

Portable Cable Fault Location Unit Model CFL-2020M

The Portable Unit CFL-2020M is designed to locate faults in power energy cables.

The Portable Unit CFL-2020M

performs the following functions:

- transmits high voltage impulses down to a cable in order to determine the location of a failure in power cables rated up to 35 kV.
- Pre-locates high voltage cable faults in underground transmission and distribution cable systems:
 - a) by measuring the distance to a failure using the pulse echo method.
 - b) by measuring the distance to a failure using the Arc Reflection method



The Portable Unit CFL-2020M

Utilizes a surge generator module that transmits high voltage impulses down to cables. This surge generator allows locating and isolating faults of high-voltage power electric cables rated up to 35 kV.

Inclusion the generator on a cable allows to realize pulse and Arc-Reflection methods by search of isolation damaged place of high-voltage power electric cables and also using energy of the discharge of installation in a cable applying an acoustic method to exact detection of isolation damaged place.



Advantages of Portable Unit CFL-2020M:

- ▶ **Universality.** The system combines a surge generator and a digital high voltage Time Domain Reflectometer (TDR).
- ▶ **Efficiency.** When connected to a cable all complex planned operations are carried out in one step.
- ▶ **Industrial culture.** Attached “pockets” provide storage space for all related connecting cables and associated tools.
- ▶ **Mobility.** Convenient portability allows a single operator to easily transport it within the territory of an enterprise or a power station.
- ▶ **Cost efficient.** The CFL-2020M combines three systems in one: determine the location of a failure in power cables by acoustic, pulse echo and Arc Reflection method, giving you an affordable solution that is also time efficient allowing to save time on preparation and the process as a whole.
- ▶ **Investment return and profit:** The basic expense remains at minimum but effectiveness and results produced are at a high level.



Structure of the main modules

1. Module of the impulse generation

Parameters of the Surge Generator:

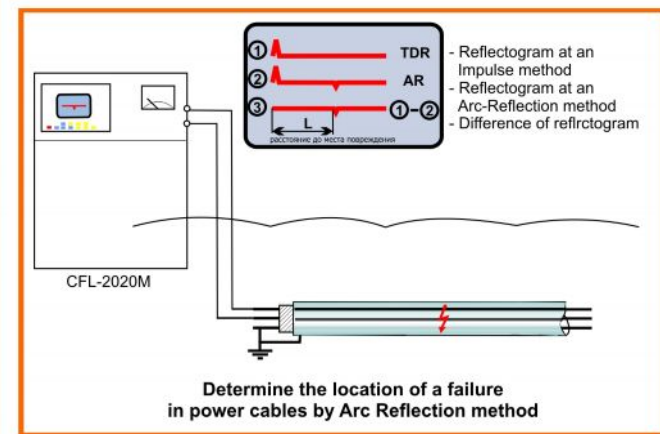
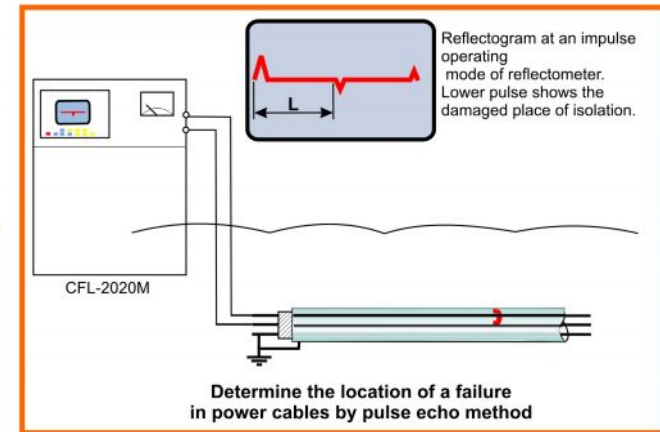
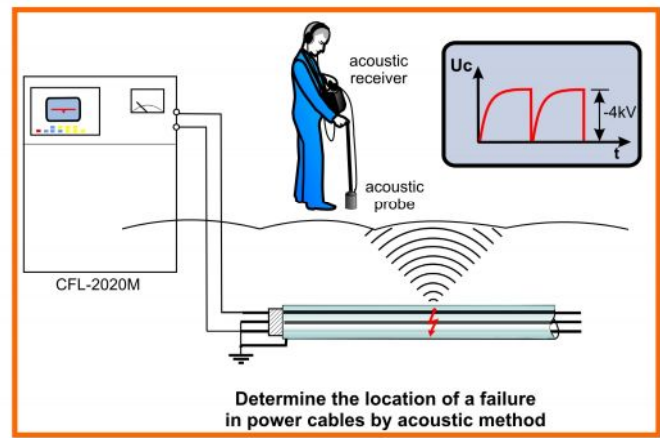
TECHNICAL CHARACTERISTICS:

| | |
|--|----------|
| Power Supply Voltage, 50 Hz | 220±22 V |
| Range of adjusting output voltage, kV | 0-10 |
| Basic error of the reading of the testing voltage of surge generator, %, no more than | 10 |
| Surge rate, s | 1,5 -15 |
| Maximum surge energy, J | 2000 |
| Maximum power used by the generator, kVA, no more than | 1,5 |
| Storage capacitance, µF | 40,0 |
| Time of memory capacity connection to the cable line, ms | 400 |
| Time of generator continuous work with a subsequent break of 2 hours, hour, no more than | 1 |

2. Module of Reflectometry

TECHNICAL CHARACTERISTICS:

| | |
|---|---|
| Measurement modes | Measurement in real time |
| Display | Averaging (1 to 128) Liquid Crystal Display (LCD), Resolution 320x240 pixels |
| Operating range | 0 m ... 50 km |
| Distance ranges | 100 m, 250 m, 500 m, 1 km, 2 km, 5 km, 10 km, 20 km, 50 km |
| Pulse width | 50 ns ... 50 ms |
| Output pulse amplitude | 14 V |
| Propagation Velocity V/2 (Velocity factor) | 50 m/ms...150 m/ms (1.00 ... 3.00) |
| Impedance measurement range | 30 ... 500 Ohm |
| Error on distance measurements | 50 m...10 km: 25 cm 20 km...50 km: 1 m |
| Sensitivity | Dynamic attenuation is no less than 80 dB |
| Interference rejection | Asynchronous: averaging filter (2 to 128) Synchronous: point-wise subtraction(L-P, P- |
| P, L-L) | |
| Internal memory | 100 reflectograms, 180 values CU |
| External interface | USB 1.1 |
| Software support | IRView 4.0 for Windows 95,98,2000,XP |



Measuring methods:

Impulse is most exact and safe also effective at low-resistance damages and short circuits in the lines.

Arc Reflection - Arc Reflection - utilize effect of the impulses reflection of reflectometer from the arc in the damaged place for short period at work of the high-voltage impact-excited generator. Arc Reflection combines advantages of a high-precision classic impulse method and applied before high-voltage wave methods. It is effective at high-resistance damages. This method doesn't demand preliminary isolation burning which is especially important in the searching of damages in the polyethylene cables.

"EMZ" HOLDING COMPANY



P.O.Box: 41016,
6308 Larnaca, Cyprus
Tel: +357 24 821788,
Fax: +357 24 821787
vitald@vitaldrive.net
www.vitaldrive.net

Yaroslavl electromechanical plant



150029, Russia,
Yaroslavl, Dekabristov st., 14
Tel: (4852)215754, (4852) 326925
Fax: (4852)326925
sales@emzlv.ru, main@emzlv.ru
www.emzlv.ru

ISO 9001:2000

