

**BLAXH50
500-600MHz**

**TECHNICAL
MANUAL**

Version 003

Sadis BRUKER SPECTROSPIN

The information in this manual may be altered without notice.

Sadis BRUKER SPECTROSPIN accepts no responsibility for actions taken as a result of use of this manual. Sadis BRUKER SPECTROSPIN accepts no liability for any mistakes contained in the manual, leading to coincidental damage, whether during installation or operation of the instrument. Unauthorised reproduction of manual contents, without written permission from the publishers, or translation into another language, either in full or in part, is forbidden.

This manual was written by

M.Dominique WURTZ

© February 28, 1996: Sadis BRUKER SPECTROSPIN

Wissembourg, FRANCE

P/N: W1302173

Updated for BASH 2.0 by U. Roos - December 1996

Manual P/N: Z31265

DWG-No. 973 003

Contents

<i>Contents</i>	1
<i>Block diagram</i>	3
<i>Power supply</i>	5
<i>Control board 2</i>	11
<i>Status board</i>	29
<i>Fan assembly</i>	33
<i>BLMH0.5/50</i>	37
<i>BLMX100 amplifier module</i>	47
<i>Couplers, switches</i>	55
<i>SBS controller</i>	67
<i>Figures</i>	75

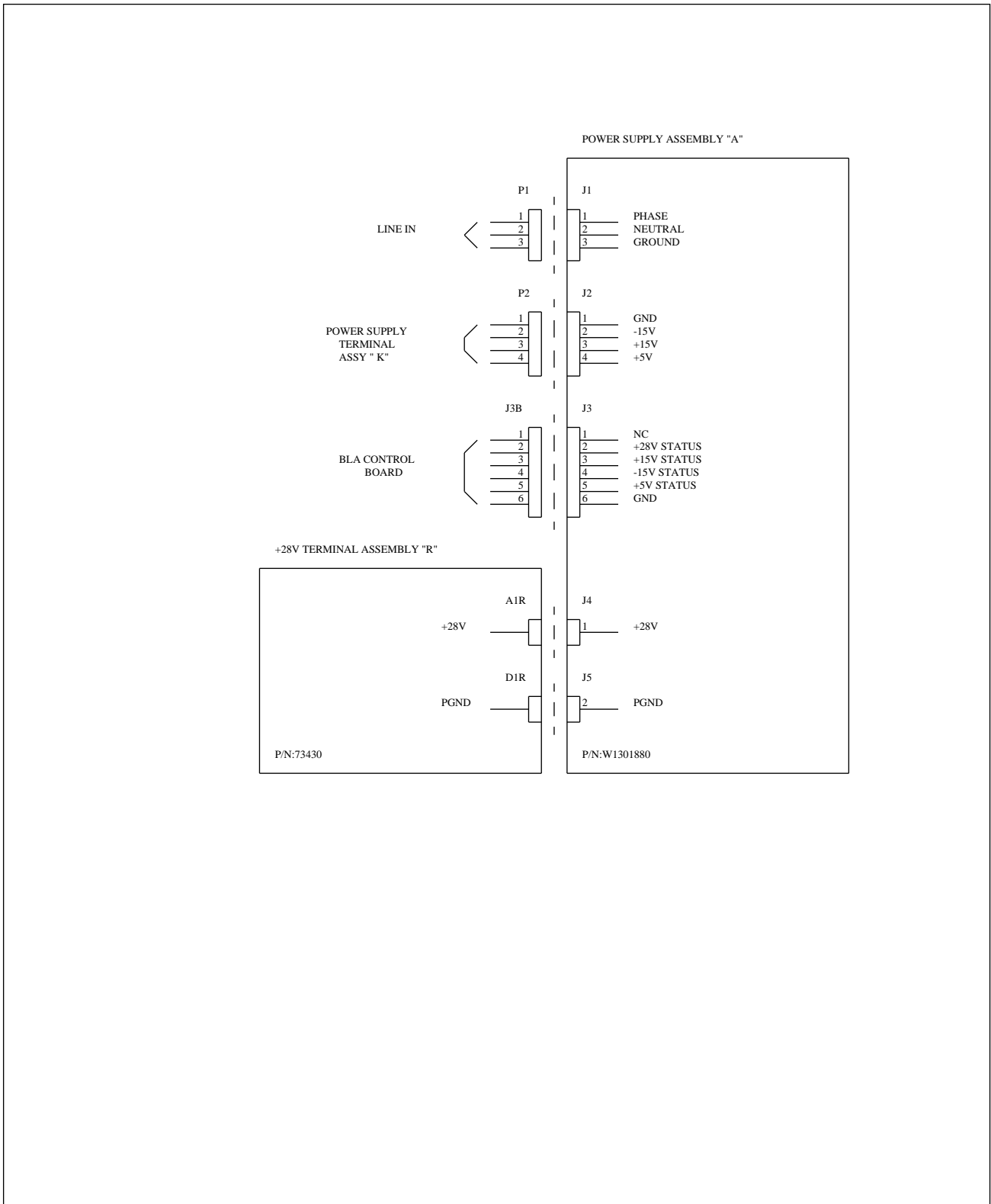
Block diagram

1

Power supply

2

Figure 2.1. Wiring diagram




ART: W1301880	EC:	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
BLA POWER ASSEMBLY ASSY "A" INTERCONNECT DRAWING		DATE: 03/01/94		
		APPROV: CO	VISA:	
		DATE: 01/06/94		
		DWG: W4W131518	SHEET: 1/1	

Figure 2.2. Power supply diagram

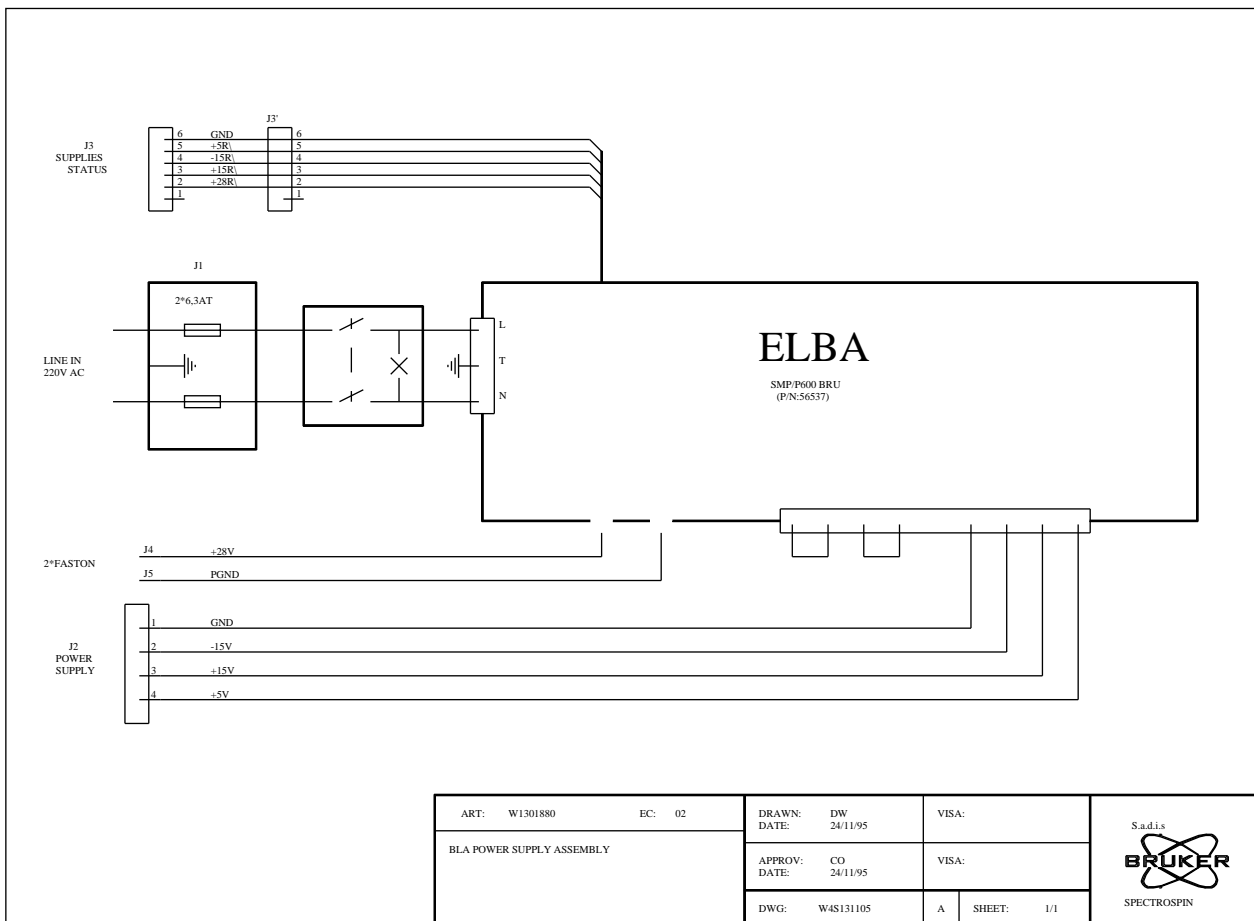


Figure 2.3. Power supply terminal

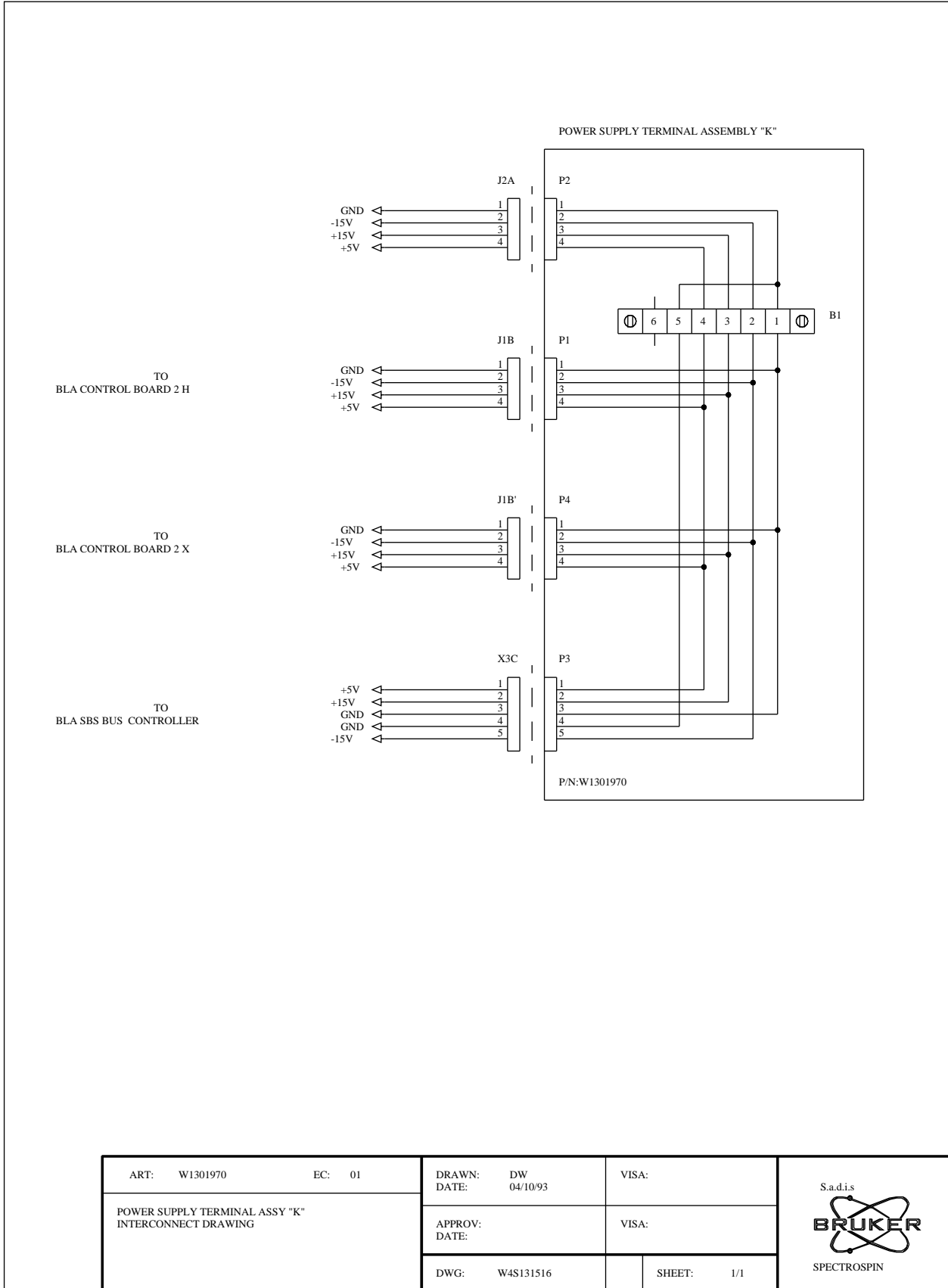
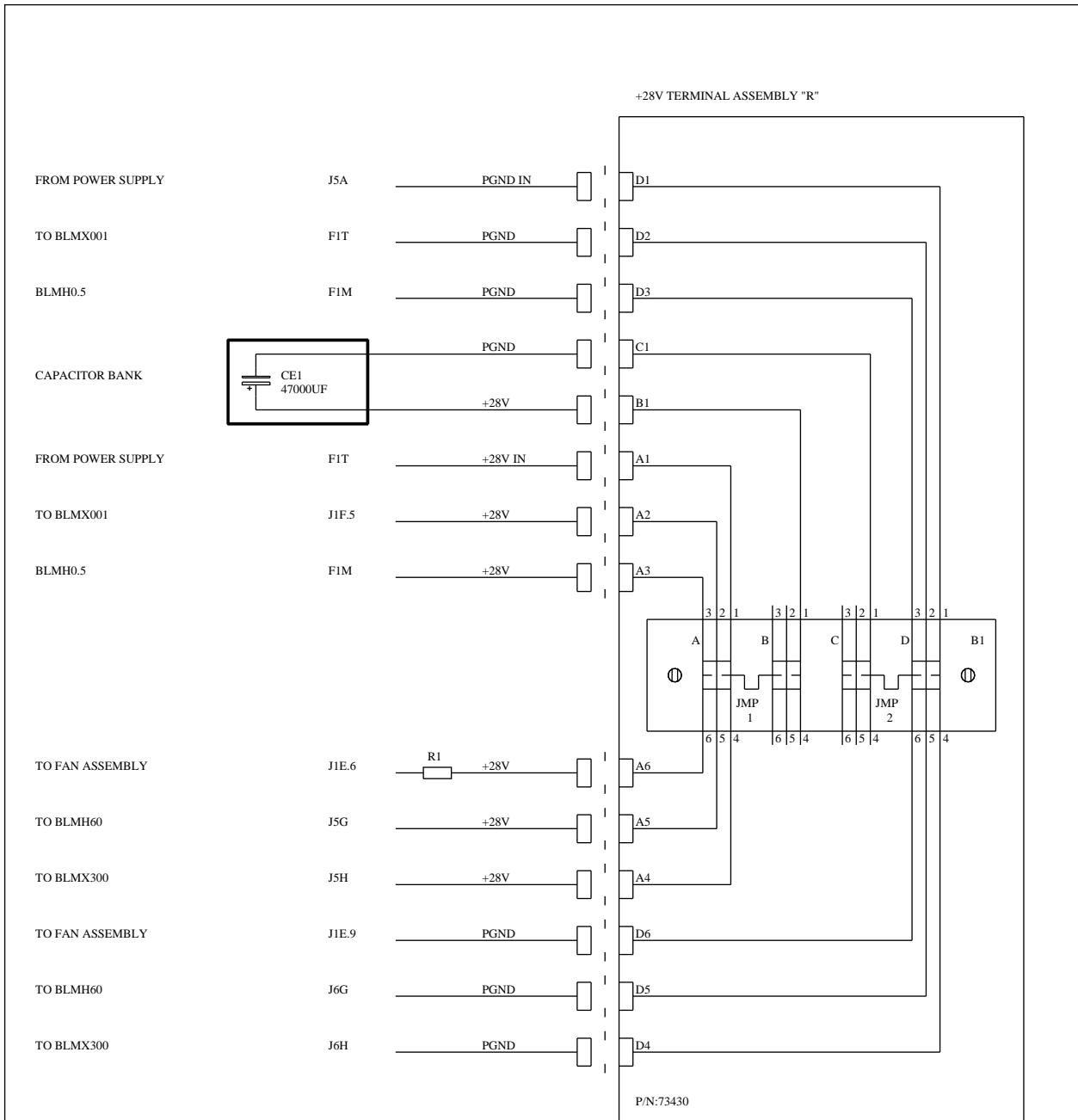


Figure 2.4. Power supply terminal



NOTE :

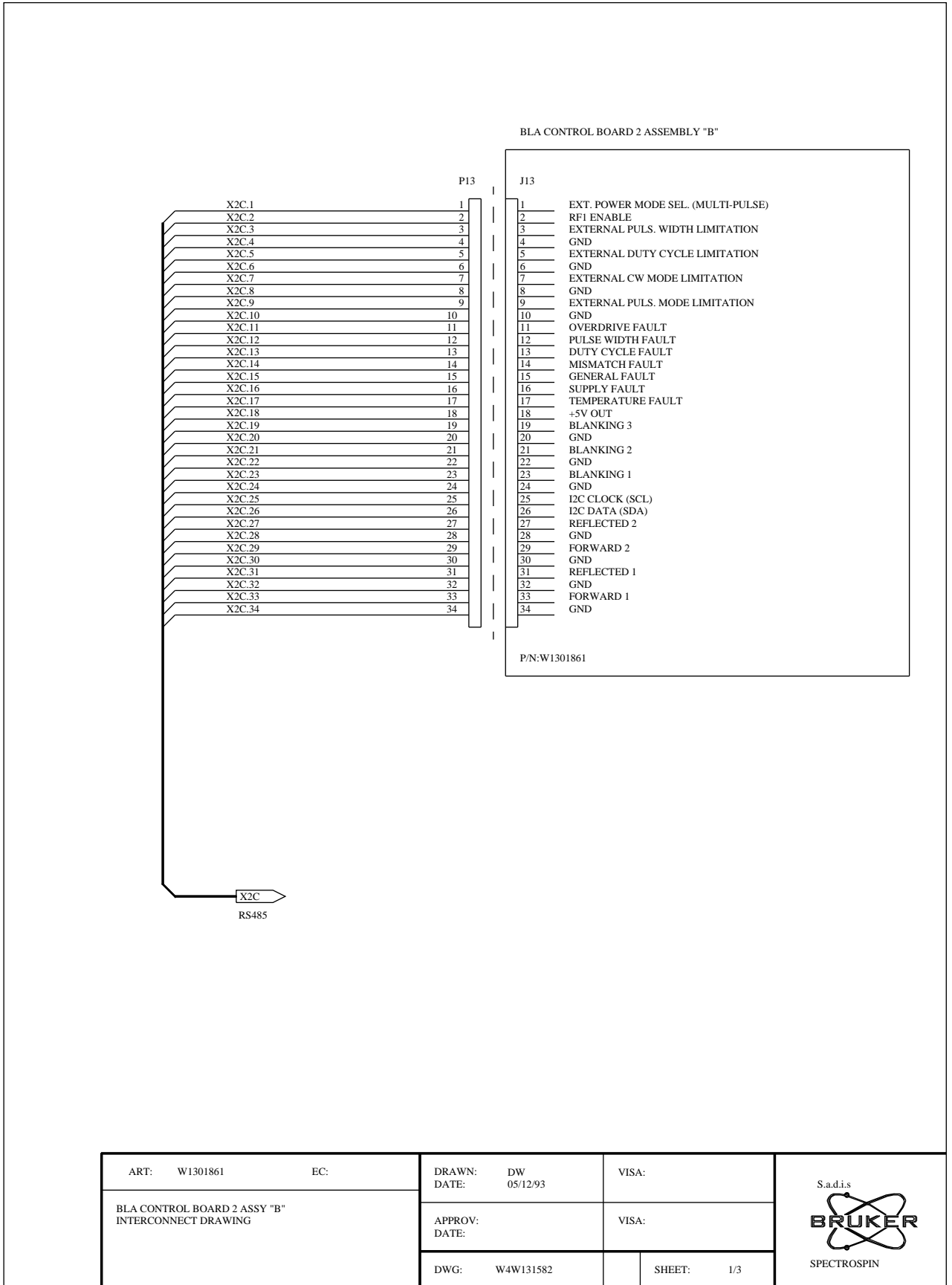
B1 = 73430 : 3070-PCM-04-5,033
 CE1 = 32157 : 4700UF/40V
 JMP1 = 73434 : JUMPER
 JMP2 = 73434 : JUMPER
 R1 = 32327 : RH10 22

ART: 73430	EC:	DRAWN: DW DATE: 30/05/94	VISA:	S.a.d.i.s SPECTROSPIN
+28V TERMINAL ASSY "R" INTERCONNECT DRAWING		APPROV: DATE:	VISA:	
		DWG: W4W131798	SHEET: 1/1	

Control board 2

3

Figure 3.1. Interconnect drawing sheet 1/3



ART: W1301861	EC:	DRAWN: DW	VISA:
		DATE: 05/12/93	
BLA CONTROL BOARD 2 ASSY "B" INTERCONNECT DRAWING		APPROV:	VISA:
		DATE:	
DWG: W4W131582		SHEET: 1/3	

