# Technical Data Sheet FSC-UFC24-NM-6

Fire & Smoke Control

**Universal Module (24 V) to monitor up to 6 non-motorized fire dampers (end limit switches). 6 digital inputs and 2 digital outputs. It is the perfect solution for bus (Modbus and BACnet) integration into a superior system.**

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## Technical Data

| | | |
|---|---|---|
| **Electrical Data** | Nominal Voltage | 24 V AC / DC |
| | Nominal Voltage Range | -20%... + 20% |
| | Dimensioning | 2 VA |
| | Power Consumption | 2 W |
| | Connections | 6 quick connections (terminals) for digital inputs. 2 quick connections (terminals) for digital outputs |
| **Communication / Modbus** | Protocol | Modbus RTU |
| | Medium | RS-485, not electrically isolated |
| | Transmission Formats | Specified by Modbus RTU Standards |
| | Number of Devices per Line | 100 (without repeater) |
| | Baud Rates | 9’600, 19’200 bps |
| | Address | 1..127 (0 reserved for broadcast) |
| | Termination | 120Ω line termination. Jumper available on extra pin on PCB. Position of jumper if FSC-UFC24-NM-6 is last Modbus device in line, see electrical installation, page 7 |
| | Typical Response Time | <200 ms |

| | | |
|---|---|---|
| | Integration / Modbus Register | We refer to the detailed Modbus register of the FSC-UFC24-NM-6. Available under www.smtec-ag.ch/en/products |
| **Communication / BACnet** | Protocol | BACnet MS/TP |
| | Medium | RS-485, not electrically isolated |
| | Number of Devices per Line | 65 (without repeater) |
| | Baud Rates | 9'600, 19'200, 38'400, 76'800 bps (auto detect) |
| | Address | 1..127 (0 reserved for broadcast) |
| | Termination | 120Ω line termination. Jumper available on extra pin on PCB. Position of jumper if FSC-UFC24-NM-6 is last BACnet device in line, see electrical installation, page 7 |
| | Typical Response Time | <100 ms |
| | Device Instant | Automatically assigned by physical address, writable |
| | Integration / BACnet Objects, Pics | We refer to the detailed BACnet objects, pics of the FSC-UFC24-NM-6. Available under www.smtec-ag.ch/en/products |
| **Safety** | Protection Class | III |
| | Protection Degree | IP42, housing of non-flammable polycarbonate |
| | Electromagnetic Tolerance | CE in accordance with 2004/108/EC |
| | Low Voltage Directive | CE in accordance with 2006/95/EC |
| | Mode of Operation | Type 1 (EN 60730-1) |
| | Rated Impulse Voltage | 2.5 kV (EN 60730-1) |
| | Degree of Pollution of Environment | 2 (EN 60730-1) |
| | Ambient Temperature | -20° C to + 50 °C |
| | Storage Temperature | -20° C to + 80 °C |
| | Humidity Test | 95% RH, non-condensing (EN 60730-1) |
| | Maintenance | Maintenance free |
| **Mechanical Data (Dimensions / Weight)** | Width | 120 mm |
| | Length | 153 mm |
| | Height | 57 mm (with bracket) |
| | Weight | ca. 466 g (with bracket) |
| | *See drawings page 5* | |

**Installation**

The FSC-UFC24-NM-6 is directly installed at or close to the non-motorized fire damper. The bracket can be pre-installed. The FSC-UFC24-NM-6 can be snapped onto the bracket any time (at the damper manufacturer or at the job site).

**Electrical Installation**

See details page 7.

**Safety Notes**

The FSC-UFC24-NM-6 is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
The company buying and / or mounting the FSC-UFC24-NM-6 on site bears full responsibility for the proper functioning of the whole system. Only authorized specialists may carry out the installation. All applicable legal or institutional installation regulations must be complied with during installation.
The device contains electrical and electronic components and is not allowed to be disposed of as domestic refuse. All locally valid regulations and requirements must be observed.

**Product Features / Application**

The FSC-UFC24-NM-6 is used to monitor up to 6 non-motorized fire dampers and to activate up to 2 outputs (e.g. alarm signals, fire doors). It provides Modbus or BACnet connection, is available in an easy to install housing and mounted at or close to the dampers. With the FSC-UFC24-NM-6 the wiring of each end limit switch to the cabinet is no longer necessary!
The control modes Modbus or BACnet can be chosen through the dip switch terminal. For more details see page 7.

