



15.6" Rugged Multifunction Display

Overview

AVI's D152X series modular rugged multifunction display is a 1920x1080 resolution, 8-bit color, high-contrast, high-brightness unit that provides impressive image clarity. With a 15.2" diagonal viewing area, this light-weight 2.9 Kg (6.4 lbs) unit provides a small foot print of only 391mm x 242mm x 33mm (15.4" x 9.5" x 1.3"). The D152X series features hardened cover glass with Projective Capacitive (PCAP) touch screen, direct sunlight readable, 3G-SDI input and output, up to sixteen selectable video layouts for the four 3-G SDI inputs, fully IP68 rated and many other outstanding features.

AVI's new range of displays use a modular approach to provide higher reliability, lower costs, and greater installation flexibility. Each display system consists of three modules – the LCD Module, the Display Electronics Unit (DEU), and the User Interface Module (UIM).

The LCD Module contains only the LCD and backlight driver. This removes most of the heat and EMI generating electronics allowing extended operating temperatures, longer LCD life, and lower weight. Mounting is provided by either four front panel mounts, three mount points on each side, or a 100mm VISA mount on the back.

The DEU contains the LCD driver, DC/DC converter and video processors. Connection to the LCD Module is via an AVI provided Embedded DisplayPort (eDP) cable or the DEU can be directly attached to the back of the LCD



Figure 3 – Display Electronics Module.

Module. The DEU can be placed up to 2 meters (6.5') from the LCD Module. This facilitates various options for mounting



Figure 1 - LCD Module Front.



Figure 2 - LCD Module Back.



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the LCD Module in tight locations or on articulated display mounts.



AVI's innovative PCAP based User Interface Module (UIM) is also provided as a separate module. Various module



Figure 5 – LCD Module with DEU and UIM attached.

configurations are available. The unit can be panel mounted wherever the user wants it or can be mounted to any side of the LCD Module.

Standard Features

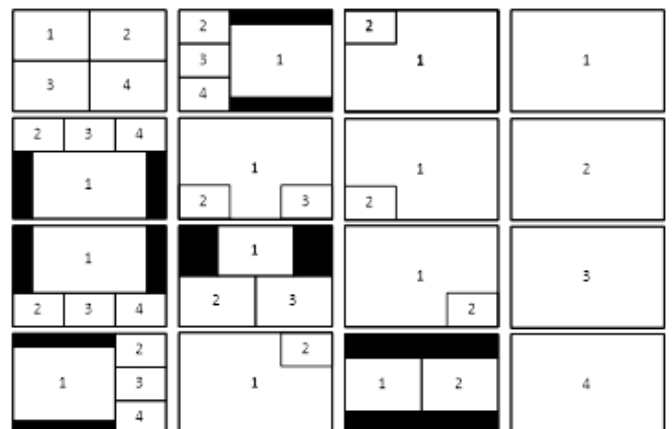
- 1920x1080 resolution with 8-Bit color (RGB) for pristine images
- Optically bonded LCD and AR coated cover glass for additional strength and higher contrast
- PCAP touchscreen
- Sealed enclosure (IP68) for extreme environments
- Four 3G SDI video Input and active image output

- Supports all SMPTE standard resolutions and frame rates through 425M
- Frames and enclosures milled from aircraft aluminum
- Direct sunlight viewable ($\geq 1000 \text{ cd/m}^2$)
- PCAP Function buttons that will never wear out
- VESA Mount, Panel Mount, or 3-point mounts on all sides provides flexible mounting options
- -30 C^0 to 70 C^0 operation
- Heat dissipating frame and enclosures
- Attached or remotely located electronics module
- Attached or panel-mount user interface module
- Lightweight LCD module for flexible mounting options
- Quad image processing with up to 16 image layouts
- Extreme shock and vibration capable
- 9 – 36 V DC Power
- Three-year warranty

