

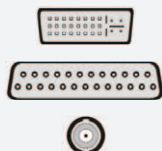
# TV & MONITOR PATTERN GENERATORS



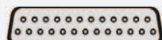


|                           | GV-998                                  | GV-898+ / 798+                          | GV-698+                                 | GV-198 | GV-242                         | GV-241         |
|---------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|--------|--------------------------------|----------------|
| <b>OUTPUTS</b>            |                                         |                                         |                                         |        |                                |                |
| RGB                       | BNC/SCART                               | BNC/SCART                               | BNC/SCART                               | SCART  | DVI                            | BNC/D25/D15/D9 |
| S-VHS                     | ✓                                       | ✓                                       | ✓                                       | -      | ✓                              | -              |
| SCART                     | ✓                                       | ✓                                       | ✓                                       | ✓      | -                              | -              |
| YPbPr                     | BNC/SCART                               | BNC/SCART                               | BNC/SCART                               | -      | DVI                            | -              |
| Sync                      | BNC                                     | BNC                                     | BNC                                     | ✓      | -                              | BNC/D15/D9     |
| Blackburst                | BNC                                     | BNC                                     | -                                       | -      | -                              | -              |
| TS MPEG-2 SPI             | D25                                     | -                                       | -                                       | -      | -                              | -              |
| TS MPEG-2 ASI             | BNC                                     | -                                       | -                                       | -      | -                              | -              |
| HDTV                      | -                                       | -                                       | -                                       | -      | ✓                              | -              |
| Composite Video           | ✓                                       | ✓                                       | ✓                                       | ✓      | ✓                              | ✓              |
| Computer Monitors         | -                                       | -                                       | -                                       | -      | -                              | ✓              |
| <b>REFERENCE PATTERNS</b> |                                         |                                         |                                         |        |                                |                |
| 4:3                       | ✓                                       | ✓                                       | ✓                                       | ✓      | ✓                              | -              |
| 16:9                      | ✓                                       | ✓                                       | ✓                                       | ✓      | -                              | -              |
| Patterns                  | 37                                      | 37                                      | 23                                      | 9      | 20                             | 8              |
| <b>TV SYSTEMS</b>         |                                         |                                         |                                         |        |                                |                |
| PAL                       | ✓                                       | ✓                                       | ✓                                       | ✓      | ✓                              | -              |
| NTSC                      | ✓                                       | ✓                                       | ✓                                       | ✓      | ✓                              | -              |
| SECAM                     | ✓                                       | ✓                                       | ✓                                       | ✓      | -                              | -              |
| <b>RF SOUND</b>           | Mono, dual/stereo<br>(Zweiton or NICAM) | Mono, dual/stereo<br>(Zweiton or NICAM) | Mono, dual/stereo<br>(Zweiton or NICAM) | Mono   | Mono, stereo<br>Baseband Sound | -              |
| <b>RF OUTPUT</b>          | VSB                                     | VSB (GV-898+)<br>DSB (GV-798+)          | DSB                                     | DSB    | -                              | -              |
| <b>LOGOS</b>              | ✓                                       | ✓                                       | ✓                                       | -      | -                              | -              |
| <b>TELETEXT</b>           | ✓                                       | ✓                                       | ✓                                       | -      | -                              | -              |

## Interconnection elements description



DVI connector (*Digital Video Interface*)



SPI connector (*Synchronous Parallel Interface*), D25



ASI connector (*Asynchronous Serial Interface*), BNC



D15 connector, 15 pin



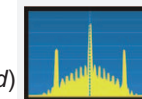
D9 connector, 9 pin

## Signals description



VSB signal (*Vestigial Side Band*)

DSB signal (*Double Side Band*)



## Breakthrough generators: an instrument for every budget

### TV GENERATORS

|                      |    |
|----------------------|----|
| GV-998 .....         | 4  |
| GV-898+ / 798+ ..... | 6  |
| GV-698+ .....        | 8  |
| GV-198 .....         | 10 |

### GENERATORS FOR MONITORS & MULTIMEDIA

|              |    |
|--------------|----|
| GV-242 ..... | 12 |
| GV-241 ..... | 14 |



Training centres

With more than 40 years of experience in the instrumentation field, leading the design and distribution of television test systems, **PROMAX** introduces this new catalogue of signal generators for TV sets and monitors.

In this catalogue you will find a wide range of easy to use instruments, which fit every budget while meeting most of your technical requirements; they support all types of monitors and TV sets, including flat, big screen units, projectors, etc.

All instruments are multi-standard and multi-system; they can be used for lab applications, production lines, field service or training centres.



Production lines



Hi-Fi & Home-Cinema

## Analogue and Digital TV Generator



- Test Signal generation in MPEG-2, SPI or ASI format
- The Test Signal contains valid audio and video programs
- External analogue and digital audio / video inputs
- Moving MPEG-2 video pattern generation
- MPEG logos
- RS-232 remote operation
- Multi-standard and multi-system analogue TV signals

The **GV-998** is an **analogue** and **digital TV signal generator**. In analogue mode, it's a very flexible multi-standard, multi-system instrument with the same performance as the **GV-898+**. In digital mode, thanks to its **TS outputs** (Transport Stream) in **MPEG-2** format, is perfect for manufacturing, verifying and maintaining all kinds of digital TV receivers.

The instrument's output signal meets the DVB (**DVB-PI**) specifications and can be applied to **QAM**, **QPSK** and **COFDM** digital modulators.

The system has **external audio / video analogue inputs**. These are converted to CCIR 656 and I2S format and multiplexed with standard patterns; they are then applied to the MPEG-2 encoder to generate the TS output. The instrument is microprocessor controlled, handling both the user interface and internal circuitry. Among other features, it's capable of altering the transmitted data stream format and can be controlled with a personal computer.

