

SmartDAS™ (Distribution Automation System) is an application software package applies in the automatic detection and isolation of faults, and system restoration in the medium voltage distribution grid.

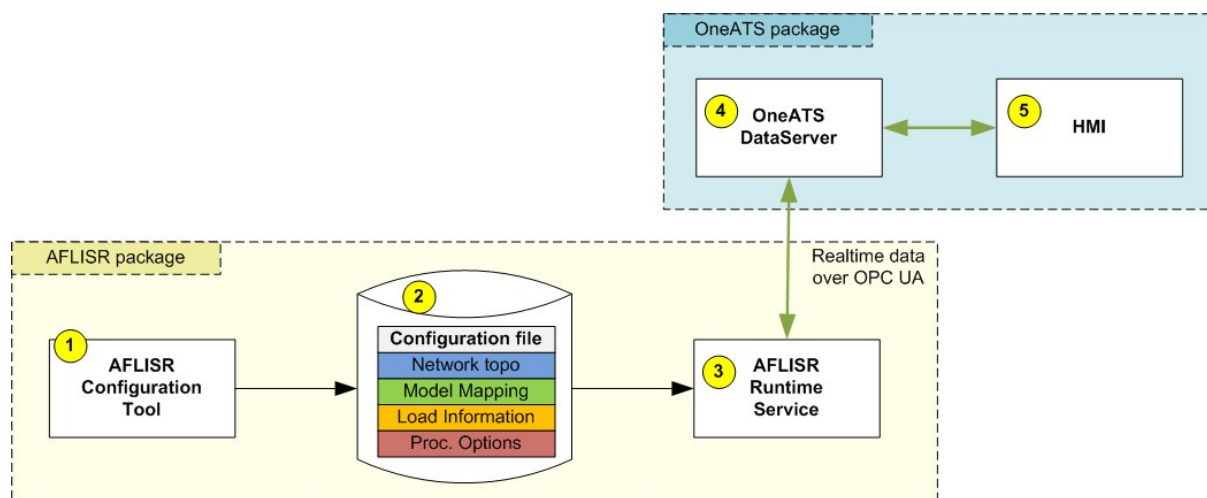
SmartDAS™ can help improve various power supply reliability indicators (SAIFI, SAIDI, etc.) for distribution grids.

Main Functions:

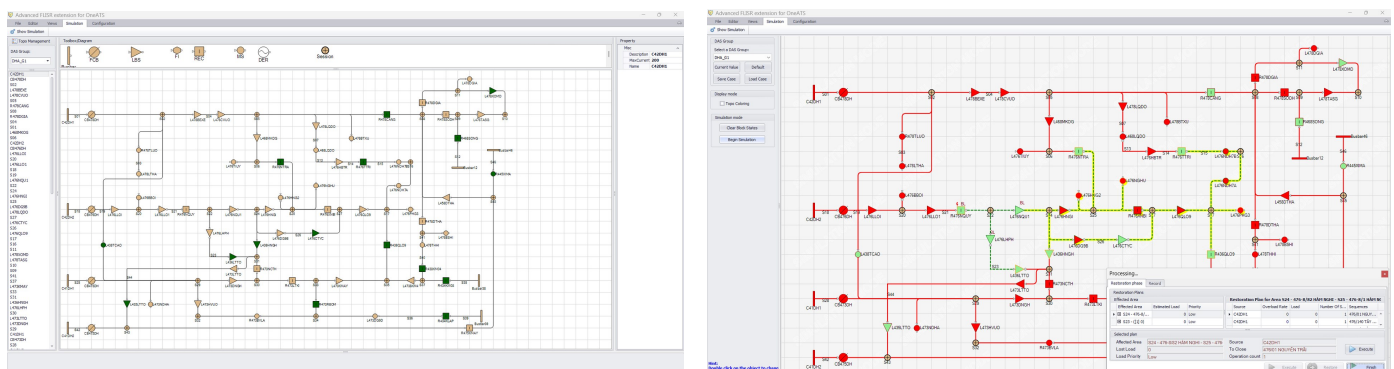
- ◆ **Fault location, isolation, and system restoration** function with robust algorithms.
- ◆ **SR – Sequence Reclosing-Based Method:** Employs the automatic reclosing functions of Recloser and LBS device controllers, leveraging X, Y, and Z timer parameters to pinpoint, isolate, and rectify faults, ensuring the swift restoration of power supply.
- ◆ **Working mode:**
 - **Manual:** DAS will perform a trigger when there is a fault. In Method SR, the system will perform detection of fault cases.
 - **Semi-Automatic:** The system generates a control command sequence and allows users to choose whether or not to follow this sequence.
 - **Automatic:** The sequence of steps is executed automatically by AFLISR.
- ◆ **System development and fault simulation function**
- ◆ **Protection setting management**

Benefits:

- ◆ **Improved Reliability:**
Faster fault detection, isolation, and service restoration lead to shorter outage durations for customers. This means that the SAIFI/SAIDI indices have gotten better.
- ◆ **Reduced Outage Costs:**
By minimizing the number of customers affected by outages, DAS/FLISR reduces the overall cost of power disruptions.
- ◆ **Enhanced Efficiency:**
Automating grid operations allows for better resource allocation and optimized power delivery.
- ◆ **Self-Healing Grid:**
With FLISR, the grid can automatically react to faults and begin restoration efforts without manual intervention, moving towards a more self-reliant system.

