VME 602X – Series

Service Manual

General Remarks

The only purpose of this manual is a description of the product. It must not be interpreted a declaration of conformity for this product including the product and software.

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UEP 6000 Power Supply Configuration and Test Software

The MUH6000 program is a software for Windows based PC's to test and set-up the configuration and calibration of WIENER power supplies of the UEP 6000 series. The communication is via RS232 using the WIENER UEP 6000 adapter cable.
WIENER Plein & Baus Corp. / GmbH is not responsible for any damage of the power supply and / or crate or of any module inside the crate caused by changing the factory prepared configuration and calibration of the power supply. The test and diagnostic box and MUH 6000 software has to be used by authorized and qualified personnel only!
To protect the UEP 6000 power supply for unauthorized access there is a hardware write protection. This write protection prevents unauthorized users from changing the nominal voltages, calibration values, and current limits. To override this protection you most have the Flash6.exe program.

!!!!! DANGER - HIGH VOLTAGE !!!!!

For authorized, qualified service personnel only

This power supply uses **high voltage up to 400V** inside. Unauthorized persons are not allowed to open the UEP 6000 power supply or to connect them to AC mains or use them without completely closed chassis.
Do not open while connected to AC mains, unplug first from the wall outlet.
After opening the power supply discharge first all capacitors of primary side (AC input module and 3-pin primary distribution cables/connectors) as well as of the MUH AUX power supply with a load resistor.

In case of questions please contact:

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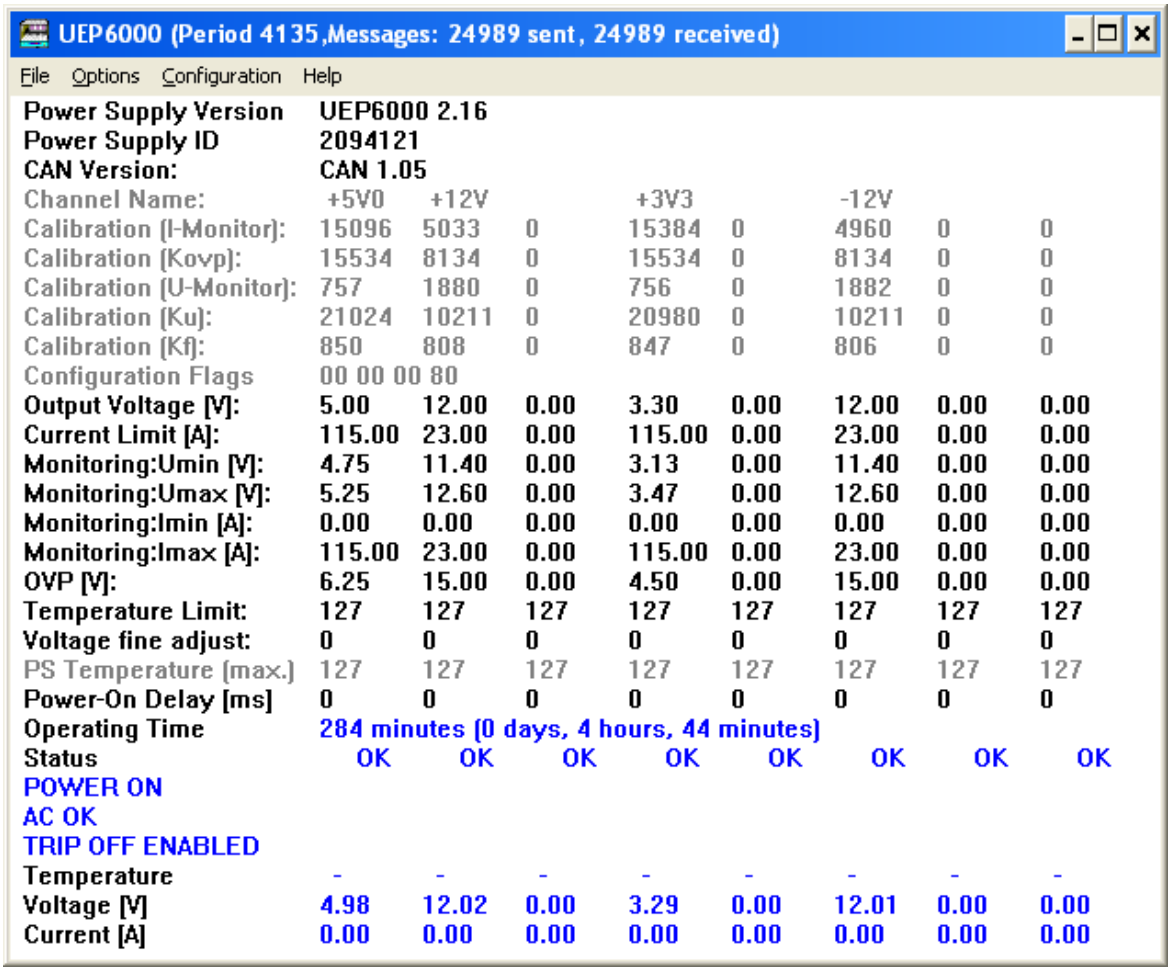
1) MUH 6000 installation and start

Please copy the RS232.DLL as well as the WIENER.INI configuration file to the Windows directory of your computer. Before starting the program make sure that the power supply is not connected to the AC-line. Connect the UEP 6000 power supply to the serial port of the PC via the WIENER adapter cable. **DO NOT CHANGE THIS CONNECTION WHILE THE POWER SUPPLY IS CONNECTED TO AC MAINS!!!**

Change the COM setting to fit your setup the WIENER.INI file by changing COM2 to the correct COM port of the used serial port.

Connect the power supply to the AC mains line.

During program start the software automatically detects and connects to the power supply if the RS232 connection is available through the selected COM port. The main window displays the power supply setting and status as shown in the following example. In case of any communication problem (wrong COM port, cable connection not ok, …) the „RS232 connection is interrupted" error message is shown. The main window shows further the power supply ID (serial number or part number).

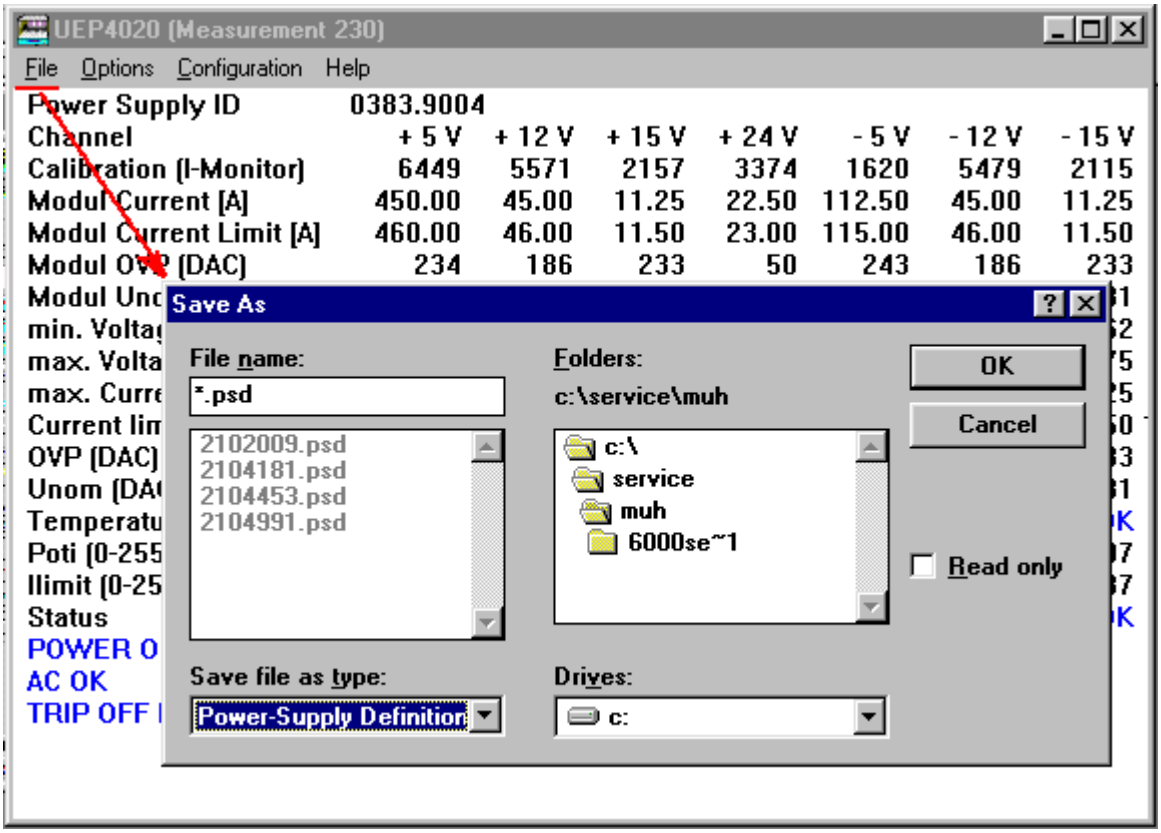


Power Supply Version	UEP6000 2.16							
Power Supply ID	2094121							
CAN Version:	CAN 1.05							
Channel Name:	+5V0	+12V		+3V3		-12V		
Calibration (I-Monitor):	15096	5033	0	15384	0	4960	0	0
Calibration (Kovp):	15534	8134	0	15534	0	8134	0	0
Calibration (U-Monitor):	757	1880	0	756	0	1882	0	0
Calibration (Ku):	21024	10211	0	20980	0	10211	0	0
Calibration (Kf):	850	808	0	847	0	806	0	0
Configuration Flags	00 00 00 80							
Output Voltage [V]:	5.00	12.00	0.00	3.30	0.00	12.00	0.00	0.00
Current Limit [A]:	115.00	23.00	0.00	115.00	0.00	23.00	0.00	0.00
Monitoring:Umin [V]:	4.75	11.40	0.00	3.13	0.00	11.40	0.00	0.00
Monitoring:Umax [V]:	5.25	12.60	0.00	3.47	0.00	12.60	0.00	0.00
Monitoring:Imin [A]:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monitoring:Imax [A]:	115.00	23.00	0.00	115.00	0.00	23.00	0.00	0.00
OVP [V]:	6.25	15.00	0.00	4.50	0.00	15.00	0.00	0.00
Temperature Limit:	127	127	127	127	127	127	127	127
Voltage fine adjust:	0	0	0	0	0	0	0	0
PS Temperature (max.)	127	127	127	127	127	127	127	127
Power-On Delay [ms]	0	0	0	0	0	0	0	0
Operating Time	284 minutes (0 days, 4 hours, 44 minutes)							
Status	OK	OK	OK	OK	OK	OK	OK	OK
POWER ON								
AC OK								
TRIP OFF ENABLED								
Temperature	-	-	-	-	-	-	-	-
Voltage [V]	4.98	12.02	0.00	3.29	0.00	12.01	0.00	0.00
Current [A]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The UEP 6000 power supply can be switched on or off by mouse clicking on the POWER ON / POWER OFF line or by selecting the menu item. After switching on all power supply channels should show an „OK" status.

2) Power supply operation and configuration file

Please save the present configuration of the connected power supply as a file to hard or floppy disk before changing any item. It is recommended to keep all configuration files to allow an easy restore of the configuration



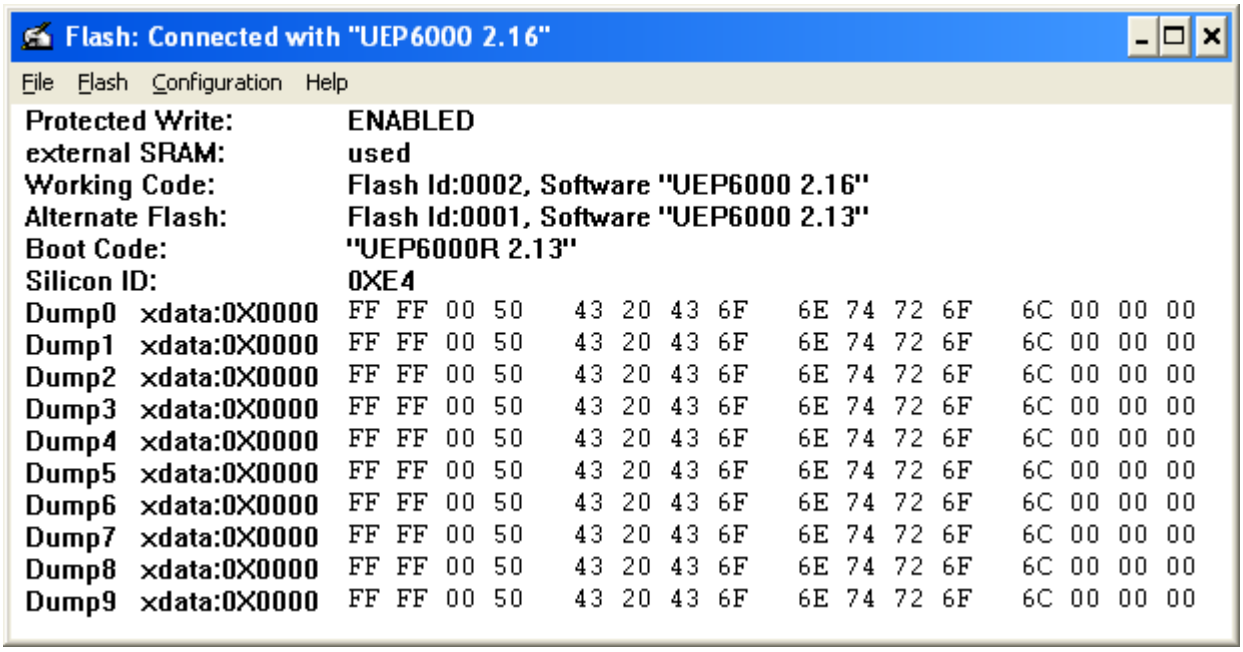
data at a later time.

3) Power supply set-up and calibration

To access any (available) parameter point the cursor on it and click with the left mouse button.

If you do not see the parameters mentioned below, click on the "**Configuration"** menu. This will bring up a window that allows you to choose which parameters are shown.

WIENER Plein & Baus Corp. / GmbH is not responsible for any damage of the power supply, VME crate or of any module inside the crate caused by changing the factory prepared configuration and calibration of the power supply. To protect the UEP 602X power supply for unauthorized access there is software write protection. All parameters that are gray are write protected.



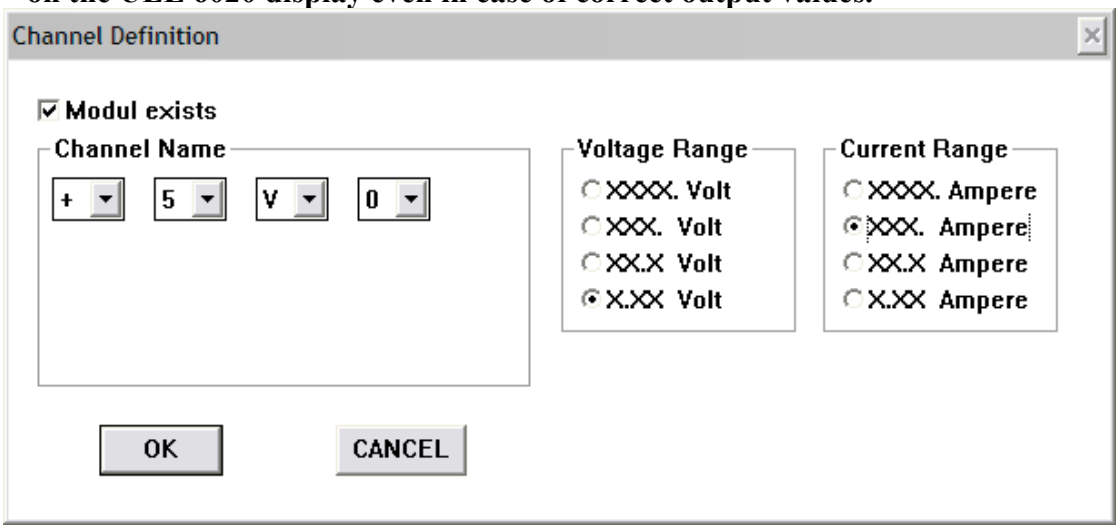
To enable "WRITE „ you must use the WIENER flash6.exe program. This is available only to authorized personnel. Please contact WIENER for more information.

Software Parameter Descriptions:

CHANNEL *Module definition*

define channel name
set voltage and current range setting (digits)
Example: ***STBY: 31V / Ampere XXXX. / Volt XX.***

Note: Wrong range settings can result in a wrong current and voltage display on the UEL 6020 display even in case of correct output values.



Voltage Calibration

Voltage Calibration

With the UEP6000.EXE software, the lines "Calibration (Kovp)", "Calibration (Ku)" and "Calibration (Kf)" are available. This values describe the module ovp voltage divider, the module sense voltage divider, and the relation between the module coarse and fine DAC.

Typical values for different modules:

Module-Data

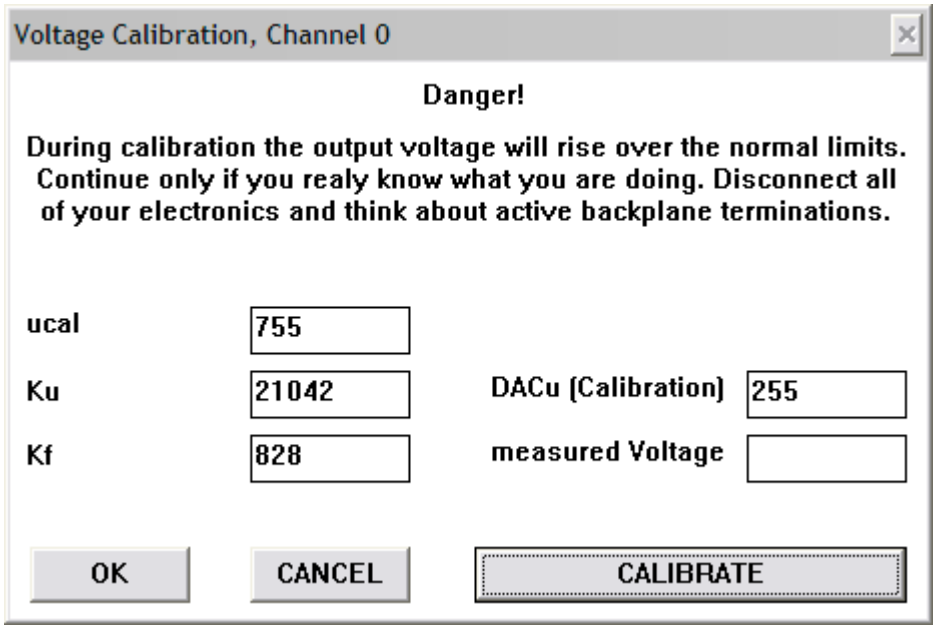
MRP

	R5[k]	a pha	Kf
Version .B2 and below	75	0 8131	**7533**
Version .B3 and above	750	0 9744	**860**

Modules

Module Type	R4,R12 [kOhm]	MRP :B2 Ku	Poti[mV]	MRP :B3 Ku	Poti[mV]	Umax [V]	R9,R10 [kOhm]	Kovp	OVPmax [V]	R5/8
5V-MEH, <= Index A5	13.3	**34729**	4.34	**28978**	0.59	5.92	27.4	**24492**	6.82	
5V-MEH, >= Index A6	22.1	**25208**	5.98	**21034**	0.82	8.15	43.2	**15534**	10.76	
MEH10	33.2	**18731**	8.04	**15630**	1.10	10.97	56.2	**11941**	14.00	2.2
MEH12, <= Index A1	61.9	**11254**	13.39	**9391**	1.83	18.26	82.5	**8134**	20.54	2.2
MEH12, >= Index A2	56.2	**12223**	12.33	**10199**	1.69	16.82	82.5	**8134**	20.54	2.2
MDL12/24, (MEH24)	110	**6743**	22.34	**5627**	3.06	30.48	133	**5046**	33.12	
MEH48	221	**3503**	43.01	**2923**	5.88	58.67	274	**2449**	68.23	4.7

To find the correct calibration values for a specific module, click in the UEP6000.EXE to the Ku value. Then the following window is displayed:

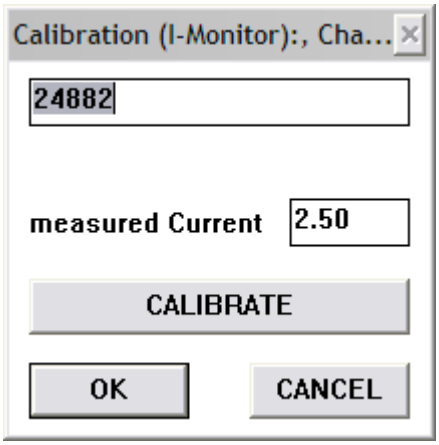


Set the Ku and Kf values to the table values of the module that is used, click OK, and click to the Ku value again. Then click on the CALIBRATE button. An automatic calibration is started. Now enter the real output voltage (measured with a voltmeter) into the "measured Voltage" field. Hit the ENTER Key or click on the CALIBRATE button again. Ready.
Now you have the calibrated values for Ku and Kf. By comparing the Ku value with the table above, you could see which module you have got.
Click to the Kovp value and change it to the table value.
Now the calibration is ready, and you should set the Output Voltage and OVP levels.
Default values

	Value	Maximum
Output Voltage [V]	The voltage the customer wants	Umax (module table)
OVP[V]	125% of the Output Voltage	OVPmax (module table)

REMARKS
In some cases, the MUH6 voltage measurement range is lower than the maximum module output voltage. (e.g., if you connect a 24V module to U0, which could measure max. 7.5V).
During calibration, the DACu value of 255 is used by default. (This will give the best accuracy). But if the module output voltage exceeds the MUH6 measurement range, the calibration will fail. In that case, you should reduce the DACu value before pushing the "CALIBRATE" button.

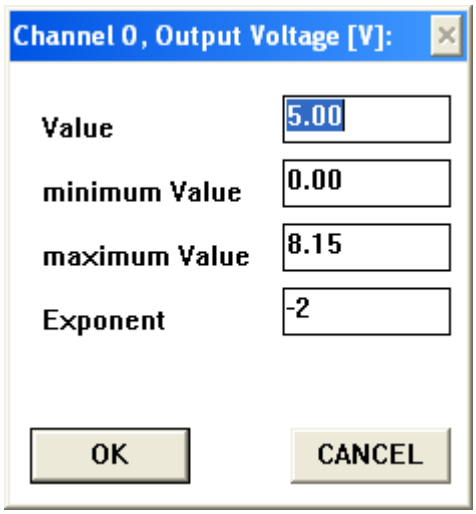
Cal I-Monitor *Current Calibration*



The current calibration should be done for a current limit close to full load (90%) for each voltage channel. Connect the power supply output to a load and measure the actual current. The calibration factor is automatically calculated if writing the data for the measured current and monitor voltage to the computer and pressing “CALIBRATE”. If the calibration factor is known it can be typed in directly. To store the new calibration setting for the channel press “OK”.

After a current calibration the correct current monitoring should be checked for lower loads (½ and ¼ of nominal current value).

Output Voltage *Define Nominal Voltage*



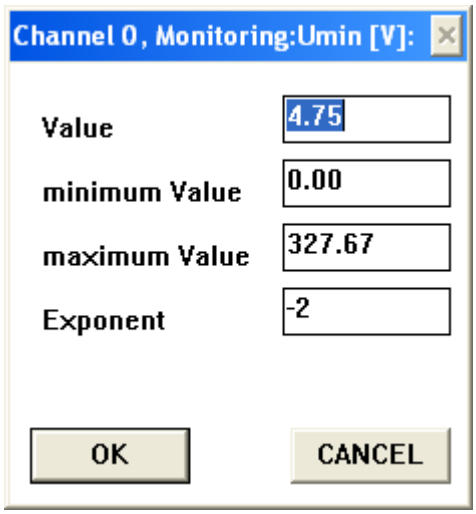
Value is the nominal voltage of the voltage channel.
Minimum Value is the minimum allowed value for the nominal voltage.
Maximum Value is the maximum allowed value for the nominal voltage.
Exponent gives the number of digits after the decimal.

