



—
ABB SACE
A division of ABB S.p.A.
L.V. Breakers
Via Pescaria 5,
24123 Bergamo - Italy
Phone: +39 035 395.111
Fax: +39 035 395.306-433

abb.com/lowvoltage

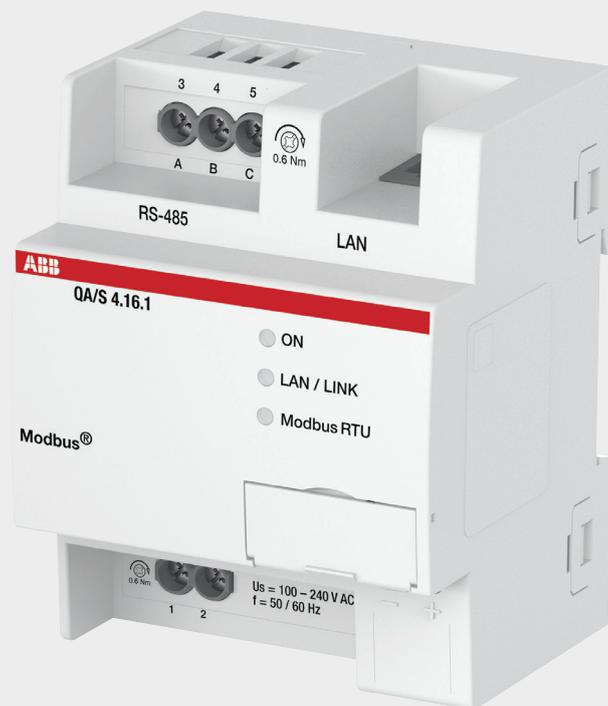
The data and illustrations are not binding. We reserve the right to modify the contents of this document on the basis of technical development of the products, without prior notice.
© Copyright 2019 ABB. All rights reserved.

1SDC200087B0901 - 01/2020

COMMISSIONING GUIDELINE

ABB EQmatic provisioning in ABB Ability™ EDCS

Getting started



In order to carry out the provisioning of ABB EQmatic in ABB Ability™ EDCS, please follow the procedure as described below. The first part of the provisioning is to be performed in the ABB EQmatic web user interface, the second part via EKIP Connect, the free software for ABB Ability™ EDCS provisioning.

Table of contents

02-13	ABB EQmatic provisioning in ABB Ability™ EDCS
02-04	Architectures scenario
05-05	Material and tools, you might need during the provisioning
05-10	Initial commissioning of ABB EQmatic
11-13	Initial commissioning of EDCS

