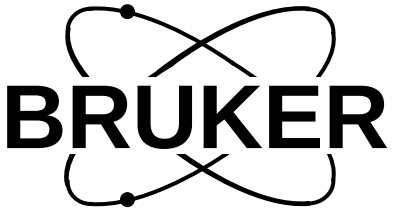



# AQR/P Mainframe-

# Manual

## Version 004

This Manual was written by
Werner Heiz

Spectrospin AG, CH-8117 Fällanden


Modified for BASH 2.0 by U. Roos - December 1996

P/N: Z31201
DWG-Nr.: 872 004

# Contents


**1 AQR/P-General Description ..... 3**

1.1 Introduction ..... 3
1.2 Basic of Operation ..... 3
1.3 Troubleshooting ..... 3

**2 Chassis and Bus ..... 5**

2.1 Introduction ..... 5
2.2 User-Bus ..... 6
2.3 I2C Addresses ..... 7
2.4 Technical Data ..... 8

**3 Power Supply ..... 9**

3.1 Introduction ..... 9
3.2 Installation ..... 10
3.3 Overview Power-Supply-System ..... 11
3.4 Overview Control Signals ..... 12
3.5 Ground Concept ..... 13
3.6 Power-Supply-Board (PSB) ..... 14
3.7 Technical Data of the PSB4 ..... 15
3.8 Technical Data of the PSB5 ..... 16
3.9 Power-Supply-Distribution (PSD) ..... 17
3.10 Technical Data of the PSD2 ..... 18
3.11 Transformer ..... 19
3.12 Wiring from PSD2 to HPPR ..... 20
3.13 Troubleshooting ..... 21

**4 Appendix ..... 23**

4.1 Introduction ..... 23
4.2 Scheme Wiring ..... 24
4.3 Scheme Power-Supply-Board ..... 26
4.4 Assembly map Power-Supply-Board ( PSB4 ) ..... 30
4.5 Assembly map Power-Supply-Board ( PSB5 ) ..... 31
4.6 List of parts Power-Supply-Board ( PSB4 ) ..... 32
4.7 List of parts Power-Supply-Board ( PSB5) ..... 39
4.8 Scheme Power-Supply-Distribution (PSD2) ..... 46
4.9 Assembly map Power-Supply-Distribution (PSD2) ..... 47
4.10 Scheme User-Bus ..... 48
4.11 Assembly map User-Bus ..... 57
4.12 Layout map User-Bus ..... 59

**List of Index ..... 61**

**List of Figures ..... 63**

**List of Tables ..... 65**

# AQR/P-General Description 1

## Introduction 1.1

This manual describes the mainframe of the AQR/P (**Ac**c**q**uisition **R**ack).

The following hardware is necessary:

1. One chassis wired (toroidal transformer, fan).
2. One **P**ower-**S**upply-**B**oard (PSB4).
3. One **P**ower-**S**upply-**B**oard (PSB5).
4. One **P**ower-**S**upply-**D**istribution (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.

# Chassis and Bus 2

## Introduction 2.1

The AQR/P is a special rack with 6 slots on the front side and 2 slots on the back-side. 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*

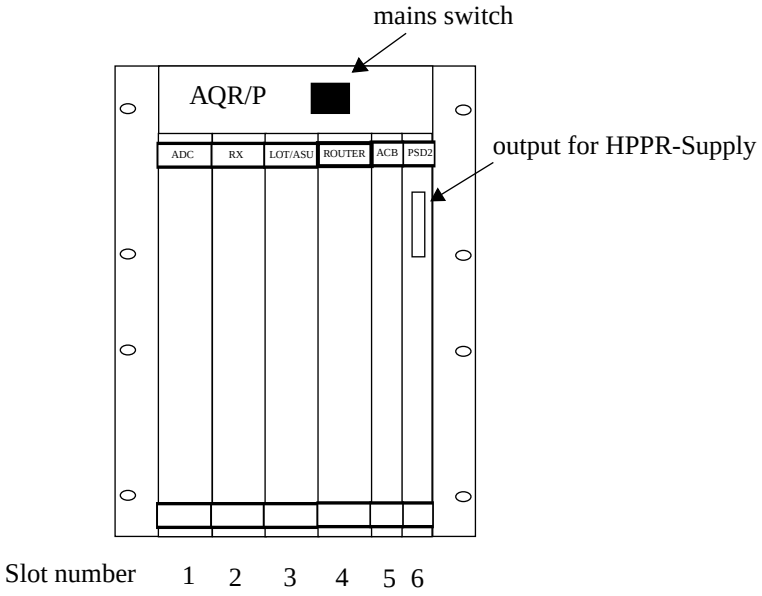
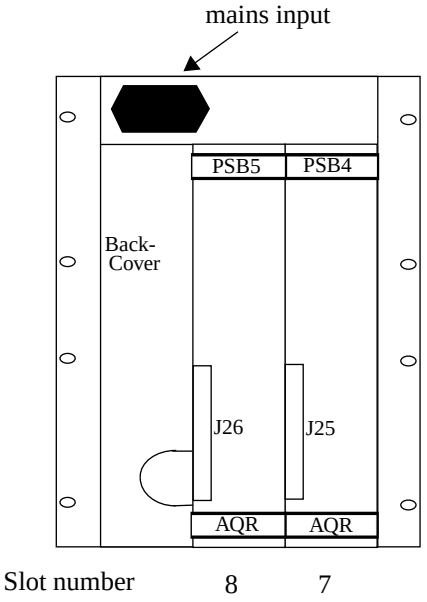


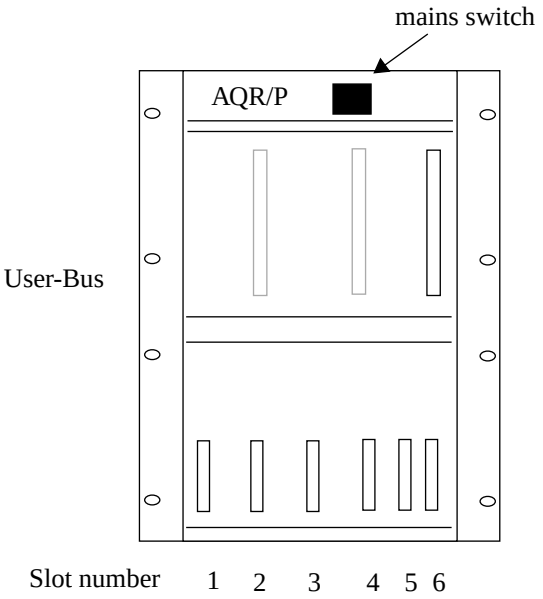
*Figure 2: Back view of the AQR/P*




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 |

# Power Supply 3

## Introduction 3.1

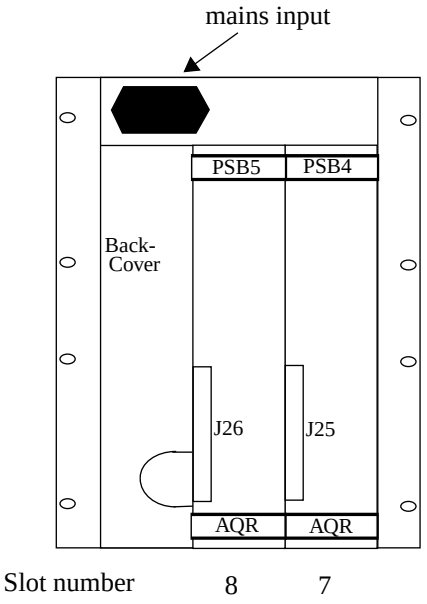
The Power-Supply of the AQR/P is located at the rear of the AQR/P Chassis.This consists essentially of two **P**ower-**S**upply-**B**oards PSB4 and PSB5. The **P**ower-**S**upply-**D**istribution (PSD2) is also a part of the power supply. It is located on the front side. The transformer is fixed behind 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*

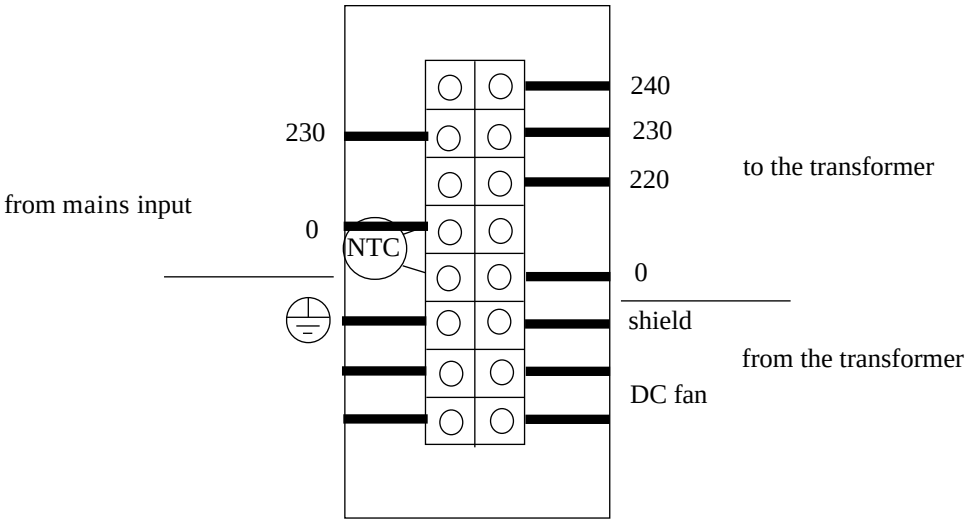



***Important: Before you turn ON the Power-Switch check the mains selector***

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.

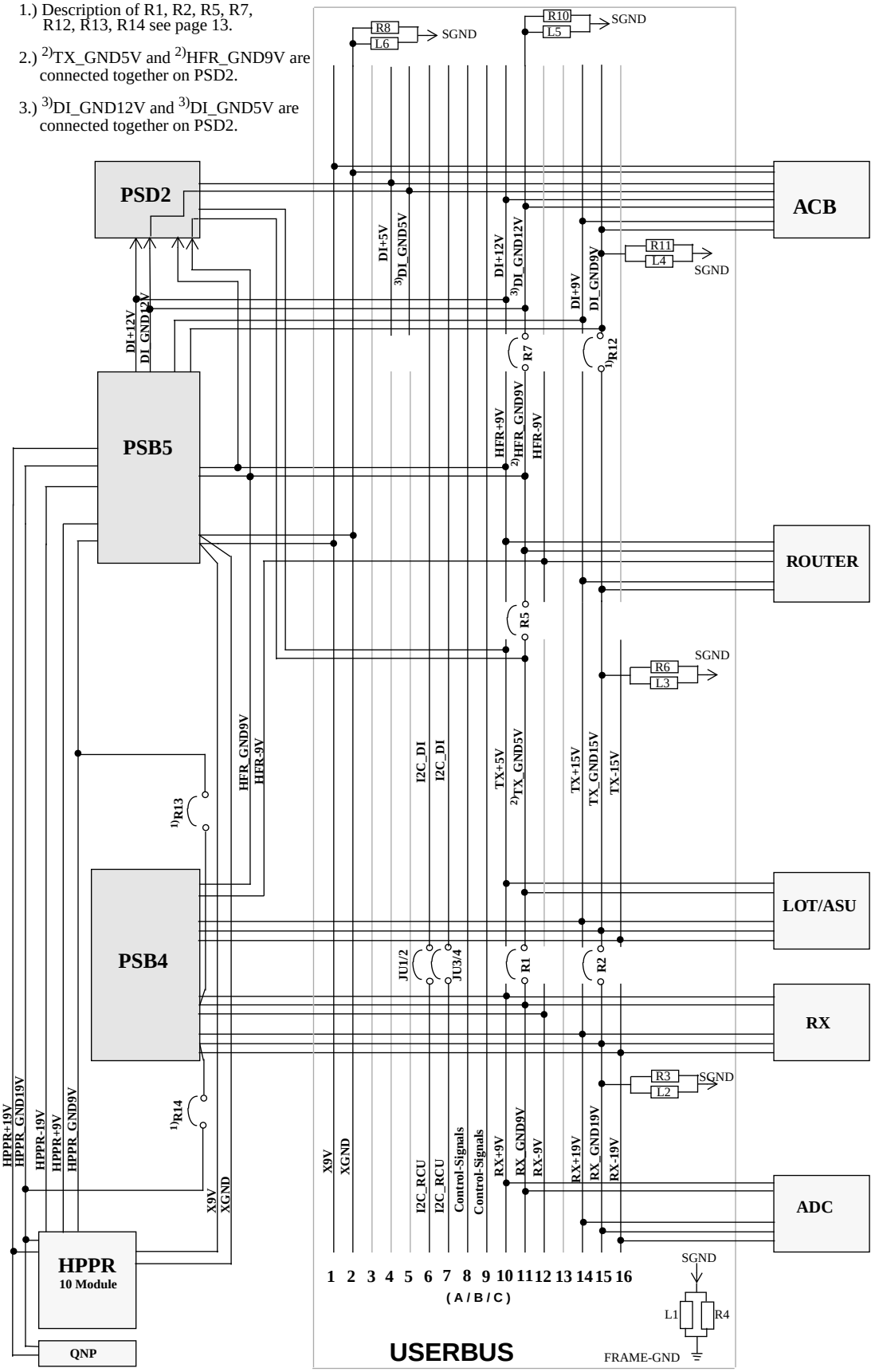
*Figure 5: The mains selector*



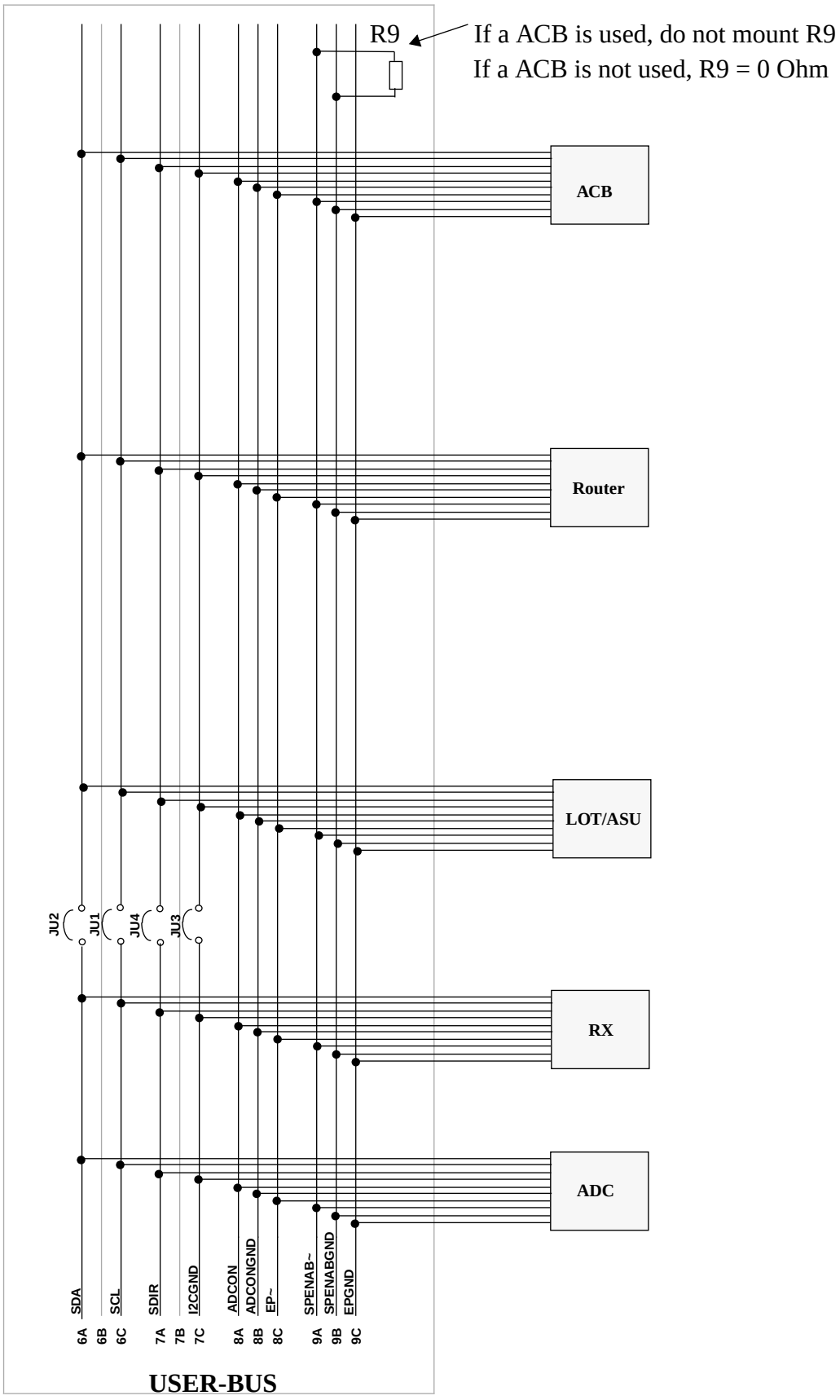
1.) Description of R1, R2, R5, R7, R12, R13, R14 see page 13.

