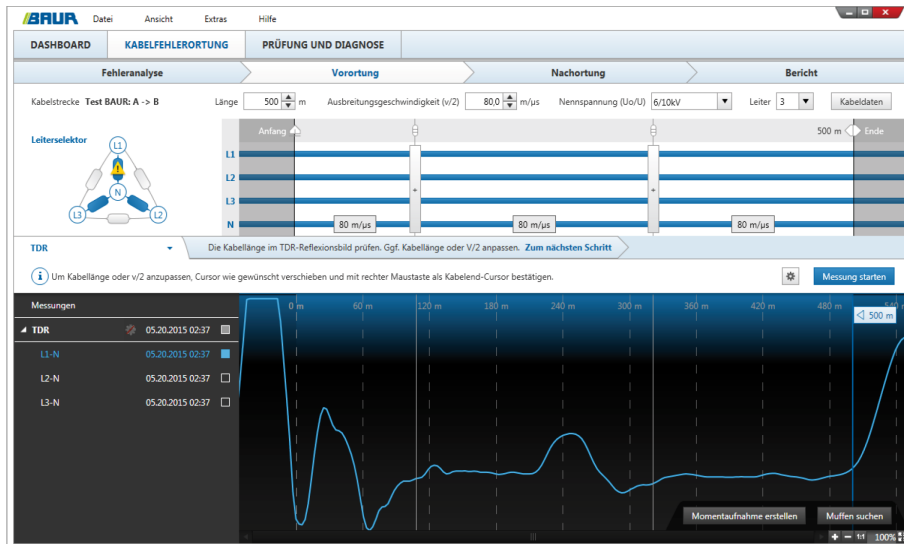


IRG 4000 / BAUR Software 4

BAUR time domain reflectometer / software for cable fault location



The figure is illustrative.

Reliable cable fault location with minimum effort

- Easy operation thanks to the intuitive operational concept
- Maximum precision with high resolution and sampling rate
- Precise fault location methods for every type of fault

The IRG 4000 time domain reflectometer is integrated in BAUR cable fault location systems and is used in combination with the software for locating cable faults in single and three-phase cable systems.

Thanks to the novel operational concept, cable faults can be located more rapidly and easily with IRG 4000. A high-performance industrial PC and improved measurement parameters allow for a precise cable fault location in all cable types.

The well-proven and continuously enhanced methods are available for the cable fault location as well as the newly developed Conditioning SIM/MIM** method which makes it even more effective and quick to locate wet cable faults that are difficult to detect. The SIM/MIM technology with 20 reflection measurements per HV pulse allows for selecting the best reflection image for a very precise determination of the fault distance.

Fault location methods

- Insulation resistance measurement up to 1,000 V
- TDR: time domain reflectometry (1- and 3-phase)
- Envelope curve display for intermittent faults – even small changes in impedance are made visible and saved.
- SIM/MIM: secondary/multiple impulse method with surge voltage or in DC mode
NEW: 20 reflection measurements per HV pulse
- Conditioning-SIM/MIM**: fault conditioning with subsequent SIM/MIM measurement
- ICM: impulse current method with surge voltage or in DC mode
- Decay method
- Differential methods* for the fault location in branched networks

Features

- Intuitive user interface in multiple languages adapted to the work flow
- Integrated proven cable fault pre-location methods
- Automatic detection of cable end and fault position
- Dynamic input signal gain
- Automatic saving of all measurement data
- Storage for more than 100,000 measurements
- Interface to GIS databases*
- Voltage-proof up to CAT II/600 V
In combination with TDR connection cable* up to CAT IV/600 V
- Can be combined with BAUR cable testing and diagnostics systems (for installation in the cable test van)

Note: The availability of individual methods depends upon the system configuration. An overview of the available optional functions can be found on page 4.

* optional function

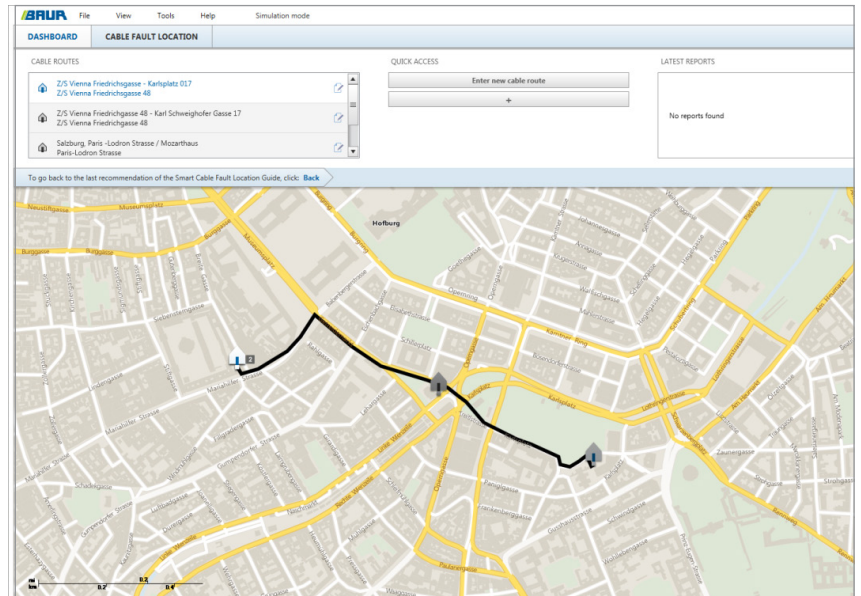
** only available for titron® systems

IRG 4000

Time domain reflectometer for cable fault location systems

The new intuitive operational concept

- Intuitive modern user interface in multiple languages – no long introduction or familiarisation period is required
- Optimal operator support during cable fault location provided by the Smart Cable Fault Location Guide**
- BAUR GeoBase Map*:
 - Unique combination of road maps, including the cable route
 - GPS-based system location determination
 - Cable routes and cable faults displayed on the map
- Cable Mapping Technology CMT: Overview of cable accessories and faults in relation to the cable length
- All data on the cable route such as geographic position*, voltage level, joints, all measured values, etc. are automatically saved and can be accessed at any time.
- Quick and easy compilation of clear and precise measurement logs – with freely selectable company logo, comments and figures of the traces.



Easy and convenient to operate

- Standard, convenient operation by means of a mouse and keyboard
- Proven Windows operating system
- Installation of office software, e.g. MS Office programs, company-internal ERP systems, GIS and web applications, is possible.
- Printers, laptops and data carriers can be connected via standard connections.
- GIS interface* enables an exchange of cable data between your GIS database and the BAUR software.

Online system

- Online support via the Internet
 - With your permission, BAUR's customer service department can access your system computer, identify your problem and quickly find a solution.
 - During the fault location, your engineers can share the desktop with the test engineer on site and support him in the analysis of the measurement results (where applicable, a licence for a desktop-sharing program may be required).

* optional function

** only available for titron® systems. For further information on the advantages of the titron® automatic cable test van, please refer to the titron® data sheet.

Technical data

Pulse reflectometry	
Pulse voltage	TDR 20 – 200 V
Pulse width	20 ns – 1.3 ms
Output impedance	8 – 2,000 Ohm
Input signal gain	Dynamic range 107 dB (-63 to +44 dB)
Display range	10 m – 1,000 km (at $v/2 = 80 \text{ m}/\mu\text{s}$)
Accuracy	0.1% relating to the measurement result
Data rate	400 MHz
Resolution	0.1 m (at $v/2 = 80 \text{ m}/\mu\text{s}$)
Velocity of propagation ($v/2$)	20 – 150 m/ μs , adjustable
Measurement modes	<ul style="list-style-type: none"> ▪ Automatic measurement mode ▪ Differential measurement ▪ Mean value calculation ▪ Continuous measurement ▪ Stop after recording the change ▪ Envelope curve display for the location of intermittent faults
Export format for report	PDF
Insulation resistance measurement	
Voltage	up to 1,000 V
Measurement range	0 ohm – 5 GOhm

General	
Operating system	Windows 10 (or higher)
Memory	8 GB RAM
Storage capacity	> 100,000 measurements (hard disk limit)
Hard disk	SSD industry standard
Display	TFT monitor acc. to offer
Power supply	100 – 240 V, 50/60 Hz
Max. power consumption	150 VA
Voltage-proof up to	400 V, 50/60 Hz; up to CAT II/600 V In combination with TDR connection cable* up to CAT IV/600 V
Ambient temperature	0°C to +50°C
extended temperature range*	-20°C to +60°C
Storage temperature	-20°C to +60°C
Safety and EMC	CE-compliant in accordance with Low Voltage Directive (2014/35/EU), EMC Directive (2014/30/EU), EN 60068-2-ff Environmental testing

* Limited display performance possible

Standard delivery

- IRG 4000 time domain reflectometer, incl. BAUR software
- Mains supply cord, 2.5 m
- Wireless PC keyboard and mouse
- Mouse pad
- 19" rack, height 8 RU (355.6 mm), depth 400 mm
- User manual

Accessories and options

- TDR connection cable, 3-phase, 25 m, on hand cable drum
- TDR connection cable, 3-phase, 50 m, on hand cable drum
- Measuring cable 3 m, with connection clips (fully insulated 3-phase design)

If the IRG 4000 is not integrated in a cable fault location system, the standard delivery depends on the quotation.

Optional software functions

	Integration in a cable fault location system			
	IRG 4000	titron®	transcable 4000	Syscompact 4000
BAUR GeoBase Map (countries available on request)	Optional	Optional	Optional	Optional
Interface for GIS data export/import	Optional	Optional	Optional	Optional
BAUR Fault Location App (for remote control of the surge voltage generator)	Optional	Optional	–	–
Insulation resistance measurement	Optional	✓	Optional	Optional
Differential methods	Optional	Optional	Optional	–
Control via laptop	Optional	Optional	–	–
BAUR software 4 for office PC (office installation)	Optional	Optional	Optional	Optional

- ✓ = included in the standard delivery
- optional = available as an optional extra
- = not available

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