3.6 Screens panel



- Contains list of all screens available for the particular site
- 1 Auto-screen
  - It is always the first screen in the list
  - It is read only and cannot be deleted
  - By default it is marked as default screen
  - It is generated automatically, see **Automatically generated screen (page 191)**
- Action buttons:
  - 2 "Add Screen" button – Adds a new screen right below the active screen
  - 3 "Clone Screen" button – Creates copy of the active screen below the active screen
  - 4 "Delete Screen" button - Permanently deletes the active screen.

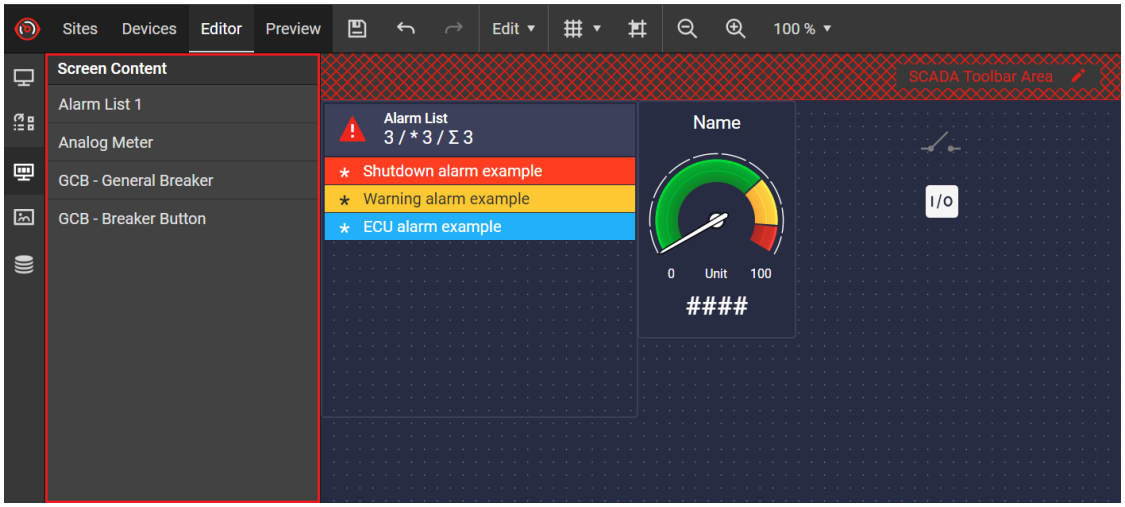
3.3.7 Instruments panel



- 1 Search field
  - Is used as a filter applied to the list of instruments 2
  - If empty, no filter is applied
  - Is case-insensitive
- 2 List of all supported instruments
  - Drag & drop the instrument on the custom screen canvas (be aware the **Automatically generated screen (page 191)** is not editable, it is not possible to put any instrument on it)
  - See also **Instruments (page 107)** for more information about all supported instruments

3.3.8 Screen Content panel

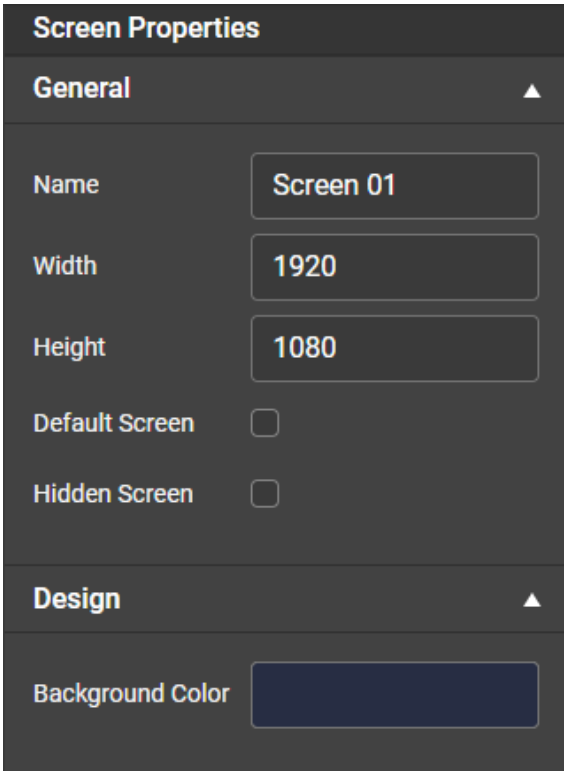
The panel shows all instruments used in the screen. It also can be used either to select one or more instruments or to change one or more instruments order.



- Select the instrument
  - Instrument can be selected by the left mouse button
  - Multiple instruments can be selected
    - By drawing rectangular selection area on the canvas
      - Only instruments that are fully in the area are selected
      - If the area starts on instrument, use SHIFT key while drawing
    - By selecting a list of instruments in the "Screen Content" panel
      - Click on the first instrument by the left mouse button
      - Press and hold the SHIFT key
      - Click on the last instrument by the left mouse button
    - By the left mouse button on the instrument in the canvas or in the "Screen Content" list
      - Press and hold the CTRL key for multi-selection
    - By the key combination CTRL + A (selects all instruments)
- Change the instrument order
  - When the instrument is visually placed over another one, then the order is shown
  - Default order of instruments represents the order in what they were added onto the canvas (new instrument is placed at the beginning of the list, visually is on top of all instruments in the canvas)
  - Drag & Drop one or more instruments to change their order
  - Changing the order actually represents "Bring To Front" and "Send to Back" functionality described in **Toolbar (page 50)**

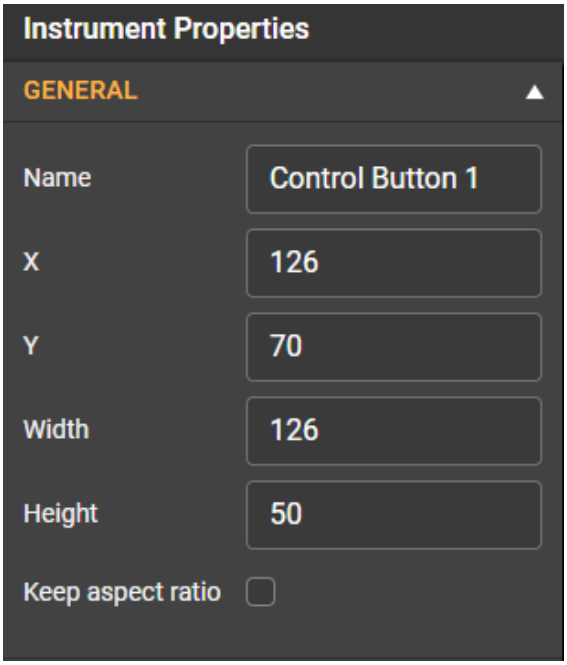
3.3.9 Properties panel

- Displays properties either for the selected screen or the selected instrument
  - Screen properties:



- General
  - Name – User defined screen name (fixed for "Auto-Screen")
  - Width – Screen width (up to 11520, fixed for "Auto-Screen")
  - Height – Screen height (up to 6480, fixed for "Auto-Screen")
  - Default Screen – Sets the screen as default for the particular site
  - Hidden Screen – Sets the screen as hidden for the particular site
- Design
  - Background Color – Screen background color (not available for "Auto-Screen")

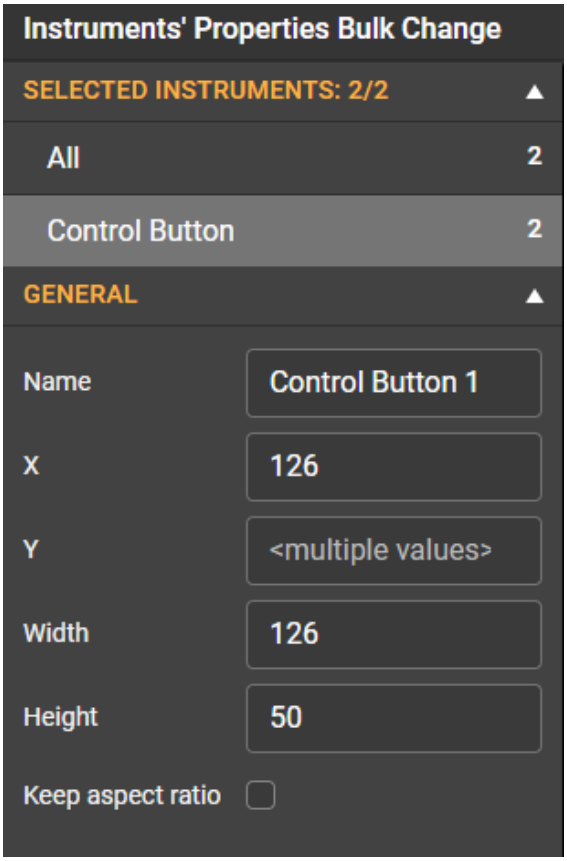
» Instrument properties:



- E.g. position, size, device, scale limits, color, etc., see **Instrumentsˇ (page 107)** for more information

» Multiple instruments properties:

When multiple instruments are selected on the canvas, the properties panel slightly changes and introduces an additional section at the top called "Selected Instruments". This section displays the instrument types currently selected and allows users to select the specific instrument properties they wish to view. Changing the selected type dynamically updates the displayed properties below. Moreover, a top-listed "All" option enables users to select all instruments, regardless of their types.



- There are two modes for this multiselect properties panel:
  - All Mode

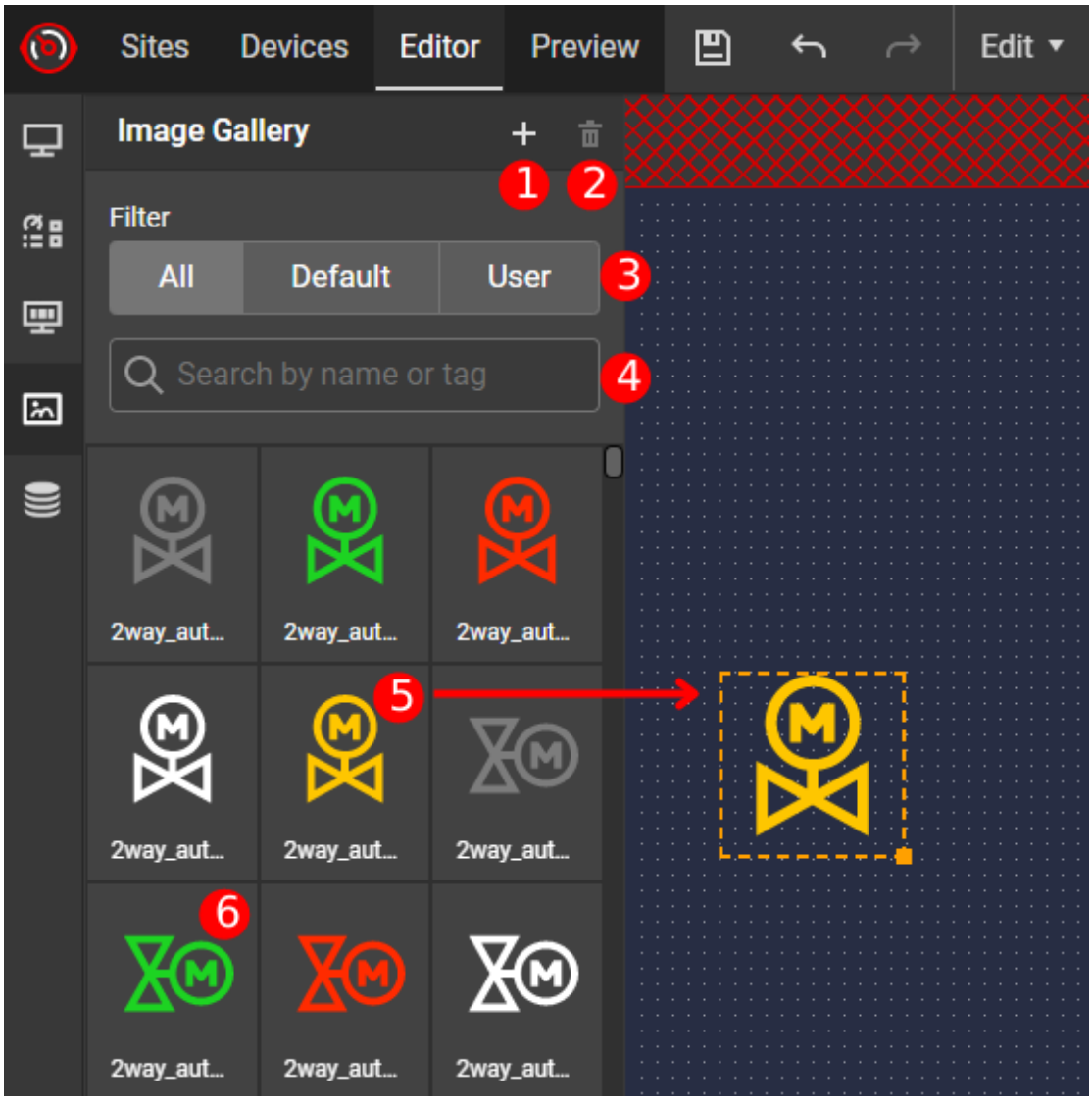
    In this mode, the following properties are consistently shown regardless of the selected instruments:

    X, Y, Width, Height, Device, Background Color, Border Color, Text Color, Font Size, Active State Color, Inactive State Color, Header, Font Size, Background Color, Device, Data Point, Visibility Action, Indicate Invalid Data as Error

    These properties have been chosen based on their frequent use. They appear in this mode regardless of the instruments selected on the canvas, even if some properties are not applicable.
  - Specific Instrument Mode

    In this mode, the displayed properties mirror the standard instrument properties defined by the currently selected instrument type. Refer **Instruments (page 107)** for comprehensive details. Certain properties have intentionally been omitted in this mode as they are not suitable for modification across multiple instruments.

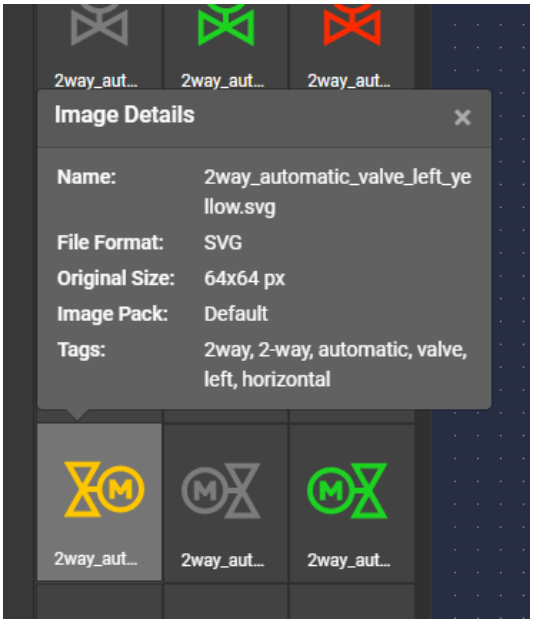
3.3.10 Image gallery panel



- Contains images, which can be placed on the canvas and used as a part of the scheme or as a background of the screen. User images are also automatically added into this collection from any imported site.
- Predefined images can be filtered by the "Default" filter button
- User images can be filtered by the "User" filter button

The panel provides following functionality:

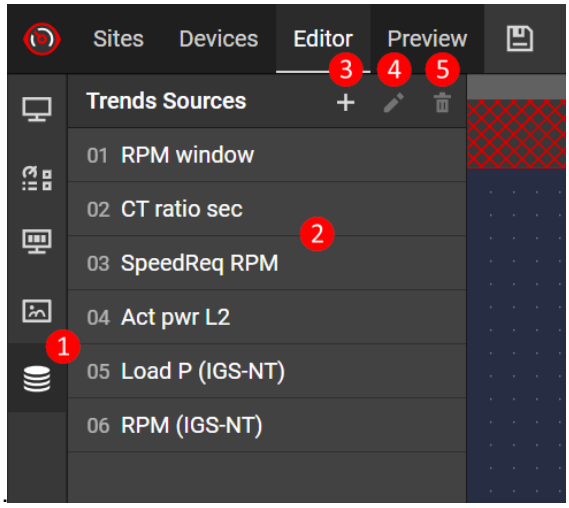
- ❶ "Add Image" button
  - Adds user image from the local storage
  - Supported image types: .gif, .jpg, .jpeg, .png, .svg, .bmp
- ❷ "Delete Image" button
  - Deletes user image from the local storage
  - It is enabled only for user images
  - It is even possible to delete images that are currently used by image instrument(s) in any site (including locked ones). In that case, a confirmation dialog will appear specifying the locations of the image instruments, and additional confirmation is required. The image instruments themselves won't be deleted, only their image sources. The instruments stay on the screen even though all of their image sources can be empty.
- ❸ "Filter" buttons
  - All - No filter applied
  - Default – Filters only predefined images
  - User – Filters only user images
- ❹ Search by name or tags – Searches images with the name or tag containing the entered text. The result is filtered by the Filter ❷
- ❺ Drag & drop the image from the panel onto the canvas
- ❻ Click on the image to display more information



3.3.11 Trends Sources panel

IMPORTANT: The Trends Sources panel is available only when the MongoDB database is used.

Note: *A single Trend Source can consume up to ~24MB of space with a maximum of 2 678 400 samples, leading to increased disk space utilization.*

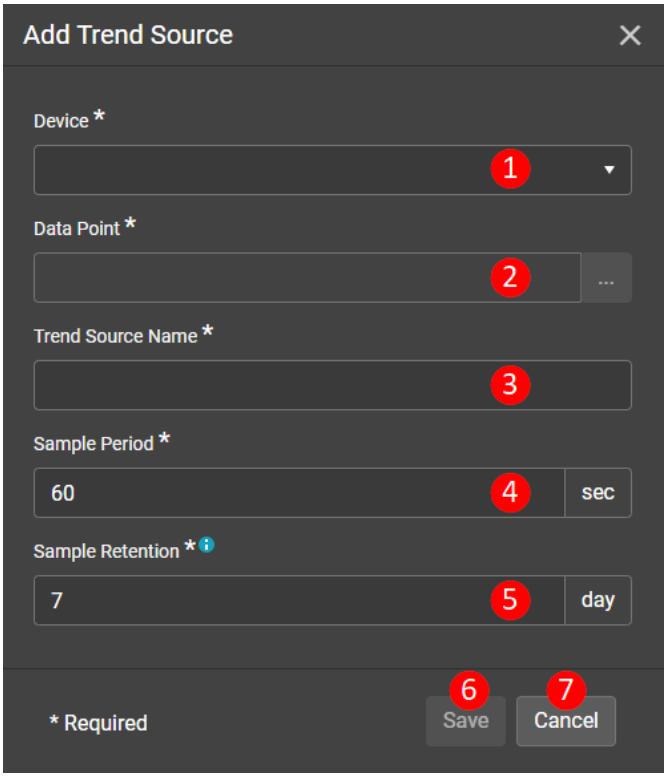


- Provides management of Trends Sources.
- Each Trend Source references just one device data point as a source data. The source data will be automatically stored in the database periodically only when the site is opened in the **Preview (page 73)** or in the **Runtime (page 77)**. The source data will be kept in the database only for a given retention interval. Both period and retention intervals are configurable when adding new Trend Source.
- The total number of Trends Sources is limited by licenses. Please refer to **Licenses (page 19)** for more information.
- Trends Sources are currently intended to be used in **Advanced Trend (page 115)** instrument.

The panel provides following functionality:

- 1 "Trends Sources" button - opens Trends Sources panel. The Trends Sources button is available only when the MongoDB database is used.
- 2 Trends Sources - lists all configured Trends Sources in the site. Click on the item to show the Trend Source configuration, see also **Trend Source popover (page 64)**.
- 3 "Add Trend Source" button - Adds new Trend Source, see also **Add Trend Source dialog (page 62)**
- 4 "Edit Trend Source" - Edits selected Trend Source, see also **Edit Trend Source dialog (page 63)**.
- 5 "Delete Trend Source" - Deletes selected Trend Source.

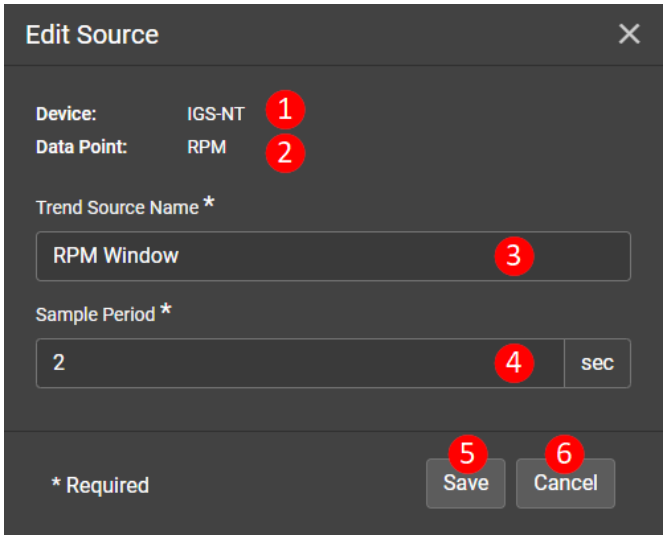
Add Trend Source dialog



Adds Trend Source, see also **Trends Sources panel (page 61)**

- 1 "Device" – Device that Trend Source is connected to.
- 2 "Data Point" – Data source that Trend Source is connected to.
- 3 "Trend Source Name" – Name of the Trend Source
  - Automatically generated, based on selected Device and Data point
  - Can be customized
- 4 "Sample Period"
  - Period interval in which Trend Source data are stored.
  - Range is from 1 to 86 400 seconds (i.e. 1 s to 1 day).
- 5 "Sample Retention"
  - Samples older than 'Sample Retention' will be continuously removed from the database.
  - Range is from 1 to 730 days (i.e. 1 day to 2 years).
- 4 + 5 There is a rule of maximum of 2 678 400 possible recorded samples, so if the "Sample Period x Sample Retention" value exceeds that rule the error message "Increase Period (min #) OR decrease Retention (max #)" will appear to inform user, how to fulfill the rule.
- 6 "Save" – submits adding new Trend Source configuration.
- 7 "Cancel" – cancels adding Trend Source configuration.

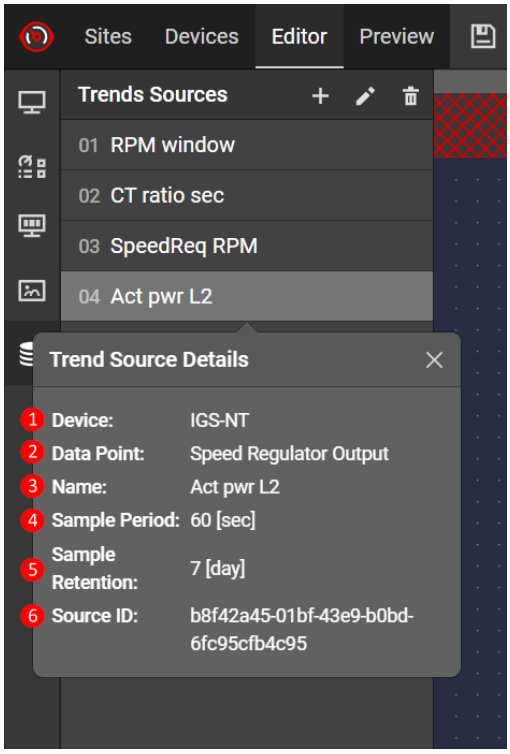
Edit Trend Source dialog



Edits existing Trend Source, see also **Trends Sources panel (page 61)**

- 1 "Device" – Device that Trend Source is connected to.
- 2 "Data Point" – Data source that Trend Source is connected to.
- 3 "Trend Source Name" – Name of the Trend Source.
- 4 "Sample Period"
  - Period interval in which Trend Source data are stored.
  - Range is from 1 to 86 400 seconds (i.e. 1 s to 1 day).
  - There is a rule of maximum of 2 678 400 possible recorded samples, so if the "Sample Period x Sample Retention" value exceeds that rule the error message "Increase Period (min #)" will appear to inform user, how to fulfill the rule.
- 5 "Save" – submits changes in Trend Source configuration.
- 6 "Cancel" – cancels changes in Trend Source configuration.

Trend Source popover

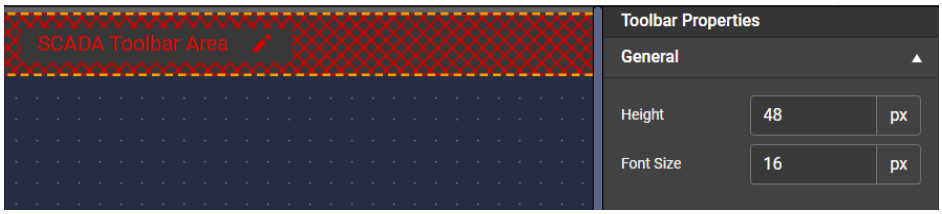


Shows Trend Source information in popover dialog, see also **Trends Sources panel (page 61)**.

- 1 "Device" – Device that Trend Source is connected to.
- 2 "Data Point" – Data source that Trend Source is connected to.
- 3 "Trend Source Name" – Name of the Trend Source.
- 4 "Sample Period" – Period interval in which Trend Source data are stored.
- 5 "Sample Retention" – Samples older than 'Sample Retention' will be continuously removed from the database.
- 6 "Source ID" – Trend Source identifier.

3.3.12 Toolbar properties

InteliSCADA offers the option to change the top toolbar size in the Runtime application.



Clicking the toolbar placeholder in the screen editor opens the properties panel with these options:

- Height: sets the toolbar height in pixels.
- Font Size: sets the font size for all items in the toolbar (specified in pixels).

These changes are saved and applied for all screens of the currently edited site, independently of the screen they are being set on.

After opening the Preview tab in Designer or Runtime tab in Runtime, the top toolbar is displayed according to settings provided. Toolbar placeholder in editor is also changed accordingly.

3.3.13 Screen canvas

- Screen space to place instruments
- New user screen is the same size as the current default screen
- Size of the screen can be defined in the **Properties panel (page 57)**
- Size of the canvas is reduced by the height of the top toolbar placeholder, it can be set in **Toolbar properties (page 64)**
  - It is not possible to place any instrument into the toolbar placeholder area

3.3.14 Editor screen zoom

There is possibility of setting the screen zoom value for currently opened site in **Editor (page 48)**. It is set by default to 100 % when entering the site. The screen zoom value is kept even when switching to another screen in Editor.

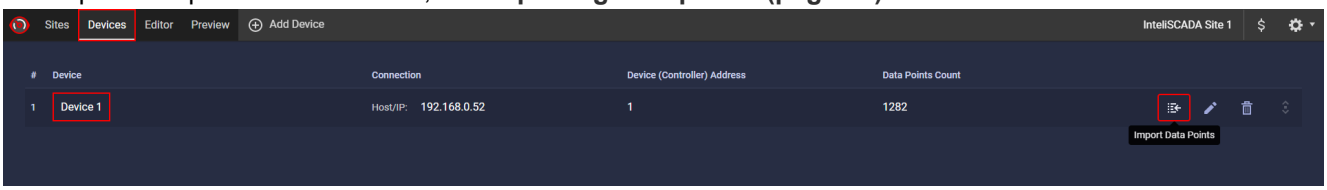
There are a few options how to set new screen zoom value:

- Using **Zoom In**, **Zoom Out** or **Zoom Menu** buttons in **Toolbar (page 50)**, **see Zoom Menu on page 52** to get more information.
- Using **Canvas Context Menu (page 73)**
- Using mouse wheel:
  - The mouse pointer has to be placed over the screen canvas
  - Press **Ctrl (+ Shift)** key while scrolling the mouse wheel up & down, **see Shortcuts in Editor on page 71**.
- Using keyboard shortcuts:
  - Press **Ctrl+0** or **Ctrl+1** keys, **see Shortcuts in Editor on page 71**.

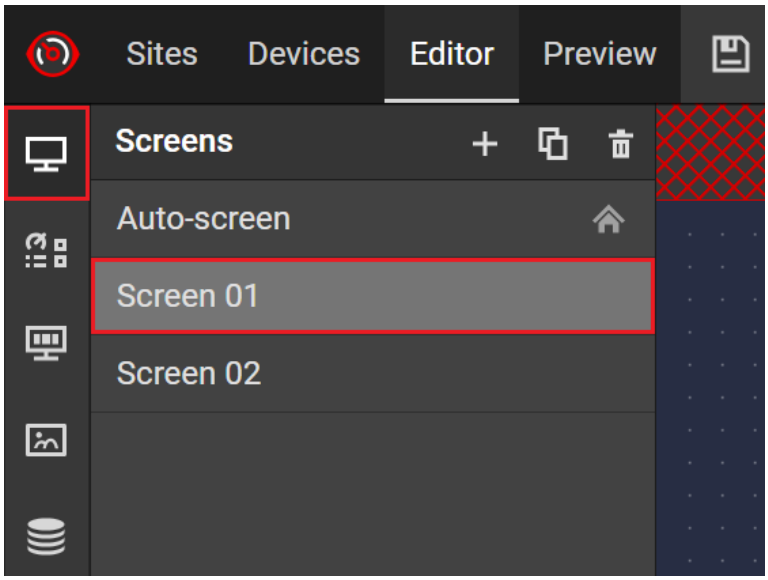
When the zoom value is changed, the current screen zoom value is reflected by **Zoom Menu (page 52)** button. See also **Preview screen zoom (page 75)**.

3.3.15 How to add instrument on the screen

1. Add "Device 1" to your site
2. Import data points for "Device 1", see **Importing data points (page 48)**



3. Go to the Editor tab, click on the Screens button in the Sidebar and select one of the available custom screens

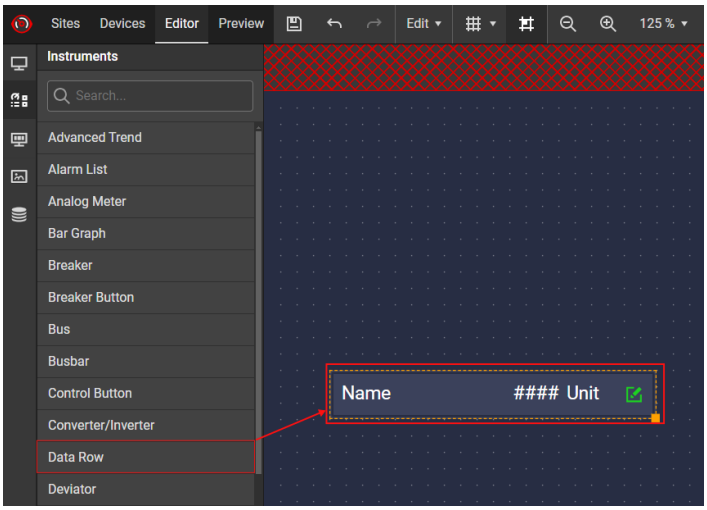


Go to the panel on the left, click on the "Instruments" button and from here you have 2 options:

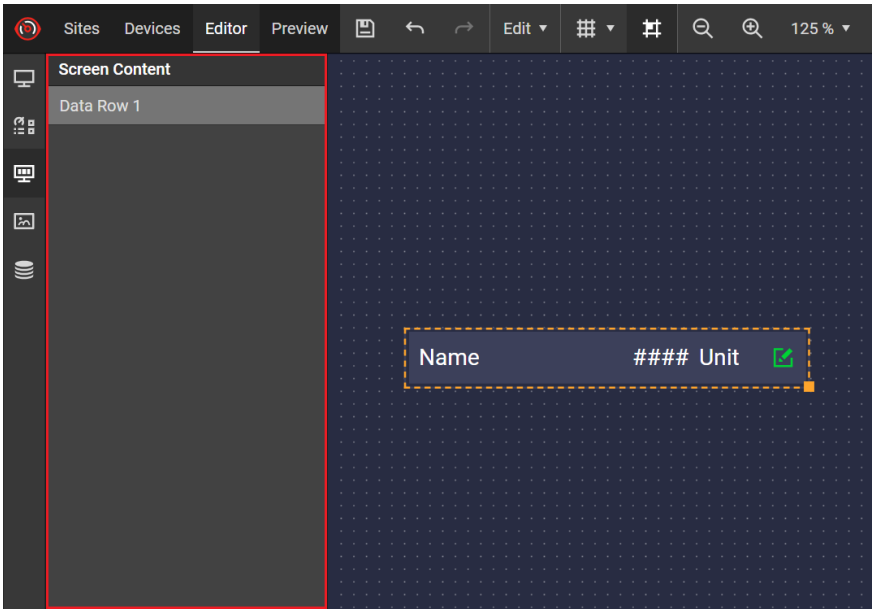
- You can drag the instrument on the canvas directly where you want it to be
- Or you can double-click the instrument to place it in the upper left corner of the canvas

Note: *Enable Snap To Grid feature to arrange instruments easily,* ***see Toolbar on page 50***

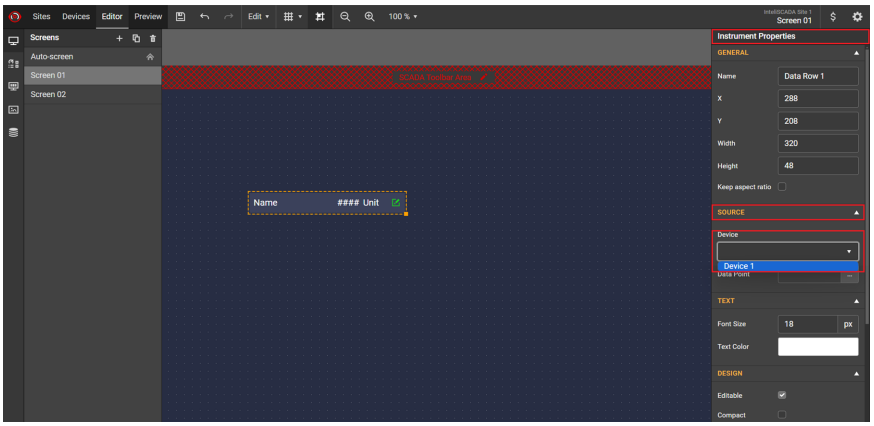
4.



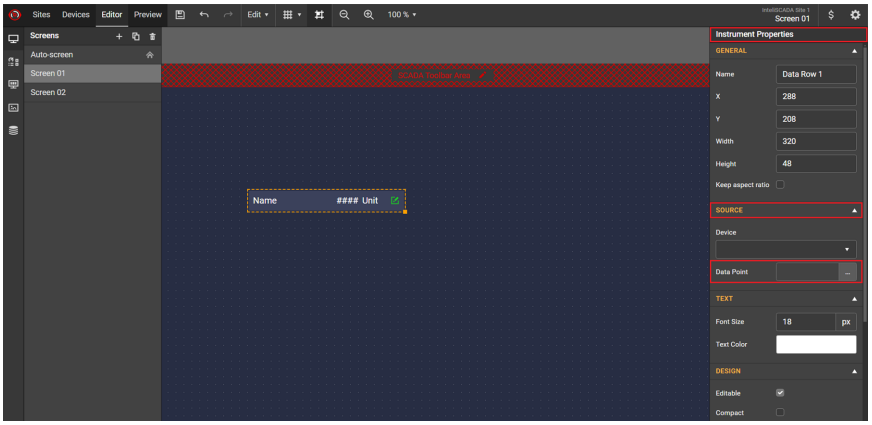
5. The "Screen Content" panel shows all instruments used on the canvas



6. Select the instrument on the canvas (or in the "Screen Content" panel) and choose a device for this instrument in the "Instrument Properties" panel (property Source / Device)



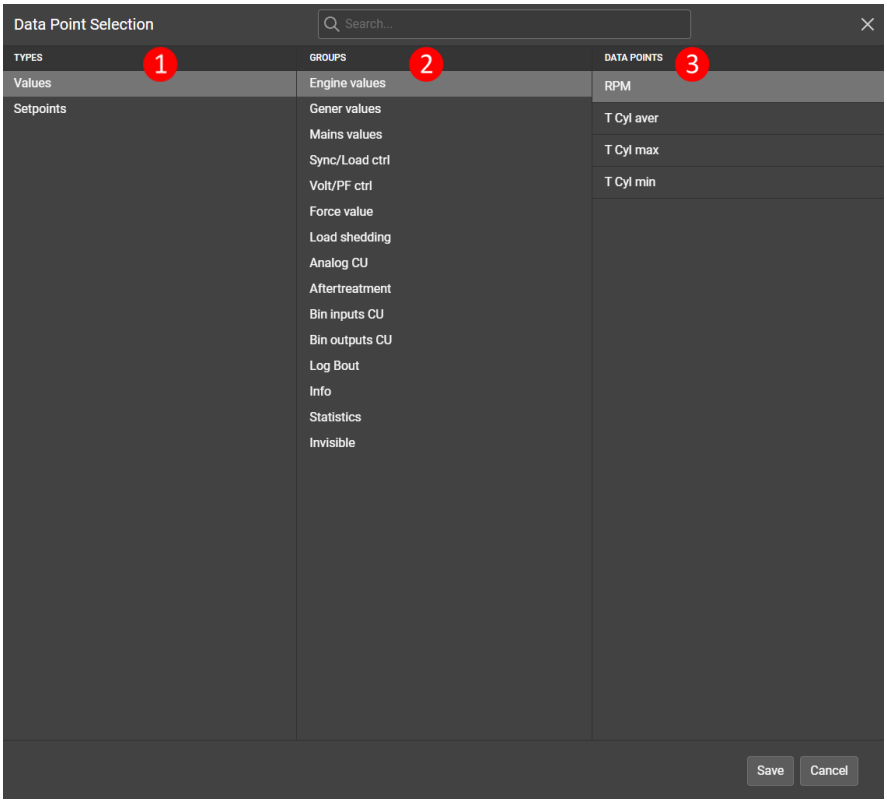
7. Open the "Data Point Selection" dialog (Properties / Data Source / Data Point)



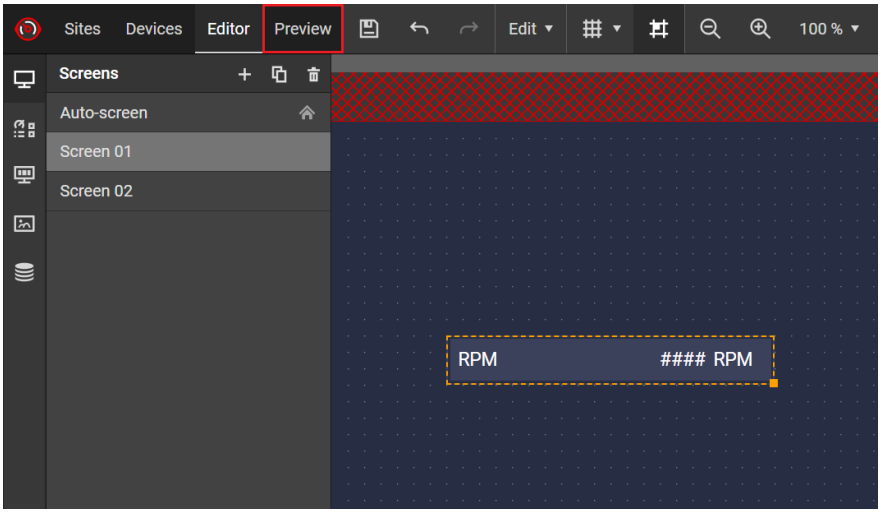
8. Select the data point type in the "TYPES" column. Then select the data point group in the "GROUPS" column. Finally select the specific data point in the "DATA POINTS" column.

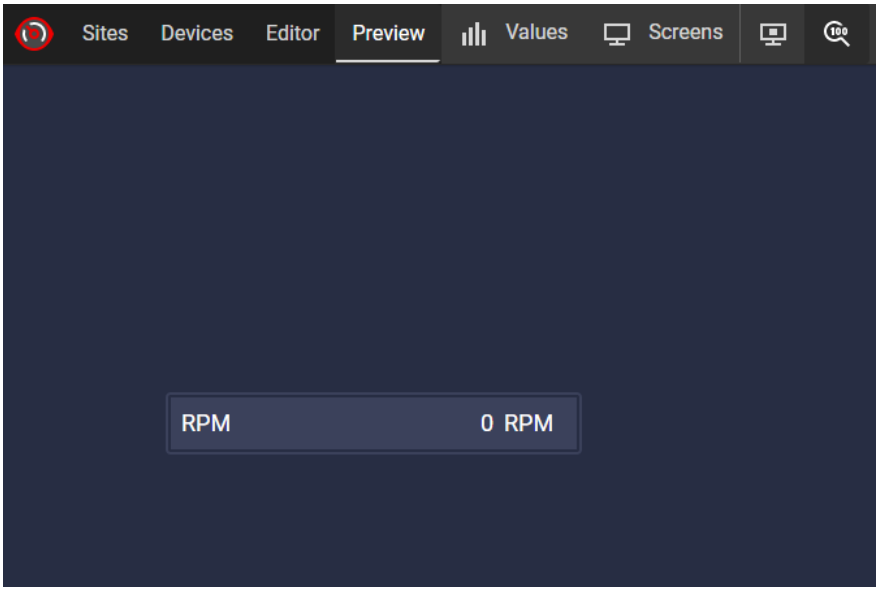
   The list of data points is filtered only to the data types supported by the selected instrument. If there are no data points in the dialog, the import of the data points may not have been successful, see **Importing data**

points (page 48)



9. Click on the Preview tab to see the result. Check also **Instrument non-standard states (page 231)**.





3.3.16 Editing instruments

It is possible to change properties of any instrument on the canvas. There is also a possibility to change properties when more instruments are selected.

- Single instrument selection
  - Click the left mouse button to select the instrument on the canvas
  - Change the property
    - Use the **Instrument Properties** panel to change the property
  - Resize the instrument by mouse
    - Click on the grip point placed on the right bottom corner of the instrument selection. Hold the mouse button down and move mouse to change the instrument's width or height
    - Some instruments have fixed aspect ratio, others support to switch it to off / on, see **Instruments (page 107)**
- Multiple instruments selection
  - Press and hold CTRL key and click the left mouse button to add / remove the instrument on the canvas to / from selection
    - Or press CTRL + A for selection of all instruments on the canvas
  - Change the property
    - Use the **Instruments Properties Bulk Change** panel to change the property
- Moving the instrument
  - Activate Single instruments selection or Multiple instruments selection
  - Drag and drop the selection to move it to a new position
    - Or use arrow keys to move the selection to a new position
      - Arrow key moves the selection by 1 point
      - Arrow key + SHIFT key moves the selection by 5 points
  - There is also a possibility to use the **Instrument Properties** panel to change the property manually.

3.3.17 Shortcuts in Editor

Shortcuts in screen canvas

Shortcut	Action
Delete	Deletes selected instruments
Enter	Confirms the opened dialog or the property value in the **Properties panel (page 57)**
Esc	Cancels the opened dialog without any changes
Arrow key	Moves selected instruments by 1 point in arrow direction
Shift + Arrow key	Moves selected instruments by 5 points in arrow direction
Ctrl + Mouse down	Selects / unselects the instrument clicked by the left mouse button
Ctrl + A	Selects all instruments on the canvas
Ctrl + C	Copies selected instruments
Ctrl + S	Saves all changes made on the current screen (changes are also saved automatically every 3 seconds)
Ctrl + V	Pastes instruments which were previously copied or cut
Ctrl + X	Cuts selected instruments
Ctrl + Y	Redoes changes on the current screen
Ctrl + Z	Undoes changes on the current screen
Ctrl + 0	Sets the zoom value of the canvas to 100%
Ctrl + 1	Sets the zoom value of the canvas to "Fit to Screen", so a value that makes the canvas fit into the screen.
Ctrl + Shift + [	Sends the selected instrument behind every other instrument
Ctrl + Shift +]	Brings the selected instrument in front of every other instrument

Shortcut	Action
Ctrl + Mouse Wheel	Variations: › **Mouse Wheel Up** - Increases the zoom value, see preset zoom values below › **Mouse Wheel Down** - Decreases the zoom value, see preset zoom values below Preset zoom values: 10, 25, 33, 50, 67, 75, 80, 90, 100, 110, 125, 150, 175, 200, 250, 300, 400, 500.
Ctrl + Shift + Mouse Wheel	Variations: › **Mouse Wheel Up** - Increase the zoom by 1% › **Mouse Wheel Down** - Decrease the zoom by 1%
Mouse down -> Mouse move	To keep the instrument's current aspect ratio when resizing, press the key SHIFT Draw selection area › after mouse up all instruments in the area will be selected › press and hold the SHIFT key to start drawing the selection area over any instrument

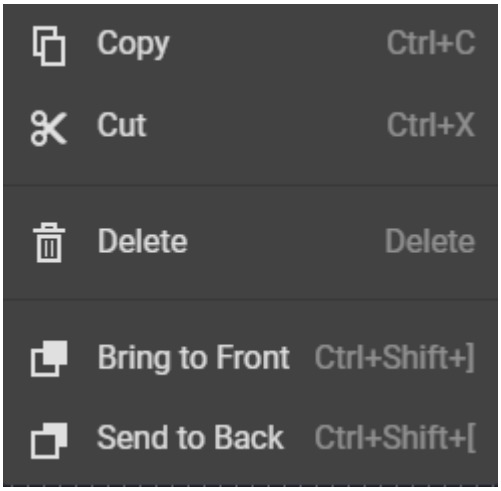
Shortcuts in Screen Content panel

Shortcut	Action
Ctrl + Mouse down	Selects / unselects the instrument clicked by the left mouse button
Shift + Mouse down	Selects all instruments from the currently selected one up to the next clicked one

3.3.18 Context Menu

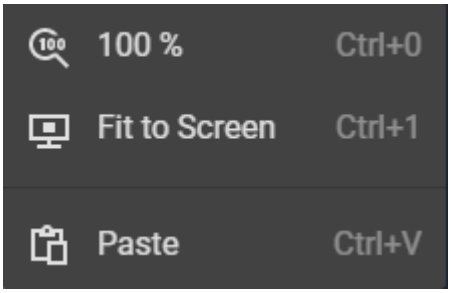
The context menu allows users to efficiently edit their screen. To use the context menu, the user only needs to right-click anywhere on the canvas. There are two different variants of this menu that depend on where the user clicks. The first variant pops up when the user clicks on an instrument, the second variant pops up when the user clicks on the canvas.

Instrument Context Menu



For descriptions of different options, please refer to **Edit Menu (page 51)**

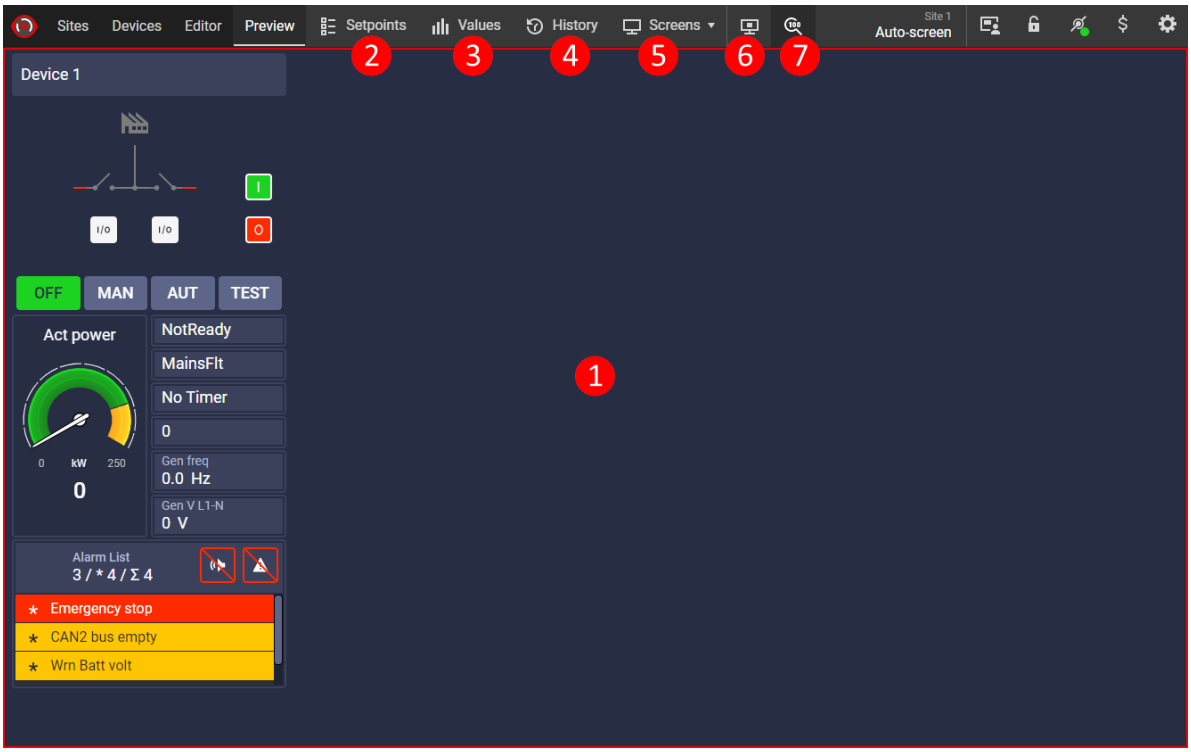
Canvas Context Menu



For zoom options descriptions, please refer to **Zoom Menu (page 52)**, for Paste, please refer to **Edit Menu (page 51)**

3.4 Preview

The Preview tab is used mainly for the custom screen content validation, i.e. to check how the edited custom screen looks and works when online. It helps with designing complex screens and with instruments configuration. The content of the **Automatically generated screen (page 191)** can be also checked in the Preview[1] tab even it is not editable. When in the Preview tab, any instrument on the screen can indicate special states, see **Instrument non-standard states (page 231)**



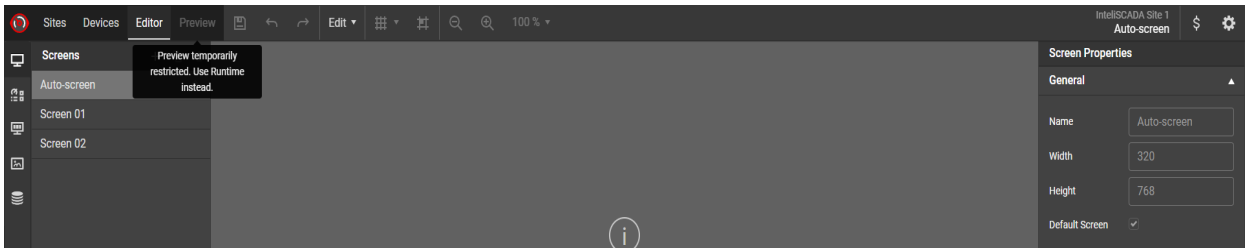
Available buttons in the Preview tab:

- 2 Setpoints button – Opens the dialog to monitor and edit setpoints of any device in the particular site, see **Setpoints (page 84)**
- 3 Values button – Opens the dialog to monitor values of any device in the particular site, see **Values (page 89)**
- 4 History button – Opens the dialog with history records from all devices in the particular site, see **History (page 89)**
- 5 Screens button – Opens the screens overview
- 6 "Fit to Screen" button – Zooms the screen so the whole screen is visible and fits the screen size
  - » Fit to screen option is kept when screens are switching or when browser window is re-sized
- 7 "Zoom 100%" button – Zooms the screen to the original screen size

3.4.1 Preview restriction

The Preview tab in Designer is not intended for long-term monitoring as it is restricted for 1 minute every 60 minutes. For long-term monitoring, please use Runtime instead.

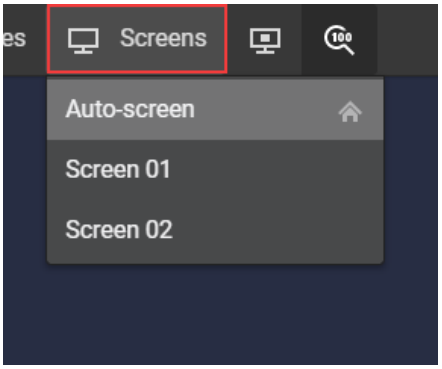
If the Preview tab is opened at the moment when the restriction starts, the user will be automatically redirected to the Editor tab. While in restriction mode, the tab is disabled and there is a tooltip "Preview temporarily restricted. Use Runtime instead.", see the image below. Once the restriction is over, the tab is enabled again. Preview restriction does not apply for those sites, which have all devices configured to communication type of Archive.



3.4.2 Screens overview

The dialog is used for switching between screens of a site. It is possible to switch between available screens using swipe gesture on the touch devices.

- Contains list of all screens of the site
- The default screen is indicated by the "home" icon
- Click on the item to open a screen



back to Designer

3.4.3 Preview screen zoom

There is possibility of setting the screen zoom value for currently opened site in **Preview (page 73)**. It is set by default to 100% when entering the site. The screen zoom value is kept even when switching to another screen in Preview.

There are a few options how to set new screen zoom value:

- Using **Zoom 100%** or **Fit to Screen** buttons in **Preview (page 73)**.
- Using mouse wheel:
  - The mouse pointer has to be placed over the screen canvas
  - Press **Ctrl (+ Shift)** key while scrolling the mouse wheel up & down, **see Shortcuts in Runtime on page 99**

- Using keyboard shortcuts:
  - Press **Ctrl+0** or **Ctrl+1** keys, **see Shortcuts in Runtime on page 99**

4 Runtime

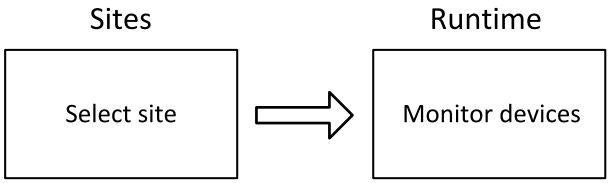
back to Table of contents

The InteliSCADA Runtime application is used to monitor a site prepared in the **Designer (page 34)**. It contains the **Sites (page 37)** tab and the Runtime screen for currently opened site:

- a Runtime screen (i.e. custom screen or **Automatically generated screen (page 191)**) is used to monitor and control the devices in the site
  - It is possible to switch to other screen using the Link property of an instrument, see **Instruments (page 107)**
- It is possible to monitor and edit setpoints in the **Setpoints (page 84)** dialog
- It is possible to monitor values in the **Values (page 89)** dialog
- It is possible to monitor the Site's history in the **History (page 89)** dialog
- Sites can only be unlocked if the correct site password has been entered
- Sites cannot be created or deleted (use **Designer (page 34)** instead)

4.1 Navigation in Runtime

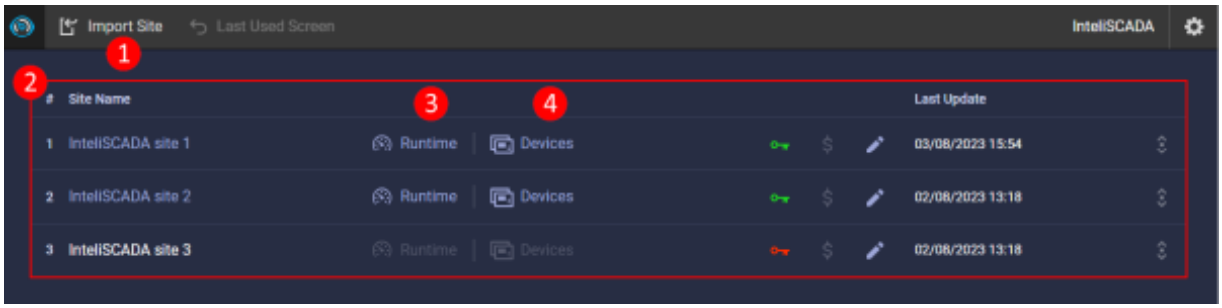
The basic Runtime workflow looks like this:



Welcome screen to Runtime is the **Sites (page 37)** tab. Alternatively it is possible to open the default screen in Monitoring directly using URL link in the browser, see **"Site Runtime Link" button (page 37)**

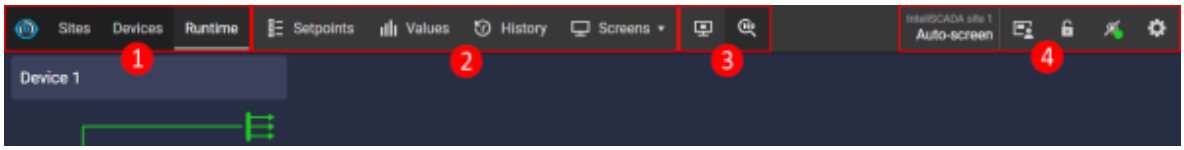
Welcome screen of Runtime is the Sites tab (list of sites):

- Sites can be only imported, **see Sites on page 80**
- 1 'Import Site' button – Imports the site from the selected file (*.isx)
- 2 List of all sites available on the server
- Site can be opened by:
  - 3 Monitoring link – Opens the Monitoring tab for a particular site
  - 4 Devices link – Opens the Devices tab for a particular site. It is supported only for InteliSCADA Display license, see **Licenses (page 19)**



4.1.1 Monitoring toolbar

Once the site is opened, the toolbar is divided in 4 main parts:

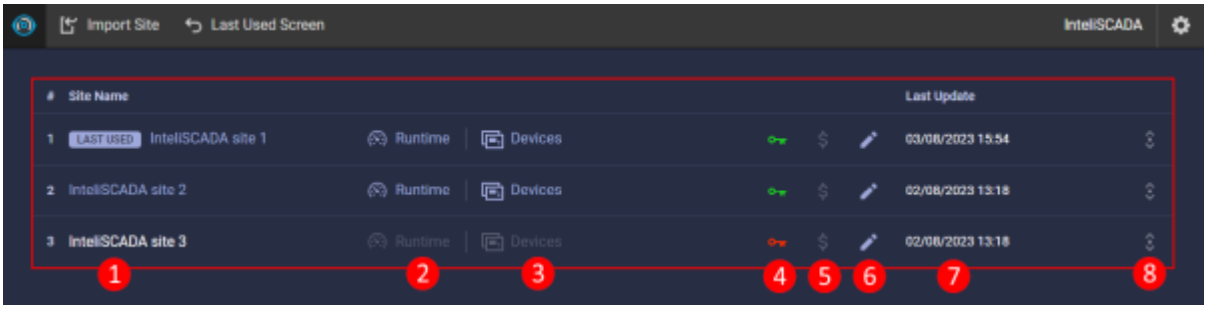


	Tab	Description
1	Runtime navigation	› Tabs to navigate through the Runtime › Active tab is underlined (for reference see the Monitoring tab in the picture above) › Available tabs » Sites tab – Opens the list of sites » Monitoring tab – Opens the default screen of the site
2	Tab specific buttons	Buttons specific for active tab › Monitoring tab: » Setpoints button - Opens the dialog to monitor and edit setpoints of any device in the site » Values button – Opens the dialog to monitor values of any device in the site » History – Opens the dialog with the history records from all devices in the site » Screens – Opens the screens overview
3	Fit to Screen and Zoom 100%	› Sets the screen zoom
4	General	› Currently open site name (only if in the Monitoring tab) › Currently open screen name (only if in the Monitoring tab) › 'Login to Devices' button, see **Log in to devices (page 94)** › 'Connection Status' button, see **Connection status (page 47)** › Settings button - Opens drop-down list with Settings options. For more information see **see Settings on page 100**

back to Runtime

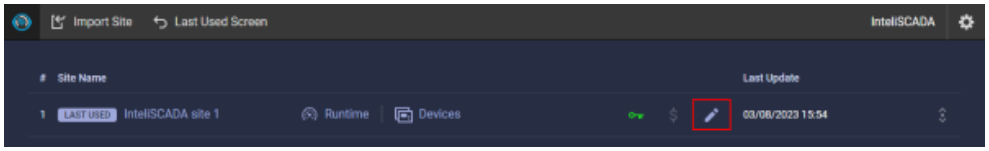
4.2 Sites

- The Sites toolbar contains "Import Site" button (**see Import site on page 82** for details) and also "Last Used Screen" button to navigate to last used screen in the Runtime application.
- The Sites tab contains the following information:
  - ❶ List of sites - Name of the site is the link to default screen of a site. To use this link the particular site has to be unlocked
  - ❷ Runtime link – Link to the default screen of a site. To use this link the particular site has to be unlocked
  - ❸ Link to the Devices tab of the site. It is supported only for InteliSCADA Display license, see **Licenses (page 19)**
  - ❹ Lock/Unlock Site button - If a site is locked, it opens the dialog to unlock it, otherwise it locks the site (**see Unlock site on page 105**)
  - ❺ License Activation button – It is disabled if the site complies with the current license. Otherwise it opens the "License Activation" dialog
  - ❻ Edit button – Opens the dialog for editing the site details (site name, password). It is supported only for InteliSCADA Display license, see **Licenses (page 19)**
  - ❼ Date and time of the latest update
  - ❽ Move Up/Down button – Drag & drop to change the site's order in the list of sites

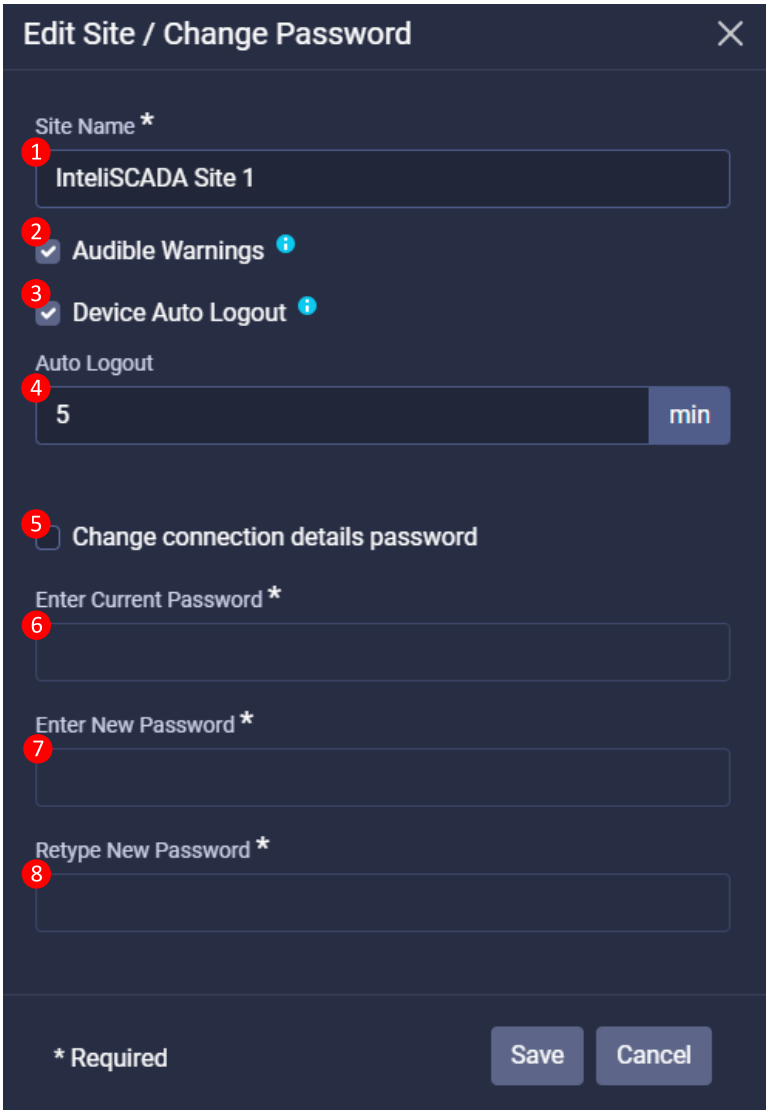


4.2.1 Edit site

Click on the "Edit Site" button to change the particular site details.

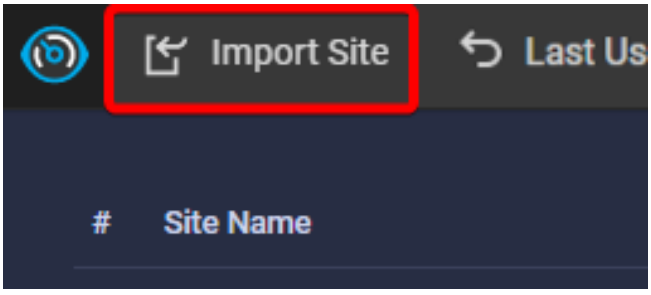


- To change the site name only:
  - Keep the "Change connection details password" tick box 5 unchecked
  - Enter Site Name 1
- To turn the audible warnings on/off:
  - Keep the "Change connection details password" tick box 5 unchecked
  - Check/uncheck the "Audible Warnings" tick box 2
- To change the auto logout only:
  - Keep the "Change connection details password" tick box 5 unchecked
  - Check/uncheck the "Device Auto Logout" tick box 3 or change the period in "Auto Logout [min]" 4
- To change the site password:
  - It is necessary to check the "Change connection details password" tick box 5
  - 6 Enter Current Password (required)
  - 7 Enter New password (required)
  - 8 Retype New Password (required)



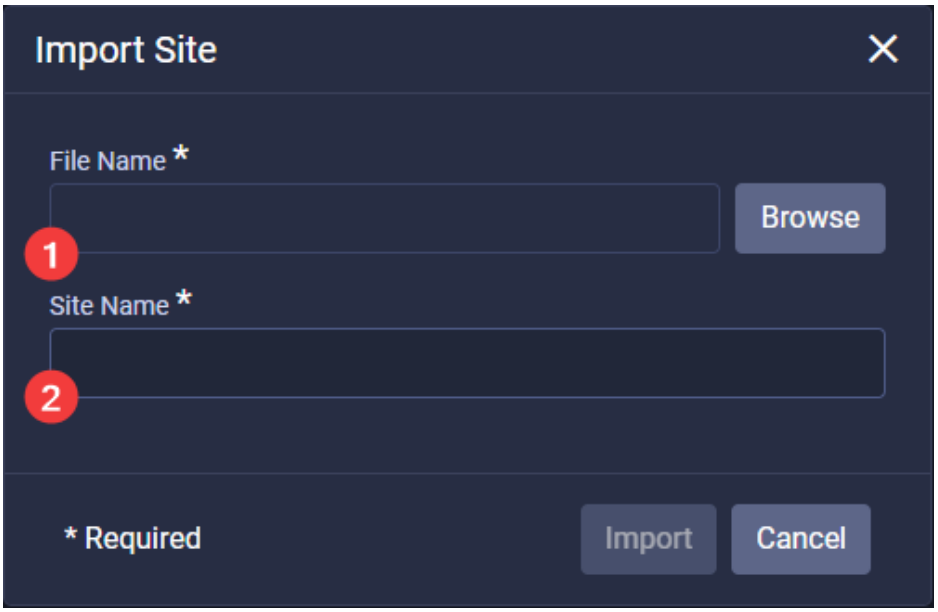
4.2.2 Import site

Click on the "Import Site" button to import a site from the file (*.isx). The imported site will be locked and it is necessary to know the password to unlock it. Usually, the site is prepared on the designer's laptop and then it is imported to the client's laptop.



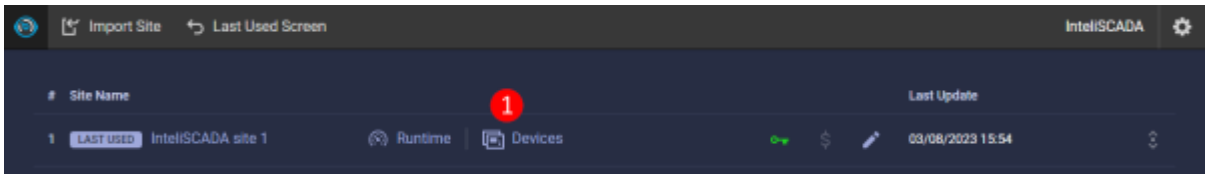
- Required fields:
  - 1 File Name – Click the Browse button to browse the file to be imported
  - 2 Site Name – Enter the site name (up to 32 characters)

- Validation errors can appear during the import process
  - Unsupported version of the file – Either the export file version or the export file content data version is not supported
  - Bad format of the file – The file is corrupted or contains malformed data

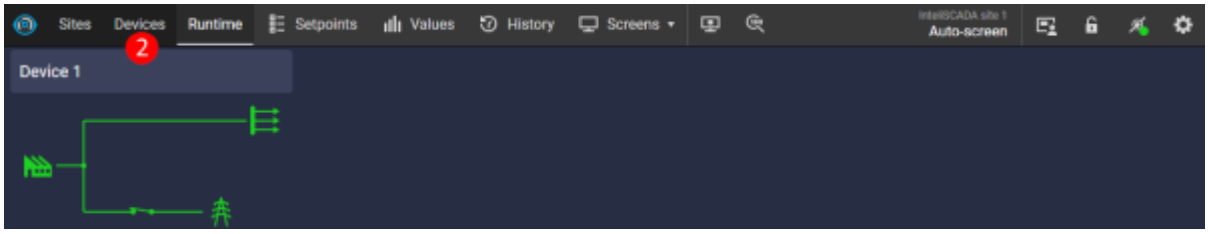


4.3 Devices

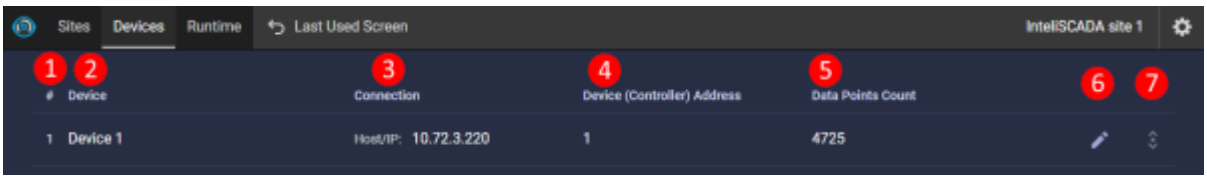
- List of devices in Runtime application is supported only for InteliSCADA Display license. For the particular site it can be accessed by:
  - 1 Clicking on the Devices link from the list of sites in Runtime



  - 2 Clicking on the Devices tab from Runtime



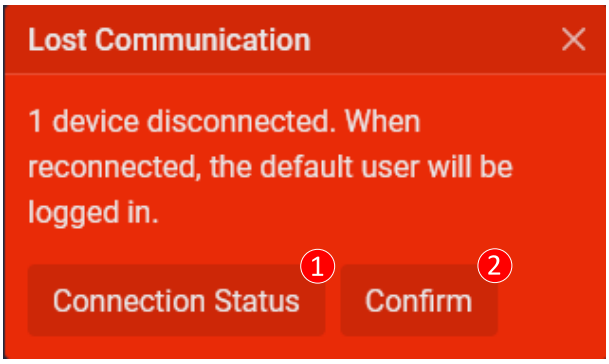
- The Devices tab contains following information:



1	#	Device order in the list of devices. It also defines device template order on **Automatically generated screen (page 191)** (template for device # 1 is placed as first from the left side of the screen)
2	Device	User defined device name entered when creating or updating device
3	Connection	Communication type + detail (eg. IP: 10.72.0.205 or AirGate : xxxxxxx)
4	Device (Controller) Address	Device CAN bus address
5	Data Points Count	Total number of imported data points
6	Edit Device button	Opens a dialog for device details editing
7	Move Up/Down button	Drag & drop to change the device order in the list of devices

4.4 Communication Loss Indication

To ensure operational integrity and prompt user response to potential issues, the application is equipped with an immediate notification mechanism for instances of communication loss with the controller. To capture the users attention effectively, this mechanism employs both visual and auditory alerts.



The toast notification dynamically updates to display the current number of disconnected devices, and features two interactive buttons:

- 1 Connection Status button - Opens the connection status modal window where users can see the status of all devices
- 2 Confirm button - Confirms the notification and stops the audible warning

4.5 Setpoints

The dialog is used for monitoring and editing of any setpoint of any device configured in a site.

The dialog is divided into 3 columns:

- Devices column 1
  - Lists all devices configured in a site
  - Click on the desired device to list its groups in the Groups column
  - A device, which is not connected, is disabled and cannot be selected
  - The first connected device is pre-selected by default, when the dialog is opened

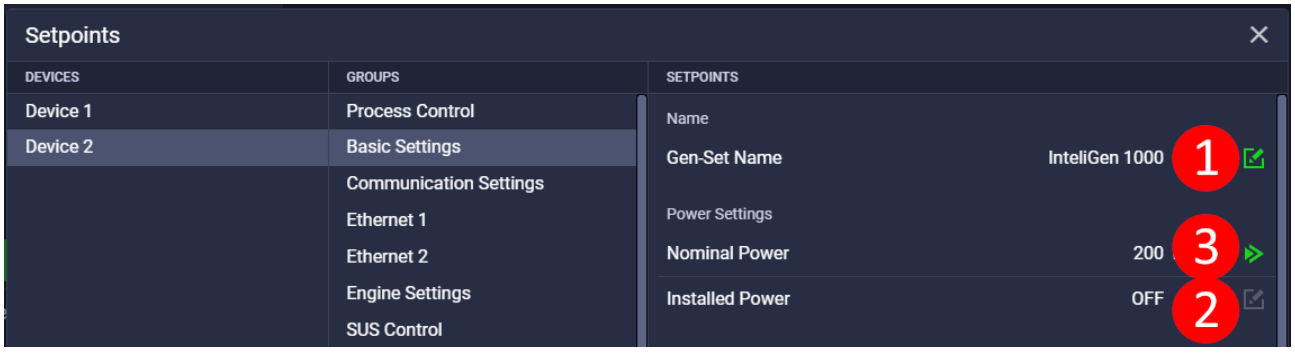
- Groups column 2
  - Lists all groups of the selected device
  - Click on the desired group to see its data points in the "Data Points" column
- "Data Points" column 3
  - Lists all data points of a selected group
  - It shows live data points values

4.5.1 Edit setpoints

Setpoints are writable data points which can be edited using "Edit Value" dialog. The dialog can be opened for a particular setpoint using Edit button placed to the right of the setpoint value.

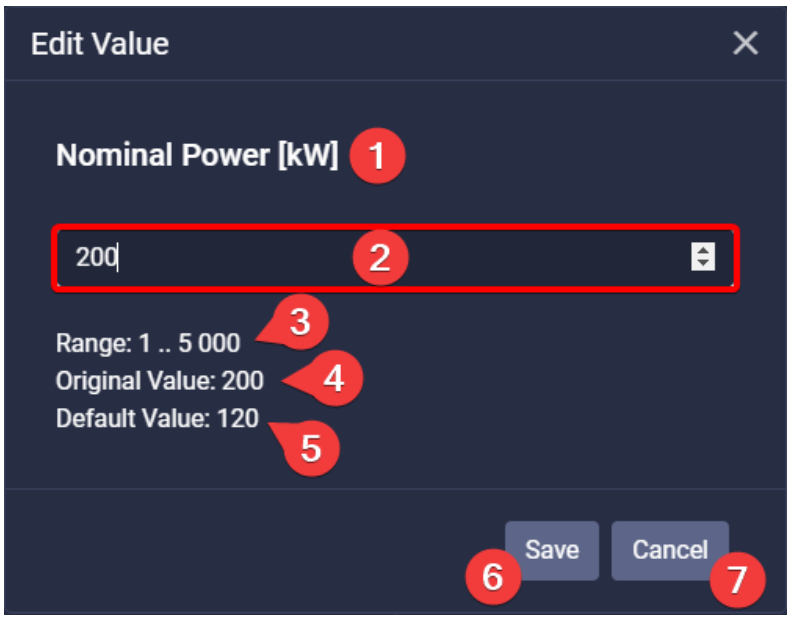
The Edit button can have one of these states:

- Enabled 1 – the setpoint can be edited
- Disabled 2 – the setpoint cannot be edited because the currently logged in user doesn't have the required permission or "Edit Value" dialog for this type of a setpoint is not supported yet
- Hidden (Forcing icon visible) 3 – the setpoint cannot be edited because it is actively forced



Edit Value setpoint dialog

The dialog is used to edit the value of a setpoint represented as a text or a number. There are several types of dialogs which are shown based on a data type of the edited setpoint. All dialogs for editing text or number share the same structure.



