

## Protection and control REX640

All-in-one protection for any power distribution application



REX640 makes protecting all your assets in advanced power generation and distribution applications easy. The fully modular design allows unequalled customization and modification flexibility, and easy adaptation to changing protection requirements throughout the relay life cycle. This is asset management at its best.

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01 Protection and control REX640

### Complete application coverage with one device for optimal cost-effectiveness

REX640 is the outcome of a long-standing evolution, building on ABB's strong heritage of freely configurable multifunctional relays. The ability to cover the full range of utility and industrial applications and manage multiple applications simultaneously, with the same device, guarantees flexible, versatile and cost-efficient protection solutions.

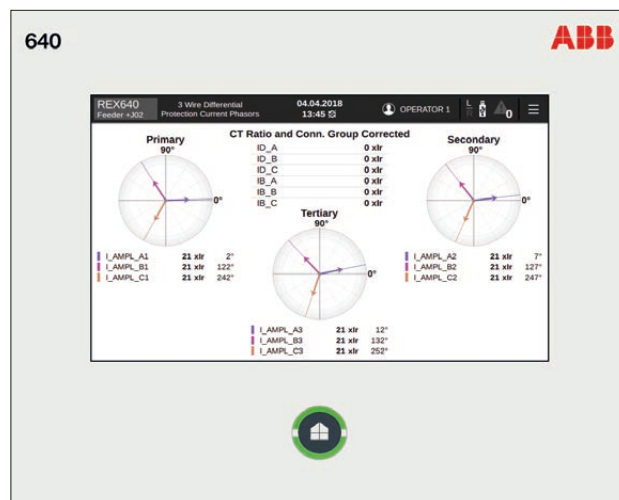
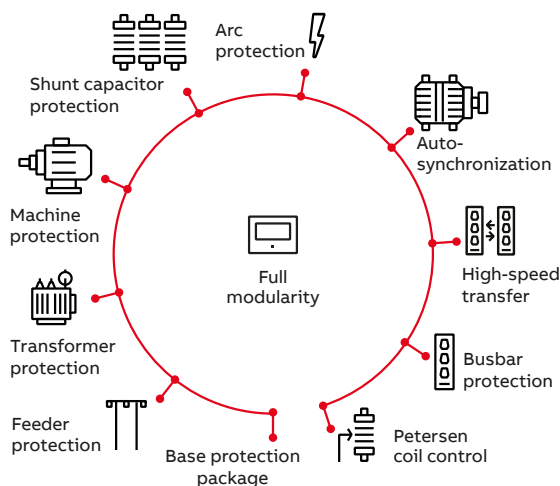
REX640 has been designed to support the increasing digitalization of substations. REX640 thereby supports a variety of digital switchgear solutions and is suitable for both single and double-busbar applications. REX640 offers as many as 20 current and voltage measurement channels in total, supporting both conventional instrument transformers and sensors, not to mention the ability to receive four streams of sampled measured values (SMV) via IEC 61850-9-2 LE-based process bus communication.

REX640 is a member of ABB's Relion® protection and control family of relays, reinforcing Relion's position as the family of relays to rely on.

### Application package concept for maximum convenience and flexibility

REX640 offers a variety of ready-made application packages to choose from. The application packages include various protection and control functions, which can be flexibly combined to create protection solutions that meet your unique protection requirements. The available packages support the following applications:

- Feeder protection
  - Line differential protection
  - Line distance protection
  - Interconnection protection
  - Fault locator
- Power transformer protection
  - Two and three-winding differential protection
  - On-load tap-changer control
- Machine protection
  - Asynchronous machines
  - Synchronous machines
  - Diesel generator sets running in parallel
- Shunt capacitor protection
- Busbar protection
- Automatic high-speed transfer
- Automatic synchronization
  - Generator circuit breaker
  - Non-generator circuit breaker
- Petersen coil control
- Arc protection with supervised sensors
  - Loop and lens-type sensors



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01 Supported applications

02 Phasor diagram of a three winding power transformer on the LHMI

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### Fully modular hardware and software for maximum flexibility for the entire relay lifetime

The modularity and scalability of both software and hardware allow you to create your own, unique relay for your specific protection requirements. The ready-made application packages make ordering your relay smooth and easy.

When requirements change, so will REX640. Adapting to changing protection requirements is flexible and easy – the software and hardware can be modified anytime. In addition, new software and hardware developments will be continuously and easily accessible – throughout the relay's entire life cycle.

### Intuitive human-machine interface for increased situational awareness

REX640 offers three human-machine interface (HMI) options, a Web HMI (WHMI), an intuitive panel/bay-level local HMI (LHMI) and a cost-efficient switchgear HMI (SHMI), of which the WHMI is always included. The ability to cover up to 20 REX640 relays with one SHMI provides optimal switchgear visibility. In addition, complete LHMI functionality on panel/bay level is available by selecting one panel/bay at a time.

The LHMI can be connected either to the relay or station communication network, whereas the SHMI is always connected to the station communication network. This allows installation away from the switchgear, which increases operator safety.

### Secure and flexible standardized communication

REX640 supports a variety of communication protocols for access to operational information and controls, such as IEC 61850 Edition 1 and Edition 2.1,

IEC 60870-5-103, IEC 60870-5-104, Modbus®, DNP3, and Profibus DVP1 with the protocol adapter SPA-ZC 302. Full support for the IEC 61850 standard covers the parallel redundancy protocol (PRP) and high-availability seamless redundancy (HSR) protocol, fast GOOSE (Generic Object-Oriented Substation Event) messaging, and the IEC 61850-9-2 LE process bus for less wiring and supervised communication, to mention a few. For optimal cyber security, REX640 supports secure communication for the IEC 60870-5-104 and DNP3 protocols according to the IEC 62351 standard.

To facilitate the mapping of the relay's IEC 61850 data model to that of the customer, REX640 supports flexible product naming (FPN). FPN allows customers to use a standardized data model in their SCADA (Supervisory Control And Data Acquisition) system, irrespective of the relay vendor and the vendor-specific data model.

### REX640 – innovative, flexible and easy to use

- Complete application coverage with one device for optimal flexibility and cost-effectiveness
- Ready-made application packages for convenient and smooth ordering
- Customization freedom with modular and scalable design
- Fully modular hardware and software for maximum flexibility and easy adaption to changing protection requirements
- Continuous access to the latest software and hardware developments
- Increased situational awareness and optimal usability with application-driven LHMI/SHMI
- Relay costs reduced by up to 15% with SHMI instead of LHMI
- Designed to support the increasing digitalization of substations