



**ROHDE & SCHWARZ**

# Repair Manual

**Power Supply**

**Type NGPV**

**Order Designations:**

NGPV	8/10	192.0310.80
		192.0310.81
NGPV	20/5	192.0310.20*
		192.0310.21*
NGPV	20/10	192.0326.20
		192.0326.21
NGPV	40/3	192.0310.40
		192.0310.41
NGPV	40/5	192.0326.40
		192.0326.41
NGPV	100/1	192.0310.10
		192.0310.11
NGPV	100/2	192.0326.10
		192.0326.11
NGPV	300/0,3	192.0310.30
		192.0310.31
NGPV	300/0,6	192.0326.30
		192.0326.31

**In case of inquiries please mention type, order designation and serial no  
(F.-Nr.) if the instrument**

## Table of Contents

1.	<u>Data Sheet Model Series NGPV</u>	
2.	<u>Preparation for Use and Operating Instructions</u>	
2.1	Preparations for Operation .....	
2.1.1	Switching On .....	
2.2	Manual Operation (LOCAL) .....	
2.2.1	Setting of Current and Voltage Limits .....	
2.2.2	Electronic Switch-On and Off (OUTPUT ON/OFF) .....	
2.2.3	Current Range Selection (mA/A) .....	
2.2.4	Output Capacitor (C ON/OFF) .....	
2.2.5	Load Connection and Operation with Remote Error Sensing .....	
2.2.6	Constant Current and Constant Voltage Operation .....	
2.2.7	Overvoltage Protection (OVP) .....	
2.2.8	Monitoring Output .....	
2.2.9	Series Connection .....	
2.2.10	Parallel Connection .....	
2.3	Remote Control by IEC-625-1-Bus .....	
2.3.1	Addressing .....	
2.3.2	Programming of Current Limit .....	
2.3.3	Programming of Voltage Limit .....	
2.3.4	Programming of Current Range and Output Capacitor .....	
2.3.5	Electronic Switch-On and Off .....	
2.3.6	Switch Over between Remote Control (REMOTE) and Manual Operation (LOCAL) .....	
2.3.7	Parallel Poll .....	
2.3.8	Transformation of Variables at R & S Process Controller PPC or PUC .....	
2.3.9	Programming with the Commodore Computer .....	
3.	<u>Maintenance and Calibration</u>	
3.1	Voltage Feed-Back Loop .....	
3.2	Current Feed-Back Loop .....	
3.3	Meters and Monitoring Output .....	
3.4	Power Unit .....	
3.5	Arrangement of the Adjustment Elements .....	
4.	<u>Description of Functions</u>	
4.1	Analog Section .....	
4.1.1	Voltage Regulation and Voltmeter .....	
4.1.2	Current Regulation, Ammeter and Monitoring Output .....	
4.1.3	Remote Error Sensing .....	
4.1.4	DAC Board (202.237) .....	
4.1.5	Regulation Board (202.236) .....	
4.1.6	Auxiliary Board II (202.238, 202.241) .....	
4.1.7	Power Unit (202.230, 202.240) .....	

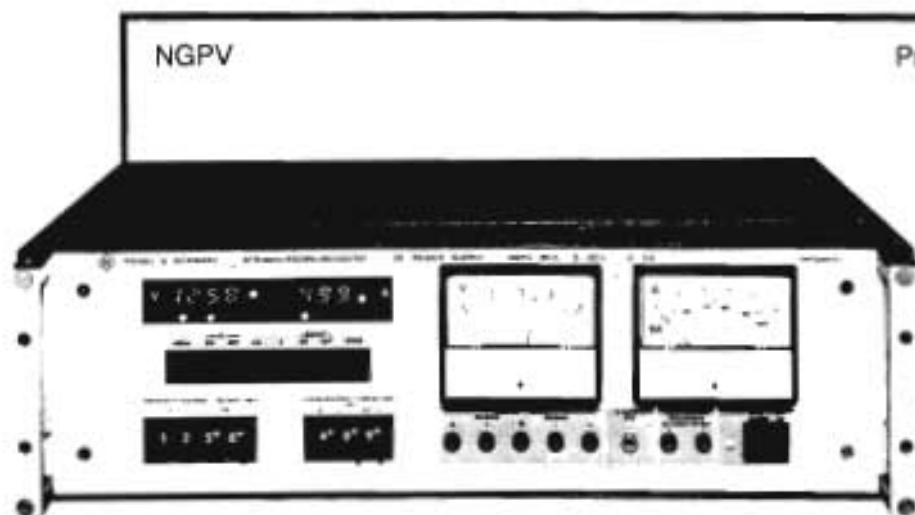
4.2	Digital Section .....
4.2.1	IEC 625 Bus Line Termination .....
4.2.2	Handshaking .....
4.2.3	Power-On Reset and Interface Clear .....
4.2.4	Decoder .....
4.2.5	Parallel Poll .....
4.2.6	Shift Register Organization .....
4.2.7	Shift-Clock Generator .....
4.2.8	Switch U/I-LOCAL/REMOTE .....
4.2.9	Strobe-Pulse .....
4.2.10	Addressing .....
4.2.11	OFF/ON (Standby-Close) .....
4.2.12	mA/A-Range / C ON (Output Capacitor) .....
4.2.13	LOCAL/REMOTE, LOCAL LOCK OUT, REMOTE ENABLE .....
4.2.14	Functions of the Keys .....
4.2.15	Display Shift Register .....
4.2.16	Display .....
4.2.17	Overflow Control .....
4.2.18	Single LEDs .....

5. Circuit Diagrams,  
Lists of Special-to-type Components and  
Component Location Plans

5.1	Overall Circuit Diagram 100 W blank panel .....
5.1.1	Overall Circuit Diagram 100 W .....
5.1.2	Overall Circuit Diagram 200 W blank panel .....
5.1.3	Overall Circuit Diagram 200 W .....
5.2	Motherboard Street 1 (202.235) .....
5.2.1	Motherboard Street 2 .....
5.2.2	Motherboard Street 3 .....
5.2.3	Component Location Plan .....
5.3	DAC Board (202.237) .....
5.3.1	List of Components Street 1 .....
5.3.2	List of Components Street 2 .....
5.3.3	Component Location Plan .....
5.4	Regulation Board (202.236) .....
5.4.1	List of Components .....
5.4.2	Component Location Plan .....
5.5	Auxiliary Board I (202.239) .....
5.5.1	Component Location Plan .....
5.6	Auxiliary Board II 100 W (202.238) .....
5.6.1	List of Components Street 1 .....
5.6.2	List of Components Street 2 .....
5.6.3	Component Location Plan .....
5.6.4	Auxiliary Board II 200 W (202.241) .....
5.6.5	List of Components Street 1 .....
5.6.6	List of Components Street 2 .....
5.6.7	Component Location Plan .....

5.7	Power Unit 100 W	(202.230) .....
5.7.1	Component Location Plan	.....
5.7.2	Power Unit 200 W	(202.240) .....
5.7.3	Component Location Plan	.....
5.8	IEC - Bus I	(202.233) .....
5.8.1	Component Location Plan	.....
5.9	IEC - Bus II	(202.234) .....
5.9.1	Component Location Plan	.....
5.10	Display Board I	(202.231) .....
5.10.1	Component Location Plan	.....
5.11	Display Board II	(202.232) .....
5.11.1	Component Location Plan	.....

# SYSTEM POWER SUPPLIES



## Programmable Power Supplies NGPV

- Digital setting, high resolution
- No discrete output capacitance, true current source
- IEC-bus-programmed and manual operation
- Short down response time thanks to current sink
- Two current ranges – current monitoring output
- LEDs for operating status and errors

IEC 625Bus

The **NGPV Power Supplies** are suitable for both system applications and general laboratory use. Nine models graded by voltage and current are available in the power range up to 200 W.

NGPV 8/10:	0 to 8 V / 0 to 10 A; 80 W.
NGPV 20/5:	0 to 20 V / 0 to 5 A; 100 W.
NGPV 20/10:	0 to 20 V / 0 to 10 A; 200 W.
NGPV 40/3:	0 to 40 V / 0 to 3 A; 120 W.
NGPV 40/5:	0 to 40 V / 0 to 5 A; 200 W.
NGPV 100/1:	0 to 100 V / 0 to 1 A; 100 W.
NGPV 100/2:	0 to 100 V / 0 to 2 A; 200 W.
NGPV 300/0.3:	0 to 300 V / 0 to 0.3 A; 90 W.
NGPV 300/0.6:	0 to 300 V / 0 to 0.6 A; 180 W.

The user has the choice of two versions. The one for system and laboratory use can be programmed via the IEC bus (IEC 625-1 or IEEE 488) or operated manually. The units of this version have the required operating controls, a LED display for the indication of all input data (including that entered via the IEC bus) and meters for actual voltage and current. The pure system version – without operating controls – provides particularly cost-effective IEC-bus-programmable 19" units for rackmounting or for use on the bench.



Power Supply NGPV for system applications.

**System use** The system power supply is characterized by the short settling time of 2 ms (for the rise and, thanks to a controlled current sink, also for the fall). The NGPVs do not have a discrete output capacitance so they can regulate very small currents. Relay contacts will not be damaged by the switching of current paths. An appreciable output capacitance, however, is provided internally and can be connected manually or via the program as required.

**Remote sensing** Remote sensing makes the NGPV particularly suitable for system applications. It is performed automatically; no sensing links are required. The compensation range is 1 V in each lead. When remote sensing is in operation the maximum output voltage of the power supply exceeds the nominal voltage by the amount of the voltage drop in the leads. The result is that with the NGPV 8/10, for example, the full value of 8 V is available at the load even if a voltage drop of up to 1 V exists in each lead. The maximum voltage increase occurring at the load due to an interruption of the sensing leads is 1 mV, which is negligible for practical purposes.

**Current regulation** The special capability of the NGPV as a current regulator is afforded by two current ranges, which ensure a high resolution of 1 mA and 0.1 mA, respectively.

**Laboratory and system use** The NGPV models equipped with meters and front-panel controls are also versatile laboratory power supplies. Output voltage and current can be read from large analog meters. LEDs indicate the operating mode and operating status. A digital display shows the values entered, also those programmed via the IEC bus. Parallel outputs and sockets for a current monitoring output (referred to the positive terminal) are located on the front and rear panels.

**Cooling** The blowers are thermostal-regulated and run at low RPM in the partial-load region.

# SYSTEM POWER SUPPLIES

## Specifications

Power Supply Type	NGPV 8/10	NGPV 20/5	NGPV 20/10	NGPV 40/5	NGPV 40/5	NGPV 100/1	NGPV 100/5	NGPV 300/5	NGPV 300/5.2
<b>Order designation</b>									
System model <sup>1)</sup>	192.0310.80	192.0310.20	192.0326.20	192.0310.40	192.0326.40	192.0310.10	192.0326.10	192.0310.30	192.0326.30
System and laboratory model <sup>2)</sup>	192.0310.81	192.0310.21	192.0326.21	192.0310.41	192.0326.41	192.0310.11	192.0326.11	192.0310.31	192.0326.31
<b>Voltage setting</b>									
Resolution (mV/steps)	0 to 7.99 V	0 to 19.99 V	0 to 39.99 V	0 to 79.99 V	0 to 159.9 V	0 to 399.9 V	0 to 799.9 V	0 to 1999.9 V	0 to 3999.9 V
Deviation (of full scale)	10 mV/500	10 mV/2000	10 mV/4000	10 mV/8000	10 mV/16000	100 mV/1000	100 mV/4000	100 mV/10000	100 mV/40000
<b>Current setting (2 ranges)</b>									
In A range	0 to 9.99 A	0 to 4.99 A	0 to 9.99 A	0 to 2.99 A	0 to 4.99 A	0 to 0.999 A	0 to 1.99 A	0 to 0.299 A	0 to 0.599 A
Resolution (mA/steps)	10 mA/1000	10 mA/500	10 mA/1000	10 mA/300	10 mA/500	1 mA/1000	10 mA/200	1 mA/300	1 mA/600
Deviation (of full scale)	<10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<10 <sup>-3</sup>	<3 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<10 <sup>-3</sup>	<4 × 10 <sup>-3</sup>	<3 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>
In mA range	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 99.9 mA	0 to 19.9 mA	0 to 3.99 mA	0 to 7.99 mA
Resolution (1000 steps)	1 mA	1 mA	1 mA	1 mA	1 mA	0.1 mA	0.1 mA	0.1 mA	0.1 mA
Deviation (of full scale)	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>
<b>PAFID<sup>3)</sup></b>	<200 μV	<250 μV	<400 μV	<800 μV	<1600 μV	<4000 μV	<8000 μV	<20000 μV	<40000 μV
<b>Output C</b> (OFF/ON)	500 pF/220 μF	500 pF/100 μF	750 pF/220 μF	500 pF/47 μF	750 pF/100 μF	500 pF/22 μF	750 pF/47 μF	500 pF/10 μF	750 pF/22 μF
<b>Overvoltage protection</b>	4.5 to 15 V	4.5 to 25 V	4.5 to 30 V	4.5 to 30 V	4.5 to 30 V	5 to 110 V	5 to 110 V	5 to 330 V	5 to 330 V

<sup>1)</sup> System model for IEC-bus programming (no operating controls and meters) in 1P cabinet.

<sup>2)</sup> System and laboratory model for IEC-bus programmed and manual operation with meters for voltage and current.

<sup>3)</sup> PAFID = periodic and random deviation.

## Common data

### Constant-voltage source

Deviation of output voltage  
with AC supply variations of ±10% < ±10<sup>-3</sup>  
with temperature variations  
from 0 to 50 °C < ±2 × 10<sup>-4</sup>/K  
with load variations from 10 to 90% <10<sup>-3</sup>  
Transient recovery time  
(10 to 90%/90 to 10%) <75 μs (within ±10<sup>-3</sup>)

### Constant-current source

Deviation of output current  
with AC supply variations of ±10% < ±10<sup>-3</sup>  
with temperature variations  
from 0 to 50 °C < ±5 × 10<sup>-4</sup>/K  
with load variations from 10 to 90% <10<sup>-3</sup>  
Transient recovery time,  
output C OFF/ON <50 μs/<2 ms

### PAFID rms

In mA range 10 μA  
In A range 100 μA/A

### Programming

IEC 625-1 (IEEE 488)  
Connector 24-contact  
Functions SHS, AH1, T8, T8A, L1, LE8,  
SR8, PL1, PPF1, DC1, DT1, C8

### Setting time

0 to 100%/100 to 0% <2 ms (within ±2 × 10<sup>-1</sup>)

### Remote sensing

max. voltage compensation 1 V in each lead

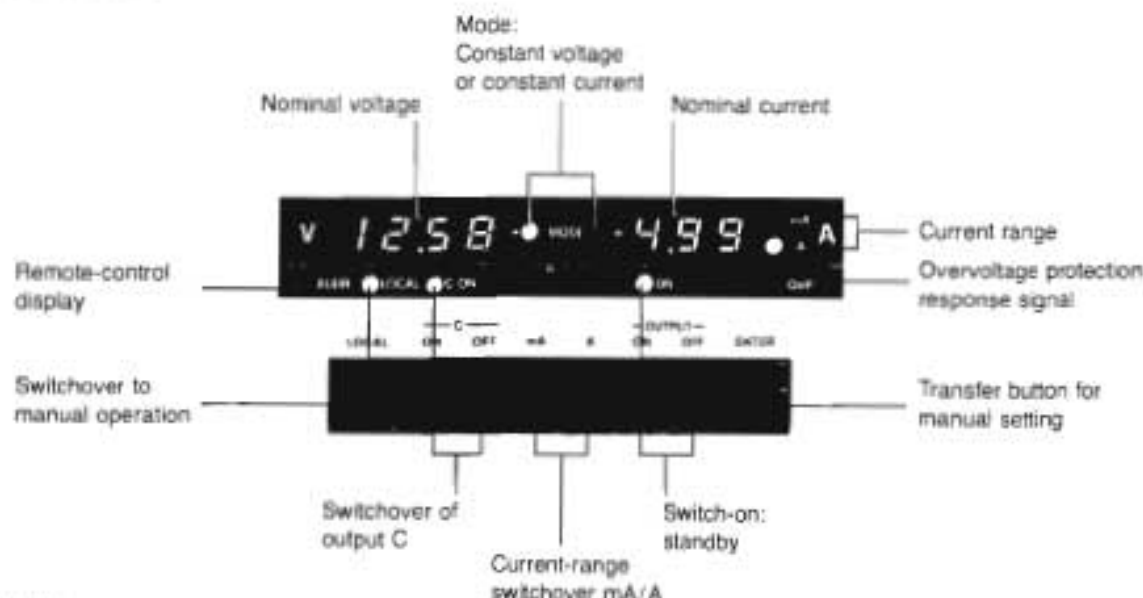
Current monitoring output, Z<sub>int</sub> = 1 kΩ  
(referred to positive terminal)

In mA range 100 mV ±1% for full scale  
In A range 10 mV ±1%/A

## General data

Meter error	±2.5% of full scale	
Rated temperature range	0 to +50 °C	
Safety specifications	comply with VDE 0411, class 1	
EMC specifications	comply with VDE 0871/8.78 level B	
Output terminals	4 mm, floating; test voltage 1000 V/ground	
AC supply	110/120/220/240 V ±10%, 47 to 63 Hz	
Order No.	192.0310...	192.0326...
Power consumption	ca. 250 VA	ca. 500 VA
Dimensions (W × H × D) in mm	492 × 181 × 392	492 × 181 × 420
Weight	12 kg	19 kg
Panel engravings	German/English	

Order designations ..... ▶ see table above



## 2. Preparation for Use and Operating Instructions

### 2.1 Preparations for Operation

There are two models of the NGPV power supply unit produced:

- exclusively for IEC-bus-programming  
with blank front panel
- for OEC-bus-programming and manual operation  
with controls and displays on the front panel

A general specification for both models is given in the data sheet (see item 1.), including the front panel controls and displays.

In the subsequent sections the functions of manual operation are described where applicable to the particular model.

These power supply units are suitable for line voltages of 110 V, 127 V, 220 V and 242 V. They are factory-adjusted for an operational voltage of 220 V.

To adapt the unit to 110 V, set the slide switch on the rear panel to the left stop and insert the matching mains fuses.

If the transformer connections are changed from terminal 2 to 3, and terminal 5 to 6, selection is made via the slide switch between 127 V (left stop) and 242 V (right stop) with the appropriate fuses inserted for the voltage selected.

The fuse values for corresponding voltage operation are as follows:

	220/242 V	110/127 V
100 W-units:	T1.6D	T3.15D
200 W-units:	T3.15D	T6.3D

These fuse values are printed on the rear panel of the unit.

NGPV power supply units are delivered as bench top units with swing out supports for tilting. The units are 19" wide and are also suitable for mounting into 19" rack supports after first removing two covers which are released via side panel screws.

The model for IEC-bus-programming and manual operation is equipped with output terminals on both the front and rear panels, which are connected in parallel. They can arbitrarily be earthed.

All NGPV power supplies comply with VDE 0411 class I specifications (protective grounding). All inputs and outputs are floating and tested at 1000 V.

### 2.1.1 Switching on

When the unit is switched on (POWER ON) the following occurs:

- The green LED next to the mains switch lights up.
- The current range mA is switched on.
- The output capacitor is switched off (C OFF).
- The unit is in standby state (OUTPUT OFF).

On models for IEC-bus programming and manual operation (with control elements and instruments), the above mentioned features are signalled by the appropriate LED displays.

Further:

- LED-display for manual operation (LOCAL) lights up and
- display as well as analog meters are at zero.

## 2.2 Manual Operation

When the display-LED LOCAL lights up the unit can be operated manually. If necessary it can be set to this state previously with the LOCAL key. If the key is blocked by the IEC-bus-command LOCAL LOCKOUT, it can be cleared by IEC-bus (see 2.3.6) or by switching the unit off and on (POWER OFF/ON).

### 2.2.1 Setting of Current and Voltage Limits

The desired current and voltage limits are set by the code switches and accepted by the unit with the key ENTER.

The settings can be changed at any time. Only when ENTER is pressed the values are accepted by the unit and the desired values are indicated on the display.

The three digit code switch for the current limit allows settings within the A-range, which on some units of this model series may exceed the nominal value.

If such faulty settings are entered they are not accepted when ENTER is pressed, but the display starts flashing. If the unit was switched on (OUTPUT ON) it automatically turns to standby (OUTPUT OFF). After correction of the setting and ENTER/OUTPUT ON it is in operational mode again.

Exception: The NGPV 8/10 has no limit control. Voltage limits can be set exceeding the nominal value of 8 V up to 9.99 V. Full specifications are maintained at the output terminals, however on sensing operation limits at the load terminals must be observed (see 2.2.5).



### 2.2.2 Electronic Switch-On and Off

With OUTPUT ON the unit turns from standby to operational mode and the indicator-LED ON above the key lights up.

According to the applied load, the unit is in constant voltage (CV) or constant current (CC) mode. The present mode is indicated on the display by LEDs (MODE).

### 2.2.3 Current Range Selection

The unit can operate in two current ranges, in the mA- and the A-range. To select these ranges the keys mA or A are used. The relevant LEDs are in the display on the right hand side. On pressing the range keys the unit automatically turns to standby (OUTPUT OFF). In this way the load is protected against overloading, which may occur by pressing a key by mistake. The subsequent use of OUTPUT ON puts the unit into operational mode again.

### 2.2.4 Output Capacitor

With the key C ON (LED above the key) a capacitor can be switched in parallel to the output terminals. This reduces the output impedance and facilitates the compensation of possible inductive parts of the load.

Switching off the output capacitor with C OFF, the remaining capacitance then amounts to 750 or 500 pF respectively (see 1. Data Sheet/Technical Data).

With C ON/C OFF the unit turns to standby and has to be put into operation with OUTPUT ON afterwards.

Only in a voltage-free state can the capacitor be switched on. If an external voltage source of >100 mV is possibly present at the output terminals remove it first and then after C ON/OUTPUT ON it can be applied again.

### 2.2.5 Load Connection and Operation with Remote Error Sensing

On the only IEC-bus-programmable model (blank panel) the output sockets are located on the rear panel. The model for IEC-bus programming and manual operation is equipped with output sockets connected in parallel on the front and the rear panels.

Voltage drops in the supply lines to the load are compensated provided that the sensing lines are led from the sensing sockets to the connection terminals of the load. Take care of correct polarity.

When polarity is reversed the adjusted or programmed output voltage is exceeded by approx. 6 volts. If the sensing lines are broken the output voltage at the load decreases by the voltage drop caused by the supply lines. The cross section of sensing lines is not critical, but the total resistance should not exceed 10 ohms. However, on installation be careful of buzz interferences etc. If necessary both sensing lines and load lines can be shielded and drilled together.

The maximum voltage drop in the load lines should not exceed 1 V per line. Thus the maximum voltage present at the output terminals exceeds the nominal voltage rate of the unit by 2 V. In practice this means that on the NGPV 8/10 the terminal voltage can increase up to 10 volts, so that the nominal voltage of 8 volts can be regulated at the load correctly.

#### 2.2.6 Constant Current and Constant Voltage Operation

The units operate in the constant voltage mode (CV) if the load current is lower than the set current limit. If, as a result of variation in load, the output current increases and attains the current limit then the unit turns automatically to the constant current mode (CC) and vice versa.

The actual operation mode is indicated by LED MODE on the display.

The digital display indicates the set limits accepted by the unit by use of the ENTER key after setting with the code switches, or by programming via IEC-bus, this is the desired value indication. According to the applied mode, either the indicated voltage or current is regulated by the unit. The analog meters show the true values of voltage or current supplied.

#### 2.2.7 Overvoltage Protection (OVP)

The screw potentiometer for setting the threshold of the overvoltage protection (OVP) is located on the front panel of both unit models.

If the output voltage of the unit exceeds the set threshold, through faulty operation or by another possibly external influence, a thyristor is triggered to short-circuit the output voltage down to a remaining residual voltage of about 1 volt. The OVP error-LED lights up.

This state can only be cleared by the OUTPUT OFF key or by the suitable IEC-bus command (provided the fault has been cleared; possibly by disconnecting an external voltage source).

The trigger threshold of the OVP refers to the sensing sockets, i.e. on sensing operation (see 2.2.5) the voltage directly present at the load is controlled.

A fuse protects the thyristor against high-output current sources, which may be connected externally.

Set the trigger threshold of the OVP:

- turn the screw potentiometer fully clockwise;
- set desired output voltage and press OUTPUT ON;
- turn the screw potentiometer slowly counterclockwise until OVP reacts and OVP LED lights up;
- raise the threshold slightly and press OUTPUT OFF/ON to reset.

By gradually increasing the output voltage, the exact response threshold can be determined.

### 2.2.8 Monitoring Output

Front and/or rear panels of both models of NGPV series are equipped with current monitor outputs (MONITORING). MONITORING and + OUTPUT are at the same potential (be careful with units which have a high output voltage!). The internal resistance amounts 1 kohms, on units with 300 volts output it amounts to 10 kohms.

The output voltage at MONITORING amounts to max. 100 mV.  
Valid are:

- on NGPV: 8/10; 20/5; 20/10; 40/3; 40/5;  
10 mA each mV within the mA-range  
100 mA each mV within the A-range
- on NGPV: 100/1; 300/0.3; 300/0.6;  
1 mA each mV within the mA-range  
10 mA each mV within the A-range
- on NGPV 100/2  
1 mA each mV within the mA-range  
100 mA each mV within the A-range

The subsequent example is valid for NGPV 40/3

- a) output current: 900 mA (0.9A)  
monitoring output: 90 mV within the mA-range  
9 mV within the A-range
- b) output current: 2 A  
monitoring output: 20 mV

With a suitable VDM connected to the monitoring output, the current consumption of the load can be measured via the controller.

The maximum value of the specific unit can be read above the MONITORING output sockets.

#### 2.2.9 Series Connection

NGPV models can be connected in series to produce higher voltages. To protect units with different nominal currents, be careful that no set current limit exceeds the lowest nominal current of the units used.

Because of the danger of high contact potentials, observe the relevant VDE-regulations strictly. The test voltage is 1,000 volts, measured at output sockets against chassis or earth.

#### 2.2.10 Parallel Connection

The NGPV models are equipped with an internally switched current sink to enable shorter settling times. In parallel connection and underloading, the unit with the highest set voltage limit is loaded by the sinks in the other units. Each current sink amounts to about 20% of the nominal unit current.

## 2.3 Remote Control by IEC-625-1-Bus

Configuration data is transmitted via a byte-serial bus system compatible with the following interface standards IEC 625-1 (formerly IEC 66.22), IEEE 488-1975.

The connecting socket IEC 625 is located at the rear panel (see Fig. 1 for connection details).

U.S. standard 488-1975 specifies a different connector for the more common IEEE 488 interface than the international IEC standard. NGPV series units are equipped with a 24 way connector for this interface.

Connection of equipment with a 25 way IEC standard connector is easily accommodated via an adapter. Control functions and data transmission are identical.

The standardized interface contains three groups of bus lines:

- a) Data bus with 8 lines DI/O 1...DI/O 8.  
Data transmission is executed in bit-parallel and byte serial, the characters are transferred in ISO-7bit-Code (=ASCII code).

DI/O 1 is the least significant bit and  
DI/O 8 is the most significant bit.

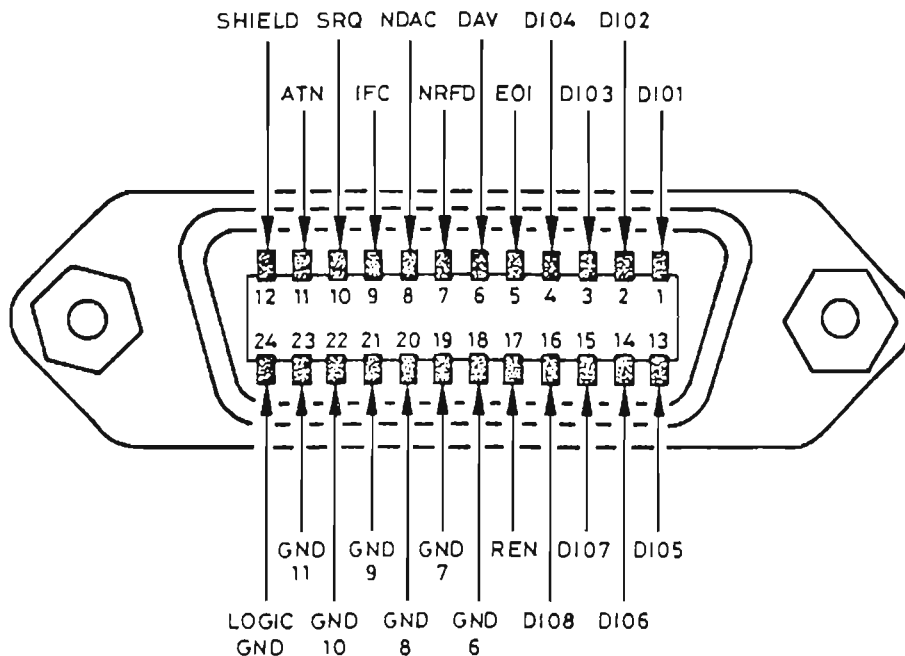


Fig. 1: Pin configuration IEC-625

- b) Control bus with 5 lines for transfer of control functions.
- ATN (Attention) becomes active LOW during address transfer to connected units.
  - REN (Remote Enable) is used for switching the unit to remote control mode.
  - SRQ (Service Request): a connected unit can request a service from the controller by activating this line.
  - IFC (Interface Clear): when activated it will set all the bus connected units to their defined initial conditions.
  - EOI (End or Identify): this signal can be used to identify the end of data transmission or for an enquiry after a service request.
- c) Handshake-bus with 3 lines.
- This is used for controlling the timing of the transfer of data between units:
- NREFD (not ready for data): active LOW on this line indicates to the controller that at least one of the connected units is not ready for data transfer.
  - NDAC (not data accepted) is held active LOW by the unit until it has accepted the data present on the data bus.

Units in the NGPV series in an IEC-bus system operate as LISTENERS only, i.e. they are able to accept and execute data and commands from the controller. They cannot transmit data but reply to a PARALLEL POLL whether operating in either constant voltage mode (CV) or constant current mode (CC). The signals SRQ and EOI are not processed.

### 2.3.1 Addressing

The unit address is set by a 5-pole DIP-switch (accessible through the rear panel of the unit). The ON position means "bit set". Address 12 is set by the manufacturer:

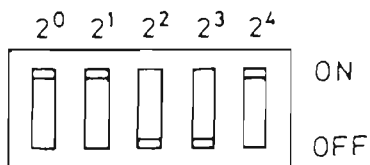


Fig. 2: Address code switch

To set the unit to the addressed state a corresponding command has to be transferred by the bus, e.g. by using a R&S process controller PPC or PUC:

```
...
100 IECLAD12
```

Resetting the addressed state is performed by an UNLISTEN-command:

```
...
500 IECUNL
...
```

### 2.3.2 Programming of Current Limit

Programming of current limit is executed by a group of up to three digits in the range between 0 and the maximum value followed by an "A". "A" is used as a sign to accept the previous digits. Input of leading zeros can be omitted. Subsequent zeros must be put in. If more than three digits are put in, the unit accepts the last three.

If an illegal value (>nominal value) in the A-range is programmed, overflow is detected and the unit turns to standby (OUTPUT OFF) (display flashes). The programming must be corrected and the unit switched on again (see 2.3.5).

For easier readability of program commands a separator ("," or ";") or the character "M" can be added (for example setting commands 1.23A or 756MA). These characters are ignored by the unit and have no influence on the current range.

For example: setting command for NGPV 20/5

010 ECOUT12,"1.5MA" corresponds to either a current limit of 0.15 A or 15 mA according to the previously set current range, A or mA respectively.

Programming of a current limit has no influence on the OUTPUT state (exception: programmed value > nominal value).

Programming example on R&S controller PPC or PUC:

```
...  
600 IECOUT12,"499A"  
...
```

### 2.3.3 Programming of Voltage Limit

Programming of voltage limit is executed by a group of up to four digits (for 8 V and 100 V models 3 digits) in the range between 0 and the maximum value followed by a "V". The character "V" is used as a sign to accept the previous digits. Input of leading zeros can be omitted, subsequent zeros must be put in. If more than four digits are put in (for 8 V and 100 V models 3 digits) the unit accepts the last four (three).

If an illegal value (>nominal value) is programmed, overflow is detected (display flashes) and the unit turns to standby (OUTPUT OFF). Programming must be corrected and the unit switched on again (see 2.3.5).

Exception:

The NGPV 8/10 contains no limit control and can be programmed up to 9.99 volts (see also 2.2.1).

Programming examples for 20 V and 40 V units:  
setting command 1982 V = max. terminal voltage 19.82 V  
setting command 70 V = max. terminal voltage 0.70 V

For easier readability of setting commands a separator (".", " or ",") can be added (for example setting command 7.78V). These characters are ignored by the unit and have no influence on the programmed voltage.

Example for 8 V, 20 V and 40 V units:

xxx IECOUT12,"7.1V" corresponds to a maximum  
output voltage of 0.71 V

Programming a voltage limit has no influence on the OUTPUT state OFF or ON (Exception: programmed value > nominal value, see 2.2.2 and 2.3.3).

Programming example at R&S controller PPC or PUC:

```
...  
400 IECOUT12,"15.73V"  
...
```

#### 2.3.4 Programming of Current Range and Output Capacitor

Selection of current ranges A or mA respectively is coupled with the connection of the output capacitor. Programming is executed by the selection of a number between 0 and 3 followed by an "R".

The meanings are:

0R	mA	/	C OFF
1R	A	/	C OFF
2R	mA	/	C ON
3R	A	/	C ON

If more than one digit is transmitted, the unit accepts the last one.

The character R serves as a sign to accept data. If a range is selected, the unit turns to standby (OUTPUT OFF) to switch the relays in a currentless state. Afterwards the unit must be switched on again (see 2.3.5).

The command for the mA range and C ON, execute on the R&S controller PPC or PUC as follows:

```
...  
310 IECOUT12,"2R"  
...
```



### 2.3.5 Electronic Switch-On and OFF

With the commands "C" (close = OUTPUT ON) and "S" (standby = OUTPUT OFF) the unit can be switched on and off electronically. If the switch on command shall simultaneously be valid for several units connected to the IEC-bus, the addressed command GXT (group execute trigger) has to be used. For switching off several connected units the addressed command SDC (select device clear) is used. For switching all connected units off, the universal command DCL (device clear) can be used.

Commands at R&S process controller PPC or PUC:

```
010 IECOUT12,"C": REM"ON"
020 IECOUT12,"S": REM"OFF"
030 IECLAD12:    REM"LISTENER ADDRESS"
040 IECGXT:      REM"GROUP EXECUTE TRIGGER"
050 IECSDC:      REM"SELECT DEVICE CLEAR"
060 IECUNL:      REM"UNLISTEN"
070 IECDC:       REM"DEVICE CLEAR"
```

### 2.3.6 Switch Over between Remote Control (REMOTE) and Manual Operation (LOCAL)

When addressed by a controller the units of the NGPV series turn automatically to REMOTE and remain in this state. The front panel controls become ineffective when the unit is set to REMOTE. To make a manual adjustment, first stop the program on the controller then switch the unit to manual operation by pressing the LOCAL key (see 2.2).

Selection of LOCAL can also be executed through the controller with the addressed instruction GTL (GO TO LOCAL).

Selection back to REMOTE is automatically executed with the next set instruction.

The LOCAL key is ineffective if at any time, possibly at the beginning of the program run, the addressed instruction LLO (LOCAL LOCK OUT) is executed through the IEC-bus. The LOCAL key can only be released by the command ←REN (NOT REMOTE ENABLE) or by switching the power off and on.

Commands at R&S process-controller PPC or PUC:

```
xxx IECLAD12: REM"LISTENER ADDRESS"
xxx IECGTL:    REM"GO TO LOCAL"
xxx IECUNL:    REM"UNLISTEN"
xxx IECLLO:    REM"LOCAL LOCK OUT"
xxx IEC←REN:  REM"NOT REMOTE ENABLE"
xxx IECREN:    REM"REMOTE ENABLE"
```

### 2.3.7 Parallel Poll

To determine whether the unit is operating in constant voltage (CV) or constant current mode (CC) the parallel poll is applied. If the response bit is set, constant voltage is valid. With the addressed instruction PPC (Parallel Poll CONFIGURE) the unit is requested to participate in the parallel poll. The instruction PPE (Parallel poll enable) contains the information on which data line (DI/O) and bit state the unit has to reply to the poll. Bit 1... bit 3 (on line DI/O 1-DI/O 3) define in binary code the line DI/O which shall be replied on. Bit 4 defines the state of the activated bit for the reply "Constant Voltage".

