

VaporTEK LED Indicator

Installation Guide

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Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

Veeder-Root must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

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1. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

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For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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Introduction

Purpose

Use this document either to install a VaporTEK LED Indicator or to replace an existing VaporTEK LED Indicator. The VaporTEK LED Indicator allows for a visual confirmation of successful or unsuccessful communication between the dispenser and the VaporTEK Vapor Collection System.

The VaporTEK LED Indicator can be installed on any dispenser that is outfitted with a VaporTEK Vapor Recovery System.

Required Components

In addition to the kit listed below (Table 1), an interface connection to the dispenser electronics is required (VaporTEK Interface board with LED, P/N 900630-001, Rev G, Firmware version MUX_1.07_LED_CS_C988.mot).

Table 1.- Kit, VAPORTEK Tricolor LED, P/N 900872-001

Qty.	Description	Part Number
1	Tricolor LED, VAPORTEK	579191-001
1	Cable ASM, VAPORTEK Tricolor LED	900871-001

Safety Symbols

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions.

 EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.	 FLAMMABLE Fuels and their vapors are extremely flammable.
 ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.	 TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.
 WARNING Heed the adjacent instructions to avoid damage to equipment, property, environment or personal injury.	 USE SAFETY BARRICADES Unauthorized people or vehicles in the work area are dangerous. Always use safety cones or barricades, safety tape, and your vehicle to block the work area.
 NO OPEN FLAMES Open flames from matches, lighters, welding torches, etc. can ignite fuels and their vapors.	 NO SMOKING Sparks and embers from burning cigarettes or pipes can ignite fuels and their vapors.

 <p>NO POWER TOOLS Sparks from power tools (such as drills) can ignite fuels and their vapors.</p>	 <p>NO VEHICLES Moving vehicles in the area during service can create a potential for personal injury to you or others. Sparks from starting vehicles can ignite fuels and their vapors.</p>
 <p>WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.</p>	 <p>NO PEOPLE IN THE AREA Unauthorized people in the area during service can create a potential for personal injury to you and them.</p>
 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>	 <p>APPROVED CONTAINERS Use nonbreakable, clearly marked containers, suitable for collecting and transporting hazardous fuels during service.</p>

Read NFPA 30A and NFPA 70

Before installing the equipment, the installer must read, understand and follow applicable information in the following codes:

- The National Electric Code (NFPA 70)
- The Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA 30A)
- Any national, state and local codes that may apply

Failure to install the equipment in accordance with NFPA 30A and NFPA 70 may adversely affect the safe use and operation of the system.

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.

Technician Certification (Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank

VR Vapor Products Certification: Contractors holding a certification with the following designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- ISD – In Station Diagnostics
- PMC – Pressure Management Control
- CCVP - Veeder-Root Vapor Polisher
- Wireless – ISD/PMC Wireless
- A current Veeder-Root Technician Certification is a prerequisite for the VR Vapor Products course.

Warranty Registrations may only be submitted by selected Distributors.

Recommended Tools

- Center punch
- Drill (Use only when at a safe distance away from the fuel island (Forecourt)).
- 8mm Drill Bit
- Marking Pen
- Measuring Tape
- 10mm Wrench

Installation

Before You Begin

1. Read all instructions before beginning.
2. Follow all safety precautions.
 - Barricade area.
 - Do not allow vehicles or unauthorized people in work area.
 - Do not smoke or have open flames in work area.
 - Do not use power tools in work area.
 - Wear protective gear while performing this procedure.
3. Record all electronic and mechanical totals.
4. Turn off, tag and lockout all power to dispenser, dispenser lights and STPs.
 - Use system circuit breakers.
 - Multiple disconnects may be required.
5. Turn off system battery on any dispenser model having a system battery.

Locate The VaporTEK LED Indicator Mounting Hole

1. Open the Side A Electronics Cabinet Door of the dispenser and locate a flat, approximately 25mm diameter area on both the outside and opposite inside of the door that is clear of obstructions. Ideally, the LED indicator should be installed at eye level when standing in front of the dispenser.
2. If necessary, use the measuring tape to precisely determine the mounting hole's position on the door.



3. On the outside of the door, mark the center of the intended mounting hole with the marking pen. (It is preferable to drill the mounting hole from the outside to minimize damage to any front panel paint/graphics.)

