

REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVAL
A	Initial Release	12/22/08	J. Lee

LEVEL OF PURCHASE	APPRV'D BY	DATE
RECORD AND FILE		
PRELIMINARY		
FINAL		

		DATE	INSYNC Peripherals Corporation 22951 La Cadena Dr. Laguna Hills, CA 92653 Tel: 949-588-2675; Fax: 949-588-2679 Email: info@insyncperipherals.com
DRAWN BY			
RELEASE BY			
ENGINEERING	J. Lee	12/22/08	
QA	Alan Phan	12/22/08	10.4" LED Backlight LCD 1,400 nits

SIZE	CAGE CODE	DWG NO.	REV.
A	1TWU7	04D-1021-240-LED	A
SCALE: NONE		SHEET 1 of 7	

10.4” LED Backlight LCD Product Specification

ORIGINATOR

DATE

SYSTEM ENGINEER

DATE

ENGINEERING PROGRAM MGR

DATE

Notice is hereby given that all data contained in, revealed by, or shown in this display document, whether a drawing or other writing, is proprietary and belongs to InSync Peripherals Corporation (IPC) of Laguna Hills, California. It is furnished and received in confidence solely for informational purposes of the recipient in connection with fulfilling actual or pending purchase or procurement contract between InSync and prospect buyers.

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE			SHEET 2 OF 7

1.0	<u>SCOPE</u>	4
2.0	<u>APPLICABLE DOCUMENTS</u>	4
3.0	<u>REQUIREMENTS</u>	4
3.1	PRODUCT DEFINITION	4
4.0	<u>SPECIFICATION</u>	4
5.0	<u>MECHANICAL</u>	4
6.0	<u>INSPECTION</u>	6
6.1	QUALITY INSPECTION STANDARD	6
7.0	<u>RELIABILITY</u>	6
7.1	FAILURE REPORTING, ANALYSIS AND CORRECTIVE ACTION	6
8.0	<u>QUALITY ASSURANCE PROVISIONS</u>	6
8.1	GENERAL	6
8.2	RESPONSIBILITY	6
8.3	EXAMINATION OF PRODUCT	6
9.0	<u>PREPARATION FOR DELIVERY</u>	7
9.1	GENERAL	7
9.2	MARKING	7

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE		SHEET 3 OF 7	

1.0 SCOPE

This specification establishes the performance and test requirements for a 10.4” LED backlight LCD with optical bonding for sunlight readability. This display is same as AUO 10.4” display P/N: G104SN02 V.1 except its original CCFL backlight is replaced by LED backlight. Its display brightness is increased from 400 nits to 1,400 nits. It has all the performances of a LED backlight, in terms of higher brightness, low operating temperature and high dimming ratio. In addition, its low LED drive voltage minimizes electrical magnetic field emission. This unit includes the LED driver board and LED Driver input cable. The board is conformal coated.

2.0 APPLICABLE DOCUMENTS

The following documents, of the exact issue shown, form a part of this specification to the extent specified herein. In the event of a conflict between the documents referenced herein and the contents of this specification, the contents of this specification shall have precedence.

ANSI / IPC-A-610 Acceptability for Electronic Assemblies

ANSI / IPC-A-620 Requirements and Acceptance for Cable and Wire Harness Assemblies

IPC DOCUMENTS TBD

3.0 REQUIREMENTS

This display is designed in accordance with this specification, including requirements covering all operating and non-operating conditions. The display shall meet performance and all other requirements of this specification while installed in the intended equipment, provided the environment is no more severe than that specified herein. Use this document in conjunction with AUO specification P/N :G104SN02 V.1 whichever is applicable.

3.1 PRODUCT DEFINITION

This display includes the following.

- a. 10.4” display with AUO P/N: G104SN02V.1 and LED backlight
- b. LED driver board
- c. Input cable

See AUO P/N G104SN02 V.1 specification for video and optical performances.

4.0 SPECIFICATION

4.1 LED

4.1.1 Input Voltage: Vin = +5.0V DC to +17.0VDC

4.1.2 Output Voltage: Vo = 9.7VDC typical

4.1.3 Output Current: IL= 1.32 A

4.1.4 LED life time = 70,000 hours to 50% of its original brightness at 25C and 1.32 Amperes current.

4.1.5 Dimming Ratio: TBD

4.1.6 Analog voltage Dimming Control: 0V to +5VDC; 0= Maximum Brightness;
+5VDC Minimum Brightness.

4.1.7 Enable Control; On=+5VDC; Off=0V

4.2 OPTICAL PERFORMANCE

4.2.1 Display Brightness: 1,400 nits typical.

4.2.2 Operating Temperature: -25C to +60C

4.2.3 Non-operating Temperature: -25C to +70C (Maximum display surface is +75C)

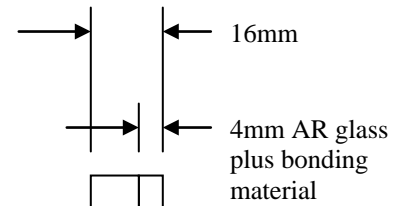
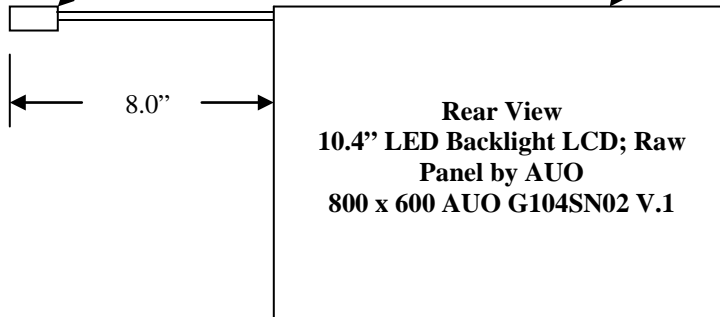
5.0 MECHANICAL

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE		SHEET 4 OF 7	

5.1 Display Mechanical Drawing

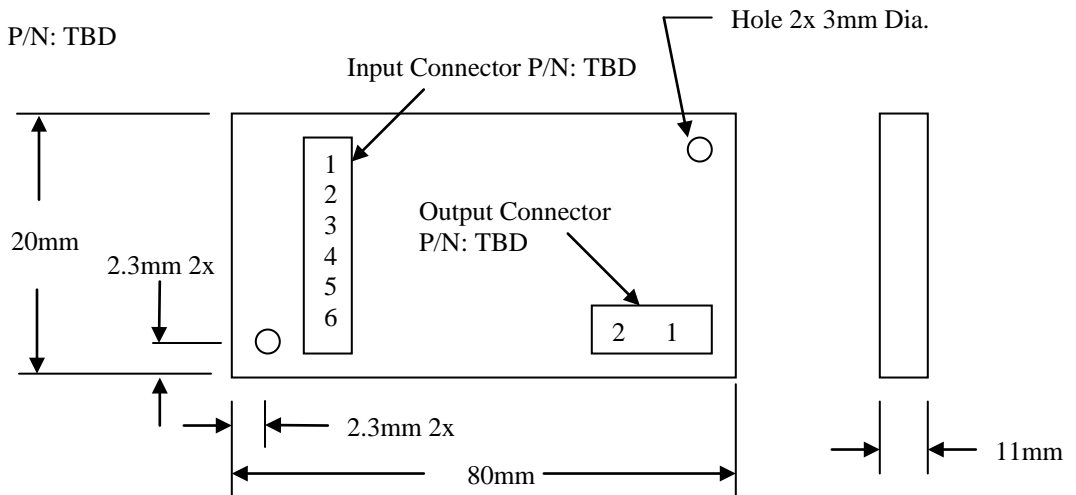
Two wires (red) positive; (black) ground
Connector P/N: TBD

For panel mechanical dimensions, see raw panel specification G104SN02 V.1



LED backlight LCD panel

5.2 LED Driver Board: P/N: TBD



Input Connector Pin Assignment

Pin #	Description	Function
1	Vin	+12VDC
2	Not Used	-
3	Ground	-
4	Not Used	-
5	Power On/Off	On= +5V; Off=0V.
6	Dimming	Min=+5V; Max=0V.

Output Connector Pin Assignment

Pin #	Description	Function
1	Ground	Ground (black)
2	Vo+	Positive

Note: This board is conformal coated to prevent moisture penetration.

5.3 Input Cable P/N: TBD

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE		SHEET 5 OF 7	

6.0 INSPECTION

6.1 Quality Inspection Standard

6.1.1 Inspection Criteria is based on Military Standard Mil-Std-105D.

6.1.2 Lot Size: 91 to 150

6.1.3 General Inspection Level: Level 1

6.1.4 AQL: 1.0

6.1.5 Sampling Plan: Single

6.1.6 Inspection: Normal

6.1.7 Sample Size: 8

6.1.8 AC=0; Re=1

7.0 RELIABILITY

7.1 FAILURE REPORTING ANALYSIS AND CORRECTIVE ACTION

IPC shall identify the root cause and corrective action of any display/component failures that occur during the manufacture, test and deployment of the display. IPC shall provide individual failure analysis for each display/component returned to IPC as a result of a failure in the intended equipment. These analysis will list the symptoms of the failure, the root cause of the failure and the corrective action taken to prevent any reoccurrence.

8.0 QUALITY ASSURANCE PROVISIONS

8.1 GENERAL

The requirements for the formal verification of the performance, design, and construction of the display/component shall be as specified in this section. The product must demonstrate its adequacy to meet the design/performance requirements of Section 4. Verification of each requirement shall be designated for accomplishment by analysis, inspection, demonstration or test, or combinations of these as specified herein. Verification methods are established as follows:

Test: An examination or trial which yields analytical data for use in comparing the measured performance with the specified requirement. Included are accept/reject criteria for comparison of test results with design requirements.

8.2 RESPONSIBILITY

Unless otherwise specified IPC is responsible for the performance of all verifications as specified herein. IPC may use its own or any other facilities suitable for the performance of tests and other verifications specified herein, unless disapproved by user. IPC reserves the right to perform any of the tests and other verifications set forth in the specification where such tests or verifications are deemed necessary to assure supplies and conform to prescribed requirements. IPC shall correct any design, material, or performance defect made evident during these tests.

8.3 EXAMINATION OF PRODUCT

Each display/component shall be carefully examined to determine conformance to the requirements of this specification. Particular attention shall be given to workmanship, finish, dimensions, construction, cleanliness, identification and marking.

9.0 PREPARATION FOR DELIVERY

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE			SHEET 6 OF 7

9.1 GENERAL

The display/components shall be cleaned, preserved, packed, packaged, labeled, and marked in accordance with industry's standard commercial practices to protect from contamination and damage. The methods for cleaning, preserving, packing, packaging, labeling, and marking shall be subject to approval by the Buyer if it is specified in the Purchase Order.

9.2 MARKING

All parts and assemblies which require special care during packing, handling, or shipping shall be identified and marked appropriately. The driver shall be marked with at least the following information in such a manner that the marking will not be rendered illegible:

- InSync Part Number
- Customer Part Number if requested
- Date Code

SIZE A	CAGE CODE 1TWU7	DWG NO. 04D-1021-240-LED	REV. A
SCALE : NONE			SHEET 7 OF 7