

ACCEPTANCE TEST PROCEDURE

24" LED DISPLAY – INDUSTRIAL

Project No.	DBPL-SI-23-9087
Doc No.	DBPL-SI-23-9087-ATP
Doc Rev	00, DT -2020
Cust.Name	BEL-GBD

ACCEPTANCE TEST PROCEDURE

FOR

“24" LED DISPLAY – INDUSTRIAL”

(BEL Part No: - 4461 413 002 56)

P.O. No.	BEPO/GD1/4000397005	DATED:	05-07-2023
PREPARED BY.	PURUSHOTHAM REDDY	APPROVED BY	Mr. RAJMOHAN. K
SIGNATURE.		SIGNATURE.	
BEL (Rep) NAME	Mr.	APPROVED BY.	Mr.
SIGNATURE.		SIGNATURE.	

SUPPLIED TO:



M/S BHARAT ELECTRONICS LIMITED,

MANUFACTURED BY:



M/S DATASOL (B) PVT. LTD,
BANGALORE – 560 045.



Datasol (B) Pvt. Ltd.

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1.0 SCOPE

This document defines the procedure that is to be followed during the process of acceptance of the 24" LED Display-Industrial for fulfilling the needs of BEL GBD, as per the Purchase Order.

1.1 IDENTIFICATION

The 24" LED Display-Industrial supplied by M/S Datasol to M/S Bharat Electronics Limited will be here after identified as given below.

Description	: 24" LED Display-Industrial
MFG P/N	: DBPL-24HD-01
BEL Part Number	: 446141300256
MFG Year	: 2023

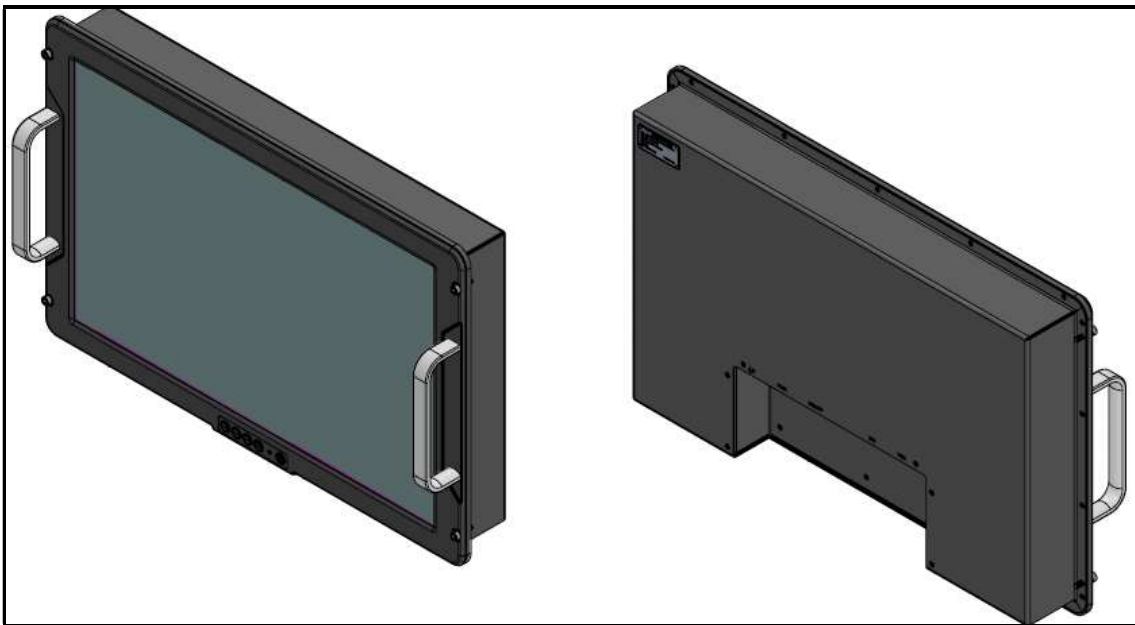


Image1 - DBPL-24HD-01



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1.3 Brief Description

24" LED Display-Industrial is a colour active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching device. This module has a 24 inch diagonally measured active area with WUXGA resolutions (1920 horizontal by 1200 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colours. The TFT-LCD panel used for this module is adapted for a low reflection and higher colour type.

2.0: Specifications

- **Front panel Control:** OSD control keypad
- **Connection:** AC Input, VGA, DVI Connector
- **Display:** 24" with resolution 1920 X 1200
- **Dimensions (W x H x D):** Details in TDR-1
- **Weight:** < 14 Kgs

3.0: Test Equipment Required:

Test PC	- 1 No
DVI Cable	- 1 No.
VGA cable	-1 No
Power chords	-2 No
Keyboard	-1 No
Mouse	-1 No



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4.0: Physical Inspection

1. Check the Display for any damages
2. Check if the power circular connector is properly mating at the Display end and also clearly inserted at the power socket.
3. Check all the connectors, power & signal for any loose pins/wires.
4. Check the measurements as specified in TDR-1 and note down the result in TDR-1.

5.0: Functional Test Procedure:

1. Connect the Display to the CPU of a PC. After switching ON the power to Display check the system booting and display seen on the screen of Display.
2. Check the Resolution 1920x1200
3. Note down the results in TDR-2.
4. After checking, shutdown the system and switch off the Display Unit.

6. Hardware details:

6.1. Display Specification

P/N: EV240WUM-N10

EV240WUM-N10 is a colour active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching device. This module has a 24 inch diagonally measured active area with WUXGA resolutions (1920 horizontal by 1200 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colours. The TFT-LCD panel used for this module is adapted for a low reflection and higher colour type.



Image2 - Display

Features

- Real 8-bit colour depth, display 16.7M colours
- Compatible with Colour Gamut 72%@NTSC (CIE 1931)
- High luminance and contrast ratio, low reflection and wide viewing angle
- DE (Data Enable) only
- RoHS/Halogen Free
- Gamma Correction

Parameter	Specification
Resolution	1920×1200
Contrast Ratio	1000:1
Display Colours	16.7M
Brightness	600
Viewing angle U/D/L/R	89/89/89/89
Display Size	24"
Frame Rate	60Hz
Operating Temperature	0 ~ 50 °C

6.2. Power supply Specification

P/N: LFA100F-12

Cosel LFA AC-DC Converters are compact, lightweight, and wide input rugged PCB type AC-DC converters. Features include small and compact PCB construction, built-in inrush current, overcurrent, and overvoltage protection circuits and universal input (AC85 - 264V). These LFA converters are compatible to worldwide safety standards, including UL, C-UL, TUV standard and CE mark. These components are compatible to various safety standards in major countries.

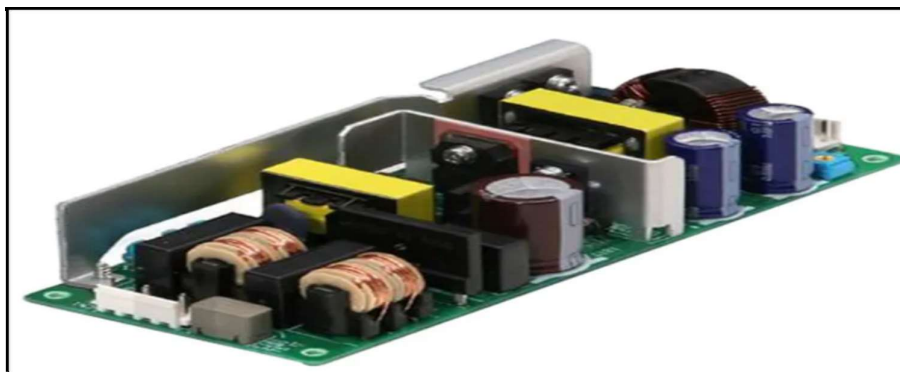


Image3 -Power Supply

Feature

- Small and compact PCB construction
- Built-in inrush current, overcurrent and overvoltage protection circuits
- Harmonic attenuator (Complies with IEC61000-3-2)
- Universal input (AC85-264V)
- MAX O/P 102W
- DC O/P 12V, 8.5A

