

DATA IMAGE CORPORATION

TFT Module Specification

ITEM NO. : FG150690DSSWPG01

Prototype Pre-prod. Mass prod. Table of Contents

1.	COVER & CONTENTS ·····	1
2.	RECORD OF REVISION ·····	2
3.	GENERAL SPECIFICATIONS ······	3
4.	ABSOLUTE MAXIMUM RATINGS	3
5.	ELECTRICAL CHARACTERISTICS ······	4
6.	INPUT SIGNAL CHARACTERISTICS	6
7.	OPTICAL CHARACTERISTIC ······	11
8.	PIN CONNECTIONS ······	14
9.	BLOCK DIAGRAM ·····	15
10.	QUALITY ASSURANCE ·····	16
11.	LCM PRODUCT LABEL DEFINE	20
12.	PRECAUTIONS IN USE LCM ······	22
13.	OUTLINE DRAWING ·····	23
14.	PACKAGE INFORMATION	24

Customer Companies	QA Approval	QA Check	R&D Approval	R&D Check
	pretty	Andy	Dragon	Arehur
Approved by	Version:	Issued Date	Total Pages	Prepared by
	4	21/AUG/19'	24	Candy



Singel 3 | B-2550 Kontich | Belgium | Tel. +32 (0)3 458 30 33 info@alcom.be | www.alcom.be Rivium 1e straat 52 | 2909 LE Capelle aan den IJssel | The Netherlands Tel. +31 (0)10 288 25 00 | info@alcom.nl | www.alcom.nl



2. RECORD OF REVISION

Rev	Date	ltem	Page	Comment	Source
1	13/APR/18'			Initial Preliminary	ESR S1803004
2	23/JUNE/18	13	23	Modify OUTLINE DRAWING from Rev 1 to 2	11S-I60023
3	12/DEC/18'	13	23	Modify OUTLINE DRAWING from Rev 2 to 3	11S-IC0004
4	21/AUG/19'	14	24	ADD PACKAGE INFORMATION	11S-J80013



3. GENERAL SPECIFICATIONS

Parameter	Specifications	Unit							
Screen Size	15.6 (diagonal)	inch							
Display Format	1920(H) x (R,G,B) x1080(V)	dot							
Active Area	344.16(H) x 193.59(V)	mm							
Pixel Pitch	0.17925(H)X0.17925(V)								
Pixel Configuration	R.G.B. Vertical Stripe								
Outline Dimension	363.8(H) ×215.9(V) ×9.3(D)	mm							
Surface treatment	Anti-Glare, 3H								
Back-light	LED								
Display mode	Normally Black								
View direction	All								
Weight	1092(Max)	g							
Our components and process	Our components and processes are compliant to RoHS & REACH standard								

4. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	Vcc	-0.3	3.6	V	Noto1
Logic Input Voltage	Vin	-0.3	4.0	V	Note i
Operating temperature	Тор	-30	85	°C	Noto 2.3
Storage temperature	Tst	-40	90	О°	

Note 1: Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

Note 2: Temperature and relative humidity range is shown in the figure below.

- (a) 90 %RH Max. (Ta ≦ 40 °C).
- (b) Wet-bulb temperature should be 39 °C Max. (Ta > 40 °C).
- (c) No condensation.
- Note 3: The absolute maximum rating values of this product are not allowed to be exceeded at any times. The module should not be used over the absolute maximum rating value. It will cause permanently unrecoverable function fail in such an condition.





5. ELECTRICAL CHARACTERISTICS 5.1 Operating Conditions

_							Ta=25°C
Parame	eter	Symbol	Min.	Тур.	Max.	Unit	Remark
Power Supply	v Voltage	VCC	3	3.3	3.6	V	
Ripple Vo	ltage	Vrp	-	-	150	mV	
Rush Cur	rent	IRUSH	-	-	3		
	White		-	1.22	1.5	Δ	
Power Supply Current	Black	-	-	0.51	0.7	~	
	Vertical Stripe		-	0.82	1		
Power Const	umption	PLCD	-	4	5	W	
LVDS differential	input voltage	Vid	200	200	600	mV	
LVDS common ir	nput voltage	Vic	1.0	1.0	1.2	V	
LVDS terminati	ng resistor	RT	-	-	100	ohm	

Note1: The ambient temperature is $Ta = 25 \pm 2^{\circ}C$.

