# A3419 and A3422 Touchscreens

The A3419 and A3422 are 8" and 12.1" dedicated touchscreens that includes Carling's N2KView® vessel monitoring and control software. The N2KView® software allows you to configure as many favorite screens as you want with exactly the information you want to see. They provide an extremely simple touch interface for monitoring and controlling critical systems from anywhere on the vessel.

The A3419 and A3422 are ruggedized for marine use and includes a solid state disk drive to withstand the pounding associated with waves. And since the A3419 and A3422 only dissipates 10 watts, there is no need for internal cooling fans that are noisy and wear out causing electronics to overheat and fail. The A3419 and A3422 can be mounted outside given the high bright screen and waterproof front.

As an alternative to controlling the A3419 and A3422 through the touchscreen, the A3419 and A3422 includes two USB ports for connecting keyboards, mice, or trackballs. The A3419 and A3422 also have an Ethernet port for connecting Internet Protocol (IP) cameras for viewing within the N2KView® software. Lastly, the A3419 and A3422 contains two completely isolated CAN bus connectors (M12) for easy connection to single or redundant NMEA 2000® networks.

Product features:

- 8" & 12.1" TFT LCD panel, LED backlit
- Widescreen aspect ratio 5:3 & 16:10
- 800 x 480 pixels (A3419)
  1280 x 800 pixels (A3422)
- 1350 & 1500 nits brightness
  (optically bonded)
- Solid state disk drive
- Fanless cooling system
- Flush or VESA mounting
- Dual CAN Bus for single or redundant NMEA 2000® Network Connections
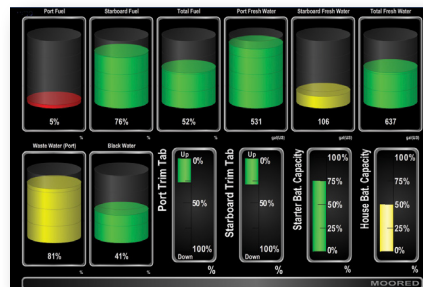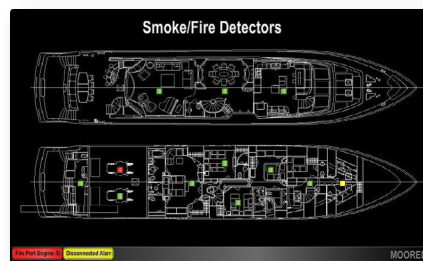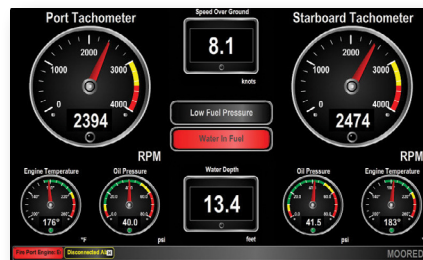
PRODUCTS

| PART NUMBER	DESCRIPTION
A3419	8" MFD, front mount only
A3420	8" MFD, Front or Rear mount
A3421	8" MFD, Rear mount only
A3422	12.1" MFD, front mount only

Installation

Unpacking the Box

When unpacking the box containing the A3419 or A3422, you should find the following items:

- 1 – A3419 8" or A3422 12.1 Vessel Monitoring and Control Touchscreen
- 2 – Snap On Bezels
- 1 – Blue USB Drive Containing (among other documents)
  - 1 – User's Manual
  - 1 – N2KView® Documentation
- 1 – 1m USB Cable with Waterproof Bulkhead Connector
- 1 – Warranty Registration Card

If any of these items are missing or damaged, please contact OctoPlex.

CAUTION!

To prevent damage to chassis corners and/or breaking front glass, please review the illustrations below before handling the A3419 and A3422.
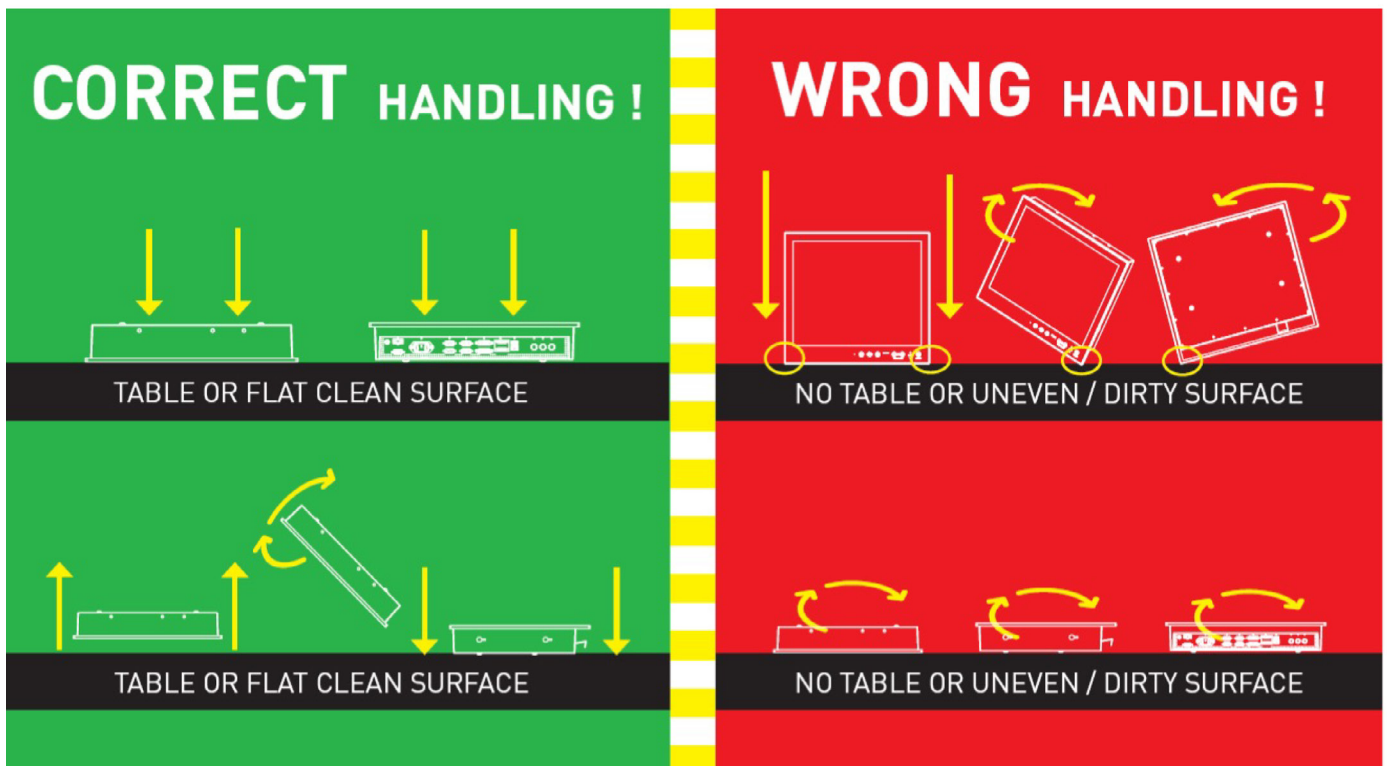
Choosing a Mounting Location

The A3419 and A3422 front panel is splash proof (IEC IP66 rating – protected against the effects of powerful water jets), while the rear of the A3419 and A3422 is drip proof (IEC IP22 rating – protected against the effects of dripping water when tilted up to 15°). The A3419 and A3422 may be mounted either in an indoor or outdoor location.

Adequate ventilation is a necessary prerequisite for the life of the product. The air inlet and outlet openings must definitely be kept clear; coverings which restrict ventilation are not permissible.

Generally, do not install the unit in a horizontal position (laying down), as this will cause heat to build up inside the unit which will damage the LCD Panel. To prevent this problem, we recommend installing the unit in a vertical position (±30 degrees) to improve the airflow through the unit.

To further improve the cooling of the unit, we recommend installing Cooling Fans underneath blowing upwards into the unit air inlet. This may be required in high temperature applications and also when there is reason to expect temperature problems due to non-optimal way of mounting.

Exposure to extreme direct sunlight can cause a considerable increase in the temperature of the unit, and might under certain circumstances lead to over temperature. This point should already be taken into consideration when the bridge equipment is being planned (sun shades, distance from the windows, ventilation, etc.).

Space necessary for ventilation, for cable inlets, for the operating procedures and for maintenance, must be provided. The NMEA 2000 cables require at least 140mm (5.5") clearance from the back surface of the A3419 and A3422 for the plug and cable minimum bend radius. If a 90° field attachable connector is used on the cable, then this can be reduced to 51mm (2")

Proper strain relieve should be installed on cables attached to the A3419 and A3422 so that cable breaks will not occur, e.g. during service work.

Do not paint the product. The surface treatment influences on the excess heat transfer. Painting, labels or other surface treatments that differ from the factory default, might cause overheating.

Expose to heavy vibration and acoustic noise might under certain circumstances affect functionality and expected lifetime. This must be considered during system assembly and installation. Mounting position must carefully be selected to avoid any exposure of amplified vibration.

Mounting Considerations

The useful life of the components of all Electronics Units generally decreases with increasing ambient temperature; it is therefore advisable to install such units in air-conditioned rooms. If there are no such facilities, these rooms must at least be dry, adequately ventilated and kept at a suitable temperature in order to prevent the formation of condensation inside the display unit.

Since the A3419 and A3422 is fanless, cooling takes place via the surface of the casing. The cooling must not be impaired by partial covering of the unit or by installation of the unit in a confined cabinet.

In the area of the wheel house, the distance of each electronics unit from the magnetic standard compass or the magnetic steering compass must not be less than the permitted magnetic protection distance. This distance is measured from the center of the magnetic system of the compass to the nearest point on the corresponding unit concerned.

Units which are to be used on the bridge wing must be installed inside the "wing control console" protected against the weather. In order to avoid misting of the viewing screen, a 25 ... 50 W console-heating (power depending on the volume) is recommended.

When selecting the site of a display unit, the maximum cable lengths have to be considered.

When a product is being installed, the surface base or bulkhead must be checked to ensure that it is flat in order to avoid twisting of the unit when the fixing screws are tightened, because such twisting would impair mechanical functions. Any unevenness should be compensated for by means of spacing-washers.

Transportation damage, even if apparently insignificant at first glance, must immediately be examined and be reported to the freight carrier. The moment of setting-to-work of the equipment is too late, not only for reporting the damage but also for the supply of replacements.

The classification is only valid for approved mounting brackets provided by OctoPlex. The unit shall be mounted stand-alone without any devices or loose parts placed at or nearby the unit. Any other type of mounting might require test and re-classification.

Ergonomics

Adjust the unit height so that the top of the screen is at or below eye level. Your eyes should look slightly downwards when viewing the middle of the screen.

Adjust screen inclination to remain gaze angle to the center of the screen approximately perpendicular to the line of gaze.

When products are to be operated both from a sitting position and from a standing position, a screen inclination of about 30° to 40° (from a vertical plane) has turned out to be favorable.

The brightness of displays is limited. Sunlight passing directly through the bridge windows - or its reflection – which falls upon the screen workplaces must be reduced by suitable means (negatively inclined window surfaces, venetian blinds, distance from the windows, dark coloring of the deckhead). These units are equipped with optical enhanced technology to reduce reflections and are viewable in direct sun light, but as a general rule the units at the bridge wing area is recommended to be installed or mounted by suitable alignment or bulkhead /deckhead mounting in such a way that reflections of light from the front panel of the display are not directed into the observer's viewing direction.

The use of ordinary commercial filter plates or filter films is not permitted for items of equipment that require approval (by optical effects, "aids" of that kind can suppress small indicators, for example).

Front Mounting

Mounting the A3419 and A3422 on a wall or panel requires a cutout in the wall or panel. Please ensure there is sufficient space behind the unit to connect the NMEA 2000 cables. Typically they require 190mm (7.5") for a straight connector, or 102mm (4") for a right angle connector, measured from the front face of the wall or panel.

Step #1:
Select the position on the panel or wall to mount the A3419 and A3422.

Step #2:
Cut out a section from the panel that corresponds to the rear panel dimensions of the A3419 and A3422. Take care that the panel section that is cut out is smaller than the overall size of the front panel of the A3419 and A3422 but just large enough for the rear panel of the A3419 and A3422 to fit through, according to the dimensions in Figure 2.

Step #3:
Slide the TSM810 through the hole from the front until the frame is flush against the panel and then mark the positions of the 6 mounting holes. Remove the TSM810 before drilling the holes.

Step #4:
Drill six 5.5mm holes for the mounting screws according to the dimensions in Figure 2.

Step #5:
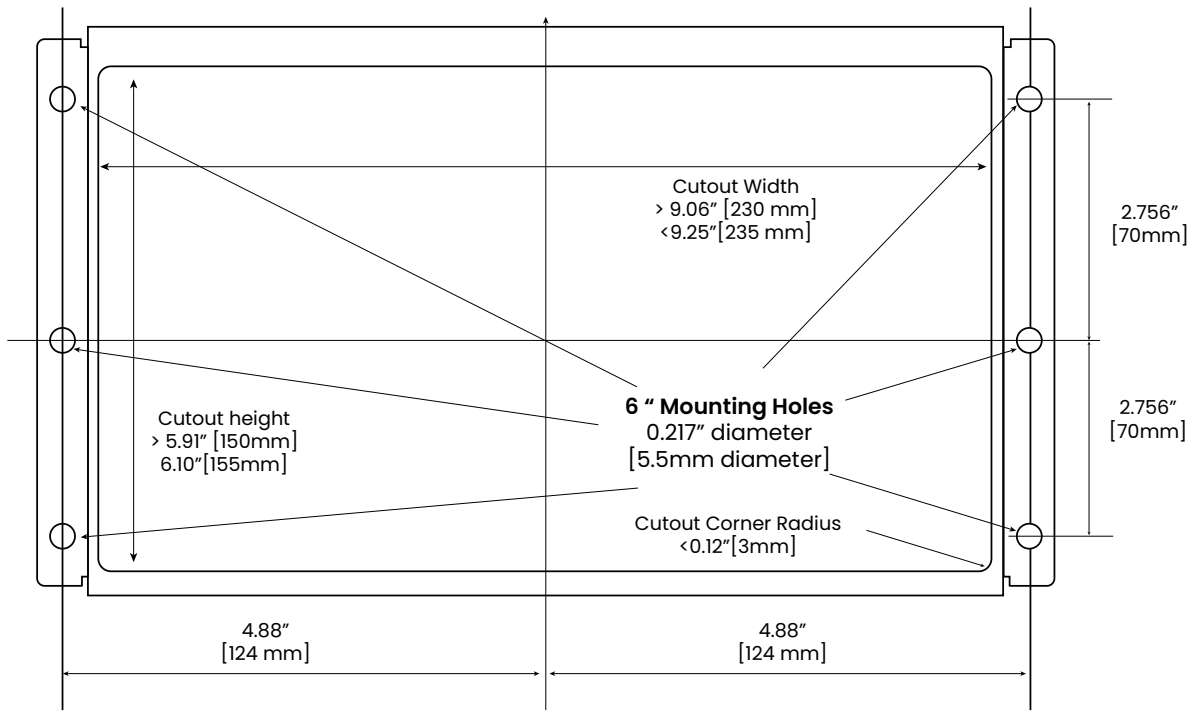Slide the A3419 and A3422 through the hole until the frame is flush against the panel.

Step #6:
From the front of the panel, place six #10 flat/countersunk bolts through the A3419 and A3422 frame and the panel, add washers and nuts, and tighten until the display is firmly secured to the panel. Suitable #10 countersunk screws may be used in place of the bolts for wall mounting. The bolts and screws are not provided by OctoPlex.
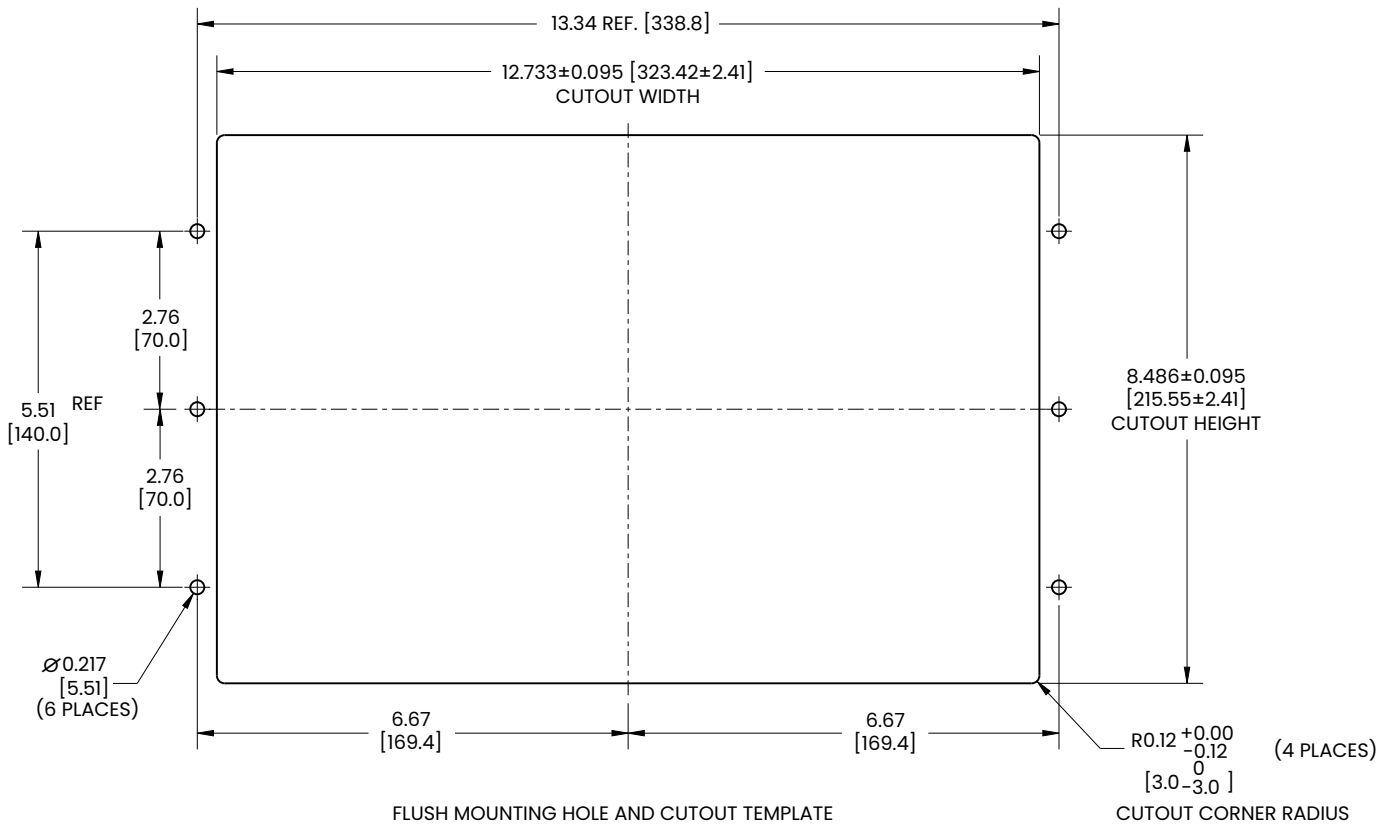
Step #7:
Clip the two bezels on to the front of the touchscreen, hiding the screws.

Figure 2a – A3419 Cutout Dimensions (not to scale)

Cutout Width
> 9.06" [230 mm]
< 9.25" [235 mm]

2.756" [70mm]

2.756" [70mm]

Cutout height
> 5.91" [150mm]
6.10" [155mm]

6 " Mounting Holes
0.217" diameter
[5.5mm diameter]

Cutout Corner Radius
< 0.12" [3mm]

4.88" [124 mm]

4.88" [124 mm]

13.34 REF. [338.8]

12.733±0.095 [323.42±2.41]
CUTOUT WIDTH

2.76 [70.0]

5.51 REF [140.0]

2.76 [70.0]

8.486±0.095 [215.55±2.41]
CUTOUT HEIGHT

∅0.217 [5.51] (6 PLACES)

6.67 [169.4]

6.67 [169.4]

$R0.12 \,^{+0.00}_{-0.12}$ (4 PLACES)
$[3.0 \,^{0}_{-3.0}]$

FLUSH MOUNTING HOLE AND CUTOUT TEMPLATE

CUTOUT CORNER RADIUS

Figure 2b – A3422 Cutout Dimensions (not to scale)

Rear Mounting

Mounting the A3420 or A3421 on a wall or panel requires a cutout in the wall or panel. Please ensure there is sufficient space behind the unit to access the mounting thumb screws & to connect the NMEA-2000 Cables. Typically they require 190mm (7.5") for a straight connector or 102MM (4") for a right angled connector, measured from the front face of the wall or panel.

Step #1:
Select the position on the wall or panel to mount the A3420 or A3421.

Step #2:
Cut out a section that corresponds to the rear panel dimensions of the A3420 or A3421. Take care that the panel section that is cut out is smaller than the overall size of the front panel of the A3420 or A3421 but large enough for the rear panel to fit through according to the dimensions in Figure 3 and 4.

Step #3:
Preassemble the back plate with the two brackets & thumb screws mounted to it. Slide the TSM-810 through the front hole until the frame is flush against the panel. From the rear, attach the back plate over the studs on the rear of the screen & attach using the supplied nuts & washers.

