



**2024  
PRODUCT  
INTRODUCTION**

# **Portable Velocity Meter**

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CONTENTS

I. Product Overview ..... 3

II. Technical Requirement of the Device ..... 3

III. Measurement Principal ..... 4

## Company Profile

Weifang AOBO Instrument Technology Development Co., Ltd., founded in 2002, with registration capital of 10 million RMB, is a "High-Tech" and "Double-Software Certification" enterprise specialized in "flow measurement and intelligent measurement & control" industry, integrating R&D, production, sales and service.

The company has a core R&D team for computer software and technology, automatic intelligent control, HVAC engineering design and flow measurement. It has the ability to provide customers with specific solutions and complete sets of products according to their different needs, based on years of practical experience. Especially in the heating industry, by the customer's recognition, has a high reputation in the industry.

The products are mainly used in the measurement and control of "steam, liquid, gas, sewage and tap water"; and especially suitable for energy monitoring and energy-saving control in many industries, such as thermal power plants, thermal companies, residential heating, petroleum, chemical industry, papermaking, food, coating, printing & dyeing and HVAC.

Since its foundation, based on self-developed and leading technology, reliable quality, high-quality service and good reputation, our company has been warmly accepted by customers, and become a designated supplier for many central enterprises and listed companies.

## Contact

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## I. Product Overview

ABDT-LS20B portable velocity meter is developed for the specific measurement of the flow rate for the hydrometric station, factories and mines, environment-protection monitoring station, irrigation and drainage on the farmland and hydrogeology survey, etc.

ABDT-LS20B intelligent velocity meter is mainly composed of LS20B propeller type velocity sensor, LS-A velocity measuring instrument and measuring rod. The complete set of instruments is placed in the high-grade aluminum alloy password box. When in use, assemble as shown in Figure 1, connect the signal line, and then enter to measure the flow rate in each open channel and display the flow rate automatically.

The device is simple and convenient, energy saving, stable and reliable. It possesses complete functions and a high automaticity in accordance with the national measurement standard of open channel. Equipped with a rotating propeller which can endure 80 °C, it is a new portable velocity meter in China.

## II. Technical Requirement of the Device

Velocity measurement formula:

$$V = \frac{KN}{T} + C \text{ (m/s) (automatic calculation)}$$

Serial number: \_\_\_\_\_、K \_\_\_\_\_、C \_\_\_\_\_

Propeller structure: spiral curved double-blade, left-handed, PC plastic

Rotary diameter of propeller D: 125mm; Propeller hydraulic pitch b: 200mm

Instrument starting speed:  $V_0: \leq 0.04\text{m/s}$ ; Critical speed of calibration curve  $V_k$ : about 0.13m/s (starting point of linear formula)

Flow measurement range V: 0.03~15m/s Signal component structure: magnetic steel - reed electronic switch

Revolutions per signal: 2

Relative error of calibration curve E: when  $V \geq V_k$ ,  $E < \pm 1.5$ ; When  $V < V_k$ ,  $E < \pm 3\%$

Switch contact capacity: current  $\leq 50\text{mA}$ , voltage  $\leq 6\text{V}$

Working life of reed: 70 million times

Continuous working time of the instrument: 2 hours (suspended sediment concentration  $\leq 50\text{kg/m}^3$ , flow rate  $\leq 5\text{m/s}$ , water depth  $\leq 10\text{m}$ )

Instrument working water flow conditions Water depth range: 0.02~50m Water temperature: 0~40 °C

Suspended sediment content:  $\leq 100\text{kg/m}^3$  salinity:  $\leq 2\text{g/L}$

Display screen: 4 × 16-bit LCD display

Measurement method: positioning measurement with measuring rod (or cable suspension positioning measurement)

Power supply: DC8.4V Li-ion rechargeable battery, continuous operation of above 40 hours after complete charge.

### III. Measurement Principal

The device was developed with the flow velocity-area method in the open channel measurement. After obtaining the flow velocity, the flow quantity can be obtained through the formula  $Q=V \cdot S$  (S is the section area)

#### 1.The measurement of the flow velocity

In the measurement, the rotor current meter was rotated by the water power, the signal device generates the revolution signal, and the flow velocity can be calculated by the following formula:

$$V = \frac{KN}{T} + C \quad (\text{m/s})$$

In it :

V:The mean flow velocity during the measurement(m/s)

K:Screw pitch

C:Constant of the current meter

T:the amount of time of the measurement(unit: s)

N:The number of signals during T

During the use of the device, K and C both are constants. The flow velocity can be calculated once the value of T and N are obtained.

#### 2.The calculation of volume of flow

By the flow velocity-area method, the volume of flow can be obtained by multiplying the flow velocity and section area which were obtained in the measurement.

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