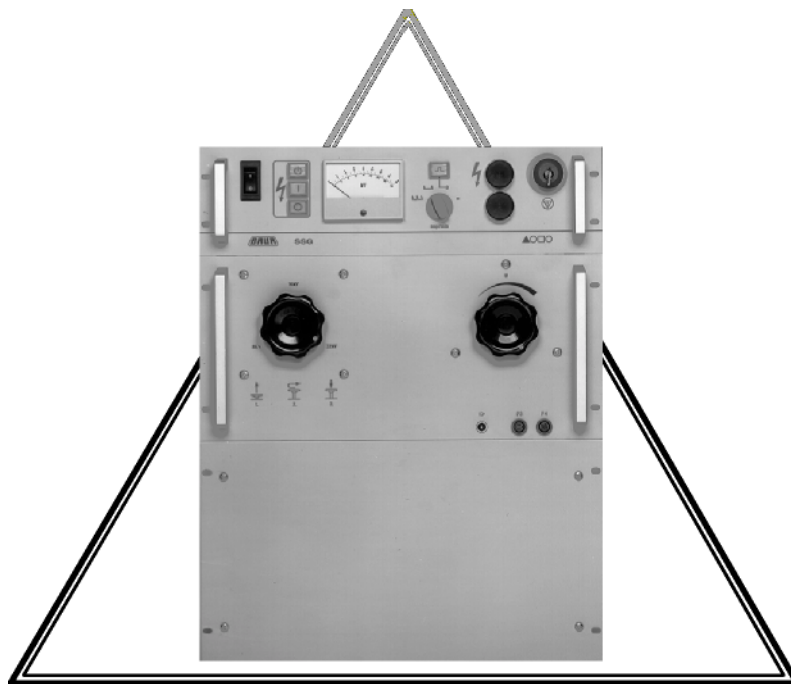


User manual

Surge Voltage Generator SSG 1100 SSG 1500 SSG 2100 SSG 3000



Guide to this Operating Instruction



For fast finding of important information the corresponding text passages are marked with symbols (symbols not stated here are self-explanatory).



More and special information concerning the respective subject are available from BAUR.



Important information about the instrument!

In any case, read carefully!



Important information text.

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In the interest of our customers we reserve the right for modifications due to technical progress. Illustrations, descriptions and delivery content are therefore not binding.

Preface

This manual contains all information necessary for the correct handling and operation of the described system. Before using the system please read carefully this User Manual. If you have any questions please contact directly:



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BAUR Prüf- und Messtechnik GmbH, Raiffeisenstrasse 8
A-6832 Sulz / Austria

or refer to your nearest BAUR representative.

Safety precautions



Only authorized personnel!

It is imperative to every person who is involved with the installation, start-up, operation and maintenance to have read and understood the complete Operating Instruction.

It is the responsibility of the customer to ensure that only authorized persons may be allowed to use the surge voltage generator.

The user

- is qualified and properly instructed and has the necessary experience.
- knows the relevant standards, accident prevention rules and operating conditions.
- is able to carry out the necessary operations and is aware of the possible dangers involved.
- must immediately inform his superior about any conditions of the unit that could affect safety.

The surge voltage generator is used for cable fault location at layed power cables!

Any other or additional use is deemed to be in contravention of the intended use. The manufacturer shall not be liable for damage resulting from any such use. In such a case the risk shall be borne solely by the user.

The local safety and accident prevention rules are always applicable to the operation of the surge voltage generator unit. Especially the surge voltage generators may not be used in potentially explosive atmosphere or at test objects which are in service.



Danger! High-voltage

When using surge mode:

- Cordon off surge voltage generator at a distance of 1.5 m
- Persons must stand only outside the barrier

Warranty



At the customer's written request we undertake to repair or replace at our discretion and as quickly as possible all parts that become faulty as the demonstrable result of poor material, faulty design or defective workmanship. We shall bear the costs of any faulty parts requiring replacement, but not the costs of transport to us and back to the customer, nor the costs of packing and insurance! The **12 month warranty** time starts from delivery. We shall not be liable for any damage resulting from normal wear and tear, improper handling, non-observance of Operating Instructions and safety regulations. We shall also refuse to accept any liability if the customer carries out repairs or changes to the unit themselves or has others carry them out! The warranty does not cover damage in transit, batteries, fuses and any readjustments in accordance with the Operating Instructions!

We draw attention in addition to the '**General Sales and Business Conditions**' of:

BAUR Prüf- und Messtechnik GmbH Raiffeisenstrasse 8,
A-6832-Sulz / Austria

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1 Product Information

1.1 Design and function

Design

Instruments of the SSG family are rack mounting units in the 19" format. Various operating and indicating elements are mounted on the front panel, connecting elements are mounted on the back plate. The instruments contain their own high voltage generator, impulse-proof surge capacitors, automatic and manually triggered spark gaps and an internal discharge device. The instrument control contains the necessary safety circuits also for connection of an external Emergency Stop unit and for the operation of the SA 32 option