Note2: Measurement Conditions:





Note 3: The specified power supply current is under the conditions at Vcc = 3.3 V, Ta = $25 \pm 2^{\circ}$ C, Fr = 60Hz, whereas a power dissipation check pattern below is displayed.



Note 4: The power consumption is specified at the pattern with the maximum current.



5.2 Backlight Driving Consumption

Parameter	Symbol	Min.	Тур.	Max.	Unit	Remark
LED voltage	VL	10.8	12.0	13.2	V	
LED current	١L	0.8	1.0	1.2	mA	
LED dice Life Time		-	50000	-	Hrs	Note1

Note 1: The "LED life time" is defined as the module brightness decrease to 50% original brightness at IL=1A & Ta=25°C



6. INPUT SIGNAL CHARACTERISTICS 6.1 Input Signal Timing

Signal	Item	Symbol	Min.	Тур.	Max.	Unit	Remark
_	Frequency	Fc	60	70.93	75	MHz	-
	Period	Tc	-	14.1	-		-
	Input cycle to cycle jitter	Trc	-0.02* Tc	-	0.02* Tc	ns	Note3
	Input clock to data skew	TLVCCS	-0.02* Tc	-	0.02* Tc		Note4
LVDS Clock	Spread spectrum modulation range	Fclkin_ mod	Fc*98%	-	Fc*102%	MHz	NotoF
	Spread spectrum modulation frequency	Fssm	-	-	200	KHz	Notes
	Frame Rate	Fr	50	60	60	Hz	Tv=Tvd+Tvb
Vertical Display	Total	Τv	1090	1110	1130		-
Term	Active Display	Tvd	1080	1080	1080	Th	-
	Blank	Tvb	Tv- Tvd	30	Tv- Tvd		-
Llarizontal Dianlay	Total	Th	1050	1065	1075		Th=Thd+Thb
	Active Display	Thd	960	960	960	Тс	-
reim	Blank	Thb	Th - Thd	105	Th - Thd		-

Note 1 : Because this module is operated by DE only mode, Hsync and Vsync input signals are ignored. Note 2 : The Tv(Tvd+Tvb) must be integer, otherwise, this module would operate abnormally.

INPUT SIGNAL TIMING DIAGRAM





Note 3 : The input clock cycle-to-cycle jitter is defined as below figures. Trcl = $I T_1 - TI$



Note 5 : The SSCG (Spread spectrum clock generator) is defined as below figures.





6.2 Power On/Off Sequence

The power sequence specifications are shown as the following table and diagram.



- Note 1 : Please avoid floating state of interface signal at invalid period.
- Note 2 : When the interface signal is invalid, be sure to pull down the power supply of LCD VCC to 0 V.
- Note 3 : The Backlight converter power must be turned on after the power supply for the logic and the interface signal is valid. The Backlight converter power must be turned off before the power supply for the logic and the interface signal is invalid.



6.3 LVDS Data Mapping Table

LVDS Chappel O0	LVDS output	D7	D6	D4	D3	D2	D1	D0
LVDS Channel OU	Data order	OG0	OR5	OR4	OR3	OR2	OR1	OR0
LVDS Channel O1	LVDS output	D18	D15	D14	D13	D12	D9	D8
LVDS Channel OT	Data order	OB1	OB0	OG5	OG4	OG3	OG2	OG1
LVDS Channel O2	LVDS output	D26	D25	D24	D22	D21	D20	D19
LVDS Channel O2	Data order	DE	NA	NA	OB5	OB4	OB3	OB2
LVDS Channel O2	LVDS output	D23	D17	D16	D11	D10	D5	D27
LVDS Channel OS	Data order	NA	OB7	OB6	OG7	OG6	OR7	OR6
LVDS Channel E0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	EG0	ER5	ER4	ER3	ER2	ER1	ER0
LVDS Channel E1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	EB1	EB0	EG5	EG4	EG3	EG2	EG1
LVDS Channel E2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	EB5	EB4	EB3	EB2
LVDS Channel E3	LVDS output	D23	D17	D16	D11	D10	D5	D27
	Data order	NA	EB7	EB6	EG7	EG6	ER7	ER6



