English

Universal OLED Signal Generator

OEL-10

Evaluation of AM LCD/OLED panels with moving pictures

OEL-10 is a universal signal generator designed for driving p-Si AM LCD and/or OLED panels with analog video signal (voltage) inputs. It corresponds to a single-phase to 8-phase color driving. Panels can be evaluated with moving pictures by NTSC and still pictures by internal memory.

32 channels of drive signals can adjust function for phase and rise/fall time. A maximum of 64 different panel data can be programmed.

Major Features

- The OEL-10 can generate all the necessary signals to drive LCD or OEL panels.
- Evaluation with moving pictures by the input of composite signals or S-video signals.
- Easy setting for output voltages of panel circuit power supplies, video signal amplifiers, and drive signal amplifiers.
- Video signal amplitude is large and wide range. (Maximum Amplitude 15Vp-p, Range +20V to -10V)
- Minimized amplitude difference between video signal channels. (At 15Vp-p, 20mVp-p or less)
- Video Signal can display 16,777,216 color. (8 Bit x R, G, B)
- GAMMA correction function for individual RGB of video signal. (10 Bit)
- Phases can be swapped for left-right inversion display of video signals.
- There are 32 channels in drive signals. There are phase adjusting functions in 16 channels. (0 to 32nS 4nS step)
- Adjusting function for phase and rise & fall time in 4 channels of drive signal. (20nS to 1000nS)
- Measurement for power supply of VCC/VDD/VSS and current for EL power supply. (EL range can be changed.)
- Positive and negative sawtooth waveform can overlap on power supply for EL. (0V to 2Vp-p, 1Hz to 50KHz)
- Cursor function for dot or line display. (Color can be changed for R, G, B.)
- Step is automatically forwarded in a certain interval and outputs trigger signal at the same time.
- Video patterns and drive signals are edited with personal computer and write to the OEL-10 with Ethernet, USB flash ROM or floppy disk.

MECC CO., LTD.

◆ GENERAL SPECIFICATION		
Ambience (Indoor)	Temperature	5 ºC to 40ºC
	Humidity	30% to 80% (Without dews)
Line Voltage		AC85 to 264V
Line Frequency		50Hz / 60Hz
Power Consumption		300VA or less (at 100V AC input)
Dimensions		420mm(W) x 255mm(D)× 160mm(H)
Weight		10kg or less
◆ OEL10-MAIN (Clock Generation, Timing Memory, External input and 4 value signal outputs)		
(1) Frequency Range		5MHz to 80MHz
(2)Oscillation Frequency Accuracy		Setting Value ±0.001% or less
(3) Horizontal Clock		4096 Clock
(4) Vertical Line		4096 Line
(5) Video Memory		Signal type : Color or monochrome
		Brightness level : 8bit Contrast
		Capacity : 64MB (Maximum 64 kinds at VGA display)
(6) Timing Memory		Output number : 32CH (Exclude 4 value signal and Video revolve)
		Capacity : 64MB
(7) External Signal Input		Input Signal : Composite signals or S-video signals
		Gray Scale 8bit per color
		Synchro system NTSC interlaced
		Pixel rate 1H=858 Pixels (13.5MHz)
(8) 4 value signal outputs (Option)		Output Current ±50mA or less
		Output range -10 to +20V (Maximum 30Vp-p)
		Setting error : inter phase error is 0.01Vp-p or less
		Rise and fall time 50nS or less
		Overshoot 10% or less (Load condition) Line length : 500mm, Load : 100pF Amplitude : 12Vp-p
(9) Control Signal Part		Output range -10 to +20V
		Setting error ±0.1V or less
		Output current ±20mA or less
(10) Output Connector		For flat cable with 20 pins
◆ OEL10-DRIVER 1 (Driving Signal 01 - 16CH amplification board)		
(1) 1CH to 16CH output circuit Load Condition Line length : 500mm , Load : 100pF (At 10Vp-p)		
	De-phasing between channels	5nS or less (At the same load condition)
	Rise and fall time	20nS or less
	Overshoot	10% or less
	Amplitude voltage range	-10V to 20V or up (0.1V step)
	Amplitude voltage difference	100mV or less (Difference Between channels)
	Output current	±50mA or less
(2) Output connector		For flat cable with 50 pins

