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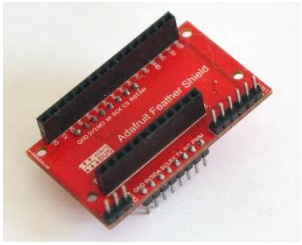
Adafruit Feather Shield



The **Adafruit Feather Shield** is an adapter that allows you to install Adafruit Feather compatible modules in the mikroBUS slot or connect mikroBUS modules (such as MikroElekronika's Click®) to Adafruit Feather compatible modules.

The list of modules installed in the Adafruit Feather slot of this shield:

Adafruit Huzzah32, Adafruit Feather M0 with RFM95 LoRa Radio, Adafruit Feather M0 Express, Adafruit Feather M4 Express, Adafruit Feather M4 CAN Express with ATSAME51, Adafruit Feather nRF52840 Express, Adafruit Feather nRF52840 Sense, Adafruit Feather nRF52 Bluefruit LE - nRF52832, Adafruit Feather STM32F405 Express, FeatherS2 - ESP32 - S2 Feather Development Board, Adafruit Feather RP2040, Adafruit AirLift FeatherWing – ESP32 WiFi Co-Processor from Adafruit

Xenon, Argon and Boron from Particle

MAX32620FTHR and MAX32630FTHR from Maxim Integrated

Wio Lite W600 and Wio Lite MG126 from Seeed

Zynq Feather from PCB ARTS

Icarus IoT Board – nRF9160 from Actinius

Evo M51 from Alorium Technology

SparkFun Thing Plus - SAMD51, SparkFun Thing Plus - STM32, SparkFun Thing Plus - ESP32 WROOM, SparkFun Thing Plus - Artemis, SparkFun RED-V Thing Plus, SparkFun Thing Plus - RP2040, SparkFun Thing Plus - nRF9160, SparkFun LoRa Thing Plus – explorable, SparkFun QuickLogic Thing Plus - EOS S3 from SparkFun

with all software and services from specified companies.

The correspondence of Adafruit Feather contacts and **Adafruit Feather Shield** connectors is as follows:

Adafruit Feather		mikroBUS LEFT	mikroBUS RIGHT	AUX1	AUX2
LEFT	RST	RST			
	3V3	3V3			
	NC				
	GND	GND	GND		
	A0 (DAC2)	AN			
	A1 (DAC1)			1	
	A2			2	
	A3		INT		
	A4				1
	A5				2
	SCK	SCK			
	MOSI	MOSI			
	MISO	MISO			
	RX		RX		
	TX		TX		
	IO (21)				3
RIGHT	BAT				
	EN				
	USB		5V		
	A12 (13)			3	
	A11 (12)	CS			
	A10 (11)		PWM		
	A9 (10)			4	
	A8 (9)	RST			
	A7 (6)			6	
	A6 (5)			5	
	SCL		SCL		
	SDA		SDA		

The AUX1 connector and the LiPo connector on the Adafruit Feather are opposite each other. Therefore, to use them together, it is necessary to use a lower Header for AUX1 or use an angled connector for AUX1.

The mikroBUS connectors on this shield have exactly the same pin assignment as on the Adafruit Feather Adaptor.

The bottom-side shield has a Qwiic connector for I^2C. The bottom-side also houses pull-up resistors for I^2C. They are switchable (using JP jumpers on bottom-side), resistors are connected by default.

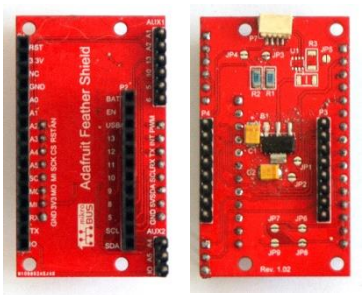
On the bottom-side there are also jumpers to select direct and cross-connect RX and TX to the corresponding mikroBUS signals.

List of jumpers on the bottom-side and their default states:

	Function	Default state
JP1	3V3 source for mikroBUS (JP1 - Feather, JP2 - Shield), default Feather	CLOSE
JP2		OPEN
JP3	pull-up for i2c	CLOSE
JP4		CLOSE
JP5	BME280 address on i2c	OPEN
JP6	ndirect or cross connection for TX0 (default is direct)	CLOSE
JP7		OPEN
JP8	ndirect or cross connection for RX0 (default is direct)	CLOSE
JP9		OPEN

The **Adafruit Feather Shield** contains (on the bottom-side) the voltage regulator AMS1117-3.3 and the necessary capacitors. On the bottom-side there is a jumper defining the 3V3 source on the mikroBUS (from the installed to Adafruit Feather slot module or from AMS1117-3.3). By default - from the installed module.

Optionally, a BME280 is installed on the bottom-side of the module (7-bit address on I^2C = 111011x). The address for BME280 is selected with jumpers on the bottom-side. The default address should be 1110111.

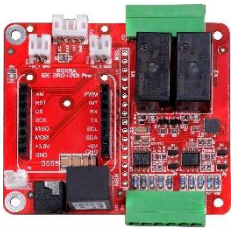
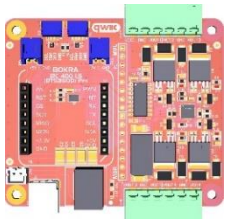
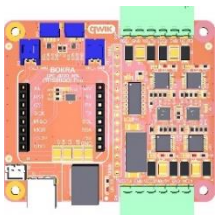
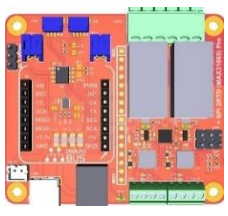


Adafruit Feather Shield size - 50.8 x 29.21 mm.

The main areas of application of the shield:

- Industry and transport
- Data acquisition systems (DAS) and PLC
- Heating, Ventilation, & Air Conditioning (HVAC)
- Consumer electronics
- Ecology monitoring
- Smart home
- Motor control
- Measuring and medical devices

With **Adafruit Feather Shield**, it is easy to use Adafruit Feather compatible modules to control the following Pro Series I / O modules:

Image	Name	Characteristics
	I2C 4AI ADS1x15 Pro	4 channels differential analog input based on 16-bit ADS1115 and 12-bit ADS1015 ADC. The two Texas Instruments ΔΣ (delta-sigma) ADCs installed on the module. Voltage measurement ranges: 0-0.5V, 0-5V, 0-10V, ± 0.5V, ± 5V, ± 10V. Current measurement ranges: 0-20mA, 4-20mA, ± 20mA, 0-40mA. Measurement speed: up to 860 measurements per second for ADS1115 and up to 3300 measurements per second for ADS1015.
	I2C 2RO+2AI Pro	2 Omron G5Q-14 relays and 2 analog input channels based on an ADC from Texas Instruments (either ADS1115-Q1 or ADS1015). Voltage measurement ranges: 0-0.5V, 0-5V, 0-10V, ± 0.5V, ± 5V, ± 10V. Current measurement ranges: 0-20mA, 4-20mA, ± 20mA, 0-40mA. Measurement speed: up to 860 measurements per second for ADS1115 and up to 3300 measurements per second for ADS1015.
	I2C 2RO+2DI Pro	2 Omron G5Q-14 relays and 2 digital input channels (based on Texas Instruments ISO1211). The modules allow you to enter the values of 2 digital signals, both DC and AC. Supports 9-V to 300-V DC and AC digital input. Compliant to IEC 61131-2; Type 1, 2, 3 characteristics for 24-V isolated digital inputs. Accurate Current Limit for Low-Power Dissipation: – 2.2 mA to 2.47 mA for Type 3. Maximum transient isolation voltage (up to 60s) – 3600V.
	I2C 4DO LS (BTS3160D) Pro	4 channels low-side digital output, based on BTS3160D.
	I2C 4DO HS (TPS1H100) Pro	4 channels high-side digital output, based on TPS1H100.
	I2C 2RO + SPI 2RTD Pro	2 Omron G5Q-14 relays and 2 digital input channels (based on Texas Instruments ISO1211).

You can also learn more about the **I2C 2RO + 2DI Pro** module on the [IoThings Digital] page at Crowd Supply.

MikroElekronika manufactures numerous modules with mikroBUS interface - Click® modules.

All these modules can be easily connected directly to the Arduino Nano using the **Adafruit Feather Shield**.

Adafruit Feather Shield schematic: