

PM 5515/16/18

Color TV pattern generator family

**Synthesized control of RF frequency**

**Covering every RF band from IF to bands IV/V including cable TV bands**

**Storage and recall of 10 complete programs, RF freq., pattern and sound setting**

**Keyboard call-up of up to 70 test patterns/combinations**

**Simple switch selection of PAL, NTSC or SECAM**

**Operation of up to 3 to 4 receivers on a 10mV output**

**RGB option**

**A pattern for the future**

This family of versatile color pattern generators is designed to cover all available TV standards.

- PM 5515 is for PAL/NTSC
- PM 5516 is for SECAM
- PM 5518 is for SECAM/PAL/NTSC

All models are microcomputer-controlled with powerful, non-volatile memories, allowing pre-determined user-programs to be stored and recalled at will. At the touch of a key.

Over 70 different patterns and combinations are achievable, as well as Teletext, FM stereo and dual-channel sound. All very simple to set up.

Each model in the series is available in a basic configuration but with more than one version to cater for the widest possible spectrum of applications. These are listed at the end of this section. For servicing of color TV monitors and applications involving computer graphics, an RGB option is available. Thus all of today's problems are well catered



for with reserve testing capability, ready for tomorrow's.

**Versatility with ease**

The PM 5515 series offers you unparalleled versatility and unparalleled ease of use!

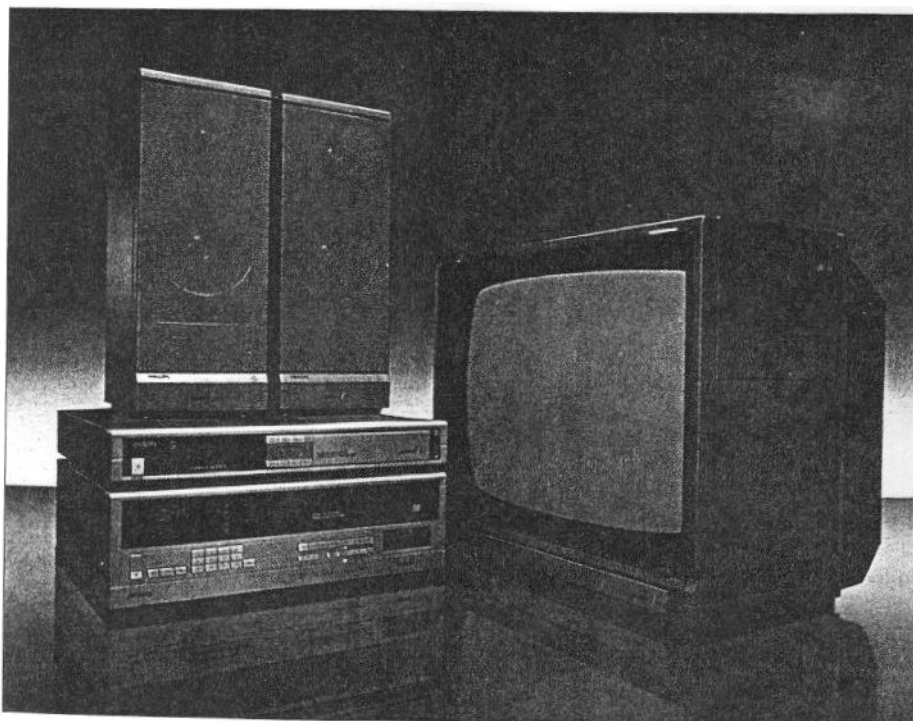
Thanks to microcomputer control. One simply keys-in the programs required – R.F. frequency setting, pattern selection and sound modulation. Touch a button to store them – ready for recall. And, even a year later, just recall and the program is still there – ready for immediate use. Versatility plus simplicity.

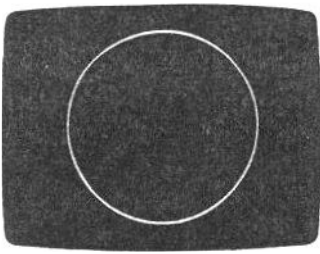
**Lowest cost of ownership**

Microprocessor control offers more than versatility with ease. It offers security and reliability. Software modules and solid-state memories take over from mechanical switches, reducing service and maintenance costs to the absolute minimum. And with Philips built-in quality and reliability the user enjoys Europe's soundest guarantee of the lowest cost of ownership.

**An unparalleled range**

The PM 5515 series offers an unparalleled range of pattern generators. From the versatile basic model with its touch-button control of every parameter, through models offering FM-stereo and dual sound or Teletext test and page signals, up to the model that offers everything! A range from which one can choose a pattern generator for today – knowing that it will meet tomorrow's needs.

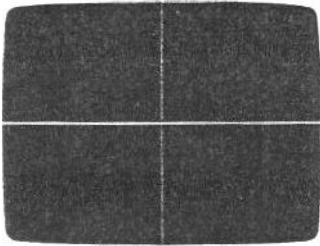




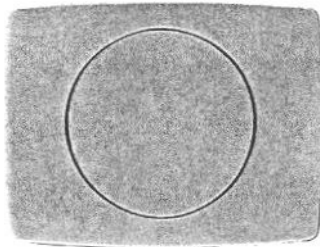
### Patterns for now and for the future

Twelve push-buttons make the selection of eighteen different patterns possible. These test patterns check and align the monochrome and chrominance circuitry of the color TV monitors and VCR.

