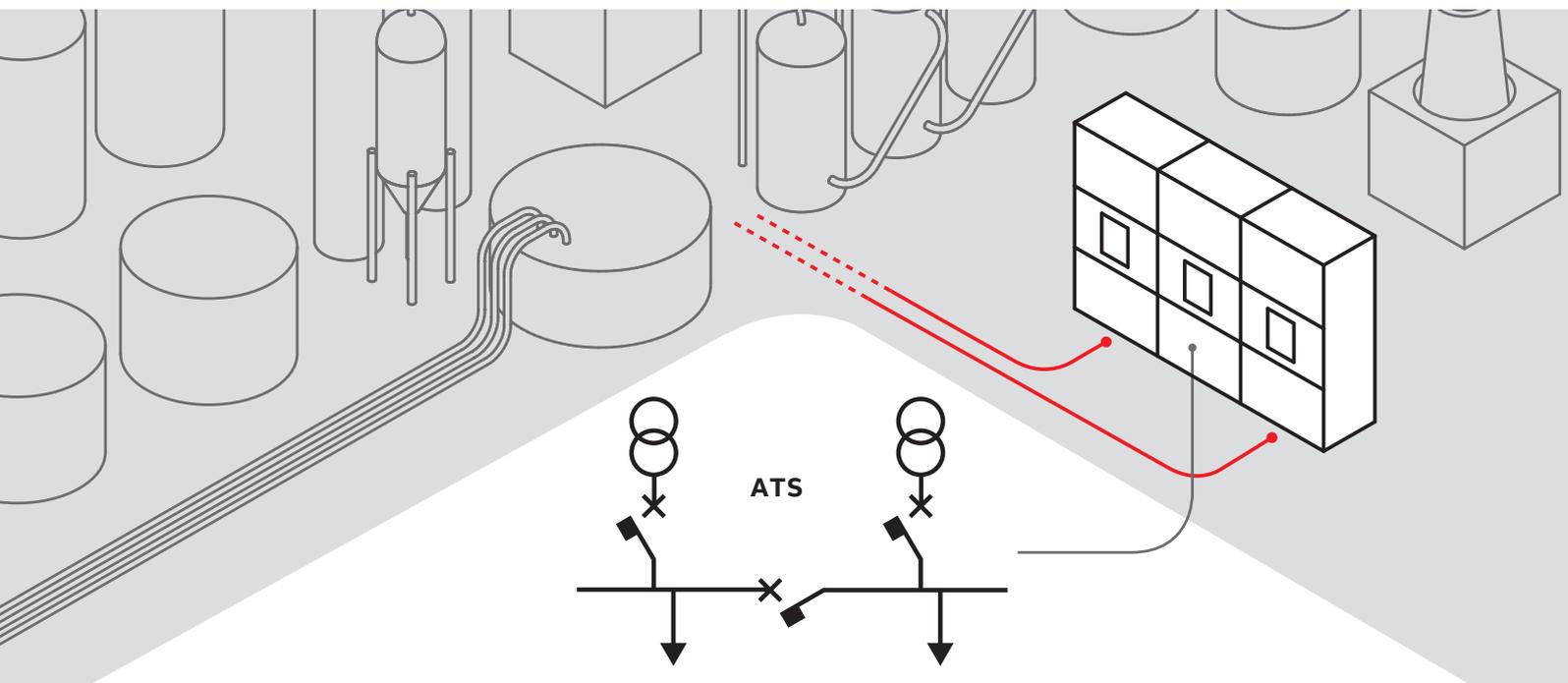


ALL-IN-ONE

# Embedded Automatic Transfer Switching (ATS) system

All-in-one innovation



Embedded ATS system makes it easy to monitor, control and communicate in power networks.

Over the past few years, service continuity in low-voltage electrical installations has played an increasingly leading role.

Service continuity is a basic requirement when you need to create an efficient and functional installation.

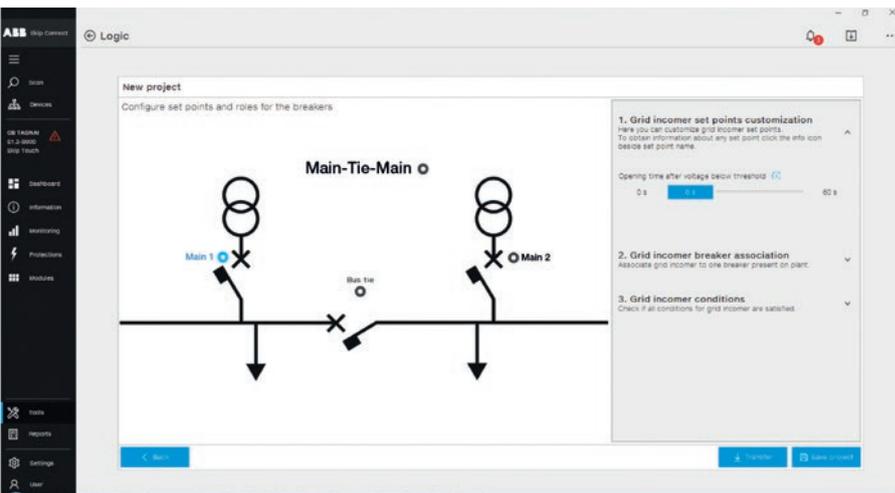
A system that promptly switches power supply from the main line to an emergency line cuts to a minimum the problems coming from faulty conditions in the public network.

That operation, commonly known as “automatic switching”, includes sequences that automatically control all the components of an installation and the circuit breakers, without the intervention of an operator.

To guarantee that power is supplied smoothly to the loads, a fundamental requirement is redundancy in supply sources (type N+1), usually consisting of a transformer and an emergency generator or, as an alternative, a second transformer.

An installation equipped with an ATS system guarantees the following advantages:

- maximizes service continuity of any process
- provides a power supply with high quality voltage if the main network is out of order
- manages microgrids connection and disconnection from the main grid
- reduces the troubles caused by network faults on parts of the installation (voltage reductions can lead to loss of stability in the rotating machines, higher voltage drops and faults in the equipment)
- achieves a good compromise among reliability, simplicity and cost-effectiveness
- provides the maintenance staff and managing system with an alternative power source that supplies the installation or part of it when the transformer is under maintenance.



**Estimated time and cost savings on ATS engineering for a low voltage project: 95%**

### Ready-to-go

If you have ever programmed a power automation switchboard, you know that it requires PLC programming skills and electrical knowledge. Moreover, every custom-engineered system demands individual effort and personal responsibility. Moreover, if a setting needs to be changed, the engineer may have to reopen the project, which has associated time and money costs. The embedded ATS system simplifies the whole process giving you general templates - tested and ready-to-go - that you can customize changing some basic settings via a graphical interface. When you are satisfied about how things look, a simple tool allows you to upload the template to the devices. And it's done. The system is up and running. And if you need to change a parameter, just connect your laptop and modify it with the same easy graphical interface.

### Simplify the connections

The idea to create an embedded ATS solution popped up considering the complexity of the traditional solutions for power ATS.

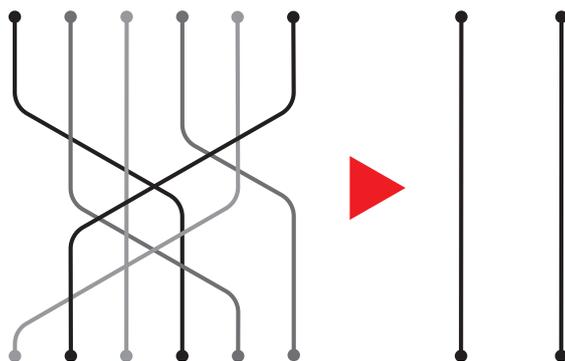
In the past, whether you were using a PLC or an external protection unit, you needed complex, hard-wire cablings between the protection devices, the operating devices (switch disconnectors) and the

PLC, as well as between current transformers (CTs) and voltage transformers (VTs).

The introduction of IEC 61850 Communication Standard for substation automation systems simplified things considerably by defining how devices should report their status and generally transfer data.

