The IED shall comprise hardware, time synchronization, monitoring, communication capabilities and other specifications as described in the 1MRG033843_en_Sample_specification_General_specifications_Relion_670 document. For the common protection, control, monitoring functionalities please refer to 1MRG033842_en_Sample_specification_Common_functions_Relion_670 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 REC670, 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.

Control and interlocking functionality is available in the following product types, as follows:

- REC670 - control functionality for up to 6 bays, max 30 objects (6CBs), including interlocking
- REB670 - control functionality for up to 6 bays, max 30 objects (6CBs), including interlocking
- RET670 - control functionality for up to 6 bays, max 30 objects (6CBs), including interlocking
- REG670 - control functionality for up to 6 bays, max 30 objects (6CBs), including interlocking
- REL670 - control functionality for a single bay, max 15 objects (2CBs), including interlocking
- RED670 - control functionality for a single bay, max 15 objects (2CBs), including interlocking

Autorecloser
The IED shall include reclosing with five separately set time intervals for reclosing. The first attempt can be single-phase, two-phase and/or three-phase. Separately set reset times for the reclose cycle and for lockout shall be available.

In multi-breaker applications, the autorecloser shall have a priority circuit, which allows a breaker to close first and a second breaker to close only if a fault proves to be transient.
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 670 series, this function is available in the following product types: REB670, REC670, RED670 and REL670.