2.) [2)]TX_GND5V and [2)]HFR_GND9V are connected together on PSD2.

3.) [3)]DI_GND12V and [3)]DI_GND5V are connected together on PSD2.



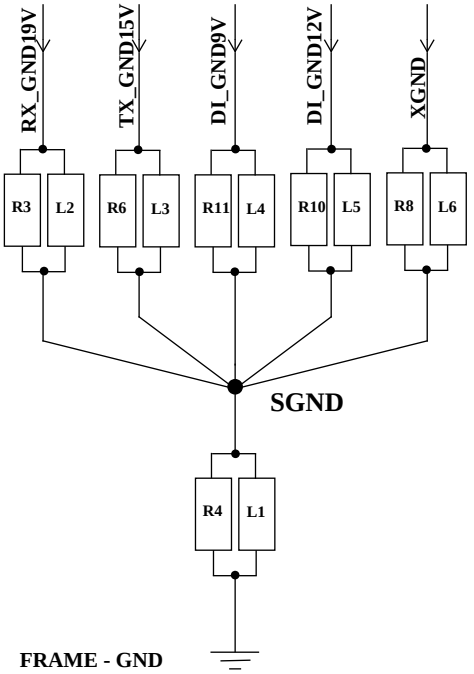
## Overview Control Signals 3.4



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).

## Power-Supply-Board (PSB) 3.6

The **P**ower-**S**upply-**B**oard (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*

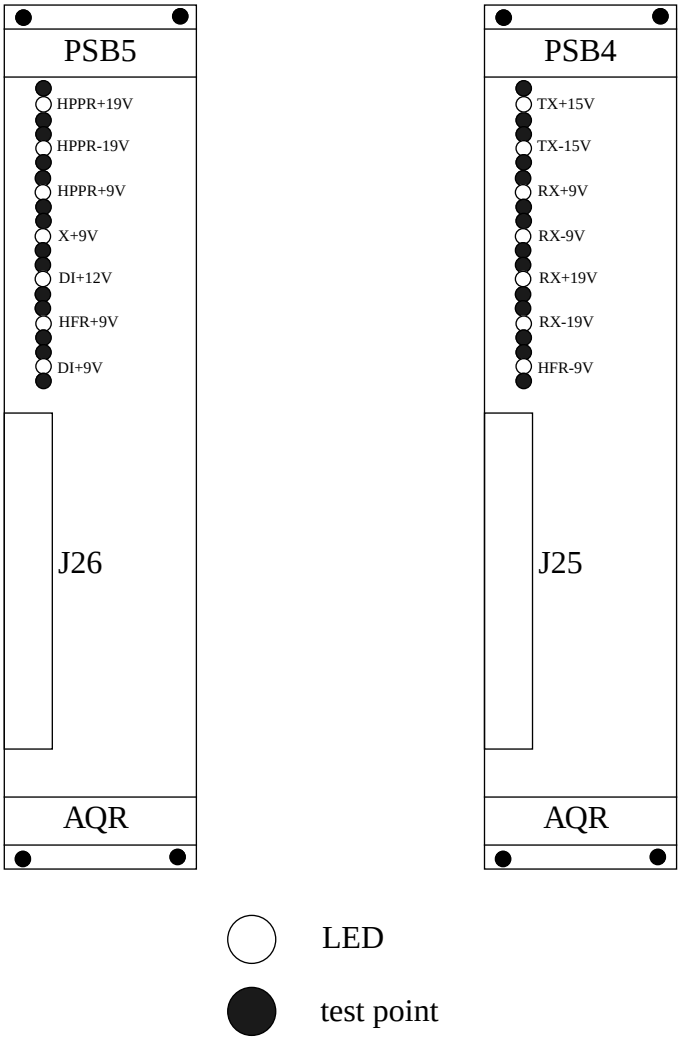


**Table 4. Rated Voltages and Currents of PSB4**

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

Note: [1)] These currents chanched from ECL00 to ECL01

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

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

Note: [1)] These currents chanched from ECL00 to ECL01

The **P**ower-**S**upply-**D**istribution (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*

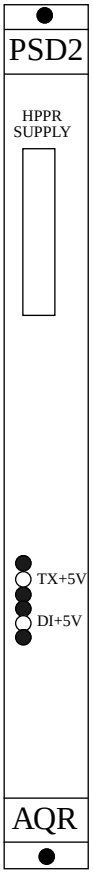


**Table 6. Rated Voltages and Currents of PSD2**

| 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 | | |

## Transformer-Connector 3.11.1

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

## Wiring from PSD2 to HPPR 3.12

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.

