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DC Motor 25 Click





PID: MIKROE-5523

DC Motor 25 Click is a compact add-on board with a brushed DC motor driver. This board features the A3908, a low-voltage bidirectional DC motor driver from Allegro Microsystems. The A3908 is rated for an operating voltage range compatible with mikroBUS™ power rails and output currents up to 500mA. The unique output full-bridge incorporates source-side linear operation to allow a constant voltage across the motor coil. Logic input pins are provided to control the motor direction of rotation, brake, and standby modes. It also has complete protection capabilities supporting robust and reliable operation. This Click board™ is suitable for controlling DC motors applications like robotic actuators and pumps, battery-powered toys and games, low-noise instrumentation systems, and many more.

DC Motor 25 Click is supported by a mikroSDK compliant library, which includes functions that simplify software development. This Click board™ comes as a fully tested product, ready to be used on a system equipped with the mikroBUS™ socket.

How does it work?

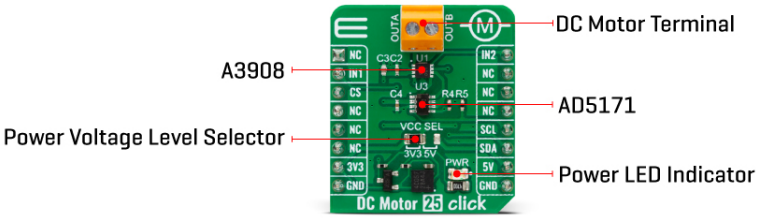
DC Motor 25 Click is based on the A3908, a fully integrated low-voltage motor driver for DC motors from Allegro Microsystems. This Click board™ provides all the input and output capabilities necessary to drive DC motors (OUT terminal), alongside monitor diagnostic functions. The A3908 is rated for an operating voltage range compatible with both mikroBUS™ power rails and output currents up to 500mA, programmable via an external I2C-configurable digital potentiometer, the AD5171 from Analog Devices. The A3908 also has complete protection capabilities like thermal shutdown, undervoltage lockout, and crossover current (shoot-through) protection, allowing robust and reliable operation.

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ISO 27001: 2013 certification of informational security management system.
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ISO 9001: 2015 certification of quality management system (QMS).

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Logic pins labeled IN1 and IN2, routed on the default positions of RST and PWM pins of the mikroBUS socket, are provided to control the motor direction of rotation, brake, and standby modes. When both pins are in a high logic state, the A3908 goes into high-side brake mode, which turns on both source drivers. There is no protection during braking, so care must be taken to ensure that the peak current does not exceed the absolute maximum current.

This Click board™ 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™ 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

Type	Brushed
Applications	Can be used for robotic actuators and pumps, battery-powered toys and games, low-noise instrumentation systems, and more
On-board modules	A3908 - bidirectional DC motor driver from Allegro Microsystems
Key Features	Adjustable output current up to 500mA, driver control via logic pins, additional operational modes, internal protection, wide operating voltage range, low power consumption, and more
Interface	GPIO,I2C
ClickID	Yes
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on DC Motor 25 Click corresponds to the pinout on the

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mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	**IN2**	Driver Control 2
Driver Control 1	**IN1**	2	RST	INT	15	NC	
	NC	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	I2C Clock
	NC	6	MOSI	SDA	11	**SDA**	I2C Data
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
JP1	VCC SEL	Left	Power Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V

DC Motor 25 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Output Current	-	-	500	mA

Software Support

We provide a library for the DC Motor 25 Click as well as a demo application (example), developed using MIKROE compilers. The demo can run on all the main MIKROE development boards.

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

Library Description

This library contains API for DC Motor 25 Click driver.

Key functions

- dcmotor25_forward DC Motor 25 set forward mode function.
- dcmotor25_reverse DC Motor 25 set reverse mode function.
- dcmotor25_brake DC Motor 25 set brake mode function.

Example Description

This example demonstrates the use of DC Motor 25 Click board™ by driving the DC motor in

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both directions every 3 seconds.

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

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.DCMotor25

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™ is supported with mikroSDK - Mikroe Software Development Kit, that needs to be downloaded from the LibStock and installed for the compiler you are using to ensure proper operation of mikroSDK compliant Click board™ demo applications.

For more information about mikroSDK, visit the official page.

Resources

mikroBUS™

mikroSDK

Click board™ Catalog

Click boards™

ClickID

Downloads

DC Motor 25 click example on Libstock

A3908 datasheet

DC Motor 25 click schematic

DC Motor 25 click 2D and 3D files

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