



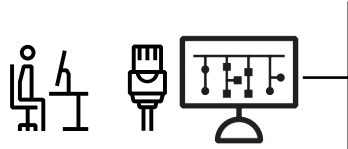
 DISTRIBUTION SOLUTIONS

The relay explorer - RXplore

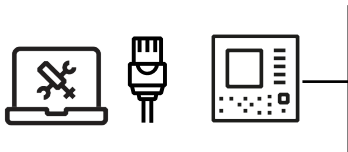
Mobile application 1.9

Managing the maintenance and lifecycle of your protection and control relay

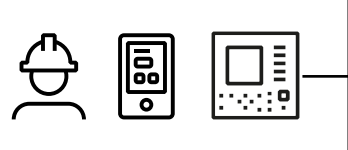
From a full-fledged configuration tool to relay and cloud connectivity in your pocket



1 Protection and Control IED Manager PCM600 offers all the necessary functionality to work throughout all stages of the protection relay's life cycle



2 The web-browser based HMI (WHMI) allows secure access to the protection relay via a Web browser. The menu tree structure on the WHMI is almost identical to the one on the LHMI.



3 RXplore is a mobile application designed for operators and site engineers to improve the ease-of-use and increase productivity during maintenance of protection relays. In addition, it supports ABB's SWICOM and VD4 evo.

Simplified and secure relay and device access

The relay explorer RXplore

Simplified and secure relay access

RXplore is a mobile application designed for operators and site engineers to improve the ease-of-use and increase productivity, at site, during maintenance of protection relays. The app enables a secure connection to the ABB cloud and to selected ABB protection and control relays and ABB monitoring and diagnostic devices. RXplore supports downloading data from ABB's cloud service as well as visualization, parameterization, sharing events and fault information at site.



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Functionality at a glance

Connect to the ABB cloud

- Download the latest information for your relays from ABB cloud services.
- Update firmware for supported relays.

Connect to M&D devices

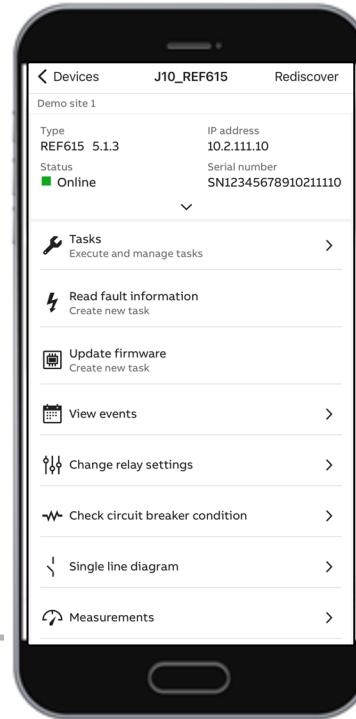
- SWICOM: View the status of your SWICOM device and each monitored bay.
- VD4 evo: Connect to open the browser and retrieve information from VD4 evo.

Connect via Wi-Fi dongle

- Connect and operate a relay with RXplore via any wired LAN to Wi-Fi adapter.

Cable connectivity (Android devices)

- Connect and operate the supported relay with a connecting LAN cable and appropriate adapter in between to completely avoid any wireless connection between RXplore and the supported relay.



Read and share events and fault records

- Download fault records and events from your relay. Share the read information over e-mail.

Check breaker condition check

- Check overall health status of the circuit breaker.

Single Line Diagram

- View SLD and operate breaker, disconnecter, earthing switch.

Change relay settings

- Adjust your relay settings to meet changing protection and monitoring needs.

Measurements view

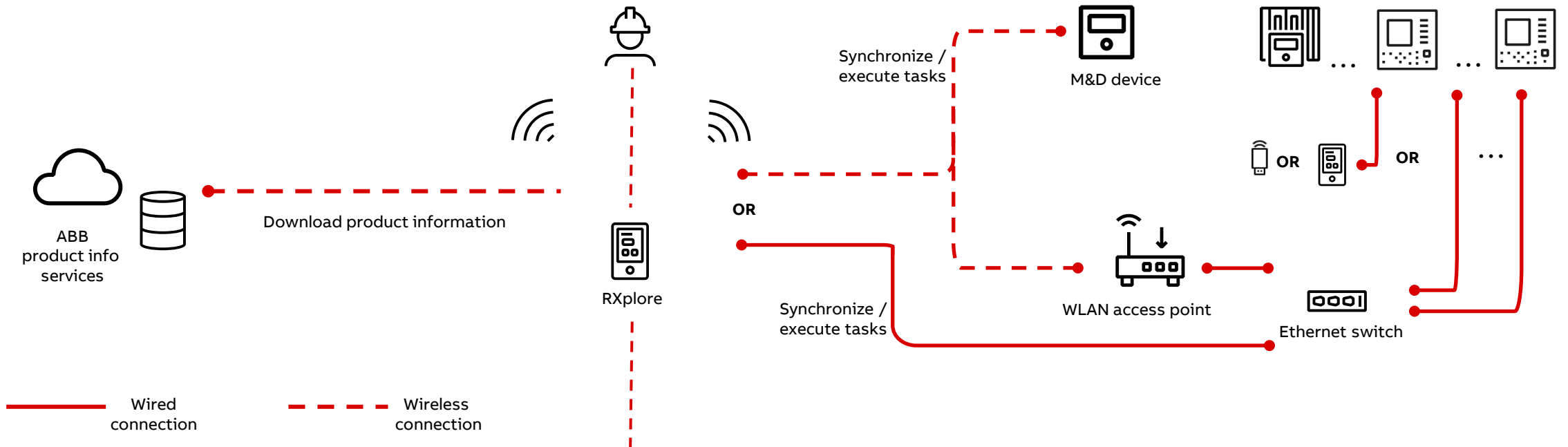
- View momentary value of monitored signals.