S.a.d.i.s

SPECTROSPIN

Figure 3.2. Interconnect drawing sheet 2/3

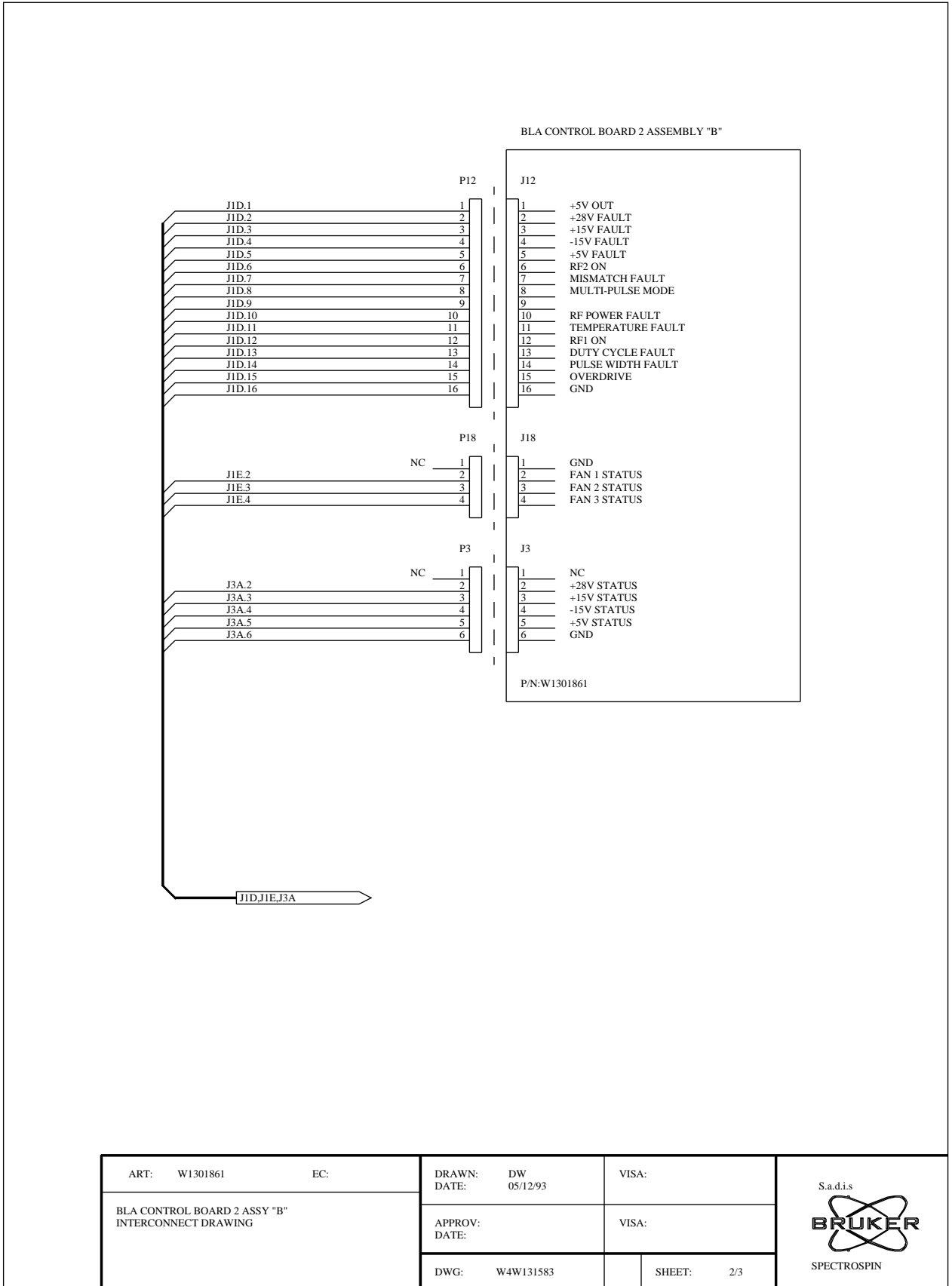


Figure 3.3. Interconnect drawing sheet 3/3

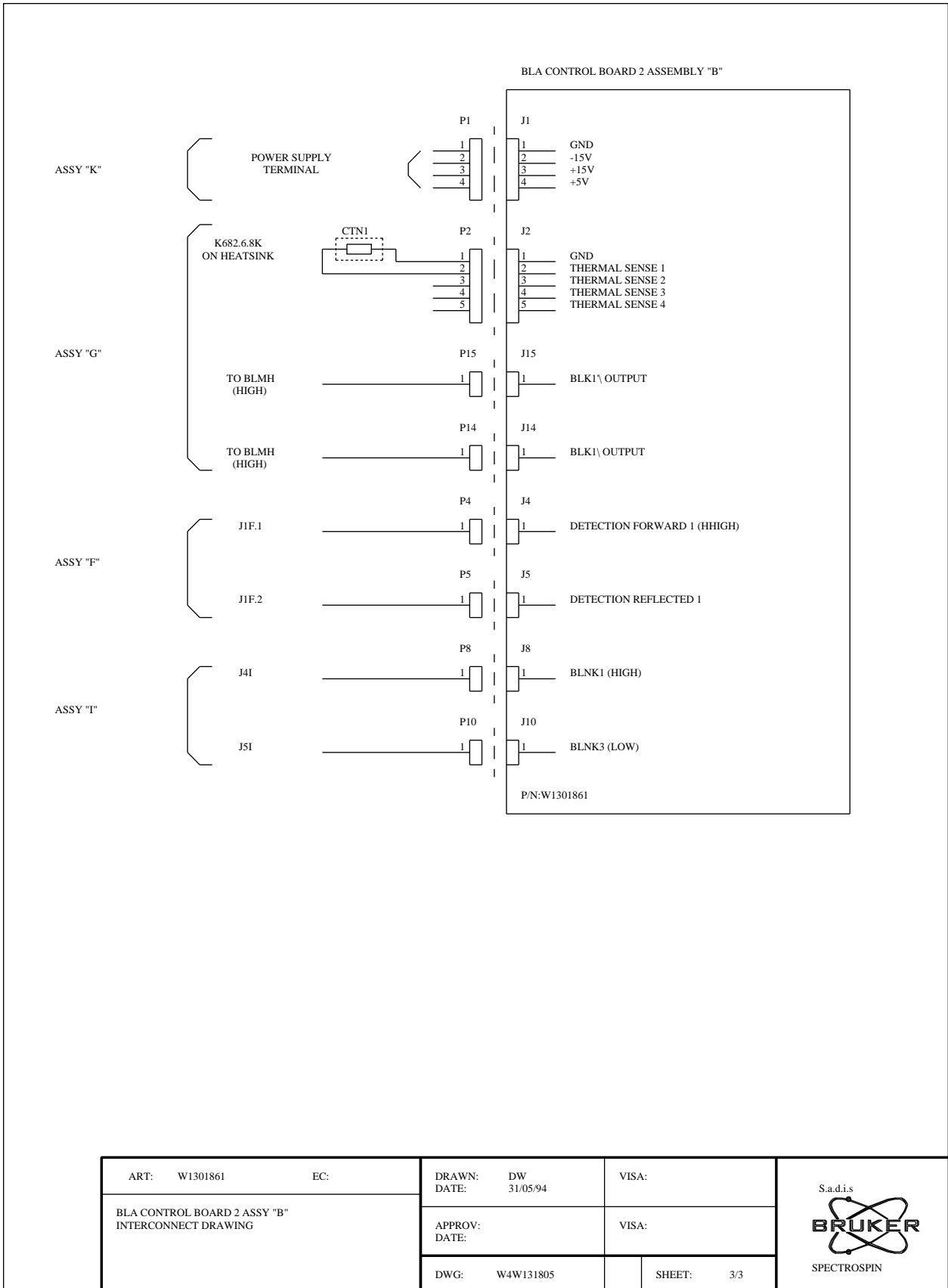


Figure 3.4. Control board top side

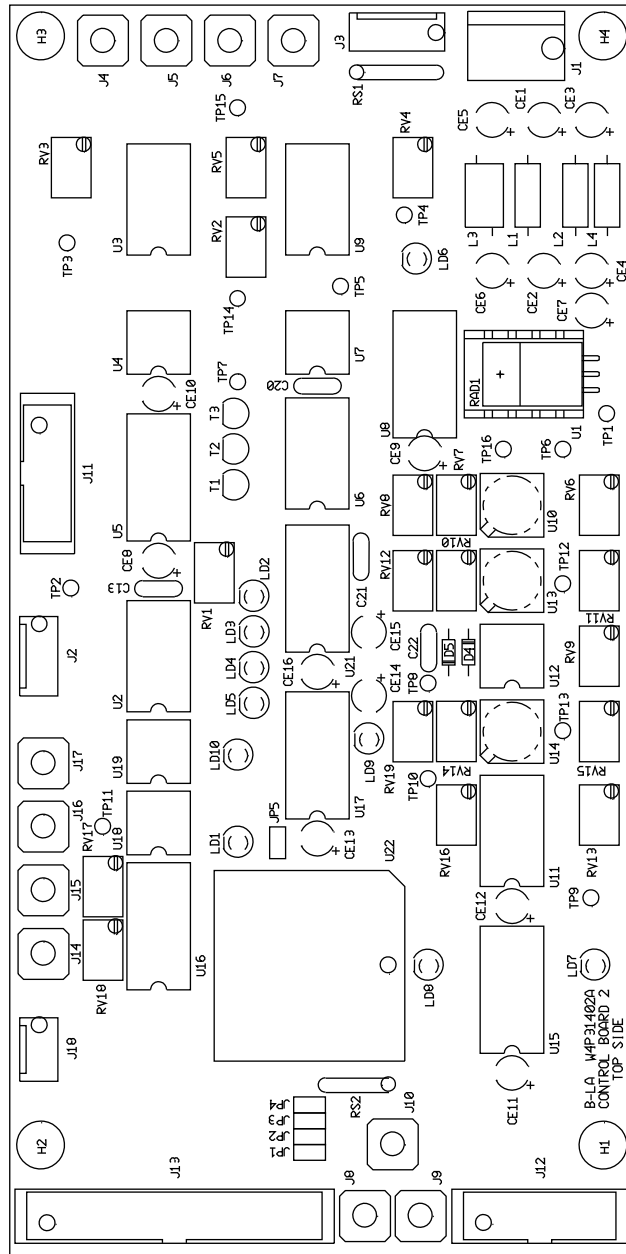


Figure 3.5. Control board bottom side

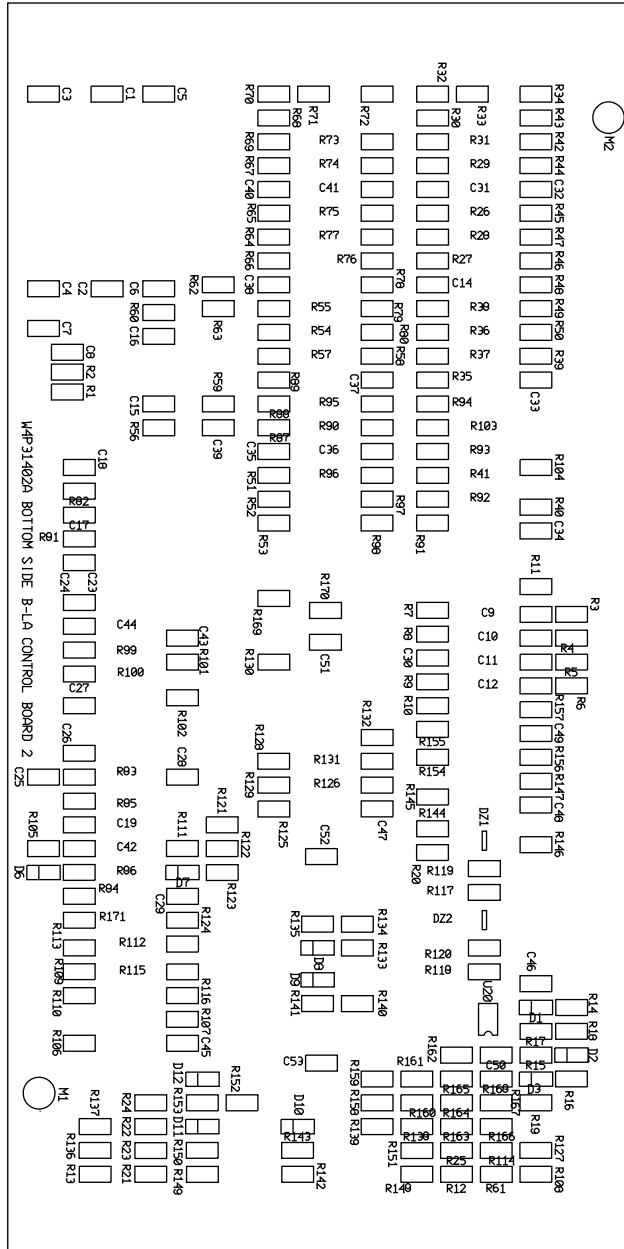


Figure 3.6. Control board 1/7 - power supply & reference

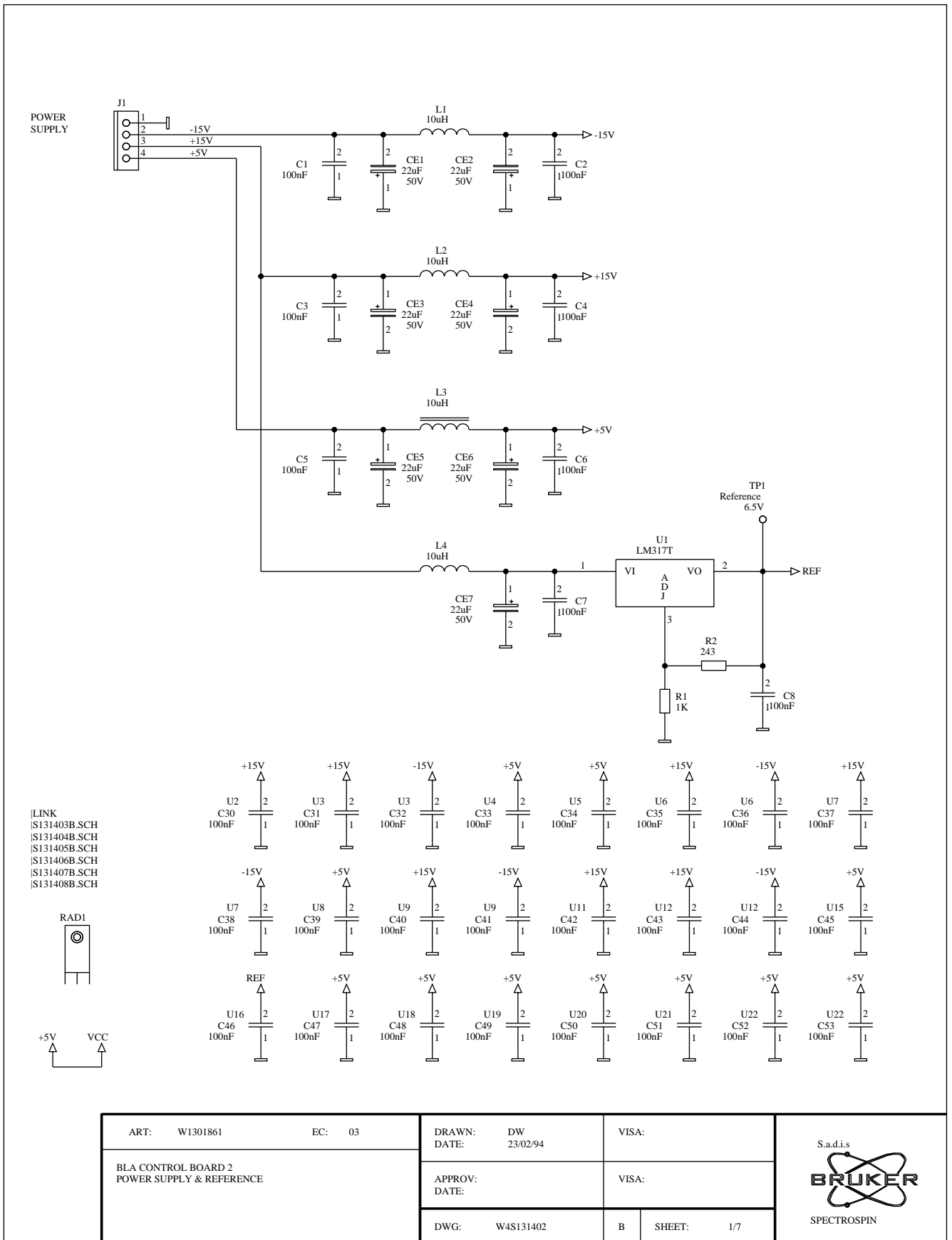
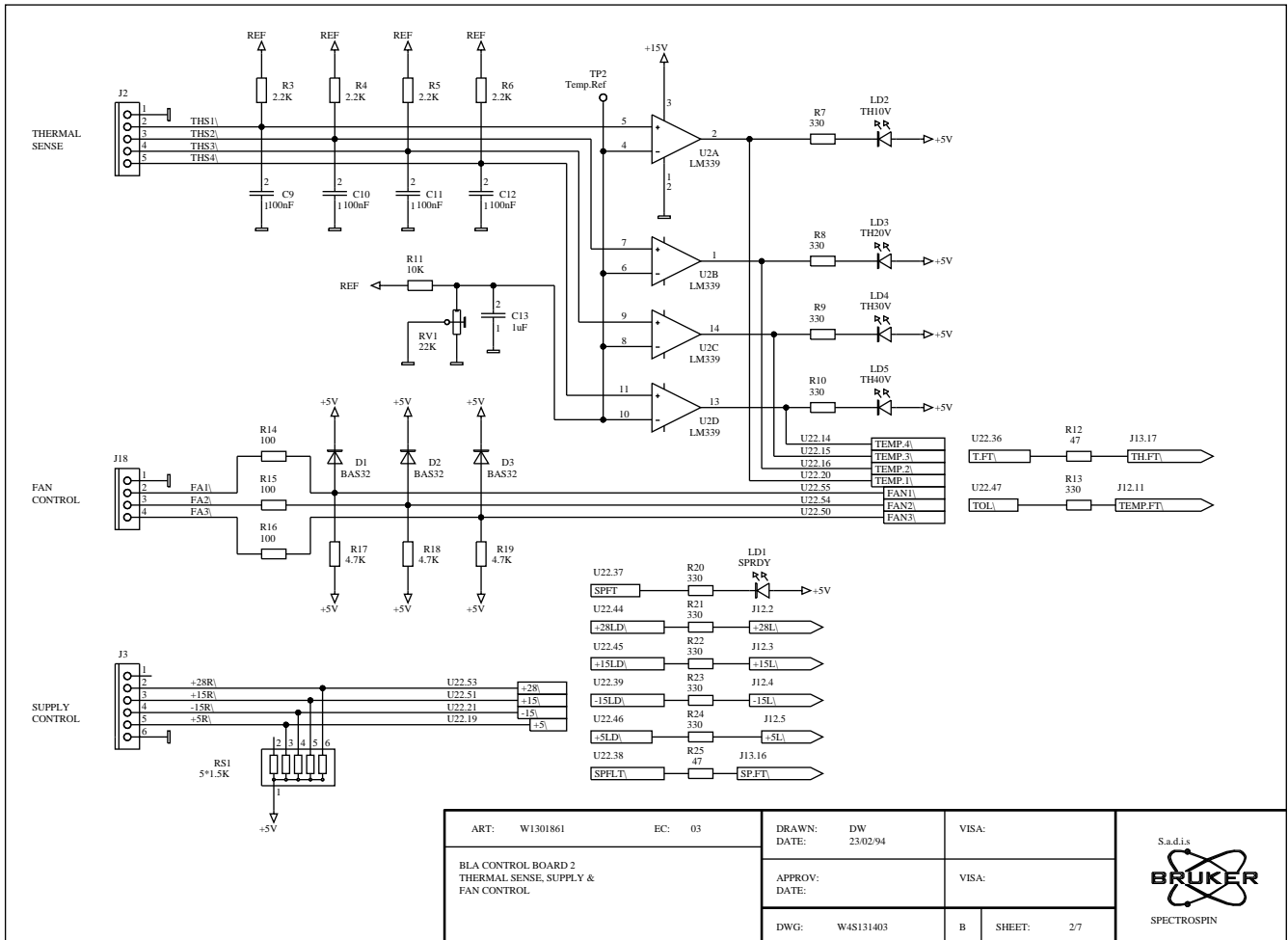
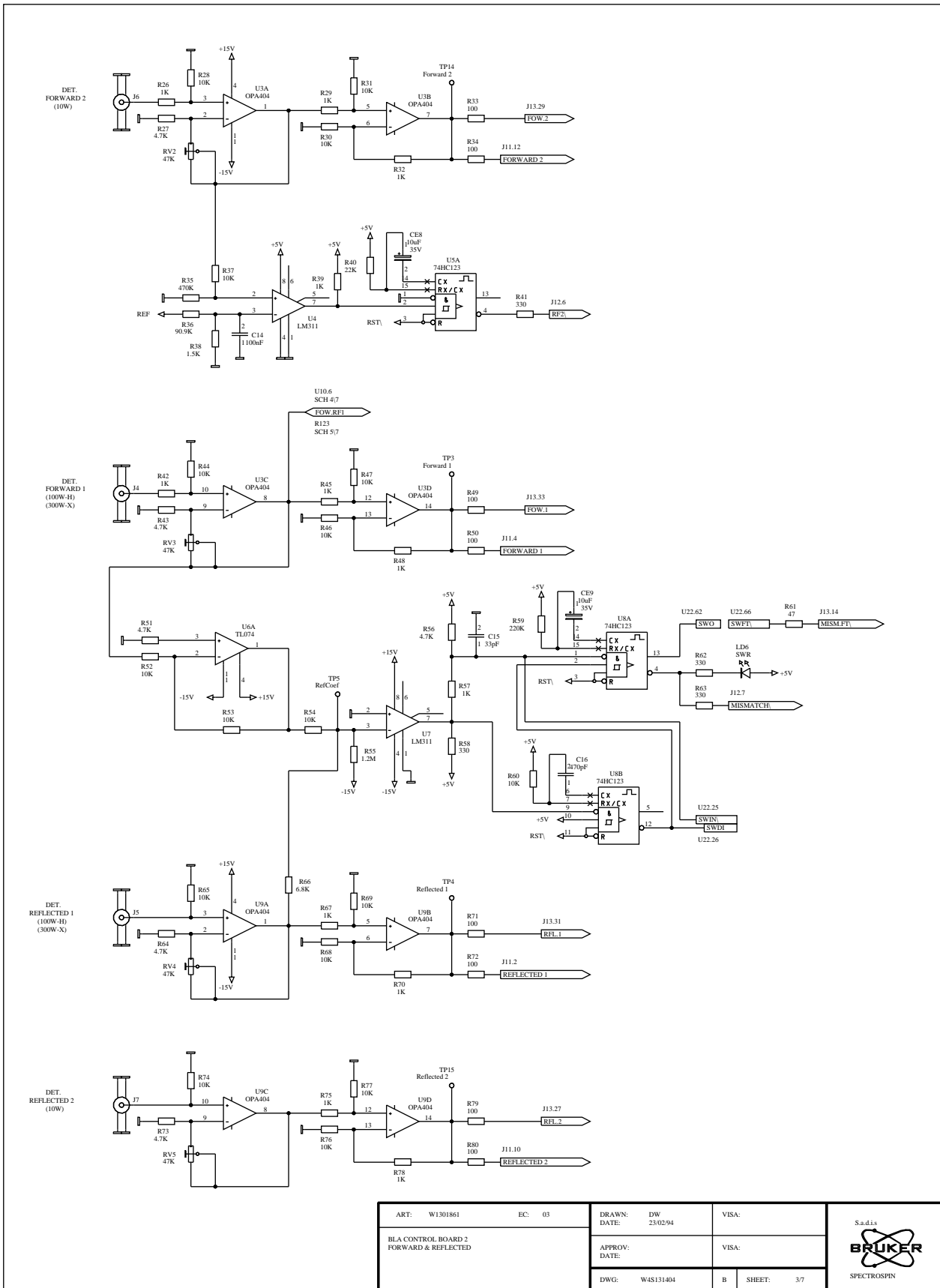


Figure 3.7. Control board 2/7 - Thermal sense, supply & fan control



ART: W1301861	EC: 03	DRAWN: DW	VISA:	S.a.d.i.s BRUKER SPECTROSPIN
BLA CONTROL BOARD 2 THERMAL SENSE, SUPPLY & FAN CONTROL		DATE: 23/02/94	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4S131403	B SHEET: 2/7	

Figure 3.8. Control board 3/7 - Forward & reflected



ART: W1301861	EC: 03	DRAWN: DW 23/02/94	VISA:
BLA CONTROL BOARD 2 FORWARD & REFLECTED		APPROV: DATE:	VISA:
		DWG: W48131404	B SHEET: 3/7



