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October 1987



3. SPECIFICATIONS

INPUTS

INPUT POWER : Input power is drawn from a standard NIM Bin and power supply, such as SILENA Mod. 7000.

OUTPUTS : Four independent bias supplies for 0 to ± 200 VDC (0 to ± 399 VDC internally selectable).

CONTROLS

ON/OFF : Four two-position toggle switches to enable or disable each single output voltage.

OUTPUT VOLTAGE : 0 to $\pm 199,9$ VDC via a twenty-turn screwdriver adjustable potentiometer (0 to ± 399 VDC internally selectable).
Shipped for 0 to $+ 199,9$ VDC for each output.

POLARITY : Internally selectable via a single jumper for each output.

DISPLAY : Four-position rotary-switch selects channel displayed bias (voltage and current).

VOLTAGE : $3\frac{1}{2}$ digit front-panel. Resolution 0.1 Volt (1 Volt for 399 VDC full scale).

CURRENT- μ A : $3\frac{1}{2}$ digit front-panel. Resolution $10 \cdot 10^{-9}$ Ampères ($10 \cdot 10^{-10}$ Ampères internally selectable).



INDICATORS

POLARITY : Front-panel LED indicator lights for positive or negative polarity for each output.

BIAS ON : Front-panel LED indicator lights for each bias supply ON.

PERFORMANCE

RIPPLE AND NOISE (50Hz ÷ 50MHz) : ≤ 5 mV peak to peak (typically)

LOW FREQUENCY NOISE (0.1Hz ÷ 50Hz) : ≤ 1 mV.

OUTPUT VOLTAGE STABILITY : $\leq 0.05\%$ hr at constant input line voltage, load and ambient temperature after a 30 minutes warmup.

REGULATION : Typically 0.05% from 0 to 20 μ A.

TEMPERATURE COEFFICIENT : ± 50 ppM, 0 ÷ 45°C operating range.

CALIBRATION ACCURACY : Typically $\pm 0,1\%$

RESETTABILITY : 0.1 Volt (by readout via front-panel digital voltmeter).

OUTPUT LOAD CAPACITY : 0 to 20 $\cdot 10^{-6}$ Ampères for 200 VDC FS
0 to 10 $\cdot 10^{-6}$ Ampères for 399 VDC FS

OUTPUT RANGE : 0 to ± 200 VDC (0 to ± 399 VDC internally selectable).



FRONT PANEL

OUTPUT VOLTAGE RISE TIME : \leq 10 sec. to reach 99% of final value.

CONNECTORS

OUTPUT VOLTAGE : Rear panel type BNC for each output

J10 : CANNON type DE 9P for remote controls.

POWER REQUIREMENTS:

+12 Volt	95mA - stand-by condition
	110mA - 200 V output no load
	120mA - 200 V output 20 μ A OUT
-12 Volt	60mA - regardless of load
+ 6 Volt	40mA - regardless of load

PHYSICAL

SIZE : Standard single-width NIM module

NET WEIGHT : 1 Kg.



7. INTERNAL CONTROLS

Prior to installation, care should be taken to set the internal controls to the desired position.

A schematic layout of available controls is shown in Fig. 1.

7.1 Polarity Selection : See fig. 1

Shipped for positive, each output.

7.2 Remote Controls

Provisions are included for independent remote control of individual VBIAS supplies.

REMOTE VOLTAGE CONTROL : For remote control of bias supplies outputs, set the "INT./EX" (jumpers No. 3) voltage control to "EX".

	JPS No 3	INT.	EX.
VBIAS 1	3/1	D-E	E-F
VBIAS 2	3/2	D-E	E-F
VBIAS 3	3/3	D-E	E-F
VBIAS 4	3/4	D-E	E-F

Shipped in the "INTERNAL" mode.



7.2 Current Output Resistance

REMOTE SHUTDOWN : For remote shutdown of Bias Supplies outputs, set the "INT/EX" (Jumpers No. 2) shutdown control to "EX".

	JPS No 2	INT.	EX.
VBIAS 1	2/1	A-B	B-C
VBIAS 2	2/2	A-B	B-C
VBIAS 3	2/3	A-B	B-C
VBIAS 4	2/4	A-B	B-C

Shipped in the "INTERNAL" mode.

7.3 Voltage Full Scale

Output voltage changes from 199.9 VDC - 19.99 μ A to 399VDC - 10.00 μ A.

JPS	199.9V/19.99 μ A	399 V /10.00 μ A
1/1-1/2 1/3-1/4	NOT FITTED	FITTED
JP4	FITTED	NOT FITTED
VOLTMETER CARD JP1	BC	AB
HIGH VOLTAGES JUMPERS	AC	AB

The 4 sections should always be set for the same operating full scale value.



