
REVOLUTION PI
The Industrial Pi
POWERED BY
Raspberry Pi
revolutionizing the automation industry
since 2016


PLEASE ALLOW
ME TO
INTRODUCE
MYSELF...

# The Swiss knife of automation & IIoT

The success story of the single-board computer Raspberry Pi has been unbroken since its introduction in 2012. By launching the very first Revolution Pi models in 2016, we expanded its success story to the industrial world.

Revolution Pi has been the first truly industry-compatible IPC based on Raspberry Pi. By using the Raspberry Pi Compute Module we were able to develop a robust and industry-compatible periphery which meets all important industrial standards incl. IEC 61131-2.

Depending on the requirements of the application, the RevPi base modules can be easily extended by expansion modules such as digital and analog IO modules as well as fieldbus gateways.


# That‘s why we call the Revolution Pi

# the Swiss knife of automation & IIoT

# Software? Your choice!

Although Revolution Pi is an open system on which everyone can install their own software, we have tried to equip Revolution Pi with software and apps that cover most applications.

Therefore, Revolution Pi comes with a customized version of Raspberry Pi OS. The modifications include, for example, a real-time patch of the kernel, as well as a process image, in which all the current process values can easily be written in or read from. In our view, this is the best compromise to remain as close as possible to the original development environment of a Raspberry Pi and still maintain a high level of control over the priorities of the tasks that the scheduler manages.

Node-RED

Individual applications can be programmed via Node-RED, Python or directly in C, among others. If this is not flexible enough for you, you can even build your own custom image for your system. All necessary files are waiting for you at our GitHub repository.

Besides writing your own code, you can use off-the-shelf software solutions such as CODESYS to realize your project.

CODESYS

Furthermore, the devices already have client and server capability for the popular Modbus RTU and Modbus TCP network protocols. External gateways are therefore no longer required for these two protocols.

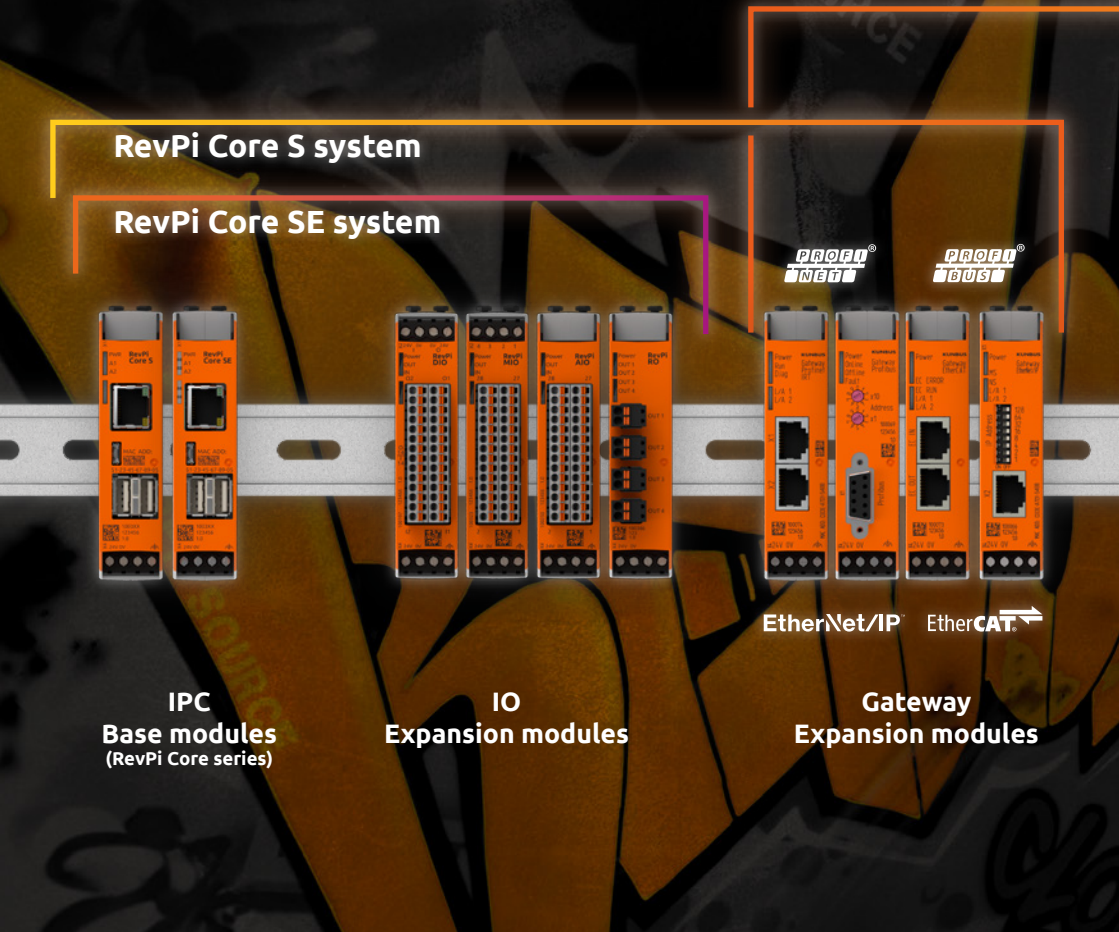
# Cloud connectivity

Collecting sensor data, processing it and sending the processed data to a cloud is one of the Revolution Pi's strengths. Therefore, Revolution Pi has been certified by major cloud platforms.

The certification ensures that the integration with the most important cloud platforms, such as Microsoft Azure, Amazon Web Services or Cumulocity IoT can be done as smoothly and easily as possible.



# RevPi device connectivity overview



RevPi Connect S system

RevPi Connect SE system

RevPi Connect 4 system

**IO**
**Expansion modules**

**IPC**
**Base modules**
**(RevPi Connect series)**

**Gateway**
**Expansion modules**
**(RevPi Con modules)**

# RevPi Connect 4

## Base modules powered by Compute Module 4


| Device | WLAN | RAM | eMMC | SKU |
|---|---|---|---|---|
| RevPi Connect 4 | No | 2 GB | 8 GB | 100376 |
| RevPi Connect 4 | Yes | 2 GB | 8 GB | 100377 |
| RevPi Connect 4 | No | 4 GB | 32 GB | 100378 |
| RevPi Connect 4 | Yes | 4 GB | 32 GB | 100379 |

| Device | WLAN | RAM | eMMC | SKU |
|---|---|---|---|---|
| RevPi Connect 4 | No | 8 GB | 32 GB | 100395 |
| RevPi Connect 4 | Yes | 8 GB | 32 GB | 100380 |

# KEY SPECS

| | |
|---|---|
| **Processor** | Broadcom BCM2711, quad-core ARM Cortex-A72 |
| **Clock rate** | 1.5 GHz |
| **RAM** | up to 8 GB LPDDR4 |
| **eMMC flash memory** | 8 GB / 16 GB / 32 GB |
| **Power supply** | 12 - 24 V DC |
| **Size (H x W x D)** | 96 x 45 x 111 mm |
| **Operating temperature** | -25 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **EMI/ Surge/Burst tests*** | Passed |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

# INTERFACES

| **Interfaces** | **Quantity** |
|---|---|
| RJ45 Gigabit Ethernet ports | 2 |
| USB 3.2 Gen 1 sockets | 2 |
| Micro HDMI socket (HDMI 2.0 (4K)) | 1 |
| Micro USB 2.0 socket (for firmware uploads only) | 1 |
| PiBridge (for RevPi expansion modules) | 2 |
| SMA socket for connecting an optional antenna | 1** |
| RS485 screw terminal (4 pole) | 1 |
| Freely programmable 24 V input | 1 |
| Freely programmable relay switching contact | 1 |

* (acc. to EN61131-2 & IEC 61000-6-2)

** only on devices with WLAN functionality

**More details and specs:**

# RevPi Connect S / SE

## Base modules powered by Compute Module 4S


| Device | SKU |
|---|---|
| RevPi Connect S 8 GB | 100362 |
| RevPi Connect S 16 GB | 100363 |
| RevPi Connect S 32 GB | 100364 |

| Device | SKU |
|---|---|
| RevPi Connect SE 8 GB | 100368 |
| RevPi Connect SE 16 GB | 100369 |
| RevPi Connect SE 32 GB | 100370 |

