# Tuya IoT Residual Current Circuit Breaker




## Specification Manual

# Wi-Fi IoT Smart Circuit Breaker 2P, 4P

## 1. Product Overview and Images

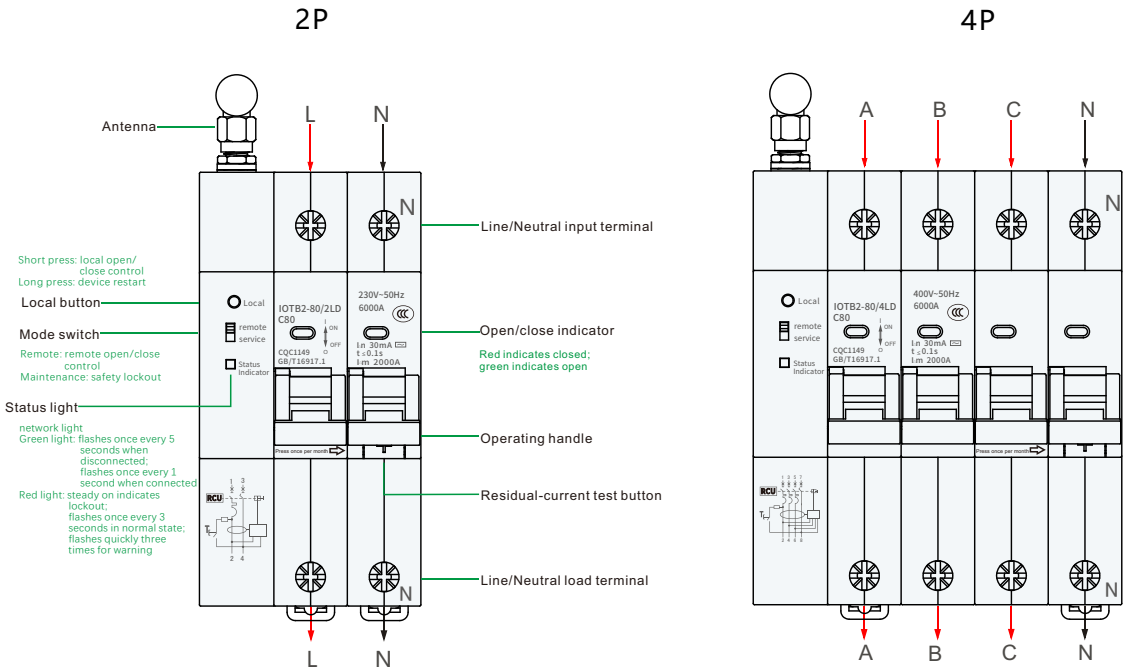
This product is intended for indoor low-voltage terminal power distribution in buildings and similar locations, including industrial, commercial, civil building, and infrastructure applications. It is suitable for AC 50Hz/60Hz systems, with a rated voltage of 110V-220V or 240V-380V and a rated current not exceeding 80A. The product provides electrical safety protection, power monitoring, local and remote control, and can also be used for infrequent switching operations.







## 2. Installation Diagram




## 3. Main Functions

3.1 Communication mode: Wi-Fi (2.4GHz) + Bluetooth network pairing;
3.2 Network mechanism: automatic reconnection after network disconnection; normal operation without network access;
3.3 Dual indicators: the green indicator represents communication status, and the red indicator represents control status;
3.4 OTA upgrade: remote firmware upgrade through the gateway;

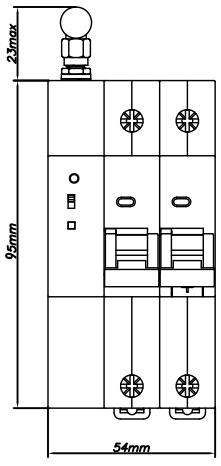
3.5 Scheduled control: cloud-based timer mode;
3.6 Global use: supports time-zone settings and automatic global time-zone time updates;
3.7 Edge computing: real-time analysis of electrical parameters, arc faults, and leakage current; supports viewing phase voltage, current, power, terminal temperature, and energy data;
3.8 Data caching: electric energy, alarm status, and parameter storage;
3.9 Protection functions: local logic judgment for 30 types of electrical faults, with reporting of short circuit, leakage, over/under-voltage, over/under-current, overload, terminal over-temperature, three-phase imbalance, and phase-loss alarm or trip information;
3.10 Recovery mechanism: hardware reset button and software factory reset;
3.11 Load selection: Type C is commonly used for conventional loads; Type D is used for inductive loads with high inrush current, such as motors, transformers, welding machines, large compressors, water pumps, and X-ray machines;
3.12 Maintenance toggle switch: used during line maintenance to prevent remote or local closing and protect maintenance personnel;
3.13 Opening lockout: used for arrears-related opening scenarios. After opening, the breaker is locked to prevent remote or local reclosing;
3.14 Level-1 alarm (short circuit, leakage): response time <= 100ms, with alarm information uploaded;
3.15 Level-2 alarm (terminal temperature, over/under-voltage, over/under-current, overload, ignition/arc fault): response time <= 1s (alarm delay configurable), with alarm information uploaded;
3.16 Level-3 alarm (local button or remote opening/closing, scheduled opening/closing, three-phase imbalance, phase loss, etc.): response time <= 1s (alarm delay configurable), with alarm information uploaded;
3.17 Protocol extension: compatible with Modbus RTU/TCP protocol;
3.18 Safety certification: complies with IEC 62351 power communication security standard;
3.19 Electromagnetic compatibility: passed GB/T 17626 Level 4 tests.

## 4. Intelligent Protection Functions (Circuit Breaker)

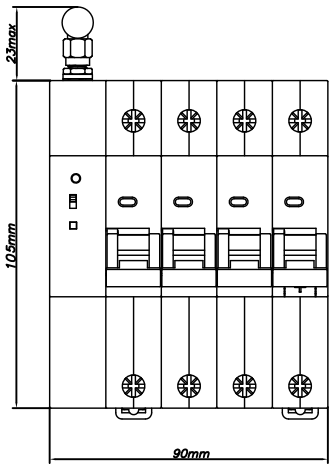
4.1 Operating voltage: China AC 230V, or overseas 120V/240V (normal single-phase operating range: 100V-300V);
4.2 Rated current: 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A;
4.3 Over-voltage trip: when the line voltage exceeds the alarm value of 275V (settable), the breaker trips and reports an alarm;
4.4 Over-voltage reclosing: when the line voltage returns to the recovery value of 253V (settable), the breaker automatically recloses;
4.5 Under-voltage trip: when the line voltage is lower than the alarm value of 176V (settable), the breaker trips;
4.6 Under-voltage reclosing: when the line voltage returns to the recovery value of 195V (settable), the breaker automatically recloses;
4.7 Terminal over-temperature: when the outgoing terminal temperature exceeds the alarm value of 85 degrees C (settable), warning information is uploaded;
4.8 Terminal over-temperature trip: when the outgoing terminal temperature exceeds the alarm value of 95 degrees C (settable), the breaker trips;
4.9 Leakage alarm: when the leakage current exceeds the alarm value of 25mA (settable), warning information is uploaded;
4.10 Leakage trip: when the leakage current exceeds the alarm value of 30mA (settable), the breaker trips;
4.11 Leakage protection disable: when the leakage current is greater than 30mA during equipment startup in an application scenario and emergency use is required, leakage protection disable can be operated;
4.12 Leakage self-test: the product has a leakage test button and remote leakage self-test function; both can be operated, and alarm information is uploaded to the platform;
4.13 Over-current trip: when the line current exceeds 1.45 times the rated current (settable), the breaker trips;
4.14 Overload warning: when the load exceeds 90% of 1.45 times the rated power (settable), warning information is uploaded;

4.15 Overload trip: when the load exceeds 1.45 times the rated power (settable), the breaker trips and alarm information is uploaded to the platform;
4.16 Instantaneous breaking capacity of the circuit breaker: 6kA;
4.17 Short-time thermal-magnetic protection: when overload/over-current reaches 2.55In, the bimetal strip bends and deforms, driving the trip mechanism to open the breaker and protect the line;
4.18 Long-time thermal-magnetic protection: when In <= 63A and overload/over-current reaches 1.13In, no action occurs within 1 hour; when it reaches 1.45In, the device trips within 1 hour to protect the line. When In > 63A and overload/over-current reaches 1.13In, no action occurs within 2 hours; when it reaches 1.45In, the device trips within 2 hours to protect the line;
4.19 Short-circuit protection: when a line short circuit occurs, Type C operates at 5-10 times rated current and Type D operates at 10-20 times rated current. The breaker disconnects within 0.04s and meets Type C and Type D trip curves;
4.20 High-precision measurement: supports high-precision measurement of power consumption, accuracy class 1;
4.21 Opening/closing control: local lever manual control, local button control, and remote mobile App control;
4.22 High-grade arc-extinguishing device: a stable and reliable arc chute effectively extinguishes arcs and helps prevent electrical fires;
4.23 Flame-retardant enclosure: the smart circuit breaker enclosure uses high-specification flame-retardant materials such as PA66 + glass fiber, with a flame-retardant grade of V-0;
4.24 Electrician maintenance mode: during line maintenance, local lockout can be used to prohibit closing. Without releasing the lockout, the switch cannot be closed by remote command or by pushing the handle, improving electrical safety during maintenance. It also supports remote lockout for remote permission management settings;
4.25 The breaker body uses a C65 structure and has a quick-closing function to reduce arcing and extend contact life;
4.26 Mechanical life >= 30,000 operations; electrical life under load >= 6,000 operations;
4.27 The mechanical detection switch used for position signal detection has strong anti-interference capability;
4.28 Power-loss state retention: if power is suddenly lost during opening/closing operation, after power is restored the breaker can be opened or closed again manually or remotely;
4.29 Standby power consumption <= 0.65W;
4.30 Ambient air temperature: -5 degrees C to 45 degrees C;
4.31 Installation altitude: not higher than 2000m;
4.32 Wiring capacity: 1-35 square millimeters;
4.33 Installation method: DIN standard rail;
4.34 The product complies with CQC1148 and CQC1149 certifications (CCC national compulsory product certification certificate, CQC certificate, and CNAS or MA test report); CE certification;
4.35 The product has a radio transmission equipment type approval certificate for 2.4GHz wireless LAN / Bluetooth equipment.

## 5. Overall Dimensions and Mounting Dimensions




2P




4P

