

Cable Control

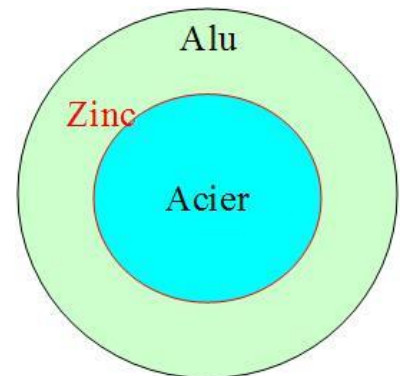
Known Durability, weakness detected

The device OHLCD Shannon allows the control of bimetallic cable of all sections, whether they are line conductors or ground wire.

Problem and consequences

Problem: the strands of the steel core of bimetallic cables are protected by a layer of zinc 40 to 80 μ thickness. Under the effect of an electrolytic phenomenon, this protection is gradually dissolved, bare steel corrodes and leads to the disappearance of aluminum (electrochemical battery).

Consequence: in the presence of corrosion, the aluminum is oxidized, the conductive section decreases, conductor temperature increases locally (the current passes through the steel, local increase in the current density), until fusion and rupture, that is the incident.



Principle

The apparatus consists of Foucault current sensor, consists of 2 articulated half-cylinders encircling the cable to monitor and which have two coils, one inductive and the other measuring, the induced current being the one that will allow us to calibrate the method.

An electronic system allows the supply of the inductor coil and the measurement of the voltage induced in the measurement oil. The device is self-propelled, and measurements transmitted by radio, which allows you to quickly monitor the state of a conductor over a full range under voltage up to 550kV.



Sampling

We must proceed in stages to make the choice of the measurement points. It is necessary consider the age of cable, identify the risk factors which can act on their condition such as pollution, saline atmosphere, the load in the line, the manufacturer, accessories such as sleeves and suspension clamps. Finally, take into consideration, in the case of security, sensitive areas with respect to third parties: road crossings, SNCF, near schools or public places.



A sampling on the basis of the factors which have just been stated makes it possible to select the lengths of conductors which have most suffered and those most at risk in the event of damage.