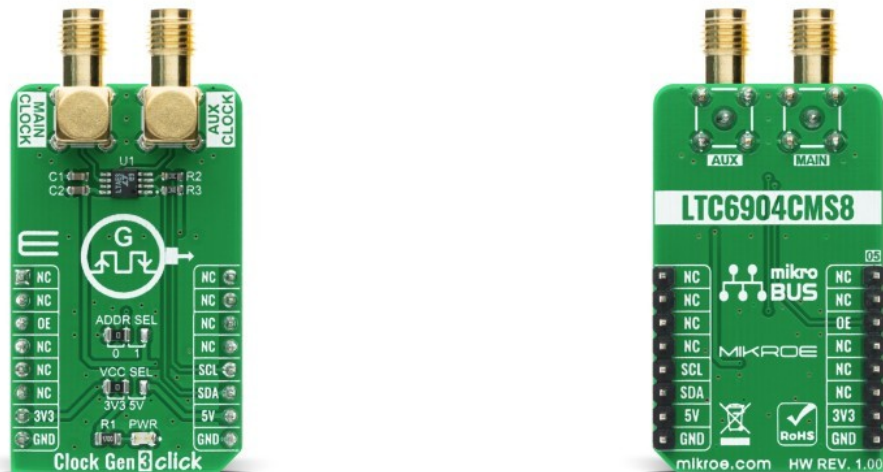


Clock Gen 3 Click



PID: MIKROE-4171

Clock Gen 3 Click features a low power self-contained digital frequency source providing a precision frequency from 1kHz to 68MHz, set through a serial port. This Click board™, an I2C configurable clock generator, features the [LTC6904](#) from [Analog Devices](#) and requires no external components other than a power supply bypass capacitor, and it operates over a single wide supply voltage range of 2.7V to 5.5V. The LTC6904 features a proprietary feedback loop that linearizes the relationship between digital control settings and frequency. It has many features that make it attractive for various applications such as a microcontroller clock source, clock source for a switched capacitor filter, or general replacement for a DAC/VCO combination.

Clock Gen 3 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?

Clock Gen 3 Click uses the LTC6904 IC, 1kHz to 68MHz Serial Port Programmable Oscillator from Linear Technology. The LTC6904 is a low power self-contained digital frequency source providing a precision frequency from 1KHz to 68MHz, which is set by the I2C interface operating up to 3.4 Mbps. This Click board™ features on-board I2C address jumpers, pull-up resistors, a power supply bypass capacitor, and a power LED. The maximum frequency error is 1.1% or 1.6% when operating with a flexible power supply voltage range from 2.7V to 5V, which makes it suitable for 3.3V and 5V MCUs.

Mikroe produces entire development toolchains for all major microcontroller architectures.

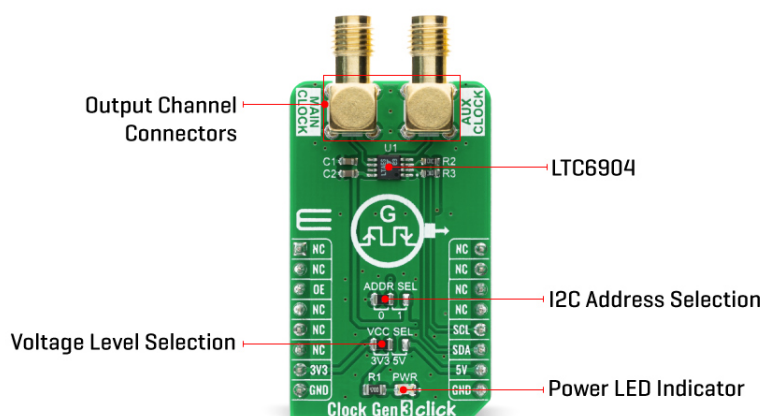
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.




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



Feature	No ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V,5V

Pinout diagram

This table shows how the pinout on Clock Gen 3 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	NC	
Output Enable	OE	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	Right	Power Supply Voltage Selection 3V3/5V, left position 3V3, right position 5V
JP2	ADDR SEL	Left	I2C Address Selection: Left position 0, Right position 1
CN1	CN1	-	Main Clock Output SMA connector
CN2	CN2	-	Auxiliary Clock output SMA connector

Maximum Ratings (Limiting Conditions)

Description	Min	Typ	Max	Unit
Supply Voltage	2.7	-	5.5	V
SMBus Operating Frequency	10	-	100	kHz
Output Impedance	-	50	-	Ω
Operating Temperature Range	-40	+25	+85	°C

Software Support

We provide a library for the Clock Gen 3 Click on our [LibStock page](#), as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

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Library Description

The library contains basic functions for working with Clock Generator 3 click.

Key functions:

- void clockgen3_set_freq(float freq) - Sets Frequency
- void clockgen3_config(uint8_t cfg) - Configuration

Examples description

The application is composed of three sections :

- System Initialization - Initializes I2C module and set GS pin as OUTPUT
- Application Initialization - Initializes driver init and configuration Clock Generator click
- Application Task - Adjusts different frequencies every 3000ms.

The full application code, and ready to use projects can be found on our [LibStock](#) page.

Other mikroE Libraries used in the example:

- I2C library
- Conversions Library
- UART Library

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

[Clock Gen 3 click 2D and 3D files](#)

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[Clock Gen 3 click example on Libstock](#)

[LTC6904 datasheet](#)

[Clock Gen 3 click schematic](#)

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