



MCQ Flow Board 200

COMMUNICATION PROTOCOL

ASCII Communication protocol for Firmware Version 1.0

<p>FLOW?<CR></p>	<p>#FLOW=[VALUE],[flag]<LF><CR></p>	<p>Request of flow value expressed in % off full range.</p> <p>[VALUE] value between 0 - 4096 that express in % the flow value.</p> <p>[flag] Flag to indicate if the flow is "in range", "out of range" or in "overflow". [R] in range (0-100%) [O] out of range (tolerance limit of 10% compared with min or max value) [W] overflow (out of range)</p>
<p>TEMP?<CR></p>	<p>#TEMP=[VALUE]<LF><CR></p>	<p>Request of Temperature value significant to the tenths place of Celsius grade.</p> <p>[VALUE] Value between -40.0° and +125.0° C significant to the tenths place</p>
<p>LOGFLOW=[VALUE]<CR></p>	<p>#OK<LF><CR> #FLOW=[VALUE],[flag]<LF><CR> OR #ERROR<LF><CR></p>	<p>Activation of Flow-log with a 50 Hz Frequency expressed in % of full-range without continuous request of polling.</p> <p>[VALUE] = 1: On 2: Off ?: Check if device is logging.</p> <p>[flag] Flag to indicate if the flow is "in range", "out of range" or in "overflow". [R] in range (0-100%) [O] out of range (tolerance limit of 10% compared with min or max value) [W] overflow (out of range)</p>
<p>LOGTEMP=[VALUE]<CR></p>	<p>#OK<LF><CR> #TEMP=[VALUE]<LF><CR> OR #ERROR<LF><CR></p>	<p>Activation of Temperature-log expressed in % of full-range without continuous request of polling.</p> <p>[VALUE] = 1: On 2: Off ?: Check if device is logging.</p>

<p>RAW?<CR></p>	<p>#RAW<LF><CR> OR #DENIED</p>	<p>Request of not linearized values measured from flow sensor in the range 0 - 4096. [VALUE] value between 0 - 4096 that express in % the flow value. IMPORTANT: Raw command is only available after login with user password (see command USERPW).</p>
<p>LEVEL?<CR></p>	<p>#NULLLEVEL<LF><CR> OR #USERLEVEL<LF><CR></p>	<p>Request of authorization level.</p>
<p>USERPW=[VALUE]<CR></p>	<p>#USERLEVEL<LF><CR> OR #ERROR<LF><CR></p>	<p>User level authorization. [VALUE] 6 digit password.</p>
<p>LOGOUT<CR></p>	<p>#NULLLEVEL<LF><CR></p>	<p>Logout from user level.</p>

<p>SETTBL=?<CR></p>	<p>#SETTBL=[VALUE],[flag]<LF><CR></p>	<p>Request of conditions and number of calibration table in use.</p> <p>[VALUE] Digit from 1 to 10</p> <p>[flag] [L] lock [U] unlock</p>
<p>SETTBL=[VALUE]<CR></p>	<p>#OK<LF><CR></p>	<p>Selection of a specific calibration table</p>
<p>UNLOCKTBL=[VALUE]<CR></p>	<p>#OK<LF><CR> *</p> <p> OR</p> <p>#ERROR<LF><CR> **</p> <p> OR</p> <p>#DENIED<LF><CR> ***</p>	<p>Unlock selected table.</p> <p>[VALUE] Digit from 1 to 10.</p> <p>* if [VALUE] matched on level authorization and if [VALUE] correspond to [VALUE] of in use table. ** if [VALUE] is not matched on [VALUE] of in use table. *** if you not have authorization Level (see command USERPW).</p> <p>NOTE: if table is correctly unlocked, the RED LED on the board is active.</p>
<p>POINTS=[point] , [VALUE]<CR></p>	<p>#OK<LF><CR> *</p> <p> OR</p> <p>#ERROR<LF><CR> **</p>	<p>Associates to X (RAW) (Volt) values the Y (sccm) values.</p> <p>[point] Digit from 0 to 17.</p> <p>[VALUE] Digit from 0 to 4096.</p> <p>* if values are growing. ** if command is not correct.</p>

<p>SAVETBL=[VALUE]<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR> * OR #DENIED<LF><CR> **</p>	<p>Saving data in the selected calibration table. [VALUE] Digit from 1 to 10. * if function is not a monotonic function or if table is not in range (1-10). ** if you not have authorization Level (See Command USERPW).</p>
<p>LOCKTBLS<CR></p>	<p>#OK<LF><CR></p>	<p>Locking selected table. NOTE: if table is correctly locked, the RED LED on the board is turning off.</p>
<p>PUMP=[VALUE]<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR></p>	<p>Setting "PUMP" actuator values. [VALUE] Digit from 0 to 4096. ?: Check the actuator value.</p>
<p>PUMP=[VALUE],S<CR></p>	<p>#OK<LF><CR></p>	<p>Save Value for "PUMP" actuator.</p>

<p>EVP=[VALUE]<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR></p>	<p>Setting "EVP" actuator values. [VALUE] Digit from 0 to 4096. ?: Check the actuator value.</p>
<p>EVP=[VALUE],S<CR></p>	<p>#OK<LF><CR></p>	<p>Save VALUE for "EVP" actuator.</p>
<p>SETPOINT=[VALUE]<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR></p>	<p>Setting instrument "SETPOINT" value. [VALUE] Digit from 0 to 4096 ?: Check if device is logging.</p>
<p>SETPOINT=[VALUE],S<CR></p>	<p>#OK<LF><CR></p>	<p>Save instrument "SETPOINT" value</p>

<p>PURGE=[VALUE]<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR></p>	<p>Enabling or disabling the PURGE MODE. [VALUE] 1: On 0: Off ?: Check if valve is in purge mode</p>
<p>PIDGAIN=[VALUE],[VALUE],[VALUE],S<CR></p>	<p>#OK<LF><CR> OR #ERROR<LF><CR></p>	<p>Setting Ki, Kp, Kd PID values and saving them on the EEPROM. [VALUE1] Ki (0.0) [VALUE2] Kp (0.0) [VALUE3] Kd (0.0)</p>
<p>PIDGAIN=?<CR></p>	<p>#GAIN=[VALUE],[VALUE],[VALUE]<LF><CR></p>	<p>Indicates PID control actual values.</p>
<p>DEFAULT<CR></p>	<p>#OK<LF><CR></p>	<p>Setting default Ki, Kp, Kd PID values.</p>