

TP-BT

Bluetooth Optical Probe Datasheet

The TP-BT Bluetooth Optical Probe is independently developed and manufactured by Tespro for meter commissioning, equipment maintenance, and data collection. It supports Bluetooth 4.0 dual mode (SPP + BLE) for stable wireless communication with smartphones, PDAs, and PCs, while also supporting wired USB connectivity.

Featuring a high-performance MCU, the TP-BT integrates Bluetooth and USB optical probe functions with flexible wired/wireless switching. It supports mainstream optical interfaces and is widely used for water/gas meter reading, heat meter maintenance, industrial parameter configuration, and system integration.



Baud rate
300-115200bps



Bluetooth 4.0
(SPP+BLE)



3.7V / 800mAh Lithium Battery
30-Minute Fast Charging (MiniUSB)

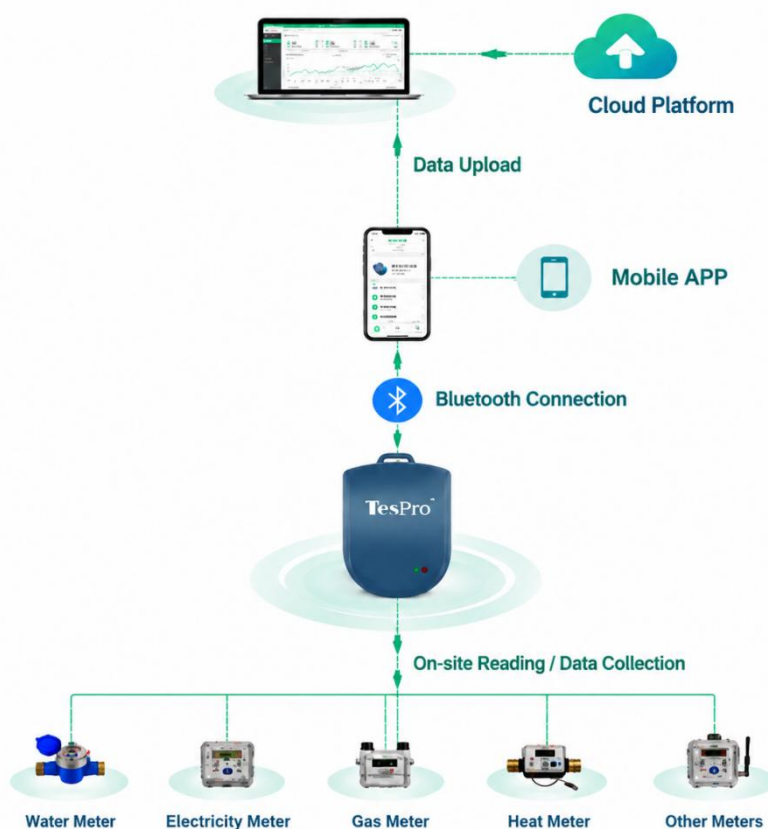


Protection: IP65
Temperature: -40°C ~ +70°C
Humidity: 5% ~ 95% RH
(non-condensing)

Typical application scenarios



Applied Topology



Core Advantages



Wireless communication

Equipped with Bluetooth 4.0 (SPP+ BLE), it enables fast pairing with smartphones, PDAs, and PCs for stable, low-power wireless data transmission and efficient mobile meter reading and configuration.



Protocol compatibility

Supports IEC 62056-21 (IEC1107), DLMS, and ANSI C12.18 Type 2 protocols, with transparent transmission modes (Mode C/E) and intelligent communication modes for compatibility with various domestic and international meters.



Physical interface

Equipped with USB 2.0 and Mini-USB interfaces, it supports wired connections and PD fast charging with plug-and-play compatibility for various field and laboratory applications.



Wide-range baud

Supports a wide baud rate range of 300 to 115,200 bps, enabling flexible compatibility with various instruments for stable data acquisition and efficient on-site operations.



Battery life

Built-in 3.7V/800mAh battery supports Mini-USB charging, with 3-hour full charging, up to 24 hours of communication and 30 days of standby. A high-brightness LED provides auxiliary lighting for night-time meter locating.



Excellent weather resistance

With a -40°C to +70°C operating range and IP65 protection, the device ensures reliable long-term operation in harsh environments, including extreme temperatures and humidity.

