



## Iron Gate® Air Pump System Manual

### INSTALLATION AND OPERATING INSTRUCTIONS IRON GATE® IRON FILTER SYSTEM



*Manufactured by:*

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## Iron Gate® Air Pump System Instructions

### Description

The Iron Gate® Air Pump System consists of the Iron Gate® Manifold Kit (Figures 1 and 2), the Auto Air Pump and Accessories (Figures 3 - 8), the Air Release tank, and Iron Gate® Filter.

### Installation / Start Up

#### Assembling Iron Gate® Manifold Kit (Item No. 81875)

Remove components of Iron Gate® Manifold Kit and assemble as pictured in Figure 2. Figure 1 shows all manifold kit parts.



Figure 1 – Iron Gate Meter Control Parts



Figure 2 – Iron Gate Meter Control Assembly

#### Assembling Auto Mini Air Pump and Accessories (Item No. 84250Q)

Air Check Valve Nickel Plated 1/8" MxM NPT (Figure 8). Brass retainer is located on outlet side of check valve.

1/8" MNPT Chrome Bezel 100 PSI Pressure Gauge.

Air Pressure Relief Valve Nickel Plated 1/8" MNPT (thumb screw adjustable with lock nut).

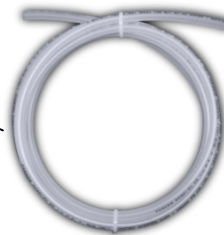
1/8" Nickel Plated Brass Cross.

1/8" MNPT X 1/4" Tube Nickel Plated Swivel Elbow Tubing Adapter.



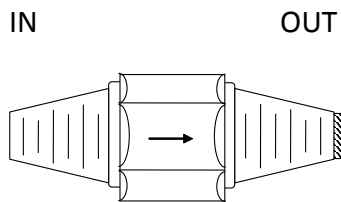
**Figure 3 – Air Pump assembly**

1/4" OD Polyethylene Tubing-(6 Feet)



**Figure 4 – Tubing**

Air Check Valve Nickel Plated 1/8" M x M NPT (Figure 8). Brass retainer is located on outlet side of check valve.



Brass Retainer on Outlet Side

**Figure 5 – SS Check Valve**

**Air Pump Assembly**

**Iron Gate® Iron Filter Systems**

1/8" MNPT Chrome Bezel 100 PSI Pressure Gauge.

1/8" MNPT X 1/4" Tube Nickel Plated Swivel Elbow Tubing Adapter.

Connect 1/4" tubing to Iron Gate® manifold.



Air Check Valve Nickel Plated 1/8" MxM NPT (Figure 8). Brass retainer is located on outlet side of check valve.

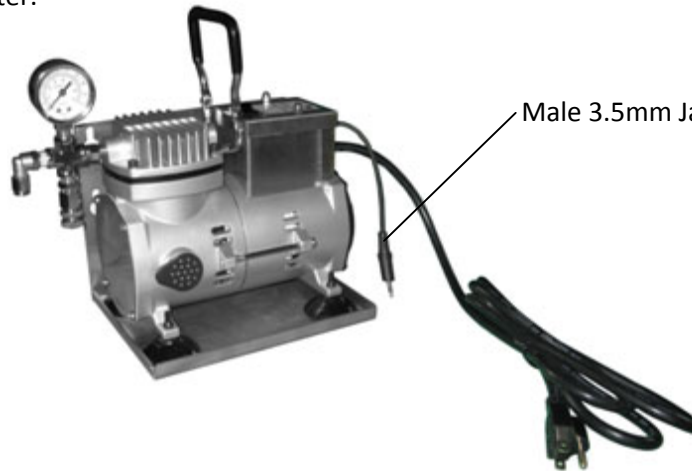
1/8" Nickel Plated Brass Cross.

Air Pressure Relief Valve Nickel Plated 1/8" MNPT (thumb screw adjustable with lock nut).

**Figure 6 – Air Pump Assembly**

Swivel Elbow Tubing Adapter.

Male 3.5mm Jack



**Figure 7 – Assembled Air Pump**

**Air Pump Shelf Bracket**

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The mini air pump shelf bracket (Figure 8) is made of strong, 11 gauge, 304 stainless steel, with all corners rounded and has a vibratory finish. The shelf dimension is 6" x 7.5" with 7/16" lip. The bracket dimension is 6" x 7.5". The four 1/2" x 1/4" offset mounting holes are 6.5" horizontally apart and 2" vertically apart.

