INTRODUCTION

The modern electrical distribution systems are employing more & more underground power & control cables. These cables may develop faults now & then due to imperfections in the cable insulations, mechanical damages, water seepage & overloading etc. such of the faults which are usually difficult to pinpoint may be localized with our Digital Cable Fault Localizer.

It can pinpoint faults broadly categorised as:

1. Open circuit faults,
2. Short circuit faults.
3. Medium/high resistance faults.

PRINCIPAL OF OPERATION

Two techniques namely (1) Potential comparison technique & (2) Capacitance comparison technique are incorporated in this instrument.

POTENTIAL COMPARISON TECHNIQUE

Is used to locate all types of resistance and short circuit faults. The principal of operation is to measure the potential drop across the faulty section of the conductor through the fault resistance.

CAPACITANCE COMPARISON TECHNIQUE

This method can be used to locate open circuit fault only. This method is based on the principle that the cable behaves as a capacitor, the capacitance is uniformly distributed throughout the length of the cable and the capacitance per unit length is constant. The instrument measures capacitance indirectly by measuring the charge/discharge current through a fixed load. This is done by impressing a square wave upon the cable & using a current detector, to measure the current. In principle, if a capacitance meter is used to measure capacitance between a, faulty core & a healthy core from **P end** and **Q end**, then the fault length from **P end** can be calculated as

$$\frac{Lp}{D} = \frac{Cp}{(Cp - Cq)} \; X \; 100$$

Where **D** is the total length of the cable and **Cp** and **Cq** are the capacitance values measured from **P end** & **Q end**. If a healthy pair of cores is available, then by measuring the capacitance from **p end** between a healthy core and the faulty core first and then by measuring capacitance between two healthy cores, the fault distance from **P end** can be calculated by

$$\frac{Lp}{D} \quad \frac{Cp}{Cd} \quad \&$$

$$Cd = Cp + Cq$$

Where **Cd** is the capacitance between healthy cores.

SPECIFICATIONS

Types of faults that can be located:		
1. Medium/ high resistance faults.	Max & min fault resistances :	0 Ohms to 10 meg Ohms as measured with a avo meter.
2. Open circuit faults.	Max cable length :	5 km for all cases.
3. Short circuit faults.	Accuracy :	± 5% or better.
	Type of cables :	all type of underground Power, Control & Telecom cables.
	Power source :	1.2 Volts AAA battery.

*Technical Specifications & Appearance are subject to change without prior notice

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