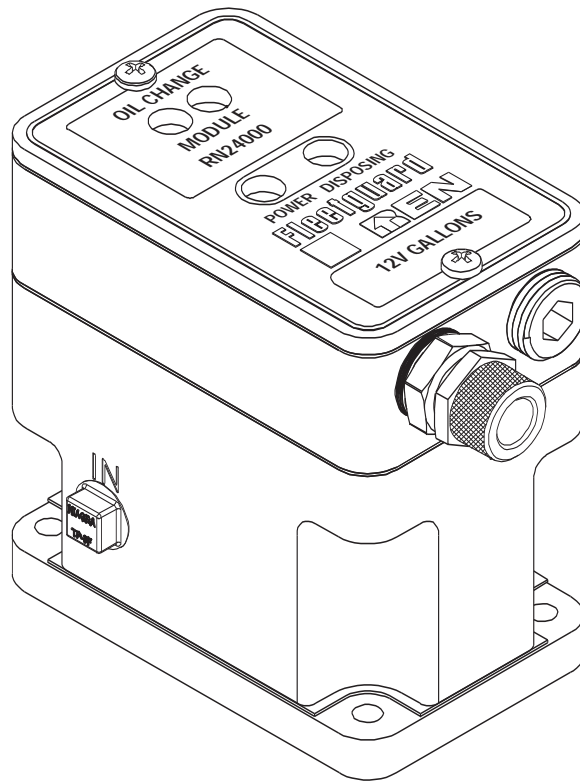




# Continuous Oil Change Module Installation Instructions



**CAUTION:** These instructions are intended for use by professional mechanics who are trained in the proper use of power and hand tools, using appropriate safety precautions (including eye protection).

## Introduction

The REN™ Oil Change Module is used with a REN™ Oil Level Regulator to continuously change oil on a running engine. Maintaining constant oil quality regardless of engine running time leads to longer life and extended time between overhauls. For engines that must run without interruption, continuous oil change greatly reduces and simplifies maintenance. The used oil can be routed to a waste tank or into the fuel for burning on approved engine applications. A typical oil change rate is equal to the crankcase capacity divided by the recommended change interval.

### Preinstallation Notes

- The Oil Change Module is an oil removal product only, a separate device, like the REN Oil Level Regulator, must be installed to replenish the oil in the crankcase.
- The Oil Change Module is designed for stationary applications only.
- Route pipes and cables away from heat sources and moving components.

## Installing the Oil Change Module

**Step 1** - Locate the pressure side of the oil gallery where the supply line for the Oil Change Module can be installed.

**Step 2** - Mount the Oil Change Module to a solid mounting bracket, structure or frame member.

**Step 3** - Run braided 1/4" ID hose from the oil gallery to the inlet port on the Oil Change Module. Apply sealing compound to the ends of the pipe before connecting.

**Note: If necessary, an optional 5 micron filter can be added between the oil gallery and the Oil Change Module.**

**Step 4** - Run braided 1/4" ID hose from the outlet port of the Oil Change Module to the waist oil

**Note: Oil can be blended in the fuel tanks via the return fuel line. Check for local environmental regulations and OEM specifications before installing.**

**Step 5** - Obtain a switched, positive power supply with the same voltage as the Oil Change Module. The voltage of the Oil Change Module is stamped on its face plate. It may also be necessary to obtain a relay.

**Step 6** - Remove the face plate of the Oil Change Module by removing the two phillips head screws. Remove the gasket.

**Step 7** - Attach a 16 gauge wire (recommended) from the power supply through the electric inlet port of the Oil Change Module to the + terminal (screw).

**Step 8** - Attach a 16 gauge wire (recommended) from a ground source through the electric inlet port of the Oil Change Module to the leftmost GND terminal (screw).

**Step 9** - Set both disposal rate dials to "9."

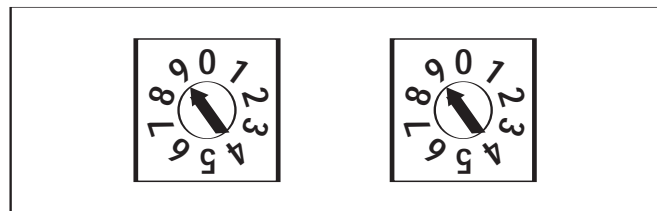


Figure 1 - Disposal Rate Dials

**Step 10** - Start the engine and confirm that the red "Power" light is on.

**Step 11** - Confirm that the "Disposing" light comes on every 45 seconds for the gallons unit or every three minutes for the quarts and liters units.

