

Programma

SVERKER 650 Relay Test Set



- **High current/high power output**
- **Designed for rugged field use**
- **0 to 100 Amp output current**
- **Suitable for testing many different types of relays such as power, voltage and current**
- **Easy to operate**
- **Lightweight and portable, weighs only 15.3 kg (25.4 lbs)**

DESCRIPTION

The Sverker 650 testing unit, whose design incorporates benefits gleaned from many years of experience in field relay testing, enjoys a well-earned reputation for reliability and convenience. Compact and powerful, it provides all of the functions needed for secondary testing of almost all types of single-phase protection now available on the market.

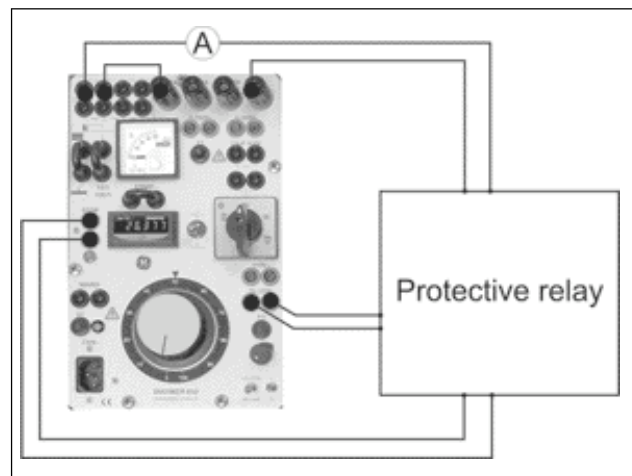
SVERKER 650 features logical design and construction, and it is extraordinarily easy to learn and use. Its compact design and light weight makes it extremely portable.

Auxiliary equipment for SVERKER 650 includes a test lead set and a rugged transport case. Another useful accessory is the ACA120 voltage source which makes it easier to test directional relays.

APPLICATION

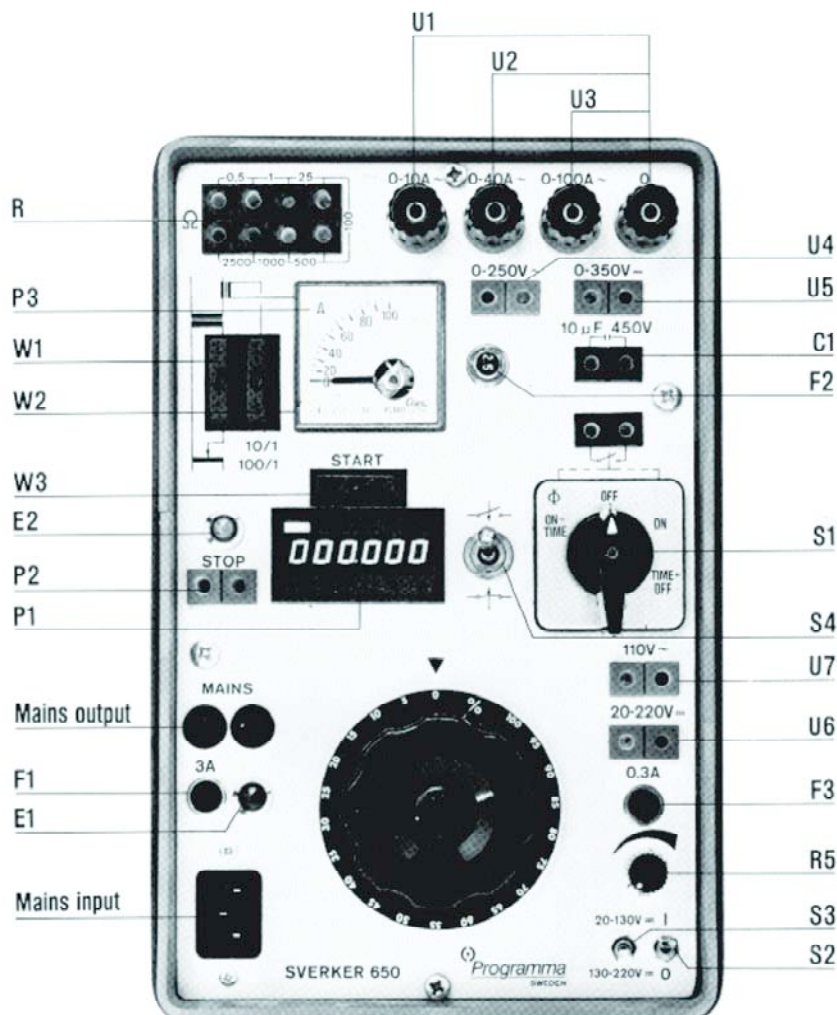
The Sverker 650 is for use in high-voltage substations and industrial environments. The built-in capacitor provides phase shift when testing directional protective relays, a set of resistors can be used to divide voltages.

