

TV Generators SGPF, SGSF, SGMF

Video generators for any application and all TV standards

With the three TV generators of the SG.F series for the traditional colour standards PAL, NTSC and SECAM, Rohde & Schwarz has the right unit for any location in the world and for any production, studio or service requirement:

SGPF for **PAL** SGSF for **SECAM** SGMF for **NTSC** The three instruments are of identical design and offer the same functions. Common features:

- More than 30 baseband signals available at the push of a button
- Selectable output amplitude
- Signal output on front and rear panel
- Remote control of all functions via IEC 625/IEEE 488 bus
- Insertion test signals included in every signal

- Insertion of external test signals into the field blanking interval or application of sweep signals to the active picture region
- Use as a test signal inserter with the genlock option fitted

The configuration of the field blanking interval can be freely programmed via DIP switches. Eight complete test signal configurations can be stored and recalled to suit any measurement task.





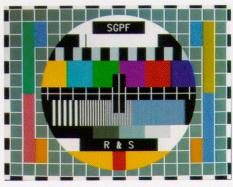
PAL

TV Generator SGPF

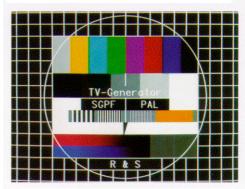
SGPF digitally generates a PAL composite colour video signal (CCVS) coded over the eight-field sequence with a resolution of 12 bits. Two LSI gate arrays convert the Y, C_B and C_R components into the digital CCVS which features an accurately defined colour-subcarrier/sync-pulse (SC/H) phase. For identification of the beginning of the eight-field sequence, the PAL identification pulse can be inserted into line 7 of the first field.

With the genlock option fitted, SGPF offers the possibility of inserting test signals into a program signal. If no program signal is available, the selected video test pattern is through-connected to the program output. The test signals numbering more than 30 comprise the following groups:

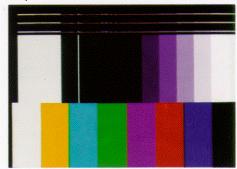
- Test pattern to German FuBK standard or general-purpose test pattern with optional source identification, crosshatch pattern and VTR signal
- CCIR insertion test signals
- Squarewave signals (50 Hz, 15 kHz, 250 kHz)
- Sawtooth signals
- Multipulse, H sweep, sin x/x and coring signals
- Black burst, vertical staircase, white field and bounce signals



General-purpose test pattern

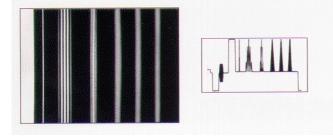


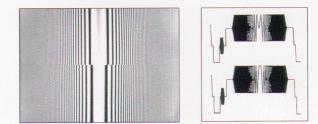
FuBK test pattern (optional) instead of general-purpose test pattern



VTR signal

Examples of test signals (from left to right): multipulse, H sweep, coring signal, sin x/x





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| Specifications | | Group delay error Differential gain | ≤5 ns (up to 5.5 MI ≤0.3% | Hz) |
|---|---|--|---|--------------------|
| | | Differential phase | ≤0.3° | |
| Level tolerances | | S/N ratio | | |
| Nominal luminance level (cal.) | 700 ±4 mV | (rms, weighted, 0.2 to 5 MHz) | ≥74 dB | |
| Nominal chrominance level (cal.) | 700 ±7 mV | Test signal insertion | | · 1 |
| Departure | | Level | same as generator | |
| at nominal 500 to 700 mV | ±1% | | – CAL (default oper – variable between | ation) |
| <500 mV | ±5 mV | | +40% of CAL (for | |
| Squarewave, staircase and | | | AGC circuits, etc) | lesing |
| sawtooth signals | nominal ±4 mV | Insertion range in 1 st field | lines 6 to 22 | |
| 2T pulse | nominal $\pm 5 \text{ mV}$ | in 2nd field | lines 319 to 335 | |
| 10T and 20T pulses | nominal ±7 mV | | | |
| Amplitude setting | on front panel or via IEC/IEEE | Manual setting | output amplitude, f | ield-repetitive/li |
| | bus between –50 and +40% of calibrated value | | repetitive operation | |
| | calibrated value | | sweep signal to act | ive picture reai |
| A | | | coding and selection | on of 8 test line |
| Amplitude/frequency response Multipulse, sweep signals | +0.1 dB (up to 5.5 MHz) | | blocks, front panel | |
| Multiburst | +0.1 dB (up to 5.8 MHz) | | of IEC/IEEE-bus ad | dress switch |
| | | | | |
| Group delay | | General data | | |
| 10T and 20T pulses | ≤5 ns (modulated with | Remote-control interface | acc. IEC 625-2 (IEE | E 488) |
| | frequencies ≤5 MHz) | Rated temperature range | +5 to +45°C | |
| | | Operating temperature range | 0 to +50°C | |
| Rise time (10 to 90%) and half-ampli | tude duration | Storage temperature range | –40 to +70°C | |
| Luminance rise time | 200±5 ns, 231±5 ns | Mechanical stress | C . 10011 | |
| Chrominance rise time | 300 ±10 ns, 1000 ±15 ns | Sinusoidal vibration | 5 to 150 Hz, max. | 2 g at 55 Hz, 0 |
| Half-amplitude duration 2T pulse | $200 \pm 5 \text{ ns}$ | | from 55 to 150 Hz | |
| 10T pulse | 1000 ±15 ns | Random vibration | EN61010, MIL-T-2 10 to 300 Hz, 1.2 | |
| 20T pulse | 2000 ±30 ns | Shock | shock spectrum 40 | g moote MILST |
| | | SHOCK | 810D and MIL-T-28 | 800 D class 3 a |
| Line-time nonlinearity | -0.00/ | Environmental stress | +25/+40°C, cycli | |
| 5-step staircase | ≤0.8% | Environmental siless | humidity, meets IEC | 68-2-30 |
| | | Electromagnetic compatibility | conforms to Europe | an FMC directi |
| Chrominance phase | 00% + 1% | 2.00.101.109.101.000.001.001.001.001 | (applicable standa | rds: EN 50 081 |
| Phase between R-Y and B-Y axes | 90° ±1° | | EN 50 082-1) | |
| Maximum departure of chrominance phase from nominal | ±2° | Power supply | 100/120/240 V - | +15/-10%, |
| chrominance phase from nominal | ±Ζ | 11 / | 230 V +10/-14% | |
| S/N ratio | | | 47 to 63 Hz (50 VA | \) |
| RMS, weighted, 0.2 to 5 MHz, | | Dimensions (W x H x D); weight | 450 mm x 59 mm x | k 510 mm; 6 kg |
| Measured on all-black picture | ≥74 dB | | | |
| on sawtooth signal | ≥70 dB | | | |
| 3 | | | | |
| Clock frame | sync frame and burst phase acc. | Ordering information | | |
| | CCIR Rep. 624.3 | ordering information | | |
| SC/H phase | 0° ±5° | | | |
| V component | can be switched off for special meas- | Order designation | | |
| | urements | TV Generator PAL | SGPF | 2016.4049 |
| | | | | |
| Inputs/outputs | BNC, 75 Ω | Accessories supplied: power cord, fus | ses, manual | |
| Return loss | ≥34 dB (up to 6 MHz) | | | |
| Sync pulse output EXT-VITS input | 2 V into 75 Ω | Options | | |
| | for insertion of external signals into test line region or for | Source Identification | | |
| | application of sweep signal to | (text in test pattern) | SG.F-B1 | 2016.1004 |
| | active picture region | Genlock with test signal insertion | | 001/ 107 |
| Connector | BNC, 75 Ω | (not as retrofit) | SGPF-B2 | 2016.4278 |
| Gain | 0 ±0.1 dB | FuBK Test Pattern instead of | | 2014 400 |
| Amplitude/frequency response | ±0.1 dB (up to 6 MHz) | general-purpose test pattern | SGPF-B3 | 2016.4284 |
| Differential gain | ≤0.3% | 16:9 Test Pattern instead of | SCIPERA | 2014 4200 |
| Differential phase | ≤0.3° | general-purpose test pattern | SGPF-B4 | 2016.4290 |
| | | Recommended extras | | |
| Option "genlock with test signal inse | ertion" | Junction Panel with bypass | | |
| for coupling the generator clock with | the sync pulse and burst of | (only together with SGPF-B2) | SG.F-Z | 2016.1679 |
| the applied CCVS to permit test sign | al insertion | 19" Adapter | ZZA-91 | 0396.4870 |
| | | ., , , , , , , , , , , , , , , , , , , | | 00,0.40/0 |
| Input/output Amplitude/frequency response | BNC, 75 Ω ±0.1 dB (up to 6 MHz) | Documentation of Calibration Values | SGDCV | 2082.0490 |

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SECAM

TV Generator SGSF

SGSF delivers video signals to SECAM standard in a twelve-field sequence with the (disconnectible) chrominance synchronization signals in the field blanking interval.

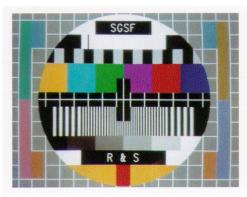
The genlock option permits insertion of test signals into a program signal. Moreover, it is possible to switch to a substitution signal in the case of program failure.

In addition to

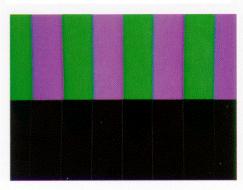
 the general-purpose test pattern with optional text insertion for source identification, the colour bars, crosshatch pattern, white, red, blue, green and black fields, a signal for chroma noise measurement and a test signal for chrominance-to-luminance delay, the following purely monochrome test signals are available:

- CCIR insertion test signals
- Multipulse, H sweep, sin x/x
- Squarewave signals (50 Hz, 15 kHz, 250 kHz, pulse-andbar signal)
- Sawtooth and staircase signals
- Pluge and coring signals
- Black field and bounce signals

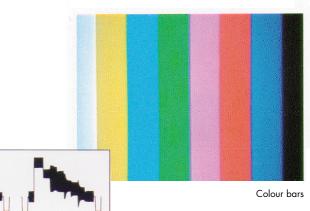
Thus it is possible to use the wellknown analyzers from Rohde & Schwarz for automatic SECAM measurements.



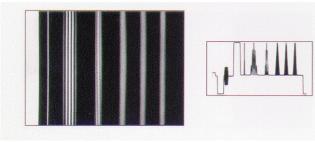
General-purpose test pattern

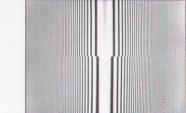


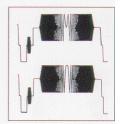
Combined signal



Examples of test signals (from left to right): multipulse, H sweep, sin x/x







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Specifications

Level tolerances

Squarewave, staircase and sawtooth signals 2T pulse 10T and 20T pulses Chrominance signals, departure at nominal 500 to 700 mV <500 mV Amplitude setting

Amplitude/frequency response Multipulse, sweep signals Multiburst

Group delay 10T and 20T pulses

Rise time (10 to 90%) and half-amplitude duration

Luminance rise time Rise time of 4.43 MHz components Half-amplitude duration 2T pulse 10T pulse

20T pulse Line-time nonlinearity

5-step staircase

SECAM colour coding

Tolerance of colour-difference signal preemphasis Tolerance of subcarrier preemphasis Waveforms

S/N ratio

RMS, weighted, 0.2 to 5 MHz Measured on all-black picture on sawtooth signal

Clock frame

V component

Inputs/outputs Return loss Sync pulse output EXT-VITS input

> Connector Gain Amplitude/frequency response Differential gain Differential phase

Option "genlock with test signal insertion"

for coupling the generator clock with the sync pulse of the applied CCVS to permit test signal insertion Input/output **Return** loss Amplitude/frequency response Group delay error

nominal ±4 mV nominal ±5 mV nominal ±7 mV

+1% ±5 mV on front panel or via IEC/IEEE bus between -50 and +40% of calibrated value

±0.1 dB (up to 5.5 MHz) ±0.1 dB (up to 5.8 MHz)

≤5 ns (modulated with frequencies ≤5 MHz)

200 ±5 ns, 231 ±5 ns 300 ±10 ns, 1000 ±15 ns $200\pm 5 \text{ ns}$

1000 +1.5 ns 2000 ±30 ns

≤0.8%

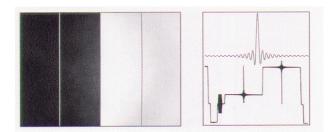
±0.2 dB ±0.15 dB acc. CCIR Rep. 624-3

≥74 dB ≥70 dB

> sync frame and colour subcarrier D_R and D_B acc. CCIR Rep. 624-3 can be switched off for special measurements

BNC, 75 Ω \geq 34 dB (up to 6 MHz) 2 V into 75 Ω for insertion of external signals into test line region or for application of sweep signal to active picture region BNC, 75 Ω 0 ±0.1 dB ±0.1 dB (up to 6 MHz) ≤0.3% <0.3°

BNC, 75 Ω ≥34 dB (up to 6 MHz) ±0.1 dB (up to 6 MHz) ≤5 ns (up to 5.5 MHz)



Differential gain Differential phase S/N ratio (rms, weighted, 0.2 to 5 MHz) Test signal insertion Level

Insertion range in 1st field 2nd field Identification signals of applied CCVS

Manual settings

General data

Remote-control interface Rated temperature range Operating temperature range Storage temperature range Mechanical stress Sinusoidal vibration

Random vibration Shock

Environmental stress

Electromagnetic compatibility

Power supply

Service Manual

Dimensions (W x H x D); weight

Ordering information

| Order designation TV Generator SECAM | SGSF | 2016.7048.03 | | | |
|---|---------|--------------|--|--|--|
| Accessories supplied: power cord, fuses, manual | | | | | |
| Options Source Identification | | | | | |
| (text in test pattern) | SG.F-B1 | 2016.1004.02 | | | |
| Genlock with test signal insertion (not as retrofit) | SGSF-B2 | 2016.7190.02 | | | |
| French Front Panel (not as retrofit) | SGSF-B3 | 2016.7225.02 | | | |
| Recommended extras | | | | | |
| Junction Panel with bypass | | | | | |
| (only together with SGSF-B2) | SG.F-Z | 2016.1679.02 | | | |
| 19″ Adapter | ZZA-91 | 0396.4870.00 | | | |
| Documentation of Calibration Values | SGDCV | 2082.0490.04 | | | |

- variable between -50 and +40% of CAL (for testing AGC circuits, etc) lines 6 and 16 to 22 lines 319 and 329 to 335

same as generator signal:

≤0.3% ≤0.3°

≥74 dB

in lines 7 to 15 and 320 to 328, can be replaced by all-black line or other signal

output amplitude, field-repetitive/linerepetitive operation, application of sweep signal to active picture region, coding and selection of 8 test line blocks, front panel disabled by 6th bit of IEC/IEEE-bus address switch

acc. IEC625-2 (IEEE488) +5 to +45°C 0 to +50°C -40 to +70°C 5 to150 Hz, max. 2 g at 55 Hz, 0.5g from 55 to 150 Hz, meets IEC68-2-6, EN61010, MIL-T-28800 D class 5 10 to 300 Hz, 1.2 g rms shock spectrum 40 g, meets MIL-STD-810D and MIL-T-28800 D class 3 and 5 +25/+40 °C, cyclic, at 95% rel. humidity, meets IEC68-2-30 conforms to European EMC directives (applicable standards: EN 50 081-1, EN 50 082-1) 100/120/240 V +15/–10%, 230 V +10/–14%,

47 to 63 Hz (50 VA) 450 mm x 59 mm x 510 mm; 6 kg

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NTSC

TV Generator SGMF

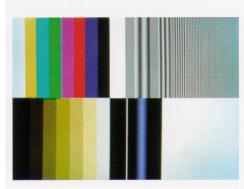
SGMF produces NTSC baseband signals of studio quality complying with the stringent requirements of the RS-170 A standard as regards SC/H phase, burst timing reference and burst width. It is possible to insert the NTSC identification pulse into the first field of the NTSC sequence.

