

Analog Timing Generator for p-Si LCD

ATG-01

Meet the Needs for Driving Analog Panels!
Ideal for Mass Production!!



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A TG-01 is a signal generator to drive p-Si TFT LCD panels with analog inputs for such applications as cellular phones and digital cameras. Its resolution goes up to 4096 horizontal dots (including a blanking period) X 4096 vertical lines (2V including a blanking period.) Such signal as clock signals and start signals can be created in the unit of one clock of the master clock, so any timing signals can be quickly and easily generated and edited. There are four channels of power supply outputs as V1 to V4. With the combination of 32 timing signals, 32 video signals the maximum of 64 test conditions can be preprogrammed.

Major Features

- The ATG-01 integrates all the units necessary for driving p-Si LCD panels.
- Quick and easy remote-panel operation thinking about product use.
- Voltage and current monitoring on the remote panel as well as PASS/FAIL judgements. Display of the model number (8 alpha-numerical letters) and a test sequence number.
- Easy Calibrations of power supply and signal outputs.
- Minimized voltage difference between Vsig signal channels. (<+/-10mV)
- 10 channels of drive signal outputs.
- One channel of the inversion signal makes inversion of Vsig-R, Vsig-G and Vsig-B.
- Two channels of the 4-level signals can have levels with different timings. The channel No.1 is only for Vcom and the center voltage can be controlled on the channel.
- Rotating the encoder on the remote panel varies the contrast voltage for video signals to change brightness.
- The attached PC software includes a video pattern generator instantly to create such patterns as CROSSHATCH, RASTER, WINDOW, SLANT, STRIPE and CHESS.
- Test pattern data is registered using preprogrammed data file names, facilitating addition of new test patterns because signal patterns data is combined with three files of voltage condition data and video set data with specifying the file names.
- The model changeover can be easily made by replacing *the Smart Media* ®.

◆ GENERAL SPECIFICATIONS		
Ambience (Indoor)	Temperature	5 to 35°C
	Humidity	30% to 80% (Without dews)
Line voltage		85VAC to 264VAC
Line frequency		50Hz/60Hz
Power consumption		80VA or less (at 100VAC input)
Dimension		455mm(W) x 380mm(D) x 62mm(H)
Weight		7.5kg or less
◆ LCD power supply		
V1/V2/V3/V4 PS(Positive/Negative PS)		
Output range	V1 to V4 Voltage +/-15V	Current +/-20mA
Monitor display	V1 to V4 Voltage +/-15.00V	Current +/-20.00mA
	EXT Input Voltage +/-20.00V	Accuracy : +/-0.5% of full scale
	* Two channels of voltage and current can be displayed.	
ON/OFF control	Number of outputs: 8CH Voltage range : +/-15V(set per 4 channels) Voltage accuracy : Set Voltage +/-100mV Output Current : +/-20mA	
◆ CLK & Timing (Clock generation, timing memory, and amplification)		
Frequency range		
6.25 to 12.5MHz	31.25kHz	Step
12.5 to 25MHz	62.5kHz	Step
25 to 50MHz	0.125MHz	Step
50 to 100MHz	0.25MHz	Step
Accuracy of oscillation frequency		
Set value +/-0.005% or less		
Horizontal resolution		
4096 dots/1H		
Vertical resolution		
4096 lines/1V		
Number of outputs / programming		
10 channels (DA01 to DA32) Amplitude programming is 10 channels at the same time.		
Electric characteristics Load condition : Line length 800mm, Load100pF (At 100Ω terminal)		
Output impedance	100Ω +/-1%	
Output range	+/-6V (+/-12V with the opening of terminal)	
Programming accuracy	+/-0.1V or less against a set value or less	
De-Phasing between channels	5nsec or less (under the same loading condition)	
Rise & fall time	20nsec or less (at 5Vp-p amplitude)	
Overshoot	10% or less	
Phase adjustment function	Range of adjustment +/-40nS 1 step 4nS+/-1nS (The phase of the VIDEO signal is adjusted for the timing signal)	

◆ Vsig & 4 level amp	
Output signals	
Vsig	3 channels (R, G, B) All channels synchronize with the amplitude setting of the contrast and the amplitude setting of the brightness. Reversing polarity can be selected with every one channel.
4 value signal	2 channels Timing and the output voltage of four value signals can be set with each channel. However, CH1 is only for the Vcom signal and can be changed with a remote box.
Electric characteristics	
(a) Vsig Load condition :Line length 500mm, Load 100pF, Maximum amplitude 12Vp-p	
Output impedance	20Ω
Output range	Range of ±12V
Programming accuracy	The error between the phases is 0.01Vp-p or less.
Rise & fall time	50nsec or less
Overshoot	Vsig 1% or less
(b) 4 value signal Load condition :Line length 500mm, Load 100pF, Maximum amplitude 12Vp-p	
Output impedance	20Ω
Output range	Range of +/-12V
Programming accuracy	Error between the phases is +/-0.01Vp-p or less
Rise & fall time	50nsec or less
Overshoot	4 value signal 10% or less
◆ CPU Joint Board	
Remote Output	
Mini-DIN 6Pin For REMOTE BOX I2C signal Card socket for the Smart Media ®.	
◆ CPU Board	
Central operating processor (CPU card)	
H8SCPU (Made by HITACHI)	
Output connector	
COM-1 Serial port For RS-232	
◆ LCD JOINT BOX	
Input connector	
For LCD Power Supply	J100 68 wick half pitch connector
Output connector (Depends on customer's specification)	
Analog output connector	J1 50 wick half pitch connector
Control output connector	J2 5 pin connector
◆ PC software *1	
Configuration Editor	
To program	Amplitude of video signal and 4 value signal Central voltages Amplitude of timing signal Power source voltage for LCD Sequence when starting and stopping the equipment Turning control signal ON/OFF

Drive Pattern Editor	
To program	Mastering clock frequency Horizontal and vertical frequency Default of timing signal phase Zone Waveforms of TIMING signals
Image Editor	
To create and edit video signals. BMP files can be used.	
AtgMemory	
To transfer the data created with the above editors to the smart media. Create a combination of files set by the above three kinds of software, and write to smart media.	
◆ DATA writer (Option)	
Configuration Editor	
To write timing signal and data of voltage set etc created by PC software to smart media.	

*1 Please refer to the ATG-01 operation manual for more details.
 Corresponding operating systems (OS) are as follows;
 Windows95/98 WindowsNT Windows2000 WindowsXP