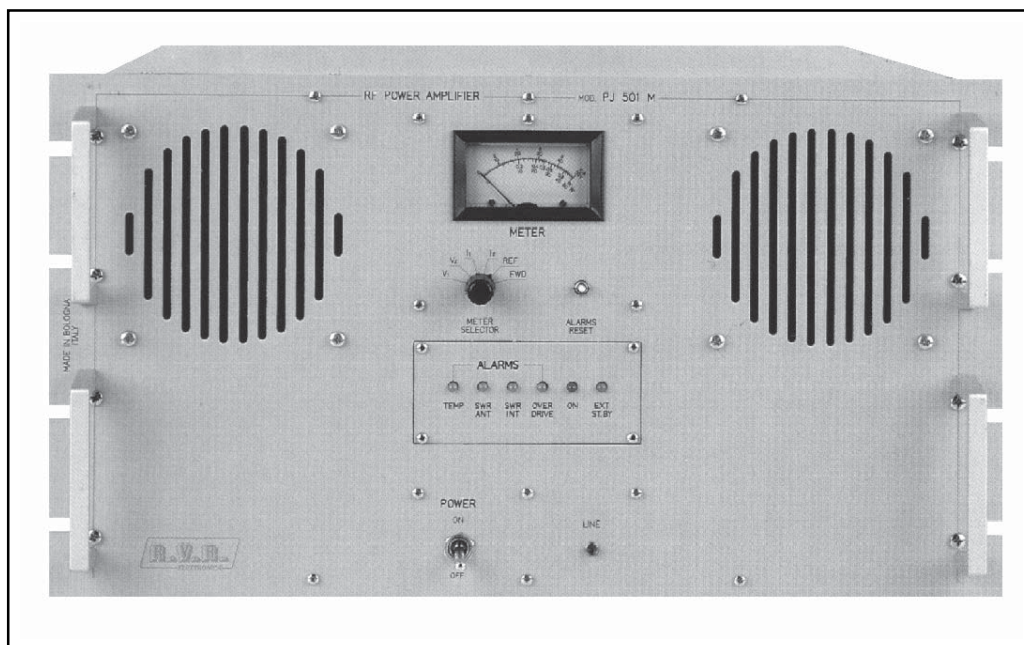

PJ501M



User Manual

Manufactured by



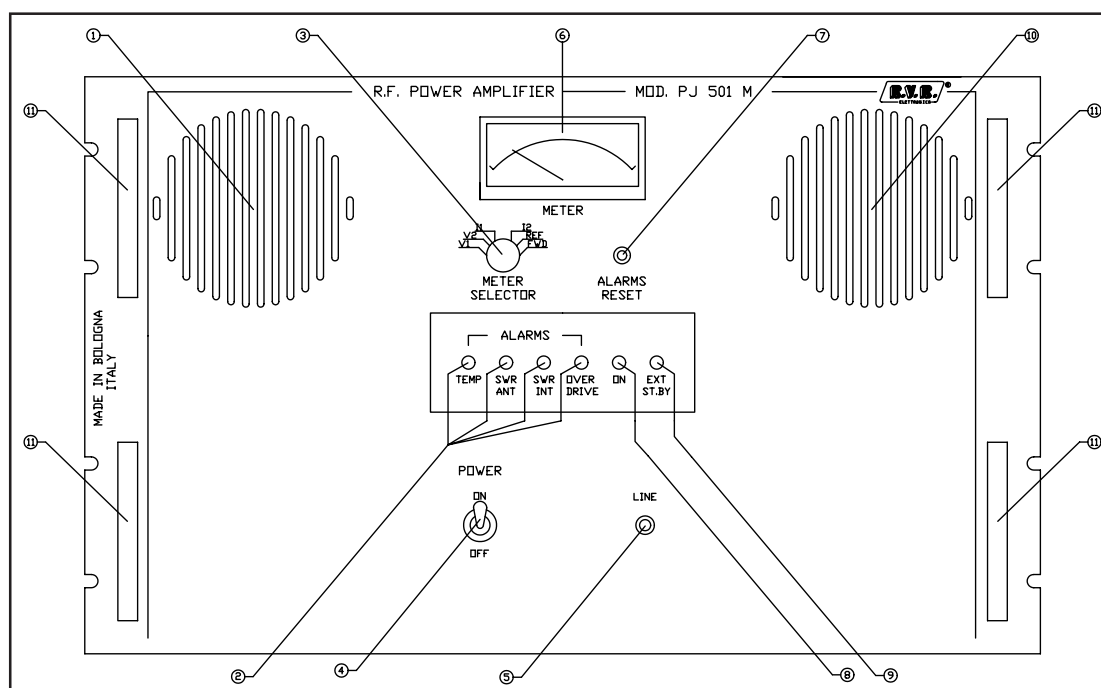
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6. External Description

This chapter described the front and rear panel of PJ501M, with a brief indication of all the different components.

6.1 Front Panel



- [1] Fan
- [2] Alarms
- [3] Meter Selector

- [4] On / Off
- [5] Line
- [6] Meter

- [7] Alarms Reset
- [8] On
- [9] Ext. St. By
- [10] Fan
- [11] Handle

Cooling for R.F. Module 1 and Power Supply 1
Leds indicating the PJ501-M's alarms status
Selector to monitor operating parameters:

V1 R.F. Module 1's voltage
V2 R.F. Module 2's voltage
I1 R.F. Module 1's current
I2 R.F. Module 2's current
REF Reflected power
FWD Forward power

