60 S 5

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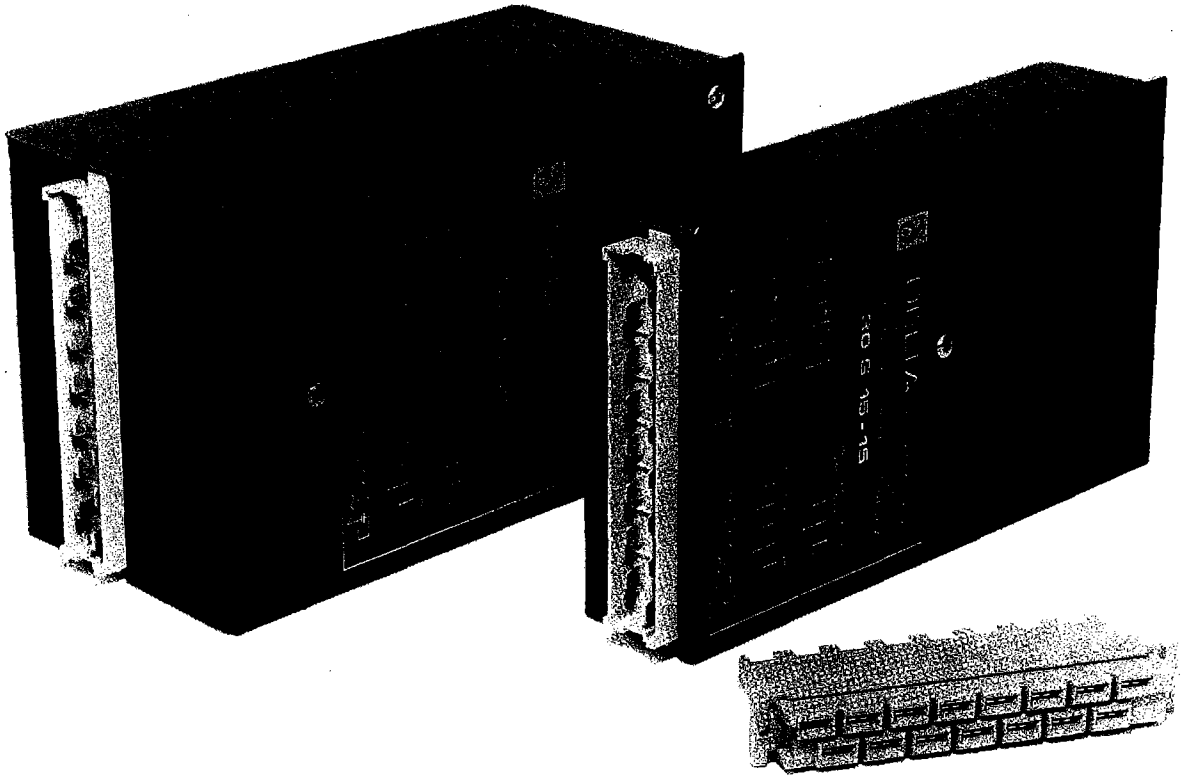


30, 60 AND 75 W SWITCHED MODE POWER SUPPLIES

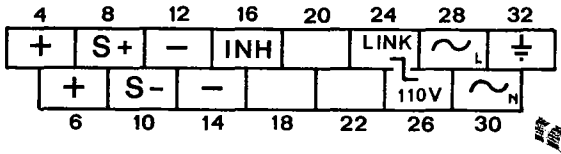
30 S 5	5 - 6 V	6 A	30 S 15-15	2 x 12-15 V	1.1 A
60 S 5	5 - 6 V	12 A	75 S 15-15	2 x 12-15 V	2.5 A

The independent sense circuit permits to connect the 2 outputs of the 30S15-15 and 75S15-15 **parallel, series** or **isolated** for use as:

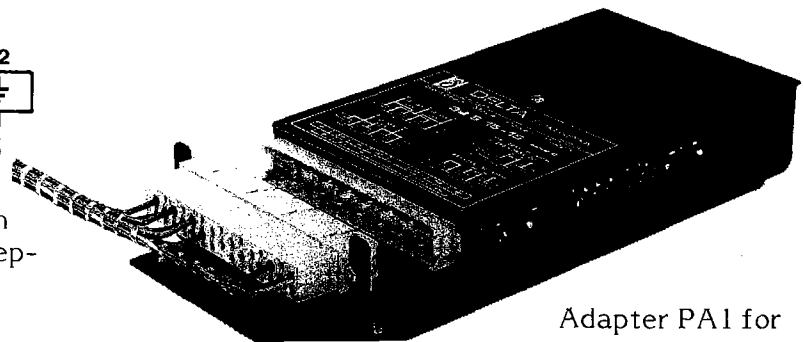
		30S15-15	75S15-15
Single output	12 to 15 V	2.2 A	5 A
Single output	24 to 30 V	1.1 A	2.5 A
Dual output	+ and - 12 to 15 V	1.1 A	2.5 A
Two outputs	each 12 to 15 V	1.1 A	2.5 A

The 2 outputs may be loaded asymmetrically up to 1.3A (30S15-15) resp. 3A (75S15-15). Overloading or shorting causes no damage.

The very large input voltage range allows **worldwide** use on 110-115-125-220-230-240V 50-400Hz line voltages and even on 240 to 365 VDC.



Connections can be made directly on to the power supply with faston receptacles 4.8 x 0.8mm or on to the H15 mating connector which is available



Adapter PA1 for

Input voltage

176 - 265 V AC 50-400 Hz
or 240 - 365 V DC

with link on connector
93 - 135 V AC 50-400 Hz

Voltage regulation

15 mV for 0-100% load variation
15 mV for 176-265 V line variation

Above load regulation applies when connected as a single output power supply.
If used as a dual or as a master and slave see curves on next page.

Ripple + noise (incl. spikes)

20 mV on 5 V output
30 mV on 15 V output
60 mV on 30 V output

Transient response

Load change 10 to 100%

Max. deviation 0.5 V (0.25 V on 30S)
Recovery time 0.5 mS

Temp. coeff. of output voltage

0.02% per °C

Efficiency

Typically 77% at 5 V to 81% at 12-30 V at full load and 220 V AC input.
Input current at no load is only 30 mA.

Overvoltage protection

Internal SCR crowbar OVP, set to operate at approximately 7 V on 5 V models and 18 V on 15 V models or 36 V when used in series mode.

Hold-up time

40 mS at full load and 220 V AC input.

Temperature range

-10 to +50 °C at 100% output current. Derate current linearly to 20% at 75 °C.

Remote sensing

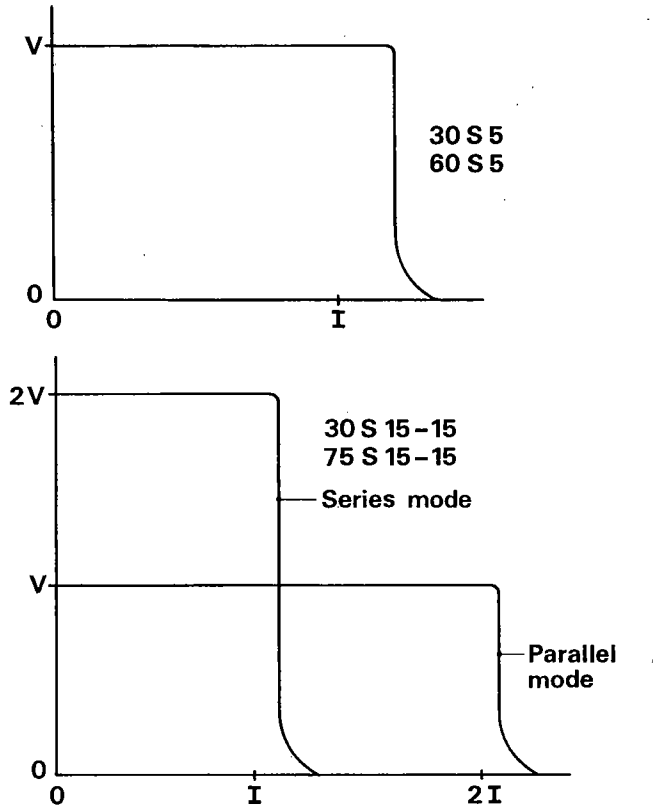
Fitted on all models

Led lamp

Led lamp on front end indicates output state.

Overload protection

Constant current limit.



