1SDH001276R0001 – 02.2016 Ed. L8500

Ekip View v1.11 – Ekip Control Panel

User manual

Power and productivity for a better world™

WARNING

HAZARDOUS VOLTAGE
CAN CAUSE SHOCKS, BURNS
OR DEATH.

Do not use this product in any way before having read this instruction manual

PLEASE READ THIS DOCUMENT CAREFULLY BEFORE INSTALLING OR USING THIS SOFTWARE WITH CIRCUIT BREAKER AND RELATED DEVICES.

- Store these instructions in conjunction with any other instructions, drawings, and descriptive documents. Keep this document available for use.
- Follow the safety procedures specified by your Company.
- Do not remove covers, open doors, or work on the equipment connected to the device, if you have not cut off the power to the switchboard, and before all the circuits are powered down.

DANGER! Before performing any operation on a circuit breaker, you must:

1. **Keep the circuit breaker in the open position, and make sure that springs are discharged (if applicable).**
2. **Disconnect power from the circuit breaker (main power and auxiliary power), and ground terminals in a visible way, both on the supply side and load side.**
3. **Disconnect the circuit breaker from the plant, removing it from the switchboard if allowed by the execution.**
4. **Secure according to the rules and laws.**

WARNING!

This software is ABB property and is guaranteed only for use with ABB devices.
Duplication and distribution, not previously authorized by ABB, are strictly forbidden.
Any action of disassembly, modification or handling of this software is forbidden.
Installation on Ekip Control Panel of any software application other than those provided by ABB is forbidden and can cause mulfunctioning of the system and void of warranty.

WARNING!

Ekip View has been designed to be connected and to communicate information and data via a network interface which should be connected to a secure network. It is your sole responsibility to provide and continuously guarantee a secure connection between the product and any network and to establish and maintain appropriate protection measures (such as firewalls, authentication measures, encryption of data, antivirus programs, etc.) against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB and its affiliates are not liable for such damages and/or data losses.

WARNING!

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WARNING!

Detailed descriptions of standard procedures for installation, use, maintenance and principles for safe operation are not included in this document.

It is important to note that this document contains safety and precaution instructions, against certain methods (of installation, use and maintenance) that could cause harm to personnel, damage devices, or make them unsafe.

- These warnings and alarms do not include all conceivable ways to make installation, use and maintenance recommended by ABB or not, that may be made, or possible consequences and complications of each conceivable way, nor shall ABB investigate all those ways.
- Anyone using maintenance procedures or devices, recommended by ABB or not, must check thoroughly that neither personal safety nor the safety devices are endangered by mode of installation, use, maintenance or the instruments used. For more information, questions or specific problems contact your nearest ABB representative.
- This manual is written for qualified personnel only and is not intended as a substitute for a proper course, or experience about safety procedures for this device.
- The purchaser, installer or end user is responsible for ensuring that notices and safety signs are posted and that all access points and switching devices are locked securely when the switchgear is left unattended, even momentarily.

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1 Introduction to ABB Ekip View software

Premise

Ekip View is a control and supervision software for devices connected through communication networks using Modbus RTU or Modbus TCP protocol.

It has been developed for all applications requiring:

- remote control of the system, monitoring of power consumption,
- fault detection of the system,
- allocation of energy consumption to different processes and departments,
- preventive planning of maintenance.

The main characteristics of Ekip View are:

1) **Engineering free** and ready to use software which guides the user in the identification and configuration of the devices without any additional engineering activities.

2) **Dynamic mimic panel:** after automatic scanning of the network and the identification of the devices, Ekip View suggests dynamic symbols that summarize the most important relevant information (status, electrical measurements, alarms). The extensive library of electrical symbols enables the whole electrical system to be represented in detail.

3) **Analysis of trends:** the real-time and historical trends of currents, power and power factors are represented graphically and can be exported into Microsoft Excel for detailed analysis.

4) **Reports:** advanced system reports and communication network diagnostics can be created. Moreover, by using the Alarm Dispatcher option, the user can receive the most important alarms via SMS or e-mail.

5) **Web access** to the plant information, thanks to the Web Server function included in Ekip View.

Functions

Ekip view Software		
Communication characteristics		
Protocol Supported	Modbus RTU	Modbus TCP
Physical layer	RS 485	Ethernet
Supervision and control functions		
Opening and Closing of circuit-breakers [1)]	√	
Historical and real time trends	√	
Dynamic installation mimic panel	√	
Automatic scanning	√	
Centralized synchronizing of time	√	
Web server function	√	
Measurement functions [2)]		
Currents	√	
Voltages	√	
Powers	√	
Energies	√	
Harmonics	√	
Network analyzer	√	
Datalogger	√	
Configuration functions		
Setting of configuration parameters	√	
Resetting of alarms	√	
Diagnostics		
Protection function alarms	√	
Device alarms	√	
Communication system alarms	√	
Protection unit tripping details	√	
Events log	√	
Protection unit tripping log	√	
Generation of Reports	√	
Transmission of alarms via SMS	optional	
Transmission of alarms via e-mail	optional	
Maintenance		
Number of operations	√	
Number of trips	√	
Wear of contacts	√	
Other data		
Status of circuit-breaker	√	
Circuit-breaker position [3)]	√	
local/remote mode	√	

Note:

1) *Circuit-breakers equipped with Ekip com Actuator module and electrical accessories.*
2) *According to type and family of the connected device.*
3) *Circuit-breakers equipped with auxiliary contacts for position indication.*

2 Requirement and compatibility

SW requirements	• OS: Microsoft Windows® XP SP3 (x86 and x64) Microsoft Windows® Server 2003 SP2 (x86 and x64) Microsoft Windows® Vista SP2 (x86 and x64) Microsoft Windows® Server 2008 SP2 (x86 and x64) Microsoft Windows® 7 (x86 and x64) • Database: Microsoft Windows® SQL Server 2008, SQL Server 2008 R2, SQL Server 2012.
Compatible devices and HW requirements	• Celeron 1.6 GHz, 512 Mb RAM at the minimum. • Advised at least Pentium IV 3 GHz, 1 Gb RAM. • Nevertheless, these requisites depend on the number of device to monitor.
Environment requirements (only for Ekip control Panel)	• Please refer to the Touch Panel Computer TPC-1X71H User manual

Supported devices

Unit family	Unit type	Architecture		
		COM	ETH	Ekip Link
Tmax XT	Ekip LSI	√ See note 1	√ See note 2	
Tmax XT	Ekip E-LSIG	√ See note 1	√ See note 2	
Tmax XT	Ekip LSIG	√ See note 1	√ See note 2	
Tmax XT	Ekip M-LRIU	√ See note 1	√ See note 2	
Tmax XT	MF, MA, TMF, TMA, TMD, TMG	√ See note 1	√ See note 2	
Tmax	PR222DS-PD	√ See note 3	√ See note 4	
Tmax	PR223DS	√ See note 3	√ See note 4	
Tmax	PR223EF	√ See note 3	√ See note 4	
Tmax	Ekip M-LRIU	√ See note 3	√ See note 4	
Tmax	Ekip E-LSIG	√ See note 3	√ See note 4	
T7/T8/X1	PR332/P	√ See note 5	√ See note 6	
T7/T8/X1	PR333/P	√ See note 5	√ See note 6	
Emax 2	Ekip DIP			√ See note 9
Emax 2	Ekip LCD/Hi LCD	√ See note 7	√ See note 8	√ See note 9
Emax 2	Ekip Touch/Hi-Touch	√ See note 7	√ See note 8	√ See note 9
New Emax	PR122/P	√ See note 5	√ See note 7	
New Emax	PR123/P	√ See note 5	√ See note 7	
System	SD030DX	√ See note 3	√ See note 4	
System	SD030DI	√ See note 3	√ See note 4	
Network Analyser	M2M RTU	√	√ See note 4	
Network Analyser	M2M Ethernet		√	
DMTME	DMTME-I-485-96	√	√ See note 4	
CMS	CMS	√	√ See note 4	
Fuse Gear	ITS2	√	√ See note 4	
ATS	ATS022	√	√ See note 4	

Note:

1) Required: RS485 to COM converter, Ekip COM.
2) Required: Modbus RTU (serial) to Modbus TCP (ethernet) converter, Ekip COM.
3) Required: RS485 to COM converter.
4) Required: Modbus RTU to TCP gateway.
5) Required: RS485 to COM converter, PR330/D-M.
6) Required: Modbus RTU to TCP gateway, PR330/D-M.
7) Required: RS485 to COM converter, Ekip COM Modbus RTU.
8) Required: Ekip COM Modbus TCP.
9) Required: Ekip Link.
10) Required: Modbus RTU to TCP gateway, Ekip COM Modbus RTU.

NOTE: *All modules are ABB accessory with exception to RS485 to COM converter and RTU to TCP gateway.*

NOTE: *If the PC on which Ekip View is installed is provided with a RS485 interface, the RS485 to COM converter is not required.*

NOTE: *Emax 2 FW2.x can be supported by Ekip View V1.3 and later version.*

3 Installation and configuration

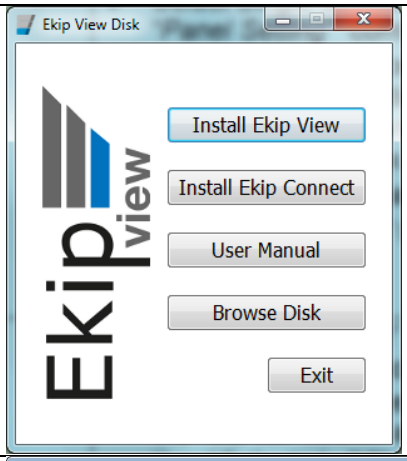
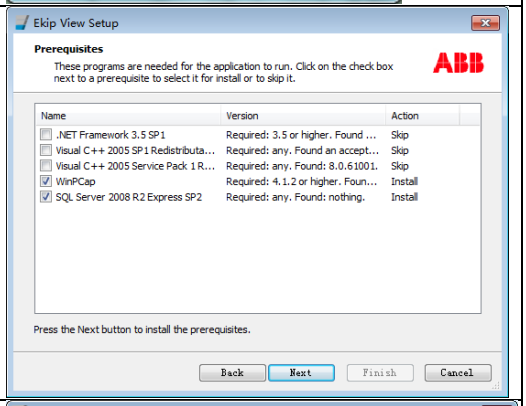
SW installation

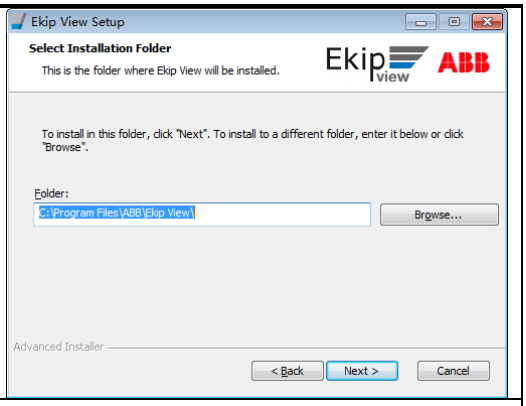
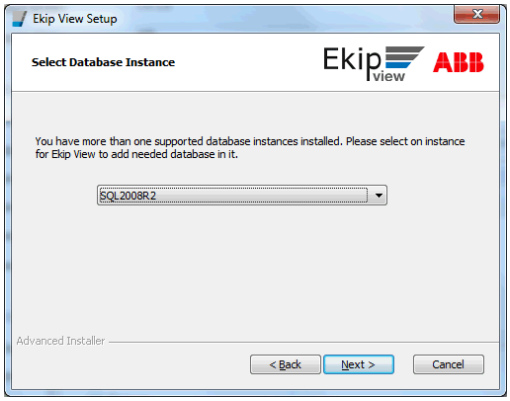
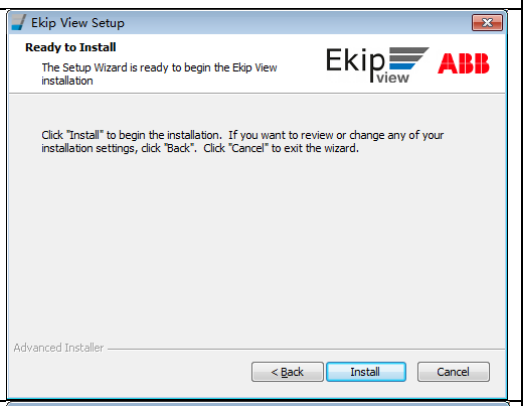
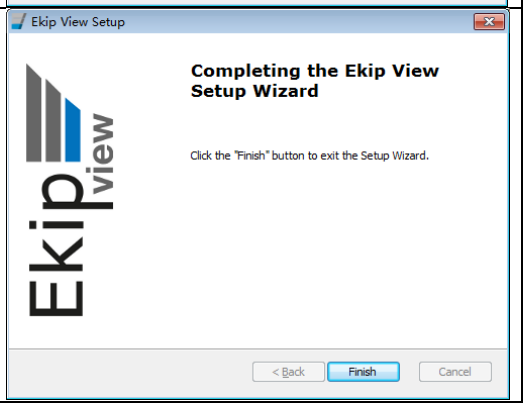
Guided installation of Ekip View after the insertion of the DVD.
If you wish to install Ekip View manually from the DVD, you can access the DVD's folder from the Windows Explorer and execute the "Setup.exe" file contained, for example:

D:\Ekip View\Setup.exe

The Setup will carry out the installation of both the Ekip View runtime environment (i.e. all the applications needed for correct working) and the Ekip View project (i.e. all the configuration files needed to manage monitoring of the customer plant).

During installation it is important to follow the instructions that appear on the screen (see steps below).

Step	***Action***	***Picture***
1	• Insert the DVD, you will automatically enter into the installation environment. • Select Install Ekip View to start installing. ***NOTE**: If Autorun functionality was disabled in your OS, user need to right click your CD/DVD Drive and select "Install or run program from your media" from context menu.*	
2	Install the prerequisites. ***NOTE**: Ekip View will automatically detect which prerequisites are needed to install according to your OS.* ***NOTE**: Restart of computer may be needed during installation of prerequisites.*	
3	Accept the license.	

4	Choose installation path.	
5	If more than one compatible database instance were found on your OS, it will ask you to select one instance for Ekip View to use.	
6	Press Install. Installer will automatically first install runtime and then Ekip View project.	
7	End of installation.	

NOTE: *Ekip View will install SQL server 2008 R2 Express with SQLEXPRESS as instance name if didn't detect a compatible SQL server. So if you have one incompatible database with SQLEXPRESS as instance name installed, error will happen during installing prerequisites. In this situation, please manually install one compatible SQL server.*

NOTE: *System administrator privilege are required to install Ekip View.If the user running the installer does not belong to administrator group, a popup window will appear asking for an administrator username and password.*

NOTE: *The system administrator used to install Ekip View should also have administrator privilege of SQL server to build Ekip View database and initialize it. If not, ask the SQL server administrator to add this privilege before installing Ekip View.*

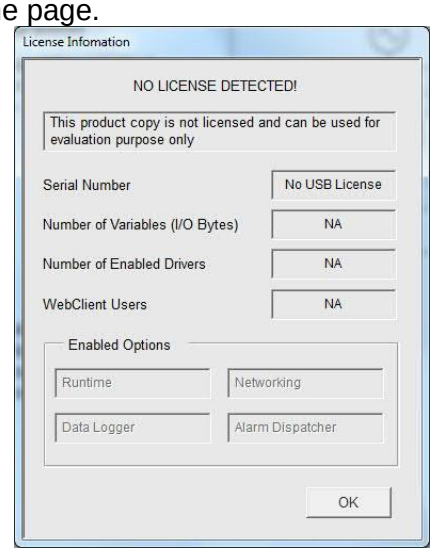
NOTE: *If SQL server was manually deleted, Ekip View database files need to be manually deleted too. Otherwise installer will not build the database for the existing database files.*
The Ekip View database files were placed under SQL server installation folder like this: C:\Program Files\Microsoft SQL Server\MSSQL10_50.SQLEXPRESS\MSSQL\DATA

NOTE: *It is highly recommended to install ABB Ekip Connect (present on the DVD) in order to access to advanced functionality (Dataviewer). For the installation, run the setup file in D:\Ekip Connect on the DVD and follow the instructions on the screen.*

WARNING! *Running Ekip View with accounts other than the Windows user and the administrator (if different) used to install the software will cause files and database access deny.*

Licence installation

Ekip View project execution requires a regular Runtime License.
Runtime licenses supported in Ekip View are USB dongle (included in the product) and are already activated.
To verify the option installed, click on the License information icon in System management area of Home page.



The previous window shows the options which have been enabled on the dongle inserted in the system.
In the absence of a license (hardware or software), a “NO LICENSE DETECTED” message will display at the top of the window.
In addition, in the absence of a hardware license, a “No USB Licence” message will appear in the “Serial Number” field.

NOTE: *The "Enabled Options" for the license are those in black. The options in grey are those which are not enabled.*

NOTE: *The information about the licence option are read during the startup phase, be sure to plug in the USB dongle before the startup of the application.*

WARNING! *Ekip View licence are based on total number I/O bytes in use by application and exchanged with the field devices. Since this number can change during the runtime (depending either the type of devices configured and the graphical page being used) no limitation on number of devices are implemented and the number of devices shown in your license information is a suggested value based on average calculation.*
We highly suggest not configuring more devices than your license can support, if the total in use I/O bytes will exceed the limit of the license, Ekip View will run into “demo mode”.
If the number of bytes in use returns under the limit allowed by the license within 2 hours, Ekip View will switch over from “demo mode”, if not the application will be automatically shut down.

4 Starting Ekip View

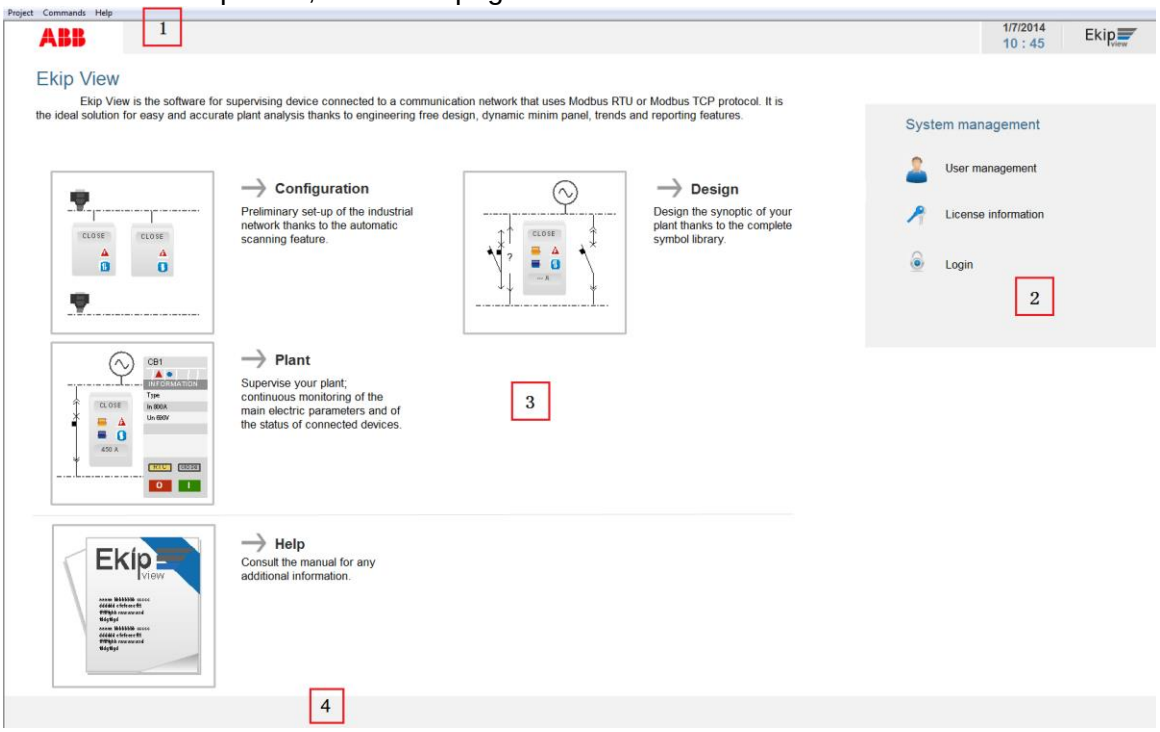
General

For starting Ekip View application double click on the Ekip View icon 

on the desktop or follow "*Start⇒All Programs⇒ABB⇒Ekip View*" ("*Start⇒Programs⇒ABB⇒Ekip View*" if using Windows XP) and click on Ekip View.

Home page user interface

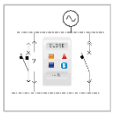
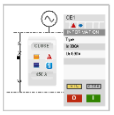
Once started Ekip View, the home page will show as below



Area	*Description*
1	Menu bar, composed by: • Project • Commands • Help.
2	System management area: • User management • License management • Login/Logoff
3	Desktop area. Use link icons to go to the desired section. The four available sections are • Configuration • Design • Plant • Help
4	Status bar

NOTE: Once installed, Ekip View will automatically set up an Administrator User account with the following login information
User name: admin
Password: admin
It is recommended to change password after the first login.