7.4 Current Readout Resolution

- $10 \cdot 10^{-9}$ Ampères Resolution : Set JP₂ on the Digital Voltmeter card to "LM".
Set jumpers 5/1, 5/2, 5/3 and 5/4 to "GH".
- $10 \cdot 10^{-10}$ Ampères Resolution : Set JP₂ on the Digital Voltmeter card to "MN".
Set jumpers 5/1, 5/2, 5/3 and 5/4 to "HI".

All the 4 sections should always be set for the same current readout resolution.

The $10 \cdot 10^{-10}$ Ampères resolution provides current readout up to 1.999 μ A. For currents exceeding this value, the OWF indication will appear on the display.



SILENA S.p.A.
MILANO - ITALY

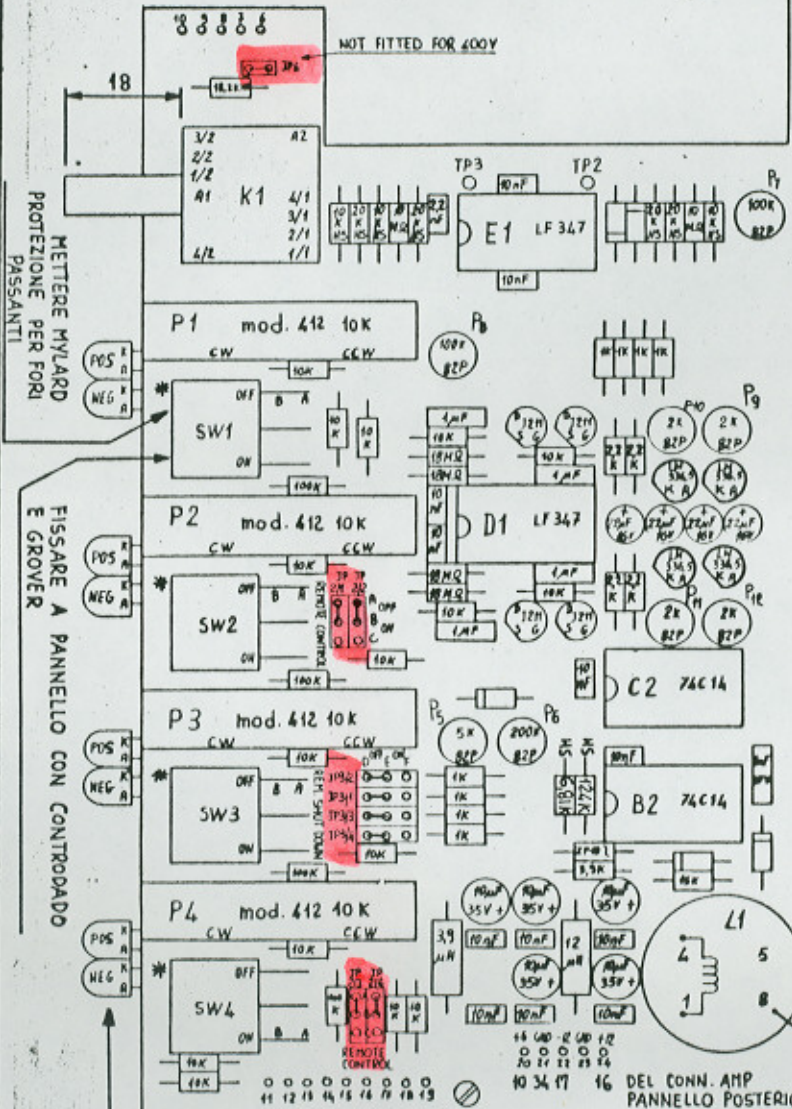
- QUAD BIAS SUPPLY mod. 7710 -
P.C. HIGH VOLTAGE