Inhibit

A logic 1 (+5 V) between INH (pin 16) and S- (pin 10) shuts down the output.

Series operation

Up to 250 V combined output.

Parallel operation

Units may be connected in parallel. To protect the internal fixed overvoltage protector, an external crowbar type OVP, set to 110%, can be connected across the load.

RFI suppression

Conducted interference complies with VDE 0875 curve N-12 db on input and curve N on output.

Insulation

2.5 kV AC RMS (1 min.) input to output and input to case. 500 V DC output to case.

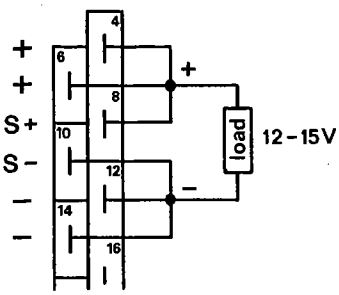
Insulation resistance better than 50 MOhm (measured at 500 V DC).

Safety in accordance with IEC 348.

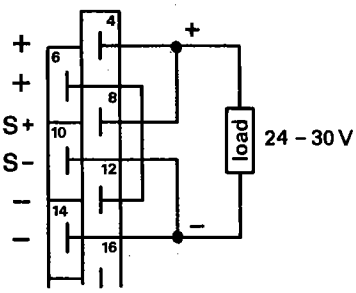
Weight

30 S models 0.75 kgs, 60 and 75S 1.2 kgs.

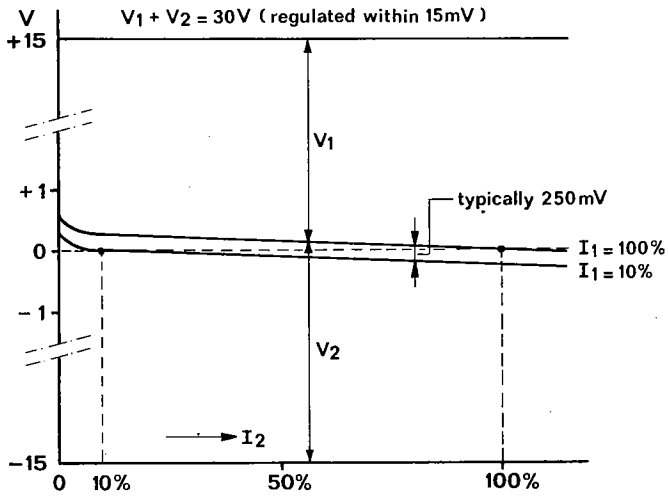
30S15-15 and 75S15-15 can be used in 4 different modes:

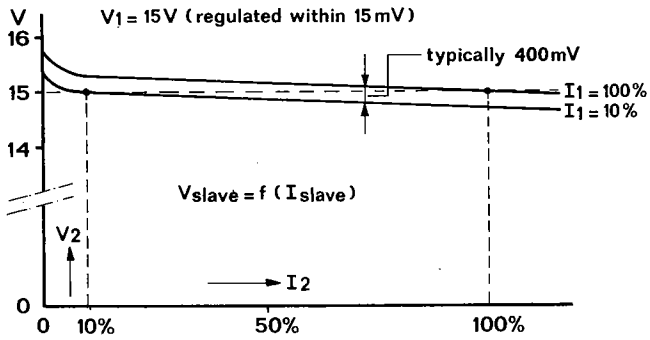


Parallel mode



Series mode



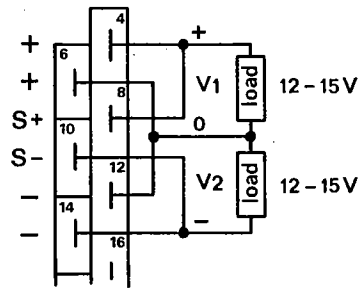


Parallel and series mode

Turn the voltage adjustment about 15 turns up if previously used in parallel mode or down if previously used in series mode. The OVP will trip if the voltage adj. potentiometer is in a too high turned up position.

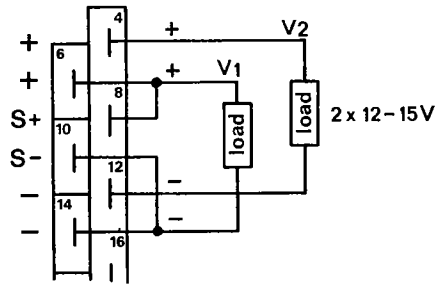
External voltage adjustment

Is possible with a variable resistor between S+ and +, with the internal adj. at zero.



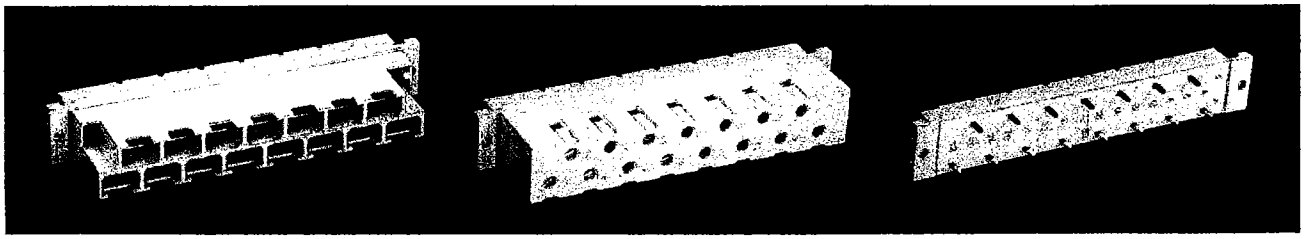
Dual mode (Sensing on $V_1 + V_2$)

The total voltage $V_1 + V_2$ is regulated within 15 mV. Unequal loading of the + and - output causes a slight shift of the zero point.



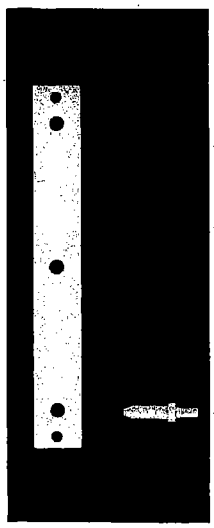
Master and slave mode (Sensing on V_1)

Two isolated outputs (max. 100V DC between V_1 and V_2). The master output voltage is regulated within 15mV. The slave output varies slightly when the two outputs are loaded unequally.

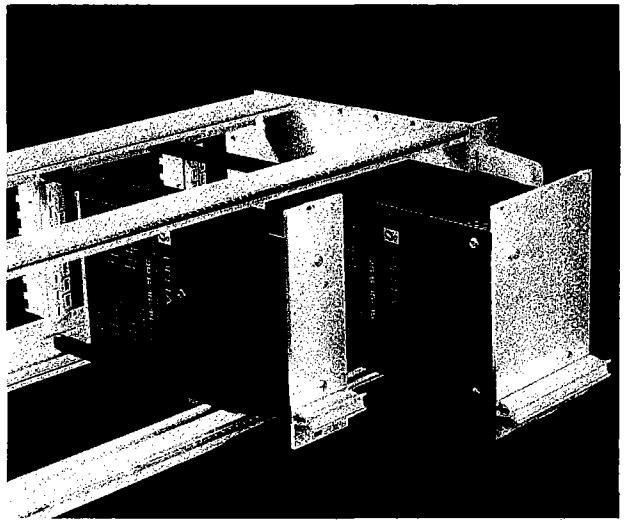


H15 with faston tabs 6.3 x 0.8 mm with screw terminals with solder pins

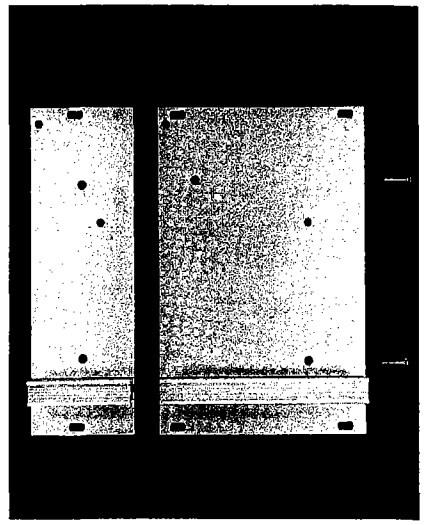
The H15 mating connector (DIN 41612) is available in the above mentioned 3 versions.



Coding strip and pin. To be ordered separately.

