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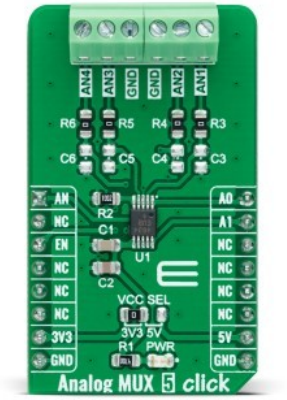
Analog MUX 5 Click





PID: MIKROE-5120

Analog MUX 5 Click is a compact add-on board that switches one of many inputs to one output. This board features the MAX4634, a fast, low-voltage four-channel CMOS analog multiplexer from Analog Devices. This low-voltage multiplexer operates from both mikroBUS™ power rails and features 4Ω maximum ON-resistance (RON). CMOS switch construction allows the processing of analog signals within the supply voltage range. It is also characterized by an easy way of management, only through a couple of signals from the mikroBUS™ socket. This Click board™ is suitable for various applications, from industrial and instrumentation to medical, consumer, communications, and more.

Analog MUX 5 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?

Analog MUX 5 Click as its foundation uses the MAX4634, a low-on-resistance, low-voltage analog multiplexer from Analog Devices. CMOS switch construction of the MAX4634 allows the processing of analog signals within its supply voltage range. It features 4Ω maximum ON-resistance (RON) and offers RON matching between switches to 0.3Ω maximum and RON flatness of 1Ω maximum over the specified signal range. Also, all digital inputs have +0.8V and +2.4V logic thresholds, ensuring TTL/CMOS-logic compatibility with +5V operation.

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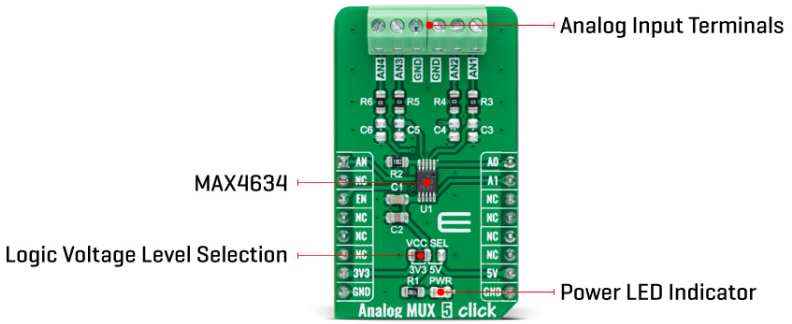

This Click board™ communicates with MCU using several GPIO pins. It can be enabled or disabled through the EN pin routed to the CS pin of the mikroBUS™ socket; hence, offering a switch operation to turn ON/OFF power delivery to the MAX4634. It also provides two address signals, labeled as A0 and A1 and routed to the PWM and INT pins of the mikroBUS™ socket, that determine the activation of the desired analog input channel based on their setup while monitoring of that input analog signal is done using AN pin of the mikroBUS™ socket.

Each analog input has a jumper for its hardware activation or deactivation from R3 to R6 and capacitors for additional filtering of the input channels from C3 to C6. Proper power-supply sequencing is recommended for all CMOS devices. Before applying analog signals or logic inputs, always apply the power supply first, especially if the analog or logic signals are not current-limited.

This Click board™ can operate with both 3.3V and 5V logic voltage levels selected via the VCC SEL jumper. This way, it is allowed for both 3.3V and 5V capable MCUs to use the 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	Measurements,Port expander
Applications	Can be used for various applications, from industrial and instrumentation to medical, consumer, communications, and more
On-board modules	MAX4634 - low-on-resistance, low-voltage analog multiplexer from Analog Devices
Key Features	Low power consumption, fast, CMOS switch construction, guaranteed RON, VCC range signal handling, TTL/CMOS-logic compatible, pin-controllable, and more
Interface	Analog,GPIO
ClickID	No
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)

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Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on Analog MUX 5 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
Analog Signal	**AN**	1	AN	PWM	16	**A0**	Address Control 0
	NC	2	RST	INT	15	**A1**	Address Control 1
Enable	**EN**	3	CS	RX	14	NC	
	NC	4	SCK	TX	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

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	VCC SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

Analog MUX Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Analog Input Range	0	-	5	V
ON-Resistance	-	-	4	Ω
Operating Temperature Range	-40	25	+85	°C

Software Support

We provide a library for the Analog MUX 5 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 Analog MUX 5 Click driver.

Key functions:

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- analogmux5_cfg_setup - Config Object Initialization function.
- analogmux5_init - Initialization function.
- analogmux5_default_cfg - Click Default Configuration function.

Examples description

This example showcases how to initialize, configure and use the Analog MUX 5 click module.

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.AnalogMUX5

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

MAX4634 datasheet

Analog MUX 5 click 2D and 3D files

Analog MUX 5 click schematic

Analog MUX 5 click example on Libstock

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