Step #4:
Once the rear mounting panel is secure, tighten up the two thumb screws until the screen is firmly in place in its cutout.
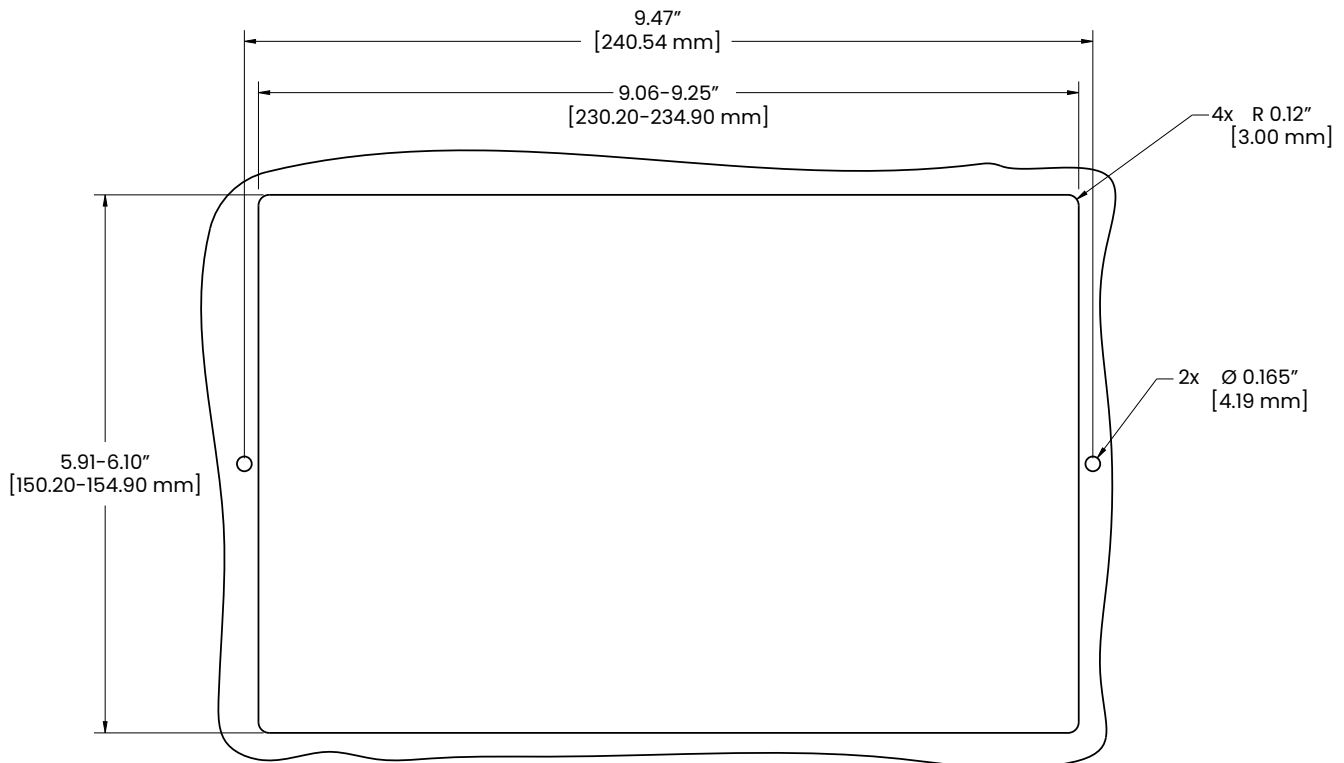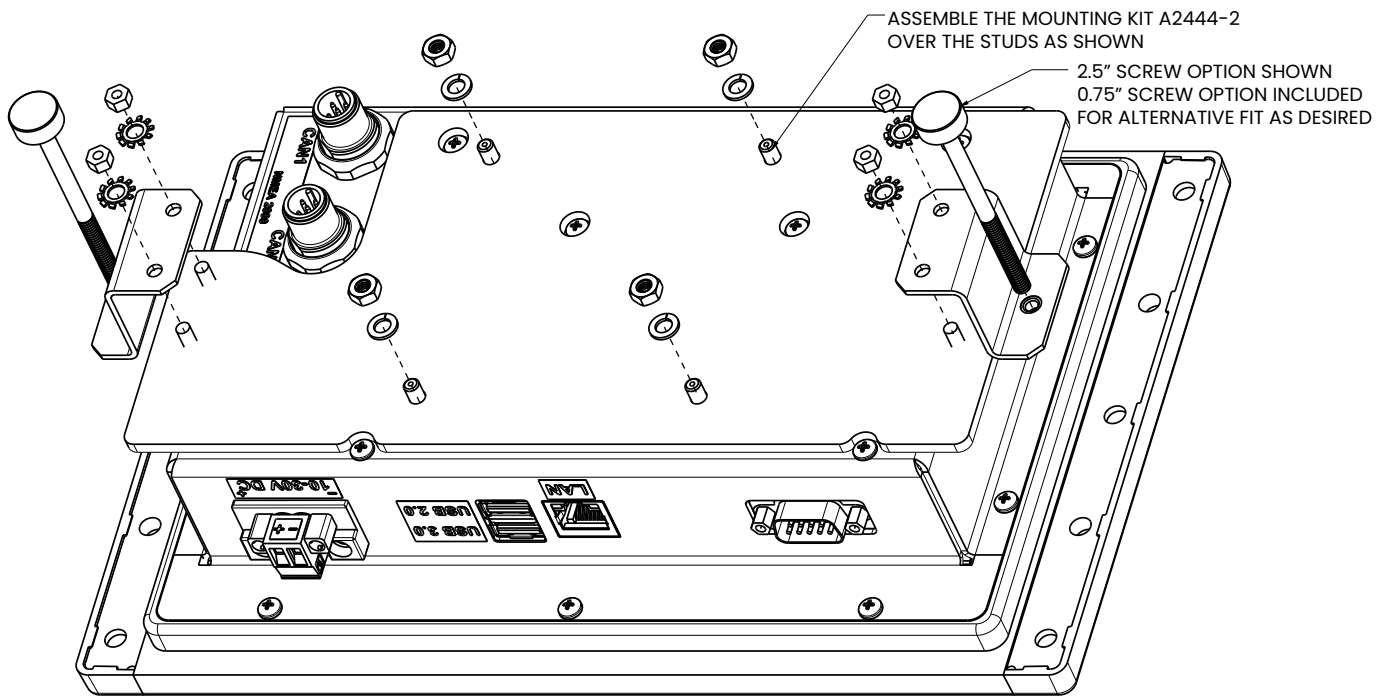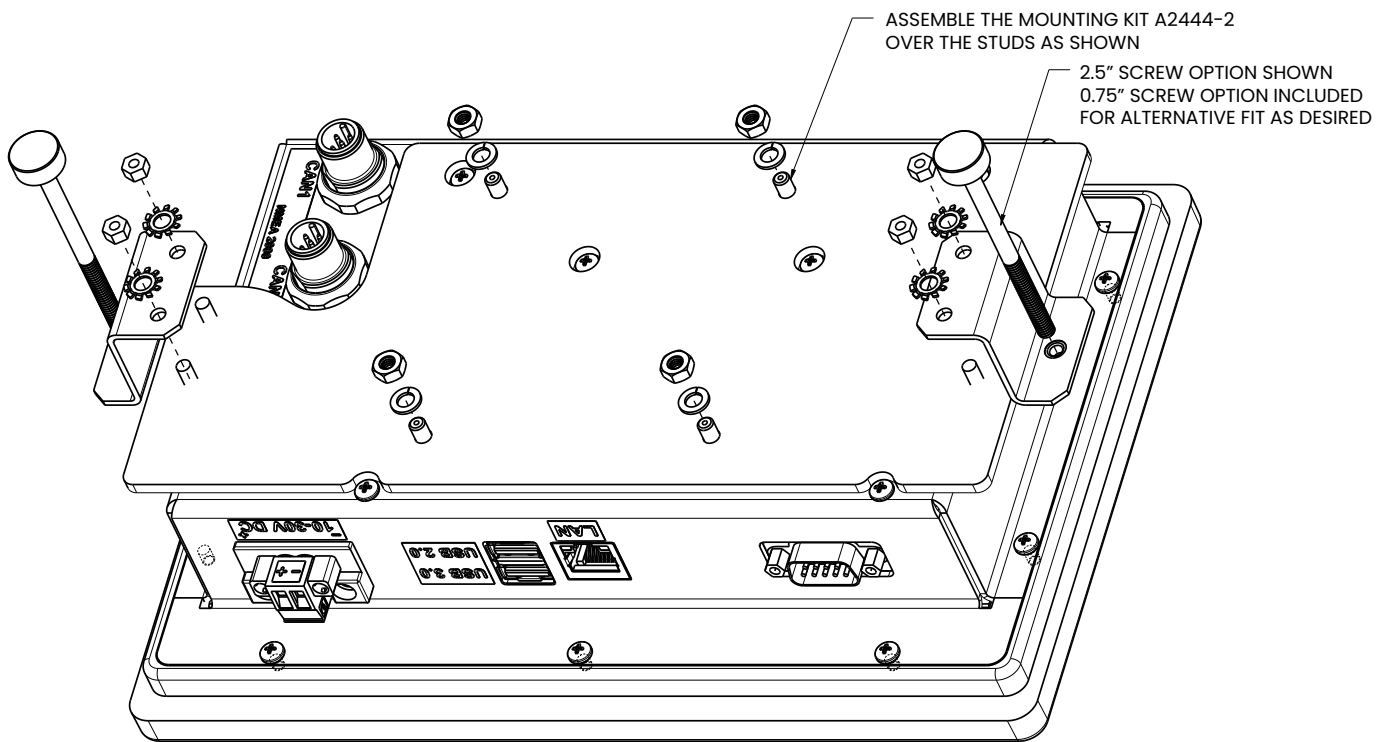
Step #5:
Finally, connect all cables & wiring.
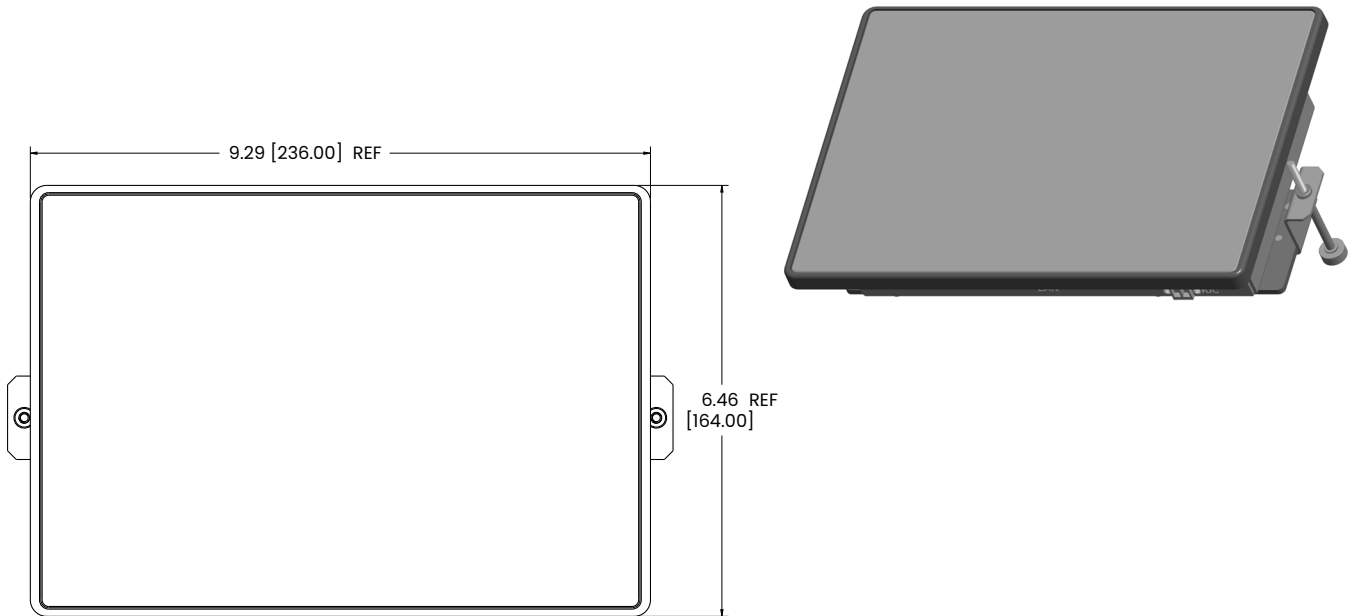

