BAUR cable fault location.

Networks are sensitive.
We help you protect them.
Faults in cable networks are inevitable. Increasing power consumption and high loads, obsolescence and delays in capital investment, difficult environments and crowded housing developments make it increasingly important to locate cable faults quickly and reliably. That is a complex challenge, because the combination of cause, cable type, network structure, voltage levels and environmental conditions result in an infinite number of possible faults. Each fault results in costs and stress. If, for example, residents wait for power, equipment cannot be run, streets are torn up, traffic jams occur or building crews stand around with nothing to do.

Cable faults are a crisis situation for mains operators. The solution? Reliable cable fault location from BAUR.

Thus, cable fault location requires trained specialists, and they need rugged, reliable, flexible equipment which can apply all the required methods of identifying a fault.
The BAUR product portfolio for cable fault location. The best possible support for specialists at the site.

Cable fault location is a process with many steps. The entire process with all its individual steps is covered by BAUR so that cable faults can be located quickly and reliably.

Cable fault location systems
Multifunctional systems such as the Syscompact series or individually equipped measurement vehicles.

Modules for cable fault location
Customers can put together their own individual equipment from modules such as the IRG impulse reflection measurement units, the SSG surge voltage generators, the ATG burn down transformers and the TG audio frequency generators.

Pre-location and pinpointing units
The KSG Cable Identification System, the CL Cable Locator, the Universal Locator UL with the Locator Set, the shirla Sheath Test and Fault Locator, and the STG Surge and Test Generators for cable fault location in use along the cable line.
Basic principles of cable fault location, technical conditions.

Cable lines pass through tunnels and over bridges, lie under rivers, cross train tracks, streets and other cable lines or branch a number of times. A cable line consists of not just one, but many cables of various types. Depending on the voltage level, the required load capacity and available fitting and installation technology, cables are used with plastic insulation, mass-impregnated paper insulation or paper/oil insulation. In practice, cable faults must be located at all voltage levels. Thus, it is beneficial for daily use if the equipment for cable fault location is designed for high and medium voltage ranges but can be applied just as well for low voltage, such as in the case of a street lighting failure.

Fault sources and types

The most frequent causes are ageing, mechanical damage, overvoltage, thermal overload, corrosion, incorrect cable laying, processing defects and damage from transport and storage. The most common types of faults are short circuits, cable breaks, intermittent faults and cable sheath faults.

- **Short-circuit**
  Damaged insulation leads to a low-resistance connection of two or more conductors at the fault location.

- **Short-circuit to earth**
  Faults can occur from the short-circuit to earth (low-resistance connection to earth) of a defect or separately operated grid or from a short-circuit to earth of an earthed grid. Another type of fault is the double earth fault, which has two short-circuits to earth on different conductors with spatially separate base points.

- **Cable breaks**
  Mechanical damage and ground movements can lead to breakage of individual or multiple conductors.

- **Intermittent faults**
  Frequently, faults do not occur constantly, but rather occasionally depending on the load on the cable. One reason for this can be drying out of oil-isolated cables with a low load. Another is partial discharge from ageing or electrical trees in plastic insulated cables.

- **Cable sheath errors**
  Damage to the outer cable sheath does not always lead directly to faults but can cause long-term cable faults, among other things as a result of moisture penetration and insulation damage.
Process steps and methods for cable fault location.

Cable systems are documented in plans. Nonetheless, the cable itself and the position of the fault must be located exactly in order to correct the fault. This process is divided into two steps which have a particular sequence of measures: pre-location in order to determine the distance of the fault site in a kilometre-long cable line; and pinpointing to determine the fault’s exact location. Then there is the selection of cable.

**Pre-location**

After the fault report, identification of the cable line affected and its disconnecting, the fault is first analysed. For this, the cable type, length of the cable and grid structure are determined as well as possible obvious fault sources such as construction work. Initial measurements serve to determine the insulation resistances of all phases of the cable. The type of fault (low- or high-resistance fault) is determined based on these measurements, the faulty phase is discovered and the pre-location method to be used is determined.

**Secondary/multiple impulse method (SIM/MIM)**

The SIM/MIM method is probably the most efficient method of measurement for pre-location of cable faults. Up to 98% of faults can be located using it. The method is based on the logical consideration that first the most frequently seen structural faults should be looked for. This minimises the time required for locating the fault. Particular advantages are simple handling, universal applicability and particularly easy interpretation of the echograms. High-resistance faults are triggered by a surge voltage pulse at the fault. During a single discharge, the IRG echometer measures the fault distance five times, which has proven to be ideal in practice. The measurement results are saved automatically.

**Sequence of a SIM/MIM measurement**

1. Sending a low voltage pulse to determine the health pattern
2. Fault triggering using a high voltage source (SSG surge voltage generator)
3. Sending a low voltage pulse (SIM) or up to five low voltage pulses (MIM); experienced specialists send five pulses to ensure that a meaningful echogram is produced exactly when the fault is triggered
4. Reflection of the pulses at the location of the fault
5. Determination of the fault distance in meters by analysing the echogram
Time domain reflection method (TDR)

The time domain reflection (TDR) method is one of the best known and most widely used measurement methods. It is used to determine the total length of the cable, cable breaks, short circuits and their distances.

Impulse current method (ICM) and differential impulse current method (DICM)

With particularly long cables, there is a lot of damping of the impulse. Therefore the ICM method is used to produce a useful echogram. In this method, a surge voltage generator creates a high voltage pulse which effects a breakdown at the fault location. The precision of the ICM method increases with the length of the cable. It is not suited for short cables. DICM is a complementary method. By simultaneous differential measurement of two cable strands the distance can be determined even with cable faults that are difficult to find. DICM is used for cable lengths greater than 10 kilometres, in T-branched grids and overhead lines.

Decay method and differential decay method

Many cable faults - even high voltage cable faults - can be triggered with a voltage up to 32 kV produced by a surge voltage generator. In individual cases, a higher ignition voltage is required and the decay method is used. Here a VLF or high voltage source triggers a high-resistance fault. The travelling wave produced is recorded with an echometer to determine the distance to the cable fault. Here too the differential decay method plays a complementary role.

Bridge method for cable sheath faults

Murray or Glaser testing bridge methods are used for cable sheath fault pre-location. The fault distance is determined from the behaviour of the bridge resistances.
Pinpointing

Pre-location yields the distance from the start of the cable to the fault with a tolerance of a few meters. The pinpointing step determines the exact position of the fault at the site.

Cable tracing

Digitally available cable data and section maps are often insufficient to determine precisely where a cable runs. Magnetic audio frequency procedures help to determine the position and depth of the cable.

Acoustic pinpointing of faults

With the acoustic fault location procedure, the differential delay between electromagnetic and acoustic signals is used to locate high-resistance and intermittent faults. Selectable filters and propagation time measurement procedures are integrated in a single receiver. This enables the user to focus in on the fault location even with unfavourable ground conditions or a loud environment.

Step voltage method

Acoustic pinpointing cannot be used for low-resistance faults, because these do not produce an audible signal. With the step voltage method, a voltage funnel is created in the ground which can be measured with ground probes.

Twist field location method

The method patented by BAUR is used for cabled signal and multiple-conductor cable systems. The twist field location method enables faults to be located even when traditional acoustic location methods fail with severe short circuits and locating couplings.

Cable identification

Usually, multiple cables are laid in a bundle. After the exact position of the fault is found and uncovered, the defective cable must be reliably identified.
Pioneering spirit, innovative drive and experience. 
Competence you can rely on.

One could ask what more than sixty years of company history have to do with today. Or what particular benefit customers and users have from the worldwide experience of a company like BAUR. The answer is found in every system, module and device from BAUR: The most modern, user-friendly technology for cable fault location. This requires not only a mastery of the technology but also user practices and the application where it is found. Cable faults in Siberia at -40 °C are quite different to cope with than those in central London or New York. Power company specialists must be able to rely on their equipment in each of these situations.

State-of-the-art technologies and absolute quality from one source. Partnership with customers and users.

The way in which a cable fault location system, device or module is manufactured makes a qualitative difference. One way is to purchase expertise, technology and parts and use these to assemble finished products. This is not the BAUR way. Our philosophy is different. We believe that the reliability, quality and user-friendly technology can only result from comprehensive in-house competence. This means research, development, manufacturing and quality assurance under one roof, working in close partnership with customers. This is why BAUR technical experts cultivate close ties to users. The result is a partnership of trust with users, mutual appreciation of expertise, shared efforts and a constant “flow” of competence.

BAUR. Ensuring the flow.
Customer statement

“Our specialists have used BAUR equipment for cable fault location in the field for a long time. So far in daily practice, the SIM/MIM method has proven to be the most efficient and successful for locating cable faults quickly.”
Portable, flexible, fast.
The BAUR IRG 2000 impulse reflection measurement unit.

Key benefits
- Main unit with comprehensive functions for locating cable faults
- Easy to learn, no training costs
- High mobility, quickly in use
- One device for all measurement methods
- Ideal even for cables with difficult access
- High success rate
The shortcut to the source of a fault.
Cable fault pre-location with the BAUR IRG 2000.

