

EU Series

Ultrasonic Sensors

Product Selection Manual



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EUB Series

Ultrasonic Sensor (With RS-485 Communication)



— Product Introduction

Ultrasonic sensors work on acoustic wave reflection principle. The sensor emits high-frequency ultrasonic pulses via piezoelectric ceramic or magnetostrictive material. Sound waves travel through the medium, reflect off target objects, and the sensor receives echo signals. Distance to the target is calculated from the time difference between ultrasonic transmission and reception combined with sound-speed value.

This sensor is equipped with RS-485 communication adopting differential transmission. Logic signals are represented by voltage difference between cable A and B. Voltage difference +2V ~ +6V defines logic 0; -6V ~ -2V defines logic 1. Data transmission is realized under half-duplex mode.

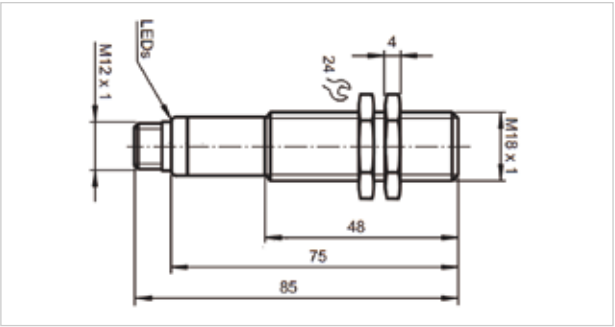
— Features

- Strong Anti-interference Performance**
RS-485 differential transmission effectively suppresses common-mode interference and ensures stable data transmission under industrial environments with heavy electromagnetic noise.
- Long Transmission Distance**
Theoretically transmission distance reaches up to 1200 meters at baud rate ≤100 kbps, meeting requirements for large-range monitoring scenarios.
- Multi-node Communication**
Multiple sensors can be connected onto one single bus for building large-scale monitoring networks and centralized monitoring & management of multiple measuring points.
- High-precision Measurement**
Ultrasonic sensor delivers high measuring accuracy up to millimeter level for precise measurement of liquid-level, distance and other parameters.
- Non-contact Measurement**
Utilizing ultrasonic characteristics without physical contact with measured objects. It avoids damage to targets and is suitable for measuring corrosive, toxic liquids or special objects.

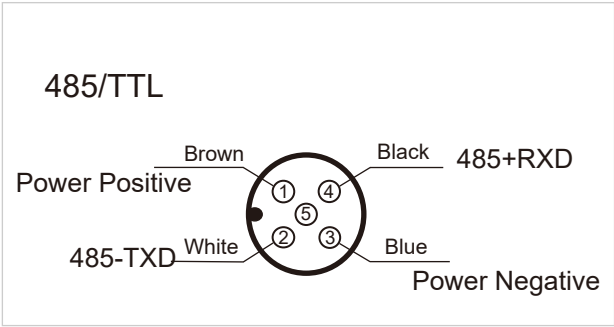
— Specifications

Item	Specifications
Measuring Range	60~1000mm
Blind Zone	0~60mm
Standard Test Plate	300×300mm
Beam Angle	10°
Repeatability	0.3%
Operating Voltage	10~30VDC
Temperature Drift	0.05% /°C (Built-in temperature compensation)
Linearity	<1%
Resolution	0.1% of full-range (Min.0.5mm)
Response Time	125ms
EMC Compliance	GB/T17626.2-2006 / GB/T17626.4-2008
Power Consumption	20mA
Protection Circuit	Reverse-polarity protection, transient over-voltage protection
Operating Temperature	-20°C~+80°C
Storage Temperature	-40°C~+80°C
Housing Material	Nickel-plated copper (Stainless-steel housing optional)
Cable Length	2m

— Dimension drawing



— Pinout Diagram



EdbK+4/EdbK+5 Ultrasonic Sensors



— Product Introduction

ELE single-/double-sheet ultrasonic sensor is a high-performance, durable industrial sensor for detection of paper, alloy-laminated sheets, thin films, corrugated cardboard, silicon wafers and PCB boards. Thanks to non-contact measuring principle and wide measuring range, it delivers accurate and reliable measurement data under complex environments to optimize production workflows and improve equipment efficiency.