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Connectivity and cybersecurity in focus

ABB cloud services

Substation network



The app is connected either to the station network or to the ABB cloud services, but never at the same time

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Compatibility and system requirements

System requirements

Operating system	Version
iOS	13.0 or later
Android	9.0 or later

Supported relays and devices

Device	Version
Relion® 615 series IEC	3.0 or later
Relion® 620 series IEC	2.0 or later
Relion® REC615	2.0 or later
Relion® RER615	2.0 or later
Relion® REX640	Product Connectivity Level 1, 2 and 3
ABB Ability™ SWICOM	1.0 or later
VD4 evo	Software version 1.0 or later

RXplore is available for download from App Store and Google Play

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Getting started in four steps

Download the app

1

Download and launch the app. A fresh installation will trigger the download of relay information from the ABB cloud services.



Create a new site

2

Create a new site/substation – enter the site name and the IP range.



Scan and discover

3

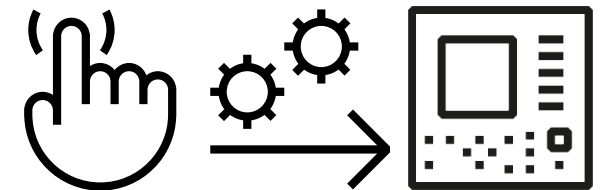
Scan and discover relays in the substation's wireless network. View the list of relays.



Select and execute

4

Select a device and execute tasks.



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Relay tool suit overview

Feature	RXplore	PCM600	WHMI
Securely access ABB relays	■	■	■
Download fault records and events	■	■	■
E-mail fault records and events	■	■ *	-
Parameterization	■	■	■
Scanning of the network for relays	■	-	- **
Firmware update	■ ***	■	-
Export and import parameters	-	■	■
Single Line Diagram (SLD)	■ ***	■	■
Disturbance record analysis	-	■	-
Controlling functionality	■ ***	-	-

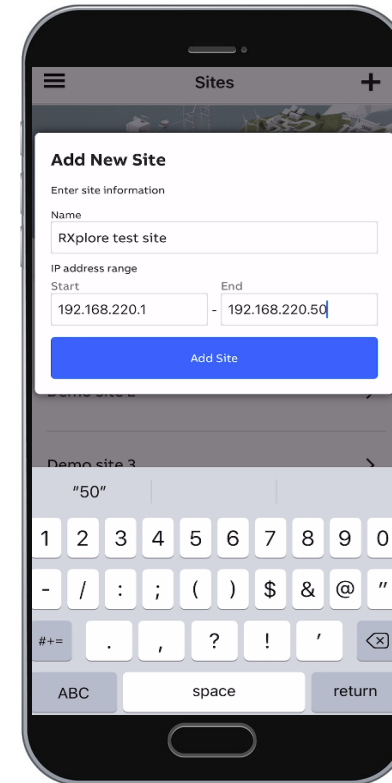


Technical presentation

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Site handling

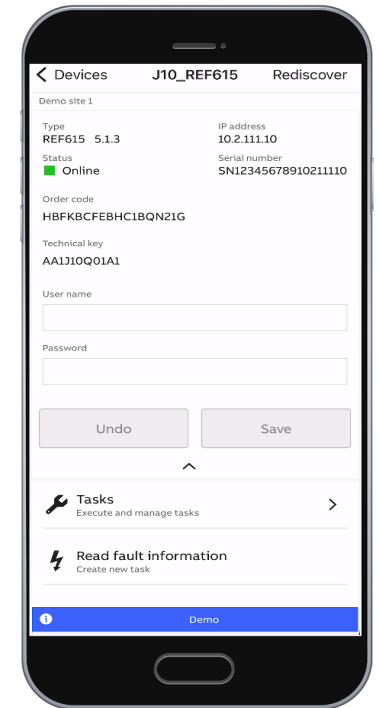
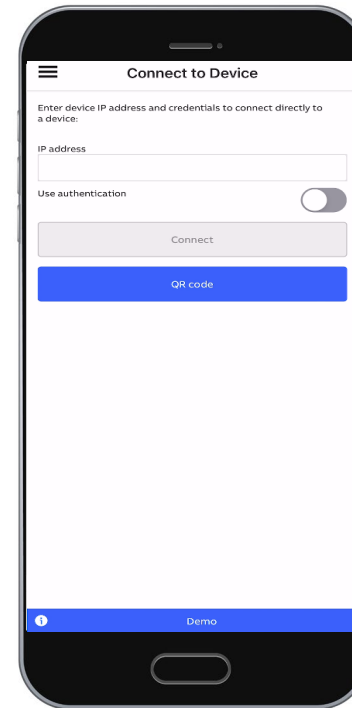
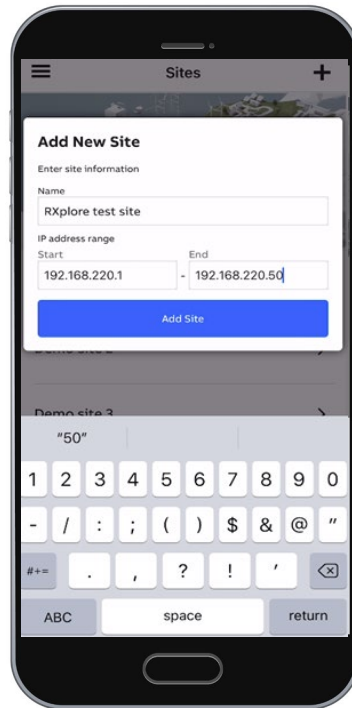
- For RXplore, a site is a network location with ABB devices connected to it.
- After connecting RXplore to the Wi-Fi router which in turn is connected to ABB devices, a new site can be created by providing a name and IP range to scan the network to identify ABB devices.
- A site created once is reusable and the IP range can be modified if needed.
- Multiple sites can be created in RXplore thus ensuring clean segregation of sites.