Options

- NVGS Class B
- Custom ICONs

Selectable Image Configurations





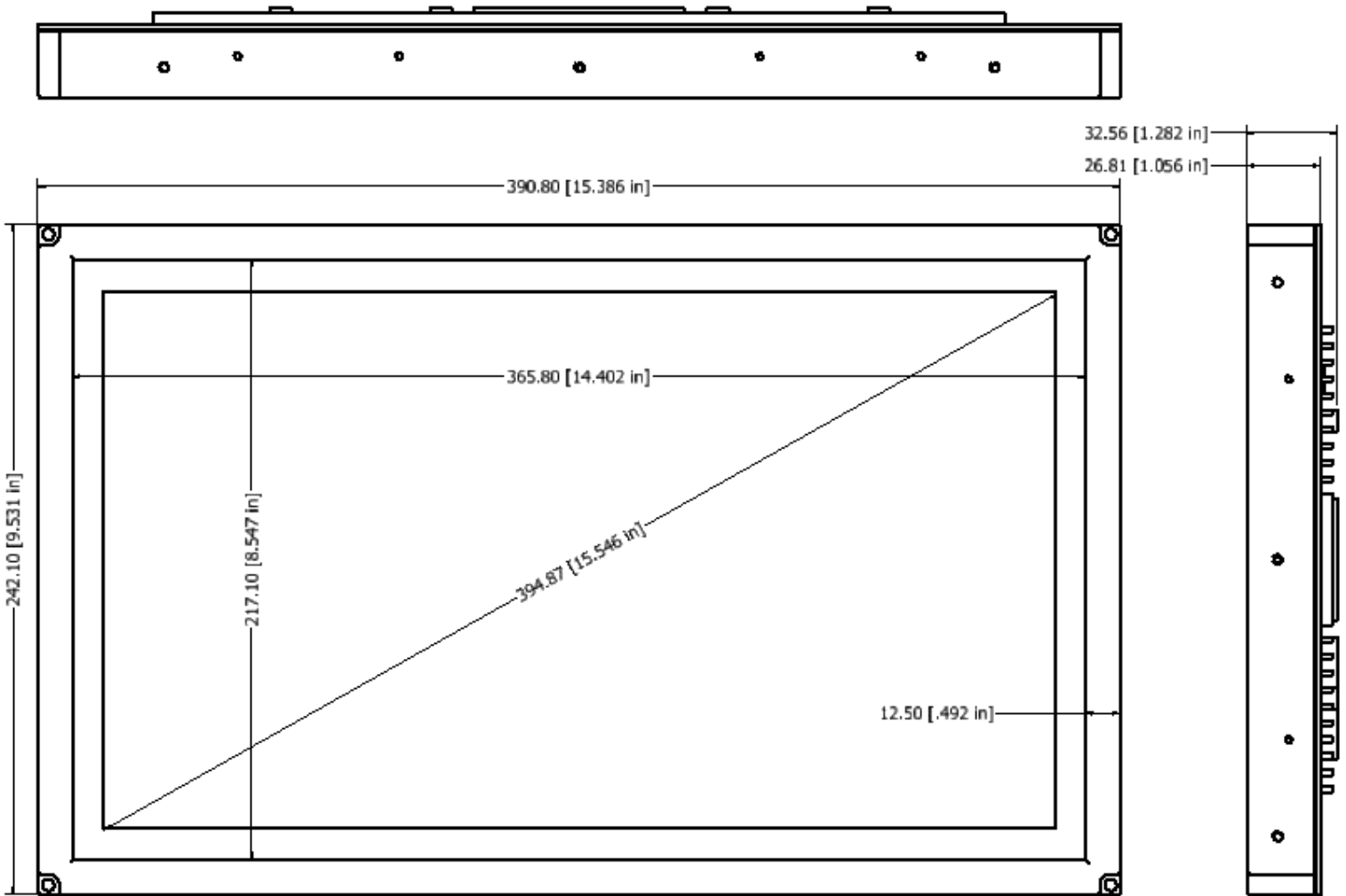
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15.6" Rugged Multifunction Display