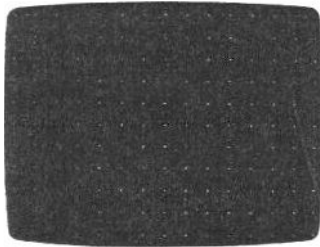
**Circle** on a grey background for checking the overall linearity and geometry. The white circle changes automatically to black when used with the white pattern and is useful for checking reflections.



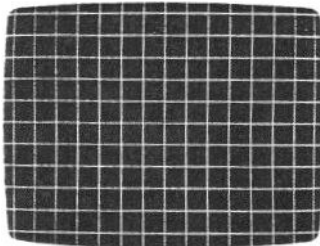
**Center Cross/Border lines** is ideal for centering TV monitors and TV screens. Also to check the deflection linearity and for pin-cushion correction.



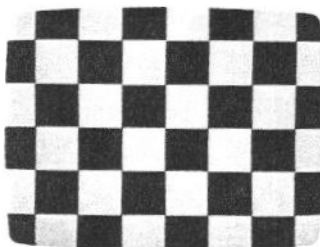
**White** 100% with swinging burst is designed for setting "white D" and for an overall check of purity. Also for beam current adjustment. White D is the correct white necessary for a natural colour reproduction.



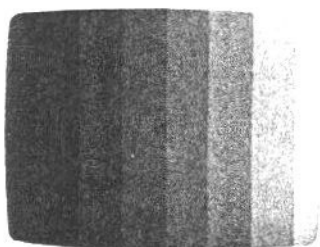
**Dot pattern** mainly for static convergence. The screen should contain pure white dots.



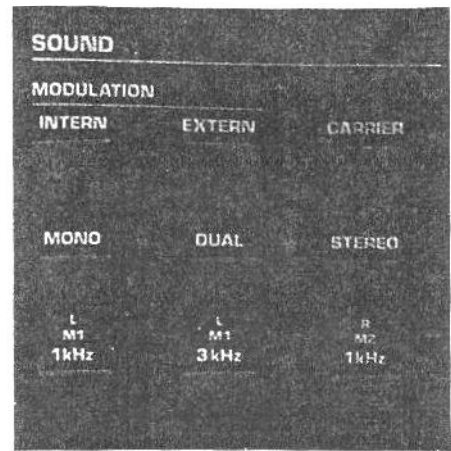
**Cross hatch/Center Indication** with 17 vertical and 12 horizontal lines is used for checking and re-aligning dynamic and corner convergence. The advantage is that there is no interlacing which would normally tire the eyes. If interlacing is required this can be achieved by superimposing another pattern such as center cross or circle.



**Checkerboard pattern** of six times eight rows of squares provides a visual standard for basic picture tube alignments, for example: centering, focus, horizontal and vertical deflection and linearity.



**Grey scale.** Full-screen linear staircase signal with 8 equal steps from black to white is used to locate faulty linearity of the video amplifier or grey-scale setting.



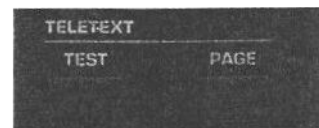
### Stereo and second sound channel

PM 5515-X and -TX standard CCIR, PAL G, have two sound carriers – for use in one- and two-channel mode, or right and left channel of a stereo signal.

CTV transmission with stereo sound or alternative second sound channel (e.g. to choose between synchronized or original voice tracks) is becoming more regular. The special CTV receivers with stereo decoders needed to reproduce these broadcasts can be expected to be increasingly popular. PM 5515-X and -TX meet the need for a portable color pattern generator for test and re-alignment of these receivers.

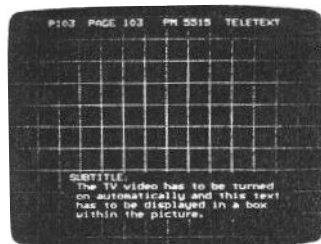
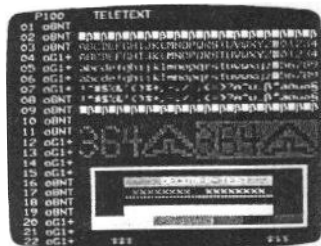
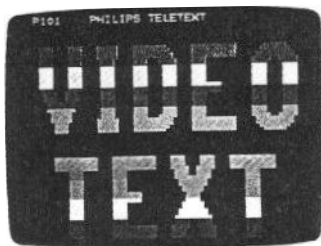
The instrument allows external modulation of a full stereo tuner/amplifier, tape or cassette recorder, with PM 5515 as the RF modulator.

