

UIxxx – room unit (new PCB design), UIxxxBL - room unit with backlit display

- **50 words can be read or written at one request (i.e. 100 bytes)**
- **whole range can be addressed bitwise**
- **the whole memory is mirrored as read-only from address 0x101 (e.g. 257 dec)**
- **not all units support all functions (eg. Humidity, CO2) – refer to the respective data sheets**
- **supported modbus functions – F03, F16**

This table only applies for the new PCB and firmware version (number 200 and higher).

name	register	Type (def)	description	notes
module ID	1 LSB 1 MSB	R, EEPROM	module type identification UI0xx: UI 010 -> 0200hex UI 011 -> 0201hex UI 012 -> 0202hex UI 020 -> 0220hex UI 051 -> 0251hex UI 052 -> 0252hex UI 055 -> 0255hex UI 071 -> 0271hex UI 072 -> 0272hex UI 075 -> 0275hex UI90x: UI 900 -> 0296hex UI 901 -> 0297hex UI 903 -> 0298hex UI 905 -> 0299hex UI 907 -> 029Ahex	UI0xx: UI 010BL -> 0900hex UI 011BL -> 0901hex UI 012BL -> 0902hex UI 020BL -> 0920hex UI 051BL -> 0951hex UI 052BL -> 0952hex UI 055BL -> 0955hex UI 901BL -> 0997hex UI 903BL -> 0998hex UI 905BL -> 0999hex UI3xx: UI 300 -> 0203hex UI 300BL -> 0903hex UI 300/DK-> 0204hex UI 309 -> 0205hex UI 309BL -> 0905hex UI 309/DK-> 0206hex UI 319 > 0290hex UI 319BL -> 0909hex UI 319/DK-> 020Ahex
firmware	2 LSB 2 MSB	R, EEPROM	firmware version	FW version (in dec) corresponds with version of this document
status LSB	3 LSB	R, W RAM	module status lower byte bit 0 – write to EEPROM enable bit 1 – SW reset enable	Init EEPROM follows if the INIT switch was ON at power up, and if

			<p>bit 3 – calibration offset, only UI3xx</p> <p>bit 4 – init EEPROM</p> <p>bit 5 – central write block (all RW registers)</p> <p>bit 6 – span calibration, only UI3xx</p> <p>bit 7 – calibration enable, only UI3xx</p>	<p>INIT switch was OFF at setting bit 4 to 1 (indicated by bit 2 in Status MSB)</p> <p>SW reset is set by writing to register SW reset (address 1002)</p> <p>Only for UI3xx: calibration is enabled when the INIT switch was ON at power-up, and switched OFF before bit 7 was set to 1 (indicated by bit 7 in status MSB)</p> <p>calibration offset change bit 7 from 1 to 0 and set bit 3 to 1</p> <p>calibration span change bit 7 from 1 to 0 and set bit 6 to 1 (writes on bits 3, 6, 7 only by register write)</p>
status MSB	3 MSB	R	<p>module status upper byte</p> <p>bit 0 0 normal mode 1 init mode</p> <p>bit 1 1 at the next EEPROM write attempt will all data be written to EEPROM 0 at the next EEPROM write attempt will received data be written to RAM only</p> <p>bit 2 – 1 – EEPROM initialized</p> <p>bit 3 – central write disable indication</p> <p>bit 4 – edit mode indication</p> <p>bit 5 – SW reset enable</p> <p>bit 6 – reserved</p> <p>bit 7 – 1 calibration enabled, only UI3xx</p>	<p>bit 3 – indication of central write disable which is set by setting of bit 5</p> <p>bit 4 – indication of editing mode: 1 while user operates the knob, all write attempts over the bus are ignored (the same function as <i>central write disable</i>) (register 23 bit 4)</p>
address	4 LSB	R,W EEPROM (1)	Modbus module address	!!! the change will be effective after restart only (however the register will be set immediately)
baud rate	4 MSB	R,W EEPROM (13dec)	<p>No parity</p> <p>10dec ... 1 200 bps</p> <p>11dec ... 2 400 bps</p>	!!! the change will be effective after restart only (however the

			12dec ... 4 800 bps 13dec ... 9 600 bps 14dec ... 19 200 bps 15dec ... 38 400 bps 16dec ... 57 600 bps 17dec ... 115 200 bps	register will be set immediately)
serial port settings	5 LSB	R,W EEPROM (no parity, one stop bit: 0x00)	serial port communication parameters bit 0-1 ... parity (00 – no parity, 01 – even, 10 – odd) bit 2 ... stop bits (0 – one, 1 – two)	!!! the change will be effective after restart only (however the register will be set immediately)
	5 MSB		reserved	
hysteresis	6 LSB	R,W EEPROM (200ppm, 20%, 2,0K, 0x14)	hysteresis for the CO ₂ -, thermo- and hygrostat function. According to DO1 settings the DO1 function is set and meaning of hysteresis. Demanded values are in regs. set temp, set rH or set CO₂	value for: CO ₂ -stat in 10ppm, thermostat in 0,1K, hygrostat in 1%
DO1 settings	6 MSB	R,W EEPROM (modbus, 0x00)	DO function: the DO1 is active if the selected actual value is higher than setpoint	bits 0-1 ... output controlled by (00 - Modbus, 01 - CO ₂ -stat, 10 - thermostat, 11 - hygrostat)
relay	7 LSB	R, W RAM	relay outputs on/off (DO1-DO2)	bit 0 ... DO 1 bit 1 ... DO 2
latch enable	7 MSB	R, W RAM	latch enable function for individual inputs: by writing 1 into the register the particular bit in the latched value register goes to 0 and is kept until the required value is caught. After reset, the whole register is set to 0.	Resetting of the individual caught bits in the latched value register : change the particular bit from log. 0 to log.1 (disable and enable the latch function for individual bits)
time programme output	8 LSB 8 MSB	R, RAM	time scheduler output (the output value depends on the time schedule type, see the settings register), for this register to be functional (TPO) is necessary set AUTO mode (presence or day/night)	1) multistate scheduler: 0x01, 0x02, 0x04 (presence / day/night mode) 2) analogue scheduler: directly the value saved in the time schedule registers

