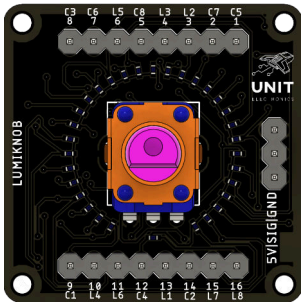
Lumiknob module Product Brief

Lumiknob efficiently drives 32 LEDs via a single potentiometer by leveraging SPI communication and the MAX7219 driver. This innovative design enables dynamic, precise lighting in a compact system.

Version: 1.0 Modified: 2025-05-02

Introduction

Lumiknob is a simple but powerful module that connects the analog world to digital displays. By turning a single potentiometer, you can control a series of up to 32 LEDs, thanks to the popular MAX7219 driver chip. With Lumiknob, creating intuitive rotary controls with bright, real-time visual feedback is easy—no complex programming or hardware hacking required.



Functional Description

- **Lumiknob** is a compact module designed to drive up to 32 LEDs using a single potentiometer.
- It utilizes the **MAX7219** LED driver to control the brightness and state of each LED.
- The module communicates with a microcontroller via **SPI**, allowing for easy integration into various projects.
- The potentiometer provides an analog input that is converted to a digital signal, which the MAX7219 interprets to adjust the LEDs accordingly.

Electrical Characteristics

- **Power Supply**: 5 V or 3.3 V (depending on the microcontroller)
- **LED Driver**: MAX7219
- **Communication**: SPI interface for data transfer
- **Potentiometer**: 10 k linear taper
- **LEDs**: Up to 32 individually addressable LEDs

Features

- Supports up to 32 LEDs
- Simple SPI communication
- Adjustable brightness via potentiometer
- Compact design for easy integration

Applications

- LED-based user interfaces
- Decorative lighting systems
- Interactive displays
- DIY electronics projects
- Educational tools for learning about electronics and programming

Settings

Interface Overview

Interface SPI	Signals / Pins	Typical Use
SPI	CLK, MOSI, CS	Communication with MAX7219 driver for LED control
Potentiometer	SIG (analog input)	Reads the position of the potentiometer for LED control

Supported Pins

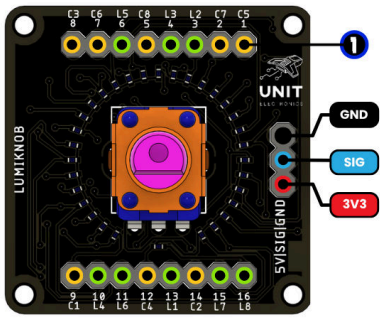
Feature	Description
LED Control	Up to 32 LEDs controlled via MAX7219
Potentiometer Input	Reads analog value to adjust LED brightness
SPI Communication	Uses standard SPI protocol for data transfer
Power Supply	Operates at 5 V or 3.3 V
Microcontroller	Compatible with most microcontrollers with SPI support

Pin & Connector Layout

Pin	MCU	Description
VCC	5V/3.3V	Power supply input (5 V or 3.3 V)
GND	GND	Ground connection
SIG	Analog pin	Potentiometer signal input (analog)
CLK	SPI Clock	SPI clock signal for MAX7219
MOSI	SPI Data	SPI data input for MAX7219
CS	SPI Chip Select	SPI chip select signal for MAX7219

Block Diagram

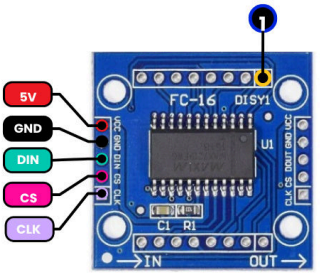
UNIT MODULE LUMIKNOB



Conections:

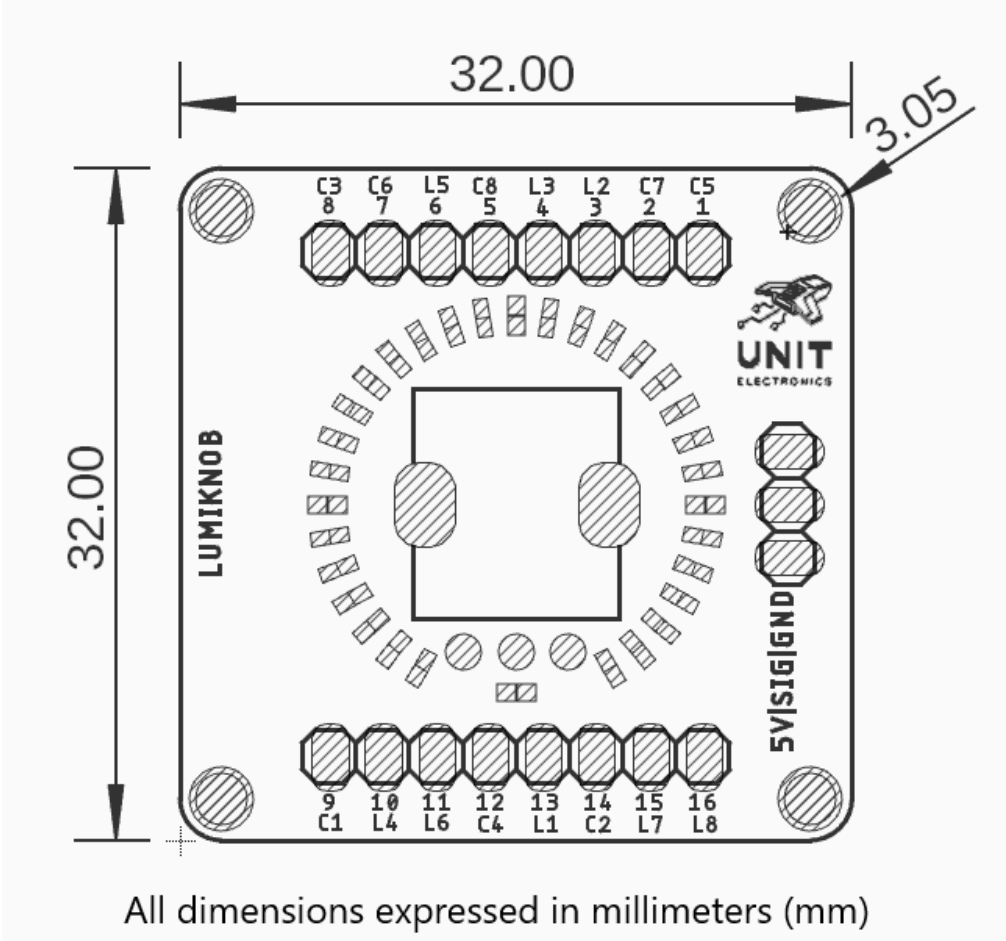
Module	Pin	MCU	Description
Lumiknob	SIG	Analog pin	Analog signal from potentiometer
	GND	Ground	Ground reference
	VCC	3V3 / 5V	Supply voltage
MAX7219	VCC	5V	Supply voltage
	GND	GND	Ground reference
	DIN	MOSI	Serial data input to MAX7219
	CLK	SCK	Serial clock input to MAX7219
	CS	GPIO	SPI control for MAX7219

Description:



- SIG — Signal
- VCC — Supply voltage
- GND — Ground
- DIN — Data Input
- CS — Chip select
- CLK — Serial Clock
- Cathode
- Anode
- Pin 1 conection

Dimensions



Usage

- Arduino interfaces (e.g., Arduino Uno, Mega, Nano)
- Raspberry Pi (via SPI interface)

Downloads

- Schematic PDF

Purchase

- Buy from UNIT Electronics