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.

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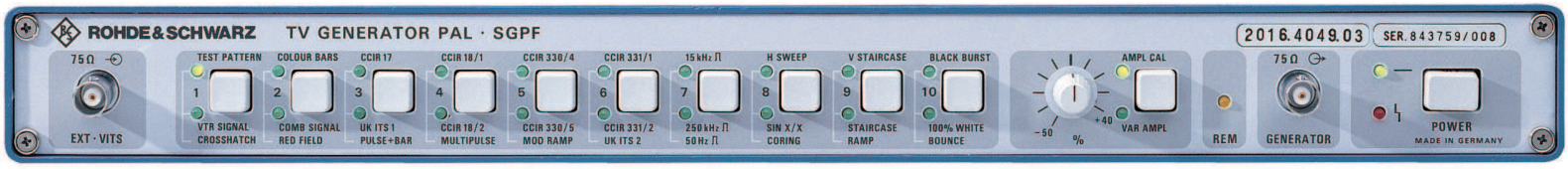


PAL

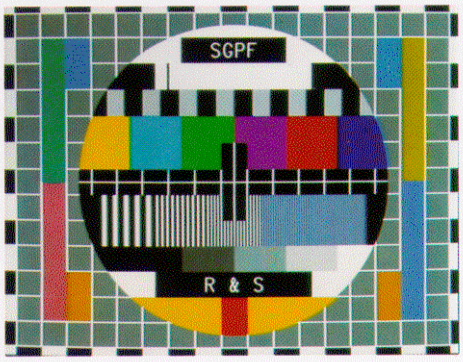
TV Generator SGPF

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.

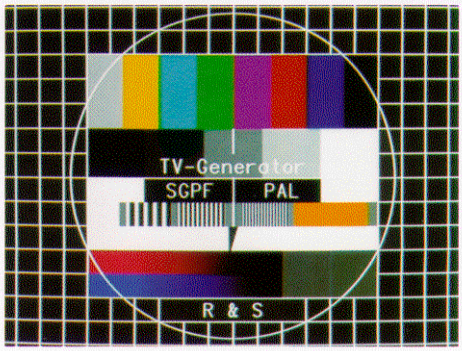
With the genlock option fitted, SGPF offers the possibility of inserting test signals into a program signal. If no program signal is available, the selected video test pattern is through-connected to the program output.

The test signals numbering more than 30 comprise the following groups:

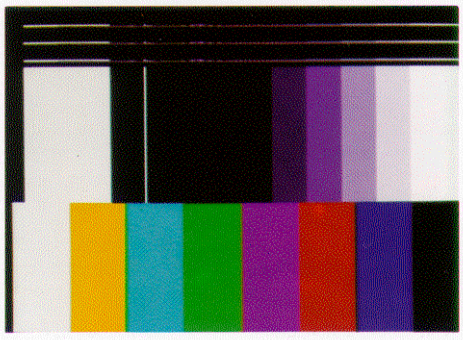
- Test pattern to German FuBK standard or general-purpose test pattern with optional source identification, crosshatch pattern and VTR signal
- CCIR insertion test signals
- Squarewave signals (50 Hz, 15 kHz, 250 kHz)
- Sawtooth signals
- Multipulse, H sweep, sin x/x and coring signals
- Black burst,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



