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Partial discharges (PD) occur between layers of isolation that have different characteristics. They can gradually lead to the deterioration of the insulating materialâ€™s dielectric properties.

This types of devices detects quick variations of electrical fields caused by partial discharges. It can also be used to locate partial discharges on isolated equipment. In maintenance programs, it allows the monitoring of decaying equipment, hence providing a safer environment for workers.

The partial discharge signal is detected by a capacitive coupling, and then amplified by the device in a radio frequency bandwidth. The signal amplitude is proportional to the discharge energy. The device can display this level of discharge in dB or in picocoulombs (pC) if pC mode is selected in the calibrated set-up. Partial Discharge Detector can be used to detect partial discharges in the following applications:

â€¢ XLPE cable, joint elbows

â€¢ Transformers

â€¢ Insulators

â€¢ Surge Arresters

â€¢ Switchgears.

CALIBRATION CHECK (WHEN USING CAPACITIVE SENSOR)

When the device is turned on, it emits a signal at the reference moduleâ€™s output. It is recommended to compare it with the reference value on a regular basis. You need to perform the following steps to verify it upon arrival and whenever deemed necessary:

1. Connect the reference module.

2. Then connect the spatula sensor.

3. Place the sensor on the module in a way to make it cling around it as much as possible

4. Turn the device on by pressing the I/O key.

5. Verify that the value displayed by the device is identical to the value given on the sensorâ€™s case.

6. Disconnect the reference module after testing.

MODE:

Four different modes can be selected from this menu. More instructions on these four modes are provided further in this chapter:

â€¢ PEAK-ANGLE: The peak-angle mode will display partial discharges by synchronizing with the line frequency. It will display peak amplitude averages for every three degrees of a cycle. This provides

information on the phase angle at which the partial discharge appears. This technique reduces the random noise signal that is unsynchronized with the frequency network.

â€¢ CALIBRATION PICO: Section CALIBRATION CHECK

â€¢ ANALYSIS: In this mode, the signal acquired by the device is compared with its own signature database. Then it displays, in percentage, the four nearest signatures found. It also displays the correspondence with all ten signatures on a bar graph as well as the intensity of the signal, in dB. The signature that best corresponds to the signal acquired by the device is SIGNATURE 2. The signatures are selected in the device software.

â€¢ EDGE: Using a high frequency sampling, this mode displays the accurate graphic of the partial discharge signal edge. One sample is taken every 30 ns and is displayed on the graphic. The shape of the pulse gives you information on the distance between the sensor and the fault. The fault is very close to the sensor as the pulse is not ringing.

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The company which manufactures electrical equipment for measurement and maintenance of electrical substations offers customers reliable equipment. We have a wide range of products like a winding ohmmeter, power analyzers, a battery discharger, transformer test equipment or test equipment for relays. For further information about circuit breaker tester, please visit us online.

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