

**CENTRO UNIVERSITÁRIO DA FEI**

**NEA820 – Controle e Servomecanismos II**

## **Relatório I – Compensação Tacométrica**

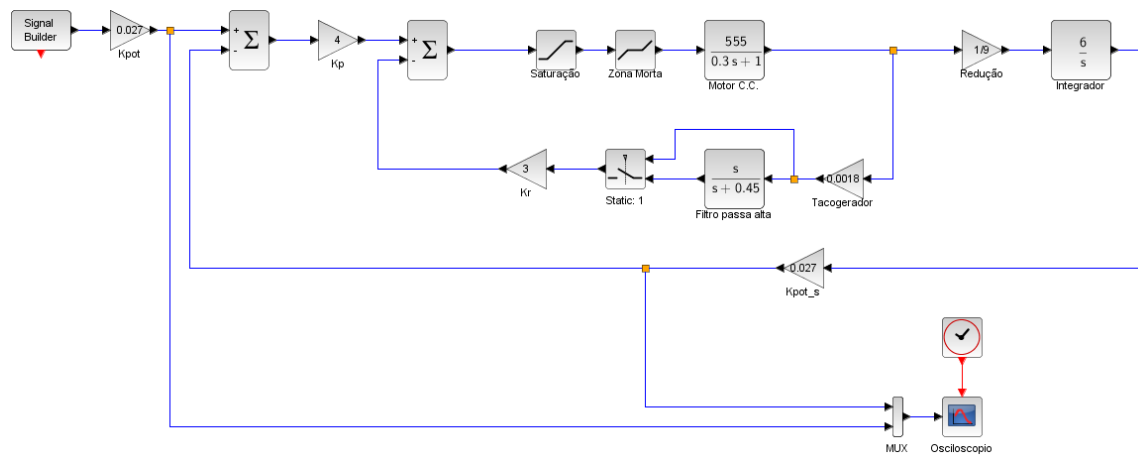
Turma: 730

Jéssica Trajano 12.218.167-0

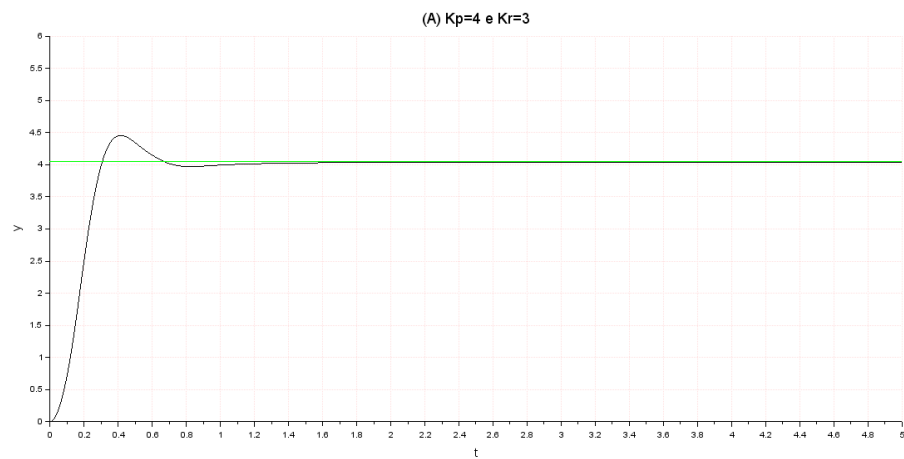
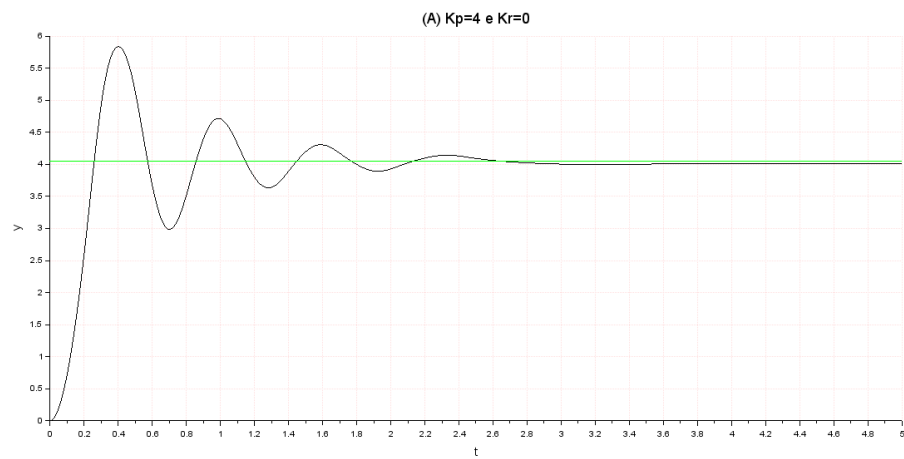
Gustavo Ryuji 12.115.481-9

