PID

Macros

#define **DEFAULT_TEMP** (75)

Default desired temperature of black box.

Functions

void	**taskPID** ()
uint32_t	**getTemperatureTarget** ()
void	**setTemperatureTarget** (uint32_t temperature)
float	**getPComponent** ()
float	**getIComponent** ()
float	**getDComponent** ()
float	**getPIDChange** ()

Detailed Description

PID.c - PID controller module.

PIDman.c - PID controller management module.

Function Documentation

float getDComponent ( )

float **getDComponent()**

This method is used to retrieve the contribution of the D component to the total change requested by the PID controller.

Returns

The current D contribution to the change requested by the PID controller.

float getIComponent ( )

float **getIComponent()**

This method is used to retrieve the contribution of the I component to the total change requested by the PID controller.

Returns

The current I contribution to the change requested by the PID controller.

float getPComponent ( )

float **getPComponent()**

This method is used to retrieve the contribution of the P component to the total change requested by the PID controller.

Returns

The current P contribution to the change requested by the PID controller.

float getPIDChange ( )

float **getPIDChange()**

This method is used to retrieve the total change requested by the PID controller.

Returns

The current change requested by the PID controller.

uint32_t getTemperatureTarget ( )

uint32_t **getTemperatureTarget()**

This method is used to retrieve the current target temperature of the PID controller.

Returns

The current temperature target.

void setTemperatureTarget (uint32_t temperature)

void **setTemperatureTarget()**

This method is used to set the target temperature of the PID controller.

Parameters

temperature is the new target temperature.

Returns

None.

void taskPID ( )

void **taskPID()**

This task compares the temperature value in *temp_queue*, or the measured temperature inside the black box, and compares it to the desired black box temperature. Using the difference between measured and desired temp, a new ratio of heater on/off time is created. This ratio is stored in PWM_ratio for use by the power driver module to control the heater and adjust black box temp as needed. The desired temp will default to **DEFAULT_TEMP** unless the user has specified a desired temp.

Returns

None.

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