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Connecting to an ABB device

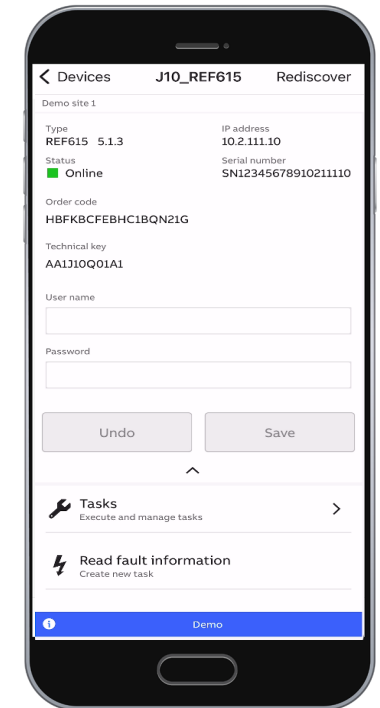
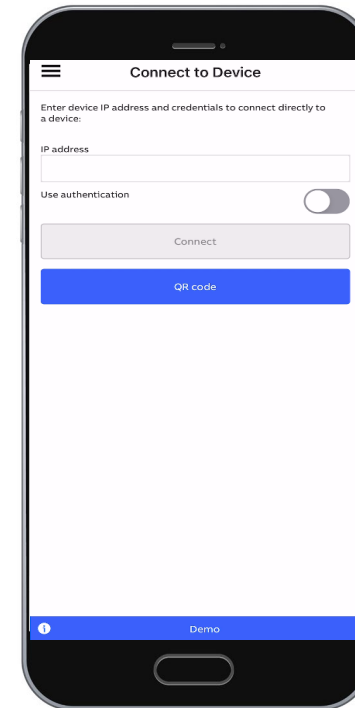
- RXplore allows scanning a range of IP addresses to identify supported ABB devices. Alternately, RXplore also allows connecting directly to just one device.
- User credentials can be provided when the site is created. Supported ABB device asks for re-authentication if the provided credentials do not pass authentication.
- RXplore lists the supported ABB devices after network has been scanned on the provided IP range.
- Information of selected device is provided along with possible actions on the same pane.



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Connecting to an ABB device – (Wi-Fi dongle or direct cable connectivity)

- Connect and operate the supported relay with RXplore via any wired LAN to Wi-Fi adapter (Wi-Fi dongle).
- Alternatively, connect and operate the supported relay with a connecting LAN cable and appropriate adapter in between to completely avoid any wireless connection between RXplore and supported relay. Currently supported for Android devices only.
- Cable can be connected either to front port, HMI port or to the switch connected with the relays in the network.
- Once connected, all the supported functionalities can be realized using RXplore.

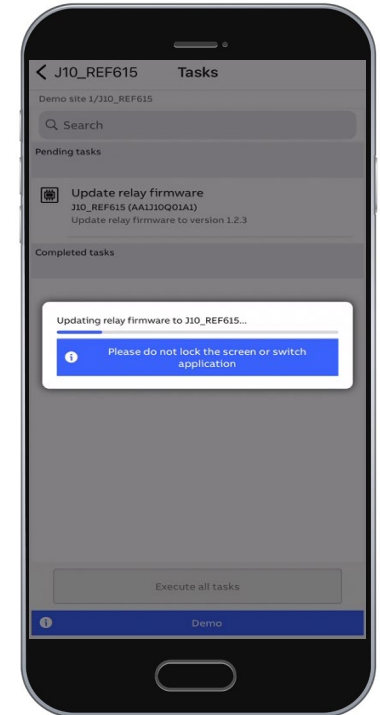
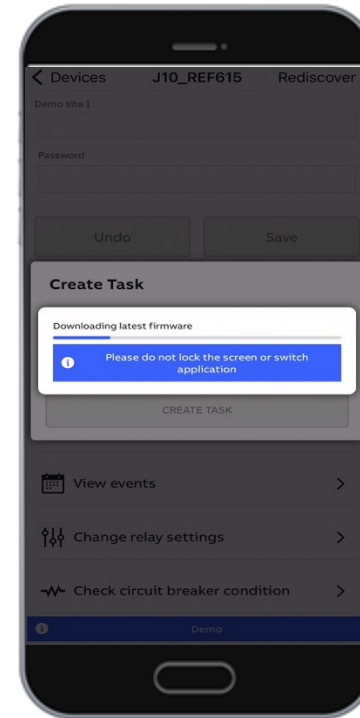


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Update Firmware of a relay

Update Firmware

- RXplore provides the possibility to easily update firmware for supported relays.
- Selecting ‘Update firmware’ for the selected relay downloads the latest firmware from ABB cloud and creates a task for execution.
- Alternatively, selecting ‘Update firmware’ for the selected site downloads the latest firmware for all supported relays from ABB cloud and creates tasks for execution.
- Firmware Update action can be completed there after connecting RXplore with the station network or directly with the relay targeted for firmware update.
- When the access to relay is with appropriate authorization, RXplore handles the setting and resetting of ‘remote update enabled’ parameter value in relay, thereby, mitigating the need to manually change the ‘remote update enabled’ parameter value in the relay.

