

# LABORATORY POWER SUPPLIES SERIES PS 7000 A



EA-PS 7032-20A

- System applications
- Schools, Universities and Laboratories
- Transistor-Linear with Thyristor pre-regulator
- Output power 80W, 160W, 320W, 640W
- Output voltage 0...16, 0...32, 0...65, and 0...150V
- Output current 0,4 to 40A
- Adjustable constant voltage, coarse and fine
- Adjustable constant current, coarse and fine
- Volt- and Ammeter Class 2,0
  - Option: LCD-meters 3½ digit, illuminated
- Operation mode indicators
- Remote sense operation selectable
- Safety: EN60950,
- EMI: EN 50081 Part 1, EN 50082 Part 1  
resp. EN 50081 Part 2, EN 50082 Part 2
- 19"-Rack modul, 3HE/42TE/260mm deep, 80 & 160W

## General

This power supply series is a further development of the well known **EA-PS 7000A** series and the latest technology is applied. Compact size and a wide range of models is specific to this series. The units may be used as constant voltage source with current limiting or as a constant current source with voltage limiting. Both current and voltage may be adjusted both coarse and fine by means of high quality potentiometers on the front panel.

High reliability, even under extreme conditions, is achieved by thyristor pre-regulation, power MOS-FET end stages, temperature dependent fan regulation and a housing construction with integrated cooling. The output is protected against sustained short circuits. The units are equipped with independent volt and ammeters class 2,0. Optionally they can be delivered with illuminated 3½ digit, 13mm high LCD-meters. Two or more units can be operated in parallel or in series.

Model No.	Voltage	Current
EA-PS 7016-050A	0...16V	0...5A
EA-PS 7016-100A	0...16V	0...10A
EA-PS 7016-200A	0...16V	0...20A
EA-PS 7016-400A	0...16V	0...40A
EA-PS 7032-025A	0...32V	0...2,5A
EA-PS 7032-050A	0...32V	0...5A
EA-PS 7032-100A	0...32V	0...10A
EA-PS 7032-200A	0...32V	0...20A
EA-PS 7065-010A	0...65V	0...1,2A
EA-PS 7065-025A	0...65V	0...2,5A
EA-PS 7065-050A	0...65V	0...5A
EA-PS 7065-100A	0...65V	0...10A
EA-PS 7150-004A	0...150V	0...0,4A
EA-PS 7150-010A	0...150V	0...1A
EA-PS 7150-020A	0...150V	0...2A
EA-PS 7150-040A	0...150V	0...4A

## Mains voltage:

230V±10%  
or 115V±10%/50/60Hz.

## Ambient temperatures

Operating temperature: 0 to 50°C, 100% load  
Storage temperature: -30...70°C  
Humidity: max. 90% non condensing

## Interference (EMI)

Interference feedback to the mains is suppressed according to the following standards: **EN 50081** part 1, **EN 50082** part 1 respectively **EN 50081** part 2 and **EN 50082** part 2

## Options

1. Combined carrying handle and tilt stand (Suffix "**TG**") excluding 600W models.
2. Illuminated LCD-meters (Suffix "**LCD**")
3. 80 & 160W available as 19"-modul (Suffix "**M**")
4. All units are available as 19"-rack 3HE x 360mm, (Suffix "**19"-Rack**")

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The thyristor pre-regulation and the following transistor regulator guarantees the extreme low ripple on the output voltage.

## Overload protection - Current limiting

The output is protected against sustained short circuits. The output current can be set between zero and the nominal value by two potentiometers (coarse and fine).

## Remote sense

If the voltage drop along the connecting cable (max. 1V per cable) has to be included in the regulation circuit, then the output voltage direct at the load can be measured by the remote sense circuit. The connectors for the sense line are mounted on the front panel below the sense ON/OFF switch.

## Overvoltage protection (OVP)

All units are fitted with overvoltage protection as standard. Using the "OVP" potentiometer on the front panel, any value between 3V and 10% above the max. output voltage can be set. If the preset OVP value is exceeded for any reason, (defective component, faulty operation or application of an external voltage) then the output will be short circuited via a thyristor within less than 1ms thus protecting the load and also the unit.

## Meters

The units are fitted with independent analogue Volt- and Ammeters (Class 2,0). Optionally they can be fitted with illuminated 3½ digit LCD meters with 13mm digits. (Suffix "LCD")

The resolution of the LCD Meters is as following.

Rated voltage: 16V = 10mV, 32 to 150V = 100mV

Rated current: 10A = 10mA, above 10A = 100mA

## Operating mode indicators

The LED "CV" indicates that the unit is operating in constant voltage mode and the LED "CC" that the unit has switched to constant current mode. This change over occurs automatically according to the VA-characteristic curve.

## External Programming and Monitor Outputs:

The units may be programmed externally by means of voltages from 0...10V DC for the voltage and current. Also the output can be monitored via monitor outputs for (0...10V DC) for V and A.

