PowerView® Model PV500

Installation Manual

In order to consistently bring you the highest quality, full-featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at enovationcontrols.com.

WARNING

Please read the following information before installing.

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

Read and follow all installation instructions.

Please contact Enovation Controls immediately if you have any questions.

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

Revision Table

05/31/2019 - Creation of new document
07/16/2019 - Added dimension diagrams, kit numbers, etc.
07/18/2019 - Reformatting
08/12/2019 - Upgraded Pinout Drawing
09/30/2019 - Engineering Review Changes
10/04/2019 - Operating Temp Update
10/08/2019 – 11/21/2019 - Tech Services review changes
2/18/2021 – Updated part numbers, Input/Output Specifications

Table of Contents

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Hardware Installation

The following instructions will guide you through installing the PowerView display.

## Inspecting Package Contents

Before attempting to install the product, it is recommended that you ensure all parts are accounted for and inspect each item for damage (which sometimes occurs during shipping). The items included in the box are:

- PV500 unit
- Installation manual web reference insert

Surface-Mounted Installation

10-32 1-3/4" machine screws

mounting bracket

8-32 3/8" machine screws
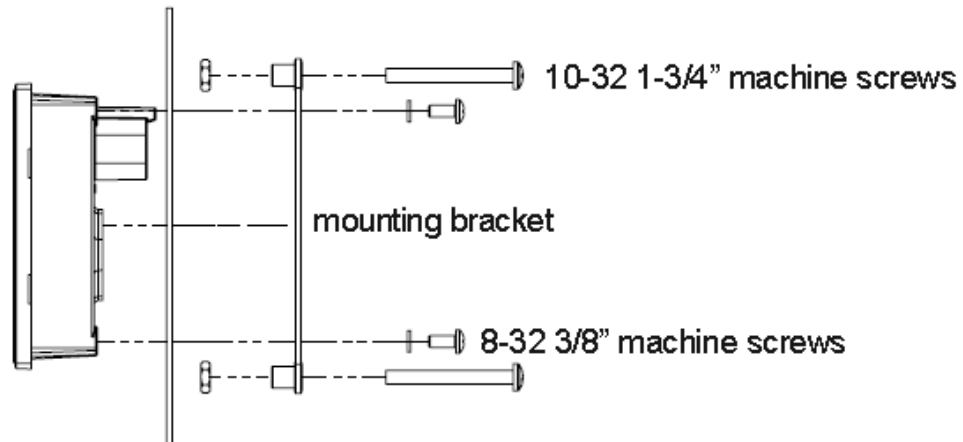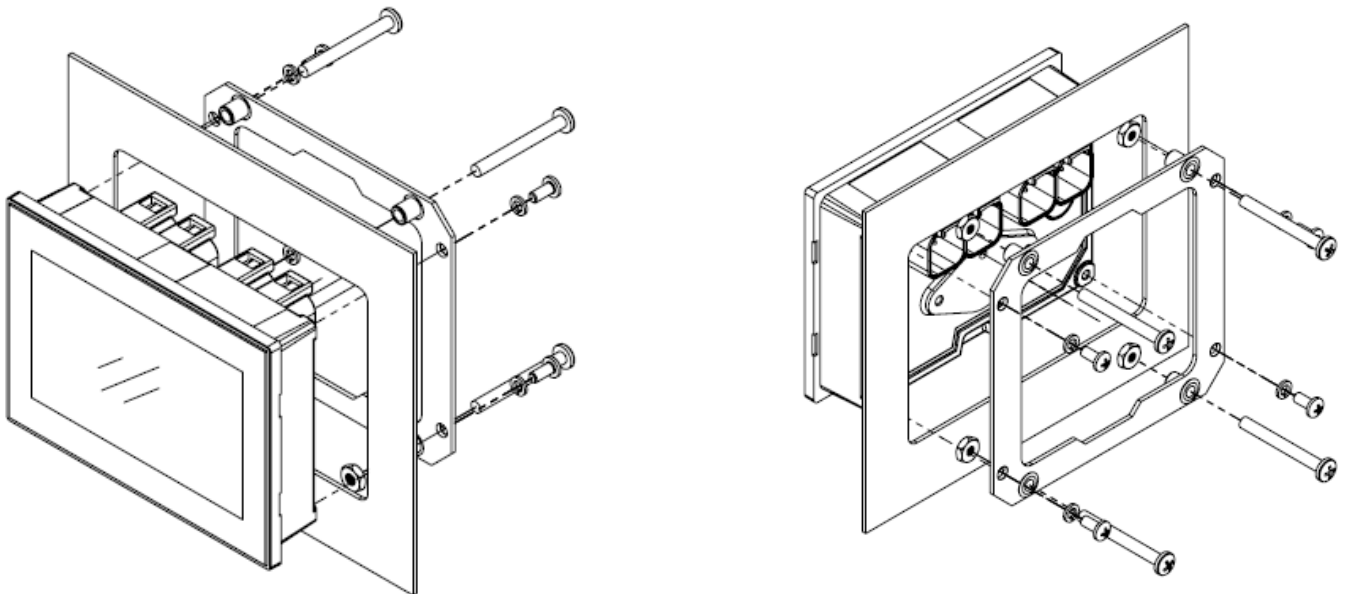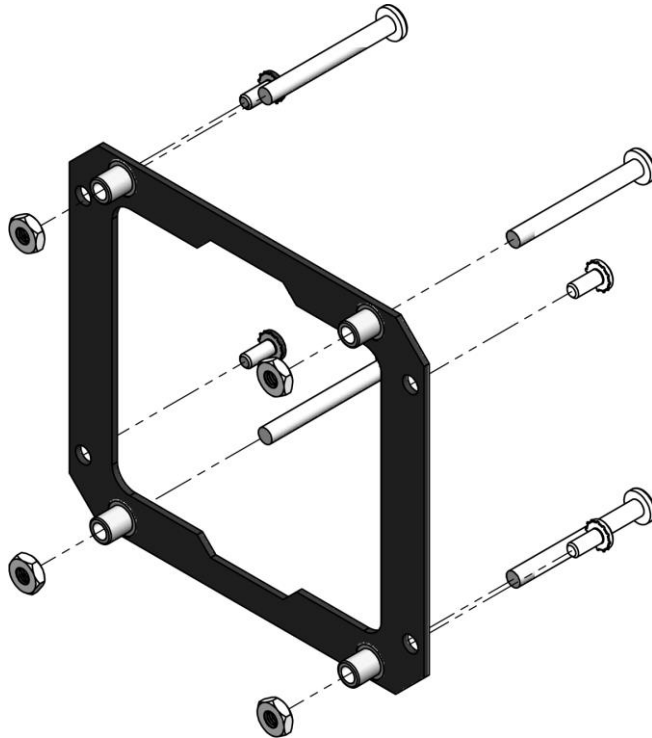
Installation Kit – P/N 78051705 includes
- Mounting Bracket
- Five 8-32 machine screws
- Five 10-32 1-3/4" machine screws
- Five 10-32 3/8"nuts
- Five #8 washers

Tools needed.
- Drill with 7/32 in. size bit
- Jigsaw
- Screw Driver

Preparing the Dash

Determine the location of the PV500 in the dash. Cut a hole in the dash to these dimensions:

Surface Mount:

SURFACE MOUNT PANEL CUTOUT DIMENSIONS
FULL SCALE

2.793
[70.94]

.117
[2.96]

1.097
[27.87]

.478
[12.15]

4X ⌀ .220±.010
[5.59±.25]

6X R.276±.010
[7.00±.25]

2X R.08
[2]

4.614
[117.19]

3.662
[93.02]

2.525
[64.14]

3.165
[80.39]

Surface-Mounting the Unit

1. Place the back side of the display through the opening so the display will sit on the face of the dash.
2. Use the included four long screws and locking nuts from the mounting kit (78051705) to attach the unit to the bracket.
3. Torque to 10 inch-pounds.

Flush-Mounted Installation:

This method requires the 78051705 Installation Bracket.

FLUSH MOUNT PANEL CUTOUT DIMENSIONS
FULL SCALE

3.711
[94.27]

5.160
[131.07]

4X R.20
[5]

Flush-Mounting the Unit

1. Place the back side of the display through the opening in the dash.
2. Evenly pull the display to be flush with the panel
3. Use the included four long screws and four locking nuts from the mounting kit (78051705) to attach the unit to the bracket.
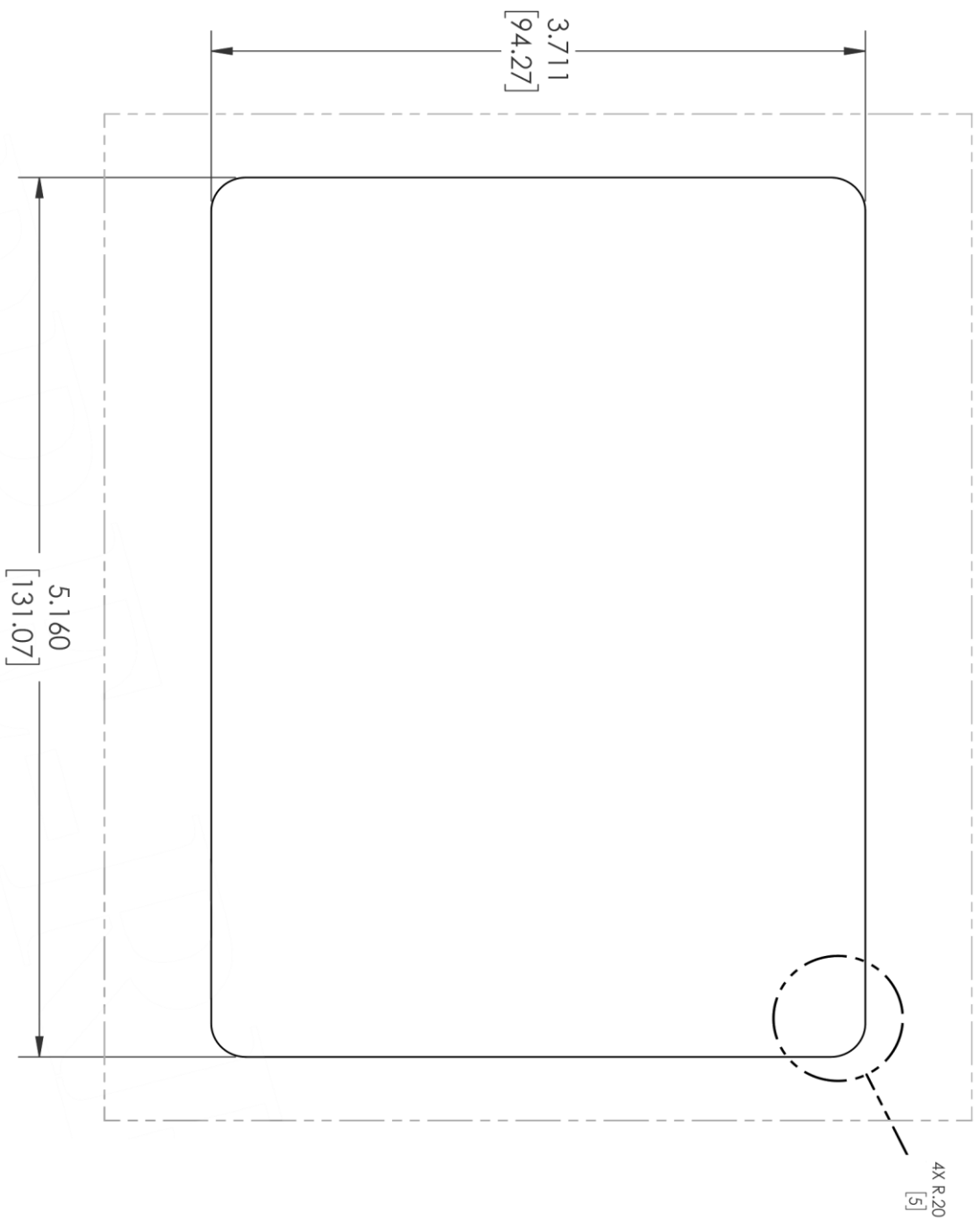4. Torque to 10 inch-pounds.

Available Accessories for the PV500

The following PV500 accessories are available through Enovation Controls:

Part Number	Description	Order Details
78700664	PV500-LT, Non-connected	**Display**
78090104	Programming Kit, PV450/PV780	**Accessories**
78051705	Kit, Mounting Bracket, PV500	
78000668	Wire Harness, USB Adaptor	

Pinout Specifications

Standard Version
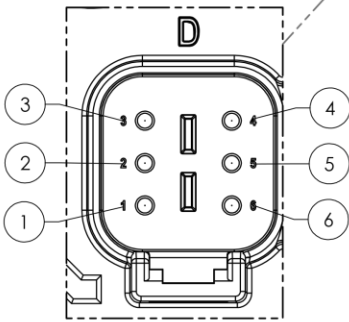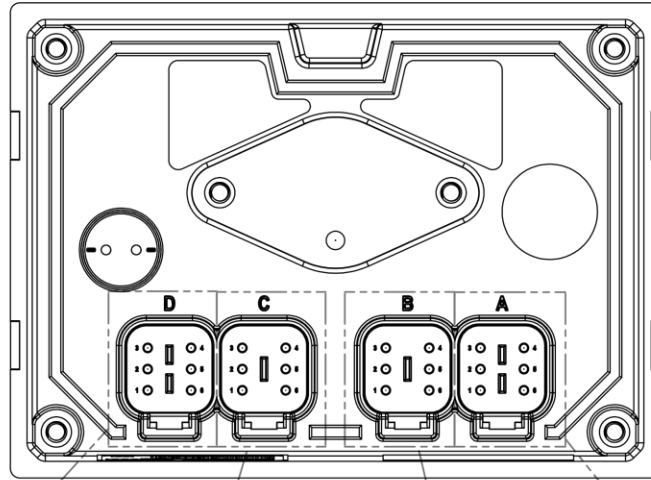
6-POS CONNECTOR-D	
PIN #	FUNCTION
1	VIDEO 1 GROUND
2	VIDEO 2 GROUND
3	RS485 LOW
4	RS485 HIGH
5	VIDEO IN 2
6	VIDEO IN 1
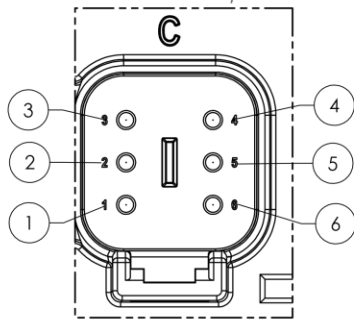
6-POS CONNECTOR-C	
PIN #	FUNCTION
1	DIGITAL IN 1
2	CAN 2 HIGH
3	CAN 2 LOW
4	DIGITAL OUT 2
5	ANALOG IN 1
6	ANALOG IN 1 RETURN
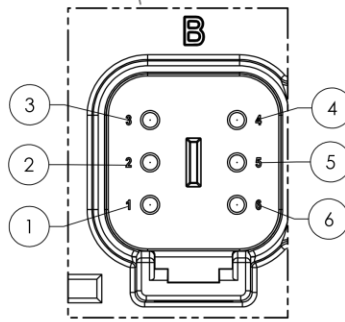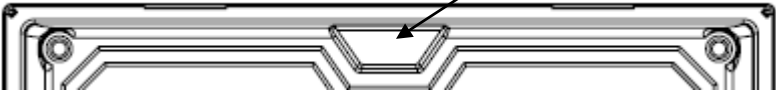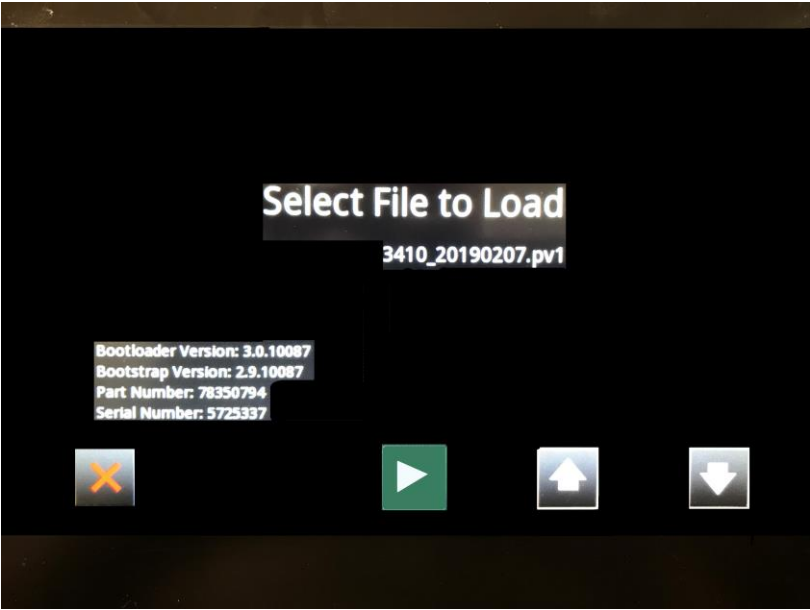
6-POS CONNECTOR-B	
PIN #	FUNCTION
1	BATTERY
2	CAN 1 HIGH
3	CAN 1 LOW
4	DIGITAL OUT 1
5	IGNITION
6	GROUND
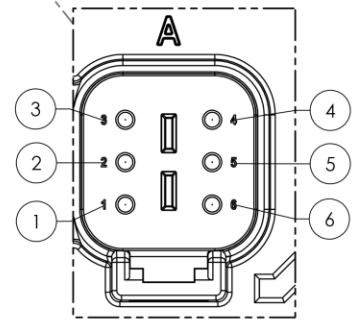
6-POS CONNECTOR-A	
PIN #	FUNCTION
1	USB 5V
2	USB D+
3	USB D-
4	NO CONNECT
5	USB SHIELD
6	USB GROUND

Configuration Information

Follow these steps to download a custom configuration to the PV500 display:
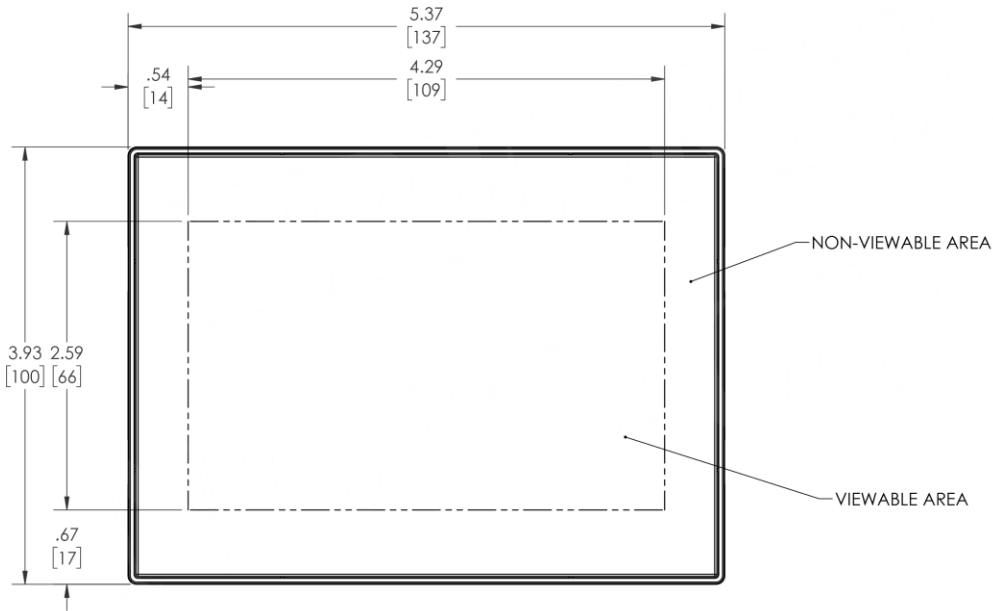
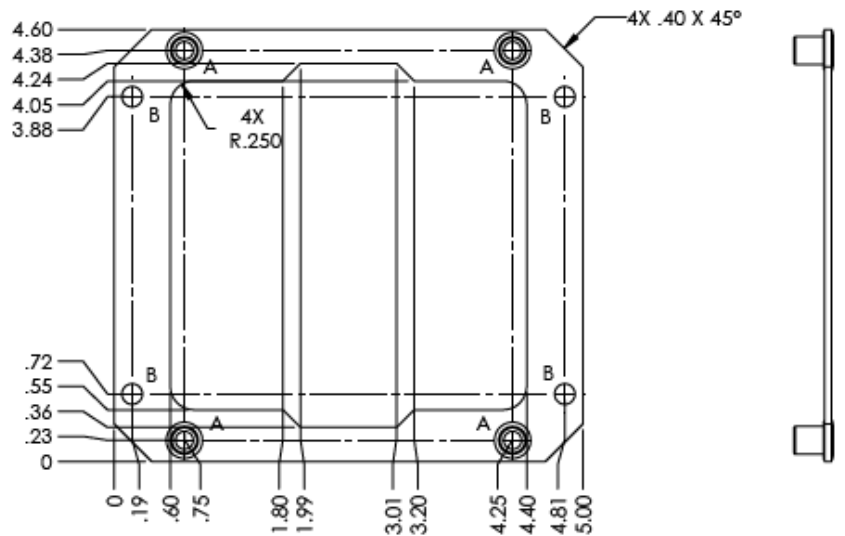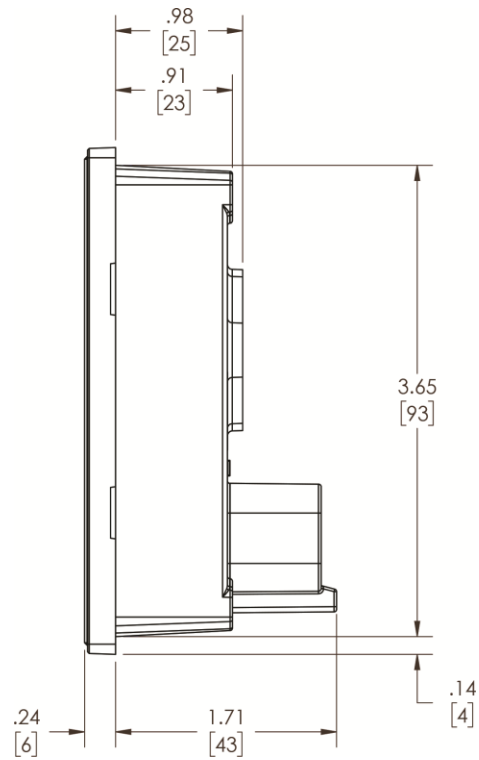| Step	Action
1	Turn off the display.
2	Insert the USB harness 78000668 into Port A of the display. Then insert a USB drive that contains the new configuration file into the USB connector on that harness.
3	Place a magnet into the notch shown here on the upper middle side of the back of the display:
4	Power the display back on, continually holding the magnet in place.
5	Remove the magnet when the display shows the utility for loading new software.
6	Touch the up or down arrow keys on the screen until the appropriate configuration file from the USB to be loaded into the display is shown on the screen.
7	Press the right arrow/green arrow key on the screen twice to load the selected configuration.
8	Once completed, the unit will reboot into the loaded application.