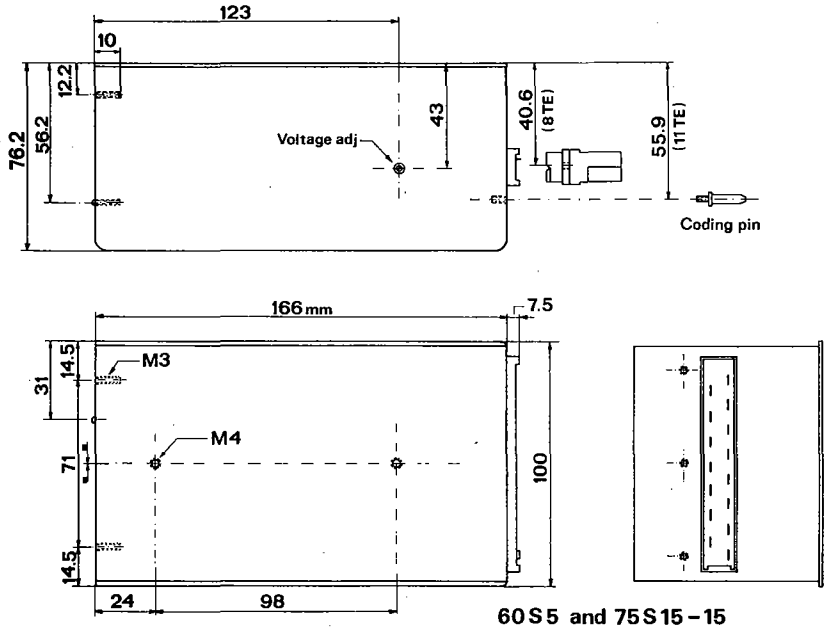


Dimensions are according to DIN 41494 to fit into a Eurocard Rack. A mating connector H15 with faston tabs is supplied with each power supply.

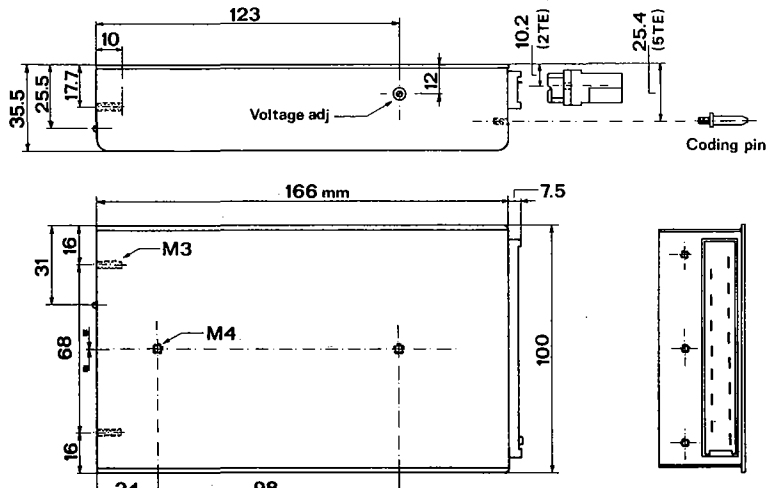


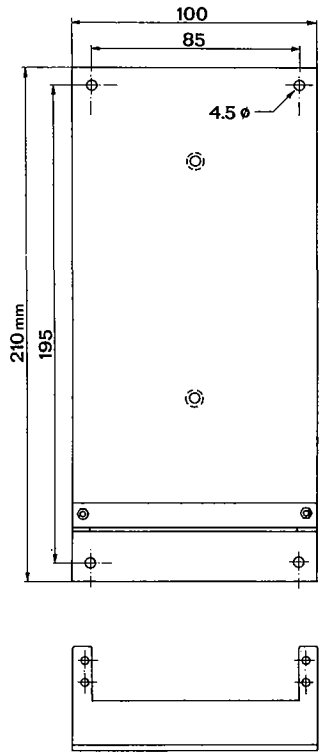
Front panels 8 TE and 16 TE. To be ordered separately.

The coding system can be used to prevent incorrect insertion of dissimilar units into the rack. Two of the three holes have to be covered by screws.



60S5 and 75S15-15





Adapter PA1 for panel mounting of 30 , 60 and 75 S models

R = Ohm

1 =	16		25 °C
	(Keystone RL 450-10-73-S48)		
2 =	150	k	MR30
3 =	-		
4 =	150	k	MR30
5 =	-		
6 =	8,2		
7 =	8,2		
8 =	100		
9 =	220		
10 =	390		
11 =	10	k	
12 =	10	k	
13 =	10	k	
14 =	10	k	
15 =	12	k	
16 =	33	k	
17 =	15	k	
18 =	470		
19 =	2,7	k	
20 =	470		
21 =	33	k	
22 =	1	k	
23 =	18		
24 =	18		0,7W
25 =	10		
26 =	560		
27 =	100		potm.
28 =	220		
29 =	330		N.T.C.
30 =	1,5		0,7W
31 =	1,5		0,7W
32 =	1	k	7W WW
33 =	47		
34 =	220		
35 =	330		
36 =	150		
37 =	1	k	potm.
38 =	1	k	
39 =	4,7	k	
40 =	1,8	k	
41 =	470		
42 =	220		
43 =	100		
44 =	4,7	k	
45 =	10		
46 =	-		
47 =	100	k	
48 =	150	k	MR30
49 =	18		
50 =	47		

CR = Calibration resistor
all other resistors 0,33W 2% metal film
WW = Wire Wound

C

1 =	0,22	µF	X 250 V
2 =	2200	pF	Y 250 V
3 =	0,15	µF	X 250 V
4 =	2200	pF	Y 250 V
5 =	220	µF	200 V
6 =	220	µF	200 V
7 =	100	µF	25 V
8 =	0,01	µF	500 V
9 =	0,01	µF	500 V
10 =	3300	µF	10 V
11 =	0,15	µF	X 250 V
12 =	0,15	µF	X 250 V
13 =	3300	µF	10 V
14 =	0,22	µF	100 V
15 =	1000	pF	630 V
16 =	2200	pF	63 V
17 =	0,047	µF	250 V
18 =	2200	pF	63 V
19 =	2,2	µF	16 V
20 =	1	µF	40 V
21 =	1000	pF	630 V
22 =	1	µF	40 V
23 =	680	pF	1600 V
24 =	-		
25 =	0,1	µF	50 V
26 =	2200	pF	63 V
27 =	1	µF	40 V
28 =	-		
29 =	0,22	µF	100 V
30 =	0,22	µF	100 V
38 =	15	pF	500 V
39 =	0,22	µF	100 V
40 =	0,22	µF	100 V
41 =	2,2	µF	25 V

Q = Transistor

1 =	2 N 2222	Sescosem
2 =	2 N 2907	Sescosem
3 =	2 N 2907	Sescosem
4 =	-	
5 =	2 N 2907	Sescosem
6 =	MPSU 05	Motorola
7 =	VN 66 AF	Siliconix
8 =	2 N 2222	Sescosem
9 =	BUX 48	Sescosem
10 =	2 N 2907	Sescosem

			Title: Part list 60 S 5
C 24, 28, 40, 41	5-'84	V.	
R 49, 50	5-'84	V.	Date: 3-'81

D

1 =	VJ 1048	VARO
2 =	BYV 26D	Philips
3 =	BYV 26D	Philips
4 =	BYV 26D	Philips
5 =	ZPY 6,2	ITT
6 =	VSK 3030 S	VARO
7 =	VSK 3030 S	VARO
8 =	ZPY 6,2	ITT
9 =	BTY 79/200R	Philips
10 =	G 314 N4	Philips
11 =	ZPD 5,6	ITT
12 =	ZPD 6,8	ITT
13 =	1 N 4148	TI
14 =	1 N 4148	TI
15 =	1 N 4148	TI
16 =	ZPD 6,2	ITT
17 =	BYV 26D	Philips
18 =	BYV 26D	Philips
19 =	BYV 26D	Philips
20 =	1 N 4148	TI
21 =	-	
22 =	TL 431 ILP	TI
23 =	TL 431 ILP	TI
24 =	-	
25 =	-	
26 =	BYV 26D	Philips
27 =	ZPU 150	ITT
28 =	1 N 5818	Motorola

L

1 =	L 165	Delta
2 =	L 166	Delta
3 =	L 167	Delta
4 =	L 169	Delta
5 =	2,2 µH	Secre
T 1 =	T 163	Delta

IC

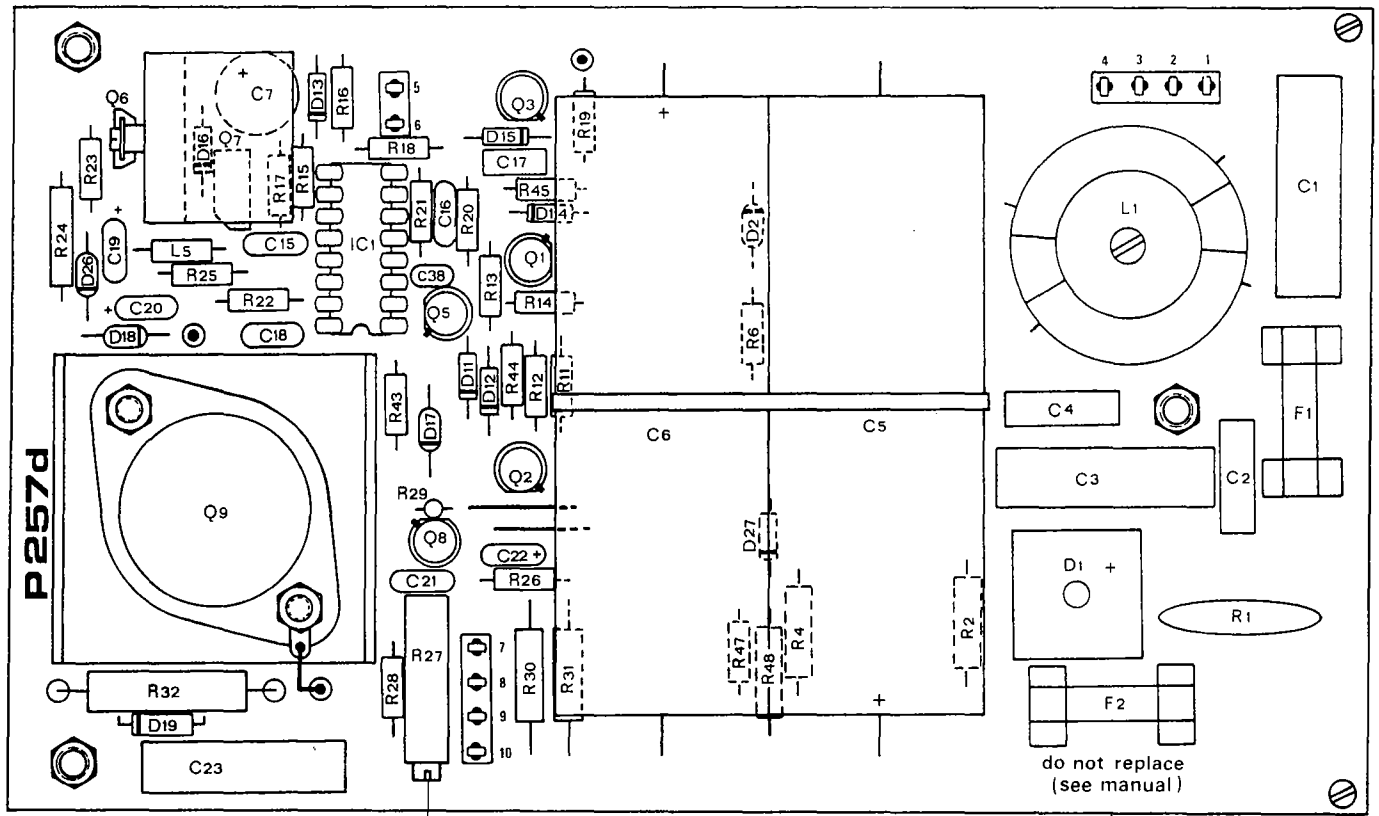
1 =	HEF 4049	Philips
2 =	CNY 21	AEG

F

1 =	2 A slow
2 =	800 mA quick

Ts =	Thermo switch UP 62 80 °C 5%	Uchiya

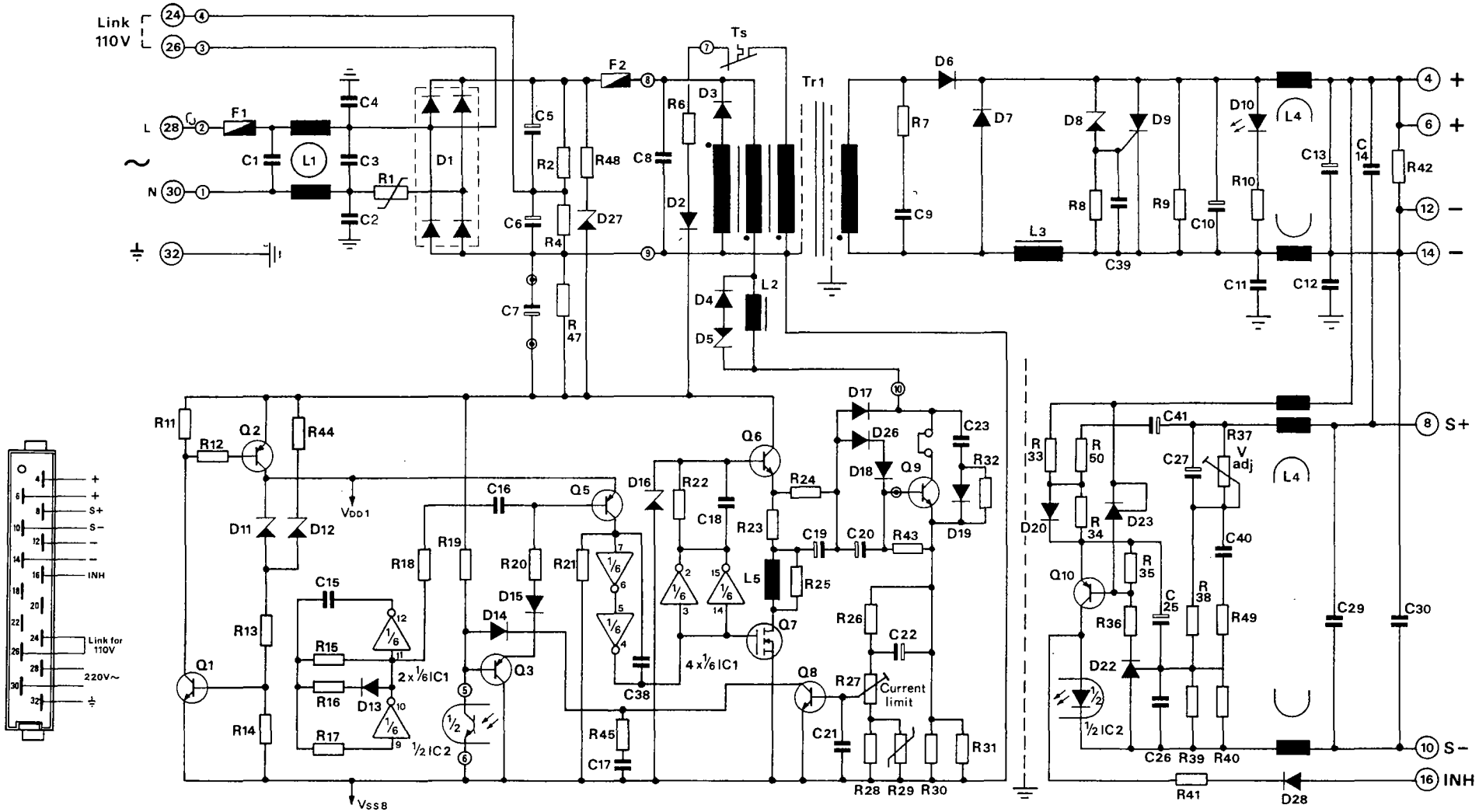
D10 rd = grn	10-89	Vr.	Title: Part list
D2.3.4.17.18.19.26	7-86	Vr	60 S 5
D21.28	5-84	Vr	Date: 3 -'81



Current limit adj, factory adjusted and sealed Warranty lapses if seal is broken

Do not replace F2
F2 blows when Q9 gets defective
In that case replacement of F2 can also damage other components

			Title: PC board 60 S 5
P257d	2-'86	Vr	Date: 3-'81
Modifications	Date	App	delta elektronika bv



			Title: Circuit diagram 60S5
C24, 28, 40, 41	5-'84	Vr	
R49, 50, D21, 28	5-'84	Vr	Date: 3-'81
Modifications	Date	App	delta elektronik