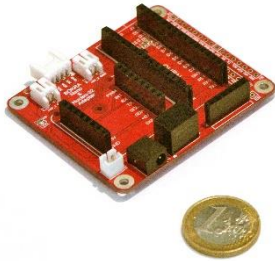# Arduino Nano & Nucleo-32 Adapter

The **BOKRA Arduino Nano & Nucleo-32 Adapter** module is designed for use with the Arduino Nano or STM32 Nucleo-32 and mikroBUS family of modules and provides a device based on this module with uninsulated power supply 5VDC, up to 1A.

Using the Arduino Nano slot allows you to design devices based on modules for the mikroBUS bus, various BOKRA and SoM modules of the Arduino Nano format, such as:

Arduino Nano, Arduino Nano Every, Arduino Nano 33 BLE, Arduino Nano 33 BLE Sense, Arduino Nano 33 IOT, as well as numerous clones of these modules

Modules of the Nucleo-32 family (NUCLEO-F031K6, NUCLEO-F042K6, NUCLEO-F303K8, NUCLEO-G031K8, NUCLEO-G431KB, NUCLEO-L011K4, NUCLEO-L031K6, NUCLEO-L412KB, NUCLEO-L432KC, NUCLEO-8S207K8) from STMicroelectronics

with all software and services from specified companies.

The correspondence of Arduino Nano or STM32 Nucleo-32 contacts and mikroBUS contacts on the **BOKRA Arduino Nano & Nucleo-32 Adapter** module is as follows:

mikroBUS pin	Arduino Nano pin	mikroBUS pin	Arduino Nano pin
AN	A0	PWM	D9
RST	RST	INT	D2
CS	D10	RX	RX
SCK	D13	TX	TX
MISO	D12	SCL	A5
MOSI	D11	SDA	A4
+3.3V	3V3	+5V	5V
GND	GND	GND	GND

The MBL (labeled P1) and MBR (labeled P8) connectors are all mikroBUS bus signals. Thus, through these connectors it is easy to connect another module (or even several) with mikroBUS slots, increasing the number of slots on the common bus.

Almost all signals not used by mikroBUS from the installed Arduino Nano or STM32 Nucleo-32 are output to the AUX1 and AUX2 connectors, which makes it possible to use almost all Arduino Nano or STM32 Nucleo-32 functions without changing the programs. The correspondence of the Arduino Nano or STM32 Nucleo-32 pins and the contacts of the AUX1 and AUX2 connectors is as follows:

Arduino Nano pin	AUX1	Arduino Nano pin	AUX2
D3	1	AREF	1
D4	2	A1	2
D5	3	A2	3
D6	4	A3	4
D7	5	A6	5
D8	6	A7	6
3V3	7	VIN	7
GND	8	GND	8

Third-party ESP-M3 modules can be installed in J4. Thus, a device based on **BOKRA Arduino Nano & Nucleo-32 Adapter** can be easily provided with Wi-Fi connection. The ESP-M3 is UART controlled from the 2nd mikroBUS slot on the module. For stability, there is a DC-DC converter that provides 3.3VDC power for the ESP-M3, independent of the power supply on the mikroBUS common bus. There is a software control option for turning on the ESP-M3 using a single-pin P4 connector. To do this, P4 must be connected using the jumper JP12.
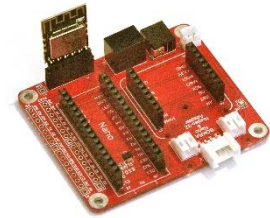
Attention! The use of the J4 connector is prohibited for 5V-powered modules such as Arduino Nano and Arduino Nano Every.

The I^{2}C interface is most often used when designing devices based on this module. To do this, the adapter has an I^{2}C connector, through which you can connect external devices and sensors.

The adapter has a temperature sensor - an [LM75B](#) chip, also connected via I^{2}C. Temperature measurement accuracy: ±2 °C for the temperature range from -25 °C to $+100$ °C, ±3 °C for the temperature range from -55°C to $+125$ °C. The LM75B chip can be replaced by the user on the [TMP1075](#) chip (maximum accuracy - ±1°C). The I^{2}C address for the LM75B is 1001111*. This address can be changed by the user using jumpers JP1, JP2 and JP3.

The module power supply is non-isolated, in the range from 9VDC to 36VDC. The module converts the input power to the output, 5VDC. The maximum current is 1A. There are two connectors for distributing 5VDC to other modules and a connector for transmitting VIN input voltage to other modules.

Since some of the modules installed in mikroBUS and Nano slots can themselves generate 5VDC and 3.3VDC, the module provides the ability to disconnect the corresponding power contacts of the mikroBUS slot from the common mikroBUS bus. It is also possible to disconnect SCL and SDA signals from the common bus for each mikroBUS slot.
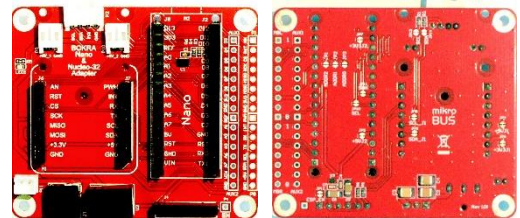
If necessary, you can connect pull-up resistors for I^{2}C (jumpers J3 and J4).