On/Off power switch

A.C. line indicator

Analog meter used to monitor the operating parameters of the amplifier

Press the button to reset the alarm status

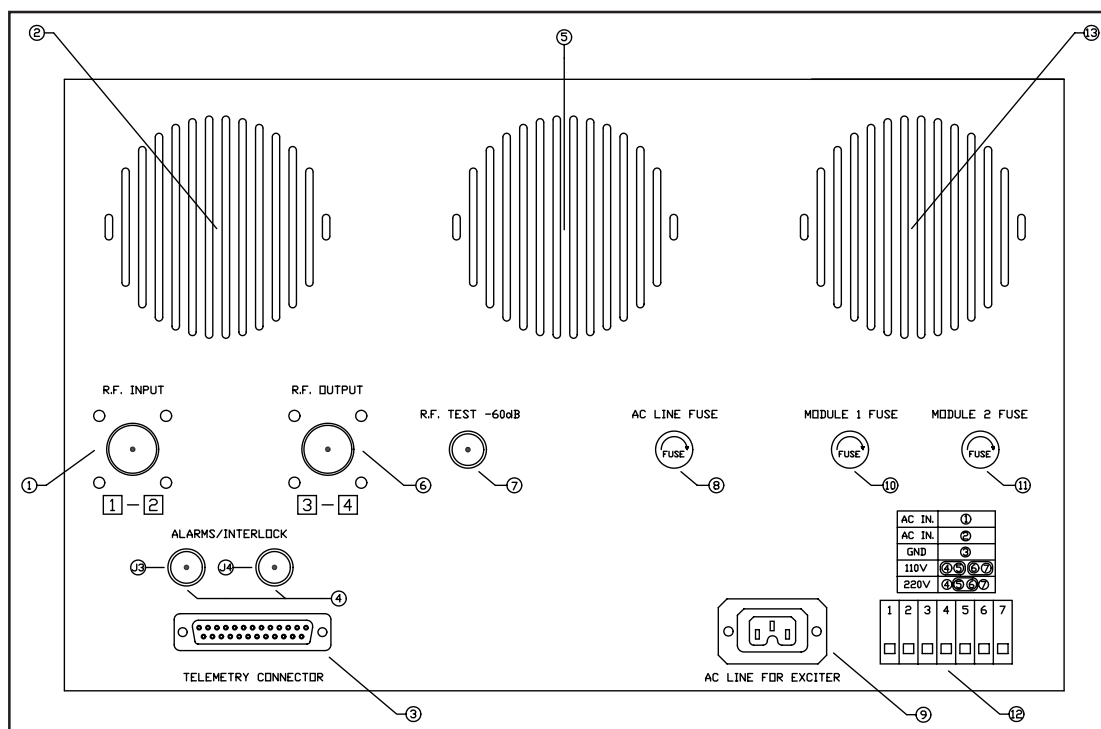
A.C. On power indicator

Led indicating an external stand-by

Cooling for R.F. Module 2 and Power Supply 2

Handles

6.2 Rear Panel



- [1] R.F. Input
- [2] Fan
- [3] Telemetry Connector
- [4] Alarms/Interlock

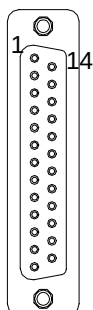
- [5] Fan
- [6] R.F. Output
- [7] R.F. Test -60 dB
- [8] AC Line Fuse
- [9] A.C. Line for Exciter
- [10] RF Module Fuse 1
- [11] RF Module Fuse 2
- [12] Mains Voltage Socket
- [13] Fan

- Input RF connector ("N" type)
- Forced ventilation
- Connectors for remote measurement of operating parameters
- BNC connector which permits the exciter to be put in stand-by, by grounding the central contact, in case of amplifier
- Forced ventilation
- Output RF connector (tipo "N")
- 60dB with respect to the output level
- AC Line Protection Fuse
- A.C. Power Line for exciter
- Protection fuse for R.F. Module 1
- Protection fuse for R.F. Module 2
- Main Voltage & Voltage Changer
- Forced ventilation

6.3 Connectors Description

6.3.1 Telemetry Connector

Tipo: DB25 Female



1	R.F. Module 1's Voltage	2.0V X 50V
2	R.F. Module 1's Current	2.0V X 10A
3	GND	0V
4	Reflected power	1.4V X 40W
5	Inhibitor TX	12V
6	Internal SWR	15V -> fault
7	GND	0V
8	ON command	Input, pulse to ground
9	Internally connected	
10	Internally connected	
11	Internally connected	
12	Internally connected	
13	Internally connected	
14	R.F. Module 2's Voltage	2.0V X 50V
15	R.F. Module 2's Current	2.0V X 10A
16	Forward power	1.6V X 500W
17	Temperature	15V -> fault
18	SWR antenna	15V -> fault
19	Over drive	15V -> fault
20	Stand-by command	Input, pulse to ground
21	GND	0V
22	Internally connected	
23	Internally connected	
24	Internally connected	
25	Internally connected	

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7. Technical Specifications

7.1 Dimensional and Environmental Specifications

Cabinet Dimensions	265.0 mm (10,43") x 454.0 mm (17,87") x 507.0 mm (19,98")
Panel dimensions	483 mm (19") x 266,0 mm (10,47")
Weight	37 Kg
Operating temperature range	-10 °C ÷ 50 °C
Umidity	95% Maximum, without condensation

7.2 Electrical Specifications

A.C. power supply	100-130 V, 50-60 Hz 198-250 V, 50-60 Hz
Cooling	Forced ventilation
Frequency range	87.5 MHz ÷ 108 MHz
Output power	500 W
Drive power	Approx 15 W for Pout = 500 W
Input connector	"N" type standard connector
Input impedance	50 Ohm
Output connector	"N" type standard connector
Output impedance	50 Ohm
Harmonic and spurious soppression	Respect or exceed all requirments FCC and CCIR

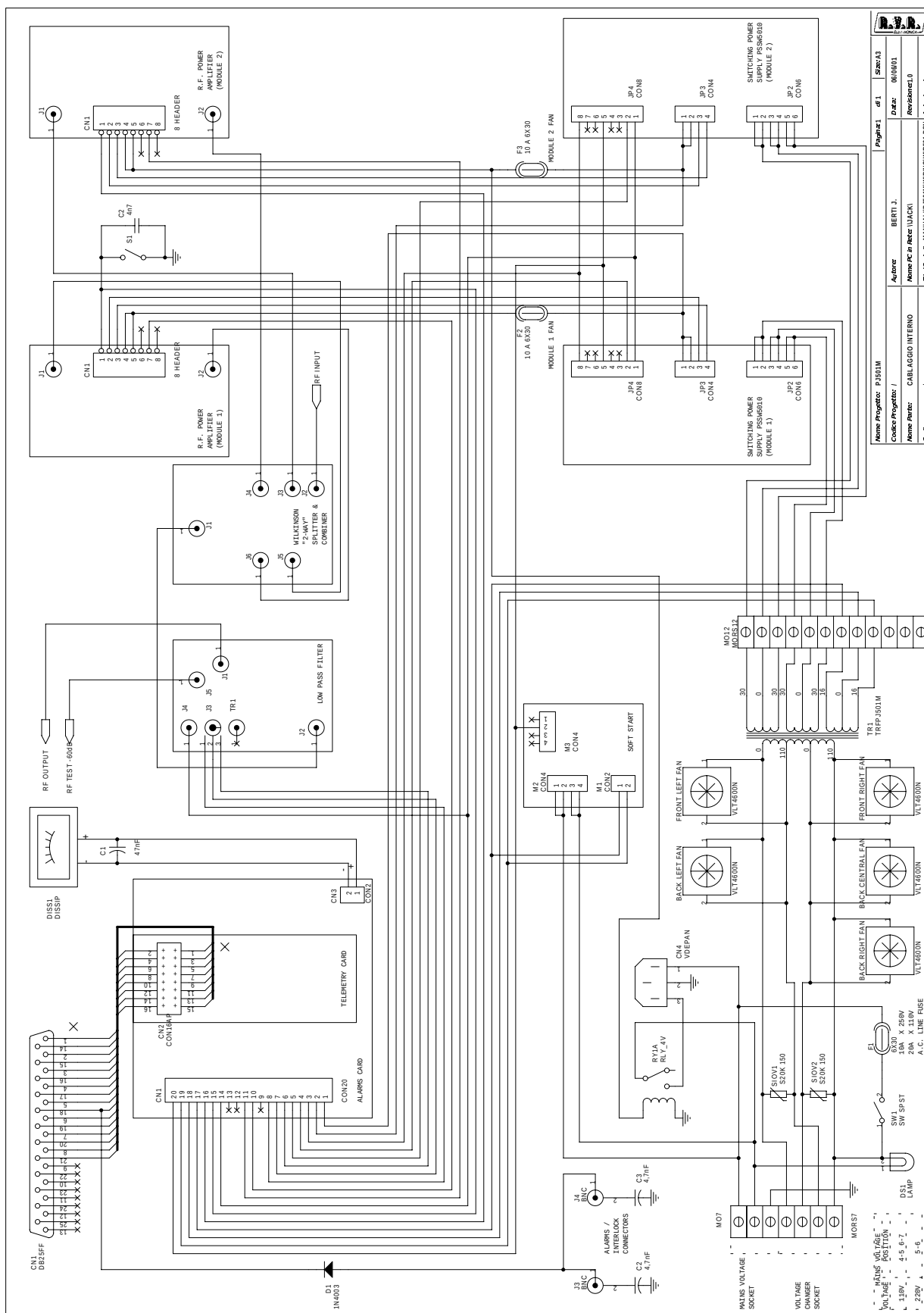
Appendix Piani di montaggio, schemi elettrici, liste componenti / *Component layouts, schematics, bills of material*

