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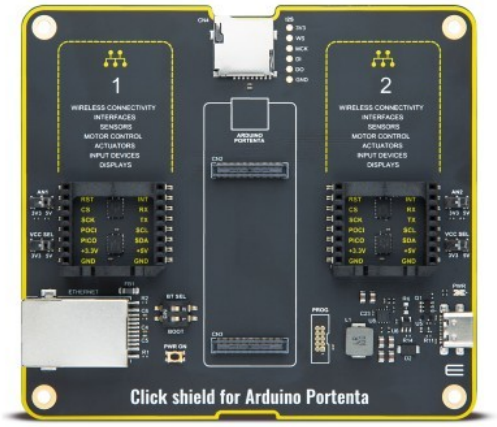
Click shield for Arduino Portenta



PID: MIKROE-6079

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Time-saving embedded tools

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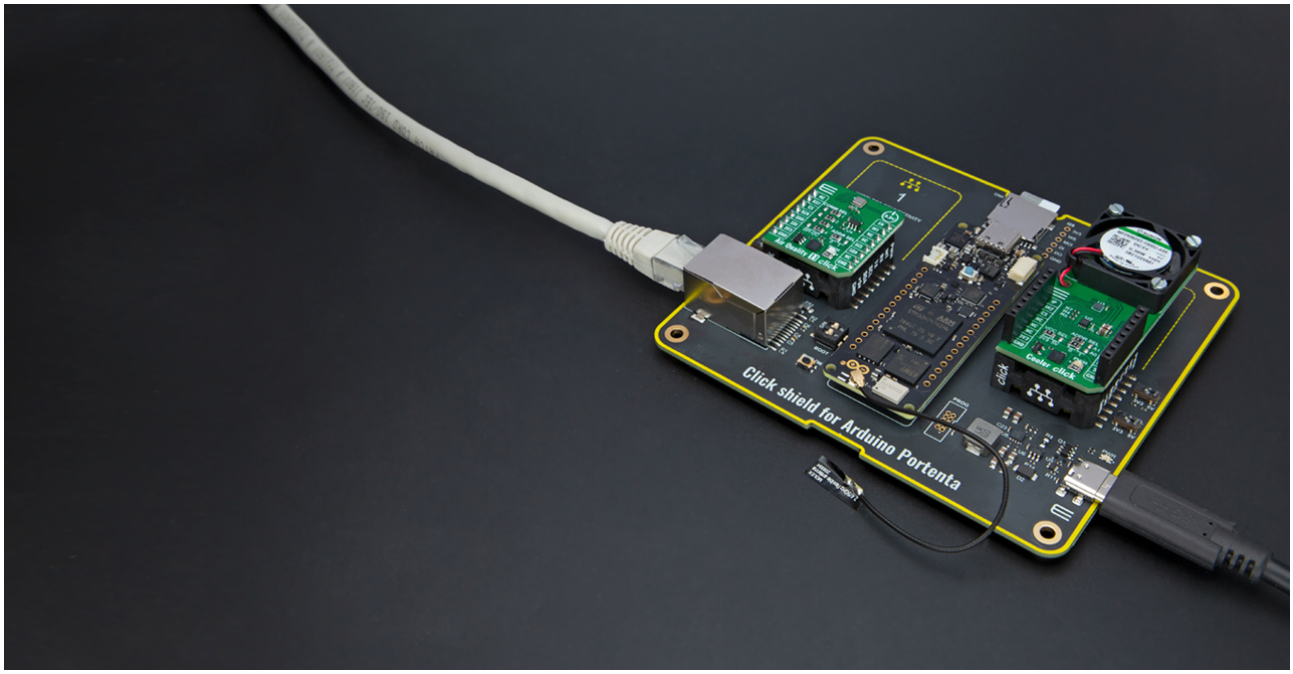

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
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Overview

Click Shield for Arduino Portenta is the perfect solution for quickly and easily expanding the capabilities of Arduino Portenta board with many Click boards, enabling the creation of complex and unique projects.

The Click Shield for Arduino Portenta is specifically made for the Arduino Portenta boards, offering a cost-effective and versatile platform for users to experiment with new ideas and build prototypes leveraging the dual-core capability of the STM32H747 processor in Portenta. These boards support a variety of development environments and are particularly suited for high-performance industrial applications, blending low power consumption with advanced features like machine learning and IoT connectivity.

This extension board allows users to combine the Arduino Portenta footprint-compatible board with their favorite Click boards™ in their upcoming projects.

Note: Arduino Portenta board is not included in the package.

CLICK BOARD
COMBINATIONS

Main features

Click Shield for Arduino Portenta comes equipped with two mikroBUS™ sockets, allowing all the Click board™ devices to be interfaced with the Portenta boards with no effort. This way, MIKROE allows its users to add any functionality from our ever-growing range of Click boards™, such as WiFi, GSM, GPS, Bluetooth, ZigBee, environmental sensors, LEDs, speech recognition, motor control, movement sensors, and many more. More than 1600 Click boards™, which can be stacked and integrated, are now available.

