S25HH0 FSD22-100N-UI

S25HH0 FSD22-100N-UI Laser Displacement Sensor Instruction Manual

High Precision Distance 100mm Analog 4~20 mA 0-5 V Output

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the S25HH0 FSD22-100N-UI Laser Displacement Sensor. This sensor is designed for high-precision distance measurement, offering both 4-20 mA and 0-5 V analog output options. Please read this manual thoroughly before using the product to ensure correct operation and to prevent damage.

2. Safety Information

WARNING: LASER RADIATION

This device emits laser radiation. Direct exposure to the laser beam can cause eye injury. Observe the following safety precautions:

- Do not stare directly into the laser beam.
- Avoid pointing the laser at reflective surfaces that could redirect the beam into eyes.
- Ensure proper installation to prevent accidental exposure.
- Only qualified personnel should install and service this device.

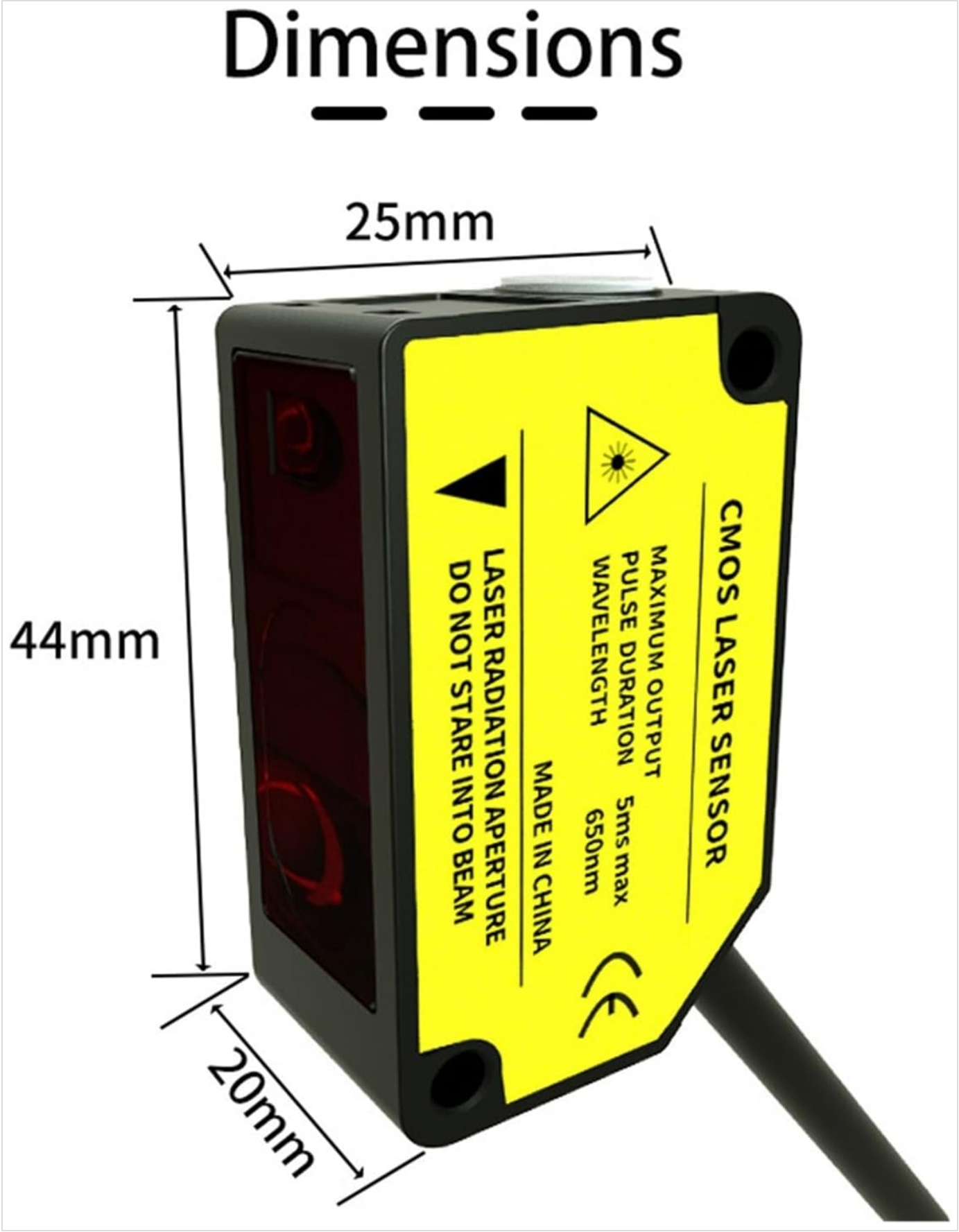

Figure 2.1: Side view of the FSD22 series sensor, highlighting the laser radiation warning and key specifications such as maximum output pulse duration and wavelength.