1	Setpoint name and unit
2	Current value of the setpoint with the possibility to change the value
3	Range of values which are valid for the setpoint
4	Value of the setpoint at the time the dialog was opened
5	Default value of the setpoint (must be supported by the device)
6	Confirms and writes the new value to the device and closes the dialog
7	Cancel changes and closes the dialog

Edit Timer setpoint dialog

Timer edit dialog provides option to configure multiple repeat modes for the Timer setpoint:

- Off 1 - The timer function is not triggered
- Once 2 - The timer function is triggered once after the set duration has elapsed

- Repeat 3 - The timer function is repeatedly triggered
  - Daily 7 - Starts every specified number of days
  - Weekly 8 - Starts every specified number of weeks on a designated day
  - Monthly 9 - Starts on a specified day of the month every specified number of months or on a specified week and designated days every specified number of months
  - Short period 10 - Starts after every elapsed period

This dialog facilitates the configuration of the Timer to trigger the timer function monthly:

1	Timer trigger mode Off will not start the timer
2	Timer trigger mode Once will start the timer once
3	Timer trigger mode Repeat will start the timer periodically
4	Input for a date when the timer begins running

5	Input for a time when the timer begins running
6	Input for a duration, after which the timer function will be triggered
7	Setting to start the timer daily
8	Setting to start the timer weekly
9	Setting to start the timer monthly
10	Setting to start the timer for every specified time period
11	Button to set the timer to start every nth day
12	Button to set the timer to start every nth week
13	Input for setting the days period to repeat the timer start
14	Input for setting the weeks period to repeat the timer start
15	Setting for specified days on which the timer will start
16	Input for setting the months period to repeat the timer start

4.6 Values

The dialog is used for temporary monitoring of any value of any device configured in a site.

The dialog is divided into 3 columns. For a description of each column **see Setpoints on page 84**.

4.7 History

The dialog shows the overview of history records for multiple devices configured in a site.

It is possible to open the History dialog:

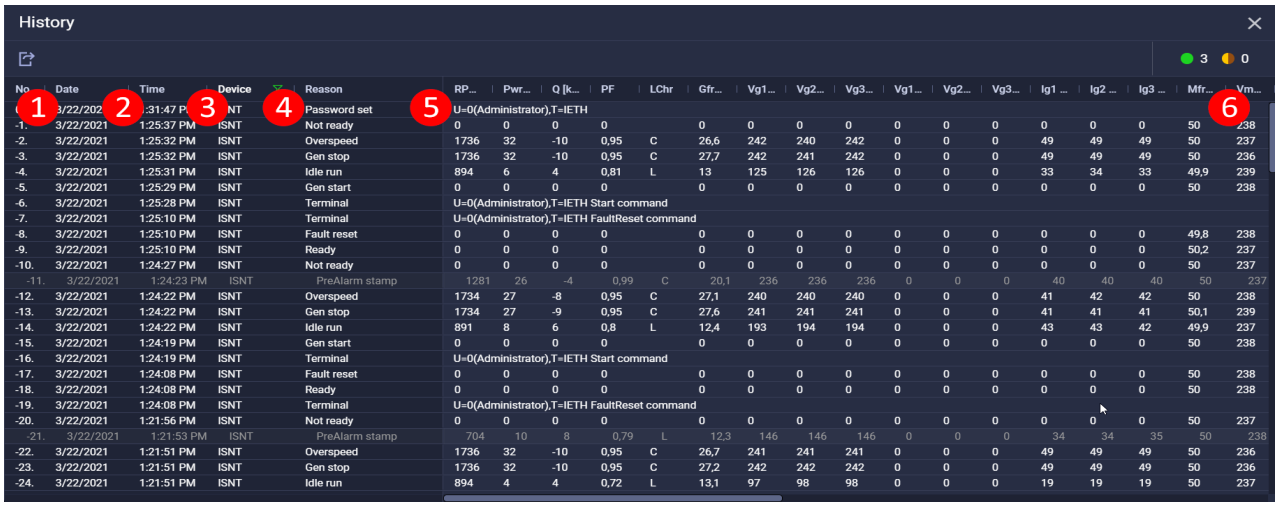
- from the Preview tab in Designer, **see Preview on page 73**
- from the Runtime tab in Runtime, **see Runtime on page 77**

Once the dialog is opened, the history is loaded in parts by infinite scroll.

History records are ordered chronologically by the date and time from the most recent history record to the oldest one. Make sure to set the correct date & time setpoints in each ComAp controller to have records ordered chronologically.

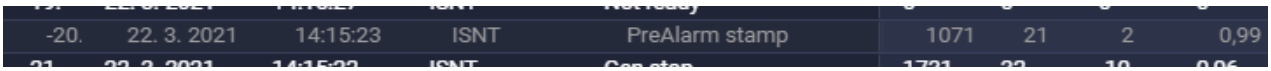
The history table is automatically updated when:

- the most recent history record (with No. 0) is visible and a new record arrives
- the History dialog is opened
- the table is scrolled up to the most recent history record and the page is not yet loaded in the cache
- the table is scrolled down to the oldest history record and the page is not yet loaded in the cache, new records should be loaded by infinite scroll



1	No. - The number of the records
2	Date - Date when the record was generated in the device
3	Time - Time when the record was generated in the device
4	Device - User defined device name used in InteliSCADA
5	Reason - Reason of the record
6	Recorded values are divided into columns by values or grouped into one column in case of the text record

Pre-mortem history records are visually distinguished.



Note: *The number of history records is limited. The maximum number of records is 25.000 in total for all sites. The oldest records beyond this limit will be automatically removed.*

Click on any of the rows in the table to set focus. The row with focus is highlighted and when the history table is updated (and the table still contains the focused row) the table is scrolled, so the focused row is always visible. Sometimes it can happen that the focused row is not loaded on the table update. In that case all the rows lose their focus and the table is not scrolled anywhere.

The history toolbar indicates connection status of used devices. History records that belong to disconnected devices display indication on the Device column. Be aware that the history records from disconnected devices are most likely not complete.

1	The total number of connected devices
2	The total number of disconnected devices
3	Indicates the history record belongs to a disconnected device

4.7.1 History filters

The filter functionality is provided by the Device column only. To open the filter options, click on the filter icon in the column header. The icon highlights whether the filter is applied or not. The history records are loaded only for selected devices. By default all devices are selected..

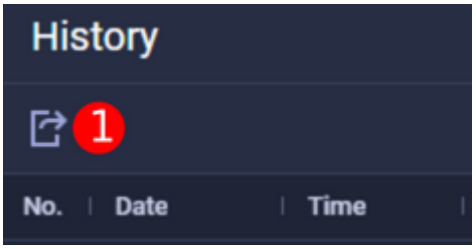
1	Filter icon - Opens the filter options. Green icon indicates an active filter.
2	Filter options

4.7.2 History columns

The order of the columns can be changed by drag and drop. The width of any column can be changed by moving the column splitter. The No., Date, Time, Device and Reason are pinned to the left by default. Pinned columns are protected from horizontal scrolling. Each column, except those that are pinned by default, can be pinned or unpinned by dragging the column from the unpinned area and dropping into the pinned area. Every time any change that affects one of these settings (order, width, pin) is done, the current settings are saved and previous settings are lost. The most recent settings are loaded, when the history window is closed and opened again and it is also preserved, when the application is closed and opened again.

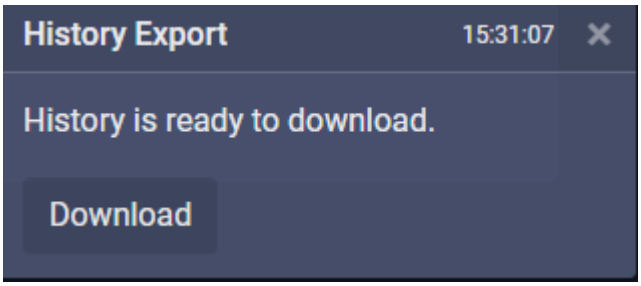
4.7.3 Exporting history

The History dialog offers the possibility to export history to the CSV file (that can be opened e.g. in Excel). By default, the file name is generated from the site name (e.g. Site1.csv). The history is exported only for the selected devices specified by the filter, see **History filters (page 92)**. Export might take a few minutes so it runs in the background.



1	Export History - Exports history. It shows **In-progress indication (page 94)** while the export is in progress in the background.

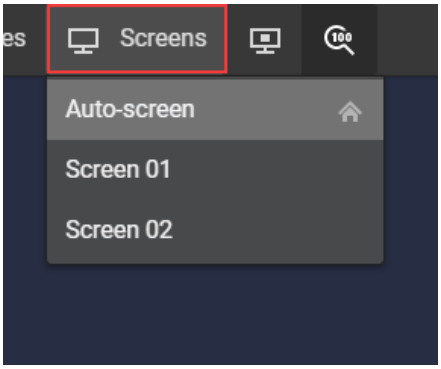
Once the history export is completed and ready to download, a notification message with the Download button will be displayed. The file will be either downloaded automatically to the destination folder or the "Save as" dialog will appear depending on your browser settings. The notification message can be manually closed once downloaded, otherwise it will be closed automatically in 10 minutes.



4.8 Screens

The dialog is used for switching between screens of a site. It is possible to switch between available screens using swipe gesture on the touch devices.

- Contains list of all screens of the site
- The default screen is indicated by the "home" icon
- Click on the item to open a screen



4.9 Runtime screen zoom

There is possibility of setting the screen zoom value for currently opened site in **Runtime (page 77)**. It is set by default to 100% when entering the site. The screen zoom value is kept even when switching to another screen in Runtime tab in Runtime.

There are a few options how to set new screen zoom value:

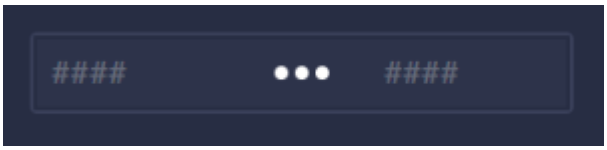
- Using **Zoom 100%** or **Fit to Screen** buttons in **Monitoring toolbar (page 78)**.
- Using mouse wheel:
  - The mouse pointer has to be placed over the screen canvas
  - Press **Ctrl (+ Shift)** key while scrolling the mouse wheel up & down, **see Shortcuts in Runtime on page 99**
- Using keyboard shortcuts:
  - Press **Ctrl+0** or **Ctrl+1** keys, **see Shortcuts in Runtime on page 99**

4.10 In-progress indication

In-progress state is indicated by 3-white-dots (not flashing icon) and is used either

- for operations, which take a long time (e.g. exporting history) or
- for not initialized data (e.g. not initialized value in the "Data Row" instrument, see below)

Example: In-progress indication in the "Data Row" instrument:



4.11 Log in to devices

Some controllers provide user management, i. e. it is possible to log in via different user than the one specified in connection details.

To log in as a different user, do the following:

- Click on the button ❶ in the toolbar to open modal with all devices
- Enter credentials for controller ❷. Some controllers support login only via password, in that case the username input is disabled ❸ and only password is needed to login
- Click the 'Login' button ❹
- If the operation succeeds, success message is shown and user in 'Current User' column is changed accordingly ❺

Note: *If you enter incorrect credentials, the system automatically logs you in as the default user.*

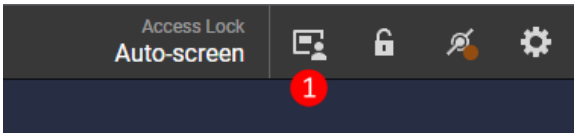
This operation needs to be done for each controller separately.

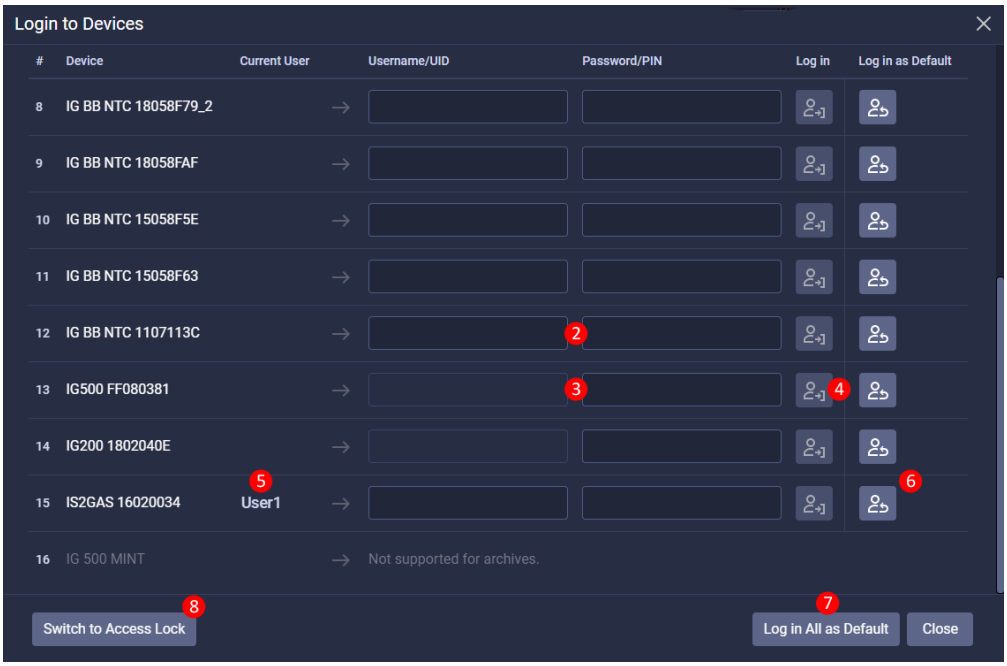
Archive devices do not support user management.

When you no longer need to be signed in as a specific user, you can use button 'Login as Default' to ❻ close the current session and log back to controller as default user. The button 'Login All as Default' ❼ logs in to all controllers with their default users specified in connection details.

You can also switch directly to the Access Lock window by clicking the "Switch to Access Lock" button. ❽ **see Access Lock on page 95** for more information regarding this functionality.

IMPORTANT: All controllers are automatically logged out after the "Auto Logout [min]" period of inactivity defined in Add site (page 38) or Edit site (page 39) dialog (default 5 minutes).





4.12 Access Lock

With this, one can lock access to protect the device properties from the different users.

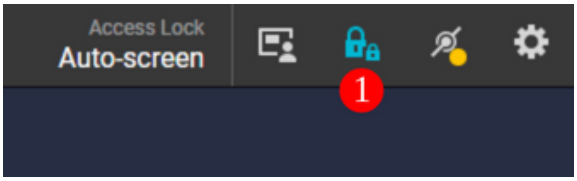
To operate access lock, do the following:

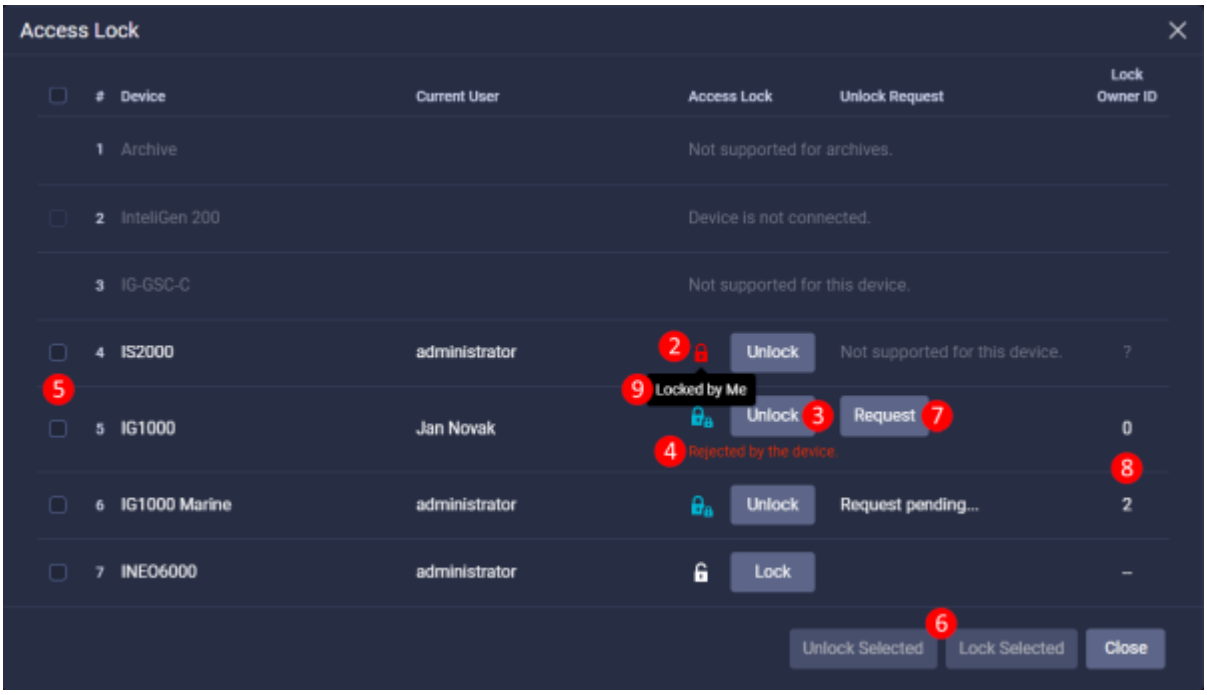
- Click on the button 1 in the toolbar to open the Access Lock modal. In there you will see the list of all devices
- There is an icon indicating the current device state 2 together with a Lock/Unlock button 3 and the Lock Owner ID 8 next to every connected controller that supports access lock.
- If the operation fails after you click the button a message 4 is shown
- If you select multiple devices using the checkboxes 5, you can do these operations in bulk using the buttons in the bottom right corner of the window 6

Note: *Archive devices do not support access lock*

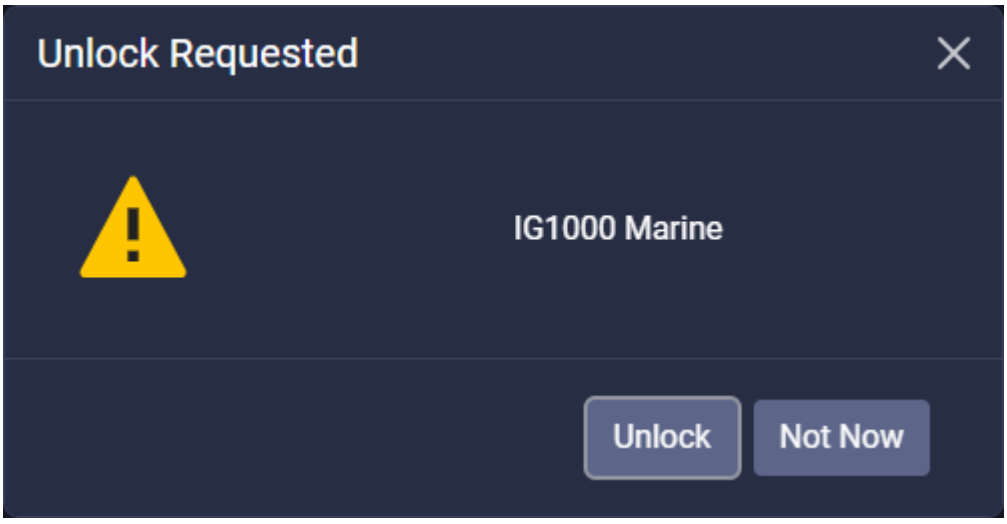
Note: *The access lock icon in the toolbar changes based on the state of all devices currently available on site. Priority for the icons goes as follows:*
Locked by Me > Locked by Other User > Unlocked (Lock Required) > Unlocked

Note: *When the* ***"Automatic Access Lock Release"*** *setpoint is enabled, logging out or switching users from the same terminal ends the session and automatically releases any active session locks.*





- Users with access lock rights can click the 'Request' button (7) (if someone else has locked the access) and ask the owner to release the lock.
  By pressing the Request button, it vanishes, revealing the "Unlock requested..." text information.
- When the lock release request is activated, the access lock owner is informed:
  - by the blinking red lock icon
  - by the "Unlock requested" text information in the Unlock Request column
  - by an alarm sound
  - by the Unlock Request modal window (see the picture below) with the list of devices, on which the unlock requests were activated
- The lock owner can use the Unlock Request modal window to immediately release the access lock or choose to do so later. If he chooses the second option, he can do so in the Access Lock modal window.
- When the access lock is released, the system changes the icon to "Unlocked," and an acoustic signal plays to inform the requesting user.
  Once the access lock is released, the "Unlock requested..." text information or the Request button disappears.



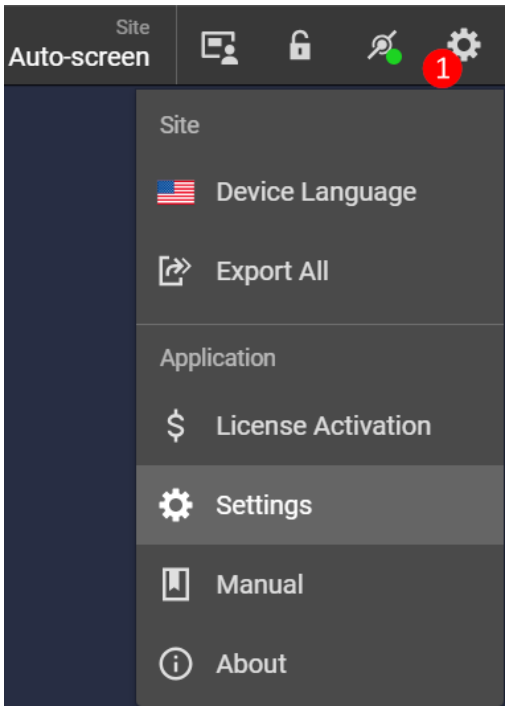
Based on the device state, different icons will appear next to it. You can click on the icon to see a popup with appropriate information.

Device State	Description
	The device is locked by the current user. Popup information: Locked by Me 9
	The device is unlocked Popup information: Unlocked
	The device is locked by a different user. Only the user that locked it can control it. Popup information: Locked by Other User
	The device is not locked but the lock is required. Setpoints can only be written when access is locked by the actual user. Popup information: Unlocked (Lock Required)

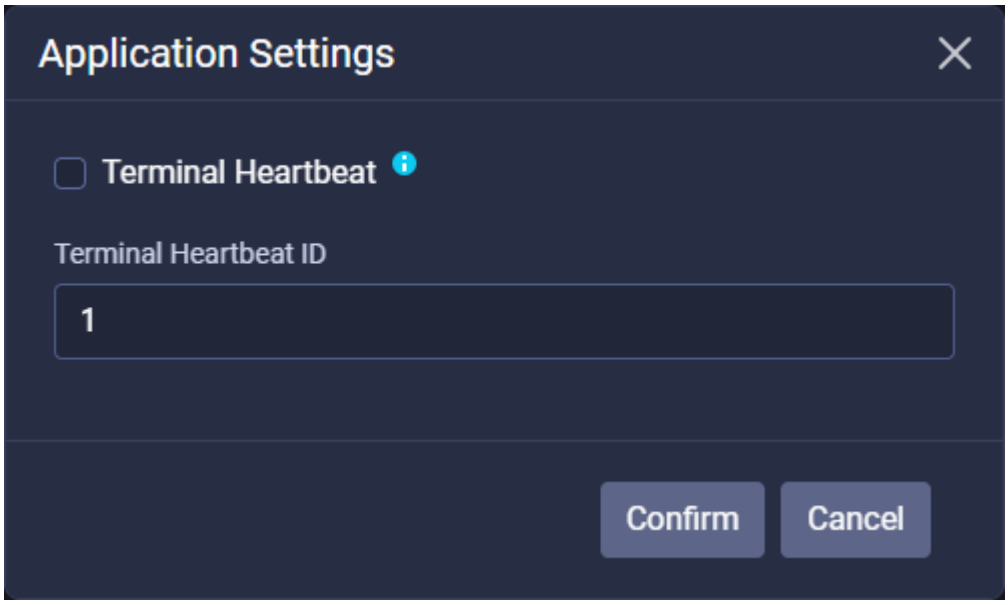
4.13 Application Settings

This allows you to modify application settings. To manage them, do the following:

- Click on the button 1 in the toolbar to open Settings menu



- Click on the Settings option to open the Application Settings dialog



'Terminal Heartbeat' - When checked, the InteliSCADA periodically sends a heartbeat to all connected devices that support this feature, such as IM 1010 Marine.

Note: *See the corresponding documentation for more information about the devices supporting the heartbeat feature.*

'Terminal Heartbeat ID' - Specifies the identifier used by a device for detection of lost communication.

4.13.1 Heartbeat

Heartbeat is a signal sent by InteliSCADA to the connected devices* to inform them that InteliSCADA is connected and works as intended.

Note: **For detailed information about heartbeat, see the corresponding manual.*

Every InteliSCADA has its ID (range 1-16) and a corresponding heartbeat bit set (range 0-15). When a corresponding bit stops toggling, connected devices can identify the non-communicating InteliSCADA.

Every device contains a configuration (of heartbeat PLC blocks) specifying the action for a lost heartbeat signal, such as activating LBO for an audible warning.

InteliSCADA users can set IDs for every InteliSCADA. Every device then listens to this InteliSCADA on a corresponding bit.

InteliSCADA users can choose whether to send the heartbeat signal.

Once the heartbeat is activated, InteliSCADA periodically sends the heartbeat to the connected devices. Heartbeat automatically stops on:

- leaving the InteliSCADA site – return to the InteliSCADA site to continue sending heartbeat
- closing the application – reopen the application with the InteliSCADA site to continue sending heartbeat
- lost connection to the database – re-establish the connection to the database or restart the database service to continue sending heartbeat
- lost connection to the server – re-establish the connection to the InteliSCADA server to continue sending heartbeat
- lost connection to the device – re-establish the connection to the device to continue sending heartbeat

- at least 1 datapoint has the Waiting For Data state longer than 3 minutes - check the appropriate device to reveal the cause of the problem

4.14 Shortcuts in Runtime

4.14.1 Shortcuts in screen canvas

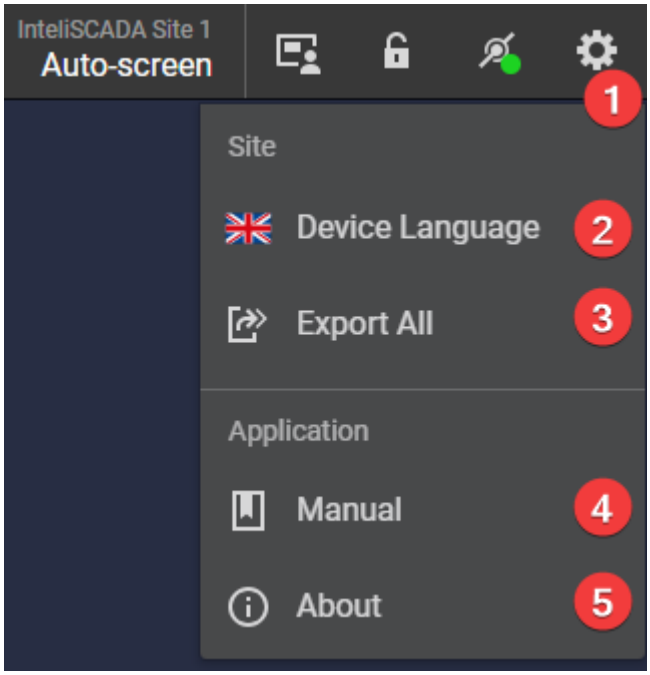
Shortcut	Action
Ctrl + 0	Sets the zoom value of the canvas to 100%
Ctrl + 1	Sets the zoom value of the canvas to "Fit to Screen", so a value that makes the canvas fit into the screen
Ctrl + Mouse Wheel	Variations: - **Mouse Wheel Up** – Increases the zoom value, see preset zoom values below - **Mouse Wheel Down** – Decreases the zoom value, see preset zoom values below Preset zoom values: 10, 25, 33, 50, 67, 75, 80, 90, 100, 110, 125, 150, 175, 200, 250, 300, 400, 500.
Ctrl + Shift + Mouse Wheel	Variations: - **Mouse Wheel Up** – Increase the zoom value by 1 % - **Mouse Wheel Down** – Decrease the zoom value by 1 %

5 Settings

back to Table of contents

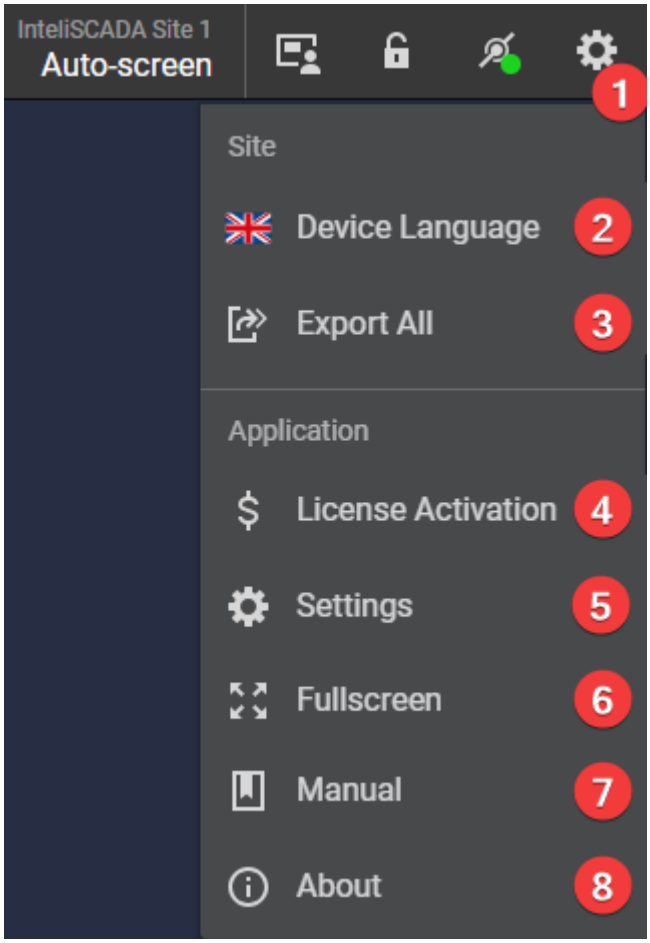
This chapter is dedicated to provide information for possible customization and configuration options available inInteliSCADA applications. For Designer and Runtime applications the Settings menu can be found at same place, but for both applications there are different Settings Options to set up. In the following sections, we will delve into the intricacies of the Settings menu options, accessible via a Settings Tab within both the Designer and Runtime applications.

InteliSCADA Designer Settings options menu:



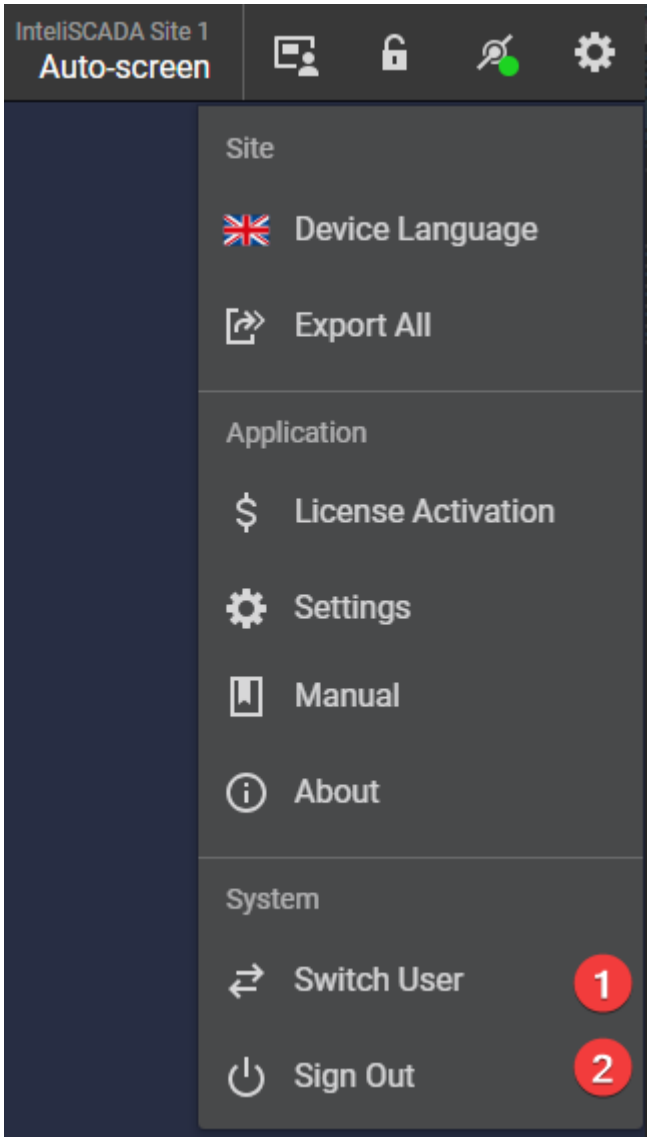
- 1 Button for opening the Settings drop-down menu
- 2 Configuration for language of devices configured in opened site - **see Device Language on page 103**
- 3 Export All (button is enabled only when site is opened) - Exports all data of the specific site (site, devices archives and logs are packed into a single ZIP file). See also **Reporting an issue (page 239)**
- 4 Manual - Opens the InteliSCADA global guide
- 5 About - Opens the dialog with information about InteliSCADA

InteliSCADA Runtime Settings options menu:



- 1 Button for opening the Settings drop-down menu
- 2 Configuration for language of devices configured in opened site - **see Device Language on page 103**
- 3 Export All (button is enabled only for open site) - Exports all data of the specific site (site, devices archives and logs are packed into a single ZIP file). See also **Reporting an issue (page 239)**
- 4 License Activation – Opens the dialog for license activation, see **License activation (page 22)**
- 5 Settings - Opens dialog for application runtime settings - **see Heartbeat on page 102**
- 6 Fullscreen - Expands the application to occupy the entire display screen, eliminating any surrounding interface elements. Button is visible only in the desktop application, not in the browser.
- 7 Manual - Opens the InteliSCADA global guide
- 8 About - Opens the dialog with information about InteliSCADA

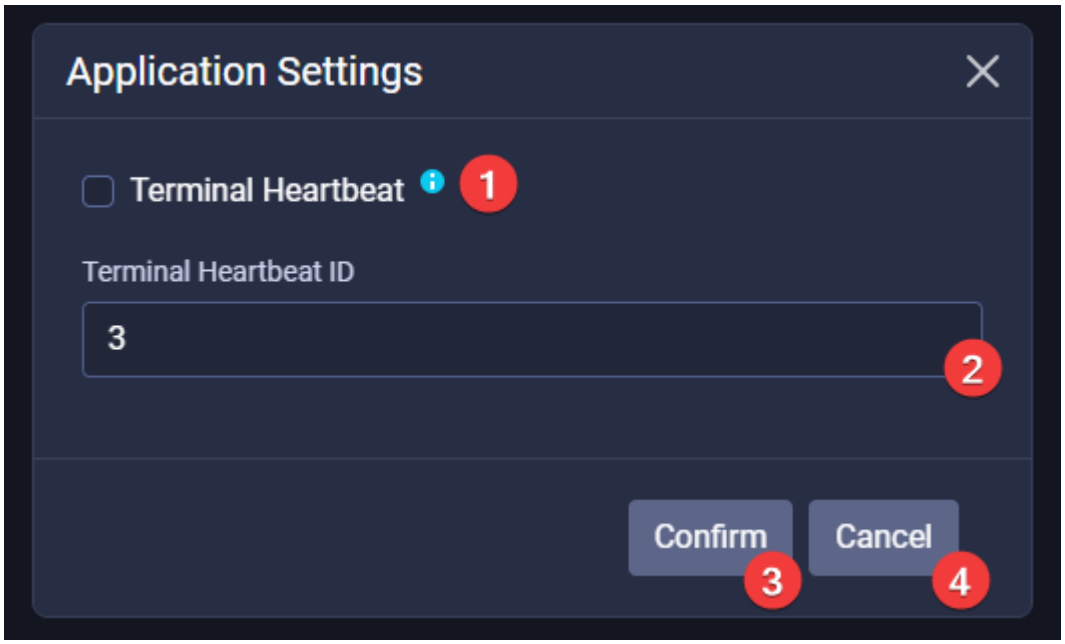
Also Settings drop-down menu differs for InteliSCADA installed on ComAp display devices, where multiple additional options is possible to set:



- 1 Switch User - Triggers Window Switch User functionality. Button is visible only when Electron was started with --display option. **see Application launch settings on page 30**)
- 2 Sign Out - Signs out currently logged Windows user. Button is visible only when Electron was started with --display option. **see Application launch settings on page 30**)

5.1 Heartbeat

InteliSCADA Runtime Application provides an option to send Heartbeat signals to devices that support this feature. Specifically, ComAp devices can be configured in such a way that their PLC program checks whether communication with terminals is occurring within the configured period.

