

SERVICE NOTE

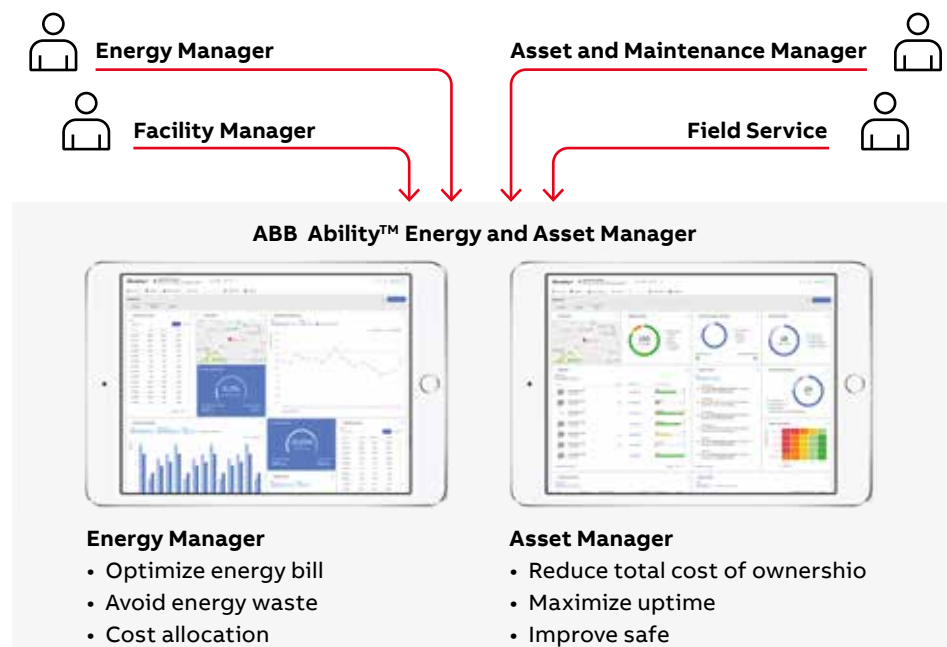
ABB solutions to upgrade low voltage electrical systems



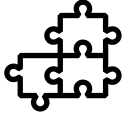
The digital revolution has significantly increased the frequency with which new technologies, new functions and new solutions become available, for any market sector. ABB offers simple and advanced solutions to upgrade existing installations to digital

ABB solutions for technological upgrading of electrical distribution systems are easy to apply by allowing the introduction of ABB Ability™ Energy and Asset Manager, and ABB Cloud platform into existing installations, which provides real-time understanding of your energy consumption and identifies areas for improvement. It gives you the power to see and optimize the behavior of your site equipment anytime, anywhere via an intuitive graphic interface, resulting in greater reliability and availability and minimized unplanned maintenance.

The useful life of a switchgear is around 35-40 years. Recently, real technological revolutions have occurred, and we have seen the introduction of equipment with increasingly advanced electronics, cloud platforms for managing plant and energy parameters, as well as tools allowing predictive maintenance to be carried out.



Value proposition



Flexibility

Maximum flexibility to choose the most suitable solution for your low-voltage distribution



Safety and protection

ABB and 3rd party equipment can be easily upgraded, with solutions certified for the global market



Speed up your project

Up to 70% cost saving to upgrade an electrical installation, compared to a traditional replacement



Sustainability

Smart upgrade and update solutions extend the electrical system lifespan allowing the system to be kept in service, efficiently, for as long as possible, minimizing CO₂ emissions and use of raw materials

For low voltage ABB has developed three digital upgrade methods: **High, Medium and Light Upgrade.**

High Upgrade

Replace aged devices with ABB retrofitting kits:

- Reduced downtime
- Minimized installation impact

The solutions consists of Retrofitting kits that allow the electromechanical part of the switchgear to be updated with a replacement of the circuit-breaker, introducing the latest generation ABB devices (Emax 2/Tmax XT) through the installation of a mechanical interface that can be adapted also to fit older switchgear models, ABB and non-ABB.

This digital upgrade can be obtained by replacing:

- Hard Bus Retrofill solution for a complete replacement of the device
- Direct Replacement and Cradle in Cradle fast upgrading solutions for the replacement of only the existing moving part.



Medium upgrade:

Unlock digital functionalities by adding digital devices:

- Ekip UP, an external digital unit that can be connected to a circuit breaker or a switch-disconnector
- Advanced Trip Unit (Ekip): a replacement of existing Ekip DIP basic trip unit with Ekip Touch/Hi-Touch trip units.