The IRG 2000 impulse reflection measurement unit or echometer is a handy, easy to carry device for single-phase cable fault pre-location. It is used in combination with a surge voltage generator on low, medium and high voltage cables from 0 - 65 km long. It can also be used on cables carrying voltage up to 400 V. The unit is particularly easy to handle with a self-explanatory menu and one-button operation. Additional methods are available by combination with other modules and systems. Depending on requirements, the IRG 2000 impulse reflection measurement unit can be operated on its integrated rechargeable battery or mains voltage.

Facts

- Easy to carry
- Flexible; suited for nearly all lengths of cable (0 to 65 km)
- Precise pinpointing of faults
- Interactive, self-explanatory menu navigation
- One-button operation
- Easy integration in measuring systems / cable test vans
- Fully automated measurement and display of the fault distance
- Simple connection of the measurement coupling
- Impulse reflection method (TDR)
- Secondary impulse method (SIM) with SA 32 system coupling
- Multiple impulse method (MIM) with SA 32 system coupling
- Impulse current method with impulse current coupling (inductive SK1D coupling)

A critical factor: Speed.

Cable faults and their consequences mean pressure on the individual workers in the field and altogether on the company. Being without power has become unthinkable. It costs time and money and leads to complaints and a tarnished image. Faults can be limited, but they cannot be prevented entirely. Thus locating and fixing them quickly is an important contribution to the profitability of power grids.
Perfect fault location with minimal effort.
The BAUR IRG 3000 impulse reflection measurement unit.

Key benefits

- Maximum precision with the highest resolution and high sampling rate
- Fast, safe and simple
- High efficiency and return on investment
- Easy to learn, no training costs
- One device for all measurement methods
- For single- and three-phase cable systems
Safety and profitability.
Cable fault pre-location with the BAUR IRG 3000.

The IRG 3000 impulse reflection measurement unit locates cable faults in single- and three-phase cable systems in conjunction with a surge voltage generator. Up to 98% of faults can be located with just the SIM/MIM method. The memory capacity of more than 100,000 measurements saves reporting time and makes full utilisation possible. Integrated resistance measurement makes additional equipment unnecessary. The Windows-based software provides a comprehensive set of functions and can be operated in the relevant local language. Simultaneous display of up to three measuring methods enables simple comparison and evaluation. Optionally, the PHG VLF sine wave test generator, the tan delta (TD) dissipation factor measurement system, and the partial discharge (PD) measurement and location system can be integrated.

Facts
- Pre-programmed measuring sequences, fully automated measurement and display of the fault distance
- Storage for more than 100,000 measurements
- Three-phase measurement and display
- Level of initial impulse: 20 to 160 V
- Cable lengths over 200 km
- Impulse reflection method, single and multi-phase measurement
- Secondary impulse method (SIM) with SA 32 system coupling
- Secondary impulse method (SIM/MIM DC) with SA 32 system coupling
- Multiple impulse method (MIM) with SA 32 system coupling
- Impulse current method with SK 1D impulse current coupling
- Decay method with CC 1 voltage coupling
- Differential impulse current method with SK 3D impulse current coupling
- Differential decay method with SK 3D impulse current coupling

Flexibility and individuality pay.

Requirements vary widely for mains operators. Various landscape and settlement situations, climatic and geological conditions, various cable types and fault sources all serve to complicate the choice of equipment. The modular systems and units from BAUR solve this problem. The equipment can be adapted perfectly to individual requirements and offers great flexibility and expansion options.
Straight to the goal.
The BAUR SSG surge voltage generator.

**Key benefits**

- A single unit for pre-location and pinpointing
- Reliable fault location
- No superfluous actions
- Energy class matched to the grid
- Selectable output voltage
- Rugged design – superior reliability
Reliability has a name.
SSG surge voltage generators for pre-location and pinpointing.

Surge voltage generators are used with the IRG impulse reflection measurement units for cable fault pre-location as well as pinpointing of high- and low-resistance faults. The energy stored in a high voltage capacitor is released in intervals or as DC voltage. The signal at the fault location can be picked up with a ground microphone and a universal receiver. The highest level of safety is achieved with the electric safety control unit, the automatic discharge unit, the fully encapsulated design and the separately designed protective and operating earth. The output voltage is displayed at three voltage levels on the kilovoltmeter.

