Philips
PE 1642 / PE 1644 ....

Choice of 400W or 1000W capacity

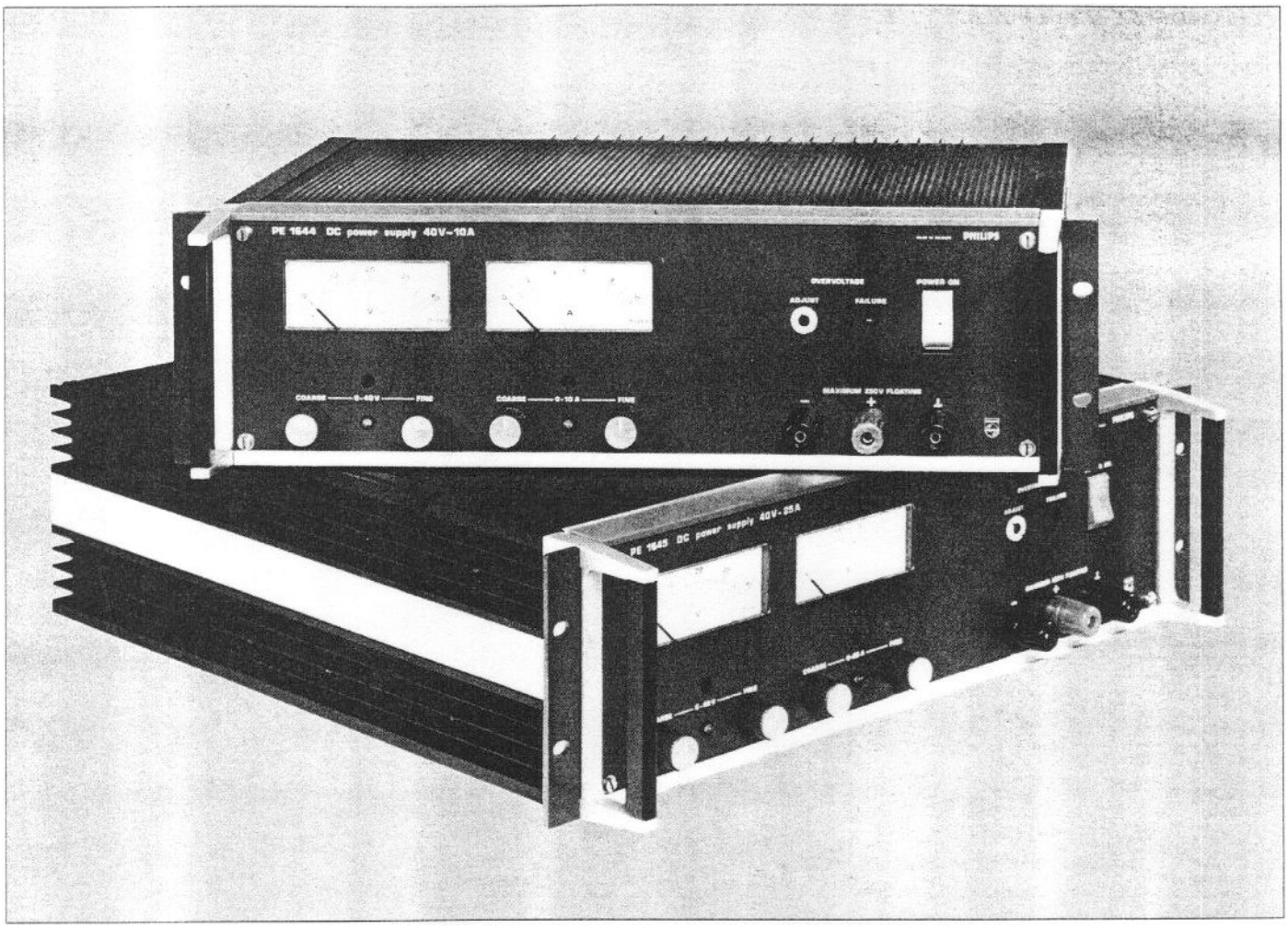
Adjustable constant voltage/current operation with automatic crossover and visual LED indication

Systems facilities: remote control, sensing, master/slave, etc.

Separate volt and ammeters

Built-in over-voltage protection

MTBF of 50 000 operating hours



These 400W and 1000W power supplies use the thyristor, pre-regulation technique and a unique design feature that increases efficiency and reliability whilst reducing cost. They are ideal for both laboratory and OEM applications, having comprehensive systems facilities. Separate volt and ammeters, coarse and fine potentiometers, bright LED displays for mode indication and automatic indication of crossover also make the units simple and convenient to use.
The comprehensive over-voltage and overload protection is standard.

Systems facilities
Simple jumper connections are made to provide the required system facilities. These cover remote sensing, operation in series or parallel, master/slave operation plus remote programming of both voltage and current outputs.

High efficiency
The units employ the standard anti-surge choke on the **primary,** not secondary side of the mains transformer. This way the mains supply makes up the losses directly, instead of having them compounded via the transformer. The overall result is a lighter, more compact design with greater reliability, lower price.

Ultra reliable
The high MTBF figure of 50 000 operating hours in the result of many factors: *experience,* Philips being the leading European power supply manufacturer; *research,* into components and connection techniques, which in turn is backed by extensive quality control facilities and finally, *conservative, worst-case designs,* which ensure that under normal operating conditions there is considerable reserve in the Philips specification.

Stable outputs
All units feature very stable outputs with high resolution and low ripple. They can work on a variety of line supplies and can cope with mains variations of up to 10%.

PERFORMANCE TABLE FOR 400W AND 1000W SERIES

AS A CONSTANT VOLTAGE SOURCE	400W series PE 1642	PE 1644	PE 1646	PE 1648	1000W series PE 1643	PE 1645	PE 1647	PE 1649
Output voltage Continously adjusted with coarse and fine potentiometer between:	0-20V	0-40V	0-75V	0-150V	0-20V	0-40V	0-75V	0-150V
Resolution	0.5mV	1mV	2mV	4mV	0.5mV	1mV	2mV	4mV
Stability against mains variations With mains voltage variations of + or − 10% the max. change of the output voltage is:	≤0.02% * or 1mV	≤0.02% * or 1mV	≤0.013% * or 2mV	≤0.013% * or 2mV	≤0.02% * or 1mV	≤0.02% * or 1mV	≤0.02% * or 2mV	≤0.01% * or 2mV
Stability against load variations With load variations of 0...100% the max. change of the output voltage is:	≤20mV	≤20mV	≤25mV	≤25mV	≤50mV	≤40mV	≤25mV	≤25mV
Internal resistance dynamic For sinusoidal load variations from 80% to 100% of full load at frequencies up to 250kHz the unit will have the following internal resistance values:								
1kHz	0.01Ω	0.02Ω	0.02Ω	0.02Ω	0.005Ω	0.02Ω	0.1Ω	0.3Ω
10kHz	0.04Ω	0.06Ω	0.1Ω	0.1Ω	0.01Ω	0.03Ω	0.15Ω	0.5Ω
100kHz	0.1Ω	0.1Ω	0.1Ω	0.1Ω	0.015Ω	0.05Ω	0.15Ω	0.25Ω
250kHz	0.2Ω	0.2Ω	0.2Ω	0.2Ω	0.015Ω	0.05Ω	0.2Ω	0.25Ω
Ripple voltage The RMS value of the ripple voltage will be: This is valid for any input voltage between 90% and 110% nominal and for any load between no load and full load	≤1mV	≤1mV	≤1mV	≤1mV	≤1mV	≤1mV	≤1mV	≤1mV
Temperature coefficient The temperature coefficient for any ambient temperature variation in a range of 0-40°C will be:	≤0.01%/°C or 0.2mV/°C	≤0.005%/°C or 0.2mV/°C	≤0.005%/°C or 0.5mV/°C	≤0.005% /°C or 1.5mV/°C	≤0.01%/°C or 0.2mV/°C	≤0.01%/°C or 0.4mV/°C	≤0.005%/°C or 1mV/°C	≤0.005%/°C or 2mV/°C
Recovery time For a sudden increase from 50% load to maximum load or for a corresponding decrement, the recovery time is:	≤25μs	≤50μs	≤50μs	≤25μs	≤50μc	≤50μs	≤50μs	≤25μs
AS A CONSTANT CURRENT SOURCE								
Output current The output current is continuously adjustable in one range by means of a coarse and a fine potentiometer between:	0-20A	0-10A	0-6A	0-3A	0-45A	0-25A	0-14A	0-7A
Resolution	10mA	5mA	3mA	1.5mA	25mA	15mA	10mA	5mA
Stability against mains variations With mains voltage variations of + or − 10% the max. change of the output current is:	6mA	3mA	2.5mA	1mA	30mA	10mA	7mA	4mA
Stability against load variations With load variations of 0...100% the max. change of the output current is:	≤5mA	≤3mA	≤4mA	≤3mA	≤30mA	≤15mA	≤15mA	≤10mA
Ripple current In all circumstances the RMS value of the ripple current will be:	≤10mA	≤5mA	≤5mA	≤3mA	≤100mA	≤15mA	≤10mA	≤10mA
Temperature coefficient With temperature variations in the range of 0...40°C the temperature coefficient of the output current is:	≤2mA/°C	≤1mA/°C	≤0.5mA/°C	≤0.3mA/°C	≤12mA/°C	≤2.5mA/°C	≤1.5mA/°C	≤1mA/°C

* Whichever is the greater.

GENERAL SPECIFICATION

Input voltage
Suitable for mains voltages 110-127-220-240V/ 50...60Hz. The units are delivered pre-connected for 220V.

Ambient temperature
The ambient temperature is allowed to have any value between 0...40°C.

Polarity
The output terminals are insulated from the chassis; either the positive or the negative terminal may be earthed. The electrical data is valid with earthed output.

Protection
The units are protected against overvoltage by an adjustable o.v.p. which interrupts the drive of the power transistors. The units are also protected against overload and short-circuits.

Indication
LEDs indicate whether the units are used as a constant voltage or as a constant current source and also if the output voltage exceeds the preset overvoltage level.

Efficiency

62% PE 1642	at nominal mains
73% PE 1644	voltage
81% PE 1646	and max. output
81% PE 1648	power

Remote voltage/current control
The output voltage/current can be programmed (remotely adjusted) with a resistance or by a voltage source.

Remote sensing
Separate sensing terminals at the rear enable specified voltage regulation to be maintained directly at the load by compensating for voltage drops across the load.

Quality
The units are mechanical, climatic and safety tested referred to IEC 68 and IEC 348 (Class I). The predicted MTBF is 50 000 operating hours for maximum load and stationary use.

Inrush current
40A at 220V mains voltage (400W)
Duration 10ms valid for all units.

Series/parallel connection
Two or more power supply units can be connected in parallel or in series.

Master/slave operation
One unit (master) can control the connected units (slaves) when more units are used in series or parallel connection. The terminal block at the rear of the unit eliminates the need to rewire internally for this function.

Design
The units have been designed for use as table model as well as for 19-in rack mounting.

Meters
The units feature *separate* volt and amp. meters.

Mains interference
Conforms to VDE 0875 N-level

Dimensions and weight
(wxhxd) 444 x 132 x 360mm (1000W 477mm)
(19 x 5.1 x 12.4-in) (1000W 18.8-in)
400W 21kg (46lb) 1000W 37kg (81.4lb)