

# LABORATORY POWER SUPPLIES SERIES PS 2000



- Schools, Universities and Laboratories
- Industry and system applications
- Workshop and development
- Laboratories and test institutions
- Output voltage: 0...16V or 0...32V
- Output current: 0...2,5A, 0...5A, 0...10A
- Output power: 80W or 160W
- Digital LED Volt- and Ammeter
- Case closed on top and bottom
- Safety output sockets
- 100% duty cycle
- Safety: EN 60950
- EMI: EN 50081 part 1, EN 50082 part 1

## General

The main features of this series include the use of state of the art technology, safe and easy to use, compact size and very low cost. They are delivered in two output power classes: 80W and 160W.

There are no ventilation slots in either the top or base of the equipment, also no external heatsinks, again for improved safety all sockets are recessed. This attention to the safety and unit protection makes it ideal for schools and universities as well as test and development laboratories.

The output voltage is available through safety sockets on the front panel.

Voltage and current are indicated on separate LED-meters. Two or more units can be operated in parallel or in series connection.

The units can operate as constant voltage source with current limiter or as constant current source with voltage limiter. Constant voltage and constant current are adjustable from 0 up to the rated value.

The use of automatic transformer switching, MOS-FET power stages and temperature controlled variable fan cooling ensures accurate performance and very high reliability even under the most demanding conditions.

The units are capable of 100% duty cycle.

## Meters

### Digital meters for current and voltage

|                   |                               |
|-------------------|-------------------------------|
| <b>Voltmeter:</b> | 0...16V or 0...32V            |
| <b>Accuracy:</b>  | ± (1% + 2 digit) at 23°C ±5°C |
| <b>Ammeter:</b>   | 0...2,5A, 0...5A or 0...10A   |
| <b>Accuracy:</b>  | ± (1% + 4 digit) at 23°C ±5°C |

## Ambient conditions

|                               |                           |
|-------------------------------|---------------------------|
| <b>Operating temperature:</b> | 0°C ... 40°C at a         |
| <b>Humidity</b>               | 10%... 80% non condensing |

## Storage conditions

|                     |                            |
|---------------------|----------------------------|
| <b>Temperature:</b> | -25°C... 70°C              |
| <b>Humidity:</b>    | 10% ... 80% non condensing |

## Safety

Fuse in the primary circuit (the mains voltage is switched off).

The fan is fitted with a temperature sensor, which shuts down the unit in case the fan fails.

The units are according to the EMI regulations and carry the CE mark.

| TECHNICAL DATA                                | EA-PS 2016-050 | EA-PS 2016-100 | EA-PS 2032--025 | EA-PS 2032-050 |
|---|----------------|----------------|-----------------|----------------|
| <b>Input voltage 50...60Hz</b>                | 230V ±8%       | 230V ±8%       | 230V ±8%        | 230V ±8%       |
| <b>Input power max.</b>                       | 200VA          | 400VA          | 200VA           | 400VA          |
| <b>Output power</b>                           | 0...16V DC     | 0...16V DC     | 0...32V DC      | 0...32V DC     |
| <b>-Stability 0...100% Load</b>               | ≤20mV          | ≤40mV          | ≤10mV           | ≤20mV          |
| <b>-Stability ±8% V<sub>INPUT</sub></b>       | ≤3mV           | ≤3mV           | ≤5mV            | ≤5mV           |
| <b>-Ripple</b>                                | ≤4mV p-p       | ≤4mV p-p       | ≤4mV p-p        | ≤4mV p-p       |
| <b>-Regulation 80...100% Load</b>             | ≤100µs         | ≤100µs         | ≤100µs          | ≤100µs         |
| <b>-Temperature coefficient</b>               | 500ppm/°C      | 500ppm/°C      | 500ppm/°C       | 500ppm/°C      |
| <b>Output current</b>                         | 0...5A         | 0...10A        | 0...2,5A        | 0...5A         |
| <b>-Stability 0...100% V<sub>OUTPUT</sub></b> | ≤1mA           | ≤1mA           | ≤1mA            | ≤1mA           |
| <b>Dimensions WxHxD mm</b>                    | 210x132x255    | 210x132x255    | 210x132x255     | 210x132x255    |
| <b>Weight</b>                                 | 5,25kg         | 5,9kg          | 5,25kg          | 5,9kg          |
| <b>Article No.</b>                            | 39200100       | 39200101       | 39200102        | 39200103       |