EEPROM writes	9 LSB 9 MSB	R, EEPROM	number of EEPROM writing cycles; this register is not reset with INIT procedure, and does not overflow.	
inputs	10 LSB	R, RAM	readout of digital inputs (DI1, DI2, PUSH, PIR – incl. delay (only UI31x))	bit 0 ... DI 1 bit 1 ... DI 2 bit 2 ... PUSH button bit 3 ... PIR sensor incl. delay (reg. 222)
latched values	10 MSB	R, RAM	<p>atched values</p> <p>0 – since latch enable there was no change on the bit</p> <p>1 - since latch enable the bit value has changed its state</p>	bit 0 ... DI 1 bit 1 ... DI 2 bit 2 ... PUSH button bit 3 ... PIR sensor; to reset the bits, disable and enable latch - see latch enable
set temp	11 LSB 11 MSB	R,W EEPROM (23 °C; 0x08FC)	temperature set by user (UI09x temperature setpoint value for thermostat function) e.g. 21.5°C reads 2150	<p>recalculate: set temperature = read value / 100</p> <p>0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex</p>
set day /comfort temp	12 LSB 12 MSB	R,W EEPROM (23 °C; 0x08FC)	day mode temperature setpoint set by user (when editing, the symbols <i>thermometer</i> and <i>sun</i> are active)	<p>recalculate: set temperature = read value / 100</p> <p>0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex</p>
set night /precomfort temp	13 LSB 13 MSB	R,W EEPROM (18 °C, 0x0708)	night mode temperature setpoint set by user (when editing, the symbols <i>thermometer</i> and <i>moon</i> are active)	<p>recalculate: set temperature = read value / 100</p> <p>0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex</p>
set outside /depression temp	14 LSB 14 MSB	R,W EEPROM (15 °C, 0x05DC)	set outside temperature (at which heating may be enabled), step and resolution is fixed to 1 °C (when editing, the symbols <i>thermometer</i> and <i>house</i> are active)	<p>recalculate: set temperature = read value / 100</p> <p>0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex</p>

set DHW temp	15 LSB 15 MSB	R,W EEPROM (50 °C, 0x1388)	DHW setpoint temperature, step and resolution is fixed to 1 °C (when editing, the symbols <i>thermometer</i> and <i>water tap</i> are active)	recalculate: set temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set heating curve	16 LSB	R,W EEPROM (1)	heating curve type set by user (when editing, the symbols <i>heating</i> and <i>boiler</i> are active)	set value = 1 .. 4
	16 MSB		reserved	
actual temp	17 LSB 17 MSB	R	actual temperature measured by the internal sensor incl. correction (see corr temp)	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set rh	18 LSB 18 MSB	R,W EEPROM (40 %, 0x0FA0)	relative humidity set by user (humidity setpoint value for hygostat function)	recalculate: humidity = read value / 100 0 ... 0 100.00 ... 10000
actual rh	19 LSB 19 MSB	R, RAM	actual relative humidity measured by the internal sensor, incl. correction (see corr rh sensor)	recalculate: humidity = read value / 100 0 ... 0 100.00 ... 10000
set presence mode	20 LSB	R,W EEPROM (0x00)	<p>presence mode set by user (for hotels)</p> <p>The register is to be set by 16 bit writing command.</p> <p>The time program has 3 states: Comfort, Standby, Off. Its output is in the time programme output register. When the Presence time program type is defined, required states should be enabled in the register</p> <p>presence mode edit mask (67 LSB).</p>	<p>bit 0 ... comfort (occupied house)</p> <p>bit 1 ... standby (empty house)</p> <p>bit 2 ... off (Off)</p> <p>bit 3 ... party (occupied house + drink)</p> <p>bit 4 ... auto (clock), time schedule (if enabled)</p> <p>bit 5 ... holiday (clock + empty house)</p> <p>bit 6 ... reserved</p> <p>bit 7 ... disable writing</p> <p>(0 – value will be</p>