- Sound carriers according to standard at 5.5MHz and 5.742 187 5 MHz  $\pm 3 \times 10^{-5}$
- Sound/vision separation at 13 and 20dB, respectively
- Internal FM of 1kHz and 3kHz with 30kHz deviation
- Full external stereo modulation facility for tape and cassette recorders
- Pilot tone according to standard at 54.687 5 kHz  $\pm 3 \times 10^{-5}$ , with recognition frequencies at  $f_H/133=117.5\text{Hz}$  (stereo) and  $f_H/57=274.1\text{Hz}$  (second sound channel)

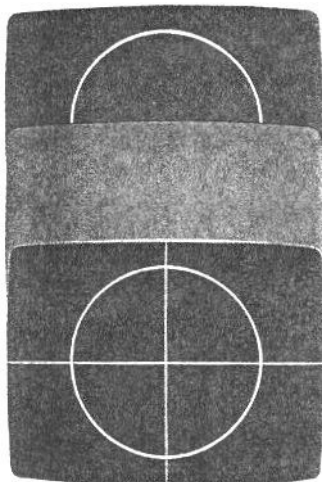


### Teletext

The growth of electronic communications has seen a rapid increase in the introduction of text transmission. To meet the highly specialized requirements for the checking and alignment of teletext receivers and decoders the PM 5515-T and -TX have been specially developed. Both instruments offer the facility of a selection of five teletext pages with special contents for decoder testing as well as a wallpaper test pattern.



Examples of teletext pages

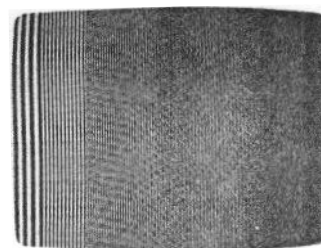


**Purity** with a choice of the three primary colors clearly indicated by LEDs. The red pattern is used for checking color purity.

The green pattern provides a purity check for three-in-line tubes. Blue is also available to check color performance. The three complementary colors, magenta, yellow and cyan can also be displayed by selection, as can white and black.

Combinations with circle and/or center cross are easy to select.

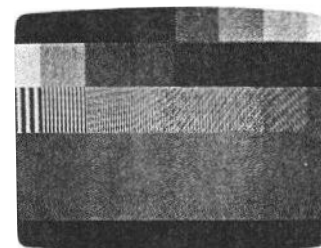
**Multiburst** contains eight full screen vertical bars of definition lines in the frequency ranges 0.8, 1.8, 2.8, 3.0, 3.2, 3.4, 3.8 and 4.8MHz. This checks the bandwidth of the video or luminance amplifier in black and white or color TV as well as the resolution of monitors and video recorders.



**VCR** is a specially-designed test pattern to check the bandwidth, linearity, sensitivity and AGC of the chroma amplifiers in color video recorders.

This combined test pattern is divided into 4 horizontal segments:

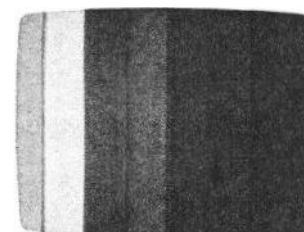
- 24 lines of 100% white to clip and to level.
- Eight bars of resolution of which 2.8 – 3.0 – 3.2 – 3.4MHz are used to align the high-pass filter for a maximum resolution in VCR bandwidth.
- Eight steps of decreasing linear levels of saturation from 100 to 0% to check the chroma amplifier linearity and color AGC circuitry.
- A black horizontal bar with a moving white field to check moving pictures on video recorders.



**Color bar** standard bar pattern. The vertical bars are white D, yellow, cyan, green, magenta, red, blue and black.

Since it is dependent on the TV system selected, the luminance content is automatically corrected for each setting.

The color bar pattern therefore provides sufficient information for a good overall check of color performance, including checks on burst keying, subcarrier regeneration, RGB amplifiers, the delay color versus B/W signal and saturation.



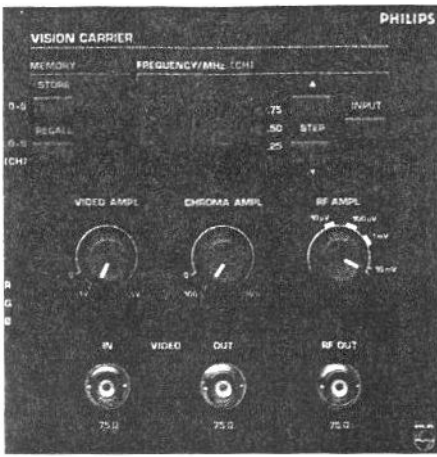
**DEM pattern.** Demodulator is a combined test pattern which, divided in 4 sections, contains information to make on-screen checks and alignments of the color demodulators and sub-carrier frequency. For PAL it is used to check the chroma delay line for amplitude and phase (venetian blinds).

G - Y = 0		Y = 50%	
$\Delta$	$\Delta$	$\square$	$\square$
+ (R-Y)	- (R-Y)	+ (B-Y)	- (B-Y)
$\Delta$	$\Delta$	$\square$	$\square$
+ (R-Y)	- (R-Y)	$\pm$ (B-Y)	$\pm$ (B-Y)
Reference Y = 50%			

$\Delta$  (B-Y) = 0     $\square$  (R-Y) = 0



Example of PAL coded DEM pattern. For NTSC this DEM pattern contains different color coding.



### RF selection

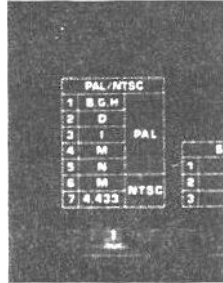
The PM 5515 covers all TV transmissions in the frequency bands I, III, IV and V. Full coverage of the S-channels 1-20 is provided in the frequency bands 104-175MHz (S1-S10), and 230-300MHz (S11-S20). Selecting the synthesized RF frequency within these bands is done electronically via the keyboard.