# DOUBLE - LABORATORY POWER SUPPLIES SERIE EA-PS 2000

- ❑ Schools, Universities and Laboratories
- ❑ Industry and system applications
- ❑ Workshop and development
- ❑ Laboratories and test institutes
- ❑ Output: 2 x 0...16V or 2 x 0...32V  
Fixed voltage 3...6VDC/2A
- ❑ Output current: 2 x 0...2,5A, 2 x 0...5A
- ❑ Parallel or serial mode selectable on the front
- ❑ Dual tracing from master
- ❑ Output power: 2 x 80W
- ❑ Digital LED Volt- and Ammeter
- ❑ Case closed on top and bottom
- ❑ Safety output sockets
- ❑ 100% duty cycle
- ❑ Safety: EN 60950
- ❑ EMI: EN 50081 part 1, EN 50082 part 1



EA-PS 2332-025

## General

The main features of this series include the use of state of the art technology, safe and easy to use, compact size and very low cost. They are delivered with an output power of: 2 x 80W. They are based on the single units of the series PS 2000. Voltage and current are indicated on separate LED-meters. The output voltages are available through safety sockets on the front panel.

## Dual Tracking (Serial and parallel operation)

Both lab-outputs can be connected in parallel or in series by means of a switch on the front panel. The left hand unit is then operating as the master control unit. The output values are indicated on the meters of the master unit (left side).

The units are equipped with a third output supplying a fixed voltage of 3...6 Volts and a max. current of 2A. This output is located on the right side with safety sockets. The voltage can be adjusted by means of a screwdriver near the output. The use of automatic transformer switching, MOS-FET power stages and temperature controlled variable fan cooling ensures accurate performance and very high reliability even under the most demanding conditions. The units are capable of 100% duty cycle.

**Input voltage:** 230 V  $\pm$ 10% 50/60Hz

## Meters:

### Digital meters for current and voltage

**2 x Voltmeter:** 0...16V or 0...32V  
**Accuracy:**  $\pm$  (1% + 2 digit) at 23°C  $\pm$ 5°C  
**2 x Ammeter:** 0...2,5A, 0...5A  
**Accuracy:**  $\pm$  (1% + 4 digit) at 23°C  $\pm$ 5°C

## Ambient conditions:

**Operating temperature:** 0°C ... 40°C at  
**Humidity** 10%... 80% non condensing

## Storage:

**Temperature:** -25°C... 70°C  
**Humidity:** 10% ... 80% non condensing

## Safety:

Fuse in the primary circuit (the mains voltage is switched off).

The fan is fitted with a temperature sensor, which shuts down the unit in case the fan fails.

The units are according the EMI regulations and carry the CE mark.

| TECHNICAL DATA   | EA-PS 2316-050   | EA-PS 2332--025  |
|--|--|--|
| <b>Input power max.</b><br><b>Output power</b>   | 230V $\pm$ 10%<br>400VA  | 230V $\pm$ 10%<br>400VA  |
| <b>Output voltage</b><br>-Stability 0...100% Load<br>-Stability $\pm$ 8% V <sub>INPUT</sub><br>-Ripple<br>-Regulation 80...100% Load<br>-Temperature coefficient | 2 x 0...16V DC<br>$\leq$ 50mV<br>$\leq$ 5mV<br>$\leq$ 5mV p-p<br>$\leq$ 100 $\mu$ s<br>500ppm/°C | 2 x 0...32V DC<br>$\leq$ 50mV<br>$\leq$ 5mV<br>$\leq$ 5mV p-p<br>$\leq$ 100 $\mu$ s<br>500ppm/°C |
| <b>Output current</b><br>-Stability 0...100% V <sub>OUTPUT</sub>   | 2 x 0...5A<br>$\leq$ 1mA   | 2 x 0...2,5A<br>$\leq$ 1mA   |
| <b>Fixed voltage, Output 3</b>   | 3...6V DC/2A   | 3...6V DC/2A   |
| <b>Dimensions WxHxD mm</b><br><b>Weight</b><br><b>Article No.</b>  | 355 x 132 x 320<br>13kg<br>39200104  | 355 x 132 x 320<br>13kg<br>39200106  |