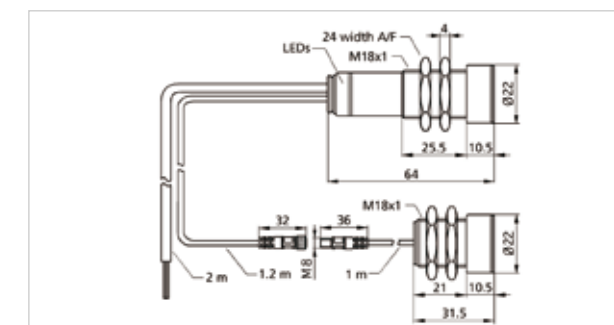
Edbk+4: Detects paper with basis-weight 20-2000 g/m², alloy-laminated sheets, films up to 0.4 mm thick, self-adhesive films, metal foils up to 0.3 mm thick, corrugated cardboard, silicon wafers and PCB boards.

Edbk+5: Detects plastic sheets with basis-weight 100-2000 g/m², alloy-laminated sheets, films up to 5 mm thick, self-adhesive films, metal foils up to 2 mm thick, corrugated cardboard, silicon wafers and PCB boards.

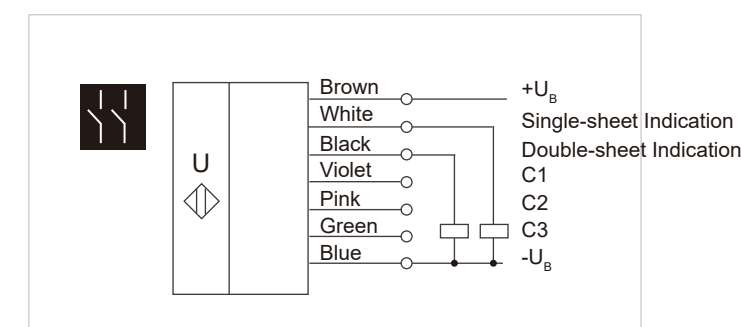
— Features

- **High-performance Ultrasonic Double-sheet Controller**
Specially designed for detecting various materials including corrugated cardboard, plastic sheets and metal plates of several-millimeter thickness.
- **Three Control Inputs**
External sensitivity selection, trigger and auto-teach-in functions to adapt to different target materials.
- **Optional Auto-Teach-in Function**
Especially suitable for complex materials e.g. water-film-bonded solar silicon wafers.
- **Compact M18×1 Threaded Sleeve Design**
Enables efficient operation within confined spaces and adapts to diverse mounting conditions.

— Dimension Drawing



— Wiring Diagram



— Specifications

Item	Edbk+4 Series
General Description	
Testing Scope	Detect paper (20-2000 g/m²), alloy-laminated sheets, film ≤0.4 mm, self-adhesive film, metal foil ≤0.3 mm, corrugated cardboard, silicon wafer, PCB
Mechanical Design	Cylindrical M18
LED Indicators	2-LED; Green: Operating; Red: Double-sheet; Red Flashing: Missing-sheet
Characteristic	Selectable distance between transmitter and receiver
Ultrasonic Sensor Characteristics	
Measuring Principle	Pulse operation with amplitude evaluation
Transducer Frequency	200 kHz
Blind Zone	7 mm in front of transmitter & receiver
Electrical Specifications	
Operating Voltage	18-30 V DC, reverse-polarity protected
Voltage Ripple	± 10 %
No-load Current	≤ 50 mA
Connection	1 m PUR cable, 7 × 0.25 mm²
Output	
Output 1 (Double-sheet)	NPN/PNP, I _{max} = 200 mA (U _B -2V), NO/NC adjustable, short-circuit protected
Output 2 (Missing-sheet)	NPN/PNP, I _{max} = 200 mA (-U _B -2V), NO/NC adjustable, short-circuit protected
Response Time	Trigger mode < 500 µs; Auto-run mode 2.5 ms
Input	
Control-input Logic	Logic 1: <-U _B +6V; Logic 0: >-U _B +10V or open-circuit
Input 1	Multi-function control inputs
Input 2	Multi-function control inputs
Input 3	Multi-function control inputs
Housing	
Transmitter-Receiver Spacing	20-60 mm; Optimum 40 mm ± 3 mm
Allowable Angular Deviation	± 45° relative to perpendicular plane
Housing Material	Nickel-plated brass sleeve; Plastic parts PBT, PA
Ultrasonic Transducer	Polyurethane foam, glass-filled epoxy resin
Max. Nut-Tightening Torque	15 Nm
IP Rating (EN 60529)	IP 65
Operating Temperature	+5 °C ~ +60 °C
Storage Temperature	-40 °C ~ +85 °C
Weight	160 g