Figure 3.9. Control board 4/7 - Duty cycle & pulse width limiter

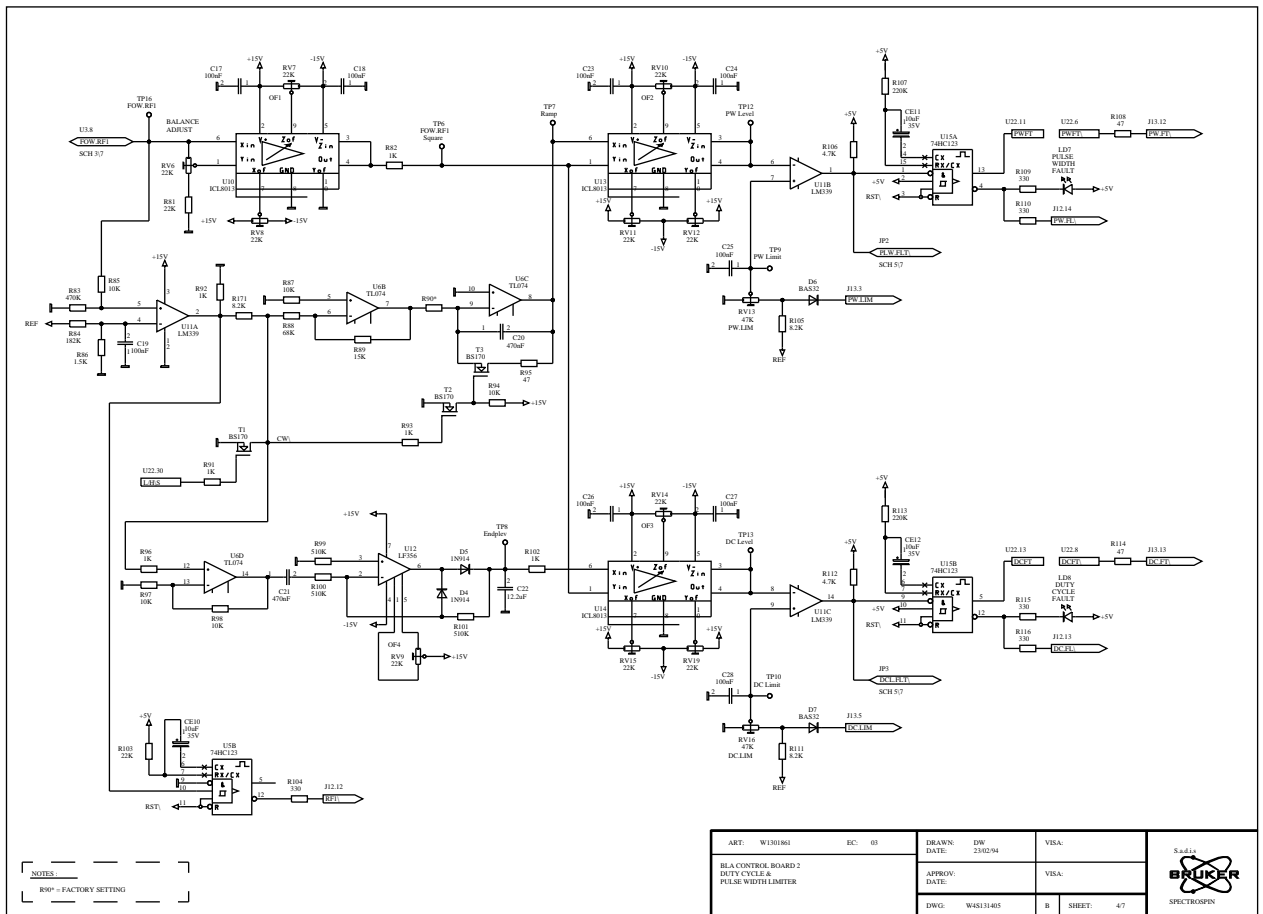


Figure 3.10. Control board 5/7 - Power limitation

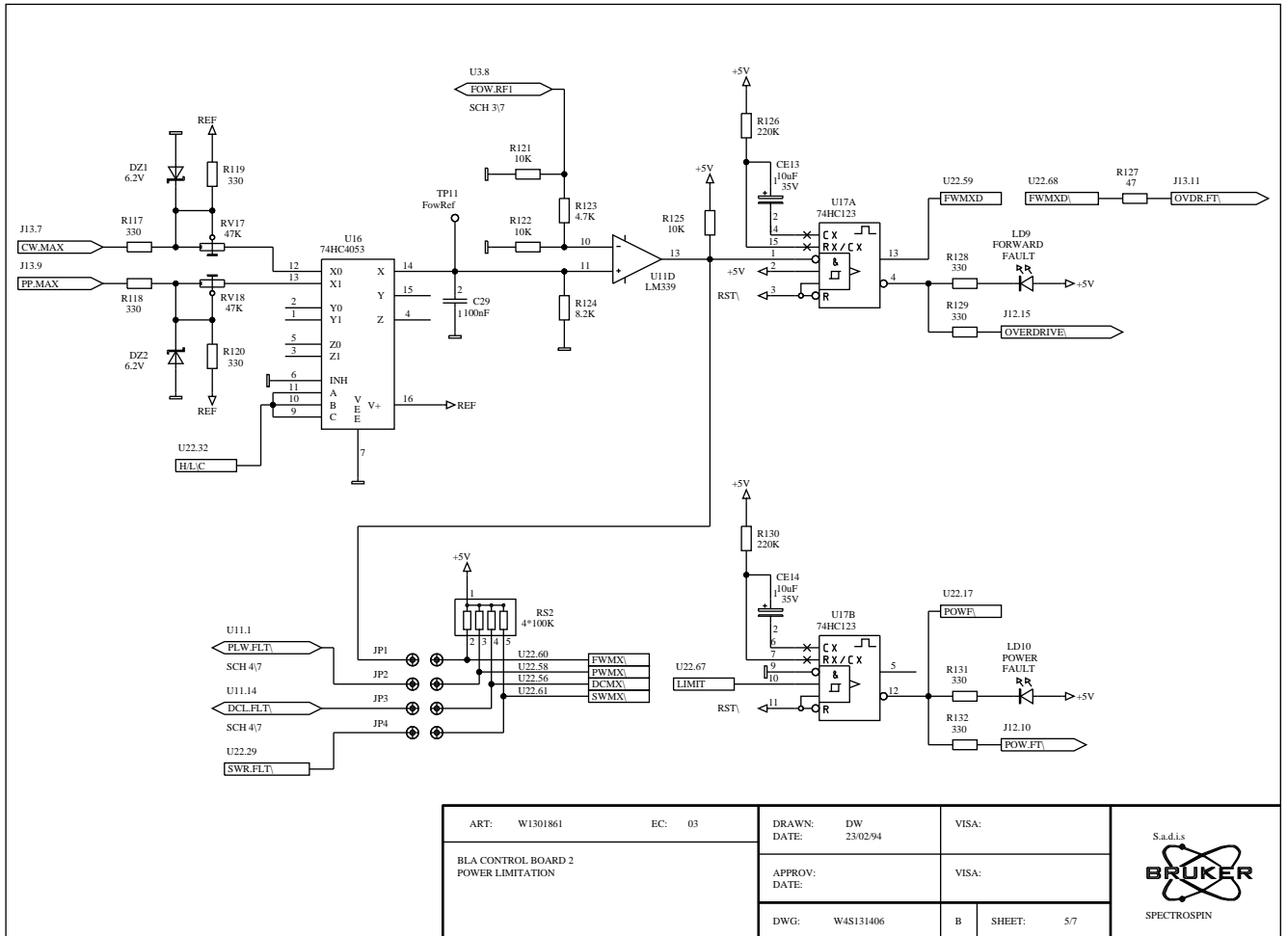
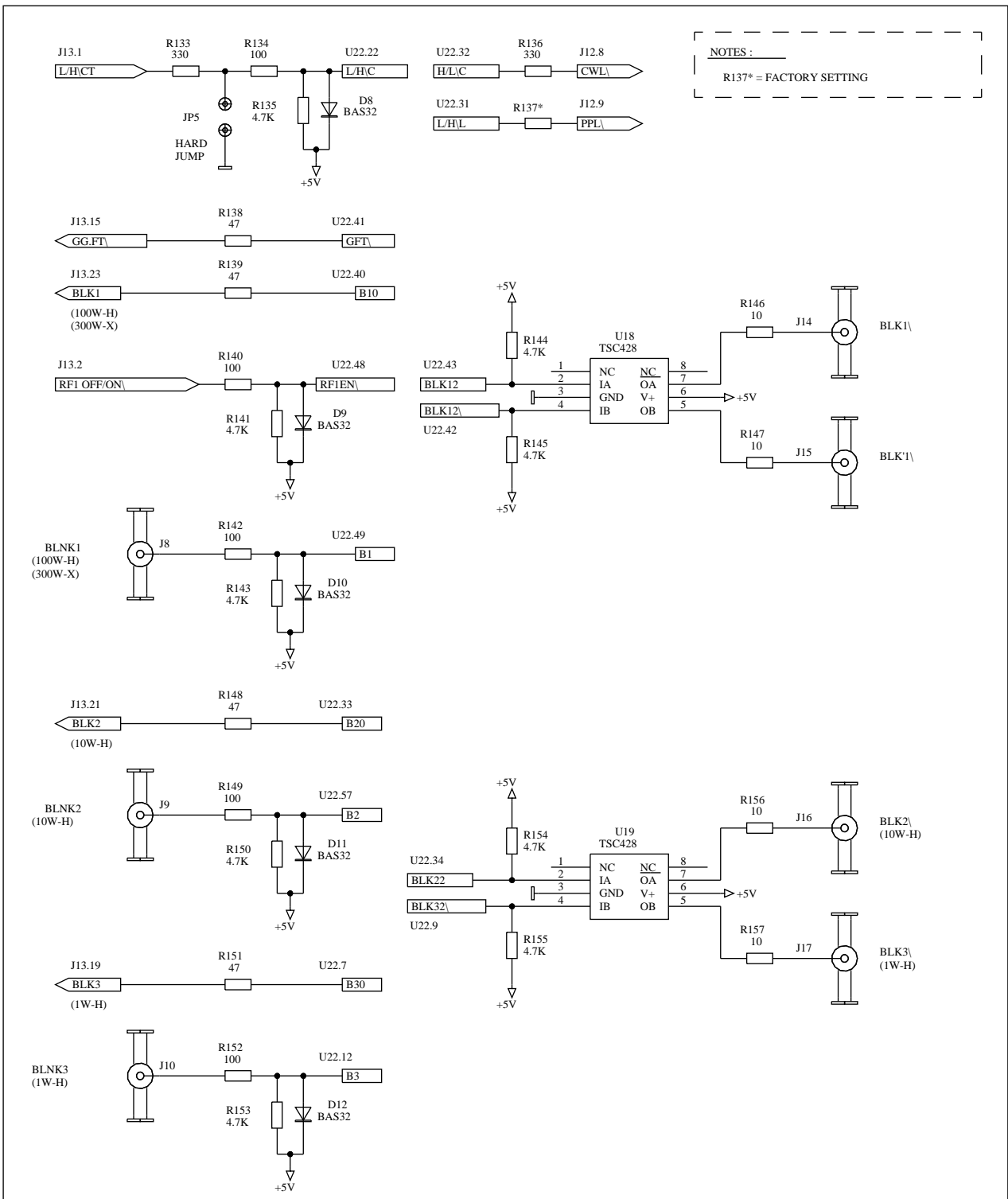


Figure 3.11. Control board 6/7 - Blanking circuit



NOTES :
R137* = FACTORY SETTING


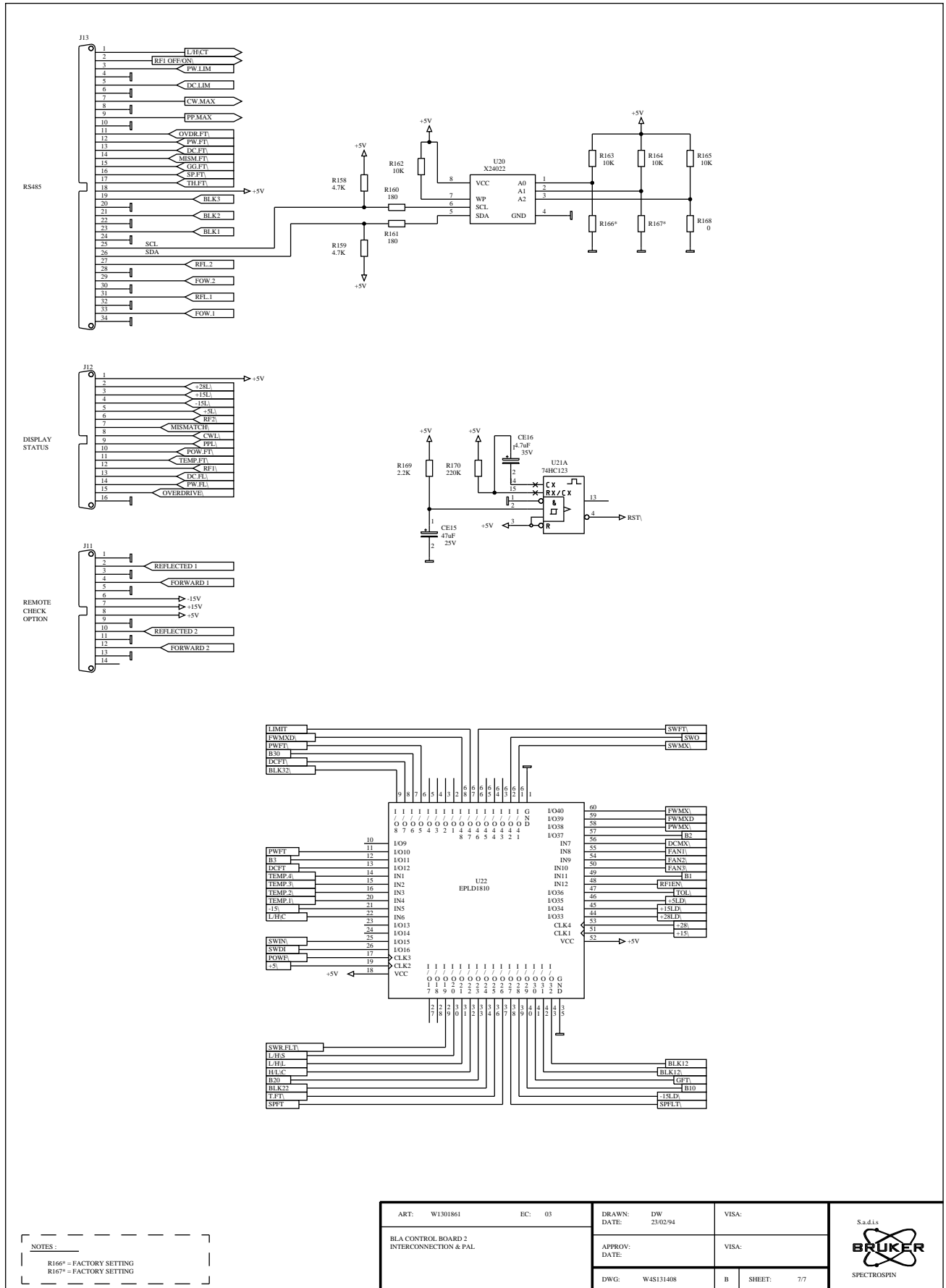
ART: W1301861	EC: 03	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
BLA CONTROL BOARD 2 BLANKING CIRCUIT		DATE: 23/02/94	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4S131407	B SHEET: 6/7	

Figure 3.12. Control board 7/7 - Interconnection & pal

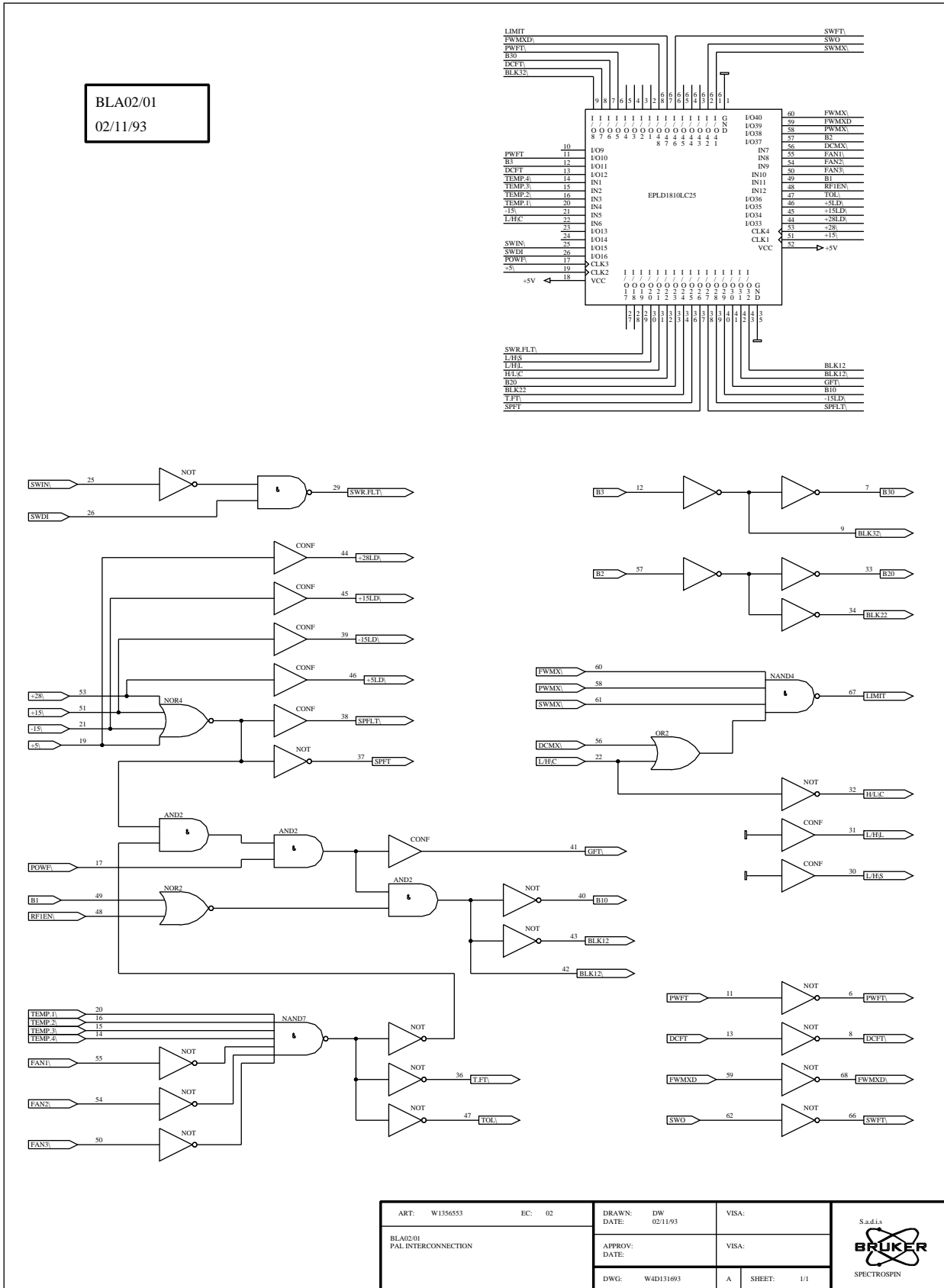


NOTES :
 R166* = FACTORY SETTING
 R167* = FACTORY SETTING

ART: W1301861	EC: 03	DRAWN: DW 23/02/94	VISA:
BLA CONTROL BOARD 2 INTERCONNECTION & PAL		APPROV: DATE:	VISA:
		DWG: W45131408	B SHEET: 7/7



Figure 3.13. Pal interconnection



ART: W135653	EC: 02	DRAWN: DW	DATE: 02/11/93	VISA:	Sadis SPECTROSPIN
BLA02/01 PAL INTERCONNECTION		APPROV:		VISA:	
		DWG: W4D131693	A	SHEET: 1/1	

