

# DYNAMICS OF THE LINEAR PNEUMATIC ACTUATOR

SYMBOL	NAME	UNIT	VALUE
f	frequency	[Hz]	1000
D	piston diameter	[mm]	50
S	piston stroke	[mm]	100
m	mass of moving parts	[g]	930
p <sub>1</sub>	pressure in the chamber 1	[bar]	result of conversion function 1
p <sub>2</sub>	pressure in the chamber 2	[bar]	result of conversion function 2
s	piston position	[mm]	result of conversion function 3
u <sub>p1</sub>	voltage depends on p <sub>1</sub> value	[V]	in column 1 of the data
u <sub>p2</sub>	voltage depends on p <sub>2</sub> value	[V]	in column 2 of the data
u <sub>s</sub>	voltage depends on s value	[V]	in column 3 of the data

$$(1) \quad p_1 = 1.2319 \cdot u_{p1} - 0.0076$$

$$(2) \quad p_2 = 2.0480 \cdot u_{p2} + 0.0011$$

$$(3) \quad s = \frac{u_s - u_{s \min}}{u_{s \max} - u_{s \min}} \cdot S$$