

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.
- Advanced sensor technology recognizes bare and gloved fingers, even when the display surface is wet.
- Easy application creation and integration with VUI Builder to create custom screens.
- 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.

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.

Our VUI Builder pc-based configuration tool makes application programming fast and easy. Drag and drop graphics, 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 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"/127 mm 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

USB: 2.0 host (high speed)

Real Time Clock: Internal non-rechargeable battery backup

CAN: (2) CAN 2.0 B J1939 protocol

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

POWER SPECIFICATIONS

Operating Voltage 8VDC to 32VDC reverse polarity and load dump

Power Consumption 5 Watts (typical) with full back light

Standby Current <1ma

ENVIRONMENTAL SPECIFICATIONS

Operating temperature ANSI/ASAE EP455 5.1.1 -30°C to +65°C

Storage Temperature ANSI/ASAE EP455 5.1.2 -40°C to +85°C

Thermal Shock ANSI/ASAE EP455 5.1.3 -40°C to 65°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 SAE J1455

Solar Radiation ISO 4892-2 Method B

Wash Down ANSI/ASAE EP455 5.6 Level 2

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

Ingress Protection IP67 front and rear with mating connector installed

ELECTRICAL PERFORMANCE SPECIFICATIONS

Maximum load ANSI/ASAE EP455 5.1.1 T(min) = -40C; T(max) = +65C

Jump start voltage EP455 5.10.2 36V for 5 minutes; -36V for 5 minutes

Short circuit protection EP455 5.10.4 36V

Reverse polarity protection EP455 5.10.3 -36V

Starting profile ISO 16750-2:2006-08-01 Code C for 12V, Code E for 24V

Battery-less operation ANSI/ASAE EP455 5.11.3 Level 1

Load dump ISO 7637-2:2004 Test Pulse 5a Level 4

Switching spikes ISO 7637-2:2004 Level 4

Alternator field decay ANSI/ASAE EP455 5.11.2

MECHANICAL PERFORMANCE

Vibration, Random ANSI/ASAE EP455 5.15.1 2h each axis 50Hz to 2000Hz

Vibration, Sinusoidal ANSI/ASAE EP455 5.15.2 A logarithmic sweep from 10Hz to 2000Hz to 10Hz over a period of 20 minutes for 4 hours in each axis

Shock ANSI/ASAE EP455 5.14 11ms half sine pulse of 490 m/s² in 3 axis

Drop ANSI/ASAE EP455 5.14.2 Level 1 400 mm onto a hardwood benchtop on all practical edges.

CE COMPLIANCE

EMC EN 13309:2010 ESA

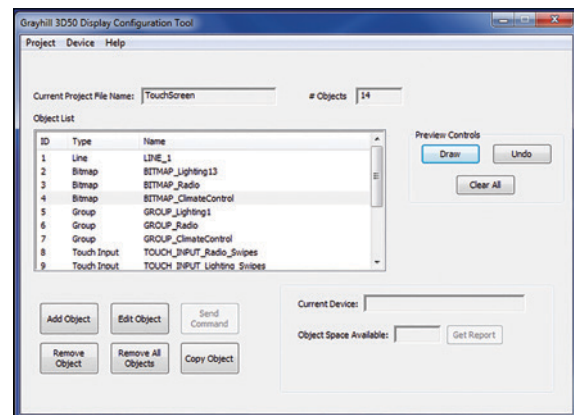
ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

ESD ANSI/ASAE EP455 5.12 Level 1 (Handling), Level 2 (Powered)

