

**AQR/P Mainframe-**

**Manual**

**Version 004**

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Fällanden, Switzerland**

**Modified for BASH 2.0 by U. Roos - December 1996**

**P/N:           Z31201  
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# AQR/P-General Description 1

Goto

## Introduction

1.1

This manual describes the mainframe of the AQR/P (**A**cquisition **R**ack).

The following hardware is necessary:

1. One chassis wired (toroidal transformer, fan).
2. One **Power-Supply-Board** (PSB4).
3. One **Power-Supply-Board** (PSB5).
4. One **Power-Supply-Distribution** (PSD2).
5. One User-Bus.

## Basic of Operation

1.2

***Current surge:*** Toroidal transformers show a considerably higher switching-on current surge than conventional EJ transformers. The value of the current is dependent on the instant of switching-ON as well as on the instant of switching-OFF (due to remanent magnetism). The surge current is limited with a NTC-Resistor (negative temperature coefficient resistor). This works only if the NTC is cooled down before switching on. Should this not be the case the primary fuse will be damaged.

Therefore: Avoid repeatedly switching the unit ON / OFF.

## Troubleshooting

1.3

Almost all supply voltages can be checked via the corresponding LED's on the backside of the AQR/P unit. For detail information see Power-Supply-Board on page 14).

The main fuses are in the line module located. Technical data see on page 8.



The AQR/P is a special rack with 6 slots on the front side and 2 slots on the backside. All boards except the User-Bus are extended Eurocard-Boards. A complete equipped AQR/P holds from the front side 6 boards (4 \* 7TE, 1 \* 4TE, 1 \* 5TE). The backside houses the power supply which includes 2 power supply boards (2 \* 12TE) and the transformer. Between the front side and the backside is a User-Bus.

Figure 1: Front View of a complete equipped AQR/P

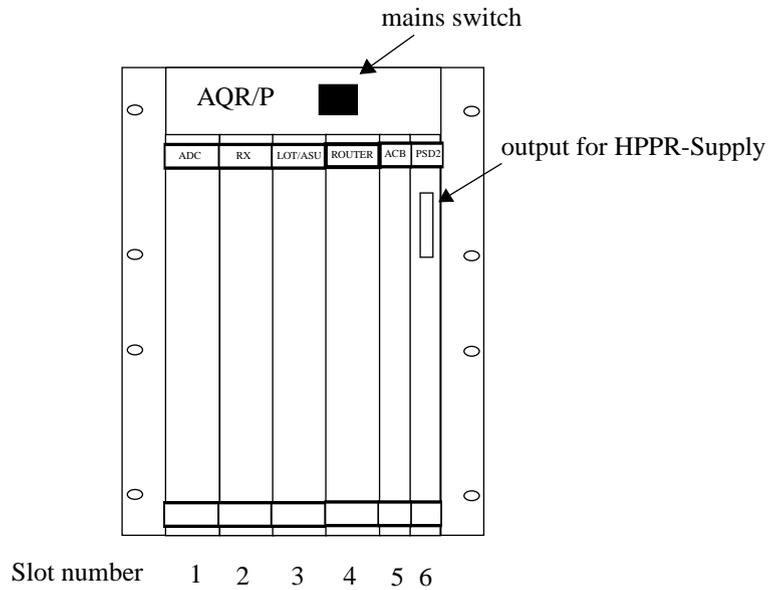
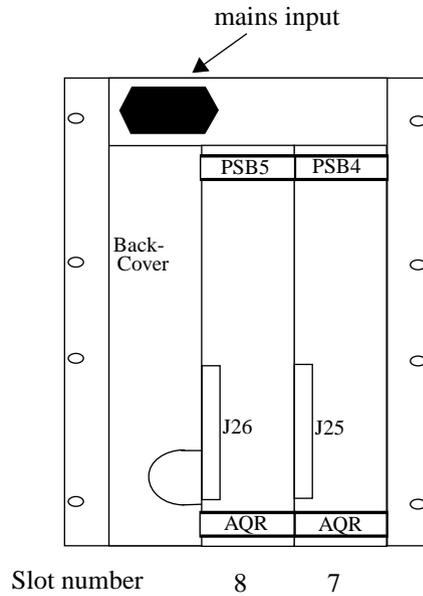


Figure 2: Back view of the AQR/P

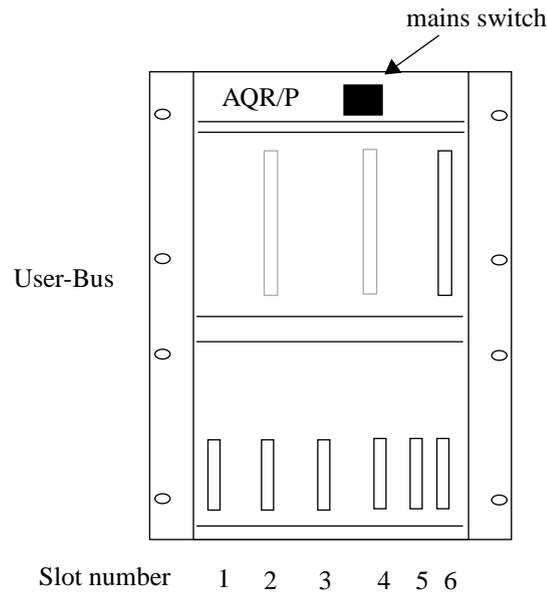


The back view shows the power supply unit, housing of the power supply boards PSB4 and PSB5. Behind the back-cover is the transformer located. For more information about the power supply see Chapter 3.

## User-Bus

## 2.2

Figure 3: User-Bus in the AQR/P (Front view)



The User-Bus is designed to route all specific signals and power supplies to the specific boards. It contains the frame ground point of the AQR/P. About the ground concept see page 13.

The I2C-bus is split in two parts see Overview Control Signals page 12. Part one includes: Slot 1 / 2. Part two includes: Slot 3 / 4 / 5 / 6. Every slot has his unique I2C address range see table 1. See also scheme User-Bus page 48 - 54.

**Table 1. I2C Address configuration**

Slot	1	2	3	4	5	6
Address range	70 - 7F	60 - 6F	50 - 5F	40 - 4F	30 - 3F	20 - 2F

**Table 2. Technical Data of the AQR/P Chassis:**

AQR/P Chassis				
General	Height (7TE)	310,3	mm	Only the chassis without any boards or connectors in it.
	Width	244	mm	
	Depth	482	mm	
	Weight	22	kg	Including: Chassis wired (fan, transformer, PSB4, PSB5, 1*PSD2 User-Bus), 1*ADC, 1*RX, 1*LOT/ASU, 1*ROUTER, 1*ACB
Boards except User-Bus	Height	233,4	mm	
	Length	220	mm	
User-Bus	Height	263	mm	
	Width	183	mm	

**Table 3. Technical Data of the Line Module:**

Line Module			
Main Fuse	2	A	time lag
Power	250	V	50 / 60Hz

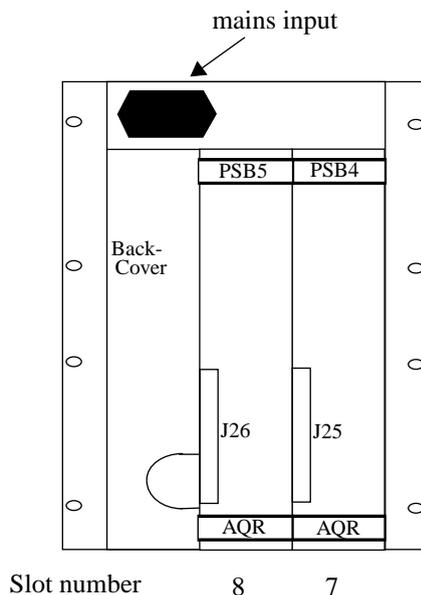
The Power-Supply of the AQR/P is located at the rear of the AQR/P Chassis. This consists essentially of two Power-Supply-Boards PSB4 and PSB5. The Power-Supply-Distribution (PSD2) is also a part of the power supply. It is located on the front side. The transformer is fixed behind the back-cover in a separate box. Wiring has been reduced to a minimum.

The mains supply may be selected as 220VAC, 230VAC, 240VAC and is supplied via the mains selector (see page 10).

The power supply unit generates 14 electrically separated voltages for the various boards or units. The voltage distribution isn't done by a wiretree, it's done on the layout of the User-Bus.

Ground concept: see page 13.

Figure 4: Back view of the AQR/P

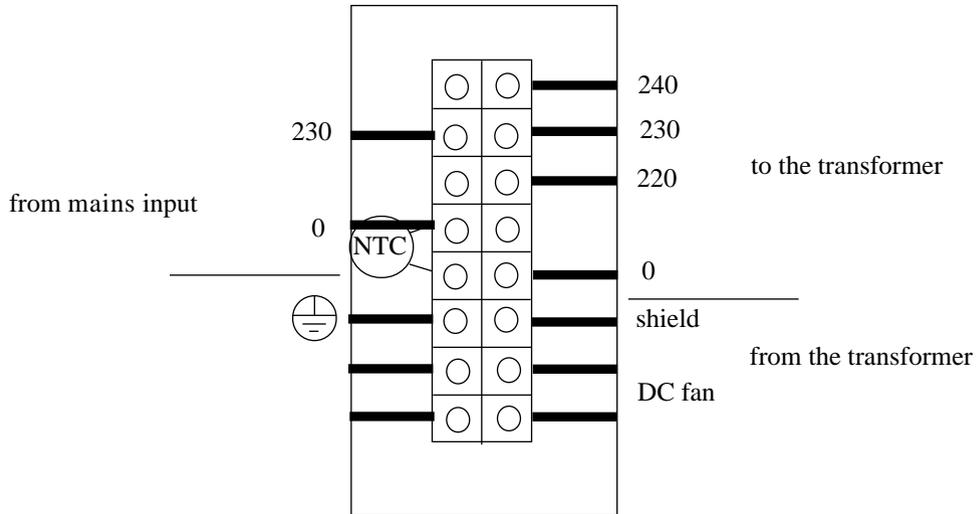


**Important: Before you turn ON the Power-Switch check the mains selector**

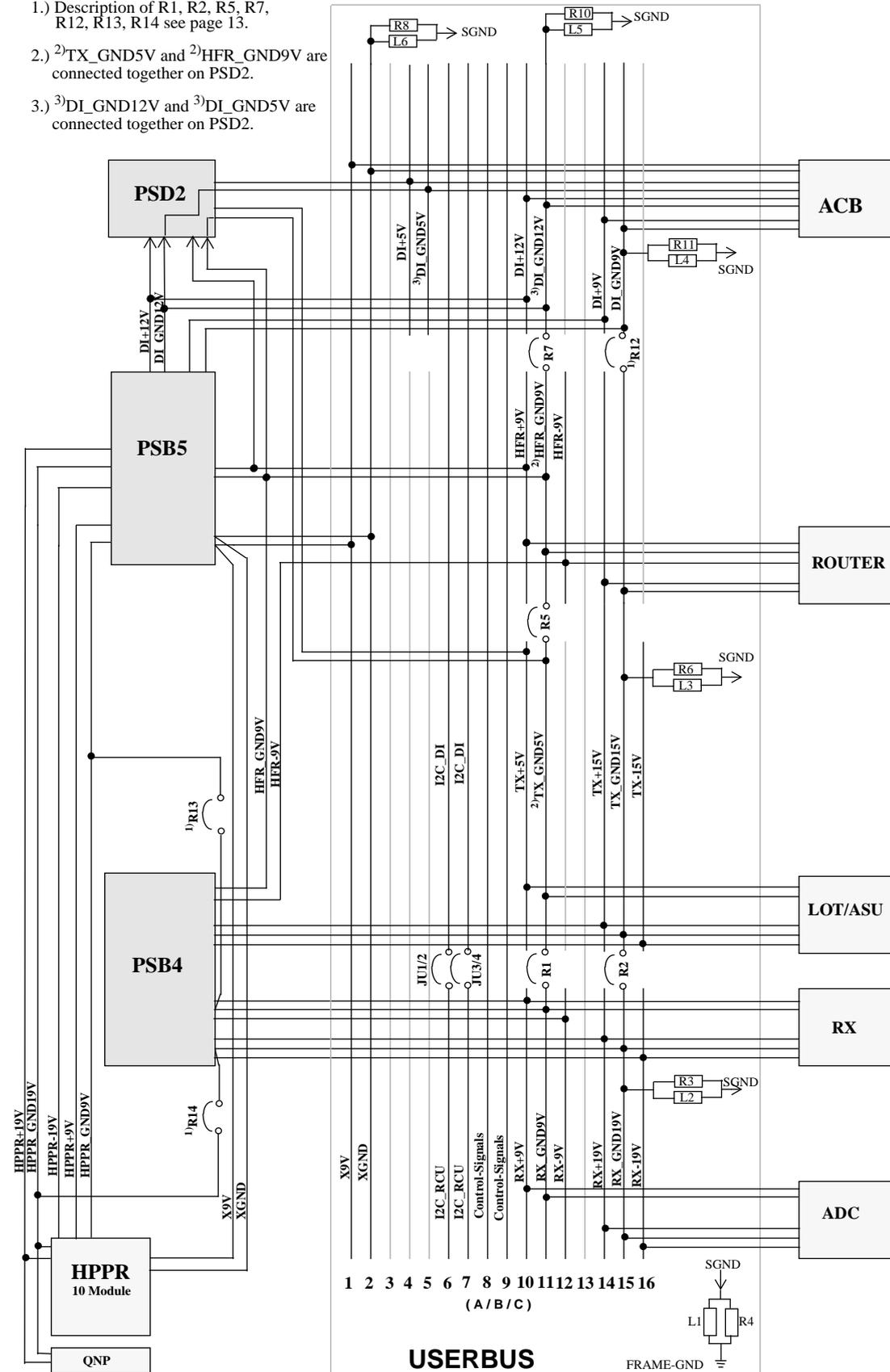
Remove the Back-Cover (4 screws) and you will see the mains selector (see also figure 5).