Universal System Link between non-motorized fire dampers and any Modbus or BACnet system. Automatic recognition of the FSC-UFC24-NM-6 in combination with the FSC-M30 and FSC-M240 controllers.

**Power Supply**

The FSC-UFC24-NM-6 needs to be powered up with 24 V AC / DC. Up to 6 end limit switches (inputs) and 2 relays (outputs) can be controlled. For more details see page 8.

**Communication**

***Serial Communication – RS-485***
Through Modbus RTU (RS-485) or BACnet MS/TP (RS-485).
We refer to the detailed information in the Modbus register / BACnet object list / pics of the FSC-UFC24-NM-6. Available under www.smtec-ag.ch/ en/products.

**Additional Connections**

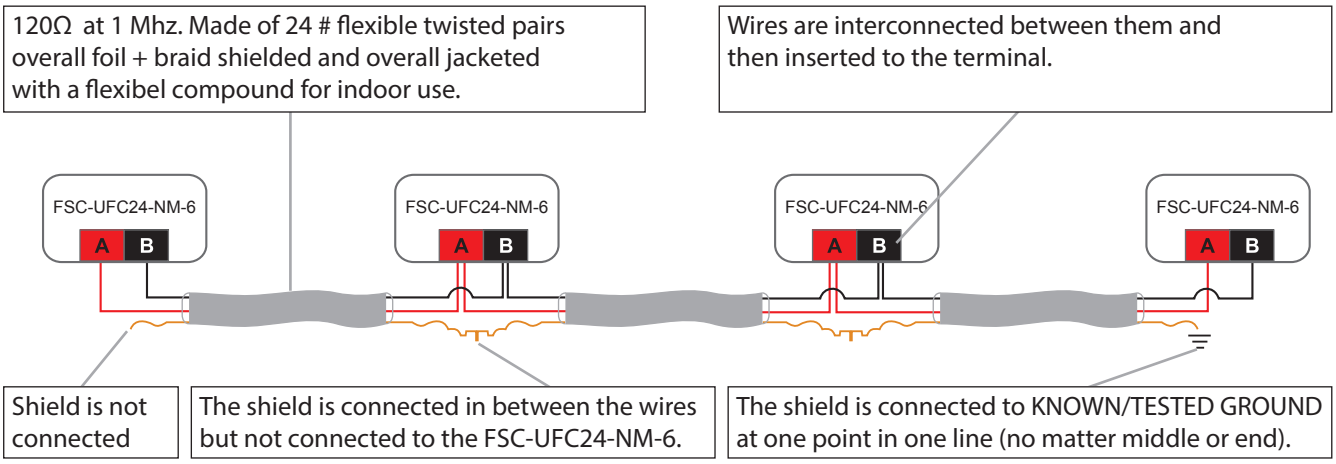
***Inputs***
2-pole terminals for 6 digital inputs (DI).

***Outputs***
2-pole terminals for 2 digital outputs, relais (DO).
Connection for 2 digital outputs, relays (DO). For the direct integration into a superior system. Not in combination with the FSC-M30, FSC-M240, FSC-M240-MX controllers.

## Cable Specification

120 Ω with 1 Mhz. Made of 24# flexible twisted pairs overall foil + braidshielded and overall jacketed with a flexible compound for indoor use, or similar. Cable type: Belden 3105a or equivalent.

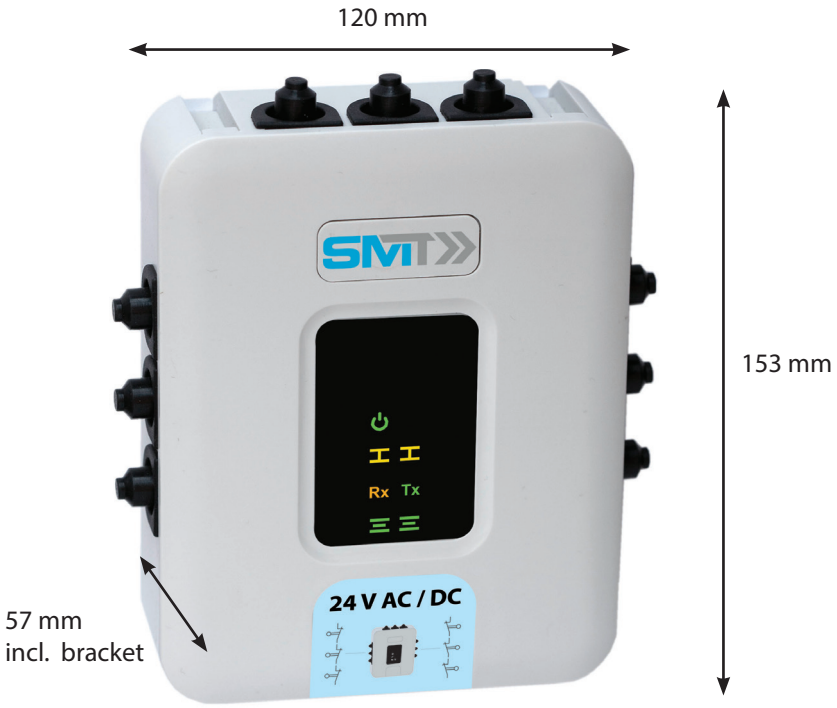
**IMPORTANT:** SMT takes no responsibility of the functionality of the units / network if a different cable is used to the one specified here.



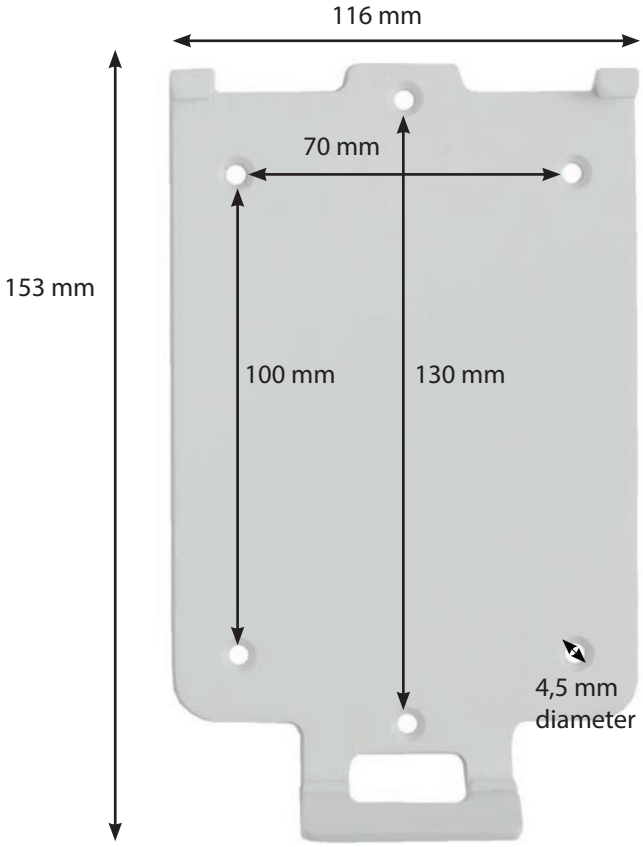

← Up to 1'200 meters and max. 100 FSC-UFC24-NM-6 with Modbus RTU and 65 FSC-UFC24-NM-6 with BACnet MS/TP →

## Dimensions

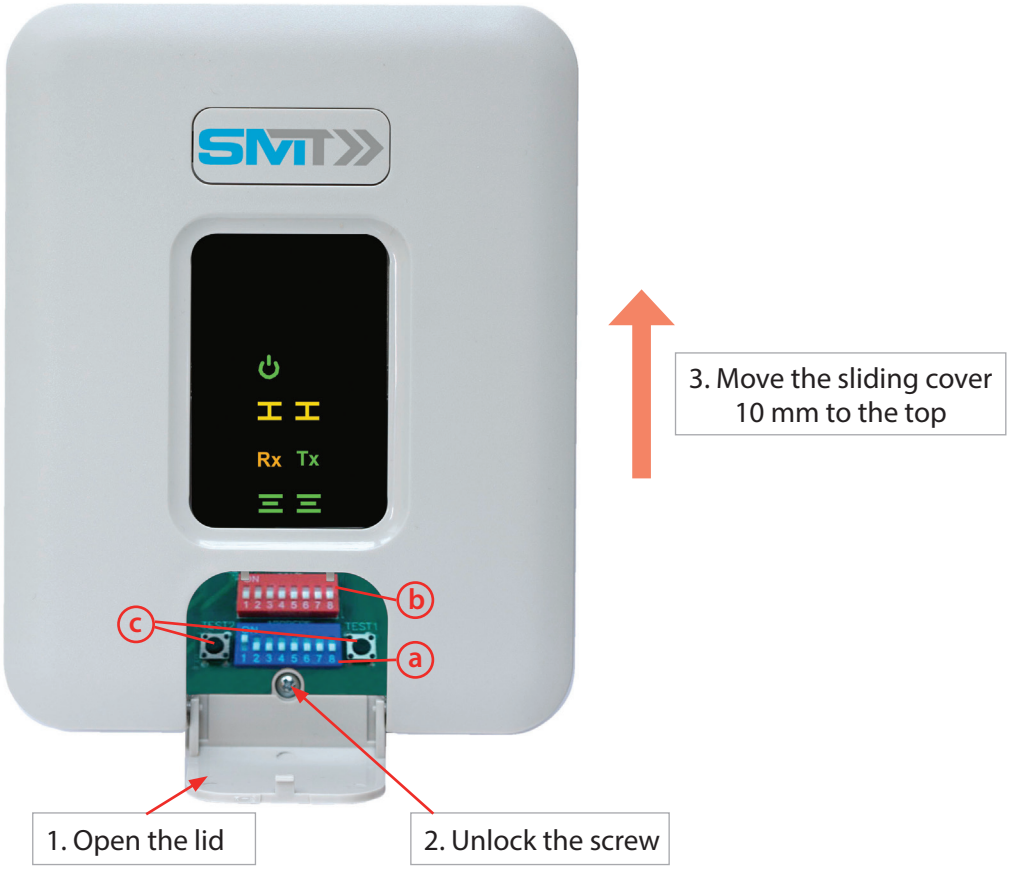
***FSC-UFC24-NM-6***




***Mounting Bracket***



## Removing the Cover of the Housing



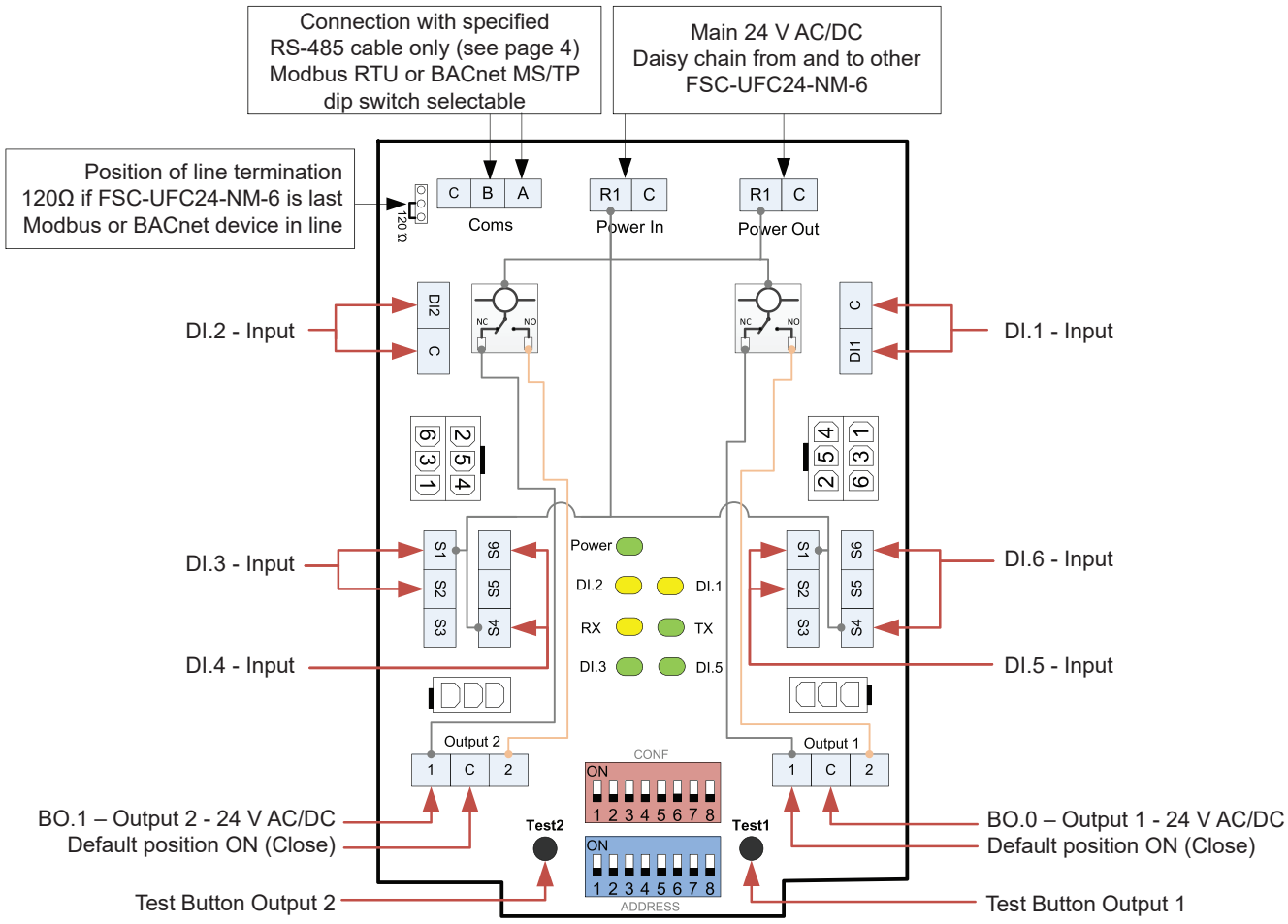

1. Open the small lid on the lower end of the housing by flapping up the cover
2. Unlock the screw which is placed on the lower end in the middle
3. Move the sliding cover 10 mm to the top
4. Remove the cover

### Lid for Easy Access to Dip Switch Terminals (Configuration / Addressing) and Test Button

(a) The blue coloured dip switch terminal is for the Modbus or BACnet addressing.
(b) The red one for the configuration.
(c) Test buttons: For detailed explanation of the function of the test button see page 11.

## Electrical Installation

### *General Information*




Default position of all inputs is Normally Open (NO). They can be changed to Normally Closed (NC) via software.

### *Outputs*

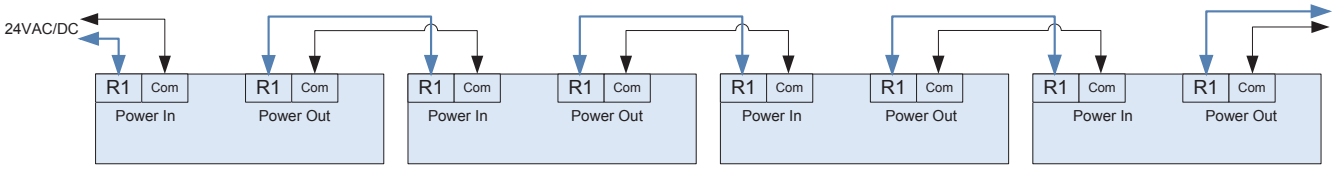
Connection for 2 digital outputs, relays (DO). For the direct integration into a superior system. Not in combination with the FSC-M30, FSC-M240, FSC-M240-MX controllers.

## Power Supply

***Main Power – FSC-UFC24-NM-6***

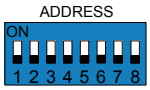
The FSC-UFC24-NM-6 is dual power 24V AC/DC.
There are 2 terminals for the power, in order to make the daisy chain connection for the installer easier.

**The polarity must be respected when connecting multiple FSC-UFC24-NM-6 to one power source (phase to phase, com to com)!**



## Modbus and BACnet Addressing

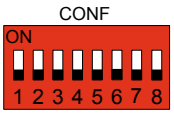
Integration of the FSC-UFC24-NM-6 in any Modbus oder BACnet controller.
If the FSC-UFC24-NM-6 is used in combination with the FSC-M30, FSC-M240, FSC-M240-MX, the addressing is recommended to be done in consecutive order. Dip switch 8 not in use.




| Address | Switches On | Address | Switches On | Address | Switches On | Address | Switches On |
|---|---|---|---|---|---|---|---|
| 0 | Broadcast-not in use | 33 | 1+6 | 66 | 2+7 | 99 | 1+2+6+7 |
| 1 | 1 | 34 | 2+6 | 67 | 1+2+7 | 100 | 3+6+7 |
| 2 | 2 | 35 | 1+2+6 | 68 | 3+7 | 101 | 1+3+6+7 |
| 3 | 1+2 | 36 | 3+6 | 69 | 1+3+7 | 102 | 2+3+6+7 |
| 4 | 3 | 37 | 1+3+6 | 70 | 2+3+7 | 103 | 1+2+3+6+7 |
| 5 | 1+3 | 38 | 2+3+6 | 71 | 1+2+3+7 | 104 | 4+6+7 |
| 6 | 2+3 | 39 | 1+2+3+6 | 72 | 4+7 | 105 | 1+4+6+7 |
| 7 | 1+2+3 | 40 | 4+6 | 73 | 1+4+7 | 106 | 2+4+6+7 |
| 8 | 4 | 41 | 1+4+6 | 74 | 2+4+7 | 107 | 1+2+4+6+7 |
| 9 | 1+4 | 42 | 2+4+6 | 75 | 1+2+4+7 | 108 | 3+4+6+7 |
| 10 | 2+4 | 43 | 1+2+4+6 | 76 | 3+4+7 | 109 | 1+3+4+6+7 |
| 11 | 1+2+4 | 44 | 3+4+6 | 77 | 1+3+4+7 | 110 | 2+3+4+6+7 |
| 12 | 3+4 | 45 | 1+3+4+6 | 78 | 2+3+4+7 | 111 | 1+2+3+4+6+7 |
| 13 | 1+3+4 | 46 | 2+3+4+6 | 79 | 1+2+3+4+7 | 112 | 5+6+7 |
| 14 | 2+3+4 | 47 | 1+2+3+4+6 | 80 | 5+7 | 113 | 1+5+6+7 |
| 15 | 1+2+3+4 | 48 | 5+6 | 81 | 1+5+7 | 114 | 2+5+6+7 |
| 16 | 5 | 49 | 1+5+6 | 82 | 2+5+7 | 115 | 1+2+5+6+7 |
| 17 | 1+5 | 50 | 2+5+6 | 83 | 1+2+5+7 | 116 | 3+5+6+7 |
| 18 | 2+5 | 51 | 1+2+5+6 | 84 | 3+5+7 | 117 | 1+3+5+6+7 |
| 19 | 1+2+5 | 52 | 3+5+6 | 85 | 1+3+5+7 | 118 | 2+3+5+6+7 |
| 20 | 3+5 | 53 | 1+3+5+6 | 86 | 2+3+5+7 | 119 | 1+2+3+5+6+7 |
| 21 | 1+3+5 | 54 | 2+3+5+6 | 87 | 1+2+3+5+7 | 120 | 4+5+6+7 |
| 22 | 2+3+5 | 55 | 1+2+3+5+6 | 88 | 4+5+7 | 121 | 1+4+5+6+7 |
| 23 | 1+2+3+5 | 56 | 4+5+6 | 89 | 1+4+5+7 | 122 | 2+4+5+6+7 |
| 24 | 4+5 | 57 | 1+4+5+6 | 90 | 2+4+5+7 | 123 | 1+2+4+5+6+7 |
| 25 | 1+4+5 | 58 | 2+4+5+6 | 91 | 1+2+4+5+7 | 124 | 3+4+5+6+7 |
| 26 | 2+4+5 | 59 | 1+2+4+5+6 | 92 | 3+4+5+7 | 125 | 1+3+4+5+6+7 |
| 27 | 1+2+4+5 | 60 | 3+4+5+6 | 93 | 1+3+4+5+7 | 126 | 2+3+4+5+6+7 |
| 28 | 3+4+5 | 61 | 1+3+4+5+6 | 94 | 2+3+4+5+7 | 127 | Reserved factory defaults |
| 29 | 1+3+4+5 | 62 | 2+3+4+5+6 | 95 | 1+2+3+4+5+7 | | |
| 30 | 2+3+4+5 | 63 | 1+2+3+4+5+6 | 96 | 6+7 | | |
| 31 | 1+2+3+4+5 | 64 | 7 | 97 | 1+6+7 | | |
| 32 | 6 | 65 | 1+7 | 98 | 2+6+7 | | |

