BAUR

ENSURING THE FLOW.

Networks are sensitive.
We help you to protect them.

BAUR cable fault location.

Our philosophy

As a world market leader and experts of High Voltage Test and Measurement Equipment our products and services ensure high quality of electrical insulation material and units for energy supply.

BAUR offers a broad spectrum of testing and measuring equipment of high quality and reliability with a worldwide reputation.

The quality management system of BAUR has been certified according to ISO 9001 (EN29000) since 1995.

As a result of intensive research and development for more than 60 years, we constantly have strengthened our position in the market.

Today BAUR offers a worldwide network of agents and service facilities on standby to assist you.

Products groups

- Cable Fault Location
- High Voltage Diagnosis & Testing
- Technical Services
- Dielectric Insulating Material Testing

BAUR your partner for cable testing, oil testing, diagnosis and fault location.

Our Core Competence

By reliability, BAUR means products of high quality. Assistance is available at the BAUR factory, or locally at your place of work. We offer you intensive training and comprehensive service.

For detailed information on our instruments please ask for individual data sheets.

Safety precautions during operation with high voltage

The BAUR test sets support safe operation according to internat-ional standards. All high voltage
test sets with safety control circuit according to VDE 0104 are equipped with:

- Lockable emergency-off switch, for emergency-off function and safety control against unauthorized operation
- Red/green indicator lamps signifying the operating condition
- Clearly arranged operating elements
- Standardized VDE-switch-on procedures for operating high voltage test sets:

1. Ready for operation
2. Ready to switch on

Application

As the supply of electrical energy is getting more and more important for our society, it is necessary to make sure that power supply system works without any problems.

Cables are frequently used for the distribution of the elec-trical
energy. Although the cables are highly developed, there are sometimes malfunctions in the cable system.

To keep the consequential damages as small as possible, trained staff and efficient equipment is needed.

BAUR cable fault location instruments and systems are applicable to all types of cables ranging from 1 kV to 500 kV and all types of cable faults such as

- Short circuit faults
- Cable cuts
- Resistive faults
- Intermittent faults
- Sheath faults
- Water trees
- Partial discharges

We distinguish between two types of cable fault location:

- Pre-location
- Pin-pointing

With pre-location the distance of the position of the fault is determined. Pin-pointing determines the location of the exact fault position in the field.

Depending on the type of fault or cable, different measuring methods are used.

IRG 2000
Echometer

The Pulse Reflection Test Set IRG 2000 is a portable, easy to use, single-phase unit for cable fault pre-location using the Time Domain Reflection (TDR) method on low, medium and high voltage cables. It can also be used on live cables up to 400 V. Further fault location methods are available with the application of the appropriate coupling device. Its measuring ranges enable pre-location on cable lengths from 0 m to 65 km (0 to 213,000 feet).

The IRG 2000 is operated via function keys and is fully menu guided. The LCD colour screen allows up to three waveforms to be displayed at the same time. The unit is supplied with rechargeable batteries and can also be powered directly by mains supply.

Features

- Interactive menu-guidance
- Measuring range up to 65 km (213,000 feet)
- Automatic cursor setting
- Voltage proof up to 400 V
- TFT LCD - colour display
- Data transfer to PC and printer
- 200 MHz high resolution sampling rate

Measuring Methods

- Time Domain Reflection (TDR)
- Secondary Impulse Method/ Multiple Impulse Method (SIM-MIM) - advanced SIM with SA 32 coupler
- Impulse Current Method (ICM) - with SK 1D coupler
- Decay Method - with CC1 coupler

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IRG 3000
Echometer

The computer aided Pulse Reflection Test System IRG 3000 is the basic control unit for all cable fault location methods. It is specially designed as pulse reflection measuring instrument for fault location on single and three-phase cable systems. Latest generation technology is implemented in the expert system, with an integrated 200 MHz transient recorder for the highest measuring accuracy. It offers unique features for intelligent manual and automatic cable fault location. The windows based soft-ware allows every user easy and fast operation of the system. Up to three cable fault location methods can be displayed at the same time on the TFT-LCD display. The high resolution and zoom function enable accurate pre-location of cable faults. The design of IRG 3000 has set new international standards in automatic cable fault location.

