Ready for a range of audio and video testing with **12G-SDI / IP**

![ESG-4200 4K/HD Test Signal Generator](image)

**ESG-4200**

**4K/HD Test Signal Generator**

Creates 4K signals (UHD 3840 x 2160p, Full 4K 4096 x 2160p). 4K video signals that are output at 60p/59.94p/50p can be distributed from 12G-SDI lines to 4 outputs and Video over IP Interface to 2 outputs. 2 lines of 3G/HD-SDI outputs are also supported and controlled independently (optional).

### Features

**12G-SDI and Video over IP support**
Support 12G-SDI and Video over IP Interface. SMPTE 2022-6 supported. SMPTE 2110 and NMI are planning to be supported.

**Versatile 4K output**
Can produce any combination of Square Division (SQD)/2-Sample Interleave (2SI) signals, and 3840 x 2160p/4196 x 2160p resolution. (12G mode can be used only with 2SI.)

**Video test patterns / Flash function**
Standard test patterns include color bars, ramp, step, white, black, pathological, crosshatch, multi-burst, and noise. Up to 10 custom register test patterns created via PC interface. Flash function allows White or Black signals to be inserted into video.

**Colorimetry switching**
Choose from ITU-R BT.2020 or ITU-R BT.709 for 4K testing (except for custom-made user test patterns.)

**Test pattern scrolling**
Scrolling test patterns can be selected horizontally, vertically, horizontally and vertically at the same time, sequenced, or randomized.

**Character display**
Display time codes or channel numbers on test patterns as necessary. Alphanumeric characters able to be scrolled.

**Logos**
Logos (PNG format) created on a PC can be displayed on test patterns, and scrolled (excluding USER patterns).

**Audio test signals**
Outputs standard test signals (1 kHz, etc.) Test signals can also be customized by registering 10 computer-generated WAV (linear PCM) files (30 seconds, 32 channels).

**External control, SNMP monitoring**
Control the unit via Telnet, or monitor operation via SNMP.

**HDR test chart**
PQ and HLG (Gray scale, Color bar) test charts available as optional accessories.

**Two-line output**
One line (SG-1) for 4K and HD output is provided as standard. Able to support two-line output (SG-1, SG-2) with option. SG-1 and SG-2 independently configurable.

#### Standard (One-line output)

<table>
<thead>
<tr>
<th>4K</th>
<th>3G mode at 60p/59.94p/50p</th>
<th>5 distributed outputs of quad link 3G-SDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>12G mode at 60p/59.94p/50p</td>
<td>4 distributed outputs of 12G-SDI and 2 distributed outputs of quad link 3G-SDI</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>1.5G mode at 30p/29.97p/25p/24p/23.98p</td>
<td>5 distributed outputs of dual link 3G-SDI</td>
<td></td>
</tr>
<tr>
<td>60p/59.94p/50p</td>
<td>7 distributed outputs of 3G-SDI</td>
<td></td>
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</tbody>
</table>

#### With option (Two-line output)

<table>
<thead>
<tr>
<th>4K</th>
<th>3G mode at 60p/59.94p/50p</th>
<th>7 distributed outputs of quad link 3G-SDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>12G mode at 60p/59.94p/50p</td>
<td>4 distributed outputs of quad link 3G-SDI</td>
<td></td>
</tr>
<tr>
<td>6G mode at 30p/29.97p/25p/24p/23.98p</td>
<td>1 distributed output of quad link 1.5G-SDI</td>
<td></td>
</tr>
<tr>
<td>1.5G mode at 30p/29.97p/25p/24p/23.98p</td>
<td>1 distributed output of quad link 1.5G-SDI</td>
<td></td>
</tr>
<tr>
<td>60p/59.94p/50p</td>
<td>7 distributed outputs of quad link 1.5G-SDI</td>
<td></td>
</tr>
</tbody>
</table>

HD | 60p/59.94p/50p | 7 distributed outputs of quad link 3G-SDI |
<table>
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For a: Innovations in Video and Audio Technology.
Specifications

Video output

- 4K
- 3840 x 2160/4096 x 2160
- YUV422/10bit

Audio formats

- HD: 1920 x 1080
- YUV422/10bit

Audio output

- 4K (SDI EMBEDDED)
- HD (SDI EMBEDDED)
- MADI

Reference input

- BNC: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p, SMPTE ST 170-compliant
- Tri-level sync: 0.6 Vp-p, SMPTE ST 240-3 compliant

Reference output

- BNC x3 (tri-level sync or BB available for each)
- HD reference: Tri-level sync: SMPTE ST 240-compliant
- SD reference: BB, SMPTE ST 170/ST 318-compliant

Interface

- Ethernet: 10BASE-T/100BASE-TX, RJ-45 x1
- GPIO: D-Sub 9-pin, Programmable I/O 7-bit

Video output patterns

- COLOR BAR group
- Full color bar (100%/75%), SQD full color bar (100%/75%), Multi-format color bar (100%/75%), SQD multi-format color bar (100%/75%), Color space (100%/75%)

- LINEAR group
- Y Ramp (UP/DOWN), Y Step (5/10), B Step (5/10), Expansion Ramp (White/Yellow/Cyan/Green/Magenta/Red/Blue)

- FLAT group
- White (100%/50%), Black (100%/50%), Red (100%/50%), Blue (100%/50%), Green (100%/50%)

- SDI group
- SQD, Pathological

- OTHER group
- Crosshatch (NOR/REV), Multiburst, Noise, User (1-10) (Up to 10 frame test patterns created on a computer can be registered)

Audio test signals

- Multiplexing groups
- Off, 1, 1+2, 1+2+3, 1+2+3+4 (Can specify audio packets to multiplex into the four lines of SDI output.)

- Audio frequency
- 400 Hz, 800 Hz, 1 kHz, 2 kHz, 3 kHz, 4 kHz, 6 kHz, 8 kHz, 10 kHz, 12 kHz, User (1-10)

- Audio level
- 0 dBFS, -6 dBFS, -12 dBFS, -20 dBFS, -22 dBFS, -24 dBFS, STEP, MUTE

- Audio mute
- MUTE OFF, MUTE CH1 to 4, MUTE CH3 to 4, MUTE CH4 to 4, MUTE CH4

- Audio channel
- ALL OFF, 1 ON, 1 to 2 ON, 1 to 3 ON, 1 to 4 ON

- Temperature/humidity
- 0°C to 40°C/10% to 80% (no condensation)

- Power/consumption
- 100 V AC to 240 V ACx10%, 50/60 Hz/Max.110 W (at 100 V AC)

- Dimensions/weight
- 430 (W) x 44 (H) x 450 (D) mm/7 kg

- Consumables
- Cooling fans (to be replaced every 5 years)
- Power unit (to be replaced every 3 years)

- Accessories
- AC cord, Rack mount brackets, CD-ROM (Operation manuals, Frame pattern registration software, SNMP MIB files)

- Options
- ESG-42S02: 5G 2 option
- ESG-4CHRD: HDR test chart

*1: Planned for future release  *2: 8 ch when set to 4096 horizontal resolution

External View Diagrams