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EEPROM 13 Click

PID: MIKROE-5885

EEPROM 13 Click is a compact add-on board that contains a highly reliable, nonvolatile memory solution. This board features the M24M01E, an electrically erasable programmable memory with enhanced hardware write protection for entire memory from STMicroelectronics. Its memory size of 1Mbit is organized as 128K words of 8bits each, with a page size of 256 bytes and an additional 256 bytes of identification page. The identification page can be used to store sensitive application parameters, which can be (later) permanently locked in read-only mode. This Click board™ makes the perfect solution for the development of consumer and industrial applications where dependable, nonvolatile memory storage is essential.

EEPROM 13 Click is fully compatible with the mikroBUS™ socket and can be used on any host system supporting the mikroBUS™ standard. It comes with the mikroSDK open-source libraries, offering unparalleled flexibility for evaluation and customization. What sets this Click board™ apart is the groundbreaking ClickID feature, enabling your host system to seamlessly and automatically detect and identify this add-on board.

How does it work?

EEPROM 13 Click is based on the M24M01E, an electrically erasable programmable memory with enhanced hardware write protection for entire memory from STMicroelectronics. The M24M01E has software and hardware write protection features and random and sequential read modes. If the address area is write-protected, the write instruction is not executed. During the internal write cycle, the serial data is turned off internally, and the device does not respond to any requests. The performance features cover enhanced ESD/latch-up protection, more than 4 million write cycles, more than 200 years of data retention, and a very fast wake-up time (less than 5µs).

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ISO 27001: 2013 certification of informational security management system.
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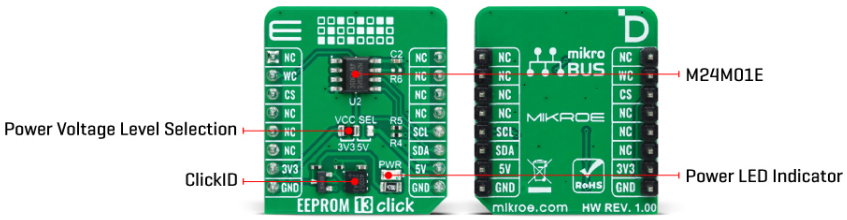

EEPROM 13 Click uses a standard 2-wire I2C interface to communicate with the host MCU, supporting standard, fast, and fast mode plus with up to 1MHz of frequency clock. The write control WC pin serves as a write protect option and is active with a High logic state.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. 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	EEPROM
Applications	Can be used for the development of consumer and industrial applications where dependable nonvolatile memory storage is essential
On-board modules	M24M01E - EEPROM memory with enhanced hardware write protection for entire memory from STMicroelectronics
Key Features	Supports standard, fast, and fast mode plus I2C interface, 1-Mbit of EEPROM in 256 bytes of page sizes, random and sequential read modes, write protection of the whole memory array, enhanced ESD/ latch-up protection, long data retention and data write cycles, and more
Interface	I2C
Feature	ClickID
Compatibility	mikroBUS™
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 EEPROM 13 Click corresponds to the pinout on the

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mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikro™ BUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
Write Control	**WC**	2	RST	INT	15	NC	
ID COMM	**CS**	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	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

EEPROM 13 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Memory Size	-	-	1	Mbit
Data Retention	200	-	-	Years
Endurance	4.000.000	-	-	Cycles

Software Support

We provide a library for the EEPROM 13 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 EEPROM 13 Click driver.

Key functions

- eeprom13_memory_write This function writes a desired number of data bytes starting from the selected memory address.
- eeprom13_memory_read This function reads a desired number of data bytes starting from the selected memory address.

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- eeprom13_hw_write_enable This function disabled hardware write protection of the entire memory.

Example Description

This example demonstrates the use of EEPROM 13 Click board™. The demo app writes specified data to the memory and reads it back.

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.EEPROM13

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

EEPROM 13 click example on Libstock

EEPROM 13 click 2D and 3D files

M24M01E-F datasheet

EEPROM 13 Click schematic

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