

Steel Belt Grating Instruction Manual

1. Product Overview

The steel belt grating is a precision measurement tool designed for linear and angular positioning applications in various industries. It combines robust construction with advanced optical technology for high precision and long-term reliability.

2. Key Features

- High measurement accuracy with excellent repeatability.
- Durable and resistant to harsh industrial environments.
- Supports integration with automation and control systems.
- Low-maintenance design for cost-effectiveness.

3. Technical Specifications

- **Material:** High-strength stainless steel.
- **Accuracy Grade:** $\pm 3 \mu\text{m/m}$ or $\pm 5 \mu\text{m/m}$ (depending on model).
- **Maximum Length:** Up to 50 meters (customizable based on requirements).
- **Width:** 10 mm to 20 mm (specific models may vary).
- **Resolution:** Compatible with high-precision optical sensors (up to $0.01 \mu\text{m}$ depending on system configuration).
- **Operating Temperature Range:** -10°C to 50°C .
- **Storage Temperature Range:** -20°C to 70°C .
- **Thermal Expansion Coefficient:** $10.5 \times 10^{-6} /^{\circ}\text{C}$.

4. Installation Guidelines

- Ensure the installation surface is clean, flat, and free of debris.
- Use the recommended mounting brackets and alignment tools for precise positioning.
- Align the grating with the measurement axis, ensuring no twists or bends.
- Avoid exposure to contaminants like oil or water during installation.

5. Operation Instructions

- Confirm proper alignment and calibration before use.
- Avoid applying excessive force to the grating during operation.
- Monitor for any deviation in readings and recalibrate as needed.

6. Maintenance and Troubleshooting

- **Maintenance:**

- Clean the grating surface using a soft, lint-free cloth and alcohol-based cleaner.
- Periodically check for physical damage or misalignment.
- Tighten loose screws or replace worn-out components.

- **Troubleshooting:**

- For inconsistent measurements, check alignment and recalibrate.
- Ensure optical sensors are free of obstructions or contamination.
- Contact technical support if problems persist.

7. Applications

The steel belt grating is commonly used in:

- CNC machining and automation.
- Robotic positioning systems.
- Precision metrology instruments.
- Industrial manufacturing processes.