Up to ten memory places can be used either to store the selected RF frequency or TV channel number. Having stored, e.g. the local TV stations, any one of them can be recalled at the touch of a button without time-consuming dial tuning.

The first digit shows the memory place. The other three digits indicate the selected frequency or TV channel. The RF carrier output of >10mV into 75Ω is ample for 3 or 4 receivers in parallel during workshop repairs, and the carrier can be continuously attenuated by more than 60dB, with output indications at 1mV, 100μV levels. The ability to smoothly vary the RF level is of particular value when checking the overall RF sensitivity or AGC circuits.

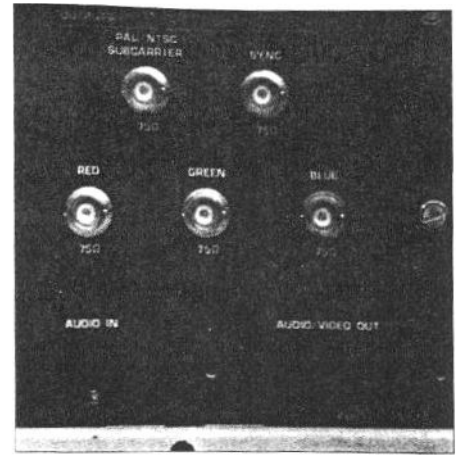
### RF carrier and frequency spectrum

Although double sideband, the RF envelope of the PM 5515 is very similar to that transmitted by professional TV broadcast companies, such as, e.g., 13dB for TV standard G between the sound and vision channels. (Most other generators have 25dB or more separation, leading to false impressions when aligning tuners and RF amplifiers.)



### The system switch

The rear of the instrument offers additional facilities which add to the uniqueness of the PM 5515 range. A selection switch is used to choose the TV system required. Line frequency is automatically selected utilizing internal crystals, either 15 625 Hz for CCIR or 15 734 Hz for RTMA with less than 0.4Hz frequency tolerance.



The Euro/SCART connector for audio/video out as well as the DIN connector for external audio modulation is standard for all models.

### RGB option

RGB signals and a SYNC and subcarrier facility are available to meet the rapid advance in computer graphics techniques and servicing of color video monitors. There are many monitors which only accept RGB signals and for testing these the RGB option is essential.

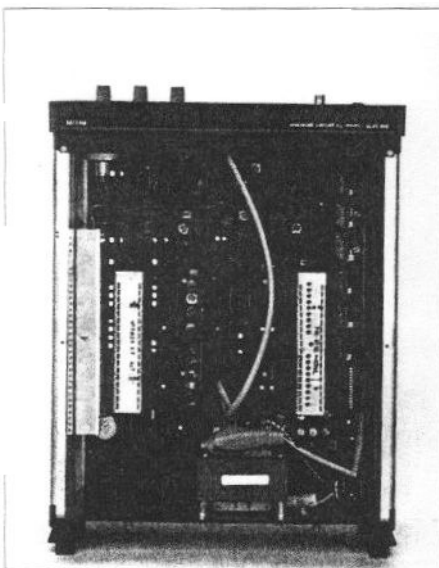


TABLE of TV SYSTEMS COVERED BY PM 5515

Series	B & G	D	I	M	N	M
TV and chroma standard	CCIR, PAL	CCIR, PAL	CCIR, PAL	RTMA, NTSC	CCIR, PAL	RTMA, PAL
No of lines per picture frame	625	625	625	525	625	525
Field frequency (Hz)	50	50	50	60	50	60
Line frequency (lines/5)	15 625	15 625	15 625	15 734	15 625	15 734
Chrominance subcarrier (MHz)	4.433619	4.433619	4.433619	3.579545	3.582056	3.575611
Sound carrier to vision carrier (MHz)	5.5	6.5	6	4.5	4.5	4.5
Sound modulation	FM	FM	FM	FM	FM	FM
Pre-emphasis (μs)	50	50	50	75	75	75

## A range for today and tomorrow

The versatility of the Philips color pattern generator family not only ensures that today's requirements are expertly met but the developments of tomorrow are anticipated.

### PAL/NTSC

The standard PM 5515 generator with its advanced features, unrivalled in the marketplace, is complemented by the three enhanced models 5515-T, 5515-X and 5515-TX.

PM 5515-T has 5 Teletext pages plus a wall-paper test pattern for aligning and testing teletext receivers and decoders.

PM 5515-X features full additional FM stereo and dual sound channel facilities according to system G.

PM 5515-TX offers, in addition to all the facilities of the basic model, all those features provided by the other two models.

### SECAM

The PM 5516 SECAM generator operates according to the French SECAM TV system L with positive video modulation and AM sound. It also operates to the TV standards D, K1, B, G and H corresponding to OIRT TV system with negative video modulation and FM sound. The desired TV standard is simply selected at the rear of the instrument.

PM 5516 is the standard SECAM COLOR generator.

PM 5516-T is as PM 5516 but extended with ANTIOPE.