Project menu

Icons / Menu	*Description*
 **Configure Plant**	Go to plant configuration section
 **Design Synoptic**	Go to synoptic design section
 **Monitor Plant**	Go to plant monitoring section
Ekip View Settings	Setting Ekip View configuration, composed by: Project Setting, Database Setting, Report Setting, Database Export and Database Import. See Ekip View Settings for detail
Exit	Exit Ekip View

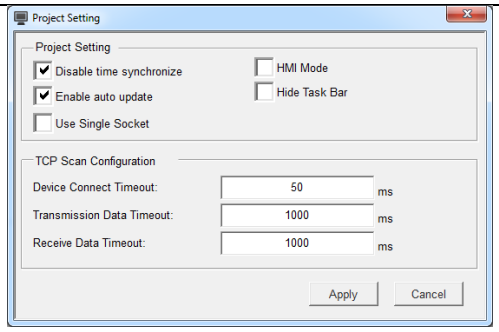
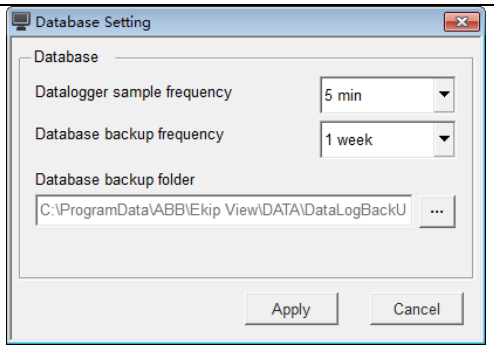
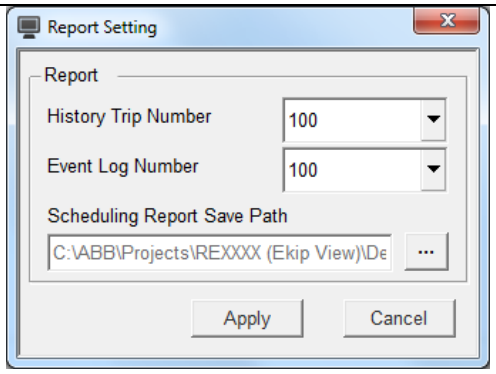
Commands menu

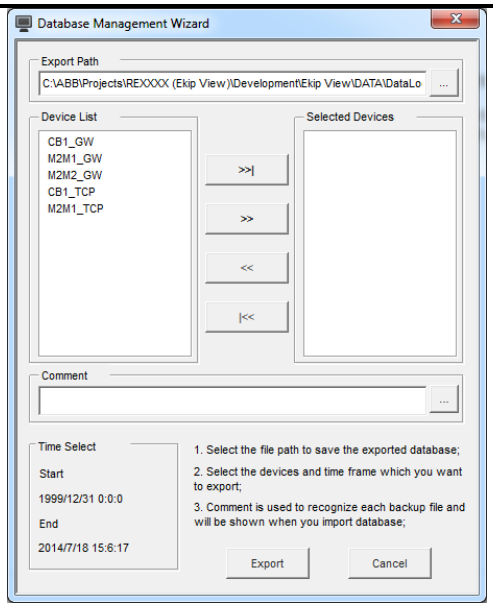
Icons / Menu	*Description*
 **User management**	Manage the group and user setting (see User and password management for detail)
 **License management**	Show license information dialog
 **Login/Logoff**	Log in or log off current user from Ekip View

Help menu

Icons / Menu	*Description*
 **Help Contents**	Open user manual, i.e. this document.
ABB Home	Open the webpage of ABB Home
About	Show the basic information about Ekip View and check for Updates.
License Information	Show the license information

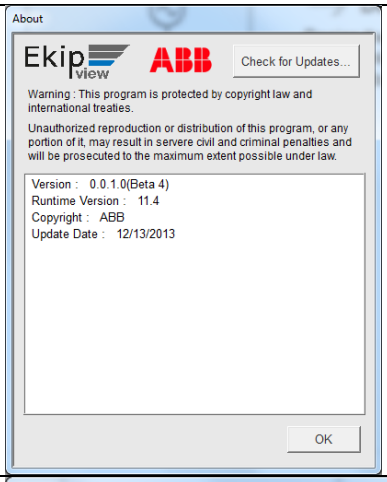
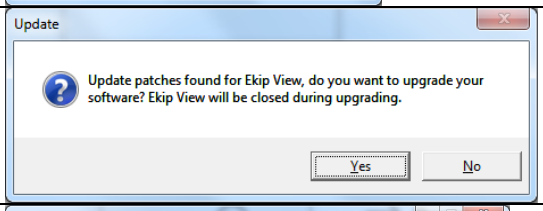
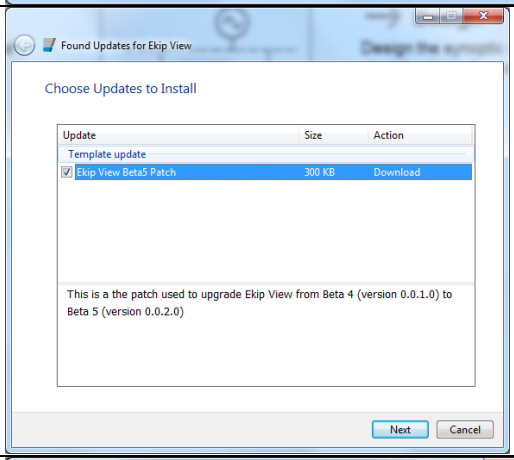
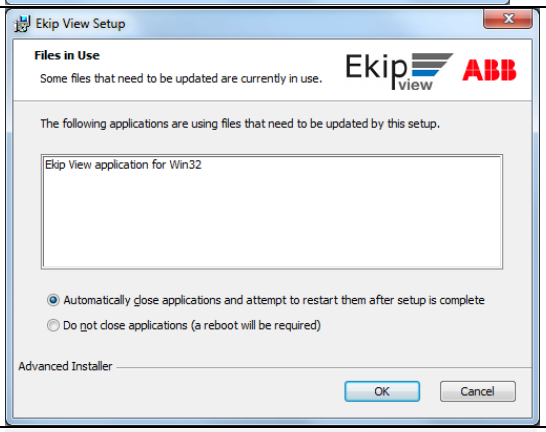
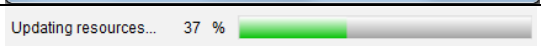
Ekip View Settings

Step	Action	Picture
1	Project setting: • Select the check box if you need to enable the project setting. • Set the TCP scan configuration. • Click Apply to apply setting or Cancel to discard project setting. ***NOTE**: By checking HMI Mode all pop up dialog will be shown in modal which is suggested on low performance computer.* ***NOTE**: Hide Task Bar is suggested to check if your display is with low resolution.* ***NOTE**: Use single Socket is suggested to check if gateway can only accept one connection from same IP.*	
2	Database setting: • Set the datalogger sample frequency. • Set the database backup frequency. • Click … to change the database backup folder. • Click Apply to apply setting or Cancel to discard database setting.	
3	Report setting: • Set history trip number in report. • Set event log number in report. • Click … to change the scheduling report save path. • Click Apply to apply setting or Cancel to discard report setting. ***NOTE**: Device Custom Report will only use the configured number of newest history trip and event log for each selected device.*	

4	Database Export: • Select file path to save the exported database. • Select the devices and time frame which you want to export. • Fill comment tab if need. ***NOTE**: Before export, make sure the account used to log on Windows and SQL server has necessary permission of the folder selected to export. If the account doesn't have the necessary permission, the exported zip file may missing or only contain one file with ".xml" extension.*	

Ekip View updates

User can manually check online updates for Ekip View from About dialog. If user selected Enable auto update in project setting, Ekip View will check the updates automatically once a week.

Step	Action	Picture
1	Open the About screen from Help menu and click Check for Updates… button or follow "*Start ⇒ All Programs ⇒ ABB ⇒ Ekip View"* and click Check Update. ***NOTE**: Version information will change according to your Ekip View version.*	
2	Click Yes to close Ekip View during upgrading. ***NOTE**: Patch information will change according to your software version.*	
3	Choose updates to install and click Next to follow the wasrd.	
4	If Ekip View hasn't been fully closed during installing update, "File in Use" dialog will be pop up. Wait until Ekip View has been fully closed and choose Automatically close applications and attempt to restart them after setup is complete to finish.	
5	Restart Ekip View, the project will show "Updating resources..." or "Updating design…" progress in the right side of the Status bar if any resources or design needed to be updated.	

5 User and password management

General

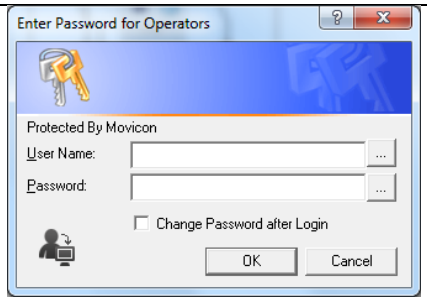
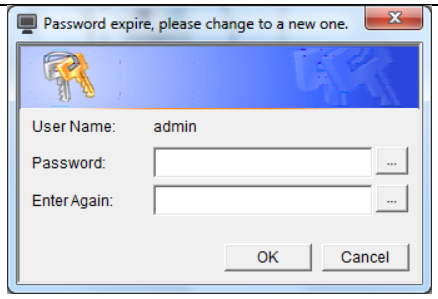
Ekip View user and password management allows protecting the managing of the plant's conditions against unauthorized persons by granting access to the system's functions only after the user's authentication has been verified and confirmed.

Ekip View has defined 4 groups of user with different access privileges:

- **Administrators**: full access to all the Ekip View functionalities.
- **System Engineers**: access to the following functions: synoptic design, monitoring of plant and execute device command.
- **Users**: only have access to monitoring page .
- **Alarm Recipients**: no access to any functionality. This group is only used to store information of the recipient for Alarm Dispatcher functionality.

User login interface

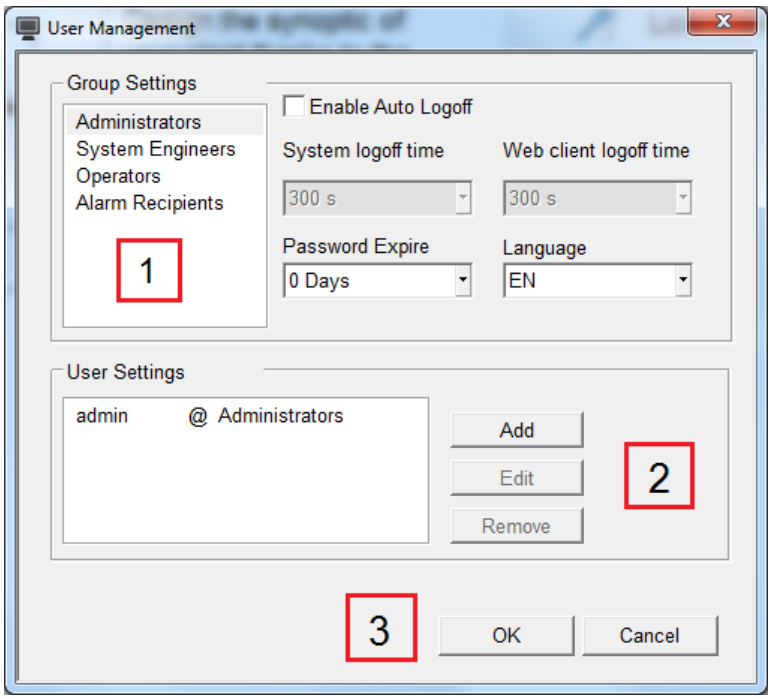
When user try to access components which require higher access level than the actual, the user login window will appear.

Step	***Action***	***Picture***
1	• Input the user name and the password to login. • If need to change password after the login, select Change Password after Login. ***NOTE**: Only when Password Expire set to be more than 0, the Change Password after Login can take effect.*	
2	Press OK to login or Cancel to exit the window without login.	
3	• If user selected Change Password after Login in step1, and the Password Expire for the current user is more than 0, the change password window will appear. • Input the new password twice and press OK to save the change or press Cancel to discard the change. ***NOTE**: Only when Password Expire happen or Must Change Password* enabled, this window will appear.	

User management user interface

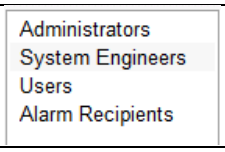
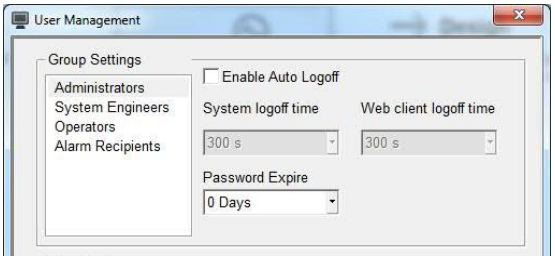
To access the user management area, click on **User management** in the System management area or choose *"Command⇒User management"* from the menu.

The User Management windows will pop up.

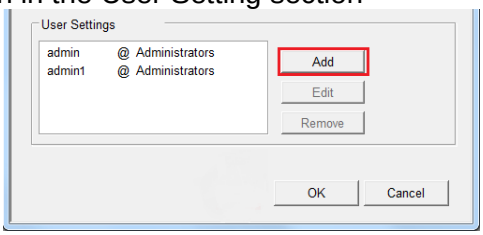
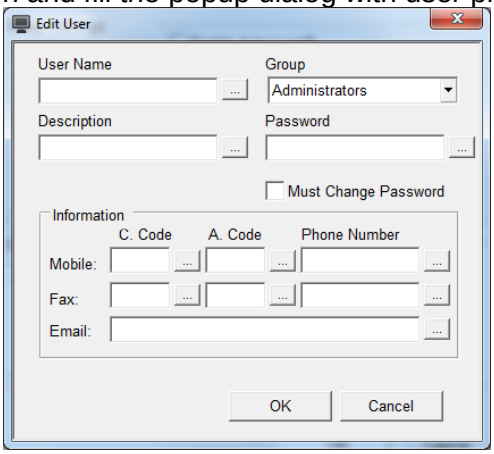
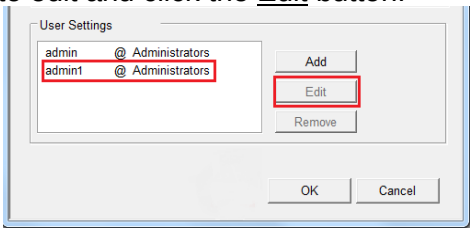
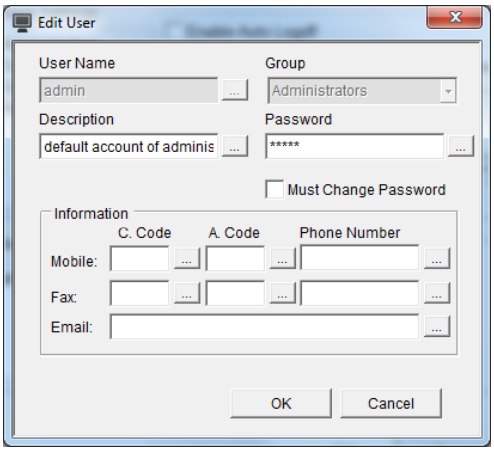


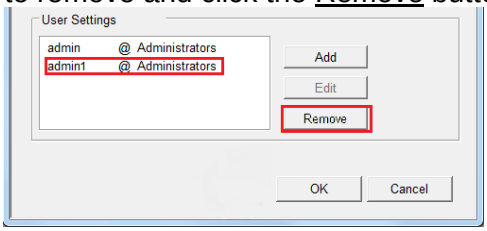
Area	*Description*
1	Group setting section, allows to customize the settings for the variuos user groups
2	User setting section, allows to create, edit and remove user.
3	OK and Cancel buttons.

Groups Settings

Step	*Action*	*Picture*
1	Select the user group that you want to customize the settings.	
2	• Enable Auto Logoff check box enable the automatic logoff of the user after a defined time of inactivity. • System logoff time and Web client logoff time allow to set the inictivity time before automatically log off one user. • Change the Password Expire time if needed. 0 Days means password will never expire. ***NOTE**: After enable auto logoff, you need to re-login to make the change take effect .*	
3	Press OK if done or Cancel to discard the group settings.	

Users Settings

Add user	Click Add button in the User Setting section  Click Add button and fill the popup dialog with user properties.  Press OK when done.
Edit user	Select the user to edit and click the Edit button.  The following windows will appear:  Modify user properties and press OK when done.

Remove user	If the selected user is not the current user, the remove button will be enabled. Select the user to remove and click the Remove button.  Click OK when done.

6 Configuration of the plant

General

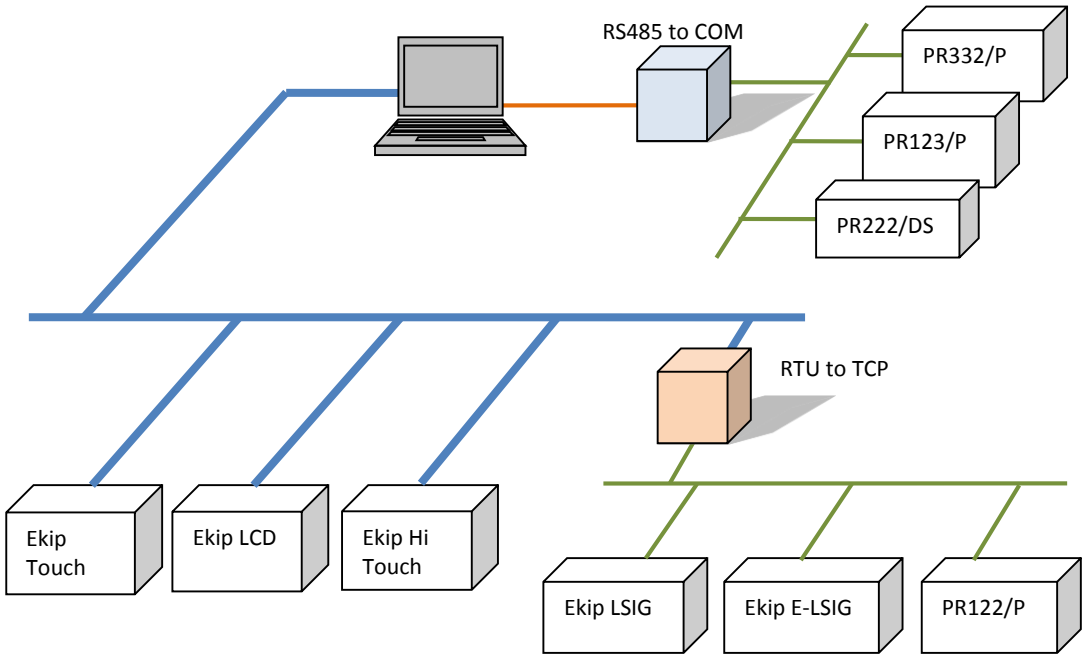
The configuration process of the plant, with the help of the Configurator, is the first step for a correct use of Ekip View system.
In order to start the configuration, click on the configuration icons in the home page.

What is possible to do with the Configurator:
Add devices
Add communication interfaces
Delete devices or communication interface
Test the communication of the configured plant
Import or export an entire configuration
Build the resources of configured devices in order to start monitoring

Ekip View configuration setting is a powerful tool for simplifying the plant engineering process.
It guarantees:
Ease of use thanks to an intuitive graphic interface
Support for system upgrade and maintenance
Time and cost reduction in plant system installation
Native support for a wide range of ABB products
Easily upgradeable to new products

Plant architecture

Ekip View can support Modbus RTU and Modbus TCP protocol.
Depending on the hardware configuration of the computer running Ekip View software RTU devices can require RS485 to COM converter or RS485 to ethernet gateway in order to work properly.



It is recommended to configure properly the field devices communication parameter before the configuration of the plant using Ekip View especially if the automatic scan function is intended to be used.
For unit provided with modbus RTU communication module:

- Units connected to the same network must have the same communication parameters (baud rate, parity, physical protocol)
- Units connected to the same network must have different modbus address

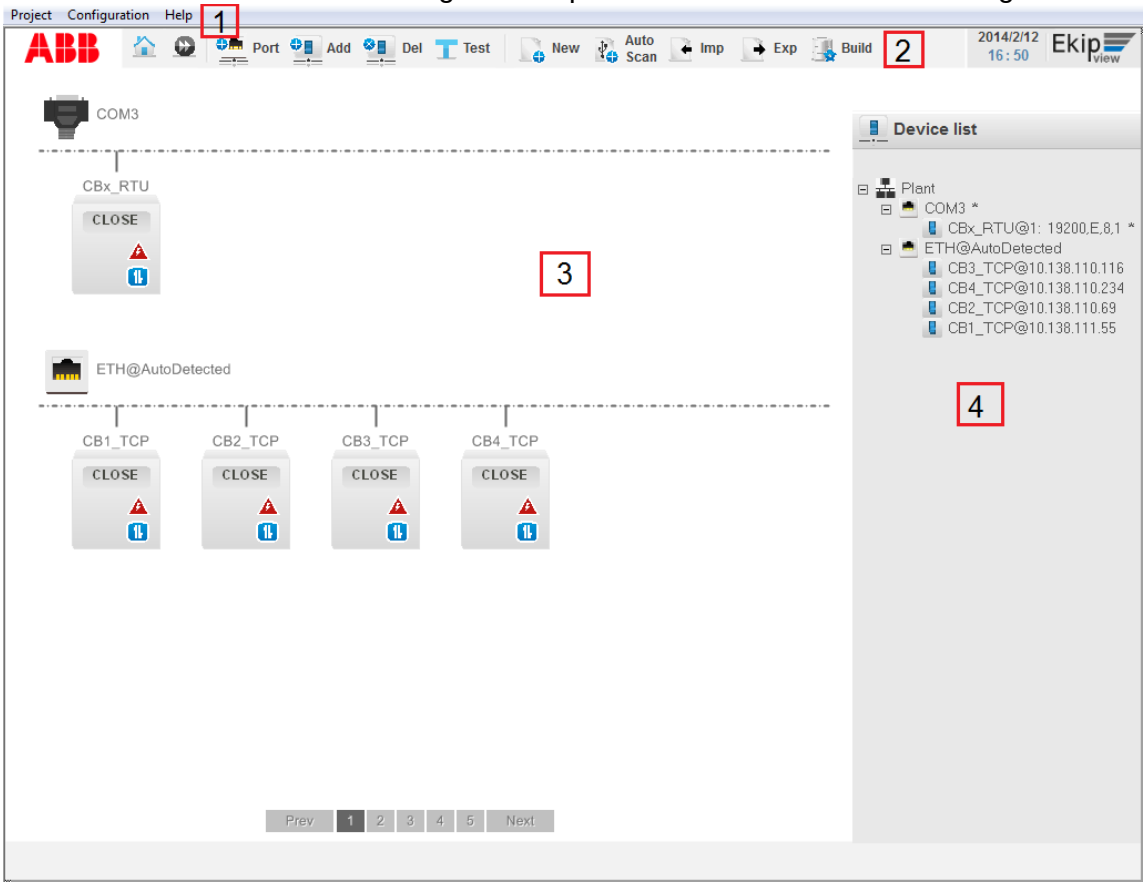
For unit provided with Modbus TCP or Ekip Link communication module:

- Force Static IP address and assign Static IP address to the Unit.
- Units connected to the same subnet must have different IP address
- Enable Gratuitous ARP if you want to use the automatic detection of units (see also Configuration of the plant section)

***NOTE**: Please refer to device user manual to know how to configure communication parameters.*

Configuration user interface

The user interface for all the configuration operations is shown in the following screen:



Area	*Description*
1	Menu bar, composed by: • Project • Configuration • Help.
2	Toolbar, composed by icons which represent the most used functions and can be used as alternative to menu.
3	Plant graphic view, grouped by communication interface.
4	Plant menu tree view, grouped by communication interface.

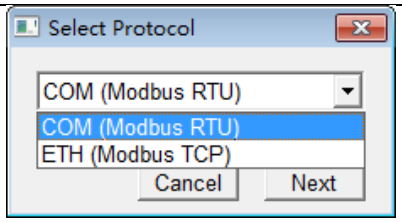
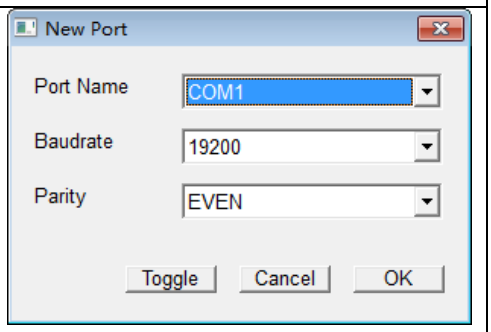
Project menu

Icons / Menu	*Description*
New configuration	Create a new plant configuration. It will delete the existing one.
Import configuration	Import a previously saved configuration file.
Export configuration	Export the current configuration save it as XML file in the specified path.
Home page	This icon take you to the home page.
Design Synoptic	This icon takes you to the next phase, the Synoptic design section.
Monitor plant	This icon takes you to plant monitor section.

