

CSU600A/AT

Current Supply Units

User's manual



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1 General

Current Supply Units CSU600A/AT are used for:

- Performance and transformation-ratio testing of current transformers.
- Primary testing of relay-type cutouts.
- Testing circuit breakers.
- Commissioning of substation switchgear.

2

Safety



Important

Read the manual and comply with the following instructions before using CSU600A/AT.

Always comply with local safety regulations.

WARNING

Protective ground (earth)

Single ground system. This equipment can be used only in electrical systems with single ground.

The user must verify before connecting this unit to power, that High Voltage Ground and Low Voltage Protective Ground create a single protective ground with no measurable voltage potential existing between these ground systems. If a voltage potential is found between the ground systems please consult local safety regulations.

Mains cord with protective conductor. The CSU600A/AT is equipped with a power cord with integrated safety ground pin. Do not defeat the safety ground in any manner. The equipment must be connected to a grounded mains outlet. Not doing so may result in fire or electric shock.

Separate ground wire. The CSU600A/AT case must also be grounded by the separate protective ground wire with connection to the Protective Conductor Terminal on top of the CSU600A/AT.

Check the continuity of the protective ground wire before each use. Make sure the connector is fastened properly to the CSU600A/AT Protective Conductor Terminal. Make sure the connection point at the ground system is fastened properly. Route the wire so that it is unlikely to be walked on or that it may loosen accidentally by someone or something moving near it.

Note: The protective ground wire must not be loosened while any input connector is attached to the contacts of a high voltage circuit breaker or another device being subject to inductive or capacitive coupled interference from surrounding high voltage wires.

Always ground the CSU600A/AT.

Before connecting CSU600A/AT, turn off its master ON/OFF switch.

Only connect CSU600A/AT to an outlet protected with 16 A overcurrent protection.

Unplug CSU600A/AT from the mains supply when it is left unattended or not in use.

Do not attempt to service the CSU600A/AT yourself. Opening or removing covers may expose you to dangerous voltage. If you attempt to service the CSU600A/AT yourself the warranty is no longer valid.

Do not use any accessories that are not intended for use together with the CSU600A/AT.

Unplug CSU600A/AT from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.

CAUTION

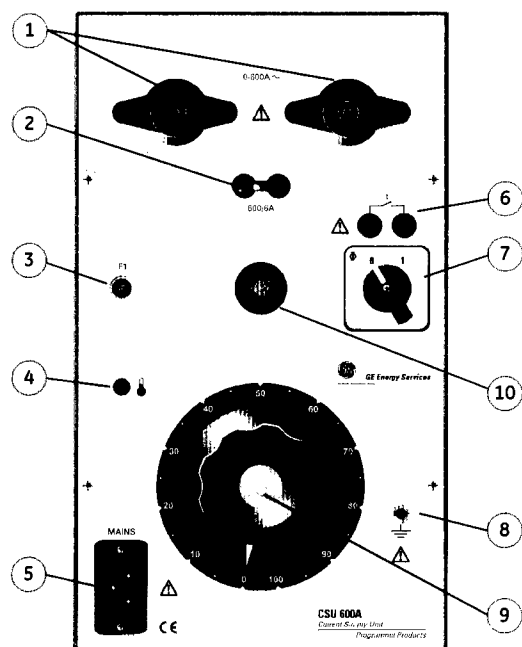
Use only approved mains detachable cable set with the CSU600A/AT. Main supply cables shall be rated for the maximum current for the equipment and the cable shall meet the requirements of IEC 60227 or IEC 60245. Mains supply cables certified or approved by a recognized testing authority are regarded as meeting this requirement.

Refer all servicing to qualified service personnel.

If you need to return CSU600A/AT, please use either the original crate or one of equivalent strength.

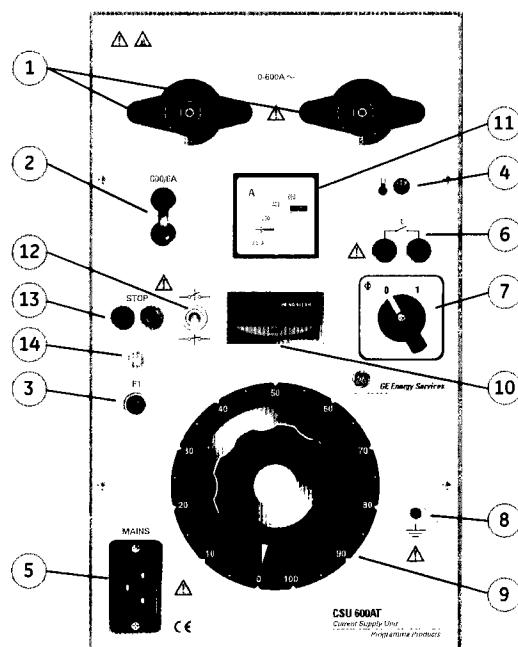
3 Control panels

CSU600A



1. Output terminals, 0-600 A AC
2. Output for external ammeter, 600/6 A
Important
If not in use, this output must be short circuited.
3. Miniature circuit breaker for mains power
4. Red lamp which indicates that thermal cutout has been triggered
5. Mains power connector
6. t-output, used to trig external equipment, for example a SVERKER™ when testing differential relays. Contacts are synchronized with (7)
7. Current output ON/OFF
8. Protective ground conductor terminal
9. Current control knob
10. Mains-power-on indicator lamp

CSU600AT



1. Output terminals 0-600 A AC
2. Output for external ammeter, 600/6 A
Important
If not in use, this output must be short circuited.
3. Miniature circuit breaker for mains power
4. Red lamp which indicates that thermal cutout has been triggered
5. Mains power connector
6. t-output, used to trig external equipment, for example a SVERKER™ when testing differential relays. Contacts are synchronized with (7)
7. Current output ON/OFF
8. Protective ground conductor terminal
9. Current control knob
10. Timer (0 - 999.999 s)
11. Current indicator
12. Function switch (open or close function)
13. Timer stop input
14. Signal lamp for timer stop (yellow)

4 Operating instructions



Warning

Make certain that switch (7) is at the OFF (0) position before making the connections.

- 1) Connect CSU600A/AT to ground (protective earth), terminal (8).
- 2) Set the variable transformer down to zero.
- 3) Connect the current cables to the device to be tested.
- 4) Connect CSU600A/AT to mains power.
- 5) Set the switch (7) in ON-position, "1".
- 6) Check the output current using an external ammeter. Connect the external ammeter to the built-in current transformer via terminal (2).

Important

When a load is applied to the CSU600A/AT, connector (2) must be short-circuited either via the jumper that accompanies the equipment or an external ammeter.

- 7) Adjust the output current to the desired value using the current control knob (9).
Note: Do not exceed maximum load time, see "Specifications".
If you use a CSU600A and want to complete the test with time measurements, see "Connecting a timer to CSU600A" below.
- 8) When you are finished, do not disconnect the current cables from the output terminals until you have turned switch (7) back to the OFF "0" position.

Note The output transformer is protected with a thermal cut out. If it has been triggered the red lamp (4) will light. This protection will be automatically reset when the temperature drops.

Timer stop input (CSU600AT)

The stop input can be connected to potential-free terminals or to 12 – 250 V DC.

The timer can be stopped in the following ways:

- a) When a voltage is applied to the stop input or when a contact is closed.
- b) When a voltage applied to the stop input vanishes or when a contact is opened

When the timer is stopped, the current generation stops and the signal lamp (14) lights up.



Important

You must apply the voltage with right polarity otherwise the timer won't stop.

Note If the overheat protection has tripped the timer display will go out. It will reset automatically when the temperature drops.

Connecting a timer to CSU600A

- 1) Set switch (7) to OFF (0) position.
- 2) Connect the timer's (Programma TM200 is recommended) start input to the start timer terminals (6). Connect the timer stop input to a suitable point where it will detect the triggering of a relay-type cutout, a circuit breaker or the like.
- 3) Set switch (7) to the ON (1) position. When current is sent to the output terminals, start timer terminals will be short-circuited and the timer will start.

Troubleshooting

Fault	No current at outputs. Red lamp (4) lights.
Possible cause	Thermal cutout has been triggered.
Remedy	Wait! This cutout will be reset automatically when the temperature has returned within the specified range.

5 Specifications

Specifications CSU600A/AT

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

Environment

<i>Application field</i>	The instrument is intended for use in high-voltage substations and industrial environments.
<i>Temperature</i>	
<i>Operating</i>	0°C to +50°C (32°F to +122°F)
<i>Storage & transport</i>	-40°C to +70°C (-40°F to +158°F)
<i>Humidity</i>	5% – 95% RH, non-condensing

CE-marking

<i>LVD</i>	Low Voltage Directive 73/23/EEC am. by 93/68/EEC
<i>EMC</i>	EMC Directive 89/336/EEC am. by 91/263/EEC, 92/31/EEC and 93/68/EEC

General

<i>Mains voltage</i>	115 or 230 V AC, 50/60 Hz
<i>Power consumption (max)</i>	115 V, 667 VA cont. (interm. 3738 VA) 230 V, 851 VA cont. (interm. 6440 VA)
<i>Protection</i>	Thermal cut-outs and miniature circuit breakers
<i>Dimensions</i>	
<i>Instrument</i>	356 x 203 x 241 mm (14.0" x 8.0" x 9.5")
<i>Transport case</i>	610 x 290 x 360 mm (24.0" x 11.4" x 14.2")
<i>Weight</i>	21.9 kg (48 lbs) 38.3 kg (84.4 lbs) with accessories and carrying case
<i>Current cables</i>	2 x 5 m (16 ft), 50 mm ²

Measurement section

<i>Output for external ammeter</i>	600/6A
<i>Inaccuracy</i>	±0.5%

Timer (only CSU600AT)

<i>Range</i>	0-999.999 s
<i>Resolution</i>	1 ms
<i>Inaccuracy</i>	±0.02% of shown value + 0 to 2 ms
<i>Other</i>	Output for starting external timer

Outputs, AC, intermittent output ¹⁾ (CAT I)

<i>Current</i>	<i>115 V mains voltage</i>		<i>230 V mains voltage</i>	
	<i>Load time</i>	<i>Minimum output voltage</i>	<i>Load time</i>	<i>Minimum output voltage</i>
0 A	Cont.	6.0 V	Cont.	9.5 V
75 A	–	–	Cont.	9.3 V
100 A	Cont.	5.6 V	1 h	9.0 V
200 A	15 min	5.3 V	5 min	8.5 V
300 A	1.5 min	4.9 V	2 min	8.0 V
400 A	1 min	4.6 V	1 min	7.5 V
500 A	20 s	4.2 V	30 s	7.0 V
600 A	15 s	3.9 V	20 s	6.5 V

¹⁾ Maximum load time from cold state 25°C (77°F). Not valid for repeated tests.

Maximum cable lengths at 600 A

<i>115 V mains</i>	2 x 5 m (16 ft), 70 mm ²
<i>230 V mains</i>	2 x 5 m (16 ft), 50 mm ² 2 x 10 m (33 ft), 70 mm ² 2 x 15 m (49 ft), 95 mm ²