



Amulet
Technologies

Amulet Color Module Kit

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. Featuring the Amulet GEM Graphical OS Chip™ for color displays, the module supports GIF, JPEG and PNG 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 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

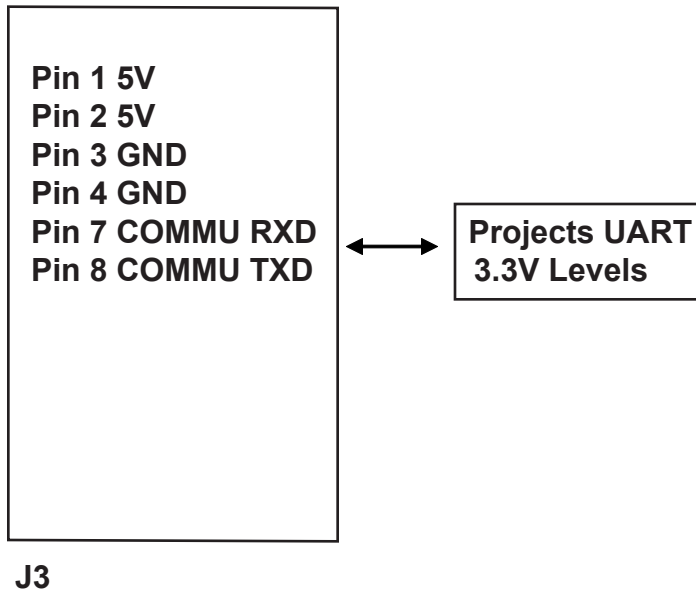
JST PHDR-24VS

MK-480272C

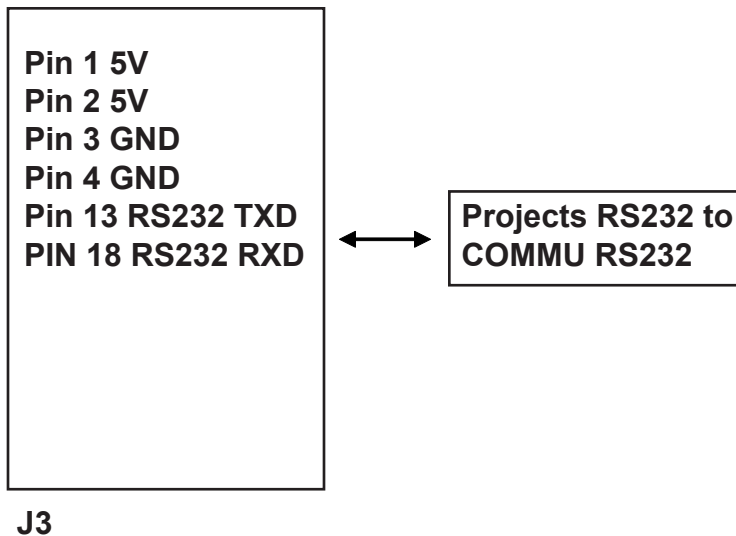
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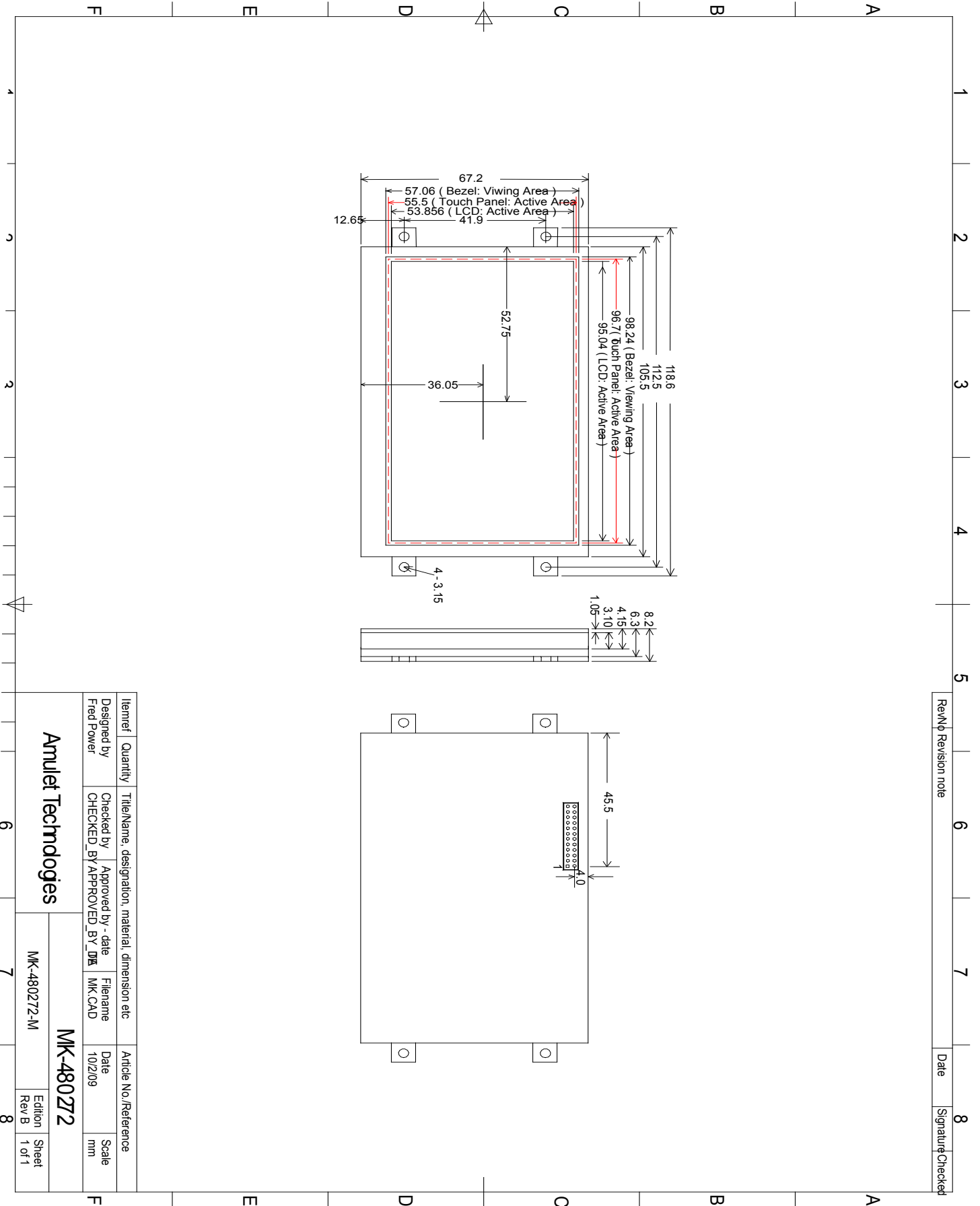
J3 Wiring

Connecting Project via UART



Connecting Project via RS232





| Rev/No | Revision note | Date | Signature | Checked |
|--------|---------------|------|-----------|---------|
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |



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