Versatile CAN-Based Display

The Series 3D50 5-inch Touchscreen Display for off-highway vehicles.

- Intuitive touch technology to select objects and swipe through screens.
- Responsive PCAP touchscreen recognizes bare and gloved fingers, even when the display surface is wet.
- Easy application creation and integration with VUI Builder (J1939), Qt, or optional CODESYS (J1939, CANopen, and many more).
- Up to 2 Video inputs, up to 2 CAN-bus inputs.
- Powerful processor with 3 second boot time (VUI Builder).
- Scratch resistant/anti-glare cover glass is optically bonded to LCD display for superior mechanical and visual performance.
- Bright, backlit display provides high contrast text and full color graphics for excellent sunlight readability.
- Convenient flush mounting provides modern look and feel, to seamlessly blend with vehicle cab design.
- Armrest, A-post, and dashboard mounting.
- Rugged design for extreme environments.
- Functions as an engine monitor or input device.

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Versatile Display. Many Features.

Flexible.
Series 3D50 is available with or without a projected capacitance touch screen. This advanced touchscreen works even when wet or when the user is wearing gloves.

Bright.
This 5.0-inch backlit WVGA LCD (800x480) is very bright (700 nits) providing good daylight readability. It has software controlled LED backlighting and 16 bit color.

Powerful.
The powerful embedded computer can monitor and display many events and camera images simultaneously:
- 800MHz
- 512MB RAM
- 4GB storage
- USB 2.0

Useful.
Ideal for agriculture and construction vehicle applications, including virtual gauges, diagnostic menus, engine monitor, operator input, fault indicators and service reminders.

Easy to Program.
PC-based configuration tools makes application development fast and easy. Drag and drop graphics (supported by Qt and CODESYS), bitmaps, text with the click of a mouse.

Adaptable.
Designed for integration into off-highway vehicles. It functions in 12V/24V operation, boots in 3 seconds (VUI Builder) and is sealed against the ingress of liquids and dust.

Rugged.
The protective cover lens is scratch resistant glass, not plastic. Optical bonding of the cover glass improves impact resistance.

Adjustable.
There are many system interface options:
- Up to two CAN-bus ports
- Up to two NTSC/PAL camera input ports
- Up to four digital inputs
- Up to four digital outputs
- One USB 2.0 port
- Touchscreen

Readable.
Optically bonding the display, touch sensor and cover glass reduces reflections. An anti-glare coating further improves readability in bright sunlight.
Versatile Display. All the Specifications.

- Display: 5" color transmissive TFT LCD
- Resolution: WVGA, 800 x 480 pixels, 16 bit color
- Aspect ratio: 16:9
- Orientation: Landscape or Portrait
- Backlighting: LED, 700 cd/m² or nits
- Microprocessor: Freescale™ i.mx6, 800 MHz
- Flash Memory: 4GB eMMC
- RAM: 512 MB DDR3

Easily create custom graphic icons, text boxes and active gauge elements that can monitor CAN-bus parameters such as J1939.

- Applications can be developed in Grayhill’s proprietary VUI Builder, Qt, or CODESYS - the most trusted cross platform development environments.
- 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.

**POWER SPECIFICATIONS**

- Operating Voltage: 8VDC to 32VDC
- Power Consumption: 5 Watts (typical) with full back light
- Standby Current: <1mA

**ENVIRONMENTAL SPECIFICATIONS**

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<tbody>
<tr>
<td>Operating temperature</td>
<td>-30°C to +65°C</td>
<td>-40°C to +85°C</td>
<td>-40°C to 65°C at a rate of 4°C/min (1 hour at extremes)</td>
<td>101.3kPa to 18.6kPa</td>
<td>96% humidity at 35°C for 240 hours</td>
<td>5% aqueous solution of NaCl at 35°C and a pH between 6.5 and 7.2 for 48 hours</td>
<td>ISO 16750-5 EP 455 5.8.2</td>
<td>IP67 front and rear with mating connector installed</td>
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<td>Storage Temperature</td>
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<td>Thermal Shock</td>
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<td>Altitude (Barometric Pressure)</td>
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**MECHANICAL PERFORMANCE**

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<tr>
<td>Vibration, Random</td>
<td>2h each axis 50Hz to 2000Hz</td>
<td>A logarithmic sweep from 10Hz to 2000Hz over a period of 20 minutes for 4 hours in each axis</td>
<td>400 mm onto a hardwood benchtop on all practical edges.</td>
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<td>Vibration, Sinusoidal</td>
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<tr>
<td>Shock</td>
<td>11ms half sine pulse of 490 m/s² in 3 axis</td>
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<td>Drop</td>
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**SOFTWARE DEVELOPMENT TOOLS**

- VUI Builder: Grayhill’s proprietary application for PC, ideal for engineers that wish to quickly create common vehicle functions without coding.
- Qt: Cross platform development app from Digia Plc, ideal for software developers familiar with coding for human interface applications.
- CODESYS: Hardware-independent automation software from 3S-Smart Software Solutions GmbH, ideal for software developers familiar with coding for human interface applications.

**ELECTRICAL PERFORMANCE SPECIFICATIONS**

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<td>Maximum load</td>
<td>T(min)= -40C; T(max) = +65C</td>
<td>36V for 5 minutes; -36V for 5 minutes</td>
<td>36V</td>
<td>-36V</td>
<td>Code C for 12V, Code E for 24V</td>
<td>Level 4</td>
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<td>Jump start voltage</td>
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<td>Reverse polarity protection</td>
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<td>Battery-less operation</td>
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<td>Load dump</td>
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<td>Switching spikes</td>
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<tr>
<td>Alternator field decay</td>
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**POWER SPECIFICATIONS**

- USB: 2.0 host
- Real Time Clock: Internal non-rechargeable battery backup
- CAN: (2) CAN 2.0 B
- RS232: full duplex
- Video Input: 2 NTSC / PAL
- Inputs: (4) 0-32 VDC discrete digital;; 10Hz LPF
- Outputs: (4) digital 200 mA switched high side

**SOFTWARE DEVELOPMENT TOOLS**

- Grayhill’s proprietary application for PC, ideal for engineers that wish to quickly create common vehicle functions without coding.
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DIMENSIONS in mm [inch]

Recommended Mounting Cut Out

REAR CONNECTOR A & B

Mating Connector: DEUTSCH DT16-185A-K004

VERSATILE DISPLAY. ORDER INFORMATION.

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<thead>
<tr>
<th></th>
<th>RS232</th>
<th>USB 2.0</th>
<th>CAN1</th>
<th>CAN2</th>
<th>VIDEO1</th>
<th>VIDEO2</th>
<th>RTC</th>
<th>Touch</th>
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<th>DIG OUT</th>
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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

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