Questa parte del manuale contiene i dettagli tecnici riguardanti la costruzione delle singole schede componenti il PJ501M. L'appendice è composta dalle seguenti sezioni:

This part of the manual contains the technical details about the different boards of the PJ501M. This appendix is composed of the following sections:

Description	RVR Code Pages	Vers.	
Wiring diagrams	Wiring diagrams	1.0	2
R.F. Power Amplifier Module	PJ301.3OUT/PJ301.3IN	1.0	4
Alarms Card	CSPROTPJ501	1.0	4
Telemetry Card	CSPROTA2	1.0	4
Directional Coupler Card	SLWSTDPJ501M	1.0	4
Switching Power Supply	PSSW5010	1.0	4
Soft Start Card	CSSOFTS	1.0	4

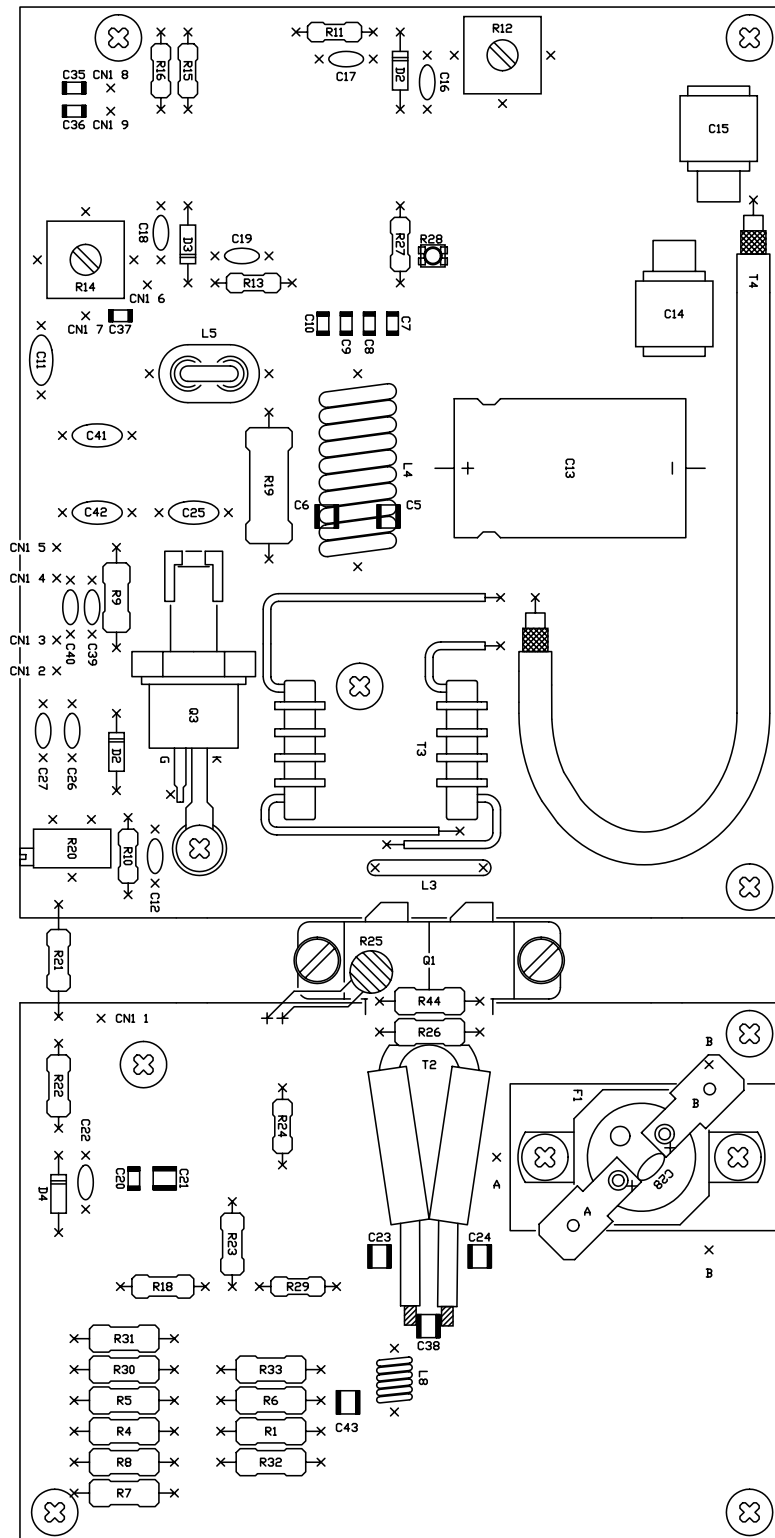
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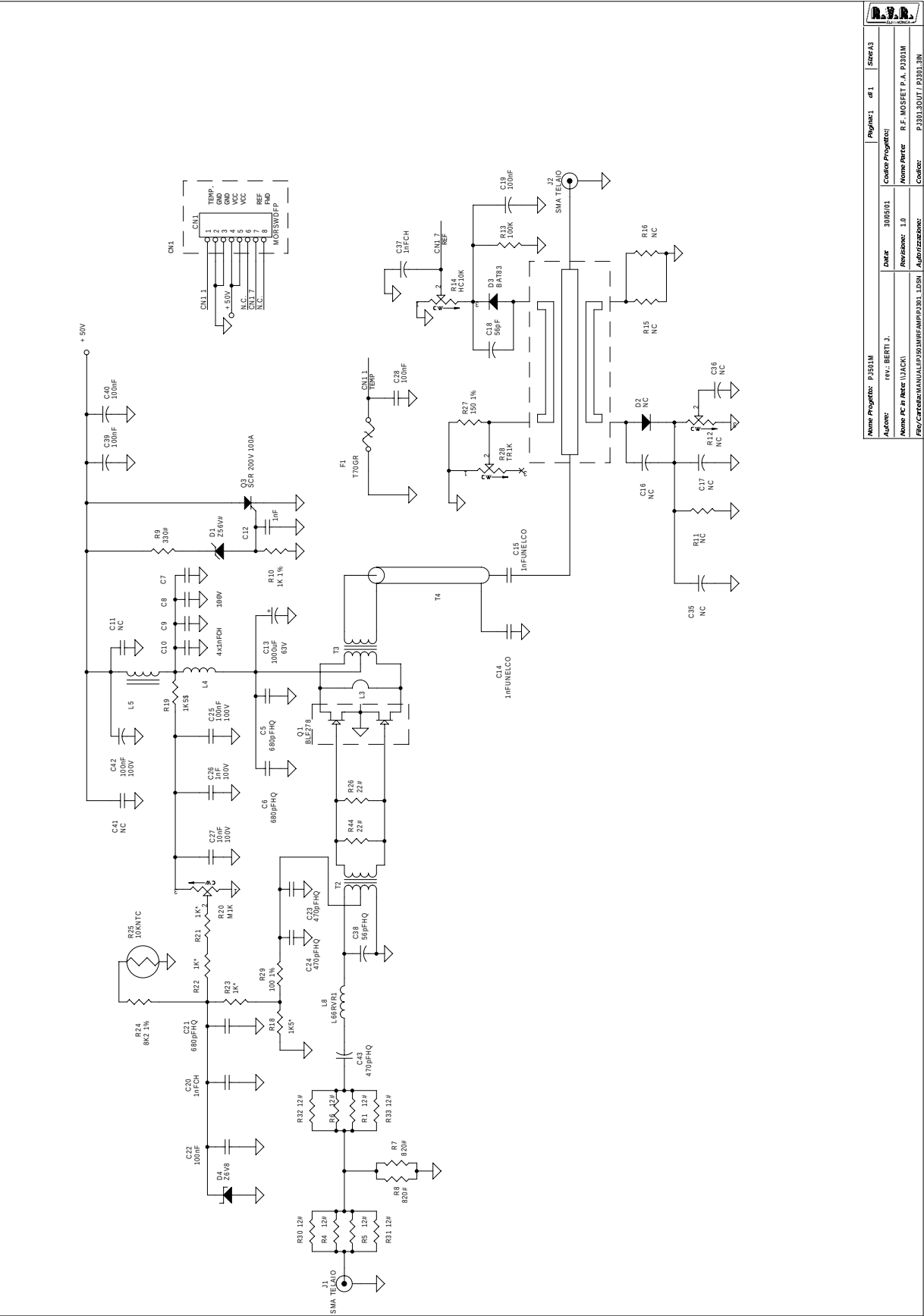
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Code		Nome PC in Rete	UACN	Revisione	1