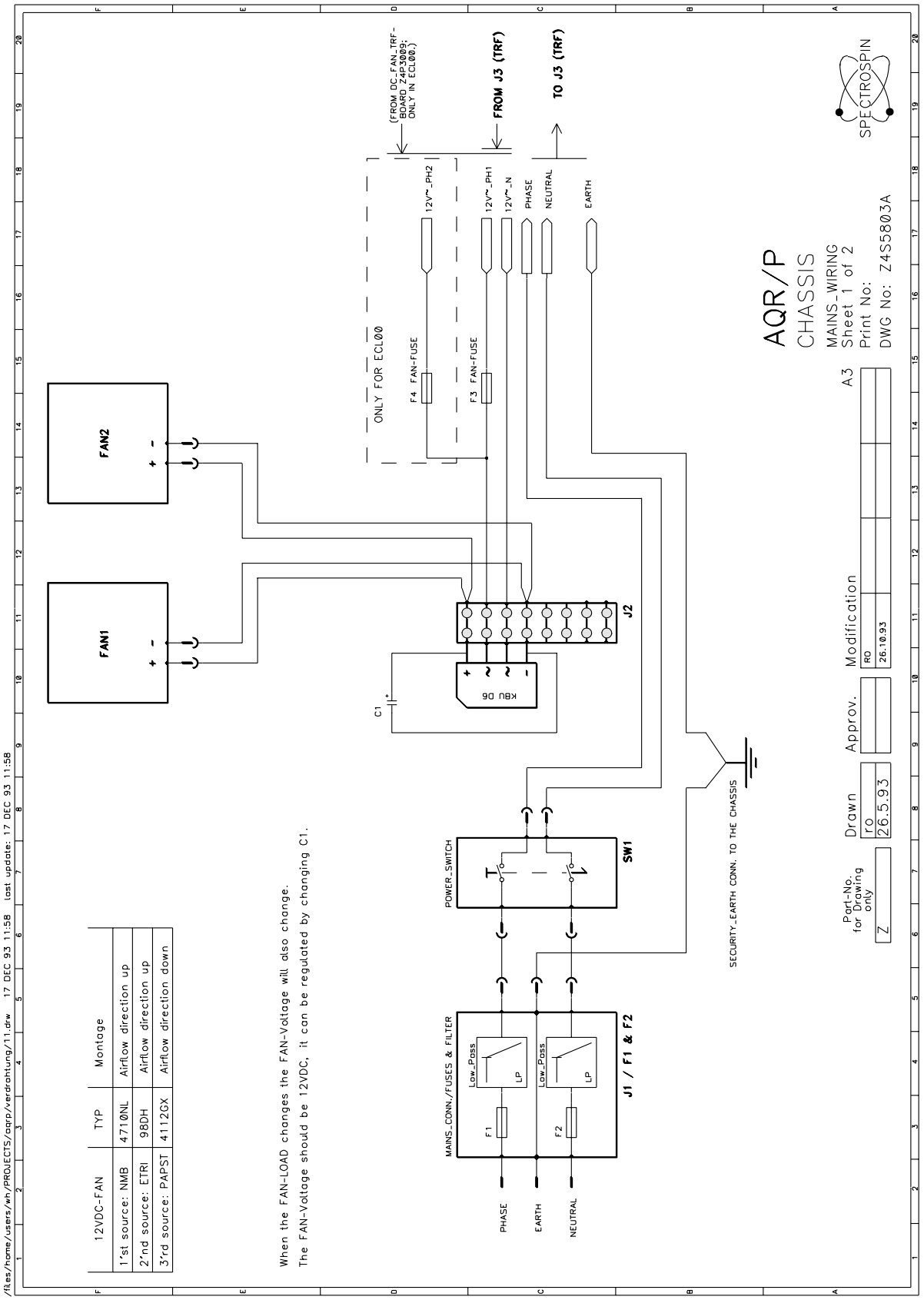
# Appendix 4

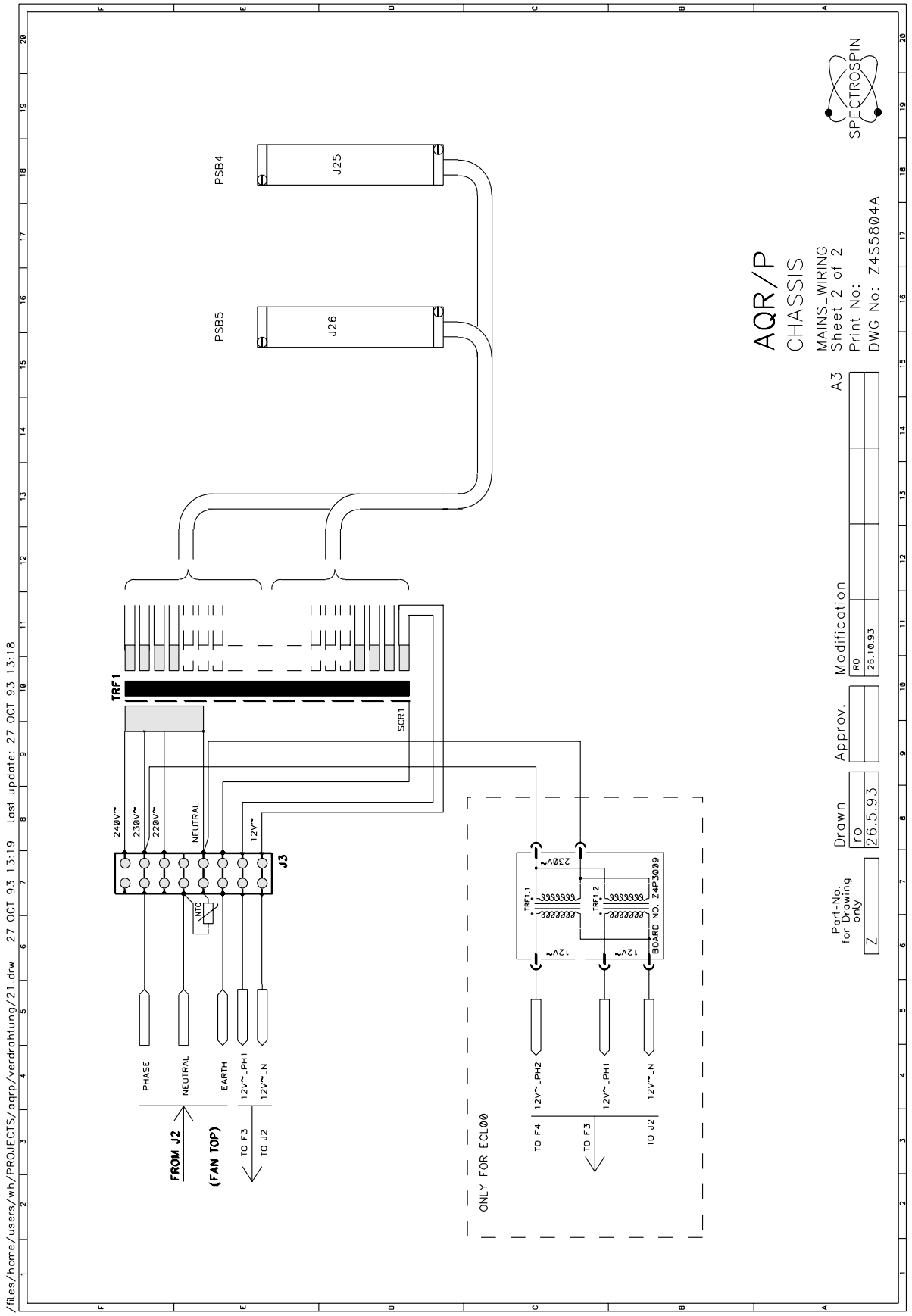
## Introduction 4.1

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

## Scheme Wiring 4.2

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AQR/P
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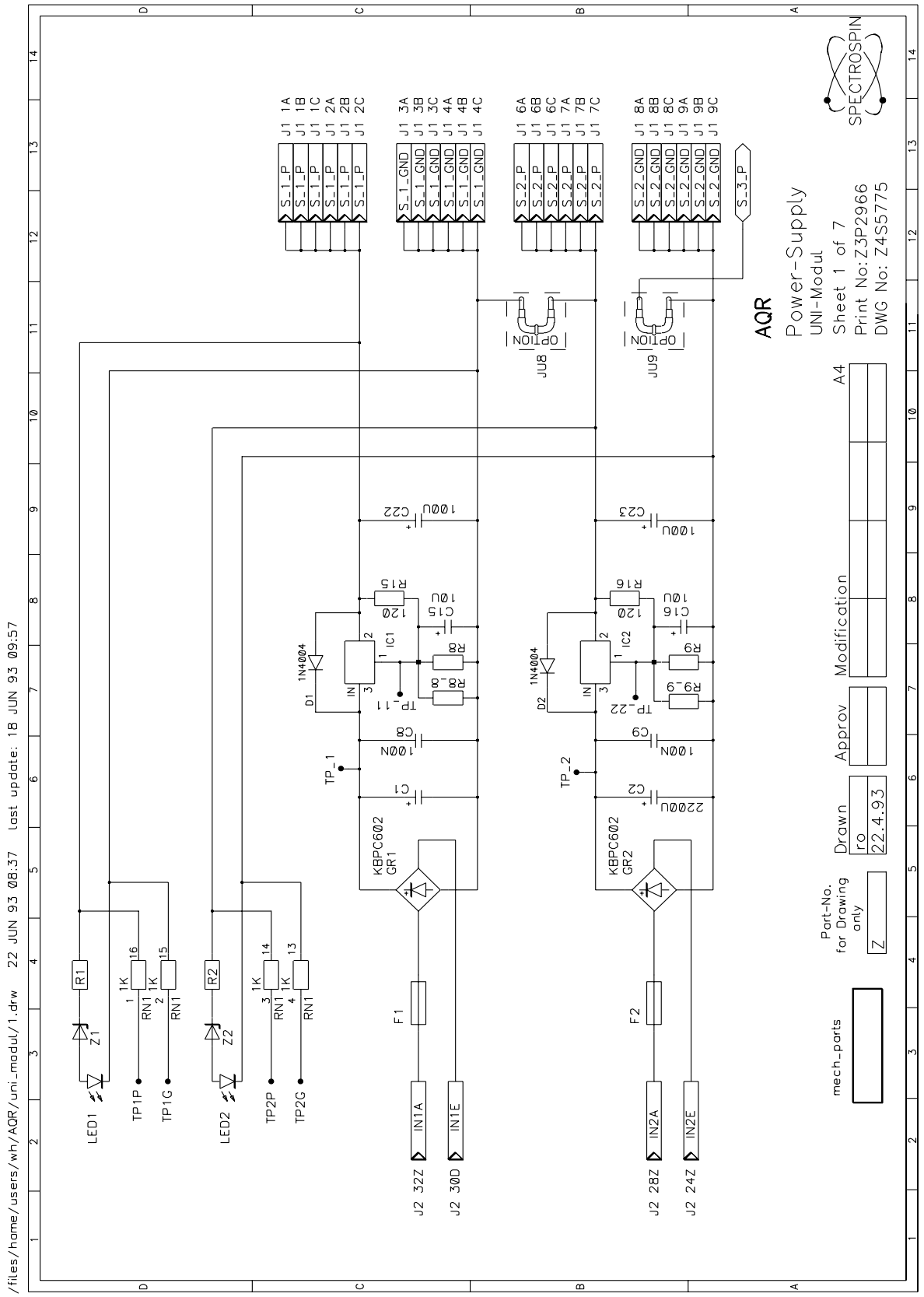
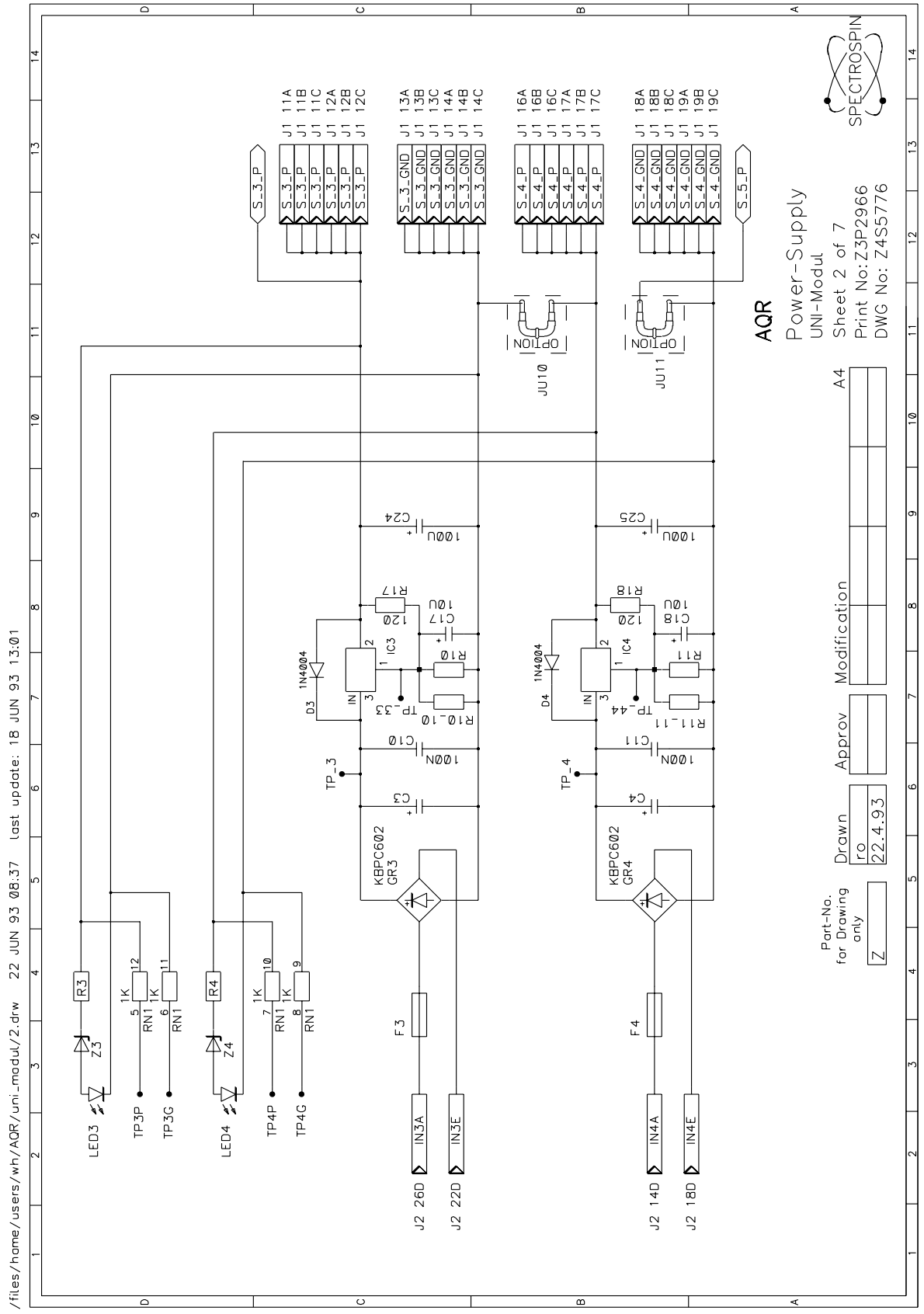
MAINS_WIRING
Sheet 2 of 2
Print No:
DWG No: Z4S5804A
SPECTROSPIN
A3
Modification
RO
26.10.93
Approv.
Drawn
ro
26.5.93
Part-No.
for Drawing
only
Z
PSB4
J25
PSB5
J26
TRF1
SCR1
240V~
230V~
220V~
NEUTRAL
12V~
J3
NTC
PHASE
NEUTRAL
EARTH
12V~_PH1
12V~_N
FROM J2
(FAN TOP)
TO F3
TO J2
ONLY FOR ECL00
TRF1.1
TRF1.2
230V~
12V~
BOARD NO. Z4P3009
12V~_PH2
12V~_PH1
12V~_N
TO F4
TO F3
TO J2

## Scheme Power-Supply-Board 4.3

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AQR
Power-Supply
UNI-Modul
Sheet 2 of 7
Print No:Z3P2966
DWG No: Z4S5776
SPECTROSPIN
A4
Modification
Approv
Drawn
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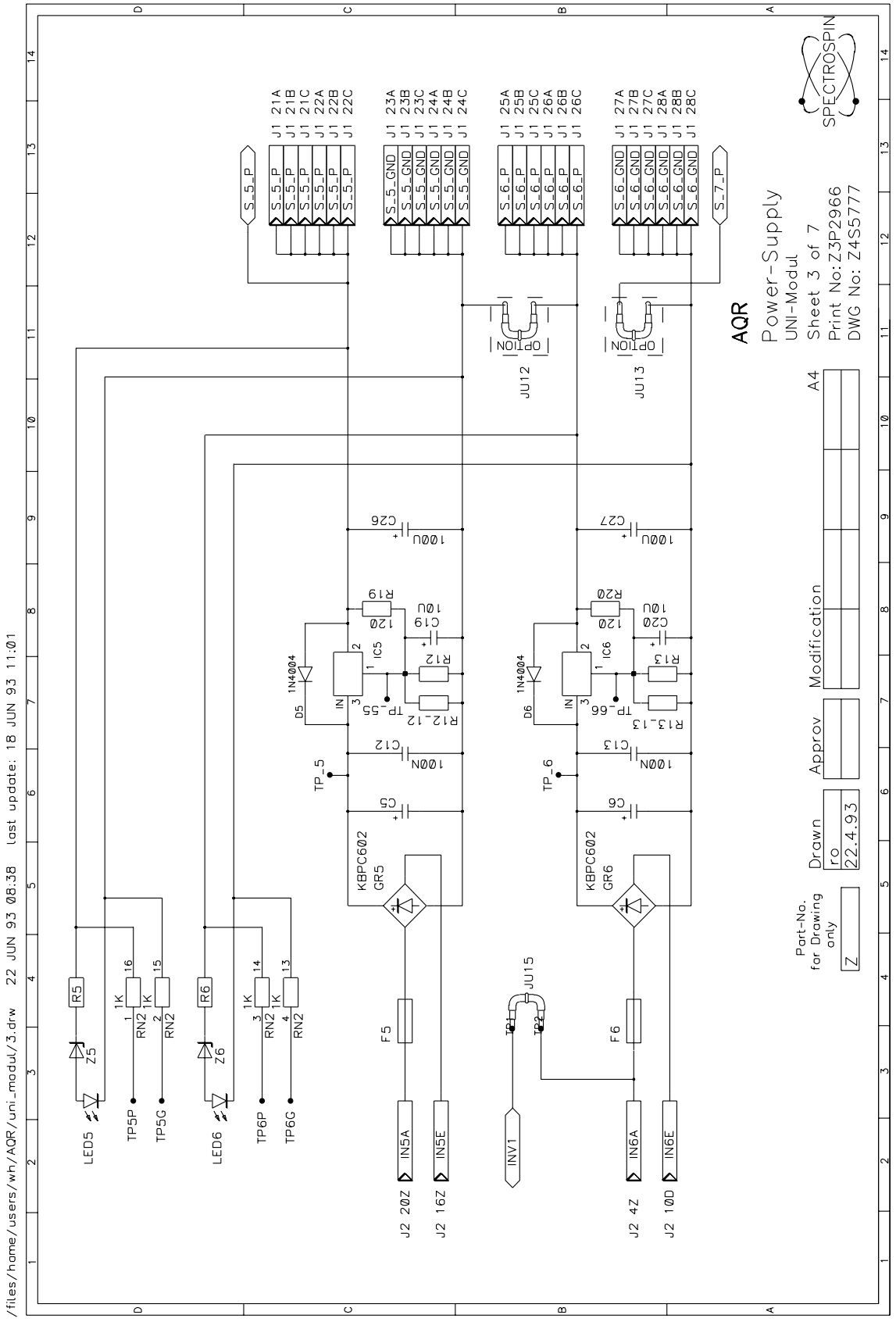
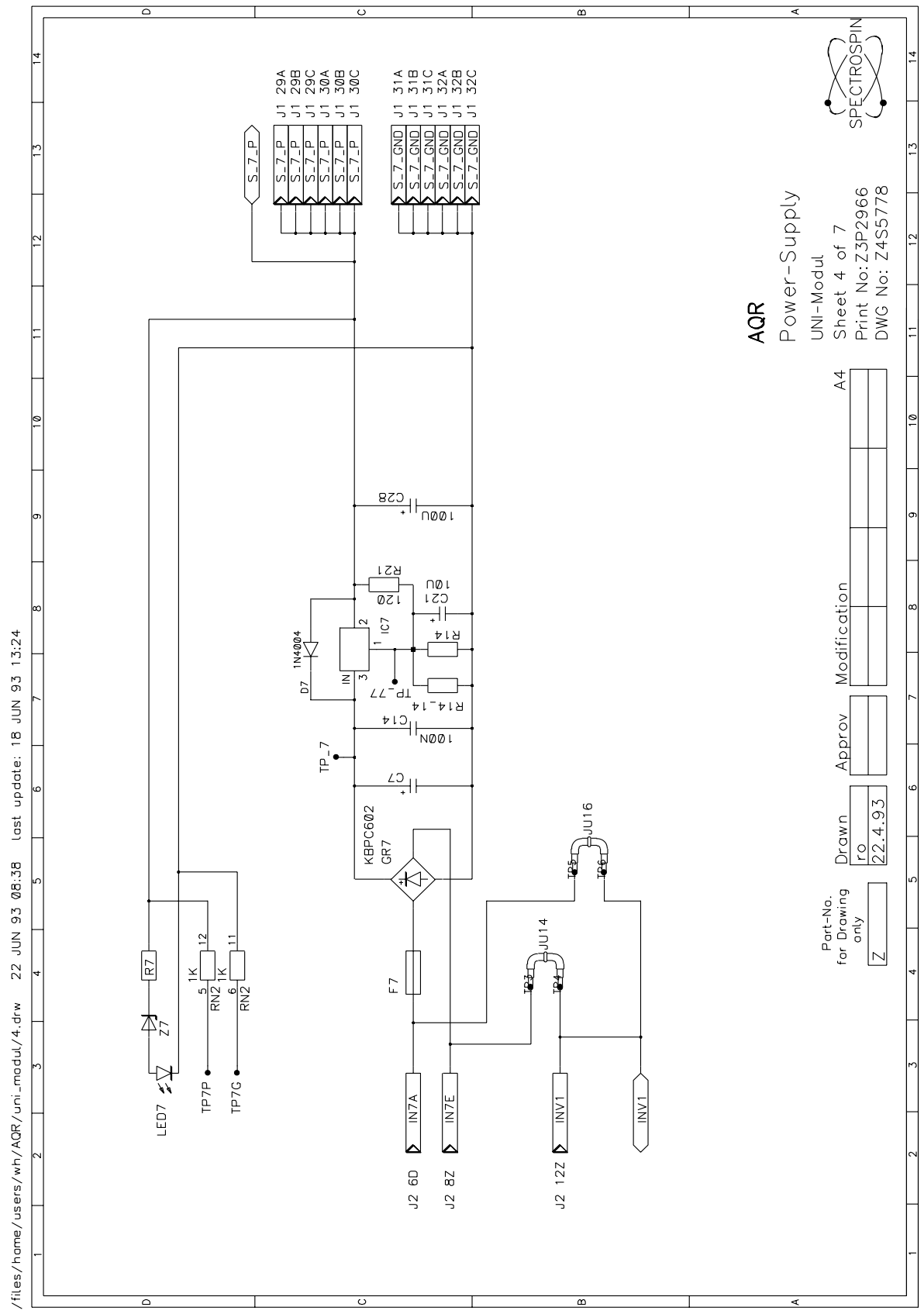
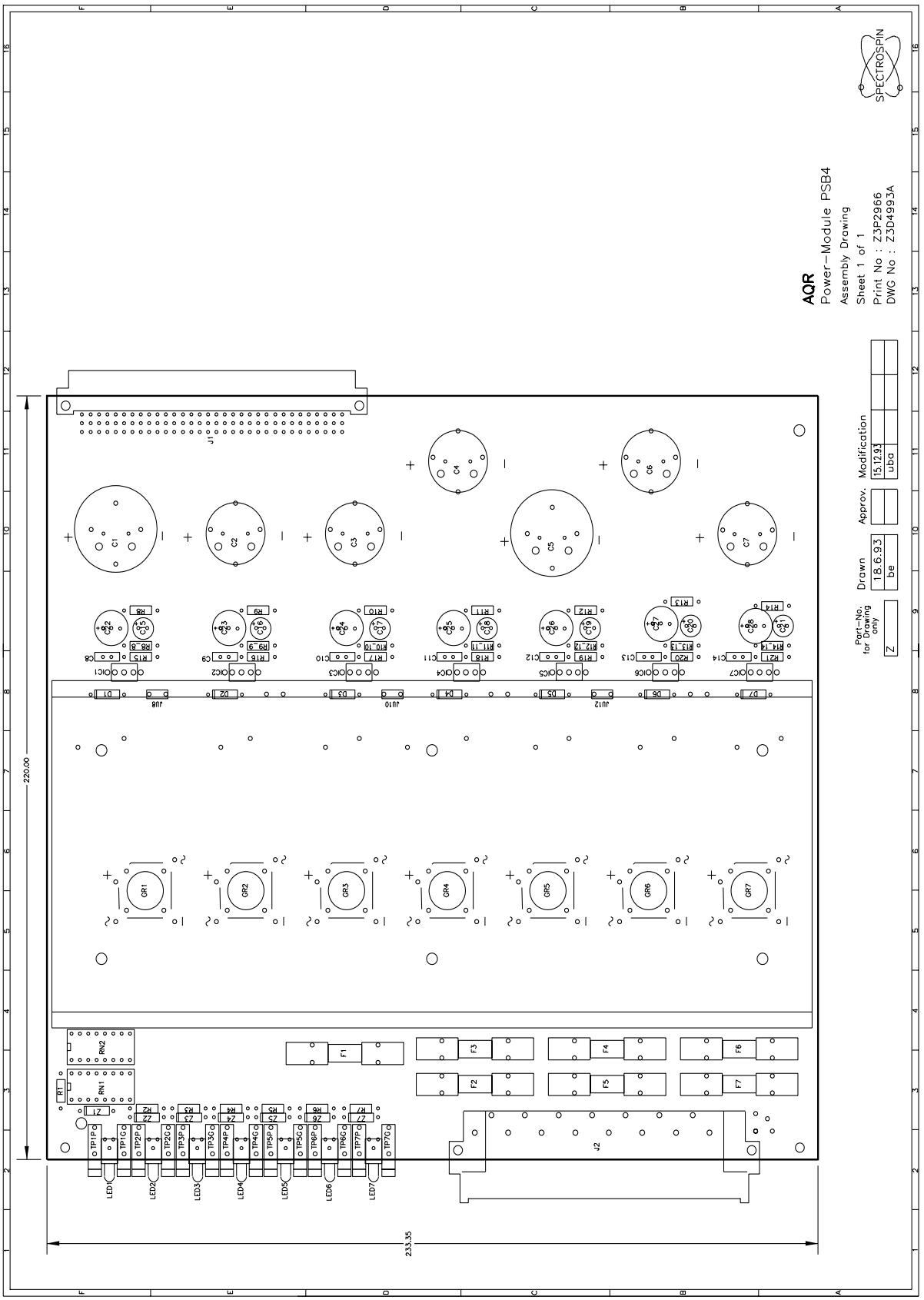
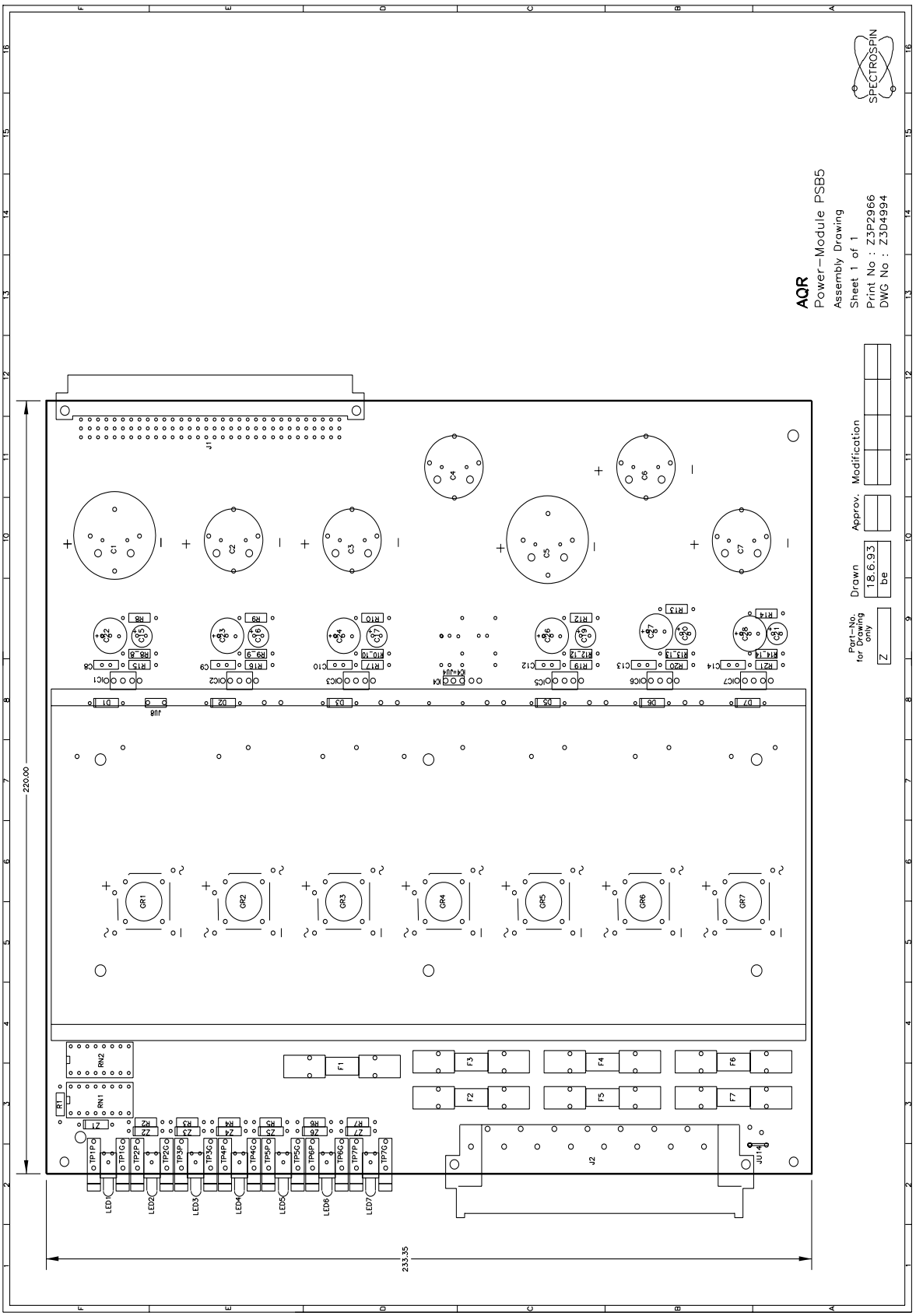
22.4.93
Part-No.
for Drawing
only
Z
S_3_P
S_5_P
S_3_GND
S_4_P
S_4_GND
J1 11A
J1 11B
J1 11C
J1 12A
J1 12B
J1 12C
J1 13A
J1 13B
J1 13C
J1 14A
J1 14B
J1 14C
J1 16A
J1 16B
J1 16C
J1 17A
J1 17B
J1 17C
J1 18A
J1 18B
J1 18C
J1 19A
J1 19B
J1 19C
JU10
JU11
C24
C25
100U
R17
R18
20
10C
C17
C18
R10
R11
IC3
IC4
1N4004
D3
D4
R10_10
R11_11
TP_3
TP_4
TP_33
TP_44
C10
C11
100N
C3
C4
KBPC602
GR3
GR4
F3
F4
R3
R4
Z3
Z4
LED3
LED4
1K
RN1
TP3P
TP3G
TP4P
TP4G
IN3A
IN3E
IN4A
IN4E
J2 26D
J2 22D
J2 14D
J2 18D


/files/home/users/wh/AQR/uni_modul/3.drw 22 JUN 93 08:38 last update: 18 JUN 93 11:01
AQR
Power-Supply
UNI-Modul
Sheet 3 of 7
Print No: Z3P2966
DWG No: Z4S5777
SPECTROSPIN
A4
Modification
Approv
Drawn
ro
22.4.93
Part-No.
for Drawing
only
Z
S_5_P
S_5_GND
S_6_P
S_6_GND
S_7_P
J1 21A
J1 21B
J1 21C
J1 22A
J1 22B
J1 22C
J1 23A
J1 23B
J1 23C
J1 24A
J1 24B
J1 24C
J1 25A
J1 25B
J1 25C
J1 26A
J1 26B
J1 26C
J1 27A
J1 27B
J1 27C
J1 28A
J1 28B
J1 28C
JU12
JU13
JU15
OPTION
C26
C27
100U
R19
R20
12Ø
C19
C20
10U
IC5
IC6
IN
1N4004
D5
D6
R12
R13
R12_12
R13_13
TP_55
TP_66
C12
C13
100N
TP_5
TP_6
C5
C6
KBPC602
GR5
GR6
F5
F6
TP1
TP2
INV1
R5
R6
Z5
Z6
1K
RN2
TP5P
TP5G
TP6P
TP6G
LED5
LED6
J2 20Z
J2 16Z
J2 4Z
J2 10D
IN5A
IN5E
IN6A
IN6E


/files/home/users/wh/AQR/uni_modul/4.drw 22 JUN 93 08:38 last update: 18 JUN 93 13:24
AQR
Power-Supply
UNI-Modul
Sheet 4 of 7
Print No: Z3P2966
DWG No: Z4S5778
SPECTROSPIN
A4
Modification
Approv
Drawn
ro
22.4.93
Part-No.
for Drawing
only
Z
S_7_P
J1 29A
J1 29B
J1 29C
J1 30A
J1 30B
J1 30C
S_7_GND
J1 31A
J1 31B
J1 31C
J1 32A
J1 32B
J1 32C
C28
100U
R21
120
C21
10U
IC7
R14
TP_77
R14_14
C14
100N
TP_7
C7
D7
1N4004
KBPC602
GR7
F7
JU16
JU14
TP5
TP6
TP3
TP4
R7
Z7
LED7
1K
RN2
TP7P
TP7G
IN7A
IN7E
INV1
J2 6D
J2 8Z
J2 12Z

## Assembly map Power-Supply-Board ( PSB4 ) 4.4




SPECTROSPIN
AQR
Power—Module PSB5
Assembly Drawing
Sheet 1 of 1
Print No : Z3P2966
DWG No : Z3D4994
Modification
Approv.
Drawn
18.6.93
be
Part-No. for Drawing only
Z
220.00
233.35

## List of parts Power-Supply-Board ( PSB4 ) 4.6

```
# 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 : 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 : :
```

```
 :R12_12 :8543 :RES :1.8K :R04010A : :
 :R13 :20820 :RES :33K :R04010A : :
 :R13_13 :8543 :RES :1.8K :R04010A : :
 :R14 :4716 :RES :820 :R04010A : :
 :R14_14 :3960 :RES :8.2K :R04010A : :
 :R15 :8761 :RES :120 :R04010A : :
 :R16 :8761 :RES :120 :R04010A : :
 :R17 :8761 :RES :120 :R04010A : :
 :R18 :8761 :RES :120 :R04010A : :
 :R19 :8761 :RES :120 :R04010A : :
 :R20 :8761 :RES :120 :R04010A : :
 :R21 :8761 :RES :120 :R04010A : :
#....:.....:.....:.....:.....:.....:.....:
# :Capacitors
 :C1 :42147 :CAP_POL1 :4700U :C_RAD_SPC : :
 :C2 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C3 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C4 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C5 :42147 :CAP_POL1 :4700U :C_RAD_SPC : :
 :C6 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C7 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C8 :1937 :CAP :100N :C010A010 : :
 :C9 :1937 :CAP :100N :C010A010 : :
 :C10 :1937 :CAP :100N :C010A010 : :
 :C11 :1937 :CAP :100N :C010A010 : :
 :C12 :1937 :CAP :100N :C010A010 : :
 :C13 :1937 :CAP :100N :C010A010 : :
 :C14 :1937 :CAP :100N :C010A010 : :
 :C15 :1991 :CAP_POL :10U :C010E025 : :
 :C16 :1991 :CAP_POL :10U :C010E025 : :
 :C17 :1991 :CAP_POL :10U :C010E025 : :
 :C18 :1991 :CAP_POL :10U :C010E025 : :
 :C19 :1991 :CAP_POL :10U :C010E025 : :
 :C20 :1991 :CAP_POL :10U :C010E025 : :
 :C21 :1991 :CAP_POL :10U :C010E025 : :
 :C22 :1985 :CAP_POL :100U :C020E040 : :
```

```
 :C23 :1985 :CAP_POL :100U :C020E040 : :
 :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 : :
#....:........:........:.............:........:.............:...................:
# :Diodes
 :D1 :4326 :1N4004 : :DO41 : :
 :D2 :4326 :1N4004 : :DO41 : :
 :D4 :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 :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 :

: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 :

: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 :

:MECH35 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH36 :4303 :DIST_BOLT :M3X40 : :DISTANZBOLZEN :

:MECH37 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH38 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH39 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

: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 :

:MECH51 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH52 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH53 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH54 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH55 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

: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: : :AUSZIEHGRIFF 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: : :AUSZIEHGRIFF 12TE:

:MECH70 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH71 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH72 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH73 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH74 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH75 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH76 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

: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 :

:MECH84 :25590 :WASHER_FAN :M2,5 : :FAECHERSCHEIBE :

:MECH85 :25590 :WASHER_FAN :M2,5 : :FAECHERSCHEIBE :

:MECH86 :25589 :WASHER :M2.5 : :UNTERLAGSCHEIBE :

:MECH87 :25589 :WASHER :M2.5 : :UNTERLAGSCHEIBE :

:MECH88 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH89 :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 :

:MECH92 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH93 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH94 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH97 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

:MECH98 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

:MECH99 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

8 :RN1 :473 :RES_PAK :1K :DIP16 : :

6 :RN2 :473 :RES_PAK :1K :DIP16 : :

:Z1 :343 : :10V : : :

:Z2 :343 : :10V : : :

:Z3 :338 : :5.1V : : :

:Z4 :338 : :5.1V : : :

:Z5 :328 : :15V : : :

:Z6 :328 : :15V : : :

:Z7 :338 : :5.1V : : :

#....:.....:.....:.....:.....:.....:.....:

```
# 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 : :
```

```
 :R13_13 :3960 :RES :8.2K :R04010A : :
 :R14 :4716 :RES :820 :R04010A : :
 :R14_14 :3960 :RES :8.2K :R04010A : :
 :R15 :8761 :RES :120 :R04010A : :
 :R16 :8761 :RES :120 :R04010A : :
 :R17 :8761 :RES :120 :R04010A : :
 :R19 :8761 :RES :120 :R04010A : :
 :R20 :8761 :RES :120 :R04010A : :
 :R21 :8761 :RES :120 :R04010A : :
#....:........:........:.............:........:.............:...................:
# :Capacitors
 :C1 :42147 :CAP_POL1 :4700U :C_RAD_SPC : :
 :C2 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C3 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C4 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C5 :42147 :CAP_POL1 :4700U :C_RAD_SPC : :
 :C6 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C7 :22692 :CAP_POL1 :2200U :C_RAD_SPC : :
 :C8 :1937 :CAP :100N :C010A010 : :
 :C9 :1937 :CAP :100N :C010A010 : :
 :C10 :1937 :CAP :100N :C010A010 : :
 :C12 :1937 :CAP :100N :C010A010 : :
 :C13 :1937 :CAP :100N :C010A010 : :
 :C14 :1937 :CAP :100N :C010A010 : :
 :C15 :1991 :CAP_POL :10U :C010E025 : :
 :C16 :1991 :CAP_POL :10U :C010E025 : :
 :C17 :1991 :CAP_POL :10U :C010E025 : :
 :C19 :1991 :CAP_POL :10U :C010E025 : :
 :C20 :1991 :CAP_POL :10U :C010E025 : :
 :C21 :1991 :CAP_POL :10U :C010E025 : :
 :C22 :1985 :CAP_POL :100U :C020E040 : :
 :C23 :1985 :CAP_POL :100U :C020E040 : :
 :C24 :1985 :CAP_POL :100U :C020E040 : :
 :C26 :1985 :CAP_POL :100U :C020E040 : :
 :C27 :1985 :CAP_POL :100U :C020E040 : :
 :C28 :1985 :CAP_POL :100U :C020E040 : :
```

```
#....:........:........:.............:........:.............:...................:
# :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 :

: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 :Z12493 : : : : :

:MECH33 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH34 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH35 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH36 :4303 :DIST_BOLT :M3X40 : :DISTANZBOLZEN :

:MECH37 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH38 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

:MECH39 :9600 :DIST_BOLT :M3X12 : :DISTANZBOLZEN :

: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 :

:MECH48 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH49 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH5 :Z12492 : : : : :

:MECH50 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH51 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH52 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

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:MECH54 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

:MECH55 :25584 :SCREW_COUNT_:M3x6 : :SENKSCHR :

: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: : :AUSZIEHGRIFF 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: : :AUSZIEHGRIFF 12TE:

:MECH70 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH71 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH72 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH73 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH74 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH75 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

:MECH76 :25574 :SCREW_RND :M3x10 : :LINSENSCHRAUBE :

: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 :

:MECH84 :25590 :WASHER_FAN :M2,5 : :FAECHERSCHEIBE :

