

Feeder Protection REF610

Relion® 610 series

REF610 is a feeder IED for protection, measuring and supervision of utility and industrial distribution power systems. REF610 is a member of ABB's Relion® protection and control product family and part of its 610 product series. The 610 series includes IEDs for feeder protection, motor protection and general system voltage supervision. The plug-in design of the 610 series IEDs facilitates the commissioning of the switchgear and enables fast and safe insertion and withdrawal of IED plug-in units.

Application

REF610 is primarily intended for the protection of incoming and outgoing feeders in distribution substations of resistance earthed and solidly earthed power systems. REF610 is suitable for employment in marine and off-shore environments. Supplied with an optional arc protection function REF610 also provides fast substation busbar arc-fault protection. REF610s are also used for back-up protection of motors, transformers and generators to increase protection redundancy in critical utility and industrial applications.

Protection

REF610 offers overcurrent and thermal overload protection for cable feeders, non-directional earth-fault protection and phase discontinuity protection, and three-phase, multi-shot auto-reclose functions for overhead line feeders. Enhanced with an optional plug-in card the IED also offers two light detection channels allowing arc fault protection of switchgear busbar systems and cable terminals.

Standardized communication

REF610 supports a wide range of standard communication protocols, including IEC 61850, IEC 60870-5-103, Modbus®, Profibus, DNP3, SPA and LON.

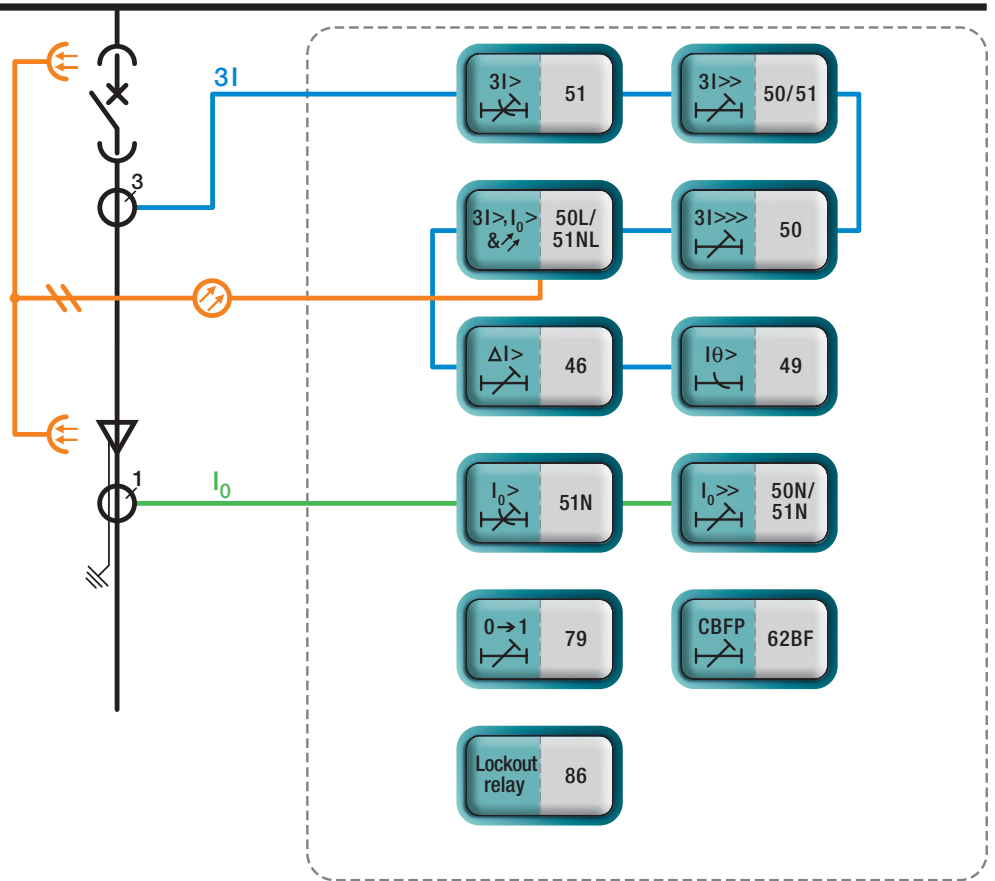


Disturbance recorder

The 610 series IEDs feature an integrated disturbance recorder for logging events and registering transient variables before, during and after a network disturbance situation. The disturbance recorder includes four analog channels and eight binary channels, which can be assigned by the user to the analog and digital signals requiring monitoring to enable subsequent post-fault analyses of power system events.

Supervision

To ensure continuous availability of protection the 610 series IEDs feature extensive self-supervision of the function of the digital circuitry and the software. The IED also includes an integrated trip-circuit supervision function monitoring the external trip signal path. When a permanent IED fault is detected, the IED's protection stages and outputs will be blocked to prevent malfunction. Further, a LED indicator will light up and an alert message for remote fault indication will be generated.



Protection function overview of REF610.

Unique plug-in design

The patented IED case and the plug-in type IED unit speed up installation, testing and maintenance of the device. A convenient pull-out handle with built-in release enables quick removal of the plug-in unit and insertion of a replacement unit. The IED case is fitted with an automatic short-circuiting mechanism to prevent hazardous voltages from arising in the CT secondary circuits should an IED unit be withdrawn from the case in live switchgear.

When an IED plug-in unit is inserted into the IED case for the first time, a mechanical coding system permanently adapts the case to the type of IED plug-in unit inserted.

Universal case

The normal delivery mode for 610 series protection IEDs is a complete package including a case, a plug-in unit and a possible optional communication card. When a fair amount of IEDs are to be factory installed, e.g. by a panel builder or on-site installed in a retrofit project, it may be more convenient to obtain empty IED cases to be installed and

tested together with the switchgear. The dispatch of the plug-in units can then be postponed until the switchgear has been erected on site and the IEDs are needed. For this purpose, the 610 series IEDs are provided with a universal case not assigned to any particular type of IED plug-in unit when delivered from the factory.

For more information see REF610 Product Guide.

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