				written to EEPROM, 1 – writing disabled.)
set day/night mode	20 MSB	R,W EEPROM (0x00)	<p>day/night mode set by user (for residential applications)</p> <p>The register is to be set by 16 bit writing command.</p> <p>The time program has 3 states: Day auto, Night auto, Off. Its output is in the time programme output register. When the Day/Night time program type is defined, required states should be enabled in the register Day/Night mode edit mask (67 LSB).</p>	<p>bit 0 ... day auto (clock, sun)</p> <p>bit 1 ... night auto (clock, moon)</p> <p>bit 2 ... day manual (sun)</p> <p>bit 3 ... night manual (moon)</p> <p>bit 4 ... off (Off)</p> <p>bit 5 ... auto (clock), time schedule (if enabled)</p> <p>bit 6 ... holiday (clock + house)</p> <p>bit 7 ... disable writing (0 – value will be written to EEPROM, 1 – writing disabled.)</p>
set fan mode	21 LSB	R,W EEPROM (0x00)	<p>fan mode set by user (for fancoils, convectors, AHUs)</p> <p>The register is to be set by 16 bit writing command.</p>	<p>bit 0 ... Auto (fan + A)</p> <p>bit 1 ... Man Off (fan + M)</p> <p>bit 2 ... Man 1 (fan + M + Stage 1)</p> <p>bit 3 ... Man 2 (fan + M + Stage 1,2)</p> <p>bit 4 ... Man 3 (fan + M + Stage 1,2,3)</p> <p>bit 5 to 6 ... reserved</p> <p>bit 7 ... disable writing (0 – value will be written to EEPROM, 1 – writing disabled.)</p>
set heat/cool mode	21 MSB	R,W EEPROM (0x00)	<p>heat/cool mode set by user (for split units, heat pumps etc.)</p> <p>The disable writing bit may be used to write selectively (only when the presence mode value changes) as EEPROM is not suitable for permanent writing. This bit is not written to the register.</p> <p>The register is to be set by 16 bit writing command.</p>	<p>bit 0 ... off (Off)</p> <p>bit 1 ... heat only (Heat)</p> <p>bit 2 ... cool only (Cool)</p> <p>bit 3 ... fan only (Fan)</p> <p>bit 4 ... auto (Heat + Cool)</p> <p>bit 5 to 6 ... reserved</p> <p>bit 7 ... disable writing (0 – value will be written to EEPROM, 1 – writing disabled.)</p>

set user pattern mode	22 LSB	R,W EEPROM (0x00)	state of user defined mode (for each mode, the complete symbol set may be redefined) – see user pattern x symbols x , writing must follow by a 16-bit command	bit 0 ... user_1_pattern bit 1 ... user_2_pattern bit 2 ... user_3_pattern bit 3 ... user_4_pattern bit 4 ... user_5_pattern bit 5...6 reserved bit 7 ... disable writing (0 – value will be written to EEPROM, 1 – writing disabled.)
write protect delay time	22 MSB	R, W, EEPROM (10 s, 0x0A)	write protect time in seconds after user knob operation (This protection time prevents the PLC from overriding the values set manually by the knob.)	0 = off
settings	23 LSB 23 MSB	R,W EEPROM (°C, part receiving off, password protection off, CO2 in %, presence time programme, autocalibration on, 2 steps, 1 step, 0x1250)	Modbus frame part receiving: end of frame is given either by the timeout since last character (see mb timeout), i.e. only part of the frame may be received, or the complete received frame (checked during receiving). knob steps: number of steps to invoke value change by the defined step Autocalibration - is presumed that during measured time (uninterrupted power supply for 7 days) CO2 level will drop on "zero level" (outside concentration 400ppm). In permanently occupied rooms autocalibration will not work and it is necessary to turn it off.	bit 0 ... (0 – temperature display in °C, 1 – in °F; applies to LCD display only, communication is always in °C) bit 1... Modbus frame part receiving (change applies after restart) : 0- off, 1- on bit 2-3 ... time schedule type (0 - off, 1 - presence, 2 - day-night, 3 - analogue) bit 4 ... write protection (0 - off, 1 - on) bit 5 ... CO2 unit display: 0 - %, 1 - ppm bit 6 – internal autocalibration enable bit 7 ... reserved bit 8-11 ... knob steps in short edit mode bit 12-15 ... knob steps in long edit mode
latch state	24 LSB	R,W EEPROM	state to be caught 0 – log. 0 (default) 1 – log. 1	bit 0 ... DI 1 bit 1 ... DI 2 bit 2 ... PUSH button (fixed to 1 – push of the button)

relay comm	24 MSB	R,W EEPROM (0x00)	0 – no state change on communication failure (default) 1 – on communication failure (see comm timeout) the output value will be set to relay commfail state	bit 0 ... DO 1 bit 1 ... DO 2
relay state	25 LSB	R,W EEPROM (0x00)	on commfail timeout and relay comm set to 1 the outputs are set to relay commfail state	bit 0 ... DO 1 bit 1 ... DO 2
relay time	25 MSB	R,W EEPROM (0x00)	time [secs] of non-communication which is recognized as communication failure (default = 0). On comfail, outputs go to predefined states (see relay comm) and alarm bell symbol is activated on the display.	if the value is set to 0, no comm fail function is implemented
relay start enable	26 LSB	R,W EEPROM (0x00)	startup function enable 0 – no setting of outputs after power up until first communication 1 – the outputs go to the output start values after power up until the first outputs command is received	bit 0 ... DO 1 bit 1 ... DO 2
relay start	26 MSB	R,W EEPROM (0x00)	output status at power up, only active if output power up enable	bit 0 ... DO 1 bit 1 ... DO 2
min temp	27 LSB 27 MSB	R,W EEPROM (18°C, 0x0708)	minimum temperature which user can set as setpoint for temp, day and night -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max temp	28 MSB 28 MSB	R,W EEPROM (26°C, 0x0A28)	maximum temperature which user can set as setpoint for temp, day and night -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex

min outside temp	29 LSB 29 MSB	R,W EEPROM (-20°C, 0xF830)	minimum outside temperature which user can set as setpoint for heating enable -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max outside temp	30 MSB 30 MSB	R,W EEPROM (30°C, 0x0BB8)	maximum outside temperature which user can set as setpoint for heating enable -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min DHW temp	31 LSB 31 MSB	R,W EEPROM (10°C, 0x03E8)	minimum temperature which user can set as setpoint for DHW -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max DHW temp	32 MSB 32 MSB	R,W EEPROM (90°C, 0x2328)	maximum temperature which user can set as setpoint for DHW -199.99 to 199.99	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
temp sensor corr	33 MSB 33 MSB	R,W EEPROM (-1.5°C, depending on module type)	correction: adds to the actual temperature measured by the internal sensor; compensates the internal thermal dissipation -20.00 to 20.00 -0.9 °C ... unseparated RS485 -1.1 °C ... separated RS485 -1.55 °C ... with CO2 sensor	recalculate: temperature = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min rh	34 LSB 34 MSB	R,W EEPROM (10%, 0x03E8)	minimum humidity which user can set as setpoint 0.00% to 100.00%	recalculate: humidity = read value / 100 0 ... 0 100.00 ... 10000

max rh	35 LSB 35 MSB	R,W EEPROM (90%, 0x2328)	maximum humidity which user can set as setpoint 0.00% to 100.00%	recalculate: humidity = read value / 100 0 ... 0 100.00 ... 10000
rh sensor corr	36 LSB 36 MSB	R,W EEPROM (0)	correction: adds to the actual humidity measured by the internal sensor (applicable for types with humidity sensor only) -10.00 to 10.00 % +2.5 % ... unseparated RS485 +3.0 % ... separated RS485 +3.8 % ... with CO2 sensor	recalculate: humidity = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min remote 0	37 LSB 37 MSB	R,W EEPROM (-199.99)	minimum value which user can set as remote 0 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max remote 0	38 LSB 38 MSB	R,W EEPROM (199.99)	maximum value which user can set as remote 0 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min remote 1	39 LSB 39 MSB	R,W EEPROM (-199.99)	minimum value which user can set as remote 1 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max remote 1	40 LSB 40 MSB	R,W EEPROM (199.99)	maximum value which user can set as remote 1 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex

min remote 2	41 LSB 41 MSB	R,W EEPROM (-199.99)	minimum value which user can set as remote 2 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max remote 2	42 LSB 42 MSB	R,W EEPROM (199.99)	maximum value which user can set as remote 2 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min remote 3	43 LSB 43 MSB	R,W EEPROM (-199.99)	minimum value which user can set as remote 3 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max remote 3	44 LSB 44 MSB	R,W EEPROM (199.99)	maximum value which user can set as remote 3 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
min remote 4	45 LSB 45 MSB	R,W EEPROM (-199.99)	minimum value which user can set as remote 4 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max remote 4	46 LSB 46 MSB	R,W EEPROM (199.99)	maximum value which user can set as remote 4 -199.99 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999
min analogue time	47 LSB 47 MSB	R,W EEPROM (5.0, 0x01F4)	minimum value which user can set as analogue time schedule value	recalculate: remote value = read value / 100

programme value			0 to 199.99	0 ... 0 199.99 ... 19999
max analogue time programme value	48 LSB 48 MSB	R,W EEPROM (36, 0x0E10)	maximum value which user can set as analogue time schedule value 0 to 199.99	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
dec places 1	49 LSB 49 MSB	R,W EEPROM (0x0101)	LSB number of decimals for temperature display (default = 1) MSB number of decimals for temperature setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 2	50 LSB 50 MSB	R,W EEPROM (0)	LSB number of decimals for humidity display (default = 0) MSB number of decimals for humidity setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 3	51 LSB 51 MSB	R,W EEPROM (0x0202)	LSB number of decimals for remote 0 display (default = 2) MSB number of decimals for remote 0 setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 4	52 LSB 52 MSB	R,W EEPROM (0x0202)	LSB number of decimals for remote 1 display (default = 2) MSB number of decimals for remote 1 setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 5	53 LSB 53 MSB	R,W EEPROM (0x0202)	LSB number of decimals for remote 2 display (default = 2) MSB number of decimals for remote 2 setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 6	54 LSB 54 MSB	R,W EEPROM (0x0202)	LSB number of decimals for remote 3 display (default = 2) MSB number of decimals for remote 3 setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places 7	55 LSB 55 MSB	R,W EEPROM (0x0202)	LSB number of decimals for remote 4 display (default = 2) MSB number of decimals for remote 4 setting	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
dec places analogue time programme	56 LSB	R,W EEPROM (0x01)	LSB number of decimals for analogue time schedule display	0 ... no (##) 1 ... one (##.#) 2 ... two (##.##)
step minutes	56 MSB	R,W EEPROM (5 min, 0x05)	step in minutes for setting time with a knob in time schedules	

step 1	57 LSB 57 MSB	R,W EEPROM (1 %)	LSB step for temperature settings (default = 0.5 °C) MSB step for humidity settings	step = value / 100 1 ... 0.01 2 ... 0.02 10 ... 0.1 etc.
step 2	58 LSB 58 MSB	R,W EEPROM (0x0101)	LSB step for remote 0 settings (default = 1) MSB step for remote 1 settings	step = value / 100 1 ... 0.01 2 ... 0.02 10 ... 0.1 etc.
step 3	59 LSB 59 MSB	R,W EEPROM (0x0101)	LSB step for remote 2 settings (default = 1) MSB step for remote 3 settings	step = value / 100 1 ... 0.01 2 ... 0.02 10 ... 0.1 etc.
step 4	60 LSB	R,W EEPROM (0x0101)	LSB step for remote 4 settings (default = 1)	step = value / 100 1 ... 0.01 2 ... 0.02 10 ... 0.1 etc.
step time programme	60 MSB	R,W EEPROM (0.5, 0x32)	MSB step for analogue time schedule settings	step = value / 100 1 ... 0.01 2 ... 0.02 10 ... 0.1 etc.
mb timeout	61 LSB	R,W EEPROM (range 5...180 ms, default 50 ms = 0x0A)	time from the last character in the Modbus frame (in 5 ms) after which comes a timeout	see register settings , frame part receiving Example: 10 = 50 ms
mb answer delay	61 MSB	R,W EEPROM (0 ms)	time to delay the answer to Modbus master, in 5 ms	Example: 10 = 50 ms
show mode	62 LSB 62 MSB	R,W EEPROM (temp, 0x0001)	data that roll on the LCD display (default = temperature, 1) If only one of the bits is active there is only one value displayed. Otherwise they change periodically after show time .	bit 0 ... temperature °C/°F bit 1 ... humidity bit 2 ... current time bit 3 ... day temp bit 4 ... night temp bit 5 ... outside temp bit 6 ... DHW temp bit 7 ... heating curve bit 8 ... remote 0 bit 9 ... remote 1 bit 10 ... remote 2 bit 11 ... remote 3 bit 12 ... remote 4 bit 13 ... time programme output

				bit 14: ... CO2 bit 15: ... set temperature
show time	63 LSB	R,W EEPROM (2 s, 0x14)	time (in 100 ms) to display each value in show mode	if 0, periodic change disabled
edit return time	63 MSB	R,W EEPROM (10 s, 0x64)	time (in 100 ms) of user inactivity to return from edit mode to show mode	
quick edit value	64 LSB	R,W EEPROM (temp, 0x00)	value which is set by turning the knob. The value must be enabled for editing at allowed operation modes .	0 ... temperature 1 ... humidity 2 ... day temp 3 ... night temp 4 ... outside temp 5 ... DHW temp 6 ... heating curve 7 ... remote 0 8 ... remote 1 9 ... remote 2 10 ... remote 3 11 ... remote 4
quick edit mode number	64 MSB	R,W EEPROM (none, 0)	number of mode which is editable through quick edit menu (short push of the knob). „Change show mode“ changes between displayed values (see show mode); pushing the knob displays the first value from the show mode register.	0 ... no PUSH function 1 ... presence mode 2 ... day/night mode 3 ... fan 4 ... heat/cool mode 5 ... change show mode 6 ... user pattern mode (see allowed operation modes)
long push time	65 LSB	R,W EEPROM (1.5 s, 0x0F)	time (in 100 ms) evaluated as <i>long push</i> (go to settings menu / leave settings menu). <i>Super long push</i> (time schedule edit) follows 2 secs after <i>long push</i> . If there is no value editable in the <i>long push</i> , then time schedule is edited right away after <i>long push</i> .	
allowed operation modes 2	65 MSB	R,W EEPROM (none, 0)	operation modes that user is able to set in the settings menu 0 ... disabled 1 ... enabled	bit 0 ... time schedule bit 1 ... time bit 2 ... user pattern mode bits 3 ... 7 - reserved

allowed operation modes	66 LSB 66 MSB	R,W EEPROM (1, temp)	operation modes that user is able to set in the settings menu 0 ... disabled 1 ... enabled	bit 0 ... temperature bit 1 ... humidity bit 2 ... day temp bit 3 ... night temp bit 4 ... outside temp bit 5 ... DHW temperature bit 6 ... fan bit 7 ... heating curve bit 8 ... presence mode bit 9 ... day/night mode bit 10 ...heat/cool mode bit 11 ... remote 0 bit 12 ... remote 1 bit 13 ... remote 2 bit 14 ... remote 3 bit 15 ... remote 4
presence mode edit mask	67 LSB	R,W EEPROM (0, no state)	states in presence mode that user is able to switch between	bit 0 ... comfort (occupied house) bit 1 ... standby (empty house) bit 2 ... off (Off) bit 3 ... party (occupied house + drink) bit 4 ... auto (clock) bit 5 ... holiday (clock + empty house)
day/night mode edit mask	67 MSB	R,W EEPROM (0, no state)	states in day / night mode that user is able to switch between	bit 0 ... day auto (clock + sun) bit 1 ... night auto (clock + moon) bit 2 ... day manual (sun) bit 3 ... night manual (moon) bit 4 ... off (Off) bit 5 ... auto (clock) bit 6 ... holiday (clock + empty house)
fan mode edit mask	68 LSB	R,W EEPROM (0, no state)	states in fan mode that user is able to switch between	bit 0 ... Auto (fan + A) bit 1 ... Man Off (fan + M) bit 2 ... Man 1 (fan + M + Stage 1) bit 3 ... Man 2 (fan + M + Stage 1,2) bit 4 ... Man 3 (fan + M + Stage 1,2,3)