3. Product Overview

3.1 Features

- High-precision laser displacement measurement.
- Measuring center distance: 100mm.
- Measuring range: ±35mm.
- Analog output options: 4-20 mA and 0-5 V.
- Compact and robust design.
- Integrated display for real-time readings.

3.2 Components and Panel Introduction

The FSD22-100N-UI sensor features an intuitive control panel and clear indicators for easy operation and monitoring.

Figure 3.1: Panel introduction of the FSD22 series sensor, detailing the Teaching indicator, Zero set indicator, PRO indicator, Output operation indicator, Power indicator, Laser indicator, SET key, Up key, and Down key.

Panel Elements:

- **Teaching indicator:** Indicates the teaching mode status.
- **Zero set indicator:** Indicates when the zero point has been set.
- **PRO indicator:** Indicates the program or profile mode.
- **Output operation indicator:** Shows the status of the analog output.

- **Power indicator:** Illuminates when the sensor is powered on.
- **Laser emission indicator:** Illuminates when the laser is active.
- **SET key:** Used to enter settings menus and confirm selections.
- **Up key:** Used to navigate menus or increase values.
- **Down key:** Used to navigate menus or decrease values.

4. Specifications

Parameter	Value
Model	FSD22-100N-UI
Measuring Center Distance	100 mm
Measuring Range	±35 mm
Analog Output	4-20 mA / 0-5 V
Power Supply	12-24 VDC
Laser Wavelength	650 nm
Maximum Output Pulse Duration	5 ms max
Dimensions (L x W x H)	44 mm x 25 mm x 20 mm
Weight	50 g (approx.)