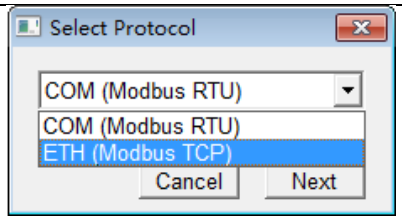
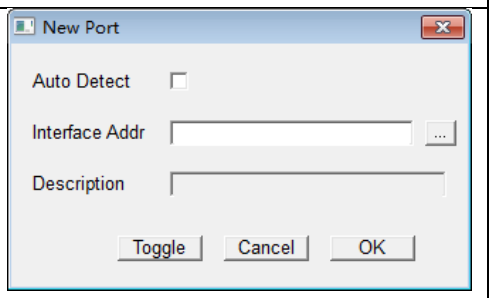
Configuration menu

Icons / Menu	*Description*
Add port	Add a communication interface to the plant.
Add device	Add a new unit to the plant.
Delete	Delete selected unit/interface.
Test	Test the communication of the selected unit.
Auto scan	Allow the automatic scan and detection of the supported devices connected to the network. Also see Automatic scan section.
Build configuration	Build the devices resources (graphic items, variable databases, communication drivers) in user project and start monitoring and recording the data of the configured plant.
Edit port	Edit selected communication interface to the plant.
Edit device	Edit the properties of a configured unit.

Add a serial communication interface (COM)

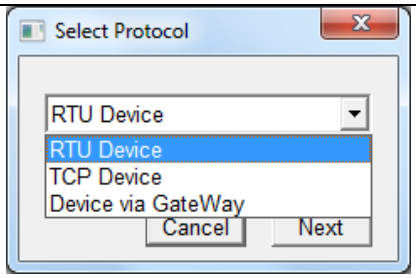
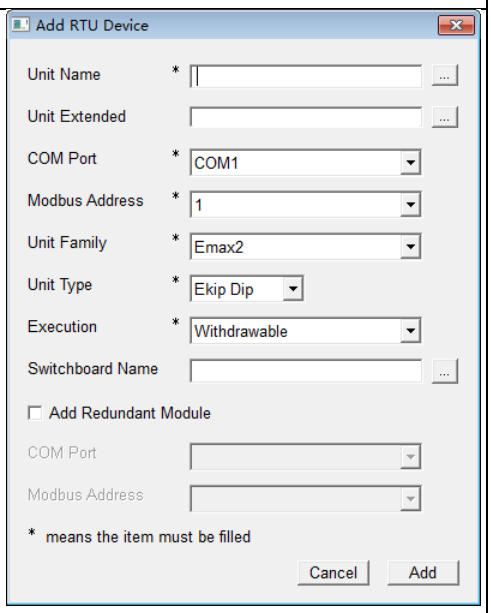
Step	*Action*	*Picture*
1	• Click on the Add port icon. • Select "*COM (Modbus RTU)*" to create an interface for management of Modbus RTU based devices.	
2	• Select the COM interface, the baudrate and the parity of the interface which the field device are connected to. • The Toggle button allow you to switch between all the COM interface available on the computer.	
3	Click OK to create.	

Add a ETH communication interface

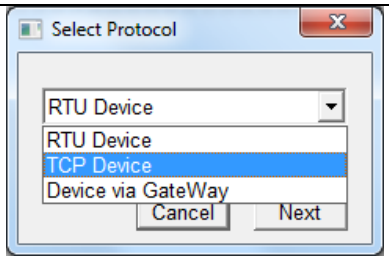
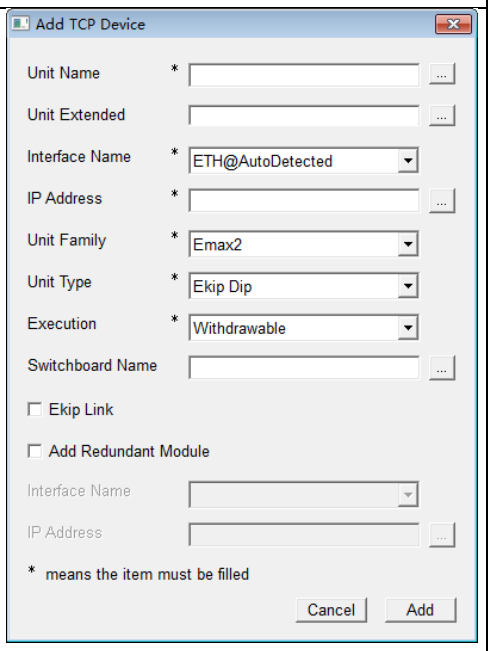
Step	***Action***	***Picture***
1	• Click on the Add port icon. • Choose "*ETH (Modbus TCP)*" to create an interface for management of Modbus TCP based devices.	
2	• Enter the IP address of the ethernet interface your field devices are connected to. • Select Auto Detect if you want the application manage automatically the interfaces. • The Toggle button allows you to switch between all the ETH interfaces available on the computer.	
3	• Click OK to create.	

***NOTE**: If your network is configured to obtain the IP address automatically we suggest selecting the Auto Detect function in order to avoid loss of communication due to change of the IP address.*

Add a Modbus RTU unit to a COM interface

Step	Action	Picture
1	• Click on the Add device icon. • Choose "*RTU Device*" to add a unit provided with Modbus RTU communication module.	
2	• Config the basic information such as unit name, port, mudbus address, unit family, unit type, etc. • Select Add Redundnat Module if the unit being configured is provided with a redundant communication module (only enabled for the device that support this functionality). ***NOTE**: Maximum number of characters for unit name is 10, and others are 20.* ***NOTE**: The accepted characters are numbers, letters, "-" and "_" .* ***NOTE**: Unit Name can not start with numbers*.	
3	Click Add to create.	

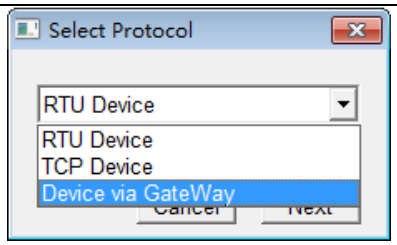
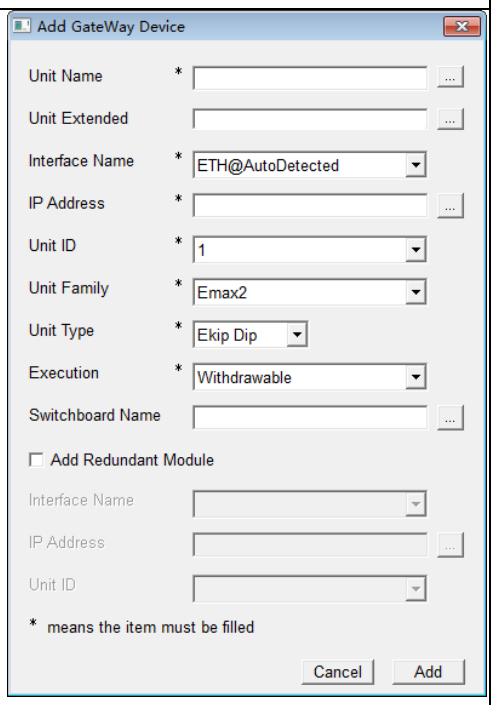
Add a Modbus TCP unit to an ethernet interface

Step	Action	Picture
1	• Click on the Add device icon. • Choose " *TCP Device*" to add a unit provided with Modbus TPC communication module.	
2	• Config the basic information such as unit name, interface name, IP address, unit family, unit type, etc. • Select Ekip Link if the unit being configured is provided with Ekip Link communication module. • Select Add Redundnat Module if the unit being configured is provided with a redundant communication module (only enabled for the device that support this functionality). ***NOTE**: Maximum number of characters for unit name is 10, and others are 20.* ***NOTE**: The accepted characters are numbers, letters, "-" and "_" .*	
3	Click Add to create.	

***NOTE**: IP address can only support IPv4.*

***NOTE**: When adding Interface Name for Redundant Module, if select "NEW *", a new ethernet interface name would be added.*

Add a Modbus RTU unit to an ethernet interface (via gateway)

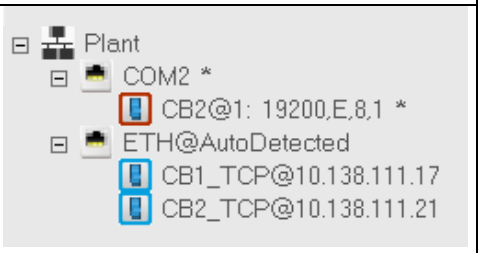
Step	Action	Picture
1	• Click on the Add device icon. • Choose "*Device via GateWay*" to create a device connected via gateway, which converts data from protocol Modbus RTU to Modbus TCP.	
2	• Config the basic information such as unit name, interface name, IP address, unit ID, unit family, unit type, etc. • Select Add Redundnat Module if the unit being configured is provided with a redundant communication module (only enabled for the device that supports this functionality). ***NOTE**: Maximum number of characters for unit name is 10, and others are 20.* ***NOTE**: The accepted characters are numbers, letters, "-" and "_" .*	
3	Click Add to create.	

***NOTE**: IP address can only support IPv4.*

***NOTE**: Communication parameter (baud rate, parity) must be configured in the gateway. Please refer to user manual of the chosen gateway to know how to do.*

Test communication

Before building the resource you can test the communication in order to verify if all the parameters are configured correctly.

Step	*Action*	*Picture*
1	Select the unit, the port or the entire plant you want to test either from area 3 or 4.	
2	Click on the Test icon, the communication status of the selected units will be tested: 1) If no communication error found, the tested units in the tree view in area 3 will be shown in blue color. 2) If communication error found, the tested units will be shown in red color.	

***NOTE**: When select on "Plant" in area 3 to test, all the devices would be tested. When select on port or interface to test, all the devices under the port or interface would be tested.*

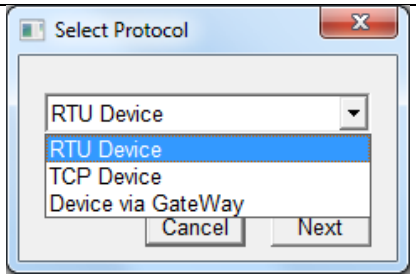
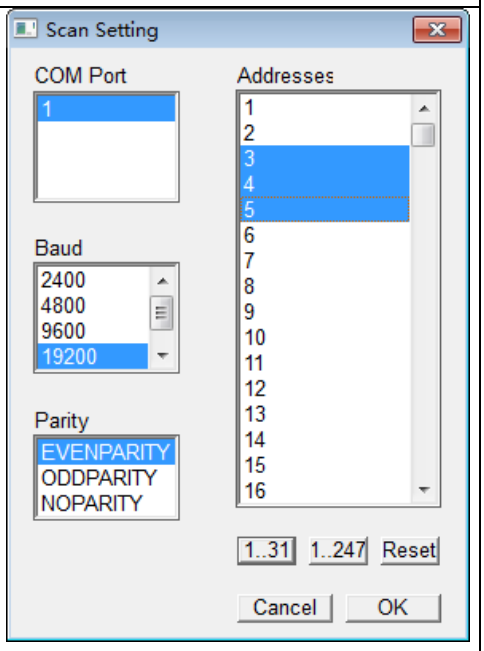
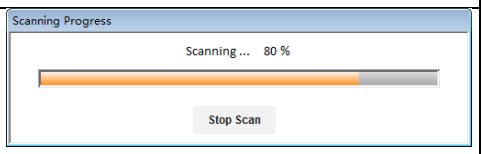
Automatic scan

Automatic scan is a functionality that allow the software to automatically query, detect and add to the plant all the compatible devices that are connected to the network. It's an easy and fast way to configure the plant once all the devices communication parameter and setting are correctly configured.

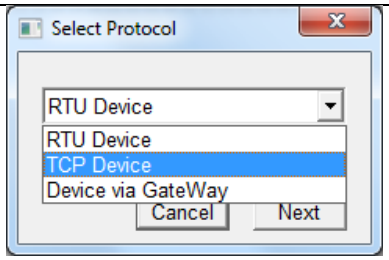
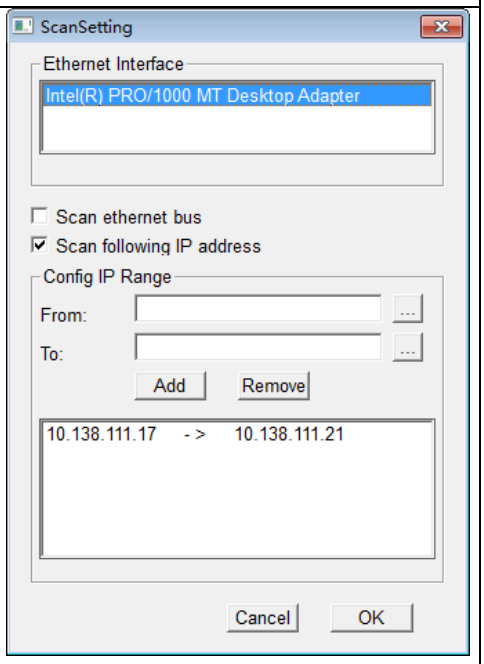
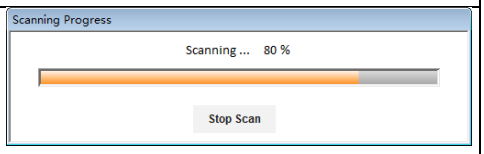
***NOTE**: When the Status bar shows "variables initializing" warning, the Auto scan function is disabled.*

***NOTE:** Do not connect more than one ports of same type to same network which might cause duplicate devices be scanned.*

To automatically detect Modbus RTU devices connected to the network through COM serial port please refer to the following steps:

Step	Action	Picture
1	• Click on the Auto scan icon. • Choose "*RTU Device*" to start setting for scanning devices which connected by protocol modbus RTU.	
2	• Select port number from "*Com Port*" list box. • Select baud rate from "*Baud*" list box. • Select parity from "*Parity*" list box. • Select auto scan addresses from "*Addresses*" list box or click the 1..31 or 1..247 to select a group of continuous addresses. • Click Reset to clear addresses selection.	
3	Click OK to start automatic scan. A progress bar would show the status of scanning.	

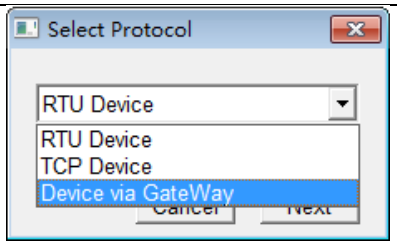
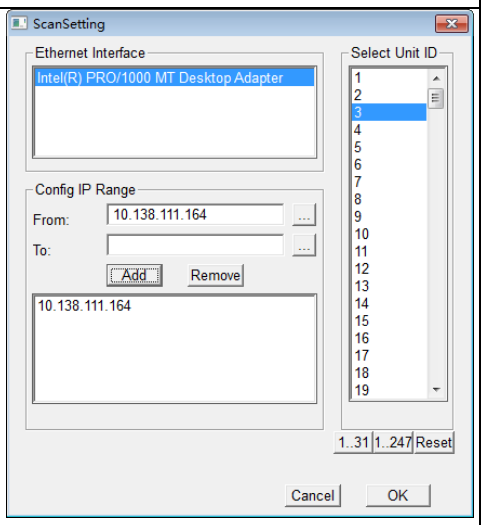
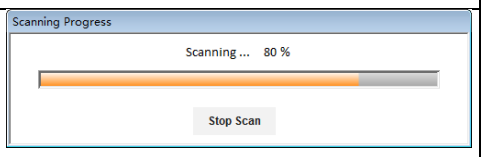
To automatically detect Modbus TCP devices connected to the network through ethernet port please refer to the following steps:

Step	Action	Picture
1	• Click on the Auto scan icon. • Choose "*TCP Device*" to start setting for scanning devices which connected by protocol modbus TCP.	
2	• Select the "*Ethernet Interface*" you want to scan. • Select Scan Ethernet bus if you want to scan by listening the selected interface for gratuitous ARP messages from supported units. Select Scan following IP address if you want to scan a defined range of IP addresses. Enter start IP address in "*From*" edit box and end IP address in "*To*" edit box. ***NOTE:*** *Enter only "From" address to add to the list a single IP address instead of a range.*	
3	Click OK to start scan. A progress bar would show the status of scanning.	

***NOTE**: Only IPv4 can be supported for IP addresses.*

***NOTE**: IP address range automatic scan is supported only on Windows Vista or above. For older version of Windows, if need to use defined IP addresses, please make sure add single address to the IP list.*

To automatically detect Modbus RTU devices connected to the network through RTU/TCP gateway connected to ethernet port please refer to the following steps:

Step	Action	Picture
1	• Click on the Auto scan icon. • Choose "*Device via GateWay*" to start setting for scanning RTU devices managed by Modbus RTU to TCP gateway.	
2	• Select the ethernet interface from which to scan. • Enter start IP address in "*From*" edit box and end IP address in "*To*" edit box. • Click Add button. • Click Remove button to remove an added IP address. • Select the unit ID from "*Unit ID*" list. ***NOTE:*** *Enter only "From" address to add to the list a single IP address instead of a range.*	
3	Click OK to start auto scan. A progress bar would show the status of scanning.	

7 Synoptic design

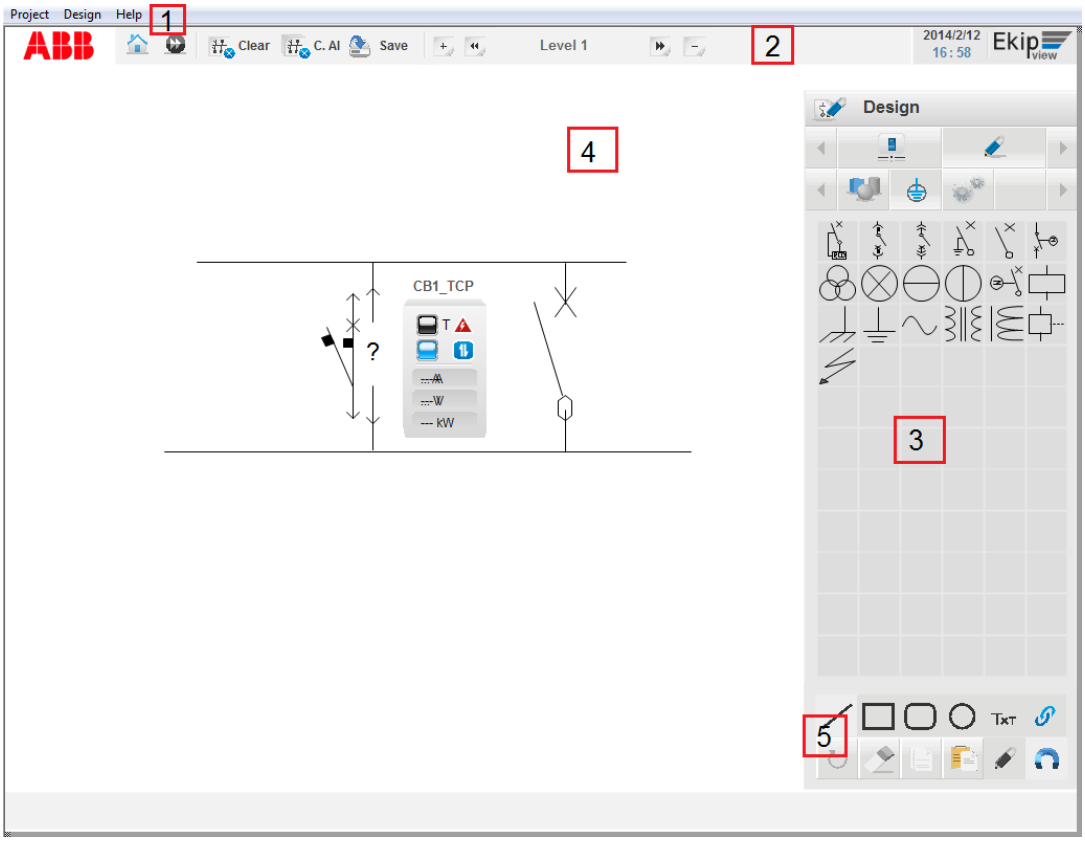
General

The synoptic design section allows the drawing of schematic representation of plant. Plant layout could be drawn according to the actually application. If the plant is complex, it could be divided into different levels; link graphic object allow a fast navigation between pages.

In order to start the design of a new plant click on the design icons in the home page.
What is possible to do with the Synoptic design :
Draw the schematic representation of plant
Clear the drawing schematic representation of plant
Add levels and edit level name
Delete levels

Synoptic design user interface

The user interface for all the configuration operations is shown as in the following screen:



Area	*Description*
1	Menu bar, composed by: • Project • Design • Help
2	Toolbar, composed by icons which represent the most used functions and can be used as alternative to menu.
3	Symbol library, composed by configured devices and basic shapes and common symbols.
4	Synoptic area, where you can place devices, symbol and draw the schematic representation of your plant.
5	Tool box, for drawing basic shapes.

Project menu

Icons / Menu	*Description*
 **Home page**	This icon take you to the home page.
 **Monitor plant**	This icon takes you to the next phase, the plant monitor section.
Configure plant	This menu takes you to the configuration section.

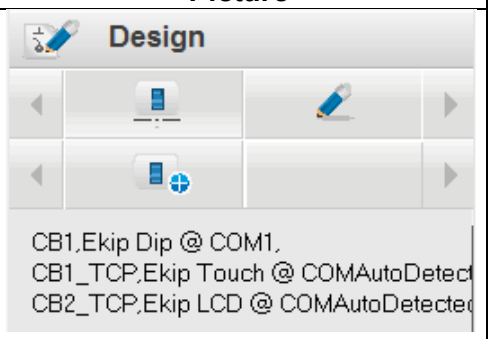
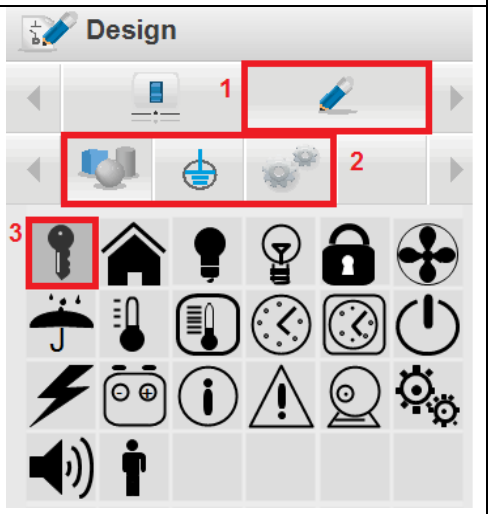
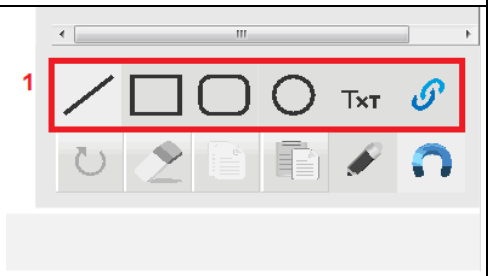
Design menu

Icons / Menu	*Description*
 **Device list**	To show configured devices list.
 **Add device**	Add the selected device.
 **Symbol library**	To show symbol library.
 **Clear page**	Clear the current level drawings.
 **Clear all**	Clear all levels' drawing.
 **Save Synoptic**	Save all the edits.

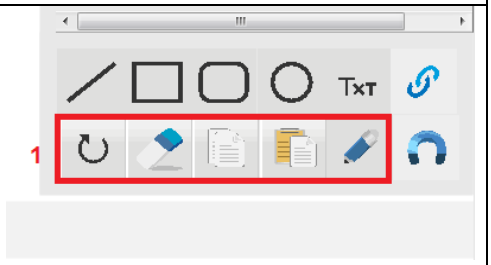
Tools and symbols menu

Icons / Menu	*Description*
Copy	Copy a selected symbol.
Paste	Paste the copy object.
Delete	Delete the selected symbol.
Edit	Edit the selected symbol's property if it is editable.
Rotate	Rotate the selected symbol 90 degree clockwise.
Mag	Magnetize endpoints of configured device and line, so that they can be joined seamlessly while dragging. This function is valid as default.
Add level	Add a new level.
Del level	Delete current level if exists.
Pre level	Switch to previous level if exists.
Next level	Switch to next level if exists.
Line	Draw a line.
Rect	Draw a rectangle.
Round-rect	Draw a round rectangle.
Eclipse	Draw an eclipse.
Text	Add a string of text.
Hyperlink	Add a hyperlink to another level.

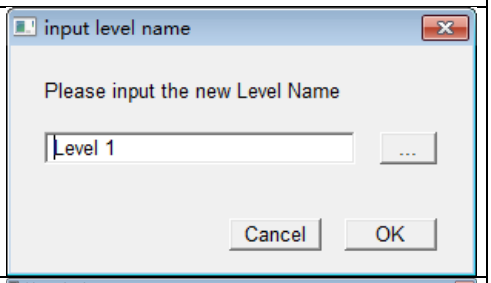
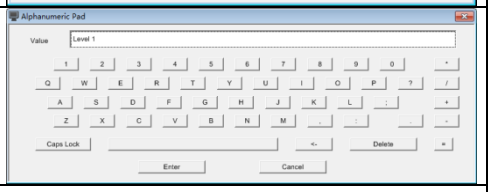
Add symbols to synoptic

Step	Action	Picture
1	Add a configured device: • Click on the Device list icon, all the configured devices will be listed. • Double click the device from list which need to be add (or select at least one device, and click the Add device icon). • Selected devices will be add to the synoptic area.	
2	Add a static symbol: • Click on the Symbol library icon [1] and select one of the three symbols library available [2]. • Click to select the symbol you want to add to the synoptic, it will be highlighted in dark gray [3]. • Move to the synoptic area and draw a rectangle at the intendend position to place the selected symbol.	
3	Add basic shapes • Click to select one of the six basic shapes you want to draw, it will be highlighted in light gray. • Move to the synoptic area and draw a rectangle at the intendend position to draw the selected shape. If a text string or a link tool is added, the property setting dialog will popup. • Click the basic shape again to unselect it when finished.	

Edit shape properties

Step	Action	Picture
1	• Select in the synoptic area the shape you want to modify.	
2	• Click on one of the five action buttons [1] to apply it on the selected shape.	

Edit level name

Step	*Action*	*Picture*
1	• Double click the current level name on the toolbar if there exists a level. • Level name edit dialog will popup.	
2	Input the level name by keyboard or click the … button to use virtual keyboard.	
3	Press OK if done or Cancel to discard changing.	

8 Monitoring of the plant

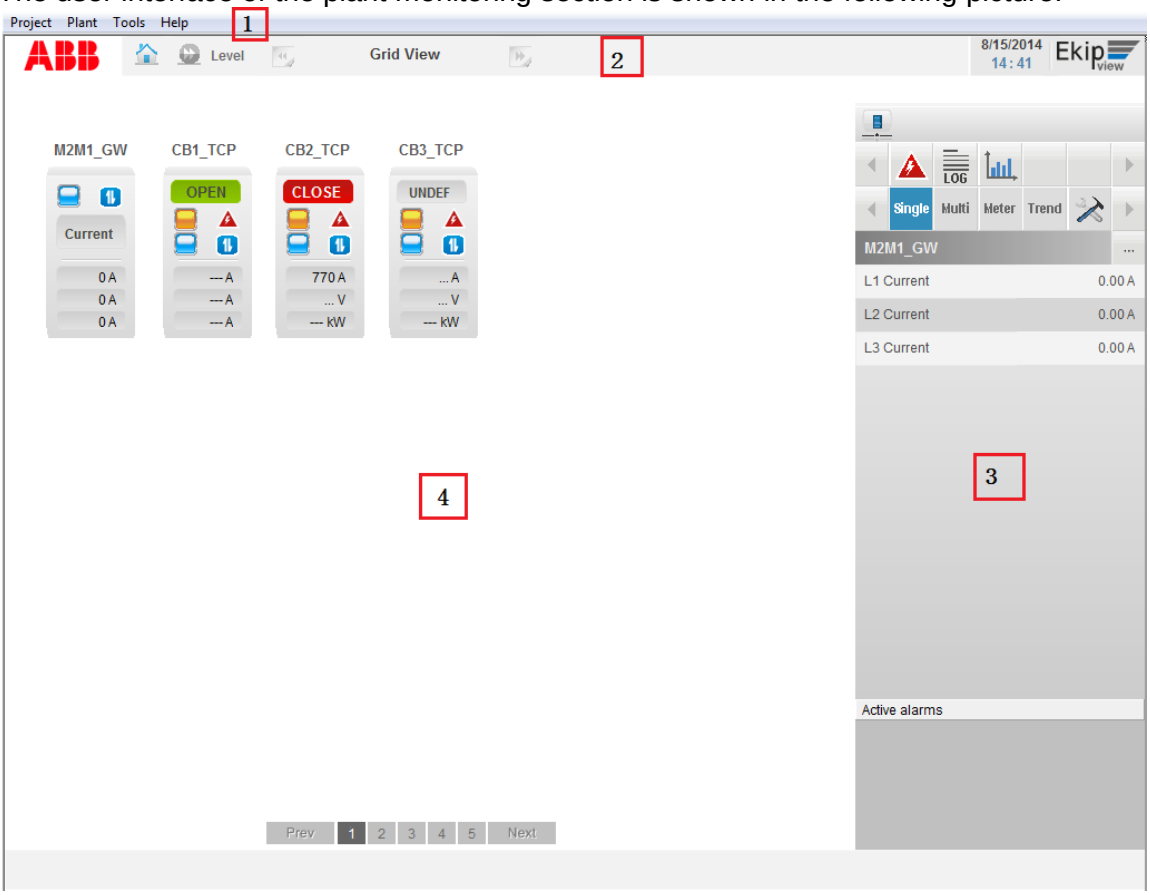
General

Ekip View plant monitor is powerful for the plant supervision. It could continuously monitor the main electric parameters and the status of connected devices.
In order to start the configuration click on the plant icons in the home page.

What is possible to do with the Plant monitor :
Configure device parameter
Control device
Continuously monitor device
Analysis of electrical value trends
Export reports

Monitoring user interface

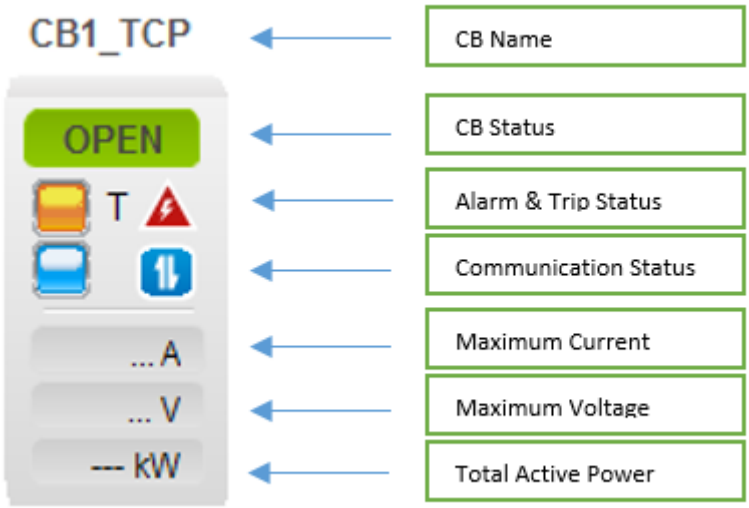
The user interface of the plant monitoring section is shown in the following picture:



Area	*Description*
1	Menu bar.
2	Toolbar, composed by icons which represent the most used functions and can be used as alternative to menu.
3	Panel board section, this area shows detailed information about plant and devices. The content will change depending on whether a device is selected or not.
4	Plant view, this area shows the grid view or the synoptic diagram (if created) of all the devices configured in previous step. Device with normal communication could be selected to show detail information in panel board.

Device Symbol

The symbols which represent the generic field devices is shown in the following picture (in this example a circuit breaker device is shown):



For detail description of the symbol, please refer to Annex C.

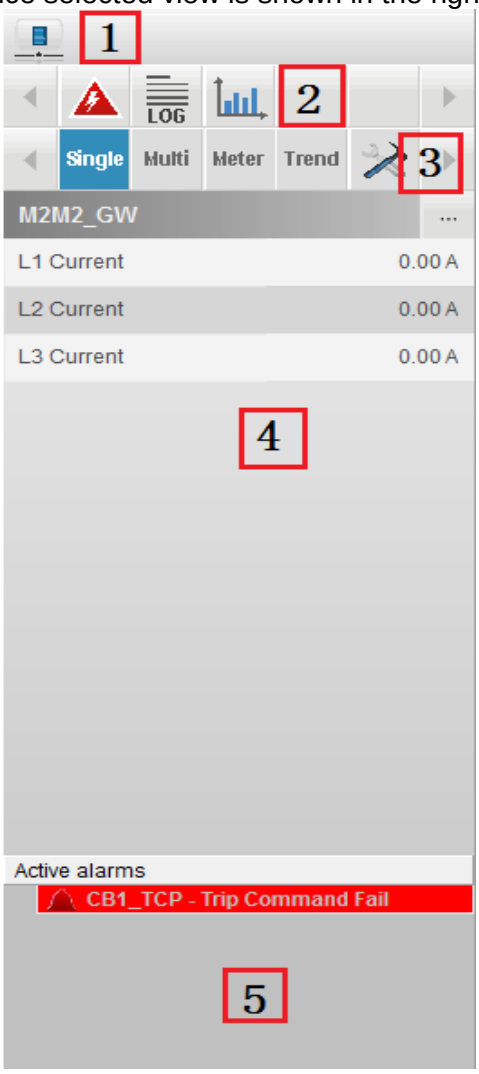
NOTE: *Depending on the type and family of the device the symbol can be different or show different information.*

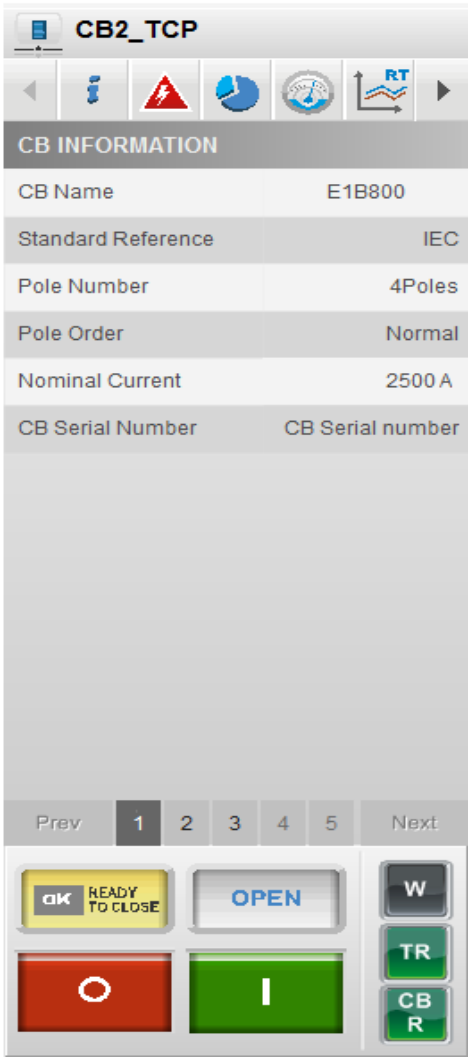
NOTE: *If the resources of the device is not fully initialized or there is communication error, the symbol would be transparent.*

NOTE: *Since at the startup of the project all the device variable are in UNKNOWN status, some time is needed to query all the connected devices before the monitoring become effective and ready to operate. This time depend on the number of device connected and on the type of device and communication parameter (from few seconds to some minutes).*

Panelboard user interface

The panelboard section can be used to interact with the plant and the monitored devices. The shown information will be different depending on whether in the plant area one devices is selected (device selected view) or none is selected (default view).
The panelboard in the default view is shown in the left picture, the panelboard in the device selected view is shown in the right picture:





Area	*Description*
1	Device identification label, it will show the name of the selected device (empty if no device is selected).
2	First level icon toolbar, this level of icons let a defined section of information (or configuration) screens to be shown in the information -configuration area or pop up in a separate windows. The numbers and the type of icons in this area depend on the selected device. If no device is selected it will show the different section available for the default panel board.
3	Second level icon toolbar, gives accesses to a sub set of information - configuration area. Not always shown depending on the first level icons selected.
4	Information-configuration area.
5	Command/Alarm section.

Default view panel board: navigation

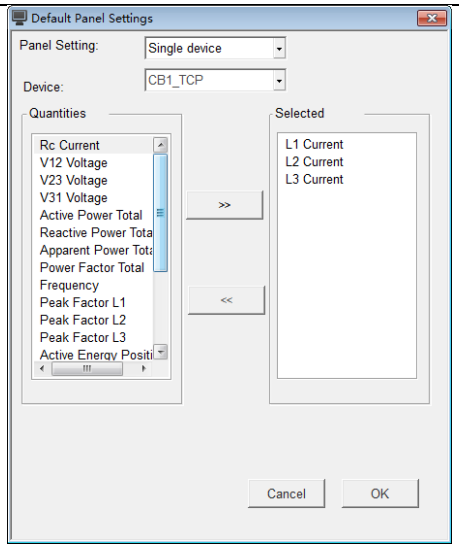
The default view of panel board will be shown when no device is selected in the plant area.
The first level of icons allow the user to easy access some of the most used function of Ekip View.

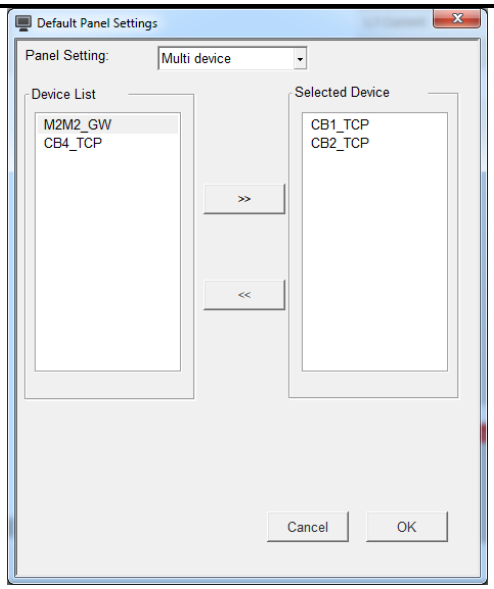
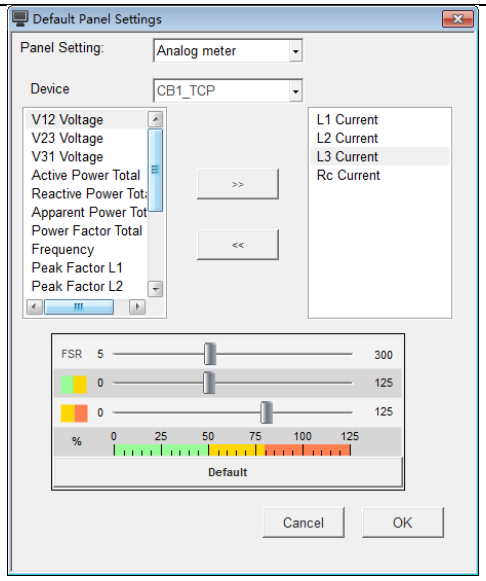
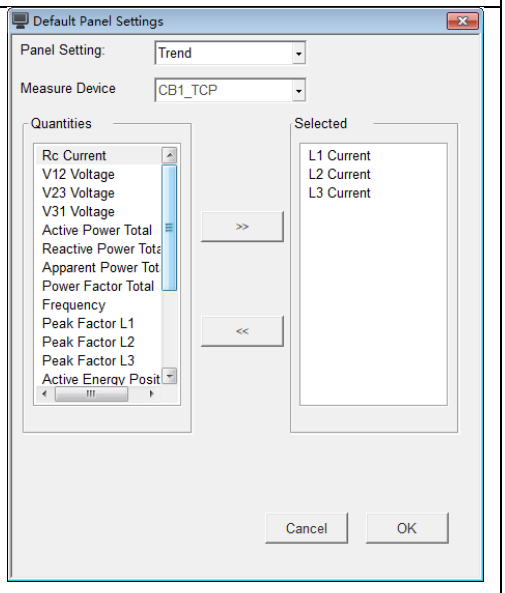
Icon	*Description*
	Alarm manager. Click on this icon will pop up the alarm manager window. (see Alarm management section)
	Log event manager Click on this icon will pop up the log event manager window. (see Log management section)
	Report manager Click on this icon will pop up the report manager window. (see Report section)

The second level of icons allow the user to switch between 4 different views and to configure the content.

Icon	*Description*
	Single device view: shows up to 12 electrical quantities of one device. (user configurable).
	Multiple device view: shows the sum of currents, powers and energies of up to three devices (user configurable).
	Meter view: show the analog meter for three electrical quantities of one device (user configurable).
	Trend view: show the real time trend for three electrical quantities of one device (user configurable).
	Setting: a window will pop-up to allow the user to configure the default views.

Default view panel board: configuration

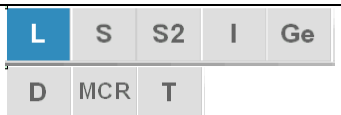
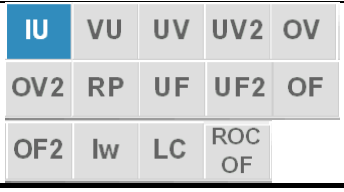
Step	*Action*	*Picture*
1	• Select "*Single device*" from the "*Panel Setting"* combobox. • Choose the device that need to show electrical quantities in single device view from the "*Devices"* combobox. • Choose up to 12 quantities. • Press OK if done or Cancel to discard single device setting.	

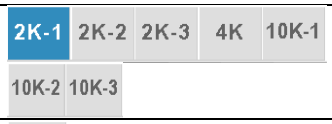
2	• Select "*Multi device*" from the "*Panel Setting"* combobox. • Choose up to three device from the "*Device list*" listbox and transfer to the "*Selected Device*" listbox using the >> button. • Press OK if done or Cancel to discard multi deivce setting.	
3	• Select "*Analog meter*" from the "*Panel Setting"* combobox. • Choose the device that need to show electrical quantities in analog meter view from the "*Device"* combobox. • Choose up to 3 quantities. • Press OK if done or Cancel to discard analog meter setting • ***NOTE***: *For power measuring and power factor, the setting will be mapping to the symmetric negative range of meter chart.* • ***NOTE***: *For bar chart, if the value is negative, the bar will show in red color.*	
4	• Select "*Trend*" from the "*Panel Setting"* combobox. • Choose the device that need to show electrical quantities in analog meter view from the "*Device"* combobox. • Choose up to 3 quantities. • Press OK if done or Cancel to discard Trend setting.	

Device view Panel board: Icons

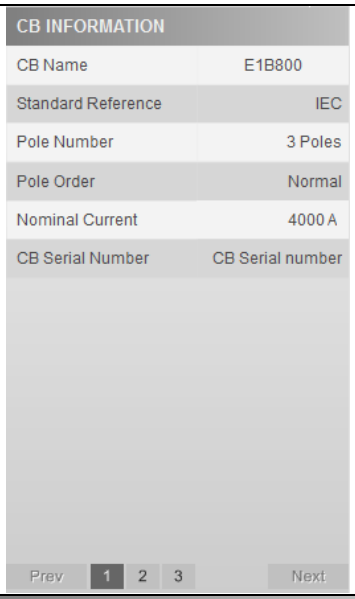
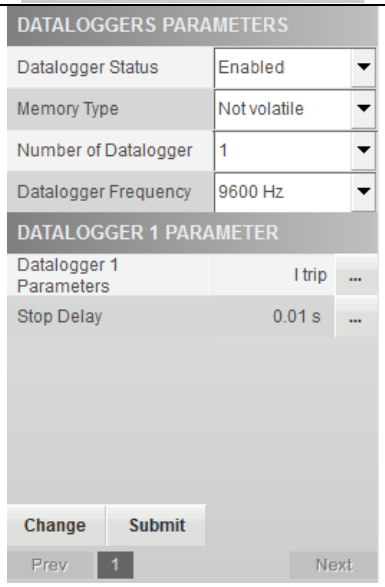
The panelboard view is changed to device view by clicking on one device (either in synoptic or grid view) in the plant area.
The first level of icons allow the user to choose the section to show. Once selected a first level icon, the second level icon will be shown if exists. User could navigate through different pages if the information to show cannot be fitted in a single page. The number of icons and pages depends on the functions and modules available for the selected device.

