Operating Manual

NOVOS 7
NOVOS Touch
thanos EVO

RS485 Modbus Register Specification

NOVOS 7
NOVOS Touch
thanos EVO

novos

THE NEW ROOM SERIES BY THERMOKON®

Thermokon Sensortechnik GmbH - www.thermokon.com - email@thermokon.com

Revision

Revision	Date	NOVOS 7	NOVOS Touch/ thanos EVO	Description	Author
A	09.06.2020	SW-Ver. 1.0.0	SW-Ver. 1.1.0	• First release	DF
B - D	03.07.2020			• various corrections and additions	DF
E	15.09.2020	SW-Ver. 1.4.0	SW-Ver. 1.3.4	• Scheduler added (Chapter 7.4) • Auto mode for Shading and Lighting added	DF
			SW-Ver. 1.4.0	• Colorpicker added (only NOVOS Touch/ thanos EVO) • New icons for curtains (shading) added • Screen lock added • individual logo for bootscreen, homescreen and screensaver possible • Modification register "external sensors 1-4" (register block 508-512 -> r/w /2810-3200 ff.) • atm. air pressure added • cyrillic script character added • additional UI languages: Russian and Czech • Piezo buzzer (acoustic signal generator, data address 428/429) added	
F	09.12.2020				
G	06.08.2021			• various corrections and additions	JD
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K	19.11.2024			• various corrections, added register 1215 + 1216	JD
L	03.04.2025			• atm. air pressure removed	JD
M	03.12.2025			• scene symbols corrected, register 429 corrected	JD
N	09.11.2026			• adjustment to the VOC Index	DK

All information without guarantee for correctness and completeness. Subject to change.

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1 General information and safety instructions

The prerequisite for a safe working environment is the compliance with the forth-following specified safety instructions and handling instructions. Only an authorized electrician may conduct the installation and assembly of electrical devices. Due to their professional training, knowledge and experience as well as their knowledge of relevant national standards and regulations, a qualified electrician is able to conduct work on electrical systems and figure out possible threats immediately. The qualified electrician has to have an expertise for the working environment in which he/she works in and knows the relevant standards and regulations.

Please read the operating instructions carefully before commissioning the device.

- The device may only be used for the purposes and applications described in this operating manual.
- No technical changes or unauthorized modifications may be conducted to/on the device.
- The device may not be used if the ambient conditions (temperature, humidity etc.) are not within the limits given in the specification.
- The device should only be cleaned with a damp cloth. Do not use aggressive or solvent-based cleaning liquids. Failure to observe the safety instructions may result in damage to the device and harm to the user.
  Detailed information can be found in the document *Care_instructions_for_room_operating_units_en.pdf*.
  → https://www.thermokon.de/direct/files/care-instructions-for-room-operating-units-en.pdf
- A faulty connection can lead to destruction of the device

1.1 Intended use

- The device is intended for use in an RS485 network.
- The room control unit is intended for use in offices, meeting or conference rooms, hotels, reception/lobby areas, nursing homes and hospitals, and generally in commercial and residential buildings. The room control unit is used for local room control for lighting, blinds, scenes and HVAC applications.

The device may only

- be used and operated in a proper environment
- be operated according to the corresponding specifications.

1.2 Improper use

- The room operating units must not be used for or be part of medical devices, which maintain, control or otherwise impact human life or physical health.
- The device must not be used in hazardous areas.
- The device must not be used in an atmosphere in which a chemically active substance is present.

1.3 Limitation of liability

All information and notes in this manual have been compiled in accordance with the applicable standards and regulations, the state of the art and our extensive knowledge and experience.

The manufacturer accepts no liability for damage due to

- Non-compliance with these instructions
- Unintended/improper use
- Installations conducted by non-professional persons
- Arbitrary conversions or technical modifications

The actual scope of delivery may deviate from the explanations and illustrations described here in the case of special designs, additional product options or latest technical changes.

1.4 Support

Our support team is available for technical information.

Information about the responsible contact person can be obtained at any time by telephone or e-mail. You may also visit our website for contact details:
See https://www.thermokon.de/en/contact/contact-persons/

We appreciate your contributions, feedback and user experiences in order to constantly improve our products!

2 Description of product features

The Thermokon room control units (NOVOS family and thanos EVO) combine all relevant room functionalities for an intelligent room control in one device, such as temperature control or control of fans, luminaires, blinds or screens. Additionally, depending on the device configuration, up to four sensors can be integrated (CO2, VOC, temperature, humidity) to maintain a comfortable room climate throughout.

The room control units offer the following main features:

- Integration of up to four different sensors (temperature, relative humidity, CO2 and VOC)
- Intuitive and comfortable control of room climate
- Call up ECO mode for energy-savings and a sustainable climate control ("Green Leaf")
- Control of fan coils and other ventilation devices
- Control of lighting fixtures and shades
- Call up individually defined scenes (e.g.: meeting, presentation, break, not occupied)
- Display of text messages, further information and operating states, such as "Window open", room occupied/unoccupied etc.
- Structured visual presentation of measured values with trends and traffic light indication
- Digital input for external devices (e.g. window contacts, dew point sensor etc.)

2.1 Device versions

NOVOS 7	NOVOS Touch	thanos EVO
		

NOVOS Touch and thanos EVO are functionally identical and only differ in design.

3 Assembly and commissioning

Proper commissioning ensures a seamless and safe use of the devices. Please observe the instructions in the corresponding data sheet.

3.1 Connection

3.1.1 RS485 Wiring

The maximum cable length per line should not exceed 1,200 meters. The last device in a line must be terminated with a 120 Ohm resistor to avoid signal reflections from the BUS. Please make sure, that both resistors are properly connected to the terminals. The MODBUS specification requires the use of terminating resistors (120 - 150 Ohm, 0.25 W) at both ends. The terminating resistor is not included in the delivery of the devices.

The room operating units load the BUS with a standard BUS load (1/1 unit load according to the RS485 standard). This allows up to 32 room operating units to be operated on one single BUS line.

Please also note that RS485 does NOT support star topologies and no stub line connection!

If no signals are present on the BUS, it must be ensured that the signal levels (voltage) are fixed. This can be done through pull-up / pull-down resistors on the drivers. These form a voltage divider with the installed BUS termination resistors. It must be ensured, that there is at least a differential voltage of 200mV detectable for the receiver between the data lines A and B.

3.1.2 Operation with alternating voltage power supply (AC)

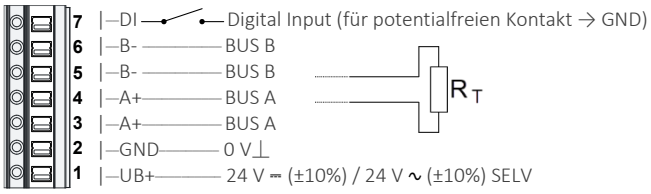
If several field devices are supplied from one AC voltage source according to the specification, it is mandatory, that all "positive" operating voltage inputs (+) of the field devices are connected to each other, and all "negative" operating voltage inputs (-) = reference potential are connected to each other (series connection of the field devices).

If the polarity of the supply voltage is reversed on one of the field devices, a short circuit of the supply voltage would occur. The short-circuit current thus flowing through this field device leads to a damage of this device.

Pay attention to a correct wiring!

3.1.3 Electrical connection

Connect the power supply and the RS485 lines according to the wiring diagram. Power must be supplied from sources that meet the requirements for protective low voltage. After switching on the power supply, the device starts up.



3.2 RS485 BUS Configuration

Each device that communicates through Modbus is assigned a unique address. In serial networks, only the node assigned as the Master may execute a command. The BUS interface can be parameterized by using the onboard screen configuration menu (Chapter 4.4).

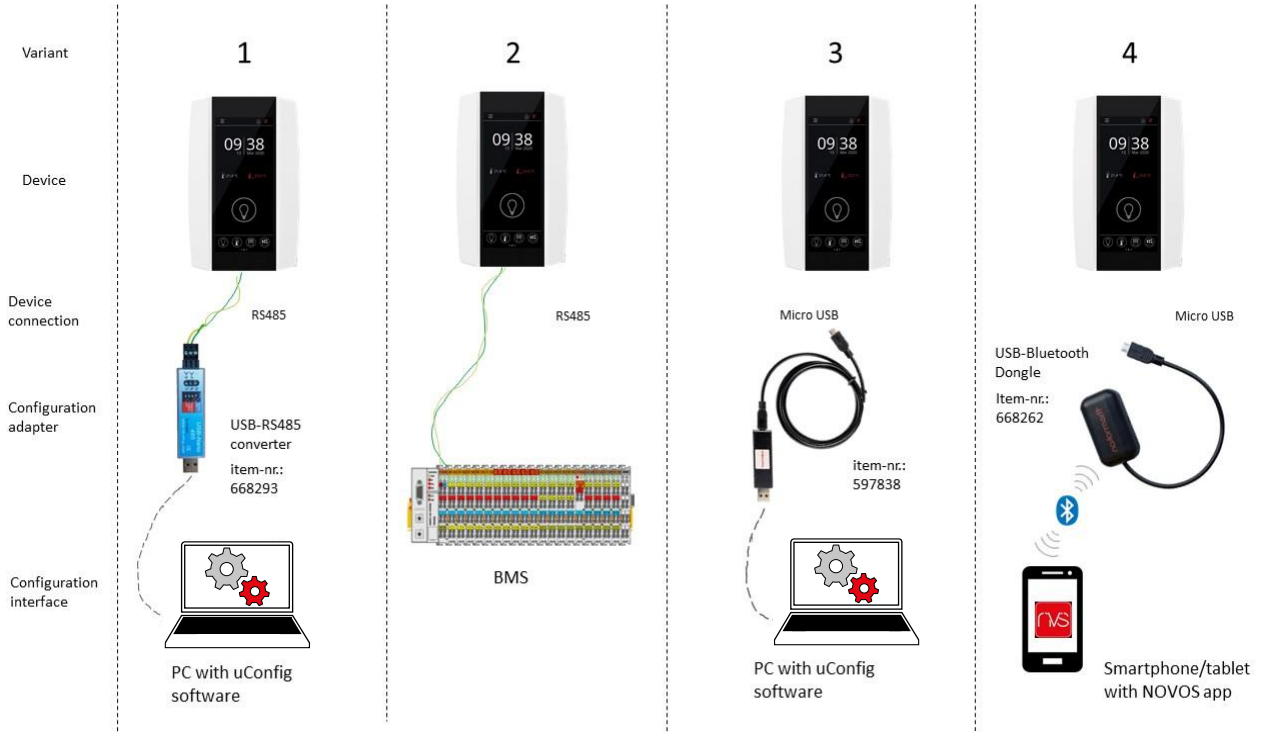
	NOVOS 7		NOVOS Touch / thanos EVO	
Bus address	1-247 (Address 1 – factory default) 1/1 Bus load per device, corresponds to 32 participants per segment			
Baud rate	9600		4800	
	19200		9600	
	38400	(factory default)	14400	
	57600		19200	
	76800		38400	(factory default)
	115200		56000	
			57600	
			76800	
			115200	
Parity and stop bit		Even	(factory default)	
		Odd		
		None, 1 Stop bit		
		None, 2 Stop bits		

3.3 Configuration

The first section of this document provides a basic overview of the functions and parameterization options of the device. For configuration, the software NOVOSapp (for mobile devices) or as a plug-in for our configuration interface uConfig (for PC/Laptops) is available.

The following options are available to configure the device:

- Parameterization with mobile end devices via Bluetooth and NOVOSapp. A Bluetooth dongle (accessory) is required.
  Bluetooth dongle item no.: 668262
  The NOVOSapp for Android or Apple mobile devices is available at the Google Play Store or Apple AppStore
- Parameterization via desktop PC/laptop with the uConfig software (option 1) and a USB/RS485 converter (item no.: 668293)
- Parameterization via desktop PC/laptop with the uConfig software (option 2), and a micro USB/RS232 converter (item no.: 597838)
- Parameterization via building management System (BMS) using the RS485 Modbus network



3.4 Structure of the variables (Data blocks of Modbus-Register)

The parameters are split into two main groups: the configuration parameters and the communication data. The configuration parameters are e.g. device information or operating parameters that determine how the device processes the sent/received data. The configuration parameters are permanently stored in a non-volatile memory (EEPROM) (exception: date and time). The communication data are variable data, which the Master and Slave exchange with each other. These data are not stored in the EEPROM.

4 Display and operation

4.1 Display and operating elements

The NOVOS 7 has an intuitive user interface using a rotary/press encoder and four capacitive keys below the screen. NOVOS Touch and thanos EVO have a high-resolution full-touch display, which is used for operating and navigating through the menus. Both devices use a structured and language-neutral graphical user interface.

NOVOS 7	NOVOS Touch	thanos EVO
3,5“ TFT	4,8“ TFT	
320x480 Pixel	1120x480 Pixel	
4 capacitive keys rotary/press encoder	Full touch	

4.2 Home screen

The display on the home screen of the NOVOS room control units can be parameterized. All icons and notifications can be de-/activated individually. The set point and actual value can also be overwritten. In order to preserve the display illumination, it is recommended to either dim or completely switch off the display brightness in standby mode. To reduce the risk of ablation effects of the screen content, it is recommended to use the screen saver. By default, the screen saver switches on 120 seconds after the last user interaction. If the room control unit must be protected against unauthorised use, a screen lock can be set up with an unlock code of 4 digits. The screen lock becomes active when the room control unit switches to standby mode.