Figure 3 – A3420 or A3421 Rear Panel Mount Cutout

ASSEMBLE THE MOUNTING KIT A2444-2
OVER THE STUDS AS SHOWN

2.5" SCREW OPTION SHOWN
0.75" SCREW OPTION INCLUDED
FOR ALTERNATIVE FIT AS DESIRED

Figure 4a – A3420 Rear Panel Mount - Standard Display with Mounting Bracket Kit

ASSEMBLE THE MOUNTING KIT A2444-2
OVER THE STUDS AS SHOWN

2.5" SCREW OPTION SHOWN
0.75" SCREW OPTION INCLUDED
FOR ALTERNATIVE FIT AS DESIRED

Figure 4b – A3421 Rear Panel Mount - Alternate Display Construction using Front Housing M003104

9.29 [236.00] REF

6.46 REF
[164.00]

**Figure 4c – A3421 Rear Panel Mount - Alternate Display Construction using Front Housing M003104**

Connecting the Touchscreen

Most I/O interface connections of the A3419 and A3422 are found on the bottom panel. The I/O interface panel located on the bottom of the A3419 and A3422 has the following I/O interface connectors:

- 24V DC Power input connector
- 1 x RJ-45 Gigabit Ethernet LAN port
- 1 x USB 2.0 connector
- 1 x USB 3.0 connector

Additionally, the rear panel of the A3419 and A3422 has the following interface connectors:

The bottom panel and rear panel of the A3419 is shown in Figure 5.
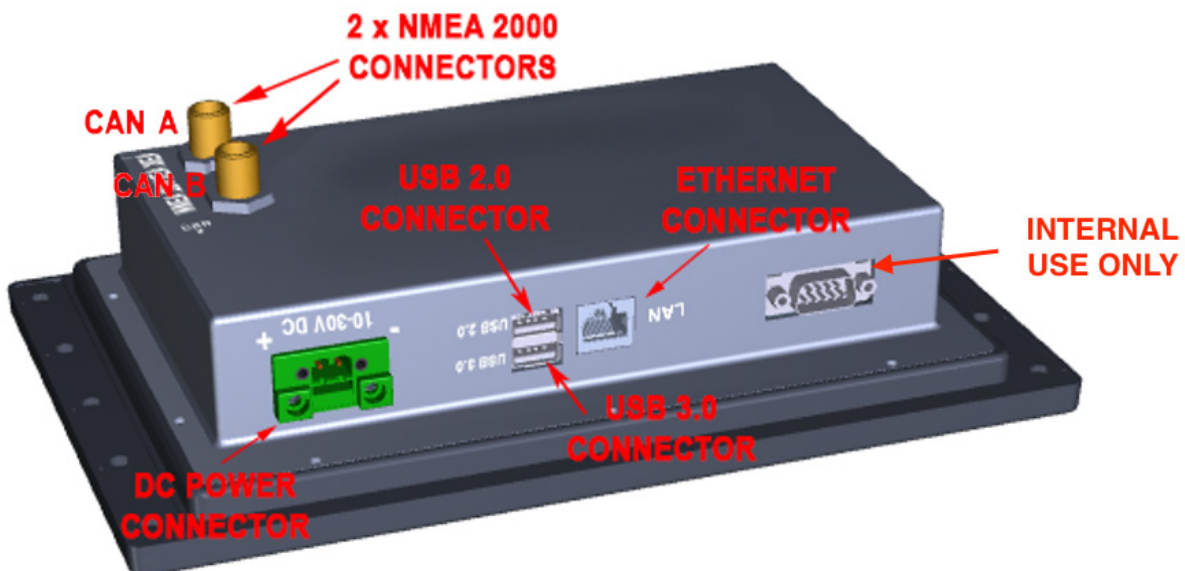
Figure 5 – A3419 Bottom and Rear Panels

LAN Connection

There is one external RJ-45 LAN connector. The RJ-45 connector enables connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step #1:

Locate an RJ-45 connector on the bottom panel of the A3419 and A3422.

Step #2:

Align the connector. Align the RJ-45 connector on the LAN cable with the RJ-45 connector on the bottom panel of the A3419 and A3422. See Figure 6.

Step #3:

Insert the LAN cable RJ-45 connector. Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.
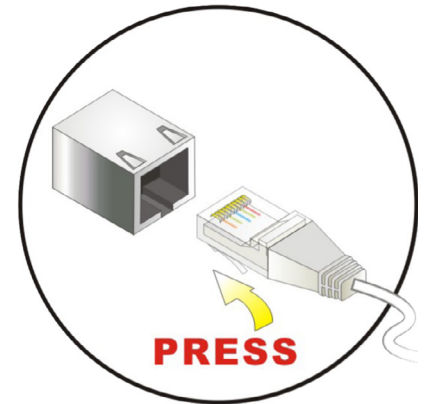

Figure 6 – LAN Connection

USB Device Connection

There is one USB 3.0 connector and one USB 2.0 connector. The USB connectors are used to transfer N2KView® configurations between the A3419 and A3422 and other N2KView® devices, and for applying software updates to the A3419 and A3422. Install the included waterproof USB bulkhead connector in a position where it is easily accessible and plug into one of the USB connectors on the A3419 and A3422 per the instructions below. This will make the USB connection easily accessible once the A3419 and A3422 is installed.

The USB connectors may optionally be used to install USB keyboards or USB mice for an alternative means of controlling the A3419 and A3422 user interface.

To connect a USB 3.0, USB 2.0 or USB 1.1 device, please follow the instructions below. If a USB 3.0 device is plugged into the USB 2.0 port, the USB 3.0 device will downgrade to USB 2.0 speeds.

Step #1:

Locate the USB connectors. The locations of the USB connectors are shown in Figure 5.

Step #2:

Align the connectors. Align the USB device connector with one of the connectors on the bottom panel. See Figure 7.

Step #3:

Insert the device connector. Once aligned, gently insert the USB device connector into the onboard connector.
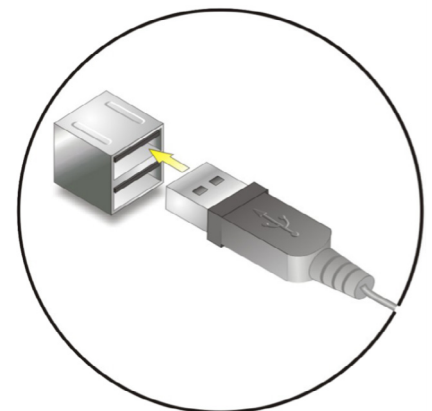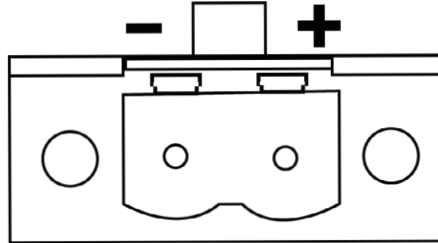

Figure 7 – USB Device Connection

Power Connection

The A3419 and A3422 must be connected to a power source (over current protection should be provided and should be sized in accordance with ABYC E-11, AC and DC ELECTRICAL SYSTEMS ON BOATS). The A3419 and A3422 provides one power connection.

Figure 8 – Power Connections

Connect your DC power cable to the SL-SMT 09F connector block as follows:

Step #1:
Unscrew (from top) or make sure that the screw terminals (square area) are fully open, so you can secure the inserted cables correctly to the loose housing connector (it may already be plugged into the unit as per factory installation).

Step #2:
Insert cables (from front) and screw / secure the cables by turning the screw on top of the housing to secure the cables properly. Check that the cables are firmly in place and do not appear loose or fall out when pulling gently.


CAUTION!

Required polarization verification (for instance -/+ for DC power input) should conform to the markings on the connector area of the unit. Ignoring the markings on the unit or its add-on modules might damage the unit and/or external equipment in which end, warranty will be void.

Step #3:
Plug the housing into the appropriate connector area of the unit and check again that the cables secured conforms to the markings on the connector area of the unit.

Step #4:
Finalize the installation by fasten the screws located in front on each side of the housing connector.
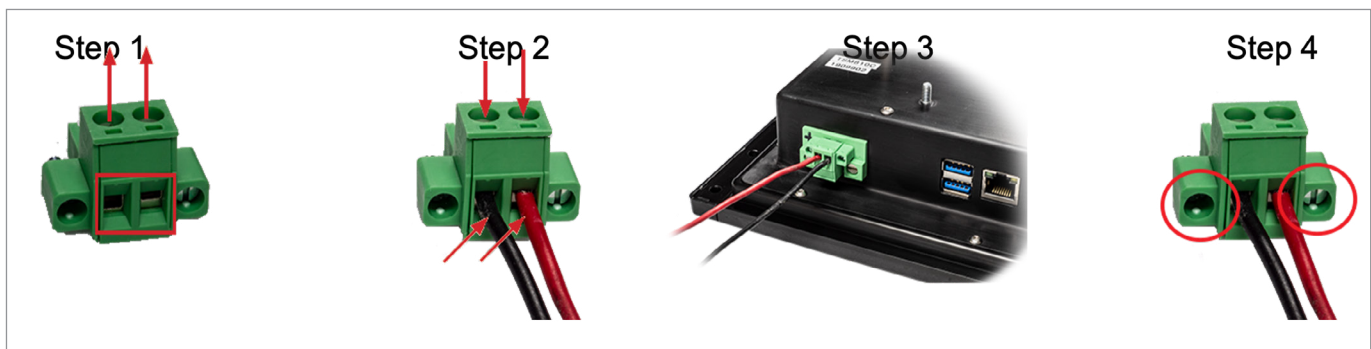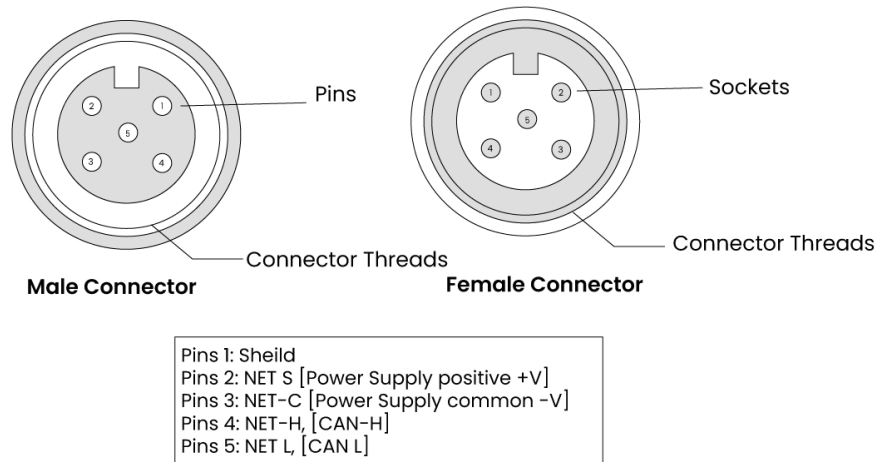

Figure 9 – Attaching Power Cables to Connector

NMEA 2000® Connection

The two NMEA 2000® connectors can be found on the rear panel of the A3419 and A3422. If you are using a single NMEA 2000® network, connect either of the connectors to the NMEA 2000® network. If you are using dual NMEA 2000® networks, connect each NMEA 2000® connector to one of the NMEA 2000® networks. Note that if you are using dual NMEA 2000® networks, the instancing of device and data instance on the network nodes must be unique across both networks. For example, if one network has a device which transmits fluid level data for Fuel Tank instance 0, the other network must not contain a device which transmits fluid level data for Fuel Tank instance 0.

The NMEA 2000® connectors are round five pin male connectors (see Figure 10). You connect the A3419 and A3422 to an NMEA 2000® network using a NMEA 2000® cable (or an NMEA 2000® compatible cable) by connecting the female end of the cable to the A3419 and A3422 (note the key on the male connector and keyway on the female connector). Be sure the cable is connected securely and that the collar on the cable connector is tightened firmly. Connect the other end of the cable (male) to the NMEA 2000® network in the same manner. The A3419 and A3422 is designed such that you can plug or unplug it from an NMEA 2000® network while the power to the network is connected or disconnected. Please follow recommended practices for installing NMEA 2000® network products.

Pins

Sockets

Connector Threads

Connector Threads

Male Connector

Female Connector

Pins 1: Sheild
Pins 2: NET S [Power Supply positive +V]
Pins 3: NET-C [Power Supply common –V]
Pins 4: NET-H, [CAN-H]
Pins 5: NET L, [CAN L]

Figure 10 – NMEA 2000® Connector Face Views

Power Sequencing

When the A3419 and A3422 is connected to an appropriate power source, you can use the power switch located at the center of the front panel to turn the A3419 and A3422 on or off.