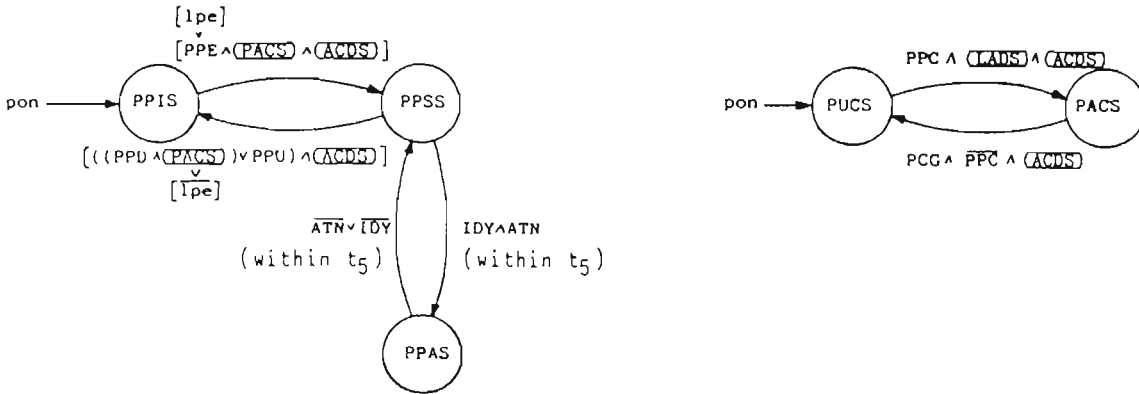


Fig. 3: Diagram of parallel-poll function

#### Messages

power on	pon
individual status	ist
local poll enabled	lpe
ATTENTION	ATN
IDENTIFY	IDY
PARALLEL POLL ENABLE	PPE
PARALLEL POLL DISABLE	PPD
PARALLEL POLL CONFIGURE	PPC
PRIMARY COMMAND GROUP	PCG
PARALLEL POLL UNCONFIGURE	PPU

#### Interface States

PARALLEL POLL IDLE STATE	PPIS
PARALLEL POLL STANDBY STATE	PPSS
PARALLEL POLL ACTIVE STATE	PPAS
PARALLEL POLL UNADDRESSED TO CONFIGURE STATE	PUCS
PARALLEL POLL ADDRESSED TO CONFIGURE STATE	PACS
ACCEPT DATA STATE	(ACDS)
LISTENER ADDRESSED STATE	(LADS)

Table 1: Abbreviations of parallel-poll function

Activated bit	Response bit	
	Constant Voltage	Constant Current
true (=1)	true	false
false (=0)	false	true

The active state of parallel poll is applied by the message ATN IDY (instruction IECPPPL).

Programming example at R & S process-controller PPC or PUC:

```

...
100 IECLAD12    LISTENER ADDRESS
110 IECPPC      PUCS → PACS
120 IECPPE 1 7  PPIS → PPSS
                The unit has to res-
                pond with "Constant
                Voltage True" (=1) on
                line DI/O 7
130 IECUNL      UNLISTEN
                PACS → PUCS

...
510 IECPPPL A%  PPSS → PPAS
                PARALLEL POLL
                response is stored at A%
                PPAS → PPSS
...

```

The value of  $A\% = 2^{x-1}$  ( $x$  = number of the DI/O-line) is with  $x=7$  either 0 (constant current) or 64 (constant voltage), if no other unit connected to the bus has been polled at the same time. If several units connected to the IEC-bus are polled at the same time, the values of the single lines are added together.

### 2.3.8 Transformation of Variables at R & S Process Controller PPC or PUC:

If a value to be programmed by the controller is the result of a calculation, it may happen that the answer has too many decimal places, for example:

```
xxx U=19/3.5      (U=5.4285714 volts)
```

To avoid the non-relevant digits, we recommend a multiplication of the calculated value with factor  $10^x$ , where  $x$  is the number of fraction digits programmable at the unit and, to avoid errors by rounding, the addition of the value 0.51. Then an integer number is calculated.

At the R&S process controller the following has to be programmed (multiplication factor valid for 8 V, 20 V and 40 V unit models):

100 U% = (U\*100+0.51)

For the output to a unit a string variable must be formed:

110 U\$ = STR\$ (U%)

Then this output follows:

120 IECOUT12, U\$ + "V"

The same edit mode is valid for milliampere and ampere values.

Several instructions can be comprised to one output instruction, for example programming of 17.57V, 135 mA, the mA-range, connection of the output capacitor and the instruction CLOSE (ON):

xxx IECOUT12,"17.57V 135MA 2R C"

It can be programmed faster, if blanks and the character "M" are left out. This however, influences the readability of the program:

xxx IECOUT12"1757V135A2RC"

The same is valid for programming 0 V or 0 A:

xxx IECOUT12,"V" or "A" (leading zeros can be left out)

Example:

Programming a step function between 0 V and 10 V:

At first the unit is prepared (0 V, 100 mA, mA-range, no output capacitor, switch-on):

10 IECOUT12,"0V 100 mA OR C"

Then the true program:

20 IECOUT12,"10.00V"

30 IECOUT12,"0V"

40 GOTO 20

### 2.3.9 Programming with the Commodore-Computer

To make use of a unit, a so-called logical FILE, or DATA FILE has to be opened, where data can be written into and read from. The FILE is opened by the command:

OPEN m1, (m2, m3, "NAME")

with:

m1 = logical FILE no., integer between 1 and 255,

m2 = unit-No. of unit to use

m3 = mode of data transfer

0 = read

1 = write

2 = write with additional END OF TAPE-character

In our case it is m2 = 12 (LISTENER ADDRESS) and m3 = 1.

For true data output the PRINT # command is used:

PRINT # m1, data

with m1 = logical FILE-No., integer between 1 and 255

data = string-variable

After programming the data, the FILE must be closed again:

CLOSE m1

Example for 20 V and 40 V units:

Programming of 15.23V (8 V-model max. 7.99 V, 100 V and 300 V models only one fraction) with subsequent "CLOSE":

```
10 OPEN1,12,1
20 A$="15.23V C"
30 PRINT#1,A$
40 CLOSE1
```

Many of the unit functions are very complicated or even impossible (Parallel-Poll) to be programmed on a Commodore computer.

### 3. Maintenance and Calibration

In general units of model series NGPV do not require any special maintenance. Only after exchange of components within the analog section calibration is necessary.

For testing and calibration we recommend the following measuring instruments:

- a. To avoid oscillations of the operational amplifiers, a battery operated DVM (e.g. R&S UDL 4) with a resolution of 100  $\mu$ V is recommended (hereafter called DVM1), to adjust the offset values on the regulation board (202.236).
- b. For adjustment of reference and output voltage a DVM with at least 4 1/2 digits is required (hereafter named DVM2).
- c. For adjustment of current ranges, current shunts with a minimum precision of 0.03% are necessary, with which both current ranges of the unit can be measured.

For easier adjustment an illustration is shown in item 3.5 giving all test points and potentiometers with their corresponding designations that are used in the calibration instructions. Also provided is a table with the adjustment values for reference voltage of different unit models. Before starting calibration the zero point of the instruments has to be checked and adjusted if necessary, with the unit switched off.

Note:

Unless otherwise stated, all offset values have to be adjusted to within  $\pm 0.2$  mV.

### 3.1 Voltage Feed-Back Loop

- a. Set current to approximately 10% of the maximum within the mA-range and a voltage of 0 volts.
  - b. Connect DVM 2 on DAC Board (202.237) to test points "LU" and "RU" .
  - c. Adjust offset voltage with potentiometer R1158 (DAC Board 202.237)
- (sections d. and e. are not relevant for 8 V and 100 V units).
- d. Set a voltage value of 999 and adjust with R1159 (202.237) to obtain the values stated for this unit model in table 2.
  - e. Use the same method to calibrate the value 1000 with R1160 and the value 2000 with R1161.
  - f. Connect DVM 1 to socket "+SENSING" and test point DAC on regulator board (202.236).
  - g. Adjust offset voltage with potentiometer R38 (202.236)
  - h. Connect DVM 1 to socket "-SENSING" and test point "LSA" on regulator board and adjust the offset voltage with potentiometer R36.
  - i. Adjust offset voltage between points DAC and UR with potentiometer R1161 (202.236).
  - j. Set maximum voltage limit, connect DVM 2 to output sockets and adjust output voltage with potentiometer R1162 on DAC board (202.237) to the desired value.

### 3.2 Current Feed-Back Loop

- a. Short-circuit output sockets via current shunt (pay attention to current range).
- b. Set output voltage to 5 V and switch-on the unit with OUTPUT ON.
- c. Set current value 000.
- d. Connect DVM 2 to test point "-I" and "RI" on DAC board (202.237) and adjust offset voltage with potentiometer R1163.
- e. Set current value 999 and adjust potentiometer R1164 to 10.3896 V  
(exception:NGPV 8/10 and 20/10 : 10.2 V;  
                  NGPV 100/1 and 100/2 and 300/0.3 and 300/0.6 :  
                  9.4 V)

- f. Connect DVM 1 to points "IR" and "IS" on regulation board (202.236) and adjust offset voltage with potentiometer R40.
- g. Set maximum current limit in mA-range and adjust output current with potentiometer R68 (R66) on auxiliary board II (202.238 resp. 202.241).
- h. Set maximum current limit in A-range and adjust output current with potentiometer R67 (R65) (202.238 resp. 202.241).

### 3.3 Meters and Monitoring

- a. Set maximum voltage limit and switch-on unit with key OUTPUT ON.
- b. Set deflection of voltage meter with potentiometer R37 on regulation board (202.236).
- c. Connect DVM 1 to test points "IM" on the regulation board (202.236) and to socket "+OUTPUT" and adjust offset voltage with potentiometer R43 (202.236) to within +/-2 mV (exception: NGPV 8/10: +/-8 mV; NGPV 20/10: +/-4 mV).
- d. Short-circuit output and program maximum current limit in the A-range.
- e. Adjust current meter with potentiometer R42 on regulation board (202.236).
- f. Set maximum current limit in mA-range and adjust the meter with potentiometer R69 (R67) on auxiliary board II (202.238) again.
- g. Connect DVM 1 to MONITORING.
- h. Adjust the voltage value printed on the front panel above MONITORING with potentiometer R4.

### 3.4 Power Unit

An power unit is only necessary if one or more power transistors have been changed. However, ensure that power unit transistors are replaced only with genuine R&S spare parts, otherwise correct functions and adjustment procedures cannot be guaranteed. As the power unit has to be dismounted for power transistor exchange, it is useful to adjust it before reinstallation. For this procedure see the installation scheme shown in fig. 4 (first both output stage halves have to be wired completely).

Required equipment:

- Short-circuit proof power supply unit with an output voltage rating of approximately 10 V, its current limit responding to 1.5 times of the NGPV nominal current (in fig. 4 marked with "U1").
- Power supply with a minimum output current rating of 100 mA, an output voltage adjustable from 0 up to approximately 15 V (in fig. 4 marked with "U2").
- Current measuring instrument with at least 1% accuracy to detect the maximum output current of the output stage.
- Two voltage measuring instruments with a minimum input resistance of 10 kohms within the 1 V-range.

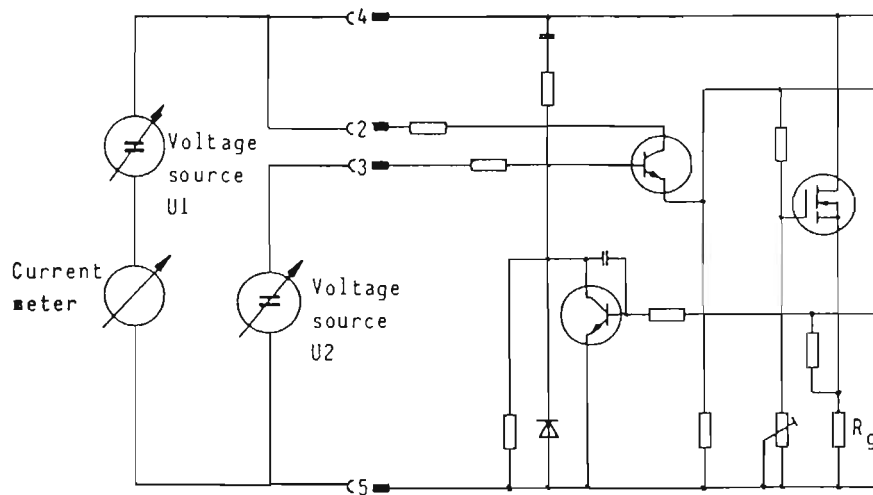


Fig. 4: Procedure for Power Unit Adjustment



Before starting calibration make sure that the power unit of power supply unit U2 is at zero volts. Turn all potentiometers of the output stage fully clockwise (as seen from mounting side). Sufficient cooling must be provided during calibration if the output stages have a nominal current of more than 3 A.

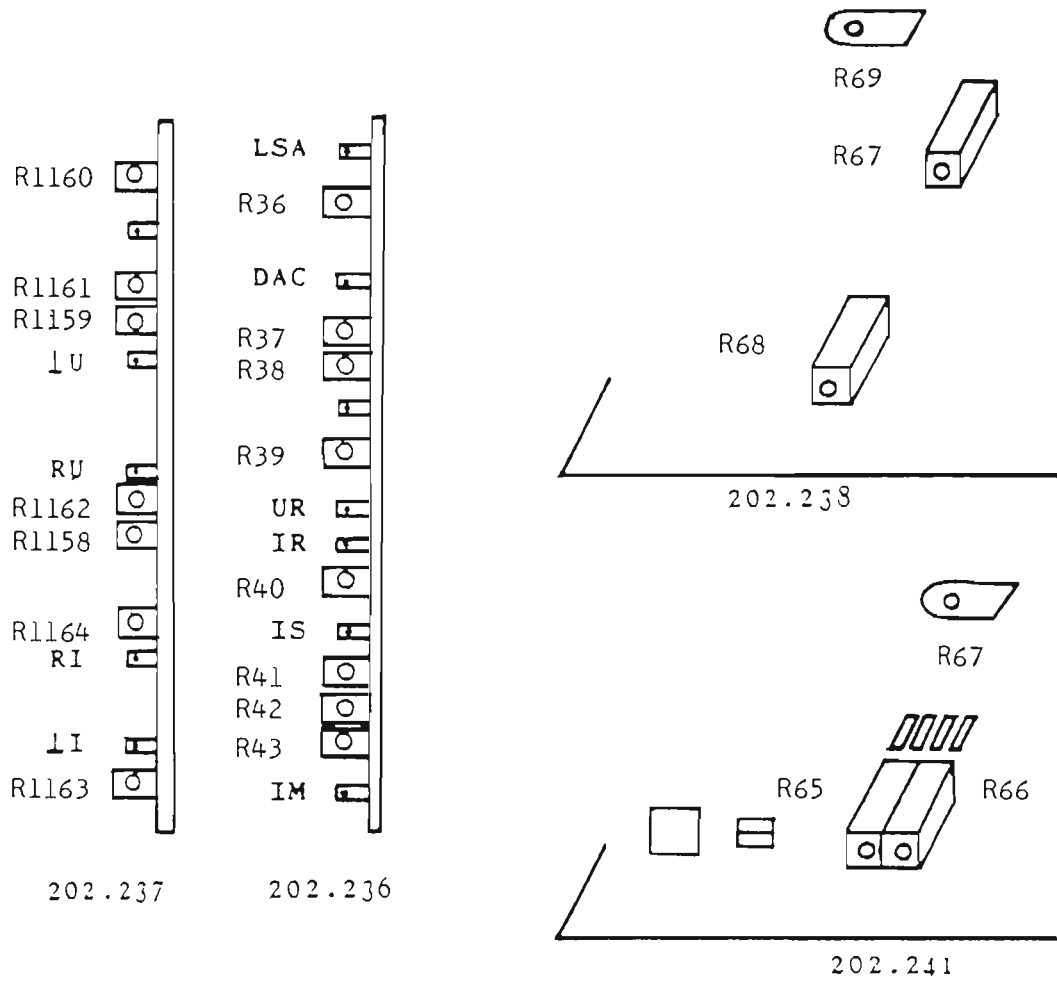
Adjustment procedure:

- After connecting the power unit to the calibration assembly, U2 is slowly increased starting from zero volts until current meter indicates about 80% of unit nominal current rating.
- The voltages across the feedback resistors ( $R_g$ ) of the power transistors are measured with a DVM. The DVM is connected to the resistor with the smallest voltage drop.
- A second voltmeter is connected across the other feedback resistors one after the other and the corresponding potentiometer is adjusted until the readings of both voltmeters are within 10% of each other.

If during this adjustment procedure the value indicated by the current meter falls below half of the NGPV nominal current rating, it can be increased by increasing of voltage U2. When the adjustment is completed, check the short-circuit current limit of the output stage.

For that increase voltage U2 watching the current meter at the same time. According to the power unit, the current limit must be 1.1 to 1.3 times higher than the nominal current rating of the unit.

### 3.5 Arrangement of the Adjustment Elements



	40 V-Unit 300 V-Unit	20 V-Unit	8 V-Unit 100 V-Unit
Bit 1 - 12 (999 Digits)	2.597 V	5.194 V	no adjustment
Bit 13 (1000 Digits)	2.600 V	5.200 V	no adjustment
Bit 14 (2000 Digits)	5.200 V	no adjustment	no adjustment

Table 2: Rated values for the individual bits of the voltage reference.

## 4. Description of Functions

### 4.1 Analog Section

The power MOSFETs of the output stage connected in series with the load are controlled by the regulators, that according to unit load state either output voltage or output current are regulated. Both the effects of mains voltage fluctuations as well as those of load changes are regulated. Switchover from constant voltage operation (CV) to constant current operation (CC) and vice versa are performed automatically.

#### 4.1.1 Voltage Regulation and Voltmeter

A bridge is used for voltage regulation, consisting of reference voltage dividers  $R_x$  and  $R_y$ , of reference voltage and of output voltage buffered via amplifiers Op1 and Op2. Op3 is the regulator, to which the differential voltage of the bridge circuit is lead to as regulation criterion. This is zero, when the following equation is fulfilled:

$$\text{reference voltage} / \text{output voltage} = R_x / R_y$$

Since the voltage regulator always tries to control the output stage so that the voltage across the bridge amounts to 0 V, thus the output voltage must be strictly proportional to the programmed reference voltage.

The meter is connected between outputs of amplifiers Op1 and Op2, and therefore always indicates the voltage between the two sensing lines.

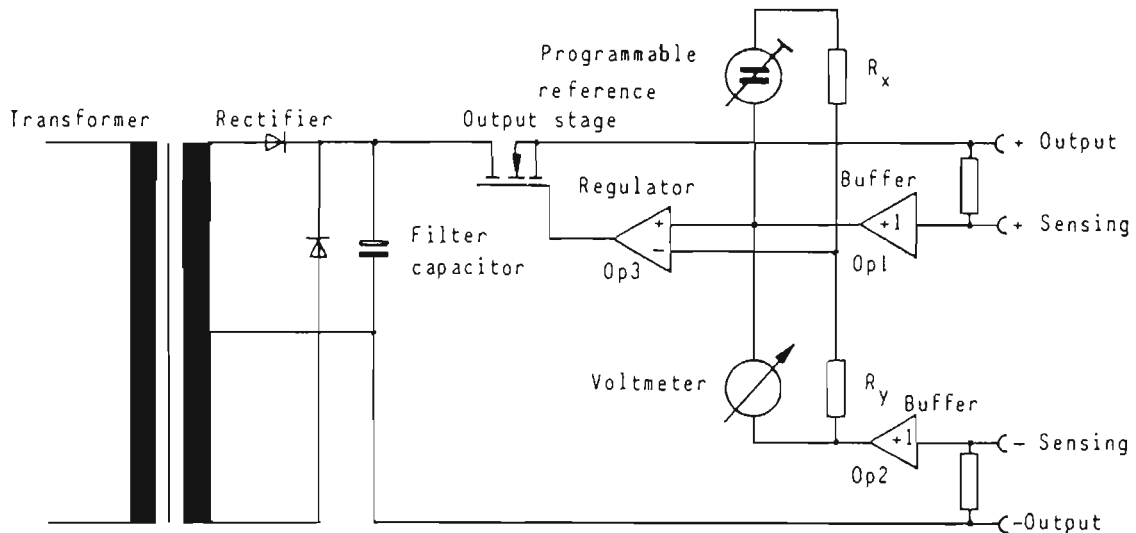


Fig. 5: Schematic circuit diagram of voltage regulation.

#### 4.1.2 Current Regulation, Ammeter and Monitoring

For output current regulation the voltage drop at a current shunt is compared via an operational amplifier with a programmable reference voltage and the output stage is controlled in such a way that the voltage drop and the reference voltage are equal (fig. 6).

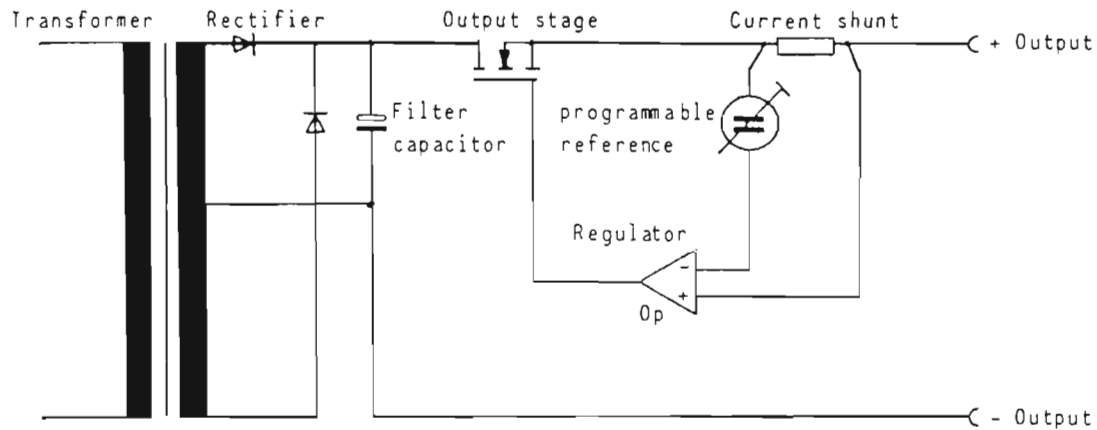


Fig. 6: Schematic circuit diagram of current regulation

The voltage drop at the current shunt is amplified by a buffer and applied to the meter as well as via a voltage divider to "MONITORING", where now a voltage is provided in proportion to the output current.

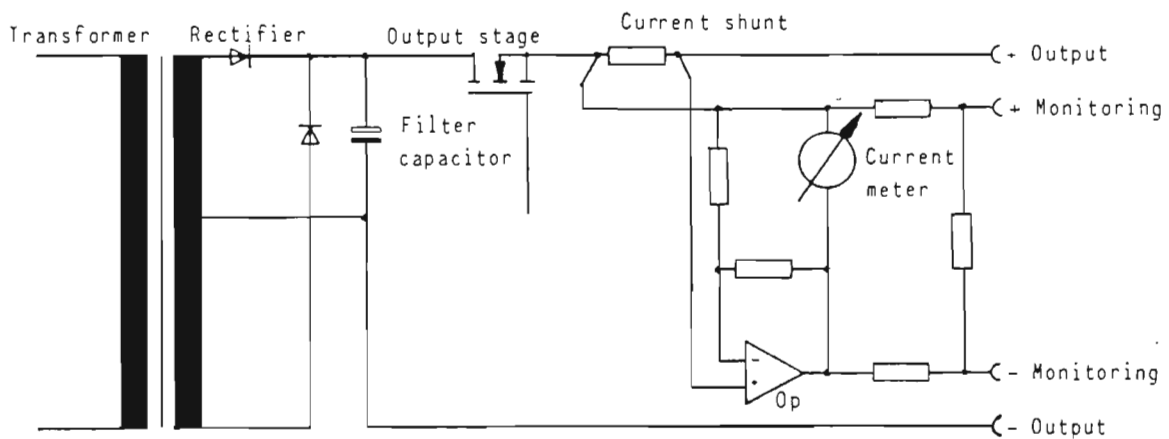


Fig. 7: Schematic circuit diagram of current monitoring

### 4.1.3 Remote Error Sensing

If an undesired voltage drop is caused by the resistance of the lines between unit and load, this can be compensated by using remote error sensing.

The load has to be connected as shown in fig. 8. The voltage at the load is then directly transferred via both sensing lines and the amplifiers Op1 and Op2 to the voltage feedback loop, which then keeps the voltage at the load constant.

Observe the correct polarity when connecting the sensing lines. If the sensing lines should be interchanged, the terminal voltage exceeds the programmed value only by 6 volts. The same is valid for short-circuits within the sensing lines. Damage of the sensing buffers Op1 and Op2 (B3 and B2 on regulation board 202.236) is prevented by internal protective circuits.

The resistors (shown in the illustration below) between output and sensing line are directly soldered to the output sockets on the rear panel to achieve an as low as possible internal resistance at the terminals during operation without remote error sensing. They are laid out in a way that they cannot be damaged by short-circuits or by interchanging the sensing lines even at the highest output voltage rating on the one hand and that no remarkable voltage drop is caused by the input current of amplifiers and protective circuits on the other hand. The same is valid for the protective input resistors (R15 and R16 on regulation board 202.236) of the above mentioned amplifiers.

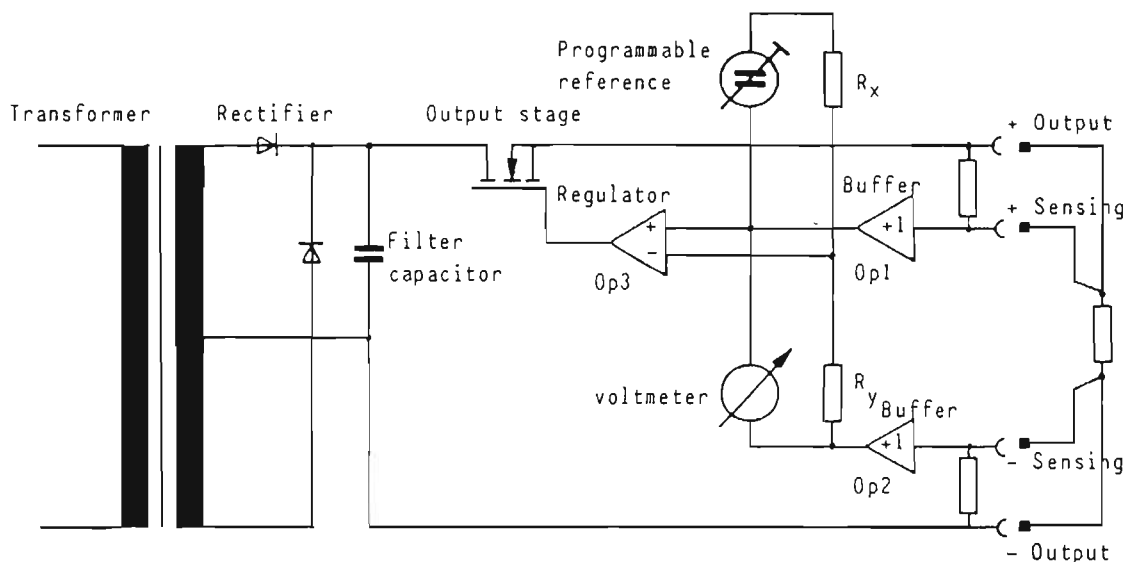


Fig. 8: Schematic circuit diagram of remote error sensing and load connection

#### 4.1.4 DAC Board

Voltage reference as well as current reference are generated on the DAC board. Both circuit parts have different potentials.

##### Voltage Reference

The main component of voltage reference generation is the digital to analog converter, which converts 12 bits of the data present in BCD-code into an analog voltage. In 8 V- and 100 V units this voltage is transferred directly via resistor R1151 to potentiometer R1162 and resistor R1140. ICs B1113 - B1116 and their components are omitted (see also parts list).

With ICs B1113 and B1114 the internal reference of IC B1111 is high impedance buffered in units with a higher voltage resolution. The output voltages of B1111, B1113 and B1114 are weighed via resistors R1134, R1135, R1136 and potentiometers connected in series and lead to the amplifier B1115 operating as an adder. Transistors T1107 and T1109 together with diodes D1101 and D1102 for bit 13 (1000 digit) respectively transistors T1108 and T1110 together with diodes D1103 and D1104 (2000 digit) act as switches for the two additional bits. Inverter B1116 reestablishes the required polarity of the reference voltage.

The data are transferred in BCD-code via transistor T1102 and one half of the dual optocoupler B1101 to the shift register B1107 and B1108. The clock is transmitted via transistor T1101 and the second half of optocoupler B1101 to the corresponding inputs of the shift registers. With the strobe pulse, the data now present in the shift registers are transferred to the output latches.

If the unit is switched on, "High" is applied to pins 15 of shift registers B1107 and B1108, by which the high impedance state of the tri-state output latches, is removed. Thus the data stored in the shift registers beforehand are transferred to the inputs of the D/A converter. If the unit is switched off again, the outputs of the shift registers switch to high impedance again. Via resistors R1124-R1128 and resistor network Rb1102 the information "0" is then present at the inputs of D/A converter.

##### Current Reference

The supply of this section of the circuit is provided by a voltage stabilization located on the regulation board. Data transmission and generation of current reference is performed analog to the voltage reference. Here, however, at OUTPUT OF (via resistors R1119, R1156 and R1157) a residual reference is generated, which enables the voltage-regulator to be adjusted to 0 volts. The residual reference value is unitspecific and varies between about 1% and 5% of the range limit. Due to this resistors R1119, R1156 and R1157 are mounted only when required.

To prevent falsification of reference voltage by voltage drops in supply lines, the logic ICs B1103, B1104, B1106, B1109 and B1110 have a ground separated from ICs B1112 and B1117. These two grounds are fed via their own lines to auxiliary board II and are only connected there.

#### 4.1.5 Regulation Board

Voltage regulators B7, B8 and B9 provide the required stabilized voltages for operational amplifiers B3 - B6 and for the current reference generation on the DAC board. Via pin 19c (+VI) an unstabilized positive voltage is applied to the power unit. Via pin 17 c (⊥I) the return of this supply is led to auxiliary board II.

Operational amplifier B3 is the high-impedance buffer for the "+SENSING" terminal. Amplifier B4 controls the voltage regulation, B5 controls the current regulation. Via transistors T1 and T2 and optocoupler B1, the operation mode (CV, CC) is fed to the digital section. The voltage reference is present at resistors R23 - R35.

IC B6 serves as an amplifier for the voltage drop at the current shunts on auxiliary board II. Further it buffers the monitoring output and the current meter, which otherwise would reduce the output impedance on current regulation. Amplifier B2 serves as "-SENSING" buffer. Its supply is provided by auxiliary board II. The return of this supply is connected to "-OUTPUT".

#### 4.1.6 Auxiliary Board II

The following functions are located on auxiliary board II:

- Rectifying and filtering of main and auxiliary supplies
- Current-range switch-over
- Overvoltage protection
- Capacitor switch-on and C-ON control
- Switched current sink

#### Note:

Component designations not written in parantheses are valid for auxiliary board II (202.238) in units with a nominal output of 100 W (reference number 192.0310...), the designations in parantheses refer to auxiliary board II 200 W (202.241) in units with a nominal output of 200 W (reference number 192.0326...).

## Rectifying and filtering of main and auxiliary supplies

Diodes D5 (D5) and D6 (D6) are the rectifiers for main supply, their types are unit-specific (see also parts list). In units with 10 A output current they are replaced by a center-tap dual diode mounted to the base plate for cooling. The reverse diode D14 (D7) is mounted in the same way.

According to the unit model, the power supply filter capacitors C3, C4 and C5 (C1-C5) are connected in parallel or in series via jumpers Br3, Br4 and Br5. At series connection bleeder resistors R62 (R13) and R63 (R14) also balance the electrolytic capacitors.

The rectifiers D1 to D4 (D1-D4) and the electrolytic capacitors C1 and C2 (C6, C7, C8) produce a DC voltage, which supplies the overvoltage protection, the capacitor switch-on and the switched current sink.

## Current range switch-over

On switching on the unit, the mA-range is always set. For current sensing resistors R56 and R57 (R12, R13) are used. Within the highest current range, the resistor R51-R55 (R2-R10) are switched in parallel via relay Rs2 in addition to the above mentioned resistors.

Depending on the unit model, only some of these resistors may be mounted (see also parts list).

The maximum voltage drop at the shunt resistors is about 1 V (exception: 8/10 approx. 0.25 V; 20/10 approx. 0.5 V).

## Overvoltage Protection

For load protection the output terminals are short-circuited on overvoltage by means of a thyristor. In order to omit voltage drops at the supply lines, the threshold of the overvoltage protection is derived from the voltage between the sensing connections. It is transferred via amplifiers B2 and B3 to points "LSA" and "BU" on the regulation board (202.236). The potentiometer for overvoltage protection on the front panel is connected to points OP and OPM.

If the voltage between the sensing-lines exceeds the value adjusted with the potentiometer, transistors T2, T3 and T11 (T9, T10 and T11) are switched through and the thyristor is triggered. This thyristor is mounted on the base plate to aid cooling. To avoid an immediate switch-off of the thyristor on currents below its holding current, transistors T2 and T3 (T9 and T10) are connected as a bistable circuit, which then keeps the thyristor switched on even at lowest currents. Resetting of



this trigger circuit is done by the signal OUTPUT OFF (manually or by IEC-bus) transferred from soldering pin "E/A" via optocoupler B4 (B4) to the base of T4 (T8).

However, the thyristor switches off only if its forward current falls below its holding current. If an external current source is connected to the unit, this source has to be disconnected first so that the thyristor may switch off. The thyristor is protected by the fuse F1 against an external current which is higher than the maximum output current of the unit.

#### Capacitor Switch-on and C ON Control

The capacitor is switched on by relay Rs1. Relay Rs1 is activated via transistor T13 (T2), optocoupler B2 (B2) and transistor T1 (T12).

To protect the relay contacts, switching-on of capacitor C6 (C11) is controlled. For this purpose the following signals are applied to the operational amplifier B1 (B6):

- Voltage at capacitor C6 (C11)
- Output terminal voltage
- Voltage ahead of the current shunts against "-OUTPUT"

Switch on is only possible if all these voltages are below 100 mV. Otherwise the output transistor of optocoupler B2 (B2) is locked via operational amplifier B1 (B6).

If the capacitor is connected and the unit is switched on, the C ON control would immediately switch off the capacitor, since the controlled voltages are now higher than 100 mV. To prevent this, the point between diodes D9 and D10, (D18 and D19) is set to earth via the second contact of relay Rs1. With this method an intervention of amplifier B1 (B6) is prevented. The capacitor can be switched off at any output voltage.

Discharging of the capacitor is done by resistors R8 and R9, which also limit the discharge current (protection of relay-contacts). Only after discharge below the above mentioned voltage limits the capacitor can be switched on again.

#### Switched current sink

The current sink mainly consists of the power MOSFET T10 (T7\*), the feedback resistors R44, R45 (R26\*, R27\*) and the transistors T8 and T9 (T8\*, T9\*), which limit the sink current.

Its purpose is a quicker discharge of the internal or an externally connected capacitor in order to speed up automatic testing and checking procedures.

In normal operation, a basic current is drained off by the sink, its value determined by resistors R44 and R45 (R26\*, R27\*) and the base-emitter-voltage of transistor T8 (T8\*) (the transistor limits the voltage drop to about 0.6 V). To discharge a capacitor the current sink is switched to a higher value by voltage regulator B4 (on regulation board 202.236 via transistor T14 (T6) and optocoupler B3 (B5)).

This value is derived from the voltage of the Zener diode D20 + 0.6 V and resistors R44 and R45 (R26\*, R27\*). When the output voltage has reached the desired value, the current falls to the basic current rating.

\*) The 200 W units have two parallel operating current sinks; they are located on both output stage halves. Components marked with "\*" are located on the boards of the power unit (202.240) of these units.

#### 4.1.7 Power Unit

This assembly consists of heat sinks for the power transistors, one fan, two thermostats and two boards with electronic components. To make the unit highly reliable, great attention was paid to the power unit.

Normally the fan operates on reduced power and is switched to full power operation by one of the thermostats with a rise in heat sink temperature. This facilitates a smooth fan run in normal operation and provides the necessary cooling for the power transistors on a higher load. An additional thermostat is installed, which switches the units off from the mains when the power unit overheats (e.g. unit operates at excessively high temperatures).

To prevent damage of the power unit by an external short-circuit or failure in regulation, an additional electronic current limit is installed in this power unit, which allows an about 1.1 to 1.3 times higher output current than the output maximum current of the unit, depending on the unit model.

A further increase of reliability is gained by application of power MOSFETs. These have two important advantages compared to bipolar transistors in this particular application.

- Controlled adequately fast its response time can be disregarded and thus a faster regulation is possible.
- As power MOSFETs are free from second breakdown, they can be lined up together to form very robust power unit, even overloadable for a short time.

To utilize these advantages entirely, the operating point of these transistors has to be adjusted within the power unit, (an entire description of the calibration is to be found in chapter 3.4). If one transistor fails despite all the above mentioned protective measures, please use only original R&S spare parts for replacement. If others than R&S spare parts are used operational safety and accuracy of power unit adjustment cannot be guaranteed.

Power Unit 100 W

Note:

Component designations not put in parentheses are valid for power unit boards 202.230 (100 W units) and designations put in parentheses refer to power unit boards 202.240 (200 W unit).

For control of the output power MOSFETs are installed in the power unit. Driving of these is executed by the regulator via transistor T1 (T1) connected as an emitter follower. Its collector is tied to the unstabilized positive DC voltage of the regulator supply. With potentiometers R16 - R17 (R15 - R18) the operating points of the power MOSFETs are set. If the voltage at the feedback resistors R11 - R12 (R19-R26) exceeds about 0.6 V, the output current of the output stage is limited via transistor T2 (T2).

Power Unit 200 W

The functions of this power unit are entirely identical to those of the 100 W power unit. However, it is equipped with twice the number of power MOSFETs. Further each half of the power unit is equipped with a switched current sink. Their duties and functions are already described in item 4.1.6.

## 4.2 Digital Section

### 4.2.1 IEC 625 Bus line termination

All IEC-bus-lines are terminated on board 202.233 with resistors corresponding to the standard. The data lines and the command lines ATN, DAV, EOI, IFC and REN are inverted by Schmitt trigger drivers B1201 and B1207. Internal unit operation is executed with positive logic, i.e. "High" level = 1 and "Low" level = 0.