Current Limit *output current limit* (*Secondary programmable current limit)*
Standard setting: Hardware Limit

This Current Limit is the maximum current value that the module is permitted to produce. When this current limit is reached the module will enter into a constant current mode by lowering the voltage until it reaches the minimum allowed voltage. By default this value is set to the hardware limit of the module.

Monitoring:Umin *Software minimum voltage limit*
Standard settings: 97.5% of nominal voltage Unom

The minimum voltage limit is the minimum allowed voltage for a given channel. If the voltage of that channel ever reaches or drop below the minimum value, the power supply will turn off with an "Undervoltage " error.

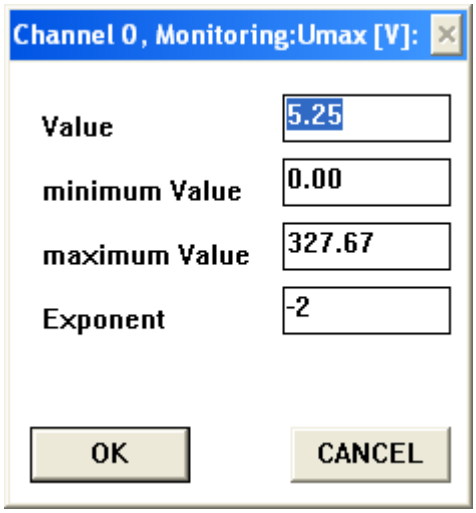


Value is the minimum allowed voltage for the channel.
Minimum Value is the minimum allowed value.
Maximum Value is the maximum allowed value.
Exponent gives the number of digits after the decimal.

Monitoring:Umax *Software maximum voltage limit*

Standard settings: 105% of nominal voltage Unom

The maximum voltage limit is the maximum allowed voltage for a given channel. If the voltage of that channel ever reaches or exceeds the maximum value, the power supply will turn off with an "Overvoltage " error.

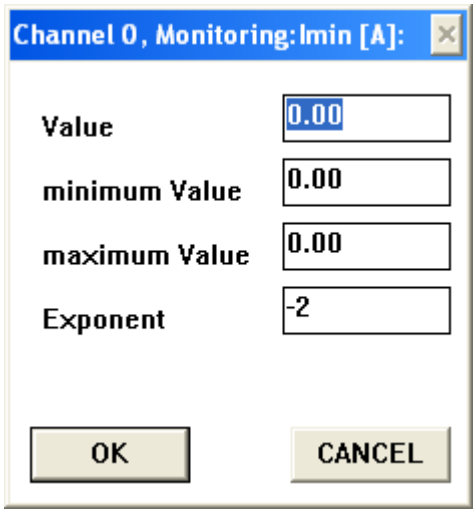


Value is the maximum allowed voltage for the channel.
Minimum Value is the minimum allowed value.
Maximum Value is the maximum allowed value.
Exponent gives the number of digits after the decimal.

Monitoring:Imin *Software minimum current limit*

Standard settings: No minimum (0)

The minimum current limit is the minimum allowed current for a given channel. If the current for that channel ever reaches or drop below the minimum value, the power supply will turn off with an "Undercurrent " error.

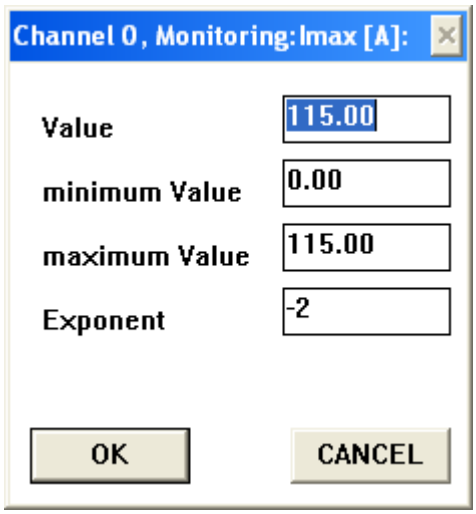


Value is the minimum allowed current for the channel.
Minimum Value is the minimum allowed value.
Maximum Value is the maximum allowed value.
Exponent gives the number of digits after the decimal.

Monitoring:Umax *Software maximum cuurent limit*

Standard settings: 100% of Hardware Limits

The maximum cuurent limit is the maximum allowed current for a given channel. If the cuurent of that channel ever reaches or exceeds the maximum value, the power supply will turn off with an "Overcurrent " error.

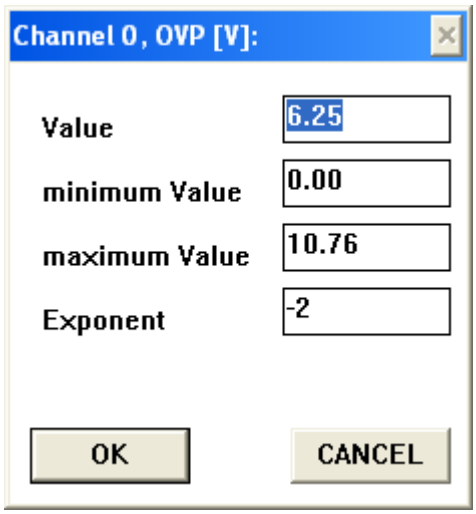


Value is the maximum allowed voltage for the channel.
Minimum Value is the minimum allowed value.
Maximum Value is the maximum allowed value.
Exponent gives the number of digits after the decimal.

OVP *OVP setting*

Standard settings: 125% of Unom

OVP is a secondary voltage protection. It sets the maximum voltage that a module may produce. If the module ever detects a value greater than OVP it will turn off the power supply with an "Overvoltage" error.



Value is the maximum allowed voltage for the module.
Minimum Value is the minimum allowed value.
Maximum Value is the maximum allowed value.
Exponent gives the number of digits after the decimal.

Temperature Limit *Temperature Limit settings*

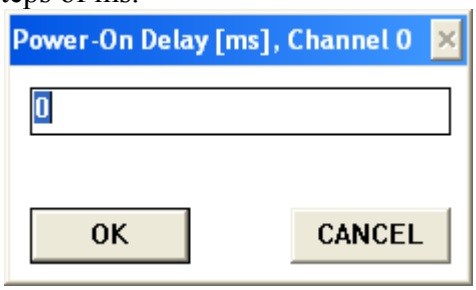
Standard settings: 127

Temperature Limit settings sets the maximum internal temperature of the power supply module before turning off the power supply. The default settings allow the module to run to the maximum temperature.

Power-on Delay *Delay between power-on and ramp*

Standard settings: 0

To allow flexibility of the voltage ramp, it is possible to set channels to begin their voltage ramp at different times. This is done by delaying the start of the ramp by some time in steps of ms.



Temperature OK or Fail

Status OK

Power ON - OFF by software (mouse click or <**P**>)

AC OK - Fail (status of AC mains)

Trip off Enable - Disable (temperature and OVP control enabled - disabled)

WARNING

Disable TRIP OFF only if necessary, don't leave the power supply with TRIP OFF disabled! The power supply and crate or modules in the crate can be damaged in case of error conditions without enabled automatic trip off protection.

Complete Test Instruction for UEP 6000

1. Visual test

Power Supply surface ok?
Final set-up ok?
Cable mounting ok?

2. HV-Test

2.4kVDC: ***AC-mains - PE***
Short circuit test @ 50V DC: ***Output - PE***.
- since 1998 sticker: HIGH VOLTAGE TESTED
- high voltage test has to be repeated if there are changes of the power configuration or set-up

3. Put into Operation (with complete function control)

Configuration, calibration (trimmer) , current measurement adjustment (*I-Mon*)
Measurement of current limit (*short circuit current)*
- since 1998 sticker CALIBRATED
- sequence of test steps according to test procedure

4. Burn In

Long time test with full load and multiple on / off (
- since 1998 sticker LONG TIME TESTED
- Attention: do not exceed the maximum total power (mains fuse!)
- in case of parallel working AC inputs take care for equal load for both
- power supply levels

5. Mechanical Set-up

a) Mounting screws OK?
b) Power terminal contacts OK?
c) Mount missing mechanical parts and check all screws
d) test fitting of power supply into VME bin

6. End check

to be done with protocol
- *since 19*98 sticker END CONTROLLED
- *sequence of test steps as for 3. Put into Operation*
- write protection enabled?
- visual check for stickers and device label

Test Procedure Sequence UEP6000

1. Test AC input switch AUTO/FIX for Power Supplies with auto range AC inputs

- **AUTO :** feed 3V DC in AC mains cable, measure current (typically 0,08mA)
- switch to **115V (** current typically 0,52mA).
- prepare for delivery with switch position to **AUTO** with locking and sticker

2. Start Power Supply Operation:

- disable Write protection (jumper), connect power supply to IBM-PC (RS 232)
- feed AC mains in power supply
- start software ***UEP 6000,*** create or copy configuration file
- *if the fan tray unit is connected to the power supply the write protection jumper has to be disabled during start for power supply software version MUH 1.00*

3. General behavior / settings

Main configuration OK ?
RS 232 OK ?
Channel? Module-current/limit? Module OVP? Module Unom?
min/max Voltage?

4.Test each Voltage Channel

Check adjustment Master-Slave Imon and CV. Coding for slave
U-nom under full Load : fine tuning ? display OK ? Noise and Ripple OK ?

Current calibration for 3 load values (full, half, no load):

I-nom	*Full load*	*Half Load*	*No Load*
Display Fan tray	?	?	?
Signal I-nom	?	?	?

At this time proof static regulation (U) (Sense wiring)

T-Hold after AC-Fail, U-Dynamic, T-Recovery have been checked within power module test

7. Adjustments

Voltage Error adjusted?
Current Error checked with different current values?

Reference Table for Test and Adjustment of UEP 6000

CHANNEL	Module selected	Are all installed voltage channels present? *Example:* ***STBY: 31V / Ampere XXXX. / Volt XX.***
Cal I-Monitor	Calibration	measure current Enter measured current and hit "CALIBRATE"
Output Voltage	output voltage	Nominal voltage for the channel
Current Limit	maximum current	The max current allowed for that channel (constant current)
Monitor U-min	minimum voltage	90% of nominal voltage
Monitor U-max	maximum voltage	112.5% of nominal voltage
Monitor I-min	minimum current	Generally 0
Monitor I-max	maximum current	112.5% of nominal expected current ("Overcurrent" error)
Module OVP	maximum voltage	125% of nominal voltage
Power on Delay	ramp Delay	Delay, in ms, between power-on and start of voltage ramp
Temperature		OK or Fail
Status		OK
Power		ON - OFF by software (mouse click or <**P>**)
AC		OK - Fail (Status of AC mains at Elko)
Trip off		Enable - Disable

UEP 6000 Module Replacement Instructions

In troubleshooting WIENER crates it is very useful to substitute Fan trays and power supplies from working crates into the crate which is problematic, this is often the best way to determine which component (fan tray, power supply, or crate) is causing the failure. It is also useful to place the power supply on a bench top and use the UEP6000 software to troubleshoot power supplies.

MNPFC-16

The MNPFC-16 is the primary rectifier for the UEP6000 power supply. Common symptoms of a power supply with a faulty are MNPFC are:

- No indication that the power supply is operating.
- The green LED on the board is not lit. (Visible with case closed).
- No "click" when power supply is plugged in.
- No internal primary DC voltage from MNPFC-16 (385VDC)

If the MNPFC is found to be the problem, the following steps should be taken to replace it:

- Disconnect A/C power and remove power supply from the VME crate.
- Remove the top cover from the power supply and discharge capacitors
- Remove the side panel on which the MNPFC is mounted, including the nuts with which the module is mounted.
- Disconnect the A/C wires (Brown & Blue) as well as the flat ribbon cable and DC connector from the module.
- Installation is the reverse of removal.
- After replacing the cover, connect the A/C input and ensure that functionality is OK.

MEH/MDH

The MEH/MDH modules are the secondary rectifier modules that produce the voltages used by the VME crate. Common symptoms of a faulty MEH/MDH module are:

- An over/under voltage error for a certain channel (On UEL display or via UEP6000 software).
- The power supply will start up but turn itself off quickly.

If an MDH/MEH module is found to faulty the following steps should be taken to replace it (valid only for standalone modules):

- Disconnect A/C power and remove power supply from the VME crate.
- Remove the top cover from the power supply and discharge capacitors
- Determine which power module is faulty. This is done by locating the right channel along the top of the MUH board and following the control cable to the correct module.
- Disconnect the power cables and the flat control cable(s) from the module.
- Remove the screw that holds the module to the case.
- Slide the module forward and remove the module.
- Installation is the reverse of removal.
- Calibrate the voltage and current measurements
- After replacing the cover, connect the A/C input and ensure that functionality is OK.

MUH

The MUH module is the microprocessor control board for the power supply. Common symptoms of a faulty MUH module are:

- No function although internal operating voltage is present (385VDC).
- Under/over voltage error for 1 or more voltage channel.
- No remote interface (errors when connected to UEP6000 software).

If an MUH module is thought to be faulty the following steps should be taken to replace it:

- Disconnect A/C power and remove power supply from the VME crate.
- Remove the top cover from the power supply and discharge capacitors
- Remove the side panel next to the MUH module.
- Disconnect the flat ribbon control cables, recording where they were plugged in.
- Disconnect the sense, CAN, DC, and control cables.
- Remove the 25-pin D-sub connector to gain access to the screws holding the MUH board to the chassis.
- Remove the module from the crate.
- Remove the EEPROM from the module and place it into the new MUH module. This will transfer the channel calibration information.
- Installation is the reverse of removal.
- Once power supply cover is replaced, check that the current and voltage calibrations are correct.

UEP 6000 Channel Calibration

Voltage Calibration

Voltage calibration values vary depends on what kind of module you are calibrating and which nominal voltage you wish that channel to have. To calibrate a power supply channel:

- Connect the power supply to a PC and start the UEP6000 software
- Start Flash6.exe and turn off "write disabled"
- Click on "Voltage OVP" and enter the value specified in the table below.
- Turn the power supply on and measure the channel voltage.

Current Calibration

Correct current calibration ensures that the power supply reports the correct current readings. To calibrate the current values for a given channel, the following steps should be taken:

- Connect the power supply to a PC on which the UEP600 software is installed via a appropriate adapter cable.
- Connect a current sink to the channel that you wish to calibrate.
- Connect A/C power and ramp the current up to 90% of the channel maximum.
- Click on "Calibration [I-monitor]" and enter the measured current.
- The UEP6000 will calibrate the current monitor and should now report the same value as the measured current.

The calibration procedure above only works for master modules. If you have two or more modules running in co-operation with each other, you will have to do a master-slave calibration. Please contact a WIENER representative for guidance with this task.

Module-Data

MRP

Resistor DAC[k]	12		
R6[k]	20		
	R5[k]	alpha	**Kf**
Version .B2 and below	75	0,81308	**7533**
Version .B3 and above	750	0,97442	**860**

Modules

Uref(U) [10mV]	510
Uref(OVP) [10mV]	250
MRP: R13, R14 [k]	10
MRP: R17, R18 [k]	20
MRP: R4, R12 [k]	10

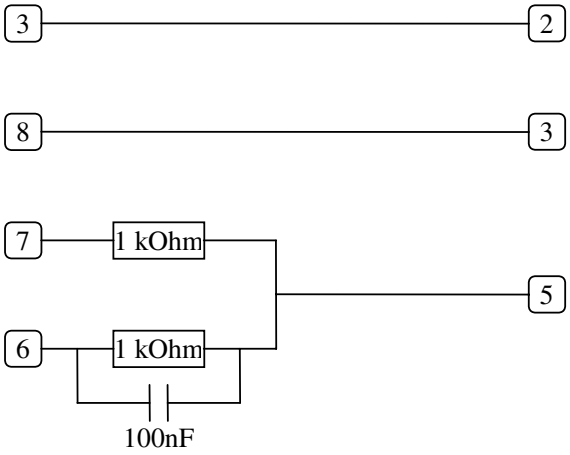
Module Type	**R4,R12 [kOhm]**	**MRP :B2 Ku**	**Poti[mV]**	**MRP :B3 Ku**	**Poti[mV]**	**Umax [V]**	**R9,R10 [kOhm]**	**Kovp**	**OVPmax [V]**	R5/8	R6/7	**GND-floating [V]**
5V-MEH, <= Index A5	13,3	**34729**	4,34	**28978**	0,59	5,92	27,4	**24492**	6,82	1	0	12,0
5V-MEH, >= Index A6	22,1	**25208**	5,98	**21034**	0,82	8,15	43,2	**15534**	10,76	1	0	12,0
MEH10	33,2	**18731**	8,04	**15630**	1,10	10,97	56,2	**11941**	14,00	2,21	2,21	24,0
MEH12, <= Index A1	61,9	**11254**	13,39	**9391**	1,83	18,26	82,5	**8134**	20,54	2,21	2,21	24,0
MEH12, >= Index A2	56,2	**12223**	12,33	**10199**	1,69	16,82	82,5	**8134**	20,54	2,21	4,75	37,8
MDH7-15, >= Index A0	56,2	**12223**	12,33	**10199**	1,69	16,82	82,5	**8134**	20,54			
MDL12/24, (MEH24)	110	**6743**	22,34	**5627**	3,06	30,48	133	**5046**	33,12	1	0	12,0
MEH48	221	**3503**	43,01	**2923**	5,88	58,67	274	**2449**	68,23	4,75	30	87,8

DACovp = U[V]*Kovp/655.36 alte Module

Connection of a Personal Computer to the Power Supply UEP6021

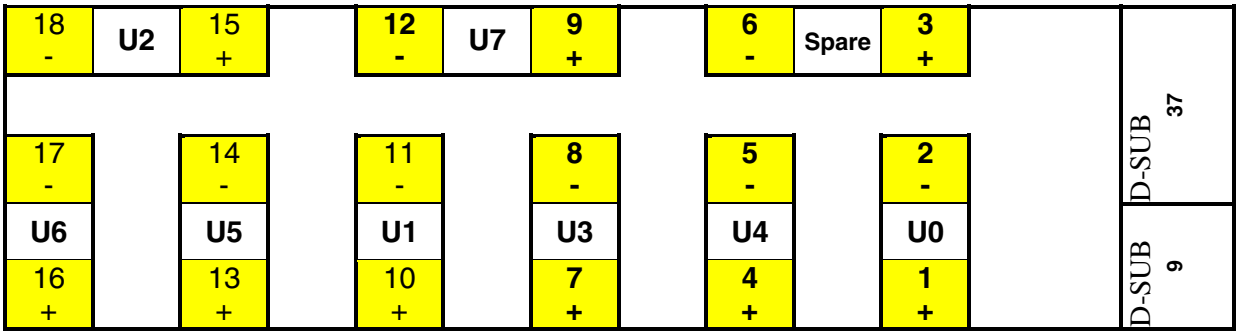
This connection is intended to service functions only. Because of the direct connection between the PC and the power supply, the ripple and noise of the outputs will increase!

The needed stuff is an PC running Windows, the control program UEP6 and a simple adapter (“Dongle”). The power supply is connected to the COM port of the PC. For more details, view the document *00461.A0.



PL6021 Connection Diagram

POWER CONNECTOR

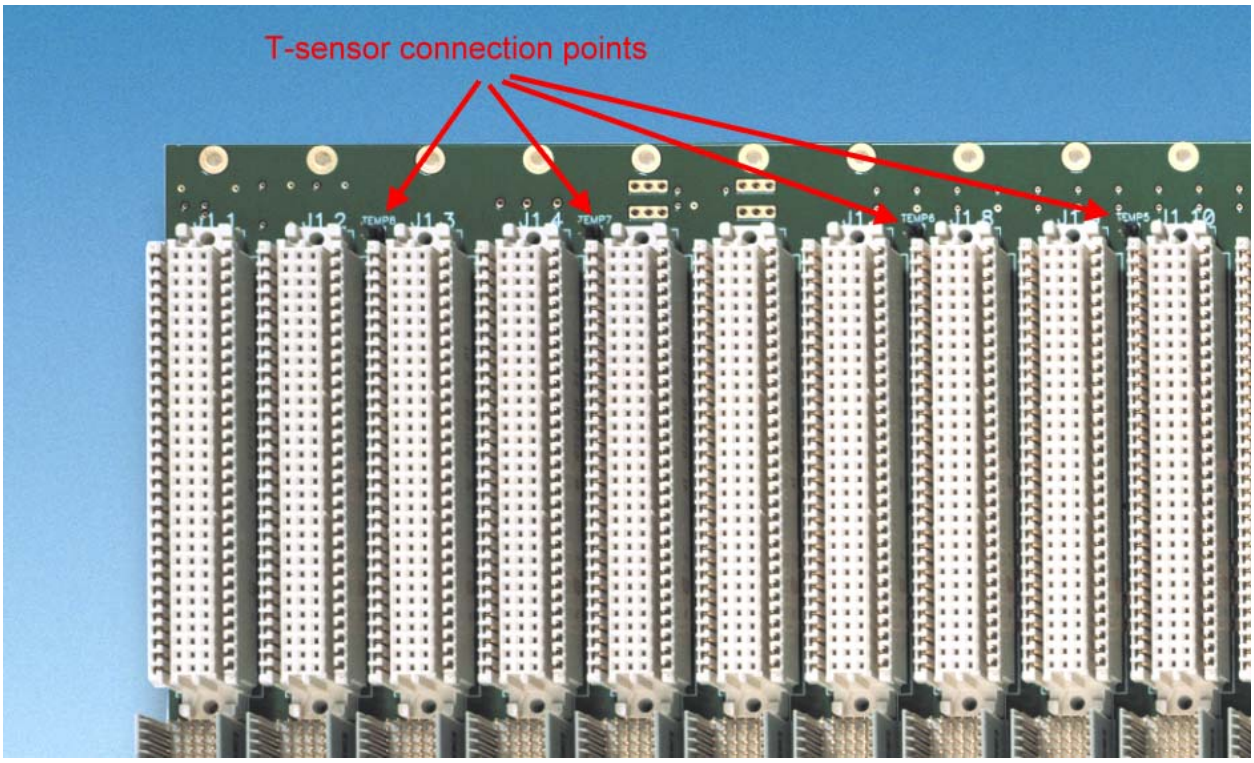


Pin 10,11,13...18: 6mm, 120A max.
Pin 1...9+12: 8mm, 240A max.
Polarity: + positive - negativ

U0 to U7 = standard pinning only!

SENSE/SIGNAL CONNECTOR D-SUB 37			
		19	TEMP RETURN
37	TEMP 0	18	TEMP 1
36	TEMP 2	17	TEMP 3
35	TEMP 4	16	TEMP 5
34	TEMP 6	15	TEMP 7
33	BIN EEPROM: IIC SDA	14	BIN EEPROM: IIC SCL
32	BIN EEPROM:+5V	13	VME LOGIC: SYSRESET
31	BIN EEPROM: GND	12	VME LOGIC: ACFAIL
30	VME LOGIC GND	11	VME LOGIC: SYSFAIL
29	U0 SENSE -	10	U0 SENSE + (VME: +5V)
28	VW SENSE (reserved)	9	VW SENSE (reserved)
27	VX SENSE (reserved)	8	VX SENSE (reserved)
26	U4 SENSE +	7	U4 SENSE -
25	U7 SENSE +	6	U7 SENSE -
24	U2 SENSE -	5	U2 SENSE + (VME: 48V)
23	U6 SENSE +	4	U6 SENSE -
22	U1 SENSE -	3	U1 SENSE + (VME: +12V)
21	U5 SENSE +	2	U5 SENSE – (VME: -12V)
20	U3 SENSE -	1	U3 SENSE + (VME: +3.3V)
FAN/CONTROL CONNECTOR D-SUB 9			
		5	CAN_H
9	CAN_L	4	CAN GND
8	RXD	3	TXD
7	+15V (for fan only)	2	+15V (for fan only)
6	-15V (for fan only)	1	-15V (for fan only)

WIENER VME Crate Temperature Sensors



VME 6000 Series Bin EEPROM configuration

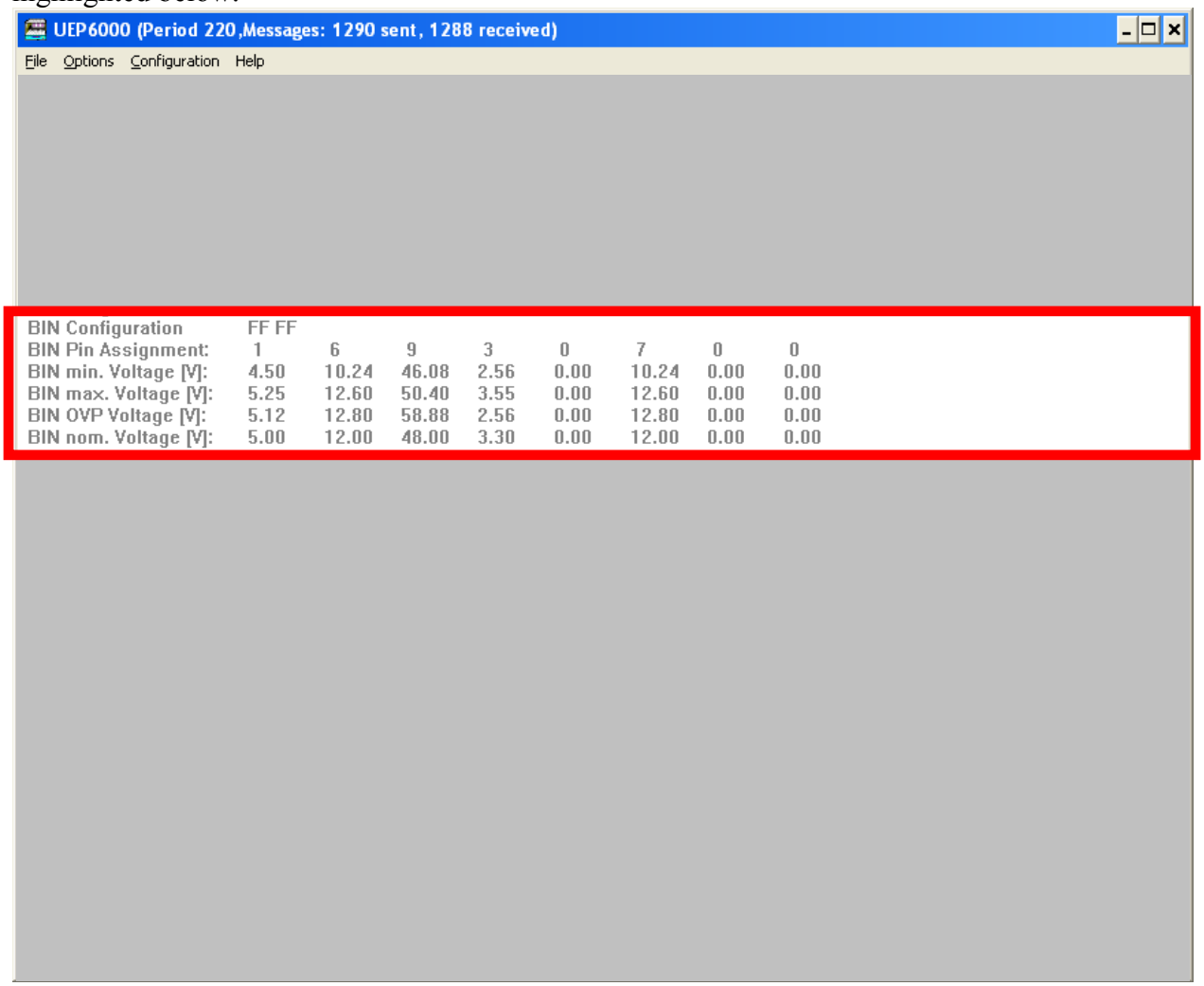
WARNING!!! Changing the BIN EEPROM setting could damage modules in the VME crate.

WIENER 6000 series VME crates contain an EEPROM which contains data about what power supplies to accept. This prevents users from accidentally plugging in power supplies that could damage modules within the crate. If the crates function is changed and the EEPROM needs to be reprogrammed, it can be done by following the steps below.

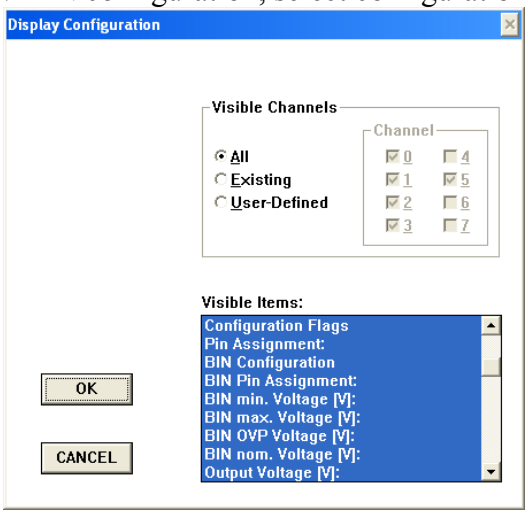
1. Remove the fantray from the crate. This will give you access to a subD 9 pin connector. Plug one end of a WIENER power supply adapter into the connector, connect the other a computer.

2. Insert a jumper on the write protect pins for the EEPROM. The pin locations are shown below.

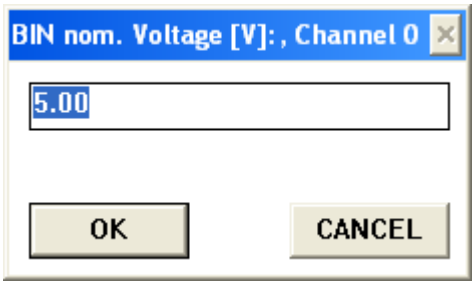
3. Open the UEP6000 program. The current bin settings should now be visible as highlighted below.



4. If screen does not show BIN configuration, select configuration and highlight these lines:



5. Select bin parameter to be changed and enter new value



6. Changes are saved automatically when you hit OK

UEL6000 Ethernet Firmware-Update

The UEL6000 Firmware is stored in a FLASH ROM and can be updated via the RS232 connector.

Necessary equipment:
- Computer with RS232 interface, running Microsoft Windows (98 or above)
- A patch cable to connect the UEL6000 with this computer
- This software

Installation Steps:
1. Unzip the UEL6402.zip to your had disk.
2. Connect the computers COM port to the UEL6000
3. Switch the UEL6000 into “Load Update” mode
The “Load Update” mode is a submenu of the “RS232 Configure” menu of the configuration menu.
You will use the following switches of the fan tray:

P▲	Push “Power” switch up(ON)
P▼	Push “Power” switch down (OFF)
M▲	Push “Mode Select” switch up
M▼	Push “Mode Select” switch down

Steps to get into the “Load Update” mode:

Description	***Switch***	***Display***
switch the crate off	P▼	_____
enter configuration menu	M▲(push and hold), P▲	`Config: Wait`
	hold both switches up	`Config: Wait...`
	after 4 seconds you can	`Config: Ready !`
	release the switches	`+5V0 0.01V 0A`
Now select the “RS232 Configure” menu	M▲ or M▼ (until right menu is displayed)	`RS232 Configure`
Enter this menu	P▲	`Baudrate: 115.2k`
Select submenu “Firmware”	M▲ or M▼ (until right menu is displayed)	`UEL6000 Firmware` `UEL6000 4.02`
Enter submenu	P▲	`Load Update: No`
Change to yes	M▲	`Load Update: Yes`
Accept settings and enter update mode	P▲	`Scanning RS232..`

4. Run the upload software on the computer
Open a command window, change to the folder of the unzipped file.
At the prompt enter the command

```
C:UEL6402> F28xxConsole.exe -v -p com1 -i UEL6E.4.02.out
```

Replace “com1” with the COM port which you are using.

The software now connects to the UEL6000, the following is displayed:

```
Installed output message callback

Loading F2810SerialFlash.out
Entry point 0x003f8000
Section Address = 0x003f8000, Number of words =
3235.............................................................
Section Address = 0x003f8ca3, Number of words = 4.
Section Address = 0x003f8ca7, Number of words = 84..
Section Address = 0x00000792, Number of words = 67..
.Boot code loaded
Connected to \.\COM1 at 5 baud
Target is programmed with "UEL6000 4.01"
Erase the flash ?(y/n) y
```

This is the last chance to interrupt the update. If you say 'y' here, the UEL6000 flash is erased. Next messages are:

```
Erase the flash.
Program the flash ?(y/n) y
```

You should say 'y', too. If not, you have got an empty flash which can only be reprogrammed at the factory.

```
Program UEL6E.4.02.out
Section Address = 0x003e8000, Number of words = 3676
Section Address = 0x003e8e5c, Number of words = 253
Section Address = 0x003e8f59, Number of words = 21
Section Address = 0x003e8f6e, Number of words = 629
Section ".stack" IGNORED (vaddr=0x8200 out of flash area)
Section Address = 0x003e91e3, Number of words = 3
Section ".args" IGNORED (vaddr=0x1fc out of flash area)
Section "" IGNORED (vaddr=0x340 out of flash area)
Section ".trace" IGNORED (vaddr=0x47c out of flash area)
Section Address = 0x003e91e6, Number of words = 256
Section Address = 0x003e92e6, Number of words = 32
Section Address = 0x003f7ff6, Number of words = 2
Section Address = 0x003f7ff8, Number of words = 8
Section Address = 0x003f7f80, Number of words = 118
Section Address = 0x003e9306, Number of words = 23754
Section Address = 0x003eefd0, Number of words = 3628
Section Address = 0x003f7f70, Number of words = 16
Section Address = 0x003efdfc, Number of words = 30
Section Address = 0x003efe1a, Number of words = 12
Section Address = 0x003efe26, Number of words = 1539

Verify UEL6E.4.02.out
Section Address = 0x003e8000, Number of words = 3676
Section Address = 0x003e8e5c, Number of words = 253
Section Address = 0x003e8f59, Number of words = 21
Section Address = 0x003e8f6e, Number of words = 629
Section ".stack" IGNORED (vaddr=0x8200 out of flash area)
Section Address = 0x003e91e3, Number of words = 3
Section ".args" IGNORED (vaddr=0x1fc out of flash area)
Section "" IGNORED (vaddr=0x340 out of flash area)
Section ".trace" IGNORED (vaddr=0x47c out of flash area)
Section Address = 0x003e91e6, Number of words = 256
Section Address = 0x003e92e6, Number of words = 32
Section Address = 0x003f7ff6, Number of words = 2
Section Address = 0x003f7ff8, Number of words = 8
```

```
Section Address = 0x003f7f80, Number of words = 118
Section Address = 0x003e9306, Number of words = 23754
Section Address = 0x003eefd0, Number of words = 3628
Section Address = 0x003f7f70, Number of words = 16
Section Address = 0x003efdfc, Number of words = 30
Section Address = 0x003efe1a, Number of words = 12
Section Address = 0x003efe26, Number of words = 1539


Press [Enter] key to exit
```

OK, the update is ready. Now restart the crate by removing the mains cord.
If there are new data items in the EEPROM, after the restart they will be initialized. You have to acknowledge the “CHECKSUM xxxx” messages by pushing the “SYSRES” button at the fan tray.

UEL6 Ethernet Pin Description

1. CAN-Bus (X1, X2)

RJ45	Pin	Signal	Comment
	1	CAN-H	
	2	CAN-L	
	3	GND	
	4	n.c.	
	5	n.c.	
	6	reserved	
	7	GND	
	8	n.c.	

This is the standard CIA pinning. Both connectors are wired in parallel, so it's easy to connect many crates in a daisy-chain.

2. RS232 (X2)

RJ45	Pin	Signal	Comment
	1	n.c.	
	2	n.c.	
	3	n.c.	
	4	GND	
	5	RXD	Output
	6	TXD	Input
	7	CTS	Output
	8	RTS	Input

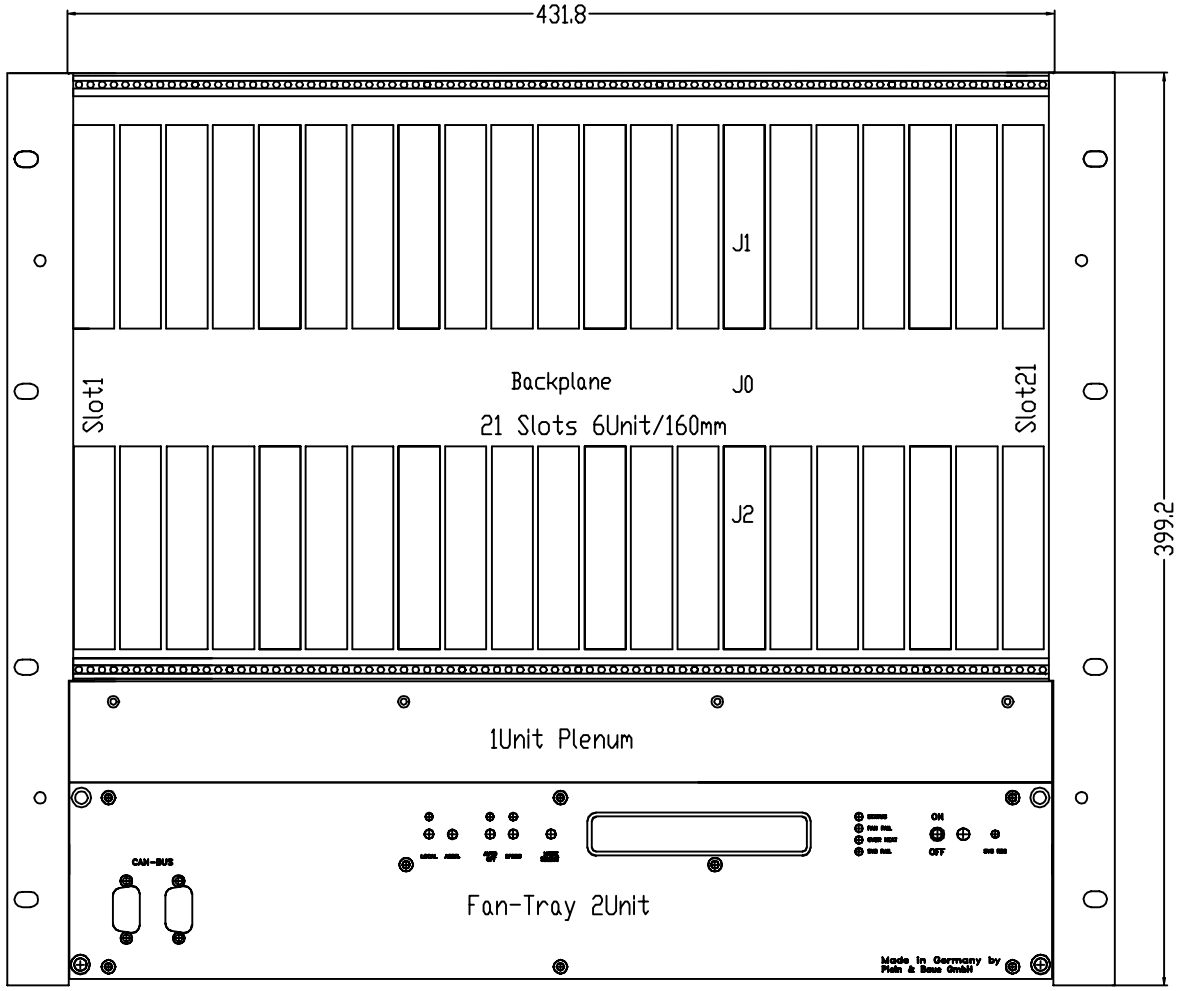
This is the standard RS232D DCE pinning. Connection to DTE (e.g. computer) with a 1:1-cable.

3. Ethernet (X4)

RJ45	Pin	Signal	Comment
	1	TX+	
	2	TX-	
	3	RX+	
	4	GND 1	75 Ohm
	5	GND 1	
	6	RX-	
	7	GND 2	75 Ohm
	8	GND 2	

This is the standard NIC configuration. You need a 1:1-cable to connect a to a HUB, or a cross-over cable to connect to another NIC (e.g. a computer)