ABB EQmatic provisioning in ABB Ability™ EDCS

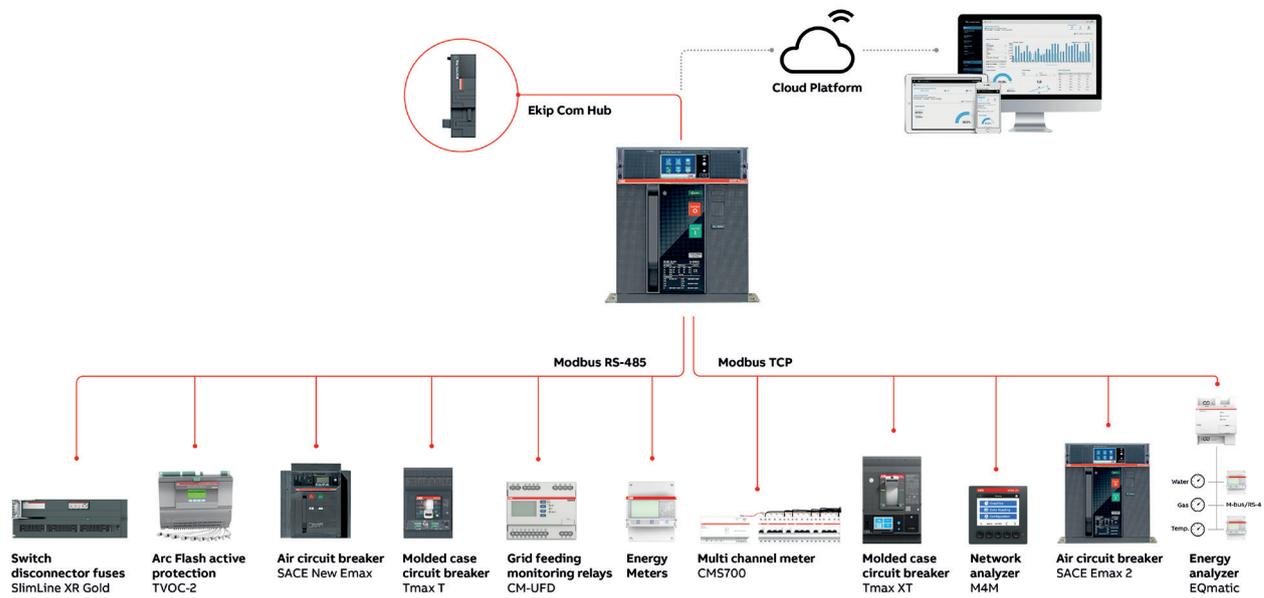
Architectures scenario

Before proceeding with the commissioning, please check all the possible architectures you can experience.

Embedded Solution

Emax 2 equipped with the new Ekip Com Hub establishes the cloud connection for the whole switchboard.

This dedicated cartridge-type communication module just needs to be inserted into the terminal box and connected to the internet.



External Solution

E-Hub 2.0 is an independent IoT gateway which can gather data from field devices as well as consumption of water, gas, etc. and connect to the system to ABB Ability™ Electrical Distribution Control System, the cloud platform. As a result, all the downstream field devices can be monitored from the cloud via ethernet cable, wi-fi or cellular connectivity.