### 4.2.2 Handshaking

The handshake cycle is realized on board 202.233 by gating of the signals ATN, DAV, LADS, CARRY, WAIT and the internal transfer clock T. The bus line drivers are located on board 202.239. After switch on the open collector drivers (B1301) for NRFD- and NDAC-lines are not activated. The unit becomes active in handshake only when it is addressed and/or the signal attention (ATN) appears on the bus. In this case, the message NDAC goes low (NO DATA ACCEPTED). When the unit is addressed and ready for data acceptance (WAIT = 1 and CARRY = 1), NRFD remains high (READY FOR DATA). If there is WAIT = 0 or CARRY = 0, NRFD goes low (NOT READY FOR DATA). Receiving the signal ATN, the unit in any case responds with "READY FOR DATA". If the information DAV is true, NRFD goes low (NOT READY FOR DATA) and the mono-flop B1217a starts the internal transfer clocks T and  $\bar{T}$  (approx. 10  $\mu$ s). When the transfer clocks are finished flop-flop B1213b is set and NDAC goes high (DATA ACCEPTED). When DAV is removed, the flip-flop is reset and NDAC goes low again (only as long as ATN and/or LADS are true). NRFD goes high (READY FOR DATA), when the unit is addressed and neither WAIT nor CARRY are low, or when the signal ATN is present. CARRY is low as long as the clock generator for data shift is running, WAIT is low for 15 ms (because of relay switching times) when the letter R (range selection) is received via the bus.

### 4.2.3 Power-On Reset and Interface Clear

On switching the mains on a short (PON1, approx.120 ms) and a long (PON2, approx.240 ms) POWER-ON pulse are generated on board 202.234. The short pulse is used for resetting shift registers B502, B508, B514 and B520 on the same board and, inverted by B518, to reset all flip-flops in the digital section to their initial states. The long pulse is used for starting the shift-clock generator (on board 202.234) via B524 and B518 versus "low" on B511, pin 8, and via B516 and B517, to lead these shift-clocks to DAC shift registers B1107-B1110 (on board 202.237) in order to clear their contents. The command IFC resets the address flip-flop B713a on board 202.232.

#### 4.2.4 Decoder

The decoder on board 202.233 consists of ICs B1204, B1205 (BCD-to-decimal-decoder) and B1210, B1211, B1214-B1216 and B1222 (AND-gate). It has to recognize all required signals and commands. It checks, whether the present bit-pattern on DI/O-lines 1-7, the signal ATN and the LADS-state correspond to a valid signal or command. When this is true, the information high appears on the corresponding line.

command signal	DI/O							ATN	LADS	required for
	1	2	3	4	5	6	7			
PPC	1	0	1	0	0	0	0	1	1	Parallel Poll
PPE	X	X	X	X	0	1	1	1	1	Parallel Poll
PPD	X	X	X	X	1	1	1	1	1	Parallel Poll
PPU	1	0	1	0	1	0	0	1	X	Parallel Poll
PCG	X	X	X	X	0	0	0	1	1	Parallel Poll
PCG	X	X	X	X	1	0	0	1	X	Parallel Poll
PCG	X	X	X	X	X	1	0	1	X	Parallel Poll
PCG	X	X	X	X	X	0	1	1	X	Parallel Poll
GET (GXT)	0	0	0	1	0	0	0	1	1	ON
SDC	0	0	1	0	0	0	0	1	1	OFF
DCL	0	0	1	0	1	0	0	1	X	OFF
GTL	1	0	0	0	0	0	0	1	1	LOCAL
LLO	1	0	0	0	1	0	0	1	X	LOCAL LOCK OUT
DIGIT	X	X	X	X	1	1	0	0	1	transfer pulse
A	1	0	0	0	0	0	1	0	1	ampere, shift clocks
V	0	1	1	0	1	0	1	0	1	volts, shift clocks
R	0	1	0	0	1	0	1	0	1	range
C	1	1	0	0	0	0	1	0	1	ON
S	1	1	0	0	1	0	1	0	1	OFF

Tabelle 3: Decoded commands and signal together with their bit-patterns (X=arbitrary, 1=high, 0=low)

#### 4.2.5 Parallel Poll

The required ICs are located on boards 202.233 (B1221) and 202.234 (B501, B507 and B519).

When the command PPC is recognized, flip-flop B1221b is set with the internal transfer pulse. Now, with the commands PPE respectively PPD flip-flop B1221a can be set or reset. Reset is also possible with the command PPU.

With the signal CCP (=PPC  $\wedge$  PPE), and acceptance clock T, the informations (line number, activation bit) present on the data lines DI/O 1-DI/O 4 are stored in four D-flip-flops B507. The line-number information is now present at the BCD-to-decimal-decoder B501 with o.c.- outputs. The 4-bit-comparator B519 determines whether PPE is true, the poll is executed (ATN and EOI true) and if the status bit is equal to the activation bit. When all these conditions are fulfilled, the decoder sets the selected DI/O-line to 0 V (information true).

Flip-flop B1221b is reset by any primary group command (PCG), but not with PPC.

#### 4.2.6 Shift Register Organization

When the NGPV is addressed and a digital information is present at the bus, the informations of DI/O-line 1-4 are shifted right into the 4-bit shift registers B502, B508, B514 and B520 on board 202.234 (bit-parallel, byte-serial). Then when the characters "V" or "A" appear, it is shifted out left bit serial to the DAC- and display-shift registers. By this the following bit sequence is formed:

byte-No.4, bit 4;	byte-No.3, bit 4;	byte-No.2, bit 4;
byte-No.1, bit 4;	byte-No.4, bit 3;	byte-No.3, bit 3;
byte-No.2, bit 3;	byte-No.1, bit 3;	byte-No.4, bit 2;
byte-No.3, bit 2;	byte-No.2, bit 2;	byte-No.1, bit 2;
byte-No.4, bit 1;	byte-No.3, bit 1;	byte-No.2, bit 1
byte-No.1, bit 1		

At the same time a "0" is shifted in to clear the shift registers.

Shifting direction (right/left) is set at shift register inputs S1 and S0:

S1	S0	
0	0	Hold
0	1	shift right
1	0	shift left
1	1	parallel

S0=1, when the information DIGIT appears, otherwise S0=0.  
S1=1, if either flip-flop B510a (A) or flip-flop B510b (V) is set.

These flip-flops are set according to the internal transfer clock, when either the character "A" or the character "V" appears at the decoder output. After termination of left shifting, they are reset by the strobe-pulse (generated by the shift-clock generator and the counter on board 202.234). The strobe-pulse is delayed by R502 and C514, so that the reset of S1 is always executed after the last shift pulse.

The shift-right clock is generated by gating DIGIT with T (B514 on DAC board 202.234), the shift-left clock is generated by the shift-clock generator.

To read a set range, with the positive edge of the signal R $\Lambda$ T (B517 on board 202.234) the digit present at the first positions in the shift register is stored in flip-flops B505b (bit 1 for current range) and B522a (bit 2 for C ON) on board 202.234.

At the same time the monoflop B512b on this board is activated (NOT READY FOR NEW DATA) to prevent further internal transfer clocks (see also 4.2.2) and to activate the over-flow control.

The reset pulse for the shift registers is released by the negative edge of signal R<sub>AT</sub> via capacitor C517 (negative pulse).

#### 4.2.7 Shift-Clock Generator

This start-stop oscillator on board 202.234 is started by PON2, bringing the 16-bit-counter B1106 into its initial state and loading the DAC-shift registers B1107...B1110 on board 202.237 with 1 (=information 0 V respectively 0 mA). It is also started at the end of the internal transfer clock, when the signal "V v A" (B1121, pin 3) is present. With this signal flip-flop B1122b is set at the beginning of the internal transfer clock. Now "high" appears at the Q output, which applies "low" to gate B1111, pin 8, via B1124 and B1118 and by this starts the oscillator at control input B1118, pin 2. Now positive pulses appear at the generator output B1123, pin 10, (f = approx. 250 kHz). The first pulse resets flip-flop B1122b via gate B1124. This causes "high" at B1111, pin 8 and would stop the generator. But as at the same time the carry-output of counter B1106 goes "low", the generator is kept running via B1111, pin 1. If 16 positive edges have appeared at counter B1106, output "carry" goes "high" and "high" is present at B1111, pin 2. When the 16th pulse is finished, "high" is also present at B1111, pin 8 and the generator control input stops the oscillator.

#### 4.2.8 Switch U/I-LOCAL/REMOTE

When data are put in via IEC-bus, they have to be shifted from the shift registers B502, B508, B514 and B520 on board 202.234 to the shift registers B4, B9, B13, B18 (I) and B5, B10, B14 and B19 (U) on board 202.231 (display) and to the DAC shift registers (on board 202.237) B9, B10 (I), B7 and B8 (U). This is executed after character "A" or "V" is recognized. These informations are stored in flip-flops B510b respectively B510a (on board 202.234) for the time of the shifting procedure. Thus is determined, whether (via gates B503 and B504 the shift goes to the U- or to the I-shift register. The flip-flops are reset by the delayed (R502, C514, approx. 1  $\mu$ s) strobe pulse (applied by the shift-clock generator and the counter). If flip-flop B509a (on board 202.234) is not set (state LOCAL), the data put in by manual operation (via gates B515 and B504) are transferred to the DAC-shift registers.

#### 4.2.9 Strobe-Pulse

The strobe-pulse (approx. 9  $\mu$ s) is applied by mono-flop B512a on board 202.234, when the shift-clock generator has released 16 pulses. It is used to load the data shifted into the DAC shift register into the internal output latches. Further it resets flip-flops B510a and B510b which consequently reset the control signal S1 of the bus registers to low.

#### 4.2.10 Addressing

The address is set with a 5-pole DIP-switch. It is compared by 5 EXOR gates B1202 and B1208 on board 202.233 whether the address transmitted on the bus is the own one. If this is the case, mono-flop B1217b is triggered at the beginning of the transfer pulse and its pulse MLA (approx. 5  $\mu$ s) sets flip-flop B509a on 202.234 (REMOTE mode). At the end of the transfer pulse the address flip-flop B1213a on 202.233 is set. This flip-flop is reset, when either the UNLISTEN command, the signal IFC or the signal  $\overline{REN}$  is received.

#### 4.2.11 OFF/ON (Standby-Close)

The states OFF or ON are stored in flip-flop B505a on board 202.234. At the Q-output there is low=OFF and high=ON. On switching the unit on, the flip-flop is reset to OFF by the PON-pulse. The ON-state is achieved (in LOCAL mode) by pressing the key "ON" (LOCC-pulse) or (in REMOTE mode) by decoding the command GXT (GROUP EXECUTE TRIGGER) or the character C (CLOSE). In REMOTE mode resetting is executed by the commands SDC (SELECT DEVICE CLEAR) and DCL (DEVICE CLEAR) as well as by the characters S (STANDBY) or R (RANGE). It is also switched off when overflow is detected (OVERFLOW). When the unit is in LOCAL mode, it is also switched-off by pressing the key OFF (signal LOCS) or one of the keys A, mA, C ON or C OFF. The signals of these keys are gated with the OVERFLOW state in B706 on board 202.232.

During ON mode, the contents of their shift registers are present at the DACs. During OFF state, their outputs are in high impedance state (TRI-state). By pull-down resistors the U-DAC then receives the information 0 volts at its inputs. A residual reference necessary for regulation is set by pull up and pull down resistors at the I-DAC-inputs. According to the set current range and the unit model, a certain output current is admitted by this (approx. 1-5% of the range limit).



#### 4.2.12 mA/A-Range / C ON (Output Capacitor)

By a digit between 0 and 3 with subsequent R, sent by the IEC-bus, the current range is set and the output capacitor is connected. When the character "R" is detected, the unit is set into OFF state at one hand and on the other hand bit 1 of bus shift register B520 is stored in flip-flop B505b and bit 2 of register B514 is stored in flip-flop B522a (see also item 4.2.6 - Shift Register Organisation). These ICs are on board 202.234.

bit 1 = low means mA-range  
bit 1 = high means A-range  
bit 2 = low means C OFF  
bit 2 = high means C ON

At the output BER there is low = mA and high = A, at output C ON there is low = "no output capacitor" and high = "connect output capacitor".

The flip-flops can be set or reset by pressing the corresponding keys (pulse BA respectively BmA and C $\sim$  respectively  $\overline{C\sim}$ ).

#### 4.2.13 LOCAL/REMOTE, LOCAL LOCK OUT, REMOTE ENABLE

The ICs necessary for these functions are on board 202.234. On switching-on the mains, flip-flop B509a (LOCAL/REMOTE) is reset by the PON-pulse to LOCAL mode (output Q=low). The mode is changed when the unit is addressed (MLA-pulse). Reset to LOCAL mode is possible by the command GTL (GO TO LOCAL) or by pressing the key LOCAL (pos. pulse RTL). The pulse RTL is locked by gate B503 as long as the shift-clock generator is running (CARRY is low).

The command LLO sets output Q of flip-flop B509b low (LOCAL LOCK OUT). By this the pulse RTL is locked by gate B503. After this returning to the LOCAL mode is possible only by the command GTL.

Flip-flops B509b (LOCAL LOCK OUT), B509a (LOCAL/REMOTE) and B513a (ADDRESS, on board 202.233) are reset by the command REN (gated with PON in B524). As long as the signal REN is transmitted, addressing (and by this programming) of the unit is impossible.

#### 4.2.14 Functions of the Keys

All keys are arranged on board 202.231.

The key LOCAL applies the pulse RTL (approx. 50  $\mu$ s, C4, R18). This pulse resets the flip-flop B509a (LOCAL-REMOTE, on board 202.234). When LLO is programmed or the shift-clock generator is running, the pulse is locked. All other keys are active only in the LOCAL mode. The key OUTPUT ON applies the pulse LOCC (approx. 50  $\mu$ s, C5, R19) and by this sets the flip-flop B505a (OFF/ON, on board 202.234).

By pressing the key OUTPUT OFF it can be reset (signal LOCS). The key mA causes the state BmA, sets flip-flop B505b (I-range, on board 202.234) and sets flip-flop B505a (OFF/ ON, on board

202.234) by a pulse (approx. 10  $\mu$ s, formed by C714 and R710 on 202.232) on line OVERFLOW to the OFF-state.

The key A sets the BA state, by this resets flip-flop B505b (I-range), and sets flip-flop B505a by a pulse (approx. 10  $\mu$ s, C713 and R712 on 202.232) to the OFF-state. Additionally this pulse activates the overflow control.

The keys C ON and C OFF set respectively reset the C ON state via  $C\sim$  and  $\bar{C}\sim$  (B522a on 202.234). They also cause the change to OFF state (pulses by C717, R713 and C715, R711 on board 202.232, each approx. 10  $\mu$ s).

After pressing the key ENTER, the debouncing flip-flop B711 on board 202.232 toggles and low appears at the output. Via an inverter the flip-flop B1306a on board 202.239 is set, so that  $S0=1$ . On release of this key, the debouncing flip-flop returns to its initial state again. Two pulses are released by the resulting positive edge on the board 202.239 : one to reset the overflow flip flops and the other one to act as clock-pulse for the display shift registers (read- in parallel), approx. 3  $\mu$ s. The second pulse is inverted. When it is finished (positive edge), flip-flop B1306 is reset, i.e.  $S0=0$  (shifting left). The positive edge appearing at Q-output generates a pulse (approx. 3  $\mu$ s) by R1306, C1305 which is applied to flip-flop B522b V/A on board 202.234 after a delay of approx. 1  $\mu$ s as START LOC-pulse. Then the shift-clock generator starts.

Resistor R20 on board 202.231 is required to enable the reset of the debouncing flip-flop, if the key is pressed in LOCAL mode but released in REMOTE mode.

#### 4.2.15 Display Shift Register

These registers on board 202.232 are storage-registers for the digital display and parallel data transfer registers for manual operation. On switching on the mains, they are cleared by the reset-pulse (R701, C710, approx. 120 ms). On bus operation (REMOTE) the data of bus shift registers are shifted left into the display registers. The pulses are applied by the shift-clock generator. The shifted-in data are now displayed in a multiplexed mode.

When the key ENTER is pressed in LOCAL mode, the registers accept the values parallel, which were set at the code switches. By starting the shift-clock generator, they are shifted via the U/I-LOCAL/REMOTE switch (B503, B504, B515) on board 202.234 into the DAC shift registers (board 202.237) B1107-B1110 and back to the display registers again. To guarantee a safe data transfer to the DAC shift registers, the display register clock is delayed via two timing circuits on board 202.239 (approx. 1  $\mu$ s, C1301, R1301 and C1302, R1302, clock delay).

#### 4.2.16 Display

The digits, stored in the display registers, are indicated in a multiplexed mode (clock timing approx. 150  $\mu$ s). Counter B702 together with the pulse generator (B711, R702, C711, on board 202.232) generates the corresponding addresses. It is led to the MUX-ICs B3, B8, B12, B17 and to the BCD-to-decimal decoder B1. By the multiplexers the bits of the actual address are switched to the 7-segment driver B2 on display card 202.231. According to the unit model, the decimal point in the voltage display is switched in a different way. The decimal points in the current display are switched on and off according to current range and unit model.

#### 4.2.17 Overflow Control

On board 202.232 it is checked, whether the programmed current and voltage values are within the specified range. Therefore the digits 8000/4000/2000/1000 (voltage) and the digits 800/400/200/100 (current) are compared with fixed values by two 4-bit comparators B716 and B707. This control is activated (for current only within the A-range) after

- shift generator running off by the pulse STROBE,
- programming the range by the pulse WAIT (By C716, R709 shortened to approx. 10  $\mu$ s),
- pressing the key A (signal BA by C713, R712 formed as pulse, approx. 10  $\mu$ s).

When an overflow is detected, both flip-flops B701a and B701b store it and the signal OVERFLOW goes high. This signal is transferred to board 202.231 and the overflow pulse generator B3 is switched on. Via the enable inputs of the display-address decoder B1, the display starts flashing ( $f$  approx. = 3.5 Hz). At the same time the NGPV turns to OFF state, since the signal OVERFLOW resets flip-flop B505a (OFF/ON) on board 202.234 into the OFF state.

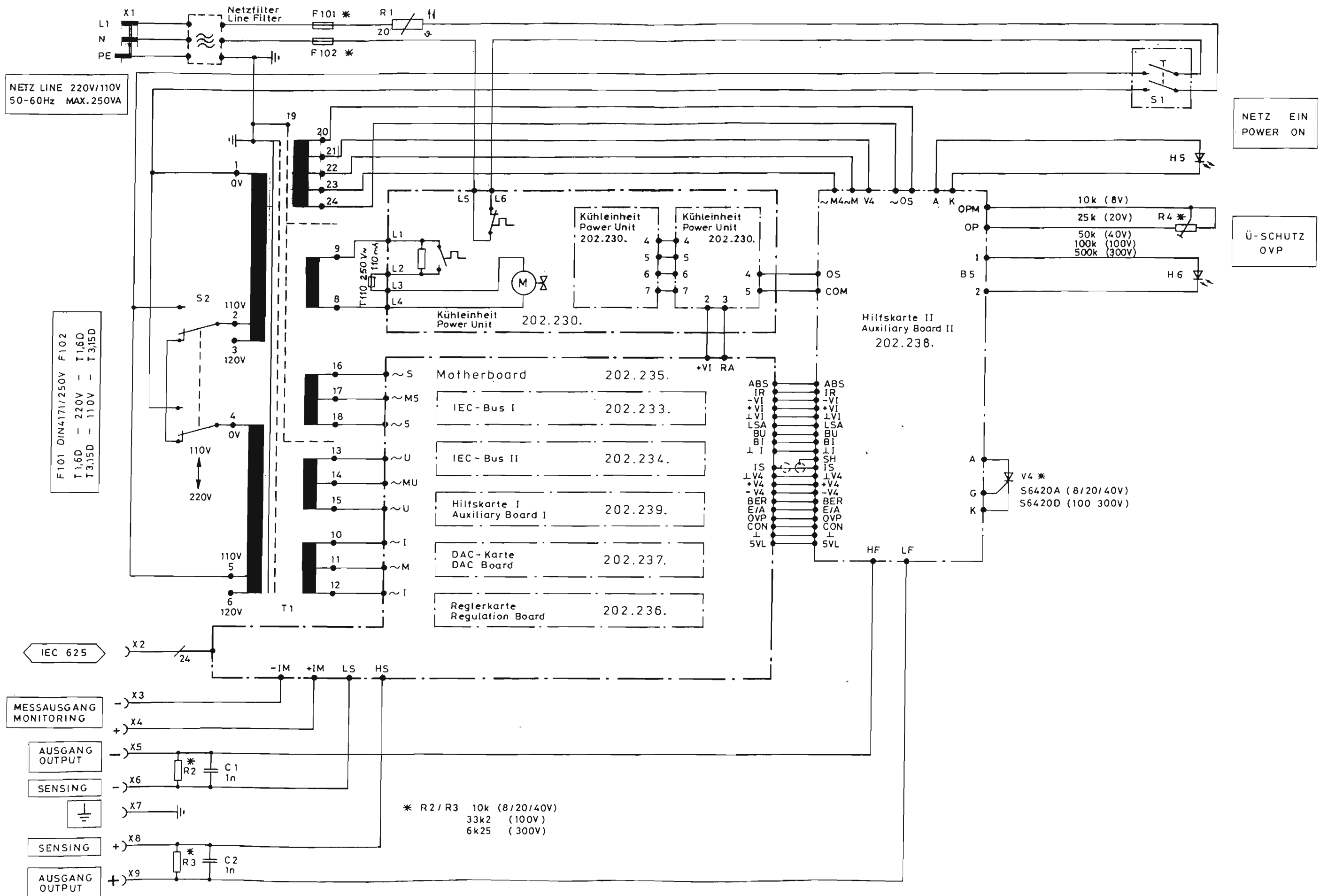
The overflow flip-flops B701a and b are reset when

- the mains is switched on,
- the characters V or A are accepted,
- the key ENTER is pressed.

#### 4.2.18 Single LEDs

The LEDs are on board 202.231, flip-flop B1213a is on board 202.233, flip-flops B509a, B522a, B505a and B505b are on the board 202.234.

ADDR indicates that the unit is addressed, i.e. B1213a is set.  
LOCAL indicates the state LOCAL, i.e. B509a is not set.  
C ON indicates that the output capacitor is switched on, i.e. B522a is set.  
ON indicates that the unit is in ON state, i.e. B505a is set.  
OVP indicates that the overflow protection has reacted.  
mA indicates the mA-range, i.e. B505b is set.  
A indicates the A-range, i.e. B505b is not set.  
MODE the left LED indicates constant voltage operation, i.e. status bit ZB = 1,  
the right LED indicates constant current operation, i.e. status bit ZB = 0.



NETZ LINE 220V/110V  
50-60Hz MAX.250VA

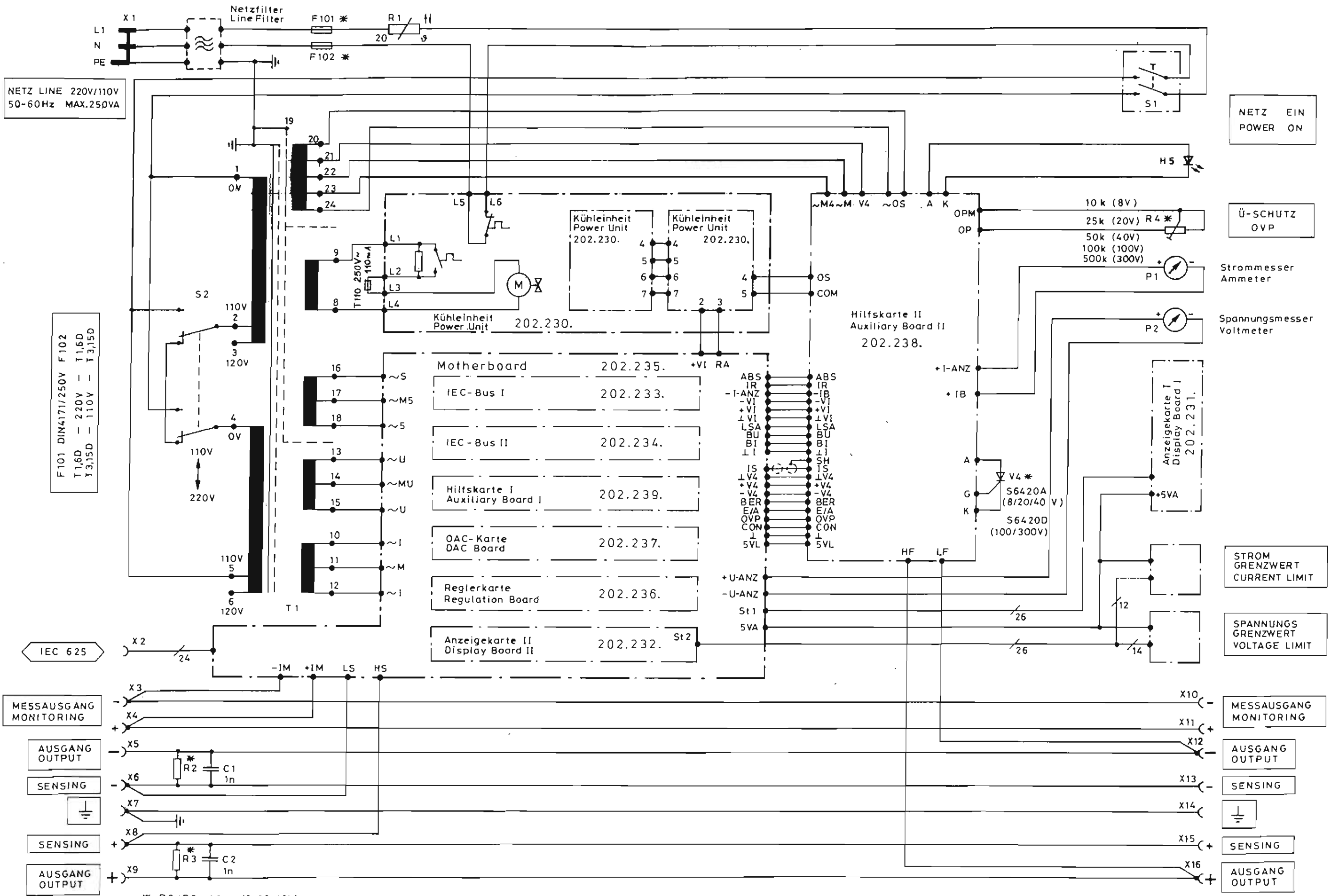
F101 DIN4171/250V F102  
T1,6D - 220V - T1,6D  
T3,15D - 110V - T3,15D

NETZ EIN  
POWER ON

Ü-SCHUTZ  
OVP

\* R2/R3 10k (8/20/40V)  
33k2 (100V)  
6k25 (300V)

	Zeichn.-Nr.	192. 0310. 30	Benennung	Gesamtstromlauf 100 W Overall Circuit Diagram	Platine-Nr.	Blatt-Nr.	
		192. 0310. 10					192. 0310. 40
		192. 0310. 20					192. 0310. 80
				zu Gerät:	NGPV		



F101 DIN4171/250V F102  
 T1,6D - 220V - T1,6D  
 T3,15D - 110V - T3,15D

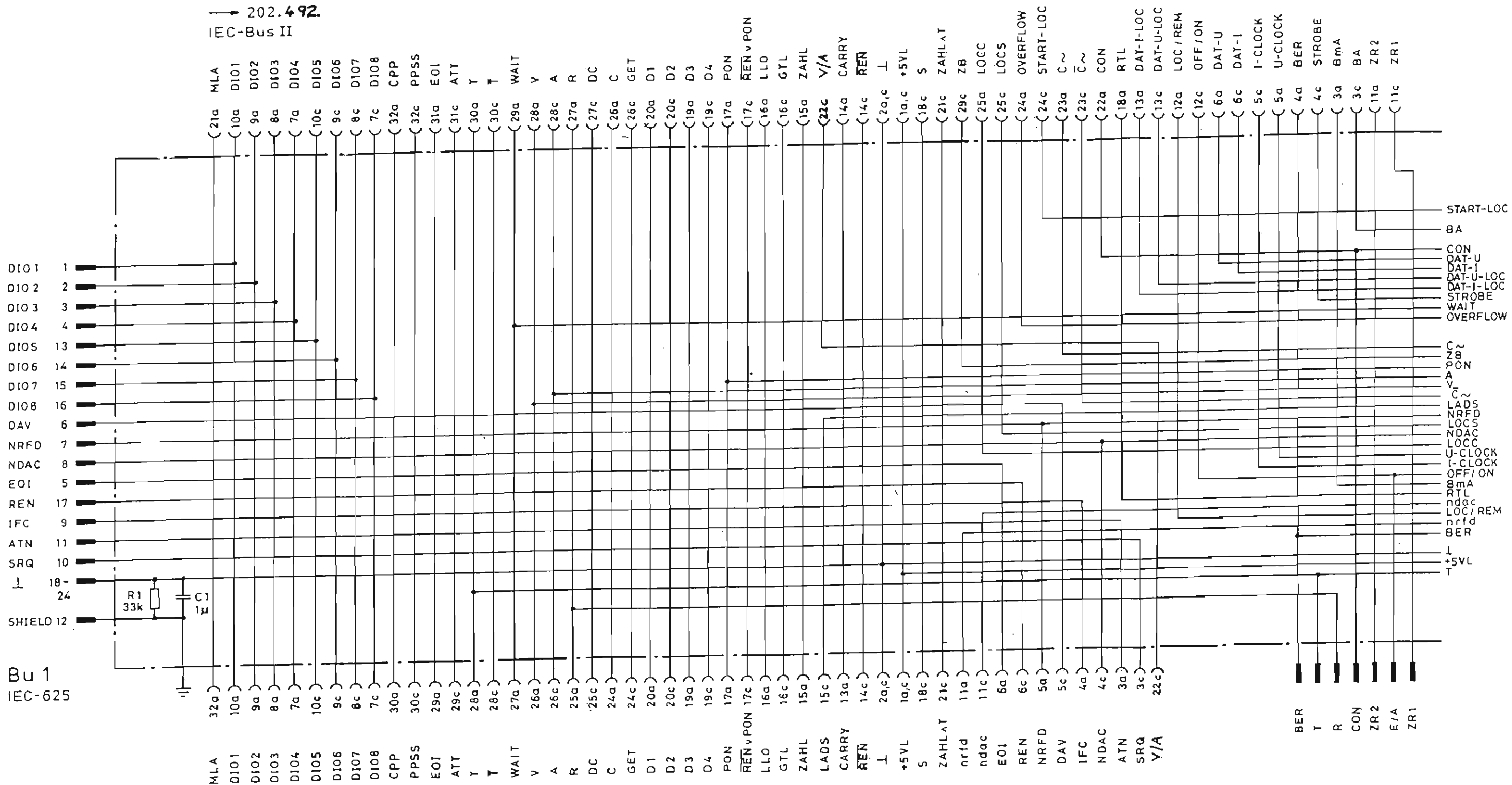
\* R2/R3 10k (8/20/40V)  
 33k2 (100V)

	Zeichn.-Nr.	192. 0310. 31	Benennung	Gesamtstromlauf 100 W	Platine-Nr.	
		192. 0310. 11		Overall Circuit Diagram		
		192. 0310. 21				
			zu Gerät:	NGPV		Blatt-Nr. 5.1.1

Bu 3

→ 202.492

IEC-Bus II



Bu 1  
IEC-625

Bu 2

→ 202.491

IEC-Bus I



Zeichn.-Nr.

Benennung  
Motherboard

Blatt 1 - 3  
Street 1 - 3

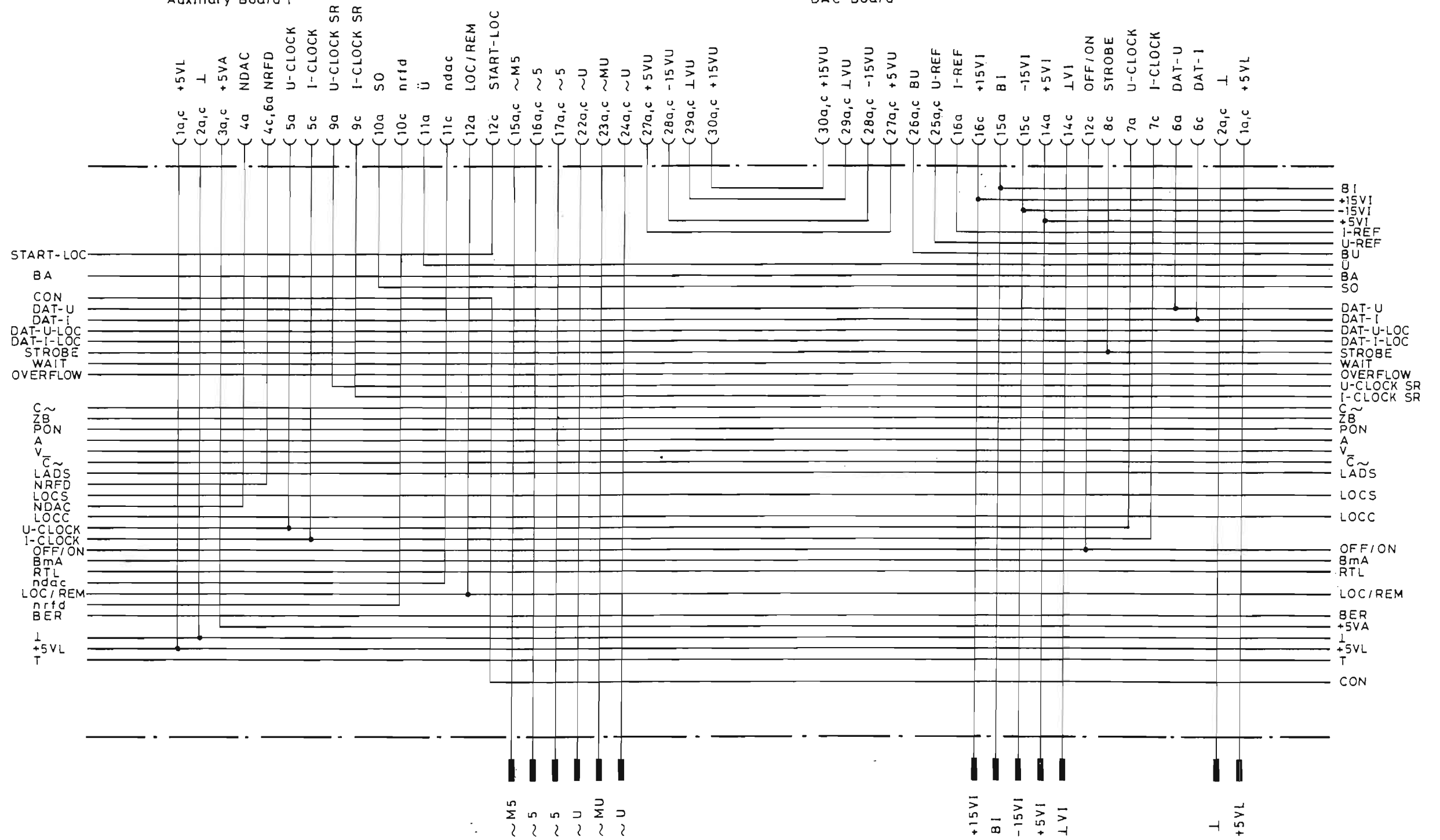
Platine-Nr.  
202. 235.


