Problem:

Firmware Version 04.02.25 and above contain a bug that will cause the transmitter to lockup and not function if the displayed value for flow rate is greater than five digits (expressed as an exponential number; for example, $2.4e^{05}$). This is most likely to be seen with large diameter pipes and units of measure that result in large numbers.

For the most commonly used units of measure (gal/min and m^3/hr) this should not pose a problem. SONARtrac liquid flow meters leave the factory with a standard flow velocity range of 3 – 30 fps. A 36-inch meter at a flow velocity of 30 fps has a volumetric flow rate of 89,963 gpm or 20,433 m^3/hr.

An example of this problem is a 24-inch standard wall pipe with an expected flow range of 3 – 30 fps reporting in units of barrels per day. This choice of units will have corresponding volumetric flow rates of 136,109 – 1,361,094 barrels per day. This would be shown on the transmitter display as $1.3e^{05}$ – $1.3e^{06}$ bbl/d. Those values would cause the transmitter to lockup.

Problem Resolution:

Our Embedded Systems Group is currently working on a fix to this bug. Until a solution is available, do not select volumetric flow rate units that result in greater than 5 numerical digits on the transmitter display.

If, for reporting purposes, data are needed in a unit of measure that results in greater than 5 displayed digits, perform the final unit conversion in the data acquisition system.

The formula for determining flow rate is as follows:

Flow (gpm) = Velocity (fps) X pipe ID^2 ($inch^2$) / .4085 (conversion factor)

For example, a 24 inch Sch 20 pipe scaled for up to 30 fps,

39,699 gpm = 30 fps X 23.25^2 / .4085 = **No Problem**

39,699 gpm X 0.2271 = 9,016 m^3/hr = **No Problem**

Convert the above units to your desired units of measure to verify the display will be 5 digits maximum.

39,699 gal/min X 1440 min/day X 1 bbl/42 gal = $1.3e^{06}$ = **Problem use different units**

Please contact Technical Support with any questions.

Business Unit Managers should forward this information to their representatives as appropriate.

Priority Code:			
1	Safety issue or system will not function	2	Intermittent problem causing system crash
3	Erratic data/readings	4	Added product feature
5	Product enhancement		

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Document Change History

Date	Revision	Changed By	ECO #	Description of Change
23Oct08	01	Markoja		Original Release

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