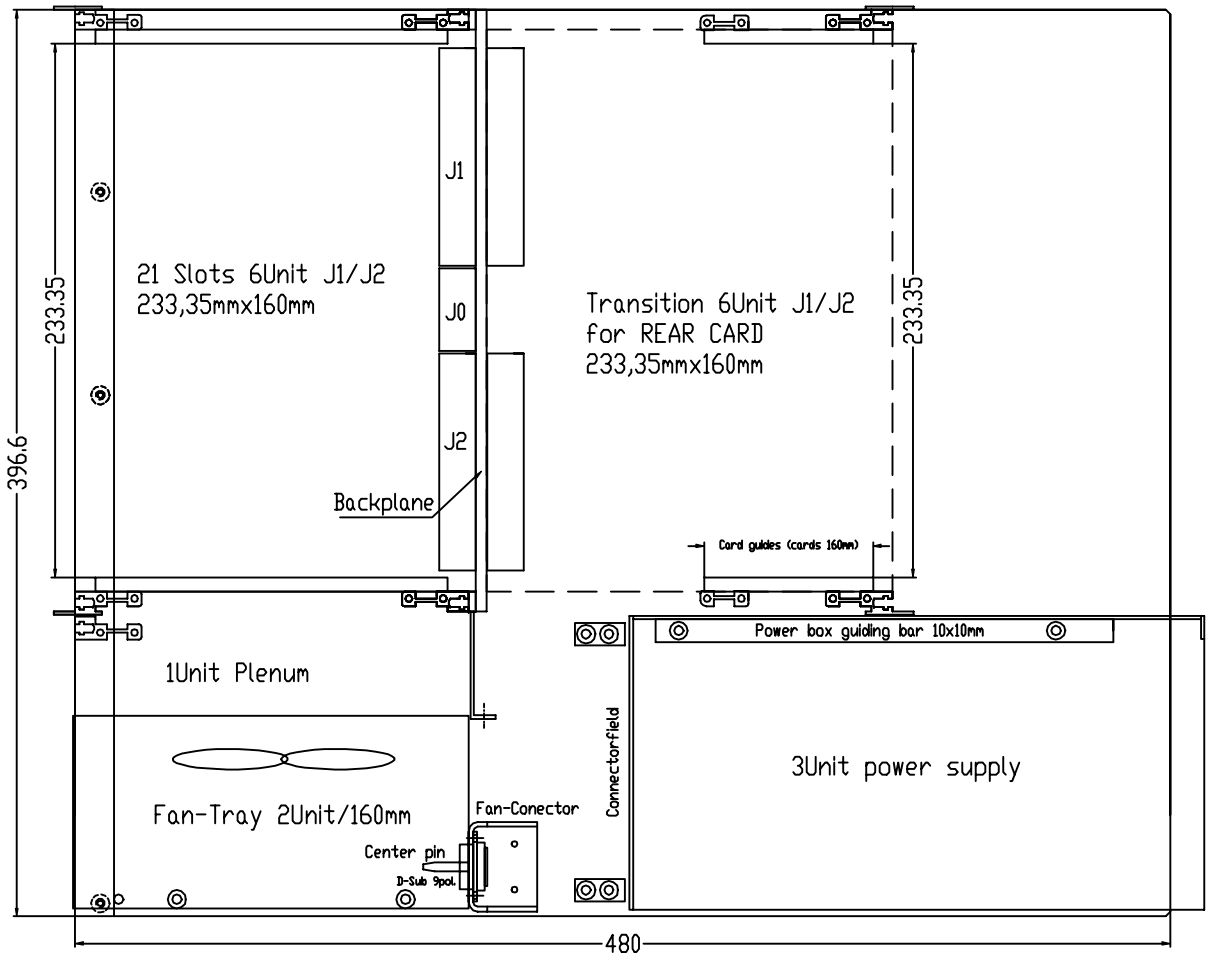
VME6023 9U Plenum Bin



Dimension drawing
9Unit Bin : Front view

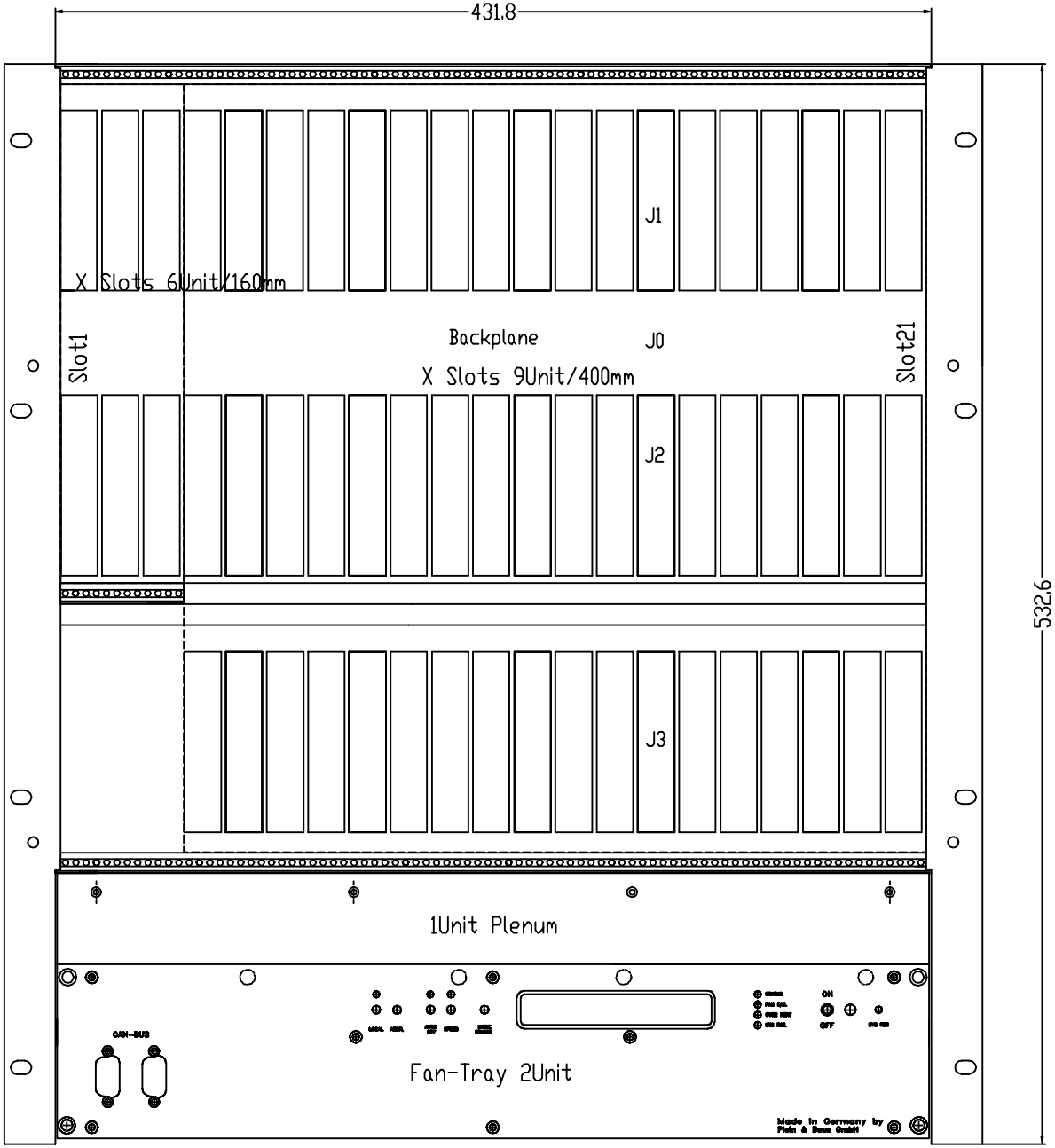
W-IE-NE-R
PLEIN & BAUS GMBH

VME6023 9U Plenum Bin



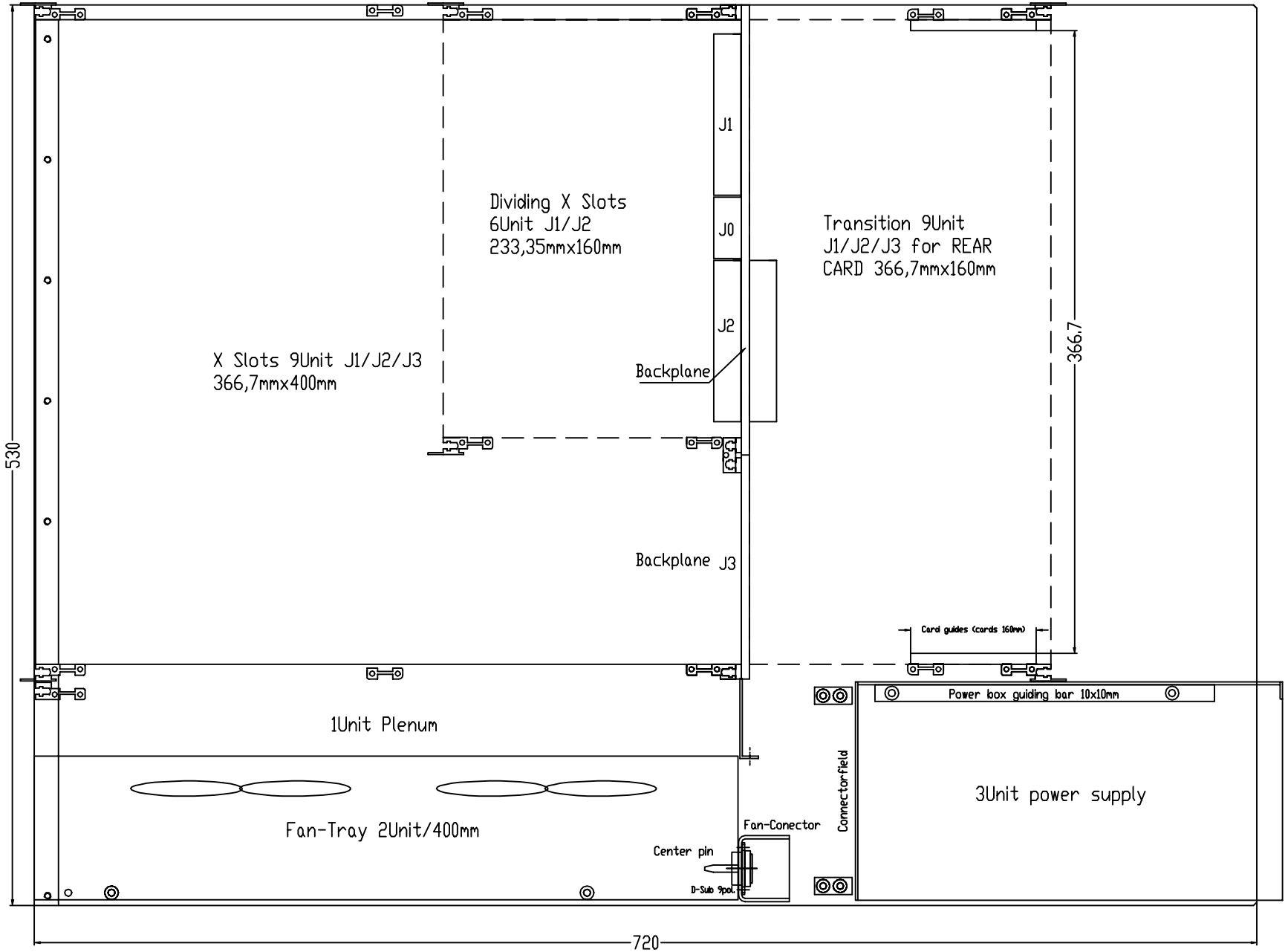
Dimension drawing
9Unit Bin : Side view

VME6023 12U Plenum Bin

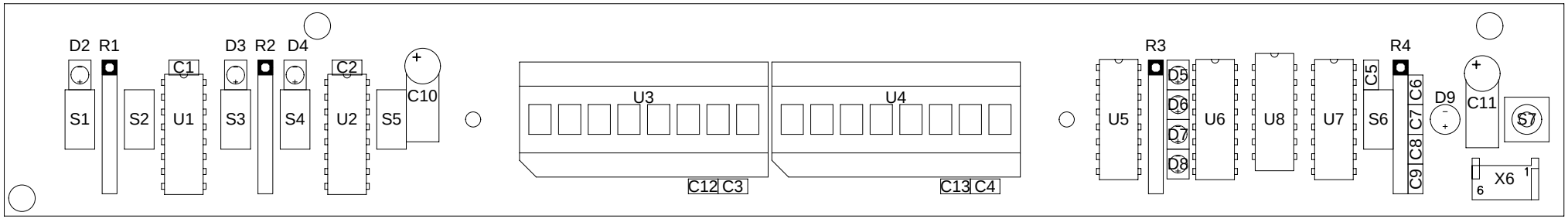


Dimension drawing
12Unit Bin : Front view

VME6023 12U Plenum Bin

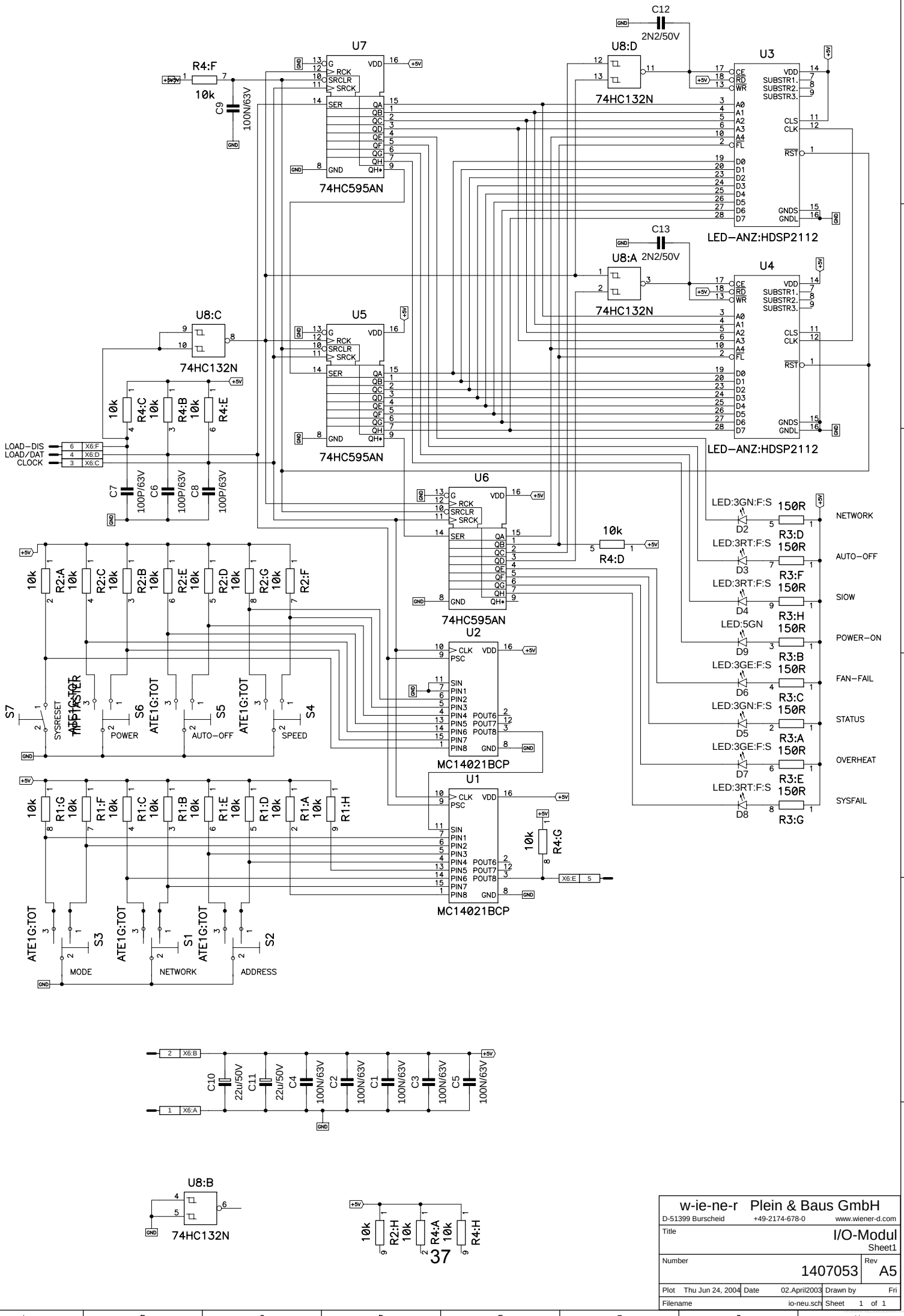


Dimension drawing
12Unit Bin : Side view



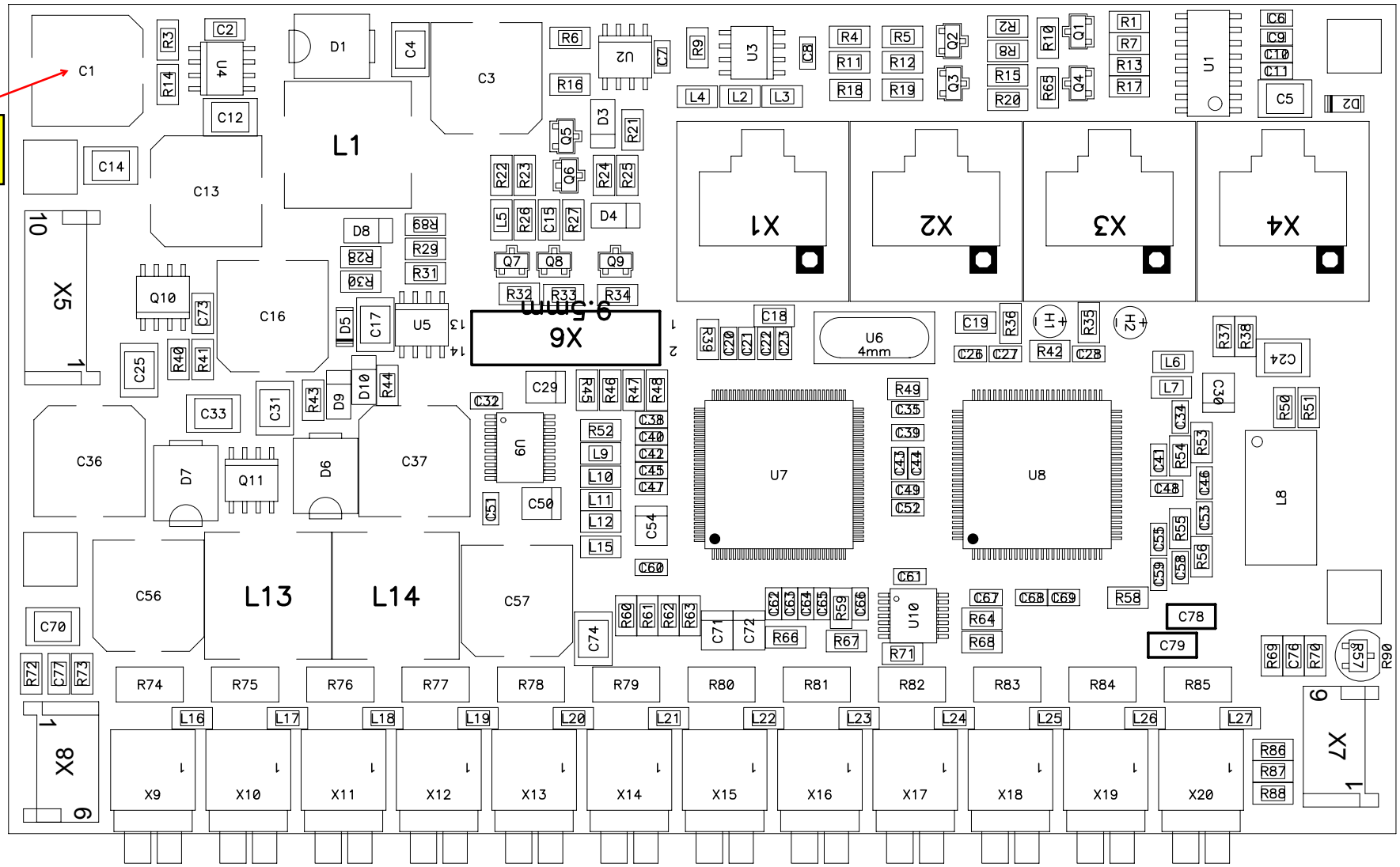
C10, C11:
max. Bauhöhe 7mm, sonst legen

w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0		www.wiener-d.com
Title	SG;I/O-Complete		
Number	1407053	Rev	A5
Plot Tue Jul 13, 2004	Date 10.04.03	Drawn by	Fri
Filename	io-neu.PCB		

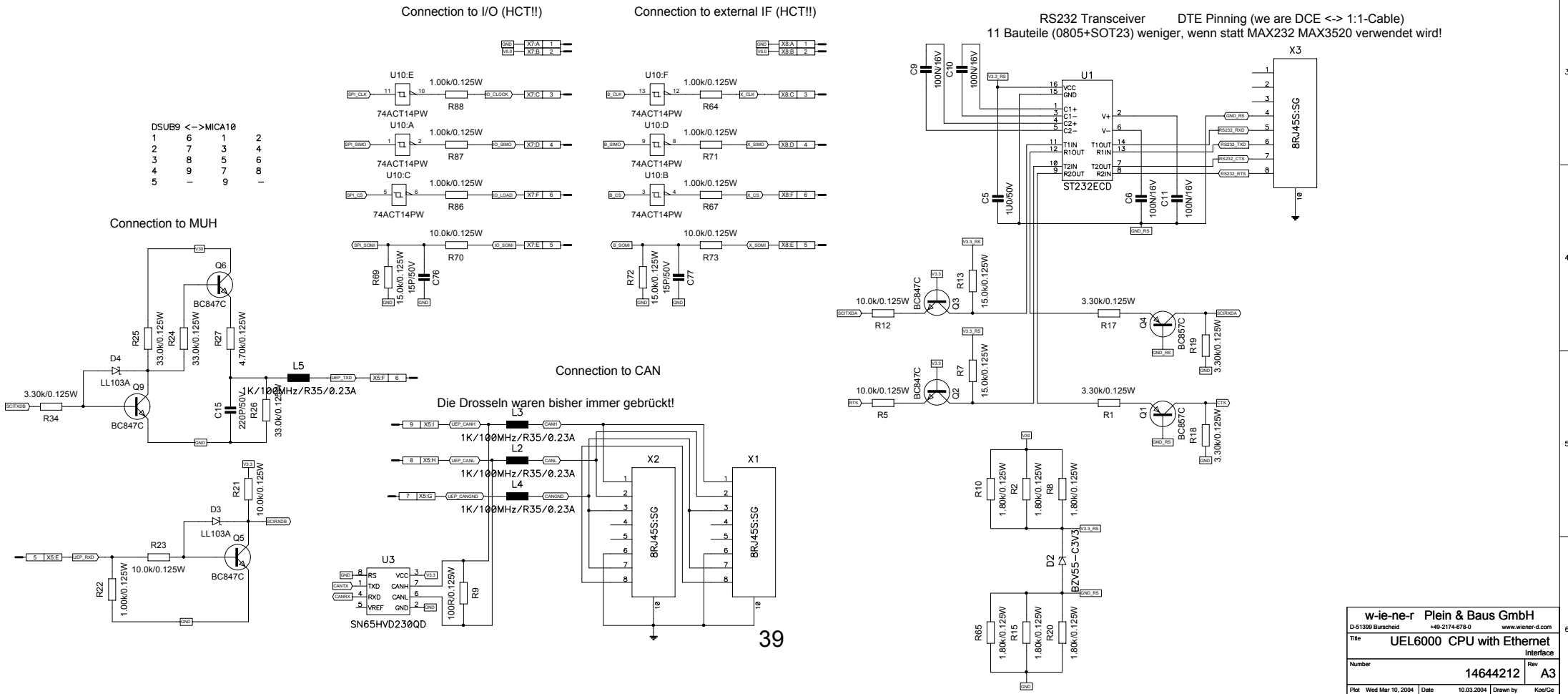


w-ie-ne-r	Plein & Baus GmbH		
D-51399 Burscheid	+49-2174-678-0		www.wiener-d.com
Title	I/O-Modul		Sheet1
Number	1407053		Rev A5
Plot Thu Jun 24, 2004	Date 02.April2003	Drawn by	Fri
Filename io-neu.sch		Sheet 1 of 1	

C1 nicht bestücken!

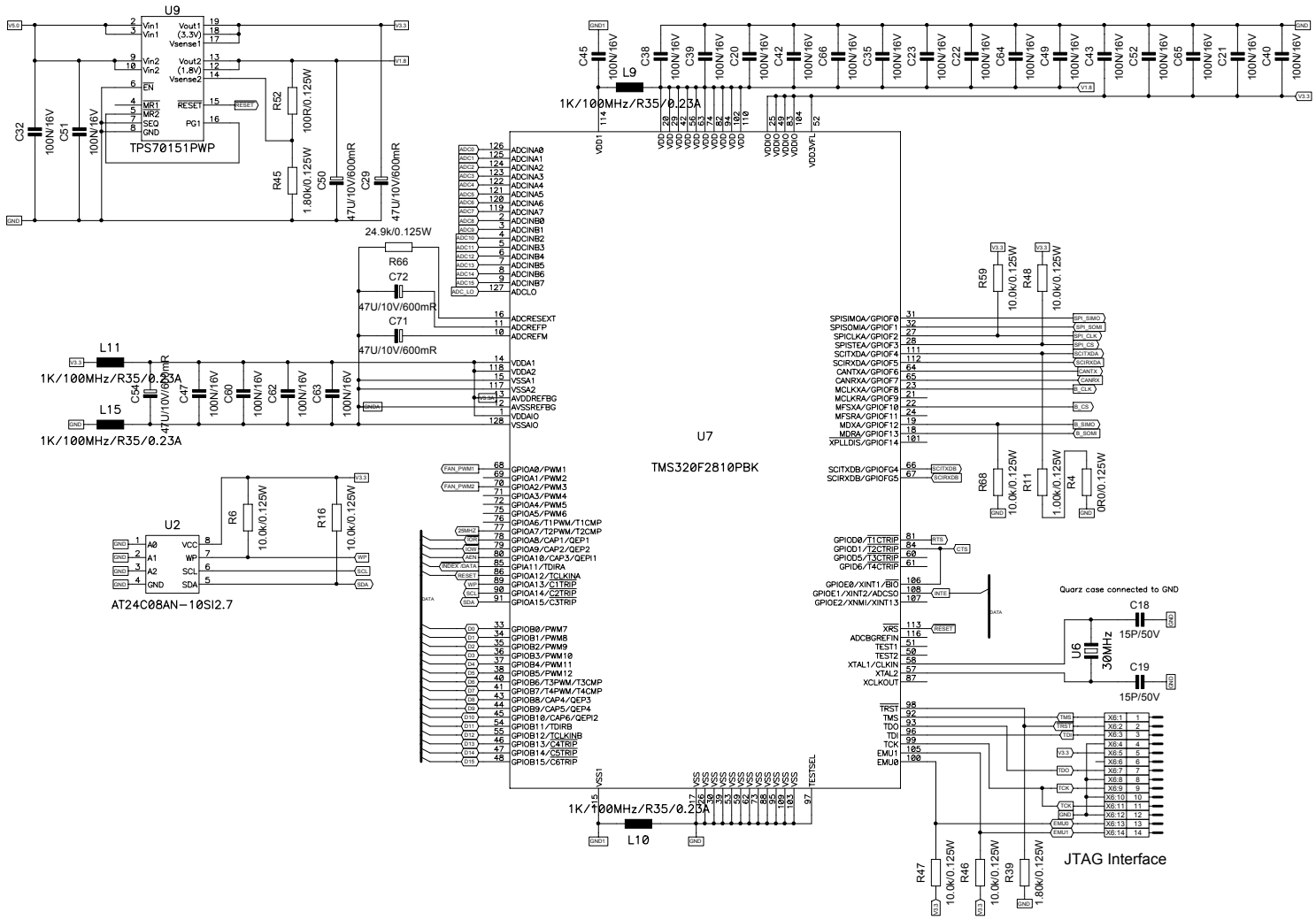


w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0	www.wiener-d.com	
Title	UEL6000 CPU with Ethernet		
Number	1464212	Rev	A3
Plot Wed Mar 10, 2004	Date 10.03.2004	Drawn by	GE
Filename	uel6e.pcb		