Features

- Fully automatic measuring sequences
- Fully automatic cursor settings
- 3 phase measurement and display
- Memory for > 100,000 waveforms (hard disk limit)
- TDR output pulse from 20 to 160 V
- 200 MHz real time transientrecorder with high resolution
- Measuring ranges up to over 200 km

Measuring Methods

- Time Domain Reflection Method - single or multicore
- Secondary Impulse Method/ Multiple Impulse Method (SIM-MIM) - advanced SIM with SA 32 coupler
- Secondary Impulse Method, SIM DC - with SA 32 coupler
- Differential Secondary Impulse Method - with SA 32 coupler
- Impulse Current Method – with SK 1D inductive coupler
- Decay Method - with CC 1 capacitive coupler
- Differential Impulse Current Method – with SK 3D inductive coupler
- Differential Decay Method - with SK 3D inductive coupler

Options

- MΩm - fully automatic three phase selection via software
- Control software with the PHG Very Low Frequency (VLF) test system
- Control software with VLF cable diagnostic system, including dissipation factor and partial discharge measurement

The IRG 3000 offers the possibility for upgrade to a Diagnostic System. The Very Low Frequency sinusoidal high voltage generator-PHG, the Dissipation Factor measuring system - TD, and Partial Discharge measurement/location systems can be added to the IRG 3000 also at a later stage to become a test and diagnostic system - PHG TD/ PD.

SSG 500
Surge Voltage Generator

The Surge Voltage Generators are used for pre-locating as well as for pin-pointing of high and low resistance faults in power cables. The stored energy of the high voltage capacitors is fed at intervals in to the faulty cable. This causes an acoustic noise at the fault position which can be detected with a ground microphone and an audio frequency
receiver.

The SSG 500 is a portable Surge Voltage Generator in a sturdy 19" steel housing. The output voltage is selectable in 3 ranges, 4 / 8 / 16 kV. Maximum safety is guaranteed via safety interlock circuit, automatic discharging device, enclosed housing and separation between operation and protection ground.
The high voltage is measured in 3 ranges on a kV-meter.

Features

- Easy to operate
- Solenoid operated surge switch
- Automatic discharge device
- Max. surge energy 512 Joule
- Output voltage: 3, 6, 12 kV and 4, 8, 16 kV
- 2 selectable impulse frequencies
- DC operation for cable testing and cable fault location
- Lightweight, easily portable
- Safety control circuit according to VDE 0104

SSG 1100, 1500, 2100, 3000
Surge Voltage Generator

These powerful Surge Voltage Generators SSG 1100,
SSG 1500, SSG 2100
SSG 3000 in a 19 " rack modular design are suitable as stand alone units, or components of the fault location systems SYSCOMPACT or TRANSCABLE.

The following maximum surge energy is available at three stages - 8, 16, 32 kV, each regulated from 0 to 100 %.

- SSG 1100 1100 Joule
- SSG 1500 1536 Joule
- SSG 2100 2048 Joule
- SSG 3000 3000 Joule

Optionally, the SSG can be equipped with a low voltage surge supplement SZ 1000 or SZ 1600, providing surge energy of 1000 Joule or 1700 Joule even at a low surge voltage of 4 kV.

Depending on application, the mode of output can be chosen:

- Single pulse for cable fault pre-location
- Cyclical pulse repetition for precise pin-pointing according to the Acoustic Method
- DC-Voltage output for cable testing and cable fault pre-location

Features

- Adjustable output voltage 0 to 100 %
- Single pulse or repetitive pulse release - two ranges
- 2 automatic discharging devices
- Reliable solenoid operated surge switch
- Separate operation and protection ground
- Safety control circuit according to VDE 0104

STG 600
Low Voltage Cable Fault Location System

The low voltage cable fault location system STG 600 includes a surge generator, a high voltage source for testing and precise location of sheath and cable insulation faults. The STG 600 is a multifunctional cable fault locating set especially designed for low voltage power distribution networks. The Surge and Test Generator is used for cable testing and for pin-pointing of high-resistance and intermittent faults in low voltage cables. An optional coupling filter can be integrated in the STG 600 enabling the use of the highly sophisticated and efficient pre-locating method: Secondary Impulse Method/ Multiple Impulse Method (SIM-MIM).

