Inkbird IDC-S1RH

Inkbird IDC-S1RH Digital Preset Scale Counter

Instruction Manual

1. INTRODUCTION

The Inkbird IDC-S1RH is a high-performance digital preset scale counter designed for precise counting and control in various industrial applications. This device features a compact DIN (48x48mm) size, clear LED displays for both process value (PV) and set value (SV), and user-friendly tactile switches for easy parameter configuration. It supports both NPN and PNP input types and offers SSR and contact outputs, making it versatile for different control systems. The built-in EEPROM ensures data retention for up to 10 years, providing reliable operation.

2. PRODUCT FEATURES

- **Digital DIN Counter:** Standard 48x48mm panel mount design.

- **Counting Range:** 1-9999 with selectable UP/DOWN counting modes.

- **Maximum Counting Speed:** Up to 5 kcps (kilocounts per second) at a 1:1 rate.

- **Preset Scale Range:** Configurable from 0.001 to 9.999.

- **Data Retention:** EEPROM stores data for up to 10 years without power.

- **Input Compatibility:** Supports both NPN and PNP input types, switchable.

- **User Interface:** Tactile switches for intuitive setting adjustments.

- **Key Lock Function:** Prevents accidental changes to settings.

- **Display:** High-visibility LED displays; 9.9mm red LED for Process Value (PV) and 8mm green LED for Set Value (SV).

- **Power Supply:** AC 100-240V ± 10% 50/60Hz.

- **Output Types:** Contact output (AC250V 3A resistive load, ON/NC) and SSR output (DC 12V, Max. 40mA).

- **External Power:** DC 12V/50mA (max.) for sensor use.

3. SAFETY INFORMATION

Please read and understand all instructions before installation and operation. Failure to follow these instructions may result in product damage, property damage, or personal injury.

- Ensure the power supply voltage matches the specifications of the device.

- Disconnect power before performing any wiring or maintenance.

- Installation should be performed by qualified personnel only.

- Do not operate the device in environments with excessive moisture, dust, corrosive gases, or high temperatures beyond specified limits.

- Avoid strong vibrations or impacts to the device.

- Do not disassemble or modify the device.

4. PACKAGE CONTENTS

Verify that all items are present in the package:

- 1 x Inkbird IDC-S1RH Digital Counter

- 1 x Connector Plug (for wiring terminals)

- 1 x English Instruction Manual

Figure 4.1: Package contents including the IDC-S1RH counter, connector plug, and manual.

5. PRODUCT OVERVIEW AND COMPONENTS

The IDC-S1RH features a clear front panel for display and control, and a rear panel for electrical connections.

Figure 5.1: Front view of the IDC-S1RH Digital Counter. It displays the Process Value (PV) and Set Value (SV) and includes buttons for 'MD' (Mode), 'RST' (Reset), and arrow keys for value adjustment.

6. INSTALLATION AND WIRING

6.1 Panel Mounting

The IDC-S1RH is designed for panel mounting. Create a cutout in your panel with dimensions of 45mm x 45mm (1.77 x 1.77 inches). Insert the counter into the cutout and secure it using the provided mounting brackets.

6.2 Wiring Connections

Refer to the wiring diagrams below for proper electrical connections. Ensure all connections are secure and correct before applying power.

Figure 6.1: Side view showing the wiring diagram for the IDC-S1RH. It details connections for IN, Gate, Reset, +12V, 0V, NC, COM, NO, and Power.

Figure 6.2: Rear view of the IDC-S1RH, illustrating the screw terminal block for electrical connections. Terminals are numbered for easy identification.

Terminal Descriptions:

- **IN (Terminal 1):** Counting input. Connect your NPN/PNP sensor here.
- **Gate (Terminal 2):** Gate input for enabling/disabling counting.
- **Reset (Terminal 3):** External reset input.
- **+12V (Terminal 4):** 12V DC output (max. 50mA) for powering external sensors.
- **0V (Terminal 5):** Ground for external sensor power.
- **NC (Terminal 6):** Normally Closed contact output.
- **COM (Terminal 7):** Common terminal for contact output.
- **NO (Terminal 8):** Normally Open contact output.
- **Power (Terminals 9 & 10):** AC 100-240V power input.
- **SSR Output (Terminals 11 & 12):** DC 12V (Max. 40mA) Solid State Relay output.

7. OPERATION

7.1 Power On

After proper wiring, apply power to the device. The display will illuminate, showing the current count (PV) and the set value (SV).

7.2 Adjusting Set Value (SV)

1. Press the **MD** button briefly to enter the setting mode for the Set Value. The SV display will start flashing.
2. Use the **Up** ( ) and **Down** ( ) arrow buttons to increase or decrease the flashing digit.
3. Press the **MD** button again to move to the next digit.
4. Once the desired SV is set, press and hold the **MD** button for a few seconds to save the setting and exit the setting mode.