The A3419 and A3422 can also be switched on and off by applying or removing power through an external switch or breaker. Anytime the power is reapplied to the A3419 and A3422, it will turn on.

If the A3419 and A3422 is turned on, then the switches found on the front panel will be brightly illuminated and the LED will illuminate green. If the TSM810 is turned off, and power is still applied, the front panel switches + and – brightness switches will be dim, the center power switch will be bright, and the LED will illuminate red when the shutdown process is complete.

Manually Entering LAN Connection Information

If you intend to use the Video feature or send e-mails via the Alerts feature, you must ensure that the device can connect to your LAN (local area network). The A3419 and A3422 comes from the factory preconfigured to obtain its LAN connection information from a DHCP (Dynamic Host Control Protocol) server. If your local area network uses a DHCP server, no configuration is necessary, and the A3419 and A3422 should be able to successfully connect to the local area network.

If your local area network does not use DHCP, you must manually enter the LAN connection information into the A3419 and A3422. This is done through the following steps:

NOTE

The LAN Connection is not necessary unless you are using any of the following features:
- Video
- E-mail actions on Alerts

Figure 12 – N2KView® Window with Tabs Displayed

a.   Click anywhere inside the N2KView® screen to display the screen tabs as shown in Figure 12 above.

b.   Click on the "**Commands & Settings**" tab on the right side of the N2KView® screen to display the Commands & Settings window.

c.   Click on the "**Configuration**" button in the Commands & Settings window to display the Configuration dialog. (Certain parameters are password protected by the manufacturer. Contact manufacturer for password)

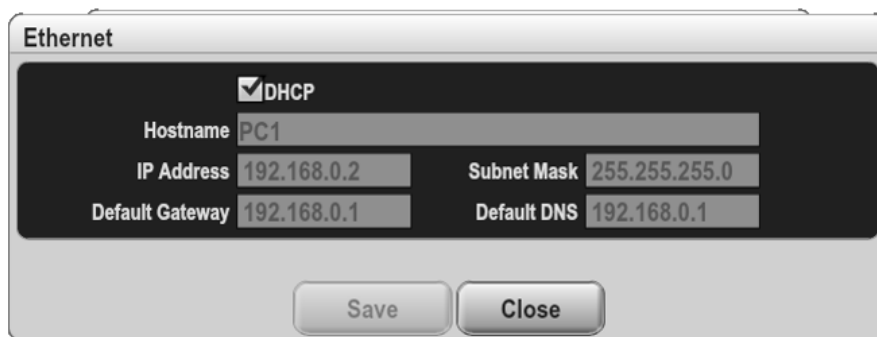d.   Click on the "**Ethernet**" tab in the Configuration dialog to display the Ethernet dialog.

Figure 13 – Ethernet Dialog

e.   Uncheck the "**DHCP**" box to indicate that your LAN does not use DHCP.

f.   Optionally, in the "**Hostname**" field, enter a hostname for the A3419 and A3422. This is used by the network router.

g.   In the "**IP Address**" field, enter the IP address you wish to assign to the A3419 and A3422.

h.   In the "**Subnet Mask**" field, enter the net mask value used on your LAN (in most cases, this value will be "255.255.255.0").

i.   In the "**Default Gateway**" field, enter the IP address of the default gateway of your LAN.

j.   In the "**Default DNS**" field, enter the IP address of a DNS (Dynamic Name Service) Server used on your LAN.

k.   Click the "**Save**" button to make these changes permanent and exit the dialog.

Operating Touchscreen

Turning Touchscreen On

To turn on the A3419 and A3422, press the power button, located on the front panel of the A3419 and A3422 for at least one second. The screen brightness buttons backlights will change from dim to bright, and the LED will turn green once the power-on process begins.

Turning Touchscreen Off

To turn the A3419 and A3422 off, use the "Shutdown" administrative tab of the N2KView® software. Alternatively, you can power down the unit by pressing the power button, located on the front panel of the A3419 and A3422 for at least one second. The brightness buttons backlights will change from bright to dim and the LED will turn red once the power-off process is complete.

Adjusting the Screen Brightness on the Touchscreen

Touch the illuminated (-) or (+) symbols underneath the screen to adjust the brilliance/brightness of the displayed image.

Using the Touchscreen

The A3419 and A3422 runs a fully functional and fully licensed version of the N2KView® software. Please refer to the N2KView® User's Manual, included with the A3419 and A3422 on the USB Drive, for detailed operating instructions.

Maintenance

Regular maintenance is important to ensure continued proper operation of the A3419 and A3422. Perform the following tasks periodically:

- Clean the unit with a soft cloth. Do not use chemical cleaners as they may remove paint or markings or may corrode the A3419 and A3422 enclosure or seals. Do not use any cleaners containing acetone, as they will deteriorate the plastic enclosure. Do not spray cleaning liquids directly onto the A3419 and A3422.
- Ensure that the unit is mounted securely and cannot be moved relative to the mounting surface. If the unit is loose, tighten the mounting screws.
- Check the security of the power and network cables connected to the A3419 and A3422 and tighten if necessary.

Troubleshooting

If you notice unexpected operation of the A3419 and A3422, follow the troubleshooting procedures in this section to remedy simple problems.

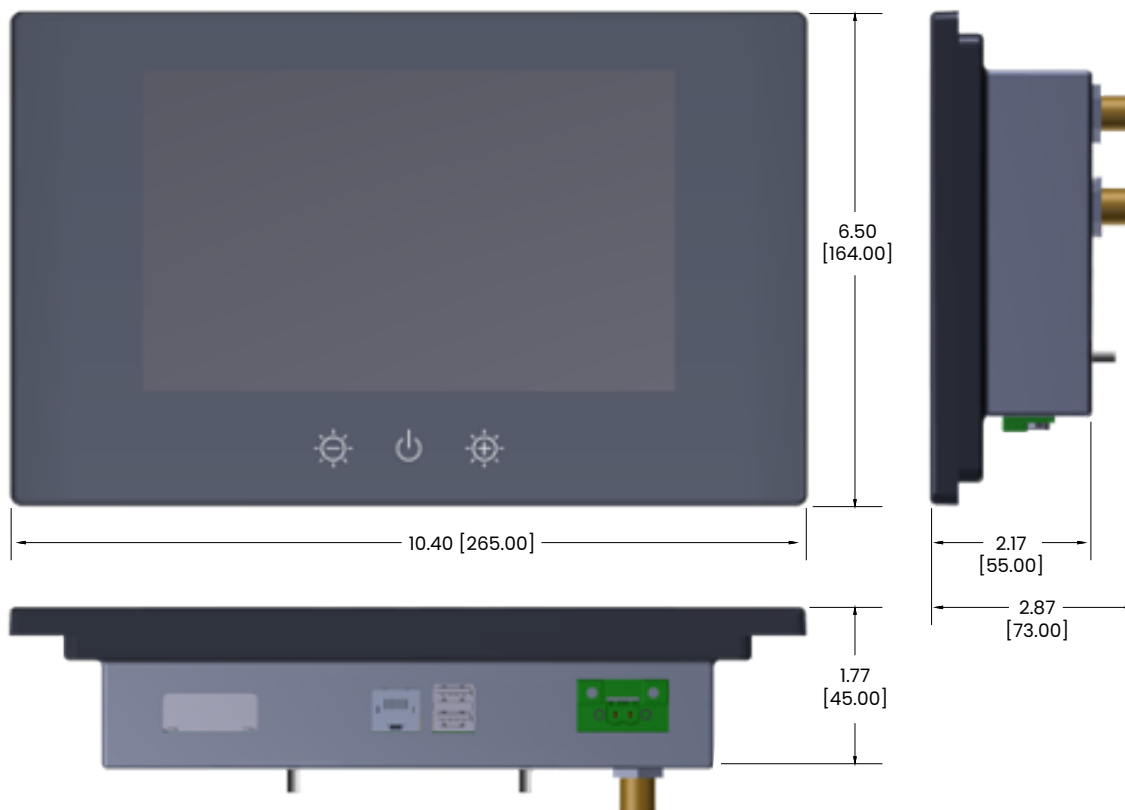| SYMPTOM	TROUBLESHOOTING PROCEDURE
LED is not illuminated	Check the connection to the power connectors and tighten if necessary. Ensure that power is supplied to the connected power cable.
No activity on the display	Check the connection to the network connectors and tighten if necessary. Repower the unit by unplugging the power cable and then plugging it back in. Carefully watch the display during startup for any messages.
All the data values on the displays are grey or show dashes.	Check that the NMEA 2000® interfaces are correctly connected to the NMEA 2000® network.Check that the NMEA 2000® network is correctly powered up.
Unable to send test emails.	Check that the Ethernet cable is correctly plugged in and connected to a router with Internet Access. Verify the email settings in the Email Setup dialog are correctly spelled.