The multifunctional STG 600 replaces the following individual instruments:

- DC cable test set by menu "CABLE TESTING"
- Low voltage surge generator menu "SURGE MODE"
- SIM coupling filter by menu "SIM" (option)
- Cable sheath fault location test set by menu "SHEATH FAULT LOCATION"

Features

- Optimized unique fault location system for low voltage networks
- Low weight, portable
- High surge energy 600 Joule (optional 1000 Joule)
- Output voltage adjustable in 0.1 kV steps
- Easy operation and self-explaining menu guidance
- Automatic menu operated HV-switch
- Backlit graphics LCD display
- Integrated cable storage compartment
- Protective cover for control panel
- Designed for high safety
- Safety control circuit according to VDE 0104
- 2 separated discharge devices for the cable and the internal components
- Identification of short circuit and breakdown
- Integrated coupling filter for SIM application (option)
- Return voltage protected high voltage output (option)
- Insulation resistance measurement (option)

EF 24/200
Low Voltage Live Locator

The Live Locator EF 24/200 is mainly used as an adjustable, fast electronic fuse in low voltage power cable distribution networks. In combination with the Pulse Reflection Test Set IRG 2000 it enables to locate high resistance and intermittent faults on live cables even with connected consumers. The Live Locator can be used as a surge switch and for pulsing of mainspower. This allows cable fault pin-pointing together with a ground microphone and audio frequency receiver.

Features

- Tripping current 10 - 200 A adjustable, 400 V proof
- Automatic reclosing function for location of intermittent faults
- Integrated wave trap coil for Pulse Reflection Set IRG 2000
- Automatic trigger circuit for Pulse Reflection Set IRG 2000 this allows to detect the arced fault
- Integrated cable compartment
- Steel frame with 2 wheels and steering handle for easy transport
- Built-in drawer for the accommodation of Pulse Reflection Set IRG 2000

ATG 2
Burn Down Transformer

The burn down transformer ATG 2 enables the user to change a high resistance fault into a low resistance fault. Thus allowing an Impulse Reflection Test Set to be used for low resistance fault pre-location.

The portable burn down trans-former is enclosed in a sturdy 19 "steel housing. The well-proven power electronics allows individual control of output voltage and current. A vital step to a practical burn down technique.

Features

- Output voltage up to 10 kV DC
- Optimized power matching by 6 output voltage ranges; switchable even at full load (2,3 kVA)
- Individual electronic voltage and current control
- Integrated terminal for connection of external ohm-meter
- AC output for use in low voltage system
- Safety control circuit according to VDE 0104

ATG 6000
Burn Down Transformer

The high-power burn down transformer ATG 6000 is oil-cooled and therefore capable of full power output up to one hour.

Even during the burn down procedure the output voltage is switchable in 8 ranges.

Continuous regulation of voltage and current from 0 to 100 % within the selected range enables a precise regulation of desired output values.

The 19" rack version ATG 6000 is designed as a portable unit and for use in a cable fault location system.

Features

- Output voltage up to 15 kV DC, 6 kVA
- Max. output current 90 A
- Optimized power matching by 8 output voltage ranges; switchable at full load
- Safety control circuit according to VDE 0104
- Individual electronic voltage and current control
- Operation on maximum power (short circuit proof) up to one hour

shirla
Cable sheath testing and fault location system

The fault location system is used for cable- and cable sheath testing, fault prelocation as well as for sheath fault pinpointing according to Murray and Glaser.

With the integrated DC source, shirla allows pre-location of low resistive and even high resistive cable faults. The measuring principle enables pre-location especially at unshielded control and lighting cables as well as cable sheath.

All analysis is done automatically and the results are displayed digital. Various cable sectors can be taken into consideration. Defined DC pulse mode enable to perform fault pin-pointing according to the step voltage method.