Blatt-Nr.  
5.2

zu Gerät: NGPV

Bu 4  
 → 202.239.  
 Hilfskarte I  
 Auxiliary Board I

Bu 5  
 → 202.237.  
 DAC-Karte  
 DAC Board

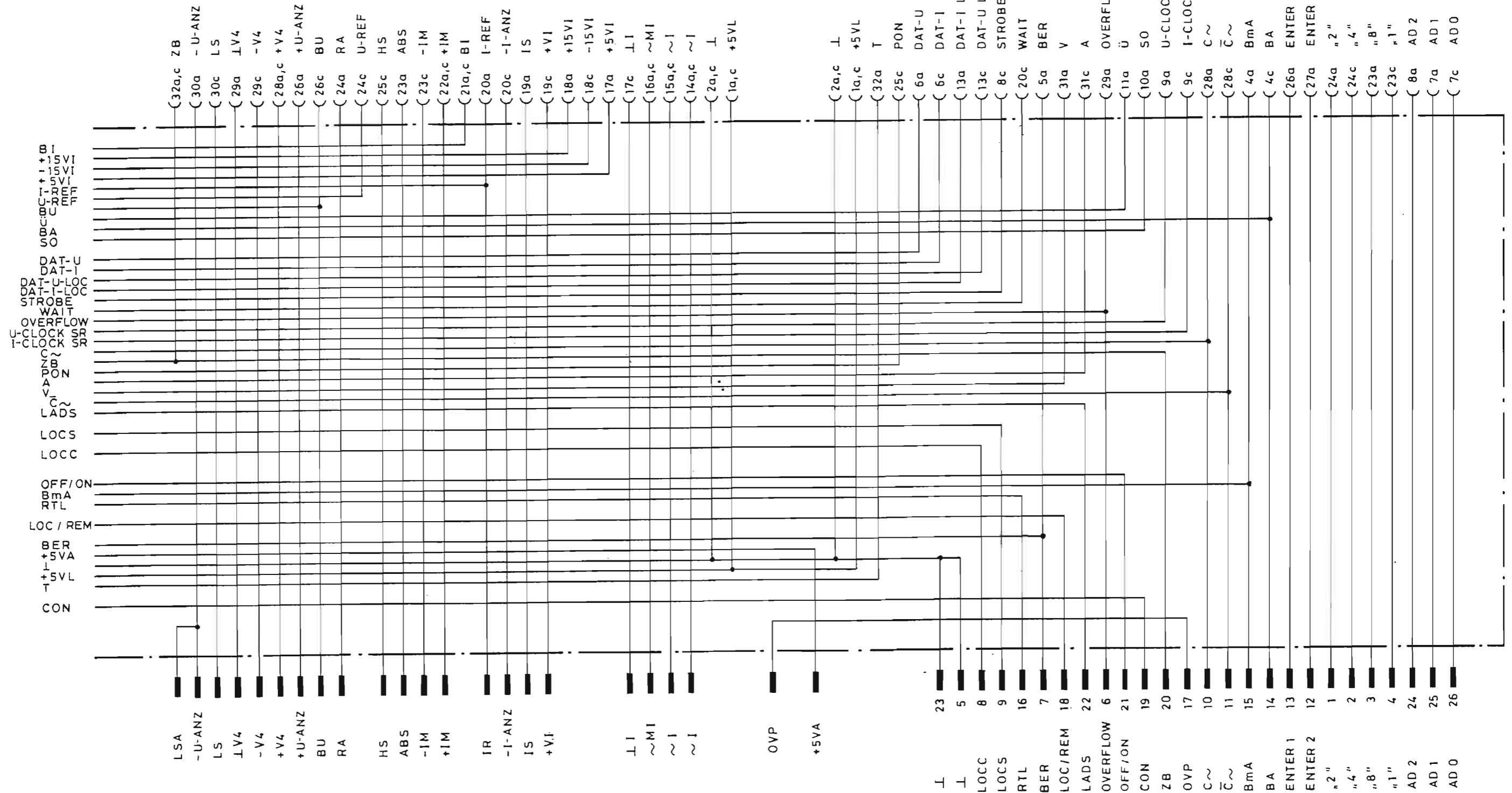


 <b>ROHDE &amp; SCHWARZ</b>	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Motherboard	202. 235.	5.2.1
		zu Gerät:	NGPV	



Bu 6  
 → 202.236.  
 Reglerkarte  
 Regulation Board

Bu 7  
 → 202.232.  
 Anzeigekarte II  
 Display Board II



St 1  
 → 202.231.  
 Anzeigekarte I  
 Display Board I

	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Motherboard	202. 235.	5.2.2
		zu Gerät: NGPV		

 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	Motherboard		202. 235.	
zu Gerät:			NGPV	





Bestückungsplan  
Component Location Plan


Zeichn.-Nr.


Blatt-Nr.

5. 2. 3


		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	NGPV20/5 MIT INSTRUMENTEN	192.0310.21	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Motherboard NGPV m.Instr.kompl				010.072.00	
10	IEC I Karte NGPV kompl. ab August 2000 IEC-Board I				010.591.00	
15	NGPV Drähte Hilfsk.100W 20/40V Diverse Drähte Cable for Auxiliary bord Various cables				040.077.00	
20	NGPV Drähte Kühler 100W < 40V Diverse Drähte Cable for power unit Various cables				040.080.00	
25	NGPV Drähte Frontpl.100W < 40V Diverse Drähte Cable for front panel Various cables				040.082.00	
30	NGPV Drähte Motherb.100W < 40V Diverse Drähte Cable for motherboard Various cables				040.084.00	
35	NGPV Drähte Rückpl. 100W Diverse Drähte Cable for rear panel Various cables				040.085.00	
40	NGPV Flachver,Kodierschal.100W Flachkabel Verbindung cable connector coding switch				040.086.00	
45	IEC II Karte NGPV/NGPE kompl. ab August 2000 IEC Board II				010.592.00	
50	Anzeigek.I NGPV 20,40,300Vkompl				010.075.00	
55	Anzeigekarte II NGPV kompl. Display Board II				010.078.00	
60	Reglerkarte NGPV100W 20V kompl Regulator Board complete				010.080.00	
65	DAC Karte NGPV100W 20V kompl.				010.085.00	
70	Hilfskarte I NGPV kompl. Auxiliary Board				010.087.00	
75	Hilf.II NGPV100W20V m.Ins.komp				010.089.00	
80	Kühlereinh.NGPV100W 20V kompl. power unit complete				015.016.00	
85	Frontplatte NGPV100W 20V kompl Front panel complete				020.002.00	
90	Rückwanne NGPV100W 8/20/40V ko Rear panel complete				025.001.00	
95	Grundgerät NGPV100W 20V Basic Device				030.002.00	
100	Frontplatte mech. NGPV20/5 Front panel mechanical				021.010.00	
105	Rückwanne mech. NGPV 100W Rear panel mechanical complete				026.001.00	
110	Grundgerät mech.NGPV 100W m.In Basic Device mechanical with instruments				031.001.00	
115	Beplankung BW 80 3HE kurz Perf				205.009.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
Position Nr. Position NO.		A	04.04	NGPV20/5 MIT INSTRUMENTEN	192.0310.21	2 von 2	
		Benennung / Beschreibung Designation				Sachnummer Stock NO.	
		=KK 085.1459 planking BW 80 3HE short perf. =KK 085.1459					
120		Verpackung kompl. NGPV 100W Packaging complete				055.030.00	
125		NGPV Wechselspann. 100W < 40V Kabelbaum alternating voltage cable harness				040.051.00	
130		NGPV Netz m.J 100W alleV Kabelbaum Net cable harness				040.052.00	
135		NGPV Analog m.J 100W < 40V Kabelbaum analoque cable harness				040.055.00	
140		NGPV Logig m.J 100W < 40V Kabelbaum cable harness				040.059.00	
145		NGPV OVP m.J 100W < 40V Kabelbaum cable harness				040.063.00	
150		NGPV Force m.J 100W < 40V Kabelbaum cable harness				040.067.00	
155		NGPV Hilfs.V4 100W < 40V Kabelbaum cable harness				040.071.00	
160		NGPV Meß.Sense m.J 100W < 40V Kabelbaum cable harness				040.073.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	NGPV20/5 GLATTE FRONTPLATTE	192.0310.20	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer	Stock NO.
5	Motherboard NGPV o.Instr.kompl			010.103.00	
10	IEC I Karte NGPV kompl. ab August 2000 IEC-Board I			010.591.00	
15	NGPV Drähte Motherb.100W < 40V Diverse Drähte Cable for motherboard Various cables			040.084.00	
20	NGPV Drähte Rückpl. 100W Diverse Drähte Cable for rear panel Various cables			040.085.00	
25	IEC II Karte NGPV/NGPE kompl. ab August 2000 IEC Board II			010.592.00	
30	Reglerkarte NGPV100W 20V kompl Regulator Board complete			010.080.00	
35	DAC Karte NGPV100W 20V kompl.			010.085.00	
40	Hilfskarte I NGPV kompl. Auxiliary Board			010.087.00	
45	Hilf.II NGPV100W20V o.Ins.komp			010.114.00	
50	Kühlerein.h.NGPV100W 20V kompl. power unit complete			015.016.00	
55	Frontplatte NGPV20V o.In.kompl Front panel complete without instruments			020.007.00	
60	Rückwanne NGPV100W 8/20/40V ko Rear panel complete			025.001.00	
65	Grundgerät NGPV100W 20V Basic Device			030.002.00	
70	Frontpl.mech. NGPV20/5 o.Instr Front panel mechanical without instruments			021.019.00	
75	Rückwanne mech. NGPV20/5 o.In. Rear panel mechanical without instruments			026.005.00	
80	Grundgerät mech.NGPV 100W o.In Basic Device mechanical without instruments			031.003.00	
85	Beplankung BW 80 3HE kurz Perf =KK 085.1459 planking BW 80 3HE short perf. =KK 085.1459			205.009.00	
90	Verpackung kompl. NGPV 100W Packaging complete			055.030.00	
95	NGPV Wechselspann. 100W < 40V Kabelbaum alternating voltage cable harness			040.051.00	
100	NGPV Netz o.J 100W alleV Kabelbaum Net cable harness			040.053.00	
105	NGPV Analog o.J 100W < 40V Kabelbaum analogue cable harness			040.057.00	
110	NGPV Logig o.J 100W < 40V Kabelbaum cable harness			040.061.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
115		NGPV ÖVP	o.J 100W < 40V			040.065.00
		Kabelbaum				
		cable harness				
120		NGPV Force	0.J 100W < 40V			040.069.00
		Kabelbaum				
		cable harness				
125		NGPV Hilfs.V4	100W < 40V			040.071.00
		Kabelbaum				
		cable harness				
130		NGPV Meß.Sens	o.J100+200W<40V			040.075.00
		Kabelbaum				
		cable harness				
135		NGPV Drähte Hilfsk.	100W 20/40V			040.077.00
		Diverse Drähte				
		Cable for Auxiliary bord				
		Various cables				
140		NGPV Drähte Kühler	100W < 40V			040.080.00
		Diverse Drähte				
		Cable for power unit				
		Various cables				

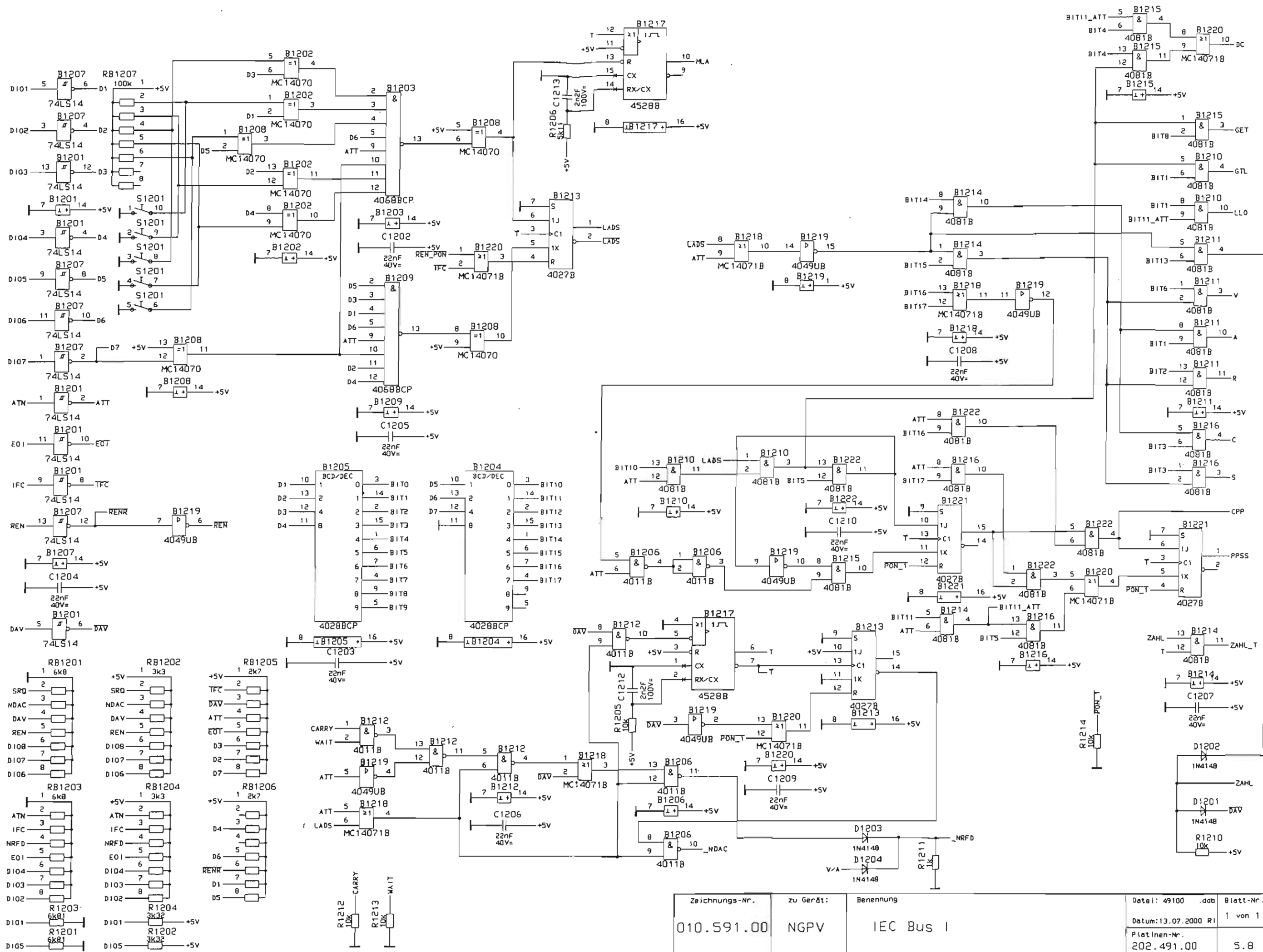
ROHDE & SCHWARZ		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Motherboard NGPV m.Instr.kompl	010.072.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Platine Motherboard NGPV PCB			202.235.04	
10		M 3 * 10 DIN 7985 V2a Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws			712.052.00	
15		B 3.2 DIN 433 V2a Scheibe washers for cheese head screws			712.069.00	
20		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated			712.022.00	
25		A 3,2 DIN 6797 V2a Zahnscheibe External teeth toothed lock washers			712.061.00	
30		B 3,5 DIN 127 verz. Federring Single coil spring lock washers zinc plated			713.003.00	
35		Lötstift verzinnt u. magaz. Solderpin			819.006.00	
40		2.5*6 DIN 6791 Al Niete rivet			711.011.00	
45		2.5*8 DIN 6791 Al Niete rivet			711.012.00	
50		2.5*10 DIN 6791 Al Niete rivet			711.013.00	
55	BU1	IEC 625 Buchse Printstifte Multipoint connector			423.102.00	
60	BU1	IEC625 Schraube M3,5/6-32UNC2B Screw			730.082.00	
65	BU2	Buchsenleiste 64pol. a+c contact strip			423.106.00	
70	BU3	Buchsenleiste 64pol. a+c contact strip			423.106.00	
75	BU4	Buchsenleiste 64pol. a+c contact strip			423.106.00	
80	BU5	Buchsenleiste 64pol. a+c contact strip			423.106.00	
85	BU6	Buchsenleiste 64pol. a+c contact strip			423.106.00	
90	BU7	Buchsenleiste 64pol. a+c contact strip			423.106.00	
95	C1	1uF 100V RM15 Konden. Synthetic-foil capacitor			412.024.00	
100	R1	33k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.068.00	
105	St1	Steckerl.26pol.Print gew.m.Aus Multipoint connector			423.231.00	

 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Motherboard NGPV o.Instr.kompl	010.103.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Platine Motherboard NGPV PCB	202.235.04
10		M 3 * 10 DIN 7985 V2a Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws	712.052.00
15		B 3,2 DIN 433 V2a Scheibe washers for cheese head screws	712.069.00
20		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	712.022.00
25		A 3,2 DIN 6797 V2a Zahnscheibe External teeth toothed lock washers	712.061.00
30		B 3,5 DIN 127 verz. Federring Single coil spring lock washers zinc plated	713.003.00
35		Lötstift verzinnt u. magaz. Solderpin	819.006.00
40		2.5*6 DIN 6791 Al Niete rivet	711.011.00
45		2.5*8 DIN 6791 Al Niete rivet	711.012.00
50	BU1	IEC625 Schraube M3,5/6-32UNC2B Screw	730.082.00
55	BU2	Buchsenleiste 64pol. a+c contact strip	423.106.00
60	BU3	Buchsenleiste 64pol. a+c contact strip	423.106.00
65	BU4	Buchsenleiste 64pol. a+c contact strip	423.106.00
70	BU5	Buchsenleiste 64pol. a+c contact strip	423.106.00
75	BU6	Buchsenleiste 64pol. a+c contact strip	423.106.00
80	C1	1uF 100V RM15 Konden. Synthetic-foil capacitor	412.024.00
85	R1	33k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.068.00
90	X1	IEC 625 Buchse Printstifte Multipoint connector	423.102.00



- ST1201
- 1A +5V
  - 1C +5V
  - 2A
  - 2C
  - 3A ATN
  - 3C SRD
  - 4A IFC
  - 4C NDAC
  - 5A NRFD
  - 5C DAV
  - 6A E01
  - 6C REN
  - 7A D104
  - 7C D108
  - 8A D103
  - 8C D107
  - 9A D102
  - 9C D106
  - 10A D101
  - 10C D105
  - 11A NRFD
  - 11C NDAC
  - 12A
  - 13A CARRY
  - 13C
  - 14A
  - 14C
  - 15A REN
  - 15C ZAHL
  - 16A LADS
  - 16C LLO
  - 17A GTL
  - 17C PON\_T
  - 18A REN\_PON
  - 18C
  - 19A S
  - 19C D3
  - 20A D4
  - 20C D1
  - 21A D2
  - 21C
  - 22A ZAHL\_T
  - 22C V/A
  - 23A
  - 23C
  - 24A C
  - 24C GET
  - 25A R
  - 25C DC
  - 26A V
  - 26C
  - 27A A
  - 27C
  - 28A WAIT
  - 28C
  - 29A T
  - 29C
  - 30A ATT
  - 30C CPP
  - 31A PP55
  - 31C
  - 32A M.LA
  - 32C M.LA




Zeichnungs-Nr.	zu Gerät:	Benennung	Datell: 49100 .ddb	Blatt-Nr.
010.591.00	NGPV	IEC Bus I	Datum: 13.07.2000 RI	1 von 1
			Platinen-Nr.	5.8
			202.491.00	




<b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	IEC I Karte NGPV kompl.	010.591.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	


5		Platine IEC I NGPV PCB IEC I	202.491.00
10		2.5*10 DIN 6791 Al Niete rivet	711.013.00
15	B1201	IC Fassung 14pol. Socket for IC	423.042.00
20	B1201	SN74LS14N IC TTL Hex inverter schmitt trigger	430.056.00
25	B1202	IC Fassung 14pol. Socket for IC	423.042.00
30	B1202	MC14070BCP IC CMOS Quad 2 input exclusive-OR	430.074.00
35	B1203	IC Fassung 14pol. Socket for IC	423.042.00
40	B1203	MC14068BCP IC CMOS 8 input NAND	430.075.00
45	B1204	IC Fassung 16pol. Socket for IC	423.057.00
50	B1204	MC14028BCP IC CMOS BCD to decimal decoder	430.076.00
55	B1205	IC Fassung 16pol. Socket for IC	423.057.00
60	B1205	MC14028BCP IC CMOS BCD to decimal decoder	430.076.00
65	B1206	MC14011BCP IC CMOS Quad 2 input NAND	430.098.00
70	B1206	IC Fassung 14pol. Socket for IC	423.042.00
75	B1207	IC Fassung 14pol. Socket for IC	423.042.00
80	B1207	SN74LS14N IC TTL Hex inverter schmitt trigger	430.056.00
85	B1208	IC Fassung 14pol. Socket for IC	423.042.00
90	B1208	MC14070BCP IC CMOS Quad 2 input exclusive-OR	430.074.00
95	B1209	IC Fassung 14pol. Socket for IC	423.042.00
100	B1209	MC14068BCP IC CMOS 8 input NAND	430.075.00
105	B1210	IC Fassung 14pol. Socket for IC	423.042.00
110	B1210	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
115	B1211	IC Fassung 14pol. Socket for IC	423.042.00
120	B1211	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
125	B1212	MC14011BCP IC CMOS Quad 2 input NAND	430.098.00
130	B1212	IC Fassung 14pol. Socket for IC	423.042.00
135	B1213	IC Fassung 16pol.	423.057.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC I Karte NGPV kompl.	010.591.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		Socket for IC	
140	B1213	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
145	B1214	IC Fassung 14pol. Socket for IC	423.042.00
150	B1214	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
155	B1215	IC Fassung 14pol. Socket for IC	423.042.00
160	B1215	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
165	B1216	IC Fassung 14pol. Socket for IC	423.042.00
170	B1216	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
175	B1217	IC Fassung 16pol. Socket for IC	423.057.00
180	B1217	MC14528BCP IC CMOS Dual monostabile multivibrator	430.083.00
185	B1218	IC Fassung 14pol. Socket for IC	423.042.00
190	B1218	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
195	B1219	IC Fassung 16pol. Socket for IC	423.057.00
200	B1219	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
205	B1220	IC Fassung 14pol. Socket for IC	423.042.00
210	B1220	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
215	B1221	IC Fassung 16pol. Socket for IC	423.057.00
220	B1221	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
225	B1222	IC Fassung 14pol. Socket for IC	423.042.00
230	B1222	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
235	C1201	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
240	C1202	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
245	C1203	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
250	C1204	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
255	C1205	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
260	C1206	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
265	C1207	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
270	C1208	22nF 40V RM2,5 EGPU Konden.	412.051.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	08.04	IEC I Karte NGPV kompl.	010.591.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer	Stock NO.


		Ceramic capacitor	
275	C1209	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
280	C1210	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
285	C1212	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.021.00
290	C1213	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.021.00
295	D1201	1N4148 Diode 75V 150mA DO35 G	436.025.00
300	D1202	1N4148 Diode 75V 150mA DO35 G	436.025.00
305	D1203	1N4148 Diode 75V 150mA DO35 G	436.025.00
310	R1201	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
315	R1202	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
320	R1203	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
325	R1204	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
330	R1205	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R1206	5k11 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.075.00
340	R1210	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
345	R1211	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
350	R1212	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
355	R1213	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R1214	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
365	RB1201	6k8 SIL 7f.R.Netzw. 2% resistor network val 682	406.001.00
370	RB1202	3k3 SIL 7f.R.Netzw. 2% resistor network val 332	406.002.00
375	RB1203	6k8 SIL 7f.R.Netzw. 2% resistor network val 682	406.001.00
380	RB1204	3k3 SIL 7f.R.Netzw. 2% resistor network val 332	406.002.00
385	RB1205	2k7 SIL 7f.R.Netzw. 2% resistor network val 272	406.009.00
390	RB1206	2k7 SIL 7f.R.Netzw. 2% resistor network val 272	406.009.00
395	RB1207	100k SIL 7f.R.Netzw. 2% resistor network val 104	406.010.00
400	S1201	DIP Schalter 5Fach flach DIP switch	422.011.00
405	St1201	Steckerleiste 64pol. a+c	423.104.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC I Karte NGPV kompl.	010.591.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		DIP switch	
410	St1201	Steckerleiste 64pol. a+c Multipoint connector	423.104.00

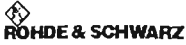
 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC I Karte NGPV kompl.	010.591.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Platine IEC I NGPV PCB IEC I	202.491.00
10		2.5*10 DIN 6791 Al Niete rivet	711.013.00
15	B1201	IC Fassung 14pol. Socket for IC	423.042.00
20	B1201	SN74LS14N IC TTL Hex inverter schmitt trigger	430.056.00
25	B1202	IC Fassung 14pol. Socket for IC	423.042.00
30	B1202	MC14070BCP IC CMOS Quad 2 input exclusive-OR	430.074.00
35	B1203	IC Fassung 14pol. Socket for IC	423.042.00
40	B1203	MC14068BCP IC CMOS 8 input NAND	430.075.00
45	B1204	IC Fassung 16pol. Socket for IC	423.057.00
50	B1204	MC14028BCP IC CMOS BCD to decimal decoder	430.076.00
55	B1205	IC Fassung 16pol. Socket for IC	423.057.00
60	B1205	MC14028BCP IC CMOS BCD to decimal decoder	430.076.00
65	B1206	MC14011BCP IC CMOS Quad 2 input NAND	430.098.00
70	B1206	IC Fassung 14pol. Socket for IC	423.042.00
75	B1207	IC Fassung 14pol. Socket for IC	423.042.00
80	B1207	SN74LS14N IC TTL Hex inverter schmitt trigger	430.056.00
85	B1208	IC Fassung 14pol. Socket for IC	423.042.00
90	B1208	MC14070BCP IC CMOS Quad 2 input exclusive-OR	430.074.00
95	B1209	IC Fassung 14pol. Socket for IC	423.042.00
100	B1209	MC14068BCP IC CMOS 8 input NAND	430.075.00
105	B1210	IC Fassung 14pol. Socket for IC	423.042.00
110	B1210	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
115	B1211	IC Fassung 14pol. Socket for IC	423.042.00
120	B1211	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
125	B1212	MC14011BCP IC CMOS Quad 2 input NAND	430.098.00
130	B1212	IC Fassung 14pol. Socket for IC	423.042.00
135	B1213	IC Fassung 16pol.	423.057.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC I Karte NGPV kompl.	010.591.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.

		Socket for IC	
140	B1213	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
145	B1214	IC Fassung 14pol. Socket for IC	423.042.00
150	B1214	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
155	B1215	IC Fassung 14pol. Socket for IC	423.042.00
160	B1215	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
165	B1216	IC Fassung 14pol. Socket for IC	423.042.00
170	B1216	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
175	B1217	IC Fassung 16pol. Socket for IC	423.057.00
180	B1217	MC14528BCP IC CMOS Dual monostabile multivibrator	430.083.00
185	B1218	IC Fassung 14pol. Socket for IC	423.042.00
190	B1218	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
195	B1219	IC Fassung 16pol. Socket for IC	423.057.00
200	B1219	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
205	B1220	IC Fassung 14pol. Socket for IC	423.042.00
210	B1220	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
215	B1221	IC Fassung 16pol. Socket for IC	423.057.00
220	B1221	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
225	B1222	IC Fassung 14pol. Socket for IC	423.042.00
230	B1222	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
235	C1201	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
240	C1202	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
245	C1203	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
250	C1204	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
255	C1205	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
260	C1206	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
265	C1207	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
270	C1208	22nF 40V RM2,5 EGPU Konden.	412.051.00



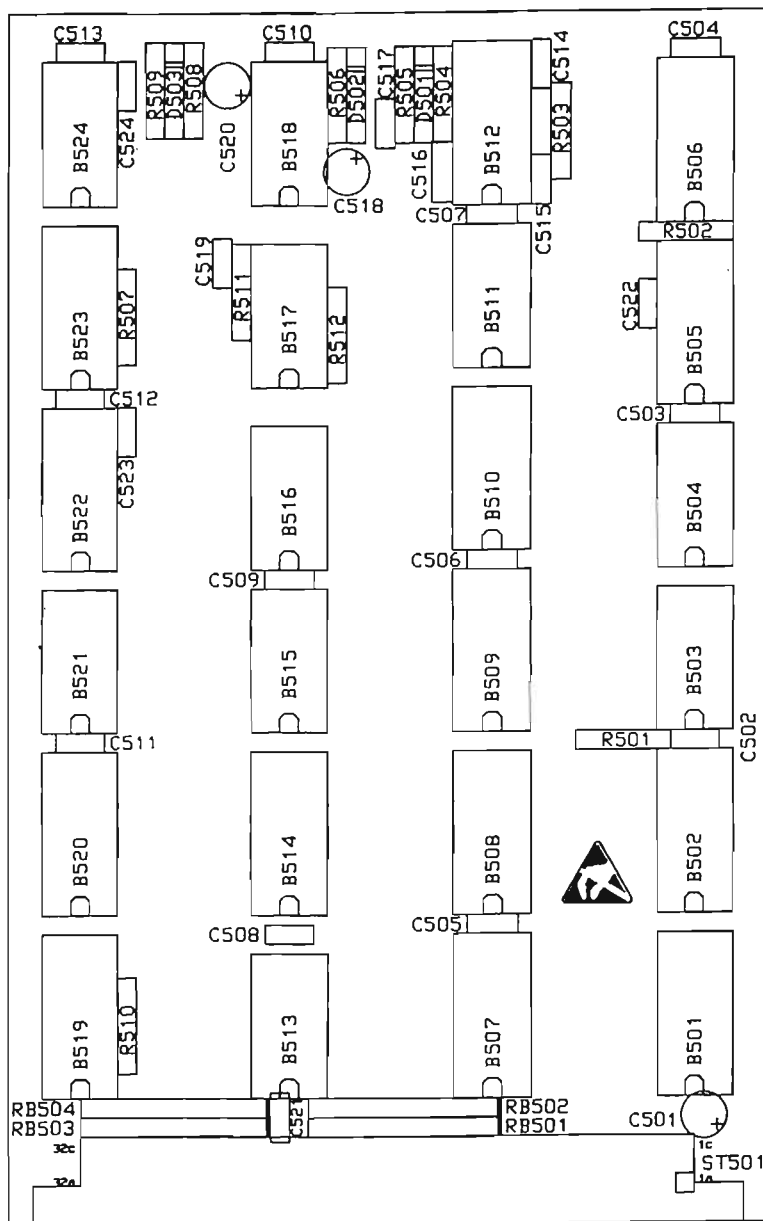
		AZ A	Datum Date 08.04	Bauteilliste für Parts list for IEC I Karte NGPV kompl.	Sachnummer Stock NO. 010.591.00	Blatt Page 3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	

		Ceramic capacitor	
275	C1209	22nF 40V RM2,5 EGPU Kondens. Ceramic capacitor	412.051.00
280	C1210	22nF 40V RM2,5 EGPU Kondens. Ceramic capacitor	412.051.00
285	C1212	2,2nF 100V RM2,5 EGPU Kondens. Ceramic capacitor	412.021.00
290	C1213	2,2nF 100V RM2,5 EGPU Kondens. Ceramic capacitor	412.021.00
295	D1201	1N4148 Diode 75V 150mA DO35 G	436.025.00
300	D1202	1N4148 Diode 75V 150mA DO35 G	436.025.00
305	D1203	1N4148 Diode 75V 150mA DO35 G	436.025.00
310	R1201	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
315	R1202	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
320	R1203	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
325	R1204	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
330	R1205	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R1206	5k11 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.075.00
340	R1210	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
345	R1211	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
350	R1212	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
355	R1213	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R1214	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
365	RB1201	6k8 SIL 7f.R.Netzw. 2% resistor network val 682	406.001.00
370	RB1202	3k3 SIL 7f.R.Netzw. 2% resistor network val 332	406.002.00
375	RB1203	6k8 SIL 7f.R.Netzw. 2% resistor network val 682	406.001.00
380	RB1204	3k3 SIL 7f.R.Netzw. 2% resistor network val 332	406.002.00
385	RB1205	2k7 SIL 7f.R.Netzw. 2% resistor network val 272	406.009.00
390	RB1206	2k7 SIL 7f.R.Netzw. 2% resistor network val 272	406.009.00
395	RB1207	100k SIL 7f.R.Netzw. 2% resistor network val 104	406.010.00
400	S1201	DIP Schalter 5Fach flach DIP switch	422.011.00
405	St1201	Steckerleiste 64pol. a+c	423.104.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC I Karte NGPV kompl.	010.591.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer	Stock NO.

		DIP switch	
410	St1201	Steckerleiste 64pol. a+c Multipoint connector	423.104.00







Zeichnungs-Nr. 010.592.00	zu Gerät: NGPV	Benennung Bestückungsplan Component Location Plan IEC Bus II	Platine-Nr. 202.492.02	Blatt-Nr. 1 von 1
				5.9.1

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	08.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Platine IEC II NGPV/NGPE PCB IEC II	202.492.02
10		2.5*10 DIN 6791 Al Niete rivet	711.013.00
15	B501	IC Fassung 16pol. Socket for IC	423.057.00
20	B501	SN74145N IC TTL BCD to decimal decoder/driv OC	430.073.00
25	B502	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
30	B502	IC Fassung 16pol. Socket for IC	423.057.00
35	B503	MC14073BCP IC CMOS Triple 3 input AND	430.087.00
40	B503	IC Fassung 14pol. Socket for IC	423.042.00
45	B504	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
50	B504	IC Fassung 14pol. Socket for IC	423.042.00
55	B505	IC Fassung 16pol. Socket for IC	423.057.00
60	B505	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
65	B506	MC14163BCP IC CMOS Synchron. 4 bit binary counter	430.085.00
70	B506	IC Fassung 16pol. Socket for IC	423.057.00
75	B507	IC Fassung 16pol. Socket for IC	423.057.00
80	B507	SN74LS175N IC TTL Quad D-type flip-flop w.clear	430.065.00
85	B508	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
90	B508	IC Fassung 16pol. Socket for IC	423.057.00
95	B509	IC Fassung 16pol. Socket for IC	423.057.00
100	B509	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
105	B510	IC Fassung 16pol. Socket for IC	423.057.00
110	B510	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
115	B511	MC14023BCP IC CMOS Triple 3 input NAND	430.086.00
120	B511	IC Fassung 14pol. Socket for IC	423.042.00
125	B512	MC14528BCP IC CMOS Dual monostabile multivibrator	430.083.00
130	B512	IC Fassung 16pol. Socket for IC	423.057.00
135	B513	MC14071BCP IC CMOS	430.082.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		Quad 2 input OR	
140	B513	IC Fassung 14pol. Socket for IC	423.042.00
145	B514	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
150	B514	IC Fassung 16pol. Socket for IC	423.057.00
155	B515	IC Fassung 14pol. Socket for IC	423.042.00
160	B515	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
165	B516	MC14075BCP IC CMOS Double buff. Triple 3 input OR	430.092.00
170	B516	IC Fassung 14pol. Socket for IC	423.042.00
175	B517	IC Fassung 14pol. Socket for IC	423.042.00
180	B517	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
185	B518	MC14584BCP IC CMOS Hex invert.buffer schmitt trig	430.130.00
190	B518	IC Fassung 14pol. Socket for IC	423.042.00
195	B519	MC14585BCP IC CMOS 4 bit magnitude comparator	430.089.00
200	B519	IC Fassung 16pol. Socket for IC	423.057.00
205	B520	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
210	B520	IC Fassung 16pol. Socket for IC	423.057.00
215	B521	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
220	B521	IC Fassung 14pol. Socket for IC	423.042.00
225	B522	IC Fassung 16pol. Socket for IC	423.057.00
230	B522	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
235	B523	IC Fassung 16pol. Socket for IC	423.057.00
240	B523	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
245	B524	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
250	B524	IC Fassung 14pol. Socket for IC	423.042.00
255	C501	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
260	C502	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
265	C503	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
270	C504	22nF 40V RM2,5 EGPU Konden.	412.051.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for IEC II Karte NGPV/NGPE kompl.	Sachnummer Stock NO. 010.592.00	Blatt Page 3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	


		Ceramic capacitor	
275	C505	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
280	C506	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
285	C507	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
290	C508	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
295	C509	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
300	C510	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
305	C511	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
310	C512	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
315	C513	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
320	C514	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
325	C515	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.021.00
330	C516	100nF 63V RM5 MKT Konden. Synthetic-foil capacitor	412.052.00
335	C517	220pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.022.00
340	C518	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
345	C519	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
350	C520	22uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.073.00
355	C521	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
360	C522	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
365	C523	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
370	C524	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
375	D501	1N4148 Diode 75V 150mA DO35 G	436.025.00
380	D502	1N4148 Diode 75V 150mA DO35 G	436.025.00
385	D503	1N4148 Diode 75V 150mA DO35 G	436.025.00
390	R501	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
395	R502	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
400	R503	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
405	R504	4M75 0.5W 1% Tk50 MS.Widerst.	405.136.00






 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	08.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Platine IEC II NGPV/NGPE PCB IEC II	202.492.02
10		2.5*10 DIN 6791 AI Niete rivet	711.013.00
15	B501	IC Fassung 16pol. Socket for IC	423.057.00
20	B501	SN74145N IC TTL BCD to decimal decoder/driv OC	430.073.00
25	B502	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
30	B502	IC Fassung 16pol. Socket for IC	423.057.00
35	B503	MC14073BCP IC CMOS Triple 3 input AND	430.087.00
40	B503	IC Fassung 14pol. Socket for IC	423.042.00
45	B504	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
50	B504	IC Fassung 14pol. Socket for IC	423.042.00
55	B505	IC Fassung 16pol. Socket for IC	423.057.00
60	B505	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
65	B506	MC14163BCP IC CMOS Synchron. 4 bit binary counter	430.085.00
70	B506	IC Fassung 16pol. Socket for IC	423.057.00
75	B507	IC Fassung 16pol. Socket for IC	423.057.00
80	B507	SN74LS175N IC TTL Quad D-type flip-flop w.clear	430.065.00
85	B508	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
90	B508	IC Fassung 16pol. Socket for IC	423.057.00
95	B509	IC Fassung 16pol. Socket for IC	423.057.00
100	B509	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
105	B510	IC Fassung 16pol. Socket for IC	423.057.00
110	B510	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
115	B511	MC14023BCP IC CMOS Triple 3 input NAND	430.086.00
120	B511	IC Fassung 14pol. Socket for IC	423.042.00
125	B512	MC14528BCP IC CMOS Dual monostabile multivibrator	430.083.00
130	B512	IC Fassung 16pol. Socket for IC	423.057.00
135	B513	MC14071BCP IC CMOS	430.082.00

 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer	Stock NO.


