

TP11

Calibration Optical Probe Datasheet

The TP-BT-PLUS Bluetooth optical probe is independently developed and manufactured by Tespro for electricity meter communication, on-site commissioning, maintenance, and data acquisition. It provides stable Bluetooth connectivity with smartphones, PDAs, PCs, and other devices.

Featuring a low-power chipset and Bluetooth 5.4 dual-mode (Classic Bluetooth + BLE), it supports Type-C fast charging, LED status indicators, and Bluetooth OTA upgrades. Compatible with IEC, ANSI, and DL/T-645 protocols and AMR, it supports global applications. With IP65 protection and Bluetooth SIG certification, its compact and durable design is ideal for remote data acquisition, system integration, and industrial parameter configuration.



Baud rate
300-115200bps



Standard: DC 5V $\pm 10\%$, $\leq 10\text{mA}$
Optional: DC 12-36V



High level $\geq 4.0\text{V}$
Low level $\leq 0.3\text{V}$
DC 5V / DC 12 - 24V (selectable)



Protection: IP54
Temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
Humidity: 5% $\sim$ 95% RH
(non-condensing)

Typical application scenarios



Electricity Meter Accuracy Test
Suitable for collecting and testing on-site metering data of various electronic electricity meters.



Water Meter Pulse Test
Suitable for collecting and testing on-site pulse output data of various water meters.



Gas Meter Pulse Test
Suitable for collecting and testing on-site pulse output data of various gas meters.



Heat Meter Error Test
Suitable for collecting and testing on-site pulse data and metering data of various heat meters.

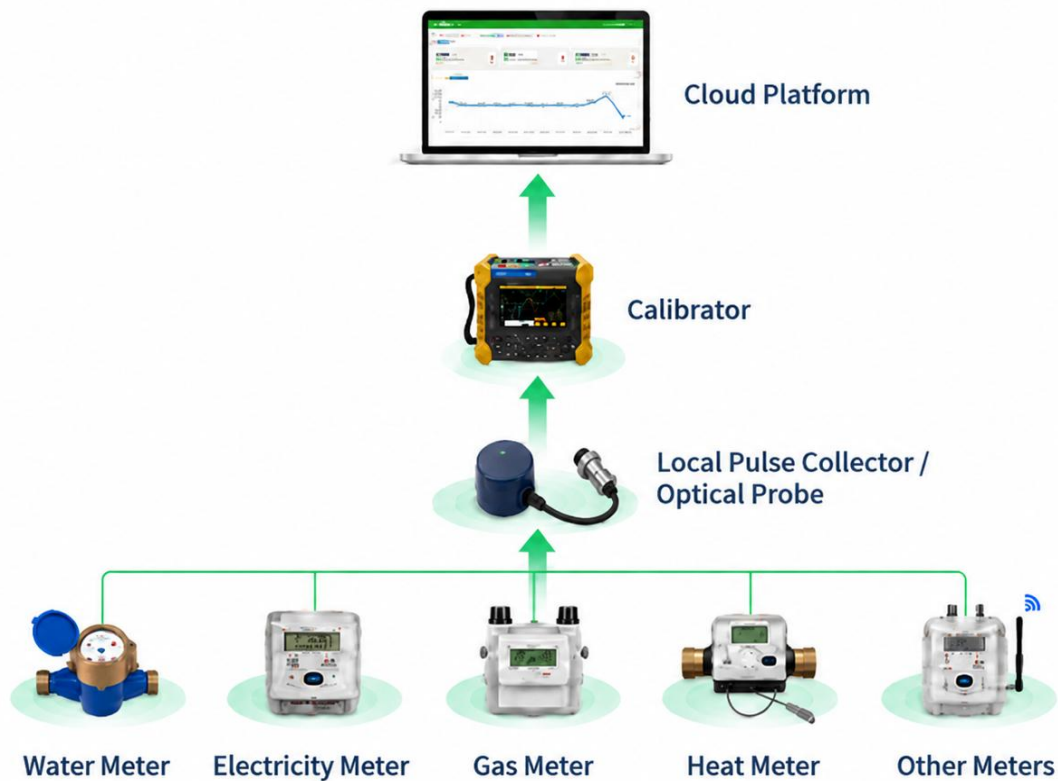


Production Line Quantity Test
Suitable for collecting and centrally testing production data of electricity meter manufacturers.