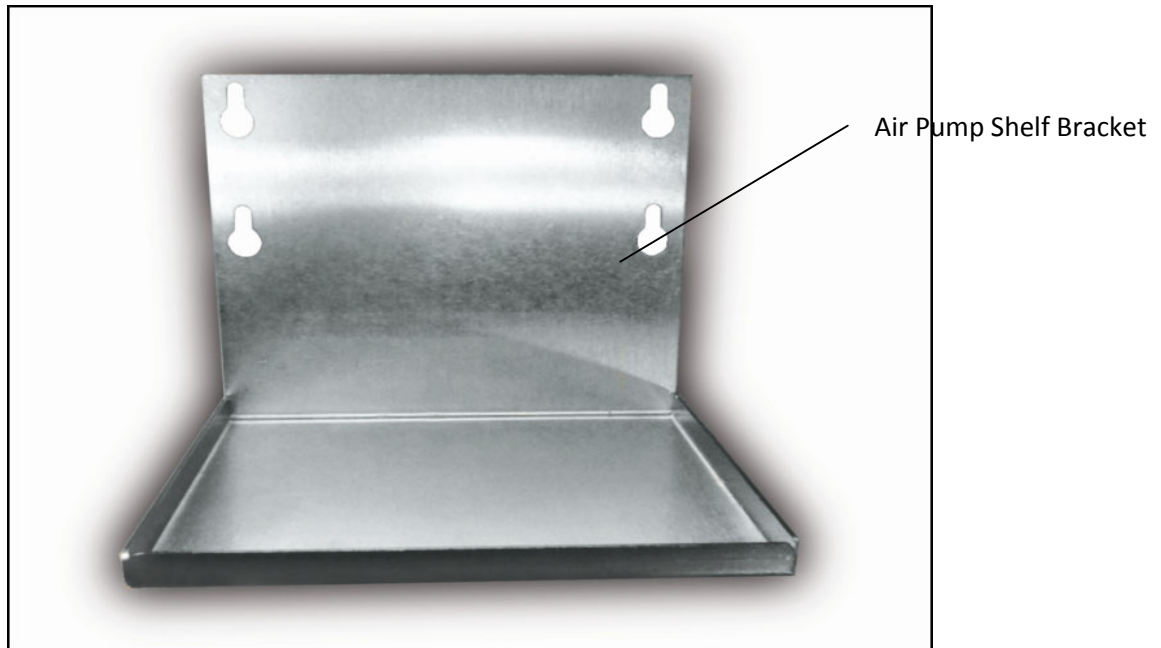


Figure 8 – Air Pump Shelf Bracket

### Mini Air Pump Installation Instructions (See figure 7)

1. Mount Shelf Bracket in a well ventilated, clean area away from wet surfaces.
2. Place Iron Gate® Auto Mini Air Pump on shelf bracket.
3. Apply Teflon Tape to all male thread connections.
4. Install the check valve in outlet of the air pump. **Be sure not to over-tighten the check valve to reduce risk of cracking the air pump head.** Air flow is away from pump. Check valve consists of a rubber stopper with a stainless steel spring and a pressed in brass retainer. The brass retainer is located at the outlet side of the check valve.
5. Install the cross onto the outlet side of the check valve.
6. Install the relief valve, pressure gauge, and swivel elbow in desired location on the brass cross. Relief valve is pre-set at 80 PSI.
7. Connect the desired amount of tubing from the swivel elbow that is attached to the air pump, to the Iron Gate® manifold swivel air-in elbow. See Figure 2.

### Assembling Air Release Tank

Air Release Tank comes preassembled, attach to Iron Gate® Manifold as seen in Figure 11.

### Iron Gate Filter Assembly

Iron Gate® Filter should come preassembled. If not, Iron Gate® Filter Media needs to be installed; follow instructions below.

1. Remove Automatic Backwashing Valve from the top of empty mineral tank.
2. Plug the top of the distributor tube so that no mineral falls down the tube during filling.
3. Add specified amount of gravel to the bottom of the mineral tank so that the base of the distributor tube is sufficiently covered.
4. Pour media into the tank until it reaches 18" from the top of the mineral tank.

