

# CSU20A

Current and voltage source

## User's Manual



# Megger

WWW.MEGGER.COM



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# 1 Safety

## Symbols on the instrument



Caution, refer to accompanying documents.



Protective conductor terminal.



WEEE, Waste Electrical and Electronic Equipment. Please utilize your local WEEE collection facilities in the disposition of this product and otherwise observe all applicable requirements. The unit can also be returned to Megger at any time at no charge for the disposal.

Always use safety connecting leads.

Always connect protective earth (ground).

Never leave the instrument unattended while it is turned on.

Use only approved mains detachable cable set with the instrument. Main supply cables shall be rated for the maximum current for the equipment and the cable shall meet the requirements of IEC 60227 or IEC 60245. Mains supply cables certified or approved by a recognized testing authority are regarded as meeting this requirement.

Unplug the instrument from the mains supply when it is left unattended or not in use.

Refer all servicing to Megger authorized personnel.

If you need to return the instrument, please use either the original crate or one of equivalent strength

## Safety instructions



### Important

Read the manual and comply with the following instructions before using the CSU20A.

Always comply with local safety regulations.



### Warning

High voltage/current on input/output terminals.

Do not attempt to service the instrument yourself. Opening or removing covers may expose you to dangerous voltage. If you attempt to service the instrument yourself the warranty is no longer valid.

Do not use any accessories that are not intended for use together with the instrument.

Disconnect the instrument from the mains before cleaning. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.



### Important

Always turn the equipment off before connecting.

# 2 General

## Product description

The CSU20A is intended for use together with the SVERKER 750 when there is need for a second current supply, as when testing differential relay protection equipment. It is also possible to use a half-wave and a full-wave rectified output when testing "harmonic restraint" and "target/seal in"

## Receiving instructions

- Check the equipment received against the packing list to ensure that all materials are present. Notify Megger of any shortage.
- Examine the instrument for damage received in transit. If damage is discovered, file a claim with the carrier at once and notify Megger, giving a detailed description of the damage.
- This instrument has been thoroughly tested and inspected to meet rigid specifications before being shipped. It is ready for use when set up as indicated in this user manual.

## Warranty

Products supplied by Megger are warranted against defects in material and workmanship for a period of one year following shipment.

Our liability is specifically limited to replacing or repairing, at our option, defective equipment.

This warranty does not include batteries, lamps or other expendable items, where the original manufacturer's warranty shall apply.

We make no other warranty. The warranty is void in the event of negligence abuse (failure to follow recommended operating procedures) or failure by the customer to perform specific maintenance as indicated in this manual.

## Warranty repair

Equipment returned to the factory for repair must be shipped prepaid and insured.

Contact your Megger representative for instructions and a return authorization (RA) number.

Please indicate all pertinent information, including problem symptoms.

Also specify the serial number and the catalog number of the unit.

## Service and support

For technical assistance please contact your local representative or direct your request to Megger in Sweden.

When sending the instrument, please use either the original crate or one of equivalent strength.

Add the return authorization number to the address label of the shipping container for proper identification and quicker handling.

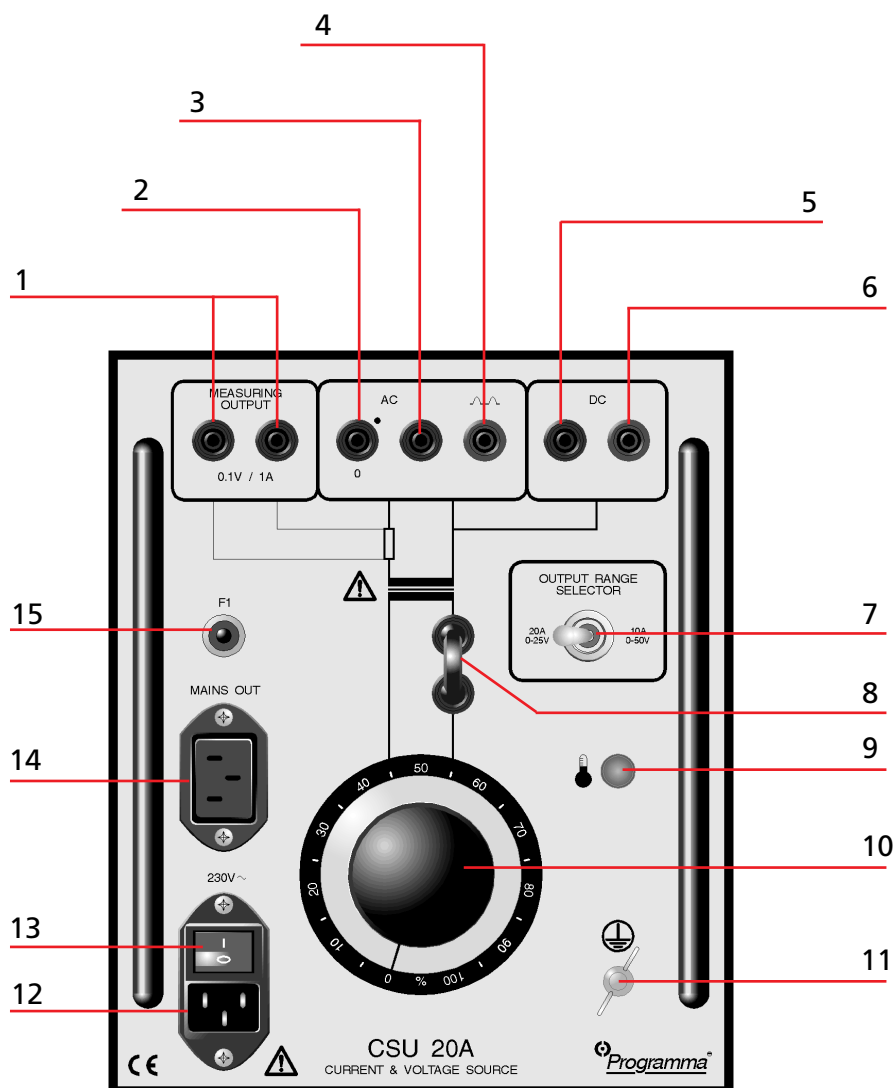
**Note** *Ship the equipment without nonessential items such as test leads, etc. These items are not needed by the factory to perform service.*

## Contact information

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# 3 Control panel

1. Measuring output — to be connected to the SVERKER 750 voltmeter
2. AC terminal 0, phase corresponds to SVERKER 750 (if Sverker is connected to MAINS OUT 14)
3. AC terminal
4. Half wave rectified output
5. DC terminal –
6. DC terminal +
7. Current range selector
8. Terminal for connection of resistors for increasing the internal impedance
9. Thermal fuse indicator
10. Knob (variable transformer)
11. Ground (earth) connector
12. Mains input
13. Mains switch
14. Mains output (unswitched), to be connected to the SVERKER 750 mains input
15. Automatic fuse (3/6 A)



# 4 Operating instructions



**Important**

Read the manual and comply with the Safety instructions, see page 5, before using CSU20A.

Always comply with local safety regulations.

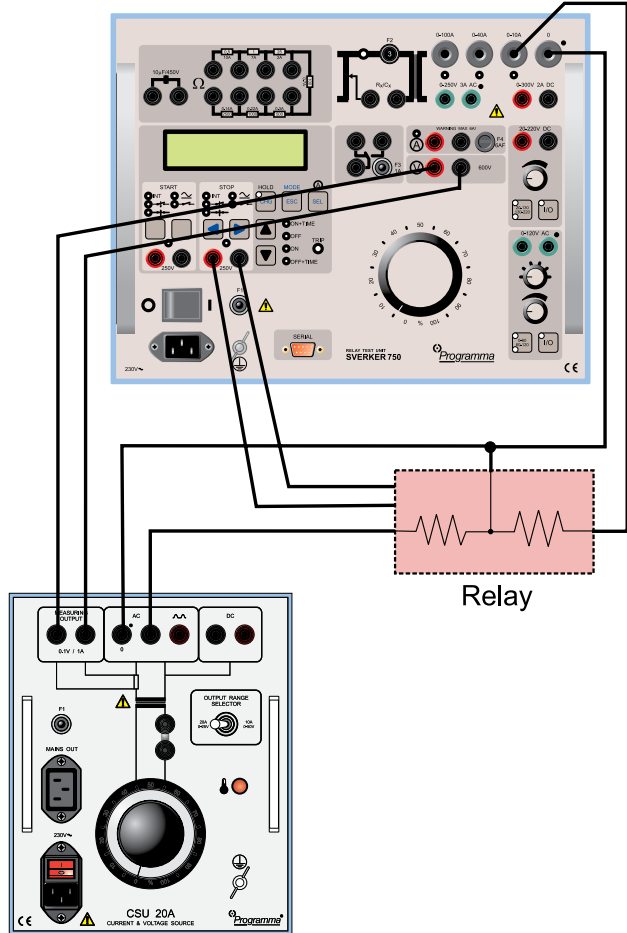
When a load is applied to the CSU20A, connector (8) must be short-circuited either via the shorting jumper or external resistors.

The switch (7) must only be operated while the unit is unloaded.

- 1] Make sure that switch (13) is in the OFF "0" position before making the connections.
- 2] Use toggle switch (7) to select either 20 A or 10 A test current.
- 3] Connect the current cables to output terminals (2), (3).
- 4] Turn the knob (10) down to zero and set the switch (13) to the ON "1" position.
- 5] Check the output current using Sverker's voltmeter input connected to measuring output (1).
- 6] Adjust the output current to the desired value using the knob (10).

**Note** *If red lamp (9) is lit, it indicates that the thermal cutout has been triggered. It is automatically reset when the temperature has returned to its normal level.*

- 6] Set I1 with SVERKER 750 and I2 with CSU20A and test limit/settings of the differential relay.
- 7] Use OFF+TIME to measure the trip time.



Connection diagram for testing differential relays using SVERKER 750 and CSU20A.

## Application examples

- 1] Connect CSU20A to mains and SVERKER 750 to CSU20A mains output.
- 2] Connect SVERKER 750 and CSU20A outputs to the relay.
- 3] Connect the tripsignal to the STOP input on SVERKER 750.
- 4] Set Sverker's Ext. Voltmeter to SHUNT, value 100 mΩ.
- 5] Connect the CSU20A measuring output to the voltage input on SVERKER 750.



# 5 Specifications

## Specifications CSU20A

Specifications are valid at nominal input voltage and an ambient temperature of +25°C, (77°F). Specifications are subject to change without notice.

### Environment

*Application field* The instrument is intended for use in high-voltage substations and industrial environments.

#### Temperature

*Operating* -20°C to +50°C (-4°F to +122°F)

*Storage & transport* -40°C to +70°C (-40°F to +158°F)

*Humidity* 5% – 95% RH, non-condensing

### CE-marking

*EMC* 2004/108/EC

*LVD* 2006/95/EC

### General

*Mains voltage* 115/230 V AC, 50/60 Hz

*Thermal protection* Built-in

*Dimensions* 280 x 178 x 246 mm (11" x 7" x 9.7")

*Weight* 5.9 kg (13 lbs) excl. transport case

### Outputs

#### AC

20 A setting	Output voltage (min)	Load time
Idle/non-load	26 V	Continuous
5 A	25 V	Continuous
10 A	22 V	Continuous
20 A	18 V	2 min
10 A setting		
Idle/non-load	52 V	Continuous
3 A	50 V	Continuous
5 A	47 V	Continuous
10 A	41 V	10 min

#### DC

A full-wave rectified output and a half-wave rectified output. As above, reduced by the voltage drop across the rectifier diodes. If more than one output is loaded at the same time, total output and load times are as above.

#### Measurement output

*Current shunt* 0.1 A / 1 V ±2%

#### Power output

For connection to the SVERKER mains input.





## Your "One Stop" Source for all your electrical test equipment needs

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- Cable Fault Locating Equipment
- Circuit Breaker Test Equipment
- Data Communications Test Equipment
- Fiber Optic Test Equipment
- Ground Resistance Test Equipment
- Insulation Power Factor (C&DF) Test Equipment
- Insulation Resistance Test Equipment
- Line Testing Equipment
- Low Resistance Ohmmeters
- Motor & Phase Rotation Test Equipment
- Multimeters
- Oil Test Equipment
- Portable Appliance & Tool Testers
- Power Quality Instruments
- Recloser Test Equipment
- Relay Test Equipment
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