

Somfy Sonesse 50 Motors – MHT Core Node Load Testing Report

Cisco Catalyst 9300-24H | IOS XE 17.15.05

1. Executive Summary

This report documents load-testing performed on Somfy Sonesse 50 motors powered through MHT Core Nodes connected to a Cisco 9300-24H PoE switch. The objective was to validate motor performance under varying voltage levels, cable lengths, and load conditions.

Testing included multiple voltage levels (24V–30V), varying node-to-switch cable lengths (30 ft and 330 ft), varying node-to-motor cable lengths (4 ft–50 ft), motor load of 27.5 lb (one test at 26.5 lb), and dual-motor configurations per node. Results show that motor performance depends on the combined interaction of voltage, load, and cable length — not cable length alone.

2. Test Setup

Hardware

- **Switch:** Cisco Catalyst 9300-24H
- **IOS Version:** 17.15.05
- **Node Output:** 80W, 3A
- **Motors:** Somfy Sonesse 50
- **Motor Weight:** 27.5 lb (one test at 26.5 lb)
- **MHT Core Node**

Cable Lengths

- **Node → Switch:** 30 ft or 330 ft
- **Node → Motor 1:** 4 ft, 6 ft, or 50 ft
- **Node → Motor 2:** 4 ft or 50 ft

Test Variables

- **Voltage levels:** 24V, 25V, 26V, 30V
- **Load:** Two motors per node
- **Observed behavior:** Motor movement, node stability, reboot events

3. Test Matrix & Results

Test #	Voltage	Current	Power	Node→Switch	Motor 1	Motor 2	Motor Weight	Result
1	26V	3A	80W	30 ft	6 ft	4 ft	27.5 lb	PASS – Motors moved
2	25V	3A	80W	30 ft	6 ft	4 ft	27.5 lb	PASS – Motors moved
3	26V	3A	80W	330 ft	6 ft	4 ft	27.5 lb	PASS – Motors moved
4	25V	3A	80W	330 ft	6 ft	4 ft	27.5 lb	FAIL – Motors did not move
5	24V	3A	80W	30 ft	6 ft	4 ft	27.5 lb	FAIL – Motors did not move
6	30V	3A	80W	330 ft	50 ft	50 ft	27.5 lb	FAIL – Motors did not move; Node rebooting
7	26V	3A	80W	330 ft	50 ft	50 ft	26.5 lb	PASS – Motors moved

4. Observations

Voltage Sensitivity

- Motors operated reliably at 26V across both short and long cable runs.
- Motors failed at 24V, regardless of cable length.

- Motors failed at 25V only when combined with long cable runs and full load.

Cable Length Interaction (Not a sole failure factor)

- Long cable runs did not cause failure by themselves.
- At 330 ft, motors passed at 26V with full load.
- Failures occurred only when long cable length was paired with lower voltage or higher load.

Load Sensitivity

- Reducing motor weight allowed motors to pass even with long cable runs and long motor cables.
- Load is a significant factor when voltage is borderline.

Node Stability

- At 30V with long cable runs and long motor cables, the node rebooted — indicating instability at high voltage under extended wiring conditions.

5. Conclusions

1. 26V is the stable operating voltage, supporting full motor load at both 30 ft and 330 ft cable distances.
2. 25V is borderline — works at short distances but fails at long distances with full load.
3. 24V is insufficient for Somfy Sonesse motors.
4. Cable length alone does not cause failure — failures occur only when long cable length is combined with low voltage or high load.
5. Motor load matters — reducing weight allowed motors to pass even at long cable distances and long motor cable runs.
6. 30V operation is unstable with long cable runs and long motor cables, causing node rebooting.
7. Recommended operating conditions:
 - Use 25-26V supply

- Full load acceptable at both 30 ft and 330 ft
- Avoid long motor cables (50 ft) unless load is reduced.