The connections are on the front via a 15-pole Sub-D-Socket. The Intern/Extern mode switch is located on the front panel.

## Parallel- and Series operation

Two or more units can be operated in series or in parallel, to achieve higher voltages or currents. On series operation, the maximum output voltage against ground is limited to 500V.

All units are tested at the following voltages:

Transformer primary to chassis: 2000V AC

Transformer primary to secondary: 3750V AC

Transformer secondary to chassis: 500V AC

## Dimensions & weight:

EA-PS 7016-05A	331 x 133 x 250mm	5,8kg
EA-PS 7016-10A	331 x 133 x 350mm	9,0kg
EA-PS 7016-20A	331 x 133 x 350mm	14,9kg
EA-PS 7016-40A	331 x 133 x 410mm	23,0kg
EA-PS 7032-03A	331 x 133 x 260mm	5,8kg
EA-PS 7032-05A	331 x 133 x 260mm	9,0kg
EA-PS 7032-10A	331 x 133 x 350mm	14,9kg
EA-PS 7032-20A	331 x 133 x 350mm	23,0kg
EA-PS 7065-01A	331 x 133 x 260mm	5,8kg
EA-PS 7065-03A	331 x 133 x 260mm	9,0kg
EA-PS 7065-05A	331 x 133 x 350mm	14,9kg
EA-PS 7065-10A	331 x 133 x 350mm	23,0kg
EA-PS 7150-004A	331 x 133 x 260mm	5,8kg
EA-PS 7150-01A	331 x 133 x 260mm	9,0kg
EA-PS 7150-02A	331 x 133 x 350mm	14,9kg
EA-PS 7150-04A	331 x 133 x 350mm	23,0kg

Model Nb.	Output voltage	Stability 0-100% Load	Stability ±10% ΔV <sub>IN</sub>	Ripple	Regulation 80-100% Load	OVP adjustment	Current	Stability 0...100%ΔV <sub>O</sub>	Ripple	Article Nb.
EA-PS 7016-05A	0...16V	≤ 20mV	≤ 2mV	≤0,7mV eff.	60μsec.	3...17,5V	0...5A	≤ 3mA	≤0,8mA eff.	34100300
EA-PS 7016-10A	0...16V	≤ 20mV	≤ 2mV	≤0,7mV eff.	70μsec.	3...17,5V	0...10A	≤ 4mA	≤2,0mA eff.	34100301
EA-PS 7016-20A	0...16V	≤ 25mV	≤ 2mV	≤0,7mV eff.	80μsec.	3...17,5V	0...20A	≤ 4mA	≤3,5mA eff.	34100302
EA-PS 7016-40A	0...16V	≤ 40mV	≤ 2mV	≤0,7mV eff.	100μsec.	3...17,5V	0...40A	≤ 8mA	≤7,0mA eff.	34100303
EA-PS 7032-03A	0...32V	≤ 25mV	≤ 3mV	≤0,3mV eff.	60μsec.	3...35V	0...2,5A	≤ 3mA	≤0,8mA eff.	34100304
EA-PS 7032-05A	0...32V	≤ 25mV	≤ 3mV	≤0,3mV eff.	70μsec.	3...35V	0...5A	≤ 3mA	≤2,0mA eff.	34100305
EA-PS 7032-10A	0...32V	≤ 25mV	≤ 3mV	≤0,3mV eff.	80μsec.	3...35V	0...10A	≤ 3mA	≤3,5mA eff.	34100306
EA-PS 7032-20A	0...32V	≤ 25mV	≤ 3mV	≤0,3mV eff.	100μsec.	3...35V	0...20A	≤ 3mA	≤6,0mA eff.	34100307
EA-PS 7065-01A	0...65V	≤ 50mV	≤ 4mV	≤0,7mV eff.	60μsec.	3...72V	0...1,2A	≤ 3mA	≤0,8mA eff.	34100308
EA-PS 7065-03A	0...65V	≤ 40mV	≤ 4mV	≤1mV eff.	70μsec.	3...72V	0...2,5A	≤ 4mA	≤2,5mA eff.	34100309
EA-PS 7065-05A	0...65V	≤ 40mV	≤ 4mV	≤2mV eff.	80μsec.	3...72V	0...5A	≤ 4mA	≤4,0mA eff.	34100310
EA-PS 7065-10A	0...65V	≤ 40mV	≤ 4mV	≤4mV eff.	100μsec.	3...72V	0...10A	≤ 8mA	≤6,0mA eff.	34100311
EA-PS 7150-004A	0...150V	≤ 60mV	≤ 6mV	≤0,7mV eff.	60μsec.	3...165V	0...0,4A	≤ 3mA	≤0,8mA eff.	34100312
EA-PS 7150-01A	0...150V	≤ 60mV	≤ 6mV	≤0,7mV eff.	60μsec.	3...165V	0...1A	≤ 4mA	≤2,5mA eff.	34100313
EA-PS 7150-02A	0...150V	≤ 60mV	≤ 6mV	≤0,7mV eff.	60μsec.	3...165V	0...2A	≤ 4mA	≤4,0mA eff.	34100314
EA-PS 7150-04A	0...150V	≤ 60mV	≤ 6mV	≤0,7mV eff.	60μsec.	3...165V	0...4A	≤ 8mA	≤6,5mA eff.	34100315

# LAB.- POWER SUPPLIES WITH SUPPLEMENTARY OUTPUTS SERIES 7000 Z



EA-PS 7032-050 Z

The units of the series **EA-PS 7000Z** are based on the units described on the previous pages and they are available with four additional supplementary stabilised and short circuit protected outputs. These power supplies are designed for the in schools, laboratories and industry.

In the modern styled housing is a adjustable power supply, four supplementary voltage supplies, and an illuminated LCD-Volt- and Ammeter, which can also be used to measure external voltages and currents up to 100V by means of the indicator selection switch.

Because of the high stability of the output voltage and the good dynamic characteristics, even with large load variations as well as the integrated current regulation make these units a must for even the most sophisticated experimental setups.

The upper side of the housing is completely closed to prevent the inadvertent introduction of objects or liquids into the unit.

The thyristor pre-regulation circuit ensures low power dissipation over the complete output range.

The supplementary outputs (+5V/5A, -5V/1A, +12V/1A, -12V/1A) are isolated from the adjustable supply. Also the outputs  $\pm 5V$  are isolated from the  $\pm 12$  and  $\pm 15V$  outputs so that they may be connected in series if a higher voltage is required.

The  $\pm 12V$  and  $\pm 15V$  outputs are selectable as required with the switch 12V/15V on the front panel.

The outputs are sustained short circuit proof protecting the unit and the load.

This means that these units are able to deliver all the necessary voltages for working and experimenting with microprocessors, TTL, CMOS- and OP AMP-circuits.

The combined carrying handle and tilt stand is available as option "TG".

TECHNICAL DATA	EA- PS 7016-050 Z	PS 7032-025 Z	PS 7032-050 Z	PS 7065-012 Z	PS 7065-025 Z
<b>Output voltage 1</b> -Stability 0...100% Load -Stability $\pm 10\% V_{INPUT}$ -Ripple eff. -Temperature coefficient -Overvoltage protection <b>Output current 1</b> -Stability 0...100% $V_{OUT}$ -Stability $\pm 10\% V_{OUT}$ -Ripple eff.	0...16V DC $\leq 20mV$ $\leq 2mV$ $\leq 0,7mV$ 0,02%/K ca.3...17,5V 0...5A $\leq 3mA$ $\leq 0,3mA$ $\leq 0,8mA$	0...32V DC $\leq 25mV$ $\leq 3mV$ $\leq 3mV$ 0,02%/K ca. 3...35V 0...2,5A $\leq 3mA$ $\leq 0,3mA$ $\leq 0,8mA$	0...32V DC $\leq 25mV$ $\leq 3mV$ $\leq 3mV$ 0,02%/K ca. 3...35V 0...5A $\leq 4mA$ $\leq 0,4mA$ $\leq 2mA$	0...65V DC $\leq 50mV$ $\leq 4mV$ $\leq 07mV$ 0,02%/K ca. 3...72V 0...1,2A $\leq 3mA$ $\leq 0,3mA$ $\leq 0,8mA$	0...65V DC $\leq 40mV$ $\leq 4mV$ $\leq 1mV$ 0,02%/K ca. 3...72V 0...2,5A $\leq 4mA$ $\leq 0,4mA$ $\leq 2,5mA$
<b>Output 2, <math>\pm 5\%</math></b> <b>Output 3, <math>\pm 5\%</math></b> <b>Output 4, <math>\pm 1\%</math></b> <b>Output 5, <math>\pm 5\%</math></b> -Stability 0...100% Load -Stability $\pm 10\% V_{INPUT}$ -Ripple eff.	12/15V / 1A -12/-15V / 1A +5V / 5A -5V / 1A $\leq 40mV$ $\leq 5mV$ $\leq 5mV$	12/15V / 1A -12/-15V / 1A +5V / 5A -5V / 1A $\leq 40mV$ $\leq 5mV$ $\leq 5mV$	12/15V / 1A -12/-15V / 1A +5V / 5A -5V / 1A $\leq 40mV$ $\leq 5mV$ $\leq 5mV$	12/15V / 1A -12/-15V / 1A +5V / 5A -5V / 1A $\leq 40mV$ $\leq 5mV$ $\leq 5mV$	12/15V / 1A -12/-15V / 1A +5V / 5A -5V / 1A $\leq 40mV$ $\leq 5mV$ $\leq 5mV$
<b>Dimensions Wx HxD</b> <b>Weight</b> <b>Article Nb.</b>	331x133x345mm 8,3kg 34 200 200	331x133x345mm 8,3kg 34 200 204	331x133x345mm 11,5kg 34 200 205	331x133x345mm 8,3kg 34 200 208	331x133x345mm 11,5kg 34 200 209