



ProQ View



The comprehensive support tool for ProQ 100. Identify power quality problems quickly and easily with EN50160 reporting. Monitor electrical parameters and power quality events online.

Login

 Login ID



Login

© 2018 SIHPL | Best view at chrome browser with screen resolution 1366 X 768 or greater.

User Manual

BGX501-989-R02

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1 Audience and Use

This user manual is intended for all users of the ProQ View software. Some of these users may include:

- Power/energy professionals in industries and utilities
- Power quality experts and consultants
- Energy generation system operators/engineers
- Transmission and distribution system operators/ engineers
- Original equipment manufacturers (OEM) and consultants

1.1 Acronyms and Abbreviations

Abbreviation	Description
PQ	Power quality
OEM	Original equipment manufacturers
DIP	Demand integration period
SAIFI	System average interruption frequency index
SAIDI	System average interruption duration index
CAIDI	Customer average interruption duration index
THD	Total harmonic distortion
TDD	Total demand distortion
ML	Metering location
STAV	Standard deviation average value
RVC	Rapid voltage change
ITIC	Information technology industry council

2 Introduction

This manual introduces the ProQ View software which, is designed to work with the ProQ 100 meter as part of power quality monitoring and analysis system. It provides an overview of all the key features to familiarise the user with settings for acquisition of power quality data, monitoring, diagnostics, analysis.

ProQ View communicates with the ProQ 100 meters installed in your facility or in remote locations to acquire power quality and energy data. This communication is achieved over TCP/IP using industry standard Modbus and DLMS protocols. The acquired data can be further monitored and analysed to detect power quality disturbances and reduce related expenditure.

Intuitive dashboards let you quickly view the PQ status of your facilities and focus on the most urgent issues. Interactive graphics enable you to easily identify the origin of events that are impacting your equipment. Comparative trends help you analyse root causes or identify issues early to take proactive decisions. Detailed information about events helps you manage system loads and unexpected behaviours reliably. Stored data and fault records can be analysed to detect threshold violations and useful reports can be generated for quick decision making and better management.

The main features of **ProQ View** include:

- Configuration settings for data acquisition, PQ monitoring and event analysis
- Inbuilt dashboard for PQ parameter indices, ITIC curves, classification of PQ events based on DIPs, event count distributed by day of week and hour
- Graphical and tabular views to monitor instantaneous and PQ parameters such as THD, TDD, K-factor, Crest factor etc in real-time
- Graphical and tabular views for energy usage profiles, direction and magnitude of PQ events and harmonic flows and aggregated values of PQ parameters over a specified period of time
- Data monitoring as per user defined thresholds
- Scheduled data acquisition of Power quality (PQ) and other electrical parameters. Compliance status of parameters based on EN50160 limits
- Consumption and cost analysis with respect to harmonics
- Historical Trends including harmonics, flicker, short-duration transients, dips, swells, and outages, K-factor, crest factor
- Reporting
- User management
- Diagnostic checks

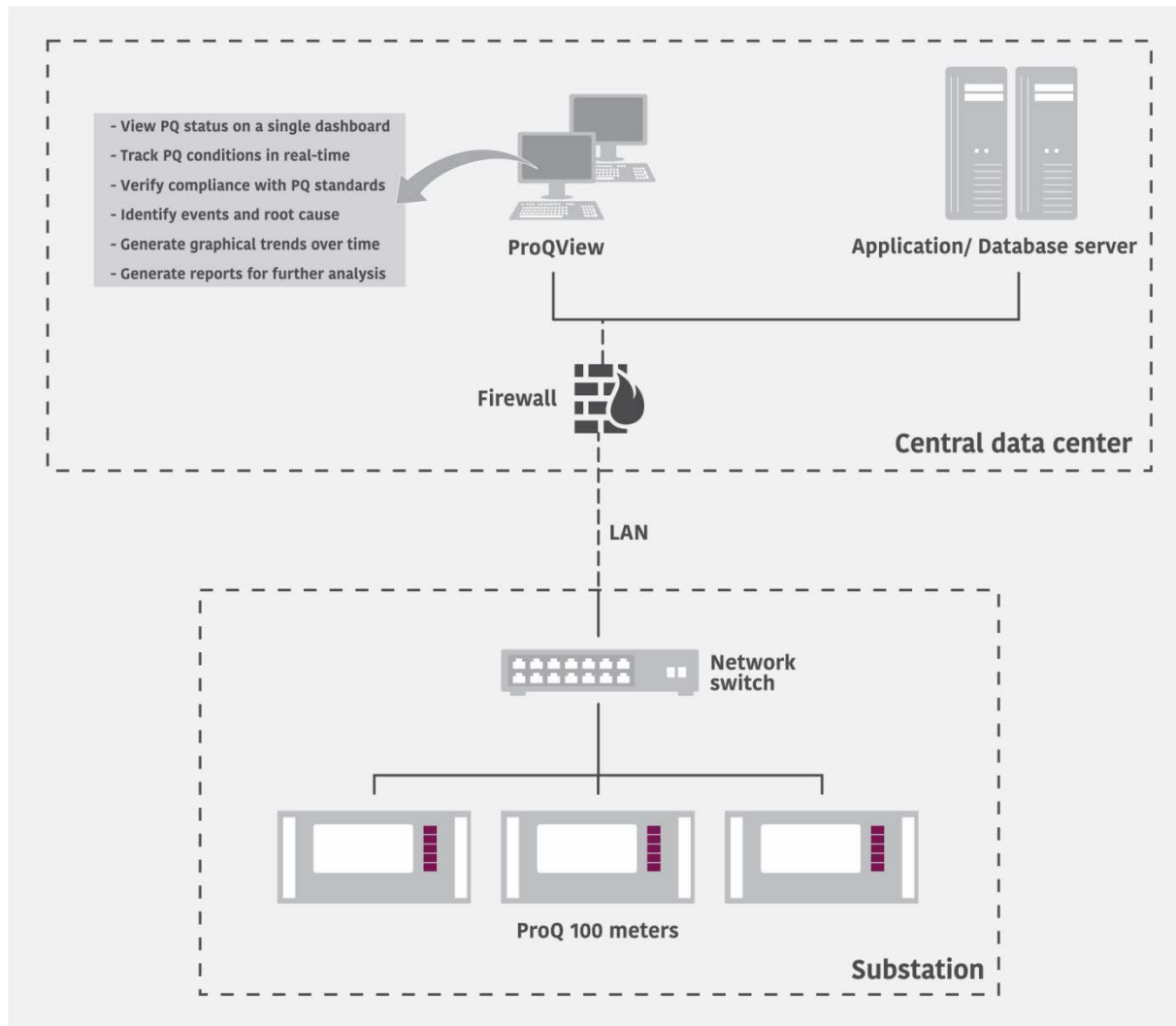


Figure 1: ProQ View example deployment

2.1 Terms and Conventions

This section will help you to understand all the terms and conventions used throughout this user manual.

2.1.1 Terms Used

The various terms used in this user manual are listed and explained below:

- **Menu:** A menu is a list of commands or options displayed on the home page of your application. When you mouse over a menu item, the options within it are displayed. The menus in ProQ view are shown in Figure 2 below.

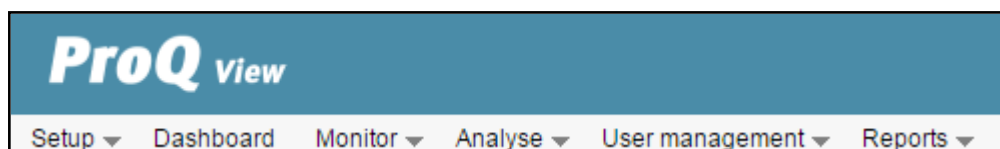


Figure 2: Menus in ProQ View

- Submenu: A submenu is a secondary menu or an additional list of options that appears when you click the primary menu. For example, the submenus of the **Setup** menu as shown in Figure 3 .

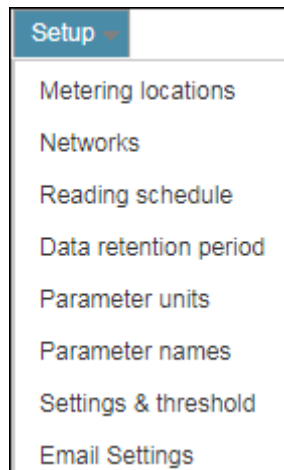


Figure 3: Example submenus within a main menu

- Text box: A text box is an element that allows users to enter some text information. For example, the **Define metering location** screen has a **Location name** text box for entering the name of the metering location

Figure 4: Example text box

- Drop-down List: A drop-down list is associated with a list box. When you click the drop-down arrow, a list of options appears beneath. For e.g. when you click the **Meter type** drop-down, a list with several options appears.

Figure 5: Example drop-down list

- Checkbox: A checkbox is an element that enables the function with which it is associated or allows users to perform multiple selections from a number of options. Normally, checkboxes are shown on the screen as a square box that contains white space (which represents FALSE) or a tick mark (which represents TRUE). Adjacent to the checkbox, there is always a caption (title or heading) which describes the meaning of the checkbox. For example, on the **Define metering location** screen, there is an **Is the meter active?** checkbox to specify the meter status.

Figure 6: Example checkbox

- View selector: The type of view selected in the **View Selector** changes the display. For example, to view data of previous week, select 'Last 7 days'. To view current day data, click 'Last 24 hours'

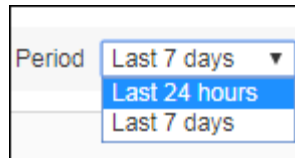


Figure 7: Example view selector

- **Hyperlink:** A hyperlink is an element that is used to navigate between the different screens. On clicking the hyperlink, the user reaches the clicked screen. For example, the **Edit**, **View**, and **Delete** hyperlinks will take you to the screens for performing the selected action.



Figure 8: Hyperlinks

Some hyperlinks when clicked, give an exploded or detailed view of the screen or data or present information in different overviews for further analysis.

For example, click the **Dip/Sag classification** dashboard as shown below.

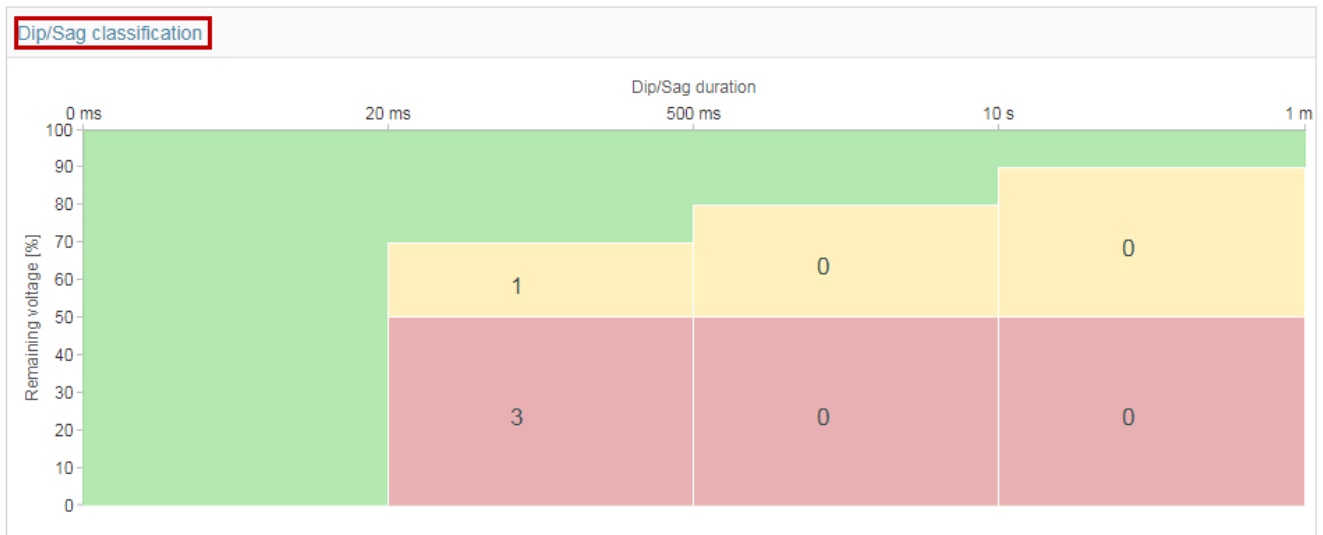


Figure 9: Hyperlinks leading to detailed views

A new page with **different views for detailed PQ events** opens up.

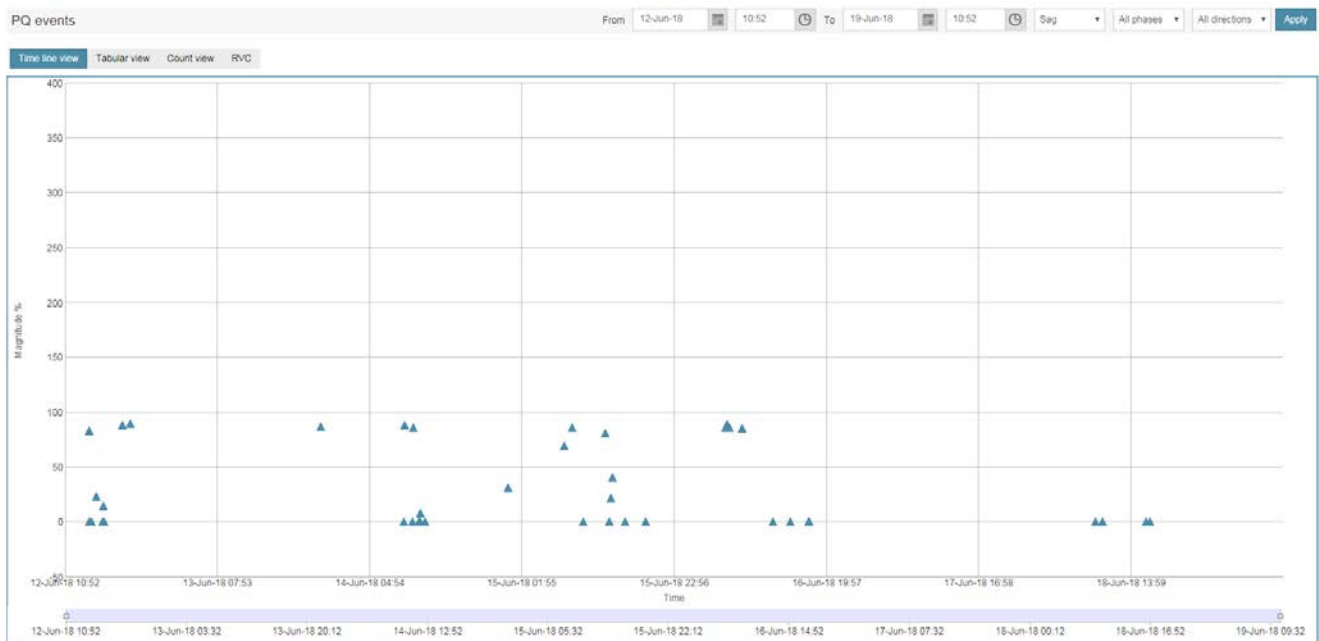


Figure 10: Detailed view

2.1.2 Conventions Used

The various conventions used in this operation manual are listed below for better understanding.

- Hyperlinks, Fields, Button names, Menu names, Items available in a list of values, are represented in **Boldface** format.
- It is mandatory to fill information in fields that are * marked. The software will prompt you to enter missing information and stop you from saving/executing the final activity unless you supply the required information.
- In some fields you can directly enter the required information, for example the **Location name** or **Password** field. In fields with multiple selection options, you can choose the required option by clicking the drop-down against them.
- When you mouse over a graph, you will be able to view additional information related to the relevant parameter.

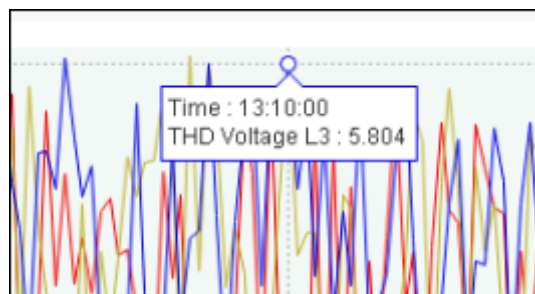


Figure 11: Mouse over information on graph

- During the course of software operation you may receive various kinds of messages appropriate to the task being performed or the context being applied. Some examples are shown below:

--Select--
The Network field is required.

Instantaneous* 50 Days
The number of days should be an integer value between 1 to 30.

Minimum voltage* 190 (% of U_{din}) Maximum voltage* 40 (% of U_{din})
Value should be in between 0 and 100. Value should be in between 100 and 999.

Figure 12: Error messages

3 Getting Started

This section familiarizes you with:

- How to login to ProQ View as described under section 3.1
- The different menus and application links available on the ProQ View dashboard page as described under section 3.2
- How to logout of ProQ View as described under section 3.3.

3.1 Logging in to ProQ View

Logging-in is controlled by identification of the user, using the user login details. Some actions are restricted to certain users or groups, depending on how their login permissions were set up.

After successful login, the ProQ View dashboard page is displayed from where you can navigate to the different menus and submenus within the application.

To log into ProQ View application, do the following:

1. Enter the ProQ View website URL in the address bar of the internet browser. You may ask your service provider/administrator for the URL, in case you do not have the relevant information.
2. Press ENTER on your keyboard.
3. The ProQ View Login screen is displayed as shown in Figure 13.

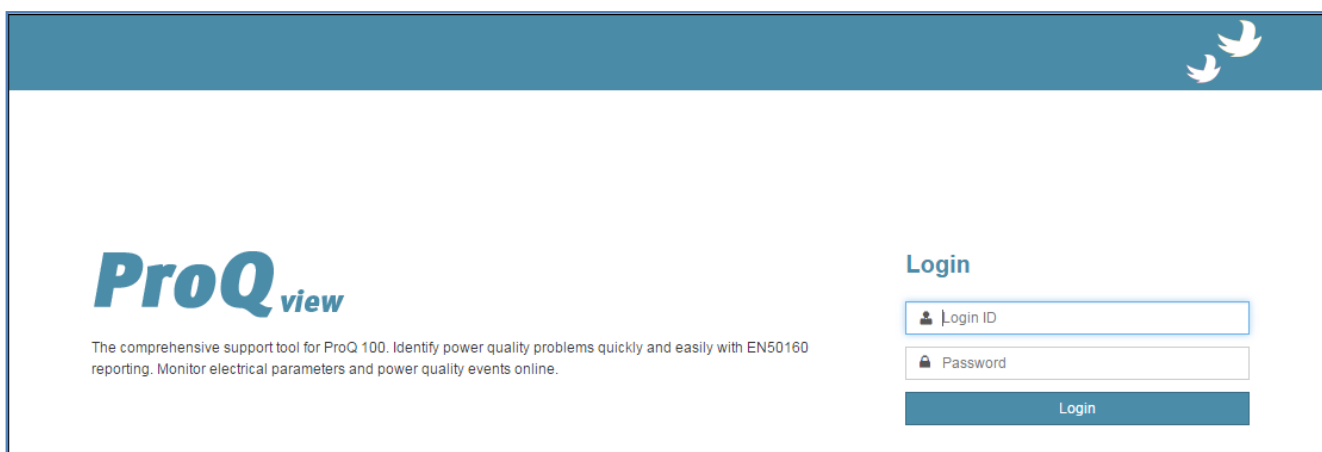
The image shows the ProQ View login interface. At the top, there is a dark blue header bar with two white bird icons on the right. Below the header, the main content area has a white background. On the left side, the 'ProQview' logo is displayed in blue, with the tagline 'The comprehensive support tool for ProQ 100. Identify power quality problems quickly and easily with EN50160 reporting. Monitor electrical parameters and power quality events online.' underneath. On the right side, there is a 'Login' section. It includes a text input field labeled 'Login ID' with a user icon, a password input field labeled 'Password' with a lock icon, and a blue 'Login' button below them.

Figure 13: ProQ View Login screen

4. Enter the **User Name** and **Password** in the respective textboxes and click **Login** as shown in Figure 14.

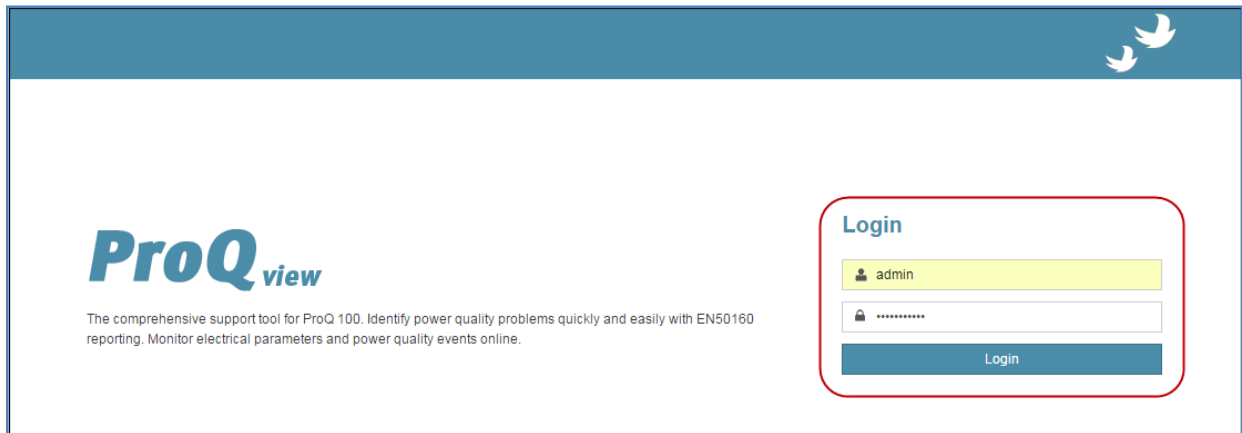


Figure 14: User Name and Password Entered for Login

5. The ProQ View dashboard page appears after you login.

3.2 Knowing the ProQ View Application

This section will familiarize you with the:

- ProQ View dashboard page from where you can navigate to different menus, submenus, and screens in the application as described under section 3.2.1
- The different dashboard views as described under section 3.2.2
- The menus and submenus in ProQ View as described under section 3.2.3

3.2.1 ProQ View Dashboard Page

The ProQ View dashboard page is the first screen that is displayed after you login to the application. It is the central navigation area that allows you to navigate between the various menus, submenus and links within the application.

It is divided into the below listed items:

- The menu: This is marked as **1** in Figure 15.
- The navigation tree view: This is marked as **2** in Figure 15.
- The activity pane: This is marked as **3** in Figure 15.
- Top navigation bar with additional links: This is marked as **4** in Figure 15.
- The selector view: This is marked as **5** in Figure 15.

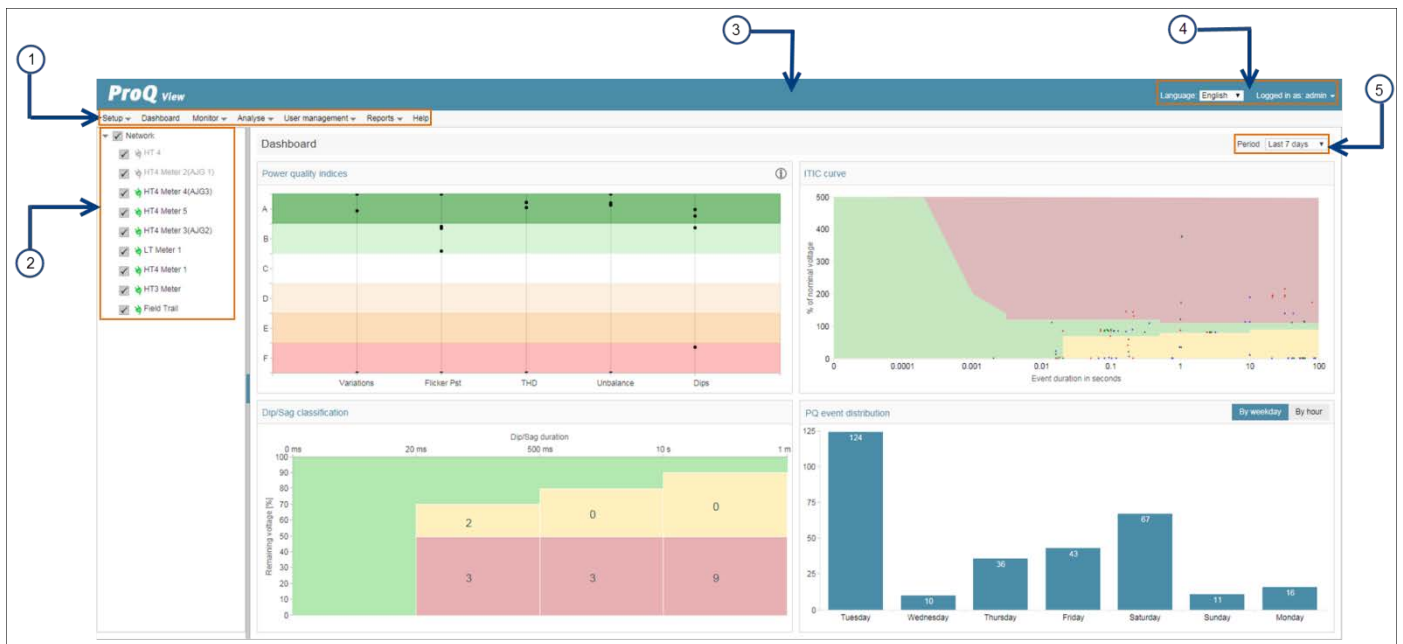


Figure 15: ProQ View Dashboard Page Illustrated

3.2.2 The dashboard

The ProQ View has an inbuilt dashboard that provides a consolidated visual view of different power quality indices and events recorded for the overall system. It provides the facility to drill down further and view specific PQ disturbances for targeted metering locations.

As described in Figure 5, you must select the MLs (left pane) and the view (top right) to suit your requirements. Given below is a description of the different views available on the dashboard:

Option

Dashboard view

Power quality indices

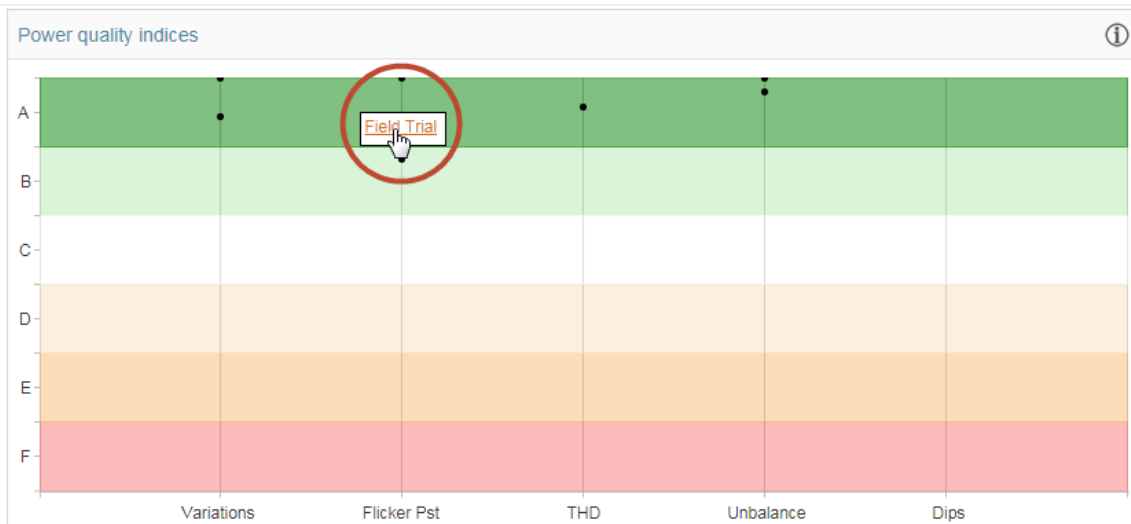
Power quality indices

Figure 16: PQ indices

This dashboard displays the quality indices for PQ parameters such as voltage variations, Flicker, THD, Unbalance, and Dips of MLs selected in the network tree. As you can see there are various colour codes indicators (bands) on this dashboard. Each of these bands A, B, C, D, E and F (on the Y axis) represent the quality of power in accordance with data normalisation and classification methods similar to efficiency ratings provided to household equipments. To get more information on the classification, click the  icon at the top right.

The graph depicts the poorest value of a PQ parameter recorded in any of the phases for selected locations. The plotted values are arrived at by analysing the recorded measurements to the nth percentile against thresholds configured by user, and subsequently comparing them with measurement values in other phases. The values are updated at each one minute interval.

You can also get a detailed view and information about the event in different overviews for further analysis. To do this, mouse over the event point and a hyperlink appears as shown below:



Click on the hyperlink. A new page with **event classification based on STAV method** opens up for further analysis.

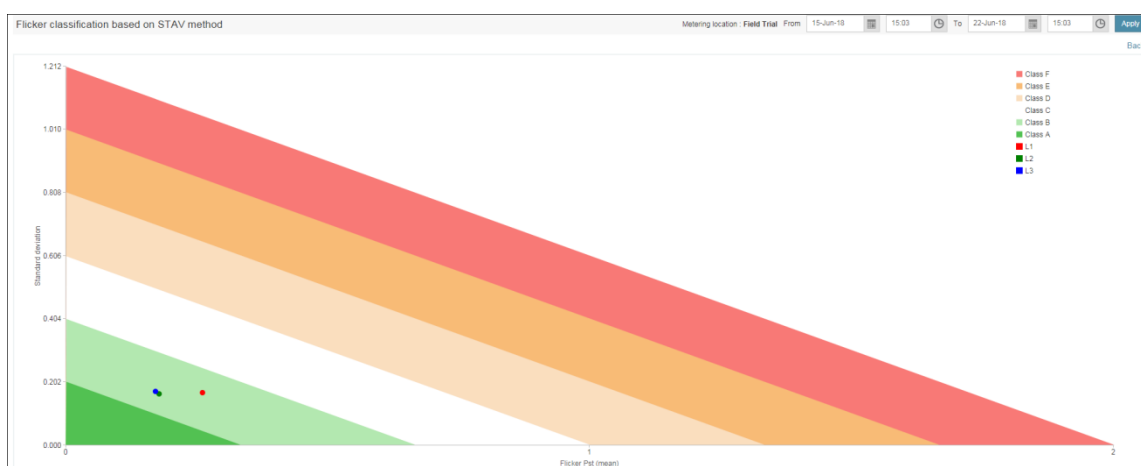


Figure 17: THD classification on STAV method

Here you can see the Flicker levels recorded in each phase of the selected metering locations are shown in different bands. In the above figure, you can see that most flicker nodes are in class A and B which is good, If you decide to get more detail, simply click on the node and click the hyperlink again for aggregative values as shown below.

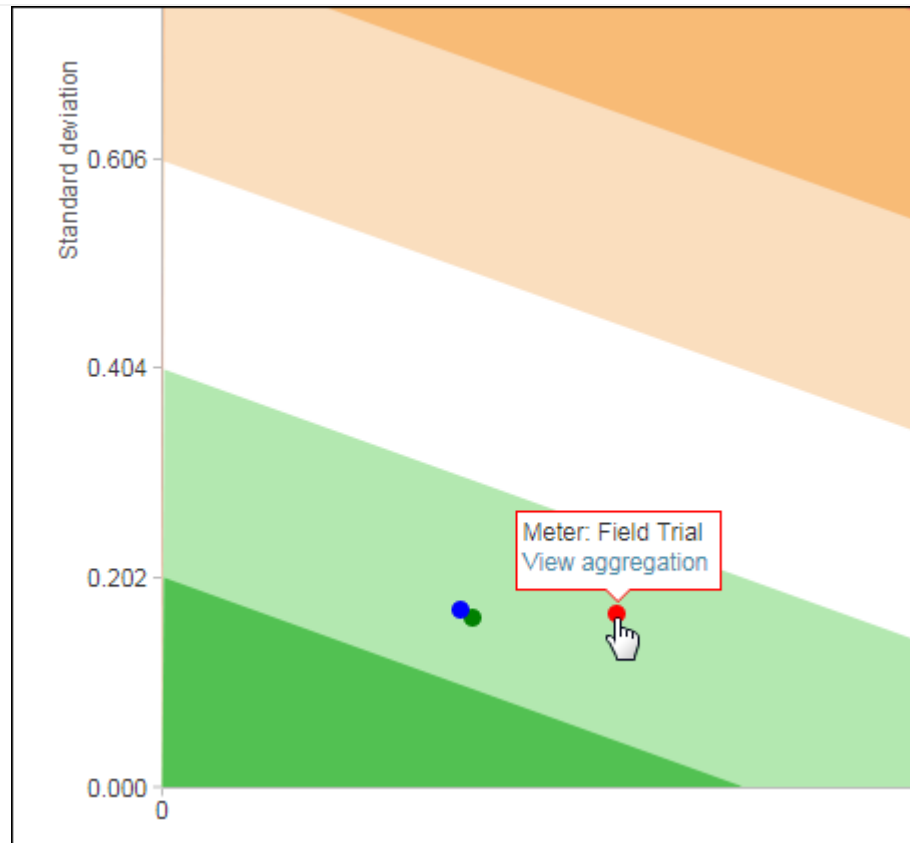


Figure 18: Hyperlink to aggregative view

You are led to yet another graph with aggregative values. An example graph is shown below.

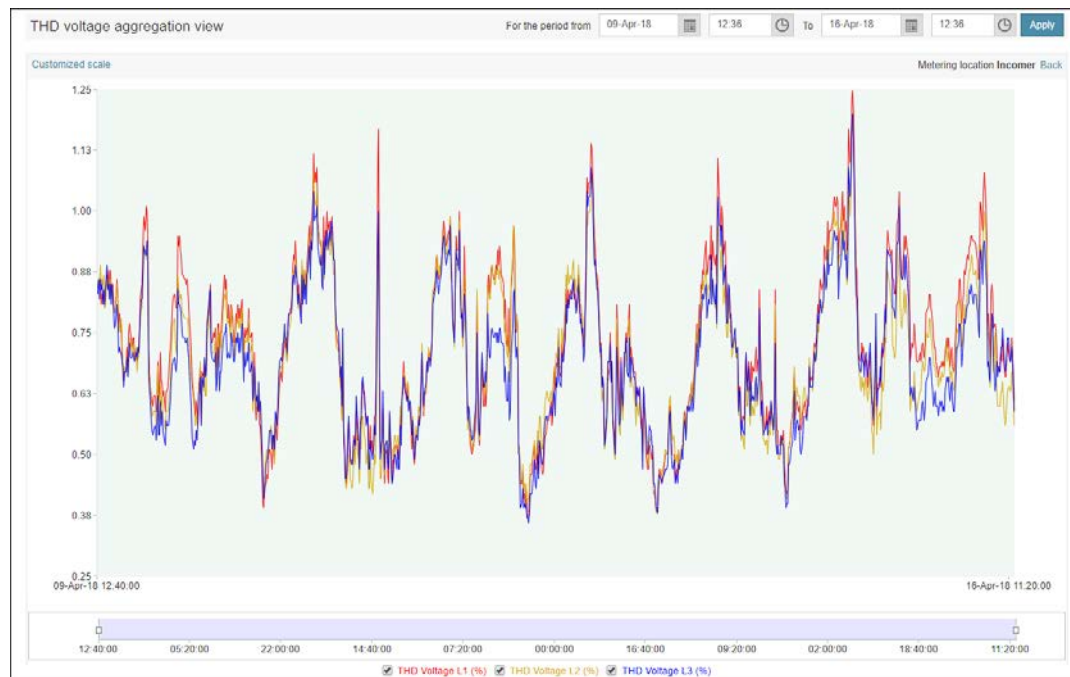


Figure 19: Aggregative view

ITIC Curve

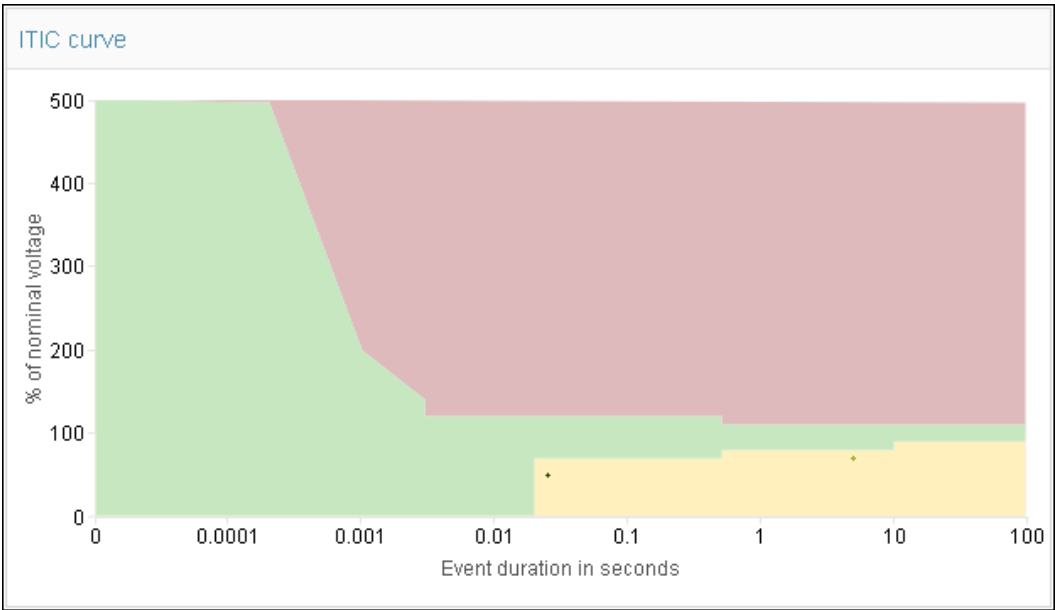


Figure 20: ITIC curve

Your event point may lie in one of these regions, **No damage (yellow zone)**, **Tolerance (green zone)** or **Prohibited (red zone)** with respect to ITIC thresholds. When you mouse over an event point, details of the event with respect to the magnitude and duration of voltage deviations against nominal voltage are displayed. This detail helps you to view how your equipment operation can be adversely impacted.

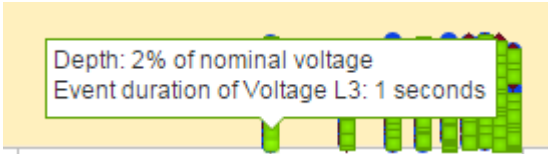


Figure 21: Event details on mouse over

For example, the above example shows that magnitude deviation of the voltage supply in the L3 phase was 2% from the nominal voltage (supply dropped to 98 % of nominal voltage) and lasted for 1 second.

Dip classification

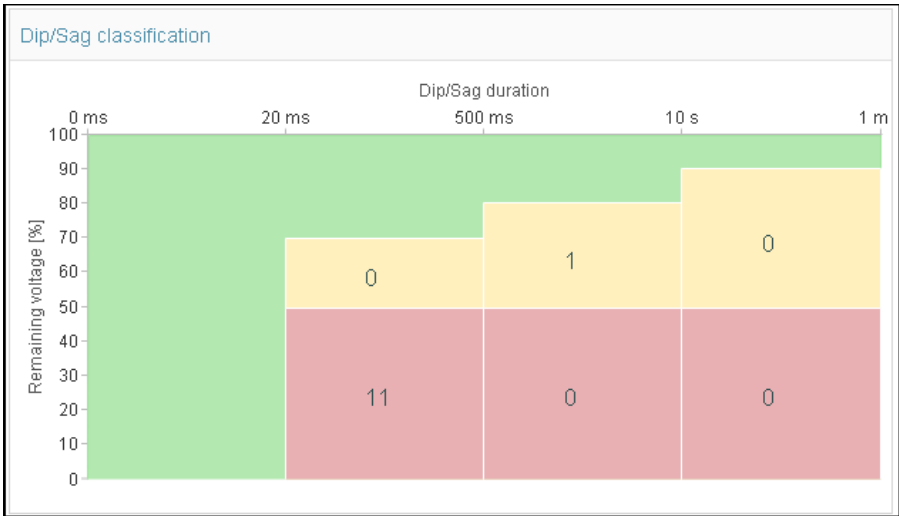
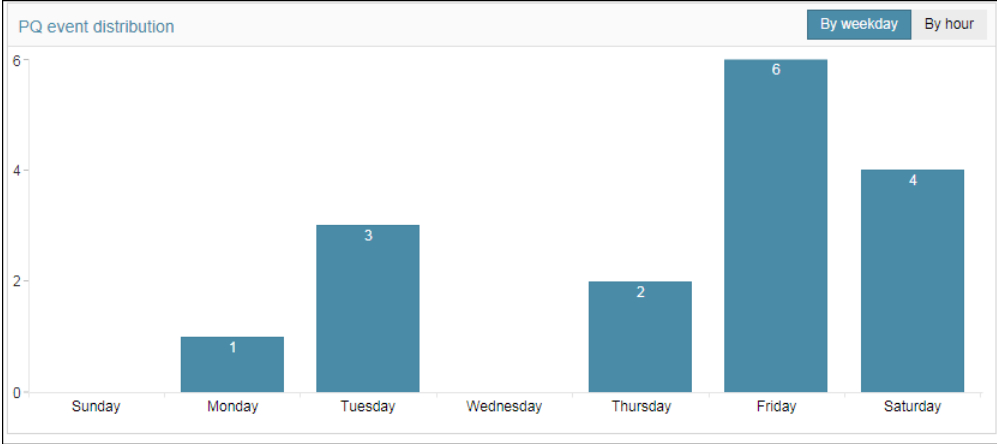


	Figure 22: Dip/Sag count and duration This classification is based the event counts logged by ProQ View to indicate drop of supply voltage below the nominal voltage or configured voltage for a duration between 0 ms to 1 minute. For example the dashboard in figure shows that 11 dips/sags with an occurrence duration between 20 ms to 500 ms were recorded at a drop of 50 to 0 % of supply voltage.
PQ event distribution count	 Figure 23: PQ count by weekday and hour This view shows the count of PQ events recorded for the selected MLs. This count is available by hour and weekday. This graph helps us understand the number of events by weekday or hour of the day, which can be useful information when analysing the events. The default view shows the Count of the various event types.

3.2.3 ProQ View Menus and submenus

Given below is a brief description of each menu and associated submenus in ProQ View.

- **Setup:** This menu has the following submenus:
 - o **Metering locations:** This submenu lets you define details for a metering location linked to the ProQ 100 meter. For details refer section 5.1
 - o **Networks:** This submenu lets you define a logical, electrical or area network based on your monitoring need. For example, an electrical feeder location (input/output) can be a network under which, metering locations, where ProQ meters are installed can be linked. For details refer section 5.2
 - o **Reading schedule:** This submenu lets you view and modify the default reading schedule for data acquisition form the ProQ 100 meters. For details refer section 5.3.
 - o **Data retention period:** This submenu lets you configure the data retention periods for different PQ parameters. For details refer section 5.4
 - o **Parameter units:** This submenu lets you configure calculation units for PQ parameters. For details refer section 5.5
 - o **Parameter names:** This submenu lets you configure (add) names for PQ parameters. For details refer section 5.6
 - o **Settings & thresholds:** This submenu lets you specify system and PQ threshold settings for monitoring and analysis. For details refer section 5.7.
 - o **Email settings:** This submenu lets you specify the email address or alternate email addresses in which you wish to receive notification alerts. For details refer section 5.8

- **Dashboard:** This menu allows you to view the status and count of various PQ parameters. For details refer section 3.2.2.
- **Monitor:** This menu enables you to monitor PQ, energy and event data in various graphs and online views. Monitoring at different levels allows you to keep track of active risks due to power variations and limit violations. The available views include:
 - o **Real time data:** This view displays instantaneous values of configured power quality and general electrical parameters in both graphical and tabular views. By default the data is refreshed every 1 minute. For details refer section 6.1
 - o **RMS streaming:** Shows voltage and current RMS trends generated through streaming. For details refer section 6.2
 - o **Waveform streaming:** Shows a graphical view of voltage and current waveforms generated through streaming. For details refer section 6.3
 - o **Aggregated data:** This view displays aggregated values of power quality and general electrical at each 10 minute interval in a graphical view. For details refer section 6.4
 - o **Historical data:** This view displays stored values of PQ parameters for the selected time period and duration. For details refer section 6.5
 - o **Diagnostics:** The health of the system can be monitored using the options under this menu. For details refer section 6.6
- **Analyse:** This menu has options for analysing PQ trends, ITIC data, EN50160 compliance and reliability indices
 - o **PQ events:** This view lets you analyse power quality events in tabular, time line and count views. For details refer section 7.1
 - o **ITIC curve:** This view lets you analyse event points with respect to the magnitude and duration of voltage deviations against nominal voltage and the compliance with respect to ITIC thresholds. For details refer section 7.2
 - o **EN50160 custom:** This graph helps you to analyse if your PQ parameters are within the specified EN50160 compliance limits. For details refer section 7.3.
 - o **Reliability indices:** This graph helps you to analyse if PQ parameters meet the specified reliability indices. For details refer section 7.4
 - o **PQ loss analysis:** This view lets you analyse the consumption trend. For details refer section 7.5
 - o **Harmonic analysis:** This view lets you analyse the harmonics trend. For details refer section 7.6
- **User Management:** to define users, create roles, and assign the created roles to relevant users. It allows managing all the users right from the initial stage of creation to the final stage of deletion.
 - o **Users:** Enables you to create, modify and delete user accounts. For details refer section 4.1
 - o **Change passwords:** Enables you to change passwords. For details refer section 4.2
 - o **Roles:** Enables you to create, modify and delete user roles. For details refer section 4.3
- **Reports:** Several reports help with analysing system power quality and taking corrective action to improve efficiency and productivity. For details refer section 8.
- **Help:** Click this option to view help on Pro Q view.

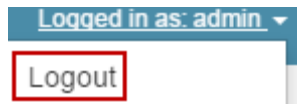
3.3 Logging out from the ProQ View application

This section describes the procedure to log out from the ProQ View application when access is no longer needed.

To log-out of ProQ View, do the following:

1. On the ProQ View home page, click the drop-down next to hyperlink at the top right-hand corner.
2. Click **Logout**.

Logged in as: admin ▾ the



4 User Management in ProQ View

User Management is concerned with user account creation and password management. It also includes creation and assignment of user roles. You can manage the users by creating new roles, modifying the existing ones, and deleting them as per your business requirements.

This functionality allows you to:

- Create user accounts
- Change passwords
- Create roles

NOTE:

Only users with requisite authorization/permission will be able to access this menu and the corresponding sub menu and menu options. This section is usually relevant for Managers, Administrators, and Super Users who are involved with the creation and management of user accounts and business roles. However, the **Change Password** functionality is available to all users.

4.1 Create user account

To be able to perform a task in the ProQ View software, you must have a user account. An administrator or personnel with requisite permission/business role can create, view, modify, and delete the user account.

This functionality allows you to:

- Create a new user account as described in section 4.1.1
- Edit existing user(s) account details as described in section 4.1.2
- Deleting a user account as described in section 4.1.3

4.1.1 Creating new user account

This functionality allows you to create a new user account.

Navigation: ProQ View dashboard page→User management→Users: The **Users** screen appears.

Users						
				New	Cancel	
Sr. no.	Login ID	First name	Last name	View	Edit	Delete
1	159	Operator	12	View	Edit	Delete
2	160	Manager	test	View	Edit	Delete

Figure 24: User list

Click the **New** button to create a new user. You are led to the **Create user** screen as shown below:

Figure 25: Create user details

The fields are elaborated as follows:

Field	Description
Login ID	Enter the login ID of the user. This is a unique value that helps searching a user in the Pro Q View database. The login ID can be an alphanumeric value such as 'User 23' .
First name	Enter the first name of the user.
Last name	Enter the last name of the user.
Email ID	Enter the e-mail address on which the user ID and password details will be communicated to the user.
Telephone number	Enter the telephone number of the user.
Role	Click the drop-down. You can select or admin or click the Define role option to define a role. For details refer section 4.3.
Password	Enter an alphanumeric password. This will be used for logging into to the application. NOTE: The password length should be of minimum 8 characters and should not exceed 25 characters. It must have at least one alphanumeric and one special character (Only the following special characters are allowed: !@#\$%^&*). For example, Admin1@. This password is supplied by the administrator while creating the user account. The user can later change the password as per the predefined password policy.
Confirm password	Re-enter the password for confirmation.

To create a user, do the following:

- On the **Create User** screen, enter details as mentioned in the preceding table.
- Click **Save** to save the information. You receive a confirmation message stating that the data has been saved.

4.1.2 Editing user information

This functionality allows you to edit user information

Navigation: ProQ View dashboard page →User management→Users: The **Users** screen appears.

To edit information, do the following:

1. Click the **Edit** link for the user account that you want to modify.
2. The **Create user** screen appears with existing details.
3. Update information as required
4. Click **Save** to save the information.

4.1.3 Deleting user account

This functionality allows you to delete a user account if you have the required permission.

Navigation: ProQ View dashboard page →User management→Users: The **Users** screen appears.

To delete a user account, do the following:

1. Click the **Delete** link for the user account that you want to delete.
2. The **Caution** dialog box appears to enable you confirm deletion.
3. Click the **Yes** button to proceed.

4.2 Change Password

To enhance security it is recommended that passwords are periodically changed. This functionality:

- Allows you to select and change your password at any time subsequently.
- Enforces password formation rules for e.g. minimum character length of password or that password must be a combination of numeric, alphabets and special characters.

Navigation: ProQ View dashboard page→User management→Change password: The **Change password** screen appears.

Change password Mandatory fields are designated by the * symbol.

Save Cancel

Current password*

New password*

Confirm new password*

Figure 26: Change password details

The fields on the **Change password** screen are elaborated as follows:

Field	Description
Current password	Enter the existing password in this textbox
New password	Enter the new password for logging into the application
Confirm new password	Re-enter the new password for confirmation.

To change the password, do the following:

1. Enter details as described in the preceding table.
2. Click **Save** to save the new password. You receive a confirmation message stating that the password has been changed.

NOTE:

The length of the password should not be less than 8 characters and should not exceed 25 characters. It must have at least one alphanumeric and one special character (The special characters allowed in the password are !@#\$%^&*). For example, **Admin1@**

4.3 Create Role

Navigation: ProQ View dashboard page →User management→Roles. The **Roles** screen appears.

Roles				
		New Cancel		
Sr. no.	Role name	View	Edit	Delete
1	admin	View	Edit	Delete

Figure 27: Roles list

To create a new role, click the **New** button at the top. You are directed to the **Create role** screen as shown below:

Create role

Mandatory fields are designated by the * symbol.

Save

Cancel

Role

Role name*

Features	Access
Setup	☐
Monitor	☐
Analyse	☐
Report	☐
User	☐

Figure 28: Create role details

To create a new role, do the following:

- 1. In the **Role name** textbox, enter the name of the role you want to create.
- 2. Click the **Access** checkboxes against the features that you want to associate with the new role.
- 3. Click the **Save** button to save the role.

5 Setup options

In this section you will learn to:

- Setup a metering location as described under section 5.1
- Setup a network as described under section 5.2
- View or edit the default reading schedule as described under section 5.3
- Specify data retention periods for different PQ profiles as described under section 5.4
- Configure PQ parameter units as described under section 5.5
- Configure PQ parameter names as described under section 5.6
- Specify settings and thresholds for PQ monitoring of parameters as described under section 5.7.

5.1 Setting up metering locations

A **Metering Location** (ML) represents a facility or location where the ProQ 100 meter is installed. It provides information related to the technical parameters of the meter like voltage, CT/VT ratio of the electric meter and communication details such as mode and port details etc. To add an ML component, do the following:

Navigation: ProQ View dashboard page → Setup → Metering locations

The following screen appears:

Metering locations								
					New Cancel			
Sr. no.	Metering location	Meter serial number	Network / IP address	Is the meter active?	Check Connection	View	Edit	Delete
1	A Output feeder 3	12345666	172.16.2.94		Check Connection	View	Edit	Delete
2	Incomer	12345660	172.16.2.84		Check Connection	View	Edit	Delete
3	Output feeder 1	123456789	172.16.2.64		Check Connection	View	Edit	Delete
4	Output feeder 2	12345679	172.16.2.66		Check Connection	View	Edit	Delete

Figure 29: ML list

Click the **New** button. The Define metering location screen appears.

Figure 30: New ML details

The fields on this screen are elaborated below:

Field	Description
Metering location	
Location name	Enter a name for the ML that you want to define in context with the associated ProQ 100 meter.
Effective from date	Click the calendar icon and select the date of meter activation. This date also reflects changes made to ML details and meter replacement. Click the  icon and select the time in HH:MM format at which the application will be activated for receiving data from the associated ProQ 100 meter.
IP address	Enter the IP address of the meter that you want to associate with the ML. This information is required by ProQ view to establish communication with the meter over supported protocol.
Network	If you want to link the ML to a specific network, click the Network drop-down and select the required network.
Per minute cost of interruptions	Enter per minute cost incurred due to interruptions. This information is used by the system to calculate the overall costs incurred on productivity lost due to interruptions.
Get data from meter	To use this feature, you should provide the IP address of the associated meter above. Once done, click this button to automatically acquire the general and

	installation details of the meter, if available. Note: It is mandatory to specify the IP address of the meter, in the IP address field above.
Meter serial number	Enter the serial number of the meter associated with the ML. This is a unique number printed/embossed on the meter for identification. NOTE: A typical meter serial number can be a combination of alpha-numeric characters with a maximum length of 20 characters. For example 'PQMDA123'.
Is the meter active?	Check this checkbox if the meter is already installed and in use.
Meter	
Meter type	Select the meter type from the drop-down list. Two options HT CT/VT-operated and LT CT operated are available for selection.
Measurement type	Select measurement type from the drop-down list. It is the type of measurement as determined by the number of independent measuring circuits present for elements or phases available in the variant. For e.g. 3 Phase 4 Wire or 3 Phase 3 Wire
Current rating	Select the current carrying capacity of the meter from the drop-down list.
Voltage rating(L-L)	Select the voltage carrying capacity of the meter from the drop-down list.
CT ratio	Enter the meter CT ratio.
VT ratio	Enter the meter CT ratio.
Communication mode	This is fixed as the meter communicates on TCP/IP protocol.
Port	The port is set to '502' by default and this information is non-editable.
No. of downstream connections	This indicates the number of customers served by supply feeders on which, this meter is installed. The value is be used to calculate SAIFI, SAIDI, CAIDI indexes.

Enter the required information in the respective fields and click the **Save** button to save the ML details.

5.2 Networks

A **Network** represents a logical, electrical or area network based on your monitoring need. For example, a network could be a feeder location (input and output), which could be further linked to a metering location, where ProQ 100 meters are installed.

Navigation: ProQ View dashboard page → Setup → Networks

The following screen appears:

Networks					
				New	Cancel
Sr. no.	Network name	Description	View	Edit	Delete
1	Feeder	Feeder	View	Edit	Delete
2	Network 1	Network	View	Edit	Delete

Figure 31: Network list

Click the **New** button. The Define network screen appears.

Define network
Mandatory fields are designated by the * symbol.

Network

Network*

Description

Description*

SaveCancel

Figure 32: New network details

The fields on this screen are elaborated below:

Field	Description
Network	Enter the name of the network you want to define.
Description	Enter the description of the network you want to define.

Enter the required information in the respective fields and click the **Save** button to save the **Network** details.

5.3 Configuring a Reading schedule

You can schedule the times when ProQ View connects with the ProQ 100 meter to get data.

Adding a reading schedule:

Navigation: ProQ View dashboard page → Setup → Reading schedule

The following screen appears:

Reading schedule

Cancel

Sr. no.	Schedule name	Schedule description	View	Edit
1	Default schedule	This is the default reading schedule.	View	Edit

Figure 33: View/ Edit default reading schedule

On this screen, you can either view or edit the default schedule.

5.3.1 Editing the default schedule

1. On the **Reading Schedule** screen, click the **Edit** link.
2. The default schedule opens in editable mode. An example screen is shown below:

Reading schedule

Mandatory fields are designated by the * symbol.

Update Cancel

Reading schedule

Schedule name*My Schedule

Description*This schedule is defined by considering the best possible data acquisition needs of the business

Activation date*17-Jan-18

Activation time*12:08

Enabled☒

Is communication log required?☒

Reading frequency

☒ Instantaneous3Seconds

☒ Energy profiles15Minutes

☒ EventsOne minute

☒ Compliance reportEvery Hour

Figure 34: Reading Schedule Details

The fields on this screen are elaborated below:

Field	Description
Data Reading Schedule	
Schedule name	You can modify the default name to suit your requirement, if you wish. For example 'Daily reading schedule'
Description	You may modify the default description, if you wish.
Activation date	Click the calendar icon and select the start date when ProQ View will start polling data from meters.
Activation time	Click the icon and select the time for data polling
Is communication log required?	Check the box if you require a log of the acquired data for further analysis.

Enabled	This box is checked by default. If you do not want to acquire meter data, uncheck this option. Data acquisition from all meters will be stopped.
Reading Frequency	
Instantaneous	The default frequency can be modified for instantaneous parameters only. You can specify the recurrence frequency between 1 and 60 seconds. The default value is set as 3 seconds.
Energy profiles	Not editable. Default values set to 15 minutes .
Events	Not editable. Default values is set to 1 minute , however, when a new event is recorded, it is automatically polled instantly.
Compliance reports	Not editable. Default values set to 1 hour .

3. Enter details as described in the preceding table.
4. Click **Save** to save the information.

5.4 Configuring the data retention period

The **Data retention period** screen allows you to specify the number of days for which you want to retain different PQ data types in the database. Each data type is stored separately. However, please ensure that you have adequate storage space.

Navigation: ProQ View dashboard page → Setup → Data retention period.

The following screen appears:

Data retention period		
Instantaneous*	10	Days
Energy profiles*	30	Days
Events*	30	Days
Compliance report*	30	Days
Communication log*	30	Days

Note: Data will be retained for the duration specified above.

Figure 35: Default data retention periods

To specify the data retention period, do the following:

1. Against each parameter type, enter the number of days for which you want to retain the data in the corresponding textbox. The default values for all data types are set as '10'.
2. Click **Save**

Notes:

- All data previous to the number of specified days from the current date will be automatically purged by the system.
- You can retain the default values, as required.

5.5 Setting parameter units

The Parameter units screen displays a default list of PQ parameters along with available measuring units and corresponding symbols. The required measuring unit can be selected for calculation and display purposes across the software.

Navigation: ProQ View dashboard page → Setup → Parameter units

The following screen appears:

Setup parameter units

Save

Cancel

Parameter type	Measuring unit	Unit symbol
Voltage	Volt	V
Current	Ampere	A
Power	kiloWatt	kW
Energy	kiloWatt hour	kWh
Frequency	Hertz	Hz
Currency	Rupee	Rs

Note: These settings will be applicable for data monitoring as well as reports.

Figure 36: Default parameter units

To change a unit associated with a parameter, do the following:

1. Click the **Measuring unit** drop-down associated with the parameter
2. Select the new unit of measurement. For example, if you wish to change the measuring unit of Voltage from the default **Volt** to **kilovolt**, select the option.
3. The **Unit** symbol automatically changes as per selection.
4. Click **Save** to save the changes.

5.6 Setting parameter names

The Setup parameter names screen has various tabs. Under each tab, several related PQ parameters are grouped together. As per requirement, the names of these default parameters can be modified. Once the changes are made, the system displays the new parameter name everywhere.

Navigation: ProQ View dashboard page →Setup→Parameter names

The following screen appears:

Parameter names

Reset to factory settings

Save

Cancel

Voltage

Current

Power

Power factor

THD

TDD

K-factor

Crest Factor

Flicker Pst

Phase Angle

Frequency

Phase Voltage Parameters

Names

Phase Voltage L1

Phase Voltage L2

Phase Voltage L3

Neutral Voltage

Line Voltage Parameters

Names

Line Voltage L1-L2

Line Voltage L2-L3

Line Voltage L3-L1

Figure 37: Default parameter names

To change the name, do the following:

1. Click the relevant tab to find the parameter name that you want to change.
2. In the **Names** textbox next to the relevant parameter, type the new name for the parameter. In the same way you can change other names as required.
3. Click the **Save** button to save the changes.

Note: The **Reset to factory settings** button will reset parameters names to default.

5.7 Setting and thresholds

Threshold is a dividing point between acceptable and over limit measurements. When a value goes above or below the limit, an out-of-limit condition occurs. The **Settings and thresholds** screen has multiple options for configuring system settings and specifying threshold values of PQ parameters for monitoring against reliability indices and meeting compliance needs.

Navigation: ProQ View dashboard page → Setup → Settings & thresholds

The following screen appears:

Figure 38: Settings & threshold details

The fields on this screen are elaborated below:

Field	Description
System settings	
Round digit	Select the digit up to which you want to round off a value to the nearest decimal point. For example if you select '2', any value will be rounded off to two decimal places, for example ' 148.23 '. The default selection is set at '3'.
Nominal frequency	This is a non-editable field and the default frequency is set to ' 50 ' Hz.
Per unit cost of sag	The default value is set to 4000. You may edit as required.
Per unit cost of swell	The default value is set to 4000. You may edit as required.

Per unit cost of interruption	The default value is set to 12000. You may edit as required.	
Thresholds		
Minimum and maximum voltages, current, frequency, Lead and lag power factor, Neutral voltage, Neutral current, K-factor, Crest-factor, THD power, THD current THD voltage, Maximum harmonic factor, Flicker (Pst) Productivity loss, SAIFI, SAIDI and CAIDI	Enter the maximum and minimum threshold values as required.	
Total demand distortion		
Application type	Click the drop-down and select the application type	
Threshold	Click the drop-down and select the threshold value	
PQ data classification and visualization		
Voltage variation, Flicker, Voltage unbalance and THD	Limit value	Enter the threshold value for voltage dips and swells with reference to nominal voltage (the default is. $\pm 10\%$ of U_{din}). Note: In the same way enter the values for other parameters.
	Percentage of time	Enter the time percentage for voltage variation compliance. Note: In the same way enter the values for other parameters.
Dips classification for metering locations: Enter values as required.		
Reset to factory settings: Allows you to return to all the default thresholds.		

1. Enter details as described in the preceding table.
2. Click **Save** to save the information.

5.8 Email settings

The Email settings screen allows you to enable or disable email notification features and also specify one or multiple email addresses on which you wish to receive the notifications.

Navigation: ProQ View dashboard page → Setup → Email settings

The following screen appears:

ProQ View Language: English Logged in as: admin

Setup ▾ Dashboard Monitor ▾ Analyse ▾ User management ▾ Reports ▾ Help

Email settings

Mandatory fields are designated by the * symbol.

SMTP configuration

Enable ☐

Email from*

Server IP*

Server port*

Username*

Password*

Email addresses

Email address 1*

Email address 2

Email address 3

Email address 4

Email address 5

Note: Contact your IT team for SMTP configuration details.

Save Cancel

Figure 39: Settings for email

The fields on this screen are elaborated below:

Field	Description
SMTP configuration	
Enable	By default this checkbox remains unchecked. Check it to enable the email notification feature.
Email from	Enter the email address of the sender.
IP address/domain name	Enter the IP address of the SMTP server on which ProQ View will send email notifications
Port	Enter the port number of the SMTP server on which the ProQ View will communicate
User name	Enter the user name required to access the SMTP server.
Password	Enter the password required to access the SMTP server.
Email addresses	
Email address 1	Enter the email address on which you want to receive the notifications. This field is mandatory.

Note:

For adding alternate email addresses, use the other fields as required.

6 Monitoring

The ProQ View software provides monitoring of various power quality and electrical parameters in various views. The following options are available for monitoring:

6.1 Real time data

The **Real time data** screen provides real-time monitoring of instantaneous power quality and general electrical parameters in both graphical and tabular views. The values of selected parameters are displayed for selected active MLs. The application updates the information on this view in the configured time frame, under settings. Based on this information you can monitor the health of your system, see what is exceeding or below threshold settings, make comparisons against predefined thresholds and take informed choices.

Navigation: ProQ View dashboard page → Monitor → Real time data

To view real time data in **Tabular** view, do the following:

1. Select the required Networks/MLs from the tree view in the left pane.
2. By default the data is shown in **Tabular** view or you can click this tab at the top.

Real time view									
Tabular view		Graphical view		Customize parameter group					
Meter Name	Date	Frequency (Hz)	Flicker Pst L1	Flicker Pst L2	Flicker Pst L3	Harmonic Factor	K-Factor Line 1	K-Factor Line 2	K-Factor Line 3
Incomer	25-Jan-18 06:33...	50.225	0.216	0.199	0.366	1.001	1.006	1.007	1.006
Output Feeder	19-Jan-18 16:20...	50	0.128	0.063	0.061	1	1	1	1
Output Feeder 3	19-Jan-18 16:19...	50.227	0.319	0.37	0.375	1	1.008	1.008	231.724

Figure 40: Real time view (Tabular)

Note: By default, data is shown for a definite number of parameters. If you want to view selected parameter data, click the **Customize parameter group** link at the top and make the required selections.

3. On this screen you can view performance of parameters like instantaneous voltages, current and various PQI. Values in red indicate a crossover below or above the configured threshold.
4. To view the data for a particular meter, simply click on the hyperlink as shown below:

Real time view									
Tabular view		Graphical view		Customize parameter group					
Meter Name	Date	Frequency (Hz)	Flicker Pst L1	Flicker Pst L2	Flicker Pst L3	Harmonic Factor	K-Factor Line 1	K-Factor Line 2	K-Factor Line 3
Incomer	25-Jan-18 06:33...	50.225	0.216	0.199	0.366	1.001	1.006	1.007	1.006
Output Feeder	19-Jan-18 16:20...	50	0.128	0.063	0.061	1	1	1	1
Output Feeder 3	19-Jan-18 16:19...	50.227	0.319	0.37	0.375	1	1.008	1.008	231.724

Figure 41: Real time view (Tabular hyperlink)

5. The details appear. An example screen is shown below:

Online monitoring

Metering location Income

Back

Meter details		
Serial number	PQMDA0017	
Type	HT CT/VT-operated	
Date	16-Apr-18 12:24:26	
Frequency	49.92 Hz	●
Voltage		
Phase Voltage L1	18935.35 V	●
Phase Voltage L2	18860.7 V	●
Phase Voltage L3	18948.89 V	●
Neutral Voltage	0.12 V	●
Line Voltage L1-L2	32718.49 V	●
Line Voltage L2-L3	32753.57 V	●
Line Voltage L3-L1	32813.05 V	●
Current		
Line Current L1	14.72 A	●
Line Current L2	14.03 A	●
Line Current L3	14.48 A	●
Neutral Current	0 A	●
Total demand distortion power		
Total Demand Distortion Line 1	2.9 %	●
Total Demand Distortion Line 2	2.87 %	●
Total Demand Distortion Line 3	3.01 %	●

Power factor		
Power Factor L1	0.99	●
Power Factor L2	0.99	●
Power Factor L3	0.99	●
Total Power Factor	0.99	●
Displacement Power Factor	0.99	●
Harmonic Factor	1	●
THD voltage		
THD Voltage L1	0.53 %	●
THD Voltage L2	0.47 %	●
THD Voltage L3	0.5 %	●
THD current		
THD Current L1	14.94 %	●
THD Current L2	15.54 %	●
THD Current L3	15.83 %	●
THD power		
THD Power L1	0.06 %	●
THD Power L2	0.05 %	●
THD Power L3	0.06 %	●
Flicker (Pst)		
Flicker Pst L1	0.2	●
Flicker Pst L2	0.13	●
Flicker Pst L3	0.12	●

Power		
Active Power Total	806.62 kW	
Active Power Fundamental	806.79 kW	
Reactive Power	31.02 kVar	
Apparent Power	817.41 kVA	
Phase Angle		
Phase angle L1	3.24 °	
Phase angle L2	2.87 °	
Phase angle L3	0.59 °	
K-factor		
K-Factor Line 1	1.71	●
K-Factor Line 2	1.74	●
K-Factor Line 3	1.81	●
CrestFactor Voltage		
Crest Factor Voltage V1	1.41	
Crest Factor Voltage V2	1.41	
Crest Factor Voltage V3	1.41	
CrestFactor Current		
Crest Factor Current L1	1.41	
Crest Factor Current L2	1.41	
Crest Factor Current L3	1.41	

Figure 42: Online monitoring (Tabular)

To view real time data in **Graphical** view, do the following:

- Click the **Graphical view** button to change the view from tabular to graphical representation of parameters.
- Select the required Networks/MLs from the tree view in the left pane.
- Click the **Parameter** and **ML** location drop-down and make the required selections for the 1st and 2nd views respectively.
- An example screen is shown below. It shows a comparison between different types of power factors and the THD for all the phases, L1, L2, and L3. You can also select parameters that you want to view by checking/un-checking the check boxes next to them.



Figure 43: Real time view (Graph)

Some other options are as follows:

Option	Description
Customized scale	This hyperlink is located at the top left. For the purpose of viewing, you can configure the Y axis to set a minimum and maximum scaling value. The numeric values at each axis will be spaced according to the specified scale.
Maximise graph	Click anywhere within the graph to maximise it. To return to normal viewing mode, click the X button.

6.2 RMS streaming

This feature provides a graphical view of voltage and current RMS trends generated through streaming. An aggregation of RMS samples is done every 10 milliseconds. At one time, you can view 10 minutes of RMS data streamed for a single meter.

Navigation: ProQ View dashboard page → Monitor → RMS streaming

The following screen appears:



Figure 44: RMS streaming

The fields on this screen are elaborated below:

Field	Description
System settings	
Metering location	Click the drop-down and select the required ML
Start	Click this button to start viewing streamed data.
Stop	Click this button to start viewing streamed data.

To view RMS streaming data, do the following:

1. Select the required ML
2. Click the **Start** button.

6.3 Waveform streaming

This feature provides a graphical view of voltage and current waveforms generated through streaming. An aggregation 128 samples per channel is done every 10 milliseconds. At one time, you can view 10 minutes of a single channel waveform data streamed for a single meter.

Navigation: ProQ View dashboard page → Monitor → Waveform streaming

The following screen appears:

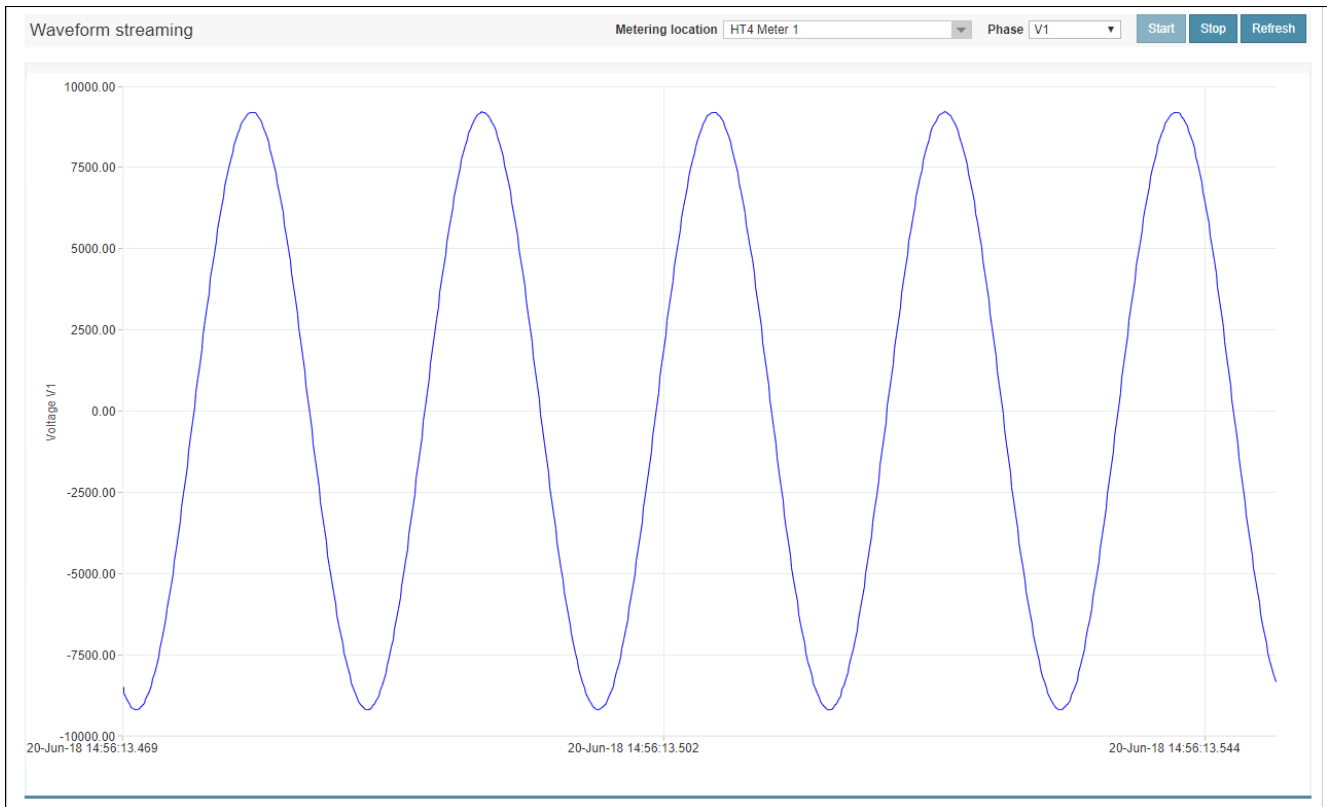


Figure 45: Waveform streaming

The fields on this screen are elaborated below:

Field	Description
Metering location	Click the drop-down and select the required ML
Start	Click this button to start viewing streamed data.
Stop	Click this button to start viewing streamed data.
Refresh	Click this button to view instant changes to Waveform data as it is being streamed.

To view Waveform streaming data, do the following:

1. Select the required ML
2. Click the **Start** button.

6.4 Aggregated data

Some PQ characteristics, like phase voltages, voltage harmonics or unbalance etc, may require daily assessments. ProQ aggregates records within a number of the evaluation intervals to provide correct observation periods.

Each PQ measurement value is aggregated into 10 minutes as specified in IEC 61000-4-30, the result is 1008 values per week and 144 per day.

Navigation: ProQ View dashboard page →Monitor→Aggregated data

To view aggregated data for selected parameters, do the following:

1. Click the **No. of graphs** drop-down and select the graph count that you wish to view in the provided frame. You can select a maximum of four graphs. This is a very useful feature if you wish to make comparisons between single or multiple PQ parameter types within single or multiple MLs.
2. Click the calendar icon  next to the **For the period from** and select the start date for which you want to view the data. Click the  icon and select the start time in HH:MM format. In the same way select the end date and time.
3. Click the **Parameter** drop-down and select as required for each view. In the same way click the **Metering Location** drop-down and select the required option for each view.
4. Click the **Apply** button to view the data. An example screen is shown below.



Figure 46: Aggregated data graphs as per selection

Some other options are as follows:

Option	Description
Customized scale	For the purpose of viewing, you can configure the Y axis to set a minimum and maximum scaling value. The numeric values at each axis will be spaced according to the specified scale.
Maximise graph	Click anywhere within the graph to maximise it. To return to normal viewing mode, click the X button.

6.5 Historical data

Two graphical views/trends can be generated on this screen for same or different PQ parameters for the purpose of analysis or comparison of same or varied MLs.

Navigation: ProQ View dashboard page → Monitor → Historical data → Power quality historical view

The following screen appears:

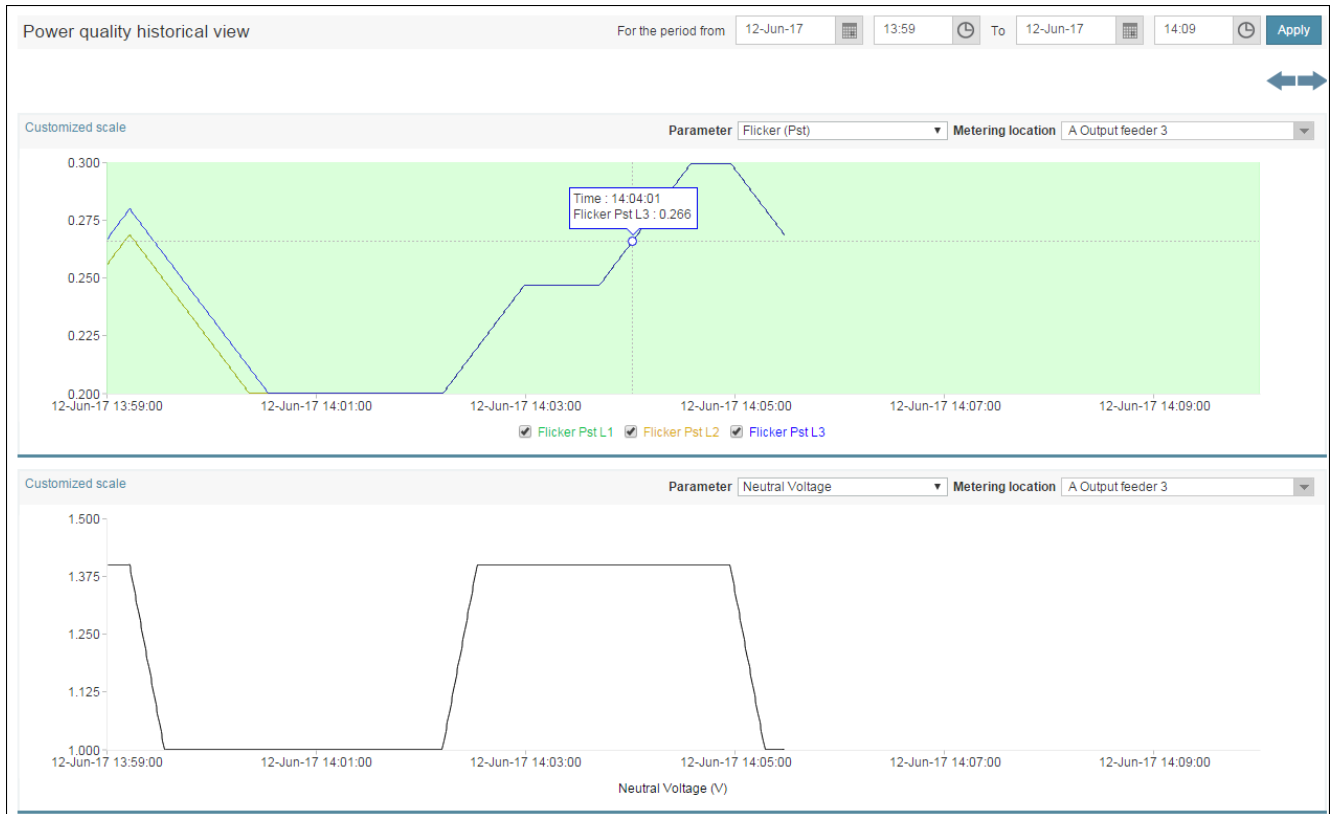


Figure 47: PQ historical view

To view historical data, do the following:

1. Click the calendar icon next to the **For the period from** and select the start date for which you want to view the data. Click the  icon and select the start time in HH:MM format. The first pair of upward and downward arrows increments the time in hours and the second pair of upward and downward arrows increments the time in seconds respectively.

Note:

The  pair of arrows allow you to decrease /increase the time frame window for viewing data by a specified duration. For example, if the current time selection is 1: 10 PM and you click the forward arrow, you will be able to view data for 1: 20 PM or if you click the backward arrow, you will be able to view data for 1:00 PM.

2. In the same way select the end date and time.
3. Now click the **Parameter** type drop-down and select the required option for generating the first graph.
4. Click the **Metering Location** drop-down and select the desired location

5. In the same way select the Parameter and ML to generate the next graph.

6.6 Diagnostics

Navigation: ProQ View dashboard page → Monitor → Diagnostics

The option for manual data backup is provided on this screen. To perform manual data backup, click the drive selection drop-down and choose the drive for which you want to back up data. By default the D drive is selected. Next, click the **'Back up data manually'** button. A confirmation message is shown after the data has been backed up.

Dignostic

Back up data

Back up data manually D:\ ▼

Last cleanup time
NA

Last backup time
NA

Last backup path
NA

Figure 48: Diagnostics

7 Analyse

This menu has the following options for analysis purposes:

7.1 PQ events

This view displays all the PQ events logged by the ProQ 100 meter along with details such as:

- Event occurrence time
- Event restoration time
- Event type
- Logged for phase
- Persistence duration
- Direction
- Magnitude

Navigation: ProQ View dashboard page →Analyse→PQ events

To view PQ events, do the following:

1. Click the calendar icon next to the **From** and select the start date for which you want to view the data.
 Click the  icon and select the start time in HH:MM format. The first pair of upward and downward arrows increments the time in hours and the second pair of upward and downward arrows increments the time in seconds respectively.
2. In the same way select the end date and time.
3. Now click the **Event type** drop-down and select the required option for generating the graph. The default option is **All types**.
4. Next click the **Phase type** drop-down and select the required option. The default option is **All phases**.
5. Click the **Apply** button to view the graph.

Note:

By default the data is shown in **Timeline view**. This view shows events recorded for selected metering locations in chronological order on a linear time scale. An example screen is shown below.

In the tabular view, click the **Pre and Post RMS and Waveform** symbol to view further event details.

PQ events									
From 15-Jun-18 15:21 To 22-Jun-18 15:21 All types All phases All directions Apply									
Time line view Tabular view Count view RVC									
Metering location	Occurrence time	Restoration time	Type	Phase	Duration	Direction	Magnitude (%)	Pre and post RMS and Wave	
Field Trail	16-Jun-18 05:59:43.524	16-Jun-18 05:59:43.634	Sag	Voltage L3	110ms	Downstream	85.63		
Field Trail	16-Jun-18 06:10:36.472	16-Jun-18 06:10:36.559	Sag	Voltage L2	87ms	Upstream	88.62		
Field Trail	16-Jun-18 06:31:36.043	16-Jun-18 06:31:36.150	Sag	Voltage L2	107ms	Upstream	86.71		
Field Trail	16-Jun-18 08:16:15.395	16-Jun-18 08:16:15.511	Sag	Voltage L2	126ms	Upstream	85.23		

A new screen appears with the following tabs:

- RMS occurred** : Click this tab (default view) to view a snap shot of time stamped, root mean square (RMS) values of current and voltage at the time of event occurrence considering samples for one half-cycle waveforms. The RMS values recorded at the time of event occurrence when compared with pre and post RMS values help you analyse the variations in voltage and current. An example screen is shown below.



Figure 51: PQ events (RMS occurrence details)

- RMS restored**: Click this tab to view a snap shot of time stamped, root mean square (RMS) values of current and voltage at the time of event restoration. These values can be compared with pre and post RMS values to help you analyse the variations in voltage and current. An example screen is shown below.

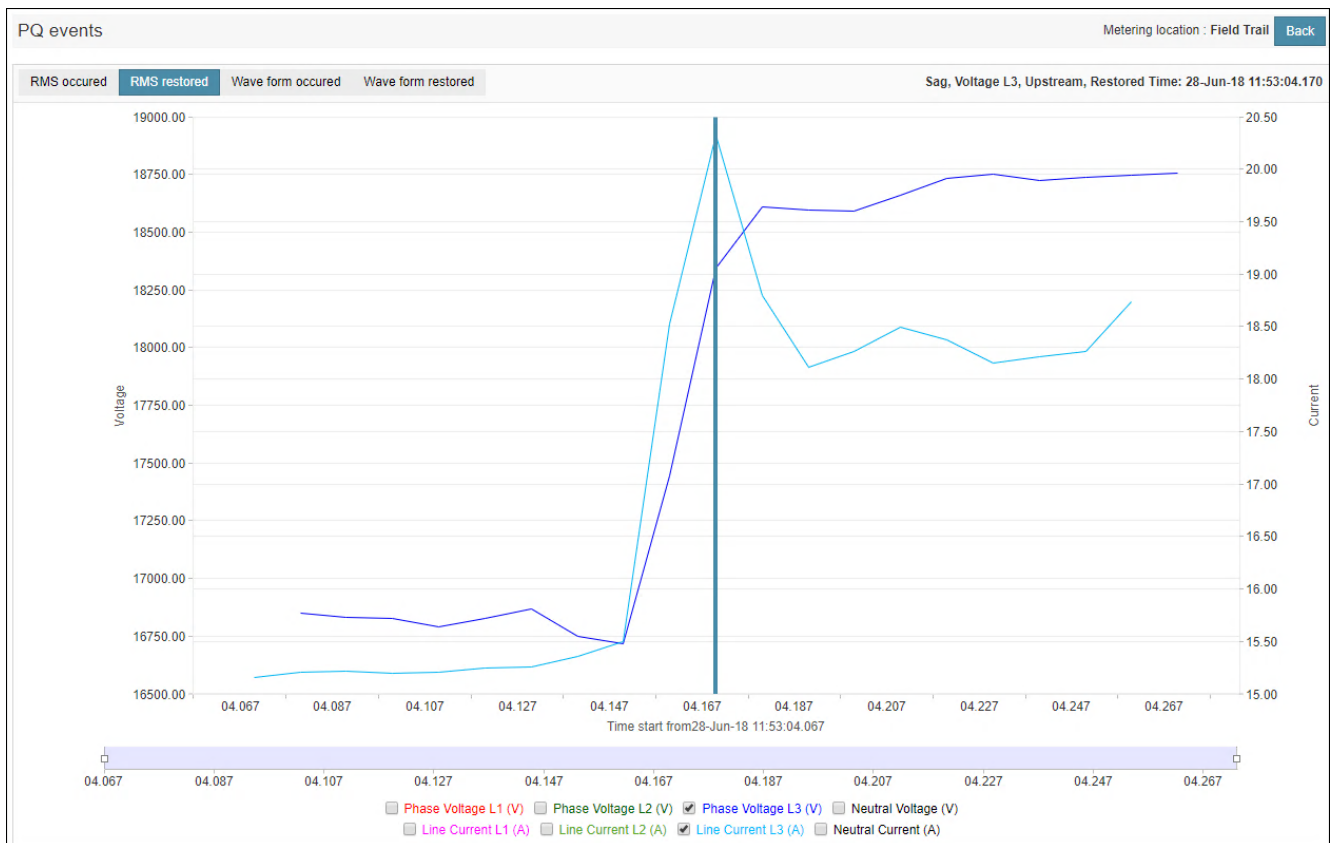


Figure 52: PQ events (RMS restoration details)

- c) **Waveform occurred** :Click this tab to view a snap shot of time stamped, Waveform of current and voltage at the time of event occurrence. These values can be compared with pre and post waveform values to help you analyse the variations in voltage and current. An example screen is shown below.

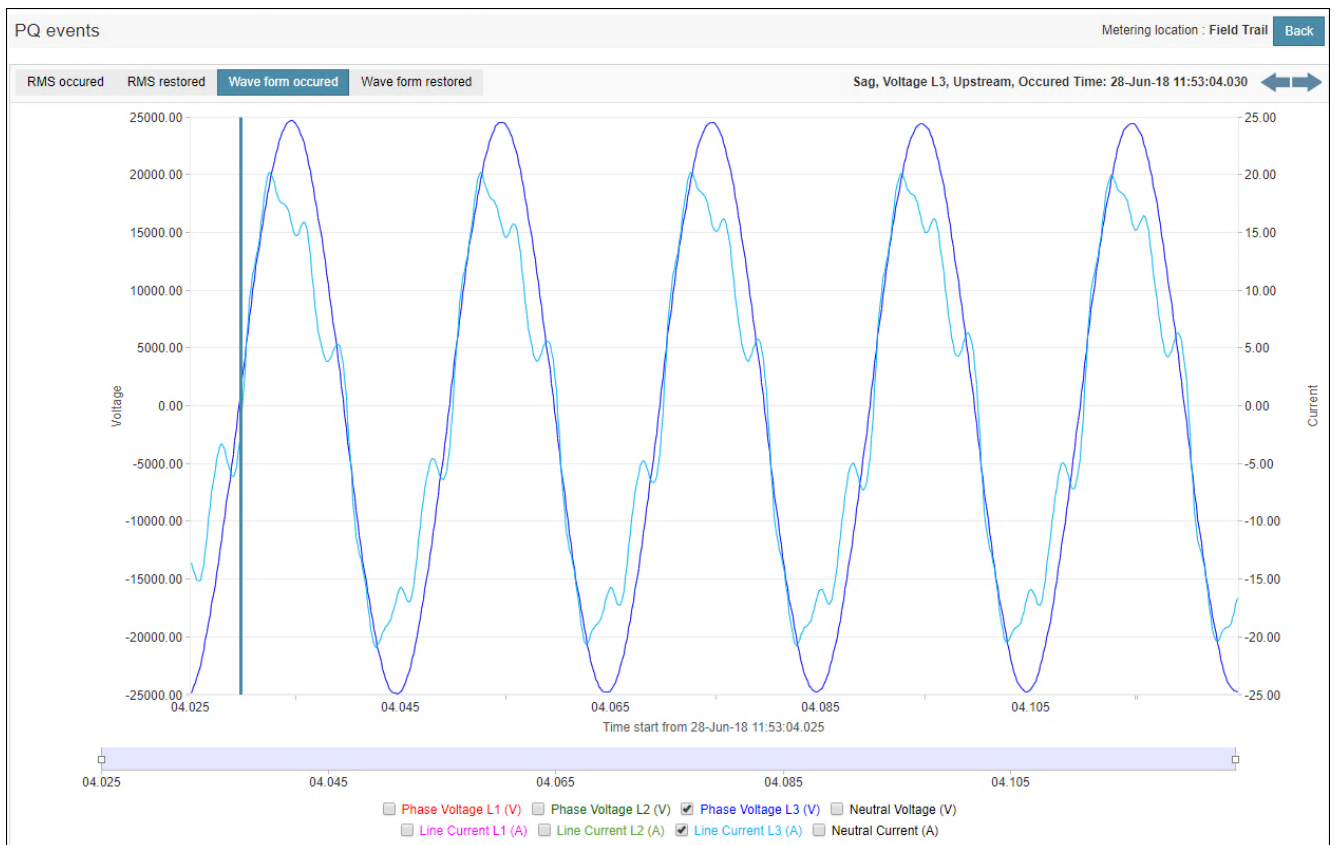


Figure 53: PQ events (Waveform occurrence details)

- d) **Waveform restored:** Click this tab to view a snap shot of time stamped, Waveform of current and voltage at the time of event restoration. These values can be compared with pre and post waveform values to help you analyse the variations in voltage and current. An example screen is shown below.

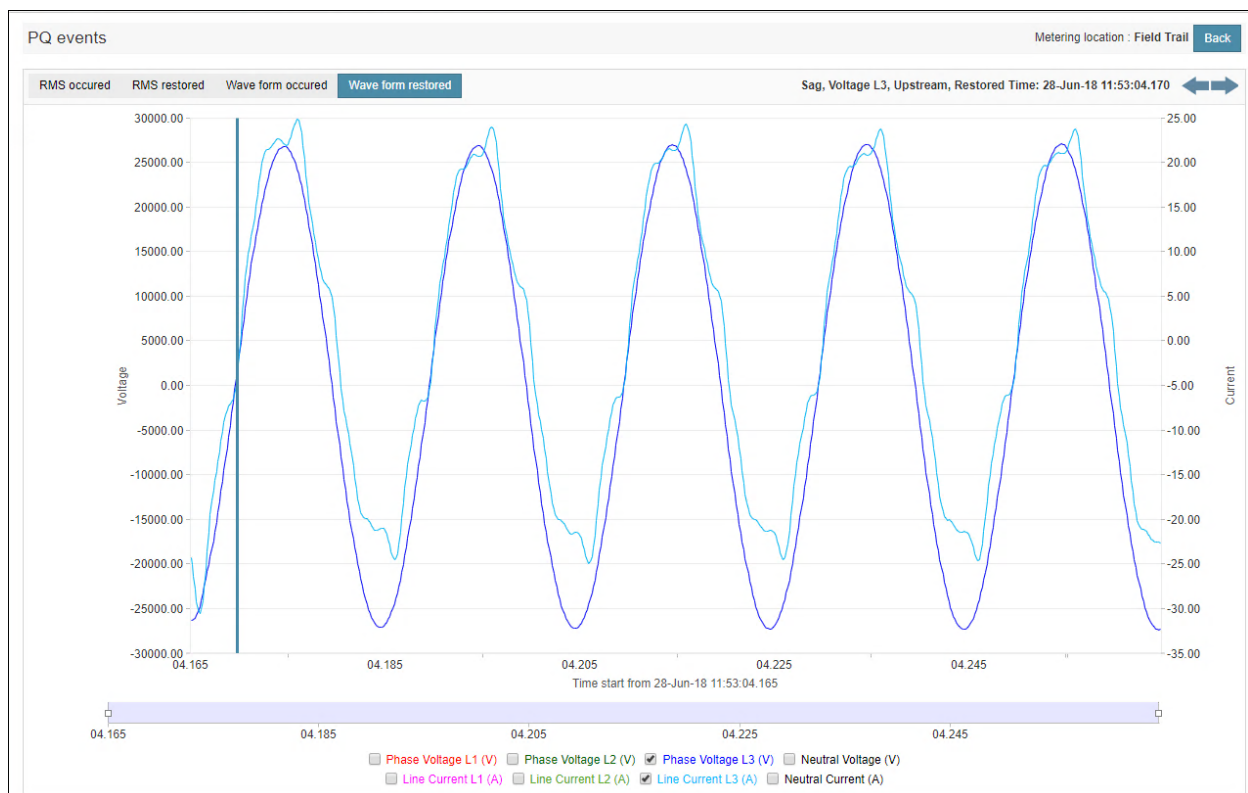


Figure 54: PQ events (Waveform restoration details)

Notes:

- By default all parameters remained checked, you may check/uncheck as required.
- The Y axis depicts voltage indications on one side and current indications on the other.

Count view: Click this tab to view the count of different events recorded for selected metering locations in a bar graph. An example screen is shown below.

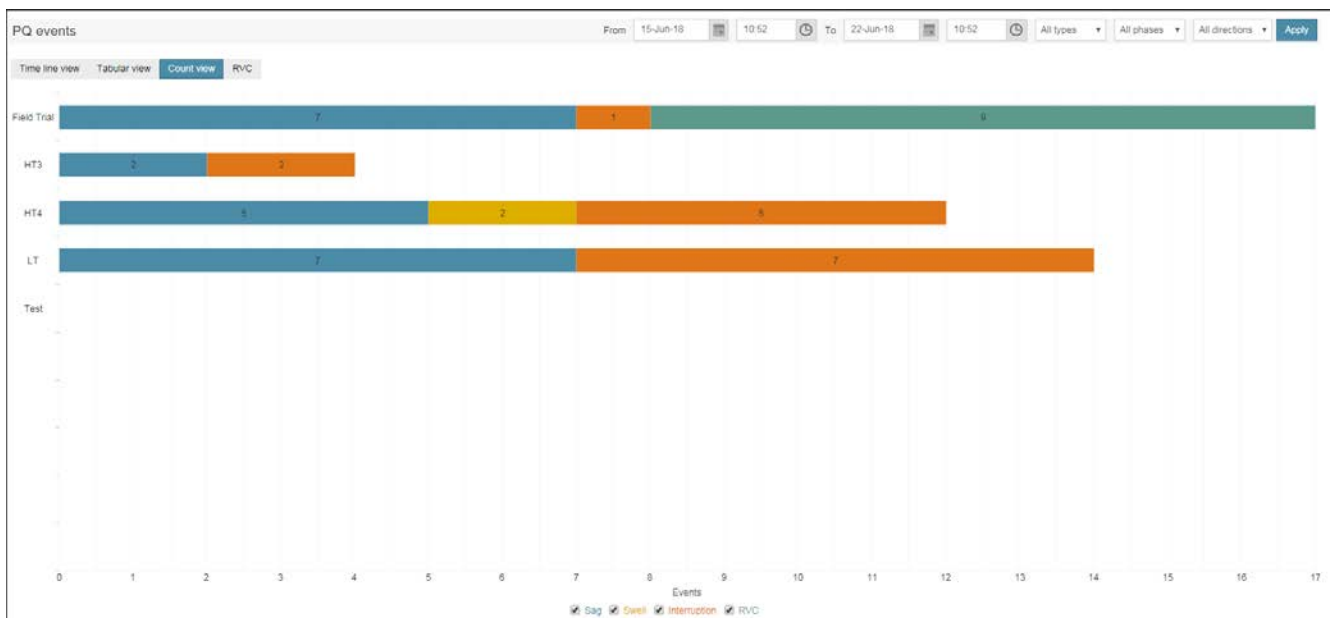
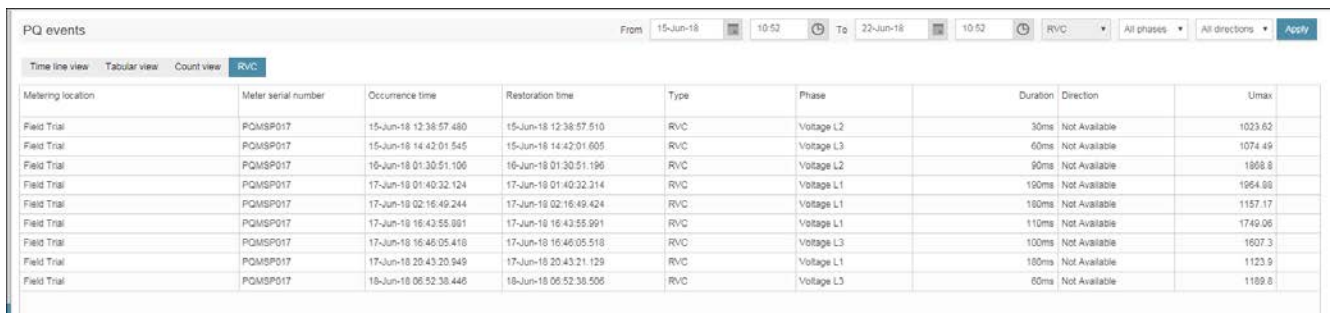


Figure 55: PQ events (Count view)

RVC: Click this tab to view Rapid voltage change (RVC) type events. An example screen is shown below.



Metering location	Meter serial number	Occurrence time	Restoration time	Type	Phase	Duration	Direction	Umax
Field Trial	PQMSPO17	15-Jun-18 12:38:57.480	15-Jun-18 12:38:57.510	RVC	Voltage L2	30ms	Not Available	1023.62
Field Trial	PQMSPO17	15-Jun-18 14:42:01.545	15-Jun-18 14:42:01.605	RVC	Voltage L3	60ms	Not Available	1074.49
Field Trial	PQMSPO17	16-Jun-18 01:30:51.100	16-Jun-18 01:30:51.196	RVC	Voltage L2	90ms	Not Available	1808.8
Field Trial	PQMSPO17	17-Jun-18 01:40:32.124	17-Jun-18 01:40:32.214	RVC	Voltage L1	190ms	Not Available	1964.98
Field Trial	PQMSPO17	17-Jun-18 02:16:49.244	17-Jun-18 02:16:49.424	RVC	Voltage L1	180ms	Not Available	1157.17
Field Trial	PQMSPO17	17-Jun-18 16:43:55.991	17-Jun-18 16:43:55.991	RVC	Voltage L1	110ms	Not Available	1749.06
Field Trial	PQMSPO17	17-Jun-18 16:46:05.418	17-Jun-18 16:46:05.518	RVC	Voltage L3	100ms	Not Available	1607.3
Field Trial	PQMSPO17	17-Jun-18 20:43:20.949	17-Jun-18 20:43:21.129	RVC	Voltage L1	180ms	Not Available	1123.9
Field Trial	PQMSPO17	18-Jun-18 06:52:38.446	18-Jun-18 06:52:38.506	RVC	Voltage L3	60ms	Not Available	1189.8

Figure 56: PQ events (RVC view)

7.2 ITIC curve

This graph displays the total voltage sag and swell event counts that were logged by the meter and details of the events that impacted equipment as per standard format suggested by ITIC. The graph also displays the deviation value and event duration plotted in a curve for quick view and analysis of site conditions.

Navigation: ProQ View dashboard page → Analyse → ITIC data → ITIC curve

To view ITIC curve, do the following:

1. Select the required Network/ML from the left pane.
2. Click the calendar icon next to the **From** and select the start date for which you want to view the data. In the same way select the end date.
3. Click **Apply**.
4. An example graph is shown below.

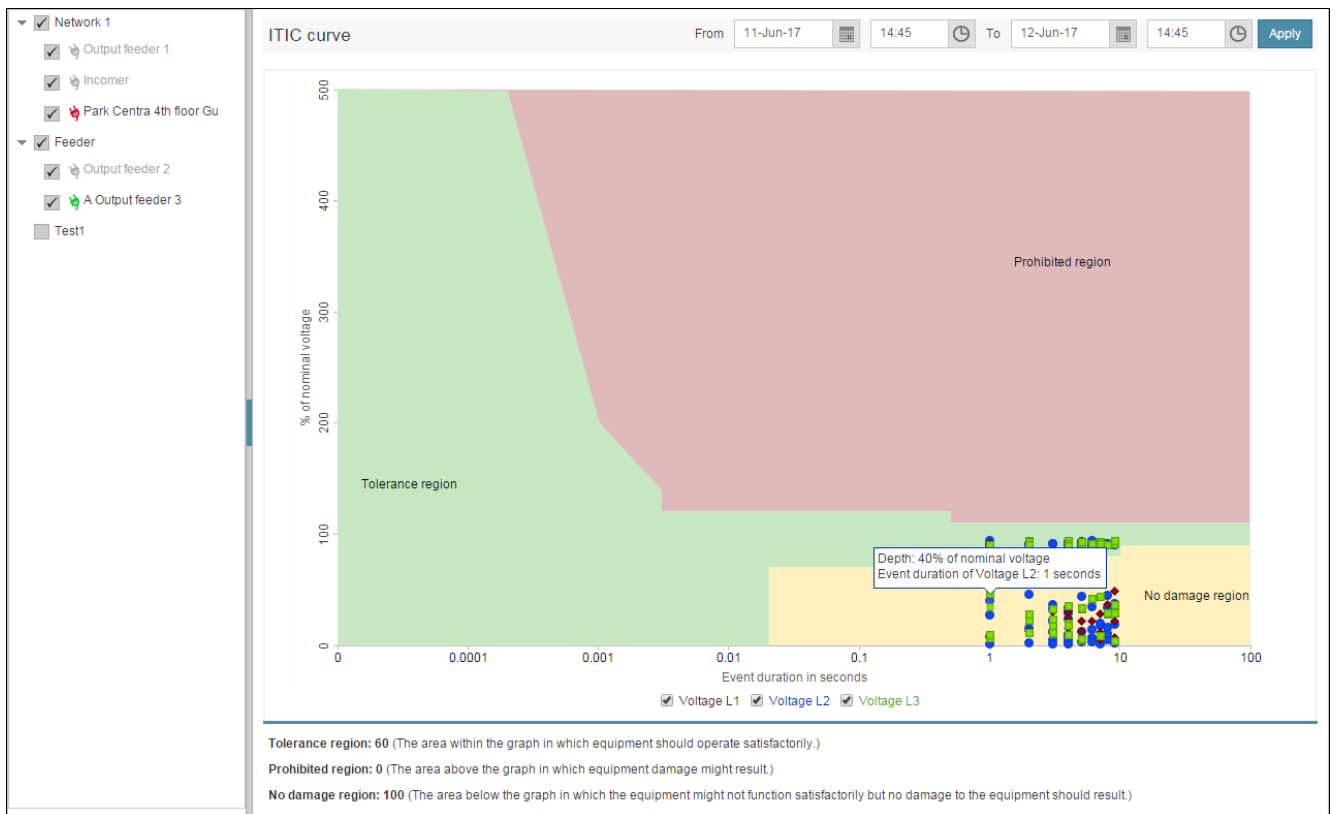


Figure 57: ITIC curve graph

7.3 EN50160 custom

EN50160 is a set of power quality standards against which the data logged by ProQ 100 is tested for compliance of PQ parameters. The EN50160 definitions use the following types of data: Frequency, voltage variations, flicker, supply voltage unbalance, individual harmonics, voltage dips, and voltage swells. The compliance summary provides parameter wise status based on the EN50160 limits for each observation period.

Navigation: ProQ View dashboard page → Analyse → EN50160 custom

To view the general details of configured parameters in a tabular format, do the following:

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **General** tab at the top. This is the default tab also, so you need not select it, if you're opening it for the first time.
3. On this screen you can view the following information:
 - a. The configured threshold limits and the complied limits (% of time) against the set thresholds
 - b. The samples measured and the samples found within and out of range
 - c. The overall status of the parameter in terms of compliance. The red dot indicates threshold crossover. The green dot indicates performance is within configured limits.