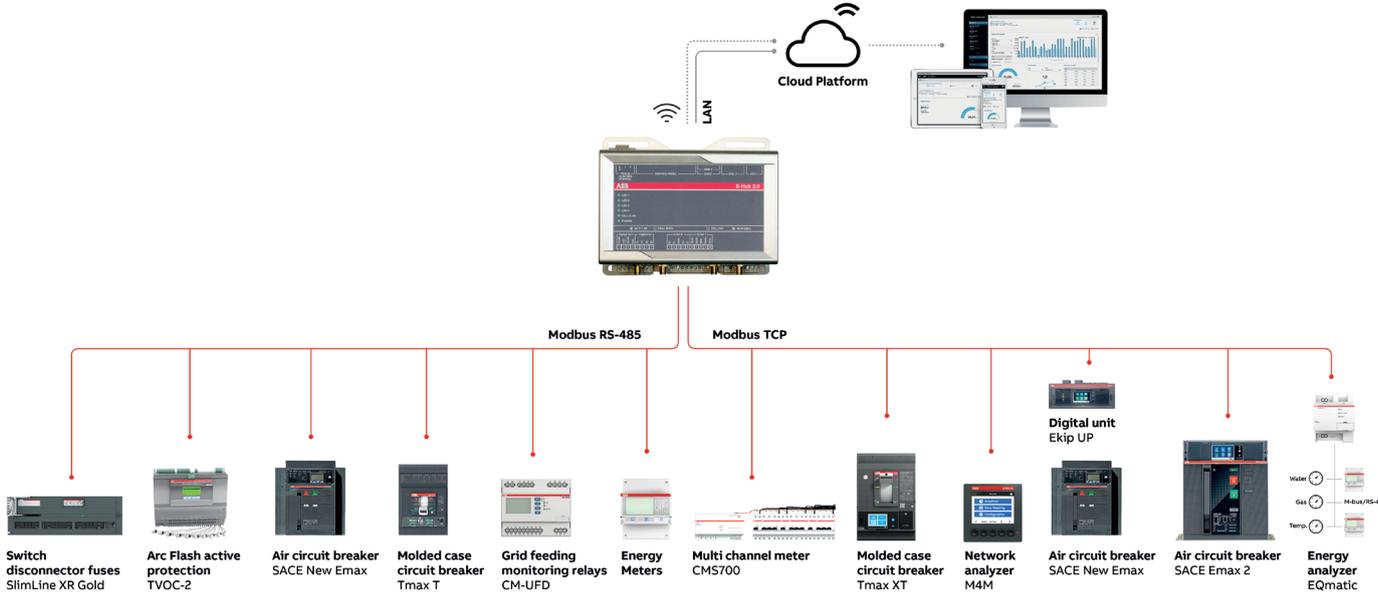
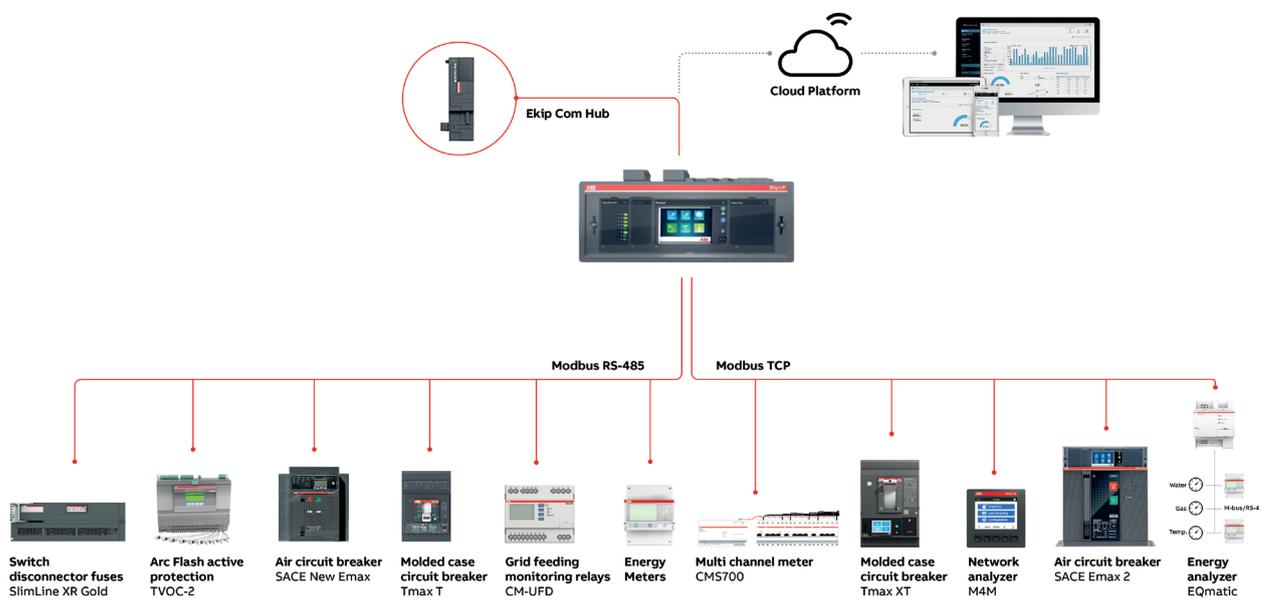


ABB EQmatic provisioning in ABB Ability™ EDCS

Upgrade Solution

Ekip UP equipped with Ekip Com Hub establishes the cloud connection for a specific feeding line, load or even for the whole distribution system. This dedicated cartridge type communication module just needs to be inserted into the terminal box and connected to the internet using an external router.



Material and tools, you might need during the provisioning:

- User manual of ABB EQmatic available at this [link](#) (2CDC512090D0202 - 08.2018)
- FW version 2.x.x or higher, available at this [link](#)
- EKIP Connect Tool, updated to the latest version. Please download the software tool from the [ABB Library](#) (1SDC20011X3000)
- iBus Tool, available at this [link](#)
- In case the cloud access point is Ekip Com Hub, “Ekip Com Hub Getting started” document, available at this [link](#) (1SDC200063B0204)

Initial commissioning of ABB EQmatic

After EQmatic device is installed, powered and ready for operation the initial commissioning is done via the web user interface of the device.

Note

Make sure that PC (with EKIP Connect and ABB i-bus Tool), EQmatic or EKIP Com Hub are installed in same network.