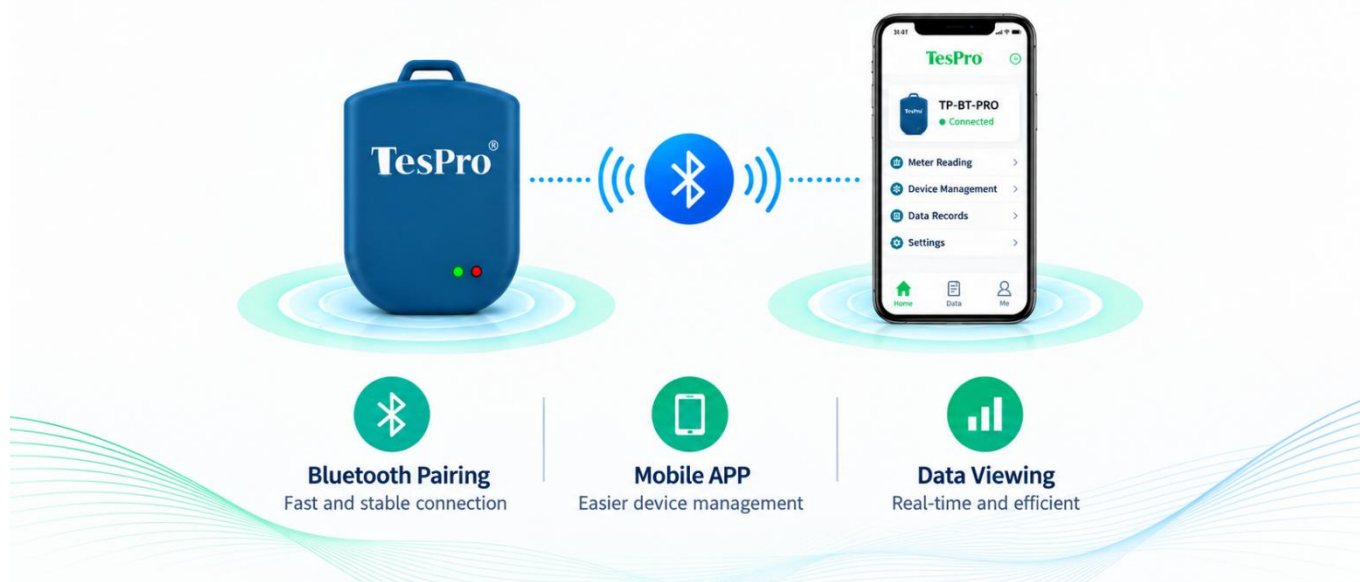
Features

- Bluetooth 4.0 (SPP+BLE) enables low-power wireless communication with smartphones, PDAs, and PCs.
- Supports IEC 62056-21 (IEC1107), DLMS, and ANSI C12.18 Type 2, compatible with various meters.
- USB 2.0 / Mini-USB interfaces support wired connection.
- Supports 300 – 115,200 bps baud rates for fast data acquisition and parameter read/write.
- Supports USB wired optical probe mode, with flexible wired/wireless switching.
- Supports transparent and intelligent modes, compatible with IEC 62056-21 Mode C/E, User Mode, and ANSI C12.18 Type 2.
- Maximum frame length: SPP-1024 / BLE 20 bytes.
- Supports USB/Bluetooth firmware and configuration upgrades without returning to the factory.
- Built-in 3.7V/800mAh battery with Mini-USB charging; 3-hour full charge, up to 24 hours communication and 30 days standby.
- Supports about 900nm wavelength for standard optical communication interfaces.
- One power button supports power control and function wake-up.
- Built-in LED light provides convenient emergency lighting with double-press control.
- Three LED indicators show power, charging and communication.
- Optional N40/N52 magnetic attachment enables convenient on-site mounting.
- Durable PC housing with optional silicone protective case for enhanced drop resistance.
- -40°C to +70°C, IP65 protection ensures reliable operation in harsh environments.
- Optional safety lanyard provides convenient carrying and fall protection.

Smart App Connectivity

Bluetooth Optical Probe

Easy connection to APP · Realize smart meter reading



Compatibility with mainstream

Supports Multiple Meter Communication Protocols

Wide compatibility · Easy connection · Empowering smart metering



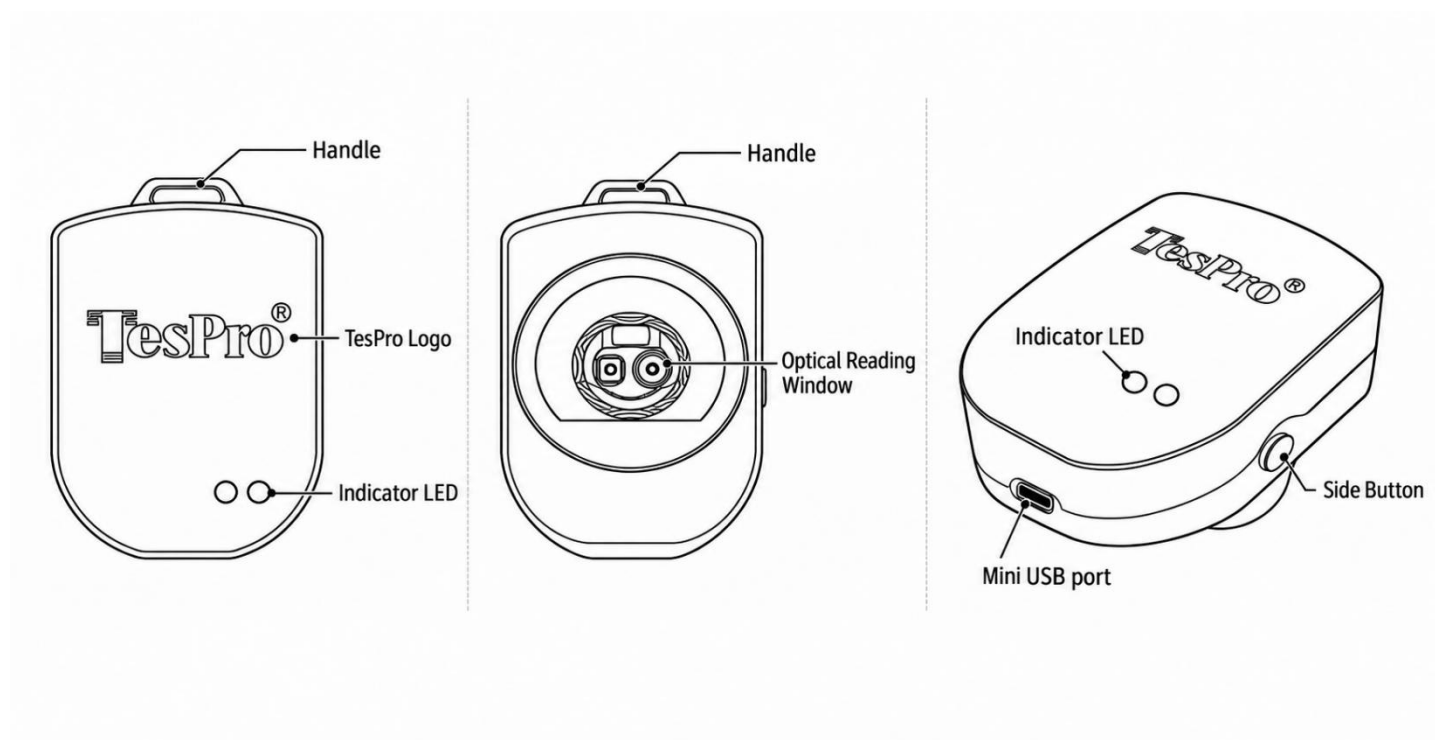
Specifications

Category	TP-BT
Bluetooth communication	
Bluetooth Version	Bluetooth 4.0 (Bluetooth Low Energy)
Operating Frequency Band	2.4GHz
Communication Range	≥10 meters (open environment)
Bluetooth Protocol	SPP+BLE GATT
Data Throughput	1Mbps
Communication protocol	
Communication Standard	IEC 62056-21 (IEC1107) / DLMS / ANSI C12.18 Type 2
Transparent Transmission Mode	IEC 62056-21 Mode C / Mode E / User mode; ANSI C12.18 / ANSI C12.18-2006 Type2
Intelligent Communication Mode	Support IEC 62056-21 Mode C / Mode E
Maximum Frame Length	SPP-1024 / BLE 20 bytes
Baud Rate	300 ~ 115200 bps
Communication interface	
Communication Port	USB 2.0 / Mini-USB
Wired USB Optical Probe	Supported (requires a data cable)
Optical interface	
Infrared emission wavelength	About 900nm
Infrared reception wavelength range	700 ~ 1100nm
Optical communication range	0 ~ 80mm (Effective range)
Resistance to ambient light interference	Built-in infrared optical filter rejects ambient light interference without compromising infrared sensitivity.
Power and Battery	
Battery Specifications	3.7 V / 800 mAh
Battery Type	Rechargeable lithium battery
Continuous Operating Time	Up to approximately 24 hours
Standby Time	About 30 days
Charging Port	Mini-USB
Charging Time	About 3 hours
Fast Charging Function	Not supports PD fast charging

