

RIPTIDE PRV



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INTRODUCTION

FIRE PUMP FLOW TESTING EQUIPMENT UNIT EX29051 THE RIPTIDE FLOW TESTING SYSTEM PRV



AS TO FLOW MEASUREMENT ACCURACY SPECIFIED BY THE MANUFACTURER WHEN
INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS

Performance of Riptide PRV™ requires proper assembly, use, service, utilizing the appropriate firehose diameter, storage when not in use and adhering to all instructions in this User Guide. UL Classification Mark applies to the Hose Coupling and Venturi Tube. Branded and calibrated Riptide™ gauges are optimal for static/residual pressure accuracy. The Riptide PRV™ Manometer is the only manometer compatible with this equipment. Correlating volumes for a given orifice size can be found on the factory flow chart. OSHA required PPE should be worn at all times.

CONTENTS

INCLUDED EQUIPMENT

Each Riptide PRV™ comes with the following loose items:

- ☐ One Case
- ☐ One 2" Riptide PRV Venturi Tube
- ☐ One 2.5" Gate Valve
- ☐ One Riptide PRV Manometer
- ☐ One Gauge

FIELD OPS

GENERAL USE

Step 1. Evaluate the condition of the equipment. Observe the Coupling Gaskets, Quick Connects, Gate Valve, Riptide Venturi Tube and Manometer. Fix, replace or calibrate any component found to be deficient, prior to use. All relevant instructions under Field Ops and Service apply.

Step 2. Riptide Venturi Tubes are offered in three different sizes: 1.25", 1.75" and 2.00". Depending on the job site conditions, source capabilities and desired flow rates an appropriate size must be selected.

Step 3. After a selection has been made, securely connect/thread the female 2.50" diameter NHT swivel coupling on the Riptide Venturi Tube to the source being tested until water tight. Do not overtighten or excessive gasket compression will occur.

Step 4. Securely connect/thread the female 2.50" diameter NHT swivel on the Gate Valve to the male 2.5" NHT threads on the downstream end of the Riptide Venturi Tube until water tight. Do not overtighten or excessive gasket compression will occur. Confirm that the Gate Valve is fully closed.

Step 5. Securely connect/thread the female 2.50" diameter NHT swivel on the fire hose to the male 2.5" NHT threads on the downstream end of the Gate Valve. Do not overtighten or excessive gasket compression will occur.

Step 6. Securely connect a gauge to the designated static/residual pressure port so that it is water tight.

Step 7. Securely connect/thread the male 2.50" diameter NHT threads on the downstream end of the fire hose to the desired location so that it is water tight. Typical locations include but are not limited to diffusers and gang drains. If job site conditions permit, flowing directly to atmosphere with Riptide PRV is acceptable.

Step 8. Straighten the firehose referenced above, removing twists and kinks as able. In stairwells this will be challenging and have limitations.

Step 9. Make observations regarding potential situational hazards that may impede the ability to flow water. It is strongly recommended that high visibility traffic cones, barriers, caution tape, etc. are used to aid in securing the work area.

Step 10. Slowly open the source being tested so as to introduce water to Riptide PRV until it is fully charged. Verify by observing the gauge attached to the static/residual pressure port.

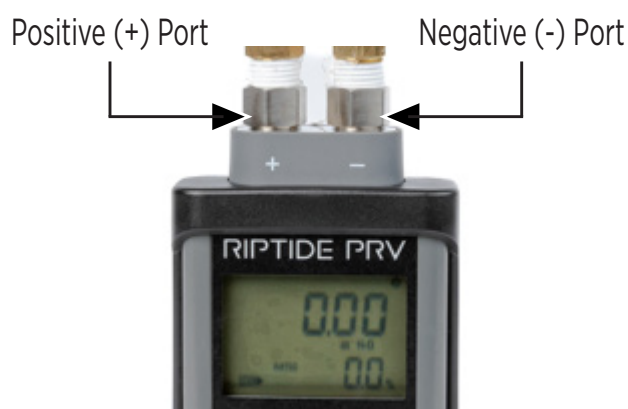
Step 11. Slowly open the 2.5" Gate Valve to induce flow. Turn on the Riptide PRV™ Manometer and connect the hose attached to the designated positive (+) port on the Manometer to the designated High Pressure port on the Riptide PRV. Then connect the hose attached to the designated negative (-) port on the Manometer to the designated Low Pressure port on the Riptide PRV. Positive goes to High, Negative goes to Low.

Step 12. Continue to open the Gate Valve to a satisfactory point. Observe the gauge attached to the static/residual pressure port and the pressure reading on the manometer. Reference the Riptide PRV™ factory flow chart to determine the volume flowing.

Step 13. After flow rates have been achieved, very slowly begin to close the source being tested. It is vital that the source is closed in a predictable, controlled manner without haste or aggressive turns to avoid potential source damage.

Step 14. Post flow, disconnect Riptide PRV™. Dry it off and store in the provided case in a safe, secure place for future use.

Step 15. Return the work area to the state it was found in upon arrival. Do not leave tools or equipment behind.



SERVICE

MANOMETER CALIBRATION

Manometers are required to be calibrated annually. Please contact Hydra-Tap directly to schedule service at (503) 482-8999 or customerservice@hydra-tap.com.

DISCLAIMER

Use of this product is subject to all terms and conditions found at www.hydra-tap.com. Flowing water is inherently dangerous. The purchaser and all users of Riptide PRV™ accept all liability for any damage to property or injury to person, including death, that may occur. Modifications, misuse, abuse, use with damaged components, use with an improper firehose diameter or improperly maintained firehose, and repairs without factory provided parts will void all warranties. All information in this user guide is subject to change without notice at any time. It is the responsibility of the purchaser and all users to stay up to date on revisions. By purchasing and/or using this product you agree to all terms and fully release Hydra-Tap LLC, suppliers of raw materials, fabricators, and distributors of all liabilities.

RIPTIDE PRV MANOMETER

INCLUDED EQUIPMENT

The slim design Riptide PRV Manometer is a hand-held, differential input manometer with data logging capability. Digital filter, min/max, one touch zero, and backlight display are just a few of the features of the Riptide PRV Manometer. The Riptide PRV Manometer comes complete with the following accessories:

- ☐ Riptide PRV Manometer
- ☐ Battery
- ☐ Protective Rubber Case

GENERAL GUIDELINES

1. Ensure connections are secure prior to applying pressure.
2. Inspect hoses and fittings for cracks or bends prior to a pressure test.
3. Make sure the instrument battery is in good condition and there is no lo battery indication in the display.
4. Have someone check on you periodically if working alone.
5. NEVER attempt to measure unknown high pressures. Damage to the instrument may result. Please follow manufacturers test procedures whenever possible.

TECHNICAL DATA

FEATURES AND BENEFITS

Display: 5 digit dual line with backlight

Units of Measure: Seven units of measure (bar, kPa, PSI, mmHg, inHg, mmH2O, inH2O)

Logging: Record test data with time stamp and display with optional software

Data Store: Save up to 16 readings

MIN/MAX: Records Min/Max readings

Auto Off: Conserve batteries

SPECIFICATIONS

Measurement Range: +/-101.5 psi (+/-7bar)

Over Pressure Range: +/-130 psi (+/-9bar)

Display: 5 Digit Dual line LCD with backlight

Input Type: Differential

Resolution (max): 0.01 psi (0.001 bar) (0.1 inH2O)

Accuracy: 0.2% Full scale

Repeatability: 0.1% Full scale

Mean Temperature Coefficient: 0.1% of reading per °C

Functions: One Touch Zero, Data Hold, Back-light, Unit Selection, Data Logging, Auto power Off, Min / Max Record, Resolution Selection

Units of Measure: 7Units (bar, kPa, PSI, mmHg, inHg, mmH2O, inH2O)

Data Logging: 5000 Data, 1sec ~ 24 hour

Data Storage: 16 data points

Battery Type: AA(1.5V)*2 alkaline (MN1500, LR6)

Battery Life: 600hour (Typical)

Auto Power Off: 20 minutes (can be disabled)

CONTROLS AND FUNCTIONS



ON: Press to turn the Riptide PRV Manometer on.

