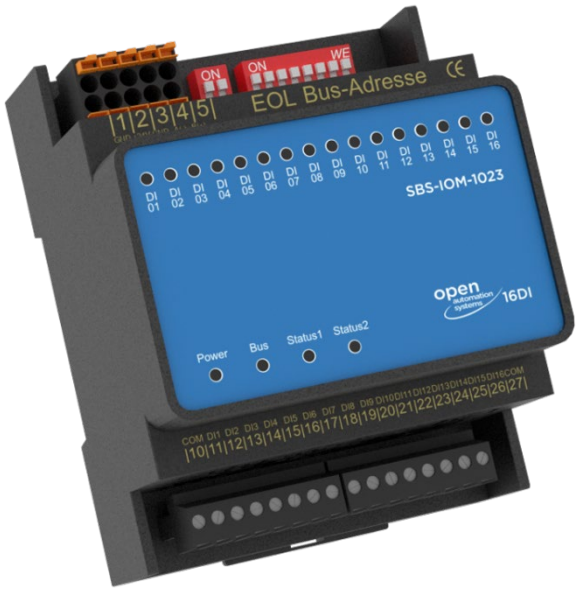
# OAS-SBS-IOM-1023

## Digital / binary input: 16 digital - binary inputs: 16 DI module (24V), 16 x LED status red / green




The digital - binary input module **OAS-SBS-IOM-1023** is used for signaling of up to 16 digital messages. These include operating messages, error messages such as frost, filter dirty or fan belt damaged, and status messages such as damper positions.

The control of the inputs will be done with 24 V switched by external dry contacts that are connected to the module via terminals.

The reference potential is defined via the COM terminals and can be both, 0 volts and 24 volts. When using a reference potential of +24 volts, a control of the digital inputs with 0 V potential can be realized. The two COM terminals are connected internally, but not with the GND of the power supply, i.e., that reference potential for the inputs has to be connected anyway.

Using the settings in MODBus registers, you can select open circuit or closed-circuit principle for each input separately. Also, the color of each of the 16 LEDs is adjustable via a MODBus configuration register, either red, green or orange.

Furthermore, the LEDs can be controlled via MODBus commands, provided that this option previously has been defined in a configuration register. This setting can be made individually for each LED.

The digital inputs can be used as counters, but only for DC signals. For each input, a prescaler may be adjusted in order to count, e.g., just every second or third pulse. A subsequent change of the prescaler also results in a (retroactive) amendment of the corresponding counter values. The pulse duration must be at least 10ms to be reliably detected.

For AC control of the inputs, the edge detection has to be delayed via configuration registers (see registers R1101 and R1111). In case of 50 Hz, this value should be set to at least 40ms in order to avoid the counting of false detections. The maximum counter value when using a prescaler of 1 is 65,535 (which is equivalent to $2^{16}$-1).

There is a register that displays whether and which DI has changed since the last time this register has been read. When reading this register, all bits are reset to zero automatically. If a DI's status has altered several times, e.g. from 0 to 1 and back to 0, a change will be signalized, anyway.

Regarding the system configuration (addressing, maximum number of modules connected to a MODBus Master interface, installation, connection to the bus etc.), please follow the instructions in the chapter **Configuration**.

## Overview terminal assignment

| **OAS-SBS-IOM-1023** | GND | 24V AC/DC | COM for DIs | | For activation of digital inputs use 24V AC/DC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DI No. 1-8 | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **Terminal:** | | | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| DI No. 9-16 | | | | | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **Terminal:** | | | | | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| COM for DIs | | | | | | | | | | | | |
| **Terminal:** | | | 10 | 27 | | | | | | | | |
| Power supply | | | | | | | | | | | | |
| **Terminal:** | 1 | 2 | | | | | | | | | | |

Sink and source operation mode is possible with the inputs. The two COM terminals of the DIs are bridged internally.

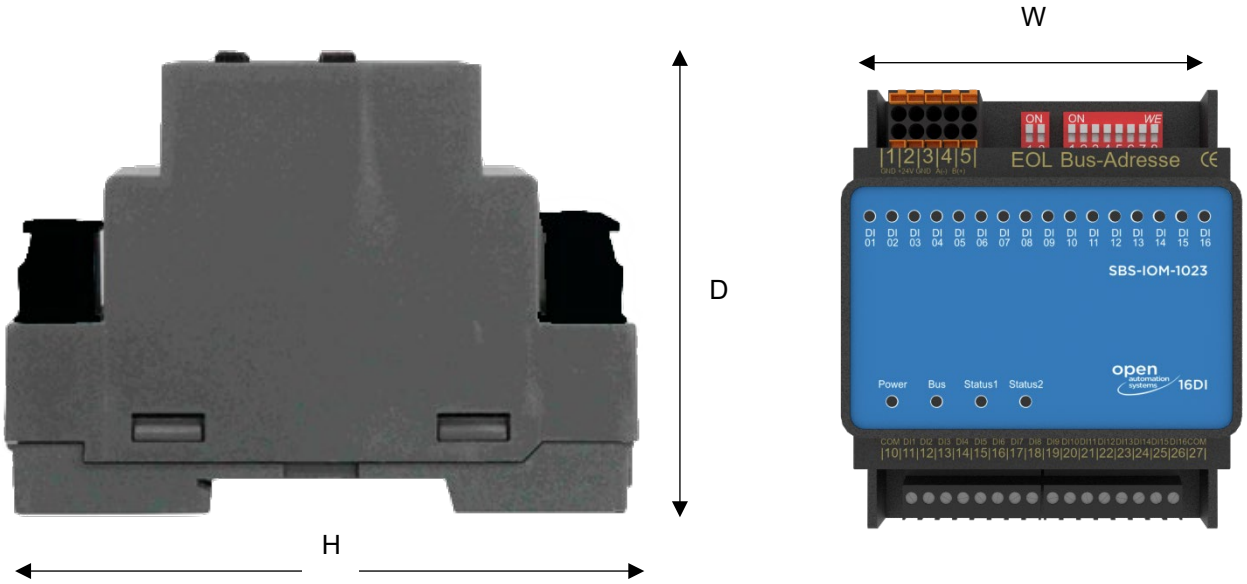
| **Bus connection** | Terminal No. | | | |
|---|---|---|---|---|
| I-GND | 3 | | | |
| Net A (–) aka /D | | 4 | | |
| Net B (+) aka D | | | 5 | |

## Important technical data:

| | |
|---|---|
| **Power supply:** | 24 V AC or DC, connection via terminals |
| **Supply voltage** | 24 V AC or DC, ± 10% |
| **Current consumption** | max. 150 mA (DC), 220 mA (AC), all DIs loaded |
| **Power dissipation** | max. 3.6 W (DC), 5.3 W (AC), all DIs loaded |
| **Counting pulse** (only digital inputs) | duration min. 10ms, only for DC signals |
| **Max. counter value** (digital inputs) | 65,535 (= $2^{16}$-1) |
| **Bus interface** | RS485 |
| **Supported baud rates** (Autobauding) | 9,600 Baud, 19,200 Baud<br>38,400 Baud, 57,600 Baud |
| **Bus cycle time** | individually depending on the baud rate and the number of data points that will be addressed |
| **Memory** | µPC internally |
| **Max. number of write cycles** | Configuration settings such as setting the LED colors, inverting the inputs, or upshift and downshift times are stored in the internal EEPROM and can be overwritten up to 100,000 times. |
| **Protocol** | MODBus rtu (RS485) |
| **Serial port parameter setting** | 8-N-1 |
| **Inputs and outputs** | see corresponding documentation of the respective modules |
| **Environmental conditions** | |
| **Operating temperature** | 0...50°C |
| **Transport and storage temperature** | 0...70°C |
| **Relative humidity** | 10...90%, non-condensing |
| **Protection class** | IP 20 |
| **Dimensions** | (for exact dimensions see chapter Dimensions and weights) |

## Dimensions and weights

The dimensions of the modules can be seen from the following figures and the table below:




All dimensions in mm, weight in grams

| Type | H | W | D | | | | | | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| **SBS-IOM-1023** | 92 | 72 | 70 | | | | | | 137 |

## Wiring diagrams