Figure 3.14. Wiring diagram

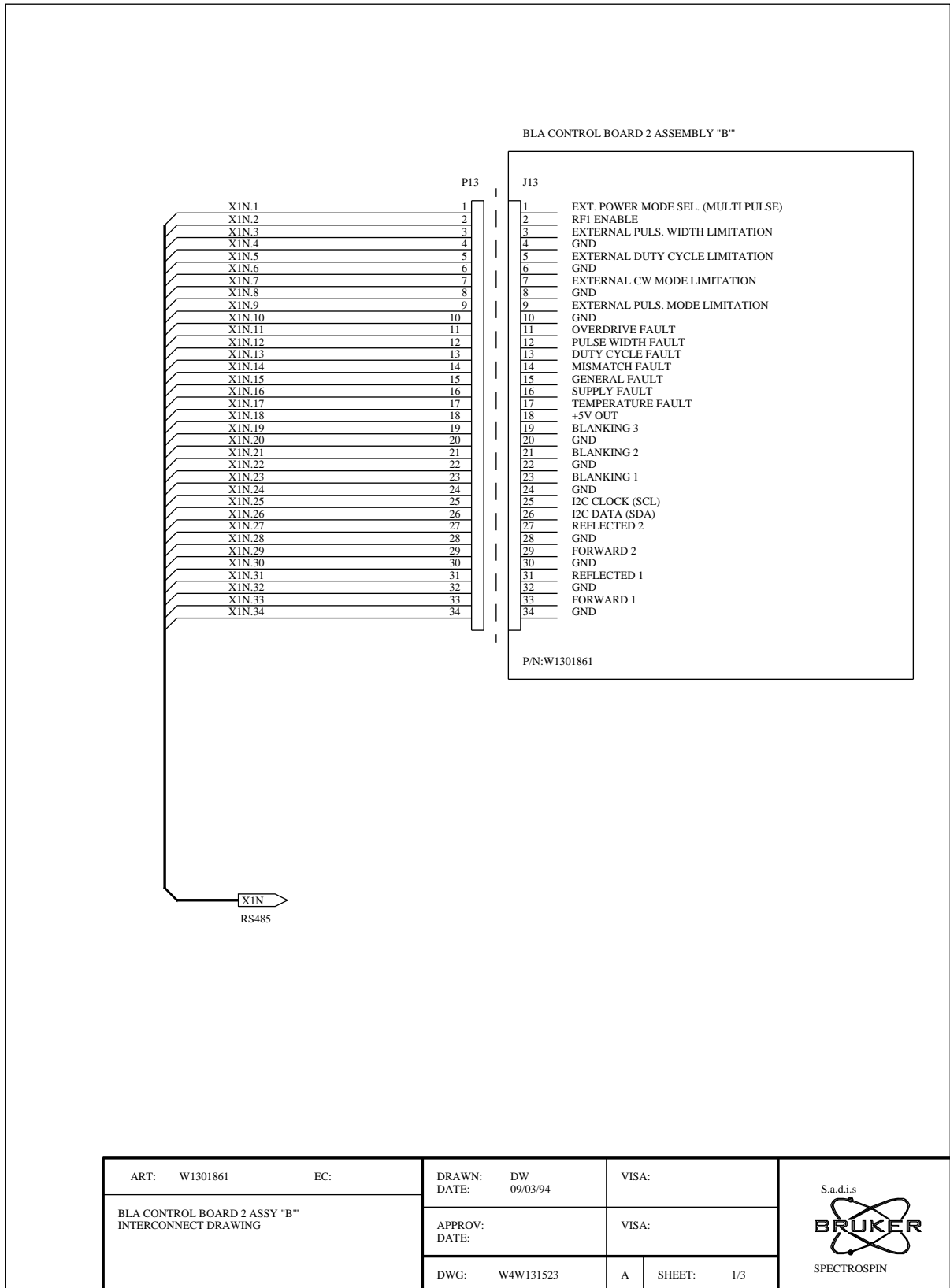


Figure 3.15. Wiring diagram

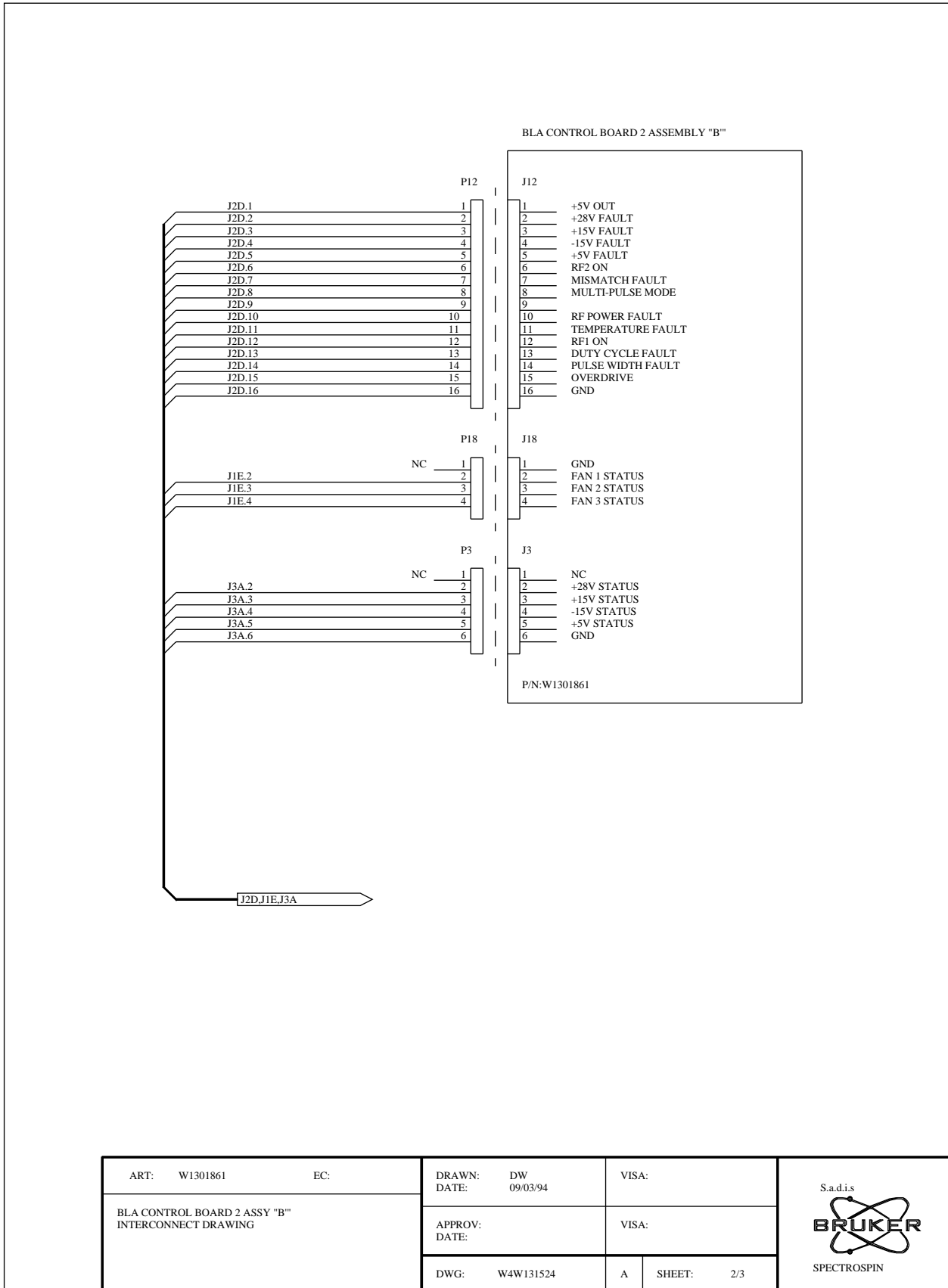
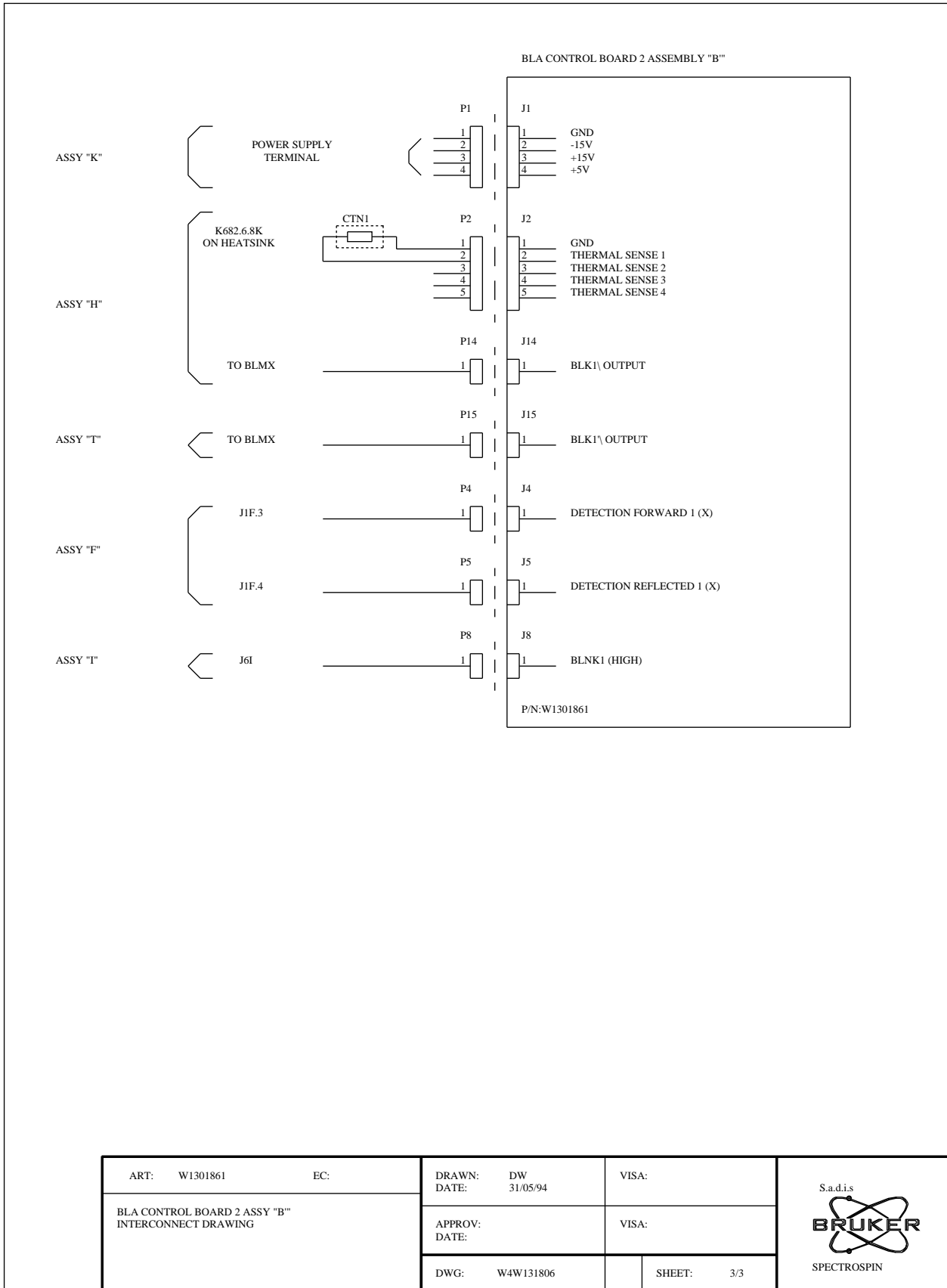


Figure 3.16. Wiring diagram



Status board

4

Figure 4.17. Interconnect drawing

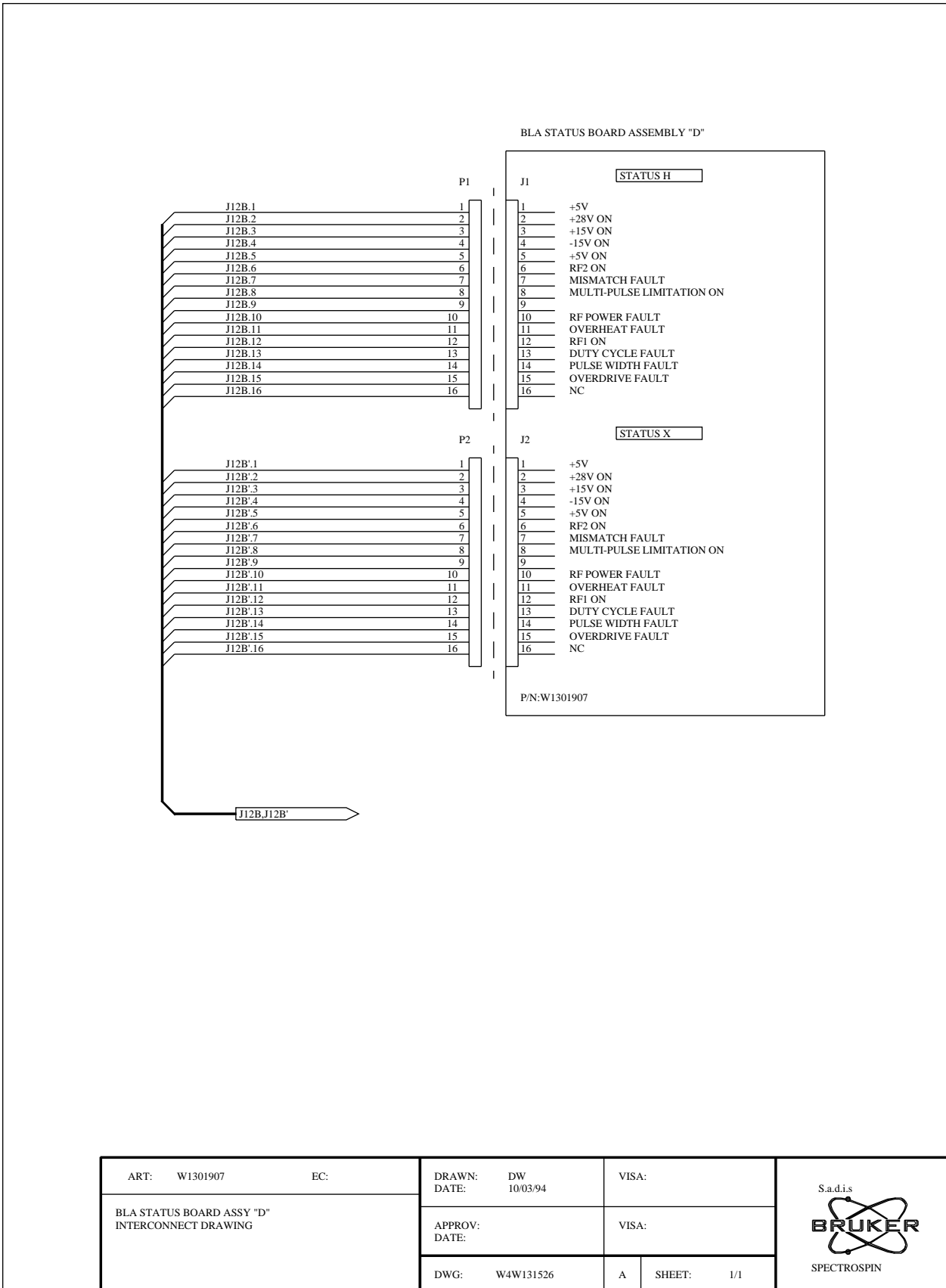
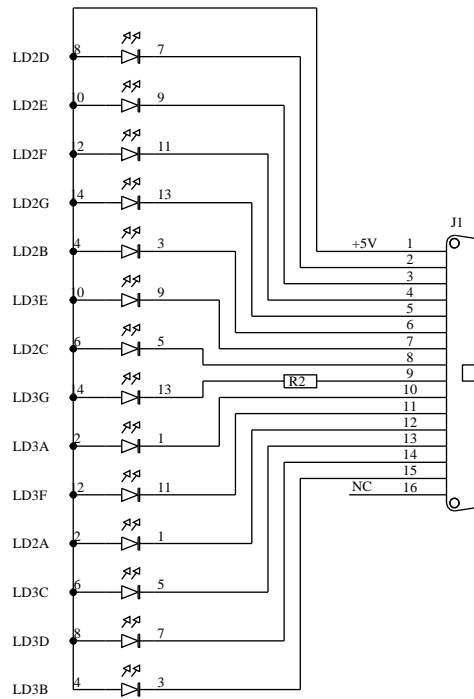
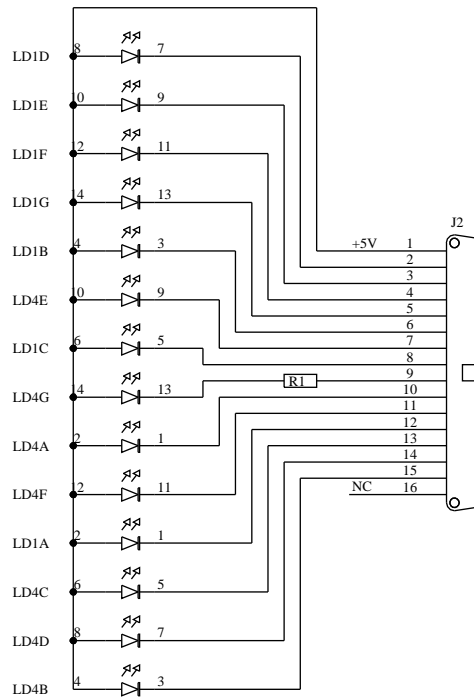


Figure 4.18. Status led board




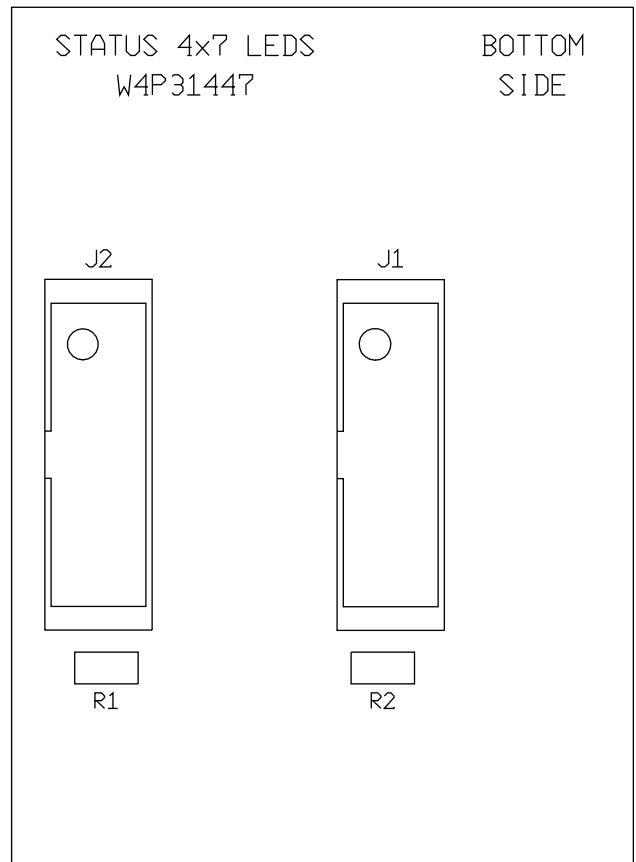
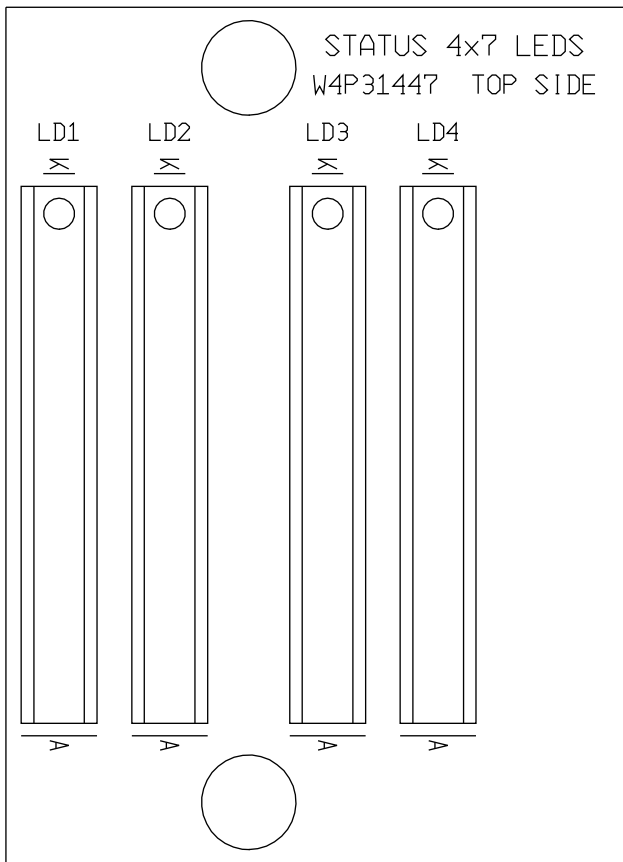
ART: W1301907	EC: 01	DRAWN: DW	VISA:	
STATUS LED BOARD 4*7 LED		DATE: 18/06/93	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4S131447	SHEET: 1/1	

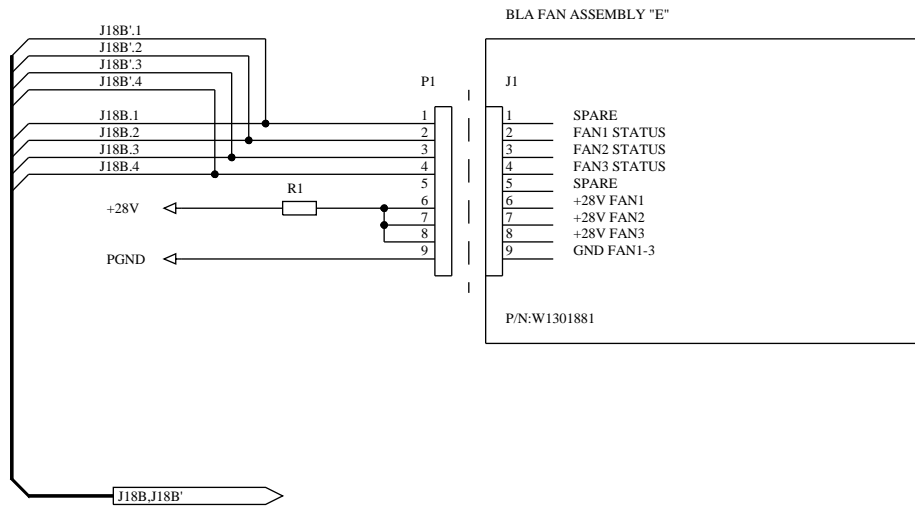
Figure 4.19. Status led board - location



Fan assembly

5

Figure 5.1. Interconnect drawing




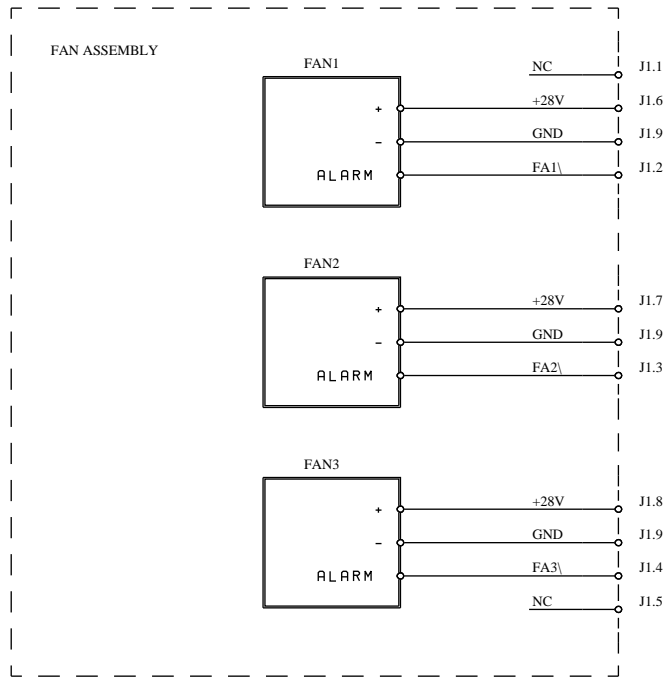

ART: W1301881	EC:	DRAWN: DW	VISA:		S.a.d.i.s  SPECTROSPIN
BLA FAN ASSEMBLY ASSY "E" INTERCONNECT DRAWING		DATE: 10/03/94	VISA:		
		APPROV: DATE:	A	SHEET: 1/1	
		DWG: W4W131527			

Figure 5.2. Fan assembly



ART: W1301881	EC: 01	DRAWN: DW	VISA:	
FAN ASSEMBLY		DATE: 05/05/93	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4S131424	SHEET: 1/1	

BLMH0.5/50

Figure 6.1. BLMH0.5 assembly "M"

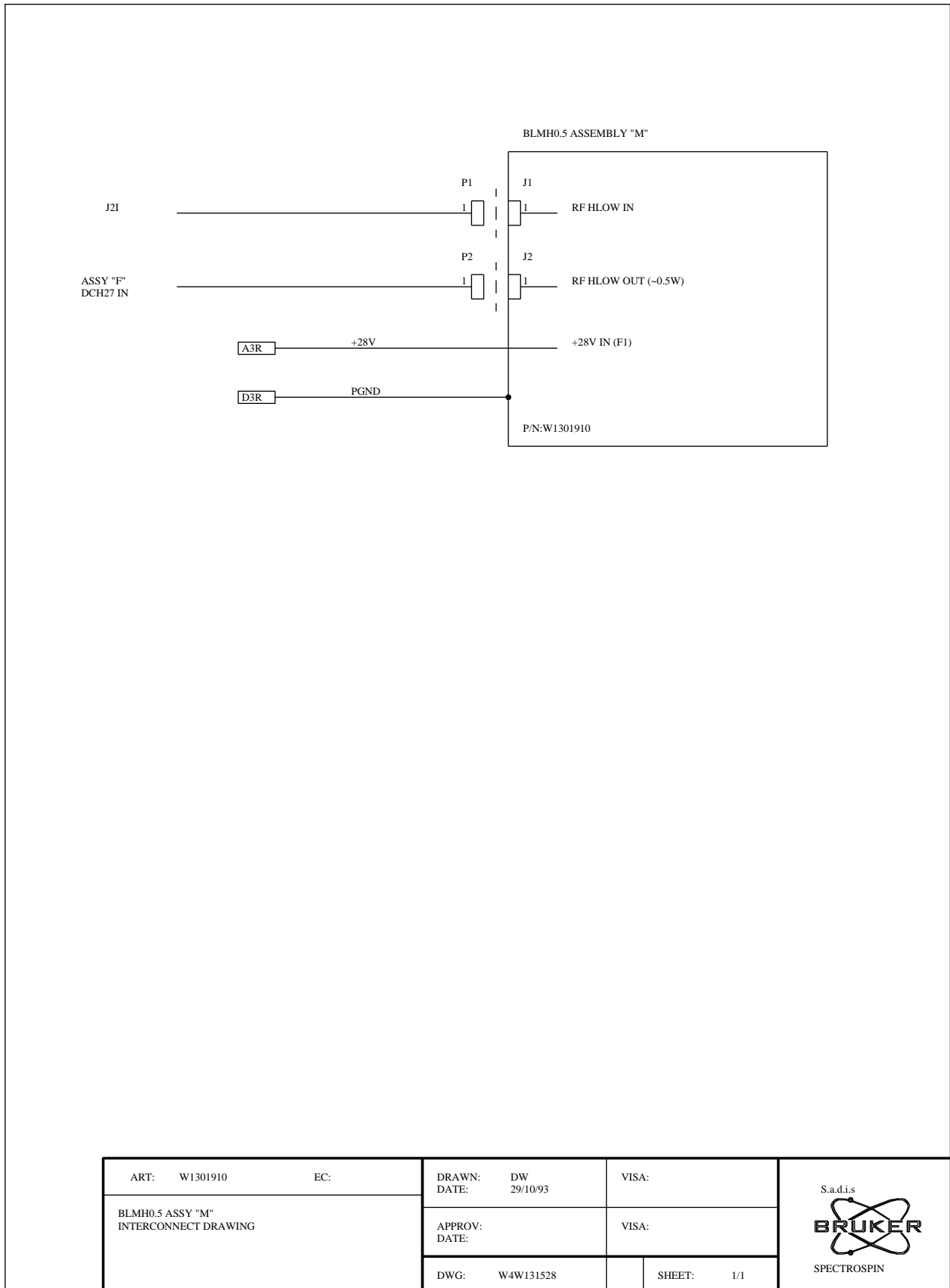
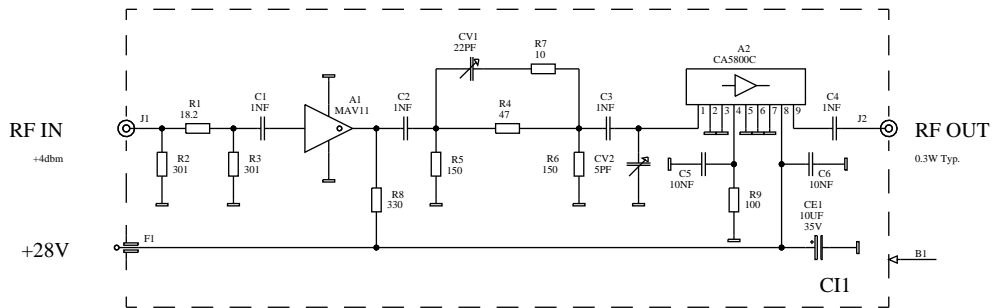


