E-80

E-57

Economic HMI User Manual for E-57 & E-80

CrystalWin **E-Series**

Hurco Automation Ltd.
http://www.pcbase.com

Contents

CHAPTER **1**

GENERAL INFORMATION

- Introduction
- Specifications
- Dimension

1.1 Introduction

E-57

The E-57 series is an economic, compact panel computer based upon the RISC CPU with 5.7" QVGA color LCD and touch screen. The platform features an advanced 32-bits RISC 200MHz processor design with MMU, math engine coprocessor and hardware graphics acceleration engine. It provides an integrated and cost saving solution for allowing optimum adaptation to HMI, SCADA for embedded operating system, Windows CE.

Features

- 32 bits RISC CPU with MMU
- Metal chassis & front panel
- Panel mounted industrially rugged industrial computer
- Built-in flash memory
- Fan-less cooling system
- 5.7" QVGA TFT LCD with LED backlight
- Fully compatible PC-based peripherals

E-80

The E-80 series is an economic, compact panel computer based upon the RISC CPU with 8" VGA color LCD and touch screen. The platform features an advanced 32-bits RISC 200MHz processor design with MMU, math engine coprocessor and hardware graphics acceleration engine. It provides an integrated and cost saving solution for allowing optimum adaptation to HMI, SCADA for embedded operating system, Windows CE.

Features

- 32 bits RISC CPU with MMU
- Metal chassis & front panel
- Panel mounted industrially rugged industrial computer
- Built-in flash memory
- Fan-less cooling system
- 8" VGA TFT LCD with LED backlight
- Fully compatible PC-based peripherals

1.2 Specification

E-57 & E-80

	E-57	E-80
SYSTEM	RISC 32 bits CPU	
DISPLAY MODULE	5.7" 320 x 240 (QVGA), 400 cd/m2 (tpy.)	8" 640 x 480 (VGA), 380 cd/m2 (tpy.)
GRAPHIC CONTROLLER	Built-in hardware graphics accelerator	
CPU	ARM9 CPU, 200MHz (Fanless)	
SYSTEM MEMORY	64MB SDRAM on board	128MB SDRAM on board
AUDIO	One AC' 97 interface	
STORAGE DEVICE	32MB Flash on board (Windows CE only)	
	Optional: 64MB Flash on board (Windows CE only)	
ETHERNET	One RJ-45, 10/100Mbps with LED	
STANDARD I/O	RTC: built-in	
	2 x USB 2.0 ports (Full Speed Host)	
	1 x Audio speaker output port	
	2 x COM ports (RS232C and RS232/Tx/Rx Signals only)	
POWER SUPPLY	+24V@1.0A Max.	
EXPANSION	One Expansion slot PC-104	
TOUCHSCREEN	4-wire, analog resistive, continuous resolution with RS-232 controller (interface through internal RS-232 interface)	
CONSTRUCTION	Metal Panel, Front side IP65 protection	
VIBRATION RESISTANCE	10 to 57Hz/semi-amplitude 0.15mm 57 to 150Hz/2.0G	
	80 min. each in x, y, and z directions	
	(IE C68-2-6-compliant)	
DIMENSION (W x H x D)	230.21 x 176.85 x 56.2mm (9.06" x 6.93" x 2.21")	
MOUNTING	Panel mount (Standard)	
	Optional: Rear Mount, VESA Mount (75mm x 75mm)	
COOLER	Fanless	
OPERATING TERPERATURE	0-50 degrees	
BURN-IN TEST	45 degree, 48hrs	
SOFTWARE	Optional:	
	Windows CE 5.0 and GPeX HMI Run-Time Software	
	GPeX HMI Software Development Tool with Key-pro	
WARRANTY	24 months	

1.3 E-57 & E-80 Dimension
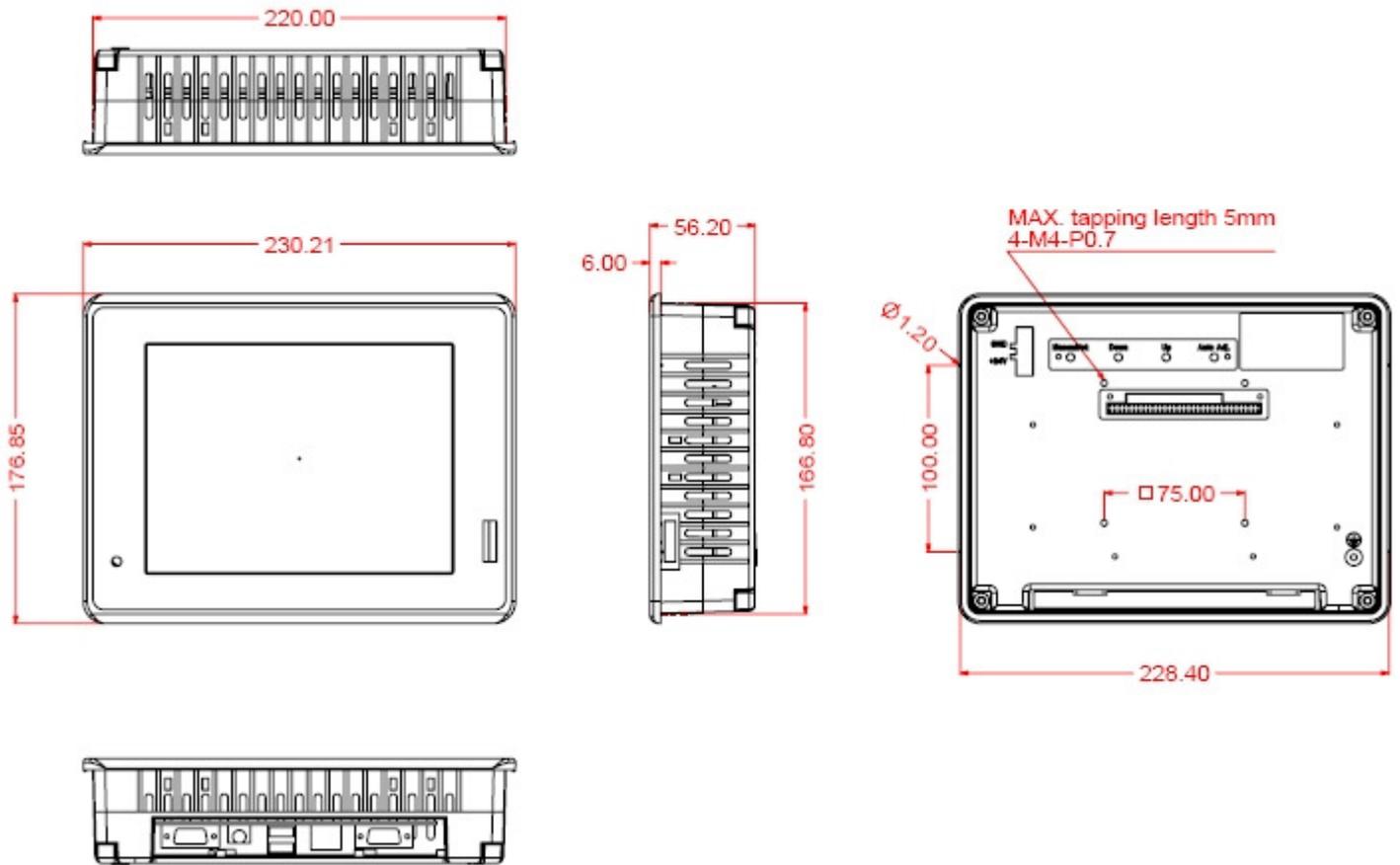
SYSTEM SETUP

- Unpacking
- I/O Port
- Power Port
- Simple Dismantling

2.1 Unpacking

2.2 I/O Port

| 5 | 4 | 3 | 2 | 1 |
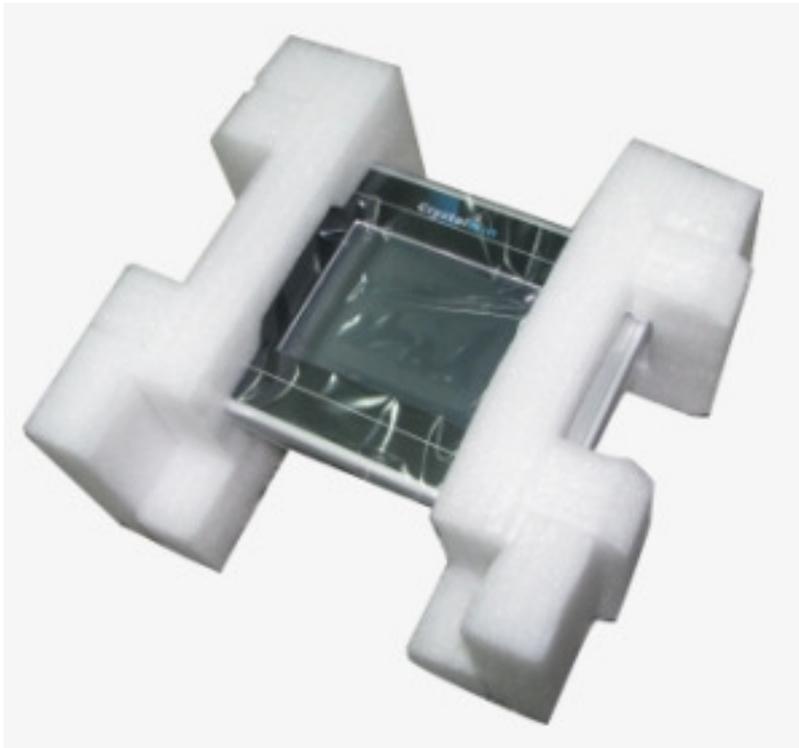
1. COM 1

2. LAN Port

3. USB 2.0 Port *2

4. Audio Port

