

10.4-inch Display for Vehicles

- Ideal for gauges, diagnostics, cameras, guidance and other vehicle functions
- Sealed to IP67
- Bezel mount or VESA MIS-D standard mount
- Four video inputs: capable of displaying three simultaneous cameras
- Easy apps creation and integration with VUI Builder (J1939) and Linux Qt (J1939 and CANopen)
- Scratch resistant/Anti-glare cover glass
- Optically bonded display for superior mechanical and sunlight readability
- Wide viewing angle
- 900 NITS backlight intensity
- XGA resolution (1024 X 768)
- 16-Bit color TFT, LED backlight
- Optional touch screen
- 7 soft keys with adjustable backlight
- 3 second boot time (VUI Builder)



Processor AND MEMORY

- 800 MHZ i.MX6 Dual Core Processor
- 512MB DDR3
- 4GB e.MMC
- Linux 4.1.15 Operating System
- Real time clock with 10 year battery backup

INTERFACES

- 1 USB host port
- 3 CAN bus ports
- 10/100 ethernet port

INPUT / OUTPUT

- 4 NTSC/PAL video inputs
- 1 RS-232 ports
- 4 I/O Ports (200 mA max)

MATING CONNECTOR

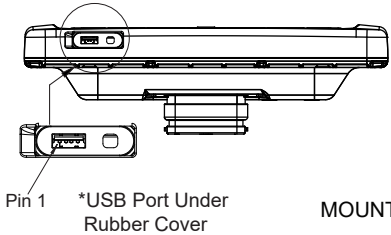
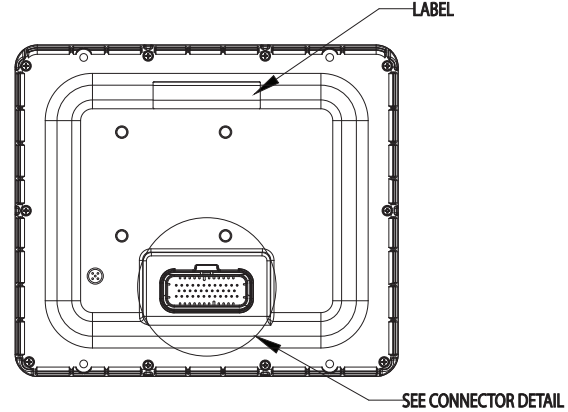
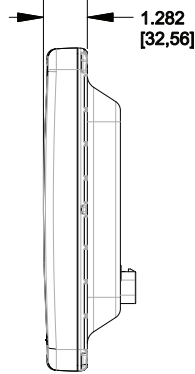
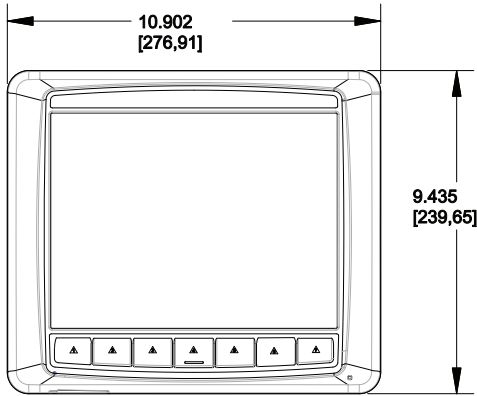
- AMP 776164-1 mating connector which works with either AMP 770520-1 or AMP 770854-1 socket

