PID Control Library for C/C++

Optimized for embedded systems

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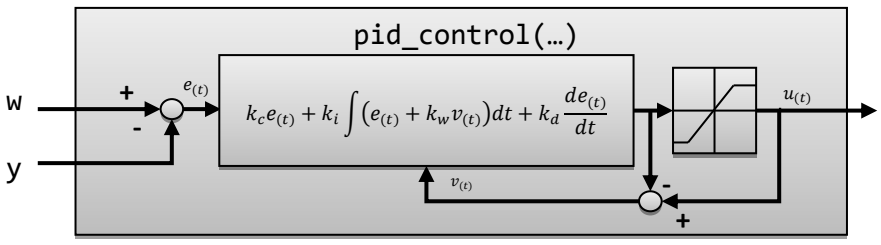
Datatype	Definition	Parameters	Description
CTF	Continous Transfer Function	.num	Numerator : ascending powers of s. $b_0 s^n + b_1 s^{n-1} + b_2 s^{n-2} + \cdots + b_n$
		.den	Denominator : ascending powers of s. $s^n + a_1 s^{n-1} + a_2 s^{n-2} + \cdots + a_n$
		.dt	Is the sampling interval or time step 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 z. $b_0 + b_1 z^{-1} + b_2 z^{-2} + \cdots + b_n z^{-n}$
		.den	Denominator : ascending powers of z. $1 + a_1 z^{-1} + a_2 z^{-2} + \cdots + a_n z^{-n}$
		.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)
```




```
double dtransferfcn(DTF discrete_transfer_function, const double uk)
double ctransferfcn(CTF continous_transfer_function, const double ut)
```