5. COM 2

## 2.3 Power Port & PC-104 Connector

GND
+24V

PC-104
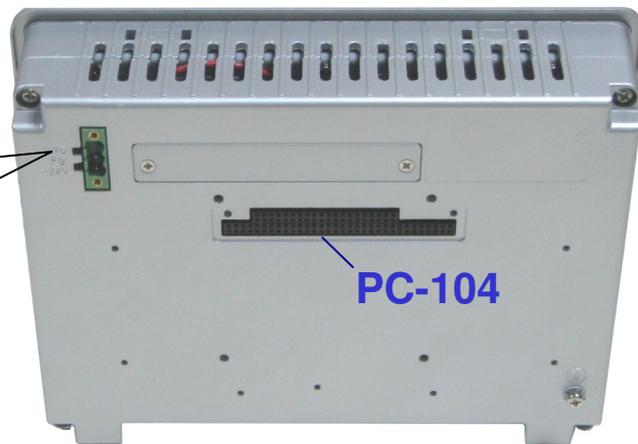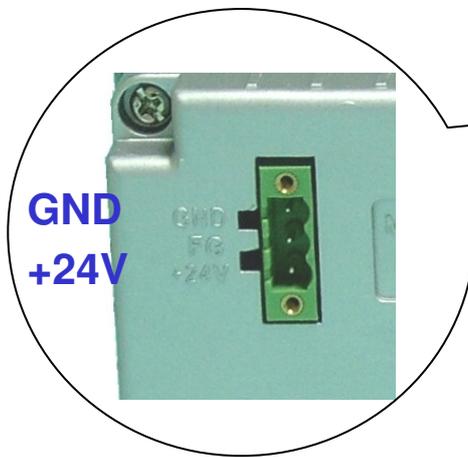
2.3 Simple dismantling

In accordance with the meaning of the arrow dismantling screws, the back cover can be decomposed components.

