

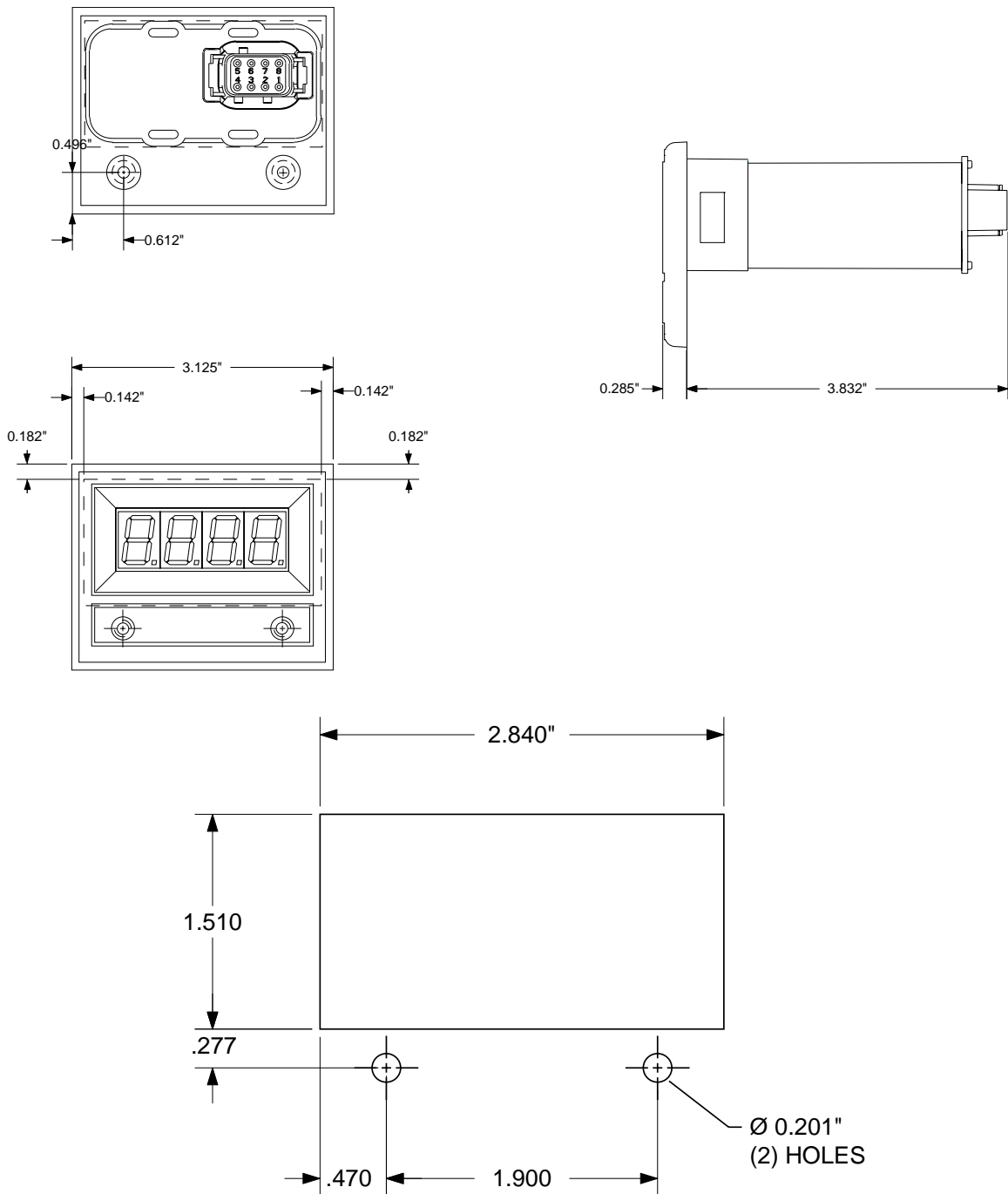
Name	Digital Flowmeter Information	Engineering Standard Number <b>C1-102046-A</b>
Identifier	Installation and Calibration Information	

## Display Installation

The flowmeter display mounts in a 2.84" by 1.51" cutout.

Overall area necessary for installation is 2.5" by 3.2".

Two 0.201 diameter holes are provided for mounting screws.



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## Saddle Clamp Installation

The Saddle clamp should be mounted on the pump discharge pipe in an area of laminar flow. Select a location with as long a straight run as possible. Avoid mounting immediately after an elbow, gate or increase in pipe size (Any thing that would cause turbulence). Allow a straight run of at least 6 pipe diameters after an elbow.

Cut a 1.5" diameter hole in the top side of the waterway. Position the saddleclamp on the pipe with the indexing hole facing the pump. Tighten the nuts on the "U" bolt evenly to 30 ft/lbs.

## Paddlewheel

Install the paddlewheel adapter (spacer) to the mount using four 7/16" screws.

Lubricate the O-rings on the paddlewheel and insert it into the mount .

Secure the transmitter with the 4 screws provided.

The **Class1** Digital Flowmeter measures water velocity in the pipe to calculate the flow rate. The location of the paddlewheel transmitter is important for proper operation and accurate readings. Mount the transmitter in a location that is accessible for future maintenance and in an area where laminar (non-turbulent) flow is most likely to be maintained. Most problems with flowmeter accuracy and performance can be traced to the location of the transmitter.

The hole size for the paddlewheel transmitter PN102714 mount is 1-1/2".

## Transmitter Location

Elbows/Bends A straight run of pipe to the transmitter of at least six (6) times the pipe diameter after an elbow or other turbulence producing item is desirable for a successful installation. Try to locate the transmitter using the longest straight section of pipe available. Minimal turbulence at the transmitter provides the most accurate reading.

Valves/Gates If the transmitter is downstream of a valve, the minimum distance is fifteen (15) times the pipe diameter. Whenever possible, mount the transmitter before a valve.

Horizontal Pipes The transmitter will work in any position, however when mounted on a horizontal run, it should be mounted in the top half of the pipe to allow debris to be flushed out of the paddlewheel.

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**Increase/Decrease in pipe size** The transmitter can be placed after an increase in pipe diameter, never after a decrease.

**Class 1** flexible hose can greatly assist in reducing the number of elbows and amount of turbulence between the pump and discharge pipe.

**Wiring**

The Flowminder system comes with a wiring harness that connects the transmitter to the display.

The OEM must supply power and ground to the digital display. Consideration should be given to the conditions under which the display will have power.

The display is internally protected against short circuits, overvoltage and reverse polarity, but standard installation procedures should provide for circuit protection. Maximum current used by the flowmeter is 1.5 Amps.

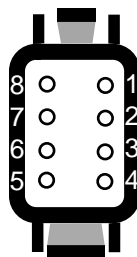
A momentary grounding switch can be added when the totalizer function is desired. This is connected to the display through the 8 pin mini-connector at pin 8.

**Electrical**

The Flowmeter Display is connected to the OEM harness with a Deutsch 8 pin mini-connector.

Mating Connector: DTM06-08S  
 Locking Wedge WM-8S  
 Mating Terminal: 0462-201-20141 20 gauge socket

- Terminal Assignments:
- 1 N/C (no connection)
  - 2 N/C
  - 3 N/C
  - 4 Display Power (Ignition 12 VDC)
  - 5 System Ground
  - 6 N/C
  - 7 Pulses IN (paddlewheel input)
  - 8 Switch input (Totalizer)



Wire Insertion View

Connection to the vehicle is simply a matter of connecting the RED power wire to a good 12 VDC voltage source and connecting the BLACK ground wire to a good system ground.

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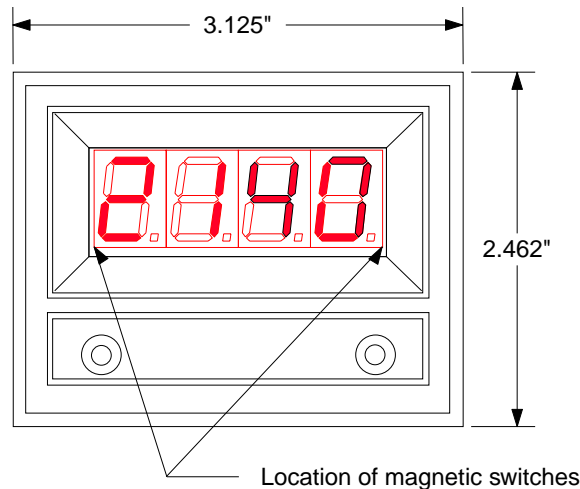
**Operation**

The flowmeter displays the current flow rate whenever the display has power and the discharge is open. Range is 0 to 9995 GPM, LPM or IGPM as calibrated.