### ▼ 37 Charts ▼

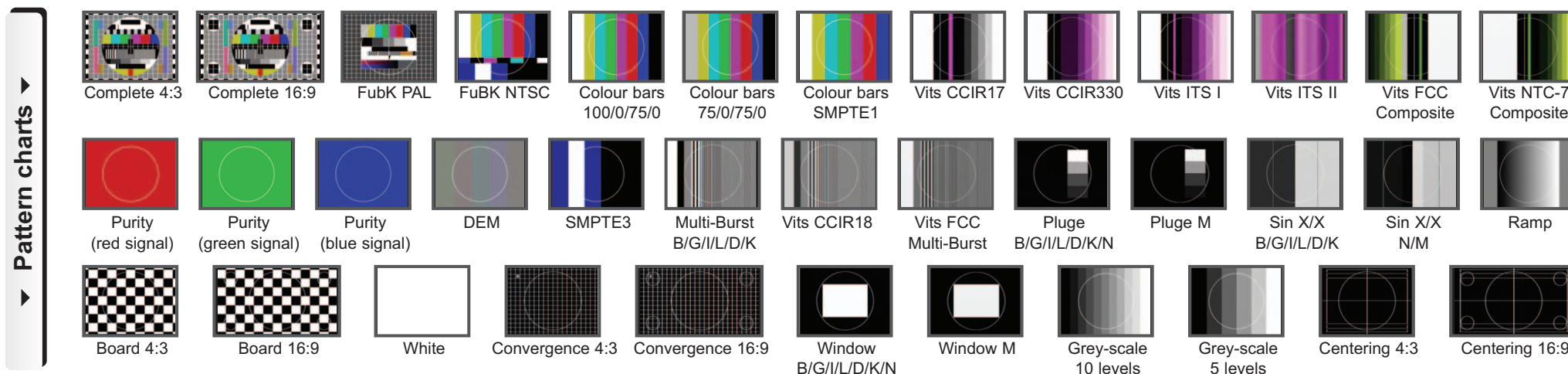
Programmable  
TS bitrate  
4:3 and 16:9 formats  
Electronic circle  
for all patterns  
MPEG-2 logos

### ▼ Outputs ▼

RF  
YPbPr  
TS MPEG-2  
RGB  
S-VHS  
SCART  
Sync  
Blackburst  
Composite video



## With MPEG-2 TS Output



| SPECIFICATIONS      | GV - 998                                                  |                            | Teletext                                | Index page and 4 data pages in 4 different languages |
|---------------------|-----------------------------------------------------------|----------------------------|-----------------------------------------|------------------------------------------------------|
| System & Standard   | PAL B/G/D/K/I/M/N, SECAM B/G/D/K/L, NTSC M                |                            | Colour Logotypes                        | 2 independent, positionable logos; analogical & MPEG |
| Video Carrier       | 50 kHz                                                    |                            | Audio                                   | AM-FM-NICAM modulation                               |
| Resolution          | By channels or by frequency (CCIR, STDL, OIRT, FCC)       |                            | Mono                                    | B, G, D, K, M systems                                |
| Tuning              |                                                           |                            | Dual-Stereo Zweiton                     | B, G, L, I, D, K systems                             |
|                     |                                                           |                            | Dual-Stereo NICAM                       |                                                      |
| Pattern charts      | 37                                                        |                            | Inputs                                  | Video & Audio                                        |
| Front panel outputs |                                                           |                            | PDC ( <i>Program Delivery Control</i> ) |                                                      |
| RF                  | 80 dB $\mu$ V, attenuation up to 60 dB in 1 dB steps      |                            | Systems                                 | PAL B/G/I/D/K, ON/OFF selectable                     |
| Output level        | 35 to 900 MHz VSB modulated                               |                            | Content                                 | Selectable START, STOP and PAUSE; time, country      |
| Frequency range     |                                                           |                            |                                         |                                                      |
| MPEG-2              | SPI                                                       |                            | VPS                                     |                                                      |
| Outputs             | TS parallel                                               | ASI                        | Systems                                 | PAL B/G/D/K selectable ON/OFF                        |
| Bitrate             | TS serial ASI                                             |                            | Content                                 | Selectable START, STOP and PAUSE; time, country      |
| Video               | VBR for MPEG; CBR for TS                                  |                            |                                         |                                                      |
| Audio               | ISO/IEC 13818-2 MP@ML                                     | DVB-ASI EN/ISO/IEC 13818-1 | WSS ( <i>Wide Screen Signaling</i> )    | PAL B/G/I/D/K                                        |
|                     | ISO/IEC 11172-3 (MPEG audio)                              |                            | Systems                                 | Eight combinations for 4:3,14:9 and 16:9 formats     |
|                     | Layer 1/2 - 44.1 kHz                                      | Country                    |                                         |                                                      |
| Composite video     | BNC connector, 1 Vpp voltage, 75 $\Omega$ impedance       |                            | Power supply                            |                                                      |
| Rear panel outputs  |                                                           |                            | Mains voltage                           | 110-125-220-230/240 V AC $\pm$ 10%, 50-60 Hz         |
| Blackburst          | 75 $\Omega$ , negative polarity, BNC connector            |                            | Consumption                             | 40 W                                                 |
| RGB                 | 75 $\Omega$ , 0.7 Vpp amplitude, BNC connector            |                            |                                         |                                                      |
| YPbPr               | 0.7 Vpp amplitude, BNC connector                          |                            |                                         |                                                      |
| S-VHS               | 75 $\Omega$ , 1.3 Vpp amplitude (lum.) - 0.3 Vpp (chrom.) |                            |                                         |                                                      |
| Synchronisms        | CS, horizontal pulse, vertical pulse                      |                            |                                         |                                                      |
| SCART               | -                                                         |                            |                                         |                                                      |
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## TV Generators



- Vestigial Double Side Band Modulation - VSB (GV-898+ only)
- YPbPr outputs
- External audio / video inputs
- 4:3, 16:9 & 14:9 formats (WWS signals)
- NICAM / Zweiton sound
- VPS & PDC control signals
- RS-232 remote operation
- Multi-standard and multi-system analogue TV signals
- Test signals (VITS)

The **GV-898+** and **GV-798+** are analogue TV generators capable of up to **37 different test patterns** which enable exhaustive diagnostic tests of any TV receiver, video or *Home Theater* system.

In addition to conventional RGB, SCART or S-VHS outputs, **YPbPr** are becoming increasingly popular for large format TFT screens, plasma and TV projectors.

They have **32 memories** to store operating configurations that you want to access quickly.

The only difference between **GV-798+** and **GV-898+** models is the RF modulator. The **GV-798+** uses a double sideband (**DSB**) type while **GV-898+** uses a vestigial sideband (**VSB**) approach, similar to the ones used for TV signals broadcast.