**Step 12** - Establish the base disposal rate using the following equation:  

$$\text{crankcase capacity} / \text{oil change interval} = \text{disposal rate}$$
 For example: 40 qts / 2000 hrs = .02.  
 Now set the disposal rate dials. The left dial is the tens unit and the right dial is the thousands unit of the calculated base disposal rate. In the previous example, therefore, the left dial would be set to "0" and the right dial would be set to "2."

**Step 13** - Reinstall the gasket and face plate cover.

**Step 14** - Monitor the engine oil for the first three to four oil change intervals to insure adequate oil quality. To increase oil quality, decrease the number of hours in the disposal rate calculation and reset the module. To decrease oil quality, increase the number of hours in the disposal rate calculation and reset the module.

## Installing a Remote Readout

The (optional) Remote Readout is a digital display that can be located up to 200 ft (61 m) from the REN Oil Change Module. The Remote Readout is battery powered with replaceable, five year life lithium batteries. Depending on the model selected, the units read out in volume or volume vs. time.

The (optional) Dual Remote Readout kit provides both a digital display unit that can be located remotely and a digital display unit to replace the existing analog counter on the Oil Change Module. Depending on the model selected, the units read out in volume or volume vs. time.

### Installing a Single Remote Readout

**Step 1** - Select a location to mount the Remote Readout. It can be mounted near the Oil Change Module or to a bulkhead and can be located up to 200 ft (61 m) from the Oil Change Module (see Figure 2).

**Note:** You must use the mounting gasket and o-rings provided to ensure that the unit is sealed from moisture and dirt when installed.

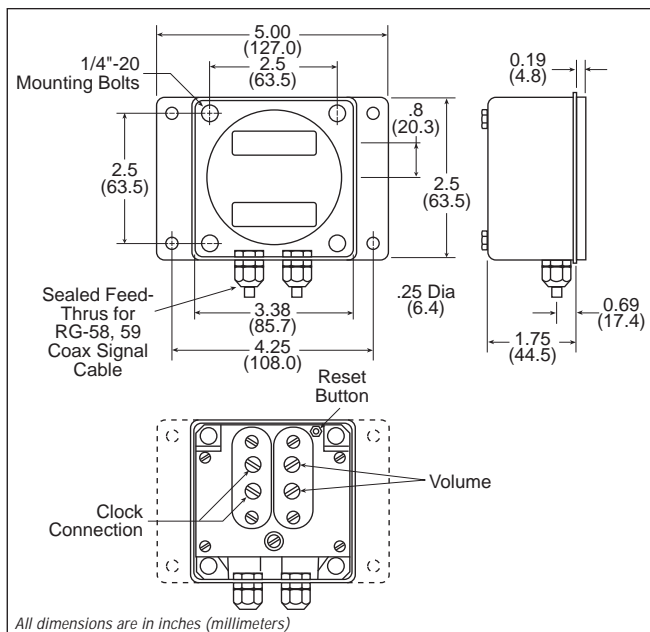


Figure 2 - Mounting the Remote Readout

**Step 2** - Remove the four bolts from the Remote Readout and remove it from the mounting bracket.

**Step 3** - Remove the cover from the Remote Readout.

**Step 4** - Remove the face plate of the Oil Change Module by removing the two phillips head screws. Remove the gasket.

**Step 5** - Run RG-58 or RG-59 cable from the Remote Readout to the Oil Change Module, making sure the cable is routed away from heat sources or moving components. Thread the cable through the sealing feed-thrus in both units.

**Step 6** - For connection to the module, the shield of the cable is connected as shown in Figure 3 and should not be grounded to machinery at more than one point, (multiple grounds can cause spurious signals to be counted and large spurious signals to 30 V positive or negative, but application of these voltages for more than a few minutes can damage the internal battery).