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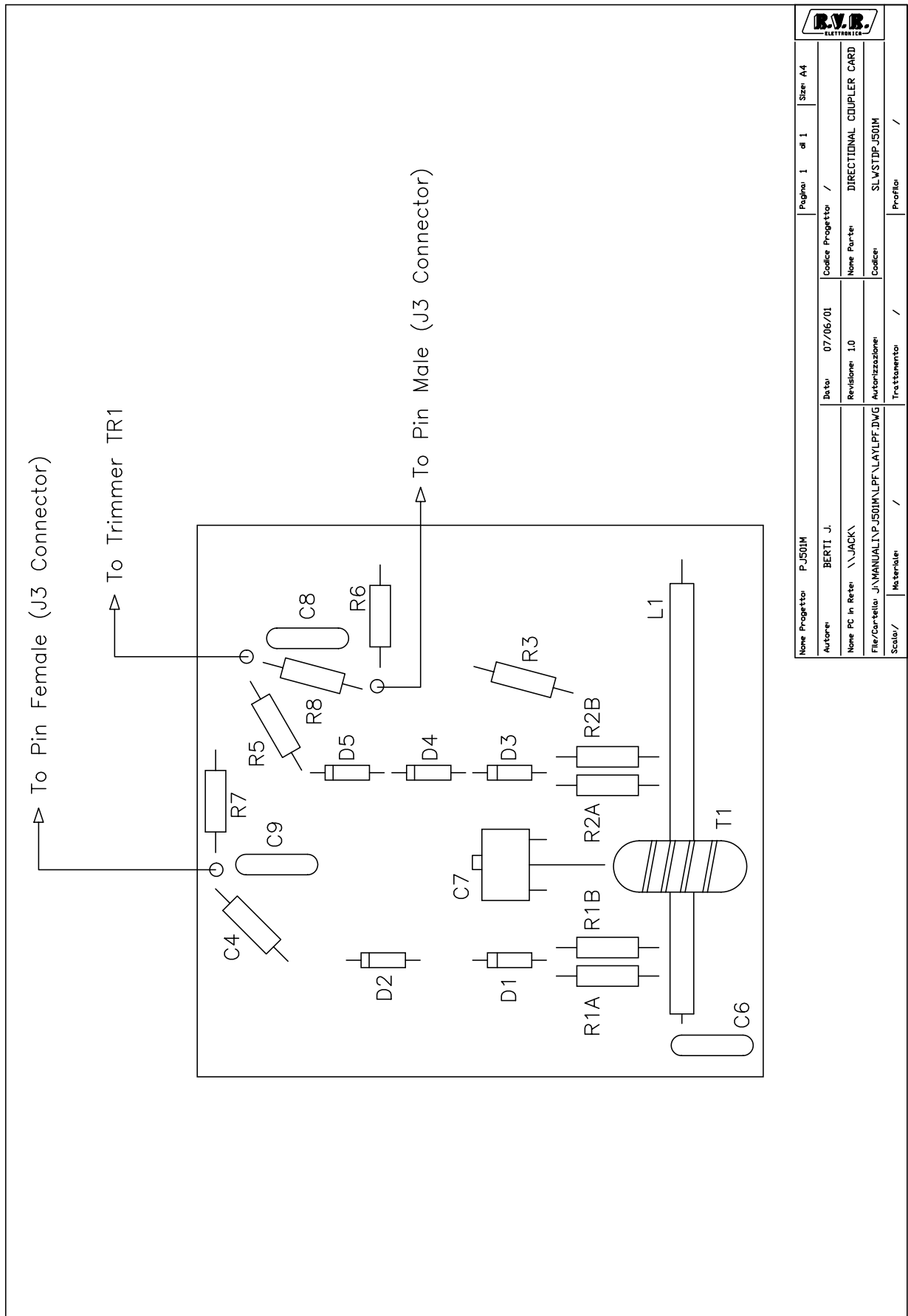
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Autore	rev.	BERTI J.	Codice Progetto		/			
Nome PC in Rete	\\JACK\		Data	30/05/01	Revisione	1.0	Nome Parte	
File/Cartella	MANUALI\PJ501M\RF\AMP\L\PJ501M.DWG		Autore		R.F. MOSFET P.A. PJ501M		Codice	
Scala	/		Trattamento		PJ501.3OUT / PJ501.3IN		Profilo	



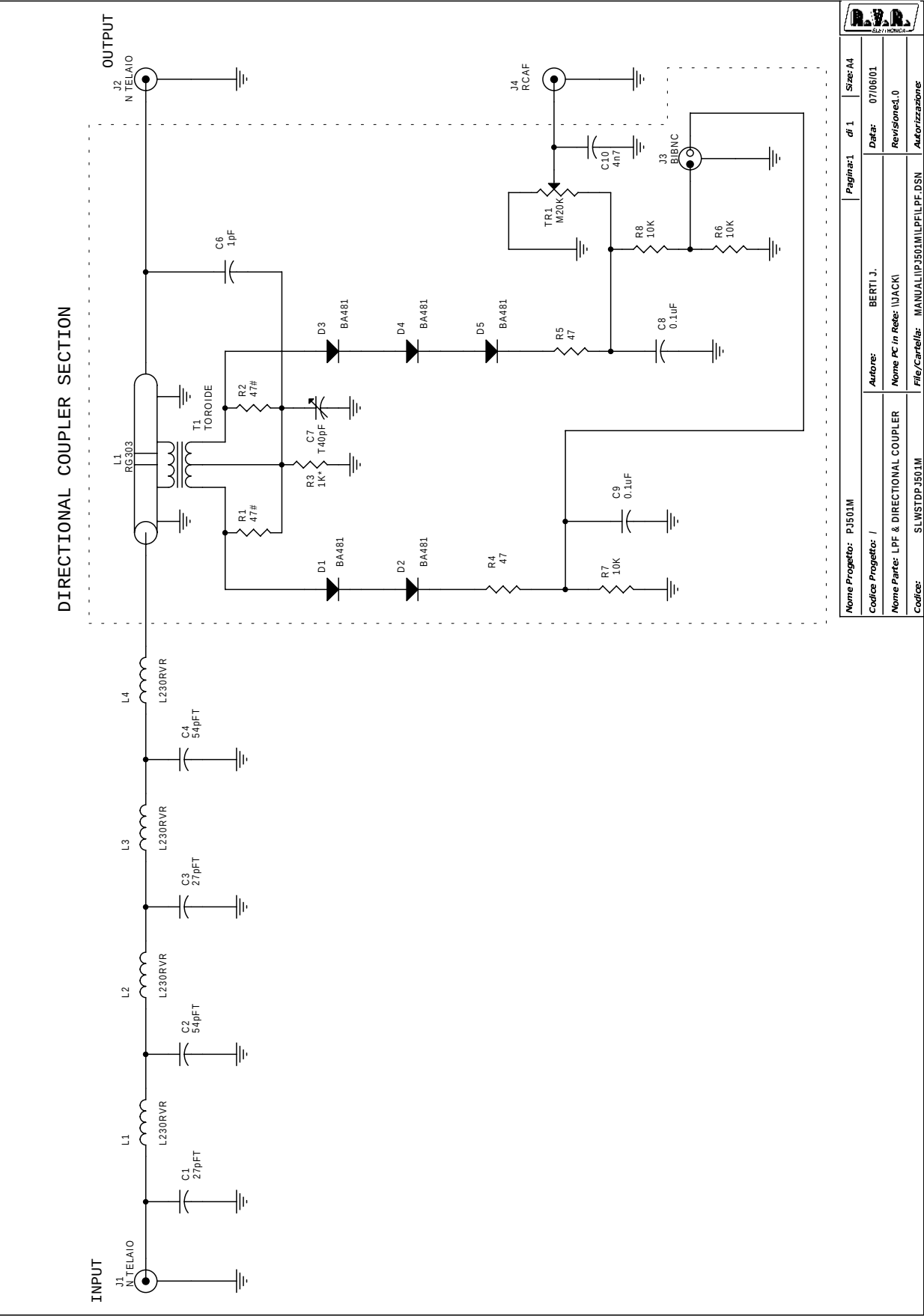
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Nome PC in Rete: UACA		Revisione: 1.0	Autore: R.V.R.
Pro/Catella/Manuali/PJ501M/PJ501M.PJ501M		Revisione: 1.0	Autore: R.V.R.