Figure 6.2. BLMH0.5 amplifier 180-640 Mhz




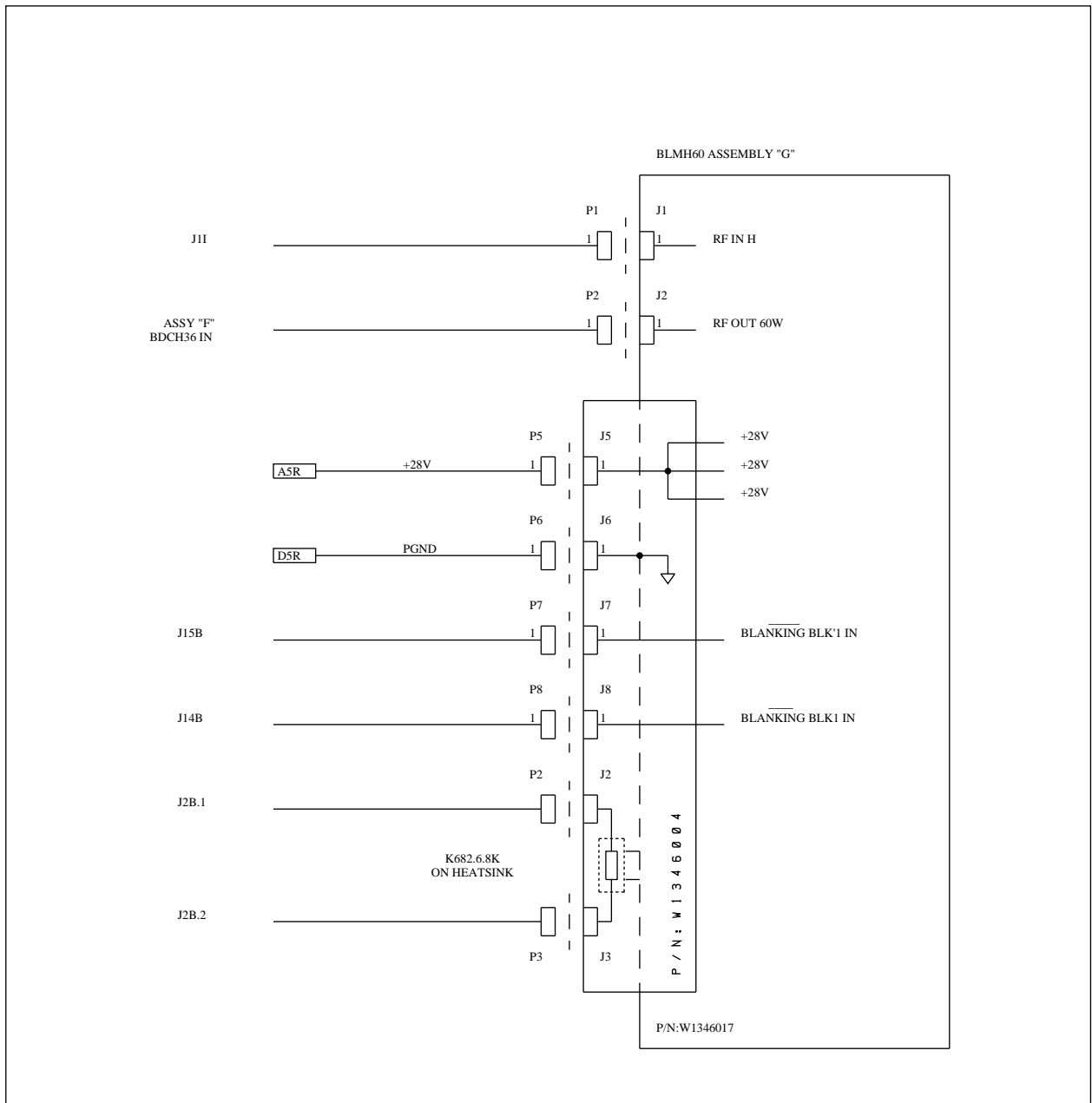
ART: W1301910	EC: 01	DRAWN: DW	VISA:	
BLMH0.5 AMPLIFIER 180-640MHZ 5W LINEAR / 21 db		DATE: 01/09/93	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W48131438	SHEET: 1/1	

Figure 6.3. BLMH60 assembly




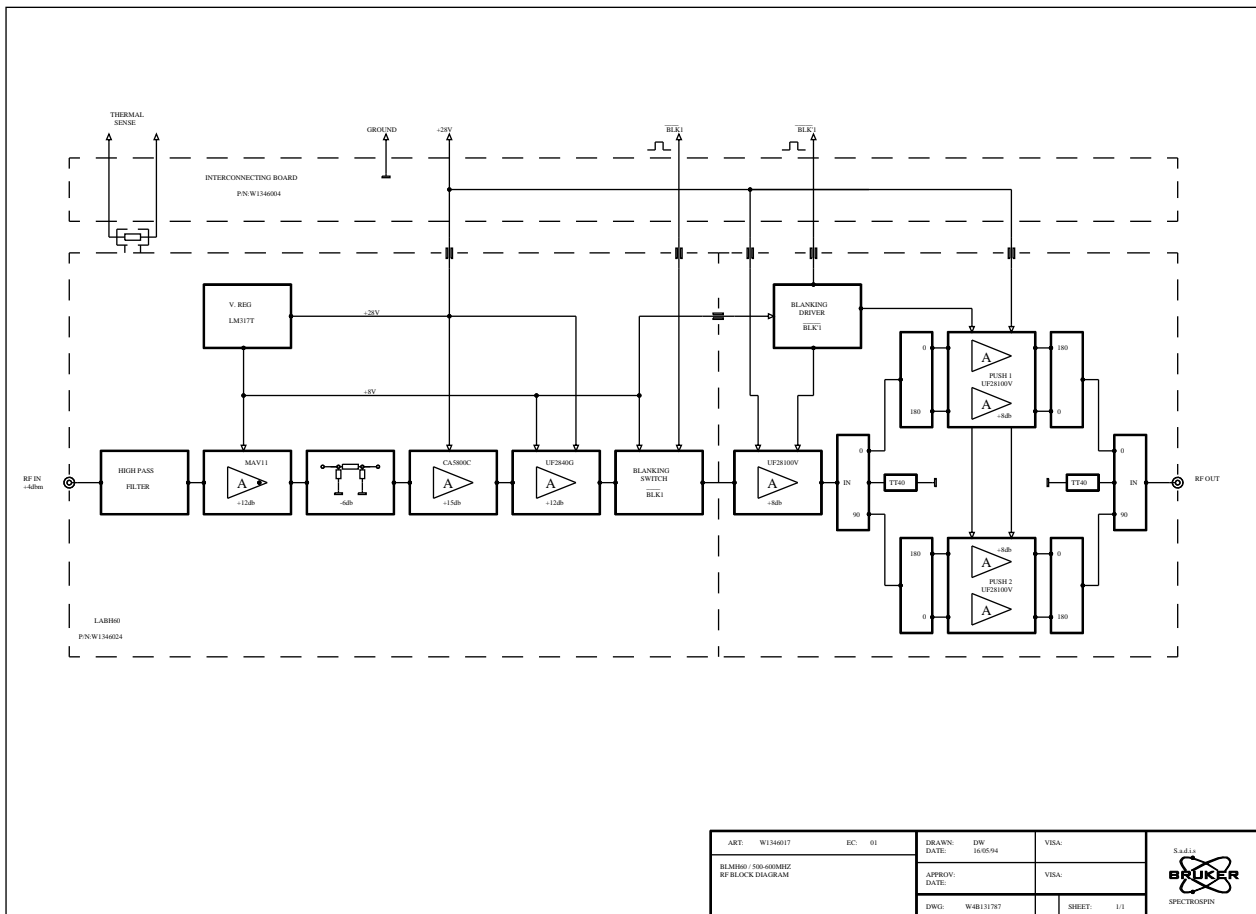
ART: W1346017	EC:	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
BLMH60 ASSY "G" INTERCONNECT DRAWING		DATE: 01/06/94	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4W131813	SHEET: 1/1	

Figure 6.4. BLMH60 block diagram




ART: W1346017	EC: 01	DRAWN: DW 16/05/94	VISA:	
BLM60 / 50-600MHz RF BLOCK DIAGRAM		APPROV. DATE:	VISA:	
		DWG: W-0117/767	SHEET: 1/1	

Figure 6.5. LABH60 amplifier 500-600 Mhz

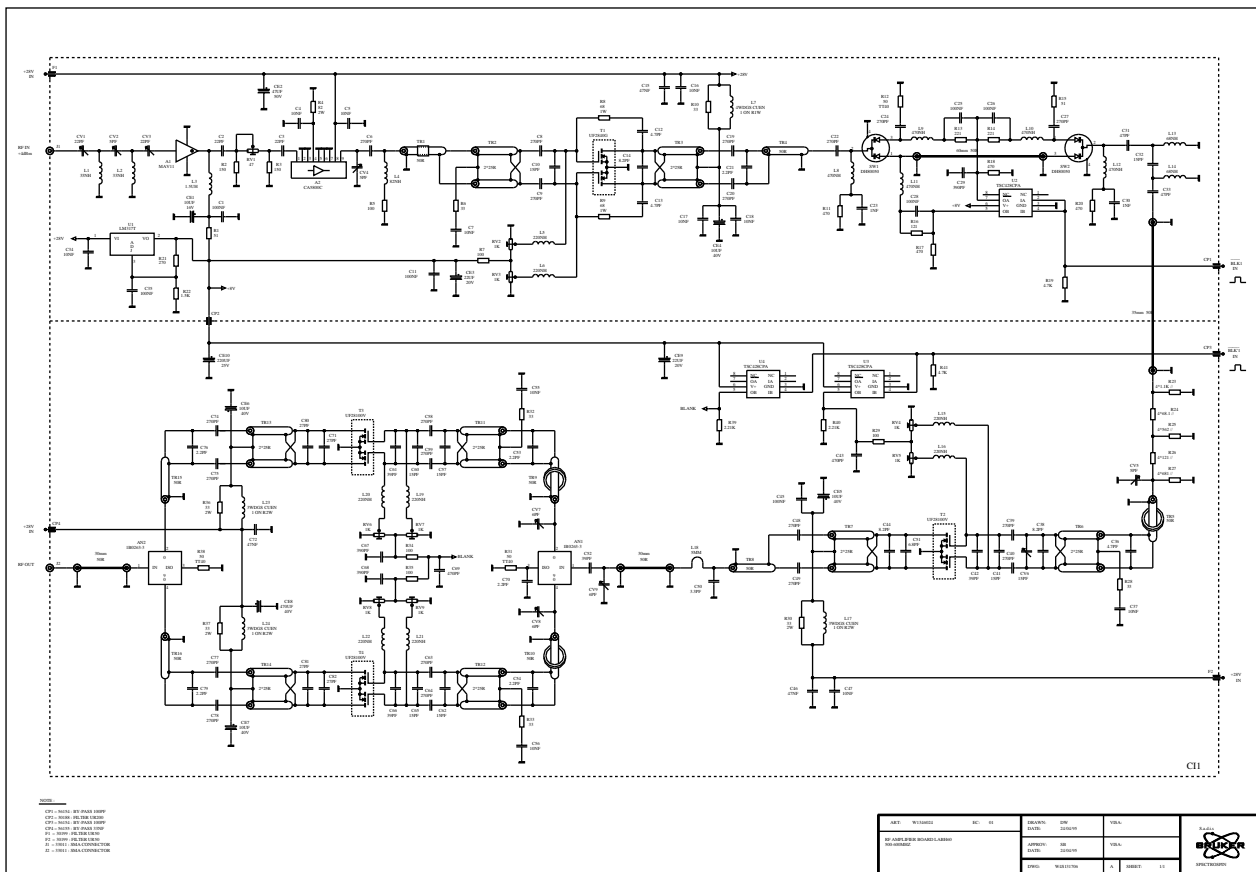
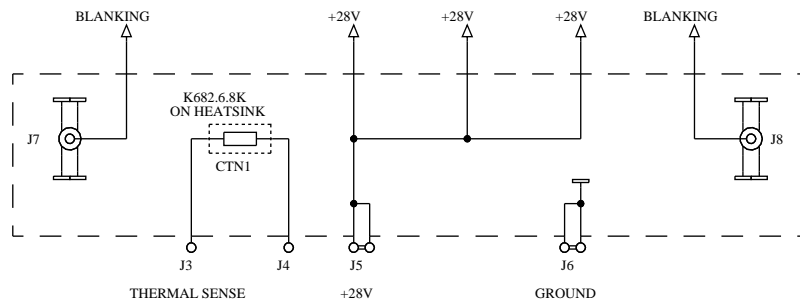


Figure 6.6. Interconnecting board



NOTE: _____

CTN1 = 56521 : CTN 6K8 K682


ART: W1346004	EC: 01	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
INTERCONNECTING BOARD		DATE: 09/12/93	VISA:	
		APPROV: _____	VISA: _____	
		DWG: W4S131480	SHEET: 1/1	

Figure 6.8. BLMX001 RF block diagram

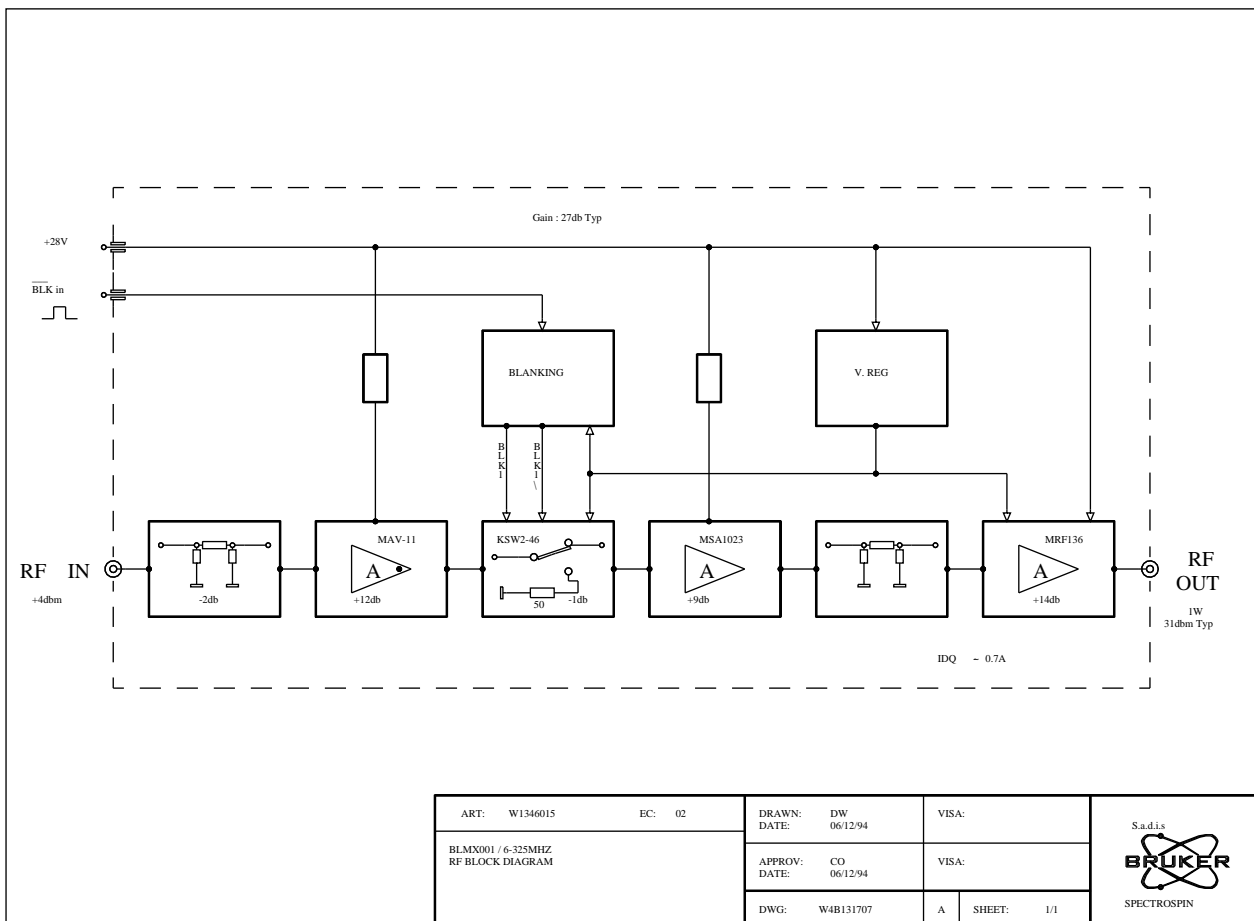
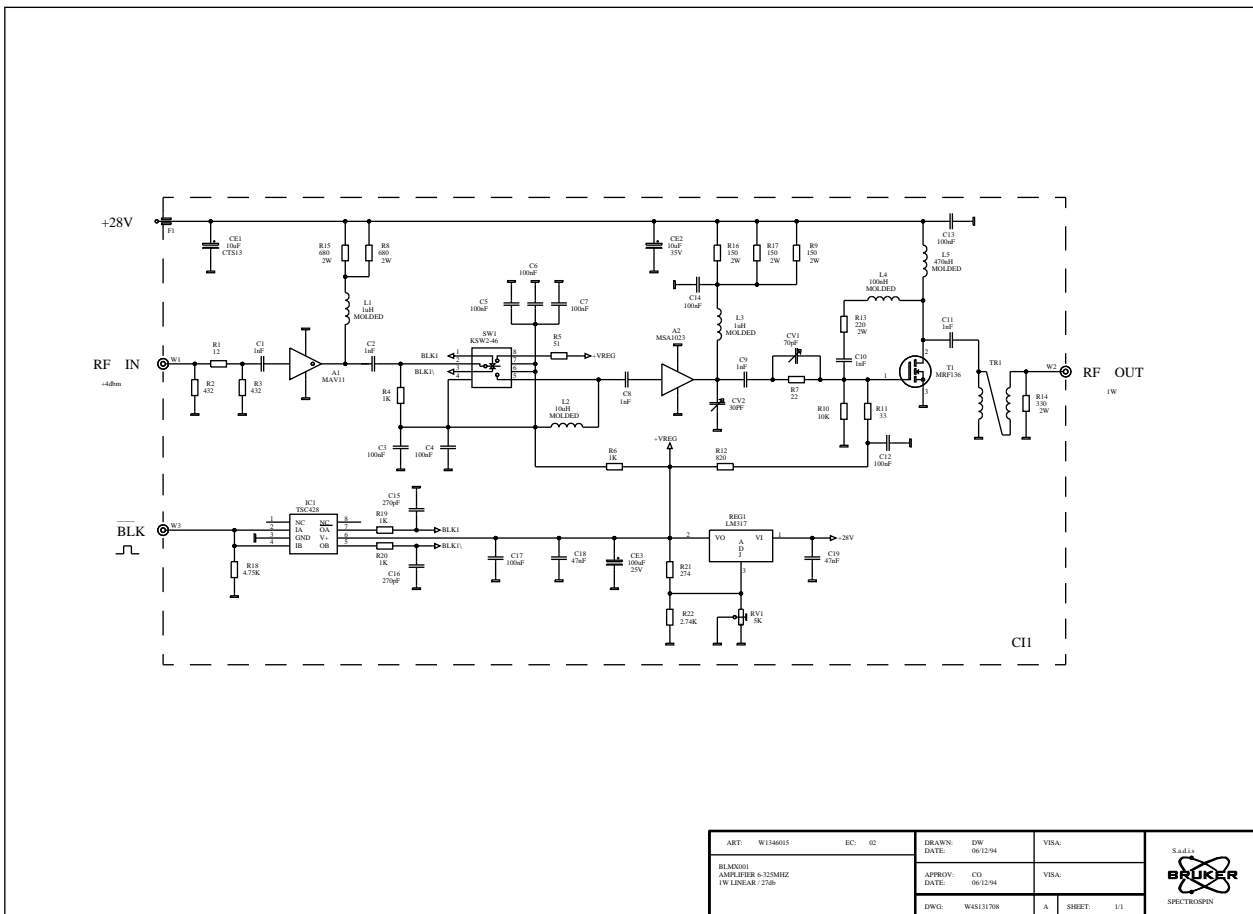