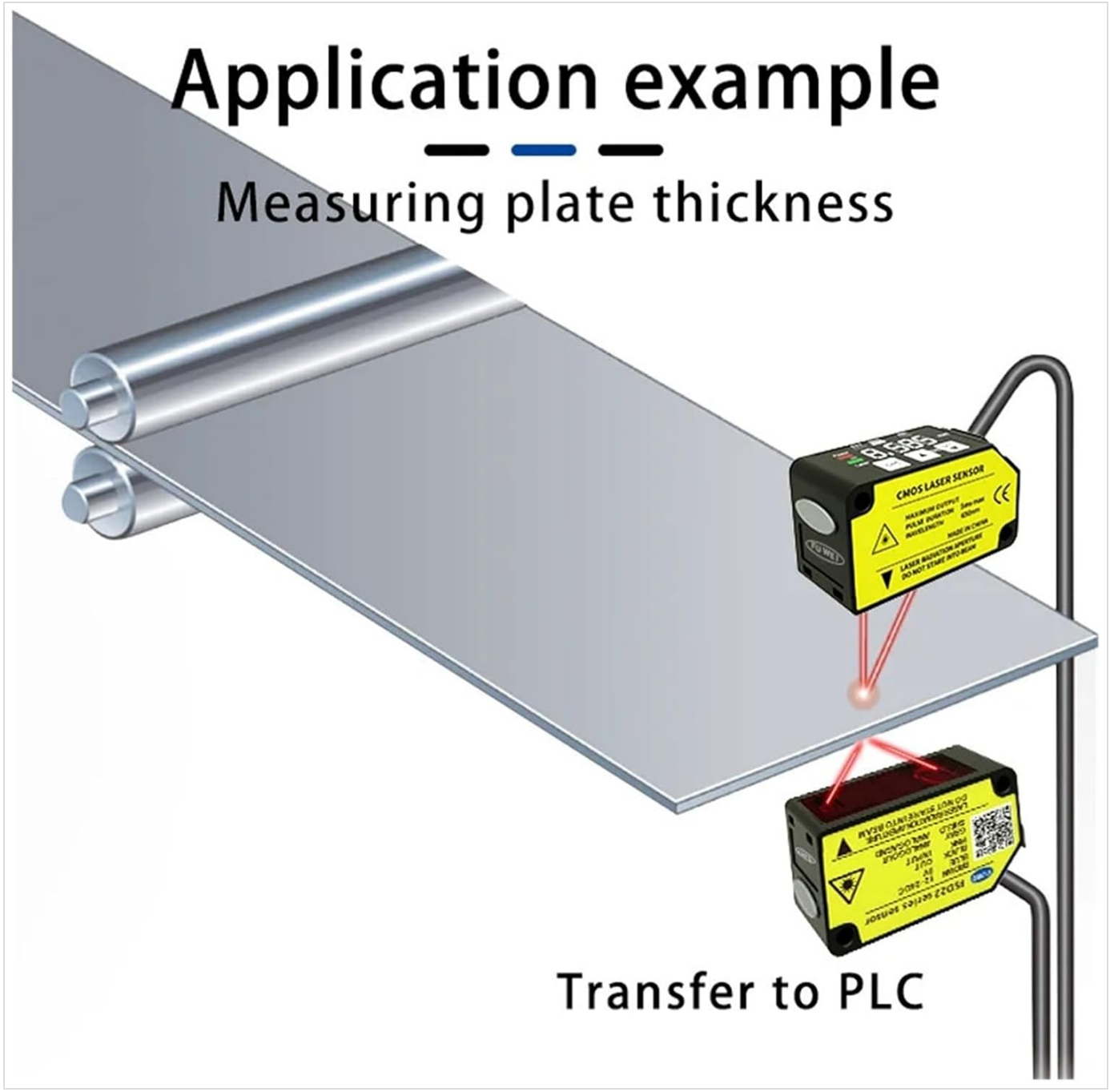

Figure 4.1: Physical dimensions of the FSD22 series sensor, indicating measurements of 25mm, 44mm, and 20mm.

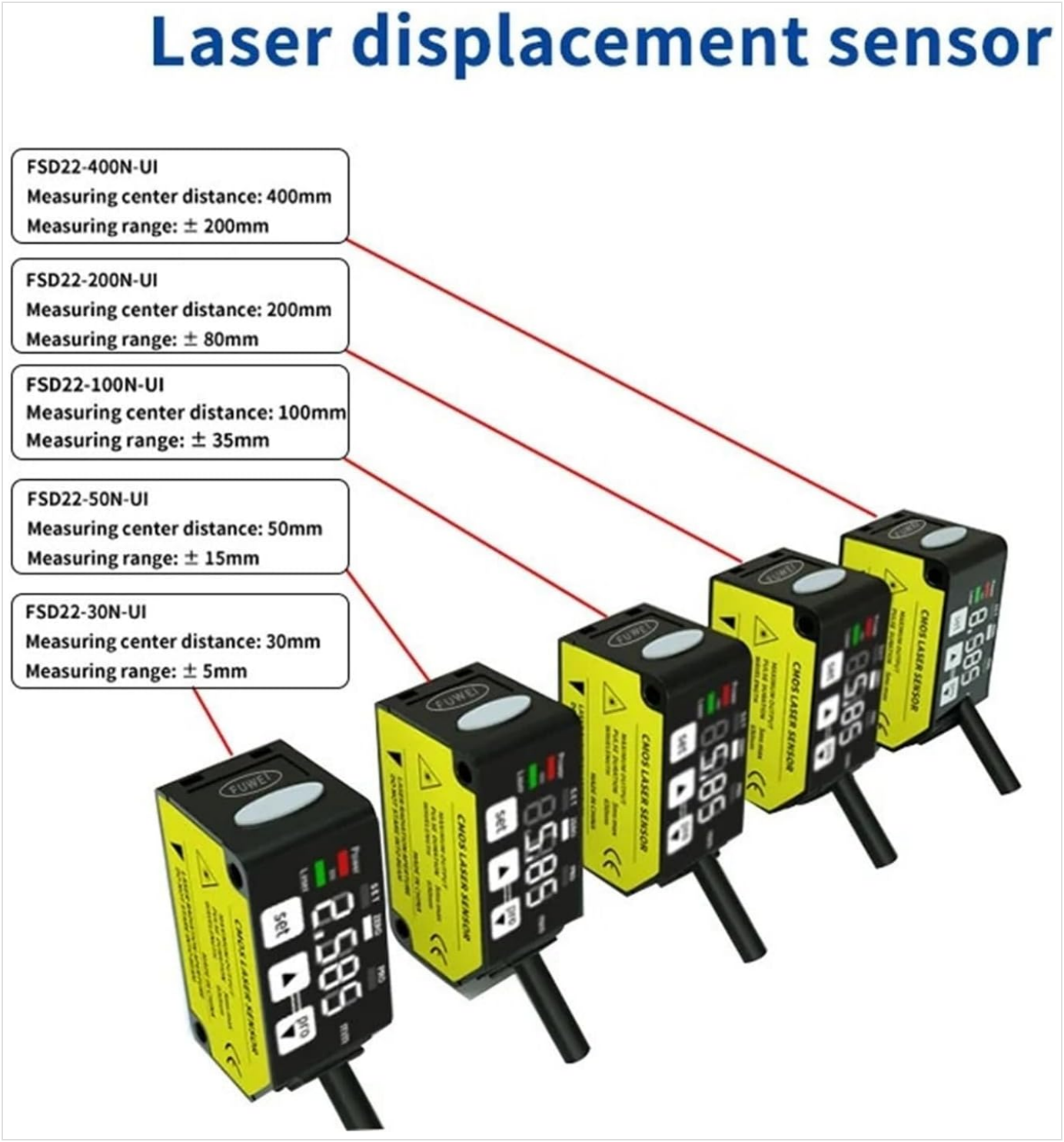

Figure 4.2: Overview of various FSD22 series laser displacement sensor models, including FSD22-30N-UI, FSD22-50N-UI, FSD22-100N-UI, FSD22-200N-UI, and FSD22-400N-UI, with their respective measuring center distances and ranges.

5. Setup

5.1 Mounting

Mount the sensor securely to a stable surface using appropriate fasteners. Ensure the sensor's measurement axis is perpendicular to the target surface for optimal accuracy. Avoid locations with excessive vibration, dust, or extreme temperatures.

5.2 Wiring

Connect the sensor according to the wiring diagram provided. Ensure all connections are secure and correctly polarized to prevent damage to the sensor or connected equipment.

Figure 5.1: Wiring diagram for the FSD22 series sensor, showing connections for BROWN (12-24VDC), BLUE (GND), BLACK (OUT), WHITE (INPUT), GRAY (ANALOG OUT), and SHIELD (ANALOG GND).

Wire Color	Function
BROWN	Power Supply (12-24 VDC)
BLUE	Ground (GND)
BLACK	Digital Output (OUT)
WHITE	Input (INPUT)
GRAY	Analog Output (ANALOG OUT)
SHIELD	Analog Ground (ANALOG GND)

6. Operation

6.1 Basic Measurement

Once powered on, the sensor will emit a laser beam to measure the distance to the target. The measured distance will be displayed on the integrated screen. The analog output (4-20 mA or 0-5 V) will correspond to the measured distance within the specified range.

6.2 Setting Parameters (SET, ZERO, PRO Keys)

The SET, ZERO, and PRO keys allow for configuration and calibration of the sensor. Refer to the following general guidelines:

- **SET Key:** Press to enter the parameter setting mode. Use the Up/Down keys to navigate through options and press SET again to confirm.

- **ZERO Key:** Used to set the zero reference point for measurements. Position the target at the desired zero distance and press the ZERO key.
- **PRO Key:** May be used for advanced programming or to recall saved profiles. Consult specific application notes for detailed usage.

6.3 Application Example

The FSD22-100N-UI sensor is suitable for various industrial applications requiring precise displacement or thickness measurements, such as measuring plate thickness in manufacturing processes.