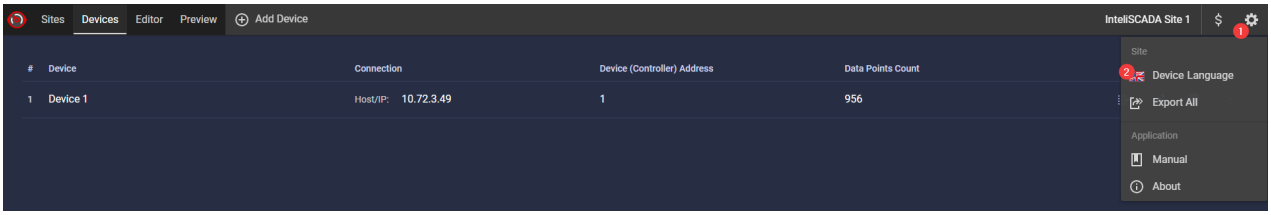


- 1 By selecting the Terminal Heartbeat check-box, you enable the heartbeat function for the entire terminal. This means that a heartbeat signal is periodically sent to each device connected to that specific terminal.
- 2 Devices can be configured to receive multiple heartbeat signals from various terminals. To achieve this, you can set a Terminal Heartbeat ID that differs for each terminal.
- 3 Confirm button saves the settings and closes the dialog.
- 4 Cancel button will close the dialog.

back to Table of contents

5.2 Device Language

Click on the "Settings" button to open dropdown and then click on the "Device Language" to select desired language.



It is possible to select the device language to translate all device texts and datapoint names. Available device languages are loaded during datapoint import and during device connection.

If there are several devices on the site, the languages of all devices for which datapoints were imported will be available in the language menu. If the site contains devices without imported datapoints or new languages are detected after connecting to the device, the list of available languages is updated.

After selecting the language, this choice is saved and remembered for the given site, and the setting is shared between Runtime and Designer applications (not supported when using InteliSCADA in web browser). It means that different languages can be selected for different sites.

6 Security

back to Table of contents

Every site has its own devices. To protect device connection details (sensitive device credentials) every site requires the user-defined password. This password is mandatory and it is defined when creating a new site, see **Add site (page 38)**.

- Password requirements
  - at least 6 characters length
  - white space characters are not allowed
- Password can be also changed later, see **Edit site (page 39)**
- It is possible to Unlock/Lock a site
  - in Designer, see **"Lock/Unlock Site" button (page 37)**
  - in Runtime, see "Lock/Unlock Site" button in **Sites (page 80)**
  - Site status is indicated by Key icon

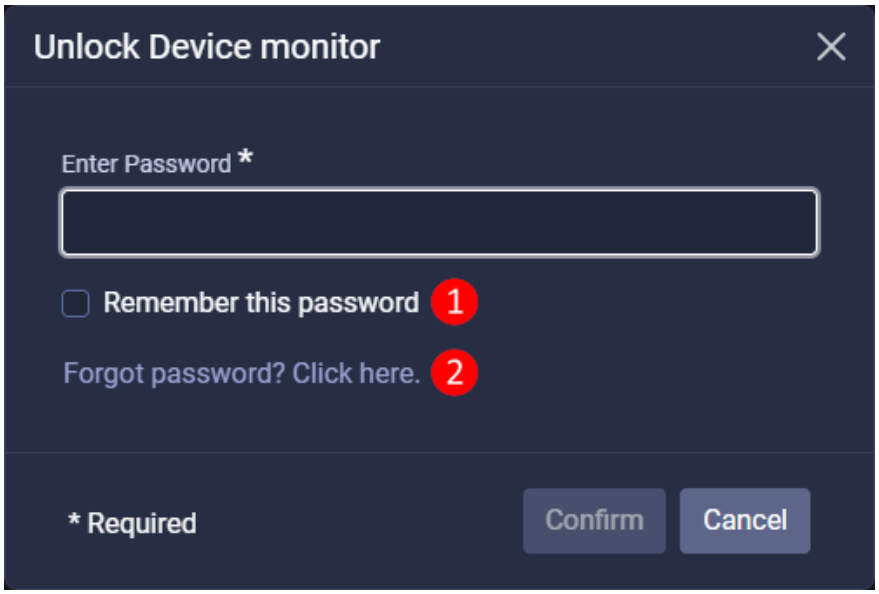
Key icon	Site status	On click action
	Site unlocked	If clicked, it locks a site
	Site locked	If clicked, it opens the dialog to unlock a site

- It is required to unlock a site to get access to anything related to this site
- There are supported up to **60** unlocked sites at a time
- See also **Unlock site validation errors (page 239)**

> **IMPORTANT: It is not possible to recover the site password, therefore it is recommended to take precautions against the loss of the password. The only way to recover a site with forgotten password is Reset site password (page 105).**

6.1 Unlock site

When unlocking the site the **Unlock Site** dialog with appropriate site name in header is open.



- 1 It is possible to use **Remember this password** option to save the password and keep the site unlocked. The saved password is deleted when the site is locked again.

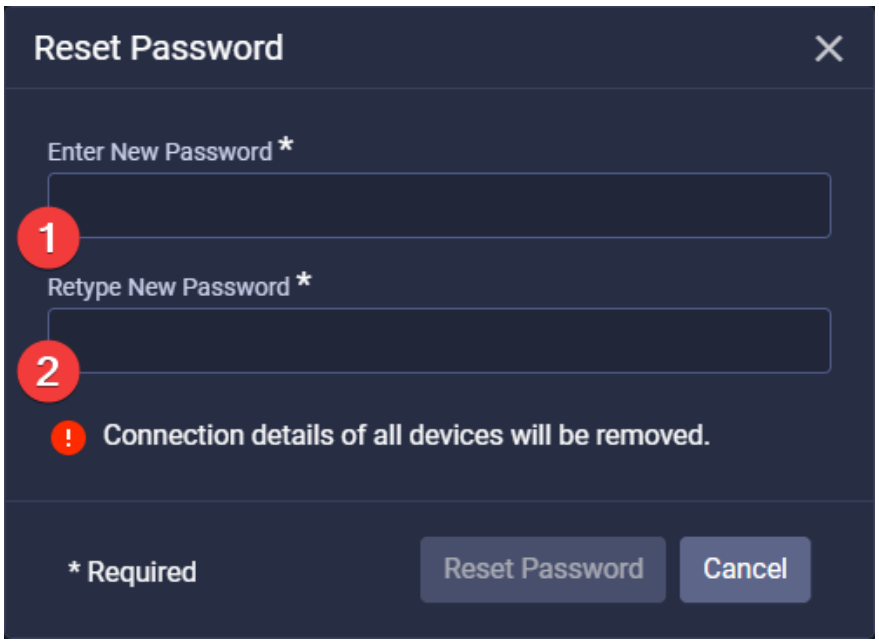
  IMPORTANT: Saving passwords is not recommended due to security reasons.

- 2 In case the site's password is lost it is possible to use **Reset site password (page 105)** to retrieve the access to the site.

6.2 Reset site password

The feature is intended to recover a site if the site's password was forgotten. It allows to reset the password and retrieve the access to the site. This feature is available only in Designer.

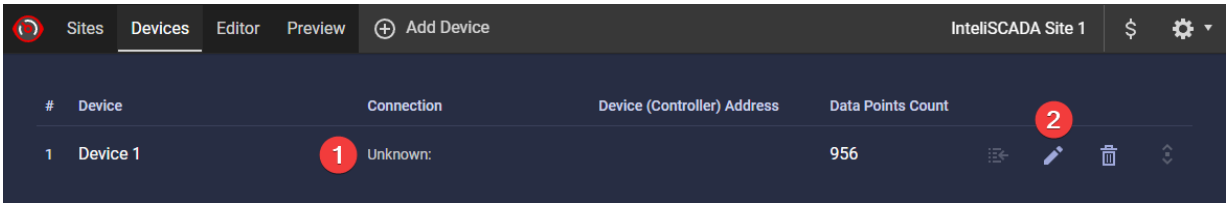
WARNING: Resetting the password will remove the connection details of all devices defined in the site. This operation is irreversible, the data related to connection is removed permanently.



- 1 Enter New Password (required) – New password for the site
- 2 Retype New Password (required) – Enter the password again

6.2.1 Fix connection details

After the site's password is reset, all devices will have their connection type set to **Unknown** 1 . Open the Edit device dialog to enter valid connection details for each device 2 .



7 Instruments

All supported instruments can be used on any custom screen or on **Automatically generated screen (page 191)**.

Some instrument properties configurations(e.g. scale limits, warning limits, iframe content, alternative images) are not reflected when the instrument is placed on the canvas in Editor, but they are reflected in Runtime and Preview.

Some properties are interconnected, thus the content of one property may depend on the value of another one, e.g. to select a data point, the device must be selected first.
There are non-standard state indications apply to any of the instruments, see **Instrument non-standard states (page 231)**

back to Table of contents

7.1 Instruments specific properties

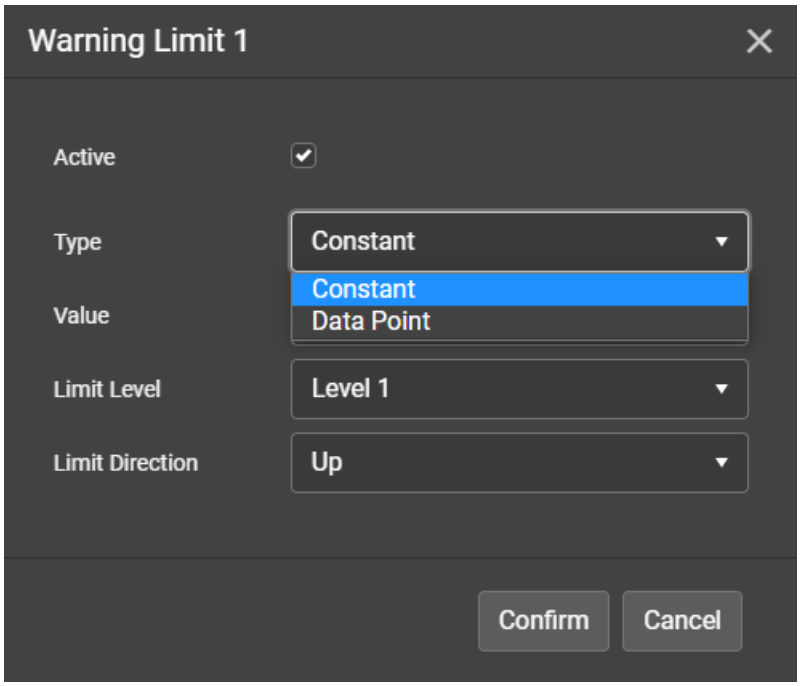
7.1.1 Warning limits

Settings of warning limits are supported for the following instruments:

- Analog Meter
- Bar Graph

There is possible to configure Type of source for Warning limit value as:

- Constant
- Data point



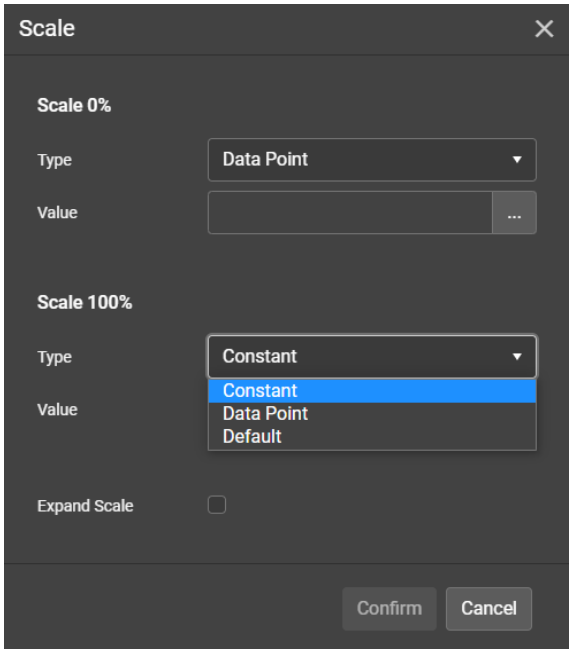
7.1.2 Scale

Settings of Scale are supported for instruments:

- Advanced Trend
- Analog Meter
- Bar Graph
- Trend

It is possible to configure the source Type for Warning limit value as:

- Data point
  - Analog Meter
  - Bar Graph
  - Deviator
- Constant
- Default
- Auto
  - Advanced Trend only

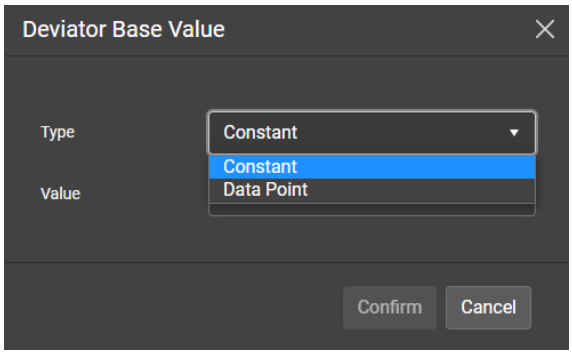


7.1.3 Deviator Base

Settings of Deviator Base are supported only for Deviator

It is possible to configure the source Type for the Deviator Base value as:

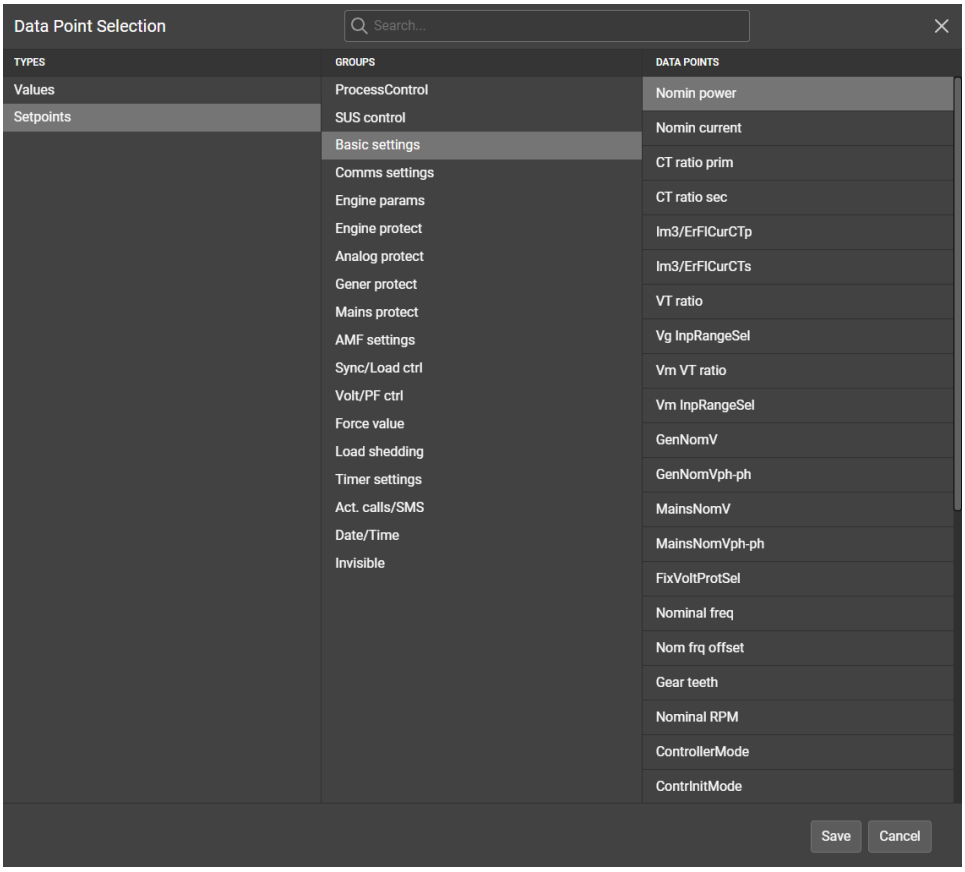
- Data point
- Constant



7.1.4 Data point selection

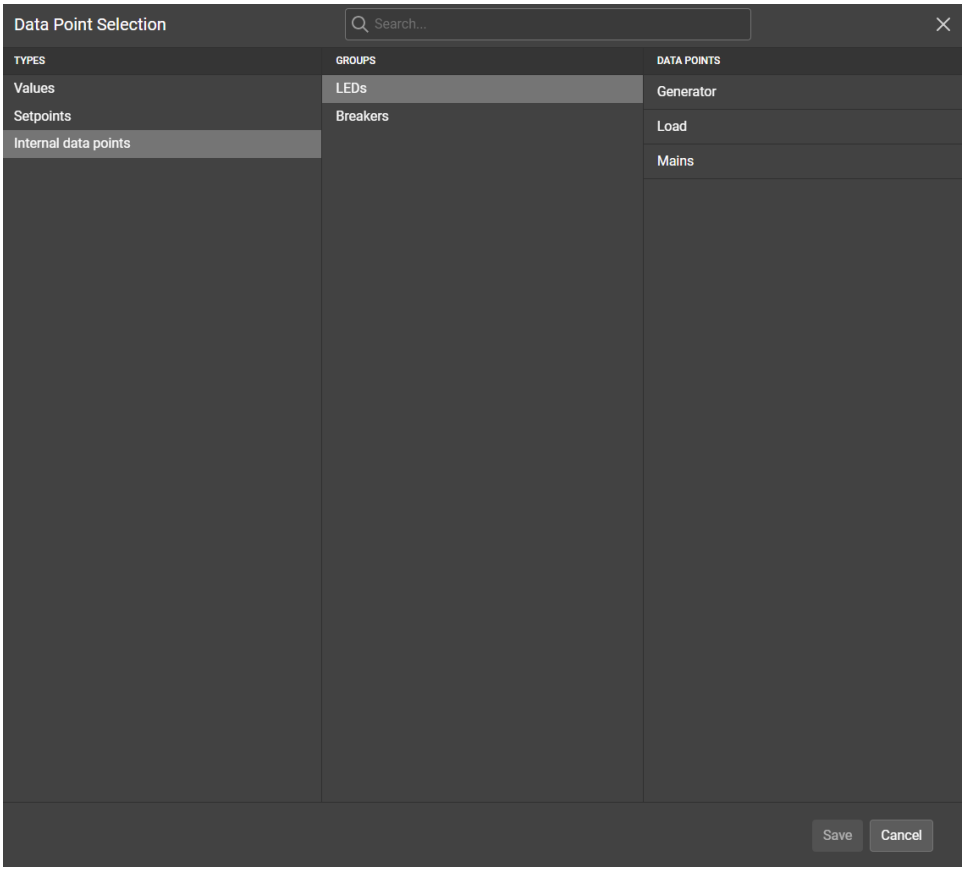
Settings of Data point as value source are supported for instruments:

- Analog Meter
- Bar Graph
- Deviator
- Busbar
- Data Row
- Image
- LED
- Trend
- Wire Junction



For instruments which support internal data point types (e.g. LED) the dialog window shows also **Internal data points** category, see the illustration picture below.

IMPORTANT: If not all of the expected Data points are present in Data Point Selection list, reimport Data points for the Device (see Importing data points on page 48 for details).



These instruments support only predefined collection of Data points:

- Alarm List
- Breaker
- Breaker Button
- Bus
- Control Button
- Converter/Inverter
- Engine
- Fault Reset
- Generator
- Horn Reset
- Load
- Mains
- Mode Selector
- Start Engine
- Stop Engine

Multiselect

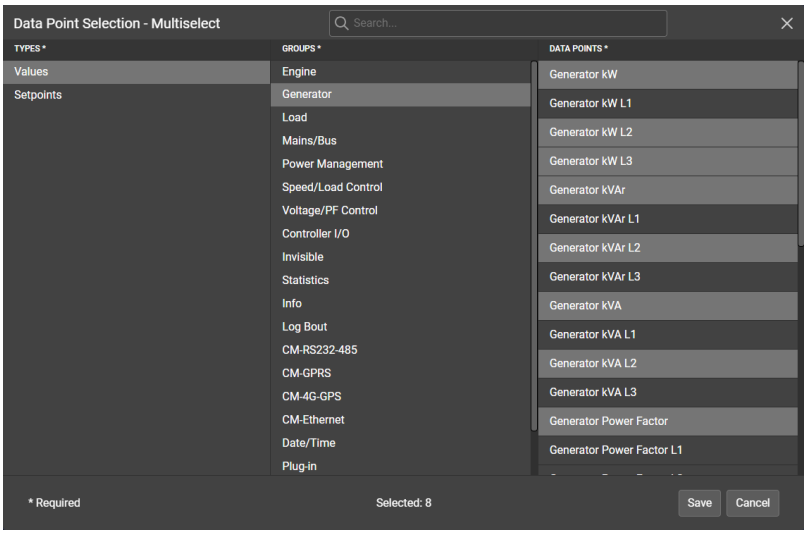
There is also a feature that allows users to select more datapoints at once called Multiselect. With this, users can comfortably select every datapoint they need at once without repeating the same action.

There are 2 more ways of selecting multiple data points than just simply clicking on them:

- Using SHIFT + Click - You can select everything between the first data point clicked, and the last one
- Using CTRL + Click - You can select whole data point group by holding CTRL while clicking on it. (e.g. Binary Inputs group)

Note: *Currently only available for Bar Graph and Deviator.*

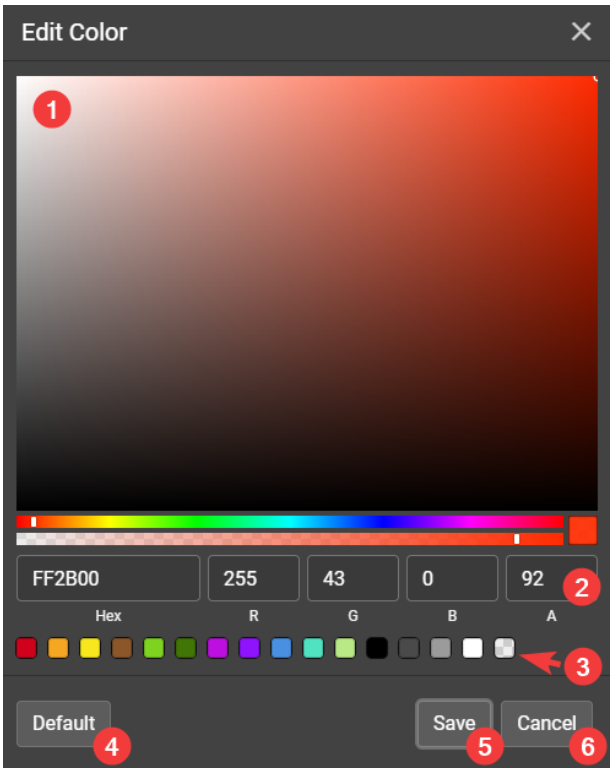
Note: *You can see which data point is selected by the lighter background of the specific data point. (See image below)*



7.1.5 Color picker

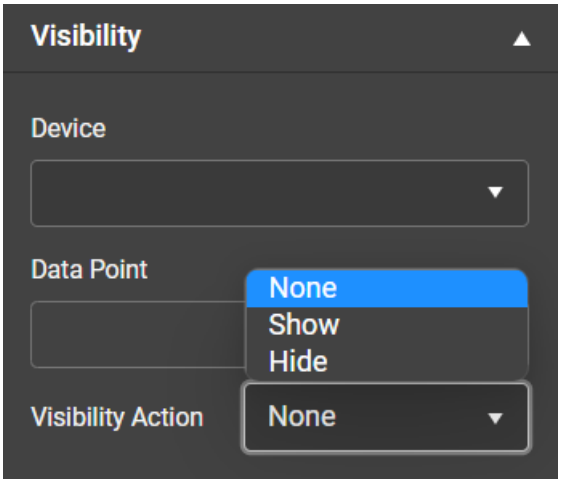
Settings of custom Color are supported for instruments:

- Busbar
- Data Row
- Line
- LED
- Rectangle
- Text
- Trend
- Wire Junction



1	Color selector area	Color selector area Click to select a color at specific area position.
2	Color configuration input fields	Configure the color value in RGBA format. › Hex – configure RGB channels values in hexadecimal format › R – configure Red channel value › G – configure Green channel value › B – configure Blue channel value › A – configure Alpha channel value - transparency
3	Buttons for predefined colors	Click to load the configuration of the selected color.
4	Default button	Reset the color configuration values to the default values.
5	Save button	Close the configuration for the color parameters and saves the configuration.
6	Cancel button	Close the configuration for the color parameters. The configuration is not saved after being closed.

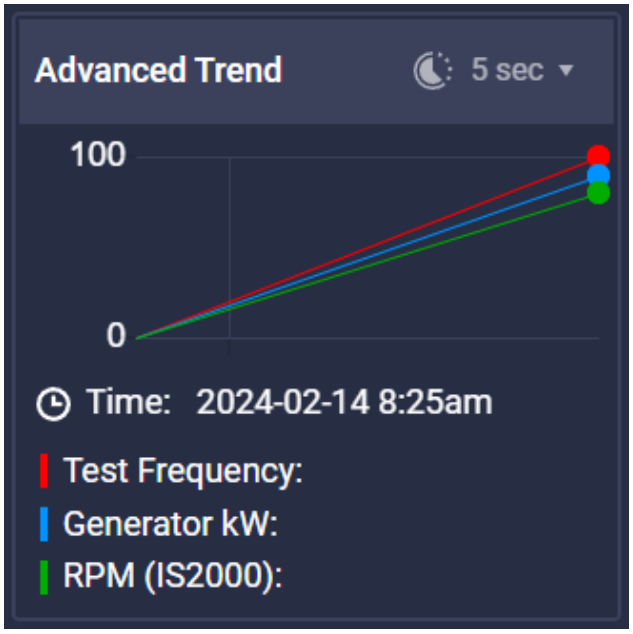
7.1.6 Visibility action



Visibility action is currently supported for all instruments.

Visibility Action	Bit value: 1	Bit value: 0
None	Instrument is visible	Instrument is visible
Show	Instrument is visible	Instrument is hidden
Hide	Instrument is hidden	Instrument is visible

7.2 Advanced Trend



The Advanced Trend instrument shows persisted data for selected trend sources (for more information see **Trends Sources panel (page 61)**). Max 10 Trend Sources are available for one instrument.

The filled point at the end of a trend line indicates the last measured sample in a series of data. This is particularly useful in scenarios where data samples are not continuously generated but arrive after sample periods (each trend has it's own sample period). The presence of the point signifies that while this is the last sample, it does not represent a gap or discontinuity in the data. Instead, it indicates that the next sample is expected after the trend sample period.

When the point appears alone, without a preceding trend line, it signifies the first measured sample in a series.

In contrast, a gap in the trend line, without any filled points around, indicates a period during which the data were invalid or the device was offline.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen width	320
	Height		Number	100 .. screen height	320

Category	Name	Note	Input type	Range	Default
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Trend Series	Add Series	Add new series (up to 10)	Select	1..10	
	Edit Series	Change settings of the selected series	Select	Selected Series	
	Delete Series	Delete selected series	Select	Selected Series	
	Trend Series List	The Trend Sources for which the data will be plotted	Select	List of Trend Sources	
	Line Width	Trend line width	Number	1 .. 20	2
	Line Color	Color of the trend line	**Color picker (page 112)**		#ff2b00
Scale	Scale 0% Type	One of the following types can be used: › Auto – The scale is automatically adjusted according to the plotted data › Constant – numeric value defined by user	**Scale (page 109)**	Auto/Constant	Auto
	Scale 0% Value	Based on Scale 0% type: › Enter a constant › (not available for Auto)	Number		
	Scale 100% Type	One of the following types can be used: › Auto – The scale is automatically adjusted according to the plotted data › Constant – numeric value defined by user	Select	Auto/Constant	Auto
	Scale 100% Value	Based on Scale 100% Type: › Enter a constant › (not available for Auto)	Number		
	Time Range	Maximum data time span	Select	5s 30s 1m 10m 30m 1h 3h 6h	5 seconds

Category	Name	Note	Input type	Range	Default
				12h 1d 7d 31d 3m 6m 1y 2y	
Header	Header	Toggle header visibility	Checkbox		Checked
	Show Time Range	Toggle Time Range dropdown visibility	Checkbox		Unchecked
	Text	Header text	Text	1..32 UNICODE char	Trend
	Font Size	Font size of the header	Number	6 .. 200	18
Design	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
	Legend	Toggle legend visibility	Checkbox		Checked
	Left Margin	Margin for left border	Number	0 .. 200	60
	Bottom Margin	Margin for bottom border	Number	0 .. 200	28
	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Text	Axes Font Size	Axes font size	Number	6 .. 200	18
	Legend Font Size	Legend font size	Number	6 .. 200	18
	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

> **IMPORTANT: In order to provide stable performance there are several optimizations that affect the amount of points rendered in the instrument. This means the number of plotted and persisted points may differ.**

Once the Show Time Range property is checked the user is able to change time interval used for the instrument in Preview or Runtime tab. The time interval value is remembered until the user leaves the site or the Editor tab is visited.

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.3 Alarm List

The Alarm list instrument is used to display alarms on a selected device. Alarm List contains following information:

1	Explanation mark icon	› Red when an alarm record exists › Red & flashing when an unconfirmed alarm record exists › Grey when the alarm list is empty
2	Number of alarm records	Active / unconfirmed (alarms marked with asterisk) / total
3	List of active alarms	› Level 1 (Warnings) highlighted in yellow › Level 2 (Shutdowns) highlighted in red › Sensor Fail – black&white › ECU alarm – blue

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	200 .. screen width	320
	Height		Number	100 .. screen height	320
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Alarm List source Some devices have standard and ECU alarms in 2 separate lists, others have just 1 alarm list (the Standard one), which displays all alarm types together.	**Data point selection (page 110)**	Standard alarm list/ECU alarm list	
	Horn Reset	Engine – Horn Reset command (if available), the property is read-only and visible only when the Horn Reset property checkbox in Header category is	**Data point selection (page 110)**		

Category	Name	Note	Input type	Range	Default
		checked.			
	Fault Reset	Engine – Fault Reset command (if available), the property is read-only and visible only when the Fault Reset property checkbox in Header category is checked.	**Data point selection (page 110)**		
Header	Horn Reset	Shows Horn Reset button in header of the instrument.	**Data point selection (page 110)**		True
	Fault Reset	Shows Fault Reset button in header of the instrument.	Checkbox		True
	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Design	Border Color	Border color of the instrument. Transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		Transparent
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

For the controllers with the selective fault reset support, the Fault Reset button resets only the visible alarms.

7.4 Analog Meter

Image 5.1 Analog Meter

1	Name
2	Value
3	Unit
4	Scale low limit (Scale 0%)
5	Scale high limit (Scale 100%)
6	Warning (or shutdown) limit

Analog meter is a rounded meter with a pointer. It displays the current value of the selected data point graphically. Warning / Shutdown limits can be indicated on the analog meter with yellow (warning) / red (shutdown) scale color by setting up the warning limits.

- In case the value (pointer) is out of the scale range the pointer stops 15 degrees below / above the scale limit.
- Upper scale limit (Scale 100%) can be expanded to 125% of its original value using the Expand Scale option configured in the Scale dialog.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen width	160
	Height		Number	150 .. screen height	240
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	A source for Analog meter data (e.g. Actual power)	**Data point selection (page 110)**	Filter: numeric data points	
Header	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#272D43
Design	Scale 0% Type	One of the following types can be used: › Constant – numeric value defined by user › Data Point – usually a setpoint › Default – low limit of the Source data point	Select	Constant/Data Point/Default	Default
	Scale 0% Value	Based on Scale 0% type: › Enter a constant › Select a data point › (not available	**Scale (page 109)**		

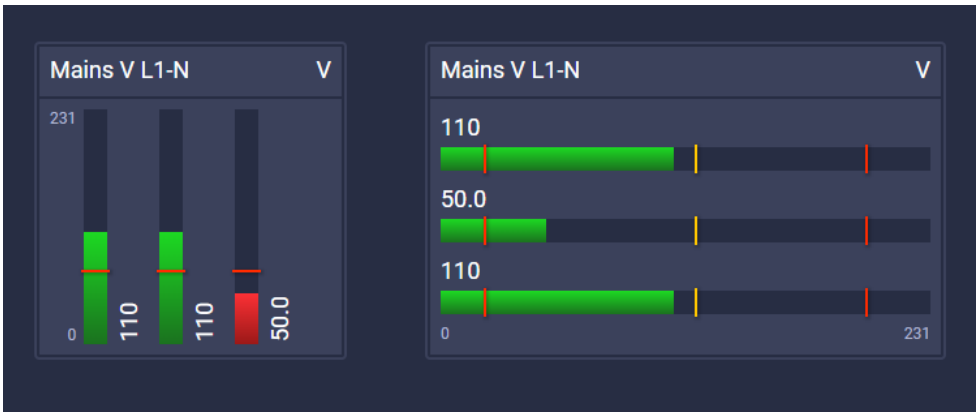
Category	Name	Note	Input type	Range	Default
		for Default)			
	Scale 100%Type	Select	Select	Constant/Data Point/Default	Default
	Scale 100% Value	Based on Scale 100% Type: › Enter a constant › Select a data point › (not available for Default)	**Scale (page 109)**		
	Expand Scale	Expands existing scale to 125%	Checkbox	0/1	Unchecked
	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#272D43
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Warning limits (Warning limit 1, 2, 3, 4)	Active	Warning limit activation	Checkbox	0/1	Unchecked
	Type	value type selection – Constant (numeric value) or Data Point (e.g. a setpoint)	Select	Constant/Data Point	Constant
	Value	Based on Type: › Enter a constant (e.g. 250) › Select a data point (e.g. Nominal power)	**Warning limits (page 108)**		0
	Limit Level	Level 1 for warning (yellow), Level 2 for shutdown (red)	Select	Level 1/Level 2	Level 1

Category	Name	Note	Input type	Range	Default
	Limit direction	Warning limit direction: Up for over limit, Down for under limit	Select	Up/Down	Up
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select		*no link*

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.5 Bar Graph

The Bar Graph instrument is used for monitoring or comparison of multiple values. Each column represents one data point. From 1 to 32 data points (all from the same device) can be selected and monitored. Warning / Shutdown limits can be indicated on Bar Graph with yellow (warning) / red (shutdown) color by setting up warning limits.



Editor properties

Category	Name	Note	Input type	Range	Default
General (expanded)	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen height – instrument height	200
	Height		Number	100 .. screen height – instrument height	200
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
Bars	Add Bars	Add Bars (up to 32)	**Multiselect (page 112)**	1..32	
	Edit Bar	Change the data point of the selected bar	**Data point selection (page 110)**	Selected Bar	
	Delete Bar	Delete the selected bar	Select	Selected Bar	
	Bar list	Shows the added bars	Select	One bar	
Header	Label Type	Type of the label (custom or automatically set to the name of the selected data point)	Select	Data Point Name/Custom	Data Point Name
	Label	User defined label, available for Custom label type only	Text	1 .. 64 UNICODE char	Name (for Custom type)
	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B

Category	Name	Note	Input type	Range	Default
Design	Type	Orientation of the instrument	Select	Vertical/Horizontal	Vertical
	Bar Base	* Base of the bar value	Select	Default/Low/High	Default
	Scale 0% Type	One of the following types can be used: › Constant – numeric value defined by user › Data Point – usually a setpoint › Default – low limit of the Bar 1 data point	Select	Constant/Data Point/Default	Default
	Scale 0% Value	Based on Scale 0% type: › Enter a constant › Select a data point › (not available for Default)	**Scale (page 109)**		
	Scale 100% Type	One of the following types can be used: › Constant – numeric value defined by user › Data Point – usually a setpoint › Default – high limit of the Bar 1 data point	Select	Constant/Data Point/Default	Default

Category	Name	Note	Input type	Range	Default
	Scale 100% Value	Based on Scale 100% Type: › Enter a constant › Select a data point › (not available for Default)	**Scale (page 109)**		
	Expand Scale	Expands existing scale to 125%	Checkbox		Unchecked
	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
	Bar Background Color	Background color of the bar. The transparent color can be set to make the bar background invisible.	**Color picker (page 112)**		#272D43
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Warning limits (Warning limit 1, 2, 3, 4)	Active	Warning limit activation	Checkbox	0/1	Unchecked
	Type	value type selection – Constant (numeric value) or Data Point (e.g. a setpoint)	Select	Constant/Data Point	Constant
	Value	Based on Type: › Enter a	**Warning limits (page**		0

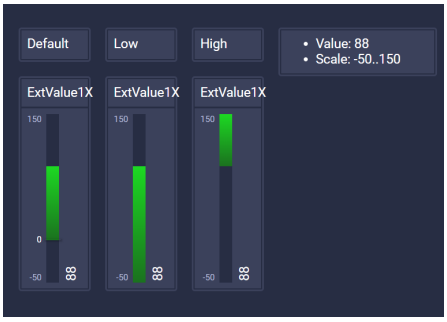
Category	Name	Note	Input type	Range	Default
		constant (e.g. 250) › Select a data point (e.g. Nominal power)	**108)**		
	Limit Level	Level 1 for warning (yellow), Level 2 for shutdown (red)	Select	Level 1/Level 2	Level 1
	Limit direction	Warning limit direction: Up for over limit, Down for under limit	Select	Up/Down	Up
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

*Bar base note

Base of bar value – how value is displayed

- Default – from data point
- Low – value is displayed from bottom to top
- High – value is displayed from top to bottom



*Bar actions note

It is also possible to change the order of the bars via the drag-and-drop feature in the Bars section of the Instrument properties.

7.6 ESS

Type Battery

Type BESS

The ESS instrument represents the status of battery energy storage system, which is indicated by color:

- Green – OK
- Red – shutdown
- Grey – inactive

Editor properties

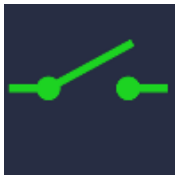
Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40

Category	Name	Note	Input type	Range	Default
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	BESS | Energy Storage(or empty if not supported or found in the selected device), the property is read-only	Select	automatically selected along with Device and Type if available	
Design	Icon	Icon of the instrument	Select	Energy Storage | BESS (out Left) | BESS (out Right)	Energy Storage
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.7 Breaker

Instrument that indicates the status of a generator/mains/bus circuit breaker.

Status	Description	Icon
Inactive	Breaker is open	
Active	Breaker is closed	
Synchronizing	Device is synchronizing › Breaker's arm is flashing a configurated active and inactive color as well as regularly closing and opening at the same time. › **The image is for illustrative purposes only and may differ from the actual visualization based on the current state of the device and the configuration of breaker's properties.*	
CB Fail	Breaker mode required by device does not match the current breaker state › CB Fail to close – breaker is open, but the device requires breaker to be closed › CB Fail to open – breaker is closed, but the device requires breaker to be open	 
Init	Device is not able to run its application	

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1..64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen	0

Category	Name	Note	Input type	Range	Default
				height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	List of breakers supported in the selected device (e.g. Generator circuit breaker)	**Data point selection (page 110)**		
Design	Mirroring	Mirroring of the instrument	Select	4 options: None, Vertical, Horizontal, Both (vertical + horizontal)	None
	Rotation	Rotation of the instrument, unit: °, clockwise	Select	4 options: 0°, 90°,180°, 270°	0°
	Active State Color	Color of the closed breaker.	**Color picker (page 112)**		#1DD322
	Inactive State Color	Color of the opened breaker.	**Color picker (page 112)**		#7C7C7C
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.8 Breaker Button

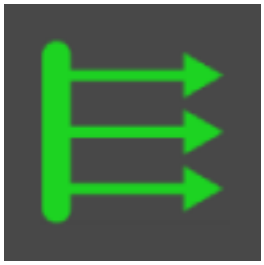
This button is used to open or close a breaker. The breaker type depends on the selected Source.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	List of supported breaker commands (e.g. Breakers - GCB ON/OFF)	**Data point selection (page 110)**		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.9 Bus



Status of the instrument Bus is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

***Note:** The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1..64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	List of bus LED data points supported in the selected device	**Data point selection (page 110)**	Bus, Bus left, Bus right, PSC	
Design	Mirroring	Mirroring of the instrument	Select	4 options: None, Vertical,	None

Category	Name	Note	Input type	Range	Default
				Horizontal, Both (vertical + horizontal)	
	Rotation	Rotation of the instrument, unit: °, clockwise	Select	4 options: 0°, 90°,180°, 270°	0°
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.10 Busbar

Busbar instrument is used in wiring diagrams. It can be linked to a LED type data point to indicate its status in color.

Editor properties

	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
Position	X1	[X, Y] coordinates of P1	Number	0 .. screen width – instrument width	
	Y1		Number		
	X2	[X, Y] coordinates of P2	Number		X1 + 100
	Y2		Number		Y1
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Data source that instrument is connected to. It can be data point of either BIT or LED type.	**Data point selection (page 110)**	LED type data points	
	Invert Value	Available only for data point of BIT type. Invert bit value if checked: 0 = *On*, 1 = *Off* if unchecked: 1 = *On*, 0 = *Off*	Checkbox	0/1	Unchecked
Design	Line Width	Line width	Number	1 .. 100	2
	Line Style	Line style	Select	Solid. Dotted. Dashed. Dash Dot.	Solid
	Line Cap	Line cap. Option Rounded and Squared extend the line by the half of the line width on each side.	Select	None. Rounded, Squared	None
	Active State Color	Available only for data point of BIT type. Defines color for bit in *On* state.	**Color picker (page 112)**		#1DD322
	Inactive State Color	Available only for data point of BIT type. Defines color for bit in *Off* state.	**Color picker (page 112)**		#7C7C7C
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument	**Data point**	Filter: binary	

	Name	Note	Input type	Range	Default
		visibility property. If the selected data point is invalid, then the instrument is always visible.	**selection (page 110)**	data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: *\)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Shortcut	Action
Shift + Mouse down -> Mouse move	Keeps horizontal or vertical orientation of the busbar when drag & drop. Flips the busbar orientation according to the mouse moving to horizontal or vertical.

7.11 Control Button

Control Button is used to send the specified command to a selected device. User can define a label, select one of the pre-defined colors and optionally select an image.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	320
	Height		Number	10 .. screen height	48
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	List of all commands supported by the selected device (e.g. UserButton 2 – ON/OFF)	**Data point selection (page 110)**	List of commands	

Category	Name	Note	Input type	Range	Default
Design	Color	Button background color. The text color and the background color for effects (hover, pressed,...) are set automatically based on the selection.	Select	Based on: Bootstrap colors Options: Default (BS Primary), Green (BS Success), Red (BS Danger), Yellow (BS Warning), Blue (BS Info), Light, Dark, Transparent Light, Transparent Dark	Default
	Image	Source image file name	Image Source	The size of the image file is restricted to 3 MB	file name for images from the Gallery, empty otherwise
	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		Transparent
Text	Label	User defined button label	Text	0 .. 64 UNICODE char	Command
	Font Size	Font size of the text	Number	6-200 px	16 px
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility	**Data point selection (page 110)**	Filter: binary data points	

Category	Name	Note	Input type	Range	Default
		property. If the selected data point is invalid, then the instrument is always visible.			
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.12 Converter/Inverter

The Converter/Inverter instrument represents the status of Converter/Inverter LED, which is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

Note: *The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1..64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	List of Converter/Inverter LED data points supported in the selected device	**Data point selection (page 110)**	Converter ACDC, Converter DCAC, Converter DCDC	
Design	Icon	Icon of the instrument	Select	AC/DC | DC/DC	
	Mirroring	Mirroring of the instrument	Select	4 options: None, Vertical, Horizontal, Both (vertical + horizontal)	None
	Rotation	Rotation of the instrument, unit: °, clockwise	Select	4 options: 0°, 90°,180°, 270°	0°
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	

Category	Name	Note	Input type	Range	Default
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: *\)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.13 Data Row

Image 5.2 Data Row instrument

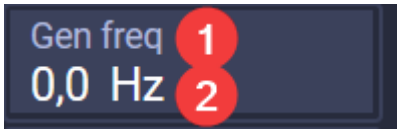


Image 5.3 Data Row instrument when Compact mode is on

1	Data point name
2	Data point value and unit

The Data Row instrument is used to display a value of a data point (device value or setpoint) in a text form.

- Data Row can be configured as editable if its Data Point property is set to a setpoint.
- Data point name, value and unit can be displayed or just some of them.
- Different data types are supported:
  - Number – eg. generator frequency value
  - Text – eg. engine state ("not ready")
- An invalid value is represented by "####".

Editor properties

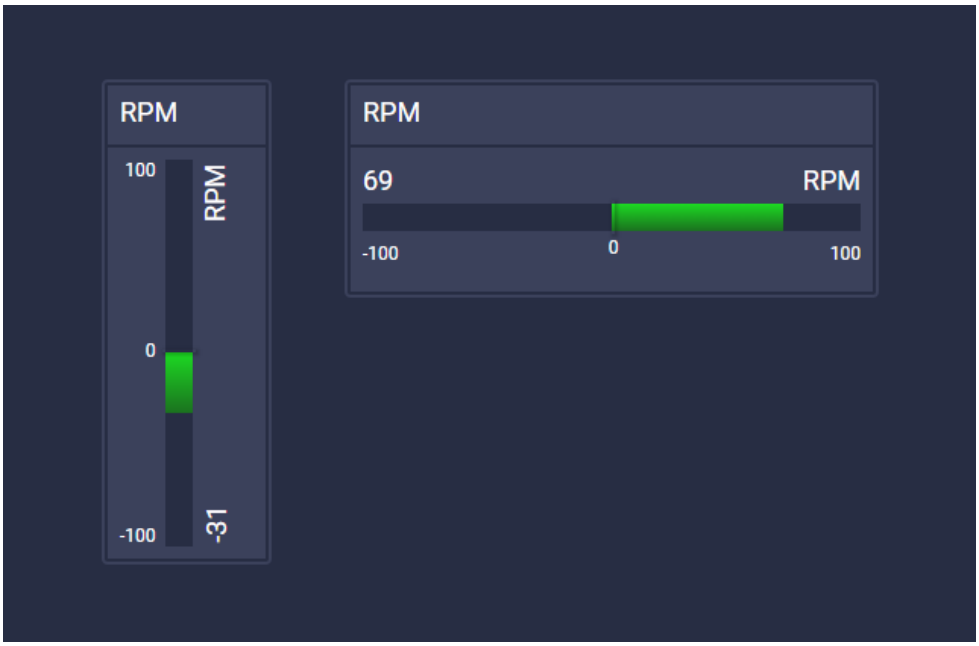
Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	15 .. screen width	320
	Height		Number	15 .. screen height	48
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Data source that instrument is connected to (e.g. Nominal Power setpoint, Generator frequency value, etc.)	**Data point selection (page 110)**		
Text	Label Font Size	Font size of the label shown in compact mode.	Number	6-200 px	14 px
	Font Size	Font size of the text	Number	6-200 px	18 px
	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Design	Editable	Enables or disables possibility to edit value. Visible only for setpoint data points.	Checkbox	0/1	1
	Compact	Compact mode on / off. The Compact mode has a tile (2 rows) design.	Checkbox	0/1	0
	Label	Data point name displayed on / off	Checkbox	0/1	1
	Value	Data point value displayed on / off	Checkbox	0/1	1
	Units	Data point unit displayed on / off	Checkbox	0/1	1

Category	Name	Note	Input type	Range	Default
	Unit Space	Adjusts the unit position towards the right datarow border. This property is hidden for Compact mode.	Number	8 .. 300 px	48 px
	Border Color	Border color of the instrument. Transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background Color of the instrument	**Color picker (page 112)**		#3B415B
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.14 Deviator

The Deviator instrument is used for monitoring the deviations between the Base value and the user-specified data point. You will notice similarities between Bar Graph and Deviator simply because it is based on the Bar Graph. Some of the main differences are, that you can not set up the base and Scale like with Bar Graph because they were made statically default. However you can set the base value for deviations and it will calculate them based on that.



Editor properties

Category	Name	Note	Input type	Range	Default
General (expanded)	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen height – instrument height	200
	Height		Number	100 .. screen height – instrument height	200
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
Bars	Add Bars	Add Bars (up to 32)	**Multiselect (page 112)**	1..32	
	Edit Bar	Change the data point of the selected bar	**Data point selection (page 110)**	Selected Bar	
	Delete Bar	Delete the selected bar	Select	Selected Bar	
	Bar list	Shows the added bars	Select	One bar	
Deviator	Deviator Base	One of the	Select	Constant/Data Point	

Category	Name	Note	Input type	Range	Default
Base	Type	following types can be used: › **Constant** - numeric value defined by the user › **Data Point**			
	Deviator Base Value	Based on Deviator Base Type › Enter a constant › Select a data point	**Deviator Base (page 109)**		
Header	Label Type	Type of the label (custom or automatically set to the name of the selected data point)	Select	Data Point Name/Custom	Data Point Name
	Label	User defined label, available for Custom label type only	Text	1 .. 64 UNICODE char	Name (for Custom type)
	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Design	Type	Orientation of the instrument	Select	Vertical/Horizontal	Vertical
	Scale 0% Type	One of the following types can be used: › Constant – numeric value defined by user › Data Point – usually a setpoint	Select	Constant/Data Point/Default	Default

Category	Name	Note	Input type	Range	Default
		▸ Default – low limit of the Bar 1 data point			
	Scale 0% Value	Based on Scale 0% type: ▸ Enter a constant ▸ Select a data point ▸ (not available for Default)	**Scale (page 109)**		
	Scale 100% Type	One of the following types can be used: ▸ Constant – numeric value defined by user ▸ Data Point – usually a setpoint ▸ Default – high limit of the Bar 1 data point	Select	Constant/Data Point/Default	Default
	Scale 100% Value	Based on Scale 100% Type: ▸ Enter a constant ▸ Select a data point ▸ (not available for Default)	**Scale (page 109)**		
	Expand Scale	Expands existing scale to 125%	Checkbox		Unchecked
	Border Color	Border color of the instrument. The transparent color	**Color picker (page 112)**		#3B415B

Category	Name	Note	Input type	Range	Default
		can be set to make the border invisible.			
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
	Bar Background Color	Background color of the bar. The transparent color can be set to make the bar background invisible.	**Color picker (page 112)**		#272D43
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Warning limits (Warning limit 1, 2, 3, 4)	Active	Warning limit activation	Checkbox	0/1	Unchecked
	Type	value type selection – Constant (numeric value) or Data Point (e.g. a setpoint)	Select	Constant/Data Point	Constant
	Value	Based on Type: › Enter a constant (e.g. 250) › Select a data point (e.g. Nominal power)	**Warning limits (page 108)**		0
	Limit Level	Level 1 for warning (yellow), Level 2 for shutdown (red)	Select	Level 1/Level 2	Level 1
	Limit direction	Warning limit direction: Up for over limit, Down for under	Select	Up/Down	Up

Category	Name	Note	Input type	Range	Default
		limit			
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

7.15 Engine

The Engine instrument represents the status of an engine, which is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

Note: *The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Engine (or empty if not supported or found in the selected device), the property is read-only	**Data point selection (page 110)**	automatically selected along with device if available	
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.16 Fault Reset

Button used to confirm alarms (execute Fault reset command):

- alarms for Source device in Alarm list will no longer be marked with asterisk
- inactive alarms for Source device will be deleted from Alarm list

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	{Instrument Type} * {Last number +1 of in*)struments according type}
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Engine – Fault Reset command (if available), the property is read-only	**Data point selection (page 110)**		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.17 Generator

Type Generator

Type Bank

The Generator instrument represents the status of a generator which is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

Note: *The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Generator | Bank (or empty if not supported or found in the selected device), the property is read-only	**Data point selection (page 110)**	automatically selected along with device if available	
Design	Icon	Icon of the instrument	Select	Generator | Bank	Generator
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.18 Horn Reset

Button that executes the Horn Reset command.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Engine – Horn Reset command (if available), the property is read-only	**Data point selection (page 110)**		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

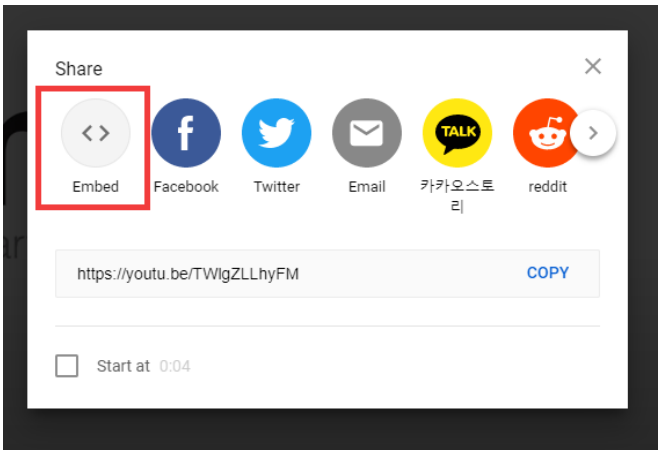
7.19 IFrame

Instrument that represents inline frame for embedding another content. With the IFrame instrument it is possible to have for example an instruction video embedded in a custom screen.

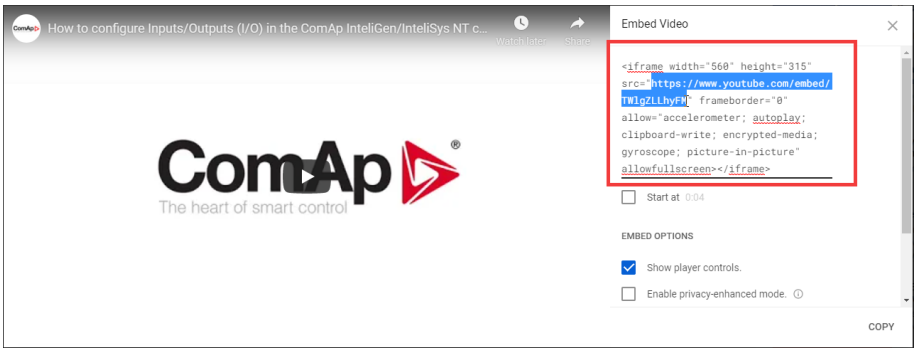
To configure IFrame instrument, user has to set its Url (src) property to a valid source path to a content that supports embedding by an iframe element.
Here is an example how to insert an IFrame Url for a video:

1. Click "Share" button below the YouTube video

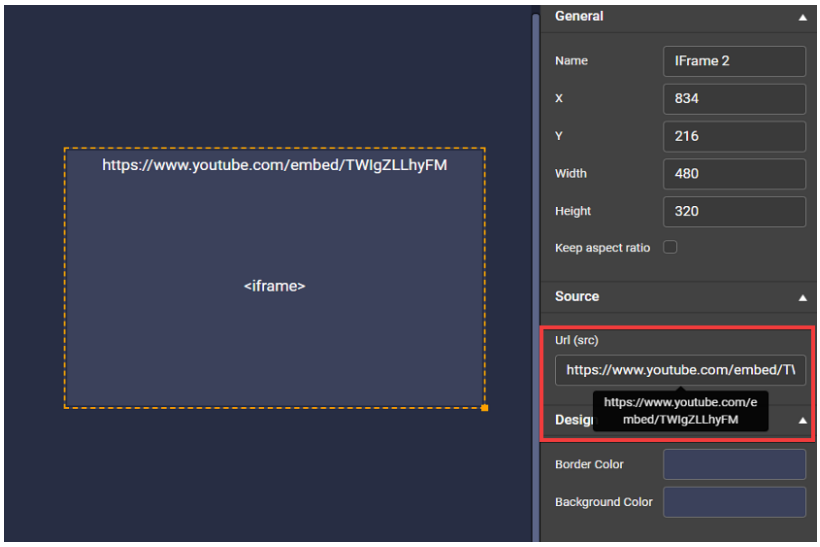
2. Select "Embed" share option



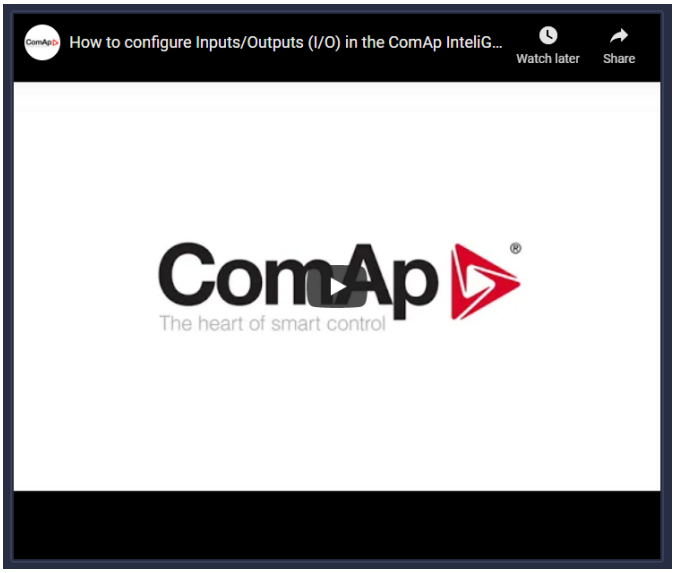
3. Select and copy only the src value of generated IFrame component



4. Paste the src value to the Url (src) property of an IFrame instrument in the Editor
   If there is a configured source for the instrument, the path is visible within the top of the instrument container in Editor. This information can not overlap instrument size so only first path row is visible.



5. IFrame content is then loaded in Runtime and Preview. Rendered content fits the instrument size.



If no source is set or the source is not accessible the IFrame instrument content in Runtime or Preview is empty.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen	0

Category	Name	Note	Input type	Range	Default
				height – instrument height	
	Width	Width and height of the instrument	Number	20 .. screen width	480
	Height		Number	20 .. screen height	320
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Url (src)	<iframe> element source path (url)	Text	0 .. 256 UNICODE chars	
Design	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.20 Image

Instrument that represents an image. Use the Image instrument from the Instruments panel, or simply an image from the Image Gallery for which the Source property is already set.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	X		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	10 .. screen width	320
	Height		Number	10 .. screen height	320
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Checked for images from the Gallery, Unchecked otherwise
Image	Source	Source image file name	Image Source	The size of the image file is restricted to 3 MB	file name for images from the Gallery, empty otherwise
	Adjust size	Adjust the instrument size to fit the image	Button		
Design	Border Color	Border color of the instrument. The transparent color can be	**Color picker (page 112)**		Transparent

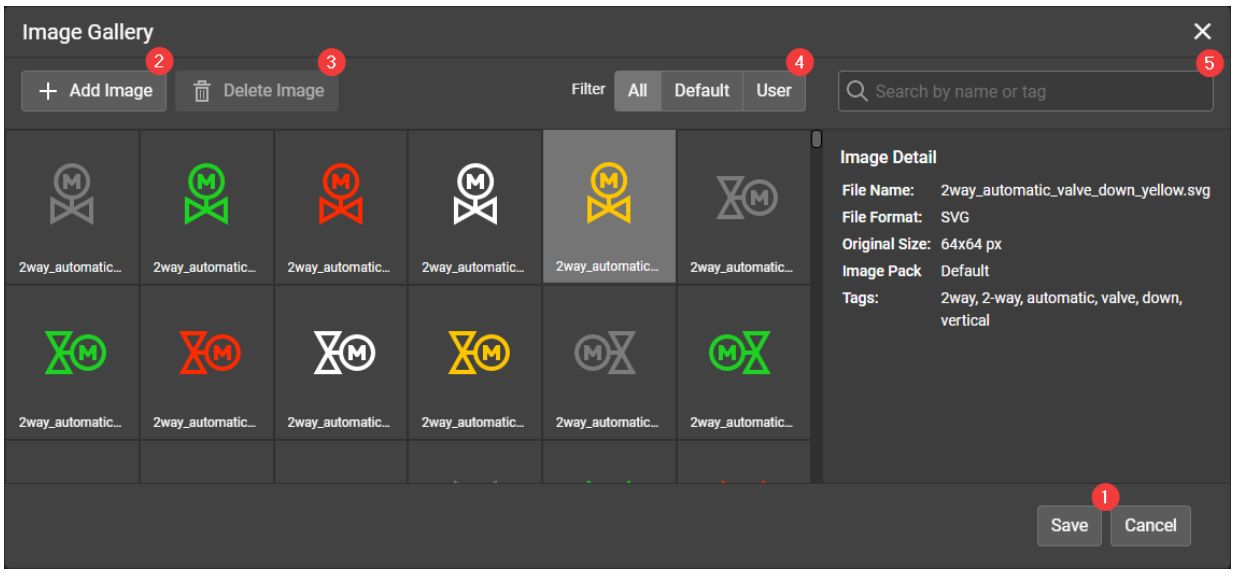
Category	Name	Note	Input type	Range	Default
		set to make the border invisible.			
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		Transparent
Dynamic image	Device	Device that instrument is connected to (used for image dynamic switching)	Select	List of devices	
	Binary Bit Data Point – blue color the most significant bit (MSB)	Binary bit data point used for image dynamic switching	**Data point selection (page 110)**	Filter: binary data points	
	Binary Bit Data Point – yellow color the least significant bit (LSB)	Binary bit data point used for image dynamic switching	**Data point selection (page 110)**	Filter: binary data points	
	Value Combination 00	Image source for 00 value combination of the selected Binary Bit Data Points	Image Source		
	Value Combination 10	Image source for 10 value combination of the selected Binary Bit Data Points	Image Source		
	Value Combination 01	Image source for 01 value combination of the selected Binary Bit Data Points	Image Source		
	Value Combination 11	Image source for 11 value combination of the selected Binary Bit Data Points	Image Source		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always	Select	List of devices	

Category	Name	Note	Input type	Range	Default
		visible.			
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.20.1 Image source dialog

- The modal Image Gallery dialog contains images (illustration image, photo, site topology, ...), which can be selected as the source of the Image instrument.
- Click Save 1 to set the selected image source or Cancel 1 to close dialog without changes.
- Some images are pre-defined by default, custom images can be also added to the Image Gallery 2 .
- User images can be deleted 3 .It is even possible to delete images that are currently used by image instrument(s) in any site (including locked ones). In that case, a confirmation dialog will appear specifying the locations of the image instruments, and additional confirmation is required. The image instruments themselves won't be deleted, only their image sources. The instruments stay on the screen even though all of their image sources can be empty.
- Use filter by packs 4 or search by file name or tags 5 function to explore gallery.
- Click an image to select it & to display image details 6 .



7.20.2 Dynamic Image

- The displayed image can be dynamically switched based on the selected bits' values.
- It is possible to choose only one of the bits for switching 2 images, or both of them for switching up to 4 images.
- If you select only one of the binary bits data points, value of the other one will be 0.
- To select the Binary Bit Data Point the Devices has to be selected..
- Only image sources for reachable combinations for selected bit(s) will be used (e.g. if you choose only the most significant bit (blue), then the only combinations 00 and 10 are reachable). Sources for unreachable combinations are ignored (but they will be saved in instrument definition).
- The source for the combination 00 is synchronized with the source for static image.
- Editor will show only the image for the 00 value combination, in Preview or Runtime the relevant image will be displayed.
- It is not required to select images for all the combinations.

7.21 LED

LED instrument is used to monitor states (values) of binary communication objects. User can select color and which bit value (0 or 1) is for "On" state.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	24
	Height		Number	10 .. screen height	24
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Checked
Source	Device	Device that instrument is connected to	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument data	**Data point selection (page 110)**	Filter: binary data points	
	Invert Value	Invert bit value if checked: 0 = On, 1 = Off if unchecked: 1 = On, 0 = Off	Checkbox	0/1	Unchecked
Design	Shape	Shape of an instrument, uncheck Keep aspect ratio for the rectangle shape	Select	Round, Square	Round
	Color	active LED color, (inactive LED is always gray)	**Color picker (page 112)**		#ff2b00
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.22 Line

The Line instrument is defined by two points. The line can also be diagonal.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
Position	X1	[X, Y] coordinates of the start point	Number	0 .. screen width – instrument width	
	Y1		Number	0 .. screen height – instrument height	
	X2	[X, Y] coordinates of the end point	Number	0 .. screen width – instrument width	X1 + 100
	Y2		Number	0 .. screen height – instrument height	Y1
Design	Line Width	Width of the line	Number	1 .. 100	2
	Color	Line color	**Color picker (page 112)**		Gray (#7c7c7c)
	Line Style	Line style	Select	Solid. Dotted. Dashed. Dash Dot.	Solid
	Line Cap	Line cap. Option Rounded and Squared extend the line by the half of the line width on each side.	Select	None. Rounded, Squared	None
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Shortcut	Action
Shift + Mouse down -> Mouse move	Keeps horizontal or vertical orientation of a line when drag & drop. Flips the line orientation according to the mouse moving to horizontal or vertical.

7.23 Load

Type Load

Type Ship

The Load instrument represents the status of the load, which is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

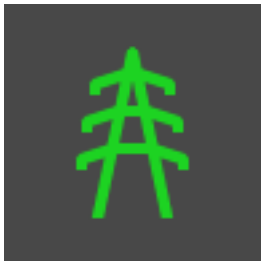
Note: *The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Load | Ship (or empty if not supported or found in the selected device), the property is read-only	**Data point selection (page 110)**	automatically selected along with device if available	
Design	Icon	Icon of the instrument	Select	Load | Ship	Load
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.24 Mains



The Mains instrument represents the status of mains, which is indicated by color:

- Green – OK
- Yellow – warning
- Red – shutdown
- Grey – inactive

Note: *The color reflects the status of the respective LEDs of the controller (yellow = green + red) and depends on the controller type.*

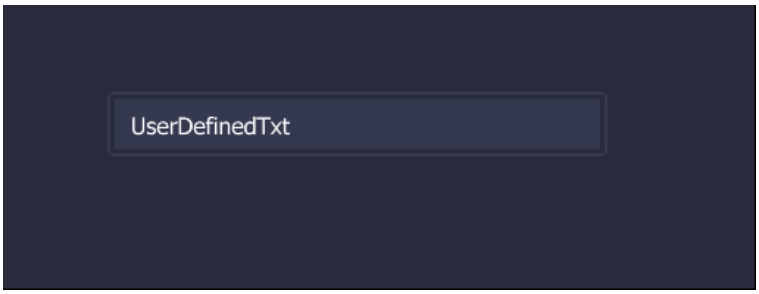
Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Mains (or empty if not supported or found in the selected device), the property is read-only	**Scale (page 109)**	automatically selected along with device if available	
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the	**Data point selection (page 110)**	Filter: binary data points	

Category	Name	Note	Input type	Range	Default
		instrument is always visible.			
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.25 Markdown Text



The Markdown Text instrument is used for a custom text. It supports the Markdown (markup language) and some HTML syntax, which allows text formatting.

The Markdown Text instrument provides a validation of the inserted input, so it is not possible to process any XSS vulnerabilities. Any part of the text that is evaluated as a possible security threat is automatically ignored.

Example: "javascript:...", "<script>/*+...+*/</script>" or "<iframe>...</iframe>".

Note: *The **IFrame (page 155)** is available instead.*

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the	Number	20 .. screen	320

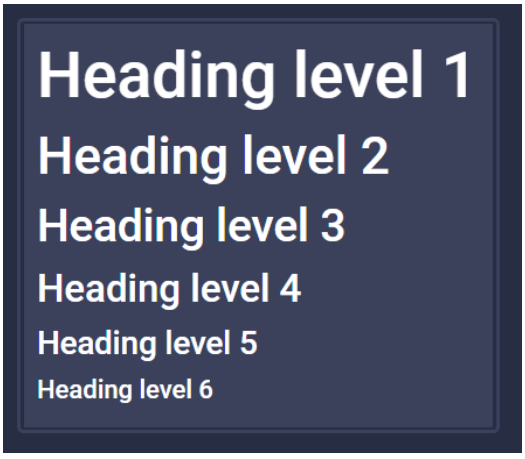
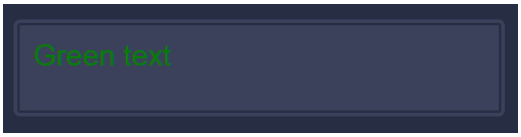
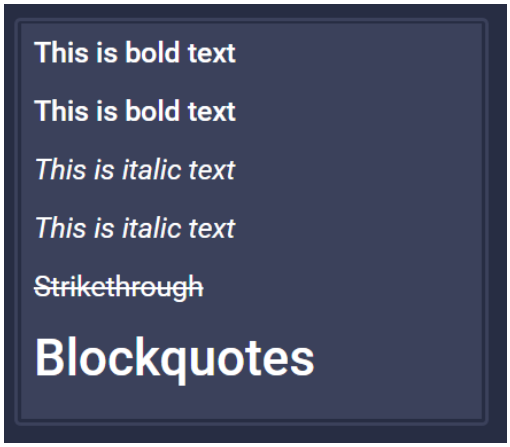
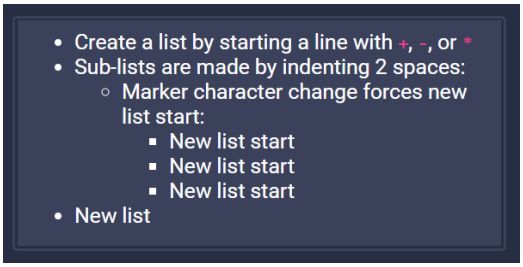
Category	Name	Note	Input type	Range	Default
		instrument		width	
	Height		Number	20 .. screen height	48
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Text	"Edit text"	Button that opens a dialog where custom text can be inserted **)	Button		
	Padding	Creates space around the text	Number	0-48 px	8 px
Design	Border Color	Color of the instrument border. Transparent color can be set to make the border invisible	**Color picker (page 112)**		#3B415B
	Background Color	Color of the instrument background	**Color picker (page 112)**		#3B415B
	Hide scrollbars	When text does not fit into instrument and this checkbox is checked, scrollbars are not shown	**Color picker (page 112)**		Unchecked
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

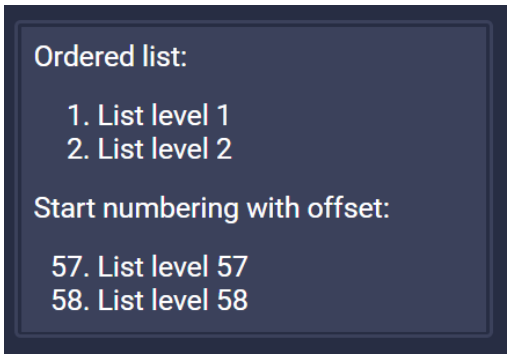
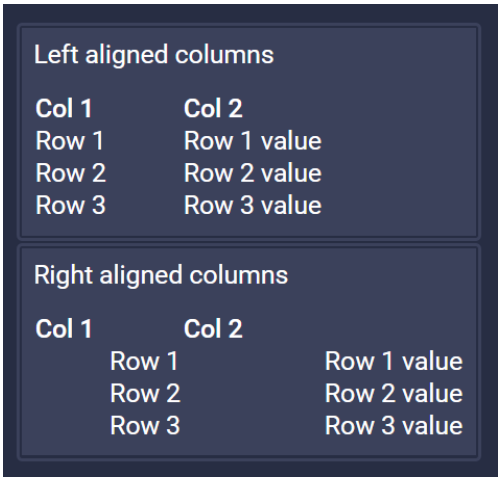
Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Note: ***)*
You can double-click on the instrument to open a dialog where custom text can be inserted

Note: *See Markdown Guide for details.(Examples can be found there.)*

Examples

Heading	# Heading level 1 ## Heading level 2 ### Heading level 3 #### Heading level 4 ##### Heading level 5 ###### Heading level 6	
Text color	Green text	
White space	using &#10240 (Braille blank) example: big &#10240 &#10240 space	
Line Break	1 2	
Paragraph	1 2	
Emphasis	**This is bold text** __This is bold text__ *This is italic text* _This is italic text_ ~~Strikethrough~~ >Blockquotes ***Note:*** *Use Line break at the end of each line to get the result on the right*	
Unordered list	+ Create a list by starting a line with `+`, `-`, or `*` - Sub-lists are made by indenting 2 spaces: _ _- Marker character change forces new list start: _ _ _ _- New list start _ _ _ _- New list start _ _- New list start * New list	

	Note: *Symbol "_" stands for a space.*	
Ordered list	1. List level 1 2. List level 2	
Ordered list (Start numbering with offset)	57. List level 57 1. List level 58	
Table (Left aligned columns)	| Col 1 | Col 2 | | ------ | ---------- | | Row 1 | Row 1 value | | Row 2 | Row 2 value | | Row 3 | Row 3 value |	
Table (Right aligned columns)	| Col 1 | Col 2 | | ------: | ----------: | | Row 1 | Row 1 value | | Row 2 | Row 2 value | | Row 3 | Row 3 value |	

7.26 Mode Selector

Mode Selector shows all available controller modes (depends on the device type). User can change the controller mode (setpoint) by clicking any available mode on Mode Selector (there is a visual feedback - button pressed).

