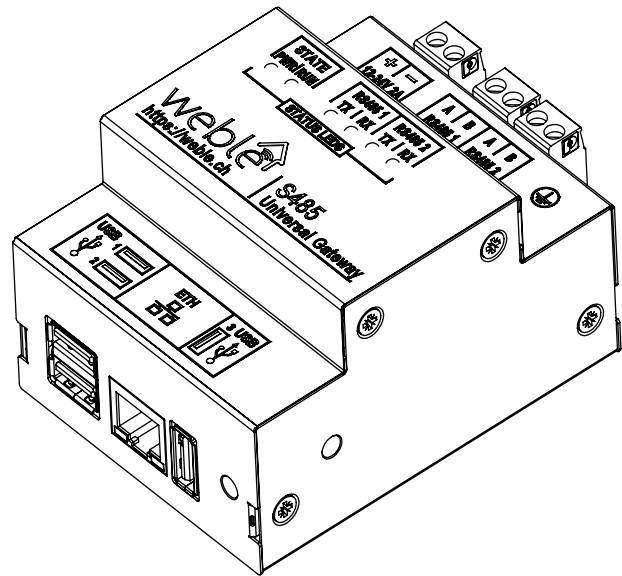


WBox S485

Universal Control Unit

General Description

WBox S485 is a versatile industrial universal control unit. It is running on an low energy consumption ARM board featuring excellent stability and good performances. The operating system is Unix with accommodations made to control two RS485 ports. In combination with our software suites, it is an ideal solution for control and regulation of smart building systems, HVAC systems, industrial automation, and smart home management. The unit can also be utilized for energy consumption monitoring, data collection, cloud storage, or as a gateway between various protocols and equipment (boilers, heaters, actuators, sensors etc.). This device is especially useful when used as a gateway between IP/IoT protocols, and serial RS485 protocols like BACnet MSTP or Modbus RTU.



Features

- 1 × SD card slot
- Armbian OS installed on SD card
- 2 × RS485 (for Modbus/Bacnet communication)
- RS485 hot-swap capability to eliminate false transitions on the bus during power-up or live insertion
- RS485 extended ESD protection
- Up to 128 transceivers on the RS485 bus
- 3 × USB 2.0 ports
- 1 × USB OTG port. Ethernet emulation on IP address 22.22.22.22. It is possible to connect to the S485 with a USB-OTG cable by setting PC IP address 22.22.22.21 (Installation guide steps 8,9,10).
- 1 × Ethernet port
- Reset button. Resets Ethernet IP address to 192.168.1.99 and default user account to user: "admin", password: "admin".
- Highly accurate real time clock (RTC) with battery backup
- LED status lights for power, run, RS485 receive & transmit
- DIN rail mount
- Steel case

Certification

WBox S485 is CE and EMC tested. It can be used in:

- Residential buildings, apartments
- Commercial areas, offices, banks
- Entertainment areas, cinemas, bars, pubs, dance clubs
- Outdoor places, gas stations, parking lots, sport centers
- Areas of light industry, workshops, laboratories, service centers

Specifications

CPU	H3 Quad-core Cortex-A7 H.265/HEVC 4K
GPU	Mali 400MP2 GPU @600MHz, Supports OpenGL ES 2.0
Memory (SDRAM)	1GB DDR3 (shared with GPU)
Onboard Storage	TF card / MMC card slot
RS485 Data Rate	Up to 500 kbps
Ethernet Port Data Rate	10/100 Mbps
RTC Accuracy	±2ppm from 0°C to +40°C
Recommended Power Supply	12-24V 2A DC
Supply Voltage	Min. 8V, Max. 35V
Supply Current	Less than 0.8A at 12V, Less than 0.4A at 24V

Terminals and Controls

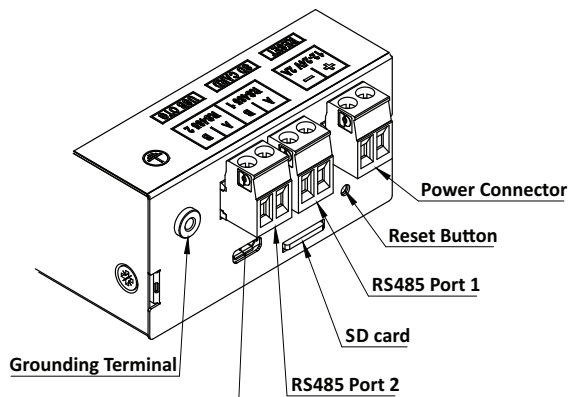


Fig. 1

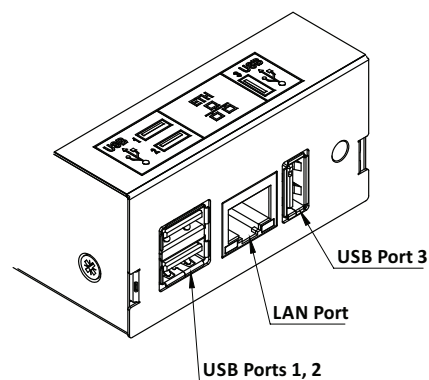


Fig. 2

Mechanical installation

WBox S485 is attached to a DIN rail in following steps (Fig. 3):

1. Place the bottom edge of the DIN rail under the spring of the DIN rail mount (Fig. 4).
2. Push the case up compressing the spring.
3. Attach the DIN rail mount hook to the upper edge of the DIN rail (Fig. 4).
4. Release the case.

Detaching from the DIN rail is done in reverse order.

