

DSM800

Vessel Monitoring and Control

Indoor Display

User's Manual

Revision 1.0

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1 General

1.1 Introduction

Congratulations on your purchase of the Maretron DSM800 Vessel Monitoring and Control Indoor Display. Maretron has designed and built your display to the highest standards for years of dependable and accurate service.

The DSM800 is a dedicated touch screen that comes preloaded with Maretron's N2KView® vessel monitoring and control software (N2KView® hardware license key sold separately). The N2KView® software allows you to configure as many favorite screens as you want with exactly the information you want to see. Although not suitable for outdoor applications, the DSM800 provides an extremely simple touch interface for monitoring and controlling critical systems from inside the vessel.

The DSM800 is ruggedized for marine use and includes a solid state disk drive to withstand the pounding associated with waves. And since the DSM800 only dissipates 25 watts, there is no need for internal cooling fans that are noisy and wear out causing electronics to overheat and fail.

As an alternative to controlling the DSM800 through the touch screen, the DSM800 includes two USB ports for connecting keyboards, mice, or trackballs. The DSM800 also has an Ethernet port for communicating with an NMEA 2000® network (see Figure 1) through Maretron's Internet Protocol Gateway (IPG100). Alternatively, the DSM800 can network through Ethernet to a PC running N2KServer®. Although the DSM800 comes pre-installed with the N2KView® software, a separately purchased N2KView® hardware license key plugged into the IPG100 (or PC) is required (see IPG100 User's Manual for more details). The Ethernet port is also used for connecting Internet Protocol (IP) cameras for viewing within the N2KView® software.

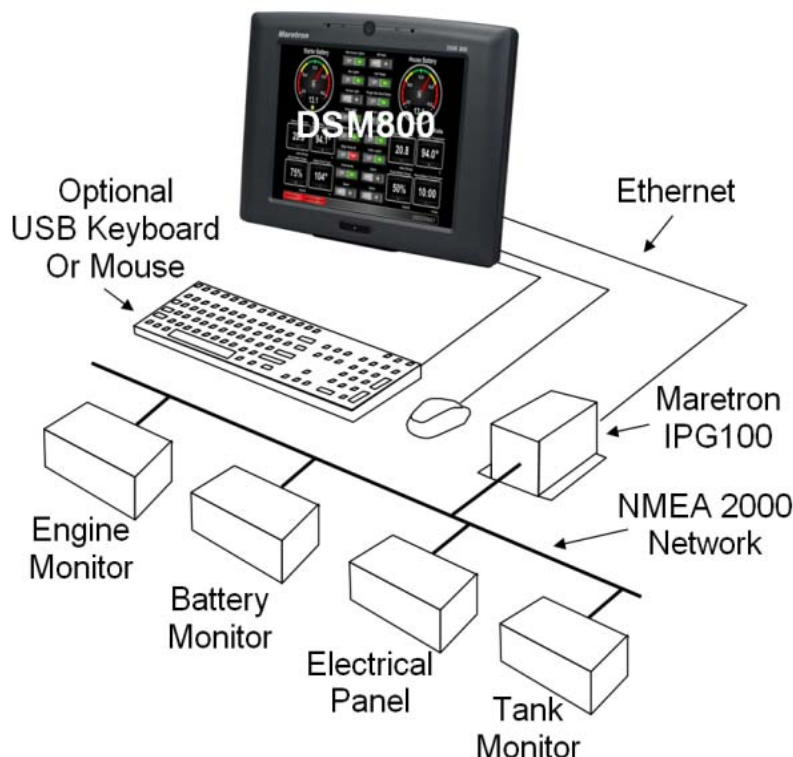


Figure 1 – DSM800 Network Diagram

The Maretron DSM800 is designed to operate within the harsh demands of the marine environment. However, no piece of marine electronic equipment can function properly unless installed, configured, and maintained in the correct manner. Please read carefully and follow these instructions for installation, configuration, and usage of the Maretron DSM800 in order to ensure optimal performance.

1.2 Firmware Revision

This manual corresponds to the DSM800 running N2KView® Version 3.2.

1.3 DSM800 Features

The Maretron DSM800 has the following features.

- 8" LED Backlit LCD Panel with Resistive Touch Screen
- 800 x 600 Pixels
- 300 nits of brightness
- Solid State Disk Drive
- Fanless cooling system
- USB Ports for connecting Keyboards and Mice
- Ethernet Port for Receiving Networked Data and Video

1.4 DSM800 Accessories

Maretron offers the following accessories for the DSM800:

- MAFLPK-12 Panel Mounting Kit
- MAFLWK-12 Wall Mounting Kit
- DC/DC-01 60 W DC/DC 9-30 VDC input power adapter:

1.5 Quick Install

Installing the Maretron DSM800 display involves the following five steps. Please refer to the individual sections for additional details.

- Unpacking the Box (Section 2.1)
- Choosing a Mounting Location (Section 2.2)
- Mounting the DSM800 (Section 2.3)
- Connecting the DSM800 (Section 2.4)
- Configuring the DSM800 (Section 2.5)

2 Installation

2.1 Unpacking the Box

When unpacking the box containing the Maretron DSM800, you should find the following items:

- 1 – DSM800 Vessel Monitoring and Control Indoor Display
- 1 – 63000-FSP0481AC101C-RS AC Power Adapter
- 1 – 32000-000002-RS AC Power Cord
- 1 - 12VDC Pigtail (90° Connector)
- 1 – 44013-030041-RS Screw Kit
- 1 – XTR103-0002-RS Touch Pen
- 1 – DSM800 User's Manual
- 1 – N2KView® Documentation CD-ROM
- 1 – Warranty Registration Card

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

2.2 Choosing a Mounting Location

The DSM800 front panel is splash proof (IEC IP64 rating – protected against the effects of splashed water). , Although the front panel is splash proof, the display panel is intended for indoor use only (it is not day light or sun light readable), so the DSM800 should be mounted in an indoor location.

2.3 Mounting the DSM800

The DSM800 has three mounting options, which include:

- wall mounting (if access to the backside of the mounting surface is not available, requires purchase of MAFLWK-12 wall mounting Kit accessory),
- panel mounting (requires purchase of optional MAFLPK-12 Panel Mounting Kit accessory)
- arm mounting (requires purchase of a VESA 75mm mounting arm)

Maretron suggests a location at which the display can be viewed from a relatively straight angle.

2.3.1 Wall Mounting

To mount the DSM800 using the optional wall mounting kit (Maretron part number MAFLWK-12), please follow the steps below:

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four screw holes in the bracket on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (see Figure 2).

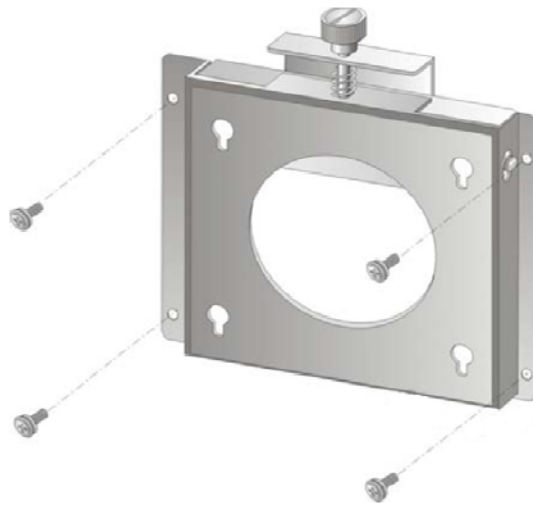


Figure 2 – Wall Mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the rear panel of the DSM800 and tighten until the screw shank is secured against the rear panel (Figure 3).

Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (Figure 3). Ensure that all four of the mounting screws fit snugly into their respective slotted holes.

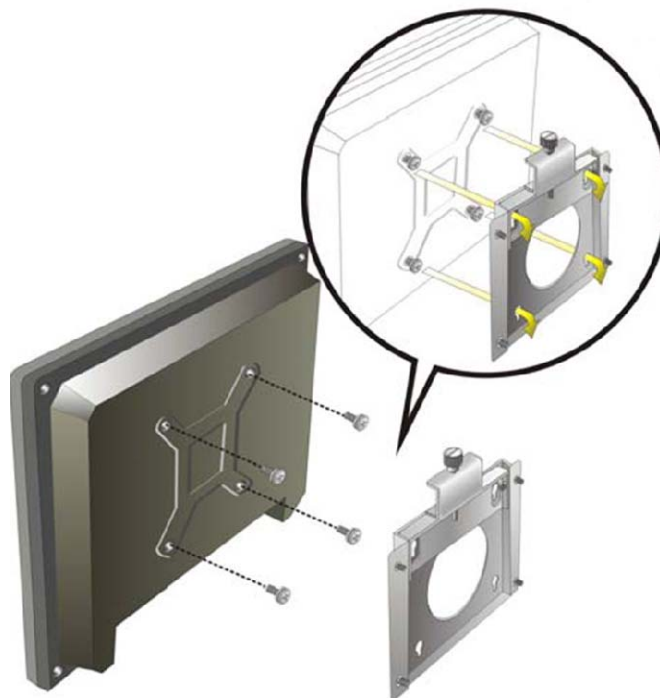


Figure 3 – Chassis Support Screws

Step 9: Secure the DSM800 by fastening the retention screw of the wall-mounting bracket. (Figure 4).

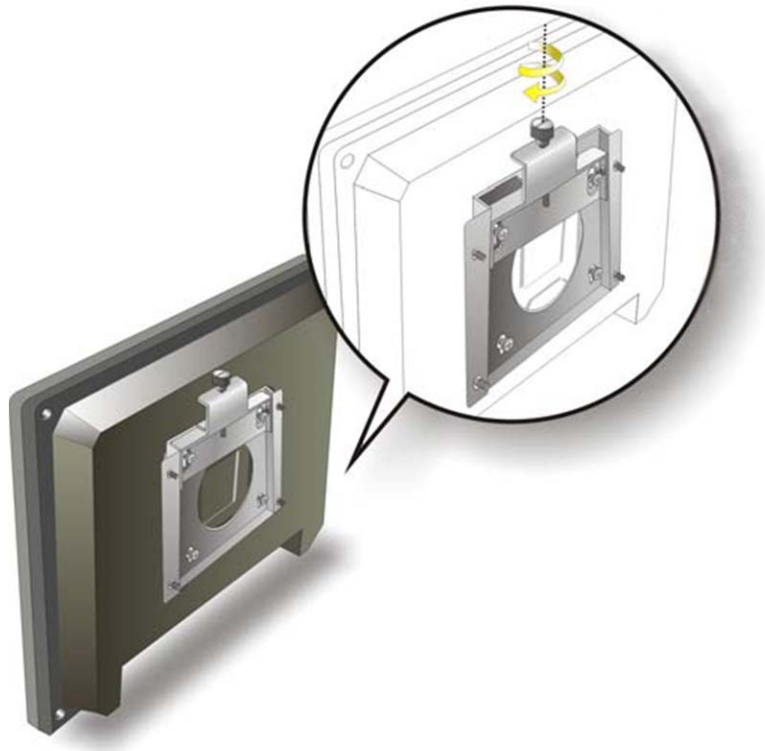


Figure 4 – Secure the DSM800

2.3.2 Panel Mounting

To mount the DSM800 using the optional panel mounting kit (Maretron part number MAFLPK-12), please follow the steps below. Please note that the clamps found within the panel mounting kit support a maximum panel thickness of 3/8" or 0.375".

Step 1: Select the position on the panel to mount the DSM800.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the DSM800. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the DSM800 but just large enough for the rear panel of the DSM800 to fit through (Figure 5).