**Facts**

- Simple operation
- Electromagnetically actuated surge switch
- Automatic discharging device
- Maximum surge energy up to 3,000 joules
- Selectable output voltage: 3, 6, 12 kV and 4, 8, 16 kV (with the SSG 500); 8, 16, 32 kV and optionally 4 kV for all SSG series surge voltage generators
- 20 or 10 impulses per minute as well as single impulses
- DC voltage mode selectable for cable testing and locating cable sheath faults
- Lightweight; also available as a portable unit
- Comprehensive design safety compliant with VDE 0104 and other standards

**On-site results show how well the technology serves people and the company.**

Many things sound good in theory. Everyday experience shows the reality behind the promises, such as the importance of finding a fault quickly, how easy it is to understand the equipment for locating cable faults, how safe it is to operate and the levels of frustration experienced by users. It is crucial that measurement results be clearly and unmistakably readable, not lead to frequent errors and follow-up work. It is reassuring when technology serves people and not the other way around.
Minimum investment. Maximum benefit.
BAUR STG 600 and STG 1000 surge and test generators.

Key benefits
• A portable unit for changing the fault resistance
• Usable even for cables that are difficult to access
• Proven method for challenging faults
• Rugged design for reliable functions
• Stand-alone version or integrated module in cable fault location systems
Multifunction without compromises.
The BAUR STG 600 and STG 1000 surge voltage generators.

The STG 600 and STG 1000 surge and test generators are multifunctional, mobile cable fault location systems for low voltage grids. They are used for cable as well as for the precise location of high-resistance and intermittent faults in low voltage cables (such as for street lighting) if desired, an SIM/MIM coupling filter can be integrated in the STG 600 or STG 1000. This enables the use of the most state-of-the-art, efficient pre-location methods, the secondary impulse method (SIM or MIM).

Facts
- Fault location system optimised without compromise for low voltage grids
- High surge energy: 600 or 1000 joules
- Output voltage can be set in 0.1 kV steps
- Simple as it gets to operate with self-explanatory menu navigation
- Easy switching of operating functions at the push of a button
- Lighted LCD display
- Integrated cable compartment
- Protective cover for the control panel
- Safety control unit in compliance with VDE 0104
- Two separate discharge units for the connection cable and internal surge capacitor
- Short-circuit detection with breakdown
- Inverse voltage proof high voltage output (optional)
- Insulation resistance measurement (optional)
- Coupling filter for state-of-the-art pre-location (SIM/MIM) in combination with the IRG 2000

An investment in quality also makes economic sense.

Specialists have strict equipment requirements for cable fault location. And the business needs of the company are just as important. Costs and benefits are what count. The costs of maintenance. The costs of cable faults and their consequences.

The costs of locating and fixing faults. The costs of equipment and systems. A detailed comparison shows that quality is worth its price, because it arises from many individual factors which reduce costs in the total calculation.
Rugged back-up for difficult cases.
BAUR ATG 2 and ATG 6000 burn down transformers.

Key benefits
- A portable unit for changing the fault resistance
- Usable even for cables that are difficult to access
- Proven method for challenging faults
- Rugged design for reliable functions
- Stand-alone version or integrated module in cable fault location systems
Always work. Always indispensable.
BAUR ATG 2 and ATG 6000 burn down transformers.

Burn down transformers make it possible to convert a high-resistance fault to a low-resistance fault. This enables echemeter measurement for low-resistance faults. Their rugged design and reliable function make them ideal units even for difficult to access cables and tough cases. The fully encapsulated 19” housing ensures the greatest degree of safety and enables use as a portable unit or as an installed module in cable fault location systems.

### ATG 2 facts
- Burning voltage up to 10 kV
- Optimal adjustment of output voltage in six voltage levels; switchable under full load (2.3 kVA)
- Electronic voltage and current regulation
- Connection option for external ohmmeter
- Alternating voltage setting for low voltage grids
- Safety control unit in compliance with VDE 0104

### ATG 6000 facts
- Output voltage up to 15 kV DC, 6 kVA
- Output current up to 90 A
- Optimal power adjustment with eight voltage levels available; switchable under full load
- Safety control unit in compliance with VDE 0104
- Independent electronic voltage and current regulation possible
- Up to one hour burning time at maximum load

Prevention helps. But efficient fault location is still necessary.

BAUR is at the leading edge worldwide for developing cable diagnostics for precautions against faults and optimal planning of maintenance and repair. But it is just as important to invest effort into locating cable faults, because these occur with increasing frequency. The combination of the two - optimal diagnostics and optimal cable fault location - improve power companies’ bottom line.
Innovation for top efficiency.
The BAUR shirla cable sheath testing and fault location unit.

Key benefits

- A single compact solution for sheath testing, pre-location and pinpointing
- Easy to carry, even in difficult terrain
- No special vehicle required
- Minimal training costs
- The BAUR user interface is intuitive to operate
- Highest safety for the user
- Data transfer via USB interface cable
Unsurpassed efficiency through deliberate simplification.
The BAUR shirla cable sheath testing and fault location unit.

The shirla fault location unit is used for cable and sheath testing as well as for the pre-location and pinpointing of cable faults. Pre-location of power, control and lighting cables is based on the Murray and Glaser testing bridge principle. Zero balancing and evaluation take place automatically. The fault distance is shown in meters as well as percent; various cable sections and cross sections are taken into account. With the KMF 1 search receiver or the UL 30 universal receiver and the accessory kit for cable sheath fault location, cable sheath fault pinpointing can be performed according to the step voltage method. The menu with easily understood icons is independent of language and makes any training superfluous.

Facts

- Cable and cable sheath testing up to 10 kV DC
- Resistance measurement up to 1 kV
- Cable fault and cable sheath fault pre-location with Murray and Glaser testing bridge
- Length, conductor cross section and material of the cable sections can be entered and are taken into account in distance calculations
- Cable sheath fault pinpointing
- Integrated earthing and discharge unit
- Stepless adjustable voltage
- Automatic test report preparation
- Mains or battery mode
- One unit for all applications
- Self-explanatory menu independent of language
- One-hand operation with the central selection button
- Adjustable rise time delay and operating time
- Light construction, outstandingly transportable

Simplification means flexibility and lower costs.

Multifunctionality and automation are the ideal complement to the knowledge and experience of experts on site. The use of complex technologies even by persons without special training provides the experts with greater flexibility in action and provides the company with time and cost benefits. This is why for many the shirla has become an indispensable part of their equipment.
Universal application at low cost.
The BAUR Locator Set (including UL 30).

Key benefits
- Cable fault pinpointing and tracing of cables, couplings and metal gas and water pipes
- Low investment costs
- Includes the TG 20/50 audio frequency generator, SP 30 search coil, UL 30 audio frequency receiver, headphones, 25 m hand reel and ground rod
- Covers a complete set of pinpointing use cases and applications
One hand-held unit for all pinpointing methods.  
The BAUR Locator Set and the UL 30 universal receiver.

Together with the Locator Set, the UL 30 universal receiver is used for precise determination of cable alignment, but it can also be used to determine the alignment of metal pipes. Its comprehensive equipment makes the Locator Set indispensable for power suppliers, industry, installation firms and water companies. A key component of the Locator Set is the portable audio frequency generator TG 20/50 with an integrated charger. By feeding an audio signal into an electrical conductor, the direction and depth of the cable as well as faults in twisted cables can be determined with pinpoint accuracy. The Locator Set can be supplemented with the AZ 10 current transformer clamp with diameters of 70, 80 or 125 mm.

Facts

- Tracing of cables and metal gas and water pipes
- Determining depth of cables and metal pipes
- Cable identification
- Cable search even in live cables
- Search for cable and lead joints
- Precise location of cable faults according to the twist method
- Acoustic fault location with integrated runtime measurement of sound waves in combination with the BM 30 ground microphone
- Output energy to 50 VA
- Automatic or manual impedance adjustment

- Charger and rechargeable battery integrated; battery or mains operation
- Continuous or cyclical output
- Two output frequencies selectable
- Optional: RA 10 loop antenna, BM 30 ground microphone, 2 kHz or 10 kHz selecting coil, AZ 10 current transformer clamp with a diameter up to 125 mm, accessory kit for transformer fault location

Faster processes save money.

It is a fundamental necessity for every power supplier to keep the time between an error report and when that error is fixed as short as possible. Pinpointing takes a lot of this time. BAUR equipment reduces the time and achieves cost benefits.
Intelligent: Pinpointing and cable tracing in one. 
The BAUR UL 30 universal receiver.

Key benefits
- A single unit for cable tracing, pinpointing and cable sheath fault location
- Saves time and money
- Easy operation requires no training
- Easy to carry
Pioneering functions in a single unit.
The BAUR UL 30 universal receiver.

In combination with the BM 30 ground microphone and SSG or STG surge voltage generator, the UL 30 universal receiver enables precise acoustic fault location. Exact cable tracing and depth determination is possible in conjunction with the SP 30 search coil. The great advantage lies in the combination of methods for cable tracing, acoustic fault location, twist and channel location for pinpointing as well as cable sheath fault location.

Facts
- Acoustic pinpointing
- Digital display of the fault distance
- Cable depth measurement
- Determination of the fault distance between cable channels
- Location of cable sheath faults
- Cable tracing
- Splashproof design
- Integrated loudspeaker
- Large, illuminated LCD display
- Light weight
- Digital filter for the suppression of traffic noise

Always first: Economic benefit for the customer.

