1 MATHEMATICAL BASICS

1.1 BASIC ELEMENTS AND CURRENT-/ VOLTAGE RELATIONS
1.2 CALCULATION DOMAINS
1.3 TIME DOMAIN
1.4 FREQUENCY DOMAIN

2 CURRENT TRANSFORMER

2.1 PARAMETERS
2.2 MEASURING CORE
2.3 PROTECTION CORE
2.4 CONNECTION
2.5 THEORETICAL CONSIDERATIONS TO THE TRANSMISSION BEHAVIOUR
2.6 TESTING

3 STARPOINT GROUNDING

3.1 THE INFLUENCE OF STARPOINT GROUNDING
3.2 CLASSIFICATION OF STARPOINT GROUNDING
3.3 APPLICATION, ADVANTAGES AND DISADVANTAGES OF EACH SYSTEM
3.4 ISOLATED NETWORK
3.5 COMPENSATED NETWORK
3.6 SOLIDLY EARTHED NETWORK
3.7 EARTHING VIA RESISTOR OR REACTOR

4 EARTH FAULT PROTECTION

4.1 APLLICATION AND OPERATIONAL ASPECTS
4.2 UNDIRECTIONAL PROTECTION
4.3 WATTMETRIC METHOD
4.4 ISOLATED NETWORK
4.5 COMPENSATED NETWORK
4.6 INCREASED ACTIVE CURRENT METHOD
4.7 TRANSIENT METHOD
4.8 CT INFLUENCE
4.9 HARMONICS
4.10 FAULT LOCATOR USING PULS-MODULATION
4.11 ADMITTANCE METHOD

5 OVERCURRENT PROTECTION

5.1 MAIN PROTECTION
5.2 BACK UP PROTECTION
5.3 FAULT DETECTION
5.4 TIME GRADING
5.5 TRIP TIME CHARACTERISTICS
5.6 DIRECTIONAL PROTECTION

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6 DISTANCE PROTECTION

6.1 APPLICATION
6.2 TIME GRADING
6.3 IMPEDANCE GRADING AT LINES AND TRANSFORMERS
6.4 FUNCTIONAL PRINCIPLE
6.5 FAULT DETECTION
6.6 OVERCURRENT-, V/I- UND Z< STARTERS
6.7 IMPEDANCE CALCULATION
6.8 TYPES OF FAULTS AND LOOP SELECTION
6.9 CHARACTERISTICS
6.10 SETTING

7 TRANSFORMER PROTECTION

7.1 BUCHHOLZ PROTECTION
7.2 FUSES
7.3 OVERCURRENT PROTECTION
7.4 DISTANCE PROTECTION
7.5 EARTH FAULT PROTECTION
7.6 TRANSFORMER DIFFERENTIAL PROTECTION
7.7 VECTOR DIAGRAM / TRANSMISSION BEHAVIOUR
7.8 CONVENTIONAL DIFFERENTIAL PROTECTION
7.9 DIGITAL TRANSFORMER DIFFERENTIAL PROTECTION
7.10 MAGNITUDE- AND ANGLE CORRECTION AS WELL AS ZERO SEQUENCE ELIMINATION
7.11 CALCULATION OF THE DIFFERENTIAL- AND RESTRAINT CURRENT
7.12 STABILISING AGAINST INRUSH
7.13 STABILITY TEST
7.14 CRITICAL OPERATION
7.15 OVERLOAD PROTECTION

8 DRAWINGS / ENGINEERING

8.1 LAYOUT
8.2 ASSEMBLY LIST
8.3 LOOPING
8.4 FEEDER OVERVIEW
8.5 WIRING DIAGRAM
8.6 ITEM PLAN
8.7 TERMINAL DIAGRAM
8.8 DC SUPPLY

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