Radiated Immunity EP455 5.16 Level 1

Conducted emissions CISPR25 Level 3

Radiated emissions ISO14982



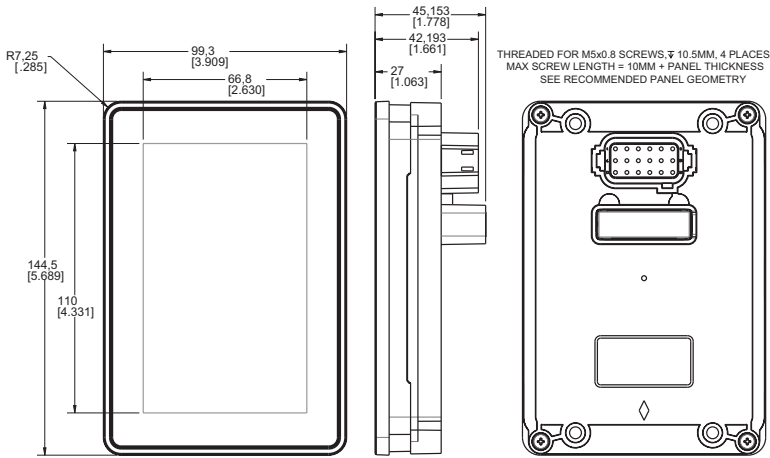
VUI Builder Software Tool

Easily create custom graphic icons, text boxes and active gauge elements that monitor J1939 CAN-bus parameters with VUI Builder.

- Use VUI Builder to develop graphic objects.
- Add and edit actions (such as touch and swipe).
- Store graphic objects in on-board flash memory.
- Recall objects at run time via J1939 commands.
- Controlled via J1939 PGNs.
- Native coding not required.

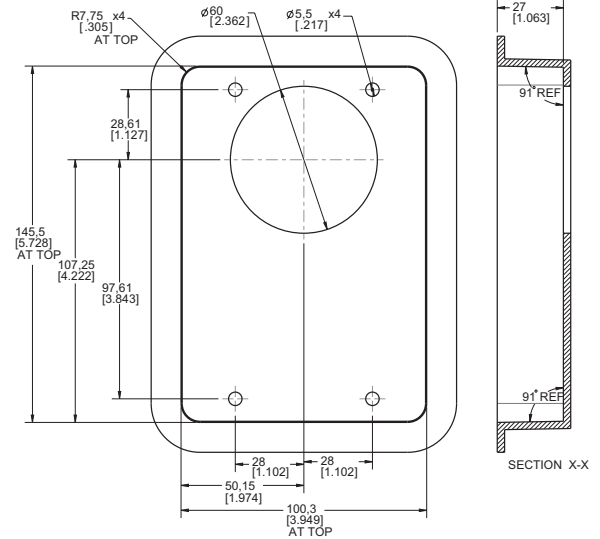


DIMENSIONS in inches (and mm)

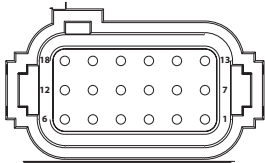


Weight: 360 grams

Recommended Mounting Cut Out



REAR CONNECTOR



Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	VIN Positive	4	Digital In	7	Digital I/O	10	VIDEO1-	13	CAN1 Hi	16	CAN2 Low
2	VIN Return	5	Digital Out	8	Digital I/O	11	VIDEO2+	14	CAN1 Low	17	RS232Tx
3	VIN Switched	6	Digital I/O	9	VIDEO1+	12	VIDEO2-	15	CAN2 Hi	18	RS232Rx

Mating Connector:
DEUTSCH DT16-18SA-K004

VERSATILE DISPLAY. ORDER INFORMATION.

	RS232	USB 2.0	CAN1	CAN2	VIDEO1	VIDEO2	RTC	Touch	DIG IN	DIG OUT	DIG I/O
3D50XX-100	X	X	X						0	0	0
3D50VX-100	X	X	X	X	X	X	X		1	1	3
3D50VT-100	X	X	X	X	X	X	X	X	1	1	3
3D50DEV-BASE	Development Kit (does not include display)										
3D50DEV-100	Development Kit with 3D50VT-100 display										
Linux	Available upon request										

Custom Options Available

- Custom Logo
- Icons / screens pre-loaded

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Grayhill specializes in the design, development and production of human interface controls, including:

- Cab user interface design
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- CAN-bus interface devices



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