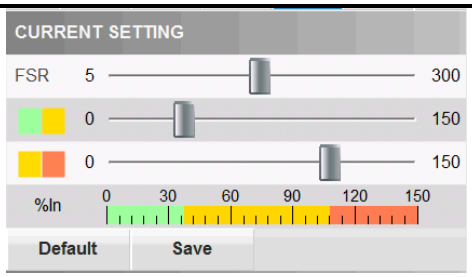
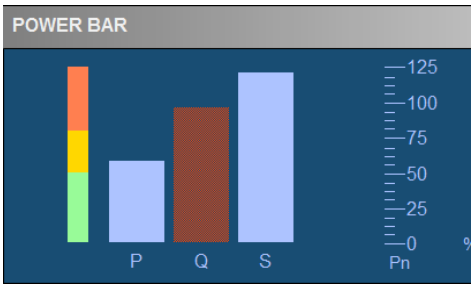
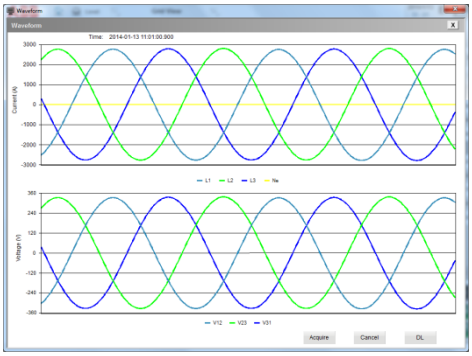
NOTE: *Depending on the type and family of the device the number of icons and the information shown in the Panel board can be different from the ones shown in the following table.*

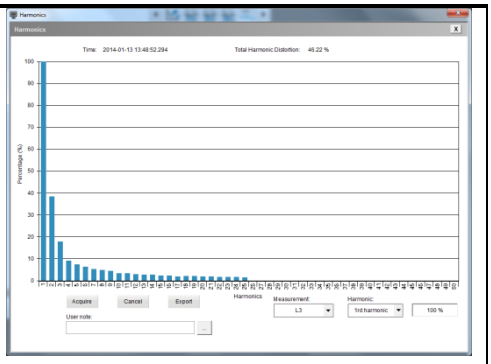
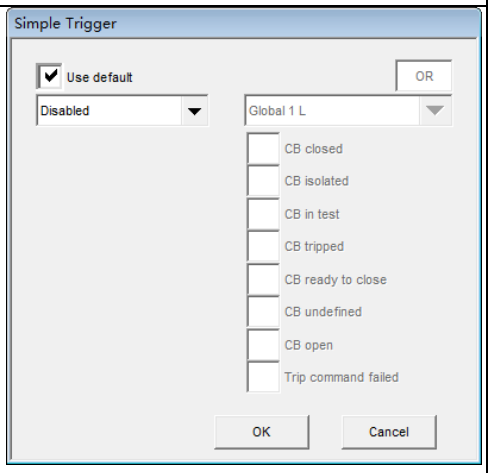
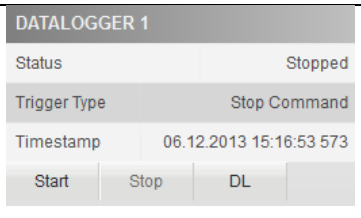
First level Icon	***Second level icon***	***Description***
		Show the basic information of the selected device. Such as device name, pole number, nominal current, etc.
		Alarm manager for selected device. Click on this icon will pop up the alarm manager window (see Alarm management section)
		Show the statistic information. Such as contact wear, number of total operations, number of protection trips, etc.
	 **Measure data**	Show the real time measurement data, such as current, voltage, power, peak factor, energy in numerical format.
	 **Measure bar**	Show the real time measurement data, such as current, voltage, power, peak factor, energy in bar chart format.
	 **Measure meter**	Show the real time measurement data, such as current, voltage, power, peak factor, energy in analog meter format.
	 **Analog setting**	Set bar and meter style. (see Device view Panel board: Information and parameter settings section)
		Real time trend. (see Real time and historical trend)
		Historical trend. (see Real time and historical trend)
		Unit configuration. Config selected device. Such as setting operating mode, language, monitor time, etc.
 		Basic protection A/B. Show (or set) the status and parameters of basic protection (L protection, S protection, I protection, etc.).
 		Advanced protection A/B. Show (or set) the status and parameters of advanced protection (IU protection, VU protection, LC protection, etc.).

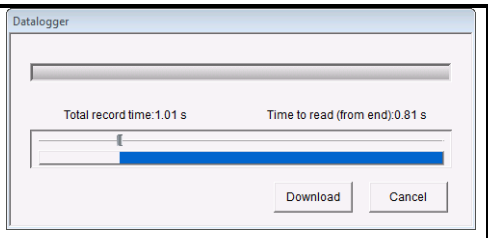
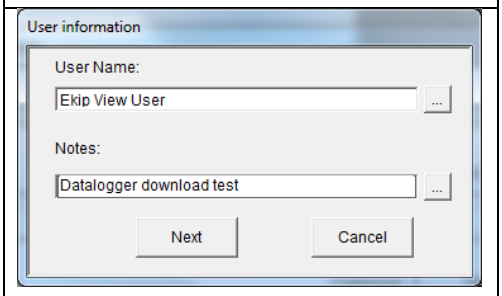
 		*Communication modules.* Show (or set) status and configuration of the communication modules, such as modbus 485 module, modbus TCP module, etc.
		*Signalling modules.* Show (or set) status and configuration of signalling modules.
	 **Synchrocheck**	*Others modules* Show (or set) status and configuration of others modules (e.g. Synchrocheck and Ekip Fan)
	 **Ekip fan**	
	 **Pwr quality setting**	Show (or set) status and configuration power quality modules.
	 **Power quality**	Show statistic information of power quality.
	 **Waveform**	Show and export the waveform of currents and voltages. (see Device view Panel board: Information and parameter settings section)
	 **Harmonic**	Show the harmonic of currents. (see Device view Panel board: Information and parameter settings section)
		Power control information.
		*Programmable status*. Let the user customize programmable status parameters of the device.
		*Input function*. Let the user customize input functions of the device.
	 **Datalog setting**	Show (or set) datalogger status and configuration
	 **Datalog download**	Download data from datalogger. (see Device view Panel board: Information and parameter settings section)
		Show the trip history of the device.
		Report manager. Click on this icon will pop up the report center window (see Report section)

Device view Panel board: Information and parameter settings

Step	*Action*	*Picture*
1	Page switching • Select one device and click the module icon to show details. • Click the page number icon to switch pages.	
2	Parameters setting If there exist parameters to set in current page, the Change/Submit buttons will be shown in the left bottom of the screen. • Click Change button, then the setting items will appear. • Set the parameters (3 types of setting): 1) Select the optional value from combobox (such as select trip time, module's status, etc.). 2) Input value in the edit box (such as setting Tag name, User data, etc.). 3) Click … to open the setting dialog (such as setting date and time, setting user custom functions, etc.). • Click Submit to submit parameters setting. (if you don't want to submit the setting, just left the page without any operation). • Parameters after changing will update in the screen. • If parameters setting failed, Ekip View will inform you "Programming Fail".	

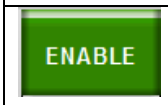
3	Analog (bar and meter) style setting • Move the FSR slider to set Full Scale Range (FSR setting range for current, voltage, and power is 5% to 300%, and for peak factor is 5% to 500%). • Slide to set the different colors critical value and the style bar will show the effect. • Click Default to load default setting. • Click Save to save style setting. (if you don't want to save analog setting, just left the page without any operation). • ***NOTE***: *For power measuring and power factor, the setting will be mapping to the symmetric negative range of meter chart.* • ***NOTE***: *For bar chart, if the value is negative, the bar will show in red color.*	  
4	Waveform • Click Waveform icon to pop up waveform window. • Click Acquire to acquire simultaneous measurement data. • Waveform of each measurement will be shown with legend at the bottom of waveform chart. • Click DL to export waveform char and raw data to an excel file. ***NOTE***: *The waveform device resource is allocated to system bus, samples are acquired simultaneously from several channel. And it is released and become available for other requests after stop acquisition.* ***NOTE***: *Waveform function can only be accessed from Modbus TCP. It will open another connection, so if your connection is already full, this function will be unavailable.*	

5	Harmonic • Click Harmonic icon to pop up harmonic window. • Click Acquire to acquire simultaneous measurement data (this group of measurement data will be recorded in the database with user note if you filled). • Harmonic of each measurement will be shown. • Click Export to export harmonic char and raw data to an excel file. • Select a measurement and the index of harmonic ratio from combobox, the harmonic value will be shown. ***NOTE**: The harmonic calculation starts on selected channel. And an eventual harmonic calculation in progress will be concluded before releasing the resource.* ***NOTE**: For Emax2 FW2.X devices, user could switch between auto data acquire and manual data acquire.* *When left bottom shows "AUTO", it indicates that it's Manual acqure status now, and click the button to switch to Auto status and vice versa.*	
6	Customize simple trigger • User could disable simple trigger or select one trigger type from default trigger combobox. • If you want to customize the trigger, unselect Use default, select trigger byte and set the operation logic between bits. • Click ok to apply simple trigger customizing. • Operation for customizing extended trigger is similar like simple trigger.	
7	Download datalog • Click Datalog download to show download datalog screen. • Click Start to start datalogger recording data. • Click Stop to stop datalogger recording data.	

	• Click DL to show download dialog (datalogger must be stopped first). • Move the slider to set time to read (from end). • Click Download and input the filename. • You could also add the additional information (User name and notes). • Datalog file will be saved with “abb” as suffix (this file could be viewed using SD-DataViewer, another tool produced by ABB). ***NOTE**: Datalog function can only be accessed from Modbus TCP. It will open another connection, so if your connection is already full, this function will be unavailable.*	 

Device view Panel board: commands

Command section allows user to execute commands of the selected device.

Icon	Description
	*Device Ready to close/NOT Ready to close status*
	*Open/close status*
	*Open/close status when fuse is blown for fuse gear device*
	*Device Output Active/Inactive status*
	*Disable device output command*
	*Enable device output command*
	*Device open command*
	*Device close command*
	*Wink command*
	*Trip reset command*
	*Device reset command*
	*Reset energy counters command*
	*Reset max values command*
	*Rest average values command*
	*Start generator*
	*Stop generator*
	*Reset*

***NOTE:** Command type depend on the type and family of the device(e.g. device in local status cannot accept remote commands).*

NOTE: *Command availability depend on the type and family of the device under consideration and on the status of the device itself (e.g. device in local status cannot accept remote commands).*

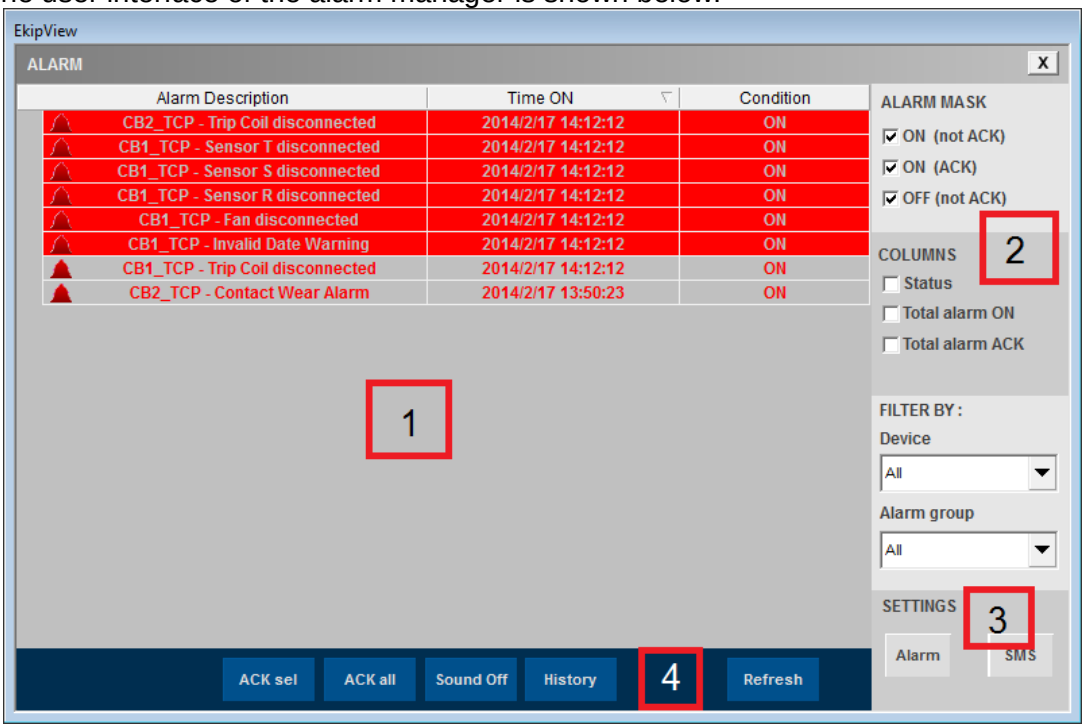
9 Alarm management

General

Alarm management is one of the most important functions for monitoring and maintaining industrial plants. Alarms can help operators to prevent actual plant mulfunction, and to rapidly take care of them. Plant security is improved, operations become more reliable and plant component damage is avoided. All these advantages make plants easier to manage. This section illustrate Ekip View alarm management and describes the way in which it displays alarm information through graphic object and reports.

Alarm management user interface

The user interface of the alarm manager is shown below:



Area	*Description*
1	Alarm viewer, for showing alarm details.
2	Alarm viewer setting, composed by alarm mask setting and alarm viewer column setting.
3	Alarm (see Alarm setting section) and SMS setting(see SMS setting section)
4	Tool bar: operations for alarm item.

Alarm groups

Alarm in Ekip View is linked with monitored devices status.
Alarm are organized in several categories:

Alarm group	*Description*
Warning	Device warning condition (e.g. Protection pre-alarms and warning)
Alarm	Device alarm condition (e.g. Protection alarms)
Timing	Device timing condition (e.g. Protection timings)
Trip	Device trip condition (e.g. Protection trips)
Error	Device error condition (e.g. Connection error, Internal Error)

Alarm management

User can perform several action in the alarm management windows:

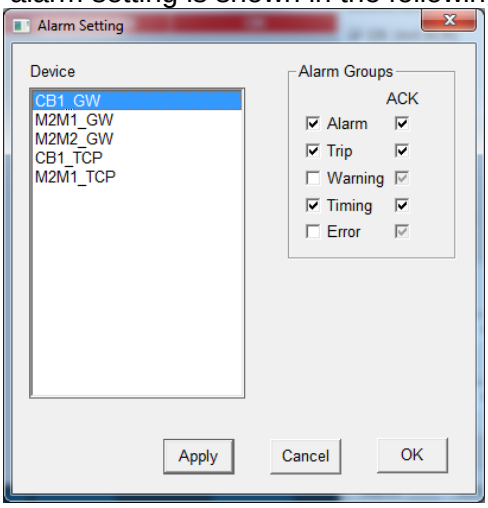
- Acnowledge alarm (all or selected)
- Enable disable alarm sound
- Show the history of the alarms

The alarm windows can be customize in order to show more or less information (columns section) and alarm can be filtered by device and by alarm group.

***NOTE**:After customization of viewing property or filter selection Refresh the list with the dedicated button.*

Alarm setting

The user interface of the alarm setting is shown in the following:



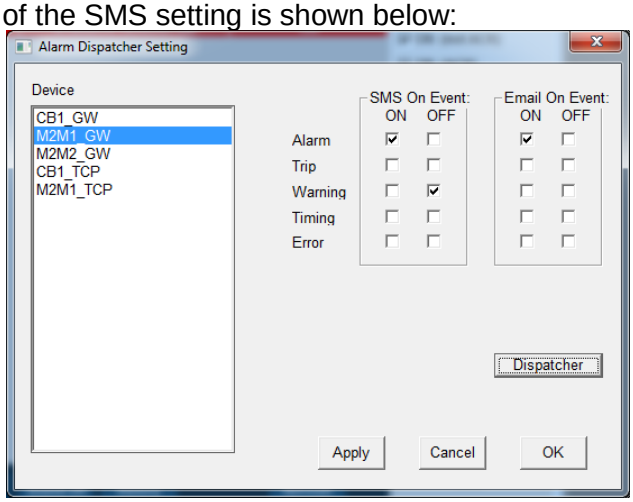
Select one or more devices form device list box and set the alarm groups you want to enable for the device and if you want this group of alarm to support acknowledge

***NOTE**: If alarm supports acknowledge, it will stay in the alarm window until user acknowledge it.*

***NOTE**: If selected more than one deivces* for setting, each device setting will be merged as common setting for all the selected devices. And Ekip View will prompt saving changings.

SMS setting

The user interface of the SMS setting is shown below:



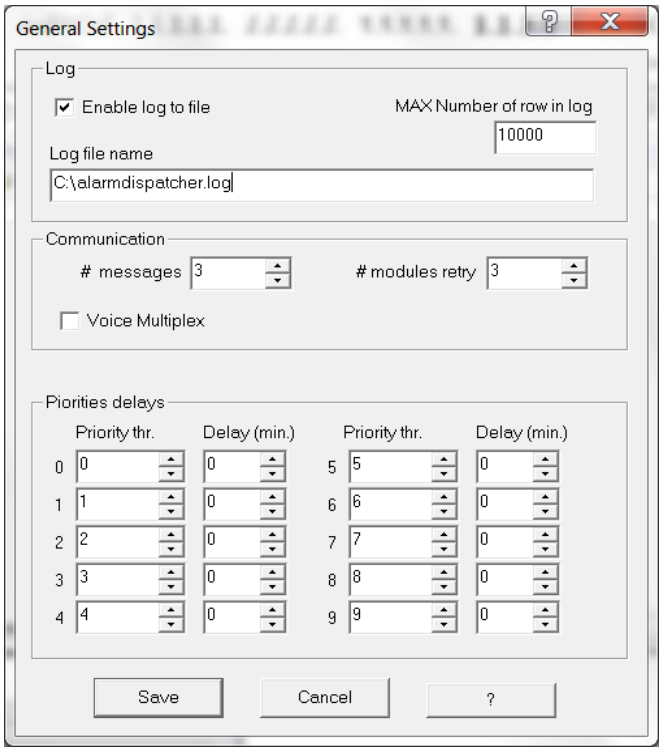
Select one device form device list box and set whether the alarm belonging to a defined group need to send SMS or Email when changing is status.

Alarm dispatcher

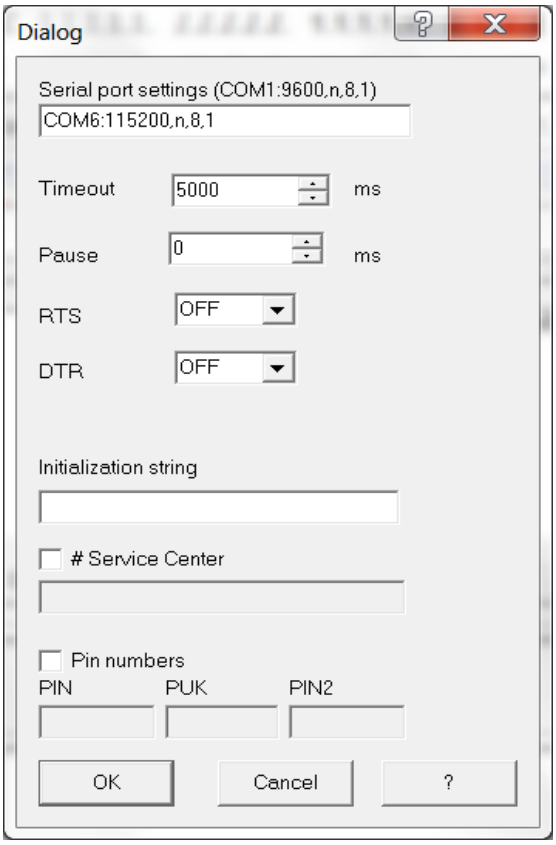
Ekip View integrates a powerful module for alarm and event notifications to recipients or groups of recipients.
Each group of alarm can therefore be associated to emails or SMS and dispatched to operators.
In order to use the dispatcher functionality of Ekip View, at least one user in the Alarm recipients group must be present and data as mobile phone number, fax number and email must be provided.
Alarm dispatcher is a software program for (notification) sending messages using various means of communication (Plugin), from among those configured. The communication protocol available are:

1. SMS messages by means of SMPP
2. SMS messages by means of GSM (**recommended**)
3. Sending a Fax
4. Sending Voice Messages (Voice Synthesis)
5. Sending E-mails by means of SMTP protocol (**recommended**)
6. Sending E-mail by means of MAPI
7. SMS messages using Ucp-Emi protocol

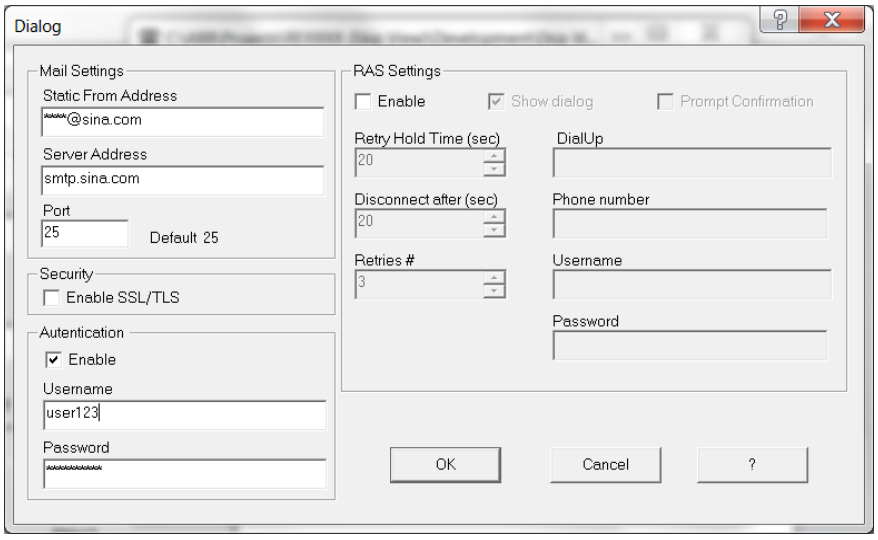
Clicking “Dispatcher” button (see SMS setting section) shall open alarm dispatcher interface. Its general setting is shown below:



The settings window makes it possible to configure the messages notification system by means of the SMS technology based on GSM, using any standard GSM modem.



This settings window shown as Figure 9.6 allows configuration of the messages notification system by e-mail using direct access to a server using SMTP protocol.



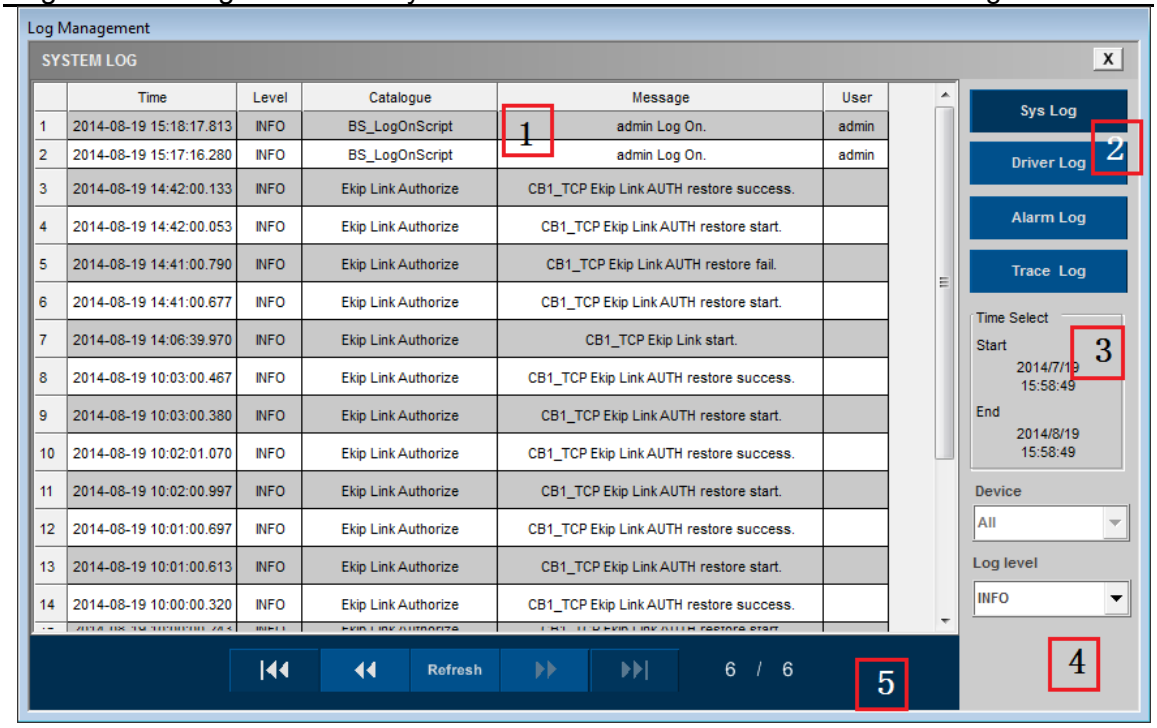
***NOTE**: User need to prepare the required conditions for Ekip View to implement the alarm dispatch function. If sending SMS via GSM, standard GSM modem need to be used.For Email dispatch a internet connection must be available.*

10 Log management

General

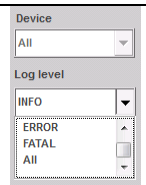
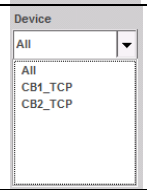
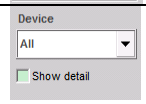
Log management allows viewing recoded logs, such as system log, driver log, alarm log and trace log. It's also easy for user to customize the time frame and log level.

Log management user interface



Area	*Description*
1	Table, for showing log details
2	Log type selection(see Log type and settings section)
3	Time select, change the time horizon for logs
4	Log setting**(**see Log type and settings section**)**
5	Navigation bar, switch to other pages and refresh the log

Log type and settings

Log type	*Settings*	*Picture*
Sys Log	For System log, user could set which device's log to be shown in the data area and the log level (INFO, ERROR, FATAL and ALL).	
Driver Log Alarm Log	For Driver log and Alarm log, user could set which device's log to be shown in the data area.	
Trace Log	For Trace log, user could set which device's log to be shown in the data area and whether to show log detail information or not.	

11 Real time and historical trend

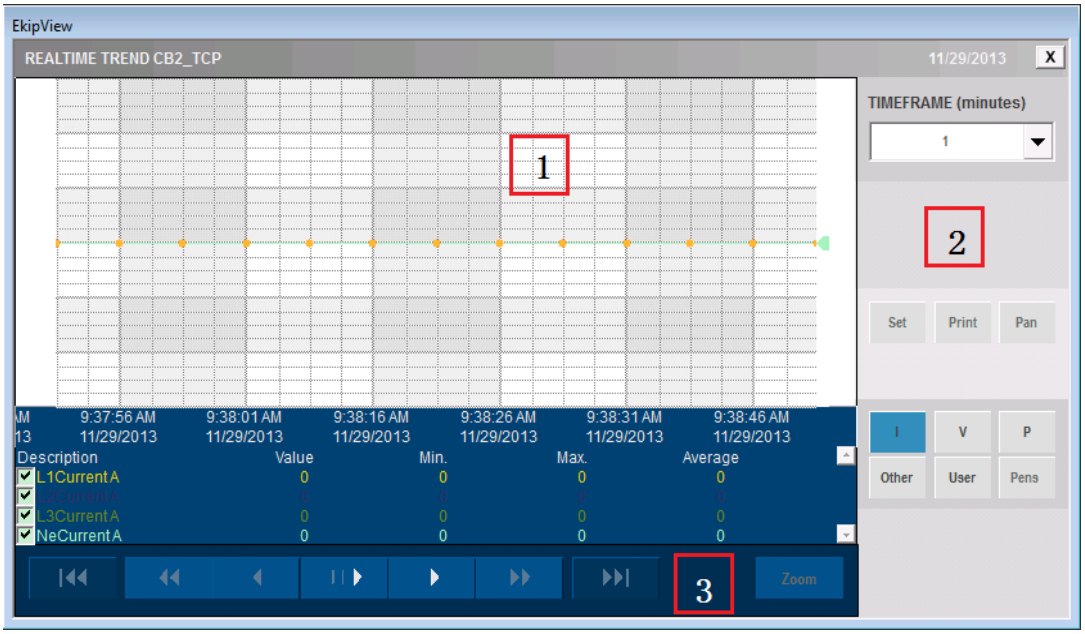
General

Ekip View Real time and historical trend is powerful for the user to view the trend of measurements, such as currents, voltages, powers, etc. User could choose which measurements and set the trend chart displaying properties (pen property, time frame, zoom) and print the trend chart.

Real time trend

Real time trend shows the real time data of measurements. You can pause or run the data acquisition. To view the real time trend, you need to select a configured device with normal communication from plant view in plant monitor section. And click 

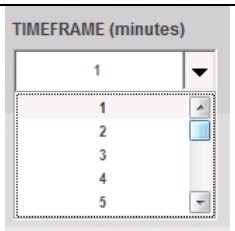
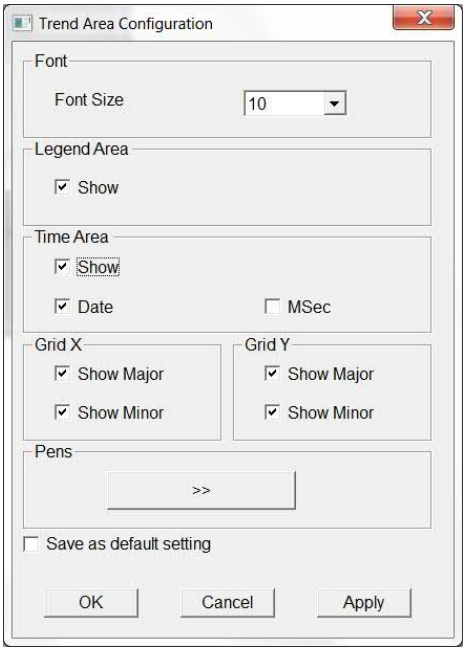
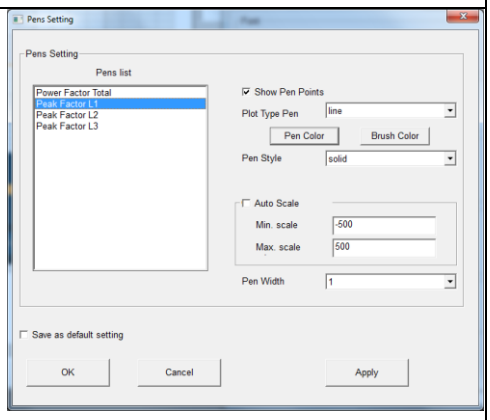
button in the panel board's first level tool bar. The following window will popup

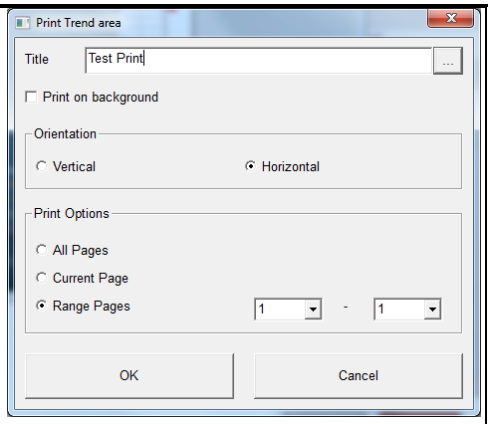
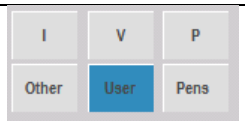
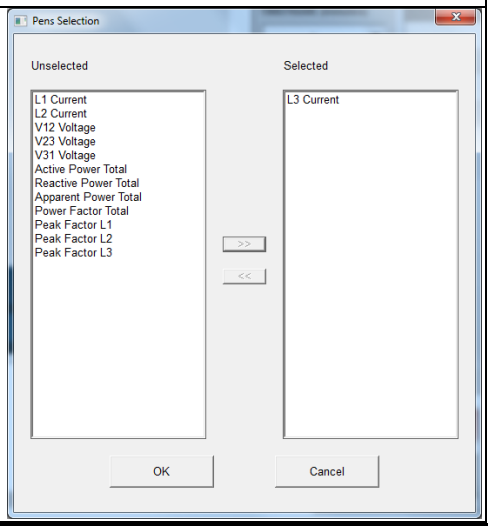


***NOTE**: Real time trend will not store the measurement data, if you close the window, all the data will lost.*

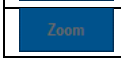
Area	*Description*
1	Trend chart section
2	Trend setting (see Real time trend settings)
3	Navigation bar (see Real time trend navigation bar)

Real time trend settings

Step	*Action*	*Picture*
1	Time frame (minutes) • Select the time of frame from "*TIMEFRAME(minutes)*" combobox. • The time area of the trend chart will change as the selection.	
2	Trend area configuration • Click on the Set button (this button will be enabled only if user pause data acquisition). • Setting the font size, visible of legend area, visible of time area and time frequency, grid density. • Click >> and go to step 3 to set pen properties. • If you need to save the setting as default, select Save as default setting. • Click OK to apply settings and return back to real time trend window (Apply button is also apply settings, but user could continue setting) or Cancel to discard setting trend area.	
3	Pen setting • Select a measurement pen need to set from "*Pen list*". • Select Show Pen Points if you want to show the pen points on the char. • Setting plot type, pen color, brush color and pen style. • Setting the trend area scale. • Setting pen width. • If you need to save the setting as default pen properties, select Save as default setting. • Click OK to apply settings and return step 3 (Apply button is also apply settings, but user could continue setting) or Cancel to discard pen setting.	

4	Print trend area • Click on the Print button (this button will be enabled only if user pause data acquisition). • Input the title. • Select Print on background if you need to print with trend time area background. • Set the orientation of trend chart. • Set the print pages. • Click OK to prepare printing. • Set printer property and print (If the trend is printed as a document, you need to select the file path and input the file name).	
5	Pan the trend area • Click on the Pan button (this button will be enabled only if user pause data acquisition). • Move the mouse or swipe on the HMI screen to pan the trend area.	
6	Pen selection • Click the pen selection buttons to switch different pens (current, voltage, power and others). • If you want to custom the pens, click User button and the Pens button will be enabled. • Click Pens and go to step 7 to customized trend pens.	
7	Customize trend pens: • The optional pens are listed in the "*Unselected*" list. • Click >> to add pens. • Click << to remove pens. • Click OK to apply customized pens or Cancel to discard pens setting.	

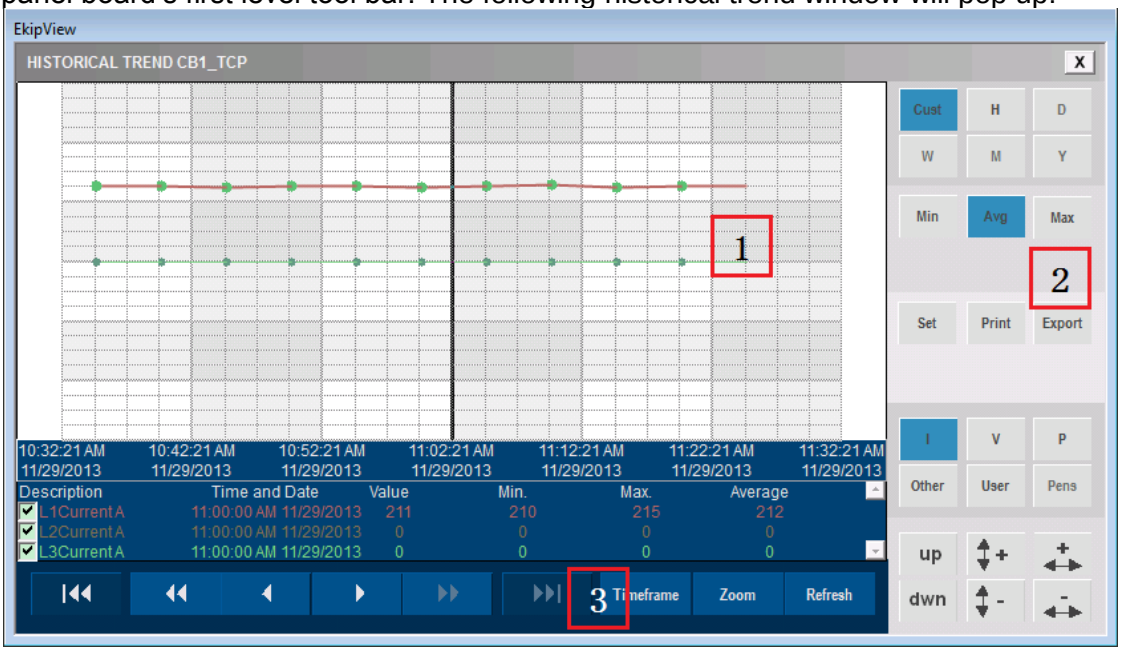
Real time trend navigation bar

Icon	Description
	To view the first page of trend chart
	To view previous page of trend chart
	To view previous data point (shortkey: ←)
	Pause/Running
	To view next data point **(**shortkey: →**)**
	To view next page of trend chart
	To view the last page of trend chart
	Zoom in an rectangle area of trend chart

***NOTE**: Navigation button will be enabled only if user pause data acquisition, i.e. the status of the Pause/Running button shows like*  .

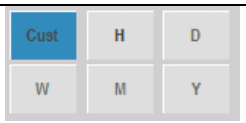
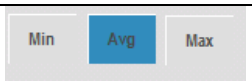
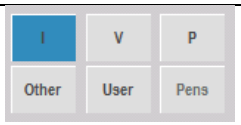
Historical trend

To view the historical trend, you need to select a configured device with normal communication from plant view in plant monitor section. And click  button in the panel board's first level tool bar. The following historical trend window will pop up:



Area	Description
1	Trend chart are
2	Trend settings area (see Historical trend settings)
3	Navigation bar area (see Historical trend navigation bar)

Historical trend settings

Step	*Action*	*Picture*
1	Datalogger selection • there are 6 types of database that user can select: custom, hourly, daily, weekly, monthly and yearly. • Custom database is the default database set in database setting by user. (see Ekip View Settings section)	
2	Dataloger selection: you can choose the minimal, average or maximal of the measurement data.	
3	• Trend area configuration (take Real time trend area configuration setting as reference). • Print: click the Print button to set printer and print. • Export: the data will be export as an excel file.	
4	Pen selection • Click the pen selection buttons to switch different pens (current, voltage, power and others). • If you want to custom the pens, click User button and the Pens button will be enabled.	
5	Operation the trend chart • Click up to move up. • Click dwn to move down the trend chart. • Click ↕+ ↔ ↕- ↔ to stretch or flatten the chart to different directions.	

Historical trend navigation bar

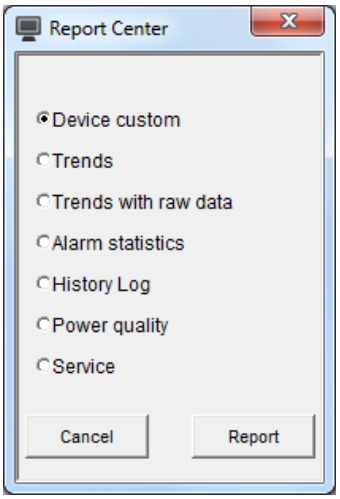
Icon	***Description***
	To view the first page of trend chart
	To view previous page of trend chart
	To view previous data point (shortkey: Shift + →)
	To view next data point (shortkey: Shift + →)
	To view next page of trend chart
	To view the last page of trend chart
	To set the time frame of trend
	Zoom in an rectangle area of trend chart
	Refresh trend chart

12 Report

General

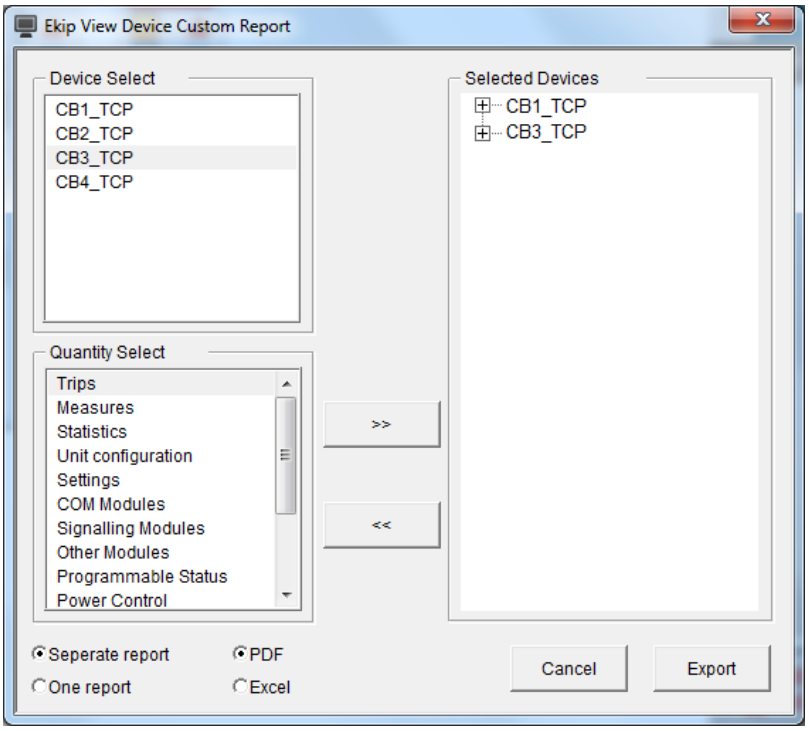
Ekip View Report Center is a powerful tool that allow the user to generate and store different kind of report regarding the status of the devices, the electrical quantities recorded by trend, alarm statistics and log events.
User could customize in different way the content of the report and can set the report manager in order to .

In order to start the report center click  icon on the panel board. Interface for report center is shown in the following picture:

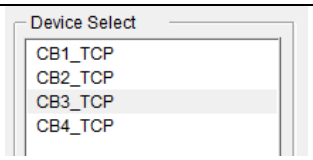
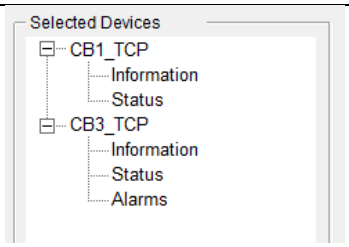
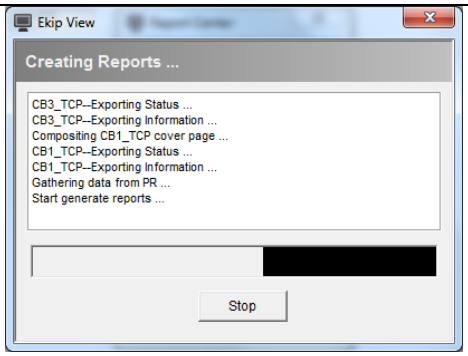
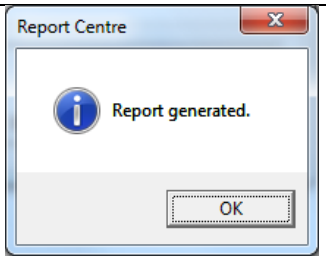


Device custom report

Choose Device custom and click Report, the user interface of export device custom report will pop up as shown in the following:

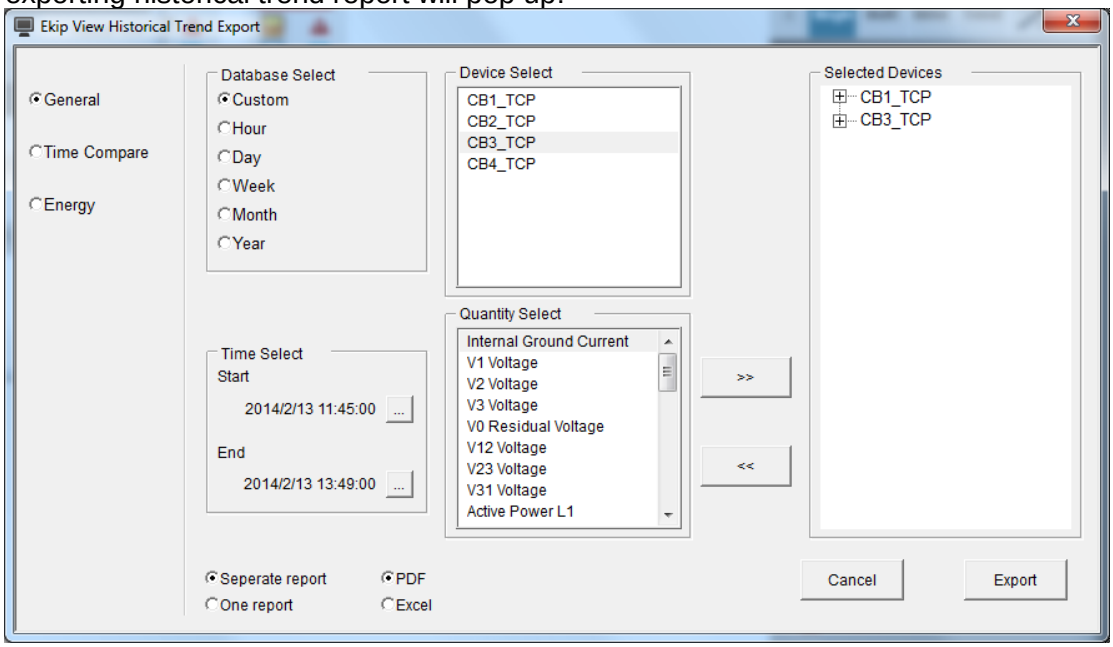


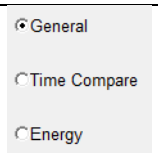
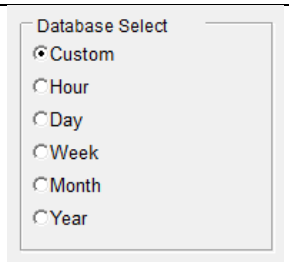
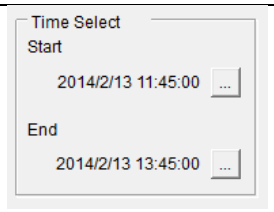
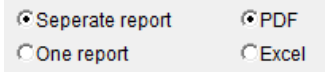
***NOTE**: The alarms shown in report is the alarms in Ekip View whose status are on, so some of the alarms exist on PR may not appear in the report.*

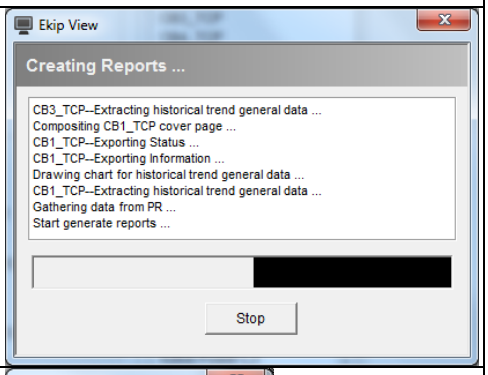
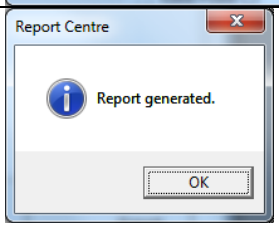
Step	Action	Picture
1	Select one configured device form device list.	
2	• Choose one or more report items. • Click >> to add report items. • Click << to remove report items.	
3	• If more than one devices report need to report, you can choose exporting as one report or selecting Separate report to separate reports. • Choose exporting reports as PDF file or Excel file. • Input the report file name.	
4	Click Export to export report.	
5	Export report successfully.	