Features

- Cable and cable sheath testing up to 10 kV
- Cable and cable sheath faults – pre-location (measuring bridge)
- Cable sheath fault – pinpointing up to 10kV in combination with the pick up sets KMF1 or UL
- Easy operation, menu-controlled
- Powered by rechargeable battery with fast charging as well as mains operation

*__shirla__ = **S**heath/**I**nsulation/**R**esistance/**L**ocation/**A**nalyser

KSG 100
Cable Identification System

The Cable Identification System KSG 100 is used for selection of single and multicore cables from a cable bundle. The amplitude, time and phase control (ATP) discriminator provides the user with the utmost security of cable identification.

The KSG 100 offers special advantages like fully automatic gain control, user-friendly menu guidance, voltage proof transmitter output and small dimensions.

Features

- Cable identification of single and multicore cables
- Reliable signal acquisition via digital 3-parameter analysis, ATP
- Cable identification even in live LV cables via the mains proof direct connection (KSG 100 T)
- Identification of pulse direction, even with higher loop resistance
- Inductive pulse injection via current transformer clamp into live cables (option)
- High pulse current up to 180 A
- Small, flexible receiver with integrated graphics display
- No battery necessary
- Flexible coupler using a Rogowski coil for large cable Diameter

Optional Version KSG 100 T:

- Load current measurement up to 199 A via a push button
- Cable and core selection at live LV cables via direct connection

CL 20
Cable Locator

The Cable Locator CL 20 is unchallenged for successful location in a variety of situations.

Capable of locating long or short cables, inductive or directly coupled, using active transmitter frequencies or passive (50/60 Hz), the CL 20 is a light-weight, user friendly instrument in ergonomic design that delivers quick and accurate readings.

By activating a button the cable laying depth is indicated. For inductive coupling a Flexicoupler is available, replacing the standard clip-on device. Its flexible design enables coupling of cables and pipes with a diameter up to 200 mm.

Features

- Simple handling, self-explaining keypad and display
- Membrane keypad with separate button functions
- Graphics display with digital and barograph indication for signal strength
- Minimum and maximum mode selectable by activating a push-button
- Digital display of cable depth
- Current measurement for identification of target cable
- Automatic gain control by pushing a button
- 2 active transmitter frequencies and 50/60 Hz passive frequency selectable
- Powerful frequency transmitter with automatic load matching
- Simultaneous transmission of both active frequencies possible
- Ground return probe for sheath fault location (option)
- Flexicoupler for inductive coupling (option)

Locator Set

The Locator Set is used for tracing and depth evaluation of cables. Using additional accessories, pin-point fault location is enabled by following methods acoustic method, step voltage method, twist method, acoustic propagation time measurement.

The standard set consists of following components:

- Audio frequency transmitter TG 20/50
- Audio frequency receiver UL 7 or UL 30
- Detecting rod SP 8 or SP 30
- Headphone, KH 8
- 2 earth spikes
- 2 auxiliary lines on a hand reel
- Transport case

Option

- Current transformer clamp AZ 10 / D 70 AZ10 / D100

Locator Set Components

The TG 20/50 is a portable, mains or battery powered Audio Frequency Generator with integrated charging unit. As an audio frequency signal is fed into the cable the route of the cable can be traced and the depth can be evaluated.

Features

- Output power up to 50 VA
- Automatic or manual impedance matching
- Charging unit and battery are incorporated
- Continuous mode or pulse mode selectable
- 2 output frequencies - selectable

UL 30
Universal Locator

For pin-pointing of cable faults the digital Universal Locator UL 30 is used with ground microphone BM 30 and Surge Voltage Generator (SSG/STG). With its integrated acoustic propagation time measurement the UL 30 displays the distance to fault in meter and indicates the position if the the fault is reached. The special feature of UL 30 is the calculation of the fault distance between two manholes.

In combination with audio frequency transmitter (TG) and detecting rod (SP 30) the UL 30 is used for route tracing and depth evaluation of electric lines and cables.

Sheath fault location can be performed - using the available two earth probes - according to the step voltage method.

