



## F: Connector Pin Definition

F-1: JP1: LCD Panel I/F (FPC 30 pin)

Used connector: ELCO 08-6210-030 or Equivalent (below contact type)

Related cable: 30Pin FPC

Pin no	Symbol	I/O	Description	Remark
1	GND	-	Ground for logic circuit	
2	VCC	○	Supply voltage for control circuit of scan driver	
3	VGL	○	Negative power for scan driver	
4	VGH	○	Positive power for scan driver	
5	STVR	I/O	Vertical start pulse	
6	STVL	I/O	Vertical start pulse	
7	CKV	○	Shift clock input for scan driver	
8	U/D	○	UP/DOWN scan control input	
9	OEV	○	Output enable input for scan driver	
10	VCOM	○	Common electrode driving signal	
11	VCOM	○	Common electrode driving signal	
12	GLED1		LED module 1 Cathode	
13	VLED1		LED module 1 Anode	
14	VLED2		LED module 2 Anode	
15	GLED2		LED module 2 Cathode	
16	L/R	○	LEFT/RIGHT scan control input	
17	Q1H	○	Analog signal rotate input	
18	OEH	○	Output enable input for data driver	
19	STHL	I/O	Start pulse for horizontal scan line	
20	STHR	I/O	Start pulse for horizontal scan line	
21	CPH3	○	Sampling and shifting clock pulse for data driver	
22	CPH2	○	Sampling and shifting clock pulse for data driver	
23	CPH1	○	Sampling and shifting clock pulse for data driver	
24	VCC	○	Supply voltage of control circuit for data driver	
25	GND	-	Ground for logic circuit	
26	VA	○	Alternated video signal input (Red)	
27	VB	○	Alternated video signal input (Green)	
28	VC	○	Alternated video signal input (Blue)	
29	DVDD	○	Supply voltage for analog circuit	
30	DVSS	-	Ground for analog circuit	

F-2: JP2: Power Input / Video Input Interface

Used connector: Molex 53261-1590 or Equivalent

Related female housing: Molex 51021-1500 or Equivalent

Pin no	Pin Assignment	I/O	Pin Description	Remark
1	/Hsync	O	Horizontal Sync	
2	/Vsync	O	Vertical Sync	
3	NPC	I/O	NTSC / PAL mode selection	Note 1
4	SW	I	Composite / Component RGB Signal Selection	Note 2
5	CVS/Y	I	Composite Video Signal Input	
6	Bin	I	Component Blue Video Signal Input	
7	Rin	I	Component Red Video Signal Input	
8	Gin	I	Component Green Video Signal Input	
9	GND	-	Ground	
10	GNDS	-	Ground	
11	Vin	I	Voltage DC Input	
12	GNDS	-	Ground	
13	CIN	I	S-Video Signal Input	
14	LR	I	Left/Right scan selection	Note 3
15	UD	I	Up/Down scan selection	Note 4

Note 1: Default is auto detect for NTSC and PAL system.

High is for NTSC mode and Low is for PAL mode.

Note 2: Default (Low) is Composite signal.

High is for Component RGB signal.

Note 3: Default (High) is right to left scanning.

Low is for left to right scanning.

Please do force this pin to ground for left to right scanning.

Note 4: Default (High) is downward scanning.

Low is for upward scanning.

Please do force this pin to ground for upward scanning.

### F-3: JP3: External Adjustment

Used connector: Molex 53261-0790 or Equivalent

Related female housing: Molex 51021-0700 or Equivalent

Pin no	Symbol	Description	External control	Connect JP3
1	Vcc	5V		
2	TIN	Tint		
3	COL	Color		
4	BRT	Brightness		
5	CNT	Contrast		
6	PIC	Picture Sharpness		
7	GND	GND		

## G-2: Output Electrical characteristics

### G-2-1: LCD Panel driving output

Item	Position	Symbol	Min	Typical	Max	Remark
Power supply	JP1/Pin2	$V_{CC,AV_{DD}}$	4.8V	5.0V	5.2V	
	JP1/Pin4	$V_{GH}$	14.3V	15V	15.7V	
	JP1/Pin3	$V_{GLAC}$	3.5Vpp	5.0Vpp	7.5Vpp	AC component of $V_{GL}$
		$V_{GLDC}$	-10.5V	-10V	-9.5V	DC component of $V_{GL}$
Video Signal Amplitude (VR, VG, VB)		$V_{iAC}$		3V		AC component
VCOM	JP1/Pin10, Pin11	$V_{CAC}$	3.5Vpp	5.0Vpp	7.5Vpp	AC component
		$V_{CDC}$		1.3V		DC component

## H: Environment Characteristics

Reliability tests are proceeding, the testing conditions are listed as below.

The result of the tests is to be decided.

No.	Test items	Conditions	Remark
1	High temperature storage	$T_a=80^{\circ}\text{C}$ , 24Hrs	
2	Low temperature storage	$T_a=-20^{\circ}\text{C}$ , 24Hrs	
3	High temperature operation	$T_a=60^{\circ}\text{C}$ , 24Hrs	
4	Low temperature operation	$T_a=0^{\circ}\text{C}$ , 24Hrs	
5	High temperature and humidity	$T_a=60^{\circ}\text{C}$ , 95RH, 24Hr	Operation
6	Heat Shock	$-20^{\circ}\text{C}$ to $80^{\circ}\text{C}$ , 10cycle (2Hrs/cycle)	Non-Operation

Note 1: Evaluation should be tested after storage at room temperature for one hour.

Note 2: There should be no change which might affect the practical display function when the display quality test is conducted under normal operation condition.

Note 3: Judgements: 1. Function OK

2. No serious image quality degradation.

## I: Modes Supported:

Mode	H Freq. (KHz)	V Freq. (Hz)
NTSC Composite	15.734	60
NTSC S-Video	15.734	60
PAL Composite	15.625	50
PAL S-Video	15.625	50