



Binho Nova Click Multi Protocol Adapter User Manual

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BINHO NOVA CLICK

Binho Nova Click Multi Protocol Adapter



Binho Nova Click is an adapter Click board™ that can be used as a multi-protocol adapter. This board features two female 1.27mm 2×5 connectors suitable for connecting the Binho Nova Multi- Protocol USB Host Adapter depending on the desired interface. This Click board™ is designed for ultimate flexibility and provides the ability to use this adapter with different communication protocols, such as I2C, SPI, or UART. It features five signal pins, which can be used as Digital Input/Output, PWM Output, Digital Interrupt, or Analog Input/Output. Along with these connectors, it also features two power jumpers that can be used to supply the host from the Binho Nova. This Click board™ is suitable for manual testing during firmware development and debugging and automating hardware testing and validation.

NOTE: The Click board™ comes with stacking headers that allow you to easily combine it with other Click boards™ by using just one mikroBUS™ socket.

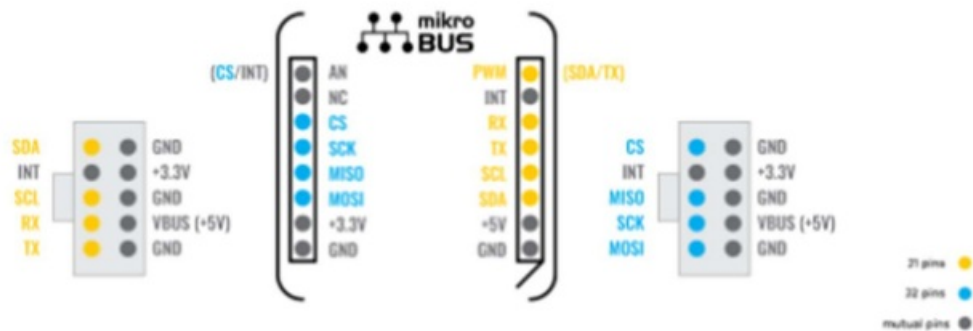
HOW DOES IT WORK?

- The Binho Nova Click board™ was designed for ultimate flexibility with multiple ways to control and interact with it. It features two female 1.27mm 2×5 connectors suitable for connecting the Binho Nova Multi-Protocol USB Host Adapter depending on the desired interface.
- The connected Binho Nova Adapter is powered by its USB connection to the host PC and provides downstream power to the Binho Nova Click board™. Additionally, two power jumpers labeled as 3V3 and 5V are used to supply the host from the connected Binho Nova Adapter. It represents a perfect solution for manual testing during firmware development and debugging, automating hardware testing, and validation.



- Binho Nova USB Host Adapter has 3 modes of operation: Master, Slave, and Monitor/Debug. By default, it communicates as a Master device, while the Slave device support is coming soon and will be made available to all existing devices via a firmware update. Thanks to the stacking headers that this Click board™ has, there is the possibility of connecting any Click board™ with the Binho Nova Click board™. In this way, it is possible to use the USB Host Adapter in a Mode that would monitor when the MCU communicates with additional Click while “sniffing” communications and protocols.
- The Binho Nova Click can establish communication with MCU using several different communication protocols. It can serve as an SPI bus controlled device, with a frequency between 500kHz and 12MHz and with all 4 SPI modes are supported, or can serve as an I2C bus controlled device that supports clock frequencies from 100kHz up to 3.4MHz that covers all common operational modes (Standard, Full-Speed, Fast, and High-Speed). In addition to using these two communications, it also supports communication as a UART pass-through, with a maximum baud rate of 1.000.000bps for the data transfer.
- Some Binho Nova connector pins can be assigned to other, related or unrelated, purposes such as GPIO, interrupt, PWM signals, or analog input/outputs. In that manner, two onboard jumpers, labeled as AN and PWM, are used to designate which pin from the Binho Nova connector is connected to the AN pin or PWM on the mikroBUS™ socket. The default state of AN jumper represents enabled SPI communication while optionally provides the ability to use ADC/DAC, where SPI is not active. On the other hand, with the PWM jumper, the default state is enabled I2C and UART communication, while the optional state provides PWM

where the UART is disabled.



- This Click board™ features two enable jumpers used to supply the host from the Binho USB Host Adapter. The presence of an active power supply is visually detected by a green LED diode labeled as PWR. In the case of using the Binho USB Host Adapter in Slave or Monitoring/Debug Mode, these headers need to be removed. Only when Master Mode is used and is necessary to power the host headers should be left on the Click board™.

SPECIFICATIONS

Type	Adapter
Applications	Can be used for manual testing during firmware development and debugging and automating hardware testing and validation.
On-board modules	This board features two female 1.27mm 2×5 connectors suitable for connecting the Binho Nova Multi-Protocol USB Host Adapter depending on the desired interface, in association with stacking headers that allow you to easily combine it with other Click boards™ by using just one mikroBUS™ socket.
Key Features	Multi-protocol adapter, support for SPI I2C and UART interface, configurable pins (GPIO, Interrupt, PWM), ideal for testing and validation, and more.
Interface	PWM,UART,Analog,GPIO,I2C,SPI
Compatibility	mikroBUS
Click board size	S (28.6 x 25.4 mm)
Input Voltage	5V,3.3V,External

PINOUT DIAGRAM

This table shows how the pinout on Binho Nova Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
CS/INT Selection	AN	1	AN	PWM	16	PWM	SDA/TX Selection
	NC	2	RST	INT	15	INT	Interrupt
SPI Chip Select	CS	3	CS	RX	14	TX	UART TX
SPI Clock	SCK	4	SCK	TX	13	RX	UART RX
SPI Data OUT	SDO	5	MISO	SCL	12	SCL	I2C Clock
SPI Data IN	SDI	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	PWR	Left	Binho Nova I/O Signal Selection IO1/IO0: Left position IO1 , Right position IO0
JP2	AN	Left	Binho Nova I/O Signal Selection IO4/IO0: Left position IO4 , Right position IO0
J1	SPI	Populated	Connector for SPI/Analog Interface
J2	I2C/UART	Populated	Connector for I2C/UART/PWM Interface
J3	3V3	Unpopulated	Supply Enable Jumpers from Binho Nova Host USB Adapter
J4	5V	Unpopulated	Supply Enable Jumpers from Binho Nova Host USB Adapter

BINHO NOVA CLICK ELECTRICAL SPECIFICATIONS


Description	Min	Typ	Max	Unit
Supply Voltage	3.3	–	5	V
Binho USB Host Adapter Output Current	–	–	100	mA
Operating Temperature Range	0	+25	+80	°C

SOFTWARE SUPPORT

The software support is provided by Binho, so please visit the Mission Control Software, which provides an easy-to-use GUI interface for your Binho Nova Multi-Protocol USB Host Adapter to get the full software support. The example code of the Binho Nova Click board™ is performed via UART communication, and consists of a few simple steps that echoes strings that are entered.

1. Place “Binho Nova Click” into mikroBUS™ socket 1.
2. Insert the “Binho USB Host Adapter” connector into the “Binho Nova Click” I2C/UART slot.
3. Start the “Mission Control Software” application.
4. Connect “Binho USB Host Adapter”.
5. Activate UART protocol with a UART rate of 115200bps.
6. Send some string down the UART protocol, and if everything is in the correct order, it shall be echoed back.

Documents / Resources

	Binho Nova Click Multi Protocol Adapter [pdf] User Manual Nova Click Multi Protocol Adapter
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