## Configuration through Dip Switch

***Default Dip Switch Position***




***Configuration Possibilities***

| Pin | Off (Default) | On |
|---|---|---|
| 1 | No function | No function |
| 2 | No function | No function |
| 3 | Modbus RTU | BACnet MS/TP |
| 4 | Baud Rate (Off-Default) | |
| 5 | Parity (Modbus only) | None Parity (Modbus only) |
| 6 | Not In Use=Off | |
| 7 | Not In Use=Off | |
| 8 | Not In Use=Off | |

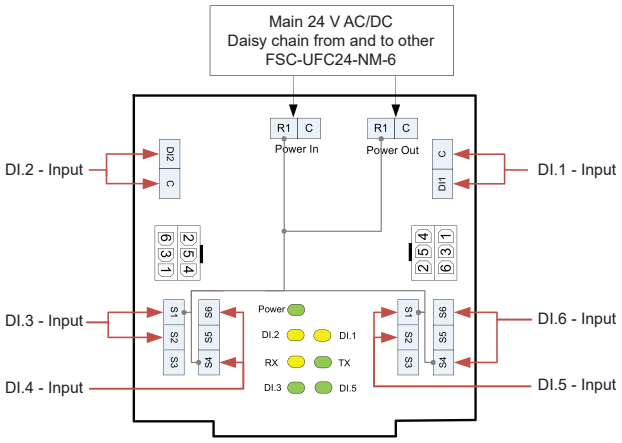
**Information Pin 3:**
**If the FSC-UFC24-NM-6 is used in connection with the Controllers of SMT (FSC-M30, FSC-M240, FSC-M240-MX), Pin 3 has to be on ON (BACnet).**

***Baud Rate Selection Modbus***
This has to be done when choosing Modbus only.
Single writing!

| | 9600 (Default) | 19200 |
|---|---|---|
| 4 | Off | On |

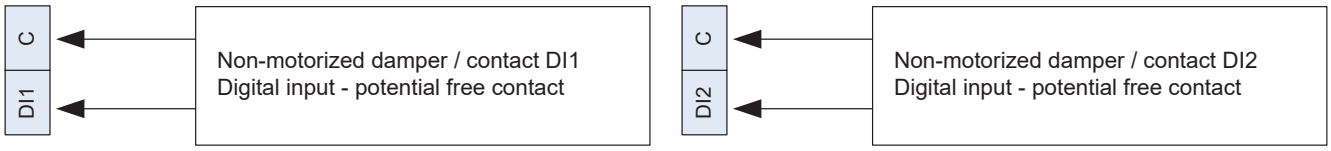
***Baud Rate Selection BACnet***
Baud rate in BACnet is automatically detected.
Single writing!

## Inputs

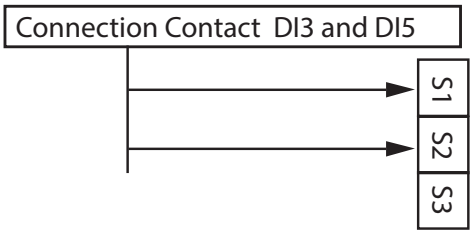



Default position of all inputs in the FSC-UFC24-NM-6 is Normally Open (NO). They can be changed to Normally Closed (NC) via software.

