MFM 5-1

Sheath Test System

An intact sheath of a plastic insulated medium voltage cable is the prerequisite for the avoidance of water ingress and subsequent cable faults. The MFM 5-1 is a universal test instrument for sheath testing including pre- and pinpoint location of a sheath fault. In the sheath testing mode, current measurements with 1 and 10 mA full deflection can be carried out, permitting a detection of even minute insulation damage of the cable sheath. In order to limit the thermal load on the cable at the point of fault to a minimum and to avoid damage to the core insulation, the following features have been provided:

- Pre-location of the fault (reduces the measuring time)
- Pulsed current (reduces the power output at the fault)
- Current limitation (also for output limitation).

The instrument is very easy to use being menu-driven. For the pre-location which is fully automatic, one has only to enter the cable length. The instrument will carry out a self-calibration, conduct a double measurement and display the result directly in metres (figure 1).

Prelocation	**0,5 kV**
Lx	**= 495 m**

Figure 1: Display of the result of a pre-location measurement

Technical data of the MFM 5-1:

Test voltage:	0.5–1–2–5 kV DC
Test current:	1 mA, 10 mA
Location current:	0.15–0.3–0.6–1.5 A DC
Clock ratio:	1:3–0.5:3–0.5:6 s
Meters:	kV-meter 0–6 kV / mA-meter
LCD display:	2 x 16 digits, backlit
Length input:	1–9999 m
Test time:	1–99 min
Power supply:	230 V AC ±10 %, 45...60 Hz
Power input:	600 VA
Weight:	30.6 kg (including cables)
Dimensions (L x W x H):	520 x 385 x 255 mm

Accessories: Earth fault locator ESG 80-2

For pinpoint location of sheath faults. This instrument is a highly sensitive galvanometer and is provided with an amplifier. Interfering DC voltages can be suppressed with a compensation circuit.

Technical data of the ESG 80-2:

Ammeter:	50–0–50 µA
Sensitivity:	0.14 V (without amplification)
	0.50 mV (with amplification)
Ranges:	2 x 6 switching stages
Compensation:	± 100 %
Power supply:	6 x 1.5 V Mignon
Dimensions (L x W x H):	210 x 90 x 120 mm
Weight:	1 kg
Special accessories:	2 earth spikes

The pinpoint location method

Pinpoint location of a sheath fault is based on the step voltage method. The test current flowing into the ground at the point of fault results in a peak at the fault. This peak is located with the earth spikes and an earth fault locator. In front of the fault position, the step voltage increases as one approaches the fault and decreases after the fault with a change in polarity.

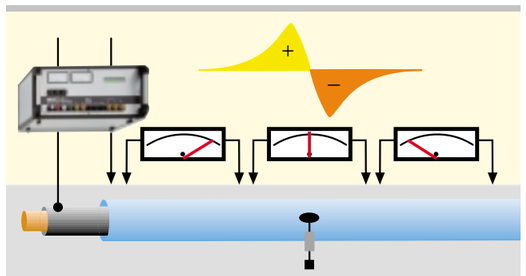

Figure 2 : Pinpoint location of a sheath fault

DIN ISO 9001

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MFM 5-1_GB_02/01_RH_Ru

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Sheath testing
Pre-location and pinpoint location of sheath faults

A truly automatic test system!

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