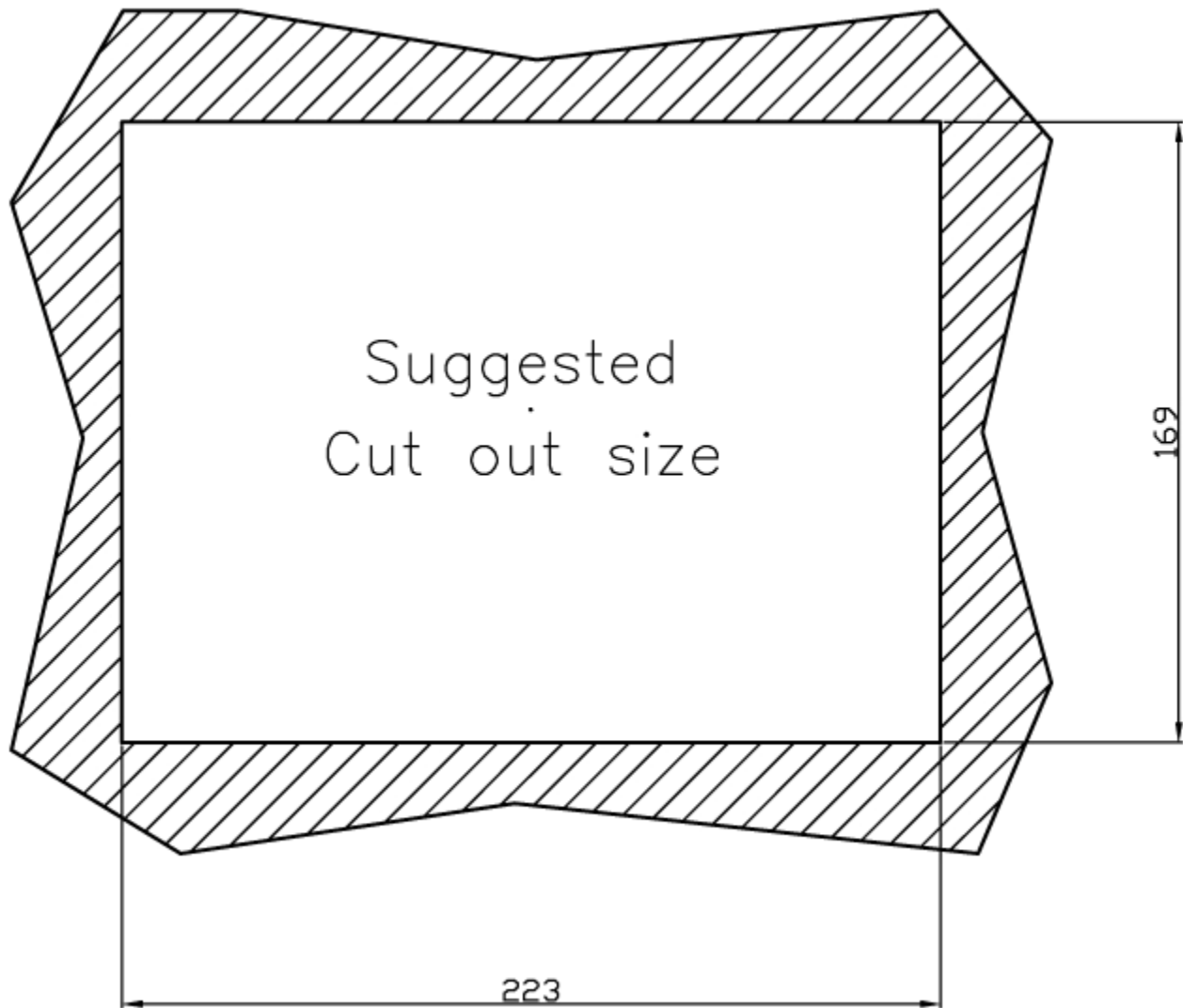


Figure 5 – DSM800 Cutout Dimensions (units in mm)

- Step 3:** Slide the DSM800 through the hole until the aluminum frame is flush against the panel.
- Step 4:** Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the aluminum frame (6 clamps come with the optional panel mount kit, 4 clamps are used, and two are extras).
- Step 5:** Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (Figure 6).

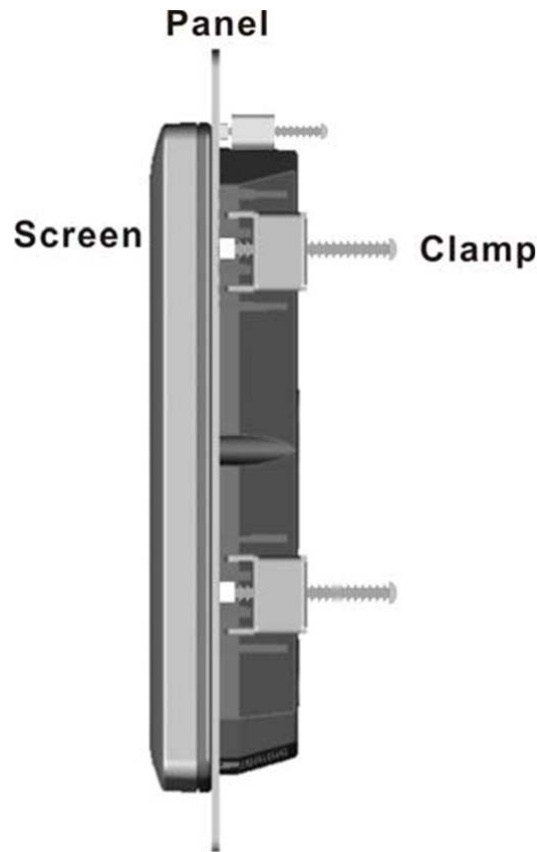


Figure 6 – Tighten the Panel Mounting Clamp Screws

2.3.3 Arm Mounting



NOTE

When purchasing a mounting arm please ensure that it is VESA compliant and that the arm has a 75 mm interface pad. If it is not VESA compliant, it cannot be used to support the DSM800.

The DSM800 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75mm interface pad. To mount the DSM800 on an arm, please follow the steps below.