7.3 Resetting the Count

The counter can be reset in three ways:

- **Manual Reset:** Press the **RST** button on the front panel.
- **External Reset:** Apply a signal to the Reset terminal (Terminal 3).
- **Power On Reset:** The counter can be configured to reset automatically upon power cycling (refer to parameter settings).

7.4 Key Lock Function

To prevent accidental changes to the settings, the key lock function can be activated. Refer to the parameter settings section for instructions on enabling and disabling this feature.

8. PARAMETER SETTINGS

The IDC-S1RH has several configurable parameters to adapt to different applications. Accessing and adjusting these parameters typically involves pressing and holding the **MD** button for an extended period (e.g., 3-5 seconds) to enter the parameter menu. Use the Up/Down arrows to navigate through parameters and adjust their values, and the **MD** button to confirm and move to the next parameter.
Common parameters include:

- **Counting Mode:** Select between UP or DOWN counting.
- **Input Type:** Switch between NPN and PNP sensor inputs.
- **Preset Scale Factor:** Adjust the multiplication factor (0.001 - 9.999) for the input pulses to display the desired unit.
- **Output Mode:** Configure the behavior of the relay and SSR outputs (e.g., momentary, latched).
- **Reset Mode:** Set whether the counter resets on power-up or only via manual/external trigger.
- **Key Lock:** Enable or disable the key lock function.
- **Data Storage:** Configure if data is stored in EEPROM or not.

For a detailed list of parameters and their specific adjustment procedures, please refer to the comprehensive manual included in the product package.

9. MAINTENANCE

The Inkbird IDC-S1RH is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure longevity:

- **Cleaning:** Gently wipe the display and casing with a soft, dry cloth. Do not use abrasive cleaners or solvents.

- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges. Avoid exposure to direct sunlight, excessive heat, or extreme cold.
- **Connection Checks:** Periodically inspect wiring connections to ensure they are secure and free from corrosion.

10. TROUBLESHOOTING

If you encounter issues with your IDC-S1RH counter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Device does not power on.	No power supply; incorrect wiring; faulty power source.	Check power connections (Terminals 9 & 10). Verify power source voltage. Ensure wiring is correct according to the diagram.
Counter is not counting.	Sensor not connected; incorrect sensor type (NPN/PNP); faulty sensor; Gate input active; counting speed too high/low for sensor.	Check sensor wiring to IN (Terminal 1). Verify sensor type setting (NPN/PNP). Ensure Gate input (Terminal 2) is not preventing counting. Test sensor functionality. Adjust counting speed if possible.
Output does not activate.	Incorrect output wiring; set value not reached; output mode misconfigured; faulty relay/SSR.	Verify output wiring (Terminals 6, 7, 8 for contact; 11, 12 for SSR). Ensure the count reaches the set value. Check output mode parameters. Test the load connected to the output.
Settings cannot be changed.	Key lock function is active.	Disable the key lock function in the parameter settings.
Display shows erratic values.	Electrical noise/interference; loose connections.	Ensure proper grounding. Use shielded cables for sensor inputs if interference is suspected. Check all wiring connections for tightness.

If the problem persists after attempting these solutions, please contact Inkbird customer support.

11. SPECIFICATIONS

Feature	Specification
Manufacturer	Inkbird Tech
Model Number	IDC-S1RH-110
Power Source Type	Corded Electric
Voltage	AC 100-240V ± 10% 50/60Hz
External Power Output	DC 12V / 50mA (max.) for sensors
Display	PV: 4-digit, 9.9mm red LED; SV: 4-digit, 8mm green LED
Counting Range	1-9999
Max Counting Speed	5 kcps (rate 1:1)

Feature	Specification
Preset Scale Range	0.001 - 9.999
Input Type	NPN and PNP switchable
Contact Output	AC250V 3A (resistive load) ON/NC
SSR Output	DC 12V (Max. 40mA)
Mechanical Lifespan	10,000,000 operations Min.
Electronic Lifespan	100,000 operations Min.
Data Backup	10 years (EEPROM)
Reset Method	Power On / External / Manual
Cutout Size	45mm x 45mm
Operating Temperature	-10 to 55°C (14 to 131°F) (no icing or condensation)
Storage Temperature	-25 to 65°C (-13 to 149°F) (no icing or condensation)
Ambient Humidity	35 - 85% RH
Package Dimensions	13.72 x 6.35 x 5.59 cm (5.4 x 2.5 x 2.2 inches)
Weight	204.11 g (7.2 oz)
UPC	705701587019

12. WARRANTY AND SUPPORT

12.1 Warranty Information

Inkbird products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Inkbird website. The warranty typically covers defects in materials and workmanship under normal use for a specified period from the date of purchase.

12.2 Customer Support

If you have any questions, require technical assistance, or need to report an issue with your Inkbird IDC-S1RH Digital Preset Scale Counter, please contact Inkbird customer support through their official website or the contact information provided in your product documentation. When contacting support, please have your product model number (IDC-S1RH) and purchase details ready.