Item	Edbk+5 Series
General Description	
Testing Scope	Detect plastic sheets (100-2000 g/m²), alloy-laminated sheets, film ≤5 mm, self-adhesive film, metal foil ≤2 mm, corrugated cardboard, silicon wafer, PCB
Mechanical Design	Cylindrical M18
LED Indicators	2-LED; Green: Operating; Red: Double-sheet; Red Flashing: Missing-sheet
Characteristic	Selectable distance between transmitter and receiver
Ultrasonic Sensor Characteristics	
Measuring Principle	Pulse operation with amplitude evaluation
Transducer Frequency	400 kHz
Blind Zone	7 mm in front of transmitter & receiver
Electrical Specifications	
Operating Voltage	18-30 V DC, reverse-polarity protected
Voltage Ripple	± 10 %
No-load Current	≤ 50 mA
Connection	2 m PUR cable, 7 × 0.14 mm²
Output	
Output 1 (Double-sheet)	NPN/PNP, I _{max} = 200 mA (U _B -2V), NO/NC adjustable, short-circuit protected
Output 2 (Missing-sheet)	NPN/PNP, I _{max} = 200 mA (-U _B -2V), NO/NC adjustable, short-circuit protected
Response Time	Trigger mode < 500 µs; Auto-run mode 2.5 ms
Input	
Control-input Logic	Logic 1: <-U _B +6V; Logic 0: >-U _B +10V or open-circuit
Input 1	Multi-function control inputs
Input 2	Multi-function control inputs
Input 3	Multi-function control inputs
Housing	
Transmitter-Receiver Spacing	20-60 mm; Optimum 40 mm ± 3 mm
Allowable Angular Deviation	± 45° relative to perpendicular plane
Housing Material	Nickel-plated brass sleeve; Plastic parts PBT, PA
Ultrasonic Transducer	Polyurethane foam, glass-filled epoxy resin
Max. Nut-Tightening Torque	15 Nm
IP Rating (EN 60529)	IP 65
Operating Temperature	+5 °C ~ +60 °C
Storage Temperature	-40 °C ~ +85 °C
Weight	160 g

Euu Series

Ultrasonic Sensor



Product Introduction

ELEsenson ultrasonic sensor is a high-performance durable industrial sensor for distance measurement, liquid-level detection, obstacle detection and other industrial-automation applications. Adopting non-contact measuring method and wide sensing range, it delivers accurate, reliable measuring data under complex environments to optimize production workflows and improve equipment efficiency.

