REVOLUTION PI

The Industrial 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

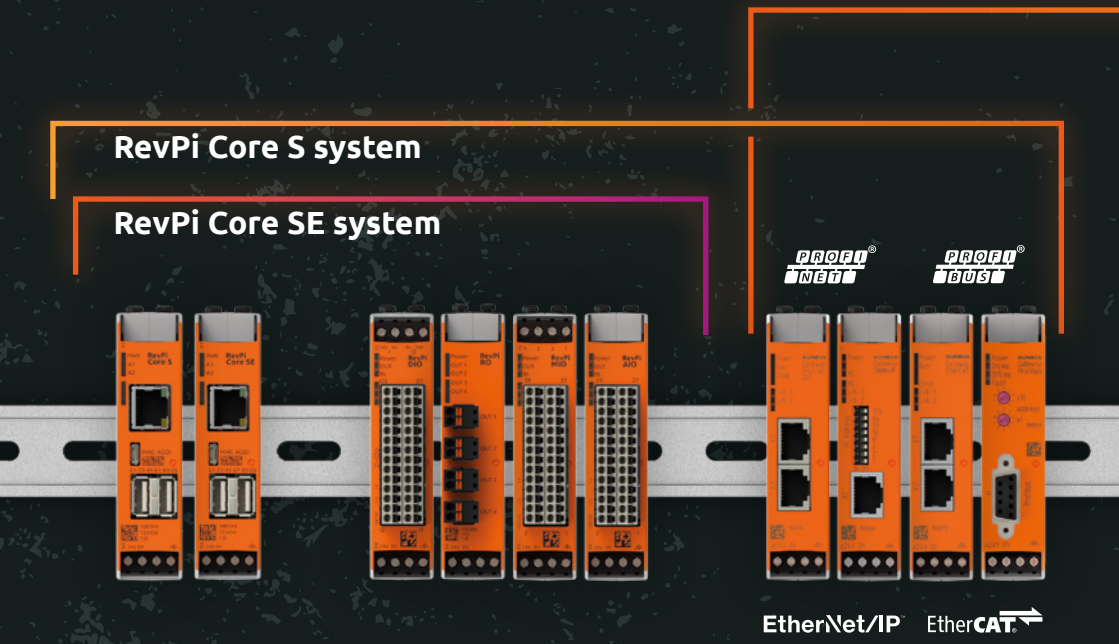
Furthermore, the devices already have client and server capability for the popular Modbus RTU and Modbus TCP network protocols. External gateways are therefore no longer required for these two protocols.

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



IPC
Base modules
(RevPi Core series)

IO
Expansion modules

Gateway
Expansion modules

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

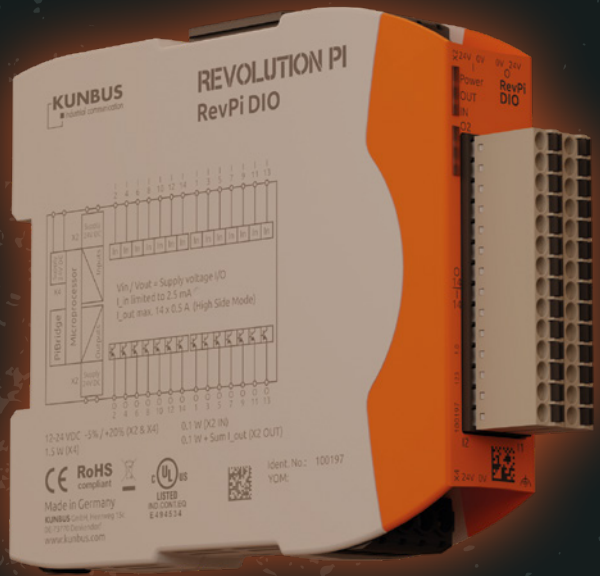
Interfaces	**Quantity**
RJ45 Ethernet port (10/100 Mbit/s)	1
USB 2.0 sockets	2
Micro HDMI socket (HDMI 2.0 (4K))	1
Micro USB 2.0 socket (for firmware uploads only)	1
PiBridge (for RevPi expansion modules)	2

* (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

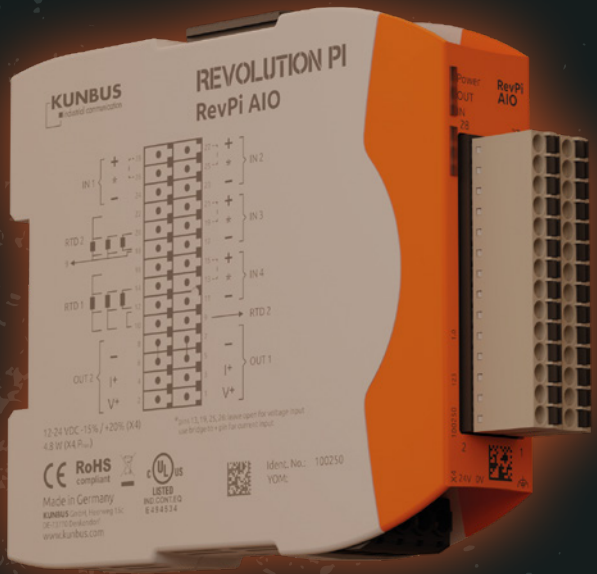
INTERFACES

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

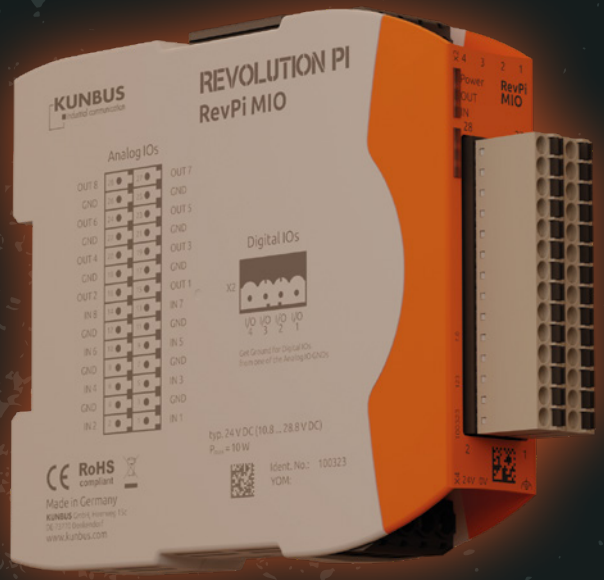
INTERFACES

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 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)	1
WLAN (SMA socket)	1

* two separate MAC addresses for LAN0 and
LAN1 -> LAN0: 1 x Ethernet; LAN1: 3 x Ethernet switched

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 8 digital outputs. For analog sensors or actuators, the device is also equipped with 8 analog inputs (0 – 10 V) and 2 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:

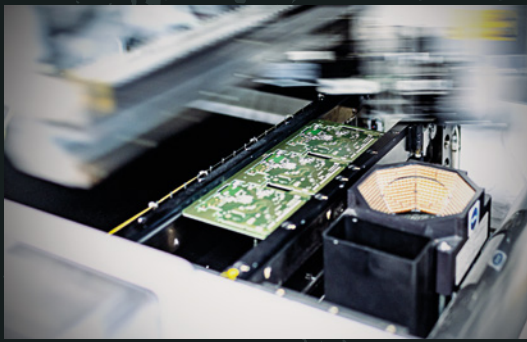
KUNBUS

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. Despite the remarkable strides we've made with Revolution Pi, the industrial communication branch continues to hold a crucial place in our mission and remains vital to our commitment to enhancing connectivity and efficiency in industrial settings. 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!

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