Specifications

Computing	
Main Processor:	Renesas® RZ/G1E Arm® Cortex®-A7 Dual core processor @ 1.0 GHz
Operating System:	QNX® Real-time Operating System
Storage:	8 GB
Ram:	256 MB
Display	
Type:	5" (108mm [H] x 64.8mm [W]) 24-bit LED backlight LCD
Resolution:	800 x 480 pixels
Contrast Ratio:	1000:1 (typical)
Brightness:	900 (cd/m^2, nits) (typical)
Surface:	Anti-glare
Touch Panel:	Projected capacitive (PCAP) with glove touch
Hardware	
Real-time Clock:	Li-Ion battery backup (Typ. lifespan 10 years), non-rechargeable, non-replaceable
Connectors:	(4) 6-position DEUTSCH® style DT series
Video Inputs:	(2) NTSC/PAL (Single channel viewable)
Communication	
CAN:	(2) CAN 2.0B according to ISO 11898-2, J1939, proprietary messaging
USB:	(1) USB 2.0 Full Speed Host
Serial:	(1) RS-485 MODBUS Master/Slave Port

Electrical	
Operating Voltage:	6 – 36 VDC, reverse polarity protected. Max current draw @ 12 V: 0.438A with Backlight ON Min current draw @ 12 V: 0.318A with Backlight OFF Max current draw @ 24 V: 0.297A with Backlight ON Min current draw @ 24 V: 0.202A with Backlight OFF
Outputs:	(2) 500 mA Switched Low-side
Inputs:	(1) Analog 0-5 VDC, 4-20 mA, or resistive, 10-bit resolution (1) Discrete digital, Active low Input (switch to gnd), 20mA switch wetting current
Environmental	
Operating Temps:	-30°C to +85°C (-22°F to +185°F)
Storage Temps:	-40°C to +85°C (-40°F to +185°F)
Protection:	IP66 and IP67, front and back, for outdoor use
Vibration:	Random Vibration: 8.17 Grms (5 – 2000Hz), 3 axes
Shock:	± 50G in 3 axes
EMC/EMI:	SAE J1113, ISO 13766, CE per 2014/30/EU

Dimensions

NON-VIEWABLE AREA

VIEWABLE AREA

5.37 [137]
4.29 [109]
.54 [14]
3.93 [100]
2.59 [66]
.67 [17]
.2

.98 [25]
.91 [23]
3.65 [93]
.14 [4]
.24 [6]
1.71 [43]

4X .40 X 45°
4.60
4.38
4.24
4.05
3.88
4X R.250
.72
.55
.36
.23
0
0 .19 .60 .75 1.80 1.99 3.01 3.20 4.25 4.40 4.81 5.00

Part # 78051705 Mounting Bracket

3.17
[80]

1.98
[50]

.38
[10]

4X 8-32 UNC-2B ∇ .500[12.70]

D   C   B   A

1.91
[49]

4.61
[117]

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