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ROHDE & SCHWARZ

MANUAL

NOISE GENERATOR SUF 2

282.8819

TRIANGULAR NOISE**SUF2-Z2****282.9715...**

Circuit Modification for 8 MHz (PIONEER, Japan)

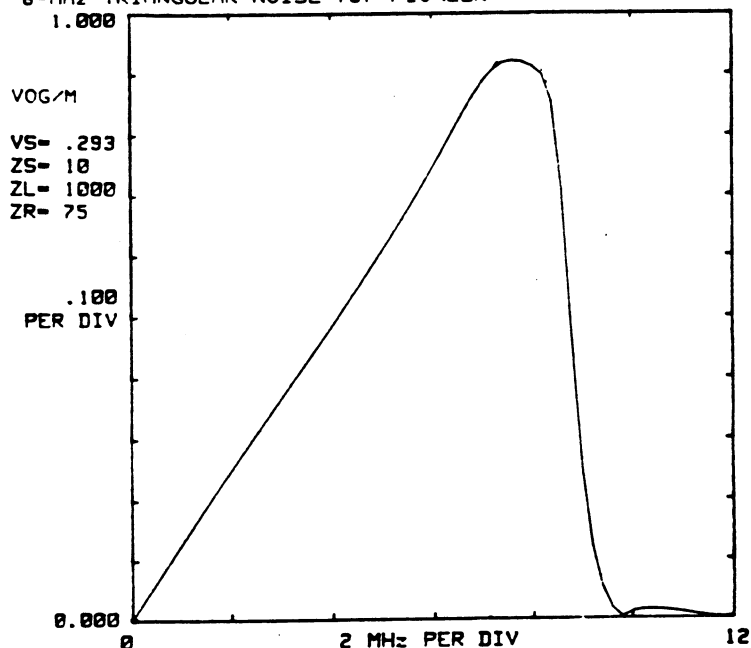
In the unit at hand (Order No.: 70-305 2043), various components have been modified for 8 MHz on the triangular noise PC board 282.9715 as follows:

C1 (38 pF)	→	22 pF
R4 (590 Ω)	→	432 Ω
C2	not used	
L2 (12 μ H)	→	6.8 μ H
L3 (12 μ H)	→	6.8 μ H
L4 (15 μ H)	→	8.2 μ H
R5 (634 Ω)	→	475 Ω
R6 (3,16 k Ω)	→	2.00 k Ω
R7 (54,9 k Ω)	→	33.2 k Ω

A 5.6-pF capacitor has been added in parallel to R6.

The following characteristic results:

8-MHz-TRIANGULAR NOISE for PIONEER



Frequency	Level (relativ)
1 MHz	(12.5) ± 5 %
2 MHz	(25) ± 5 %
3 MHz	(37.5) ± 5 %
4 MHz	(50) ± 5 %
5 MHz	(62.5) ± 5 %
6 MHz	(75) ± 5 %
7 MHz	(87.5) ± 5 %
8 MHz	(92) ± 5 % *
>10 MHz	<10 %

* Reference is not 100 % because of bandlimiting characteristics of internal filters.

RAUSCHGENERATOR**282.8819...****Text-Änderung im Datenblatt****(Seite 2 Absatz: Arbeitsweise)**

Die Rauschquelle bildet eine temperaturstabilisierte Z-Diode.

Text-Änderung im Teil 3.1**(Erforderliche Meßgeräte und Hilfsmittel)**

Als Leistungsmesser wird der

**LEISTUNGSMESSER
NRVS**

Id.-Nr. 1020.1809.02

und der

**TERMISCHER LEISTUNGSMESSKOPF
NRV-Z51**

Id.-Nr. 857.9004.02

empfohlen

Baugruppe: 0282.8819.03

Subassembly: 0282.8819.03

Die Angaben zur Netzspannung ändern sich wie folgt:

100 V +15 % / - 5 %

120 V +15 % / -10 %

230 V +10 % / -15 %

240 V +10 % / -15 %

AC supply voltage changed as follows:

100 V +15 % / - 5 %

120 V +15 % / -10 %

230 V +10 % / -15 %

240 V +10 % / -15 %

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NOISE GENERATOR**282.8819...****Data sheet****(Page 2, section Description)****The noise source is a temperature-controlled Z-Diode.****Maintenance****(section 3.1, Required Measuring Equipment and Accessories)****POWER METER****NRVS****Id.-Nr. 1020.1809.02****and****THERMAL POWER SENSOR****NRV-Z51****Id.-Nr. 857.9004.02**

2 Preparations for Use and Operating Instructions

2.1 Legend (front panel)

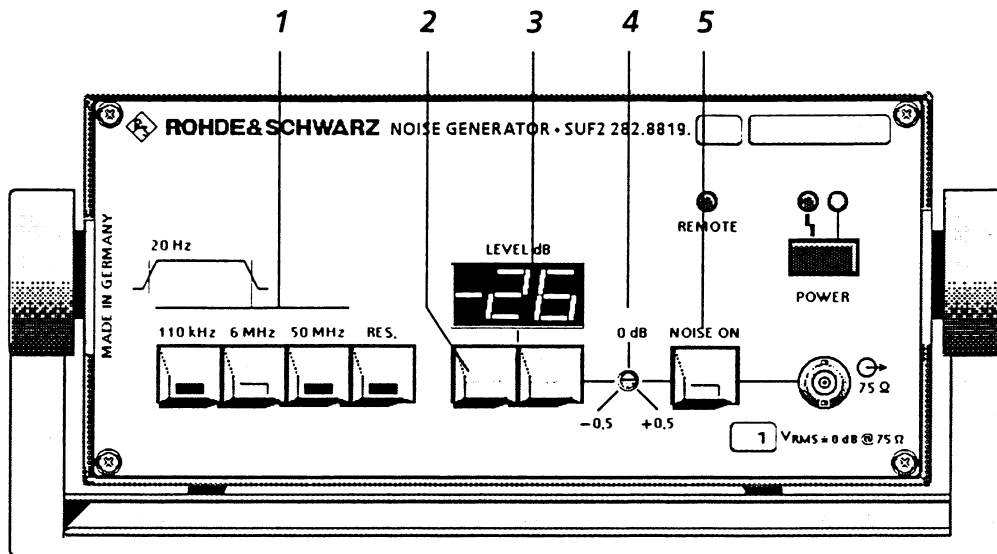


Fig. 2-1 front panel

1

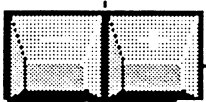
110 kHz 6 MHz 50 MHz RES.



see Section 2.3.1, "Filter type"

Pushbuttons for selecting the noise bandwidth from 20 Hz to (value indicated).
If button RES is pressed, the filter option is connected.

2



see Section 2.3.1, "Level"

Pushbuttons for decreasing (-) and increasing (+) the noise level.

3

LEVEL dB

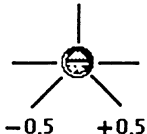


see Section 2.3.1 "Level"

Indication of the noise level
(0-dB reference value and sign can be internally link-selected).

4

0 dB

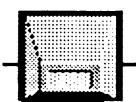


see Section 2.3.1 "Level" and 2.3.2 "Level"

Fine adjustment of noise level. Mid-position calibrated; variation not indicated on display 3.

5

NOISE ON



see Section 2.3.1 "Noise on / off"

Pushbutton for enabling and disabling the noise level.

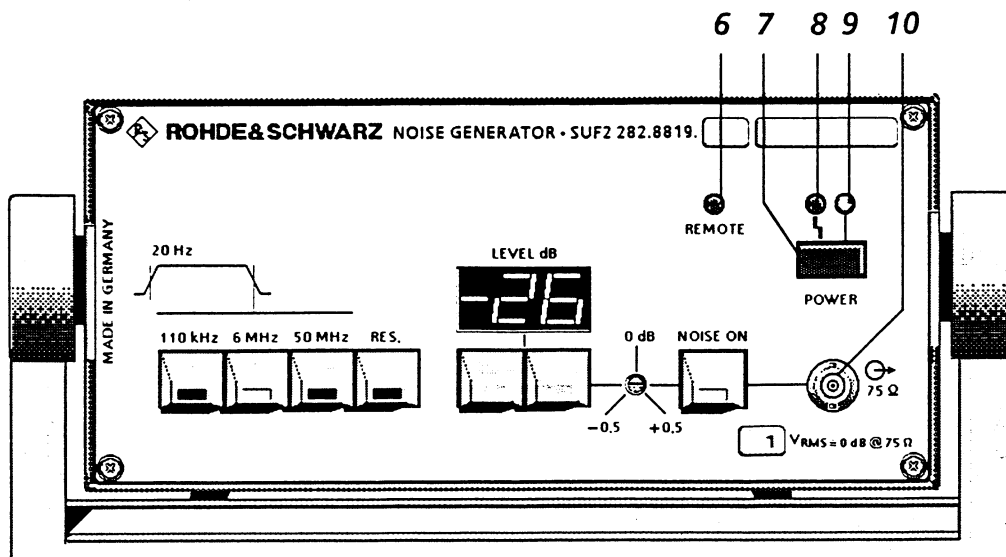







Fig. 2-1 Front panel

<p>6</p>  <p>REMOTE</p>	<p>see Section 2.3.2, "Remote Control enabled"</p> <p>LED (red) lights up if the remote mode is selected.</p>
<p>7</p>  <p>POWER</p>	<p>see Section 2.2.2, "Switching on"</p> <p>Power switch.</p>
<p>8</p> 	<p>see Section 2.2.2, "Switching on"</p> <p>LED (red) lights up if one of the supply voltages fails.</p>
<p>9</p> 	<p>see Section 2.3.3, "Switching on"</p> <p>LED (green) lights up when the set is switched on.</p>
<p>10</p>  <p>1 $V_{RMS} = 0 \text{ dB} @ 75 \Omega$</p>	<p>see Section 2.2.3 "Selecting the reference voltage"</p> <p>Output; the label below the outputs gives the internally set reference value for 0 dB indication.</p>

Rear panel

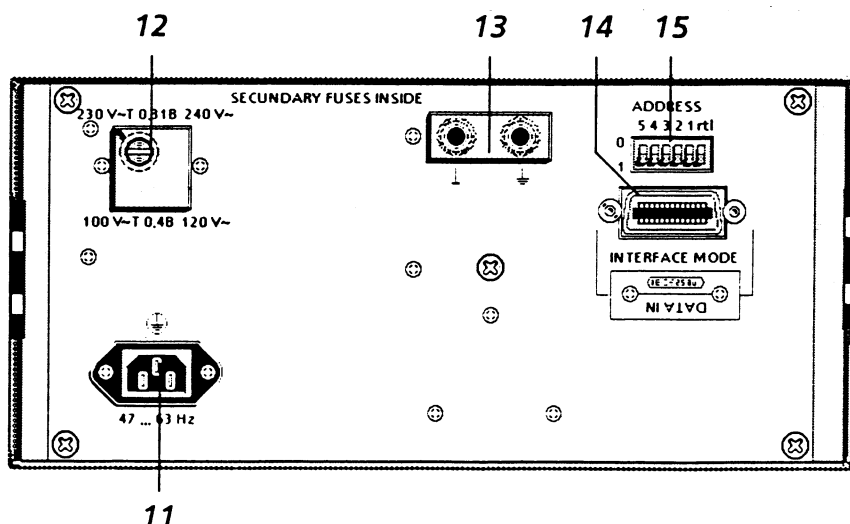
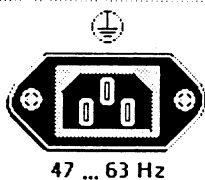


Fig. 2-2 Rear panel

11

see Section 2.2.1, "Switching on"

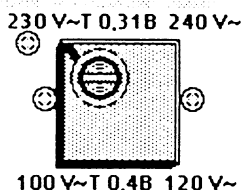
Power connector.



12

see Section 2.2.1, "Switching on"

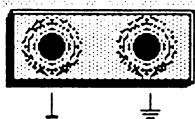
Voltage selector with AC supply fuse.



13

see Section 2.2.2, "Shorting link"

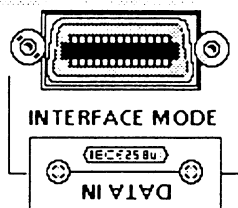
Shorting link for connecting instrument ground to earth conductor.

Caution: With the link removed, the chassis is not connected to the earthing wire of the power cable!

14

see Section 2.3.2 and 2.3.3

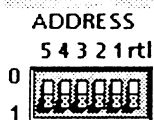
(24-way Amphenol) female connector for remote control. The label located above gives the type of remote control chosen.



15

see Section 2.3.3, "Selecting the device address"

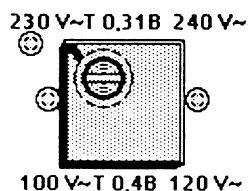
Switch for address coding (1 to 5) and "rtl" (return-to-local) mode in the case of operation via the IEC/IEEE 625 bus.



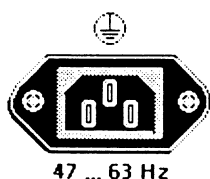
2.2 Preparation for Use

2.2.1 Adjusting the Set to the Local AC Supply Voltage

The set is factory-adjusted to an AC supply voltage of 230 V. Changing over the voltage selector permits the set to be also operated from 100 V/120 V/240 V.



100 V~T 0.4B 120 V~

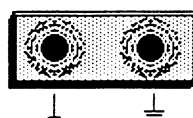


47 ... 63 Hz

For this purpose, the fuse is unscrewed from the voltage selector and the cover of the voltage selector removed. Then the cover is inserted such that the marking points to the required AC supply voltage. After screwing in the corresponding fuse, the set is ready for operation.

Shorting link

The instrument is fitted with a removable safety earth link at the rear. This link allows the safety earth to be disconnected from the chassis. It may only be removed after the power cable has been disconnected.



To remove the link, simply unscrew the nuts and take off the metal clip.

In this case, however, chassis and bolt X12 must be taken to an external ground. Otherwise, VDE regulations would be violated and the user would be endangered.

Caution:



With the link removed, the chassis is not connected to the earthing wire of the power cable.

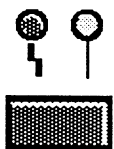
2.2.2 Switching on

Putting into Operation

Before the instrument is put into operation, it must be ensured that

- ▶ the setting for the AC supply voltage is correct,
- ▶ the voltages at the inputs do not exceed the permissible limits,
- ▶ the instrument outputs are not overloaded or incorrectly connected,
- ▶ the operating temperature range is not exceeded.

Any violation of the permissible voltage limits at the inputs and outputs can damage the instrument (see specifications).



POWER

The instrument is switched on by pressing the power switch; after about 3 minutes (= warmup time of the noise source oven), it is ready for operation.

In case of large test systems, the chassis may be taken to the system ground. The safety earth link must be refitted immediately if this system ground connection is removed.

Protection against EMI

To prevent electromagnetic interference, the instrument may only be operated when closed and fitted with all shielding panels. Only suitably shielded cables are allowed to be used for the remote control of the instrument via the IEC/IEEE bus. Appropriate EMI protection measures must be taken when calibrating with the instrument open.



2.2.3 Function Selection (Coding)

(see Fig. 2-3)

Selecting the reference voltage for 0 dB

To enable optimum adaptation of the Noise Generator to the measuring problems on hand, the 0-dB reference value can be coded by links. After taking the top half of the case off, the remote control option and the digital section board should be removed by pressing open the plastic hooks. Next undo the four screws to remove the shielding cover of the 75- Ω attenuator so that the two links located next to the output socket are accessible.

Reference voltage for 0 dB	Used as	Links in position
1 V _{rms} into 75 Ω	standard reference ⁺⁾	Br6 + Br8
0.775 V _{rms} into 75 Ω	audio reference	Br7 + Br8
0.7 V _{rms} into 75 Ω	video reference	Br6 + Br9

⁺⁾ factory-set

Preset level after the POWER button is pressed

After switching the Noise Generator on, a preset mode is selected, i.e. bandwidth "20 Hz to 6 MHz", NOISE ON, and the level is set by three links.

This level is factory-adjusted to -40 dB, but it can also be set in 10-dB steps between 0 and -70 dB by changing the links.

Required level	0	-10	-20	-30	-40 ⁺⁾	-50	-60	-70	dB
St5 in position	2-3	2-3	2-3	2-3	2-1	2-1	2-1	2-1	
St6 in position	2-3	2-3	2-1	2-1	2-3	2-3	2-1	2-1	
St7 in position	2-3	2-1	2-3	2-1	2-3	2-1	2-3	2-1	

⁺⁾ factory-adjusted

Selecting the sign of the level indication

The sign of the level indication can be selected by a link on the digital section board.

Desired sign	without	"-"	⁺⁾ factory-adjusted
St4 in position	1-2	2-3 ⁺⁾	

Selecting the program sequence for the CCIR Rec. 571 Program Option SUF 2-Z6

See Fig. 2-5.

Each program cycle consists of 8 clock periods whose duration can be link-selected. Two link-selected level values between 0 and -99 dB and the "noise off" signal can be assigned to the desired clock periods. Moreover, the filter type can be selected. Fig. 2-5 shows the signal shape and the coding applicable for the factory setting in accordance with CCIR Rec. 571. The remaining tables explain other coding possibilities.

SUF2

Function	Associated link
Cycle duration	Br1
Filter type	Br2 + Br3
Allocation of "noise off" signal	Br4 + Br5 + Br6
Allocation of level P1	Br7 + Br8 + Br9
Allocation of level P2	Br10 + Br11 + Br12
Level P1	Br13 to Br 20
Level P2	Br21 to Br28

The timing reference for the allocation of levels P1 and P2 is the leading edge (negative-going edge from B6, pin 9) of the "noise off/on" pulse.

Pulse inputs on the rear panel of the instrument permit the program sequence to be started and stopped. For the pin allocation of Bu4 see circuit diagram 282.9673 S (lefthand side). After the program sequence is stopped, the SUF2 switches over to the manual mode.

Selecting the address for the IEC-625-Bus Interface Option SUF2-Z1

See Fig. 2-4

The row of switches on the rear panel permits the 5-digit listener address to be selected in accordance with the tabel given in Fig. 2-4. The pin allocation of the 24-way fremale connector Bu4 and the functions of the pins in the IEC-625 bus are also given in Fig. 2-4.

2.2.4 Fitting the Options

See Fig. 2-3

Opening the instrument

After undoing the four screws, the upper half of the case can be removed.

Fitting the IEC-625-Bus Interface Option SUF2-Z1

Disconnect the two flat cabies, coming from the rear panel, from the digital section board and connect them to the IEC-625-Bus Interface, i.e. cange over Bu5 from St9 to St2 and Bu6 from St10 to St3. Bend the flat cables at the edge of the board and lay them on top of the IEC-625 Bus Interface (see Fig. 2-3, lefthand side).

SUF2

Next plug the IEC-625-Bus Interface board onto the digital section board (St1 to Bu1). Now the Interface board can be snapped into place, the slots at the board edge locking with the plastic hooks. The plastic hooks can be shifted along the grooves in the side panels as required.

Fix the label on the rear panel in the position "IEC 615 Bus" and code the address using the switches (see Fig. 2-6). After setting the "rtl" (return-to-local) switch to 0, the IEC bus is ready for operation.

Fitting the CCIR Rec. 571 Program Option SUF2-Z6

For fitting this option, basically proceed in the same way as described in the preceding paragraph. However, only the flat cable at Bu6 has to be changed over from St10 to St2 while the other flat cable is connected as before (Bu5 to St9) after fitting the board. Fix the label with the printed side facing the rear panel.

This program control circuit is factory-set in accordance with CCIR Rec. 571 and is used in conjunction with the option CCIR Rec. 571 Filter SUF2-Z5. Different program sequences can be selected in accordance with section 2.2.2 and Fig. 2-5.

Fitting the Filter Options SUF2-Z2/Z3/Z4/Z5/Z7

These options are plugged into the connector St5 on the motherboard (analog section) and snapped in place using the two plastic hooks. For this purpose, the Option SUF2-Z1 or -Z6, if fitted, should be removed and the digital section board lifted. To remove a Filter Option, lift the connector end; the plastic hooks open automatically when the board is tilted.

2.3 Operating Instructions

See Fig. 2-1

2.3.1 Manual Mode

Status at power-on

After switching the SUF2 on, the following mode is automatically set; the values specified in the data sheet are reached after about 3 minutes.

Filter type: 20 Hz to 6 MHz (white noise)
 Level: Link-selected value (factory-adjusted to -40 dB)
 Level reference: Link-selected value (factory-adjusted to 0 dB
 corresponding to $V_{\text{rms}} = 1 \text{ V}$ into 75Ω)
 Noise: on
 IEC 625 Bus: address and "return to local" in accordance with
 the position of the switches on the rear panel
 (factory-adjusted: address = "10", rtl = "0")
 CCIR Rec. 571: program sequence
 (factory-adjusted: program in accordance with
 CCIR Rec. 571)

Based on these basic settings, the required values can be selected:

Filter type

The filter is selected by means of one of the four pushbuttons 1; a LED in the button pressed lights up to indicate the filter selected; this status signal also appears in the case of remote control. It is pointless to press the RES button if no filter option is fitted.

Level

The two pushbuttons 2, "-" and "+", permit the level to be set in 1-dB steps. The level setting pulses are produced by an internal clock generator which switches over to a higher setting speed if the button is held down. The display 3 shows the level set in dB referred to the reference value internally set (0 dB corresponding to $V_{\text{rms}} = 1 \text{ V}/0.775 \text{ V}/0.700 \text{ V}$). The display also operates in the case of remote control. The level can be set down to -80 dB in the 50-MHz range and down to -100 dB in the other ranges. The control 4 permits the output level to be varied by $\pm 0.5 \text{ dB}$.

Noise on/off

Button 5 permits the noise to be switched on and off. With the NOISE ON button pressed, the level displayed on 3 is delivered. If the NOISE ON button is not pressed, the noise source proper is disconnected. However, the attenuator represents a $75\text{-}\Omega$ noise source; still, its noise level is at least 20 dB below the permissible setting range and can thus normally be neglected.

2.3.2 Remote Control (Standard)

The parallel remote control facility DATA IN, fitted as a standard, permits the type of filter, level and noise on/off to be selected with the aid of TTL control signals via the female connector 14 (Bu⁴) on the rear panel.

For the pin allocation, an example of external signal application and the setting tables see Fig. 2-6.

Remote control enabled: Bu⁴.16 is taken to ground; LED 6 REMOTE on the front panel lights up.

Filter selection: Apply the parallel binary code (F1, F2) representing the desired filter type and store with the 0-V transfer pulse F/N.

Level setting: Apply the parallel BCD code (H1, Z1 to 4, E1 to 4) representing the level value and store with the 0-V transfer pulse D/L.

The fine adjustment control 4 is also effective in the case of remote control, but it cannot be remote-controlled.

Make sure that with a noise bandwidth of 20 Hz to 50 MHz the level entered is not lower than -80 dB and for the remaining ranges not lower than -100 dB. If wrong values have been entered, repeat the entry with the correct values.

Noise on/off: The two control lines ON (1) and OFF (0) permit the noise signal to be enabled and disabled directly by 0-V pulses.

2.3.3 IEC-625-Bus Control

After fitting the IEC-625-Bus Interface Option SUF 2-Z1, the level and noise on/off can be remote-controlled by means of instructions via the IEC-625 bus. For fitting the option see section 2.2.3 and Fig. 2-3; for the pin allocation on the rear connector 14, Bu⁴, see Fig. 2-4.

The interface operates as a pure listener (function L1).

Selecting the device address

The device address is set with the miniature switches 15 (A5 to A1) on the rear panel in 5-bit binary code in accordance with the table included in Fig. 2-4. Take into account the addresses possible for the bus-controller; an address should never be used twice within a test system.

"rtl" (return-to-local) switch

For use with the IEC-615 bus, this switch must be set to 0 so that the bus-controller is able to set the SUF 2. If manual operation is required temporarily, the "rtl" switch should be set to 1; in this case, the LED 6 REMOTE is dark. This function can be programmed via the IEC bus.

Connecting the SUF 2 to the IEC-625 bus

The SUF 2 is connected to the bus-controller via its 24-way IEC-625-bus connector 14 (Bu4). The pin allocation conforms to the IEC standard so that suitable controllers can be connected directly. When several devices are combined to form a test system, the 24-way programming inputs should be connected in parallel. The connecting cables must conform to the IEC standard, i.e. the wire pairs must be twisted and shielded. Suitable cables with 24-way connectors are available from R & S under the type designation PCK (please specify the length - 0.5/2/2/4 m - when ordering).

Setting commands

The IEC-625-bus interface uses the ISO 7-bit code (ASCII) for data transfer. The programming instructions depend on the bus-controller used. In the following examples, the lefthand column lists BASIC instructions (e.g. for the Tektronix Graphic Computing System 4051 or 4052) and the righthand column instructions for a computer with special IEC-bus facilities (e.g. the R&S Process Controller PPC). The data following the instructions are determined by the IEC-625-Bus Interface SUF 2-Z1 and the set device address (example: address 10).

Filter selection: The filter type is determined by a code number followed by an F (filter) or an N (network).

Code No. 0: range 20 Hz to 110 kHz	}	white noise
1: range 20 Hz to 6 MHz		
2: range 20 Hz to 50 MHz		
3: RESERVE for filter option		
PRINT @ 10: "OF"		IEC OUT 10, "OF"
PRINT @ 10: "ON"		IEC OUT 10, "ON"

These instructions set a noise signal from 20 Hz to 110 kHz.

Level setting: A maximum of three figures followed by a D (attenuation) or L (level) determines the level value in dB; leading zeros need not be entered:

```
PRINT @ 1Ø: "31D"          IEC OUT 1Ø, "31D"
PRINT @ 1Ø: "31L"          IEC OUT 1Ø, "31L"
```

These instructions set a noise level of -31 dB.

Note that the lower level limit is -80 dB for the noise bandwidth 20 Hz to 50 MHz and -100 dB for the other bandwidths.

Noise on/off: A single letter, I for noise on and O for noise off, permits these device functions to be selected.

```
PRINT @ 1Ø: "I"            IEC OUT 1Ø, "I"
PRINT @ 1Ø: "O"            IEC OUT 1Ø, "O"
```

Return to local or local lock-out:

```
WBYTE @ 42, 1:
(42 = 10 + 32)
```

Examples

The individual instructions for filter selection, level setting and noise on/off can be combined to form a single instruction. There are the following programming possibilities for selecting the filter 20 Hz to 6 MHz, the level -37 dB and noise "on":

```
PRINT @ 1Ø: "1F"          IEC OUT 1Ø, "1F"
PRINT @ 1Ø: "37L"         IEC OUT 1Ø, "37L"
PRINT @ 1Ø: "I"           IEC OUT 1Ø, "I"
                        or
PRINT @ 1Ø: "37L1FI"      IEC OUT 1Ø, "37L1FI"
```

Two additional examples are given in Fig. 2-7. The first program increases the noise level in steps until a defined threshold in the test sequence is reached; the second program is used for performance checking of the IEC-625-bus interface. These two programs are written in BASIC for the Tektronix Graphic Computing System 4051.

2.3.4 Automatic Program Run (CCIR Rec. 571)

By fitting the CCIR Rec. 571 Program Option SUF 2-Z6, automatic cycling in the output level is possible. The option SUF 2-Z6 is used in conjunction

with the CCIR Rec. 571 Filter Option SUF 2-Z7.

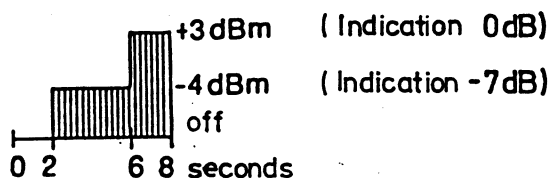
For fitting the option see section 2.2.4 and Fig. 2-3.

For function selection see section 2.2.3 and Fig. 2-4.

For pin allocation of the rear-panel connector 14 (Bu4) see Fig. 2-4.

The SUF 2 is switched to programmed operation by a 0-V pulse ON and signals this state by LED 6 REMOTE. A 0-V pulse OFF terminates the program at the end of the current cycle and switches the SUF 2 back to manual operation. These switching actions can be performed either via separate lines (Bu4.15 = ON, Bu4.11 = OFF) or via a control line (Bu4.17 ON/OFF). In the latter case the external link Bu4.4-Bu4.16 is required.

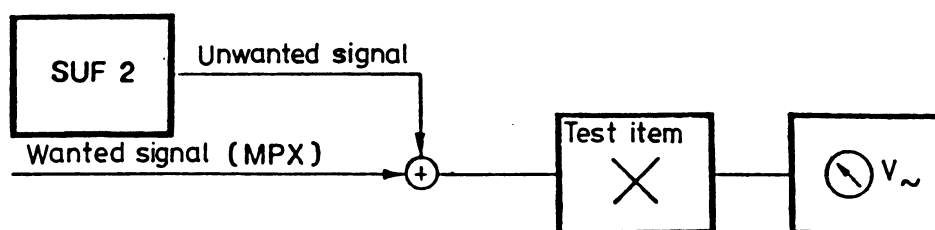
The measuring method in accordance with CCIR Rec. 571 specifies noise levels of +3 dBm (approx. 1.09 V) and -4 dBm (approx. 0.49 V) with a load of 600 Ω . This is achieved in the case of the audio reference (0 dB = 0.775 V) by a series resistor of 173 Ω between the SUF 2 output and the item under test. This test item should have an input impedance of 600 Ω or be adjusted to this value by shunt resistors. This yields the following noise levels:



2.4 Test Methods

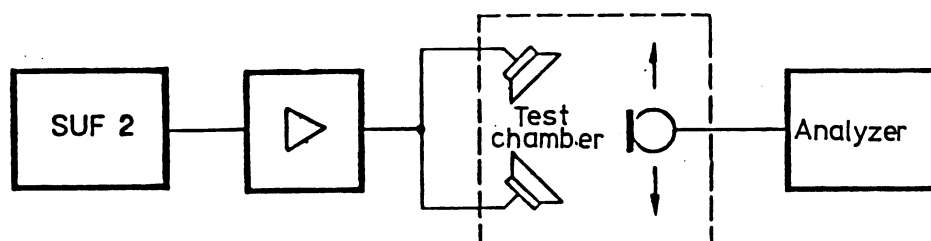
2.4.1 Measurements Using White Noise 20 Hz to 110 kHz

Measurement of noise rejection



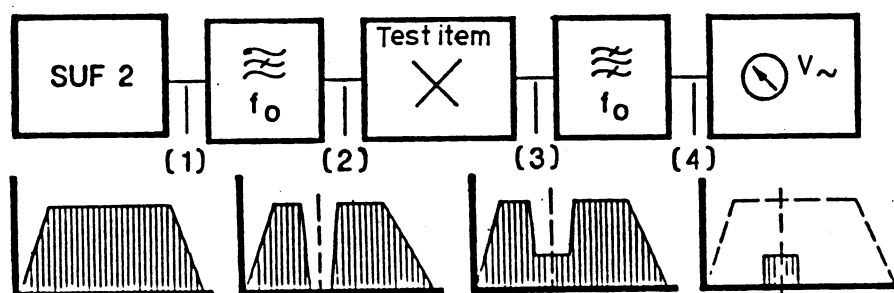
The maximum noise which can be superimposed can be determined in analog frequency-division multiplex systems, such as stereo broadcast and radio transmission systems.

Measurements in architectural acoustics



A listening room is to be checked for unwanted resonances or level dips. For this purpose a noise signal is emitted via a stereo system. A test microphone localizes irregularities in the reproduced sound level so that the appropriate remedy can be carried out, e.g. by varying the positions of the loudspeakers or by fitting sound deadening materials in the room. In a non-resonant room, the radiation characteristics of loudspeakers can be determined by this measuring method.

Harmonic distortion measurements in multi-channel systems



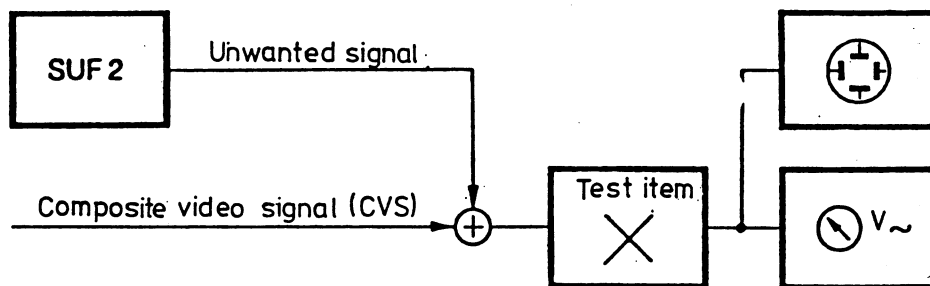
The white noise simulates a carrier frequency band covering a variety of speech signals in frequency-division multiplex with constant power distribution (1). Bandstop filters suppress the frequency ranges of the channels to be measured (2).

Due to nonlinear distortions, noise products appear in these gaps (3). The power in these gaps is determined via bandpass filters or with a selective receiver and is a measure of the harmonic distortion (4).

Since it is necessary to have a constant power distribution over the carrier frequency band in order to detect the exact noise effects on the unused speech channels, a measurement using discrete signals is not possible. This measuring method can be used not only for telephony transmission systems but in all the cases where individual transmission channels up to 50 MHz - i.e. also in CB radio - are to be checked for nonlinear crosstalk.

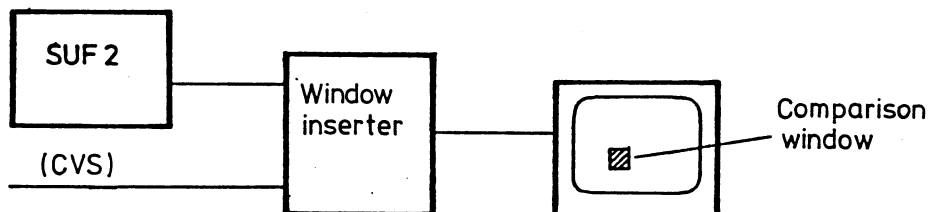
2.4.2 Measurements Using White Noise 20 Hz to 6 MHz

Faulty operation of video equipment in the case of a bad S/N ratio



In the video range it is important to know exactly how far amplifiers, clamping circuits and sync separators are liable to be affected by interference. The SUF 2 makes it easy to determine the threshold up to which unaffected signal processing is possible in the presence of superimposed noise (recommended SUF 2 reference value: $0 \text{ dB} = V_{\text{rms}} = 0.7 \text{ V}$).

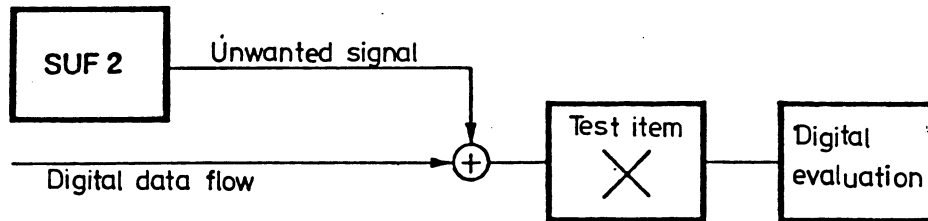
Determination of the subjective video S/N ratio



White noise is inserted into a blanked area or "window" on the screen serving as a reference signal for comparison with the rest of the picture content.

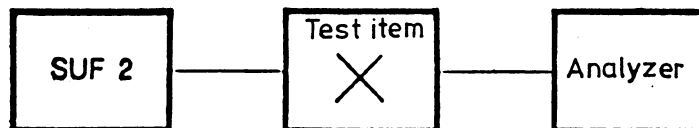
2.4.3 Measurements Using White Noise 20 Hz to 50 MHz

Measurements on digital TV transmission systems



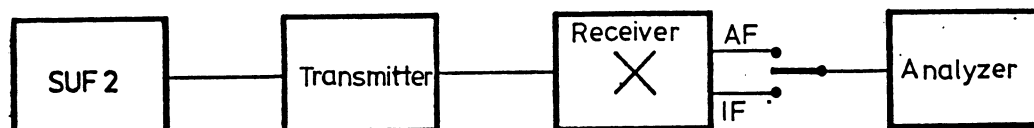
The presently used digital TV systems work with a transmission speed of 34×10^6 bits/second. The SUF 2 covers this frequency range with white noise and thus permits bit error rates to be measured and the performance of error-correction codes to be determined as a function of S/N ratio.

Measurement of frequency response



Basically this measurement is the inverse of the method employed in most cases which uses a swept transmit signal plus wideband indication. By using a noise signal, the device under test is subjected to virtually its normal operating conditions; however, an analyzer is required for evaluation. This method is used for filter measurements in the IF range of vision and sound receivers.

Measurement of receiver selectivity

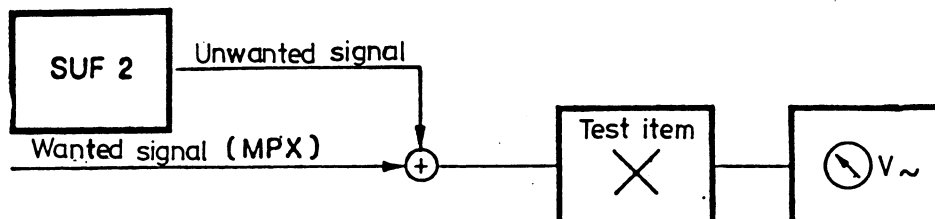


This test setup permits radio equipment to be tested at the RF, IF and AF under conditions which are close to practical operation.

2.4.4 Measurements Using Coloured Noise

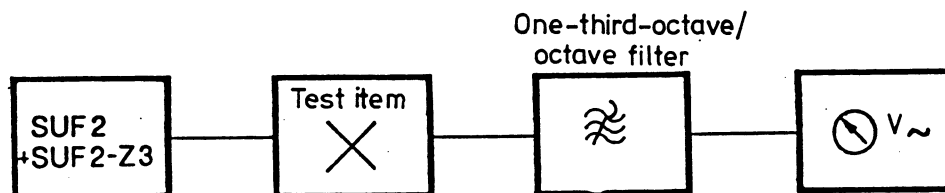
After fitting the corresponding filter option, the SUF 2 permits measurements which, in most cases, conform to the internationally recommended methods. For the frequency response of the test signal concerned see Figs. 4-1 to 4-5.

Triangular noise 0 to 6 MHz (Option SUF 2-Z2)



The spectral distribution of the triangular noise (see Fig. 4-1) shows that the signal level increases proportionally with frequency. This signal permits simple measurements on FM transmission systems (radio links, satellite radio) without requiring RF or IF equipment. After FM demodulation, the noise spectrum corresponds to triangular noise (preemphasis).