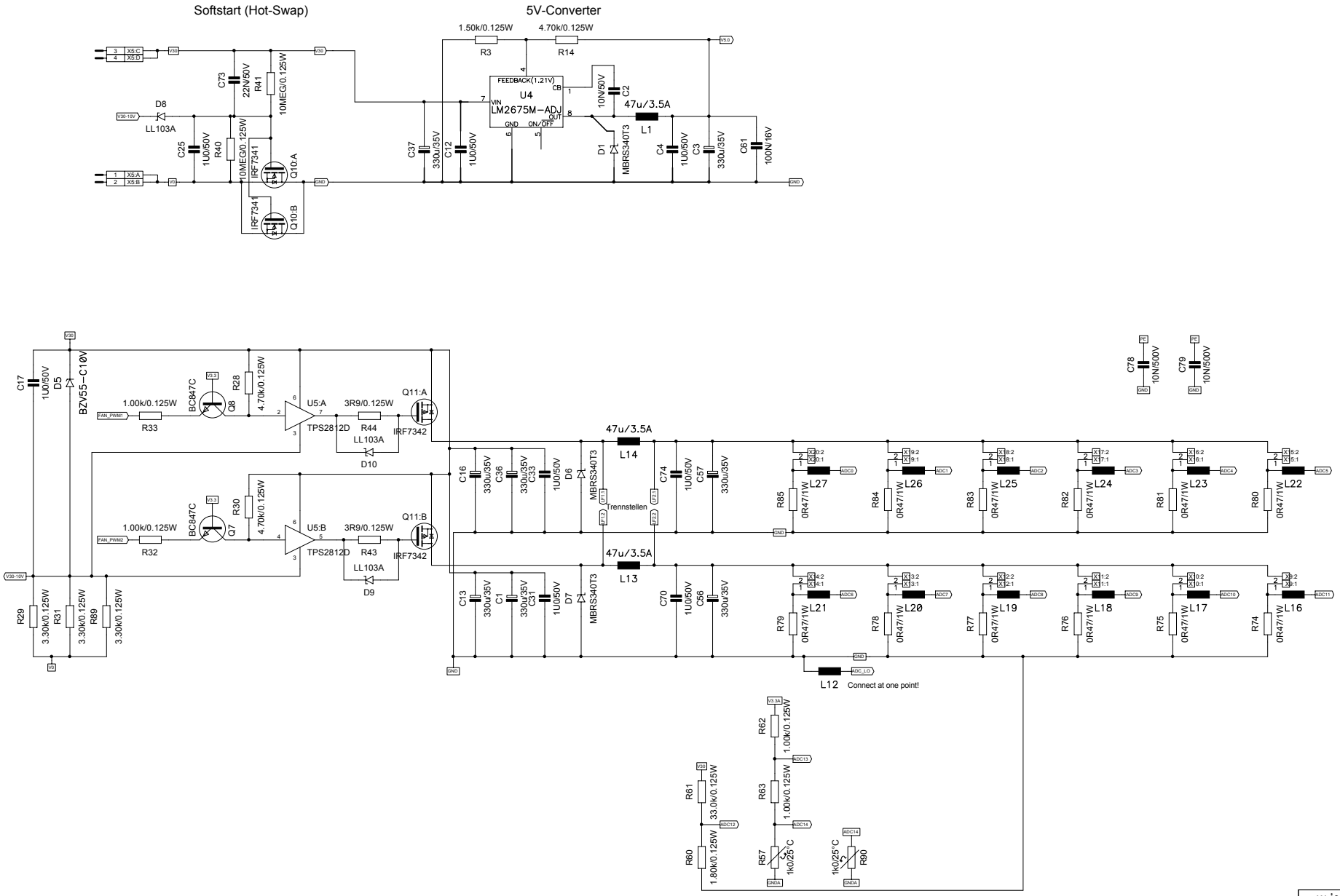


39

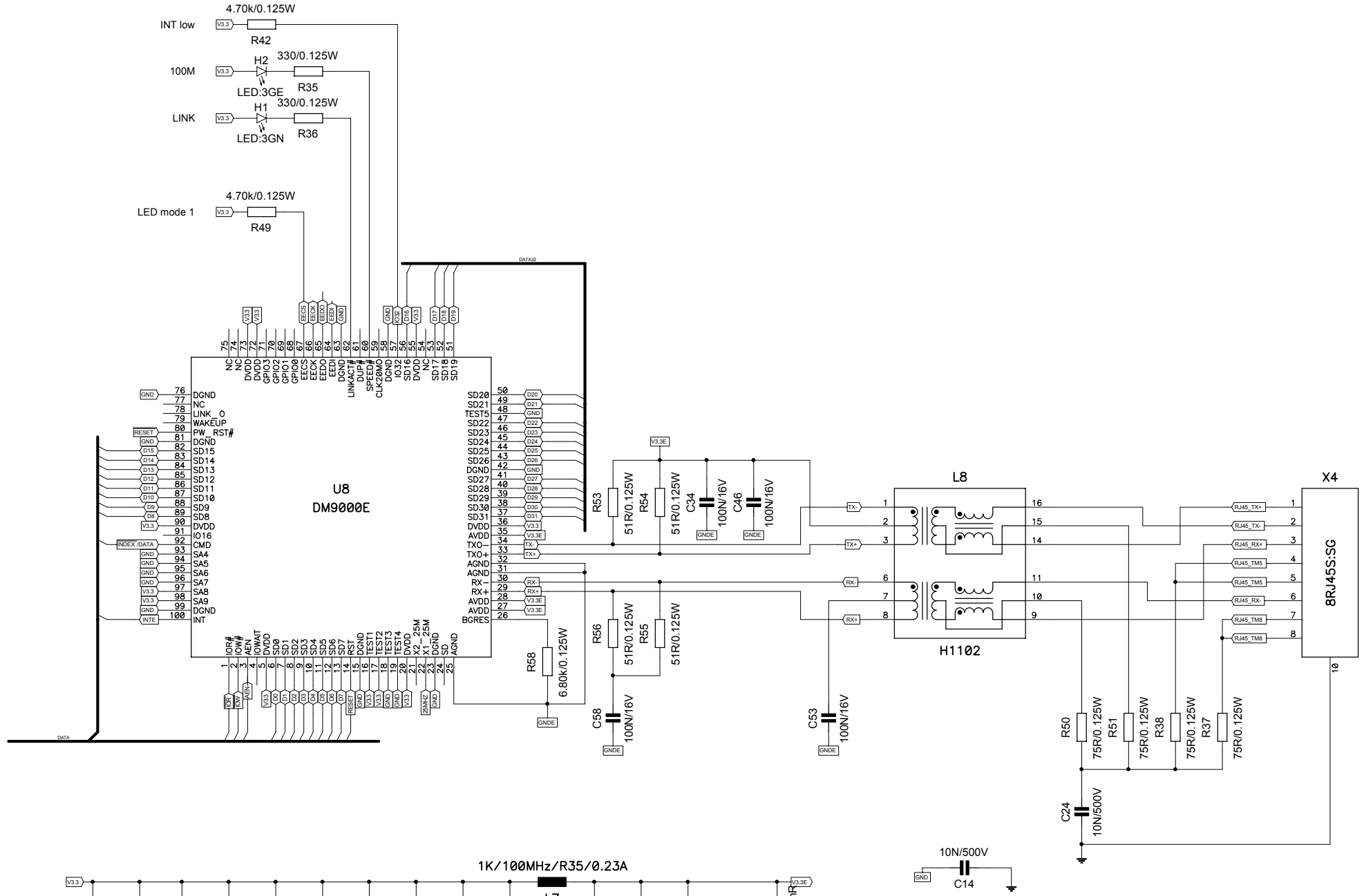
w-ie-ne-r	Plein & Baus GmbH
D-51399 Burscheid	+49-2174-678-0 www.wiener-d.com
Title	UEL6000 CPU with Ethernet Interface
Number	14644212
Rev	A3
Plot	Wed Mar 10, 2004
Date	10.03.2004
Drawn by	Koe/Ge
Filename	uel6e.sch
Sheet	1 of 4



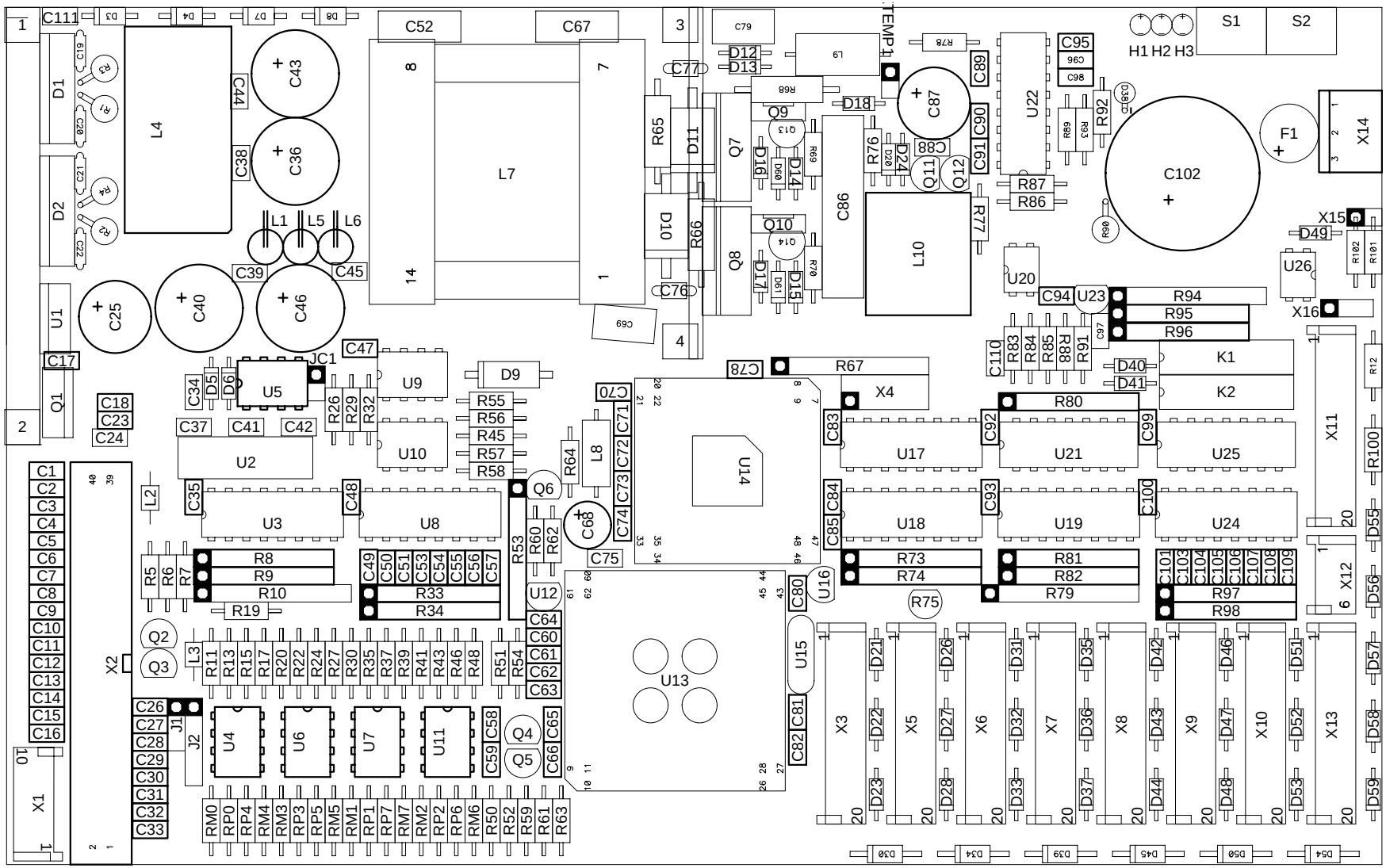
w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0		www.wiener-d.com
Title	UEL6000 CPU with Ethernet Processor		
Number	14644212	Rev	A3
Plot Wed Mar 10, 2004	Date 10.03.2004	Drawn by	Koe/Ge
Filename	uel6e.sch	Sheet	2 of 4



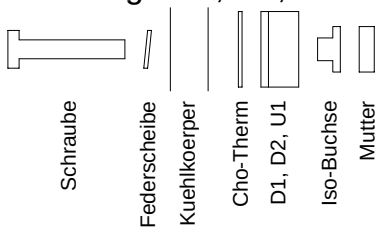
w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0		www.wiener-d.com
Title	UEL6000 CPU with Ethernet Power+Fan		
Number	14644212	Rev	A3
Plot Wed Mar 10, 2004	Date 10.03.2004	Drawn by	Koe/Ge
Filename uel6e.sch		Sheet	3 of 4



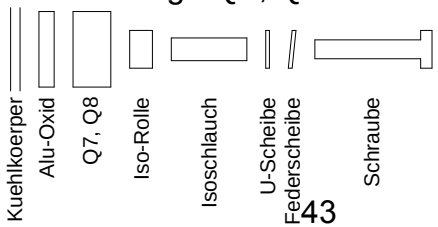
w-ie-ne-r Plein & Baus GmbH	
D-51399 Burscheid +49-2174-678-0 www.wiener-d.com	
Title	UEL6000 CPU with Ethernet Ethernet
Number	14644212
Rev	A3
Plot Wed Mar 10, 2004	Date 10.03.2004
Drawn by	Koe/Ge
Filename	uel6e.sch
Sheet	4 of 4



Montage D1, D2, U1

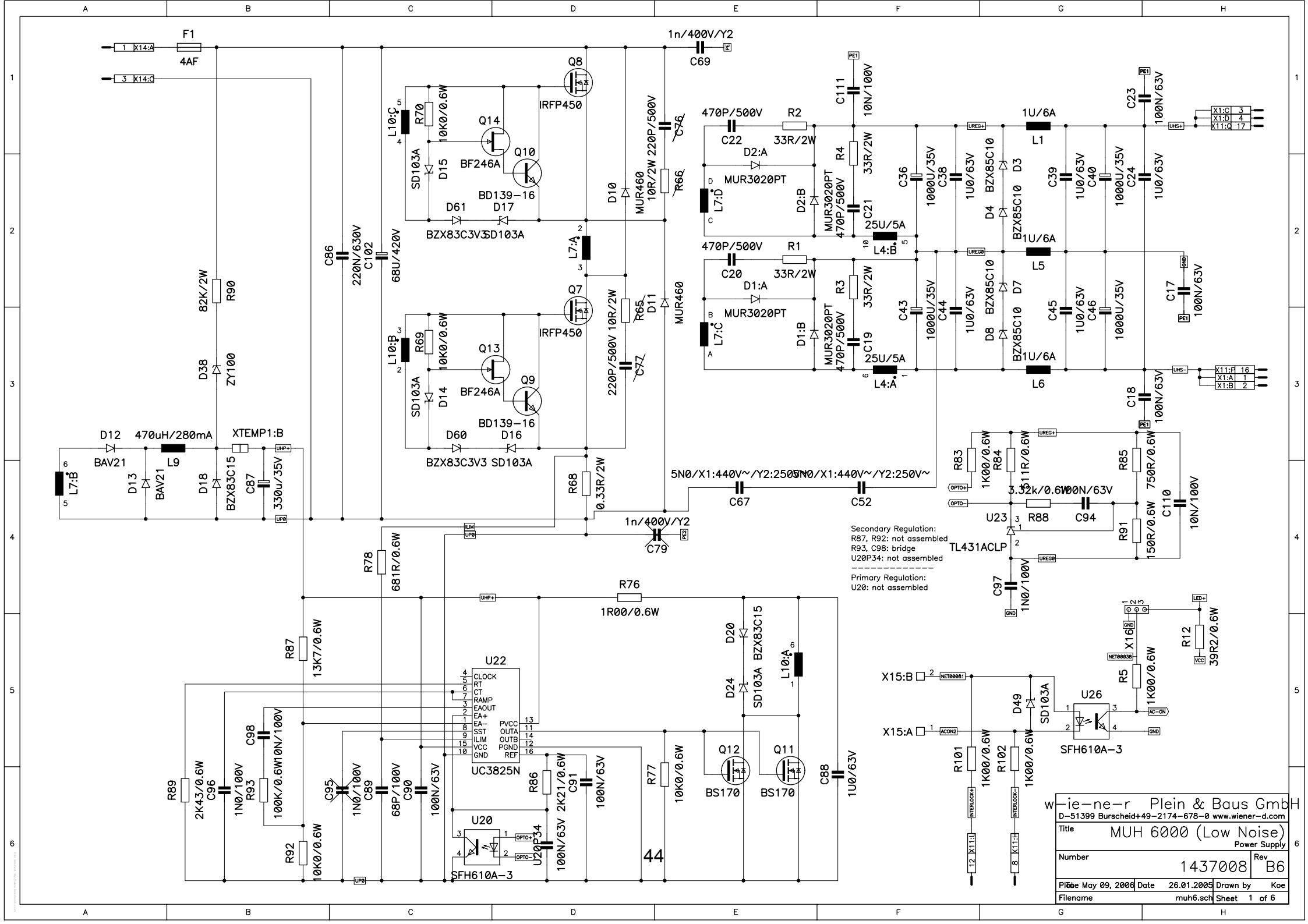


Montage Q7, Q8

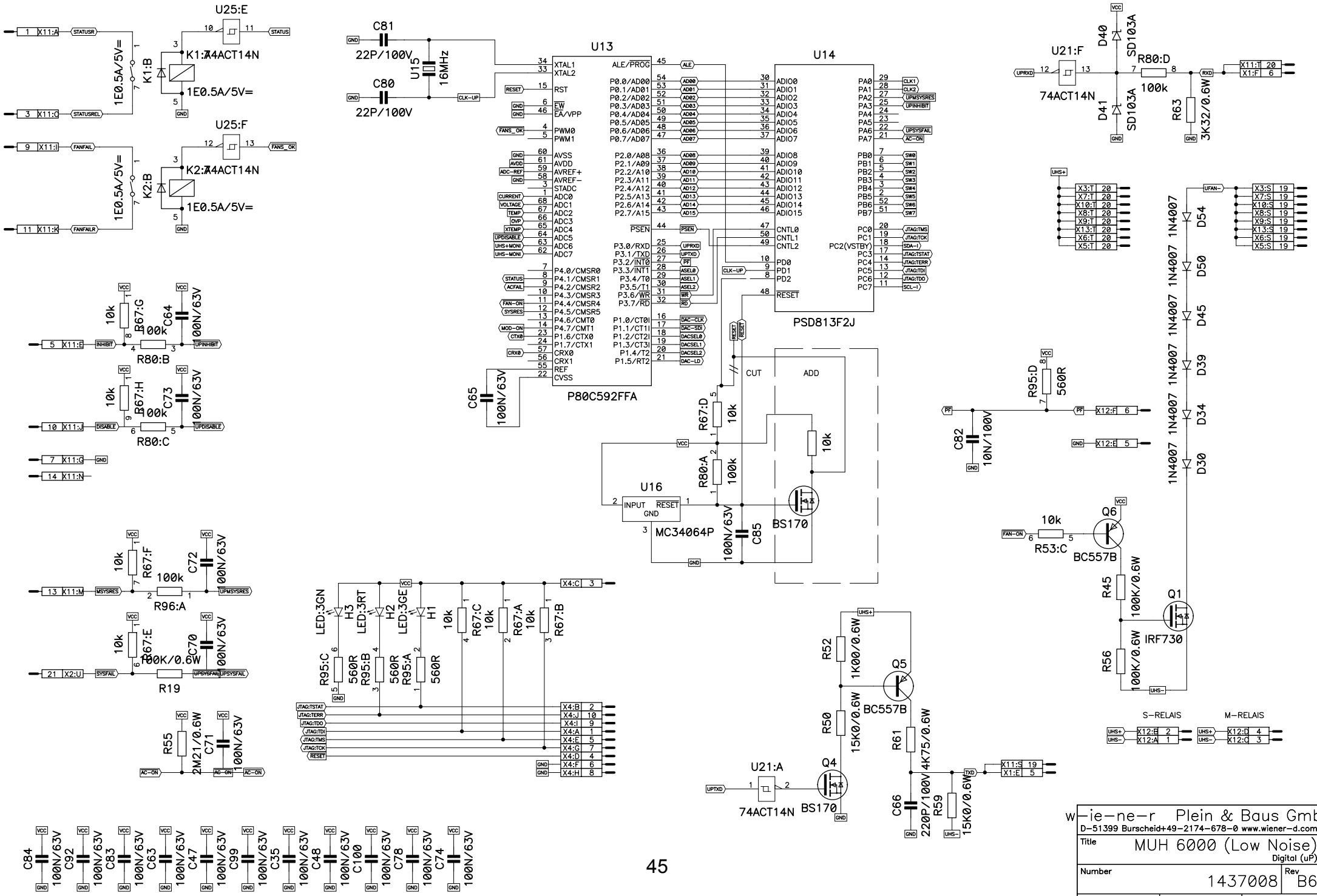


43

w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0	www.wiener-d.com	
Title	MUH6000 (low Noise)		
Number	1437008	Rev	B6
Plot Tue Feb 07, 2006	Date 25.01.2005	Drawn by	Koe / Ge
Filename	muh6.PCB		


F1
4AF
1n/400V/Y2
C69
Q8
IRFP450
Q14
BF246A
Q10
BD139-16
R70
10K0/0.6W
SD103A
D15
D61
D17
BZX83C3V3
SD103A
C76
D10
MUR460
10R/2W 220P/500V
R66
L7:A
Q7
IRFP450
Q13
BF246A
Q9
BD139-16
R69
10K0/0.6W
SD103A
D14
D60
D16
BZX83C3V3
SD103A
R65
10R/2W
D11
MUR460
220P/500V
C77
C86
220N/630V
C102
68U/420V
82K/2W
R90
D38
ZY100
470P/500V
R2
C22
33R/2W
D2:A
MUR3020PT
L7:D
D2:B
MUR3020PT
470P/500V
C21
C111
10N/100V
R4
33R/2W
25U/5A
L4:B
470P/500V
R1
C20
33R/2W
D1:A
MUR3020PT
L7:C
D1:B
MUR3020PT
470P/500V
C19
R3
33R/2W
25U/5A
L4:A
C36
1000U/35V
C38
1U0/63V
C43
1000U/35V
C44
1U0/63V
BZX85C10
D3
BZX85C10
D4
BZX85C10
D7
BZX85C10
D8
1U/6A
L1
1U/6A
L5
1U/6A
L6
C39
1U0/63V
C40
1000U/35V
C24
1U0/63V
C45
1U0/63V
C46
1000U/35V
C23
100N/63V
C17
100N/63V
C18
100N/63V
UREG+
UREG0
UHS+
UHS-
GND
PE1
X1:C 3
X1:D 4
X11:Q 17
X11:F 16
X1:A 1
X1:B 2
D12
BAV21
470uH/280mA
L9
XTEMP1:B
L7:B
D13
BAV21
D18
BZX83C15
C87
330u/35V
UHP+
UP0
R68
0.33R/2W
5N0/X1:440V~/Y2:250V~
C67
5N0/X1:440V~/Y2:250V~
C52
1n/400V/Y2
C79
ILIM
R78
681R/0.6W
R83
1K00/0.6W
R84
111R/0.6W
R85
750R/0.6W
3.32k/0.6W
100N/63V
U23
R88
C94
TL431ACLP
R91
150R/0.6W
C110
10N/100V
C97
1N0/100V
OPTO+
OPTO-
Secondary Regulation:
R87, R92: not assembled
R93, C98: bridge
U20P34: not assembled

Primary Regulation:
U20: not assembled
R76
1R00/0.6W
R87
13K7/0.6W
U22
CLOCK
RT
CT
RAMP
EAOUT
EA+
EA-
SST
ILIM
VCC
GND
PVCC
OUTA
OUTB
PGND
REF
UC3825N
D20
BZX83C15
D24
SD103A
L10:A
Q12
BS170
Q11
BS170
C88
1U0/63V
R89
2K43/0.6W
C96
1N0/100V
R93
100K/0.6W
C98
10N/100V
C95
1N0/100V
C89
68P/100V
C90
100N/63V
R86
2K21/0.6W
C91
100N/63V
R77
10K0/0.6W
R92
10K0/0.6W
U20
SFH610A-3
U20P34
100N/63V
X15:B
X15:A
ACON2
R101
1K00/0.6W
R102
1K00/0.6W
D49
SD103A
U26
SFH610A-3
AC-ON
X16
R5
1K00/0.6W
R12
39R2/0.6W
LED+
VCC
INTERLOCK+
INTERLOCK-
44
w-ie-ne-r Plein & Baus GmbH
D-51399 Burscheid+49-2174-678-0 www.wiener-d.com
Title
MUH 6000 (Low Noise)
Power Supply
Number
1437008
Rev
B6
Plotted
Date
26.01.2005
Drawn by
Koe
Filename
muh6.sch
Sheet
1 of 6



45

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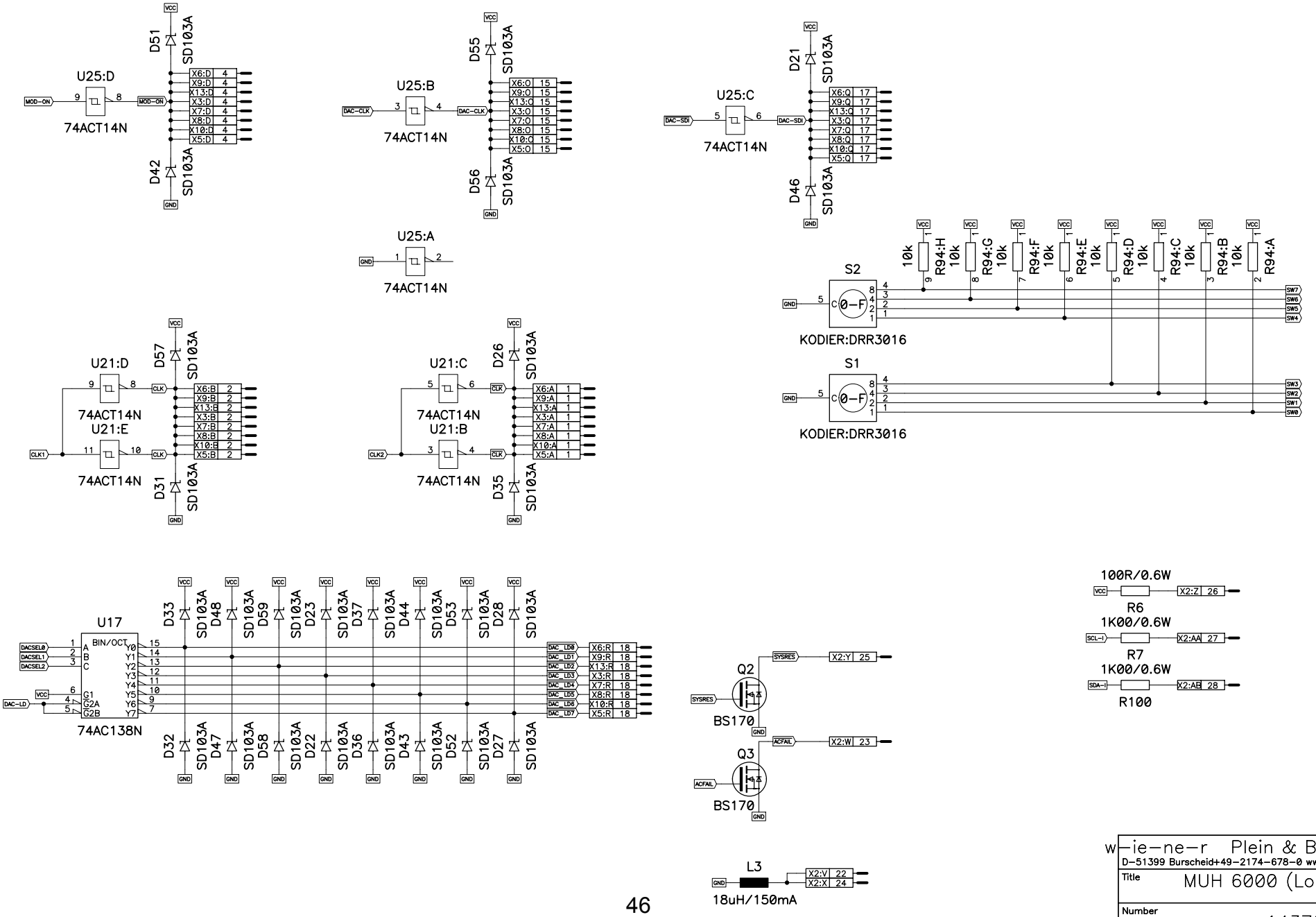
D-51399 Burscheid+49-2174-678-0 www.wiener-d.com	
Title	MUH 6000 (Low Noise) Digital (uP)
Number	1437008 Rev B6
Date	26.01.2005 Drawn by Koe
Filename	muh6.sch Sheet 2 of 6