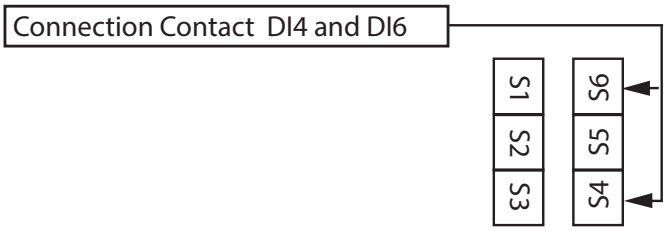
## Connection Contact DI1 and DI2, Potential Free Contact




## Connection Contact DI3 and DI5

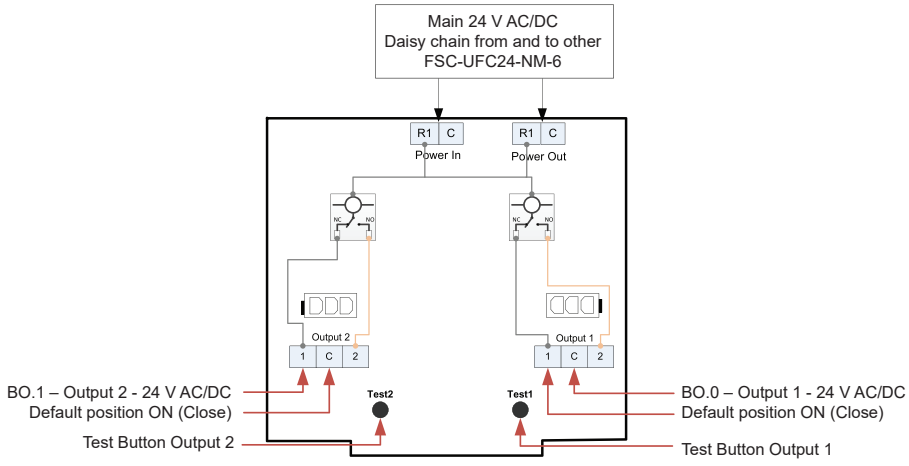



## Connection Contact DI4 and DI6




## Outputs

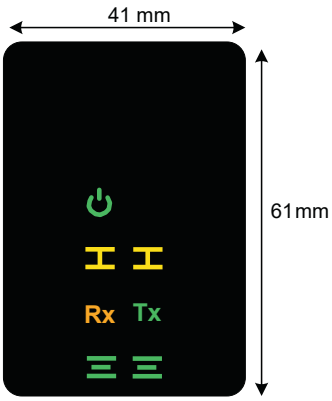
Connection for 2 digital outputs, relays (DO). For the direct integration into a superior system. Not in combination with the FSC-M30, FSC-M240 and FSC-M240-MX controllers.

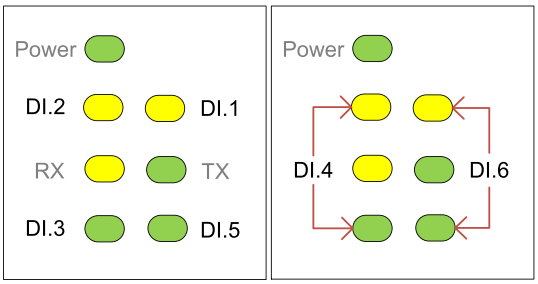



Default: Relais "ON" = Output closed.

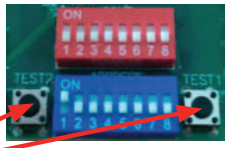
## Explanation of LEDs

The LEDs are only visible if they are active. If not active the symbols will not appear.




| | |
|---|---|
| DI.1, DI.2; DI3; DI5 | When contact (input) is closed, the corresponding LED is ON |
| DI.4 | When contact (input) is closed, both LEDs DI.2 and DI.3 are ON |
| DI.6 | When contact (input) is closed, both LEDs DI.1 and DI.5 are ON |
| If more than 1 contact is triggered on the left side | Both LEDs DI.2 and DI.3 are blinking in parallel |
| If more than 1 contact is triggered on the right side | Both LEDs DI.1 and DI.5 are blinking in parallel |




## Functionality of Test Buttons

If a FSC-UFC24-NM-6 is connected to a bus network for the first time:

**Press the test button for 5 sec.**

After that the FSC-UFC24-NM-6 will be recognized as participant in the bus network and integrated. This process can be repeated as often as necessary.

Systems & Modules Technology AG
Bachtelstrasse 32
CH-8636 Wald
Switzerland
Phone: +41 55 241 10 20
Mail: info@smtec-ag.ch