2335/A/B

SEGUE F. - 1

O	EMISSIONE	7-1-88	DATA	REDDATO/CONT.	APPROV./REV.	DESCRIZIONE	DATA	REDDATO/CONT.	APPROV.
REV.	DESCRIZIONE								

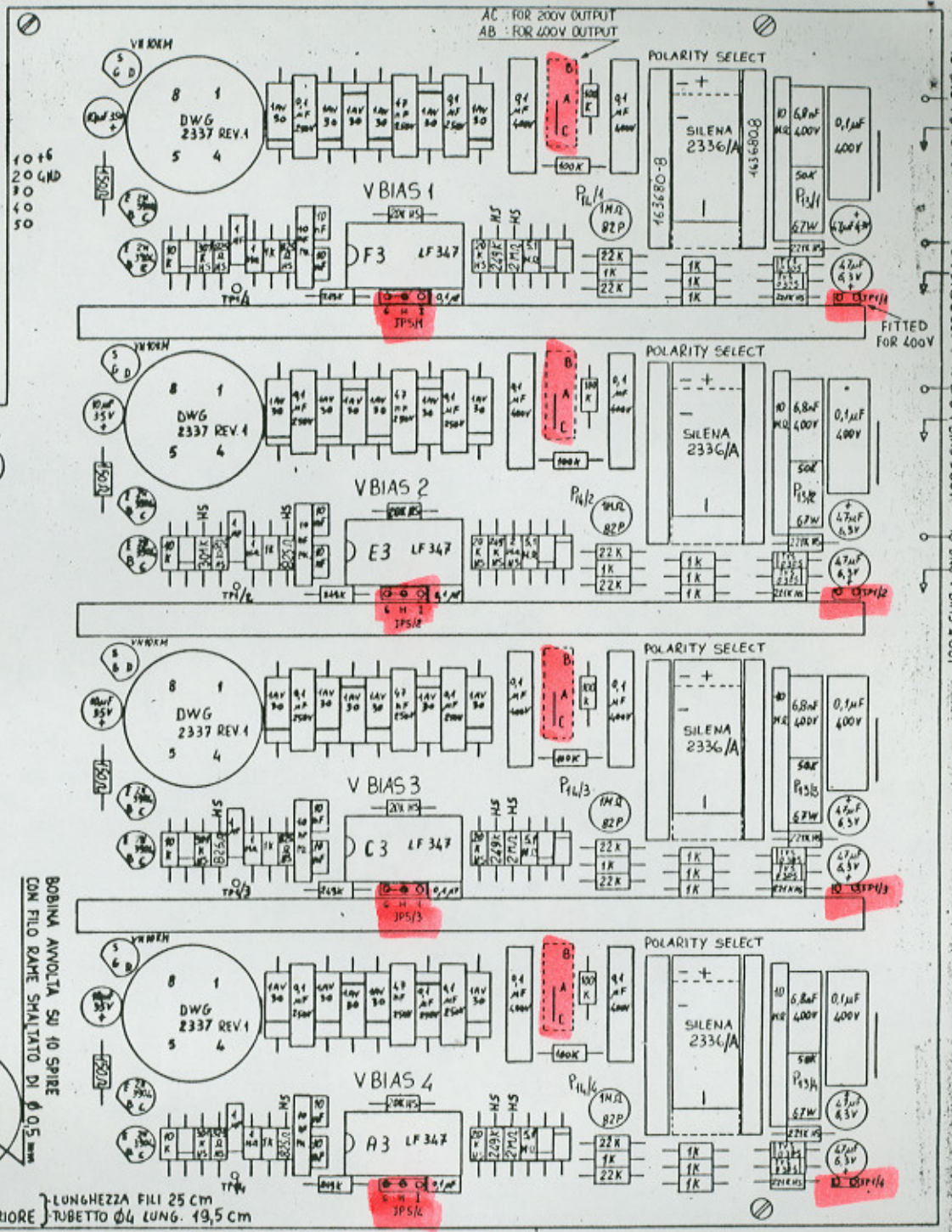
LED 1	LED 2	LED 3	LED 4	A	K
8	6	6	6		
9	6	6	6		
40	6	6	6		
7	6	6	6		



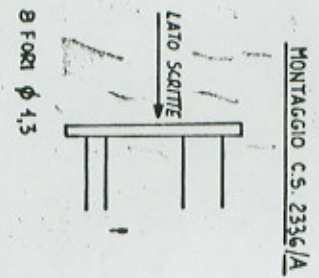
METTERE MYLARD PROTEZIONE PER FORI PASSANTI

