

R 30

The fault location system for applications in the low voltage up to transmission feeder cable network



- **Fault Prelocation up to 400 kV**
- **DC Testing up to 400 kV**
- **VLF testing up to 70 kV**
- **ARM® up to 50 kV**
- **Surging for Pinpointing up to 100 kV**
- **PD and TD testing and diagnoses**
- **High discharge capability for long hv cable feeders**
- **Battery Power Supply 5 kVA**

DESCRIPTION

The System R 30 is the largest most powerful test van system within the Megger product range. All functions and voltage ranges are full integrated and three phased. Single phase or two phase version are available on request. Recently extended and improved, this already powerful System's capabilities are increased.

DC test voltage levels, including the well known Decay travelling wave prelocation method are available up to 110 kV or even 150 kV Option in the standard version (400 kV optional extension of the setup e.g assembled in a trailer), thus keeping and extending the world-wide standards set by System R 30.

The widely approved and well-known Arc Reflection Method up to 50 kV gives this system the capacity to locate faults in cables above the 30 kV range. The standard high voltage supply provides DC test voltage levels up to $6 \times U_0$. The combination with Meggers VLF tester series makes the System R 30 a suitable solution for cable fault location and cable diagnoses for the cable networks up to 30 kV cable rating.

A digital central control unit monitors the safety and all vital functions of the system. The integrated safety system concept and the separation transformer for defined potentials, guarantees the high Megger safety standards for men and equipment.

Functions

The three phased standard connection offers a comfortable and safe switching of the phases by the internal high voltage switch.

The Control Unit is an integrated central operator interface which follows Meggers User Interface-Platform concept well known from the Teleflex and Centrix series. It enables an easy and quick operation of the system (many local languages available), prevents operational errors and reduces the fault location time considerably.

Equipped with the integrated highend Teleflex VX – our state-of-the-art reflectometer, with high dynamic range, sampling frequency up to 400 MHz and selectable pulse width – the System R 30 provides excellent resolutions even at far distances. This is equally valid for reflectometer tests and in combination with the various high voltage applications.

The modular concept offers optimised solutions suited to individual requirements. With a wide range of different possibilities, this system leaves almost no wishes unfulfilled.

The high surge power of up to 3200 Joules is the base for an efficient and fast localisation of cable faults.

An effective and safe testing of PE, XLPE and paper oil insulated cables is provided for use of the patented Megger VLF 0.1 Hz cosine square wave method.

The very powerful high voltage source in high frequency converter technology provides the system with the required voltage level of 110 kV (optional 400 kV) for testing, and a high standard current of up to 300 mA to handle high loads.

The system provides all known and proven Megger high voltage prelocation methods as:

- ARM® Multishot
- Decay method
- Impulse current decoupling ICE

in combination with according high voltage and power features.

The extensive and approved safety concept of Megger fulfils the highest safety standards by extensive use of safety interlocks, indications at the digital control unit, detection of errors, as well as use of a separation transformer and thus generates the maximum protection for men and equipment.

In general:

System concept R 30 is also useful for special requirements in on- and offshore feeder networks. In combination with the internal HV DC Source there are two different high energy discharge modules available:

Module 1: testvan mounted modul discharge capability 220kJoule @150 kV DC (-)

Module 2: trailer mounted external modul discharge capability 844kJoule @150 kV DC (-)

TECHNICAL DATA
R 30
Insulation Testing
Standard

Individual insulation tester through external connector

Options

integrated iso module up to 1000 V

HV testing

DC testing

0 - 110 kV, IN 5 mA at 110 kV,

0 - 400 kV IN 3.5 mA at 400 kV

Voltage 0 ... 150 kV (internal HV DC Supply unit)

Voltage 0 ... 400 kV (external HV DC Supply unit)

 I_{\max} 290 mA

 I_{\max} 290 mA

Automatic shut off at breakdown

External HV extension controlled via the system

VLF testing

VLF 0-54 kV or 0-70 kV 0.1Hz

 Cosine-rectangular wave, maximum capacity 5 μ F

VLF 80**

VLF 60HP**

TDM 45 system family**

Surging for pinpointing 80 kV, 3200J

Surging for pinpointing 100 kV, 2000J

Battery Power Supply 5kVA

Prelocation

ARM® Multishot

 Surge voltage 0 ... 50 kV
 (15 fault patterns per surge pulse)

ICE current pulse method

Surge voltage 0 ... 50 kV

Decay method

DC ignition voltage 0 ... 110 kV

Decay method

Voltage 0 ... 400 kV

Voltage 0 ... 150 kV (internal HV DC Supply unit)*

Voltage 0 ... 400 kV (external HV DC Supply unit)*

*depending on the integrated HV-DC Test unit

Display

1024 x 768 15" VGA color touch TFT

Interface

USB, printer and data interface

Storage and protocolling

Automatic storage of all measurements

Protocol printout, also as PDF file or for

transfer to the MeggerBook Cable software

** operation via central system control

TECHNICAL DATA

R 30

HV methods

ARM®	3 / 6 / 12 / 50 kV
Decay	0 - 110 kV, travelling wave location
Impulse current	3 / 6 / 12 / 25 / 50 kV, surge impulse decoupling
Burning	290 mA, 0 - 110 kV (rated output current)

Pinpointing

Acoustical distance method with surge unit	0 - 3 / 6 / 12 kV 1,000 J in each range 25 / 50 kV 2500 J in each range Adjustable surge sequence 3 - 30 s, DC, single shot
Audio frequency	FLG 200 Output power: 200 W Frequencies: 480 Hz, 1.09 kHz, 9.8 kHz Impedance: 0.5 Ohm to 2 kOhm with automatic and manual impedance matching
DC sheath fault pinpointing with step-voltage	
AC sheath fault pinpointing with Pearson-Method	FLG 200, Frequencies: 480 Hz, 1.09 kHz, 9.8 kHz

Connections

HV connection	3 x 1 phase with 50 m 110 kV HV cable on manual cable drum
LV connection	50 m Mains cable 2 x 4 mm ² on cable drum 50 m Earth cable 16 mm ² cable drum 10 m FU cable
Teleflex-direct-connection	
Operation temperature	HV part: - 25 °C...+ 55 °C Teleflex VX: -10 °C...+ 50 °C
Storage temperature	- 25 °C...+ 60 °C
Weight	1050 kg depending on selected option and outfit

Mains supply

Mains voltage	230 V, 50 Hz (16 A connection)
Power consumption	5 kVA maximum input via separation transformer

Options

0 - 400 kV, travelling wave location
25 A DC, 0 - 15 kV
0 - 3 / 6 / 12 kV 2000 J in each range
Other frequencies on request
0 - 15 kV, I _{max} 300 mA, pulse-pause ratio 1:2 with burn unit T 22/13 earth fault locator for exact pinpointing Optional: MFM10 with sheath fault prelocation
3 x 1 phase with 50 m 110 kV HV cable on motor driven cable drum 3 x 1 phase with 50 m 110 kV HV cable on motor driven HV-slipping cable drum
Teleflex cable drum 50 m, 3 phased coaxial cable 50 Ω
120 V, 60 Hz (other voltages on request) Battery powered with 4,5 kVA battery power supply Operating time > 4 Hours Generator 5,5 kVA or travepower 3,5 kVA Wireless remote control

We reserve the right to make technical changes.

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