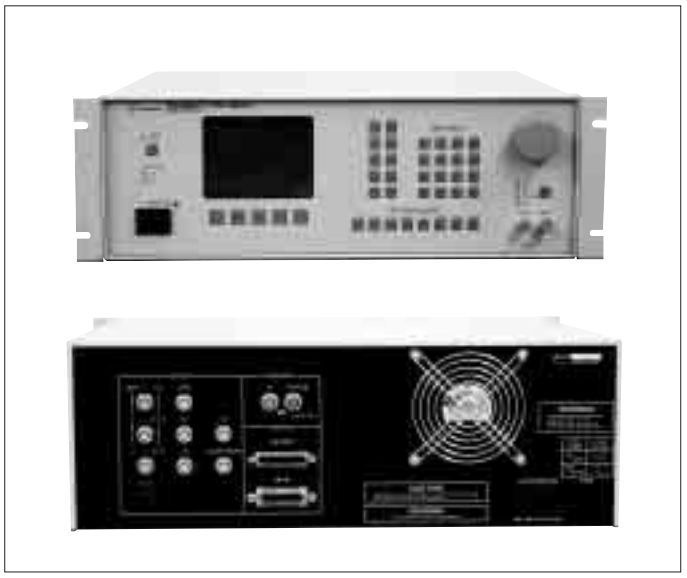
# 1209A

## PROGRAMMABLE TELEVISION SIGNAL GENERATOR



## General

This unit is television signal generator that can make variation and setting of each component of signal on liquid crystal display easily by key operation providing various built-in video signals needed for research & development, adjustment for each characteristic and checking of video equipment of current TV systems (NTSC/PAL/SECAM).

## Features

- 71※kinds of video signal are built-in as standard equipment.
  By employing large volume hard disk, 71※kinds of video signal are built-in as standard equipment.
  Note) ※But, 68 kinds for SECAM system.
- Signal of high stability and high quality is supplied.
  Video signal of less aging change and no distorted high stability and high quality can be supplied always by filling up hardware and software with employment of 32 bits CPU, 10 bits accurate D/A converter and etc.
- 200 sets of setting for signal generator are memorized.
  Condition of each element of video signal is stored with numbering from 1 to 200 and is possible to recall at anytime. Also, if power is turned off, condition is returned to that of before power off when power is turned on again.
- Output level, phase, frequency and etc. of signal generator are indicated in digital.
  Formerly, when signal generator that can be adjusted level, phase and frequency, knowing of each component of output signal was impossible without providing oscilloscope, vectorscope and frequency counter.
  In this unit, condition of signal component possible to set is indicated on front panel, so that condition of output signal can be known by only signal generator.
- Operation is computer control mainly by key input.
  For setting of numerical value, there are digital like data key and using of analog like control knob and setting method complying to usage purpose can be selected. Also, at message indication part, message to meet for the time of operation is indicated, so that easy operation is possible without referring to instruction manual always.
- GP-IB and RS-232-C for most suitable to automate are equipped as the standard.
  GP-IB and RS-23C-C interface are equipped in this unit as the standard for connecting interface with external computer. Connection with computer is possible easily. ASC11 format is employed for control command.
  Control is made simply by program of BASIC language.

## Composition

**Main Unit** ·····1

Dimensions 425(W)×149(H)×450(D) mm (Excluding projections)
Weight Approx. 16 kg

**Accessories**

Power Cable (Including 3pin→2pin converter) ·····1
Rack Mount Adapter·····1set
Instruction Manual and Test Result Sheet ·····1

**Power Source**

Input Voltage Allowable Range : AC100V～AC120V (50Hz/60Hz)
AC200V～AC240V (50Hz/60Hz)
Power Consumption : Approx. 210VA

**Operating Environment**

Temperature : ＋5℃～＋40℃
Humidity : 45%～85%RH (No dew generation)

## Rating

Type name is to be following depending on kind of video signal to be used.

| Video Signal | Type Name |
|---|---|
| NTSC | 1209A-N01 |
| PAL | 1209A-P01 |
| SECAM | 1209A-S01 |
| NTSC/PAL/SECAM | 1209A-A01 |

- Kind of video signal
  Video signals built-in in this unit are following list.

### Kind 1 of Video Signal

| PATTERN SELECT | PATTERN | VARIABLE ITEM | NTSC | PAL | SECAM |
|---|---|---|---|---|---|
| COLOR | Studio Color Bar | | ○ | ○ | ○ |
| | Full Field Color Bar (7 splits) | | ○ | ○ | ○ |
| | Full Field Color Bar (8 splits) | | ○ | ○ | ○ |
| | EIA Color Bar | | ○ | ○ | ○ |
| | SMPTE Color Bar | | ○ | ○ | ○ |
| | Rainbow Color Bar (split) | | ○ | ○ | ○ |
| | Rainbow Color Bar (continuous) | | ○ | ○ | ○ |
| | Rainbow Color Bar (complexion) | | ○ | ○ | ○ |
| | White Monotone | | ○ | ○ | ○ |
| | Yellow Monotone | | ○ | ○ | ○ |
| | Cyan Monotone | | ○ | ○ | ○ |
| | Green Monotone | | ○ | ○ | ○ |
| | Magenta Monotone | | ○ | ○ | ○ |
| | Red Monotone | | ○ | ○ | ○ |
| | Blue Monotone | | ○ | ○ | ○ |
| CROSS | Cross (Positive) | Number of split for horizontal and vertical. | ○ | ○ | ○ |
| | Cross (Negative) | Width of vertical line. | ○ | ○ | ○ |
| | Dot (Positive) | Number of split for horizontal and vertical. | ○ | ○ | ○ |
| | Dot (Negative) | Width of dot. | ○ | ○ | ○ |
| | Cross & Dot (Positive) | Number of split for horizontal and vertical. | ○ | ○ | ○ |
| | Cross & Dot (Negative) | Width of vertical line and dot. | ○ | ○ | ○ |
| | Cross & 9 points Dot (Positive ) | | ○ | ○ | ○ |
| | Cross & 9 points Dot (Negative) | | ○ | ○ | ○ |
| | Cross & 9 points Dot & Dot (Positive) | | ○ | ○ | ○ |
| | Cross & 9 points Dot & Dot (Negative) | | ○ | ○ | ○ |
| | Cross & Marker (Positive) | Number of split for horizontal and vertical. | ○ | ○ | ○ |
| | Cross & Marker (Negative) | Width of vertical line. | ○ | ○ | ○ |

### Kind 2 of Video Signal

| PATTERN SELECT | PATTERN | VARIABLE ITEM | NTSC | PAL | SECAM |
|---|---|---|---|---|---|
| STEP | Stair Wave (3 stairs) | Chrominance Super ON/OFF※1 | ○ | ○ | ○ |
| | Stair Wave (4 stairs) | | ○ | ○ | ○ |
| | Stair Wave (5 stairs) | | ○ | ○ | ○ |
| | Stair Wave (6 stairs) | | ○ | ○ | ○ |
| | Stair Wave (7 stairs) | | ○ | ○ | ○ |
| | Stair Wave (8 stairs) | | ○ | ○ | ○ |
| | Stair Wave (9 stairs) | | ○ | ○ | ○ |
| | Stair Wave (10 stairs) | | ○ | ○ | ○ |
| | Stair Wave (11 stairs) | | ○ | ○ | ○ |
| | Special Stair Wave A | | ○ | ○ | ○ |
| | Special Stair Wave B | | ○ | ○ | ○ |
| | 80%Lump | | ○ | ○ | ○ |
| | 100%Lump | | ○ | ○ | ○ |
| | APL 0% | | ○ | ○ | ○ |
| | APL 10% | | ○ | ○ | ○ |
| | APL 20% | | ○ | ○ | ○ |
| | APL 30% | | ○ | ○ | ○ |
| | APL 40% | | ○ | ○ | ○ |
| | APL 50% | | ○ | ○ | ○ |
| | APL 60% | | ○ | ○ | ○ |
| | APL 70% | | ○ | ○ | ○ |
| | APL 80% | | ○ | ○ | ○ |
| | APL 90% | | ○ | ○ | ○ |
| | APL 100% | | ○ | ○ | ○ |
| WINDOW | Window 1 | Monochrome/Color, Horizontal and Vertical position and width. | ○ | ○ | ○※2 |
| | Window 2 | | ○ | ○ | ○※2 |

※1 Only for NTSC and PAL corresponding unit.
※2 For SECAM system, only monochrome.

### Kind 3 of Video Signal

| PATTERN SELECT | PATTERN | VARIABLE ITEM | NTSC | PAL | SECAM |
|---|---|---|---|---|---|
| SIN | T Pulse & T Bar | | ○ | ○ | ○ |
| | 2T Pulse & 2T Bar | | ○ | ○ | ○ |
| | Modulation 20T Pulse & 2T Pulse & 2T Bar | | ○ | ○ | × |
| | Multi Modulation Pulse | | ○ | ○ | × |
| | SIN X/X | | ○ | ○ | × |
| SWEEP | SIN WAVE (0.05~10MHz) | Frequency | ○ | ○ | ○ |
| | Multi Burst (0.5~5MHz) | | ○ | ○ | ○ |
| | H SWEEP (0.05~10MHz) | Frequency width | ○ | ○ | ○ |
| | V SWEEP (0.05~15MHz) | | ○ | ○ | ○ |
| ZONE | Pattern 1 (CZP) | Diameter, π scroll, π scroll speed | ○ | ○ | ○ |
| | Pattern 2 (HZP1) | | ○ | ○ | ○ |
| | Pattern 3 (HZP2) | | ○ | ○ | ○ |
| | Pattern 4 (2X2 CZP) | | ○ | ○ | ○ |
| | Pattern 5 (2X2 HZP1) | | ○ | ○ | ○ |
| | Pattern 6 (2X2 HZP2) | | ○ | ○ | ○ |
| | Pattern 7 (4X4 CZP) | | ○ | ○ | ○ |
| | Pattern 8 (4X4 HZP1) | | ○ | ○ | ○ |
| | Pattern 9 (4X4 HZP2) | | ○ | ○ | ○ |
| OTHER※3 | User Designation | | ○ | ○ | ○ |

※3 In standard specifications, pattern is not built-in, so that if this key is pushed, pattern is not selected and display returns to menu display.

**• Setting of each component of video signal and variable item and range.**

Setting, and item to be able to vary and range of each component of video signal are as shown in following list.

### Variable Item 1

| Key Name & Item | | Contents | Variable Range | Variable Min. step |
|---|---|---|---|---|
| ATT | Luminance | Level | 0~250% | 1% |
| | SYNC | Level | 0~250% | 1% |
| | Chrominance | Level | 0~250% | 1% |
| | Burst | Level | 0~250% | 1% |
| FREQ | Horizontal | Frequency | −2~2 kHz | 1Hz |
| | Vertical | Number of Line | −100~100 lines | 1lines |
| | Sub Carrier | Frequency | −2000~2000 Hz | 1Hz |
| PHASE | Y/C | Phase | −1~1 μsec | 50 nsec |
| | Chrominance | HUE | −180~180° | 1° |
| | SCH | Phase | −180~180° | 2° |
| BURST | | Position | −1~3 μsec ※4 | 0.1 μsec |
| | | Width※5 | 0~15 cycles | 1 cycle |
| APL | | ON/OFF | ON / OFF | – |
| | | Level | 0~100% | 1% |
| | | Time | 0.5~10 sec | 0.5 sec |
| PULSE | H SYNC | Width | −4~4 μsec | 0.1 μsec |
| | V SYNC | Width | −3~3 H | 0.5 H |
| | V SERRATION | Number | 1~6 ON/OFF voluntarily | – |
| | EQ 1 | Number | 1~6 ON/OFF voluntarily | – |
| | EQ 2 | Number | 1~6 ON/OFF voluntarily | – |
| | Horizontal Display | Position | 0~4 μsec | 0.1 μsec |
| | | Width | −4~0 μsec | 0.1 μsec |
| | Vertical Display | Position | 0~50 H | 1 H |
| | | Width | −50~0 H | 1 H |
| SCROLL | Horizontal Direction | H MODE | AUTO / MANUAL | – |
| | | H POSITION | 0~1537(N),1885(P/S) CLOCK ※6 | 1 CLOCK |
| | | H MOVE | LEFT / RIGHT | – |
| | | H SPEED | 0.1~99.9 CLK/1V | 0.1 CLK / 1V |
| | Vertical Direction | V MODE | AUTO / MANUAL | – |
| | | V POSITION | 0~483(N),575(P/S)LINE ※6 | 1 LINE |
| | | V MOVE | UP / DOWN | – |
| | | V SPEED | 0.1~99.9 LINE/1V | 0.1 LINE / 1V |

### Variable Item 2

| Key Name & Item | | | Contents | Variable Range | Variable Min. Step |
|---|---|---|---|---|---|
| DIST | | H Sag | ON/OFF | ON / OFF | – |
| | | | Wave Form | Selected from 6 Kinds | – |
| | | | Level | 0~250 mV | 1 mV |
| | | V Sag | ON/OFF | ON / OFF | – |
| | | | Wave Form | Selected from 4 Kinds | – |
| | | | Level | 0~250 mV | 1 mV |
| | | Hum | ON/OFF | ON / OFF | – |
| | | | Frequency | 50 / 60 Hz | – |
| | | | Level | 0~500 mV | 2 mV |
| | | DC Bounce | ON/OFF | ON / OFF | – |
| | | | Level | −500~500mV | 2 mV |
| | | | Start Line | 1~Number of Vertical Line/2 | 1 line |
| | | | End Line | 1~Number of Vertical Line/2 | 1 line |
| EXTRA | SECAM ※7 | Pre-emphasis | ON/OFF | ON / OFF | – |
| | | Bell Filter | ON/OFF | ON / OFF | – |
| | | V IDENT | ON/OFF | ON / OFF | – |
| | | Luminance Trap | ON/OFF | ON / OFF | – |
| | EDTV ※8 | Control Signal | Identify control signal, GCR signal | ON / OFF | – |
| | | Letter Box | Letter Box/Full Field | ON / OFF | – |
| | | VT | ON/OFF | | – |
| | | VH | ON/OFF | | – |
| | | HH | ON/OFF | | – |
| | | HH Pre-Combing | ON/OFF | | – |

※4 −3~2 μsec for type corresponding to SECAM.
※5 Only for types corresponding to NTSC and PAL.
※6 (N) is value for NTSC system and (P/S) is value for PAL and SECAM system.
※7 Only for type corresponding to SECAM.
※8 Only for type corresponding to EDTV (But, control signal is buit-in as the standard for type corresponding to NTSC).