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## Automatic Blow Down & Compressor Alternation

A very popular system developed by Righton Instrument Co. is the Series 39 Automatic Blow Down & Compressor Alternation.

Supported by 2 each two gallon tank compressors, alternation is controlled within the bubbler. Blow down is initiated from a local pushbutton or a remote I/O PLC SCADA System.

**A loss of air alarm notifies operations if one of the compressors fail, and the system runs on the one good compressor until repairs or replacement of the defect compressor are made. Reset of the alarm is made by initiating a blow down.**

Blow down is the periodic maintenance of cleaning any debris collected on the inner wall of the dip tube. During blow down the measured hydrostatic pressure is locked

in by closing a solenoid valve to trap the measured variable and protect the sensor from the high pressure/velocity air flow that follows one second later. The blow down time is field adjustable. (6 seconds typically). At the completion of blow down, more time is necessary for the system to re-stabilize itself before opening the isolation solenoid valve (9 seconds typically). The total sequence time is 16 seconds, with bumpless transfer to the original measurement.

This system reduces maintenance costs on a huge scale in sanitary waste stations, where the bubbler method has proven to be the most reliable method.

Compressor alternation assures reliability for those long weekends away from the lift station.



The bubbler is wall mounted, and the two compressors fit nicely mounted on shelves in a "can" type pump control station.

Output: 4—20 Ma. DC

Accuracy: .075%

Enclosure: NEMA 4X

Mechanical Gauge Reading

RED LED Indication

Automatic blow down

### Contents:

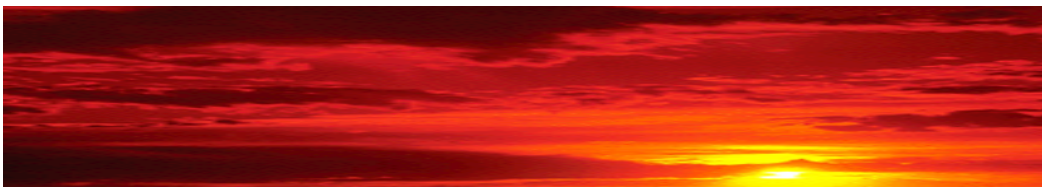
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### APPLICATIONS

*Lift Stations  
Wet Wells  
Ponds  
Reservoirs  
Dam Levels  
Tanks  
Head loss  
Flow*

### OPTIONS

- Surge Protection
- SS Enclosure
- Internal Air Pump
- Auto Blow Down
- Beacon Indicator
- Mechanical Gauge Reading
- Pneumatic Output
- Remote measurement via standard phone.
- Audible Alarms
- Controller



## The Custom Design Concept

Righton Bubbler Systems are custom designed for continuous measurement and control of level, density, and screen drop/head loss.

Since 1993 Righton Instrument Co. has been designing and manufacturing Bubbler Systems with a strict policy of Quality Assurance. Each component is

carefully selected to produce a truly turnkey system. The bubbler method has proven to be the most reliable and respected by experienced operators.

Our custom design and modular concept offers the technique at a lower cost and easier installation for the final user. We invite your inquiry, to meet your needs.



## Series 29 Bubbler Systems

The purge supply pressure is filtered (5 micron) and regulated to 10 PSIG higher than the maximum hydrostatic pressure measured.

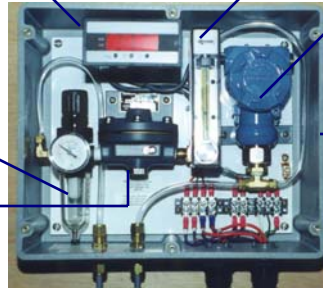
A constant differential flow rate controller maintains a constant Flow rate at 1 SCFH.

.58" Red LED indication  
2 ea. Alarm Outputs

SS Rotameter with borosilicate glass indicates the purge flow rate.

Pressure Transmitter  
4-20 Ma. DC Output  
Accuracy: 0.1%

NEMA 4X  
Fiberglass enclosure with clear visual access cover.



MODEL 29RIO2

## Easy Wall Mount Installation

The bubbler is intrinsically immune to surface foam, pH, conductivity, temperature, Turbulence, viscosity, and solids content.

The sensor is not in contact with the liquid, offering long life, and calibration stability.

The Series 29 Bubbler is designed for basic level measurement. Model 29RIO2 was designed to retrofit an ultrasonic level transmitter which was suffering from the effects of foam inside a backwash storage tank. Small and light weight the NEMA 4X enclosure was quickly installed utilizing the existing power and signal conduits. 1/4"OD poly tube was pulled through the existing conduit

which previously housed the signal cable from the ultrasonic sensor. A one inch SS dip tube was installed by the owner on the nozzle which previously supported the ultra sonic sensor.

The system has been running in automatic with out interruption, and operational costs were reduced dramatically.

The 4-20 Ma. Output was fed into a DCS system which controlled pump speed. Two alarm

output contacts for high and low level also connected to the DCS system. The .58" red LED indication allowed operations to view the level with ease when passing by.

Several series 29 bubblers with up to 4 contact outputs have been manufactured since, and has become the most popular system used for basic bubbler technique level measurement.

## About the Dip Tube

The dip tube material must be compatible with the process fluid.

