The IED shall comprise hardware, time synchronization, monitoring, communication capabilities and other specifications as described in the 1MRG033852_en_Sample_specification_General_specifications_Relion_650 document. For the common protection, control, monitoring functionalities please refer to 1MRG033851_en_Sample_specification_Common_functions_Relion_650 document.

For a complete overview of the functions available in this device, please refer to the Product Guide. For more details about the design of the functions and their applications, please refer to the Technical Manual and the Application Manual respectively.

The functions listed below are most typically specified in REC650, but they are available for selection in other types as well, as per the comments under each description.

**General specification and interlocking**

The IED shall ensure cost efficient solutions by being able to solve the most complicated applications with a minimum number of devices in an open, futureproof and flexible system architecture, with state-of-the-art performance by implementing the core values of IEC 61850.

The IED shall include control and interlocking for switching devices. The IED shall be capable of providing the following control functionality:

- select before operate with enhanced security (SBO)
- reservation to prevent simultaneous operations of an apparatus
- selection and supervision of operator place (local, remote) and command supervision
- block of operation and update of position indications
- substitution of position indications
- overriding of synchrocheck and interlocking functions
- pole discordance supervision
- operation counter and breaker monitoring functions

The IED shall include several type-tested interlocking modules, for different switchyard configurations.

**Synchronizing**

The IED shall include a synchrocheck function, which can accommodate four voltage measurements (two line voltages and two bus voltages). The function shall be able to perform automatic voltage selection, based on the status of the apparatus. The synchrocheck function shall incorporate slip frequency, close angle settings, and allow different sources of synchronizing voltages (phase to ground, phase to phase and positive sequence
voltages). The synchrocheck function shall have separate settings for synchronizing between synchronous/synchronous and synchronous/asynchronous networks, and also for the energizing check. It shall support integrated configurations for applications in one-and-a-half and double-breaker arrangements.

In 650 series, this function is available in the following product types: REC650, REQ650, REL650, and RED650.