Video Inputs	<ul style="list-style-type: none"> • SD, HD, and 3-G SDI (4) <ul style="list-style-type: none"> ○ Connector type – BNC ○ Coax 75Ω ○ Input equalization > 100m (Belden 1694A) 	LCD Specifications	<ul style="list-style-type: none"> • Screen Diagonal 396mm [15.6 in] • Resolution 1920x1080 • Pixel Pitch 0.17925x0.17925mm • Pixel Arrangement R.G.B Vertical Stripe • Display Mode Transmissive Color, Normally Black • White Luminance Max ≥ 1000 cd/m², 1500 cd/m² Typical • White Luminance Min 0.65 cd/m² • Contrast Ratio ≥ 750:1 • Response Time 30ms (typical, on/off) • Supported Colors 16.7 M, 24 bit (8-Bit RGB) • Viewing Angles 88L, 88R, 88U, 88D typical • Backlight Dual CH hi-bright LED NVGS Class B (option) • Touch Panel On Glass, Capacitive
Video Outputs	<ul style="list-style-type: none"> • SD, HD, and 3-G SDI (Active Image) (1) <ul style="list-style-type: none"> ○ Re-clocked, 10 bit, 4:2:2 color encoding ○ Connector type – BNC ○ Coax 75Ω 	DEU I/O	<ul style="list-style-type: none"> • RS-232*, RS-422, USB 2.0 <ul style="list-style-type: none"> ○ Connector Type 2M805-005-07ZNU12-26 • 1000BaseT Ethernet <ul style="list-style-type: none"> ○ Connector Type 2M805-005-07ZNU9-10 <p>* If touch Screen out put selected as RS-232, this is not available</p>
Supported SDI Video Formats	<ul style="list-style-type: none"> • 3G – SMPTE 424M <ul style="list-style-type: none"> ○ 2.97 and 2.967Gb/s ○ 1080p@60/59.94/50Hz ○ Format SMPT 425M Level A • HD – SMPTE 292M/274M/296M <ul style="list-style-type: none"> ○ 1.485 and 1.435Gb/s ○ 1080i@60/59.94/50Hz ○ 1080p@30/29.97/25/24/23.98 Hz ○ 720p @60/59.94/50/30/29.97/25/24/23.98 Hz • SD – SMPTE 259M <ul style="list-style-type: none"> ○ 270Mb/s ○ 625i@50Hz ○ 525i@59.94Hz 	Environmental	<ul style="list-style-type: none"> • Operating Temp Low -30°C DO-160G Cat B2 • Operating Temp High +70°C DO-160G Cat B2 • Short Term Op Temp Low -40°C DO-160G Cat B4 • Short Term Op Temp High +80°C DO-160G Cat B4 • Ground Survival Low Temp -55°C DO-160G Cat B4 • Ground Survival High Temp +85°C DO-160G Cat B4 • Temp Variation 5C° per minute DO-160G Cat B • Humidity 38C° to 95@ 50C° DO-160G Cat A • Operational Shock 6g @ 11ms, 20G DO-160G Cat B • Vibration Random, 10-2000Hz DO-160G Cat U, U2 • Explosion Proofness* MIL-STD-810G Method 511.6 • Waterproofness Spray Proof DO-160G Cat R • Magnetic Effect DO-160G Cat A • Power Input* DO-160G Cat A • Voltage Spike 2x Line Voltage DO-160G Cat B • EMI/EMC Sec 18, 19, 20, 21 DO-160G Cat B, CC, R, M • ESD* DO-160G Cat A • Ingress Rating IP68 • Altitude Operating 50,000ft DO160G Cat D1 <p>*By similarity</p>
Model Numbers	<ul style="list-style-type: none"> • LCD Module: D152-00 No options • LCD Module: D152-01 Touch Screen • LCD Module: D152-00 No options • LCD Module: D152-10 NVGS • LCD Module: D152-11 NVGS and Touch Screen • DEU Module: DEU011-100 Mounted to LCD • DEU Module: DEU011-101 Unmounted* • LCD to DEU Cable: DC05 0.5 meter cable • LCD to DEU Cable: DC10 1.0 meter cable • LCD to DEU Cable: DC20 2.0 meter cable • User Interface: UIM001-00 6 button PCAP • User Interface: UIM001-01 6 button Mechanical • User Interface: UIM002-00 12 button PCAP • User Interface: UIM001-01 12 button Mechanical • User Interface: UIM002-00 18 button PCAP • User Interface: UIM001-01 18 button Mechanical <p>* Cable required</p>	To be DO-160 Tested	
Power	<ul style="list-style-type: none"> • +9 to +36V DC • TBD A @ 28V DC (full brightness) • Connector Type 2m805-07ZNU8-7EA 		
Dimensions and Weight	<ul style="list-style-type: none"> • TBD 		



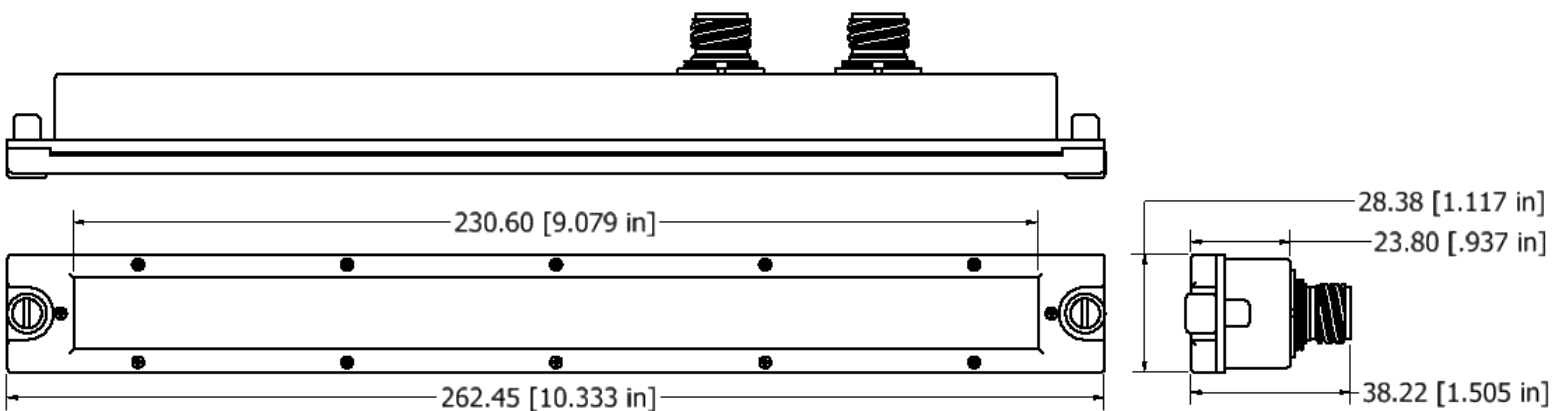
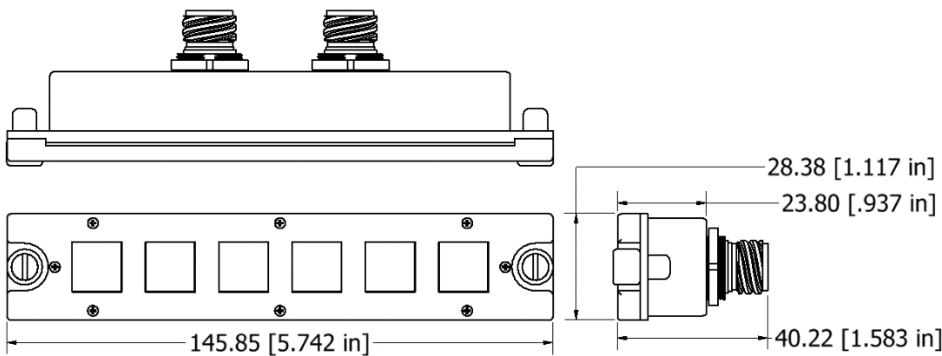
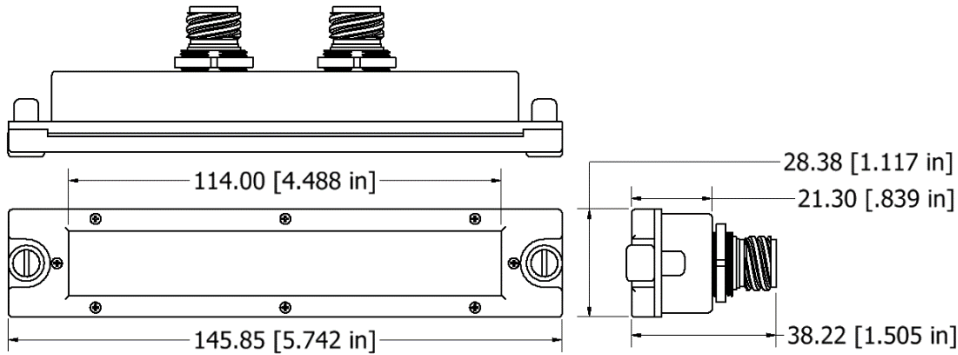
15.6" Rugged Multifunction Display