### SECAM/PAL/NTSC

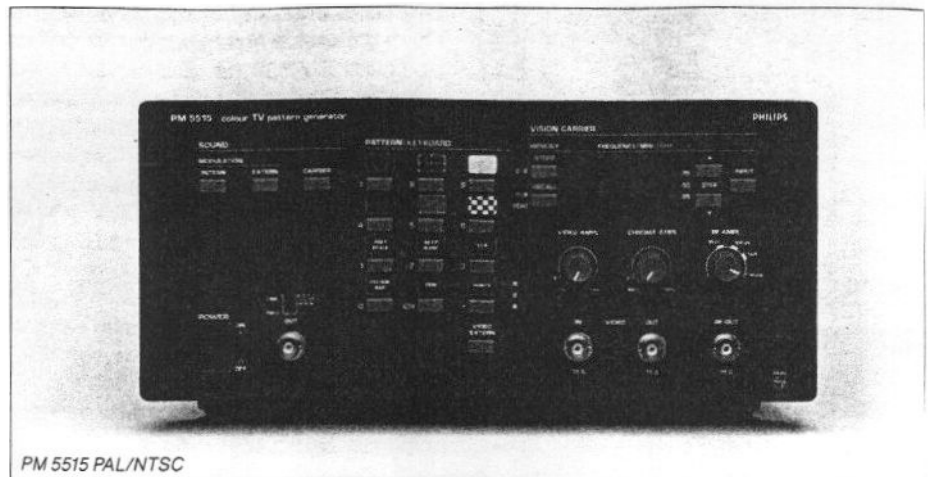
PM 5518 SECAM/PAL version offers the choice of operating according to the PAL or SECAM COLOR system.

A push-button on the front panel selects PAL or SECAM. And the rear panel switch selects NTSC.

PM 5518-TX SECAM/PAL pattern generator operates according to TV standard G, STEREO FM, DUAL SOUND and five pages of teletext and – according to system SECAM L – more than four pages of ANTIOPE.

These SECAM and SECAM/PAL versions offer the same wide choice of test patterns, advanced RF selection, STORE/RECALL facilities and, last but not least, RGB option, as the PM 5515 PAL/NTSC generators.

\* For Brazil M and Argentine N TV-standards – Crystals are not included but can be ordered separately.



