

# RMU Digital Upgrade

## Automating secondary distribution networks



ABB's technologies help to transform traditional power networks into smarter networks that can deliver renewable power over long distances, while maintaining reliability and availability.

The existing manually operated SafeRing / SafePlus 12-24kV gas-insulated Ring Main Unit (RMU) portfolio from ABB is enhanced with RMU Digital Upgrade packages, to meet the increasing demand for automation applications in secondary distribution networks.

The RMU Digital Upgrade packages can provide monitoring, control and measurement functionalities - including Feeder Automation (FA) devices with wired and/or wireless communication interfaces and power supply backup.

The RMU Digital Upgrade packages for SafeRing / SafePlus are integrated in the space behind the lower front cover offering a compact solution. ABB also provides another solution with an additional low voltage compartment installed on top of the switchgear.

### Customer benefits

- Gain more efficient utilization of the secondary distribution network through automation and thus minimize the effect of power outages.
- Wireless modem GPRS/3G/LTE communicating with your DMS or SCADA system.

The RMU Digital Upgrade functionalities enable the network operators to:

- Obtain real time data for analyzing and decision making, in order to optimize operations and improve power quality.
- Monitor the grid to enable remote fault localization.
- Reconfigure the network to isolate the faulty part of the network, to ensure faster power restoration reducing the cost of energy loss.

Enclosed FA box inside the RMU:

- Fully integrated solution in the RMU, less space consuming.
- Less affected by the environment.
- Fast and plugable installation.
- No impact on compact secondary substation IP rating.

Benefits of the compact secondary substation automatization:

- Improved quality of the power supply:
  - Less and shorter outages.
  - Improvement of the operational efficiency.

Optimal utilization of the distribution network:

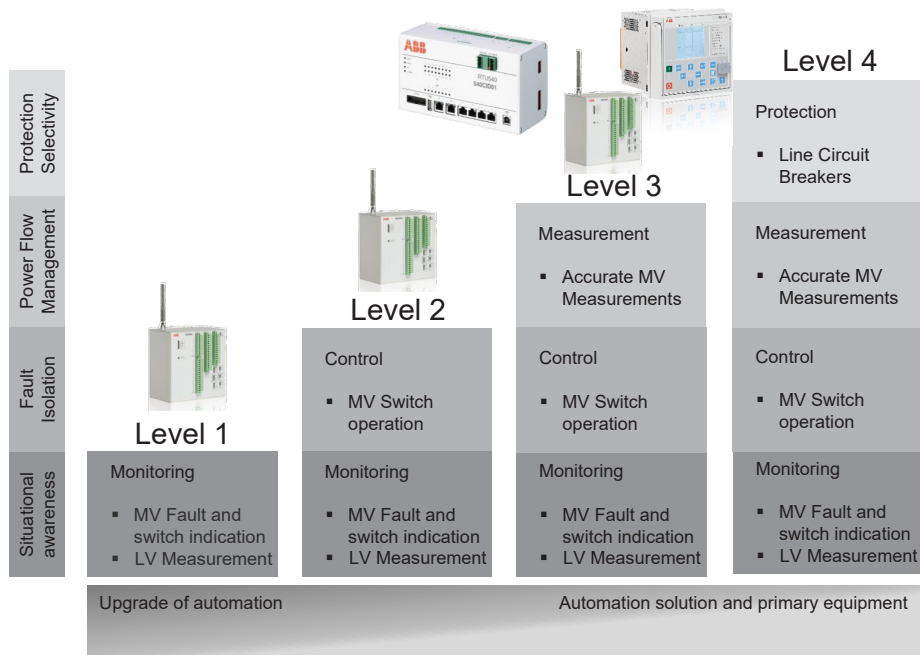
- Utilize the network more efficiently, and minimize the network losses.
- Optimal asset management.
- Measurements of power flows/quality.
- Improves overview of power network.
- Extends life cycle of the earlier investments.

Improves efficiency and safety of operating personnel:

- Less need to travel to places difficult to reach.
- Less need to work in dangerous environments.

## Functionality levels

The RMU Digital Upgrade covers Level 1, 2 and 3 of the below functionality levels:



## RMU Digital Upgrade packages

There are 3 different packages available:

- RMU Digital Upgrade ARC600 FA Box :
  - This is the most cost-effective alternative for functionality Levels 1 and 2. However, it is also a good solution if Level 3 is required. No external modem and charger are needed.
- RMU Digital Upgrade RTU 540CID01 FA Box:
  - RTU 540 is a well-known and preferred alternative for many customers. This alternative covers up to Level 3 functionality.
- RMU Digital Upgrade REC615 FA Box:
  - REC615 FA Box covers up to Level 3 functionality, and is prepared for sensor technology.

All standard packages always include:

- Power supply backup source for automation devices (24V DC batteries and charger).
- Wire (Ethernet) and/or wireless (GSM/GPRS) communication interfaces (SIM card is not part of delivery).
- IEC 60870-5-104 host (slave) communication protocol.

Options for all packages:

- Remote FPI fault indication reset:
  - After remote resetting of fault indication, the FPI is again ready to catch, indicate and report another fault.
- Remote emergency trip of distribution transformer modules:
  - Fast trip in case of emergency situations like local flooding, fire etc.
- Supervision of the low voltage side of the distribution transformer:
  - Energy quality: Current, Voltage, Power, cos phi.