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5. Remove the plug from distributor tube.
6. Reinstall the Automatic Backwashing Valve to the top of the mineral tank. Be careful not to disturb the o-ring that is located in the distributor tube opening and also on the flange that meets the top of the mineral tank. Leaks could result.
7. Attach to the Iron Gate® Filter to Iron Gate® Manifold as seen in Figure 9.

### Final Assembly

Tighten all connections into and out of the Iron Gate® Manifold such that they are watertight. Set unit in its final position and plug in Meter Control Transformer. Refer to appropriate control valve manual for inlet/outlet plumbing, drain line positioning, fitting assembly, power supply, and start up of control valve.



Figure 9 – Iron Gate Filter Assembly

## Operation

### Auto Mini Air Pump

The Auto Mini Air Pump is equipped with a 12 V AC relay. For auto operation, connect male 3.5mm jack to female 3.5mm 12 V AC output on Iron Gate Manifold using 6ft 3.5mm M/F Auto Connect cord.

### Automatic Backwashing Valve

Refer to Automatic Backwashing Valve Manual for Operation.

### Meter Control Manual

Meter Control monitors water use, operates the Auto Feed pump, and beeps when threshold gallons is met.

### Flow display

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The meter control will provide a visual digital display of real time flow in gallons per minute; provide a total gallons record and a peak flow rate record. The total gallons and the peak flow may be cleared in Programming mode.

### Threshold visual and audible signals:

Program a threshold value between 10,000 and 9,990,000 gallons and the meter control will provide visual indication at 80% and 90% of the threshold level and an audible beep at 100% of the threshold level. This feature is useful as an indicator or reminder for future service or preventative maintenance.

### Threshold connection:

Connection Opt 2 is energized with 12 VAC when the threshold level is reached. This may be used to interface internet, signal alarms or other devices.

### 4-20 milliamp connection:

Connection J2 is a 4-20 milliamp linear signal proportional to flow. This may be used to control a chemical feed pump, VFD, chart recorder or other devices.

### Flow switch connection:

Connection Opt 1 can be energized with 12 VAC when flow is greater than 0.5 GPM. When flow stops Opt 1 remains energized for an adjustable time delay off.

### Batch switch connection:

Connection Opt 1 can also be energized every certain number of gallons for an adjustable time period. This feature is adjustable between 1 to 990 gallons and .1 to 90 minutes to batch operate air pumps, chemical feed pumps, CO2 solenoids to lower pH and more.

### Meter Control Operation Buttons:

- Flow button: Flow rate in gallons per minute.
- Total Flow button: Total gallons registered since last memory cleared.
- Peak Flow button: Highest flow rate since last memory cleared.

### Lights:

- Green Light: Power on light.
- Yellow Alert Light: Blinks at 80% threshold gallons.
- Red Alert Light: Blinks at 90% threshold gallons.
- See **PROGRAMMING** section below to set threshold gallons.

### Alarm Beep:

- 3 Beeps every 15 seconds at 100% threshold gallons.
- Push any button to silence beep for two days.
- See **CLEAR MEMORY** section below to stop beep.

### Clear Memory (Stops Beeping)

Clear memory will stop 100% Threshold Beep, zero out Total Flow and Peak Flow values. Be sure to write these values down and the date for future reference.

- Press all 3 buttons simultaneously and screen displays **CLR MEMORY NO.**
- Press Total Flow or Peak Flow button and screen displays **CLR MEMORY YES.**
- Press Flow button.
- Memory is cleared.

**Programming: Press all three buttons of the display simultaneously for 3 seconds.**

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- Flow Button: Toggles to next screen, also acts as the **Enter** Button.
- Total Flow Button: Toggles the values **up**.
- Peak Flow Button: Toggles the values **down**.

### Screen One: CLR MEMORY YES / NO

- **YES** to clear memory of Total Flow and Peak Flow.
- **NO** to continue on with programming.

### Screen Two: SET PULSES (factory set at 80)

- Set pulses per gallon (PPG) for Hall Effect meter.

### Screen Three: SET THRESHOLD TOTAL 2 YES or NO

- **YES** to use threshold function.
- **NO** to turn off threshold function, skips screen four.

### Screen Four: SET THRESHOLD TOTAL 2 (factory set at 80)

- Set threshold gallons.
- Yellow light blinks at 80% threshold.
- Red light blinks at 90% threshold.
- Alarm beeps at 100% threshold.
- Opt2 connection is powered with 12 VAC at 100% threshold. (30 milliamps max.)