		Quad 2 input OR	
140	B513	IC Fassung 14pol. Socket for IC	423.042.00
145	B514	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
150	B514	IC Fassung 16pol. Socket for IC	423.057.00
155	B515	IC Fassung 14pol. Socket for IC	423.042.00
160	B515	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
165	B516	MC14075BCP IC CMOS Double buff. Triple 3 input OR	430.092.00
170	B516	IC Fassung 14pol. Socket for IC	423.042.00
175	B517	IC Fassung 14pol. Socket for IC	423.042.00
180	B517	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
185	B518	MC14584BCP IC CMOS Hex invert.buffer schmitt trig	430.130.00
190	B518	IC Fassung 14pol. Socket for IC	423.042.00
195	B519	MC14585BCP IC CMOS 4 bit magnitude comparator	430.089.00
200	B519	IC Fassung 16pol. Socket for IC	423.057.00
205	B520	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
210	B520	IC Fassung 16pol. Socket for IC	423.057.00
215	B521	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
220	B521	IC Fassung 14pol. Socket for IC	423.042.00
225	B522	IC Fassung 16pol. Socket for IC	423.057.00
230	B522	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
235	B523	IC Fassung 16pol. Socket for IC	423.057.00
240	B523	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
245	B524	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
250	B524	IC Fassung 14pol. Socket for IC	423.042.00
255	C501	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
260	C502	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
265	C503	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
270	C504	22nF 40V RM2,5 EGPU Konden.	412.051.00

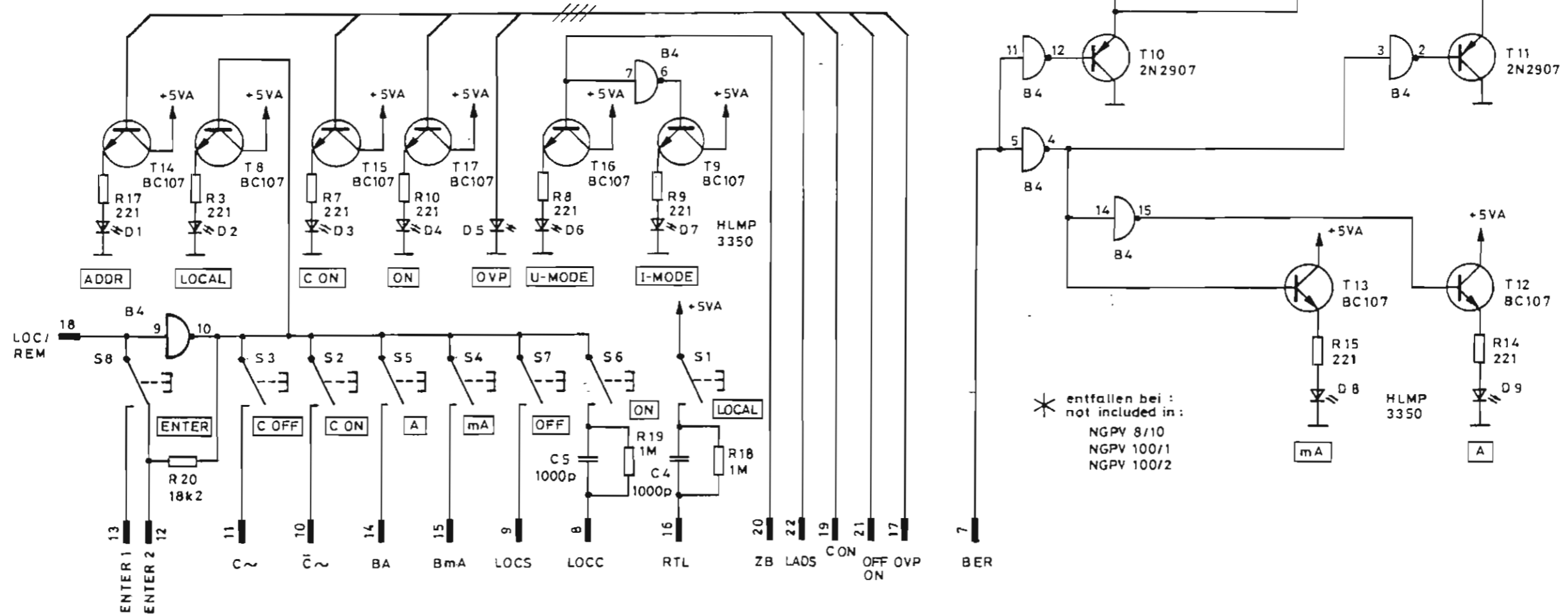
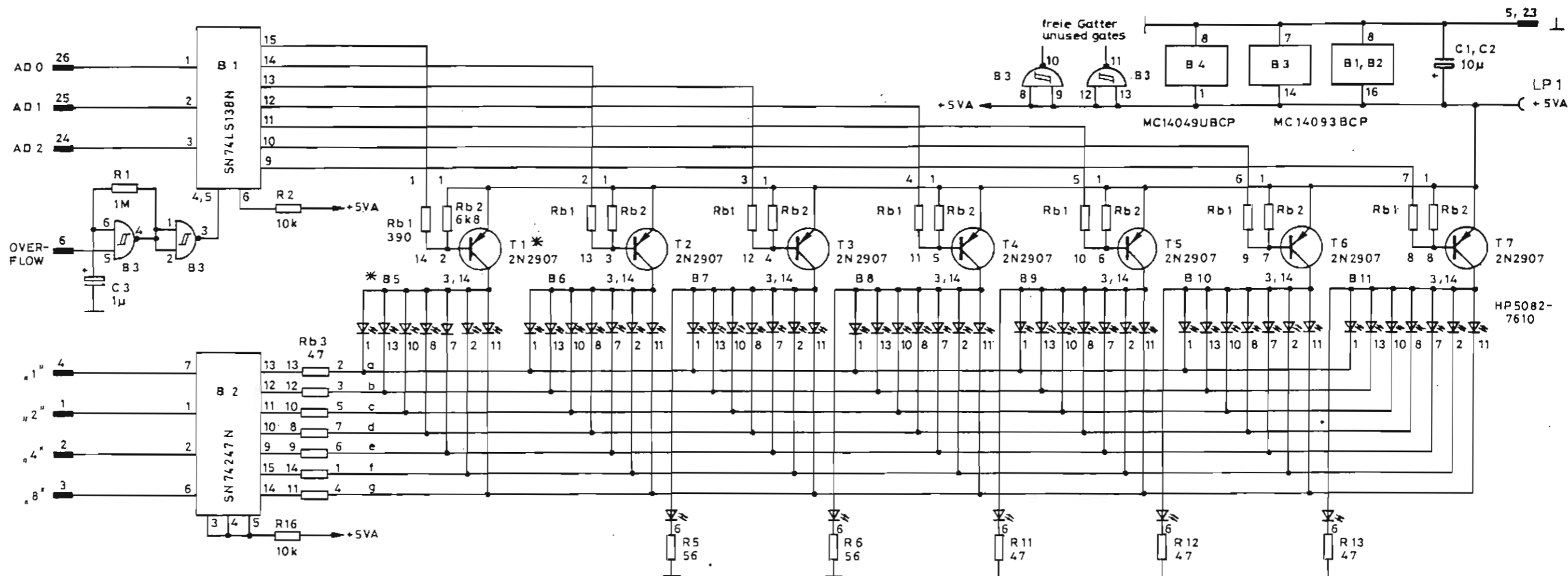
 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.

		Ceramic capacitor	
275	C505	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
280	C506	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
285	C507	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
290	C508	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
295	C509	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
300	C510	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
305	C511	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
310	C512	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
315	C513	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
320	C514	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
325	C515	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.021.00
330	C516	100nF 63V RM5 MKT Konden. Synthetic-foil capacitor	412.052.00
335	C517	220pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.022.00
340	C518	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
345	C519	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
350	C520	22uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.073.00
355	C521	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
360	C522	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
365	C523	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
370	C524	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
375	D501	1N4148 Diode 75V 150mA DO35 G	436.025.00
380	D502	1N4148 Diode 75V 150mA DO35 G	436.025.00
385	D503	1N4148 Diode 75V 150mA DO35 G	436.025.00
390	R501	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
395	R502	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
400	R503	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
405	R504	4M75 0.5W 1% Tk50 MS.Widerst.	405.136.00

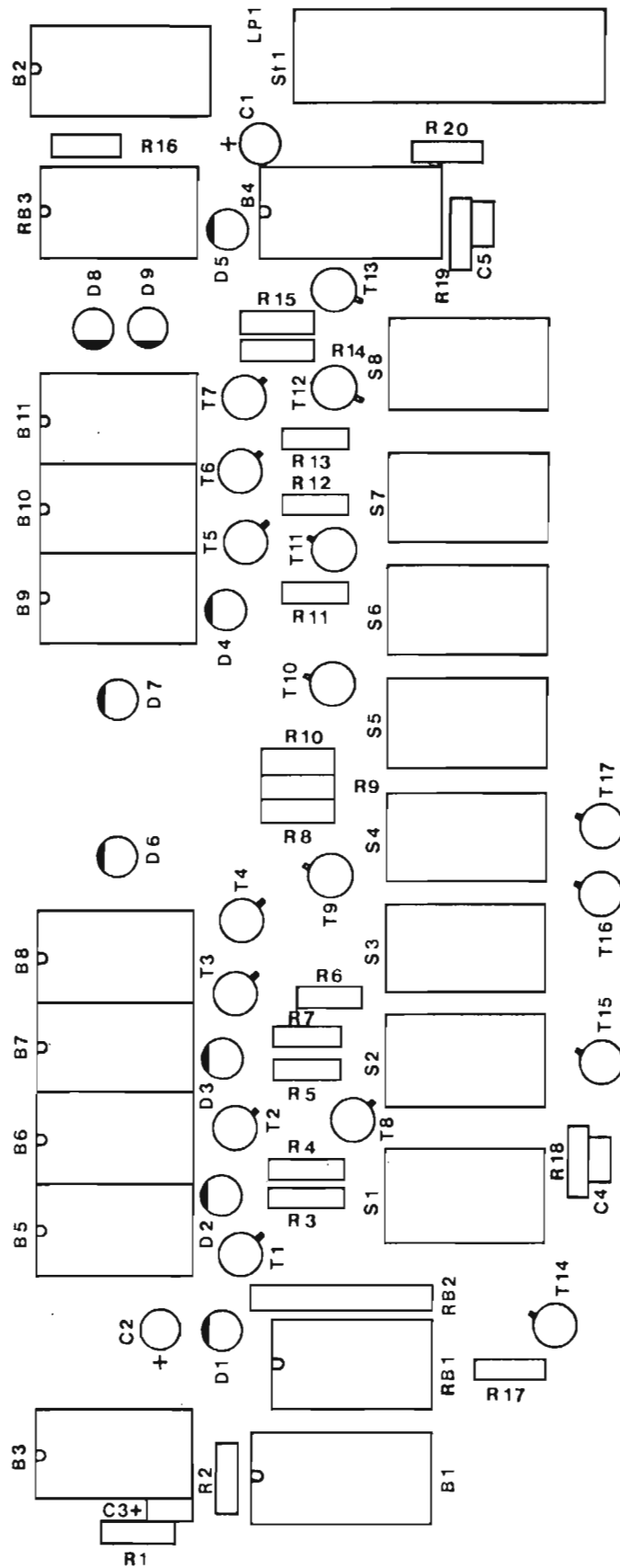
 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	IEC II Karte NGPV/NGPE kompl.	010.592.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		Metal-film resistor	
410	R505	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
415	R506	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
420	R507	22k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.067.00
425	R508	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
430	R509	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.071.00
435	R510	2k74 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.061.00
440	R511	33k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.068.00
445	R512	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
450	Rb501	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
455	Rb502	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
460	Rb503	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
465	Rb504	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
470	St501	Steckerleiste 64pol. a+c Multipoint connector	423.104.00


 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Anzeigek.I NGPV 20,40,300Vkompl	Sachnummer Stock NO. 010.075.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Anzeigek.I NGPV Universal display board universal				010.200.00	
10	Anzeigek.I NGPV 20,40V Typ display board universal				010.202.00	



	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Anzeigekarte I Display Board I	202. 231.	5.10
zu Gerät:			NGPV	




Bestückungsplan Component Location Plan		Zeichn.-Nr.		Blatt-Nr.
				5.10.1
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	Anzeigekarte I Display Board I		202. 231.	
zu Gerät:			NGPV	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Anzeigek.I NGPV Universal	010.200.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Platine Anzeige I NGPV PCB display II	202.231.02
10		Lötstift verzinnt u. magaz. Solderpin	819.006.00
15	B1	SN74LS138N IC TTL 3 to 8l. decoder/demultiplexer	430.003.00
20	B10	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
25	B11	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
30	B2	SN74LS247 BCD 7 segment decoder w. OC	430.002.00
35	B3	MC14093BCP IC CMOS Quad 2 input NAND schmitt trig	430.088.00
40	B4	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
45	B6	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
50	B7	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
55	B8	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
60	B9	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
65	C1	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
70	C2	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
75	C3	1uF 35V RM2,5 Elko Tantal Electrolytic capacitor	411.059.00
80	C4	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00
85	C5	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00
90	D1	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
95	D1	LED 3mm rot HLMP-1301 lange Be	440.005.00
100	D2	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
105	D2	LED 3mm rot HLMP-1301 lange Be	440.005.00
110	D3	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
115	D3	LED 3mm rot HLMP-1301 lange Be	440.005.00
120	D4	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
125	D4	LED 3mm rot HLMP-1301 lange Be	440.005.00
130	D5	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
135	D5	LED 3mm rot HLMP-1301 lange Be	440.005.00
140	D6	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
145	D6	LED 3mm rot HLMP-1301 lange Be	440.005.00
150	D7	Antiwärmescheibe TO18 flach	732.004.00




 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Anzeigek.I NGPV Universal	010.200.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		Anti-thermal-wafer	
155	D7	LED 3mm rot HLMP-1301 lange Be	440.005.00
160	D8	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
165	D8	LED 3mm rot HLMP-1301 lange Be	440.005.00
170	D9	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
175	D9	LED 3mm rot HLMP-1301 lange Be	440.005.00
180	R1	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.077.00
185	R10	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
190	R11	47R5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.102.00
195	R12	47R5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.102.00
200	R13	47R5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.102.00
205	R14	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
210	R15	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
215	R16	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
220	R17	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
225	R18	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.077.00
230	R19	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.077.00
235	R2	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
240	R20	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.071.00
245	R3	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
250	R5	56R2 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.053.00
255	R6	56R2 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.053.00
260	R7	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
265	R8	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
270	R9	221R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.072.00
275	RB1	390R DIL 7 R 14pol. 2% resistor network val 391	406.004.00
280	RB2	6k8 SIL 7f.R.Netzw. 2% resistor network val 682	406.001.00
285	RB3	47R DIL 7 R 14pol. 2% resistor network val 470	406.003.00
290	S1	Tastenschalter 1Fach ohne LED Pushbutton switch	422.014.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
		A	04.04	Anzeigek.I NGPV Universal	010.200.00	3 von 4	
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.		
295	S1	Knopfteil Digitast grau 17,3mm				427.008.00	
300	S2	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
305	S2	Knopfteil Digitast grau 12.3mm				427.009.00	
310	S3	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
315	S3	Knopfteil Digitast grau 12.3mm				427.009.00	
320	S4	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
325	S4	Knopfteil Digitast grau 12.3mm				427.009.00	
330	S5	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
335	S5	Knopfteil Digitast grau 12.3mm				427.009.00	
340	S6	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
345	S6	Knopfteil Digitast grau 12.3mm				427.009.00	
350	S7	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
355	S7	Knopfteil Digitast grau 12.3mm				427.009.00	
360	S8	Tastenschalter 1Fach ohne LED Pushbutton switch				422.014.00	
365	S8	Knopfteil Digitast grau 17,3mm				427.008.00	
370	ST1	Flachkabelbuchse 26pol. Multipoint connector				423.077.00	
375	ST1	Flachkabelverbinder26pol.Print Flat-cable connector				423.078.00	
380	ST1	Kabel Flach 26 pol. Flat multiple line				826.224.00	
385	T10	Antiwärmescheibe TO18 flach Anti-thermal-wafer				732.004.00	
390	T10	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M				431.070.00	
395	T11	Antiwärmescheibe TO18 flach Anti-thermal-wafer				732.004.00	
400	T11	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M				431.070.00	
405	T12	Antiwärmescheibe TO18 flach Anti-thermal-wafer				732.004.00	
410	T12	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M				431.006.00	
415	T13	Antiwärmescheibe TO18 flach Anti-thermal-wafer				732.004.00	
420	T13	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M				431.006.00	
425	T14	Antiwärmescheibe TO18 flach Anti-thermal-wafer				732.004.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
430	T14	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	
435	T15	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
440	T15	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	
445	T16	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
450	T16	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	
455	T17	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
460	T17	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	
465	T2	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
470	T2	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
475	T3	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
480	T3	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
485	T4	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
490	T4	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
495	T5	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
500	T5	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
505	T6	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
510	T6	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
515	T7	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
520	T7	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M			431.070.00	
525	T8	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
530	T8	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	
535	T9	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
540	T9	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Anzeigek.l NGPV 20,40V Typ	010.202.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	B5	7Segment 7.6mm rot 5082-7610 select Charge + Intensity	440.002.00
10	T1	2N2907 PNP Transistor PNP 40V 0.6A 0.4W TO18 M	431.070.00
15	T1	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Reglerkarte NGPV100W 20V kompl	010.080.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Reglerkarte NGPV univers. Regulator Board universal	010.210.00
10	Reglerkarte NGPV 100W 20V Typ Regulator Board	010.212.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
Position Nr. Position NO.		A	04.04	Reglerkarte NGPV univers.	010.210.00	1 von 4	
		Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Platine Reglerplatte NGPV PCB Regulator Board				202.236.02	
10		BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M				431.012.00	
15		Lötstift verzinnt u. magaz. Solderpin				819.006.00	
20		M 2,5* 8 DIN 7985 V2a Linsenschrb.m.Kreuzschlitz Cross recessed raised cheese head screws				711.017.00	
25		M 2,5 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated				711.008.00	
30		A 2,6 DIN 137 verz. Federscheibe Single coil spring lock washers zinc plated				711.010.00	
35		2,5*10 DIN 6791 Al Niete rivet				711.013.00	
40		2,5*6 DIN 6791 Al Niete rivet				711.011.00	
45		B 2.7 DIN 433 V2a Scheibe washers for cheese head screws zinc plated				711.028.00	
50		BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M				431.006.00	
55	B1	4N27 Optokoppler Optocoupler				440.007.00	
60	B1	IC Fassung 6pol. Socket for IC				423.060.00	
65	B2	IC Fassung 8pol. Socket for IC				423.043.00	
70	B2	LF356N DIL OP IC Operational amplifier				430.095.00	
75	B3	IC Fassung 8pol. Socket for IC				423.043.00	
80	B3	LF356N DIL OP IC Operational amplifier				430.095.00	
85	B4	IC Fassung 8pol. Socket for IC				423.043.00	
90	B4	LF356N DIL OP IC Operational amplifier				430.095.00	
95	B5	IC Fassung 8pol. Socket for IC				423.043.00	
100	B5	LF356N DIL OP IC Operational amplifier				430.095.00	
105	B6	IC Fassung 8pol. Socket for IC				423.043.00	
110	B6	LF356N DIL OP IC Operational amplifier				430.095.00	
115	B7	Kühler für Spannungsregler cooler for voltage controller				206.022.00	
120	B7	L7815CV U Regler 15V Voltage regulator				430.051.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Reglerkarte NGPV univers.	010.210.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


125	B8	MC78M05CT U Regler 5V Voltage regulator TO220	430.052.02
130	B9	Kühler für Spannungsregler cooler for voltage controller	206.022.00
135	B9	MC7915C U Regler -15V 1A T0220 Voltage regulator	430.050.00
140	C10	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
145	C11	27pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.045.00
150	C12	1000uF 40V 16*30 Elko Roll Electrolytic capacitor	411.048.00
155	C13	470uF 40V 12*31 Elko Roll Electrolytic capacitor	411.003.01
160	C14	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
165	C15	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
170	C16	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
175	C2	27pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.045.00
180	C3	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor	411.037.00
185	C4	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor	411.037.00
190	C5	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.031.00
195	C6	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.031.00
200	C7	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
205	C8	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
210	C9	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
215	D1	1N4148 Diode 75V 150mA DO35 G	436.025.00
220	D10	1N4148 Diode 75V 150mA DO35 G	436.025.00
225	D11	1N4148 Diode 75V 150mA DO35 G	436.025.00
230	D12	1N4148 Diode 75V 150mA DO35 G	436.025.00
235	D13	1N4148 Diode 75V 150mA DO35 G	436.025.00
240	D14	1N4148 Diode 75V 150mA DO35 G	436.025.00
245	D17	ZPD12 Z-Diode Z 12V 500mW 28mA DO35 G	436.060.00
250	D18	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
255	D19	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Reglerkarte NGPV univers.	Sachnummer Stock NO. 010.210.00	Blatt Page 3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	

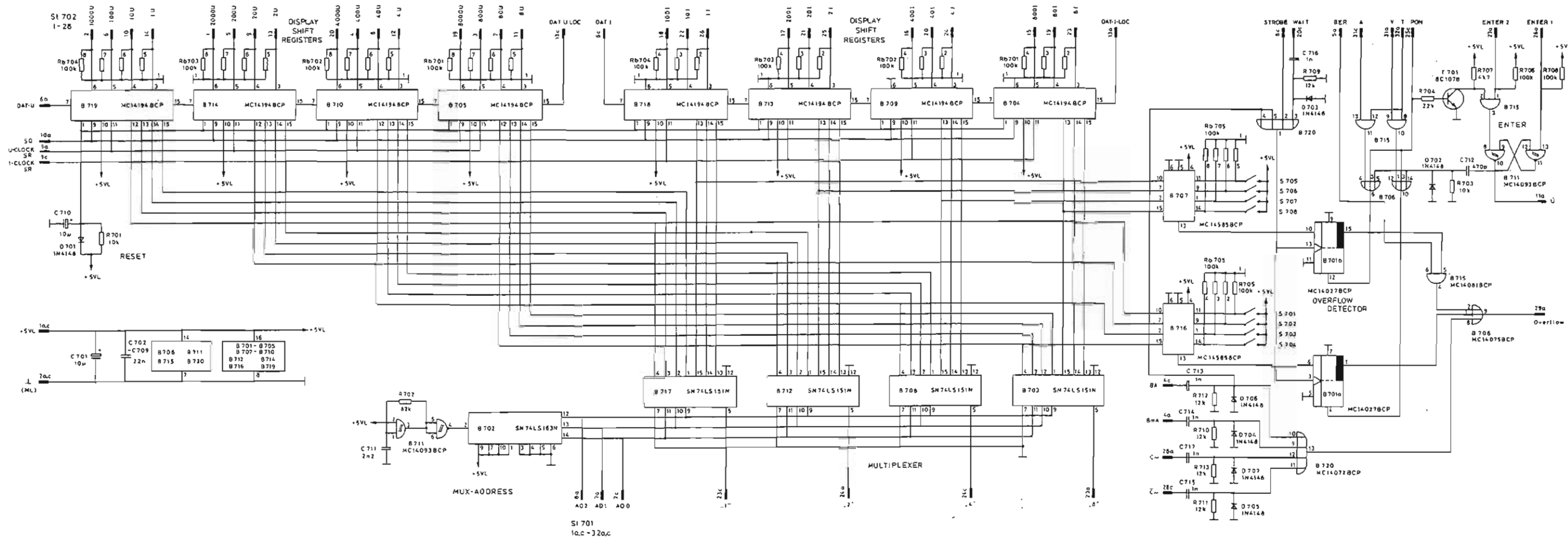
260	D2	1N4148 Diode 75V 150mA DO35 G	436.025.00
265	D20	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
270	D21	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
275	D3	1N4148 Diode 75V 150mA DO35 G	436.025.00
280	D4	1N4148 Diode 75V 150mA DO35 G	436.025.00
285	D7	1N4148 Diode 75V 150mA DO35 G	436.025.00
290	D8	1N4148 Diode 75V 150mA DO35 G	436.025.00
295	D9	1N4148 Diode 75V 150mA DO35 G	436.025.00
300	GI15	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
305	GI16	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
310	GI5	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
315	GI6	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
320	R1	5k62 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.073.00
325	R10	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
330	R11	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R12	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
340	R13	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
345	R14	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
350	R17	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
355	R18	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R19	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
365	R2	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
370	R20	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
375	R21	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
380	R22	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
385	R24	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
390	R25	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00




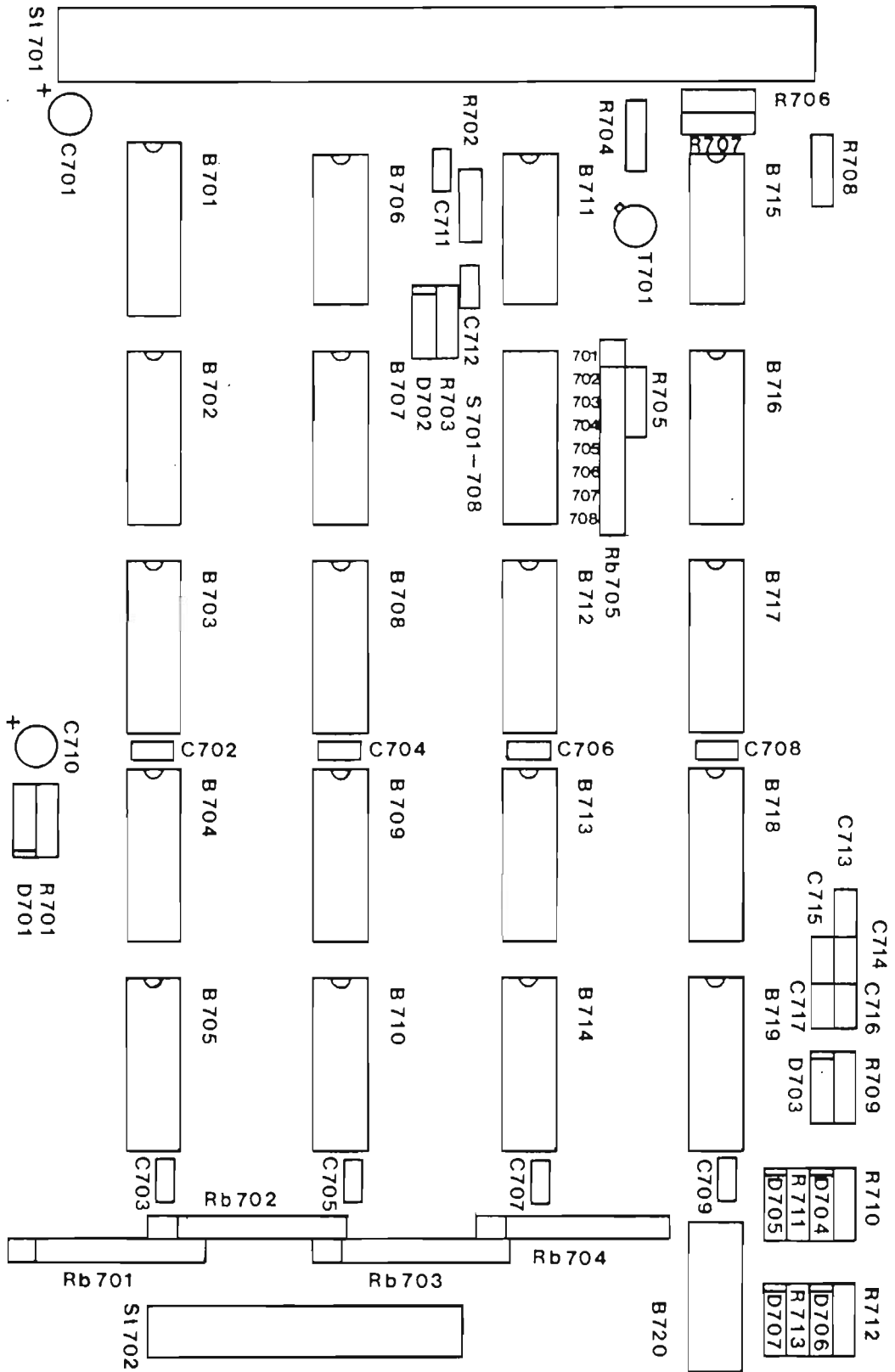
 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Reglerkarte NGPV univers.	010.210.00	4 von 4
Benennung / Beschreibung Designation					Sachnummer Stock NO.	
395	R26	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
400	R27	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
405	R28	33R2 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.016.00	
410	R29	475R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.081.00	
415	R30	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.025.00	
420	R31	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.025.00	
425	R36	50k Cermet 19mm Trimmer			403.044.00	
430	R38	50k Cermet 19mm Trimmer			403.044.00	
435	R39	50k Cermet 19mm Trimmer			403.044.00	
440	R40	50k Cermet 19mm Trimmer			403.044.00	
445	R43	50k Cermet 19mm Trimmer			403.044.00	
450	R5	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
455	R9	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.057.00	
460	St1	Steckerleiste 64pol. a+c Multipoint connector			423.104.00	
465	T1	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
470	T2	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	

 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Reglerkarte NGPV 100W 20V Typ	010.212.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Distanzstück 16fach abbrechb. zb. Abstandshalter EDPU Kondens spacer 16-parts pluckable eg. spacer EDPU capacitor	732.031.00
10	C1	470pF 400V RM5 Scheiben C Ceramic capacitor	412.019.00
15	R15	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
20	R16	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
25	R23	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
30	R3	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.071.00
35	R32	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
40	R33	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
45	R37	5k Cermet 19mm Trimmer	403.052.00
50	R4	47k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.037.00
55	R41	20k Cermet 19mm Trimmer	403.054.00
60	R42	1k Cermet 19mm Trimmer	403.043.00
65	R6	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
70	R7	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
75	R8	47k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.037.00




	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Anzeigekarte II Display Board II	202. 232.	5.11
zu Gerät:			NGPV	





Bestückungsplan Component Location Plan		Zeichn.-Nr.	Blatt-Nr.
			5.11.1
 <b>ROHDE &amp; SCHWARZ</b>	Benennung Anzeigekarte II Display Board II		Platine-Nr. 202. 232.
	zu Gerät: NGPV		

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Anzeigekarte II NGPV kompl.	010.078.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Platine Anzeige II NGPV PCB Display II	202.232.02
10		Lötstift verzinnt u. magaz. Solderpin	819.006.00
15	B701	IC Fassung 16pol. Socket for IC	423.057.00
20	B701	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
25	B702	IC Fassung 16pol. Socket for IC	423.057.00
30	B702	SN74LS163AN IC TTL Synchronous 4 bit counter	430.094.00
35	B703	IC Fassung 16pol. Socket for IC	423.057.00
40	B703	SN74LS151N IC TTL Triple 3 input p AND w.OC	430.093.00
45	B704	IC Fassung 16pol. Socket for IC	423.057.00
50	B704	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
55	B705	IC Fassung 16pol. Socket for IC	423.057.00
60	B705	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
65	B706	IC Fassung 14pol. Socket for IC	423.042.00
70	B706	MC14075BCP IC CMOS Double buff. Triple 3 input OR	430.092.00
75	B707	IC Fassung 16pol. Socket for IC	423.057.00
80	B707	MC14585BCP IC CMOS 4 bit magnitude comparator	430.089.00
85	B708	IC Fassung 16pol. Socket for IC	423.057.00
90	B708	SN74LS151N IC TTL Triple 3 input p AND w.OC	430.093.00
95	B709	IC Fassung 16pol. Socket for IC	423.057.00
100	B709	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
105	B710	IC Fassung 16pol. Socket for IC	423.057.00
110	B710	MC14194BCP IC CMOS 4 bit bidirect. shift register	430.084.00
115	B711	IC Fassung 14pol. Socket for IC	423.042.00
120	B711	MC14093BCP IC CMOS Quad 2 input NAND schmitt trig	430.088.00
125	B712	IC Fassung 16pol. Socket for IC	423.057.00
130	B712	SN74LS151N IC TTL Triple 3 input p AND w.OC	430.093.00
135	B713	IC Fassung 16pol. Socket for IC	423.057.00


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
	A	04.04	Anzeigekarte II NGPV kompl.		010.078.00	2 von 4
140	B713	MC14194BCP IC CMOS 4 bit bidirect. shift register			430.084.00	
145	B714	IC Fassung 16pol. Socket for IC			423.057.00	
150	B714	MC14194BCP IC CMOS 4 bit bidirect. shift register			430.084.00	
155	B715	IC Fassung 14pol. Socket for IC			423.042.00	
160	B715	MC14081BCP IC CMOS Quad 2 input AND			430.078.00	
165	B716	IC Fassung 16pol. Socket for IC			423.057.00	
170	B716	MC14585BCP IC CMOS 4 bit magnitude comparator			430.089.00	
175	B717	IC Fassung 16pol. Socket for IC			423.057.00	
180	B717	SN74LS151N IC TTL Triple 3 input p AND w.OC			430.093.00	
185	B718	IC Fassung 16pol. Socket for IC			423.057.00	
190	B718	MC14194BCP IC CMOS 4 bit bidirect. shift register			430.084.00	
195	B719	IC Fassung 16pol. Socket for IC			423.057.00	
200	B719	MC14194BCP IC CMOS 4 bit bidirect. shift register			430.084.00	
205	B720	IC Fassung 14pol. Socket for IC			423.042.00	
210	B720	MC14072BCP IC CMOS Dual 4 input OR			430.097.00	
215	C701	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor			411.068.00	
220	C702	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
225	C703	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
230	C704	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
235	C705	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
240	C706	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
245	C707	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
250	C708	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
255	C709	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
260	C710	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor			411.068.00	
265	C711	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.021.00	
270	C712	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.016.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Anzeigekarte II NGPV kompl.	010.078.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
275	C713	1nF	100V RM2,5 EGPU Konden.		412.014.00	
			Ceramic capacitor			
280	C714	1nF	100V RM2,5 EGPU Konden.		412.014.00	
			Ceramic capacitor			
285	C715	1nF	100V RM2,5 EGPU Konden.		412.014.00	
			Ceramic capacitor			
290	C716	1nF	100V RM2,5 EGPU Konden.		412.014.00	
			Ceramic capacitor			
295	C717	1nF	100V RM2,5 EGPU Konden.		412.014.00	
			Ceramic capacitor			
300	GI701	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
305	GI702	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
310	GI703	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
315	GI704	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
320	GI705	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
325	GI706	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
330	GI707	1N4148	Diode		436.025.00	
		75V 150mA	DO35 G			
335	R701	10k 0,5W 1%	Tk50 MS.Widerst.		405.030.00	
			Metal-film resistor			
340	R702	82k5 0.5W 1%	Tk50 MS.Widerst.		405.003.00	
			Metal-film resistor			
345	R703	10k 0,5W 1%	Tk50 MS.Widerst.		405.030.00	
			Metal-film resistor			
350	R704	22k1 0.5W 1%	Tk50 MS.Widerst.		405.067.00	
			Metal-film resistor			
355	R705	100k 0.5W 1%	Tk50 MS.Widerst.		405.086.00	
			Metal-film resistor			
360	R706	100k 0.5W 1%	Tk50 MS.Widerst.		405.086.00	
			Metal-film resistor			
365	R707	4k75 0.5W 1%	Tk50 MS.Widerst.		405.063.00	
			Metal-film resistor			
370	R708	100k 0.5W 1%	Tk50 MS.Widerst.		405.086.00	
			Metal-film resistor			
375	R709	12k1 0.5W 1%	Tk50 MS.Widerst.		405.066.00	
			Metal-film resistor			
380	R710	12k1 0.5W 1%	Tk50 MS.Widerst.		405.066.00	
			Metal-film resistor			
385	R711	12k1 0.5W 1%	Tk50 MS.Widerst.		405.066.00	
			Metal-film resistor			
390	R712	12k1 0.5W 1%	Tk50 MS.Widerst.		405.066.00	
			Metal-film resistor			
395	R713	12k1 0.5W 1%	Tk50 MS.Widerst.		405.066.00	
			Metal-film resistor			
400	Rb701	100k SIL 7f.R.Netzw. 2%	resistor network val 104		406.010.00	
405	Rb702	100k SIL 7f.R.Netzw. 2%	resistor network val 104		406.010.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
	A	04.04	Anzeigekarte II NGPV kompl.		010.078.00	4 von 4
410	Rb703	100k SIL 7f.R.Netzw. 2% resistor network val 104			406.010.00	
415	Rb704	100k SIL 7f.R.Netzw. 2% resistor network val 104			406.010.00	
420	Rb705	100k SIL 7f.R.Netzw. 2% resistor network val 104			406.010.00	
425	S701	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
430	S702	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
435	S703	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
440	S704	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
445	S705	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
450	S706	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
455	S707	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
460	S708	DIP FIX Schalter 24Pol Drahtbr DIP switch			422.020.00	
465	ST701	Steckerleiste 64pol. a+c Multipoint connector			423.104.00	
470	ST701	2.5*10 DIN 6791 Al Niete rivet			711.013.00	
475	ST702	Steckerleiste 26pol.Print gew. Multipoint conn. AWH26A-0202			423.070.00	
480	ST702	2.5*10 DIN 6791 Al Niete rivet			711.013.00	
485	T701	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
490	T701	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M			431.006.00	




 <b>RÖHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for DAC Karte NGPV100W 20V kompl.	Sachnummer Stock NO. 010.085.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	DAC Karte NGPV Universal DAC Board universal				010.216.00	
10	DAC Karte NGPV 100W 20V Typ DAC Board NGPV 100W 20V type				010.218.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Platine DAC NGPV PCB DAC	202.237.03
10		Lötstift verzinnt u. magaz. Solderpin	819.006.00
15		2.5*10 DIN 6791 Al Niete rivet	711.013.00
20	B1101	HCPL2531 Optokoppler Optocoupler	440.008.00
25	B1101/B1102	IC Fassung 16pol. Socket for IC	423.057.00
30	B1102	HCPL2531 Optokoppler Optocoupler	440.008.00
35	B1103	HCPL2531 Optokoppler Optocoupler	440.008.00
40	B1103/B1104	IC Fassung 16pol. Socket for IC	423.057.00
45	B1104	HCPL2531 Optokoppler Optocoupler	440.008.00
50	B1105	IC Fassung 16pol. Socket for IC	423.057.00
55	B1105	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
60	B1106	IC Fassung 16pol. Socket for IC	423.057.00
65	B1106	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
70	B1107	IC Fassung 16pol. Socket for IC	423.057.00
75	B1107	MC14094BCP IC CMOS 8 stage shift/store register	430.091.00
80	B1108	IC Fassung 16pol. Socket for IC	423.057.00
85	B1108	MC14094BCP IC CMOS 8 stage shift/store register	430.091.00
90	B1109	IC Fassung 16pol. Socket for IC	423.057.00
95	B1109	MC14094BCP IC CMOS 8 stage shift/store register	430.091.00
100	B1110	IC Fassung 16pol. Socket for IC	423.057.00
105	B1110	MC14094BCP IC CMOS 8 stage shift/store register	430.091.00
110	B1111	IC Fassung 24pol. Socket for IC	423.064.00
115	B1111	DAC80CCD-V ***select Hiller*** Digital to analog converter	430.090.00
120	B1112	IC Fassung 24pol. Socket for IC	423.064.00
125	B1112	DAC80CCD-V ***select Hiller*** Digital to analog converter	430.090.00
130	B1117	IC Fassung 8pol. Socket for IC	423.043.00
135	B1117	LF356N DIL OP IC	430.095.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	Operational amplifier	
140	C1101 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
145	C1102 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
150	C1103 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
155	C1104 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
160	C1105 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
165	C1106 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
170	C1107 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
175	C1108 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
180	C1109 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
185	C1110 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
190	C1111 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
195	C1112 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
200	C1113 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
205	C1114 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
210	C1115 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
215	C1116 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
220	C1117 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
225	C1121 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
230	C1122 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
235	R1101 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
240	R1102 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
245	R1103 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
250	R1104 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
255	R1105 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
260	R1106 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
265	R1107 150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
270	R1108 150R 0.5W 1% Tk50 MS.Widerst.	405.103.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		Metal-film resistor	
275	R1109	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
280	R1110	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
285	R1111	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
290	R1112	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
295	R1113	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
300	R1114	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
305	R1115	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
310	R1116	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
315	R1117	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
320	R1118	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
325	R1119	5k62 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.073.00
330	R1120	2M21 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.104.00
335	R1121	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
340	R1122	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
345	R1123	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
350	R1124	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
355	R1125	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
360	R1126	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
365	R1127	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
370	R1128	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
375	R1129	2M21 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.104.00
380	R1140	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
385	R1158	50k Cermet 19mm Trimmer	403.044.00
390	R1162	1k Cermet 19mm Trimmer	403.043.00
395	R1163	50k Cermet 19mm Trimmer	403.044.00
400	R1164	1k Cermet 19mm Trimmer	403.043.00
405	RB1101	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
410	RB1102	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
415	St1101	Steckerleiste 64pol. a+c	423.104.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		Multipoint connector	
420	T1101	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
425	T1101	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
430	T1102	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
435	T1102	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
440	T1103	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
445	T1103	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
450	T1104	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
455	T1104	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
460	T1105	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
465	T1105	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
470	T1106	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
475	T1106	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	DAC Karte NGPV 100W 20V Typ	010.218.00	1 von 2
Benennung / Beschreibung Designation					Sachnummer Stock NO.	
5	B1113	IC Fassung 8pol. Socket for IC			423.043.00	
10	B1113	LF356N DIL OP IC Operational amplifier			430.095.00	
15	B1115	IC Fassung 8pol. Socket for IC			423.043.00	
20	B1115	LF356N DIL OP IC Operational amplifier			430.095.00	
25	B1116	IC Fassung 8pol. Socket for IC			423.043.00	
30	B1116	LF356N DIL OP IC Operational amplifier			430.095.00	
35	C1118	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
40	C1119	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
45	C1120	4,7nF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.042.00	
50	C1125	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.021.00	
55	D1101	1N4148 Diode 75V 150mA DO35 G			436.025.00	
60	D1102	1N4148 Diode 75V 150mA DO35 G			436.025.00	
65	R1130	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
70	R1132	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.062.00	
75	R1134	16k2 0.25W 0,5% TK15 MS.Wid. Metal-film resistor			405.108.00	
80	R1135	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor			405.105.00	
85	R1137	8k66 1/4W 0,5% TK15 MS.Widerst Metal-film resistor			405.107.00	
90	R1138	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor			405.105.00	
95	R1139	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor			405.105.00	
100	R1141	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
105	R1143	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.062.00	
110	R1145	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.062.00	
115	R1147	15k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.033.00	
120	R1149	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.103.00	
125	R1152	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.086.00	
130	R1159	1k Cermet 19mm Trimmer			403.043.00	
135	R1160	1k Cermet 19mm Trimmer			403.043.00	
140	T1107	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV 100W 20V Typ	010.218.00	2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


145	T1107	BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
150	T1109	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
155	T1109	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00

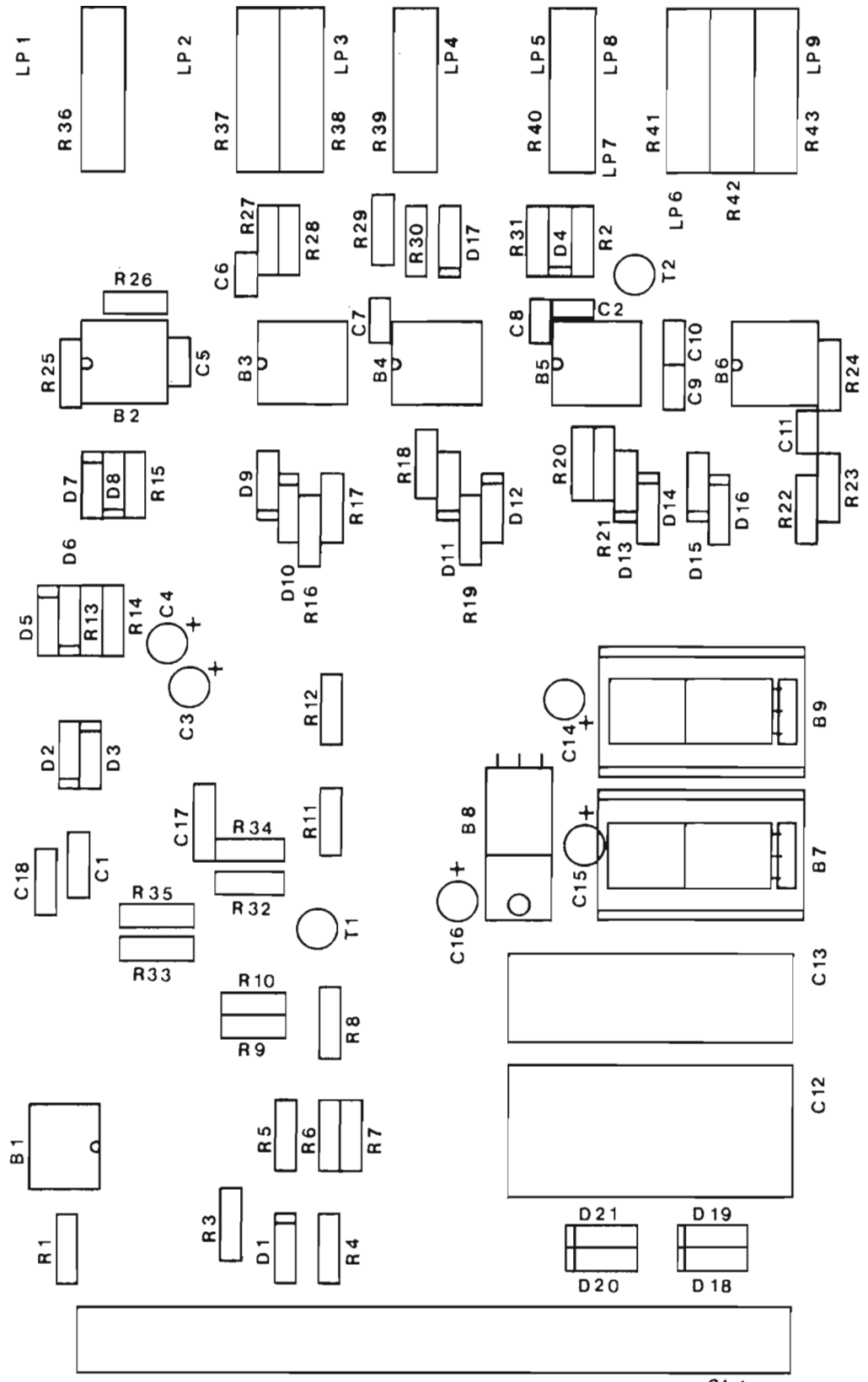
 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Reglerkarte NGPV100W 20V kompl	Sachnummer Stock NO. 010.080.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Reglerkarte NGPV univers. Regulator Board universal				010.210.00	
10	Reglerkarte NGPV 100W 20V Typ Regulator Board				010.212.00	







	8/10	20/5	20/10	40/3	40/5	100/1	100/2	300/0,3	300/0,6
C1	470pF	470pF	470pF	220pF	220pF	100pF	100pF	22pF	22pF
C17	-	-	-	-	-	-	-	-	-
C18	-	-	-	-	-	-	-	-	-
R3	6k8	18k2	18k2	36k5	36k5	90k9	90k9	274k	274k
R4	47k5	47k5	47k5	47k5	47k5	47k5	47k5	511k	511k
R6	1k	1k	1k	1k	1k	1k	1k	10k	10k
R7	9k09	4k7	9k09	2k7	4k7	8k2	1k2	2k2	5k1
R8	47k5	47k5	47k5	47k5	47k5	39k2	39k2	332k	332k
R15	10k	10k	10k	10k	10k	33k2	33k2	6k25PTC	6k25PTC
R16	10k	10k	10k	10k	10k	33k2	33k2	6k25PTC	6k25PTC
R23	249	1k	499	1k	1k	1k	1k	1k	1k
R32	4k9	10k	10k	20k	20k	49k9	49k9	402k	402k
R33	4k9	10k	10k	20k	20k	49k9	49k9	402k	402k
R34	-	-	-	-	-	-	-	402k	402k
R35	-	-	-	-	-	-	-	402k	402k
R37	2k	5k	5k	10k	10k	20k	20k	50k	50k
R41	20k	20k	20k	20k	20k	20k	20k	200k	200k
R42	2k	1k	2k	1k	1k	2k	1k	1k	1k


Liste der typenabhängigen Bauteile List of Special-to-type Components		Zeichn.-Nr.		Blatt-Nr.
				5.4.1
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	Reglerkarte Regulation Board		202. 236.	
		zu Gerät:	NGPV	




Bestückungsplan Component Location Plan		Zeichn.-Nr.		Blatt-Nr. 5.4.2
		Benennung Reglerkarte Regulation Board		Platine-Nr. 202. 236.
		zu Gerät:		NGPV


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
		A	04.04	Reglerkarte NGPV univers.	010.210.00	1 von 4	
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO		
5		Platine Reglerplatte NGPV PCB Regulator Board				202.236.02	
10		BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M				431.012.00	
15		Lötstift verzinkt u. magaz. Solderpin				819.006.00	
20		M 2.5* 8 DIN 7985 V2a Linsenschrb.m.Kreuzschlitz Cross recessed raised cheese head screws				711.017.00	
25		M 2,5 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated				711.008.00	
30		A 2,6 DIN 137 verz. Federscheibe Single coil spring lock washers zinc plated				711.010.00	
35		2.5*10 DIN 6791 Al Niete rivet				711.013.00	
40		2.5*6 DIN 6791 Al Niete rivet				711.011.00	
45		B 2.7 DIN 433 V2a Scheibe washers for cheese head screws zinc plated				711.028.00	
50		BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M				431.006.00	
55	B1	4N27 Optokoppler Optocoupler				440.007.00	
60	B1	IC Fassung 6pol. Socket for IC				423.060.00	
65	B2	IC Fassung 8pol. Socket for IC				423.043.00	
70	B2	LF356N DIL OP IC Operational amplifier				430.095.00	
75	B3	IC Fassung 8pol. Socket for IC				423.043.00	
80	B3	LF356N DIL OP IC Operational amplifier				430.095.00	
85	B4	IC Fassung 8pol. Socket for IC				423.043.00	
90	B4	LF356N DIL OP IC Operational amplifier				430.095.00	
95	B5	IC Fassung 8pol. Socket for IC				423.043.00	
100	B5	LF356N DIL OP IC Operational amplifier				430.095.00	
105	B6	IC Fassung 8pol. Socket for IC				423.043.00	
110	B6	LF356N DIL OP IC Operational amplifier				430.095.00	
115	B7	Kühler für Spannungsregler cooler for voltage controller				206.022.00	
120	B7	L7815CV U Regler 15V Voltage regulator				430.051.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Reglerkarte NGPV univers.	010.210.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
125	B8	MC78M05CT U Regler 5V Voltage regulator TO220			430.052.02	
130	B9	Kühler für Spannungsregler cooler for voltage controller			206.022.00	
135	B9	MC7915C U Regler -15V 1A T0220 Voltage regulator			430.050.00	
140	C10	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
145	C11	27pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.045.00	
150	C12	1000uF 40V 16*30 Elko Roll Electrolytic capacitor			411.048.00	
155	C13	470uF 40V 12*31 Elko Roll Electrolytic capacitor			411.003.01	
160	C14	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor			411.068.00	
165	C15	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor			411.068.00	
170	C16	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor			411.068.00	
175	C2	27pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.045.00	
180	C3	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor			411.037.00	
185	C4	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor			411.037.00	
190	C5	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.031.00	
195	C6	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.031.00	
200	C7	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.016.00	
205	C8	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor			412.016.00	
210	C9	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor			412.051.00	
215	D1	1N4148 Diode 75V 150mA DO35 G			436.025.00	
220	D10	1N4148 Diode 75V 150mA DO35 G			436.025.00	
225	D11	1N4148 Diode 75V 150mA DO35 G			436.025.00	
230	D12	1N4148 Diode 75V 150mA DO35 G			436.025.00	
235	D13	1N4148 Diode 75V 150mA DO35 G			436.025.00	
240	D14	1N4148 Diode 75V 150mA DO35 G			436.025.00	
245	D17	ZPD12 Z-Diode Z 12V 500mW 28mA DO35 G			436.060.00	
250	D18	RGP10M Diode 1000V 1A 500nS DO41 P			436.057.00	
255	D19	RGP10M Diode 1000V 1A 500nS DO41 P			436.057.00	

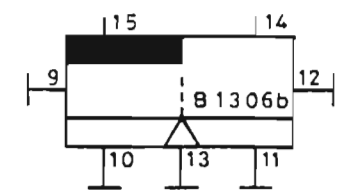
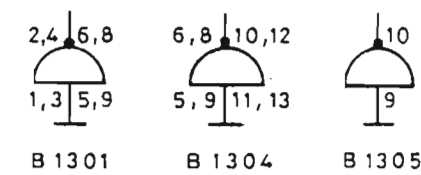
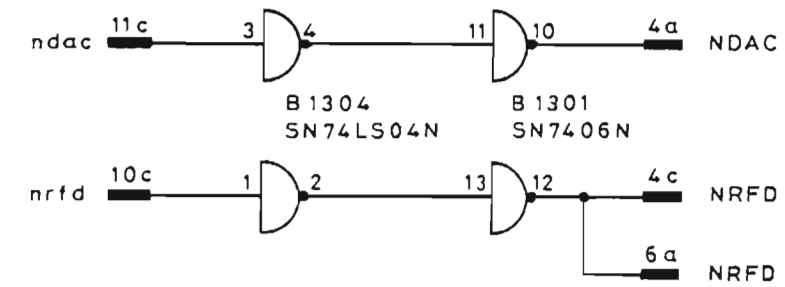
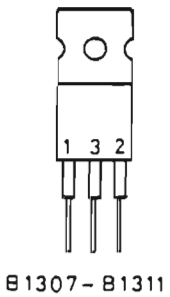
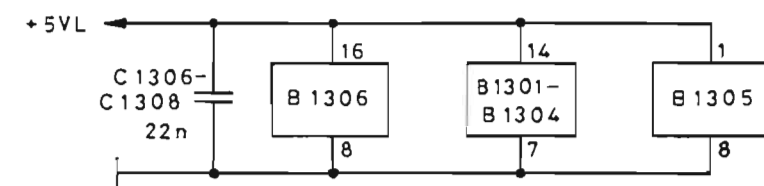
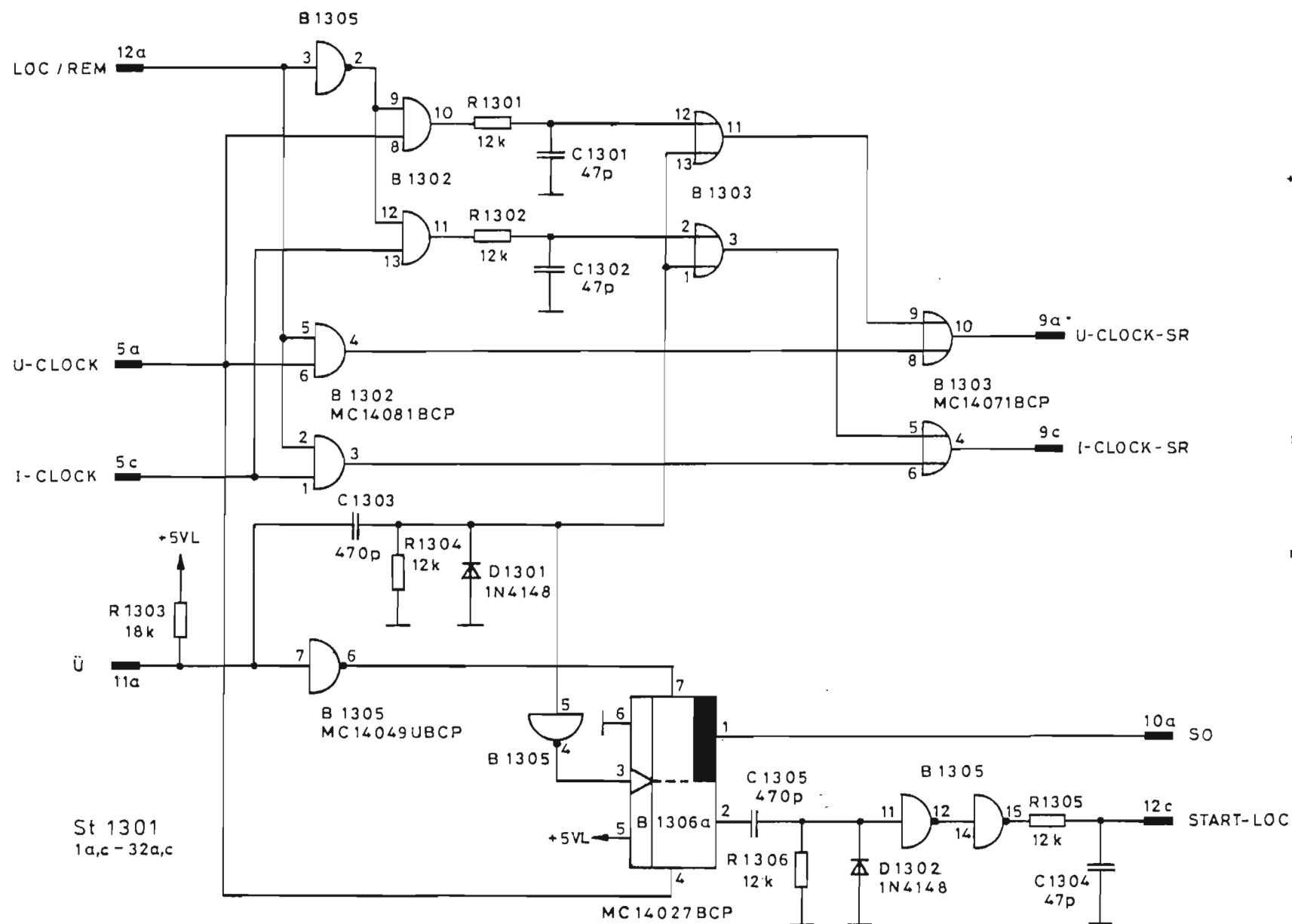
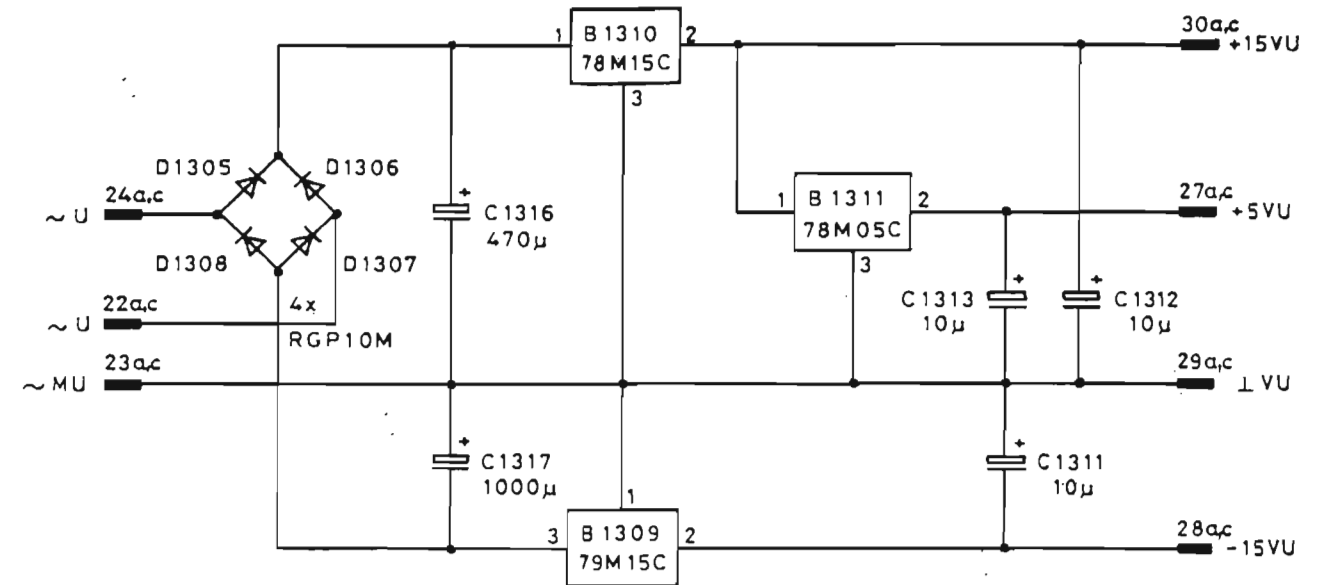
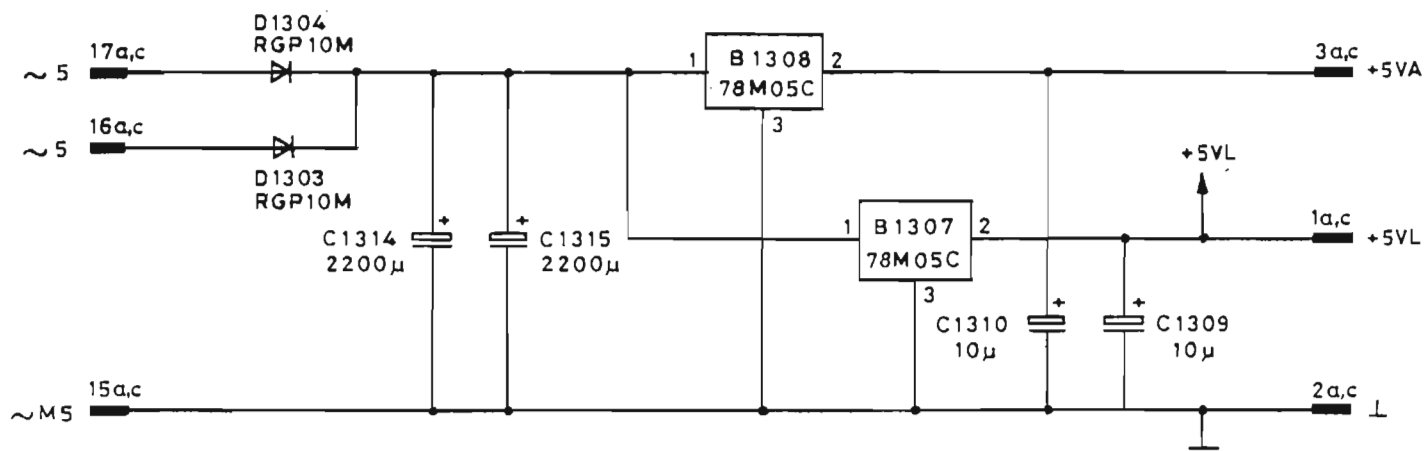
 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Reglerkarte NGPV univers.	010.210.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.

260	D2	1N4148 Diode 75V 150mA DO35 G	436.025.00
265	D20	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
270	D21	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
275	D3	1N4148 Diode 75V 150mA DO35 G	436.025.00
280	D4	1N4148 Diode 75V 150mA DO35 G	436.025.00
285	D7	1N4148 Diode 75V 150mA DO35 G	436.025.00
290	D8	1N4148 Diode 75V 150mA DO35 G	436.025.00
295	D9	1N4148 Diode 75V 150mA DO35 G	436.025.00
300	GI15	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
305	GI16	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
310	GI5	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
315	GI6	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
320	R1	5k62 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.073.00
325	R10	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
330	R11	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R12	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
340	R13	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
345	R14	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
350	R17	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
355	R18	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R19	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
365	R2	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
370	R20	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
375	R21	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
380	R22	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.063.00
385	R24	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
390	R25	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00

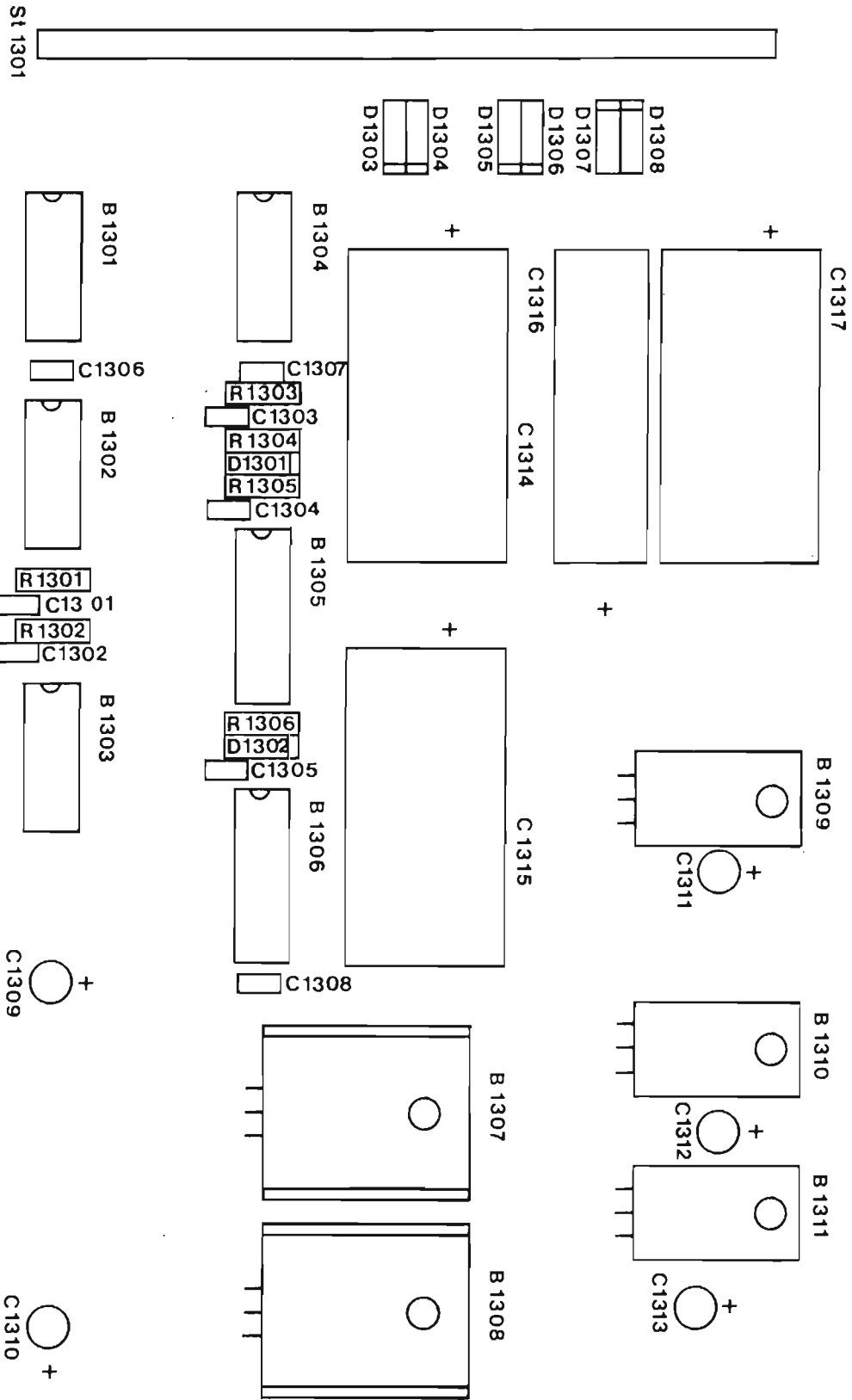
 <b>RÖHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Reglerkarte NGPV univers.	010.210.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
395	R26	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
400	R27	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
405	R28	33R2 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.016.00	
410	R29	475R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.081.00	
415	R30	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.025.00	
420	R31	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor			405.025.00	
425	R36	50k Cermet 19mm Trimmer			403.044.00	
430	R38	50k Cermet 19mm Trimmer			403.044.00	
435	R39	50k Cermet 19mm Trimmer			403.044.00	
440	R40	50k Cermet 19mm Trimmer			403.044.00	
445	R43	50k Cermet 19mm Trimmer			403.044.00	
450	R5	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
455	R9	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.057.00	
460	St1	Steckerleiste 64pol. a+c Multipoint connector			423.104.00	
465	T1	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	
470	T2	Antiwärmescheibe TO18 flach Anti-thermal-wafer			732.004.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Reglerkarte NGPV 100W 20V Typ	010.212.00	1 von 1
		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5		Distanzstück 16fach abbrechb. zb. Abstandshalter EDPU Konden spacer 16-parts pluckable eg. spacer EDPU capacitor			732.031.00	
10	C1	470pF 400V RM5 Scheiben C Ceramic capacitor			412.019.00	
15	R15	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
20	R16	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.030.00	
25	R23	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
30	R3	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.071.00	
35	R32	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor			405.105.00	
40	R33	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor			405.105.00	
45	R37	5k Cermet 19mm Trimmer			403.052.00	
50	R4	47k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.037.00	
55	R41	20k Cermet 19mm Trimmer			403.054.00	
60	R42	1k Cermet 19mm Trimmer			403.043.00	
65	R6	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
70	R7	4k75 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.063.00	
75	R8	47k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.037.00	






	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Hilfskarte I Auxiliary Board I	202. 239.	5.5
zu Gerät:			NGPV	



Bestückungsplan Component Location Plan		Zeichn.-Nr.		Blatt-Nr. 5.5.1
		Benennung Hilfskarte I Auxiliary Board I		Platine-Nr. 202. 239.
 <b>ROHDE &amp; SCHWARZ</b>		zu Gerät:		NGPV

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Hilfskarte I NGPV kompl.	010.087.00	1 von 3
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5		Platine Hilfspl. I NGPV PCB auxiliary I			202.239.01	
10		2.5*10 DIN 6791 Al Niete rivet			711.013.00	
15		2.5*6 DIN 6791 Al Niete rivet			711.011.00	
20		M 2.5* 8 DIN 7985 V2a Linsenschrb.m.Kreuzschlitz Cross recessed raised cheese head screws			711.017.00	
25		M 2,5 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated			711.008.00	
30		A 2,6 DIN 137 verz. Federscheibe Single coil spring lock washers zinc plated			711.010.00	
35		B 2.7 DIN 433 V2a Scheibe washers for cheese head screws zinc plated			711.028.00	
40	B1301	IC Fassung 14pol. Socket for IC			423.042.00	
45	B1301	SN7406N IC TTL Hex inverter/buffer			430.043.00	
50	B1302	IC Fassung 14pol. Socket for IC			423.042.00	
55	B1302	MC14081BCP IC CMOS Quad 2 input AND			430.078.00	
60	B1303	IC Fassung 14pol. Socket for IC			423.042.00	
65	B1303	MC14071BCP IC CMOS Quad 2 input OR			430.082.00	
70	B1304	IC Fassung 14pol. Socket for IC			423.042.00	
75	B1304	SN74LS04N IC TTL Hex inverters			430.096.00	
80	B1305	IC Fassung 16pol. Socket for IC			423.057.00	
85	B1305	MC14049UBCP IC CMOS Hex inverting buffer			430.081.00	
90	B1306	IC Fassung 16pol. Socket for IC			423.057.00	
95	B1306	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo			430.079.00	
100	B1307	MC78M05CT U Regler 5V Voltage regulator TO220			430.052.02	
105	B1307	Kühler Finger U 18*28 K18 zb. Hilfspl. I NGPV cooler finger f.e. auxiliary board I NGPV			206.036.01	
110	B1308	MC78M05CT U Regler 5V Voltage regulator TO220			430.052.02	
115	B1308	Kühler Finger U 18*28 K18 zb. Hilfspl. I NGPV			206.036.01	



ROHDE &amp; SCHWARZ

AZ

Datum Date

Bauteilliste für Parts list for

Sachnummer Stock NO.

Blatt Page

A

04.04

Hilfskarte I NGPV kompl.


010.087.00

2 von 3


Position Nr.  
Position NO.Benennung / Beschreibung  
Designation

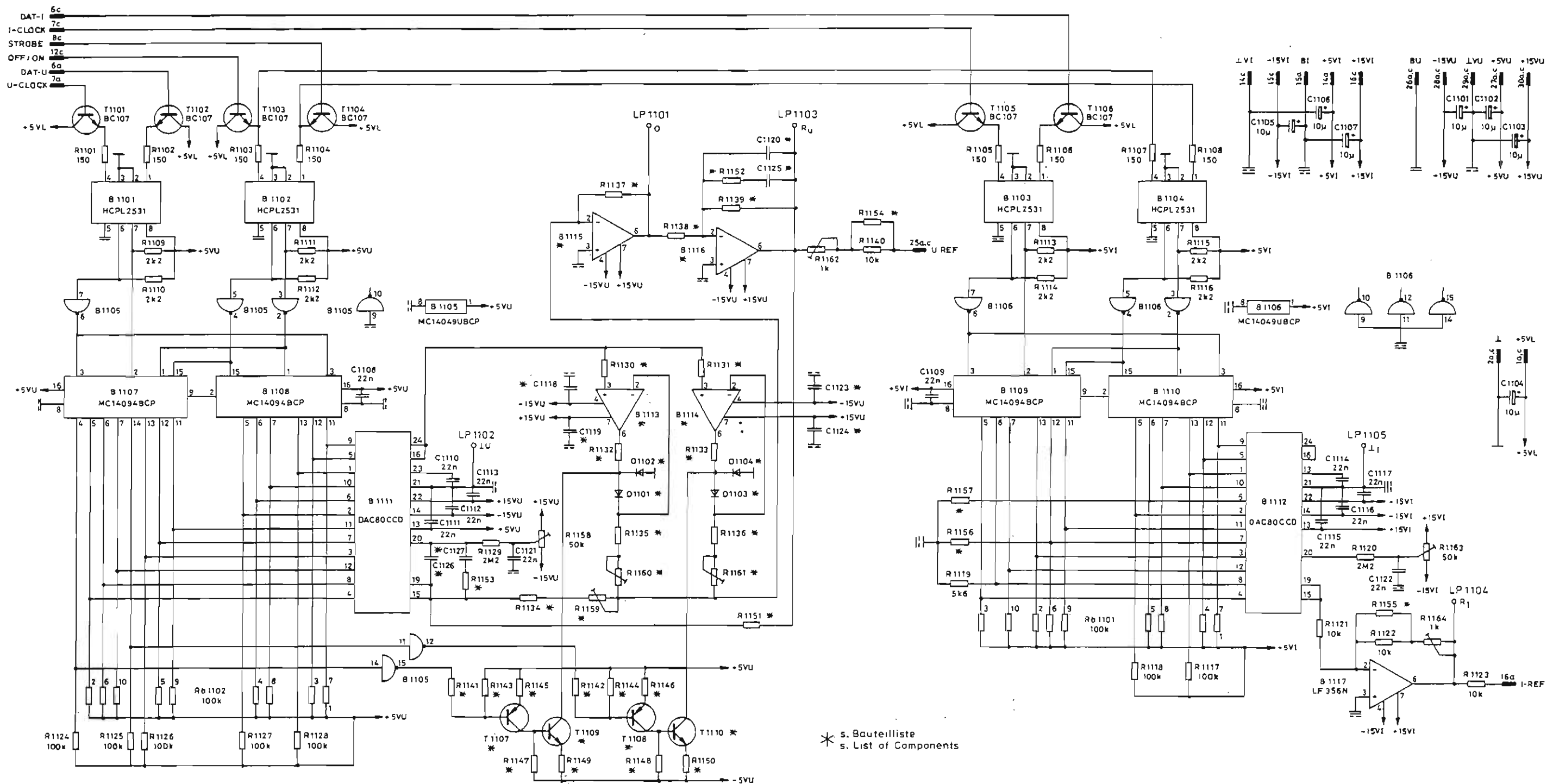
Sachnummer Stock NO.

Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	cooler finger f.e. auxiliary board I NGPV	
120	B1309 MC7915C U Regler -15V 1A T0220 Voltage regulator	430.050.00
125	B1310 L7815CV U Regler 15V Voltage regulator	430.051.00
130	B1311 MC78M05CT U Regler 5V Voltage regulator T0220	430.052.02
135	C1301 47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
140	C1302 47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
145	C1303 470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
150	C1304 47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
155	C1305 470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
160	C1306 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
165	C1307 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
170	C1308 22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
175	C1309 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
180	C1310 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
185	C1311 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
190	C1312 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
195	C1313 10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
200	C1314 2200uF 16V 16*30 Elko Roll Electrolytic capacitor	411.061.00
205	C1315 2200uF 16V 16*30 Elko Roll Electrolytic capacitor	411.061.00
210	C1316 470uF 40V 12*31 Elko Roll Electrolytic capacitor	411.003.01
215	C1317 1000uF 40V 16*30 Elko Roll Electrolytic capacitor	411.048.00
220	D1301 1N4148 Diode 75V 150mA DO35 G	436.025.00
225	D1302 1N4148 Diode 75V 150mA DO35 G	436.025.00
230	D1303 RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
235	D1304 RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
240	D1305 RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
245	D1306 RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilfskarte I NGPV kompl.	010.087.00	3 von 3
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


250	D1307	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
255	D1308	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
260	R1301	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
265	R1302	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
270	R1303	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.071.00
275	R1304	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
280	R1305	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
285	R1306	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
290	St1301	Steckerleiste 64pol. a+c Multipoint connector	423.104.00

 <b>RÖHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for DAC Karte NGPV100W 20V kompl.	Sachnummer Stock NO. 010.085.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	DAC Karte NGPV Universal DAC Board universal				010.216.00	
10	DAC Karte NGPV 100W 20V Typ DAC Board NGPV 100W 20V type				010.218.00	




	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		DAC - Karte DAC Board	202. 237.	5.3
zu Gerät:			NGPV	

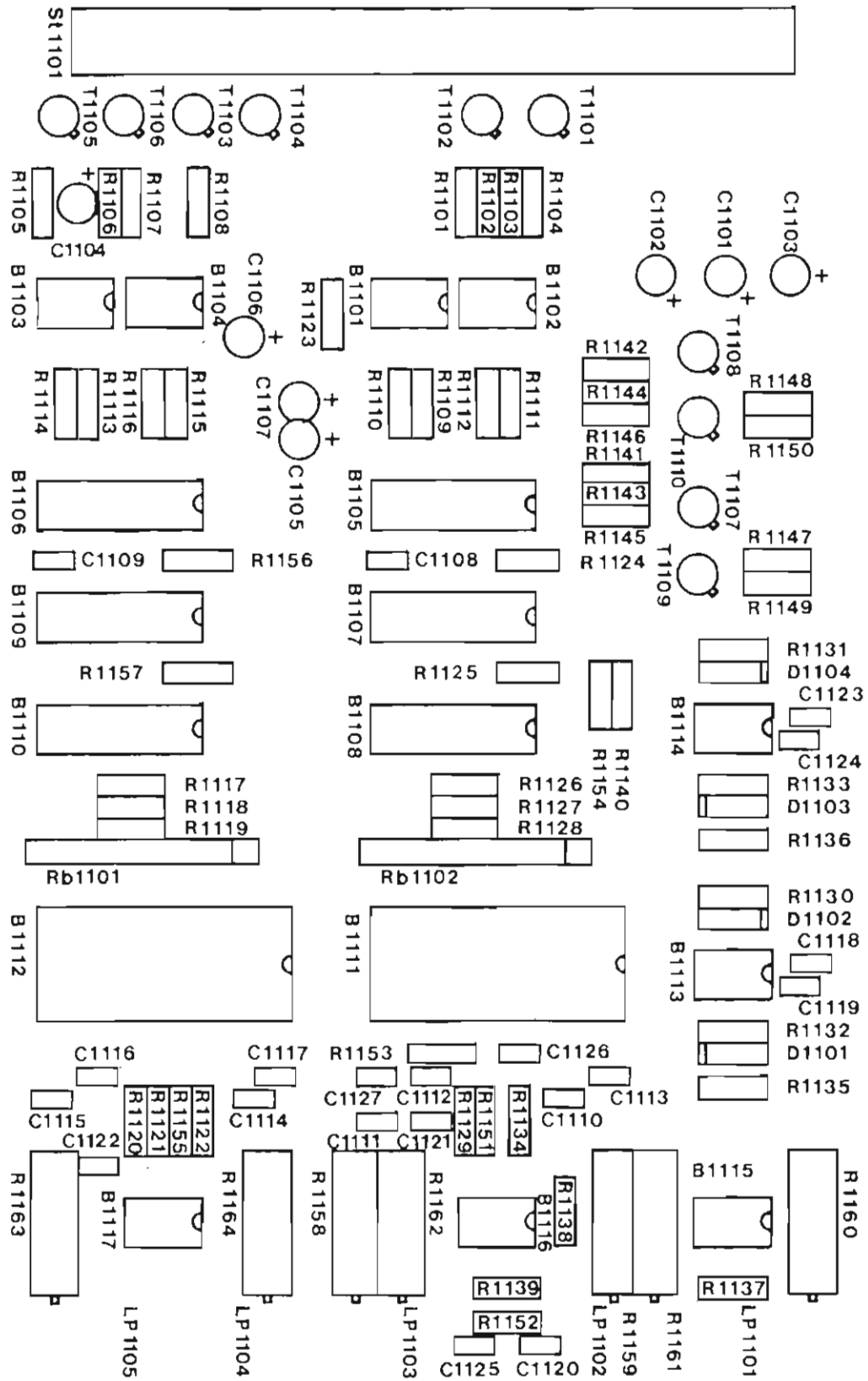
	8/10	20/5	20/10	40/3 40/5	100/1 100/2	300/0,3 300/0,6
B1113	-	LF356N	LF356N	LF356N	-	LF356N
B1114	-	-	-	LF356N	-	LF356N
B1115	-	LF356N	LF356N	LF356N	-	LF356N
B1116	-	LF356N	LF356N	LF356N	-	LF356N
C1118	-	22nF	22nF	22nF	-	22nF
C1119	-	22nF	22nF	22nF	-	22nF
C1120	-	4,7nF	4,7nF	4,7nF	-	4,7nF
C1123	-	-	-	22nF	-	22nF
C1124	-	-	-	22nF	-	22nF
C1125	-	2,2nF	2,2nF	2,2nF	-	2,2nF
C1126	2,2nF	-	-	-	2,2nF	-
C1127	2,2nF	-	-	-	2,2nF	-
D1101	-	1N4148	1N4148	1N4148	-	1N4148
D1102	-	1N4148	1N4148	1N4148	-	1N4148
D1103	-	-	-	1N4148	-	1N4148
D1104	-	-	-	1N4148	-	1N4148
R1130	-	10k	10k	10k	-	10k
R1131	-	-	-	10k	-	10k
R1132	-	3k9	3k9	3k9	-	3k9
R1133	-	-	-	3k9	-	3k9
R1134	-	16k2	16k2	16k2	-	16k2
R1135	-	10k	10k	10k	-	10k
R1136	-	-	-	4k9	-	4k9
R1137	-	8k6	8k6	4k3	-	4k3


Liste der typenabhängigen Bauteile List of Special-to-type Components		Zeichn.-Nr.		Blatt.-Nr.
				5.3.1
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	DAC - Karte DAC Board		202. 237.	
		zu Gerät:	NGPV	




	8/10	20/5	20/10	40/3 40/5	100/1 100/2	300/0,3 300/0,6
R1138	-	10k	10k	10k	-	10k
R1139	-	10k	10k	10k	-	10k
R1141	-	12k1	12k1	12k1	-	12k1
R1142	-	-	-	12k1	-	12k1
R1143	-	3k9	3k9	3k9	-	3k9
R1144	-	-	-	3k9	-	3k9
R1145	-	3k9	3k9	3k9	-	3k9
R1146	-	-	-	3k9	-	3k9
R1147	-	15k	15k	15k	-	15k
R1148	-	-	-	15k	-	15k
R1149	-	150	150	150	-	150
R1150	-	-	-	150	-	150
R1151	1	-	-	-	1	-
R1152	-	100k	100k	100k	-	100k
R1153	100k	-	-	-	100k	-
R1154	150k	-	-	-	150k	-
R1155	-	-	-	-	100k	100k
R1156	-	-	5k6	-	-	-
R1157	5k6	-	-	-	-	-
R1159	-	1k	1k	1k	-	1k
R1160	-	1k	1k	1k	-	1k
R1161	-	-	-	500	-	500
T1107	-	BC177	BC177	BC177	-	BC177
T1108	-	-	-	BC177	-	BC177
T1109	-	BC107	BC107	BC107	-	BC107
T1110	-	-	-	BC107	-	BC107

Liste der typenabhängigen Bauteile List of Special-to-type Components		Zeichn.-Nr.		Blatt-Nr.
				5.3.2
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	DAC - Karte DAC Board		202. 237.	
		zu Gerät:	NGPV	




Bestückungsplan Component Location Plan		Zeichn.-Nr.	Blatt-Nr. 5.3.3
 <b>ROHDE &amp; SCHWARZ</b>	Benennung	DAC - Karte DAC Board	
		zu Gerät:	NGPV
		Platine-Nr.	202. 237.


ROHDE & SCHWARZ		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	DAC Karte NGPV Universal	010.216.00	1 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Platine DAC NGPV PCB DAC			202.237.03	
10		Lötstift verzinnt u. magaz. Solderpin			819.006.00	
15		2.5*10 DIN 6791 Al Niete rivet			711.013.00	
20	B1101	HCPL2531 Optokoppler Optocoupler			440.008.00	
25	B1101/B1102	IC Fassung 16pol. Socket for IC			423.057.00	
30	B1102	HCPL2531 Optokoppler Optocoupler			440.008.00	
35	B1103	HCPL2531 Optokoppler Optocoupler			440.008.00	
40	B1103/B1104	IC Fassung 16pol. Socket for IC			423.057.00	
45	B1104	HCPL2531 Optokoppler Optocoupler			440.008.00	
50	B1105	IC Fassung 16pol. Socket for IC			423.057.00	
55	B1105	MC14049UBCP IC CMOS Hex inverting buffer			430.081.00	
60	B1106	IC Fassung 16pol. Socket for IC			423.057.00	
65	B1106	MC14049UBCP IC CMOS Hex inverting buffer			430.081.00	
70	B1107	IC Fassung 16pol. Socket for IC			423.057.00	
75	B1107	MC14094BCP IC CMOS 8 stage shift/store register			430.091.00	
80	B1108	IC Fassung 16pol. Socket for IC			423.057.00	
85	B1108	MC14094BCP IC CMOS 8 stage shift/store register			430.091.00	
90	B1109	IC Fassung 16pol. Socket for IC			423.057.00	
95	B1109	MC14094BCP IC CMOS 8 stage shift/store register			430.091.00	
100	B1110	IC Fassung 16pol. Socket for IC			423.057.00	
105	B1110	MC14094BCP IC CMOS 8 stage shift/store register			430.091.00	
110	B1111	IC Fassung 24pol. Socket for IC			423.064.00	
115	B1111	DAC80CCD-V ***select Hiller*** Digital to analog converter			430.090.00	
120	B1112	IC Fassung 24pol. Socket for IC			423.064.00	
125	B1112	DAC80CCD-V ***select Hiller*** Digital to analog converter			430.090.00	
130	B1117	IC Fassung 8pol. Socket for IC			423.043.00	
135	B1117	LF356N DIL OP IC			430.095.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bautelliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	2 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		Operational amplifier	
140	C1101	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
145	C1102	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
150	C1103	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
155	C1104	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
160	C1105	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
165	C1106	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
170	C1107	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
175	C1108	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
180	C1109	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
185	C1110	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
190	C1111	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
195	C1112	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
200	C1113	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
205	C1114	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
210	C1115	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
215	C1116	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
220	C1117	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
225	C1121	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
230	C1122	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
235	R1101	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
240	R1102	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
245	R1103	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
250	R1104	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
255	R1105	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
260	R1106	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
265	R1107	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
270	R1108	150R 0.5W 1% Tk50 MS.Widerst.	405.103.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	3 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		Metal-film resistor	
275	R1109	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
280	R1110	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
285	R1111	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
290	R1112	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
295	R1113	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
300	R1114	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
305	R1115	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
310	R1116	2k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.060.00
315	R1117	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
320	R1118	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
325	R1119	5k62 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.073.00
330	R1120	2M21 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.104.00
335	R1121	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
340	R1122	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
345	R1123	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
350	R1124	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
355	R1125	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
360	R1126	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
365	R1127	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
370	R1128	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
375	R1129	2M21 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.104.00
380	R1140	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
385	R1158	50k Cermet 19mm Trimmer	403.044.00
390	R1162	1k Cermet 19mm Trimmer	403.043.00
395	R1163	50k Cermet 19mm Trimmer	403.044.00
400	R1164	1k Cermet 19mm Trimmer	403.043.00
405	RB1101	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
410	RB1102	100k SIL 9f.R.Netzw. 2% resistor network val 104	406.007.00
415	St1101	Steckerleiste 64pol. a+c	423.104.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV Universal	010.216.00	4 von 4
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	Multipoint connector	
420	T1101 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
425	T1101 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
430	T1102 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
435	T1102 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
440	T1103 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
445	T1103 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
450	T1104 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
455	T1104 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
460	T1105 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
465	T1105 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
470	T1106 Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
475	T1106 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV 100W 20V Typ	010.218.00	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

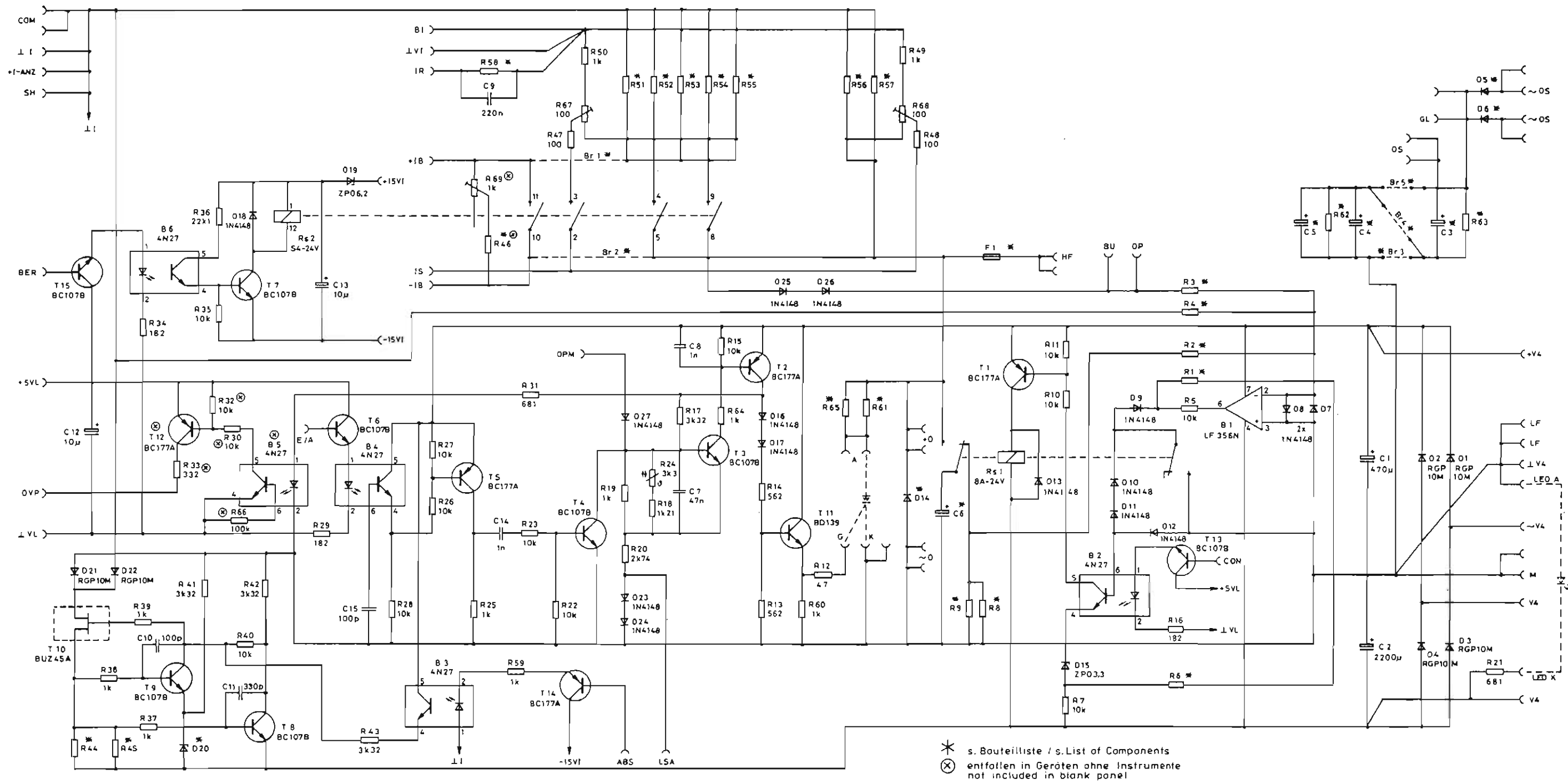
5	B1113	IC Fassung 8pol. Socket for IC	423.043.00
10	B1113	LF356N DIL OP IC Operational amplifier	430.095.00
15	B1115	IC Fassung 8pol. Socket for IC	423.043.00
20	B1115	LF356N DIL OP IC Operational amplifier	430.095.00
25	B1116	IC Fassung 8pol. Socket for IC	423.043.00
30	B1116	LF356N DIL OP IC Operational amplifier	430.095.00
35	C1118	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
40	C1119	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
45	C1120	4,7nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.042.00
50	C1125	2,2nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.021.00
55	D1101	1N4148 Diode 75V 150mA DO35 G	436.025.00
60	D1102	1N4148 Diode 75V 150mA DO35 G	436.025.00
65	R1130	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
70	R1132	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.062.00
75	R1134	16k2 0.25W 0,5% TK15 MS.Wid. Metal-film resistor	405.108.00
80	R1135	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
85	R1137	8k66 1/4W 0,5% TK15 MS.Widerst Metal-film resistor	405.107.00
90	R1138	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
95	R1139	10k 1/4W 0.5% TK15 MS.Widerst. Metal-film resistor	405.105.00
100	R1141	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.066.00
105	R1143	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.062.00
110	R1145	3k92 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.062.00
115	R1147	15k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.033.00
120	R1149	150R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.103.00
125	R1152	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
130	R1159	1k Cermet 19mm Trimmer	403.043.00
135	R1160	1k Cermet 19mm Trimmer	403.043.00
140	T1107	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	DAC Karte NGPV 100W 20V Typ	010.218.00	2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

145	T1107	BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
150	T1109	Antiwärmescheibe TO18 flach Anti-thermal-wafer	732.004.00
155	T1109	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00



 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Hilf.II NGPV100W20V o.Ins.komp	010.114.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Hilf.II NGPV100W Universal auxiliary board universal				010.222.00	
10	Hilf.II NGPV100W20V o.Ins. Typ auxiliary baord				010.224.00	



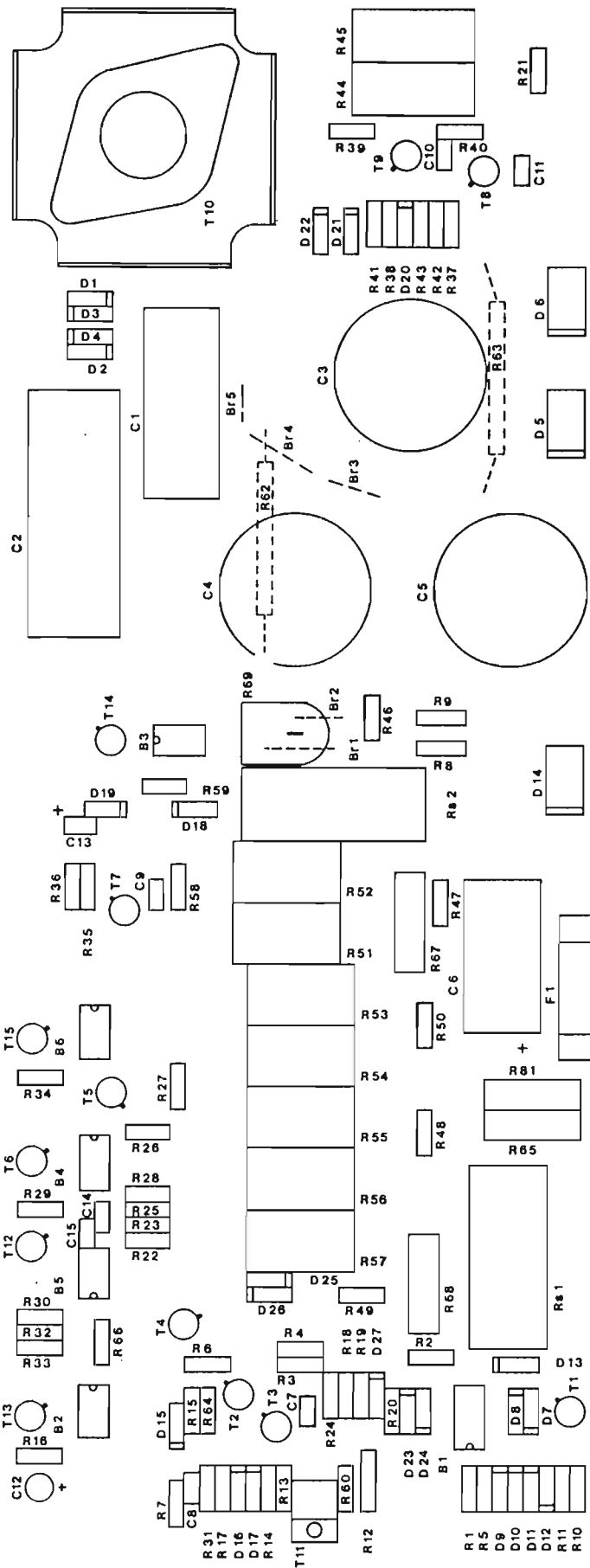
	Zeichn.-Nr.	Benennung	Platine-Nr.	Blatt-Nr.
		Hilfskarte II 100 W Auxiliary Board II	202. 238.	5.6
		zu Gerät:	NGPV	


	8/10	20/5	40/3	100/1	300/0,3
C3	10000µF	3300µF	2200µF	470µF	470µF
C4	10000µF	3300µF	2200µF	470µF	470µF
C5	10000µF	3300µF	2200µF	470µF	-
C6	220µF	100µF	47µF	22µF	4,7µF
D5	FEP16BT	FEP16BT	GI826	GI826	RGP30M
D6	FEP16BT	FEP16BT	GI826	GI826	RGP30M
D14	FEP16BT	GI826	GI826	GI826	RGP30M
D20	ZPD3,9	ZPD3,9	ZPD3,9	ZPD3,9	B2X55/C2V4
F1	T10	T6,3D	T3,15D	T1	T0,4
R1	1M	1M	1M	1M	10M
R2	100k	100k	100k	100k	1M
R3	100k	100k	100k	100k	1M
R4	100k	100k	100k	100k	1M
R6	1M	1M	1M	1M	10M
R8	39	82	330	2k2	18k
R9	39	82	330	2k2	18k
R44	10	10	10	47	33
R45	10	10	-	47	-
R46	-	5k11	6k81	-	6k19
R51	0,13	0,51	0,51	2	2
R52	0,13	0,51	0,51	2	2
R53	0,13	0,51	0,51	-	-
R54	0,13	0,51	0,51	-	-
R55	0,24	1	1	-	-
R56	0,51	2	2	10	10


Liste der typenabhängigen Bauteile List of Special-to-type Components		Zeichn.-Nr.		Blatt-Nr.
				5.6.1
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	Hilfskarte II 100 W Auxiliary Board II		202. 238.	
		zu Gerät:	NGPV	

	8/10	20/5	40/3	100/1	300/0,3
R57	0,51	2	2	100	100
R58	249	1k	1k	1k	1k
R61	0,051	0,051	0,10	0,91	1,8
R62	220	470	2k2	8k2	8k2
R63	220	470	2k2	8k2	8k2
R65	0,051	0,051	0,10	0,91	1,8
R69	-	1k	1k	-	1k
Brücke 1	X	-	-	-	-
Brücke 2	X	-	-	-	-
Brücke 3	X	X	X	X	-
Brücke 4	-	-	-	-	X
Brücke 5	X	X	X	X	-


Liste der typenabhängigen Bauteile List of Special-to-type Components		Zeichn.-Nr.		Blatt-Nr.
				5.6.2
 <b>ROHDE &amp; SCHWARZ</b>	Benennung		Platine-Nr.	
	Hilfskarte II 100 W Auxiliary Board II		202. 238.	
		zu Gerät:	NGPV	




Bestückungsplan Component Location Plan		Zeichn.-Nr.	Blatt-Nr.
			5.6.3
	Benennung	Hilfskarte II 100 W Auxiliary Board II	
	zu Gerät:	NGPV	
		Platine-Nr.	202. 238.

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W Universal	010.222.00	1 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Platine Hilfspl.II NGPV100W PCB auxiliary board II	202.238.05
10		Lötstift verzinnt u. magaz. Solderpin	819.006.00
15		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated	712.009.00
20		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	712.022.00
25		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers	712.031.00
30		B 3,2 DIN 125 Ms Scheibe plain washers	712.025.00
35		Abstandsrohr,Keramik 5x2,7x1,4 Distance tube ceramic	730.036.00
40	1	Relais 2 x um 8A 24V = Power relay	424.020.00
45	B1	LF356N DIL OP IC Operational amplifier	430.095.00
50	B1	IC Fassung 8pol. Socket for IC	423.043.00
55	B2	IC Fassung 6pol. Socket for IC	423.060.00
60	B2	4N27 Optokoppler Optocoupler	440.007.00
65	B3	IC Fassung 6pol. Socket for IC	423.060.00
70	B3	4N27 Optokoppler Optocoupler	440.007.00
75	B4	IC Fassung 6pol. Socket for IC	423.060.00
80	B4	4N27 Optokoppler Optocoupler	440.007.00
85	B6	IC Fassung 6pol. Socket for IC	423.060.00
90	B6	4N27 Optokoppler Optocoupler	440.007.00
95	C1	470uF 25V 10*32 Elko Roll Electrolytic capacitor	411.074.00
100	C10	100pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.015.00
105	C11	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.031.00
110	C12	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
115	C13	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor	411.037.00
120	C14	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00


 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Hilf.II NGPV100W Universal	Sachnummer Stock NO. 010.222.00	Blatt Page 2 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	


125	C15	100pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.015.00
130	C2	2200uF 40V 18*30 Elko Roll Electrolytic capacitor	411.024.00
135	C7	47nF 100V RM10 MKT Konden. Synthetic-foil capacitor	412.036.00
140	C8	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00
145	C9	220nF 63V RM10 MKT Konden. Synthetic-foil capacitor	412.055.00
150	D1	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
155	D10	1N4148 Diode 75V 150mA DO35 G	436.025.00
160	D11	1N4148 Diode 75V 150mA DO35 G	436.025.00
165	D12	1N4148 Diode 75V 150mA DO35 G	436.025.00
170	D13	1N4148 Diode 75V 150mA DO35 G	436.025.00
175	D15	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
180	D16	1N4148 Diode 75V 150mA DO35 G	436.025.00
185	D17	1N4148 Diode 75V 150mA DO35 G	436.025.00
190	D18	1N4148 Diode 75V 150mA DO35 G	436.025.00
195	D19	ZPD 6,2 Z-Diode Z6,2V 500mW 54mA DO35 G	436.017.00
200	D2	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
205	D21	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
210	D22	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
215	D23	1N4148 Diode 75V 150mA DO35 G	436.025.00
220	D24	1N4148 Diode 75V 150mA DO35 G	436.025.00
225	D25	1N4148 Diode 75V 150mA DO35 G	436.025.00
230	D26	1N4148 Diode 75V 150mA DO35 G	436.025.00
235	D27	1N4148 Diode 75V 150mA DO35 G	436.025.00
240	D3	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
245	D4	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
250	D7	1N4148 Diode 75V 150mA DO35 G	436.025.00
255	D8	1N4148 Diode 75V 150mA DO35 G	436.025.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Hilf.II NGPV100W Universal	010.222.00	3 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	

260	D9	1N4148 Diode 75V 150mA DO35 G	436.025.00
265	F1	Sicherungshalter Print längs Socket for fuse	423.108.00
270	R10	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
275	R11	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
280	R12	47R 0,5W 1% Tk50 MS.Widerst. Metal-film resistor ***** KEIN 10mm Raster*****	405.117.00
285	R13	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
290	R14	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
295	R15	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
300	R16	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
305	R17	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
310	R18	1k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.023.00
315	R19	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
320	R20	2k74 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.061.00
325	R21	681R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.058.00
330	R22	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R23	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
340	R24	3k3 NTC Widerst. NTC resistor	407.002.00
345	R25	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
350	R26	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
355	R27	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R28	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
365	R29	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
370	R31	681R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.058.00
375	R34	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
380	R35	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
385	R36	22k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.067.00
390	R37	1k 0.5W 1% Tk50 MS.Widerst.	405.001.00





 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Hilf.II NGPV100W Universal	010.222.00	4 von 5
Benennung / Beschreibung Designation					Sachnummer Stock NO.	
				Metal-film resistor		
395	R38			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
400	R39			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
405	R40			10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor		405.030.00
410	R41			3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor		405.025.00
415	R42			3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor		405.025.00
420	R43			3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor		405.025.00
425	R47			100R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.017.00
430	R48			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
435	R49			1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor		405.110.00
440	R5			10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor		405.030.00
445	R50			1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor		405.110.00
450	R59			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
455	R60			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
460	R64			1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.001.00
465	R66			100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor		405.086.00
470	R67			100R Cermet 19mm Trimmer		403.056.00
475	R68			100R Cermet 19mm Trimmer		403.056.00
480	R7			10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor		405.030.00
485	Rs			Relais 2 x um 8A 24V = Power relay		424.020.00
490	Rs2			Relais S4-24V Karten 24V = Sp. Relay		424.012.00
495	T1			BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M		431.012.00
500	T1			Antiwärmescheibe TO18 hoch Anti-thermal-wafer		732.003.00
505	T10			BUZ45A SiPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M		431.078.00
510	T10			Kühler Finger 46*46 To3 31.8H cooler finger		206.038.00
515	T11			BD139 Transistor NPN 80V 1.5A 12.5W TO126P		431.041.00
520	T13			BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M		431.006.00
525	T13			Antiwärmescheibe TO18 hoch Anti-thermal-wafer		732.003.00
530	T14			BC177B PNP Transistor		431.012.00

 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W Universal	010.222.00	5 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	PNP 50V 0.2A 0.3W TO18 M	
535	T14 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
540	T15 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
545	T15 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
550	T2 BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
555	T2 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
560	T3 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
565	T3 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
570	T4 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
575	T4 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
580	T5 BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
585	T5 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
590	T6 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
595	T6 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
600	T7 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
605	T7 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
610	T8 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
615	T8 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
620	T9 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
625	T9 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00

ROHDE & SCHWARZ		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5		Abstandsrohr, Keramik 5x2,7x1,4 Distance tube ceramic			730.036.00	
10	3	Kupferschaltdraht 0.8mm 0.5qmm in 1Kg Ringen = 220 m verzinnt copper connecting wire			826.003.00	
15	5	Kupferschaltdraht 0.8mm 0.5qmm in 1Kg Ringen = 220 m verzinnt copper connecting wire			826.003.00	
20	Br	Kupferschaltdraht 0.8mm 0.5qmm in 1Kg Ringen = 220 m verzinnt copper connecting wire			826.003.00	
25	Br	Kupferschaltdraht 0.8mm 0.5qmm in 1Kg Ringen = 220 m verzinnt copper connecting wire			826.003.00	
30	C3	3300uF 63V 35*55 Elko Print Electrolytic capacitor			411.071.00	
35	C4	3300uF 63V 35*55 Elko Print Electrolytic capacitor			411.071.00	
40	C5	3300uF 63V 35*55 Elko Print Electrolytic capacitor			411.071.00	
45	C6	100uF 40V 9*21 Elko Roll Electrolytic capacitor			411.031.00	
50	D14	G1826 Diode 420V 5A 200nS P			436.059.00	
55	D20	ZPD 3,9 Z-Diode Z3,9V 500mW 92mA DO35 G			436.019.00	
60	D5	FEP16BT Doppeldiode 100V 2x 8A 35nS TO220A+ duodiode			436.061.00	
65	D6	FEP16BT Doppeldiode 100V 2x 8A 35nS TO220A+ duodiode			436.061.00	
70	F1	T6,3L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3			443.022.00	
75	R1	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.077.00	
80	R2	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.086.00	
85	R3	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.086.00	
90	R4	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.086.00	
95	R44	10R 5W 10% TK-- Dt.Widerst. Wire-wound resistor			402.019.01	
100	R45	10R 5W 10% TK-- Dt.Widerst. Wire-wound resistor			402.019.01	
105	R51	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.040.00	
110	R52	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.040.00	
115	R53	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.040.00	
120	R54	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.040.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Hilf.II NGPV100W20V o.Ins. Typ	010.224.00	2 von 2
		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
125	R55	1R 2,25W 5% TK20 Dt.Widerst. Wire-wound resistor			402.041.00	
130	R56	2R 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.024.01	
135	R57	2R 1W 5% TK20 Dt.Widerst. Wire-wound resistor			402.024.01	
140	R58	1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor			405.110.00	
145	R6	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.077.00	
150	R61	R051 1W 20% TK-- Dt.Widerst. Wire-wound resistor			402.042.00	
155	R62	470R 4W 10% TK-- Dt.Widerst. Wire-wound resistor			402.002.00	
160	R63	470R 4W 10% TK-- Dt.Widerst. Wire-wound resistor			402.002.00	
165	R65	R051 1W 20% TK-- Dt.Widerst. Wire-wound resistor			402.042.00	
170	R8	82R5 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.045.00	
175	R9	82R5 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.045.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilfskarte I NGPV kompl.	010.087.00	1 von 3
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.