General-purpose test pattern

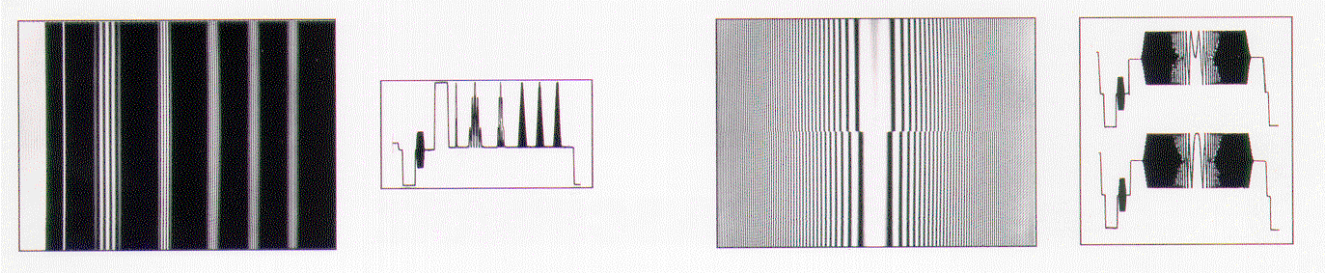


FuBK test pattern (optional) instead of general-purpose test pattern



VTR signal

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



Specifications

Level tolerances

Nominal luminance level (cal.)	700 ±4 mV
Nominal chrominance level (cal.)	700 ±7 mV
Departure	
at nominal 500 to 700 mV	±1%
<500 mV	±5 mV
Squarewave, staircase and sawtooth signals	nominal ±4 mV
2T pulse	nominal ±5 mV
10T and 20T pulses	nominal ±7 mV
Amplitude setting	on front panel or via IEC/IEEE bus between –50 and +40% of calibrated value

Amplitude/frequency response

Multipulse, sweep signals	+0.1 dB (up to 5.5 MHz)
Multiburst	+0.1 dB (up to 5.8 MHz)

Group delay

10T and 20T pulses	≤5 ns (modulated with frequencies ≤5 MHz)

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

Luminance rise time		200 ± 5 ns, 231 ±5 ns
Chrominance rise time		300 ±10 ns, 1000 ±15 ns
Half-amplitude duration	2T pulse	200 ± 5 ns
	10T pulse	1000 ±15 ns
	20T pulse	2000 ±30 ns

Line-time nonlinearity

5-step staircase	≤0.8%

Chrominance phase

Phase between R-Y and B-Y axes	90° ±1°
Maximum departure of chrominance phase from nominal	±2°

S/N ratio

RMS, weighted, 0.2 to 5 MHz,	
Measured on all-black picture	≥74 dB
on sawtooth signal	≥70 dB

Clock frame	sync frame and burst phase acc. CCIR Rep. 624.3
SC/H phase	0° ±5°
V component	can be switched off for special measurements

Inputs/outputs	BNC, 75 Ω
Return loss	≥34 dB (up to 6 MHz)
Sync pulse output	2 V into 75 Ω
EXT-VITS input	for insertion of external signals into test line region or for application of sweep signal to active picture region
Connector	BNC, 75 Ω
Gain	0 ±0.1 dB
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°

Option "genlock with test signal insertion"
for coupling the generator clock with the sync pulse and burst of the applied CCVS to permit test signal insertion

Input/output	BNC, 75 Ω
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Group delay error	≤5 ns (up to 5.5 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°
S/N ratio (rms, weighted, 0.2 to 5 MHz)	≥74 dB
Test signal insertion	
Level	same as generator signal: – CAL (default operation) – variable between –50 and +40% of CAL (for testing AGC circuits, etc)
Insertion range in 1st field	lines 6 to 22
in 2nd field	lines 319 to 335

Manual setting	output amplitude, field-repetitive/line-repetitive 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

General data

Remote-control interface	acc. IEC 625-2 (IEEE 488)
Rated temperature range	+5 to +45°C
Operating temperature range	0 to +50°C
Storage temperature range	–40 to +70°C
Mechanical stress	
Sinusoidal vibration	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
Random vibration	10 to 300 Hz, 1.2 g rms
Shock	shock spectrum 40 g, meets MIL-STD-810D and MIL-T-28800 D class 3 and 5
Environmental stress	+25/+40°C, cyclic, at 95% rel. humidity, meets IEC68-2-30
Electromagnetic compatibility	conforms to European EMC directives (applicable standards: EN 50 081-1, EN 50 082-1)
Power supply	100/120/240 V +15/–10%, 230 V +10/–14%, 47 to 63 Hz (50 VA)
Dimensions (W x H x D); weight	450 mm x 59 mm x 510 mm; 6 kg

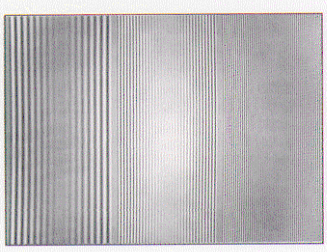
Ordering information

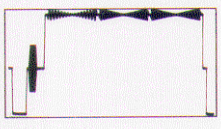
Order designation		
TV Generator PAL	SGPF	2016.4049.03