heat/cool mode edit mask	68 MSB	R,W EEPROM (0, no state)	states in heat / cool mode that user is able to switch between	bit 0 ... off (Off) bit 1 ... heat only (heat) bit 2 ... cool only (cool) bit 3 ... fan only (fan) bit 4 ... auto (heat + cool)
user pattern mode edit mask	69 LSB	R,W EEPROM (0, no state)	states in user pattern mode that user is able to switch between	bit 0 ... user_1_pattern bit 1 ... user_2_pattern bit 2 ... user_3_pattern bit 3 ... user_4_pattern bit 4 ... user_5_pattern
	69 MSB		reserved	
set CO2	70 LSB 70 MSB	R, W, EEPROM (1200 ppm, 0x04B0)	Only types UI90x: CO2 setpoint for the function of CO2-stat (see reg. 6, DO1 settings)	in ppm
remote/local symbols 0	71 LSB 71 MSB	R,W RAM	0 ... symbol controlled locally (symbols cannot be written remotely from Modbus, data are ignored) 1 ... symbol controlled remotely – symbols are not controlled by user (by internal UI... functions); this applies for basic values, i.e. all except remote_x (register 81 and below) Use remote control to set individual symbols from your PLC.	bit 0 ... clock bit 1 ... temp. sensor bit 2 ... house bit 3 ... person bit 4 ... moon bit 5 ... sun bit 6 ... off bit 7 ... drink bit 8 ... heat bit 9 ... cool bit 10 ... water tap (DHW) bit 11 ... spanner (service) bit 12 ... boiler bit 13 ... alarm bell bit 14 ... fan lower bit 15 ... fan upper

remote/local symbols 1	72 LSB 72 MSB	R,W RAM	<p>0 ... symbol controlled locally (symbols cannot be written remotely from Modbus, data are ignored)</p> <p>1 ... symbol controlled remotely – symbols are not controlled by user (by internal UI... functions); this applies for basic values, i.e. all except remote_x (register 81 and below)</p> <p>Use remote control to set individual symbols from your PLC.</p>	<p>bit 0 ... °C</p> <p>bit 1 ... °F</p> <p>bit 2 ... %</p> <p>bit 3 ... rH</p> <p>bit 4 ... 1 (weekday)</p> <p>bit 5 ... 2 (weekday)</p> <p>bit 6 ... 3 (weekday)</p> <p>bit 7 ... 4 (weekday)</p> <p>bit 8 ... 5 (weekday)</p> <p>bit 9 ... 6 (weekday)</p> <p>bit 10 ... 7 (weekday)</p> <p>bit 11 ... fan auto</p> <p>bit 12 ... fan manual</p> <p>bit 13 ... fan speed 1</p> <p>bit 14 ... fan speed 2</p> <p>bit 15 ... fan speed 3</p>
remote/local symbols 2	73 LSB 73 MSB	R,W RAM	<p>0 ... symbol controlled locally (symbols cannot be written remotely from Modbus, data are ignored)</p> <p>1 ... symbol controlled remotely – symbols are not controlled by user (by internal UI... functions); this applies for basic values, i.e. all except remote_x (register 81 and below)</p>	<p>bit 0 ... SETTING</p> <p>bit 1 ... ERROR</p> <p>bit 2 ... No.</p> <p>bit 3 ... small 7-segment (upper right corner)</p>
display symbols 0	74 LSB 74 MSB	R,W RAM	displayed symbols for basic values including remote_x	<p>bit 0 ... clock</p> <p>bit 1 ... temp. sensor</p> <p>bit 2 ... house</p> <p>bit 3 ... person</p> <p>bit 4 ... moon</p> <p>bit 5 ... sun</p> <p>bit 6 ... off</p> <p>bit 7 ... drink</p> <p>bit 8 ... heat</p> <p>bit 9 ... cool</p> <p>bit 10 ... water tap (DHW)</p> <p>bit 11 ... spanner (service)</p> <p>bit 12 ... boiler</p> <p>bit 13 ... alarm bell</p> <p>bit 14 ... fan lower</p> <p>bit 15 ... fan upper</p>

display symbols 1	75 LSB 75 MSB	R,W RAM	displayed symbols for basic values including remote_x	bit 0 ... °C bit 1 ... °F bit 2 ... % bit 3 ... rH bit 4 ... 1 (weekday) bit 5 ... 2 (weekday) bit 6 ... 3 (weekday) bit 7 ... 4 (weekday) bit 8 ... 5 (weekday) bit 9 ... 6 (weekday) bit 10 ... 7 (weekday) bit 11 ... fan auto bit 12 ... fan manual bit 13 ... fan speed 1 bit 14 ... fan speed 2 bit 15 ... fan speed 3
display symbols 2	76 LSB 76 MSB	R,W RAM	displayed symbols for basic values including remote_x	bit 0 ... SETTING bit 1 ... ERROR bit 2 ... No. bit 3 ... small 7-segment (upper right corner) bit 4-7 ... reserved bit 8-15 ... small 7-segment value, if larger than 9, „h“ is displayed
RTC	77 LSB 77 MSB 78 LSB 78 MSB 79 LSB 79 MSB 80 LSB 80 MSB	R,W EEPROM	Real time clock (only implemented in selected types) in BCD coding	see table below. To write to those registers, EEPROM write must be enabled in the status LSB register.
remote 0	81 LSB 81 MSB	R,W EEPROM	remote 0 value	recalculate: remote value = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
remote 0 symbols 0	82 LSB 82 MSB	R,W EEPROM (0x0000)	symbols displayed for remote 0	see register display symbols 0
remote 0 symbols 1	83 LSB 83 MSB	R,W EEPROM	symbols displayed for remote 0	see register display symbols 1