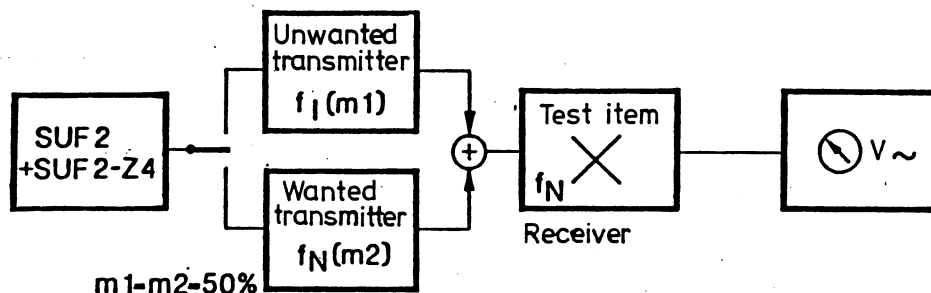
Pink noise 20 Hz to 16 kHz (Option SUF 2-Z3)



The pink noise has a spectral level distribution decreasing by 3 dB/octave from 20 Hz to 16 kHz (see Fig. 4-2). If a one-third-octave or octave filter (e.g. PBT or PBO) is used for the measurement, the same level is obtained in each of the preset frequency bands.

In contrast to the energy content of white noise, that of pink noise remains constant over an octave or one-third octave. To cover the complete AF range up to 16 kHz, ten measurements are required with the octave filter and 30 measurements with the one-third-octave filter.

Replacement signal in accordance with CCIR Rec. 559 (Option SUF 2-24)

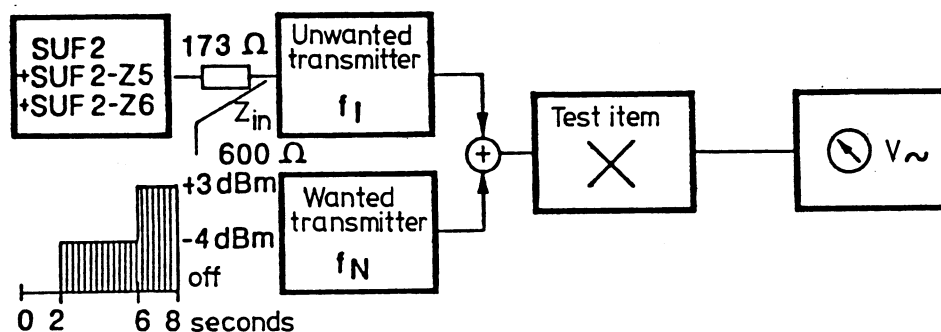


This filter simulates a program signal for 9-kHz AM systems (Fig. 4-3). The method for measuring the protection ratio in accordance with this standard basically consists of alternately modulating the wanted and the unwanted transmitter by the defined "modern dance music" at a modulation depth of 50%.

Both signals are applied to the receiver to be tested. The 0-dB reference level is measured at the audio output of the receiver in accordance with CCIR Rec. 468-2 (e.g. with the UPGR millivoltmeter) when the wanted transmitter is modulated. When the unwanted transmitter is modulated with coloured ("dance-music") noise, the same measuring instrument (e.g. UPGR) indicates the corresponding protection ratio (for more details see CCIR Green Book, vol. X, p. 37 ff).

Replacement signal in accordance with CCIR Rec. 571 (Option SUF 2-25)

(in conjunction with the control option CCIR Rec. 571 Program, SUF 2-26)



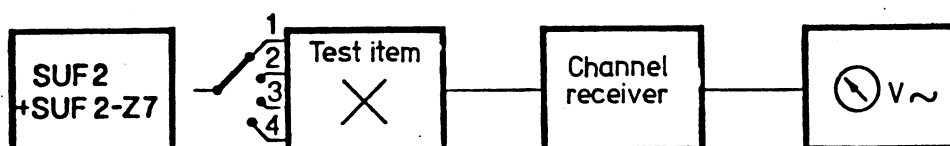
In contrast to CCIR Rec. 559, CCIR Rec. 571 specifies the program cycle to be used for measuring the effects on FM systems of interference in the adjacent channels. Since previous CCIR recommendations provided for a wide level range at the audio input of a radio broadcast transmission

system, CCIR Rec. 571 specifies switchover between two typical level values; in a third mode, the "conventional program signal" is disabled to permit the reference measurement of the interference signal. The levels vary periodically in accordance with the following table:

Mode	Signal level	Duration
1	Noise off	2 s
2	-4 dBm	4 s
3	+3 dBm	2 s

(For more details see CCIR Green Book, vol. XII, p. 114 ff).

Replacement signal in accordance with CCITT Rec. G.227 (Option SUF 2-Z7)



To measure the crosstalk between adjacent telephony channels, CCITT recommends that a "speech replacement signal" represented by a noise spectrum in accordance with Fig. 4-5 be transmitted on the telephony channel. For evaluation, a psophometer is connected to the output of the unused channel. The reference level is obtained with the noise source disabled (for more details see CCITT Orange Book, vol. III-1, p. 145 ff).

3 Maintenance

3.1 Required Measuring Equipment and Accessories

No.	<ul style="list-style-type: none"> ◦ Required instrument, specifications • Recommended R&S instrument 	Type	Ordering No.
1	<ul style="list-style-type: none"> ◦ Power meter, $Z_{in} = 75 \Omega$, 0 to >300 MHz • Microwave Power Meter 	NRS	100.2432.92 100.2440.70
2	<ul style="list-style-type: none"> ◦ Audio analyzer 10 Hz to 100 kHz • Audio analyzer 	UPA	372.6014.02
3	<ul style="list-style-type: none"> ◦ Wideband voltmeter 40 Hz to 10 MHz for rms- and peak-value measurement • Video Noise Meter 	UPSF2	341.7019.09
4	◦ Spectrum analyzer 10 Hz to 100 kHz	Advantest TR 9404	
5	<ul style="list-style-type: none"> ◦ Spectrum analyzer up to about 400 MHz • Spectrum analyzer 	FSA	804.8010.52
6	◦ Oscilloscope 0 to >100 MHz	---	---
7	• PCB test adapter for filter options	can be made up by customer	---
8	<ul style="list-style-type: none"> ◦ System controller for IEC-625-Bus Interface Option • Process Controller • Process Controller 	PC with National card for IEEE-488-Bus PCA5 PUC	375.2010.00 344.8900.10
9	• Connecting cable (2 x BNC connector)	---	100.6990...

3.2 Performance Checking

Prior to starting the measurement with the Noise Generator SUF 2, allow for a warmup of at least 3 minutes until the noise source has reached its rated temperature. The crest factor rating of the level meter should be taken into account for all rms-value measurements. In most cases it will be sufficient to select a measurement range of ≥ 3 V or $\geq +10$ dBm for measuring 1 V_{rms}.

3.2.1 Measurement in the White Noise Ranges

20 Hz to 50 MHz

For the test setup see Fig. 3-1.

SUF 2 setting: 20 Hz to 50 MHz, 0 dB ($V_{\text{rms}} = 1$ V), noise on.

Frequency response checking: Use an analyzer; flat frequency response up to 50 MHz (≤ -3 dB), then roll-off by > 20 dB/octave until a level of at most -60 dB is reached at 400 MHz.

Level checking: Use a power meter with a 75- Ω load.

Indication: 13.33 mW $\pm 5\%$.

Checking the noise distribution as a function of amplitude, which should appear as a lens-shaped bright area on the oscilloscope, using the slowest available X deflection (≥ 10 s per screen width).

20 Hz to 6 MHz

For the test setup see Fig. 3-2.

SUF 2 setting: 20 Hz to 6 MHz, 0 dB ($V_{\text{rms}} = 1$ V), noise on.

Frequency response checking: Use an analyzer; flat frequency response up to 6 MHz. Beyond about 8 MHz, the noise should be down 32 dB.

Level checking: Use a wideband voltmeter with a 75- Ω load. Indication: 1 V ± 1 dB in the case of rms-value measurements, > 7.1 V (crest factor) in the case of peak-value measurements.

20 Hz to 110 kHz

For the test setup see Fig. 3-2.

SUF 2 setting: 20 Hz to 110 kHz, 0 dB ($V_{\text{rms}} = 1$ V), noise on.

Frequency response checking: Use an analyzer; flat frequency response between 20 Hz and 110 kHz. Starting with about 200 kHz, the noise should be down more than 32 dB.

Once the measurement at low frequencies (20 Hz to about 20 kHz) has been carried out on the bottom range, the results can be assumed to be the same at low frequencies when the ranges 20 Hz to 6 MHz and 20 Hz to 50 MHz are selected.

Level checking: Use an AF level meter with a 75- Ω load.

Indication 1 V \pm 1 dB in the case of rms-value measurement.

3.2.2 Measurement in the Coloured Noise Ranges

Triangular Noise Option SUF 2-Z2

For the test setup see Fig. 3-2.

SUF 2 setting: RES, 0 dB ($V_{\text{rms}} = 1 \text{ V}$), noise on.

Frequency response checking: Use an analyzer with linear level display.

A linearly increasing frequency response with a permissible variation of 5% referred to the value (100%) at 6 MHz should be obtained. Starting with about 8 MHz, the noise should be down more than 20 dB. See the table in Fig. 4-1.

Level checking: Use a wideband voltmeter with a 75- Ω load. Indication: 1 V \pm 0.5 dB in the case of rms-value measurement.

Pink Noise	Option SUF 2-Z3
CCIR Rec. 559 Filter	Option SUF 2-Z4
CCIR Rec. 571 Filter	Option SUF 2-Z5
<u>CCITT Rec. G. 227 Filter</u>	<u>Option SUF 2-Z7</u>

For the test setup see Fig. 3-3.

SUF 2 setting: RES, 0 dB ($V_{\text{rms}} = 1 \text{ V}$), noise on.

Frequency response checking: Use an analyzer. The frequency response shown in Figs. 4-2 to 4-5 should be obtained.

Level checking: Use an AF level meter with a 75- Ω load.

Indication: 1 V \pm 0.5 dB in the case of rms-value measurement.

For accurate frequency response measurement, the filter option should be operated in a test setup as shown in Fig. 3-4. For the individual values, see the tables in Figs. 4-2 to 4-5. Make sure that the permissible input voltages are used.

3.2.3 Checking the Manual Operation

Switch the SUF 2 on. The level set internally for POWER ON should be indicated and the range 20 Hz to 6 MHz selected.

Switch over to the range 20 Hz to 50 MHz and press the level button "-". At first the switching rate is 3 dB/second, after about 2 seconds it is 30 dB/second, i.e. starting at -40 dB the final value of -80 dB is reached after about 4 seconds.

Switch over to the range 20 Hz to 110 kHz and press the level button "-". The final value of -100 dB is reached. When switching over to RES, the indication should not vary.

Switch over to the range 20 Hz to 50 MHz. The level is automatically switched over to -80 dB (permissible minimum value for this range). Next press the level button "+" until the final value of 0 dB is reached.

3.2.4 Remote Control

Parallel DATA IN remote control facility

Connect pin Bu4.16 to ground. This sets the SUF 2 for remote control, i.e. LED REMOTE is on and manual operation is inhibited. If required, proceed with performance checking in accordance with Fig. 2-6.

IEC-625-Bus Interface Option SUF 2-Z1

With the "rtl" switch on the rear panel set to "1", manual operation should be possible. Then put this switch to "0" and, if required, check the performance in accordance with Fig. 2-7 "test program for IEC-625-Bus Interface".

CCIR Rec. 571 Program Option SUF 2-Z6

Connect an oscilloscope to the front-panel output and check the operational cycle. The ON pulse should be present at Bu4.15 and the OFF pulse at Bu4.11. See Fig. 2-5. During the automatic sequence, manual operation is inhibited and the LED REMOTE is on.

4. Circuit Description

4.1 Power Supply

See circuit diagram 282.9115 S, sheet 1.

The power supply delivers the three supply voltages of +12 V, -12 V and +5 V. The 0-V line of the +5-V section is run separately to avoid hum loops when IEC-625-bus controllers are connected.

4.1.1 +12-V and -12-V Supply Voltages

The centre-tapped full-wave rectifier G1 2 produces the two raw supply voltages. These are stabilized to +18 V and -18 V with T5/G1 6 and T6/G1 5 and applied to the two feedback amplifiers B1.I and B1.II. The tracking principle permits the two voltages to be adjusted simultaneously with one potentiometer, only one reference voltage source being required.

The feedback amplifier B1.II for the +12-V section compares the reference voltage of Zener diode G1 7 with the fraction of the output voltage determined by R14/R13/R15. The output voltage is kept constant at about +12 V (checkpoint Br3) via T1 and T8.

In the -12-V section, the feedback amplifier B1.I compares the constant voltage of about +5 V (across R10/R11) with the voltage from divider R8/R9 and keeps the output voltage constant at about -12 V via T2 and T7.

4.1.2 +5-V Supply Voltage

The bridge rectifier G1 3 feeds the +5-V section. The feedback amplifier B3 compares a fraction of the output voltage (R19/R20/R21) with the reference voltage across G1 8 (approx. 3.9 V) and keeps the output voltage constant via T4 and T9.

4.1.3 Monitoring the Supply Voltages

The two opto-couplers B2 and B4 monitor the -12-V and +5-V supply voltages. If one of the two voltages is faulty, the "fault" LED on the front panel is switched on via T3. Since the +12-V and -12-V sections are coupled, the +12-V supply voltage is included in the monitoring procedure.

4.2 Analog Section

See circuit diagram 282.9115 S, sheets 2 and 3

4.2.1 Noise Source

The diode GL16 serves as a noise source. The current flowing through the diode determines the noise amplitude, the noise distribution and the frequency response and can be using R40 and, if required, R39.

B6 amplifies the noise voltage provided by B5 and permits the frequency response to be corrected by means of R37 whereas R43 is used to calibrate the noise power (20 Hz to 50 MHz).

The AGC amplifier B7.I stabilizes the DC voltage across the emitter T14 to 0 V via B5.

To keep the noise power delivered constant, the noise source (GL16) is temperature-controlled. The AGC amplifier B7.II drives the heater transistor T21, GL38 being used as a temperature sensor.

GL16, GL38 and T21 are fitted on a bracket in order to establish a common thermal contact.

B13, T23 and T24 generate the supply voltages of +8 V and -8 V for the circuitry described above.

4.2.2 Filters

The noise signal derived from the emitter of T14 is taken the output stage via different phaths depending on the bandwidth selected:

20 Hz to 110 kHz: Rs7, 6-MHz lowpass filter, amplifier B8/T15, 110-kHz lowpass filter, amplifier B9, Rs9

20 Hz to 6 MHz: Rs7, 6 MHz-lowpass filter, amplifier B8/T15, Rs6 + Rs8

20 Hz to 50 MHz: Rs3, Rs5, Rs8

RES (= option): St5.1, filter option, St5.10 (Rs3 open-circuit), Rs5 + Rs8

The gain of the above signal phaths is adjusted such that a noise signal of $0.3 V_{rms}$ is present at the input of the output stage. Potentiometers R91

SUF2

and R102 permit compensation of the DC offset referred to the mean noise signal at the emitter of T14. The amplitudes are adjusted using R98.

The NAND gates in chip B11, and the two diodes G1 22 and G1 23, are used for driving the relays.

4.2.3 Output Stage

The output stage amplifies the noise signal to $2 V_{rms}$ (EMF). The AGC amplifier B10.I + .II maintains the mean signal value at the output of this stage at 0 V.

4.2.4 Attenuator

The attenuator consists of attenuator networks set in seven binary steps from 1 to 64 dB. Relays Rs11 to Rs29 are used for switching over the individual attenuators whereas the two relays Rs30 and Rs31 permit the noise signal to be completely turned off.

In conjunction with the links Br6-Br8, the two attenuators (2.23 db and 3 dB) enable the reference level for 0 dB to be set.

Link Br10 is provided to aid servicing. If this link is removed, the two relay contacts Rs30 and Rs31 are open with NOISE ON and the attenuator can be measured between Bu11 and Bu12.

4.3 Digital Section

See circuit diagram 282.9515 S.

4.3.1 Bandwith Selection

Pressing one of the buttons S1 to S4 switches one input of the switchable 4-bit memory B3 from +5 V to 0 V. This level change causes B5 and B4.3 to produce a clock pulse which transfers the bit which has been set into the memory. Next driver B1 switches over to corresponding relays of the noise source.

In the case of remote control, a bit pattern corresponding to the desired bandwidth is present at the two inputs of the 2-to-4-line decoder B2; after decoding, this signal is applied to the 4-bit memory via the local/remote line. A "data valid" pulse (F/N) produces via B4.1,2 the transfer clock pulse.

After "power on - reset" delivered by B26 and B22.2, the bandwidth 20 Hz to 6 MHz is always selected via G1 16.

4.3.2 On/Off Control

Pressing button S7 (NOISE ON) produces, via B12.3 and B12.4, a clock pulse which switches the Q output of flipflop B9 from L to H or from H to L. The LED incorporated in the button indicates the switching state of the flipflop; B10.2 and B10.3 actuate the relays Rs30 and Rs31. In the case of "noise off", B10.1 connects the 64-dB attenuator.

With each change of the selected noise level, monostable B11.2 delivers a 100-ms pulse and turns off the noise signal via B10.2 and B10.3. In this way, high noise levels caused by non-simultaneous relay switching or contact chatter are avoided.

In the case of remote control, B9 functions as an RS flipflop and can be driven via inverters B14.2 and B14.3 and NAND gates B12.2 and B12.1, by establishing momentary contacts to ground at St10.9 and St10.7.

4.3.3 Level Control and Indication

Oscillator and BCD counter

Pressing one of the buttons S5 or S6 causes the 3-Hz oscillator B25.1 + .2 to start oscillating via B21.1 and B21.4. If the button is held down, B22.1 and T1 switch the frequency over to about 30 Hz. The switchover delay is determined by the RC network R38/C8.

Latch B21.2 + .4 recognizes the desired count direction for the BCD up/down counter B16 + B17 + B18. It is driven by the clock pulses from the 3-Hz (30-Hz) oscillator B25.1 + .11. If the buttons are not pressed, the desired level value is thus stored in the counter.

Level indication

The counter outputs are connected to the digital readouts B1 to B3 via the 7-segment decoders B6 and B7 (tens and units) and via the inverter B8.3 (hundreds). Thus the level setting can be observed immediately.

The link at St4 causes the desired polarity sign of the level indication to appear.

Controlling the attenuator

The level values stored in the BCD counter must be available in binary form to drive the attenuator; EPROM B16 is used for this conversion.

The nine BCD lines are taken to the memory chip as the addresses A0 to A8. The associated bit pattern appears at the data outputs. Since the LSB is the same in BCD and in the binary form, only 6 data lines are required for this conversion.

The seventh data line is used for suppressing the leading zero on the front-panel display.

The eighth data line inhibits the clock of the BCD counter in the case of overranging and ensures that only levels between 0 and 100 dB or 0 and 80 dB can be set (based on address line A9 which is activated by button 20 Hz to 50 MHz).

Remote control

The level information is taken in parallel, via the tristate drivers B19.I to 5 and B20.3 to 6, to the set inputs of the BCD counter. The "data valid" pulse ("D/L" at St10.3) transfers the level information into the BCD counter. The level indication and the control of the attenuator are the same as described above.

NOTE: If unacceptable level values (= addresses of the EPROM) are applied, the six highest attenuator networks are always connected.

Level setting after "power on"

At switch-on, the outputs of the tristate drivers B19 and B20 are high-impedance. Thus the parallel inputs of the BCD counter receive a bit pattern which is preset by the resistor network R56 and the links at St5, St6 and St7. During this period, the ON monitor B26.2 delivers a "data valid" replacement pulse and stores this level value. The level can be link-pre-selected in 10-dB steps between 0 and -70 dB.

4.4 Filters for Coloured Noise (Options)

The filters, which can be inserted or exchanged without any adjustment, are fitted with a relay at the input and output. When button RES is pressed, these relays are energized and the signal path is through-connected whereas relay Rs3 (noise source board) is not energized.

SUF2

4.4.1 Triangular Noise 0 to 6 MHz, SUF 2-Z2 See circuit diagram 282.9715 S.

The signal, which is band-limited via L1 and C1, is applied, via emitter follower T1, to the input of a 6-MHz lowpass filter. The current flowing to the 0- Ω point of the output amplifier T2, T3, T4 is further processed by C9 (at the output of the lowpass filter). This current increases proportionally with the frequency. Thus it produces the desired triangular noise at the emitter of T4. C3 is used to linearize the frequency-dependent voltage rise at the emitter of T4. R6 is used for gain adjustment.

4.4.2 Pink Noise 20 Hz to 16 kHz, SUF 2-Z3 See circuit diagram 282.9815 S.

The noise components above about 50 kHz are attenuated by R1 and C1 before B1.1 amplifies the noise signal by approx. 36 dB. The R/C network included in the negative-feedback path of the cascaded amplifier B1.2 attenuates the spectral components of the noise between 20 Hz and 16 kHz by 3 dB/octave. R9 determines the gain.

4.4.3 CCIR Rec. 559 Filter, SUF 2-Z4 See circuit diagram 282.9644 S.

The frequency response is determined by the RC coupling between the amplifiers B1.2, B1.1 and B1.4 and the active high-pass filter including B1.3. R9 is selected for gain adjustment.

4.4.4 CCIR Rec. 571 Filter, SUF 2-Z5 See circuit diagram 282.9644 S.

After preamplification with B1.2, the active lowpass filter including B1.1 attenuates the high-frequency noise components. The RC network R5/C1 produces an additional inflection point at about 800 Hz. Following amplifier B1.4, the active highpass filter including B1.3 shapes the rising edge of the passband characteristic. Gain adjustment is carried out using R12.

4.4.5 CCITT Rec. G.227 Filter, Telefoniekanal, SUF2-Z7 See circuit diagram 282.8860 S.

Basically this filter operates in the same way as described in section 4.4.4. However, it contains different circuit components to produce the desired shape of the passband characteristic.

4.4.6 Other Filters

Basically the space provided for the filter options can be used for inserting any other filter; however, the basic filter design, i.e. a relay at the input and output, should be maintained. In this way, different shapes of the passband characteristic and simple band limiting up to max. 50 MHz are made possible.

4.5 IEC-625-Bus Interface, SUF 2-Z1

See circuit diagram 282.9915 S.

The heart of this option for the listen-only mode (L1) is chip B4 which handles the complete management and handshake program for the IEC-625 bus. For this purpose, the 400-kHz oscillator (B3.3, 4, 5, 6) and the parallel-in/serial-out shift register (B6 and B7) are required.

The oscillator determines the data transmission speed. In the serial mode, chip B4 receives from the register all the required device data, such as the device address (to be set with S1 on the rear panel), the "return-to-local" signal and the "listen-only" mode.

Chip B5 decodes from the ISO 7-bit code of the IEC-625 bus the range of the upper-case letters. The 4 low-order bits of this code are transferred in the serial mode to registers B11 and B12 and are available in parallel at the outputs. If, in conjunction with B5, decoder gates B10 and B13 recognize one of the upper-case letters (I/O/D/L/F/N) which cause the "data valid" pulse, the digital section accepts the previously transmitted information. Next B14 resets the outputs of registers B11 and B12 to low.

This resetting is also caused by the BASIC instruction INIT and the IEC-625-bus command WBYTE @ < addr. +32 >, 20:

4.6 CCIR Rec. 571 Program, SUF 2-Z6

See circuit diagram 282.9673 S.

In accordance with the recommendation, this option repeatedly switches the noise level at preset intervals. The time sequence and the level can be link-selected.

An external low pulse sets flipflop B1 and starts oscillator B3I + II. In accordance with the setting of link Br1, dividers B4.I and B4.II deliver the clock period of 0.5/1/2 or 4 s. 8 clock periods constitute a complete cycle.

The following settings are possible with links Br4 to Br12:

Br4, Br5 (Br6): determination of the interval for NOISE OFF
 (controlling Rs30 + Rs31 of the attenuator)

Br7, Br8, Br9: output of the first level which is selected by
 Br13 to Br20 in 1-dB steps

Br10, Br11, Br12: output of the second level which is selected
 by Br21 to Br28 in 1-dB steps.

"Data valid" pulses transfer the link-selected level values to B7 or B8 and output them. NAND gate B5.III combines the start pulses for the first and the second level and produces the "D/L" pulse for entering the values into the digital section.

Links Br3 and Br4 (F1, F2) determine the desired noise bandwidth.

5 Repair Instructions

5.1 Required Measuring Equipment and Accessories

The required measuring instruments and accessories are listed in section 3.1. For the test setups see Figs. 3-1 to 3-4. The digital section 282.9519 can be vertically plugged into the servicing sockets on board 282.9415 so that all the components are readily accessible.

5.2 Troubleshooting

First check the supply voltages of + 5 V and ± 12 to 13 V. Next some easy checkouts using an oscilloscope and a wideband voltmeter will permit the fault to be localized; all the filter ranges need to be checked.

5.2.1 Measurement Sequence

1. Measurement at the front-panel output:

It should be possible to switch the noise signal on and off with the aid of the NOISE ON button and to vary the output level in uniform 1-dB steps by means of " + " and " - " buttons. If the levels are incorrect, check the attenuator and its control signals from the digital section. The following measurement should be made if the level is wrong:

2. Measurement at test socket Bull (input of the attenuator):

Switch the noise signal on using the NOISE ON button. If the signal is absent, check the switching action of relays Rs30 and Rs31 and, if required, their control signals from the digital section. Next proceed as follows:

3. Measurement across R107/C72 (input of output stage):

If the signal is present, check the output stage. If the signal is absent (in all the filter ranges), perform the following measurement:

4. Measurement at St5.1/R85/emitter of T14 (input of filter switchover circuit):

If the signal is absent, perform additional measurements on the noise source plus the amplifiers and the equalizer; if the signal is present, check the filter switchover and the control in the digital section.

If a signal of about 3.5 V_{pp} is not present across R85 (wideband signal path), the fault will probably be located in the noise source (GL16) or in the subsequent amplifiers.

SUF2

No signal across R85

First find the mean DC value at the emitter of T14. If this value differs from 0 V, the fault is located in the 0-V control loop comprising feedback amplifier B7.I, B5, B6 and the transistors T13 to T14.

Application of a 2-MHz signal to C49 (5 mV) enables easy function checking of this signal path. Measure the output voltage across R85; it should amount to about 0.6 to 0.7 V_{pp}. If the output voltage is correct, either GL16 is defective or the break-through current through GL16 is wrongly adjusted. The optimum value of this current can be set with R39 and potentiometer R40.

Noise level depending heavily on temperature

The fault is due to the temperature-control circuit comprising B7.I. The heating current for T21 is measured via R72. In steady state (approx. 2 to 3 minutes after "power on"), about 350 mV should be present across R72, and the temperature measured on the plate should be about 65°C.

5.2.2 Instructions for Troubleshooting

Noise signal at the output absent or too small:

Button RES is pressed, but none of the filter options is inserted. The attenuator or its control circuitry is defective. Therefore the noise voltage present across R140 (or via B11) is measured. If the signal is present, the fault should be localized in accordance with the circuit description and circuit diagrams 282.9115 S (switchable attenuator) and 282.9515 S (digital section).

If the signal is absent or faulty, the attenuator can be checked separately from the rest of the set with the NOISE ON mode selected and link Br10 removed. For this purpose, apply an RF signal of about 1 V ($R_{in} = 75 \Omega$) to Bull and measure at the front-panel output with a 75- Ω termination.

Signal absent for all the four filter ranges

After bandwidth selection, measurements across the following resistors show how the signal is taken to the power output stage:

SUF2

RES:	output resistor of filter option
20 Hz to 6 MHz:	R96
20 Hz to 110 kHz:	R105
20 Hz to 50 MHz:	R85

If the signal is present at all these points, the fault is to be found in the output stage after the attenuator has been checked.

Differences between output level and level indication

If it is clear that the output stage delivers a sufficient noise level to the attenuator (about 15 V_{pp}, high-impedance measurement across R117/R120/R121), the fault must be in the control circuit.

If no fault is discovered when checking the control circuits for the relays of the attenuator (B12.I to VIII on the main board 282.9115 and B10.1/B14.4, B8 and B13 on the digital section board 282.9515), the bit pattern of EPROM B15 is no longer correct. Therefore the EPROM must be erased and programmed again.

5.3 Adjustments

5.3.1 Power Supply

See circuit diagram 282.9115 S sheet 1

± 12-V supply voltages

Use R13 to adjust for + 12 V (+ 10 %/-0 %) at Br3.1 (coding link).
Check for -12 V (+ 10 %/-0 %) at Br4.1 (coding link). If required, adjust for voltage symmetry.

+ 5 V supply voltage

Use R20 to adjust for + 5 V ± 50 mV at Br5.1 (coding link).

Monitoring

- ▶ Remove Si 1 and Si 2 one after another.
- ▶ The error-LED lights up on the front panel.
- ▶ Power off:
- ▶ Reinsert Si 1 and Br 1.
- ▶ Power on.
- ▶ Disconnect Br 2: error-LED lights up.
- ▶ Reinsert Br. 2.

Servicing connector St3

St3.1: ground of the ± 12-V power supply
St3.2: -18 V ± 10 % (supply voltage for chip B1)
St3.3: + 18 V ± 10 % (supply voltage for chip B1)
St3.4: -12 V (ΔV about 350 mV from temperature-control circuit)
St3.5: emitter of T21 (ΔV about 350 mV from temperature-control circuit)

5.3.2 Analog Section

See circuit diagram 282.9115 S sheets 2 and 3.

Temperature control of the noise source

Adjust R80 to obtain temperature of about 65 °C at the heating block. This corresponds to a voltage drop (ΔV) of about 350 mV across R72, measured between St3.4 and St3.5 (servicing connector).

Noise source

R39 and potentiometer R40 determine the optimum avalanche discharge current for GL16. The noise signal is checked by means of an oscilloscope probe connected to the emitter of T14 (first make sure that the zero-volt control in this branch (control amplifier B7.1) is in the active range).

The signal at the emitter of T14 should be adjusted for optimum Gaussian amplitude distribution with the aid of R39 and R40. On the screen of the oscilloscope, this corresponds to a lens-shaped brightness distribution if an X deflection of > 1 s/division is chosen.

Further adjustments in this area should be made only after a complete performance check of the entire set.

Lowpass filter for with noise and output stage

Noise bandwidth 20 Hz to 50 MHz:

Set the wiper of potentiometer R107 to Rs8/9. Set the front-panel potentiometer R111 to its 0-dB mid-position. Then check using a probe at the output of the power output stage T25, T16 to T20, R120/R121.

The signal exhibits the Gaussian amplitude distribution and has a mean DC value of 0 V which is set via B10 from the 0-V control circuit.

Noise bandwidth 20 Hz to 6 MHz:

Use R91 to adjust the correction voltage across B10.II.7 to the same value as in the case of the bandwidth 20 Hz to 50 MHz.

Noise bandwidth 20 Hz to 110 kHz:

Use R102 to adjust the correction voltage across B10.II.7 to the same value as in the case of the bandwidth 10 Hz to 50 MHz.

SUF2

Adjusting the frequency response

All the measurements are made in the range 20 Hz to 50 MHz; the attenuator is set to 0 dB; the reference value is 0 dB corresponding to 1 V_{rms}.

Adjustment at high frequencies (approx. 0.1 MHz to 50 MHz): Use a spectrum analyzer to measure at the SUF2 output (frequency range 0.1 to >400 MHz).

Adjust for an optimum frequency response by changing R37 (if required, a slight improvement can be made with R40, but make sure that the Gaussian amplitude distribution is maintained).

Connect the output of the SUF2 to the input of a microwave power meter (e.g. NRS) and use R43 to adjust the output power of the SUF2 to 13.33 mV \pm 5 % into 75 Ω at 20 Hz to 50 MHz. This power corresponds to 1 V_{rms} into 75 Ω .

Check the frequency response again with the spectrum analyzer and, if required, adjust the flatness using R37. Repeat the adjustments alternately until the frequency response and the output voltage conform to the specifications (ripple <0.7 dB). For frequencies above 50 MHz \leq -3 dB, the amplitude should decrease by >20 dB/octave (minimum 60 dB at about 400 MHz).

If the crest factor is <7.1 (i.e. the peak-to-peak voltage is <7.1 V), check on the oscilloscope whether the noise signal is being limited. If it is being limited because the supply voltage is too low, use R13 to increase the voltage in the power supply, i.e. the upper tolerance limit may be used (\pm 13 V -5 %). After the supply voltage has been varied, the temperature-control circuit of the noise source should, however, be readjusted with R80 (65 °C corresponding to 350 mV at St3.4-5) and the frequency response and output voltage checked in the range from 20 Hz to 50 MHz.

Adjustment at low frequencies (20 Hz to about 0.1 MHz): Use a wave analyzer (e.g. FAT2) to measure in the frequency range 20 Hz to >60 kHz. Test bandwidth \leq 30 Hz.

R107 is used to flatten the frequency response for frequencies >2 kHz. The time constant of the 0-V control circuit (including B7.1) overlaps the range up to about 30 Hz. By varying R71, the frequency response in this range should therefore be adjusted such that the output at all frequencies of <20 Hz does not rise above the level at higher frequencies.

Note: The analyzer zero must not invalidate the measurement range at low frequencies (<30 Hz)

SUF2

Checking in the range 20 Hz to 6 MHz:

Check the frequency response in the range 0.1 MHz to 6 MHz using a spectrum analyzer (e.g. SWOF3).
Ripple <0.7 dB up to 6 MHz, decreasing until -32 dB is reached at frequencies above 8 MHz.

Check the output voltage using a wideband voltmeter (e.g. UPSF).

Rms-value measurement: $1 V_{rms} \pm 5\%$ into 75Ω

Peak-value measurement: $7.1 V_{pp}$ into 75Ω

Adjust, if required, using R98.

Checking the attenuator

With a perfectly functioning digital section, check the noise voltage using a wideband voltmeter and switching the attenuator through its range. The measurement can also be performed with an external signal between Bull (noise off) and the output socket with the aid of a reference attenuator. Due to the binary stepping, the values measured at -1 dB, -2 dB, -4 dB, -8 dB, -16 dB, -32 dB and -64 dB show the errors possible for the individual attenuator networks.

Next check the additional attenuator networks associated with the audio reference (0 dB = 0.775 V) and the video reference (0 dB = 0.7 V).

5.3.3 Digital Section

The digital section does not have any adjusting elements; thus only the performance checks for manual control and parallel remote control in accordance with section 3.2.3 are required.

5.3.4 Options

Filter options

Triangular Noise Option SUF 2-Z2:

Use a spectrum analyzer to check the board in the SUF 2 in accordance with the test setup of Fig. 3-2. For the frequency response and its tolerance see Fig. 4-1.

Use C3 to adjust for a linear rise up to 6 MHz.

Use R6 to adjust the gain to $1 V_{rms} \pm 0.5 \text{ dB}$ into 75Ω .

Check the stopband attenuation: $> 20 \text{ dB}$ at $> 8 \text{ MHz}$.

Filter options SUF 2-Z3/-Z4/-Z5/-Z7:

Operate the PC board in the adapter in accordance with the test setup of Fig. 3-4.

For the frequency response and the corresponding tolerances see Figs. 4-2 to 4-5.

Adjust the gain using the appropriate control in accordance with the table included in Fig. 3-4.

Next insert the board into the SUF 2 and check the gain with an rms voltmeter (e.g. UPR). Output voltage: $1 V_{rms} \pm 0.5 \text{ dB}$ into 75Ω .

IEC-625-Bus Interface Option SUF 2-Z1

Check the board in the SUF 2. Connect a bus controller (e.g. Tektronix 4051) via an IEC-bus cable (e.g. PCK).

Check the IEC-625-Bus Interface in accordance with the test program (Fig. 2-7, left).

Use an oscilloscope for the following measurements: reset pulse at B14, pin 8 (see program sequence) and oscillator frequency (about 400 kHz).

CCIR Rec. 571 Program Option SUF 2-Z6

Check the board in the SUF 2. For the pin allocation of the rear-panel connector see Fig. 2-5 (three buttons, one link). Use an oscilloscope for all the measurements.

Check with the program option ON and OFF (buttons connected to Bu4.15 and .11) and ON/OFF (button connected to Bu4.17 with the link inserted between Bu4.4 and .16).

Check the clock pulses at St4 (spacing 0.5/1/2/4 s corresponding to a cycle duration of 4/8/16/32 s).

Check the filter selection with links Br2 and Br3; the filter selected is connected into circuit with the start command and acknowledged by the corresponding button.

Check the link-selected level values on the front panel; the two levels are indicated alternately (factory setting: 0/-7 dB).

Check the level at the output in accordance with the oscillogram of Fig. 2-5.

Translations for Drawings and Diagrams

Analogteil	Analog section
2 auf 4 Decoder	2-to-4 line decoder
Bandbreiten-Steuerung	Bandwidth control
Bedienplatte	Panel-control board
Betrieb	Operation
Bezug	Reference
4 bit Speicher	4-bit memory
Decodierung BCD ↓ Binär	BCD-to-binary decoding
Decodierung Noise ein	Decoding "noise on"
Digitalplatte	Digital section board
Digitalteil	Digital section
Dreieckkrauschen	Triangular noise
Eichleitung	Attenuator
EIN/AUS	On/off
Ein-Aus-Steuerung	On/off control
Endstufe	Output stage
Entzerrer	Equalizer
Fern	Remote
Hierzu	See
IEC-bus-Anschlußplatte	IEC-bus connecting board
IEC-625-Platte	IEC-625-bus board
Netz	AC supply
Netz ein - Reset	Power on - reset
Netzteil	Power supply
Oszillator	Oscillator
Pegel-Anzeige	Level indication
Rauschgenerator	Noise Generator

Rauschquelle	Noise source
Relaisansteuerung	Relay control
Rosa Rauschen	Pink noise
Schaltb. Dämpfungsgl.	Switchable attenuator
7-Segment	7-segment
Service	Servicing
Speicher + Zähler	Memory + counter
Stromlauf zu	Circuit diagram of
Taktoszillator	Clock generator
Telefoniekanalbelegung	CCITT Rec. G 227 Filter
Temp. Regelung	Temperature control
... Tiefpaß + Verstärker	... lowpass filter + amplifier
Treiber	Driver
UP-DOWN Logik	Up/down logic
Verstärker	Amplifier
Vor-Rückwärtszähler/BCD-Speicher	Up/down counter - BCD memory
Zeichn. Nr.	Drawing No.