MAIN BOARD REFERENCE

- Connect/ Jumpers/ Switch Definition
- Reset Bottom (SW1)
- BOOT Bottom (SW2)
- PS2 Keyboard Data Line (Main Board to External Device) (JP6)
- PS2 Keyboard Data Line (External Device to Main Board) (JP7)
- PS2 Keyboard Clock Line (Main Board to External Device) (JP8)
- PS2 Keyboard Clock Line (External Device to Main Board) (JP9)
- PS2 Interface 1 (J10)
- PS2 Interface 2 (J101)
- PC104 Connector (P4)
- COM1 (P2)
- COM2 (P3)
- Line Out Connector (CON1)
- LAN Port Connector (LAN1)
- USB1 and USB2 (CN1)
- Main Board Power Connector (P5)
- Touch Panel Connector (JP3)
- LCD Connector (JH1)
- COM3 (J2)
- Power LED (J9)
- LCD Backlight Control (J3)
- LCD Display (Left/Right) (J5)
- LCD Display (Up/Down) (J6)

3.1 HMI Main Module Connector/ Jumper/ Switch Definition:
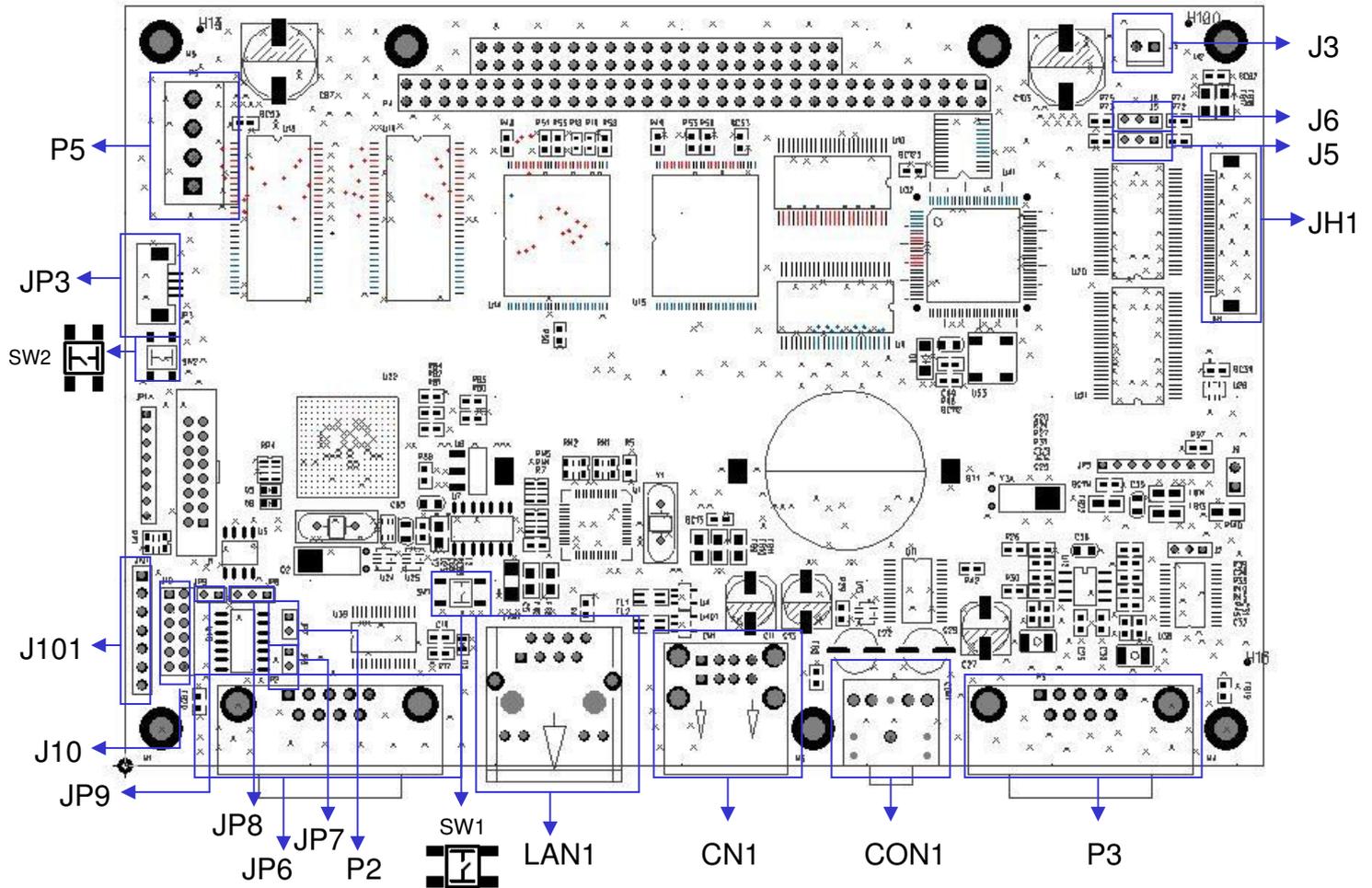
HMI Power Module Layout (Top View):
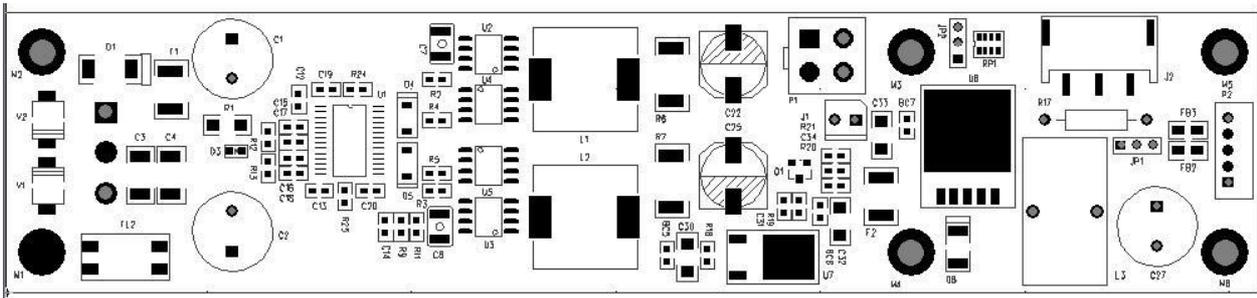
HMI Power Module Layout (Bottom View):

3.2 Reset Bottom (SW1)

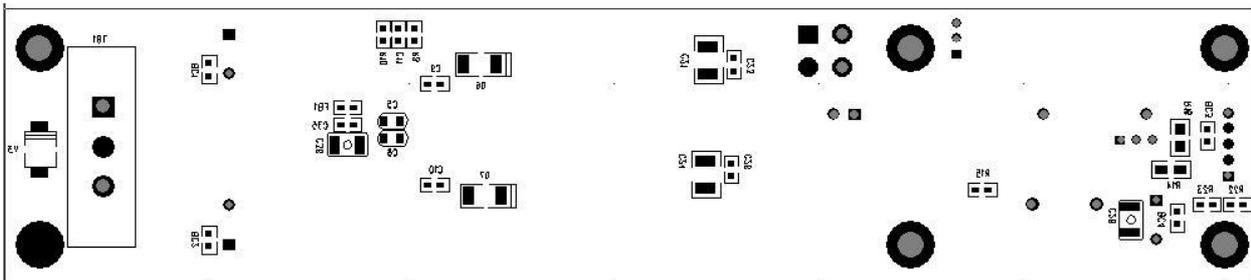|	Action	Definition
	Bottom Down	Reset System
	Bottom Up	Normal

3.3 BOOT Bottom (SW2)

	Action	Definition
	Bottom Down	Boot on UART1
	Bottom Up	normal

3.4 PS2 Keyboard Data Line (Main Board to External Device (JP6)

	Jump	Definition
	On	Enable Keyboard Data Signal
	Off	Disable Keyboard Data Signal

Default: On

3.5 PS2 Keyboard Data Line (External Device to Main Board (JP7)

	Jump	Definition
	On	Enable Keyboard Data Signal
	Off	Disable Keyboard Data Signal

Default: On

3.6 PS2 Keyboard Clock Line (Main Board to External Device) (JP8)

	Pin	Definition	
	1	EGPIO13 Control	N.C.
	2	Keyboard Clock	EGPIO15 Control
	3	N.C.	Keyboard Clock

