



**THE DATASHEET OF
MK-070R**





MK-070R

7 Inch Resistive
Interactive Digital
Display

June 2025

Revision A

Product Specification

Introduction:

The MK-070R is a fully integrated 7" WQVGA production color display module, with a resistive touch screen, to support a variety of embedded control interface applications. The MK-043R is "form, fit, and function" the same as the MK-480272C, but with enhanced EMI and ESD protection.

Compatible with GEMstudio™ for quick and easy GUI design, these production-ready units support GIF, JPEG, PNG, and more graphic formats in 24-bit color, plus 8-bit alpha blending (transparency channel) found in high-end consumer electronic products.

The MK-070R has 64Mb (2Mx32) of SDRAM for image caching, and 64Mb of serial data flash for code storage. The module has an 800 x 480 WQVGA IPS TFT LCD with a resistive touch panel.

Amulet's Graphical OS Chip™ with an integrated resistive touch display controller handles all the graphics processing and control as well as the communication to a host controller.

Module:

- Amulet Graphical OS-GEM OS
- On-Board Memory: 64Mb Serial Flash for storing GUI pages.
- Operating Temperatures: -20°C – 70°C
- Rotts and REACH compliant

Display:

- 800x480 WVGA TFT LCD
- 1000nit (cd/m2)
- Contrast Ratio: 500:1
- Viewing Angle: 12 o'clock
- LED Backlight software controlled

Touch Panel:

- Integrated 4-wire Resistive Touch

Communication Interfaces:

- 1x UART-TTL
- 1x UART RS232
- 1x SPI with 2 Chip Selects
- 1x I2C
- 2x PWM
- USB 2.0 Device Interface

Power:

- 5V DC

General Specification

ITEM	STANDARD VALUE	UNIT
Pixels (Resolution)	800 X 480	dots
Outline dimension	164.9(H) x 100(V) x TBD(D)	mm
Active area	154.8(H) x 85.92(V)	mm
Pixel Size	0.1929 x 0.179	mm
Luminance	1000	Cd/m2
Operation Temp.	70 - 20	C
View Angle	12 O'Clock	
Display Mode	TM, NW	
Backlight	24 White LED	
Backlight Control	PWM	
Data Flash	64 Megabit	
Interface	USB /RS232 /UART	

Electrical Characteristic

Recommended Operating Conditions

5V	5V Recommended
5V Current	TBD Min

DC Characteristics

V core Supply Current	22mA @1.2V
V input Low Level	-0.3 to 0.8V
V input High Level	2V to (Vcc + 0.3V)
Pull Up Resistors	70K to 175KOhms
IO Output Current	8mA
Static Current Excluding Power on Reset V core = 1.2V	600uA
Static Current Logic cells consumption, including Power on Reset and all input drivers V core = 1.2V	30uA

Pin Descriptions

Pin Type

I = Input

O = Output

P = Power Supply

Pin #	Signal	Type	Description
1	5V	P	5V @ 300mA
2	5V	P	5V @ 300mA
3	GND	P	Ground
4	GND	P	Ground
5	SCL	O	Serial Clock
6	SDA	O	Serial Data
7	COMMU RXD	I	CommU RXD UART
8	COMMU TXD	O	CommU TXD UART
9	PWM 1	O	Programmable Clock 1
10	PWM 2	O	Programmable Clock 2
11	Prog M	I	Program Mode - Float = Prog / GND = Run Note:1
12	PWM 0	O	Programmable Clock 0
13	RS232 TXD	O	TXD from RS232 Transceiver
14	T_CAL	I	Touch Panel Cal. - Float = Cal / GND = Normal Note:1
15	PROGU RXD	I	PROGU RXD UART
16	PROGU TXD	O	PROGU TXD UART
17	SPI C3	O	SPI Chip Select 3
18	RS232 RXD	I	RXD from RS232 Transceiver
19	SPI C2	O	SPI Chip Select 2
20			
21	MISO	O	SPI DATA In
22	SCLK	O	SPI Clock
23	RESET	O	System Reset by driving pin low
24	MOSI	O	SPI DATA Out

Note:1 Internally pulled up. Only pull to ground

Errata: For MK-070R Revision XB2, Pin 11 (Prog M) is a no-connect.

Do NOT connect to this pin

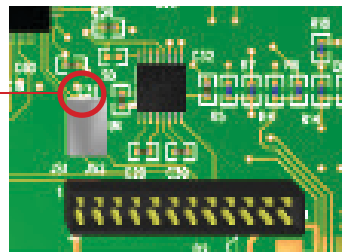
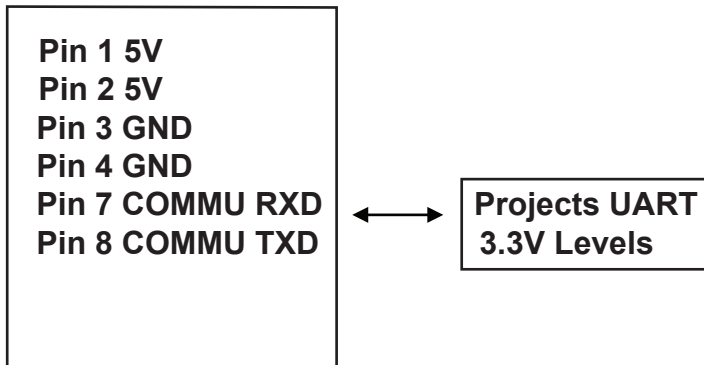
Table 1. Header J3 24pin, 2mm, Hirose DF-11-24DP-2DSA

Mating Connectors

Hirose DF11-24DS-2R26 Straight
 DF11-24DS-2C Right Angle
 DF11-24DS-2DSA Board
 JST PHDR-24VS

J3 Wiring

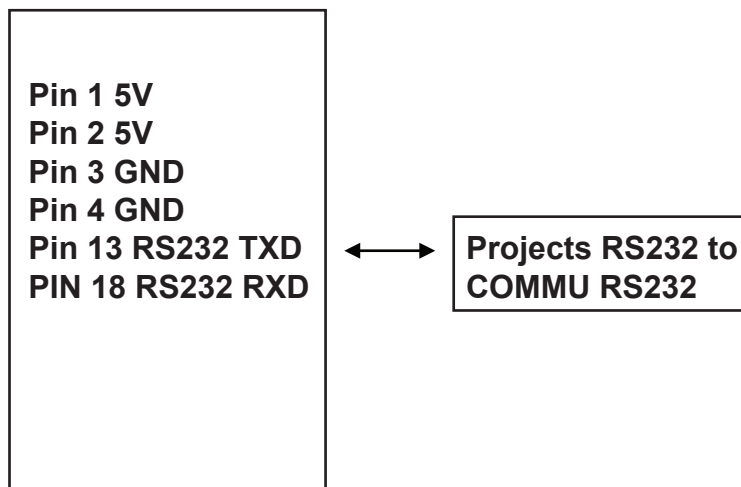
Connecting Project via UART



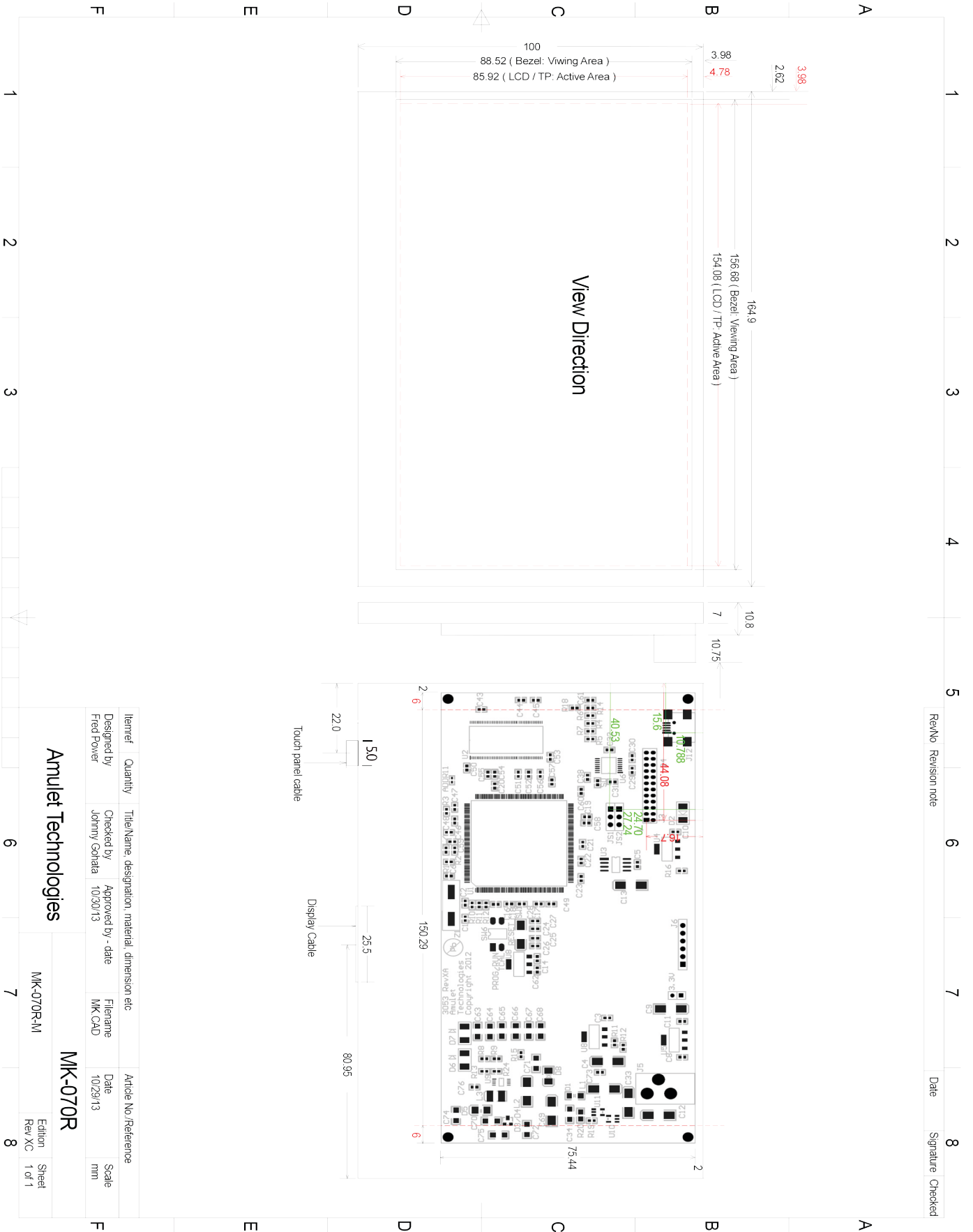
J3

Note: Cut Trace across **SD** and Jumper "D" side to C38 "8" side GND to take the RS232 Transceiver out of circuit.

Connecting Project via RS232



J3



RevNo	Revision note	Date	Signature	Checked
6				
7				
8				

Item#	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by		Checked by	Date
Fred Power		Johnny Gohtala	10/30/13
Approved by		File name	Scale
		MK-CAD	mm

Amulet Technologies

MK-070R-IM

MK-070R

Edition
Rev. Xc
Sheet
1 of 1

Notes:

MK-070R

Communication and Program UARTs can be used for programming as well as for communication with the application's host processor.

If you wish to program via UART make sure you can get to the Reset and the Program Mode pins. These will only be needed if a serious programming issue occurs.

Pass-Through Programming information is available at our website under Field Update Utilities:
<http://www.amulettechnologies.com/support/downloads/fieldupdates.html>.

Momentarily grounding reset with an open collector device or momentary switch will cause a reset. Reset must be applied after the Program Mode pin is changed for us to see it.

Revision History



Date	Revision	Notes
June 2025	A	Publication

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