FISSARE A PANNELLO CON CONTRODADO E GROVER

DETERMINARE L'ALTEZZA DEI LED DOPO AVER MONTATO IL C.S. CON IL PANNELLO FRONTALE NIM



BOBINA AVVOLTA SU 10 SPIRE CON FILO RAME SMALTATO DI Ø0,5 mm



TO BNC V BIAS 1 OUT TO BNC V BIAS 2 OUT TO BNC V BIAS 3 OUT TO BNC V BIAS 4 OUT

FITTED FOR 400V

FITTED FOR 400V

FITTED FOR 400V

FITTED FOR 400V

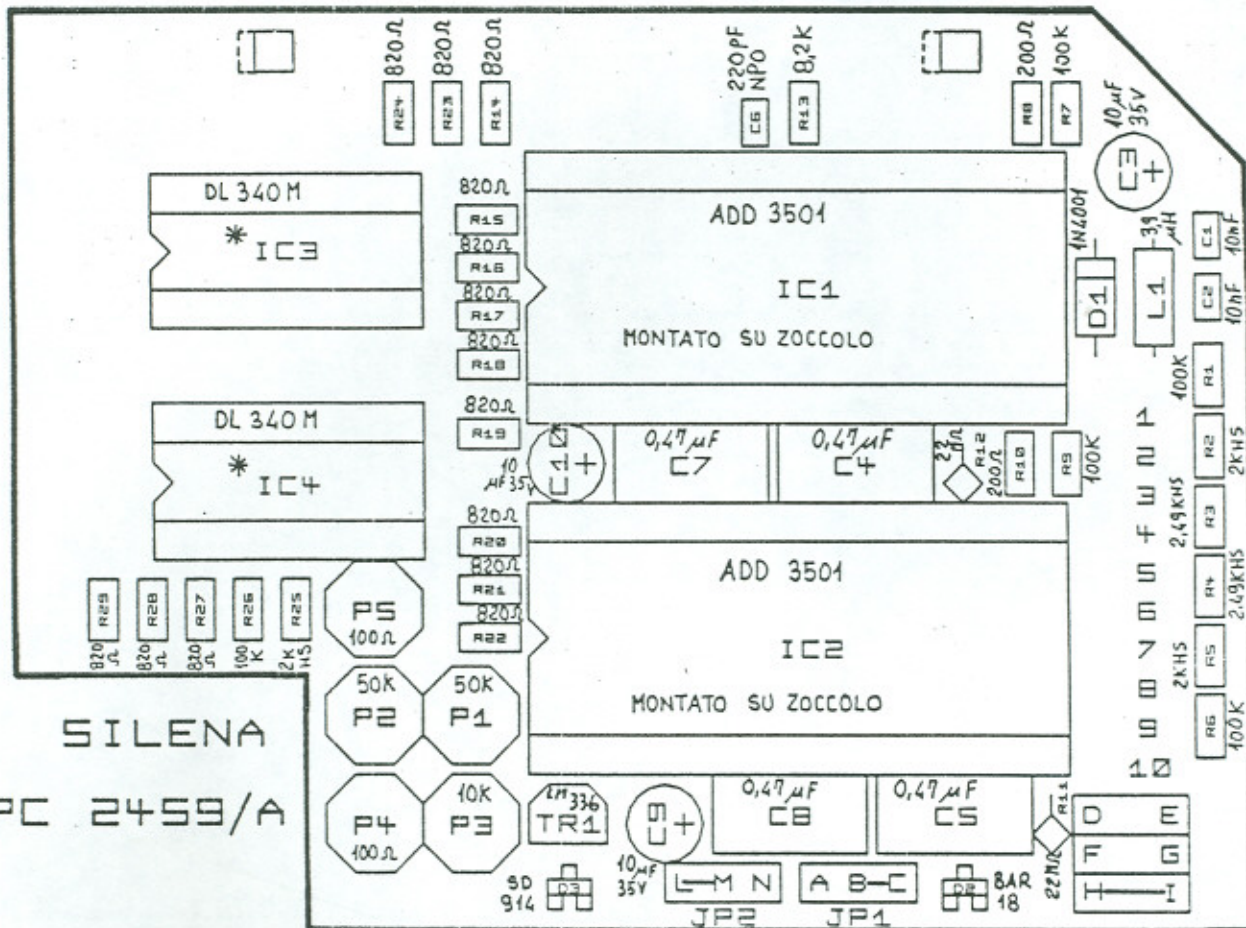
*

IC3, IC4 : MONTARE ZOCCOLO A 90°
PER DISPLAY



7
6
5
4
3
2
1

SILENA
PC 2459/A



M L H G F E D C B A

SCALA 2:1

DIGITAL VOLTMETER	HIGH VOLTAGE
P.C. 2459/A POINT CONN.	P.C. 2335/A POINT CONN.
1	1
2	2
3	3
4	4
5	5

O	EMISSIONE	23-12-87	JP								
REV.	DESCRIZIONE	DATA	REDATTO	CONT.	APPROV.	REV.	DESCRIZIONE	DATA	REDATTO	CONT.	APPROV.