The hydraulic lines and associated connectors from the bubbler to the dip tube can be of any material capable of withstanding the maximum pressure applied.

The lines should be sloped toward the dip tube to avoid any condensate traps.

A 1/4" V Notch at the bottom of the dip tube ensures the continuous flow of small bubbles.



DIP TUBE	
DEPTH	DIAMETER
2 — 24"	1/4" OD
2 Ft.— 10 Ft.	1/4" - 3/8" OD
10 Ft.—20 Ft.	3/8" - 3/4" OD
20 Ft. and up	3/4" - 1" ID

FEEDER LINE	
LENGTH	DIAMETER
2—50 Ft.	1/4" OD
50 Ft.—100 Ft.	3/8" - 1/2" OD
100 Ft.—500 Ft.	1/2" - 3/4" OD
500 Ft. and up	3/4" - 1" ID

## AT A GLANCE

	DESCRIPTION	APPLICATION
	<p>SERIES 39 LOW RANGE 0—17" H<sub>2</sub>O LEVEL.</p> <p>RED LED INDICATION WITH 4—20 mA. OUTPUT. 4 RELAY OUTPUT CONTACTS WITH ADJ. DB &amp; HYSTERESIS. SOL. VALVE TO OPEN &amp; CLOSE INLET VALVE.</p> <p>HEATER &amp; THERMOSTAT FOR OUTDOOR SERVICE. HIGH &amp; LOW LEVEL ALARMS. INTERNAL TUBE: 1/4" OD COPPER.</p>	<p>LEVEL MEASUREMENT &amp; CONTROL OF COOLING TOWER.</p>
	<p>SERIES 39 WITH INTERNAL AIR PUMPS 0—10 Ft. WATER.</p> <p>RED LED INDICATION WITH 4—20 mA. OUTPUT. 4 RELAY OUTPUT CONTACTS WITH ADJ. DB &amp; HYSTERESIS.</p> <p>LEAD LAG PUMP CONTROL.</p> <p>SELECTOR SWITCH TO ALTERNATE AIR PUMPS. HIGH &amp; LOW LEVEL ALARMS. INTERNAL TUBE: 1/4" OD PVC CLEAR.</p>	<p>LAB WASTE LIFT STATION</p>
	<p>SERIES 39 WITH COMPRESSOR ALTERNATION.</p> <p>LOSS OF AIR ALARM CONTACT TO PLC..</p> <p>4—20 mA. OUTPUT.</p> <p>LOCAL PILOT LIGHT LOSS OF AIR ALARM.</p> <p>INTERNAL TUBE: 1/4" OD COPPER.</p>	<p>SEWAGE PUMP STATION</p>
	<p>SERIES 39 WITH AUTO BLOW DOWN.</p> <p>RED LED INDICATION WITH 4—20 mA. OUTPUT.</p> <p>HIGH &amp; LOW LEVEL ALARMS.</p> <p>HEATER &amp; THERMOSTAT FOR OUTDOOR SERVICE.</p> <p>INTERNAL TUBE: 1/4" OD COPPER.</p>	<p>FISH POND LEVEL MEASUREMENT</p>
	<p>SERIES 29 WITH RED LED INDICATOR.</p> <p>4 RELAY OUTPUTS.</p> <p>MANUAL BLOW DOWN VALVES.</p> <p>INTERNAL TUBE: 1/4" OD COPPER.</p>	<p>ALUMINUM CASTING COOLING PIT LEVEL CONTROL</p>
	<p>SERIES 49 DIFFERENTIAL HEAD LOSS.</p> <p>AUTO BLOW DOWN VIA EXTERNAL CONTACT CLOSURE.</p> <p>RED LED INDICATION WITH 4—20 mA. OUTPUT. 2 RELAY OUTPUT CONTACTS WITH ADJ. DB &amp; HYSTERESIS.</p> <p>HEATER &amp; THERMOSTAT FOR OUTDOOR SERVICE. INTERNAL TUBE: 1/4" OD COPPER.</p>	<p>HEADLOSS MEASUREMENT ACROSS FISH WAY PUMPING STATION</p>

## Three Words About Bubblers

### ADVANTAGE

The purge gas isolates the measuring device from the measured liquid. Surface foam, turbulence, viscosity, pH, conductivity, solids content, and electrical noise do not affect the measurement.

### RELIABILITY

A properly designed bubbler system will deliver the best reliability over all other methods.  
Ask any experienced operator.

### ACCURACY

From .2% to .075% factory calibrated traceable to NIST standards.

## END USERS OF RIGHTON BUBBLER SYSTEMS INCLUDE:

AT&T CORP.

ALCAN CORP.

ALUMINUM SHAPES CORP.

CITY OF SAN FRANCISCO, State of California

DEPT. of FISH & WILDLIFE State of Oregon

LEWIS COUNTY P.U.D. Morton, Washington

LUCENT TECHNOLOGIES, INC.

M & M MARS COMPANY

NORTHERN STATES POWER CORP.

NYC D.E.P. New York, New York

CITY of ATLANTA, GA.

TROPICANA

U.S. ARMY CORPS OF ENGINEERS

UNITED STATES GYPSUM CO.

## ONE WORD ABOUT RIGHTON INSTRUMENT COMPANY

### QUALITY

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