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Nota di contenuto	Protection of Electrical Networks; Table of Contents; Chapter 1. Network Structures; 1.1. General structure of the private distribution network; 1.2. The supply source; 1.3. HV consumer substations; 1.4. MV power supply; 1.4.1. Different MV service connections; 1.4.2. MV consumer substations; 1.5. MV networks inside the site; 1.5.1. MV switchboard power supply modes; 1.5.2. MV network structures; 1.6. LV networks inside the site; 1.6.1. LV switchboard supply modes; 1.6.2. LV switchboards backed up by generators; 1.6.3. LV switchboards backed up by an uninterruptible power supply (UPS) 1.7. Industrial networks with internal generation 1.8. Examples of standard networks; Chapter 2. Earthing Systems; 2.1. Earthing systems at low voltage; 2.1.1. Different earthing systems - definition and arrangements; 2.1.2. Comparison of different earthing systems in low voltage; 2.1.2.1. Unearthed or impedance-earthed neutral (IT system); 2.1.2.2. Directly earthed neutral (TT system); 2.1.2.3. Connecting the exposed conductive parts to the neutral (TNC - TNS systems); 2.2. Medium voltage earthing systems; 2.2.1. Different earthing systems -

definition and arrangements

2.2.2. Comparison of different medium voltage earthing systems

2.2.1. Direct earthing; 2.2.2.2. Unearthed; 2.2.2.3. Limiting resistance

earthing; 2.2.2.4. Limiting reactance earthing; 2.2.2.5. Peterson coil

earthing; 2.3. Creating neutral earthing; 2.3.1. MV installation

resistance earthing; 2.3.2. Reactance or Petersen coil earthing of an MV

installation; 2.3.3. Direct earthing of an MV or LV installation; 2.4.

Specific installation characteristics in LV unearthed systems; 2.4.1.

Installing a permanent insulation monitor; 2.4.2. Installing an

overvoltage limiter

2.4.3. Location of earth faults by a low frequency generator (2-10 Hz)

2.5. Specific installation characteristics of an MV unearthed system;

2.5.1. Insulation monitoring; 2.5.2. Location of the first insulation fault;

Chapter 3. Main Faults Occurring in Networks and Machines; 3.1.

Short-circuits; 3.1.1. Short-circuit characteristics; 3.1.2. Different types

of short-circuits; 3.1.3. Causes of short-circuits; 3.2. Other types of

faults; Chapter 4. Short-circuits; 4.1. Establishment of short-circuit

currents and wave form

4.1.1. Establishment of the short-circuit at the utility's supply

terminals; 4.1.2. Establishment of the short-circuit current at the

terminals of a generator; 4.2. Short-circuit current calculating method;

4.2.1. Symmetrical three-phase short-circuit; 4.2.1.1. Equivalent

impedance of an element across a transformer; 4.2.1.2. Impedance of

parallel links; 4.2.1.3. Expression of impedances as a percentage and

short-circuit voltage as a percentage; 4.2.1.4. Impedance values of

different network elements; 4.2.1.5. Contribution of motors to the

short-circuit current value

4.2.1.6. Example of a symmetrical three-phase short-circuit calculation

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## Sommario/riassunto

This book, designed for engineers, technicians, designers and operators working with electrical networks, contains theoretical and practical information on the design and set-up of protection systems. Protection of Electrical Networks first discusses network structures and grounding systems together with problems that can occur in networks. It goes on to cover current and voltage transformers, protection functions, circuit breakers and fuses. Practical explanations of how protection systems function are given, and these, together with tables of settings, make this book suitable for any r

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