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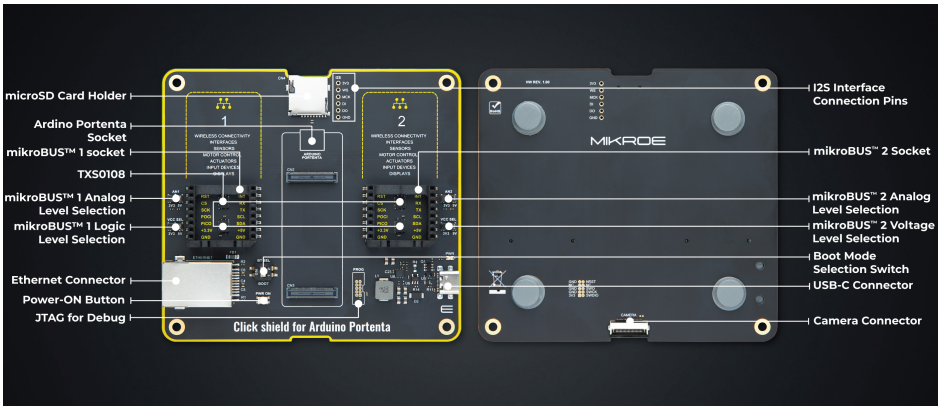

The Arduino Portenta is an IoT Cloud-compatible development board with a dual-core STM32H747 processor (Cortex® M7 at 480MHz and Cortex® M4 at 240MHz) designed for high-performance applications and IoT projects. It supports simultaneous execution of Arduino code and MicroPython, offering robust connectivity options like WiFi, BLE, and optional LoRa or cellular modules. Its modular design enhances its adaptability for additional hardware, making it ideal for industrial use in demanding environments such as machinery, PLCs, and robotics. Additionally, Portenta can handle AI and machine learning applications, allowing for the implementation of intelligent IoT solutions directly on the device.

This Click Shield includes several essential features to enhance the board's functionality and ease of use. A classic Power-On button provides straightforward activation of the Portenta board. The Boot mode switch (BT SEL switch) allows users to configure the boot mode of the board; with switch 1 set to ON position, it activates the embedded bootloader, enabling firmware uploads via the USB port on the Portenta board. When switch 2 is set to the ON position, it maintains the Portenta in Boot mode. Additionally, the Shield includes a JTAG connector, facilitating easy debugging and low-level debugging tasks or special firmware updates using an external programmer. For audio applications, the I2S pins on the Shield allow using the I2S protocol, which is ideal for high-quality audio processing and streaming tasks on the Arduino Portenta, providing a valuable addition for developers exploring advanced multimedia projects.

Click Shield for Portenta has three vital connectors that significantly expand the board's capabilities. The Ethernet connector enables the Portenta to connect to the internet via an Ethernet cable, allowing for robust network interactions such as sending HTTP methods or communicating with other devices and APIs. Additionally, the Shield includes a camera connector that allows the rapid development of machine vision applications. This enables the Portenta to transform into an industrial camera capable of performing real-time machine-learning algorithms on live video feeds. Thanks to the MicroSD card holder on the Click Shield, captured frames can be encoded to bitmap standards and saved to an SD Card, and configuration files can also be read from the SD card, enhancing the board's utility in complex projects.

This Click Shield also has several switches that perform functions such as selecting the logic levels of analog signals on mikroBUS™ sockets and selecting logic voltage levels of the mikroBUS™ sockets themselves. Besides, the user is offered the possibility of using any Click board™ with the help of existing bidirectional level-shifting voltage translators (TXS0108), regardless of whether the Click board™ operates at a 3.3V or 5V logic voltage level.

Once you connect the Portenta board with our Click Shield for Arduino Portenta, you can access

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hundreds of Click boards™, working with 3.3V or 5V logic voltage levels. Our Click boards™ are equipped with a library containing functions and example codes for MIKROE compilers available on LibStock, which can be used as a reference for further development.

Note: This Click Shield provides quick connectivity with the Arduino Portenta board, offering easy hardware integration. However, it is important to note that MIKROE does not offer software support for this product. For all software-related inquiries, please get in touch with Arduino support to ensure optimal functionality and assistance for your projects.

Power your inventions

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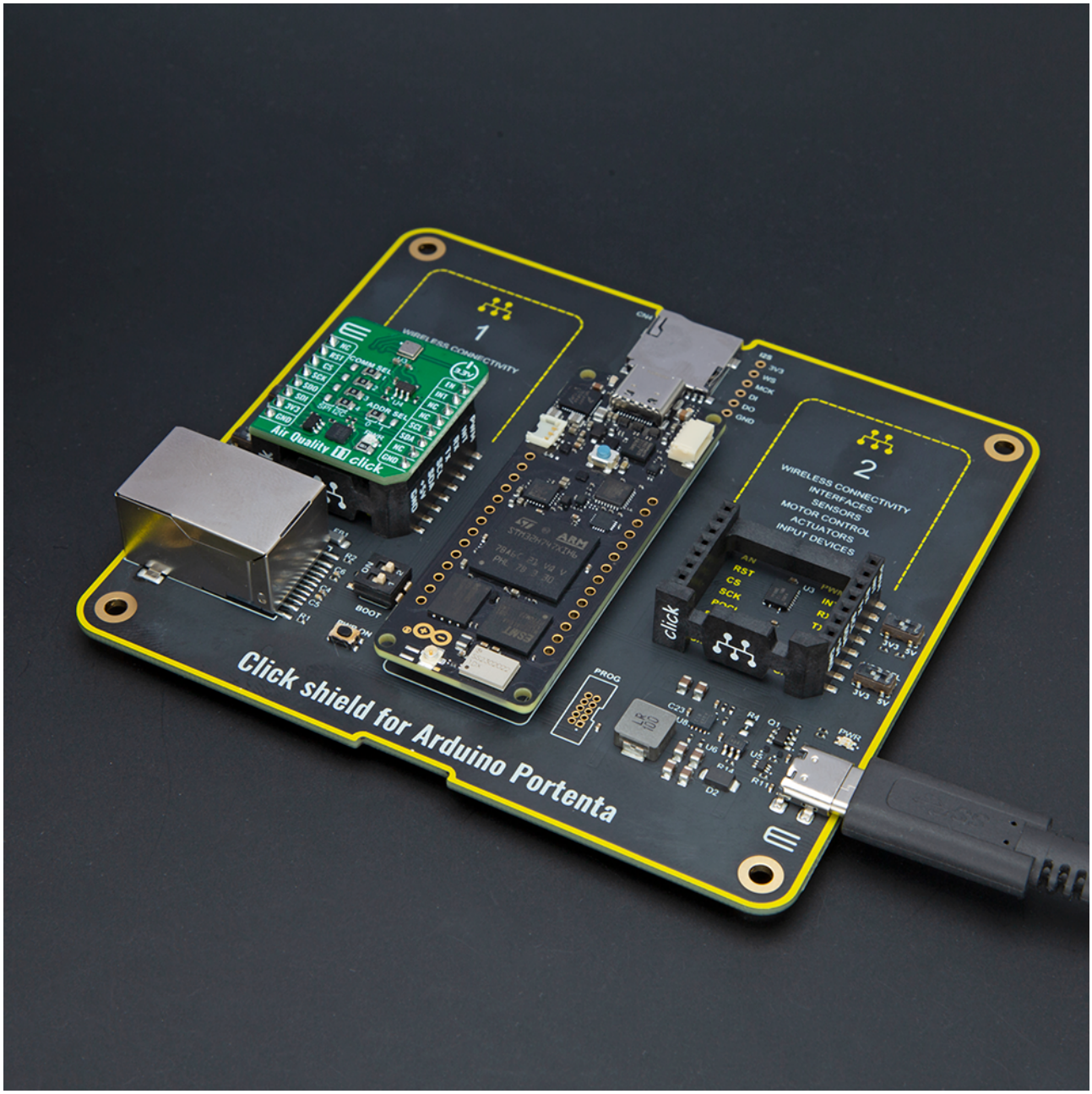

When the USB is connected to the Click Shield, the PWR diode will glow Blue, and at this setup, the connected Portenta baseboard and all mikroBUS™ sockets will be powered from it.

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When the USB is connected to the Portenta board, the PWR diode will glow Green, and at this setup, the Portenta H7 baseboard itself will be supplied, and it will provide power to the Click Shield, including all mikroBUS™ sockets.

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When the USB is connected to the Click Shield, and the other USB is connected to the Portenta board, the PWR diode will glow Cyan, and at this setup, the mikroBUS™ sockets are powered from the Type C connector from Click Shield.

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Specifications

Type	Shield
Applications	Click Shield for Arduino Portenta allows you to use Click boards™ on your Portenta boards
Key Features	2x mikroBUS™ sockets, connector for connecting compatible Portenta board, four TXS0108 level-shifting voltage translators, power part for converting 5V USB to the 3.3V, Ethernet connection, MicroSD card holder, Camera connector, JTAG, Boot mode selection switch, and more
Interface	Analog,GPIO,I2C,PWM,UART,USB
Compatibility	Arduino,mikroBUS™
Input Voltage	3.3V or 5V,External

Resources

mikroBUS™

mikroSDK

Click board™ Catalog

Click boards™

Downloads

Click shield for Arduino Portenta schematic

Click shield for Arduino Portenta 2D and 3D files

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