Every BAUR system and device for cable fault location is optimised for the customer’s economic benefit. For pinpointing in particular with the great time effort involved this is a significant benefit. That’s easy to say, but it must be considered from the perspective of the user, taking into account aspects of performance and cost. “Inexpensive” equipment can prove to be costly in use. A good understanding of the entire process, and an analysis of personnel and training costs or the cost of special vehicles is necessary.
Simple operation for cable search with ergonomic design. The BAUR CL 20 cable locator.

Key benefits
- Easy-to-understand operating interface
- Extremely easy to operate
- Fast, precise alignment determination
- Durable design for field use
- Flexible for different measuring situations; 3 location options, 3 (active) + 2 (passive) frequencies
A versatile lightweight. 
The BAUR CL 20 cable locator.

The BAUR CL 20 cable locator with its new, ergonomic design, combined with the latest user-friendly electronics, offers all the benefits one could wish for in a successful unit for finding cables. The lightweight, ergonomically constructed receiver, equipped with modern, easily understood user assistance features on a graphical display, enables fast, precise alignment determination for cables and metallic gas and water lines. Its numerous functions, such as direct galvanic coupling or inductive coupling via active search frequencies and passive location with 50 Hz grid frequency, enable the CL 20 to be used anywhere.

Facts

- Extremely simple to handle with a modern, easy-to-understand operating interface
- Dirt- and moisture-proof membrane keypad with integrated graphic display
- Optical signal display and acoustic signal with variable frequency
- Minimum and maximum method selectable at the push of a button
- Direct display of cable laying depth
- Measurement of signal current strength for cable identification
- Signal strength at the push of a button
- Two active search frequencies and a 50 Hz passive frequency selectable
- Powerful frequency transmitter with automatic impedance adjustment
- Simultaneous use of both active frequencies selectable
- Option: GRP sheath fault location

Efficient searching for cables with state-of-the-art electronics.

The exact run of a cable often cannot be determined with the digitally available cable data and section maps. BAUR equipment enables the position and depth of cables, gas and water lines to be determined as quickly as possible. Users and companies benefit from the versatility of the units, with electronics designed for simple operation with the greatest possible efficiency.
For fast, reliable identification.
The BAUR KSG 100 cable identification system.

Key benefits

- 100% reliable cable identification
- Easy operation requires no training
- No tedious preparation required
- Essential tool for personal safety
- For single and multicore power and signal cables
Top reliability. Extremely user-friendly.
The BAUR KSG 100 cable identification system.

The KSG 100 cable identification system is used to identify single and multicore cables and lines in a cable harness. The KSG 100 offers numerous functions such as fully automatic amplification adjustment or time and phase synchronisation between sender and receiver via user-friendly navigation. This practically precludes errors in usage. The voltage-stable signal coupling with rugged protective technology makes this product an extremely efficient and reliable cable identification device, despite its small size. It’s the professional’s best “life insurance” on location.

Facts

- Cable identification of single and multicore power and signal cables
- Signal recording using digital three-factor analysis of amplitude, time and phase (ATP)
- Accurate detection of direction even with high loop resistance
- Fully automated amplification adjustment
- Inductive impulse feed via current transformer clamp for live lines
- High pulsed current up to 180 A
- Ergonomically designed receiver with integrated graphic display
- No batteries required for the receiver
- Flexible Rogowski coils for large cable diameters
- Optional: Current measurement up to 199 A with one-button operation
- Optional: Cable and line identification for live low-voltage cables up to 400 V by means of galvanic connection

When the clock is ticking.

Some cable faults cause little stress, while others are more problematic. They are particularly inconvenient in densely built-up terrain with many affected users as well as sensitive buildings and systems. The situation also becomes critical when streets have to be dug up and cables identified. It’s therefore practical when the on-site personnel have the best possible equipment available.
Cable tracing and pinpointing of twisted cables. The BAUR TG 600 and TG 20/50 audio frequency generators.

Key benefits

- Powerful and robust
- Precise location of cable faults in twisted cable
- Location of faults in couplings
- Long service life
- Available in integrated and portable versions
Proven over and over again.
The BAUR TG 600 and TG 20/50 audio frequency generators.

The TG 20/50 with automatic impedance adjustment is a portable, battery-operated audio frequency generator with a built-in charger. As soon as an audio signal is fed into an electrical conductor, the cable route and depth can be determined. The TG 600 high-performance audio generator with an output of 600 VA can be used as an alternative to the TG 20/50. The TG 600 audio frequency generator was designed specifically for the precise location of cable faults and couplings using the twist method. The display of the input and output current makes the selection of the correct impedance easier. The maximum output can be set between 60 and 600 VA. The TG 600 is usually integrated in cable fault location systems.