# Simulações

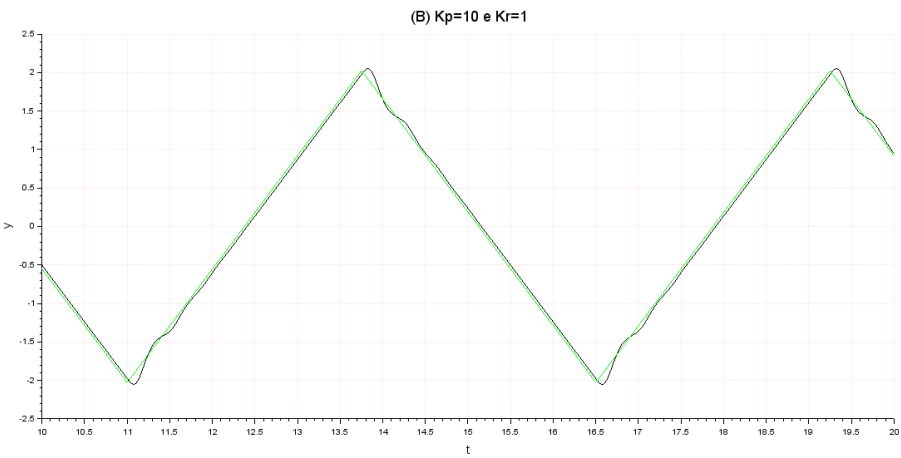
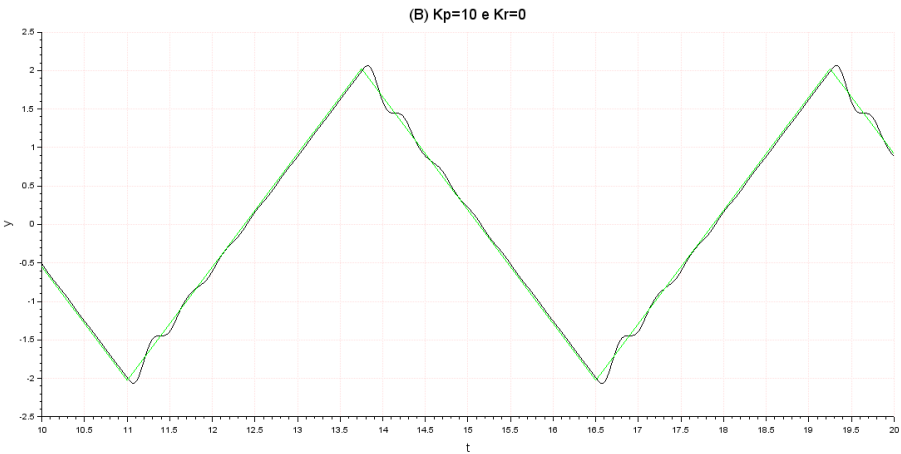
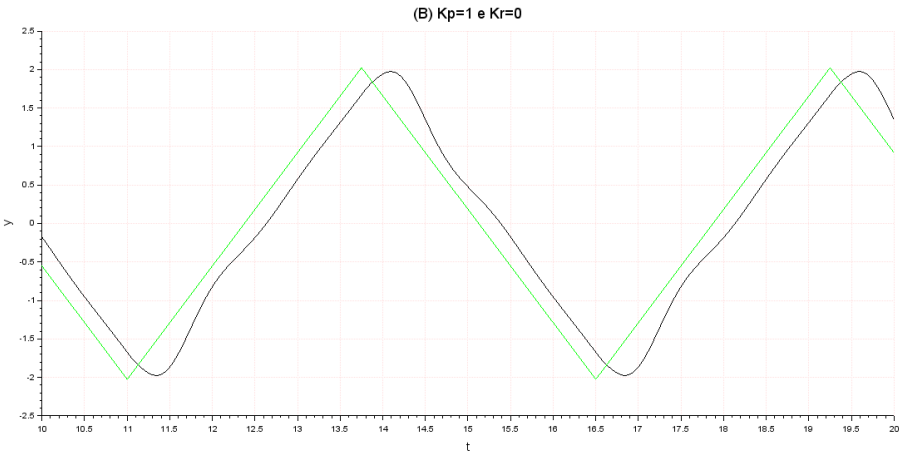
## Diagrama

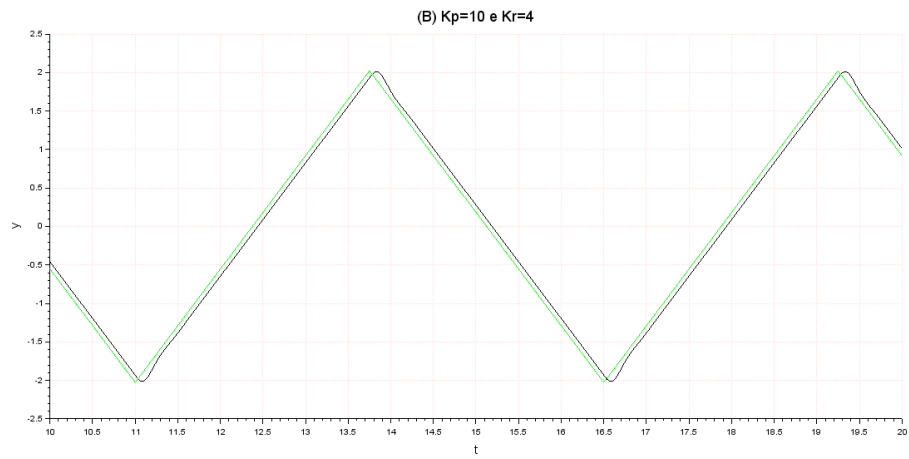


### a) Controlador de posição com realimentação de velocidade (realimentação Tacométrica)

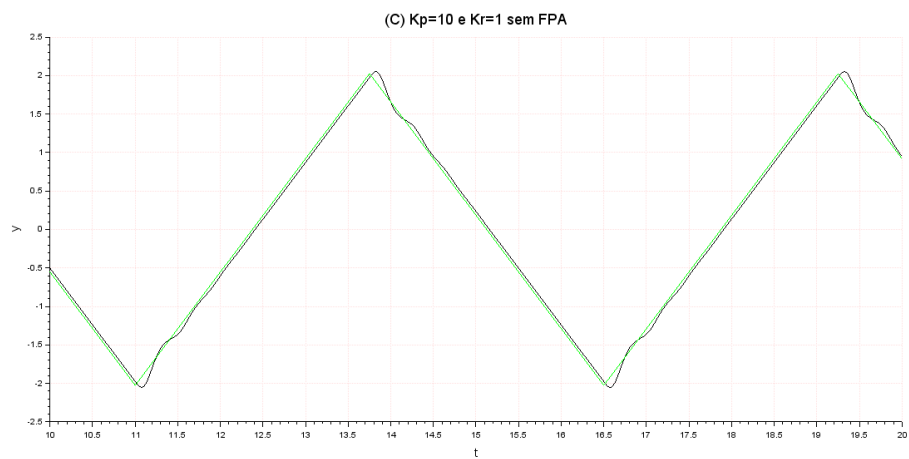
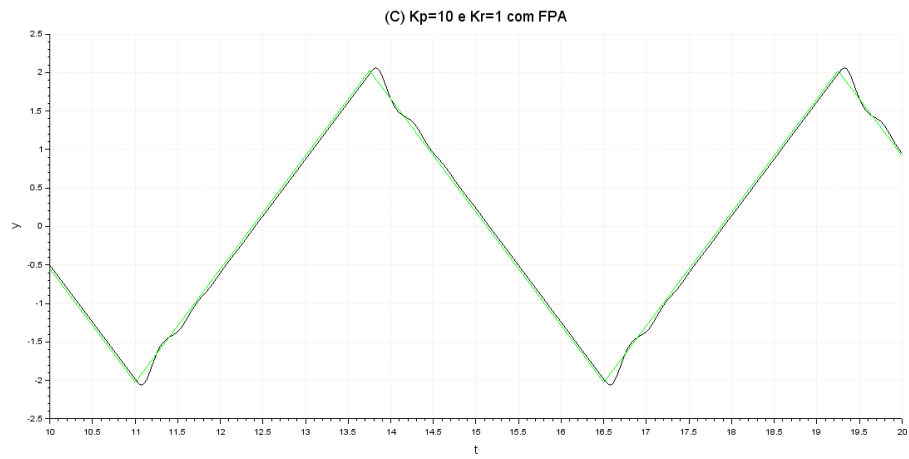