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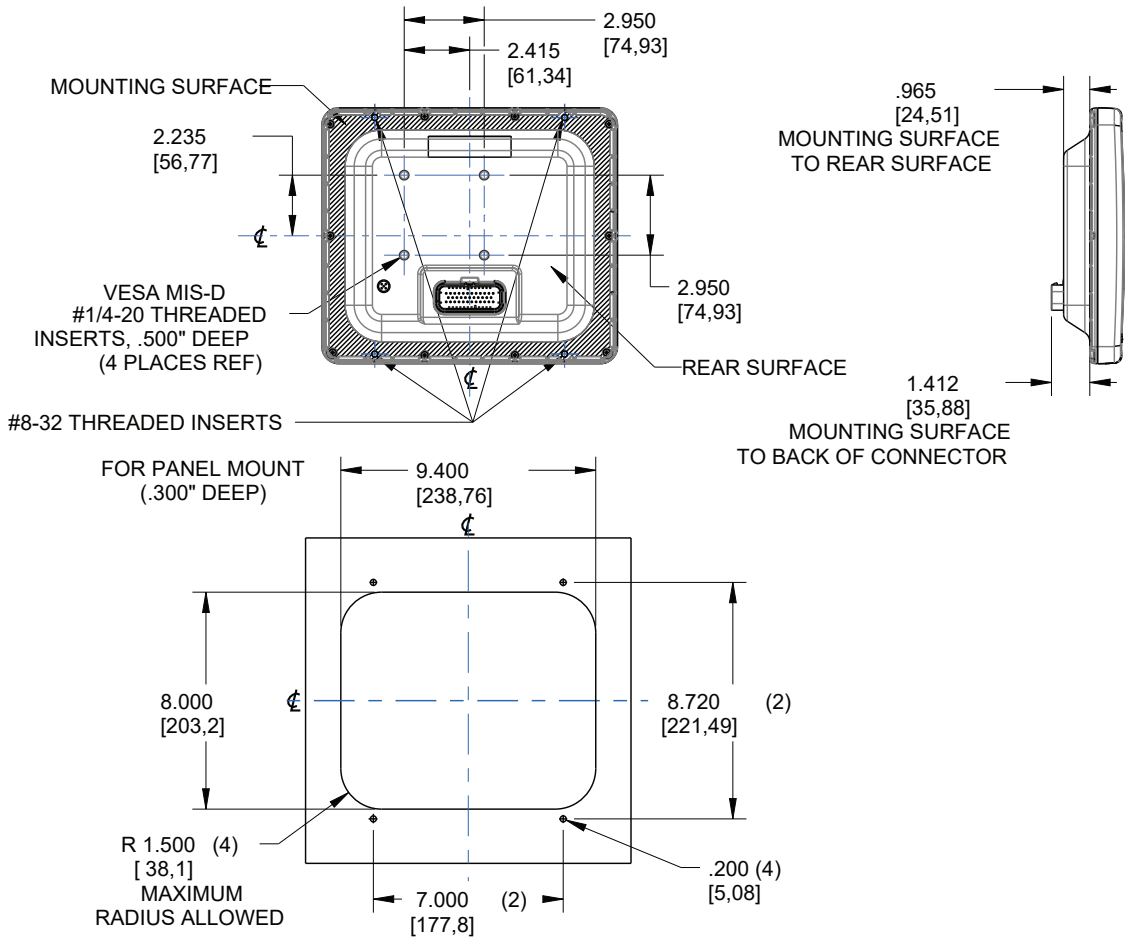