Only the EQmatic (2CDG110228R0011)QA/S 4.16.1 Energy Analyzer, Modbus RTU can be provisioned to EDCS.

Tip: in case multiple ABB EQmatic are to be provisioned in ABB Ability EDCS, please commission one by one keeping the others switched off. Once commissioning in the web user interface is completed, ABB EQmatic can be maintained in operations and it is possible to switch on and start provisioning the next ABB EQmatic. Consider to connect one ABB EQmatic to one Ekip Com Hub.

Quick-Guide for ABB EQmatic commissioning

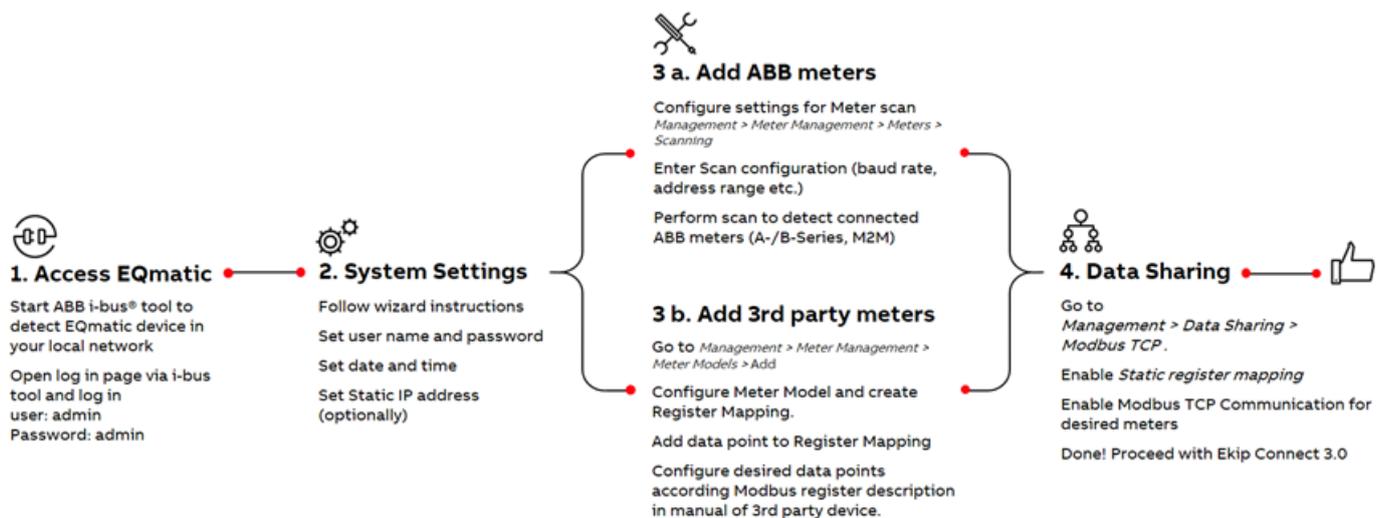


ABB EQmatic provisioning in ABB Ability™ EDCS



1. Access EQmatic

To access the device for initial commissioning, use the ABB i-bus® Tool. The ABB i-bus® Tool is a free of charge software commissioning tool. Follow the instructions to connect to the device.

1. Download ABB i-bus® Tool and install on a Windows PC/laptop. [Download link](#)
2. Start ABB i-bus® Tool.

3. Click **Connect** button on the start page and then IP devices and Discovery in the UI of i-bus Tool.

The ABB i-bus® Tool automatically searches for known IP devices on the local network. Click **Refresh** to restart the process if necessary.

4. Select the relevant QA/S device from the table of devices found.
5. Select "Open Website."

Device type	Device name	Individual address	IP Address	MAC Address
<input type="checkbox"/> QA/S4.16.1	EQmatic - Demo - QA/S 4.16.1, Modbus		10.49.121.68	00:0C:DE:60:80:3B

IP devices

- All
- QA/S3.16.1
- QA/S3.64.1
- QA/S4.16.1
- QA/S4.64.1

Filter Detailed data

6. The web browser opens and the log in page appears.

ABB

Username

Password [Forgot password?](#)

7. Enter your username and password; default in supplied state:
 - a. User: admin
 - b. Password: admin
8. You are now connected with the web server of the device. Follow the instructions in the commissioning wizard to proceed with commissioning.



2. System Settings

The commissioning wizard guides you through the basic steps during commissioning:

1. Read and accept the terms & conditions
2. Change initial password.
3. Change the network settings and set a static IP address for EQmatic. By default DHCP is enabled. Modify IP settings as described in manual.

Tip: the new static IP address shall be in the range of the sub-network for TCP devices to be provisioned in EDCS. Therefore, it has to be in the same sub-network of:

- module Ekip Com TCP, in case of Emax 2 / Ekip UP.

Tip: it is recommended a sub-network with IP range 192.168.0.X, where X ranges from 2 to 254.

Tip: in the list of settings, "Gateway" IP address shall be IP address of the connection point to the internet, i.e. IP address of the dedicated router if present.

Tip: do not give same IP address to different devices, otherwise only one of the devices with same IP address can be recognized

4. Set date and time
5. Configure tariffs and units for cost calculation.
6. Scan the bus (Modbus) for connected slaves (meters).

Meters detected are listed in a table.

7. Update to latest FW version
 - Go to ABB library and download latest FW-Version here [link](#) and store on your local drive.
 - Go to **System > Update > Manual Update > Select Update** and choose FW from your local drive and follow update instructions

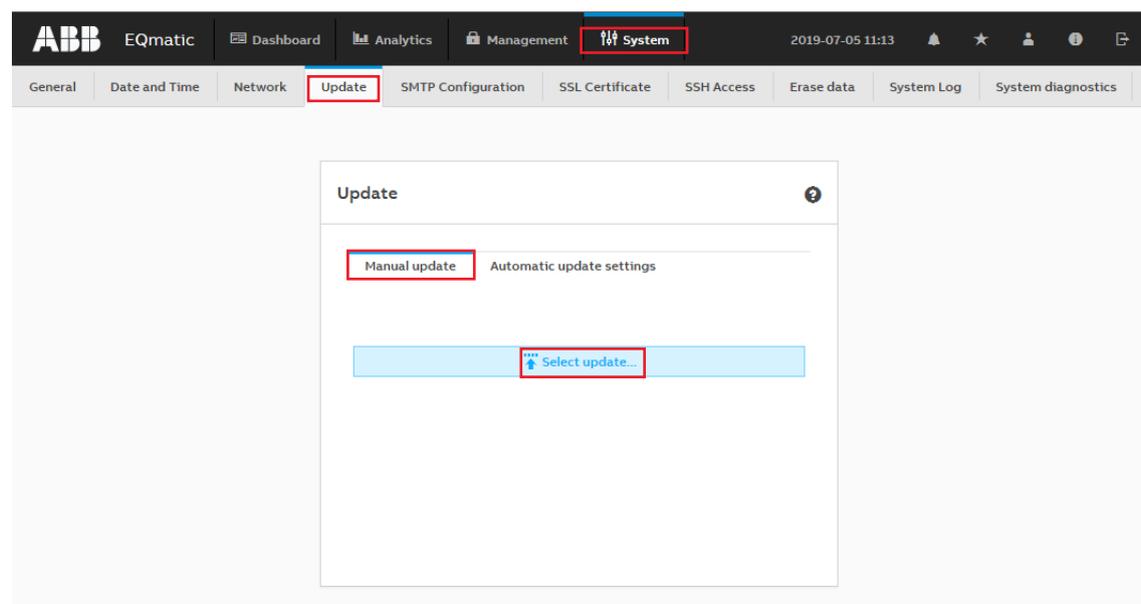


ABB EQmatic provisioning in ABB Ability™ EDCS



3a. Add ABB Meters

Adding ABB meters (Type A-/B-Series, M2M) is done via plug and play approach. Connected ABB meters will be detected automatically after a scan and will be added to the system.

Note: Meters must be configured (address, baud rate, etc.) before scanning the bus. Scan settings must match the settings in the meter.

Default scanning settings for ABB Meters in Energy Analyzer QA/S 4.16.1, Modbus RTU:

Scanning

* Speed range (baud rate)

19200

* Address range

from to

Parity

None

Odd

Even

Byte size

7

8

9

Stop bits

1

2

Cancel Scan

3 b. Add 3rd party Modbus RTU meters

To add a 3rd party device to EQmatic, the corresponding register mapping and the data point configuration must be provided. See also chapter 3.2.2 in EQmatic manual.

1. Go to **Management > Meter Management > Meter Models** and click **Add**

The screenshot shows the ABB EQmatic web interface. The top navigation bar includes 'ABB EQmatic', 'Dashboard', 'Analytics', 'Management', and 'System'. The 'Management' section is active, with sub-tabs for 'Meter Management', 'Metering Structure', 'User Management', 'Tariffs and units', 'Consumer Groups', and 'Data sharing'. The 'Configuration' page is displayed, with the 'Meter models' tab selected. A red box highlights the '+ Add' button in the top right corner of the configuration area. Below the search bar, a table lists meter models:

PRODUCT NAME	MEDIUM	REGISTER MAPPING	VERSION	ACTION
A41 112-100	Electricity	ABB EQ-Meters	768	

- 2. Configure the meter model and create the register mapping (new or from existing mapping). Click **Save**
- 3. Add data points to Register Mapping by clicking **+**

- 4. Configure data points according manual of 3rd party device. Click **Save**.

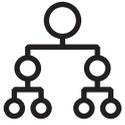
Note

- EQmatic supports Modbus function code 3 (read holding registers) and function code 4 (read input registers). Select function code during data point configuration from the drop-down menu Function Code
- At least one data point for consumption (e.g. Active Energy [kWh]) must be configured for basic operation.
- If Load Profiles are used, data point for Power [W] must be configured.
- Configure data point for Product Name/ Type/Model to detect meter model after Bus-Scan.

- 5. Click **Add** and configure new created 3rd party meter and click **Save**
- 6. 3rd party meter is now visible in the device table overview

PRIMARY ADDRESS	STATUS	SPEED	MANUFACTURER	MEDIUM	VERSION	PLACE OF INSTALLATION	METER NAME	SERIAL NUMBER	BUILDING NODE	ACTION
1	OK	19200	ABB	Electricity	768		B21 312-100	00034331	ABB B21 312-100 (B00034331)	
2	OK	19200	3rd Party	Electricity	1		Third Party Meter Model		NOT ASSIGNED	

ABB EQmatic provisioning in ABB Ability™ EDCS



4. Data Sharing

Once the meters are connected and communicating with EQmatic, the data sharing function must be used to provisioning data (received by EQmatic) via Modbus TCP in ABB Ability EDCS.

1. Go to **Management > Data sharing > Modbus TCP** and enable **static register mapping**.
2. Make sure to enable TCP communication for desired meters via the check boxes in the table.

Commissioning within **EQmatic** is now done.

Proceed with latest version of Ekip Connect 3.

The screenshot displays the ABB EQmatic web interface. The top navigation bar includes 'ABB EQmatic', 'Dashboard', 'Analytics', 'Management', and 'System'. The 'Management' section is expanded to show 'Data sharing'. The 'Data sharing' page has two tabs: 'Modbus TCP' and 'Rest API'. The 'Modbus TCP' tab is active, and the 'Enable static register mapping' toggle is turned on. Below this is a 'Configuration' section with an 'Export mapping' button. A search bar is present above a table with the following columns: 'TCP ENABLED', 'MODBUS TCP SLAVE ID', 'PHYSICAL ADDRESS', 'MANUFACTURER', 'SERIAL NUMBER', 'NAME', and 'DATA POINTS'. The table contains two rows of data, both with 'TCP ENABLED' checked.

✓ TCP ENABLED	MODBUS TCP SLAVE ID	PHYSICAL ADDRESS	MANUFACTURER	SERIAL NUMBER	NAME	DATA POINTS
✓	1	1	ABB	34331	B21 312-100	^
✓	2	2	3rd Party		Third Party Meter Model	^

Initial commissioning of EDCS

- A. Make sure you have a MyABB account. If not, please register on MyABB to activate an account.
- B. To commission EDCS access point to the cloud please follow the configuration procedure of the selected access point:
 - a. Procedure for Ekip Com Hub is described in "Ekip Com Hub Getting started" document.

Tip: during first commissioning of the web-server, a static IP address for the laptop has to be set. In order to continue with the provisioning, this IP address has to be changed: at this stage, laptop IP address shall be in the sub-network range. To access IP settings in Windows, access laptop "Control Panel">"Network and Sharing Center">"Change adapter settings">right click on "Local Area Connection (LAN)">"Properties">"Internet Protocol Version" and "Properties".

Make sure communication is now set as described in the documents (see sections "**Configuring the system**" and "**Laptop configuration**").

- C. To start the provisioning of the electrical system in ABB Ability EDCS launch Ekip Connect
 1. Login in Ekip Connect 3 with MyABB credentials
 2. Click on "**Activate**"
 3. Click on "**Start**".
- D. Follow the "**Device Provisioning**" procedure of the specific access point installed.

The screenshot displays the ABB Ekip Connect 3.0.353.0 web interface. On the left is a dark sidebar with a 'Scan' button. The main content area is titled 'Scan devices' and is divided into two columns.

The left column, 'CONNECT WITH YOUR DEVICES', lists four communication channels: T&P, Serial port, Bluetooth, and Ethernet. Each has a 'SCAN' button. Below this is a section for 'ABB Ability™ Electrical Distribution Control System' with a red box around the 'ACTIVATE' button and a '1' above it.

The right column, 'DEVICE PROVISIONING', shows the system name and environment ('ENVIRONMENT: GLOBAL/PRODUCTION'). It includes a diagram of the system and a description. At the bottom right, there is a red box around the 'START' button with a '2' above it.

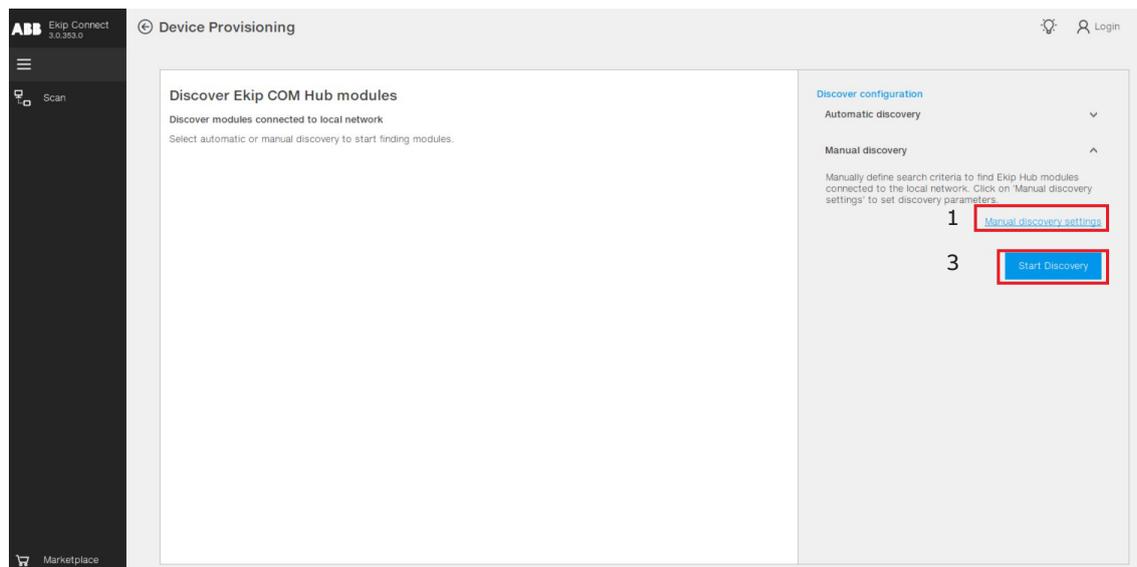
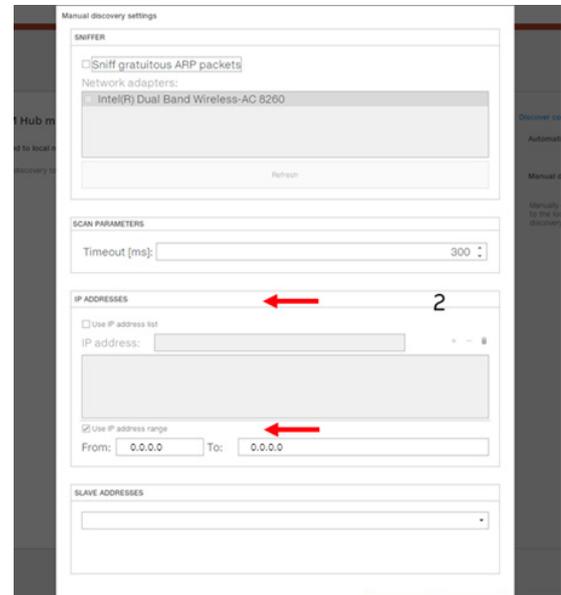
ABB EQmatic provisioning in ABB Ability™ EDCS

E. When the “**Discover configuration**” page is reached, EKIP scans the ethernet network, looking for devices to provision. With “**Manual discovery**”, it is possible to insert specific IP addresses to narrow the addresses range to be scanned. Before proceeding with manual discovery, please make sure all TCP devices to be provisioned have a static IP address in the sub-network range, as described at point System Settings in the first part of initial commissioning for EQmatic.

TIP: Manual discovery is recommended, to make sure the device is recognized by the wizard tool.

Here the steps to follow to scan for devices:

1. Click on “**Manual discovery settings**”
2. In the section “**IP addresses**”, insert the IP address of ABB EQmatic in the list of IP addresses to be scanned, together with IP addresses of selected access point and other TCP devices. It is possible to either add IP addresses one by one (“**Use IP address list**”), or input IP address range (“**Use IP address range**”).
3. Then press “**OK**” and “**Start Discovery**”.



F. Once the device is found and inserted into the list of the connected devices,

1. click on the blue arrow on the right of the selected device
2. In the section “**Device information**”, please add a tag name.

TIP: “TAG Name” shall have the following characteristics:

- a) Do not give same TAG Name to different devices
- b) Each TAG Name cannot be more than 10 characters
- c) Special characters are not allowed
- d) Backspace is not allowed (please use underscore)

G. After completing assignment of tag names to all devices, complete the commissioning by clicking on “**Add to ABB Ability EDCS**”.

H. Follow instructions on “Ekip Com Hub Getting started” document to publish the plant on ABB Ability EDCS.

Due to security checks between module and platform, you might not be able to see any real time data on the ABB Ability EDCS webapp during the first 15 to 30 minutes after completing the commissioning.

TIP: In case after 15 minutes you do not see data in the platform, please turn off and then back on the power supply to the Ekip Com Hub module.

Please ensure “Enable device to send data” is ON.

The screenshot shows the ABB Ekip Connect web interface. The main content area is titled "Device Provisioning" and shows a table of devices found on the local network. The table has columns for Name, Serial Number, IP address, Status, and Action. The first device, "Ekip Touch B_Main", is highlighted with a red box and a red arrow labeled '1'. The "Action" column for this device contains a blue arrow labeled '2'. Below the table, there is a blue button labeled "Add to ABB Ability™" with a red box and a red arrow labeled '4'. To the right, a "Device Information" panel for "Ekip Touch B_Main" is shown, with a red box and a red arrow labeled '2' pointing to the "Tag Name" field, which contains "B_Main". Below the "Tag Name" field, there is a checkbox labeled "Enable Device to send data" which is checked, with a red box and a red arrow labeled '3' pointing to it.

Name	Serial Number	IP address	Status	Action
Ekip Touch B_Main	7870299174415090	10.39.146.19/1	Enabled	Update
Eomatic Electricity EM111	0012345	10.39.146.137/1	Enabled	Update
Eomatic Electricity Hager	11111111	10.39.146.137/3	Enabled	Update
Eomatic Electricity EM340	12344444	10.39.146.137/5	Enabled	Update