**b) Verificação do erro estático de velocidade**



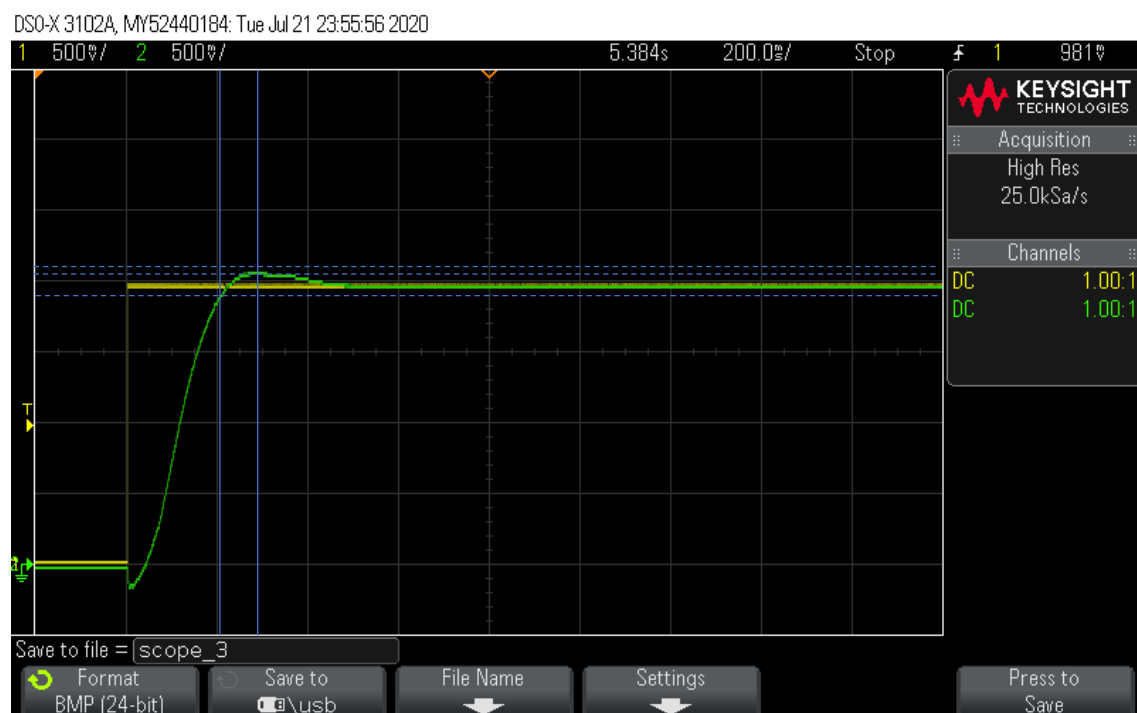
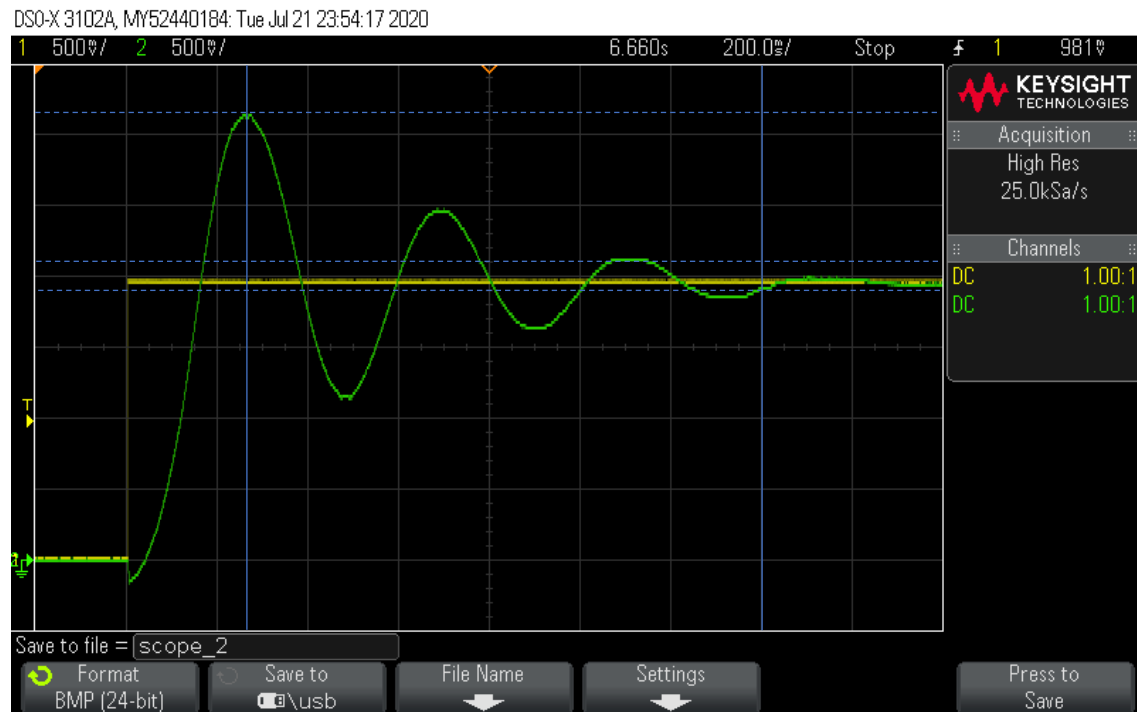