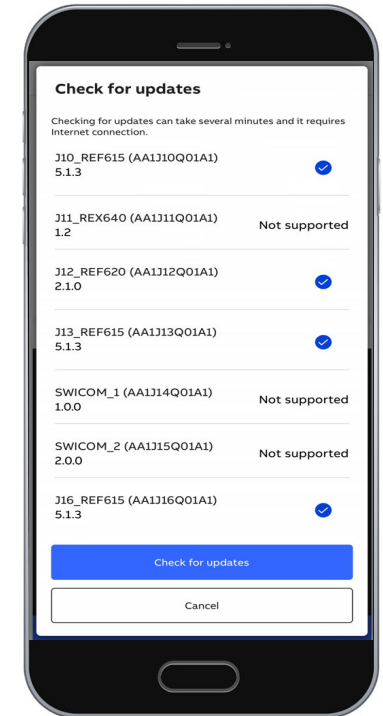
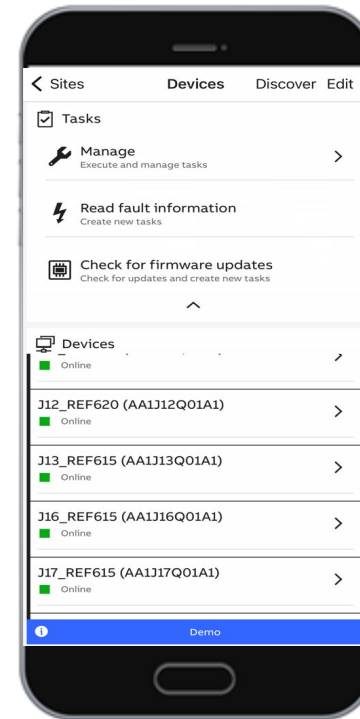


The relay explorer RXplore

Update Firmware of multiple relays

Firmware map of a connected relays

- RXplore provides the possibility to view and update firmware versions of multiple relays.
- Selecting 'Check for firmware updates' for the selected sites presents the relays identified in the site.
- Selecting 'Check for updates' in this view triggers firmware version check of selected relays.
- Relays with new firmware versions available are marked in the view.
- It is possible also to view the release notes for available firmware at the same time.
- For selected relays marked for firmware update, tasks are created for execution.

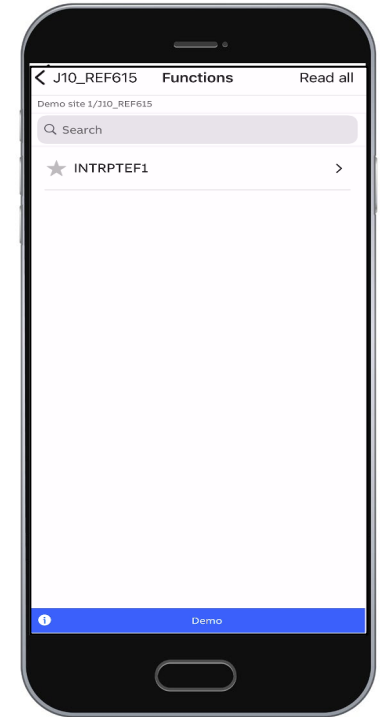
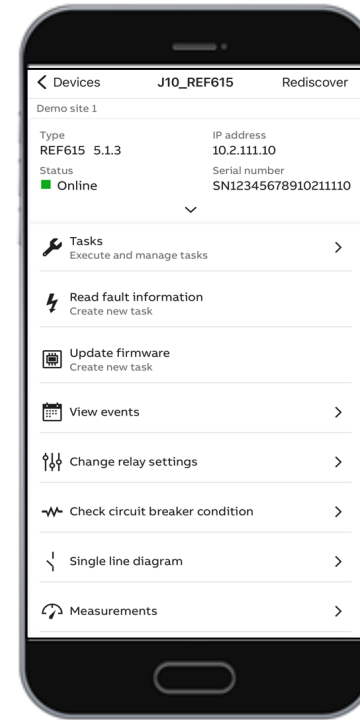


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Change relay settings

Parameterization

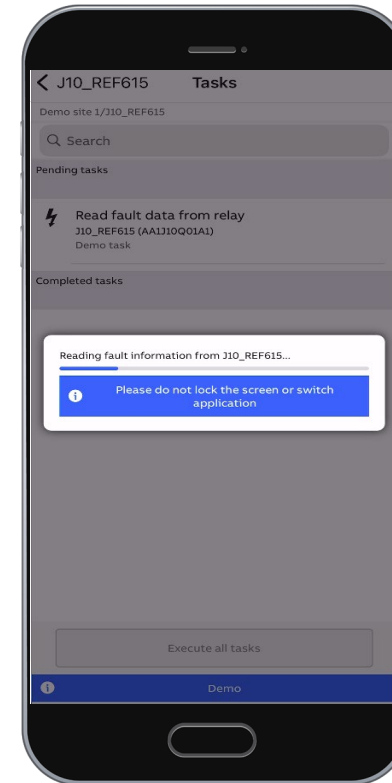
- Once connected to the relay, RXplore allows the possibility to modify the editable parameters (settings) and write the modified values to the relay. Conversely, it is possible to read modified parameter value(s) from the relay.
- RXplore presents the functions sorted in alphabetical order. It is possible to search and pin the function of interest to have it always visible on top in the functions list. RXplore takes care of validations on entering a new setting value.
- The modifications done to the parameters can be reviewed before committing them to the relay.
- Parameterization functionality can be accessed by tapping 'Change relay settings' for the selected relay.



