CARIMO TECHNOLOGIES

A CARIMO Technologies product · Made in India

Fuzzy Logic Speed Control — Simulink Edition

TECHNICAL DATASHEET · SOFTWARE

A Simulink® software package for **Fuzzy Logic Control (FLC)** speed control of a DC motor on the CARIMO DC Motor Kit. A **model-free** Mamdani controller maps speed error and change-in-error to a drive action through plain-English if-then rules — no plant model or transfer function required. Ships as **fully-editable Simulink source models plus a rule builder**. Requires the customer's own MATLAB®, Simulink® and the **Fuzzy Logic Toolbox**.

13 hardware experiments

1. Plant Identification
2. First Closed-Loop Step
3. Step Across Setpoints
4. Staircase Tracking
5. Dead-Zone Sweep
6. Aggressiveness Sweep
7. Brake / Damping Sweep
8. Smoothness Sweep
9. Load-Disturbance Rej.
10. Membership-Function Study
11. Rule-Base Study
12. Defuzzification Compare
13. Fuzzy vs PID & MPC

System requirements

MATLAB	R2021a or later (customer's own licence)
Simulink	Required
Toolbox	**Fuzzy Logic Toolbox**
OS	Windows 10 / 11
Port	One free USB 2.0 port
Hardware	CARIMO DC Motor Kit (V1.0 / V2.0) — **see kit datasheet**
Control	Speed control; 15 ms tick; Mamdani / centroid

What's included

- ✓ Fully-editable Simulink® FLC source models
- ✓ Per-experiment setup scripts
- ✓ 2-hour online training · perpetual lab licence
- ✓ Plain-language rule builder + membership-function editor
- ✓ Lab manual (13 Fuzzy Logic Control experiments)
- ✓ 1 year of free software updates

Licensing & scope. Perpetual lab licence; the **Simulink source models are fully editable** — inspect, modify and extend. Software is licensed **separately from the hardware** and requires the customer's own MATLAB® / Simulink® and the Fuzzy Logic Toolbox (purchased from MathWorks). Runs on the CARIMO DC Motor Kit (sold separately). Speed control. PI/PID and MPC are available as separate CARIMO products; a no-MATLAB Python PI/PID option ships built into the kit.

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