DIMENSIONS



PANEL MOUNTING DETAILS

RECOMMENDED TORQUE: 25 IN-LBS
 MAXIMUM TORQUE: 40 IN-LBS

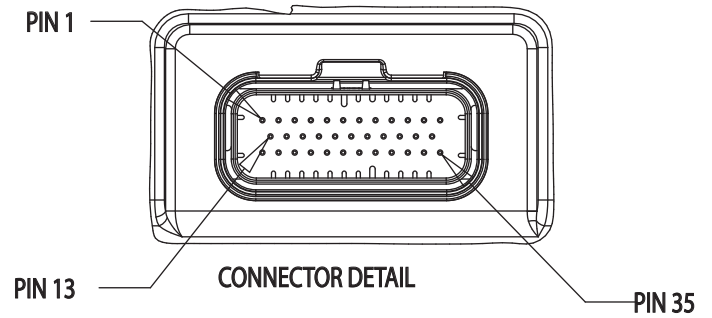


PANEL MOUNT CUTOUT INFORMATION

NOMINAL PANEL/POCKET DIMENSIONS SHOWN MAY REQUIRE ADJUSTMENT
 BASED UPON MANUFACTURING TOLERANCES OF CUSTOMER PANEL

PINOUTS

| Pin | Function | Pin | Function | Pin | Function |
|-----|---------------|-----|---------------------------------|-----|-------------------------------|
| 1 | VIDEO1+ | 13 | VIDEO2+ | 24 | VIDEO3+ |
| 2 | VIDEO1- | 14 | VIDEO2- | 25 | VIDEO3- |
| 3 | CAN1 HI | 15 | ETH TPO+ | 26 | ETH TPI+ |
| 4 | CAN1 SH | 16 | ETH TPO- | 27 | ETH TPI- |
| 5 | CAN1 LO | 17 | CAN3 SH | 28 | CAN3 HI |
| 6 | CAN2 HI | 18 | CAN2 SH | 29 | CAN3 LO |
| 7 | CAN2 LO | 19 | VIDEO4+ | 30 | RS232 RX |
| 8 | RS232 GND | 20 | VIDEO4- | 31 | RS232 TX |
| 9 | Digital I/O 4 | 21 | Digital I/O 2 | 32 | Digital I/O 3 |
| 10 | Digital I/O 1 | 22 | N/C | 33 | N/C |
| 11 | N/C | 23 | VIN SWITCHED (On/Off Signal) | 34 | N/C |
| 12 | VIN Return | | | 35 | VIN Positive (Power Input) |



PART NUMBERS

| Part Number | RS232 | USB 2.0 | CAN1 | CAN2 | CAN3 | VIDEO1 | VIDEO2 | VIDEO3 | VIDEO4 | RTC | TOUCH | ETHERNET | BUZZER | DIGITAL I/O |
|---------------|---|---------|------|------|------|--------|--------|--------|--------|-----|-------|----------|--------|-------------|
| 3D2104XK-200 | X | X | X | X | X | X | X | X | X | X | | X | X | X |
| 3D2104TK-200 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 3D2104DEV-200 | Development Kit with 3D2104TK-200 display | | | | | | | | | | | | | |

DEVELOPMENT KIT



Front View



Back View

A development kit is offered to provide the hardware and software required to set up a programmer's workstation for the use with the chosen development environment.

Inside the Kit:

- 3D2104 Display
- Development Stand
- Interface PCB
- Interface Cables



ELECTRICAL PERFORMANCE SPECIFICATIONS

| | | |
|-----------------------------------|--|--|
| Operating-voltage | 8-32 VDC | |
| Digital Inputs | 32V tolerant, VIL=2.2V(max), VIH=2.7V(min), 12.4K pulldown | |
| Digital Outputs | SWITCH VBAT TO LOAD, 200mA (max) | |
| Maximum Load | ANSI / ASAE EP455 Sec 5.1.1 | T(min) = -40C, T(max) = +65C |
| Over-voltage | ANSI / ASAE EP455 Sec 5.10.2 | Level 1, extended to 36V |
| Reverse Polarity | ANSI / ASAE EP455 Sec 5.10.3 | extended to -36V |
| Short-circuit Protection | ANSI / ASAE EP455 Sec 5.10.4 | extended to 36V |
| Starting Profile | ISO 16750-2 Sec. 4.6.3 | 12V, Code C / 24V Code E |
| Battery-less Operation | ANSI / ASAE EP455 Sec 5.11.3 | Level 1 |
| Load Dump | ISO 7637-2 Pulse 5a | Us = 174V, Ri = 2 Ohms, Td = 350mS |
| Switching Spikes | ISO 7637-2 Pulse 3a and 3b | Pulse 3a: Us = -200V, Pulse 3b: Us = 200V, 3000 reps |
| Wire Harness Inductance | ISO 7637-2 Pulse 2a | Us = 50V, t1 = 5s, 60 reps |
| Motor Shutdown Transients | ISO 7637-2 Pulse 2b | Us = 20V, t1 = 5s, Ri < .05 Ohms, 60 reps |
| Wire Harness Inductance Switching | ISO 7637-3 Pulse a and b | Pulse a: -80V, Pulse b: 80V, Class A, 6 min. |
| Inductive Load Switching | ANSI / ASAE EP455 Sec 5.11.4 | Level 1 |
| Mutual Coupling (Power) | ANSI / ASAE EP455 Sec 5.11.6.1 | Level 2 |
| Alternator Field Decay | ANSI / ASAE EP455 Sec 5.11.2 | |
| ESD | ANSI / ASAE EP455 Sec 5.12 | Level 2 |
| Radiated Immunity | ANSI / ASAE EP455 Sec 5.16 | Level 1 |
| Broadband Radiated Emissions | ISO 14982 Sec 6.4 | |
| Narrowband Radiated Emissions | ISO 14982 Sec 6.5 | |
| Conducted Emissions | SAE J1113-41 | Class 3 |