# KEY SPECS

| | |
|---|---|
| **Processor** | Broadcom BCM2711, quad-core ARM Cortex-A72 |
| **Clock rate** | 1.5 GHz |
| **RAM** | 1 GB LPDDR4 |
| **eMMC flash memory** | 8 GB / 16 GB / 32 GB |
| **Power supply** | 12 - 24 V DC |
| **Size (H x W x D)** | 96 x 45 x 110.5 mm |
| **Operating temperature** | -25 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **ESD protection** | 4 kV/8 kV |
| **EMI/ Surge/Burst tests*** | Passed |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

# INTERFACES

| **Interfaces** | **Quantity** |
|---|---|
| RJ45 Ethernet ports (10/100 Mbit/s) | 2 |
| USB 2.0 sockets | 2 |
| Micro HDMI socket (HDMI 2.0 (4K)) | 1 |
| Micro USB 2.0 socket (for firmware uploads only) | 1 |
| PiBridge (for RevPi expansion modules) | 1 |
| ConBridge (for RevPi Con expansion modules) | 1 |
| RS485 screw terminal (4 pole) | 1 |
| 24 V input for shutdown signal of an UPS | 1 |
| Freely programmable relay switching contact | 1 |

* (acc. to EN61131-2 & IEC 61000-6-2)

**More details and specs:**

# RevPi Core S / SE

## Base modules powered by Compute Module 4S


| Device | SKU |
|---|---|
| RevPi Core S 8 GB | 100359 |
| RevPi Core S 16 GB | 100360 |
| RevPi Core S 32 GB | 100361 |

| Device | SKU |
|---|---|
| RevPi Core SE 8 GB | 100365 |
| RevPi Core SE 16 GB | 100366 |
| RevPi Core SE 32 GB | 100367 |

# KEY SPECS

| | |
|---|---|
| **Processor** | Broadcom BCM2711, quad-core ARM Cortex-A72 |
| **Clock rate** | 1.5 GHz |
| **RAM** | 1 GB LPDDR4 |
| **eMMC flash memory** | 8 GB / 16 GB / 32 GB |
| **Power supply** | 12 - 24 V DC |
| **Size (H x W x D)** | 96 x 22.5 x 110,5 mm |
| **Operating temperature** | -25 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **ESD protection** | 4 kV/8 kV |
| **EMI/ Surge/Burst tests*** | Passed |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

# INTERFACES

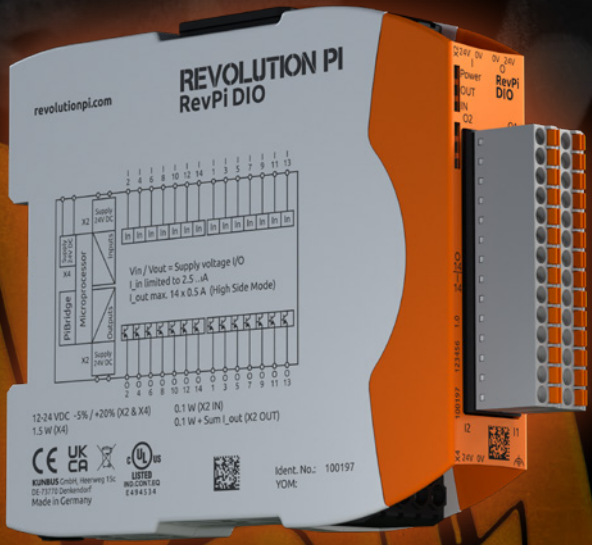
| **Interfaces** | **Quantity** |
|---|---|
| RJ45 Ethernet port (10/100 Mbit/s) | 1 |
| USB 2.0 sockets | 2 |
| Micro HDMI socket (HDMI 2.0 (4K)) | 1 |
| Micro USB 2.0 socket (for firmware uploads only) | 1 |
| PiBridge (for RevPi expansion modules) | 2 |

* (acc. to EN61131-2 & IEC 61000-6-2)

**More details and specs:**

# RevPi DIO / DI / DO

## Digital IO expansion modules




| Device | Function | SKU |
|---|---|---|
| RevPi DIO | Digital IO module | 100197 |
| RevPi DI | Digital Input module | 100195 |
| RevPi DO | Digital Output module | 100196 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | 12 - 24 V DC |
| **Max. power consumption** | 1.5 Watt (X4/power supply) |
| **Size (H x W x D)** | 96 x 22.5 x 110.5 mm |
| **Operating temperature** | -40 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **Connectors** | 2 x 14-pin socket connectors with spring clamp contacts (0.2 - 1.5 mm²) |
| **Input current limitation** | 2.4 mA (at 24 V power supply) |
| **Maximum current per output** | 500 mA (high-side mode), 100 mA (push-pull mode) |
| **Surge/Burst tests*** | Passed |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

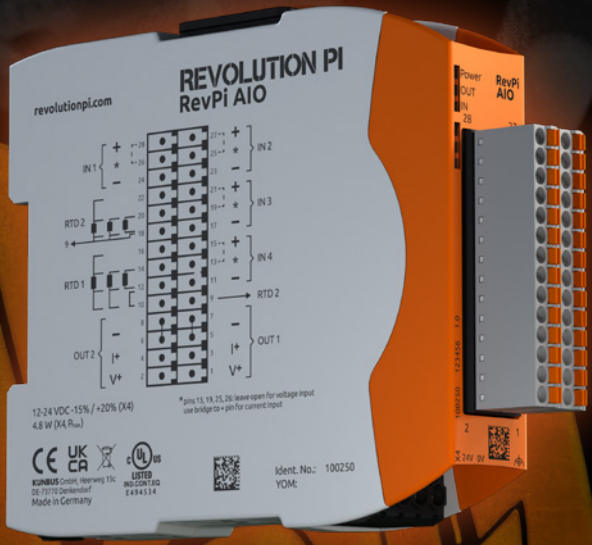
# INTERFACES

| Device | No. of digital Inputs | No. of digital Outputs |
|---|---|---|
| RevPi DIO | 14 | 14 |
| RevPi DI | 16 | 0 |
| RevPi DO | 0 | 16 |

More details and specs:

# RevPi AIO

## Analog IO expansion module




| Device | Function | SKU |
|---|---|---|
| RevPi AIO | Analog IO module | 100250 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | 12 - 24 V DC |
| **Size (H x W x D)** | 96 x 22.5 x 110.5 mm |
| **Operating temperature** | -30 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **Connectors** | 2 x 14-pin socket connectors with spring clamp contacts (0.2 - 1.5 mm²) |
| **Voltage measuring range** | ±10 V \| ±5 V \| 0 … 10 V \| 0 … 5 V |
| **Current measuring range** | 0 … 20 mA \| 0 … 24 mA \| 4 … 20 mA \| ±25 mA |
| **Temperature measuring range** | -200 … +850 °C |
| **Voltage output range** | ±10 V \| ±11 V \| ±5 V \| ±5.5 V \| 0 … 10 V \| 0 … 11 V \| 0 … 5 V \| 0 … 5.5 V |
| **Current output range** | 0 … 20 mA \| 0 … 24 mA \| 4 … 20 mA |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

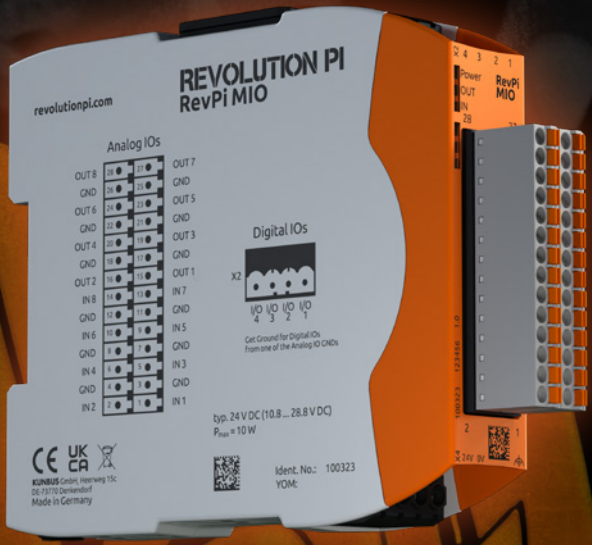
# INTERFACES

| **Interface** | **Quantity** |
|---|---|
| Input channels | 6 |
| for voltage | max. 4 |
| for current | max. 4 |
| for RTD (PT100/PT1000) | 2 |
| Output channels | 2 |
| for voltage | max. 2 |
| for current | max. 2 |

**More details and specs:**

# RevPi MIO

## Analog & Digital IO expansion module




| Device | Function | SKU |
|---|---|---|
| RevPi MIO | Analog & Digital IO module | 100323 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | 24 V DC (10.8 ... 28.8 V DC) |
| **Max. power consumption (system)** | 10 W |
| **Size (H x W x D)** | 96 x 22.5 x 110.5 mm |
| **Operating temperature** | -20 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **Connectors** | 2 x 14-pin socket connectors with spring clamp contacts (0.2 - 1.5 mm²) |
| **Analog IO voltage range** | 0 … 10 V DC |
| **Analog IO modes** | Analog input, analog output, logic level input, logic level output |
| **Digital IO modes** | Digital input, digital output, PWM input, PWM output, pulse input, pulse output, encoder input |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

# INTERFACES

| **Analog IO** | **Quantity** |
|---|---|
| Analog Input | 8 |
| Analog Output | 8 |

| **Digital IO** | **Quantity** |
|---|---|
| Digital Input/Output | 4<br>configurable via software either as digital inputs or digital outputs |

**More details and specs:**

# RevPi RO

## Relay output expansion module


| Device | Function | SKU |
|---|---|---|
| RevPi RO | Relay output module | 100386 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | 24 V DC (10.8 ... 28.8 V DC) |
| **Max. power consumption (system)** | 2.5 W |
| **Size (H x W x D)** | 96 x 22.5 x 126 mm (incl. connectors) |
| **Operating temperature** | -20 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 85 %, non-condensing |
| **Protection class** | IP20 |
| **Relay type** | NO (normally open) |
| **Resistive load** | 5 A at 250 V AC / 5 A at 30 V DC |
| **Inductive load (cos φ = 0.4, L/R = 7 ms)** | 2 A at 250 V AC / 2 A at 30 V DC |
| **CE, RoHS** | Yes |
| **UL** | in progress |

# INTERFACES

| | |
|---|---|
| No. of Outputs | 4 |
| Connectors | 4 x 2-pin socket connectors with spring clamp contacts (0.08 - 1.5 mm²) |

**More details and specs:**

# RevPi Gates

## Fieldbus gateways expansion modules


| Device | Protocol | SKU |
|---|---|---|
| RevPi Gate PROFINET IRT | PROFINET IRT Device | 100074 |
| RevPi Gate EtherCAT | EtherCAT Slave | 100073 |
| RevPi Gate EtherNet/IP | EtherNet/IP Adapter | 100066 |
| RevPi Gate PROFIBUS | PROFIBUS Slave | 100069 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | 24 V DC (10.8 ... 28.8 V DC) |
| **Size (H x W x D)** | 96 x 22.5 x 110.5 mm |
| **Operating temperature** | 0 °C … +60 °C |
| **Storage temperature** | -25 °C … +70 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **CE, RoHS** | Yes |
| **UL** | Yes, UL-File-No. E494534 |

PROFINET® EtherNet/IP™ EtherCAT® PROFIBUS®

Like the IO expansion modules, the gateways are also connected to the base module via the overhead PiBridge connector. Thus, up to two gateway modules (maximum of 2 for RevPi Core S and 1 for RevPi Connect S) can be used per system.

**Please note, that these fieldbus gateways are not suitable for RevPi Connect 4, RevPi Connect SE, and RevPi Core SE series.**

More details and specs:

# RevPi Con

## Gateway expansion modules, exclusively for RevPi Connect S/SE


| Device | Protocol | SKU |
|---|---|---|
| RevPi Con MBus | Wireless M-Bus 868 MHz | 100281 |
| RevPi Con MBus VHP | Wireless M-Bus 169 MHz | 100282 |
| RevPi Con CAN | CAN bus | 100286 |

# KEY SPECS

| | |
|---|---|
| **Power supply** | Power supply via ConBridge |
| **Size (H x W x D)** | 96 x 22.5 x 110.5 mm |
| **Operating temperature** | -20 °C … +60 °C |
| **Storage temperature** | -40 °C … +70 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **CE, RoHS** | Yes |

Besides the PiBridge, the RevPi Connect S/SE modules have a so-called ConBridge connector. This interface makes it possible to connect special expansion modules to the right side of the base module, called RevPi Con modules.

In addition to data transfer, the ConBridge also supplies power to these modules, unlike the usual expansion modules that are connected via the PiBridge. Like all other expansion modules for Revolution Pi, the RevPi Con expansion modules are housed in a 22.5 mm wide DIN rail housing.

**Please note, that the RevPi Con expansion modules are not suitable for RevPi Connect 4.**

More details and specs:

# RevPi Flat S

## powered by Compute Module 4S

The RevPi Flat S is a non-modular device which can be due to its size spacesavingly installed in sub-distribution cabinets.


| Device | SKU |
|---|---|
| RevPi Flat S | 100371 |

**More details about RevPi Flat S:**

# KEY SPECS

| | |
|---|---|
| **Processor** | Broadcom BCM2711, quad-core ARM Cortex-A72 |
| **Clock rate** | 1.5 GHz |
| **RAM** | 1 GB LPDDR4 |
| **eMMC flash memory** | 32 GB |
| **Power supply** | typ. 24 V DC (10.8 … 28.8 V DC) |
| **Size (H x W x D)** | 90 x 106 x 70 mm |
| **Operating temperature** | -25 °C … +55 °C |
| **Storage temperature** | -40 °C … +85 °C |
| **Humidity** | 93 %, non-condensing |
| **Protection class** | IP20 |
| **EMC interference emission** | according to EN 61000-6-4 |
| **EMC immunity** | according to EN 61000-6-2 |
| **CE, RoHS** | Yes |

# INTERFACES

| **Interfaces** | **Quantity** |
|---|---|
| RJ45 Ethernet ports (10/100 Mbit/s) | 4* |
| USB 2.0 sockets | 2 |
| RS485 (spring-loaded terminal) | 1 |
| RS485 (RJ12 socket) | 1 |
| Digital Output (potential free) | 1 |
| Analog Output (0-10 V DC) | 1 |
| Analog Input (0-10 V DC or 0 ... 20 mA) | 1 |
| WLAN (RP-SMA socket) | 1 |

* two or four separate MAC addresses for LAN0/switch or LAN0 ... LAN3;
LAN0: 1 x Ethernet; LAN1: 3 x Ethernet switched or single (DSA)

# RevPi Compact

## powered by Compute Module 3+

Contrary to the standard Revolution Pi design, the RevPi Compact is not modular. In order to meet most common application requirements, the RevPi Compact is equipped with a large number of digital and analog inputs and outputs. The device has eight digital inputs and eight digital outputs. For analog sensors or actuators, the device is also equipped with eight analog inputs (0 – 10 V) and two analog outputs (0 – 10 V).


| Device | SKU |
|---|---|
| RevPi Compact | 100272 |

**More details about RevPi Compact:**

# White labeling – Revolution Pi with your logo and name

For all those who like it more individual and exclusive, we have the perfect solution: If you decide to use Revolution Pi as the standard hardware for your next project, we will manufacture our Revolution Pi modules according to your wishes.

We laser engrave your logo, adapt the device color to your corporate identity and even flash your own software image. This way, you don't have to spend your time on hardware development and can focus on your core business, which in turn shortens the time-to-market of your own solution – a classic win-win situation.

If white labeling and customization sound interesting to you or if you have any further questions concerning this topic, don`t hesitate to get in touch with us.