**Totalizer**

The display includes a totalizer function that displays the total amount of water that has been flowed since the unit was turned on. This feature is enabled by grounding terminal number eight (8) of the display connector. While terminal number 8 is grounded, activating the left switch resets the totalizer to zero (0). The totalizer resets to zero whenever power is removed from the display. Multiply the reading on the display by 100 (add two zeroes) for total flow.

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## 5. Calibration

Flowmeter Calibration is performed with the discharge stabilized at the desired calibration flow. (Smoothbore nozzle and Pitot gauge)

The calibration mode is entered by the use of a "password".

There are two magnetic switches located at the lower corners of the display.

These switches are activated with the use of a magnet, switch activation is visually confirmed by the lighting of the closest decimal point on the display.

Enter the switch sequence below to enter calibration mode.

Left Switch    Left Switch    Left Switch    Right Switch    Right Switch    Right switch  
**L<sub>LEFT</sub> L<sub>LEFT</sub> L<sub>LEFT</sub> R<sub>RIGHT</sub> R<sub>RIGHT</sub> R<sub>RIGHT</sub>**

If the password is correctly entered, "**Cal**" will be displayed for 1/2 second followed by "**0**" starting with software version 3.0 the display will start with "**150**". Hold the magnet on the right switch until the display reads the Gallons per Minute (GPM), Liters per Minute (LPM) or Imperial Gallons per Minute (IGPM) that you are flowing. The speed with which the display increments/decrements the calibration flow display increases as the switch is held. If you pass the flow value, release the switch and reactivate. The display will "reverse direction" each time the switch is activated and the speed will start out at the slowest rate. Maintain the calibration flow for a minimum of 10 seconds to assure an accurate and stable calibration before activating the left switch. When the flow is stable and the calibration flow rate is entered into the display, activate the left switch to complete calibration.

The display will read "**done**" starting with software version 3.0 the display will read "**ScAL**" followed by the current flow rate in GPM. Calibration is now complete.

## 6. Operation

The Flowminder will display the current flowrate whenever the display is enabled and the discharge is open. Range is 0 to 9990 GPM, LPM or IGPM.

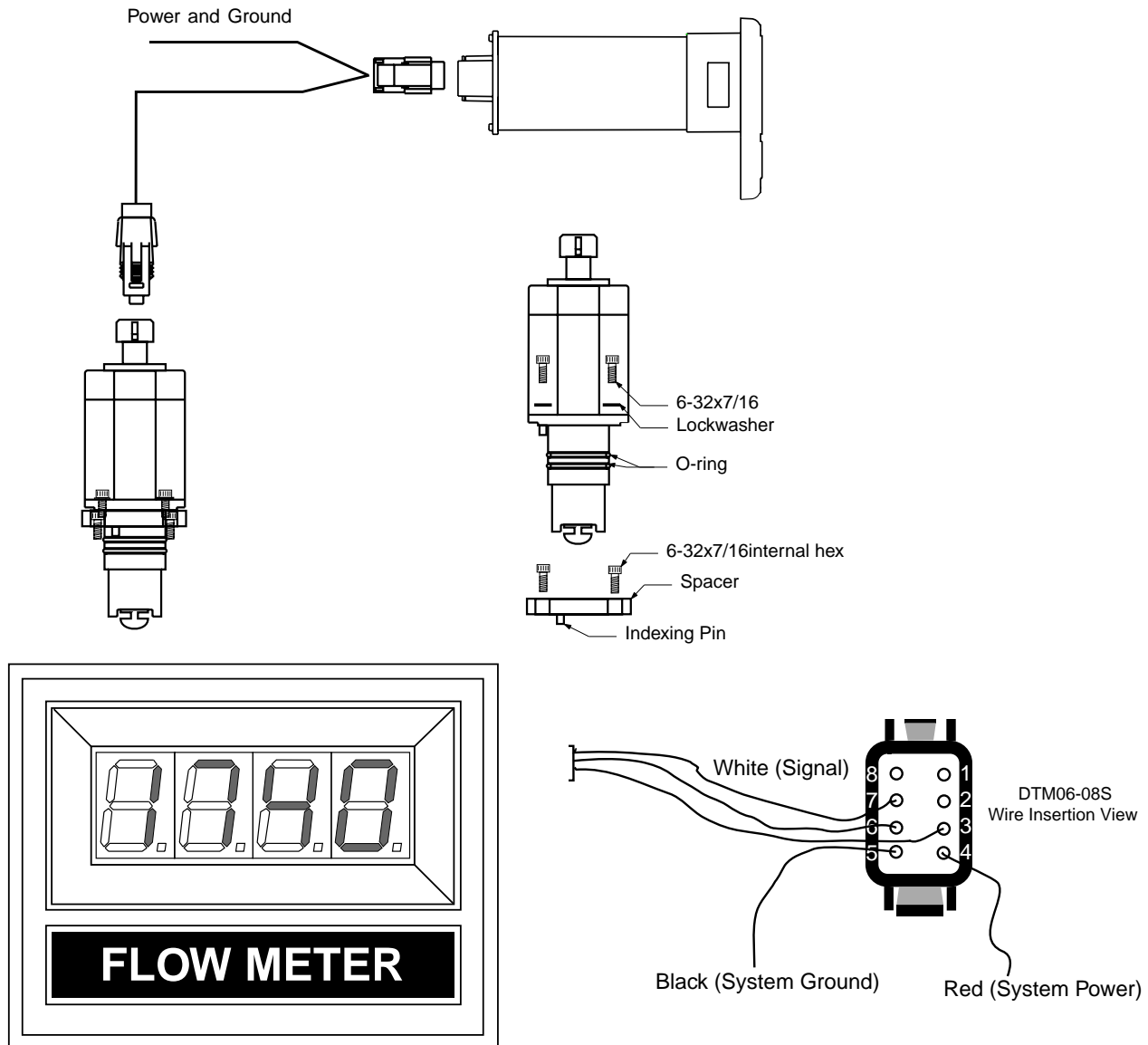
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The **Class 1** digital flowmeter system comes with the digital display, a paddlewheel transmitter and a connecting harness (specify length). A method of mounting the transmitter to the discharge is needed, call for options and specify the pipe diameter.

The flow display includes a totalizer function. A momentary switch (optional) is required to operate this feature. The display will continuously monitor flow when the unit has power and display the latest total volume when the totalizer switch is pressed. The total flow is cleared when power is removed from the unit.

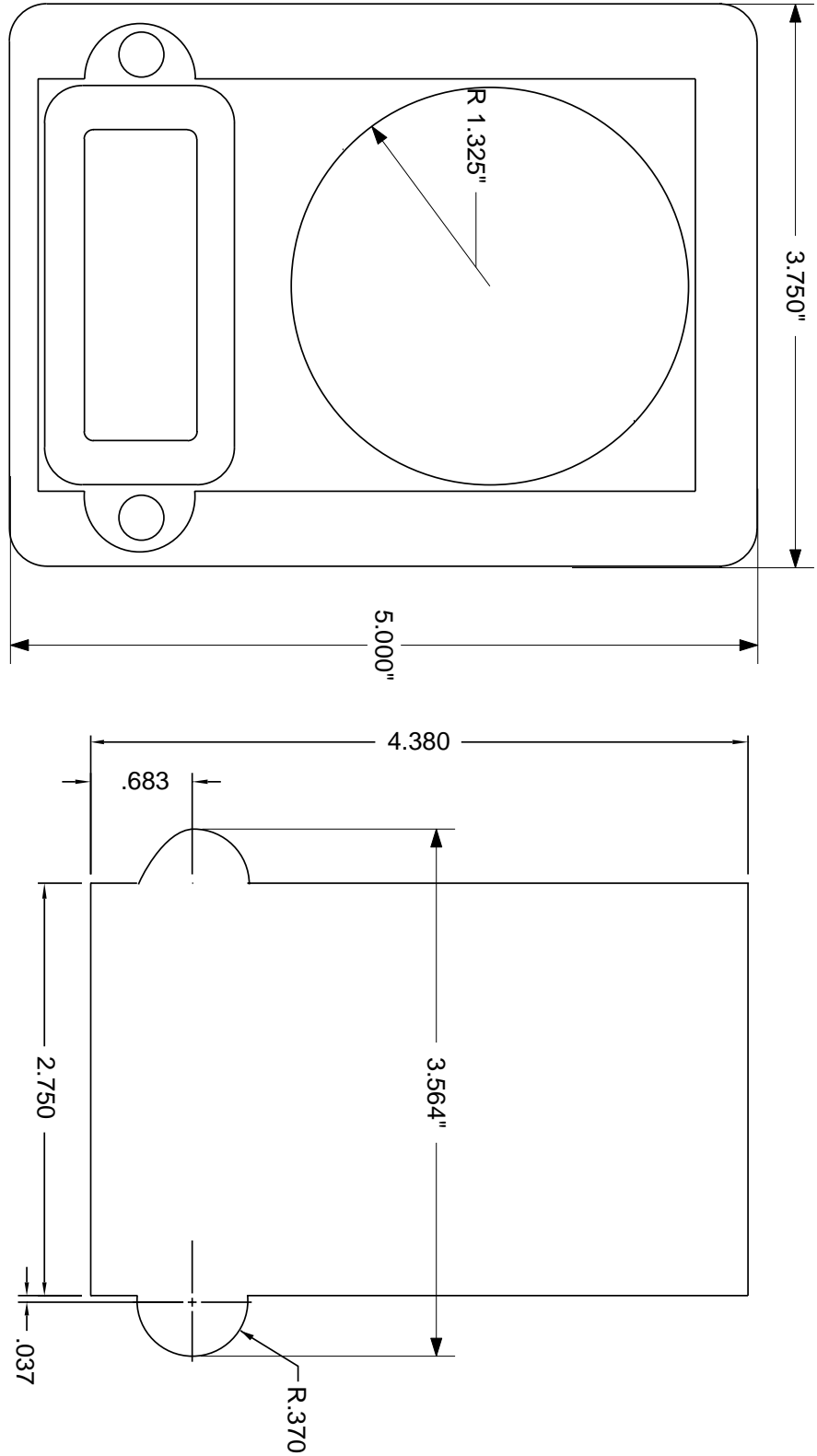


### Paddlewheel Installation



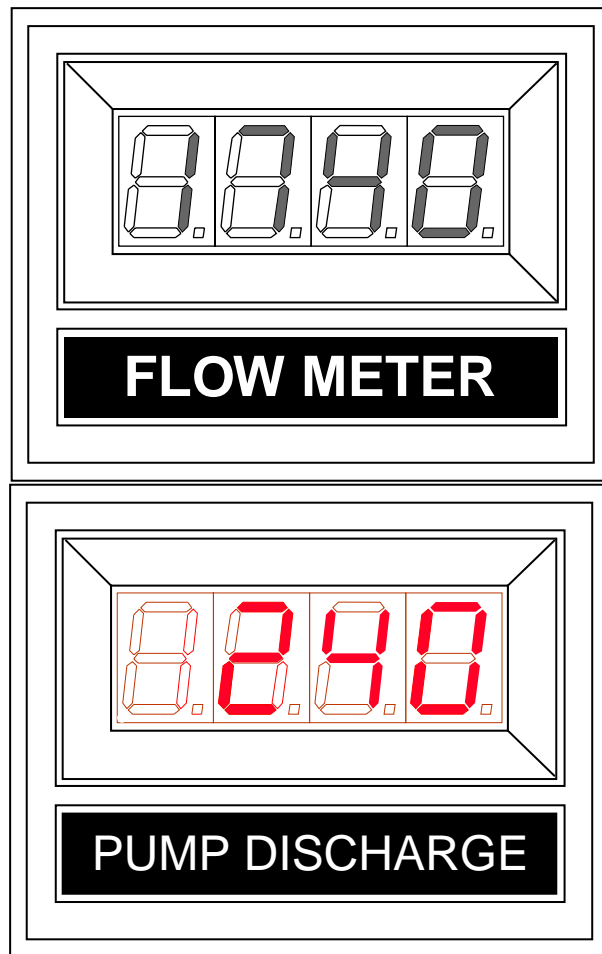
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The Value Series flowmeter uses the digital display and a 2-1/2" pressure gauge to give the pump operator information on both flow and pressure for the discharge. A stainless steel bezel is available that can have insets color coded to identify the associated discharge. The panel cutout is a little more difficult than just mounting a gauge and a display and some planning should be given to cutting out the panel and mounting this system before using the bezel.

The flowmeter Super System is designed using the digital flowmeter and the digital pressure gauge. Each piece uses the standard digital display cutout. The only additional consideration from the standard flowmeter is for mounting the pressure transducer. This should generally be mounted after the valve and is a 1/4 NPT fitting. Use only the 1-1/4" hex to tighten the transducer, not the body of the sensor. Follow the calibration procedure for pressure and flow as appropriate after installation.







### ***Enhance your Flowminder Installation***

The Digital Flow Display is also available in a plain black wrapper that will install into an existing conventional Flowminder cutout on the pump panel.

Call **Class1** at 1-800-533-3569 and ask for details.