

Advantech AE Technical Share Document

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Category	■FAQ □SOP	Related OS	N/A
Abstract	Codesys, How to implement PID algorithm by Codesys program		
Keyword	Codesys, PID control, Algorithm, Function Block, Library		
Related Product	ADAM-5560CDS, APAX-5580CDS		

■ Problem Description:

PID is one of a typical algorithm widely used at modern automation control. By tuning parameters of P, I and D, Engineer could control a system in stable status without the need for knowing its real physical model.

In this document, we will explain how to implement PID control by function block provided in the Codesys.

■ Answer:

1. The PID function block is located in the “Util” library, in order to use PID function, you need to add this library manually.

Please follow **Figure 1** to add “Util” library to your project manually.

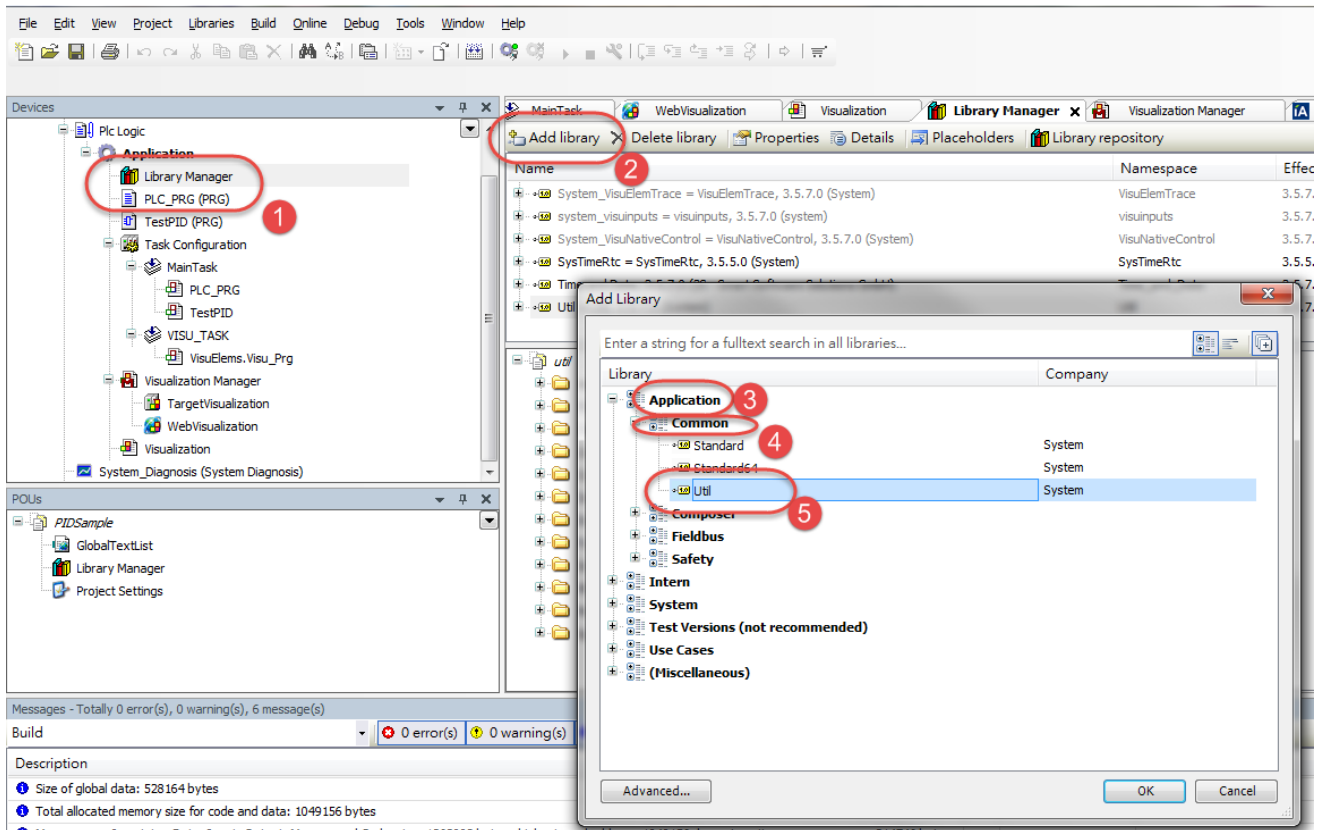


Figure 1

2. After adding library successfully, user could check function blocks provided in this library such as PD, PID and PID_FIXCYCLE in Codesys, related document could also be found. **(Figure 2)**

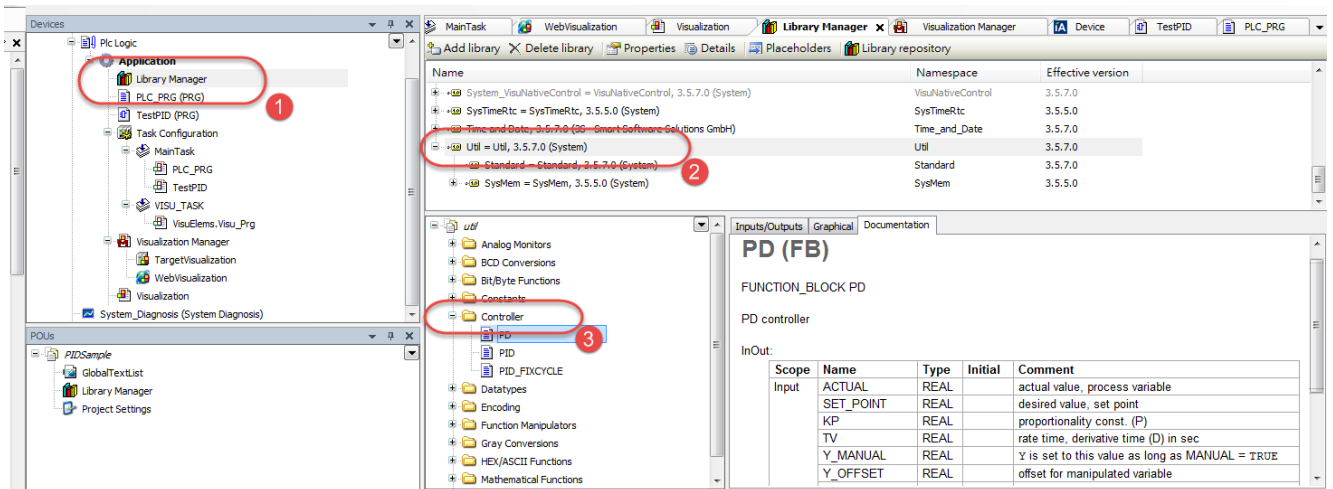


Figure 2

For more information, actually PID function block measures the elapsed time between two calls itself with a maximum accuracy of **milliseconds**. However, the elapsed time between two calls could be affected with the interval of the task. For example in case of an interval is set to 1ms for a particular task, the PID sometimes might measure 2 ms, sometimes 0 ms.

In order to use PID function with fast and fix tasks, it's recommended to use PID_FIXCYCLE instead of PID, because the cycle time is defined accurately in PID_FIXCYCLE function block. **(Figure 3)**

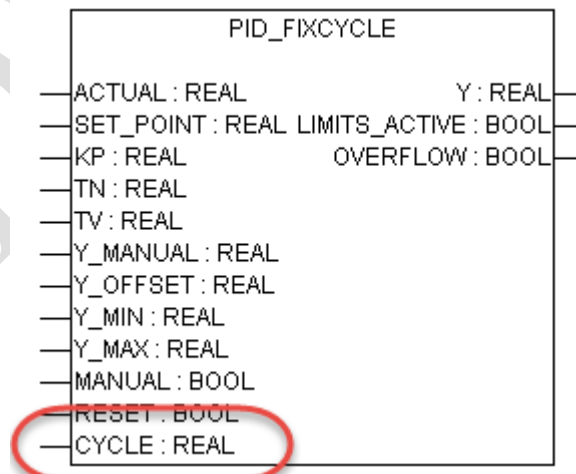


Figure 3