VEETHREE M2

With
Veethree Engine Monitor
Software

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1. INTRODUCTION

Thank you for choosing the Veethree M2 monochrome display.

These pages provide a brief introduction to the Veethree M2 display, but more importantly the recommended installation instructions. This display comes installed with Veethree Engine Monitor (VEM) software which displays J1939-compatible engine/transmission data. Please read through the guide before use.

The VEM software creates graphical instrument clusters to display parameters and alarms - providing users with a time-saving solution for introducing equipment incorporating higher degrees of electronic display.

We hope that you will be pleased with this product and that you will have many years of trouble free operation. If you have any problems or ideas for improvement then we would like to hear from you.

www.veethree.com

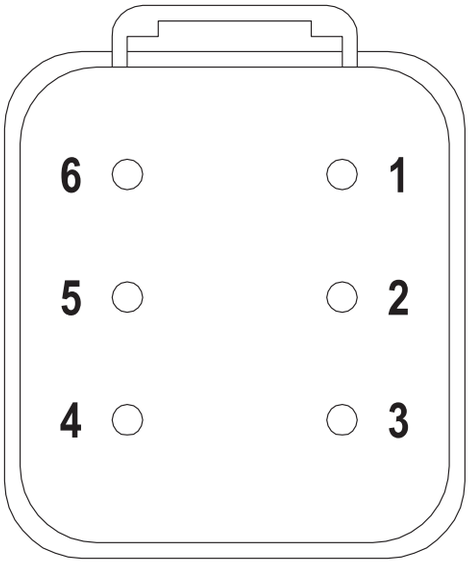
2. THE VEETHREE M2 PLATFORM

The Veethree M2 display is a compact platform that is large enough to support monitoring and diagnostic data available on the latest generation of electronically controlled systems.

The display offers 4 soft keys, 128 x 64 pixel display area, and 4 warning lights to signify engine fault/failure. It offers a Deutsch connector interface and a Mini USB port. Fully sealed to IP 66 (front) and IP 67 (back) with Deutsch connector and rubber USB port plug inserted.