The Sverker 650 is intended primarily for secondary injection testing of protective relays. Virtually all types of single phase protection can be tested.



Typical protective relay test connection

FEATURES AND BENEFITS



Terminals Unloaded, 230 V

U1 0-10 A	85-90 V	AC Settable with T1
U2 0-40 A	25-27 V	AC Settable with T1
U3 0-100A	10.0-11.0V	AC Settable with T1
U4 0-250 V, 3 A	250-270 V	AC Settable with T1
U5 0-350 V, 2A	350-370 V	DC Settable with T1
U6 20-220 V		DC Settable with R5

The voltage is stabilized and variable in two steps with the switch S3.

Characteristics at input voltage 220 V AC + 10 %

Ripple (peak to peak) max 4 %

Load regulation 3 %

Line regulation less than 4 %

U7 110V, 0.3 A 110-125 V AC

F1 Automatic cut-out for the mains voltage, 4 A

F2 Automatic cut-out 3 A

F3 Automatic cut-out 0.5 A

E1 Green indicator for mains voltage

E2 Yellow signal lamp in the trip circuit

P1 Electric timer, independent of mains frequency
Measuring range 0-999.999 sec. Accuracy 0.002 % of readout +0.2 ms

P2 Input for stop of timer

P3 Ammeter class 1.5

C1 Capacitor 10 ~F/450 V AC for reactive power relays

S1 Main switch

S2 On/off switch for terminals U6 and U7

S3 Selector voltage range terminal U6

S4 Make/break switch for timer

R5 Voltage adjustment terminal U6

W1 Terminal for connection of a resistor on the primary side of the output transformer

W2 Terminal for an external ammeter

W3 Terminal for external start and stop of timer

SPECIFICATIONS

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 0° C to +50° C (32° F to +122° F)
Storage & transport -40° C to 70° C (-40° F to +158° F)
Humidity 5% – 95% RH, non-condensing

CE-marking

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

General

Mains voltage 115/230 V AC, 50/60 Hz
Power consumption 1100 VA (max)
Protection Thermal cut-outs, miniature circuit breakers

Dimensions

Instrument 280 x 178 x 250 mm
(11" x 7" x 9.8")
Transport case 560 x 260 x 360 mm
(22" x 10.2" x 14.2")
Weight 16 kg (35.3 lbs)
26 kg (57.3 lbs) with accessories and transport case.
Test lead set, with 4 mm stackable safety plugs 2 x 0.25 m (0.8 ft), 2.5 mm²
2 x 0.5 m (1.6 ft), 2.5 mm²
8 x 2.0 m (6.6 ft), 2.5 mm²
Test leads with spade-tong connectors 2 x 3.0 m (9.8 ft), 10 mm²

Measurements

Current measurement

Built-in ammeter

Ranges 0 – 10 A / 0 – 100 A
Inaccuracy ±3%

External ammeter

Output for external ammeter Connected to built-in current transformer
Accuracy ±0.5%

Timer

Range 0 – 999.999 s
Resolution 1 ms
Accuracy ±0.02% of displayed value, +2 ms
Independent of mains frequency

Outputs

Current outputs, AC

Range	No-load voltage (min)	Output voltage (min)	Load/unload times On (max)/Off (min)
0 – 10 A	85 V	75 V (10 A)	2 min/30 min
0 – 40 A	25 V	19 V (40 A)	20 s/15 min
0 – 100 A	10 V	7.7 V (100 A)	20 s/5 min

Voltage outputs, AC/DC

Range	Output voltage (min)
0 – 250 V AC	220 V (2.7 A)
110 V AC (fixed)	110 V (0.3 A)
0 – 350 V DC	280 V (2 A)
20 – 220 V DC (stab.)	200 V (0.25 A)

OPTIONAL ACCESSORIES

The ACA120 Variable Voltage Source provides a variable output voltage of 0 to 120V AC. This makes it easier to test directional protection using SVERKER 650. Power is supplied from the relay testing unit's 110V AC output. Housed in a small plastic case. Maximum output current is 90 mA.

Dimensions: 80 x 150 x 65 mm (3.1 x 5.9 x 2.6")

Weight: 0.6 kg (1.3 lbs)



ACA120



Test lead set

ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
SVERKER 650 – 115 V mains voltage	BA-11190	Included Accessories	
SVERKER 650 – 230 V mains voltage	BA-12290	Test lead set	GA-00030
		Transport case	GD-00010