

E 015-2 / E 030-1 / E 060-0.6

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**REGULATED
POWER SUPPLIES**

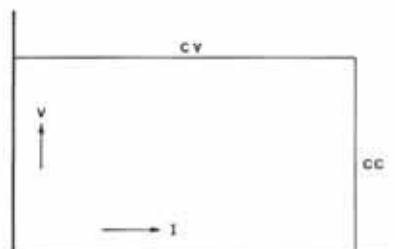
E 015-2	0- 15 V	0-2 A
E 030-1	0- 30 V	0-1 A
E 030-3	0- 30 V	0-3 A
E 060-0.6	0- 60 V	0-0.6 A
E 0300-0.1	0-300 V	0-0.1 A
E 018-0.6 D	± 0- 18 V	0.6 A

DESCRIPTION

E 015-2, E 030-1 and E 060-0.6

These power supplies are of the linear transistor series regulator type. They can be used as a constant voltage source with a sharply limited current, or as a constant current source with a sharply limited open voltage. Both limits are continuously variable from zero to full range. The change of mode occurs at the crossing of the voltage and current settings.

A ten-turn potentiometer is used to provide a high resolution voltage control. For current control a single turn potentiometer (resolution 0,1%) is used to enable an approximate indication of the current setting.



E 030-3 and E 0300-0.1

These models also have a linear transistor series regulator which however is preceeded by an SCR pre-regulator for better efficiency.

This pre-regulator keeps the rectified voltage in accordance with the output voltage to keep dissipation in the power transistors low.

E 018-0.6 D

This model has been designed to supply plus and minus 15 volts for design work with operational amplifiers. It provides a plus 0 – 18 V and a minus 0 – 18 V which are tracking and can be varied with one ten-turn potentiometer. With the second potentiometer the ratio of the positive and negative voltage can be varied between $\frac{1}{2}$ and 2. The positive and negative outputs have coupled overload protection circuits. This means that both output voltages will decrease proportionally if one is overloaded. Also if one output is short circuited, both outputs will drop to zero. The E 018-0.6 D has a fixed constant current overload characteristic. Independent of the ratio setting, the positive and negative output can never exceed a limit of about 18,5 V.

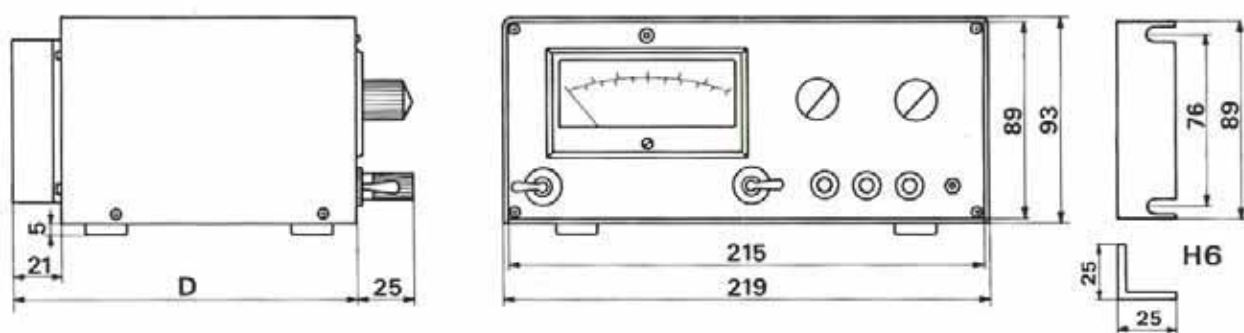
SPECIFICATIONS

Input voltage	220 V 50 Hz standard. Other input voltages at special order.
Input-output insulation	1500 V AC rms 1 minute (VDE 0550).
Max. voltage between output and case	500 V DC.
Max. ambient temperature	45°C.
Meter	Accuracy 1.5 % of fsd, selector switch for voltage and current measurement.
Parallel and series connection	Units can be connected parallel and in series. Series connection up to 300 V.
Weight and size	2.8 kg 219 x 93 x 154 mm 30 Watts type. 5.7 kg 219 x 93 x 222 mm E 030-3

