10.4-inch Display for Vehicles

- Ideal for gauges, diagnostic menus and other vehicle functions
- Capable of displaying three simultaneous video feeds
- Sealed to IP67
- J1939 compliant CAN interfaces
- Interface with Grayhill 3J Series VDC
- Optional touch screen
- 7 soft keys for menu selection
- Adjustable backlight on soft keys
- Bezel mount or RAM mount compatible
- Brightness 400 NITS
- 16-Bit color TFT
- LED backlight
- SVGA resolution (800x600)

**SELECT SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>ANSI/ASAE EP455 5.1.1 Level 2</th>
<th>-30°C to +65°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature</td>
<td>ANSI/ASAE EP455 5.1.2 Level 2</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>ANSI/ASAE EP455 5.1.3</td>
<td>-40°C to 70°C at a rate of 4°C/min (1 hour at extremes)</td>
</tr>
<tr>
<td>Altitude (Barometric Pressure)</td>
<td>ANSI/ASAE EP455 5.2</td>
<td>101,3kPa to 18,6kPa</td>
</tr>
<tr>
<td>Sand and Dust</td>
<td>ANSI/ASAE EP455 5.3</td>
<td>24 hours with 0.88g/m3</td>
</tr>
<tr>
<td>Solar Radiation</td>
<td>ANSI/ASAE EP455 5.4</td>
<td>43-75W/m² UV Radiation (280-400nm wavelength) 300h</td>
</tr>
<tr>
<td>Ingress Protection / Rain</td>
<td>ANSI/ASAE EP455 5.6 Level 2</td>
<td>375 kPa and 8.3 L/min for 10 minutes @15°C water temp</td>
</tr>
<tr>
<td>Humidity</td>
<td>ANSI/ASAE EP455 5.13</td>
<td>96% humidity at 35°C for 240 hours</td>
</tr>
<tr>
<td>Salt Fog</td>
<td>ANSI/ASAE EP455 5.9</td>
<td>5% aqueous solution of NaCl @ 35°C and a pH between 6.5 and 7.2 for 48 hours</td>
</tr>
<tr>
<td>Chemical resistance</td>
<td>ISO 16750-5 EP 455 (5.8.2)</td>
<td></td>
</tr>
<tr>
<td>Thermal Cycling</td>
<td>ISO 16750-4</td>
<td>-40°C to 85°C 2 hours at extremes change rate = 1°C/min (8 hours) repeat for 30 cycles.</td>
</tr>
</tbody>
</table>

specifications subject to change

Grayhill, Inc.
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www.grayhill.com

Your Experts in Cab Controls

Grayhill specializes in the design, development and production of human interface controls, including:
- Cab user interface design
- Customized control panels
- CAN-bus interface devices

**EMBEDDED COMPUTER**
- 416 MHz PXA270 processor
- 64MB SDRAM
- 128MB NAND program, and file system FLASH
- Windows CE or Linux Operating System*
- Real time clock with 10 year battery backup

**INPUT / OUTPUT**
- 1 USB host port
- 3 CAN bus ports
- 3 NTSC/PAL video inputs
- 2 RS-232 ports
- 3 inputs
- 2 outputs (200 mA max)
- 10/100 ethernet port
- Input voltage: 9VDC to 32VDC

**CONNECTOR**
- AMP 776164-1 mating connector
- AMP 770520-1 or AMP 770854-1 contacts

**CERTIFICATES: CE MARK**

**PART NUMBER | DESCRIPTION**
3D104XX-1006  10.4 inch Display, Windows CE6
3D104TK-1006  10.4 inch, touchscreen, WIN CE6

* Contact Grayhill for Linux version
**DIMENSIONS**

**WEIGHT**

4.7 lbs.

**ELECTRICAL PERFORMANCE SPECIFICATIONS**

- **Maximum Load**
  - ANSI / ASAE EP455 Sec 5.1.1
  - T(min) = -40°C, T(max) = +65°C

- **Over-voltage**
  - ANSI / ASAE EP455 Sec 5.10.2
  - Level 1, extended to 36V

- **Reverse Polarity**
  - ANSI / ASAE EP455 Sec 5.10.3
  - Level 1, extended to -36V

- **Short-circuit Protection**
  - ANSI / ASAE EP455 Sec 5.10.4
  - Level 1

- **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 5b
  - Us = 174V, Ri = 2 Ohms, Td = 350ms, Ld" = 70V

- **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

- **Mutual Coupling (Signal/ Input)**
  - ANSI / ASAE EP455 Sec 5.11.6.2
  - Level 2

**ELECTRICAL PERFORMANCE SPECIFICATIONS (CONTINUED)**

- **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 2

**MECHANICAL PERFORMANCE**

- **Vibration, Random**
  - ANSI/ASEA EP455 5.15.1
  - 2h each axis @52.4m/s² RMS overall acceleration and spectral power density of 2m²/s³ 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

- **Shock / Crash Safety**
  - ANSI/ASEA EP455 5.14
  - 11ms half sine pulse of 490m/s² in 3 perpendicular axes

- **Drop**
  - ANSI/ASEA EP455 5.14.2
  - Drop component 400 mm onto a hardwood benchtop on all practical edges.

**POWER CONSUMPTION**

11.5 W typical