### Screen Five: SET GAL/MIN (no factory setting)

- Set GPM for the 20 milliamp output level.
- Zero flow is a fixed 4 milliamp output.
- Watch polarity. 4-20mA output at J2 connection.

### Screen Six: SET GAL 1

- Set the gallon batch to energize Opt1
- Set between 1 and 990 gallons.  
Air Pump factory setting is 20 gal.  
Feed Pump setting is 1 gal for 10 GPM peak flow.
- A setting of zero energizes Opt1 like a flow Switch, sensitive at .5 GPM.

### Screen Seven: SET MIN 1

- Set delay off in minutes for Opt1 connection
- Set between 0.1 and 90 minutes.  
Air Pump factory setting is 0.33 min.  
Feed Pump setting is 0.10 min.
- Opt1 is 12 VAC (30 milliamps max.)

Factory Settings:	
CLR MEMORY	no
SET PULSES	80
SET THRESHOLD TOTAL	
SET THRESHOLD TOTAL	80 GAL x1000
SET	5 GAL MIN
SET	20 GAL
1	

SET	
	0.33 min
1	

Meter Control Connections

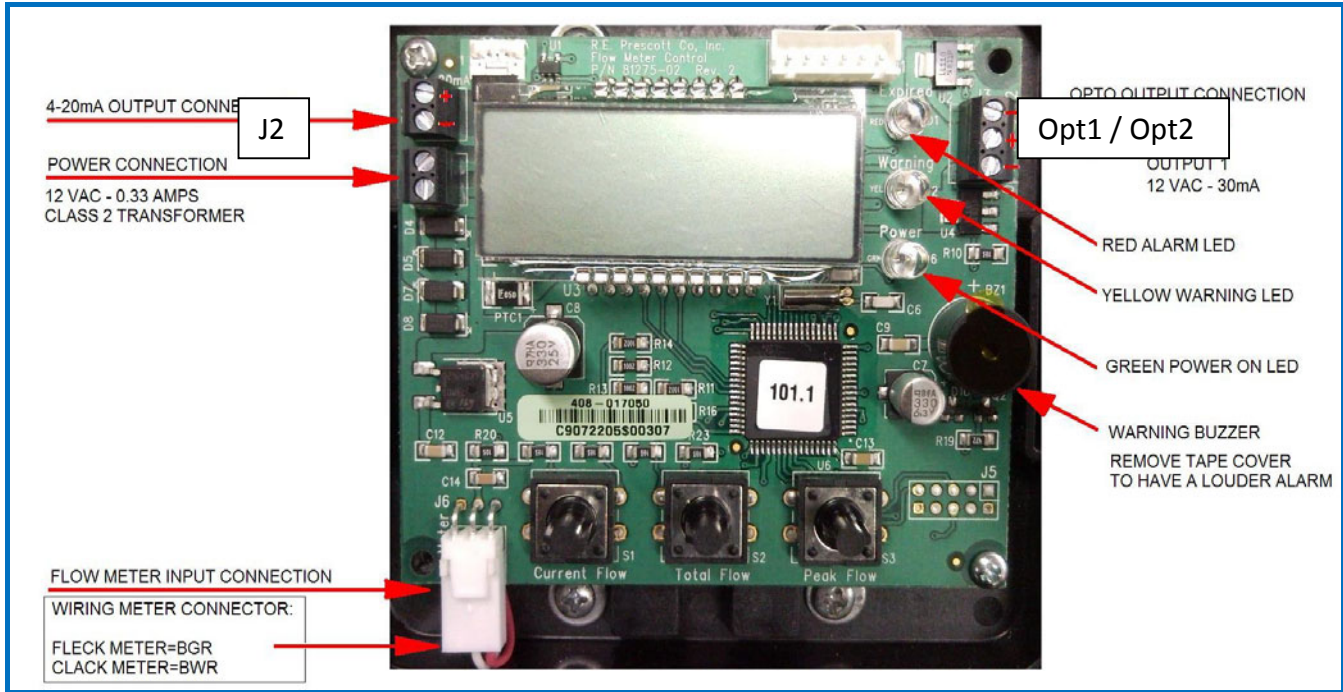


Figure 10 – Meter Control Board

Meter Pulse Setting

Model	Size	4-20mA range	PPG
Iron Gate® meter	1" male IPS Connections	0-25 GPM max	80 PPG