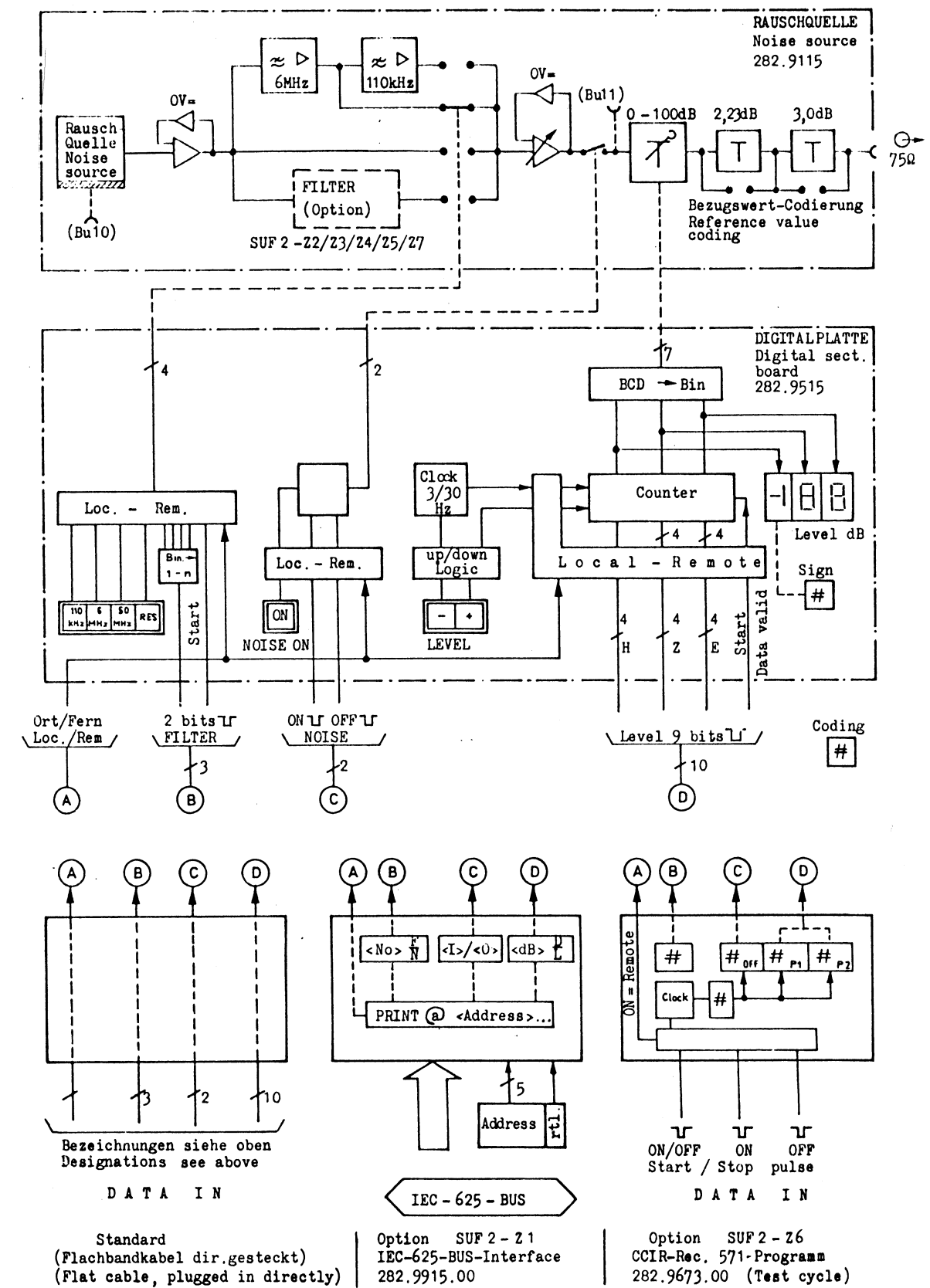


Bild 1 BLOCKSCHALTPLAN
Fig. 1 Block diagram



ROHDE & SCHWARZ

Schaltteillisten

Stromläufe

Bestückungspläne

Part lists

Circuit diagrams

Components plans

Listes des pièces détachées

Schémas de Circuit

Plans des composants

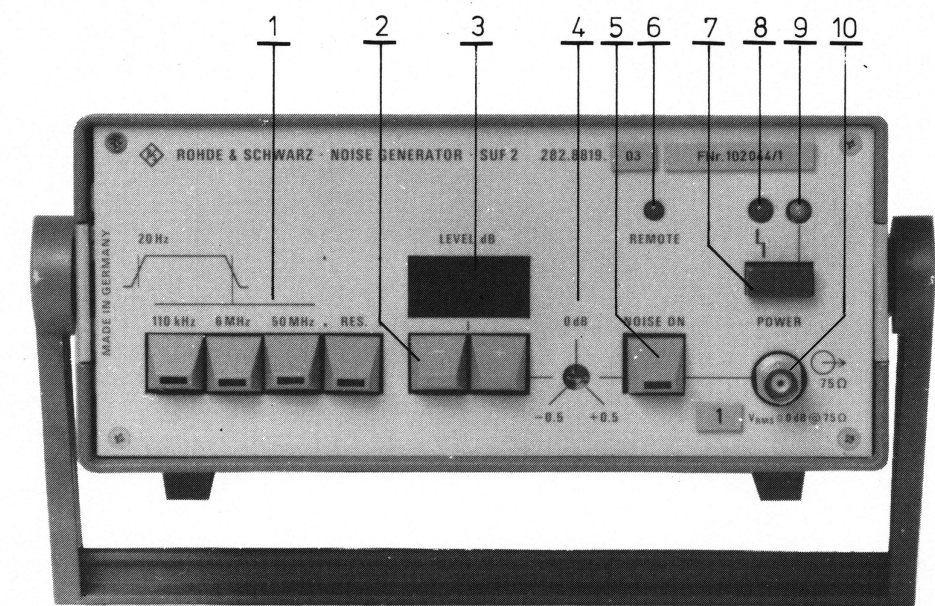


Bild 2-1 Frontansicht
Fig. 2-1 Front view

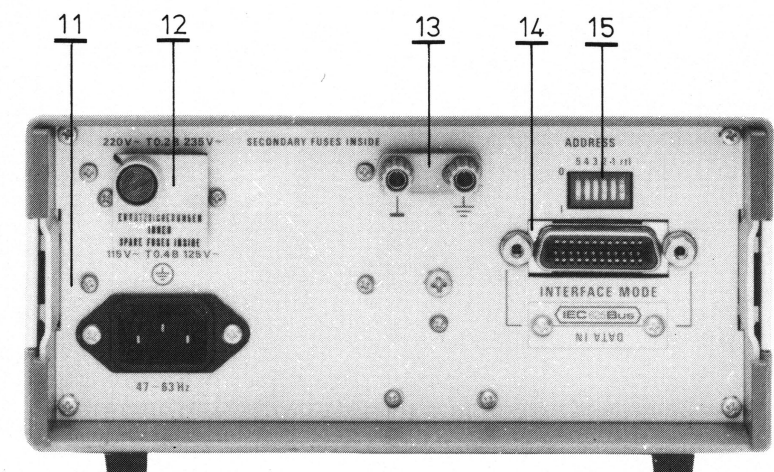
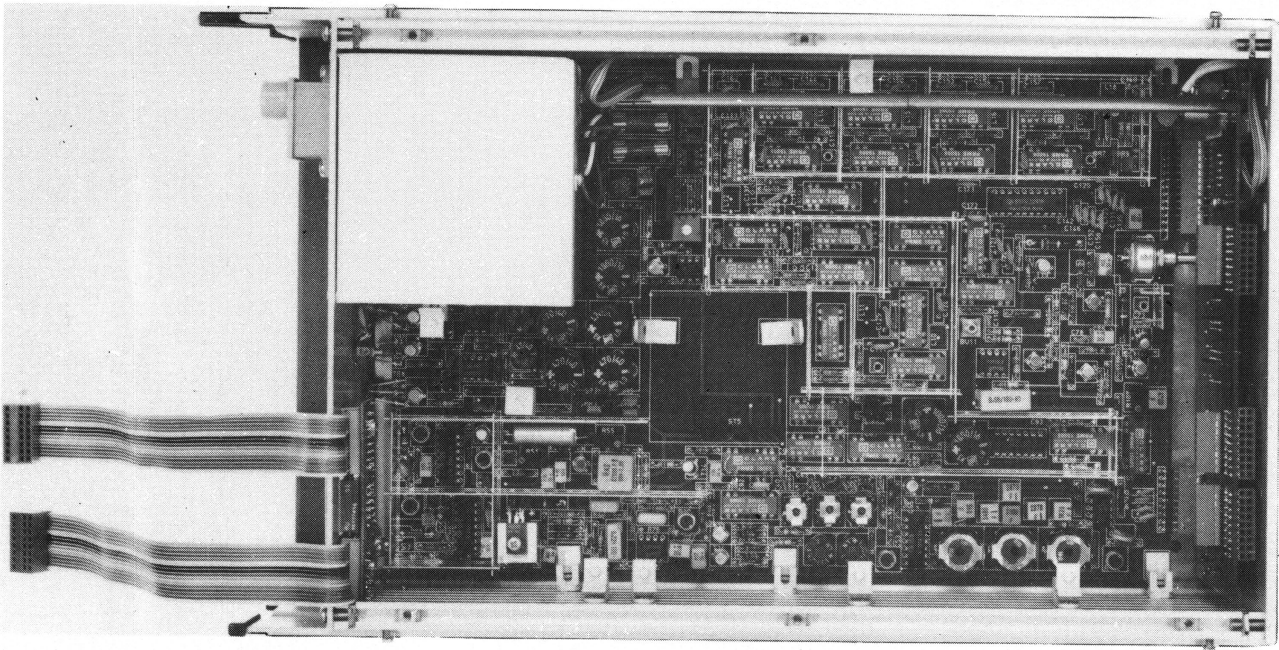
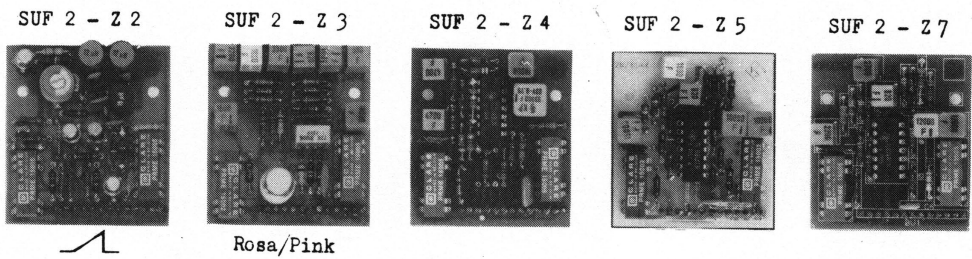


Bild 2-2 Rückansicht
Fig. 2-2 Rear view

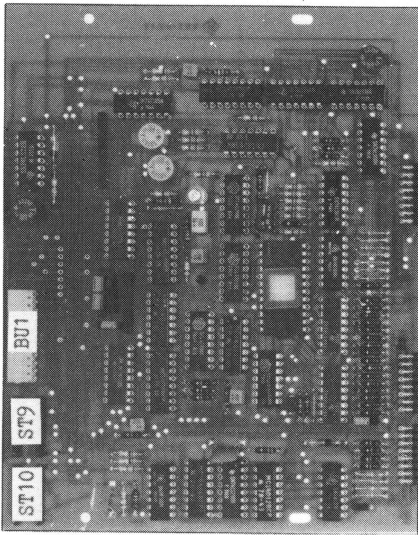
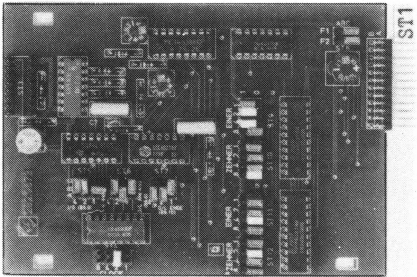
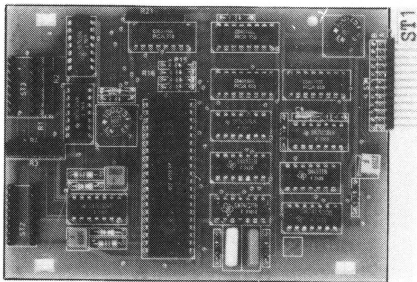
Filter Options



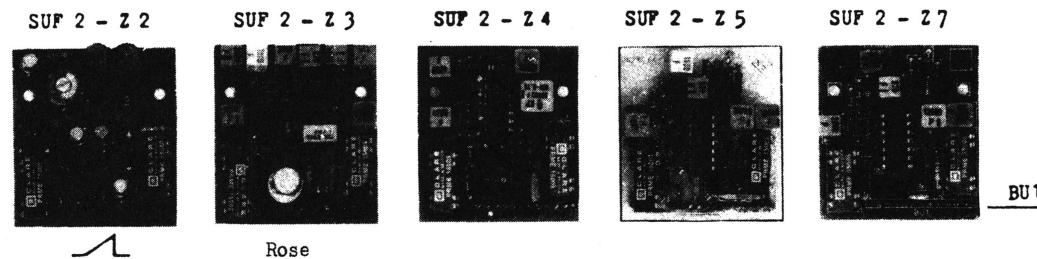
Einbau der Optionen / Filting Options
SUF 2 - Z1 / Z6

Verbindungen der Flachbandkabel
Flat cable connections

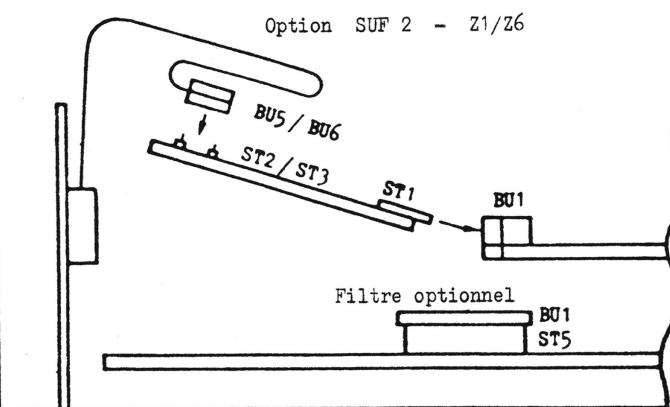
ohne/without options	BU5 - ST9	BU6 - ST10
mit/with option SUF2 - Z1	BU5 - ST3	BU6 - ST2
mit/with option SUF2 - Z5	BU5 - ST3	BU6 - ST10



Filtres optionnels

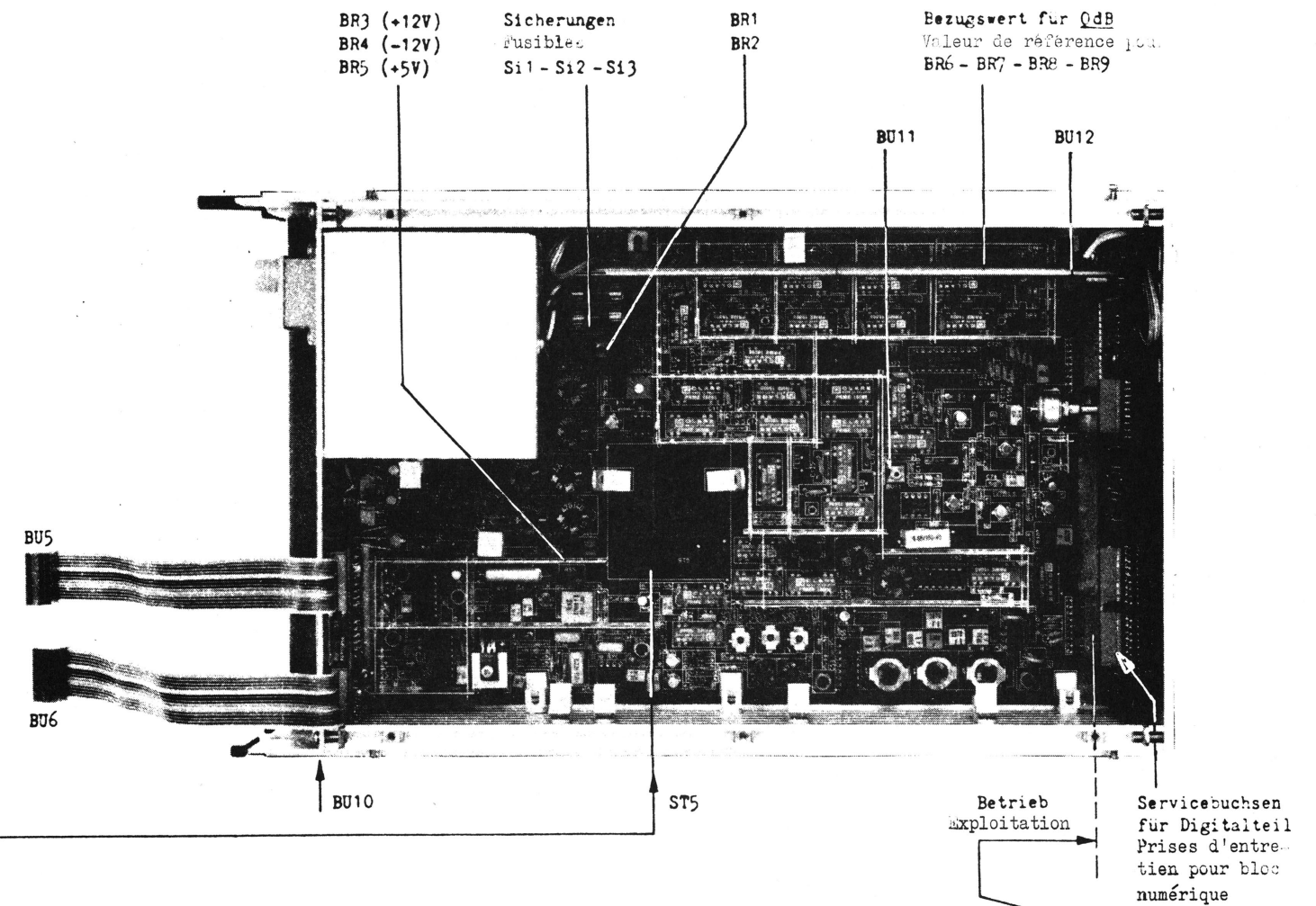


Montage des options SUF 2 - Z1 / Z6

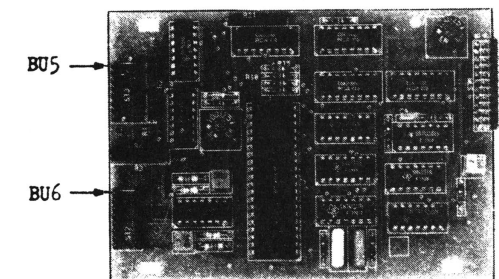


Connexion des câbles plats

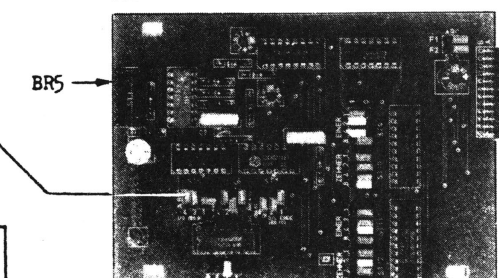
sans options	BU5 - ST9	BU6 - ST10
avec option SUF 2 - Z1	BU5 - ST3	BU6 - ST2
avec option SUF 2 - Z5	BU5 - ST3	BU6 - ST10



Option interface à bus CEI 625 SUF 2 - Z1



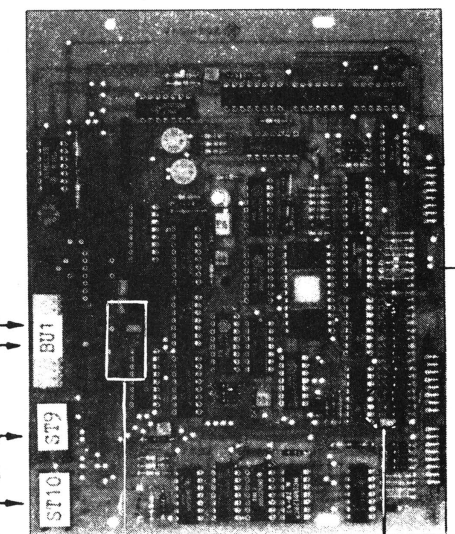
Option programme selon l'avis CCIR 571 SUF 2 - Z6



Référence pour P1, P2
hors circuit
BR4 - BR12

Durée de cycle
BR1

Niveau
P1: ST9/ST10 - BR13 - BR20
P2: ST11/ST12 - BR21 - BR28



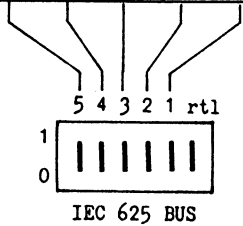
Niveau de sortie +
mise sous tension
ST5 - ST6 - ST7

Vorzeichen
Signe
ST4

Fig. 2-3 Configuration interne et options

Adressen · Addresses

Geräte- Adresse *	Adreßzeichen im ASCII-7-Bit-Code	Code				
		D ₅	D ₄	D ₃	D ₂	D ₁
1	!	0	0	0	0	1
2	"	0	0	0	1	0
3	#	0	0	0	1	1
4	\$	0	0	1	0	0
5	%	0	0	1	0	1
6	&	0	0	1	1	0
7	'	0	0	1	1	1
8	(0	1	0	0	0
9)	0	1	0	0	1
10**	*	0	1	0	1	0
11	+	0	1	0	1	1
12	,	0	1	1	0	0
13	-	0	1	1	0	1
14	.	0	1	1	1	0
15	/	0	1	1	1	1
16	0	1	0	0	0	0
17	1	1	0	0	0	1
18	2	1	0	0	1	0
19	3	1	0	0	1	1
20	4	1	0	1	0	0
21	5	1	0	1	0	1
22	6	1	0	1	1	0
23	7	1	0	1	1	1
24	8	1	1	0	0	0
25	9	1	1	0	0	1
26	:	1	1	0	1	0
27	;	1	1	0	1	1
28	<	1	1	1	0	0
29	=	1	1	1	0	1
30	>	1	1	1	1	0



* bei Ansteuerung mit TEK 4051 oder PCC
when using TEK 4051 or PCC

** Werkseinstellung
factory - adjusted

Die Adressen 0 (Space = 00000) und 31 (? = 11111) sind nicht erlaubt
Addresses 0 (space = 00000) and 31 (? = 11111) are not permissible

Anschlußbelegung · Pin allocation

Pin No.	BU4 " IEC 625 BUS "		Pin No.
1	D1	D5	13
2	D2	D6	14
3	D3	D7	15
4	D4		16
5		REN	17
6	DAV		18
7	NRFD		19
8	NDAC		20
9	IFC		21
10			22
11	ATN		23
12			24

DAV (data valid)
Taktsignal vom Datengeber zum Markieren des Zeitraums,
in dem die Daten gültig sind
Clock signal from data transmitter for marking the period
in which the data are valid

NRFD (not ready for data)
Bereitsignal des SUF2 für Datenübernahme
Inverted signal indicating that the SUF2 is ready for
data reception

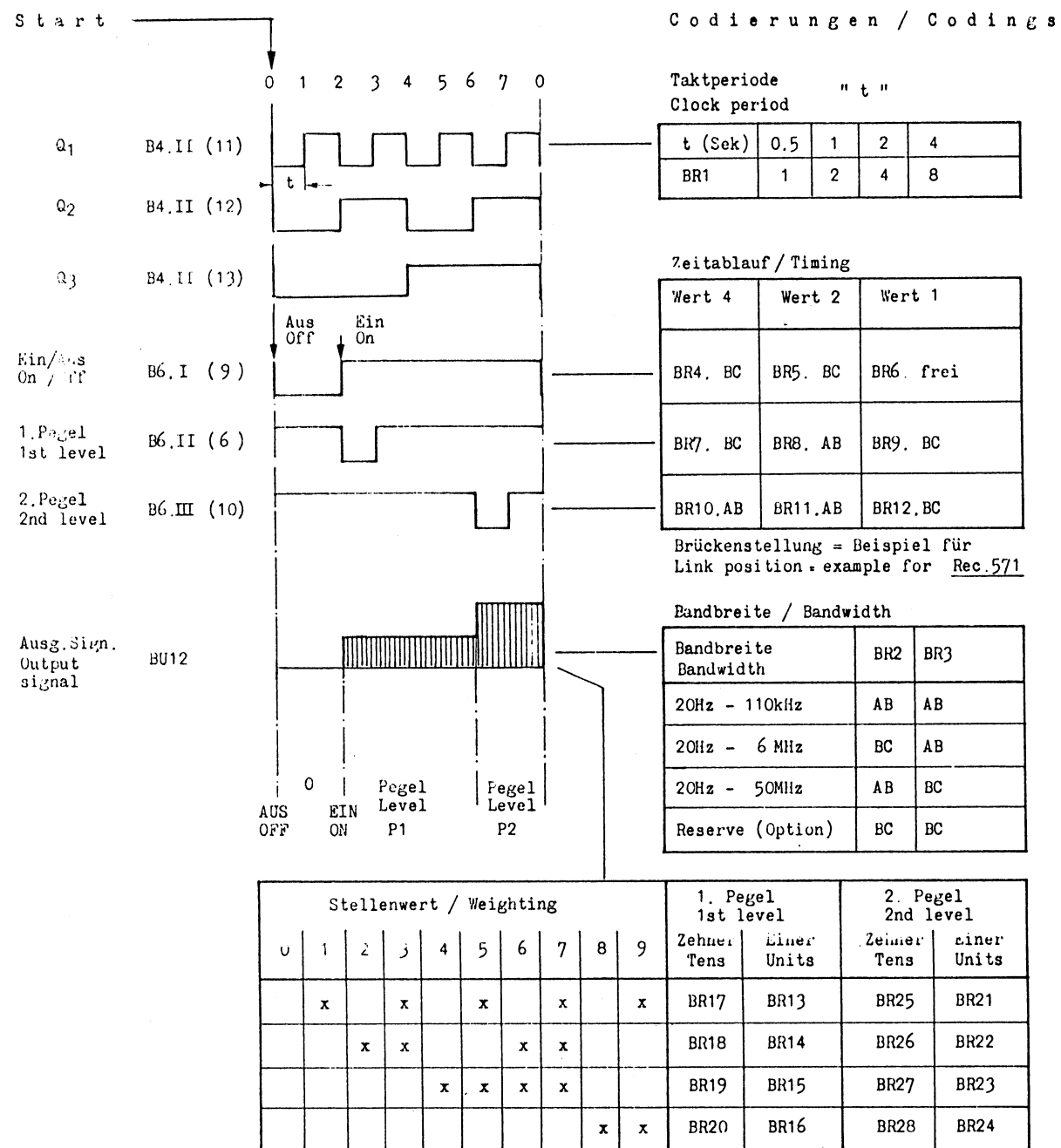
NDAC (not data accepted)
Bestätigungssignal des SUF2 für empfangene Daten
Inverted signal acknowledging reception of data by SUF2

ATN (attention)
Signal für den SUF2 zum Unterscheiden von Daten und
Geräteadressen
Signal to the SUF2 enabling it to identify specific data
and instrument addresses

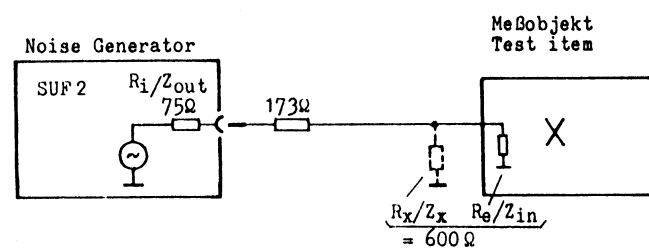
REN (remote enable)
Signal vom Datengeber zum Umschalten der Meßgeräte auf
Programmierbetrieb
Signal from data transmitter which switches the measuring
instrument to programmed operation

IFC (interface clear)
Signal vom Datengeber zum Setzen der Geräteeinstellungen
auf einen definierten Startpunkt
Signal from data transmitter causing the instrument to
be set to a defined starting point

Bild 2-4 ANSCHLUSSBELEGUNG UND ADRESSEN
Fig. 2-4 Pin allocation and addresses option
IEC - 625 - BUS - INTERFACE SUF 2 - Z1

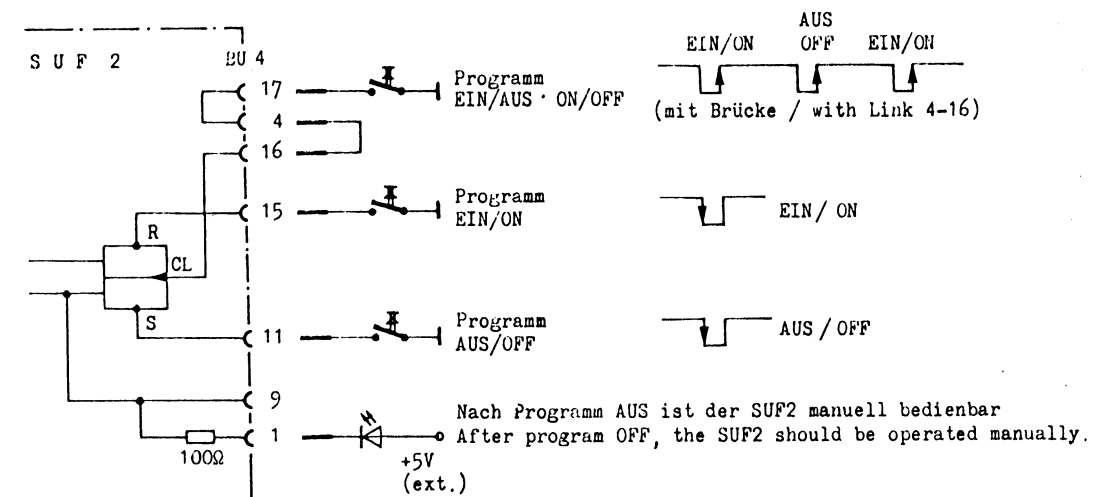


x = Brücke auf AB ($\hat{=}$ "1" = +5V) alle anderen Brücken auf BC ($\hat{=}$ "0" = 0V)
x = Corresponding link set to AB (= 1 = +5V), all the other links to BC (= 0 = 0V)



Anschlußbelegung / Pin allocation

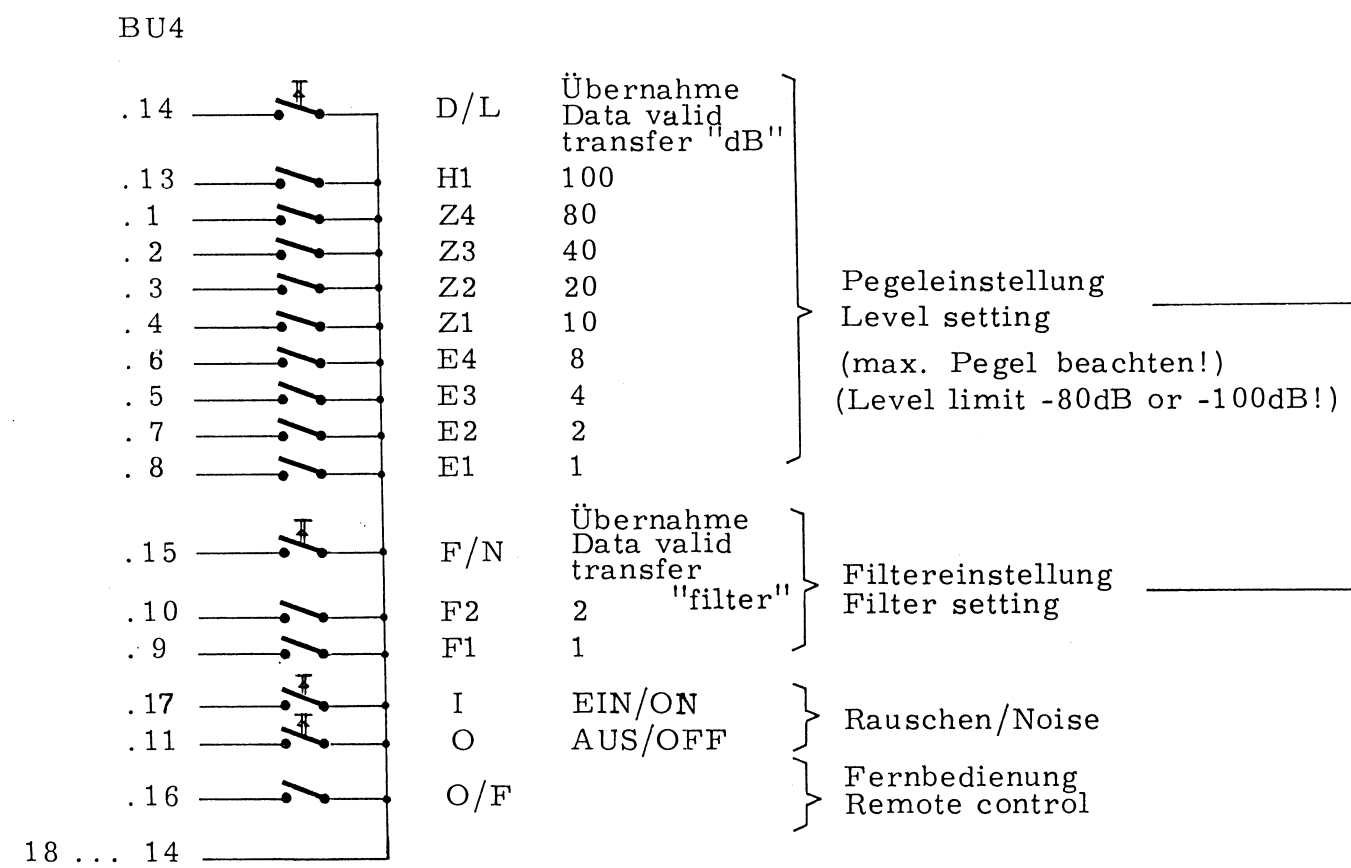
Pin No.	BU 4	Pin No.
1	+5V (ext.)	13
3	EIN/ON	15
4		16
5	EIN/AUS ON / OFF	17
6		18
7		19
8		20
9	Programm ($\hat{=}$ L)	21
10		22
11	AUS / OFF	23
12		24



Werkseinstellung Factory setting	für for	Rec. 571
Taktzeit / Clock period		BR1 (2)
Zeitablauf / Timing		BR4-12 (Table)
Bandbreite / Bandwidth		BR2, BR3 (BC)
Pegel/Level	-7/-0dB xx	BR13, 14, 15 (AB) Rest (BC)

xx = -7/-0dB entspricht -4/+3dBm bei 173Ω Längswiderstand und 600Ω Lastwiderstand bei Audiobezug (siehe Bild links)
xx = -7/0dB correspond to -4/+3dBm with a 173-Ω series resistor and a 600Ω load for audio reference (see figure to the left, bottom)

Bild 2-5 ANSCHLUSSBELEGUNG UND CODIERUNG
Fig. 2-5 Pin allocation and codings
Option CCIR Rec. 571 - Programm SUF 2 - Z6



Pin No.	BU4 "DATA IN"		Pin No.
1	Z4	H1	13
2	Z3	D/L	14
3	Z4	F/N	15
4	Z1	O/F	16
5	E3	I	17
6	E4	Ground/Masse	18
7	E2	" "	19
8	E1	" "	20
9	F2	" "	21
10	F1	" "	22
11	0	" "	23
12	Shield	" "	24

			0	1	2	3	4	5	6	7	8	9
H1	Z4	E4	L	L	L	L	L	L	L	L	H	H
	Z3	E3	L	L	L	L	H	H	H	H	L	L
	Z2	E2	L	L	H	H	L	L	H	H	L	L
	Z1	E1	L	H	L	H	L	H	L	H	L	H

Bereich / Range	F2	F1
20Hz - 110 kHz	L	L
20Hz - 6 MHz	L	H
20Hz - 50 MHz	H	L
Option Filter (Res)	H	H

H = Schalter offen/Switch off (= +5 V)
L = Schalter geschlossen/Switch on (= 0 V)

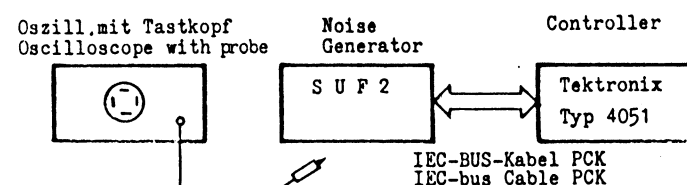
Bild 2-6 ANSCHLUSSBELEGUNG
PARALLELFERNSTEUERUNG
Fig. 2-6 Pin allocation for parallel remote control

PROGRAMMBEISPIEL: TESTPROGRAMM IEC-625-BUS-
Programming example: test program for INTERFACE (SUF2-Z1)

```

4 RUN 100
100 REM" TESTPROGRAMM FUER IEC-625-BUS-INTERFACE DES SUF2"
110 PAGE
120 PRINT "G_G_G_G_"
130 PRINT "TASTKOPF AN B14 PIN 8 ANCLIPSEN !"
140 PRINT "RUECKSETZIMPULSE FUER REGISTER B11 UND B12 MESSEN."
150 PRINT " DURCH DRUECKEN VON ' RETURN ' QUITTIEREN."
160 INPUT X$
170 P=10
180 GOSUB 1000
190 FOR N=1 TO 50
200 WBYTE @42,20:68
210 NEXT N
220 PRINT
230 PRINT "SUF2 SCHALTET NACH DRUECKEN VON ' RETURN ' VON ORT AUF FERN."
240 INPUT X$
250 FOR N=1 TO 5
260 WBYTE @42,1:
270 P=1
280 GOSUB 1000
290 WBYTE @42,17:
300 P=1
310 GOSUB 1000
320 NEXT N
330 PRINT "SUF2 SCHALTET ZWISCHEN ' NOISE ON ' UND ' NOISE OFF ' UM."
340 PRINT "MIT ' RETURN ' FORTSETZEN."
350 INPUT X$
360 FOR N=1 TO 5
370 PRINT @10:"0";
380 P=1
390 GOSUB 1000
400 PRINT @10:"1";
410 P=1
420 GOSUB 1000
430 NEXT N
440 PRINT "PEGEL ZAEHLT VON -100 DB NACH -0 DB."
450 PRINT "STARTET NACH ' RETURN '."
460 INPUT X$
470 P=4
480 GOSUB 1000
490 FOR N=100 TO 0 STEP -1
500 PRINT @10:N;"D";
510 P=1
520 GOSUB 1000
530 NEXT N
540 PRINT "DIE 4 BANDBREITEN WERDEN ANGEWAHLT."
550 PRINT "MIT ' RETURN ' AKTIVIEREN."
560 INPUT X$
570 P=2
580 GOSUB 1000
590 FOR N=0 TO 3
600 PRINT @10:N;"F";
610 P=2
620 GOSUB 1000
630 NEXT N
640 PRINT "TESTPROGRAMM ENDE. ALLES OK?"
650 PRINT "G_G_G_G_"
660 STOP
1000 REM "WARTEZEIT-AUSGLEICH TEK 4051 - 4052 "
1010 IF RND(0)>0.5 THEN 1070
1020 P1=P*3
1030 FOR Y=1 TO P1
1040 P2=4*ATN(1)
1050 NEXT Y
1060 GO TO 1080
1070 CALL "WAIT";P*0.5
1080 RETURN

```



PROGRAMMBEISPIEL: "3-dB-MESSUNG mit TEK 4052
Programming example: "3-dB measurement" using TEK 4052

```

4 RUN 100
100 PAGE
110 PRINT @1:"3 DB - MESSUNG" — Überschrift auf Device #1 (z.B. Plotter) • Heading - device No.1 (e.g. plotter)
120 WBYTE @45,20: — Spannungsmesser Rücksetzen (Device #14) • Reset voltmeter (device No.14)
130 WBYTE @42,20: — SUF2: IEC BUS-Interface Rücksetzen (Device #10) • SUF2: Reset IEC-bus interface (device No.10)
140 PRINT @18:"0F0"; — SUF2: Filter 20Hz ... 110kHz, Rauschen aus • SUF2: filter 20Hz to 110kHz, noise off
150 PRINT @14:"S6VRF?"; — Spannungsmesser: Betriebsart "S6VRF" und triggern "?" • Voltmeter: mode "S6VRF" and trigger mode "?"
160 CALL "WAIT";4 — Wartezeit 4 Sekunden • Wait time 4 s
170 INPUT @14:U0 — Bezugsspannung U0 eingeben • Enter reference voltage V0
180 PRINT @18:"I"; — SUF2: Rauschen ein • SUF2: noise on
190 FOR T=50 TO 0 STEP -1 — Variationsbereich des Pegels, Anfangswert -60, Endwert 0 dB • Level variation range; beginning -60, end 0 dB
200 PRINT @18:T;"D"; — SUF2: Pegel T dB einstellen • SUF2: Set level T dB
210 CALL "WAIT";1.5 — Wartezeit 1,5 Sekunden • Wait time 1.5 s
220 PRINT @14:"?"; — Spannungsmesser Triggern "?" • Trigger voltmeter "?"
230 INPUT @14:U — gemessene Spannung U aus Spannungsmesser übernehmen • Enter voltage V measured with voltmeter
240 M=U/(SQ(2)*U0) — 3-dB-Verhältnis bestimmen • Determine 3-dB ratio
250 IF M->1 THEN 270 — 3-dB-Schwelle erreicht ? • 3-dB threshold reached ?
260 NEXT T — SUF2: Rauschpegel um 1dB erhöhen ( STEP-1" aus Zeile 190) • SUF2: increase noise level by 1dB (STEP 1" from line 190)
270 PRINT "GGG" — Glocke ertönt 3x • Bell rings 3x
280 PRINT @1:"U0(V)", "MESSSPANNUNG UC(V)", "RAUSCHPEGEL DB"
290 PRINT @1:U0,U,-1*M
300 END

```

AUSDRUCK • Printout

```

3 DB - MESSUNG
U0(V)          MESSSPANNUNG UC(V)  RAUSCHPEGEL DB
0.45613        0.6494              -27

```

Meßaufbau für obiges Beispiel
Test setup for example given above

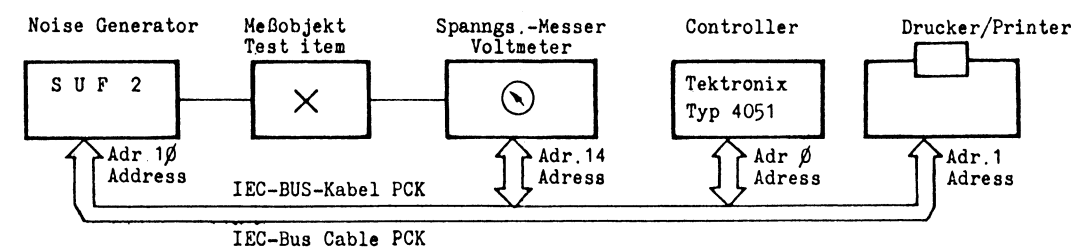
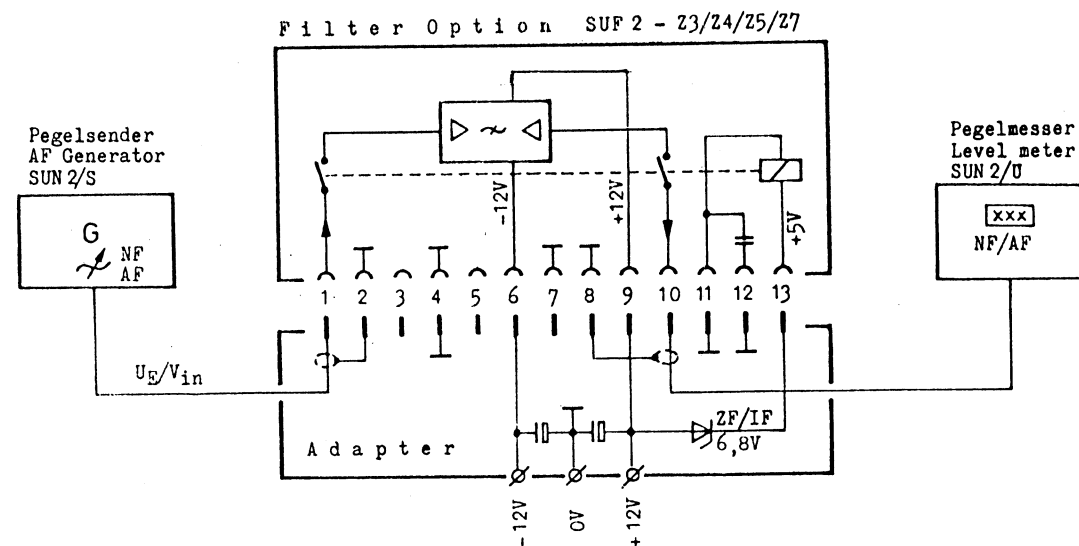


Bild 2-7 PROGRAMMBEISPIELE IEC 625 BUS
Fig. 2-7 Programming examples



Filter Option	U_E/V_{in}	Frequenzbereich Frequency range	Verstärkung Gain	Frequenzgang Freq. response
Dreiecksrauschen Triangular Noise	—	0 MHz - 6 MHz	R 6	C3
Rosa Rauschen/Pink Noise	$U_{eff}/V_{rms} \leq 5mV$	20 Hz - 16 kHz	R 9	—
CCIR Rec. 559 - Filter	$U_{eff}/V_{rms} \leq 9mV$	31,5 Hz -	R 9	—
CCIR Rec. 571 - Filter	$U_{eff}/V_{rms} \leq 18mV$	31,5 Hz -	R12	—
CCITT Rec G.227 - Filter	$U_{eff}/V_{rms} \leq 4mV$	31,5 Hz -	R12	—

Eingangsspannung, Frequenzbereich, Abgleichelemente
Input voltage, frequency range, calibration elements

Bild 3-4 Messung der Filter
Fig. 3-4 Filter measurement

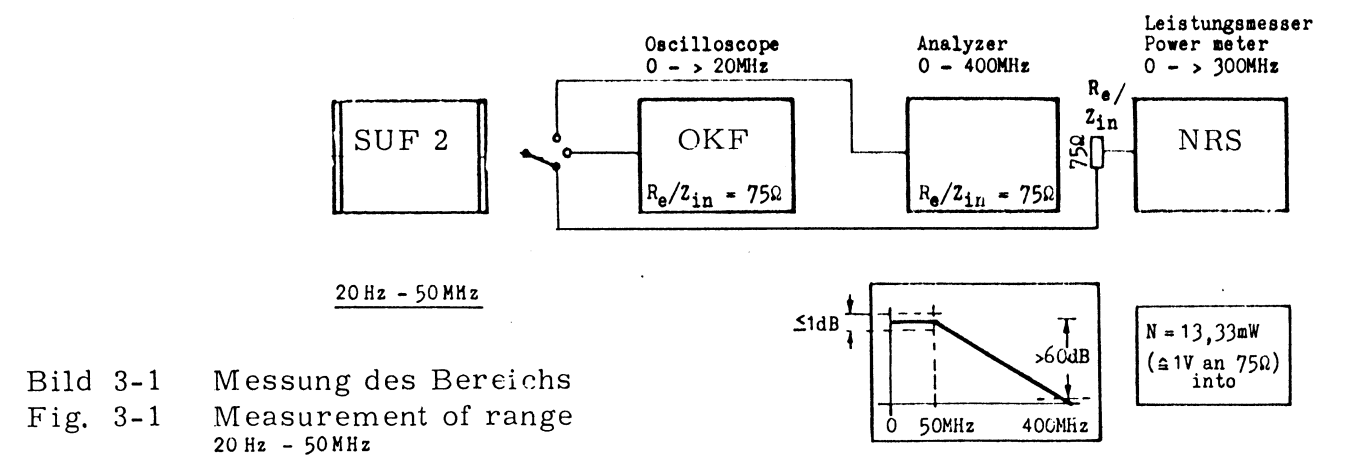


Bild 3-1 Messung des Bereichs
Fig. 3-1 Measurement of range
20 Hz - 50 MHz

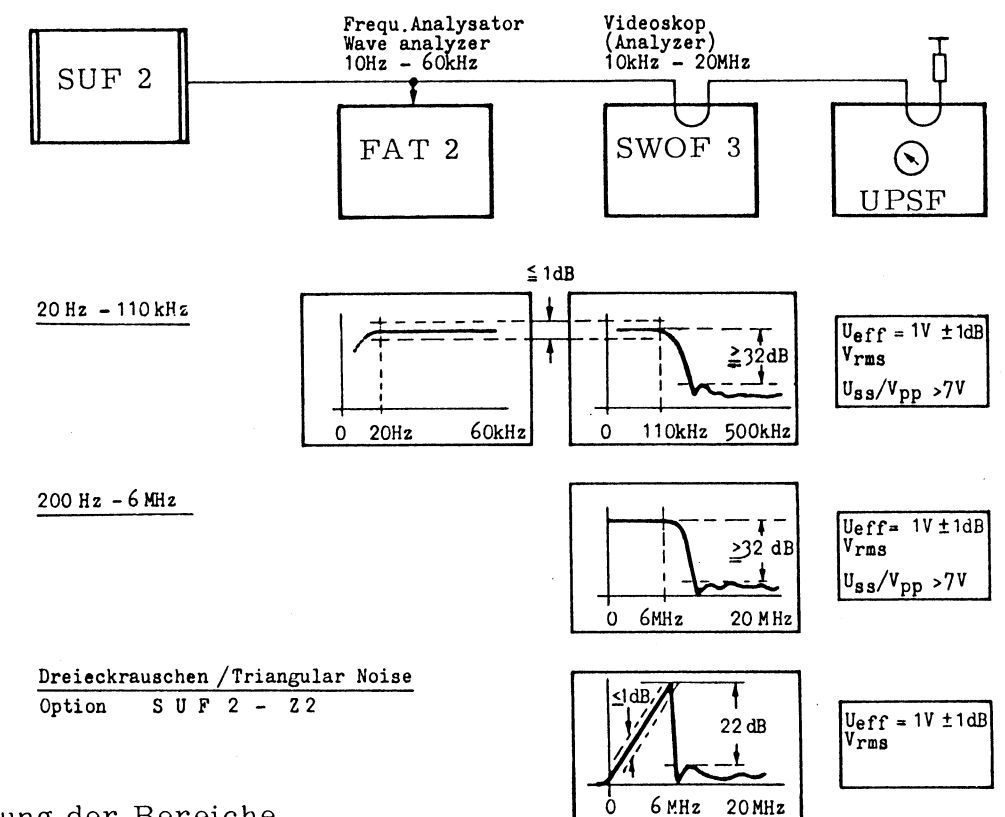


Bild 3-2 Messung der Bereiche
Fig. 3-2 Measurement of ranges
20 Hz - 110 kHz / 6 MHz / Option Dreiecksrauschen
Triangular Noise Option

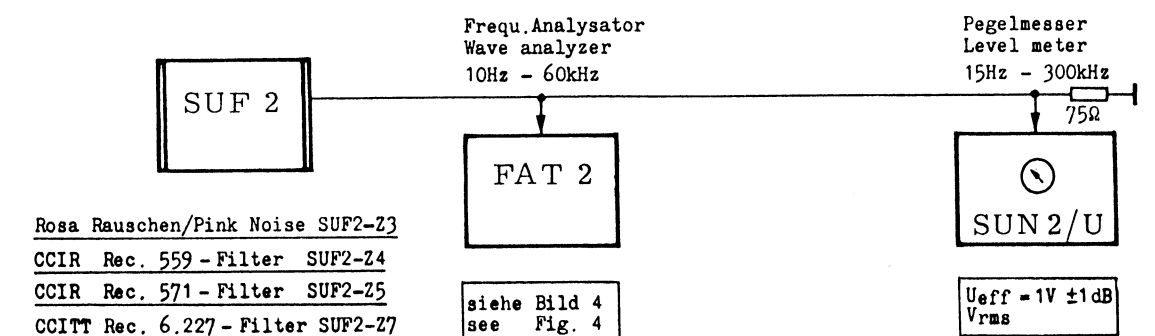
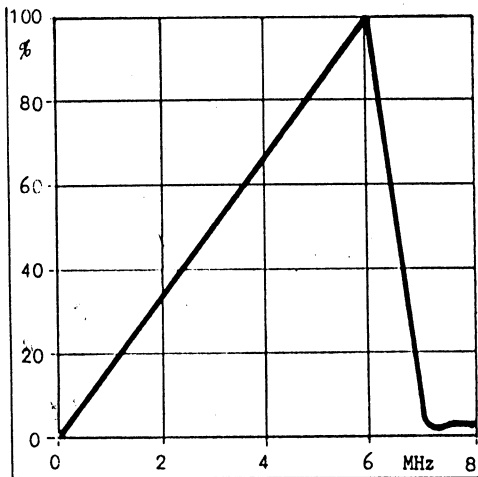


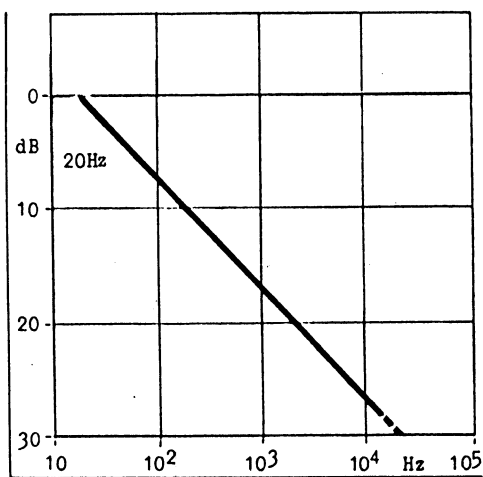
Bild 3-3 Messung der Filteroptionen
Fig. 3-3 Measurement of Filter Options
SUF 2 - Z3/Z4/Z5/Z7

Bild /Fig. 4-1
Dreiecksrauschen
Triangular Noise
Option SUF 2 - Z2



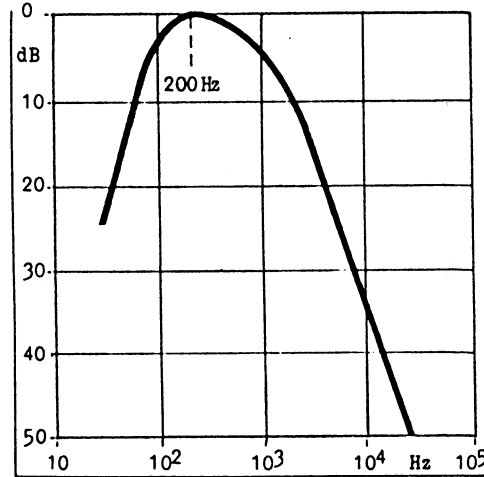
Frequenz Frequency	Amplitude (relativ) Level (relative)
1 MHz	(16,6 ±5) %
2 MHz	(33,2 ±5) %
3 MHz	(49,9 ±5) %
4 MHz	(66,4 ±5) %
5 MHz	(83,1 ±5) %
6 MHz	100 % (Ref.)
> 8 MHz	< 10 %

Bild /Fig. 4-2
Rosa Rauschen
Pink Noise
Option SUF 2 - Z3



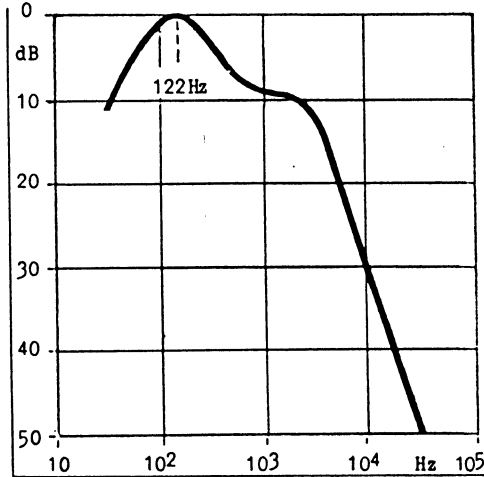
Frequenz Frequency	Einfügungsdämpfung Insertion loss
20 Hz	0 dB (Ref.)
40 Hz	-3 dB ±0,3 dB
80 Hz	-6 dB ±0,3 dB
160 Hz	-9 dB ±0,3 dB
320 Hz	-12 dB ±0,3 dB
640 Hz	-15 dB ±0,3 dB
1280 Hz	-18 dB ±0,3 dB
2560 Hz	-21 dB ±0,5 dB
5120 Hz	-24 dB ±0,5 dB
10240 Hz	-27 dB ±0,5 dB
(20 kHz)	(ca. -30 dB)

Bild /Fig. 4-3
CCIR Rec. 559 - Filter
Option SUF 2 - Z4



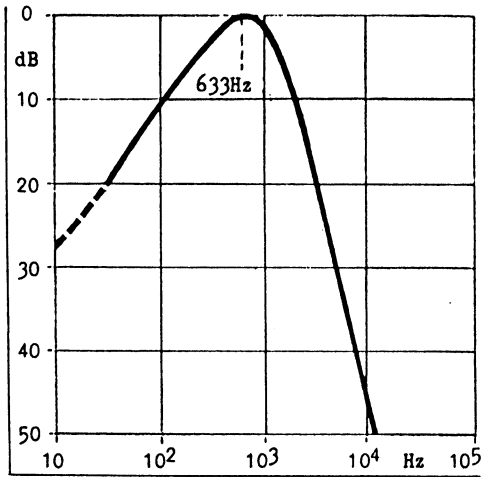
Frequenz Frequency	Einfügungsdämpfung Insertion loss
31,5 Hz	24,1 dB ±0,5 dB
50 Hz	16,0 dB ±0,5 dB
100 Hz	4,5 dB ±0,3 dB
200 Hz	0 dB (Ref.)
500 Hz	1,5 dB ±0,2 dB
1 kHz	4,7 dB ±0,3 dB
2 kHz	10,5 dB ±0,3 dB
4 kHz	19,0 dB ±0,5 dB
8 kHz	29,5 dB ±1,0 dB
15 kHz	40,0 dB ±1,0 dB
31,5kHz	52,8 dB ±1,0 dB

Bild /Fig. 4-4
CCIR Rec. 571 - Filter
Option SUF 2 - Z5



Frequenz Frequency	Einfügungsdämpfung Insertion loss
31,5 Hz	10,9 dB ±0,5 dB
63 Hz	3,4 dB ±0,3 dB
122 Hz	0 dB (Ref.)
200 Hz	1,5 dB ±0,2 dB
400 Hz	5,7 dB ±0,3 dB
800 Hz	8,7 dB ±0,3 dB
1 kHz	9,2 dB ±0,3 dB
2 kHz	10,6 dB ±0,5 dB
4 kHz	15,7 dB ±0,5 dB
8 kHz	26,6 dB ±0,5 dB
16 kHz	38,6 dB ±1,0 dB
31,5kHz	50,4 dB ±1,0 dB

Bild /Fig. 4-5
CCITT Rec. G. 227 - Filter
Option SUF 2 - Z7



Frequenz Frequency	Einfügungsdämpfung Insertion loss
31,5 Hz	20,9 dB ±0,5 dB
100 Hz	11,0 dB ±0,5 dB
200 Hz	5,5 dB ±0,3 dB
500 Hz	0,3 dB ±0,2 dB
633 Hz	0 dB (Ref.)
1 kHz	1,6 dB ±0,2 dB
2 kHz	10,2 dB ±0,5 dB
4 kHz	24,2 dB ±0,5 dB
8 kHz	40,2 dB ±1,0 dB
15 kHz	53,7 dB ±1,0 dB

Bild 4 FREQUENZGÄNGE DER FILTEROPTIONEN
Fig. 4 Frequency response of Filter Options



ROHDE & SCHWARZ

R&S-Schlüsselliste

R&S key list

Liste des symboles de référence R&S

Die R&S-Schaltteillisten nennen in der Spalte "Benennung/Beschreibung" die technischen Daten der Bauelemente in Kurzform. Die Art des Bauelements (z.B. Schicht-, Draht-Widerstand usw.) beschreiben die 2 Kennbuchstaben vor der "Benennung" (evtl. auch vor der "Sachnummer"), die nachfolgend erklärt werden. In Ersatzteil-Bestellungen an R&S ist stets die Angabe der vollständigen Sachnummer erforderlich.


The R&S Parts Lists give the technical data of the components in short form in the column "Benennung/Beschreibung" (designation). The type of component (e.g. depos.-carbon resistor, wire-wound resistor etc.) is indicated by 2 identification letters before the designation, possibly also before the "Sachnummer" (order number), which are explained below. When ordering spare parts from R&S, the complete order number must always be specified.

La colonne «Désignation/description» des listes de pièces de R&S indique les caractéristiques des éléments sous forme abrégée. Le type d'élément (p. ex. résistance à couche, résistance bobinée etc. ...) est décrit par les deux lettres précédant la désignation (et éventuellement le numéro de référence), dont voici l'explication. Prière d'indiquer le numéro de référence («Sachnummer») complet dans toute commande de pièces de rechange.


Teile- familie	Art des Bauelementes	Parts family	Type of component	Famil- le	Type d'élément
A	Aktive Bauelemente, Halbleiter	A	Active components, semiconductors	A	Composants actifs, semiconducteurs
AD	Universaldiode, z.B. Gleichrichter, Sperrdiode	AD	General-purpose diode, e.g. rectifier, high-resistance diode	AD	Diode d'usage général, p.ex. redresseur, diode à haute résistance
AE	Spezialdiode, z.B. Tunnel-, Kapazitäts-, Zener-Diode	AE	Diode (special), e.g. tunnel diode, varactor, Zener diode	AE	Diode spéciale, p.ex. diode tunnel, varactor, diode Zener
AF	Fotohalbleiter, z.B. Foto-Diode, -Transistor, -Widerstand, Leucht-diode	AF	Photo-semiconductor, e.g. resistor, diode, transistor, LED	AF	Semiconducteur photoélectrique, p.ex. diode, transistor, résistance photoél., DEL
AG	Leistungs-Gleichrichter, z.B. Thyristor, Triac, Selengleichrichter	AG	Power rectifier, e.g. thyristor, triac, selenium rectifier	AG	Redresseur de puissance, p.ex. thyristor, triac, redresseur, au sélénium
AK	Kleinsignal-Transistor	AK	Small-signal transistor	AK	Transistor faible puissance
AL	Leistungs-Transistor	AL	High-power transistor	AL	Transistor grande puissance
AM	Spezial-Transistor, z.B. FET, MOSFET	AM	Transistor (special), e.g. FET, MOS-FET	AM	Transistor spécial, p.ex. TEC, MOSTEC
AP	Peltier-, Hall-Element	AP	Peltier element, Hall element	AP	Element Peltier, élément Hall
AR	Röhre für Empfänger, Verstärker, Gleichrichter	AR	Valve for receiver, amplifier, rectifier	AR	Tube pour récepteur, amplificateur, redresseur
AS	Spezialröhre, z.B. Senderöhre, EW-Widerstand, Stabilisator	AS	Valve (special), e.g. for transmitter, barettor, ballast valve	AS	Tube (spécial), p.ex. pour émetteur, résistance fer-hydrogène, ballast
AT	Katodenstrahlröhre, z.B. Bildröhre, Ziffern-Anzeigeröhre	AT	Cathode ray tube, e.g. picture tube, digital indicator tube	AT	Tube à rayon cathodique, p.ex. tube à image, tube à affichage numérique
AZ	Zubehör für Halbleiter u. Röhren	AZ	Accessories for semiconductors and valves	AZ	Accessoires pour semiconducteurs et tubes
B	Bausteine	B	PC boards, chips	B	Cartes imprimées, puces
BC	Integr. Schaltkreis (Microcomp.)	BC	Integrated circuit (interface, A/D)	BC	Circuit intégré (microprocesseur)
BD	R&S-Dünnschicht- und Dickschicht-schaltung	BD	R&S thinfilm or thickfilm circuit	BD	Circuit R&S à couche mince ou épaisse
BG	R&S-spezifische Gate-Arrays	BG	R&S gate arrays	BG	Circuits intégrés prédiffusés R&S
BJ	Integrierter Schaltkreis (Interface, A/D-Wandler)	BJ	Integrated circuit (interface, A/D converter)	BJ	Circuit intégré (interface, convertisseur A/N)
BL	Log. Schaltkreis z.B. DTL, TTL, HTL, ECL, C-MOS	BL	Logic circuit, e.g. DTL, TTL, HTL, ECL, C-MOS	BL	Circuit logique, p.ex. DTL, TTL, HTL, ECL, C-MOS
BM	Hybridbaustein, z.B. Mischer, Tuner, Modulator	BM	Hybrid chip, e.g. mixer, tuner, modulator	BM	Puce hybride, p.ex. mélangeur, tuner, modulateur
BO	Analogschaltkreis, z.B. Operations-verstärker	BO	Analog circuit, e.g. operational amplifier	BO	Circuit analogique, p.ex. amplificateur opérationnel
BP	Optoelektronischer Baustein, z.B. Anzeigeeinheit, Koppler	BP	Optoelectronic component, e.g. display, coupler	BP	Composant optoélectronique, p.ex. afficheur, coupleur
BS	Schalt- und Steuerbaustein, elektronischer Sensor	BS	Switching and control modul, electronic sensor	BS	Modul de commutation et de commande, sonde électronique
BV	Stromversorgung, Übersp.-Schutz	BV	Power pack, protective circuit	BV	Alimentation, protection surcharge
BZ	Zubehör	BZ	Accessories	BZ	Accessoires

Teile- familie	Art des Bauelementes	Parts family	Type of component	Famil- ie	Type d'élément
C	Kondensatoren	C	Capacitors	C	Condensateurs
CB	Bypass-, Durchf.-Kondensator	CB	Bypass capacitor, feed-through capacitor	CB	Condensateur bypass, condensateur de traversée
CC	Keramischer Kondensator	CC	Ceramic capacitor	CC	Condensateur céramique
CD	Drehkondensator	CD	Variable capacitor	CD	Condensateur variable
CE	Elektrolytkondensator	CE	Electrolytic capacitor	CE	Condensateur électrolytique
CG	Glimmerkondensator	CG	Mica capacitor	CG	Condensateur au mica
CH	Sperrschichtkondensator	CH	Semiconductor capacitor	CH	Condensateur semiconducteur
CK	Kunstfolienkondensator	CK	Synthetic-foil capacitor	CK	Condensateur à feuille synthétique
CL	Ker. Hochsp.-Kondensator	CL	HV capacitor (ceramic)	CL	Condensateur HT céramique,
CM	Metallpapier-Kondensator	CM	MP capacitor	CM	Condensateur à papier métallisé
CN	Kondensatornetzwerk	CN	Capacitor network	CN	Réseau capacitif
CP	Papierkondensator	CP	Paper capacitor	CP	Condensateur au papier
CS	Störschutzkondensator	CS	Interference-suppression capacitor	CS	Condensateur anti-parasite
CT	Trimmkondensator	CT	Trimmer capacitor	CT	Condensateur ajustable
CV	Vakuum-Kondensator	CV	Vacuum capacitor	CV	Condensateur à vide
D	Drähte, Leitungen	D	Wires, lines	D	Fils, lignes
DD	Schalt- und Wickeldraht	DD	Hook-up or winding wire	DD	Fil de câblage, fil de bobinage
DF	Flachleitung, Litze	DF	Flat multiple line, stranded wire	DF	Ligne plate, ligne torsadée
DG	Abgeschirmte Leitung	DG	Shielded line	DG	Ligne blindé
DH	Koaxialkabel	DH	Coaxial line	DH	Ligne coaxiale
DJ	Isolierschläuche, Schrumpf- schläuche, Wellrohre, Schutzschläuche	DJ	Insulating sheaths, shrink-on sleeves, corrugated tubes, protective tubes	DJ	Gaines isolantes, gaines thermorétrac- tables tubes ondulés, gaines protectrices
DL	HF-Litzen	DL	RF stranded wires	DL	Lignes torsadées RF
DM	Schaltlitzen (mehrdrähtige Leiter)	DM	Multi-conductor wires	DM	Lignes torsadées (multiconducteurs)
DN	Antenne	DN	Antenna	DN	Antenne
DO	Lichtleiter (optisch)	DO	Optical waveguides	DO	Guides d'onde optiques
DP	Leiterplatten (unbestückt)	DP	Printed circuit boards (bare)	DP	Cartes imprimées (non équipées)
DQ	Multilayer (unbestückt)	DQ	Multilayer boards (bare)	DQ	Cartes multicouche (non équipées)
DS	Anschlußkabel (mehradrig)	DS	Connecting cable, multicore	DS	Câble de connexion (multiconducteur)
DU	Substratplatten für Dickschicht- schaltungen	DU	Substrate boards for thickfilm circuits	DU	Cartes à substrat pour circuits à couche épaisse
DW	Festmantelkabel	DW	Rigid cables	DW	Câbles rigides
E	Elektrische Teile	E	Electric parts	E	Organes électriques
EB	Blei-, NC-Akku, Batterie	EB	Lead or alkaline accumulator, battery	EB	Accumulateur Pb/NC, batterie
ED	Gedruckte Schaltung (bestückte Leiterplatte), nicht steckbar	ED	Printed circuits (assembled), non-pluggable	ED	Circuits imprimés (équipés) non enfichables
EE	Gedruckte Schaltung (bestückte Leiterplatte), steckbar	EE	Printed circuits (assembled), pluggable	EE	Circuits imprimés (équipés) enfichables
EF	Glühlampe, Leuchte	EF	Incandescent lamp, pilot lamp	EF	Lampe à incandescence, voyant
EG	Glimmlampe, Entladungslampe	EG	Glow lamp, discharge lamp	EG	Lampe à luminescence lampe à décharge
EK	Kontakt-Streifen, -Feder	EK	Contact clip, contact spring	EK	Lampe de contact, ressort de contact
EL	Lautsprecher, Kopfhörer, Mikrofon	EL	Loudspeaker, headphones, microphone	EL	Haut-parleur, casque, microphone
EM	Motor, Hubmagnet, Drehfeldsystem	EM	Motor, lifting magnet, synchro system	EM	Moteur, électro-aimant de levage, système synchro
EO	Oszillator, z.B. Quarzoszillator	EO	Oscillator, e.g. crystal oscillator	EO	Oscillateur p.ex. oscillateur à quartz
EP	Tief-, Band-, Hochpaß, Bandsperre, Diskriminator	EP	Lowpass, bandpass, highpass filter, band-stop filter, discriminator	EP	Filtre passe-bas, passe-bande, passe-haut, suppression de bande, discriminateur
EQ	Schwing-, Filter-Quarz	EQ	Oscillator or filter crystal	EQ	Quartz oscillateur, quartz de filtre
ER	Resonator, piezoelekt./magnetostraktiv	ER	Resonator, piezoelectric/ magnetostrictive	ER	Résonateur piézo-électrique/ magneto-strictif
ES	Passive SHF-Bauteile	ES	Passive SHF-components	ES	Composant SHF passif
ET	Thermostat	ET	Thermostat	ET	Thermostat
EV	Lüfter, Gebläse	EV	Ventilator, blower	EV	Ventilateur, soufflerie

Teile- familie	Art des Bauelementes	Parts family	Type of component	Famil- le	Type d'élément
F	Fassungen, Steckverbindungen	F	Sockets, connectors	F	Douilles, connecteurs
FG	Koax-Umrüstsatz	FG	Coaxial screw-in assembly	FG	Ensemble vissable coaxial
FH	Koax-Übergang auf Fremdsystem	FH	Coaxial adapter	FH	Adaptateur coaxial
FJ	BNC-Systemteil	FJ	BNC screw-in assembly	FJ	Ensemble vissable BNC
FK	Koaxial-UHF-Systemteil	FK	Coaxial UHF screw-in assembly	FK	Ensemble vissable coaxial UHF
FM	Mehrfachstecker, Buchsenleiste	FM	Multipoint connector	FM	Connecteur multiple
FN	Netz-Steckverbindung	FN	AC-supply connector	FN	Connecteur secteur
FO	Runde Mehrfach-Steckverbindung	FO	Round multipoint connector	FO	Connecteur multipoles rond
FP	Druckschalt-Steckverbindung	FP	Multipoint connector for PC boards	FP	Connecteur multipoles pour cartes imprimées
FR	Fassung für Lampe, Sicherung, usw.	FR	Socket for lamp, fuse, etc.	FR	Douille pour lampe, fusible etc. . . .
FT	Schwachstrom-Steckverbindung	FT	LV plug and socket	FT	Connecteur pour faible courant
FU	Hochspannungs-Steckverbindung	FU	HV plug and socket	FU	Connecteur pour haute tension
FV	Verbinder (z.B. AMP)	FV	Push-on connector	FV	Connecteur à enfichage
FZ	Zubehör für koax. Bauelemente	FZ	Accessories for coax. components	FZ	Accessoires pour composants coax.
H	Software	H	Software	H	Logiciel
HP	Software-Komponenten und Software-Module	HP	Rights to software components and software modules	HP	Droits d'utilisation de composants et modules logiciel
HS	Auf Informationsträger geladene Software	HS	Software data media	HS	Logiciel sur support d'information
J	Meßinstrumente	J	Indicators	J	Indicateurs
JD	Drehspul-Anzeigeeinstrument	JD	Moving-coil meter	JD	Galvanomètre à cadre mobile
JE	Dreheisen-Anzeigeeinstrument	JE	Moving-iron meter	JE	Galvanomètre à fer mobile
JF	Frequenzmesser	JF	Frequency meter	JF	Fréquencemètre
JG	Drehspulinstrument mit Gleichrichter	JG	Moving-coil meter with rectifier	JG	Galvanomètre à cadre mobile avec redresseur
JH	Betriebsstundenzähler	JH	Operating-hours counter	JH	Compteur d'heures de fonctionnement
JJ	Impulszähler	JJ	Pulse counter	JJ	Compteur d'impulsions
JK	Kleinst-Instrument, z.B. Abstimmanzeiger	JK	Mini-instrument, e.g. tuning indicator	JK	Petit indicateur, p.ex. indicateur d'accord
JM	Mechanisches Zählwerk	JM	Mechanical counter	JM	Compteur mécanique
JP	Projektions-Instrument (Leuchtziffer)	JP	Digital display	JP	Afficheur numérique
JQ	Quotientenmesser (Kreuzspulinstrum.)	JQ	Ratiometer (cross coul)	JQ	Quotientmètre (à cadres croisés)
JU	Uhrwerk	JU	Clockwork	JU	Mouvement d'horlogerie
JW	Elektrodyn. Anzeigeeinstrument	JW	Electrodynamic meter	JW	Instrument électrodynamique
L	Induktivitäten, Magnetik	L	Inductors, magnetic components	L	Composants inductifs et magnétiques
LB	Blech- und Schnittbandkern mit Zubehör	LB	Laminated and C-cores with accessories	LB	Noyaux feuilletés et noyaux de type C, avec accessoires
LC	Keramische Spule	LC	Ceramic coil	LC	Bobine céramique
LD	Netz-, HF-Drossel, Df-Filter	LD	Choke, lead-through filter	LD	Self de choc, filtre de traversée
LE	Einzelkreis, Bandfilter	LE	Single tuned circuit, bandpass filter	LE	Circuit accordé, filtre passe-bande
LF	Ferritkern mit Zubehör	LF	Ferrite cores with accessories	LF	Noyaux en ferrite avec accessoires
LK	Karboneisenkern und elektrischer Kupferkern mit Zubehör	LK	Iron carbonyl slugs and copper slugs with accessories	LK	Noyaux en fer carbonyle et en cuivre, avec accessoires
LL	Luftspule	LL	Air-core coils	LL	Bobines à air
LM	Magnetband und -platte	LM	Magnetic tapes and disks	LM	Bandes et disques magnétiques
LS	Schirmbecher	LS	Screening cans	LS	Boîtiers de blindage
LT	Netztransformator	LT	Power transformer	LT	Transformateur secteur
LU	NF-Übertrager	LU	AF transformer	LU	Transformateur BF
LV	Variometer	LV	Variometer	LV	Variomètre
LW	Wickelkörper, allgemein	LW	Coil formers, general	LW	Carcasses de bobine, en général

Teilefamilie	Art des Bauelementes	Parts family	Type of component	Familie	Type d'élément	
R	Widerstände	R	Resistors	R	Résistances	
RD	Drahtwiderstand	RD	Wire-wound resistor	RD	Résistance bobinée	
RF	Kohleschicht-Widerstand	RF	Carbon-film resistor	RF	Résistance à couche de carbone	
RG	Metallglasur-Widerstand	RG	Metal-coated resistor	RG	Résistance à couche métallique	
RJ	Metalloxyd-Widerstand	RJ	Metal-oxide resistor	RJ	Résistance à oxyde métallique	
RK	Kaltleiter, Heißeiter, Varistor	RK	PTC, NTC resistors, varistors	RK	Résistances CPT, CNT, varistors	
RL	Metallfilm-Widerstand	RL	Metal-film resistor	RL	Résistance à film métallique	
RN	Widerstandsnetzwerk	RN	Resistor network	RN	Réseau de résistance	
RR	Draht-Potentiometer	RR	Wire-wound potentiometer	RR	Potentiomètre bobiné	
RS	Schicht-Potentiometer	RS	Carbon-film potentiometer	RS	Potentiomètre à couche	
RT	Dämpfungsglied, Abschlußwiderstand	RT	Attenuator, termination	RT	Atténuateur, charge	
RV	Drahtwiderstand mit Abgriff	RV	Wire-wound resistor, tapped	RV	Résistance bobinée à prise	
RW	Wendelpotentiometer	RW	Helical potentiometer	RW	Potentiomètre hélicoïdal	
S	Schalter, Relais, Sicherungen	S	Switches, relays, fuses	S	Commutateurs, relais, fusibles	
SB	Drucktastenschalter	SB	Pushbutton switch	SB	Commutateur à touche	
SD	Drehschalter	SD	Rotary switch	SD	Commutateur rotatif	
SF	Kontaktfedersatz	SF	Spring contact assembly	SF	Jeu de ressorts de contact	
SH	HF-Koaxialschalter, -Relais, -Teiler	SH	Coaxial RF switch, RF relay, RF attenuator	SH	Commutateur RF coaxial, relais RF, atténuateur RF	
SK	Kipp-, Wipp- und Schiebeschalter	SK	Toggle switch, slide switch	SK	Commutateur à bascule, à glissière	
SL	Leistungsschalter Netz/HF	SL	AC supply switch, high-power RF switch	SL	Commutateur secteur, de puissance RF	
SM	Mikroschalter	SM	Microswitch	SM	Microrupteur	
SN	Elektromagnet, Relais	SN	Electromagnetic relay	SN	Relais électromagnétique	
SP	Leistungsrelais, Luftschütz	SP	Power relay, air-type contactor	SP	Relais de puissance, contacteur à air	
SR	Reedrelais	SR	Reed relay	SR	Relais reed	
SS	Sicherung, Schutzschalter	SS	Fuse, automatic cut-out	SS	Fusible, coupe-circuit automatique	
ST	Thermoschalter	ST	Thermal circuit breaker	ST	Disjoncteur thermique	
SU	Überspannungs-Ableiter	SU	Arrester	SU	Eclateur	
SW	Wechselrichter, Näherungsschalter	SW	Inverter (DC-AC), proximity switch	SW	Inverseur (DC-AC), commutateur de proximité	
SZ	Zeitschalter	SZ	Time switch	SZ	Interrupteur horaire	
V	Verbindungselemente	V	Connecting elements	V	Eléments de raccordement	
VK	Klemme, Klemmleiste	VK	Clamp, terminal strip	VK	Pince, réglette à bornes	
VL	Lötöse, Stützpunkt	VL	Soldering lug	VL	Cosse à souder	
VS	Schraube, Mutter, Scheibe	VS	Screw, nut, washer	VS	Vis, écrou, disque	
Farbcode für Widerstände und Kondensatoren Anmerkung: Die Wertangabe der weitgehend miniaturisierten Bauelemente erfolgt überwiegend durch Farbkennzeichnungen, deren Bedeutung der nachfolgenden Tabelle entnommen werden kann. Hinweis: Im Zuge des technischen Fortschrittes setzt R&S zunehmend Metallschichtwiderstände mit 1% Toleranz anstelle von Kohleschichtwiderständen mit 5% Toleranz ein. Metallschichtwiderstände können sich dabei an Stellen befinden, an denen gemäß Schaltteilleiste Kohleschichtwiderstände vorgesehen sind. Etwaige geringfügige Differenzen der Nennwerte zwischen Stromlaufplan, Schaltteilleiste und Gerät liegen im zulässigen Toleranzbereich.		Colour code for resistors and capacitors Note: The electrical values of the largely miniaturized components are mainly identified by a colour code, the meaning of which can be taken from the table below. N. B.: Following the state of the art R&S makes increasing use of metal-film resistors (1% tolerance) instead of carbon-film resistors (5% tolerance). Metal-film resistors may have been employed where carbon-film resistors are specified in the parts list. Any slight differences of nominal values between circuit diagram, parts list and equipment are within tolerance.		Code couleur pour résistances et condensateurs Remarque: Les valeurs électriques des composants fort miniaturisés sont indiquées dans la plupart des cas par un code couleur dont voici l'explication. N. B.: Suivant le progrès technique R&S utilise de plus en plus des résistances à film métallique (tolérance 1%) au lieu des résistances à couche de carbone (tolérance 5%). Des résistances à film métallique peuvent se trouver en des points où des types à couche de carbone figurent dans la liste des composants. Les différences minimales des valeurs nominales existant éventuellement entre le schéma de circuit, la liste des composants et l'appareil sont dans la marge de tolérance.		
Farbe/Colour/Couleur	A	B	C	D	Anordnungsbeispiele für Examples for / Exemple pour	Definition* / Définition *
Schwarz/Black/Noir	—	0			Widerstände (R) Resistors (R) Résistance (R)	Kennzeichen A (Bauteilfarbe/1. Farbring) = 1. Zahl Kennzeichen B (Bauteilende/2. Farbring) = 2. Zahl Kennzeichen C (Punkt/3. Farbring) - 3. Zahl = Zahl der Nullen Kennzeichen D (Punkt/4. Farbring) = Toleranz des Nennwerts in % (Fehlendes Kennzeichen für D bedeutet ±20%) Das Fehlen eines Kennzeichens bedeutet, daß die Farbe des Bauteilkörpers die Wertangabe darstellt.
Braun/Brown/Marron	1	1	0	± 1%		Marking A (body colour or first coloured ring) = 1st digit Marking B (body end or second coloured ring) = 2nd digit Marking C (dot or third coloured ring) = number of zeroes Marking D (dot or fourth coloured ring) = tolerance on nominal value in % (with no D marking tolerance ± 20%) The absence of a marking signifies that the body colour gives the corresponding information.
Rot/Red/Rouge	2	2	00	± 2%		Représentation A (couleur du corps ou 1er anneau) = 1er chiffre Représentation B (bout du corps ou 2e anneau) = 2e chiffre Représentation C (point ou 3e anneau) = nombre de zéros. Représentation D (point ou 4e anneau) = tolérance en % de la valeur nominale (L'absence du repérage D signifie ± 20%) L'absence de tout repérage signifie que la couleur du corps du composant représente la valeur correspondante.
Orange/Orange	3	3	000			
Gelb/Yellow/Jaune	4	4	0000	± 0,5%		
Grün/Green/Vert	5	5	00000			
Blau/Blue/Bleu	6	6	000000	± 0,1%		
Violett/Violet	7	7	—			
Grau/Gray/Gris	8	8	—			
Weiß/White/Blanc	9	9	—			
Gold/Doré	—	—	—	± 5%		
Silber/Silver/Argenté	—	—	—	± 10%		
Ohne Farbe/No colour/ Pas de couleur	—	—	—	± 20%		
1) Toleranzring, hier nicht spezifiziert. 1) Tolerance ring, here not specified. 1) Anneau de tolérance, ne pas spécifié ici.					* Siehe auch DIN 41 429 und DIN 40 825 * see also IEC publication 62-1952 and 62-1968 * Voir aussi DIN 41 429 et DIN 40 825	

Kannz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
BU1	FJ BUCHSE F.LEISTE BNC BNC SOCKET,50 OHM	FJ 0017.6788.00	SPINNER	BN474342	0282.8825.00
BU2	MB RAENDELKLEMME	0282.8948.00			0282.8919.00
BU3	MB RAENDELKLEMME	0282.8948.00			0282.8919.00
K1	DV KABEL K1 CABLE	0282.9344.00			0282.8825.00
K2	DY KABEL K2	0282.9980.00			
K3	DY KABEL K3	0282.9973.00			
S8	SB NETZSCHALTER 2XU 0.KN. POWER SWITCH	SB 0007.5143.00	ITT	SF OKN NE18 2 U E E	0282.8919.00
SI4	SS SCHMELZS.T315 IEC127/3 FUSE FUER 230V/240V TO,4B SS 020.7323 FUER 100V/120V	SS 0020.7300.00	WICKMANN	TO.315 NR.19195	
ST1	FN GERAETEST.M.NETZFILTER RECEPTACLE WITH MAINS	FN 0252.5757.00	CORCOM	3EF1	0282.8919.00
T7	AL BD236 P 60V 1AO TRANSISTOR	0010.0361.00	PHILIPS-CO	BD236	0282.8919.00
T8	AL BD233 (BD237) 45V 2AO TRANSISTOR	0010.0784.00	PHILIPS SE	BD233	0282.8919.00
T9	AL BD233 (BD237) 45V 2AO TRANSISTOR	0010.0784.00	PHILIPS SE	BD233	0282.8919.00
TR1	LT NETZTRAFO	0218.3549.00			0282.8919.00
Y1	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00			
Y2	ED BEDIENPLATTE CONTROL BOARD	0282.9415.00			0282.8825.00
Y3	ED DIGITALPLATTE	0282.9515.00			
Y7	EE SUF2-Z7 TELEFONIEKANAL TELEPHONE CHANNEL FUER DREICKRAUSCHEN 282.9715.00 FUER ROSA RAUSCHEN 282.9815.00 FUER CCIR-REC-550-FILTER 282.9615.00 FUER CCIR-REC-571-FILTER 282.9644.00 FUER ISDN-FILTER 218.3526.02 FUER 4KHZ TP-FILTER 218.3561.02 EMPFOHLENES ZUBEHOER FUER BEWERTUNGSFILTER NACH IEC65 218.3590.02	0282.8860.00			
Y10	EE SUF2-Z1 IEC-INTERFACE FUER CCIR-REC-571-PROGRAMM 282.9673.00	0282.9915.00			
Y11	EMPFOHLENES ZUBEHOER ED IEC-625-PLATTE IEC 625 BOARD	0218.3326.00			0282.8919.00


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		18	15.09.95	GG SUF2 VIDEO-RAUSCHGENER	0282.8819.01 SA	1-

095.0028-0693

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
B1	BO TLO72ACP 2XFET OPAMP OPERATIONAL AMPLIFIER	0340.6054.00	TEXAS INST	TLO72ACP	
B2	BP 4N38 OPTOCOUPLER OPTO COUPLER	BP 0219.3188.00	QUALITY TE	4N38	
B3	BO UA741MJG OPAMP OPERATIONAL AMPLIFIER	BO 0275.0822.00	NAT. SEMIC	LM741J	
B4	BP 4N38 OPTOCOUPLER OPTO COUPLER	BP 0219.3188.00	QUALITY TE	4N38	
B5	BO SE5539 HF AMPL HF AMPLIFIER	0332.2682.00	SIGNETICS	SE5539	
B6	BO SE5539 HF AMPL HF AMPLIFIER	0332.2682.00	SIGNETICS	SE5539	
B7	BO TLO72ACP 2XFET OPAMP OPERATIONAL AMPLIFIER	0340.6054.00	TEXAS INST	TLO72ACP	
B8	BO SE5539 HF AMPL HF AMPLIFIER	0332.2682.00	SIGNETICS	SE5539	
B9	BO UA748C LP OPAMP OPERATIONAL AMPLIFIER	BO 0247.6542.00	MOTOROLA	MC1748CP1	
B10	BO TLO72ACP 2XFET OPAMP OPERATIONAL AMPLIFIER	0340.6054.00	TEXAS INST	TLO72ACP	
B11	BL SN7400N -0+75 NANDG. IC NAND GATE SN7400N	0009.3219.00	TEXAS	SN7400N	
B12	BL SN74LS240N 8XINV.DRIV. IC 8XINV.DRIVER SN74LS240	0282.9196.00	TEXAS	SN74LS240N	
B13	BO TLO72ACP 2XFET OPAMP OPERATIONAL AMPLIFIER	0340.6054.00	TEXAS INST	TLO72ACP	
BR1	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR2	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR3	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR4	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR5	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR6	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR8	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BR10	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
BU11	FJ EINBAUSTECKER SYST.SMC CONNECTOR	FJ 0082.6895.00	SUHNER	82SMC-50-O-1 VERPAC	
BU12	FJ EINBAUSTECKER SYST.SMC CONNECTOR	FJ 0082.6895.00	SUHNER	82SMC-50-O-1 VERPAC	
C1	CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7504.00	PANASONIC		
C2	CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7504.00	PANASONIC		
C3	CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7504.00	PANASONIC		
C4	CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7504.00	PANASONIC		
C5	CE RICHTIGE SNR.0008.7556 ELECTROLYTIC CAPACITOR	CE 0087.0437.00	ROEDERST	ALKO EK 1000/16	R
C6	CE RICHTIGE SNR.0008.7556 ELECTROLYTIC CAPACITOR	CE 0087.0437.00	ROEDERST	ALKO EK 1000/16	R
C7	CC 1 NF+50-20%500V HDK CERAMIC CAPACITOR	0006.0490.00	PHILIPS-CO	2222 655 53102	
C8	CC 1 NF+50-20%500V HDK CERAMIC CAPACITOR	0006.0490.00	PHILIPS-CO	2222 655 53102	
C9	CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR	0008.7440.00	ROE	EKE00 CC247JG	
C10	CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR	0008.7440.00	ROE	EKE00 CC247JG	
C11	CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR	0008.7440.00	ROE	EKE00 CC247JG	
C12	CC 1 NF+50-20%500V HDK CERAMIC CAPACITOR	0006.0490.00	PHILIPS-CO	2222 655 53102	
C13	CC 4,7PF+-0,25PF3X4NPO CAPACITOR	CC 0087.6387.00	PHILIPS-CO	2222 678 09478	
C14	CC 2,2PF+-0,25PF3X4NPO CAPACITOR	CC 0087.6341.00	PHILIPS-CO	2222 678 09228	
C20	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	


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 ROHDE & SCHWARZ				46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA 1+


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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C21	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	
C23	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C24	CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR	CE 0022.8104.00	ROEDERSTEI	ETR1 2.2/20 20%	
C25	CC 2,2PF+-0,25PF3X4NPO CAPACITOR	CC 0087.6341.00	PHILIPS-CO	2222 678 09228	
C26	CC 220PF+-10%200V K1200VI CAPACITOR	CC 0060.1078.00	UNION CARB	CK05BX221K	
C32	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	
C33	CK 220NF+-20%100V QUADER PLASTIC-FOIL CAPACITOR	CK 0006.5056.00	ROEDERST	MKT1822-422/0	
C34	CK 2,2NF+-20%160V RM7,5KC PLASTIC-FOIL CAPACITOR	CK 0006.4614.00	ROEDERST	KC1848-222/1	
C35	CK 2,2NF+-20%160V RM7,5KC PLASTIC-FOIL CAPACITOR	CK 0006.4614.00	ROEDERST	KC1848-222/1	
C36	CE 15 UF+-20%20V 7X 5X11 ELECTROLYTIC CAPACITOR	CE 0022.8127.00	ROEDERSTEI	ETR-3 15/20 20%	
C37	CE 15 UF+-20%20V 7X 5X11 ELECTROLYTIC CAPACITOR	CE 0022.8127.00	ROEDERSTEI	ETR-3 15/20 20%	
C38	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	
C39	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	
C40	CC 47PF+-2%5X6NPO CAPACITOR	CC 0087.6506.00	PHILIPS-CO	2222 678 10479	
C41	CC 18PF+-2%3X4NPO CAPACITOR	CC 0087.6458.00	PHILIPS-CO	2222 678 10189	
C42	CC 12PF+-2%3X4NPO CAPACITOR	CC 0087.6435.00	PHILIPS-CO	2222 678 10129	
C43	CC 68PF+-2%6X7NPO CAPACITOR	CC 0087.6529.00	PHILIPS-CO	2222 678 10689	
C44	CC 18PF+-2%3X4NPO CAPACITOR	CC 0087.6458.00	PHILIPS-CO	2222 678 10189	
C45	CC 56PF+-2%5X6NPO CAPACITOR	CC 0087.6512.00	PHILIPS-CO	2222 678 10569	
C46	CC 22PF+-2%4X5NPO CAPACITOR	CC 0087.6464.00	PHILIPS-CO	2222 678 10229	
C47	CC 33PF+-2%4X5NPO CAPACITOR	CC 0087.6487.00	PHILIPS-CO	2222 678 10339	
C48	CC 47PF+-2%5X6NPO CAPACITOR	CC 0087.6506.00	PHILIPS-CO	2222 678 10479	
C49	CE 220UF+-20%16V RM5 ELECTROLYTIC CAPACITOR	0008.7562.00	PHILIPS CO	2222 116 90065	
C50	CC 39PF+-2%4X5NPO CAPACITOR	CC 0087.6493.00	PHILIPS-CO	2222 678 10399	
C51	CC 56PF+-2%5X6NPO CAPACITOR	CC 0087.6512.00	PHILIPS-CO	2222 678 10569	
C52	CC 39PF+-2%4X5NPO CAPACITOR	CC 0087.6493.00	PHILIPS-CO	2222 678 10399	
C53	CC 3,3PF+-0,25PF3X4NPO CAPACITOR	CC 0087.6364.00	PHILIPS-CO	2222 678 09338	
C54	CC 12PF+-2%3X4NPO CAPACITOR	CC 0087.6435.00	PHILIPS-CO	2222 678 10129	
C55	CC 22PF+-2%4X5NPO CAPACITOR	CC 0087.6464.00	PHILIPS-CO	2222 678 10229	
C56	CK 2,61NF+-1%63V6,3QUX11 PLASTIC-FOIL CAPACITOR	0282.9180.00	SIEMENS	B33531-A5262-F100	
C57	CK 560PF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR	CK 0283.1660.00	SIEMENS	B33531-A5561-F	
C58	CE 220UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7904.00	PANASONIC	ECA-1VFG221BQ	
C60	CC 47PF+-2%5X6NPO CAPACITOR	CC 0087.6506.00	PHILIPS-CO	2222 678 10479	
C61	CK 3,48NF+-1%63V Q6XH11 PLASTIC-FOIL CAPACITOR	CK 0282.9173.00	SIEMENS	B33531-A5342-F800	
C62	CK 3,3NF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.9030.00	SIEMENS	B33531-A5332-F	
C63	CK 2,87NF+-1%63V6,3QUX11 CAPACITOR	0282.9150.00	SIEMENS	B33531-A5282-F700	
C64	CK 2,37NF+-1%63V6,3QUX11 CAPACITOR	0282.9144.00	SIEMENS	B33531-A5232-F700	
C65	CK 1,62NF+-1%63V6,3QUX11 CAPACITOR	0282.9138.00	SIEMENS	B33531-A5162-F200	
C66	CC 4 PF+-0,5 PF5P100 CERAMIC CAPACITOR	0006.0077.00	DRALORIC	P100/IB4/0,5SDPN	


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 ROHDE & SCHWARZ	46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	2+	


Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C67	CC 4 PF+-0,5 PF5P100 CERAMIC CAPACITOR	0006.0077.00	DRALORIC	P100/IB4/0,5SDPN	
C70	CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	0008.7510.00	PHILIPS CO	2222 116 20101	
C71	CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	0008.7510.00	PHILIPS CO	2222 116 20101	
C72	CK 4,7NF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR	CK 0283.1701.00	SIEMENS	B33531-A5472-F	
C73	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C74	CE 15 UF+-20%20V 7X 5X11 ELECTROLYTIC CAPACITOR	CE 0022.8127.00	ROEDERSTEI	ETR-3 15/20 20%	
C75	CE 15 UF+-20%20V 7X 5X11 ELECTROLYTIC CAPACITOR	CE 0022.8127.00	ROEDERSTEI	ETR-3 15/20 20%	
C77	CK 680NF+-20%100V QUADER CAPACITOR	CK 0087.4078.00	ROEDERST	MKC1862-468/0	
C78	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	R
C80	CE RICHTIGE SNR.0008.7556 ELECTROLYTIC CAPACITOR	CE 0087.0437.00	ROEDERST	ALKO EK 1000/16	
C81	CC 100NF+-10%100V K1200VI CERAMIC CAPACITOR	0060.1149.00	UNION CARB	CK06BX104K	R
C82	CE RICHTIGE SNR.0008.7556 ELECTROLYTIC CAPACITOR	CE 0087.0437.00	ROEDERST	ALKO EK 1000/16	
C83	CC 100NF+-10%100V K1200VI CERAMIC CAPACITOR	0060.1149.00	UNION CARB	CK06BX104K	
C85	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C86	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C87	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C90	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C91	CC 1NF+-10%63V K2000 CERAMIC CAPACITOR	CC 0022.0784.00	PHILIPS-CO	2222 63051 102	
C92	CC 1NF+-10%63V K2000 CERAMIC CAPACITOR	CC 0022.0784.00	PHILIPS-CO	2222 63051 102	
C93	CC 1NF+-10%63V K2000 CERAMIC CAPACITOR	CC 0022.0784.00	PHILIPS-CO	2222 63051 102	
C94	CC 1NF+-10%63V K2000 CERAMIC CAPACITOR	CC 0022.0784.00	PHILIPS-CO	2222 63051 102	
C95	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C96	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C97	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C110	CC 39PF+-2%4X5N150 CAPACITOR	CC 0087.6664.00	PHILIPS-CO	2222 678 34399	
C111	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C112	CC 5,6PF+-0,25PF3X4N150 CAPACITOR	CC 0087.6564.00	PHILIPS-CO	2222 678 33568	
C113	CC 47PF+-2%4X5N150 CAPACITOR	CC 0087.6670.00	PHILIPS-CO	2222 678 34479	
C114	CC 5,6PF+-0,25PF3X4N150 CAPACITOR	CC 0087.6564.00	PHILIPS-CO	2222 678 33568	
C115	CC 5,6PF+-0,25PF3X4N150 CAPACITOR	CC 0087.6564.00	PHILIPS-CO	2222 678 33568	
C116	CC 18PF+-2%3X4N150 CAPACITOR	CC 0087.6629.00	PHILIPS-CO	2222 678 34189	
C117	CE 22 UF+-20%16V 7X 5X11 ELECTROLYTIC CAPACITOR	CE 0022.8091.00	ROEDERSTEI	ETR 3 22/16 20%	
C118	CC 100PF+-2%4X5N750 CAPACITOR	CC 0087.6906.00	PHILIPS-CO	2222 678 58101	
C120	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C121	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C122	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C123	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C124	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C125	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
C126	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C130	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C131	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C132	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C135	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C136	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C138	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C140	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C141	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C142	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C143	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C144	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C145	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C146	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C147	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C150	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C151	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C152	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C153	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C154	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C155	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C156	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C157	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C160	CC 2,2NF+-10%5X6R2000 CAPACITOR	CC 0087.7060.00	PHILIPS-CO	2222 63051 222		
C161	CC 100NF+-10%100V K1200VI CERAMIC CAPACITOR	0060.1149.00	UNION CARB	CK06BX104K		
C170	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C171	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
C172	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103		
GL1	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL2	AG B80C800 BRGL RECTIFIER	AG 0013.2042.00	AEG-TELEF.	B80C800SI		
GL3	AG BY164 42V 1A4 BRGL RECTIFIER	AG 0013.2194.00	VALVO	BY164 (FERT.EINGEST.		
GL4	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL5	AE BZX79B18 2% 0.5W ZDI ZENER	AE 0008.7627.00	PHILIPS	BZX79B18		
GL6	AE BZX79B18 2% 0.5W ZDI ZENER	AE 0008.7627.00	PHILIPS	BZX79B18		
GL7	AE 1N827 6,2V REF DI REFERENCE DIODE	AE 0418.0029.00	COMPENSATE	1N827		
GL8	AE BZX79B3V9 2% 0.5W ZDI ZENER	AE 0008.7685.00	PHILIPS	BZX79B3V9		
GL9	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL10	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
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 ROHDE & SCHWARZ		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	4+


Kennz. Comp. No.	Benennung Designation			Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
GL11	AE BZX79/B6V8	0,5W	ZDI	AE 0586.9906.00	PHILIPS-CO	BZX79/B6V8		
GL16	ZENER DIODE AE BZX79/B6V8	0,5W	ZDI	AE 0586.9906.00	PHILIPS-CO	BZX79/B6V8		
GL19	ZENER DIODE AE BZX55/B10	0,5W	ZDI	AE 0289.4302.00	PHILIPS-CO	BZX55/B10		
GL20	ZENER DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL21	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL22	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL23	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL24	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL25	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL26	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL27	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL30	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL31	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL32	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL33	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL34	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL35	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL36	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL37	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL38	DIODE OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
L3	LD SPULE			0282.9221.00				0218.3455.00
L4	COIL			0282.9238.00				0218.3455.00
L5	LD SPULE			0282.9244.00				0218.3455.00
L6	COIL			0282.9250.00				0218.3455.00
L7	LD SPULE			0282.9267.00				0218.3455.00
L8	COIL			0282.9273.00				0218.3455.00
L10	COIL							
L11	ENTHALTEN IN							
L12	282.9121							
L13	ENTHALTEN IN							
L14	282.9121							
L15	ENTHALTEN IN							
L16	282.9121							
L17	ENTHALTEN IN							
L18	282.9121							
R1	ENTHALTEN IN							
R2	282.9121							
R3	ENTHALTEN IN							
	282.9121							
R1	RL 0,60W 332 OHM+-1%TK50			RL 0083.0255.00	DRALORIC	SMA0207/332OHM-F-D		
R2	RESISTOR							
R2	RL 0,60W 39,2KOHM+-1%TK50			RL 0083.1745.00	DRALORIC	SMA/207/39,2K-F-C		
R3	RESISTOR							
R3	RL 0,60W 332 OHM+-1%TK50			RL 0083.0255.00	DRALORIC	SMA0207/332OHM-F-D		
	RESISTOR							
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		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE		0282.9115.00 SA	5+	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R4	RL 0,60W 39,2KOHM+-1%TK50 RESISTOR	RL 0083.1745.00	DRALORIC	SMA/207/39,2K-F-C	
R5	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C	
R6	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R7	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R8	RL 0,60W 4,87KOHM+-1%TK50 RESISTOR	RL 0083.1100.00	DRALORIC	SMA0207/4,87K-F-D	
R9	RL 0,60W 11,8KOHM+-1%TK50 RESISTOR	RL 0083.1345.00	DRALORIC	SMA0207/11,8K-F-D	
R10	RL 0,60W 6,98KOHM+-1%TK50 RESISTOR	RL 0082.2454.00	DRALORIC	SMA0207/6,98K-F-C	
R11	RL 0,60W 4,99KOHM+-1%TK50 RESISTOR	RL 0083.1116.00	DRALORIC	SMA0207/4,99K-F-D	
R12	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R13	RS 0,5W1KOHM+-10%10X10X5 CERMET POTENTIOMETER T	RS 0087.7560.00	BOURNS	3386F-1-102	
R14	RL 0,60W 5,23KOHM+-1%TK50 RESISTOR	RL 0083.1122.00	DRALORIC	SMA0207/5,23K-F-D	
R15	RL 0,60W 5,23KOHM+-1%TK50 RESISTOR	RL 0083.1122.00	DRALORIC	SMA0207/5,23K-F-D	
R16	RL 0,60W 562 OHM+-1%TK50 RESISTOR	RL 0083.0461.00	DRALORIC	SMA0207/562OHM-F-D	
R17	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R18	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/221OHM-F-D	
R19	RL 0,60W 249 OHM+-1%TK50 RESISTOR	RL 0083.0132.00	DRALORIC	SMA0207/249OHM-F-D	
R20	RS 0,5W200 OHM+-10%10X10X CERMET POTENTIOMETER T	RS 0087.7554.00	BOURNS	3386F-1-201	
R21	RL 0,60W 1,21KOHM+-1%TK50 RESISTOR	RL 0083.0655.00	DRALORIC	SMA0207/1,21K-F-D	
R22	RL 0,60W 562 OHM+-1%TK50 RESISTOR	RL 0083.0461.00	DRALORIC	SMA0207/562OHM-F-D	
R26	RL 0,60W 475 OHM+-1%TK50 RESISTOR	RL 0083.0390.00	DRALORIC	SMA0207/475OHM-F-D	
R27	RL 0,60W 47,5 OHM+-1%TK50 RESISTOR	RL 0082.9507.00	DRALORIC	SMA0207/47,5OHM-F-D	
R28	RL 0,60W 47,5 OHM+-1%TK50 RESISTOR	RL 0082.9507.00	DRALORIC	SMA0207/47,5OHM-F-D	
R29	RL 0,60W 1,82KOHM+-1%TK50 RESISTOR	RL 0082.2277.00	DRALORIC	SMA0207/1,82K-F-C	
R35	RL 0,60W 1,82KOHM+-1%TK50 RESISTOR	RL 0082.2277.00	DRALORIC	SMA0207/1,82K-F-C	
R37	RS 0,3W100 OHM+-10% CERMET CERMET POTENTIOMETER	0087.8544.00	WESTON	548-00HS 1000OHM+-10%	
R38	RL 0,60W 56,2 OHM+-1%TK50 RESISTOR	RL 0082.9571.00	DRALORIC	SMA0207/56,2OHM-F-D	
R39	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D	
R40	RS 0,3W 5KOHM+-10% CERMET TRIMMING POTENTIOMETER	RS 0006.6698.00	BOURNS	3296W-1-5KOHM+-10%	
R41	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/221OHM-F-D	
R42	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D	
R43	RS 0,5W 1KOHM+-20% KURVE 1 DEPOS.-CARBON POTENTIOMET	RS 0069.8030.00	BOURNS	3329H-1-102	
R45	RL 0,60W 475 OHM+-1%TK50 RESISTOR	RL 0083.0390.00	DRALORIC	SMA0207/475OHM-F-D	
R46	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/221OHM-F-D	
R49	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R50	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R52	RL 0,60W 182 OHM+-1%TK50 RESISTOR	RL 0083.0010.00	DRALORIC	SMA0207/182OHM-F-D	
R54	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D	
R58	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	

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				46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA 6+


Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
R59	RL 0,60W 4,99KOHM+-1%TK50 RESISTOR	RL 0083.1116.00	DRALORIC	SMA0207/4,99K-F-D		
R60	RL 0,60W 121 OHM+-1%TK50 RESISTOR	RL 0082.9859.00	DRALORIC	SMA0207/1210HM-F-D		
R62	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D		
R63	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R64	RL 0,60W 221 KOHM+-1%TK50 RESISTOR	RL 0083.2270.00	DRALORIC	SMA0207/221K-F-C		
R65	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R66	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R70	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C		
R71	RL 0,60W 562 KOHM+-1%TK50 RESISTOR	RL 0083.2664.00	DRALORIC	SMA0207/562K-F-C		
R72	RF 0,5 W 12 OHM+-5% RESISTOR	0007.1148.00	RESISTA	SK4/120HM5%		
R73	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R74	RL 0,60W 2,21KOHM+-1%TK50 RESISTOR	RL 0082.2477.00	DRALORIC	SMA 0207/2,21K-F-C		
R75	RL 0,60W 1MOHM+-1%TK50 RESISTOR	RL 0082.7862.00	DRALORIC	SMA0207/1M-F-D		
R76	RL 0,60W 3,92KOHM+-1%TK50 RESISTOR	RL 0083.1039.00	RESISTA	MK2		
R77	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R80	RS 0,5W 200 OHM+-20%KURV1 DEPOS.-CARBON POTENTIOMET	RS 0069.8017.00	BOURNS	3329H-1-201		
R81	RL 0,60W 475 OHM+-1%TK50 RESISTOR	RL 0083.0390.00	DRALORIC	SMA0207/475OHM-F-D		
R82	RL 0,60W 121 OHM+-1%TK50 RESISTOR	RL 0082.9859.00	DRALORIC	SMA0207/1210HM-F-D		
R83	RL 0,60W 121 OHM+-1%TK50 RESISTOR	RL 0082.9859.00	DRALORIC	SMA0207/1210HM-F-D		
R84	RL 0,60W 392 OHM+-1%TK50 RESISTOR	RL 0082.2183.00	DRALORIC	SMA0207/392K-F-C		
R85	RL 0,60W 182 OHM+-1%TK50 RESISTOR	RL 0083.0010.00	DRALORIC	SMA0207/1820HM-F-D		
R86	RL 0,60W 392 OHM+-1%TK50 RESISTOR	RL 0082.2183.00	DRALORIC	SMA0207/392K-F-C		
R87	RL 0-OHM-WIDERST. 0204 O-OHM RESISTOR	RL 0069.0000.00	DRALORIC	OMA 0204		
R90	RL 0,60W 150 KOHM+-1%TK50 RESISTOR	RL 0083.2129.00	DRALORIC	SMA/207/150K-F-C		
R91	RS 0,5W20KOHM+-20%KURVE1 DEPOS.-CARBON POTENTIOMET	RS 0069.8075.00	BOURNS	3329H-1-203		
R92	RL 0,60W 1,82KOHM+-1%TK50 RESISTOR	RL 0082.2277.00	DRALORIC	SMA0207/1,82K-F-C		
R93	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D		
R94	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R95	RL 0,60W 549 OHM+-1%TK50 RESISTOR	RL 0083.0455.00	DRALORIC	SMA0207/5490HM-F-D		
R96	RL 0,60W 182 OHM+-1%TK50 RESISTOR	RL 0083.0010.00	DRALORIC	SMA0207/1820HM-F-D		
R97	RL 0,60W 549 OHM+-1%TK50 RESISTOR	RL 0083.0455.00	DRALORIC	SMA0207/5490HM-F-D		
R98	RS 0,3W 1KOHM+-10% CERMET TRIMMING POTENTIOMETER	RS 0006.6681.00	BOURNS	3296W-1- 1KOHM+-10%		
R101	RL 0,60W 332 KOHM+-1%TK50 RESISTOR	RL 0083.2441.00	DRALORIC	SMA0207/332K-F-C		
R102	RS 0,5W20KOHM+-20%KURVE1 DEPOS.-CARBON POTENTIOMET	RS 0069.8075.00	BOURNS	3329H-1-203		
R103	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R104	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D		
R105	RL 0,60W 182 OHM+-1%TK50 RESISTOR	RL 0083.0010.00	DRALORIC	SMA0207/1820HM-F-D		
R106	RL 0,60W 2,32KOHM+-1%TK50 RESISTOR	RL 0082.2519.00	DRALORIC	SMA 0207/2,32K-F-C		
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		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	7+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
R107	RS 0,3W 5KOHM+-5% CERMET CERMET POTENTIOMETER	0282.9209.00	VISHAY	1260 W 5KOHM 5%		
R110	RF 0,5 W 820 OHM +-5% DEPOS.-CARBON RESISTOR	0007.1360.00	RESISTA	SK4/820OHM5%		
R111	RS 47R 10% LIN 0,5W DEPOS.CARBON POTENTIOMET ACHSLAENGE A GEKUERZT AUF 27,6 MM	RS 0087.7277.00	RUF	0620-313		
R112	RL 0,60W 226 OHM+-1%TK50 RESISTOR	RL 0083.0090.00	DRALORIC	SMA0207/226OHM-F-D		
R113	RL 0,60W 6,81KOHM+-1%TK50 RESISTOR	RL 0082.2560.00	DRALORIC	SMA 0207/6,81K-F-C		
R114	RL 0,60W 1,0 OHM+-1%TK50 METALFILMRESISTOR	RL 0099.7860.00	RESISTA	MK2 1,00 OHM 1% TK50		
R115	RF 0,5 W 820 OHM +-5% DEPOS.-CARBON RESISTOR	0007.1360.00	RESISTA	SK4/820OHM5%		
R116	RL 0,60W 10,0 OHM+-1%TK50 RESISTOR	RL 0082.8852.00	DRALORIC	SMA0207/100HM-F-D		
R117	RL 0,60W 2,15KOHM+-1%TK50 RESISTOR	RL 0083.0855.00	DRALORIC	SMA0207/2,15K-F-D		
R120	RL 0,60W 10,0 OHM+-1%TK50 RESISTOR	RL 0082.8852.00	DRALORIC	SMA0207/100HM-F-D		
R121	RL 0,60W 10,0 OHM+-1%TK50 RESISTOR	RL 0082.8852.00	DRALORIC	SMA0207/100HM-F-D		
R123	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R124	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R125	RL 0,60W 4,75KOHM+-1%TK50 RESISTOR	RL 0083.1097.00	DRALORIC	SMA0207/4,75K-F-D		
R126	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R127	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C		
R131	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C		
R132	RL 0,60W27,40 OHM+-1%TK50 RESISTOR	RL 0082.9271.00	DRALORIC	SMA0207/27,40HM-F-D		
R133	RL 0,60W 121 OHM+-1%TK50 RESISTOR	RL 0082.9859.00	DRALORIC	SMA0207/1210HM-F-D		
R134	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R135	RL 0,60W18,20 OHM+-1%TK50 RESISTOR	RL 0082.9107.00	DRALORIC	SMA0207/18,20HM-F-D		
R136	RL 0,60W18,20 OHM+-1%TK50 RESISTOR	RL 0082.9107.00	DRALORIC	SMA0207/18,20HM-F-D		
R137	RL 0,60W 182 OHM+-1%TK50 RESISTOR	RL 0083.0010.00	DRALORIC	SMA0207/1820HM-F-D		
R138	RL 0,60W 2,21KOHM+-1%TK50 RESISTOR	RL 0082.2477.00	DRALORIC	SMA 0207/2,21K-F-C		
R140	RL 0,60W 75,0 OHM+-1%TK50 RESISTOR	RL 0082.9665.00	DRALORIC	SMA0207/750HM-F-D		
R141	RL 0,60W 100 OHM+-1%TK50 RESISTOR	RL 0082.6543.00	DRALORIC	SMA0207/100/HM-F-D		
R142	RL 0,60W 78,7 OHM+-1%TK50 RESISTOR	RL 0082.9688.00	DRALORIC	SMA0207/78,70HM-F-D		
R143	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D		
R144	RL 0,60W 39,2 OHM+-1%TK50 RESISTOR	RL 0082.9420.00	DRALORIC	SMA0207/39,20HM-F-D		
R145	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D		
R146	RL 0,60W 78,7 OHM+-1%TK50 RESISTOR	RL 0082.9688.00	DRALORIC	SMA0207/78,70HM-F-D		
R147	RL 0,60W 78,7 OHM+-1%TK50 RESISTOR	RL 0082.9688.00	DRALORIC	SMA0207/78,70HM-F-D		
R150	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D		
R151	RL 0,60W 78,7 OHM+-1%TK50 RESISTOR	RL 0082.9688.00	DRALORIC	SMA0207/78,70HM-F-D		
R152	RL 0,60W 54,9 OHM+-1%TK50 RESISTOR	RL 0082.9565.00	DRALORIC	SMA0207/54,90HM-F-D		
R153	RL 0,60W24,30 OHM+-1%TK50 RESISTOR	RL 0082.9220.00	DRALORIC	SMA0207/24,30HM-F-D		
R154	RL 0,60W 54,9 OHM+-1%TK50 RESISTOR	RL 0082.9565.00	DRALORIC	SMA0207/54,90HM-F-D		
R155	RL 0,60W 32,4 OHM+-1%TK50 RESISTOR	RL 0082.9494.00	DRALORIC	SMA0207/32,40HM-F-D		
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		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	8+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
R156	RL 0,60W 71,5 OHM+-1%TK50 RESISTOR	RL 0082.9659.00	DRALORIC	SMA0207/71,50HM-F-D		
R157	RL 0,60W 32,4 OHM+-1%TK50 RESISTOR	RL 0082.9494.00	DRALORIC	SMA0207/32,40HM-F-D		
R160	RL 0,60W16,90 OHM+-1%TK50 RESISTOR	RL 0082.9071.00	DRALORIC	SMA0207/16,90HM-F-D		
R161	RL 0,60W 158 OHM+-1%TK50 RESISTOR	RL 0082.9965.00	DRALORIC	SMA0207/1580HM-F-D		
R162	RL 0,60W16,90 OHM+-1%TK50 RESISTOR	RL 0082.9071.00	DRALORIC	SMA0207/16,90HM-F-D		
R163	RL 0,1W 8,660HM+-1%TK50 RESISTOR	0086.5370.00	DALE	MF1/10 8,660HM1&TK50		
R164	RL 0,60W 324 OHM+-1%TK50 RESISTOR	RL 0083.0249.00	DRALORIC	SMA0207/3240HM-F-D		
R165	RL 0,1W 8,660HM+-1%TK50 RESISTOR	0086.5370.00	DALE	MF1/10 8,660HM1&TK50		
R166	RL 0,60W4,32 OHM+-1%TK50 METALFILMRESISTOR	RL 0099.8015.00	RESISTA	MK2 4,32 OHM 1% TK50		
R167	RL 0,60W 649 OHM+-1%TK50 RESISTOR	RL 0082.2402.00	DRALORIC	SMA/207/6490HM-F-C		
R170	RL 0,60W4,32 OHM+-1%TK50 METALFILMRESISTOR	RL 0099.8015.00	RESISTA	MK2 4,32 OHM 1% TK50		
R171	RL 0,1W 9,530HM+-1%TK50 RESISTOR	0086.5412.00	DALE	MF1/10 9,530HM1%TK50		
R172	RL 0,60W 287 OHM+-1%TK50 RESISTOR	RL 0083.0190.00	DRALORIC	SMA0207/2870HM-F-D		
R173	RL 0,1W 9,530HM+-1%TK50 RESISTOR	0086.5412.00	DALE	MF1/10 9,530HM1%TK50		
R174	RL 0,60W12,70 OHM+-1%TK50 RESISTOR	RL 0082.8952.00	DRALORIC	SMA0207/12,70HM-F-D		
R175	RL 0,60W 215 OHM+-1%TK50 RESISTOR	RL 0083.0078.00	DRALORIC	SMA0207/2150HM-F-D		
R176	RL 0,60W12,70 OHM+-1%TK50 RESISTOR	RL 0082.8952.00	DRALORIC	SMA0207/12,70HM-F-D		
R177	RL 0,60W 121 OHM+-1%TK50 RESISTOR	RL 0082.9859.00	DRALORIC	SMA0207/1210HM-F-D		
RS3	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS4	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS5	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS6	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS7	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS8	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS9	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS11	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS12	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS13	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS14	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS15	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS16	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS17	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS18	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS19	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS20	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS21	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS22	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS23	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
RS24	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005		
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 ROHDE & SCHWARZ		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	9+

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
RS25	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS26	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS27	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS28	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS29	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS30	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS31	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
SI1	SS SCHMELZS.T630 IEC127/3 FUSE	SS 0020.7381.00	WICKMANN	TO.63 NR.19195	
SI2	SS SCHMELZS.T630 IEC127/3 FUSE	SS 0020.7381.00	WICKMANN	TO.63 NR.19195	
SI3	SS SCHMELZS.T800 IEC127/3 FUSE	SS 0020.7417.00	WICKMANN	TO.8 NR.19195	
ST1	FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR 5-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST2	FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR 6-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST3	FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR 5-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST4	FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR 4-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST5	FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR 13-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST6	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 9-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
ST7	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 13-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
T1	AK BCY59IX N 45V 200MA TRANSISTOR	AK 0010.5163.00	PHILIPS-CO	BCY59IX	
T2	AK BCY79IX P 45V 200MA TRANSISTOR	AK 0010.3777.00	PHILIPS-CO	BCY79IX	
T3	AK BCY59IX N 45V 200MA TRANSISTOR	AK 0010.5163.00	PHILIPS-CO	BCY59IX	
T4	AK BCY59IX N 45V 200MA TRANSISTOR	AK 0010.5163.00	PHILIPS-CO	BCY59IX	
T5	AM BF245B N-D 30V JFET FET	AM 0010.8627.00	PHILIPS-CO	BF245B	
T6	AM BF245B N-D 30V JFET FET	AM 0010.8627.00	PHILIPS-CO	BF245B	
T13	AK BFX48 P 30V 100MA TRANSISTOR	AK 0010.3202.00	SGS	BFX48	
T14	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T15	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T16	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T17	AK 2N5583 P 30V 500MA TRANSISTOR	0377.3871.00	MOTOROLA	2N5583	
T18	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T19	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T20	AK BFX48 P 30V 100MA TRANSISTOR	AK 0010.3202.00	SGS	BFX48	
T21	AL BD233 (BD237) 45V 2A0 TRANSISTOR	0010.0784.00	PHILIPS SE	BD233	
T23	AK BCY59IX N 45V 200MA TRANSISTOR	AK 0010.5163.00	PHILIPS-CO	BCY59IX	
T24	AK BCY79IX P 45V 200MA TRANSISTOR	AK 0010.3777.00	PHILIPS-CO	BCY79IX	


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		46	15.09.95	ED RAUSCHQUELLE NOISE SOURCE	0282.9115.00 SA	10+

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
T25	AK 2N3947 N 40V 200MA TRANSISTOR		0280.9860.00	MOTOROLA	2N3947X	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
A	ZUGEHÖRIGER STROMLAUF 282.9515 S				
B1	BP QDSP4332 +-ANZ RTR LED-DISPLAY	0302.7934.00	HEWLETT-PA	QDSP4332	
B2	BP 5082-7610 7SEGM RTL LED-DISPLAY	0293.6241.00	HEWLETT-PA	QDSP4330	
B3	BP 5082-7610 7SEGM RTL LED-DISPLAY	0293.6241.00	HEWLETT-PA	QDSP4330	
BU1	FP BUCHSENLEISTE 18POL. ANGLE SOCKET CONNECTOR	FP 0280.9747.00	BERG	67231-009	
BU2	FP BUCHSENLEISTE 16POL. SOCKET CONNECTOR	FP 0230.2249.00	BERG	76325-208	
BU3	FP BUCHSENLEISTE 18POL. ANGLE SOCKET CONNECTOR	FP 0280.9747.00	BERG	67231-009	
BU4	FP BUCHSENLEISTE 16POL. SOCKET CONNECTOR	FP 0230.2249.00	BERG	76325-208	
BU5	FP BUCHSENLEISTE 18POL. ANGLE SOCKET CONNECTOR	FP 0280.9747.00	BERG	67231-009	
BU6	FP BUCHSENLEISTE 16POL. SOCKET CONNECTOR	FP 0230.2249.00	BERG	76325-208	
BU7	FP BUCHSENLEISTE 9POL. SOCKET CONNECTOR	FP 0510.1491.00	BERG	76323-209	
BU8	FP BUCHSENLEISTE 13POL. SOCKET CONNECTOR	FP 0510.1391.00	BERG	76323-213	
GL1	AF HLMP3401 LED GE RD5 LED	0092.8703.00	HEWLETT-PA	HLMP-3401-F(E)-002	
GL2	AF HLMP3401 LED GE RD5 LED	0092.8703.00	HEWLETT-PA	HLMP-3401-F(E)-002	
GL3	AF HLMP3502 LED GN RD5 LED	0235.4862.00	HEWLETT-PA	HLMP3502-F-002	
R1 ..4	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
S1 ..4	SB SCHALTELEMENT M.LED RT SWITCH	SB 0099.0689.00	SEL	099.0689 R&S-K-BLATT	
S5	SB SCHALTELEMENT UNBEL. SWITCH	SB 0099.0672.00	SEL	099.0672 R&S-K-BLATT	
S6	SB SCHALTELEMENT UNBEL. SWITCH	SB 0099.0672.00	SEL	099.0672 R&S-K-BLATT	
S7	SB SCHALTELEMENT M.LED RT SWITCH	SB 0099.0689.00	SEL	099.0689 R&S-K-BLATT	
ST1	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 5-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	


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 ROHDE & SCHWARZ				06 15.09.95	ED BEDIENPLATTE CONTROL BOARD	0282.9415.00 SA	1-

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
B1	BL SN7417N HEX.BUFF.DRIV.	0244.8538.00	TEXAS	SN7417N	
B2	IC HEX BUFFER DRIVER SN74				
B2	BL MC14556BCP 2X1:4DEMUX.	0282.3400.00	SSS	SCL4556BE	
B2	DECODER/DEMULTIPLEXER				
B3	BL SN74LS298N 4/2INP.MUX	0303.1452.00	TEXAS	SN74LS298N	
B3	IC 4/2 INP.MUX SN 74LS298				
B4	BL SN74LS00N 4/2INP.NAND	0266.4641.00	TEXAS	SN74LS00N	
B4	IC NAND GATE SN74LS00N				
B5	BL CD4012BE 2X4IN.NANDG	0086.7015.00	RCA	CD4012BE	
B5	NAND GATE				
B6	BL SN54LS247J 7SEGM.DECOD	0294.9673.00	TEXAS	SN54LS247J	
B6	IC SEGMENT DECODER SN54LS				
B7	BL SN54LS247J 7SEGM.DECOD	0294.9673.00	TEXAS	SN54LS247J	
B7	IC SEGMENT DECODER SN54LS				
B8	BL SN74LS05N 6/INVERT. OC	0266.7911.00	TEXAS	SN74LS05N	
B8	IC INVERTER SN74LS05N				
B9	BL SN74LS74AN 2/D-FLIPFL.	0266.7934.00	TEXAS	SN74LS74N	
B9	IC FLIP-FLOP SN74LS74N				
B10	BL SN74LS38N 4/2INP.NAND	0216.2000.00	TEXAS	SN74LS38N	
B10	LOW POWER				
B11	BL CD4098BF 2X MONOFLOP	0517.7550.00	RCA	CD4098BF	
B11	MONO FLOP				
B12	BL SN74LS132N 4XSCHMITT.	0267.0291.00	TEXAS INST	SN74LS132N	
B12	SCHMITT TRIGGER				
B13	BL SN74LS00N 4/2INP.NAND	0266.4641.00	TEXAS	SN74LS00N	
B13	IC NAND GATE SN74LS00N				
B14	BL SN74LS05N 6/INVERT. OC	0266.7911.00	TEXAS	SN74LS05N	
B14	IC INVERTER SN74LS05N				
B15	HS BC2716 PROGRAMMIERT	0282.9067.00			
B16	BL CD4029BE U/D-COUNTER	0086.7167.00	S.S.SCIENT	SCL4029BE	
B16	COUNTER				
B17	BL CD4029BE U/D-COUNTER	0086.7167.00	S.S.SCIENT	SCL4029BE	
B17	COUNTER				
B18	BL CD4029BE U/D-COUNTER	0086.7167.00	S.S.SCIENT	SCL4029BE	
B18	COUNTER				
B19	BL MC14503BAL 6XBUFF. 3S	0418.0212.00	MOTOROLA	MC14503BAL	
B19	BUFFER TRISTATE				
B20	BL MC14503BAL 6XBUFF. 3S	0418.0212.00	MOTOROLA	MC14503BAL	
B20	BUFFER TRISTATE				
B21	BL CD4011BE 4X2IN.NANDG	0252.7337.00	RCA	CD4011BE	
B21	NAND GATE				
B22	BL PC74HCT04P 6XINVERT.	0379.6726.00	PHILIPS	74HCT04N	
B22	HEX-INVERTER				
B23	BL CD4030BE 4X2IN.EXORG	0086.7173.00	RCA	CD4030BE	
B23	EXOR GATE				
B24	BL CD4011BE 4X2IN.NANDG	0252.7337.00	RCA	CD4011BE	
B24	NAND GATE				
B25	BL CD4098BF 2X MONOFLOP	0517.7550.00	RCA	CD4098BF	
B25	MONO FLOP				
B26	BL CD4098BF 2X MONOFLOP	0517.7550.00	RCA	CD4098BF	
B26	MONO FLOP				
B27	BL SN74LS22N 2/4INP.NAND.	0282.9280.00	TEXAS	SN74LS22N	
B27	IC 2/4INP.NAND GATE				
BR1	FP KURZSCHLUSSBUCHSE	FP 0491.7042.00	PK	452-70302	
BR1	SHORTING PLUG				
BR2	FP KURZSCHLUSSBUCHSE	FP 0491.7042.00	PK	452-70302	
BR2	SHORTING PLUG				
BR3	FP KURZSCHLUSSBUCHSE	FP 0491.7042.00	PK	452-70302	
BR3	SHORTING PLUG				
BR4	FP KURZSCHLUSSBUCHSE	FP 0491.7042.00	PK	452-70302	
BR4	SHORTING PLUG				
BU1	FP BUCHSENLEISTE 24POL.	FP 0219.3342.00	BERG	67231-012	
BU1	ANGLE SOCKET CONNECTOR				
C1	CK 1,0UF+-10%100V QUADER	CK 0006.5091.00	ROEDERST	MKT1822-510/0+10%	
C1	PLASTIC-FOIL CAPACITOR				
C2	CK 10NF+-20% 400V RM10KC	CK 0006.4808.00	ROEDERST	KC1849-310/4	
C2	PLASTIC-FOIL CAPACITOR				
C3	CK 10NF+-20% 400V RM10KC	CK 0006.4808.00	ROEDERST	KC1849-310/4	
C3	PLASTIC-FOIL CAPACITOR				
C4	CE 1,0UF+-20%35V 5X 4X 7	CE 0022.8185.00	ROEDERSTEI	ETR 1 1/40 20%	
C4	ELECTROLYTIC CAPACITOR				
C5	CE 47UF+-20%63V RM5	0008.7440.00	ROE	EKE00 CC247JG	
C5	ELECTROLYTIC CAPACITOR				
C6	CC 1 NF+- 5%100V NPO VIEL	0060.0894.00	ERIE	8133-100-COG-1NF-J	
C6	CERAMIC CAPACITOR				
C7	CE 47UF+-20%63V RM5	0008.7440.00	ROE	EKE00 CC247JG	
C7	ELECTROLYTIC CAPACITOR				


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 ROHDE & SCHWARZ	23	15.09.95	ED DIGITALPLATTE	0282.9515.00 SA	1+	

Kennz. Comp. No.	Benennung Designation			Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
C8	CE 10UF+-20%63V RD9XH12 ELECTROLYTIC CAPACITOR			0008.7910.00	PHILIPS-CO	2222 036 90362		
C9	CE 15 UF+-20%20V 7X 5X11 ELECTROLYTIC CAPACITOR			CE 0022.8127.00	ROEDERSTEI	ETR-3 15/20 20%		
C10	CE 100NF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR			CE 0022.8156.00	ROEDERSTEI	ETR 1 0.1/40 20%		
C11	CC 1 NF+- 5%100V NPO VIEL CERAMIC CAPACITOR			0060.0894.00	ERIE	8133-100-COG-1NF-J		
C12	CK 22NF+-5%63V RD2,5H7MKT CAPACITOR			CK 0099.2881.00	WIMA	MKS2		
C13	CK 10NF+-5%63V RD2,5H7MKT CAPACITOR			CK 0099.2869.00	WIMA	MKS2		
C14	CE 100NF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR			CE 0022.8156.00	ROEDERSTEI	ETR 1 0.1/40 20%		
C15	CE 1,0UF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR			CE 0022.8185.00	ROEDERSTEI	ETR 1 1/40 20%		
C16	CE 10UF+-20%63V RD9XH12 ELECTROLYTIC CAPACITOR			0008.7910.00	PHILIPS-CO	2222 036 90362		
C17	CC 2,7NF+-10%5X6R2000 CAPACITOR			CC 0087.7077.00	PHILIPS-CO	2222 63051 272		
GL1	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL2	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL3	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL4	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL5	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL6	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL7	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL8	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL9	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL10	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL11	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL12	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL13	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL14	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL15	OP 1N4448	75V	UDI	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
GL16	AE 5082-2800	SCHOTTKY		AE 0012.9066.00	HEWLETT-PA	5082-2800-TR		
GL17	AE 5082-2800	SCHOTTKY		AE 0012.9066.00	HEWLETT-PA	5082-2800-TR		
GL18	AE 5082-2800	SCHOTTKY		AE 0012.9066.00	HEWLETT-PA	5082-2800-TR		
GL19	AE 5082-2800	SCHOTTKY		AE 0012.9066.00	HEWLETT-PA	5082-2800-TR		
R1	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR			RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R2	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR			RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R3	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR			RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R4	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR			RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R5	RL 0,60W 100KOHM+-1%TK50 RESISTOR			RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C		
R6	RL 0,60W 100KOHM+-1%TK50 RESISTOR			RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C		
R7	RL 0,60W 274 OHM+-1%TK50 RESISTOR			RL 0083.0178.00	DRALORIC	SMA0207/274OHM-F-D		
R8	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR			RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C		
R9	RL 0,60W 1,82KOHM+-1%TK50 RESISTOR			RL 0082.2277.00	DRALORIC	SMA0207/1,82K-F-C		
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			23	15.09.95	ED DIGITALPLATTE		0282.9515.00 SA	2+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R10	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R11	RL 0,60W 150 OHM+-1%TK50 RESISTOR	RL 0082.9942.00	DRALORIC	SMA0207/1500HM-F-D	
R12	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R13	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R14	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R15	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R16	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R17	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R18	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R19	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R20	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R21	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R22	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R23	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R24	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R25	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R26	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R27	RL 0,60W 274 KOHM+-1%TK50 RESISTOR	RL 0083.2364.00	DRALORIC	SMA/207/274K-F-C	
R28	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R29	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R30	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R31	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R32	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R33	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R34	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R35	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R36	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R37	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R38	RL 0,60W 332 KOHM+-1%TK50 RESISTOR	RL 0083.2441.00	DRALORIC	SMA0207/332K-F-C	
R39	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D	
R40	RL 0,60W 8,25KOHM+-1%TK50 RESISTOR	RL 0083.1239.00	DRALORIC	SMA0207/8,25K-F-D	
R41	RL 0,60W 68,1KOHM+-1%TK50 RESISTOR	RL 0082.2602.00	DRALORIC	SMA 0207/68,1K-F-C	
R42	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C	
R43	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C	
R44	RL 0,60W 68,1KOHM+-1%TK50 RESISTOR	RL 0082.2602.00	DRALORIC	SMA 0207/68,1K-F-C	
R45	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R46	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R47	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R48	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R49	RL 0,60W 100KOHM+-1%TK50 RESISTOR	RL 0082.1764.00	DRALORIC	SMA0207/100K-F-C	
R50	RL 0,60W 221 OHM+-1%TK50 RESISTOR	RL 0083.0084.00	DRALORIC	SMA0207/2210HM-F-D	
R51	RL 0,60W 6,81KOHM+-1%TK50 RESISTOR	RL 0082.2560.00	DRALORIC	SMA 0207/6,81K-F-C	
R52	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R53	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R54	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R55	RN 9X100KOHM+-2%SIL10 H5 RESISTOR NETWORK	RN 0542.5092.00	BOURNS	4610X-T09-104	
R56	RN 7X 22KOHM+-2%SIL 8 H5 RESISTOR NETWORK	RN 0540.5720.00	BOURNS	4608X-T09-223	
R57	RN 3X100KOHM+-2%SIL6 H5 RESISTOR NETWORK	RN 0282.9309.00	BOURNS	4306R-102-104	
R58	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R59	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R60	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R62	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R63	RL 0,60W 5,62KOHM+-1%TK50 RESISTOR	RL 0082.2190.00	DRALORIC	SMA0207/5,62K-F-C	
R64	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D	
R65	RL 0,60W 2,21KOHM+-1%TK50 RESISTOR	RL 0082.2477.00	DRALORIC	SMA 0207/2,21K-F-C	
R66	RL 0,60W 3,32KOHM+-1%TK50 RESISTOR	RL 0083.0990.00	DRALORIC	SMA0207/3,32K-F-D	
ST4	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST5	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST6	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST7	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST8	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 1-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST9	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 16POLIG,GETEILT AUF 2X8POL.	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST10	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 16POLIG,GETEILT AUF 2X8POL.	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST1A	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 8-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
ST1B	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 8-POLIG	FP 0288.1951.00	BINDER	742-11-0227-00-36	
ST2A	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 8-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
ST2B	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 8-POLIG	FP 0288.1951.00	BINDER	742-11-0227-00-36	
ST3A	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 8-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
ST3B	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 8-POLIG	FP 0288.1951.00	BINDER	742-11-0227-00-36	

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 ROHDE & SCHWARZ	23	15.09.95	ED DIGITALPLATTE	0282.9515.00 SA	4+	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
T1	AK BCY79IX P 45V 200MA TRANSISTOR	AK 0010.3777.00	PHILIPS-CO	BCY79IX	


MDNP	957	3PU-D	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
 ROHDE & SCHWARZ			23	15.09.95	ED DIGITALPLATTE	0282.9515.00 SA	5-

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
B1	BL SN7474N -O+75 DIL FLIP IC FLIP FLOP SN7474N	0009.3354.00	TEXAS	SN7474N	
B2	BL SN74LS14N 6/SCHMITT-TR IC SCHMITT-TRIGGER SN74LS	0266.4712.00	TEXAS	SN74LS14N	
B3	BL MC14538BCP 2X MONOFLOP MONOSTABLE MULTIVIBRATOR	0252.7389.00	MOTOROLA	MC14538BCP	
B4	BL CD4520BE 2XBIN.COUNT COUNTER	0299.6908.00	RCA	CD4520BE	
B5	BL CD4011BE 4X2IN.NANDG NAND GATE	0252.7337.00	RCA	CD4011BE	
B6	BL CD4023BE 3X3IN.NANDG NAND GATE	0086.7109.00	RCA	CD4023BE	
B7	BL SN74LS374N 8BIT-D-REG. IC 8BIT-D-REGISTER	0282.9696.00	TEXAS	SN74LS374N	
B8	BL SN74LS374N 8BIT-D-REG. IC 8BIT-D-REGISTER	0282.9696.00	TEXAS	SN74LS374N	
BR1 ...28	FP KURZSCHLUSSBUCHSE SHORTING PLUG	FP 0491.7042.00	PK	452-70302	
C1	CE 100UF+-20%63V RM5 ELECTROLYTIC CAPACITOR	CE 0008.7879.00	PANASONIC		
C2	CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	0008.7510.00	PHILIPS CO	2222 116 20101	
C3	CE 2,2UF+-20%63V RD9XH13 ELECTOLYTIC CAPACITOR	0008.7527.00	ROEDERSTEI	EKM OCCC122 JGO	
C4	CE 2,2UF+-20%63V RD9XH13 ELECTOLYTIC CAPACITOR	0008.7527.00	ROEDERSTEI	EKM OCCC122 JGO	
C5	CK 68NF+-20%100V QUADER PLASTIC-FOIL CAPACITOR	CK 0006.5027.00	ROEDERST	MKT1822-368/0	
C6	CK 68NF+-20%100V QUADER PLASTIC-FOIL CAPACITOR	CK 0006.5027.00	ROEDERST	MKT1822-368/0	
C7	CC 39PF+-2%4X5NPO CAPACITOR	CC 0087.6493.00	PHILIPS-CO	2222 678 10399	
R1	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R2	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R3	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R4	RL 0,60W 100 OHM+-1%TK50 RESISTOR	RL 0082.6543.00	DRALORIC	SMA0207/100/HM-F-D	
R5	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R6	RL 0,60W 39,2KOHM+-1%TK50 RESISTOR	RL 0083.1745.00	DRALORIC	SMA/207/39,2K-F-C	
R7	RL 0,60W 39,2KOHM+-1%TK50 RESISTOR	RL 0083.1745.00	DRALORIC	SMA/207/39,2K-F-C	
R8	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R9	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R10	RL 0,60W 1,50KOHM+-1%TK50 RESISTOR	RL 0083.0732.00	DRALORIC	SMA0207/1,50K-F-D	
R11	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
ST1	BESTEHTAUS FP 288.1945 FP 288.1951				
ST3	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 2X8-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST4	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 4X2-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST5	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3X3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST6	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3X3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST7	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 3X3-POLIG	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST8	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR	FP 0242.3600.00	BINDER	742-11-0179-00-36	
MDNP 957 3PU-D ÄI Datum Date Schaltteilliste für Parts list for Sachnummer Stock No. Blatt-Nr. Page					
 ROHDE & SCHWARZ		09 15.09.95	ED SUF2-Z6 CCIR-571-PROGR	0282.9673.00 SA	1+


Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
ST9	2X3-POLIG FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST10	4X3-POLIG FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST11	4X3-POLIG FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST12	4X3-POLIG FP STIFTLEISTE 36P.R2,54 PIN CONNECTOR	FP 0242.3600.00	BINDER	742-11-0179-00-36	
V1	VL LOETOESE 7,5 X 1,4 SOLDERING PIN	0082.5230.00	VOGT	R&S.ZCHNG.0825230	


Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
BU1	FP BUCHSENLEISTE 13POL. SOCKET CONNECTOR	FP 0510.1391.00	BERG	76323-213	
C1	CC 39PF+-2%4X5NP0 CAPACITOR	CC 0087.6493.00	PHILIPS-CO	2222 678 10399	
C2	CC 12PF+-2%3X4NP0 CAPACITOR	CC 0087.6435.00	PHILIPS-CO	2222 678 10129	
C3	CT 16 PF N470 LIEG.ABGL.0 DISC TRIMMER	CT 0025.6960.00	STETTNER	10S-TRIK006-4/20N470	
C4	CC 27PF+-2%4X5NP0 CAPACITOR	CC 0087.6470.00	PHILIPS-CO	2222 678 10279	
C5	CC 56PF+-2%5X6NP0 CAPACITOR	CC 0087.6512.00	PHILIPS-CO	2222 678 10569	
C6	CC 39PF+-2%4X5NP0 CAPACITOR	CC 0087.6493.00	PHILIPS-CO	2222 678 10399	
C7	CC 68PF+-2%6X7NP0 CAPACITOR	CC 0087.6529.00	PHILIPS-CO	2222 678 10689	
C8	CC 8,2PF+-0,25PF3X4NP0 CAPACITOR	CC 0087.6412.00	PHILIPS-CO	2222 678 09828	
C9	CC 68PF+-2%6X7NP0 CAPACITOR	CC 0087.6529.00	PHILIPS-CO	2222 678 10689	
C10	CC 3,9PF+-0,25PF3X4NP0 CAPACITOR	CC 0087.6370.00	PHILIPS-CO	2222 678 09398	
C11	CC 10 NF +100%HDK6000 CERAMIC CAPACITOR	0022.0678.00	PHILIPS-CO	2222 640 53103	
GL1	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET	
L1	LD 4,70UH10%1,200HMO,239A CHOKE	LD 0067.2940.00	DELEVAN	1025-36	
L2	LD 12UH 2% 0,49A 1R05 CHOKE	LD 0066.9806.00	JAHRE	7411-12R+2%	
L3	LD 12UH 2% 0,49A 1R05 CHOKE	LD 0066.9806.00	JAHRE	7411-12R+2%	
L4	LD 15UH 2% 0,46A 1R2 CHOKE	LD 0282.9338.00	JAHRE	74.11-15ROG	
R1	RL 0,1W 1,00KOHM+-1%TK50 RESISTOR	0067.4537.00	DALE	MF1/10 1,00K 1%TK50	
R2	RL 0,1W 2210HM+-1%TK50 RESISTOR	0067.4372.00	DALE	MF1/10 221 OHM1%TK50	
R3	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D	
R4	RL 0,1W 5900HM+-1%TK50 RESISTOR	0086.2388.00	DALE	MF1/10 590 OHM1%TK50	
R5	RL 0,1W 6340HM+-1%TK50 RESISTOR	0086.2407.00	DALE	MF1/10 634 OHM1%TK50	
R6	RL 0,1W 3,16KOHM+-1%TK50 RESISTOR	0086.2971.00	DALE	MF1/10 3,16K 1%TK50	
R7	RL 0,1W 54,9KOHM+-1%TK50 RESISTOR	0086.3803.00	DALE	MF1/10 54,9K 1%TK50	
R8	RF 0,25W 6,8 OHM +-5% RESISTOR	0074.0079.00	DRALORIC	LCA0207/+-5%6,8	
R9	RL 0,1W 47,50HM+-1%TK50 RESISTOR	0067.4214.00	DALE	MF1/10 47,50HM1%TK50	
R10	RL 0,60W 3,32KOHM+-1%TK50 RESISTOR	RL 0083.0990.00	DRALORIC	SMA0207/3,32K-F-D	
R11	RL 0,60W 150 OHM+-1%TK50 RESISTOR	RL 0082.9942.00	DRALORIC	SMA0207/150OHM-F-D	
R12	RL 0,1W 2,21KOHM+-1%TK50 RESISTOR	0067.4614.00	DALE	MF1/10 2,21K 1%TK50	
R13	RL 0,1W 2,21KOHM+-1%TK50 RESISTOR	0067.4614.00	DALE	MF1/10 2,21K 1%TK50	
R14	RL 0,60W 3,32KOHM+-1%TK50 RESISTOR	RL 0083.0990.00	DRALORIC	SMA0207/3,32K-F-D	
R15	RL 0,1W 1000HM+-1%TK50 RESISTOR	0067.4295.00	DALE	MF1/10 100 OHM1%TK50	
RS1	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS2	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
T1	AK 2N3947 N 40V 200MA TRANSISTOR	0280.9860.00	MOTOROLA	2N3947X	
T2	AK BFX48 P 30V 100MA TRANSISTOR	AK 0010.3202.00	SGS	BFX48	

MDNP 957 3PU-D		Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
		04	15.09.95	GG SUF2-Z2 DREIECKRAUSCH.	0282.9715.00 SA	1+

095.0026-0693

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
B1	BO LF353H 2XFET OPAMP OPERATIONAL AMPLIFIER	0218.3426.00	NSC	LF353H	
BU1	FP BUCHSENLEISTE 13POL. SOCKET CONNECTOR	FP 0510.1391.00	BERG	76323-213	
C1	CK 1,5NF+-1,25%63V7,5QUAD CAPACITOR	CK 0213.4360.00	SIEMENS	B33531-A5152-F	
C2	CK 2,2NF+-1%63V 6,3QUAD. CAPACITOR	CK 0099.1304.00	SIEMENS	B33531-A5222-F	
C3	CK 1,8NF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR	CK 0283.1699.00	SIEMENS	B33531-A5182-F	
C4	CK 3,3NF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.9030.00	SIEMENS	B33531-A5332-F	
C5	CK 820PF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.6748.00	SIEMENS	B33531-A5821-F	
C6	CK 5,6NF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.9047.00	SIEMENS	B33531-A5562-F	
C7	CK 560PF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR	CK 0283.1660.00	SIEMENS	B33531-A5561-F	
C8	CK 18NF+-1%63V7,50AX13 KP CAPACITOR	CK 0099.1933.00	SIEMENS	B33531-A5183-F	
C9	CC 10NF-20+50%7X8R4000 CAPACITOR	CC 0087.7525.00	PHILIPS-CO	2222 63051 64051103	
C10	CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR	CE 0022.8085.00	ROEDERSTEI	ETR 2 10/16 20%	
R1	RL 0,1W 6,65KOHM+-1%TK50 RESISTOR	0086.3149.00	DALE	MF1/10 6,65K 1%TK50	
R2	RL 0,1W 3,24KOHM+-1%TK50 RESISTOR	0086.2907.00	DALE	MF1/10 3,24K 1%TK50	
R3	RL 0,1W 200KOHM+-1%TK50 RESISTOR	0067.5085.00	DALE	MF1/10 200K 1%TK50	
R4	RF 0,25W 1 MOHM +-5% RESISTOR	0069.1058.00	DRALORIC	LCA0207/+-5%1,0M	
R8	RL 0,1W 17,8KOHM+-1%TK50 RESISTOR	0086.3455.00	DALE	MF1/10 17,8K 1%TK50	
R9	RL 0,1W 2,21KOHM+-1%TK50 RESISTOR	0067.4614.00	DALE	MF1/10 2,21K 1%TK50	
R10	RF 0,25W 18KOHM +-5% RESISTOR	0069.1835.00	DRALORIC	LCA0207/+-5%18K	
R11	RL 0,1W 12,4KOHM+-1%TK50 RESISTOR	0086.4297.00	DALE	MF1/10 12,4K 1%TK50	
R12	RL 0,1W 52,3KOHM+-1%TK50 RESISTOR	0086.3784.00	DALE	MF1/10 52,3K 1%TK50	
R13	RL 0,1W 76,8KOHM+-1%TK50 RESISTOR	0086.3903.00	DALE	MF1/10 76,8K 1%TK50	
R14	RL 0,1W 165KOHM+-1%TK50 RESISTOR	0086.4145.00	DALE	MF1/10 165K 1%TK50	
R15	RL 0,125W243KOHM+-1%TK50 RESISTOR	0067.5104.00	DALE	MF1/10 243K 1%TK50	
R16	RL 0,60W 261 KOHM+-1%TK50 RESISTOR	RL 0083.2341.00	DRALORIC	SMA0207/261K-F-C	
R17	RF 0,25W100 OHM +-5% RESISTOR	0069.1012.00	DRALORIC	LCA0207/+-5%100	
R18	RF 0,25W100KOHM +-5% RESISTOR	0069.1041.00	DRALORIC	LCA0207/+-5%100K	
RS1	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
RS2	SR 5V3600HM1MAL1RH-JC-GEH RELAY	SR 0412.0027.00	CLARE	PRME 15.005	
MDNP 957 3PU-D Äi Datum Date					
Schaltteilliste für Parts list for			Sachnummer Stock No.		Blatt-Nr. Page
 ROHDE & SCHWARZ			08 15.09.95		EE SUF2-Z3 ROSA RAUSCHEN
			0282.9815.00 SA		1-

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in	
B1	BL SN74LS04N 6/INVERTER HEXINVERTER	0266.2010.00	TEXAS	SN74LS04N		
B2	BL SN7416N HEXINV.0/C 15V IC INVERTER SN7416N	0412.8440.00	TEXAS	SN7416N		
B3	BL SN74LS04N 6/INVERTER HEXINVERTER	0266.2010.00	TEXAS	SN74LS04N		
B4	BC HEF4738VP IEC-BUS-IF IEC-BUS-INTERFACE	0302.7157.00	PHILIPS-CO	HEF 4738VP		
B5	BL PC74HCT11P 3X3IN AND TRIPLE 3 INPUT AND GATE	0352.7521.00	PHILIPS	74HCT11N		
B6	BL CD4014BE 8BIT SH.REG SHIFT REGISTER	0086.7038.00	RCA	CD4014BE		
B7	BL CD4014BE 8BIT SH.REG SHIFT REGISTER	0086.7038.00	RCA	CD4014BE		
B8	BL SN74LS04N 6/INVERTER HEXINVERTER	0266.2010.00	TEXAS	SN74LS04N		
B9	BL SN74LS04N 6/INVERTER HEXINVERTER	0266.2010.00	TEXAS	SN74LS04N		
B10	BL SN4931N NAND GATE NAND GATE	0009.3502.20	TEXAS	SN4931N		
B11	BL CD4015BE 2X4B.SH.REG SHIFT REGISTER	0086.7044.00	RCA	CD4015BE		
B12	BL CD4015BE 2X4B.SH.REG SHIFT REGISTER	0086.7044.00	RCA	CD4015BE		
B13	BL SN4931N NAND GATE NAND GATE	0009.3502.20	TEXAS	SN4931N		
B14	BL SN74LS30N 8/INP.NAND IC NAND GATE SN74LS30N	0266.2049.00	TEXAS	SN74LS30N		
C1	CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	0008.7510.00	PHILIPS CO	2222 116 20101		
C2	CK 22NF+-20%250V QUADER PLASTIC-FOIL CAPACITOR	CK 0006.5156.00	PHILIPS-CO	MKT344/O,022/20/250		
C3	CK 680PF+-20% 400VRM10KC PLASTIC-FOIL CAPACITOR	CK 0006.4737.00	ROEDERST	KC1849-168/4		
C4	CK 5,6NF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.9047.00	SIEMENS	B33531-A5562-F		
C5	CK 5,6NF+-1%63V6,3QUX11KP CAPACITOR	CK 0340.9047.00	SIEMENS	B33531-A5562-F		
C7	CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR	0008.7510.00	PHILIPS CO	2222 116 20101		
C8	CK 2,2NF+-1%63V 6,3QUAD. CAPACITOR	CK 0099.1304.00	SIEMENS	B33531-A5222-F		
C9	CC 330PF+-2%6X9N750 CERAMIC CAPACITOR	CC 0087.6964.00	PHILIPS-CO	2222 678 58331		
GL1	OP 1N4448 75V UDI DIODE	AD 0012.0700.00	TEXAS INST	1N4448 GEGURTET		
L1	LD 22,0UH 10% 108 MIA CHOKE	LD 0092.3318.00	GOWANDA	8/M222K		
L2	LD 22,0UH 10% 108 MIA CHOKE	LD 0092.3318.00	GOWANDA	8/M222K		
R1	RN 7X3,3KOHM+-2%SIL 8 H5 RESISTOR NETWORK	RN 0291.4387.00	BECKMANN	L 08 1 S 332 M*		
R2	RN 7X6,8KOHM+-2%SIL 8 H5 RESISTOR NETWORK	RN 0470.6499.00	BI-TECHNOL	L 08 1 S 682 M*		
R3	RN 7X3,3KOHM+-2%SIL 8 H5 RESISTOR NETWORK	RN 0291.4387.00	BECKMANN	L 08 1 S 332 M*		
R4	RN 7X6,8KOHM+-2%SIL 8 H5 RESISTOR NETWORK	RN 0470.6499.00	BI-TECHNOL	L 08 1 S 682 M*		
R5	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D		
R6	RL 0,60W 2,74KOHM+-1%TK50 RESISTOR	RL 0083.0926.00	DRALORIC	SMA0207/2,74K-F-D		
R12	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C		
R13	RL 0,60W 3,32KOHM+-1%TK50 RESISTOR	RL 0083.0990.00	DRALORIC	SMA0207/3,32K-F-D		
R14	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R15	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R16	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
R17	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D		
MDNP	957 3PU-D	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
		12	15.09.95	EE SUF2-Z1 IEC-INTERFACE	0282.9915.00 SA	1+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R18	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R19	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
R20	RL 0,60W 1KOHM+-1%TK50 RESISTOR	RL 0082.2160.00	DRALORIC	SMA0207/1K-F-C	
R21	RN 7X 10KOHM+-2% RESISTOR NETWORK	RN 0581.2184.00	BOURNS	4608X-T09-103	
R22	RL 0,60W 2,21KOHM+-1%TK50 RESISTOR	RL 0082.2477.00	DRALORIC	SMA 0207/2,21K-F-C	
R23	RL 0,60W 10,0KOHM+-1%TK50 RESISTOR	RL 0083.1297.00	DRALORIC	SMA0207/10K-F-D	
ST3	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR GETEILT AUF 2X8P	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST4	FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR GETEILT AUF 2X8P	FP 0242.3600.00	BINDER	742-11-0179-00-36	
ST1A	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 4 WAY 12-POLIG	FP 0288.1945.00	BINDER	742-5-11-0229-00-36	
ST1B	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 12-POLIG	FP 0288.1951.00	BINDER	742-11-0227-00-36	

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Datum
Date

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Stock No.

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Page

ROHDE & SCHWARZ

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15.09.95

EE SUF2-Z1 IEC-INTERFACE

0282.9915.00 SA

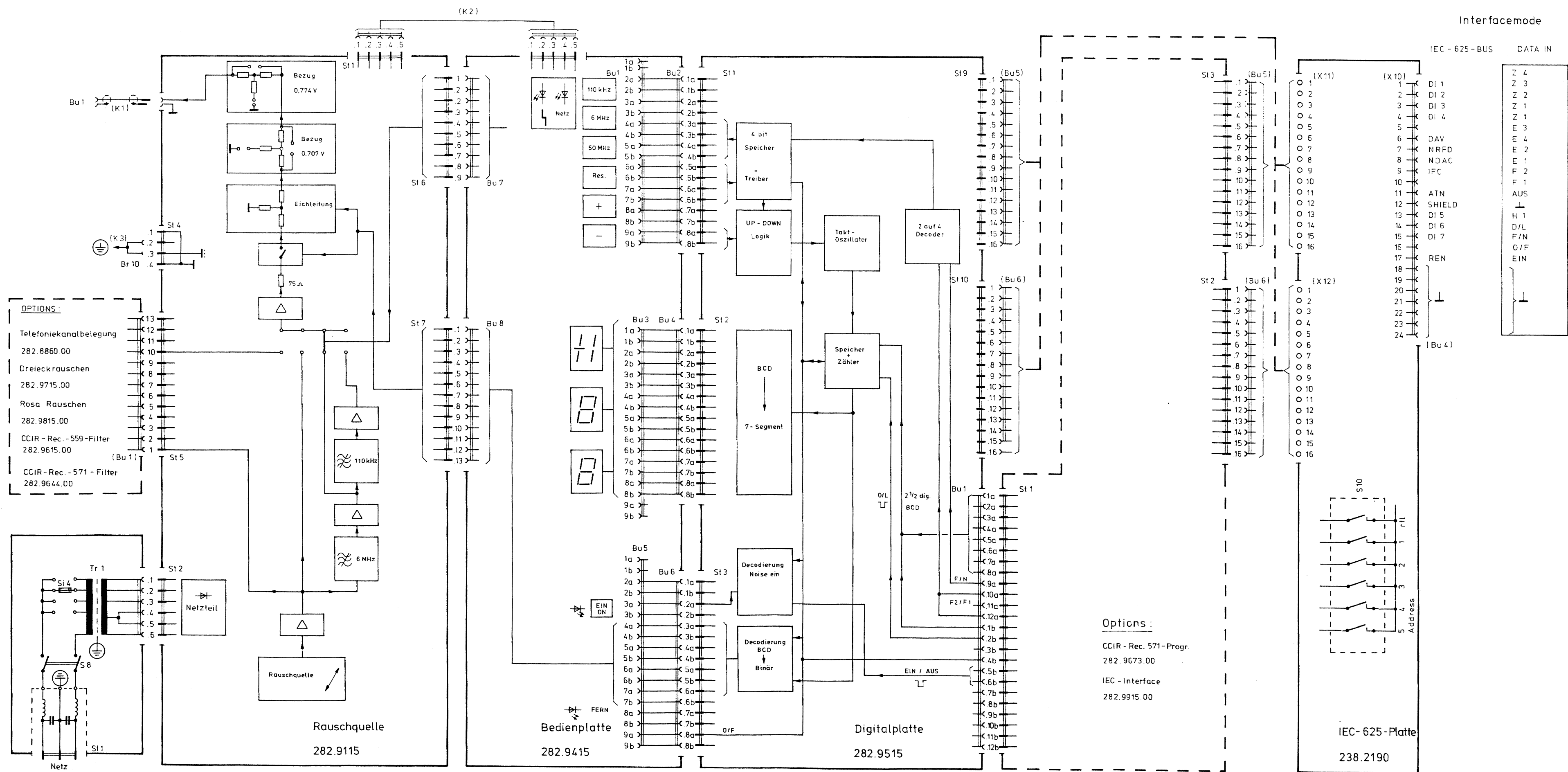
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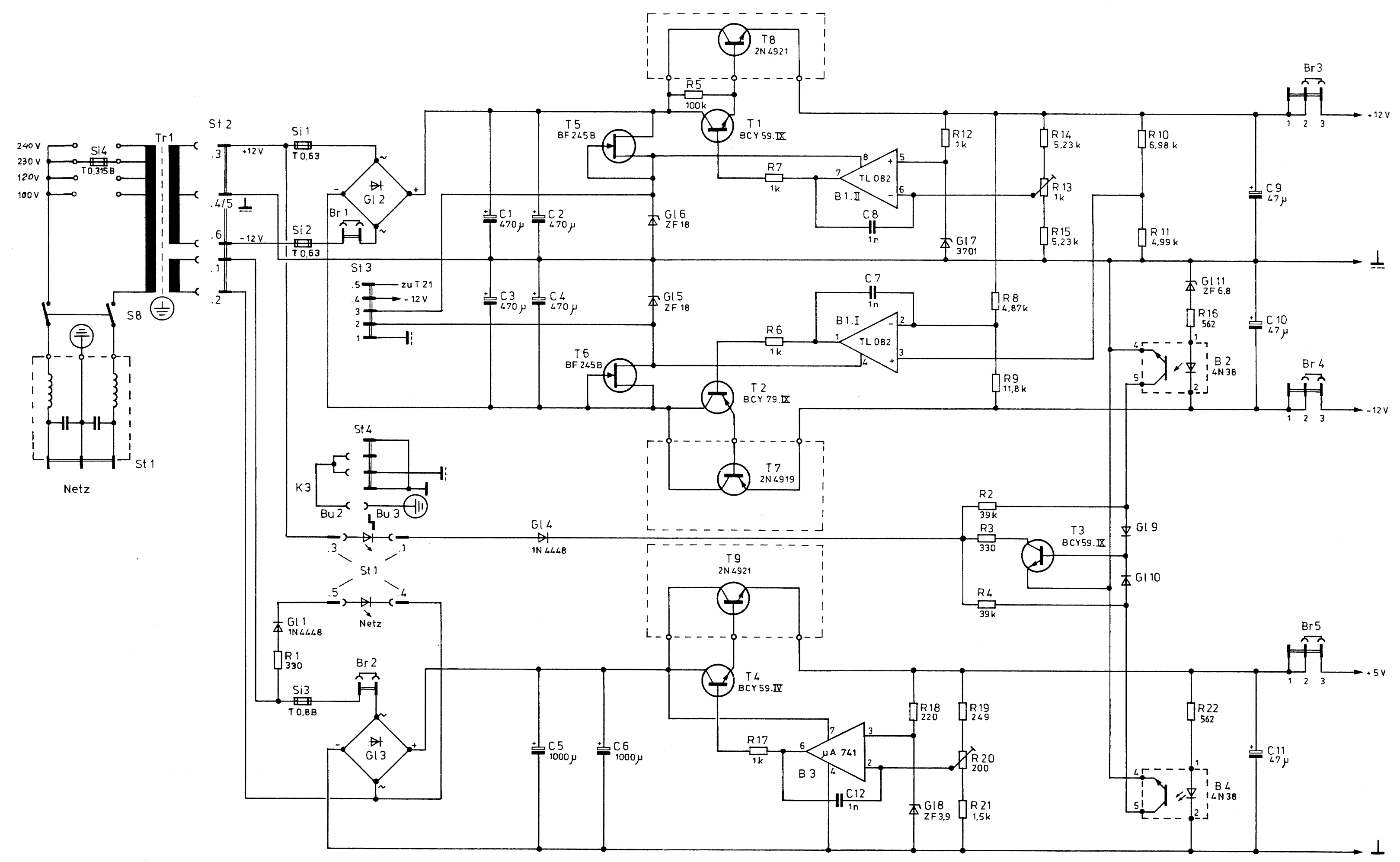
VERKLEINERUNG

Name	And. Mittig. Nr.	And. Zus.	Datum	Name	And. Mittig. Nr.	And. Zus.

Diese Zeichnung ist unser Eigentum. Vervielfältigung, Verbreitung, Verwertung, Mitteilung an andere ist strafbar und Schadensersatzpflichtig.

ROHDE & SCHWARZ · MÜNCHEN

Name	Datum	And. Mittig. Nr.	And. Zus.	Name	Datum	And. Mittig. Nr.	And. Zus.
Ba	6.80	26229	A	Ba	6.80	26229	A
BÜ	4.82	28728	C	BÜ	4.82	28728	C
BT	5.88	40320	H	BT	5.88	40320	H
BT	9.92	46179	13	BT	9.92	46179	13



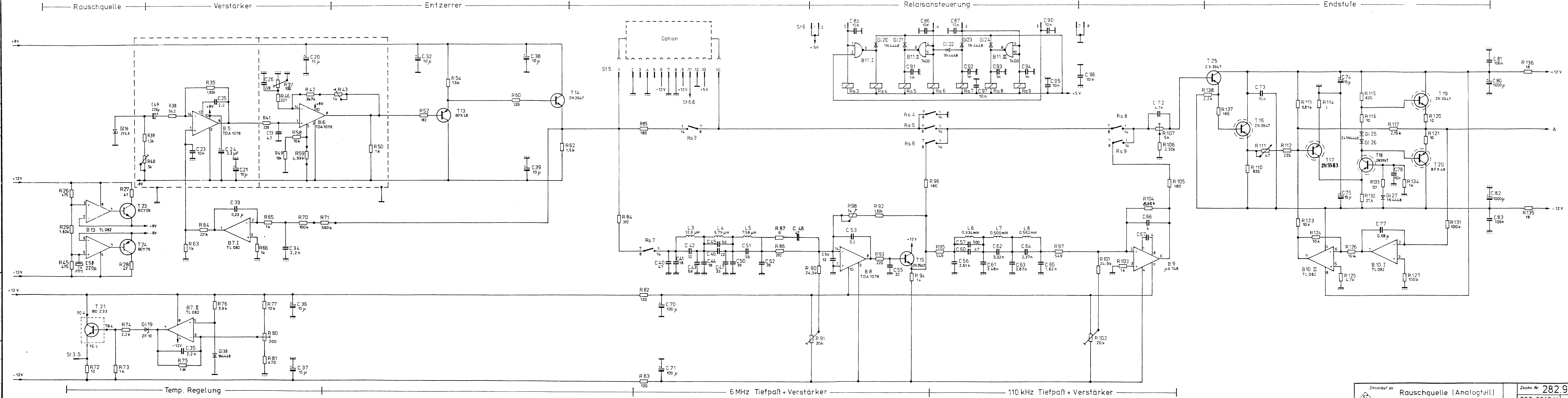
Stromlauf besteht aus 3 Blatt
CIRCUIT DIAGRAM CONSISTS OF 3 SHEETS

Stromlauf zu	Rauschquelle (Netzteil)	Zeichn. Nr.	282.9115 S
			282.8819 V

Diese Zeichnung ist unser Eigentum. Vervielfältigung,
unbefugte Verwertung, Mitteilung an andere ist
strafbar und schadenersatzpflichtig.

Bq	A	26229	6.80	8T
Bü	B	27198	4.81	8T
	C	28728	4.92	5T
	D	29780	1.83	6T
	E	31193	11.83	BT

MDNP	geprüft	1.8
beurteilt	1.8	
geprüft		
normengepr		

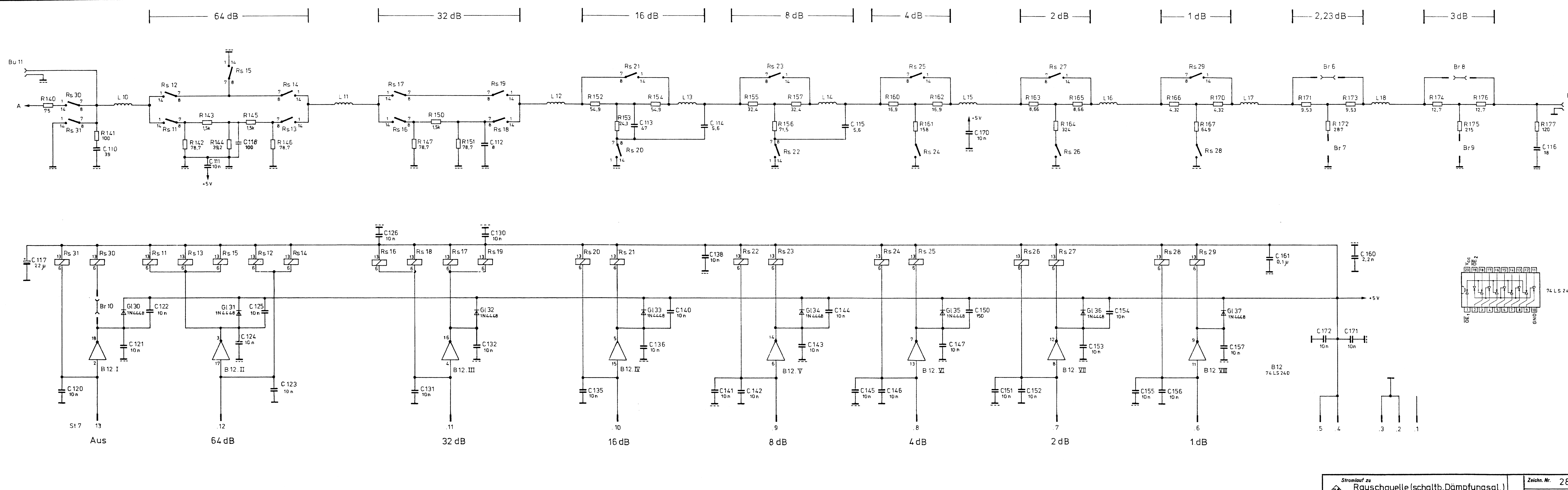


Name	
Datum	
Mod. Nr.	
Mod. Nr.	

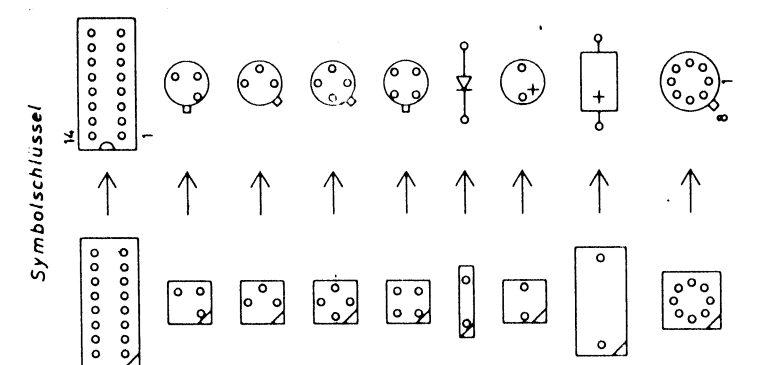
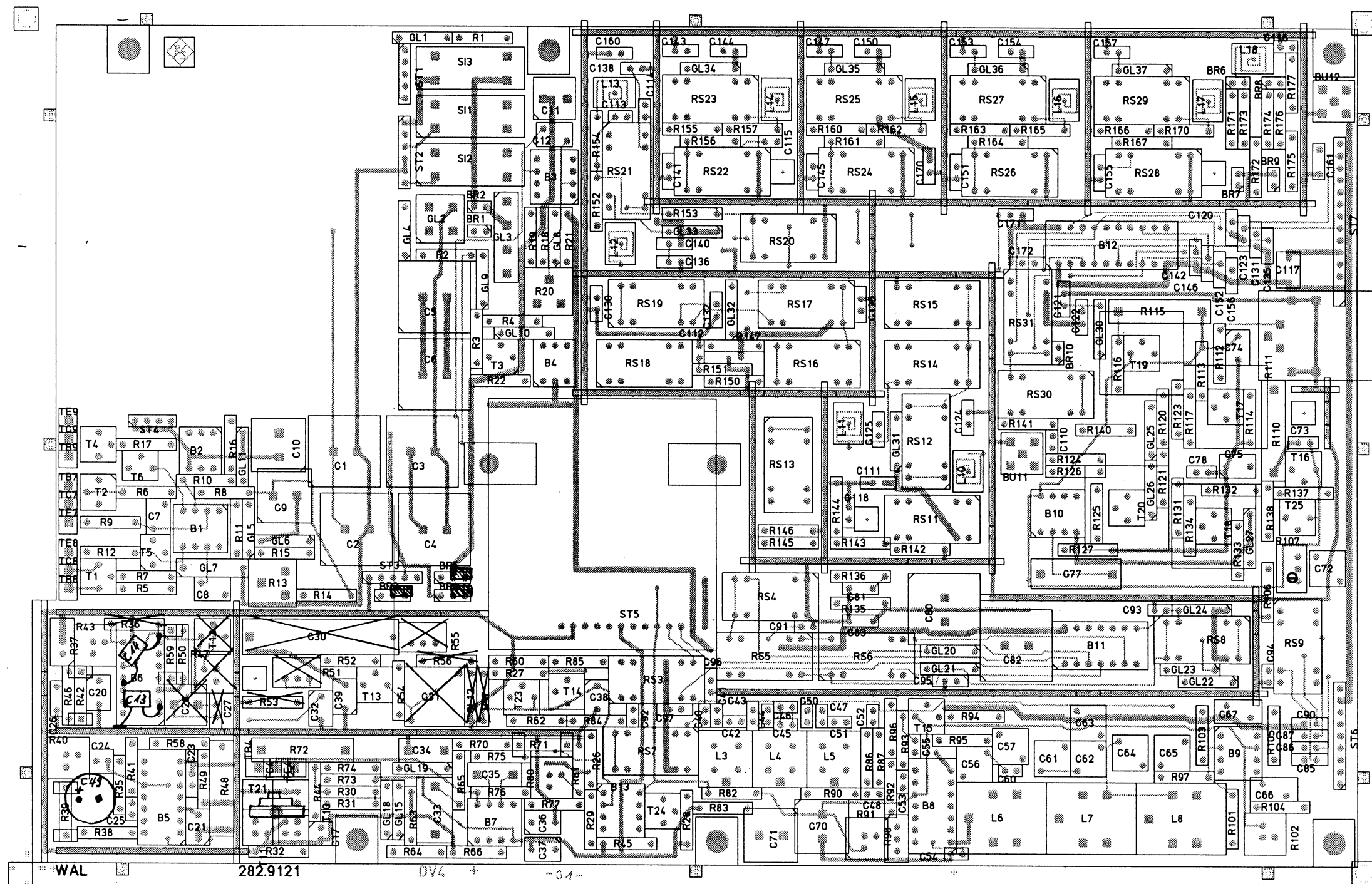
Die Zeichnung ist eine Elektro-Veranschaulichung.
Alle Maße sind in mm angegeben.
Alle Maße sind in mm angegeben.
Alle Maße sind in mm angegeben.

Name	
Datum	
Mod. Nr.	
Mod. Nr.	
Name	
Datum	
Mod. Nr.	
Mod. Nr.	
Name	
Datum	
Mod. Nr.	
Mod. Nr.	

Blatt 3
SHEET

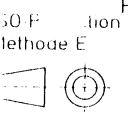


Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

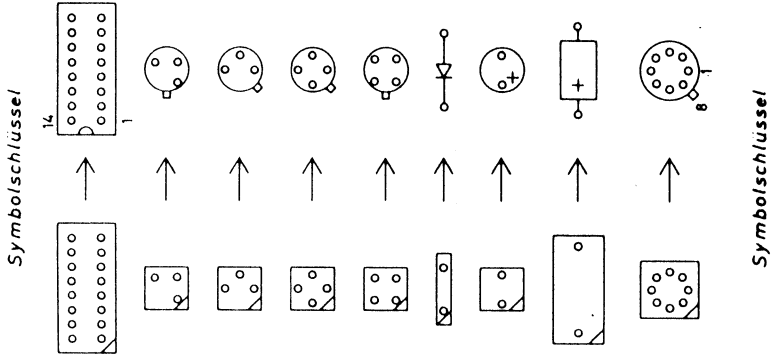
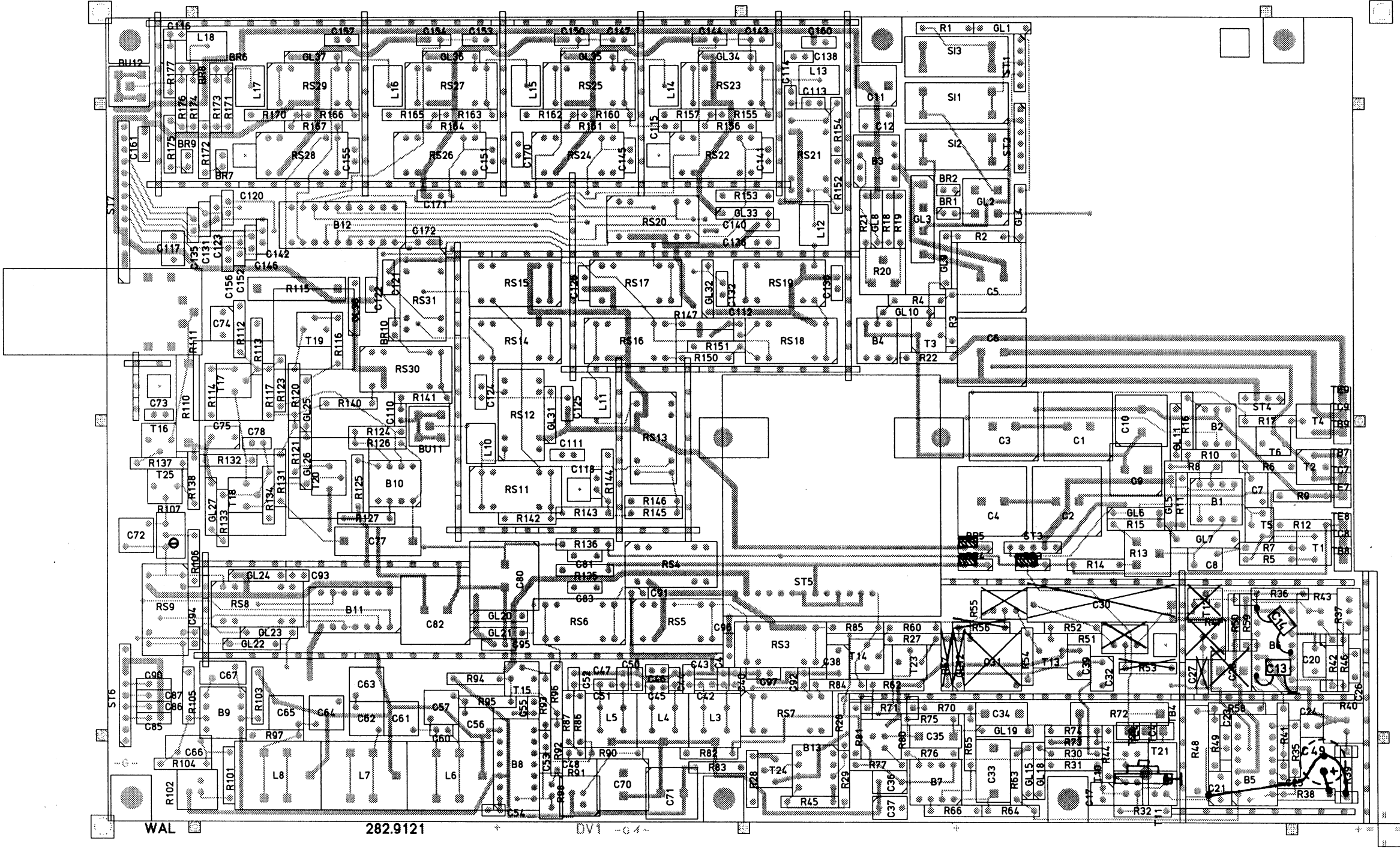


D	31193	11.83	BT	Maße ohne Toleranzangabe			Maßstab 1 : 1	
E	31454	4.84	BT				Halbzeug, Werkstoff	
G	35653	6.86	BT					
H	37737	12.86	BT					
H1	38785	10.87	BT	2FME	Tag	Name	Benennung	
				Bearb.	11.83	BT	Rauschquelle	
				Gepr				
				Norm				
				ROHDE & SCHWARZ			Zeichn.-Nr.	
				zu Gerät SUF 2			282.9115	
And. Zust.	Anderungs-Mitteilung	Tag	Name	reg. i. V.			282.8819V	erste Z. 282.8819

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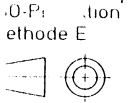


Ansicht und Leitungsführung Lötseite
View of tracks on solder side

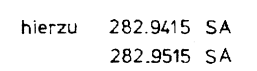


D	31193	11.83	BT	Maße ohne Toleranzangabe				Maßstab 1 : 1			
E	31454	4.84	BT					Halbzeug, Werkstoff			
G	35653	6.86	BT								
H	37737	12.86	BT								
H1	38785	10.87	BT	ZFME	Tag	Name	Benennung Rauschquelle <				

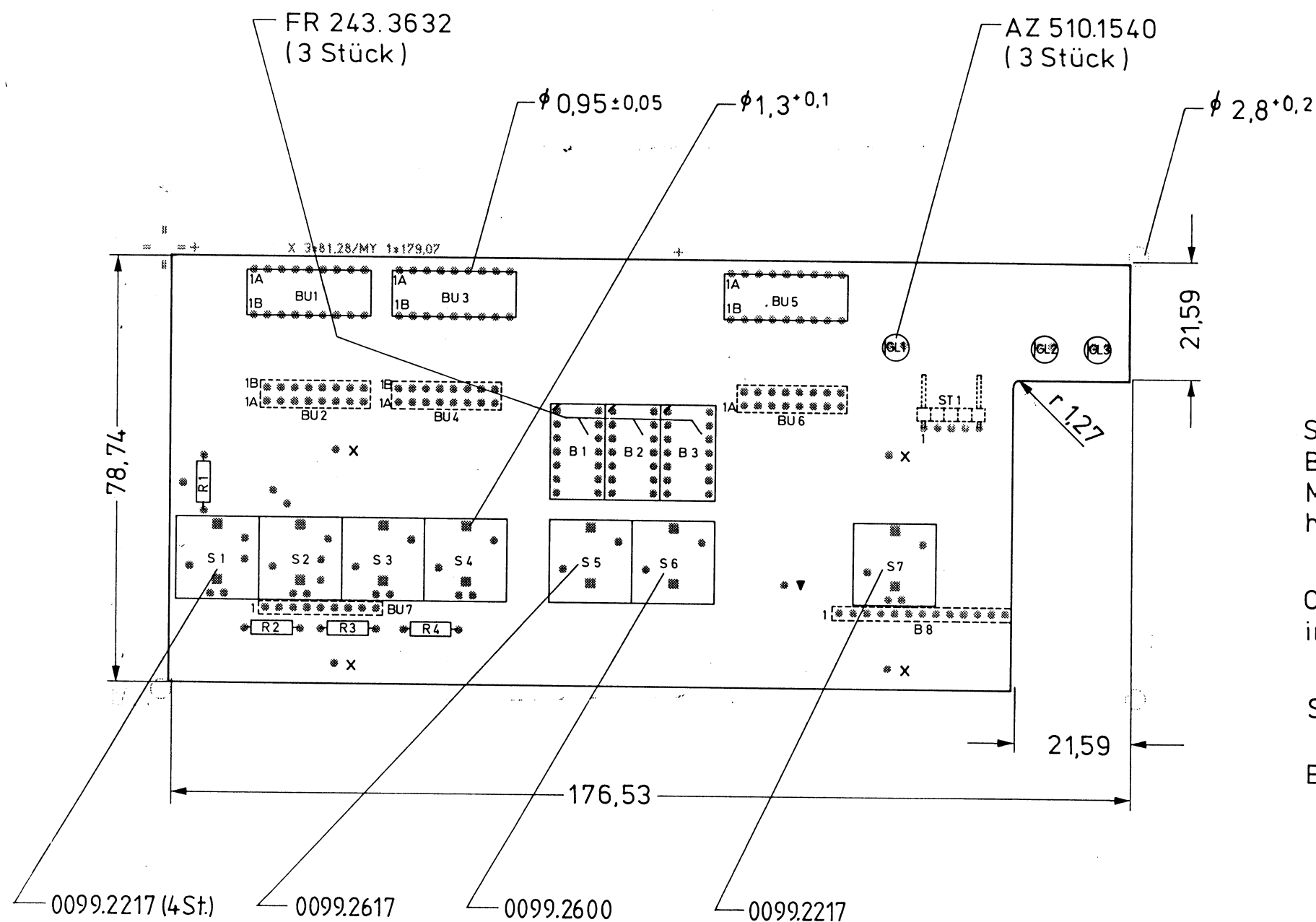
Für diese Unterlage behalten wir uns alle Rechte vor.



Zeichn.-Nr.	28.	5 S		And- Zust.	And Mitgl. Nr.	Datum	Name
		Datum	Name				
1 FWE				A	27.198	3.81	Bl
gezeichnet	1.80	Ba		B	31.193	12.83	Bl
beurteilt	1.80	Bü		C	3145/4	4.84	SR
geprüft				D	32278	185	Bl
nimmgr				E	32.415	2.85	BT



Darstellung Bauteilseite



ST 1
BU2, BU4, BU6, BU7, BU8 nach dem
Maschinenlöten auf Lötseite
handgelötet

Codierstift (FP 242.3597)
in BU1.1B und BU3.9A eingesetzt

ST 1 Stift 2 entfernen

B1-B3 sortiert nach HVC 255

Bearbeitungs-Hinweise

Vor dem Durchplattieren gebohrt								Nach dem Durchplattieren gebohrt								max. Bauhöhe Bauteils. Löts.								Versorg.-Nr				VG-Sachnr			
Folge	Legd	ϕ	Stück	Folge	Legd	ϕ	Stück	Zeichn.-Nr.	282.9415	oh																					
1		2,8	3		x	3,2	4	Leiterpl.-Nr.	282.9421	o. Z.	C																				
2		0,95	219			14,0	1	Lotseite	Leitungsfuhrg	DV 1	C																				
3		1,3	14						Lotstop	DV 21	C																				
									Beschriftung	DV 31																					
									gal Aufbau	DV 51																					
									Leitungsfuhrg	DV 4	C																				
									Lotstop	DV 24	C																				
									Beschriftung	DV 34																					
									gal Aufbau	DV 54																					
									Bohrsteuerung	LV	C																				
Aut	Man.	Summe	236	Aut	Man.	Summe	5																								

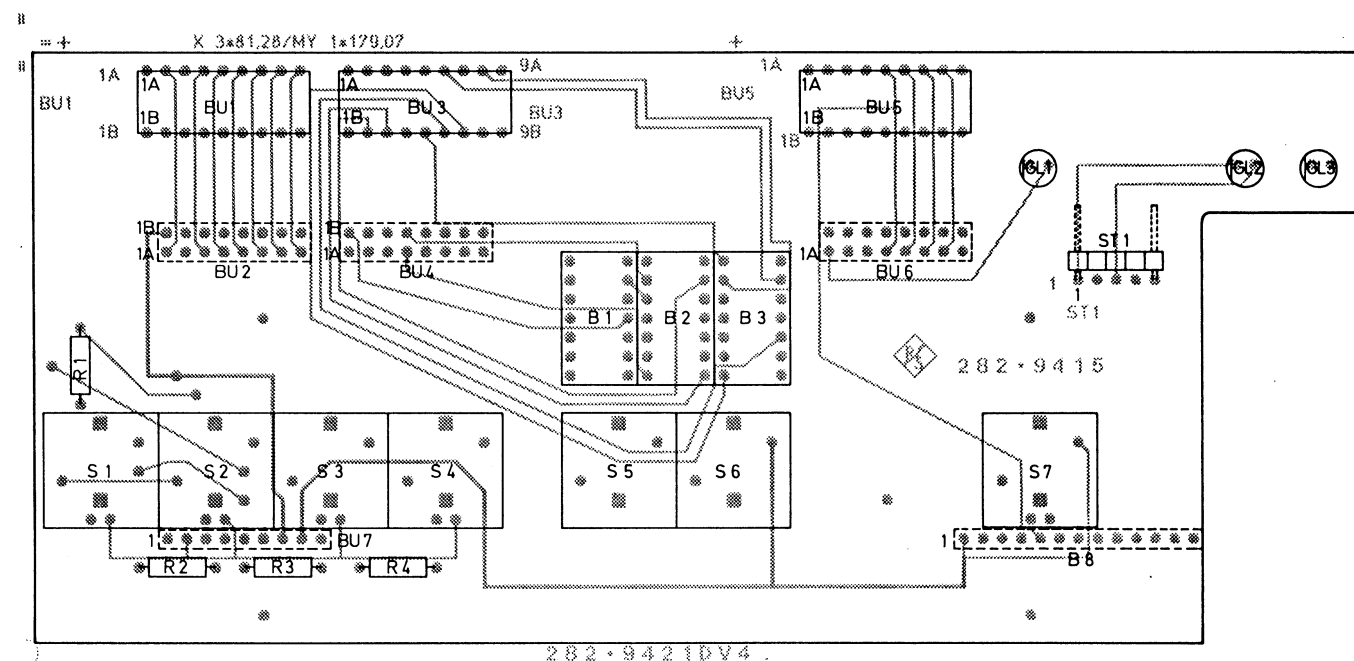
A	26836	1.81	BT	Maße ohne Toleranzangabe		Maßstab 1 : 1
B	27138	4.81	BT			
C	28272	1.82	BT			
D	30598	6.83	BT			
E	40320	5.88	BT			
07	50558	02.95	2x			

Tag	Name	Benennung
29.2.80	WL	Bedienplatte

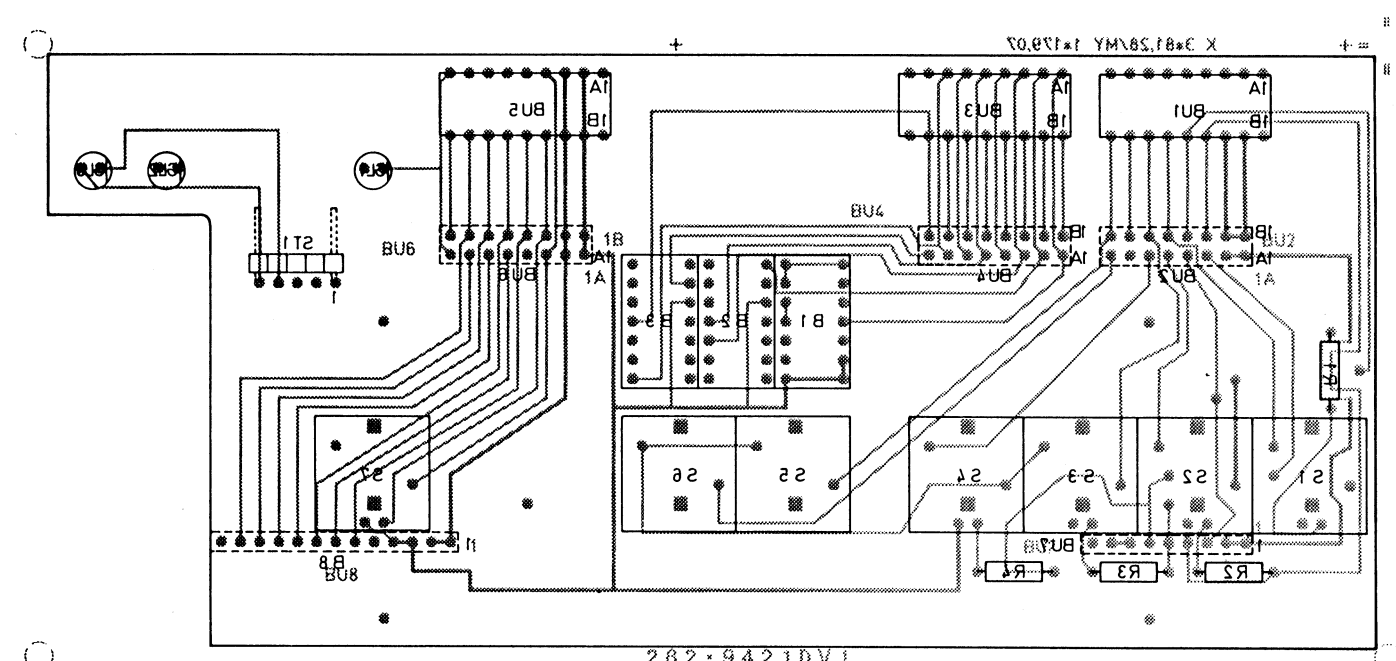
ROHDE & SCHWARZ MÜNCHEN	Zeichn.-Nr. 282.9415	Blatt-Nr. 1
zu Gerät. SUF 2	reg. i. V. 282.8819 V	erste Z.