6.4 Color Data Input Assignment

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

												Da	ita S	Sign	al										
	Color				Re	ed				Green										Bl	ue				
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B 3	B2	B1	B0
	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Basic	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Colors	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crow	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scolo	:	:	:	:	:	:	- :-	1	:	1	1	1	1	1	1	:	:	1	1	:	1	1	1	1	:
Of	:	:	:	:	- : -	:	:	:	:	:	:	1	1	:	1	:	:	:	1	:	:	:	1	1	:
Ded	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reu	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Gray	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Scalo	:	:	:	1	:		:	:	:	:	1	1	1	1	1	1	:	1	1	:	1	1	1	1	1
of	:	:	:	:	:	:	:	:	1	:	:	$\langle : \rangle$:	:	1	:	:	:	1	:	:	:	:	1	:
Groop	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
Green	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Crow	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Gray	:	:	1	:	:	:	:	1	1	1	:	1	1	:	:	:	:	4	1	:	:	:	1	1	:
Scale	:	:	:	:	:	9	:	1	1	1	:	1	1	:	:	:	:	:	:	:	1	:	1	1	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
Blue	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note : 0: Low Level Voltage, 1: High Level Voltage



Parameter		Symbol	Condition	Min.	Тур.	Max.	Unit	Remarks
	Horizontal	θ _x +		80	85			
Viewing		θ _x -	Center	80	85		dog	Note 1.4
Angle	Vertical	θ_{Y} +	CR≥10	80	85		ueg	NOLE 1,4
		θγ-		80	85		1	
Contrast Ratio		CR	at optimized viewing angle	600	800			Note 1,3
Posponso timo	White to black	Ton	Center	-	13	18	ma	Noto 1.6
	Black to white	Toff	$\theta x = \theta y = 0^{\circ}$	-	12	17	1113	NOLE 1,0
Uniformity		B-uni	$\theta x = \theta y = 0^{\circ}$	70			%	Note1,5
Brightness		L	$\theta x = \theta y = 0^{\circ}$	360	450		cd/mੈ	Note 1,2
		Xw			0.313			
		Yw			0.329			
		X _R			0.652			
Chromaticity		Y _R	Center	Тур	0.338	Тур.+		Note 7
Oniomationy		X _G	$\theta x = \theta y = 0^{\circ}$	0.05	0.333	0.05		
6		Y _G			0.613			
		Хв			0.150			
		Υ _B			0.050			

The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance ≤ 1 lux, and at room temperature). The operation temperature is $25^{\circ}C\pm 2^{\circ}C$ and LED Backlight Current=420mA. The measurement method is shown in Note1.

Note1: The method of optical measurement:





Note2: Measured at the center area of the panel and at the viewing angle of the $\theta x=\theta y=0^{\circ}$

Note3: Definition of Contrast Ratio (CR):

CR = Luminance with all pixels in white state Luminance with all pixels in Black state

Note4: Definition of Viewing Angle









Note6: Definition of Response Time:

Response time is measured, the luminance changes from " black " to " white ", or " white " to " black " on the same screen point, by photo-detector. Ton is the time it takes the luminance change from 10% up to 90%. Also Toff is the time it takes the luminance change from 90% down to 10% (See the following diagram.).



Note 7: Definition of Chromaticity:

The color coordinates (x_W, y_W) is obtained with all pixels in the viewing field at white.





8 .PIN CONNECTIONS

8.1 CN1 Pin Function

Type: IPEX 20455-040E-76 / Matching : IPEX 20453-040T-03 or equivalent.

