

# **TOPS®** Cabinet Dispenser and Register

## User's Manual



**TOPS®**  
Manufacturing

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## INFORMATION

The information in this manual applies to all models of TOPS Dispenser Cabinets, except where noted.

All models of the TOPS Dispenser Cabinet are power operated petroleum dispensing devices designed for use only with thin viscosity petroleum fuels such as gasoline, gasoline/alcohol blends up to 15% Ethanol (such as E15) or 15% Methanol, diesel fuel and kerosene.

Do not use this remote dispenser for dispensing any fluids other than those for which it was designed. Using the dispenser with other fuels can damage components and void the dispenser warranty.

The dispenser can operate with a 115VAC/60Hz or 230VAC/60Hz pump. It has an integral safety shutoff solenoid valve that opens simultaneously when the pump is turned on at the dispenser.

The TOPS Dispenser Cabinet is not supplied with a pump. A UL Listed pump, that does not exceed the electrical rating of the dispenser switch, is to be supplied by the customer.

The TOPS Dispenser Cabinet comes equipped with a Meter with a manual reset handle knob. The Meter is for non-resale applications and has  $\pm 1\%$  accuracy up to 30 GPM flowrate.

It is your responsibility to:

- Know and follow applicable national, state and local safety codes pertaining to installing and operating electrical equipment for use with flammable liquids.
- Know and follow all safety precautions when handling petroleum fuels.
- Ensure that all equipment operators have access to adequate instruction concerning safe operating and maintenance procedures.

## SYMBOLS



This symbol is used throughout this manual to call your attention to safety messages.

### DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### CAUTION

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

### WARNING

This product is not to be used for Aviation fueling.

## PROPER GROUNDING

To ensure safe operation, all remote dispensing systems must be properly grounded.

Proper grounding means a continuous metal-to-metal contact from one component to the next, including tank, bung, pump, dispenser, filter, hose and nozzle. Care should be taken to ensure proper grounding during initial installation and after any service or repair procedures.

All factory-supplied accessories and components assure proper grounding.

### CAUTION

## SAFETY INFORMATION

1. To prevent physical injury, observe precautions against fire or explosion when dispensing fuel. Do not operate the system in the presence of any source of ignition including running or hot engines, lighted cigarettes, orgas or electric heaters.
2. Observe precautions against electrical shock when operating the system. Serious or fatal shock can result from operating electrical equipment in damp or wet locations.
3. Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.
4. This dispenser is designed for use only with thin viscosity petroleum fuels such as gasoline, gasoline/alcohol blends up to 15% Ethanol (such as E15) or 15% Methanol, diesel fuel and kerosene. Do not use this dispenser for dispensing any other fluids other than those for which it was designed. To do so may damage system components and will void the warranty.
5. Do not leave the system running without fluids. If the system fails to deliver fuel after 15 to 20 seconds, turn the dispenser off.
6. Do not pump the tank completely dry, as contaminants from the bottom of the tank may enter the dispenser components.
7. The dispenser has a continuous duty cycle; however, a completely installed system is limited by the duty cycle of the external supply pump.
8. Observe precautions against electrical shock when servicing the pump. Always disconnect power before repairing or servicing. Never apply electrical power to the system when any of the coverplates are removed.

- If using solvent to clean dispenser components or tank, observe the solvent manufacturers recommendations for safe use and disposal.

## INSTALLATION

### Mechanical Connections

#### **WARNING**

Cover panels protect the operator from moving parts. Never operate the remote dispenser without cover panels in place. Never apply electric power to the remote dispenser without cover panels in place. Always disconnect power before repairing or servicing.

All threaded fuel connections must be sealed with thread tape or a pipe thread sealing compound approved for use with petroleum fuels.

