

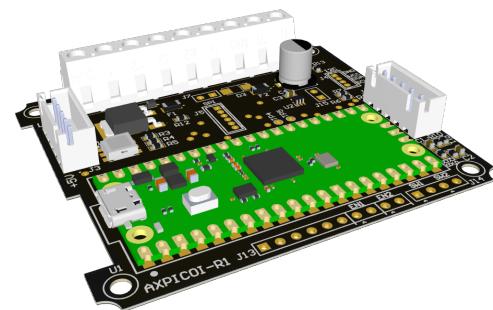


AXPICO-LED

Multi-sensor Interface Board for Interactive Signage

1 Overview

AXPICO-LED is a versatile multi-sensor interface board designed to connect a variety of sensors to a host PC via serial communication. It supports proprietary communication protocols distributed with the *eSensor Application*. The board is suitable for applications in robotics, interactive signage, and environmental sensing.



2 Description

AXPICO-LED is a versatile multi-sensor interface board designed to connect a variety of sensors to a host PC via serial communication. It supports proprietary communication protocols distributed with the *eSensor Application*. The board is suitable for applications in robotics, interactive signage, and environmental sensing.

The board is especially suited for *interactive signage applications*, enabling rich user engagement through innovative experiences such as **Lift & Learn** and **Touch & Learn**.

The board can interface with:

- **SLAMTEC RPLIDAR C1** for 360° distance scanning
- **Presence mmWAVE Sensor HLK2410C** for people/object detection
- **RFID/NFC Tag Reader/Writer 522** via SPI or I2C chain
- **Load Cell / Scale Sensor** for weight measurement
- **Contact Sensor (REED or Switch button)** for physical triggers
- **RGB LEDs WS2812E and White LEDs** with support for auxiliary power supply

3 Features

AXPICO-LED combines multi-sensor connectivity and intelligent control to deliver a versatile platform for interactive applications. The board is specifically designed to support interactive signage experiences, enabling engaging user interactions through advanced sensing technologies. With support for LIDAR-based object detection, presence sensing, RFID/NFC identification, load cells, and contact inputs, AXPICO-LED allows developers to create dynamic “Lift&Learn” and “Touch&Learn” experiences, turning static objects into interactive structures that respond to user actions.

Key features include:

- Multi-sensor support on a single board
- Serial communication to host PC with proprietary protocol
- Flexible sensor ports: JST XH 2.54mm, SPI/I2C, and standard pins

- Control of RGB and White LEDs
- Auxiliary power supply support
- Compatible with eSensor Application software

4 Connectivity and Ports

AXPICO-LED provides flexible connectivity options to interface all supported sensors and actuators with the host PC. The board exposes dedicated ports for LIDAR, presence sensors, RFID/NFC readers, load cells, contact sensors, and LED outputs. Each port is carefully designed for reliable connection and easy integration.

For a visual reference, please see the diagrams below illustrating the port locations and connector types, the board provides dedicated connectors for all supported sensors as shown in Figure 1 and Figure 2.

Function	Port	Connector Type	Description
LiDAR	J3	JST XH 2.45mm	Connection for SLAMTEC RPLIDAR C1
Presence Sensor	J2	JST XH 2.45mm	Connection for HLK2410C mmWAVE sensor
I2C RFID Tag Reader	J4	JST ZH 1.5mm	Interface for MFRC522 reader/writer modules
SPI RFID Tag Reader	J5	5 PIN CONNECTOR	Interface for MFRC522 reader/writer modules
Load Cell 1	DT: GP3 SCK: GP9	Header Pin P2.54	HX711 compatible load cell interface
Load Cell 2	DT: GP11 SCK: GP10	Header Pin P2.54	HX711 compatible load cell interface
Contact Sensor 1	SW1	Header Pin P2.54	REED switch or push button input
Contact Sensor 2	SW2	Header Pin P2.54	WS2812E control output
White LED	White Strip	Cable	PWM Control with auxiliary power supply
RGB LED	RGB Strip	Cable	Control output with auxiliary power supply
Serial Communication	USB	USB A to Micro-B	Connects board to Host PC

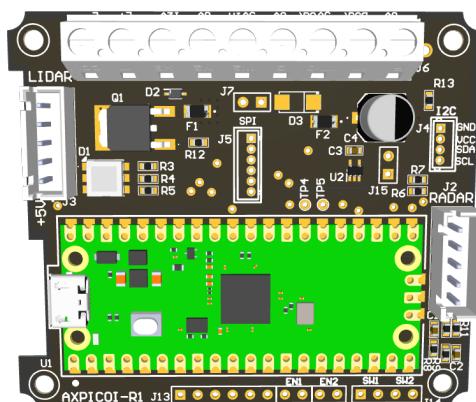


Figure 1: Front Port layout of AXPICO-LED.

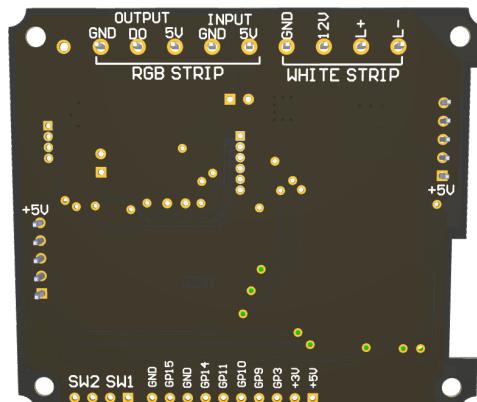


Figure 2: Back view of AXPICO-LED.

5 Notes

- All sensors are interfaced via a proprietary serial protocol, provided with the eSensor Application.
- Auxiliary power supply required for high-current loads such as multiple LEDs.

Mechanical Data

- Board size: **65.20 mm x 56.68 mm**
- Mounting holes: **2.80 mm**