Figure 6.9. BLMX001 amplifier 6-304Mhz



BLMX100 amplifier module

Figure 7.1. BLMX300 Wiring diagram

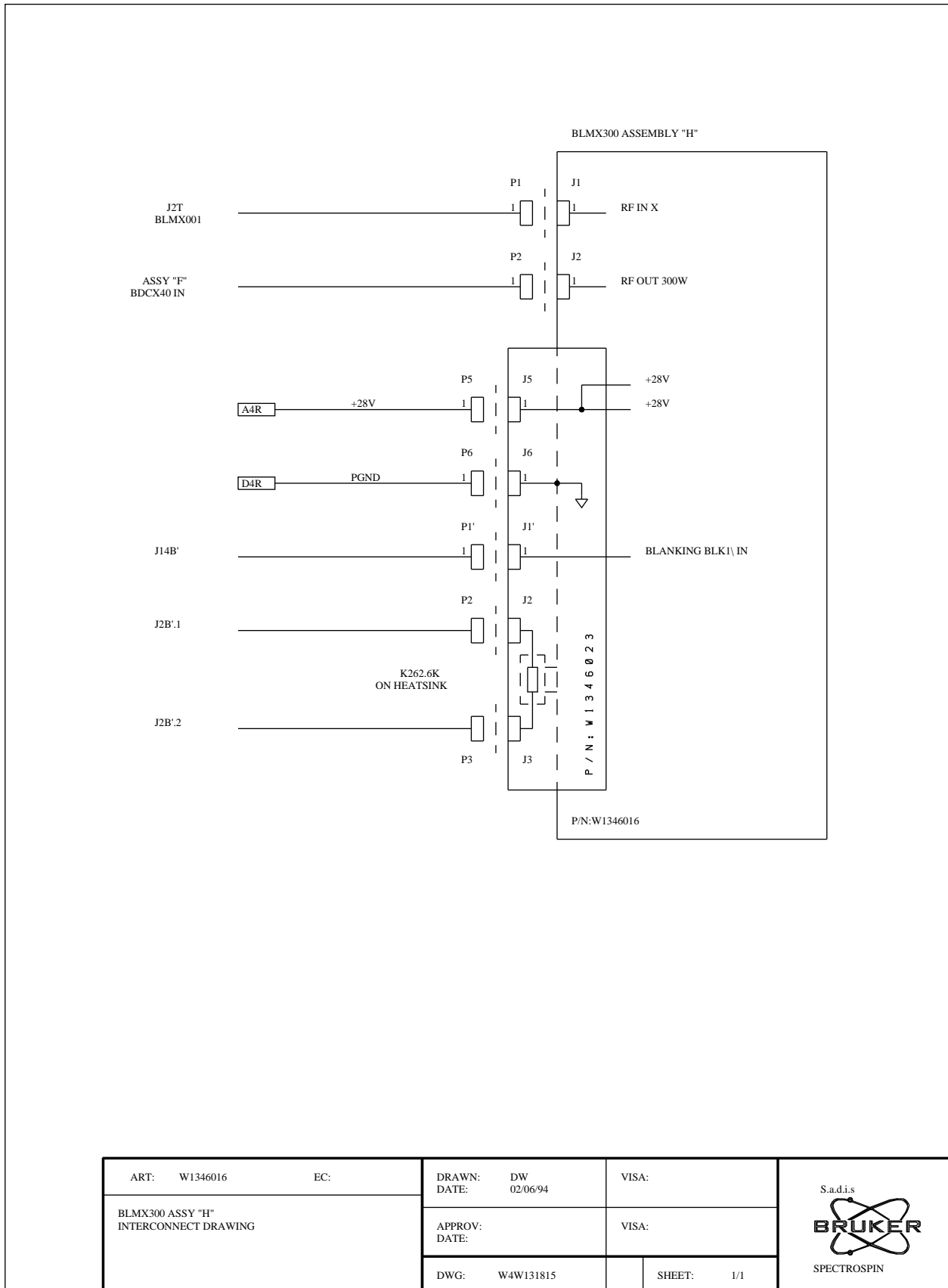
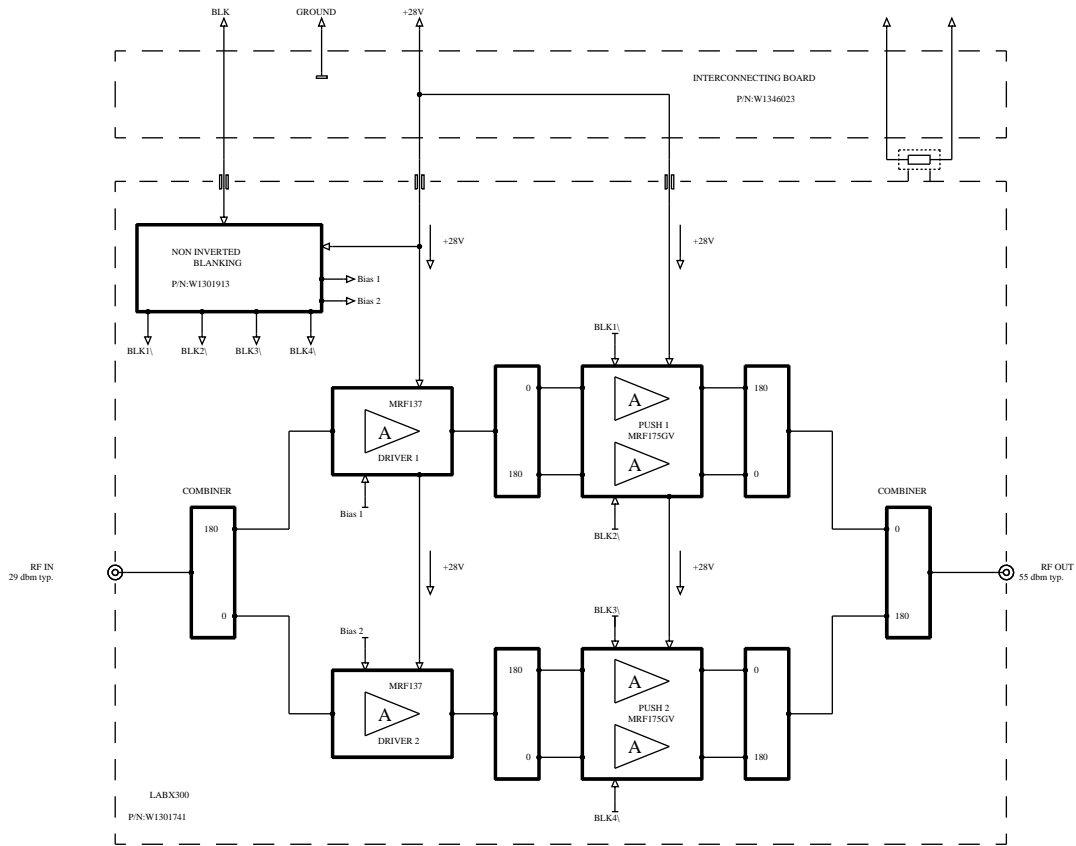


Figure 7.2. BLMX300 RF block diagram



ART: W1346016	EC: 01	DRAWN: DW	DATE: 07/03/94	VISA:
BLMX300 / 6-243MHZ RF BLOCK DIAGRAM		APPROV: CO	DATE: 07/03/94	VISA:
DWG: W4B131705		SHEET: 1/1	S.a.d.i.s BRUKER SPECTROSPIN	

Figure 7.3. LABX300 amplifier 6-241 Mhz

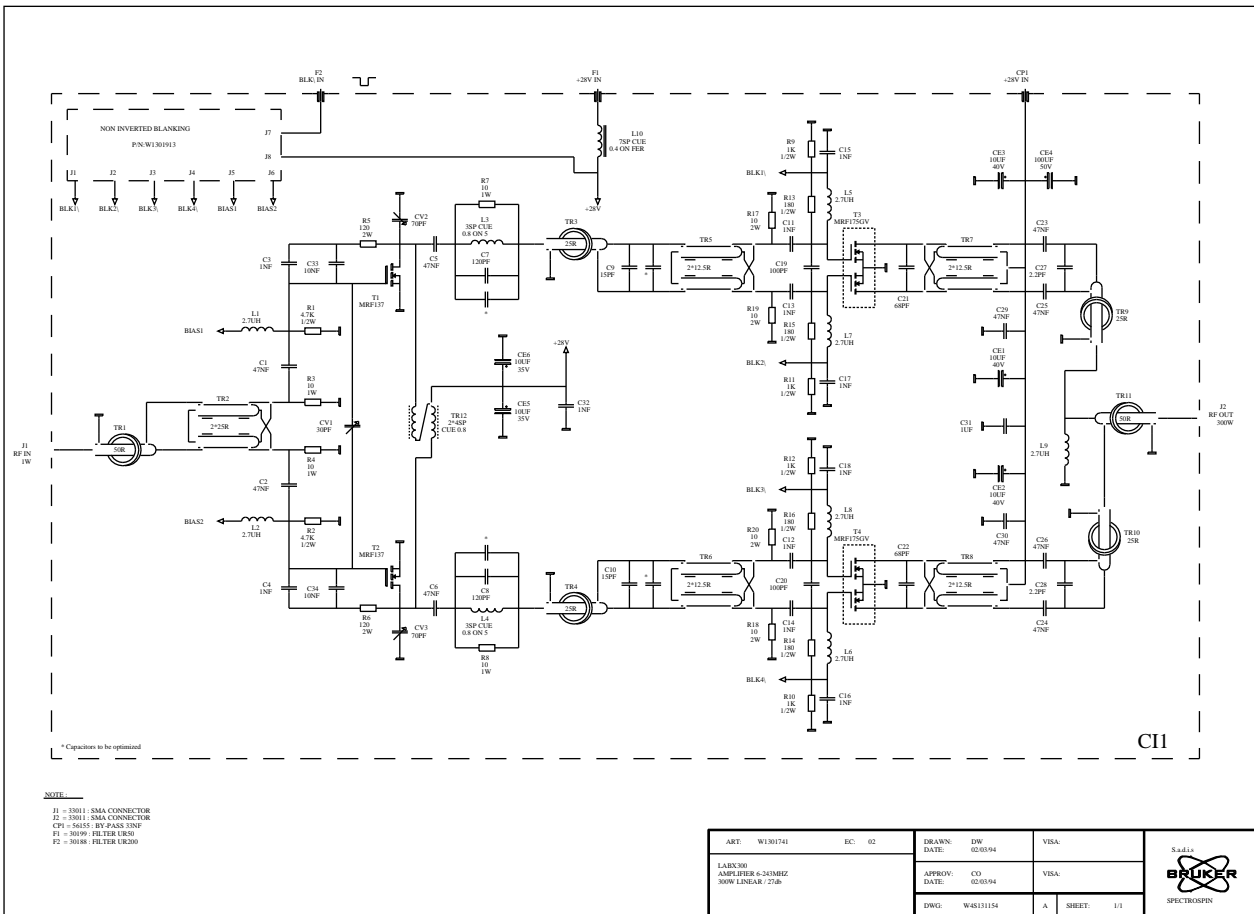
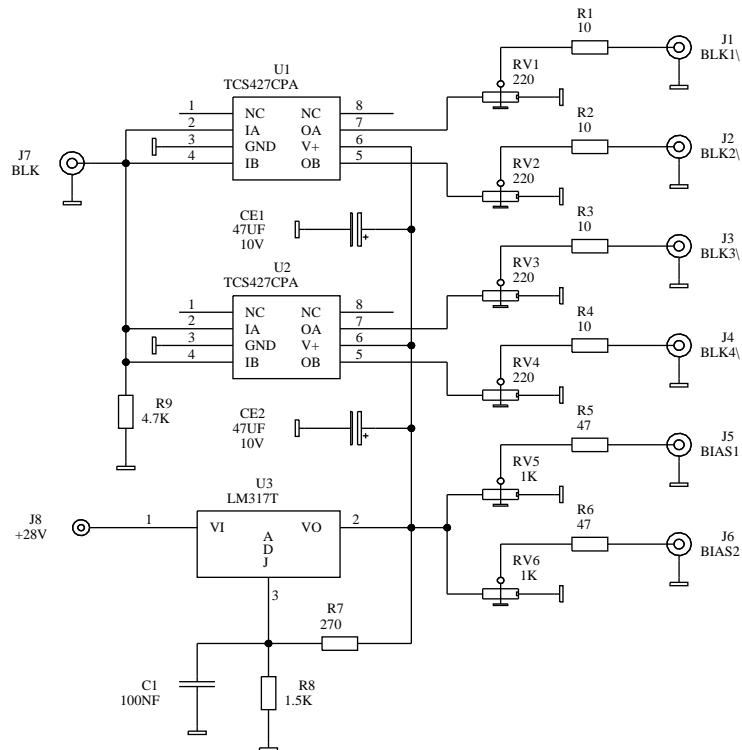


Figure 7.4. Non inverted blanking




ART: W1301913	EC: 01	DRAWN: DW	DATE: 13/09/93	VISA:	S.a.d.i.s  SPECTROSPIN
NON INVERTED BLANKING		APPROV: CO	DATE: 13/09/93	VISA:	
		DWG: W4S131508		SHEET: 1/1	

Figure 7.5. Blanking layout

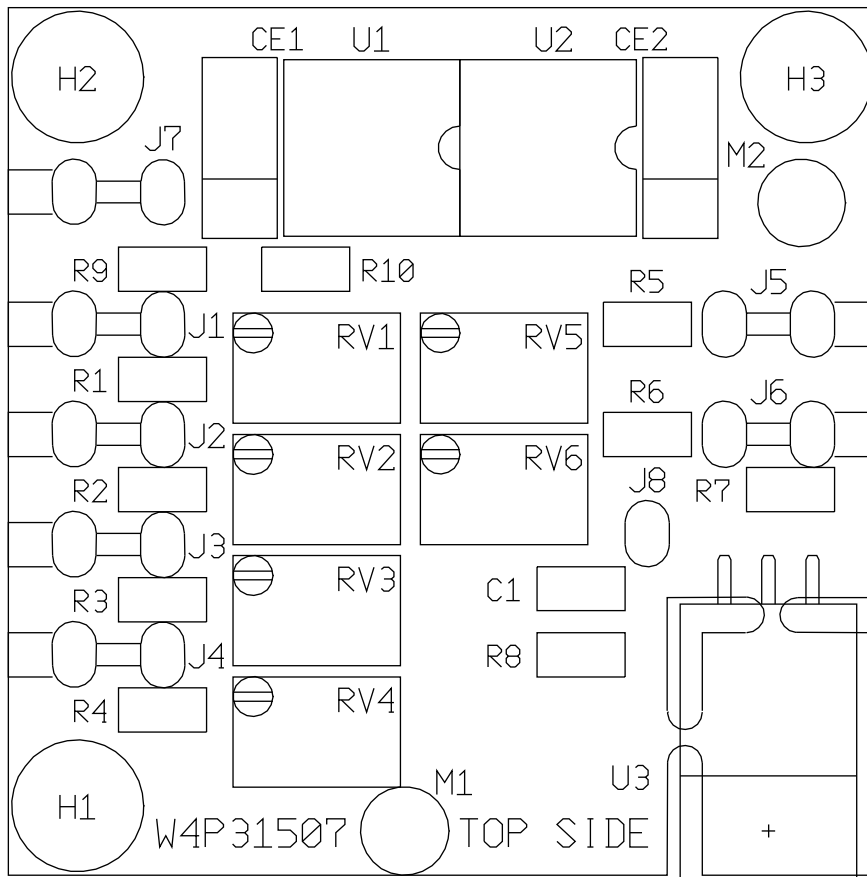
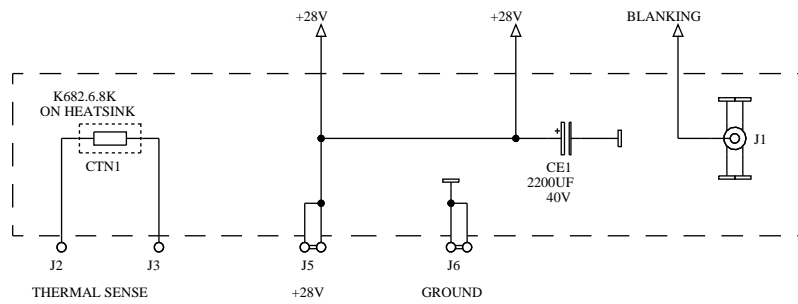



Figure 7.6. Interconnecting board



NOTE :

CTN1 = 56521 : CTN 6K8 K682

ART: W1346023	EC: 01	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
INTERCONNECTING BOARD		DATE: 02/03/94	VISA:	
		APPROV: DATE:	VISA:	
		DWG: W4S131704	SHEET: 1/1	

Couplers, switches

Figure 8.1. Couplers and switches assembly block diagram

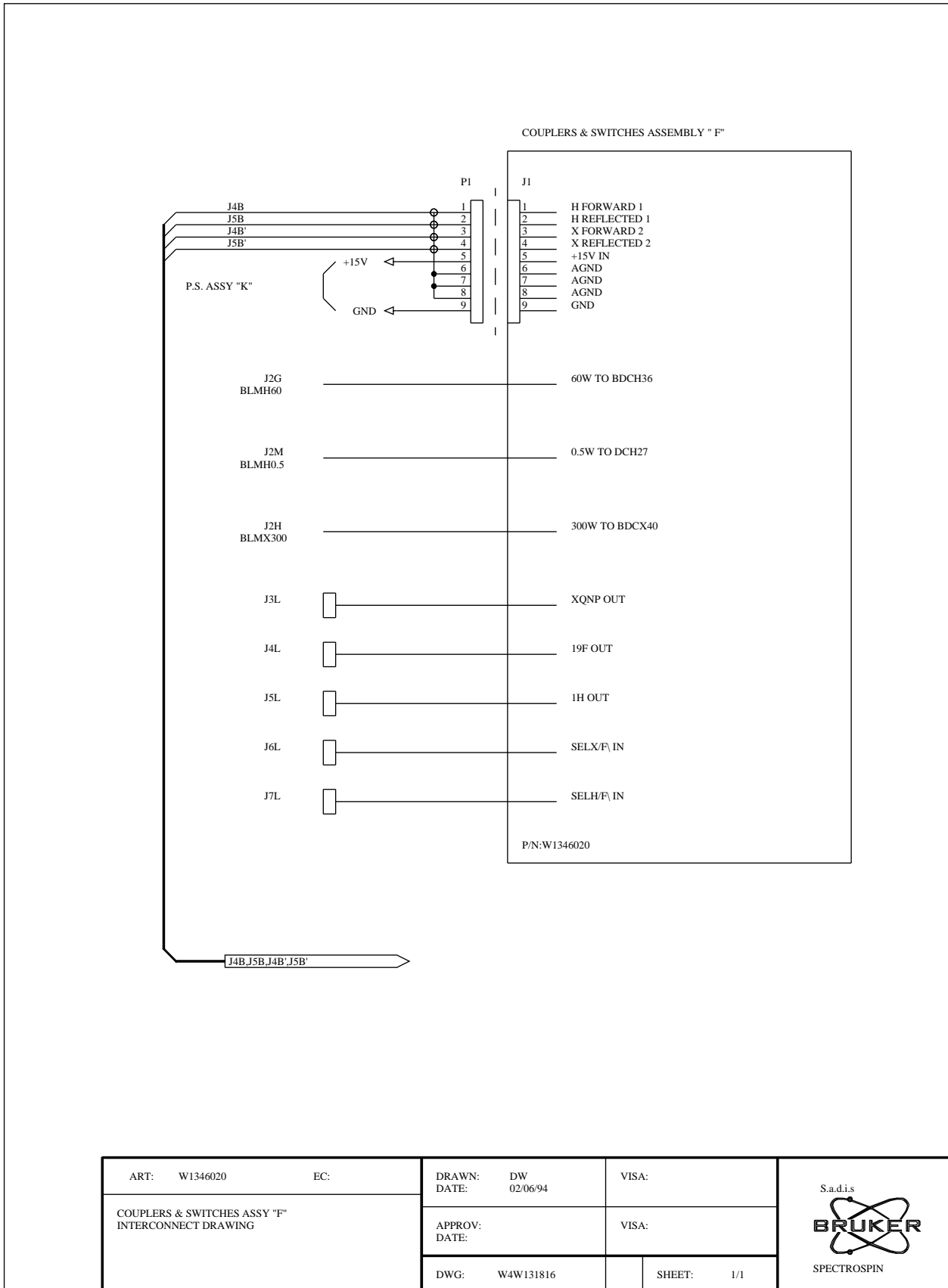


Figure 8.2. Couplers and switches block diagram

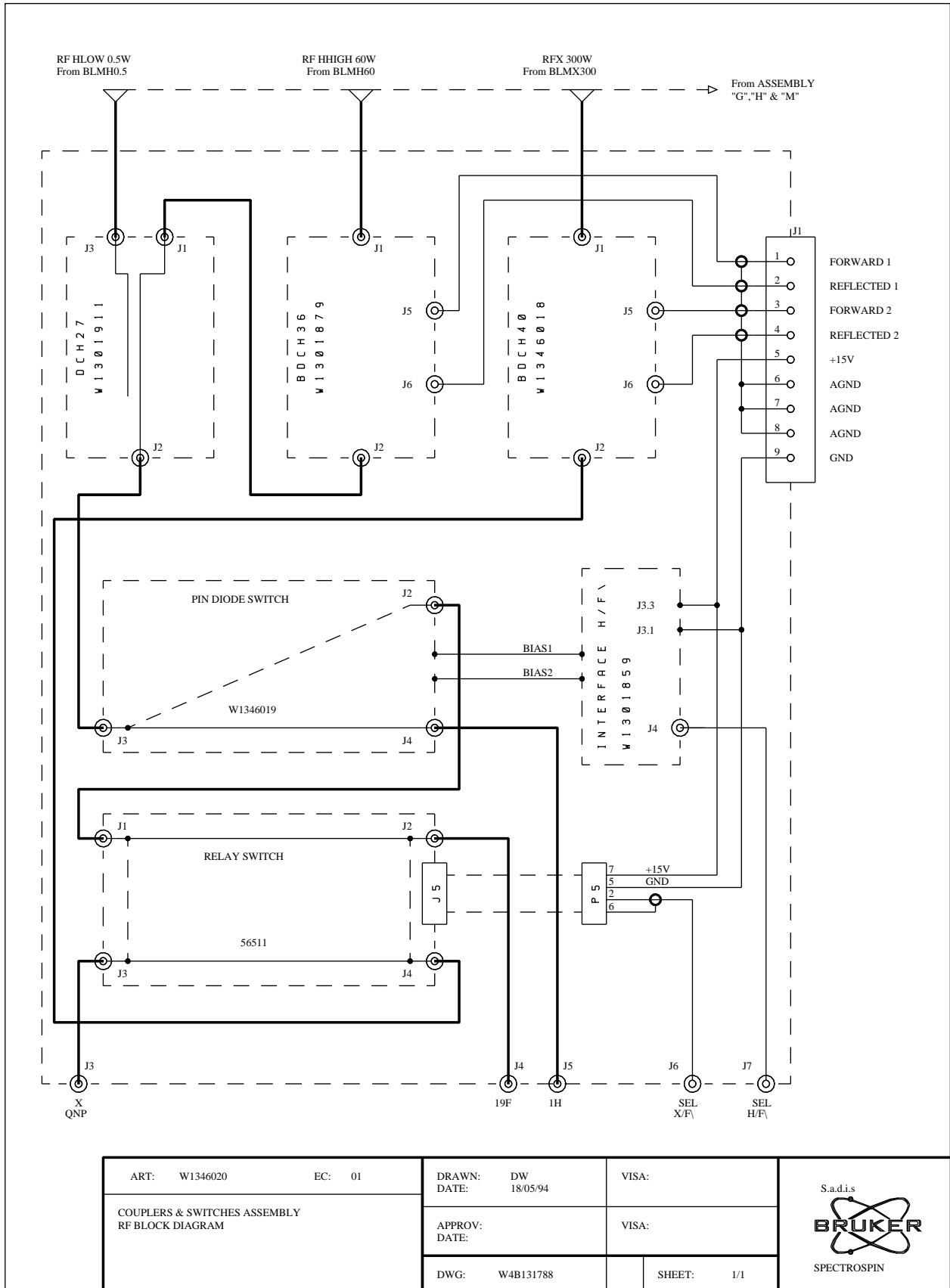
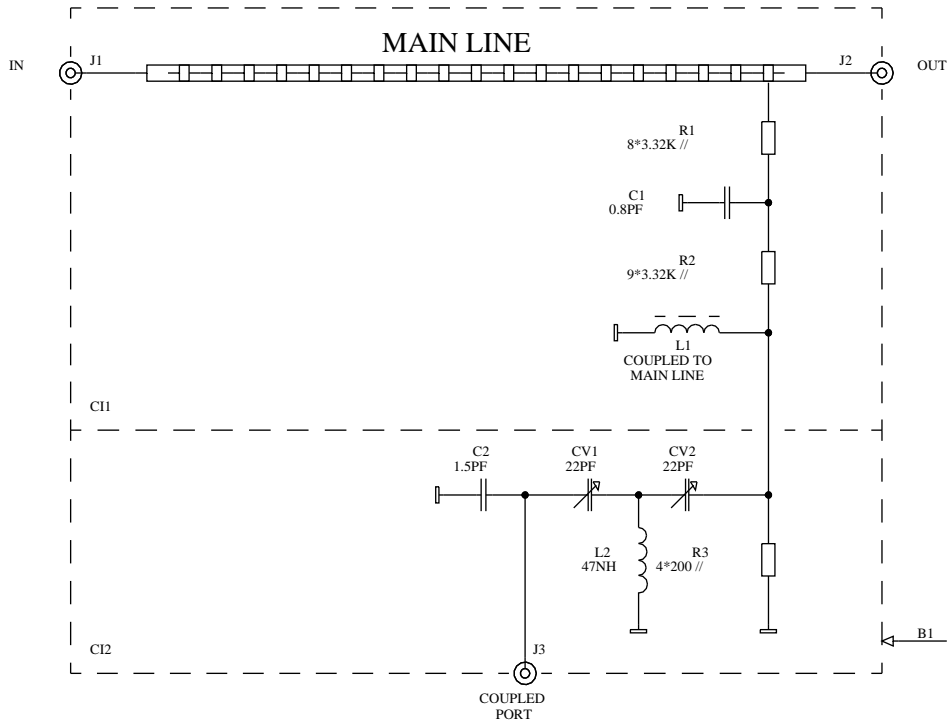


Figure 8.3. DCH27 directionnal coupler




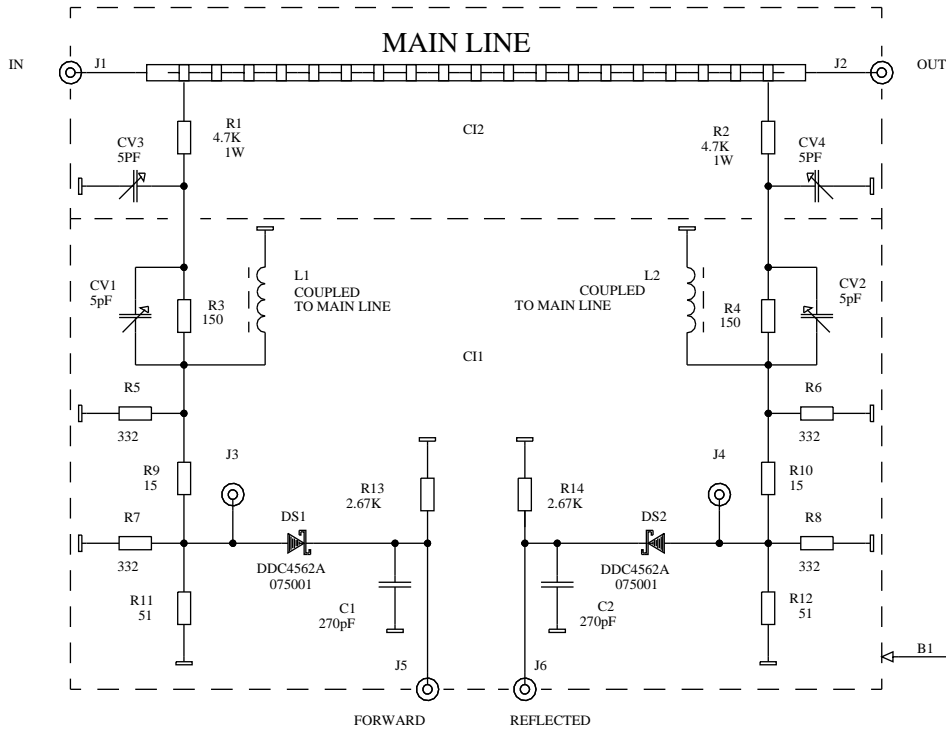
ART: W1301911	EC: 02	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
DCH27 DIRECTIONNAL COUPLER		DATE: 11/10/93	VISA:	
(SMA.C-SMA)		APPROV: CO	VISA:	
		DATE: 01/06/94	A	SHEET: 1/1
		DWG: W4S131439		

Figure 8.4. BDCH36 bidirectionnal coupler




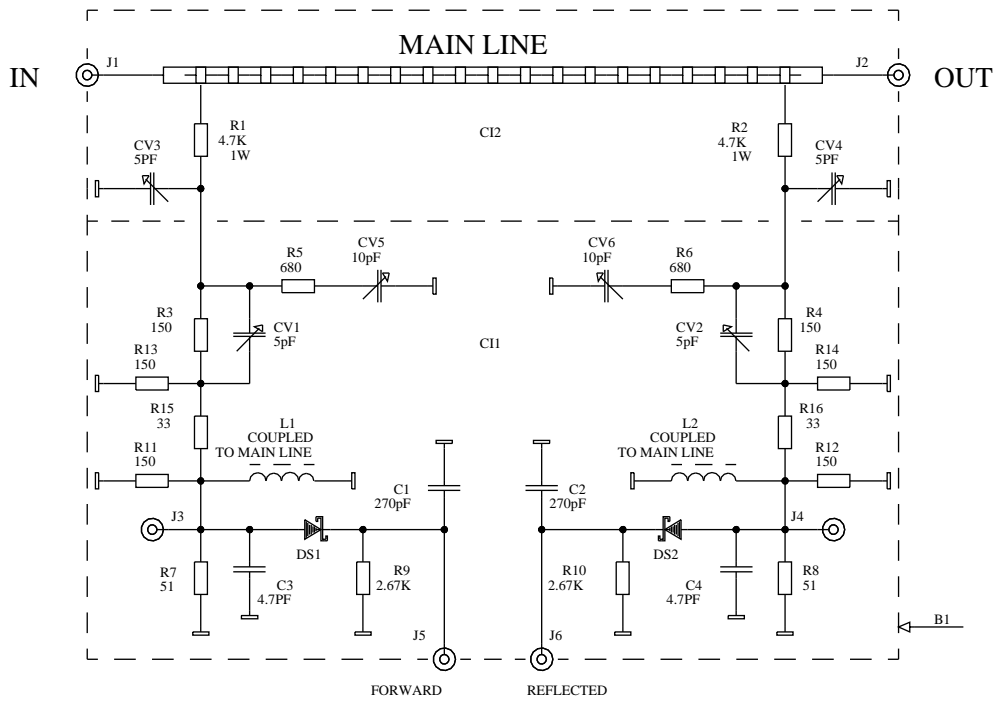
ART: W1301879	EC: 01	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
BDCH36 BI-DIRECTIONNAL COUPLER		DATE: 07/06/93	VISA:	
(SMB-SMA)		APPROV: DATE:	VISA:	
		DWG: W4S131444	SHEET: 1/1	

Figure 8.5. BDCX40 bidirectionnal coupler




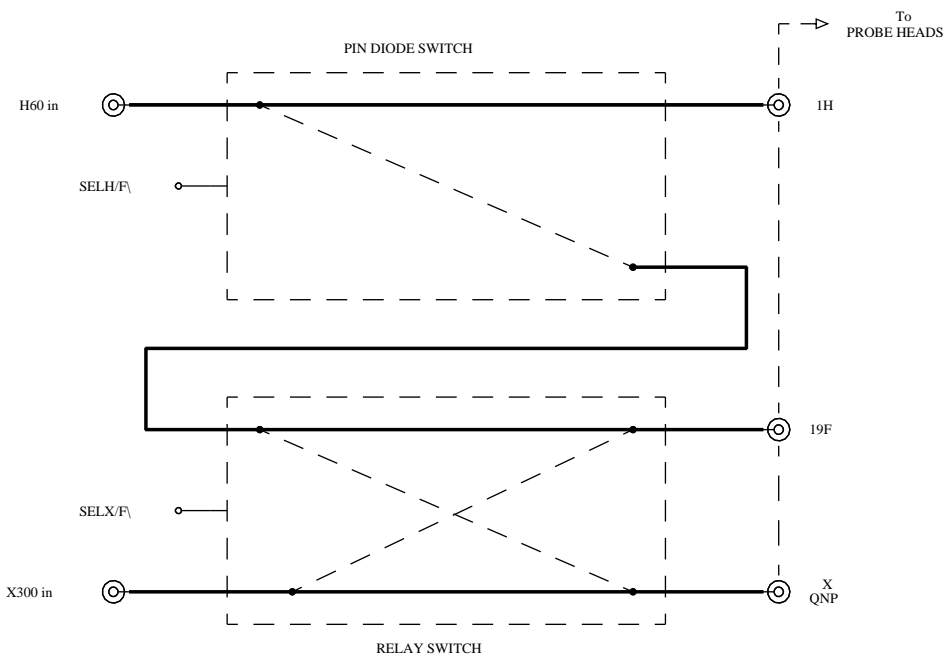
ART: W1346018	EC: 01	DRAWN: DW	VISA:	S.a.d.i.s  SPECTROSPIN
BDCX40 BI-DIRECTIONNALL COUPLER		DATE: 20/03/95	VISA:	
(SMB-SMA)		APPROV: CO	VISA:	
		DATE: 20/03/95	A	SHEET: 1/1
		DWG: W4S131716		

Figure 8.6. Output switch for DMX 500-600

TRUTH TABLE

CASE#	CONTROL SIGNALS		SELECTED OUTPUT POWER		
	SELH/F\	SELX/F\	XQNP	19F	1H
0	0	0	F50	X300	
1	0	1	X300	F50	
2	1	0		X300	H50
3	1	1	X300		H50




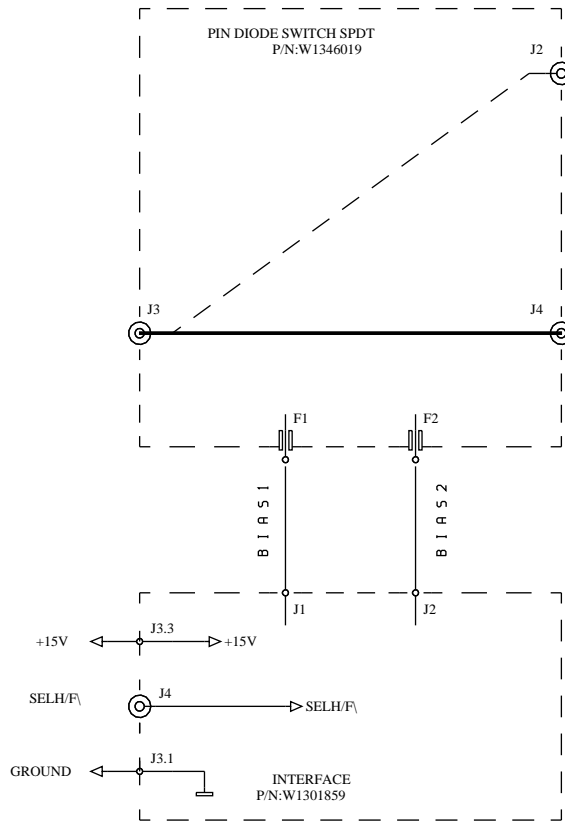
ART:	EC:	DRAWN: DW DATE: 02/06/94	VISA:	S.a.d.i.s  SPECTROSPIN
FONCTIONNAL BLOC DIAGRAM OUTPUT SWITCH FOR DRX 500-600 SYSTEM		APPROV:	VISA:	
		DATE:		
		DWG: W4B131817	SHEET: 1/1	

Figure 8.7. Pin diode switch SPDT

TRUTH TABLE

SELH/F\	BIAS1	BIAS2	RF CONTINUITY
0	0V	50mA	J3 \longleftrightarrow J2
1	50mA	0V	J3 \longleftrightarrow J4



ART: W1301931	EC: 02	DRAWN: DW	VISA:	S.a.d.i.s SPECTROSPIN
PIN DIODE SWITCH SPDT BLOCK DIAGRAM		DATE: 09/10/95	VISA:	
		APPROV: CO	VISA:	
		DATE: 10/10/95	A	SHEET: 1/1
		DWG: W4B131792		

Figure 8.8. Pin diode switch SPDT

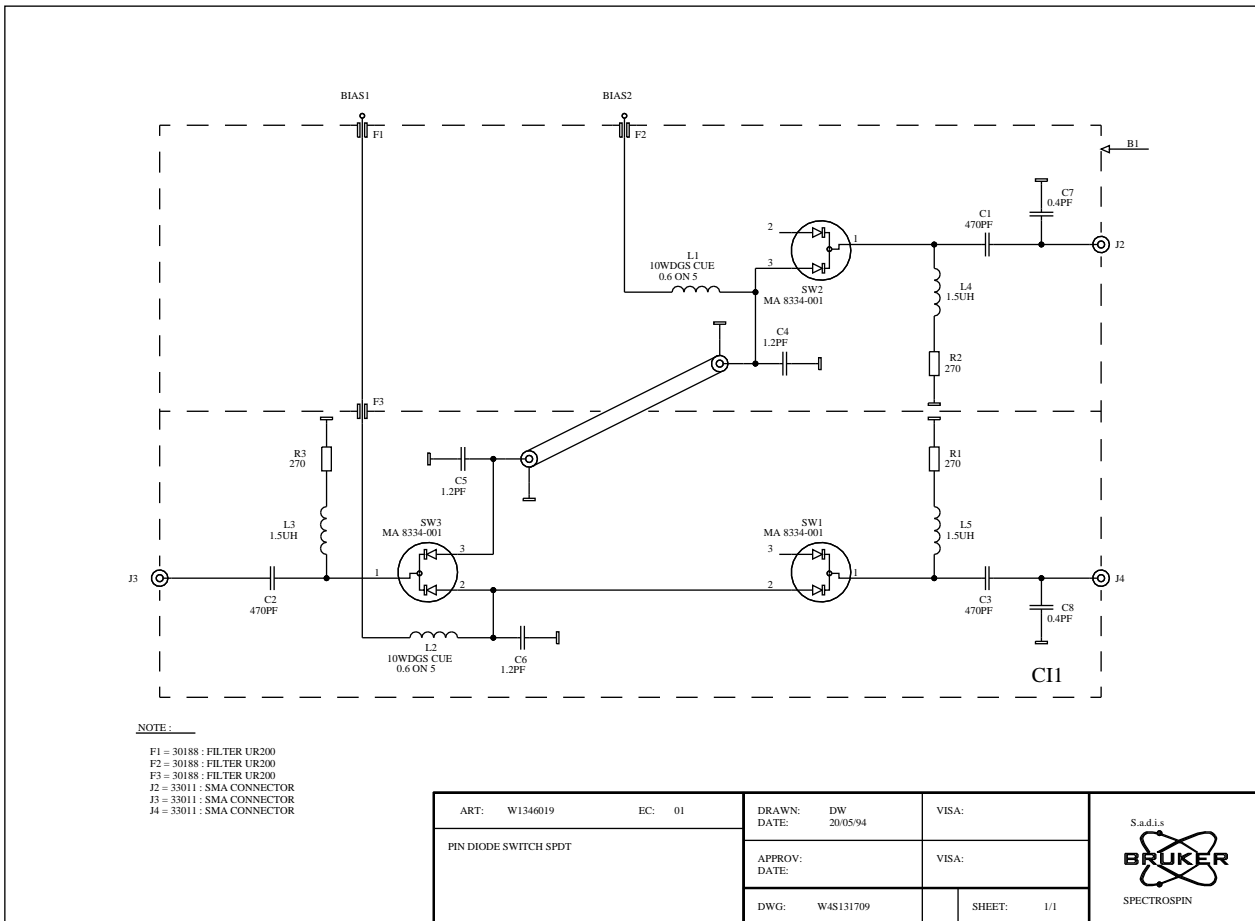
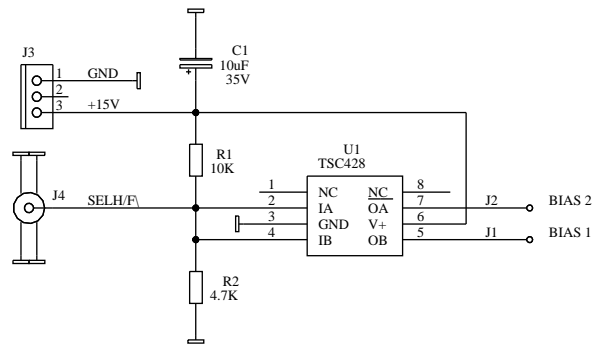


Figure 8.9. Interface switch H/F




ART: W1301859	EC: 01	DRAWN: DW DATE: 22/04/93	VISA:	S.a.d.i.s  SPECTROSPIN
INTERFACE SWITCH H/F\		APPROV: CO DATE: 01/06/94	VISA:	
		DWG: W4S131401	SHEET: 1/1	

Figure 8.10. Interface switch layout

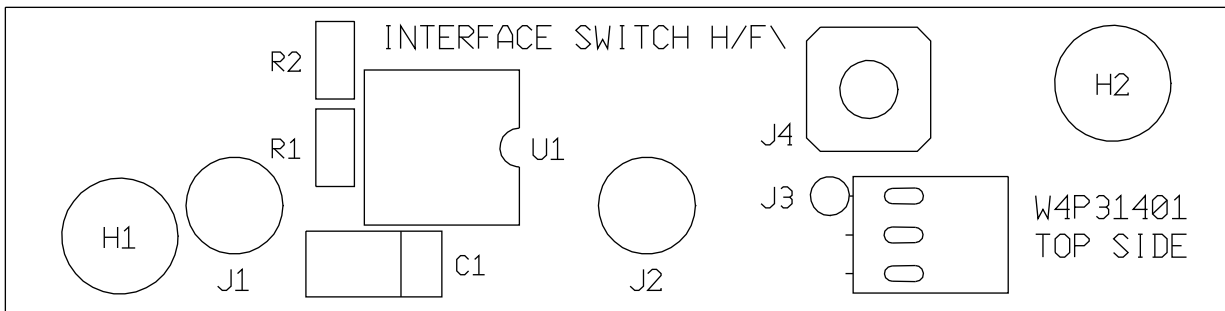
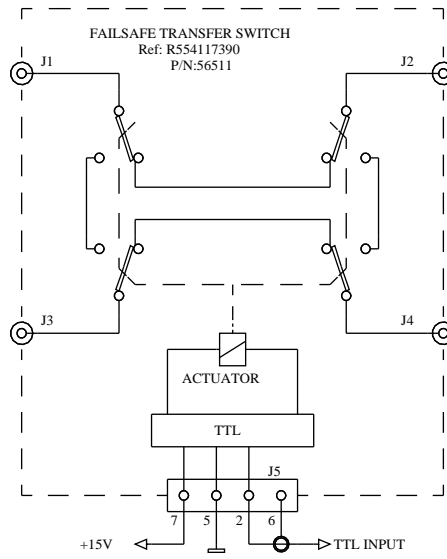



Figure 8.11. Relay transfer switch

TRUTH TABLE

SELX/F ₁	ACTUATOR	RF CONTINUITY
0	ENERGIZED	J1 ↔ J3 ; J2 ↔ J4
1	DE-ENERGIZED	J1 ↔ J2 ; J3 ↔ J4



ART:	EC:	DRAWN: DW DATE: 25/03/94	VISA:	S.a.d.i.s  SPECTROSPIN
BLOCK DIAGRAM RELAY TRANSFER SWITCH		APPROV: DATE:	VISA:	
		DWG: W4B131457	A SHEET: 1/1	

SBS controller

Figure 9.1. Wiring diagram

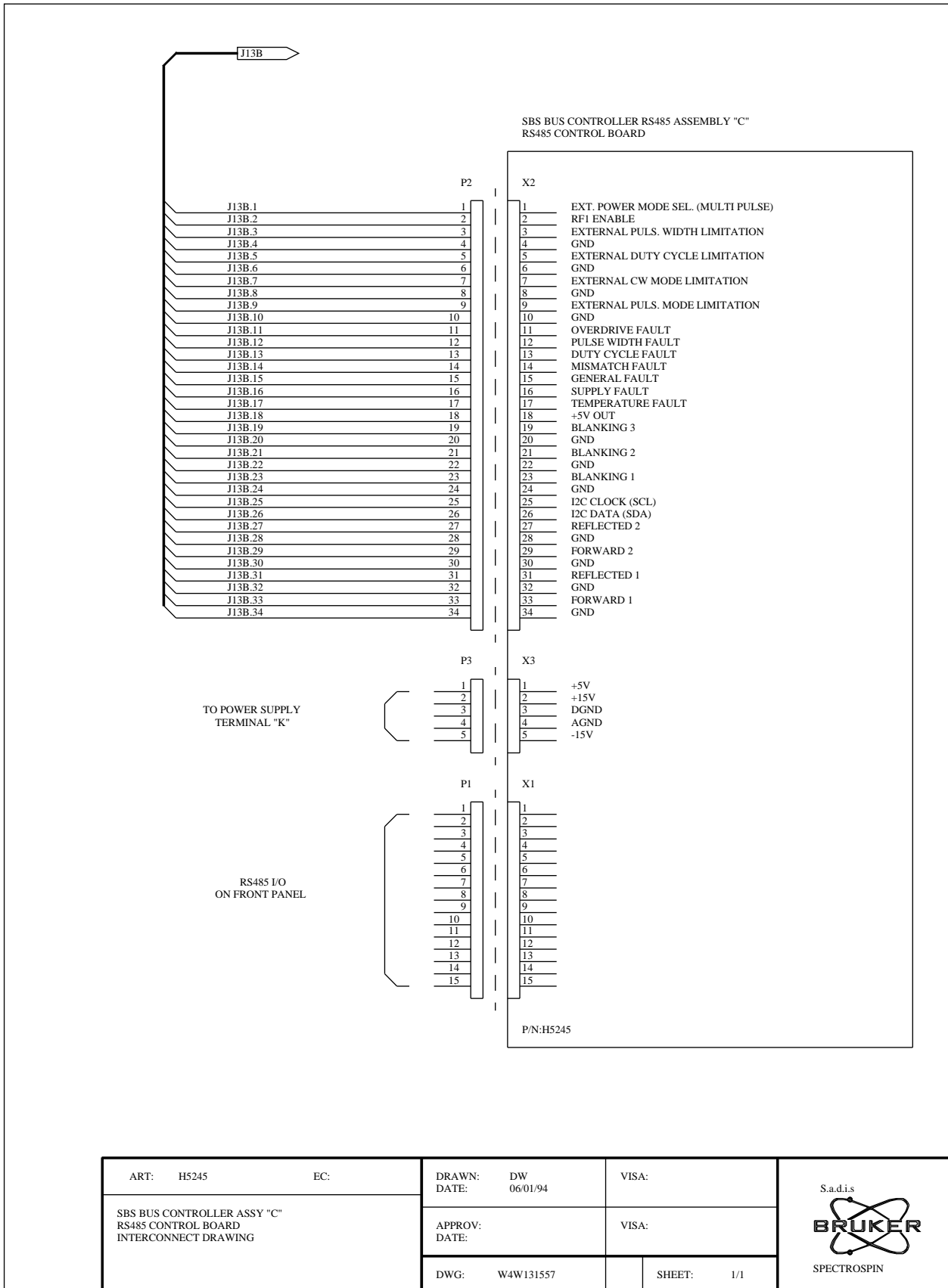
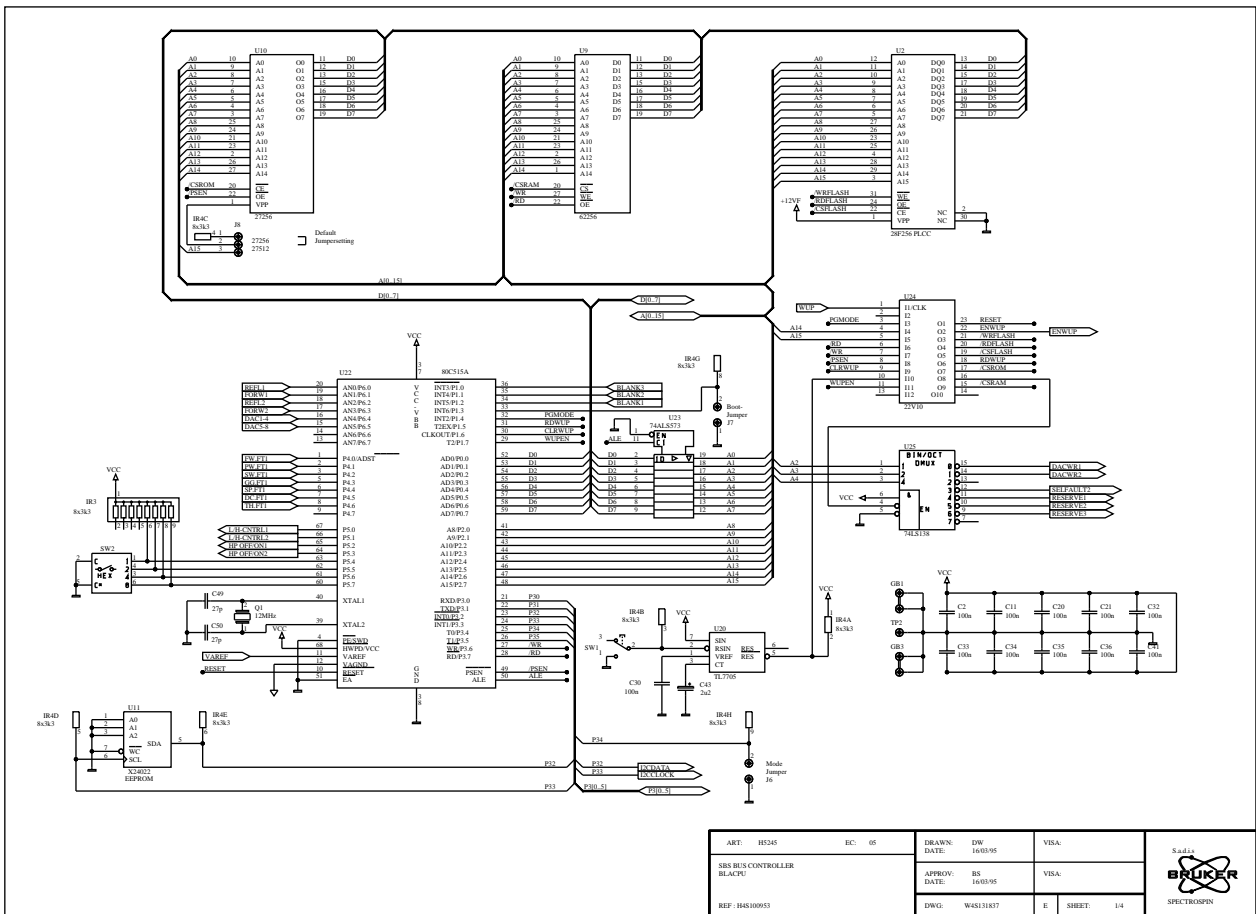
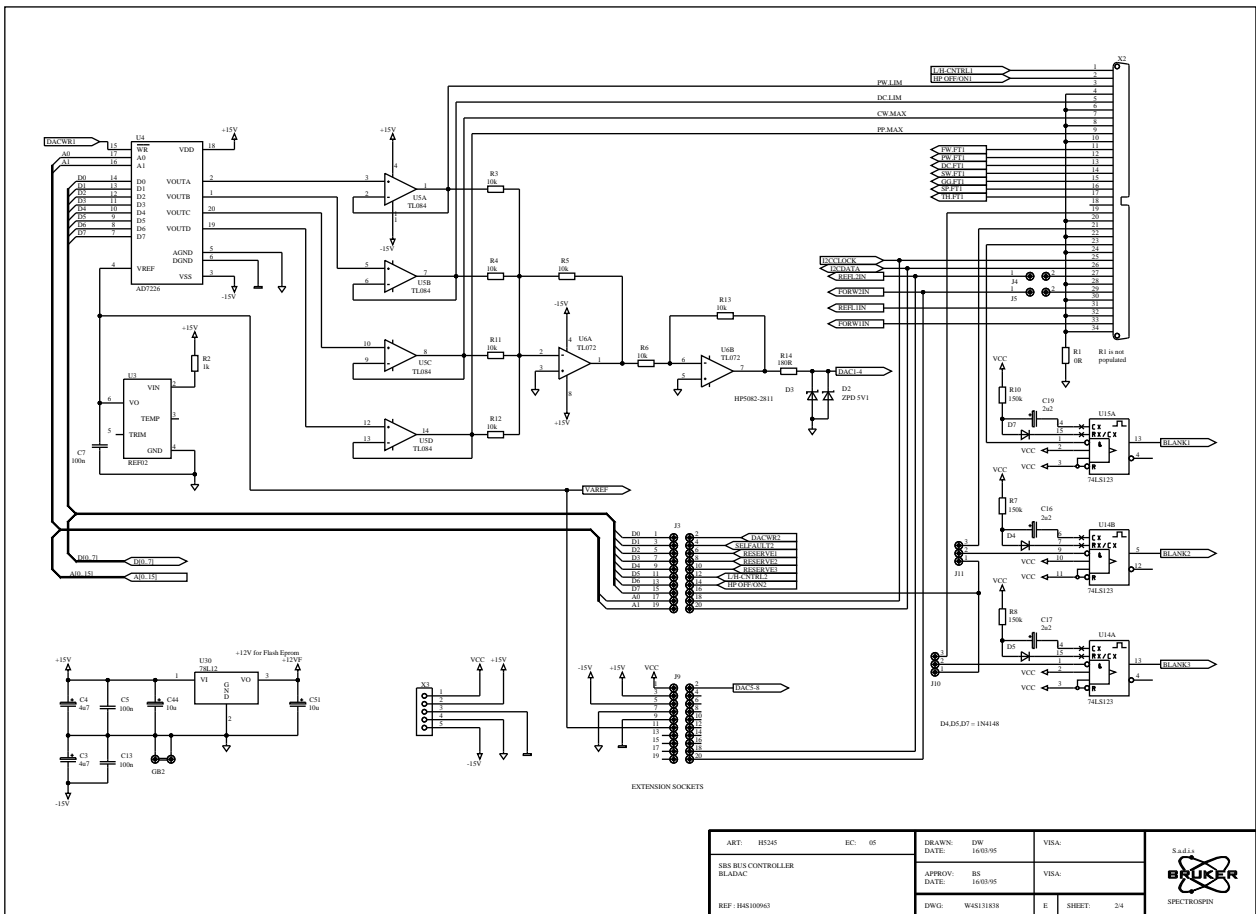