- Step 1:** Please correctly mount the arm onto the base surface. To do this, refer to the installation documentation that came with the mounting arm.
- Step 2:** Once the mounting arm has been firmly attached to the base surface, lift the DSM800 onto the interface pad of the mounting arm.
- Step 3:** Align the retention screw holes on the mounting arm interface with those in the DSM800. The arm mount retention screw holes are shown in Figure 7.
- Step 4:** Secure the DSM800 to the interface pad by inserting the retention screws through the bottom of the mounting arm interface pad and into the DSM800.

VESA mount screw holes



Figure 7 – DSM800 Arm Mounting Retention Screw Holes

2.4 Connecting the DSM800

All I/O interface connections of the DSM800 are found on the bottom panel. The I/O interface panel located on the bottom of the DSM800 has the following I/O interface connectors:

- 1 x 12 V DC Power input connector
- 1 x Audio line-out jack
- 1 x Power switch
- 1 x Reset button
- 1 x RJ-45 Gigabit Ethernet LAN port
- 2 x USB 2.0 connectors

The external I/O interface connector panel is shown in Figure 8.

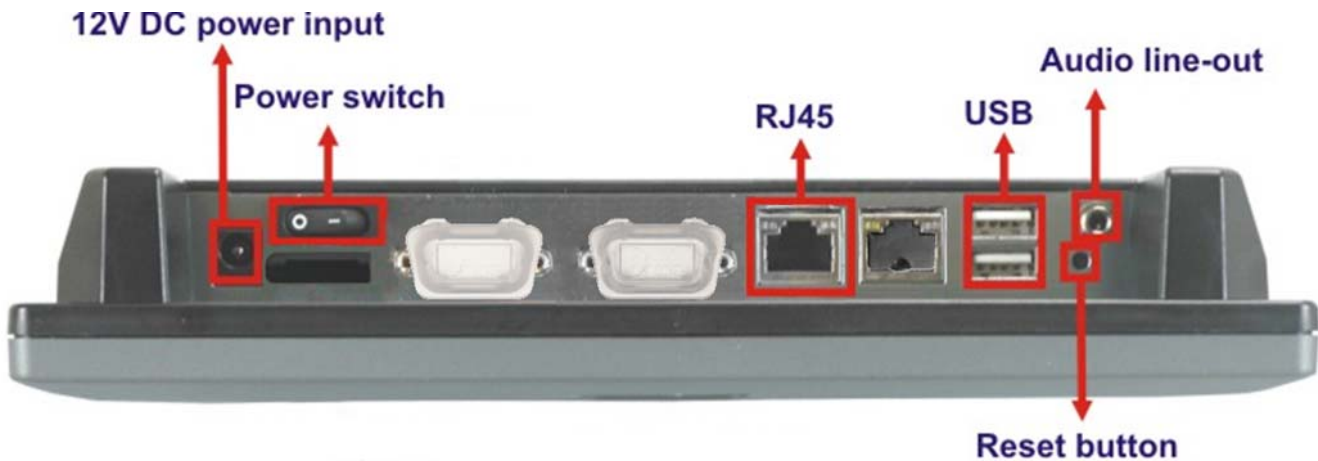


Figure 8 – DSM800 Interface Connector Panel

2.4.1 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 the RJ-45 connector on the bottom panel of the DSM800 Series.

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 DSM800. See **Figure 9**.

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.

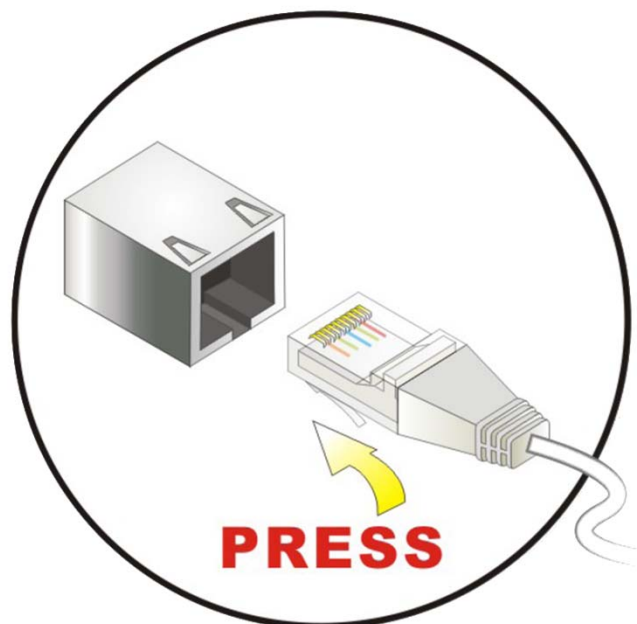


Figure 9 – LAN Connection

2.4.2 USB Device Connection

There are two external USB 2.0 connectors. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: Locate the USB connectors. The locations of the USB connectors are shown in Figure 8.

Step 2: Align the connectors. Align the USB device connector with one of the connectors on the bottom panel. See Figure 10.

Step 3: Insert the device connector. Once aligned, gently insert the USB device connector into the onboard connector.

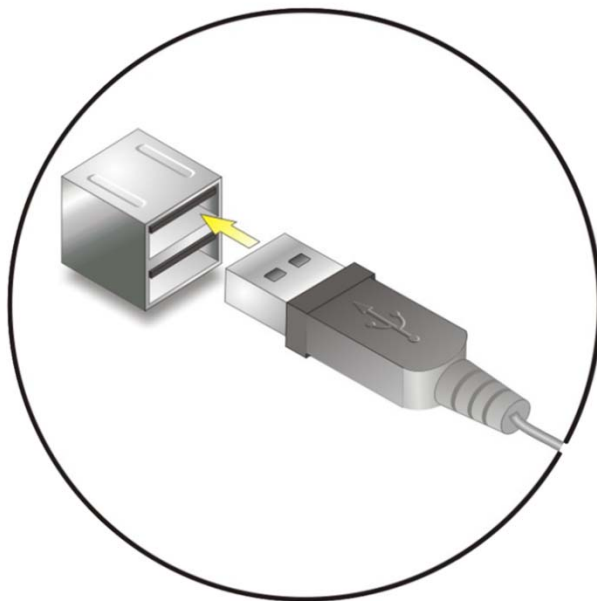


Figure 10 – USB Device Connection

2.4.3 Power Connection

The DSM800 can be connected to a power source in one of three ways (over current protection should be provided and should be sized in accordance with ABYC E-11, AC and DC ELECTRICAL SYSTEMS ON BOATS);