BOKRA Arduino Nano & Nucleo-32 Adapter size 65 x 56 mm. The format of the module corresponds to the popular format of the Raspberry Pi 3A+, which greatly simplifies its use with the Raspberry Pi.

- Consumer electronics
- Distributed Data Acquisition Systems
- Lighting
- Smart sensors

- Air condition monitoring
- PLC
- Smart home control
- Motor control

The following figure shows the **location of elements on the BOKRA Arduino Nano & Nucleo-32 Adapter**.
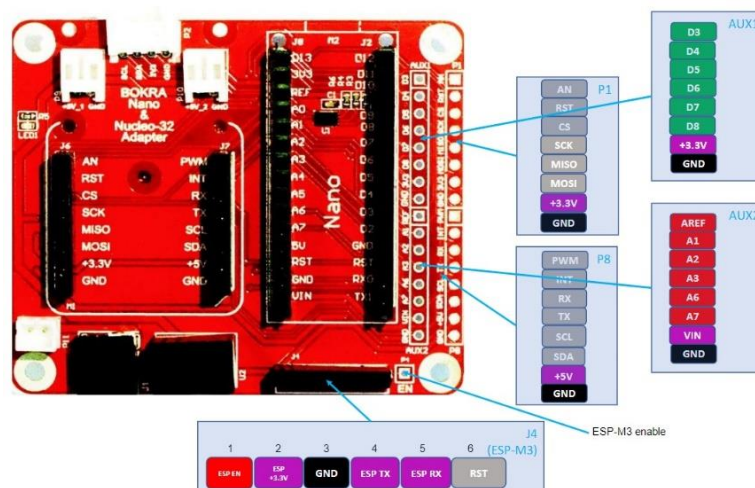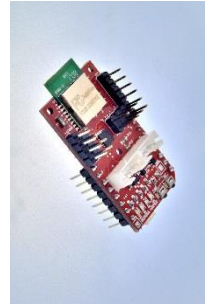
Install on your **BOKRA Arduino Nano & Nucleo-32 Adapter** in the mikroBUS slot one of the BOKRA SoM Pro or Lite series, one of the modules for wireless communication or another module with the mikroBUS interface:
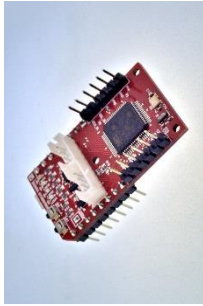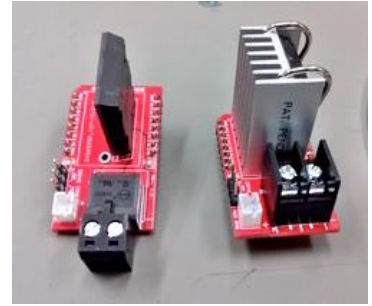

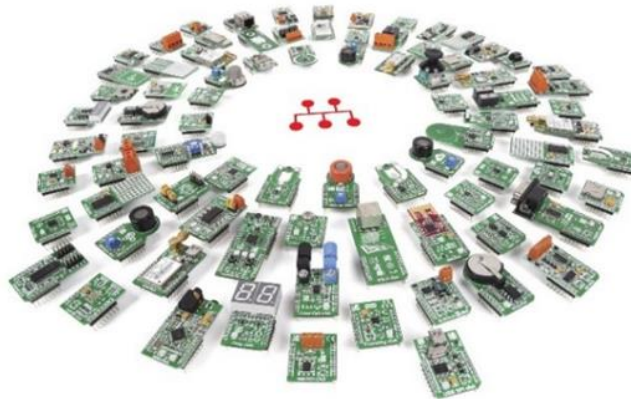BOKRA STM32F405 Pro   BOKRA LPC824 Lite   BOKRA BT832   BOKRA mikroBUS 60VDC SSR

[MikroElekronika](#) manufactures numerous modules with mikroBUS interface - Click® modules:

Through I^2C or MBL and MBR connectors, you can easily connect Raspberry Pi 3A+ (65 x 56 mm) format modules manufactured by us or modules of the same size from other manufacturers to the adapter:

Analog input
BOKRA I2C 8AI LTC2309
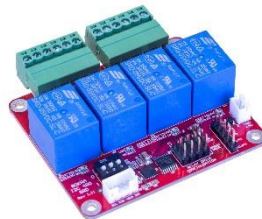
Relay
BOKRA I2C 4RO SRD

Digital input and output
BOKRA I2C 4DI+4DO

It is also easy to connect numerous sensors, peripherals and modules from Grove Systems via the I^2C connector to the **BOKRA Arduino Nano & Nucleo-32 Adapter**.

BOKRA Arduino Nano & Nucleo-32 Adapter schematic: