
4.3" GEMmodule™

MK-480272C

Data Sheet

Introduction:

The MK-480272C is a fully integrated 4.3" WQVGA production color display module to support a variety of embedded control interface applications. 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.

Features:

- 480x272 TFT LCD - 16:9 (wide aspect ratio) display
- White LED backlight
- Integrated resistive touch panel
- Amulet GEM Graphical OS Chip™
- 24 Pin Interconnector
- Royalty-FREE Graphical Operating System
- On-Board memory - 32megabit Serial Flash for storing GUI pages
- Touch Panel Controller - Built into Graphical OS Chip™
- Color Supported - Up to 24bit + 8bit Alpha
- Graphics Supported - GIF, JPEG, PNG
- Backlight can be controlled via the touch panel or HTML command
- Supports Unicode - Foreign language character sets
- Font Converter - Built-in

General Specification

| ITEM | STANDARD VALUE | UNIT |
|---------------------|------------------------------------|-------------------|
| Pixels (Resolution) | 480 x 272 | dots |
| Outline dimension | 105.5(H) x 67.2 (V) x4.0D | mm |
| Active area | 95.04(H) x 53.856(V) | mm |
| Dot Pitch | 0.198 x 0.198 | mm |
| Luminance | 350 Typ. | Cd/m ² |
| Operation Temp. | 70 - 20 | C |
| View Direction | 6 o'clock | |
| Display Mode | TN / Transmissive / Normally White | |
| Backlight | 10 White LED | |
| Backlight Control | PWM | |
| Data Flash | 32 Megabit | |
| Interface | USB / RS232 / UART | |

Electrical Characteristic

Recommended Operating Conditions

| | |
|------------|----------------|
| 5V | 5V Recommended |
| 5V Current | 300mA 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 (V _{cc} + 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

