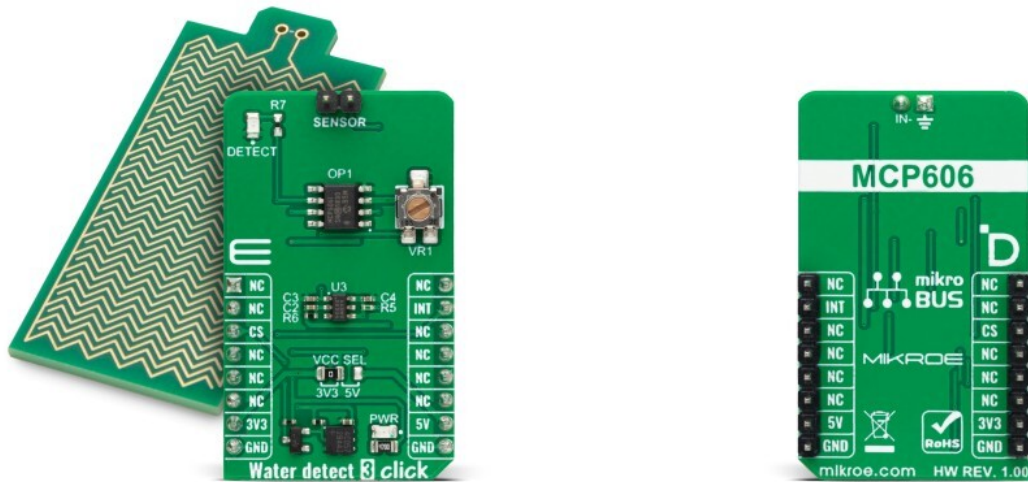


Water Detect 3 Click



PID: MIKROE-5848

Water Detect 3 Click is a compact add-on board that detects water and other electroconductive liquids. This board features the MCP606, a micropower CMOS operational amplifier from Microchip. In the same package, the Water Detect 3 Click comes with a separate PCB with an electroconductive water detection area connected to a Click board™ with wires. This allows you to safely develop a project by testing a board with actual water that will not come in touch with your development setup. This Click board™ makes the perfect solution for the development of a household flood alarm sensor, rain detector for smart buildings, or water tanks that act as a limit switch for a pump.

Water Detect 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?

Water Detect 3 Click is based on the MCP606, a micropower CMOS operational amplifier from Microchip. The way it works is very simple. If the electroconductive water detection area (additional board that comes in the same package as this Click board™) gets wet, it feeds the inverting input of the MCP606 operational amplifier. The MCP606 then compares this voltage to the reference voltage made as a voltage divider, of which one part is a 10K trimmer potentiometer, and the other is [MCP1501](#), a high-precision buffered voltage reference from Microchip. By trimming this potentiometer, you can set the threshold for an MCP606, thus alarming the host MCU when there is enough water conductivity in an electroconductive water detection area.

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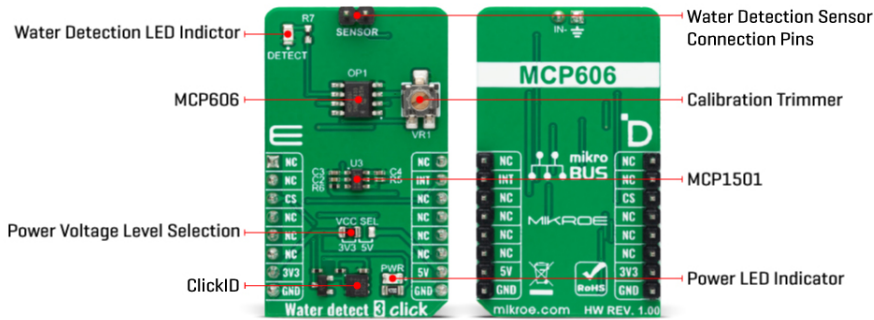
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.



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.

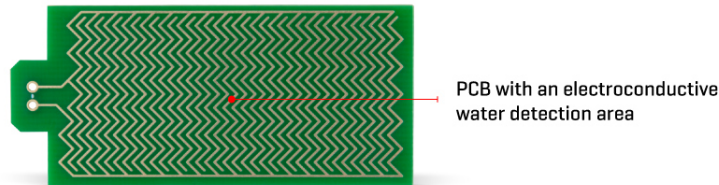


ISO 9001: 2015 certification of quality management system (QMS).



The MCP606 on this Click board™ functions as a comparator. When the sensory area is dry, its resistance is near infinite, and the voltage applied to the inverting terminal of the comparator equals VCC. The water detection area is actually made of exposed conducting wires - simple but effective technology.

Water Detect 3 Click uses an interrupt INT pin to alarm the host MCU of the water presence. Besides the interrupt, Water Detect 3 Click will also notify you with a DETECT red LED, as it is connected to the INT pin.



PCB with an electroconductive water detection area

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	Miscellaneous
Applications	Can be used for the development of a household flood alarm sensor, rain detector for smart buildings, or water tanks that act as a limit switch for a pump
On-board modules	MCP606 - micropower CMOS operational amplifier from Microchip
Key Features	Separate board for water detection in the same package, detection area made of exposed conducting wires, calibration

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	potentiometer, interrupt output, LED for visual presentation, and more
Interface	GPIO
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on Water Detect 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	INT	Interrupt
ID COMM	CS	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	Power/Logic Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V
VR1	-	-	Calibration Potentiometer

Water Detect 3 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3		5	V

Software Support

We provide a library for the Water Detect 3 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](#).

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Library Description

This library contains API for Water Detect 3 Click driver.

Key functions

- waterdetect3_get_int Water Detect 3 interrupt pin reading function.

Example Description

This example demonstrates the use of the Water Detect 3 Click board™ by detecting if water is present on the sensor part of the click.

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.WaterDetect3

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

[MCP606 datasheet](#)

[MCP1501 datasheet](#)

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[Water Detect 3 click 2D and 3D files](#)

[Water Detect 3 click schematic](#)

[Water Detect 3 click example on Libstock](#)

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