Parameter	Specification
Input Voltage	85 VAC to 264 VAC
Output Voltage-Channel	12 VDC
Output Current-Channel	8.5 A
Input Frequency	50 Hz/60 Hz
Power - Convection	102 W
OPERATING TEMP.	-10 to +70C

6.3. AC Power Entry Modules Specification

P/N: FN9262-10-06

The FN9262 power entry module combines an IEC inlet, mains filter with very high filter attenuation based on nanocrystalline material selection and fuses in a small form factor. Choosing FN9262 product line brings you rapid availability of a standard filter associated with the necessary safety acceptances. Standard IEC connector filters are a practical solution helping you to pass EMI system approval in a short time. A wide selection on amperage ratings, mounting possibilities and filters for medical applications (acc. to IEC 60601-1 with low leakage current and high performance) are designed to offer you the desired solution.



Image4 -AC Power Entry Module

Features and Benefits

- Exceptional conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behaviour
- FN9262B versions comply with the requirements of 1MOP acc. to IEC/EN 60601-1 for creepage and clearance, leakage current and high potential testing
- Versions up to 10 A are available with fuse holder for two fuses

Parameter	Specification
Input Voltage	250VAC
Output Current Rating	10 A
Mounting Style	Panel Mount
OPERATING TEMP.	-25 to +85C