**c) Controlador de posição com realimentação de TRANSIENTE de velocidade**



## Dados

### a) Controlador de posição com realimentação de velocidade (realimentação Tacométrica)



## Cálculo do sobressinal

$$\%UP = \frac{V_p - V_{\infty}}{V_{\infty}} \cdot 100\%$$

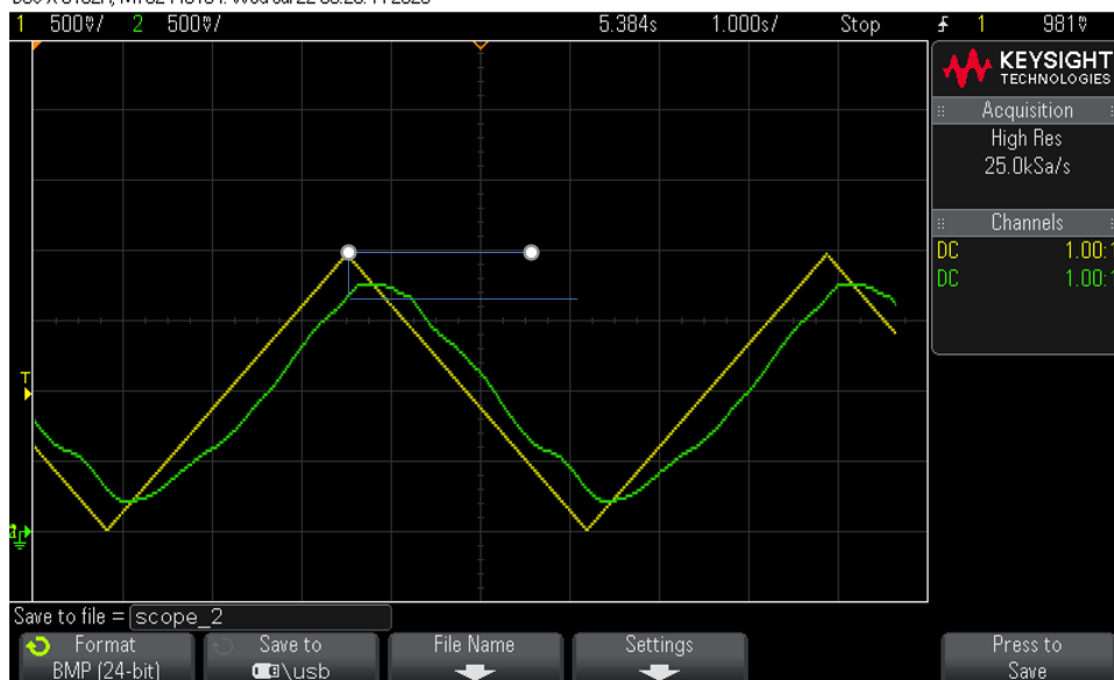
K <sub>P</sub>	K <sub>R</sub>	Tempo pico TP	Tempo Acomodação TS	%UP sobressinal (MS)	Erro estático
4	-	260 ms	1.400 ms	$\frac{3,15 - 2,00}{2,00} = 57,5\%$	
4	3	300 ms	200 ms	$\frac{2,025 - 2,00}{2,00} = 1,25\%$	

