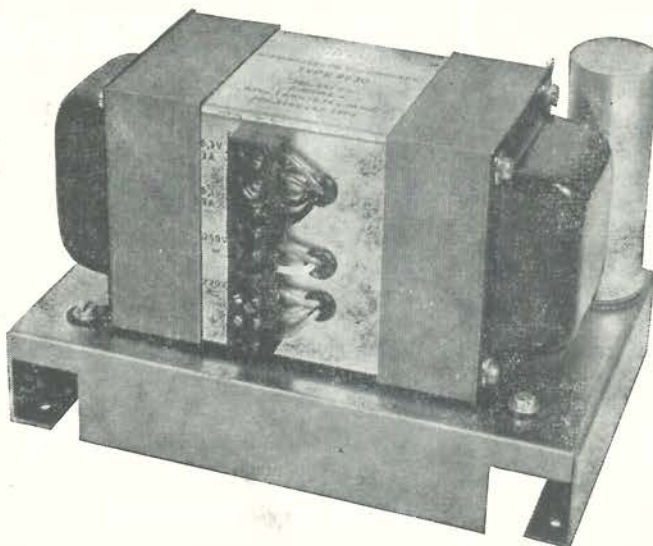




STABILIZED POWER SUPPLY

TYPE 8630



The VAN DER HEEM type 8630 Stabilized DC Power Supply is a small low-cost unit intended primarily for incorporation in electronic equipment.

It provides a well-filtered DC output voltage with a high degree of regulation and two unregulated AC filament supply voltages of 6,3 volts at 3 amperes each.

The DC output voltage can be adjusted to any value between 200 and 250 volts by means of a screwdriver adjustment situated next to the 85A2 voltage reference tube. The rated output current is 100 mA.

The output voltages are available free from chassis, and either the positive or the negative DC output terminal may be earthed.

Series connection of two or more type 8630 Power Supplies is possible without any additions. The number is limited only by the maximum voltage allowed between chassis and wiring (see Technical Data).

Parallel operation is not advised because it requires careful balancing of the output currents to get satisfactory results.

A short-time overload or short-circuiting of

the DC supply will not cause any harm, but prolonged output currents in excess of the rated value will result in overheating of several components.

It is advised to provide for a slow-blowing fuse in the mains circuit having a value of 600 mA for a fully loaded power supply, or 500 mA when the filament voltages are only slightly loaded. As an alternative a thermal or thermal-magnetic circuit breaker rated at 0,6 A or 0,5 A respectively can be used.

Circuit description.

The circuit consists of a power supply section and a regulator section. The power supply section is provided with separate transformers for high voltage and for low voltages. The high voltage is rectified in a bridge circuit consisting of four silicon diodes, followed by an electrolytic capacitor. The regulator section employs two parallel connected valves EL 86 in series with the load. Reference voltage is provided by a type 85A2 neon discharge tube. The control amplifier consists of two cascaded balanced amplifier stages with one double triode ECC 83 in each stage.

OTHER TECHNICAL	DATA
DC output voltage	250 volts (adjustable from 250 to 200 volts).
DC current capacity	rated 0 to 100 milliamperes.
Stabilization against mains fluctuations	a variation in mains voltage between 200 and 240 volts will cause a change of the DC output voltage of not more than 50 millivolts. *
Stabilization against load variations	a variation in load current between 0 and 100 milliamps will cause a change of the DC voltage level of not more than 50 millivolts. *
Internal resistance	less than 0,5 ohms. *
Internal impedance	less than 5 ohms up to 10 kc/s.
Ripple voltage	less than 1 mV r.m.s.
Protection	a short overload or short-circuiting will not cause any harm. Recommended fuse value in mains circuit 600 or 500 mA (see text).
Filament voltages	two separate windings of 6,3 V at 3 A each, insulated for 700 V AC or 1000 V DC.
Mains voltage	220 V, 47–63 c/s nominal value.
Power consumption (at 220 V 50 c/s)	no load 30 W full DC load only 75 W full filament and DC loads 120 W
Tubes and valves	voltage reference tube 85A2 double triode ECC 83, 2 off. penthode EL 86, 2 off.
Semiconductors	silicon diode OA 214, 4 off.
Ambient temperature	+50 °C max.
Output terminals	insulated from chassis. Maximum 700 V AC or 1000 V DC permissible between chassis and wiring.
Series connection	possible within insulation voltage ratings.
Dimensions	height 12,5 cm. width 19,5 cm. depth 12,5 cm.
Weight	4,2 kg net.

* These figures apply for a DC output voltage of 250 V. Somewhat higher figures may be found at lower output voltage settings.

INSTALLATION AND OPERATION.

The sub-unit power supply type 8630 may be mounted either horizontally or vertically. In vertical position, and with the short side of the chassis horizontal, the best orientation is with the electrolytic capacitor at the bottom and the valves EL 86 at the top.

Connect the mains supply (preferably via a switch and a fuse) to the terminals marked "220 V~". If a plug and cable with an earth lead are used this lead can be connected to the terminal marked "⏏", which is connected to the chassis.

Connect the DC output (marked "250 V =") to the load. Either "+" or "-" or a different potential may be connected to earth.

Make the connections to the 6,3 V filament supplies. If desired the two 6,3 V windings may be connected in series (12,6 V at 3 A) or in parallel (6,3 V at 6 A). The voltage between the two windings and between either winding and chassis must not exceed 1000 V DC or 1000 V peak (AC + DC).

INSPECTION AND MAINTENANCE.

If the power supply is not functioning properly the following figures may be helpful in tracing the fault. These figures are typical values and deviations of $\pm 10\%$ are not necessarily indicative of a fault.

1. Primary current : no load 0,15 A
(at 220 V 50 c/s input) 100 mA DC load 0,38 A
full DC and AC load 0,53 A
2. DC voltages between —DC and anodes of EL 86:
mains voltage 200 V~ 220 V~ 240 V~
no load 400 V 440 V 485 V
100 mA load 320 V 360 V 400 V
3. DC voltages against —DC (output voltage set to 250 V):
anode B5 85A2 pin 1 or 5 + 85 V
cathode B4 ECC 83 pin 3 or 8 + 86 V
cathode B3 ECC 83 pin 3 or 8 +175 V
anode B3 ECC 83 pin 1 +218 V no load, +237 V 100 mA load.
4. The "—" terminal is connected to the circuit via an internal connection in the 85A2 tube, to prevent a large increase in output voltage when this tube is removed during tests. Interruption of this internal connection might be the cause when there is no output at all.

