FireHose

User Manual

Version 2.0
Updated 12/1/02

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About This Manual

This user manual is a work in progress. For the most part, we have tried to make the software as user friendly as possible, and if you are already familiar with the terms and concepts used, then the software is pretty much self explanatory. However, even though many people don't read user manuals, we want to write one that is clear and answers all your questions. Until we have written the "perfect user manual", please feel free to email or call us and ask any question that arises.

Please check our web site for the latest support documents and installation help.

For technical support,

email: info@PocketMobility.com
web: www.PocketMobility.com
phone: (303) 546-6200

Installation

Palm Version:

The Palm software comes with an automatic installer. If you downloaded the software, you will need to unzip the file "setup.zip" to find the installer called "setup.exe". Just run "setup.exe" on your Windows computer, you will be walked through the installation steps.

If you prefer a manual installation, or can't run the Windows installer, you will find the necessary files in the "palm" folder. Locate these files:

firehose.prc
mathlib.prc

Double-click each file to bring up the Install tool, then click "Done". Now you just need to do a HotSync to intall these files on your handheld device.

Pocket PC Users:

You will find the file you need in the "pocketpc" folder. Locate the following file:

firehose.exe

You will need to connect your handheld to your computer to install the software. All you

“Personal”, and “Templates” folder icons.

To find and run the newly installed application on the Pocket PC, open the “File Explorer” application. You can find this program two ways:

1. Pull down the “Start” menu, and select “Programs”
2. On a Compaq iPAQ, press the “Q” button. You will find “File Explorer” in that menu.

Now that you’ve found “File Explorer”, run that program. You will find your new software program in the list, and you can tap on it to run the program. (You should see “My Documents” at the top of the screen, and the folders “Business”, “Personal”, and “Templates” in the list, too)

General Information

When it makes sense, results from previous calculations will be carried forward as inputs for future calculations. For example, if you first calculate flow rate in the Flow Rate screen, and then go to the Pump Pressure screen, the flow rate input will already be filled in with the previous result.

In most numeric input fields, you can use the up and down scroll buttons to increment and decrement the values. Just tap in the field you want to change first, then use the buttons.

When the program is first launched, you see the Startup screen. Just tap the “MENU” button (or with version 3.5 or later of PalmOS, tap the “FireHose” label at the top of the screen) to see all your menu options.

Help buttons, labeled “?”, provide online help and longer descriptions of inputs.

Demo Version

If you have downloaded the free demo version, some functions are disabled. For example, you cannot select a different hose type or change the hydrant pressure. The purpose is to demonstrate what features are present in the full working version.

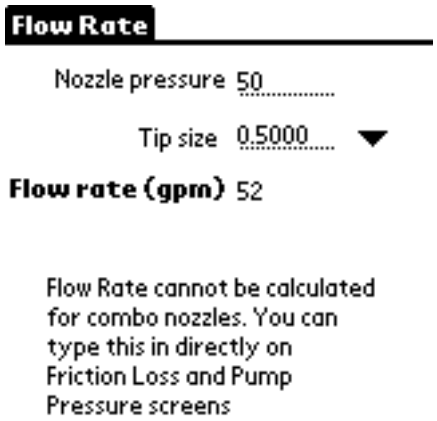
You can upgrade the demo software to the full version just by entering a Key Code that you purchase; you don’t need to install any new software. Just tap the “Register” button on the opening screen to enter your key code.

Pocket PC vs Palm Versions

We tried to make sure the Palm and Pocket PC versions of our software work pretty much the same. However, each product is developed and released on a separate schedule, so you will notice some differences. Be sure to try out the demo version on your platform before making a purchasing decision.

Flow Rate

Given the desired nozzle pressure and the actual tip size of the nozzle being used, this module determines the flow rate in gallons per minute.