5		Platine Hilfspl. I NGPV PCB auxiliary I	202.239.01
10		2.5*10 DIN 6791 Al Niete rivet	711.013.00
15		2.5*6 DIN 6791 Al Niete rivet	711.011.00
20		M 2.5* 8 DIN 7985 V2a Linsenschrb.m.Kreuzschlitz Cross recessed raised cheese head screws	711.017.00
25		M 2,5 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	711.008.00
30		A 2,6 DIN 137 verz. Federscheibe Single coil spring lock washers zinc plated	711.010.00
35		B 2.7 DIN 433 V2a Scheibe washers for cheese head screws zinc plated	711.028.00
40	B1301	IC Fassung 14pol. Socket for IC	423.042.00
45	B1301	SN7406N IC TTL Hex inverter/buffer	430.043.00
50	B1302	IC Fassung 14pol. Socket for IC	423.042.00
55	B1302	MC14081BCP IC CMOS Quad 2 input AND	430.078.00
60	B1303	IC Fassung 14pol. Socket for IC	423.042.00
65	B1303	MC14071BCP IC CMOS Quad 2 input OR	430.082.00
70	B1304	IC Fassung 14pol. Socket for IC	423.042.00
75	B1304	SN74LS04N IC TTL Hex inverters	430.096.00
80	B1305	IC Fassung 16pol. Socket for IC	423.057.00
85	B1305	MC14049UBCP IC CMOS Hex inverting buffer	430.081.00
90	B1306	IC Fassung 16pol. Socket for IC	423.057.00
95	B1306	MC14027BCP IC CMOS Dual J-K Master/Slave flip-flo	430.079.00
100	B1307	MC78M05CT U Regler 5V Voltage regulator TO220	430.052.02
105	B1307	Kühler Finger U 18*28 K18 zb. Hilfspl. I NGPV cooler finger f.e. auxiliary board I NGPV	206.036.01
110	B1308	MC78M05CT U Regler 5V Voltage regulator TO220	430.052.02
115	B1308	Kühler Finger U 18*28 K18 zb. Hilfspl. I NGPV	206.036.01

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilfskarte I NGPV kompl.	010.087.00	2 von 3
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


		cooler finger f.e. auxiliary board I NGPV	
120	B1309	MC7915C U Regler -15V 1A T0220 Voltage regulator	430.050.00
125	B1310	L7815CV U Regler 15V Voltage regulator	430.051.00
130	B1311	MC78M05CT U Regler 5V Voltage regulator T0220	430.052.02
135	C1301	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
140	C1302	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
145	C1303	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
150	C1304	47pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.035.00
155	C1305	470pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.016.00
160	C1306	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
165	C1307	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
170	C1308	22nF 40V RM2,5 EGPU Konden. Ceramic capacitor	412.051.00
175	C1309	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
180	C1310	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
185	C1311	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
190	C1312	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
195	C1313	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
200	C1314	2200uF 16V 16*30 Elko Roll Electrolytic capacitor	411.061.00
205	C1315	2200uF 16V 16*30 Elko Roll Electrolytic capacitor	411.061.00
210	C1316	470uF 40V 12*31 Elko Roll Electrolytic capacitor	411.003.01
215	C1317	1000uF 40V 16*30 Elko Roll Electrolytic capacitor	411.048.00
220	D1301	1N4148 Diode 75V 150mA DO35 G	436.025.00
225	D1302	1N4148 Diode 75V 150mA DO35 G	436.025.00
230	D1303	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
235	D1304	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
240	D1305	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
245	D1306	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00

		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Hilfskarte I NGPV kompl.	010.087.00	3 von 3
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
250	D1307	RGP10M Diode 1000V 1A 500nS DO41 P			436.057.00	
255	D1308	RGP10M Diode 1000V 1A 500nS DO41 P			436.057.00	
260	R1301	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
265	R1302	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
270	R1303	18k2 0,5W 1% Tk50 MS.Widerst. Metal-film resistor			405.071.00	
275	R1304	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
280	R1305	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
285	R1306	12k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.066.00	
290	St1301	Steckerleiste 64pol. a+c Multipoint connector			423.104.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühlereinh.NGPV100W 20V kompl.	015.016.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Kühlereinh.NGPV100W 20V oben kom power unit complete	015.022.00
10	Kühlereinh.NGPV100W20V unten kom power unit complete	015.023.00
15	Kühlereinh.NGPV100W Lüfter komp. power unit NGPV100W Blower compl.	015.108.00
20	Kühlereinh. mech.NGPV100W kompl. power unit complete (mechanical)	016.002.00



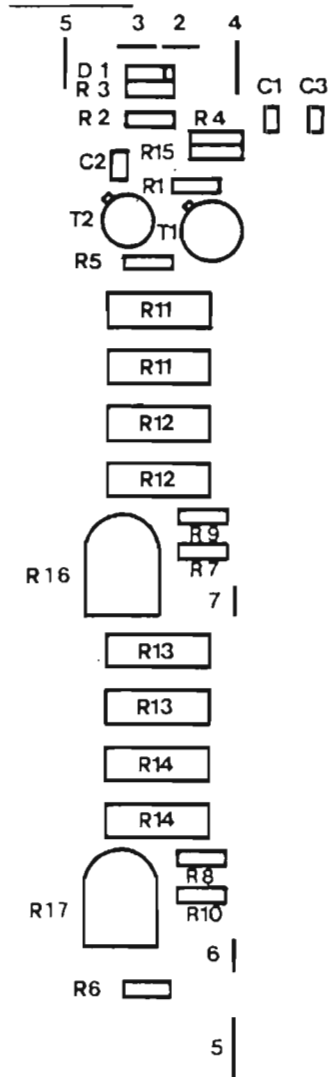
 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Kühleinh.NGPV100W 20V oben kom	015.022.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Kühleinh.NGPV100W oben Univer. power unit universal				015.076.00	
10	Kühleinh.NGPV100W 20V oben Typ power unit				015.079.00	



NGPV	8/10	20/5	40/3	100/1	300/0,3
R 4	1k5	1k5	1k5	—	—
R 11	2 x 0,39	0,39	2 x 1,8	1,8	6,65
R 12	1,8	—	1,8	—	—
R 13	2 x 0,39	0,39	2 x 1,8	1,8	6,65
R 14	1,8	—	1,8	—	—
R 15	6k81	6k81	6k81	—	—
C 3	4,7n	4,7n	4,7n	—	—

\*

 <b>ROHDE &amp; SCHWARZ</b>	Benennung	Kühleinheit 100 W Power Unit	Platine-Nr.	202. 230.
	zu Gerät:	NGPV	Zeichn.-Nr.	Blatt-Nr. 5.7





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Bestückungsplan Component Location Plan		Zeichn.-Nr.		Blatt-Nr. 5.7.1
		zu Gerät: NGPV		Platine-Nr. 202. 230.
 <b>ROHDE &amp; SCHWARZ</b>	Benennung Kühleinheit 100 W Power Unit			

 <b>RÖHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		A	04.04	Kühleinh.NGPV100W oben Univer.	015.076.00	1 von 2
		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5		Platine Kühleinheit NGPV100W PCB power unit			202.230.03	
10		Thermoschalter 118 C aus 6% Thermal circ.breaker braun/rot			425.001.00	
15		Kühler KS97-120 NGPV 100W cooler			206.102.00	
20		Isolierbuchse 7,5/3,5/3,1D3,5L Insulating sleeves			732.017.00	
25		M 3 * 16 DIN 7985 verz. Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws zinc plated			712.055.00	
30		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated			712.022.00	
35		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers			712.031.00	
40		B 3,2 DIN 125 verz. Scheibe plain washers zinc plated			712.023.00	
45		A 3,2 DIN 9021 verz. Scheibe Washers, outside diameter approx. 3 d zinc plated			712.024.00	
50		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated			712.009.00	
55	R10	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
60	R16	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502			403.019.00	
65	R17	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502			403.019.00	
70	R7	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
75	R8	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
80	R9	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor			405.001.00	
85	T3	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M			431.078.00	
90	T3	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer			732.010.00	
95	T4	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M			431.078.00	
100	T4	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer			732.010.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W oben Univer.	Sachnummer Stock NO. 015.076.00	Blatt Page 2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W 20V oben Typ	Sachnummer Stock NO. 015.079.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	R11	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor			402.050.00	
10	R13	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor			402.050.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W20V unten kom	Sachnummer Stock NO. 015.023.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Kühleinh.NGPV100W unten Univer power unit universal				015.077.00	
10	Kühleinh.NGPV100W20V unten Typ power unit				015.084.00	


ROHDE & SCHWARZ		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Kühleinheit NGPV100W unten Univer	015.077.00	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Platine Kühleinheit NGPV100W PCB power unit				202.230.03
10		Thermoschalter 60 C ein 10% Thermal circuit breaker grau/rot				425.002.00
15		2k2 4W 10% TK-- Dt.Widerst. Wire-wound resistor				402.003.00
20		Kühler KS97-120 NGPV 100W cooler				206.102.00
25		Isolierbuchse 7,5/3,5/3,1D3,5L Insulating sleeves				732.017.00
30		M 3 * 16 DIN 7985 verz. Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws zinc plated				712.055.00
35		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated				712.022.00
40		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers				712.031.00
45		B 3,2 DIN 125 verz. Scheibe plain washers zinc plated				712.023.00
50		A 3,2 DIN 9021 verz. Scheibe Washers, outside diameter approx. 3 d zinc plated				712.024.00
55		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated				712.009.00
60	C1	470pF 400V RM5 Scheiben C Ceramic capacitor				412.019.00
65	C1	Distanzstück 16fach abbrechb. zb. Abstandshalter EDPU Kondens spacer 16-parts pluckable eg. spacer EDPU capacitor				732.031.00
70	C2	100pF 100V RM2,5 EGPU Kondens. Ceramic capacitor				412.015.00
75	D1	1N4148 Diode 75V 150mA DO35 G				436.025.00
80	R1	100R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.017.00
85	R10	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00
90	R16	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502				403.019.00
95	R17	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502				403.019.00
100	R2	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00
105	R3	10k 0,5W 1% Tk50 MS.Widerst.				405.030.00





 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
Position Nr. Position NO.		A	04.04	Kühleinh.NGPV100W unten Univer	015.077.00	2 von 2	
		Benennung / Beschreibung Designation				Sachnummer Stock NO.	
		Metal-film resistor					
110	R5	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00	
115	R6	475R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.081.00	
120	R7	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00	
125	R8	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00	
130	R9	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.001.00	
135	T1	BC140-10 NPN Transistor NPN 80V 1A 0.75W TO5 M				431.079.00	
140	T1	Antiwärmescheibe TO 5 flach Anti-thermal-wafer				732.001.00	
145	T2	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M				431.006.00	
150	T2	Antiwärmescheibe TO18 hoch Anti-thermal-wafer				732.003.00	
155	T3	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M				431.078.00	
160	T3	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer				732.010.00	
165	T4	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M				431.078.00	
170	T4	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer				732.010.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W20V unten Typ	015.084.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5	C3	4,7nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.042.00
10	R11	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00
15	R13	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00
20	R15	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
25	R4	1k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.125.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W Lüfter komp.	Sachnummer Stock NO. 015.108.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Lüfterflügel 90mm Alu Propeller Fan-wings Propellers			204.122.00	
10		Lötösenleiste 6pol.Keramik Soldering strip			423.103.00	
15		Kabeldurchführung PVC 10 Innen Cable entry			423.114.00	
20		Motor (Lüfter) 220V fan engine			455.007.00	
25	F103	0,11A MultiFuse (13R PTC)250V Fuse			443.049.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh. mech.NGPV100W kompl.	Sachnummer Stock NO. 016.002.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Motorbügel f.180W Kühleinheit motor bow for cooling unit				204.099.00	
10	Montagewinkel f.Kühleinh. 100W Mounting-angles f. cooling unit				204.281.02	
15	Gummipuffer 8*8 M3 Loch/Bolzen für Lüftermotor Rubber-pad				204.296.00	
20	Distanzrohr 8*4.3*8 mm Messing vernickelt spacer				730.015.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W20V m.Ins.komp	010.089.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

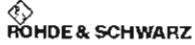
5	Hilf.II NGPV100W Universal auxiliary board universal	010.222.00
10	Hilf.II NGPV100W20V m.Ins. Typ auxiliary board	010.229.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W Universal	010.222.00	1 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Platine Hilfspl.II NGPV100W PCB auxiliary board II	202.238.05
10		Lötstift verzinnt u. magaz. Solderpin	819.006.00
15		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated	712.009.00
20		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	712.022.00
25		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers	712.031.00
30		B 3,2 DIN 125 Ms Scheibe plain washers	712.025.00
35		Abstandsrohr,Keramik 5x2,7x1,4 Distance tube ceramic	730.036.00
40	1	Relais 2 x um 8A 24V = Power relay	424.020.00
45	B1	LF356N DIL OP IC Operational amplifier	430.095.00
50	B1	IC Fassung 8pol. Socket for IC	423.043.00
55	B2	IC Fassung 6pol. Socket for IC	423.060.00
60	B2	4N27 Optokoppler Optocoupler	440.007.00
65	B3	IC Fassung 6pol. Socket for IC	423.060.00
70	B3	4N27 Optokoppler Optocoupler	440.007.00
75	B4	IC Fassung 6pol. Socket for IC	423.060.00
80	B4	4N27 Optokoppler Optocoupler	440.007.00
85	B6	IC Fassung 6pol. Socket for IC	423.060.00
90	B6	4N27 Optokoppler Optocoupler	440.007.00
95	C1	470uF 25V 10*32 Elko Roll Electrolytic capacitor	411.074.00
100	C10	100pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.015.00
105	C11	330pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.031.00
110	C12	10uF 16V RM2,5 Elko Tantal Electrolytic capacitor	411.068.00
115	C13	10uF 35V RM2,5 Elko Tantal Electrolytic capacitor	411.037.00
120	C14	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf,II NGPV100W Universal	010.222.00	2 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

125	C15	100pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.015.00
130	C2	2200uF 40V 18*30 Elko Roll Electrolytic capacitor	411.024.00
135	C7	47nF 100V RM10 MKT Konden. Synthetic-foil capacitor	412.036.00
140	C8	1nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.014.00
145	C9	220nF 63V RM10 MKT Konden. Synthetic-foil capacitor	412.055.00
150	D1	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
155	D10	1N4148 Diode 75V 150mA DO35 G	436.025.00
160	D11	1N4148 Diode 75V 150mA DO35 G	436.025.00
165	D12	1N4148 Diode 75V 150mA DO35 G	436.025.00
170	D13	1N4148 Diode 75V 150mA DO35 G	436.025.00
175	D15	ZPD 3,3 Z-Diode Z3,3V 500mW 109mA DO35 G	436.024.00
180	D16	1N4148 Diode 75V 150mA DO35 G	436.025.00
185	D17	1N4148 Diode 75V 150mA DO35 G	436.025.00
190	D18	1N4148 Diode 75V 150mA DO35 G	436.025.00
195	D19	ZPD 6,2 Z-Diode Z6,2V 500mW 54mA DO35 G	436.017.00
200	D2	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
205	D21	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
210	D22	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
215	D23	1N4148 Diode 75V 150mA DO35 G	436.025.00
220	D24	1N4148 Diode 75V 150mA DO35 G	436.025.00
225	D25	1N4148 Diode 75V 150mA DO35 G	436.025.00
230	D26	1N4148 Diode 75V 150mA DO35 G	436.025.00
235	D27	1N4148 Diode 75V 150mA DO35 G	436.025.00
240	D3	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
245	D4	RGP10M Diode 1000V 1A 500nS DO41 P	436.057.00
250	D7	1N4148 Diode 75V 150mA DO35 G	436.025.00
255	D8	1N4148 Diode 75V 150mA DO35 G	436.025.00

		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Hilf.II NGPV100W Universal	010.222.00	3 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	

260	D9	1N4148 Diode 75V 150mA DO35 G	436.025.00
265	F1	Sicherungshalter Print längs Socket for fuse	423.108.00
270	R10	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
275	R11	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
280	R12	47R 0,5W 1% Tk50 MS.Widerst. Metal-film resistor ***** KEIN 10mm Raster*****	405.117.00
285	R13	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
290	R14	562R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.057.00
295	R15	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
300	R16	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
305	R17	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
310	R18	1k21 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.023.00
315	R19	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
320	R20	2k74 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.061.00
325	R21	681R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.058.00
330	R22	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
335	R23	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
340	R24	3k3 NTC Widerst. NTC resistor	407.002.00
345	R25	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
350	R26	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
355	R27	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
360	R28	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
365	R29	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
370	R31	681R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.058.00
375	R34	182R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.115.00
380	R35	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
385	R36	22k1 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.067.00
390	R37	1k 0.5W 1% Tk50 MS.Widerst.	405.001.00



 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W Universal	010.222.00	4 von 5
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		Metal-film resistor	
395	R38	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
400	R39	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
405	R40	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
410	R41	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
415	R42	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
420	R43	3k32 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.025.00
425	R47	100R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.017.00
430	R48	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
435	R49	1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor	405.110.00
440	R5	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
445	R50	1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor	405.110.00
450	R59	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
455	R60	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
460	R64	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
465	R66	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
470	R67	100R Cermet 19mm Trimmer	403.056.00
475	R68	100R Cermet 19mm Trimmer	403.056.00
480	R7	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
485	Rs	Relais 2 x um 8A 24V = Power relay	424.020.00
490	Rs2	Relais S4-24V Karten 24V = Sp. Relay	424.012.00
495	T1	BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
500	T1	Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
505	T10	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M	431.078.00
510	T10	Kühler Finger 46*46 To3 31.8H cooler finger	206.038.00
515	T11	BD139 Transistor NPN 80V 1.5A 12.5W TO126P	431.041.00
520	T13	BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
525	T13	Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
530	T14	BC177B PNP Transistor	431.012.00

**ROHDE & SCHWARZ**

AZ

Datum Date

Bauteilliste für Parts list for

Sachnummer Stock NO.

Blatt Page

A

04.04

Hilf.II NGPV100W Universal


010.222.00

5 von 5

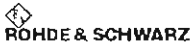
Position Nr.  
Position NO.Benennung / Beschreibung  
Designation


Sachnummer Stock NO.

Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	PNP 50V 0.2A 0.3W TO18 M	
535	T14 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
540	T15 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
545	T15 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
550	T2 BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
555	T2 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
560	T3 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
565	T3 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
570	T4 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
575	T4 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
580	T5 BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M	431.012.00
585	T5 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
590	T6 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
595	T6 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
600	T7 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
605	T7 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
610	T8 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
615	T8 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
620	T9 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
625	T9 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Hilf.II NGPV100W20V m.Ins. Typ	010.229.00	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.

5		Abstandsrohr, Keramik 5x2,7x1,4 Distance tube ceramic	730.036.00
10	B5	IC Fassung 6pol. Socket for IC	423.060.00
15	B5	4N27 Optokoppler Optocoupler	440.007.00
20	C3	3300uF 63V 35*55 Elko Print Electrolytic capacitor	411.071.00
25	C4	3300uF 63V 35*55 Elko Print Electrolytic capacitor	411.071.00
30	C5	3300uF 63V 35*55 Elko Print Electrolytic capacitor	411.071.00
35	C6	100uF 40V 9*21 Elko Roll Electrolytic capacitor	411.031.00
40	D14	GI826 Diode 420V 5A 200nS P	436.059.00
45	D20	ZPD 3,9 Z-Diode Z3,9V 500mW 92mA DO35 G	436.019.00
50	D5	FEP16BT Doppeldiode 100V 2x 8A 35nS TO220A+ duodiode	436.061.00
55	D6	FEP16BT Doppeldiode 100V 2x 8A 35nS TO220A+ duodiode	436.061.00
60	F1	T6,3L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3	443.022.00
65	R1	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.077.00
70	R2	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
75	R3	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
80	R30	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
85	R32	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
90	R33	332R 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.078.00
95	R4	100k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.086.00
100	R44	10R 5W 10% TK-- Dt.Widerst. Wire-wound resistor	402.019.01
105	R45	10R 5W 10% TK-- Dt.Widerst. Wire-wound resistor	402.019.01
110	R46	5k11 1/4W 1% Tk50 MS.Widerst. Metal-film resistor	405.075.00
115	R51	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor	402.040.00
120	R52	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor	402.040.00
125	R53	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor	402.040.00
130	R54	R51 1W 5% TK20 Dt.Widerst. Wire-wound resistor	402.040.00


		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page	
		A	04.04	Hilf.II NGPV100W20V m.Ins. Typ	010.229.00	2 von 2	
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.		
135	R55	1R 2,25W 5% TK20 Dt.Widerst. Wire-wound resistor				402.041.00	
140	R56	2R 1W 5% TK20 Dt.Widerst. Wire-wound resistor				402.024.01	
145	R57	2R 1W 5% TK20 Dt.Widerst. Wire-wound resistor				402.024.01	
150	R58	1k 1/4W 0,5% TK15 MS.Widerst. Metal-film resistor				405.110.00	
155	R6	1M 0.5W 1% Tk50 MS.Widerst. Metal-film resistor				405.077.00	
160	R61	R051 1W 20% TK-- Dt.Widerst. Wire-wound resistor				402.042.00	
165	R62	470R 4W 10% TK-- Dt.Widerst. Wire-wound resistor				402.002.00	
170	R63	470R 4W 10% TK-- Dt.Widerst. Wire-wound resistor				402.002.00	
175	R65	R051 1W 20% TK-- Dt.Widerst. Wire-wound resistor				402.042.00	
180	R69	1k Cermet Trimmer liegend Wert 102 1k Cermet Trimmer lying value 102				403.026.00	
185	R8	82R5 0,5W 1% Tk50 MS.Widerst. Metal-film resistor				405.045.00	
190	R9	82R5 0,5W 1% Tk50 MS.Widerst. Metal-film resistor				405.045.00	
195	T12	BC177B PNP Transistor PNP 50V 0.2A 0.3W TO18 M				431.012.00	
200	T12	Antiwärmescheibe TO18 hoch Anti-thermal-wafer				732.003.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Frontplatte NGPV20V o.In.kompl	020.007.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5	H5	LED 5mm grün	440.011.00
10	H6	LED 3mm gelb	440.010.00
15	R4	25k Draht-Trimmer Frontpl. Wire-wound trimmer	404.012.00
20	S1	Netzschalter 2*Ein 6A grü Wipp AC supply switch	422.013.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühlereinh.NGPV100W 20V kompl.	015.016.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Kühlereinh.NGPV100W 20V oben kom power unit complete	015.022.00
10	Kühlereinh.NGPV100W20V unten kom power unit complete	015.023.00
15	Kühlereinh.NGPV100W Lüfter komp. power unit NGPV100W Blower compl.	015.108.00
20	Kühlereinh. mech.NGPV100W kompl. power unit complete (mechanical)	016.002.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W 20V oben kom	015.022.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5	Kühleinh.NGPV100W oben Univer. power unit universal	015.076.00
10	Kühleinh.NGPV100W 20V oben Typ power unit	015.079.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinheit NGPV100W oben Univer.	015.076.00	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.


5		Platine Kühleinheit NGPV100W PCB power unit	202.230.03
10		Thermoschalter 118 C aus 6% Thermal circ.breaker braun/rot	425.001.00
15		Kühler KS97-120 NGPV 100W cooler	206.102.00
20		Isolierbuchse 7,5/3,5/3,1D3,5L Insulating sleeves	732.017.00
25		M 3 * 16 DIN 7985 verz. Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws zinc plated	712.055.00
30		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	712.022.00
35		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers	712.031.00
40		B 3,2 DIN 125 verz. Scheibe plain washers zinc plated	712.023.00
45		A 3,2 DIN 9021 verz. Scheibe Washers, outside diameter approx. 3 d zinc plated	712.024.00
50		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated	712.009.00
55	R10	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
60	R16	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502	403.019.00
65	R17	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502	403.019.00
70	R7	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
75	R8	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
80	R9	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
85	T3	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M	431.078.00
90	T3	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer	732.010.00
95	T4	BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M	431.078.00
100	T4	Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer	732.010.00



 <b>ROHDE &amp; SCHWARZ</b>	AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W oben Univer.	Sachnummer Stock NO. 015.076.00	Blatt Page 2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W 20V oben Typ	015.079.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	R11	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00
10	R13	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W20V unten kom	Sachnummer Stock NO. 015.023.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5	Kühleinh.NGPV100W unten Univer power unit universal			015.077.00	
10	Kühleinh.NGPV100W20V unten Typ power unit			015.084.00	

<b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Kühleinh.NGPV100W unten Univer	Sachnummer Stock NO. 015.077.00	Blatt Page 1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	


5		Platine Kühleinheit NGPV100W PCB power unit	202.230.03
10		Thermoschalter 60 C ein 10% Thermal circuit breaker grau/rot	425.002.00
15		2k2 4W 10% TK-- Dt.Widerst. Wire-wound resistor	402.003.00
20		Kühler KS97-120 NGPV 100W cooler	206.102.00
25		Isolierbuchse 7,5/3,5/3,1D3,5L Insulating sleeves	732.017.00
30		M 3 * 16 DIN 7985 verz. Linsenschraube m.Kreuzschl. Cross recessed raised cheese head screws zinc plated	712.055.00
35		M 3 DIN 934 verz. Sechskantmutter Hexagon nuts zinc plated	712.022.00
40		A 3,2 DIN 6798 V2a Fächerscheibe External teeth serrated lock washers	712.031.00
45		B 3,2 DIN 125 verz. Scheibe plain washers zinc plated	712.023.00
50		A 3,2 DIN 9021 verz. Scheibe Washers, outside diameter approx. 3 d zinc plated	712.024.00
55		M 3 * 10 DIN 84 verz. Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated	712.009.00
60	C1	470pF 400V RM5 Scheiben C Ceramic capacitor	412.019.00
65	C1	Distanzstück 16fach abbrechb. zb. Abstandshalter EDPU Konden spacer 16-parts pluckable eg. spacer EDPU capacitor	732.031.00
70	C2	100pF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.015.00
75	D1	1N4148 Diode 75V 150mA DO35 G	436.025.00
80	R1	100R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.017.00
85	R10	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
90	R16	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502	403.019.00
95	R17	4k7 Cermet Trimmer liegend Wert 472 oder 502 4k7 Cermet Trimmer lying value 472 or 502	403.019.00
100	R2	1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
105	R3	10k 0,5W 1% Tk50 MS.Widerst.	405.030.00

 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W unten Univer	015.077.00	2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.


Position Nr. Position NO.	Benennung / Beschreibung Designation	Sachnummer Stock NO.
	Metal-film resistor	
110	R5 1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
115	R6 475R 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.081.00
120	R7 1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
125	R8 1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
130	R9 1k 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.001.00
135	T1 BC140-10 NPN Transistor NPN 80V 1A 0.75W TO5 M	431.079.00
140	T1 Antiwärmescheibe TO 5 flach Anti-thermal-wafer	732.001.00
145	T2 BC107B NPN Transistor NPN 50V 0.2A 0.3W TO18 M	431.006.00
150	T2 Antiwärmescheibe TO18 hoch Anti-thermal-wafer	732.003.00
155	T3 BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M	431.078.00
160	T3 Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer	732.010.00
165	T4 BUZ45A SIPMOS Transistor sel. N-FET 500V 8,3A 125W TO204M	431.078.00
170	T4 Aluoxyscheibe TO3 2mm dick Aluminium-oxide-wafer	732.010.00

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W20V unten Typ	015.084.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	C3	4,7nF 100V RM2,5 EGPU Konden. Ceramic capacitor	412.042.00
10	R11	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00
15	R13	R39 1W 10% Tk-80 Dt.Widerst. Wire-wound resistor	402.050.00
20	R15	6k81 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.064.00
25	R4	1k5 0.5W 1% Tk50 MS.Widerst. Metal-film resistor	405.125.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh.NGPV100W Lüfter komp.	015.108.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5		Lüfterflügel 90mm Alu Propeller Fan-wings Propellers	204.122.00
10		Lötösenleiste 6pol.Keramik Soldering strip	423.103.00
15		Kabeldurchführung PVC 10 Innen Cable entry	423.114.00
20		Motor (Lüfter) 220V fan engine	455.007.00
25	F103	0,11A MultiFuse (13R PTC)250V Fuse	443.049.00


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Kühleinh. mech.NGPV100W kompl.	016.002.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Motorbügel f.180W Kühleinheit motor bow for cooling unit	204.099.00
10	Montagewinkel f.Kühleinh.100W Mounting-angles f. cooling unit	204.281.02
15	Gummipuffer 8*8 M3 Loch/Bolzen für Lüftermotor Rubber-pad	204.296.00
20	Distanzrohr 8*4.3*8 mm Messing vernickelt spacer	730.015.00




 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Frontplatte NGPV100W 20V kompl	020.002.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Kodierschalter SMC Code switch	421.012.00
10		Abschlußplattenpaar Termination-plate ( 2 pieces )	421.014.00
15		Montageblech Codiersch. NGPV/E mounting panel coding switch	204.1155.00
20		Abstandsplatte SMC 2.54mm spacing-plate	421.013.00
25		Begrenzung für SMC limiting for SMC	421.015.00
30	H5	LED 5mm grün	440.011.00
35	P1	Instrument gepr. PC1 1mA Moving-coil meter	441.124.00
40	P1	Skale 5A 1000mA PC1 Scale	441.152.01
45	P2	Instrument gepr. PC1 1mA Moving-coil meter	441.124.00
50	P2	Skale 20V PC1 Scale	441.146.00
55	R4	25k Draht-Trimmer Frontpl. Wire-wound trimmer	404.012.00
60	S1	Netzschalter 2*Ein 6A grü Wipp AC supply switch	422.013.00
65	X10	Einpreßbuchse 10A grau Socket	423.065.00
70	X11	Einpreßbuchse 10A grau Socket	423.065.00
75	X12	Einpreßbuchse 10A grau Socket	423.065.00
80	X13	Einpreßbuchse 10A grau Socket	423.065.00
85	X14	Einpreßbuchse 10A grau Socket	423.065.00
90	X15	Einpreßbuchse 10A grau Socket	423.065.00
95	X16	Einpreßbuchse 10A grau Socket	423.065.00

		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Rückwanne NGPV100W 8/20/40V ko	025.001.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	


5	C1	1nF 400V RM5 Scheiben C Ceramic capacitor	412.033.00
10	C2	1nF 400V RM5 Scheiben C Ceramic capacitor	412.033.00
15	F101	Sicherungshalter 6,3A VDE kurz Socket for fuse	423.076.00
20	F101	T1,6L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3	443.032.00
25	F102	Sicherungshalter 6,3A VDE kurz Socket for fuse	423.076.00
30	F102	T1,6L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3	443.032.00
35	R1	5R Stoßstrombegrenzer 7A impulse current limiter	407.001.00
40	R2	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
45	R3	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
50	S2	Netzähler 115/220V 4A Switch AC 115/220V	422.007.00
55	X1	Netzfilter 6EF1 power filter	452.001.00
60	X3	Klemme 35A schwarz isoliert Clamp	423.273.00
65	X4	Klemme 35A rot isoliert Clamp	423.271.00
70	X5	Klemme 35A schwarz isoliert Clamp	423.273.00
75	X6	Klemme 35A schwarz isoliert Clamp	423.273.00
80	X7	Klemme 35A MS vernickelt Clamp	423.270.00
85	X8	Klemme 35A rot isoliert Clamp	423.271.00
90	X9	Klemme 35A rot isoliert Clamp	423.271.00


 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Rückwanne NGPV100W 8/20/40V ko	025.001.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	C1	1nF 400V RM5 Scheiben C Ceramic capacitor	412.033.00
10	C2	1nF 400V RM5 Scheiben C Ceramic capacitor	412.033.00
15	F101	Sicherungshalter 6,3A VDE kurz Socket for fuse	423.076.00
20	F101	T1,6L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3	443.032.00
25	F102	Sicherungshalter 6,3A VDE kurz Socket for fuse	423.076.00
30	F102	T1,6L Schmelzeinsatz 5*20 Fuse DIN/IEC 60127-2/3	443.032.00
35	R1	5R Stoßstrombegrenzer 7A impulse current limiter	407.001.00
40	R2	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
45	R3	10k 0,5W 1% Tk50 MS.Widerst. Metal-film resistor	405.030.00
50	S2	Netzwähler 115/220V 4A Switch AC 115/220V	422.007.00
55	X1	Netzfilter 6EF1 power filter	452.001.00
60	X3	Klemme 35A schwarz isoliert Clamp	423.273.00
65	X4	Klemme 35A rot isoliert Clamp	423.271.00
70	X5	Klemme 35A schwarz isoliert Clamp	423.273.00
75	X6	Klemme 35A schwarz isoliert Clamp	423.273.00
80	X7	Klemme 35A MS vernickelt Clamp	423.270.00
85	X8	Klemme 35A rot isoliert Clamp	423.271.00
90	X9	Klemme 35A rot isoliert Clamp	423.271.00


 <b>RÖHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Grundgerät NGPV100W 20V	030.002.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Kabel Netz Schuko 3*0,75 Euro Power connecting cable	426.071.00
10		1/4" 28UNF2A DIN 936 verzinkt Mutter für USA Thyristoren Hexagon thin nuts (lock nuts) zinc plated	730.044.00
15		A 6,4 DIN 9021 Alu Scheibe Washers, outside diameter approx. 3 d	716.015.00
20	C3	100nF 250V~ 9*18 VDE Konden. Capacitor	412.023.00
25	T1	Netztransformator NGPV 20/5 MD102b Power transformer	451.095.00
30	V4	BTW67- 200 Thyristor 200V 25A 50mA RD91	436.105.00

 <b>RÖHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Grundgerät NGPV100W 20V	Sachnummer Stock NO. 030.002.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5		Kabel Netz Schuko 3*0,75 Euro Power connecting cable			426.071.00	
10		1/4" 28UNF2A DIN 936 verzinkt Mutter für USA Thyristoren Hexagon thin nuts (lock nuts) zinc plated			730.044.00	
15		A 6,4 DIN 9021 Alu Scheibe Washers, outside diameter approx. 3 d			716.015.00	
20	C3	100nF 250V~ 9*18 VDE Kondens. Capacitor			412.023.00	
25	T1	Netztransformator NGPV 20/5 MD102b Power transformer			451.095.00	
30	V4	BTW67- 200 Thyristor 200V 25A 50mA RD91			436.105.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Frontplatte mech. NGPV20/5	021.010.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	


5		Frontplatte NGPV20/5 bedruckt Front panel printed	203.033.00
10		Griff 3 HE Kunstst. BW80 =KF 071.3131 handle plastic	204.101.00
15		Fenster, Acryl rot NGPV bedruckt window acryl red printed	203.079.00
20		Fensterhalter PVC =KE 292.5093 pane holder	204.169.00
25		Knüpfülle =KZ 292.5106 knotter bush	204.168.00
30		Instrumentenblende NGPV/NGPE instrument panel	204.295.00


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Frontpl.mech. NGPV20/5 o.Instr	021.019.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Frontpl. NGPV20/5 o.In. bedr. 3HE o. Instrumente Frontpanel printed without instruments				203.042.00	
10	Griff 3 HE Kunstst. BW80 =KF 071.3131 handle plastic				204.101.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Rückwanne mech. NGPV 100W	026.001.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Rückwanne NGPV 100W bedr.250VA Rear panel printed	203.049.00
10	Plexiglasfenster Rückwanne NGPV rear panel gef. n. Zeich.204.284.00	792.002.00
15	Lüftergitter NGPV NGPE blower grill	204.290.01





 <b>ROHDE &amp; SCHWARZ</b>		AZ A	Datum Date 04.04	Bauteilliste für Parts list for Rückwanne mech. NGPV20/5 o.In.	Sachnummer Stock NO. 026.005.00	Blatt Page 1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Rückwanne NGPV 100W bedr.250VA Rear panel printed				203.049.00	
10	Plexiglasfenster Rückwanne NGPV rear panel gef. n. Zeich.204.284.00				792.002.00	
15	Lüftergitter NGPV NGPE blower grill				204.290.01	
20	Bez.Schild f.Meßausgang NGPV label f. test exit				204.293.00	


 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
Position Nr. Position NO.		Benennung / Beschreibung Designation			Sachnummer Stock NO.	
5		Querprofil BW 80 transverse profile			204.089.00	
10		Querprofil BW 80 aufgebohrt 085.0230 transverse profile drilled out			204.299.00	
15		Seitenprofil 305mm blau =KE 085.0681 Side-profile blue			204.163.00	
20		Seitenprofil 305mm weiß =KE 085.0346 side-profile			204.166.00	
25		Höhenprofil 3HE mit Gewinde M4 Height-profil			204.282.00	
30		Zwischenprofil 248,5mm aus KE 085.0246 inter-profile			204.286.00	
35		Zwischenprofil 152,4mm aus KE 085.0246 Interprofile			204.287.01	
40		Zwischenprofil =KE 085.0246 Inter-Profile			204.111.01	
45		Leiste 3 HE Ledge			204.088.00	
50		Leiste 3 HE für Front ledge 3 HE for front			204.942.00	
55		Gew.Streifen M4/20Löcher 203mm aus KE 085.1036 M4/10,16			204.081.00	
60		Gew.Streifen M4/11Löcher 112mm aus KE 085.1036 M4/10,16 Stripes / Holes			204.120.00	
65		Bodenwanne NGPV 100W Bottomtub			204.285.02	
70		Strebenhalter NGPU strut holder			204.082.00	
75		Seitenblech NGPV 100W Sidepanel			204.283.01	
80		Kartenführung card carrier			204.102.00	
85		Mundstück mouth piece			204.103.00	
90		Moosgummi Streifen 120*15*6 ohne Zeichnung Moss-rubber Stripe			204.300.00	
95		Einsteck Mutter M4 =KE 085.0330 insertion nut			730.043.00	
100		Skt-Abstandsäule M3*10 Kunstst m.Innengewinde			730.045.00	
105		M 3 * 6 DIN 84 Polyamid Zyl.Schraube m.Schlitz Slotted cheese head screws			712.037.00	
110		M 3 * 6 DIN 84 verz.			712.004.00	


 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Grundgerät mech.NGPV 100W m.In	031.001.00	2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

		Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated	
115		M 4 * 12 DIN 7516 verz.Form A Linsenschraube m.Kreuzschlitz Thread-cutting screws with cross recess	714.070.00

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Grundgerät mech.NGPV 100W o.In	031.003.00	1 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Querprofil BW 80 transverse profile				204.089.00	
10	Querprofil BW 80 aufgebohrt 085.0230 transverse profile drilled out				204.299.00	
15	Seitenprofil 305mm blau =KE 085.0681 Side-profile blue				204.163.00	
20	Seitenprofil 305mm weiß =KE 085.0346 side-profile				204.166.00	
25	Höhenprofil 3HE mit Gewinde M4 Height-profil				204.282.00	
30	Zwischenprofil 248,5mm aus KE 085.0246 inter-profile				204.286.00	
35	Zwischenprofil 152,4mm aus KE 085.0246 Interprofile				204.287.01	
40	Zwischenprofil =KE 085.0246 Inter-Profile				204.111.01	
45	Leiste 3 HE Ledge				204.088.00	
50	Leiste 3 HE für Front ledge 3 HE for front				204.942.00	
55	Gew.Streifen M4/20Löcher 203mm aus KE 085.1036 M4/10,16				204.081.00	
60	Gew.Streifen M4/11Löcher 112mm aus KE 085.1036 M4/10,16 Stripes / Holes				204.120.00	
65	Bodenwanne NGPV 100W Bottomtub				204.285.02	
70	Strebenhalter NGPU strut holder				204.082.00	
75	Seitenblech NGPV 100W Sidepanel				204.283.01	
80	Moosgummi Streifen 120*15*6 ohne Zeichnung Moss-rubber Stripe				204.300.00	
85	Kartenführung card carrier				204.102.00	
90	Mundstück mouth piece				204.103.00	
95	Einsteck Mutter M4 =KE 085.0330 insertion nut				730.043.00	
100	Skt-Abstandsäule M3*10 Kunstst m.Innengewinde				730.045.00	
105	M 3 * 6 DIN 84 Polyamid Zyl.Schraube m.Schlitz Slotted cheese head screws				712.037.00	
110	M 3 * 6 DIN 84 verz.				712.004.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Grundgerät mech.NGPV 100W o.In	031.003.00	2 von 2
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
	Zyl.Schraube m.Schlitz Slotted cheese head screws zinc plated					
115	M 4 * 12 DIN 7516 verz.Form A Linsenschraube m.Kreuzschlitz Thread-cutting screws with cross recess				714.070.00	

 <b>ROHDE &amp; SCHWARZ</b>		AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
		A	04.04	Verpackung kompl. NGPV 100W	055.030.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation				Sachnummer Stock NO.	
5	Faltschachtel WP 2.3 NGPV 100W Fold-box				110.011.00	
10	Beschreibung NGPV alle Typen Manual all types NGPV				056.031.00	

 <b>ROHDE &amp; SCHWARZ</b>	AZ	Datum Date	Bauteilliste für Parts list for	Sachnummer Stock NO.	Blatt Page
	A	04.04	Verpackung kompl. NGPV 100W	055.030.00	1 von 1
Position Nr. Position NO.	Benennung / Beschreibung Designation			Sachnummer Stock NO.	

5	Faltschachtel WP 2.3 NGPV 100W Fold-box	110.011.00
10	Beschreibung NGPV alle Typen Manual all types NGPV	056.031.00