

TP-BT-PRO

Bluetooth Optical Probe Datasheet

Independently developed and manufactured by Tespro, the TP-BT-Pro Bluetooth optical probe is designed for meter commissioning, maintenance inspection, and data collection. It supports Bluetooth 5.4 (SPP+ BLE) for stable wireless communication with smartphones, PDAs, and PCs, while also providing wired USB connectivity for flexible operation.

Featuring a high-performance MCU, the TP-BT-Pro integrates Bluetooth and USB optical probe functions in one device. It supports seamless switching between wireless and wired modes, compatibility with mainstream optical interfaces, and customized communication protocols. It is widely used in water/gas meter reading, heat meter maintenance, industrial parameter configuration, and system integration.



One World One Tespro



Baud rate
300-115200bps



Bluetooth 5.4
(SPP+BLE)

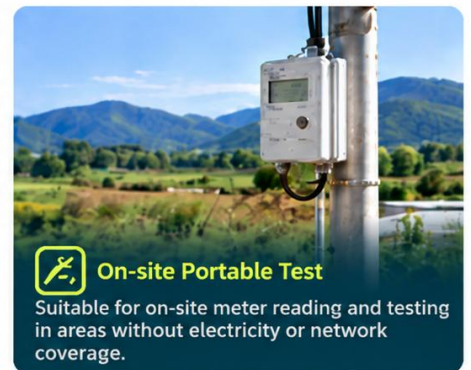


3.7V / 800mAh Lithium Battery
30-Minute Fast Charging (Type-C PD)

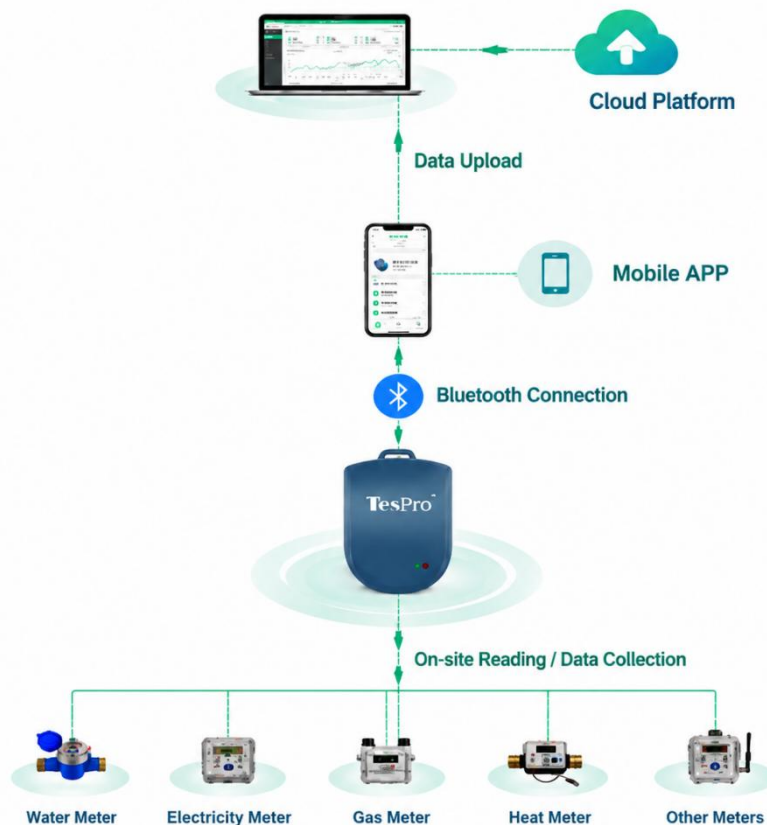


Protection: IP65
Temperature: -40°C ~ +70°C
Humidity: 5% ~ 95% RH
(non-condensing)

Typical application scenarios



Applied Topology



Core Advantages



Wireless communication

Equipped with Bluetooth 5.4 (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 and intelligent communication modes for compatibility with various domestic and international meters.



Physical interface

Equipped with USB 3.0 and Type-C 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 Type-C PD fast charging, fully charging in 30 minutes, with up to 30 days of communication or 1 year of standby. A high-brightness LED light helps locate meters in low-light conditions.



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 5.4 (Classic + 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 3.0 / Type-C interfaces support wired connection and PD fast charging.
- 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.
- Supports 2048-byte MTU for efficient long-frame transmission.
- Supports USB/Bluetooth firmware and configuration upgrades without returning to the factory.
- Built-in 3.7V/800mAh battery; 30-minute PD fast charging, up to 30 days communication or 1 year standby.
- Supports ~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.
- Four LED indicators show power, Bluetooth, TX, and charging status.
- 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



