SURRYN 1005003773324178

SURRYN SDS3MS 3-Axis Digital Readout Display Set User Manual

Model: 1005003773324178

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your SURRYN SDS3MS 3-Axis Digital Readout (DRO) Display Set. This system is designed to enhance precision and efficiency in various machining applications, including lathes and milling machines. Please read this manual thoroughly before using the product to ensure safe and optimal performance.

2. Product Overview

The SURRYN SDS3MS Digital Readout Display Set is a high-precision measurement system for machine tools. It includes a 3-axis DRO display unit and three KA300 series glass linear scales (rulers) with encoder sensors, ranging from 120mm to 1020mm in travel length. The system is engineered for stable performance and user-friendly operation.

2.1 Package Contents

The complete package typically includes:

- One (1) SDS3MS 3-Axis Digital Readout Display Unit
- Three (3) KA300 Series Glass Linear Scales (various lengths)
- Mounting brackets and hardware for scales and display
- Power cable
- User Manual (this document)

Image 2.1: Overview of the complete SURRYN SDS3MS 3-Axis DRO set. This image displays the digital readout display unit, three linear scales of varying lengths, power cables, and various mounting accessories and hardware included in the package.

2.2 Key Features

- **Professional Design:** Features a robust die-casting alloy shell with electric pensu processing for dustproof and wear-resistant properties, ensuring good shielding.
- **High Stability:** Independent power supply design contributes to high stability and strong anti-jamming capabilities.
- **Enhanced Performance:** Utilizes a low-power consumption, high-sampling rate, and high-precision chip for powerful data processing and improved program stability.
- **User-Friendly Interface:** Humanized design with a 7-level brightness adjustment function for display, square-shaped ergonomic buttons for comfortable and efficient operation.
- **Advanced Functions:** Supports mm/inch conversion, absolute/relative conversion, and direct functional operations such as sine, cosine, and tangent.

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3. Setup and Installation

Proper installation is crucial for the accuracy and longevity of your DRO system. It is recommended that installation be performed by individuals familiar with machine tool setup.

3.1 Unpacking and Inspection

- Carefully unpack all components and verify against the package contents list.
- Inspect all items for any signs of shipping damage. Report any damage to your supplier immediately.

Image 3.1: The SDS3MS DRO display unit shown with its power cable, instruction manual, and various mounting accessories, ready for installation.

3.2 Mounting the Linear Scales

The linear scales (KA300 series rulers) must be mounted parallel to the machine's axis of travel. Ensure the mounting surface is clean and flat.

- Select the appropriate scale length for each axis (X, Y, Z).
- Attach the scale body securely to the stationary part of the machine using the provided brackets and hardware.
- Mount the reading head to the moving part of the machine, ensuring it moves freely along the scale without binding.
- Maintain a small, consistent gap between the reading head and the scale body as specified in the detailed installation guide (refer to the included manual for precise measurements).

Image 3.2: A detailed view of a KA300 series linear scale, highlighting the reading head and the protective aluminum housing. This component is critical for precise position feedback.

3.3 Mounting the DRO Display Unit

- Choose a location for the display unit that is easily visible and accessible to the operator, away from excessive vibration or heat.
- Use the provided mounting arm and brackets to secure the display unit. The watch box, made of ABS high-strength material, allows for adjustment of the tilt angle for optimal viewing.

Image 3.3: The SDS3MS DRO display unit integrated with a milling machine, demonstrating a typical installation scenario in a workshop. The display shows active X, Y, and Z axis readings.

3.4 Electrical Connections

- Connect each linear scale's cable to the corresponding axis input port on the back of the DRO display unit (X, Y, Z). Ensure connections are firm.
- Plug the power cable into the display unit and then into a suitable power outlet (50 Hz ~ 60 Hz).
- Verify all connections before powering on the unit.

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4. Operating Instructions

The SDS3MS DRO unit offers a range of functions to assist with precise machining operations.

4.1 Basic Functions

- **Power On/Off:** Press the power button to turn the unit on or off.
- **Zero Setting:** Press the 'ZERO' button for the desired axis (X, Y, or Z) to set the current position to zero.
- **mm/inch Conversion:** Use the dedicated 'mm/inch' button to switch between metric and imperial units.
- **Absolute/Relative Conversion:** Toggle between absolute (ABS) and incremental (INC) measurement modes using the 'ABS/INC' button.
- **Brightness Adjustment:** The display features a 7-level brightness adjustment. Refer to the detailed manual for specific button combinations to adjust brightness according to your environment.