SPECIFICATIONS	E 015-2	E 030-1	E 030-3	E 060-0.6	E 0300-0.1	E 018-0.6 D
CONSTANT VOLTAGE MODE Line regulation for 198—242 V variation Load regulation for 0 – 100% variation. Temp. coefficient per °C (% of V max) Drift per 8 hours under constant conditions after 15 minutes warm up Ripple voltage, rms Output impedance at 100 kHz load frequency Recovery time to within 30 mV after a step load change from 10 to 100% Remote programming of output voltage by resistance	1 mV	2 mV	2 mV	4 mV	10 mV	5 mV
	2 mV	4 mV	4 mV	8 mV	20 mV	5 mV
	0.01 %	0.01 %	0.01 %	0.01 %	0.01 %	0.01 %
	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %
	0.1 mV	0.1 mV	0.1 mV	0.1 mV	0.5 mV	0.1 mV
	100 mΩ	100 mΩ	100 mΩ	100 mΩ	10 Ω	100 mΩ
	15 μS	15 μS	15 μS	15 μS	30 μS	15 μS
	0–5 kΩ	0–5 kΩ	0–5 kΩ	0–10 kΩ	—	—
CONSTANT CURRENT MODE Line regulation for 198 – 242 V variation Load regulation for zero to max. load Temp. coefficient per °C (% of I max.) Ripple current rms	0.3 mA	0.3 mA	0.4 mA	0.3 mA	0.03 mA	—
	2 mA	2 mA	4 mA	2 mA	0.5 mA	—
	0.05 %	0.05 %	0.05 %	0.05 %	0.05 %	—
	0.1 mA	0.1 mA	0.1 mA	0.1 mA	0.1 mA	—



Simple construction and use of high quality components forms unique reliable unit.



For E 030-3 D = 222 mm, for all other models D = 154 mm.



Two uncased units can be mounted side by side, with the addition of two H6 brackets they can be inserted in a 19" rack.

E 015-2

E 030-1

E 060-0.6

C = microfarad

1 =	100	63 V	100	63 V	100	63 V	EB
2 =	22	25 V	22	25 V	22	25 V	EB
3 =	0,047	250 V	0,047	250 V	0,047	250 V	MKT1818
4 =	2,2	35 V tt	2,2	35 V tt	2,2	35 V tt	
5 =	CC		CC		CC		
6 =	22	25 V	22	25 V	22	25 V	EB
7 =	CC		CC		CC		
8 =	0,22	250 V	0,22	250 V	0,22	250 V	MKT1822
9 =	4700	40 V	2200	63 V	1000	100 V	EYV
10 =	10	40 V	10	45 V	10	45 V	EB
11 =	10	100 V	10	100 V	1	250 V	EB
12 =	2 x 100	35 V	2 x 100	63 V	2 x 100	100 V	EB
13 =	0,01	500 V	0,01	500 V	0,01	500 V	GEX
14 =	0,01	500 V	0,01	500 V	0,01	500 V	GEX
15 =	0,0001	250 V	0,0001	250 V	0,0001	250 V	GEB
16 =	0,0001	250 V	0,0001	250 V	0,0001	250 V	GEB
17 =	0,0001	250 V	0,0001	250 V	0,0001	250 V	GEB
18 =	0,01	250 V	0,01	250 V	0,01	250 V	MKT1818
19 =	0,022	250 V	0,022	250 V	0,022	250 V	MKT1818

D

1 =	1N4004G	1N4004G	1N4004G	Philips
2 =	ZPY 6,2	ZPY 6,2	ZPY 6,2	ITT
3 =	1N825 A	1N825 A	1N825 A	Thom.
4 =	1N4148	1N4148	1N4148	ITT
5 =	1N4148	1N4148	1N4148	ITT
6 =	1N4148	1N4148	1N4148	ITT
7 =	1N4148	1N4148	1N4148	ITT
8 =	VH 148	VH 148	VH 148	Varo
9 =	1N4004G	1N4004G	1N4004G	Philips
10 =	MR751	MR751	MR751	Motorola
11 =	1N4148	1N4148	1N4148	ITT
12 =	133 HR	133 HR	133 HR	Sloan

T

1 =	BC 546 A	BC 546 A	BC 546 A	Siemens
2 =	BD 239 A	BD 239 A	BUX 84	Philips
3 =	2N3055	2N3055	2N3442	RCA

IC 1 =	TL 081 IP	TL 081 IP	TL 081 IP	TI
IC 2 =	TL 082 IP	TL 082 IP	TL 082 IP	TI

Fuse : 1 A - 5 x 20 mm

tt = tantalum

CC = Calibration Capacitor

			Title: Part list	
K1,2, D10	2.86	Vr.	E015-2, E030-1, E060-0.6	
Serial no 14661 and up	2.82	Vr.	Date: Apr. '78	
Modifications	Date	App.	delta elektronika bv	

E 015-2

R = Ohm

1 = 680 PR52

2 = 270

3 = CR

4 = 470

5 = 3,9 k

6 = 6,8 k

7 = 1,8 k

8 = 470 k

9 = 470

10 = 470

11 = 18 k

12 = CR

13 = 470

14 = 47

15 = 470

16 = 470

17 = 47 k

18 = CR

19 = 3,3 k

20 = CR

21 = CR

22 = 3,3 k

23 = 0

24 = 10

25 = 560 PR37

26 = 2,7 M

27 = CR

28 = 1 7W WW 16ER

29 = 1,2 M

30 = 1 k trim.

31 = 1,5 k

32 = 15 k

33 = CR

34 = 2 k trim.

35 = 5 k potm.

36 = 5 k 10 t. potm.

37 = 270

E 030-1

560 PR52

270

CR

470

3,9 k

6,8 k

1,8 k

470 k

470

470

22 k

CR

470

47

470

470

33 k

CR

1,8 k

CR

CR

3,3 k

0

10

1,5 k PR37

1,2 M

CR

1,8 7W WW 16ER

680 k

1 k trim.

1,5 k

39 k

CR

2 k trim.

5 k potm.

5 k 10 t. potm.

270

E 060-0.6

560 PR52

270

CR

470

3,9 k

6,8 k

1,8 k

470 k

470

470

18 k

CR

470

39

470

1 k

15 k

CR

1,8 k

CR

CR

3,3 k

0

47

5,6 k PR37

1,2 M

CR

3,3 k 7W WW 16ER

330 k

1 k trim.

1,5 k

68 k

CR

5 k trim.

5 k potm.

10 k 10 t. potm.

270

CR = Calibration resistor

WW = Wire wound resistor

MRS 25 = metal film 0,4W 1%

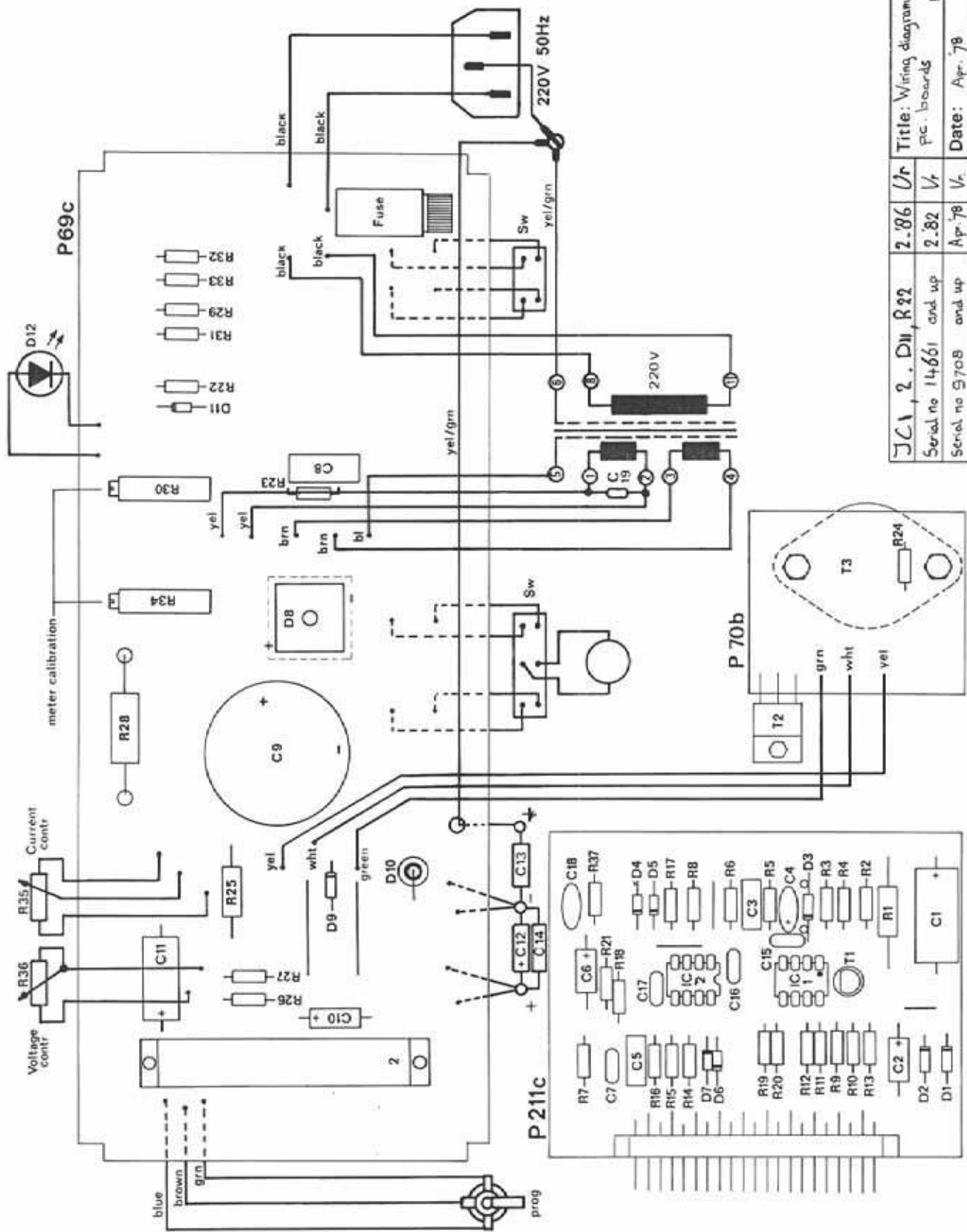
PR 37 = metal film 1,6W 5%

PR 52 = metal film 2,5W 5%

All non specified resistors are of MRS 25.

			Title: Part list
R1 = PR52.	7-85	Ur	E015-2, E030-1, E060-0.6
Serial no. 14661 and up	7-82	Ur	Date: Apr. '78
Modifications	Date	App.	delta elektronika bv





JC1, 2, D11, R22		2.86	Ur	Title: Wiring diagram Eols-2	
Serial no 14661 and up		2.82	Vr	pc. boards	
Serial no 9708 and up		Apr. 78	Vr	Date: Apr. 78	
Modifications		Date	App	delta elektronika bv	



EC Declaration of Conformity

We

Delta Elektronika
P.O. BOX 27
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The Netherlands

declare under sole responsibility that the Power Supply

E - SERIES

meets the intent of Directive 89/336/EEC for Electromagnetic Compatibility.
Compliance was demonstrated to the following specification as listed in the
official Journal of the European Communities:

EN 50081-1 Generic Emissions:

EN 55022 Radiated, Class B
EN 55022 Conducted, Class B
EN 60555-2 Power Harmonics

EN 50082-1 Generic Immunity:

IEC 801-2	Electrostatic Discharge	Level 3, air discharge.
IEC 801-3	Radiated electromagnetic fields	Level 3.
IEC 801-4	Electrical Fast Transients / Bursts	Level 4.
IEC 801-5	Surge on DC output	Level 2.
IEC 801-5	Surge on line input	Level 4.