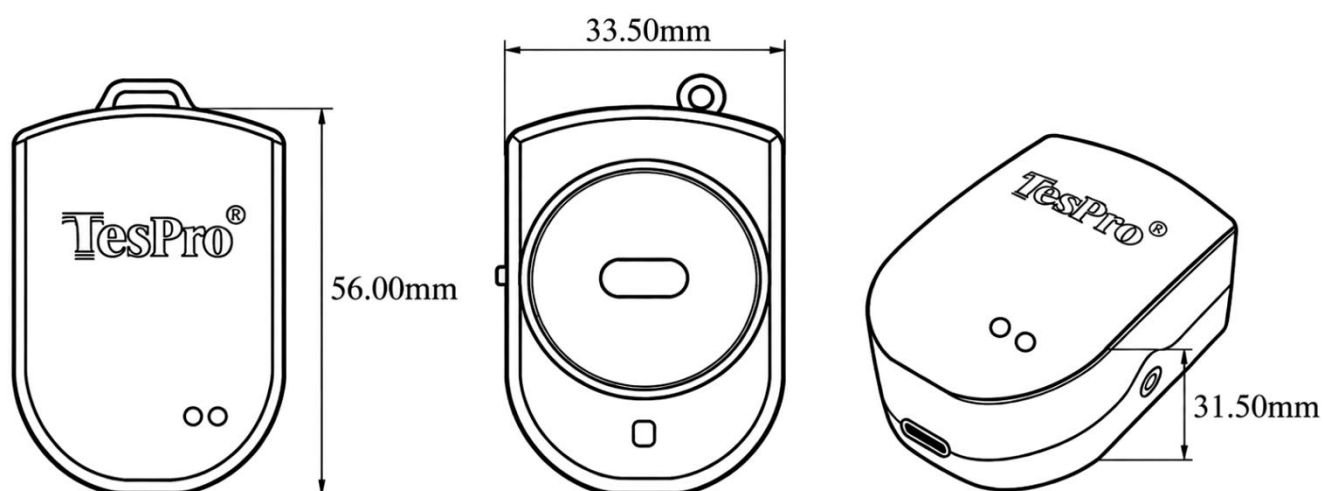
Specifications

Category	TP-BT
Hardware and Control	
Magnetic attraction force	N40 / N52(Optional)
Number of buttons	1 power button
LED indicator	3 indicators: Power / Bluetooth / Communication
Mechanics and Appearance	
Product dimensions	56 × 38.5 × 35.5 mm
Product weight	65 g
Casing material	PC
Silicone protection	Supported (optional)
Environment and Protection	
Operating temperature	-40°C ~ +70°C
Storage temperature	-20°C ~ +60°C
Operating humidity	5% ~ 95% RH (non-condensing)
Ingress protection rating	IP65
Software and Firmware	
App Support	Client App
Operating System	Android / iOS / Windows / Mac OS / Linux
Specifications	Supports configuration via USB/Bluetooth.
Firmware Upgrade	Supports upgrades via USB/Bluetooth.
Certifications and Accessories	
Regulatory Certification	CE, RoHS
Safety Lanyard	Supported (optional)
USB Data Cable	Supported (optional)
Bluetooth Adapter	Supported (optional)
OEM / ODM	Customization of logo, housing, cables, firmware, etc.

Interface Diagram



External dimensions



Accessories and Packaging



Accessories Information



TP-BT
Bluetooth
Optical Probe



USB Charger



Charging Cable



Safety Lanyard
(Optional)



Bluetooth Adapter
(Optional)



Packaging Information



Package Size

139 × 125.7 × 56.8 mm

Made of environmentally friendly and recyclable packaging materials, compliant with green environmental protection requirements

About Tespro

Tespro is an industrial IoT manufacturer with 25 years of experience, specializing in AI computing, industrial IoT, power communication equipment, and software. Its products include industrial gateways, routers, DTUs, optical probes, testing instruments, and management platforms for energy, automation, smart buildings, and commercial applications. With branches in the U.S., U.K., Singapore, Hong Kong, and Zhuhai, Tespro serves 150+ countries and partners with Fortune Global 500 companies.

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