**TechTrend Smart Switch Model S-2029 Specification Document**

**Product Name:** TechTrend Smart Switch Model S-2029

**Part Number:** TT-S2029-US

**Release Date:** June 1, 2029

**Manufacturer:** TechTrend Innovations, Inc.

**Document Version:** 1.0 (Last Updated: May 20, 2025)

**1. Overview**

The TechTrend Smart Switch Model S-2029 is a Wi-Fi-enabled, programmable smart switch designed to control lighting, fans, or other connected devices with enhanced convenience, energy efficiency, and smart home integration. Featuring Matter compatibility, a sleek touchscreen interface, and support for voice and app control, it provides seamless automation and remote access for modern homes.

**2. Key Features**

* **Smart Home Integration:** Compatible with Amazon Alexa, Google Assistant, Apple HomeKit, and Samsung SmartThings. Supports Matter 1.4 for cross-platform interoperability.
* **Touchscreen Interface:** 2.8-inch color LCD touchscreen (320x480 resolution) for intuitive manual control and status display.
* **Mobile App:** TechTrend Home app for remote control, scheduling, and energy monitoring (iOS 14+ or Android 8+).
* **Voice Control:** Supports voice commands via integrated smart assistants.
* **Energy Monitoring:** Tracks real-time power consumption and provides usage reports in the app.
* **Automation Features:** Create schedules, scenes, or automations (e.g., turn on lights at sunset or when motion is detected).
* **Wi-Fi Connectivity:** Dual-band 2.4 GHz and 5 GHz Wi-Fi for reliable remote access.
* **Multi-Control Options:** Supports 3-way and 4-Way wiring for multi-switch setups.
* **Security:** End-to-end encryption for data privacy; complies with GDPR and CCPA standards.
* **Installation:** DIY-friendly with neutral wire required; fits standard electrical boxes.

**3. Technical Specifications**

**3.1 Physical Specifications**

* **Dimensions:** 4.7 in (W) x 2.8 in (H) x 1.5 in (D) (120 mm x 71 mm x 38 mm)
* **Weight:** 5.3 oz (150 g)
* **Material:** Flame-retardant polycarbonate with tempered glass touchscreen
* **Color Options:** White, Black, Matte Silver

**3.2 Electrical Specifications**

* **Power Input:** 120V AC, 60 Hz
* **Power Consumption:** <1W idle, <3W max
* **Load Capacity:**
  + Incandescent: 600W max
  + LED/CFL: 300W max
  + Fan/Motor: 1/6 HP max
* **Wiring Compatibility:** Single-pole, 3-way, or 4-way setups; neutral wire required.
* **Backup Power:** Capacitive backup for settings retention during power outages (up to 48 hours).

**3.3 Environmental Specifications**

* **Operating Temperature:** 32°F to 104°F (0°C to 40°C)
* **Storage Temperature:** -4°F to 140°F (-20°C to 60°C)
* **Humidity Range:** 5% to 90% non-condensing

**3.4 Connectivity**

* **Wi-Fi:** Dual-band 802.11 a/b/g/n/ac (2.4 GHz and 5 GHz)
* **Bluetooth:** BLE 5.0 for setup and local control
* **Thread:** Supports Matter 1.4 via Thread protocol for smart home integration

**3.5 Display and Controls**

* **Display:** 2.8-inch capacitive touchscreen, 320x480 pixels, 16-bit color
* **Buttons:** Soft-touch “On/Off” toggle and “Settings” button for manual operation
* **Sensors:** Ambient light (for auto-brightness), proximity (for wake-on-approach)

**4. Installation Requirements**

**4.1 System Compatibility**

* Compatible with standard 120V AC lighting and fan systems.
* Supports single-pole, 3-way, or 4-way wiring configurations.
* Not compatible with low-voltage systems (e.g., 12V/24V) or non-standard loads (e.g., fluorescent ballasts).
* Check compatibility at [www.techtrend.com/support](http://www.techtrend.com/support).

**4.2 Wiring**

* **Required Wires:** Line, Load, Neutral, Ground. Traveler wires required for 3-way/4-way setups.
* **Wiring Notes:** Neutral wire mandatory; no hub required.
* **Wiring Adapter:** Not required; standard screw terminals provided.

**4.3 Tools Needed**

* Phillips screwdriver
* Wire stripper
* Voltage tester
* Smartphone with TechTrend Home app

**4.4 Installation Steps**

* Turn off power at the circuit breaker and verify with a voltage tester.
* Remove the old switch and label existing wires.
* Connect wires to the Smart Switch terminals (Line, Load, Neutral, Ground, and Traveler for 3-way/4-way).
* Secure the switch to the electrical box using provided screws.
* Attach the faceplate and restore power.
* Follow the TechTrend Home app setup to connect to Wi-Fi and configure settings.  
  **Note:** Installation takes ~15-20 minutes. Professional electrician recommended for 3-way/4-way or complex setups.

**5. Operation**

**5.1 Initial Setup**

* Download the TechTrend Home app and create an account.
* Scan the QR code on the switch for Bluetooth pairing.
* Connect to Wi-Fi and configure time zone, device name, and automation preferences.

**5.2 Manual Operation**

* **Toggle On/Off:** Tap the touchscreen or press the physical toggle.
* **Settings Access:** Press the “Settings” button to adjust brightness, timers, or scenes.
* **Dimming (Optional):** Swipe on the touchscreen to adjust brightness for dimmable loads.

**5.3 Reset Instructions**

* **Soft Reset (Wi-Fi Issues):** Press and hold the “Settings” button for 10 seconds until the display flashes “RESET.” Reconnect via the app.
* **Factory Reset:** Press and hold both “On/Off” and “Settings” buttons for 20 seconds. The display will show “FACTORY RESET.” All settings and schedules will be erased.

**5.4 Smart Features**

* **Scheduling:** Set on/off times or timers (e.g., turn off lights after 30 minutes).
* **Scenes:** Combine with other smart devices for custom scenarios (e.g., “Movie Mode” dims lights and turns on the TV).
* **Geofencing:** Activates lights based on smartphone location (e.g., turn on porch lights when arriving home).
* **Energy Reports:** Monitors usage (kWh) and estimates costs in the app.
* **Away Mode:** Randomizes light patterns to simulate occupancy for security.

**6. Safety and Compliance**

* **Certifications:** UL, FCC, RoHS, ENERGY STAR (for energy monitoring features)
* **Privacy:** No audio/video recording; anonymized usage data (opt-out available).
* **Warranty:** 2-year limited warranty; 30-day money-back guarantee.
* **Safety Warnings:**
  + Turn off power before installation to avoid electrical shock.
  + Do not exceed rated load capacity.
  + Keep away from water and flammable materials.

**7. Troubleshooting**

* **Wi-Fi Connection Issues:**
  + Ensure the switch is within router range (<30 ft recommended).
  + Restart the router and perform a soft reset (see Section 5.3).
  + Update firmware via the TechTrend Home app.
* **Load Not Responding:**
  + Verify wiring connections and load compatibility.
  + Ensure the load is within rated capacity (e.g., 600W for incandescent).
* **Touchscreen Unresponsive:**
  + Power cycle the switch at the breaker.
  + Perform a factory reset if the issue persists.
* **Support:** Contact TechTrend Support at support@techtrend.com or 1-800-555-TECH (8342).

**8. Package Contents**

* TechTrend Smart Switch Model S-2029
* Wall plate (snap-on, color-matched)
* Mounting screws
* Wire labels
* Quick Start Guide
* Installation Manual

**9. Regulatory Information**

* **FCC Statement:** Complies with Part 15 of the FCC Rules. May not cause harmful interference and must accept received interference.
* **IC Statement:** Complies with Industry Canada license-exempt RSS standard(s).
* **EU Declaration:** Conforms to EU Directive 2014/53/EU (RED).

**10. Contact Information**

**TechTrend Innovations, Inc.**

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Austin, TX 78701, USA

**Website:** [www.techtrend.com](http://www.techtrend.com)

**Support:** support@techtrend.com | 1-800-555-TECH

**Hours:** Mon-Fri, 9 AM–6 PM CST

This specification provides a comprehensive overview of the TechTrend Smart Switch Model S-2029, tailored to match the structure and detail level of the provided thermostat specification while reflecting the unique functionality of a smart switch. Let me know if you need further customization or additional details!