High voltage generation

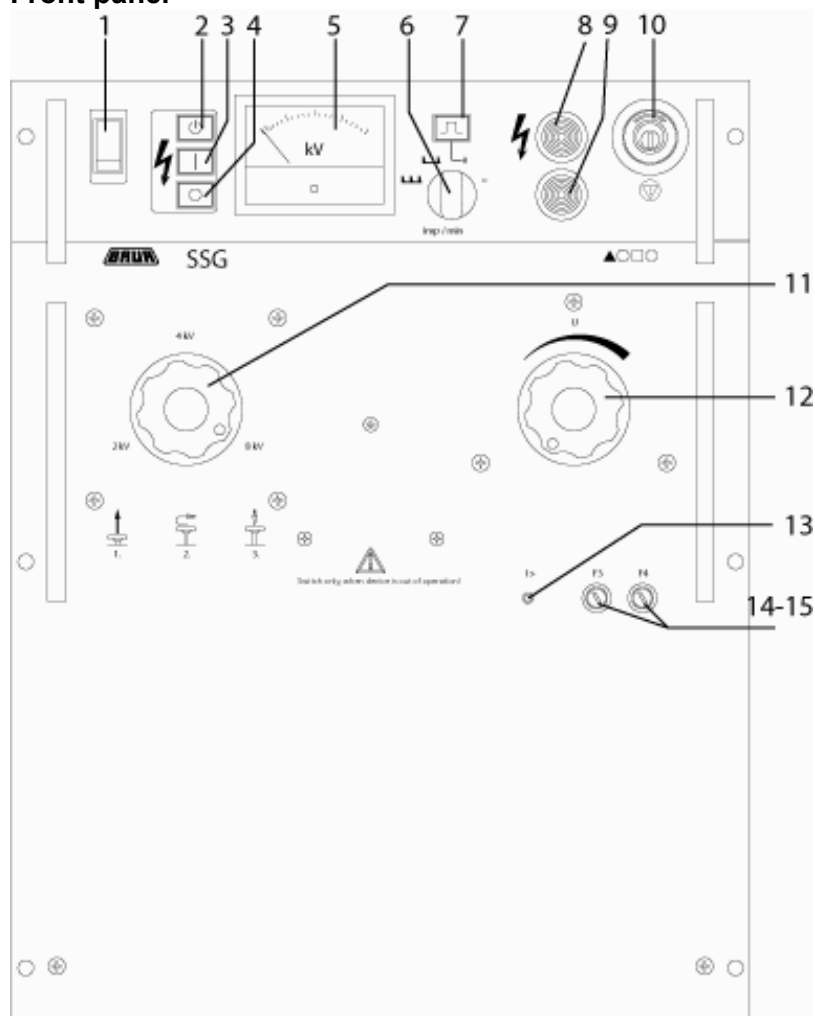
Mains is connected to a variable transformer which supplies the primary winding of a H.V. transformer. The secondary windings of the high voltage transformer features four high voltage windings, fully isolated of each other, which are connected each to a partial capacitor through a half-wave rectifier. Using the range selector switch (15) the partial capacitors become connected to each other. The series connection allows a maximum voltage of 32kV. The connection of two capacitors each in series and parallel allows a maximum 16kV and the complete parallel connection of the capacitors leads to a maximum voltage of 8kV. In this configuration it can be accomplished, that the maximum surge energy of the capacitors is available in three voltage ranges.

Function

The Surge Voltage Generators SSG 1100, SSG 1500, SSG 2100 and SSG 3000 are designed in such a way that they generate pulse-shaped voltages with a steep edge, which should start to break down the cable fault. The high surge current flowing at the cable fault generates electromagnetic and acoustic waves which radiate from the cable fault. These waves can be detected on the ground surface with appropriate detection devices such as search coils or ground microphones. The SSG 1100, SSG 1500, SSG 2100 and SSG 3000 however can also be implemented for pre-location. In this case they are used as burn down device for short time operation or they can be used with an echometer and the SA 32.

