

Brushless 2 click

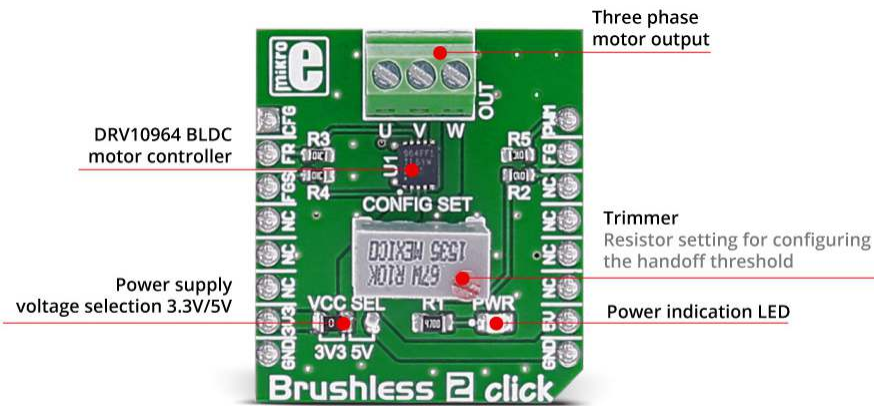
PID: MIKROE-2754



Brushless 2 click carries the DRV10964 BLDC motor controller with an integrated output stage from Texas Instruments. The click is designed to run on either 3.3V or 5V power supply. It communicates with the target microcontroller over the following pins on the mikroBUS™ line: AN, RST, CS, PWM, INT.

How the click works

A 3 wire BLDC motor can be connected over the screw terminals; speed is controlled through PWM pin on the mikroBUS™ line. The click also has feedback on the interrupt pin (INT), so you can see exactly how fast the motor is going.



DRV10964 motor driver features

The DRV10964 is a three-phase sensorless motor driver with integrated power MOSFETs. It is specifically designed for high-efficiency, low-noise and low-external component count motor drive applications. The proprietary sensorless windowless 180° sinusoidal control scheme offers ultra-quiet motor drive performance.


The DRV10964 contains an intelligent lock detect function, combined with other internal protection circuits to ensure safe operation.

Specifications

Type	DC
Applications	The automotive industry, drones (because of the good power-to weight ratio of brushless motors), computers, medical equipment, HVAC systems, small home appliances, robotics, battery powered systems, small cooling fans in computers, toys, etc.
On-board modules	DRV10964 5-V, three-phase sinusoidal sensorless BLDC motor driver
Key Features	Input voltage range 2.1 to 5.5 V
Interface	GPIO,PWM
Input Voltage	3.3V or 5V
Click board size	S (28.6 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **Brushless 2 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
		1	AN	PWM	16		
Resistor setting for configuring the handoff threshold sense	CFG	1	AN	PWM	16	PWM	Speed control input
Motor direction selection	FR	2	RST	INT	15	NC	
Speed indicator selector	FGS	3	CS	TX	14	NC	
	NC	4	SCK	RX	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

Jumpers and settings

Designator	Name	Default Position	Default Option	Description
JP1	PWR.SEL.	Left	3V3	Power supply selection, left position 3V3, right position 5V

Programming

Code examples for Brushless 2 click, written for MikroElektronika hardware and compilers are available on Libstock.

Code snippet

This code example shows how to change the speed and direction of the motor by pressing buttons on the development board.

```
01 uint8_t const maxPwmDuty = 255;
02 uint8_t currentDuty = 20 ;
03 uint8_t oldstate = 0;
04
05 void systemInit ()
06 {
07     ANCON0 = 0x00;
08     ANCON1 = 0x00;
09     ANCON2 = 0x00;
10     PWM2_Init (5000);
11     PWM2_Start ();
12     PWM2_Set_Duty (currentDuty);
13     MOTOR_DIR_PIN_Direction = 0;
14 }
15
16 void Brushless_2_Init ()
17 {
18     MOTOR_DIR_PIN = 1;
19 }
20
21 void Brushless_2_Task ()
22 {
23     if (Button (&PORTB, 1, 1, 1))
24     {
25         currentDuty++;
26         PWM2_Set_Duty (currentDuty);
27         if (currentDuty > maxPwmDuty)
28             currentDuty = 0;
29     }
30 }
31
32 if (Button (&PORTB, 5, 1, 1))
33 {
34     oldstate = 1;
35 }
36 if (oldstate && Button (&PORTB, 5, 1, 0))
37 {
38     MOTOR_DIR_PIN = ~MOTOR_DIR_PIN;
39     oldstate = 0;
40 }
```

```
41 }
42
43 void main()
44 {
45     systemInit();
46     Brushless_2_Init();
47
48     while( 1 )
49     {
50         Brushless_2_Task();
51     }
52 }
```