## Considerações:

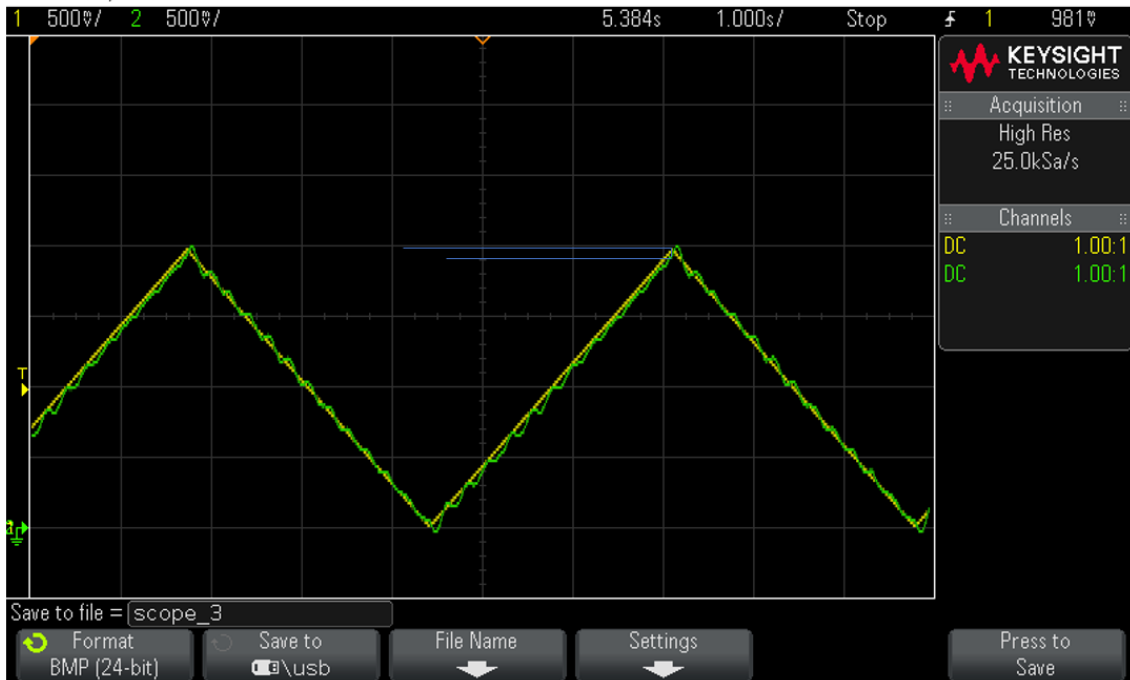
- Sinal é de exatos 2 V
- Margem de tolerância de  $\pm 5\%$

## b) Verificação do erro estático de velocidade

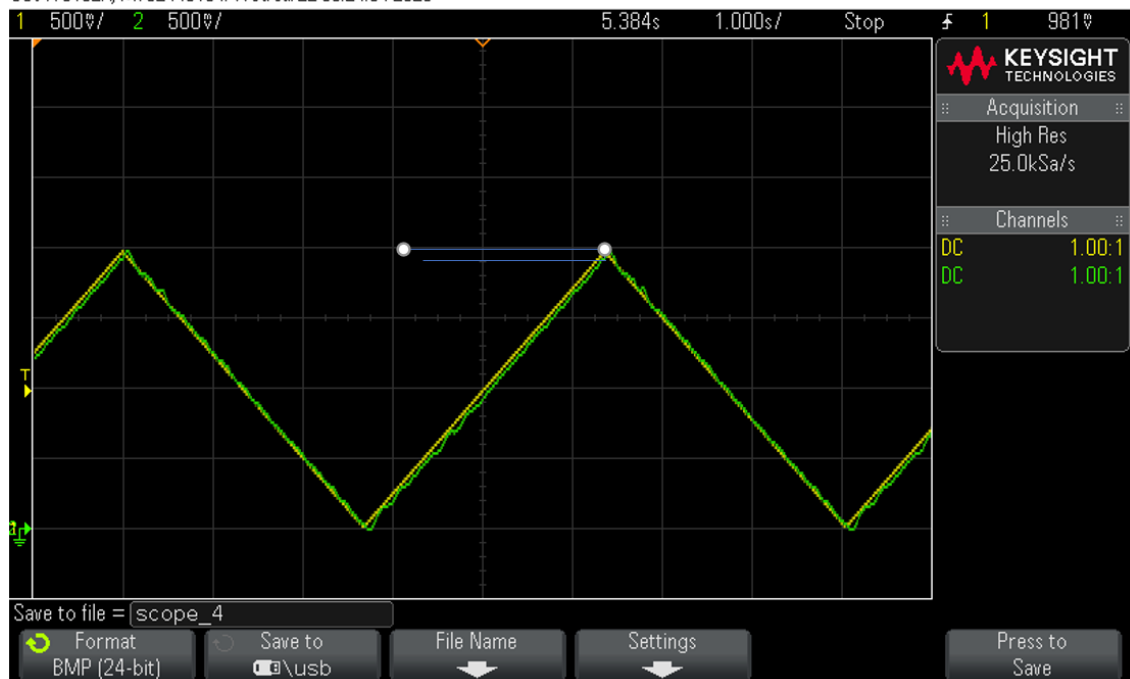
DSO-X 3102A, MY52440184: Wed Jul 22 00:23:44 2020