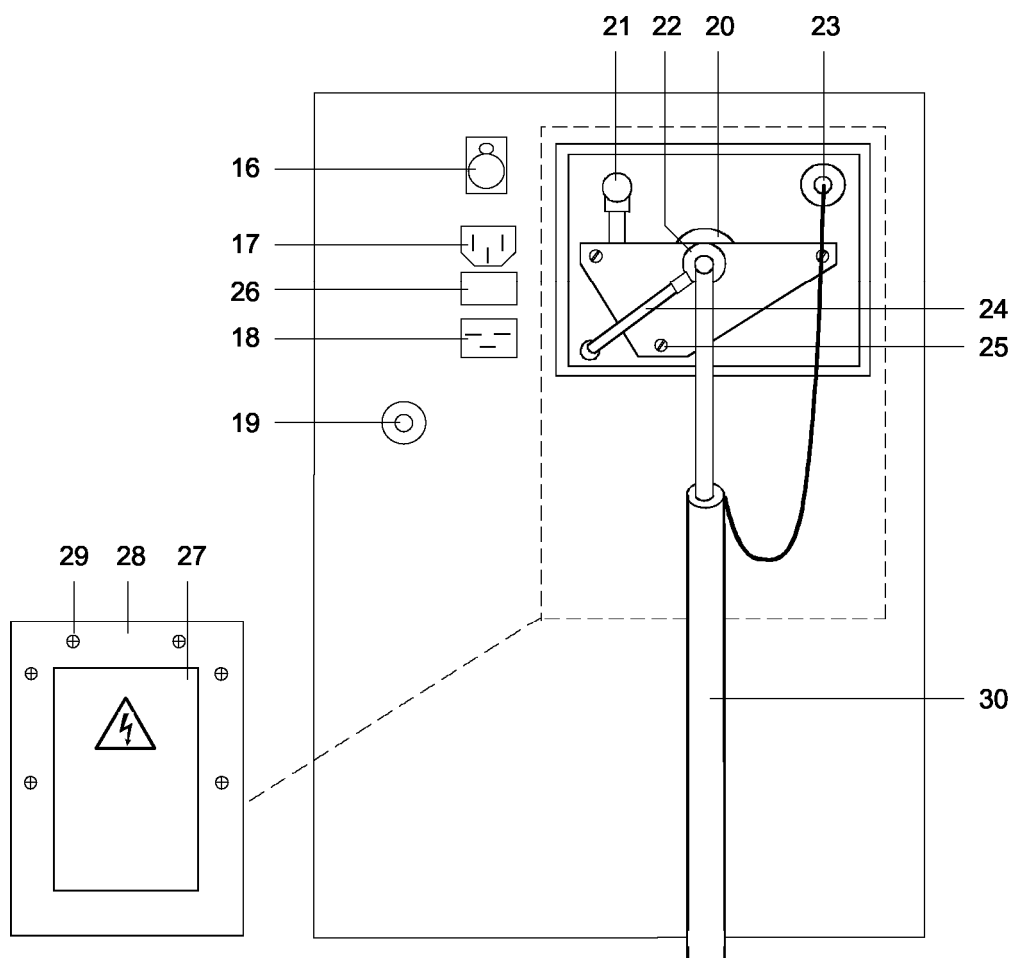
1.2 Display and operating elements

Front panel



- 1 **Mains switch** as overload protection switch with thermal tripping
- 2 **Push button switch „Ready to switch on“** (⏻)
- 3 **Push button switch „H.V. On“** (I) with indicator lamp for high voltage clearance.
The indicator lamp serves as feedback for the operating state „IN OPERATION“
- 4 **Push button switch „H.V. OFF“** (O) returns instrument state to „READY FOR OPERATION“.
- 5 **Voltmeter** of class 1.5 for display of output voltage in kV
- 6 **Mode selector switch** for selecting operating modes "Fast impulse sequence", "Slow impulse sequence", "Single impulse triggering", "D.C. operation".
- 7 **Push button switch for single impulse triggering**
- 8 **Red indicator lamp** for feedback of operating condition „READY TO SWITCH ON“ and „IN OPERATION“
- 9 **Green indicator lamp** for feedback of operating condition „READY FOR OPERATION“
- 10 **EMERGENCY OFF switch pushbutton (lockable)** for activating the EMERGENCY OFF function and to protect against unauthorized switching on
- 11 **Range selector switch** for voltage ranges 8 / 16 / 32 kV
- 12 **Variable transformer** for varying the output voltage according to the voltage ranges selected with the range selector switch
- 13 **Overload protection switch** with thermal and magnetic tripping
- 14 **Fuse F4** (3,15A slow-blow) for control of lifting magnet and control of SA 32 (option)
- 15 **Fuse F3** (3,15A slow-blow) for control of lifting magnet and control of SA 32 (option)

Backplate



- 16 Connection socket for external **EMERGENCY OFF** unit with jumper plug
- 17 Connection for mains to SA 32
- 18 Connection for mains
- 19 Terminal for connection of protective earth lead
- 20 Spark gap
- 21 Shorting bar for bridging the spark gap during D.C. operation
- 22 Knurled nut for H.V. connection
- 23 Knurled nut for station earth connection
- 24 Connecting lead to discharge unit
- 25 Mounting screws for electrode support
- 26 Type plate
- 27 Danger sign
- 28 Safety cover for protection against direct and indirect contact
- 29 Mounting screws for protective hood
- 30 High voltage connecting lead

1.3 Technical data

	SSG 1100	SSG 1500	SSG 2100	SSG 3000	Unit
Mains voltage	see type plate				V
Mains frequency	45 to 60	45 to 60	45 to 60	45 to 60	Hz
Max. power consumption (at short circuit condition)	3000	5000	5000	5000	VA
Max. output voltage	32	32	32	32	kV
Max. surge energy	1100	1536	2048	3000	Ws
Accuracy of kV-meter	1,5	1,5	1,5	1,5	%
Dimensions of housing (W x H x D)	ca 514 x 654 x 730			514x654x880	mm
Weight	79		126	147	kg

2 Packing and Shipping

The instruments are shipped in robust cardboard cartons on wooden pallets. If the instruments are not used immediately, always keep in closed carton and store in dry rooms!

Damage during transport

Complaints concerning damages should be made to us without delay, using a standard transport damage claims form.

Confirmation of visible damage should immediately be obtained from the carrier.

The extent and the probable cause of damage should be stated.