On-site Portable Test
Suitable for on-site meter reading and testing in areas without electricity or network coverage.

Applied Topology



Wireless



Power supply configuration

Standard with DC 5V $\pm$ 10% power supply, the device also supports optional DC 12–36V wide-voltage input, adapting to laboratory calibration, production testing, and portable field verification scenarios.



Pulse signal output

Outputs positive electrical pulses with high level $\geq 4.0\text{V}$ and low level $\leq 0.3\text{V}$, ensuring stable signal performance and accurate meter verification data acquisition.



Mechanical fixation

Features a strong magnetic attachment design compliant with IEC 62056-21, allowing secure mounting on various electricity meters with the TP-GS2 optical probe bracket for fast and reliable on-site operation.



Wide-range baud rate

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



Structural Design

With a compact body measuring 32mm in diameter and 30mm in height and weighing just 92g, it features a durable, impact-resistant ABS+PC composite housing designed to withstand accidental knocks and drops in the field.



Excellent weather resistance

With a -40°C to $+70^{\circ}\text{C}$ operating range and IP54 protection, the device ensures reliable long-term operation in harsh environments, including extreme temperatures and humidity.

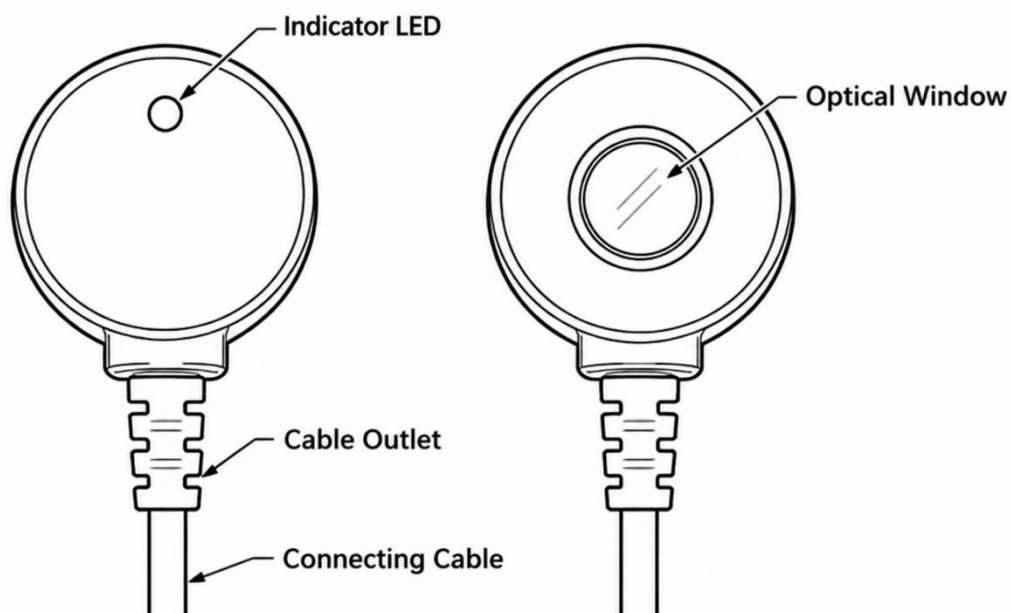
Features

- Standard power supply: DC 5V $\pm$ 10%; operating current $\leq 10\text{mA}$; low-power design.
- Supports an optional wide DC input voltage range of 12 – 36V, offering flexible compatibility with various power supply environments, such as production line testing equipment and portable field calibrators.
- Positive electrical pulse output; high level $\geq 4.0\text{V}$, low level $\leq 0.3\text{V}$; signal amplitude is stable and reliable.
- The power supply for the pulse output is selectable between DC 5V and DC 12 – 24V.
- Supports a wide transmission rate range of 300 to 115,200 bps, allowing for flexible matching with various instruments and application scenarios.
- Comes standard with a 3-meter cable; other lengths can be customized upon request.
- The connector comes standard with bare leads but offers optional plug types, allowing for flexible adaptation to the interface requirements of various verification devices.
- Secured via strong magnetic attachment; complies with IEC 62056-21 standards.
- Available with N40 or N52 magnetic holding force; compatible with the TP-GS2 photoelectric head's adjustable bracket for flexible mounting onto the face of various electricity meters, ensuring a secure and reliable installation.
- Impact-resistant ABS+PC composite housing; compact and durable construction.
- Operating temperature range of -40°C to $+70^{\circ}\text{C}$ and IP54 protection rating, ensuring reliable performance in harsh on-site conditions such as extreme cold, high temperatures, and dust.

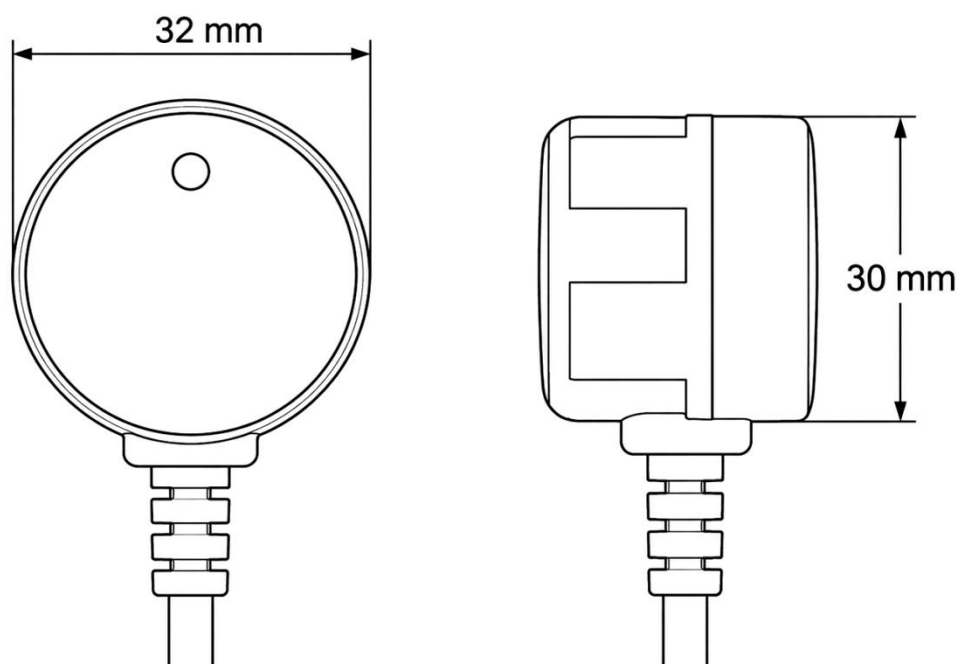
Specifications

Category	TP-11
Signal output	
Output type	Positive electrical pulse
High-level output voltage	≥4.0V
Low-level output voltage	≤0.3V
Electrical parameters	
Power supply	Standard configuration: DC 5V±10%, ≤10mA; Optional : DC 12~36V
Pulse output power supply	DC 5V / DC 12~24V (Optional)
Wavelength	About 900nm
Baud rate	300 ~ 115200 bps
Interfaces and Cables	
Cable length	Standard 3-meter cable (customizable)
Connector	Standard bare-wire termination (customizable)
Installation and Mounting	
Mounting method	Strong magnetic attachment (compliant with IEC 62056-21 standards)
Magnetic attraction force	N40 / N52 (optional)
Compatible mount/bracket	Can be used with the TP-GS2 optical probe mounting bracket to attach to various types of electricity meters
Mechanical Characteristics	
Casing material	Impact-resistant ABS+PC composite material
Product dimensions	32 × 30 mm (diameter × height)
Product weight	92 g
Environment and Protection	
Operating temperature	-40°C ~ +70°C
Storage temperature	-20°C ~ +60°C
Operating humidity	5% ~ 95% RH (No coagulation)
Ingress protection rating	IP54
Standards and Certification	
Complies with standards	IEC 62056-21

Interface Diagram



External dimensions



Accessories and Packaging



Accessories Information



**TP-11 Verification
Optical Probe**



**Driver Download
Card**



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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