ProQ View										
Setup ▾ Dashboard ▾ Monitor ▾ Analyse ▾ User management ▾ Reports ▾ Help										Language: English ▾ Logged in as: admin ▾
EN50160 custom										
Metering location: Field Trail ▾ From: 23-Jun-18 To: 29-Jun-18 Apply										
General	General (Graphical view)	Harmonics	Harmonic (Graphical view)	Voltage dips	Voltage swells					
Parameter name	Lower limit	Upper limit	Compliance limit (% of time)	Actual compliance (% of time)	Total samples	Sample inside range	Sample outside range	Result		
Flicker Pst L1	NA	1	95	90.79	76	69	7	●		
Flicker Pst L2	NA	1	95	96.94	76	66	10	●		
Flicker Pst L3	NA	1	95	93.42	76	71	5	●		
Unbalance	0 (% of +ve Ph Seq)	2 (% of +ve Ph Seq)	95	100	941	941	0	●		
Main signaling voltage V1	NA	9	99	100	189098	189098	0	●		
Main signaling voltage V2	NA	9	99	100	189098	189098	0	●		
Main signaling voltage V3	NA	9	99	100	189098	189098	0	●		
Frequency condition 1	-1 (% of Fsys)	1 (% of Fsys)	96	100.00	56685	56684	1	●		
Frequency condition 2	-6 (% of Fsys)	4 (% of Fsys)	100	100.00	56685	56684	1	●		
Voltage V1 condition 1	-10 (% of Udn)	10 (% of Udn)	90	100	941	941	0	●		
Voltage V2 condition 1	-10 (% of Udn)	10 (% of Udn)	90	100	941	941	0	●		
Voltage V3 condition 1	-10 (% of Udn)	10 (% of Udn)	90	100	941	941	0	●		
Voltage V1 condition 2	-15 (% of Udn)	15 (% of Udn)	100	100	941	941	0	●		
Voltage V2 condition 2	-15 (% of Udn)	15 (% of Udn)	100	100	941	941	0	●		
Voltage V3 condition 2	-15 (% of Udn)	15 (% of Udn)	100	100	941	941	0	●		

Figure 58: EN50160 compliance (General parameters-tabular view)

To view the general details of configured parameters in graphical format, do the following:

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **General (Graphical view)** tab at the top.
3. On this screen you can view bar chart graphs of different PQ parameters for selected ML along with details such as predefined threshold values (% of time) and their compliance (% of time) values against the set thresholds. Green bars indicate compliance. Red show out of compliance limits.



Figure 59: EN50160 compliance (General parameters-graphical view)

To view the harmonic details of configured parameters, do the following:

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **Harmonics** tab at the top.
3. On this screen you can view the following information:
 - a. The configured threshold limits set for harmonics
 - b. The limits complied against the set thresholds
 - c. The overall status of harmonics in terms of compliance. The red dot indicates threshold crossover. The green dot indicates performance is within configured limits.

EN50160 custom		Metering location: Field Trail		From: 23-Jun-18	To: 29-Jun-18	Apply
General	General (Graphical view)	Harmonics	Harmonic (Graphical view)	Voltage dips	Voltage swells	
Parameter name	Upper limit (%)	Compliance limit (% of time)	Phase 1 compliance (% of time)	Phase 2 compliance (% of time)	Phase 3 compliance (% of time)	Result
THD	8	95	100	100	100	●
2	1.9	95	100	92	100	●
3	5	95	100	100	100	●
4	1	95	100	100	92	●
5	5	95	100	100	100	●
6	0.5	95	100	100	100	●
7	4	95	100	100	100	●
8	0.5	95	100	100	100	●
9	1.3	95	100	100	100	●
10	0.5	95	100	100	100	●
11	3	95	100	100	100	●
12	0.5	95	100	100	100	●
13	2.5	95	100	100	100	●
14	0.5	95	100	100	100	●
15	0.5	95	100	100	100	●
16	0.5	95	100	100	100	●
17	2	95	100	100	100	●
18	0.5	95	100	100	100	●
19	1.5	95	100	100	100	●
20	0.5	95	100	100	100	●
21	0.5	95	100	100	100	●
22	0.5	95	100	100	100	●
23	1.5	95	100	100	100	●
24	0.5	95	100	100	100	●
25	1.5	95	100	100	100	●

Figure 60: EN50160 compliance (Harmonics-tabular view)

To view the harmonic details of configured parameters in graphical format, do the following:

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **Harmonic (Graphical view)** tab at the top.
3. On this screen you can view the harmonic profile for selected ML along with details such as predefined threshold values (% of time) for harmonics and their compliance (% of time) values against the set thresholds. Green bars indicate compliance. Red show out of compliance limits.

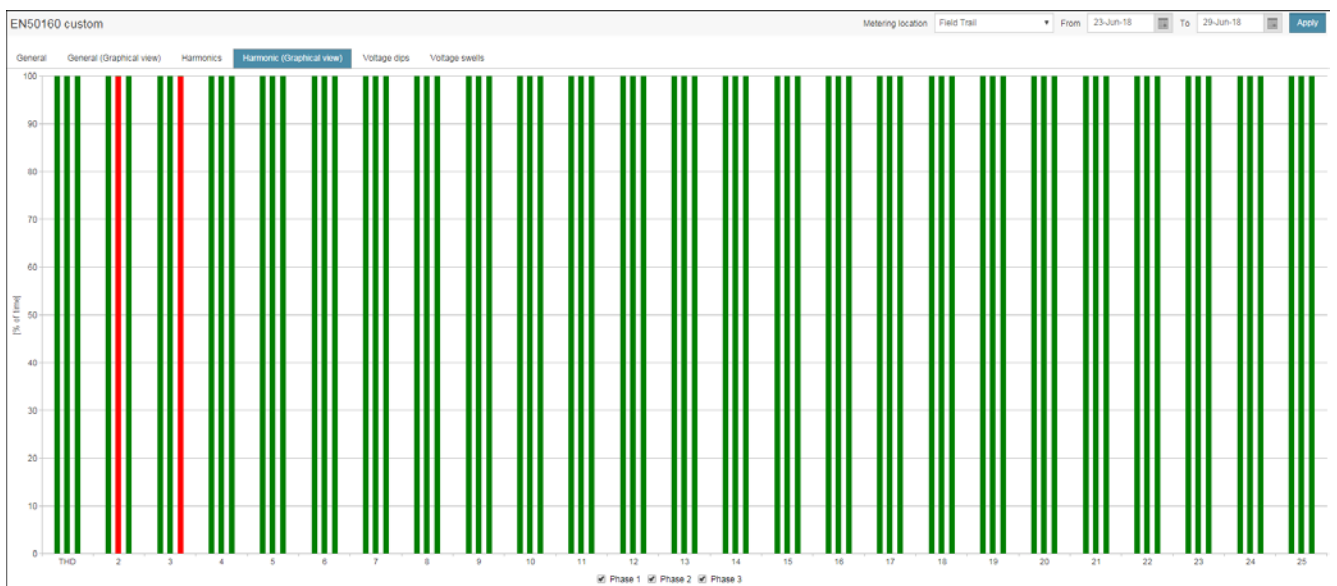


Figure 61: EN50160 compliance (Harmonics-graphical view)

To view the **Voltage dips** details of configured parameters, do the following:

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **Voltage dips** tab at the top.
3. On this screen you can view the following information:
 - a. The threshold limits configured for voltage supply dips at each phase (L1, L2 and L3)

- b. The count and duration of voltage dips at each phase.

EN50160 custom

Metering location

Field Trial

From

14-Jun-18

To

20-Jun-18

General

General (Graphical view)

Harmonics

Harmonic (Graphical view)

Voltage dips

Voltage swells

Supply voltage dips phase 1

Residual voltage u (%)	Duration t (ms)				
	10 ≤ t ≤ 200	200 < t ≤ 500	500 < t ≤ 1000	1000 < t ≤ 5000	5000 < t ≤ 60000
90 > u ≥ 80	0	0	0	0	0
80 > u ≥ 70	0	0	0	0	0
70 > u ≥ 40	2	0	0	0	0
40 > u ≥ 5	0	0	0	0	0
5 > u	0	0	0	0	0

Supply voltage dips phase 2

Residual voltage u (%)	Duration t (ms)				
	10 ≤ t ≤ 200	200 < t ≤ 500	500 < t ≤ 1000	1000 < t ≤ 5000	5000 < t ≤ 60000
90 > u ≥ 80	5	1	0	0	0
80 > u ≥ 70	0	0	0	0	0
70 > u ≥ 40	0	0	0	0	0
40 > u ≥ 5	1	0	0	0	0
5 > u	0	0	0	0	0

Supply voltage dips phase 3

Residual voltage u (%)	Duration t (ms)				
	10 ≤ t ≤ 200	200 < t ≤ 500	500 < t ≤ 1000	1000 < t ≤ 5000	5000 < t ≤ 60000
90 > u ≥ 80	1	0	0	0	0

Figure 62: EN50160 compliance (Voltage dips)

1. Click the **Metering location** drop-down and select the required ML.
2. Click the **Voltage swells** tab at the top.
3. On this screen you can view the following information:
 - a. The threshold limits configured for voltage supply dips at each phase (L1, L2 and L3)
 - b. The count of voltage swells and the occurrence duration at each phase.

EN50160 custom

Metering location

Field Trial

From

14-Jun-18

To

20-Jun-18

Apply

General

General (Graphical view)

Harmonics

Harmonic (Graphical view)

Voltage dips

Voltage swells

Over voltage swells phase 1

Swell voltage u (%)	Duration t (ms)		
	$10 \leq t \leq 500$	$500 < t \leq 5000$	$5000 < t \leq 60000$
$u \geq 120$	3	0	0
$120 > u \geq 110$	0	0	0

Over voltage swells phase 2

Swell voltage u (%)	Duration t (ms)		
	$10 \leq t \leq 500$	$500 < t \leq 5000$	$5000 < t \leq 60000$
$u \geq 120$	0	0	0
$120 > u \geq 110$	1	0	0

Over voltage swells phase 3

Swell voltage u (%)	Duration t (ms)		
	$10 \leq t \leq 500$	$500 < t \leq 5000$	$5000 < t \leq 60000$
$u \geq 120$	0	0	0
$120 > u \geq 110$	0	0	0

Figure 63: EN50160 compliance (Voltage swells)

7.4 Reliability indices

ProQ View has provision for generating graphs displaying reliability indices such as SAIFI, SAIDI & CAIDI. These graphs give an insight into the system level disturbances as well as specific site power quality evaluation with reference to power availability and interruption.

Navigation: ProQ View dashboard page →Analyse→ Reliability indices→ Reliability indices

To view reliability indices, do the following:

1. Click the calendar icon next to the **For the period from** and select the start date for which you want to view the data. In the same way select the end date.
2. Click **Apply**.
3. Graphs related to SAIDI, CAIDI and SAIFI are displayed. You can uncheck or check the checkboxes to view desired graphs.

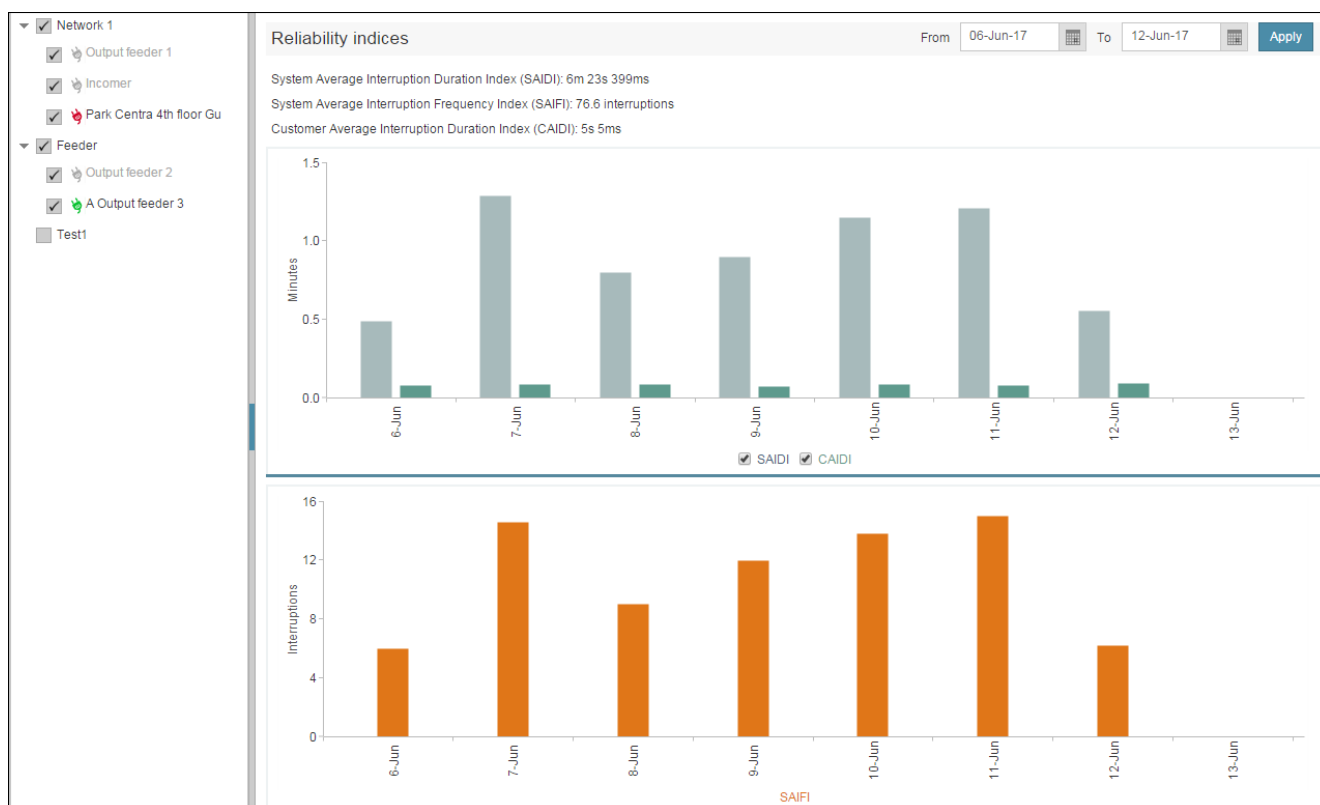


Figure 64: Reliability indices

7.5 PQ loss analysis

The PQ loss analysis view helps you evaluate the financial losses contributed by PQ events, harmonics, RVCs and power interruptions. This is a very useful feature and helps you take proactive measures towards real improvement to be made to systems.

Navigation: ProQ View dashboard page →Analyse→ Consumption→ Consumption analysis

To view consumption, do the following:

1. Select the required ML in the left pane.
2. Click the calendar icon next to the **From** and select the start date for which you want to view the data. In the same way click **To** and select the end date.
3. Two views are available. Click the **Event loss analysis** tab to view losses contributed by PQ events. This is the default tab. Click the **Harmonic loss analysis** tab to view losses contributed by harmonic disturbances in the system.

4. Click **Apply**.
5. An example graph is shown below.

PQ loss analysis From 13-Jun-18 To 13-Jul-18 **Apply**

Date	Number of sags	Loss due to sags (Rs)	Number of swells	Loss due to swells (Rs)	Number of interruptions	Loss due to interruptions (Rs)	Number of RvC's	Loss due to RvC's (Rs)	Total count	Total loss (Rs)
02-Jul-18	1	4 k	0	0	0	0	0	0	1	4 k
03-Jul-18	0	0	0	0	0	0	2	8 k	2	8 k
04-Jul-18	0	0	0	0	0	0	2	8 k	2	8 k
05-Jul-18	1	4 k	0	0	0	0	4	16 k	5	20 k
06-Jul-18	1	4 k	0	0	0	0	2	8 k	3	12 k
07-Jul-18	4	16 k	0	0	0	0	5	20 k	9	36 k
08-Jul-18	21	84 k	1	4 k	0	0	21	84 k	43	172 k
09-Jul-18	4	16 k	0	0	0	0	7	28 k	11	44 k
10-Jul-18	4	16 k	0	0	0	0	14	56 k	18	72 k
11-Jul-18	1	4 k	0	0	0	0	6	24 k	7	28 k
Grand total	37	140 k	1	4 k	0	0	63	252 k	101	404 k

Go to page: 1 Show rows: 25 1-10 of 10

Figure 65: Consumption analysis

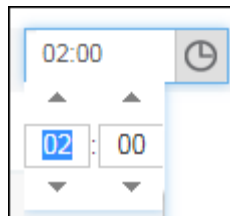
7.6 Harmonic analysis

ProQ View acquires voltage harmonic data at each hour and enables analysing the individual harmonics up to the 25th order and the THD (up to 50th order). The **harmonic analyse** feature allows you to analyse harmonic data for desired metering location by applying required search criteria

Navigation: ProQ View dashboard page →Analyse→Harmonics→Harmonic analyse

To view harmonics, do the following:

1. Click the calendar icon next to the **For the period from** and select the start date for which you want to view the data. Click the  icon and select the start time in HH:MM format.
2. The first pair of upward and downward arrows increments the time in hours and the second pair of upward and downward arrows increments the time in seconds respectively.



3. In the same way select the end date and time.

Note:

The  pair of arrows allow you to decrease /increase the time frame window for viewing data by a specified duration. For example, if the current time selection is 1: 10 PM and you click the forward arrow, you will be able to view data for 1: 20 PM or if you click the backward arrow, you will be able to view data for 1:00 PM.