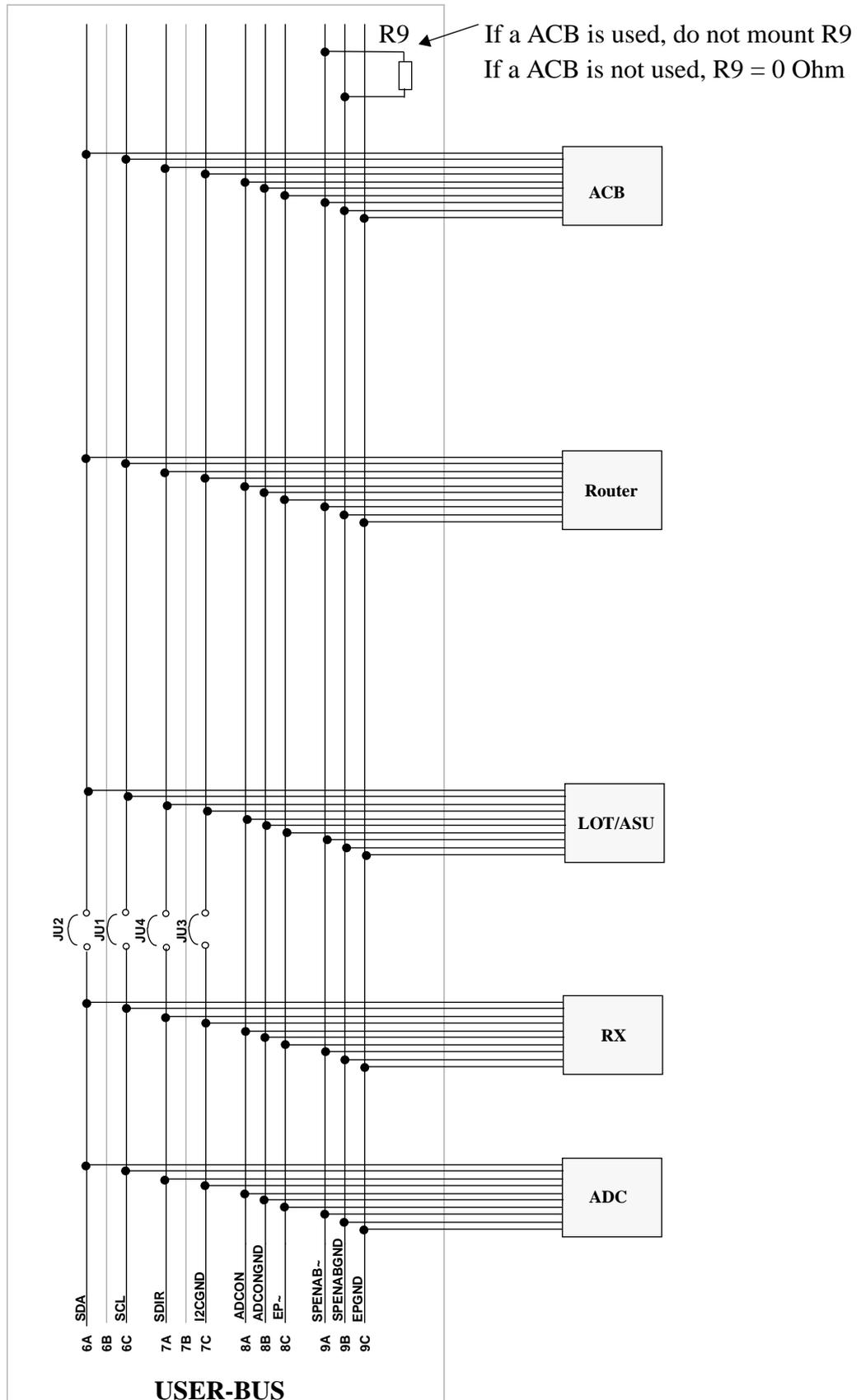
Before you turn ON the Power-Switch check the mains selector. The transformer has 4 different coil ends on the primary side 0V / 220V / 230V / 240V and 1 static shield end. You must be sure that the mains input is connected on the right primary coil end.

Figure 5: The mains selector



- 1.) Description of R1, R2, R5, R7, R12, R13, R14 see page 13.
- 2.) <sup>2)</sup>TX\_GND5V and <sup>2)</sup>HFR\_GND9V are connected together on PSD2.
- 3.) <sup>3)</sup>DI\_GND12V and <sup>3)</sup>DI\_GND5V are connected together on PSD2.

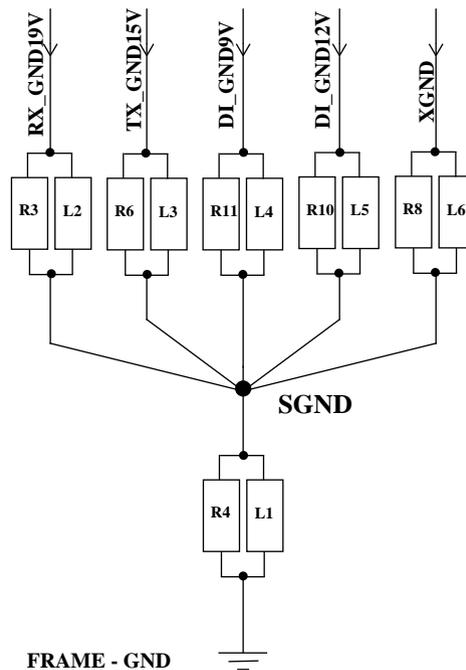




Every unit (ADC, RX / LOT-ASU / ROUTER / ACB) has its own power supply. The voltage distribution isn't done by a wiretree, it's done on a User-Bus. IF a board (for example ADC, RX etc.) needs digital and analog voltages so it will be the best way to connect the digital- and analog ground together on the board.

**Option:** There is a possibility on the User-Bus that you can connect every units GND to the starlike **SGND** (see Figure 6 or Overview Power-Supply-System on page 11). This connection can be done by a resistor or an inductance or just a wire. There is also a possibility to do a connection from **SGND** to the chassis via a screw by a resistor or an inductance or just a wire.

Figure 6: Starlike ground point



**NOTE: Every GND connection can be done by a resistor or an inductance or a wire (there are two shapes on the board).**

Ground-Ground-Connection

3.5.1

There is also a possibility to connect the different ANALOG- and DIGITAL - GND together. This can be done with R1, R2, R5, R7, R12, R13, R14 (0 Ohm resistors) on the User-Bus. There are no shapes for the resistors R12, R13, and R14 on the User-Bus at the first 14 units (Series Nr. 0001 - 00014).

The **Power-Supply-Board (PSB)** is realised with the board (Z3P 2966) which can be assembled in different variants. At the AQR/P we need 2 different variants of power supply boards. Scheme, assembly map and list of parts see appendix chapter 4.

The voltages can be checked via the corresponding LED's on the frontpanel of the power supply boards. Above and below every LED is a test point. **The test point above the LED is always the higher potential of the corresponding voltage.** How do check the power supply see troubleshooting page 21.

Figure 7: Frontpanel of a PSB4 and PSB5

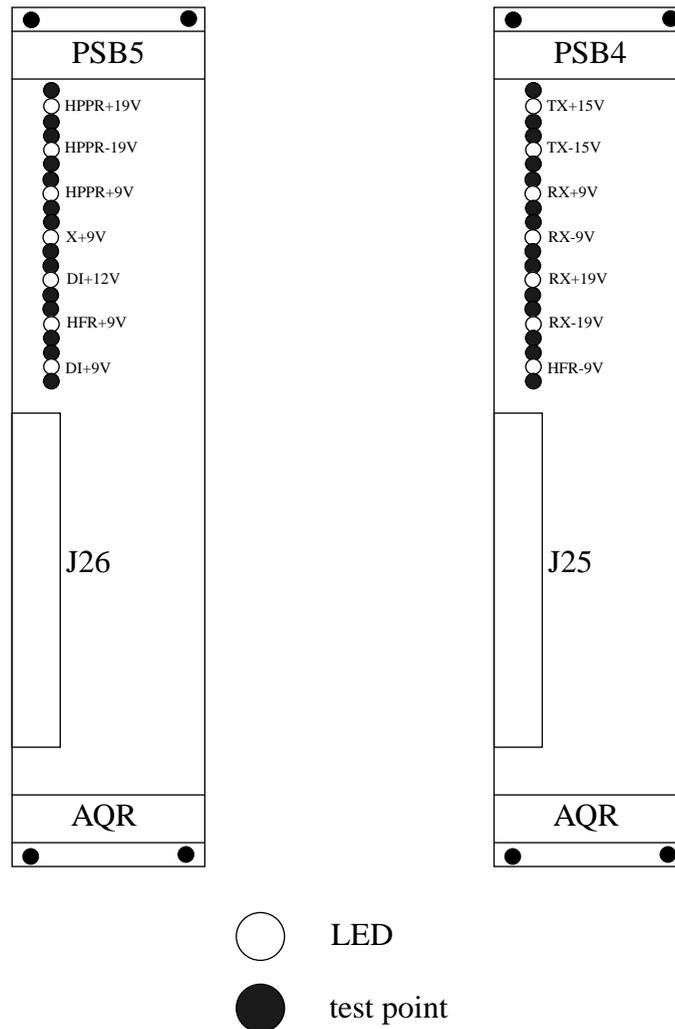


Table 4. Rated Voltages and Currents of PSB4

output J1	name	voltage	current	AC-ripple[mVpp]
1 a/b/c 2 a/b/c	TX+15V	+15V+/-0,6V	1,8A	20mV
3a/b/c 4a/b/c	TX_GND15V	GND		
6a/b/c 7a/b/c	TX_GND15V	GND		
8a/b/c 9a/b/c	TX-15V	-15V+/-0,6V	500mA	20mV
11a/b/c 12a/b/c	RX+9V	+9V+/-0,3V	<sup>1)</sup> 1A	20mV
13a/b/c 14a/b/c	RX_GND9V	GND		
16a/b/c 17a/b/c	RX_GND9V	GND		
18a/b/c 19a/b/c	RX-9V	-9V+/-0,3V	500mA	20mV
21a/b/c 22a/b/c	RX+19V	+19V+/-0,7V	<sup>1)</sup> 2A	20mV
23a/b/c 24a/b/c	RX_GND19V	GND		
25a/b/c 26a/b/c	RX_GND19V	GND		
27a/b/c 28a/b/c	RX-19V	-19V+/-0,7V	<sup>1)</sup> 800mA	20mV
29a/b/c 30a/b/c	HFR_GND9V	GND		
31a/b/c 32a/b/c	HFR-9V	-9V+/-0,3V	800mA	20mV

Note: <sup>1)</sup> These currents chanced from ECL00 to ECL01

**Table 5. Rated Voltages and Currents of PSB5**

output J1	name	voltage	current	AC-ripple[mVpp]
1 a/b/c 2 a/b/c	HPPR+19V	+19V+/-0,7V	2A	20mV
3a/b/c 4a/b/c	HPPR_GND19V	GND		
6a/b/c 7a/b/c	HPPR_GND19V	GND		
8a/b/c 9a/b/c	HPPR-19V	-19V+/-0,7V	500mA	20mV
11a/b/c 12a/b/c	HPPR+9V	+9V+/-0,3V	600mA	20mV
13a/b/c 14a/b/c	HPPR_GND9V	GND		
16a/b/c 17a/b/c	X9V	12V+/-0,6V	<sup>1)</sup> 500mA	1500mV not regulated
18a/b/c 19a/b/c	XGND	GND		
21a/b/c 22a/b/c	DI+12V	+12V+/-0,6V	1,3A	20mV
23a/b/c 24a/b/c	DI_GND12V	GND		
25a/b/c 26a/b/c	HFR+9V	+9V+/-0,3V	900mA	20mV
27a/b/c 28a/b/c	HFR_GND9V	GND		
29a/b/c 30a/b/c	DI+9V	+9V+/-0,3V	1A	20mV
31a/b/c 32a/b/c	DI_GND9V	GND		

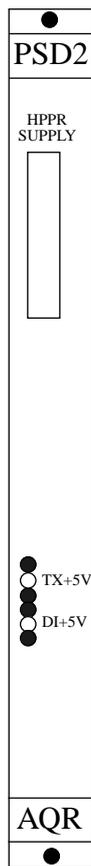
Note: <sup>1)</sup> These currents chanced from ECL00 to ECL01

The **Power-Supply-Distribution (PSD)** is realised with the board (Z4P 2974) which can be assembled in 2 different variants. The PSD2 is an adapter to get the power supplies for the HPPR (Cannon-Connector on the frontpanel). The pin assignment for this connector J3 see table 8 on page 20.

The power supplies DI+5V and TX+5V will also be generated on this board. The voltages can be checked via the corresponding LED's on the frontpanel of the PSD2. Above and below the LED's is a test point. **The test point above the LED is always the higher potential of the corresponding voltage.** How do check the power supply see troubleshooting page 21.

Scheme, assembly map and list of parts see appendix chapter 4.

Figure 8: Frontpanel of PSD2



**Table 6. Rated Voltages and Currents of PSD2**

output J2	name	voltage	input	current total for	AC-ripple [mVpp]
14 a/b/c	TX+5V	+5V+/-0,15V	HFR+9V	HFR+9V and TX+5V->0,9A	20mV
15a/b/c	TX_GND5V	GND	HFR_GND9V		
4a/b/c	DI+5V	+5V+/-0,15V	DI+12V	DI+12V and DI+5V ->1,3A	20mV
5a/b/c	DI_GND5V	GND	DI_GND12V		

J2 is the input connector (male) on the power supply board.

J25 is the transformer connector (female) which is to plug in to PSB4.

J26 is the transformer connector (female) which is to plug in to PSB5.

**Table 7. Pin assignment transformer-/ PSB-Connector**

PIN-Nr / J2	J25/J2 (PSB4) signal-name (voltage value)	J26/J2 (PSB5) signal-name (voltage value)
4	RX-19V / B	HFR+9V / B
6	HFR-9V / B	DI+9V / B
8	HFR-9V / E	
10	RX-19V / E	HFR+9V / E
12		DI+9V / E
14	RX-9V / B	X9V / B
16	RX+19V / E	DI+12V / E
18	RX-9V / E	X9V / E
20	RX+19V / B	DI+12V / B
22	RX+9V / E	HPPR+9V / E
24	TX-15V / E	HPPR-19V / E
26	RX+9V / B	HPPR+9V / B
28	TX-15V / B	HPPR-19V / B
30	TX+15V / E	HPPR+19V / E
32	TX+15V / B	HPPR+19V / B

B--> means coil-begin

E --> means coil-end

The power supply of the HPPR is also integrated in the AQR/P power supply  
 J3 is a CANNON (female) connector on the PSD2 board in the AQR/P.

**Table 8. Connector pin assignment PSD2 - -> HPPR**

PSD2 / J3	signal-name	voltage	HPPR J0
20	XGND	0V	V
8	X9V	+9V unregulated	U
21 / 9	HPPR_GND9V	0V	M
22 / 10	HPPR_P9V	+9V	N
23 / 11	HPPR_N19V	-19V	L
24 / 12	HPPR_GND19V	0V	H,B
25 / 13	HPPR_P19V	+19V	A,C

*If anything does not work at the AQR/P check the power supply first.*

1. Check the power supplies LED (on the back side and front side).
2. IS no LED lighting check the primary fuses in the line module unit.
3. Check if the transformer connector (J25 and J26) is plug in.
4. Check the secondary fuses, they are on the PSB boards located.
5. Above and below every LED is a test point to check the corresponding voltage by a multimeter or an oscilloscope. **The test point above the LED is always the higher potential of the corresponding voltage.**
6. Is a power supply after this checks still not working, check the no-load output voltage. How to do it: Turn off the AQR/P (power off) plug out the transformer connector (J25 or J26), plug out the corresponding PSB (PSB4 or PSB5). Plug in the transformer connector again and turn on the AQR/P (power on). Check again point 1 and point 5.
7. Are all power supplies ok, you should also check the further regulators on the ADC, RX, LOT/ASU, ROUTER and ACB boards. For more information about a specific voltage of one of this boards see the corresponding manual.
8. ***Attention:*** If you check the ac-ripple at the test points on the PSB- or PSD2-boards with an oscilloscope, you will see additional spikes. The reason for this additional spikes is: There are two sense wires from output of the regulator via a 1kohm resistor to the test point and so the oscilloscope has no hard ground.



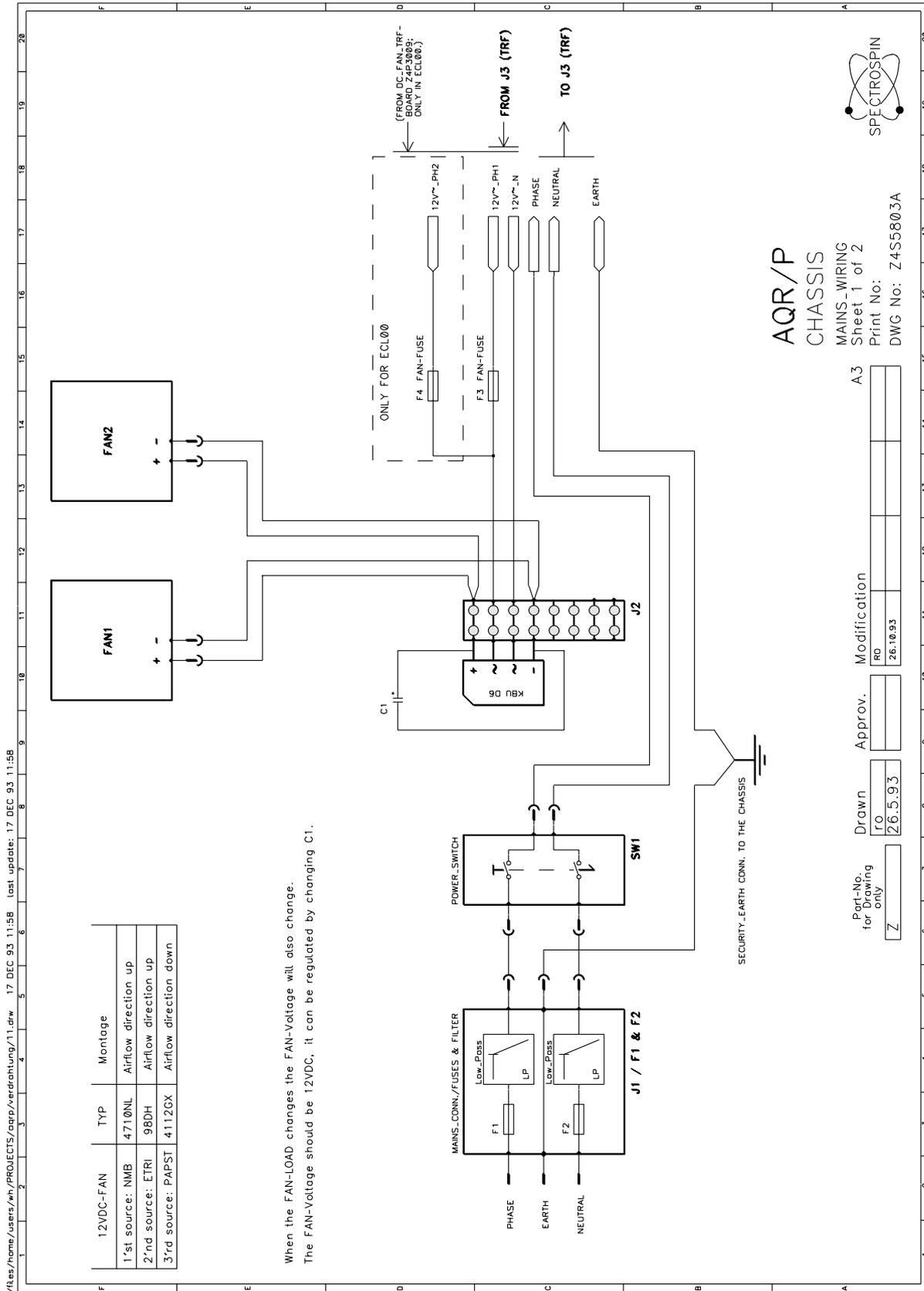
## Introduction

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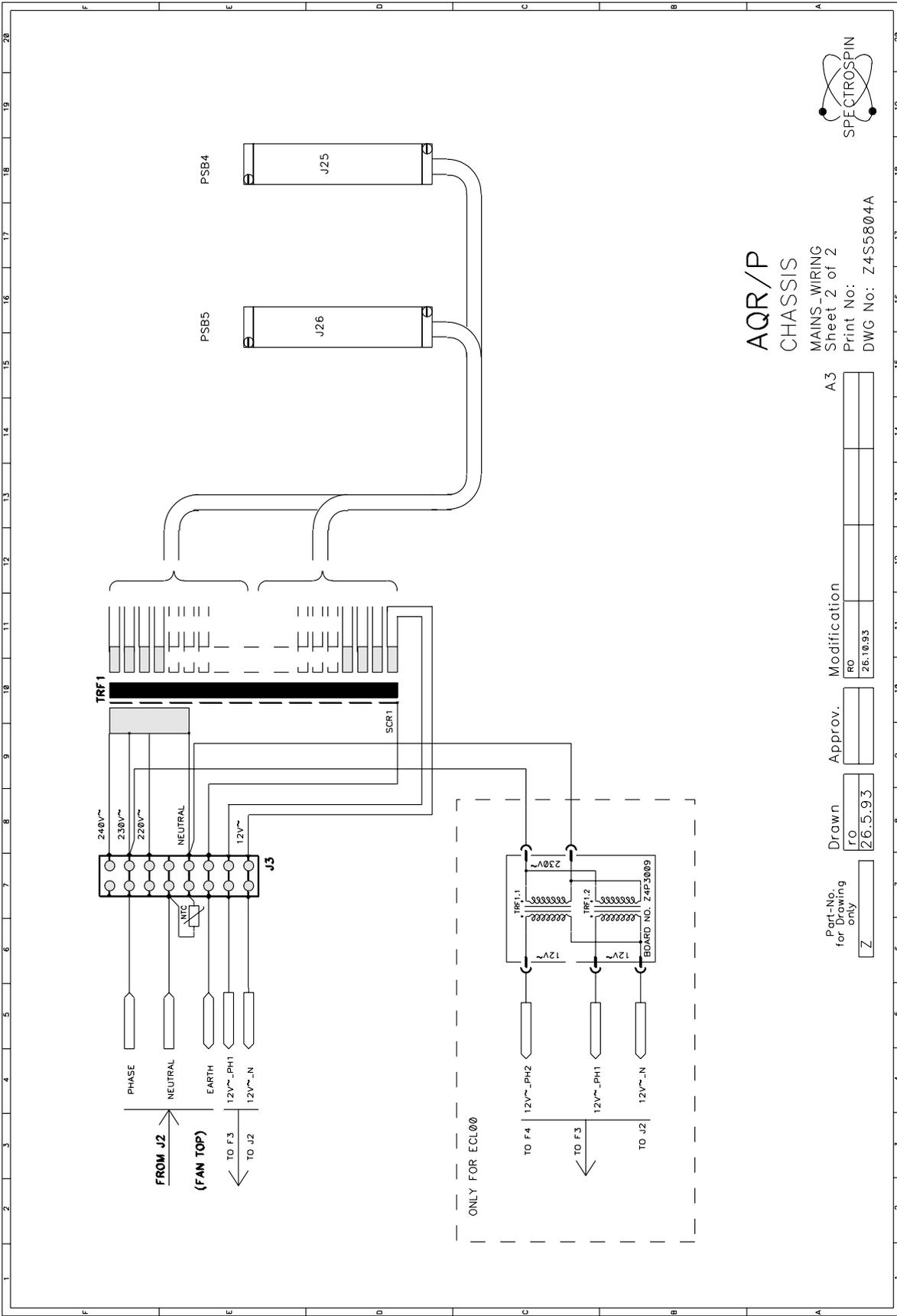
4.1

On the following pages you will find: Schemes, Assembly maps and the List of parts.

1. Scheme Wiring.
2. Scheme Power-Supply-Board (PSB).
3. Assembly map PSB4,PSB5.
4. List of parts PSB4,PSB5.
5. Scheme Power-Supply-Distribution (PSD2)
6. Assembly map PSD2.
7. Scheme User-Bus
8. Assembly User-Bus
9. Layout map User-Bus



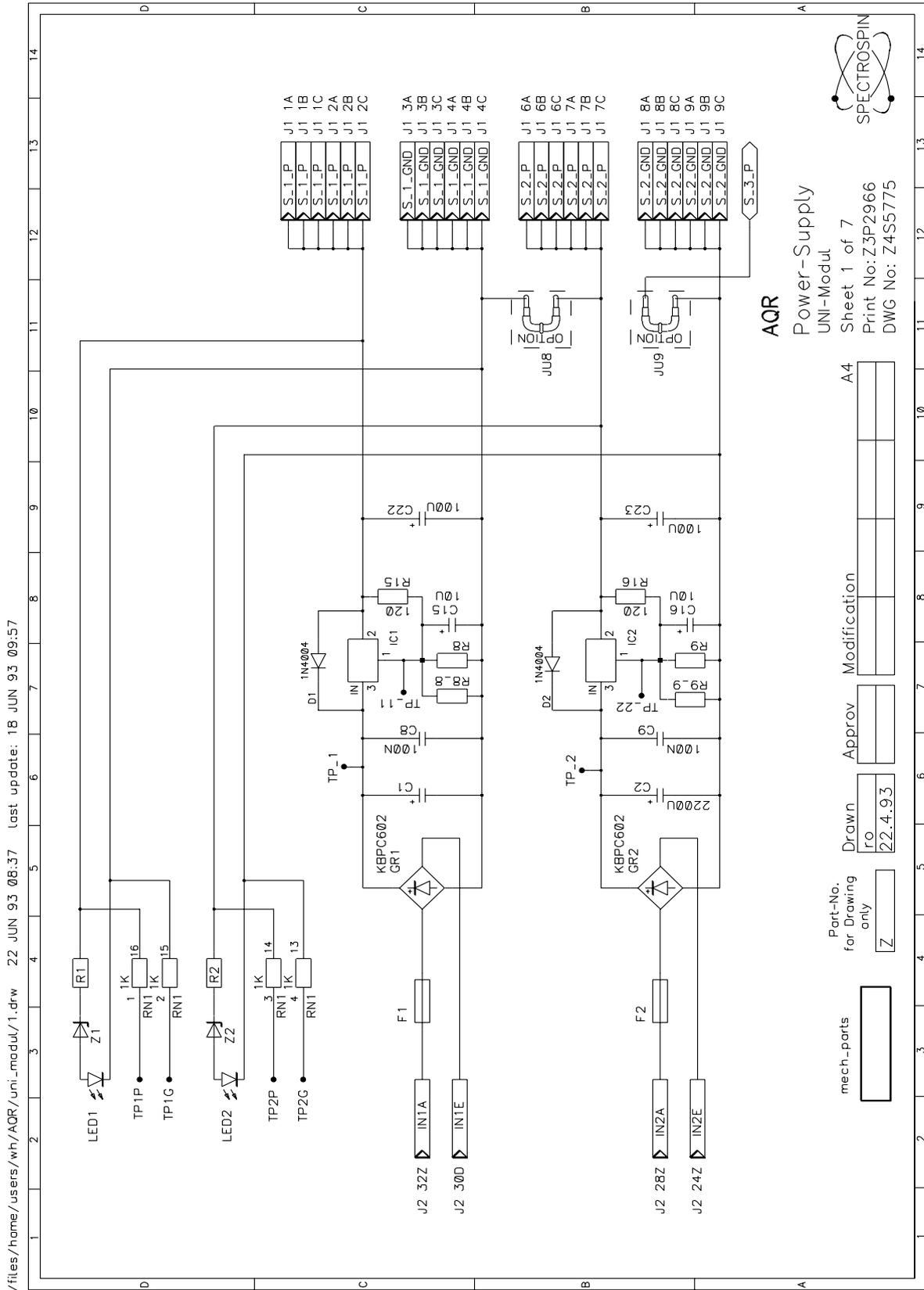
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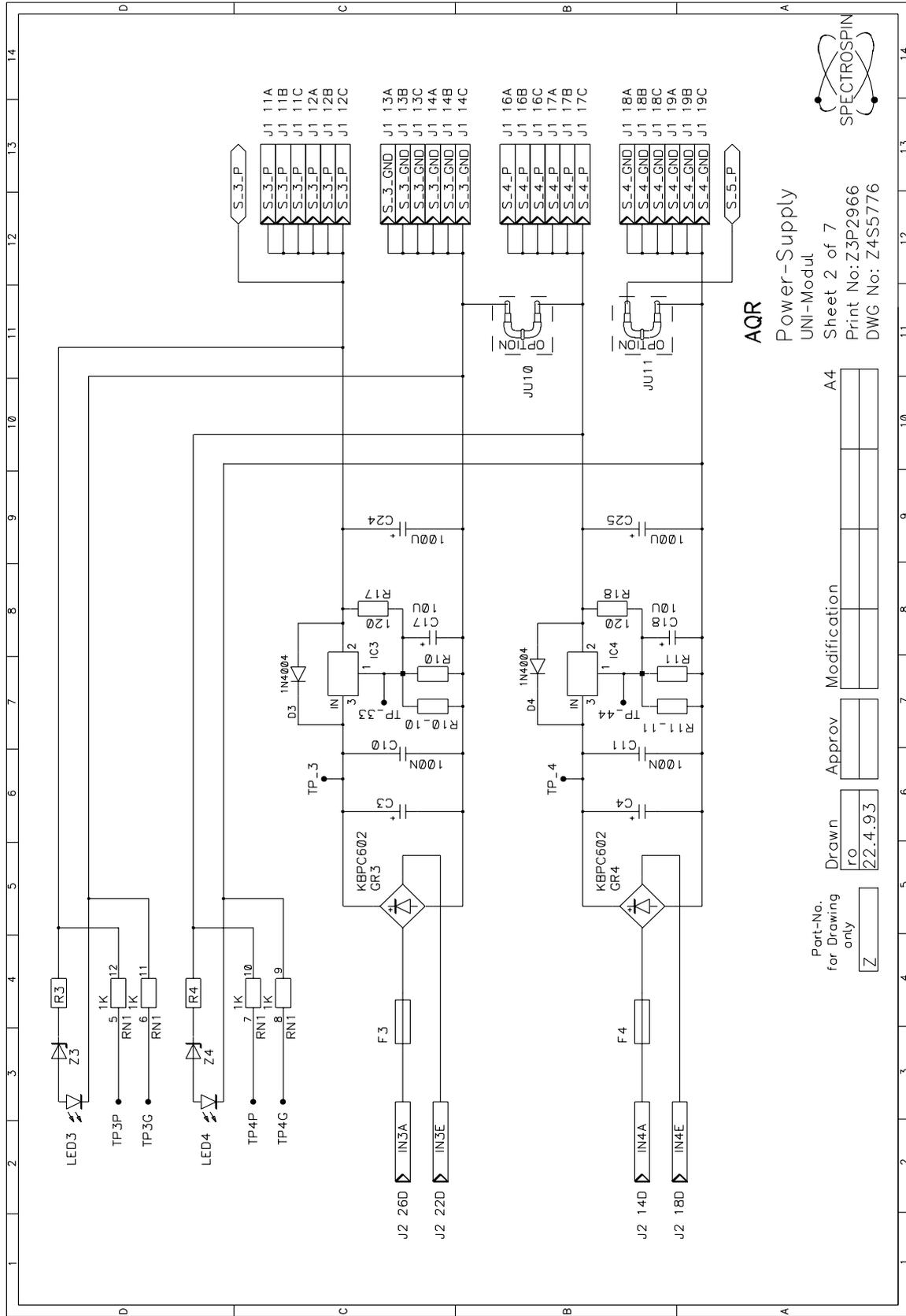
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Power-Supply

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Sheet 2 of 7

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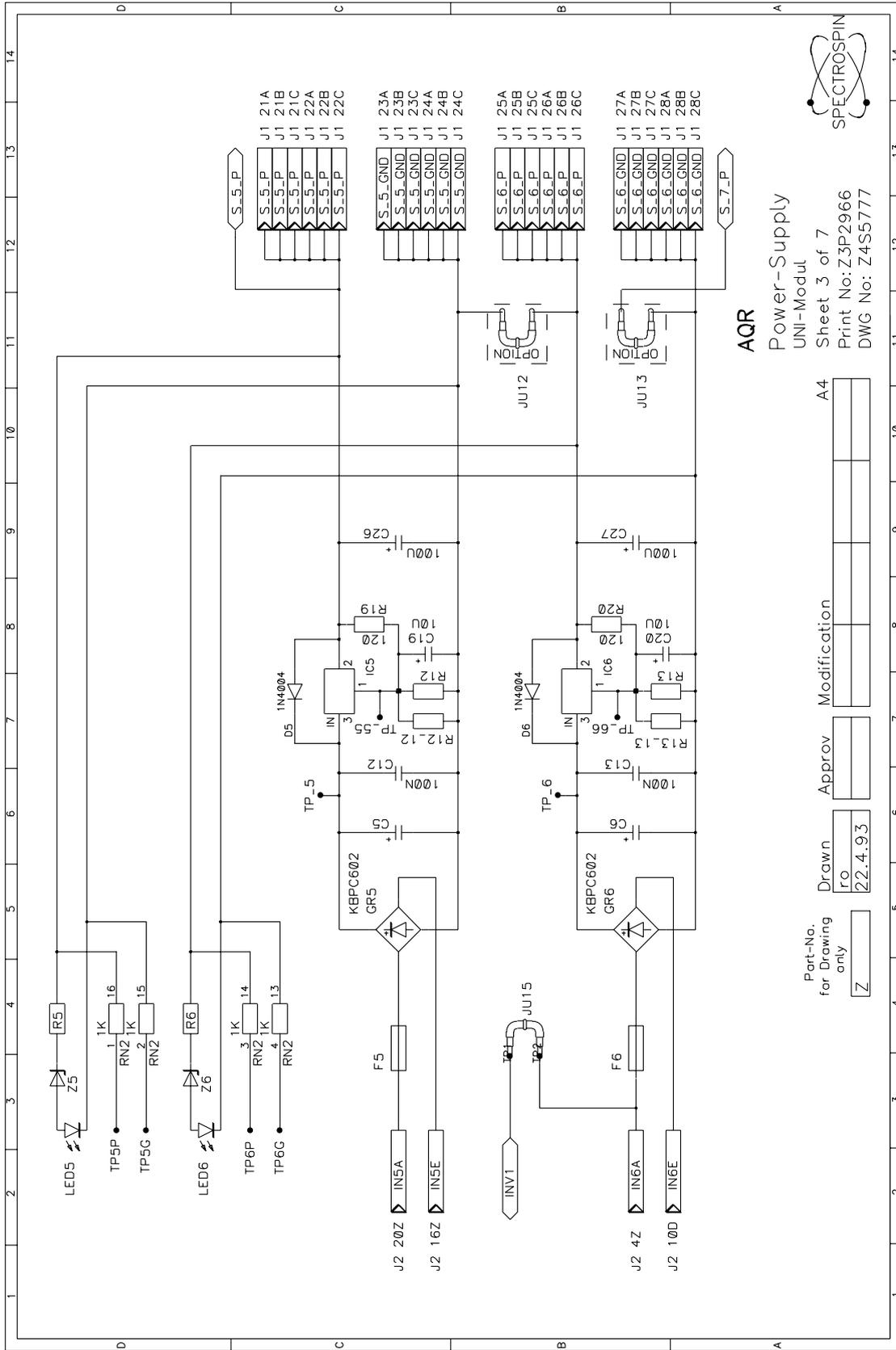
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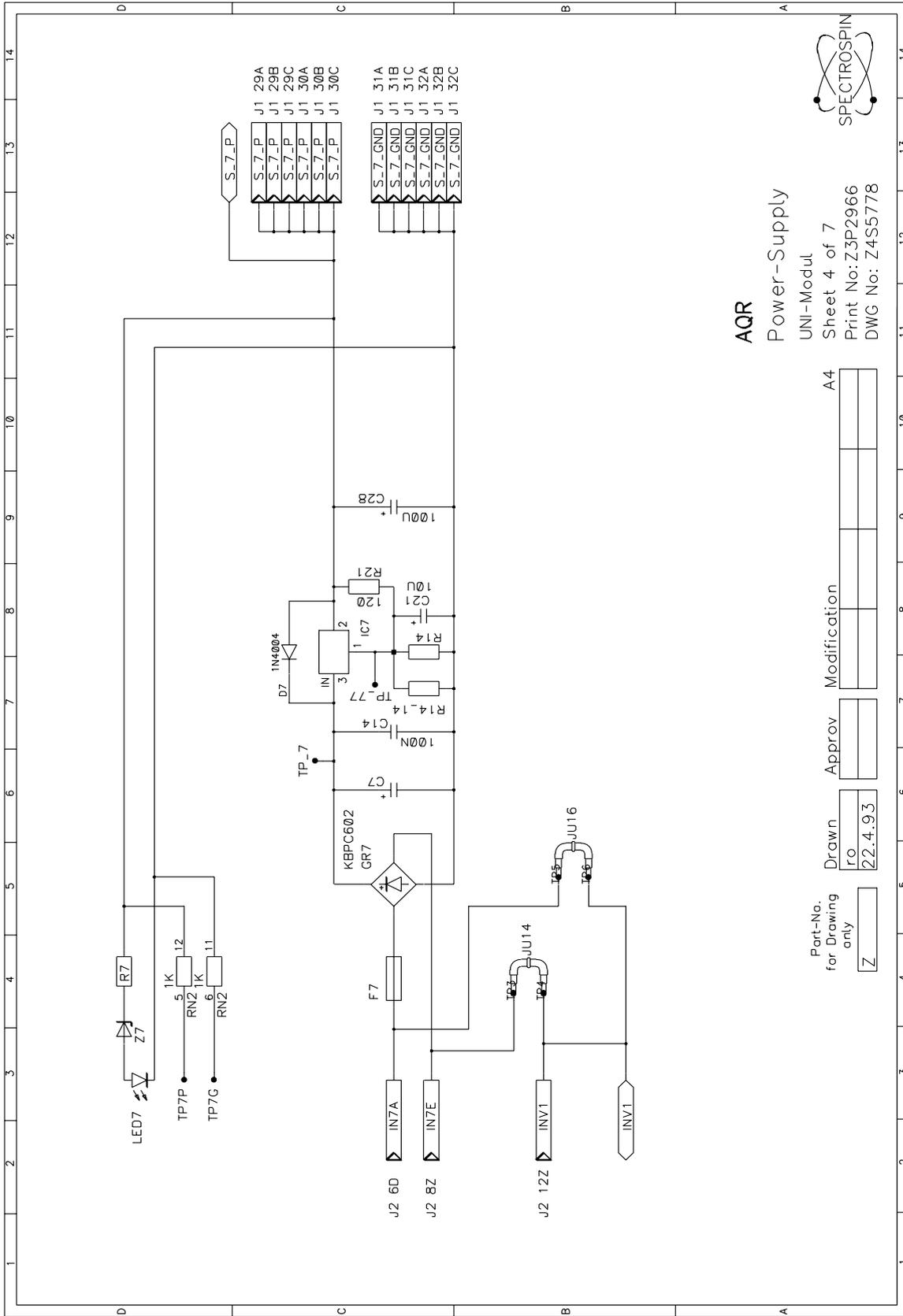
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**AQR**

Power-Supply

UNI-Modul

Sheet 4 of 7

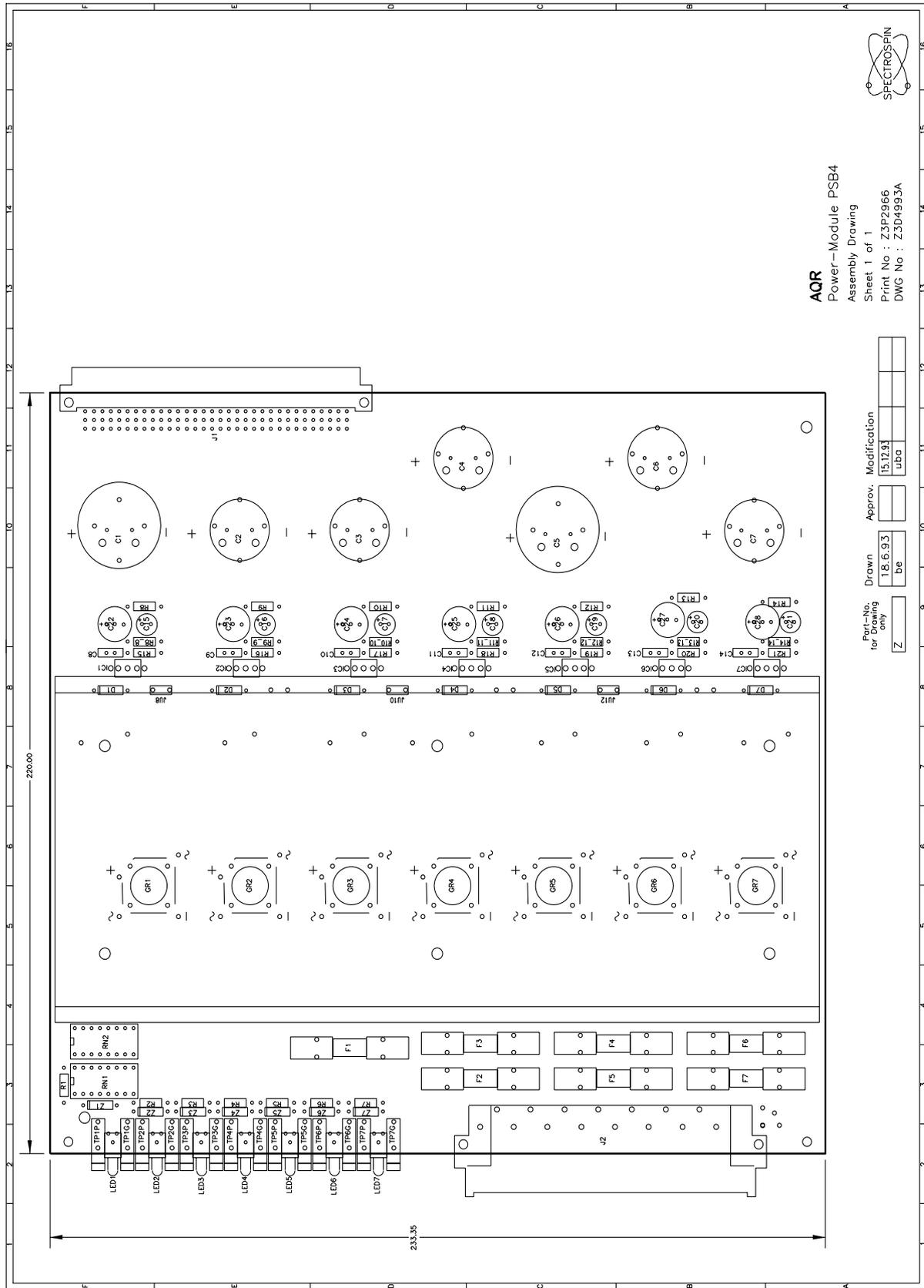
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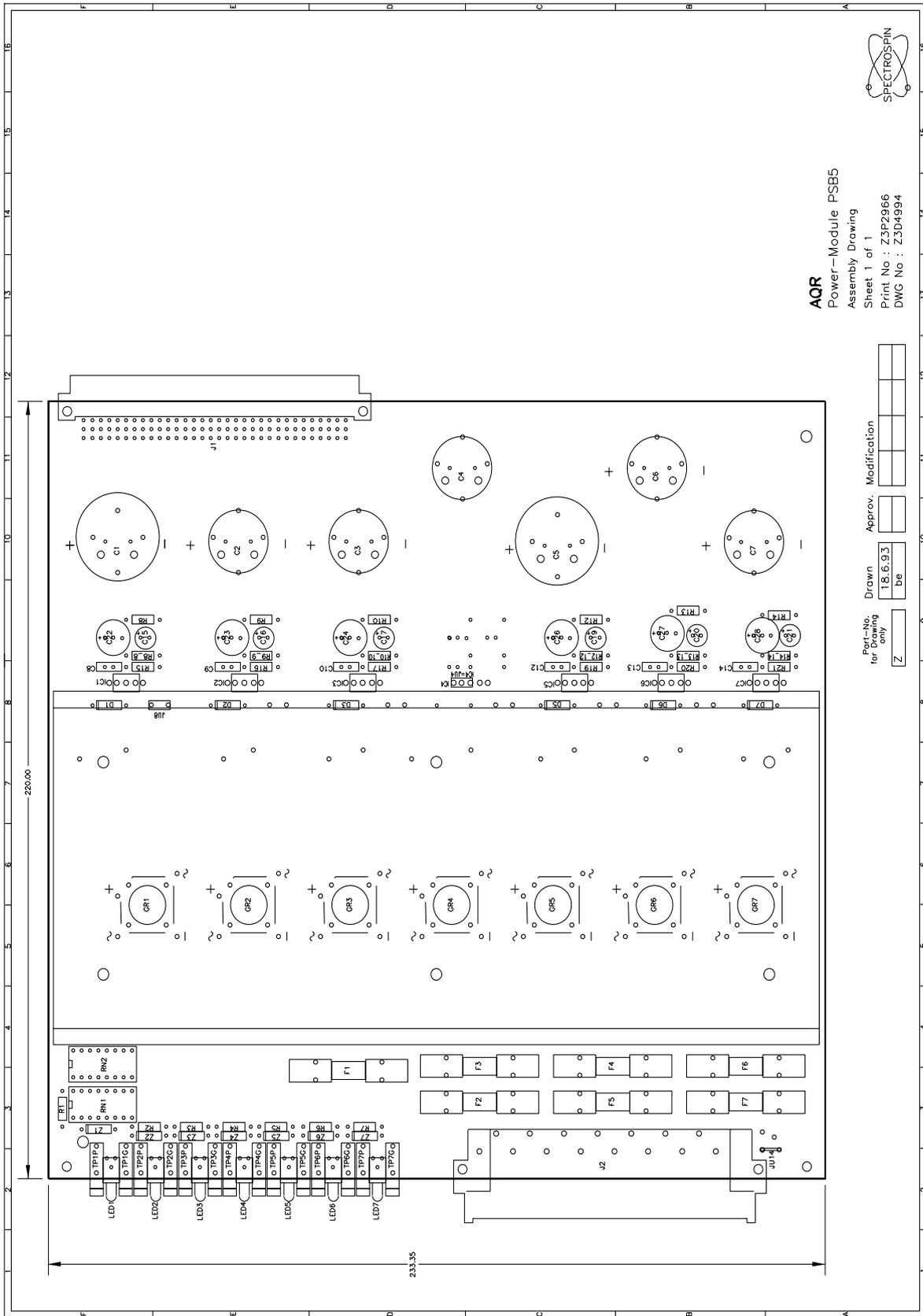
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## Assembly map Power-Supply-Board ( PSB4 )





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# Product : AQR
# Print-Name : Power-Supply Print-Number: Z3P2966
# Sheet-Name : UNI-Modul DWG-Number : Z4S5775
# Sheet-Name : UNI-Modul DWG-Number : Z4S5776
# Sheet-Name : UNI-Modul DWG-Number : Z4S5777
# Sheet-Name : UNI-Modul DWG-Number : Z4S5778
# Sheet-Name : VARIANT DWG-Number : Z3S5811B
# Sheet-Name : Mechanical Parts DWG-Number : Z3S5809
# Sheet-Name : Mechanical Parts DWG-Number : Z3S5810A
# Date-Time : 15.Dec.93 16:03:39 Account : wh
#
# Variant : PSB4
#
#.....
#ANZ :PHY_LOC :CAT_NM :PART_NM :VALUE :SHAPE :NOTE :
#.....:
# :Resistors
:R1 :20817 :RES :270 :R04010A : :
:R2 :20817 :RES :270 :R04010A : :
:R3 :8762 :RES :180 :R04010A : :
:R4 :8762 :RES :180 :R04010A : :
:R5 :8762 :RES :180 :R04010A : :
:R6 :8762 :RES :180 :R04010A : :
:R7 :8762 :RES :180 :R04010A : :
:R8 :1012 :RES :1.5K :R04010A : :
:R8_8 :4677 :RES :12K :R04010A : :
:R9 :1012 :RES :1.5K :R04010A : :
:R9_9 :4677 :RES :12K :R04010A : :
:R10 :4716 :RES :820 :R04010A : :
:R10_10 :3960 :RES :8.2K :R04010A : :
:R11 :4716 :RES :820 :R04010A : :
:R11_11 :3960 :RES :8.2K :R04010A : :
:R12 :20820 :RES :33K :R04010A : :

```



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:C24 :1985 :CAP_POL :100U :C020E040 : :
:C25 :1985 :CAP_POL :100U :C020E040 : :
:C26 :1985 :CAP_POL :100U :C020E040 : :
:C27 :1985 :CAP_POL :100U :C020E040 : :
:C28 :1985 :CAP_POL :100U :C020E040 : :
#.....:
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:D1 :4326 :1N4004 : :DO41 : :
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# :ICs
:IC1 :42146 :LM338T : :TO220_SPC : :
:IC2 :42146 :LM338T : :TO220_SPC : :
:IC3 :42146 :LM338T : :TO220_SPC : :
:IC4 :42146 :LM338T : :TO220_SPC : :
:IC5 :42146 :LM338T : :TO220_SPC : :
:IC6 :42146 :LM338T : :TO220_SPC : :
:IC7 :42146 :LM338T : :TO220_SPC : :
#.....:
# :Connectors
84 :J1 :6948 :41612A96MC : :41612A96MC : :
15 :J2 :21904 :41612A15MH : :41612A15MH : :
#.....:
# :divers
:F1 :2256 :FUSE :3.15A T :F_6_3X32 : :
:F2 :2250 :FUSE :0.8A T :F_6_3X32 : :
:F3 :2253 :FUSE :1.6A T :F_6_3X32 : :
:F4 :2250 :FUSE :0.8A T :F_6_3X32 : :
:F5 :2257 :FUSE :4.0A T :F_6_3X32 : :
:F6 :2253 :FUSE :1.6A T :F_6_3X32 : :
:F7 :2252 :FUSE :1.25A T :F_6_3X32 : :
```

:GR1 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR2 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR3 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR4 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR5 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR6 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:GR7 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
:JU10 :20448 :SOLDER\_SPRIN: :LOTBUG11 :LOETBUEGEL :  
:JU12 :20448 :SOLDER\_SPRIN: :LOTBUG11 :LOETBUEGEL :  
:JU8 :20448 :SOLDER\_SPRIN: :LOTBUG11 :LOETBUEGEL :  
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:LED4 :21866 :LED :GRUEN :LED3 : :  
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:LED7 :21866 :LED :GRUEN :LED3 : :  
:MECH1 :Z12472 :PCB : :Z3P2966 :PRINT :  
:MECH10 :22598 :SUMMENBEFEST: : :SUMMENBEFESTIGUNG:  
: : : : : : LINKS :  
:MECH100 :25573 :SCREW\_RND :M3x8 : :LINSENSCHRAUBE :  
:MECH101 :25573 :SCREW\_RND :M3x8 : :LINSENSCHRAUBE :  
:MECH11 :22599 :SUMMENBEFEST: : :SUMMENBEFESTIGUNG:  
: : : : : : RECHTS :  
:MECH12 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
:MECH13 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
:MECH14 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
:MECH15 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
:MECH16 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH17 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH18 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH18 :25648 :RIVET\_TUBE :2,5X0,3X:RIVET\_TUBE :ROHRNIETE :  
:MECH19 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH19 :25648 :RIVET\_TUBE :2,5X0,3X:RIVET\_TUBE :ROHRNIETE :  
:MECH2 :Z12473 :HEAT\_SINK :Z2M7650 :KK100X230 :KUEHLKOERPER :  
:MECH20 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :

:MECH20 :25689 :RIVET\_TUBE :2,5X0,25:RIVET\_TUBE :ROHRNIETE :  
:MECH21 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH21 :25689 :RIVET\_TUBE :2,5X0,25:RIVET\_TUBE :ROHRNIETE :  
:MECH22 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH23 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH24 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH25 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH26 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH27 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH28 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH29 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
:MECH3 :Z12494 : : : :  
:MECH33 :9600 :DIST\_BOLT :M3X12 : :DISTANZBOLZEN :  
:MECH34 :9600 :DIST\_BOLT :M3X12 : :DISTANZBOLZEN :  
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:MECH4 :Z12438 :LABEL : : :BESCHRIFTUNGSFOLI:  
: : : : :E :  
:MECH40 :4303 :DIST\_BOLT :M3X40 : :DISTANZBOLZEN :  
:MECH41 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH42 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH43 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH44 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH45 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH46 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH47 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
:MECH48 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
:MECH49 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
:MECH5 :Z12491 : : : :  
:MECH50 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
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:MECH53 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :

:MECH54 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
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:MECH56 :25578 :SCREW\_COUNT\_:M2.5x6 : :SENKSCHR :  
:MECH57 :25578 :SCREW\_COUNT\_:M2.5x6 : :SENKSCHR :  
:MECH58 :25566 :SCREW\_RND :M2.5x6 : :LINSENSCHRAUBE :  
:MECH59 :25566 :SCREW\_RND :M2.5x6 : :LINSENSCHRAUBE :  
:MECH6 :22667 :EXTRACTOR\_HA: : :AUSZIEHGRIF 12TE:  
:MECH60 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :  
:MECH61 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :  
:MECH62 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :  
:MECH63 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :  
:MECH64 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH65 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH66 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH67 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH68 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH69 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH7 :22667 :EXTRACTOR\_HA: : :AUSZIEHGRIF 12TE:  
:MECH70 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
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:MECH77 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH78 :25753 :NUT\_HEXAGONA:M2.5 : :SK\_MUTTER :  
:MECH79 :25753 :NUT\_HEXAGONA:M2.5 : :SK\_MUTTER :  
:MECH8 :22668 :LEITERPL.HAL: : :LEITERPL.HALTER :  
:MECH80 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH81 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
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:MECH84 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH85 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH86 :25589 :WASHER :M2.5 : :UNTERLAGSCHEIBE :



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# Company : SPECTROSPIN AG
# Product : AQR
# Print-Name : Power-Supply Print-Number: Z3P2966
# Sheet-Name : UNI-Modul DWG-Number : Z4S5775
# Sheet-Name : UNI-Modul DWG-Number : Z4S5776
# Sheet-Name : UNI-Modul DWG-Number : Z4S5777
# Sheet-Name : UNI-Modul DWG-Number : Z4S5778
# Sheet-Name : VARIANT DWG-Number : Z3S5811B
# Sheet-Name : Mechanical Parts DWG-Number : Z3S5809
# Sheet-Name : Mechanical Parts DWG-Number : Z3S5810A
# Date-Time : 15.Dec.93 16:03:39 Account : wh
#
# Variant : PSB5
#
#.....
#ANZ :PHY_LOC :CAT_NM :PART_NM :VALUE :SHAPE :NOTE :
#.....:
# :Resistors
:R1 :8762 :RES :180 :R04010A : :
:R2 :8762 :RES :180 :R04010A : :
:R3 :8762 :RES :180 :R04010A : :
:R4 :8762 :RES :180 :R04010A : :
:R5 :8762 :RES :180 :R04010A : :
:R6 :8762 :RES :180 :R04010A : :
:R7 :8762 :RES :180 :R04010A : :
:R8 :20820 :RES :33K :R04010A : :
:R8_8 :8543 :RES :1.8K :R04010A : :
:R9 :20820 :RES :33K :R04010A : :
:R9_9 :8543 :RES :1.8K :R04010A : :
:R10 :4716 :RES :820 :R04010A : :
:R10_10 :3960 :RES :8.2K :R04010A : :
:R12 :1012 :RES :1.5K :R04010A : :
:R12_12 :2769 :RES :3.3K :R04010A : :
:R13 :4716 :RES :820 :R04010A : :

```