LCD Module



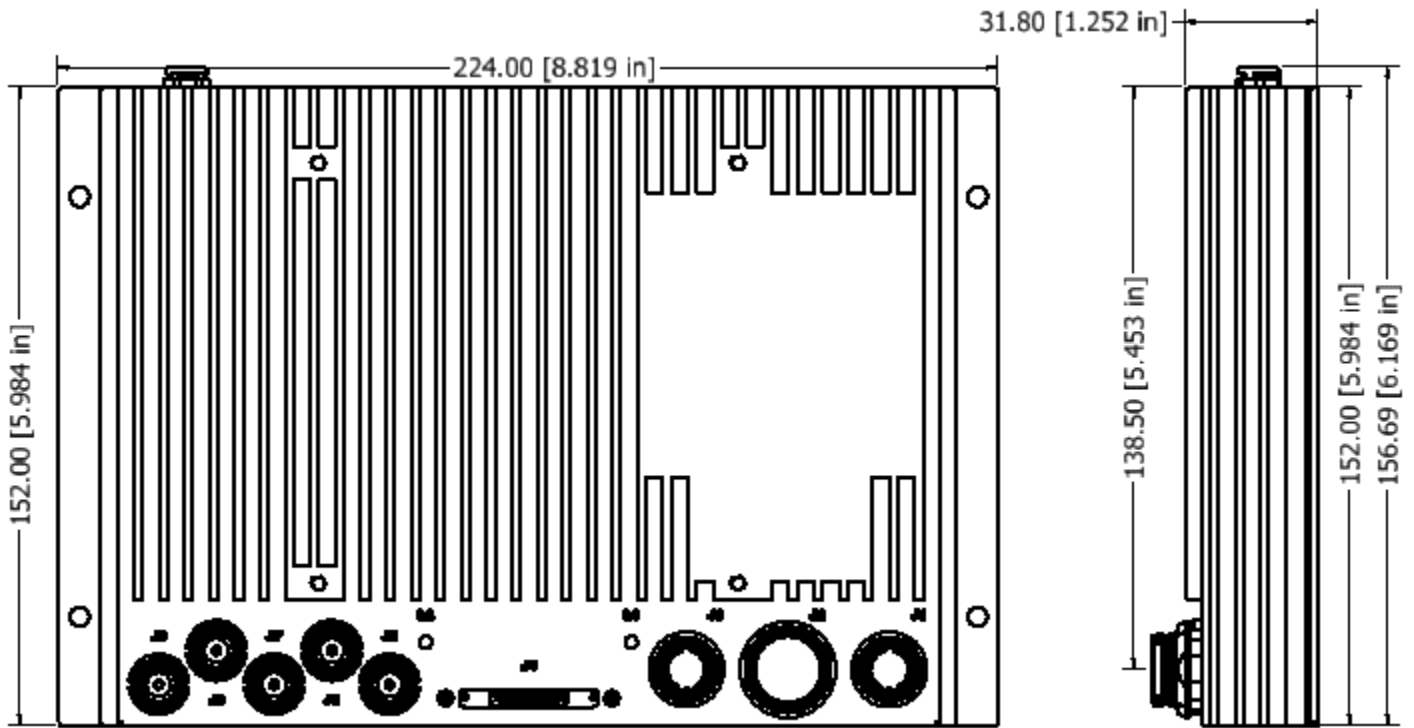
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User Interface Modules



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Display Electronics Unit