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

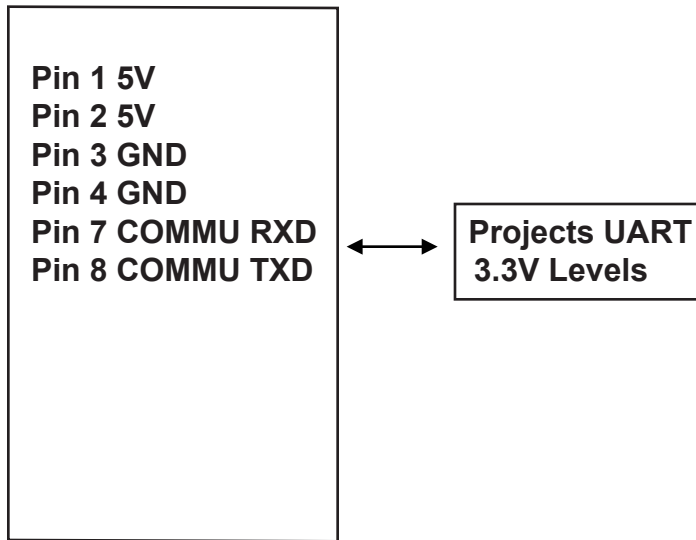
JST PHDR-24VS

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J3 Wiring

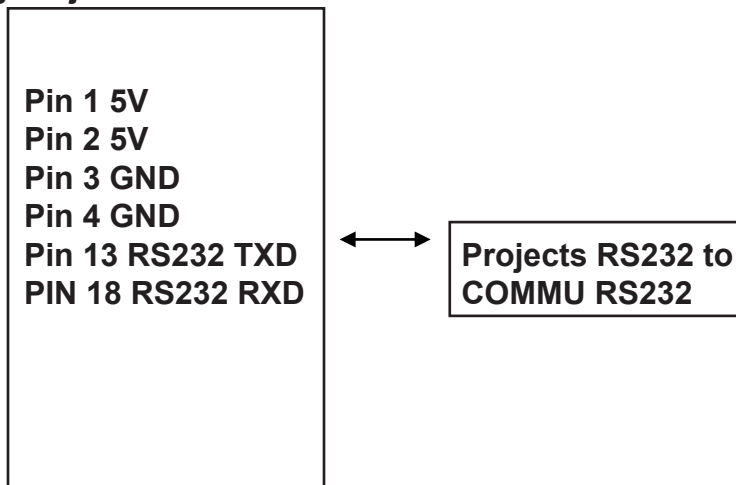
Connecting Project via UART



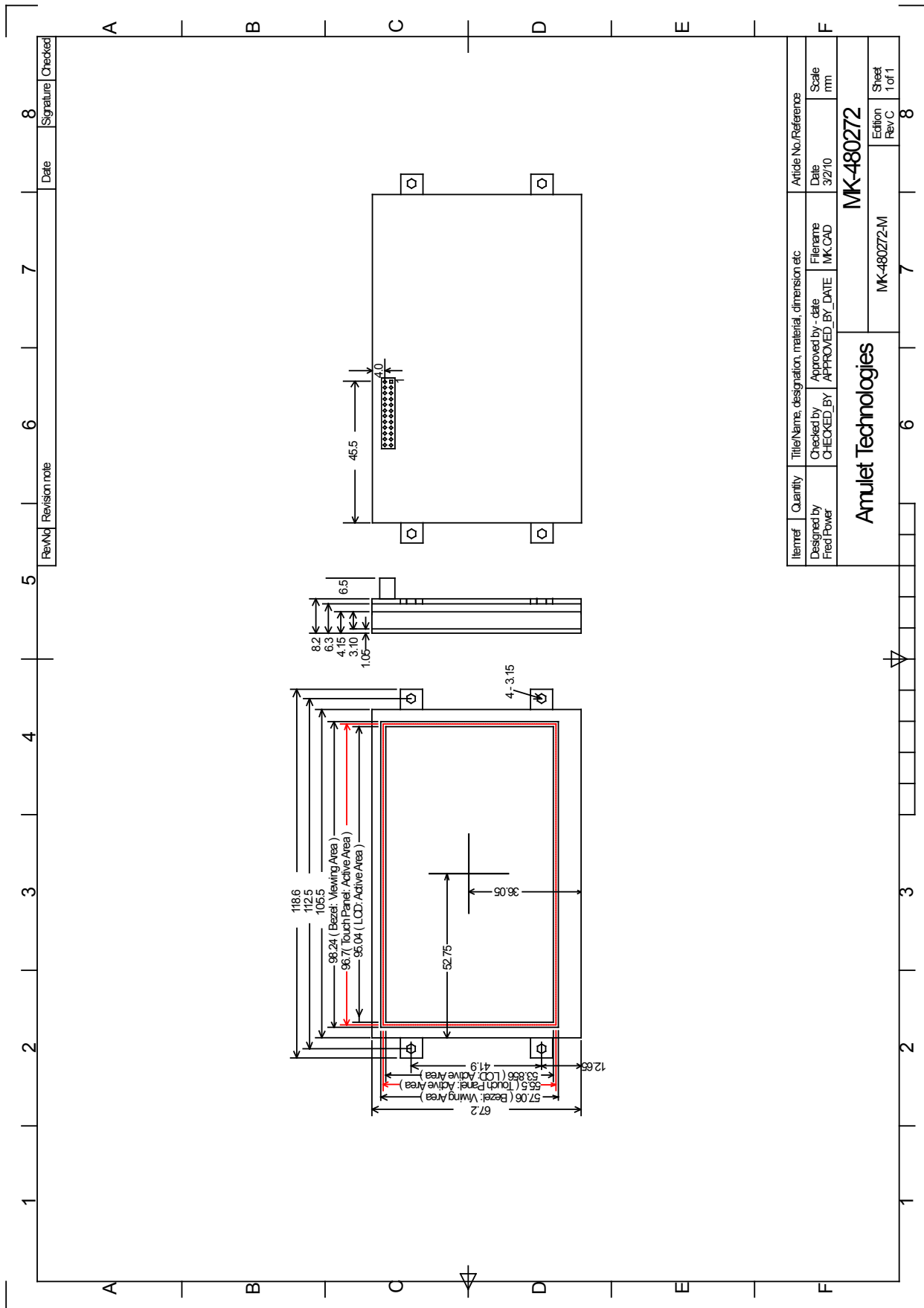
J3

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



| Itemref | Quantity | Title/Name, designation, material, dimension etc | Article No./Reference |
|---------------------------|---------------------------|--------------------------------------------------|-----------------------|
| Designed by Fred Power | Checked by APPROVED BY | Approved by - date MK_LOAD | Date 32/10 |
| Amulet Technologies | | | Scale mm |
| MK-480272-M | | | Sheet 1 of 1 |
| MK-480272 | | | Edition Rev C |
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Notes:

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.



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