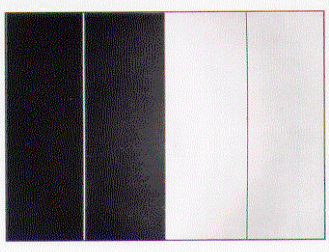
Accessories supplied: power cord, fuses, manual

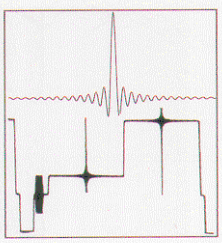
Options		
Source Identification (text in test pattern)	SG.F-B1	2016.1004.02
Genlock with test signal insertion (not as retrofit)	SGPF-B2	2016.4278.02
FuBK Test Pattern instead of general-purpose test pattern	SGPF-B3	2016.4284.02
16:9 Test Pattern instead of general-purpose test pattern	SGPF-B4	2016.4290.02

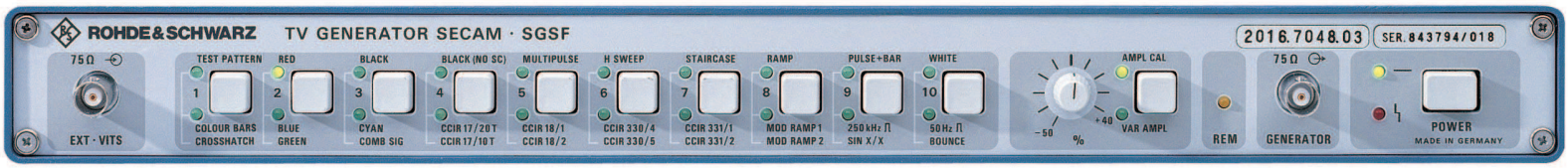
Recommended extras		
Junction Panel with bypass (only together with SGPF-B2)	SG.F-Z	2016.1679.02
19" Adapter	ZZA-91	0396.4870.00
Documentation of Calibration Values	SG.-DCV	2082.0490.04
Service Manual		2016.4149.24











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.

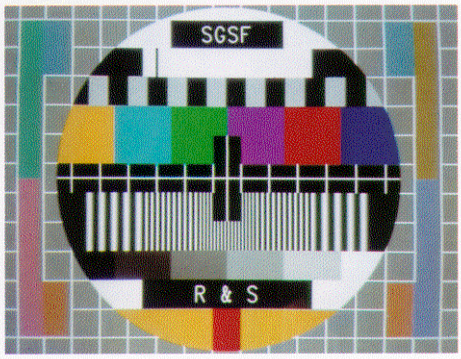
In addition to

- 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,

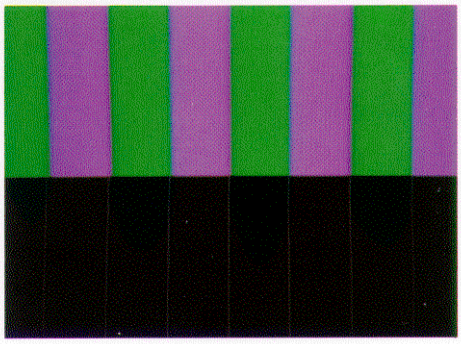
the following purely monochrome test signals are available:

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

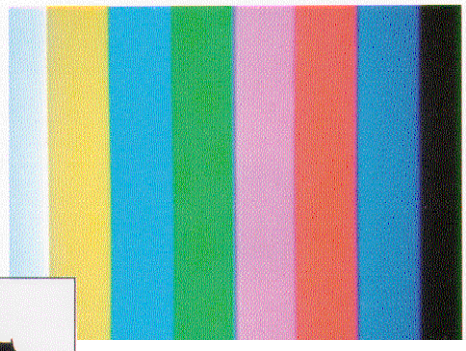
Thus it is possible to use the well-known analyzers from Rohde & Schwarz for automatic SECAM measurements.