Pin	Name	Description
1	LED _Vcc	+12V Vi power supply
2	LED _Vcc	+12V Vi power supply
3	LED _Vcc	+12V Vi power supply
4	LED_Vcc	+12V Vi power supply
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	LED_EN	Enable pin
10	LED_PWM	Backlight Adjust
11	LCD_VCC	LCD logic and driver power 3.3V
12	LCD_VCC	LCD logic and driver power 3.3V
13	LCD_VCC	LCD logic and driver power 3.3V
14	NC	Not connection, this pin should be open
15	NC	Not connection, this pin should be open
16	NC	Not connection, this pin should be open
17	LCD GND	LCD logic and driver ground
18	RXO0-	Negative LVDS differential data input. Channel O0 (odd)
19	RXO0+	Positive LVDS differential data input. Channel O0 (odd)
20	RXO1-	Negative LVDS differential data input. Channel O1 (odd)
21	RXO1+	Positive LVDS differential data input. Channel O1 (odd)
22	RXO2-	Negative LVDS differential data input. Channel O2 (odd)
23	RXO2+	Positive LVDS differential data input. Channel O2 (odd)
24	LCD GND	LCD logic and driver ground
25	RXOC-	Negative LVDS differential clock input. (odd)
26	RXOC+	Positive LVDS differential clock input. (odd)
27	LCD GND	LCD logic and driver ground
28	RXO3-	Negative LVDS differential data input. Channel O3(odd)
29	RXO3+	Positive LVDS differential data input. Channel O3 (odd)
30	RXE0-	Negative LVDS differential data input. Channel E0 (even)
31	RXE0+	Positive LVDS differential data input. Channel E0 (even)
32	RXE1-	Negative LVDS differential data input. Channel E1 (even)
33	RXE1+	Positive LVDS differential data input. Channel E1 (even)
34	LCD GND	LCD logic and driver ground
35	RXE2-	Negative LVDS differential data input. Channel E2 (even)
36	RXE2+	Positive LVDS differential data input. Channel E2 (even)
37	RXEC-	Negative LVDS differential clock input. (even)
38	RXEC+	Positive LVDS differential clock input. (even)
39	RXE3-	Negative LVDS differential data input. Channel E3 (even)
40	RXE3+	Positive LVDS differential data input. Channel E3 (even)







10.1.1 Temperature and Humidity(Ambient Temperature)

Temperature	:	$25\pm5^{\circ}C$
Humidity	:	$65 \pm \mathbf{5\%}$

10.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

10.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

10.1.4 Test Frequency

In case of related to deterioration such as shock test. It will be conducted only once.

10.1.5 Test Method

Reliability Test Item & Level			Domorik
No.	Test Item	Test Level	Remark
1	High Temperature Storage Test	Ta=90°C,240hrs	IEC60068-2-2
2	Low Temperature Storage Test	Ta=-40°C,240hrs	IEC60068-2-1
3	High Temperature Operation Test	Ta=85°C,240hrs	IEC60068-2-2
4	Low Temperature Operation Test	Ta=-30°C,240hrs	IEC60068-2-1
5	High Temperature and High Humidity (No operation)	T=60°C,90%RH,240hrs	IEC60068-2-3
6	Thermal Cycling Test (No operation)	$-20^{\circ}C \rightarrow +25^{\circ}C \rightarrow +85^{\circ}C$,100 Cycles 30 min 5 min 30 min	IEC60068-2-14
7	Vibration test (Package)	Frequency:10~55HZ Amplitude:1.5mm Sweep time:11min Test period:6Cycles for each direction of X,Y,Z	IEC60068-2-6
8	Drop test (Package)	Height :60cm 1 conner,3edges,6surfaces	IEC60068-2-32
9	Electrostatic Discharge Test	Location: LCM/TP surface Condition:150pf 330Ω Contact +/- 8kV Air +/-15kV Criteria: Class C	IEC61000-4-2



10.2 Inspection condition

10.2.1 Inspection conditions

10.2.1.1 Inspection Distance : 30 ± 5 cm

10.2.1.2 View Angle :

(1) Inspection under operating condition : $\pm 5^{\circ}$

(2) Inspection under non-operating condition : ± 45°



10.2.2 Environment conditions

Ambient Temperature :	25±5°C
Ambient Humidity :	30~75%RH
Ambient Illumination	600~800 lux

10.3 Inspection Parameters

Appearance inspection standard (D: diameter, L: length; W: width, Z: height, T: glass thickness, n: number)

Inspection item	Inspection standard	Description
No image	Prohibited	
Image abnormal	Prohibited	
Bright line	Prohibited	
Mura	It is acceptable that the defect can not be seen with 2% ND filter.	



Dot		Acceptable	Trial		
	Item	Visible area	lotal		
	Bright dot 2		-	One Dot	
	Dark dot	3	5		
	Bright adjacent dots	1	1	I wo adjacent dot	
	Dark adjacent dots	1	1		
	Adjacent dots with a bright	0	2		
	dot and a dark dot Note : The ratio of module with a 10% per shipment.	z ny bright dots sha	all not exceed		
Foreign material	SPEC (unit: mm)	Acceptable		
in dot shape	D≦0.15		Ignored		
	0.15 <d≦0.5< td=""><td></td><td>n≦5</td><td></td></d≦0.5<>		n≦5		
	D>0.5	D= (L + W) / 2			
Foreign material					
in line shape	SPEC(unit: mm) Accentable			<u>ل</u>	
	W≤0.05 Ignored			W	
	$0.05 < W \le 0.1$ and $0.3 < L \le 12$ $n \le 6$			L : Long W : Width	
	W>0.1 or L>12		0	-	
Contamination	C				
	It is acceptable if the dirt can be wiped.				
Inspection item	Inspection standard		Description		