```

#.....:
# :Diodes
:D1 :4326 :1N4004 : :DO41 : :
:D2 :4326 :1N4004 : :DO41 : :
:D3 :4326 :1N4004 : :DO41 : :
:D5 :4326 :1N4004 : :DO41 : :
:D6 :4326 :1N4004 : :DO41 : :
:D7 :4326 :1N4004 : :DO41 : :
#.....:
# :ICs
:IC1 :42146 :LM338T : :TO220_SPC : :
:IC2 :42146 :LM338T : :TO220_SPC : :
:IC3 :42146 :LM338T : :TO220_SPC : :
:IC4 :20448 :SOLDER_SPRIN: :LOTBUG11 : :
:IC5 :42146 :LM338T : :TO220_SPC : :
:IC6 :42146 :LM338T : :TO220_SPC : :
:IC7 :42146 :LM338T : :TO220_SPC : :
#.....:
# :Connectors
84 :J1 :6948 :41612A96MC : :41612A96MC : :
15 :J2 :21904 :41612A15MH : :41612A15MH : :
#.....:
# :divers
:F1 :2256 :FUSE :3.15A T :F_6_3X32 : :
:F2 :2250 :FUSE :0.8A T :F_6_3X32 : :
:F3 :2251 :FUSE :1.0A T :F_6_3X32 : :
:F4 :2250 :FUSE :0.8A T :F_6_3X32 : :
:F5 :2254 :FUSE :2.0A T :F_6_3X32 : :
:F6 :2253 :FUSE :1.6A T :F_6_3X32 : :
:F7 :2253 :FUSE :1.6A T :F_6_3X32 : :
:GR1 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :
:GR2 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :
:GR3 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :
:GR4 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :
:GR5 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :
:GR6 :362 :GRAETZ_SPC :KBPC602 :BR_SPC : :

```

:GR7 :362 :GRAETZ\_SPC :KBPC602 :BR\_SPC : :  
 :JU14 :20448 :SOLDER\_SPRIN: :LOTBUG11 :LOETBUEGEL :  
 :JU8 :20448 :SOLDER\_SPRIN: :LOTBUG11 :LOETBUEGEL :  
 :LED1 :21866 :LED :GRUEN :LED3 : :  
 :LED2 :21866 :LED :GRUEN :LED3 : :  
 :LED3 :21866 :LED :GRUEN :LED3 : :  
 :LED4 :21866 :LED :GRUEN :LED3 : :  
 :LED5 :21866 :LED :GRUEN :LED3 : :  
 :LED6 :21866 :LED :GRUEN :LED3 : :  
 :LED7 :21866 :LED :GRUEN :LED3 : :  
 :MECH1 :Z12472 :PCB : :Z3P2966 :PRINT :  
 :MECH10 :22598 :SUMMENBEFEST: : :SUMMENBEFESTIGUNG:  
 : : : : : LINKS :  
 :MECH100 :25573 :SCREW\_RND :M3x8 : :LINSENSCHRAUBE :  
 :MECH101 :25573 :SCREW\_RND :M3x8 : :LINSENSCHRAUBE :  
 :MECH11 :22599 :SUMMENBEFEST: : :SUMMENBEFESTIGUNG:  
 : : : : : RECHTS :  
 :MECH12 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
 :MECH13 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
 :MECH14 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
 :MECH15 :Z12153 :HALSSCHRAUBE:M2.5x8.5: :HALSSCHRAUBE :  
 :MECH16 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH17 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH18 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH18 :25648 :RIVET\_TUBE :2,5X0,3X:RIVET\_TUBE :ROHRNIETE :  