Historical trend report

Choose Trends or Trends with raw data, and click Report, the user interface for exporting historical trend report will pop up:

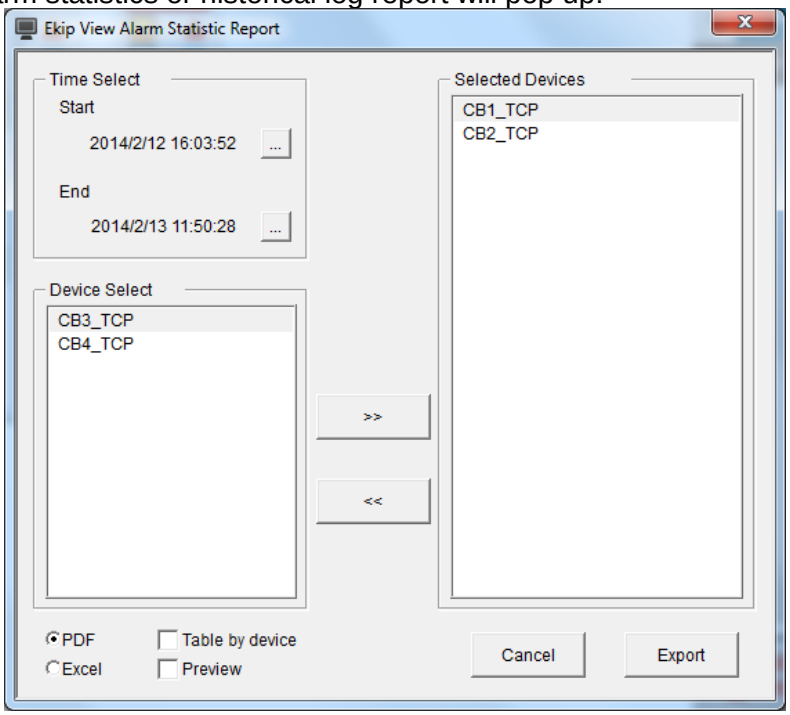


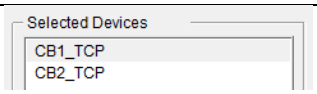
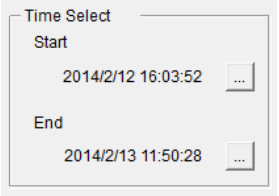
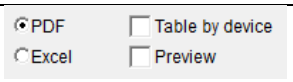
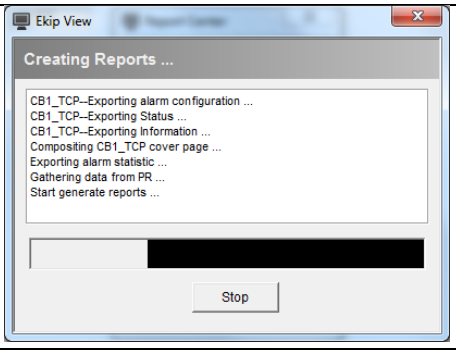
Step	Action	Picture
1	Select the historical trend report type(General, Time compare, Energy)	
2	Datalogger selection • there are 5 types of database to select (data log for per hour, per day, per week, per month, per year). • Custom database is the user default set database in database setting (see Ekip View Settings).	
3	• Click … and choose the report start and end time by the pop up Data and Time Selection tool. • If "*Time Compare*" report was selected, you should set two time horizons for comparing.	
4	• If more than one device is selected, you can choose exporting the reports in one table or select Table by device to export in separated tables by devices. • Choose exporting reports as PDF file or Excel file. You can also just preview the report by selecting Preview.	
5	• Choose one or more report items. • Click >> to add report items	

	Click << to remove report items.	
6	Click Export to export report.	
6	Export report successfully.	

Alarm statistics and historical log report

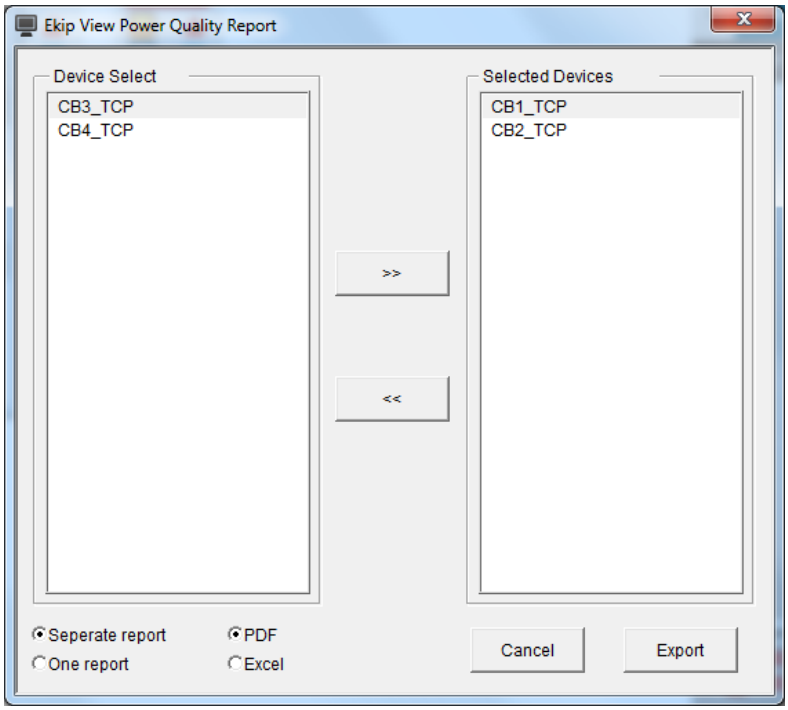
Choose Alarm statistics or Historical Log, and click Report, the user interface for exporting alarm statistics or historical log report will pop up:



Step	*Action*	*Picture*
1	Select one or more configured devices form device list.	
2	• Click … and choose the report start and end time by the pop up Data and Time Selection tool.	
3	• If more than one device is selected, you can choose exporting the reports in one table or in separated tables by devices. • Choose exporting reports as PDF file or Excel file. • You can also just preview the report by selecting Preview.	
5	Click Export to export report.	

Power quality and Service report

Choose Power quality or Service, and click Report, the user interface for exporting power quality or service report the following windonw will pop up:



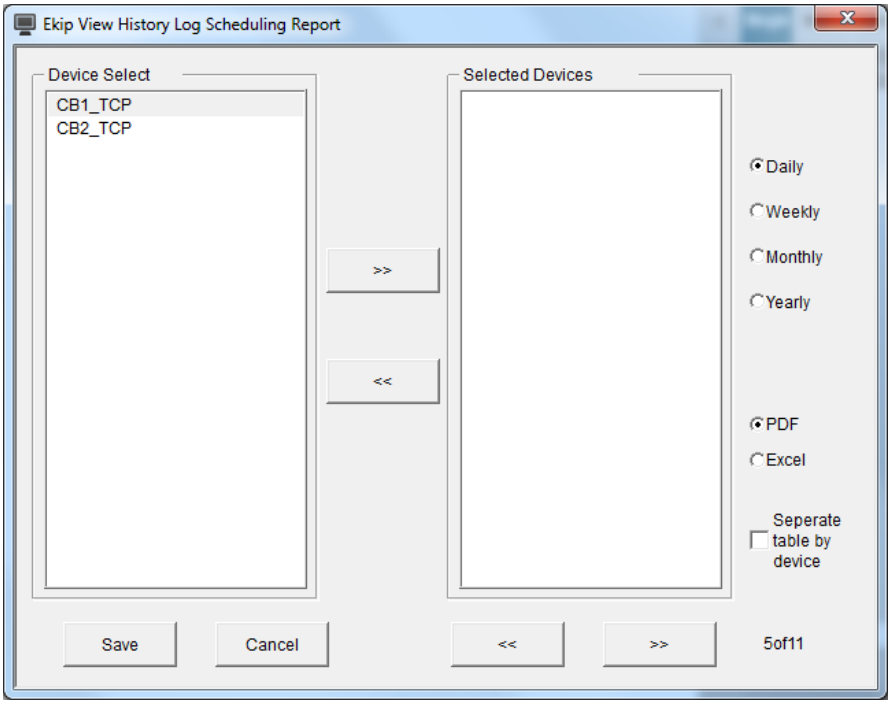
***NOTE**: Actions for reporting could take Alarm statistic and historical log report as reference (without setting time).*

Scheduling Report

Scheduling report function can be configured to automatic generate reports daily, weekly, monthly and yearly.
Different type of report can be configured to different routine.
There are 11 kinds of report type in total as following table. Use << and >> button to switch between different types.

Index	***Report Type***
1	Ekip View Device Custom Scheduling Report
2	Ekip View Service Scheduling Report
3	Ekip View Power Quality Scheduling Report
4	Ekip View Alarm Statistic Scheduling Report
5	Ekip View History Log Scheduling Report
6	Ekip View General Data Scheduling Report
7	Ekip View Time Comparision Scheduling Report
8	Ekip View Device Comparision Scheduling Report
9	Ekip View General Data Scheduling Export With Raw Data
10	Ekip View Time Comparision Scheduling Export With Raw Data
11	Ekip View Device Comparision Scheduling Export With Raw Data

Follow the menu "*Plant⇒Report manager⇒Scheduling Report Config*" to config the scheduling report.



***NOTE**: The setting of scheduling report is the same with other on demand report configuration described in this chapter.*

***NOTE**: For the historical trand data, daily report will use Hour Database, weekly report will use Day Database, monthly report will use Week Database and yearly report will use Month Database.*

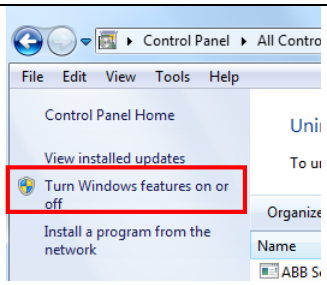
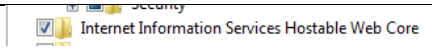
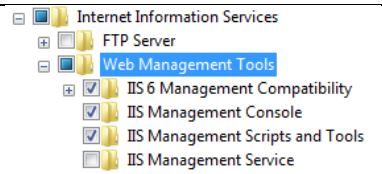
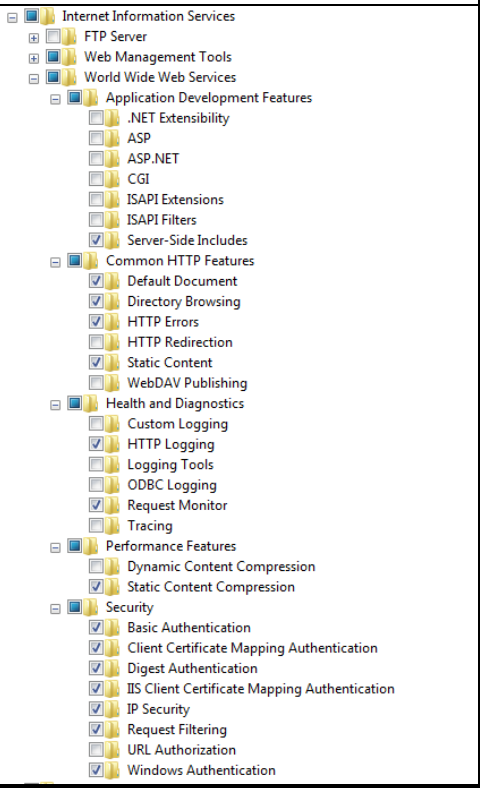
13 Web server

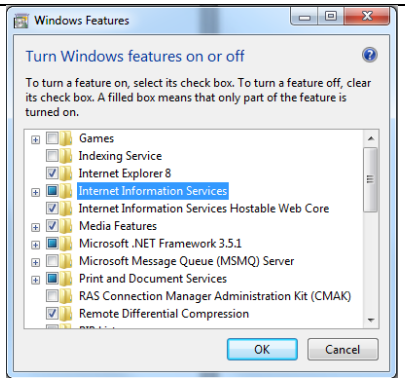
General

Ekip View project can be accessed by web browser via web-client feature provided in Ekip View software.
To access the plant from the web a web server must be installed on the machine running the application Ekip View.
In the following paragraph is shown how to set up Microsoft Windows web server provided with Internet Information Services (IIS). For the configuration of other web server please contact your IT department.
This feature is optional and requires a valid license to work.

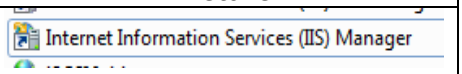
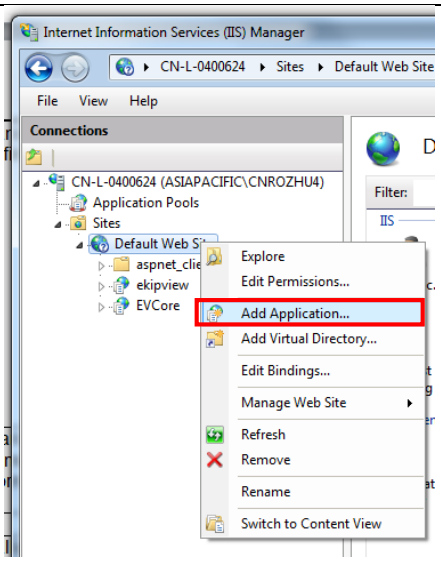
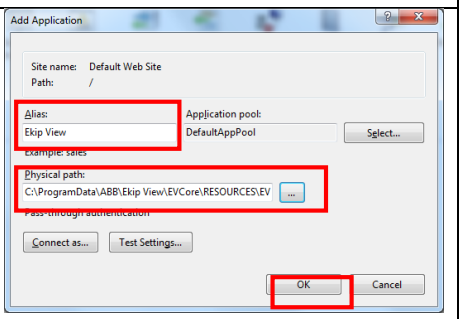
Activate IIS and create a virtual directory

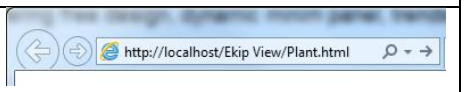
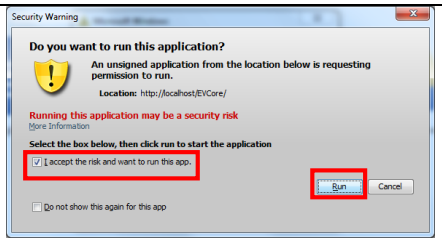
First be sure to have IIS active. To verify follow the steps below

Step	*Action*	*Picture*
1	Open "*Programs and Features"* in Control Panel.	
2	Click Turn Windows features on or off at the left of "Programs and Features".	
3	Check Internet Information Service Hostable Web Core.	
4	Check Web Management Tools under "*Internet Information Services*" according to right picture.	
5	Check Web Wide Web Tools under "*Internet Information Services*" according to right picture.	

6	Click OK and close all opened windows to finish turn on of IIS.	

Finally create the web server on the computer that have Ekip View installed.

Step	***Action***	***Picture***
1	Open IIS Manager from "*Start ⇒ Control Panel ⇒ Administrative Tools ⇒ Internet Information Services (IIS) Manager*".	
2	• Select Default Web Site in the left panel and right click. • Choose Add Application... from the menu.	
3	• Fill in the Alias field with the name you want to use in the web browser address (e.g. Ekip View). • Select the Physical path with the project folder which include "Plant.html" and "MovWebClientX.jar" file. • If you installed the software in default path, it will be *"C:\ProgramData\ABB\Ekip View\EVCore\RESOURCES\EVCORE"* . • Click OK button.	
4	Check if "Everyone" has read and execute permission of "Plant.html" and "MovWebClientX.jar" file. If not, add this privilege.	

5	Configure your firewall to add web access port to your firewall inbond rule.	
6	Run Ekip View software.	
7	Open your web browser and in the address bar, type in "*http://localhost/Ekip View/Plant.html*" where Ekip View is the Alias field entered in step 3.	
8	Accept the risk message box pop up by web browser and click run. The plant page of Ekip View must show in the web browser.	
9	To access the project from one computer different from the one in which Ekip View is installed, use the computer IP address instead of localhost in the web browser address bar.	

14 Annex A

Warning and error message

Message	*Description*	*Possible solution*
Communication error.	The communication between Ekip View and the devices is not working correctly (e.g. device power off, disconnected network cable)	Check the status of devices and network
Can not get another free connection with the device.	The device has no free slot to allow a new connection.	Verify in the device property if there are free connection available and retry to execute the query
Harmonics acquire timeout.	The device cannot provide the data at this moment	Try to execute the operation later
Waveform acquire timeout.	The device cannot provide the data at this moment	Try to execute the operation later
Open program session fail.	The device cannot open a programming session	Try to execute the operation later
Program session is open.	The device have already a programming session open	Try to execute the operation later
Configuration file error.	Internal configuration file corrupted or missing	Contact ABB
Report generating already started.	Only one session of report center at the same time is allowed.	Wait for the end of the running session and execute again the operation
No historical log available.	When try to access to Historical Log database, there are no data available or no data available for the selected time frame	Change time selection
No data available.	When try to access to Historical Trend database, there are no data available or no data available for the selected time frame	Change time selection
Export fail.	Historical trend or harmonic/waveform export of excel data file fail	Contact ABB
Data export error. Please check your log on account of database service.	The database service on your local machine maybe used account other than “Local System” to log on.	Close Ekip View, change database service log on type to “Local System”, run Ekip View and try again.

15 Annex B

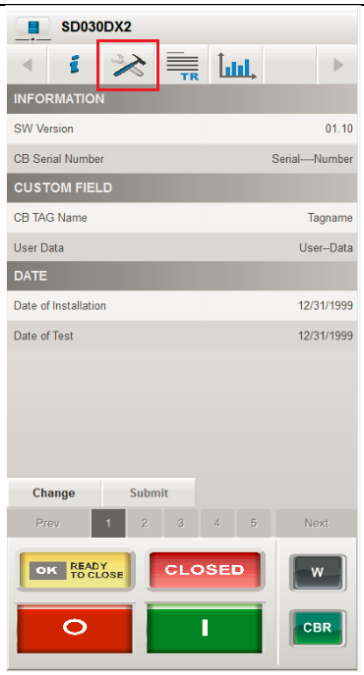
User Guide for Flex Interface device SD030DX and SD030DI

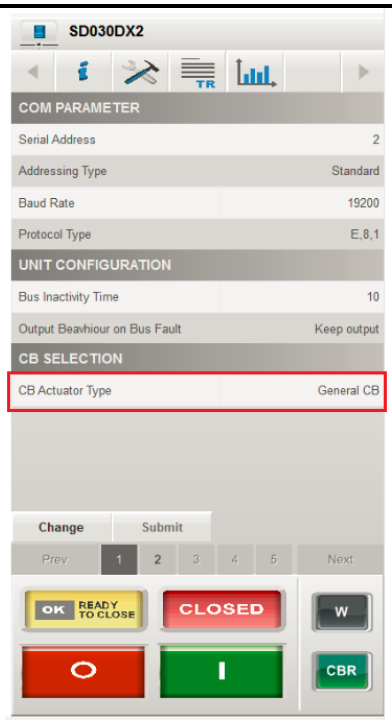
Flex interface SD030DX and SD030DI devices can be used to monitor circuit breakers that don't support communication.

SD030DX device (5 digital input, 3 digital output) can monitor and control one circuit breaker; if the circuit breaker is an ABB supported one, no further configuration is needed, otherwise additional configuration is necessary.
SD030DI device (8 digital input) can be configured to monitor the status of 4 or 8 circuit breaker.

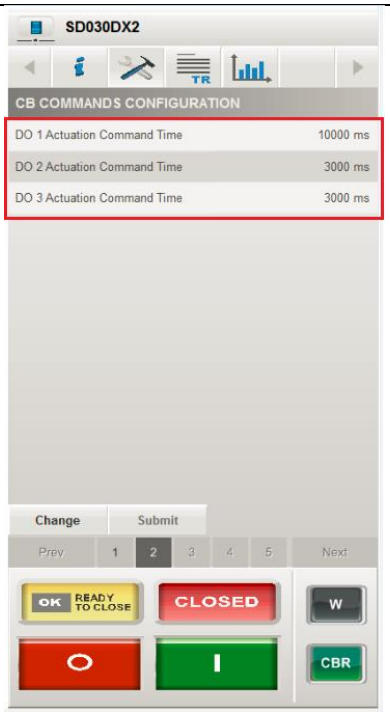
***NOTE**: Please refer to SD030DX user manual to determine which circuit breakers are supported and how to connect them to the device.*

SD030DX: configuration of the CB type

Step	*Action*	*Picture*
1	• Select the SD030DX device in the plant area and click the settings icon to show the setting page.	

2	Go to the CB SELECTION section: • Click the Change button • Select from the combobox the right circuit breaker (choose General CB if the CB is not one of the supported). • Click Submit to make the selection effective. ***NOTE**: if you have selected the General CB type you need to to set the correct operating time for the actuator devices in the page 2 of the settings.*	

SD030DX: configuration of the CB commands (only for General CB setting)

Step	*Action*	*Picture*
1	Configuration of the operating time of the commands (OPEN/CLOSE/CB RESET): • Click page 2 in the Settings page to show the CB COMMANDS CONFIGURATION section. • Click the Change button • Adjust the time according to the type of actuator used to operate the circuit breaker. • Click Submit to make the selection effective. ***NOTE**: The operating time is the time that the corresponding digital output (output relay) will be kept closed after the command is sent.*	

SD030DX: connection between SD030DX device and CB (only for General CB setting)

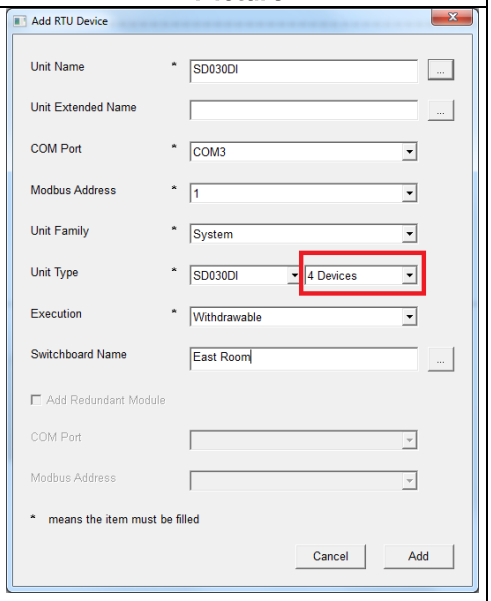
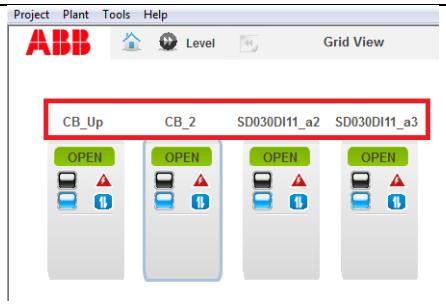
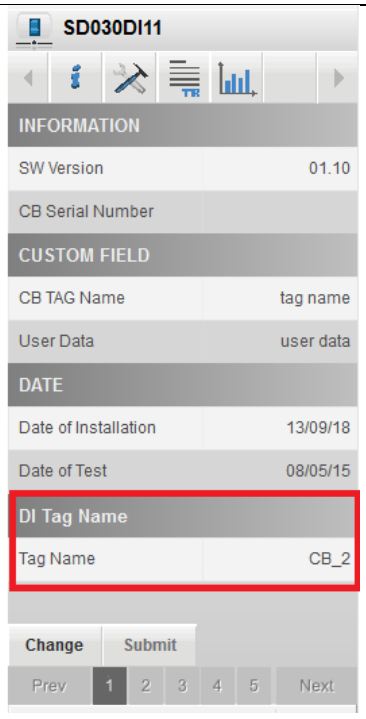
Refer to the following tables to know which SD030DX input and output are associated with the CB status and command information.