Features

- Acoustic method including manhole distance location
- Accurate route tracing
- Digital indication of fault distance in meter
- Cable depth measurement
- Location of cable sheath faults
- Water resistant design
- Integrated loudspeaker
- Large illuminated LCD display
- Digital filters for suppression of traffic noise
- Easy menu operation
- Lightweight

TG 600
Part of Locator Set

The high performance Audio Frequency Transmitter TG 600 is especially designed for accurate location of cable faults and joints according to the twist method. The display of input and output current enables optimised impedance matching.

A 600 VA and a 60 VA output power range are selectable. The 60 VA range is mainly used for route tracing and depth evaluation of cables.

Features

- High output power 600 VA
- Frequency 2 or 10 kHz, quartz stabilised (other frequencies on request)
- Potential-free output
- Impedance matching in 8 steps, from 0.3 to 300 Ohms
- Selectable reactive current compensation for optimized power matching
- Thermal overload protection
- Indication of input and output current

TRANSCABLE
Cable Test Van

Modified to suit your requirements and vehicles,BAUR offers you a number of systems in various ergonomic designs for individual device installation. We have drawn on years of experience to develop tried and tested standard systems. Four standard systems for pre-location and pin-pointing of cable faults,testing and diagnosis are combined to suit your application.

TRANSCABLE 3000
The standard systems vary in the test voltage levels from 32 kV – 110 kV and in 1 or 3-phase switching system.

Switching systems
S...Semiautomatic
A...Automatic

Standard systems

TRANSCABLE 3000
32 kV – 3/S

TRANSCABLE 3000
70 kV – 3/S

TRANSCABLE 3000
70 kV – 3/A

TRANSCABLE 3000
110 kV – 1/S

TRANSCABLE
Modular Design, High Flexibility

The EURODESK system is suited for the 19 " plug-in modules. The control and monitoring system is arranged in the operator 's central field of vision.
The interface for TRANSCABLE 3000 software, based on the multilanguage Windows © version,is user frendly and can be obtained in different languages. A number of different side cabinets are available for 19 "units,a drawer cabinet or a hinged desk top. The system is most often fitted in commercial vehicles,such as the Mercedes Benz Sprinter with an overall weight of 3.5 t. Cable test vans are in principle divided into control area and high-voltage area and separated by a partition wall.

TRANSCABLE system equipment

- Cable testing
- Cable fault pre--location
- Cable fault pin--pointing
- Switching technology
  1-phase
  3-phase
- Safety control system
- Ergonomic EURODESK system
  with integrated work surface
- Attractive,,modern design
- System safety concept in the
  event of a traffic accident
- Mains and generator operation
- Automatic charging unit for vehicle battery and safety circuit
- Software in the required language
- Modular 19 " system

SYSCOMPACT 1000
Low-Voltage Fault Location System

The SYSCOMPACT 1000 is a multifunctional cable fault location system for use in low-voltage networks. The STG Surge and Test Generator are designed for testing of cables and cable sheaths and for precise location of the high-resistance and intermittent faults.
The integration of the established fault pre-location method SIM-MIM enables the precise location of high and low-resistance and intermittent faults using the IRG 2000 Echometer.

Methods

- Impulse Reflection Method
- Secondary Impulse Method / Multiple Impulse Method (SIM-MIM)
- SIM-MIM with DC (SIM DC)
- Acoustic fault location with propagation time measurement (option: with UL and BM)

Features

- Lightweight and transportable
- Touch-proof
- 0.1 kV to 4 kV surge voltage
- High surge energy of 600 joule (option: 1000 joule)
- Test voltage up to 5 kV, adjustable in 0.1 kV increments
- Breakdown detection
- Menu-guided control
- Simple system modification
- Extremely simple operation, self-explanatory menu guidance in the user's language
- 100 memory locations
- Simple data transfer to PC

Potential modifications

- Resistance measurement
- Reverse voltage detection and reverse voltage protection
- Acoustic fault location with integrated propagation time measurement
- Manhole distance location
- Cable tracing
- Depth measurement
- Cable sheath fault location

SYSCOMPACT 2000 M
Cable Fault Location System

The SYSCOMPACT 2000 M is a mobile and multifunctional cable location system. The surge and test generator is designed for the testing of cables and sheaths and for the precise location of high-resistance and intermittent faults.

Its preferred use is in low and medium voltage networks for locating faults on cables up to 65 km in length.

The integration of established fault pre-location methods SIM-MIM and Impulse Current Method enables the precise location of high and low-resistance as well as intermittent faults using the IRG 2000 Echometer.

Impulse Reflection Methods

- Secondary Impulse Method/ Multiple Impulse Method (SIM-MIM)
- Impulse Current Method
- Acoustic fault location with propagation time measurement (with UL and BM)

Features

- Lightweight and transportable
- Touch-proof
- 16 kV surge voltage in two ranges (1 kV to 8 kV and 1 kV to 16 kV)
- Surge energy of 1024 joule
- Test voltage up to 16 kV, adjustable in 0.1 kV increments
- Menu-guided control
- Extremely simple operation, self-explanatory menu guidance in the user's language
- 100 memory locations
- Simple data transfer to PC

Potential modifications

- Acoustic fault location with propagation time measurement
- Manhole distance location
- Cable tracing
- Depth measurement
- Cable sheath fault location

SYSCOMPACT 2000
Cable Fault Location System

The SYSCOMPACT 2000 is a multi-functional cable fault location system in a modular 19" plug-in design. The surge and test generator is designed for testing of cables and cable sheaths and for the precise location of high-resistance and intermittent faults.

The SYSCOMPACT 2000 is used preferably in low and medium voltage networks for locating faults on cables up to 65 km in length.

The integration of established fault pre-location methods SIM-MIM and Impulse Current Method enables the precise location of high and low-resistance as well as intermittent faults using the IRG 2000 Echometer.

Methods

- Impulse Reflection Methods
- Secondary Impulse Method / Multiple Impulse Method (SIM-MIM)
- SIM-MIM with DC (SIM DC)
- Impulse Current Method

Features

- Swift, reliable fault location
- Compact design, enabling installation in small transporters
- Infinitely variable cable testing from 0 to 32 kV
- Max surge energy up to 2100 joule
- 100 memory locations
- Simple data transfer to PC

Potential Modifications

- Acoustic fault location with propagation time measurement
- Manhole distance location
- Cable tracing
- Depth measurement
- Cable sheath fault location
- Cable testing with VLF or DC up to 80 kV
- Cable diagnosis
- Burn down technology
- Twist method
- Installation in ergonomic EURODESK systems

SYSCOMPACT 3000
Cable Fault Location

The SYSCOMPACT 3000 is a multi-functional cable fault location system in a modular 19" plug-in design. The surge and test generator is designed for testing of cables and cable sheaths and precise location of high-resistance and intermittent faults. The SYSCOMPACT 3000 is used preferably in low and medium voltage networks for locating faults on cables over 200 km in length. The integration of the latest fault pre-location methods SIM-MIM and Impulse Current Method enables the precise location of high and low-resistance as well as intermittent faults using the IRG 3000 Echometer. The IRG 3000 computer-supported Impulse-Reflection Measuring System enables automated cable fault location. For the first time, the software supports a standardised computer link in the user's language.

Methods

- Impulse Reflection Methods
- Secondary Impulse Method/ Multiple Impulse Method (SIM-MIM)
- SIM-MIM with DC (SIM DC)
- Impulse Current Method

Features

- Swift, reliable fault location
- Maximum measuring accuracy
- Echometer high-performance impulse level up to 160 V for cables with high attenuation
- Compact design, enabling installation in small commercial vehicles
- Infinitely variable DC testing from 0 to 32 kV
- Max surge energy up to 2100 joule
- Established measuring methods
- Unlimited storage
- Simple data transfer and analysis

Potential Modifications

- Acoustic fault location with propagation time measurement
- Manhole distance location
- Cable tracing
- Depth measurement
- Cable sheath fault location
- Impulse Current Differential Method
- 3-phase measurement
- VLF or DC cable testing up to 80 kV
- Cable diagnosis
- Burn down technology
- Twist method
- Installation in ergonomic EURODESK systems

BAUR

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Subject to alteration. Art. No. 821-044