REVOLUTION PI

RevPi Connect

Article No.: 100274



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Technical Data

Housing dimensions (H x W x D)	96 x 45 x 110.5 mm	
Housing type	DIN rail housing (for DIN rail version EN 50022)	
Housing material	Polycarbonate	
Weight	approx. 197 g / 224 g (incl. connectors)	
IP Code	IP20	
Power supply	12-24 V DC -15%-/ +20%	
Max. power consumption	20 Watt (incl. 1 A total USB output current) ¹	
Operating temperature	-40 °C+55 °C ²	
Storage temperature	-40 °C+85 °C	
Humidity (at 40°C)	93% (non-condensing)	
Interfaces	2 x USB A (Total current draw from both sockets max. 1 A) ³ 2 x RJ45 10/100 Ethernet (using separate MAC addresses) 1 x RS485 screw-type terminal (not galvanically isolated) 1 x Micro-USB (solely for image transfer to eMMC) 1 x Micro HDMI 1 x PiBridge system bus 1 x ConBridge system bus	
Connectors	1 x 4-pole screw-type terminal for relay contact and signal input 1 x 8-pole spring clamp connector for power supply	
Processor	Broadcom BCM2837 quad-core ARM Cortex A53 (ARMv8)	
Clock rate	1.2 GHz ²	
Processor cooling	Passive with heat sink	
RAM	1 GByte	
Flash memory	4 GByte	

¹ The average power consumption without USB load varies greatly and depends on the use of the interfaces, the GPU and the CPU. It is usually well below 4 watts without HDMI.

² There should be no cutbacks of power at ambient temperatures below 20°C. At 25°C ambient temperature 3 cores may run with full clock speed while with 4 cores the clock frequency is lowered from 1.2 to 1.1 GHz after 10 to 20 minutes of full stress. At 40°C ambient temperature 4 cores under full stress will still work with 1 GHz while stressing just 1 core results in no down clocking. At 50°C ambient temperature 4 fully stressed cores are running at average 0.7 GHz, having short down clockings to 0.6 GHz and short up clockings to 0.9 GHz. 1 core under full stress does result in no down clocking. At 65°C ambient temperature and either 4 or 1 core under full stress results in an "emergency mode" with just 0.4 GHz, after longer periods even 0.3 GHz.

³ 1 A USB output current (total of both USB outputs) is only available for input voltages >11 V. The bridging time of at least 10 ms required by EN 61131-2 is only guaranteed with a 20.4 to 28.8 V power supply. With a 12 V power supply, this time is significantly reduced, especially when power is drawn from the USB ports.

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Number of digital input channels	1	
Input type	24 V control voltage (e.g. for power-good signal of a UPS)	
Input thresholds	approx. 3.0V (0 -> 1) / 2.3V (1 -> 0)	
Input protection	against overvoltage, negative voltages	
Number of digital output channels	1	
Output type	Relay contact, approval up to 30 V switching voltage (e.g. for power supply of a router)	
Maximum current load of the contact	2A @ 30V DC (resistive load!)	
Software integration of input and output	Via GPIOs and process image. Output is optionally switched by hardware watchdog	
Hardware watchdog functionality	Can be disabled by bridging the 8-pin connector. Reset by toggling a GPIO or alternatively a bit in the process image	
Hardware watchdog intervall	Trigger after approx. 60 seconds without toggling the reset bit	
Compatible modules for system expansion	All RevPi IO modules and RevPi Gate modules can be connected via the PiBridge system bus. Various transceiver modules can be connected via the ConBridge system bus.	
Protection of the power supply inputs	Reverse polarity protected, overvoltage protection	
ESD protection	4 kV / 8 kV (according to EN61131-2 and IEC 61000-6-2)	
EMI tests	Passed (according to EN61131-2 and IEC 61000-6-2)	
Surge/Burst tests	Passed (according to EN61131-2 and IEC 61000-6-2)	
Buffer time RTC	min. 24 h	
Optical indicator	6 status LEDs (bi-color), two of them freely programmable	
RoHS conformity	Yes	
CE conformity	Yes	



No appetite for restrictions?

Use RevPi Connect to realize your IIoT ideas!