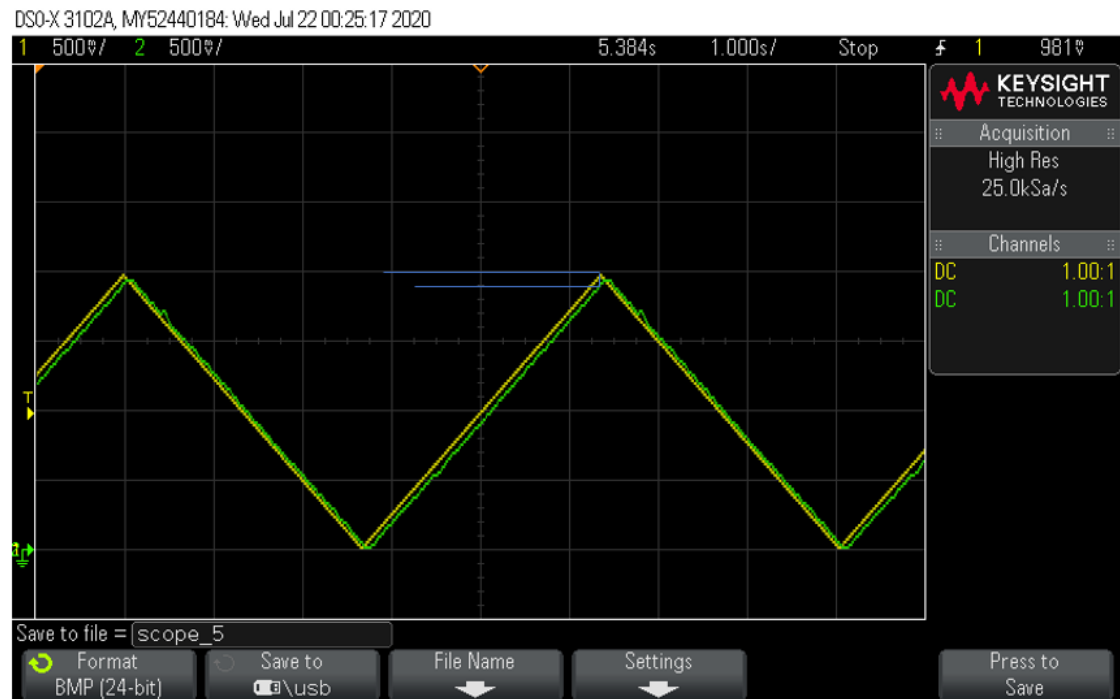


DSO-X 3102A, MY52440184; Wed Jul 22 00:24:23 2020



DSO-X 3102A, MY52440184; Wed Jul 22 00:24:54 2020





Kp	KR	Erro estático (mV)
1	-	338
10	-	80
10	1	88
10	4	110

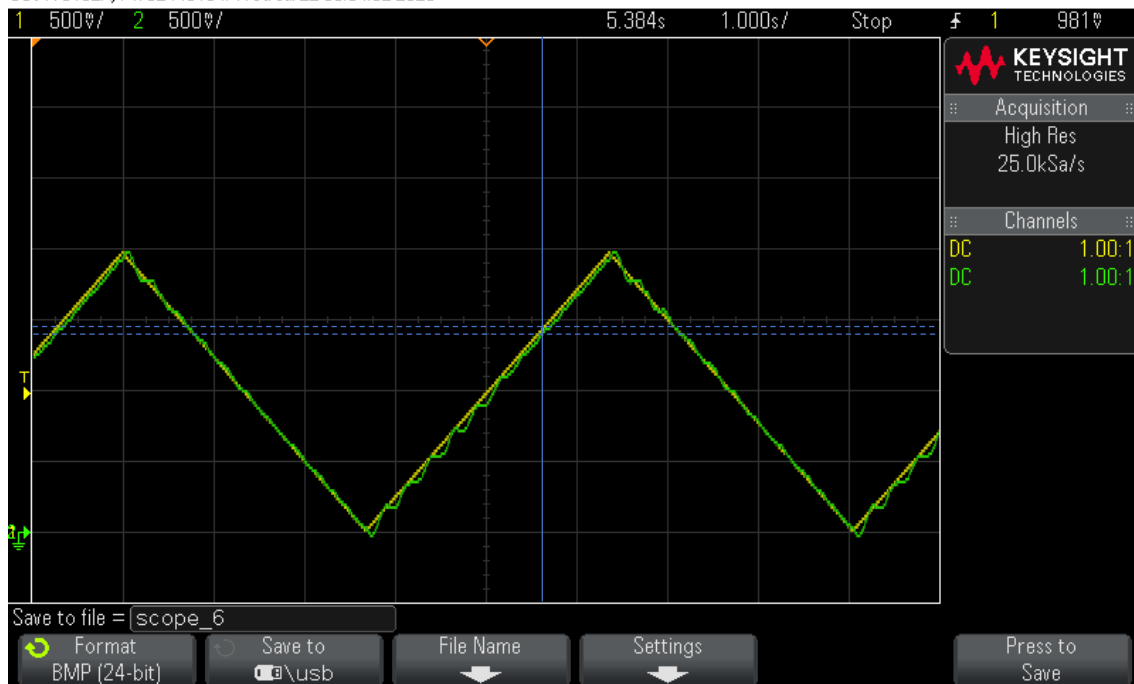
### Considerações:

O  $K_p = 1$  apresenta maior erro. Aumentando o  $K_p$  diminui o erro de valor final, mas aumenta a oscilação e