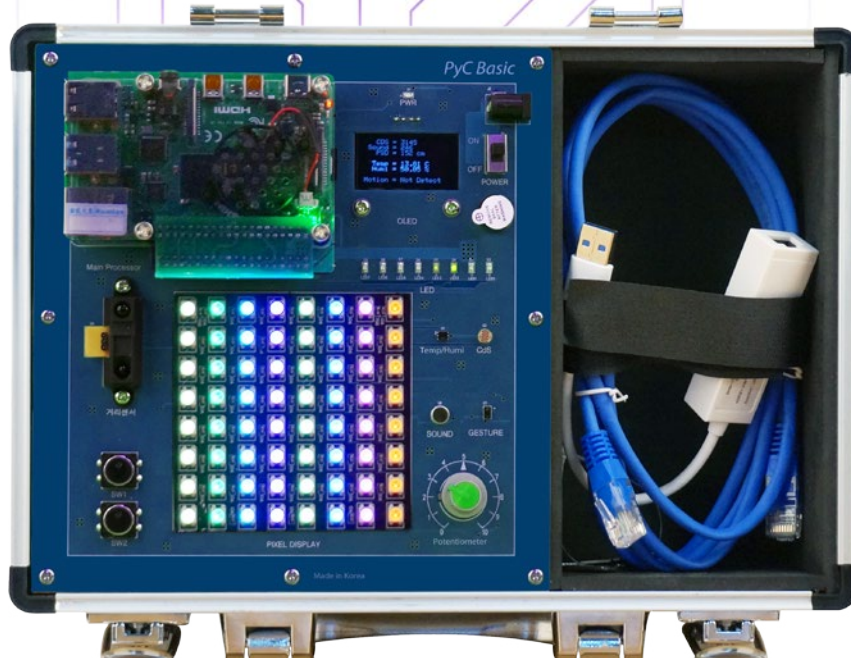


Introductory Equipment for
AIoT Programming for Data Science & AI



PyC Basic



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Product Features

PyC Basic



- ⌚ Introductory equipment for AIoT programming for data science and AI learning
- ⌚ A Single board for high-performance ARM Cortex-A72 quad-core processor module and I/O peripherals optimized for programming learning
- ⌚ Provides Gigabit Ethernet, dual band Wi-Fi(2.4GHz, 5GHz) and Bluetooth 5.0
- ⌚ Provides the latest peripherals such as OLED, 8x8 Pixel Display and Gesture Sensor to increase immersion
- ⌚ Interpreter-based C/C++ development environments optimized for programming beginners, including Python 3
- ⌚ Soda OS, the exclusive AIoT operating system, and Pop library
- ⌚ A dedicated web browser-based learning environment for training Python 3 and C/C++ simultaneously on PCs and tablets
- ⌚ mDNS/DNS-SD based distributed name resolution, network service publishing and discovery support
- ⌚ Open Integrated development environment based on Visual Studio Code for professional application development
- ⌚ Dedicated contents for learning programming languages needed to implement data science and AI



Software Specifications

	List	Specifications
Soda OS	Linux Kernel	4.19
	Desktop	X-Server, Openbox, LightDM, Tint2, blueman, network-manager, conky
	CLI	Zsh, Tmux, Peco, powerlevel9k thema, Powerline fonts
	Tool Chain	GCC 9, JDK, Node JS, Python3, Clang
	IDE	Visual Studio Code, NeoVim, Geany
	Connectivity	Mosquitto(MQTT), Bluez, mtr, nmap, iptraf, Samba, Blynk Server, Remove Desktop Server
	Multimedia	portaudio, sox, OpenCV 4, snowboy, Google Assistant
	Data Science & AI	Python3, Numpy, Matplotlib, sympy, Pandas, Seaborn, Scipy, Gym, Scikit-learn, Tensorflow, Keras
Pop Library	Output Object (C/C++, Python3)	Led, Laser, Buzzer, Relay, RGBLed, DCMotor, StepMotor, OLED, PiezoBuzzer, PixelDisplay, TextLCD, FND, Led Bar
	Input Object (C/C++, Python3)	Switch, Touch, Reed, LimitSwitch, Mercury, Knock, Tilt, Opto, Pir, Flame, LineTrace, TempHumi, UltraSonic, Shock, Sound, Potentiometer, CdS, SoilMoisture, Thermistor, Temperature, Gas, Dust, Psd, Gesture
	Multimedia (Python3)	AudioPlay, AudioPlayList, AudioRecord, Tone, SoundMeter
	Voice Assistant (Python3)	GAssistant, create_conversation_stream
	AI (Python3)	Linear Regression, Logistic Regression, Perceptron, ANN, DNN, CNN, DQN



Hardware Specifications

List	Specifications
Base Board	Power: 5V 4A Main Module Part Peripheral Part Size: 174 x 184mm
Main Module	CPU: Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz Memory: 2GB LPDDR4-3200 Connectivity: Gigabit Ethernet, Wi-Fi 2.4G & 5G 802.11ac, Bluetooth 5.0, BLE USB: USB 3.0 2port, 2.0 2port HDMI: micro-HDMI 2port (up to 4kp60 supported) Codec: H.265 (4kp60 decode), H264 (1080p60 decode, 1080p30 encode) Graphics: OpenGL ES 3.0 Data Storage: 32 GB Micro SD GPIO: 40 pin GPIO header (fully backwards compatible with previous boards) 2-lane MIPI DSI display port 2-lane MIPI CSI camera port Power supply: 5V DC via USB-C connector, 5V DC via GPIO header
Peripheral	OLED Driver IC: SSD1315 Size: 1.3 inch Resolution: 128x64 Color: White Interface: I ² C Supply Voltage: 3V3 ~ 5V
	Passive Buzzer Rated Current: Max30mA Sound Output at 10cm(dB): Min85dB Interface: GPIO Operating Voltage: 3.3V
	LED x 8EA Color: Red Interface: GPIO Supply Voltage: 3.3V
	PIXEL DISPLAY Color: pixel RGB IC: WS2811 Pixel: 8x8 Operating Voltage: 5V Power: 0.3W/pixel Waterproof level: Non-waterproof Interface: GPIO (Serial protocol) Size: 80 x 80mm
	DISTANCE MEASURING SENSOR Sensor: PSD Detecting distance: 2~40cm Interface: Analog Output Supply Voltage: 3.3V
	SWITCH x 2EA Interface: GPIO Supply Voltage: 3.3V
	HUMIDITY & TEMPERATURE SENSOR Humidity Resolution: 12bit(0.04%RH), 8bit(0.7%RH) Humidity Accuracy: +-3%RH Temperature Resolution: 14bit(0.01C), 12bit(0.04C) Temperature Accuracy: +-4°C Interface: I ² C Supply Voltage: 3.3V
	ILLUMINANCE SENSOR Sensor : CdS Operating Voltage : 3.3V Interface : Analog Output
	SOUND SENSOR Sensor : Microphone Sensitivity : -40dB Operating Voltage : 3.3V Interface : Analog Output
	GESTURE SENSOR Sensor : Digital Proximity Operating Voltage : 3.3V Interface : I ² C
POTENTIOMETER Sensor : 10k(ohm) Variable Resistor Feature : 0~3.3V DC Variable Voltage out Interface : Analog Output Supply Voltage: 3.3V	

Training Contents

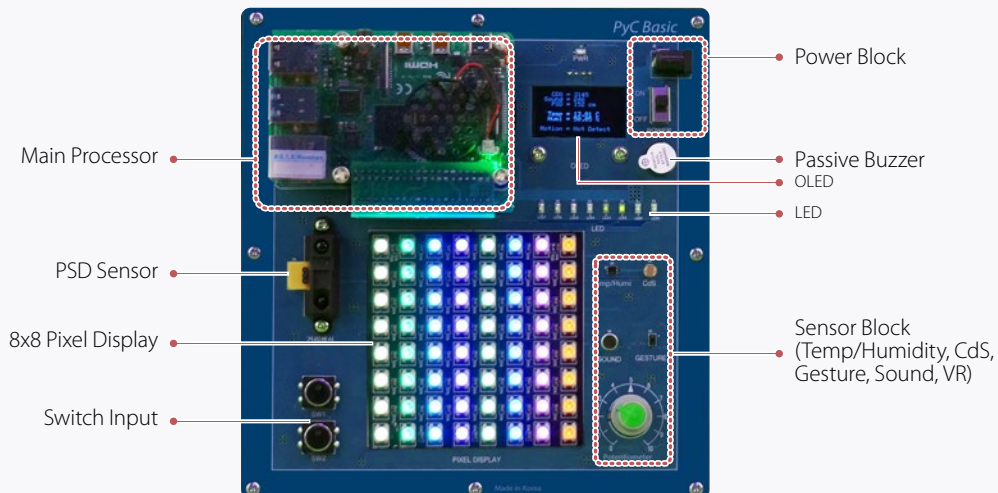
Understanding Programming Syntax for Python3 & C/C++

PyC Basic Lab Environment
 Keyword and Syntax Structure
 Variable, Constant, Literal
 Material Types and Operators
 Selection and Iterative Control Structure
 Functions & Parameters, and Factors
 Class
 Advanced Features

Improving Problem Solving Capability

Basic Flow Exercise
 Counter Condition Repeat Exercise
 Logic Conditional Iterative Exercise
 Nested Looping Exercise
 Formal Repetitive Exercise
 1-D Array Exercise
 2-D Array Exercise
 Sorting Exercise
 Array Application Exercise
 Multiple Condition Exercise
 Advanced Application Exercise

Layout



Product Configuration



Platform USB
 (include OS image and Tools)
 1EA



5V 4A Power Adapter
 1EA



Micro SD Adapter
 1EA



USB to Ethernet
 Adapter
 1EA



Ethernet Cable
 1EA



User Guide book
 1EA