If these steps do not solve your problem, please contact technical support.

Warning: There are no user-serviceable components inside the A3419 and A3422. Opening the A3419 and A3422 will expose the sensitive electronic components to adverse environmental conditions that may render the unit inoperative. Please do not open the A3419 and A3422, as this will automatically void the warranty. If service is required, please return the unit to an authorized service location.

Dimensional Specs in. [mm]

8 Inch Touchscreen
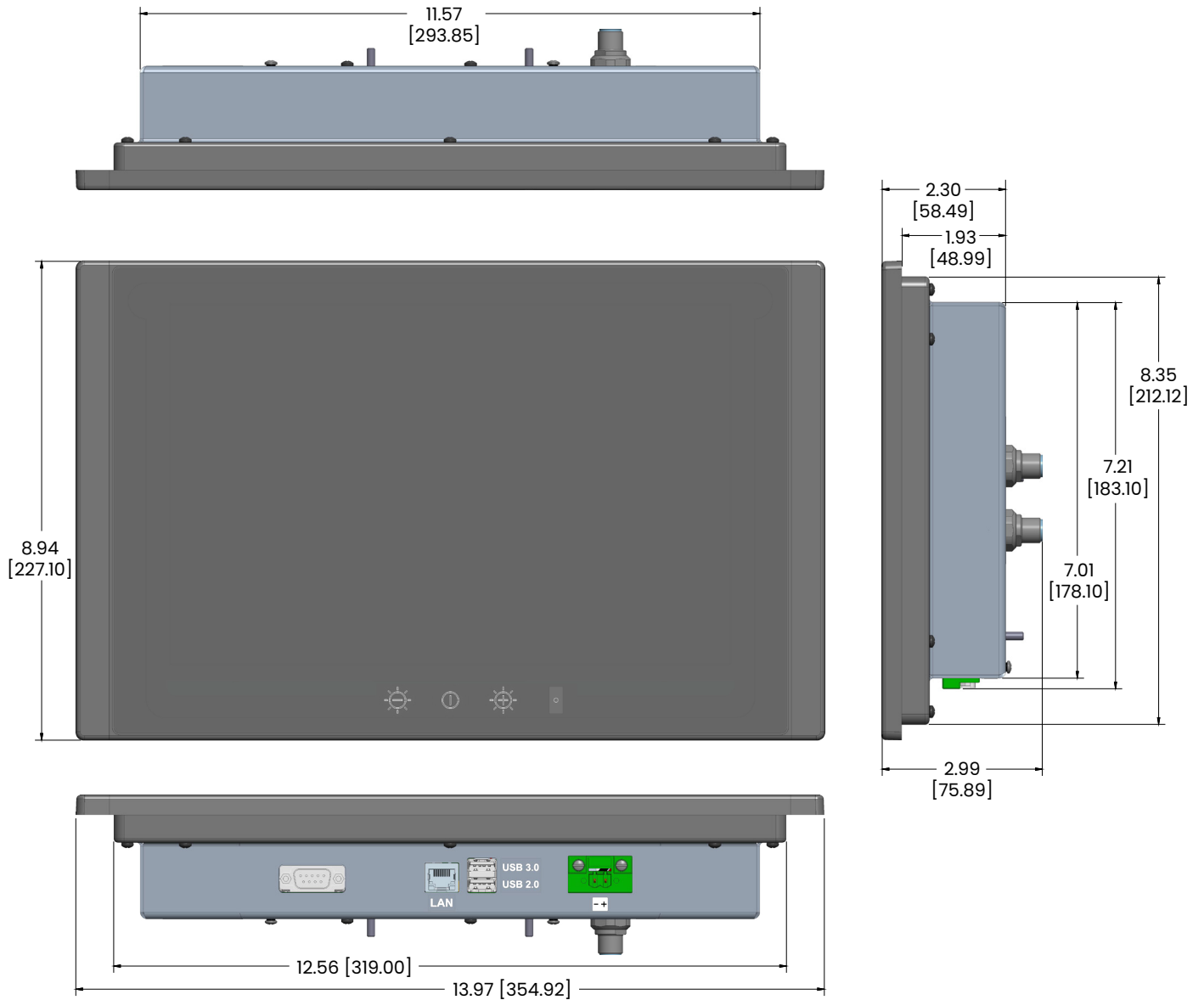A3419

Dimensional Specs in. [mm]

12.1 Inch Touchscreen
A3422

11.57
[293.85]

2.30
[58.49]

1.93
[48.99]

8.35
[212.12]

7.21
[183.10]

8.94
[227.10]

7.01
[178.10]

2.99
[75.89]

LAN

USB 3.0
USB 2.0

12.56 [319.00]

13.97 [354.92]

Tech Specs

SPECIFICATIONS

PARAMETER	VALUE	COMMENT
Display Size	8" and 12.1"	LED Backlit LCD with Projected Capacitive Touch Screen
Display Resolution	800x480 (8") 1280x800 (12.1")	WVGA (8") WXGA (12.1")
Display Brightness	1350cd/m2 (8") 1500cd/m2 (12.1")	Optically Bonded
Contrast Ratio	600:1 (8") 700:1 (12.1")	
LCD Color	262K	
Viewing Angle	80° H, 80° V (8") 80° H, 60° V (12.1")	
USB Ports	One USB 2.0, one USB 3.0	

APPROVALS

PARAMETER	COMMENT
IEC 60945	Electromagnetic Compliance
FCC Part 15B class A and CE mark	
IC ICES-003 Issue 6	
NMEA 2000®	

ELECTRICAL

PARAMETER	VALUE	COMMENT
Operating Voltage (Dedicated Supply Connection)	10-32 Volts	DC Voltage
Power Consumption (Dedicated Supply Connection)	<10 Watts	Typical
	15 Watts	Maximum
Operating Voltage (NMEA 2000® Connection)	8-32 Volts	DC Voltage
Power Consumption (NMEA 2000® Connection)	50mA	
Load Equivalence Number (LEN)	1	NMEA 2000® Spec. (1 LEN = 50 mA)
Reverse Battery Protection (NMEA 2000® Connection)	Yes	Indefinitely

MECHANICAL

PARAMETER	VALUE	COMMENT
Overall Dimensions (DxWxH)	2.87" x 10.4" x 6.5" [73 x 265 x 164mm] (8") 2.98" x 13.97" x 8.94" [75 x 354 x 227mm] (12.1")	
Weight	4.2 lbs [1.9kg] (8") 6.0 lbs [2.7 kg] (12.1")	
Front Panel Material	Glass	
Front Panel Controls	Power, Brightness +/-	

ENVIRONMENTAL

PARAMETER	VALUE
Operating Temperature	-20°C to 55°C (Humidity up to 95%)
Storage Temperature	-30°C to 60°C (Humidity up to 95%)
IP Rating	IP66 Front, IP22 Rear (EN60529)