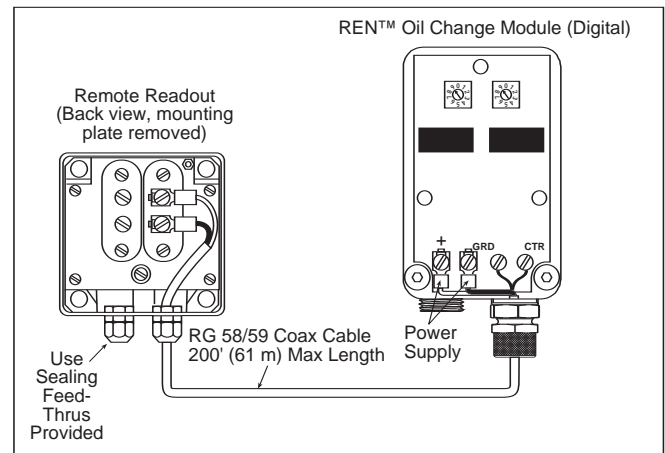


Figure 3 - Typical Wiring for a Single Remote Readout

**Step 7** - Replace the covers on both the Remote Readout and on the REN Oil Change Module using the original screws.

### Installing a Dual Readout Kit

**Step 1** - Install the Remote Readout by following Steps 1 through 5 in the previous section.

**Step 2** - Replace the cover on the Remote Readout.

**Step 3** - For connection to the module and clock control, the shield of the cable is connected as shown in Figure 4 and should not be grounded to machinery at more than one point, (multiple grounds can cause spurious signals to be counted and large spurious signals to 30 V positive or negative, but application of these voltages for more than a few minutes can damage the internal battery).

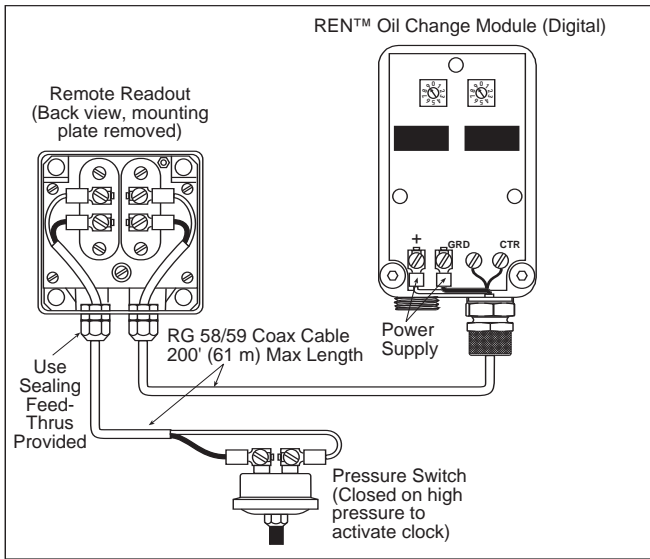


Figure 4 - Typical Wiring for a Dual Readout With Remote Unit

### Connecting to a Programmable Logic Controller (PLC)

Any electronic REN Oil Change Module can be connected to a Programmable Logic Controller (PLC).

**Step 1** - Remove the four bolts securing the Oil Change Module conduit cover and remove the cover to make connection to its output switch. The cover can be rotated to provide the most convenient run for the cable.

**Step 3** - For connection to the PLC, the shield of the cable is connected as shown in Figure 5.

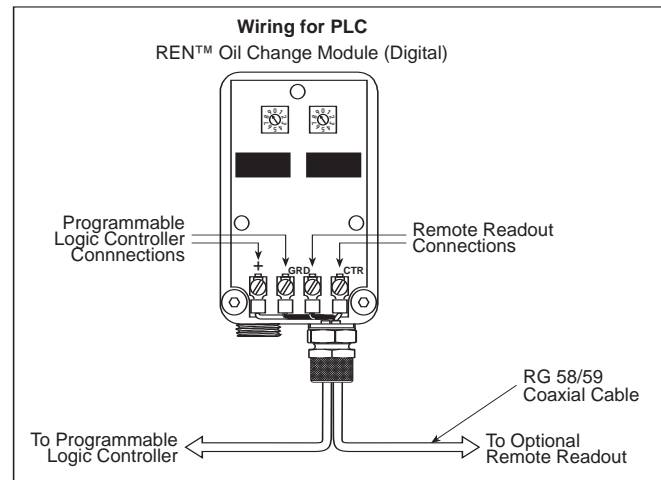


Figure 5- Typical Wiring to a PLC

Figure 6 shows the signal specifications for the PLC.