Remove The Electronics Cabinet Door

1. After marking the location of the LED indicator's mounting hole, open the Electronics Cabinet Door.

2. Disconnect any wiring attached to the Electronics Cabinet Door.
3. Referring to the dispenser manufacturer's installation manual for details on how to remove the Electronics Cabinet Door, remove the door.
4. Remove any electrical components mounted to the door. Note: Taking a cellphone picture of the door components prior to removing them may aid in their replacement.

⚠ WARNING	
	<p>This product is to be installed in systems operating near locations where highly combustible fuels or vapors may be present.</p> <p>FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.</p> <ol style="list-style-type: none"> 1. Read and follow all instructions in this manual, including all safety warnings to protect yourself and others from serious injury, explosion, or electrical shock. 2. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes. 3. To protect yourself and others from being struck by vehicles, block off your work area during installation or service. 4. Sparks from power tools (such as drills) can ignite fuels and their vapors. 5. Serious fire/explosion and injury/death could result. 6. Do not use power tools in or near the fueling area.

5. **At a safe distance away from the fuel island (forecourt)**, use the center punch to indent the mounting hole mark on the front of the electronics door and then carefully drill a 8mm diameter hole in the center-punched indent.



6. Remove any burrs around hole being careful not to damage the any paint/graphics present on the front of the door.

Installing The VaporTEK LED Indicator

1. Remove Locking Nut and Retaining Ring from VaporTEK LED Indicator, but leave the gasket next to the lens bezel.

- From the outside of the door, Insert the tabbed connector end of the VaporTEK LED Indicator into the mounting hole until the lens bezel and gasket are seated against the door.



- From the inside of the door, install the retaining ring and locking nut onto the threads of the LED Indicator. With the silver tab of the LED connector oriented to the 12 o'clock position, tighten the locking nut with the 10mm wrench until snug (see illustration below).

	<p>Top of Dispenser</p>	
<p>Installing Retaining Ring And Locking Nut</p>	<p>LED Indicator Installed Orientation</p>	<p>Tightening LED Indicator Locknut</p>

- Connect each wire of the harness to the LED Indicator as per the illustration below - red wire connector onto the left brass tab, brown wire connector onto the right brass tab and orange wire connector onto the top tinned tab.

<p>Top of Dispenser</p> <p>Left brass tab (red wire connector)</p> <p>Right brass tab (brown wire connector)</p>	
--	--

Replace Electronics Cabinet Door

1. Replace the Electronics Cabinet Door in the Dispenser by reversing the manufacturer's recommended steps earlier followed to remove it.
2. Reinstall any electronic components taken off Electronics Cabinet Door earlier.
3. Connect the plug end of the VaporTEK LED wiring harness to the side A LED connector on the VaporTEK Interface board in the dispenser's electronics cabinet as shown in the photo below.



Route and fasten excess wire of the wiring harness using cable clamps (not included) as necessary to prevent possible damage to the harness during routine dispenser maintenance.

Installing VaporTEK LED Indicator in Dispenser - Side B

Repeat all of the steps above to install VaporTEK LED Indicator in side B of the dispenser.

VaporTEK LED Indicator Operation

The VaporTEK LED Indicator monitors active transactions at the dispenser and illuminates warning lights when errors occur between the dispenser electronics and the VaporTEK system controller. The error count is reset when an active transaction has a fuel flow rate higher than 6 liters/minute and the communication between the electronics interface and the VaporTEK system controller is working properly.

Testing The VaporTEK LED Indicator

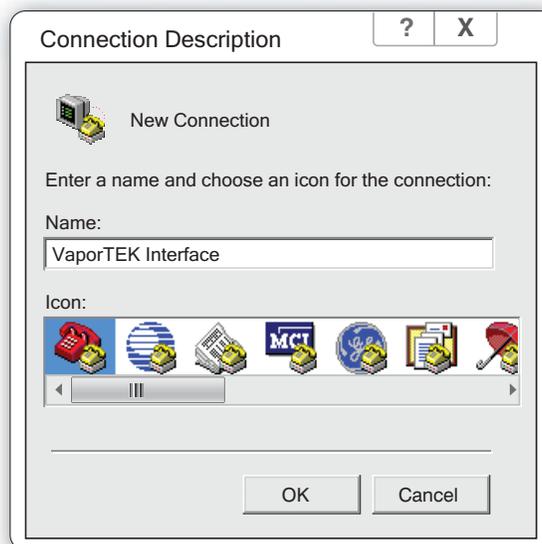
Laptop Setup

1. Using a USB cable connect the laptop to the VaporTEK Interface board USB connector (see photo on page 7).
2. On your laptop, go to Start / All Programs / Accessories / Communications / HyperTerminal.

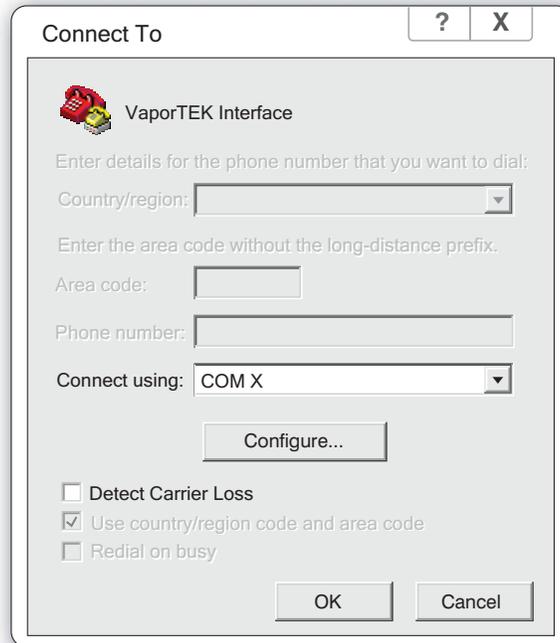
Note: “HyperTerminal” is an inbuilt program for Windows XP and earlier operating systems. It is not readily available on Windows 7 and needs to be downloaded from the internet. Also, a non-commercial program like “M16 -Terminal” can be downloaded and used instead of HyperTerminal.

Once the Hyperterminal menu screen appears, click on **File** in the menu bar and select **New Connection**.

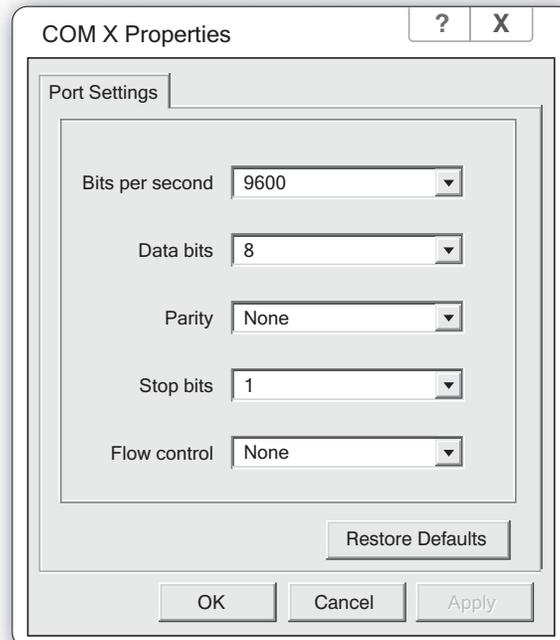
3. In the Connection Description dialog box Name field, enter **VaporTEK Interface**. Click **OK** (see example below).



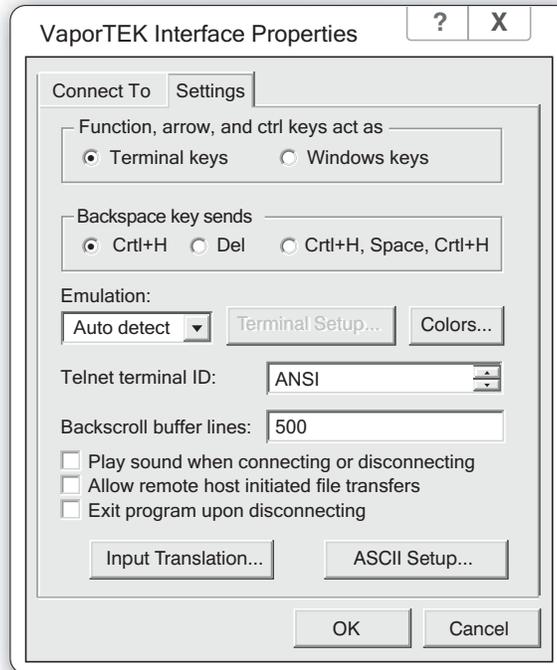
4. Select the appropriate COM port on your laptop (COM X in example below). To verify COM port, go to Control Panel/System/Device Manager and select ports. Check to see which COM port says USB 2.0. Click **OK**.



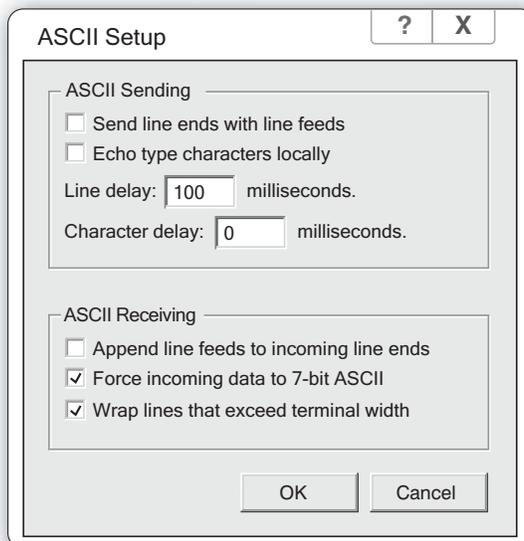
5. In the COM Properties dialog box (COM X in the example below, set the all of the port setting fields as shown and click **OK**.



- Click **File** in the HyperTerminal window and select Properties, then click the **Settings** tab to open the dialog box shown below. Double check and make sure all settings match the example below.



- Click the **ASCII Setup** button to and set the properties shown below:



- Click **OK** to return to the main window of HyperTerminal.

9. On power up the current settings display:

```

New Connection Hyperterminal
File Edit View Call Transfer Help

*****
* VaporTEK Interface *
*   Init-Software   *
* SW 1.03 (MUX)    *
* Chip Version M16C26A *
* Device No: 000000003 *
*                   *
*****

VaporTEK-Potentiometer is in use!

Pulse rate [Imp/1] = 136
Pulse Prescaler = 1
Pulse Prescaler x Pulse rate = 136 pulses/1

Run Status:
-----
Status 1 Idle
Status 2 Idle

Connected 0:02:44  Auto detect  9600-8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
    
```

10. Type **m** on your keyboard to display the following menu:

```

New Connection Hyperterminal
File Edit View Call Transfer Help

*****
* VaporTEK Interface *
*   Init-Software   *
* SW 1.03 (MUX)    *
* Chip Version M16C26A *
* Device No: 000000003 *
*                   *
*****
*                   *
*   MAIN MENU      *
*                   *
*****
1. Show Config
2. Set Config
3. Set Factory Defaults
4. Debug Fuel Flow and Com_RJ12
5. Show Calibration Table
6. A/L - Ratio
7. Pulse - Ratio
8. Reregulation Factors
9. MUXI - Function Test
h. Show Hot Keys

Please select: _

Connected 0:02:44  Auto detect  9600-8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
    
```

11. Show Hot Keys: Press **h**

```

**** Hot-Keys ****
-----
`m` show the Main Menu
`h` show this Help Menu
`f` toggle ON/OFF real time fuel Flow
`d` debug ON/OFF RJ12 Com Port messages
`t` toggle between flow/speed messages
`s` Motor Speed and Status
    
```

12. Press **s**:

```

***** Motor Data *****
State Motor Speed Power Level
RUN 0800 RPM 108%

IDLE 00000 RPM 000%
    
```

This screen shows the current motor operating parameters. The rpms will vary depending on flow rate. An active transaction is a transaction with a fuel flow rate higher than 6l/minute, the minimum flow rate to reset the error counter.

13. Return power to unit. See the dispenser manufacturer’s installation manual for details.



14. Test the VaporTEK LED Indicator to ensure proper installation and programming. Pump fuel into an approved container to ensure successful installation of the VaporTEK LED Indicator Kit. If the VaporTEK LED Indicator was installed properly and the VaporTEK Pump is functioning properly, the VaporTEK LED Indicator light should flash green when pumping fuel and become a steady green when the dispenser is idle.

15. Inform station personnel of operating procedures, error warnings and the purpose of VaporTEK LED Indicator.

The chart below shows the status messages associated with the different light colors of the VaporTEK LED Indicator.

Error Counter	Front Panel LED Color	Run Status
0	Green	Idle
0	Green (Flashing)	Busy
1 - 9	Orange	Idle
1 - 9	Green/Orange (Flashing)	Busy
>9	Red	Idle
>9	Red (Flashing)	Busy

Each failure during an active transaction will increase an internal error counter and will impact the front panel LED color.

