

## LED Expansion Module User Guide

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## Introduction

This is a simple expansion module with 8 LEDs for general purpose status indication and other human machine interface purposes. It can be connected to Numato Lab's FPGA/Micro-controller boards featuring a 2x6 pin Expansion connector. This expansion module can be connected to other boards by using manual wiring. LEDs are connected in common cathode topology.

### Applications

- General purpose status indication
- Debug data output

### Board features

- 8 high brightness SMD LEDs
- 2x6 pin expansion connector
- Onboard current limiting resistors
- Common Cathode topology
- Dimension: 24mm X 26mm

## How to use the module

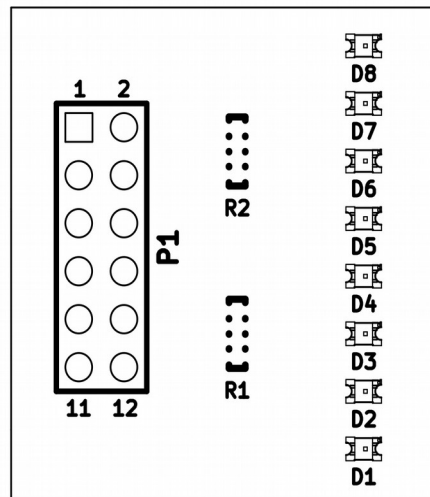
The following section describes how to use this module.

### Components/Tools required

Along with the module, you may need the items in the list below for easy and fast installation.

1. Any FPGA/Micro-controller board featuring a 2x6 pin Expansion connector. (May need manual wiring when used with boards that does not have 2x6 expansion connector)

### Connection Diagram



This diagram should be used as a reference only. For detailed information, see the schematics at the end of this document. Details of individual connectors are as below.

To use this module, directly attach the 2x6 expansion connector to the FPGA/Micro-controller development board where corresponding female header is available. If 2x6 female header is not available, manually make the connections as per the connection details below.

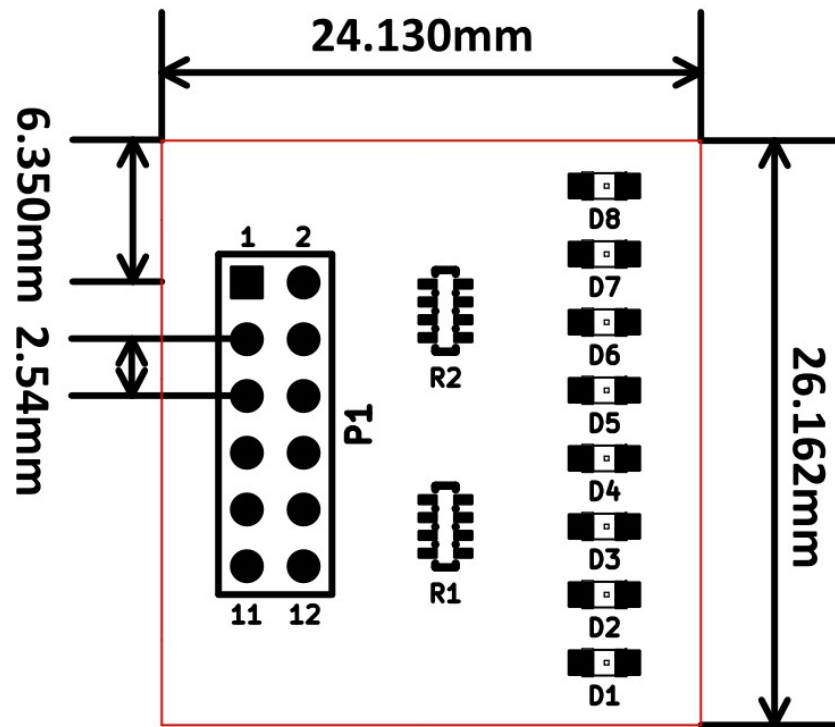
## Connection Details

### Header P1

Header Pin No.	Pin Details
1	LED7
2	LED8
3	LED5
4	LED6
5	LED3
6	LED4
7	LED1
8	LED2
9	GND
10	GND
11	VCC3V3
12	VCC3V3

For more information, refer the schematics below.

## Physical Dimensions

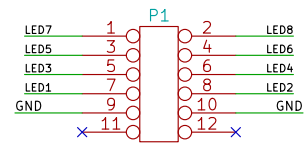
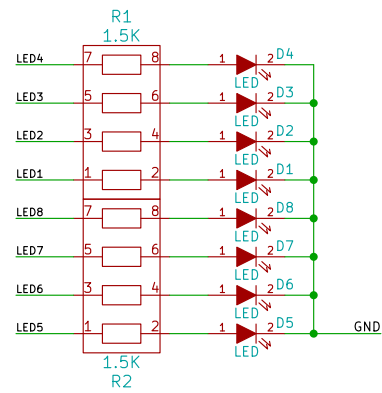


L x W x H : 26.162 mm x 24.130 mm x 9 mm

## Schematics

See next page

## EXPANSION CONNECTOR



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Numato Lab  
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Sheet: /

Title: LED Expansion Module

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