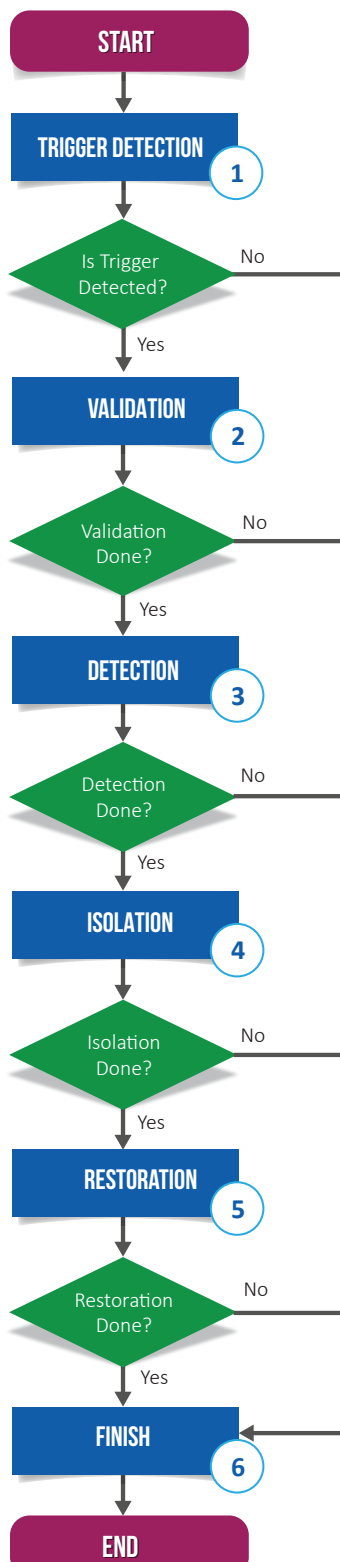


Structure of Advanced Fault Location, Isolation, and Service Restoration AFLISR



Project Development & Fault Simulation in AFLISRR

Functionality

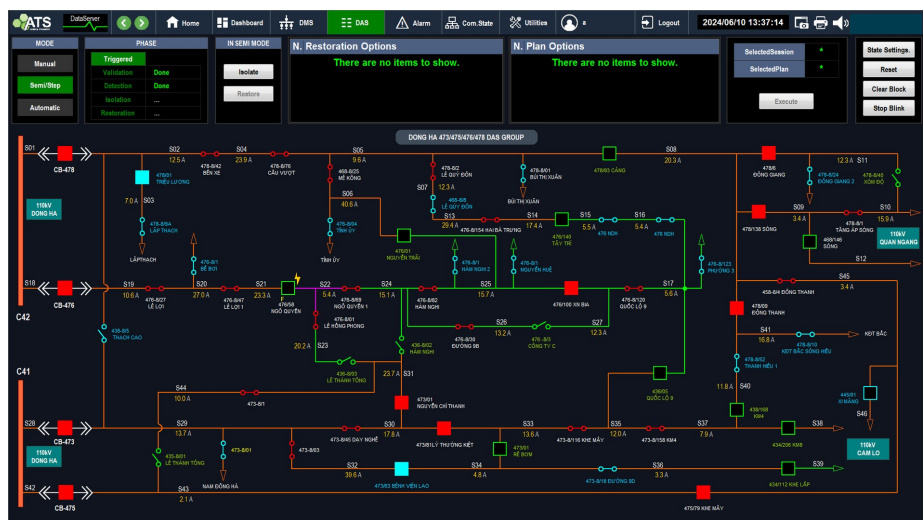


The Work Flow of DAS Runtime Service

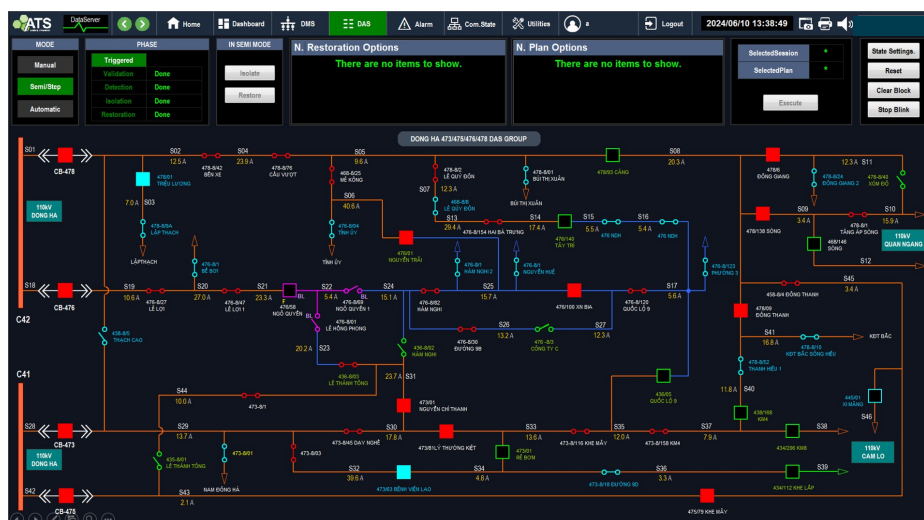
- ◆ **① Trigger:** Realize a set of signals specific to the problem: Like FCB (Open + OC).
- ◆ **② Validation:** Provide real-time data input review and evaluation capability, grid configuration before processing.
- ◆ **③ Fault detection and location**
 - The fault detection process will be automatically performed:
 - Pinpoint the fault location: The system will identify the precise location of the fault on the power line.
 - Estimate the load lost due to the fault: The system will determine the amount of power supply interrupted as a result of the fault.
- ◆ **④ Fault Isolation:**

Based on the fault detection results in the previous step, the system will automatically generate a fault isolation plan and automatically select the option that has the least impact.
- ◆ **⑤ Service restoration:**

After isolating the fault area, the system will execute appropriate restoration plans based on the priority restoration options.



Distribution Line in Fault Detection



Distribution Line in Service Restoration

