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XDP

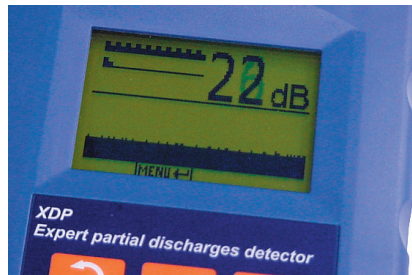
PARTIAL DISCHARGE DETECTION SYSTEM

The XDP is an online Partial Discharge Detection System for underground cable accessories and equipment for security/maintenance purposes. It records partial discharge measurements for computer analysis using the optional XDP software for a PC.

Applications

- Quality control of the insulators during installation or underground network repair
- Follow-up of the ageing process of the critical components' insulation
- Safety control prior to work conducted under charge

The XDP checks if a designated site to carry out underground workloads under high voltage is safe or not. The user sweeps the capacitive sensor over the joints of the cables he wants to inspect and if any problems are detected, the XDP then informs him of the shape of the partial discharge signals along with the peak value. What's more, the instrument allows, in "analysis" mode, to proceed with a comparative signal inspection with the help of its own database, which encompasses ten reference signatures in order to establish a correspondence with the four nearest signatures to the one obtained on the joint.



The XDP display while in use: it indicates the intensity level of the signal and its wave form.

It is also possible to record the discharge measurement graphically and in audio form along with the date and the hour of the reading. The user may also listen to his recording on the premises. The recorded measurements remain stored in memory even when the XDP is shut off. This allows the transfer of these recordings to a computer upon return from the worksite. The ten reference signatures can be listened to anytime and can be replaced to enhance the internal database of the instrument.

Advantages of the XDP

- Verification of the joints under normal charge of the electric network
- Use of the surface sensor which does not require direct access to the cable's voltage
- Progressive analysis of the database
- Keeps the readings in memory, with the date and the hour
- Transfers the collected data stored in a computer to ensure the follow-up of the measurements
- Communicates the results to an expert via a computer connected to the Internet
- Water-proof and rugged for work site applications

Operation

The partial discharges are tiny electric arcs which occur whenever a flaw appears inside the insulating equipment. These partial discharges prompt an abrupt variation of the magnetic field surrounding the cable where they occur, a variation that one can come and read in a secure way with the insulated sensor capacitor used by the XDP. The capacitive sensor is smooth and can be hand-fitted to all the diameters of cables and joints. An insulated rod allows the user to proceed with the sensor's sweeping at a safe distance from the cable.



The XDP display in "analysis" mode



Technical Specifications

Peak measurement value in dB relative to 15 picoCoulomb
 Peak detection with a fast numeric circuit (CPLD)
 Fast numeric processor (DSP) for instant analysis of results
 Inspection of the wave's shape in high frequency to determine its proximity
 Bandwidth reception, without any distortion or alleviation from the discharge impulses
 Automatic interruption of the instrument after 2 min. in idle mode
 Automatic interruption of backlighting after 30 sec.
 LCD (Liquid Crystal Display) displays results in easy-to-read, big letter casings.
 PC(Windows)-interface for analysis and follow-up of results and also for programming of signatures
 Follow-up of measurements on the Access database



Sensibility	15pC
Dynamic Range	40 dB, of which 34 dB in automatic gain and + 6 dB software
Number of reference signatures	10 signatures
Number of sampling per signature	1k
Bandwidth	300 kHz to 70 MHz
Sampling Frequency	30 MHz
Sampling Period	16 cycles of 50 or 60 Hz
Number of maximum recordings	64 recordings
Date	Real-time internal clock (Year, month, day, H, Min., Sec.)
Network Synchronisation	By electrical field on the sensor
Calibration	Automatic via an injection of signals
Adjustments	EEPROM memory in the micro-controller
Operating Temperatures	-4°F to +122°F (-20°C to + 50°C)
Storage Temperatures	-40°F to 122°F (-20°C to + 50°C)
Humidity	0 to 95% non condensed
Autonomy	Submersible, rainproof 8 hours
Batteries	Six (6) 1,2V 2,1Ah rechargeable "A" NiMh batteries
Charger	12V 1A adapter with a sealed connector, available for 110V or 220V
Recharge Time	3h max.
Display	128 X 64 point LCD, wide temperature use 60 X 41 mm (2,36 X 1,62 in.) 2 back-light intensities (100%, 50%)
Dimensions	203,3 X 114,3 X 50,8 mm (8 X 4,5 X 2 po.)
Weight	0,86 kg (1,9 lbs)



Included Accessories

The XDP partial discharge detector comes with a capacitive sensor, a standard 26-in. handling rod, a reference for the calibration of the instrument and a battery charger.

Optional Equipment

13-inch (33 cm) handling rod
 Nylon padded protection case
 Transportation case