4.2 Advanced Functions

The SDS3MS supports various advanced functions for complex machining tasks:

- **200-Point Auxiliary Z:** This function assists with specific Z-axis operations.
- **Trigonometric Functions:** Direct access to sine, cosine, and tangent functions for calculations.
- **Hole Pattern Calculations:** Features for calculating bolt circle patterns and linear hole patterns.
- **Tool Compensation:** Functions for tool radius and length compensation.

For detailed instructions on advanced functions, please consult the comprehensive user manual included with your product.

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5. Maintenance

Regular maintenance ensures the accuracy and extends the lifespan of your DRO system.

- **Cleaning:** Keep the display unit and linear scales clean. Use a soft, dry cloth to wipe surfaces. Avoid abrasive cleaners or solvents.
- **Scale Protection:** Ensure the linear scales are protected from chips, coolant, and dust. Regularly check the integrity of the scale covers.
- **Cable Inspection:** Periodically inspect all cables for wear, cuts, or damage. Replace damaged cables immediately to prevent electrical hazards or signal loss.
- **Environmental Conditions:** Operate the DRO system within its specified environmental conditions (temperature, humidity) to prevent damage.

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6. Troubleshooting

This section addresses common issues you might encounter with your DRO system.

6.1 Display Not Powering On

- **Check Power Connection:** Ensure the power cable is securely plugged into the display unit and a live power outlet.
- **Power Source:** Verify the power outlet is functional by plugging in another device.
- **Fuse:** Check if the internal fuse (if accessible) has blown. Consult a qualified technician for fuse replacement.

6.2 Inaccurate Readings or Jumps

- **Scale Alignment:** Ensure the linear scales are perfectly parallel to the machine's travel axis and the reading head is properly aligned.
- **Cleanliness:** Clean the surface of the glass scales and the reading head. Dust, oil, or debris can interfere with accurate readings.
- **Cable Connection:** Verify that the encoder cables are securely connected to both the scales and the display unit.
- **Vibration:** Excessive machine vibration can affect readings. Ensure the DRO display and scales are mounted securely.

6.3 Buttons Unresponsive

- **Power Cycle:** Turn off the DRO unit, wait a few seconds, and then turn it back on.

- **Physical Obstruction:** Check for any physical debris or damage preventing button presses.

If you encounter issues not covered here, or if troubleshooting steps do not resolve the problem, please contact SURRYN customer support.