- 1) Directly with 10-14VDC power source using the 12VDC pigtail (90° connector) supplied in the box.
 - a) Connect the wire with writing along the entire length to the negative supply,
 - b) Connect the wire with the white dash along the entire length to the positive supply,
 - c) Plug the 90° connector into the DSM800's 12VDC power input connector.
- 2) Indirectly with 100-240VAC 50-60Hz power source using the AC power adapter and the AC power cord supplied in the box.
 - a) Connect the AC power cord to the AC power adapter,
 - b) Connect the AC power cord to the AC power outlet,
 - c) Connect the 12VDC connector from the AC power adapter to the DSM800's 12VDC power input connector.
- 3) Directly with a 9-32VDC power source using the optional DC/DC power adapter (Maretron Part No. DC/DC-01).
 - a) Connect the 9-32VDC input wires of the DC/DC power adapter to the 9-32VDC supply,
 - b) Connect the 12VDC output connector from the DC/DC power adapter to the DSM800's 12VDC power input connector

2.4.4 Power Sequencing

When the DSM800 is connected to an appropriate power source, you can use the power switch located on the back panel (see Figure 8) to turn the DSM800 on or off. If the DSM800 is turned on, then the LED found on the front panel will be illuminated blue. If the power switch is pushed to power down the DSM800, the LED will be illuminated yellow.

The DSM800 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 DSM800, it will turn on.

2.5 Configuring the DSM800

In order to use the DSM800, you must already have N2KServer® installed and running on either a Windows PC or on a Maretron IPG100 Internet Protocol Gateway.

You must also have some information as to the configuration of your local area network.

The DSM800 will start up with the following warning screen:

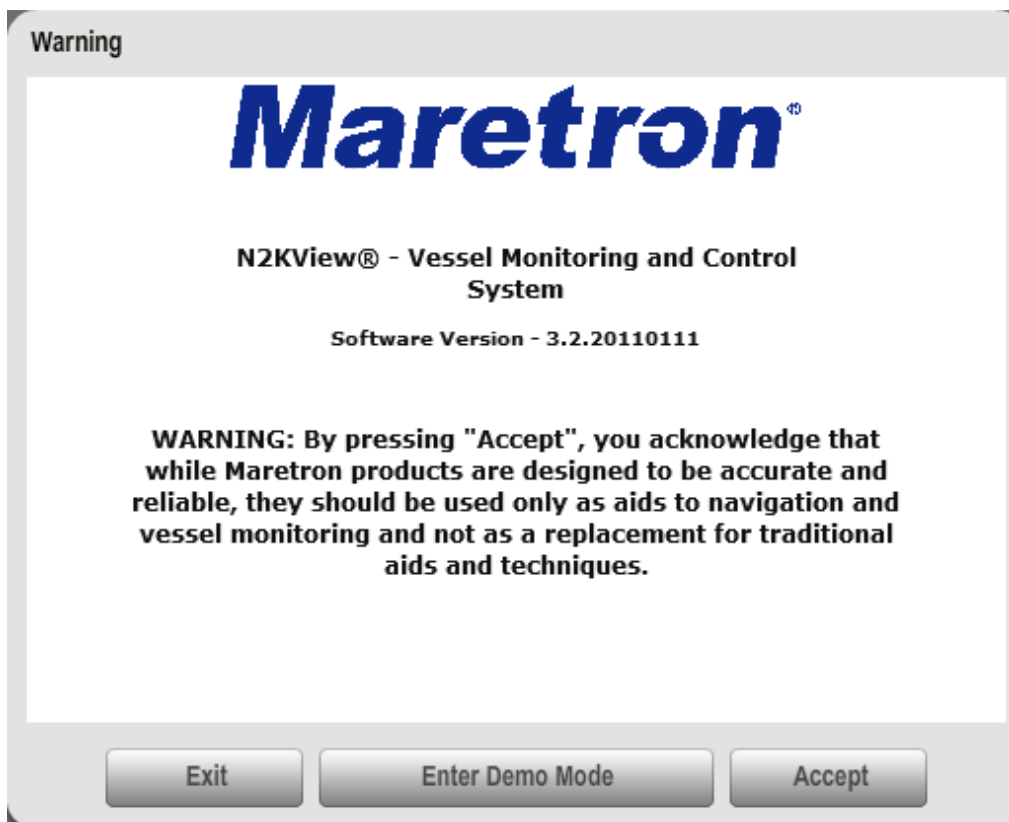


Figure 11 – DSM800 Startup Screen

You are required to press **Accept** and thereby acknowledge this warning message before N2KView® will run in Live Mode.

Alternatively, you may **Enter Demo Mode**. In Demo Mode, you will not be able to connect to a Server and view live data; instead simulated data will be provided to stimulate the controls.

The first time you start the DSM800, you must ensure that the device can connect to your LAN (local area network). The DSM800 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 DSM800 should be able to successfully connect to the local area network.