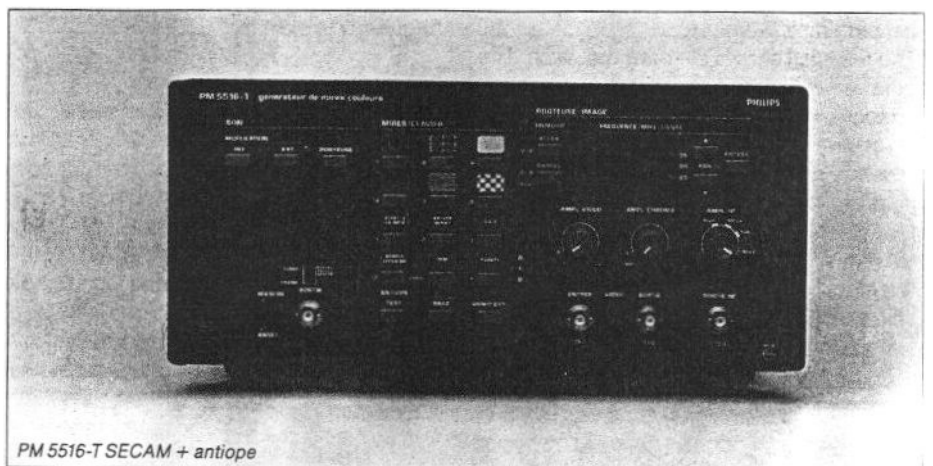
PM 5515 PAL/NTSC



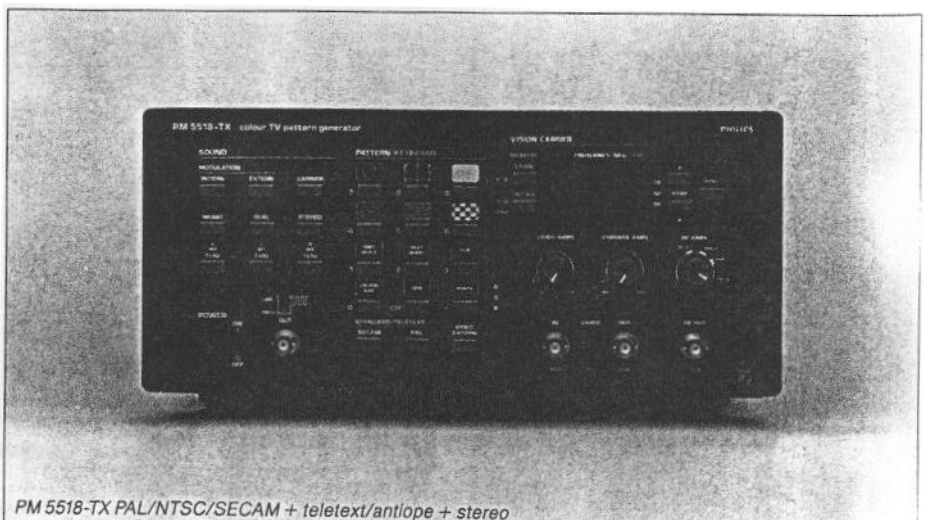
PM 5515-X PAL/NTSC + stereo



PM 5515-T PAL/NTSC + teletext



PM 5516-T SECAM + antiope



PM 5518-TX PAL/NTSC/SECAM + teletext/antiope + stereo

## VIDEO CARRIER

<b>Frequency</b>	
Range A	32...300MHz
Range B	470...900MHz
Range A covers	IF+TV band I 32...90MHz Band S1/S10 104...174MHz TV band III 174...230MHz Band S11/S20 230...300MHz
Range B covers	TV bands IV-V 470...900MHz
Frequency selection	Keyboard
Fine tuning	250kHz steps for TV frequencies 100kHz steps for IF frequencies (32...44.9MHz)
Frequency tuning	Either in positive or negative direction Tuning speed increased by holding the step button
Storage	a) Possibility of 10 different RF frequencies b) as a), indicated as TV channel numbers
Indication	4-digit 7-segment LED display a) first digit: memory, store and recall position 0...9 b) 2nd, 3rd and 4th digit. Three-digit indication for frequency in MHz. Separate indication for 250kHz, 500kHz and 750kHz steps c) via keyboard-selectable TV channel numbers (e.g. C21 or C70)

## RF OUTPUT

RF output	BNC connector (front panel)
Impedance	75 Ω
Output voltage	> 10mV
Attenuation	> 60dB, continuous

## VIDEO

<b>Video modulation</b>	
Modulation	AM internal-external switchable
Polarity	Negative
RF sync level	100%
<b>Video input</b>	
Video input	BNC connector (front panel)
Input voltage (p-p)	1V
Max. permissible input voltage	±5V
Impedance	75 Ω
Polarity	White level positive
Coupling	DC (clamping on sync)
<b>Video output</b>	
Video output	a) BNC connector b) SCART connector (Euro-AV-connector), Pin 19 (rear)
Impedance	75 Ω
Voltage (p-p)	a) 1V fixed b) Variable between 0...1.5V } into 75 Ω
Polarity	Negative
Coupling	DC

## CHROMA (PAL/NTSC)

<b>Chroma standards</b>	PAL and NTSC, selectable at rear, panel PAL according to system B, D, G, H, I, (M, N) NTSC according to system M (switchable)
<b>Subcarrier frequency</b>	4.433 619MHz coupled for PAL B, D, G, H, I with line 3.575 611MHz freq. according to PAL M 3.582 056MHz to selected for PAL N 3.579 545MHz standard for NTSC
<b>Tolerance</b>	< 3x10 <sup>-5</sup> (+5...+40°C)
<b>Burst</b>	Position, number of cycles and phase according to selected standard
<b>Amplitude</b>	Chroma together with burst a) fixed (100%) b) continuously adjustable from 0-150%
<b>Chroma vectors inaccuracy:</b> phase	≤3°
amplitude	≤5% relative to luminance amplitude

## SOUND CARRIER AND MODULATION

<b>Sound carrier (mono)</b>	on/off switchable
<b>Frequency</b>	4.5MHz, standard M, N 5.5MHz, standard B, G, H 6.0MHz, standard I 6.5MHz, standard D
<b>Tolerance</b>	< 3x10 <sup>-5</sup> (+5...+40°C)
<b>Vision/sound carrier ratio</b>	13dB, standard B, G, H 11dB, standard D 10dB, standard M, N 7dB, standard I
<b>Sound modulation</b>	FM int. on/off switchable ext. on/off switchable
<b>Pre-emphasis</b>	50 μs, standard B, D, G, H, I 75 μs, standard M, N

<b>Internal</b>	
<b>Frequency deviation</b>	±30kHz, standard B, G, H ±15kHz, standard M, N ±27kHz, standard I ±24kHz, standard D

<b>External</b>	0.4V will give the same deviation as with internal modulation
<b>Input</b>	DIN connector Pin 3+5 (rear panel)
<b>Impedance</b>	0.5MΩ
<b>Bandwidth</b>	40Hz...15kHz
<b>Max. input voltage</b>	±40V
<b>Output</b>	SCART connector, Euro-AV-connector) Pin 3 (rear panel)
<b>Impedance</b>	1kΩ
<b>Voltage</b>	0.4V

## SYNCHRONIZATION

<b>Line frequency</b>	15 625Hz for CCIR 15 734Hz for RTMA
<b>Frequency tolerance</b>	<0.4 Hz (+5...+40°C)
<b>Number of lines</b>	625 for CCIR 525 for RTMA
<b>Field frequency</b>	50Hz for CCIR 60Hz for RTMA
<b>Line + frame sync</b>	According to TV standard, interlacing
<b>Output</b>	BNC connector (front panel)
<b>Sync signal</b>	Combined signal with line and field synchronization pulses with amplitude difference
<b>Voltage (open circuit)</b>	2.5V for line pulse 5V for field pulse
<b>Impedance</b>	6kΩ
<b>Polarity</b>	Negative