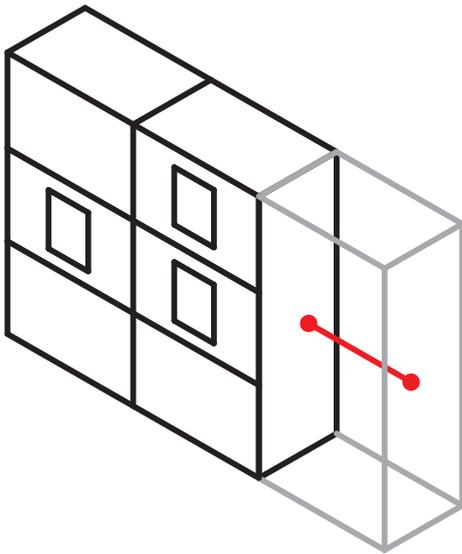
This communication is usually physically achieved via an Ethernet cable or similar.

However, even with an architecture based on IEC 61850, many external devices are still needed to manage the complexity of the system.



**Estimated time and cost savings on cabling and commissioning of the power switchboard: 50%**

Choosing ABB embedded ATS solution, you can master this complexity by harnessing the power of ABB intelligent circuit breakers together with Ekip Connect 3 software. Thus, thanks to ABB low-voltage circuit breakers, you can integrate measures, protections and communication between devices and to the network.



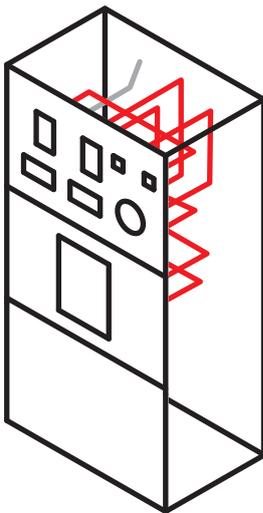
### Compactness

ABB low-voltage circuit breakers all-in-one solutions are the most compact on the market and embed a lot of functionalities:

- Switching
- Protecting
- Measuring
- Human Machine Interface (HMI)
- Interlocking communication (horizontal) between devices
- Communicating to a supervision system (SCADA)
- Communicating to a cloud energy monitoring platform

The embedded ATS solution is as compact as the circuit breaker. Nothing needs to be added.

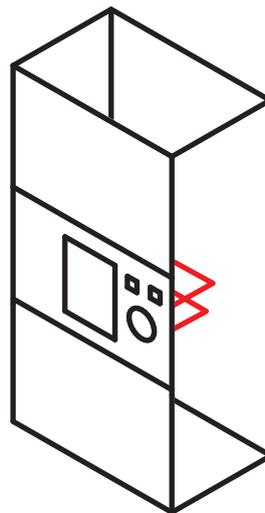
Space saving in the power switchboard: up to 30%



01

#### Traditional system:

- Switch disconnector
- External protection units
- Voltage sensors
- Amperometric transformer
- HMI
- Cabling
- Rotary selectors
- Pushbuttons



02

#### ABB all-in-one solution:

- Circuit breaker
- Rotary selector
- Pushbuttons

### Top-rate reliability

Now, let's think of a complex switchboard, with many different devices connected.

What to do if one element trips, or one cable disconnect?

See Fig. 01.

ABB low-voltage circuit breakers all-in-one solutions grant compactness without losing top-rate reliability.

All the protection trip units ensure high reliability using an electronic circuit that periodically checks the continuity of the internal connections (trip coil, rating plug and current sensors).

In the event of a malfunction, LEDs indicate the corresponding removable alarm to allow a quick identification and location of the fault.

See Fig. 02.

## How it works



- **The unlocking licence**  
Every license unlocks the whole system.

Inside Ekip Connect 3, the ATS software tool is a one-step wizard that lets you:

- manage your ATS projects, including the ability to save, load and share projects
- set up projects quickly, with an intuitive interface
- upload projects to the trip units



- **Ekip Touch trip units, enabling logic operations**

They represent a new generation of protection trip units that are easy to program and read.

Then, you get a solution that is:

- engineering-free
- error-free
- fast

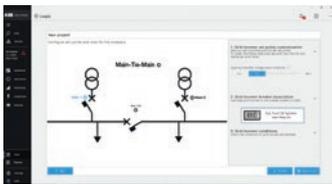
### For more details



- **Ekip Link**  
It is the tool that lets this peer-to-peer communication happen.



- **Ekip Synchrocheck** (only in case of closed transition systems)  
It is the accessory that checks that all the conditions are satisfied for the transfer procedure.



- **The Ekip Connect 3 tool for ATS**  
It is the software that opens the door to the Ekip electronic trip units so that their functionality can be fully exploited, in a user-friendly way.