Freely programmable

Modular expandable

Two Ethernet interfaces

RS485 screw terminal

Hardware watchdog

Supports all common industrial network protocols

OPC UA & MQTT

Node-RED

Python



and the second



Easy connection of expansion modules via plug and play

The open source IIoT gateway RevPi Connect gives users maximum freedom when implementing IIoT projects due to its open platform concept (including full root rights).

A specially modified Raspbian version with a real time patch is available as an operating system. Common IIoT protocols like MQTT and OPC UA are supported. Individual applications can be programmed via, amongst other things, Node-RED, Python or directly in C.

RevPi Connect can also be upgraded with PROFINET, Ether-Net/IP, EtherCAT, Modbus TCP and Modbus RTU functionality without the use of expansion modules.¹

Two Ethernet interfaces enable the device to be simultaneously integrated within the automation network and the IT network to transmit machinery data from, for example, the shop floor to the Cloud or a superordinate IT system.

A freely configurable hardware watchdog monitors the status of the IIoT gateway, a relay output serves to ensure that connected devices or expansion modules can be monitored or reset respectively. The device additionally has a 24V input to

¹ depending on the protocol, paid software licenses may be required.

Supported fieldbus and industrial Ethernet protocols



EtherNet/IP





receive shutdown signals of an UPS.

The modular design of the RevPi Connect enables the 45mm wide base device to be fitted with suitable expansion modules such IOs, fieldbus gateways as and radio modules like for example ones for Bluetooth. The expansion modules can be joined up – plug and play - with the base device via a socket positioned at the top and can be easily configured using a graphical user interface.

Integration within fieldbus or industrial Ethernet networks can be done using,

amongst other things, gateway expansion modules suitable for all major industrial networks.

Optional control and HMI software additionally enable the lloT gateway to be upgraded to a small industrial controller.







Specifications

Processor	1.2 GHz Quad-Core
RAM	1 GB
eMMC flash memory	4 GB
Power supply	12 - 24 V
Size (L x W x H)	111 x 45 x 96 mm
Operating temperature	-40°C+55°C
Storage temperature	-40°C+85°C
Humidity	93% (non-condensing)
Protection class	IP20
ESD protection	4 kV/8 kV
EMI tests	Passed (according to EN61131-2 and IEC 61000-6-2)
Surge/Burst tests	Passed (according to EN61131-2 and IEC 61000-6-2)

Interfaces

2 x RJ45	Ethernet interfaces
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2 x USB 2.0 sockets

1 x Micro HDMI socket

1 x Micro USB 2.0 socket (for firmware uploads only)

1 x RS485 screw terminal (4 pole)

1 x PiBridge (for RevPi expansion modules)

1 x ConBridge (for RevPi Con expansion modules)

1 x 24 V input for shutdown signals of a UPS

1 x freely programmable relay switching contact







Base module

Name	ltem no.
RevPi Connect	100274

Available expansion modules

Name	Function	ltem no.
RevPi DIO	Digital IO module	100197
RevPi DI	Digital Input module	100195
RevPi DO	Digital Output module	100196
RevPi AlO	Analog IO module	100250
RevPi Con M-Bus	Wireless M-Bus module (868 MHz)	100281
RevPi Con M-Bus VHP	Wireless M-Bus module (169 MHz)	100282
RevPi Con CAN	CAN-Bus module	100286
RevPi Gate PROFINET IRT	Gateway PROFINET IRT Device / Slave	100074
RevPi Gate EtherNet/IP	Gateway EtherNet/IP Adapter / Slave	100066
RevPi Gate EtherCAT	Gateway EtherCAT Slave	100073
RevPi Gate POWERLINK	Gateway POWERLINK CN / Slave	100076
RevPi Gate Sercos III	Gateway Sercos III Slave	100075
RevPi Gate Modbus TCP	Gateway Modbus TCP Slave	100088
RevPi Gate PROFIBUS	Gateway PROFIBUS Slave	100069
RevPi Gate DeviceNet	Gateway DeviceNet Adapter / Slave	100071
RevPi Gate CANopen	Gateway CANopen Slave	100070
RevPi Gate Modbus RTU	Gateway Modbus RTU Slave	100090
RevPi Gate DMX	Gateway DMX Master/Slave	100237
RevPi Gate Serial	Gateway Serial Slave	100068