## TELETEXT FOR T, IT AND TX VERSIONS

<b>Data synchronization</b>	
<b>Frequency</b>	6.9375MHz = 444 x line frequency according to standards
<b>Data coding</b>	According to standards
<b>Signal levels</b>	"0" = black level "1" = 66% white level
<b>Signal shaping</b>	COS <sup>2</sup> -filter
<b>Text data</b>	
<b>Decoder alignment</b>	No combination possible with test patterns
<b>Data contents</b>	Clock-run-in standard } Full Framing code standard } field Rest pattern pseudo random
<b>Normal working mode</b>	Combinations possible with all test patterns
<b>Data lines</b>	22: 335
<b>Data contents</b>	5 text pages with special contents for decoder testing.
<b>Signal output</b>	
<b>Teletext signal combined with video signal</b>	video output
<b>Modul. HF signal</b>	HF output from basic unit

## FOR X AND TX VERSIONS

### SOUND SECTION FOR STEREO AND SECOND SOUND CHANNEL TRANSMISSION

<b>Standards</b>	B, G
<b>Sound carriers</b>	Carrier 1 5.5MHz Carrier 2 5.7421875MHz
<b>Vision sound carrier ratio</b>	13dB 20dB
<b>Frequency tolerance</b>	< 3x10 <sup>-5</sup> (+5...+40°C)
<b>Modulation</b>	FM internal on/off switchable external on/off switchable
<b>Pre-emphasis</b>	50 μs

<b>Internal modulation</b>	
<b>Sound channel 1</b>	1kHz on/off switchable 3kHz on/off switchable ±30kHz at mono/two-channel ±15kHz at stereo, the right channel switched off ±30kHz at stereo, left and right channel switched on with 1kHz internal signal
<b>Deviation</b>	
<b>Sound channel 2</b>	1kHz, on/off switchable
<b>Deviation</b>	±30kHz

<b>External modulation</b>	
<b>Sound channels 1 and 2 input voltage</b>	0.4V will give the same deviation as with the internal signal

<b>Inputs</b>	
<b>Contacts</b>	DIN connector (rear panel) pin 2 (ground) pin 3 sound channel 1 pin 5 sound channel 2
<b>Impedance</b>	0.5MΩ
<b>Bandwidth</b>	40Hz...15kHz
<b>Max. permissible voltage</b>	±40V

<b>Outputs</b>	SCART connector (Euro-AV-connector) pin 3 sound channel 1 pin 1 sound channel 2
<b>Impedance</b>	1kΩ
<b>Voltage</b>	0.4V

### Operation mode detection

Pilot frequency 54.6875 kHz ( $83.5 \times f_{line}$ )  
 Tolerance  $< 3 \times 10^{-4}$  (+5...-40°C)  
 Modulation AM  
 Modulation depth 50%  
 Identification frequencies 117.5 Hz ( $f_{line}/133$ ) stereo mode  
 274.1 Hz ( $f_{line}/57$ ) two channels mode  
 Deviation of second sound carrier  $\pm 2.5$  kHz by modulation of carrier with unmodulated pilot  
 For standards D, I, M, N the stereo versions X and TX offer all Mono facilities.

### OPTION R-G-B

**R-G-B outputs** BNC connectors (rear)  
 Output voltage (p-p) 0.7 V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$   
**Subcarrier output** BNC connector (rear)  
 Output voltage (p-p) 1 V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$   
**Sync. output** BNC connector (rear)  
 Output voltage (p-p) 1 V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$

### POWER SUPPLY

Voltage 110, 127, 220, 240 V  
 Tolerance -12...+10%  
 Frequency 50/60 Hz  
 Tolerance 5%  
 Power consumption Depending on version

### DIMENSIONS AND WEIGHT

Height 140 mm (5.5-in)  
 Width 300 mm (11.8-in)  
 Depth 395 mm (15.6-in)  
 Weight Depending on version  
 approx. 10 kg (22 lb)

### ACCESSORIES SUPPLIED

- PM 9538 RF cable
- BNC TV connector 75  $\Omega$
- Operation manual
- Mains cable

### ORDERING INFORMATION

For the required type number, please refer to the performance tables below before ordering.

#### Optional accessories

- PM 9539 RF cable + 300  $\Omega$  TRAFO
- PM 9075, 75  $\Omega$  BNC-BNC cable
- Service manual

Type number	Stereo	Tele-text	PAL					NTSC M	RGB option
			D	G	I	M*	N*		
PM 5514			X	X	X				
PM 5514-V			X	X	X				<input type="checkbox"/>
PM 5515			X	X	X	X	X	X	<input type="checkbox"/>
PM 5515-X	0		X	0 X	X			X	<input type="checkbox"/>
PM 5515-T		$\Delta$	X	$\Delta$ X	$\Delta$ X			X	<input type="checkbox"/>
PM 5515-TX	0	$\Delta$	X	0 $\Delta$ X	$\Delta$ X			X	<input type="checkbox"/>

X = Mono sound 0 = Stereo sound  $\Delta$  = Teletext  = RGB option

Type Number	Antiope Teletext	PAL					NTSC M	SECAM					RGB option	
		D	G	I	M*	N*		L	B	D	G	H		K <sub>1</sub>
PM 5516								X	X	X	X	X	X	<input type="checkbox"/>
PM 5516-T	$\blacksquare$							$\blacksquare$ X	X	X	X	X	X	<input type="checkbox"/>
PM 5518		X	X	X			X	X	X	X	X	X	X	<input type="checkbox"/>
PM 5518-TX	$\Delta$ $\blacksquare$	X	0 $\Delta$ X	$\Delta$ X			X	$\blacksquare$ X	X	X	X	X	X	<input type="checkbox"/>

