JOY-PI ADVANCED
Highly integrated development platform & learning center

The Joy-Pi Advanced is a compact and powerful device that allows you to realize your projects quickly and easily. Whether you already have a lot of experience, or next to none, the Joy-Pi Advanced lets you unleash your creativity.

Thanks to its compatibility with a wide range of platforms, including Raspberry Pi, Raspberry Pi Pico, Arduino Nano, BBC micro:bit, and NodeMCU ESP32, you can easily and quickly access your preferred platform. In addition, the Joy-Pi Advanced features more than 30 stations, lessons, and modules, giving you an unlimited variety of ways to get your projects done.

With the self-developed learning center, you can not only improve your skills but also create new projects. The learning center offers a wealth of information and tutorials that will guide you step by step through your projects.

MAIN FEATURES

Special features	Highly integrated development platform & learning center
	Fast, easy & wireless combination of various sensors & actuators
	Installation option for Raspberry Pi 4
	Compatible with various microcontrollers
	Self-developed, didactic learning platform for Raspberry Pi & Windows
Compatible to	Raspberry Pi 4, Arduino Nano, NodeMCU ESP32, BBC Micro:Bit, Raspberry Pi Pico
Installed sensors, actuators & components	39
Learning platform	over 40 entries in the knowledge database, 10 projects, 10 learning tasks, 14 visions

INCLUDED SENSORS, ACTUATORS & COMPONENTS
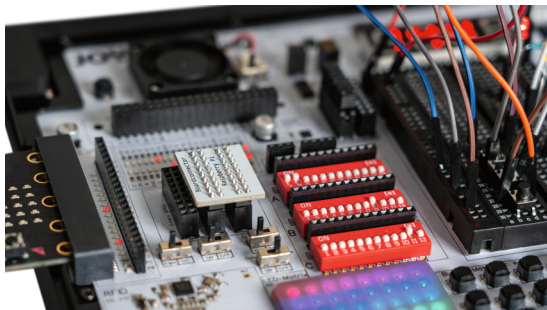
Displays	7-segment display, 16x2 display, 1.8" TFT display, 0.96" OLED display, 8x8 RGB matrix
Sensors	DS18B20, shock sensor, hall sensor, barometer, sound sensor, gyroscope, PIR sensor, Light barrier, NTC, Light sensor, 6x touch sensor, color sensor, ultrasonic distance sensor, DHT11 temperature & humidity sensor
Control	Joystick, 5x switches, potentiometer, rotary encoder, 4x4 button matrix, relays, PWM fan

Motors	Servo interface, Stepper motor interface, Vibration motor
Measuring & Conversion Modules	Analog-Digital Converter, Level converter, voltmeter, Variable voltage supply
Other components	RTC real time clock, buzzer, EEPROM memory, infrared receiver, breadboard, RFID reader

Our Joy-Pi Advanced is characterized in particular by its intelligent switch units, which allow an extended use of the available pins.

A total of three switch units are integrated, each equipped with 12 individual switches that provide precise control of the connected sensors and modules.

This system solves the well-known problem of limited pin count that occurs with conventional microcontrollers. The switch units allow you to operate a large number of sensors and modules in parallel by switching them on and off individually. This simulates multiple pin assignment, allowing you to exploit the full power of your projects without compromising functionality.

INCLUDED ACCESSORIES

Adapter boards	Adapter for NodeMCU ESP32, Arduino Nano & Raspberry Pi Pico, Boardconnectors for Raspberry Pi & External Boards
Electronic components	Infrared remote control, RFID chip, RFID card, 6x alligator clips, microSD card reader, servo motor, stepper motor, 32 GB microSD card
Components	40x resistors, 3x green LEDs, 3x yellow LEDs, 3x red LEDs, 1x transistor, 5x buttons, 1x potentiometer, 2x capacitors
Other accessories	Screw assortment, screwdriver, accessory storage bag, power supply & power cable, servo mount

TECHNICAL SPECIFICATIONS

| Power supply	Built-in power supply: 36W, 12 V, 3 A Case connector: Small device plug C8
Voltage outputs	12 V, 5 V, 3.3 V, Variable voltage output (2 V - 11 V)
Data buses & signal outputs	I2C, SPI, Analog to digital converter
Battery (RTC)	CR2032

ADDITIONAL INFORMATION

Dimensions	327 x 200 x 52 mm
Article no.	RB-JoyPi-Advanced
EAN	4250236825984
Customs tariff no.	8473302000

By combining our innovative adapter boards and the Micro:Bit slot, we achieve seamless compatibility with a wide range of microcontrollers such as Raspberry Pi Pico, NodeMCU ESP32, Micro:Bit and Arduino Nano.

The specially developed adapter boards are designed to perfectly match the respective microcontroller. By plugging the microcontroller onto the appropriate adapter board and then plugging it into the Micro:Bit slot, the Joy-Pi Advanced quickly and easily becomes compatible with the different microcontrollers.

This allows seamless integration of your preferred platform and the ability to combine the strengths of the different microcontrollers in your projects.

This way, you can fully focus on your creative projects without worrying about the compatibility of different microcontrollers. The Joy-Pi Advanced simplifies the development process and gives you the possibility to design your projects flexibly and individually.
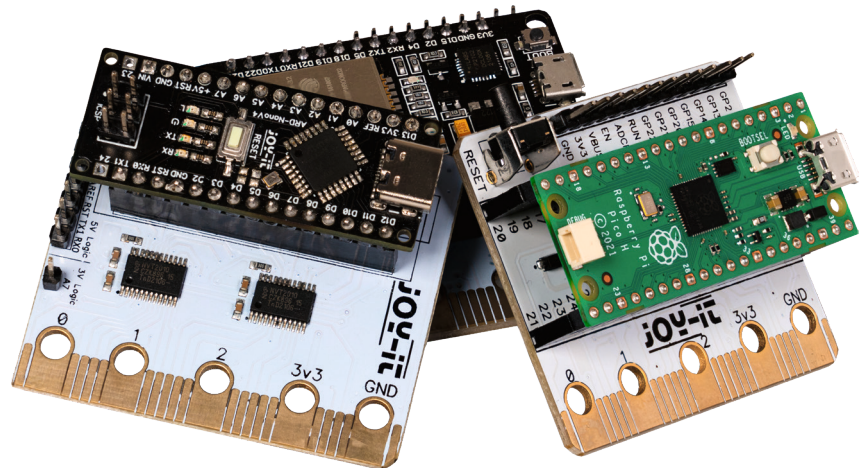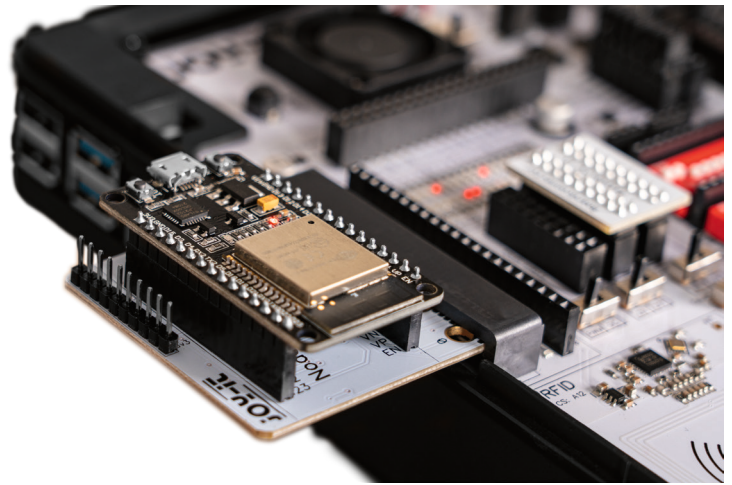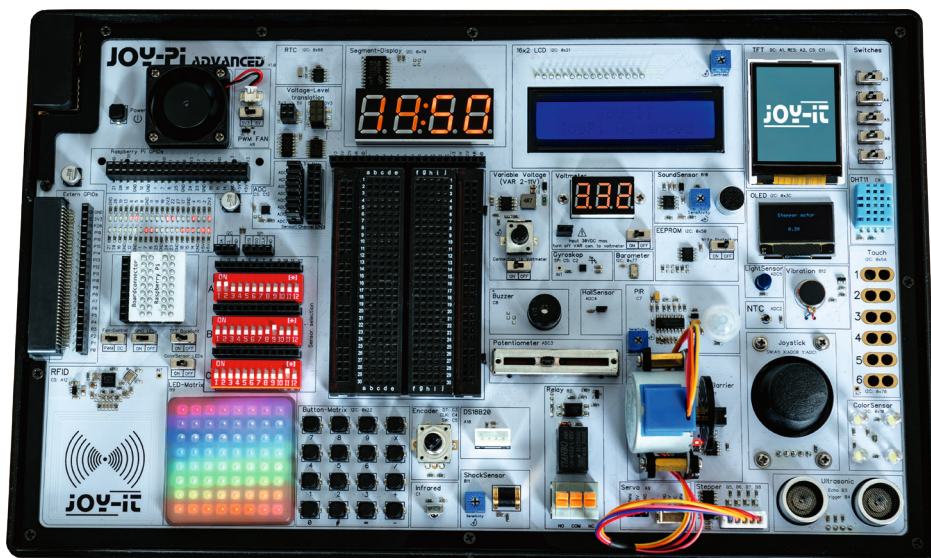
PIN ASSIGNMENTS

RASPBERRY PI	EXPANSION BOARD	SWITCH CHANNEL	SWITCH A SENSOR SELECTION	SWITCH B SENSOR SELECTION	SWITCH C SENSOR SELECTION
GPIO 15	P0	1	1.8" TFT Display (D/C)	Light barrier	Infrared receiver
GPIO 14	P1	2	1.8" TFT Display (RESET)	Relay	Gyroscope (CS)
GPIO 17	P2	3	Switch 1	Ultrasonic distance sensor (Echo)	Rotary Encoder (DT)
GPIO 27	P3	4	Switch 2	Ultrasonic distance sensor (Trigger)	Rotary Encoder (CLK)
GPIO 22	P4	5	Switch 3	Stepper motor (Step 1)	Rotary Encoder (SW)
GPIO 23	P5	6	Switch 4	Stepper motor (Step 2)	/
GPIO 24	P6	7	Switch 5	Stepper motor (Step 3)	PIR sensor
GPIO 4	P7	8	PWM fan	Stepper motor (Step 4)	Buzzer
GPIO 18	P8	9	Servo motor	RGB matrix	DHT11 sensor
GPIO 25	P9	10	DS18B20 sensor	Sound sensor	/
GPIO 6	P10	11	Joystick	Shock sensor	1.8" TFT-Display (CS)
GPIO 8	P16	12	RFID (CS)	Vibration motor	ADC (CS)

ADC	
A0	Joystick (X axis)
A1	Joystick (Y axis)
A2	NTC
A3	Potentiometer
A4	Hall sensor
A5	LDR
A6	/
A7	/

I2C	
0x10	Color sensor
0x21	16x2 LCD display
0x22	Button matrix
0x3C	OLED display
0x50	EEPROM memory
0x5A	Touch sensor
0x68	RTC
0x70	7-Segment display
0x77	Barometer

SPI		
CHIP SELECT (RPI)	CHIP SELECT (MICRO:BIT)	MODULE
GPIO 14	P1	Gyroscope
GPIO 8	P16	RFID
GPIO 6	P10	1.8" TFT
GPIO 8	P16	ADC

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