4. Click the **Metering location** drop-down and select the required ML
5. Click the **Apply** button to view the graph. An example screen is shown below.

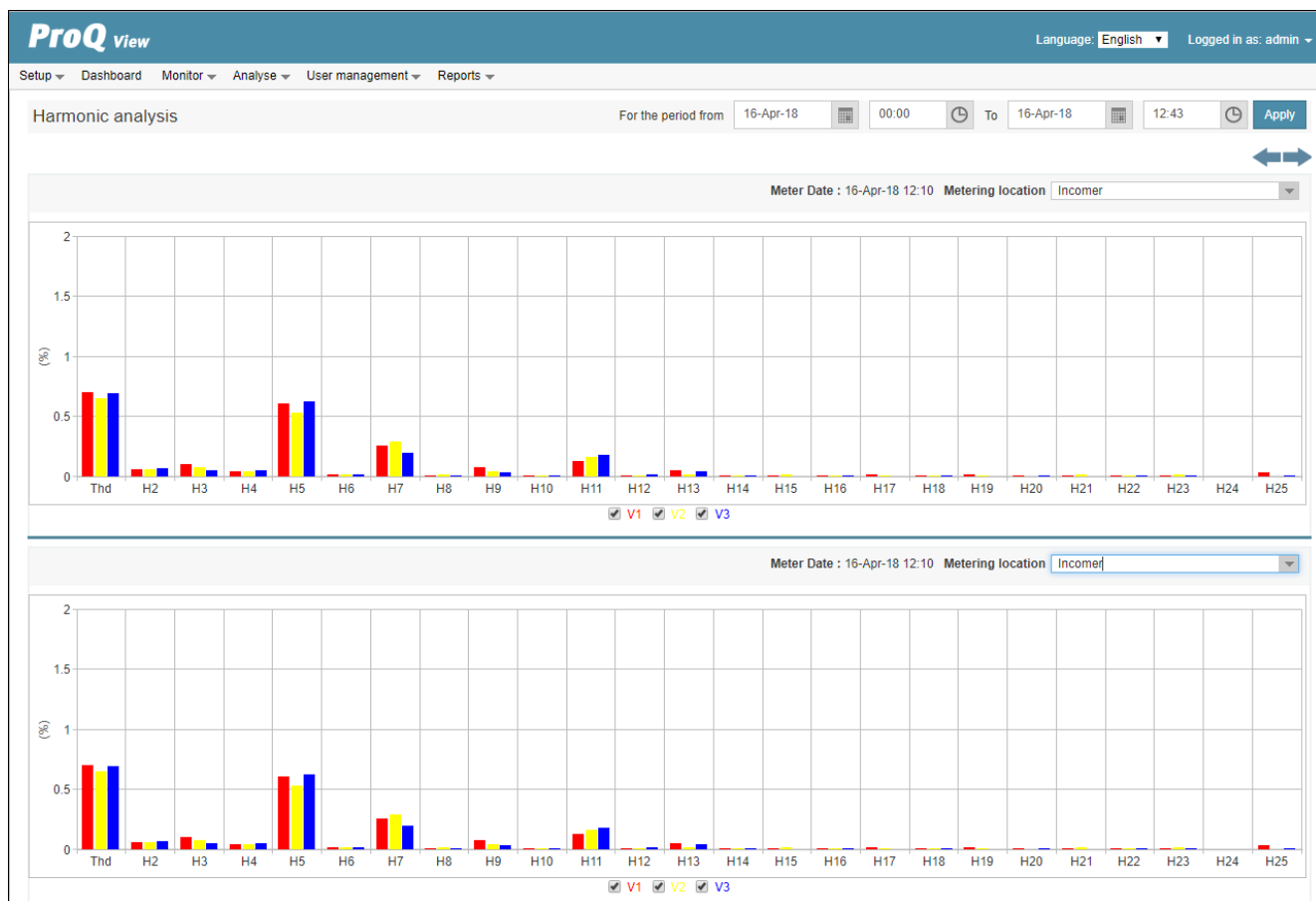


Figure 66: Harmonic analysis

8 Reports

You can generate the following report types in ProQ View:

- **Meter detail report:** This report displays details of all the meters configured in the ProQ View database. The information includes details such as meter serial number, the date of installation, electrical parameters and current meter status.
- **Meter Replacement Report:** This report provides information about all the meters that were replaced during the selected report duration.
- **PQ events report:** This report displays details of the PQ events logged by ProQ View for selected duration and time.
- **EN50160 custom report:** This report shows the status and EN50160 compliance summary of configured parameters in accordance with the min and max limits set for observation.
- **EN50160 weekly report:** This report shows the week wise status and EN50160 compliance summary of configured parameters in accordance with the min and max limits set for observation.

8.1 Report viewer options

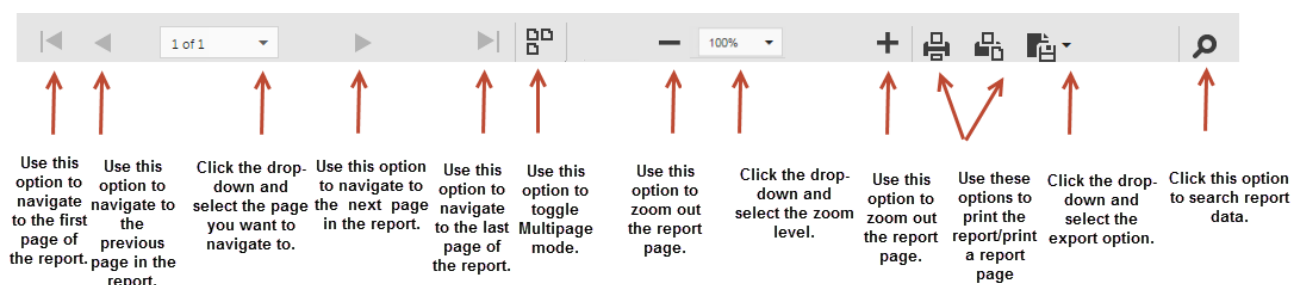


Figure 67: Report viewer options

8.2 Procedure for Generating Reports

This section gives you information on how to generate reports in ProQ View.

- At any time you can export these reports to various formats by clicking the  icon. Each export option may have several sub options when you click it. For example, when you click the **Image export options**, you will see the sub options as shown in the figure below.

FILTER CRITERIA

▶ CSV EXPORT OPTIONS

▼ IMAGE EXPORT OPTIONS

Export Mode

Single File

Page Border C...

rgba(0, 0, 0, 1)

Page Border W..

1

Page Range

Resolution

96

Format

PNG

▶ PDF EXPORT OPTIONS

▶ XLS EXPORT OPTIONS

▶ XLSX EXPORT OPTIONS

Figure 68: Report export/import options/formats

- The  icon allows you to search for data within a report or search a report type.
- The  icon allows you to filter the data based on specific time and duration requirements.

8.3 Sample reports

Meter detail report

Meter detail report												
Sr. no.	Location name	Meter serial number	Installation date	IP address	Meter type	Current rating (A)	Voltage rating(L-L) (V)	Meter CT ratio (A)	Meter VT ratio (V)	Install CT ratio (A)	Install VT ratio (V)	Meter status
1	Field Trial	PQMSP017	18-Jun-18 09:03:00.000	172.16.28.31	HT CT/VT-operated(3P4W)	1 - 2	110	75/1	33000/110	75/1	33000/110	Inactive
2	HT3	PQMSP021	18-Jun-18 09:07:00.000	172.16.2.119	HT CT/VT-operated(3P3W)	2 - 4	120	1100/2	22000/120	1100/2	22000/120	Inactive
3	HT4	PQMDA021	18-Jun-18 09:04:00.000	172.16.2.66	HT CT/VT-operated(3P4W)	1 - 2	110	1200/1	11000/110	1200/1	11000/110	Inactive
4	LT	PQMSP006	18-Jun-18 09:08:00.000	172.16.2.150	LT CT operated (3P4W)	2 - 4	415	500/2	1/415	500/2	1/1	Inactive
5	Test	12345678	18-Jun-18 12:44:00.000	172.16.2.120	HT CT/VT-operated(3P3W)	5 - 10		5/5	415.68/415.68	5/5	415.68/415.68	Inactive

Figure 69: Example Meter details report

Meter replacement log

Meter replacement log												
Sr. no.		Location name	Meter serial number	IP address	Meter type	Current rating (A)	Voltage rating (L-L) (V)	Meter CT ratio (A)	Meter VT ratio (V)	Install CT ratio (A)	Install VT ratio (V)	Removal date
1	Previous	Field Trial	PQMSP017	172.16.28.31	HT CT/VT-operated	1 - 2	110	75/1	33000/110	75/1	33000/110	22-Jun-18 15:09:29.822
	Present	Field Trial	PQMSP0177	172.16.28.31	HT CT/VT-operated	1 - 2	110	75/1	33000/110	75/1	33000/110	
2	Previous	HT4 Meter 1 (66)	PQMDA021	172.16.2.66	HT CT/VT-operated	1 - 2	110	1200/1	11000/110	1200/1	11000/110	22-Jun-18 15:09:51.358
	Present	HT4 Meter 1 (66)	PQMDA0214	172.16.2.66	HT CT/VT-operated	1 - 2	110	1200/1	11000/110	1200/1	11000/110	

Figure 70: Example Meter replacement report

PQ event report

PQ events										
Sr. no.	Location name	Meter serial number	Event type	Occurrence time	Restoration time	Start phase	Duration	Direction	Magnitude (%)	
1	Incomer	PQMDA0017	Sag	27-Mar-18 07:11:10.610	27-Mar-18 07:11:10.647	L3	37ms	Upstream	89.89	
2	Incomer	PQMDA0017	Sag	27-Mar-18 11:56:37.210	27-Mar-18 11:56:37.460	L2	250ms	Downstream	76.17	
3	Incomer	PQMDA0017	Sag	27-Mar-18 12:04:32.211	27-Mar-18 12:04:32.485	L1	274ms	Downstream	76.98	
4	Incomer	PQMDA0017	Sag	28-Mar-18 07:41:43.668	28-Mar-18 07:41:43.804	L3	136ms	Upstream	83.42	
5	Incomer	PQMDA0017	Sag	28-Mar-18 08:58:57.599	28-Mar-18 08:58:57.669	L3	70ms	Upstream	83.71	
6	Incomer	PQMDA0017	Sag	28-Mar-18 11:15:24.000	28-Mar-18 11:15:24.029	L3	29ms	Upstream	86.73	
7	Incomer	PQMDA0017	Sag	28-Mar-18 12:45:41.001	28-Mar-18 12:45:41.131	L1	130ms	Upstream	76.14	
8	Incomer	PQMDA0017	Sag	28-Mar-18 12:46:19.554	28-Mar-18 12:46:19.644	L3	90ms	Upstream	77.41	
9	Incomer	PQMDA0017	Sag	28-Mar-18 12:55:09.773	28-Mar-18 12:55:09.823	L1	50ms	Upstream	86.39	
10	Incomer	PQMDA0017	Sag	28-Mar-18 12:55:10.663	28-Mar-18 12:55:10.740	L2	77ms	Upstream	78.55	
11	Incomer	PQMDA0017	Sag	28-Mar-18 12:55:11.449	28-Mar-18 12:55:11.499	L2	50ms	Upstream	80.99	
12	Incomer	PQMDA0017	Sag	28-Mar-18 15:14:21.230	28-Mar-18 15:14:21.389	L2	159ms	Upstream	88.31	
13	Incomer	PQMDA0017	Sag	28-Mar-18 15:35:24.857	28-Mar-18 15:35:24.907	L2	50ms	Upstream	81.89	
14	Incomer	PQMDA0017	Sag	29-Mar-18 12:59:21.174	29-Mar-18 12:59:21.228	L3	54ms	Downstream	61.93	
15	Incomer	PQMDA0017	Sag	29-Mar-18 13:09:12.859	29-Mar-18 13:09:13.127	L1	268ms	Downstream	78.23	
16	Incomer	PQMDA0017	Sag	29-Mar-18 16:14:32.601	29-Mar-18 16:14:32.751	L2	150ms	Upstream	89.11	
17	Incomer	PQMDA0017	Sag	29-Mar-18 21:54:12.884	29-Mar-18 21:54:12.984	L1	100ms	Upstream	45.48	
18	Incomer	PQMDA0017	Sag	30-Mar-18 14:17:30.379	30-Mar-18 14:17:30.446	L1	67ms	Upstream	77.42	

Figure 71: Example PQ event report

EN50160 custom report

General (Tabular view)

	Lower limit	Upper limit	Compliance limit	Total valid samples	Sample inside range	Sample outside range	Lower limit count	Higher limit count	Min value	Min occurred time	Max value	Max occurred time	Actual compliance	Result
Flicker Plt L1	0	1	95	209	202	7	0	7	3.85	31-May-18 04:00:00.000	23.58	16-Jun-18 08:00:00.000	96.65	Pass
Flicker Plt L2	0	1	95	209	204	5	0	5	2.02	29-May-18 06:00:00.000	28.55	16-Jun-18 08:00:00.000	97.61	Pass
Flicker Plt L3	0	1	95	209	204	5	0	5	1.75	31-May-18 04:00:00.000	26.39	16-Jun-18 08:00:00.000	97.61	Pass
Unbalance	0	2	95	2610	2610	0	0	0	1.20	31-May-18 10:00:00.000	7.17	17-Jun-18 13:10:00.000	100.00	Pass
Main signaling voltage V1	0	9	99	524630	524630	0	0	0	0.05	01-Jun-18 17:02:56.000	1.94	19-Jun-18 10:00:44.000	100.00	Pass
Main signaling voltage V2	0	9	99	524630	524630	0	0	0	0.05	01-Jun-18 17:02:59.000	2.06	19-Jun-18 06:21:24.000	100.00	Pass
Main signaling voltage V3	0	9	99	524630	524630	0	0	0	0.05	01-Jun-18 17:02:23.000	2.34	19-Jun-18 10:00:44.000	100.00	Pass
Frequency condition 1	-1	1	96	157276	157274	2	0	2	942.86	31-May-18 14:51:30.000	1847.36	05-Jun-18 17:44:00.000	100.00	Pass
Frequency condition 2	-6	4	100	157276	157274	2	0	2	942.86	31-May-18 14:51:30.000	1847.36	05-Jun-18 17:44:00.000	100.00	Fail
Voltage V1 condition 1	-10	10	90	2610	2610	0	0	0	351394.68	31-May-18 17:20:00.000	372459.86	16-Jun-18 03:40:00.000	100.00	Pass
Voltage V2 condition 1	-10	10	90	2610	2610	0	0	0	349787.30	31-May-18 17:20:00.000	371380.83	16-Jun-18 03:40:00.000	100.00	Pass
Voltage V3 condition 1	-10	10	90	2610	2610	0	0	0	350790.66	31-May-18 17:30:00.000	372633.05	16-Jun-18 03:40:00.000	100.00	Pass
Voltage V1 condition 2	-15	15	100	2610	2610	0	0	0	349019.53	31-May-18 17:20:00.000	374791.55	08-Jun-18 05:10:00.000	100.00	Pass
Voltage V2 condition 2	-15	15	100	2610	2610	0	0	0	347263.37	31-May-18 17:20:00.000	373593.75	15-Jun-18 05:00:00.000	100.00	Pass
Voltage V3 condition 2	-15	15	100	2610	2610	0	0	0	348814.12	31-May-18 17:30:00.000	375044.12	15-Jun-18 05:00:00.000	100.00	Pass

Figure 72: EN50160 custom report

EN50160 weekly report

Flicker Plt L1														
Week range	Lower limit	Upper limit	Compliance limit	Total valid samples	Sample inside range	Sample outside range	Lower limit count	Higher limit count	Min value	Min occurred time	Max value	Max occurred time	Actual compliance	Result
26-May-2018 to 01-Jun-2018	0	1	95	38	34	4	0	4	0.19	31-May-18 04:00:00.000	1.76	31-May-18 16:00:00.000	89.47	Fail
02-Jun-2018 to 08-Jun-2018	0	1	95	78	76	2	0	2	0.20	05-Jun-18 04:00:00.000	1.80	05-Jun-18 16:00:00.000	97.44	Pass
09-Jun-2018 to 15-Jun-2018	0	1	95	79	76	3	0	3	0.20	09-Jun-18 06:00:00.000	1.82	15-Jun-18 08:00:00.000	96.20	Pass
17-Jun-2018 to 23-Jun-2018	0	1	95	41	41	0	0	0	0.20	18-Jun-18 04:00:00.000	0.94	16-Jun-18 08:00:00.000	100.00	Pass

Flicker Plt L2														
Week range	Lower limit	Upper limit	Compliance limit	Total valid samples	Sample inside range	Sample outside range	Lower limit count	Higher limit count	Min value	Min occurred time	Max value	Max occurred time	Actual compliance	Result
26-May-2018 to 01-Jun-2018	0	1	95	38	35	3	0	3	0.10	29-May-18 06:00:00.000	3.46	31-May-18 16:00:00.000	92.11	Fail
02-Jun-2018 to 08-Jun-2018	0	1	95	78	76	2	0	2	0.10	04-Jun-18 06:00:00.000	1.78	05-Jun-18 16:00:00.000	97.44	Pass
09-Jun-2018 to 15-Jun-2018	0	1	95	79	77	2	0	2	0.10	10-Jun-18 04:00:00.000	2.48	12-Jun-18 12:00:00.000	97.47	Pass
17-Jun-2018 to 23-Jun-2018	0	1	95	41	41	0	0	0	0.10	18-Jun-18 04:00:00.000	0.95	16-Jun-18 08:00:00.000	100.00	Pass

Figure 73: EN50160 weekly report

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