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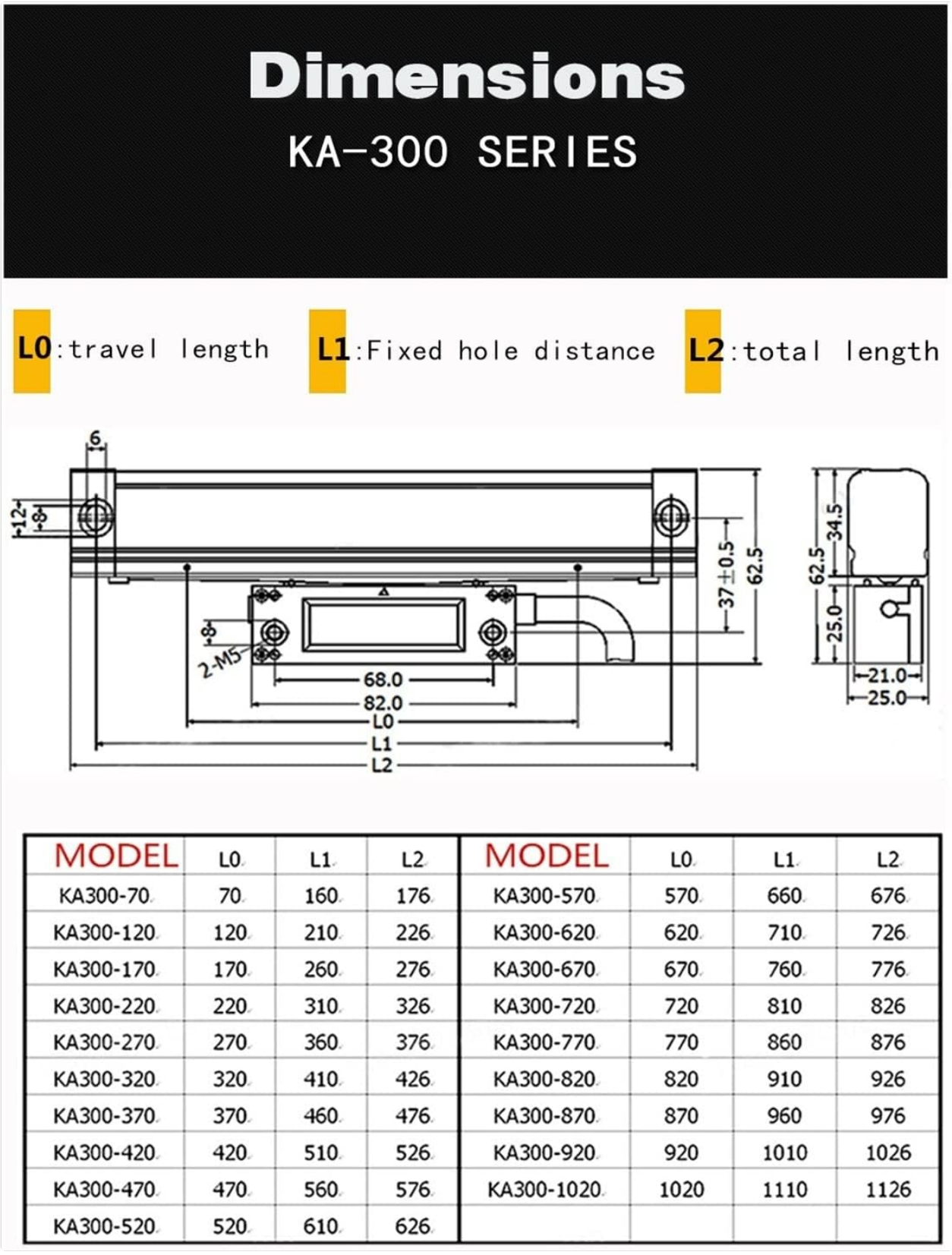
7. Specifications

Detailed technical specifications for the SURRYN SDS3MS Digital Readout Display Set.

Feature	Specification
Manufacturer	SURRYN
Model Number	1005003773324178
Part Number	1005003773324178
Display Type	SDS3MS Digital Readout
Coordinate Number	Three coordinates (3-axis)
Input Signal	TTL
Allowable Input Signal Frequency	>100 KHz
Resolution Options	0.1 microns, 0.2 microns, 0.5 microns, 1 micron, 2 microns, 5 microns, 10 microns
Power Supply	50 Hz ~ 60 Hz
Power Consumption	25 VA
Linear Scales	KA300 series glass linear scales (3 PCS)
Scale Travel Lengths	120mm ~ 1020mm (various options)
Item Weight	0.353 ounces (Display unit only, approximate)
Package Dimensions	1.18 x 0.79 x 0.39 inches (Display unit only, approximate)
Date First Available	June 18, 2024

7.1 KA-300 Series Dimensions

The following table provides general dimensions for the KA-300 series linear scales. Refer to the specific scale's documentation for exact measurements.



MODEL	L0	L1	L2	MODEL	L0	L1	L2
KA300-70	70	160	176	KA300-570	570	660	676
KA300-120	120	210	226	KA300-620	620	710	726
KA300-170	170	260	276	KA300-670	670	760	776
KA300-220	220	310	326	KA300-720	720	810	826
KA300-270	270	360	376	KA300-770	770	860	876
KA300-320	320	410	426	KA300-820	820	910	926
KA300-370	370	460	476	KA300-870	870	960	976
KA300-420	420	510	526	KA300-920	920	1010	1026
KA300-470	470	560	576	KA300-1020	1020	1110	1126
KA300-520	520	610	626				

Image 7.1: A table detailing the dimensions of various KA-300 series linear scale models. It specifies L0 (travel length), L1 (fixed hole distance), and L2 (total length) in millimeters for models ranging from KA300-70 to KA300-1020.

8. Warranty and Support

SURRYN products are manufactured to high-quality standards. For specific warranty information, please refer to the warranty card included with your product or contact SURRYN customer service directly.

8.1 Customer Support

If you have any questions regarding the installation, operation, or maintenance of your SURRYN SDS3MS Digital Readout Display Set, please contact SURRYN customer support through the official channels provided on the product packaging or website. Please have your model number (1005003773324178) and purchase details ready when contacting support.