:MECH85 :25590 :WASHER_FAN :M2,5 : :FAECHERSCHEIBE :

: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 :

:MECH92 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH93 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH94 :21486 :TRANS ZUB WA:TO220 : :TRANS ZUB WAERMRL:

: : : : : :EITS :

:MECH97 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

:MECH98 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

:MECH99 :25573 :SCREW_RND :M3x8 : :LINSENSCHRAUBE :

8 :RN1 :473 :RES_PAK :1K :DIP16 : :

6 :RN2 :473 :RES_PAK :1K :DIP16 : :

:TP1G :42145 :TP : :TEST_CON : :

:TP1P :42145 :TP : :TEST_CON : :

:TP2G :42145 :TP : :TEST_CON : :

:TP2P :42145 :TP : :TEST_CON : :

:TP3G :42145 :TP : :TEST_CON : :

:TP3P :42145 :TP : :TEST_CON : :

:TP4G :42145 :TP : :TEST_CON : :

:TP4P :42145 :TP : :TEST_CON : :

:TP5G :42145 :TP : :TEST_CON : :

:TP5P :42145 :TP : :TEST_CON : :

:TP6G :42145 :TP : :TEST_CON : :

:TP6P :42145 :TP : :TEST_CON : :

:TP7G :42145 :TP : :TEST_CON : :

:TP7P :42145 :TP : :TEST_CON : :

:Z1 :328 : :15V : : :

:Z2 :328 : :15V : : :

:Z3 :338 : :5.1V : : :

:Z4 :2958 : :6.8V : : :

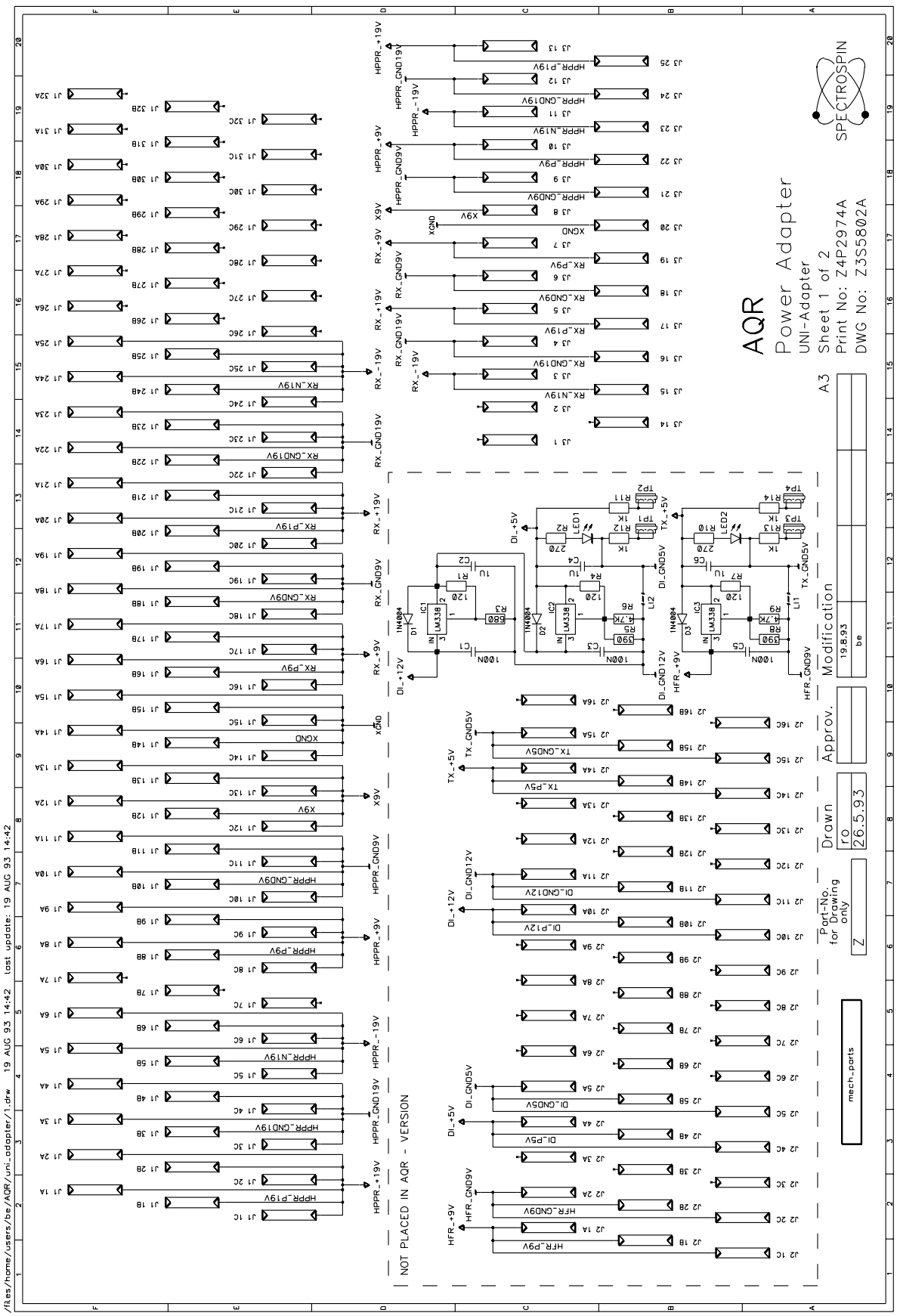
:Z5 :341 : :8.2V : : :

:Z6 :338 : :5.1V : : :

:Z7 :338 : :5.1V : : :

#....:.....:.....:.....:.....:.....:.....:

## Scheme Power-Supply-Distribution (PSD2) 4.8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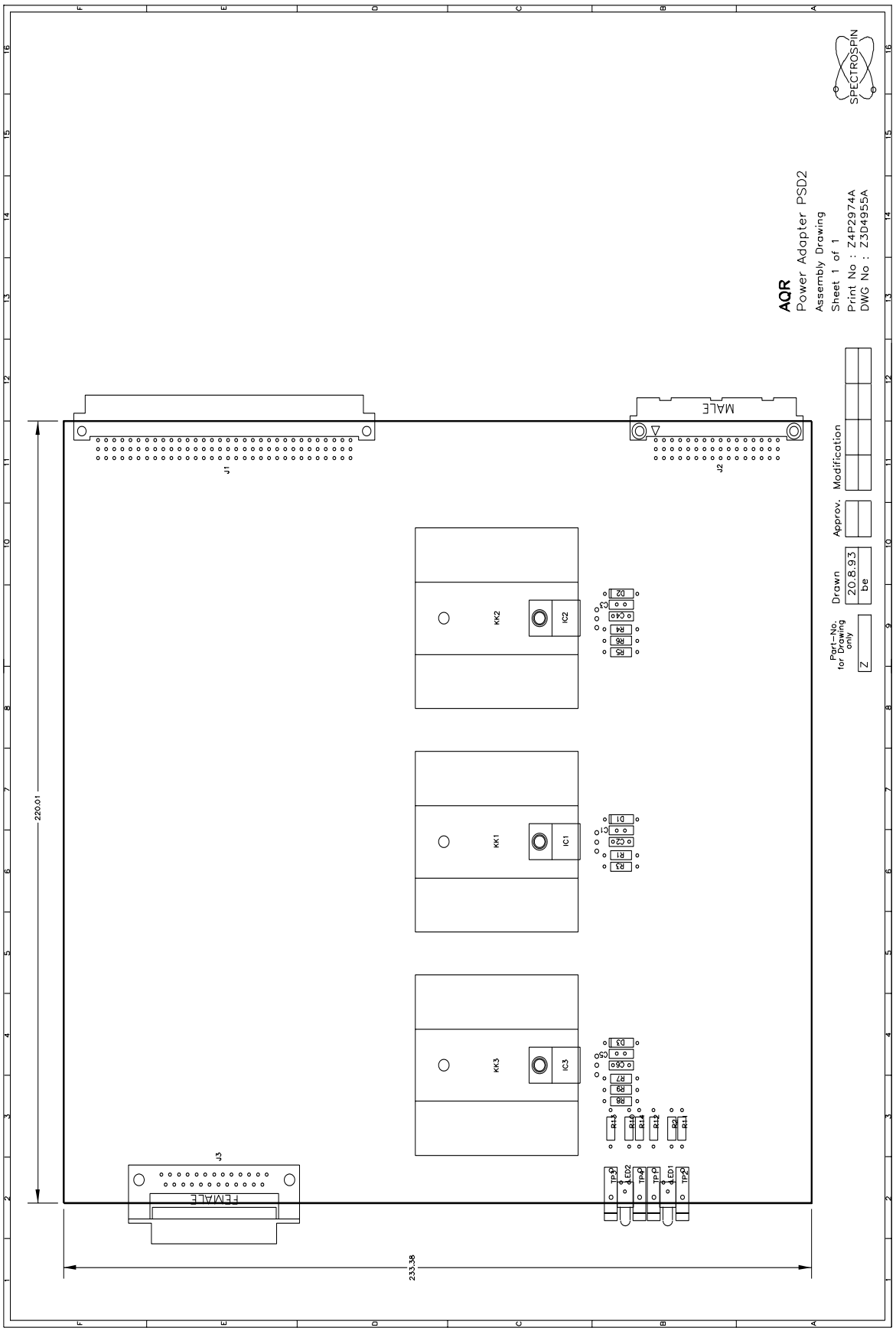
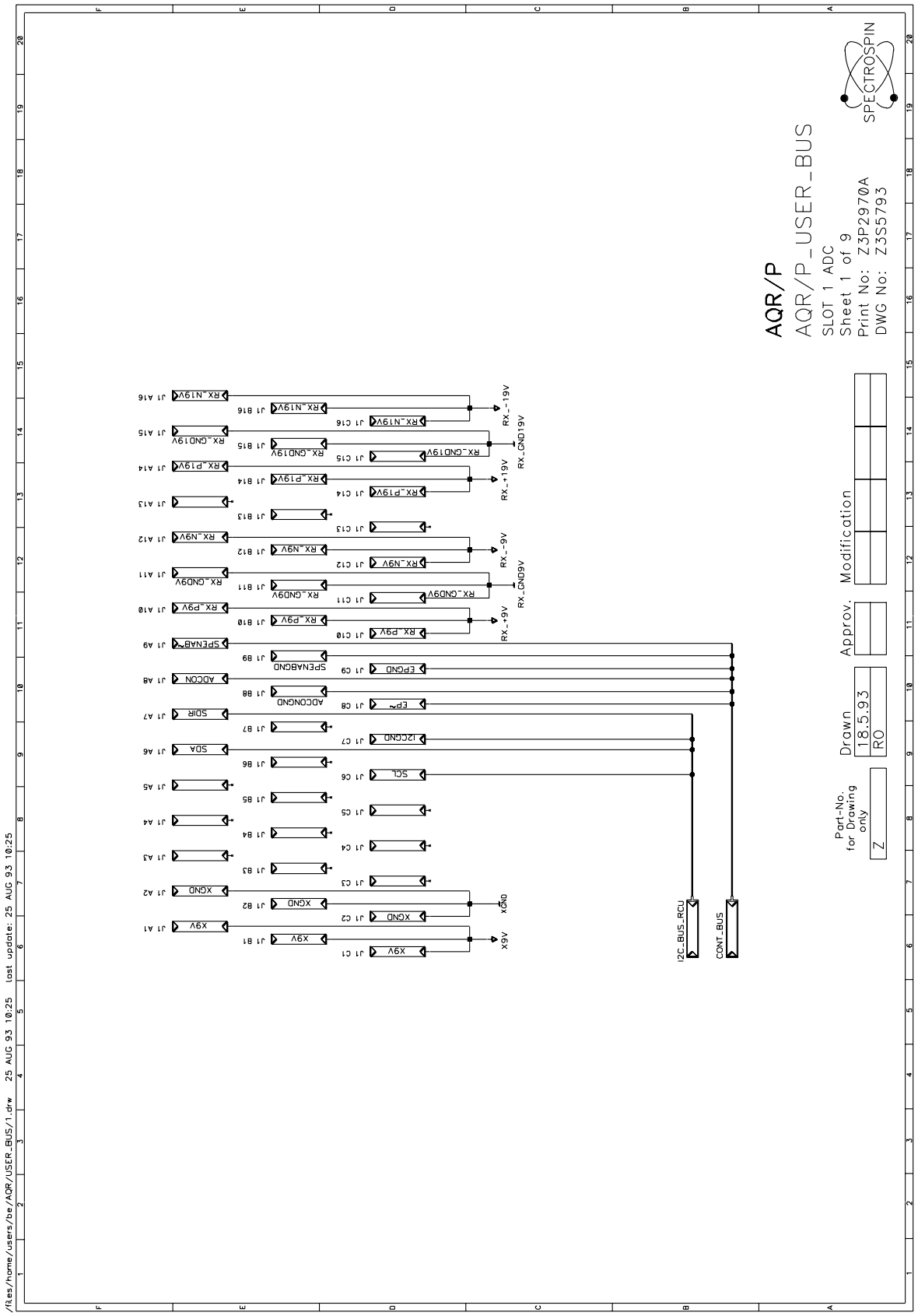
Power Adapter
UNI-Adapter
Sheet 1 of 2
Print No: Z4P2974A
DWG No: Z355802A
A3
SPECTROSPIN
Modification
Approv.
Drawn
ro
26.5.93
Part-No.
for Drawing
only
mech_parts
NOT PLACED IN AQR - VERSION
/files/home/users/be/AQR/uni_adapter/1.drw 19 AUG 93 14:42 last update: 19 AUG 93 14:42

## Assembly map Power-Supply-Distribution (PSD2) 4.9

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SLOT 1 ADC
Sheet 1 of 9
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DWG No: Z3S5793
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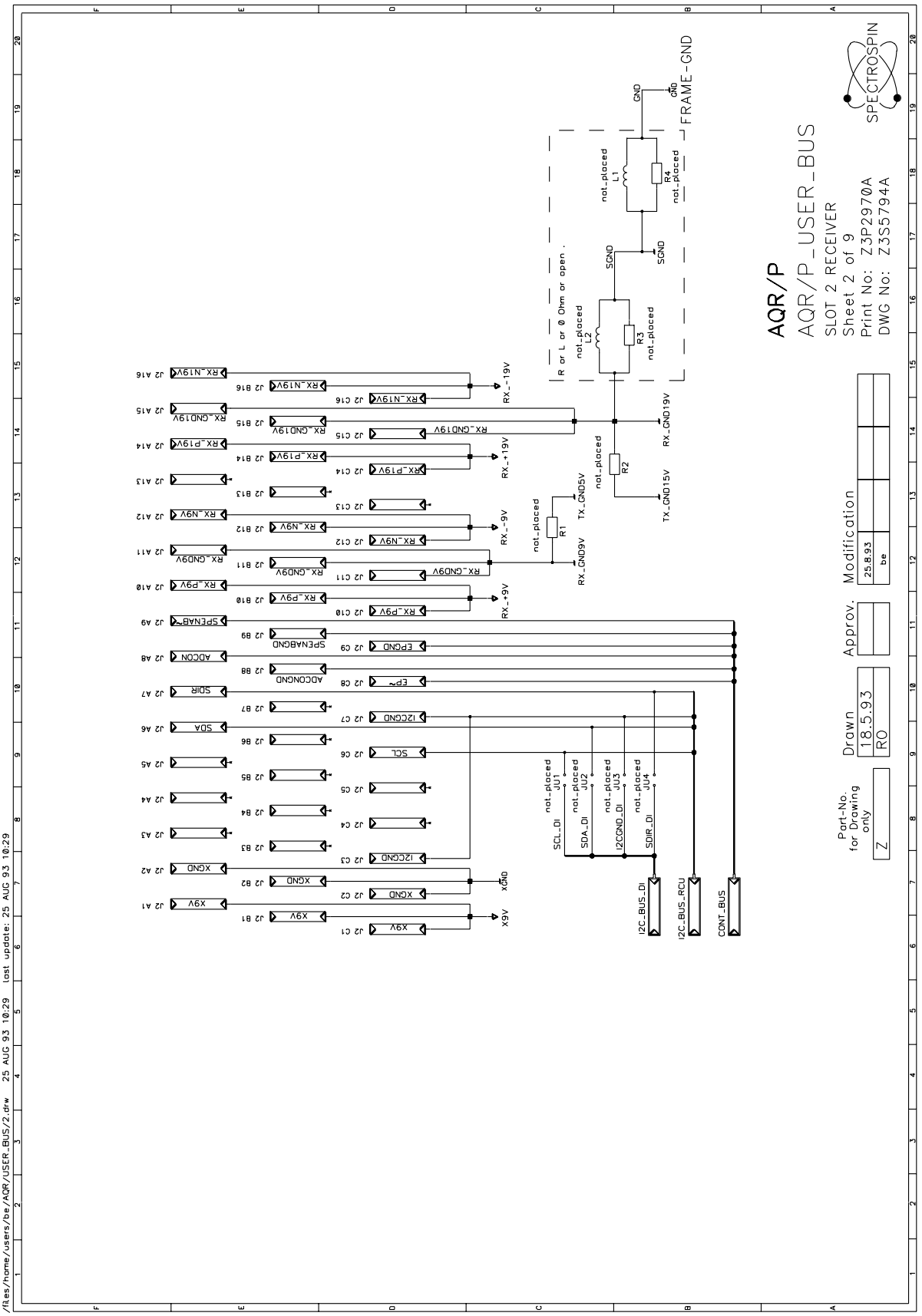
Modification
Approv.
Drawn
18.5.93
RO
Part-No. for Drawing only
Z
/files/home/users/be/AQR/USER_BUS/1.drw 25 AUG 93 10:25 last update: 25 AUG 93 10:25
RX_N19V
RX_GND19V
RX_P19V
RX_N9V
RX_GND9V
RX_P9V
SPENAB~
ADCON
SDIR
SDA
XGND
X9V
SPENABGND
ADCONGND
EP~
EPGND
I2CGND
SCL
RX_-19V
RX_+19V
RX_-9V
RX_+9V
XGND
X9V
I2C_BUS_RCU
CONT_BUS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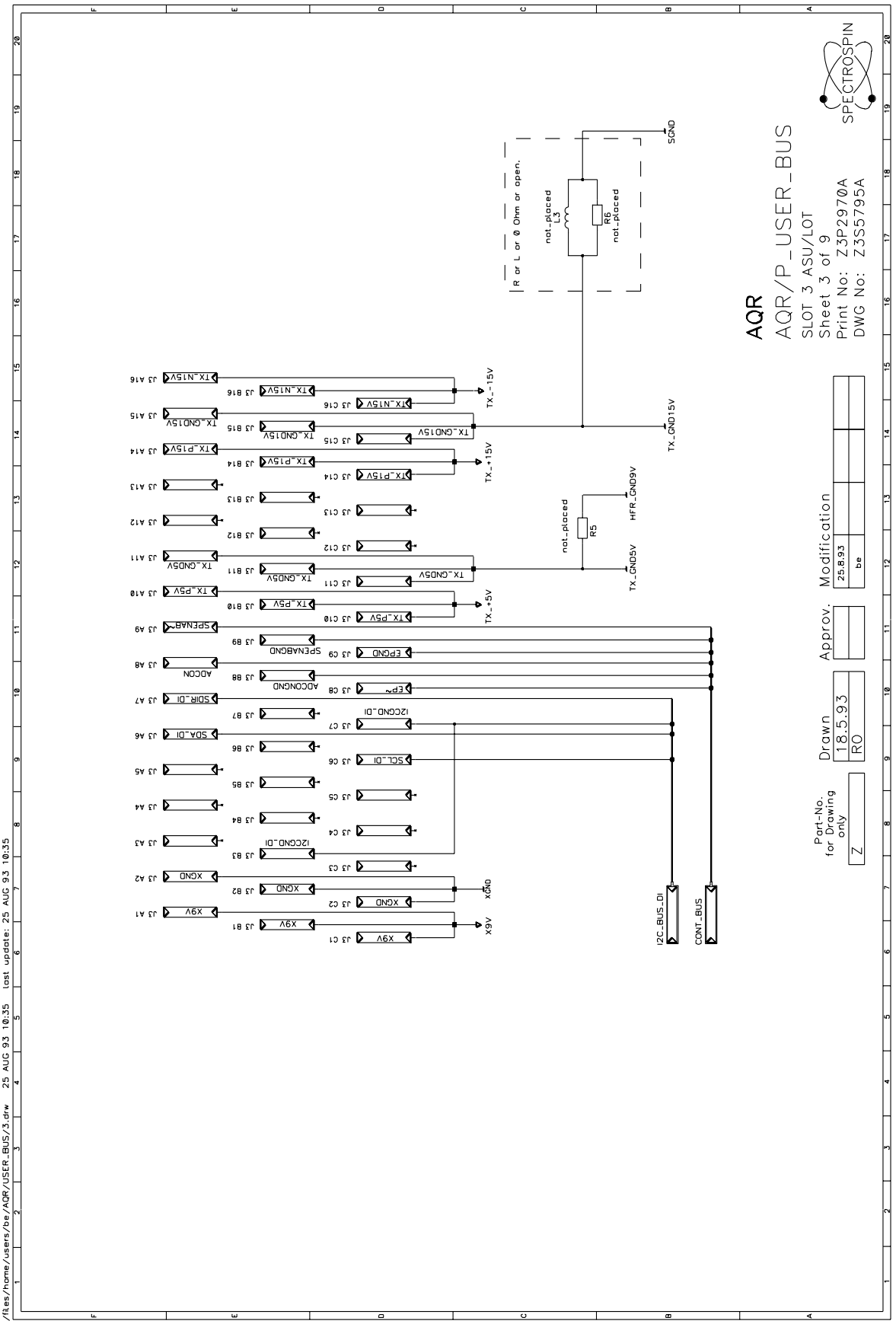
AQR/P_USER_BUS
SLOT 2 RECEIVER
Sheet 2 of 9
Print No: Z3P2970A
DWG No: Z3S5794A
SPECTROSPIN
FRAME-GND
R or L or 0 Ohm or open.
Modification
25.8.93 be
Approv.
Drawn 18.5.93 RO
Part-No. for Drawing only Z
/files/home/users/be/AQR/USER_BUS/2.drw 25 AUG 93 10:29 last update: 25 AUG 93 10:29
RX_-19V
RX_+19V
RX_-9V
RX_+9V
X9V
XGND
RX_GND19V
TX_GND15V
RX_GND09V
TX_GND05V
SGND
GND
not_placed
L1
L2
R1
R2
R3
R4
SCL_DI
SDA_DI
I2CGND_DI
SDIR_DI
I2C_BUS_DI
I2C_BUS_RCU
CONT_BUS


AQR
AQR/P_USER_BUS
SLOT 3 ASU/LOT
Sheet 3 of 9
Print No: Z3P2970A
DWG No: Z3S5795A
SPECTROSPIN
Drawn 18.5.93 RO
Approv.
Modification 25.8.93 be
Part-No. for Drawing only Z
R or L or 0 Ohm or open.
not_placed L3
not_placed R6
not_placed R5
SGND
TX_GND15V
TX_GND5V
HFR_GND9V
TX_-15V
TX_+15V
TX_+5V
xGND
x9V
I2C_BUS_DI
CONT_BUS
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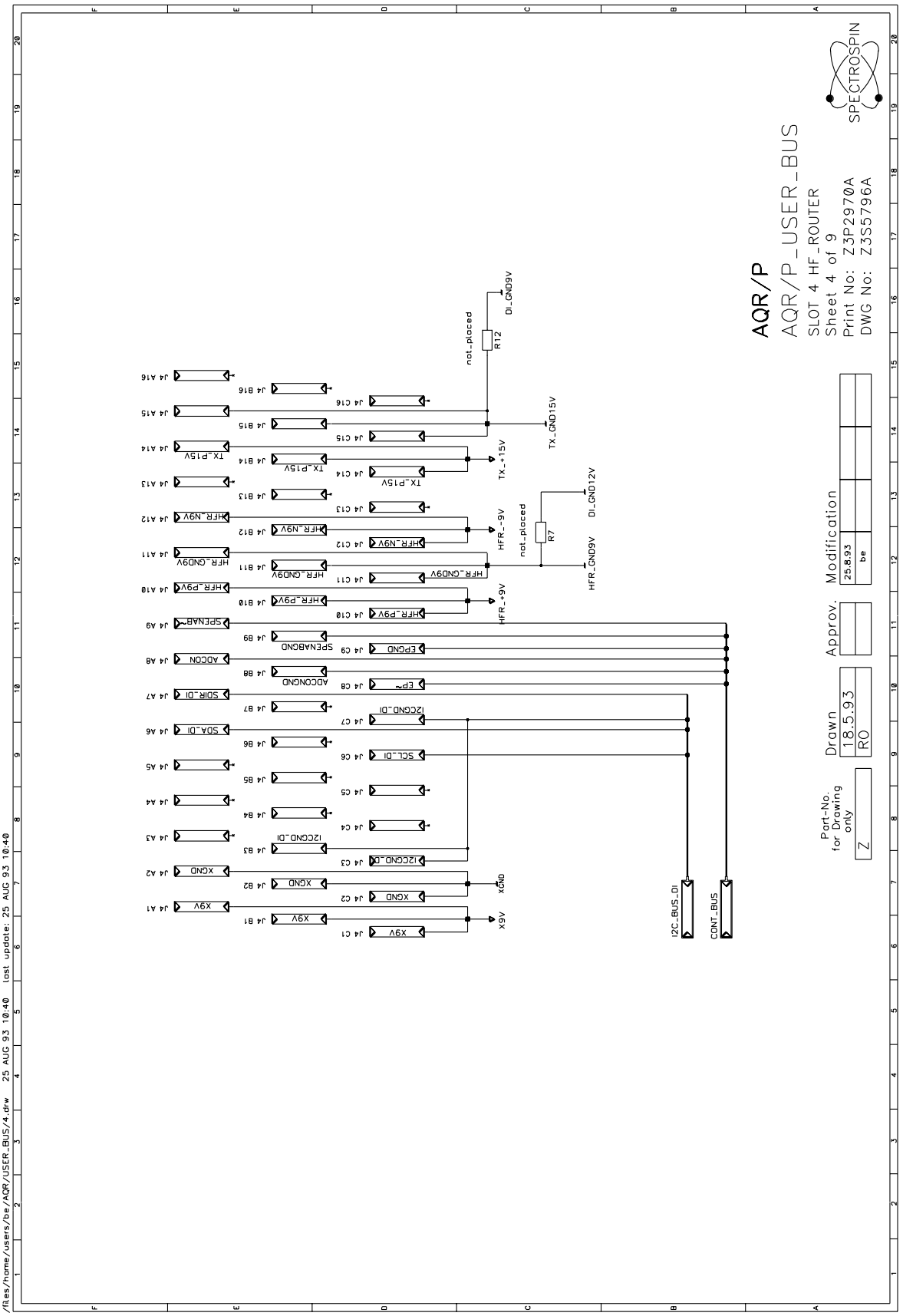
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AQR/P_USER_BUS
SLOT 4 HF_ROUTER
Sheet 4 of 9
Print No: Z3P2970A
DWG No: Z3S5796A
SPECTROSPIN
Modification
Approv.
Drawn
18.5.93
RO
Part-No. for Drawing only
Z
not_placed
R12
DI_GND9V
TX_GND15V
TX_+15V
TX_P15V
HFR_-9V
HFR_N9V
HFR_GND9V
HFR_+9V
HFR_P9V
R7
DI_GND12V
SPENABLE
SPENABGND
ADCON
ADCONGND
SDIR_DI
SDA_DI
SCL_DI
I2CGND_DI
XGND
X9V
I2C_BUS_DI
CONT_BUS
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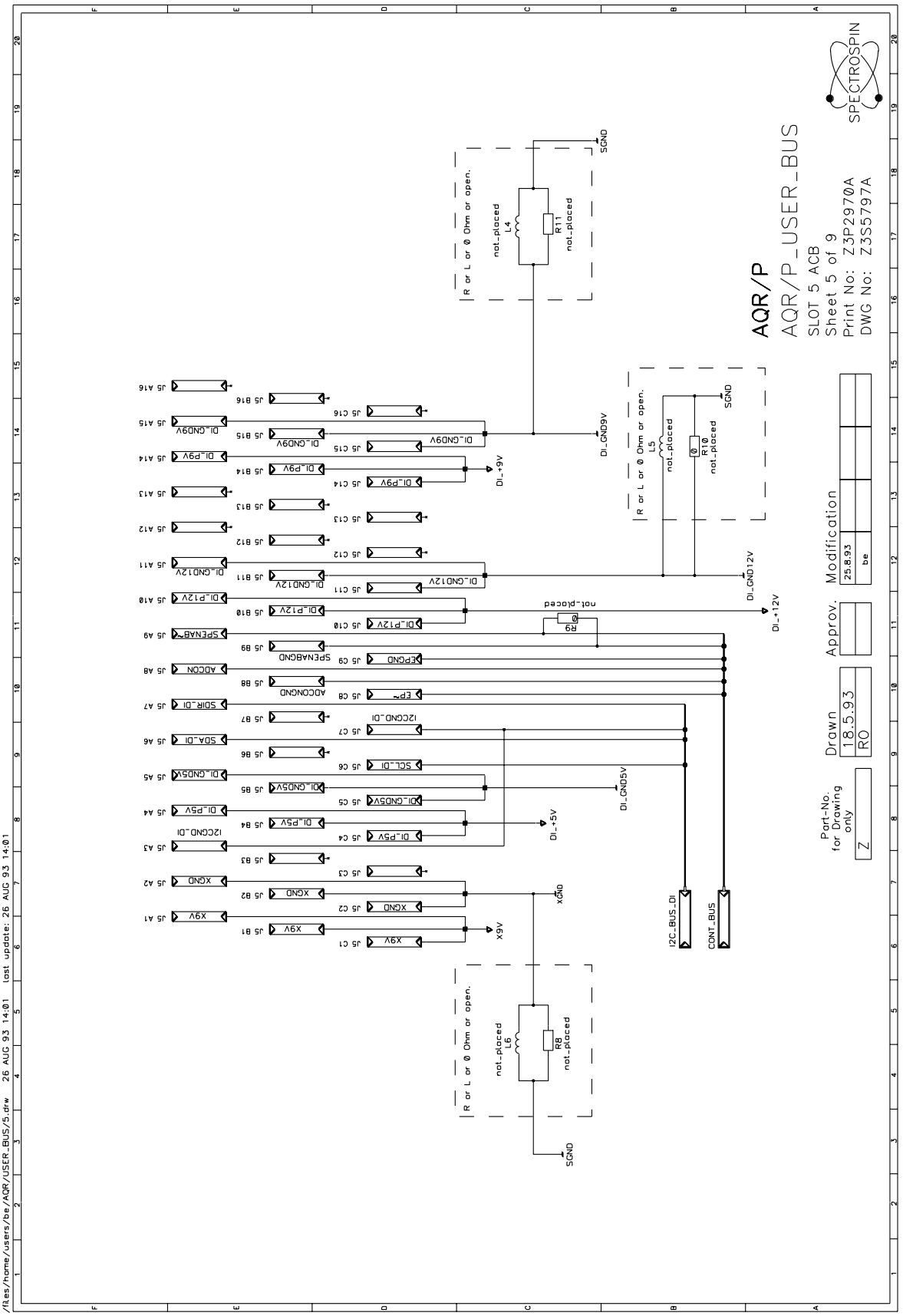
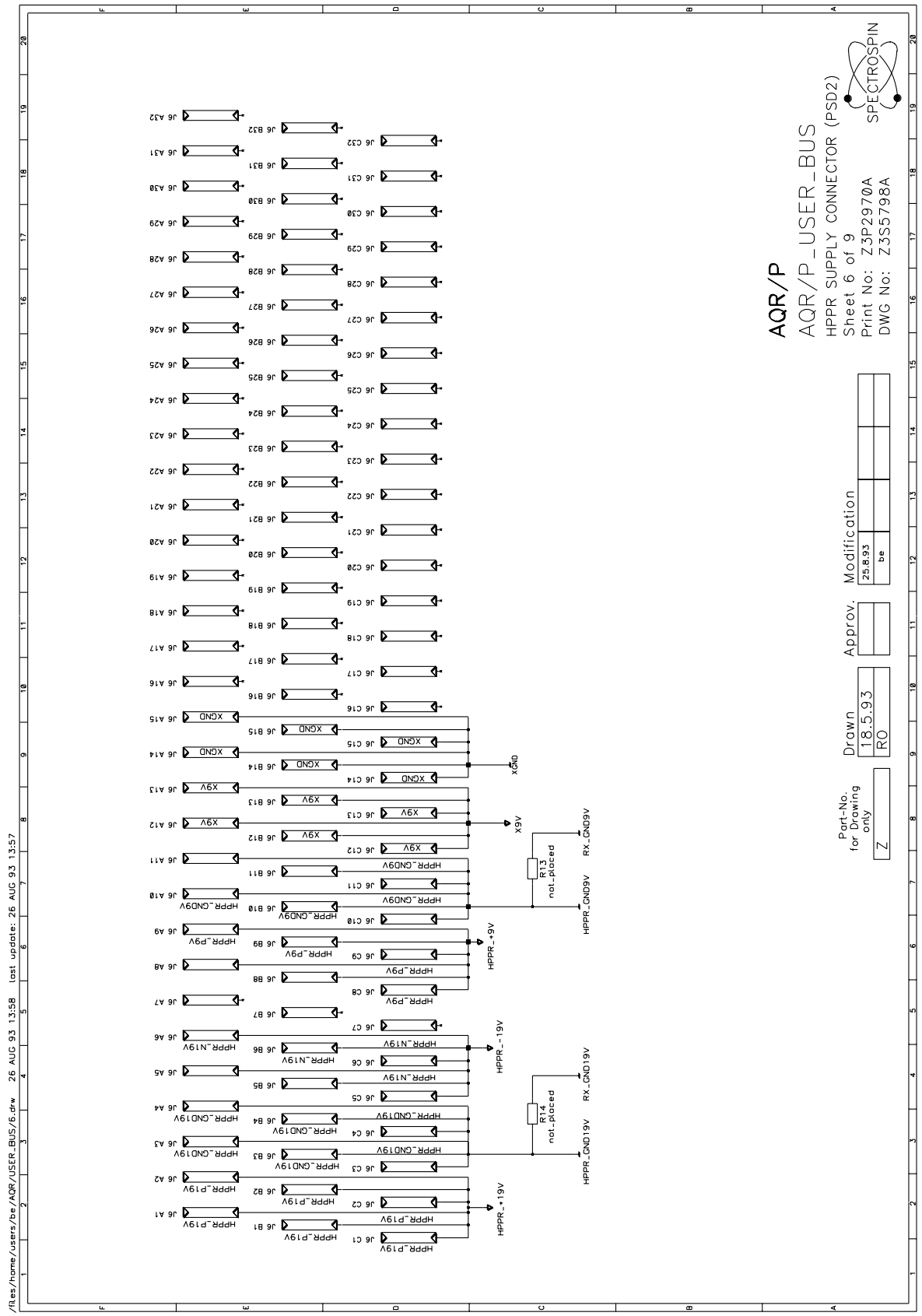
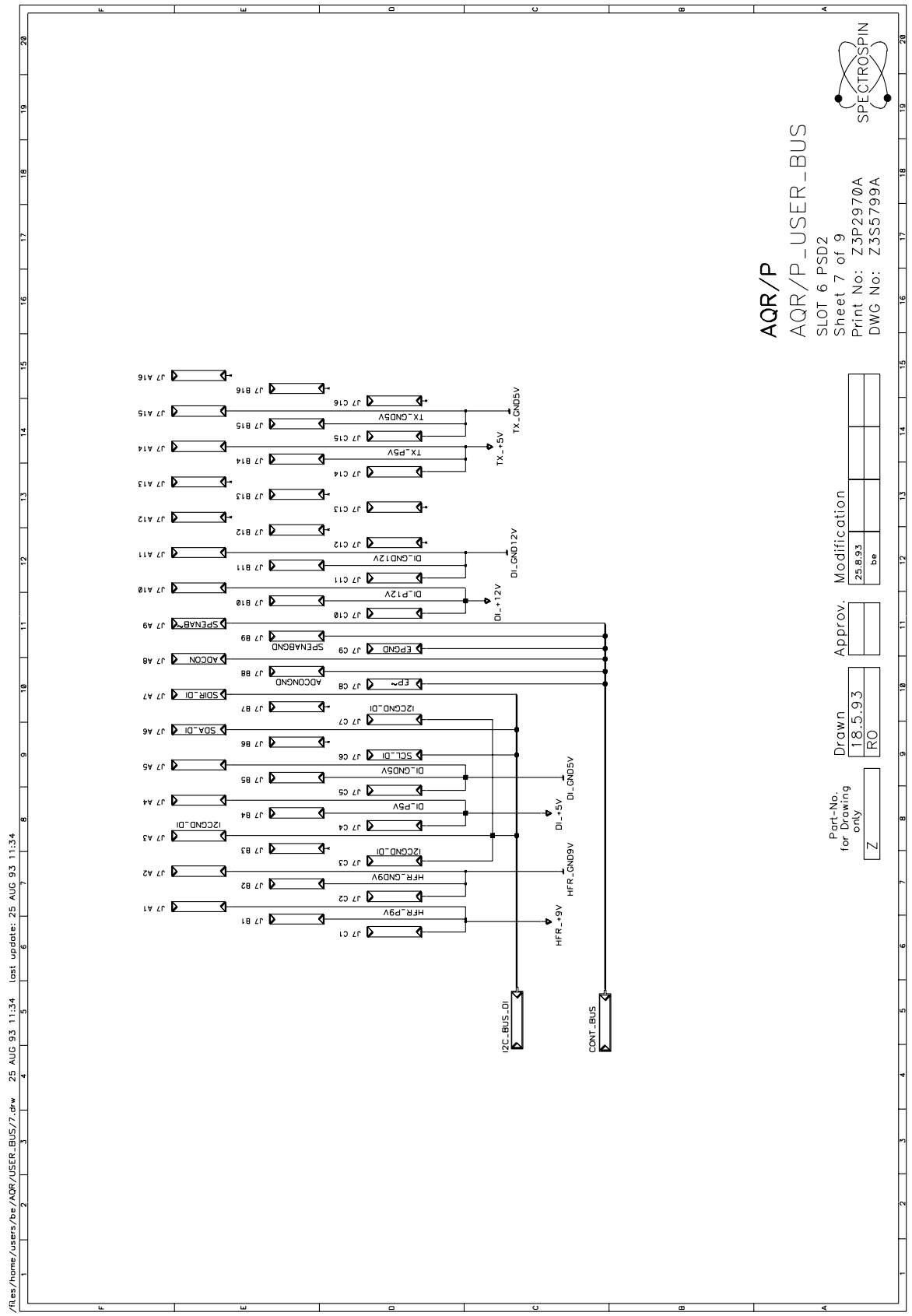

AQR/P
AQR/P_USER_BUS
SLOT 5 ACB
Sheet 5 of 9
Print No: Z3P2970A
DWG No: Z3S5797A
SPECTROSPIN
Modification
Approv.
Drawn
18.5.93
RO
Part-No. for Drawing only
Z
/files/home/users/be/AQR/USER_BUS/5.drw 26 AUG 93 14:01 last update: 26 AUG 93 14:01
R or L or 0 Ohm or open.
not_placed
L4
R11
SGND
DI_GND9V
DI_+9V
DI_GND12V
DI_+12V
DI_+5V
DI_GND5V
XGND
X9V
I2C_BUS_DI
CONT_BUS
L5
R10
L6
R8
R9
not_placed


AQR/P
AQR/P_USER_BUS
HPPR SUPPLY CONNECTOR (PSD2)
Sheet 6 of 9
Print No: Z3P2970A
DWG No: Z3S5798A
SPECTROSPIN
Modification
25.8.93 be
Approv.
Drawn 18.5.93 RO
Part-No. for Drawing only Z
/files/home/users/be/AQR/USER_BUS/6.drw 26 AUG 93 13:58 last update: 26 AUG 93 13:57
HPPR_+9V
HPPR_-19V
HPPR_+19V
R13 not_placed
R14 not_placed
RX_GND9V
RX_GND19V
HPPR_GND9V
HPPR_GND19V
X9V
XGND


AQR/P
AQR/P_USER_BUS
SLOT 6 PSD2
Sheet 7 of 9
Print No: Z3P2970A
DWG No: Z3S5799A
SPECTROSPIN
Modification
25.8.93 be
Approv.
Drawn 18.5.93 RO
Part-No. for Drawing only Z
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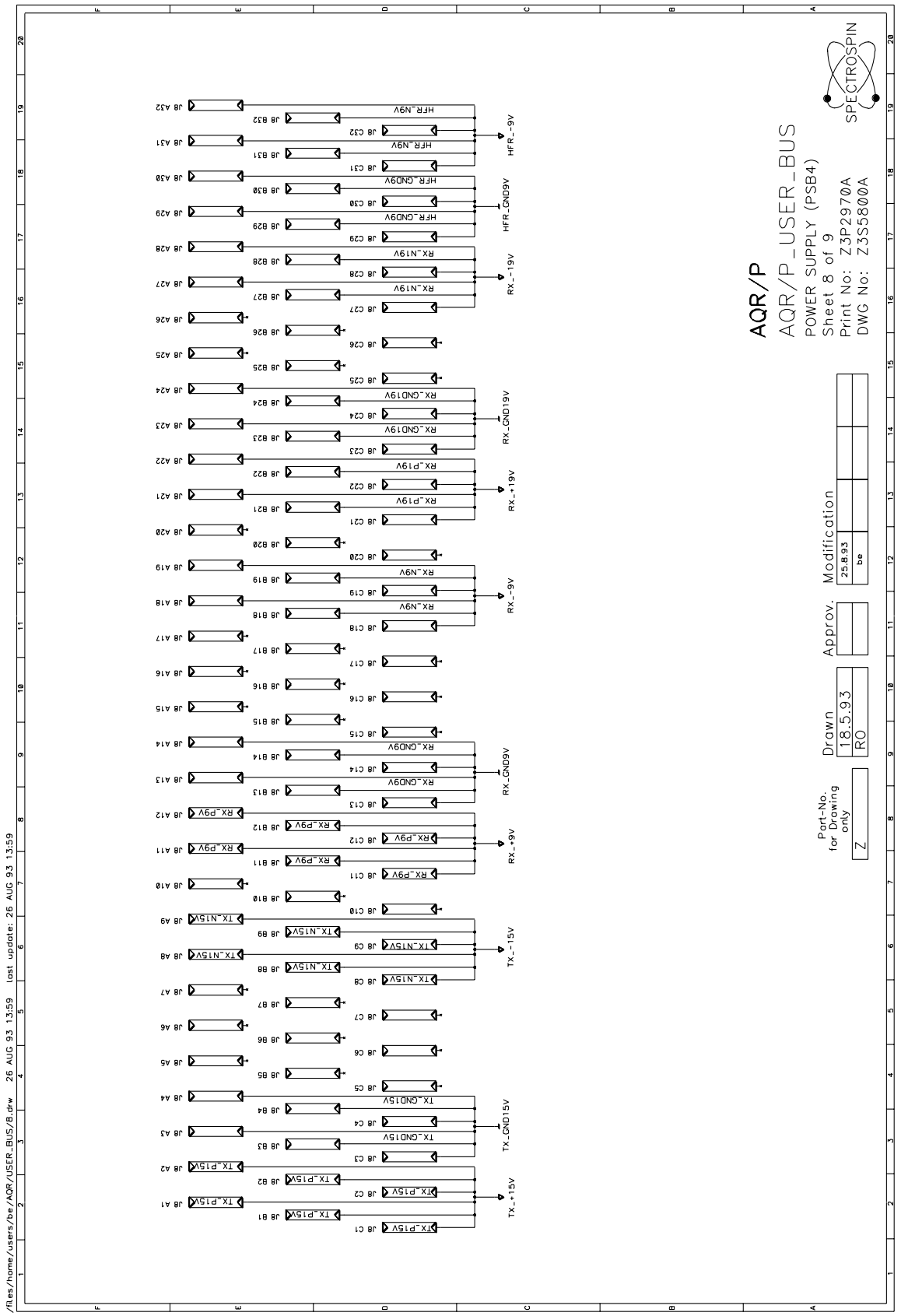
TX_+5V
DI_GND12V
DI_+12V
DI_GND5V
DI_+5V
HFR_GND9V
HFR_+9V
I2C_BUS_DI
CONT_BUS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POWER SUPPLY (PSB4)
Sheet 8 of 9
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DWG No: Z3S5800A
SPECTROSPIN
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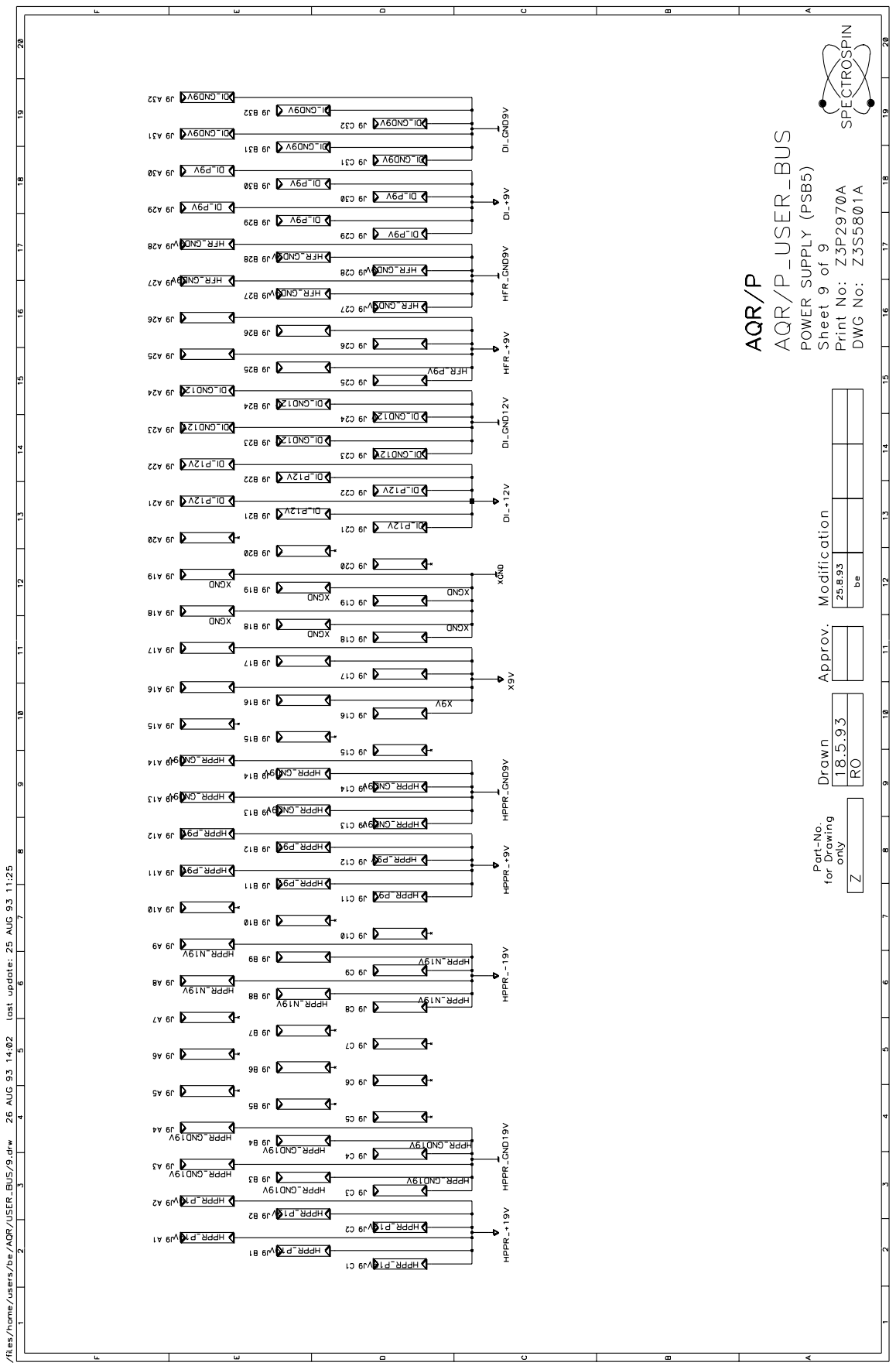
TX_+15V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POWER SUPPLY (PSB5)
Sheet 9 of 9
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DWG No: Z3S5801A
SPECTROSPIN
Modification
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be
Approv.
Drawn
18.5.93
RO
Part-No. for Drawing only
Z
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DI_+9V
HFR_GND9V
HFR_+9V
DI_GND12V
DI_+12V
XGND
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HPPR_GND9V
HPPR_+9V
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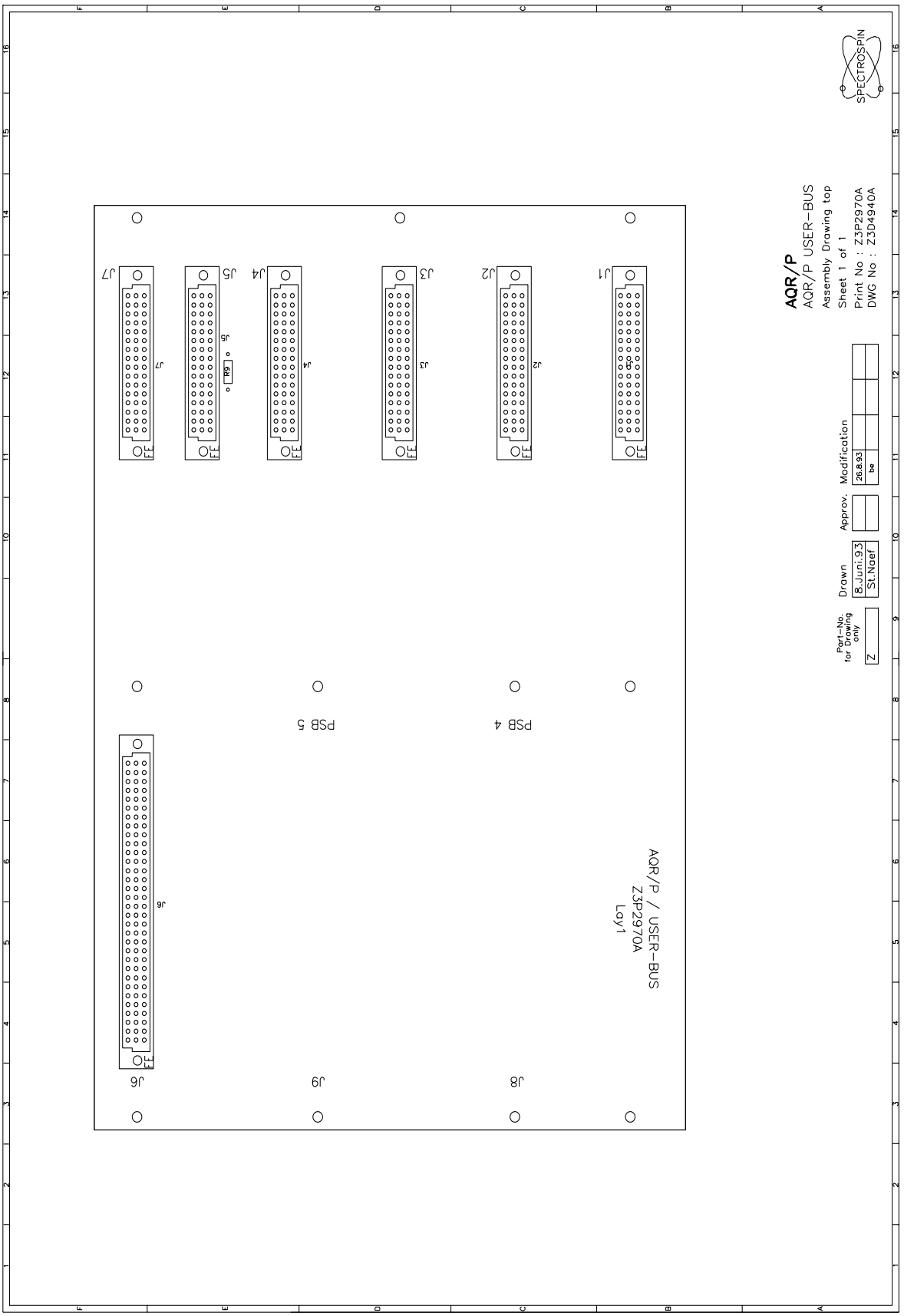
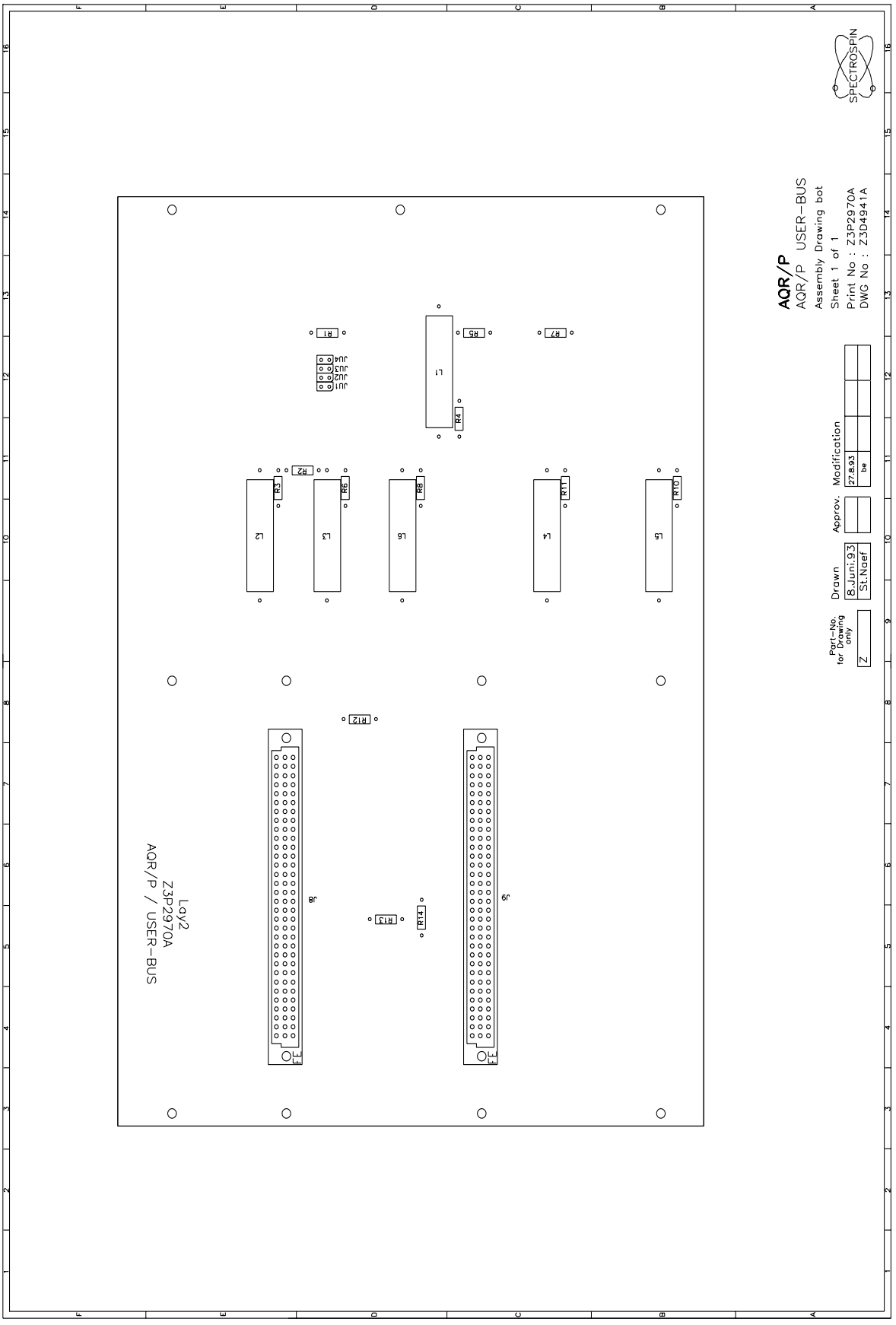
## Assembly map User-Bus 4.11




AQR/P
AQR/P USER-BUS
Assembly Drawing bot
Sheet 1 of 1
Print No : Z3P2970A
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SPECTROSPIN
Modification
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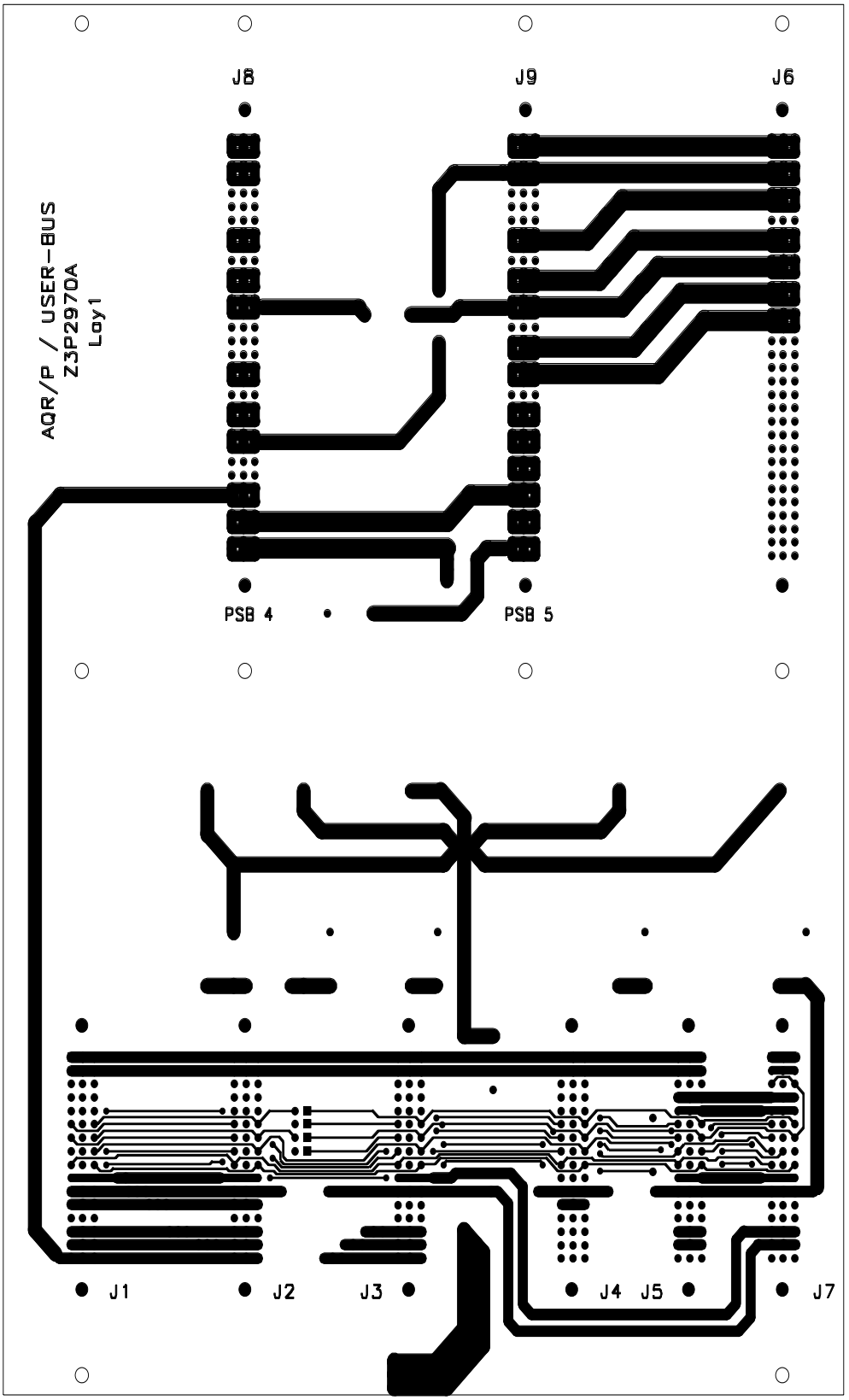
St.Naef
Part-No. for Drawing only
Z
Lay2
Z3P2970A
AQR/P / USER-BUS
J1
J2
J3
J4
J5
J6
J7
J8
J9
L1
L2
L3
L4
L5
L6
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14

## Layout map User-Bus 4.12




Printmass 183x263mm
SPECTROSPIN AG CH_8117 Faellanden
Print-No.: Z3P2970A
Layer1
25.August 1993

# Index


**C**

Control Signals ..... 12

**G**

Ground Concept ..... 11

**M**

Main Fuse ..... 8
mains selector ..... 10

**N**

NTC-Resistor ..... 3

**O**

Overview Power-Supply-System ..... 11

**S**

Scheme Power-Supply-Board ..... 26
Scheme Power-Supply-Distribution (PSD2) ..... 46
Scheme User-Bus ..... 48
Scheme Wiring ..... 24

# List of Figures

**1.AQR/P-General Description** **3**

**2.Chassis and Bus** **5**

Figure 1: Front View of a complete equipped AQR/P ..... 5
Figure 2: Back view of the AQR/P ..... 6
Figure 3: User-Bus in the AQR/P (Front view) ..... 6

**3.Power Supply** **9**

Figure 4: Back view of the AQR/P ..... 9
Figure 5: The mains selector ..... 10
Figure 6: Starlike ground point ..... 13
Figure 7: Frontpanel of a PSB4 and PSB5 ..... 14
Figure 8: Frontpanel of PSD2 ..... 17

**4.Appendix** **23**

# List of Tables

**1.AQR/P-General Description ..... 3**

**2.Chassis and Bus ..... 5**

Table 1. I2C Address configuration ..... 7
Table 2. Technical Data of the AQR/P Chassis: ..... 8
Table 3. Technical Data of the Line Module: ..... 8

**3.Power Supply ..... 9**

Table 4. Rated Voltages and Currents of PSB4 ..... 15
Table 5. Rated Voltages and Currents of PSB5 ..... 16
Table 6. Rated Voltages and Currents of PSD2 ..... 18
Table 7. Pin assignment transformer-/ PSB-Connector ..... 19
Table 8. Connector pin assignment PSD2 - -> HPPR ..... 20

**4.Appendix ..... 23**

**1.AQR/P-General Description ..... 3**

**2.Chassis and Bus ..... 5**

Table 1. I2C Address configuration ..... 7
Table 2. Technical Data of the AQR/P Chassis: ..... 8
Table 3. Technical Data of the Line Module: ..... 8

**3.Power Supply ..... 9**

Table 4. Rated Voltages and Currents of PSB4 ..... 15
Table 5. Rated Voltages and Currents of PSB5 ..... 16
Table 6. Rated Voltages and Currents of PSD2 ..... 18
Table 7. Pin assignment transformer-/ PSB-Connector ..... 19
Table 8. Connector pin assignment PSD2 - -> HPPR ..... 20

**4.Appendix ..... 23**