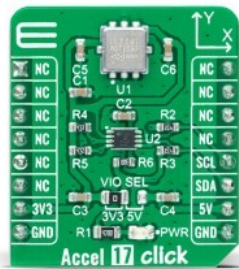


Accel 17 Click



PID: MIKROE-4855

Accel 17 Click is a compact add-on board that contains an acceleration sensor. This board features the [MXC62320MP](#), a low-power digital output dual-axis accelerometer fabricated on a standard, submicron CMOS process from [MEMSIC](#). The MXC62320MP can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity), with full-scale acceleration measurements, a range of $\pm 2g$, and a configurable host interface that supports I2C serial communication with 400kHz Fast Mode operation. This Click board™ is suitable for various applications such as vibration and condition monitoring, test and measurements, predictive maintenance, and more.

Accel 17 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?

Accel 17 Click as its foundation uses the MXC62320MP, a complete dual-axis acceleration measurement system fabricated on a monolithic CMOS process from MEMSIC. The MXC62320MP operation is based on heat transfer by natural convection and operates like other accelerometers, except it is a gas in the MEMSIC sensor. It can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity), with full-scale acceleration measurements, a range of $\pm 2g$. It also comes with embedded Power Up/Down and self-test function, resolution better than 1mg, and >50.000g shock survival rating. In addition to all these features, it also has excellent temperature stability and low power consumption/low active current.

Mikroe produces entire development toolchains for all major microcontroller architectures.

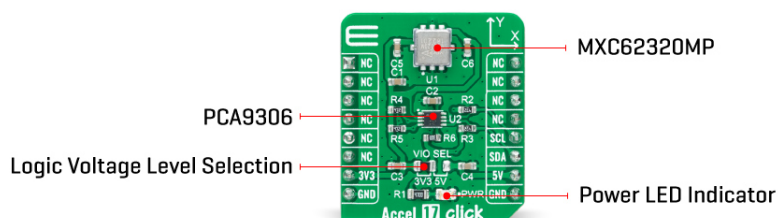
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.



ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).



This accelerometer can enter a Power-Down mode writing a command [xxxxxxx1] into the accelerometer's internal register, while a Wake-Up operation is performed when a command of [xxxxxxx0] is written into the same register. Note that the MXC62320MP needs about 75ms (typical) for Power-Up time.

Accel 17 Click communicates with MCU using a standard I2C 2-Wire interface that supports 400kHz Fast Mode operation. Since the sensor for operation requires a 3.3V logic voltage level only, this Click board™ also features the PCA9306 voltage-level translator from Texas Instruments. The I2C interface bus lines are routed to the dual bidirectional voltage-level translator, allowing this Click board™ to work with both 3.3V and 5V MCUs properly.

This Click board™ can operate with both 3.3V and 5V logic voltage levels selected via the VIO SEL jumper. This way, it is allowed for both 3.3V and 5V capable MCUs to use the I2C communication lines properly. However, the Click board™ comes equipped with a library that contains easy-to-use functions and an example code that can be used, as a reference, for further development.

Specifications

Type	Motion
Applications	Can be used for various applications such as vibration and condition monitoring, test and measurements, predictive maintenance, and more
On-board modules	MXC62320MP - low-power digital output dual-axis accelerometer fabricated on a standard, submicron CMOS process from MEMSIC
Key Features	Low power consumption, ± 2 g dual axis accelerometer, embedded power up/down and self-test function, integrated temperature sensor and mixed signal processing, resolution better than 1mg, and more
Interface	I2C
ClickID	No
Compatibility	mikroBUS™

Mikroe produces entire development toolchains for all major microcontroller architectures.

Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.



ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).

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 Accel 17 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	 mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
	NC	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	VIO SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

Accel 17 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Acceleration Range	-	±2	-	g
Sensitivity	-	512	-	LSB/g
Operating Temperature Range	-40	+25	+85	°C

Software Support

We provide a library for the Accel 17 Click as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

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

Library Description

This library contains API for Accel 17 Click driver.

Key functions:

Mikroe produces entire development toolchains for all major microcontroller architectures.

Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.



ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).

- accel17_get_axes_data - Accel data reading.
- accel17_generic_read - Reading function.
- accel17_generic_write - Writing function.

Examples description

This example showcases ability of the device to read x, y axis orientation.

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

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.Accel17

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. The terminal available in all MikroElektronika [compilers](#), or any other terminal application of your choice, can be used to read the message.

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MikroElektronika Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ 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™ Catalog](#)

[Click Boards™](#)

Downloads

[MXC62320MP datasheet](#)

[Accel 17 click 2D and 3D files](#)

[Accel 17 click schematic](#)

[Accel 17 click example on Libstock](#)

Mikroe produces entire development toolchains for all major microcontroller architectures.

Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.



ISO 27001: 2013 certification of informational security management system.
 ISO 14001: 2015 certification of environmental management system.
 OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).