



Ready for a range of audio and video testing with

12G-SDI systems



ESG-4100

Multi-Rate SDI 4K Test Signal Generator (Preliminary)

Full range of test patterns, extensive outputs

Test signal generator that generates 4K signals (UHD 3840 x 2160p, Full 4K 4096 x 2160p). 4K video signals that are output at 60p/59.94p/50p are able to be distributed from 12G-SDI lines to 8 outputs and Quad Link 3G-SDI lines to two outputs at the same time. Embeds 16-channel audio into 12G/3G-SDI or 3D/HD-SDI output. Equipped with two outputs for MADI signals. When using SG-2 option, the two lines are independently configurable.

Features

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

Standard test patterns include color bars, ramp, step, white, black, pathological, crosshatch, multiburst, and noise. Register up to 10 custom test patterns created via computer.

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

Scroll 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.

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.

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.

As Standard (One-Line Output)

4K	12G mode at 60p/59.94p/50p	12G-SDI lines to 8 outputs and Quad Link 3G-SDI lines to 2 outputs
	3G mode at 60p/59.94p/50p	Quad Link 3G-SDI lines to 4 outputs
	3G mode at 30p/29.98p/25p/24p/23.97p	Dual Link 3G-SDI lines to 8 outputs
	1.5G mode at 30p/29.98p/25p/24p/23.97p	Quad Link HD-SDI lines to 4 outputs
HD	60p/59.94p/50p	3G-SDI lines to 7 outputs
	60i/59.94i/50i/30p/30PsF/29.97p/29.97PsF/25p/25PsF/24p/24PsF/23.98p/23.98PsF	HD-SDI lines to 7 outputs

With Option (Two-Line Output)

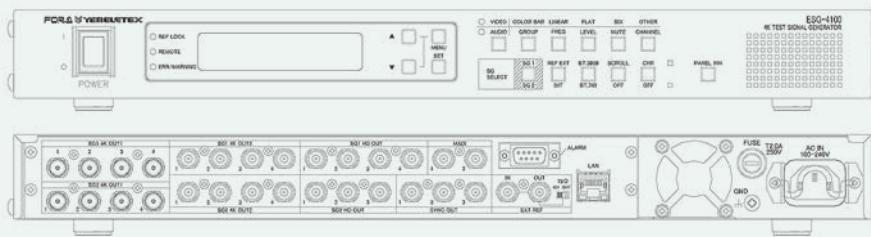
4K	12G mode at 60p/59.94p/50p	(12G-SDI lines to 4 outputs and Quad Link 3G-SDI to 1 output) x2 lines
	3G mode at 60p/59.94p/50p	(Quad Link 3G-SDI lines to 2 outputs) x2 lines
	3G mode at 30p/29.98p/25p/24p/23.97p	(Dual Link 3G-SDI lines to 4 outputs) x2 lines
	1.5G mode at 30p/29.98p/25p/24p/23.97p	(Quad Link HD-SDI lines to 2 outputs) x2 lines
HD	60p/59.94p/50p	One 3G-SDI line to 4 outputs and another 3G-SDI line to 3 outputs
	60i/59.94i/50i/30p/30PsF/29.97p/29.97PsF/25p/25PsF/24p/24PsF/23.98p/23.98PsF	One HD-SDI line to 4 outputs and another HD-SDI line to 3 outputs

Specifications

Video output	4K 3840 x 2160/4096 x 2160 YUV422/10bit	12G-SDI : 60p/59.94p/50p (Level A TYPE-1 2SI) 2-line / 2-way distribution ^{*2} Quad Link 3G-SDI : 60p/59.94p/50p (Level A/B) 2-way distributed ^{*1*2} or 2-line / 2-way distribution ^{*2} Dual Link 3G-SDI : 30p/30PsF/29.97p/25p/24p/23.98p (Level B) 2-line / 4-way distribution ^{*2} Quad Link HD-SDI : 30p/30PsF/29.97p/25p/24p/23.98p (Level B) 2-line / 4-way distribution ^{*2}
	HD 1920 x 1080 YUV422/10bit	3G-SDI : 60p/59.94p/50p (Level A/B) 2-line / 4-way and 3-way distribution ^{*2} HD-SDI : 60i/59.94i/50i 2-line / 4-way and 3-way distribution ^{*2} HD-SDI : 30p/30PsF/29.97p/25p/25PsF/24p/24PsF/23.98p/23.98PsF (Level B) 2-line / 4-way end 3way distribution ^{*2}
Audio formats		48 kHz, 24-bit, 32 channels (AES3-compliant)
Audio output	4K (SDI EMBEDDED)	BNC x1 (16 ch x1 ³), SMPTE ST 299-1-compliant
	HD (SDI EMBEDDED)	BNC x1 (16 ch x1), SMPTE ST 299-1-compliant
	MADI	BNC x1 (32 ch x1, 2 lines), AES10-compliant
Reference input		BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p, SMPTE ST 170-compliant Tri-level sync: 0.6 Vp-p, SMPTE ST 240-compliant 75Ω, BNC x1 with loop-through
Reference output		BNC x3 (tri-level sync or BB available for each) Formats: HD reference: Tri-level sync, SMPTE ST 240-compliant SD reference: BB, SMPTE ST 170/ST 318-compliant
Time code output ^{*4}	4K (3G-SDI)	BNC x4 (shared with video output; 2 lines/2-way distributed), SMPTE ST 12-1/ST 12-2-compliant
	HD (HD-SDI)	BNC x1 (shared with video output; 2 lines/3-way distributed), SMPTE ST 12-1/ST 12-2-compliant
Interface		Ethernet: 10BASE-T/100BASE-TX (IEEE802.3), RJ-45 x1
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), G Step (5/10), B Step (5/10), R 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	EQ, PLL, 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) User (1-10): Register a custom WAV (linear PCM) file up to 30 sec.
	Audio level	0 dBFS, -6 dBFS, -12 dBFS, -18 dBFS, -20 dBFS, -22 dBFS, -24 dBFS, STEP, MUTE (Signal levels in registered audio files cannot be adjusted, except for MUTE.)
	Audio mute	MUTE OFF, MUTE CH1 to 4, MUTE CH2 to 4, MUTE CH3 to 4, MUTE CH4
	Audio channel	ALL OFF, 1 ON, 1 to 2 ON, 1 to 3 ON, 1 to 4 ON (Audio channels can be enabled or disabled using active channel data in audio control packets.)
Temperature/humidity		0°C to 40°C / 10% to 80% (no condensation)
Power/consumption		100 V AC to 240 V AC±10%, 50/60 Hz / Max. 80 W (at 100 V AC)
Dimensions/weight		430 (W) x 44 (H) x 450 (D) mm / 6 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)
Options		ESG-41SG2: SG-2 option

*1: In 12G mode *2: Optional *3: 8 ch when set to 4096 horizontal resolution *4: Multiplexed time codes represent time information in free-run mode

External View Diagrams



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