Overhead line testing system
Adapter for the safe operation of Teleflex reflectometers on overhead line systems

- **Easy to operate**
- **Very good resolution at close and long range**
- **Dangerous induction voltages reliably discharged**
- **Test pulse up to 1,500 V for long distances**
- **For distances over 2,000 km**

DESCRIPTION

Used together with a reflectometer, the Overhead line testing system can show impedance irregularities in disconnected overhead lines of all voltage levels. These irregularities include short circuits, breaks and intermediate conditions. The system is mainly used for checking the overhead lines before they are switched back on, avoiding damage from travelling waves and potentially fatal problems. Regular checks should be performed, particularly to detect any changes in the line. The special design and switch-on system eliminate risks to the operator and damage to the equipment from induced voltages and currents.

The overhead line is tested by means of a switch-on unit and Teleflex reflectometer that are attached to the disconnected line with a resistance wire. During measurement, the switch-on unit safely conducts dangerous, induced energies to earth.

The following conditions can be detected with the test:

- Breaks, short circuits and branch-offs
- Smaller changes in impedance such as poor connections, faulty insulators and in-growing trees
- Changes in cross sections and sags in the line

However, smaller impedance changes can often only be seen in a comparative measurement against a fault-free line or a saved reference curve.

Two versions are available:

A **standard system** coupled to an active reflectometer, with the test pulses fed into the measurement object.

An **overhead line system with pulse generator** where, in passive mode, the reflectometer acts as a transient recorder. This system also has its own test pulse generator, specially adapted to the requirements of measuring very long overhead lines, 1,000 km and longer.

High power pulses of 1,500 V and a pulse width of 20 µS allow very large distances to be easily tested.

The Teleflex is used as the basic device for all the systems – either as an individual device or when installed in the measurement system. It can also be fitted permanently in a station.

The tests can be undertaken with one, two or three phases (sufficient switch-on units are required for this).

TECHNICAL DATA*

Standard system Teleflex VX

Distance range	20 m …1280 km bei v/2 = 80 m/µs
Pulse width	20 ns …10 µs
Pulse amplitude	30 … 160 V
Resolution	0,1 m @ v/2 80 m/µs
Sampling rate	Up to 400 MHz (real sampling rate)
Gain	- 37 … + 37 db
De-attenuation	0 … + 22 dB for ProRange
Transit time setting	V/2 10 … 149,9 m/µs, ft/µs or nvp
Dynamic range	> 80 dB
Display	15“ colour TFT SXGA, CCFL backlight
Memory	2GB flash for Data
Ports	Ethernet, USB, RS232, DVI

Remote testing system with pulse generator

Mains voltage	230 V ± 10% 49...61 Hz ≤ 70 VA
Transmission pulse power	Nominal value ≥ 300/7500 W
Peak pulse voltage	at Z = 300 Ohm ≥ 300/1500 V
Pulse width	10 µs und 20 µS, switchable
Output impedance	300 Ohm
Triggering	Internal (pulses triggered every 0.5 s)
Measurement range	≤ 1000 km
Filter transmission range	(≤ 3 dB)
Filter ranges	10 ... 2000 kHz
	1 MHz 10 ... 1000 kHz
	300 kHz 10 ... 300 kHz
	100 kHz 10 ... 100 kHz

Common data

Max. choke current	Continuous operation 20 A
Short-time operation	30 min at 21 ... 30 A
	10 min at 31 ... 40 A
Temperature	max. 90 °C
Inductivity	20 mH ± 20 % ≤ 0,5 Ohm
Overcurrent protection	40 A fuse wire in the feed cable
Connection type	Single phase
Dimensions	600 x 400 x 260 mm
Weight	48 kg
Operating temperature	- 25 °C … + 50 °C (without Teleflex)
Storage temperature	- 40 °C … + 70 °C (without Teleflex)
Relative humidity	≤ 93 % at 30 °C
Degree of protection	IP 54

SCOPE OF DELIVERY

- Teleflex
- Clamp ammeter
- 40 A switch-on device / pulse generator
- 5 or 10 m earthing system, consisting of:
  - Earthing cable
  - Earthing lead
  - Auxiliary earthing lead
- Mains extension lead (50 m cable reel)
- Telescopic test pole with cable guide and conductor screw terminal
- Protective resistance (fuse wire)
- Switch-on lead with coupling
- Earthing terminal for ball pin

ORDERING INFORMATION

Product	Order no.
Overhead line testing system standard	899002183-S
Overhead line testing system with pulse generator	899002182-S
Overhead line testing system with pulse generator, three phase	1004115

* We reserve the right to make technical changes.

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