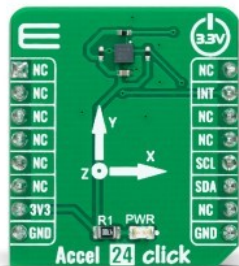


Accel 24 Click



PID: MIKROE-5336

Accel 24 Click is a compact add-on board that contains an acceleration sensor. This board features the [MXC6655XA](#), a 12-bit three-axis accelerometer from [MEMSIC](#). It allows selectable full-scale acceleration measurements in ranges of $\pm 2g$, $\pm 4g$, or $\pm 8g$ in three axes with a compatible I2C serial interface with 400kHz fast mode operation. Alongside low offset and temperature signal with high accuracy, the MXC6655XA also detects six orientation positions, X/Y shake, and shake directions with an appropriate interrupt signal for these states. This Click board™ is suitable for a wide range of information appliances, consumer electronics, household safety applications, and many more.

Accel 24 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 24 Click is based on the MXC6655XA, a highly reliable digital triaxial acceleration from MEMSIC. The MXC6655XA is highly configurable with a programmable acceleration range of $\pm 2g$, $\pm 4g$, or $\pm 8g$ based on MEMSIC's proprietary thermal technology built with a 0.18μm standard CMOS process. It contains no moving sensor parts, eliminating field reliability and repeatability issues; there is no measurable resonance (immunity to vibration), no stiction, and no detectable hysteresis.

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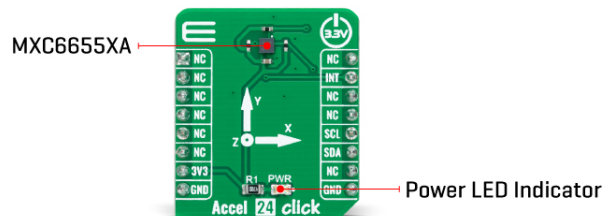
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



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



The MXC6655XA also eliminates the "click" sounds typically heard in ball-based orientation sensors. The MEMS structure is greater than 200,000g. This sensor provides X/Y/Z axis acceleration signals with a low 0g offset and temperature signals with high accuracy. In addition, it also detects six orientation positions, X/Y shake, and shakes directions.

Accel 24 Click communicates with an MCU using the standard I2C 2-Wire interface to read data and configure settings capable of operating in a standard or fast mode of operation. The acceleration signal is provided in 12-bit output resolution. In addition to communication pins, this board also possesses an additional interrupt pin, routed to the INT pin on the mikroBUS™ socket, for orientation and X/Y shake detections. The MXC6655XA allows users to be placed in a Power-Down mode enabled through the I2C interface.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. However, the Click board™ comes equipped with a library containing functions and an example code that can be used, as a reference, for further development.

Specifications

Type	Motion
Applications	Can be used for a wide range of information appliances, consumer electronics, household safety applications, and more
On-board modules	MXC6655XA - digital triaxial acceleration from MEMSIC
Key Features	Low power consumption, high performance and resolution, MEMS sensor with on-chip signal processing, no moving parts, 12-bit signal output for X, Y and Z axes, 6-position orientation detection, shake detection with interrupt, I2C interface, and more
Interface	I2C
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)

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Input Voltage	3.3V
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Pinout diagram

This table shows how the pinout on Accel 24 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	INT	Interrupt
	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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator

Accel 24 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Acceleration Range	±2	-	±8	g
Acceleration Resolution	-	12	-	bits
Sensitivity (±2 ~ ±8)	256	-	1024	LSB/g
Operating Temperature Range	-40	+25	+85	°C

Software Support

We provide a library for the Accel 24 Click as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

The 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 Accel 24 Click driver.

Key functions

- `accel24_get_int_pin` This function returns the INT pin logic state.
- `accel24_read_data` This function checks the data ready bit, clears it, and then reads the accel (X, Y, Z) and temperature measurements.

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- `accel24_set_full_scale_range` This function sets the full scale range resolution.

Example Description

This example demonstrates the use of Accel 24 Click board™ by reading and displaying accel data (X, Y, and Z axis) as well as temperature measurements on the USB UART.

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.Accel24

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 MikroElektronika [compilers](#).

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

[Accel 24 click example on Libstock](#)

[MXC6655XA datasheet](#)

[Accel 24 click 2D and 3D files](#)

[Accel 24 click schematic](#)

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