Model Documentation of the Hysteresis System

1   Nomenclature

1.1   Nomenclature for Model Equations

s_1	switching treshold down
s_2	switching treshold up
y_i	output values of the hysteresis system for i = 1,2
$T_{storage}$	time constant of the internal PT1
w	input signal

2   Model Equations

Input Vector:

$$u = w$$

Equations:

$$[..] \tag{1a}$$

Parameters: $s1 \; s2 \; y1 \; y2 \; T_{storage}$
Outputs: y

2.1   Exemplary parameter values

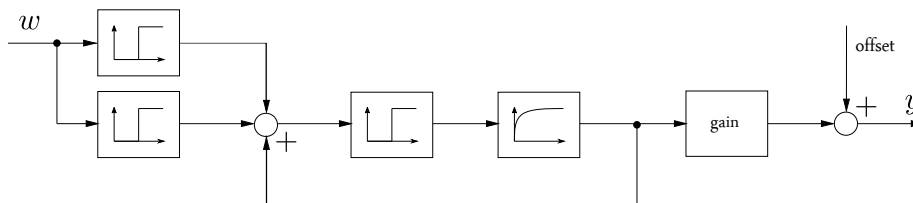| Symbol	Value
s_1	4
s_2	8
y_1	2
y_2	11
$T_{storage}$	0.0001

3   Derivation and Explanation
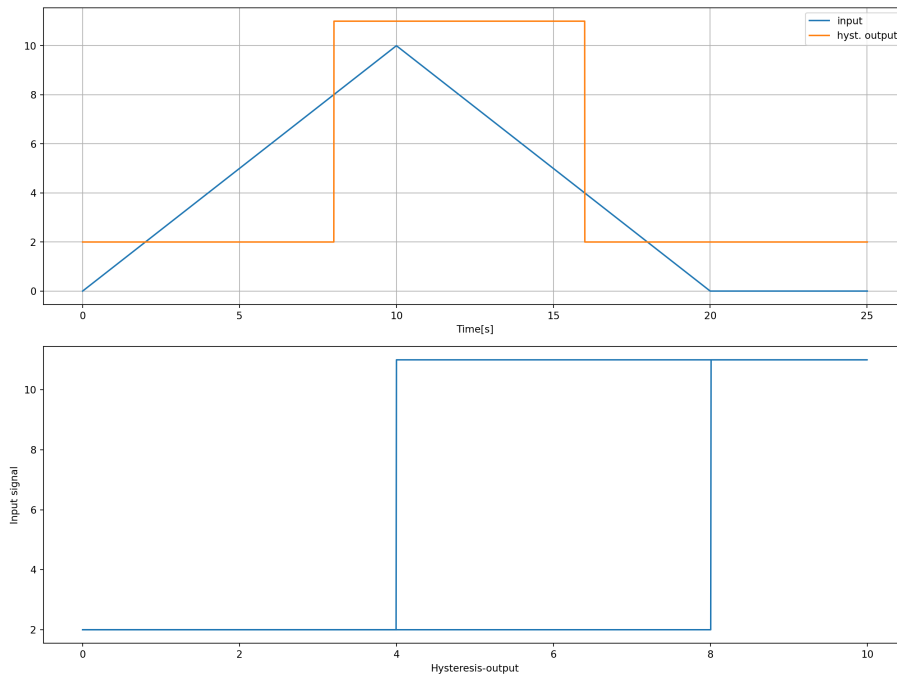

Figure 1: block diagram

4 Simulation

Figure 2: Simulation of the hysteresis system.

References

[1] Knoll, Carsten: *Approximation of a simple hysteresis system.*, Python script published 2021.