B-L Filter: Press to activate the display backlight. Backlight powers off after 15 seconds. Press the SHIFT key first then this key to activate the digital filter. Use to smooth fast changing measurements.

- EXP OFF**: Press to activate “blue” functions (Load, Save, Min, Max). “EXP” will display when active. Press the SHIFT key first, then this key to turn the Riptide PRV Manometer off.
- Hold Print**: Press to activate/deactivate the display hold.
- Enter APO**: Press to select resolution and confirm menu selections. Press the SHIFT key first, then this key to turn deactivate/activate auto power off.
- Unit Zero**: Press to change the unit of measure. Press the SHIFT key first, then this key to zero the Riptide PRV Manometer prior to making a measurement.
- Shift**: Press to activate shift mode (red key functions).
- Mode Set**: Press to cycle through bottom display modes (percent of fullscale, current time, number of logged readings). Press the SHIFT key first, then this key to activate EDIT mode.
- Log**: Press to display number of logs made. Press the SHIFT key first, then this key to activate/deactivate log mode.

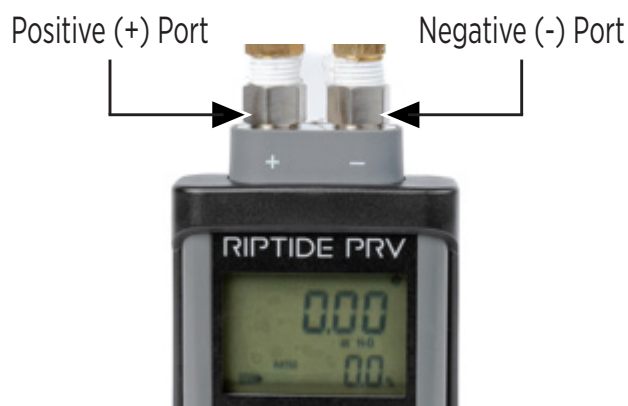
MAKING A MEASUREMENT

Step 1. Turn the Riptide PRV Manometer by pressing the **ON** key.

Step 2. Zero the Riptide PRV Manometer by pressing **Shift** **Unit Zero**.

Step 3. Connect the hose attached to the designated positive (+) port on the Manometer to the designated High Pressure port on the Riptide PRV. Then connect the hose attached to the designated negative (-) port on the Manometer to the designated Low Pressure port on the Riptide PRV. Positive goes to High, Negative goes to Low.

Note: Any pressure connected to the “-” port will be subtracted from the “+” port and the result will be displayed.



Step 4. Read the measurement in the display.

Step 5. Remove pressure prior to disconnecting the lines from the inputs. During a measurement the following functions can be used:

: Activates the display backlight. Backlight powers off after 15 seconds.

: Press to change the unit of measure.

: Press to activate/deactivate the display hold.

: Press to select resolution.

: Press to cycle the bottom display through current time, ration in percent of reading compared to full scale, and number of logged data (NUM).

 : Press the SHIFT key first then this key to activate the digital filter. Use to smooth fast changing measurements.

There are many other features such as data storage and logging that can be used. Please see next sections.

SAVING DATA

During a measurement data can be saved for retrieval later.

 : Press to save displayed readings. Data automatically saved in one of 16 locations.

LOADING SAVED DATA

 : Press to display saved data. The stored data will be shown in the main display and the storage location will be displayed on the bottom display.

When “EXP” is displayed pressing the  key will cycle the storage location up and pressing the  key will cycle the storage location down. This data can also be printed (see *below*).

MIN/MAX

 : Press to display the minimum reading measured.

 : Press to display the maximum reading measured.

CHANGING THE DATE AND TIME

Step 1. Activate “EDIT” mode by pressing  .

Step 2. Press  and the “date” is displayed.

Step 3. Press  and  to cycle through month, day and year.

Step 4. Press  and  to change the month, day or year.

Step 5. Once the date has been changed press  and “date” is displayed.

Step 6. Press  and “rtc” is displayed. Press .

Step 7. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.

Step 8. Press  and  to cycle through hours, minutes and seconds.

Step 9. Press  and  to change the hours, minutes and seconds.

Step 10. Exit “EDIT” mode by pressing  .

LOGGING DATA

SETTING UP DATA LOGGING INTERVAL

This mode sets up the interval or time between each logged data point. The interval can be set from 1 second to 24 hours. The Riptide PRV Manometer can log a total of 5000 data points.

Step 1. Activate “EDIT” mode by pressing  .

Step 2. Press   and “rtc” is displayed.

Step 3. Press  and “L-Int” is displayed. Press .

Step 4. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.

Step 5. Press  and  to cycle through hours, minutes and seconds.

Step 6. Press  and  to change the hours, minutes and seconds.

Step 7. Exit logging interval mode by pressing .

Logging can now be started and stopped manually or set to automatically start and stop. For automatic logging skip the steps below and see next page.

To log manually, exit “EDIT” mode by pressing  .

Start and stop logging by pressing  .

SETTING UP LOGGING START TIME

This mode sets up start time for automatic logging. Logging can also be activated manually (see above).

Step 1. The logging interval should already be set and the Riptide PRV Manometer should be displaying “L-Int”. If not, follow steps 1–7 on page 9 before proceeding.

Step 2. Press  and “L-St” is displayed. Press .

Step 3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.

Step 4. Press  and  to cycle through hours, minutes and seconds.

Step 5. Press  and  to change the hours, minutes and seconds.

Step 7. Exit logging interval mode by pressing .

The logging stop time must now be set. Please see below.

SETTING UP LOGGING STOP TIME

This mode sets up stop time for automatic logging. Logging can also be activated manually (*see above*).

Step 1. The logging interval and start time should already be set and the Riptide PRV Manometer should be displaying “L-St”. If not, follow steps 1–7 on page 9 along with steps 1–6 on page 9 before proceeding.

Step 2. Press  and “L-Et” is displayed. Press .

Step 3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.

Step 4. Press  and  to cycle through hours, minutes and seconds.

Step 5. Press  and  to change the hours, minutes and seconds.

Step 6. Exit logging interval mode by pressing .

Step 7. To exit “EDIT” mode and return to normal operation press  . The LCD will display “REC” to remind you automatic logging is activated. “REC” will blink when logging is taking place.

Step 8. Automatic logging can be deactivated. Please see below.

DEACTIVATING AUTOMATIC LOGGING

This mode turns off automatic logging.

Step 1. Activate “EDIT” mode by pressing  .

Step 2. Press  six times until “L-res” is displayed.

Step 3. Press  and “L-rES” and “YES” is displayed.

Step 4. Press  or  to cycle between “NO” (*cancel*) and “YES” (*activate*).

Step 5. Once “YES” or “NO” is set press  .

Step 6. Exit logging interval mode by pressing  to exit “EDIT” mode.

MAINTENANCE

BATTERY REPLACEMENT

- Step 1.** Remove the protective rubber boot beginning at the bottom.
- Step 2.** Using a screwdriver loosen the two screws located at the bottom of the Riptide PRV Manometer.
- Step 3.** Pull on the screws to remove the bottom cover/battery holder.
- Step 4.** Remove the batteries and observing polarity replace them with fresh batteries.
- Step 5.** Re-install the battery holder and tighten the screws

CLEANING

Use a mild detergent and slightly damp cloth to clean the surfaces of the Riptide PRV Manometer.

TROUBLESHOOTING AND SERVICE

<i>PROBLEM</i>	<i>PROBABLE CAUSES</i>
<i>Does not power up</i>	Dead or defective battery.
<i>“batt%” flashes in the lower display</i>	Low battery indicator. Replace batteries.
<i>Readings are high</i>	Very weak battery that will not turn on the low battery indicator on the LCD.
<i>OFL reads in the display</i>	Indication of over pressure. Remove pressure source. OR If pressure source is removed and the Riptide PRV Manometer still displays “OL” the sensor is no longer working and the Riptide PRV Manometer needs service.