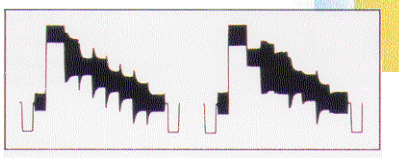
General-purpose test pattern



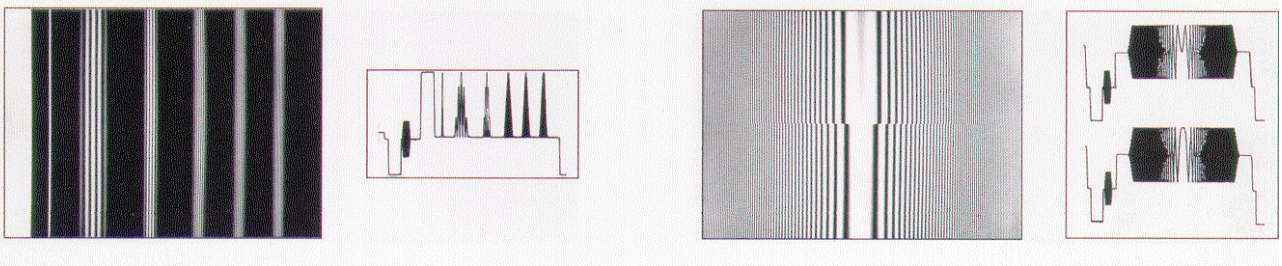
Combined signal



Colour bars



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



Specifications

Level tolerances

Squarewave, staircase and sawtooth signals	nominal ±4 mV
2T pulse	nominal ±5 mV
10T and 20T pulses	nominal ±7 mV
Chrominance signals, departure	
at nominal 500 to 700 mV	±1%
<500 mV	±5 mV
Amplitude setting	on front panel or via IEC/IEEE bus between –50 and +40% of calibrated value

Amplitude/frequency response

Multipulse, sweep signals	±0.1 dB (up to 5.5 MHz)
Multiburst	±0.1 dB (up to 5.8 MHz)

Group delay

10T and 20T pulses	≤5 ns (modulated with frequencies ≤5 MHz)

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

Luminance rise time	200 ±5 ns, 231 ±5 ns
Rise time of 4.43 MHz components	300 ±10 ns, 1000 ±15 ns
Half-amplitude duration	
2T pulse	200 ±5 ns
10T pulse	1000 ±15 ns
20T pulse	2000 ±30 ns

Line-time nonlinearity

5-step staircase	≤0.8%

SECAM colour coding

Tolerance of colour-difference signal preemphasis	±0.2 dB
Tolerance of subcarrier preemphasis	±0.15 dB
Waveforms	acc. CCIR Rep. 624-3

S/N ratio

RMS, weighted, 0.2 to 5 MHz	
Measured on all-black picture	≥74 dB
on sawtooth signal	≥70 dB

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

Inputs/outputs	BNC, 75 Ω
Return loss	≥34 dB (up to 6 MHz)
Sync pulse output	2 V into 75 Ω
EXT-VITS input	for insertion of external signals into test line region or for application of sweep signal to active picture region
Connector	BNC, 75 Ω
Gain	0 ±0.1 dB
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°

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	BNC, 75 Ω
Return loss	≥34 dB (up to 6 MHz)
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Group delay error	≤5 ns (up to 5.5 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°
S/N ratio (rms, weighted, 0.2 to 5 MHz)	≥74 dB
Test signal insertion	
Level	same as generator signal: – CAL (default operation) – variable between –50 and +40% of CAL (for testing AGC circuits, etc)
Insertion range in 1st field	lines 6 and 16 to 22
2nd field	lines 319 and 329 to 335
Identification signals of applied CCVS	in lines 7 to 15 and 320 to 328, can be replaced by all-black line or other signal

Manual settings	output amplitude, field-repetitive/line-repetitive 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

General data

Remote-control interface	acc. IEC 625-2 (IEEE 488)
Rated temperature range	+5 to +45 °C
Operating temperature range	0 to +50 °C
Storage temperature range	–40 to +70 °C
Mechanical stress	
Sinusoidal vibration	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
Random vibration	10 to 300 Hz, 1.2 g rms
Shock	shock spectrum 40 g, meets MIL-STD-810D and MIL-T-28800 D class 3 and 5
Environmental stress	+25/+40 °C, cyclic, at 95% rel. humidity, meets IEC68-2-30
Electromagnetic compatibility	conforms to European EMC directives (applicable standards: EN 50 081-1, EN 50 082-1)
Power supply	100/120/240 V +15/–10%, 230 V +10/–14%, 47 to 63 Hz (50 VA)
Dimensions (W x H x D); weight	450 mm x 59 mm x 510 mm; 6 kg

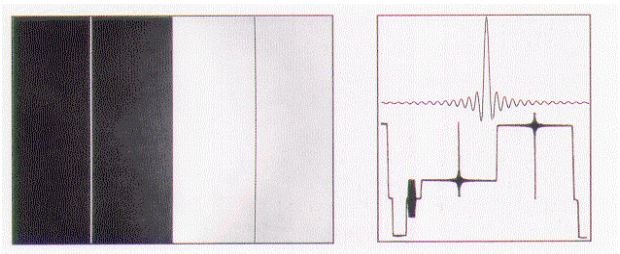
Ordering information

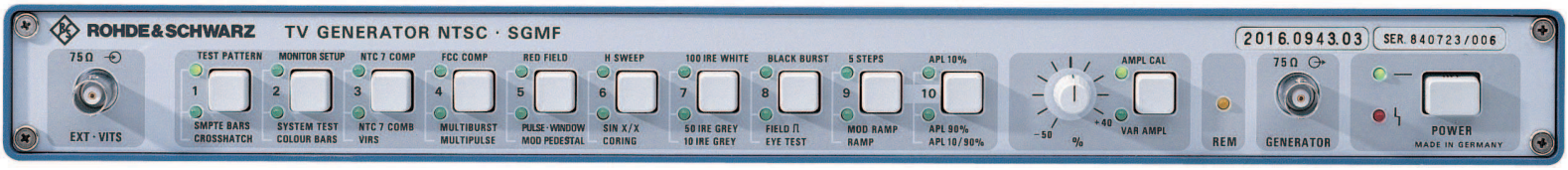
Order designation		
TV Generator SECAM	SGSF	2016.7048.03

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	SG.-DCV	2082.0490.04
Service Manual		2016.7148.24





NTSC

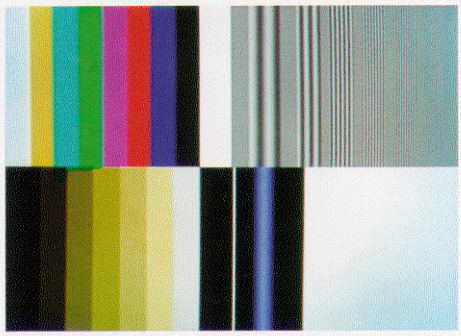
TV Generator SGMF

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.

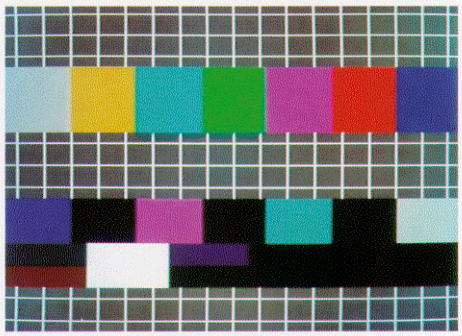
Over 30 video signals are available:

- 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

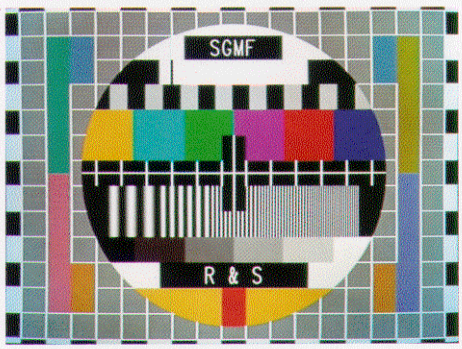
Using the genlock option it is possible to insert any of these signals into the field blanking interval of a program signal. All generator functions including level setting can be remote-controlled via the IEC/IEEE bus.



System test pattern

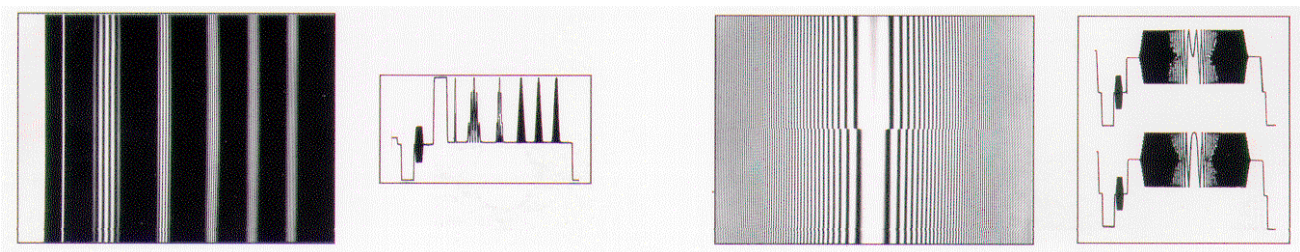


Monitor setup pattern



General-purpose test pattern

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



Specifications

Level tolerances

Nominal luminance level (cal.)	714 ±4 mV
Nominal chrominance level (cal.)	714 ±7 mV
Departure	
at nominal 500 to 714 mV	±1%
<500 mV	±5 mV
Squarewave, staircase and sawtooth signals	nominal ±4 mV
2T pulse	nominal ±5 mV
12.5T pulse	nominal ±7 mV
Amplitude setting	on front panel or via IEC/IEEE bus between –50 and +40% of calibrated value

Amplitude/frequency response

Multipulse, multiburst, sweep signals	±0.1 dB (up to 5.5 MHz)

Group delay

12.5T pulses	≤5 ns

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

Sync rise time	140 ±5 ns
Luminance rise time	125 ±5 ns, 250 ±5 ns
Half-amplitude duration	
2T pulse	250 ±5 ns
12.5T pulse	1570 ±5 ns
Chrominance rise time	300 ±10ns, 1000 ±10 ns

Line-time nonlinearity

5-step staircase	≤0.8%

S/N ratio

RMS, weighted, 0.2 to 4.2 MHz	
Measured on all-black picture	≥74 dB
on sawtooth signal	≥70 dB

Clock frame	standard coupling with stable SC/H phase (to RS-170 A)
V component	can be switched off for special measurements

Inputs/outputs	BNC, 75 Ω
Return loss	≥34 dB (up to 6 MHz)
Sync pulse output	2 V into 75 Ω
EXT-VITS input	for insertion of external signals into test line region or for application of sweep signal to active picture region
Connector	BNC, 75 Ω
Gain	0 ±0.1 dB
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°

Option "genlock with test signal insertion"
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 Ω
Amplitude/frequency response	±0.1 dB (up to 6 MHz)
Group delay error	≤5 ns (up to 6 MHz)
Differential gain	≤0.3%
Differential phase	≤0.3°
S/N ratio	
(rms, weighted, 0.2 to 4.2 MHz)	≥74 dB
Test signal insertion	into lines 10 to 21 of both fields

Manual setting	output amplitude, field-repetitive/line-repetitive 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

General data

Remote-control interface	acc. IEC 625-2 (IEEE 488)
Rated temperature range	+5 to +45°C
Operating temperature range	0 to +50°C
Storage temperature range	–40 to +70°C
Mechanical stress	
Sinusoidal vibration	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
Random vibration	10 to 300 Hz, 1.2 g rms
Shock	shock spectrum 40 g, meets MIL-STD-810D and MIL-T-28800 D class 3 and 5
Environmental stress	+25/+40 °C, cyclic, at 95% rel. humidity, meets IEC68-2-30
Electromagnetic compatibility	conforms to European EMC directives (applicable standards: EN 50 081-1, EN 50 082-1)
Power supply	100/120/240 V +15/–10%, 230 V +10/–14%, 47 to 63 Hz (50 VA)
Dimensions (W x H x D); weight	450 mm x 59 mm x 510 mm; 6 kg