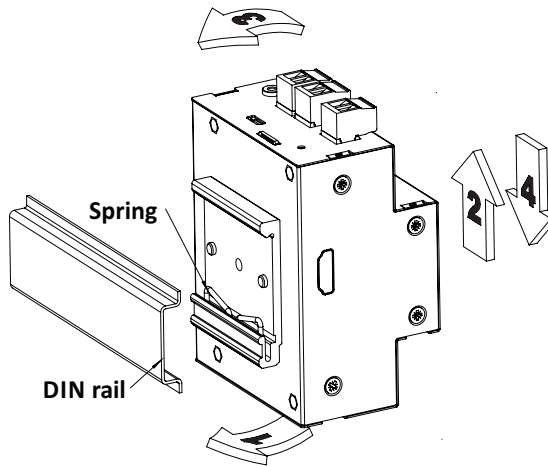


Fig. 3

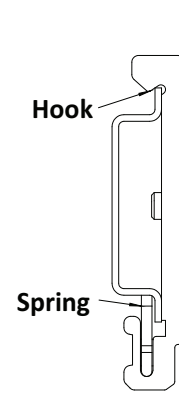


Fig. 4

Electrical Installation – Grounding

WBox S485 is intended to be installed in a DIN-rail cabinet. It can be connected to the cabinet's grounding via the grounding terminal provided (Fig. 1, M3 screw needed).

In case RS485 shielded cabling is used, it has to be connected to the grounding terminal (Fig. 5). This has to be done at one end of the cable only!

In case RS485 common ground wire is used, it has to be connected to the grounding terminal (Fig. 5) as well.

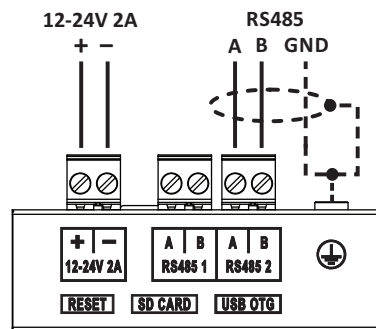


Fig. 5

RS485 bus termination and biasing

WBox S485 offers fully configurable RS485 ports. Both bus termination and bus biasing are configurable via jumpers (Table 1, Fig. 6, 7). The RS485 bus has to be terminated at both ends. Termination resistors at any intermediate nodes have to be disconnected. Bus biasing can be set at one node only or can be distributed between multiple nodes. Biasing towards GND (0V) and Vcc (+5V) is individually configurable.

		Termination		Vcc Biasing		GND Biasing	
		ON	OFF	ON	OFF	ON	OFF
RS485 1	J5 T1	Closed	Open				
	J1 B1+			Closed	Open		
	J3 B1-					Closed	Open
RS485 2	J6 T2	Closed	Open				
	J2 B2+			Closed	Open		
	J4 B2-					Closed	Open

Table 1

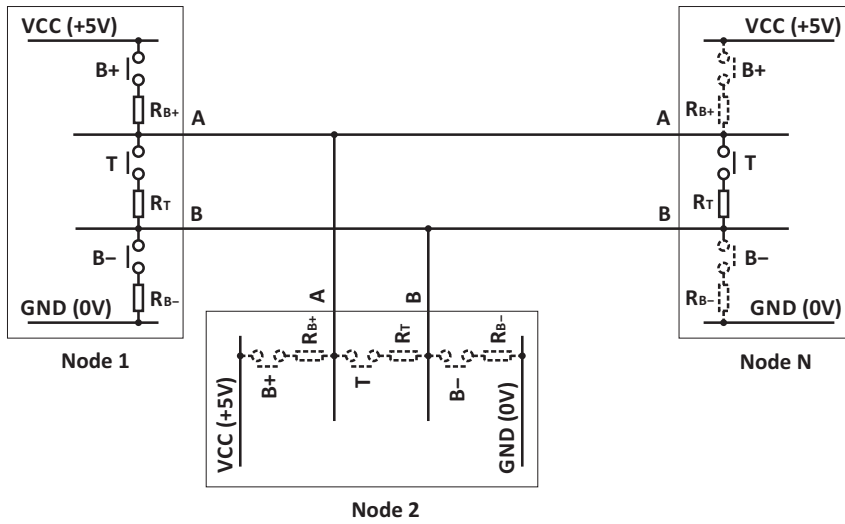


Fig. 6

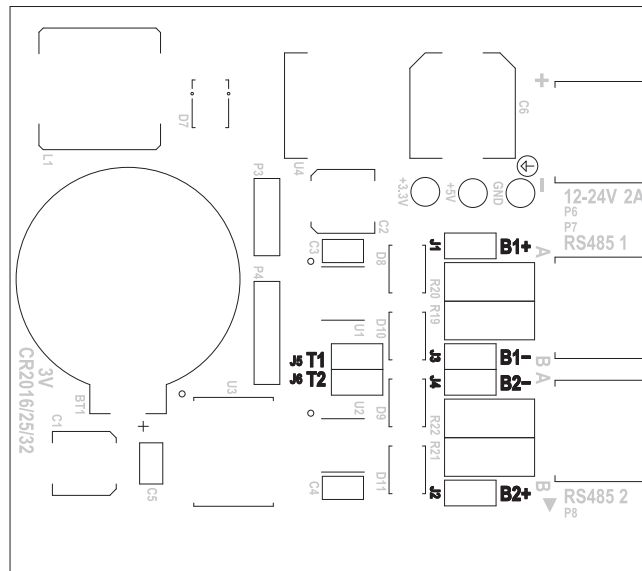


Fig. 7

Dimensions and Weight

Dimensions (W x H x D excluding terminals and mount)	70.8mm (M4 size) x 90.6mm x 52.1mm
Weight	0.6kg