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Read and share fault information

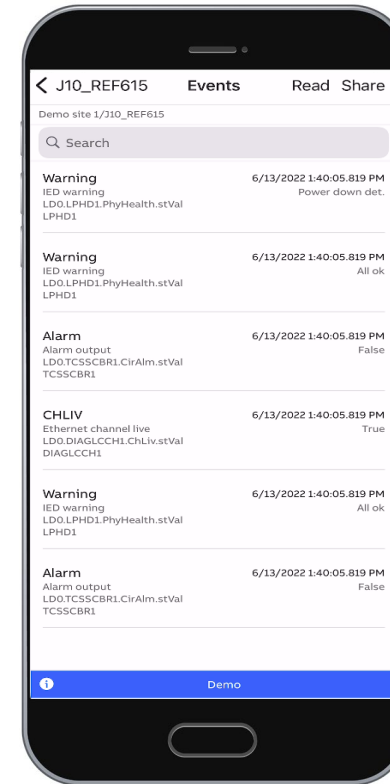
- Once connected to the relay, RXplore allows the possibility to read fault information from the relay and share it over email to someone else for further analysis.
- Fault information collected by RXplore consists of Fault records and Disturbance records from the relay.
- The functionality can be accessed by tapping 'Read fault information' for the selected relay.
- After reading fault information, it can be easily shared(e.g. over e-mail) in zipped format.



The relay explorer RXplore

Read and share events

- Once connected to the relay, RXplore allows the possibility to read, view and share events from the relay.
- The functionality can be accessed by tapping 'View events' for the selected relay.
- After reading event information, it can be easily shared(e.g. over e-mail) in zipped format.
- In built search in events view makes it easy to find the event of interest.

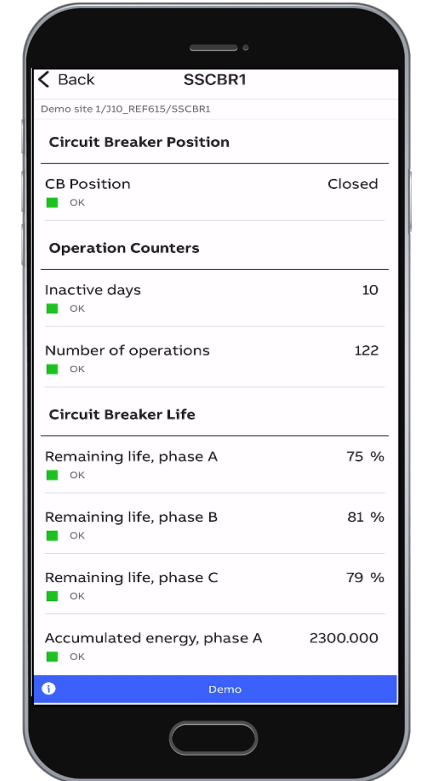
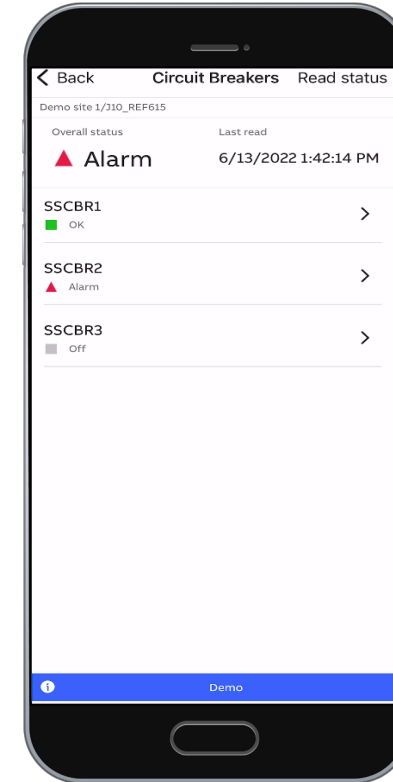


< J10_REF615	Events	Read	Share
Demo site 1/J10_REF615			
<input type="text" value="Search"/>			
Warning IED warning LD0.LPHD1.PhyHealth.stVal LPHD1	6/13/2022 1:40:05.819 PM Power down det.		
Warning IED warning LD0.LPHD1.PhyHealth.stVal LPHD1	6/13/2022 1:40:05.819 PM All ok		
Alarm Alarm output LD0.TCSCCBR1.CirAlm.stVal TCSCCBR1	6/13/2022 1:40:05.819 PM False		
CHLIV Ethernet channel live LD0.DIAGLCCH1.ChLiv.stVal DIAGLCCH1	6/13/2022 1:40:05.819 PM True		
Warning IED warning LD0.LPHD1.PhyHealth.stVal LPHD1	6/13/2022 1:40:05.819 PM All ok		
Alarm Alarm output LD0.TCSCCBR1.CirAlm.stVal TCSCCBR1	6/13/2022 1:40:05.819 PM False		