X = Mono sound 0 = Stereo sound  $\Delta$  = Teletext  $\blacksquare$  = Antiope  = RGB option

**Operation mode detection**

Pilot frequency 54.6875 kHz (83.5 x  $f_{line}$ )  
 Tolerance <  $3 \times 10^{-5}$  (+5...+40°C)  
 Modulation AM  
 Modulation depth 50%  
 Identification frequencies 117.5 Hz ( $f_{line}/133$ ) stereo mode  
 274.1 Hz ( $f_{line}/57$ ) two channels mode  
 Deviation of second sound carrier  $\pm 2.5$  kHz by modulation of carrier with unmodulated pilot  
 For standards D, I, M, N the stereo versions X and TX offer all Mono facilities.

**OPTION R-G-B**

**R-G-B outputs** BNC connectors (rear)  
 Output voltage (p-p) 0.7V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$   
**Subcarrier output** BNC connector (rear)  
 Output voltage (p-p) 1V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$   
**Sync. output** BNC connector (rear)  
 Output voltage (p-p) 1 V (into 75  $\Omega$ )  
 Impedance 75  $\Omega$

**POWER SUPPLY**

Voltage 110, 127, 220, 240V  
 Tolerance -12...+10%  
 Frequency 50/60Hz  
 Tolerance 5%  
 Power consumption Depending on version

**DIMENSIONS AND WEIGHT**

Height 140mm (5.5-in)  
 Width 300mm (11.8-in)  
 Depth 395mm (15.6-in)  
 Weight Depending on version approx. 10kg (22lb)

**ACCESSORIES SUPPLIED**

- PM 9538 RF cable
- BNC TV connector 75  $\Omega$
- Operation manual
- Mains cable

**ORDERING INFORMATION**

For the required type number, please refer to the performance tables below before ordering.

**Optional accessories**

- PM 9539 RF cable + 300  $\Omega$  TRAFO
- PM 9075, 75  $\Omega$  BNC-BNC cable
- Service manual

Type number	Stereo	Tele-text	PAL					NTSC M	RGB option
			D	G	I	M*	N*		
PM 5514			X	X	X				
PM 5514-V			X	X	X				<input type="checkbox"/>
PM 5515			X	X	X	X	X	X	<input type="checkbox"/>
PM 5515-X	0		X	$\frac{0}{X}$	X			X	<input type="checkbox"/>
PM 5515-T		$\Delta$	X	$\frac{\Delta}{X}$	$\frac{\Delta}{X}$			X	<input type="checkbox"/>
PM 5515-TX	0	$\Delta$	X	$\frac{0}{\Delta}$ $\frac{\Delta}{X}$	$\frac{\Delta}{X}$			X	<input type="checkbox"/>

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Type Number	Antiope Teletext	PAL					NTSC M	SECAM					RGB option	
		D	G	I	M*	N*		L	B	D	G	H		K <sub>1</sub>
PM 5516								X	X	X	X	X	X	<input type="checkbox"/>
PM 5516-T	■							$\frac{■}{X}$	X	X	X	X	X	<input type="checkbox"/>
PM 5518		X	X	X			X	X	X	X	X	X	X	<input type="checkbox"/>
PM 5518-TX	$\frac{\Delta}{■}$	X	$\frac{0}{\Delta}$ $\frac{\Delta}{X}$	$\frac{\Delta}{X}$			X	$\frac{■}{X}$	X	X	X	X	X	<input type="checkbox"/>

X = Mono sound 0 = Stereo sound  $\Delta$  = Teletext ■ = Antiope  = RGB option



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 Tolerance <  $3 \times 10^{-5}$  (+5...+40°C)  
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 Modulation depth 50%  
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  - Service manual

Type number	Stereo	Tele-text	PAL					NTSC M	RGB option
			D	G	I	M*	N*		
PM 5514			X	X	X				
PM 5514-V			X	X	X			<input type="checkbox"/>	
PM 5515			X	X	X	X	X	<input type="checkbox"/>	
PM 5515-X	0		X	0 X	X		X	<input type="checkbox"/>	
PM 5515-T		$\Delta$	X	$\Delta$ X	$\Delta$ X		X	<input type="checkbox"/>	
PM 5515-TX	0	$\Delta$	X	0 $\Delta$ X	$\Delta$ X		X	<input type="checkbox"/>	

X = Mono sound 0 = Stereo sound  $\Delta$  = Teletext  = RGB option

Type Number	Antiope Teletext	PAL					NTSC M	SECAM					RGB option	
		D	G	I	M*	N*		L	B	D	G	H		K <sub>1</sub>
PM 5516								X	X	X	X	X	X	<input type="checkbox"/>
PM 5516-T	■							$\Delta$ X	X	X	X	X	X	<input type="checkbox"/>
PM 5518		X	X	X			X	X	X	X	X	X	X	<input type="checkbox"/>
PM 5518-TX	$\Delta$ ■	X	0 $\Delta$ X	$\Delta$ X			X	■ X	X	X	X	X	X	<input type="checkbox"/>

X = Mono sound 0 = Stereo sound  $\Delta$  = Teletext ■ = Antiope  = RGB option