Plotted: May 09, 2006



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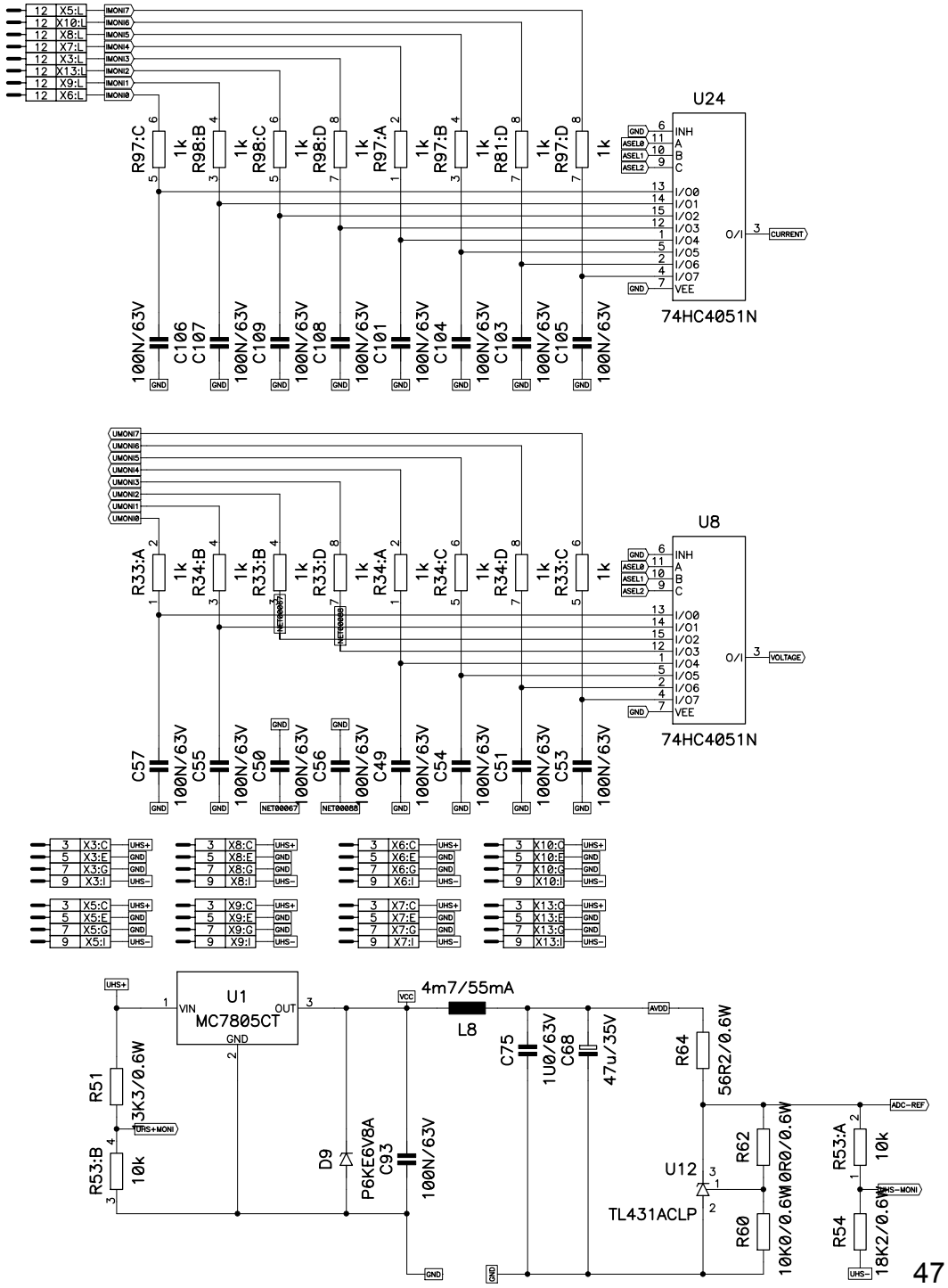
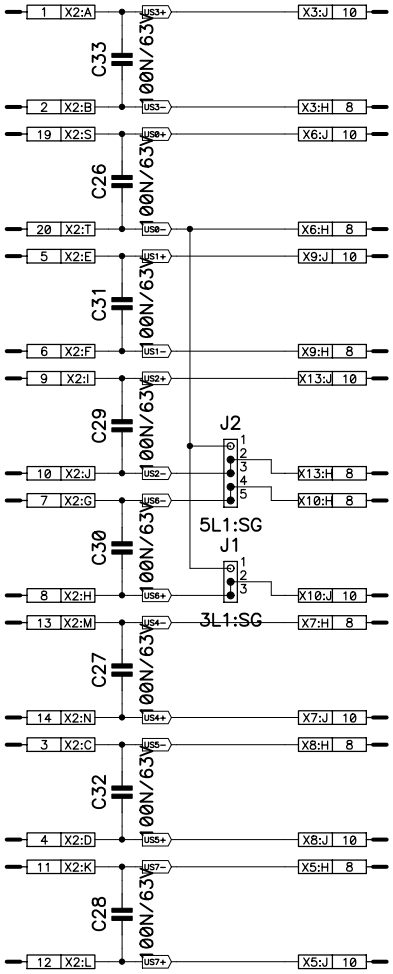
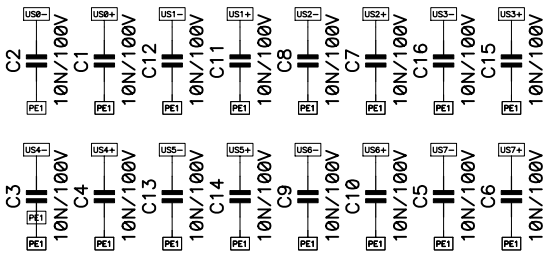
Title	MUH 6000 (Low Noise) Digital		
Number	1437008	Rev	B6
Plotted	May 09, 2006	Date	26.01.2005
Drawn by	Koe		
Filename	muh6.sch	Sheet	3 of 6

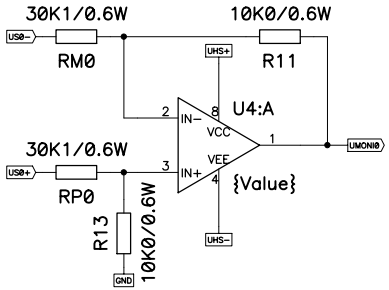


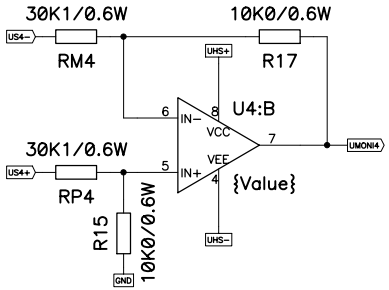
w-ie-ne-r Plein & Baus GmbH	
D-51399 Burscheid+49-2174-678-0 www.wiener-d.com	
Title	MUH 6000 (Low Noise) Analog Measurement
Number	1437008 Rev B6
Date	26.01.2005 Drawn by Koe
Filename	muh6.sch Sheet 4 of 6

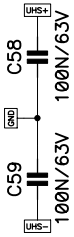
Date May 09, 2006

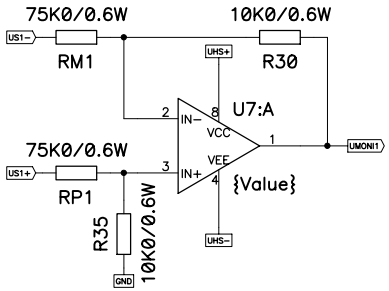


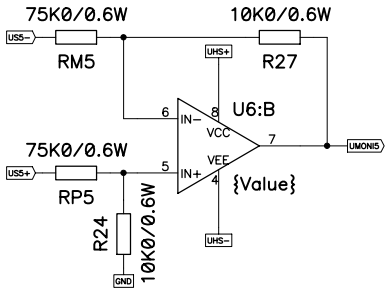


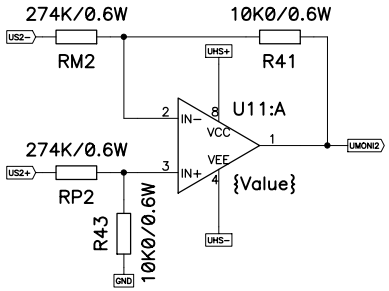


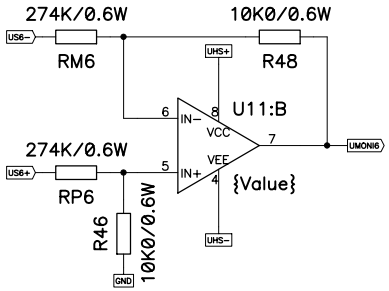


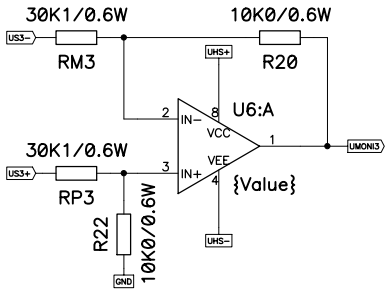


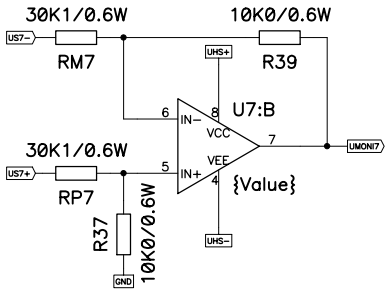












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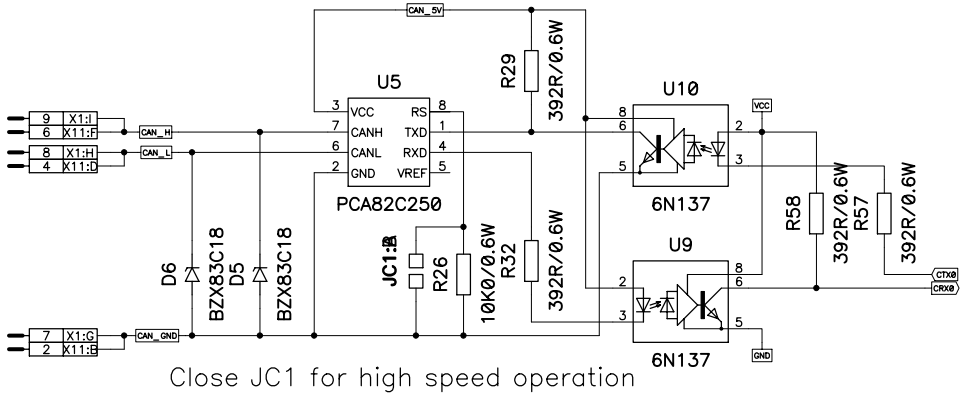
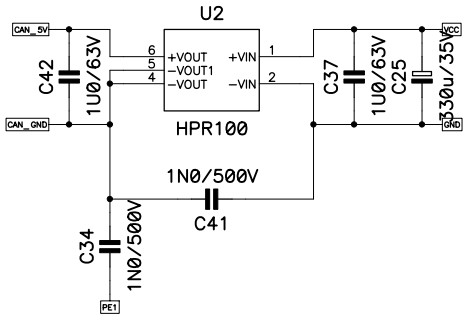
Title	MUH 6000 (Low Noise) Sense Connection		
Number	1437008	Rev	B6
Plotdate	May 09, 2006	Date	26.01.2005
Drawn by	Koe		
Filename	muh6.sch	Sheet	5 of 6



Close JC1 for high speed operation



CAN Operation without DC−DC Converter:
Remove R29, R58, U2, U9, U10
Connect U9 pin 3 and 6
Connect U10 pin 3 and 6
Connect U2 pin 1 and 6
Connect U2 pin 2 and 4

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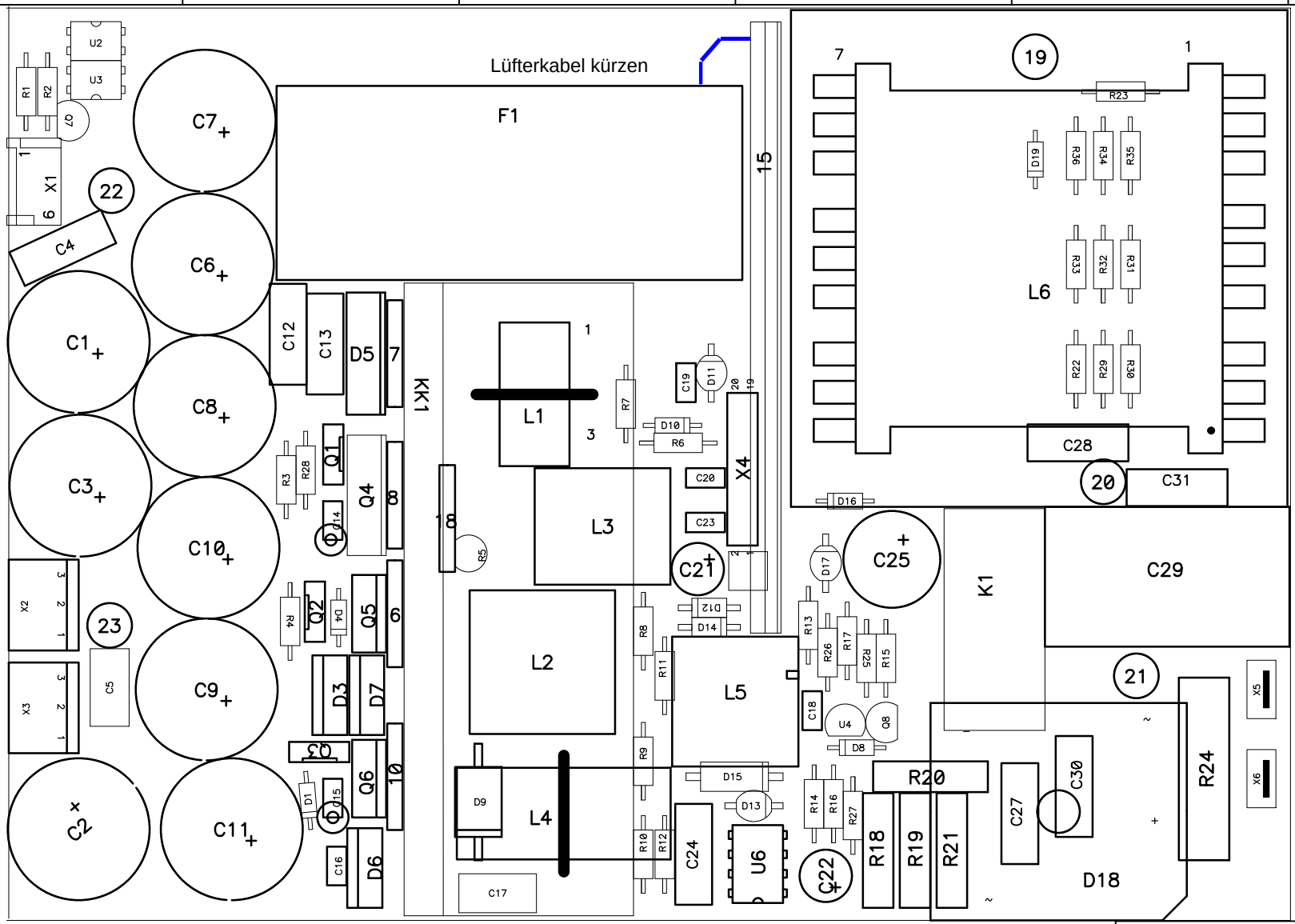
Title	MUH 6000 (Low Noise) CAN Control		
Number	1437008	Rev	B6
Date	May 09, 2006	Date	26.01.2005
Drawn by	Koe		
Filename	muh6.sch	Sheet	6 of 6



Wärmeleitpaste zwischen:
Alox und D5, D4, Q5, Q6,
Alox und KK1,
KK1 u. Rippenkühlkörper,
D18 u. Rippenkühlkörper

Vorbereitungen:
1. R5 mit 2.5mm Randabstand auf Alox kleben
2. Buegel fuer L1 und L4 aus 1.5mm Draht Biegen

Bestueckungsreihenfolge:
1. Nietmutter (19 und 20) bei L6 Bestueckungsseite
2.L2 (SMD–Spule anloeten)
3. Bauteile unter L6
4. Bauteile unter L4
5. restliche Bauteile
6. D18 wird erst verlaengert auf den Rippenkuehlkoerper montiert und beim Einbau geloetet

Nacharbeit:
Alle Draehte auf Loetseite kuerzer 2.1mm
L4 mit Silkon fixieren

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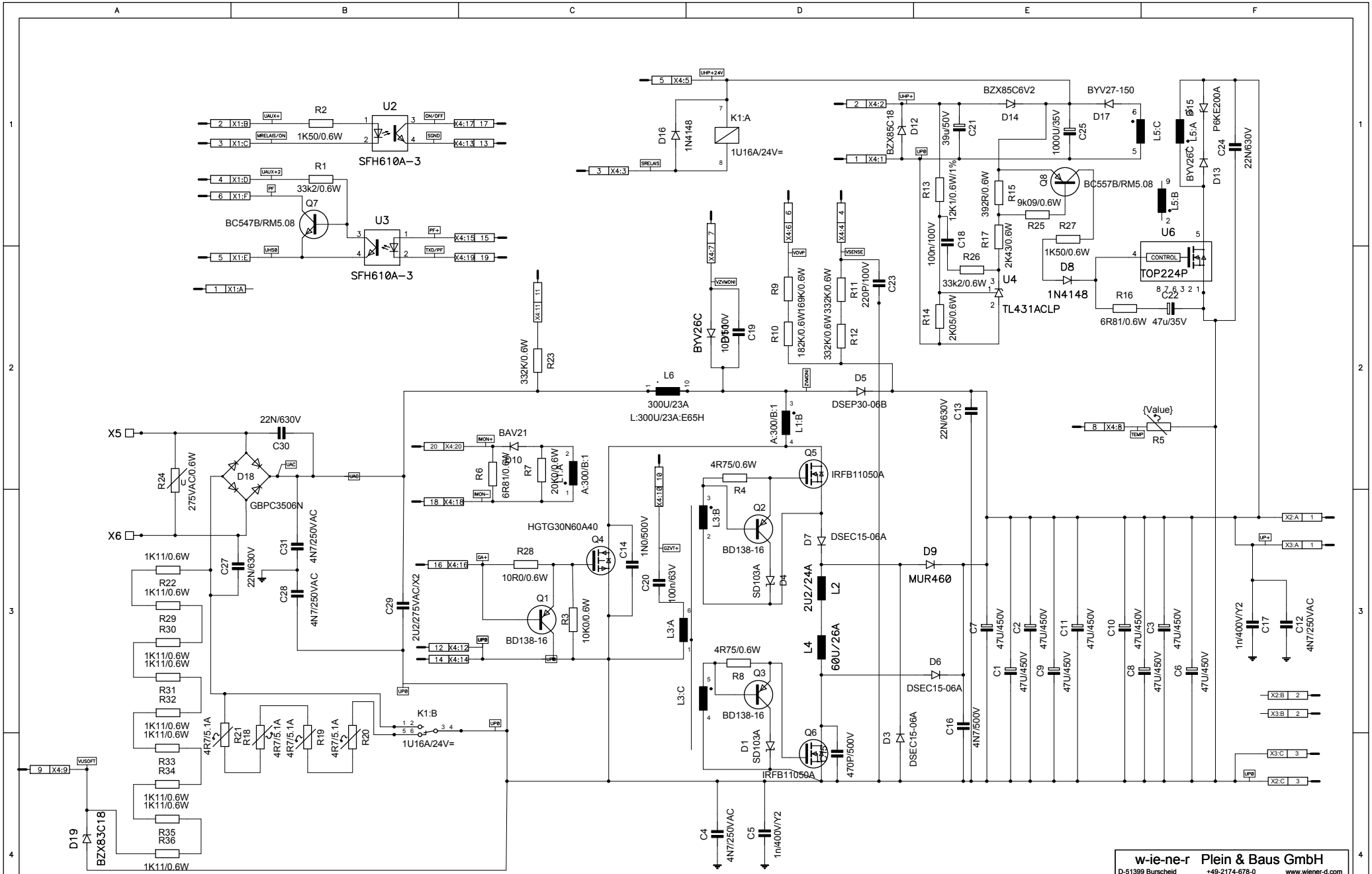
Title	MNPFC16
Number	1441690
Rev	A4
Plot	Fri Jul 20, 2001
Date	18.07.01
Drawn by	Ge
Filename	Mnpfc16.pcb



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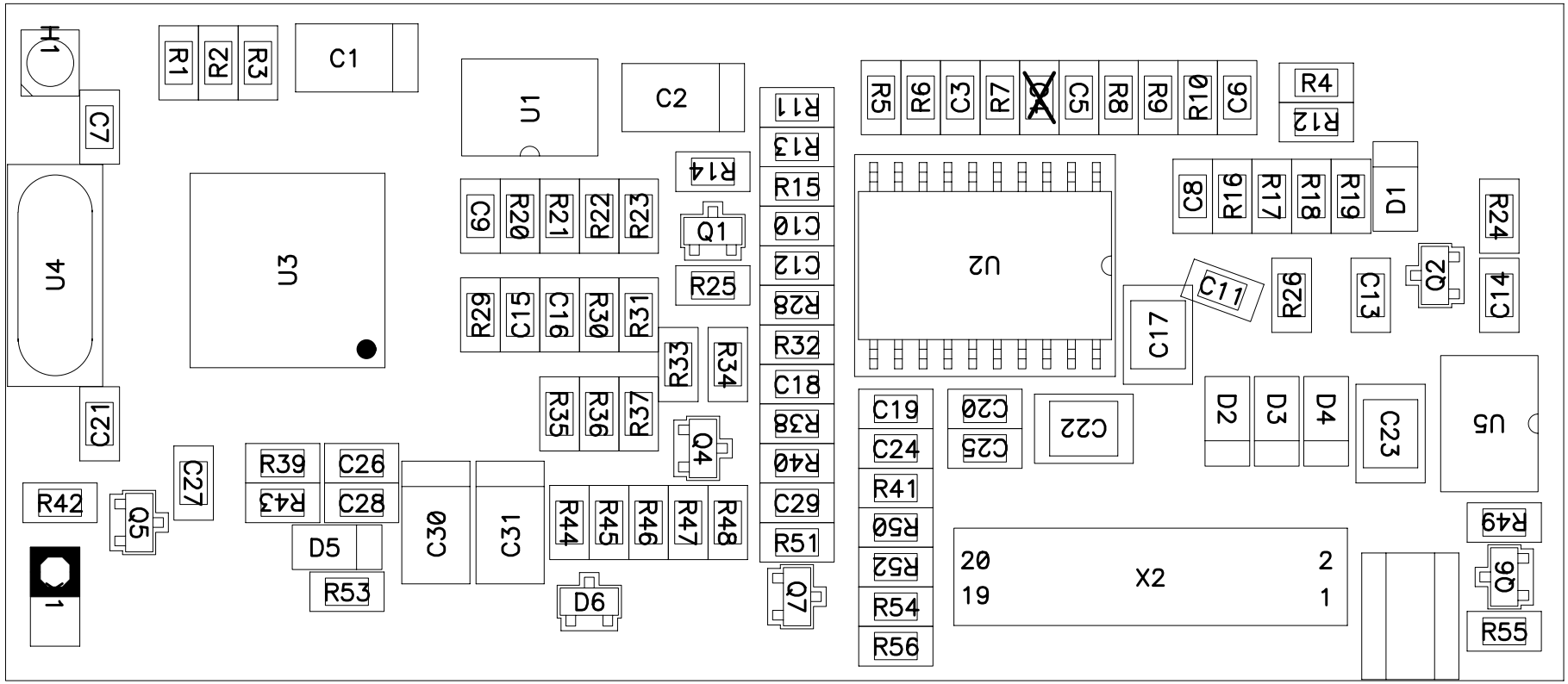
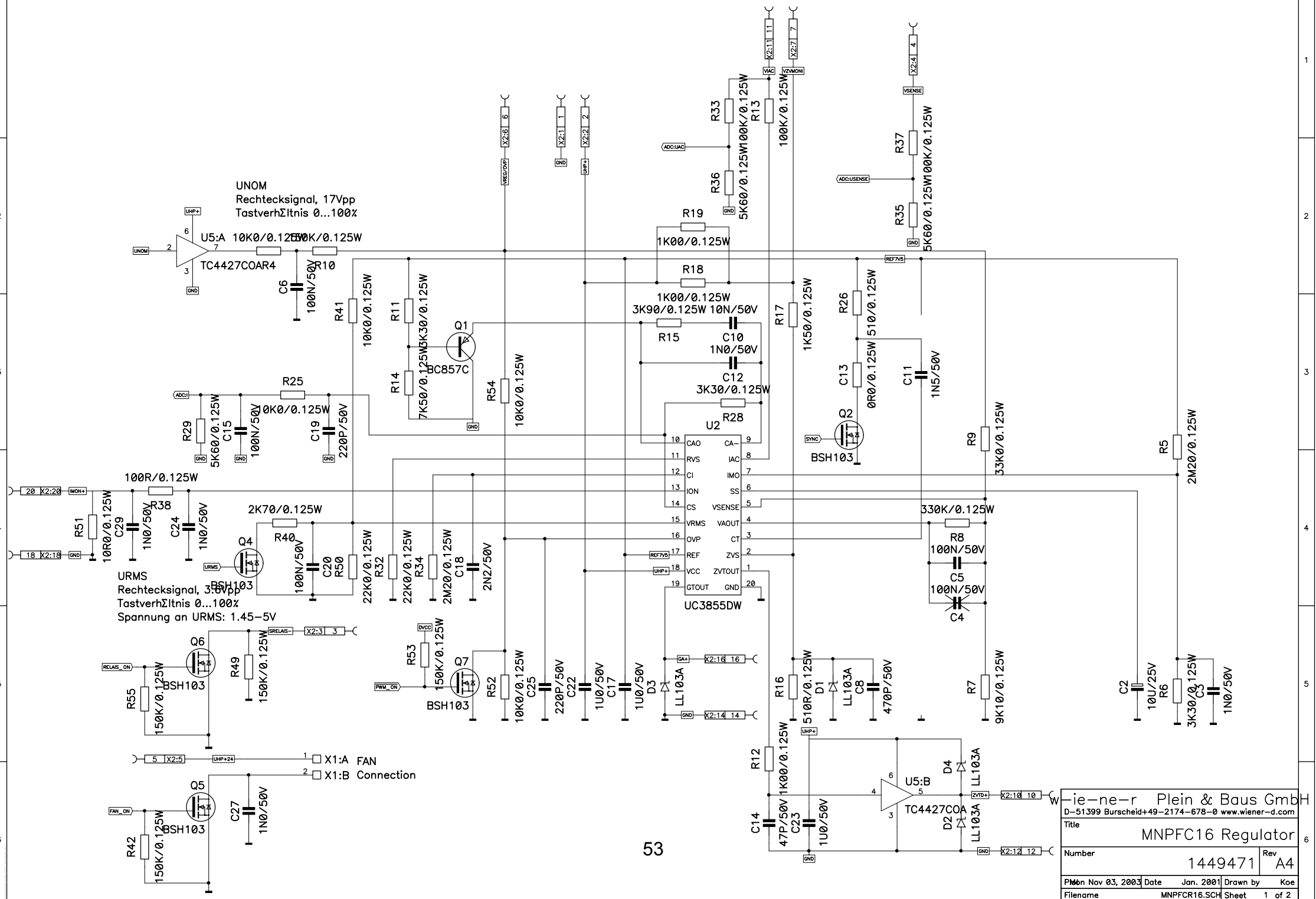
D-51399 Burscheid +49-2174-678-0 www.wiener-d.com

Title	MNPFC16
Number	1441690
Rev	A4
Plot	Fri Jul 20, 2001
Date	19.07.01
Drawn by	Ge
Filename	mnpfc16.SCH
Sheet	1 of 1



w–ie–ne–r Plein & Baus GmbH			
D–51399 Burscheid+49–2174–678–0 www.wiener–d.com			
Title	MNPFC16 Regulator		
Number	1449471	Rev	A4
Mon Nov 03, 2003	Date Feb.2001	Drawn by	Koe
Filename	mnpfcr16.pcb		



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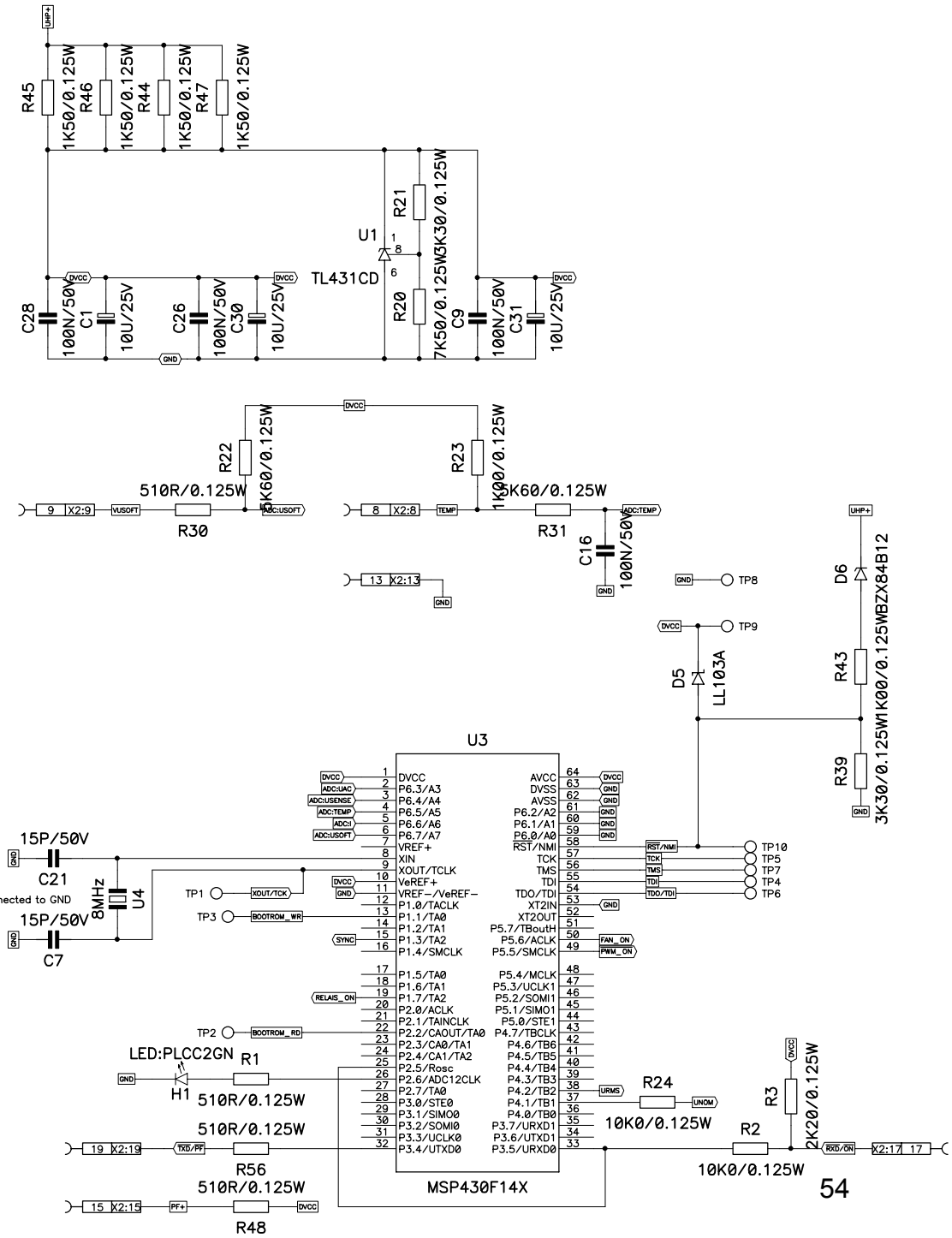
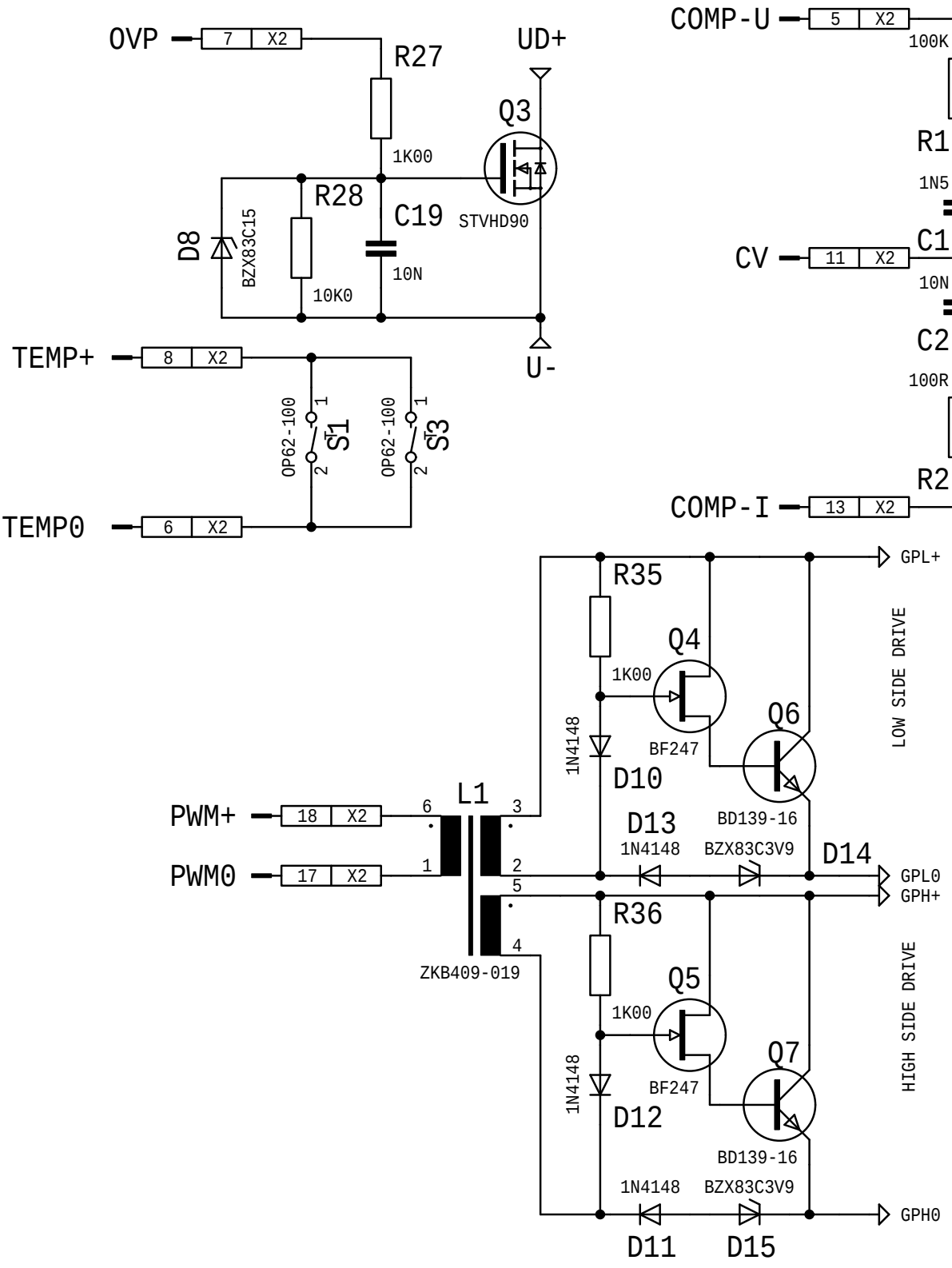
D-51399 Burscheid+49-2174-678-0 www.wiener-d.com

Title	MNPFC16 Regulator		
Number	1449471	Rev	A4
Mon Nov 03, 2003	Date Jan. 2001	Drawn by	Koe
Filename	MNPFCR16.SCH	Sheet	1 of 2



w-ie-ne-r Plein & Baus GmbH	
D-51399 Burscheid+49-2174-678-0 www.wiener-d.com	
Title	MNPFC16 Regulator
Number	1449471 Rev A4
Mon Nov 03, 2003 Date Jan. 2001	Drawn by Koe
Filename MNPFCR16.SCH	Sheet 2 of 2



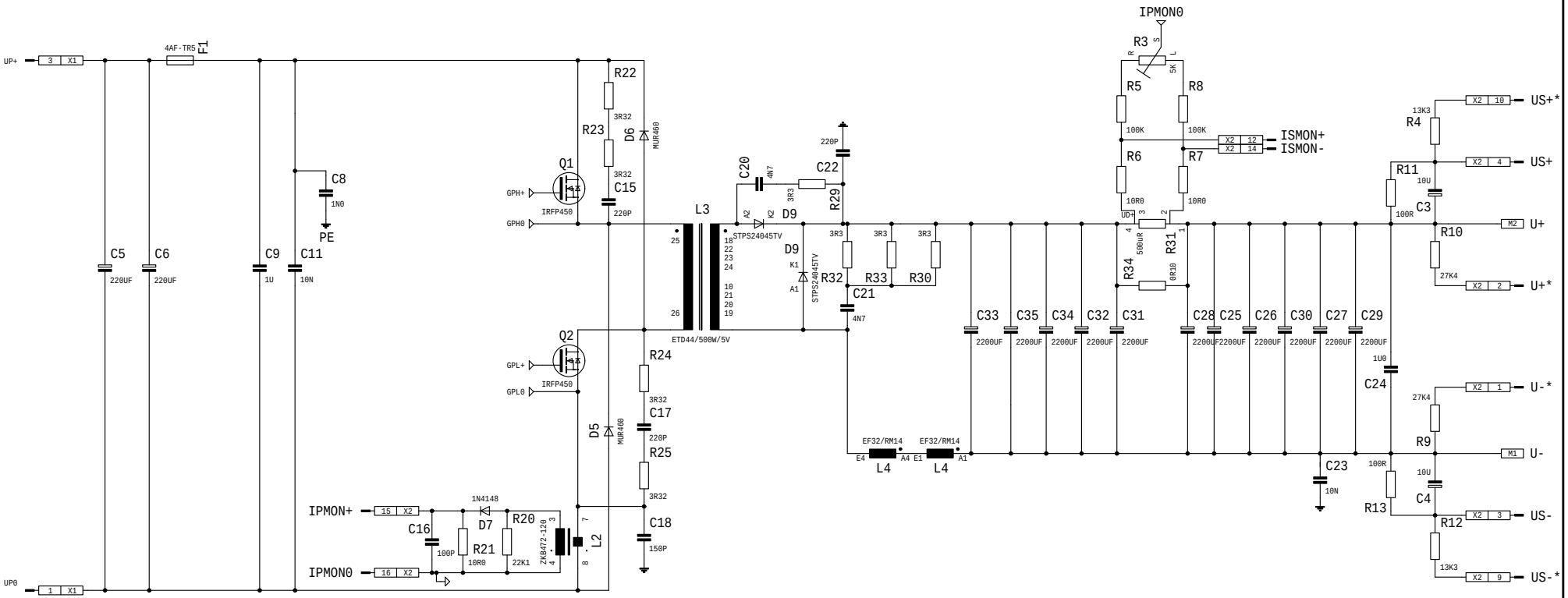
	DATE	NAME
DRAWN	03.12.93	Fri
CHECK		
PLOT	14.03.97	11:13

DESCRIPTION

MEH_2-5V/100A
Power
CIRCUIT DIAGRAM

wiener
Plein & Baus GmbH

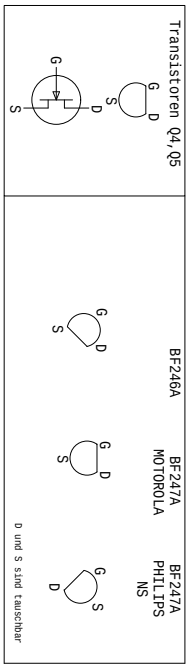
DRAWING NUMBER	REV.		SHEETS	SHEET
1409266	A3		02	02

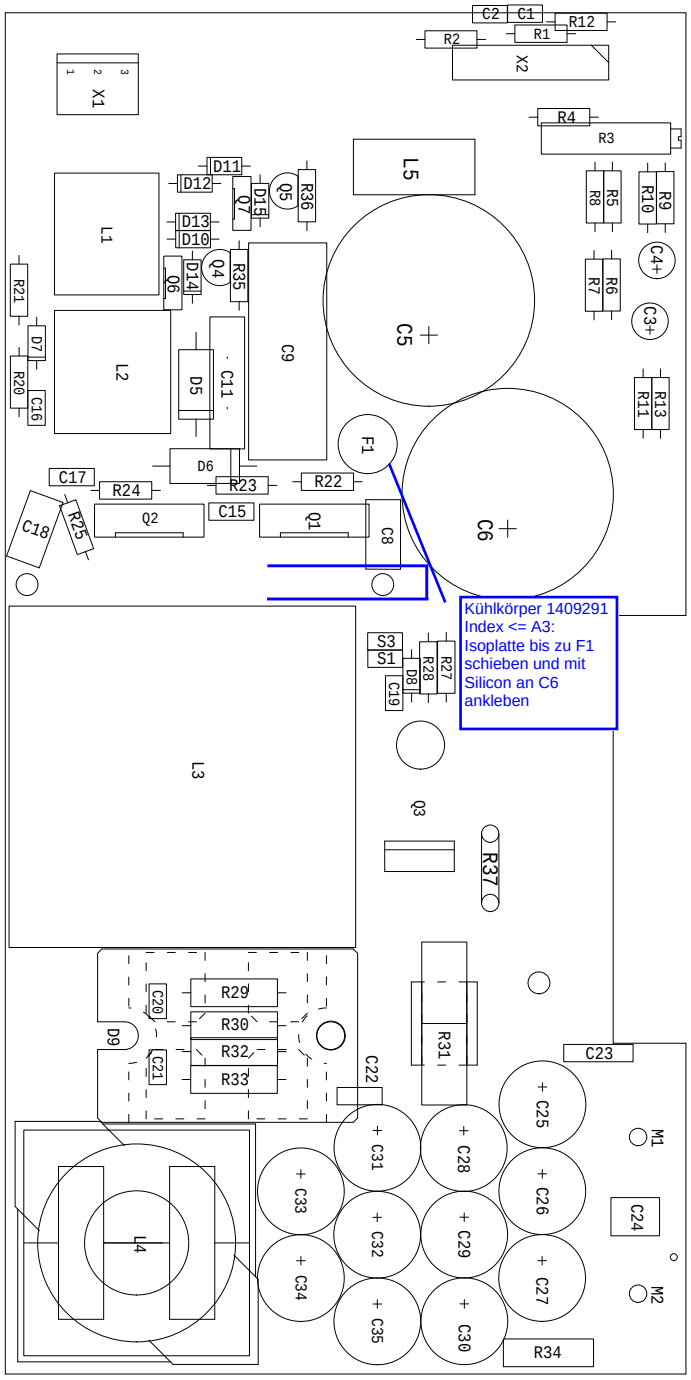


	DATE	NAME	DESCRIPTION
DRAWN	03.12.93	Fri	MEH
CHECK			Single_Module_500W
			CIRCUIT DIAGRAM
PLOT	14.03.97	11:11	

wiener
Plein & Baus GmbH

DRAWING NUMBER	REV.	SHEETS	SHEET
1409266	A3/1	02	01





Platinenmasse [mm]:	199.64x99.82
Platinenmaterial:	FR405_1.5mm
Kupferstaerke:	250um
Lagen:	2
Durchkontaktierungen:	ja
Bestueckungsaufdruck:	nein
Loetstop:	beidseitig
Oberflaeche:	part.verzinnt
Nutzen:	nein