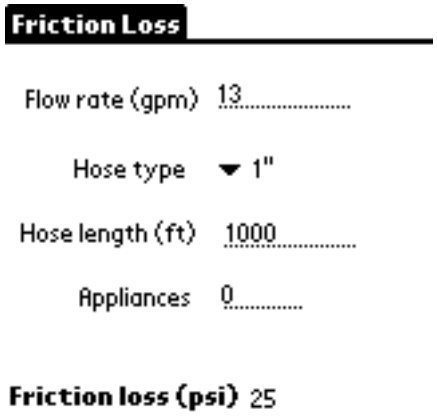


Combination or fog nozzles present a problem when trying to calculate flow rate. Since there is no way to determine exactly what setting the nozzle is on (i.e. 30% fog or 40% fog, and what is the tip size at this setting), this screen is only useful for determining the flow rate of solid bore nozzles with definite tip sizes. However, many combo nozzles allow you to dial in the desired flow rate, so you will know this value already and can type it in directly in the Pump Pressure screen. You may also be able to contact the manufacturer to determine flow rate and various settings of your nozzle.

Friction Loss

Given the flow rate, hose type, and hose length, this module determines the total amount of friction loss in that length of hose. If you have appliances such as gated wyes or tee's, include those (but don't include the nozzle).

Flow rate can be calculated and carried forward from the Flow Rate screen, or typed in directly in the case of combo or fog nozzles.

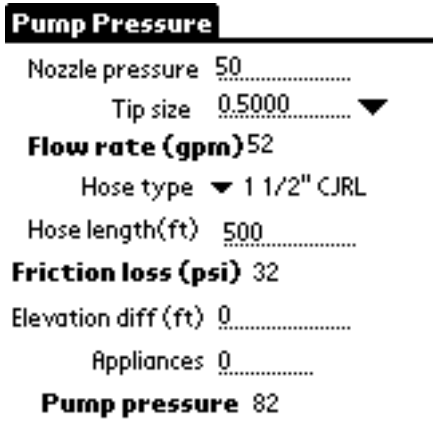


Pump Pressure

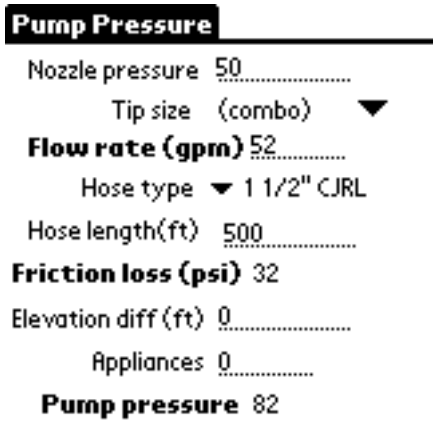
This module combines the Flow Rate and Friction Loss calculators, and adds more inputs to determine total pump pressure needed to maintain the specified nozzle pressure.

If the elevation change is negative (water is flowing downhill), then input a negative number in the “elevation diff” field.

Also enter the total number of appliances. Do not include couplings or the nozzle. Include such things as gated wyes and tees.



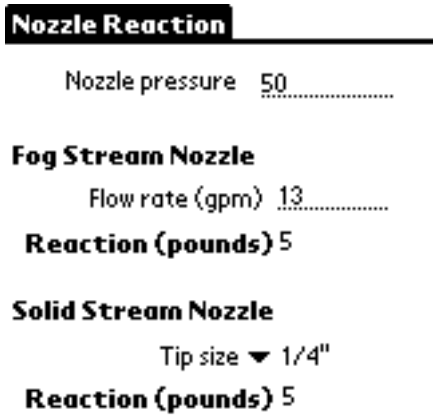
For combo or fog nozzles, select “combo” as your tip size. This allows you to type the flow rate in directly rather than have it be calculated, as shown here:



Nozzle Reaction

This screen will determine the reaction or counter force exerted at the nozzle, to give you an idea of the force needed to hold and control the nozzle.

For a fog stream nozzle, enter the flow rate desired. For a solid stream nozzle, enter the tip size. For both nozzle types, enter the desired nozzle pressure at the top of the screen.



Hydrant Flow

This screen is a very useful calculator for performing hydrant flow tests. You enter the measured hydrant pressures, and the Observed Flow and Available Flow rates will be calculated from the Hazen-Williams formula.

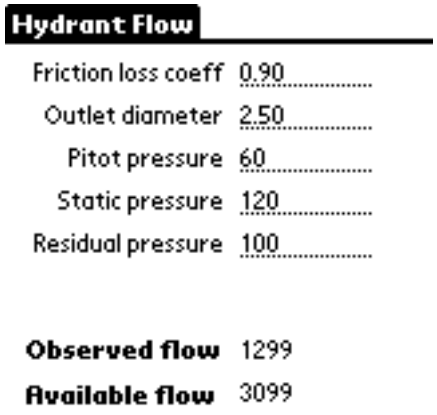
Static Pressure is the pressure reading before water flows. **Residual Pressure** is the pressure reading while water is flowing (from an outlet other than the flow outlet.) **Pitot Pressure** is the reading taken by a pitot gauge inserted into the center of the flowing outlet, at a distance away from the lip of the outlet of about half the nozzle's diameter.

Since hydrant nozzles typically don't produce perfect discharge columns, the **Friction Loss Coefficient** is a correction factor which is often used to compensate for errant pitot readings. Hydrant manufacturers should be able to provide coefficients for their products. For hydrants where the coefficient is unknown, we use .95 or .9 depending upon how uniform the discharge stream looks when the hydrant is opened. If a flow tube or "stream straightner" is used on the hydrant, the coefficient would be 1.

NFPA states that the basis for fire flow calculations will be 20 psi residual, however in low pressure areas they allow calculations based on one-half the static pressure. Ergo, flow from a hydrant that has only a 30 psi static pressure can be calculated on a basis of drawing it down to 15 psi rather than 20.

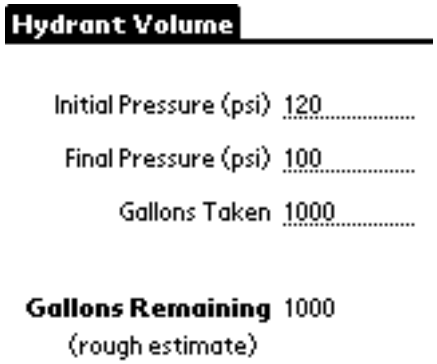
Observed Flow is a calculation in GPM of the actual flow from one outlet flowing fully opened.

Available Flow is the calculated maximum capacity of the hydrant if it is pumped down to the basis residual pressure (usually 20 psi)



Hydrant Volume

This module will give you a very rough estimate of the water remaining in a hydrant, based on the pressure drop after filling your tank. This can come in handy in a rural district in which hydrants contain a relatively small amount of water as compared to the engines being filled (say 10,000 gallons). You measure the initial water pressure, the amount of water removed from the hydrant, and the final water pressure to determine how much water is remaining in the hydrant.



Water Needed

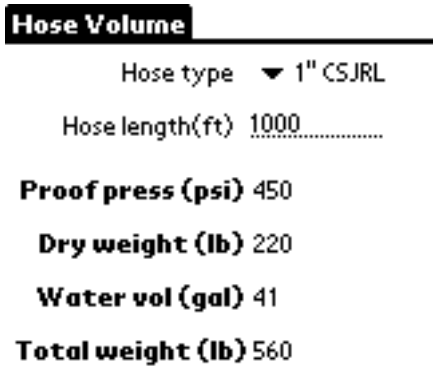
Given the dimensions and type of structure, this will determine the minimum amount of water needed to extinguish a fire. For a residence, the Occupancy Hazard is “class 7” and the Construction is “Type III”. For other types of buildings, consult the online help buttons to select the proper inputs.

This calculation is based on a formula posted on the Firewise.org web site, in their “Operation Water” publication. It can be very beneficial to determine the amount of water needed for each structure when planning your district water needs.

Hose Volume

This is a handy reference guide for the proof pressures of certain hose types, as well as a calculator of the weight and volume of a given length of hose. The “total weight” includes the weight of the hose plus the weight of the water inside.

If a certain value is not known, such as the dry weights of the larger hose types, a “zero” will be displayed for that value.



Reference Menu

The Reference menu contains useful data for firefighters based on publicly available information. This includes:

- Hydrant Colors
- Sprinkler Colors
- Inspection Periods
- Signs of Backdraft
- Flammable Ranges of common gases
- The 4 basic fuel classes (A, B, C, D)