



# AMLCD

## Multifunction Displays

### The pilot's and designer's choice for the modern cockpit

CMC Electronics' family of rugged and dependable Multi-Function Displays (MFDs) use the latest in display and backlight technology to achieve exceptional performance in the demanding airborne environment. Active Matrix Liquid Crystal Displays (AMLCD) provide excellent sunlight readability, even for clear canopy cockpits - the most difficult lighting environments for displays.

The MFDs can interface with any device that delivers standard video signals - display generators, mission computers, FLIRs, radars, video cameras or personal computers.

#### Impressive performance, versatile and dependable:

- LED backlighting for maximum brightness and reliability
- NVIS compatible
- Conduction cooled
- Bezels with push-button and push-toggle switches, can be customized
- Serial output of bezel button data and status information
- Secondary video inputs and outputs to support reversionary modes
- Less than 3.5 kg
- 28 VDC at 100 W typical



4" x 5" screen



5" x 7" screen



# MULTIFUNCTION DISPLAY – CHARACTERISTICS

## FEATURES

## BENEFITS

|  |  |
|--|--|
| Full Color, High Resolution                | Increased pilot situational awareness.                         |
| Sunlight Readable                          | MFD can be used in any light levels. Excellent contrast ratio. |
| Smooth, High-Quality Graphics              | Easy to read, pleasing presentation.                           |
| NVG Compliant                              | Clear, sharp image for night operations.                       |
| Full Military Environment                  | Ruggedized for harsh environments.                             |
| Extensive Built-In-Test (BIT) Capabilities | Continuous in-flight testing. Bench fault isolation.           |

## MFD SPECIFICATION CHART

| Display Size                       | 4x5 - VGA<br>Portrait or Landscape  | 5x7 - XGA<br>Portrait or Landscape  | 5x7 - SVGA<br>Portrait or Landscape   |
|------------------------------------|---|---|---|
| Color Resolution                   | 480 x 640<br>color pixels   | 768 x 1024<br>color pixels  | 600 x 800<br>color pixels   |
| Brightness<br>Colors               | > 300 fL<br>262,144 colors, 64 Grayscales   | > 150 fL<br>262,144 Colors, 64 Grayscales   | > 300 fL<br>262, 144 Colors, 64 Grayscales  |
| Contrast Ratio                     | Dark room ambient 250:1 (typ)<br>200:1 (minimum)  | Dark room ambient 400:1 (typ)<br>300:1 minimum  | Dark room ambient 400:1 (typ)<br>250:1 minimum  |
| Display Backlight                  | LED backlight for increased reliability<br>and instant-on without a heater                                    | LED backlight for increased reliability<br>and instant-on without a heater                                    | LED backlight for increased reliability<br>and instant-on without a heater                                    |
| Horizontal<br>Viewing Angle *      | ± 50° (typ)<br>Landscape  | ± 85° (typ)<br>Portrait   | ± 60° (typ)<br>Portrait   |
| Vertical<br>Viewing Angle *        | + 35/ - 40 (typ)<br>Landscape   | ± 85° (typ)<br>Portrait   | ± 80° (typ)<br>Portrait   |
| NVIS Compliant                     | Mil-I-85762/Mil-Std-3009, Class B,<br>Type I/II multicolor displays, and<br>NVIS Green Class A bezel lighting | Mil-I-85762/Mil-Std-3009, Class B,<br>Type I/II multicolor displays, and<br>NVIS Green Class A bezel lighting | Mil-I-85762/Mil-Std-3009, Class B,<br>Type I/II multicolor displays, and<br>NVIS Green Class A bezel lighting |
| Built -In Symbol<br>Generator      | Text and Limited Graphics   | Text and Limited Graphics   | Text and Limited Graphics   |
| Data Output                        | 2x RS-422   | 2x RS-422   | 2x RS-422   |
| Video Input                        | 2x VGA (RGB HV)<br>2x NTSC Video (Composite/ S-Video)   | 2x XGA (RGB HV)   | 2x SVGA (RGB HV)  |
| Video Output<br>(pass through)     | 1x NTSC Video (Composite/ S-Video)  | 1x XGA (RGB HV)   | 1x SVGA (RGB HV)<br>1x NTSC Video (Composite/S-Video)   |
| Interfaces to<br>Aircraft Avionics | 2x RS-422<br>5x Discretes   | 2x RS-422<br>1x ARINC 429 Receiver<br>5x Discretes  | 2x RS-422<br>1x ARINC 429 Receiver (option)<br>5x Discretes   |
| Environmental                      | RTCA DO-160D<br>MIL-STD-810E  | RTCA DO-160D<br>MIL-STD-810E  | RTCA DO-160E  |
| Bezel Backlight                    | 5V or 28V DC Lamps  | 5V DC LED<br>28V DC Lamps   | 5V or 28V DC LEDs   |
| Power Consumption                  | 28V DC, 65W (typ)<br>100W (max) with heater   | 28V DC, 100W (typ)<br>140W (max) with heater  | 28V DC, 100W (typ)<br>140W (max) with heater  |
| Reliability **                     | 7,500 MTBF Including backlight  | 7,500 MTBF Including backlight  | 7,500 MTBF Including backlight  |
| Weight                             | Max      Typical<br>3.25 kg    3.1 kg   | Max      Typical<br>3.5 kg    3.4 kg  | Max      Typical<br>3.5 kg    3.4 kg  |
| Cooling                            | Conduction with integrated fans   | Conduction with integrated fans   | Conduction with integrated fans   |

\* Not Including Bezel, LCD Panel only.

\*\* Excluding Fans



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