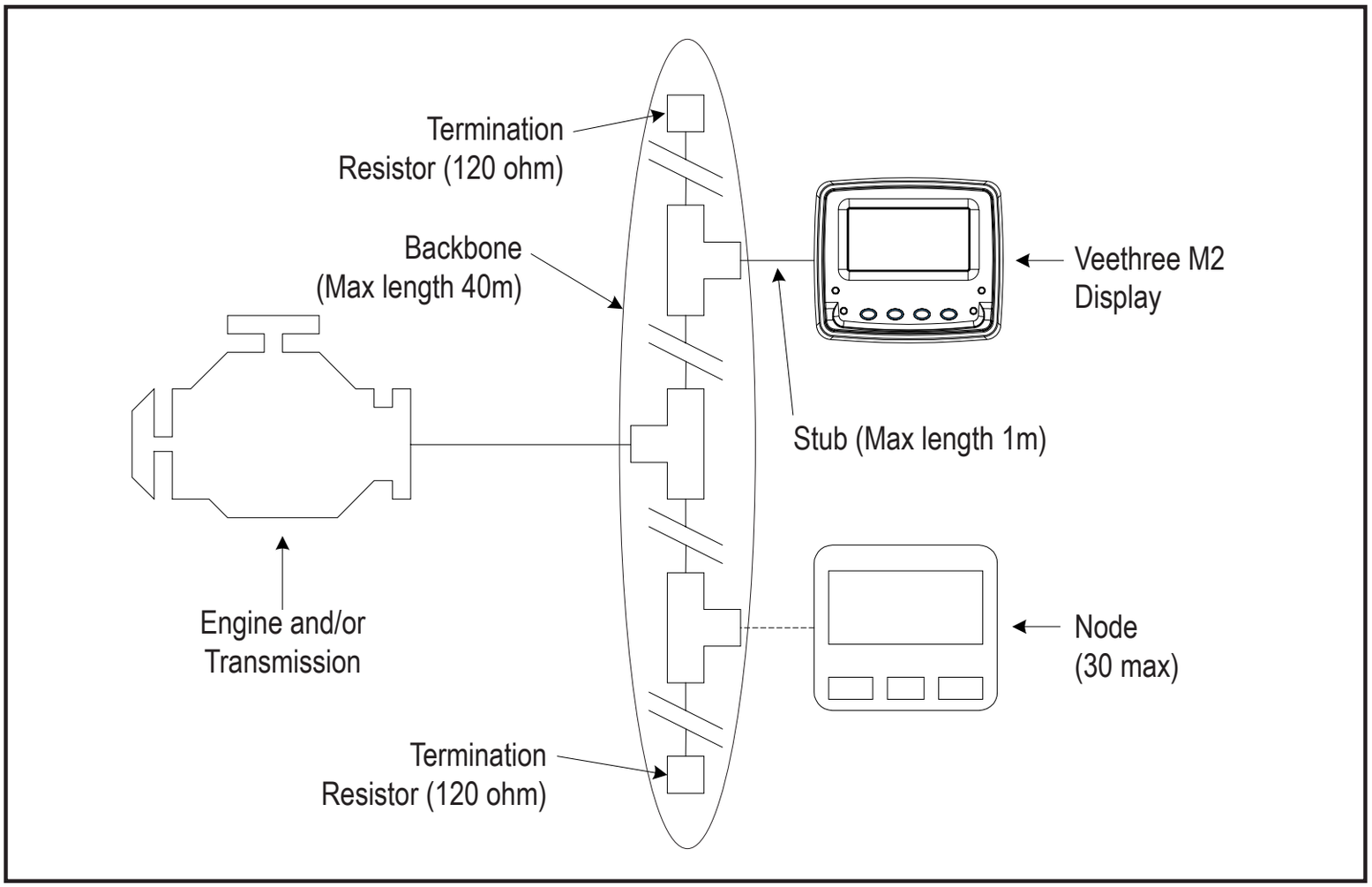
3. VEETHREE M2 CONNECTION DATA

The Veethree M2 display interfaces to data via the Deutsch DT04-6P connector on the rear of the display - wired as shown (see pin out diagram).

Connector pin out		Signal	Notes
	1	Power (-)	Ground and power (10-32VDC) Supply should be protected by 500mA-rated circuit breaker/fuse
	2	Power (+)	
	3	CAN H	Primary CAN Data High
	4	CAN L	Primary CAN Data Low
	5	Alarm Output	Low Side Relay Switch to Ground
	6	AN	Analog Input

4. TYPICAL J1939 WIRING TOPOLOGY

Most modern engine installations include a harness with built-in J1939 backbone, (check engine manufacturer's documentation). If not, it is critical to use twisted shielded pair with a drain wire (max length 40m) terminated with 120 ohm resistors at each end. In addition, all stubs should not exceed 1m in length, and a maximum of 30 nodes.



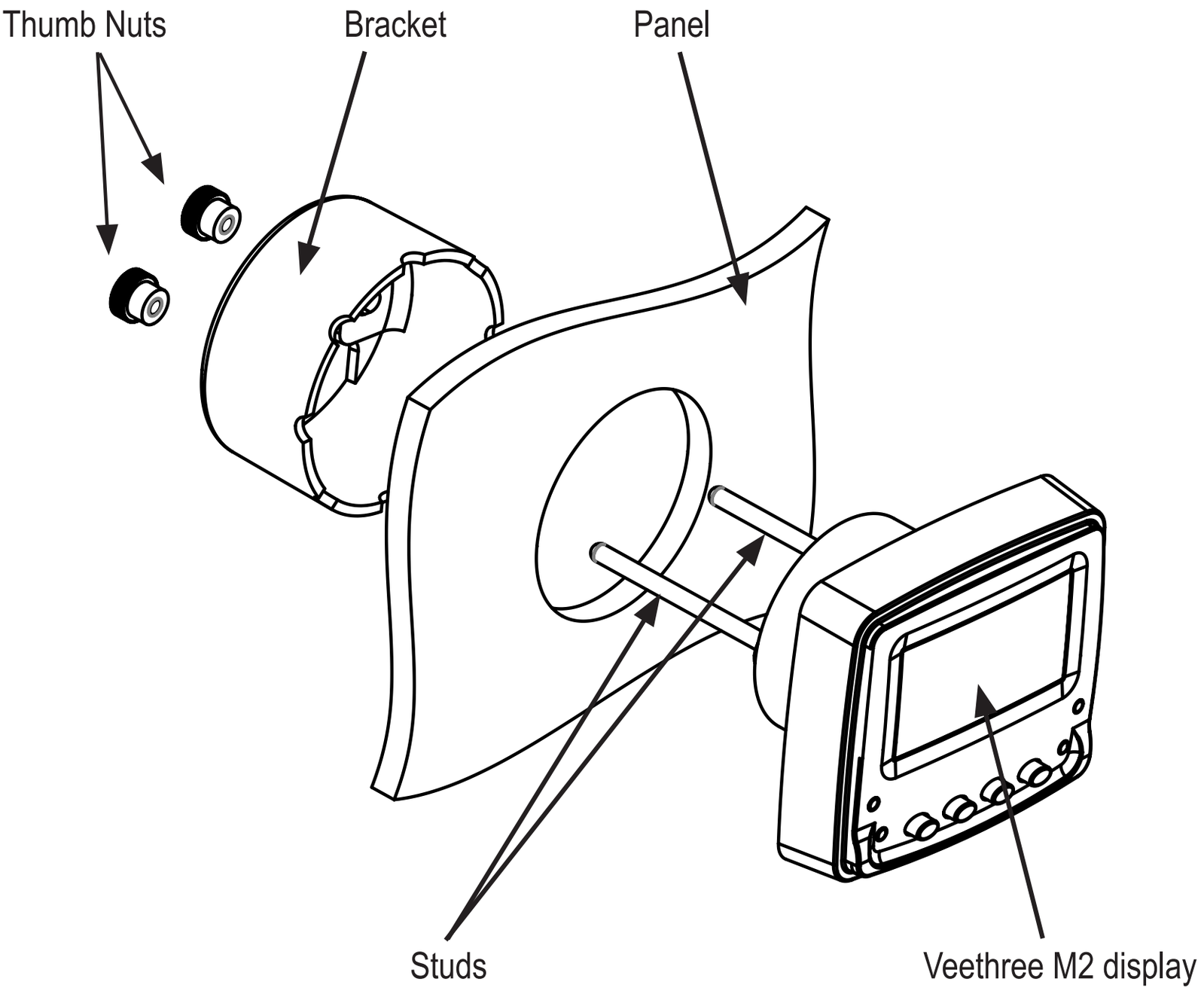
5. VEETHREE M2 INSTALLATION

Units are designed to be mounted onto a bulkhead, dashboard, or panel. The method is described below. The only required components are the mounting bracket and hardware that are supplied with every Veethree M2 display unit.

Instructions:

- Decide on a location.
- Allow adequate clearance behind the display for cable connections. This is to ensure that the cables are not unduly stressed and for ventilation. Leave sufficient cable so that the unit may be removed for servicing.
  Cut a 2 inch (51 mm) hole.
- Screw the studs into rear case.
- Place the Veethree M2 display in position, use the mounting bracket and thumb nuts to secure the unit. The thumb nuts should only be hand tight.
- Connect the Deutsch mating part into the housing.

WARNING: *Do not over tighten the studs/thumb nuts and don't use metal screws as they may damage the unit and void the warranty.*



Unit mounting method

6. MAINTENANCE AND TROUBLESHOOTING

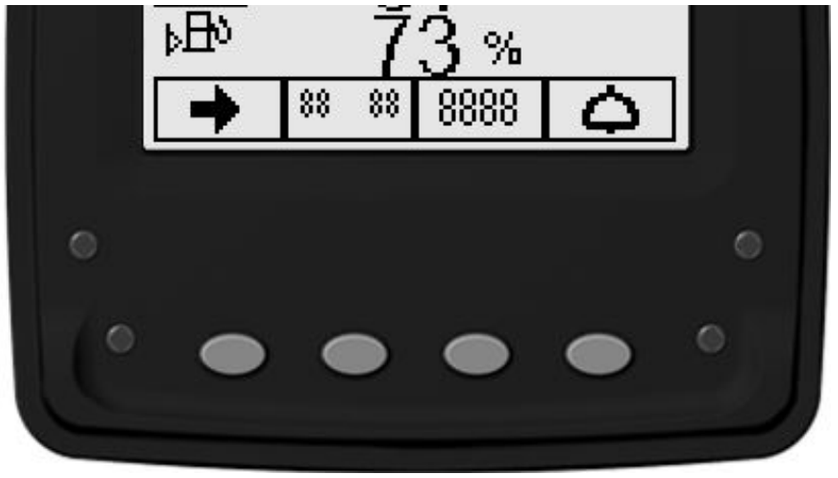
No regular maintenance is required, except for cleaning the Veethree M2 display lens as required, using a soft, damp cloth. Do not use abrasive materials or solvents.

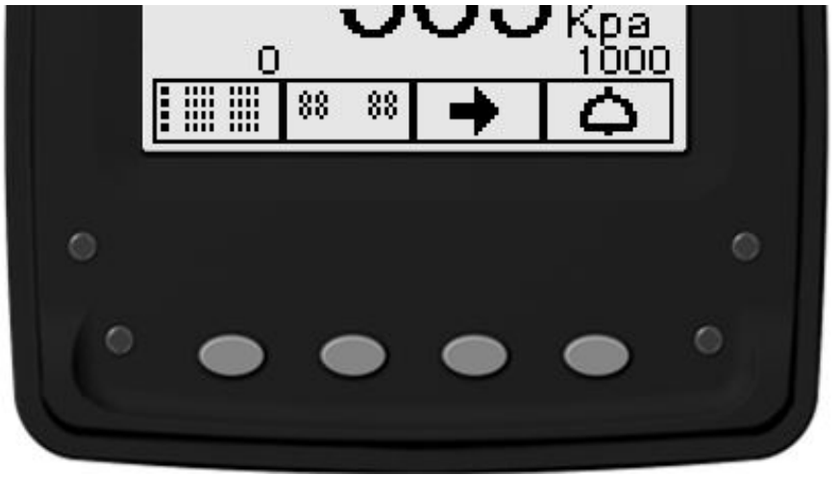
If you are experiencing operating problems with Veethree M2 display please refer to the following diagnostics:

Problem	Possible solution
Unit does not power up	• Ensure connections to unit are correct. • Ensure power source is present.
Unit fails to display any data	• Ensure connections to unit are correct. • Ensure data source is broadcasting data. • Ensure source address in the display matches source data being provided by the engine and/or transmission. • Ensure the J1939 backbone is connected and terminating resistors are in place.
Unit displays random data	• Ensure connections to unit are correct. • Ensure demo mode is off.

7. HOME SCREEN

There are 3 main user screens accessed via the first three keys. The keys have icons to represent the screen view types, as follows.





Key 1 is a quad gauge view, pressing Key 1 repeatedly will cycle through available quad screens (4 screen max).

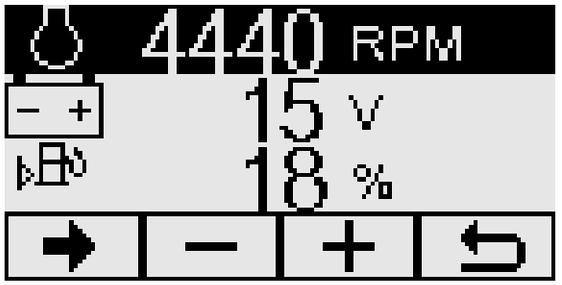
Key 2 is a dual gauge view, pressing Key 2 repeatedly will cycle through available dual screens (4 screen max).

Key 3 is a single gauge view, pressing Key 3 repeatedly will cycle through available single screens (4 screen max).

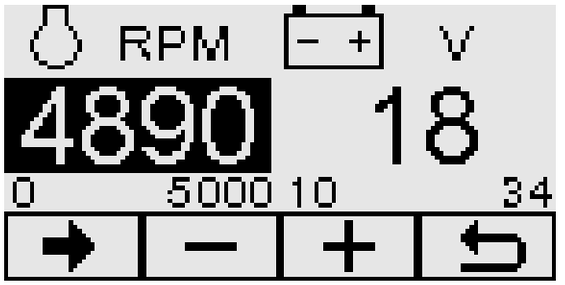
NOTE: Number of available screens can be adjusted to 2, 3, or 4 screens for each option.

The information that is displayed on the quad, dual, and single screens can be selected and arranged for better viewing by the operator. Once in the desired gauge view (quad, dual, single), press and hold the Key for that view.

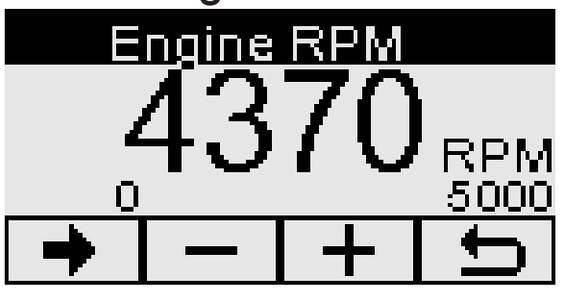
Quad Screen



Dual Screen



Single Screen



Once the contrast changes use appropriate keys to change available information.

Key highlights the data to be changed.

Key selects previous parameter.

Key selects next parameter.

Key exits adjust screen (auto timeout approx 30 sec).

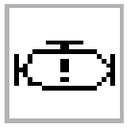
All available screens can be adjusted in this manner.

NOTE: Bar graph is only available on the dual and single screens, both the minimum and maximum values can be adjusted.

8. ALARM SCREEN

When an alarm condition exists, the information is sent from the engine and/or transmission, the information will be displayed via alarm icons, LED's, and internal alarm buzzer (and external if connected).

Check Engine - Alarm will sound along with Orange LED's.



Stop Engine - Alarm will sound along with Red LED's.

To acknowledge the alarm press Key 4 to access alarm screen and then Key 3 to silence the alarm. Pressing Key 4 again will exit alarm screen.

The alarm icons and LEDs will continue to flash until the alarm condition is resolved and alarm clear command is received from the engine and/or transmission.

9. MAIN MENU

To access the Main Menu of the Veethree M2 display, press and hold Key 4 when at the home screen. Once in the menu use Key 1 and 2 to navigate selections, Key 3 to enter selection, and Key 4 to go back.

- Tier 4 Control - At this screen the user can change Tier 4 modes.

NOTE: *Please refer to engine manual for further information regarding actions required for Tier 4 engines.*

- Lighting Contrast - Used to control the LCD back-light, contrast, and button back-light.
- Settings - Language and Key Tone options can be found here.
- Protected Settings - To access Protected Settings use PIN 1234. In the Protected Settings, the user can change the units, access Demo Mode, J1939 settings, Service Hours, IO Setup, Restore Defaults, select Max Quad,
- Dual, and Single screens.
- Diagnostics - Used to access Data Viewer and CAN Diagnostics.
- About - Displays software information.

10. GLOSSARY

CAN	Controller Area Network (also referred to as CAN bus); serial communication protocol for automotive use
Veethree M2	Intelligent CAN-compatible LCD display module
VEM	Veethree Engine Monitor
LCD	Liquid Crystal Display
Soft keys	Push-button keys whose function changes according to use

11. ALARM SCREEN

Under no circumstances shall Veethree or any of its subsidiary companies accept liability for any loss of data, income, incidental damage, or consequential losses incurred as a result of the use of the product, howsoever caused when used as a monitor for electronically controlled engines/transmission or other systems.

- Veethree operates a policy of continuous improvement. Veethree reserves the right to alter and improve the Veethree M2 displays and software without prior notice.

CE EMC Directive 2004/108/EC

This product has been designed to be compliant with this directive. Compliance can only be ensured by correct installation.

Veethree Electronics and Marine LLC
2050 47th Terrace East, Bradenton, Florida 34203 USA
www.veethree.com | 1-941-536-7775 | Fax: 1-941-755-1222

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