Scratch		·	
	SPEC(unit: mm) Acc		~~~
	W≦0.05 Ignored		\sim
	0.05 <w<math>\leq0.1 and 0.3< L\leq10</w<math>	n≦5	
	W>0.1 or L>10	0	
Bubble			0
	SPEC (unit: mm)	Acceptable	
	D≦0.15	Ignored	0
	0.15 <d≦0.5< td=""><td>n≦4</td><td>D= (L + W) / 2</td></d≦0.5<>	n≦4	D= (L + W) / 2
	D>0.5	0	
Ink			
	SPEC (unit: mm)	Acceptable	
	word unclear, inverted, mistake, break line	0	
Bubble under	SPEC (unit: mm)	Acceptable	
protection film	NA		
Function	Prohibited		

10.4 Sampling Condition

Unless otherwise agree in written, the sampling inspection shall be applied to the incoming inspection of customer.

Lot size: Quantity of shipment lot per model. Sampling type: normal inspection, single sampling Sampling table: ISO 2859 Inspection level: Level II

			Definition
Class of defects	Major	AQL 0.65	It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.
	Minor	AQL 1.5	It is a defect that will not result in functioning problem with deviation classified.



Product Label style:





Product Name Define:





1. ASSEMBLY PRECAUTIONS

- (1) You must mount a module using holes arranged in four corners or four sides.
- (2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
- (3) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
- (4) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (5) Do not open the case because inside circuits do not have sufficient strength.
- (6) Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
- (7) Please do not touch metal frames with bare hands and soiled gloves. A color change of the metal frames can happen during a long preservation of soiled LCD modules.
- (8) Please pay attention to handling lead wire of backlight so that it is not tugged in connecting with inverter.

2. OPERATING PRECAUTIONS

- (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
- (2) Please do not change variable resistance settings in LCD module. They are adjusted to the most suitable value. If they are changed, it might happen LCD does not satisfy the characteristics specification
- (3) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (4) When fixed patterns are displayed for a long time, remnant image is likely to occur.
- (5) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
- (6) Please consider that LCD backlight takes longer time to become stable of radiation characteristics in low temperature than in room temperature.
- 3. ELECTROSTATIC DISCHARGE CONTROL
 - (1) The operator should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such the copper leads on the PCB and the interface terminals with any parts of the human body.

Confidential Document

(2) The modules should be kept in antistatic bags or other containers resistant to static for storage.

(3) Only properly grounded soldering irons should be used.

(4) If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.

(5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended

(6) Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.

- STORAGE PRECAUTIONS
 - (1) When you store LCDs for a long time, it is recommended to keep the temperature between 0°C-40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
 - (2) Please do not leave the LCDs in the environment of high humidity and high temperature such as 60°C 90%RH
 - (3) Please do not leave the LCDs in the environment of low temperature; below -20°C.

OTHERS

4.

5.

- (1) A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight Land strong UV rays
- (2) Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
- (3) For the packaging box, please pay attention to the followings:
- a. Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.
- b. Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
- Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet.
 (Such like keeping them in high humidity or wet place can occur getting them wet.)
- (4) Waste

6.

Liquid crystal module products shall not be arbitrarily discarded, the water and soil have a negative impact on the environment, the need to be handled by a qualified unit.

LIMITED WARRANTY

Unless otherwise agreed between DATA IMAGE and customer, DATA IMAGE will replace or repair any of its LCD and LCM which is found to be defective electrically and visually when inspected in accordance with DATA IMAGE acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of DATA IMAGE is limited to repair and/or replacement on the terms set forth above. DATA IMAGE will not responsible for any subsequent or consequential events.



Confidential Document 13. OUTLINE DRAWING







Alcom electronics

14. PACKAGE INFORMATION



Singel 3 | B-2550 Kontich | Belgium | Tel. +32 (0)3 458 30 33 info@alcom.be | www.alcom.be Rivium 1e straat 52 | 2909 LE Capelle aan den IJssel | The Netherlands Tel. +31 (0)10 288 25 00 | info@alcom.nl | www.alcom.nl