WELL BUBBLER MANAGER SOFTWARE TOOL

OPERATING INSTRUCTIONS

INSTALLATION & CONNECTION

The Well Bubbler Manager tool is used to configure the units, and to access the stored data. To begin, download and install the latest version of the Well Bubbler Manager tool from the Downloads section of the website. Connect the Well Bubbler to your computer using the USB cable included with the sensor, then open Manager. System Status should indicate that the Bubbler is now connected, displaying the unit's serial number and local time.

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SYSTEM STATUS

<u>Bubbler Connected</u> This field indicates a connection to the Well Bubbler, established once the unit is plugged into the computer – no further action is necessary to establish a connection.

<u>System Memory</u> This field indicates the available system memory for data storage

<u>Unit Serial Number</u> This field indicates the serial number of the Well Bubbler, and should match the nameplate value on the unit itself

<u>Firmware</u> The firmware version is provided for diagnostics only; please reference it if contacting Tech Support.

<u>System Time</u> The local time of the PC on which the Manager software is operating

<u>Bubbler Time</u> The Bubbler's internal time, used to time-stamp recorded data. This time value is set at the factory, and should coincide with the System Time. Use the "Set Time" button to adjust if necessary.

DATA LOG

Use the "Get From Bubbler", "Save as CSV" and "Open in Excel" buttons to access and download the data. The "Erase All" button can be used to clear the memory, but should not be necessary. Do not use the "Write Serial #" button unless authorized by the factory.

<u>Year, Month, Day, Hours, Minutes, Seconds</u> These fields contain the time stamp of the data record

<u>Level</u> Well level, in feet

<u>Vbat</u> Battery voltage of the unit, provided for reference and diagnostics only

<u>Temp</u> Temperature of the display, provided for reference and diagnostics only, and is relevant only to the 10-120 model

<u>GPM</u> Flow rate, determined from either pulse-type or 4-20mA flow meter input

<u>PSI</u> Discharge pressure

<u>AMP</u> Pump current

<u>WEllID</u> Unique identifier of the well where the data was gathered

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CONTROL PANEL

Use the "Get From Bubbler" and "Send To Bubbler" buttons to read, and program, the following configuration parameters:

DISPLAY CONTAST The Bubbler adjusts the display contrast automatically, based on the display temperature, to improve visibility in bright sunlight. This menu can be used to override the automatic adjustment.

COMPRESSOR ON TIME This parameter should be set to the factory default value of 3-5 seconds when using 5/32" OD or 1/4" OD airline; a larger value may be required when using 1/4" or larger galvanized sounding tube.

MEASUREMENT DELAY The delay time should be set to the factory default value of 3-5 seconds when using 5/32" OD or 1/4" OD airline; a larger value may be required when using tubing with an ID less than 1/8".

MEASUREMENT PERIOD The Measurement Period determines how frequently the well level is sampled. A lower value results in more data but requires more power. This parameter should be set to 5 minutes for pump control applications, and 15 minutes for monitoring applications. Increase the period for locations with poor sunlight exposure, or when using air line exceeding 1/4" in diameter. The Well Bubbler will automatically reduce its sampling frequency, then stop operating, if the battery voltage is too low.

COMPRESSOR DUTY CYCLE This setting determines the air pressure generated by the Well Bubbler. Use the factory setting of 75% for 5/32" OD and 1/4" OD airlines; higher values may be necessary when using 1/4" or larger galvanized sounding tube.

AUTOMATIC MEASUREMENT This menu is used to enable sensor operation; leave this menu in the ON position for normal operation. Leave this menu in the OFF position if the unit is installed in the field, but not connected to an airline.

SENSOR RATING The Well Bubbler is available with pressure sensor ratings between 5PSI and 150PSI. The standard 10-120 unit uses a sensor with a 150PSI rating; do not modify this parameter unless a custom sensor is installed.

PRESSURE LIMIT The Pressure Limit is used to control the maximum allowable air line pressure. The default setting of 150PSI is recommended, unless the air line is prone to pinching, blockage or regular failure.

TUBE LENGTH The Tube Length is the single most important parameter in the Well Bubbler configuration. Set this value to the length of the air line which is installed in the well. Without a correct airline length, the Well Bubbler will display the correct air line pressure, but not the correct well level. The airline length is usually recorded by the company, or individual, responsible for previously testing the well – it is frequently the same as the pump set depth. Alternately, the airline length can be calculated from the standing or pumping water levels shown on a recent pump test.

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START PUMP AT Set this parameter to the well depth at which the pump can operate safely, without over-drafting the well or damaging the pump itself. A value of 50-100 feet above the pump set depth is recommended.

STOP PUMP AT Set this parameter to the well depth at which the pump should stop, to prevent over-drafting the well or damaging the pump itself. A value of 30-50 feet above the pump set depth is recommended. Note that this value should be set lower than the START PUMP ABOVE parameter to avoid cycling the well pump frequently and allow the well to recharge.

PUMP RESTART DELAY Set this parameter to control the delay between pump stop and re-start, to avoid frequent cycling of line-driven pumps; a value of 15-30 minutes is recommended.

TELEMETRY OUTPUT The Bubbler produces 0-5V and 4-20mA analog outputs for use with telemetry, SCADA and VFDs. The scaling of those outputs is determined by this parameter - set the value to indicate the full-scale output of the unit. The value should equal, or exceed, the air line length; a factory default setting of 500 feet is used.

GALLONS PER PULSE The Well Bubbler can be used to monitor, and record data from, a pulse-type flow meter. Enter the pulse scaling using this parameter – be sure that it matches the scaling of the flow meter itself. Set the parameter to zero to disable this feature.

GALLONS PER MINUTE FS The Well Bubbler can be used to monitor, and record data from, a flow meter with a 4-20mA output. Enter the scaling using this parameter – be sure that it matches the scaling of the flow meter itself. Set the parameter to zero to disable this feature.

PSI FS The Well Bubbler can be used to measure and record the pump discharge pressure using a transducer with a 4-20mA output. Enter the sensor's full-scale output here; a factory default of 100PSI is used. Set the parameter to zero to disable this feature.

AMP FS The Well Bubbler can be used to measure and record the pump power using a current transducer with a 4-20mA output. Enter the sensor's full-scale output here; a factory default of 10Aac is used. Set the parameter to zero to disable this feature.

WELL ID This field is used to identify the well monitored by the Bubbler; the Well ID is recorded with every data point, allowing for convenient use of one Well Bubbler on multiple wells.

Battery Voltage This is the instantaneous battery voltage of the unit; the value is provided for reference & diagnostics only

Temperature This is the instantaneous temperature of the display; the value is provided for reference & diagnostics only, and is relevant only to the 10-120 model

Controller Firmware The firmware version is provided for diagnostics only; please reference it if contacting Tech Support