Information

Doovit Industrial PC

Key Features

- Industrial-grade IoT gateway with pre-installed Linux OS
- RP2040 processor and integrated CM4 chip for low power and high-performance applications
- Wide input voltage range (5-30V) and temperature operation (-25°C to 75°C)
- Versatile network and connectivity support
- Open source Doover software platform for remote access and control
- Matte black mild steel casing with CE and RCM compliance

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Introduction

The Doovit is an industrial IoT gateway device equipped with 2 processors; 1) The versatile RP2040 processor by the Raspberry Pi Foundation, optimized for low power and real-time industrial applications. 2) An integrated Quad Core ARM Cortex-A72 ready for computationally intensive tasks, distributed with pre-installed debian (Linux). The power to the ARM processor can be controlled from the low power processor, and the firmware of the low power processor can be updated from the ARM processor. The Doovit complies with industry standards such as the ACMA RCM (Australia) and CE (EU). With an input voltage range of 5 - 30 V and a temperature range of -25°C to 75°C the Doovit is able to operate in a wide range of environmental conditions. The Doovit boasts a wide range of I/O with versatile input ranges so that users may connect many types of industrial equipment. The Doovit has two version 2.0 type A USB slots, dual 10/100M LAN ports, HDMI display output, sim card slot, external wifi antenna (SMA female) and an mPCIe slot for 4G and/or GPS cards. There are 2 service USB connectors for customisable firmware updates, system storage and data transfer for more advanced users. Doovits contain 4 NPN sinking digital inputs, 2 analog input voltages between 0-40 V and 4 inputs for 4-20 mA current signals. There are 6 sourcing outputs which individually may handle up to 5A. There is a single software configurable RS485 or RS232 interface, as well as 2 analog output pins supplying between 0-10V. This IO capability allows users to design systems which can actuate motor controls, switches, detect discrete measurements for process control, control VFD's, communicating via protocols such as Modbus RTU and remote monitoring for IoT and Industry 4.0 applications. The Doovit has been optimised for running the Doover software platform. This can easily be accessed and modulated remotely via network connection or through connecting displays (touchscreen panels or traditional monitors), mice and keyboards to the device. Our software is opensource which is supported, maintained and powered by Doover.

I/O Labels

Pin No.	Signal Name	Capabilities (I/O Type)
10	DI0[1]	NPN/PNP Pulse Reading
9	DI1[1]	NPN/PNP Pulse Reading
8	DI2[1]	NPN/PNP Pulse Reading
7	DI3[1]	NPN/PNP Pulse Reading
6	V AI0	0-40 V input
5	V AI1	0-40 V input
4	4-20 AI2[2]	4-20 mA signal inputs
3	4-20 AI3[2]	4-20 mA signal inputs
2	4-20 AI4[2]	4-20 mA signal inputs
1	4-20 AI5[2]	4-20 mA signal inputs

Table 1: Input Capabilities

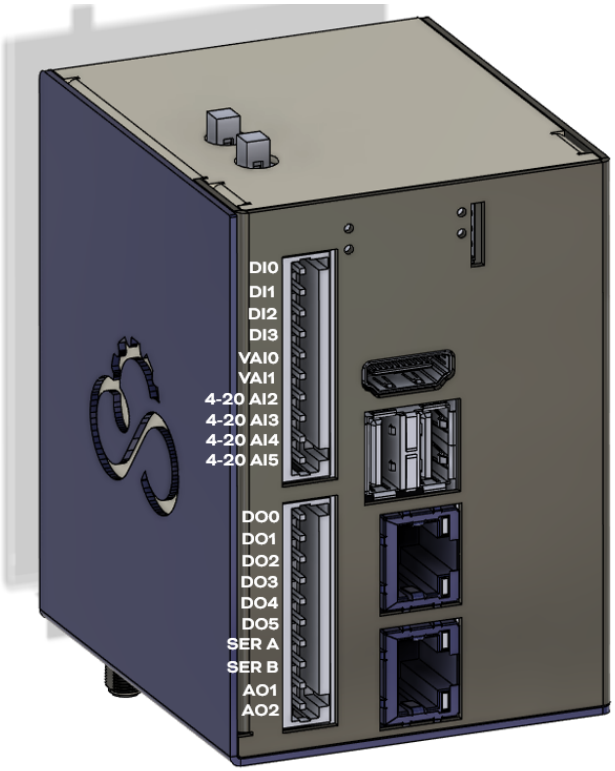

Figure 1: I/O Pinout Label Diagram

Pin No.	Signal Name	Capabilities (I/O Type)
10	DO0[3]	Sourcing Output
9	DO1[3]	Sourcing Output
8	DO2[3]	Sourcing Output
7	DO3[3]	Sourcing Output
6	DO4[3]	Sourcing Output
5	DO5[3]	Sourcing Output
4	SER A	Software Configurable RS485 and RS232
3	SER B	Software Configurable RS485 and RS232
2	AO1[4]	0-10 V Output
1	AO2[4]	0-10 V Output

Table 2: Output Capabilities

Notes

[1] Software selectable NPN/PNP pulse reading (between 3.3-36V Input)

[2] Sinking Current Input (4-20 mA)

[3] Maximum single pin current draw 5A, 8A for total output between pins.

[4] Sourcing Voltage Output.

* Max Sourcing Current = 5A

* Max Sourcing Current Across All Pins = 8A

Appearance

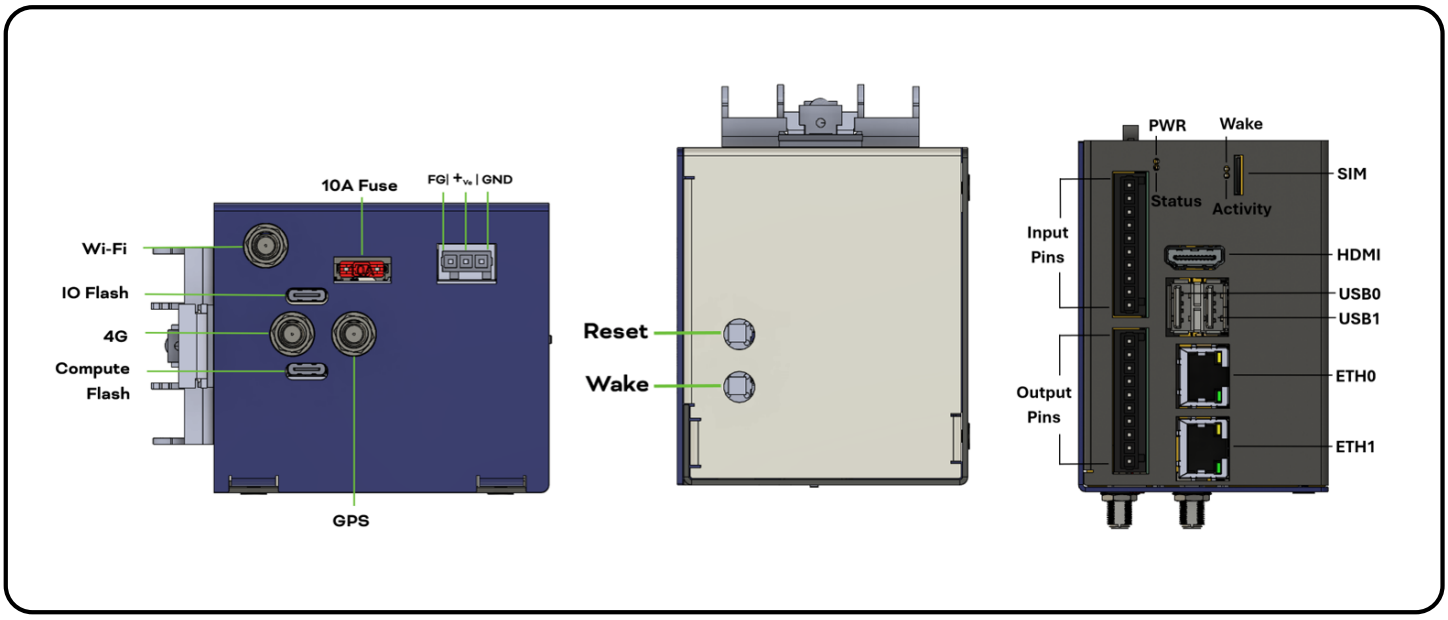

Figure 2: Connections and Buttons

Dimensions

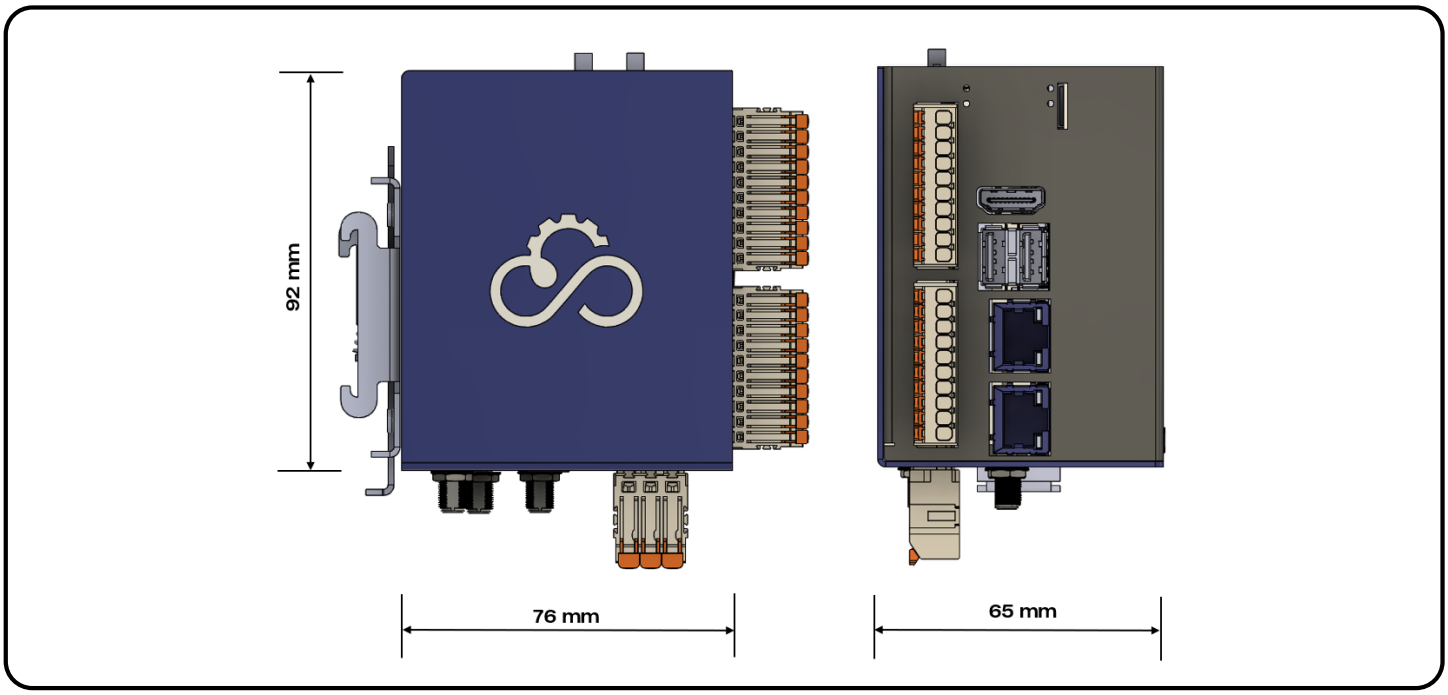

Figure 3: Dimensions

Feature	Specification
Chassis Properties	
Dimensions (W x D x H)	76 x 65 x 92 mm
Weight	0.375 kg
Material	Mild Steel
Paint Finish	Double Pack Matte Finish
Hardware Specifications	
Power Input	5-30V DC
High Power Mode Power Consumption	3.5 W
Low Power Mode Power Consumption	0.24 W
Processor 1	Broadcom BCM2711
Processor 2	RP2040
Memory	2 GB
Storage	32 GB
Graphics	Broadcom VideoCore VI GPU
Internal I/O	
Sim Card	Single slot
mPCIE	Supports 4G and GPS Cards
Software	
Operating System	Debian 12.9 Bookworm

Feature	Specification
Front I/O	
Ethernet	Dual 10/100 M LAN ports
USB 2.0	2 type A USB slots
User LEDs	4 status LEDs
Digital Input	4 Isolated Digital Sinking Inputs
Digital Output	6 Digital Sourcing Outputs 5A Max
Analog Input	2 x 0-40 V input and 4 x 4-20 mA signal input
Analog Output	0-10V Sourcing Analog Output
Bottom I/O	
Connectivity	SMA Support for WiFi and signal boosting
USB C	USB C Port for configuring open source device firmware
Electrical Protection	7.5 A Fuse
Power Input	5-30 V input with 2 grounding pins for versatility
Mechanical Properties	
Operating Temperature	-25°C to 75°C
EMC	CE and RCM Compliant

Table 3: System Specifications