If damage is discovered during unpacking, contact the responsible transportation company **immediately**. Request a written loss assessment and make them responsible for the damage! We also refer to the "General Terms of Sale and Delivery", of:



BAUR Prüf- und Messtechnik GmbH
A-6832 Sulz/Austria

3 Placing into operation



The surge voltage generators of the SSG family are primarily intended for use in the field of power cables. Do not use them for data transmission cables or communication cables!

3.1 Operating modes

Impulse operation

The impulse operation serves first of all for fault locating and is divided into manual and automatic impulse triggering. The mode selector switch (6) allows to switch between positions „Manual impulse sequence“, „Slow impulse sequence“ and „Fast impulse sequence“ even during operation and under voltage.

Manual impulse triggering

Manual impulse triggering is primarily intended for application of the surge voltage generator in pre- locating, as for example in connection with the Intercom SA 32 (option) and the echometer. By applying the secondary impulse method in high resistance faults, an assessment of the fault distance with one or a few impulse trigger actions can already be made.

- Turn mode selector switch (6) into position 0.
 - The pushbutton switch for single impulse triggering is now activated. The spark gap can be activated by pressing the pushbutton switch as soon as the instrument is in the operating condition "READY TO SWITCH ON".

Automatic impulse triggering

Automatic impulse triggering is primarily used for pin-pointing a cable fault.

The SSG 1100, SSG 1500 and SSG 2100 are equipped with a timer coupled to the mains frequency which allows for automatic impulse triggering with impulse frequencies of 10/min and 20/min. The timely regularity of the subsequent impulses serves to better differentiate between the signals of the fault location and interferences.

Depending on different surge capacities and performance of instruments the following impulse frequencies (per minute) are available at 50 Hz.

Mode selector switch	SSG 1100	SSG 1500	SSG 2100	SSG 3000
Slow impulse sequence	10 / min	20 / min	10 / min	10 / min
Fast impulse sequence	20 / min	30 / min	20 / min	15 / min

- Turn mode selector switch (6) to the left position "Slow impulse sequence" or to the fully left position "Fast impulse sequence".
 - Once the instrument is in the operating condition „READY TO SWITCH ON“ it closes the spark gap automatically according to the appropriately selected impulse sequence.

DC operation

The Surge Voltage Generator can be put into D.C. operation via the mode selector switch (6).

- Turn mode selector switch (6) to the fully right position =.
 - The shorting bar bridges the spark gap and as a result the H.V. output is directly connected with the surge capacitor.

Fault location

In D.C. operation, with the surge capacitors connected, the voltage is increased until the cable fault breaks down. This mode of operation is recommended especially for estimating the breakdown voltage in order to conduct an optimal range selection for the impulse operation. In combination with the SA 32 option and the echometer, the D.C. operation can also be implemented in prelocating of cable faults.

Testing

D.C. voltage tests can also be conducted in the D.C. operation. It is however important that the connected surge capacity, in case of a breakdown, is discharged through the fault location and that the surge generator switches to burn down operation. The instrument protects itself from overloads switching off automatically after a certain time by the overload protection switch (14). During short term operation, maximum output currents can be found during the burn down process according to the following table.

Range selector switch	max. output current (IMAX)			
	SSG 1100	SSG 1500	SSG 2100	SSG 3000
in 8 kV position	560 mA	850 mA	850 mA	850 mA
in 16 kV position	280 mA	425 mA	425 mA	425 mA
in 32 kV position	140 mA	210 mA	210 mA	210 mA

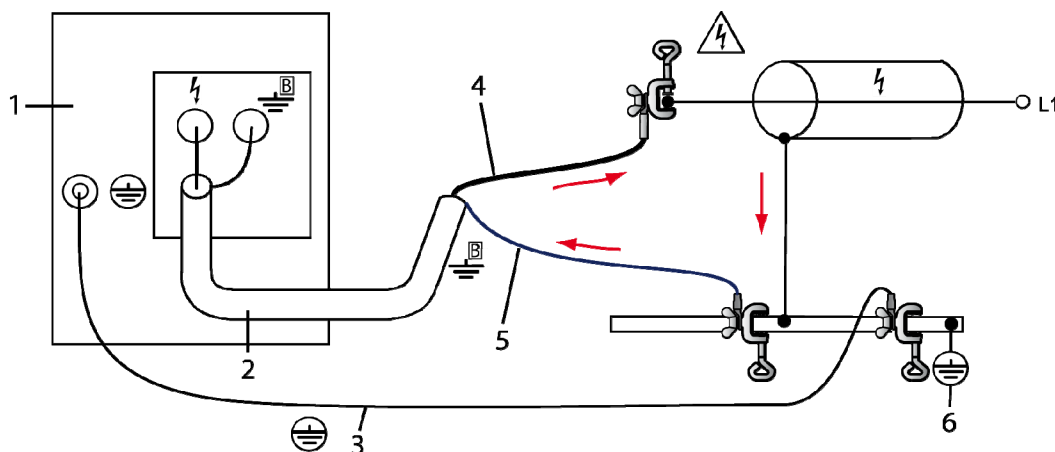
In connection with the Intercom SA 32 (option) with mA-meter the output current can be measured and be adjusted by changing the output voltage through variable transformer (11). Additionally, there is a possibility to limit the output current by a high-power resistor.