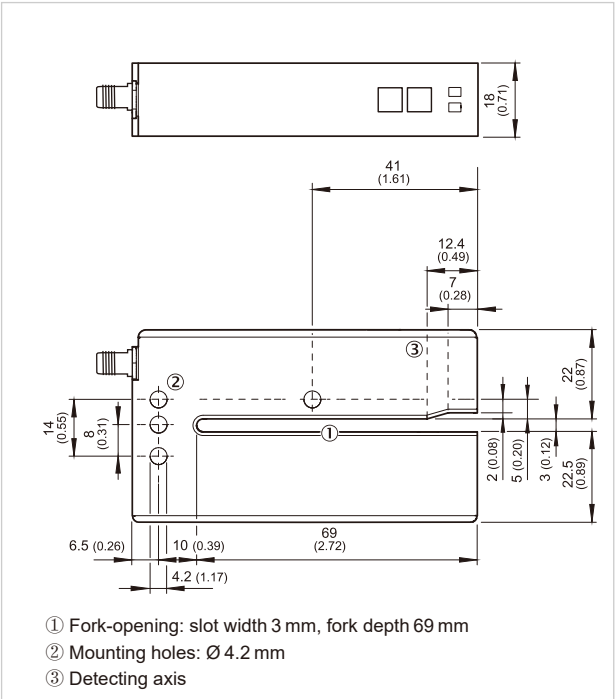
Features

- Based on ultrasonic principle; capable of detecting transparent labels
- Fork-slot width 3 mm, fork-depth 69 mm
- Minimum detectable label gap / label size: 2 mm
- One-touch teach-in; plus/minus push-buttons (teach-in, sensitivity, light-on / dark-on switch)
- Sensing frequency: 1.5 kHz
- Dual-output options: PNP + NPN
- Short-circuit-protected outputs; metal-constructed housing

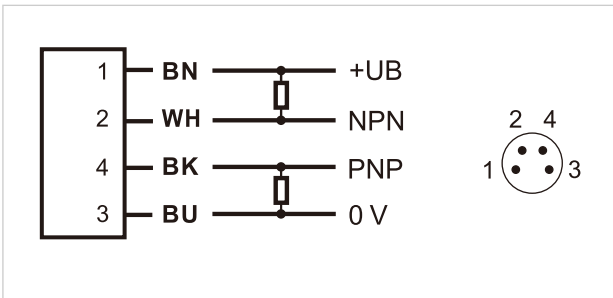
Specifications

Item	Specifications
Supply Voltage	10 - 30V DC
Residual Ripple	<10%
Current Consumption	40 mA
Switching Frequency	1.5 kHz
Response Time	250 μs
Digital Output	PNP + NPN
Switching Mode	NO / NC configurable
Output Current	100 mA
Initialization Time	100 ms
Connector	M8×1, 4-pin
Protection Circuit	Output Q with short-circuit protection; interference-pulse suppression
Operating Temperature	+5°C...+ 55°C
Storage Temperature	-20°C...+70°C
IP Rating	IP65
Weight	95 g
Housing Material	Aluminum metal