7. Block Diagram

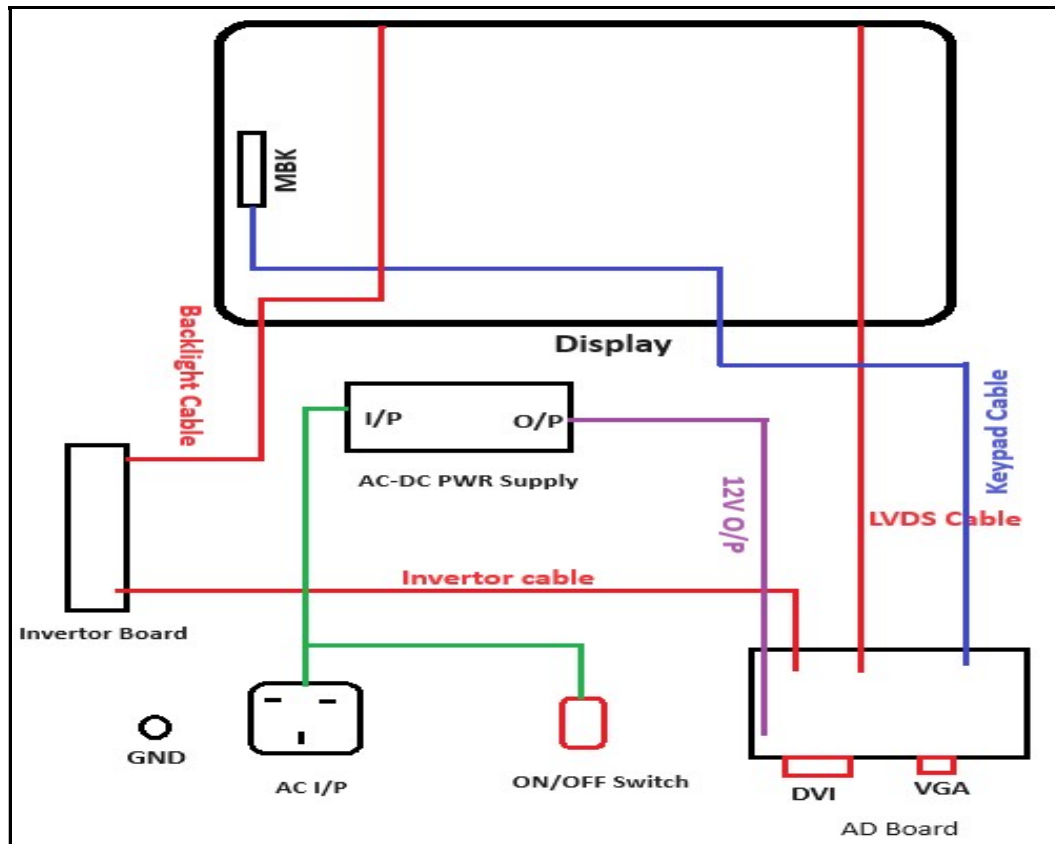


Image5 -Block Diagram

8. Test Setup

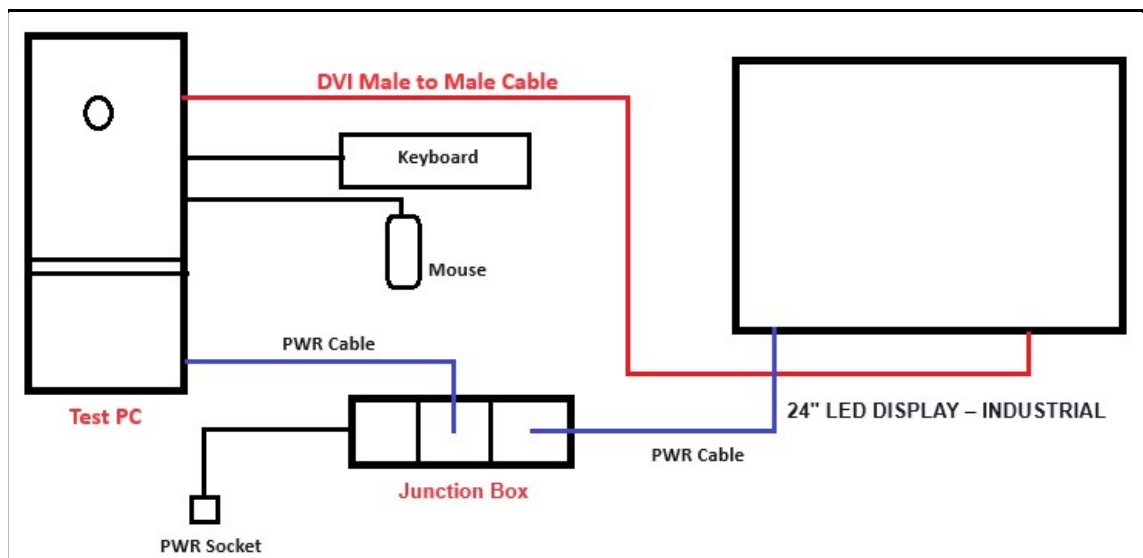


Image6 – Test Setup

9. Wiring Details

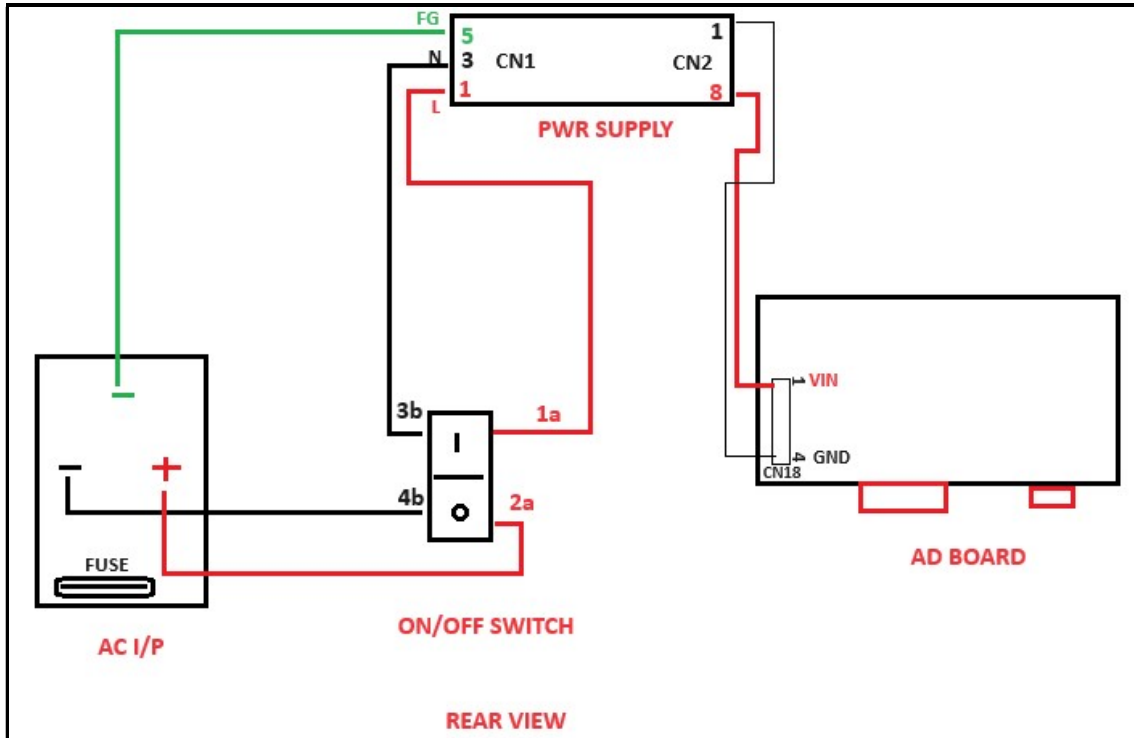


Image7 -Wiring Details

9.1. Panel AC Connector to ON/OFF Switch and Power Supply Connection

PANEL CONNECTOR	PIN NO	SIGNAL DESCRIPTION		ON/OFF SWITCH & PWR SUPPLY I/P	PIN NO	SIGNAL DESCRIPTION
FN9262-10-06	+	LINE	----->	H8550VBBBEN551W	Pin 2a	LINE
	-	NEUTRAL	----->		Pin 4b	NEUTRAL
	FG	EARTH	----->	LFA100F-12	Pin 5	FG

9.2. ON/OFF Switch to Power Supply I/P

ON/OFF SWITCH	PIN NO	SIGNAL DESCRIPTION		PWR SUPPLY I/P (CN1)	PIN NO	SIGNAL DESCRIPTION
H8550VBBBEN551W	Pin 1a	LINE	----->	LFA100F-12	Pin 1	LINE
	Pin 3b	NEUTRAL	----->		Pin 3	NEUTRAL

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9.3. Power Supply O/P to AD Board

PWR SUPPLY O/P	PIN NO	SIGNAL DESCRIPTION		AD BOARD	PIN NO	SIGNAL DESCRIPTION
CN2	Pin 8	LINE	----->	CN18	Pin 1	VIN
	Pin 1	NEUTRAL	----->		Pin 4	GND

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Physical Test Report - TDR-1

Date:

BEL Part No: 4461 413 002 56

Description: 24" LED Display – Industrial

Unit Serial Number:

PHYSICAL CHECK:

S.NO	TEST	REQUIREMENT	RESULT
1	24" LED Display-Industrial damages check	No damages	OK /NOT OK
2	Mating of power & DVI cables	Proper fitment	OK /NOT OK

DIMENSIONAL CHECK:

S.NO	DESCRIPTION	SPECIFIED DIMENSIONS(MM)	MEASURED DIMENSIONS(MM)	RESULT
1	Width	609 ± 2.0		OK /NOT OK
2	Height	399 ± 2.0		OK /NOT OK
3	Depth	81.5 ± 5.0		OK /NOT OK
4	Weight	≤14 Kgs		OK /NOT OK

RESULT: OK / NOT OK

Rremarks If Any:

Tested By:

Verified By:



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Functional Test Report - TDR-2

Date:

BEL Part No: 4461 413 002 56

Description: 24" LED Display – Industrial

Unit Serial Number:

S. No	Test	Requirement	Result
1	After switching ON the power to Display & Test PC check if the system got booted and display is seen on the screen of the unit. Set the Resolution to 1920x1200 and check if the set resolution is supported and displayed on the screen	Resolution up to 1920 X 1200	OK / NOT OK

RESULT: OK / NOT OK

Remarks If Any:

Tested By:

Verified By: