

# REPORT SYSTEM CONTROL LABORATORY

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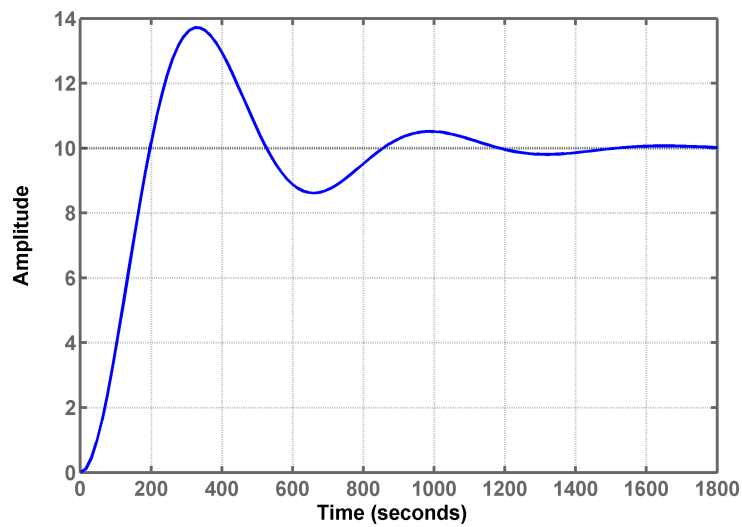
# 1 Operating Basics

## 1.1 Introduction

To ensure a good understanding of controllers and controlling theory, a laboratory experiment was performed. As the plant, a motor was used whose speed had to be controlled. The step function was measured and analyzed at first. Knowing the step function it was very easy to implement a suitable PID controller.

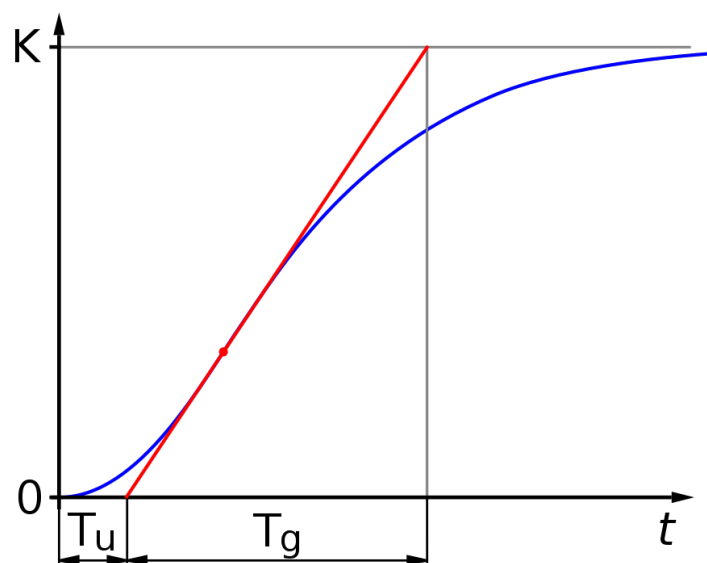
## 1.2 Step Function

To determine the characteristics of the system, a step is applied to the input. Then the output is observed.



**Figure 1:** Step response of a  $PT_2$  element

Using the principles depicted in Figure 2, the parameters  $T_u$ ,  $T_g$  and  $K_s$  were derived.



**Figure 2:** Step response of a  $PT_2$  element