Product Test Guide
SC-SE-I6-AV6-TO2

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Model Name	SENSOPER SC-SE-I6-AV6-TO2
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

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Introduction

This guide is intended to test the features and the basic operation of the device, SENSOPER SC-SE-I6-AV6-TO2 (Voltage model).

Features

- 24V Sink/Source Digital Inputs x 6
- 0-10V 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.

Testing component/ feature	Test	Expected Output/Outputs
Power	Provide 24V DC supply.	• Red colour LED inside the device glows. • Display turns on.
Display,Memory card & RTC	Power-up the device using USB cable or 24V DC supply.	• Display starts with the SENSOPER logo. • Device model is displayed. • RTC status is displayed. • Memory card status is displayed. • Final screen with Input, Output and Push Button status appears. • The output side LED indicators glow in a pattern.

Digital Inputs	1. Power-up the device using 24V DC supply. 2. Connect the **GND** & **COM** pins and supply the 24V DC to every digital input one by one.	• Refer to the expected outputs of the Display Check above. In the input status, status of all the 8 digital inputs will be 1.(As the inputs are internally pulled up) • The input status changes from 1 to 0, and the input side LED indicator starts to glow accordingly.
Voltage Inputs and Transistor Outputs	1. Power-up the device using 24V DC supply.	• Status of all the 6 analog inputs will be 0. • 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.

Voltage Inputs and Transistor Outputs (continued..)	2. After powering up the device, to check the working of the 6 analog (voltage) inputs, **supply a voltage between 0-10V (10V max) to each voltage input.** (Check this link for the wire connection) 3. To check the working of the 2 transistors, **a voltage test** is done using a multimeter.To do this, keep the positive probe of the multimeter on the +24V pin of the device. Next touch the negative probe with the 2 transistor output pins after,one by one after a 15s gap.	• On the display, the voltage sensed by the SENSOPER device is displayed.(You can confirm these voltage values using a multimeter.) • 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)
Push Buttons	Press the 3 push buttons, one at a time.	• The 4 digit analog status of the push button is displayed accordingly on the display. *** Analog status 1_ _ _ for the upper button Analog status 2_ _ _ for the middle button Analog status 3_ _ _ for the lower button

RS-485 Communication	For this test, a USB to RS-485 converter is required. 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. 2. Plug the USB end of the USB to RS-485 converter to the PC. 3. Power-up the SENSOPER device using USB Cable. 4. Open the Arduino IDE application. 5. Select the **correct COM** port of the USB to RS-485 converter in Arduino IDE and open the serial Monitor. 6. Send the Number '**5**' in the serial monitor.	• In the serial monitor "RS485 SUCCESS" statement getting printed is observed. This indicates that the RS-485's **Tx** operation is working properly in the SENSOPER device. • 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. This indicates that the RS-485's **RX** operation is working properly in the SENSOPER device.