### Facts TG 600
- High-performance audio frequency generator up to 600 VA
- Frequency of 2 or 10 kHz, quartz-stabilised
- Potential-free output
- Eight-level impedance adjustment from 0.3 to 300 Ω
- Switchable reactive power compensation for optimal adjustment
- Thermal overload guard
- Display of input and output current

### Facts TG 20/50
- Output 20 VA (battery operation) and 50 VA (mains operation)
- Switchable between two frequencies
- Output impedance in seven levels
- Manual or automatic impedance adjustment
- Thermal overload guard
- Display of input and output current as well as battery status

Quality and added value from BAUR.

BAUR quality is expressed in many different ways. One of these is outstanding efficiency for the user, which is reflected in the technologies implemented and the user-friendliness of the devices. Other signs of BAUR quality include the fine craftsmanship and long service life of the products. These are enhanced by the pioneering design of the devices and systems, which makes an investment in BAUR equipment secure and profitable.
State-of-the-art cable fault location.
The BAUR Syscompact 1000 low voltage fault location system.

Key benefits
- Multifunctionality - Many methods in one system
- Fast, reliable cable fault location
- Compact and portable
- Requires no special tools
- Ideal for low voltage stations that are difficult to access
The system you can depend on.
The BAUR Syscompact 1000 low voltage fault location system.

The SYSCOMPACT 1000 is an extremely compact, easy-to-use, multifunctional cable fault location system. It utilizes numerous different methods and is ideal for use in low-voltage networks. The STG integrated surge and test generator is used for cable and sheath testing and for the precise location of high-resistance and intermittent faults. Thanks to the extremely efficient SIM/MIM method of fault pre-location, high- and low-resistance as well as intermittent faults can be precisely located with the IRG 2000 pulse reflection measuring unit.

Facts
- Extremely easy operation, self-explanatory menu navigation in the user’s language
- Pulse reflection method
- Secondary/multiple impulse method (SIM/MIM)
- SIM/MIM with DC voltage (SIM DC)
- Acoustic fault location with integrated runtime measurement of sound waves
- Highest safety standard - safe to touch
- 0.1 kV to 4 kV surge voltage
- High surge energy of 600 joules (1000 joules optional)
- Test voltage up to to 5 kV, adjustable in 0.1 kV steps
- Breakdown detection
- Storage for 100 measurement records
- Easy data transfer to PC
- Optional additional functions: Resistance measurement, inverse voltage detection and inverse voltage resistance, acoustic fault location with integrated runtime measurement of sound waves,
- Manhole mode sheath fault location

A primary BAUR principle: “Thinking like our customers”.

Customer orientation and proximity to customers can mean a lot of things. For us, it means first and foremost having a full and correct understanding of the situation of the energy suppliers and being responsive to it as a partner, e.g. locating faults in low-voltage networks and community networks, often with difficult faults that can be hard to access. BAUR also offers optimal, highly flexible equipment for this purpose.
Extremely efficient cable fault location.  
The BAUR Syscompact 2000 cable fault location system.

Key benefits
- Fast and reliable for low and medium voltage networks
- Precise, dependable fault location
- Maximum functionality
- Outstanding flexibility
- No training necessary
- Compact system for pre-location and pinpointing
Flexibility, speed, precision.
The BAUR Syscompact 2000 cable fault location system.

The Syscompact 2000 is a multifunctional cable fault location system designed for modular 19” rack technology. The integrated surge and test generator is used for cable and sheath testing as well as for the precise location of high-resistance and intermittent faults. The Syscompact 2000 is intended primarily for use in medium- and high-voltage networks, but can also be used in low-voltage networks. Cable faults can be located in cables up to a length of 65 kilometres. High- and low-resistance faults as well as intermittent faults can be located using echometry and the most efficient fault pre-location method (SIM/MIM) as well as the impulse current method.

Facts

- Impulse reflection method (TDR)
- Secondary/multiple impulse method (SIM/MIM)
- SIM/MIM with DC voltage (SIM DC)
- Impulse current method
- Compact design, available as a pallet system or on wheels
- Continuous cable testing from 0 to 32 kV
- Max. surge power 2100 joules
- 100 storage registers
- Easy data transfer to PC
- Optional: Acoustic fault location with integrated runtime measurement of sound waves and manhole mode, cable tracing, depth measurement, cable sheath fault location, very low frequency (VLF) or DC voltage cable testing up to 80 kV, cable diagnostics, burn mode, twist method

Resolving critical situations quickly and cost-effectively.