Over 30 video signals are available:

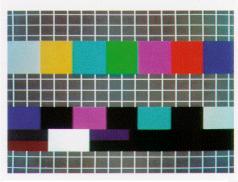
- General-purpose test pattern with optional source identification as well as different, combined test signals for adjusting convergence, brightness and colour during monitor setup
- NTC7 and FCC test signals
- Crosshatch-and-dot pattern

- Signals for measuring amplitude and group delay responses (multiburst, multipulse, H sweep, sin x/x)
- Squarewave signals (bounce, 60 Hz, 15 kHz, 250 kHz, pulse-and-bar signal)
- Ramp and staircase signals
- Colour bar signal and red field
- Special signals (pluge, coring, VIRS, eye test) and black burst

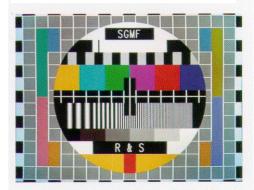
Using the genlock option it is possible to insert any of these signals into the field blanking interval of a program signal. All generator functions including level setting can be remote-controlled via the IEC/IEEE bus.



System test pattern

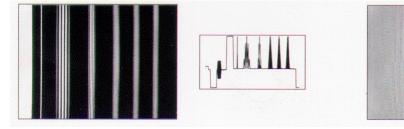


Monitor setup pattern



General-purpose test pattern

Examples of test signals (from left to right): multipulse, H sweep, coring signal, $\sin x/x$

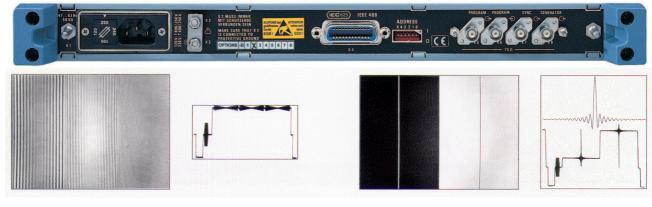




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| Specifications | | Amplitude/frequency response Group delay error Differential gain | ±0.1 dB (up to 6 Mł ≤5 ns (up to 6 MHz) ≤0.3% | |
|---------------------------------------|---|--|--|-----------------|
| Level tolerances | | Differential phase | ≤0.3° | |
| Nominal luminance level (cal.) | 714 ±4 mV | S/N ratio | >7/ ID | |
| Nominal chrominance level (cal.) | 714 ±7 mV | (rms, weighted, 0.2 to 4.2 MHz) | ≥74 dB | |
| Departure | | Test signal insertion | into lines 10 to 21 c | t both fields |
| at nominal 500 to 714 mV | ±1% | | | |
| <500 mV | ±5 mV | Manual setting | output amplitude, fie | |
| Squarewave, staircase and | | | repetitive operation | |
| sawtooth signals | nominal ±4 mV | | sweep signal to acti | |
| 2T pulse | nominal ±5 mV | | coding and selection | |
| 12.5T pulse | nominal ±7 mV | | blocks, front panel c | |
| Amplitude setting | on front panel or via IEC/IEEE | | of IEC/IEEE-bus add | lress switch |
| , anphilode senning | bus between -50 and +40% of | | | |
| | calibrated value | General data | | |
| | | Remote-control interface | acc. IEC 625-2 (IEEI | E 488) |
| A multitude /free more a second | | Rated temperature range | +5 to +45°C | |
| Amplitude/frequency response | | Operating temperature range | 0 to +50°C | |
| Multipulse, multiburst, sweep signals | ± 0.1 dB (up to 5.5 MHz) | Storage temperature range | -40 to +70°C | |
| A 11 | | Mechanical stress | | |
| Group delay | | Sinusoidal vibration | 5 to150 Hz, max. 2 | a at 55 Hz 0 5a |
| 12.5T pulses | ≤5 ns | | from 55 to 150 Hz, | |
| | | | EN61010, MIL-T-28 | |
| Rise time (10 to 90%) and half-ampli | | Random vibration | 10 to 300 Hz, 1.2 g | |
| Sync rise time | 140 ±5 ns | Shock | shock spectrum 40 g | |
| Luminance rise time | 125 ±5 ns, 250 ±5 ns | SHOCK | | |
| Half-amplitude duration | | E : | 810D and MIL-T-288 | |
| 2T pulse | 250 ±5 ns | Environmental stress | +25/+40 °C, cyclic | |
| 12.5T pulse | 1570 ±5 ns | El a se adata | humidity, meets IEC | |
| Chrominance rise time | 300 ±10ns, 1000 ±10 ns | Electromagnetic compatibility | conforms to Europed (applicable standard | |
| Line-time nonlinearity | | Davisa and i | EN 50 082-1) | 15/ 10% |
| 5-step staircase | ≤0.8% | Power supply | 100/120/240 V + 230 V +10/-14%, 47 to 63 Hz (50 VA | |
| S/N ratio | | Dimensions (W x H x D); weight | 450 mm x 59 mm x | |
| RMS, weighted, 0.2 to 4.2 MHz | | Dimensions (w x H x D), weight | 4JU IIIII X J9 IIIII X | 510 mm, 0 kg |
| Measured on all-black picture | ≥74 dB | | | |
| on sawtooth signal | ≥70 dB | | | |
| | | | | |
| Clock frame | standard coupling with stable | Ordering information | | |
| | SC/H phase (to RS-170 A) | 0 | | |
| V component | can be switched off for special | | | |
| | measurements | Order designation | | |
| | | TV Generator NTSC | SGMF | 2016.0943.03 |
| Inputs/outputs | BNC, 75 Ω | | | |
| Return loss | ≥34 dB (up to 6 MHz) | Accessories supplied: power cord, fus | ses manual | |
| Sync pulse output | 2 V into 75 Ω | · · · · · · · · · · · · · · · · · · · | , | |
| EXT-VITS input | for insertion of external signals | Options | | |
| | into test line region or for | Source Identification | | |
| | application of sweep signal to | (text in test pattern) | SG.F-B1 | 2016.1004.02 |
| | active picture region | Genlock with test signal insertion | 00.1-01 | 2010.1004.02 |
| Connector | BNC, 75 Ω | (not as retrofit) | SGMF-B2 | 2016.1185.02 |
| Gain | 0 ±0.1 dB | (nor us renonity | | 2010.1103.02 |
| Amplitude/frequency response | ±0.1 dB (up to 6 MHz) | Recommended extras | | |
| Differential gain | ≤0.3% | Junction Panel with bypass | | |
| Differential phase | ≤0.3° | | SG.F-Z | 2016.1679.02 |
| | | (only together with SGMF-B2) 19" Adapter | SG.F-Z ZZA-91 | |
| Option "genlock with test signal inse | rtion" | Documentation of Calibration Values | | 0396.4870.00 |
| | the sync pulse and colour subcarrier of | | J.J.J.V.Y | 2082.0490.04 |
| the applied CCVS to permit test sign | | Service Manual | | 2016.1104.24 |

for coupling the generator clock with the sync pulse and colour subcarrier of the applied CCVS to permit test signal insertion Input/output $BNC, 75 \Omega$



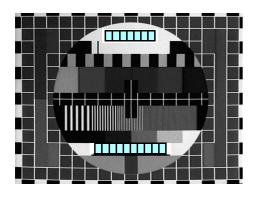
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www.valuetronics.com

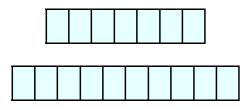
Rear panel of TV Generators SG.F

Ordering information for Source Identification option SG.F-B1

General-purpose test pattern

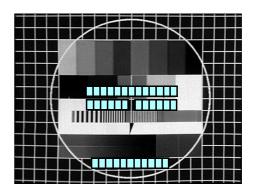


Source identification:

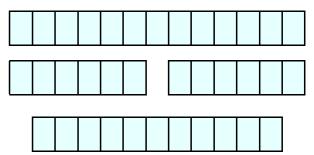


Together with the 16:9 test pattern (option SGPF-B4) the length of each text field decreases by one character

FuBK test pattern (only together with SGPF-B3)



Source identification:



Certified Quality System

Others:

Fax Reply (TV Generators SGPF, SGSF, SGMF)

| Please send me an offer | Name: |
|---|---|
| I would like a demo | Company/ Department: |
| Please call me | Position:Address: |
| I would like to receive your free-of- charge CD-ROM catalog (Test&Measurement Products) | Country: Telephone: Fax: E-mail: |



ROHDE&SCHWARZ GmbH & Co. KG · Mühldorfstraße 15 · D-81671 München · P.O.B. 801469 · D-81614 München · Telephone +49894129-0 Internet: http://www.rsd.de · CustomerSupport: Tel. +491805124242, Fax +4989 4129-3777, E-mail: CustomerSupport@rsd.rsd.de

Printed in Germany 299 (U sz)