

# Product Test Guide

## SC-SE-I6-AM6-T02

05-04-2021

Model Name	SENSOPER SC-SE-I6-AM6-T02
Product Type	Programmable Controller
Manufacturer	SENSOPER CONTROLS LLC
Country of Origin	Sri Lanka
Certifications	EN 61131-2:2007 EN 61010-1:2010+A1:2019 EN IEC 61010-2-201:2018 2014/30/EU- Electromagnetic Compatibility (EMC) Annex III, Part B, Module C

## Table of Contents

<i>Title</i>	<i>Page No</i>
INTRODUCTION.....	1
TABLE OF TESTING INSTRUCTIONS.....	2
	3
	4
	5

## Introduction

This guide is intended to test the features and the basic operation of the device, SENSOPER SC-SE-I6-AM6-T02 (Current model).



## Features

- 24V Sink/Source Digital Inputs x 8
- 4-20mA Analog Inputs x 6
- Open Collector Transistor Outputs x 2
- RS-485 Communication x 1
- 0.96' OLED Display
- 3 Built-in Push Buttons
- Micro SD card Support
- DS3231 RTC with battery

## Table of Test Instructions

\*\*Flash the test code firmware before testing the device. Follow the instructions given in the Guide to Flash the Test Code Firmware guide, to flash the binary code.

<b>Testing component/ feature</b>	<b>Test</b>	<b>Expected Output/Outputs</b>
Power	Provide 24V DC supply.	<ul style="list-style-type: none"><li>• The red LED inside the device glows.</li><li>• Display turns on.</li></ul>
Display, Memory card & RTC	Power-up the device using USB cable or 24V DC supply.	<ul style="list-style-type: none"><li>• Display starts with the SENSOPER logo.</li><li>• Device model is displayed.</li><li>• RTC status is displayed.</li><li>• Memory card status is displayed.</li><li>• Final screen with Input, Output and Push Button status appears.</li><li>• The output side LED indicators glow in a pattern.</li></ul>

<p>Digital Inputs</p>	<ol style="list-style-type: none"> <li>1. Power-up the device using 24V DC supply.</li> <li>2. Connect the <b>GND &amp; COM</b> pins and supply the 24V DC to every digital input one by one.</li> </ol>	<ul style="list-style-type: none"> <li>• Refer to the expected outputs of the Display Check above.</li> </ul> <p>In the input status, status of all the 8 digital inputs will be 1.(As the inputs are internally pulled up)</p> <ul style="list-style-type: none"> <li>• The input status changes from 1 to 0, and the input side LED indicator starts to glow accordingly.</li> </ul>
<p>Current Inputs and Transistor Outputs</p>	<ol style="list-style-type: none"> <li>1. Power-up the device using 24V DC supply.</li> </ol>	<ul style="list-style-type: none"> <li>• Status of all the 6 analog inputs will be 0.</li> <li>• Toggling output status (from 0 to 1 ) is observed on the display for the 2 transistor outputs, which follows the output side LED indicator blinking pattern. Whenever these LEDs are on, it means the respective transistor is on.</li> </ul>

<p>Current Inputs and Transistor Outputs (continued..)</p>	<p>2. After powering up the device, to check the working of the 6 analog (current) inputs, <b>supply a current between 4-20mA to each current input.</b></p> <p>(Check this <a href="#">link</a> for the wire connection)</p> <p>3. To check the working of the 2 transistors, <b>a voltage test</b> is done using a multimeter. To do this, keep the positive probe of the multimeter on the +24V pin of the device.</p> <p>Next touch the negative probe with the 2 transistor output pins after, one by one after a 15s gap.</p>	<ul style="list-style-type: none"> <li>• On the display, the current sensed by the SENSOPER device is displayed. (You can confirm these current values using a multimeter.)</li> <li>• The multimeter shows a 24V DC reading, whenever the transistor is on. (Transistor status is indicated by the respective output side LED indicator and the output status on the display)</li> </ul>
<p>Push Buttons</p>	<p>Press the 3 push buttons, one at a time.</p>	<ul style="list-style-type: none"> <li>• The 4 digit analog status of the push button is displayed accordingly on the display.</li> </ul> <p>***</p> <p>Analog status 1_ _ _ for the upper button</p> <p>Analog status 2_ _ _ for the middle button</p> <p>Analog status 3_ _ _ for the lower button</p>

<p>RS-485 Communication</p>	<p>For this test, a USB to RS-485 converter is required.</p> <ol style="list-style-type: none"> <li>1. Connect the RS-485 A and B pins of the SENSOPER device with the respective A and B pins of the USB to RS-485 converter.</li> <li>2. Plug the USB end of the USB to RS-485 converter to the PC.</li> <li>3. Power-up the SENSOPER device using USB Cable.</li> <li>4. Open the Arduino IDE application.</li> <li>5. Select the <b>correct COM</b> port of the USB to RS-485 converter in Arduino IDE and open the serial Monitor.</li> <li>6. Send the Number '5' in the serial monitor.</li> </ol>	<ul style="list-style-type: none"> <li>• In the serial monitor "RS485 SUCCESS" statement getting printed is observed.</li> </ul> <p>This indicates that the RS-485's <b>Tx</b> operation is working properly in the SENSOPER device.</p> <ul style="list-style-type: none"> <li>• Once number "5" is received, all the output side LED indicators will glow simultaneously for a few seconds. Then later they'll continue to glow in their previous pattern.</li> </ul> <p>This indicates that the RS-485's <b>RX</b> operation is working properly in the SENSOPER device.</p>
---------------------------------	---	---