Ordering information

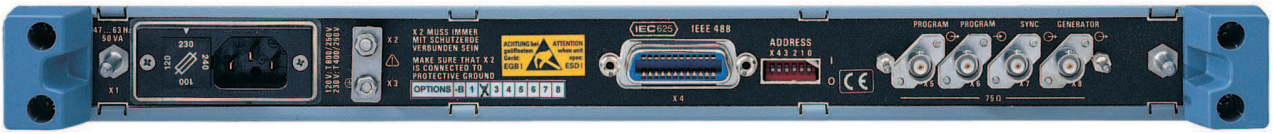
Order designation		
TV Generator NTSC	SGMF	2016.0943.03

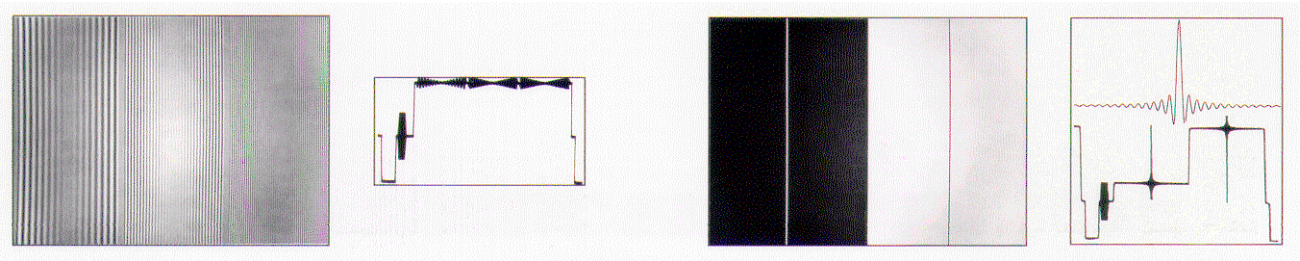
Accessories supplied: power cord, fuses, manual

Options		
Source Identification (text in test pattern)	SG.F-B1	2016.1004.02
Genlock with test signal insertion (not as retrofit)	SGMF-B2	2016.1185.02

Recommended extras		
Junction Panel with bypass (only together with SGMF-B2)	SG.F-Z	2016.1679.02
19" Adapter	ZZA-91	0396.4870.00
Documentation of Calibration Values	SG.-DCV	2082.0490.04
Service Manual		2016.1104.24

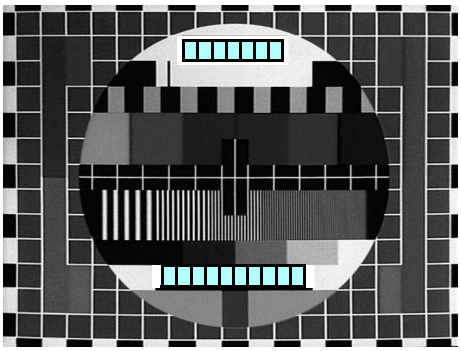
Rear panel of TV Generators SG.F





Ordering information for Source Identification option SG.F-B1

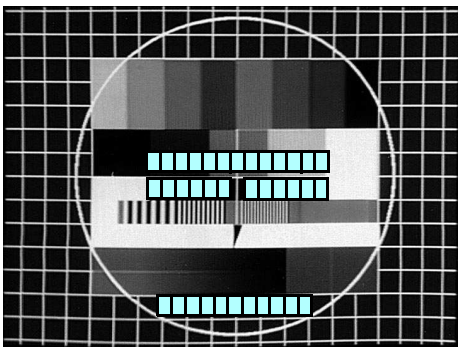
General-purpose test pattern



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
ISO 9001
DQS REG. NO 1954-04

Fax Reply (TV Generators SGPF, SGSF, SGMF)

- ❑ Please send me an offer
- ❑ I would like a demo
- ❑ Please call me
- ❑ I would like to receive your free-of-charge CD-ROM catalog (Test&Measurement Products)

Others: _____

_____

Name: _____

Company/
Department: _____

Position: _____

Address: _____

Country: _____

Telephone: _____

Fax: _____

E-mail: _____

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