# LABORATORY POWER SUPPLIES SERIES PS 3000



- ❑ Output power 80...320W
- ❑ Output voltage 0...16V, 0...32V
- ❑ Output current 3 to 16A
- ❑ Schools, Universities and Laboratories
- ❑ Industry and system applications
- ❑ Single and Double units with auxiliary outputs
- ❑ Option: External programming, Monitor outputs and remote sense (Option "REM")
- ❑ Option: CAN-Bus (RS 232)
- ❑ Overvoltage protection (OVP) adjustable
- ❑ Volt- and Ammeter class 2.0
- ❑ Mode indication "CV" and "CC"
- ❑ Short regulation time, High regulation accuracy
- ❑ Low Ripple
- ❑ Safety: EN 60950
- ❑ EMI: EN 50081 part 1, EN 50082 part 1

## General

Main characteristics of this series are state of the art technology, compact design and a wide type spectrum. The output power is between 80 and 320 Watts.

High reliability even under the most extreme conditions is provided by automatic transformer switching, MOS-FET power stages and a temperature-controlled ventilation regulation with functional monitoring. The unit is designed without ventilation slots at the top and the bottom and has no external heat sinks. The units are capable of 100% duty cycle in any operation mode. The units may be used as constant voltage supply with current limiting or as constant current sources with voltage limitation. Current and voltage are continuously adjustable by means of coarse and fine potentiometers (on double power supplies only voltage with fine potentiometer).

The units are equipped with separate volt and ammeters, class 2,0 (the ammeter of EA-PS 3300 can be switched between both outputs).

The output voltage is available on safety sockets on the front panel. Output voltage is floating and can therefore be referenced to earth via the positive or negative rail.

All units are provided with overload protection. The current can be set between 0 and 100% of the rated current in coarse and fine mode (EA-PS 3300 only coarse).

All units are equipped with an overvoltage protection (OVP). The threshold of the OVP can be set by means of the "OVP" potentiometer on the front panel within the range of 0V and 20% above the rated voltage.

**Operation Mode Indication:** The LED "CV" indicates constant voltage mode, the LED "CC" indicates constant current mode.

The LED "Error" indicates that the unit output was switched off either by the over temperature protection or by the OVP. Two or more units can be operated in series or in parallel.

**Options:** "REM" and "Sense".

On "Sense" mode it is possible to compensate the voltage drop on the load cables up to 1V on each cable.

The option "REM" provides each a programming input (0...10 V) and a monitor output (0...10 V) for voltage and current. These inputs resp. outputs have a common ground contact which is connected to the +output. A 9-pole SUB-D socket which includes also the sense input connection is located on the rear.

**Option:** CAN-Bus

| TECHNICAL DATA                             | EA-PS 3016-05 | EA-PS 3032-03 | EA-PS 3016-10 | EA-PS 3032-05 | EA-PS 3016-16 | EA-PS 3032-10 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Input voltage ±10%</b>                  | 230V 50/60Hz  | 230V 50/60Hz  | 230V 50/60Hz  | 230V 50/60Hz  | 230V 50/60Hz  | 230V 50/60Hz  |
| <b>Output voltage</b>                      | 0...16V       | 0...32V       | 0...16V       | 0...32V       | 0...16V       | 0...32V       |
| <b>-Fine adjustment range</b>              | 800mV         | 1,6V          | 800mV         | 1,6V          | 800mV         | 1,6V          |
| <b>-Stability 0...100% load</b>            | <8mV          | <6mV          | <10mV         | <8mV          | <12mV         | <10mV         |
| <b>-Stability ±10% V<sub>IN</sub></b>      | <1mV          | <1mV          | <1mV          | <1mV          | <1mV          | <1mV          |
| <b>-Ripple</b>                             | <0,5mV        | <1mV          | <1mV          | <2mV          | <1mV          | <2mV          |
| <b>-Regulation 10...90% load</b>           | <100µs        | <100µs        | <100µs        | <100µs        | <150µs        | <150µs        |
| <b>-Overvoltage protection</b>             | 0...18V       | 0...36V       | 0...18V       | 0...36V       | 0...18V       | 0...36V       |
| <b>Output current</b>                      | 0...5A        | 0...3A        | 0...10A       | 0...5A        | 0...16A       | 0...10A       |
| <b>-Fine adjustment range</b>              | 500mA         | 300mA         | 1A            | 500mA         | 1,6A          | 1A            |
| <b>-Stability 0...100% V<sub>OUT</sub></b> | <1mA          | <1mA          | <1mA          | <1mA          | <1mA          | <1mA          |
| <b>-Ripple</b>                             | <2mA          | <1mA          | <3mA          | <2mA          | <5mA          | <3mA          |
| <b>Output 3</b>                            | —             | —             | —             | —             | —             | —             |
| <b>-Stability 0...100% Load</b>            | —             | —             | —             | —             | —             | —             |
| <b>Operating temperature</b>               | 0...40°C      | 0...40°C      | 0...40°C      | 0...40°C      | 0...40°C      | 0...40°C      |
| <b>Dimensions WxHxD (mm)</b>               | 238x117x195   | 238x117x195   | 238x117x195   | 238x117x195   | 238x117x240   | 238x117x240   |
| <b>Weight</b>                              | 5,4kg         | 5,4kg         | 6,6kg         | 6,6kg         | 10,5kg        | 10,5kg        |
| <b>Article No.</b>                         | 03100201      | 03100200      | 03100202      | 03100203      | 03100204      | 03100205      |

# LABORATORY POWER SUPPLIES SERIES PS 3000

- ❑ Output voltage 2 x 0...16V or 2 x 0...32V
- ❑ Output current 2 x 3A and 2 x 5A
- ❑ Laboratory, Schools, Industry and workshop applications
- ❑ Double units with auxiliary outputs 3...6V DC/2A
- ❑ Option: External programming, Monitor outputs and remote sense (Option "REM")
- ❑ Option: CAN-Bus (RS 232)
- ❑ Overvoltage protection (OVP) adjustable
- ❑ Volt- and Ammeter class 2.0
- ❑ Mode indication "CV" and "CC"
- ❑ Safety: EN 60950
- ❑ EMI: EN 50081 part 1, EN 50082 part 1

## General

These double output laboratory power supplies are based on the units of the Series PS 3000.

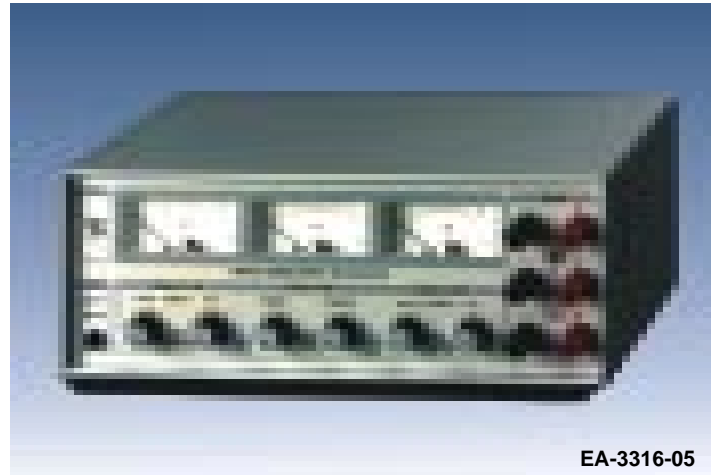
Voltage and current are indicated on instruments of the class 2,0. The output voltages are available on safety sockets on the front panel.

The outputs can be connected in series or in parallel to achieve higher voltages or currents.

The units are equipped with an auxiliary output, supplying a fixed voltage of 3...6 Volts and a max. current of 2A. This output is located on the right side with safety sockets. The voltage can be adjusted by means of a screwdriver near the output.

The use of automatic transformer switching, MOS-FET power stages and temperature controlled variable fan cooling ensures accurate performance and very high reliability even under the most demanding conditions.

The units are capable of 100% duty cycle.



EA-3316-05

| TECHNIAL DATA                            | EA-PS 3316-05 | EA-PS 3332-03 |
|--|---------------|---------------|
| <b>Input voltage ±10%</b>                | 230V 50/60Hz  | 230V 50/60Hz  |
| <b>Output voltage</b>                    | 2 x 0...16V   | 2 x 0...32V   |
| <b>-Fine adjustment range</b>            | 800mV         | 1,6V          |
| <b>-Stability 0...100% Load</b>          | <8mV          | <6mV          |
| <b>-Stability ±10% V<sub>IN</sub></b>    | <1mV          | <1mV          |
| <b>-Ripple</b>                           | <0,5mV        | <1mV          |
| <b>-Regulation 10...90% Load</b>         | <100µs        | <100µs        |
| <b>-Overvoltage protection</b>           | 0...18V       | 0...36V       |
| <b>Output current</b>                    | 2 x 0...5A    | 2 x 0...3A    |
| <b>-Fine adjustment range</b>            | —             | —             |
| <b>-Stability 0...100% U<sub>A</sub></b> | <1mA          | <1mA          |
| <b>-Ripple</b>                           | <2mA          | <1mA          |
| <b>Output 3</b>                          | 3...6V / 2A   | 3...6V / 2A   |
| <b>-Stability 0...100% Load</b>          | <20mV         | <20mV         |
| <b>Operating temperature</b>             | 0...40°C      | 0...40°C      |
| <b>Dimensions WxHxD (mm)</b>             | 312x117x215   | 312x117x215   |
| <b>Weight</b>                            | 7,6kg         | 7,6kg         |
| <b>Article No.</b>                       | 03100207      | 03100206      |

## VARIABLE TRANSFORMER

- ❑ Output isolated from the mains
- ❑ Output voltage 0...250V AC variable
- ❑ Volt- and Ammeter class 2,0
- ❑ Thermic overload protection
- ❑ Workshop and Laboratory applications
- ❑ EMI: EN 50081 part 1 and EN 50082 part 1
- ❑ Safety: EN 60950

The isolated variable transformer **EA-STT 2000** is ideal for both workshop or laboratory. The output is isolated from the mains input, so an instrument supplied from this transformer can be used for measurements on TV-Sets, primary switched power supplies etc.

The output voltage is variable from 0...250V AC by means of the knob on the front panel. The max. output current is 2A (500VA at 250V).

The output voltage and current are indicated on separate instruments. On sustained overload the thermic overload switch will be activated. Reset by pressing the over load switch. Due to the user friendly construction and layout these units are ideally suited for use by non-skilled operatives. They do not have cooling slits on the top of the unit so that liquids or pointed objects cannot be inadvertently introduced into the unit.



EA-STT 2000

| TECHNIAL DATA                | EA-STT 2000                |
|------------------------------|----------------------------|
| <b>Mains input voltage</b>   | 230V ±10% 50/60Hz          |
| <b>Output voltage</b>        | 0...250V AC                |
| <b>Output current</b>        | 2A max.                    |
| <b>Output power</b>          | 500VA                      |
| <b>Overload protection</b>   | over temperature protected |
| <b>Operating temperature</b> | 0...50°C                   |
| <b>Storage temperature</b>   | -30...70°C                 |
| <b>Weight</b>                | 14kg                       |
| <b>Dimensions WxHxD</b>      | 265 x 200 x 270mm          |
| <b>Article No.</b>           | 08 100 112                 |