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Check circuit breaker condition

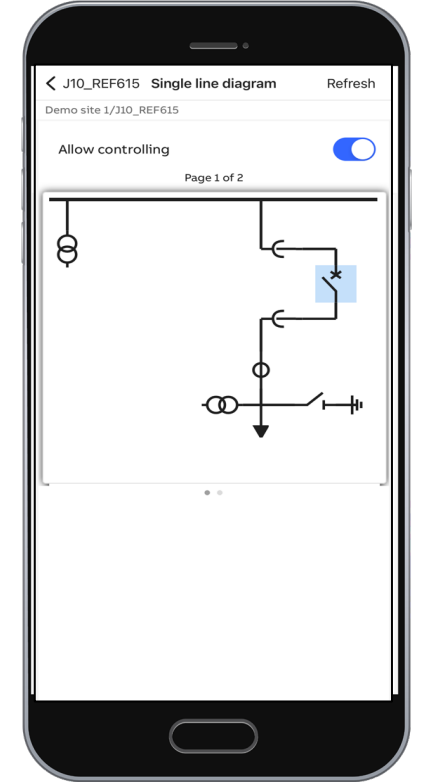
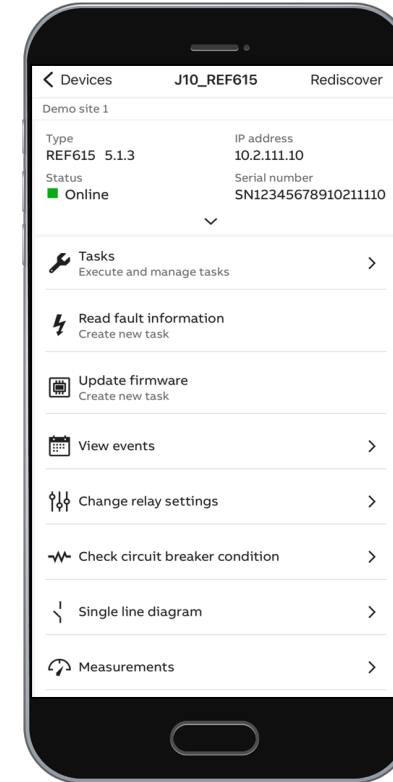
- Using RXplore it is possible to check the circuit breaker condition.
- After selecting 'Check circuit breaker condition' for the selected relay, press 'Read status' to read the circuit breaker status for the selected relay.
- RXplore presents the overview of circuit breaker condition and on selecting the circuit breaker function, monitored values of circuit breaker settings are presented.
- Status is presented also via icon representation and description text for alarm statuses.
- Overall status is time stamped to indicate when the last status was read.



The relay explorer RXplore

SLD and Control options

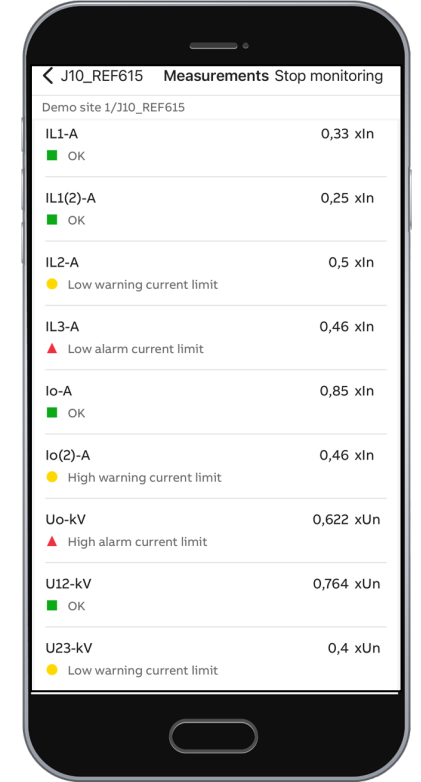
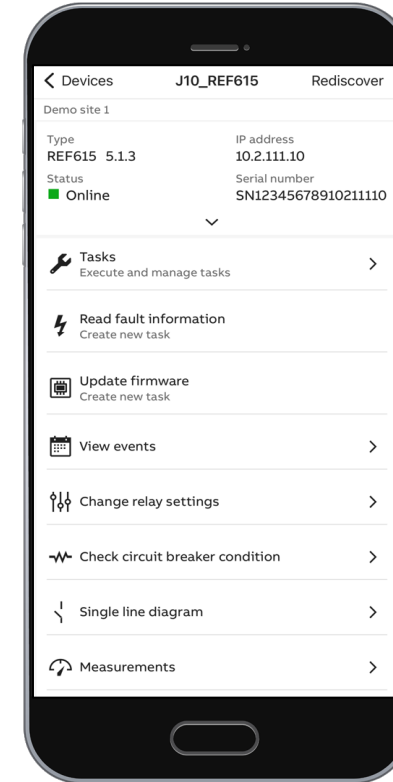
- Using RXplore it is possible to view the Single Line Diagram(SLD) of the supported relay.
- The breakers, disconnectors and earthing switches can be operated in the SLD view.
- RXplore provides the option to allow or prohibit controlling option.
- Use 'Refresh' to update the SLD and status of control objects in the configuration.
- RXplore indicates if the local/ remote setting in relay is required to be changed.



