

Communication requirements for REL 551/561 in digital telecommunication networks

Bit Error Rate (BER) according to ITU-T G.821, G.826 and G.828

< 10^{-6} according to the standard for data and voice transfer

Bit Error Rate (BER) for high availability of the differential protection

< 10^{-8} - 10^{-9} during normal operation

< 10^{-4} - 10^{-5} during disturbed operation

During disturbed conditions, the trip window function in REL551/561 can cope with high bit error rates up to 10^{-5} or even up to 10^{-4} . The trip window is open as long as a receive error is < 100ms

Synchronization according to ITU-T G.803, G.810-13

One master clock for the whole communication network

Maximum clock deviation < ± 100 ppm

Jitter and Wander according to ITU-T G.823 and G.825

Buffer memory < $\mu 100$ s

Maximum channel delay

Loop time < 30 ms continuous (2x 15 ms)

Both channels must have the same route with maximum asymmetry of 0,2-0,5 ms, depending on set sensitivity

A fixed asymmetry can be compensated (Setting of asymmetric delay in built in HMI or the parameter setting tool PST.)

Interruptions/route switching etc

Protection requirement < 20- 50 ms

Communication requirement for maintained synchronization of the protection terminals < 2 seconds

Selectivity planning

A missed protection message due to for example a bit error, prolongs the tripping time 5 ms. Thus, maximum interruption time/bit error rate should be part of the selectivity planning.

For more information please contact: