JULY 2022

PRODUCT GUIDE

The Relay Explorer - RXplore

Contents

1. Description

The Relay Explorer - RXplore is a mobile application to securely connect, visualize and allow performing limited operations to ABB Protection and Control relays and ABB Monitoring and Diagnostic devices.
For operation, RXplore connects to either the site wireless network (Wi-Fi) that has ABB devices on same network or with the ABB Cloud to fetch operative data to execute the functionalities offered by RXplore.
RXplore is never connected with site Wi-Fi and outside network at the same time, thus ensuring that the site network is never exposed to outside network.
RXplore mobile app connects to the site Wi-Fi and is then bound to the same network, even if the network itself has no ABB Cloud connection. All the network request from RXplore to relay go via the Wi-Fi network. For relay, it does not matter eventually who is requesting/ pushing data i.e. if it is traditional hard-wired connection or RXplore communicating with it over wireless LAN.
Most of the screen shots and functionalities described in the document are applicable to ABB Protection and Control relays. Supported M&D device is covered in a separate chapter in this document.

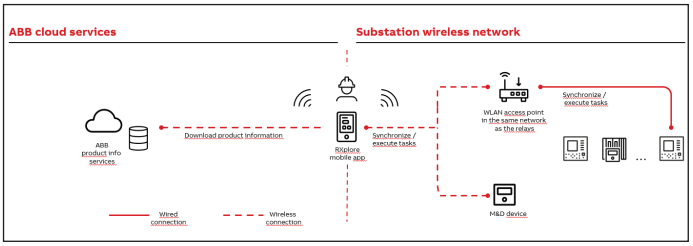

Figure 1. The Relay Explorer-RXplore

2. Site creation and 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 based on need.
Multiple sites can be created in RXplore thus ensuring clean segregation of sites.
Sites can also be deleted in RXplore. Delete operation is according to default operation for respective operating system (iOS or Android).

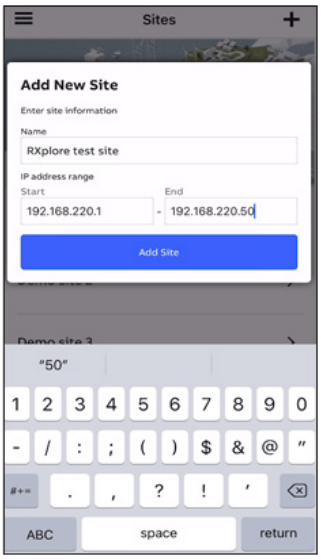

Figure 2. Adding a site to RXplore

3. Connection to 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.
After successful connection, ABB device(s) are shown in RXplore main view. Devices not supported by RXplore are notified on screen.
Alternatively, a device can be directly connected by providing IP credentials. For supported devices, direct connection can be done by utilizing the scan QR code operation.

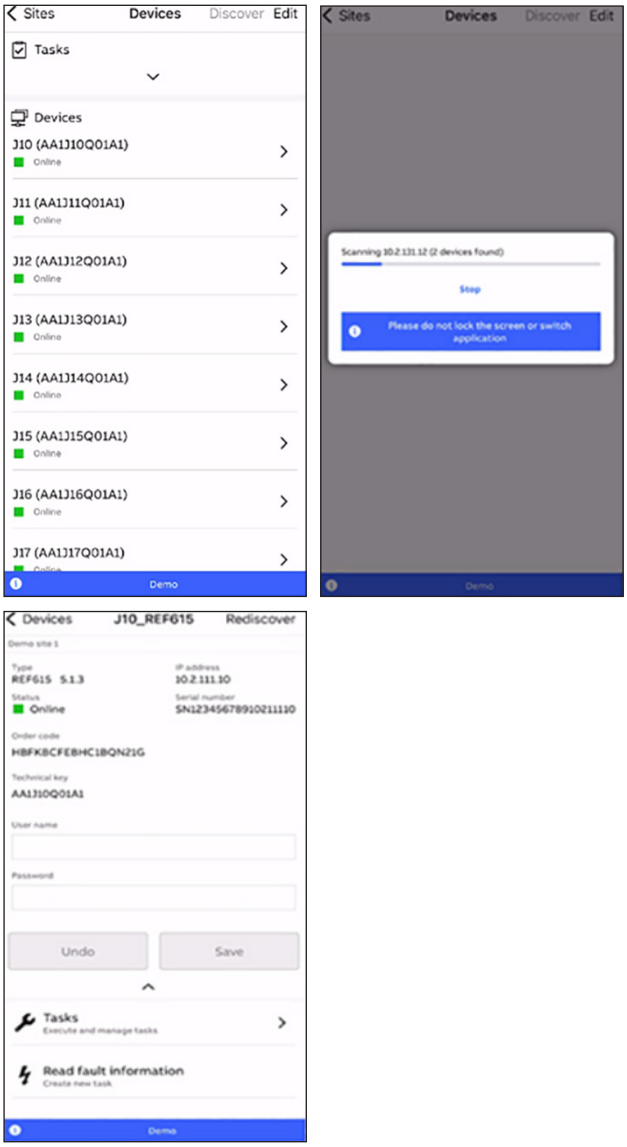

Figure 3. Connecting to relay and relay information

4. Update Relay Firmware

Using RXplore it is possible 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.
Thereafter, Firmware Update action can be completed after connecting RXplore with station network.
While RXplore connects with ABB cloud to download the updated firmware, it stays disconnected from station network and once connected back to the station network to execute the firmware update task, it stays disconnected from outside network.
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.

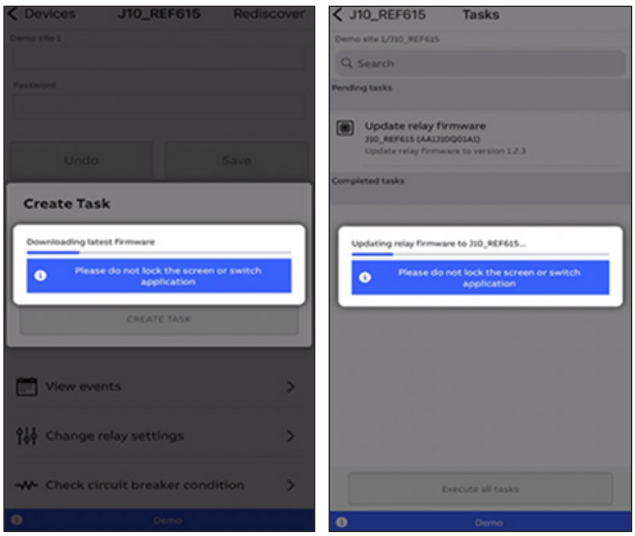

Figure 4. Update firmware

5. Change relay settings

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. Additionally, 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.

Change relay settings functionality can be accessed by tapping ‘Change relay settings’ for the selected relay.

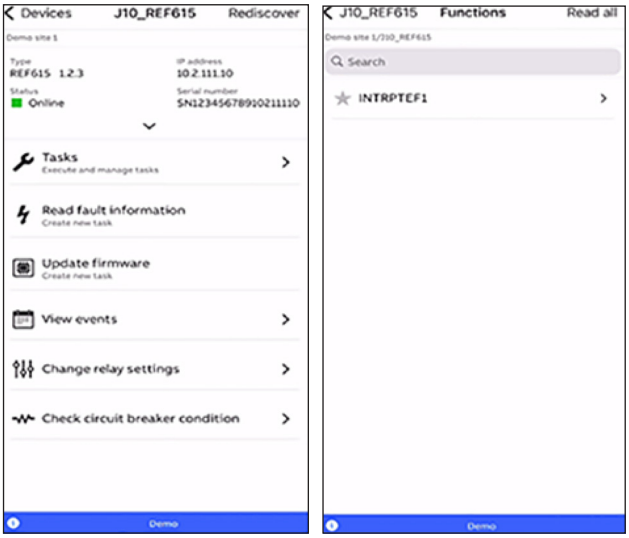

Figure 5. Edit settings of a relay

6. 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.
It is also possible to simultaneously read and share fault information for all the connected devices.
The functionality can be accessed by tapping ‘Read fault information’ for the selected relay or site.
After reading fault information, it can be easily shared (e.g. over e-mail) in zipped format.

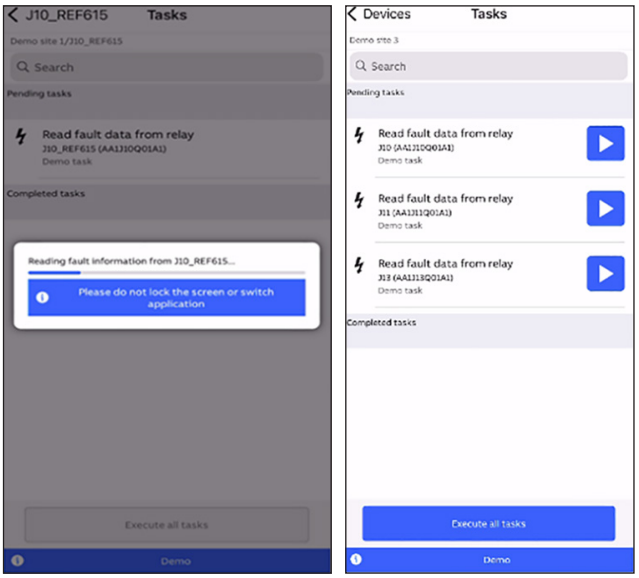

Figure 6. Read fault data from relay

7. Read and share events information

Once connected to the relay, RXplore allows the possibility to read and view events from the relay. The functionality can be accessed by tapping ‘View events’ for the selected relay. Tapping an event shows more information about the event. In-built search in events view makes it easy to find the event of interest.
After reading events information, it can be easily shared.

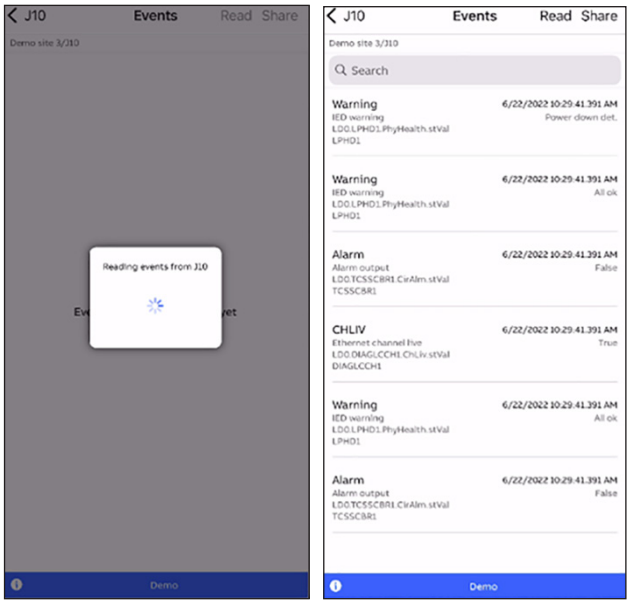

Figure 7. Events view

8. Check Circuit Breaker condition

Using RXplore it is possible to check the circuit breaker condition. After selecting ‘Check circuit breaker condition’ for selected relay, press ‘Read status’ to read the circuit breaker status for 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.

