Specification

Customer: _____

Model Name: HCR-N1 V3

SPEC NO.: A104SN03 V1

Date: 2010.02.01

CUSTOMER APPROVAL
Please return to us one copy of "SPECIFICATION" with your approved signatures

Approved By:		Chop and Signatures
Date:		

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Contents

Detailed Description

1. Changing Record

Version	Release Date	Content Modification	New Version
HCR-N1 V3			

2. Summarization

HCR-N1 V2 is a high-performance LCD controller board which is especially designed for digital TFT-LCD. It supports LCD panels with the same interface as TM060RDH01-00_V1.0, TM062RDH02-00_V1.0, HSD070IDW1-A, A080SN01, A104SN01 LCD panel

3. Application

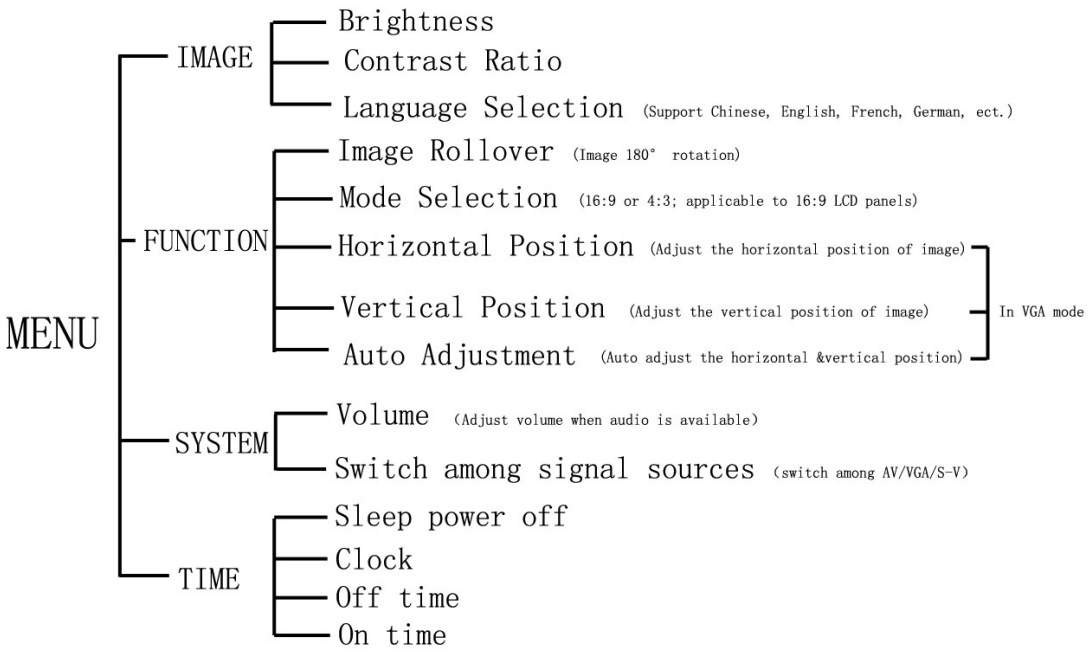
Industrial Control，Visual Intercom，Instrument and Meter，Medical Facilities，Security Monitoring，Car Show，Bank Bill, Acceptance Instrument，POS etc.

4. Characteristics

4.1. Support CVBS ， VGA(640*480,800*480,800*600) S-Vedio input

4.2. Input voltage: DC +12V

4.3. Multi-functional OSD adjustment, show as below:

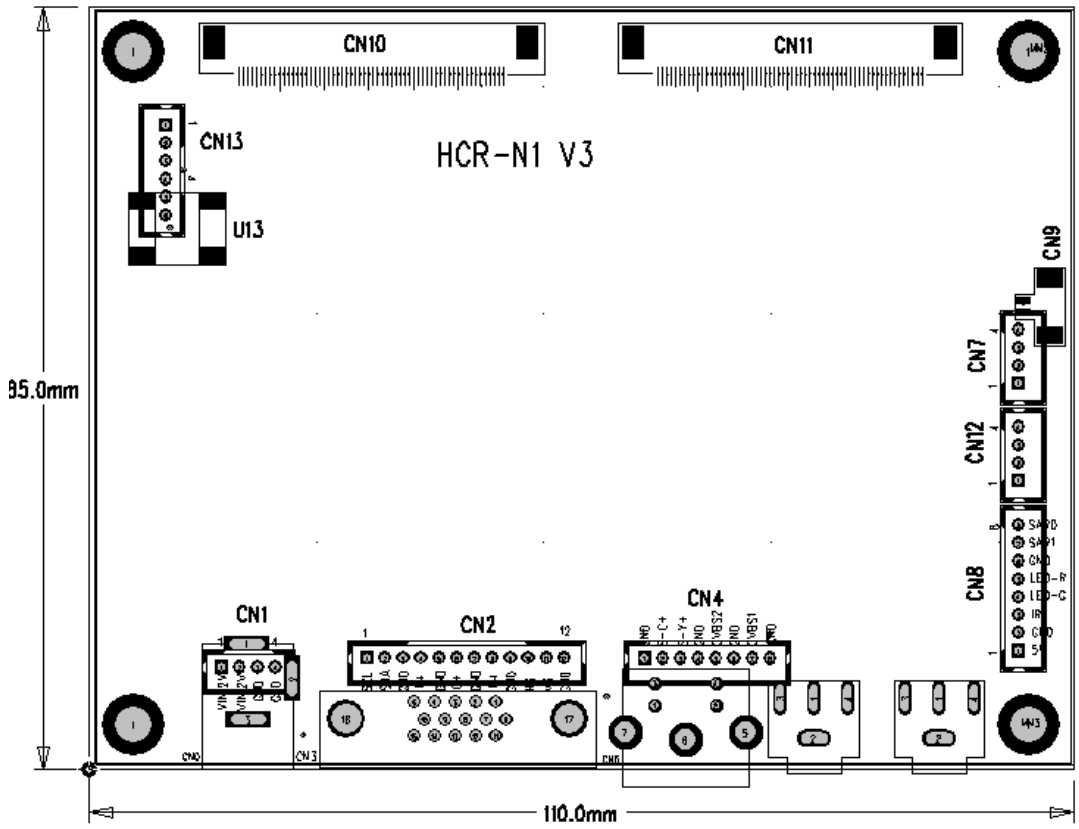


4.4. Support remote control function

4.5. Status for indicator light on turning on & off（Green for on and red for off）

5. Outlook Drawing

5. 1 LCD controller

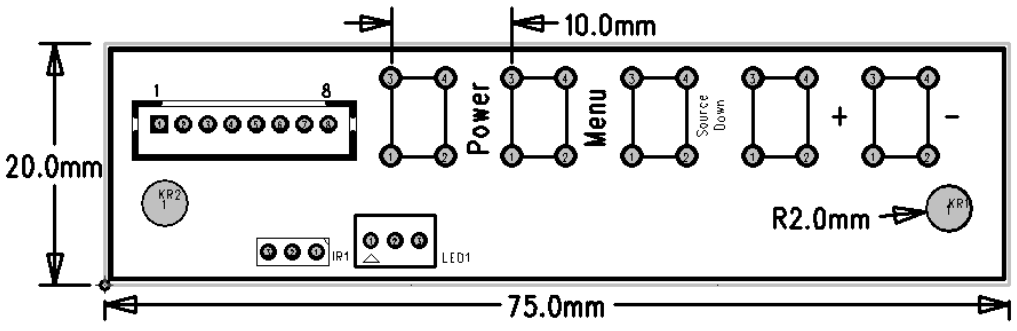


Length：110mm

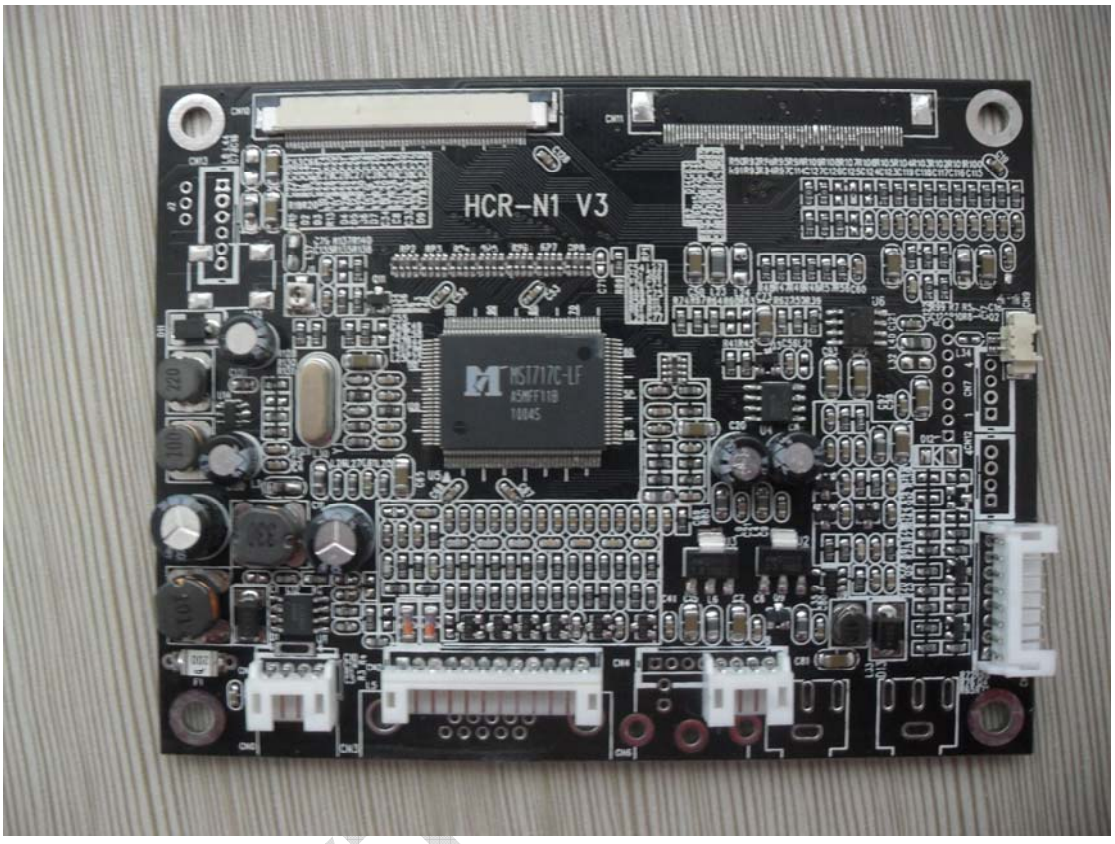
Width：85mm

Height：10mm (height of components + thickness of PCB)

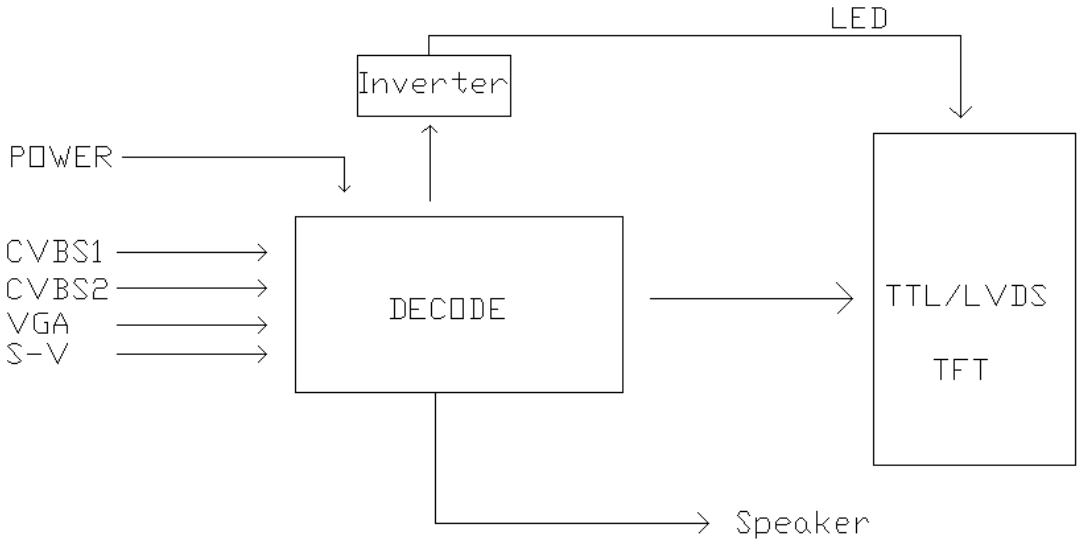
5．2 Keypad



6. Product Picture



7. Electrical Line



8. Interface Definition

DC CN1

Pin No.	Definition	Description
1	+12V	Power
2	+12V	Power
3	GND	Ground
4	GND	Ground

VGA Interface CN2

Pin No.	Definition	Description
1	SCL	I2C
2	SDA	I2C
3	GND	Ground
4	B+	Blue signal+
5	GND	Ground
6	G+	Green signal+
7	GND	Ground
8	R+	Red signal+
9	GND	Ground
10	HS	horizontal synchronizing signal
11	VS	field synchronizing signal
12	GND	Ground

Signal Input CN4

Pin No.	Definition	Description
1	GND	S-V
2	C+	Ground
3	Y+	S-V
4	GND	Ground
5	CVBS2	AV2 input
6	GND	Ground
7	CVBS1	AV1 input
8	GND	Ground

Keypad Interface CN8

Pin No.	Definition	Description
1	VCC +5V	Keypad power
2	GND	Ground
3	IR INT	IR acceptance
4	LED GREEN	Keypad LED
5	LED RED	Keypad LED
6	GND	Ground
7	SAR1	Keypad AD interface
8	SAR0	Keypad AD interface

External Control Signal Interface CN12（applicable to reversing ect.）

Pin No.	Definition	Description
1	+12V	External control signal
2	+12V	External control signal
3	GND	Ground
4	GND	Ground

Debug CN7

Pin No.	Definition	Description
1	+5V	Adjust power
2	GND	Ground
3	TX	Serial output
4	RX	Serial input

LCD Panel Interface Definition CN10/CN11

Pin no	Symbol	I/O	Description	Remark
1	AGND	P	Analog Ground	
2	AVDD	P	Analog Power	
3	VCC	P	Digital Power	
4	R0	I	Data input (LSB)	
5	R1	I	Data input	
6	R2	I	Data input	
7	R3	I	Data input	
8	R4	I	Data input	
9	R5	I	Data input	
10	R6	I	Data input	
11	R7	I	Data input (MSB)	
12	G0	I	Data input (LSB)	
13	G1	I	Data input	
14	G2	I	Data input	
15	G3	I	Data input	
16	G4	I	Data input	
17	G5	I	Data input	
18	G6	I	Data input	
19	G7	I	Data input (MSB)	
20	B0	I	Data input (LSB)	
21	B1	I	Data input	
22	B2	I	Data input	
23	B3	I	Data input	
24	B4	I	Data input	
25	B5	I	Data input	
26	B6	I	Data input	
27	B7	I	Data input (MSB)	
28	DCLK	I	Clock input	
29	DE	I	Data enable signal	
30	HSYNC	I	Horizontal sync input. Negative polarity	
31	VSYNC	I	Vertical sync input. Negative polarity	
32	SCL	I	Serial communication clock input	
33	SDA	I	Serial communication data input	
34	CSB	I	Serial communication chip select	
35	FBA	-	For test, do not connect (Please leave it open)	

36	VCC	P	Digital Power	
37	DRVA	-	For test, do not connect (Please leave it open)	
38	GND	P	Digital ground	
39	AGND	P	Analog ground	
40	AVDD	P	Analog Power	
41	VCOMin	I	For external VCOM DC input (Optional)	
42	DITH	I	Dithering setting DITH = "L" 6bit resolution(last 2 bits of input data turncated) DITH = "H" 8bit resolution(Default setting)	
43	NC	-	Not connect	
44	VCOM	O	connect a capacitor	
45	V10	P	Gamma correction voltage reference	
46	V9	P	Gamma correction voltage reference	
47	V8	P	Gamma correction voltage reference	
48	V7	P	Gamma correction voltage reference	
49	V6	P	Gamma correction voltage reference	
50	V5	P	Gamma correction voltage reference	
51	V4	P	Gamma correction voltage reference	
52	V3	P	Gamma correction voltage reference	
53	V2	P	Gamma correction voltage reference	
54	V1	P	Gamma correction voltage reference	
55	NC	-	Not connect	
56	VGH	P	Positive power for TFT	
57	VCC	P	Digital Power	
58	VGL	P	Negative power for TFT	
59	GND	P	Digital Ground	
60	CAP	C	Connected to a capacitor	

9. Reliable Experiments

Type	Testing Content	Testing Condition	Testing Quantity	criteria
Save Environment Test	High-temperature test	+70 96Hr	2	
	low-temperature test	-20 96Hr	2	
Working Environment Test	High-temperature test	+60 96Hr	2	Normal operation
	low-temperature test	-20 96Hr	2	

	low-temperature test	-20 96Hr	2	in testing
Cold Starting Test	Cold Starting Test	Store in-20℃ for 40 minutes and then start 1 time; store for 2 hours and then start 4 times(1 time every 5 minutes; store for 4 hours and restart 4 times(1 time every 5 minutes); check if all is normal after 8 hours	2	
Thermal Cycling Test	Thermal Cycling Test	-20℃ 30min 25℃ 30min 60℃ Continuously working for 30 periods	2	
Constant Temperature and Moisture Test		+60℃ 90%RH Continuously working for 96 hours	2	

Note:

1. Experiments are in non condensing conditions;
2. After experiments, items should be put in testing box for 24 hours(in normal temperature often wet) before taking out