3.2 Connection of instrument

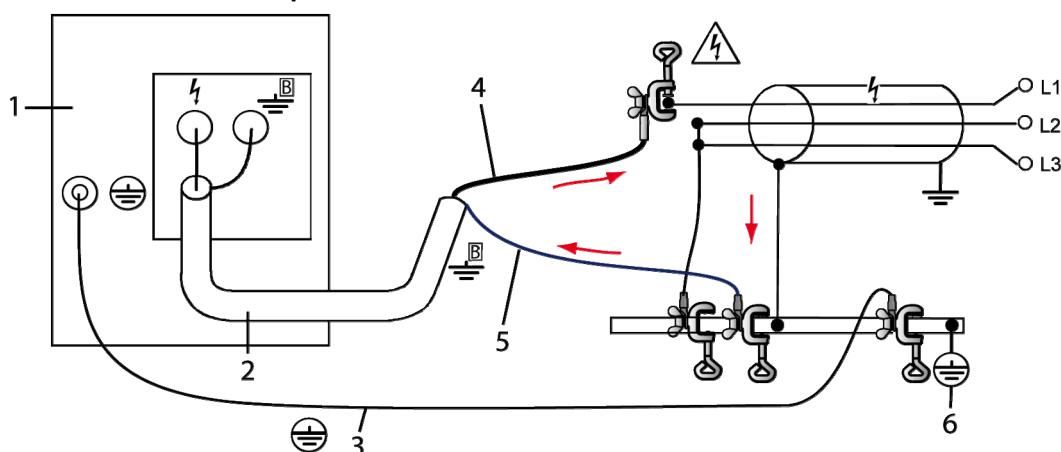


Observe correct position of connection terminals!
(also see Note on page 14)

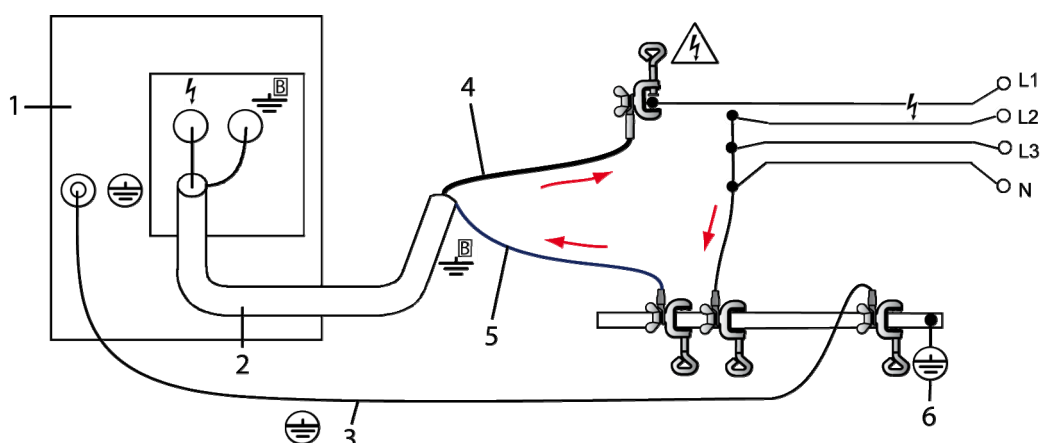
Connection to a single-phase shielded cable



Connection of a three-phase shielded cable



Connection to a three-phase unshielded cable with neutral



1. Rear view of device
2. High voltage connection cable
3. Protective ground cable
4. High voltage connection cable conductor
5. High voltage connection cable screen
6. Station ground

 - Protective ground connection

 - Operating ground connection

 - Pulse current flow

Preparing test object

- Isolate the test object
- Lock against reconnection
- Make sure that zero voltage condition exists.
- Insulate nearby items which are under voltage

It must be assured that nearby items of the station or cable system under voltage do not result in breakovers or breakdowns, due to applying surge or D.C. voltage of the surge generator to the test object.

- Connect all strands in the cable station, with the exception of the fault afflicted strand, to the station earth.

Attention! Wire size and insulating capacity of the cable system must be in an appropriate relationship to the amplitude of surge voltage and to the surge energy. Otherwise, overloading to the still intact parts of the system might occur.

Connecting the protective ground

- Connect the surge voltage generator with the station ground through the protective ground connection (19) on the rear plate of the device.



Attention! Connect the protective ground cable as close to the station ground connection as possible (see connection examples on page 13).

The protective earth lead should be kept as short as possible and must have low impedance (min. cross section 10 mm², copper).

Connecting the operating ground

The high voltage connection cable screen is used as operating ground.



The operating ground closes the electric circuit and is used for the return cable of the impulse current!

Connect the operating ground carefully because it must withstand the full surge current. Observe the correct terminal position!

- Connect the high voltage connection cable screen (operating ground connection) to the station ground. Select the location for the connection of the screen to the station ground as follows:
 - as close as possible to the location where the test object screen is connected to the station ground and
 - as close as possible to the location where the test object conductors that will not be tested are connected to the station ground (see connection examples on page 13).