The relay explorer RXplore

Measurements view

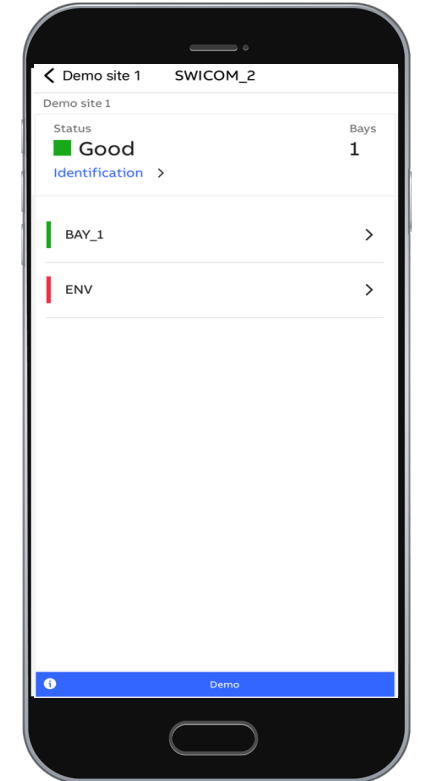
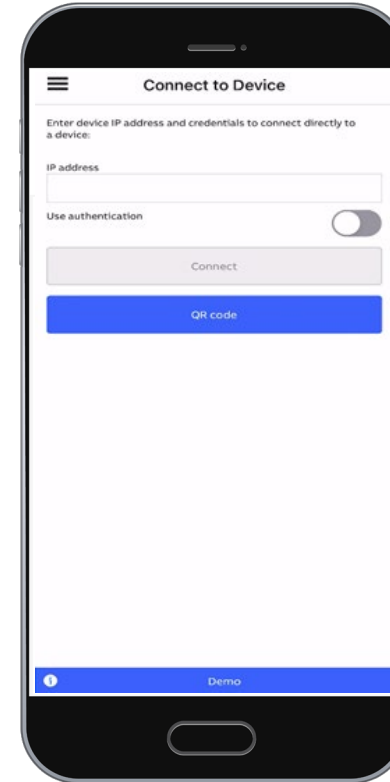
- View momentary value for various power system measurements by tapping 'Measurements' for the supported relay.
- Values are read and updated periodically.
- The monitoring value update can be stopped or restarted by selecting 'Stop monitoring' in Measurements view.



The relay explorer RXplore

ABB Ability™ Condition Monitoring for switchgear - SWICOM support

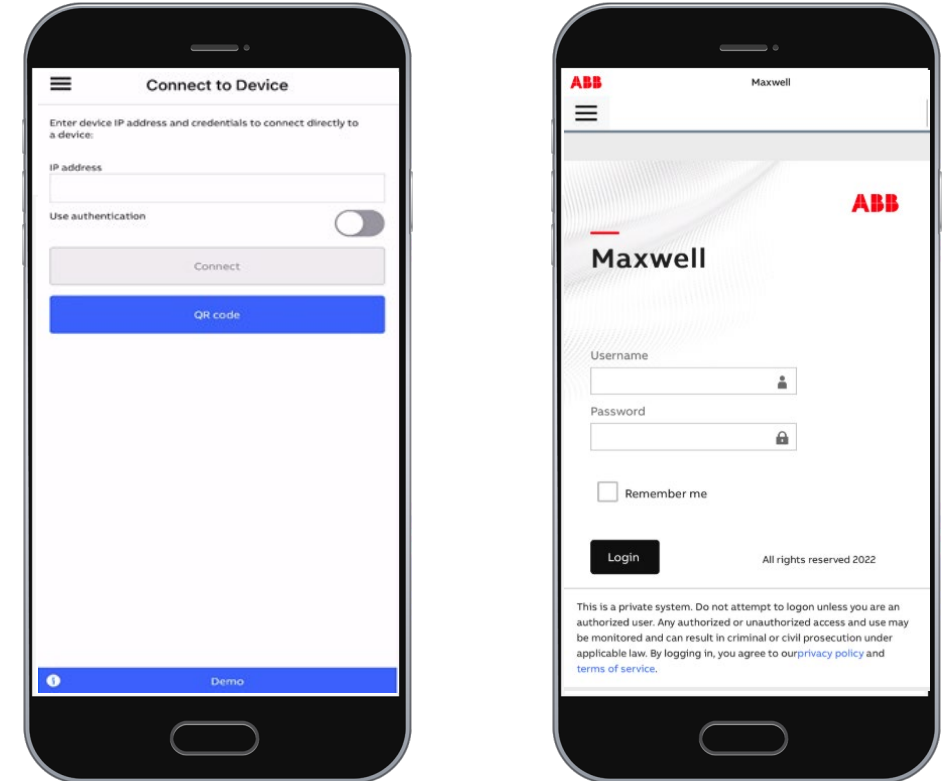
- SWICOM is a monitoring and diagnostic unit which provides mechanical and electrical health status of the lineup.
- RXplore can directly connect to SWICOM by scanning the QR code presented on SWICOM screen or by providing the IP address of SWICOM device.
- Alternatively, RXplore can be connected with SWICOM device similar to how RXplore connects with the relays within the scanned IP range.
- Once connected with the SWICOM device, besides presenting status and device information of SWICOM device itself, RXplore also shows the bays that are monitored by SWICOM and KPI, Measurement and Parameters information of each monitored bay.