Icon	*Description*
	CB close: DO1 of SD030DX
	CB open: DO2 of SD030DX
	CB reset : DO3 of SD030DX

Input Number	*Description*
DI1	Open = CB open; Close = CB close
DI2	Open = CB isolated; Close = CB inserted
DI4	Open = CB normal; Close = CB tripped

SD030DI: configuration of the number of CB to monitor

SD030DI device can be configured during the configuration of the plant (see Configuration of the plant section) in order to monitor 4 circuit breaker (Open/Close and Normal/Trip status) or 8 circuit breaker (Open/Close status only)

Step	*Action*	*Picture*
1	• Add a SD030DI from the System family (see Configuration of the plant section). • In the Unit Type field select 4 Devices or 8 Devices according to the needs of monitoring 4 or 8 circuit breakers.	
2	In the monitoring section (grid view) 4 (or 8) devices will appear representing the status of the circuit breakers connected to the SD030DI device.	
3	Change name of each device. • Select the device you want to change the name. • Click the Change button • Edit the name in Tag name. • Click Submit to make the change effective.	

SD030DI: connection between SD030DI device and CB

The following table show the connection between the SD030DI device and the corresponding circuit breakers in case 4 circuit breakers setting is chosen.

CB status information	SD030DI input number	Note
CB1 Open/Close	*DI1*	*Open = CB open; Close = CB close*
CB2 Open/Close	*DI2*	*Open = CB open; Close = CB close*
CB3 Open/Close	*DI3*	*Open = CB open; Close = CB close*
CB4 Open/Close	*DI4*	*Open = CB open; Close = CB close*
CB1 Trip status	*DI5*	*Open = CB normal; Close = CB tripped*
CB2 Trip status	*DI6*	*Open = CB normal; Close = CB tripped*
CB3 Trip status	*DI7*	*Open = CB normal; Close = CB tripped*
CB4 Trip status	*DI8*	*Open = CB normal; Close = CB tripped*

The following table show the connection between the SD030DI device and the corresponding circuit breakers in case 8 circuit breakers setting is chosen.

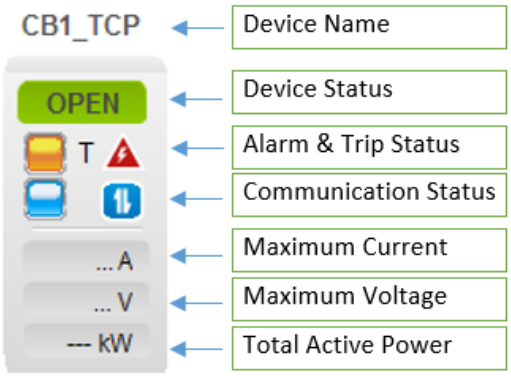
CB status information	SD030DI input number	Note
CB1 Open/Close	*DI1*	*Open = CB open; Close = CB close*
CB2 Open/Close	*DI2*	*Open = CB open; Close = CB close*
CB3 Open/Close	*DI3*	*Open = CB open; Close = CB close*
CB4 Open/Close	*DI4*	*Open = CB open; Close = CB close*
CB5 Open/Close	*DI5*	*Open = CB open; Close = CB close*
CB6 Open/Close	*DI6*	*Open = CB open; Close = CB close*
CB7 Open/Close	*DI7*	*Open = CB open; Close = CB close*
CB8 Open/Close	*DI8*	*Open = CB open; Close = CB close*

16 Annex C

Device Symbol in Plant View

Devices

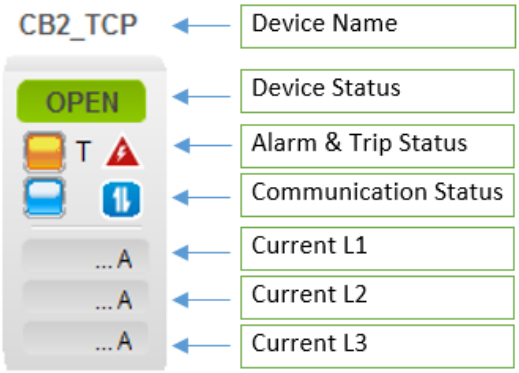
Ekip LCD
Ekip Touch
Ekip E-LSIG on Tmax
Ekip E-LSIG on Tmax XT
PR223DS-PD
PR223EF
PR122/P
PR123/P
PR332/P
PR333/P



Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Device Status	Show the device status(Open-Close-Undefined).
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 1. Grey: Means there are neither alarms nor trips; 2. Yellow with “T”: Means there are trips; 3. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Maximum Current	Show the real time value of the current of the most loaded phase.
Maximum Voltage	Show the real time value of the voltage (maximum value of the three concatenated values).
Total Active Power	Show the total active power of the connected device.

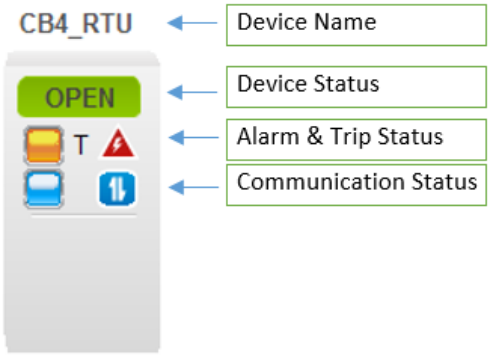
Devices

Ekip LSI
Ekip M-LRIU on Tmax XT
Ekip Dip
Ekip M-LRIU on Tmax
PR222DS
Ekip LSIG



Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Device Status	Show the device status (Open-Close-Undefined).
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 1. Grey: Means there are neither alarms nor trips; 2. Yellow with “T”: Means there are trips; 3. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Current L1	Show the real time current value of L1.
Current L2	Show the real time current value of L2.
Current L3	Show the real time current value of L3.

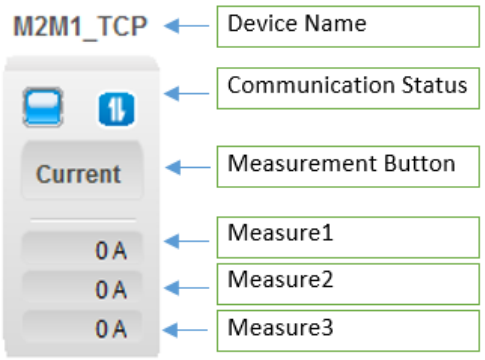
SD030DI
SD030DX
Ekip COM



Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Device Status	Show the device status (Open-Close-Undefined).
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 1. Grey: Means there are neither alarms nor trips; 2. Yellow with “T”: Means there are trips; 3. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.

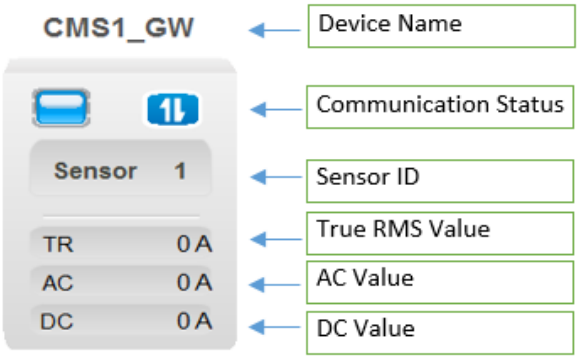
Devices

M2M RTU
M2M Ethernet
DMTME-I-485-96



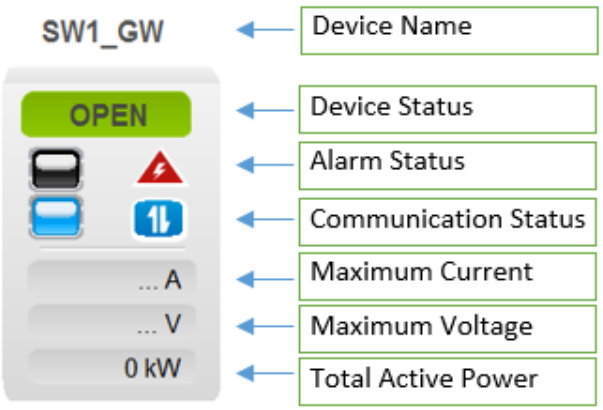
Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Measurement Button	Click this button can switch between measurements: Current, Phase Voltage, Line Voltage, Power Factor, Voltage ThdF, Current ThdF(DMTME-I-485-96 don't have the ThdF). The current displayed measurement name is shown on the button.
Measure 1	Show the value of user selected measurement.
Measure 2	Show the value of user selected measurement.
Measure 3	Show the value of user selected measurement.

CMS600



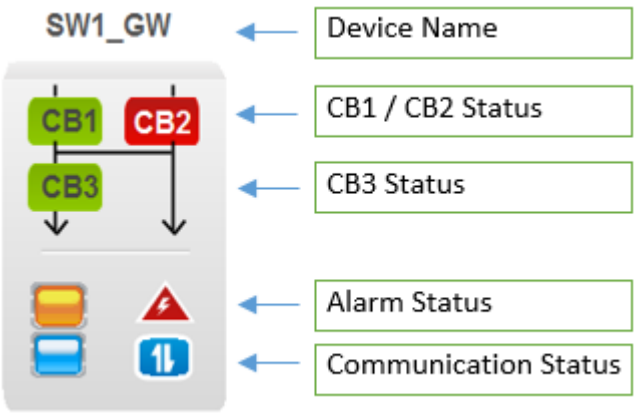
Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Sensor ID	Click to increase the Sensor ID, Rang from 1 to 64. Double clik to increase the Sensor ID by 10.
True RMS Value	Show the value of true RMS of the selected sensor.
AC Value	Show the value of true AC of the selected sensor.
DC Value	Show the value of true DC of the selected sensor.

ITS2



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Device Status	Show the device status(Open&Blown-Open&No Blown-Close&Blown-Close&No Blown-Undefined).
Alarm Status	Show the status of alarm. The led status can be : 1. Grey: Means there are no alarms; 2. Yellow: Means there are alarms;
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Maximum Current	Show the real time value of the current of the most loaded phase.
Maximum Voltage	Show the real time value of the voltage (maximum value of the three concatenated values).
Total Active Power	Show the total active power of the connected device.

ATS022



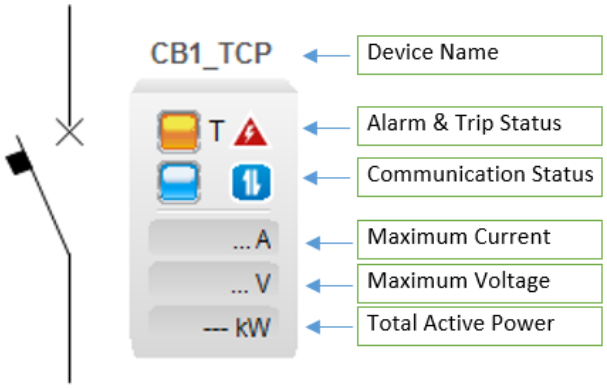
Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
CB1/CB2 Status	Show the CB1 and CB2 status(Open-Close).
CB3 Status	Show the CB3 status(Open-Close).
Alarm Status	Show the status of alarm. The led status can be : 1. Grey: Means there are no alarms; 2. Yellow: Means there are alarms;
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.

***NOTE**: The CB status will change the connect position depends on the Protection Devices status.*

Device Symbol in Level View

Devices

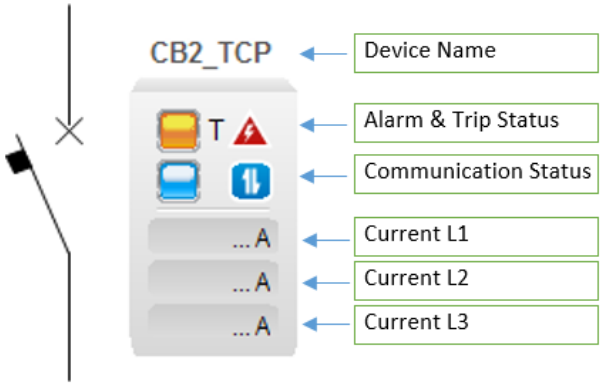
Ekip LCD
Ekip Touch
Ekip E-LSIG on Tmax
Ekip E-LSIG on Tmax XT
PR223DS-PD
PR223EF
PR122/P
PR123/P
PR332/P
PR333/P



Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 1. Grey: Means there are neither alarms nor trips; 2. Yellow with “T”: Means there are trips; 3. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Maximum Current	Show the real time value of the current of the most loaded phase.
Maximum Voltage	Show the real time value of the voltage (maximum value of the three concatenated values).
Total Active Power	Show the total active power of the connected device.

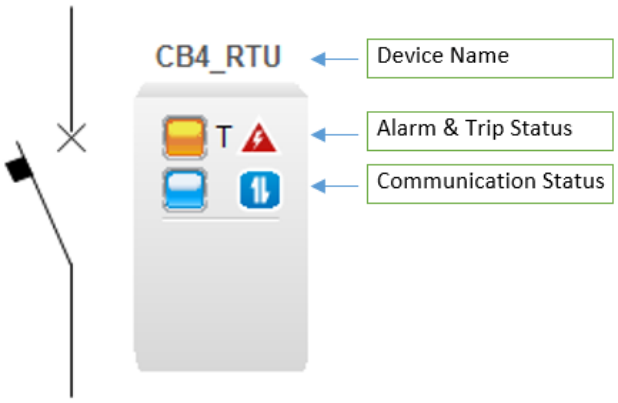
Devices

Ekip LSI
Ekip M-LRIU on Tmax XT
Ekip Dip
Ekip M-LRIU on Tmax
PR222DS
Ekip LSIG



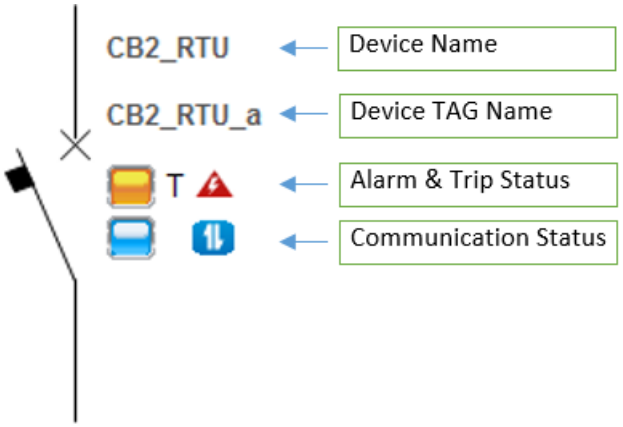
Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 4. Grey: Means there are neither alarms nor trips; 5. Yellow with “T”: Means there are trips; 6. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 3. Grey: Means communication error. 4. Light Blue: Means communication good.
Current L1	Show the real time current value of L1.
Current L2	Show the real time current value of L2.
Current L3	Show the real time current value of L3.

SD030DX
Ekip COM



Item	***Description***
Device Name	Show the name of the device which can be edited in Device Config page.
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 7. Grey: Means there are neither alarms nor trips; 8. Yellow with “T”: Means there are trips; 9. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 5. Grey: Means communication error. 6. Light Blue: Means communication good.

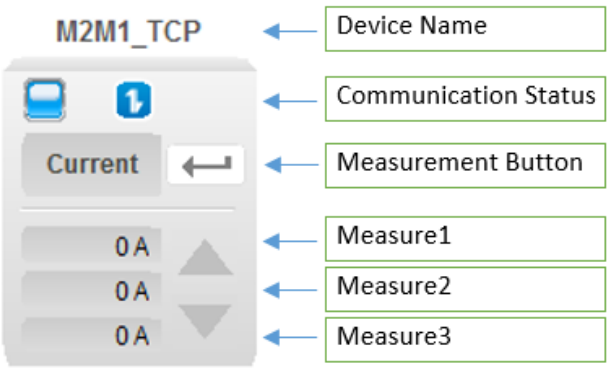
SD030DI



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Device TAG Name	Show the TAG name of the device which can be edited in the Information page.
Alarm & Trip Status	Show the status of alarm and trip. The led status can be : 10. Grey: Means there are neither alarms nor trips; 11. Yellow with “T”: Means there are trips; 12. Yellow without “T”: Means there are alarms.
Communication Status	Show the communication status of the connected devices. The led status can be: 7. Grey: Means communication error. 8. Light Blue: Means communication good.

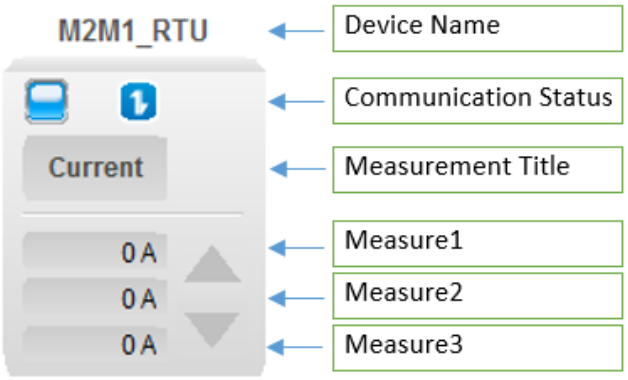
Devices

M2M RTU
M2M Ethernet



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Measurement Title & Button	Click button ↵ can switch between measures: Real Time, Average, Maximum and Minimum values of current selected measurement. Selection is shown on the button.
▲	Click to switch between measures: Current, Phase Voltage, Line Voltage, Power Factor, Voltage ThdF, Current ThdF, Active Power, Reactive Power, Apparent Power, Active Energy, Reactive Energy, Apparent Energy. The current displayed measurement name is shown on measurement title.
▼	Click to switch between measures the same with clicking on ▲ button. Only the sequence is opposite. The current displayed measurement name is shown on measurement title.
Measure 1	Show the value of user selected measurement.
Measure 2	Show the value of user selected measurement.
Measure 3	Show the value of user selected measurement.

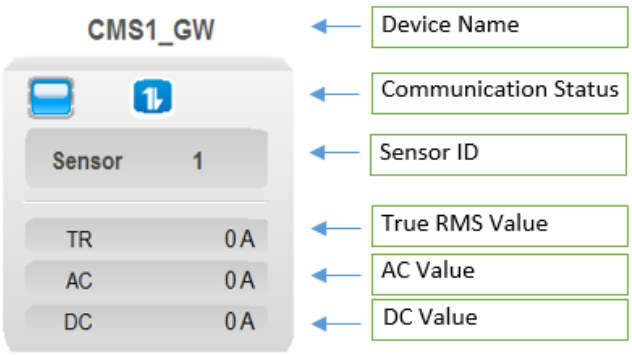
DMTME-I-485-96



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Measurement Title	Show the current displayed measurement name.
	Click to switch between measures: Current, Phase Voltage, Line Voltage, Power Factor, Active Power, Reactive Power, Apparent Power. The current displayed measurement name is shown on measurement title.
	Click to switch between measures the same with clicking on  button. Only the sequence is opposite. The current displayed measurement name is shown on measurement title.
Measure 1	Show the value of user selected measurement.
Measure 2	Show the value of user selected measurement.
Measure 3	Show the value of user selected measurement.

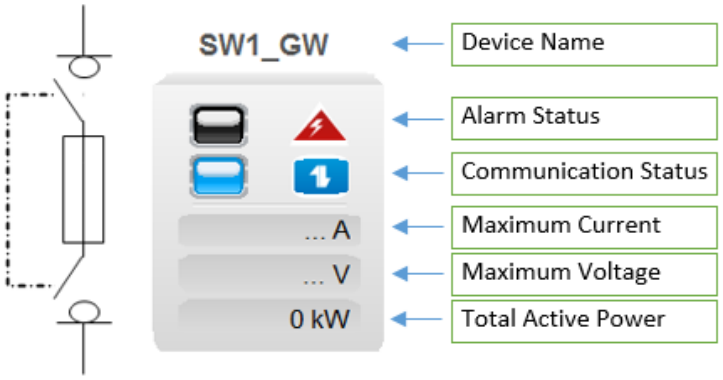
Devices

CMS600



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Sensor ID	Click to increase the Sensor ID, Rang from 1 to 64. Double clik to increase the Sensor ID by 10.
True RMS Value	Show the value of true RMS of the selected sensor.
AC Value	Show the value of true AC of the selected sensor.
DC Value	Show the value of true DC of the selected sensor.

ITS2



Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Alarm Status	Show the status of alarm. The led status can be : 1. Grey: Means there are no alarms; 2. Yellow: Means there are alarms;
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
Maximum Current	Show the real time value of the current of the most loaded phase.
Maximum Voltage	Show the real time value of the voltage (maximum value of the three concatenated values).
Total Active Power	Show the total active power of the connected device.

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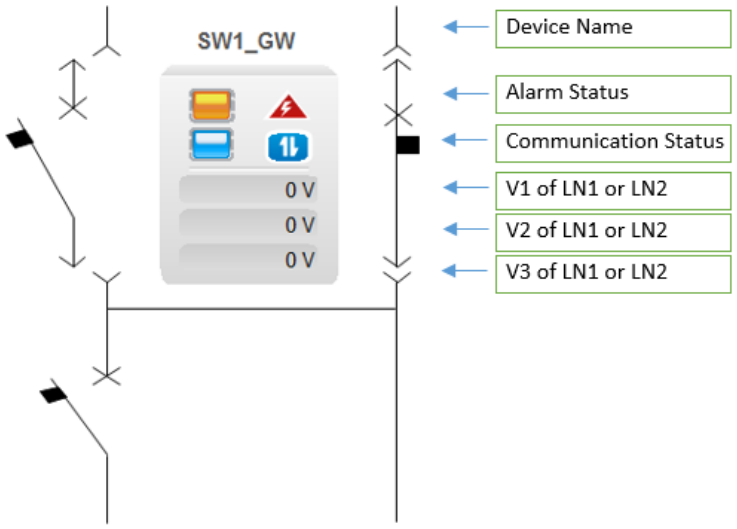

Item	*Description*
Device Name	Show the name of the device which can be edited in Device Config page.
Alarm Status	Show the status of alarm. The led status can be : 1. Grey: Means there are no alarms; 2. Yellow: Means there are alarms;
Communication Status	Show the communication status of the connected devices. The led status can be: 1. Grey: Means communication error. 2. Light Blue: Means communication good.
V1 of LN1 or LN2	Show the real time value of the V1 voltage of LN1 or LN2 depends on which line is connected.
V2 of LN1 or LN2	Show the real time value of the V2 voltage of LN1 or LN2 depends on which line is connected.
V3 of LN1 or LN2	Show the real time value of the V3 voltage of LN1 or LN2 depends on which line is connected.

***NOTE**: The CB symbol will change the connect position depends on the Protection Devices status.*

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