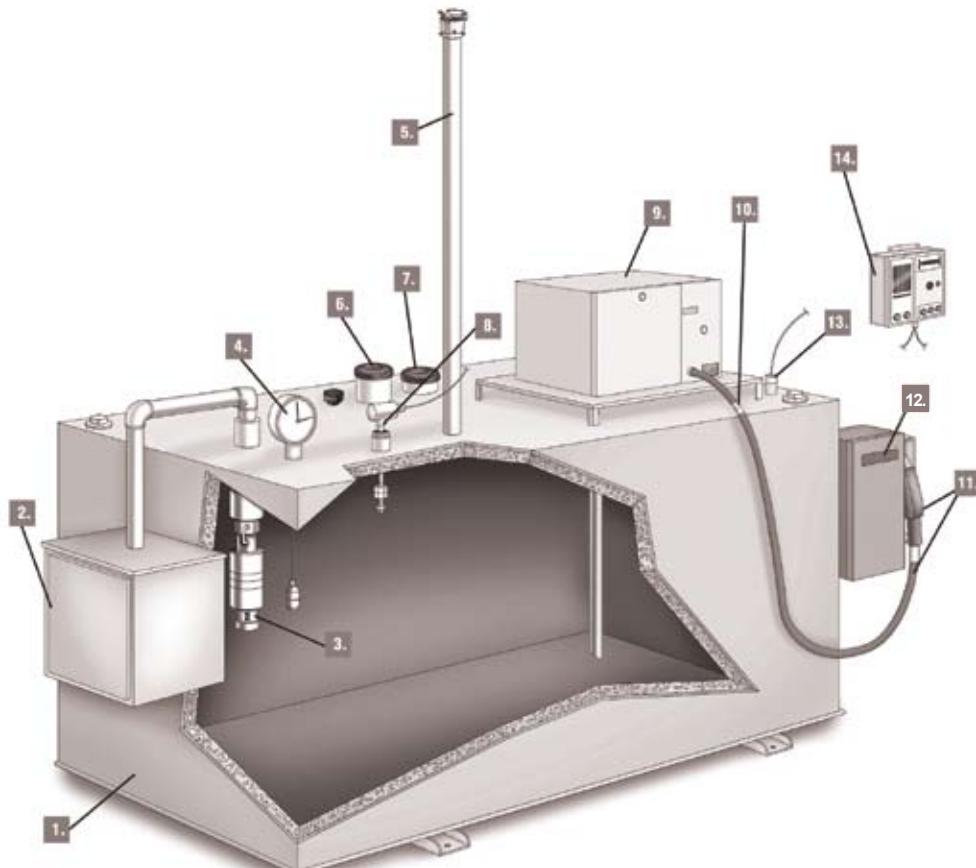
Your dispenser must be installed to conform to all federal, state, and local codes including the National Electrical Code (NFPA 70), Flammable and Combustible Liquids Code (NFPA 30) and Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA 30A) as they apply for non-commercial application on fixed above ground storage tanks with a maximum capacity not to exceed 6,000 gallons (22,700 litres) or

When used with an above ground storage tank, a UL Listed emergency shut-off (shear) valve with a fusible link must be installed below the dispenser.

This dispenser is designed to mount directly onto a support bracket or pedestal (not included).

- Verify pump is mounted as per pump manufacture's instructions.
- Verify mounting bracket (not included) for dispenser is installed per tank manufacturer's specifications and is securely mounted to the tank
- Install dispenser onto mounting bracket or pedestal.
- Install emergency shut-off valve (not supplied) to dispenser inlet. Valve should be positioned to mount rigidly to tank and not rely on dispenser for support.
- Install piping, valves and other required components (Figure 1) between pump and emergency shut-off valve. The piping is not intended to support the dispenser or pump in any manner.

## TYPICAL TANK CONFIGURATION



### Typical Tank Equipment

- UL approved tank, with earth ground.
- Spill container.
- Overfill prevention valve
- Level guage.
- Pressure vacuum vent.
- Emergency vent.
- Emergency vent.
- Overfill alarm.
- UL approved suction pump, with bypass valve.
- Discharge piping or hose with vacuum breaker, UL listed.
- UL Hose Nozzle and Swivel.
- TOPS remote dispenser.
- Interstitial space opening.
- Optional TOPS tank monitor.

## Nozzle, Valves, Hoses, Swivels, and Breakaways

All accessories must be UL listed. Approved accessories for use with this remote dispensing system are:

- Dispenser is for use with any UL listed interchangeable (Automatic or Manual) service station type hose nozzle valve.
- Dispenser is for use only with UL listed non-interchangeable (Automatic) type hose nozzle valve Model TD-20A1, Zhejiang Maide Machine Co. Ltd. (3/4-inch NPT).

**NOTE:** Use of other non-interchangeable (Automatic or Manual) hose nozzle valves may result in malfunction and reduced system performance.

### Hose, Nozzle Assembly:

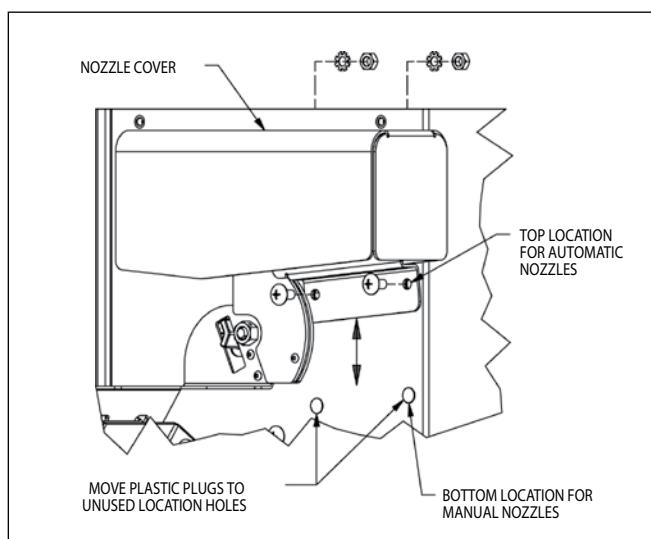
- Any UL listed hose assembly.

The remote dispenser is available as a dispenser only (customer provides an approved hose nozzle valve and hose assembly) or with an approved hose nozzle valve and hose assembly included. Both versions include a 1 inch NPT 90 degree elbow, 1 inch to 3/4 inch NPT reducer fitting and a nozzle cover with attaching hardware that will need to be assembled to dispenser.

Attach the 90 degree elbow to the outlet pipe on the right side of dispenser. This will accommodate a 1 inch NPT hose assembly. When installing a 3/4 inch NPT hose assembly install the reducer bushing into the 90 degree elbow. Install hose assembly and hose nozzle valve. All threaded fuel pipe connections must be made with a gasoline-resistant pipe joint sealing compound.

The nozzle hanger will accommodate both manual and automatic nozzles. The nozzle cover, however, must be installed in the top location for automatic nozzles and the lower position for manual nozzles. Remove the top cover to gain interior access for installing the lock washers and nuts retaining the nozzle cover.

### Nozzle Boot Holder



## Electrical Connections

### DANGER

The Remote Dispenser must be installed by a licensed electrician and conform to National Electrical Code (NFPA 70), Flammable and Combustible Liquids Code (NFPA 30) and Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA 30A) or Canadian Electric Code C22.1 as applicable. You, as the owner, are responsible for seeing that the installation and operation of your dispenser complies with NFPA codes as well as any applicable state and local codes. Rigid conduit must be used to install wiring.

Failure to follow these wiring instructions may result in death or serious injury from shock, fire or explosion.

The dispenser must be properly grounded to avoid personal injury. Operating an ungrounded or improperly grounded dispenser may result in death due to electrical shock, fire or explosion.

Electrical wiring and connections must be made only by a licensed electrician in accordance with national, state and local electrical codes regarding Class 1, Division 1, Group D locations. Other codes may apply.

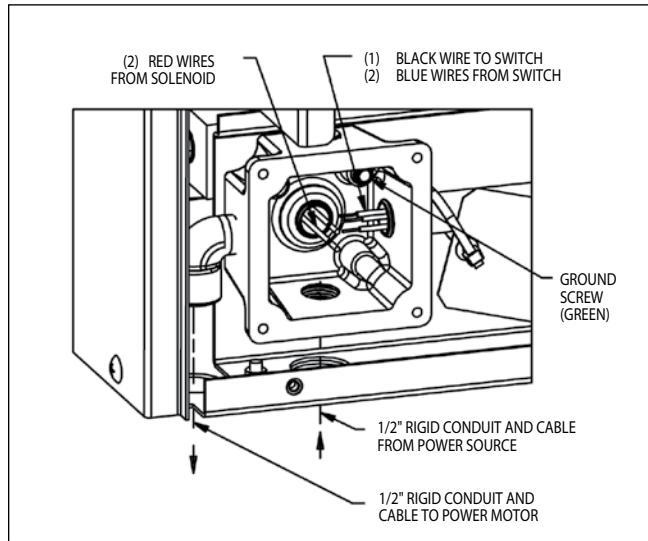
Refer to wiring diagrams for dispenser. The junction box inside the dispenser has 1/2 inch NPT threaded hubs for conduit connections. All electrical connections shall be made with threaded rigid conduit, sealing fittings and conductor seals.

Outside the United States, installation should be performed in compliance with local codes.