More details:

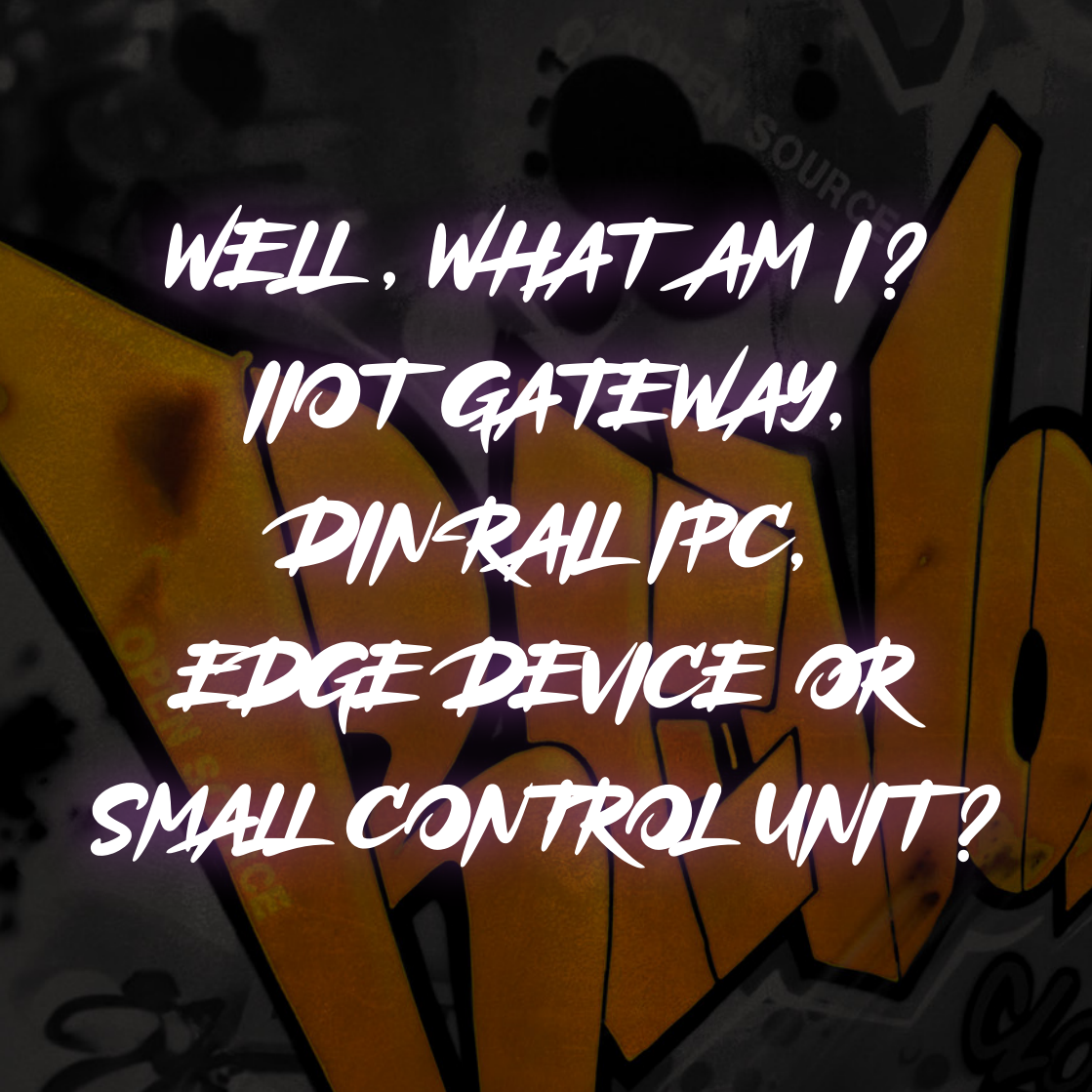
# KUNBUS

## the company behind Revolution Pi

Prior to the development of Revolution Pi, KUNBUS, founded in 2008, was initially at home in the field of industrial communication by developing and offering communication solutions for automation, process, manufacturing, and drive technology. Our deep knowledge of the industrial communication branch not only serves as a foundation for our past successes but also plays an instrumental role in the ongoing development and improvement of Revolution Pi.

## Revolution Pi – Made in Germany

We are particularly proud of the fact that our devices are not only engineered by us, but also produced – in accordance with ISO 9001 – in our own production facilities in Germany. This enables us to meet and verify the high quality standards that our customers and we ourselves demand. Regular quality controls, which ensure complete traceability of batches and 100 % end-of-line tests, play an important role.


WELL, WHAT AM I?
IIOT GATEWAY,
DIN-RAIL IPC,
EDGE DEVICE OR
SMALL CONTROL UNIT?


IT'S YOUR CALL!


revolutionpi.com

REVOLUTION PI

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