

# Appendix B. Glossary of Terms

<b>A/D number</b>	Analog to Digital number.
<b>Area</b>	Cross-sectional area for a process line. Area of a Circular duct = $\pi r^2$ or $\pi \left(\frac{I.D.}{2}\right)^2$ Area of rectangular duct = Length x Width
<b>COM1 COM2</b>	Serial ports located on a personal computer.
<b>DeIR</b>	The active RTD A/D number minus the reference RTD A/D number.
<b>DVM</b>	Digital Voltmeter.
<b>EPROM</b>	Erasable Programmable Read Only Memory.
<b>Firmware</b>	Software plus hardware. The software is written and then stored in a hardware EPROM chip.
<b>Flow Element</b>	The portion of the flow meter that contains the thermowells, RTDs, and produces a signal with a defined relationship to the flow rate.
<b>Flow Transmitter</b>	The portion of the flow meter that conditions, converts, and scales the flow element signal.
<b>RefR</b>	The A/D number corresponding to the reference RTD resistance.
<b>RTD</b>	A Resistance Temperature Detector operates on the principle of change in resistance as a function of temperature.
<b>SFPS</b>	Standard Feet Per Second.
<b><math>\Delta R</math></b>	The difference between two resistance values.
<b><math>\Delta T</math></b>	The difference between two temperature values.

## ST98 Parameter Definitions

<b>A. ANALOG INPUT</b>	Menu Function.
<b>Channel 0 - 7</b>	Analog signals describing inputs to the electronics.
<b>B. SENSOR BALANCE</b>	Menu Function.
<b>Code</b>	A passcode (942) is required to continue into the menu selection.
<b>Balance#</b>	A number found in the D portion of the menu. This number electronically matches the active and reference RTD's when the heater is off.
<b>C. CALIBRATE DISPLAY</b>	Menu Function.
<b>d=xxx</b>	The display of Delta-R in the Calibrate Display menu.
<b>r=xxx</b>	The display of Ref-R in the Calibrate Display menu.

**D. DIAGNOSTIC**

**Single Poly Fit**

Menu Function.

The polynomial equation used by the electronics to interpret the signal from the flow element.

**Two Poly Fit**

The equation used by the electronics to interpret the signal from the flow element.

**Brkpt**

This is the break point (Delta-R) between the two poly fit equations.

**Poly Segment 1**

The first group of polynomial equations used to detect flow.

**Poly Segment 2**

The second group of polynomial equations used to detect flow.

**C1 - C5**

Calibration equation coefficients.

**Balance**

A number used to balance or match the active and reference RTD's when the heater is off.

**Outz**

An A/D number representing 4 mA. This is set during calibration.

**Outf**

An A/D number representing 20 mA. This is set during calibration.

**Heater I**

An A/D number representing heater current. This is set during calibration.

**Factor**

This is a conversion factor that is multiplied by SFPS to convert to customer units.

**Eu**

The ASCII code for engineering units are as follows:

English			Metric		
ASCII code	Letter code	Engineering Units	ASCII code	Letter code	Engineering Units
70	F	ft./sec.	77	M	SMPS
67	C	SCFM	78	N	NCMH
76	L	lbs./hr.	75	K	kg./hr.

**Tot**

A 1 after the Tot indicates the Totalizer is turned on. A 0 after the Tot indicates the Totalizer is turned off.

**Tottemp**

A 1 after the Tottemp indicates the Totalizer Temperature display is turned on. A 0 after Tottemp indicates the Totalizer Temperature display is turned off.

**Tflow**

This is the totalized flow in volumetric or mass units, it will change as the instrument totalizes flow.

**Rollover**

The place where the totalizer will roll over to zero. (1E9)

**Roll cnt**

Counts the number of times the Totalizer has rolled over to zero.

**Outmode**

The output mode is symbolized as follows:

Number that indicates output selection.		
0	1	2
4-20 mA	0-5 VDC	0-10 VDC

**Max A/D**

High end cut-off A/D number. Prevents false low flow readings.

**Min A/D**

Low end cut-off A/D number. Prevents false high flow readings.

**Kfactor**

User programmable correction factor. The corrected output equals K times the output.

**Zero**

An adjustment that establishes at what flow rate the flow transmitter's output is at its minimum (4 mA, 0 VDC). 0.00 is for zero based

	applications. Minimum flow is for non-zero based applications.
<b>Sensor</b>	This lets the user know what resistance is being used for the RTD's. A 2 indicates a 1K ohm resistance.
<b>Tslp</b>	Slope coefficient for the temperature equation. $Caltemp = (Ref R)(tslp + Toff)$
<b>Refr</b>	Abbreviation for Reference Resistance.
<b>Caltemp</b>	Temperature at calibration. $Caltemp = (Ref R)(tslp) + toff$
<b>Toff</b>	Temperature offset.
<b>Tcslp</b>	The second slope coefficient for the temperature compensation equation.
<b>Tcslp0</b>	The third slope coefficient for the temperature compensation equation.
<b>Tcslp2</b>	The first slope coefficient for the temperature compensation equation.
<b>Maxflow</b>	Maximum calibrated flow in Standard Feet Per Second (SFPS).
<b>Minflow</b>	Minimum calibrated flow in Standard Feet Per Second (SFPS).
<b>Density</b>	The molecular weight of media is entered here. The software back calculates to the standard density of the media which is used when converting from mass to volumetric units. $M' = r \cdot Q.$ $M' = Mass\ Flow\ Rate$ $r = Density$ $Q = Volumetric\ Flow\ Rate.$
<b>Line size0</b>	This field indicates the diameter of a round duct or the length of a rectangular duct. The shape of the duct is dependent on the next field.
<b>Line size1</b>	This field indicates the width of a rectangular duct if it contains a value greater than zero. If the value is zero, then it indicates a round duct.
<b>F.S.</b>	This is the full scale value, in customer units, which gives the maximum output signal (20mA, 5 VDC, or 10 VDC).
<b>E. SENSOR CURRENT SELECT</b>	Menu Function.
<b>Sensor Current Select</b>	2.0 ma - 1k ohm is always displayed.
<b>F. K-FACTOR</b>	Menu Function.
<b>K.F.</b>	An abbreviation for K-Factor. A factor the user can input to modify the final flow reading from the calibrated flow rate.
<b>G. EEPROM</b>	Menu Function.
<b>EEPROM</b>	Only the factory has access to this area.
<b>H. HEATER</b>	Menu Function.
<b>Heater Off</b>	The user can turn the heater off.
<b>Heater On</b>	The user can turn the heater on.
<b>I. OUTPUT CURRENT ADJUST</b>	Menu Function.
<b>Enter #</b>	Entering a number (0-1000) will force the output to a corresponding level.
<b>DAC</b>	Digital to Analog Converter number corresponds to output level.
<b>J. SERIAL NUMBER, CUSTOMER ORDER</b>	

<b>NUMBER</b>	Menu Function.
<b>S/N and CO No.</b>	Only the factory has access to this area.
<b>K. CONSTANTS SETUP</b>	Menu Function.
<b>Parameter Definitions</b>	See the parameters in Menu Function D.
<b>L. CALIBRATE OUTPUTS</b>	Menu Function.
<b>(U)p (P)down</b>	Increases or decreases the DAC count.
<b>(F)fast/slow</b>	This controls the speed of the DAC counting.
<b>M. MIN/MAX A/D LIMITS</b>	Menu Function.
<b>Max A/D</b>	High end cut-off A/D number. Prevents false low flow readings.
<b>Min A/D</b>	Low end cut-off A/D number. Prevents false high flow readings.
<b>N. SOFTWARE RESET</b>	Menu Function.
<b>Software Reset</b>	Resets instrument without removing power.
<b>O. SELECT SENSOR HEATER CURRENT</b>	Menu Function.
<b>xxxLO</b>	Choosing xxxLO sets software flags to show user if flow values are out of range.
<b>xxxMD</b>	Choosing xxxMD does not set any software flags.
<b>P. RECONFIGURE THE FC88 UNIT</b>	Menu Function.
<b>FC88 Reset</b>	Re-configures the FC88 so it will function properly in conjunction with the ST98.
<b>R. A/D CALIBRATE RESISTANCE</b>	Menu Function.
<b>A/D Delta-R</b>	The difference between the RTD resistances as used by the A/D converter.
<b>A/D Ref-R</b>	The reference RTD resistance as used by the A/D converter.
<b>r = xxx</b>	A/D Delta-R resistance
<b>R = xxx</b>	A/D Ref-R resistance.
<b>S. AUTO SCALE</b>	Menu Function.
<b>Auto Scale ON</b>	Always on.
<b>T. NORMAL OPERATING MODE</b>	Menu Function.
<b>U. DISPLAY TOTAL FLOW TIME</b>	Menu Function.
<b>Time</b>	Time in minutes since the last reset
<b>Reset</b>	Resets time to zero.
<b>V. OUTPUT MODE SELECT</b>	Menu Function.
<b>Output</b>	Displays the selected instrument output (4-20 mA, 0-5 VDC, 0-10 VDC, 1-5 VDC).
<b>W. TOTALIZER MODE</b>	Menu Function.
<b>Totalizer is</b>	The Totalizer can be toggled on or off. If it is on, the results are displayed on the second line of the normal operating mode window.
<b>Reset Totalizer</b>	The Totalizer can be reset to 0 with this command.
<b>During Powerup</b>	The Totalizer can be automatically reset each time power is applied to the instrument.

<b>Temp Display is</b>	The temperature display can be toggled on or off. If it is on, the results are displayed on the second line of the normal operating mode window. If the Totalizer is also on the totalized value and the temperature value will be alternately displayed.		
<b>X. NAMUR OUTPUT FAULT INDICATOR</b>	Menu Function.		
<b>NAMUR Flag is</b>	This function can be toggled on or off at this command.		
<b>Z. FLOW UNITS SELECT</b>	Menu Function.		
<b>Flow Units Are:</b>	Velocity	Volume	Mass
	English SFPS	SCFM	LLB/HR
	Metric SMPS	NCMH	KG/HR
<b>Max =</b>	This is the maximum value, in the customer's units, that the instrument can display.		
<b>F.S.</b>	This is the full scale value, in customer units, which gives the maximum output signal. This value can be input as anything less than the max value from above.		
<b>Zero</b>	This establishes at what flow rate the flow transmitter's output is at its minimum output. It is 0.00 for zero based applications. For non-zero based applications the zero is at minimum flow.		