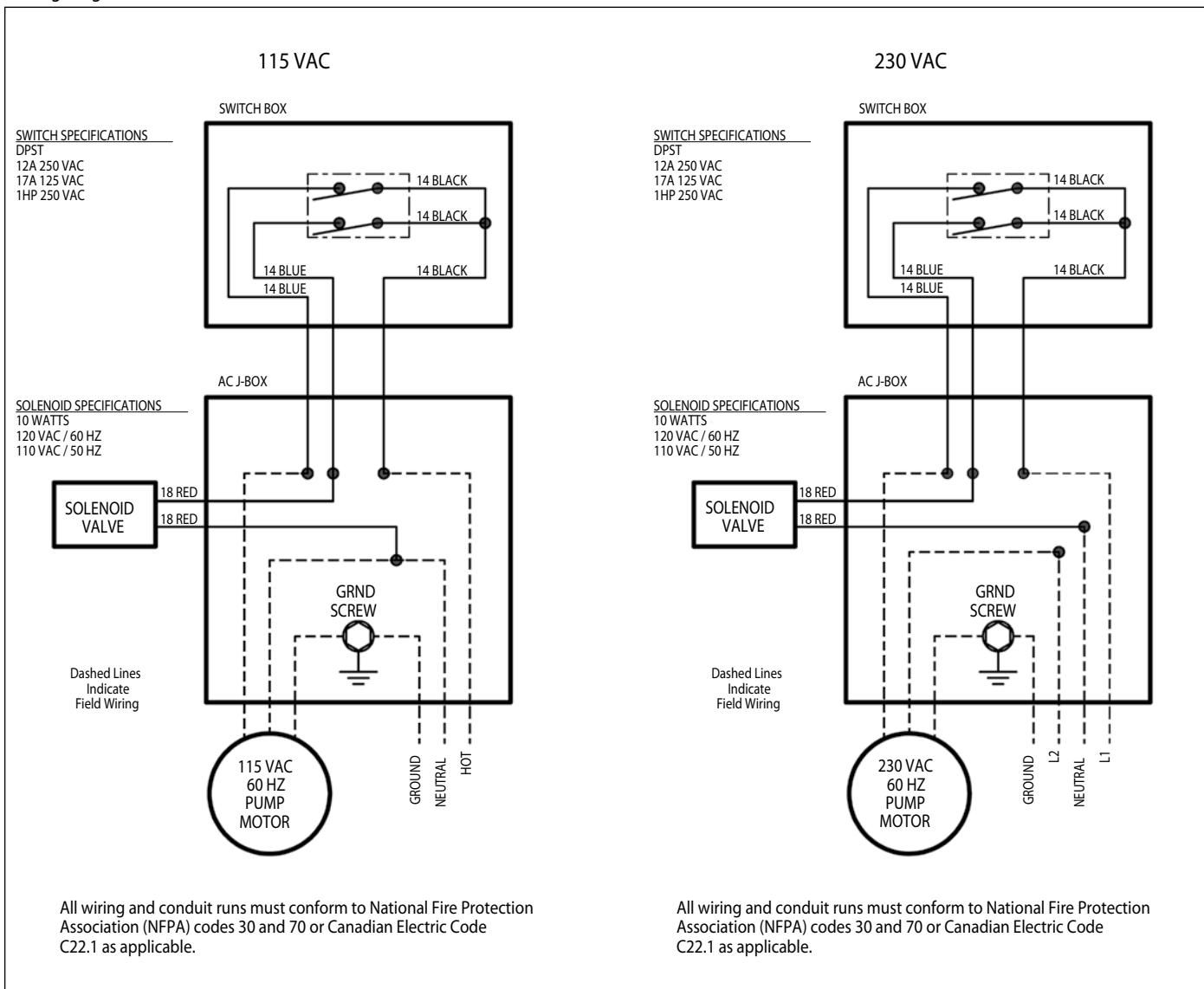
### Wiring Details

1. To access the junction box inside the dispenser, remove top cover then remove the front panel. Refer to diagrams and remove the junction box cover. Avoid damaging the machined mating surfaces of the junction box and its coverplate as this precision seal is necessary to ensure the junction box retains its explosion proof integrity.
2. Install 1/2 inch rigid conduit and electrical cable from pump motor junction box to the 90 degree fitting on left side of junction box. Install 1/2 inch rigid conduit and electrical cable from power source to opening in bottom of junction box. Use only code specified electrical cable with ground wire.
3. With power turned off, use wire nuts to connect pump wires, solenoid wires and power wires to switch leads per appropriate wiring diagram (115 VAC or 230 VAC Pump). The switch leads enter the junction box through the right side opening and the solenoid wires through the back opening. The top opening is plugged.
4. Attach ground wires to ground screws in junction boxes (pump and dispenser) and to ground source.
5. Position wires inside the junction box and replace the coverplate. Reinstall the front panel and top cover.

## Conduit Openings



## Wiring Diagrams



## OPERATION

### DANGER

To prevent physical injury, observe precautions against fire or explosion when dispensing fuel. Do not operate the dispenser in the presence of any source of ignition including running or hot engines, lighted cigarettes, or gas or electric heaters.

### WARNING

Observe precautions against electrical shock when operating the dispenser. Serious or fatal shock can result from operation of electrical equipment in damp or wet locations.

### CAUTION

Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves, and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.

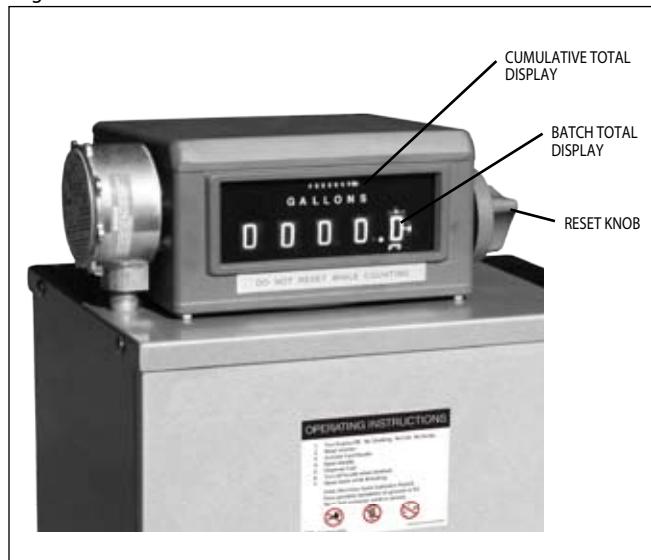
After hose, nozzle, filter, etc. have been installed, the system should be purged of air. Hold the nozzle open into the tank opening or container and turn on the system by lifting the switch lever to the "ON" position. Allow the pump to prime and discharge any air from the system.

#### Fuel Meter

The large meter display represents the Batch Total for each fuel delivery. Before dispensing, reset the Batch Total to zero by pushing the reset button in and releasing it (Figure 4).

The small display represents the Cumulative Total of all fuel deliveries and cannot be reset.

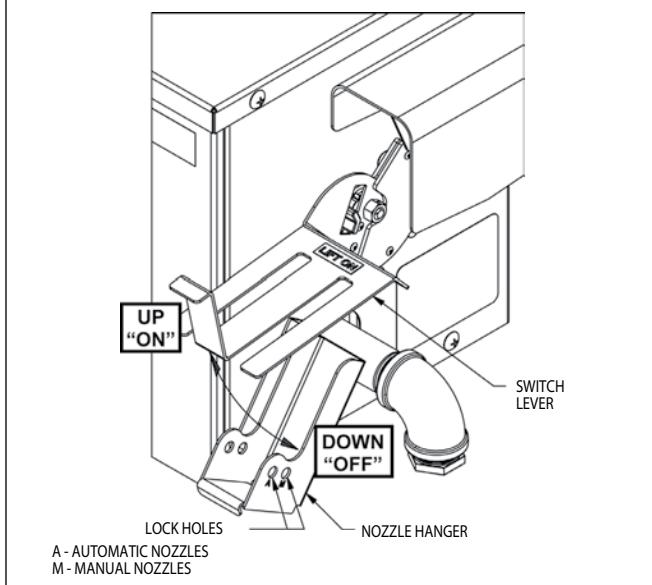
#### Register



To dispense fuel:

1. Remove the nozzle from the nozzle hanger. Turn the pump on by lifting upward on the switch lever (Figure 5).

Figure 5



2. Insert the nozzle into the receiving tank and squeeze the handle to dispense fuel.
3. After dispensing fuel, push the switch lever down to turn the pump off and return nozzle to the holder. The pump motor cannot be operated with nozzle in position on the holder.

#### Locking Mechanism

Using lock holes provided, nozzle may be locked in place to prevent unauthorized use (Figure 5). A padlock with a minimum shackle height of 2-1/2" is required. A 5/16" diameter shackle is the maximum the lock holes will accommodate. Padlock is not supplied.

## MAINTENANCE

### WARNING

Coverplates protect the operator from moving parts. Never operate the remote dispenser without coverplates in place. Never apply electric power to the remote dispenser without coverplates in place. Always disconnect power before repairing or servicing.

#### Meter Calibration

The meter is accurately calibrated at the factory for use with diesel fuel. Due to differences in viscosity and flowrates, the meter may require recalibration to measure other fuels or to adjust for inaccuracies.

1. Purge air from the meter and fuel system by dispensing fuel into a container until a full flow occurs. Close the nozzle.
2. Reset the meter batch counter to zero by turning the reset knob on Veeder Root Counter.
3. Pump into a graduated calibration container to a specified quantity. For the greatest accuracy, be sure the container is placed on a level surface and a consistent flowrate is used. When topping off the calibration container, use a quick-open and quick-close method until the mark is reached.

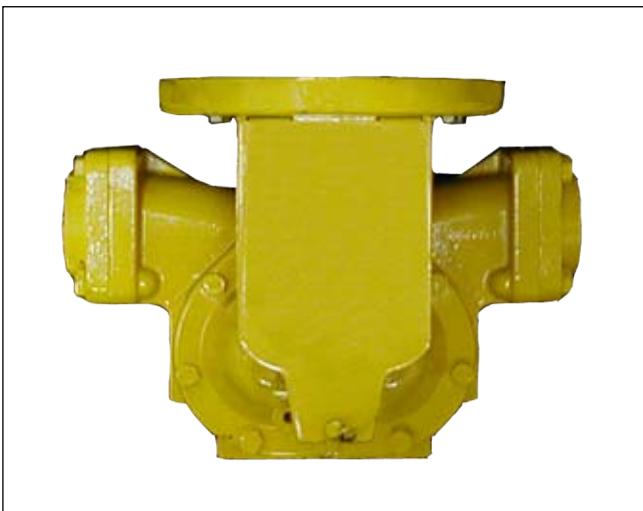
- Compare the meter display to the quantity in the container. If the display does not register the quantity on the container, adjust the meter by performing the following:
  - Remove cabinet front cover. Locate calibration wheel and adjust by turning wheel clockwise to increase and counterclockwise to decrease.
  - Reseal with approved seal from State or regulating agency. All calibrations must be done in accordance with weights and measures standards and approved procedures. Check with State Weights and Measures for licensing and procedures.

Meter Calibration



- Empty the calibration container and repeat steps 2 to 4 until the meter registers the quantity in the container.
- Install the nylon washer, calibration screw cover and replace cabinet top.

Optional 50 gpm meter



## SPECIFICATIONS

The TOPS Remote Dispenser is designed for use only with thin viscosity petroleum fuels such as gasoline, gasoline/alcohol blends up to 15% Ethanol (such as E15) or 15% Methanol, diesel fuel and kerosene.

All models are designed for permanent mounting on vented storage tanks, either in-ground or above ground.

### Meter:

#### Unit of Measure:

U.S. Gallons or Litres

#### Flow Range:

Up to 30 GPM (114 LPM)

#### Typical Accuracy:

1%

#### Type:

Nutating Disc

#### Housing Material:

Aluminum

#### Maximum Working Pressure:

50 PSIG (3.4 bar)

#### Inlet/Outlet Fitting Size:

1- Inch NPT (Optional 1 1/2" NPT)

#### Maximum Batch Total:

999.9 Gallons (9999 Litres)

#### Maximum Cumulative Total:

999,999.9 Gallons (9,999,999 Litres)

### Dispenser:

#### Performance:

Duty Cycle: Continuous

#### Electrical:

Input: 115 volt AC, 60 Hz

230 volt AC, 60 Hz

Conduit: 1/2 inch rigid NPT

Switch: Double pole, single throw

12A 250 volts AC

17A 125 volts AC

1HP 250 volts AC

Solenoid: 10 Watts

120 volts AC, 60 Hz

110 volts AC, 50/60 Hz

#### Mechanical Connections:

Inlet: 1-Inch NPT pipe nipple

Outlet: 1-Inch NPT pipe nipple

#### Accessories Available:

Hose: 3/4-Inch x 12 ft. (3.7m) Nitrile  
electrically conductive

Nozzle: 3/4-inch manual or 3/4-inch automatic,  
unleaded spout

Security: Nozzle can be padlocked

Ship Weight: 76 pounds (27.6 kg) - With hose & nozzle  
69 pounds (24.5 kg) - Without hose &  
nozzle