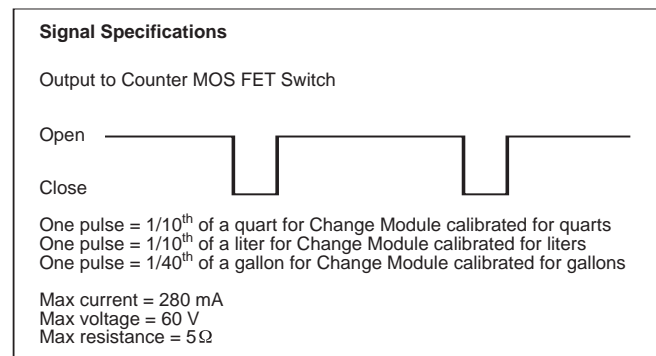
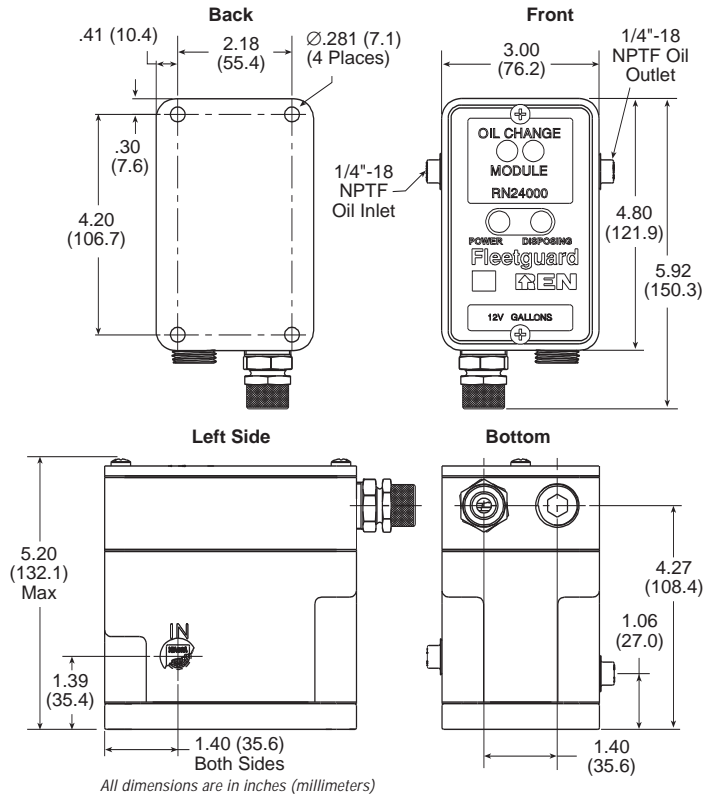


Figure 6 - Signal Specifications

## Dimensions



## REN™ Continuous Oil Change Module Ordering Information

Part Number	DC Voltage	Unit of Measure
RN24000	12	Gallon
RN24001	24	Gallon
RN24002	12	Liter
RN24003	24	Liter
RN24004	12	Quarts
RN24005	24	Quarts

## Remote LCD Kit Ordering Information

Part Number
3945222 S

## Fleetguard REN™ Continuous Oil Change Module Specifications

Height Overall	5.20" (132.1 mm)
Depth Overall	4.80" (121.9 mm)
Width, Max.	3.00" (76.2 mm)
Weight (Dry)	5.2 lb (2.3 kg)
Fuel Oil Connections (Inlet)	1/4"-18 NPTF
Fuel Oil Connection (Outlet)	1/4"-18 NPTF
Power (1 W Avg, 12 W Peak)	12 VDC (+4/-0 V) 24 VDC (+4/-0 V)
Disposal (Adjustable)	0.01 - .99 units/hr
Operating Temperature	0 - 212 °F (-20 - 100 °C)
Min Temperature	-40 °F (-40 °C)
Max Temperature	248 °F (120 °C)
Min Oil Pressure	30 psi (206.8 kPa)
Max Oil Pressure	100 psi (689.47 kPa)
Protected against reversed supply polarity and negative spikes to 80 V.	

## Typical Installation