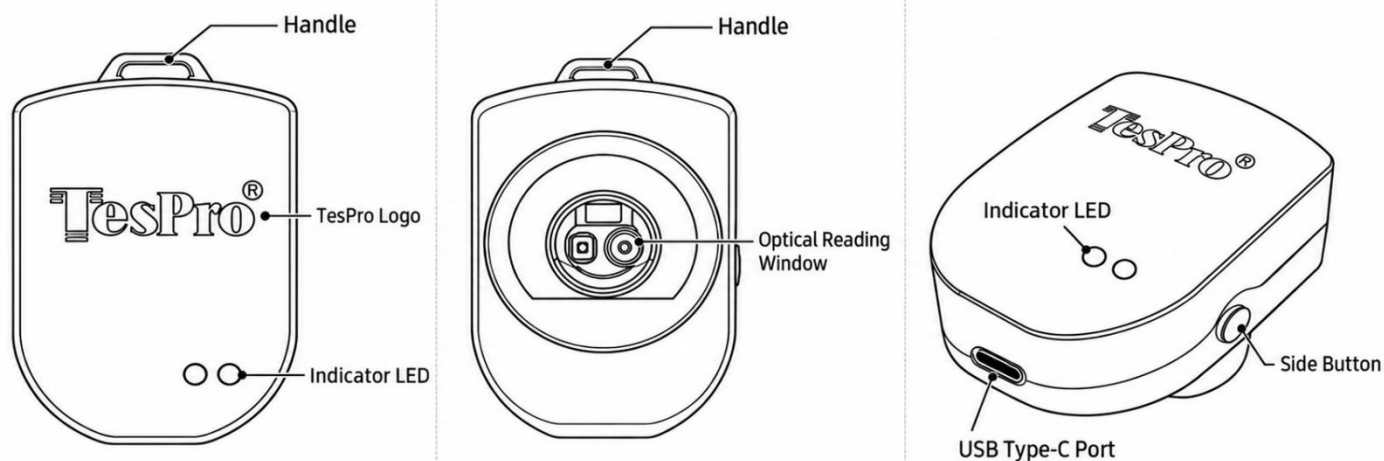
Specifications

Category	TP-BT-PRO
Bluetooth communication	
Bluetooth Version	Bluetooth 5.4 (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	2048 bytes
Baud Rate	300 ~ 115200 bps
Communication interface	
Communication Port	USB 3.0 / Type-C
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 60 hours
Standby Time	About 1 year
Charging Port	Type-C
Charging Time	About 30 minutes
Fast Charging Function	Supports PD fast charging

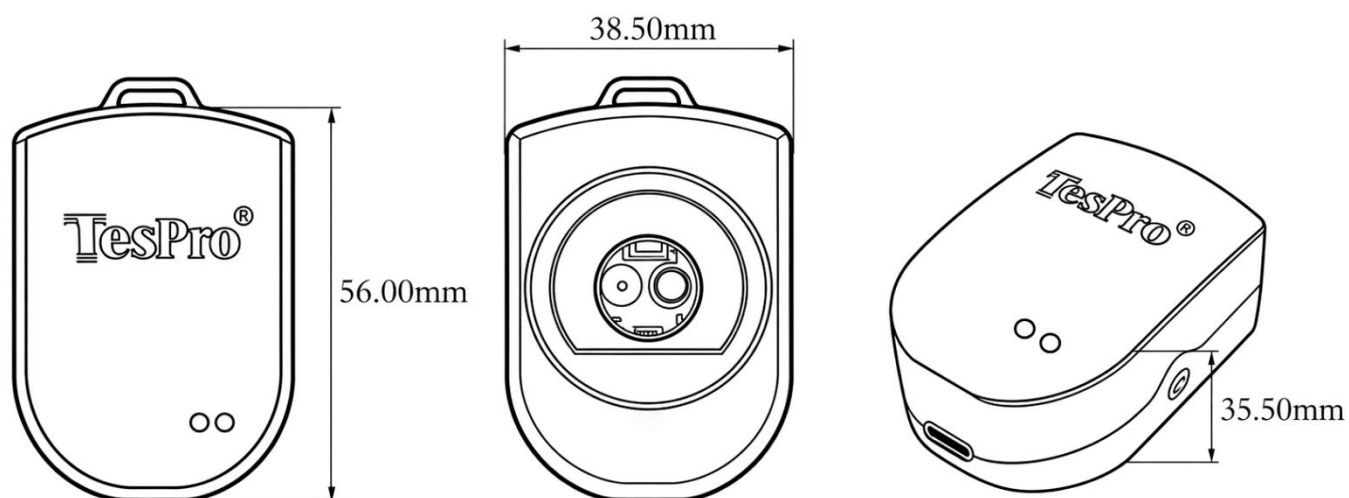
Specifications

Category	TP-BT-PRO
Hardware and Control	
Magnetic attraction force	N40 / N52(Optional)
Number of buttons	1 power button
LED indicator	4 indicators: Power / Bluetooth / Data Transmission / Charging Status
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-PRO
Bluetooth
Optical Probe



USB Charger



Charging Cable



Safety Lanyard



USB Data Cable
(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.

Global Office Locations

USA: 39 S Hayman Ave, Colorado Springs, CO 80910, US

UK: Flat 601 Ontario Tower, 4 Fairmont Avenue, London, UK, E14 9JA

Australia: 43 Tribeca Cct, North Lakes QLD, Australia 4509

Singapore: 3 Gambas Crescent, #04-01, Nordcom One, Singapore 757088

Hong Kong: Flat 602, 6/F, No. 2C Argyle Street, Mong Kok, Kowloon, HK

China: 2nd Floor, Liti Technology Building, No. 184 Bailian Road, Jida, Zhuhai City