 :MECH19 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH19 :25648 :RIVET\_TUBE :2,5X0,3X:RIVET\_TUBE :ROHRNIETE :  
 :MECH2 :Z12473 :HEAT\_SINK :Z2M7650 :KK100X230 :KUEHLKOERPER :  
 :MECH20 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH20 :25689 :RIVET\_TUBE :2,5X0,25:RIVET\_TUBE :ROHRNIETE :  
 :MECH21 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH21 :25689 :RIVET\_TUBE :2,5X0,25:RIVET\_TUBE :ROHRNIETE :  
 :MECH22 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH23 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH24 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :  
 :MECH25 :22633 :SICH.HALTER :5x20/6x3: :SICH.HALTER :

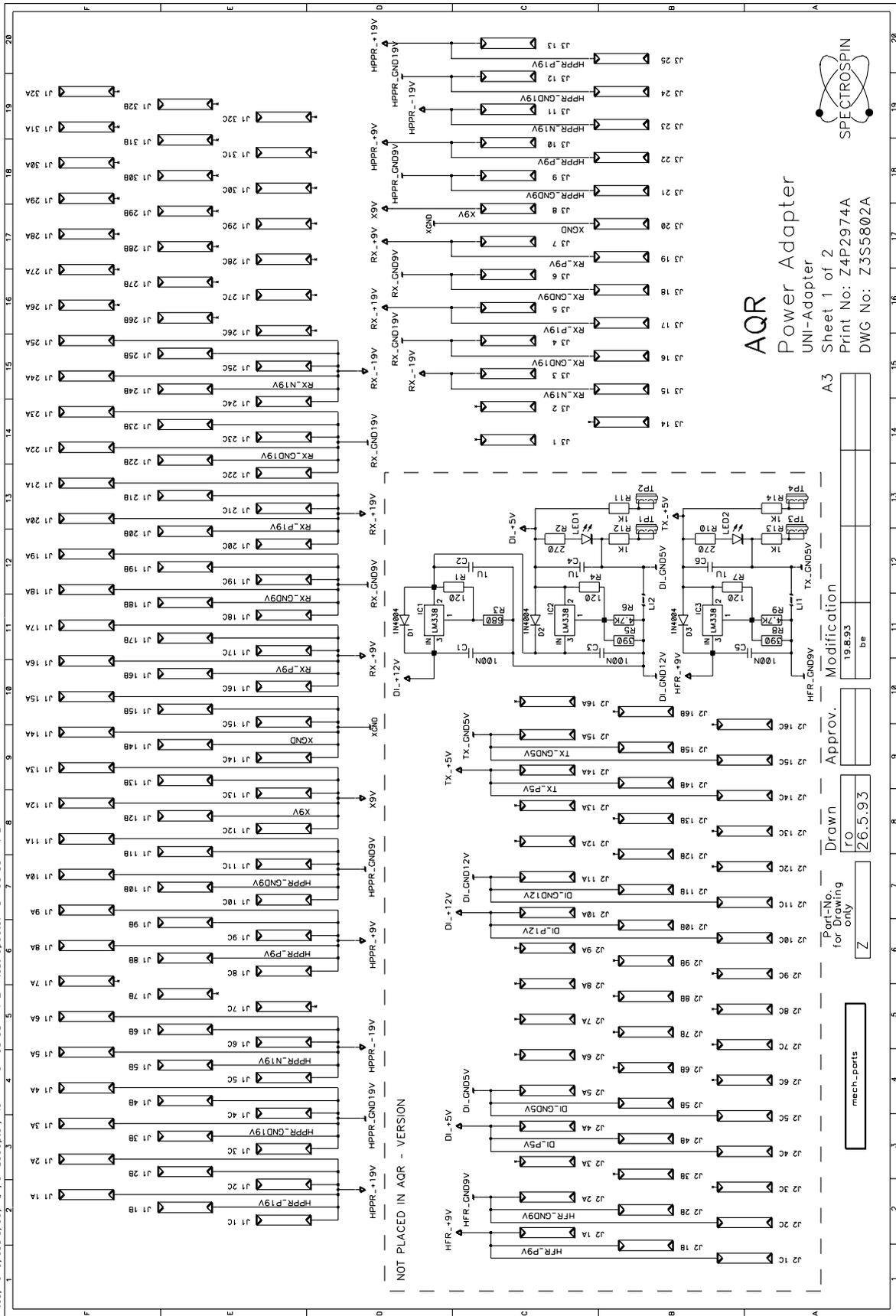
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 :MECH27 :22633 :SICH.HALTER :5x20/6x3 : :SICH.HALTER :  
 :MECH28 :22633 :SICH.HALTER :5x20/6x3 : :SICH.HALTER :  
 :MECH29 :22633 :SICH.HALTER :5x20/6x3 : :SICH.HALTER :  
 :MECH3 :Z12493 : : : : :  
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 :MECH35 :9600 :DIST\_BOLT :M3X12 : :DISTANZBOLZEN :  
 :MECH36 :4303 :DIST\_BOLT :M3X40 : :DISTANZBOLZEN :  
 :MECH37 :9600 :DIST\_BOLT :M3X12 : :DISTANZBOLZEN :  
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 :MECH41 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
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 :MECH44 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
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 :MECH46 :2227 :ISOL.BUCHSE :M3 : :ISOL.BUCHSE :  
 :MECH48 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
 :MECH49 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
 :MECH5 :Z12492 : : : : :  
 :MECH50 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
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 :MECH55 :25584 :SCREW\_COUNT\_:M3x6 : :SENKSCHR :  
 :MECH56 :25578 :SCREW\_COUNT\_:M2.5x6 : :SENKSCHR :  
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 :MECH58 :25566 :SCREW\_RND :M2.5x6 : :LINSENSCHRAUBE :  
 :MECH59 :25566 :SCREW\_RND :M2.5x6 : :LINSENSCHRAUBE :  
 :MECH6 :22667 :EXTRACTOR\_HA: : :AUSZIEHGRIF 12TE:  
 :MECH60 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :

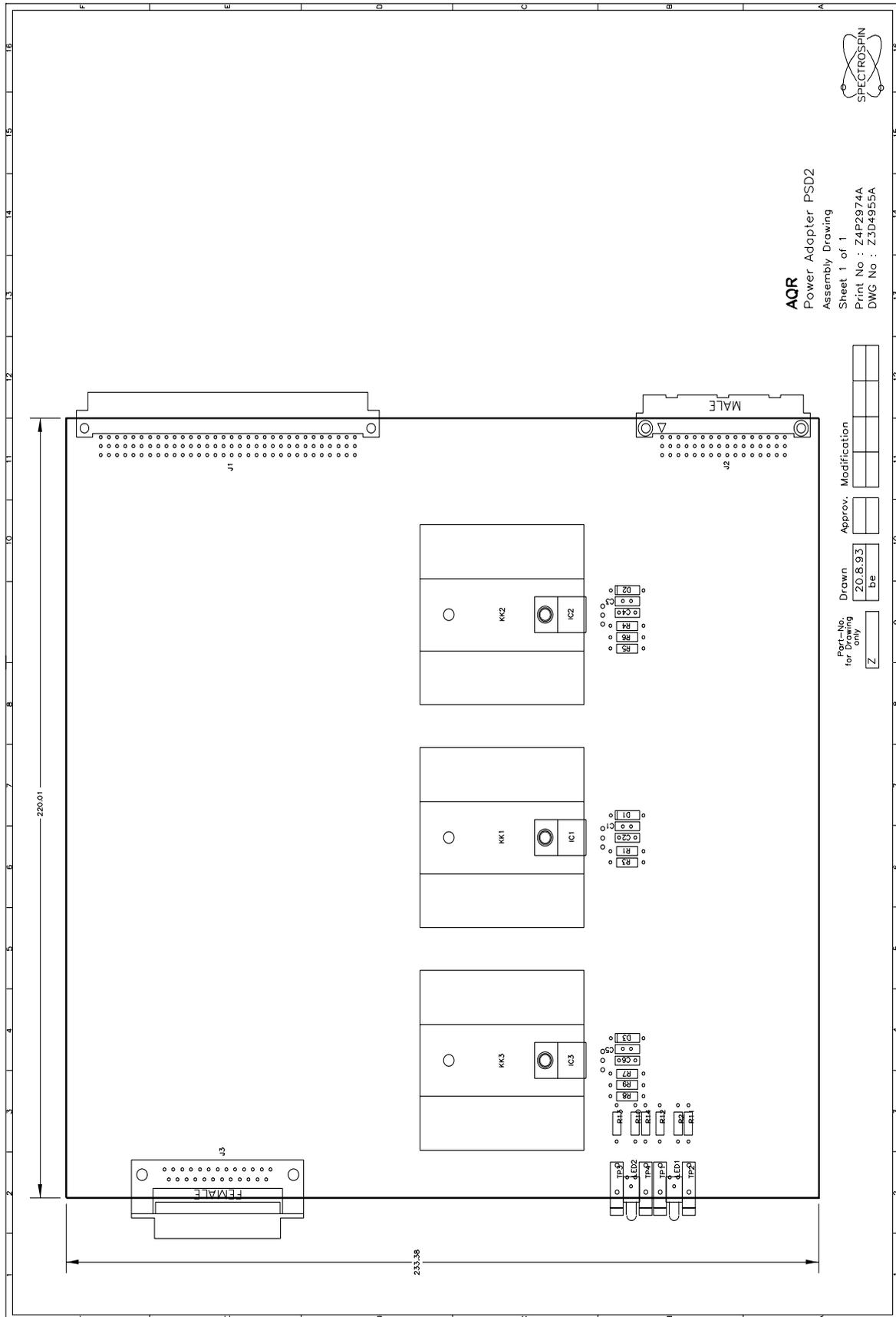
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:MECH63 :25568 :SCREW\_RND :M2.5x10 : :LINSENSCHRAUBE :  
:MECH64 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH65 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
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:MECH67 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH68 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH69 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH7 :22667 :EXTRACTOR\_HA: : :AUSZIEHGRIF 12TE:  
:MECH70 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
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:MECH77 :25574 :SCREW\_RND :M3x10 : :LINSENSCHRAUBE :  
:MECH78 :25753 :NUT\_HEXAGONA:M2.5 : :SK\_MUTTER :  
:MECH79 :25753 :NUT\_HEXAGONA:M2.5 : :SK\_MUTTER :  
:MECH8 :22668 :LEITERPL.HAL: : :LEITERPL.HALTER :  
:MECH80 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH81 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH82 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
:MECH83 :25590 :WASHER\_FAN :M2,5 : :FAECHERSCHEIBE :  
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:MECH86 :25589 :WASHER :M2.5 : :UNTERLAGSCHEIBE :  
:MECH87 :25589 :WASHER :M2.5 : :UNTERLAGSCHEIBE :  
:MECH88 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:  
: : : : :EITS :  
:MECH9 :22668 :LEITERPL.HAL: : :LEITERPL.HALTER :  
:MECH90 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:  
: : : : :EITS :  
:MECH91 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:  
: : : : :EITS :





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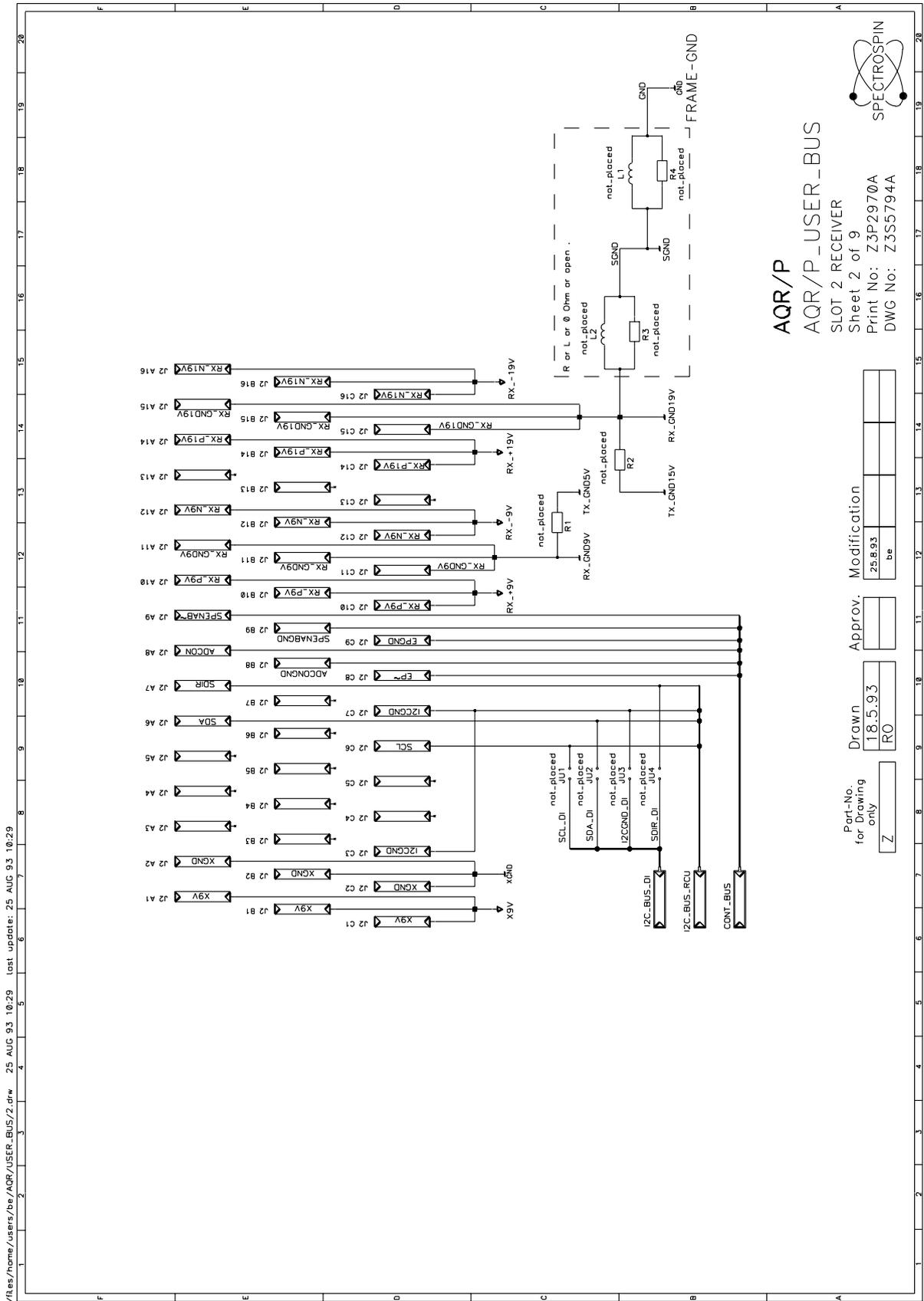
**AQR**  
 Power Adapter PSD2  
 Assembly Drawing  
 Sheet 1 of 1  
 Print No : Z4P2974A  
 DWG No : Z3D4955A

Pg. No. for printing only  
 Z

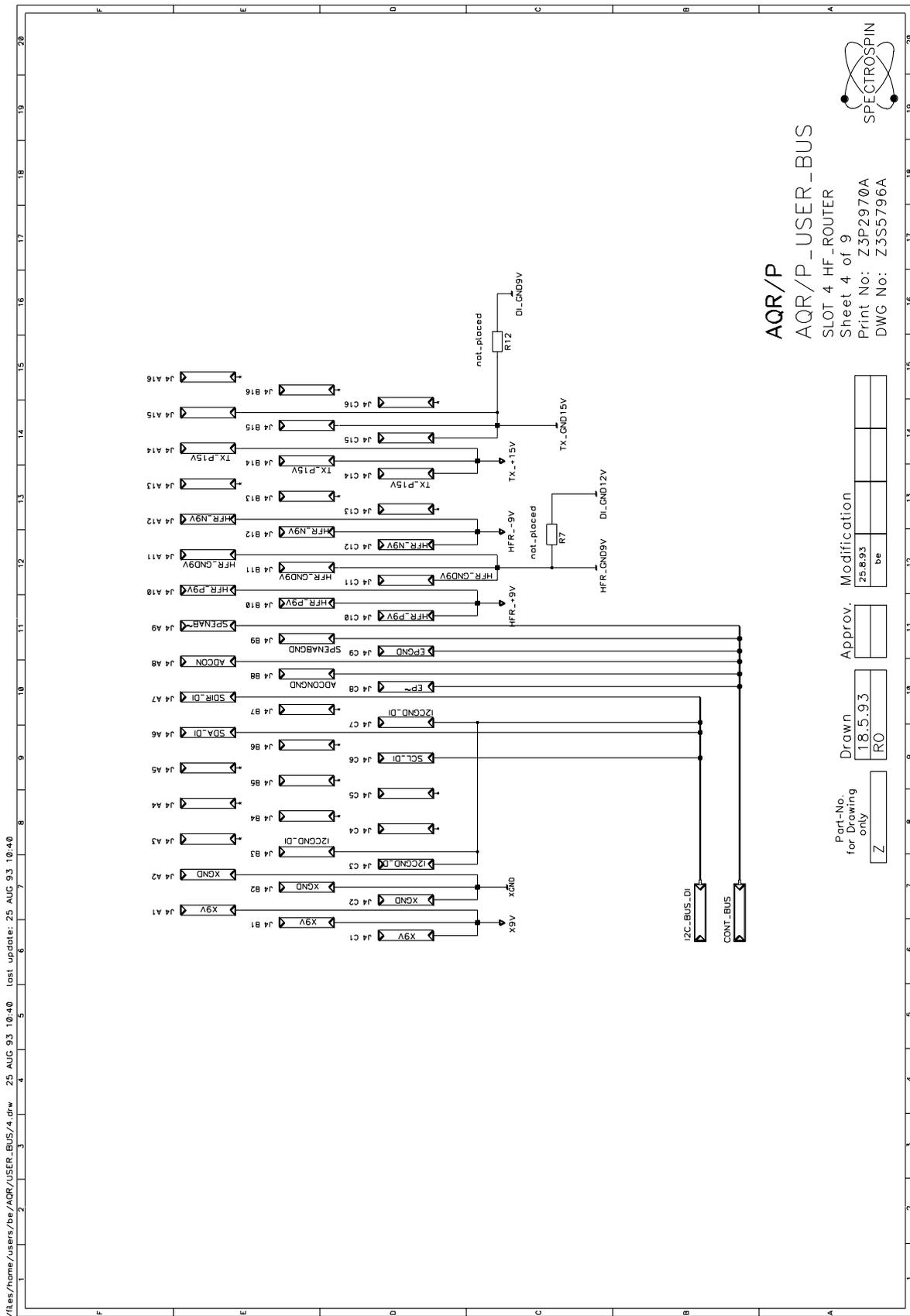
Drawn  
 20.8.93  
 DE

Approv. Modification









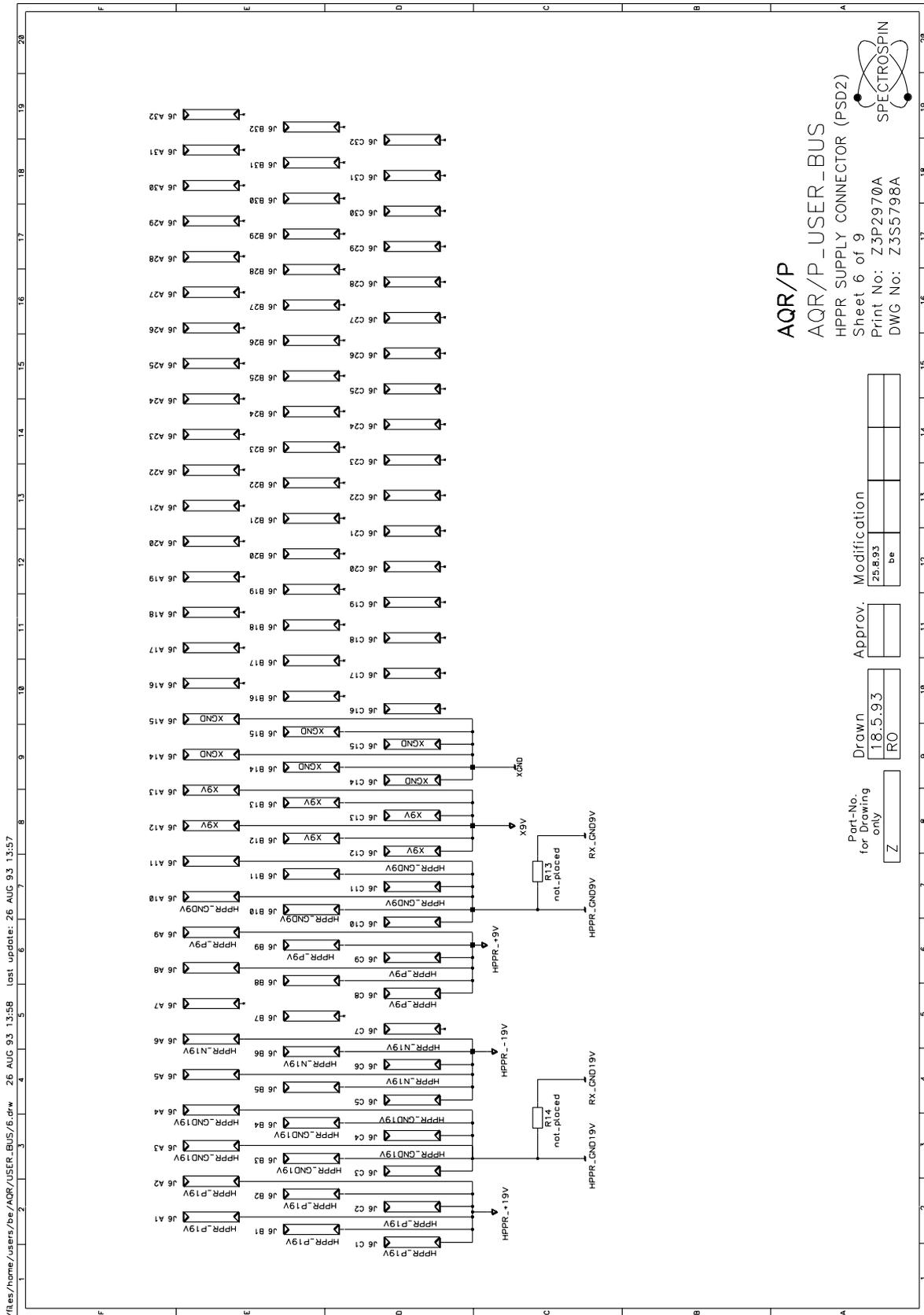
**AQR/P**  
**AQR/P\_USER\_BUS**  
 SLOT 4 HF\_ROUTER  
 Sheet 4 of 9  
 Print No: Z3P2970A  
 DWG No: Z3S5796A



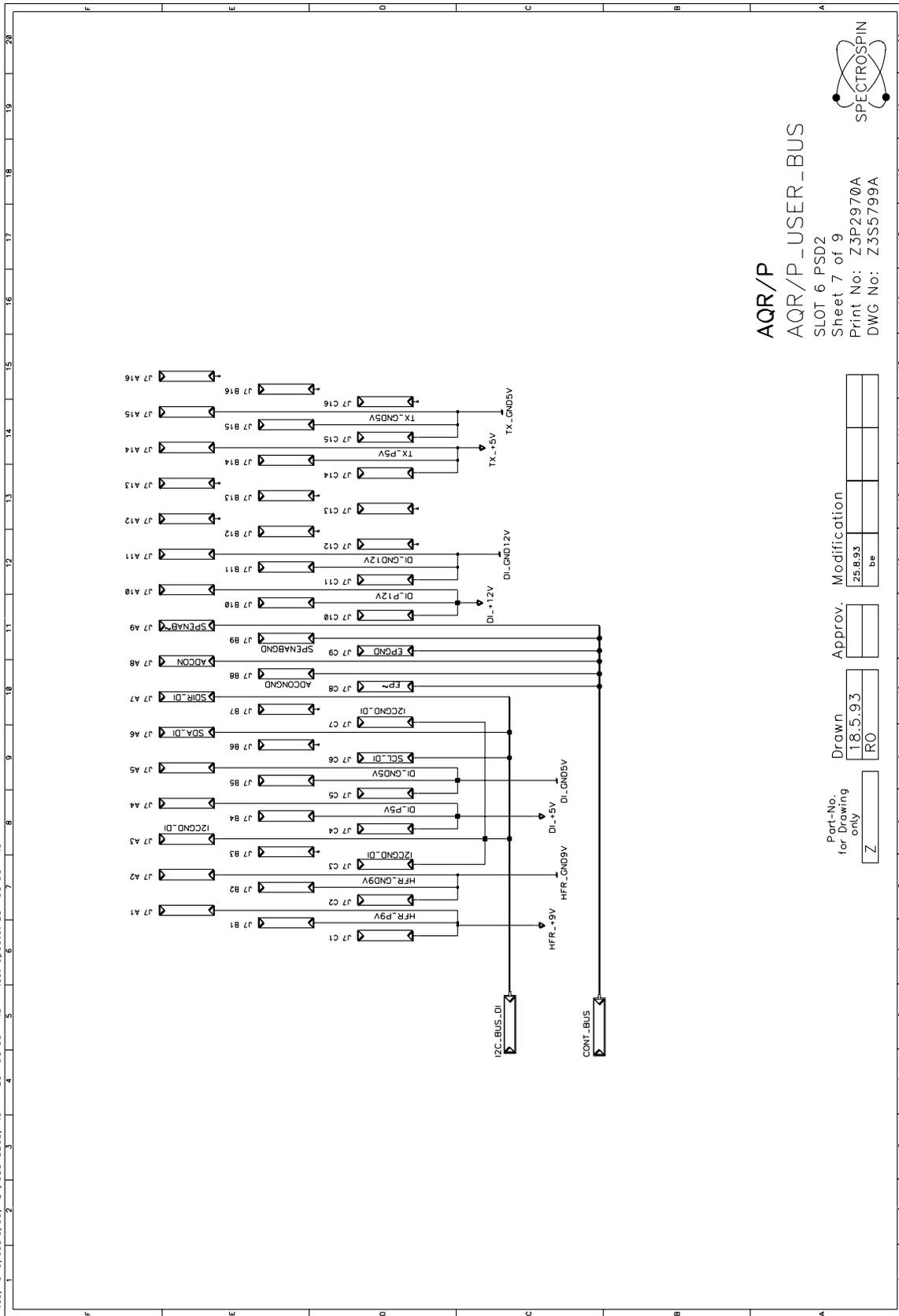
Part-No. for Drawing only	Drawn	Approval	Modification
Z	18.5.93 RO		25.8.93 be

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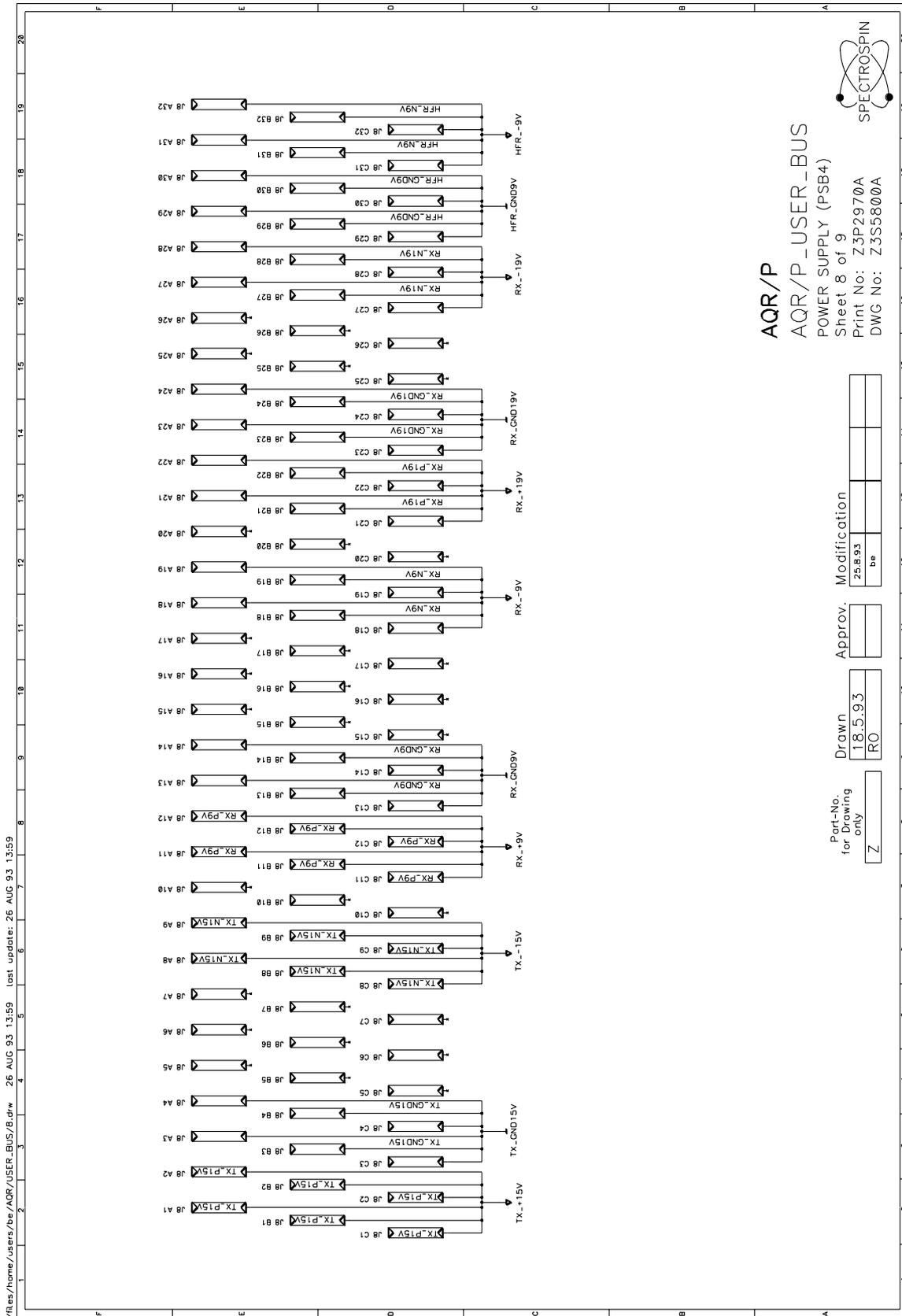


/files/home/users/be/AQR/USER\_BUS/7.dwg 25 AUG 93 11:34 last update: 25 AUG 93 11:34



**AQR/P**  
**AQR/P\_USER\_BUS**  
 SLOT 6 PSD2  
 Sheet 7 of 9  
 Print No: Z3P2970A  
 DWG No: Z3S5799A

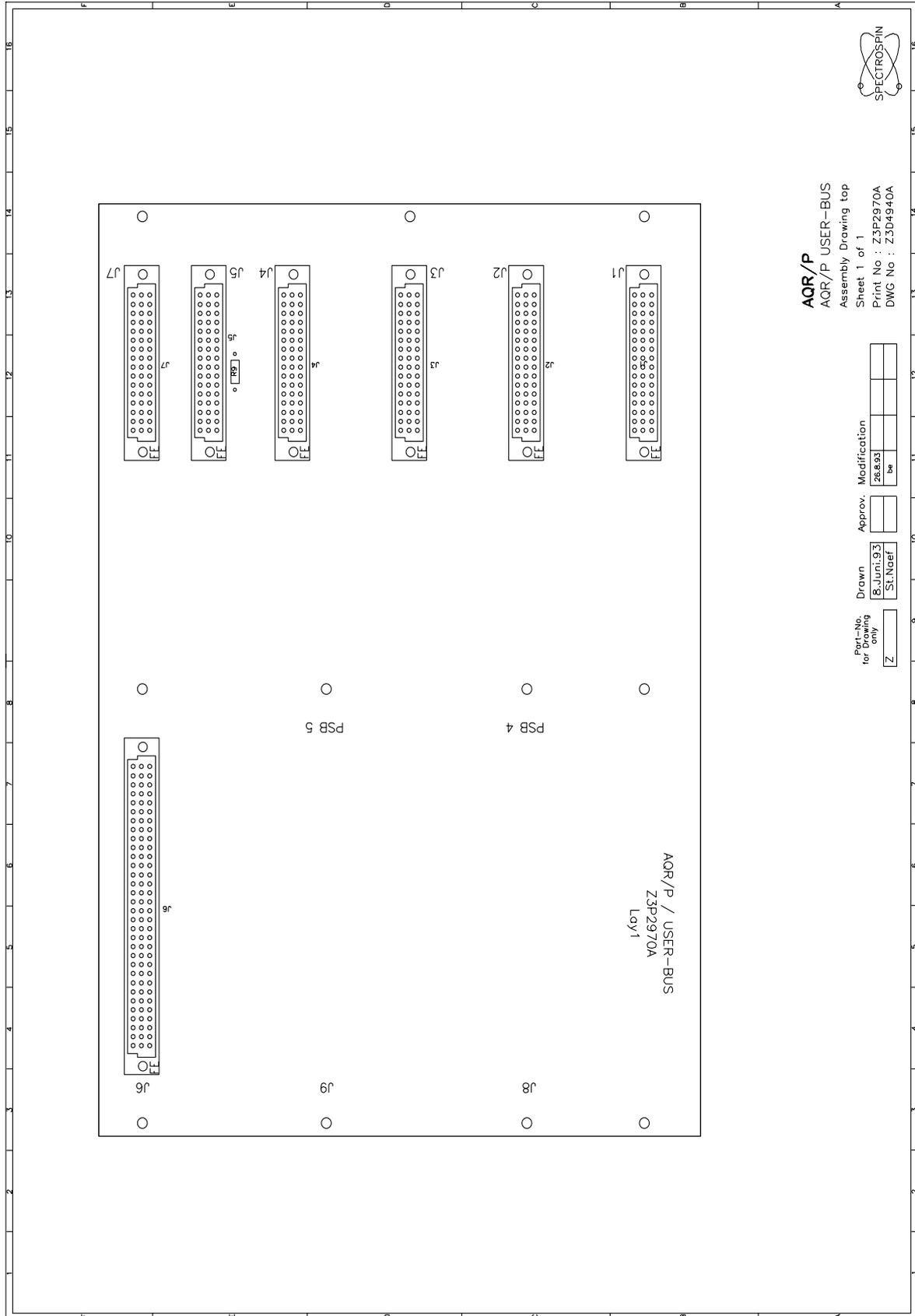


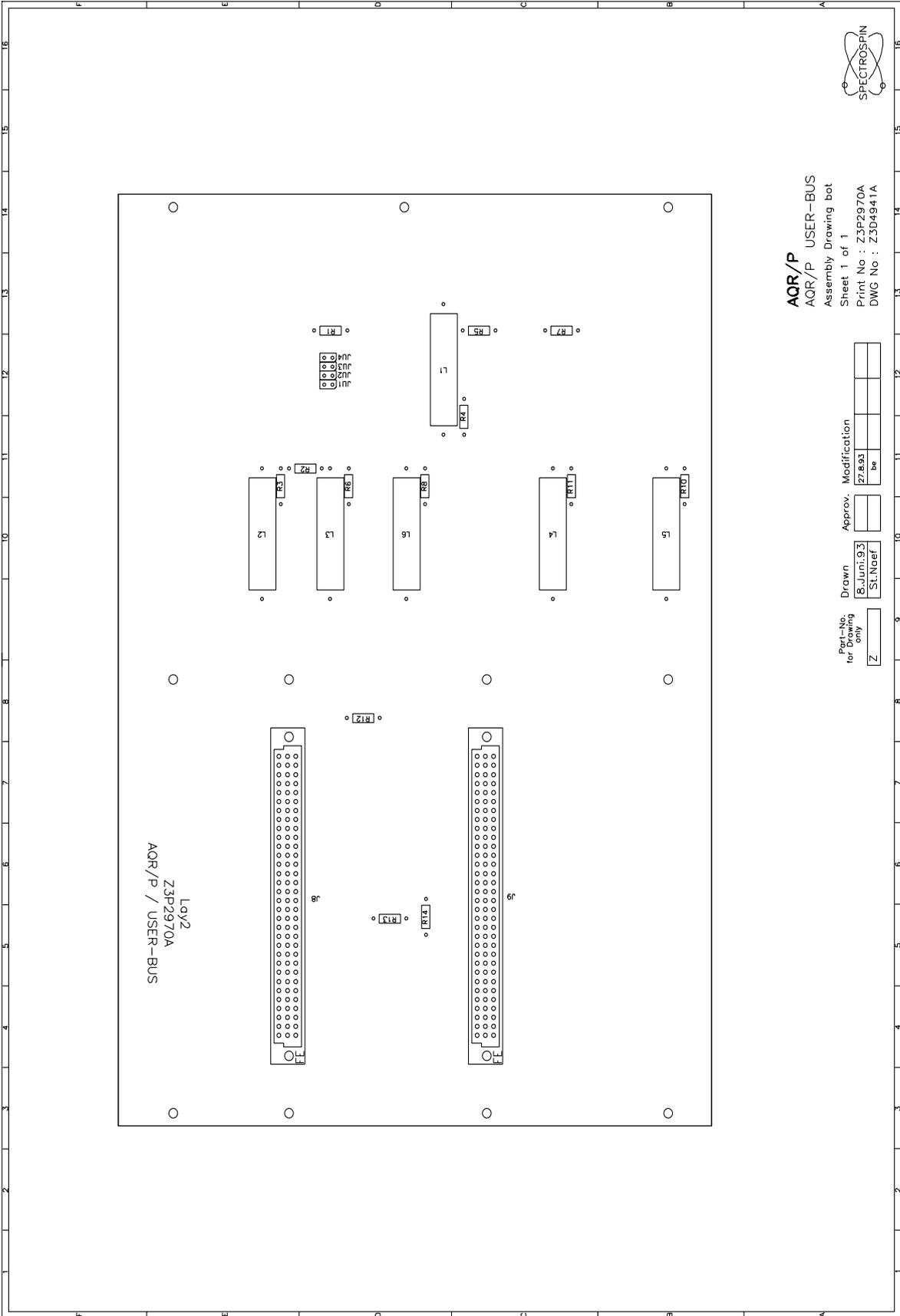


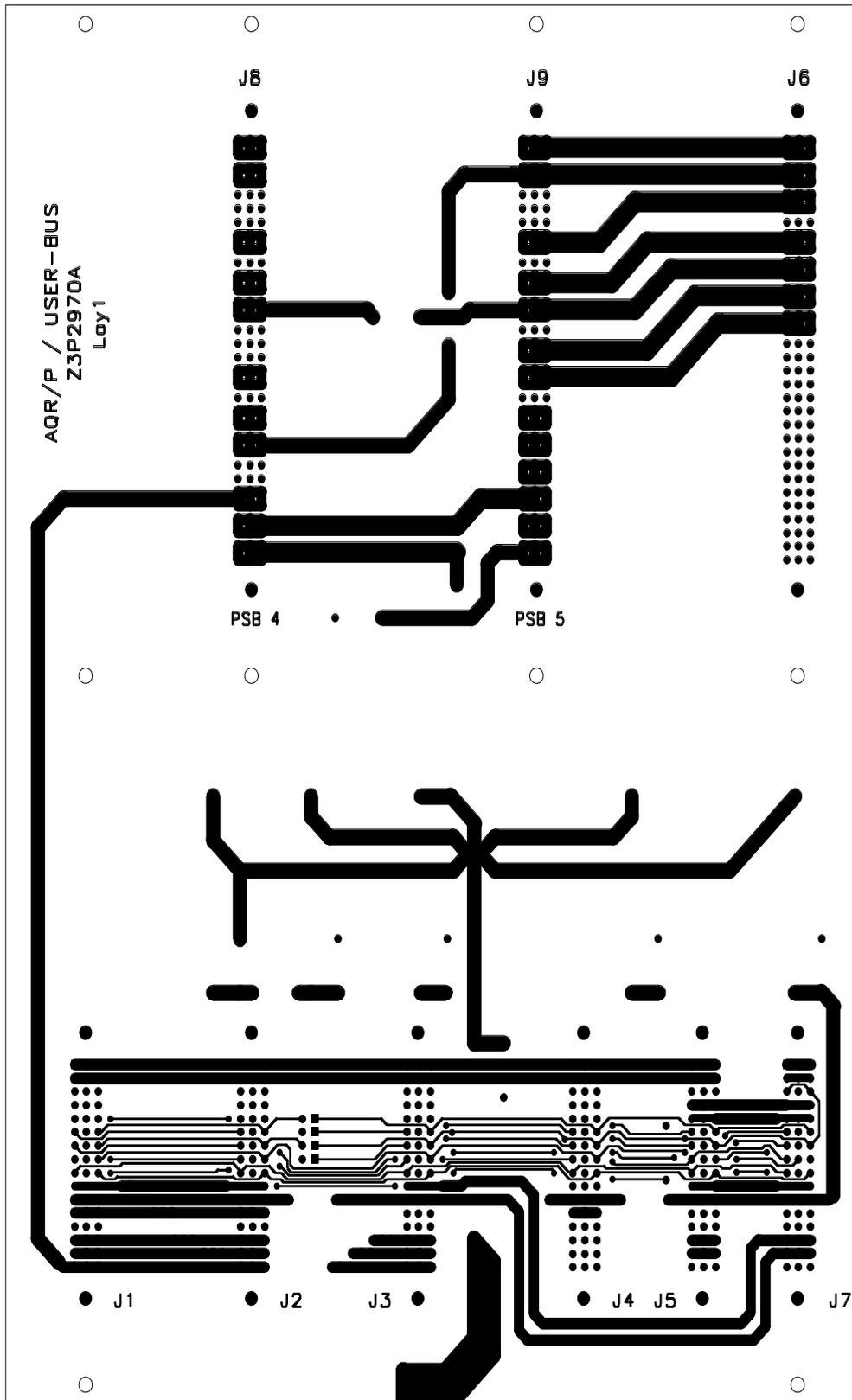


## Assembly map User-Bus

4.11



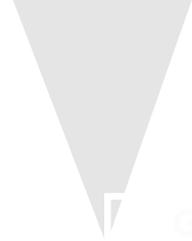




Printmass 183x263mm  
SPECTROSPIN AG CH\_8117 Foellenden  
Print-No.: Z3P2970A  
Layer1  
25.August 1993



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