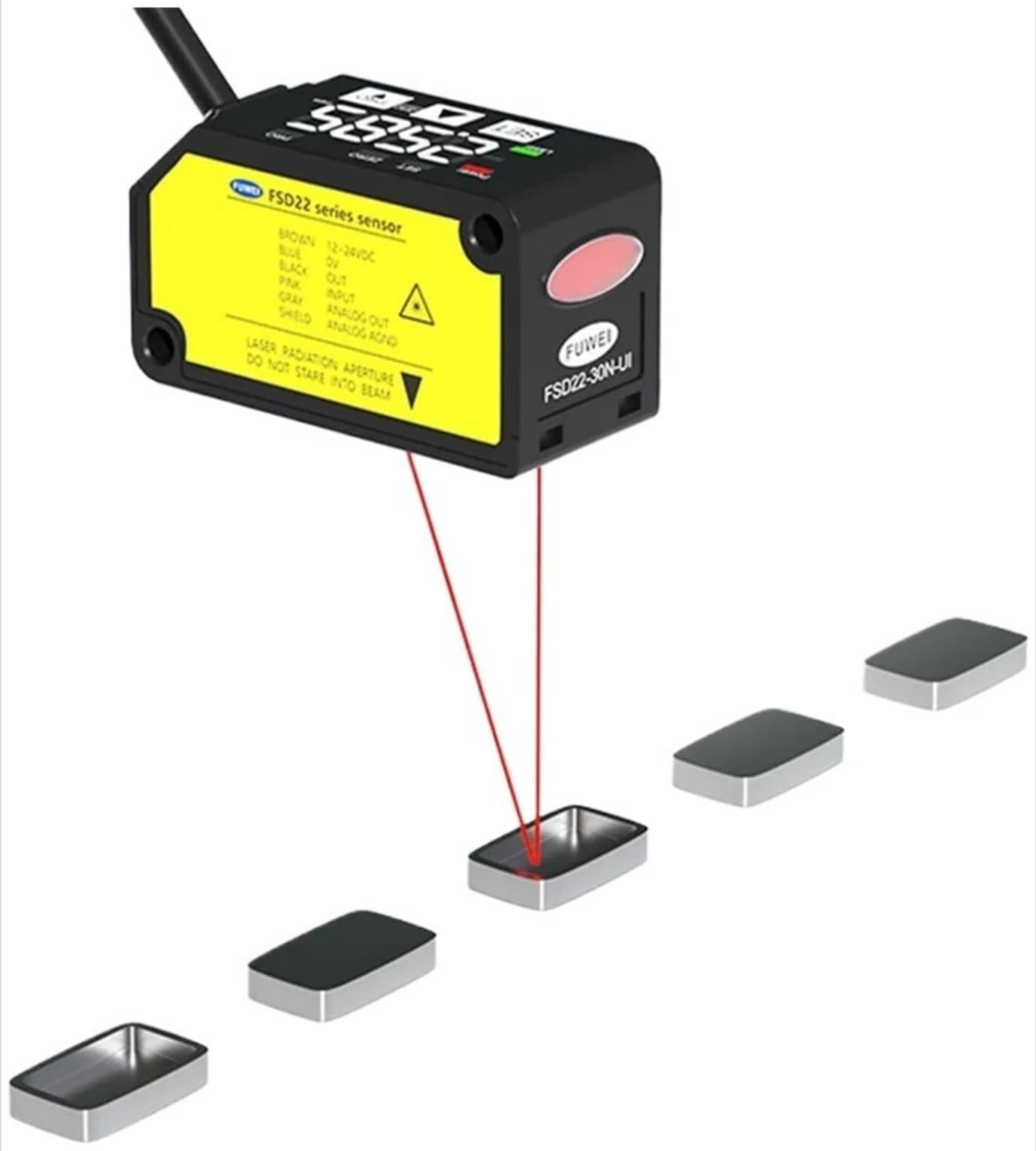

Figure 6.1: An application example demonstrating the FSD22 series sensor measuring the thickness of a plate, with data being transferred to a PLC (Programmable Logic Controller).

7. Maintenance

To ensure optimal performance and longevity of your FSD22-100N-UI sensor, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the sensor's lens and housing with a soft, lint-free cloth. If necessary, use a mild, non-abrasive cleaning solution. Do not use harsh chemicals or solvents.
- **Inspection:** Periodically inspect the sensor's cable for any signs of wear, damage, or loose connections. Ensure the mounting remains secure.
- **Environment:** Keep the sensor in a clean, dry environment within its specified operating temperature range. Protect it from excessive dust, moisture, and direct sunlight.

8. Troubleshooting

If you encounter issues with your FSD22-100N-UI sensor, refer to the following table for common problems and solutions:

Problem	Possible Cause	Solution
No power/Display off	Incorrect wiring, power supply failure, loose connection.	Check power supply (12-24VDC) and wiring connections (Brown to +, Blue to -). Ensure connections are secure.
Inaccurate readings	Sensor not perpendicular to target, dirty lens, target material issues, incorrect calibration.	Ensure proper alignment. Clean the sensor lens. Recalibrate the sensor using the ZERO key. Consider target surface properties (e.g., highly reflective or absorbent surfaces may require adjustments).
No analog output	Incorrect wiring for analog output, sensor not detecting target, output range misconfiguration.	Verify Gray (Analog Out) and Shield (Analog GND) connections. Ensure the sensor is detecting a target within its measuring range. Check sensor settings for analog output range.
Laser not emitting	Sensor in standby mode, internal fault.	Check power and ensure the sensor is not in a mode that disables the laser. If the issue persists, contact support.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your vendor or the manufacturer directly. Keep your purchase receipt as proof of purchase. Do not attempt to repair the sensor yourself, as this may void the warranty and could lead to further damage or injury.

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question