	DATE	NAME
DRAWN	03.12.93	Fri
CHECK		
		M 1:1
PLOT	09.07.98	21:24

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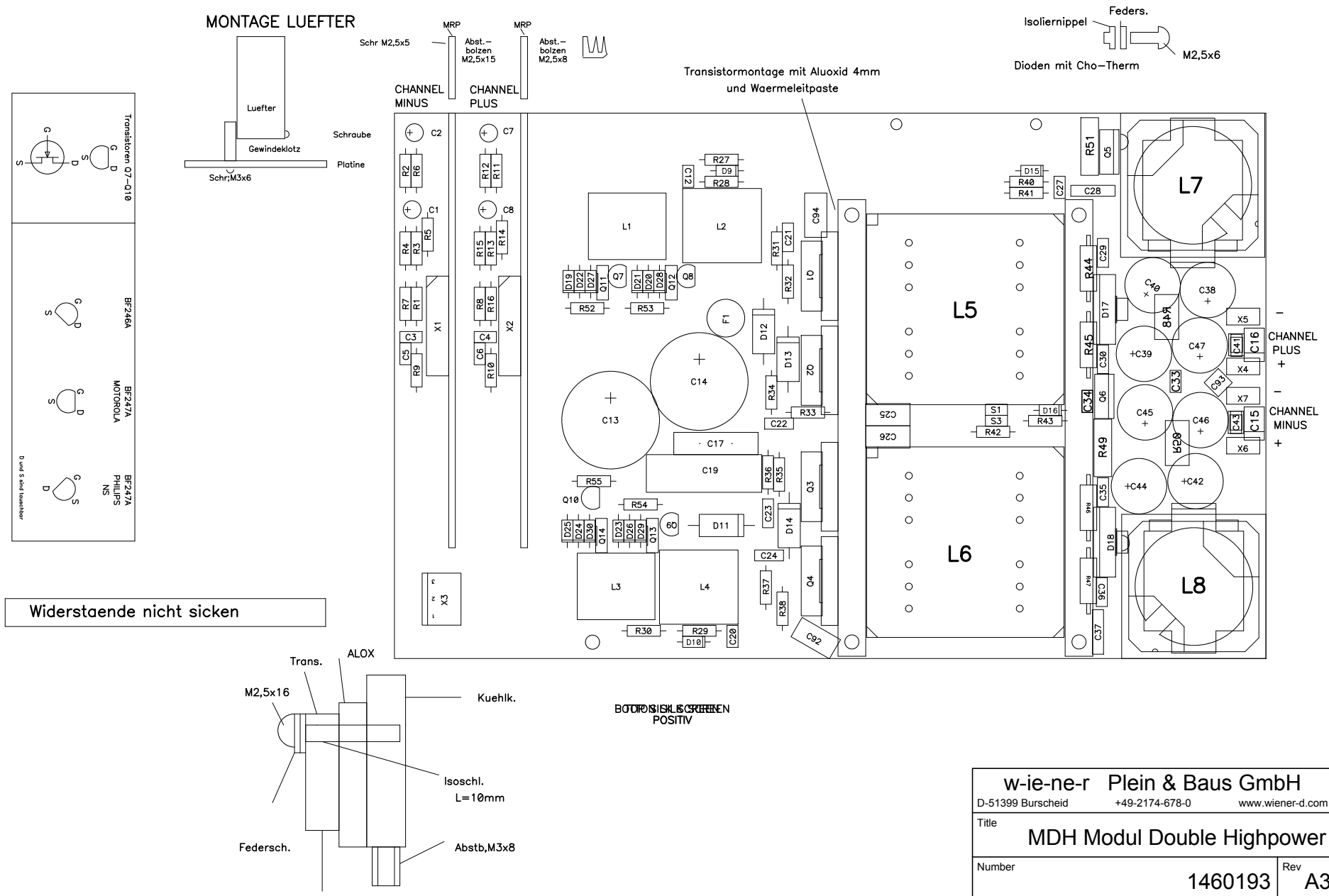
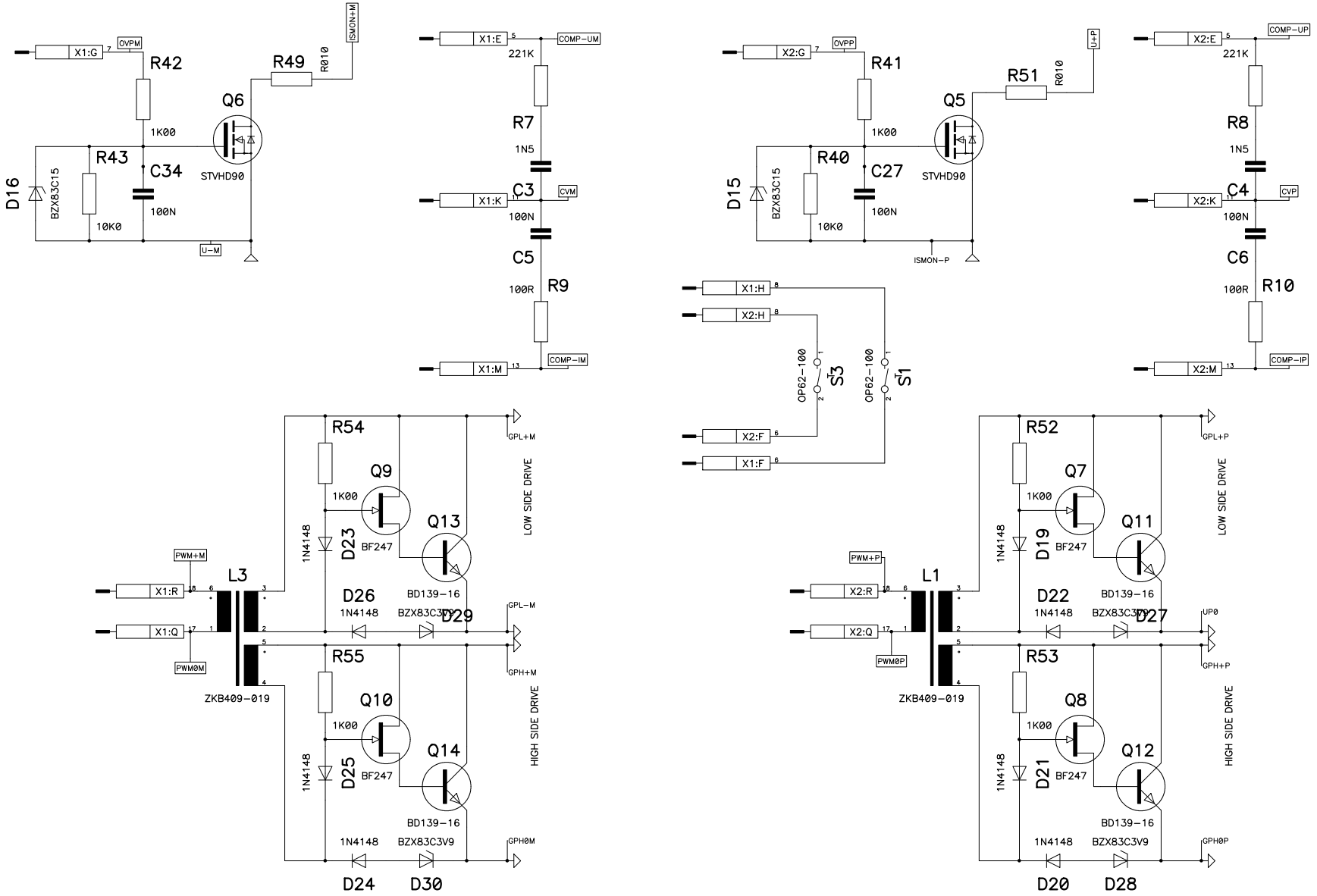
DESCRIPTION
MEH
Single_Module_500W
PARTS LAYOUT

REFERENCE NO.

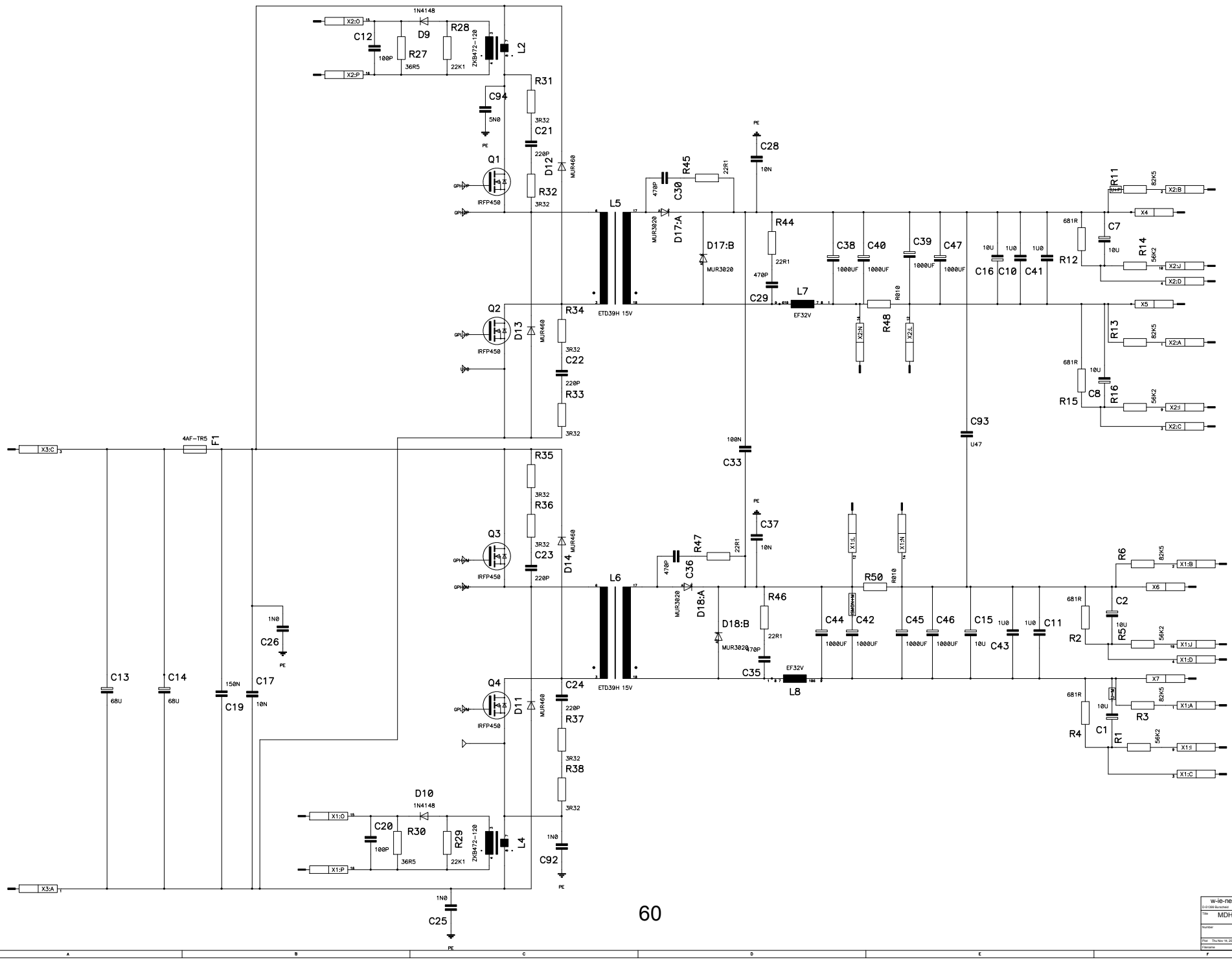
DRAWING NUMBER	REV.	SHEETS	SHEET
1409266	A6	01	01



w-ie-ne-r Plein & Baus GmbH	
D-51399 Burscheid +49-2174-678-0 www.wiener-d.com	
Title	MDH Modul Double Highpower
Number	1460193
Rev	A3
Plot Tue Oct 08, 2002	Date 02.02.02
Drawn by	GE
Filename	Mdl.pcb

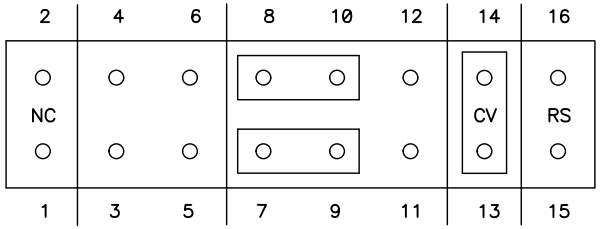


w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0	www.wiener-d.com	
Title: MDH Modul Double Highpower			Sheet2
Number: 1460193			Rev: A3
Plot: Thu Nov 14, 2002	Date: 02.02.02	Drawn by: GE	
Filename: Mdl.sch	Sheet: 2 of 2		

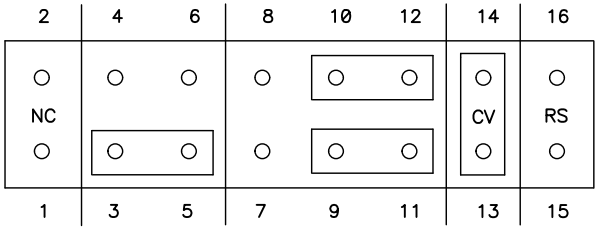


w-ie-ne-r Plein & Baus GmbH			
Title	MDH Modul Double Highpower	Sheet	
Number	1460193	Rev	A3
Plot	Thu Nov 14, 2002	Date	02.02.02
Filename		Sheet	1 of 2

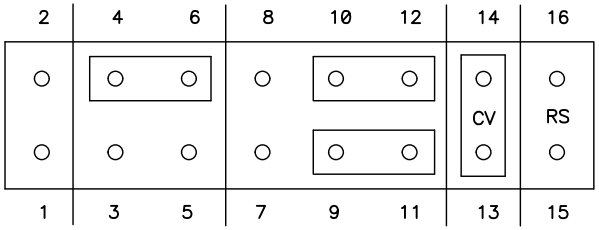
Schnelle Regelung

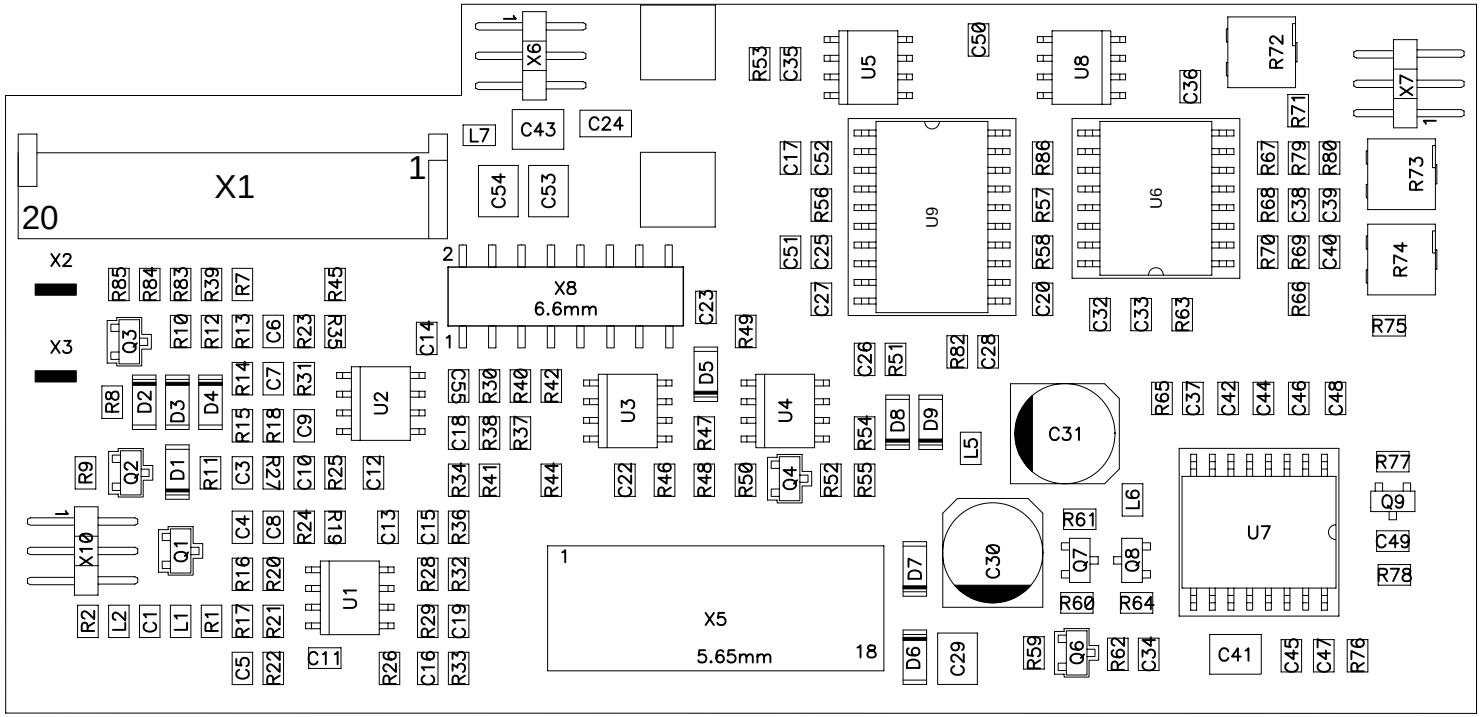


Moderate Regelung (TENDER)

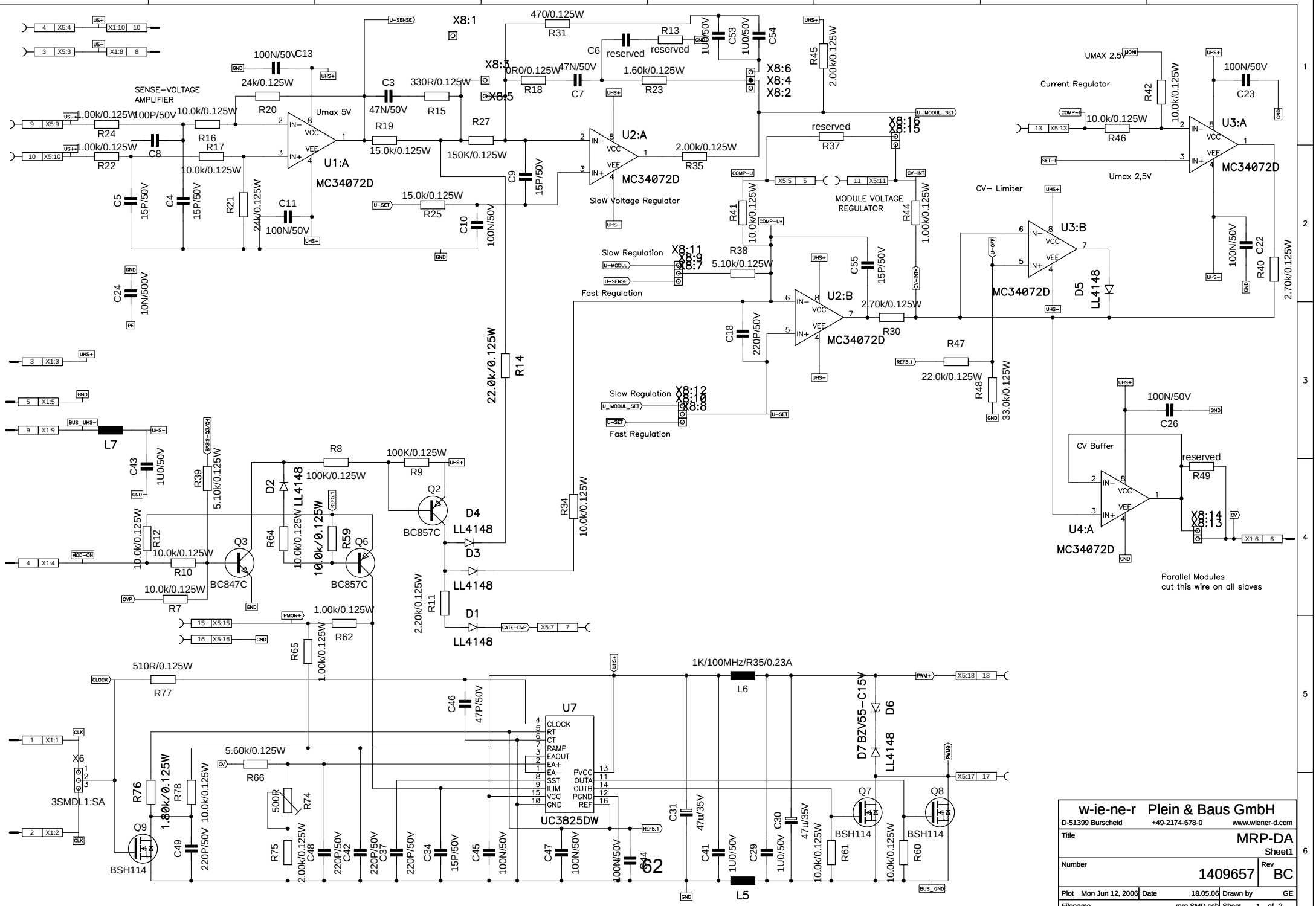


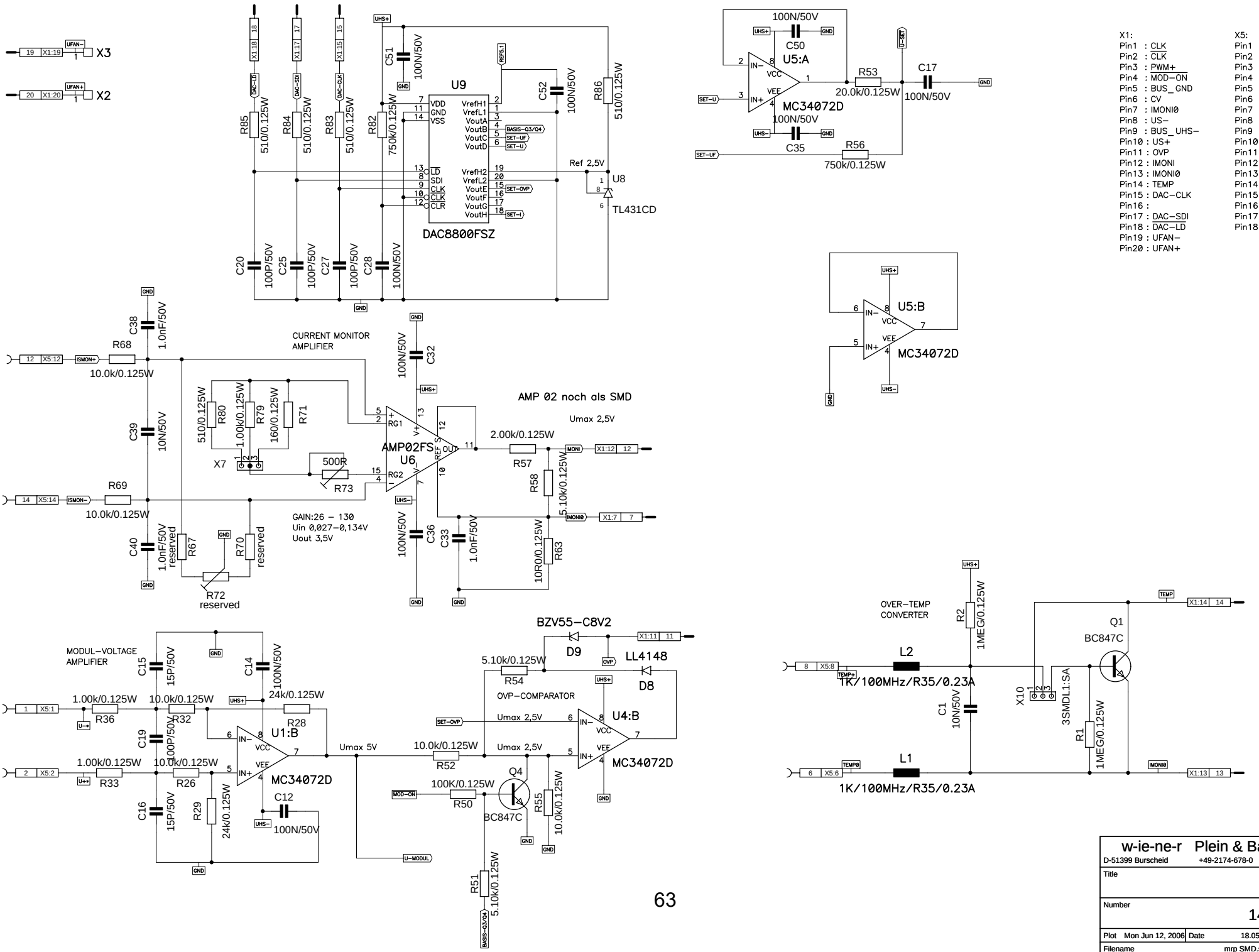
Langsame Regelung





w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0	www.wiener-d.com	
Title	MRP-DA		
Number	1409657	Rev	BC
Plot Thu May 18, 2006	Date 18.05.06	Drawn by	GE
Filename	mrp SMD.pcb		


SENSE–VOLTAGE AMPLIFIER
MC34072D
U1:A
U2:A
U2:B
U3:A
U3:B
U4:A
Current Regulator
SloW Voltage Regulator
MODULE VOLTAGE REGULATOR
CV– Limiter
CV Buffer
Slow Regulation
Fast Regulation
Parallel Modules
cut this wire on all slaves
UC3825DW
U7
BC847C
BC857C
BSH114
3SMDL1:SA
w-ie-ne-r Plein & Baus GmbH
D-51399 Burscheid
+49-2174-678-0
www.wiener-d.com
Title
MRP-DA
Sheet1
Number
1409657
Rev
BC
Plot Mon Jun 12, 2006
Date 18.05.06
Drawn by GE
Filename mrp SMD.sch
Sheet 1 of 2



w-ie-ne-r Plein & Baus GmbH			
D-51399 Burscheid	+49-2174-678-0	www.wiener-d.com	
Title	MRP-DA Sheet2		
Number	1409657	Rev	BC
Plot Mon Jun 12, 2006	Date 18.05.06	Drawn by	GE
Filename mrp SMD.sch	Sheet 2 of 2		