Establisshing H.V. connection

- Connect strand of the high voltage connecting lead with the fault afflicted strand of the test object.



It is very important that all connections are of low resistance as possible. Bad connections can lead to weldings or contact wear.



At the instrument, protective earth and station earth may not be connected with each other. Otherwise, this would be result in an increase of potential and possible danger due to the high impulse flow. In the instrument the station earth is isolated from the protective earth up to an impulse voltage of 16 kV in order to avoid a flow of current via the protective earth line resulting in a voltage drop.

- Install external EMERGENCY OFF unit (option) at appropriate location and plug in the connection plug instead of the jumper plug (16) on back plate of surge generator.

3.3 Connection to mains

Mains operation

Connect instrument to mains supply using appropriate mains voltage and minimum fuse rating.



The protective conductor of the mains supply must have the same potential as the station earth!

Operation with emergency power generator

The generator must have adequate power to meet the maximum power requirements of the instrument (see technical data) without break down of voltage or frequency, due to its load. Otherwise, it could happen that the instrument will be switched off automatically.

- Set generator voltage according to mains voltage as indicated on type plate and connect instrument.



The separate network may not be electrical isolated but must be connected to protective earth!

3.4 Switch on



Danger! High-voltage

When using surge mode:

- Cordon off surge voltage generator at a distance of 1.5 m
- Persons must stand only outside the barrier

- Turn variable transformer (11) to its left position.
- Set range selector switch (15) to the desired range 8 /16 /32 kV.
- Pull out knob, turn to desired position and push back to its stop.
- Switch on mains switch (1)
The instrument is in operating condition "READY FOR OPERATION"
→ the green indicator lamp (9) is illuminated
- Press pushbutton switch „Ready to switch on“ (2). In case the overcurrent protection switch (14) has tripped, a buzzing sound occurs during depression of the „Ready to switch on“ (2) pushbutton switch. Activating the pushbutton switch is accepted by the instrument only if
 - the overcurrent protection switch (14) has not been tripped
 - the EMERGENCY OFF switch (10) is not activated,
 - the external EMERGENCY OFF unit (option) was not activated resp. The jumper plug is plugged in on the back plate.

The instrument is in operating condition „READY TO SWITCH ON“.

- the green indicator lamp (9) is out
- the red indicator lamp (8) is illuminated
- the discharge unit no longer affects the high voltage output
- if the automatic impulse sequence is selected, the triggerable spark gap will be activated at regular intervals. Other possibilities are tripping of a single impulse or in the D.C. position a continuously closed spark gap.

- Press pushbutton switch „High Voltage On“ I (3).
The high voltage transformer will be connected to the mains voltage only, if
 - the adjusting transformer is in its left position (neutral position)
 - the range selector switch (15) is depressed to its stop

The instrument is in operating condition „IN OPERATION“.

- the indicator lamp „In Operation“ of the push-button switch „High Voltage On“ I (3) is illuminated

Set variable transformer to the desired voltage

- On the kV-meter the valid scale is the one pertaining the voltage range selected by the range selector switch (15).

3.5 Switch off

- Turn variable transformer (11) back to its left position.
- Press pushbutton switch "High Voltage off" (4)
- The instrument returns into the operating condition „READY FOR OPERATION“. The high voltage transformer is disconnected from the supply voltage.
 - the indicator lamp „IN OPERATION“ of pushbutton switch (3) is out
 - the red indicator lamp (8) is out
 - the green indicator lamp (9) is illuminated
 - the discharge unit affects the internal high voltage capacitors and connected high voltage cables
 - the discharge process can be monitored on the kV-meter
- Live parts must be discharged, earthed and shorted.



The Surge Voltage Generators SSG 1100, SSG 1500, SSG 2100 and SSG 3000 features an internal discharge unit with separated discharge of surge capacitors and test object capacity, but not an internal earthing unit. Before cancelling the safety precautions, it is essential that all live parts are discharged, earthed and shorted once more externally, because they could have residual charges, caused by possible interruptions. Pay attention that during discharge, different and rather high discharge time constants can occur, depending on the connected test object capacity and the selected discharge rod.

3.6 Discharge

$$\tau = R \cdot (C_i + C_p)$$

Minimum discharge time: $5 \cdot \tau$

τ Discharge time constant
 R Discharge resistance
 C_i internal surge capacitor
 C_p Test object capacity

Instrument	SSG 1100	SSG 1500	SSG 2100	SSG 3000
C_i in 32 kV position	2,15 μ F	3 μ F	4 μ F	5,85 μ F
C_i in 16 kV position	8,6 μ F	12 μ F	16 μ F	23,4 μ F
C_i in 8 kV position	34,4 μ F	48 μ F	64 μ F	93,6 μ F
Internal discharge resistance for surge capacitors	16,5 k Ω	16,5 k Ω	16,5 k Ω	16,5 k Ω
Internal discharge resistance for test object capacity	16,5 k Ω	16,5 k Ω	16,5 k Ω	16,5 k Ω
recommended discharge rod	GDR 40-250	GDR 40-250	GDR 40-250	GDR 40-250
max. permissible voltage	40 kV	40 kV	40 kV	40 kV
max. perm. Discharge energy	600 Ws	600 Ws	600 Ws	600 Ws
time between two discharges	10 min	10 min	10 min	10 min
nominal resistance	250 k Ω	250 k Ω	250 k Ω	250 k Ω