R.F. Pow. Amp. Module			Bill of Materials/Lista Componenti		Pag. 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	8	R1, R4, R5, R6, R30, R31, R32, R33	12#	RESISTOR 2W	
2	2	R26, R44	22#	RESISTOR 2W	
3	1	R29	100 1%	RESISTOR 1/4W 1%	
4	2	R7, R8	820#	RESISTOR 2W 5%	
5	1	R9	330#	RESISTOR 2W	
6	1	R10	1K 1%	RESISTOR 1/4W 1%	
7	3	R21, R22, R23	1K*	RESISTOR 1/2W 5%	
8	1	R18	1K5*	RESISTOR 1/2W 5%	
9	1	R19	1K5\$	RESISTOR 5W 5%	
10	1	R24	8K2 1%	RESISTOR 1/4W 1%	
11	1	R13	100K	RESISTOR 1/4W 5%	
12	1	R25	10KNTC	NTC	
13	1	R14	HC10K	TRIM.REG. ORIZZ. CERMET	
14	1	R20	M1K	TRIMMER MULTIGIRI	
15	1	C18	56pF	CERAMIC CAPACITOR NP0	
16	1	R27	150 1%	RESISTOR 1/4W 1%	
17	1	C38	56pFHQ	HIGHT Q CAPACITOR	
18	3	C5, C6, C21	680pFHQ	HIGHT Q CAPACITOR	
19	2	C12, C26	1nF	CERAMIC CAPACITOR	
20	6	C7, C8, C9, C10, C20, C37	1nFCH	CERAMIC CHIP CAPACITOR	
21	2	C14, C15	1nFUNELCO	SILVER MICA CAPACITOR	
22	1	C27	10nF	CERAMIC CAPACITOR	
23	3	C23, C24, C43	470pFHQ	HIGHT Q CAPACITOR	
24	7	C19, C40, C22, C25, C28, C39, C42	100nF	CERAMIC CAPACITOR	
25	1	C13	1000µF	ELECTROLYTIC CAPACITOR	

26	1	L5	POWER IND. RF BINOC. CHOCKE
27	1	L4	L105RVR2 10 SP DIA 5 F 2mm
28	1	L8	L66RVR1 6 SP DIA 6 F 1MM
29	1	L3	L0510RVR 0.5 SP DIA 10 F 1.5mm
30	1	T2	RFTRANSF. TRASF. RF. OTTONE+CS
31	4	CN1	MORSWDFP MORS. WEID. F DA PANN.
32	1	T3	RG188 COAX CABLE RG188
33	1	T4	RG303 COAX CABLE RG303
34	2	J1, J2	SMA TELAI0 CONN. SMA A TELAI0
35	1	F1	T70GR DISG. TERMICO 70 GRADI
36	1	D3	BAT83 HOT CARRIER DIODE
37	1	Q3	SCR200V100A SCR DIODE 200V 100A
38	1	D4	Z6V8 ZENER DIODE 6.8V 0.4W
39	1	D1	Z56V# ZENER DIODE 56V 1W
40	1	Q1	BLF278 DUAL TMOS POWER
41	1	R28	TR1K TRIMMER SMD 1KH
42	11	D2, R11, R12, R15, NC R16, C16, C17, C35, C36, C41, C11	NON CONNESSO



Nome Progetto: PJ501M		Pagina: 1	di: 1	Size: A4
Autore:	BERTI J.	Codice Progetto: /		
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File/Cartella:	J:\MANUAL\PJ501M\LPF\LAY\LPF.DWG	Revisione:	1.0	DIRECTIONAL COUPLER CARD
Scala:	/	Autore:		
		Trattamento:	/	SLWSTDPJ501M
		Profilo:	/	