Each fault triggers a more or less critical situation. Cable fault location never becomes routine due to a wide variety of factors, types of faults, cable types, voltage levels and environmental conditions. Nevertheless, faults must be detected as fast and reliably as possible to limit economic losses. BAUR provides the optimal equipment for this in the most cost-effective manner. A good example of this is systems such as the Syscompact, which can be used for low-voltage networks as well as medium- and high-voltage cable.
Complete, compact, consistently multifunctional. The BAUR Syscompact 2000 M cable fault location system.

Key benefits
- Full mobility thanks to the trolley
- Fast, reliable fault location in low and medium voltage networks
- Outstanding flexibility - for cable lengths up to 65 kilometres
- No training necessary
- A system for pre-location and pinpointing
- Maximum functionality and flexibility
Systematic user orientation.
The BAUR Syscompact 2000 M cable fault location system.

The SYSCOMPACT 2000 M is a mobile, multifunctional cable fault location system. The integrated surge and test generator is used for cable and sheath testing as well as for the precise location of high-resistance and intermittent faults. It is used primarily for cable fault location in cables up to a length of 65 kilometres in low- and medium-voltage networks. High- and low-resistance faults as well as intermittent faults can be located using the IRG 2000 echometer thanks to the integration of state-of-the-art fault pre-location methods (SIM/MIM) as well as the impulse current method.

**Facts**

- Pulse reflection method
- Secondary/multiple impulse method (SIM/MIM)
- Impulse current method
- Acoustic fault location with integrated runtime measurement of sound waves (with UL 30 universal receiver and BM 30 ground microphone)
- 16 kV surge voltage in two ranges (1 kV to 8 kV and 1 kV to 16 kV)
- Surge energy of 1024 joules
- Test voltage up to to 16 kV, adjustable in 0.2 kV steps

- Easy portable (on wheels)
- Menu-guided control
- Extremely easy operation, self-explanatory menu navigation in the user’s language
- Storage for 100 measurement records
- Easy data transfer to PC
- Additional functions: Manhole mode, cable tracing, depth measurement, cable sheath fault location

**Use technology to save time and money.**

BAUR units and systems such as the Syscompact represent the state of the art in technical development. To ensure optimal use of the technology for users and companies, BAUR devices and systems offer extraordinary features such as self-explanatory menu navigation in the user’s language and the variety of uses in different voltage networks and for various purposes. These and many other features save you time and money.
Highest efficiency and effectiveness.
The BAUR Syscompact 3000 cable fault location system.

Key benefits
- Fast, reliable high performance for high-, medium- and low voltage networks
- Stand alone or integrated in cable test van
- Maximum functionality and flexibility
- A system for pre-location and pinpointing
- Can be expanded to diagnostic system - investment splitting
- Suitable for cable lines of more than 200 km length
State-of-the-art methods, maximum user convenience. The BAUR Syscompact 3000 cable fault location system.

The Syscompact 3000 is a multifunctional cable fault location system designed for modular 19” rack technology. The integrated surge and test generator is used for cable and sheath testing as well as for the pre-ocation and pinpointing of high-resistance and intermittent faults. Cables of more than 200 kilometres in length can be measured. High- and low-resistance faults as well as intermittent faults can be located using the IRG 3000 echometer thanks to the integration of state-of-the-art fault pre-location methods (SIM/MIM) as well as the impulse current method. The computerised IRG 3000 echometer facilitates automatic, standardised reporting.

Customisation is the key to greater efficiency.

BAUR offers its customers an extremely large range of systems and devices for cable fault location, giving users the option of putting together their own individual equipment systems, matched precisely to the company and its needs. Systems such as the Syscompact 3000 have a modular design due to the varying energy classes of the voltage generators. They can be installed in cable test vans, removed as required and even expanded to create diagnostic systems.

Facts

- Impulse reflection method (TDR)
- Secondary/multiple impulse method (SIM/MIM)
- SIM/MIM with DC voltage (SIM DC)
- Impulse current method
- Perfect measuring accuracy up to 200 kilometres
- High-performance impulse level up to 160 V for cables with higher damping
- Continuous cable testing with DC voltage from 0 to 32 kV
- Maximum surge energy to 3000 joules
- Computerised cable fault location
- Easy data transfer and analysis
- Can be used as a stand-alone system and integrated in a cable test van
- Additional functions: Acoustic fault location with integrated runtime measurement of sound waves, manhole mode, cable tracing, depth measurement, cable sheath fault location, three-phase measurement, very low frequency (VLF) or DC voltage cable testing up to 80 kV, cable diagnostics, burn mode