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Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

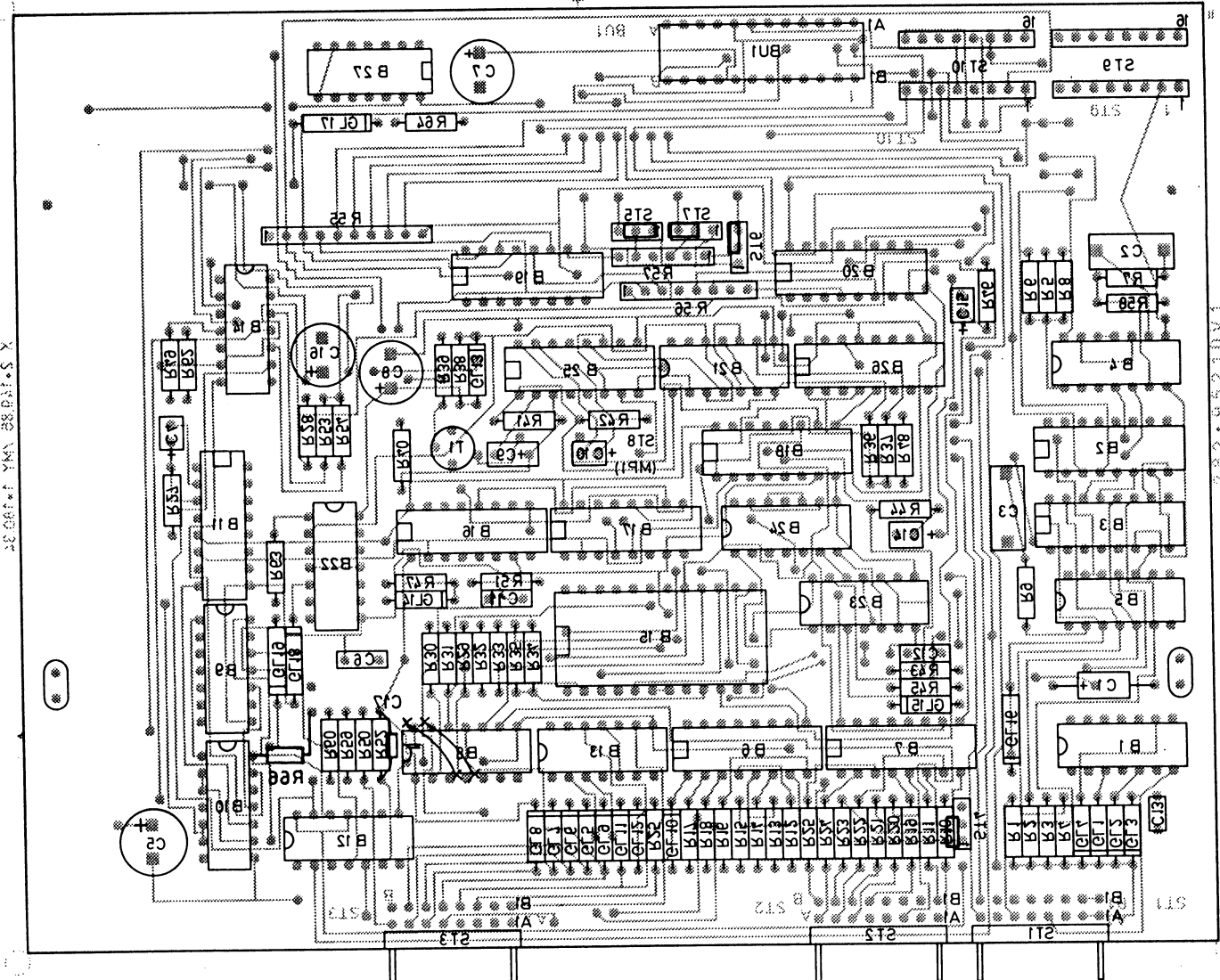



Ansicht und Leitungsführung Lötseite
View of tracks on solder side



Versorg.-Nr		Maße ohne Toleranzangabe		VG-Sachnr	
				Maßstab 1 : 1	
				Halbzeug, Werkstoff	
		1FME Tag Name		Benennung	
		Bearb 29.2.80 WL		Bedienplatte	
		Gepr			
		Norm			
		And. Zust		Zeichn.-Nr	
		Anderungs-Mitteilung		282.9415	
		Tag		Blatt-Nr	
		Name		2	
				v Bl	
		zu Gerät SUF2		reg. V 282.8819 V	
				erste Z	

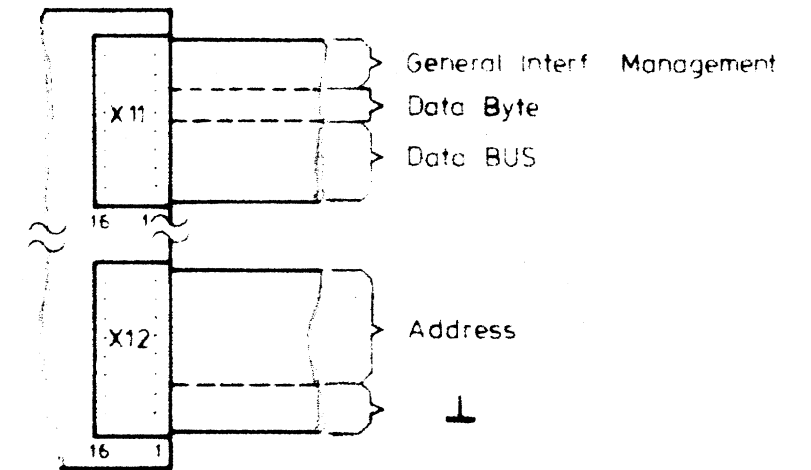
Ansicht und Leitungsführung Lötseite
View of tracks on solder side



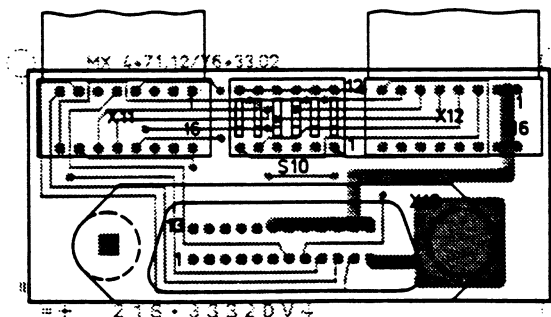
Versorg.-Nr.						VG-Sachnr				
F	27198	1.4.81		Maße ohne Toleranzangabe		Maßstab 1 : 1				
J	31193 (1)	10.83	BT			Halbzeug, Werkstoff				
K	31454	4.84	SR							
L	32 278	1.85	BT							
M	32 415	7.85	BT	1FME	Tag	Name	Benennung Digitalteil			
N	44 392	6.90	BT	Bearb	1.4.81					
				Gepr						
				Norm						
				 ROHDE & SCHWARZ MÜNCHEN			Zeichn.-Nr		Blatt-Nr	
							282.9515		2	
									v	
									Bl	
And Zust	Anderungs- Mitteilung	Tag	Name	zu Gerät SUF 2		reg i V. 282.8819 V		erste Z. 282.8819		

Do	Myne	And jiving in	Duration	Name
go 2 solid red				
3.81	BT			
from barbed				
paperfly				
from paper				

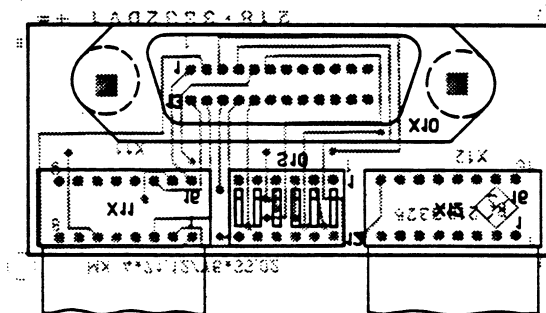
ROHDE & SCHWARZ · MÜNCHEN




Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side



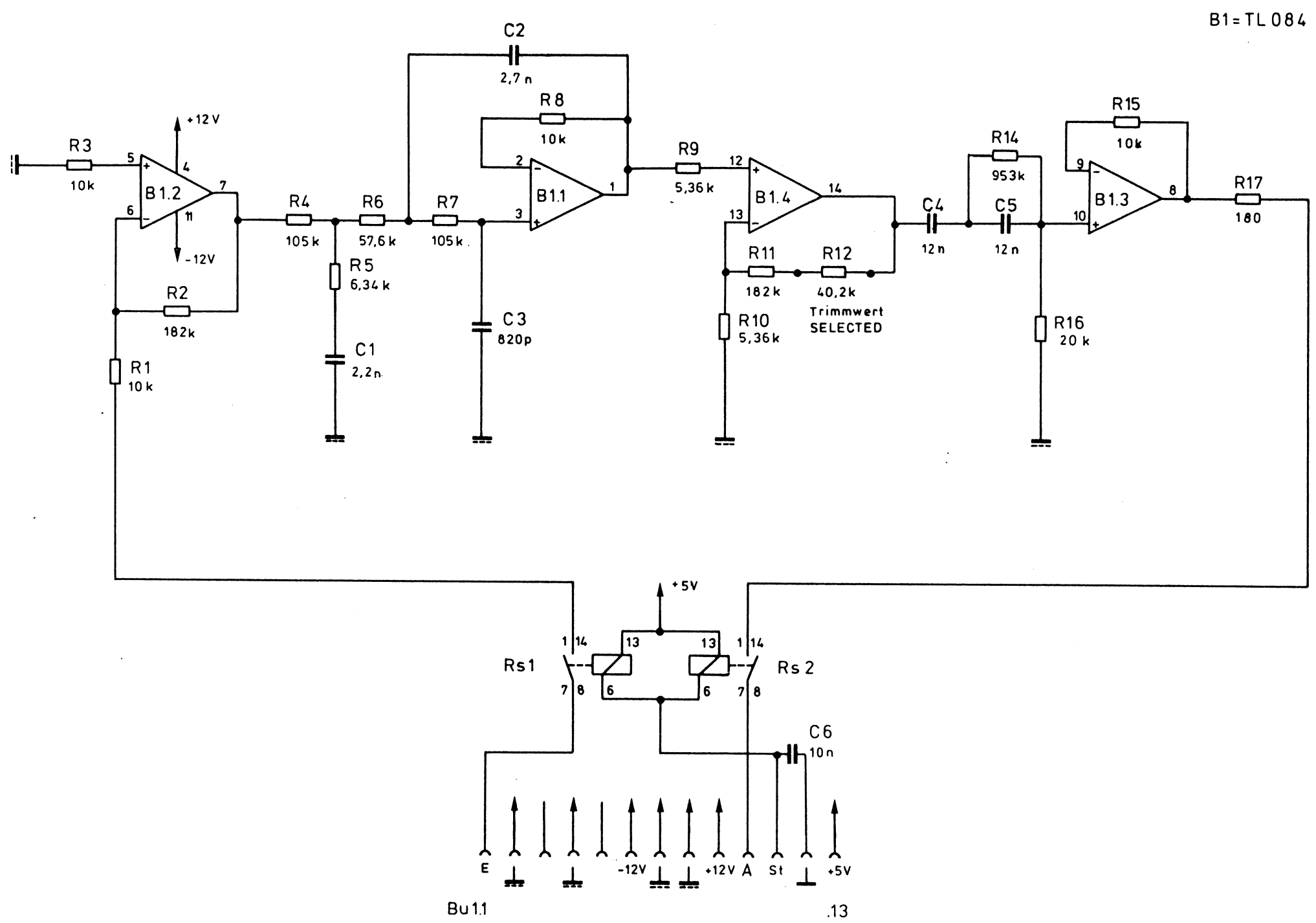
				Maße ohne Toleranzangabe		Maßstab 1 : 1			
						Halbzeug, Werkstoff			
				1FME	Tag	Name	Benennung		Z
				Bearb.	1.4.81	BT	IEC-625-Platte		
				Gepr.					
				Norm					
				 ROHDE & SCHWARZ			Zeichn.-Nr.		Blatt-Nr.
							218.3326		2
Änd. Zust.	Änderungs-Mitteilung	Tag	Name	zu Gerät SUF 2			reg. i. V.	218.3310 V	erste Z. 282.8919
									v. Bl.

	Name
	Datum
	And-Ming-Nr
	And-zust
	Name
	Datum
	And-Ming-Nr
	And-zust

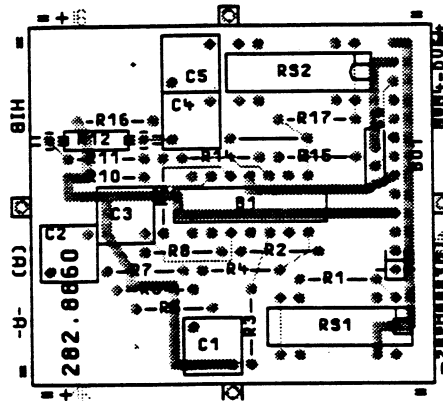
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ROHDE & SCHWARZ · MÜNCHEN

1FME	gezeichnet	Name
	bearbeitet	Ba
	geprüft	Bt
	normgepr	
	Datum	7.80



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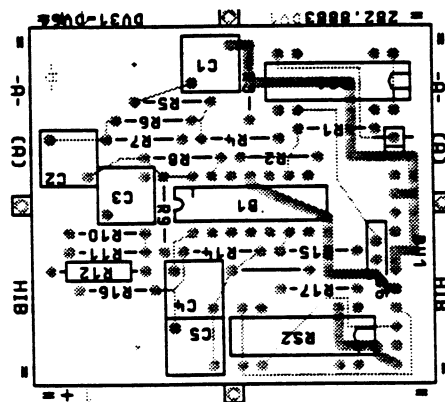



(Hierzu HVC 250)



ACHTUNG: EGB !
Elektrostatisch gefährdete
Bauelemente erfordern eine
besondere Handhabung.

ATTENTION ESD !
Electrostatic sensitive
devices require a special
handling.



A	42829	12.89	BT	Maße ohne Toleranzangabe	Maßstab 1 : 1	
					Halbzeug, Werkstoff	
		2KGB	Tag	Name	Benennung TELEFONIEKANALBELEGUNG	Z
		Bearb	12.89	BT		
		Gepr				
		Norm				
		 ROHDE & SCHWARZ	Zeichn.-Nr. 282.8860			Blatt-Nr. 2
Änd.	Änderungs-		Tag	Name	v 31	
Zust.	Mitteilung					
		zu Gerät	SUF 2	Leg. v	282.8819 V	erste Z

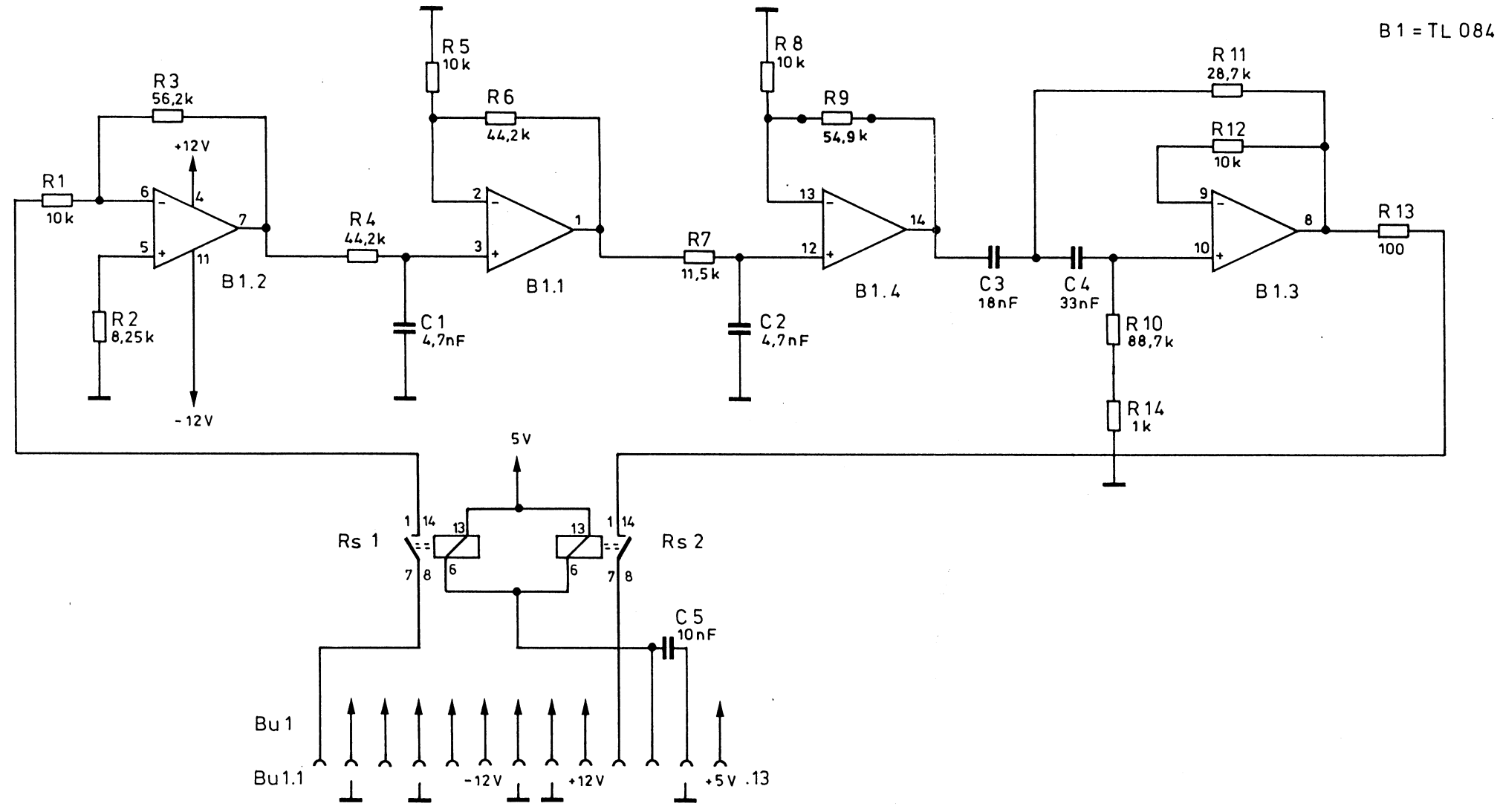
Name	Datum	And. Nr.	And. zust.

Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mitteilung an andere ist strafbar und Schadensersatzpflichtig.

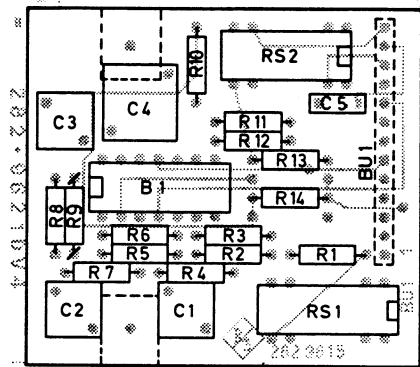
ROHDE & SCHWARZ · MÜNCHEN

Name	Datum	And. Nr.	And. zust.
BT	6.80	26229	A
Ba	1.80		
Bü			

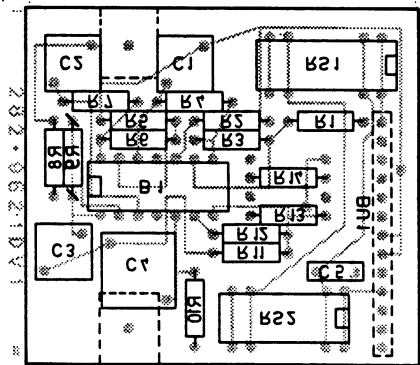
1 FME	gezeichnet	bearbeitet	geprüft	normgepr.




Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side



A	26 229	6.80	BT	Maße ohne Toleranzangabe		Maßstab 1 : 1			
A1	44 392	6.90	BT			Halbzeug, Werkstoff			
				1FME	Tag	Name	Benennung CCIR - REC - 559 Z		
				Bearb.	28.2.80	WL			
				Gepr.					
				Norm					
				 ROHDE & SCHWARZ		Zeichn.-Nr.		Blatt-Nr 2	
						282.9615			
Änd. Zust.	Änderungs- Mitteilung	Tag	Name	zu Gerät SUF 2		reg. i. V. 282.8819V		erste Z. 282.8819	v. Bl.

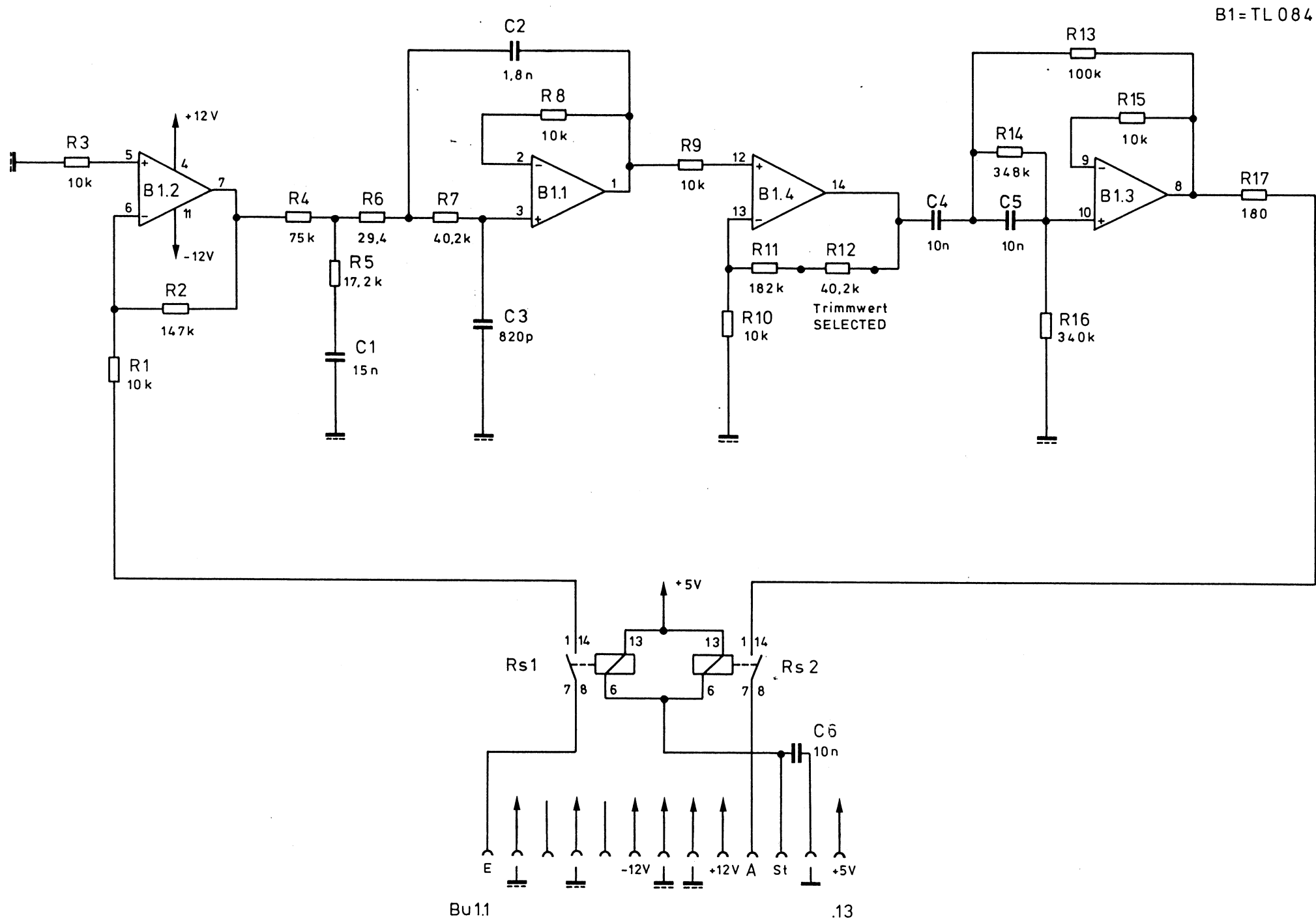
Name	Datum	And. Mitg. Nr.	And. zust.

Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mitteilung an andere ist strafbar und schadenersatzpflichtig.

ROHDE & SCHWARZ · MÜNCHEN

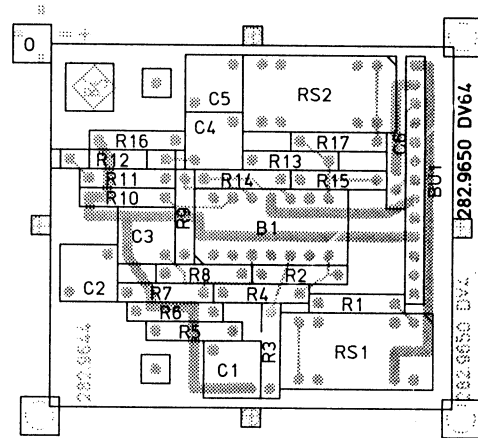
Name	Datum	And. Mitg. Nr.	And. zust.

gezeichnet	4	DP
bearbeitet	4.80	DP
geprüft		
normgepr		

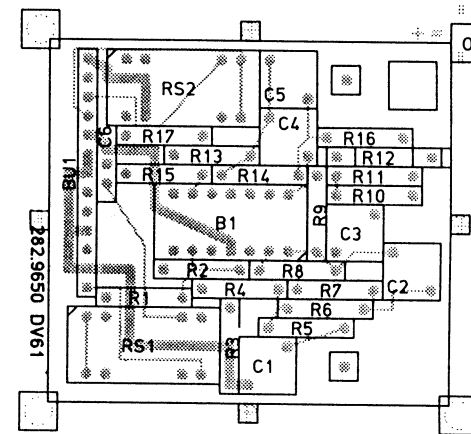


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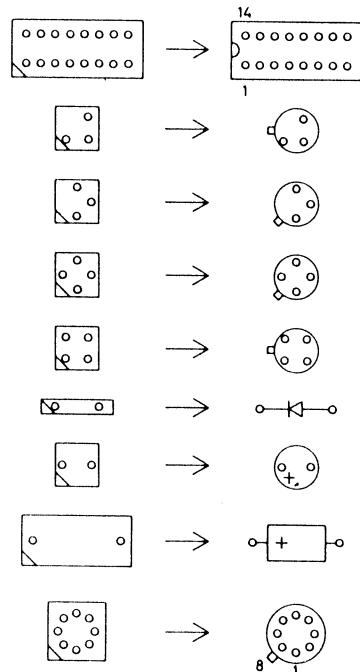
Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side



Symbolschlüssel



Versorg.-Nr.				Maße ohne Toleranzangabe		VG-Sachnr.	
						Maßstab 1 : 1	
						Halbzeug, Werkstoff	
				1FM Tag Name		Benennung	
				Bearb. 6.80 Dp		CCIR-REC-571-Filter	
				Gepr.			
				Norm			
				ROHDE & SCHWARZ MÜNCHEN		Zeichn.-Nr.	
						282.9644	
Änd. Zust.				Anderungs-Mitteilung		Blatt-Nr. 2	
Tag				Name		v. BI	
zu Gerät. SUF 2 - Z 5				reg. i. V. 282.8819 V		erste Z. 282.8819	

1

2

3

4

5

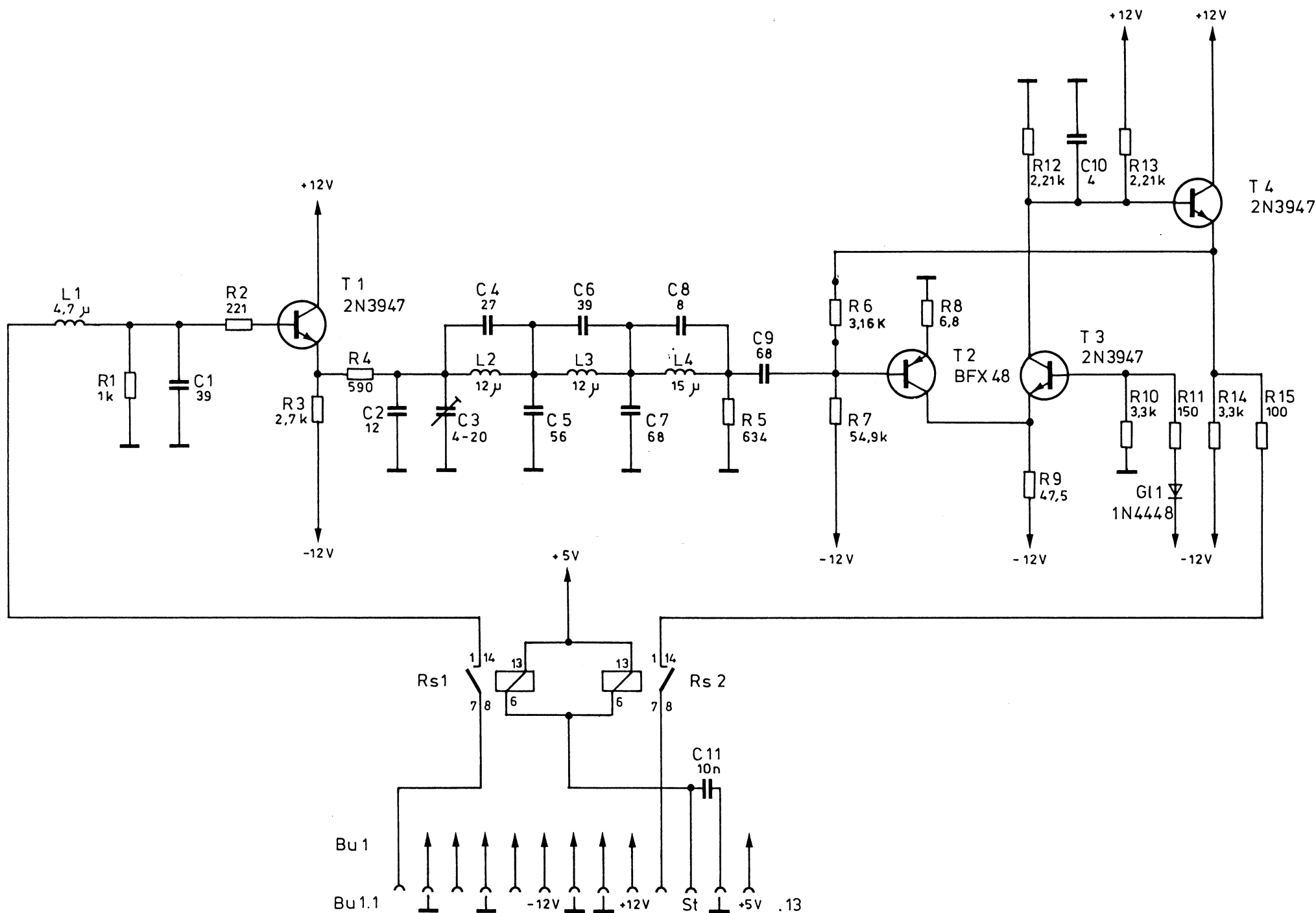
6

7

8

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unbefugte Verwertung, Mitteilung an andere ist
strafbar und schadenersatzpflichtig.

ROHDE & SCHWARZ · MÜNCHEN



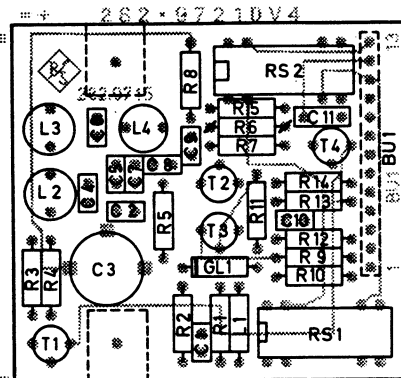
Stromlauf zu
DREIECKKRAUSCHEN

DREIECKKRAUSCHEN

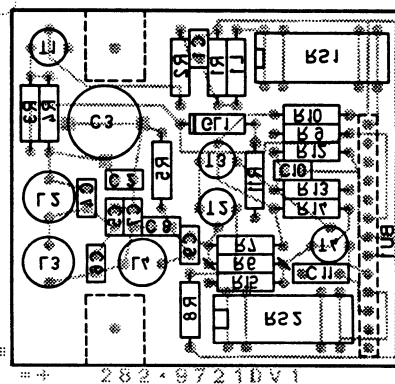
Zeichn. Nr. 282.9715 S

reg. i.V. 282.8819 V erste Z. 282.8819

Ansicht und Leitungsführung Bauteilseite View of tracks on component side



Ansicht und Leitungsführung Lötseite View of tracks on solder side



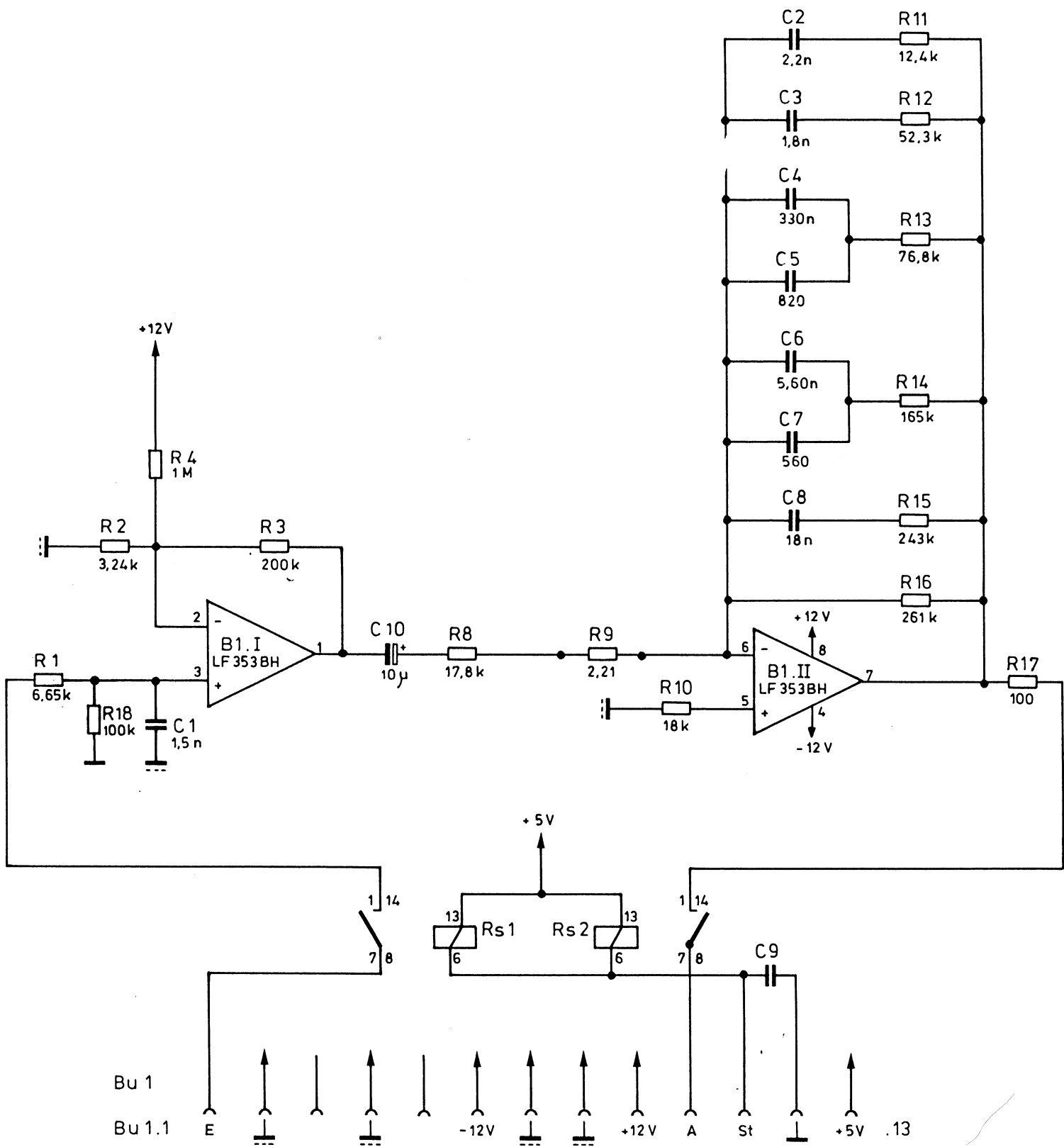
				Maße ohne Toleranzangabe		Maßstab 1 : 1	
						Habzeug, Werkstoff	
				1FME	Tag	Name	Benennung Dreiecksrauschen Z
				Bearb.	28.2.80	WL	
				Gepr.			
				Norm			
							Zeichn.-Nr. 282.9715
				zu Gerät SUF 2			
And. Zust.	Änderungs-Mitteilung		Tag	Name		Blatt-Nr. 2	
						v. Bl.	
				reg. i. V. 282.8819 V		erste Z. 282.8819	

Name	Datum	Änd.-Nr.	Änd.-Zust.

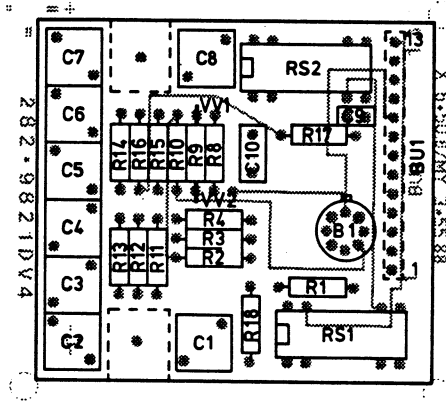
Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mitteilung an andere ist strafbar und Schadensersatzpflichtig.

ROHDE & SCHWARZ · MÜNCHEN

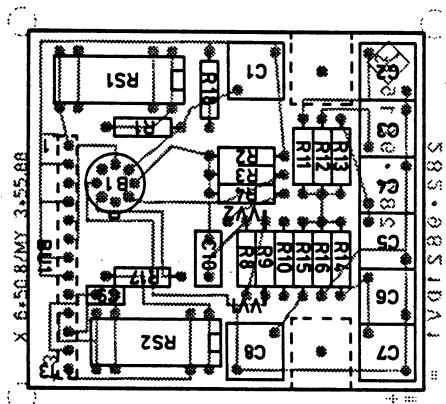
gezeichnet	Datum	Name	Änd.-Nr.	Änd.-Zust.	geprüft	Datum	Name
0	2.80	Ba					
2.80		Bü					



Ansicht und Leitungsführung Bauteilseite View of tracks on component side



Ansicht und Leitungsführung Lötseite View of tracks on solder side



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B	28272	20.1.82	BT	Maße ohne Toleranzangabe		Maßstab 1 : 1	
						Halbzeug, Werkstoff	
				1FME	Tag	Name	Benennung Y7 Rosa Rauschen
				Bearb.	20.1.82	BT	
				Gepr.			
				Norm			
						Zeichn.-Nr.	
						282.9815	
Änd. Zust.	Änderungs-Mitteilung	Tag	Name	zu Gerät SUF2		reg. i. V. 282.8819 V	erste Z. 282.8819
						Blatt-Nr. 2	
						v. Bl.	