Low Pass Filter &
Directional Coupler

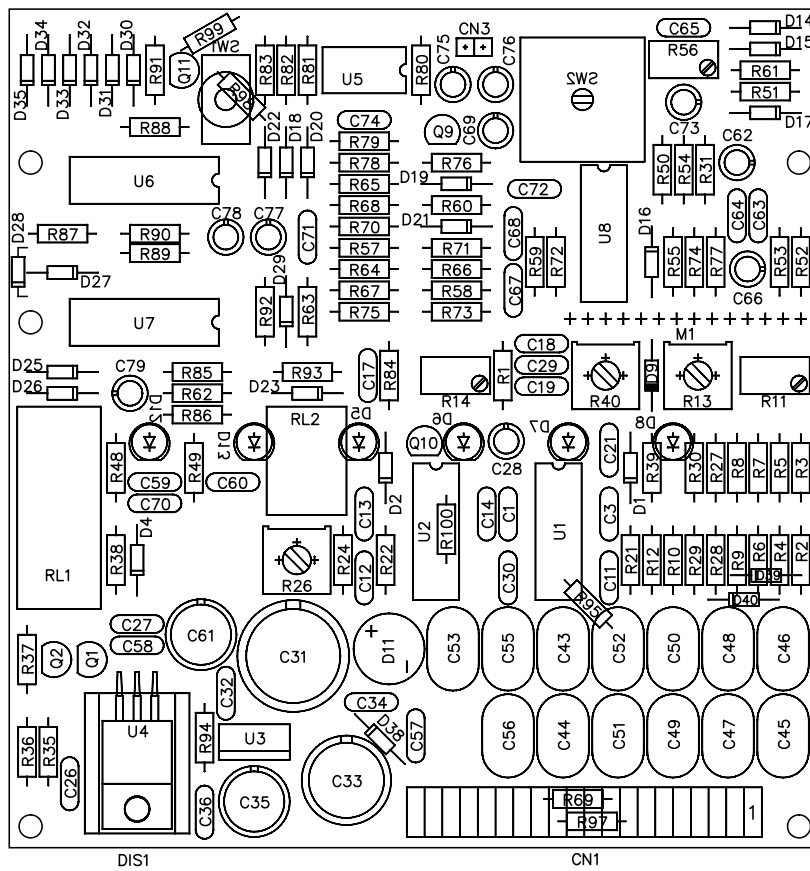
Bill of Materials/Lista Componenti

Pag. 1

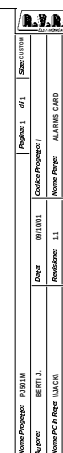
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1	2	R4,R5	47	RESISTOR 1/4W 5%	
2	2	R1,R2	47#	RESISTOR 2W	
3	1	R3	1K*	RESISTOR 1/2W 5%	
4	3	R6,R7,R8	10K	RESISTOR 1/4W 5%	
5	1	TR1	M20K	TRIMMER MULTIGIRI	
6	1	C6	1pF	CERAMIC CAPACITOR NP0	
7	2	C1,C5	27pFT	COND. BAND. RAME TEFLON	
8	2	C2,C4	54pFT	COND. BAND. RAME TEFLON	
9	1	C3	55pFT	COND. BAND. RAME TEFLON	
10	1	C7	T40pF	TRIMMER CAPACITOR	
11	1	C10	4n7	CERAMIC CAPACITOR	
12	2	C8,C9	0.1µF	CERAMIC CAPACITOR	
13	4	L1,L2,L3, L4	L230RVR	2 SP DIA 30 BAND. RAME	
14	1	T1	TOROIDE	TOROIDE DIA. 10 MM	
15	1	L1	RG303	COAX CABLE RG303	
16	1	J3	BIBNC	CONN. BNC F TWINAX	
17	1	J4	RCAF	CONN. RCA DA TELAIO	
18	2	J1,J2	N TELAIO	CONN. N A TELAIO	
19	5	D1,D2,D3, D4,D5	BA481	HOT CARRIER DIODE	

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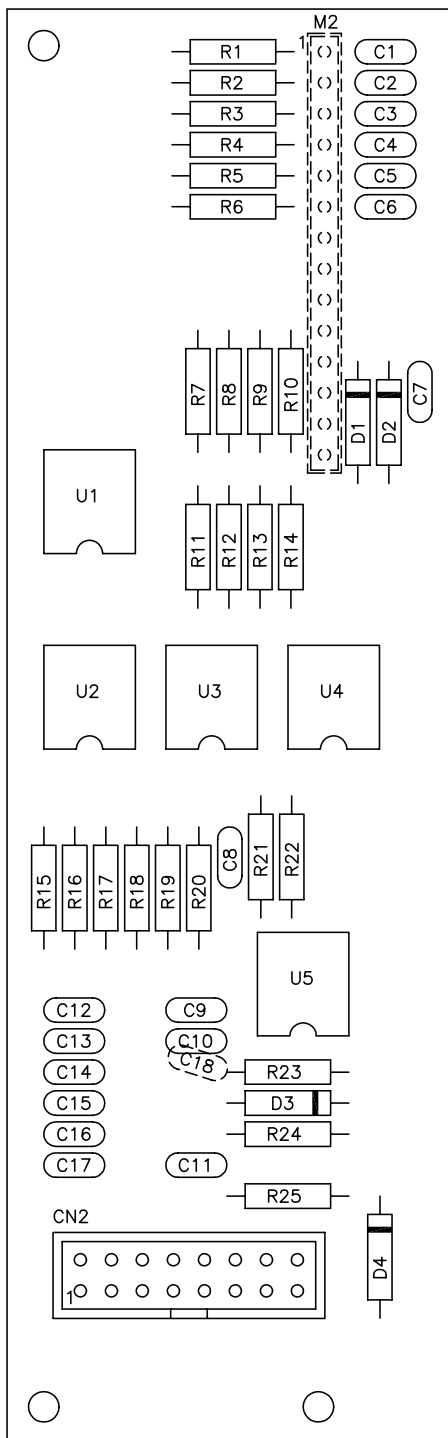


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Scala: /	Materiali: /	Titolamento: /	Profilo: /	



Item	Quantity	Reference	Part	DESCRIPTION	PART ORDER CODE
1	1	R35	330	RESISTOR 1/4W 5%	
2	1	R39	470	RESISTOR 1/4W 5%	
3	1	R51	680 *	RESISTOR 1/2W 5%	
4	1	R1	1K 1%	RESISTOR 1/4W 1%	
5	8	R37, R48, R49, R60, R67, R72, R77, R95	1K	RESISTOR 1/4W 5%	
6	2	R75, R93	2K2	RESISTOR 1/4W 5%	
7	2	R30, R27	10K 1%	RESISTOR 1/4W 1%	
8	2	R3, R5	4K16 1%	RESISTOR 1/4W 1%	
9	4	R54, R57, R65, R99	4K7	RESISTOR 1/4W 5%	
10	1	R12	5K6	RESISTOR 1/4W 5%	
11	13	R10, R62, R76, R80, R82, R83, R84, R88, R89, R90, R91, R94, R98	10K	RESISTOR 1/4W 5%	
12	2	R36, R38	15K	RESISTOR 1/4W 5%	
13	8	R52, R59, R63, R68, R70, R73, R78, R92	22K	RESISTOR 1/4W 5%	
14	2	R8, R7	TM100K	TRIM.MULT. REG.VERT	
15	5	R71, R81, R85, R86, R87	47K	RESISTOR 1/4W 5%	
16	2	R53, R64	82K	RESISTOR 1/4W 5%	
17	6	R2, R4, R6, R9, R29, R28	100K 1%	RESISTOR 1/4W 1%	
18	9	R21, R22, R24, R31, R50, R55, R58, R61, R66	100K	RESISTOR 1/4W 5%	
19	2	R74, R79	220K	RESISTOR 1/4W 5%	
20	1	R100	330K	RESISTOR 1/4W 5%	
21	1	R14	TC1K	TRIM.MULT. REG.VERT	
22	1	R40	TC10K	TRIM.MULT. REG.ORIZ	
23	1	R13	TC20K	TRIM.MULT. REG.ORIZ	
24	1	R26	TC100K	TRIM.MULT. REG.ORIZ	
25	1	R56	TM220K	TRIM.MULT. REG.VERT	
26	8	C17, C18, C19, C21, C26, C27, C59, C60	1NF	CERAMIC CAPACITOR	
27	8	C11, C12, C64, C67, C68, C70, C71, C74	10NF	CERAMIC CAPACITOR	
28	14	C1, C3, C13, C14, C29, C30, C32, C34, C36, C57, C58A, C58, C63, C65	0.1UF	CERAMIC CAPACITOR	
29	1	C72	0.1UFT	TANTALIUM CAPACITOR	
30	3	C66, C69, C75	0.47UFT	TANTALIUM CAPACITOR	
31	7	C28, C62, C73, C76, C77, C78, C79	10UFT	TANTALIUM CAPACITOR	

32	1	C35	100UF	ELECTROLYTIC CAPACITOR
33	1	C61	220UF	ELECTROLYTIC CAPACITOR
34	1	C33	470UF	ELECTROLYTIC CAPACITOR
35	1	C31	1000UF	ELECTROLYTIC CAPACITOR
36	1	M1	ST 250UA	STRUMENTO 250uA
37	1	CN3	2 PIN STRIP	STRIP M P 2.54 2 PIN
38	1	M1	14 PIN STRIP	STRIP M P 2.54 14 PIN
39	1	CN4	2 PIN F STRIP	STRIP F P 2.54 2 PIN
40	1	CN1	20 POLI CN.CS.	CON.STRIP 20P MASC.CS POL.
41	12	C43, C45, C46, C47, FEMI C48, C49, C50, C51, C52, C53, C55, C56		FILTRO EMI MURATA
42	1	RL2	RLY 1V 12V	RELAY 1 VIA 12V
43	1	RL1	RELAY S/R	RELAY SET / RESET 12V
44	1	SW1	P1V 2P	PULSANTE 1 VIA 2 POS
45	1	SW2	SW2V6P	COMMUT. 2 VIE 6 POS FEME
46	2	D39, D40	1N4148	SILICON DIODE
47	22	D1, D2, D4, D14, D16, 1N4148 D17, D18, D19, D20, D21, D22, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35		SILICON DIODE
48	1	D23	1N4148	SILICON DIODE
49	1	D38	1N4004	SILICON DIODE
50	1	D11	WL04	DIODE BRIDGE 1.5A
51	5	D5, D6, D7, D8, D12	LED-R5	RED LED DIODE
52	1	D13	LED-G5	GREEN LED DIODE
53	1	D15	Z3V9	ZENER DIODE 3.9V 1/4W
54	1	D9	Z5V6	ZENER DIODE 5.6V 1/4W
55	1	U4	7815	POS. STABILIZER 1A
56	1	U3	7915	NEG. STABILIZER 1A
57	2	Q9, Q11	BC237	NPN TRANSISTOR
58	3	Q1, Q2, Q10	BC557	PNP TRANSISTOR
59	2	U1, U2	TL084	QUAD OP. AMP.
60	1	U5	NE555	TIMER
61	2	U6, U7	4040	CMOS DIVIDER
62	1	U8	LM3900	NORTON QUAD AMP.
63	1	R11	TM20K	TRIM.MULTIGIRI REG. VERT
64	2	R69, R97	270K	RESISTOR 1/4W 5%



DENOMINAZIONE
Telemetry Card (Mod. PROT-A2) Component Layout / Piano di Montaggio

DISPOSITIVO

SEMILAVORATO

DISEGNATO
D'Alessio D. U

DISEGNO

MATERIALE

SCALA

TRATTAMENTO

TAVOLA n di



Telemetry Card Mod. 2

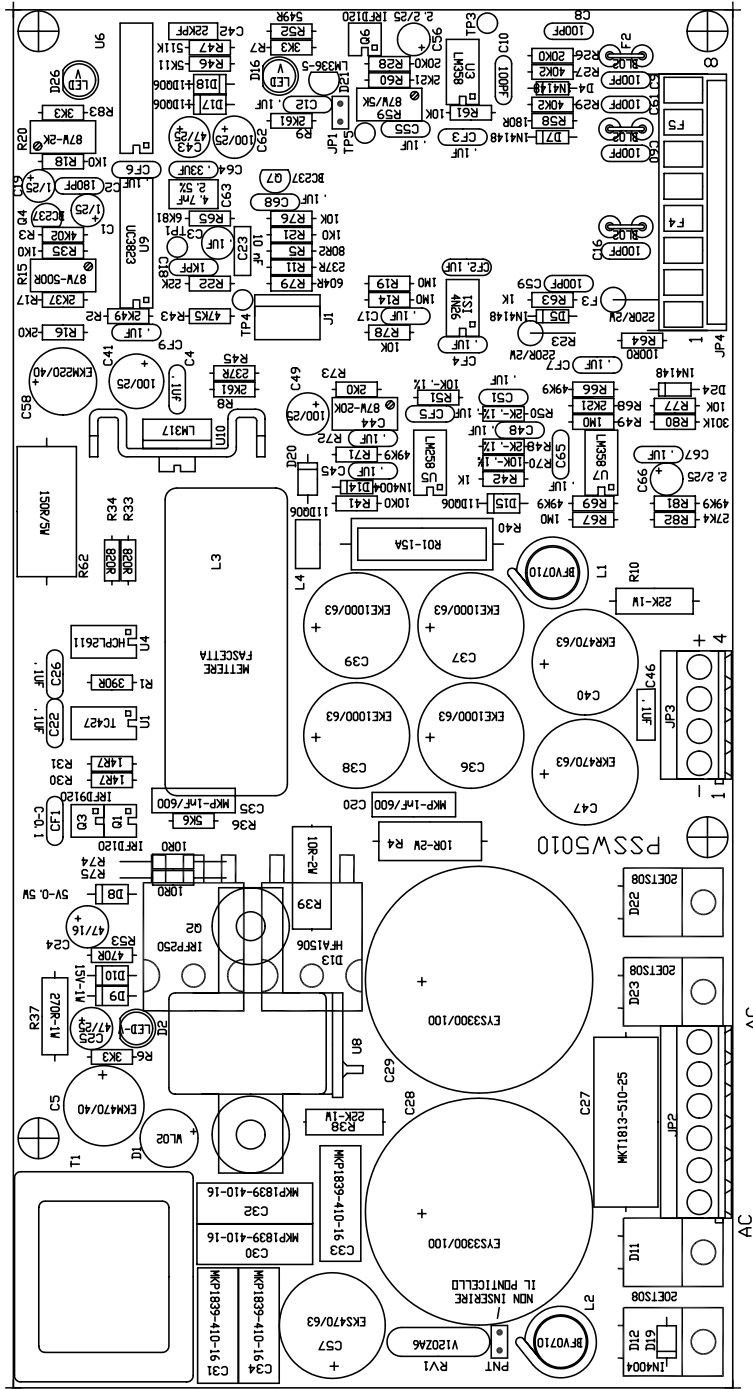
Bill Of Materials

Page 1

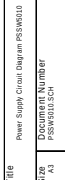
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1	9	R15, R16, R17, R19, R20, R22, R23, R24, R25	1K 1%	RESISTOR 1/4W 1%	
2	1	R18	1K	RESISTOR 1/4W 5%	
3	1	R21	2K2 1%	RESISTOR 1/4W 1%	
4	14	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14	100K 1%	RESISTOR 1/4W 1%	
5	18	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18	100NF	CERAMIC CAPACITOR	
6	1	M2	14 PIN F STRIP	STRIP F P 2.54 14 PIN	
7	1	CN2	16 PIN CONN.	CONN. M 2*8 P 2.54	
8	2	D3, D4	1N4148	SILICON DIODE	
9	2	D2, D3	1N4007	SILICON DIODE 1000V	
10	5	U1, U2, U3, U4, U5	LM358N	DOUBLE OP. AMP.	

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R.V.R. ELETTRONICA		Pagina 1	di 1	Size A4
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File/Cartella	J:\MANUALI\PJ-501M\PSSW501M\PJ501M.DWG	Autore	PSSW5010	
Scala	/	Trattamento	/	
Materiale	/	Profilo	/	

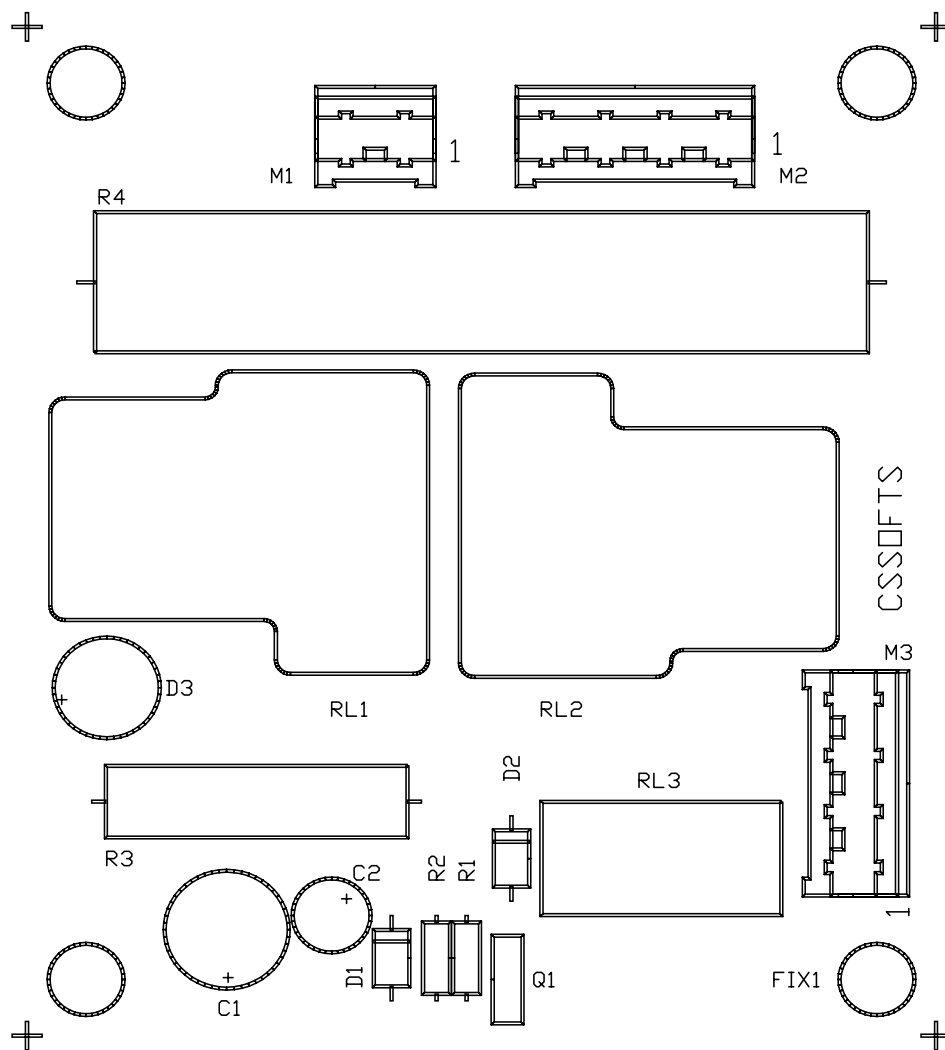


PSSW5010.SCH Bill Of Materials

Page1

Item	Quantity	Reference	Part
1	2	C19, C1	1/16
2	1	C2	180pF
3	16	C3, C4, C12, C13, C17, C26, C44, C45, C46, C48, C50, C51, C55, C65, C67, C68	.1UF
4	1	C5	EKM470UF/40
5	12	C6, C7, C8, C9, C10, C11, C14, C15, C16, C59, C60, C61	100PF
6	1	C18	1KpF
7	2	C35, C20	MKP1nF/600
8	1	C21	C
9	1	C22	.1UF CER
10	1	C23	CP10nF
11	3	C24, C25, C43	47UF/25
12	1	C27	MKT-1UF-250V
13	2	C29, C28	EYS3300/100
14	5	C30, C31, C32, C33, C34	MKP-0.1-250
15	4	C36, C37, C38, C39	EKE1000/63
16	2	C47, C40	EKR470/63
17	3	C41, C49, C62	100uF/25
18	1	C42	22KPF
19	3	C52, C56, C66	2.2UF/16
20	2	C53, C54	1UF
21	1	C57	EKM470/63
22	1	C58	EKM220uF/40
23	1	C63	MKP4n7-2.5%
24	1	C64	CM0.33UF
25	1	D1	WL02
26	3	D2, D16, D26	LED V
27	6	D3, D4, D5, D6, D7, D24	1N4148
28	1	D8	5V/0.5W
29	2	D10, D9	15V/1W
30	4	D11, D12, D22, D23	20ETS08
31	1	D13	HFA15PB60
32	2	D14, D19	1N4004
33	4	D15, D17, D18, D20	11DQ06
34	1	D21	LM336-5V
35	4	F1, F2, F4, F5	BL02
36	2	F3, R23	220R/2W
37	1	IS1	4N26
38	1	JP1	STRIP
39	1	JP2	KRA6
40	1	JP3	KRA4
41	1	JP4	KRA8
42	2	L2, L1	BFV0710
43	1	L3	77083
44	1	L4	INDUCTOR
45	1	PNT	
46	3	Q1, Q5, Q6	IRFD120
47	1	Q2	IRFP250
48	1	Q3	IRFD9120
49	2	Q7, Q4	BC237
50	1	RV1	V120ZA6
51	1	R1	390R

52	1	R2	2K49
53	1	R3	4K02
54	2	R4, R39	10R/2W
55	1	R5	80R2
56	3	R6, R7, R83	3K3
57	2	R8, R9	2K61
58	2	R10, R38	22K/1W
59	2	R45, R11	237R
60	2	R59, R12	87W/5K
61	3	R13, R60, R68	2K21
62	4	R14, R19, R49, R67	1M0
63	1	R15	87W-500R
64	2	R16, R73	2K0
65	1	R17	2K37
66	3	R18, R21, R35	1K0
67	1	R20	87W-2K
68	1	R22	22K
69	4	R24, R25, R26, R28	20K0
70	4	R27, R29, R55, R57	40K2
71	2	R30, R31	14R7
72	2	R52, R32	549R
73	2	R33, R34	820R
74	1	R36	5K6
75	1	R37	270R-1W
76	1	R40	SHUNT-10
77	1	R41	10K0
78	2	R42, R63	1K
79	1	R43	47K5
80	1	R44	R
81	1	R46	5K1
82	1	R47	511K
83	2	R50, R48	2K0-0.1%
84	2	R51, R70	10K0-0.1%
85	1	R53	470R
86	5	R54, R61, R76, R77, R78	10K
87	2	R58, R56	180R
88	1	R62	150R/5W
89	1	R64	100R0
90	1	R65	6k81
91	4	R66, R69, R71, R81	49K9
92	1	R72	87W-20K
93	2	R75, R74	10R0
94	1	R79	604R
95	1	R80	301K
96	1	R82	27K4
97	5	TP1, TP2, TP3, TP4, TP5	TP
98	1	T1	TAP/24
99	1	U1	TC427
100	3	U2, U3, U7	LM358
101	1	U4	HCPL2611
102	1	U5	LM258
103	1	U6	4049
104	1	U8	HTP25
105	1	U9	UC3823
106	1	U10	LM317



	DENOMINAZIONE soft start		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. li 4/12/00	DISEGNO	
MATERIALE	SCALA 1:1	TAVOLA n	1 di 1
TRATTAMENTO			



Item	Quantity	Reference	Part	
1	1	C1	220UF 50V	COND. ELETTR.
2	1	C2	47UF 50V	COND. ELETTR.
3	2	D1,D2	1N4004	DIODO AL SILICIO
4	1	D3	W02M	PONTE DI DIODI
5	1	FIX1	FIX	
6	2	JP1,JP2	JUMPER 2P	
7	1	M1	LUMBERG 2P	MORS. 2 PIN
8	2	M2,M3	LUMBERG 4P	MORS. 4 PIN
9	1	Q1	BD681	TRANSISTOR
10	2	RL1,RL2	G8P-1114P	RELè G8-1114P
11	1	RL3	V23042 A 2003	RELè 2SC. 2VIE
12	2	R1,R2	10K	RES. STRATO MET.
13	1	R3	120 5W	RES. A FILO
14	1	R4	3.3 20W	RES. A FILO

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