MECHANICAL PERFORMANCE SPECIFICATIONS

| | | |
|-----------------------|--------------------------------|---|
| Vibration, Random | ANSI/ASEA EP455 5.15.1 | 2h each axis @52.4m/s ² RMS overall acceleration and spectral power density of 2m ² /s ³ from 50Hz to 2000Hz |
| Vibration, Sinusoidal | ANSI/ASEA EP455 5.15.2 | A logarithmic sweep from 10Hz to 2000Hz to 10Hz over a period of 20 minutes for 4 hours in each of 3 orthogonal axes with amplitude 1.5mm from 10Hz to 40Hz and a constant acceleration of 35m/s ² RMS from 40Hz to 2KHz |
| Shock / Crash Safety | ANSI/ASEA EP455 5.14 | 11ms half sine pulse of 490 m/s ² in 3 perpendicular axes |
| Drop | ANSI/ASEA EP455 5.14.2 Level 1 | Drop component 400 mm onto a hardwood benchtop on all practical edges. |
| Weight | | 1400 Grams Typical |



Ask us about our complete CANBUS UI Package

ENVIRONMENTAL SPECIFICATIONS

| | | |
|--------------------------------|-------------------------------|--|
| Operating temperature | ANSI/ASAE EP455 5.1.1 Level 2 | -30°C to +65°C |
| Storage Temperature | ANSI/ASAE EP455 5.1.2 Level 2 | -40°C to +85°C |
| Thermal Shock | ANSI/ASAE EP455 5.1.3 | -40°C to 70°C at a rate of 4°C/min (1 hour at extremes) |
| Altitude (Barometric Pressure) | ANSI/ASAE EP455 5.2 | 101.3kPa to 18.6kPa |
| Sand and Dust | ANSI/ASAE EP455 5.3 | 24 hours with 0.88g/m ³ |
| Solar Radiation | ANSI/ASAE EP455 5.4 | 43-75W/m ² UV Radiation (280-400nm wavelength) 300h |
| Ingress Protection / Rain | ANSI/ASAE EP455 5.6 Level 2 | 375 kPa and 8.3 L/min for 10 minutes @15°C water temp |
| Humidity | ANSI/ASAE EP455 5.13 | 96% humidity at 35°C for 240 hours |
| Salt Fog | ANSI/ASAE EP455 5.9 | 5% aqueous solution of NaCl @ 35°C and a pH between 6.5 and 7.2 for 48 hours |
| Chemical resistance | ISO 16750-5 EP 455 (5.8.2) | |
| Thermal Cycling | ISO 16750-4 | -40° to 85°C 2 hours at extremes change rate = 1°C/min (8 hours) repeat for 30 cycles. |

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