These solutions have a lower impact on the electrical systems in terms of installation and ensure the introduction of all new advanced technologies



Light Upgrade:

Once you have a new digital enabled product, add further digital functions or solutions with the following benefits:

- No downtime
- No impact on the electrical installation





The solution is suitable for new design ABB products based on the concept of continuous updating. In fact, in the presence of Emax 2 or Tmax XT series circuit-breakers equipped with advanced trip units, it is possible to install the plug & play Ekip modules directly on the appliance at any time with an intervention that does not require the interruption of the service.



How to choose the right solution

The large portfolio of upgrading solutions allow you to choose the right method for upgrading an exist-

ing device according to the type of installation and its conditions

| Existing Installation | High Upgrade vs Emax 2/Tmax XT | Medium Upgrade | | Light Upgrade |
|--|---|--|---|---|
| | Hard Bus Retrofill - Cradle in Cradle - Direct Replacement | Ekip UP | Ekip Touch/Hi-Touch Trip Unit | Ekip Modules |
| |  |  |  |  |
| ACBs : Otomax - Novomax - Megamax - Emax | ● | | | |
| ACBs: non ABB devices | ● | ●* | | |
| MCCBs: Isomax S7 | ● | | | |
| New Emax | ● | ●** | | |
| Entelliguard G | ● | ●** | | |
| Emax 2 Switch Disconnectors | | ● | | |
| Emax 2/ Tmax XT2 XT4 XT6 Ekip Dip trip unit | | | ● | |
| Emax 2/ Tmax XT2 XT4 XT6 Ekip Touch/Hi-Touch trip unit | | | | ● |
| * Predictive Maintenance is only for ABB products | | | | |
| **Contact ABB for more detailed information | | | | |







For discovering in detail the solutions to consider for upgrading your plants according to your needs, it useful to consult our **digital navigator** (link on the QR-Code on the left) .

How to configure the solutions before ordering

For a digital upgrade it is important to accessorize

the product during the configuration phase with the right accessories.

| | ABB Accessories to access to digital | | | SW package | Ethernet switch |
|---|---|---|---|------------|---|
| | Ekip Supply | Ekip Com Hub (embedded solution)* | Modbus RTU/ TCP Module | Measuring | |
| |  |  |  | SW |  |
| Master (with Ekip touch/Hi Touch) | ● | ● | ● | ● | ● (only for TCP) |
| Slaves (ACB/MCCB/Ekip UP) with Ekip Touch or higher | ● | | ● | ● | ● (only for TCP) |

* as alternative to Ekip E-Hub 2.0

If you need to connect only 1 CB to the cloud the concept of Master and Slave is no longer valid. Only one breaker needs to be equipped with Ekip Supply and Ekip Com Hub

High upgrade



Retrofit kit equipped with one of the following trip units:

- Ekip Touch
- Ekip Hi-Touch
- Ekip G touch
- Ekip G Hi Touch
- Ekip LCD
- with measuring package included



Ekip cartridge
Only with Direct Replacement retrofit kit



Ekip Supply
Enables the installation of the other advanced modules



Ekip Com Hub*
To connect the product to the cloud (as an embedded solution)

Medium Upgrade

with Ekip UP:



Ekip UP:

- Protect
- Protect +
- Control

with measuring package included



Sensors



Ekip Supply
Enables the installation of the other advanced modules



Ekip Com Hub*
To connect the product to the cloud (as an embedded solution)

Medium Upgrade

with advanced trip units



Ekip Touch/ Hi-Touch
with measuring package included



Ekip Supply
Enables the installation of the other advanced modules



Ekip Com Hub*
To connect the product to the cloud (as an embedded solution)



Ekip Cartridge
For XT2 and XT4

Light Upgrade



Ekip Com Hub*
To connect the product to the cloud (as an embedded solution)
* as alternative to Ekip E-Hub 2.0



Ekip Supply
Enables the installation of the other advanced modules



Ekip Cartridge
For XT2 and XT4



Measuring package
from ABB Ability Marketplace to access to all the measures (V, Energy, Power...) remotely



All the solutions require:

| | Ethernet switch | E-Hub 2.0 without cellular connection | E-Hub 2.0 with cellular connection | LAN Cables |
|--|-----------------|--|--|------------|
| Plant already connected to the Internet | ● | ● (as alternative to embedded solution (Ekip Com Hub)) | | ● |
| Plant not conncted to the Internet (or without the intention to have it in common with the Cloud) | | | ● | ● |



How to access ABB Ability™ Energy and Asset Manager

Access to ABB Ability™ Energy and Asset Manager is very easy: just purchase a license in the ABB Marketplace according to the needs of the plant. Many add-on solutions are also available to customize the requirements.

<https://eu.marketplace.ability.abb/en-US/listing>

Commissioning

For commissioning it is important to have the following tools available:



Ekip T&P

Only with Direct Replacement retrofit kit



Laptop with Ekip Connect 3

Enables the installation of the other advanced modules



ABB Service offers its support for the commissioning phase, on site or with the remote assistance (RAISE) solution