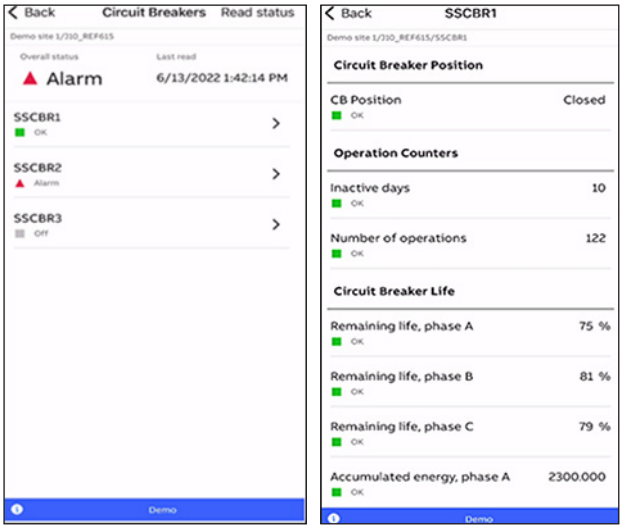

Figure 8. Check circuit breaker condition

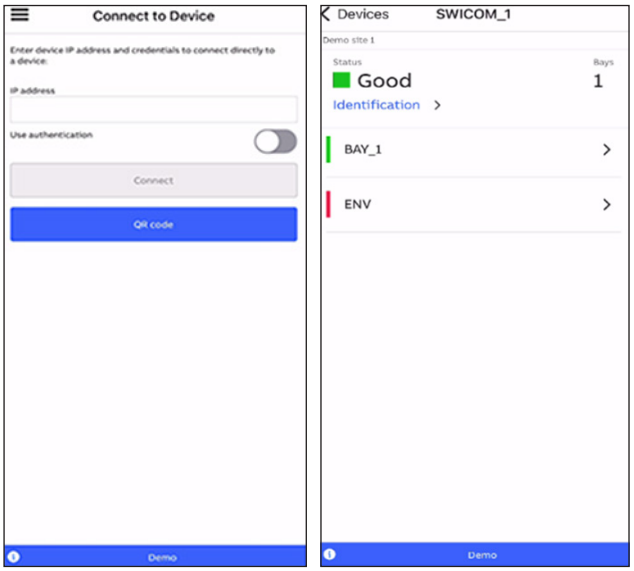

Figure 9. SWICOM information in RXplore

9. ABB Ability™ Condition Monitoring for SwitchGear - SWICOM support

SWICOM is a monitoring and diagnostic unit which provides mechanical and electrical health status of a lineup. It acquires data communicating with IEC 61850 based protection relays and via sensor bus of additional e.g. temperature sensors and converts the data to diagnostic information.
There are multiple ways to connect a SWICOM device to RXplore.
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 information of SWICOM device, RXplore shows the bays that are monitored by SWICOM along with KPI, Measurement and Parameters information of each monitored bay.

10. Wi-Fi dongle connectivity

As an alternative to setting up wireless access point router in station network, a relay can be directly connected and operated with RXplore via any wired LAN to Wi-Fi adapter.

11. Demo mode

RXplore supports a demo mode to quickly get an overview of features and functionalities in the app without the need to connect with real devices. A banner in the app helps to distinctly visualize if you are in demo mode.

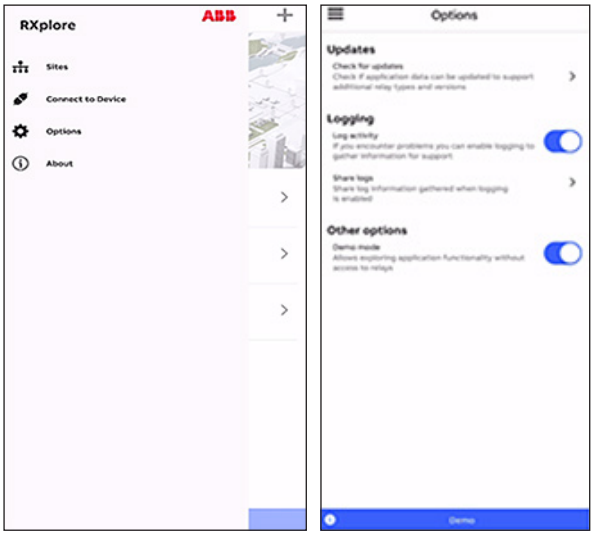

Figure 10. Options Tab

12. Download

RXplore app is available for download from Google Play (Android) and App Store (iOS).

13. System requirements

a. Supported operating systems

- iOS version 13.0 and above
- Android version 9.0 and above

b. Communication

- Wi-Fi
- Data over mobile network

14. Document revision history

Document revision / Date	Product version	History
A/2020-10-14	RXplore 1.0	First release
B/2021-03-29	RXplore 1.1	Second release
C/2021-07-02	RXplore 1.2	Third release
D/2021-10-12	RXplore 1.3	Fourth release
E/2022-01-31	RXplore 1.4	Fifth release
F/2022-04-08	RXplore 1.5	Sixth release
G/2022-07-04	RXplore 1.6	Seventh release

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