### ▼ 37 Charts ▼

4:3 & 16:9 formats

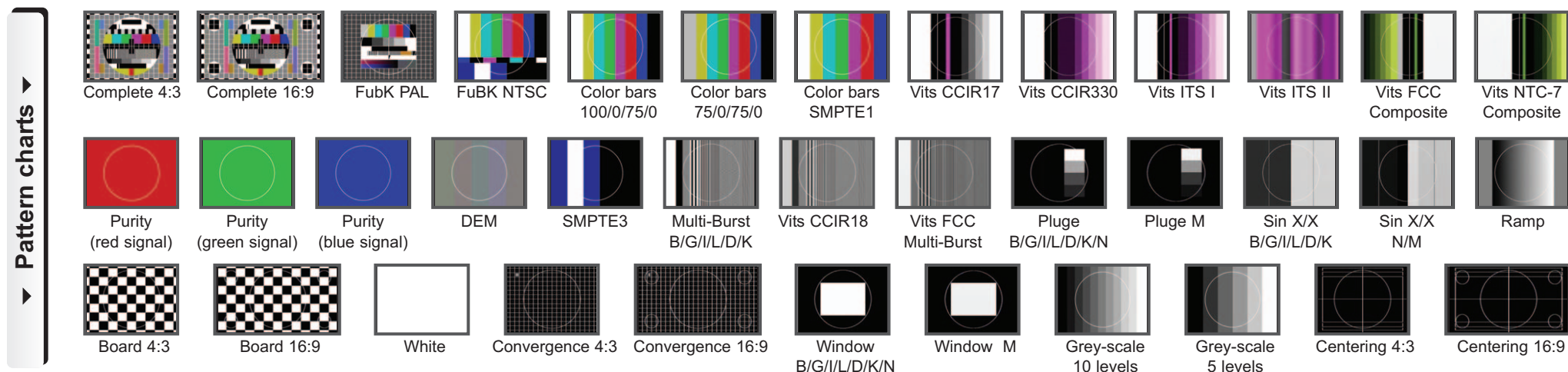
Electronic circle  
in all charts

Insertion and  
positioning of 2 logos

### ▼ Outputs ▼

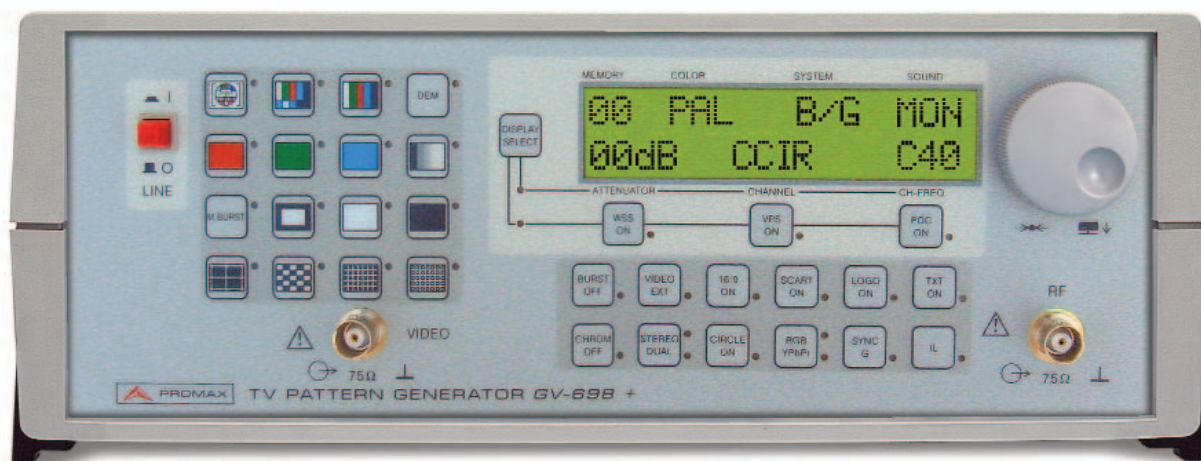
RF  
YPbPr  
RGB  
S-VHS  
SCART  
Synchronisms  
Blackburst  
Composit video

## High range



| SPECIFICATIONS                                                                                                        | GV - 898+ / GV - 798+                                                                                                                                                                                                                    | Colour Logotypes                                                                                              | 2 independent, positionable logos                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>System &amp; Standard</b>                                                                                          | PAL B/G/D/K/I/M/N, SECAM B/G/D/K/L, NTSC M                                                                                                                                                                                               | <b>Teletext</b>                                                                                               | Index page and 4 data pages in 4 different languages                                                                             |
| <b>Video carrier</b><br>Resolution<br>Tuning                                                                          | 50 kHz<br>By channels or by frequency (CCIR, STD L, OIRT, FCC)                                                                                                                                                                           | <b>Audio</b><br>Mono<br>Dual-Stereo Zweiton<br>Dual-Stereo NICAM                                              | AM-FM-NICAM modulation<br>B, G, D, K, M systems<br>B, G, L, I, D, K systems                                                      |
| <b>Pattern charts</b>                                                                                                 | 37                                                                                                                                                                                                                                       | <b>PDC (Program Delivery Control)</b><br>Systems<br>Content                                                   | PAL B/G/I/D/K, ON/OFF selectable<br>Selectable START, STOP and PAUSE; date, time, country                                        |
| <b>Modulation</b>                                                                                                     | Double sideband DSB (GV-798+)<br>Vestigial sideband VSB (GV-898+)                                                                                                                                                                        | <b>VPS</b><br>Systems<br>Content                                                                              | PAL B/G/D/K seleccionable ON/OFF<br>Selectable START, STOP and PAUSE; date, time, country                                        |
| <b>Front panel outputs</b><br><b>RF</b><br>Output level<br>Frequency range<br><br>Impedance<br><b>Composite video</b> | 80 / 85 dB $\mu$ V (GV-898+ / GV-798+), attenuation up to 60 dB in 1 dB steps<br>37 - 865 MHz (GV-798+)<br>35 - 900 MHz (GV-898+)<br>75 $\Omega$<br>75 $\Omega$ , 1 Vpp, positive polarity, DC coupling                                  | <b>WSS (Wide Screen Signaling)</b><br>Systems<br>Content                                                      | PAL B/G/I/D/K<br>Eight combinations for 4:3, 14:9 and 16:9 formats                                                               |
| <b>Rear panel outputs</b><br>Blackburst<br>RGB<br>YPbPr<br>S-VHS<br>Synchronisms<br>SCART                             | 75 $\Omega$ , negative polarity, BNC connector<br>75 $\Omega$ , 0.7 Vpp amplitude, BNC connector<br>0.7 Vpp amplitude, BNC connector<br>75 $\Omega$ , 1.3 Vpp (lum.) amplitude - 0.3 Vpp (crom.)<br>CS, horizontal pulse, vertical pulse | <b>Power supply</b><br>Mains voltage<br>Consumption<br><br><b>Mechanical features</b><br>Dimensions<br>Weight | 110-125-220-230/240 V AC $\pm$ 10%, 50-60 Hz<br>40 W<br><br>W. 288 x H. 102 x D. 307 mm<br>5.6 kg. (GV-798+) / 5.8 kg. (GV-898+) |

## TV Generator



- 4:3 and 16:9 format patterns
- Compatible with PAL, SECAM and NTSC systems
- NICAM and Zweiton Sound
- Addition of an electronic circle on all patterns (except colour bars)
- Two logotypes
- VPS / PDC control signals
- Multi-standard and multi-system analogue TV signals
- RS-232 remote control

The **GV-698+** is a TV pattern generator with excellent price / performance ratio which is specially suitable for service of all kinds of TV receivers.

This pattern generator has the features usually found only in professional units, such the **NICAM** sound or **teletext**, while keeping a very attractive price tag.

There are **32 memories** available to store your most common test configurations. It is also possible to turn ON or OFF the colour burst, the sound subcarrier, the colour subcarrier, etc...

The **GV-698+** also has a DSB modulated RF output, with level adjustable in 10 dB steps.

### ▼ 23 Patterns ▼

4:3 & 16:9 formats

Electronic circle

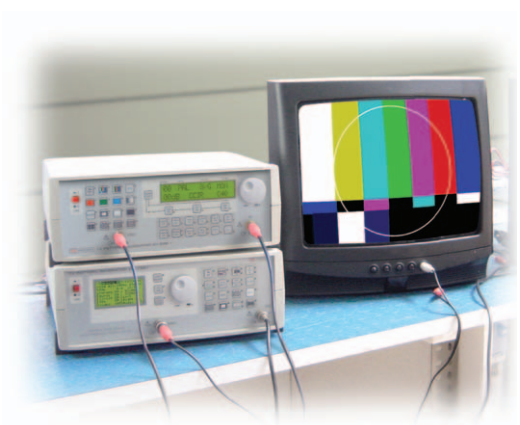
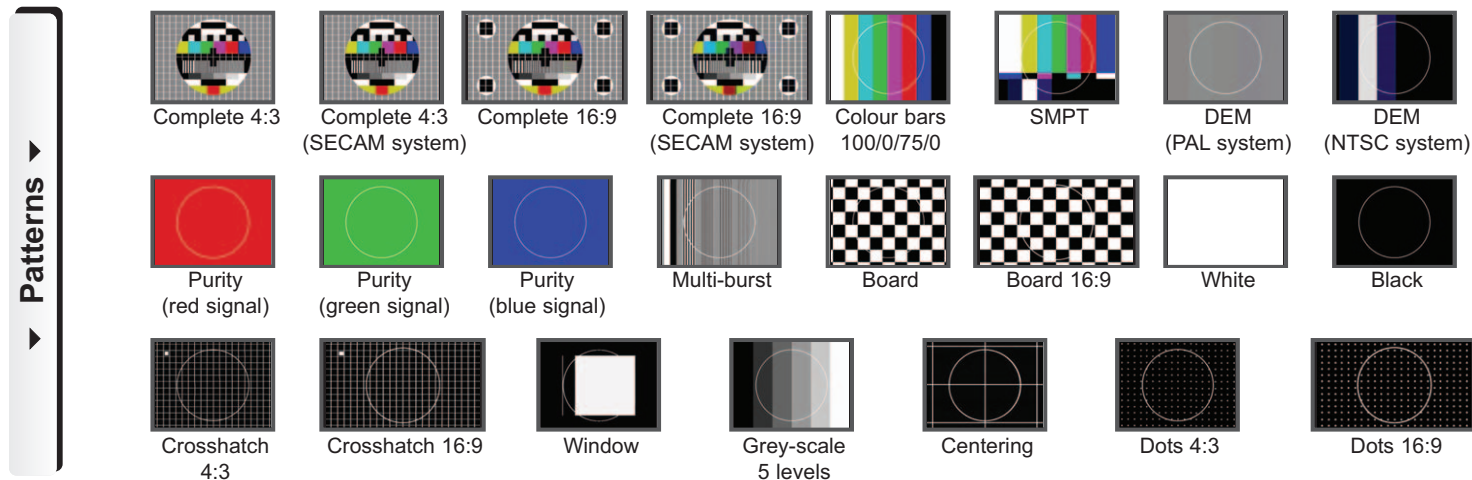
Pattern icons  
on the front panel

### ▼ Outputs ▼

RF  
YPbPr  
RGB  
S-VHS  
SCART  
Synchronisms  
Blackburst  
Composite video



## Medium range



| SPECIFICATIONS                                        |  | GV - 698+                                                 |                                                                                                                                                                                                                           |
|-------------------------------------------------------|--|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>System &amp; Standard</b>                          |  | PAL B/G/D/K/I/M/N, SECAM B/G/D/K/L, NTSC M                |                                                                                                                                                                                                                           |
| <b>Video Carrier</b>                                  |  | Synthesized, 34 - 865 MHz                                 |                                                                                                                                                                                                                           |
| Resolution                                            |  | By channels or by frequency (CCIR, STD L, OIRT, FCC)      |                                                                                                                                                                                                                           |
| Tuning                                                |  | 23                                                        |                                                                                                                                                                                                                           |
| <b>Patterns</b>                                       |  | 23                                                        |                                                                                                                                                                                                                           |
| <b>PAL (B, G, H, D, I) colour subcarrier</b>          |  | 4.43361875 MHz $\pm 30$ ppm (10°C - 40°C)                 |                                                                                                                                                                                                                           |
| Frequency                                             |  | 2.4 $\mu$ s (10 $\pm$ 1 period of Fsc)                    |                                                                                                                                                                                                                           |
| Burst duration                                        |  | $\pm 5$ % / $\pm 3$ %                                     |                                                                                                                                                                                                                           |
| Amplitude / phase error                               |  |                                                           |                                                                                                                                                                                                                           |
| <b>NTSC (M) colour subcarrier</b>                     |  | 3.579545 MHz $\pm 30$ ppm (10°C - 40°C)                   |                                                                                                                                                                                                                           |
| Frequency                                             |  | 2.38 $\mu$ s (10 $\pm$ 1 period of Fsc)                   |                                                                                                                                                                                                                           |
| Burst duration                                        |  | $\pm 5$ %                                                 |                                                                                                                                                                                                                           |
| Amplitude error                                       |  | $\pm 3$ %                                                 |                                                                                                                                                                                                                           |
| Phase error                                           |  |                                                           |                                                                                                                                                                                                                           |
| <b>SECAM (B, G, H, D, K, K1, L) colour subcarrier</b> |  | For = 4.406250 MHz $\pm 2$ kHz                            |                                                                                                                                                                                                                           |
| Subcarrier frequency                                  |  | Fob = 4.250000 MHz $\pm 2$ kHz                            |                                                                                                                                                                                                                           |
| (sync f <sub>H</sub> )                                |  | 5.850 - 6.552 MHz, 4QPSK modulation                       |                                                                                                                                                                                                                           |
| Dual-Stereo NICAM                                     |  |                                                           |                                                                                                                                                                                                                           |
| <b>Inputs</b>                                         |  | 75 $\Omega$ (V), 10 k $\Omega$ (A) direct coupling, SCART |                                                                                                                                                                                                                           |
| Video/Audio                                           |  |                                                           |                                                                                                                                                                                                                           |
|                                                       |  | <b>RF output</b>                                          | Output amplitude<br>Frequency range<br>Impedance                                                                                                                                                                          |
|                                                       |  |                                                           | 80 dB $\mu$ V $\pm 3$ dB, attenuation up to 50 dB in steps of 10 dB<br>37 to 865 MHz<br>75 $\Omega$                                                                                                                       |
|                                                       |  | <b>Modulation</b>                                         | Double side band                                                                                                                                                                                                          |
|                                                       |  | <b>Logotypes</b>                                          | One or two position-independent logotypes                                                                                                                                                                                 |
|                                                       |  | <b>Audio</b>                                              | Mono<br>Dual-Stereo Zweiton<br>Dual-Stereo NICAM                                                                                                                                                                          |
|                                                       |  |                                                           | AM-FM-NICAM modulation<br>B, G, D, K, M systems<br>B, G, L, I, D, K systems                                                                                                                                               |
|                                                       |  | <b>Rear panel outputs</b>                                 | Video<br>RGB - YPbPr<br>S-VHS<br>Synchronisms<br>SCART                                                                                                                                                                    |
|                                                       |  |                                                           | 75 $\Omega$ , positive polarity, BNC connector and SCART<br>75 $\Omega$ , 0.7 Vpp amplitude, BNC connector and SCART<br>75 $\Omega$ , 0.7 amplitude Vpp (lum.) - 0.3 Vpp (crom.)<br>Negative polarity, BNC connector<br>- |
|                                                       |  | <b>Teletext</b>                                           | Transmission mode<br>Content                                                                                                                                                                                              |
|                                                       |  |                                                           | NRZ (not return to zero)<br>8 different pages (two languages sent consecutively)                                                                                                                                          |
|                                                       |  | <b>Power supply</b>                                       | Mains voltage / consumption                                                                                                                                                                                               |
|                                                       |  |                                                           | 110-125-220-230/240 V AC $\pm 10$ %, 50-60 Hz / 20 W                                                                                                                                                                      |
|                                                       |  | <b>Mechanical features</b>                                | Dimensions and weight                                                                                                                                                                                                     |
|                                                       |  |                                                           | W. 288 x H. 102 x D. 247 mm / 3 kg.                                                                                                                                                                                       |

## TV Generator



- Direct access keys for nine different charts
- 4:3 & 16:9 formats
- Addition of an electronic circle
- Economy range
- Double side band modulation
- Tuning by frequency or CCIR / OIRT / FCC channel tables
- Multi-standard and multi-system
- Up to 10 available memories

The **GV-198** video generator is one of the most affordable PAL/SECAM/NTSC units on the market. It has nine different reference patterns that can be accessed with a keystroke; these allow performing the basic adjustments of any receiver as well as detecting malfunctions by visually checking the picture. Patterns can be in **4:3** and **16:9** format.

The synthesized RF modulator covers the **37-865 MHz range**; tuning can be handled by CCIR, OIRT or FCC channels or directly by frequency, in 50 KHz steps. An electronic attenuator allows a maximum attenuation of 50 dB in 10 dB steps.

The **GV-198** has 10 memories for storing 10 different, direct-access test configurations

### ▼ 9 Charts ▼

4:3 and 16:9 formats

Electronic circle

Pattern icons  
on the front panel

### ▼ Outputs ▼

RF  
RGB  
S-VHS  
SCART  
Synchronisms  
Composite video

## Economy range

▼ Pattern charts ▼



Color bars  
100/0/75/0



White



Dots  
4:3



Purity  
(red signal)



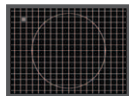
Black



Dots  
16:9



Purity  
(green signal)



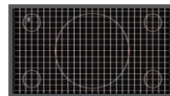
Convergence  
4:3



Board  
4:3



Purity  
(blue signal)



Convergence  
16:9



Board  
16:9



| SPECIFICATIONS       | GV - 198                                                                                                                               | Composite video output       |                                                           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------|
| System & Standard    | PAL B/G/D/K/I/M/N, SECAM B/G/D/K/L, NTSC M                                                                                             | Amplitude<br>Connector       | 1 Vpp, negative polarity<br>BNC and SCART, 75 Ω impedance |
| Video modulation     | AM double side band                                                                                                                    | RGB output (SCART)           |                                                           |
| Sound modulation     | Mono multistandard<br>Seleccionable ON/OFF<br>From 4.5 to 6.5 MHz<br>FM / AM (1 kHz)                                                   | Amplitude                    | 0.7 Vpp                                                   |
|                      |                                                                                                                                        | Connector                    | SCART, 75 Ω impedance                                     |
|                      |                                                                                                                                        | Composite sync. output       |                                                           |
|                      |                                                                                                                                        | Signal                       | Vertical + Horizontal                                     |
| PAL color subcarrier | 3.5756118 to 4.43361875 MHz <± 30 ppm<br>2.4 μs (10 ±1 Fsc period)<br>5.6 μs + 100 ns from the line previous synchronism flank<br>± 5% | Amplitude                    | 2.5 Vpp                                                   |
|                      |                                                                                                                                        | Connector                    | BNC, 1 kΩ impedance                                       |
|                      |                                                                                                                                        | Low frequency output (SCART) |                                                           |
|                      |                                                                                                                                        | Frequency                    | 1 kHz, amplitude 500 mVpp                                 |
|                      |                                                                                                                                        | Connector                    | SCART, 10 kΩ impedance                                    |
|                      |                                                                                                                                        | RF output                    |                                                           |
| NTSC                 | 3.579545 MHz <± 30 ppm<br>2.38 μs (10 ±1 Fsc period)<br>5,56 μs + 100 ns from the line previous synchronism flank<br>± 5%              | Range                        | De 37 a 865 MHz (sinthesized)                             |
|                      |                                                                                                                                        | Output amplitude             | 85 dBμV ± 3 dB                                            |
|                      |                                                                                                                                        | Power supply                 |                                                           |
| SECAM                | 4.250000 to 4.406250 MHz ± 2 kHz<br>D'r -1.5 to -1.9<br>Bell filter                                                                    | Mains supply                 | 110-125-220-230/240 V AC ± 10%, 50-60 Hz                  |
|                      |                                                                                                                                        | Consumption                  | 15 W                                                      |
|                      |                                                                                                                                        | Mechanical features          |                                                           |
|                      |                                                                                                                                        | Dimensions                   | W. 212 x H. 102 x D. 241 mm                               |
|                      |                                                                                                                                        | Weight                       | 1.78 kg.                                                  |

## Multimedia signal generator



- DVI Output
- Available tests for PAL, NTSC and HDTV systems
- Computer monitors VESA test
- Customized video formats
- Automatic detection of monitor supported formats
- Customized test sequences
- Electronic circle for geometry adjustments
- PC software included

The **GV-242** multimedia signal generator is an accurate, handy instrument; it provides signals, reference patterns and sound to support the verification of all kinds of computer monitors, video projectors, TV sets, flat screens (TFT & plasma) or multimedia monitors.

Its many features, like small size and battery operation, turn it into a very convenient instrument for both lab use and travelling service technicians. The **GV-242** is a portable, handy unit.

It features advanced characteristics, like self-calibration, colour sensors compatibility and customized test sequences; it also supports the design of customized video formats using *Video Generator Manager*, a PC application for MS Windows based computers .

Includes an RS-232 port, supporting PC-controlled operation and firmware updates.

### ▼ 20 Charts ▼

4:3 and 16:9 formats

Electronic circle

For TV sets  
and monitors

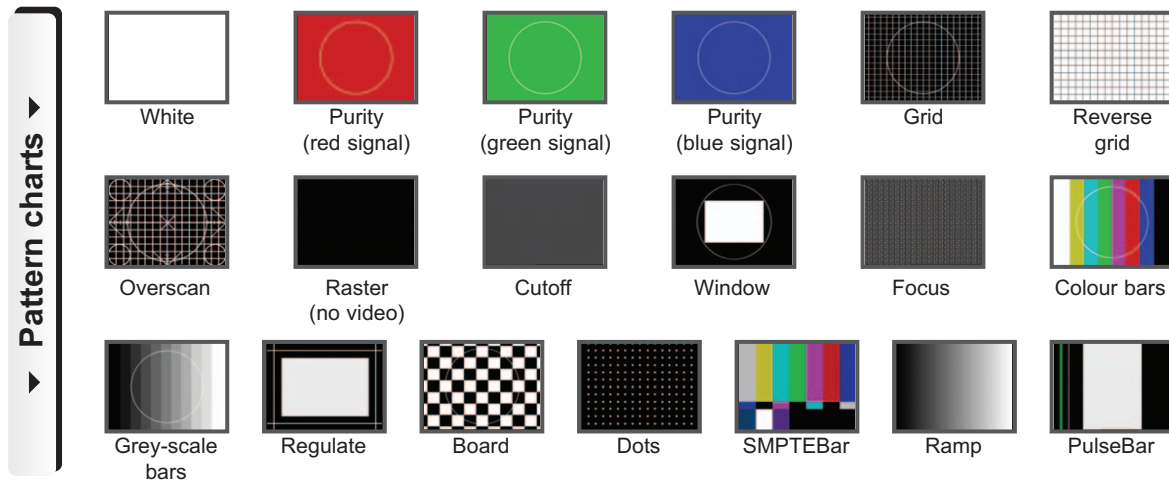
Customized formats

### ▼ Outputs ▼

YPbPr  
RGB  
S-VHS  
DVI  
VESA



## Supports high definition formats



Using an optional accessory (colour sensor), the **GV-242** can measure chromaticity (expressed as x,y coordinates according to the CIE standard) and screen brightness, that can be expressed in "fL" or "nits".

| SPECIFICATIONS                                                                  | GV - 242                                                                                                                                                                      | User Interface                                                                         |                                                                                                       |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Formats</b><br>Storage<br>Built-in<br>Edit method                            | 126 total<br><br>VESA, DVI, PAL/NTSC, HDTV/SDTV-RGB, HDTV/SDTV-YPbPr<br>MS WIndows based <i>Video Generator Manager</i>                                                       | Display<br>Controls                                                                    | 20 x 4 character LCD with backlight<br>Intuitive drill-down menus                                     |
|                                                                                 |                                                                                                                                                                               | <b>Computer Port</b><br>Type<br>Purpose                                                | RS-232C, 9 pin<br>Copy formats and firmware updates from PC                                           |
| <b>Images</b><br>Standard                                                       | White, Purity (red, green, blue), Grid, Reverse grid,<br>Overscan, Raster, Cutoff, Focus, Colour bars, Grey-scale bars,<br>Regulate, Checker, Dots, SMPTEBar, Ramp, Pulse Bar | <b>Color sensor support</b><br>Description                                             | Display data from a color sensor for<br>white balance adjustment                                      |
|                                                                                 |                                                                                                                                                                               | <b>DDC (Display Data Channel)</b><br>Description                                       | Read a monitor's EDID data and display<br>the manufacturer's suported formats<br>DDC-2B (read only)   |
| <b>Test sequence</b><br>Storage<br>Edit method<br>Parameters                    | 100 steps<br><br>Using <i>Video Generator Manager</i><br>Format, image, duration (0.1 seg to 24 hours)                                                                        | Version                                                                                |                                                                                                       |
|                                                                                 |                                                                                                                                                                               | <b>Sound</b><br>Output<br>Signal                                                       | Stereo connector, 3.5 mm<br>Tone 1 kHz (left), Tone 2 kHz (right)                                     |
| <b>Horizontal Timing</b><br>Frequency<br>Total pixels<br>Active range           | 1.5 kHz - 250 kHz<br>32 to 4095<br>16 to 4294 pixels                                                                                                                          | <b>Power supply</b><br>DC<br>Battery life<br>AC<br>Charge time<br>Frequency<br>Voltage | 6 AA NiMh batteries included<br>8 hours between charges with NiMh<br>Charger / generator power supply |
|                                                                                 |                                                                                                                                                                               |                                                                                        | 8 hours<br>50 to 50 Hz<br>100 - 250 VAC (auto-select)                                                 |
| <b>Vertical Timing</b><br>Frequency<br>Active lines<br>Sync types<br>Scan types | 1 Hz - 1 kHz<br>1 - 4095<br><br>Separate, digital/analogue composite<br>Progressive, Interlace, HDTV                                                                          | <b>Mechanical features</b><br>Dimensions<br>Weight                                     | W. 210 x H. 152 x D. 41 mm.<br>700 g                                                                  |