ao inserir o  $K_r$  o serrilhado diminui, mas o erro de valor final aumenta com o aumento de  $K_r$ .

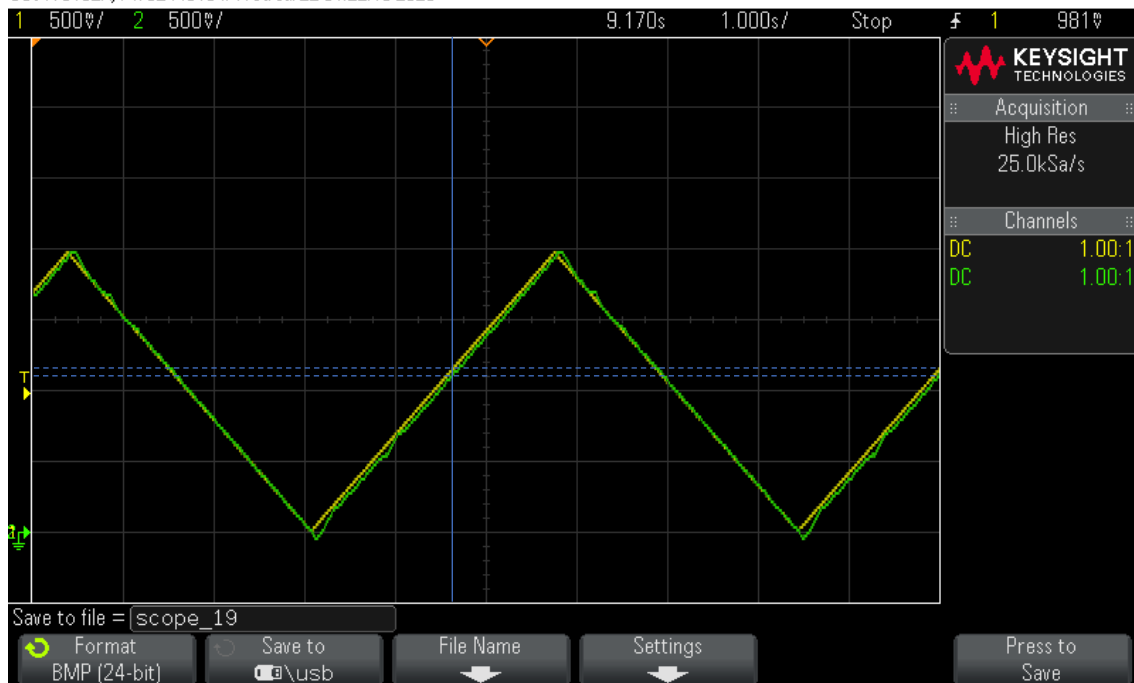


### c) Controlador de posição com realimentação de TRANSIENTE de velocidade

DSO-X 3102A, MY52440184: Wed Jul 22 00:34:52 2020



DSO-X 3102A, MY52440184: Wed Jul 22 01:22:10 2020



$K_P$	$K_R$	Erro estático
10	1	100 ms
10	1 + FPA	100 ms