1	Current Active mode (e.g. OFF) is always highlighted in green color
2	Mode requested by user, different from active mode and not-yet active is highlighted

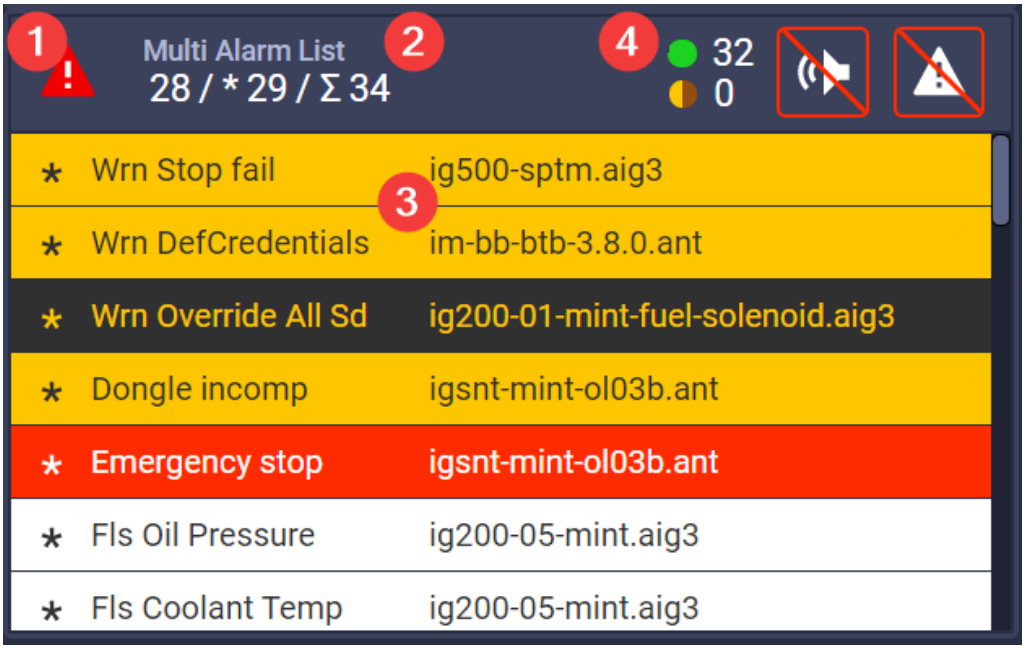
Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	30 .. screen width	320
	Height		Number	30 .. screen height	48
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Controller mode, the property is read-only	**Data point selection (page 110)**		
Text	Font Size	Font size of the text	Number	6-200 px	18 px
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.27 Multi Alarm List

The Multi Alarm List instrument is used to display alarms on a site for all connected devices. Alarms are sorted by relevance. They are grouped by protection level in this order: Level2 (Shutdown), Level3 (Sensor Fail), Level1 (Warning), NoLevel (Others), ECU. Multi Alarm List contains following information:



1	Exclamation mark icon	› Red when an alarm record exists › Red & flashing when an unconfirmed alarm record exists › Grey when the alarm list is empty
2	Number of alarm records	Active / unconfirmed (alarms marked with asterisk) / total
3	List of active alarms	› Level 1 (Warnings) highlighted in yellow › Level 2 (Shutdowns) highlighted in red › Level 3 (Sensor Fail) – black&white › ECU alarm – blue
4	Connection status of all devices in the site	› Number of connected devices – green icon › Number of not connected (connecting or disconnected) devices – yellow&brown icon

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	300 .. screen width	320
	Height		Number	150 .. screen height	320
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Header	Horn Reset	Shows Horn Reset button in header of the instrument.	**Data point selection (page 110)**		True
	Fault Reset	Shows Fault Reset button in header of the instrument.	Checkbox		True
	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Design	Border Color	Border color of the instrument. Transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		Transparent
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

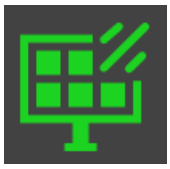
Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Note: *For the controllers with the selective fault reset support, the Fault Reset button resets only the visible alarms*

Note: *The Horn Reset button provides the ability to execute the horn reset command for multiple devices with visible active alarms*

7.28 PV



The PV instrument represents the status of photovoltaic system, which is indicated by color:

- Green – OK
- Red – shutdown
- Grey – inactive

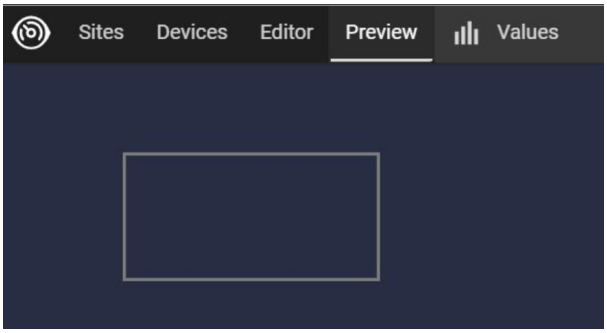
Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Photovotaic (or empty	**Scale (page 109)**	automatically selected along with	

Category	Name	Note	Input type	Range	Default
		if not supported or found in the selected device), the property is read-only		device if available	
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.29 Rectangle



Instrument that represents a rectangle (filled or just outline).

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen width – instrument width	
	Width		Number	5 .. screen width – instrument width	200
	Height		Number	5 .. screen height – instrument height	100
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Design	Border width	Width of the border line	Number	0 ..100	2
	Line Style	Line style	Select	Solid. Dotted. Dashed. Dash Dot.	Solid
	Border color	Color of the border line	**Color picker (page 112)**		Gray (#7c7c7c)
	Background color	Background color or transparent	**Color picker (page 112)**		Transparent
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page**	Select	None, Show,	None

Category	Name	Note	Input type	Range	Default
		114)		Hide	
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.30 Shore Connector

The Shore Connector instrument represents the connection of a ship to a shore energetic system. It also represents the connection status, which is indicated by color:

- Green – OK
- Red – shutdown
- Grey – inactive

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Shore Connector (or empty if not supported or found in the selected device), the property is read-only	**Scale (page 109)**	automatically selected along with device if available	
Visibility	Device	Device that is linked to the visibility property. If	Select	List of devices	

Category	Name	Note	Input type	Range	Default
		the selected device is not connected, then the instrument is always visible.			
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select	Screen selection	*No link*

***Note:** *)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.31 Start Engine

The Start Engine button is used to start an engine (it sends the Start command to the selected device). The button conveys 2 possible states:

- Enabled – green color
- Disabled – gray color (eg. "Access lock" state applied on the button)

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE char	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Engine – Start command (if available), the property is read-only	**Data point selection (page 110)**		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.32 Stop Engine

The Stop Engine button is used to stop an engine (it sends the Stop command to the selected device). The button conveys 2 possible states:

- Enabled – red color
- Disabled – gray color (e.g. "Access lock" state applied on the button)

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	10 .. screen width	40
	Height		Number	10 .. screen height	40
Source	Device	Device that instrument is connected to	Select	List of devices	
	Data Point	Engine – Stop command (if available), the property is read-only	**Data point selection (page 110)**		
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.33 Synchroscope

Image 5.4 Synchroscope

1	Value
2	Unit
3	Shift
4	Window

Synchroscope is a rounded meter with a pointer. It displays the current value of the selected data point. It is designed especially for representing phasing angle value. The scale covers angle value of range -180.0° -> +180.0°. Phase window is graphically represented as the range of the mirrored value around the phase angle.

Note: *Here is how to set up a Synchroscope using the InteliGen 1000. Note that the values may vary if using a different device.*

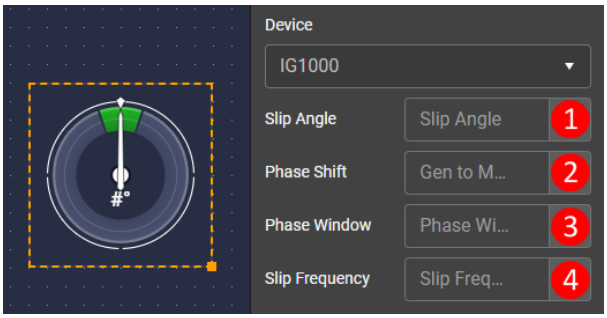


Image 5.5 Synchroscope Settings Example

1	Slip Angle **(Values -> Generator -> Slip Angle)**
2	Phase Shift **(Setpoints -> Synchronization -> Gen to Mains/Bus Phase Shift)**
3	Phase Window **(Setpoints -> Synchronization -> Phase Window)**
4	Slip Frequency **(Values -> Generator -> Slip Frequency)**

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen width	160
	Height		Number	150 .. screen height	200
Source	Device	Device that instrument is connected to	Select	List of devices	
	Slip Angle	A source for Synchroscope Angle	**Data point selection (page 110)**	Filter: numeric data points	
	Phase Shift	A source for Synchroscope Shift -	**Data point selection**	Filter: numeric data points	

Category	Name	Note	Input type	Range	Default
		the window is shifted by the value specified in this Data point	**(page 110)**		
	Phase Window	A source for Synchroscope Window - acceptable range where the phasing is still allowed	**Data point selection (page 110)**	Filter: numeric data points	
	Slip Frequency	A source for Synchroscope Slip Frequency - synchroscope animation speed and direction is binded to the value of selected Data point	**Data point selection (page 110)**	Filter: numeric data points	
Design	Animated	Synchroscope animation.	Checkbox	0/1	1
	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#272D43
Text	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action**	Select	None, Show,	None

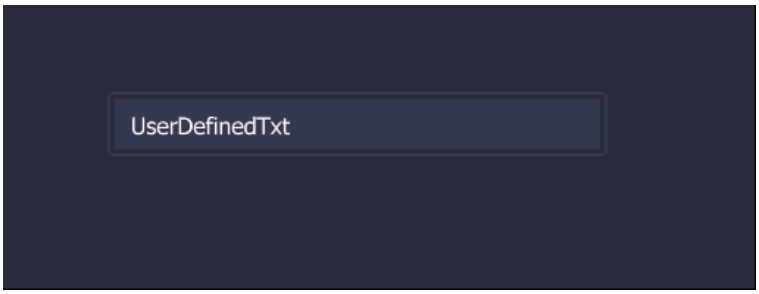
Category	Name	Note	Input type	Range	Default
		(page 114)		Hide	
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	Link to another screen in site	Select		*no link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Data quality indication

There is a yellow indication "Slow communication" in case of communication delay longer than 100 ms. It means there are some latency issues with communication, or you are connected via connection type which is not suitable for synchronization e.g. AirGate.

7.34 Text



The Text instrument is used for a custom text. It allows to set basic text properties as Font Style, Text Color, Text Alignment, Font Style.

Editor properties

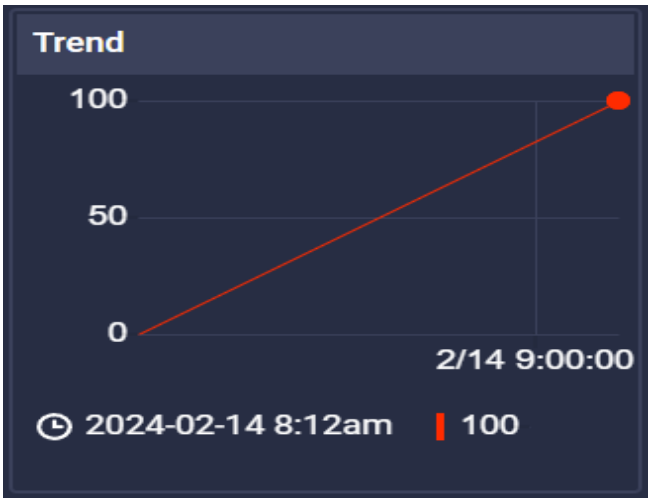
Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	0
	Y		Number	0 .. screen height – instrument height	0
	Width	Width and height of the instrument	Number	20 .. screen width	320
	Height		Number	20 .. screen height	48
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Text	"Edit text"	Button that opens a dialog where a custom text can be inserted **)	Button		
	Font Size	Font size of the text	Number	6-200 px	18 px
	Padding	Creates space around the text	Number	0-48 px	8 px
	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
	Text Alignment	Alignment of the text	Select	Left, Center, Right	Left
Font Style	Font Style of the text	Select	Bold, Italic, Underline	None	
Design	Border Color	The color of the instrument border. Transparent color can be set to make the border invisible	**Color picker (page 112)**		#3B415B
	Background Color	The color of the instrument background	**Color picker (page 112)**		#3B415B
	Hide scrollbars	When text does not fit into instrument and this checkbox is checked, scrollbars are not shown	**Color picker (page 112)**		Unchecked
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True
Link	Link	The link to another screen in site	Select	Screen selection	*No link*

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

Note: ***)*
You can double-click on the instrument to open a dialog where custom text can be inserted

7.35 Trend



The Trend instrument shows a trend of selected data point values.

The filled point at the end of a trend line indicates the last measured sample in a series of data.

When the point appears alone, without a preceding trend line, it signifies the first measured sample in a series.

In contrast, a gap in the trend line, without any filled points around, indicates a period during which the data were invalid or the device was offline.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument	Number	100 .. screen width	320
	Height		Number	100 .. screen height	320
	Keep Aspect Ratio	Keeps aspect ratio during resizing	Checkbox		Unchecked
Source	Device	Device that Trend is connected to	Select	List of devices	
	Data Point	A source for Trend plotting data (eg. Actual power)	**Data point selection (page 110)**	Filter: numeric or binary data points	
Scale	Scale 0% Type	One of the following types can be used: › Constant – numeric value defined by user › Default – low limit of the Source data point	**Scale (page 109)**	Constant/Default	Default
	Scale 0% Value	Based on Scale 0% type: › Enter a constant › (not available for Default)	Number		
	Scale 100% Type	One of the following types can be used: › Constant – numeric value defined by user › Default – high limit of the Source data point	Select	Constant/Default	Default
	Scale 100% Value	Based on Scale 100% Type: › Enter a constant	Number		

Category	Name	Note	Input type	Range	Default
		› (not available for Default)			
	Time Range	Maximum data time span [h]	Number	1 .. 24 h	1
	Sample Period	Sampling period for data point value acquisition	Number	2 .. 300 s	2
Header	Header	Toggle header visibility	Checkbox		Checked
	Text	Header text	Text	1..32 UNICODE char	Trend
	Background Color	Background color of the header. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
Design	Border Color	Border color of the instrument. The transparent color can be set to make the border invisible.	**Color picker (page 112)**		#3B415B
	Background Color	Background color of the instrument. The transparent color can be set to make the background invisible.	**Color picker (page 112)**		#3B415B
	Line Color	Color of the trend line	**Color picker (page 112)**		#ff2b00
	Line Width	Trend line width	Number	1 .. 20	2
	Legend	Toggle legend visibility	Checkbox		Checked
	Left Margin	Margin for left border	Number	0 .. 200	60
	Bottom Margin	Margin for bottom border	Number	0 .. 200	28
Text	Font Size	Size for trend legend and axis font	Number	6 .. 200	18
	Text Color	Color of the text	**Color picker (page 112)**		#FFFFFF
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	

Category	Name	Note	Input type	Range	Default
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

7.36 Wire Junction

Instrument that represents a connection of 2 busbars (wires). It can be linked to a LED type data point to indicate its status in color.

Editor properties

Category	Name	Note	Input type	Range	Default
General	Name	User name of the instrument	Text	1 .. 64 UNICODE chars	*)
	X	[X, Y] coordinates of top left corner	Number	0 .. screen width – instrument width	
	Y		Number	0 .. screen height – instrument height	
	Width	Width and height of the instrument – fixed ratio (height=width)	Number	6 .. screen width	10
	Height		Number	6 .. screen height	10
Source	Device	Device that instrument is connected to	Select	List of devices	

	Data Point	Data source that instrument is connected to. It can be data point of either BIT or LED type.	**Data point selection (page 110)**	LED type data points	
	Invert Value	Available only for data point of BIT type. Invert bit value if checked: 0 = *On*, 1 = *Off* if unchecked: 1 = *On*, 0 = *Off*	Checkbox	0/1	Unchecked
Design	Active State Color	Available only for data point of BIT type. Defines color for bit in *On* state.	**Color picker (page 112)**		#1DD322
	Inactive State Color	Available only for data point of BIT type. Defines color for bit in *Off* state.	**Color picker (page 112)**		#7C7C7C
Visibility	Device	Device that is linked to the visibility property. If the selected device is not connected, then the instrument is always visible.	Select	List of devices	
	Data Point	Source for instrument visibility property. If the selected data point is invalid, then the instrument is always visible.	**Data point selection (page 110)**	Filter: binary data points	
	Visibility Action	**Visibility action (page 114)**	Select	None, Show, Hide	None
	Indicate Invalid Data as Error	Indicates invalid data point as general error.	Checkbox		True

Note: **)*
*{Instrument Type} * {Last number +1 of instruments according type}*

8 Automatically generated screen

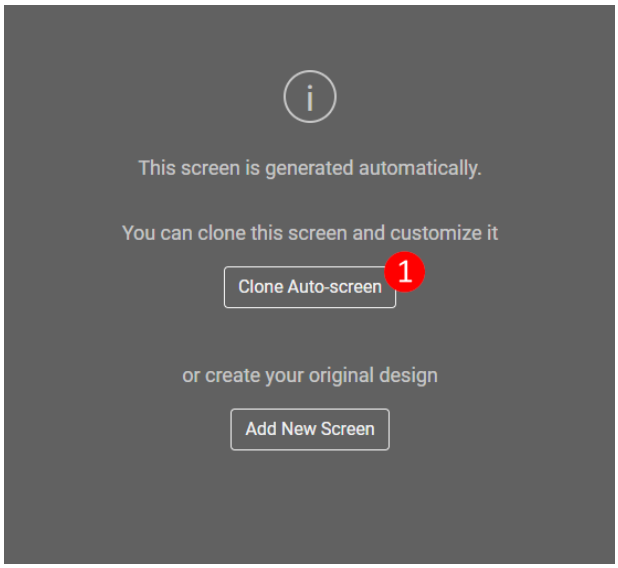
back to Table of contents

The automatically generated screen is named "Auto-screen" and cannot be deleted, but can be set as hidden. The "Auto-screen" can be found in **Screens panel (page 54)**. The content of this screen is generated automatically when entering in the **Preview (page 73)** tab or in the Runtime tab in **Runtime (page 77)**. Each device in a site has a predefined column template, which is rendered in the screen.

- There are template instruments shared by all devices, see **Automatically generated screen (page 191)**
- Single-line diagrams are application-specific and can be different, see **Automatically generated screen (page 191)**
- The device column template can show specific states, see **Device column template states (page 232)**
- Any instrument within the template can show specific states, see **Instrument non-standard states (page 231)**
- Can be cloned and edited to user's needs

8.1 Editing Auto-screen

To edit edit "Auto-screen", click on "Clone Auto-screen" button located in from canvas editor while having Auto-screen selected.



After clicking the button 1, a new screen is created based on automatically generated screen, i.e. a template for each device is used. All of the instruments of the new screen are linked to their respective source data points and visibility data points if instruments in the template use any.

The new created screen can then be edited like any other screen.

In case the site contains one or more devices without imported data points, the Auto-screen is cloned, but no instruments are displayed for these devices.

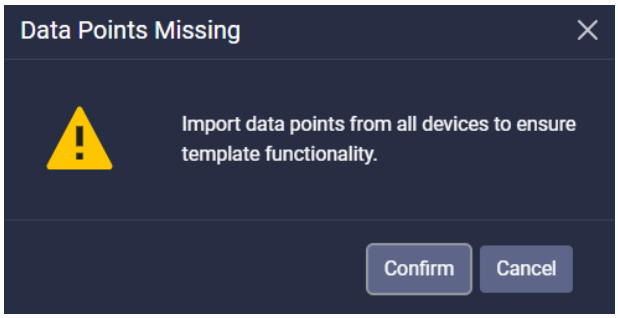
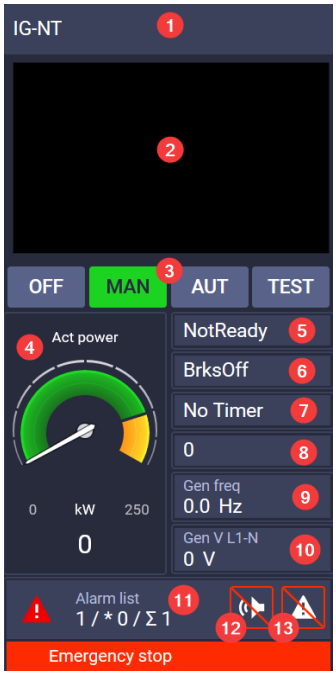


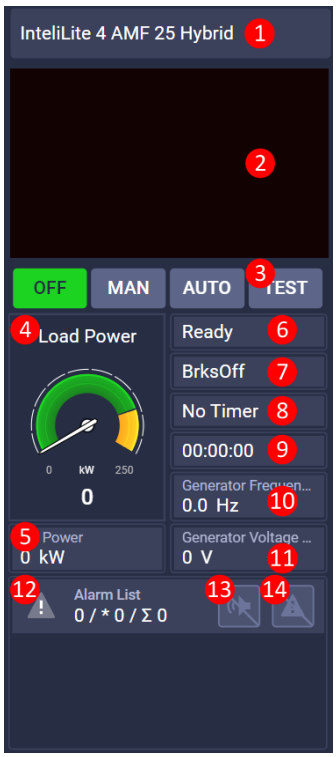
Image 6.1 Import data points from all devices to ensure template functionality

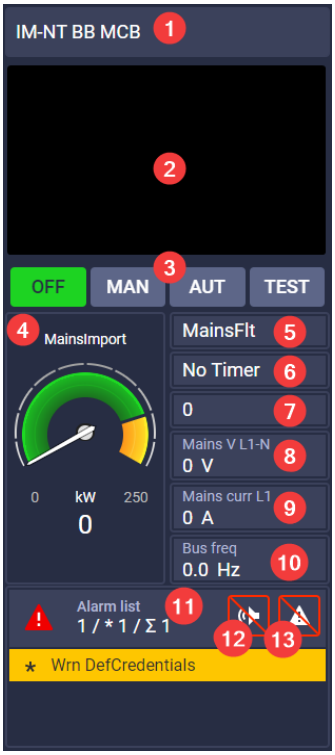
The same situation occurs if the device has data points imported from previous version of InteliSCADA. You should import data points to assure correct template will be used for the generated screen, see **Import Data Points button (page 43)**

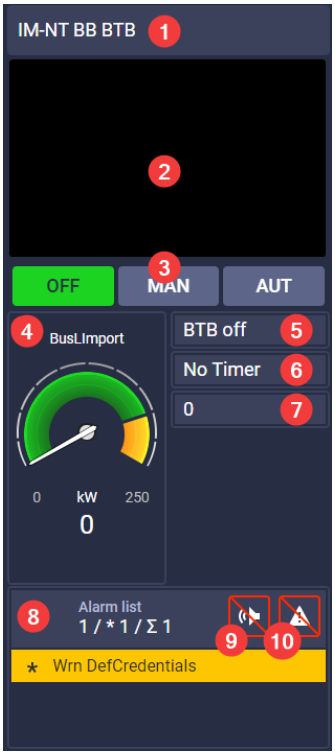
8.2 Device templates

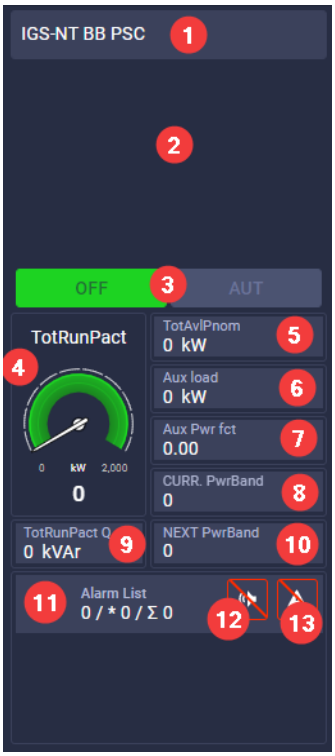
8.2.1 Controllers

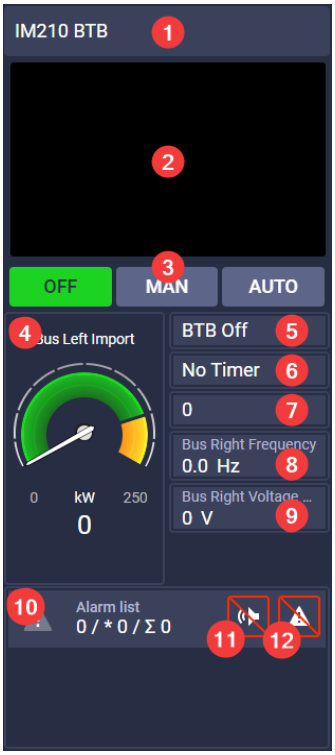
Application	Default template	Instrument	
SPTM SPI AMF MINT (see also other device's variants)		1	Device name – defined by user
		2	Single-line diagram (see table below for details)
		3	Mode selector
		4	Analog meter › Warning limit (yellow color) is automatically set from Nominal power Setpoint value up › Scale is defined from 0 kW to 125% value of Nominal power Setpoint.
		5	Engine State
		6	Breaker State
		7	Timer Text (eg. "Cooling")
		8	Timer Value (eg. "Cooling" time left – seconds)
		9	Generator Frequency
		10	› Generator Voltage L1-N › Generator Voltage ph-ph (only for GeCon Marine controllers)
		11	Alarm List
		12	Horn Reset Button
		13	Fault Reset Button

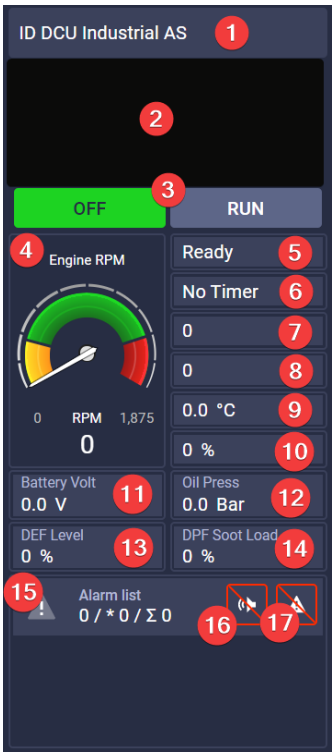
Application	Default template	Instrument	
AMF (Hybrid)		1	Device name – defined by user
		2	Single-line diagram (see table below for details)
		3	Mode selector
		4	Analog meter › Warning limit (yellow color) is automatically set from Nominal power Setpoint value up › Scale is defined from 0 kW to 125% value of Nominal power Setpoint.
		5	PV Power
		6	Engine State
		7	Breaker State
		8	Timer Text (eg. "Cooling")
		9	Timer Value (eg. "Cooling" time left – seconds)
		10	Generator Frequency
		11	Generator Voltage L1-N
		12	Alarm List
		13	Horn Reset Button
		14	Fault Reset Button

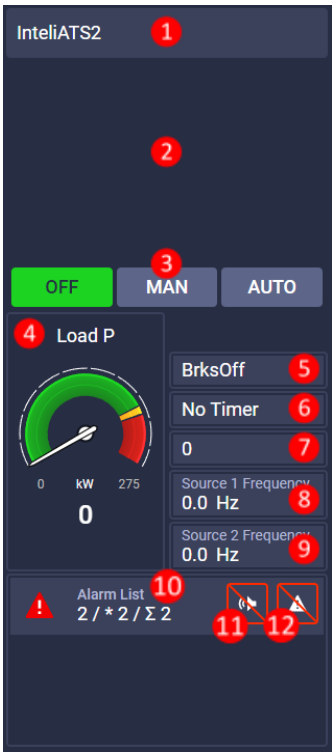
Application	Default template	Instrument	
MCB MGCB		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter › Warning limit (yellow color) is automatically set from Mains Import value › Scale is defined from 0 kW to 125% value of Mains Import.
		5	Breaker State
		6	Timer Text
		7	Timer Value
		8	Mains Voltage L1
		9	Mains Current L1
		10	Bus Frequency
		11	Alarm List
		12	Horn Reset Button
		13	Fault Reset Button

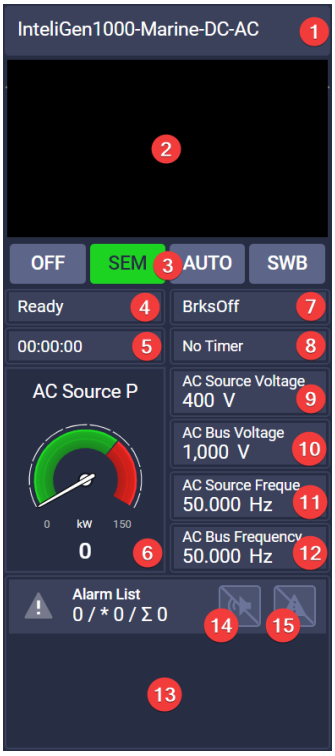
Application	Default template	Instrument	
BTB (IGS NT)		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter › Warning limit (yellow color) is automatically set from Bus Left Import value › Scale is defined from 0 kW to 125% value of Bus Left Import.
		5	Breaker State
		6	Timer Text
		7	Timer Value
		8	Alarm List
		9	Horn Reset Button
		10	Fault Reset Button

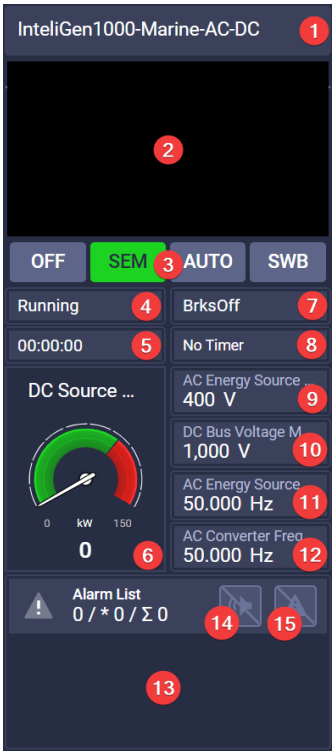
Application	Default template	Instrument	
PSC (IGS)		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter
		5	TotAvlPnom
		6	Aux load
		7	Aux Pwr fct
		8	CURR. PwrBand
		9	TotRunPact Q
		10	NEXT PwrBand
		11	Alarm List
		12	Horn Reset Button
		13	Fault Reset

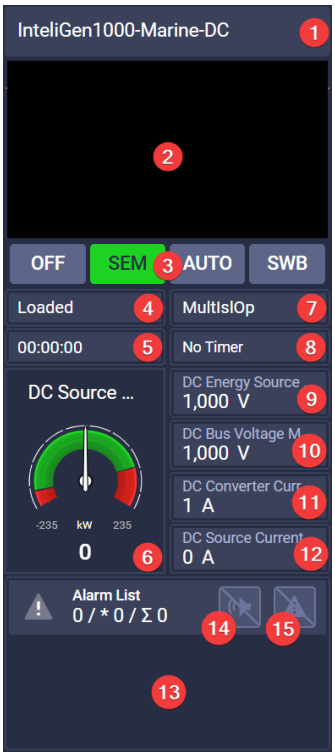
Application	Default template	Instrument	
BTB (InteliLite3)		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter › Warning limit (yellow color) is automatically set from Bus Left Import value › Scale is defined from 0 kW to 125% value of Bus Left Import.
		5	Breaker State
		6	Timer Text
		7	Timer Value
		8	Bus Right Frequency
		9	Bus Right Voltage
		10	Alarm List
		11	Horn Reset Button
		12	Fault Reset Button

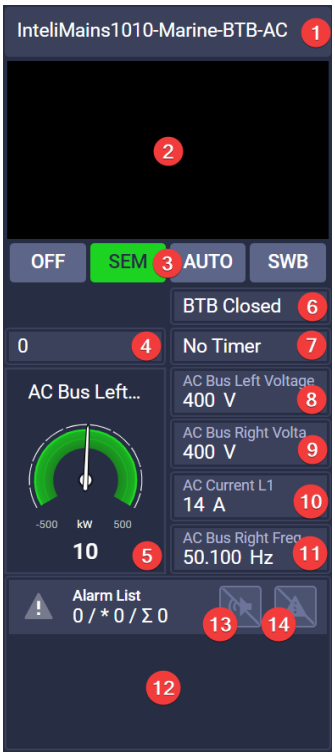
Application	Default template	Instrument	
AS SS AUX CMB EME PRP		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter
		5	Engine State
		6	Timer Text
		7	Timer Value
		8	Run Hours
		9	CPU Temperature
		10	Speed Request
		11	Battery Voltage
		12	Oil Press
		13	DEF Level
		14	DPF Soot Load
		15	Alarm List
		16	Horn Reset Button
		17	Fault Reset

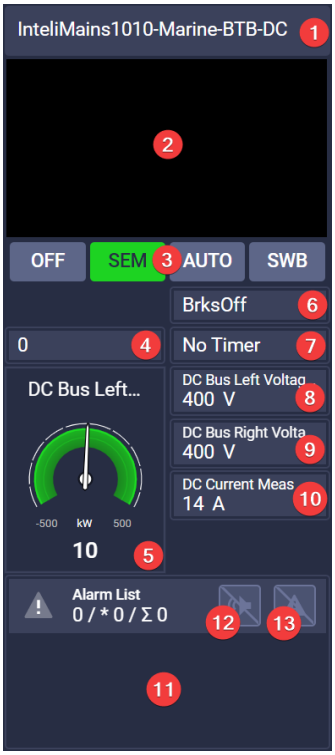
Application	Default template	Instrument	
MM MG		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Analog meter
		5	Breakers State
		6	Timer Text
		7	Timer Value
		8	Source1 Frequency
		9	Source2 Frequency
		10	Alarm List
		11	Horn Reset Button
		12	Fault Reset

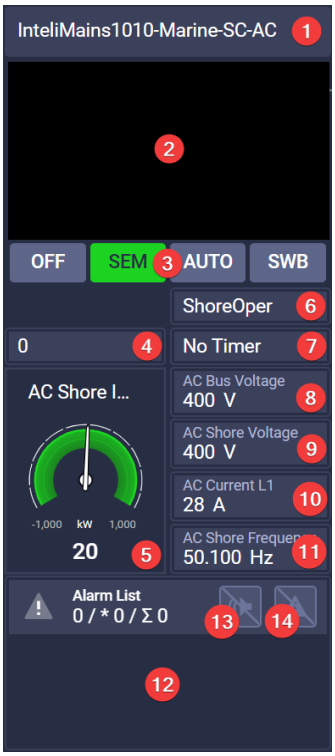
Application	Default template	Instrument	
AC-AC DC-AC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Source State
		5	Timer Value
		6	Analog meter › Lower Warning limit (red color) is automatically set from Neg ES Max Chrg P value › Upper Warning limit (red color) is automatically set from ES Max Discharging Power value › Scale is defined from value of ES Min Power to value of ES Max Power
		7	Breaker state
		8	Timer text
		9	AC Source Voltage
		10	AC Bus Voltage
		11	Source by state of ACCB Closed datapoint: › Closed - AC Energy Source Current L1 › Open - AC Energy Source Frequency
		12	AC Bus Frequency
		13	Alarm List
		14	Horn Reset Button
		15	Fault Reset Button

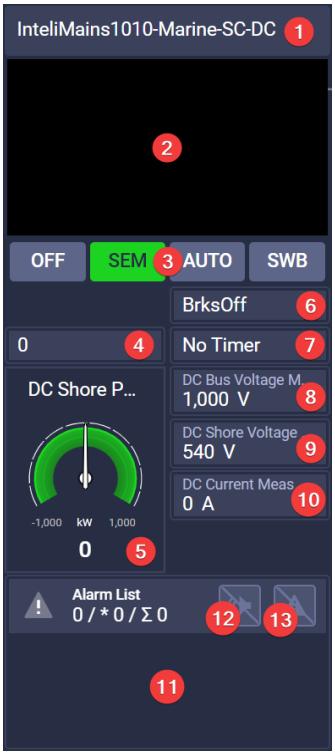
Application	Default template	Instrument	
AC-DC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Source State
		5	Timer Value
		6	Analog meter › Source is DC Source Power Meas › Warning limit (red color) is automatically set from Nominal Power value › Scale is defined from 0 kW to value of ES Max Power
		7	Breaker state
		8	Timer text
		9	AC Energy Source Voltage
		10	DC Bus Voltage Meas
		11	Source by state of ACCB Closed datapoint: › Closed - AC Source Current L1 › Open - AC Source Frequency
		12	AC Converter Frequency
		13	Alarm List
		14	Horn Reset Button
		15	Fault Reset Button

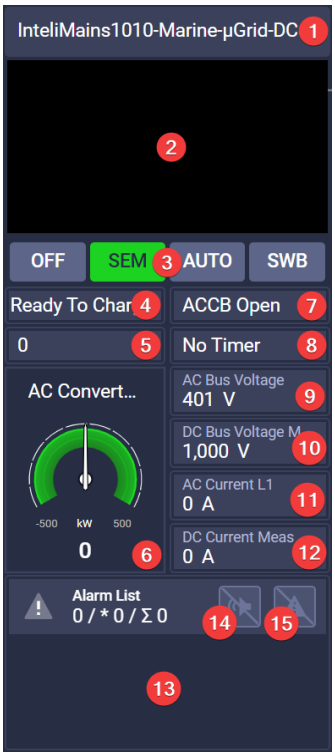
Application	Default template	Instrument	
DC-DC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Source State
		5	Timer Value
		6	Analog meter › Source is DC Source Power Meas › Lower Warning limit (red color) is automatically set from Neg ES Max Chrg P › Upper Warning limit (red color) is automatically set from ES Max Discharging Power › Scale is defined from value of ES Min Power to value of ES Max Power
		7	Breaker state
		8	Timer text
		9	DC Energy Source Voltage Meas
		10	DC Bus Voltage Meas
		11	DC Converter Current Meas
		12	DC Source Current Meas
		13	Alarm List
		14	Horn Reset Button
		15	Fault Reset Button

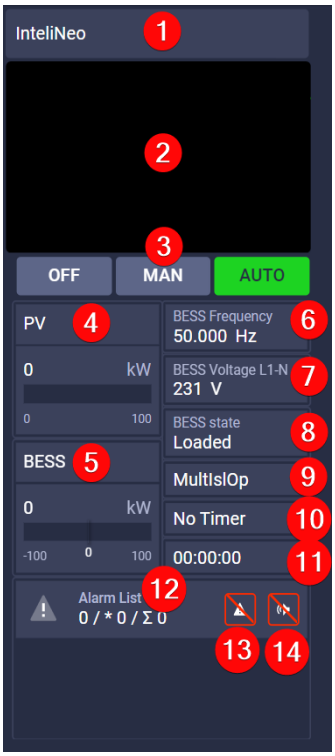
Application	Default template	Instrument	
BTB-AC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Timer Value
		5	Analog meter › Source is AC Bus Left Import P › Scale is defined from value of Nominal AC Bus Export to value of Nominal AC Bus Power
		6	Breaker state
		7	Timer text
		8	AC Bus Left Voltage
		9	AC Bus Right Voltage
		10	Source by state of BTB Closed datapoint: › Closed - AC Current L1 › Open - AC Bus Left Frequency
		11	AC Bus Right Frequency
		12	Alarm List
		13	Horn Reset Button
		14	Fault Reset Button

Application	Default template	Instrument	
BTB-DC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Timer Value
		5	Analog meter › Source is DC Bus Left Power Meas › Scale is defined from value of Nominal DC Bus Export to value of Nominal DC Bus Power
		6	Breaker state
		7	Timer text
		8	DC Bus Left Voltage Meas
		9	DC Bus Right Voltage Meas
		10	DC Current Meas
		11	Alarm List
		12	Horn Reset Button
		13	Fault Reset Button

Application	Default template	Instrument	
SC-AC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Timer Value
		5	Analog meter › Source is AC Shore Import P › Scale is defined from value of Nominal AC Shore Export to value of Nominal AC Shore Power
		6	Breaker state
		7	Timer text
		8	AC Bus Voltage
		9	AC Shore Voltage
		10	Source by state of SCCB Closed datapoint: › Closed - AC Current L1 › Open - AC Bus Frequency
		11	AC Shore Frequency
		12	Alarm List
		13	Horn Reset Button
		14	Fault Reset Button

Application	Default template	Instrument	
SC-DC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Timer Value
		5	Analog meter › Source is DC Shore Power Meas › Scale is defined from value of Nominal DC Shore Export to value of Nominal DC Shore Power
		6	Breaker state
		7	Timer text
		8	DC Bus Voltage Meas
		9	DC Shore Voltage Meas
		10	DC Current Meas
		11	Alarm List
		12	Horn Reset Button
		13	Fault Reset Button

Application	Default template	Instrument	
Microgrid-DC		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	Converter state
		5	Timer Value
		6	Analog meter › Source is AC Converter Import P › Scale is defined from value of Nominal AC Bus Export to value of Nominal AC Bus Power
		7	Breaker state
		8	Timer text
		9	AC Bus Voltage
		10	DC Bus Voltage Meas
		11	AC Current L1
		12	DC Current Meas
		13	Alarm List
		14	Horn Reset Button
		15	Fault Reset Button

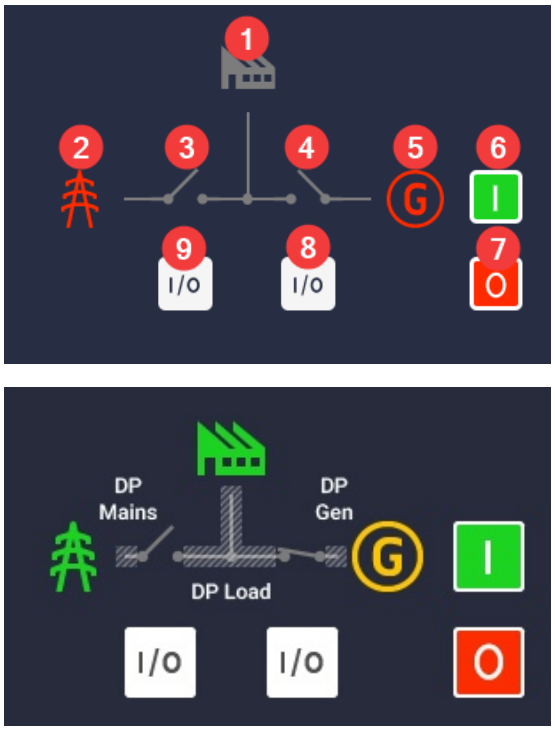
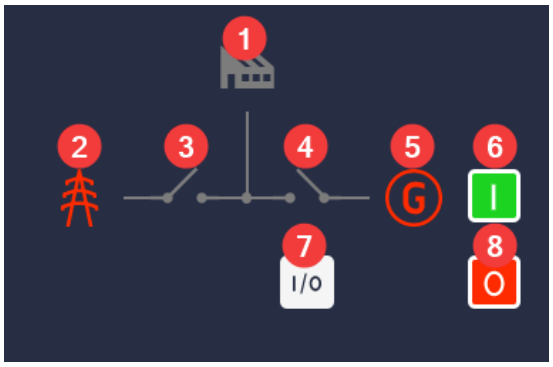
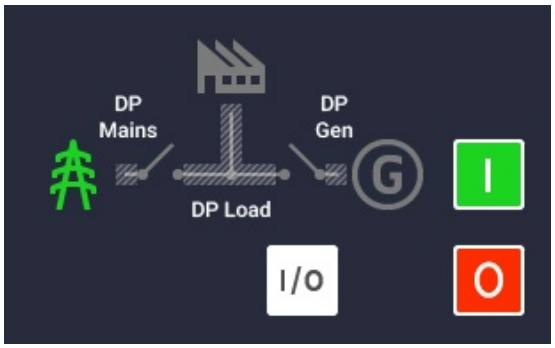
Application	Default template	Instrument	
MINT (InteliNeo) MPtM (InteliNeo)		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode selector
		4	PV Power Bar Graph [1]
		5	BESS Power Bar Graph [2]
		6	BESS Frequency [2]
		7	BESS Voltage L1-N [2]
		8	BESS State [2]
		9	Breaker State [2]
		10	Timer Text [2]
		11	Timer Value [2]
		12	Alarm List
		13	Horn Reset Button
		14	Fault Reset

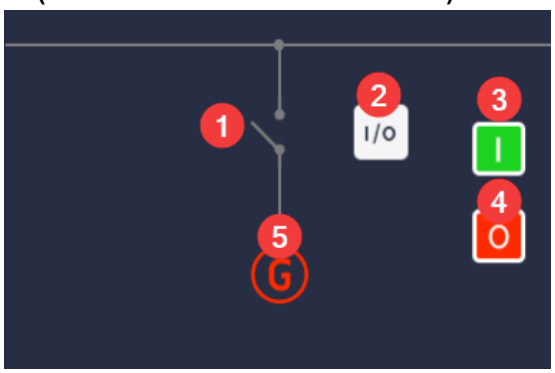
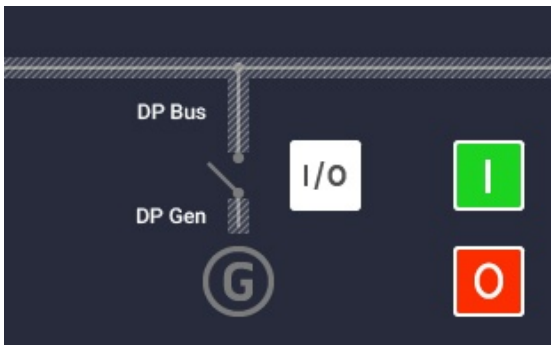
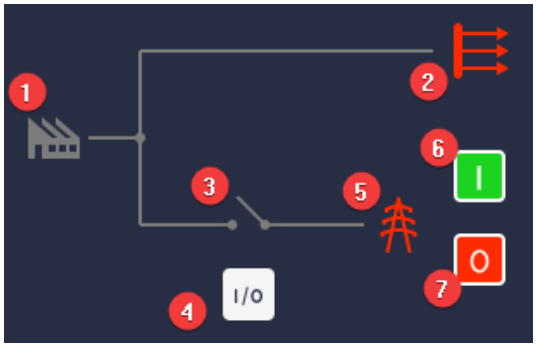
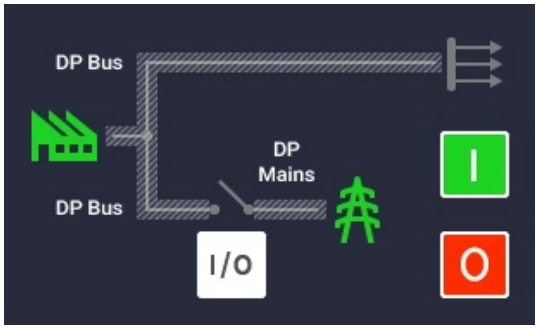
Note: [1]
*If the value from group **Info -> Screen Mask -> 20. PV is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> System Variability -> PV Address setpoint (Installed -> 1-64, Not installed -> 0).** On archives, changing the setpoint does not affect the value.*

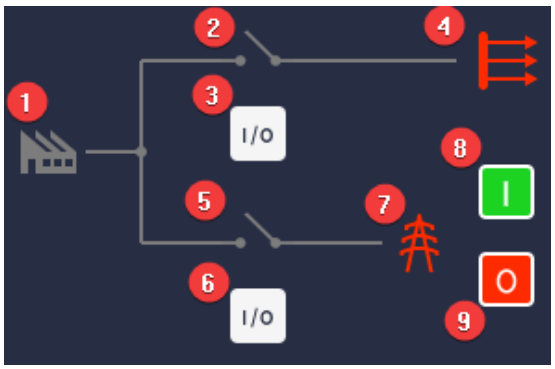
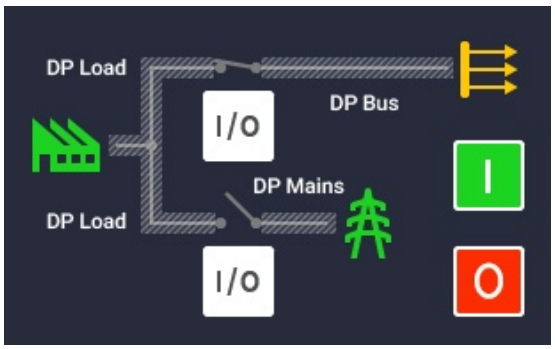
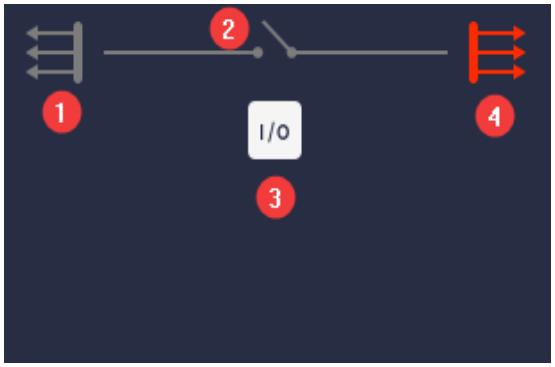
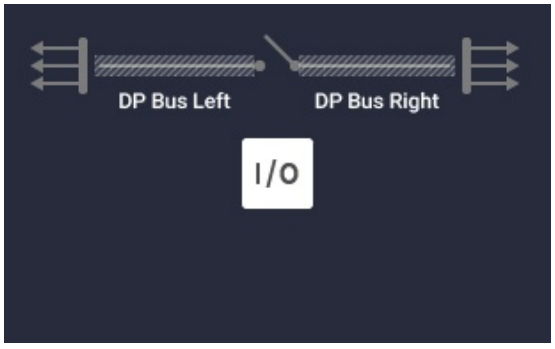
Note: [2]
*If the value from group **Info -> Screen Mask -> 19. BESS is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> System Variability -> BESS setpoint (Installed -> 1, Not installed -> 0).** On archives, changing the setpoint does not affect the value.*

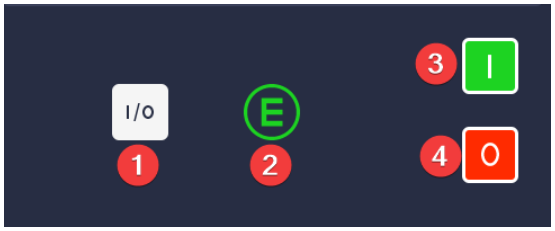
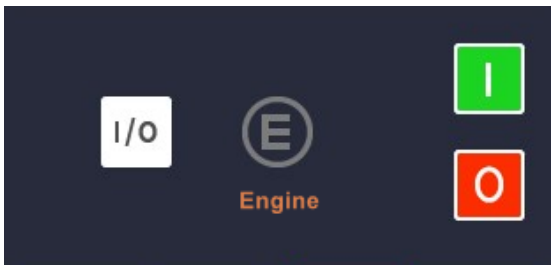
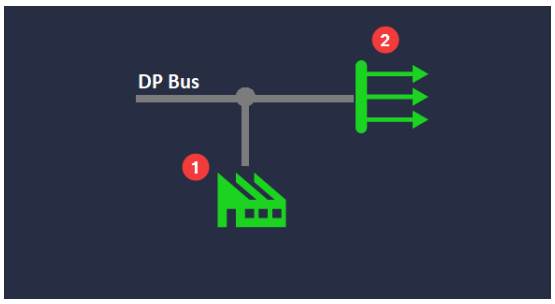
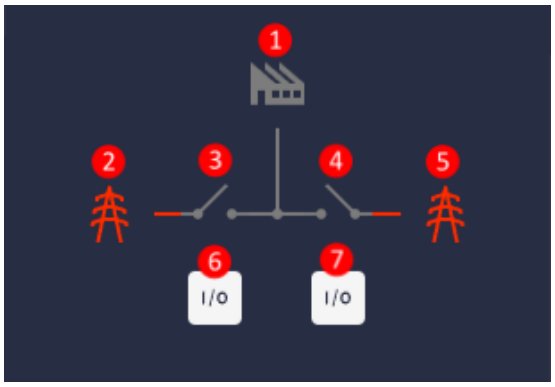
Application	Default template	Instrument	
MINT (InteliNeo 530 BESS)		1	Device name = defined by user
		2	Single-line diagram (see **Single-line diagrams: (page 211)** for more information)
		3	Mode Selector
		4	BESS Power Factor
		5	BESS Power
		6	BESS Frequency
		7	BESS Voltage
		8	BESS State
		9	Breaker State
		10	Timer Text
		11	Timer Value
		12	Alarm List
		13	Horn Reset Button
		14	Fault Reset

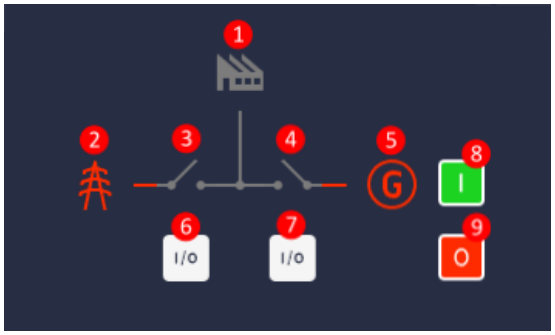
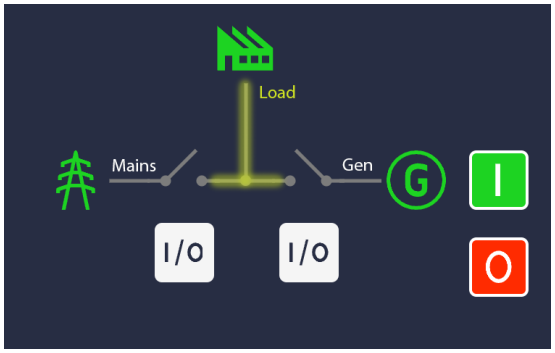
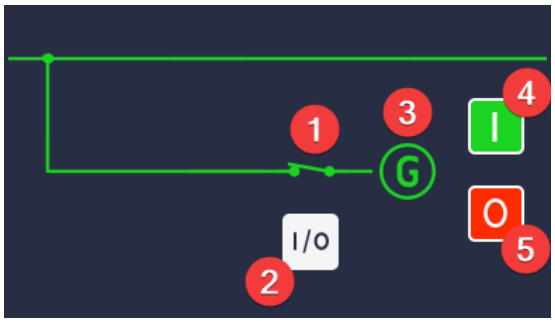
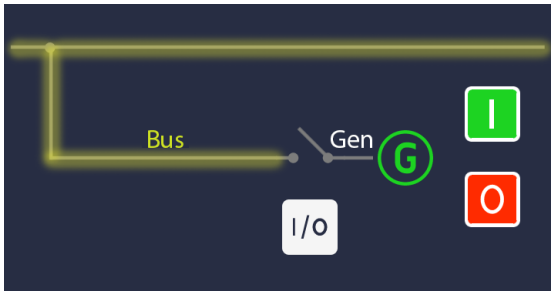
Single-line diagrams:

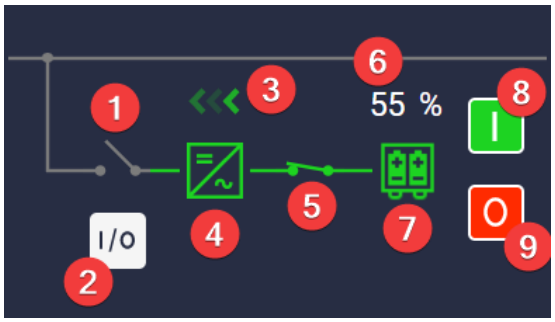
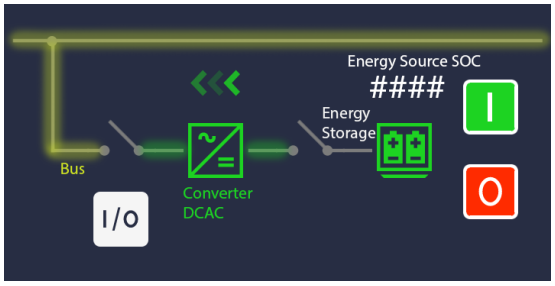
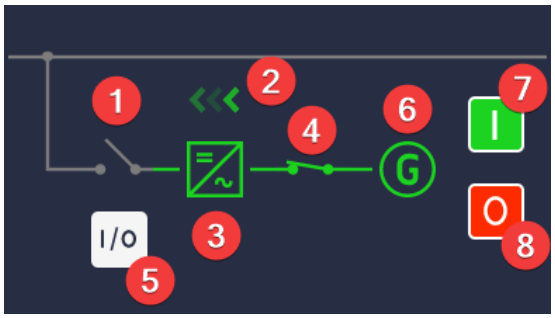
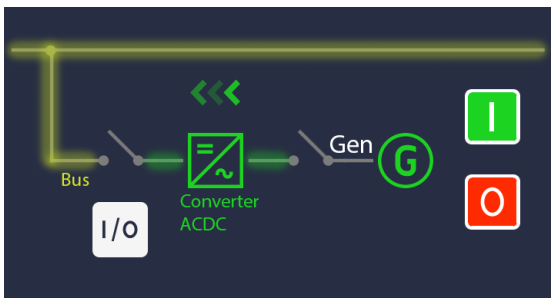
Application diagram	Instruments	
SPtM / AMF  ***Note:*** *DP = data point*	1	Load
	2	Mains
	3	Breaker (MCB)
	4	Breaker (GCB)
	5	Generator
	6	Start Engine
	7	Stop Engine
	8	Breaker Button (GCB)
	9	Breaker Button (MCB)
SPI   ***Note:*** *DP = data point*	1	Load
	2	Mains
	3	Breaker (MCB)
	4	Breaker (GCB)
	5	Generator
	6	Start Engine
	7	Breaker Button (GCB)
	8	Stop Engine

Application diagram	Instruments	
MINT (see also other device's variants)   ***Note:*** *DP = data point*	1	Breaker (GCB)
	2	Breaker Button (GCB)
	3	Start Engine
	4	Stop Engine
	5	Generator
MCB   ***Note:*** *DP = data point*	1	Load
	2	Bus
	3	Breaker (MCB)
	4	Breaker Button (MCB)
	5	Mains
	6	Start Engine
	7	Stop Engine

Application diagram	Instruments	
MGCB   ***Note:*** *DP = data point*	1	Load
	2	Breaker (MGCB)
	3	Breaker Button (MGCB)
	4	Bus
	5	Breaker (MCB)
	6	Breaker Button (MCB)
	7	Mains
	8	Start Engine
	9	Stop Engine
BTB   ***Note:*** *DP = data point*	1	Bus (Left)
	2	Breaker (BTB)
	3	Breaker Button (BTB)
	4	Bus (Right)

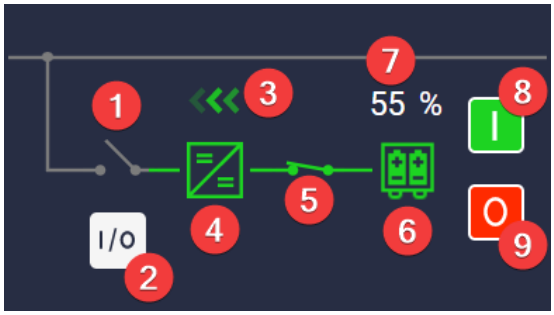
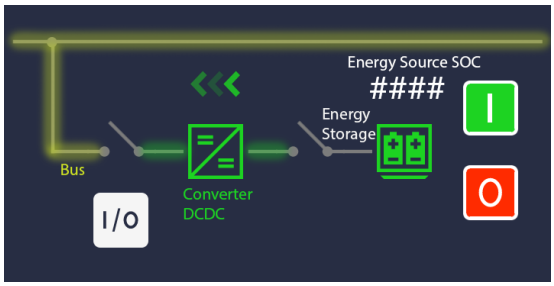
Application diagram	Instruments	
AS, SS, AUX, CMB, EME, PRP  	1	Breaker Button (Clutch Button/Close Load)
	2	Engine
	3	Start Engine
	4	Stop Engine
PSC 	1	Load
	2	Bus
MM 	1	Load
	2	Mains (S1)
	3	Breaker (S1CB)
	4	Breaker (S2CB)
	5	Mains (S2)
	6	Breaker Button (S1CB)
	7	Breaker Button (S2CB)

Application diagram	Instruments	
MG   	1	Load
	2	Mains (S1)
	3	Breaker (S1CB)
	4	Breaker (S2CB)
	5	Generator (S2)
	6	Breaker Button (S1CB)
	7	Breaker Button (S2CB)
	8	Start Engine
	9	Stop Engine
AC-AC   	1	Breaker (ACCB)
	2	Breaker Button (ACCB)
	3	Generator
	4	Start Engine
	5	Stop Engine

Application diagram	Instruments	
DC-AC   	1	Breaker (ACCB)
	2	Breaker Button (ACCB)
	3	Dynamic image of Flow Arows › By Energy Source Overload datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Left direction » 1 - Right direction › Visibility is set by Power State datapoint
	4	Converted DC/AC
	5	Breaker (ESCB)
	6	Data Row (Energy Source SOC)
	7	BESS
	8	Start Engine
	9	Stop Engine
AC-DC   	1	Breaker (DCCB) [1]
	2	Dynamic image of Flow Arrows › By Energy Source Overload datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Left direction » 1 - Right direction › Visibility is set by Power State datapoint
	3	Converter AC/DC

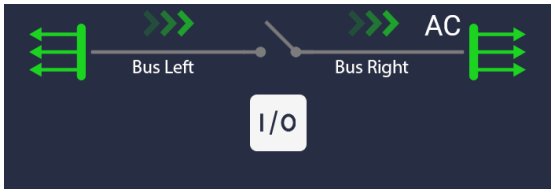
Application diagram	Instruments	
	4	Breaker (ESCB)
	5	Breaker Button (DCCB) [1]
	6	Generator
	7	Start Engine
	8	Stop Engine

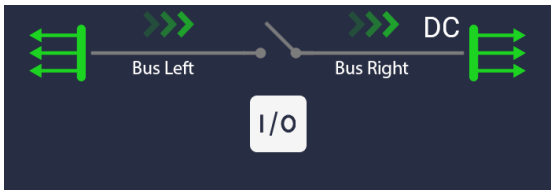
Note: [1]
If the value from group ***Info -> Marine Screen Mask -> 10. DCCB Is Breaker*** *is set to 0, the associated instruments are not visible. On online devices, the value depends on the* ***Process Control -> DCCB Control Mode*** *setpoint. On archives, changing the setpoint does not affect the value.*

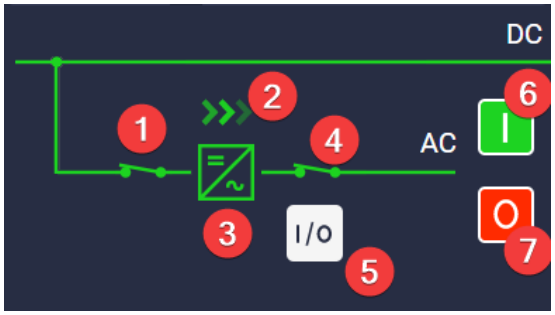
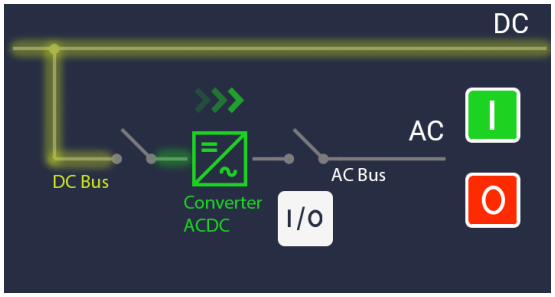
Application diagram	Instruments	
DC-DC   	1	Breaker (DCCB) [1]
	2	Breaker Button (DCCB) [1]
	3	Dynamic image of Flow Arrows › By Energy Source Overload datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Left direction » 1 - Right direction › Visibility is set by Power State datapoint
	4	Converter DC/DC
	5	Breaker (ESCB)
	6	BESS
	7	Data Row (Energy Source SOC)
	8	Start Engine
	9	Stop Engine

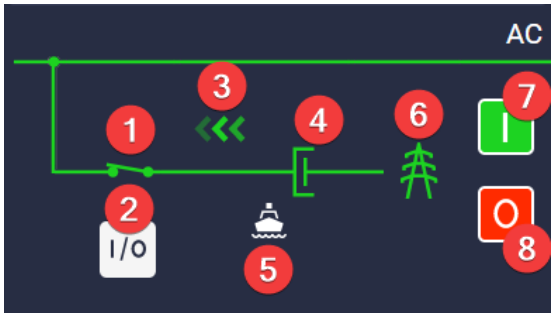
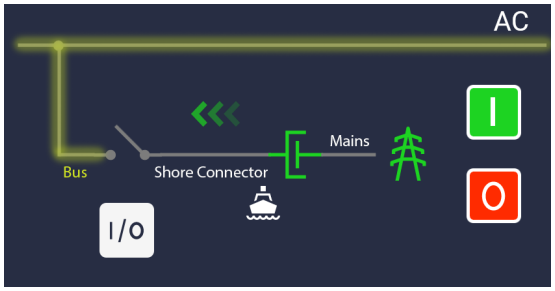
Note: [1]

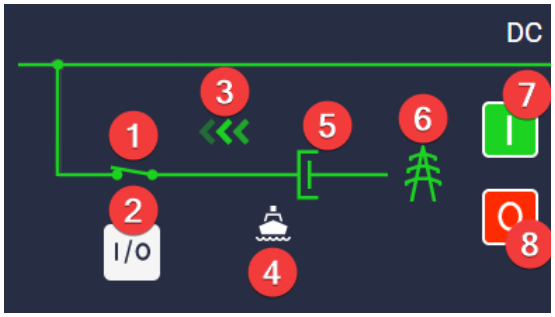
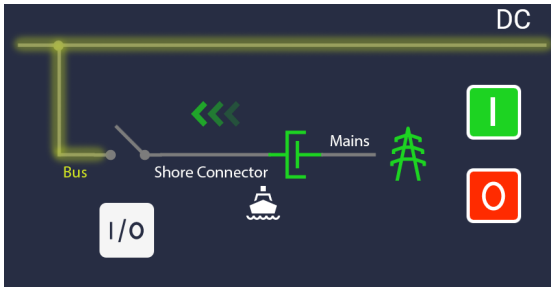
*If the value from group **Info -> Marine Screen Mask -> 10. DCCB Is Breaker** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> DCCB Control Mode** setpoint. On archives, changing the setpoint does not affect the value.*

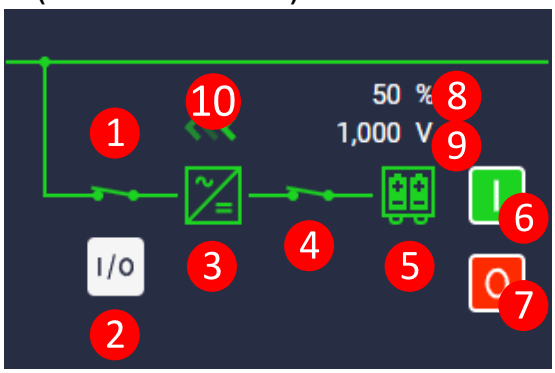
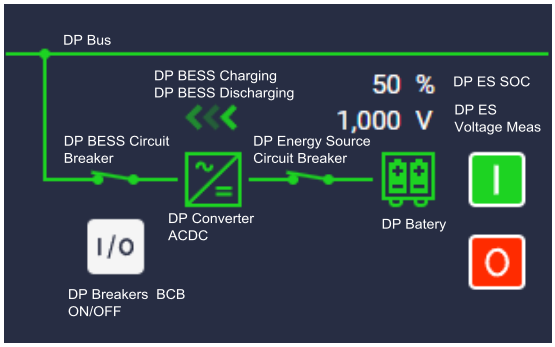
Application diagram	Instruments	
BTB-AC   	1	Bus left
	2	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Right direction » 1 - Left direction › Visibility is set by Power State datapoint
	3	Breaker (BTB)
	4	Breaker Button (BTB)
	5	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Right direction » 1 - Left direction › Visibility is set by Power State datapoint
	6	Bus right

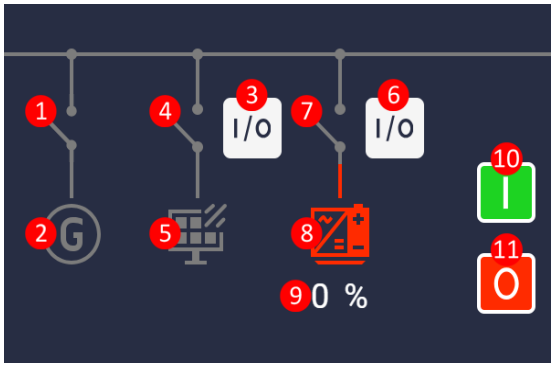
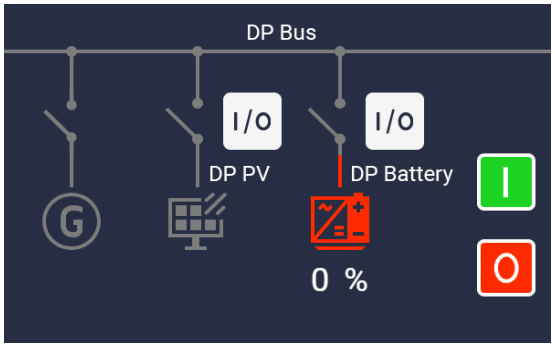
Application diagram	Instruments	
BTB-DC   	1	Bus left
	2	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Right direction » 1 - Left direction › Visibility is set by Power State datapoint
	3	Breaker (BTB)
	4	Breaker Button (BTB)
	5	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Right direction » 1 - Left direction › Visibility is set by Power State datapoint
	6	Bus right

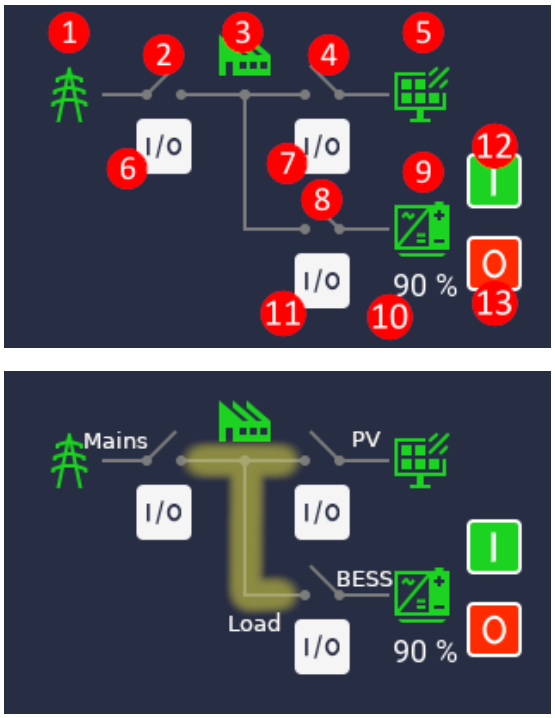
Application diagram	Instruments	
Microgrid-DC   	1	Breaker (ESCB)
	2	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Right direction » 1 - Left direction › Visibility is set by Power State datapoint
	3	Converter AC/DC
	4	Breaker (ACCB)
	5	Breaker Button (ACCB)
	6	Start Engine
	7	Stop Engine

Application diagram	Instruments	
SC-AC   	1	Breaker (SCCB)
	2	Breaker Button (SCCB)
	3	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Left direction » 1 - Right direction › Visibility is set by Power State datapoint
	4	Shore Connector › Visibility is set by Shore Connector Configured datapoint
	5	Image
	6	Mains
	7	Start Engine
	8	Stop Engine

Application diagram	Instruments	
SC-DC   	1	Breaker (SCCB)
	2	Breaker Button (SCCB)
	3	Dynamic image of Flow Arrows › By Power Flow Error datapoint state » 0 - Green color » 1 - Red color › By Power Flow Direction datapoint state » 0 - Left direction » 1 - Right direction › Visibility is set by Power State datapoint
	4	Image
	5	Shore Connector › Visibility is set by Shore Connector Configured datapoint
	6	Mains
	7	Start Engine
	8	Stop Engine

Application diagram	Instruments	
MINT (InteliNeo 530 BESS)   ***Note:*** *DP = data point*	1	Breaker (BESS)
	2	Breaker Button (BESS)
	3	Converter/Inverter (Converter ACDC)
	4	Breaker (Battery)
	5	BESS (Battery)
	6	Start
	7	Stop
	8	ES SOC
	9	ES Voltage Meas
	10	Dynamic Image of Energy Flow Arrows › BESS Charging - Right arrows of green color › BESS Discharging - Left arrows of green color

Application diagram	Instruments	
MINT (InteliNeo)   ***Note:*** *DP = data point*	1	Breaker (Gen) [3]
	2	Gen [3]
	3	Breaker Button (PVCB) [1 / 4]
	4	Breaker (PVCB) [1 / 4]
	5	PV [1]
	6	Breaker Button (BatteryCB) [2]
	7	Breaker (BatteryCB) [2]
	8	BESS [2]
	9	BESS SOC [2]
	10	Start [2]
	11	Stop [2]

Application diagram	Instruments	
MPtM (InteliNeo)  	1	Mains
	2	Breaker (MCB)
	3	Load
	4	Breaker (PVCB) [1 / 4]
	5	PV [1]
	6	Breaker Button (MCB)
	7	Breaker Button (PVCB) [1 / 4]
	8	Breaker (Bess CB) [2]
	9	BESS [2]
	10	BESS SOC [2]
	11	Breaker Button (Bess CB) [2]
	12	Start [2]
	13	Stop [2]

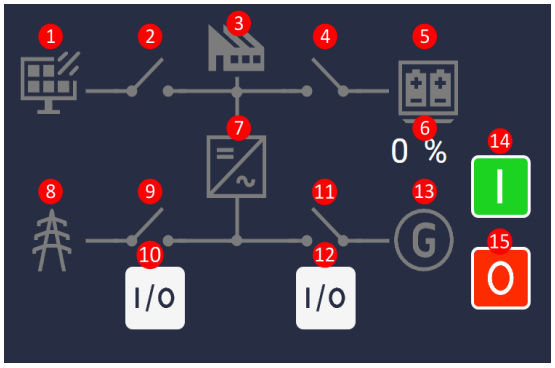
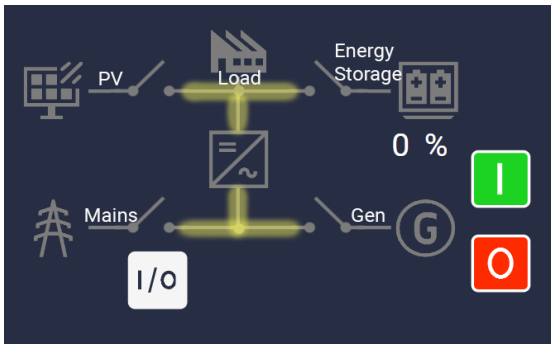
Note: [1]
*If the value from group **Info -> Screen Mask -> 20. PV is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> System Variability -> PV Address (Installed -> 1-64, Not installed -> 0)**. On archives, changing the setpoint does not affect the value.*

Note: [2]
*If the value from group **Info -> Screen Mask -> 19. BESS is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> System Variability -> BESS setpoint (Installed -> 1, Not installed -> 0)**. On archives, changing the setpoint does not affect the value.*

Note: [3]
*If the value from group **Info -> Screen Mask -> 22. Universal Genset is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> System Variability -> Universal Genset Address (Installed -> 1-64, Not installed -> 0)**. On archives, changing the setpoint does not affect the value.*

Note: [4]

*If the value from group **Info -> Screen Mask -> 23. PVCB is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Process Control -> Breaker Control -> PVCB Control Mode (Internal/Follow -> 1, Not installed -> 0)**. On archives, changing the setpoint does not affect the value.*

Application diagram	Instruments	
AMF Hybrid   ***Note:*** *DP = data point*	1	PV [1]
	2	Breaker (PV) [1 / 4]
	3	Load
	4	Breaker (ESS) [2 / 5]
	5	Energy Storage [2]
	6	ESS SOC [2]
	7	Convertor
	8	Mains
	9	Breaker (MCB)
	10	Breaker Button (MCB)
	11	Breaker (GCB) [3]
	12	Breaker Button (GCB) [3]
	13	Generator
	14	Start Engine
	15	Stop Engine

Note: [1]

*If the value from group **Info -> Screen Mask -> 17. PV installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Basic Settings -> System Variability -> PV Support setpoint.** On archives, changing the setpoint does not affect the value.*

Note: [2]

*If the value from group **Info -> Screen Mask -> 08. AUX Batt is installed** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Basic Settings -> System Variability -> AUX Battery Support setpoint.** On archives, changing the setpoint does not affect the value.*

Note: [3]

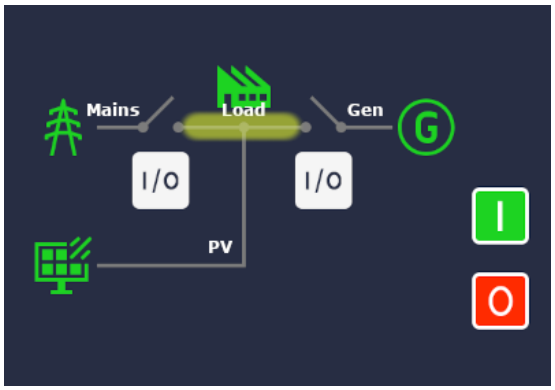
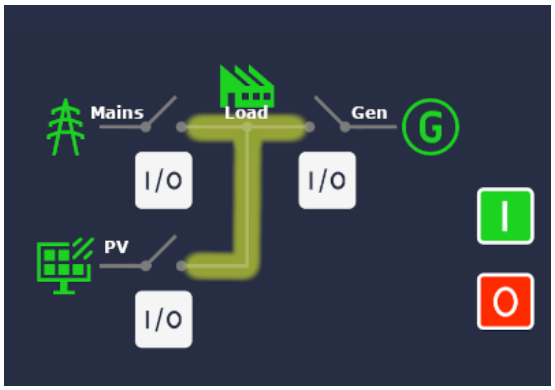
*If the value from group **Info -> Status DW -> 13. GCB used** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Basic Settings -> Controller Settings -> GCB Control Mode setpoint.** On archives, changing the setpoint does not affect the value.*

Note: [4]

*If the value from group **Info -> Status DW -> 17. PVCB used** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Basic Settings -> Controller Settings -> PVCB Control Mode setpoint. (Internal/External = 1, No Breaker = 0)** On archives, changing the setpoint does not affect the value.*

Note: [5]

*If the value from group **Info -> Status DW -> 19. BCB used** is set to 0, the associated instruments are not visible. On online devices, the value depends on the **Basic Settings -> Controller Settings -> BCB Control Mode setpoint. (Internal/External = 1, No Breaker = 0)** On archives, changing the setpoint does not affect the value.*

Application diagram	Instruments	
PV   	1	Mains
	2	Breaker (MCB)
	3	Load
	4	Breaker (GCB)
	5	Generator
	6	PV
	7	Breaker (PVCB) [1]
	8	Breaker Button (MCB)
	9	Breaker Button (GCB)
	10	Breaker Button (PVCB)[1]
	11	Start Engine
	12	Stop Engine

Note: [1]

*If the value from group **Info -> Status DW -> 17. PVCB used** is set to 0, the associated instruments are not visible and busbar instruments are shown according to the first image. On online devices, the value depends on the setpoint **Process Control -> PVCB Control Mode**. Changing the setpoint on archive device does not affect the value.*

8.2.2 Communication modules

Communication module	Default template	Instrument	
InteliGateway InteliFieldbus Gateway		1	Device name – defined by user
		2	Identification text
		3	1. configured value (*)
		4	2. configured value (*)
		5	3. configured value (*)
		6	4. configured value (*)
		7	5. configured value (*)

Note: *(*)*
Actual displayed value depends on the user configuration of InteliFieldbus Gateway.

back to Device templates

9 Troubleshooting

back to Table of contents

9.1 Connection to server

9.1.1 InteliSCADA server

When the connection to the server is lost, an error message is displayed on the screen. There are generally a few reasons that cause this error:

- The server is overloaded with requests. In this case, the connection will be re-established as soon as possible and InteliSCADA will continue working normally.
- The server is down. Check the service status, **see InteliSCADA as a service on page 18**.
- The machine the server is running on is overloaded. Try to reduce the load, which can be caused by other running processes.

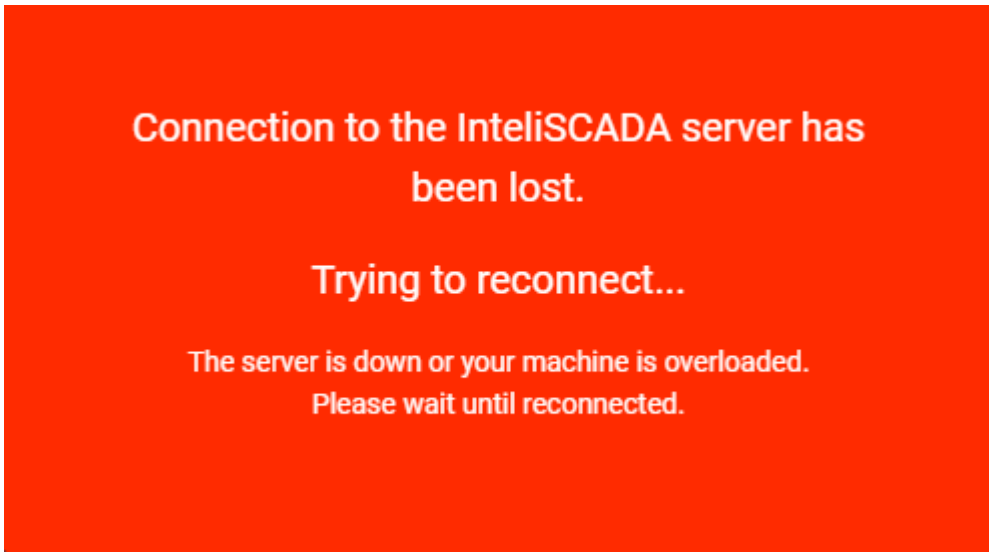


Image 7.1 Connection to the InteliSCADA server has been lost.

When Runtime or Designer is started and the service is still not running, another error page is displayed.

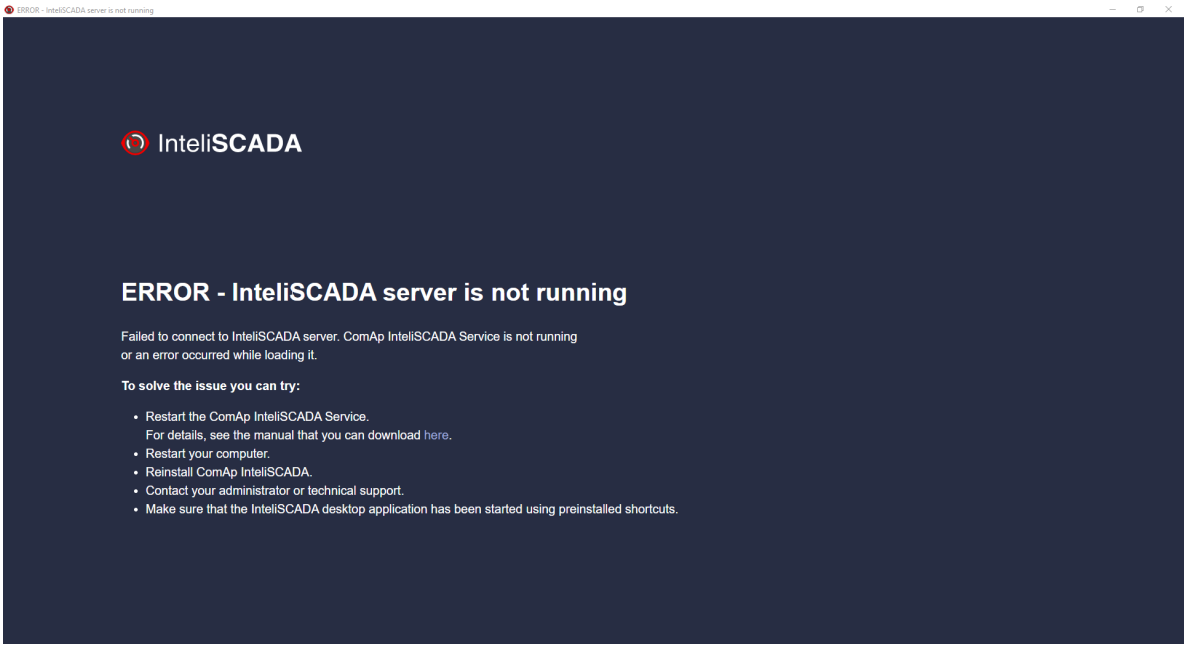


Image 7.2 IntelISCADA server is not running

9.1.2 Database server

Loss of connection

When the connection to the database server is lost, an error message is displayed on the screen. If the MongoDB database is used, there are generally a few reasons that cause this error:

- The server is down. Make sure the service is running. Once the database server is ready and running, the InteliSCADA application will automatically reconnect.
- The machine the server is running on is overloaded. Try to reduce the load, which can be caused by other running processes.

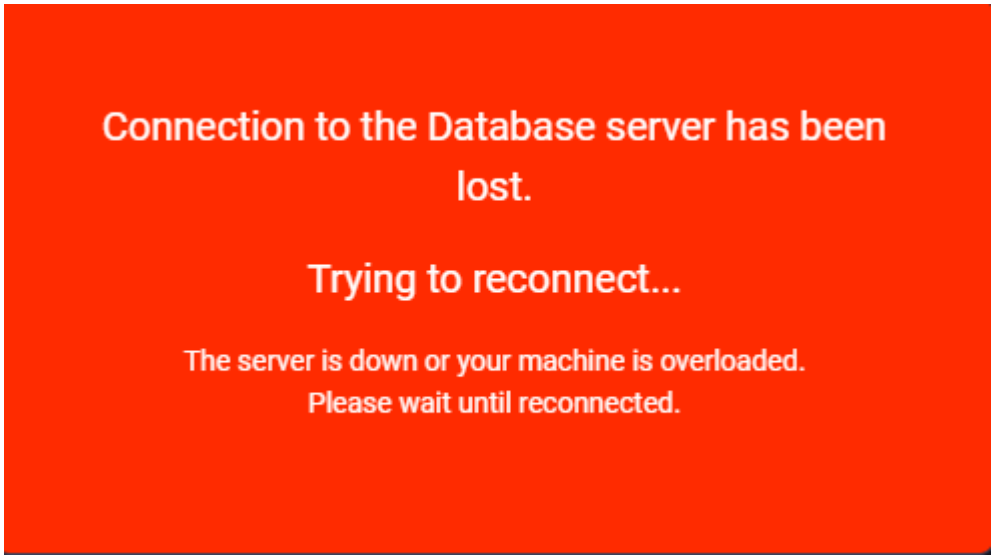


Image 7.3 Connection to the Database server has been lost.

Database server version

In order to work properly, InteliSCADA requires a specific version of the MongoDB server. Therefore, the server version check is performed during a connection to the database. There are three possible outcomes:

1. Both the installed version and the required version are the same. Then InteliSCADA runs as intended because this setup is fully tested.
2. The installed version is higher than the required version. In this case a warning message is displayed but the InteliSCADA application can be used. It is still recommended to install the required version of the MongoDB server to ensure a flawless operation because this setup is not fully tested.

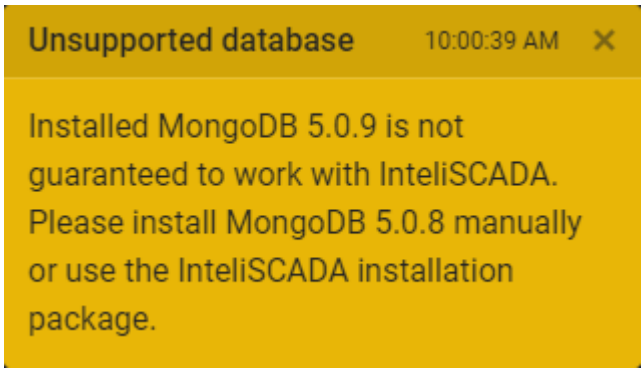


Image 7.4 Unsupported database

3. The installed version is lower than the required version. Then an error message is displayed on the screen and the InteliSCADA application cannot be used.

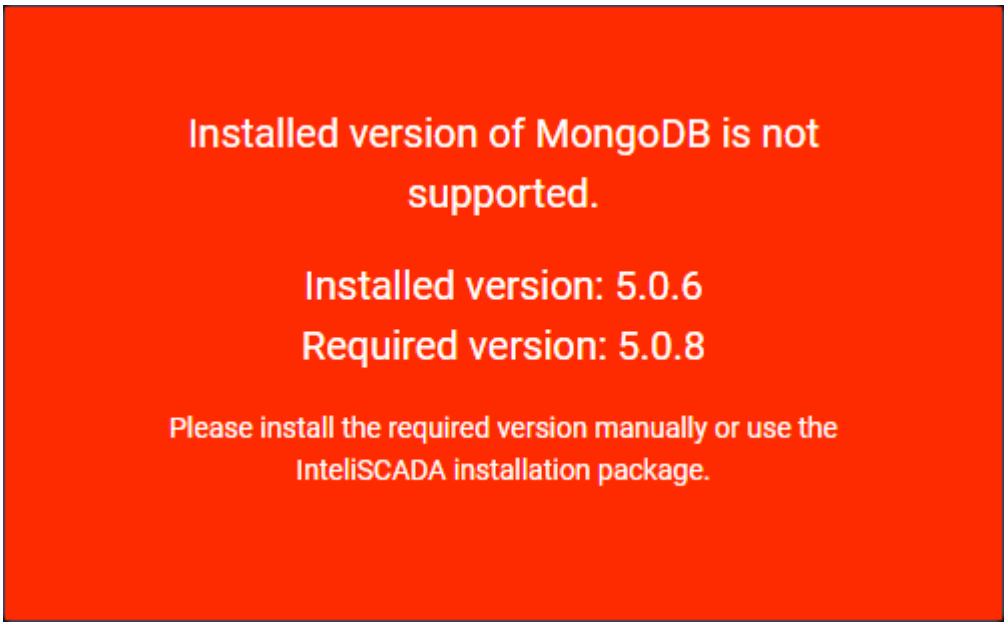
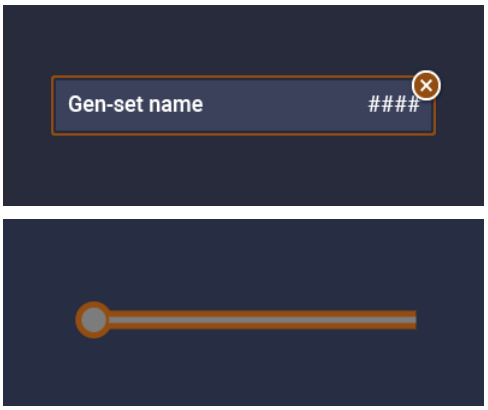
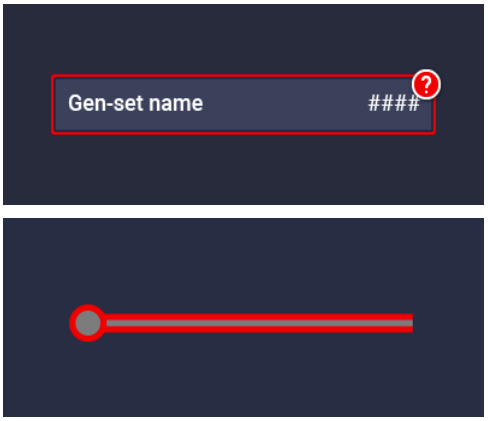
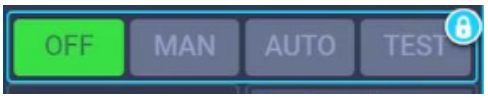
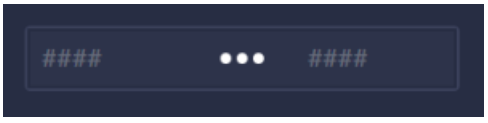


Image 7.5 Installed version of MongoDB is not supported

Note: *The required version of the MongoDB server can be installed manually (using a standalone installer) or using the InteliSCADA installation package. The installation package is always bundled with compatible version of the MongoDB server.*

9.2 Instrument non-standard states

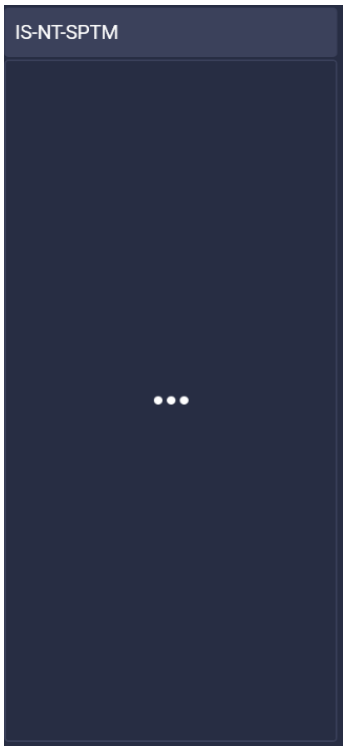
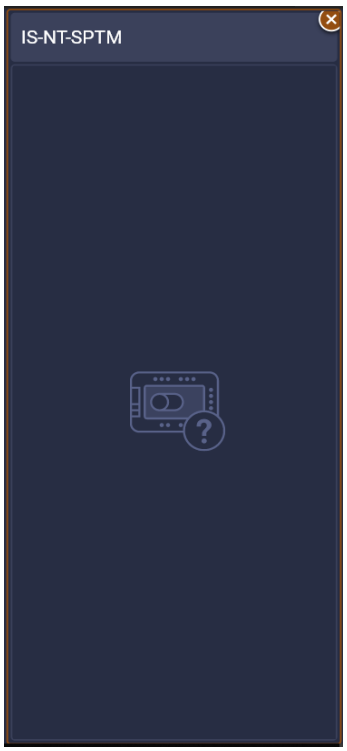
Illustration picture	State	Reason
	**No communication**	› Client-server communication error › or server-device communication error › or Sensor fail indication
	**General error**	› Missing or invalid data point › or any other error than No communication, Access limited.
	**Access limited**	The currently logged user cannot write setpoints or execute commands due to one of reasons: › Access locked by other user › Access needs to be locked by current user › Insufficient access rights
	**Waiting for data**	Device is connected, but no data is available yet (data are still reading or preparing).
	**Device init state**	Device is not working correctly. Applied on Generator, Load and Mains instruments – the gray icon is flashing

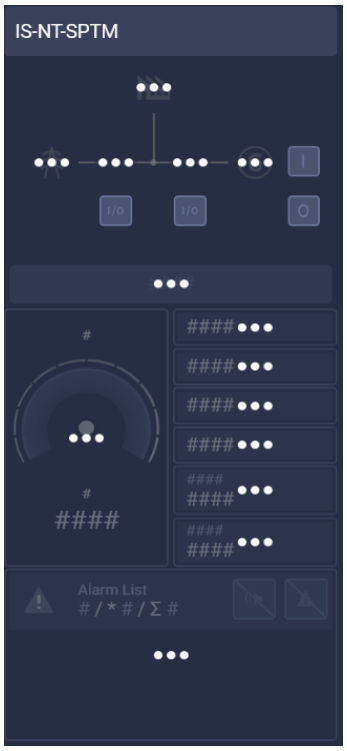
IMPORTANT: Remember to verify whether your personalized color settings are not interfering with the indication of error states for any of your instruments.

back to Troubleshooting

9.3 Device column template states

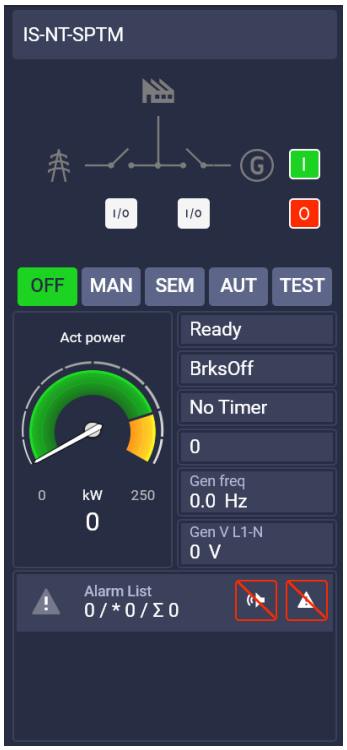
Device column template is displayed on the **Automatically generated screen (page 191)** for each device individually. It can show different states, see the table.

Template example	Template state	Reason
	Loading template	› Connecting to the device › Column template is loading. The content is created dynamically based on the connected device type and device application
	Unknown device or application	› Incorrect device connection details › Unknown device or unknown device application. For supported devices and applications **see Supported ComAp devices on page 25**.



Reading data

Device is already connected but the data are not loaded yet.



Communicating

Device is connected and all data are already loaded. The standard communication is being processed. See also **Instrument non-standard states (page 231)**

Communication interruption	An already communicating device stopped to communicate. The communication was disrupted for some reason. Once the communication is recovered (e.g. device re-programming), the template is verified and will eventually reflect the device type and application.

9.4 Database compatibility

When the InteliSCADA service starts it performs database data compatibility check. There are three possible outcomes:

1. Both the supported database version and the local database version are the same. Then the service starts and runs as usually.
2. The supported database version is higher than the local database version. Then a data migration process is started and, if successful, the service starts and runs as usually.
3. The supported database version is lower than the local database version or the migration fails. Then the service starts but responds with error page "ERROR - Data Version Mismatch". You either have to upgrade the InteliSCADA to higher version, which supports the version of local database or use older database file with lower version. An older database file can be obtained from the backup created automatically before installation.

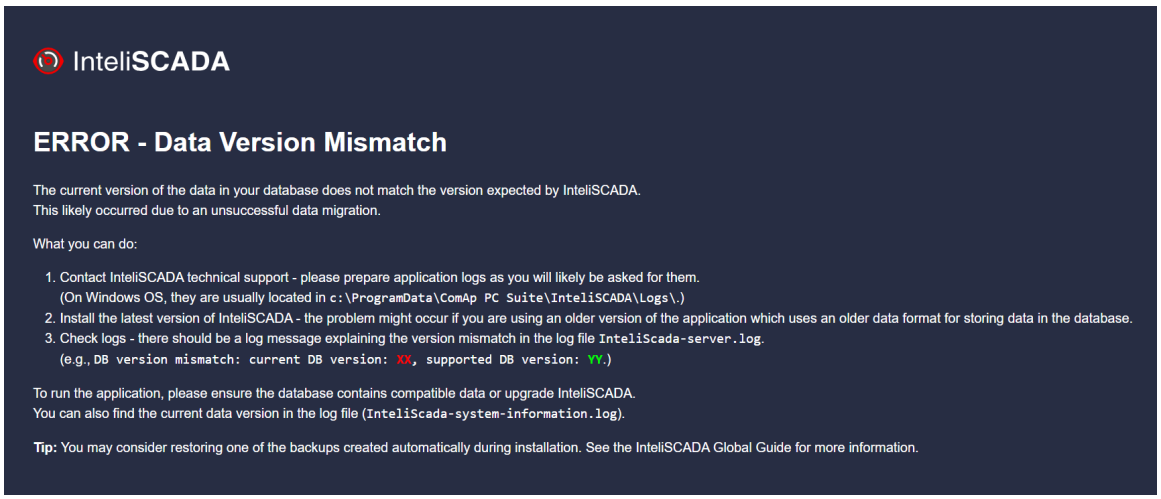


Image 7.6 Data Version Mismatch

Note: *This scenario cannot occur unless you downgrade InteliSCADA to older version which doesn't support the newer database version.*

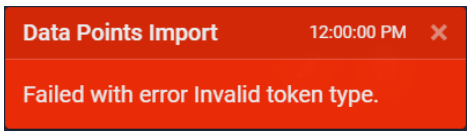
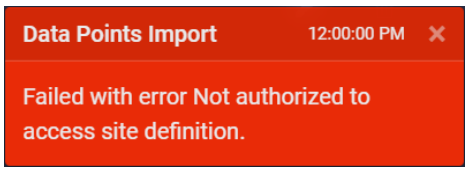
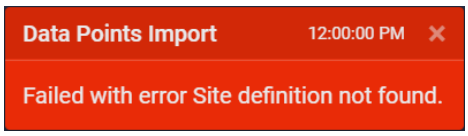
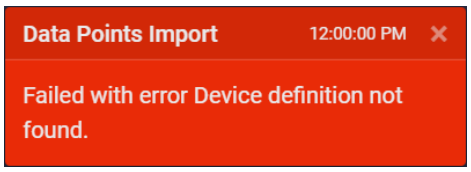
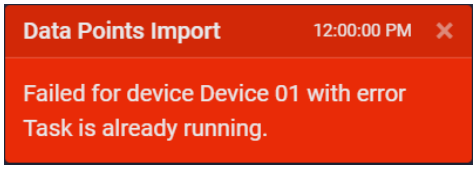
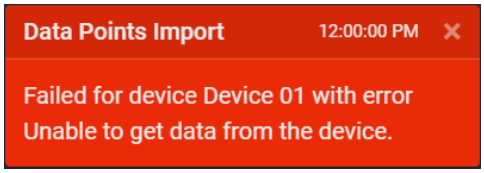
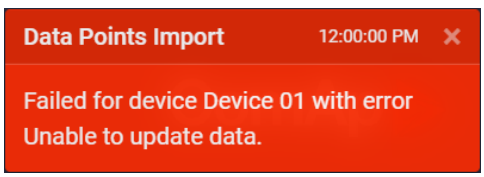
Note: *The version of the database is different than the version of InteliSCADA. The version of the database increases only when data schema changes.*

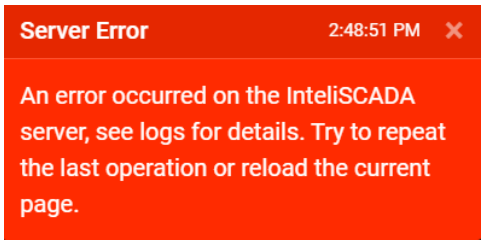
back to Troubleshooting

9.5 Error and warning notifications

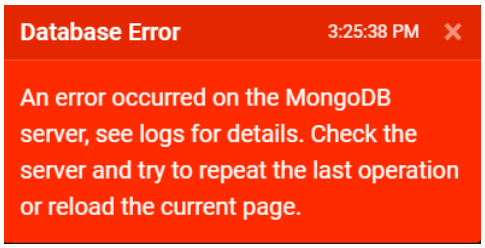
If an error occurred on the server, the user will be notified by an error message.

9.5.1 Data point import notifications:

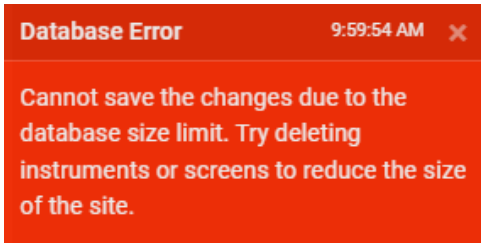
Notification message	Reason
	Invalid token type – provided access token is invalid
	Not authorized to access site definition – requested site definition is not included in the access token
	Site definition not found – storage does not contain requested site definition
	Device definition not found – storage does not contain requested device definition
	Task is already running – task was already started
	Unable to get data from the device – it is not possible to read data from the device
	Unable to update data – it is not possible to write data to database



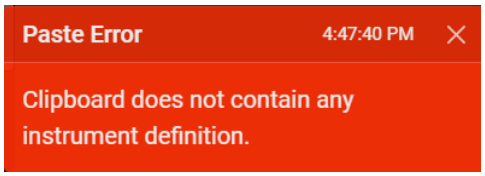
Server error – an error occurred on the InteliSCADA server, see logs for details. Try to repeat the last operation or reload the current page using F5 key.



Database error - an error occurred on the MongoDB server, see logs for details. Check the server and try to repeat the last operation or reload the current page using F5 key. The database server is most probably offline or didn't process the request successfully.



Database error - cannot save the changes due to the database size limit. Try deleting instruments or screens to reduce the size of the site.



Paste error - Clipboard does not contain any instrument definition.

9.5.2 Communication error notifications:

Notification message	Reason
Failed for device Device 01 with error The archive file is corrupted.	Invalid archive.
Failed for device Device 01 with error Access denied. Please check the access code.	Wrong access code.
Failed for device Device 01 with error The controller credentials are not valid.	Wrong username or password. Communication error will occur, if only the password is filled in for the controller, where the username is also required.
Failed for device Device 01 with error Cannot connect to the controller with the specified AirGate ID.	Not registered AirGate ID.
Failed for device Device 01 with error Currently no slot available to connect	Each ComAp device has limited number of slots used for clients connections. Currently, there is no free slot, try to disconnect other

Notification message	Reason
to the controller.	client or try to connect later.
Failed for device Device 01 with error Cannot connect to the controller. Please check the connectivity and the connection parameters.	Connection issues.
Failed for device Device 01 with error The controller configuration is not valid.	Invalid controller configuration.
Failed for device Device 01 with error Access to the serial port is denied.	Serial port is used by another application.
Failed for device Device 01 with error Cannot connect to the controller. Please provide the access code.	Access code is not set although it is required for the connection.
Failed for device Device 01 with error Cannot connect to the controller. The AirGate server certificate is unknown.	Public key read from AirGate server during ComAp Crypto Suite 2 exchange is unknown.
Failed for device Device 01 with error Cannot connect to the controller on the untrusted interface. Please provide a password or verify it.	Entered password was invalid and because it was on untrusted interface connection must be closed.
Failed for device Device 01 with error Communication server error. Ensure the device type and its application are supported.	Unsupported controller or its application.
Failed for device Device 01 with error The controller responded with an error (error name – error code).	Other controller errors.
Failed for device Device 01 with error Internal server error (error name – error code).	Other communication errors.

9.5.3 License error notifications:

Notification message	Reason
The site "Site 01" doesn’t comply with the current license (Communication Gateway detected). To open it you need to upgrade your license.	Unallowed device detected in the opened site.

9.5.4 Disk space notifications:

Notification message	Reason
Please free up some space to secure InteliSCADA can run smoothly. Minimum disk space: 5 GB	Disk space is running out

To free up the disk space please consider these actions:

- Uninstall unused applications that are not needed for InteliSCADA functionality
- Delete redundant InteliSCADA exported files, like exported history files, exported sites, etc...
- Delete backup directories except for the latest at `C:\ProgramData\ComAp PC Suite\InteliSCADA-Backup`
- Consider cleaning up Trends you don't track anymore, since these can cause increased disk space utilization

9.5.5 Other notifications:

Notification message	Reason
History loading failed for device Device 01. Consider updating device firmware.	History loading failed when connecting the device. The connection is kept but new history records will not be read from the device. Consider updating the device firmware.

9.6 IP camera support

Some IP cameras support the option to embed live video into web page. In that case the video can be embedded also in InteliSCADA.

Make sure:

- the IP camera is set up on the network
- port forwarding is configured for remote access if required
- Dynamic DNS is set up if internet connection uses a dynamic IP address

Check the IP camera documentation and try to follow instructions to set it up correctly. To check the IP camera is working properly use a web browser and try to open the IP camera's URL link. Once the IP camera video is running properly in the web browser it should run also in InteliSCADA. To show the IP camera video use the **IFrame (page 155)** instrument.

> **IMPORTANT: Some browsers block resources with embedded credentials, so the IP camera video might be blocked, see this link.**

9.7 Reporting an issue

Open Settings section from the **Preview (page 73)** tab or from the Runtime tab in **Runtime (page 77)** and click on Export All button to export all the site data (site, device archives, images and logs incl. HW and OS specifications will be packed into a single ZIP file).

Due to security concerns the connection details of all devices will be removed and the site will be locked by universal password "support".

The file will be either downloaded automatically to the destination folder or a "Save as" dialog will appear depending on your browser settings.

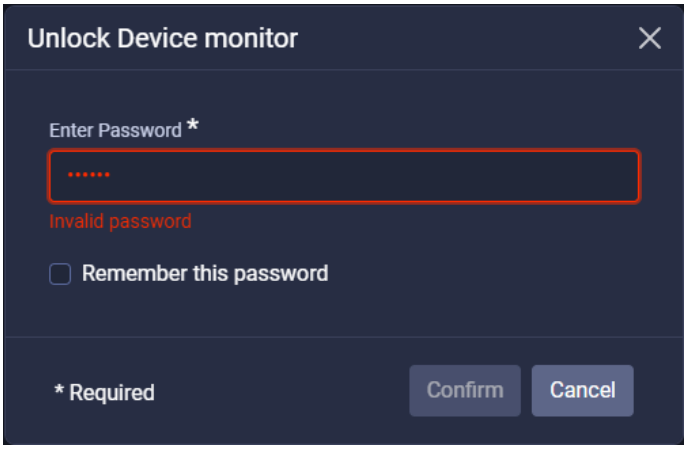
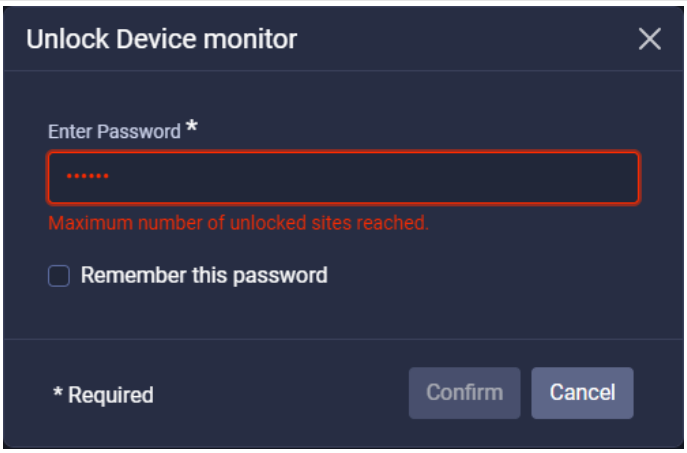
If it is a backup related issue, please **see Backup & restore on page 28** in order to find the backup logs that need to be sent to the support as well.

Attach this file (and the backup logs if needed) when reporting an issue to your distributor or ComAp technical support at support@comap-control.com.

back to Troubleshooting

9.8 Unlock site validation errors

To open a site, the password is required, see **Security (page 104)**. When a password validation fails, the error is displayed. Here is a list of possible error messages and their causes:

Illustration picture	Error	Reason
	**Invalid Password**	The password doesn't match, enter the correct one.
	**Maximum number of unlocked sites reached.**	The password is correct but the maximum number of all unlocked sites **(60)** is reached. Close any already unlocked site and unlock the site again.

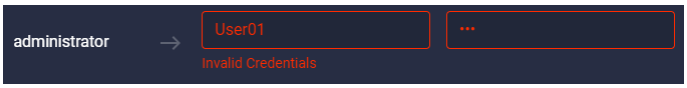
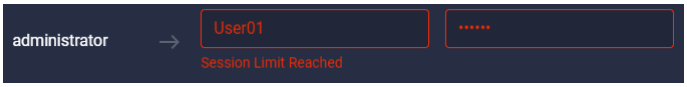
back to Troubleshooting

9.9 Logging in to devices

When attempting to log in to devices, users may encounter one of two scenarios for authentication:

- **Username and password required:** In this scenario, users must provide both a valid username and the corresponding password. The combination of the two credentials is checked to ensure accuracy before granting access.
- **Password only required:** Alternatively, some devices may only require users to input a password, without the need for a username. In this case, the access is granted based on the validity of the password alone.

In instances where there are issues with the log in process, the system is designed to display an error message to inform the user of the problem. The following is a list of possible errors that may be encountered:

Illustration picture	State	Reason
	**Invalid Password**	The password doesn't match, enter the correct one.
	**Invalid Credentials**	The username and/or password may be incorrect. Validate the credentials and try again.
	**Session Limit Reached**	The maximum number of user sessions has been reached. Close any unused sessions by logging out or try again later.

back to Troubleshooting

9.10 External Issues

This chapter covers various external factors that could affect the performance and reliability of our application. These issues may arise from operating system updates, hardware malfunctions, or other external sources. By identifying and addressing these potential problems, you can help ensure that the application continues to run smoothly across different environments.

9.10.1 WMI service issues

One potential issue involves the Windows Management Instrumentation (WMI) service, which is critical for InteliSCADA to function properly. If the WMI repository becomes corrupted, the issue may present itself in the following manner:

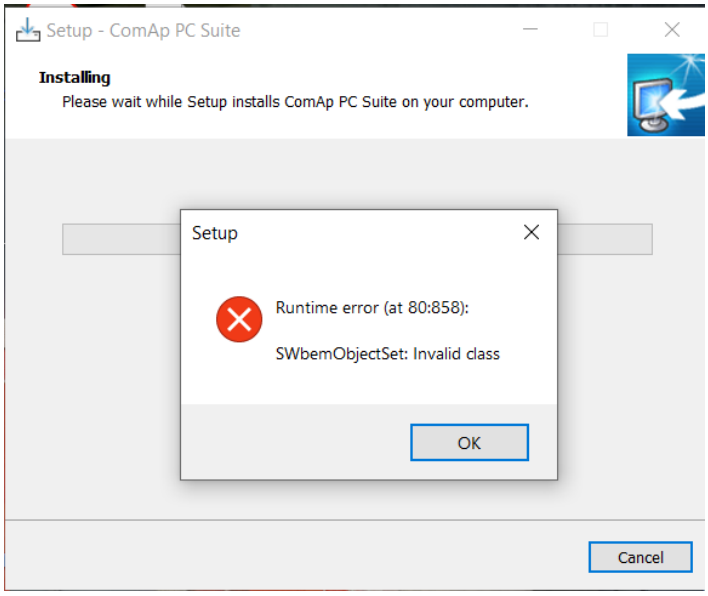


Image 7.7 WMI Repository Corrupted

Potential Solution

One potential solution to this kind of issue would be the following:

- Open up the command prompt as an administrator
- Disable and stop the winmgmt service
- Rename the wbem folder to **"wbembu"** indicating a backup folder
- Remove or rename the **C:\Windows\System32\wbem\repository** folder
- Enable and start the winmgmt service
- Run the following command:

Note: *cd C:\Windows\System32\wbem\ for /f %s in ('dir /b *.mof') do mofcomp %s*

> **IMPORTANT: The command compiles all files with a ".mof" file extension in the wbem directory in order to rebuild the WMI in case of corruption.**

Note: *Please note that modifying anything related to the operating system should be done at your own risk.*