# Test generator for monitors



## ▼ 8 pattern charts ▼

Colour bars  
 Purity (Red, Green, Blue)  
 Gray-scale bars  
 Crosshatch  
 Multiburst  
 White 100%

## ▼ Outputs ▼

2 x D9  
 D15  
 RGB  
 Composite sync.  
 Horizontal sync.  
 Vertical sync.  
 Video without sync.

| SPECIFICATIONS                                             | GV - 241                                                                                                                                                                                                                                                                                         |                |                                  |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|
| <b>RGB outputs</b><br>Output<br><br>Amplitude<br>Impedance | <b>R</b>                                                                                                                                                                                                                                                                                         | <b>B</b>       | <b>G</b>                         |
|                                                            | Red signals                                                                                                                                                                                                                                                                                      | Blue signals   | Green signals with/without sync. |
|                                                            | 0.7 Vpp<br>75 Ω, BNC connector                                                                                                                                                                                                                                                                   |                |                                  |
| <b>CVS Output</b><br>Output<br>Amplitude<br>Impedance      | Video signal<br>0.7 Vpp<br>75 Ω, BNC connector                                                                                                                                                                                                                                                   |                |                                  |
| <b>Synchronism Output</b><br>Output<br>Señal               | <b>HS</b>                                                                                                                                                                                                                                                                                        | <b>VS</b>      | <b>CS</b>                        |
|                                                            | Horizontal Sync.                                                                                                                                                                                                                                                                                 | Vertical Sync. | Sync. Composite                  |
| <b>C1-C2-C3 Outputs</b>                                    | Connectors D9, D15 miniature and D15 respectively.<br>Direct connection to the monitor. The outputs of the D9 connector are all TTL. When the "Color bars" or "Gray-scale bars" are selected, a B/W picture will appear. When used with a Hercules monitor, the R, G and B charts will be black. |                |                                  |
| <b>CVS Output</b><br>Output<br>Impedance                   | Video signal<br>75 Ω, BNC connector                                                                                                                                                                                                                                                              |                |                                  |
| <b>Power supply</b><br>Mains supply<br>Consumption         | AC 110-125-220-230-240 V ± 10%, 50-60 Hz<br>9 W                                                                                                                                                                                                                                                  |                |                                  |
| <b>Mechanical features</b><br>Dimensions<br>Weight         | W. 212 x H. 102 x D. 241 mm<br>2.4 kg.                                                                                                                                                                                                                                                           |                |                                  |

The wide range of different models in the computer monitor field drives demand for versatile instruments like the **GV-241**, a universal generator for checking monitors that greatly simplifies their adjustment, verification and repair.

The **GV-241** provides up to 29 possible graphic systems; signals are highly reliable in regard to sync, line and field timing. It supports three monitor connector types, as well as RGB, CVS outputs; horizontal, vertical and composite sync are through BNC connectors.

# Supports a wide range of monitors

## First group (P)

| System | Pixels    | Frequency                        |                                | PAH (4)<br>(ms) | SH (2)<br>(ms) | PPH (3)<br>(ms) | PAV (8)<br>(ms) | SV (6)<br>(ms) | PPV (7)<br>(ms) | Polarity |   | Interlace |
|--------|-----------|----------------------------------|--------------------------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|----------|---|-----------|
|        |           | Horiz (kHz)<br>(1) <sup>-1</sup> | Vert (Hz)<br>(5) <sup>-1</sup> |                 |                |                 |                 |                |                 | H        | V |           |
| VGA    | 640x480   | 31.469                           | 59.94                          | 0.636           | 3.813          | 1.907           | 0.318           | 0.064          | 1.048           | -        | - | NO        |
| VESA   | 800x600   | 37.879                           | 60.317                         | 1               | 3.2            | 2.2             | 0.026           | 0.106          | 0.607           | +        | + | NO        |
| VESA   | 1024x768  | 48.363                           | 60.004                         | 0.369           | 2.092          | 2.462           | 0.062           | 0.124          | 0.6             | -        | - | NO        |
| ATT    | 1280X1024 | 63.953                           | 59.938                         | 0.727           | 1.018          | 2.255           | 0.016           | 0.078          | 0.579           | -        | - | NO        |
| Sun    | 1600X1280 | 89.2                             | 66.9                           | 0.001           | 2.03           | 1.4             | 0.011           | 0.112          | 0.471           | +        | + |           |

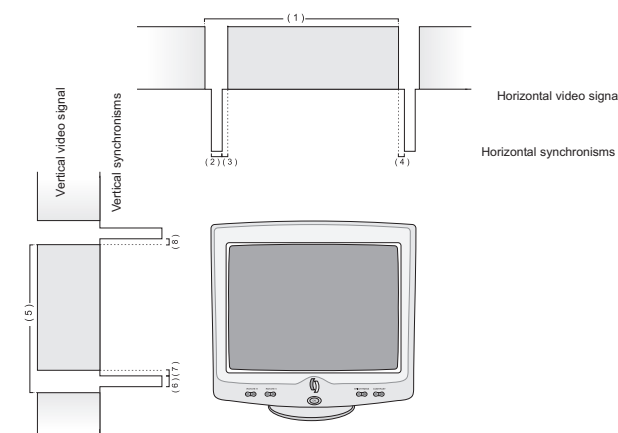
### TOLERANCE

|                            |         |
|----------------------------|---------|
| Horizontal frequency shift | ± 1 %   |
| Vertical frequency shift   | ± 1,5 % |