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Support for VD4 evo

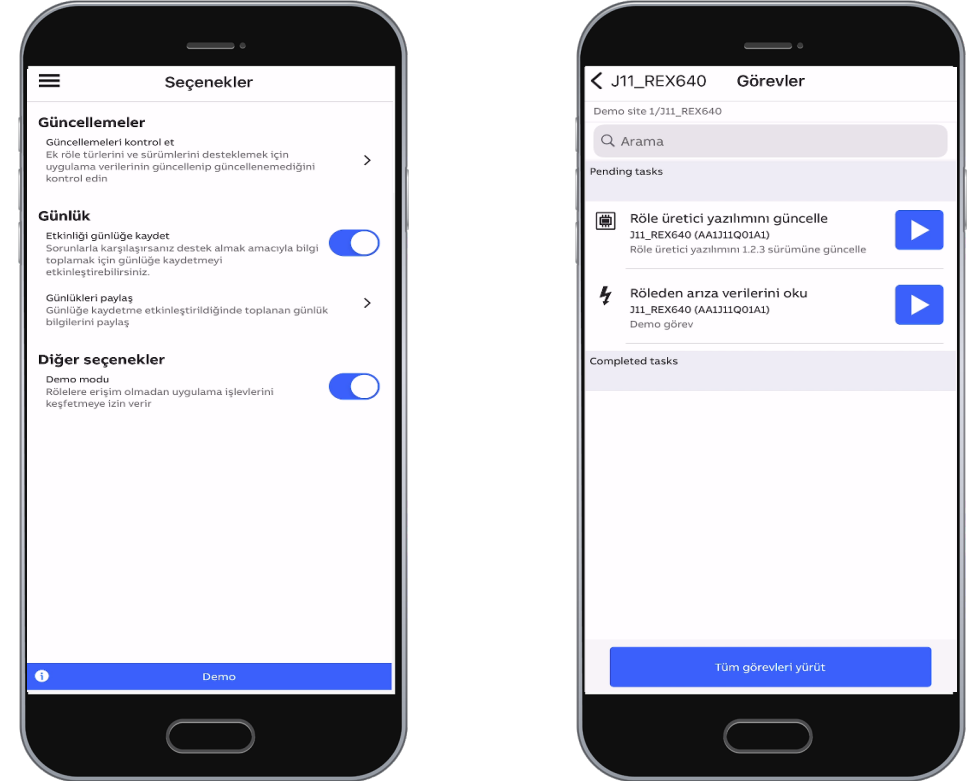
- VD4 evo is the digital evolution of the IEC indoor vacuum circuit breaker VD4.
- New intelligence reduces the risk of power outages by 30 percent and increases operation and maintenance efficiencies by as much as 60 percent.
- Using RXplore, scan the QR code present on VD4 evo.
- On successful connection, RXplore opens the browser to log in and retrieve information from VD4 evo.



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Localization

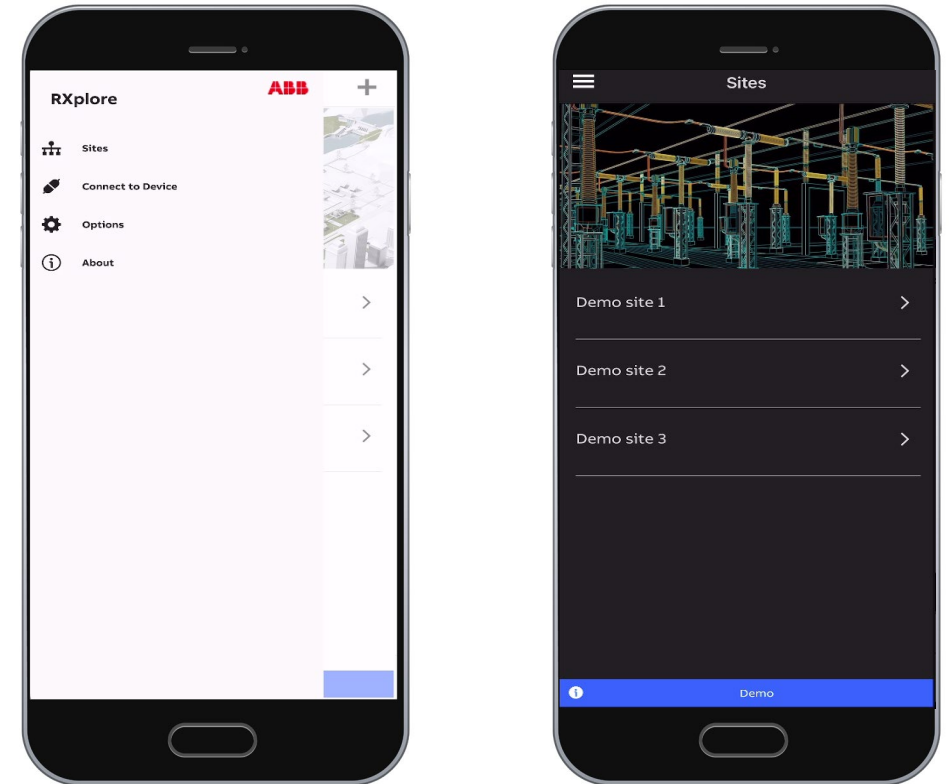
- Supported languages:
English(EN), Turkish(TR), Russian(RU), French(FR),
Chinese(CN) and German (DE)
- The app presents the information based on the selected
language in the phone.



The relay explorer RXplore

Additional information

- RXplore supports demo mode to quickly get an overview of features and functionalities in the app without the need to connect with real devices.
- There is a permanent banner in demo mode that visually distinguishes demo mode from real/ working mode.
- The user can move in or out of demo mode by enabling or disabling the mode under Options.
- Dark mode is supported.



ABB