

CABLE TESTING SERVICES



Determine
Replace or Repair



Evaluate
Know the condition
of underground
cables



Prioritize
Decide which
cables to replace
first

Outage Prevention
Repair potential
problems

Test the cable. Know the condition.



HDW Electronics, Inc. has created a cable testing program which uses a field proven methodology to meet the technical and operational expectations of the utility industry. The proven test methods include Isothermal Relaxation Current Method (IRC), Return Voltage Method (RV), Partial Discharge (PD), and Very Low Frequency (VLF). These methods can be used on both distribution and transmission cables of varying insulation types including XLPE, EPR, and PILC. Since HDW Electronics, Inc. is not "married" to one particular cable testing method, the customer is assured that the test method or combination of test methods will address all cable testing needs.

Testing Methods

Return Voltage

The RVM diagnosis is based on the principle of return voltage measurement. After a defined charging cycle and a subsequent short discharge of the capacitance, the voltage curve measured provides characteristic information on the ageing status and moisture content of the paper insulation in PILC cables.

Isothermal Relaxation Current

The IRC method is a dielectric polarization method, which assesses the global condition of the XLPE cable insulation by evaluating the isothermal relaxation current components with regard to their time constants. In essence this method determines the extent of the damage in the insulation, which is caused by water trees. The well-established correlation between water tree damage and residual breakdown strength is used to characterize the condition of the insulation in order to provide an easy to relate to parameter to the user.

Partial Discharge and Dielectric Loss

Partial Discharge (PD) Testing using the Damped AC Test Method (DAC) at power frequency. This method is an excellent tool to identify, locate and map problems in splices, terminations and cables, which are due to electrical discharges. In addition to the PD results the test will also measure the dielectric losses in the cable system (power factor or dissipation factor).

VLF (Very Low Frequency) and Leakage Current

The VLF test is the commonly accepted AC version of a hipot test that can be safely applied to XLPE cables, and is also applicable to EPR and PILC cables. The VLF test applies a low frequency (0.1Hz), AC voltage (typically 1.5 to 3 times line to ground voltage) to the XLPE cable in order to accelerate weak points in the insulation to failure. The advantage of the 0.1Hz test is, regardless of the cable type, that the test level voltages are significantly below previously used DC levels.

Benefits of Cable Testing:

- Reduction of in service cable failures
- Prioritization of cables in a cable replacement program
- Answers with the "repair or replace" question
- Development of a documented history of cable condition
- Cost reduction due to reduced in service cable failures

Value Added Aspects:

- Personnel, equipment, and written report are provided as one turn-key package
- Classroom training on the various testing methods
- Discounts are applied to the purchase of new equipment used in cable testing
- HDW can provide fault locating services as part of the cable testing service
- Customer is introduced to several different types of cable testing methods. The customer can then decide if one method is advantageous

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Your Local Representative is: