



## INSTALLATION AND OPERATING INSTRUCTIONS IF SMI RS485

### IF SMI RS485



This manual is suitable for the following products:

- IF SMI RS485 230VAC (01092132)
- IF SMI RS485 24VDC (01092133)

Documentnumber: 85900627 A1

Motor control SMI RS  
485 for DIN Rail  
for control of 16 SMI  
motors 230 VAC or  
24 VDC.

Read the manual before starting the installation.  
Failure to follow the instructions may result in defects that are not  
covered by the warranty. Errors and technical changes excepted.



Manual EN



Manual NL

## CONTENT

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(RS 485 Comm. protokol / modbus protokol)			

## SAFETY INSTRUCTIONS

### GENERAL SAFETY INFORMATION

These safety instructions are an integral part of the product and must be read and fully understood before installation, electrical connection, commissioning and operation.

- The IF SMI RS 485 is intended exclusively for its intended use
- Installation, electrical connection, commissioning and maintenance may only be carried out by a qualified electrician.
- All applicable laws, standards and regulations must be observed, in particular DIN VDE 0100, DIN EN 60204-1, DIN EN 82079-1, as well as the regulations of local energy supply companies.
- The device must be inspected for damage before installation. If damage is detected, the device must not be put into operation.
- Any modifications or alterations to the device are prohibited and will result in the loss of all warranty and liability claims.
- The operator must ensure that these safety instructions are made available to all subsequent users.

### CRITICAL SAFETY WARNINGS



#### ELECTRICAL HAZARDS

**DANGER** – Risk of fatal electric shock.  
Disconnect the mains voltage completely before installation and before working on the device.



**HAZARDS DUE TO INCORRECT RS 485 BUS CONFIGURATION** | CAUTION – Risk of property damage and malfunction due to incorrect bus topology.



**HAZARDS DUE TO UNINTENDED MOTOR MOVEMENTS** | WARNING – Risk of injury due to uncontrolled movement of connected drives.



**NOTE**  
The complete safety instructions can be found at: [www.vestamatic.com/safety](http://www.vestamatic.com/safety)



SCAN ME



## SUPPORT/CONTACT

Vestamatic International GmbH  
Am Tannenbaum 2 | 41066 Mönchengladbach  
E-Mail: [info@vestamatic.com](mailto:info@vestamatic.com)

## TECHNICAL DATA

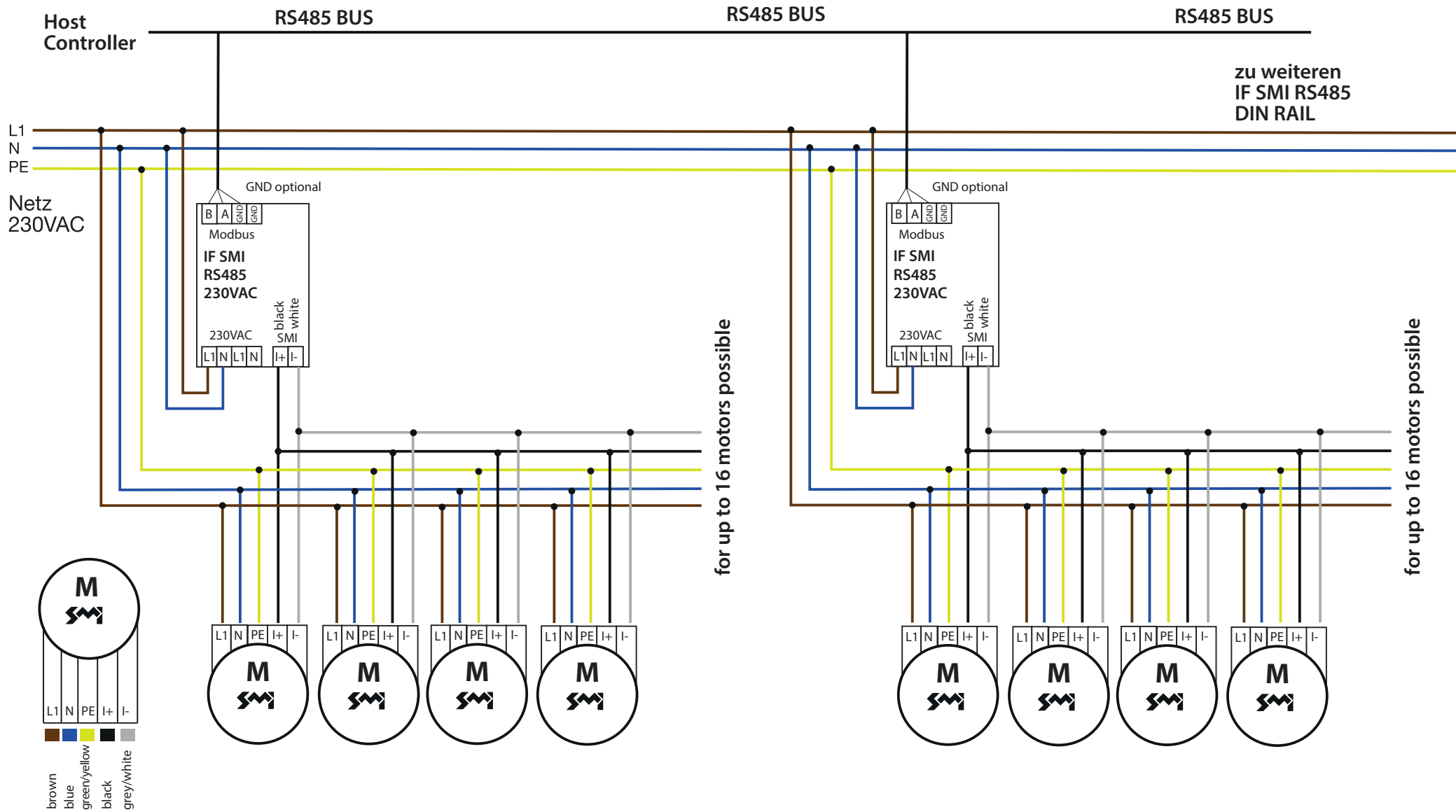
### SHORT DESCRIPTION

- Motor control for mounting on a top-hat rail
- For controlling 16 SMI motors 230 VAC
- Conversion of RS485 commands to SMI commands
- Simultaneous operation of all connected SMI motors with the UP/DOWN keys on the module
- The display simplifies the configuration on the device
- Easy navigation through the menu using the buttons on the module
- PC software available to test the RS-485 application

PARAMETER	VALUE
Device type	Gateway SMI – RS 485
Operating voltage	230 VAC
Impulse voltage withstand level	2,5 kV
Rated power	2 W
Protection type	IP 20
Protection class	II
Dimensions (H × B × T)	90mm × 52mm × 60mm (3 DU)
Mounting type	DIN-RAIL
Area of application	Interior, Electrical cabinet
Operating temperature	0 - 40 °C / 32 - 104 °F
Degree of pollution	2
Housing	(Light-grey) UL94-V0 flame retardant polycarbonate
Conformität	

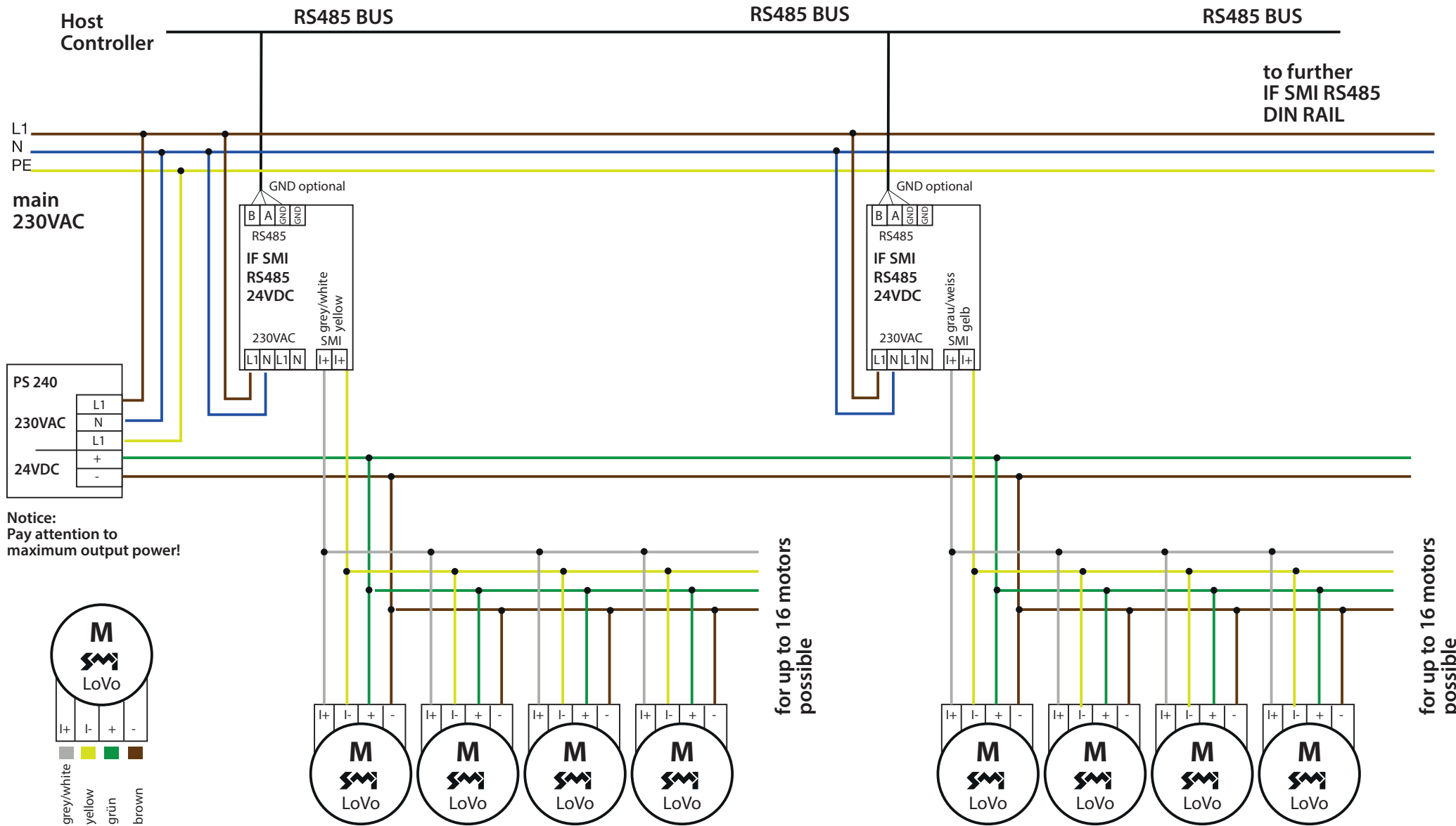
# WIRING DIAGRAM

IF SMI RS485 230VAC



# WIRING DIAGRAM

IF SMI RS485 24VDC



to further  
IF SMI RS485  
DIN RAIL

for up to 16 motors  
possible

for up to 16 motors  
possible

## WHAT IS SMI?

- SMI is the abbreviation for Standard Motor Interface.
- SMI has been developed for the connection of intelligent drives for roller shutters and sun protection systems.
- SMI enables to transmit telegrams from control system to the drive and vice versa.
- With SMI it is possible to combine products from different sources together.
- The SMI Interface should spread high value solutions and promote drives and controls on the market. The applications in roller shutters and sun protection systems require extreme robustness and economic efficiency.
- SMI has been developed to meet these requirements.

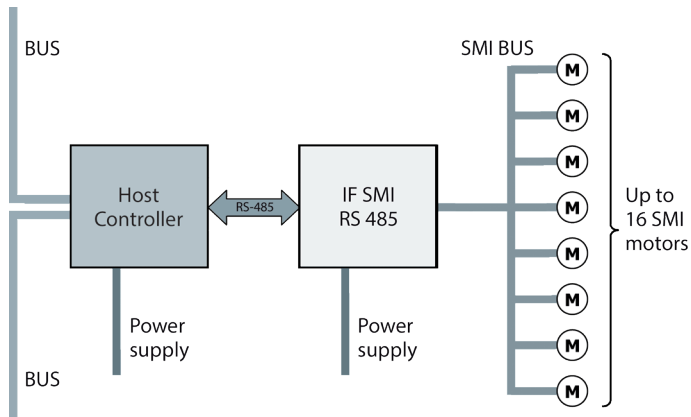
## HARDWARE

The IF SMI RS 485 can be used for SMI (230VAC) or SMI LoVo (24VDC) applications.



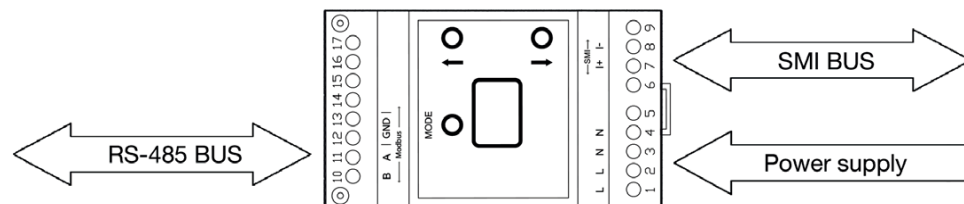
### NOTE

It is not allowed to use a combination of SMI (230VAC) and SMI LoVo (24VDC) on the same SMI BUS.



### OVERVIEW IF SMI RS 485

The IF SMI RS 485 is an intelligent module that translates RS485 commands to SMI commands



## HARDWARE

### ÜBERSICHT IF SMI RS 485

#### RS 485 BEDIENOBERFLÄCHE

##### MODE x 1



Show current communication parameter for 5 sec.

##### MODE x 3s



Modify current base address

##### UP/DOWN x 1



In main menu: Steer all attached SMI motors UP/DOWN.  
In address menu: Increase/Decrease base address  
Error log menu: Show next/previous error

### RS 485 BUS

The communication BUS between Host controller and IF SMI RS 485 is RS 485. The following configuration is used:

- Baud rate: 19200
- Data bits: 8
- Stop bits: 1
- Parity: Even
- Signal: - 7V to +10V Common-Mode Input Voltage Range
- Maximum allowed pause Byte-to-Byte: 5 milliseconds

### POWER SUPPLY

The IF SMI RS 485 needs the following power supply signals:

- L, N (230VAC/50Hz)

### SMI BUS

The SMI bus exists out of the following signals:

- I+ (SMI BUS)
- I- (SMI BUS)

### MASTER UP/DOWN BUTTON

The IF SMI RS-485 has one up and one down button to operate all connected SMI motors simultaneously.

### BASE ADDRESS

The IF SMI RS 485 is selected by its base address. Each IF SMI RS 485 connected to a shared RS-485 BUS must have a unique base address. A maximum of 16 IF SMI RS 485 can be connected to the same RS-485 BUS.

## HARDWARE

### TERMINATION RS-485 BUS (OPTIONAL)

If you experience communication problems, please read this section. The device usually has sufficient base termination. In exceptional cases (e.g. with long or untwisted lines) we recommend to use a terminating resistor of  $120\ \Omega$  at both ends of the bus line. This is to be installed between terminals A and B of the RS-485 signal line. A terminating resistor is simply a resistor placed at the extreme end or ends of a cable. The value of the terminating resistor is ideally the same value as the characteristic impedance of the cable.

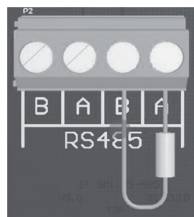


Proper Termination  
Location  $R_T = Z_0$   
 $R_T = 120\ \Omega$

Twisted pair with characteristic impedance of  $Z_0$   
Example:  $Z_0 = 120\ \Omega$

Proper Termination  
Location  $R_T = Z_0$   
 $R_T = 120\ \Omega$

- As a general rule moreover, termination resistors should be placed at both far ends of the cable.
- Although properly terminating both ends is absolutely critical for most system designs, it can be argued that in one special case only one termination resistor is needed.
- This case occurs in a system when there is a single transmitter and that single transmitter is located at the far end of the cable. In this case there is no need to place a termination resistor at the end of the cable with the transmitter, because the signal is intended to always travel away from this end of the cable.



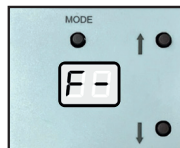
There is a terminating resistor with a value of 120 Ohm delivered with every IF SMI. If the terminating resistor is recommended than he must be placed between the A and B from the connector on the PCB (Picture only for reference).

## MENU NAVIGATION

### POWER-UP

During power-up, the firmware version is shown in 3 stages:

Step 1



Display shows "F-" for 2 sec as indication that firmware version follows.

Step 2

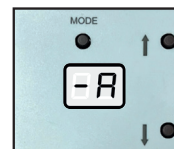


Display shows firmware version (major.minor) for 3 seconds.

## MENU NAVIGATION

### POWER-UP

Step 3



Display shows firmware revision for 2 seconds.

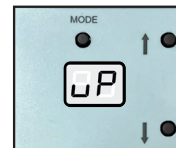
### MAIN MENU

The main menu is the default menu that is being shown when no other user actions take place. The main menu shows:

- A counter – counting the number of correctly received RS485 frames from 0 up to 99 and then starts at 0 again.
- A blinking dot in the right bottom corner with a blink-frequency of 1 Hz to indicate a running application.

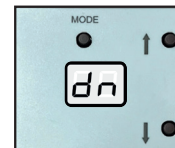
### MENU NAVIGATION

UP x 1



Main Menu

UP x 1



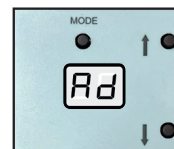
all connected SMI motors will move UP or DOWN (depends on the pressed button)

This feature is useful during commissioning to check:

- if the SMI communication is working
- if all attached motors are running in the correct direction
- if the limit positions are set correctly

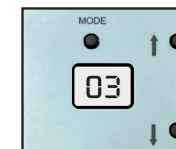
### ADRESS-MENU

Mode pressed



"Ad" is shown on the display

Release mode

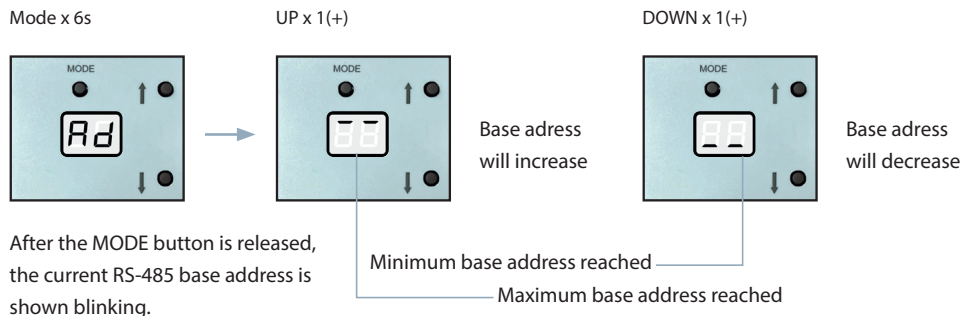


the current RS-485 base address is shown for 5 sec.

To directly return to the main menu, the MODE button must be pressed again in the last menu (applies to all menu items)

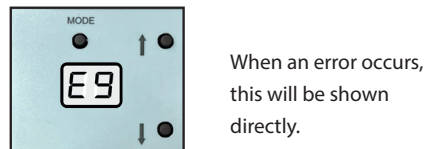
## MENU NAVIGATION

### MODIFY BASE ADDRESS



**NOTE**  
The RS-485 address can be modified from 0 to 15.

### SHOW ERROR



**NOTE**  
The error message is shown for 5 seconds.

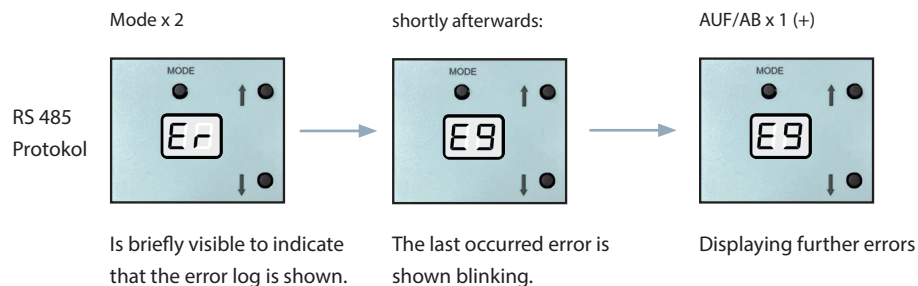
### ERROR CODE DESCRIPTION

<b>E0</b> no error	<b>E5</b> RS-485 command error (not supported or invalid length)	<b>EA</b> SMI data overflow
<b>E1</b> RS-485 framing error	<b>E6</b> RS-485 busy (not able to process new command)	<b>EB</b> SMI echo error
<b>E2</b> RS-485 timing error	<b>E7</b> SMI format error	<b>EC</b> SMI queue full error
<b>E3</b> RS-485 data overflow error	<b>E8</b> SMI checksum error	<b>ED</b> SMI block count error (Modbus only)
<b>E4</b> RS-485 CRC error	<b>E9</b> SMI timing error	<b>EE</b> Modbus parity error (Modbus only)

## MENU NAVIGATION

### ERROR LOG MENU

The error log keeps track of the 5 last occurred errors, and can be shown by pressing the MODE button in the following way

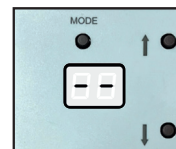


**NOTE**  
When pressing DOWN button while first error in log is currently being shown.      When pressing UP button while last error in log is currently shown.

### RESTART

The IF SMI RS 485 can be restarted without interruption of the power supply.

Mode x 10s

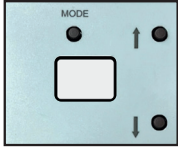


Restart will be executed.

## MENU NAVIGATION

### AUTO ADDRESSING

UP/DOWN together  
x 10s



A animation will be shown by the display and the number of detected motors will be shown.

## MODE SELECTION (COMM.-PROTOCOL / MODBUS PROTOCOL)

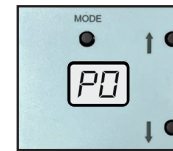
The IF SMI RS 485 supports two operating modes on the RS485 interface:

- Type 1: Set to **P1** for **MODBUS RTU** protocol
- Type 2: Set to **P0** for **RS485** communication protocol

Both protocol variants are integrated. **THE DESIRED MODE CAN ONLY BE SELECTED, AND THE CURRENT MODE DISPLAYED, DURING STARTUP.** After changing the mode, the IF SMI RS 485 restarts automatically to apply the new setting.

### DISPLAY CURRENT MODE

When switching on: Mode x 6s

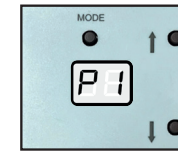


- P0 = RS485 Communicationsprotocol
- P1 = Modbus protocol

The display shows the current mode.

### SWITCH TO MODE TYPE 1 – P1

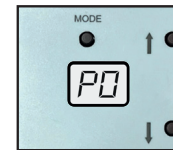
When switching on: Mode + DOWN x 6s



Display shows = P1  
Modbus protocol

### SWITCH TO MODE TYPE 2 – P0

When switching on: Mode + UP x 6s



Display shows = P0 RS485  
communication protocol

## RS485 PROTOCOL

This chapter describes the communication protocol between the IF SMI RS 485 module and Host controller. It refers to the model IF SMI RS 485 230VAC / 24VDC

Continue to the next page

## RS485 PROTOCOL

## MESSAGE STRUCTURE

[SID] [LEN] [CMD] [DATA] [CRC16]

SID Slave ID  
 LEN Message length (without CRC)  
 CMD Command byte  
 DATA Optional data bytes  
 CRC16 16 bits checksum (LSB first)

The IF SMI RS-485 module has 4 DIP switches, which represents the base address of the module from 0 to 15 (decimal) or 0 to F (hexadecimal). The base address is part of the Slave ID:

Base address	Slave ID
0	0xC0
1	0xC1
2	0xC2
3	0xC3
4	0xC4
5	0xC5
6	0xC6
7	0xC7
8	0xC8
9	0xC9
10	0xCA
11	0xCB
12	0xCC
13	0xCD
14	0xCE
15	0xCF

## CRC16 CALCULATION

Example code CRC16 calculation in C-language:

```
#define CRC_CONSTANT 0xA001
word Crc16 (byte* pb, byte len)
{
    byte i;
    word crc;
    for (crc=0xffff; len--; pb++)
    {
        crc ^= (byte)*pb;
        for (i=8; i--; )
            if (crc & 0x01)
            {
                crc >>= 1;
                crc ^= CRC_CONSTANT;
            }
        else
            crc >>= 1;
    }
    return crc;
}
```

## RS485 PROTOCOL

## STEER COMMANDS

```
#define MSG_UP 0x10
#define MSG_DOWN 0x11
#define MSG_STOP 0x12
#define MSG_STEP_UP 0x13
#define MSG_STEP_DOWN 0x14
#define MSG_SET_POS 0x15
#define MSG_SET_TILT 0x16
#define MSG_SET_POS_STEP_UP 0x17
#define MSG_SET_POS_STEP_DOWN 0x18
#define MSG_GOTO_POS1 0x19
#define MSG_GOTO_POS2 0x1A
#define MSG_GETMANID 0x2C
#define MSG_SMI_TUNNEL 0x2D
#define MSG_GW_OPTIONS 0x50
#define MSG_ERROR 0xE0
```

## MSG\_UP

This message is used to move all, or a set of sun blind, to the top position.

**MESSAGE: [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [CRC16]**

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

- When bit n in mask is set, SMI motor with address n is addressed and executes a UP command.
- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

## MSG\_DOWN

This message is used to move all, or a set of sun blind, to the lower position.

**MESSAGE: [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [CRC16]**

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

- When bit n in mask is set, SMI motor with address n is addressed and executes a DOWN command.
- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

## RS485 PROTOCOL

### MSG\_STOP

This message is used to stop all, or a set of sun blind.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_STEP\_UP

This message is used to relatively move all, or a set of sun blind, in UP direction.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [NSTEP] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[NSTEP]: Number of steps (1..255) in UP direction. 1 step is defined as 2° rotation of the output shaft of the SMI motor.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_STEP\_DOWN

This message is used to relatively move all, or a set of sun blind, in DOWN direction.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [NSTEP] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[NSTEP]: Number of steps (1..255) in DOWN direction. 1 step is defined as 2° rotation of the output shaft of the SMI motor.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

## RS485 PROTOCOL

### MSG\_SET\_POS

This message is used to move all, or a set of sun blind, to an absolute position.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [POS0] / [POS1] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[POS0]: LSB of 16-bit absolute position.

[POS1]: MSB of 16-bit absolute position.

- The absolute position value is defined as below:
  - 0x0000 is the top position (0%).
  - 0x8000 is the middle position (50%).
  - 0xFFFF is the bottom position (100%).
- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_SET\_TILT

This message is used to move all, or a set of venetian blinds, in a absolute tilt orientation.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [TILT] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[TILT]: Absolute tilt orientation (0..255).

- Absolute tilt orientation is defined as follow:
  - 127 (0x7F) slats completely closed in down direction
  - 0 (0x00) slats completely open (horizontal)
  - - 128 (0x80) slats completely closed in up direction
- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.



#### NOTE

The MSG\_SET\_TILT message uses a manufacturer specific SMI command, which is currently only supported by Vestamatic SMI motors.

## RS485 PROTOCOL

### MSG\_SET\_POS\_STEP\_UP

This message is used to move all, or a set of venetian blinds, to an absolute position combined with an relative up command.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [POS0] / [POS1] / [NSTEP] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[POS0]: LSB of 16-bit absolute position.

[POS1]: MSB of 16-bit absolute position.

[NSTEP]: Number of steps (1..255) in UP direction. 1 step is defined as 2° rotation of the output shaft of the SMI motor.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_SET\_POS\_STEP\_DOWN

This message is used to move all, or a set of venetian blinds, to an absolute position combined with an relative down command.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [POS0] / [POS1] / [NSTEP] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

[POS0]: LSB of 16-bit absolute position.

[POS1]: MSB of 16-bit absolute position.

[NSTEP]: A Number of steps (1..255) in DOWN direction. 1 step is defined as 2° rotation of the output shaft of the SMI motor.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_GOTO\_POS 1

This message is used to move all, or a set of venetian blinds, to intermediate position 1.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

## RS485 PROTOCOL

### MSG\_GOTO\_POS 2

This message is used to move all, or a set of venetian blinds, to intermediate position 2.

**MESSAGE:** [SID] / [LEN] / [CMND] / [MSK0] / [MSK1] / [CRC16]

[MSK0]: LSB of 16-bit mask to select motor address 0..7.

[MSK1]: MSB of 16-bit mask to select motor address 8..16.

- The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.
- The position of each sun blind can be obtained by the detailed response message MSG\_GETDETSTAT.

### MSG\_GETMANID

This message is used to request the manufacturer ID of a specific motor.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [CRC16]

[SMIID]: SMI address of motor (0..15).

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [MID] / [CRC16]

[MID]: bit3-0: Manufacturer ID. (See SMI-Group website for actual list)

Bit7-4: Motor type. An indication from 0 to 15 which each SMI motor manufacturer can freely use to identify their SMI motor type.



#### NOTE

An Manufacturer ID of 0 indicates that an invalid SMI-ID is

### MSG\_SMI\_TUNNEL

This message is used to send a SMI message directly to the SMI bus. Detailed knowledge in SMI protocol is required to use this command.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIMSG0] / ... / [SMIMSGN] / [CRC16]

[SMIMSG0..n]: SMI message data to send directly to SMI bus. The [LEN] parameter defines the number of SMIMSG data bytes expected.

**RESPONSE:** [SID] / [LEN] / [CMND] / [RTYP] / [SMI\_CMND] / [DATA0] / ... / [DATAM] / [CRC16]

[RTYP]: Response type:

0xFF: SMI message send successfully and accepted by addressed motor(s).

0xE0: Error occurred. [DATA0] contains error code:

0x01: checksum error

0x02: format error

0x03: echo error

0x04: data overflow

0x05: timeout error

0xEF: SMI message send successfully and response is in [DATA0..m]

Continue to the next page

## RS485 PROTOCOL

## MSG\_SMI\_TUNNEL

[SMI\_CMND]: SMI command to which this response belongs.  
 [DATA0..m]: Additional data for response type 0xE0 and 0xEF.

## MSG\_GW\_OPTIONS

This message is used to request current gateway options or to set the gateway options.

## SET GATEWAY OPTIONS

MESSAGE: [SID] / [LEN] / [CMND] / [OPTIONS] / [CRC16]

[OPTIONS]: Gateway options:  
 bit 0: RS485 error feedback enabled flag  
 bit 1-3: –  
 bit 4: RS485 error feedback flag state after power-up  
 bit 5-7: –

RESPONSE: [SID] / [LEN] / [CMND] / [OPTIONS] / [CRC16]

[OPTIONS]: Stored gateway options. See gateway options layout as described above.



## NOTE

For RS485 error feedback, see chapter MSG\_ERROR.

## REQUEST GATEWAY OPTIONS

MESSAGE: [SID] / [LEN] / [CMND] / [CRC16]

RESPONSE: [SID] / [LEN] / [CMND] / [OPTIONS] / [CRC16]

[OPTIONS]: Stored gateway options. See gateway options layout as described above.  
 Default gateway options: 0x00

## MSG\_ERROR

This message is used to request the error log or used as a feedback message to host, when an error occurred during RS485 communication.

## REQUEST ERROR LOG

MESSAGE: [SID] / [LEN] / [CMND] / [CRC16]

RESPONSE: [SID] / [LEN] / [CMND] / [ERR0] / ... / [ERR4] / [CRC16]

[ERR0..4]: Contents of error log, where [ERR0] is the most recent error and [ERR4] is the oldest error in the log.

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## RS485 PROTOCOL

## MSG\_ERROR

Error code description:

0x00 = no error  
 0x01 = RS485 framing error  
 0x02 = RS485 timing error  
 0x03 = RS485 data overflow error  
 0x04 = RS485 CRC error  
 0x05 = RS485 command error (not supported or invalid length)  
 0x06 = RS485 busy (not able to process new command)  
 0x07 = SMI format error  
 0x08 = SMI checksum error  
 0x09 = SMI timing error  
 0x0A = SMI data overflow  
 0x0B = SMI echo error  
 0x0C = SMI queue full error

## ERROR FEEDBACK

When during RS485 communication an error is detected by the gateway and “RS485 error feedback” is enabled (see chapter 6.3.14 Set gateway options), an error response is send to host.

RESPONSE: [SID] / [LEN] / [CMND] / [ERR] / [CRC16]

[CMND] MSG\_ERROR (= 0xE0)

[ERR] Error code indicating the type of error occurred:

0x00 = no error  
 0x01 = RS485 framing error  
 0x02 = RS485 timing error  
 0x03 = RS485 data overflow error  
 0x04 = RS485 CRC error  
 0x05 = RS485 command error (not supported or invalid length)  
 0x06 = RS485 busy (not able to process new command)



## NOTE

An error feedback is send back, when an error is detected and at least the first 2 bytes of the original RS485 message were received correctly.

## RS485 PROTOCOL

## MAINTENANCE COMMANDS

```
#define MSG_VERSION           0x20
#define MSG_AUTO_ADDR        0x21
#define MSG_GET_SER          0x22
#define MSG_SET_SMIID        0x23
#define MSG_GET_PAR          0x24
#define MSG_GET_POS1         0x28
#define MSG_SET_POS1         0x29
#define MSG_GET_POS2         0x2A
#define MSG_SET_POS2         0x2B
```

## MSG\_VERSION

This message is used to check to version number of the application.

**MESSAGE:** [SID] / [LEN] / [CMND] / [CRC16]

**RESPONSE:** [SID] / [LEN] / [CMND] / [HARD] / [VMAJ] / [VMIN] / [REV] / [CRC16].

[HARD]: An alphanumeric char to identify the hardware platform.

[VMAJ]: The major software version number (from 0 to 255).

[VMIN]: The minor software version number (from 0 to 255).

[REV]: An alphabetic char to identify the internal revision letter (from A to V), X is reserved for specific test software version.

## MSG\_AUTO\_ADDR

This message is used to start the SMI auto address procedure. Motor address conflicts will be solved and every motor becomes an unique address (0..15). This procedure can take up to 60 seconds to solve all the address conflicts.

**MESSAGE:** [SID] / [LEN] / [CMND] / [CRC16]

■ The IF SMI RS-485 module responds to this request with a general status message MSG\_GETGENSTAT.

## MSG\_GET\_SER

This message is used to return the serial number and the SMI ID of a specific sun blind.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [CRC16]

[SMIID]: SMI address of motor (0..15)

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [SER3] / ... / [SER0] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[SER3..0]: The serial number of the specified SMI motor. The serial number is always 4 bytes.

## RS485 PROTOCOL

## MSG\_SET\_SMIID

This message is used to set the SMI ID of a specific sun blind address by its serial number.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SER0] / ... / [SER3] / [SMIID] / [MAN] / [CRC16]

[SER0..3]: The serial number of the specified SMI motor.

The serial number is always 4 bytes.

[SMIID]: SMI address of motor (0..15) to set.

[MAN]: Manufacturer ID of SMI motor. Manufacturer ID for a Vestamatic motor is 6.

**RESPONSE:** [SID] / [LEN] / [CMND] / [SER0] / ... / [SER3] / [SMIID] / [MAN] / [CRC16]

[SER0..3]: The serial number of the specified SMI motor.

[SMIID]: SMI address of motor (0..15). When high-nibble if SMI ID is 0xF0, an error occurred during SMI ID set.

[MAN]: Manufacturer ID of SMI motor.

■ It can take up to 60 seconds before the GETGENSTAT response is updated with the new SMI ID.

## MSG\_GET\_PAR

This message is used to get the value of any private protected parameters of a specific motor.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [PAR0] / [PAR1] / [PLEN] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[PAR0..1]: Index of the motor parameter.

[PLEN]: Length of parameter (1, 2 or 4 bytes)

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [VAL0] / ... / [VALN] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[VAL0..n]: Parameter value (1, 2 or 4 bytes in size)

## MSG\_GET\_POS 1

This message is used to get (read) the stored intermediate position 1.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [CRC16]

[SMIID]: SMI address of motor (0..15)

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15).

When high-nibble of SMI address is 0xF0, an error occurred during GET\_POS1.

[POS0]: LSB of 16-bit intermediate position 1.

[POS1]: MSB of 16-bit intermediate position 1.

The intermediate position value is defined as below:

0x0000 is the top position (0%).

0x8000 is the middle position (50%).

0xFFFF is the bottom position (100%).

## RS485 PROTOCOL

**MSG\_SET\_POS 1**

This message is used to set (write) intermediate position 1.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[POS0]: LSB of 16-bit intermediate position 1.

[POS1]: MSB of 16-bit intermediate position 1.

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15).

When high-nibble of SMI address is 0xF0, an error occurred during SET\_POS1.

[POS0]: LSB of 16-bit intermediate position 1.

[POS1]: MSB of 16-bit intermediate position 1.

**MSG\_GET\_POS 2**

This message is used to get (read) the stored intermediate position 2.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [CRC16]

[SMIID]: SMI address of motor (0..15)

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15). When high-nibble of SMI address is 0xF0, an error occurred during GET\_POS2.

[POS0]: LSB of 16-bit intermediate position 2.

[POS1]: MSB of 16-bit intermediate position 2.

The intermediate position value is defined as below:

0x0000 is the top position (0%).

0x8000 is the middle position (50%).

0xFFFF is the bottom position (100%).

**MSG\_SET\_POS 2**

This message is used to set (write) intermediate position 2.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[POS0]: LSB of 16-bit intermediate position 2.

[POS1]: MSB of 16-bit intermediate position 2.

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [POS0] / [POS1] / [CRC16]

[SMIID]: SMI address of motor (0..15). When high-nibble of SMI address is 0xF0, an error occurred during SET\_POS2.

[POS0]: LSB of 16-bit intermediate position 2.

[POS1]: MSB of 16-bit intermediate position 2.

## RS485 PROTOCOL

**STATUS COMMANDS**

```
#define MSG_GETGENSTAT      0xA0
```

```
#define MSG_GETDETSTAT     0xA1
```

**MSG\_GETGENSTAT**

This message requests the general status of the system.

**MESSAGE:** [SID] / [LEN] / [CMND] / [CRC16]

**RESPONSE:** [SID] / [LEN] / [CMND] / [PRES0] / [PRES1] / [RDY0] / [RDY1] / [CRC16].

[PRES0]: The LSB mask of the 8 first motors present on the SMI BUS.

[PRES1]: The MSB mask of the 8 last motors present on the SMI BUS.

[RDY0]: The LSB mask of the 8 first motors ready to operate on the SMI BUS.

[RDY1]: The MSB mask of the 8 first motors ready to operate on the SMI BUS.

- Motor can always accept new commands; RDY0/RDY1 indicates if a motor is running (flag cleared) or motor is idle (flag set).

**MSG\_GETDETSTAT**

This message is used to obtain the detailed status of a specified sunblind.

**MESSAGE:** [SID] / [LEN] / [CMND] / [SMIID] / [CRC16]

[SMIID]: SMI address of motor (0..15)

**RESPONSE:** [SID] / [LEN] / [CMND] / [SMIID] / [STATUS] / [POS0] / [POS1] / [TILT] / [CYCLE0] / .. / [CYCLE3] / [CRC16]

[SMIID]: SMI address of motor (0..15)

[STATUS]: Status of the motor

[POS0..1]: 16-bits absolute position value

[TILT]: Orientation of the slats

**HINWEIS:**

Tilt information uses a manufacturer specific SMI command, which is currently only supported by Vestamatic SMI motors. For non Vestamatic SMI-motors, TILT value 0x00 is returned.

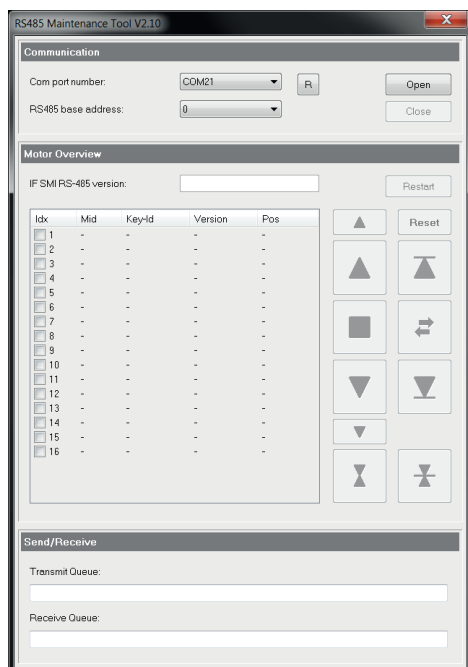
[CYCLE0..3]: Function not implemented

## RS485 PROTOCOL

### MSG\_GETDETSTAT

Status Bit layout								
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Meaning
X	X	X	X	0	X	X	X	MOTOR ERROR OCCURED
X	X	X	X	1	0	0	0	UP + DOWN + STOP
X	X	X	X	1	0	0	0	DOWN + STOP
X	X	X	X	1	0	1	0	UP + STOP
X	X	X	X	1	0	1	1	ALL STOP
X	X	X	X	1	1	0	0	UP + DOWN
X	X	X	X	1	1	1	0	ALL DOWN
X	X	X	X	1	1	1	0	ALL UP
X	X	X	X	1	1	1	1	NOT VALID
0	0	0	1	X	X	X	X	TILT INFO: NOT SUPPORTED BY MOTOR
1	1	1	1	X	X	X	X	INVALID SMI RESPONSE

## MAINTENANCE TOOL V2.10



To test your application, you can download a free English-language PC software (Windows®) from our website.

The software is provided as a ZIP file. The ZIP file must be extracted to your local hard drive before use.

<https://products.vestamatic.com/de/produkte/if-smi-rs485/>

