**PID Control Library for C/C++**

Optimized for embedded systems

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| **Datatype** | **Definition** | **Parameters** | **Description** |
| **CTF** | Continous Transfer Function | .num | Numerator : ascending powers of . |
| .den | Denominator : ascending powers of . |
| .dt | Is the sampling interval or time step and must be greater than zero. The default is 1.0. |
| .ymax | Maximun output value of transfer function.  The default is 1E100 |
| .ymin | Minimal output value of transfer function.  The default is -1E100 |
| **DTF** | Discrete Transfer Function | .num | Numerator : ascending powers of . |
| .den | Denominator : ascending powers of z. |
| .ymax | Maximun output value of transfer function.  The default is 1E100 |
| .ymin | Minimal output value of transfer function.  The default is -1E100 |
| **CPID** | Continous PID controller | .kc | Proportional gain |
| .ki | Integral gain |
| .kd | Derivative Gain |
| .dt | Is the sampling interval or time step and must be greater than zero. The default is 1.0. |
| .umax | Maximun output value of controller.  The default is 0 |
| .umin | Minimal output value of controller.  The default is 0 |
| .epsilon | Thresold error (error to ignore) |
| .kw | Anti-windup gain |
| .FORM | Series-Parallel(default) |

**Function prototypes**

**double** pid\_control(**CPID** pid\_controller, **const double** w, **const double** y)

pid\_control(…)

w

y

**+**

**-**

**-**

**+**

**double** dtransferfcn(**DTF** discrete\_transfer\_function, **const double** uk)

**double** ctransferfcn(**CTF** continous\_transfer\_function, **const double** ut)