## Second group (S)

| System        | Pixels    | Frequency                        |                                | PAH (4)<br>(ms) | SH (2)<br>(ms) | PPH (3)<br>(ms) | PAV (8)<br>(ms) | SV (6)<br>(ms) | PPV (7)<br>(ms) | Polarity |     | Interlace |
|---------------|-----------|----------------------------------|--------------------------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|----------|-----|-----------|
|               |           | Horiz (kHz)<br>(1) <sup>-1</sup> | Vert (Hz)<br>(5) <sup>-1</sup> |                 |                |                 |                 |                |                 | H        | V   |           |
| CGA, EGA      | 640x200   | 15.81                            | 61.5                           | 6.6             | 4.2            | 7.2             | 1.58            | 0.19           | 2.15            | +        | +   | NO        |
| MDA, Hercules | 720X350   | 18.42                            | 49.91                          | 0.6             | 8.25           | 1.45            | 0.001           | 0.9            | 0.2             | +        | -   | NO        |
| EGA Hi        | 640X350   | 21.86                            | 59.72                          | 0.001           | 4.9            | 1.6             | 0.001           | 0.6            | 0.08            | +        | +   | NO        |
| VGA           | 640X350   | 31.469                           | 70.09                          | 0.636           | 3.813          | 1.907           | 1.176           | 0.064          | 1.902           | +        | -   | NO        |
| VGA           | 640X400   | 31.469                           | 70.09                          | 0.636           | 3.813          | 1.907           | 0.318           | 0.064          | 1.112           | -        | +   | NO        |
| VGA Text      | 720X400   | 31.48                            | 70.11                          | 0.635           | 3.812          | 1.906           | 0.304           | 0.063          | 1.111           | -        | +   | NO        |
| VESA          | 720X400   | 37.736                           | 90.044                         | 0.75            | 1.25           | 4.5             | 0.239           | 0.08           | 0.981           | -        | +   |           |
| MAC II        | 840X480   | 35                               | 66.67                          | 2.116           | 2.116          | 3.175           | 0.084           | 0.086          | 1.114           | +        | +   | NO        |
| VESA          | 800X600   | 35.156                           | 56.25                          | 0.667           | 2              | 3.556           | 0.028           | 0.057          | 0.626           | +/-      | +/- |           |
| VESA          | 640X480   | 37.86                            | 72.809                         | 0.762           | 1.27           | 4.603           | 0.238           | 0.079          | 0.74            | -        | -   |           |
| 8514          | 1024X768  | 35.522                           | 86.96                          | 0.178           | 3.92           | 1.247           | 0.014           | 0.112          | 0.563           | +        | +   | YES       |
| SVGA 72Kc     | 800X600   | 48.09                            | 72.01                          | 1.121           | 2.399          | 1.279           | 0.479           | 0.124          | 0.774           | +        | +   |           |
| 1025x768      | 1025X768  | 48.3                             | 60                             | 0.369           | 2.092          | 2.462           | 0.062           | 0.124          | 0.6             | -        | -   | NO        |
| SONY Std1     | 1024X768  | 48.78                            | 60                             | 1               | 1.5            | 2               | 0.061           | 0.061          | 0.799           | +        | +   | NO        |
| DEC           | 1024X864  | 54                               | 60                             | 0.16            | 1.85           | 1.68            | 0.001           | 0.056          | 0.629           | +        | +   |           |
| XGA           | 1024X768  | 56.5                             | 70                             | 0.32            | 1.813          | 1.92            | 0.053           | 0.106          | 0.513           | -        | -   | NO        |
| 57K/72H       | 1024X768  | 57.09                            | 72                             | 0.32            | 1.77           | 1.87            | 0.054           | 0.103          | 0.5             | +        | +   |           |
| Radius        | 1152X882  | 66                               | 72                             | 0.138           | 1.28           | 2.42            | 0.001           | 0.2            | 0.38            | +        | +   |           |
| MAC II TP     | 1152X870  | 68.681                           | 75.06                          | 0.32            | 1.28           | 1.44            | 0.043           | 0.043          | 0.567           | -        | -   | NO        |
| Samsung       | 1006X1048 | 62.8                             | 59.8                           | 0.15            | 1.88           | 1.58            | 0.001           | 0.127          | 0.542           | +        | +   |           |
| SONY Std 2    | 1280X1024 | 63.337                           | 59.98                          | 0.407           | 1.701          | 1.849           | 0.047           | 0.047          | 0.41            | +        | +   | NO        |
| DEC           | 1280X1024 | 70.7                             | 66.5                           | 0.267           | 1.33           | 1.87            | 0.042           | 0.042          | 0.467           | +        | +   |           |
| Arts. Graf    | 1280X1024 | 78                               | 73                             | 0.228           | 0.915          | 1.907           | 0.038           | 0.038          | 0.488           | +        | +   |           |

- PAH (4) Horizontal front porch time  
SH (2) Horizontal synchronism  
PPH (3) Horizontal back porch time  
PAV(8) Vertical front porch time  
SV (6) Vertical synchronism  
PPV (7) Vertical back porch time



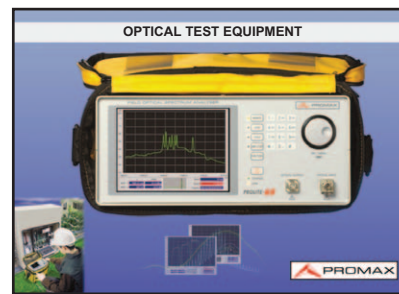
For other monitor types contact with us



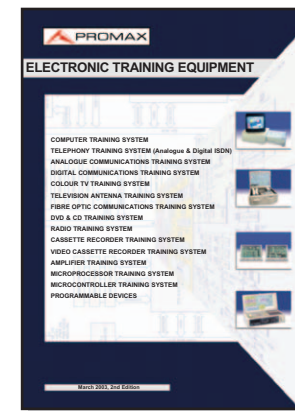
TEST AND  
MEASUREMENT



TELECOMMUNICATIONS  
TEST EQUIPMENT



OPTICAL  
TEST EQUIPMENT



ELECTRONIC  
TRAINING EQUIPMENT



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