Figure 9.2. CPU board



ART: H3245	EC: 05	DRAWN: DW 16/03/95	VISA:	 SADIS SPECTROSPIN
SBS BUS CONTROLLER BLACPU		APPROV: BS 16/03/95	VISA:	
REF: H4810053		DWG: W4811K17	E. SHEET 1/4	

Figure 9.3. Sbs controller dac



ART: H3245	EC: 05	DRAWN: DW	16/03/95	VISA:	
SBS BUS CONTROLLER BLADAC		APPROV: BS	16/03/95	VISA:	
REF: H4810063		DWG: W4813183		E. SHEET: 2/4	

Figure 9.4. Sbs controller driver rs485

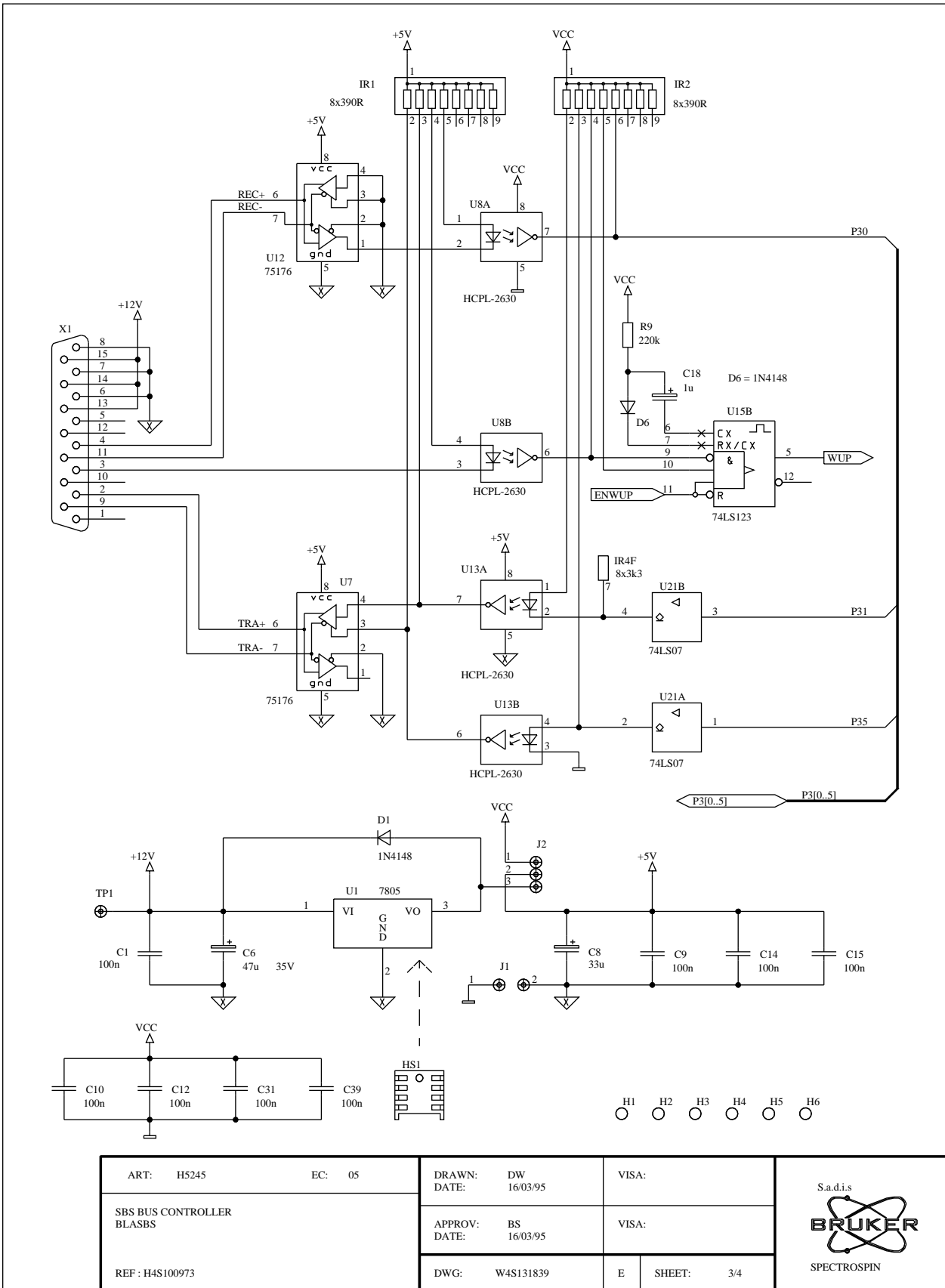
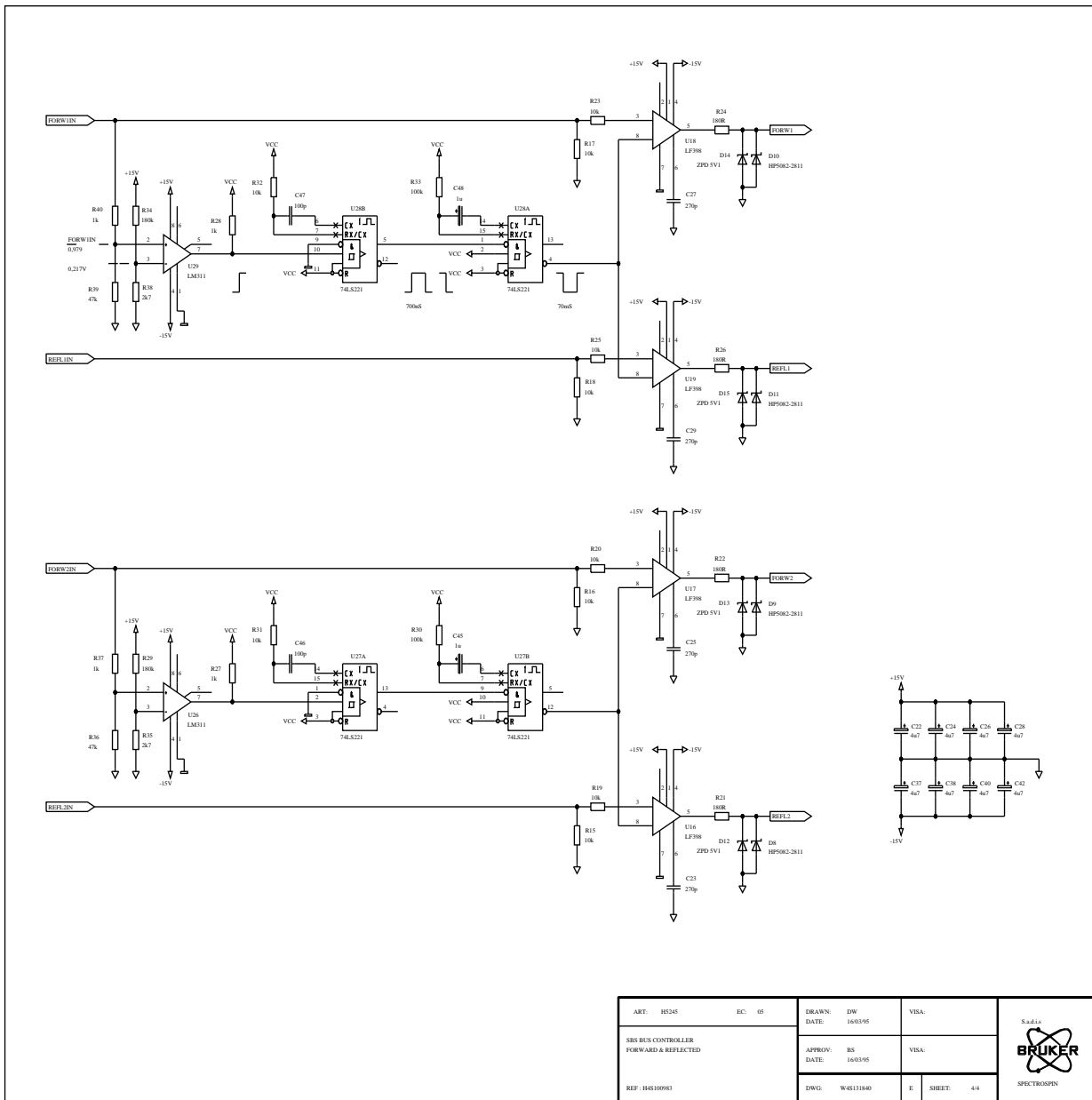


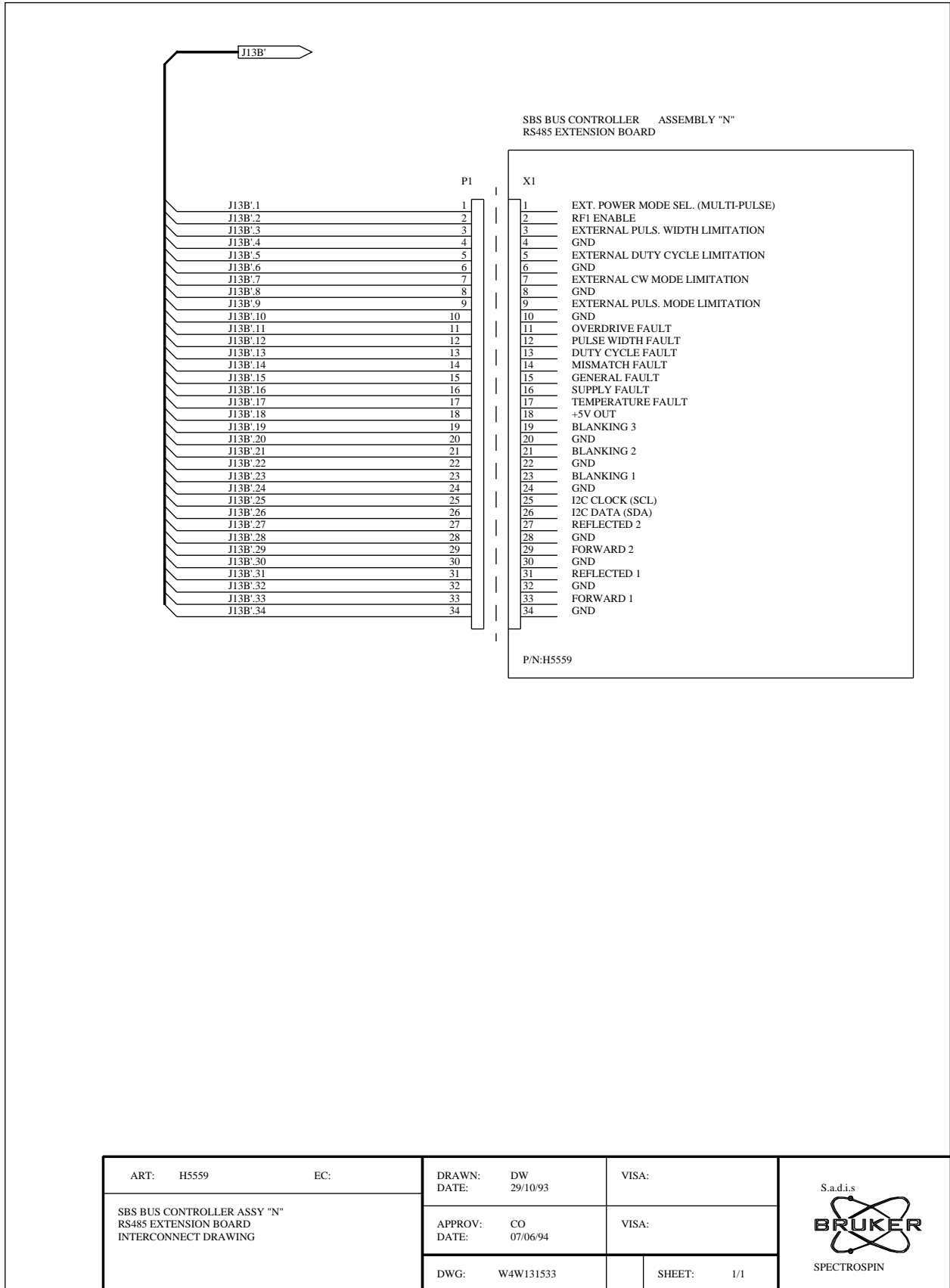
Figure 9.5. Sbs controller sample/hold



ART: H2545	EC: 05	DRAWN: DW	DATE: 16/03/95	VISA:
SBS BUS CONTROLLER FORWARD & REFLECTED		APPROV: BE	DATE: 16/03/95	VISA:
REF: H45100983		DWG: W45131840	E	SHEET: 4/4



Figure 9.6. RS485 extension board

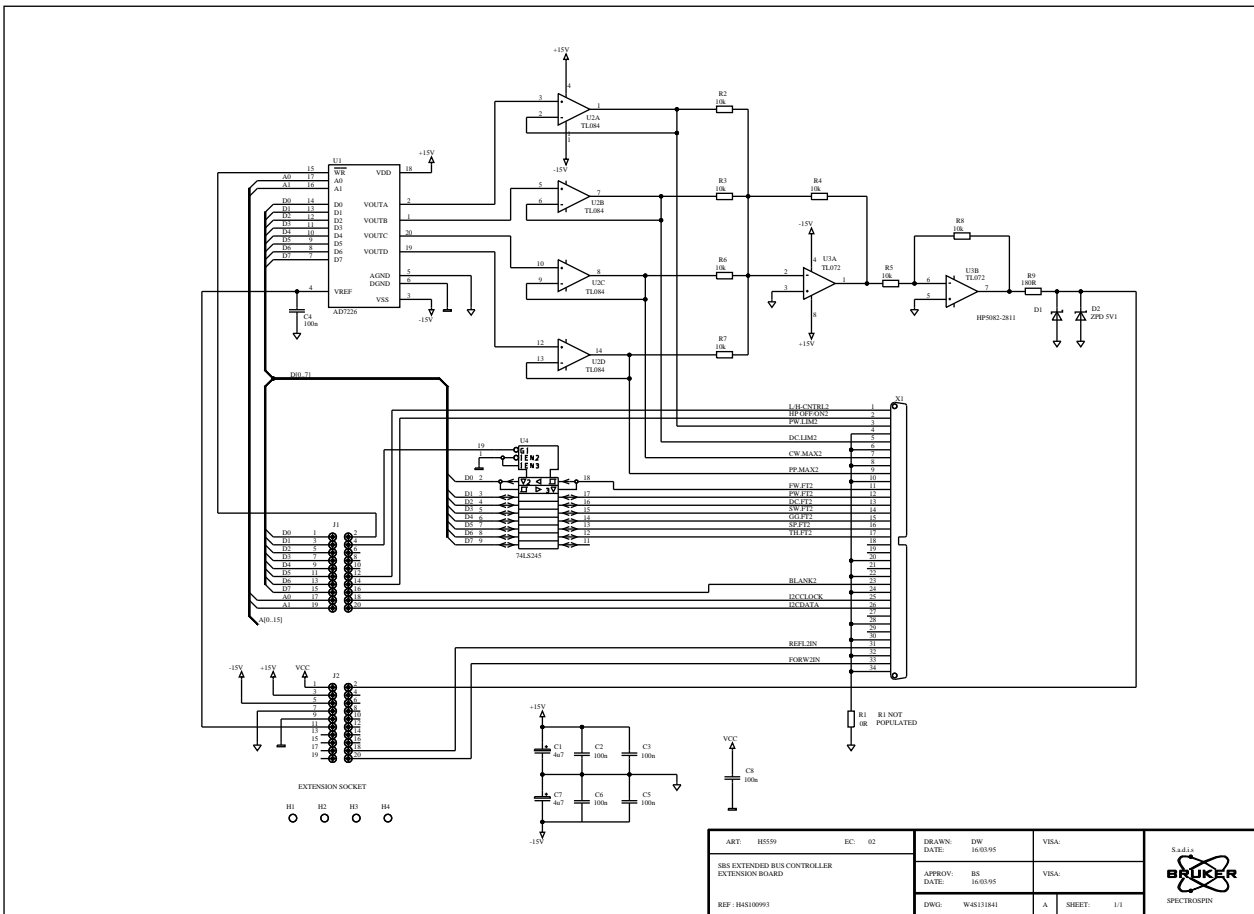


ART: H5559	EC:	DRAWN: DW	VISA:
SBS BUS CONTROLLER ASSY "N" RS485 EXTENSION BOARD INTERCONNECT DRAWING		DATE: 29/10/93	
		APPROV: CO	VISA:
		DATE: 07/06/94	
		DWG: W4W131533	SHEET: 1/1

S.a.d.i.s

BRUKER
SPECTROSPIN

Figure 9.7. Extended bus controller



Figures

Contents	1
Block diagram	3
Block diagram.....	4
Power supply	5
Wiring diagram	6
Power supply diagram.....	7
Power supply terminal	8
Power supply terminal	9
Control board 2	11
Interconnect drawing sheet 1/3	12
Interconnect drawing sheet 2/3	13
Interconnect drawing sheet 3/3	14
Control board top side	15
Control board bottom side	16
Control board 1/7 - power supply & reference	17
Control board 2/7 - Thermal sense, supply & fan control	18
Control board 3/7 - Forward & reflected	19
Control board 4/7 - Duty cycle & pulse width limiter	20
Control board 5/7 - Power limitation	21
Control board 6/7 - Blanking circuit.....	22
Control board 7/7 - Interconnection & pal.....	23
Pal interconnection.....	24
Wiring diagram	25
Wiring diagram	26
Wiring diagram	27
Status board	29
Interconnect drawing	30
Status led board	31
Status led board - location	32
Fan assembly	33
Interconnect drawing	34
Fan assembly	35
BLMH0.5/50	37

BLMH0.5 assembly "M"	38
BLMH0.5 amplifier 180-640 Mhz.....	39
BLMH60 assembly	40
BLMH60 block diagram	41
LABH60 amplifier 500-600 Mhz	42
Interconnecting board	43
BLMX001 assemblyf.....	44
BLMX001 RF block diagram	45
BLMX001 amplifier 6-304Mhz.....	46
<i>BLMX100 amplifier module</i>	47
BLMX300 Wiring diagram.....	48
BLMX300 RF block diagram	49
LABX300 amplifier 6-241 Mhz	50
Non inverted blanking.....	51
Blanking layout.....	52
Interconnecting board	53
<i>Couplers, switches</i>	55
Couplers and switches assembly block diagram.....	56
Couplers and switches block diagram	57
DCH27 directionnal coupler.....	58
BDCH36 bidirectionnal coupler.....	59
BDCX40 bidirectionnal coupler	60
Output switch for DMX 500-600	61
Pin diode switch SPDT	62
Pin diode switch SPDT	63
Interface switch H/F	64
Interface switch layout.....	65
Relay transfer switch	66
<i>SBS controller</i>	67
Wiring diagram.....	68
CPU board	69
Sbs controller dac	70
Sbs controller driver rs485	71
Sbs controller sample/hold	72
RS485 extension board	73
Extended bus controller.....	74
<i>Figures</i>	75

