

Elimination of multiple estimation for fault location in radial power systems by using fundamental Single-End measurements

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Abstract-

This paper presents a conceptual approach for eliminating the multiple estimation problem of impedance-based fault location methods applied to power distribution systems, using the available measurements of current and voltage fundamentals at the power substation. Three test systems are used to identify the faulted lateral obtaining high performance, even in the case of similar feeder configurations. This approach shows that it is possible to obtain a unique fault location, eliminating the problem of multiple estimation in tree-shaped radial systems using the single-end measurements at the distribution substation. Finally, this approach also contributes to improve the power continuity indexes in distribution systems by the opportune zone fault location.

Index Terms- Fault location, multiple estimation, radial power systems, service continuity indexes

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