2.5.1 Manually Entering LAN Connection Information

If your local area network does not use DHCP, you must manually enter the LAN connection information into the DSM800. This is done through the following steps:

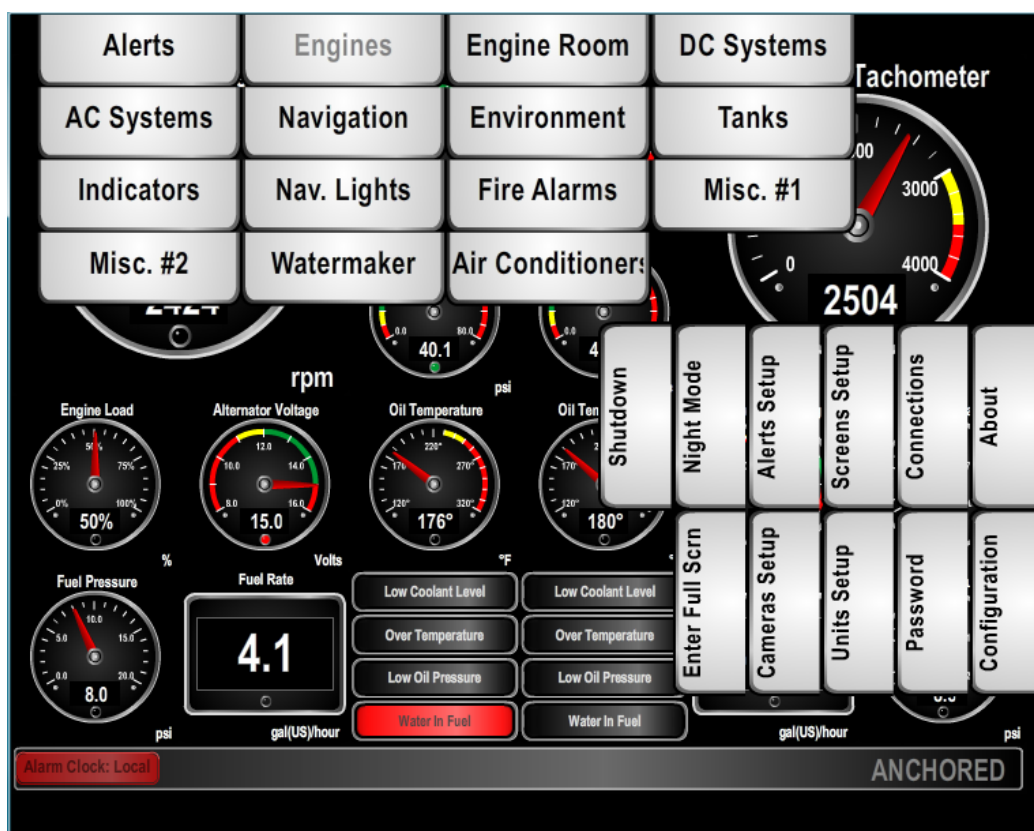


Figure 12 – N2KView® Window with Tabs Displayed

- Click anywhere inside the N2KView® screen to display the screen tabs as shown in Figure 12 above.
- Click on the **“Configuration”** tab on the right side of the N2KView® screen to display the Configuration dialog.

The Configuration Dialog window is divided into three main sections:

- Configuration:** Contains fields for 'Label' (Helm) and 'Filename' (demo.n2kview-config), with 'Load' and 'Save' buttons.
- Network Configuration:** Contains a 'Use DHCP' checkbox (checked), 'Hostname' (N2KView), 'IP Address' (127.0.0.1), 'Netmask' (255.255.255.0), 'Gateway', and 'Name Server' fields, with an 'Update' button.
- Screen Configuration:** Contains an 'Enable Screen Blanking' checkbox (unchecked), a 'Delay Before Screen Blanks' field (12:00), and an 'Update' button.

At the bottom of the dialog are buttons for 'Pair Bluetooth Device', 'Calibrate Touch Screen', and 'Close'.

Figure 13 – Configuration Dialog

- c. Uncheck the “**Use DHCP**” box to indicate that your LAN does not use DHCP.
- d. In the “**IP Address**” field, enter the IP address you wish to assign to the DSM800.
- e. In the “**Netmask**” field, enter the netmask value used on your LAN (in most cases, this value will be “255.255.255.0”).
- f. In the “**Gateway**” field, enter the IP address of the default gateway of your LAN.
- g. In the “**Name Server**” field, enter the IP address of a DNS (Dynamic Name Service) Server used on your LAN.
- h. Click the “**Update**” button to make these changes permanent. The screen will go blank for a few seconds while this is being done.

2.5.2 Entering N2KServer® or IPG100 Connection Information

Once the DSM800 has been properly configured to connect to your LAN, you must configure the connection to enable the DSM800 to receive information from an instance of N2KServer® or an IPG100 Server. This is done through the following steps:

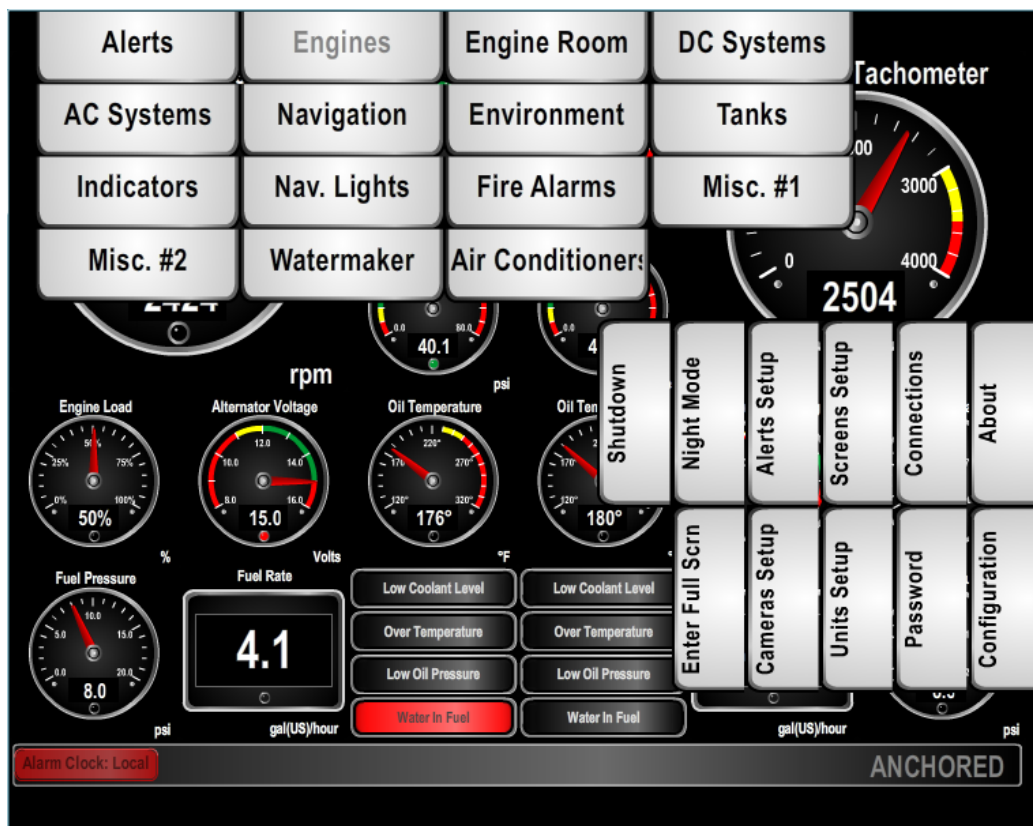


Figure 14 – N2KView® Window with Tabs Displayed

- Click anywhere inside the N2KView® screen to display the screen tabs as shown in Figure 14 above.
- Click on the **“Connections”** tab on the right side of the N2KView® screen to display the Connections Settings dialog.

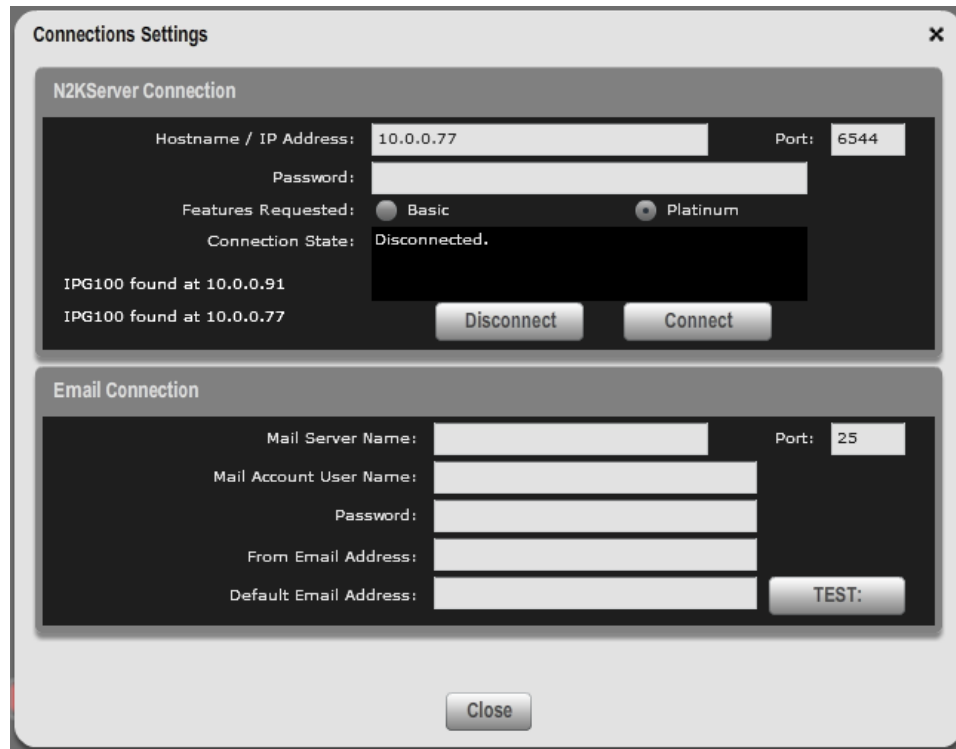


Figure 15 – Connections Settings Dialog

- c. Ensure that N2KView® is not connected to a N2KServer® by pressing the “**Disconnect**” button. While N2KView® is connected you are not able to edit fields.
- d. In the “**Hostname / IP Address:**” text box, enter the IP address of the computer or IPG100 running N2KServer®. If your DSM800 configuration has been programmed to match your LAN, the left side of the N2KServer® Connection window will display the address of any N2KServer® running on a PC or IPG100’s found on the LAN.
- e. Leave the “**Port:**” setting at the initial value of “6544” unless the router between N2KView® and N2KServer® has been set up to do port translation.
- f. In the “**Password:**” text box, enter the same server password that you entered into the N2KServer® Service Manager (for N2KServer® running on a PC), or programmed into the IPG100.
- g. If you have purchased the Platinum Edition of N2KView® and wish to use all of the Platinum Edition features, select “Platinum” from “Features Requested:”. If you have purchased the Basic Edition of N2KView® or you wish to use only the BasicEdition subset of features of N2KView® (leaving the Platinum Edition features available for another copy of N2KView®), select “Basic” from “**Features Requested:**”.
- h. Click “**Connect**”. The “**Connection State:**” part of the window will blink “Connecting...” for a few seconds. It will then either display “Connected” if the connection was successfully made, or display a message indicating that the connection was not made and suggesting further action to take.

If no data is displayed, please check the following:

1. Make sure the “**Server Password**” entered in N2KView[®] matches the “**Server Password**” entered into the N2KServer[®] Service Manager on the computer running N2KServer[®], or the IPG100, as appropriate. If the server is running on an IPG100, the password in the IPG100 is set from a DSM250 or N2KAnalyzer[®].
2. Make sure the “**Server Address**” matches the IP address of the computer or IPG100 running N2KServer[®].
3. Make sure you have appropriate instruments on the NMEA 2000[®] network to provide the data you are trying to view on the N2KView[®] screen. (To test the network connection between N2KView[®] and the N2KServer[®], you may wish to run N2KServer[®] in “**Simulated Data**” mode).
4. Make sure that the instances that are being monitored correspond to the instances being transmitted. You can set the instance number of the component to “Any” to make sure that there is any data of that type on the bus.