◆ OEL10-DRIVER 2 (Driving Signal 17 - 32CH amplification board)				
(1)17CH to 28CH output circuit Load Condition Line length : 500mm , Load : 100pF(At 10Vp-p) (With phase adjustment function)				
Phase setting range	0 to 32 nS, 4nS step (individual setting) Error : ±1nS per step			
De-phasing between channels	5 nS or less (At the same load condition)			
Rise and fall time	20 nS or less			
Overshoot	10% or less			
Amplitude voltage range	-10V to 20V or up (0.1V step)			
Amplitude voltage difference	100mV or less (Difference between channels)			
Output current	±50mA or less			
(2)29CH to 32CH output circuit Load Condition Line length : 500mm , Load : 100pF (At 10Vp-p) (With phase adjustment function and Rise/fall time adjustment function)				
Phase setting range	0 to 32 nS, 4nS step (individual setting) Error : ±2nS per step			
De-phasing between channels	5 nS or less (At the same load condition)			
Rise and fall time	20 nS to 1000nS, 20nS step (individual setting) Setting error : setting value ±10nS			
Overshoot	10% or less			
Amplitude voltage range	-10V to 20V or up (0.1V step)			
Amplitude voltage difference	100mV or less (Difference Between channels)			
Output current	±50mA or less			

◆ OEL10_PS (OEL Power Supply board)				
Direct Current	VCCX/VCCY PS (logic PS)			2CH
	VDDX/VDDY PS (Driver positive PS)			2CH
	VSSX/VSSY PS (Driver positive negative PS)			2CH
	VEL1 PS (OLED positive PS)			
	VEL2 PS (OLED negative PS)			
Output Range	VCCX/VCCY	Voltage	1V to 6V	Current 100mA
	VDDX/VDDY	Voltage	1V to 20V	Current 100mA
	VSSX/VSSY	Voltage	-10V to +10V	Current-300 to 300mA
	VEL1	Voltage	1V to 18V	Current 1000mA
	Superposition voltage (sawtooth waveform) 2Vp-p			
	VEL2	Voltage	-1V to -18V	Current -1000mA
	Superposition voltage (sawtooth waveform) 2Vp-p			
Setting Error	±20mV			
Setting Unit	0.1V			
Output Connector	For flat cable with 40 pins			

◆ R Video Amplifier (Video Signal Amplitude Board)	
Electrical characteristic : Load Condition Line length : 500mm , Load : 100pF (At 10Vp-p)	
Rise and fall time	20 nS or less
Overshoot	10% or less
Sag	5% or less (at 60Hz square wave)
Video Amplitude	0V to 15Vp-p (-10V to 20V) difference between phases is 20mV or less
Output Connector	For flat cable with 50pins

◆ G Video Amplifier (Video Signal Amplitude Board)	
Electrical characteristic	Please refer to the section of R Video Amplifier (Video Signal Amplifier board).
Output Signal	Output from output connector of G Video Amplifier.

◆ B Video Amplifier (Video Signal Amplitude Board)				
Electrical characteristic	Please refer to the section of R Video Amplifier (Video Signal Amplifier board).			
Output Signal	Output from output connector of B Video Amplifier.			
◆ Monitor (Option)				
Display range				
VCCX/VCCY	Voltage	0V to 6V	Current	0V to 100mA
VDDX/VDDY	Voltage	0V to 20V	Current	0V to 100mA
VSSX/VSSY	Voltage	-10V to +10V	Current	-300 to +300mA
VEL1	Voltage	0V to 18V	Current	0mA to 1000mA
	Range change over		0µA to 1000µA	
VEL2	Voltage	0V to -18V	Current	0mA to -1000mA
	Range change over		0µA to -1000µA	
Video Amplitude Setting Value	0V to 15Vp-p			
Step Number	Step1 to 64			
Cursor coordinate display	Display X and Y coordinate and R, G, B color			
Phase setting value	25 to 32CH	0 to 20nS		
Tr,Tf setting value	29 to 32CH	20 to 1000Ns		
◆ OEL JOINT BOARD (Option)				
Input/output Connection	Driving Signal D01 to D32 Picture Signal R01 to R08, G01 to G08, B01 to B08 OEL PS VCX, VDX, VSX, VCY, VDY, VSY, EL1, EL2 Control signal F01 to F04 Pulse input IN1 to IN2 External voltage input VM1 to VM2 Reference Level (GND) GND			
◆ OEL-10 PC Software				
Configuration Editor				
To program	1) Amplitude and central voltage of video signal and 4 value signal, 2) Amplitude of driving signal, 3)Power source voltage, 4)Sequence when starting and stopping the equipment, 5)Voltage of F1 to F4 and default			
Drive Pattern Editor				
To program	1) Mastering clock frequency, 2) Horizontal and vertical frequency, 3) Number of video phase, 4)Default of driving signal phase, 5)Cursor system, 6)Window pattern, 7)Timing of driving signal			
Image Editor				
To create video signal with an editor for pattern processing editor such as raster, crosshatch, chess, sprit, window, brush, etc. BMP files can be used.				
Oel Floppy				
To transfer the data created with the above software to the OEL-10 using a floppy disk, USB flash ROM or via EtherNet				
◆ PMD HW Software				
Software to control the entire OEL-10 system. The operating system is Windows 2000, which is used only to control the hardware.				
◆ OEL10 COM Software (Option)				
Software to control the OEL-10 via RS-232C.				