Dimension Drawing



Wiring Diagram



— Application Fields



Industrial Automation



Automotive Manufacturing



Transportation



Medical Equipment

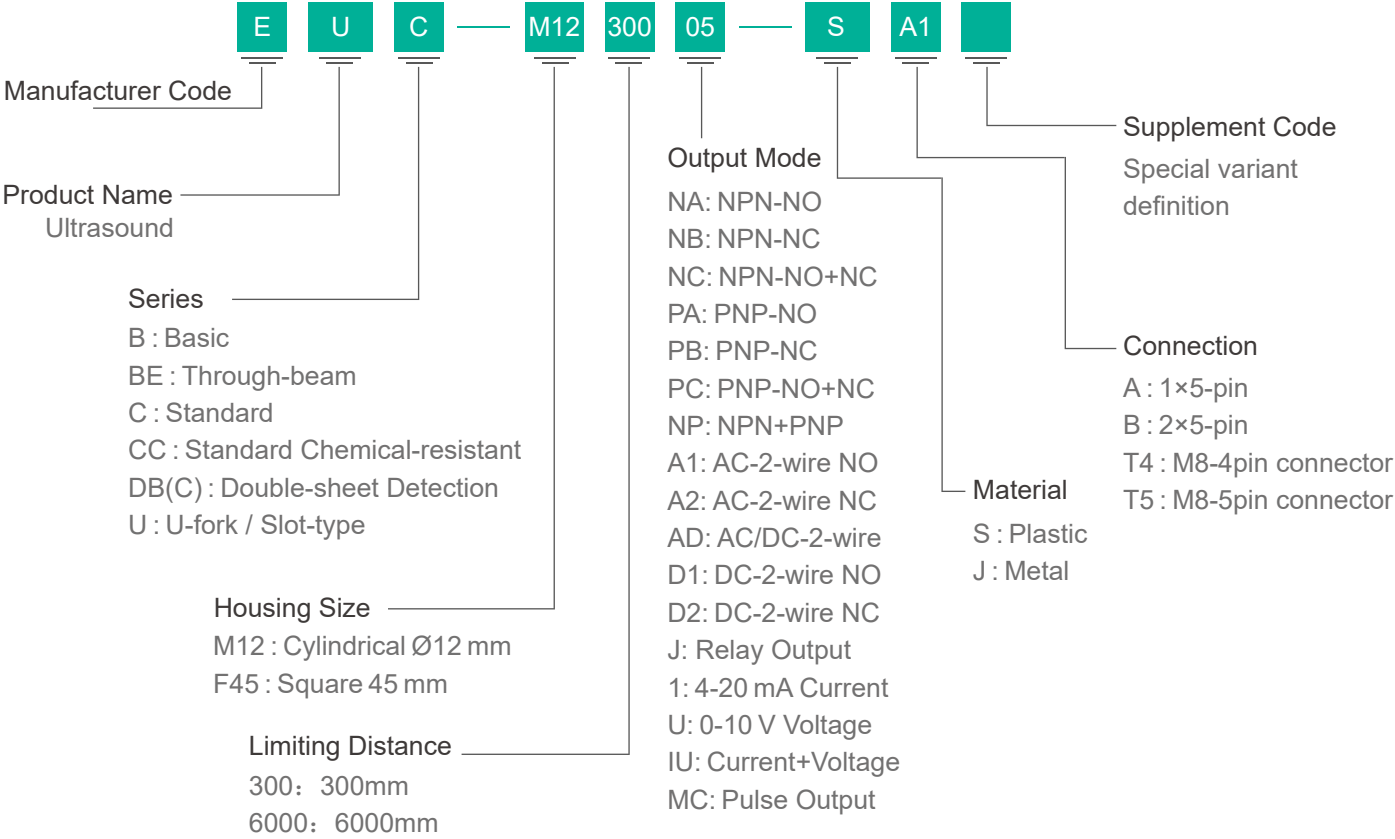


Environmental Monitoring

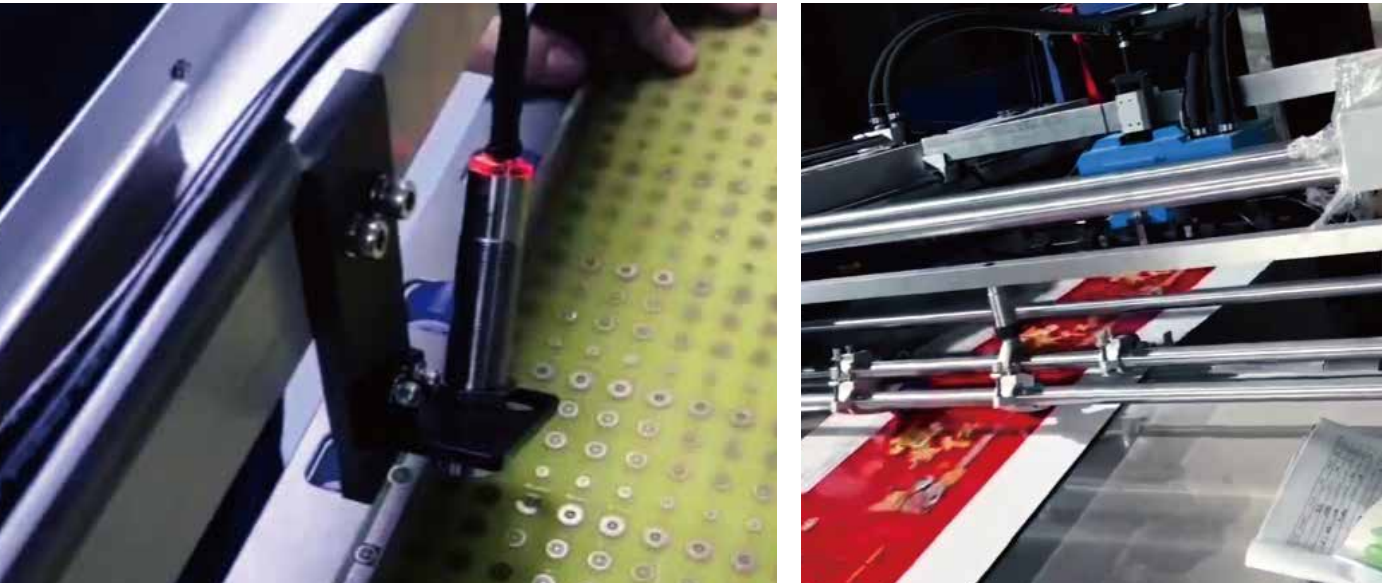


New-energy Industry

— Model Coding Rule



APPLICATIONS CASES



COMPANY PROFILE

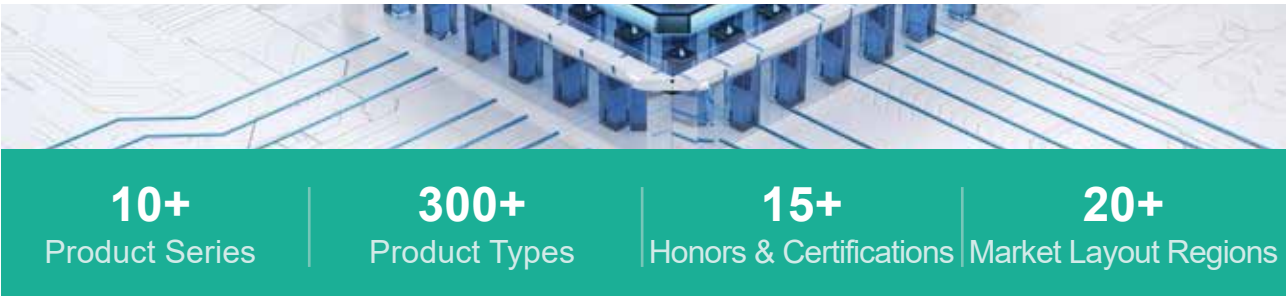


ELEsenson focuses on R&D, manufacturing and sales of sensors. We have a high-caliber, innovative technical team. Pursuing continuous technical improvement, we deliver high-performance, reliable sensor products for customers.

Our broad product portfolio covers multiple industries including industrial automation, smart home and automotive electronics. Our products are well-received for precise measurement, stable performance and outstanding durability.

During production, strict quality-control procedures guarantee premium quality for every unit leaving our factory. We maintain close cooperation with customers, deeply understanding requirements and delivering customized solutions for special-scenario demands.

ELEsenson regards innovation as core driving force. Continuous investment in R&D and product upgrades. With professional teams, premium products and thoughtful service, Zhejiang ELEsenson Sensors has built solid reputation in the industry, contributing technical strength to the advancement of multiple sectors.



■ Corporate Culture

— Vision

Uphold conviction, reach new heights of sensor-technology development.
Build a globally-leading sensor enterprise and lead industry progress through technological innovation.

— Mission

Drive development through innovation, win trust by quality.
Supply precise,stable,durable and reliable sensor products plus customized solutions for industrial automation, rail transit, automotive electronics and other industries.

— Core Values

Customer-Oriented, Integrity-Based, Innovation-Driven, Quality-First.
We are customer-demand oriented, operate with integrity, pursue innovation and strive for superior product & service quality.

CORE ADVANTAGES

- Professional & Efficient Team

Experienced and skilled personnel providing high-quality service & technical support.
- Strong R&D Capability

Advanced R&D equipment & specialist team to develop innovative, competitive products.
- Complete After-Sales Support System

Timely response to customer requests, comprehensive technical support & solutions to maximize customer satisfaction.



HONORS AND QUALIFICATIONS



Brief Product Catalog | English Version | Issue 1, 2025

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