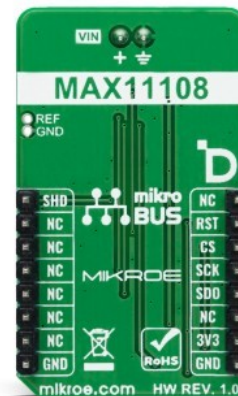


## ADC 14 Click



PID: MIKROE-5880

**ADC 14 Click** is a compact add-on board with a high-performance data converter. This board features the [MAX11108A](#), a low-power serial ADC from [Analog Devices](#). It includes a high-dynamic range sample-and-hold and a high-speed serial interface. This 12-bit resolution ADC with an integrated single-ended analog input connected to the ADC core can achieve up to 3Msps of conversion rate with no pipeline delay. This Click board™ makes the perfect solution for the development of instrument data acquisition, mobile applications, portable data logging, medical instrumentation, communication systems, and more.

ADC 14 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?

ADC 14 Click is based on the MAX11108A, a low-power serial ADC from Analog Devices. This 12-bit ADC includes a full power-down mode and a fast wake-up for optimal power management, consuming only 6.6mW while sampling up to 3Msps. The low power consumption extends battery life, as it can go as low as 2.5µA/ksp and even lower in power-down mode. The MAX11108A samples from the analog input in the normal mode of operation while the device is powered up at all times, thereby achieving its maximum throughput rates. In addition, the ADC can operate with 14 cycles per conversion.

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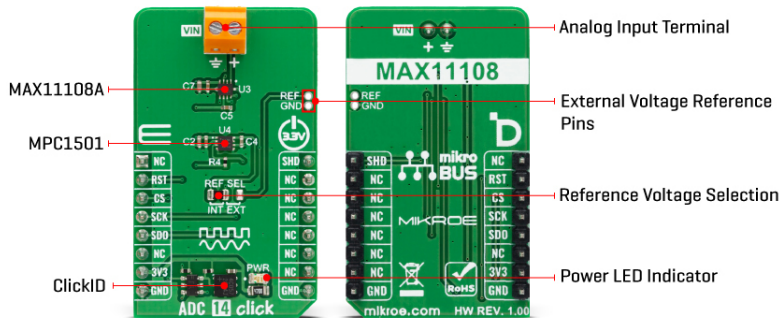
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ISO 27001: 2013 certification of informational security management system.  
 ISO 14001: 2015 certification of environmental management system.  
 OHSAS 18001: 2008 certification of occupational health and safety management system.



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



The ADC 14 Click accepts a full-scale input from 0V to the power supply or the reference voltage. The digital output corresponds to the analog input over the 2-pin screw terminal. ADC 14 Click can use internal or external as a reference voltage, which you can select over the REF SEL jumper (internal reference selected by default). The MCP1501, a high-precision buffered voltage reference from Microchip, provides a 2.048V internal reference voltage. In addition, you can use an external reference voltage, which you can connect over the REF header.

ADC 14 Click uses a 3-Wire (read-only) SPI serial interface to communicate with the host MCU, supporting up to 48MHz serial clock frequency. The SHD shutdown pin of the mikroBUS™ socket is used to shut down the MCP1501 with a Low logic state if the MCP1501 is not in use.

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. Also, this 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	ADC
Applications	Can be used for the development of instrument data acquisition, mobile applications, portable data logging, medical instrumentation, communication systems, and more
On-board modules	MAX11108A - low-power serial ADC from Analog Devices
Key Features	Compact 12-bit ADC, low power consumption extends battery life, high speed, high conversion rate with no pipeline delay, single-ended ADC, high-dynamic range sample-and-hold, and more
Interface	SPI
ClickID	Yes
Compatibility	mikroBUS™
Click board size	M (42.9 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 ADC 14 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	<b>SHD</b>	Shutdown
ID SEL	<b>RST</b>	2	RST	INT	15	NC	
SPI Select / ID COMM	<b>CS</b>	3	CS	RX	14	NC	
SPI Clock	<b>SCK</b>	4	SCK	TX	13	NC	
SPI Data OUT	<b>SDO</b>	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	<b>3.3V</b>	7	3.3V	5V	10	NC	
Ground	<b>GND</b>	8	GND	GND	9	<b>GND</b>	Ground

## Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	REF SEL	Left	Reference Voltage Selection INT/EXT: Left position INT, Right position EXT

## ADC 14 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
ADC Resolution	-	-	12	bit
Conversion Rate	-	-	3	MSPS

## Software Support

We provide a library for the ADC 14 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 ADC 14 Click driver.

Key functions

- `adc14_get_voltage` ADC 14 get voltage function.
- `adc14_read_conversion_data` ADC 14 read conversion data function.

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- `adc14_set_vref` ADC 14 set voltage reference function.

## Example Description

This example demonstrates the use of the ADC 14 Click board™ by reading results of AD conversion by using SPI serial interface.

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.ADC14

## 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. 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™](#)

[ClickID](#)

## Downloads

[MCP1501 datasheet](#)

[ADC 14 click example on Libstock](#)

[MAX11108A datasheet](#)

[ADC 14 click 2D and 3D files](#)

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[ADC 14 click schematic](#)

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