3 Operating the DSM800

3.1 Turning the DSM800 On

To turn on the DSM800 when the front panel LED is illuminated yellow, press the power rocker switch, located underneath the DSM800 on the right hand side of the unit, behind the LCD screen. To turn on the DSM800 when the front panel LED is not illuminated, turn on the power from the external breaker or switch.

3.2 Turning the DSM800 Off

To turn the DSM800 off, use the “Shutdown” administrative tab of the N2KView® software. Alternatively, you can power down the unit by pressing the DSM800’s power rocker switch. Lastly, you can power down the unit by turning of the power source with an external breaker or external switch.

3.3 Using the DSM800

The DSM800 runs a fully functional version of the Maretron N2KView® software. Please refer to the *N2KView® User’s Manual*, included with the DSM800, for detailed operating instructions.

4 Maintenance

Regular maintenance is important to ensure continued proper operation of the Maretron DSM800. 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 DSM800 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 DSM800.
- 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 DSM800 and tighten if necessary.

5 Troubleshooting

If you notice unexpected operation of the Maretron DSM800, follow the troubleshooting procedures in this section to remedy simple problems.

Symptom	Troubleshooting Procedure
No activity on the display	Check the connection to the power and network connectors and tighten if necessary Ensure that power is supplied to the connected power cable. Press the power switch located on the underside of the device on the right-hand side of the unit behind the LCD screen.
Other Issues	Please refer to the Troubleshooting section of the <i>N2KView® User's Manual</i> .

If these steps do not solve your problem, please contact Maretron Technical Support (refer to Section 7 for contact information).

Warning: There are no user-serviceable components inside the Maretron DSM800. Opening the DSM800 will expose the sensitive electronic components to adverse environmental conditions that may render the unit inoperative. Please do not open the DSM800, as this will automatically void the warranty. If service is required, please return the unit to an authorized Maretron service location.

6 Technical Specifications

Specifications

Parameter	Value	Comment
Display Size	8"	LED Backlit LCD with Resistive Touch Screen
Display Resolution	800x600	Pixel count
Display Brightness	300cd/m ²	
Contrast Ratio	400:1	
LCD Color	262K	
Viewing Angle	130° H 120° V	
Backlight MTBF	30,000 hours	
USB Ports	Two USB 2.0	
Ethernet Ports	One RJ-45 GbE	For connection to Maretron IPG100 and/or router
Audio Connection	One Speaker Output	

Approvals

Parameter	Comment
FCC, CE, CB, CCC	

Electrical

Parameter	Value	Comment
Operating Voltage	10-14 Volts	DC Voltage (9-30 VDC with optional DC/DC adapter)
Power Consumption (Maximum)	25 Watts	

Mechanical

Parameter	Value	Comment
Overall Dimensions (DxWxH)	1.69" x 9.21" x 6.97" (43mm x 234mm x 177mm)	
Weight	1.76 lbs (.8kg)	
Front Panel Material	ABS Plastic	
Mounting	Wall, Rack, Stand, ARM, VESA,	75mm x 75mm

Environmental

Parameter	Value
Operating Temperature	-10°C to 50°C
Storage Temperature	-10°C to 60°C

7 Technical Support

If you require technical support for Maretron products, you can reach us in any of the following ways:

Telephone: 1-866-550-9100
Fax: 1-602-861-1777
E-mail: support@maretron.com
World Wide Web: <http://www.maretron.com>
Mail: Maretron, LLP
Attn: Technical Support
9014 N. 23rd Ave Suite 10
Phoenix, AZ 85021 USA

8 Maretron (1 Year) Limited Warranty

Maretron warrants the DSM800 to be free from defects in materials and workmanship for one (1) year from the date of original purchase. If within the applicable period any such products shall be proved to Maretron's satisfaction to fail to meet the above limited warranty, such products shall be repaired or replaced at Maretron's option. Purchaser's exclusive remedy and Maretron's sole obligation hereunder, provided product is returned pursuant to the return requirements below, shall be limited to the repair or replacement, at Maretron's option, of any product not meeting the above limited warranty and which is returned to Maretron; or if Maretron is unable to deliver a replacement that is free from defects in materials or workmanship, Purchaser's payment for such product will be refunded. Maretron assumes no liability whatsoever for expenses of removing any defective product or part or for installing the repaired product or part or a replacement therefore or for any loss or damage to equipment in connection with which Maretron's products or parts shall be used. With respect to products not manufactured by Maretron, Maretron's warranty obligation shall in all respects conform to and be limited to the warranty actually extended to Maretron by its supplier. The foregoing warranties shall not apply with respect to products subjected to negligence, misuse, misapplication, accident, damages by circumstances beyond Maretron's control, to improper installation, operation, maintenance, or storage, or to other than normal use or service.

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Maretron does not warrant that the functions contained in any software programs or products will meet purchaser's requirements or that the operation of the software programs or products will be uninterrupted or error free. Purchaser assumes responsibility for the selection of the software programs or products to achieve the intended results, and for the installation, use and results obtained from said programs or products. No specifications, samples, descriptions, or illustrations provided Maretron to Purchaser, whether directly, in trade literature, brochures or other documentation shall be construed as warranties of any kind, and any failure to conform with such specifications, samples, descriptions, or illustrations shall not constitute any breach of Maretron's limited warranty.

Warranty Return Procedure:

To apply for warranty claims, contact Maretron or one of its dealers to describe the problem and determine the appropriate course of action. If a return is necessary, place the product in its original packaging together with proof of purchase and send to an Authorized Maretron Service Location. You are responsible for all shipping and insurance charges. Maretron will return the replaced or repaired product with all shipping and handling prepaid except for requests requiring expedited shipping (i.e. overnight shipments). Failure to follow this warranty return procedure could result in the product's warranty becoming null and void.

Maretron reserves the right to modify or replace, at its sole discretion, without prior notification, the warranty listed above. To obtain a copy of the then current warranty policy, please go to the following web page:

<http://www.maretron.com/company/warranty.php>