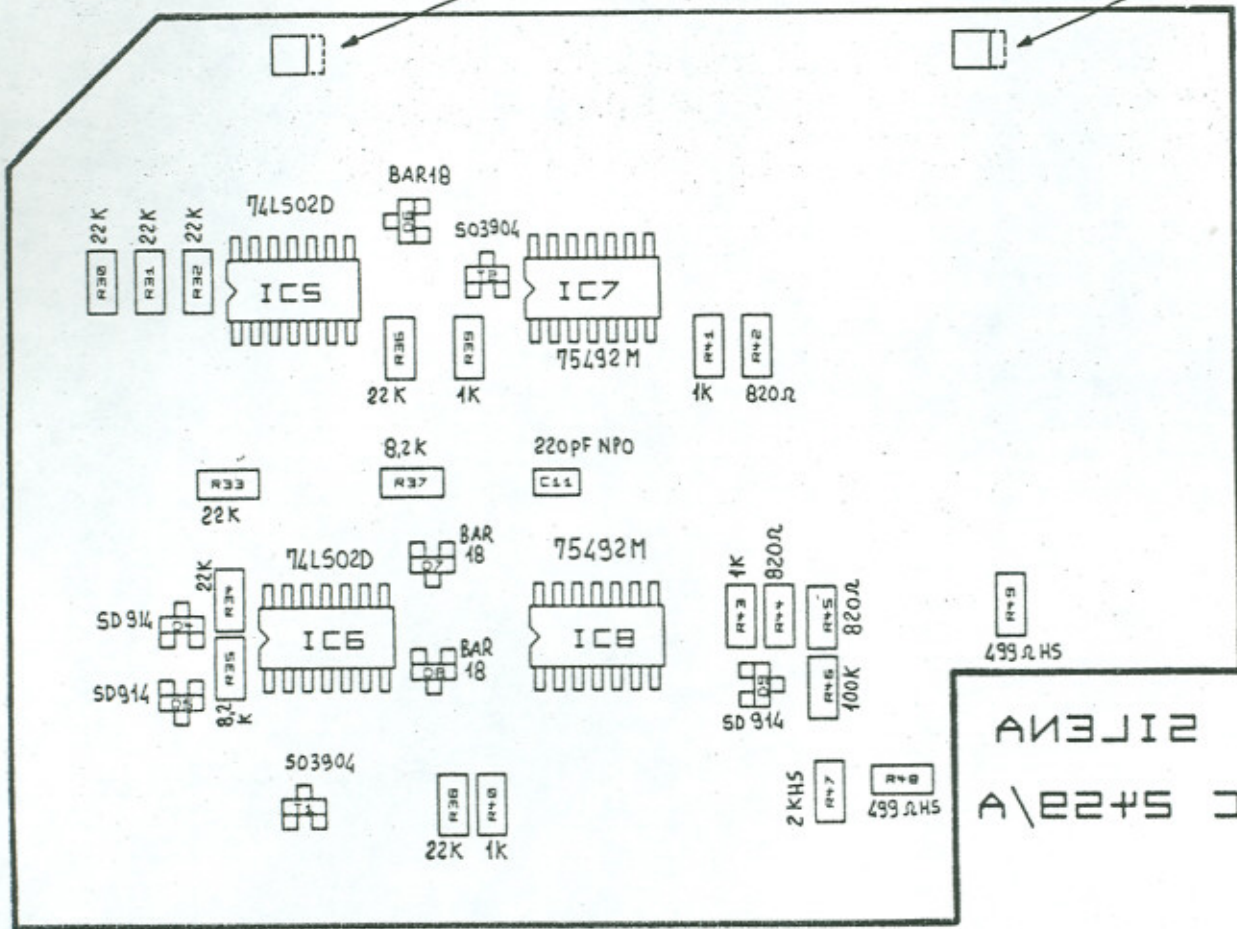
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MILANO - ITALY

- QUAD BIAS SUPPLY mod. 7710 -
DIGITAL VOLTMETER

2459/A/B

SEGUE F. 2 F. 1

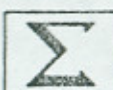
NOTA: ASOLARE DI 2mm I FORI DI FISSAGGIO (VERSO DESTRA)



7
8
9
0
1
2
3
4

A B C D E F G H I J K L M

SCALA 2:1

O	EMMISSIONE	23-12-87	RP											
REV.	DESCRIZIONE	DATA	REDATTO	CONT.	APPROV.	REV.	DESCRIZIONE	DATA	REDATTO	CONT.	APPROV.			
 SILENA S.p.A. MILANO - ITALY		-QUAD BIAS SUPPLY mod. 7710- DIGITAL VOLTMETER							2459/A/B					
A TERMINI DI LEGGE È RIGOROSAMENTE VIETATO RIPRODURRE O COMUNICARE A TERZI IL CONTENUTO DEL PRESENTE DOCUMENTO												SEGUE F - F 2		