3.7 EMERGENCY SWITCHING OFF

- Press EMERGENCY OFF pushbutton switch (11).
- The instrument returns to the operating condition „READY FOR OPERATION“. The high voltage transformer will be isolated from the supply voltage.
 - the indicator lamp „IN OPERATION“ of pushbutton switch (3) is out
 - the red indicator lamp (8) is out
 - the green indicator lamp (9) is illuminated
- The instrument can only be placed in the operating condition „READY TO SWITCH ON“  by pressing the pushbutton switch (2) „Ready to switch on“ if the EMERGENCY OFF pushbutton switch (10) has been unlocked with the key.



By pressing the EMERGENCY OFF pushbutton switch and taking out the key, unauthorized use of the instrument can be prevented.

4 Servicing / Maintenance

4.1 Safety precautions

The Surge Voltage Generators SSG 1100, SSG 1500, SSG 2100 and SSG 3000 have a surge capacitor available which consists of four isolated partial capacitors. Even in the turned off condition these partial capacitors can show substantial residual charges. For safety reasons, actions which involve opening the instrument may therefore be only carried out by instructed and authorized service personnel, except the exchange of the high voltage connecting lead which may be carried out by qualified, authorized persons considering the danger sign on the safety cover (28), (read also "Replacing high voltage connecting lead" on side 25)

Service Personnel

- has appropriate training and experience,
- has knowledge about relevant standards, regulations, accident prevention rules and operating conditions,
- is in a position to perform the required activities and recognize and prevent possible danger,
- is responsible to immediately report occurring changes in the instrument which could impair its safe operation,
- is familiar with the instrument, its function and possible sources of danger,
- has adequate knowledge for maintaining and servicing the instrument
- has been authorized explicitly by BAUR to open the instrument and perform changes on the instrument.

4.2 Fuses

External fuses

The two fuses F3 and F4 on the front panel of the surge voltage generator protect the control of the lifting magnets and the control of the optionally connected Intercom SA 32 (option).

Internal fuses

The internal fuses F1, F2, F3 and F4 may be replaced by instructed personnel only.

Description	Value	Dimension	Ident.No.	Remarks
F1, F2 internal	0,16 AT	Ø 5 x 20 mm	563-005	Mains transformer, primary
F3, F4 internal	2 AF	Ø 5 x 20 mm	563-020	+ 12V control
F3, F4 external	3,15 AT	Ø 5 x 20 mm	563-021	Lifting magnet control and control of SA 32
(S4, F10)	16 AT			Mains switch (1)
F11 SSG 1100 (220-240V)	6 AT			High voltage transformer, primary (12)
F11 SSG 1100 (110-120V)	12AT			High voltage transformer, primary (12)
F11 SSG 1500 (220-240V)	12 AT			High voltage transformer, primary (12)
F11 SSG 2100 (220-240V)	12 AT			High voltage transformer, primary (12)
F11 SSG 3000 (220-240V)	12 AT			High voltage transformer, primary (12)

4.3 Breakdown voltage of spark gap

Depending on frequency of use of the surge voltage generator the spark gap should be checked periodically (min. once a year) for its breakdown voltage which should be in the range of 0,5 and 1 kV.

- Connect to earth H.V. connecting lead in short circuit and short out.
- Turn mode selector switch (15) into position 8kV.
- Set impulse selector switch (6) to position Single Impulse (vertical pos.)
- Proceed acc. to chapter „Placing into operation/Switch on“ and set voltage to 4 kV
- Trigger single impulse
- Reduce voltage step by step and always trigger a single impulse. As a result, the voltage should always break down as long as the voltage is higher than 1 kV. Under 500V this should be no longer the case.

If these requirements are met the breakdown voltage is within the tolerance range. Otherwise, the instrument should be maintained by an instructed service technician.

4.4 Checking the discharge unit

Periodic checking of the discharge unit is for the purpose of safety. It should be performed before placing the instrument into operation in order to avoid influence on the resistance measurement caused by residual charges in the surge capacitors and temperature increase in the resistors.

- with instrument switched off, connect ohmmeter to the open terminals of the connection line
- measure resistance between terminals

The resistance value should be approx. 16,5 kOhm. At deviations of more than 20%, the instrument has to be serviced only by an instructed service technician before putting it into operation (see safety rules).

4.5 Replacing high voltage connecting lead

- Observe safety precautions according to chapter „Safety precautions before opening the surge voltage generator“. Before removing the protection cover please take care:
 - The mains cable needs to be disconnected at the instrument
 - The instrument must have been switched off for minimum 20 minutes
 - The high voltage connection to the test sample needs to be grounded as close as possible to the instrument, and short circuited
- Loosen mounting screws (29) of protective hood.
- Remove protective hood.
- Uncrew knurled nut (22) of H.V. connection.
- Remove washer and cable lug.
- Connect to earth and short out new H.V. connection cable on the side of the instrument.
- First install station earth (blue) on instrument side and tighten knurled nut (23).
- Subsequently, install H.V. connection and tighten knurled nut (22).