To obtain service for your Riptide PRV Manometer please return it to:

Hydra-Tap
Attn: Manometer Service
36327 Industrial Way
Sandy, OR 97055

(503) 482-8999
customerservice@hydra-tap.com



RIPTIDE PRV™



PSI	1.25"	1.75"	2"	PSI	1.75"	2"
1	-	-	-	51	737.6	1095.6
2	66.6	-	-	52	744.8	1106.2
3	81.5	-	-	53	751.9	1116.8
4	84.1	-	-	54	759.0	1127.3
5	105.3	-	-	55	766.0	1137.7
5.86	113.9	250.0	-	56	772.9	1148.0
6	115.3	253.0	-	57	779.8	1158.2
7	124.5	273.3	-	58	786.6	1168.3
8	133.1	292.1	-	59	793.4	1178.4
9	141.2	309.9	-	60	800.1	1188.3
10	148.9	326.6	485.1	61	806.7	1198.2
11	156.1	342.6	508.8	62	813.3	1207.9
12	163.1	357.8	531.4	63	819.8	1217.6
13	169.7	372.4	553.1	64	826.3	1227.3
14	176.1	386.5	574.0	65	832.7	1236.8
15	182.3	400.0	594.1	66	839.1	1246.3
16	188.3	413.2	613.6	67	845.4	1255.7
17	194.1	425.9	632.5	68	851.7	1265.0
18	199.7	438.2	650.9	69	858.0	1274.3
19	205.2	450.2	668.7	70	864.2	1283.5
20	210.5	461.9	686.1	71	870.3	1292.6
21	215.7	473.3	703.0	72	876.4	1301.7
22	220.8	484.5	719.6	73	882.5	1310.7
23	225.7	495.4	735.7	74	888.5	1319.7
24	230.6	506.0	751.5	75	894.5	1328.6
25	235.4	516.4	767.0	76	900.4	1337.4
26	240.0	526.7	782.2	77	906.3	1346.2
27	244.6	536.7	797.1	78	912.2	1354.9
28	249.1	546.5	811.8	79	918.0	1363.5
29	253.5	556.2	826.1	80	923.8	1372.1
30	257.8	565.7	840.3	81	929.6	-
31	262.1	575.1	854.1	82	935.3	-
32	266.3	584.3	867.8	83	941.0	-
33	270.4	593.3	881.3	84	946.6	-
34	274.5	602.3	894.5	85	952.3	-
35	278.5	611.1	907.6	86	957.9	-
36	282.4	619.7	920.5	87	963.4	-
37	286.3	628.3	933.1	88	968.9	-
38	290.2	636.7	945.7	89	974.4	-
39	294.0	645.0	958.0	90	979.9	-
40	297.7	653.2	970.2	91	985.3	-
41	301.4	661.4	982.3	92	990.7	-
42	305.1	669.4	994.2	93	996.1	-
43	308.7	677.3	1006.0	94	1001.4	-
44	312.2	685.1	1017.6	95	-	-
45	315.8	692.9	1029.1	96	-	-
46	319.3	700.5	1040.5	97	-	-
47	322.7	708.1	1051.7	98	-	-
48	-	715.6	1062.8	99	-	-
49	-	723.0	1073.9	100	-	-
50	-	730.4	1084.8			

All laboratory instrumentation used in the creation of this chart is ISO 17025 traceable.

Readings were found to be accurate to within +/-3%.

VENTURI	AVERAGE K	FLOW RANGE
1.25"	47.07	66.6 - 322.7
1.75"	103.29	250.0 - 1001.4
2"	153.41	485.1 - 1372.1

$$Q = K \sqrt{P}$$

1.25"

Refer to this column when operating the 1.25" Riptide PRV™.

1.75"

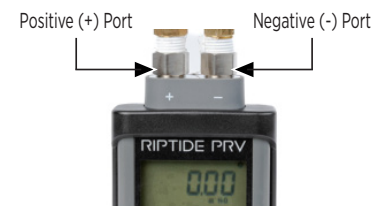
Refer to this column when operating the 1.75" Riptide PRV™.

2"

Refer to this column when operating the 2" Riptide PRV™.

RATED INLET PRESSURE

250 PSI



Connect the hose attached to the designated positive (+) port on the Manometer to the designated High Pressure port on the Riptide PRV. Then connect the hose attached to the designated negative (-) port on the Manometer to the designated Low Pressure port on the Riptide PRV.



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