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# LED Driver 17 Click





PID: MIKROE-5565

LED Driver 17 Click is a compact add-on board that offers a simple solution for controlling multiple LEDs, making it an ideal choice for various applications. This board features the LTR3755, a highly efficient DC/DC controller from Analog Devices that operates as a constantcurrent source. It can easily drive high current LEDs and features onboard low-side external Nchannel power MOSFETs driven from an internal regulated supply. The LED Driver 17 Click is capable of stable operation over a wide supply range and offers several LED protection features, including overvoltage and overcurrent protection. Additionally, the frequency adjust pin allows users to program the switching frequency from 100kHz to 1MHz, optimizing efficiency and performance. This Click board<sup>™</sup> is a versatile product that can be used in various settings, including architectural lighting and general lighting applications. It is also an excellent choice for hobbyists and professionals looking to control multiple LEDs.

# How does it work?

LED Driver 17 Click is based on the LT3755, a highly efficient DC/DC controller from Analog Devices. This Click board<sup>™</sup> is designed as a Buck mode LED driver with the ability to output 500mA, offering, in addition, PWM dimming functionality. The LTR3755, a highly efficient DC/DC controller, operates as a constant-current source, features onboard low-side external N-channel power MOSFETs, which are driven from an internal regulated supply, and it is capable of driving high-power 16V LEDs. Due to its high efficiency and reliable protection features, this board can be used in applications that require consistent and precise LED lighting control. It can also be used in applications that demand high power output, such as commercial and industrial lighting.

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In terms of connectivity, this solution is designed to be controlled via the PWM pin of the mikroBUS<sup>™</sup> socket to provide LED dimming control with ratios of up to 3000:1. In addition, the LT3755 also has a frequency adjust pin that allows the user to program the switching frequency from 100kHz to 1MHz. This feature is performed via an onboard R5 resistor, with the 800kHz set as the default value to optimize efficiency and performance.

Other than the PWM pin, this Click board<sup>™</sup> also features a fault pin labeled FLT, which is routed to the default interrupt INT position of the mikroBUS<sup>™</sup> socket. This fault pin indicates any fault conditions to an external system, including overvoltage and overcurrent protection. Besides information via the mikroBUS<sup>™</sup> socket, the fault signal is visually indicated via a red LED labeled LD2. This LED Driver 17 Click supports an external power supply for the driver, which can be connected to the input terminal labeled VIN and should be within the range of 22V to 36V.

This Click board<sup>™</sup> can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the Click board<sup>™</sup> comes equipped with a library containing easy-to-use functions and an example code that can be used, as a reference, for further development.

# Specifications

Туре	LED Drivers
Applications	Can be used for applications that demand high power output, such as commercial and industrial lighting
On-board modules	LTR3755 - DC/DC controller from Analog Devices
Key Features	Buck mode LED driver, 500mA, PWM dimming, wide input voltage supply, output voltage suitable for 16V high power LEDs, protection features, adjustable switching frequency, fault detection and indication, and more
Interface	PWM
Feature	ClickID
Compatibility	mikroBUS™

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Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

# **Pinout diagram**

This table shows how the pinout on LED Driver 17 Click corresponds to the pinout on the mikroBUS<sup>m</sup> socket (the latter shown in the two middle columns).

Notes	Pin	● ● mikro* ● ● ● BUS			TM-	Pin	Notes
	NC	1	AN	PWM	16	PWM	PWM Signal
	NC	2	RST	INT	15	FLT	Fault Signal
ID COMM	CS	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

### **Onboard settings and indicators**

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2	LD2	-	Fault LED Indicator
JP1	VCC SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

# **LED Driver 17 Click electrical specifications**

Description	Min	Тур	Max	Unit
Supply Voltage	3.3	-	5	V
Input Voltage Range	22	-	36	V
Output Current	-	500	-	mA

# Software Support

We provide a library for the LED Driver 17 Click as well as a demo application (example), developed using MIKROE <u>compilers</u>. The demo can run on all the main MIKROE <u>development</u> <u>boards</u>.

Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock<sup>™</sup> or found on Mikroe github account.

#### **Library Description**

This library contains API for LED Driver 17 Click driver.

#### Key functions

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- leddriver17 get fault pin This function returns the fault (FLT) pin logic state.
- leddriver17 set duty cycle This function sets the PWM duty cycle in percentages ( Range[ 0..1]).

#### **Example Description**

This example demonstrates the use of LED Driver 17 Click board<sup>™</sup> by changing the LEDs dimming level.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock<sup>™</sup> or found on Mikroe github account.

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.LEDDriver17

#### Additional notes and informations

Depending on the development board you are using, you may need USB UART click, USB UART 2 Click or RS232 Click to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE compilers.

#### mikroSDK

This Click board<sup>™</sup> is supported with <u>mikroSDK</u> - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board<sup>™</sup> demo applications, mikroSDK should be downloaded from the LibStock and installed for the compiler you are using.

For more information about mikroSDK, visit the official page.

#### Resources

mikroBUS™

**mikroSDK** 

Click board<sup>™</sup> Catalog

Click boards<sup>™</sup>

ClickID

# **Downloads**

LED Driver 17 click example on Libstock

LT3755 datasheet

# LED Driver 17 click 2D and 3D files v101 Mikroe produces entire development toolchains for all major microcontroller architectures.

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LED Driver 17 click schematic v101

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