Use only the original BAUR H.V. connecting lead suitable for the particular instrument.



When replacing parts, check if the accessible mounting screws for the electrode support (25) are tightened. If necessary, clean inside of the spark gap and the inside surface of the protective hood using a dry and fluff-free cloth.

- Put on protective hood (28) again.
- Screw in all mounting screws (29).

5 Options, Accessories and Ordering Information

5.1 Options

Intercom SA 32

The primary application of the Intercom SA 32 is as „aid“ for prelocating of cable faults. It allows locating of high-resistance faults utilizing the secondary impulse method (SIM).

This allows for transformation of high-resistance faults into low resistance faults. The surge voltage impulse of the SSG is consequently led to the test object via the high-performance resistors. The subsequently obtained extension of the surge voltage impulse allows triggering the echometer, which sends the „secondary impulse“ via capacitive coupling, for pre-locating of the, at this moment, low-resistance cable fault.

Additionally, the SA 32 features a mA-meter with a decade measuring range switching. The high-performance resistor and the mA-meter can be shorted via the pull switch. In the SA 32 the discharge unit of the surge voltage generator is enhanced by a built-in earthing unit which is tripped with a time delay. The SA 32 is supplied by the SSG and is included in the safety system.

External EMERGENCY OFF unit

The EMERGENCY OFF unit serves as part of the safety precautions around the danger area. Signal lamps and EMERGENCY OFF pushbutton switch are mounted on a cable drum. The EMERGENCY OFF unit is available with a 25 m or 50 m connecting lead.

5.2 Accessories

High voltage connecting cables

The supplied coaxial H.V. connecting lead has a length of 3 m. Conductor and shield have a cross-section of 6 mm². At the test object end 45 mm wide terminals are mounted.

Protective earth lead

For the protective earth connection between the instrument and the cable station, a stranded wire lead of 3 m length and with a cross-section of 10 mm² is supplied. At the instrument end a cable socket with a hole diameter of 8,5 mm is attached. At the test object end a 45 mm wide earth terminal is mounted.

Jumper plug

For bridging the contacts in socket (15), used for connection to the external EMERGENCY OFF unit (option), the instrument is shipped with the jumper plug installed. If neither the jumper plug nor the EMERGENCY OFF unit is plugged in the instrument will not be operational.

5.3 Ordering information SSG 1100

Items included

Surge voltage generat. SSG 1100 without accessories

Power card

Ground line 10 mm²; 4 m

Jumper plug ext. EMERGENCY OFF

Options

19" - housing 14 HE 700, without carrying handles

19" - housing 17 HE 700, without carrying handles

1 pair of handles for 19" housing

Set of rolls for 19" housing

Discharge rod GDR 40-250; 600 Ws with accessories

EMERG. OFF unit with warning lamps on drum, 25m

EMERG. OFF unit with warning lamps on drum, 50m

Intercom SA 32

LV surge capacitor bank SZ 1000

LV surge capacitor bank SZ 1600

Ordering information SSG 1500

Items included

Surge voltage generat. SSG 1500 without accessories

Power card

Ground line 10 mm²; 4 m

Jumper plug ext. EMERGENCY OFF

Options

19" - housing 14 HE 700, without carrying handles

19" - housing 17 HE 700, without carrying handles

1 pair of handles for 19"

Set of rolls for 19" housing

Discharge rod GDR 40-250; 600 Ws with accessories

EMERG. OFF unit with warning lamps on drum, 25m

EMERG. OFF unit with warning lamps on drum, 50m

Intercom SA 32

LV surge capacitor bank SZ 1000

LV surge capacitor bank SZ 1600

Ordering information SSG 2100

Items included

Surge voltage generat. SSG 2100 without accessories

Power card

Ground line 10 mm²; 4 m

Jumper plug ext. EMERGENCY OFF

Options

19" - housing 14 HE 700, without carrying handles

19" - housing 17 HE 700, without carrying handles

1 pair of handles for 19" - housing with D 700

Set of rolls for 19" housing, D 700, installed

Discharge rod GDR 40-250; 600 Ws with accessories

EMERG. OFF unit with warning lamps on drum, 25m

EMERG. OFF unit with warning lamps on drum, 50m

Intercom SA 32

LV surge capacitor bank SZ 1000

LV surge capacitor bank SZ 1600

Ordering information SSG 3000

Items included

Surge voltage generat. SSG 3000 without accessories

Power card

Ground line 10 mm²; 4 m

Jumper plug ext. EMERGENCY OFF

Options

19" - housing 14 HE 880, without carrying handles

19" - housing 17 HE 880, without carrying handles

1 pair of handles for 19" housing

Set of rolls for 19" housing

Discharge rod GDR 40-250; 600 Ws with accessories

EMERG. OFF unit with warning lamps on drum, 25m

EMERG. OFF unit with warning lamps on drum, 50m

Intercom SA 32

LV surge capacitor bank SZ 1000

LV surge capacitor bank SZ 1600



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