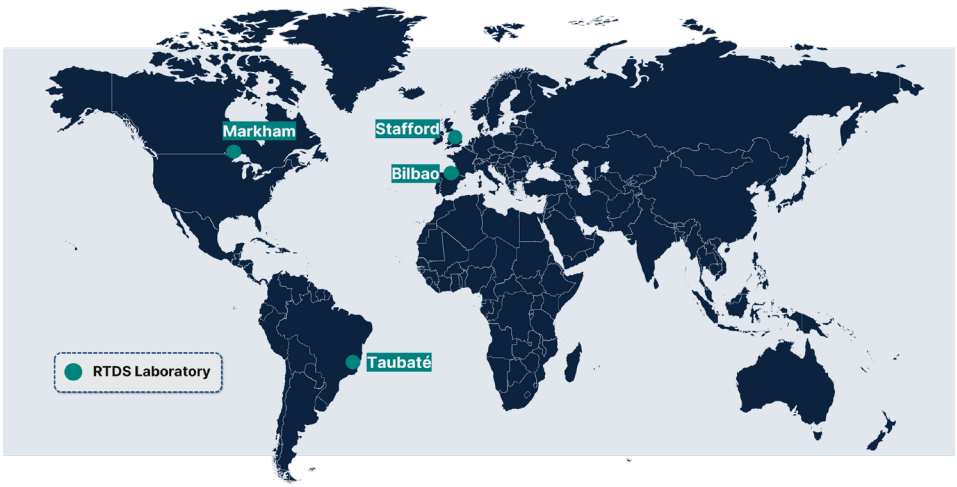
RTDS SERVICES

Real-Time Digital Simulation (RTDS) has emerged as a crucial technology in the face of the evolving challenges that the electrical grid faces. We support customers with our four dedicated RTDS laboratories, to ensure reliable and robust grid operations during and after disruptive events. Example of service includes:

- **Audit of existing protection settings** that can be tested in a **hardware-in-the-loop (HIL)** environment, including a model of the power system, to assure proper performance and coordination on all potential fault scenarios. **Playback testing** can also be performed to check setting modification based on historical fault libraries.
- **Modelling of evolving power system network** with increasing renewable energy, DC links and complex load such as datacenters
- **Validation of protection algorithms and philosophy** that require fine-tuning based on transient stability studies, like islanding detection protection, high-speed falling conductor protection, or high-impedance protection.
- **Testing of special protection schemes** like Remedial Action Schemes (RAS) or Wide-Area Monitoring, Protection, and Control (WAMPAC) systems.
- **Grid Compliance Tests** with power plant controllers and protection elements tested at the same time in an HIL environment.

Key Benefits

- **HIL testing in a real-time EMT environment** under most realistic conditions, checking extreme scenarios (e.g. islanding, short-circuit, load rejection, blackstart), without risking to damage real assets.
- **Multiple testing scenarios** run in automatic mode.
- Interoperability with external systems tested through **PMU and IEC 61850** interface



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Features

- Hardware in the Loop Testing
- Protection Settings Audit
- Protection Relays Verification
- Playback Testing
- New algorithms validation
- Special Protection Scheme Tests
- Grid Compliance Tests

Competencies

- Multiple RTDS locations with scalable hardware capabilities
- ISO 17025 certified laboratory providing third-party accredited testing facilities

Success story 1 - Island Protection Implementation

Challenge: An industrial customer needed to detect islanding conditions from the main grid.

Value Added Proposition: Parameters and methodology to detect disconnection from the main grid were identified and validated through RTDS tests.

Benefits: Allow plant to continue operating during islanding conditions, decreasing production downtime.

Success story 2 - Audit Settings

Challenge: A customer faced unexpected protection tripping, impacting plant production and resulting in a $1 million loss in profit

Value Added Proposition: Malfunctioning relays and their settings were audited in an HIL environment. Multiple scenarios and faults were analyzed, new settings were proposed and tested.

Benefits: Plant operation time is enhanced thanks to proper protection coordination, and fast faults identification and isolation.

Success story 3 - System Integrity Protection Scheme Validation

Challenge: System Integrity Protection Schemes (SIPS) are complex systems where multiple devices must be tested at the same time in the most realistic conditions.

Value Added Proposition: Power system electrical values were simulated, amplified, and hardwire to IEDs included in the SIPS. PMU and IEC61850 communication signals were also simulated on RTDS for non-available devices during FAT, to complete the required scenarios. Testing scenarios were run in automatic mode, including all possible negative scenarios.

Benefits: Unforeseen scenarios were detected, decreasing the risk of disruption to the grid, and commissioning time was reduced.



For more information visit
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