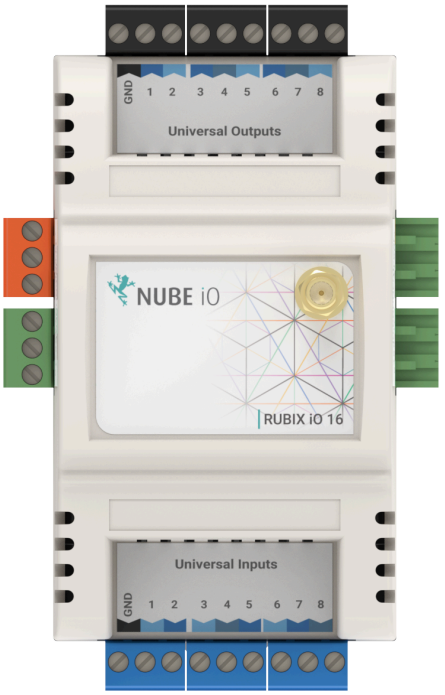
Introducing the Rubix iO Modules - Nube iO's highly adaptable, cost-effective physical Input/Output solution. These compact modules offer extensive modular monitoring and control capabilities for building management systems (BMS).

Easily integrated with the Rubix Compute through direct plug-in or RS485 wiring, the Rubix iO Modules serve as both building management systems (BMS) components and standalone HVAC application controllers. Utilising Modbus for configuration and monitoring, they enable affordable, distributed control and centralised supervision of various system types.

As a pure Modbus device, the Rubix iO Modules are compatible with a wide range of systems beyond the Nube iO platform. For enhanced flexibility, an optional LoRa® wireless version allows for long-range, object interference-resistant communication with the iO Modules.

When utilising LoRa® wireless technology, the RS485 port functions as a Modbus pass-through, enabling wireless communication with any wired (RS485) Modbus device. Experience seamless connectivity and versatile control with the Rubix iO Modules.




## Technical Data

| General | |
|---|---|
| Dimensions | 112mm x 65mm x 56mm or 4.41in x 2.56in x 2.20in |
| Operating Temperature | 0°C to 65°C<br>ABS Plastic, DIN Rail Mount, IP20 Rated |
| Enclosure | 0°C to 65°C<br>ABS Plastic, DIN Rail Mount, IP20 Rated |
| **Power** | |
| Power Supply | 12-24V DC/AC ±10% |
| Consumption | **Base**: 1.2W (50mA at 24 VDC), **Max**: 36W (1500mA at 24 VDC) |

| | |
|---|---|
| Recommended Transformer Size | 1A / 25VA (Transformer should be sized based on Base Current plus the power requirements of all connected output devices) |
| **Physical Ports** | |
| RS485 | 1x RS485 Modbus RTU ports. 3 Wire.<br>**Speed:** 9.6K, 19.2k, 38.4K bit/s<br>**Data Bits:** 8 bits<br>**Parity:** None |
| **Wireless Communications** | |
| LoRa® | **Supported Frequencies:** AU915, US915, AS232, EU863<br>**Spreading Factor:** 7<br>**Bandwidth:** 250 kHz |

| Low Level iO | IO-11 | IO-16 | Description |
|---|---|---|---|
| Universal Inputs (UI) | 6 | 8 | Configurable as Digital, 0-10VDC, or 10k Thermistor. |
| Digital Outputs (DO) | 2 | 0 | 0V[OFF], 12VDC[ON] (200mA). |
| Universal Outputs (DO) | 5 | 8 | 0-10VDC, or Digital - 0V[OFF] - 12VDC[ON] (200mA). |

# Configuration

**DIP Switch Settings**

**Left Bank (SW2) - DIP 1-7**

Modbus Address set as binary + 1.

| Address | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Switches 1,2,3,4, 5,6 | 000000 | 000001 | 000010 | 000011 | 000100 | 000101 | 000110 | 000111 |
| | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** |
| | 001000 | 001001 | 001010 | 001011 | 001100 | 001101 | 001110 | 001111 |

**Left Bank (SW2) - DIP 8**

Must be set to 1 for normal operation. No other functionality.

**Right Bank (SW1) - DIP 1-2** Operation Mode

| Mode | RS485 (Wired) | LoRa® Wireless | RS485 to LoRa® Passthrough * | IO Reset ** |
|---|---|---|---|---|
| **Switch 1,2** | 00 | 10 | 01 | 11 |

* Use this setting when connecting to 3rd party Modbus Devices.
** Set DIP switches, and power cycle, then set back to operation mode setting.

| | | | | |
|---|---|---|---|---|
| **Right Bank (SW1) - DIP 3-5** | **Baud Rate** | 38400 | 9600 | 19200 |
| | **Switch 3,4,5** | 000 | 100 | 010 |
| **Right Bank (SW1) - DIP 6-7** | **Parity** | None | Even | Odd |
| | **Switch 6,7** | 00 | 10 | 01 |
| **Right Bank (SW1) - DIP 8** | Must be set to 1 for normal operation. No other functionality. | | | |

# About Nube iO

Nube iO stands at the forefront of building technology, providing innovative software and hardware solutions. We're dedicated to enhancing building operations, sustainability and compliance by providing secure connectivity, seamless system operability, and delivering all-encompassing monitoring, analysis, and control. Our team leads innovation in the building industry.

We tackle the integration of diverse systems and modernise legacy technologies to streamline operations and improve functionality. Our innovative approach ensures seamless connectivity across devices and protocols, making Nube iO a go-to for end-to-end building automation, sustainability and asset management solutions.

To learn more about our products and solutions, visit: nube-io.com

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|---|---|
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