Default: 2-3

3.7 PS2 Keyboard Clock Line (External Device to Main Board) (JP9)

	Jump	Definition
	On	Enable Keyboard Clock a Signal
	Off	Disable Keyboard Clock a Signal

Default: On

3.8 PS2 Interface 1 (J10)
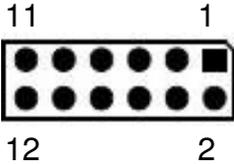
	Pin	Definition
11 1 12 2	1	KBCLK
	2	KBDATA
	3	GND
	4	5V
	5	Reserve
	6	Reserve
	7	Reserve
	8	Reserve
	9	Reserve
	10	Reserve
	11	Reserve
	12	Reserve

3.9 PS2 Interface 2 (J101)
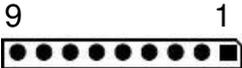
	Pin	Definition
9 1	1	Reserve
	2	Reserve
	3	Reserve
	4	Reserve
	5	Reserve
	6	Reserve
	7	Reserve
	8	Reserve
	9	GND

3.10 PC104 Connector (P4)
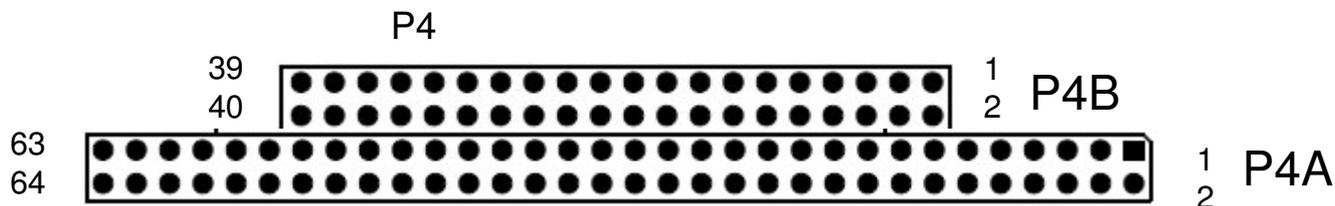
P4A Pin	Definition	P4A Pin	Definition	P4A Pin	Definition	P4A Pin	Definition
1	IOCHCHK	17	SD0	33	SA14	49	SA6
2	GND	18	+12V	34	DACK1	50	IRQ3
3	SD7	19	IOCHRDY	35	SA13	51	SA5
4	RESETDRV	20	(KEY)	36	DRQ1	52	DACK2
5	SD6	21	AEN	37	SA12	53	SA4
6	+5V	22	SMEMW	38	REFRESH	54	TC
7	SD5	23	SA19	39	SA11	55	SA3
8	IRQ9	24	SMEMR	40	SYSCLK	56	SALE
9	SD4	25	SA18	41	SA10	57	SA2
10	-5V	26	IOW	42	IRQ7	58	+5V
11	SD3	27	SA17	43	SA9	59	SA1
12	DRQ2	28	IOR	44	IRQ6	60	OSC
13	SD2	29	SA16	45	SA8	61	SA0
14	-12V	30	DACK3	46	IRQ5	62	GND
15	SD1	31	SA15	47	SA7	63	GND
16	ENDXFR	32	DRQ3	48	IRQ4	64	GND

P4B Pin	Definition	P4B Pin	Definition	P4B Pin	Definition	P4B Pin	Definition
1	GND	11	IRQ12	21	DACK5	31	DRQ7
2	GND	12	LA20	22	MEMW *	32	SD12
3	MEMCS16	13	IRQ15	23	DRQ5	33	+5V
4	SBHE	14	LA19	24	SD8	34	SD13
5	IOCS16	15	IRQ14	25	DACK6	35	MASTER
6	LA23	16	LA18	26	SD9	36	SD14
7	IRQ10	17	DACK0	27	DRQ6	37	GND
8	LA22	18	LA17	28	SD10	38	SD15
9	IRQ11	19	DRQ0	29	DACK7	39	GND
10	LA21	20	MEMR	30	SD11	40	(KEY)

3.11 COM1 (P2)
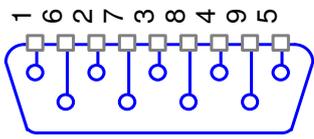
Pin	Definition	Pin	Definition
1	No Connect	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

3.12 COM2 (P3)
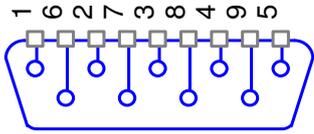
Pin	Definition	Pin	Definition
1	No Connect	6	No Connect
2	RXD	7	No Connect
3	TXD	8	No Connect
4	No Connect	9	No Connect
5	GND		

3.13 Line Out Connector (CON1)
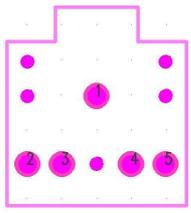
Pin	Definition
1	SND GND
2	SNDL
3	No Connect
4	No Connect
5	SNDR

3.14   LAN Port Connector (LAN1)

15
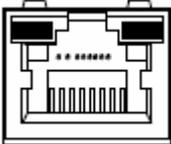
Pin	Definition
1	TX+
2	TX-
3	VCC
4	No Connect
5	No Connect
6	No Connect
7	RX+
8	RX-
9	Active LED+
10	Active LED-
11	Link LED+
12	Link LED-
13	Case Shield
14	Case Shield

3.15   USB1 and USB2 (CN1)
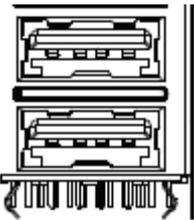
		Pin	Definition
	USB1	1	USB VCC
		2	USB VCC
		3	USB1 Data-
		4	USB2 Data-
	USB2	5	USB1 Data+
		6	USB2 Data+
		7	USB GND
		8	USB GND

3.16 Main Board Power Connector (P5)
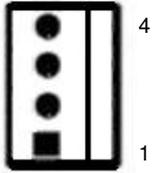
Pin	Definition
1	3.3V
2	GND
3	GND
4	5V

3.17 Touch Panel Connector (JP3)

Pin	Definition
1	Xp
2	Yp
3	Xm
4	Ym

3.18 LCD Connector (JH1)
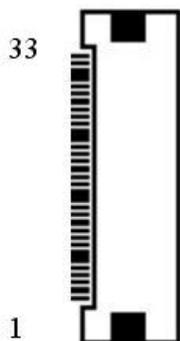
Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	GND	10	R4	19	GND	28	LCD_3.3V
2	BSPCLK	11	R5	20	B0	29	3.3V
3	BHSYNC	12	GND	21	B1	30	Left/ Right
4	BV_CSYNC	13	G0	22	B2	31	Up/ Down
5	GND	14	G1	23	B3	32	NC3
6	R0	15	G2	24	B4	33	GND
7	R1	16	G3	25	B5		
8	R2	17	G4	26	GND		
9	R3	18	G5	27	BBLANK		

3.19   LCD Backlight Control (J3)

	Pin	Definition
J3	1	Control Signal
	2	GND

3.20   LCD Display (Left/Right) (J5)

	Pin	Definition	
1	1	Jump:1-2 --> Left	No Connect
	2		Jump:2-3 --> Right
	3	No Connect	

Default: 1-2

3.21   LCD Display (Up/Down) (J6)

	Pin	Definition	
1	1	Jump:1-2 --> Down	No Connect
	2		Jump:2-3 --> Up
	3	No Connect	

Default: 2-3

HMI Power Module Connector/ Jumper Definition (Top View):

P1 J1 JP2 J2 JP1 P2
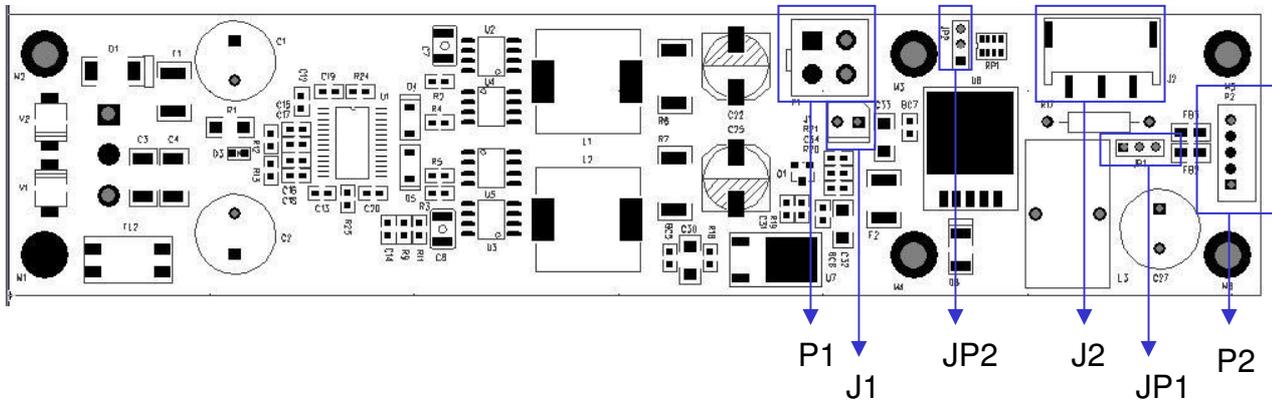
HMI Power Module Connector/ Jumper Definition (Bottom View):

TB1
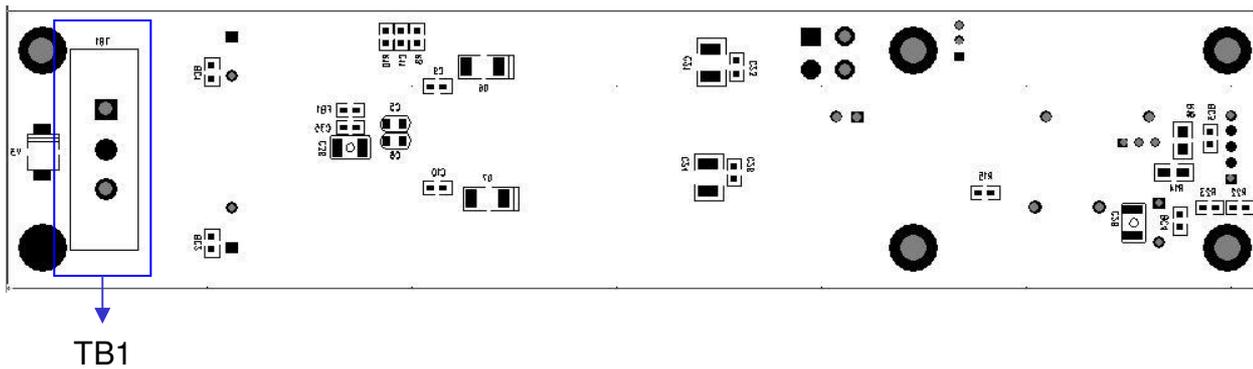
3.22 External Power Connector (TB1)

Pin	Definition
1	24V
2	Earth GND
3	GND

3.23 Power Connector (P1)

Pin	Definition
1	3.3V
2	5V
3	GND
4	GND

3.24 LCD Backlight Control (J3)

Pin	Definition
1	Turn on Backlight Power
2	GND

3.25 Brightness Select) (JP2)
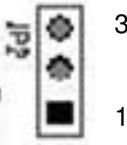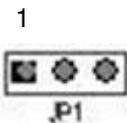
Pin	Definition	
1	Jump:1-2 --> Low Brightness	No Connect
2		Jump:2-3 --> High Brightness
3	No Connect	

Default: 2-3

3.26 Panel Power Connector (J2)
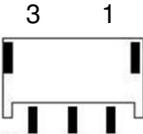
Pin	Definition
1	12V
2	No Connect
3	GND

3.27 Brightness Select) (JP2)

Pin	Definition	
1	Jump:1-2 --> LED Lamp	No Connect
2		Jump:2-3 --> Inverter
3	No Connect	

Default: 2-3

3.28 Inverter Connector (P2)

Pin	Definition
1	O/Off Control (On=5V/ Off=0V)
2	GND
3	121V
4	GND
5	Brightness Control