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 < μ100 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:

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