4.2.1 Status bar (Header)

In the header of the main screen, various icons can be shown or hidden as needed through a software variable or user interaction (e.g. occupancy). Communication icons are only linked to an internal logic.



NOVOS 7



NOVOS Touch / thanos EVO

- Condensation (Icon ON/OFF)
- Window open (Icon EIN/AUS)
- Calibration due (Icon EIN/AUS with logic)
  In connection with the calibration countdown, the icon is automatically displayed after the time until next calibration has expired. The calibration countdown must be set so that the icon appears after specified time. After the countdown has elapsed and calibration is completed, the countdown must be reset and the icon switched off.
- BUS communication error (logic)
  If no valid BUS communication is detected within 30 seconds, the icon will automatically appear.
- USB communication mode (logic)
  When the USB connection via the MicroUSB port on the bottom of the device is active, the icon automatically appears.
- Room occupancy - occupied/unoccupied
  Description see “ECO function”.
- ECO function
  (Icon ON/OFF or user interaction)
  The room occupancy and ECO function are triggered on the device via toggle button.
  NOVOS 7: Depending on the configuration, switching to ECO mode is conducted either in the respective submenu (carousel), in the temperature menu or through a favorite button.
  NOVOS Touch/thanos EVO: Select ECO in the temperature menu or - if configured - also via a favorite key.
- Heating mode(Icon ON/OFF)
  The icons “heating” and “cooling” can also be displayed in color (heating = red / cooling = blue). For this purpose, the corresponding parameter must be set in the display settings. The set point in the center of the home screen is then displayed in the same color as the setting.
- Cooling mode (Icon ON/OFF)
  For additional settings, see "Heating mode".
- PIR active (Icon ON/OFF)
- Warning (Icon ON/OFF)
- Maintenance due
  In connection with the maintenance countdown, the icon is automatically displayed after the maintenance countdown has elapsed. In order to have the icon appear, the maintenance interval must be set. After the countdown has expired and maintenance has been conducted, the countdown must be reset and the icon should be switched off again.

Coil data block „Display“ (Icons)

- Condensation
  - Coil 16
    On = 1 | Off = 0
- Window open
  - Coil 17
    On = 1 | Off = 0
- Calibration due
  - Coil 18
    On = 1 | Off = 0
- Communiaction error
- USB Communication mode active
- Heating mode
  - Coil 22
    On = 1 | Off = 0
- Cooling mode
  - Coil 23
    On = 1 | Off = 0
- PIR
  - Coil 24
    On = 1 | Off = 0
- Warning
  - Coil 26
    On = 1 | Off = 0
- Maintenance due
  - Coil 27
    On = 1 | Off = 0

Data block „Room climate“

- Room occupancy
  - Data address 100
    unoccupied = 0 | occupied = 1
- ECO function
  - Data address 101
    ECO not active = 0 | ECO active = 1

Configuration data block „Display“

Display icons and heating/cooling set point in color (red/blue)
- Data address 1212
  On = 1 | Off = 0

Configuration data block „General“

- Calibration countdown; adress 1114
- Calibration interval: adress 1116
- Maintenance countdown; adress 1113
- Maintenance interval; adress 1115

4.2.2 Status messages / date and time



NOVOS 7



NOVOS Touch / thanos EVO

During operation, any text messages (max. 24 characters), room names, status messages and other notifications e.g. alarms can be displayed in the main screen. Unicode (see chapter 8) is used to display characters, letters and numbers. A data address is available for each character. The status messages are not stored and must be written again by the BMS after each restart of the device. Characters are written from left to right.

Example text: TEST
Address 400 = 54 *(HEX)*: T
Address 401 = 45 *(HEX)*: E
Address 402 = 53 *(HEX)*: S
Address 403 = 54 *(HEX)*: T

Time and Date
Time and date can be shown or hidden independently of each other. The date formats DD.MM.YYYY or MM.DD.YYYY and the time formats 24h or 12h (AM/PM) are available. The date and time displays are active on delivery and are shown in the format 24h - DD.MM.YYY.

4.2.3 Individual Logo

With uConfig, an individual graphic can be loaded into the room control unit. This graphic can be used as a logo for the boot screen, instead of the time and date on the home screen or as a screensaver.



NOVOS 7



NOVOS Touch / thanos EVO

NOVOS 7
resolution: 320x210 px
colour depth 32-bit
picture format: bmp

NOVOS Touch/ thanos EVO
resolution: 480x210 px
colour depth 32-bit
picture format: bmp

Data block „status display“

- **Status massage**
  - Data adress 400-423

Configuration data block „general“

- **Format Date**
  - Data address 1104
    0 = Display Off
    1 = DD.MM.YYYY
    2 = MM.DD.YYYY
- **Format time**
  - Data address 1105
    0 = Display Off
    1 = 12h (AM/PM)
    2 = 24h
- **Setting Date**
  - Year; Data address 1106
  - Month; Data address 1107
  - Day; Data address 1108
- **Setting time**
  - Hour; Data address 1109
  - Minute; Data address 1110
  - Second; Data address 1111

Configuration data block „Display“

- **Screensaver**
  - Data address 1207
    0 = Off
    1 = Date/ Time
    2 = individual graphic
- **Display of an own logo (binary coded)**
  - Data address 1213
    bit 0 = 1, Display graphic on bootscreen
    bit 1 = 1, Display graphic on homescreen

4.2.4 Room temperature, set point, sensor measuring values



NOVOS 7



NOVOS Touch / thanos EVO

Room temperature and set point can be shown or hidden independently. In addition, the set point can displayed as an absolute or relative value. The room temperature and set point can be overwritten by the BMS at any time during operation.

As a default configuration, the display shows room temperature and set point and the set point is displayed as an absolute value. The adjustment range of the set point is ± 3K on delivery and the step width of the adjustment is ±0.5K. All the above settings can certainly be configured as required.

In conjunction with the heating and cooling icons in the header, the set point can also be displayed in color (heating set point = red / cooling set point = blue).

In addition, two further sensor values can be displayed via registers 1215 and 1216.

Data block „Climate“

- **Set point**
  - Data address 103
- **Room temperature**
  - Data address 106

Configuration data block „Display“

- **Display of a 3rd sensor value on the main screen (binary coded)**
  Data adress 1215
  - Bits 0 - 14:

    Value 0 = deactivated
    Value 1 = temperature
    Value 2 = relative humidity
    Value 3 = CO2
    Value 4 = VOC
    Value 5 = absolute humidty
    Value 6 = enthalpie
    Value 7 = dew point
    Value 8 = CO2 / VOC MIX
    Value 9 = external sensor 1
    Value 10 = external sensor 2
    Value 11 = external sensor 3
    Value 12 = external sensor 4

  - Bit 15:
    1 = TLF active
    0 = TLF deactivated
- **Display of a 4th sensor value on the main screen (binary coded)**
  - Data adress 1216

  Bits 0-15 see Display 3rd sensor value

Configuration data block „Climate“

- **Selection – which values are displayed on the home screen**
  - Data address 1313

    1 = Display room temperature
    2 = Display set point
    3 = Display both values
- **Set point definition**
  - Data address 1301

    0 = absolute | 1 = relative
- **Base set point**
  - Data address 1302

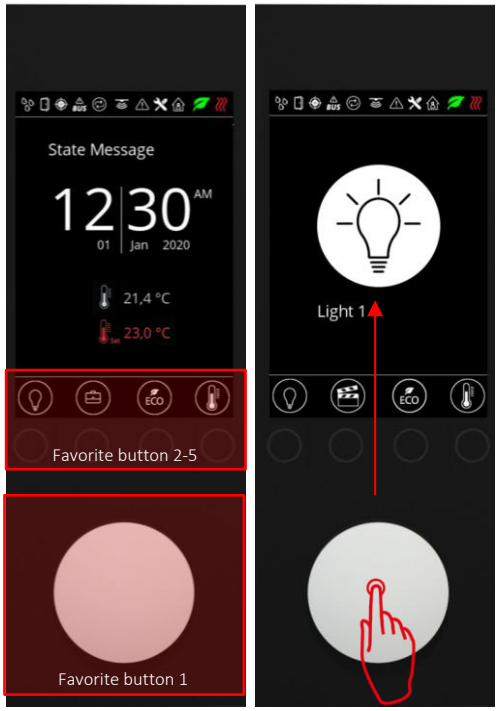
    210 = 21,0 °C
- **Set point adjustment range**
  - Data address 1303

    30 = ±3,0K
- **Set point adjustment step width**
  - Data address 1304

    1-50 = ±0,1K - ±5,0K

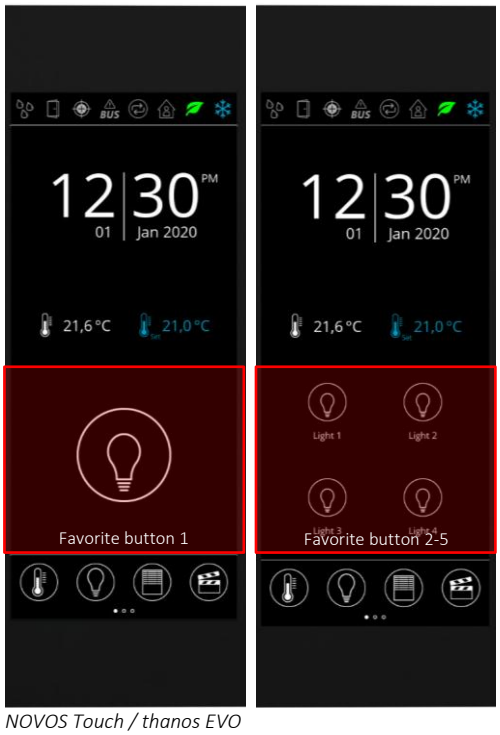
4.2.5 Favorite buttons

The favorite buttons can be assigned with freely selectable functions. The names of the individual lights or scenes can be defined individually. In addition to the up to eight lightings/lighting groups or scenes, functions such as Presence (Presence/Absent), ECO (ON/OFF) and the Climate, Lighting, Blind, Scenes and Monitoring menus can be assigned as favorite buttons (see Specification tab; "General" configuration data block).



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Favorite buttons NOVOS 7
Below the screen there are four configurable capacitive touch buttons. The corresponding symbols are displayed in the footer of the main screen. These keys correspond to the parameters of the favorite buttons 2 to 5. The push function of the rotary/push encoder corresponds to the favorite button 1. If the favorite button 1 is pressed in standby or on the home screen, the respective function is triggered and the corresponding symbol is displayed on the home screen for approx. 3 seconds.



NOVOS Touch / thanos EVO

Favorite buttons NOVOS Touch / thanos EVO
If only one favorite button in the home screen is required, address 1117 (button 1) must be written. If several favorite buttons are needed (two to a maximum of four), the data addresses 1118 to 1121 (keys 2 to 5) must be assigned the desired favorite functions as well.

Configuration data block „General“

- **Favorite button 1**
  - Data address 1117
- **Favorite button 2**
  - Data address 1118
- **Favorite button 3**
  - Data address 1119
- **Favorite button 4**
  - Data address 1120
- **Favorite button 5**
  - Data address 1121

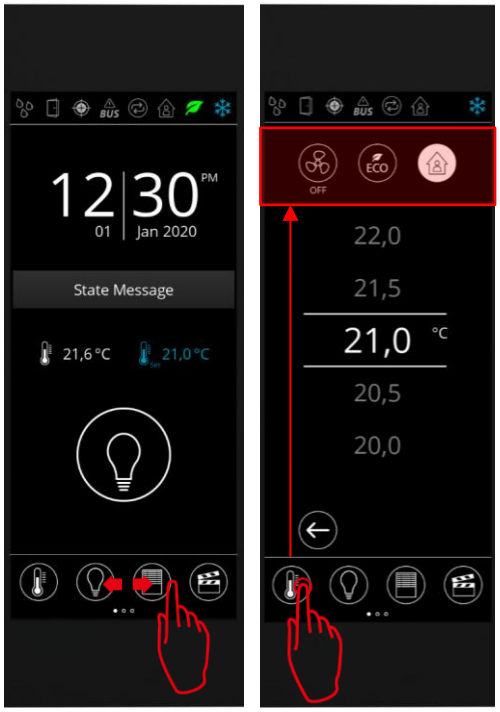
0 = no function
1 = Light 1
2 = Light 2
3 = Light 3
4 = Light 4
5 = Light 5
6 = Light 6
7 = Light 7
8 = Light 8
9 = Scene 1
10 = Scene 2
11 = Scene 3
12 = Scene 4
13 = Scene 5
14 = Scene 6
15 = Scene 7
16 = Scene 8
17 = Occupancy
18 = Eco
19 = Menu Climate
20 = Menu Light
21 = Menu Blind
22 = Menu Scenes
23 = Menu Monitoring
24 = Menu Fan control (NOVOS 7)

4.3 Main menu



NOVOS 7

NOVOS 7 Carousel *(main menu)*
By turning the encoder, the NOVOS 7 switches to the main menu (carousel). The menu is still operated by the rotary/press encoder. All functions i.e. symbols (except the settings menu) can be activated or deactivated individually. All menu items are active during initial installation.



NOVOS Touch / thanos EVO

NOVOS Touch / thanos EVO Menu bar *(Navigation bar)*
The menu bar is located at the bottom of the touch display (equivalent to the carousel of the NOVOS 7). The menu bar is a central element on the home screen. With a swipe gesture, you can switch between the menu pages in the menu bar. In the menu bar, all menu items are displayed as buttons. The activation of the ECO mode, switching of room occupancy and the submenu for fan speed adjustment are arranged in the Climate menu - unlike the NOVOS 7. To activate or deactivate the ECO mode and to trigger the room occupancy status, simply touch the button.

Configuration data block „General“

- Display menu monitoring
  - Data address 1122
    0 = no
    1 = yes

Configuration data block „Display“

- Display button standby
  - Data address 1205
    0 = no
    1 = yes

Configuration data block „Climate“

- Display menu temperature
  - Data address 1300
    0 = no
    1 = yes
- Display button ECO
  - Data address 1305
    0 = no
    1 = yes
- Display room occupancy
  - Data address 1306
    0 = no
    1 = yes
- Display fan control
  - Data address 1308
    0 = no
    1 = yes

Configuration data block“Lighting“

- Display menu light
  - Data address 1400
    0 = no
    1 = yes

Configuration data block „Shading“

- Display menu shading
  - Data address 1600
    0 = no
    1 = yes

Configuration data block „Szenen“

- Display menu scenes
  - Data address 1800
    0 = no
    1 = yes

4.3.1 Climate menu (Temperature)

The climate control menu contains the set point, fan stage adjustment, ECO function and presence. The set point (shift) can be display with relative or absolute values. With the ECO mode being active, it is not possible for the user to adjust the set point and fan stages.



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NOVOS 7 climate menu

The operation of the menu is intuitively lead by using the rotary/push button. The buttons for ECO, room occupancy and fan speed adjustment can be optionally displayed in the Temperature menu. On delivery, these buttons are not active in the Climate menu, the set point is shown as an absolute value of 21°C and the set point adjustment is uses a stepwidth of 0.5K in the range of ±3K around the base set point (21°C). This can be customized individually. If the fan stage is activated in the climate menu, the adjustment can be performed directly using the button, toggling through the fan stages (see below).

Example with factory settings

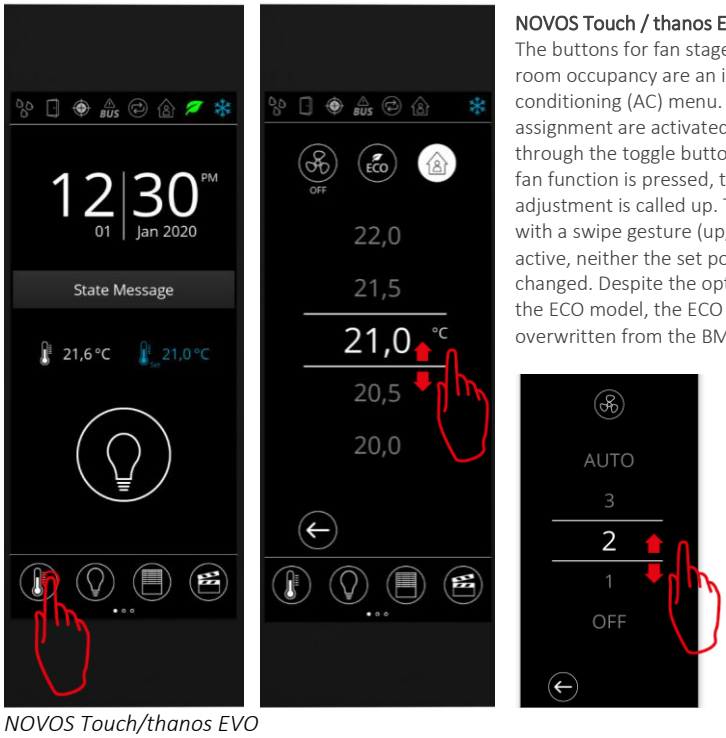


ECO mode **„not active“ ► „active“**



Room occupancy **„unoccupied“ ► „occupied“**





NOVOS Touch/thanos EVO

NOVOS Touch / thanos EVO Climate Menü

The buttons for fan stage adjustment, ECO mode and room occupancy are an integral part of the air-conditioning (AC) menu. ECO mode and room assignment are activated or deactivated directly through the toggle button. When the button for the fan function is pressed, the menu for fan stage adjustment is called up. The fan stage can be selected with a swipe gesture (up/ down). If the ECO mode is active, neither the set point nor the fan stage can be changed. Despite the option that a user can change the ECO model, the ECO mode can also be overwritten from the BMS.

Configuration data block „Climate“

- **Set point definition**
  - Data address 1301
    0 = absolute | 1 = relative
- **Base set point**
  - Data address 1302
    210 = 21,0 °C
- **Set point adjustment range**
  - Data address 1303
    30 = ±3,0K
- **Set point adjustment step width**
  - Data address 1304
    1-50 = ±0,1K - ±5,0K
- **Display ECO button**
  - Data address 1305
    0 = no | 1 = Menu bar or Carousel
    for NOVOS 7:
    2 = Carousel and climate menu
- **Display room occupancy button**
  - Data address 1306
    0 = no
    1 = Menu bar or Carousel
    for NOVOS 7:
    2 = Carousel and climate menu
- **Room occupancy after restart**
  - Data address 1307
    0 = unoccupied
    1 = occupied
- **Display fan control**
  - Data address 1308
    0 = no
    1 = Menu bar or Carousel
    for NOVOS 7:
    2 = Carousel and climate menu
- **Number of stages**
  - Data address 1309
    0-5
- **Fan stage AUTO available**
  - Data address 1310
    0 = no
    1 = yes
- **Minimum fan stage**
  - Data address 1311
    0-5
- **Fan stage after Reset**
  - Data address 1313
    0-5 = Fan Off– Stage 5
    6 = Auto

4.3.2 Scene Menu

In the Scene menu, up to eight scenes can be configured individually. Scenes can be activated or deactivated using the rotary/push button (NOVOS 7) or the touch display (NOVOS Touch).



NOVOS 7



NOVOS Touch/thanos EVO

Scene groups
Buttons for up to eight different scenes can be created for a quick change of the room status and peripheral devices connected. The names of the individual scenes (max. 12 characters) can be freely assigned. Nine different scene icons can be selected for customization.
There is no linkage between the individual scenes. If scenes are mutually exclusive, this logic must be performed by the BMS.

4.3.3 Light menu

In the Light menu, it is possible to manage up to eight lighting groups. Depending on the technical conditions, the individual light groups can be switched or dimmed individually.



NOVOS 7





Lighting groups NOVOS 7
There are four different icons and a maximum of 12 characters available for the name.
If a light is dimmable, this is indicated in the button with the dimming symbol. If the dimming adjustment is parameterized with a "slider", the percentage of dimming is also displayed. The dimming value can be set by the user with the rotary/push button in the respective sub-menu of the lighting group. If dimming is configured as “push button” mode instead of the “slider” bar, the percentage value does not get displayed and the dimming adjustment is performed with 2 push button commands (+) and (-).

Non-dimmable lights are switched ON or OFF directly with the push-button. In this case, a short or long push-button action is shown in the respective register. After the register has been read, it will automatically be reset to “NoPress”.

Example
Light 1 **„not active“ ► „active“**



Configuration data block „Scenes“

- **Number of scenes**
  - Data address 1801
    0-8

- **Selection the icon for scenes**
  - Icon scene 1; Data address 1814
  - Icon scene 2, Data address 1827
  - Icon scene 3; Data address 1840
  - Icon scene 4; Data address 1853
  - Icon scene 5; Data address 1866
  - Icon scene 6; Data address 1879
  - Icon scene 7; Data address 1892
  - Icon scene 8; Data address 1905


0 = Work


1 = Präsentation


2 = Cinema


3 = Party


4 = Sleep


5 = Dinner


6 = do not disturb


7 = Cleaning


8 = Scene


9 = Universal On/Off


8 = Power socket


11 = Skylight

Configuration data block „Light“

- **Number of lighting groups**
  - Data address 1401
    0-8

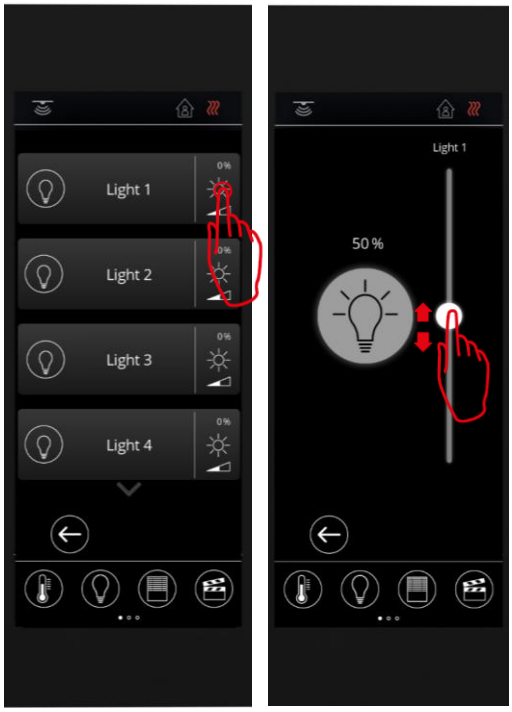
- **Selection of the lighting icons**
  - Light 1; Data address 1415
  - Light 2, Data address 1433
  - Light 3; Data address 1451
  - Light 4; Data address 1469
  - Light 5; Data address 1487
  - Light 6; Data address 1505
  - Light 7; Data address 1523
  - Light 8; Data address 1541


0 = Universal bulb

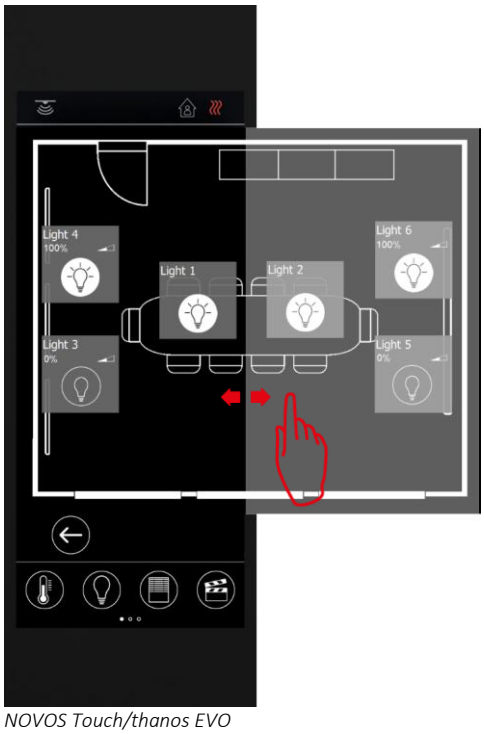

1 = Spot


2 = Light cassette


3 = Floor lamp

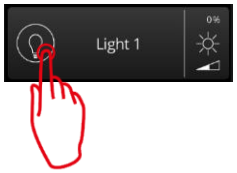


NOVOS Touch/thanos EVO



NOVOS Touch/thanos EVO

Lighting groups NOVOS Touch / thanos EVO
Equivalent to NOVOS 7, up to eight different lighting groups can be controlled with NOVOS Touch and thanos EVO. Four different icons and max. 12 characters for the name are available.
If a light is dimmable, this is indicated by the dimming symbol inside the button of the respective light group. If the dimming adjustment is parameterised as a "slider", the percentage of dimming is also displayed. The dimming value can be set by the user with a "Swipe" gesture in the respective sub-menu of the lighting group.
By clicking the button, the luminaire or lighting group can be switched ON and OFF again directly. The last dimming value is assumed.



If dimming is configured as “push button” mode instead of the “slider” bar, the percentage value does not get displayed and the dimming adjustment is performed with 2 push button commands (+) and (-). In that case, a short or long key press is shown in the respective register. After the register has been read, it will automatically be reset to “NoPress”.

Non-dimmable lights are switched on or off directly with the button.

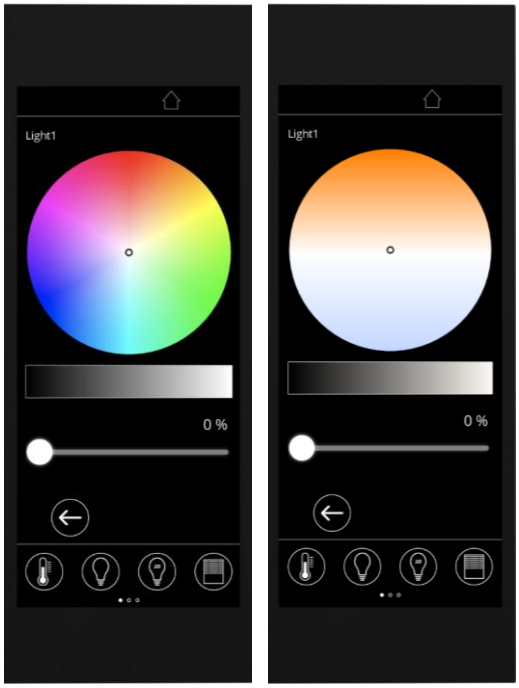
2D room/floor plan display
As an alternative or in addition to the list visualization, a room can be graphically visualized in two dimensions with NOVOS Touch or thanos EVO. The luminaires are displayed in the plan by lighting symbols. An exact positioning of the buttons is possible through a coordinate system. For example, a floor plan (1-bit color depth, black/white) of a room can be uploaded into the device. The upload can be conducted using the “uConfig” software. It must be ensured that the image size is 960x800 pixels. If a lighting group is dimmable, the respective button in the room plan must be pressed for longer than two seconds to access the dimming menu.

User key lock
(AUTO mode, Data address 208 | Coil 32-39)
With NOVOS 7, Touch and Thanos EVO, the keys of the individual lighting circuits can be blocked by the BMS. All locked keys of the respective lighting group are greyed out in the entire user interface and cannot be operated by the user. In active Auto mode, the locked lighting groups are switched and dimmed exclusively by the BMS via Modbus.

Configuration data block „Light“

- **Display of the lighting groups**
  - Data address 1402
    List view = 0
    Floor plan = 1
    Display both = 2

4.3.4 RGB(W) Color picker / Color temperature picker



RGB(W) Colorpicker
Whether classic RGB or RGBW lighting, the Colorpicker makes it easy to choose any colour you like and use it for lighting. NOVOS Touch determines the colour value of a selected point on the colour wheel and displays it in RGB(W) format. Up to 16 million light colours are thus possible
A dimmer slider is also available for the respective lighting circuit.

Color temperature picker
Whether bright daylight or a warm lighting scenario, any shade of white is possible with the colour temperature picker. Limit values for the color temperature can be configured.

Konfigurationsdatenblock „Licht“

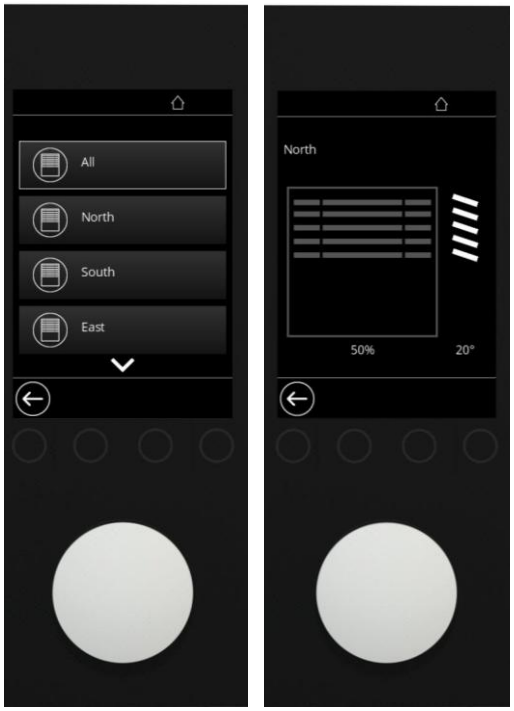
- **Lichtgruppe Verstellung**
  - Light 1; Data address 1416
  - Light 2; Data address 1434
  - Light 3; Data address 1452
  - Light 4; Data address 1470
  - Light 5; Data address 1488
  - Light 6; Data address 1506
  - Light 7; Data address 1424
  - Light 8; Data address 1542

  Slider = 0
  Push button operation = 1
  Push button operation (raw) = 2
  RYB Color picker = 3
  (*color circle + dimmer slider)*
  Color temperature picker = 4
  (*color circle + dimmer slider)*

- **Limit values color temperature**
  - Min. light color 1; Data address 1547
  - Max light color 1; Data address 1548
  - Min. light color 2; Data address 1549
  - Max light color 2; Data address 1550
  - Min. light color 3; Data address 1551
  - Max light color 3; Data address 1552
  - Min. light color 4; Data address 1553
  - Max light color 4; Data address 1554
  - Min. light color 5; Data address 1555
  - Max light color 5; Data address 1556
  - Min. light color 6; Data address 1557
  - Max light color 6; Data address 1558
  - Min. light color 7; Data address 1559
  - Max light color 7; Data address 1560
  - Min. light color 8; Data address 1561
  - Max light color 8; Data address 1562

  Min. value 1000-6600K
  Max. value 6600-15000K

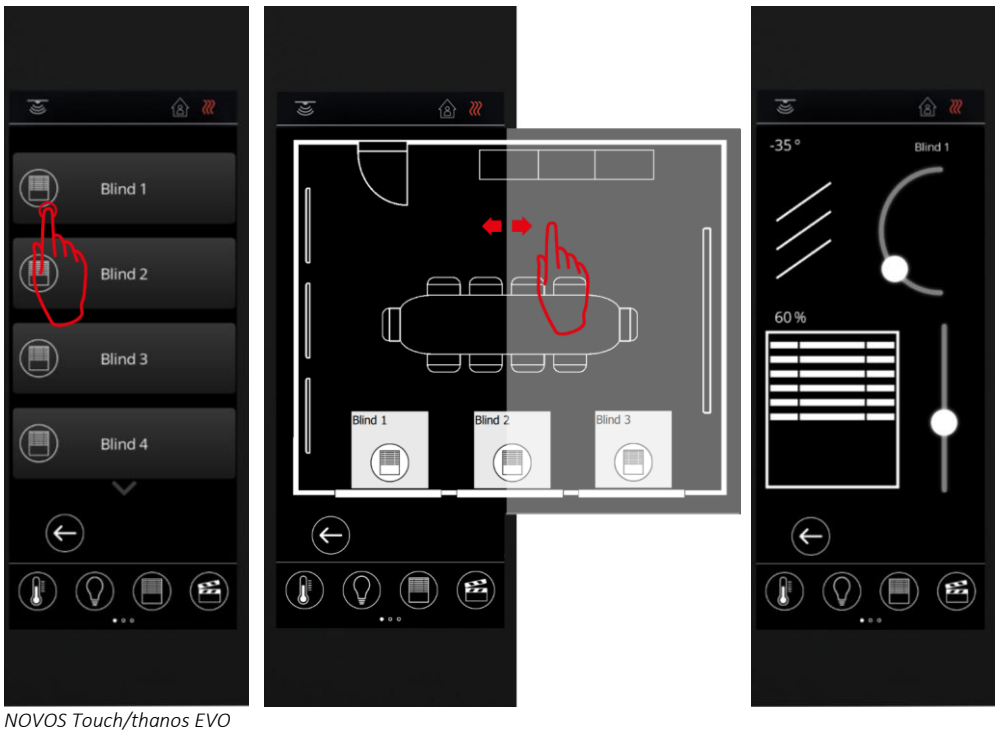
4.3.5 Shading menu



NOVOS 7

Shading groups
Just like the lighting groups, up to eight shading circuits can be controlled. The shading menu is available in the NOVOS 7, NOVOS Touch as well as thanos EVO.
Depending on the application, shutters or blinds can be configured with or without angle adjustment.
The user interface concept is identical to the lighting circuits (see chapter 4.3.2).

User key lock
(AUTO mode, Data address 316 | Coil 40-47)
With NOVOS 7, Touch and Thanos EVO, the keys of the individual shading groups can be blocked by the BMS. All locked keys of the respective shading group are greyed out in the entire user interface and cannot be operated by the user. In active Auto mode, the locked shading groups are switched and dimmed exclusively by the BMS via Modbus.



NOVOS Touch/thanos EVO

Configuration data block „Shading“

- **Number of shading groups**
  - Data address 1601
    0-8
- **Display of the shading groups**
  - Data address 1602
    List view = 0
    Representation in the room plan = 1
    Display both= 2
- **Selection of the shading icons**
  - Shading 1; Data address 1615
  - Shading 2, Data address 1636
  - Shading 3; Data address 1657
  - Shading 4; Data address 1678
  - Shading 5; Data address 1699
  - Shading 6; Data address 1720
  - Shading 7; Data address 1741
  - Shading 8; Data address 1762


0 = Shutter


1 = Shutter group


2 = Roller shutter


3 = Roller shutter group


4 = Curtain


5 = Curtain group

4.3.6 Monitoring Menu



NOVOS 7



NOVOS Touch/thanos EVO

Measured value monitoring

The Monitoring menu provides a complete overview of the measured values of the device. In addition, up to four external values can be displayed, which are transmitted from the BMS to the room unit. The "Traffic Light Function" (TLF) is used for the indicative function based on the logic of a traffic light.

Using freely selectable threshold values, the individual measured values can be clearly highlighted with freely selectable colors. In the background of the button, a line chart can be used to visually illustrate the value trend of the last 60 minutes.

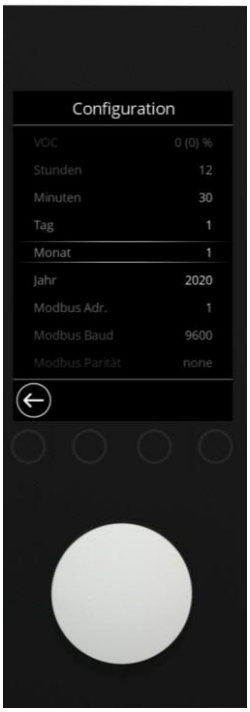
This menu is for viewing measured values only and does not contain any additional control elements. Depending on the application, the entire menu or only individual measurement values can be hidden.

Configuration datablock „Sensors“
(The following parameters only apply to the monitoring menu)

- **Display temperature**
  - Data address 2014
    0 = o
    1 = yes
- **Display relative humidity**
  - Data address 2114
    0 = no
    1 = yes
- **Display absolute humidity**
  - Data address 2214
    0 = no
    1 = yes
- **Display enthalpy**
  - Data address 2314
    0 = no
    1 = yes
- **Display dew point**
  - Data address 2414
    0 = no
    1 = yes
- **Display CO2**
  - Data address 2514
    0 = n0
    1 = yes
- **Display VOC**
  - Data address 6114
    0 = no
    1 = yes
- **Display VOC/CO2 mix**
  - Data address 2714
    0 = no
    1 = yes
- **Display extern sensor 1**
  - Data address 2814
    0 = no
    1 = yes
- **Display extern sensor 2**
  - Data address 2914
    0 = no
    1 = yes
- **Display extern sensor 3**
  - Data address 3014
    0 = no
    1 = yes
- **Display extern sensor 4**
  - Datenadresse 3114
    0 = nein
    1 = ja

4.4 Configuration menu





NOVOS 7





NOVOS Touch/thanos EVO

The configuration menu offers the possibility to change the interface parameters, date and time as well as offsets of the measured values.
Additional information such as hardware or software versions can also be called up through the configuration menu.
Furthermore, the configuration menu can be hidden automatically after a pre-defined time after switching on the power supply. Once the configuration menu is hidden, it is only available again after a power reset for the predefined time.

The password for NOVOS 7 / Touch and thanos EVO is "**2030**" and is set initially as a default factory setting. It can be changed at any time via NOVOSapp or BUS.

Configuration data block „General"

- **Automatic hiding of the configuration menu**
  - Data address 1123
    0 = Off
    1 -60 = after 1 till 60 minutes
- **Code-lock**
  - Data address 1124
    0000 - 9999
    (Factory default 2030)
- **Factory setting of the interface setting**
  - **Address 1**
  - **38400 Bd**
  - **Parity Even**
  - **1 Stop bit**

5 RS485 Modbus Register-Specification

The register assignment of all Modbus-capable NOVOS devices is uniformly structured. Depending on the product and version, certain registers are not used. Unused or empty registers are written with the value -1 by default.

All configuration registers (except 1106-1111) are written into the EEROM of the device.

The following data blocks contain configuration options and functions of the entire NOVOS family.

5.1 Data block “Favourites”

With the help of the favourite registers, the user can create his own project-specific register structure. Favourite registers are links or duplicates of already existing registers. Especially for small projects (with e.g. only one light circuit and/or two blinds), not all registers need to be queried by the BMS, but only a few favourite registers are required. The advantage is the significantly shorter reading times per device.

The individual assignment is made through the configuration registers from register 5000 ff.

Example: If register 5000 contains the value 103, the effective setpoint is provided in favourite register 1. If register 5001 contains the value 500, the temperature reading is provided in favourite register 2.

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Favourite 0	*Assignment see register 5000*	●	●					0
Favourite 1	*Assignment see register 5001*	●	●					1
Favourite 2	*Assignment see register 5002*	●	●					2
Favourite 3	*Assignment see register 5003*	●	●					3
Favourite 4	*Assignment see register 5004*	●	●					4
Favourite 5	*Assignment see register 5005*	●	●					5
Favourite 6	*Assignment see register 5006*	●	●					6
Favourite 7	*Assignment see register 5007*	●	●					7
Favourite 8	*Assignment see register 5008*	●	●					8
Favourite 9	*Assignment see register 5009*	●	●					9
Favourite 10	*Assignment see register 5010*	●	●					10
Favourite 11	*Assignment see register 5011*	●	●					11
…	…	●	●					
Favourite 99	*Assignment see register 5099*	●	●					99

To reduce further bus accesses to the NOVOS Touch room operating unit, polling sequences can be suspended when the room operating unit is not being operated. Every touch on the touch screen is recognised and saved. The detected interaction can be reset manually by the BMS or automatically after a set time.

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Interaction Touchscreen	**Touchdisplay is touched** 1 = Interaction detected 0 = no interaction (Reset after 4008)		●			0	r / w uint16_t	197
Reset time after detected interaction	Time after which data address 197 is reset. 0 disables the reset time – In this case the data address 197 must be written back from the BMS. Value in seconds.		●			0	r / w uint16_t	4008

5.2 Data block “Room Climate”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Room Occupancy	**Switching the room occupancy** N7/Touch/EVO: Toggle- Function in the device menu 0 = Unoccupied 1 = Occupied	●	●	0	1	Reset value Addr. 1307	r / w uint16_t	100
ECO Mode	**Switching the ECO Mode** 0 = ECO not active 1 = ECO active	●	●	0	1	0	r / w uint16_t	101
Colour ECO function	**Colour of the ECO icon in the status bar** 0 = transparent (Icon not visible) 1 = white 2 = black 3= red 4 = green 5 = blue 6 = yellow 7 = magenta 8 = turquoise 9 = orange 10 = Contrast colour	●	●	0	10	4	r / w uint16_t	102
Setpoint (effective)	**Setpoint set by the user on the device. The value can be overwritten by the BMS at any time.** 210 = 21,0 °C	●	●	min	max	Base Setpoint	r / w int16_t	103
Fan stage (internal)	**Fan stage set by the user** 0 = OFF 1 = Stage 1 2 = Stage 2 3 = Stage 3 4 = Stage 4 5 = Stage 5 6 = Auto	●	●	0	6	Reset value (N7 / Touch / EVO)	r uint16_t	104
Fan stage (Feedback from BMS)	**Overwriting the fan stage** *If the operator has selected the Auto Fan Mode (104=6), the exact fan level can be additionally displayed with the higher-level control.* **Exception:** *With NOVOS 7, only the designation AUTO is displayed for parameter 7-12 in the fan menu.* **Attention:** *With NOVOS 5, only the AutoStages(6..12) can be overwritten* 0 = OFF 1 = Stage 1 2 = Stage 2 3 = Stage 3 4 = Stage 4 5 = Stage 5 6 = Auto 7 = Auto Stage 0 8 = Auto Stage 1 9 = Auto Stage 2 10 = Auto Stage 3 11 = Auto Stage 4 12 = Auto Stage 5	◌	●	0	12	Reset value (N7 / Touch / EVO)	r / w uint16_t	105
Overwrite temperature value on home screen	**The temperature value displayed on the home screen can be overwritten/preset via the BMS.** -1 = Internal Temperature value Range temperature writable 0…500 = 0…50,0 °C 0…1220 = 0…122,0 °F	●	●	-1	1220	-1	r / w int16_t	106

5.3 Data block “Lighting”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Coil mapping **Status of lighting 1-8** **Status Scenes 1-8**	**Coil states ON/OFF (chapter 7.1 & 7.2) of lighting and scenes (bit-coded)** bit 0 - bit 7 = lighting 1-8 bit 8 - bit 15 = scenes 1-8	●	●				r / w uint16_t	**199**
Lighting status 1	**Depending on the configuration in register 1416, the action of the user is provided.** *Details in register 1416.* The Light ON/OFF state is output in coils 0-7. See coil data block "Light" (chapter 7.1). 0..100 = Dimm_Value 110 = Button_No_Press 111 = Button_Short_Press_UP 112 = Button_Long_Press_UP 113 = Button_Short_Press_DOWN 114 = Button_Long_Press_DOWN 115 = Button_Pressed_UP 116 = Button_Pressed_DOWN	●	●	0	116	0	r / w uint16_t	200
Lighting status 2		●	●					201
Lighting status 3		●	●					202
Lighting status 4		●	●					203
Lighting status 5		●	●					204
Lighting status 6		●	●					205
Lighting status 7		●	●					206
Lighting status 8		●	●					207
AUTO Mode **for Lighting 1-8** *Summary of coils 32-39*	**If individual lighting circuits are to be controlled temporarily exclusively by the BMS, the buttons for setting individual lighting circuits can be disabled.** **All the buttons on the user interface are greyed out.** Lighting 1-8 (binary coded) bit 0 = Buttons Lighting 1 bit 1 = Buttons Lighting 2 ... bit 7 = Buttons Lighting 8 0 = AUTO-Mode OFF 1 = AUTO-Mode ON (Buttons locked)	●	●	0	255	0	r / w uint16_t	208

The following register block describes the RGB(W) values of the colour picker (colour mixer) or the color temperature of the color temperature picker.

RYB(W) Value **or color temperature** *(according to setting, Data address 1416)* **Lighting 1**	**Red value 0..255** **or color temperature 0..15.000 K**		●	0	15000		r / w uint16_t	210
	Green-value 0..255		●	0	255		r / w uint16_t	211
	Blue value 0..255		●	0	255		r / w uint16_t	212
	White value 0..255		●	0	255		r / w uint16_t	213
...								
RYB(W) Value **or color temperature** *(according to setting, Data address 1542)* **Lighting 8**	**Red value 0..255** **or color temperature 0..15.000 K**		●	0	15000		r / w uint16_t	238
	Green value 0..255		●	0	255		r / w uint16_t	239
	Blue value 0..255		●	0	255		r / w uint16_t	240
	White value 0..255		●	0	255		r / w uint16_t	241

5.4 Data block “Shading”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Shading status 1	**Depending on the configuration in register 1616, the action of the user is performed.** *Details in Register 1616.* 0..100 = Position of the Blind (0= max. Down, 100 = max. Up) 110 = Button_No_Press 111 = Button_Short_Press_UP 112 = Button_Long_Press_UP 113 = Button_Short_Press_DOWN 114 = Button_Long_Press_DOWN 115 = Button_Pressed_UP 116 = Button_Pressed_DOWN	●	●	0	116	0	r / w uint16_t	300
Slat adjustment Blind 1	**Angle adjustment of the slats** -180..180 °	●	●	-180	180	0	r / w uint16_t	301
Shading status 2	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	302
Slat adjustment Blind 2	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	303
Shading status3	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	304
Slat adjustment Blind 3	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	305
Shading status 4	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	306
Slat adjustment Blind 4	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	307
Shading status 5	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	308
Slat adjustment Blind 5	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	309
Shading status 6	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	310
Slat adjustment Blind 6	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	311
Shading status 7	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	312
Slat adjustment Blind 7	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	313
Shading status 8	*Description see Shading status 1*	●	●	0	116	0	r / w uint16_t	314
Slat adjustment Blind 8	*Description see Slat adjustment 1*	●	●	-180	180	0	r / w uint16_t	315
AUTO Mode for Shading 1-8 *Summary of coils 40-47*	**If individual shading circuits are to be controlled temporarily exclusively by the BMS, the buttons for setting individual shading circuits can be disabled. All the buttons on the user interface are greyed out.** Shading 1-8 (binary coded) bit 0 = Buttons Shading 1 bit 1 = Buttons Shading 2 ... bit 7 = Buttons Shading 8 0 = AUTO-Mode OFF 1 = AUTO-Mode ON (Buttons locked)	●	●	0	255	0	r / w uint16_t	316

5.5 Data block “Status display and special functions”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Status report	**Message is displayed in the Home screen.** **Max. 24 characters. Not defined by default. One character in Unicode format per register.** *Register 400..423*	●	●				r / w	400..423
Display OFF	**Display is switched off automatically. The display wakes up again at the next user interaction. Alternatively, the display can be re-activated through BMS.** 0 = not active 1 = active	●	●	0	1	0	r / w	424
Force a restart (Software reset)	**Device is reset to configured settings (volatile data is reset = software reset)** 0 = not active 1 = active	●	●	0	1	0	r / w	425
LED ON/OFF	**The LED can be switched OFF / ON directly using the values 0 or 1. Alternatively, it can be switched OFF/ON on when the button gets pressed (value = 2).** 0 = not active 1 = active 2 = Room occupancy / Button status			0	2	0	r / w	426
LED colour	**The colour of the LED can be changed by the BMS in this register.** 0 = transparent 1 = white 2 = black 3 = red 4 = green 5 = blue 6 = yellow 7 = magenta 8 = turquoise			0	8	4	r / w	427
Piezo-buzzer frequency	frequency 0-15.000 Hz	●	●	0	15.000		r / w	428
Piezo-buzzer duration	duration 0-65.535 milli seconds	●	●	0	65.535		r / w	429

5.6 Data block “Sensors”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Temperature	Configuration of the sensor parameters see Register block 2010 ff.	●	●				r int16_t	500
rel. Humidity	Configuration of the sensor parameters see Register block 2110 ff.	●	●				r int16_t	501
abs. Humidity	Configuration of the sensor parameters see Register block 2210 ff.	●	●				r int16_t	502
Enthalpy	Configuration of the sensor parameters see Register block 2310 ff.	●	●				r int16_t	503
Dew point	Configuration of the sensor parameters see Register block 2410 ff.	●	●				r int16_t	504
CO2	Configuration of the sensor parameters see Register block 2510 ff.	●	●				r int16_t	505
VOC	Configuration of the sensor parameters see Register block 2610 ff.	●	●				r int16_t	506
CO2 / VOC MIX	Configuration of the sensor parameters see Register block 2710 ff.	●	●				r int16_t	507
ext. Sensor 1	Configuration of the sensor parameters see Register block 2809 ff.	●	●				r/w int16_t	508
ext. Sensor 2	Configuration of the sensor parameters see Register block 2909 ff.	●	●				r/w int16_t	509
ext. Sensor 3	Configuration of the sensor parameters see Register block 3009 ff.	●	●				r/w int16_t	510
ext. Sensor 4	Configuration of the sensor parameters see Register block 3109 ff.	●	●				r/w int16_t	511
Sensor error	**Information, if an internal sensor failure is detected** **Sensor failure is bit-coded:** Bit 0 = Temp_rH Bit 1 = Temp Bit 2 = VOC Bit 3 = CO2	●	●				r uint16_t	513
Status of digital input	**Connection to terminal 7** 0 = open 1 = closed	●	●				r uint16_t	514

6 Configuration data blocks

6.1 Configuration data block “Device”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Device description	**Max. 24 characters. Not defined by default. One character in Unicode format per register.** *Register 1000..1023*	●	●			0	r / w	1000..1023
Production date Month/Day	**Is written during calibration of the base PCB** (hexadecimal) MMDD	●	●			0	r/w uint16_t	1030
Production date Year	**Is written during calibration of the base PCB** (hexadecimal) YYYY	●	●				uint16_t	1031
Operating hours Counter	NOVOS 7: Increments by +24 every 24 hours NOVOS Touch: Increments +1 every hour	●	●			0	r uint32_t	1032
Firmware Version (Main/Subversion)	**Main/Subversion** Example.: V1.5.12 = 0x01050C00 VVSS (hex)	●	●				r uint16_t	1035
Firmware Version (Revision/Build)	**Revision/Build** Example.: V1.5.12 = 0x01050C00 VVSS (hex)	●	●				r uint16_t	1036

6.2 Configuration data block “General”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Measuring system	**Change of the measurement unit system** 1 = SI 2 = Imp	●	●	1	2	1	r / w uint16_t	1100
Language	**Setting the language** 1 = German 2 = English 7 = Czech 9 = Russian	●	●	1	2	2	r / w uint16_t	1101
Date Format	**Setting the date format** 0 = OFF 1 = DD.MM.YY 2 = YY.MM.DD	●	●	0	2	1	r / w uint16_t	1104
Time format	**Setting the time format** 0 = OFF 1 = 12h (am/pm) 2 = 24h	●	●	0	2	2	r / w uint16_t	1105
Date Year	**Setting the date** YYYY MM DD	●	●	2000	2099	2019	r / w uint16_t	1106
Date Month		●	●	1	12	1	r / w uint16_t	1107
Date Day		●	●	1	31	1	r / w uint16_t	1108
Time Hour	**Setting the time** HH MM SS	●	●	0	23	12	r / w uint16_t	1109
Time Minute		●	●	0	59	0	r / w uint16_t	1110
Time Second		●	●	0	59	0	r / w uint16_t	1111
Definition “long” button push	**Threshold value where a button push is interpreted as a short or long push** x milliseconds	●	●	250	5000	700	r / w uint16_t	1112
Maintenance countdown	**Hourly value Default: 24 months / Counts down every hour. If the value is 0, maintenance is recommended.**	●	●	0	65535	0	r / w uint16_t	1113
Calibration countdown	**Hourly value Default: 24 months / Counts down every hour. If the value is 0, calibration is recommended.**	●	●	0	65535	0	r / w uint16_t	1114
Maintenance interval	**Factory default setting** **0 = Maintenance deactivated** *(Icon not active after countdown expire, at value >0, icon active after countdown expire)* 0 … 48 Months	●	●	0	48	0	r / w uint16_t	1115
Calibration interval	**Factory default setting** **0 = Calibration deactivated** *(Icon not active after countdown expire, at value >0, icon active after countdown expire)* 0 … 48 Months	●	●	0	48	0	r / w uint16_t	1116

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Favourite button 1	**Select the function of the favourite button(s) on the Home screen.** **The favourite button is directly linked to the linked function menu.** **The assignment of favourite buttons for NOVOS 7 / Touch and Thanos EVO is explained in detail in the corresponding data sheets.** 0 = no function 1 = Lighting 1 2 = Lighting 2 3 = Lighting 3 4 = Lighting 4 5 = Lighting 5 6 = Lighting 6 7 = Lighting 7 8 = Lighting 8 9 = Scene 1 10 = Scene 2 11 = Scene 3 12 = Scene 4 13 = Scene 5 14 = Scene 6 15 = Scene 7 16 = Scene 8 17 = Occupancy 18 = Eco 19 = Menu Climate 20 = Menu Lighting 21 = Menu Jalousie 22 = Menu Scenes 23 = Menu Monitoring 24 = Menu Fan control (NOVOS 7)	●	●	0	23	17	r / w uint16_t	1117
Favourite button 2	*see Favourite button 1*	●	●			1	r / w uint16_t	1118
Favourite button 3	*see Favourite button 1*	●	●			2	r / w uint16_t	1119
Favourite button 4	*see Favourite button 1*	●	●			9	r / w uint16_t	1120
Favourite button 5	*see Favourite button 1*	●				10	r / w uint16_t	1121
Menu Monitoring (Display ON/OFF)	**Display of the monitoring menu for internal and external sensors** 0 = no 1 = yes	●	●	0	1	1	r / w uint16_t	1122
Menu Settings	**Auto Hide** The "Settings" menu disappears after a certain time after a power reset 0 = OFF 1..60: show menu for 1..60 minutes	●	●	0	60	0	r / w uint16_t	1123
Code lock	**Code lock for the settings menu** **Four-digit PIN**	●	●	0	9999	2030	r / w uint16_t	1124
Interval Measurement diagram	**Interval for measurement diagram recording in seconds. A diagram contains max. 60 measuring points.** Interval = 5s 60 x 5s = 5 minutes Diagram Interval = 60s 60 x 60s = 60 minutes Diagram 5...60 s	●	●	5	60	5	r / w uint16_t	1127

6.3 Configuration data block “Display”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Brightness (Active)	**Brightness of the backlight during interaction (LCD active) (NOVOS 5 LCD)** 0..100 %	●	●	0	100	100	r / w uint16_t	1200
Brightness (Standby)	**Brightness of the backlight after interaction (LCD Standby)** (NOVOS 5 0..100 % LCD)	●	●	0	100	30	r / w uint16_t	1201
Change to standby (Screensaver) after x seconds	**Display switches to standby mode after x seconds** 1..120 seconds	●	●	1	120	120	r / w uint16_t	1202
Change to main screen after x seconds	**Time in seconds until the device automatically switches back to the Home screen (if configured)** 1..120 seconds (0 disables the function)	●	●	0	120	60	r / w uint16_t	1203
Duration Cleaning mode	**Duration of the cleaning mode** 1..60 seconds (0 disables the function)	●	●	0	60	15	r / w uint16_t	1204
Button standby (Display ON/OFF)	**Show/hide menu button for standby** *(Touch/EVO menu incl. cleaning mode)* 0 = no 1 = yes	●	●	0	1	1	r / w uint16_t	1205
Measured values display	**Measured values are shown alternating or in parallel in the display** 1 = parallel 2 = alternating			1	2	1	r / w uint16_t	1206
Screensaver	**Activating the screensaver** 1 = Date / Time 2 = individual graphic	●	●	0	2	1	r/w uint16_t	1207
Colour GUI background	**Individual background colour** Colour 32-bit hex-coded	●	●	0x00000000	0xFFFFFFFF	0x000000FF		1208
Colour GUI Text	**Individual character colour** Colour 32-bit hex-coded	●	●	0x00000000	0xFFFFFFFF	0xFFFFFFFF		1210
Display heating/cooling text and icons in colour (blue/red)	**Setting whether the setpoint and the icons for heating and cooling should be displayed in colour** 0 = no 1 = yes	●	●			1		1212
Display of an individual logo or icon	**Display individual graphic (binary coded)** bit 0 = 1, show logo/ icon in the bootscreen bit 1 = 1, display logo/ icon in the homescreen (instead of time/date)	●	●	0	3	0	r/w uint16_t	1213
Lockscreen (activated with standby)	**4 digit unlock code** 0 = not active/ >0 = active unlock code: 0001..9999	●	●	0	9999	0	r/w uint16_t	1214

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Sensor value 3 on the main screen	**Display of a 3rd sensor value on the main screen (binary coded)** Bits 0 - 14: Value 0 = deactivated Value 1 = Temperature Value 2 = Relative humidity Value 3 = CO2 Value 4 = VOC Value 5 = Absolute humidity Value 6 = Enthalpy Value 7 = Dew point Value 8 = CO2 / VOC MIX Value 9 = external sensor 1 Value 10 = external sensor 2 Value 11 = external sensor 3 Value 12 = external sensor 4 Bit 15: 1 = TLF active 0 = TLF deactivated	0	65535		r/w uint16_t	1215		
Sensor value 4 on the main screen	See display of sensor value 3	0	65535		r/w uint16_t	1216		

6.4 Configuration data block “Climate”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Display temperature menu (Display ON/OFF)	**Display temperature menu in menu bar** 0 = no 1 = yes [1] **Display setpoint** *NOVOS 5: Showing and hiding the setpoint*	●	●	0	1	1	r / w uint16_t	1300
Setpoint Definition	**Defining, how the setpoint should be displayed** absolute = 0 relative = 1	●	●	0	1	0	r / w uint16_t	1301
Base Setpoint	x ° 210 = 21,0 °C	●	●	0	5000	210	r / w int16_t	1302
Setpoint adjustment range	**The offset applies to both the positive and negative adjustment range** +/- x ° 30 = ±3,0 K	●	●	0	500	30	r / w int16_t	1303
Setpoint step width	**Step width during setpoint adjustment** 1 = 0,1 5 = 0,5 10 = 1,0	●	●	0	50	5	r / w uint16_t	1304
ECO button (Display ON/OFF)	**Display ECO button** *(menu bar and temperature menu)* 0 = no 1 = yes [1] Only NOVOS 7: 2 = yes, climate menu and carousel In ECO mode, users cannot adjust the setpoint and fan stage.	●	●	0	2	1	r / w	1305
Room Occupancy button (Display ON/OFF)	**The room occupancy function is shown in the display** 0 = no 1 = yes [1] Only NOVOS 7: 2 = yes, climate menu and carousel *If the value = 0, the room occupancy is not displayed in the status bar. If the value is changed to =1 by the BMS or by pressing the room occupancy button, the icon reappears in the status bar.*	●	●	0	2	1	r / w	1306
Room Occupancy after power reset	**State room occupancy after device restart.** unoccupied = 0 occupied = 1	●	●	0	1	1	r / w uint16_t	1307
Fan Stages (Display ON/OFF)	**Displaying the fan stage menu in the display** 0 = no 1 = yes [1] Only NOVOS 7: 2 = yes, climate menu and carousel	●	●	0	2	1	r / w	1308

Number of Fan Stages	**Number of selectable fan stages** 0 = 0 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5	●	●	0	5	3	r / w	1309
Fan Stage "Auto"	**Auto Fan Stage available** 0 = no 1 = yes	●	●	0	1	1	r / w uint16 _t	1310
Minimum Fan Stage	**Minimum selectable Fan stage** 0 = 0 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5	●	●	0	5	0	r / w uint16 _t	1311
Fan Stage after power reset	**Preset Fan Stage after power reset** 0 = OFF 1 = Stage 1 2 = Stage 2 3 = Stage 3 4 = Stage 4 5 = Stage 5 6 = Auto	●	●	0	6	6	r / w	1312
Value display on home screen	**Select, which value should be displayed in the home screen.** Bit 0: Display actual temperature Bit 1: Display setpoint *Value = 0 -= OFF* *Value = 1 -= ON*	●	●	0	**3**	3	r / w	1313

6.5 Configuration data block “Lighting”

Up to 8 different light circuits can be operated and parameterized.

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Display lighting menu (Display ON/OFF)	**Display lighting menu in the menu bar** 0 = no 1 = yes	●	●	0	1	1	r / w	1400
Number lighting circuits	**Number of adjustable lighting circuits** 0...8	●	●	0	8	8	r / w	1401
Graphical representation of the lighting circuits	**With NOVOS Touch and thanos EVO this function can be displayed via the corresponding submenu and/or via a 2D room graphic** 0 = List view 1 = 2D Floor plan view 2 = both		●	0	2	0	r / w	1402
Lighting 1 - Description	**Name for the first lighting circuit** Max. 12 characters. One character in Unicode format per register	●	●			Light 1	r / w	1403..1414
Lighting 1 – Icon 0 1 2 3	**Selection of the icon for Lighting 1** 0 = Universal light bulb 1 = Spot 2 = Light-cassette 3 = Floor lamp	●	●	0	105	0	r / w	1415

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
	For dimmable luminaires there are various possibilities to adjust the dimming level. **Slider:** The dimming value is set via a bar with slider. **Push button operation:** NOVOS evaluates whether a long or short button push for up or down is actuated. After the read operation, the value in register X must be reset by the BMS to "*not pressed*". **Push button operation (raw):** In register X, the command for up / down is performed as long as the button is pressed. After releasing the button, the value automatically switches back to "*not pressed*". This principle is only suitable for fast BUS topologies. With high latency times, it may happen that button commands are not recognized due to high latencies.							
Lighting 1 - Adjustment	**RYB-Color picker** (Only Novos Touch and thanos EVO). RGBW values can be selected using a colour circle and a dimmer slider. The values are output via registers 210-241. The dimming slider scales the RGBW values in the range 0 - 255. **Color temperature picker**: (Only Novos Touch and thanos EVO). A color temperature circuit can be used to select a color temperature. The values are output via the red registers in the register range 210 - 241. The dimming value is output via registers 200 - 207. The colour temperature selection range can be configured via registers 1547 -1562. 0 = Slider 1 = Push button operation 2 = Push button operation (raw) 3 = RYB Color picker color circle + dimmer slider) 4 = Color temperature picker color circle + dimmer slider)	●	●	0	2	0	r / w	1416

Lighting 1 - Dimmable	**Selection, whether the lighting circuit is dimmable** 0 = no 1 = yes	●	●	0	1	1	r / w	1417
Lighting 1 - Dimming intervals	**Definition of the dimming step width** 0...100 %	●	●	0	100	5	r / w	1418
Lighting 1 - Coordinate X	Starting from the upper left corner of the graphic. 480 pixels for one-sided graphics / 960 pixels for two-sided graphics 0..960 pixels		●	0	960	0	r / w	1419
Lighting 1 - Coordinate Y	Starting from the upper left corner of the graphic. 0..800 pixels		●	0	800	0	r / w	1420
Lighting 2 - Description	*Description see Lighting 1*	●	●			Light 2	r / w	1421
Lighting 2 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1433
Lighting 2 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1434
Lighting 2 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1435
Lighting 2 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1436
Lighting 2 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1437
Lighting 2 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1438
Lighting 3 - Description	*Description see Lighting 1*	●	●			Light 3	r / w	1439
Lighting 3 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1451
Lighting 3 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1452
Lighting 3 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1453
Lighting 3 – Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1454
Lighting 3 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1455
Lighting 3 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1456
Lighting 4 - Description	*Description see Lighting 1*	●	●			Light 4	r / w	1457
Lighting 4 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1469
Lighting 4 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1470
Lighting 4 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1471
Lighting 4 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1472
Lighting 4 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1473
Lighting 4 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1474

Lighting 5 - Description	*Description see Lighting 1*	●	●			Light 5	r / w	1475
Lighting 5 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1487
Lighting 5 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1488
Lighting 5 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1489
Lighting 5 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1490
Lighting 5 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1491
Lighting 5 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1492
Lighting 6 - Description	*Description see Lighting 1*	●	●			Light 6	r / w	1493
Lighting 6 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1505
Lighting 6 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1506
Lighting 6 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1507
Lighting 6 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1508
Lighting 6 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1509
Lighting 6 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1510
Lighting 7 - Description	*Description see Lighting 1*	●	●			Light 7	r / w	1511
Lighting 7 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1523
Lighting 7 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1524
Lighting 7 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1525
Lighting 7 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1526
Lighting 7 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1527
Lighting 7 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1528
Lighting 8 - Description	*Description see Lighting 1*	●	●			Light 8	r / w	1529
Lighting 8 - Icon	*Description see Lighting 1*	●	●	0	105	0	r / w	1541
Lighting 8 - Adjustment	*Description see Lighting 1*	●	●	0	2	0	r / w	1542
Lighting 8 - Dimmable	*Description see Lighting 1*	●	●	0	1	1	r / w	1543
Lighting 8 - Dimming interval	*Description see Lighting 1*	●	●	0	100	5	r / w	1544
Lighting 8 - Coordinate X	*Description see Lighting 1*		●	0	960	0	r / w	1545
Lighting 8 - Coordinate Y	*Description see Lighting 1*		●	0	800	0	r / w	1546
Lighting 1 - Min. Color temperature	Lower limit for the color temperature picker 1000-6600K		●	1000	6600		r / w	1547
Lighting 1 - Max. Color temperature	Upper limit for the color temperature picker 6600-15000K		●	6600	15000		r / w	1548
Lighting 8 - Min. Color temperature	Lower limit for the color temperature picker 1000-6600K		●	1000	6600		r / w	1561
Lighting 8 - Max. Color temperture	Upper limit for the color temperature picker 6600-15000K		●	6600	15000		r / w	1562

6.6 Configuration data block “Shading”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Display shading menu (Display ON/OFF)	**Display “Shading” menu in the menu bar** 0 = no 1 = yes	●	●	0	1	1	r / w	1600
Number of Shading circuits	**Number of adjustable shading circuits** 1…8	●	●	0	8	8	r / w	1601
Graphical representation of the Shading circuits	**With NOVOS Touch and thanos EVO, this function can be displayed via the corresponding submenu and/or via a 2D room graphic** 0 = List view 1 = 2D Floor plan view 2 = both		●	0	2	0		1602
Shading 1 - Description	**Description for the first Shading circuit** Max. 12 characters. One character in Unicode format per register.	●	●			Blind 1	r / w	1603..1614
Shading 1 – Icon 0 1 2 3 4 5 	**Selection of the icon for Shading 1** Blind = 0 Blind group = 1 Roller shutter = 2 Roller shutter group= 3 Curtain = 4 Curtain group = 5	●	●	0	105	0	r / w	1615
Shading 1 – Adjustment GUI	For shading systems there are different possibilities to adjust the level **Slider:** Slider for vertical shading systems. Adjustment of the position is done through a slider bar. **Push button operation:** NOVOS evaluates whether a long or short button push for up or down is actuated. After the read operation, the value in register X must be reset by the BMS to “*not pressed*”. **Push button operation (raw):** In register X the command for up / down is performed as long as the button is pressed. After releasing the button, the value automatically switches back to “*not pressed*”. This principle is only suitable for fast BUS topologies. In case of high latency times, it may well happen that button commands are not recognized due to the high latencies. **Slider horizontal:** Slider for curtains 0 = Slider vertical (Blinds) 1 = Push button operation 2 = Push button operation (raw) 3 = Slider horizontal (Curtain)	●	●	0	2	0	r / w	1616

Shading 1 - Slat adjustment	**Selection, whether it is a shading system with slat adjustment** 0 = no 1 = yes	●	●	0	1	1 (yes)	r / w	1617
Shading 1 – Slat angle position min.	**Setting the slat adjustment range** -90°	●	●	-90	90	-80	r / w	1618
Shading 1 – Slat angle position max.	**Setting the blade adjustment range** +90°	●	●	-90	90	80	r / w	1619
Shading 1 – Slat angle position - step width	**Step width adjustment** 1..90	●	●	1	90	20	r / w	1620
Shading 1 – Blind/Shutter UP/DOWN - step width	**Step width** 1..100	●	●	1	100	10	r / w	1621
Shading 1 - Coordinate X	Starting from the upper left corner of the graphic. 480 pixels for one-sided graphics / 960 pixels for two-sided graphics 0..960 Pixel		●	0	960	0	r / w	1622
Shading 1 - Coordinate Y	Starting from the upper left corner of the graphic 0..800 Pixel		●	0	800	0	r / w	1623
Shading 2 - Description	*Description see Shading 1*	●	●			Blind 2	r / w	1624
Shading 2 - Icon	*Description see Shading 1*	●	●			0	r / w	1636
Shading 2 – Adjustment GUI	*Description see Shading 1*	●	●			0	r / w	1637
Shading 2 - Blade adjustment	*Description see Shading 1*	●	●			1 (yes)	r / w	1638
Shading 2 – Slat angle position min.	*Description see Shading 1*	●	●			-80	r / w	1639
Shading 2 – Slat angle position max.	*Description see Shading 1*	●	●			80	r / w	1640
Shading 2 – Slat angle position - step width	*Description see Shading 1*	●	●			20	r / w	1641
Shading 2 – Blind/Shutter Up/Down - step width	*Description see Shading 1*	●	●			10	r / w	1642
Shading 2 - Coordinate X	*Description see Shading 1*		●			0	r / w	1643
Shading 2 - Coordinate Y	*Description see Shading 1*		●			0	r / w	1644
Shading 3 - Description	*Description see Shading 1*	●	●			Blind 3	r / w	1645
Shading 3 - Icon	*Description see Shading 1*	●	●			0	r / w	1657
Shading 3 - Adjustment GUI	*Description see Shading 1*	●	●			0	r / w	1658
Shading 3 - Blade adjustment	*Description see Shading 1*	●	●			1 (yes)	r / w	1659
Shading 3 – Slat angle position min.	*Description see Shading 1*	●	●			-80	r / w	1660
Shading 3 – Slat angle position max.	*Description see Shading 1*	●	●			80	r / w	1661
Shading 3 – Slat angle position - step width	*Description see Shading 1*	●	●			20	r / w	1662
Shading 3 - Blind/Shutter up/Down step width	*Description see Shading 1*	●	●			10	r / w	1663
Shading 3 - Coordinate X	*Description see Shading 1*		●			0	r / w	1664
Shading 3 - Coordinate Y	*Description see Shading 1*		●			0	r / w	1665

Shading 4 - Description	*Description see Shading 1*	●	●	Blind 4	r / w	1666
Shading 4 - Icon	*Description see Shading 1*	●	●	0	r / w	1678
Shading 4 – Adjustment GUI	*Description see Shading 1*	●	●	0	r / w	1679
Shading 4 - Slat adjustment	*Description see Shading 1*	●	●	1 (yes)	r / w	1680
Shading 4 – Slat angle position min.	*Description see Shading 1*	●	●	-80	r / w	1681
Shading 4 – Slat angle position max.	*Description see Shading 1*	●	●	80	r / w	1682
Shading 4 – Slat angle position step width	*Description see Shading 1*	●	●	20	r / w	1683
Shading 4 – Blind/Shutter Up/Down - step width	*Description see Shading 1*	●	●	10	r / w	1684
Shading 4 - Coordinate X	*Description see Shading 1*		●	0	r / w	1685
Shading 4 - Coordinate Y	*Description see Shading 1*		●	0	r / w	1686
Shading 5 - Description	*Description see Shading 1*	●	●	Blind 5	r / w	1687
Shading 5 - Icon	*Description see Shading 1*	●	●	0	r / w	1699
Shading 5 – Adjustment GUI	*Description see Shading 1*	●	●	0	r / w	1700
Shading 5 - Slat angle position adjustment	*Description see Shading 1*	●	●	1	r / w	1701
Shading 5 – Slat angle position min.	*Description see Shading 1*	●	●	-80	r / w	1702
Shading 5 – Slat angle position max.	*Description see Shading 1*	●	●	80	r / w	1703
Shading 5 – Slat angle position - step width	*Description see Shading 1*	●	●	20	r / w	1704
Shading 5 – Blind/Shutter Up/Down - step width	*Description see Shading 1*	●	●	10	r / w	1705
Shading 5 - Coordinate X	*Description see Shading 1*		●	0	r / w	1706
Shading 5 - Coordinate Y	*Description see Shading 1*		●	0	r / w	1707
Shading 6 - Description	*Description see Shading 1*	●	●	Blind 6	r / w	1708
Shading 6 - Icon	*Description see Shading 1*	●	●	0	r / w	1720
Shading 6 – Adjustment GUI	*Description see Shading 1*	●	●	0	r / w	1721
Shading 6 - Slat adjustment	*Description see Shading 1*	●	●	1	r / w	1722
Shading 6 – Slat angle position min.	*Description see Shading 1*	●	●	-80	r / w	1723
Shading 6 – Slat angle position max.	*Description see Shading 1*	●	●	80	r / w	1724
Shading 6 - Slat angle position – step width	*Description see Shading 1*	●	●	20	r / w	1725
Shading 6 – Blind/Shutter Up/Down - step width	*Description see Shading 1*	●	●	10	r / w	1726
Shading 6 - Coordinate X	*Description see Shading 1*		●	0	r / w	1727
Shading 6- Coordinate Y	*Description see Shading 1*		●	0	r / w	1728

Shading 7 - Description	*Description see Shading 1*	●	●	Blind 7	r / w	1729
Shading 7 - Icon	*Description see Shading 1*	●	●	0	r / w	1741
Shading 7 – Adjustment GUI	*Description see Shading 1*	●	●	0	r / w	1742
Shading 7 - Slat angle position adjustment	*Description see Shading 1*	●	●	1 (yes)	r / w	1743
Shading 7 – Slat angle position min.	*Description see Shading 1*	●	●	-80	r / w	1744
Shading 7 – Slat angle position max.	*Description see Shading 1*	●	●	80	r / w	1745
Shading 7 – Slat angle position – step width	*Description see Shading 1*	●	●	20	r / w	1746
Shading 7 – Blind/Shutter Up/Down - step width	*Description see Shading 1*	●	●	10	r / w	1747
Shading 8 - Coordinate X	*Description see Shading 1*		●	0	r / w	1748
Shading 8 - Coordinate Y	*Description see Shading 1*		●	0	r / w	1749
Shading 8 - Description	*Description see Shading 1*	●	●	Blind 8	r / w	1750
Shading 8 - Icon	*Description see Shading 1*	●	●	0	r / w	1762
Shading 8 – Adjustment GUI	*Description see Shading 1*	●	●	0	r / w	1763
Shading 8 - Slat angle position adjustment	*Description see Shading 1*	●	●	1 (yes	r / w	1764
Shading 8 – Slat angle position min.	*Description see Shading 1*	●	●	-80	r / w	1765
Shading 8 – Slat angle position max.	*Description see Shading 1*	●	●	80	r / w	1766
Shading 8 - Slat angle position – step width	*Description see Shading 1*	●	●	20	r / w	1767
Shading 8 – Blind/Shutter Up/Down – step width	*Description see Shading 1*	●	●	10	r / w	1768
Shading 8 - Coordinate X	*Description see Shading 1*		●	0	r / w	1769
Shading 8 - Coordinate Y	*Description see Shading 1*		●	0	r / w	1770

6.7 Configuration data block “Scenes”

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Display Scene Menu (Display ON/OFF)	**Display “Scene” menu in the menu bar** 0 = non 1 = yes	●	●	0	1	1	r / w	1800
Number of Scenes	**Number of Scenes** 0...8	●	●	0	8	8	r / w	1801
Description Scene 1	**Description for the first scene.** Max. 12 characters. One character in Unicode format per register.	●	●			Scene 1	r / w	1802
Icon Scene 1 0 1 2 3 4 5 6 7 8 9 10 11	**Selecting the icon for Scene 1** 0 = Work 1 = Presentation 2 = Cinema 3 = Party 4 = Sleeping 5 = Food 6 = Do not disturb 7 = Cleaning 8 = Scene (movie flap) 9 = Universal On/Off 10 = Power socket 11 = Skylight	●	●	0	105	8	r / w	1814
Description Scene 2	*Description see Scene 1*	●	●			Scene 2	r / w	1815
Icon Scene 2	*Description see Scene 1*	●	●	0	105	8	r / w	1827
Description Scene 3	*Description see Scene 1*	●	●			Scene 3	r / w	1828
Icon Scene 3	*Description see Scene 1*	●	●	0	105	8	r / w	1840
Description Scene 4	*Description see Scene 1*	●	●			Scene 4	r / w	1841
Icon Scene 4	*Description see Scene 1*	●	●	0	105	8	r / w	1853
Description Scene 5	*Description see Scene 1*	●	●			Scene 5	r / w	1854
Icon Scene 5	*Description see Scene 1*	●	●	0	105	8	r / w	1866
Description Scene 6	*Description see Scene 1*	●	●			Scene 6	r / w	1867
Icon Scene 6	*Description see Scene 1*	●	●	0	105	8	r / w	1879
Description Scene 7	*Description see Scene 1*	●	●			Scene 7	r / w	1880
Icon Scene 7	*Description see Scene 1*	●	●	0	105	8	r / w	1892
Description Scene 8	*Description see Scene 1*	●	●			Scene 8	r / w	1893
Icon Scene 8	*Description see Scene 1*	●	●	0	105	8	r / w	1905

6.8 Configuration data block “Sensors”

Measuring value	Address range	Unit
Temperature	2010 ff. (2010-2024 / 2036-2049)	°C
Relative humidity	2110 ff. (2110-2124 / 2136-2149)	%
Absolute humidity	2210 ff. (2210-2224 / 2236-2249)	g / m³
Enthalpy	2310 ff. (2310-2324 / 2336-2349)	KJ / KG
Dew point	2410 ff. (2410-2424 / 2436-2449)	°C
CO2	2510 ff. (2510-2524 / 2536-2549)	ppm
VOC	2610 ff. (2610-2624 / 2636-2649)	Index
CO2 / VOC MIX	2710 ff. (2710-2724 / 2736-2749)	%
External Sensor 1	2809 ff. (2810-2824 / 2836-2849)	**Version <1.4 (NOVOS 7/Touch, thanos EVO)** Overwrite external value 1 = Data address 2809 Overwrite external value 2 = Data address 2909 Overwrite external value 3 = Data address 3009 Overwrite external value 4 = Data address 3109 **Version ≥ 1.4 (NOVOS 7/Touch, thanos EVO)** External value can also be set in register 508-511
External Sensor 2	2909 ff. (2910-2924 / 2936-2949)	
External Sensor 3	3009 ff. (3010-3024 / 3036-3049)	
External Sensor 4	3109 ff. (3110-3124 / 3136-3149)	

The parameters of the following configuration data block are mandatory for all listed measured variables.

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Unit	**Unit of the measured value** °C	●	●				r enum_16	2010
Offset	**Offset for compensation of external influences** *(Surface temperature, draught, etc.)* -3°C...+3°C	●	●			0	r / w int16_t	2011
Measuring range lower limit	**Min. value of the measuring range** must be within the sensor limitation [Select measuring range]	●	●			0	r / w int16_t	2012
Measuring range upper limit	**Max. value of the measuring range** must be within the sensor limitation [Select measuring range]	●	●			500	r / w int16_t	2013
Show value YES/NO	**Select, whether the value should be displayed in the monitoring menu** *(Register – Measuring value assignment see table p.25)* 0 = No 1 = Yes	●	●			1	r / w uint16_t	2014
Value TLF On / Off	**Colour visualization of the measured value via TLF** *(Traffic Light Function).* The colour thresholds can be adjusted individually. 0 = not active 1 = active with TLF w/o 60 min. chart 2 = active w/o TLF with 60 min. chart 3 = active with TLF with 60 min chart 4 = active with HTLF w/o 60 min chart 5 = active with HTLF with 60 min chart	●	●			3	r / w uint16_t	2015
Range 1 colour	**Colour definition for the first range.** *Range 1 begins with the lower measuring range limit and ends with threshold value 1-2.* 0 = transparent 1 = white 2 = black 3 = red 4 = green 5 = blue 6 = yellow 7 = magenta 8 = turquoise 9 = orange 10 = Contrast colour (do not use for TLF!)	●	●			3	r / w uint16_t	2016
Range 2 colour	**Colour definition for the second area.** *Range 2 starts with threshold 1-2 and ends with threshold 2-3.* *See Range 1*	●	●			6	r / w uint16_t	2017
Range 3 colour	**Colour definition for the third range.** *Range 3 starts with threshold 2-3 and ends with threshold 3-4.* *See Range 1*	●	●			4	r / w uint16_t	2018
Range 4 colour	**Colour definition for the fourth range.** *Range 4 starts with threshold value 3-4 and ends with threshold value 4-5.* *See Range 1*	●	●			6	r / w uint16_t	2019

Range 5 colour	**Colour definition for the fifth range.** *Range 5 begins with the threshold value 4-5 and ends with the upper range limit.* *See Range 1*	•	•	3	r / w uint16_t	2020
Threshold value 1 - 2	**Threshold value between range 1 and range 2** *Absolute value (within measuring range limits)*	•	•	160	r / w int16_t	2021
Threshold value 2 - 3	**Threshold value between range 2 and range 3** *Absolute value (within measuring range limits)*	•	•	190	r / w int16_t	2022
Threshold value 3 - 4	**Threshold value between range 3 and range 4** *Absolute value (within measuring range limits)*	•	•	230	r / w int16_t	2023
Threshold value 4 - 5	**Threshold value between range 4 and range 5** *Absolute value (within measuring range limits)*	•	•	260	r / w int16_t	2024
Sensor Icon	**Selection of the icon for the measured variable** 0 = no Icon 1 = Temperature 2 = rel. Humidity 3 = abs. Humidity 4 = Enthalpy 5 = Dew point 6 = CO2 7 = VOC 8 = CO2 / VOC Mix 9 = Pressure 10 = Brightness 11 = Energy 12 = Particles 13 = Values (universal)	•	•	0	r/w	2036
Sensor Text[0]	**Description for the sensor** Max. 12 characters. One character in Unicode format per register.					2037
Sensor Text[1]						2038
Sensor Text[2]						2039
Sensor Text[3]						2040
Sensor Text[4]						2041
Sensor Text[5]						2042
Sensor Text[6]						2043
Sensor Text[7]						2044
Sensor Text[8]						2045
Sensor Text[9]						2046
Sensor Text[10]						2047
Sensor Text[11]						2048
Display Number of decimal places						2049

6.9 Configuration data block “Favourites”

Parameter	N7	Touch/ EVO	Access	Data address
Configuration Favourite 0	●	●		5000
Configuration Favourite 1	●	●		5001
Configuration Favourite 2	●	●		5002
Configuration Favourite 3	●	●		5003
Configuration Favourite 4	●	●		5004
Configuration Favourite 5	●	●		5005
Configuration Favourite 6	●	●		5006
Configuration Favourite 7	●	●		5007
Configuration Favourite 8	●	●		5008
Configuration Favourite 9	●	●		5009
Configuration Favourite 10	●	●		5010
Configuration Favourite 11	●	●		5011
Configuration Favourite 12	●	●		5012
Configuration Favourite 13	●	●		5013
Configuration Favourite 14	●	●	r / w uint16_t	5014
Configuration Favourite 15	●	●		5015
Configuration Favourite 16	●	●		5016
Configuration Favourite 17	●	●		5017
Configuration Favourite 18	●	●		5018
Configuration Favourite 19	●	●		5019
Configuration Favourite 20	●	●		5020
Configuration Favourite 21	●	●		5021
Configuration Favourite 22	●	●		5022
Configuration Favourite 23	●	●		5023
Configuration Favourite 24	●	●		5024
Configuration Favourite 25	●	●		5025
Configuration Favourite 26	●	●		5026
Configuration Favourite 27	●	●		5027
Configuration Favourite 28	●	●		5028
Configuration Favourite 29	●	●		5029
Configuration Favourite 99	●	●		5099

7 Coils

7.1 Coil data block “Lighting”

The states of the coils for lighting and scenes are summarised bit-coded in data address 199.

Coil	Description	r / w	Address	Default	N7	Touch/ EVO
Status Lighting 1	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	0	0	●	●
Status Lighting 2	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	1	0	●	●
Status Lighting 3	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	2	0	●	●
Status Lighting 4	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	3	0	●	●
Status Lighting 5	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	4	0	●	●
Status Lighting 6	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	5	0	●	●
Status Lighting 7	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	6	0	●	●
Status Lighting 8	**Coil for Lighting ON / OFF** OFF = 0 ON = 1	r / w	7	0	●	●

7.2 Coil data block “Scenes”

The states of the coils for lighting and scenes are summarised bit-coded in the data address 199.

Coil	Description	r / w	Address	Default	N7	Touch/ EVO
Status Scene 1	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	8	0	●	●
Status Scene 2	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	9	0	●	●
Status Scene 3	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	10	0	●	●
Status Scene 4	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	11	0	●	●
Status Scene 5	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	12	0	●	●
Status Scene 6	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	13	0	●	●
Status Scene 7	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	14	0	●	●
Status Scene 8	**Coil for Scene ON / OFF** 0 = not active 1 = active	r / w	15	0	●	●

7.3 Coil data block “Display” (Icons)

Coil	Description	r / w	Address	Default	N7	Touch/ EVO
Show Dew point (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	16	0	●	●
Show Window open (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	17	0	●	●
Show Calibration (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	18	0	●	●
Show Communication error BUS (Icon)	**Coil Register for icon ON / OFF** Icon is automatically activated if no BUS command has been received for 30 s. 0 = not active 1 = active	r / w	19	0	●	●
Show USB Communication mode (Icon)	**Coil Register for icon ON / OFF** Activated automatically when USB connection is active 0 = not active 1 = active	r / w	20	0	●	●
Show ECO (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	21	0		
Show mode heating (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	22	0	●	●
Show mode cooling (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	23	0	●	●
Show PIR active (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	24	0	●	●
Show presence detected (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	25	0		
Show Warning (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	26	0	●	●
Show Maintenance (Icon)	**Coil Register for icon ON / OFF** 0 = not active 1 = active	r / w	27	0	●	●

7.4 Coil data block AUTO Mode for “Lighting” 1-8

The states of the coils for AUTO mode lighting are summarised bit-coded in data address 208.
If individual lighting circuits are to be controlled temporarily exclusively by the BMS, the keys for setting individual lighting circuits can be disabled. All the buttons on the user interface are greyed out.

Coil	Description	r / w	Address	Default	N7	Touch/ EVO
AUTO-Mode Lighting 1	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	32	0		●
AUTO-Mode Lighting 2	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	33	0		●
AUTO-Mode Lighting 3	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	34	0		●
AUTO-Mode Lighting 4	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	35	0		●
AUTO-Mode Lighting 5	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	36	0		●
AUTO-Mode Lighting 6	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	37	0		●
AUTO-Mode Lighting 7	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	38	0		●
AUTO-Mode Lighting 8	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	39	0		●

7.5 Coil data block AUTO Mode for “Shading” 1-8

The states of the coils for AUTO mode shading are summarised bit-coded in data address 316.
If individual shading circuits are to be controlled temporarily exclusively by the BMS, the buttons for setting individual shading circuits can be disabled. All the buttons on the user interface are greyed out.

Coil	Description	r / w	Address	Default	N7	Touch/ EVO
AUTO-Mode Shading 1	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	40	0		●
AUTO-Mode Shading 2	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	41	0		●
AUTO-Mode Shading 3	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	42	0		●
AUTO-Mode Shading 4	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	43	0		●
AUTO-Mode Shading 5	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	44	0		●
AUTO-Mode Shading 6	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	45	0		●
AUTO-Mode Shading 7	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	46	0		●
AUTO-Mode Shading 8	**Coil for AUTO Mode ON / OFF** 0 = not active 1 = active	r / w	47	0		●

7.6 Scheduler - Time channels

An integrated calendar function enables automated, time-controlled actions. It does not matter which actions are to be executed. Any writable register can be used as action. For example, blinds or shutters can take up a defined position at a certain time or a night-time reduction for temperature control can be implemented locally by the room control unit.
It must be specified which value a register should take over at a certain time and on a certain day of the week.
There are 24 time channels available for 24 actions (value changes).

Parameter	Description	N7	Touch/ EVO	Min	Max	Default	Access	Data address
Configuration Time channel 1	Hour	●	●	0	23		r / w uint16_t	6000
	Minute	●	●	0	59		r / w uint16_t	6001
	Weekday (value binary coded) bit 0 = Sunday bit 1 = Monday bit 2 = Tuesday bit 3 = Wednesday bit 4 = Thursday bit 5 = Friday bit 6 = Saturday	●	●	0	127		r / w uint16_t	6002
	Register address	●	●	0	32.767		r / w uint16_t	6003
	New register value	●	●	-32.768	32.767		r / w int16_t	6004
Configuration Time channel 24	Hour	●	●	0	23		r / w uint16_t	6115
	Minute	●	●	0	59		r / w uint16_t	6116
	Weekday (value binary coded) bit 0 = Sunday bit 1 = Monday bit 2 = Tuesday bit 3 = Wednesday bit 4 = Thursday bit 5 = Friday bit 6 = Saturday	●	●	0	127		r / w uint16_t	6117
	Register address	●	●	0	32.767		r / w uint16_t	6118
	New register value	●	●	-32.768	32.767		r / w int16_t	6119

8 Unicode character table (UTF-16)

Here you can find a list of the implemented Unicode characters.

Table name	Hexadecimal (implemented)	Decimal (implemented)	Original Unicode
Latin, Basic	(0x0020-0x007F)	20-127	unicode.org (PDF)
Latin, supplement	(0x0080-0x00FF)	128-255	unicode.org (PDF)
Latin, extension A	0x010C-0x011B, 0x0147, 0x0148, 0x0158-0x016F, 0x017D,0x017E	268-283, 327, 328, 344-367, 381, 382	unicode.org (PDF)
Cyrillic	0x0400-0x04FF	1024-1279	unicode.org (PDF)

9 Modbus Protocol

http://www.modbus.org/

9.1 Supported Control Commands

The following MODBUS control commands are supported by the device:

Description	Function Code	
Read Holding Register Read the binary contents of holding registers in the slave	03 (hex)	3 (dec)
Write Single Register Writes a value into a single holding register	06 (hex)	6 (dec)
Write Multiple Register Writes values into a sequence of holding registers	10 (hex)	16 (dec)
Read Coils Reads the ON/OFF status of discrete coils in the slave	01 (hex)	1 (dec)
Write Single Coil Writes a single coil to either ON or OFF	05 (hex)	5 (dec)
Write Multiple Coils Writes each coil in a sequence of coils to either ON or OFF	F (hex)	15 (dec)

9.2 Data Transmission

9.2.1 Master/Slave Protocol

One Master and one or several Slaves are connected to the serial BUS. The communication between Master and Slave is solely controlled by the Master. Slaves are only allowed to send if they were called by the Master before. Slaves are only transmitting to a Master, never to another Slave.

9.2.2 Data Frame

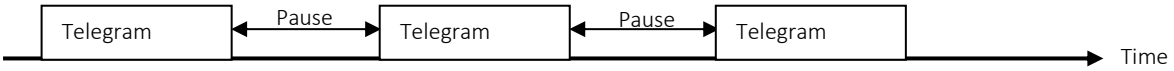
Data are transmitted on the BUS in accordance with strictly defined structures:

Address	Control Command	Data	Checksum

In general a MODBUS telegram starts with the address of a slave, followed by a control command (e.g. read register) and the data. By means of the checksum at the end of the telegram, the BUS participants can recognize transmission errors.

9.2.3 Transmission Mode RTU

In the transmission mode RTU, telegrams are separated by transmission pauses.



The period of the transmission pauses for the separation of telegrams is depending on the set baud rate and amounts to 3.5 x Word Transmission Time (11 Bit). With 9600 Baud at least 4 ms and with 19200 at least 2ms must elapse between two telegrams.

9.2.3.1 Telegram Structure

Address 1 Byte	Control Command 1 Byte	Data 0 - 100 Byte	Checksum	
			Low	High

9.2.3.2 Calculation of CRC-Checksum

The CRC checksum (Cyclical Redundancy Check) is calculated by the sender by means of all bytes transmitted and is attached to the message. Then, the receiver calculates the CRC checksum again and compares the same with the checksum received. If the values are not matching, a transmission error must be assumed and the data received are rejected. The low-order byte of the 16-bit checksum is sent in the telegram in the next-to-last position and the high-order byte at the last position.

Calculation of Checksum (programming example in C):

```
crc = 0xFFFF;                                   // CRC-Check, Init
for(i = 0; i < telegram_length-2; i++)
        crc = crc_calc(crc, telegram_data[i]);

crc_low  = crc & 0x00FF;                        // Low-Byte
crc_high = (crc & 0xFF00) >> 8;                 // High-Byte

// Calculate CRC
unsigned int crc_calc(unsigned int crc_temp, unsigned int data)
{
        unsigned int    Index_CC=0;
        unsigned int    LSB=0;
        crc_temp = ( ( crc_temp ^ data) | 0xFF00) & (crc_temp | 0x00FF) ;
        for(Index_CC = 0; Index_CC<8; Index_CC++)
        {
                LSB = (crc_temp & 0x0001);
                crc_temp >>= 1;
                if(LSB)
                crc_temp = crc_temp ^ 0xA001;       // calculation polynominal for CRC16
        }
        return(crc_temp);
}
```

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