remote 0 symbols 2	84 LSB 84 MSB	R,W EEPROM	symbols displayed for remote 0	see register display symbols 2
remote 1	85 LSB 85 MSB	R,W EEPROM	remote 1 value	see remote 0
remote 1 symbols 0	86 LSB 86 MSB	R,W EEPROM	symbols displayed for remote 1	see remote 0, symbols 0
remote 1 symbols 1	87 LSB 87 MSB	R,W EEPROM	symbols displayed for remote 1	see remote 0, symbols 1
remote 1 symbols 2	88 LSB 88 MSB	R,W EEPROM	symbols displayed for remote 1	see remote 0, symbols 2
remote 2	89 LSB 89 MSB	R,W EEPROM	remote 2 value	see remote 0
remote 2 symbols 0	90 LSB 90 MSB	R,W EEPROM	symbols displayed for remote 2	see remote 0, symbols 0
remote 2 symbols 1	91 LSB 91 MSB	R,W EEPROM	symbols displayed for remote 2	see remote 0, symbols 1
remote 2 symbols 2	92 LSB 92 MSB	R,W EEPROM	symbols displayed for remote 2	see remote 0, symbols 2
remote 3	93 LSB 93 MSB	R,W EEPROM	remote 3 value	see remote 0
remote 3 symbols 0	94 LSB 94 MSB	R,W EEPROM	symbols displayed for remote 3	see remote 0, symbols 0
remote 3 symbols 1	95 LSB 95 MSB	R,W EEPROM	symbols displayed for remote 3	see remote 0, symbols 1
remote 3 symbols 2	96 LSB 96 MSB	R,W EEPROM	symbols displayed for remote 3	see remote 0, symbols 2
remote 4	97 LSB 97 MSB	R,W EEPROM	remote 4 value	see remote 0
remote 4 symbols 0	98 LSB 98 MSB	R,W EEPROM	symbols displayed for remote 4	see remote 0, symbols 0
remote 4 symbols 1	99 LSB 99 MSB	R,W EEPROM	symbols displayed for remote 4	see remote 0, symbols 1
remote 4 symbols 2	100 LSB 100 MSB	R,W EEPROM	symbols displayed for remote 4	see remote 0, symbols 2
program Monday 1, time	101 LSB 101 MSB	R, W, EEPROM (6:00, 0x0168)	time schedule, Monday, event 1 time in minutes since 0:00	121 ... 02 h 01 min
program Monday 1, value	102 LSB 102 MSB	R, W, EEPROM (day, 0x0000)	time schedule, Monday, event 1	state scheduler: 0 ... day / comfort 1 ... night / standby 2 ... off

			(valid for all schedule types: if bit 15 set to 1, event is not active)	analogue scheduler: value 0 to 19999dec, i. e. 0.0 to 199.99 °C bit 15 ... event disabled
program Monday 2, time	103 LSB 103 MSB	R, W, EEPROM (8:00, 0x01E0)	time schedule, Monday, event 2 time in minutes since 0:00	see program Monday 1, time
program Monday 2, value	104 LSB 104 MSB	R, W, EEPROM (night, 0x0001)	time schedule, Monday, event 2 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value
program Monday 3, time	105 LSB 105 MSB	R, W, EEPROM (14:00, 0x0348)	time schedule, Monday, event 3 time in minutes since 0:00 (see program Monday 1, time
program Monday 3, value	106 LSB 106 MSB	R, W, EEPROM (day, 0x0000)	time schedule, Monday, event 3 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value
program Monday 4, time	107 LSB 107 MSB	R, W, EEPROM (22:00, 0x0528)	time schedule, Monday, event 4 time in minutes since 0:00	see program Monday 1, time
program Monday 4, value	108 LSB 108 MSB	R, W, EEPROM (night, 0x0001)	time schedule, Monday, event 4 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value
program Monday 5, time	109 LSB 109 MSB	R, W, EEPROM (6:00, 0x0168)	time schedule, Monday, event 5 time in minutes since 0:00	see program Monday 1, time
program Monday 5, value	110 LSB 110 MSB	R, W, EEPROM (disabled, 0x8000)	time schedule, Monday, event 5 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value

program Monday 6, time	111 LSB 111 MSB	R, W, EEPROM (6:00, 0x0168)	time schedule, Monday, event 6 time in minutes since 0:00	see program Monday 1, time
program Monday 6, value	112 LSB 112 MSB	R, W, EEPROM (disabled, 0x8000)	time schedule, Monday, event 6 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value
program Tuesday 1, time	113 LSB 113 MSB	R, W, EEPROM (06:00, 0x0168)	time schedule, Tuesday, event 1 time in minutes since 0:00	see program Monday 1, time
...
program Sunday 6, value	184 LSB 184 MSB	R, W, EEPROM disabled, 0x8000)	time schedule, Sunday, event 6 (valid for all schedule types: if bit 15 set to 1, event is not active)	see program Monday 1, value
user 1 pattern symbols 0	185 LSB 185 MSB	R, W, EEPROM (0x0000)	symbols for user 1 pattern	bit 0 ... clock bit 1 ... temp. sensor bit 2 ... house bit 3 ... person bit 4 ... moon bit 5 ... sun bit 6 ... off bit 7 ... drink bit 8 ... heat bit 9 ... cool bit 10 ... water tap (DHW) bit 11 ... spanner (service) bit 12 ... boiler bit 13 ... alarm bell bit 14 ... fan lower bit 15 ... fan upper
user 1 pattern symbols 1	186 LSB 186 MSB	R, W, EEPROM (0x0000)	symbols for user 1 pattern	bit 0 ... °C bit 1 ... °F bit 2 ... % bit 3 ... rH bit 4 ... 1 (weekday) bit 5 ... 2 (weekday) bit 6 ... 3 (weekday) bit 7 ... 4 (weekday) bit 8 ... 5 (weekday) bit 9 ... 6 (weekday)

				bit 10 ... 7 (weekday) bit 11 ... fan auto bit 12 ... fan manual bit 13 ... fan speed 1 bit 14 ... fan speed 2 bit 15 ... fan speed 3
user 1 pattern symbols 2	187 LSB 187 MSB	R, W, EEPROM (0x0000)	symbols for user 1 pattern	bit 0 ... SETTING bit 1 ... ERROR bit 2 ... No. bit 3 ... small 7- segment (upper right corner) bit 4-7 ... reserved bit 8-15 ... small 7- segment value, if larger than 9, „h” is displayed
user 2 pattern symbols 0	188 LSB 188 MSB	R, W, EEPROM (0x0000)	symbols for user 2 pattern	see user 2 pattern symbols 0
...
user 5 pattern symbols 2	199 LSB 199 MSB	R, W, EEPROM (default = 0x0000)	symbols for user 5 pattern	see user 1 pattern symbols 2
average CO2 ppm	200 LSB, 200 MSB	R, RAM	weighted average CO2 value incl. correction (see CO2 sensor corr)	in ppm
average CO2 %	201 LSB,	R, RAM	average CO2 value in %, see 100% CO2 ppm value, 0% CO2 ppm value . The 100% CO2 ppm value may be lower than the 0% CO2 ppm value .	in %
	201 MSB		reserved	
100% CO2 ppm value	202 LSB, 202 MSB	R,W EEPROM (2500 ppm, 0x09C4)	CO2 value in ppm which corresponds 100 %	
0% CO2 ppm value	203 LSB, 203 MSB	R,W EEPROM (350 ppm, 0x015E)	CO2 value in ppm which corresponds 0 %	
CO2 sensor corr	204 LSB, 204 MSB	R,W EEPROM (0 ppm, 0x0000)	CO2 sensor correction to compensate altitude, ageing etc.	

DI1 counter	205 LSB	R, RAM	counter input DI1 (change from 0 to 1)	if maximum value reached (255), the register is reset
DI2 counter	205 MSB	R, RAM	counter input DI2 (change from 0 to 1)	if maximum value reached (255), the register is reset
push button pushes	206 LSB	R, RAM	number of button pushes	if maximum value reached (255), the register is reset
PIR sensor counter	206 MSB	R, RAM	counter for PIR sensor (if sensor reg switches from 0 to 1)	if maximum value reached (255), the register is reset
actual CO2 ppm	207 LSB 207 MSB	R, RAM	actual CO2 value incl. correction (CO2 sensor corr)	in ppm
CO2 average number	208 LSB	R,W, EEPROM (50 samples)	number of samples which are used to calculate the weighted average value for CO2 ppm value	1...100, default = 50 1: no averaging
	208 MSB		reserved	
Registers 209 to 212 for types UIxxxBL with backlight display				
backlight config	209 LSB	R,W EEPROM (0x0009)	<p>Configuration LCD and knob backlight function.</p> <p>If the bit0 is centrally disabled by 0, all backlight functions is turned off.</p> <p>If the bit3 is enabled (afterglow function) the first user action (press/turn button) switch on backlight and the second user action (press/turn button) is according defined user function.</p>	<p>bit 0 ... central enable of backlight functions (0 – off) - the highest priority</p> <p>bit 1 ... manual LCD backlight (1 – permanently switch on backlight on level LCD backlight intensity high, this function has higher priority than afterglow function, 0 – switch on backlight on level LCD backlight intensity low, afterglow function could change this level)</p> <p>bit 2 ... manual knob backlight (1 – permanently switch on backlight on level knob backlight intensity high, this</p>

				<p>function has higher priority than afterglow function, 0 – switch on backlight on level knob backlight intensity low, afterglow function could change this level)</p> <p>bit 3 ... enable afterglow (1 – first user activity, press or turn button, set backlight to high intensity after defined time from the last user activity (LCD and knob b. afterglow) set backlight back to low level; 0 – no response on user activity)</p>
LCD backlight intensity high	210 LSB	R,W EEPROM (100 %)	intensity LCD backlight –higher level	[0 ... 100%]
LCD backlight intensity low	210 MSB	R,W EEPROM (0 %)	intensity LCD backlight – lower level	[0 ... 100%]
knob backlight intensity high	211 LSB	R,W EEPROM (100 %)	intensity knob backlight – higher level	[0 ... 100%]
knob backlight intensity low	211 MSB	R,W EEPROM (0 %)	intensity knob backlight – lower level	[0 ... 100%]
LCD backlight afterglow	212 LSB	R,W EEPROM (3 s)	Time of LCD backlight high intensity level after last user activity (turn/push knob).	[1 s]
knob backlight afterglow	212 MSB	R,W EEPROM (3 s)	Time of knob backlight high intensity level after last user activity (turn/push knob).	[1 s]
	213 LSB 213 MSB 214 LSB 214 MSB 215 LSB 215 MSB 216 LSB		reserved	

	216 MSB			
actual external temp	217 LSB 217 MSB	R, RAM	Only for UI3xx: Actual read value of external temperature sensor with correction (see. external temp sensor corr)	recalculate: actual value = (read value + corection) / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
external temp sensor corr	218 LSB 218 MSB	R, W EEPROM (0 °C, 0x0000)	Only for UI3xx: External sensor correction	recalculate: correction = read value / 100 0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
show mode 2	219 LSB 219 MSB	R, W EEPROM (0x0000)	data that roll on the LCD	bit 0 ... external AI PT1000 temperature
	220 LSB 220 MSB		reserved	
PIR sensor active	221 LSB	R, RAM	only for UI_31x	0 ... inactive 1 ... active (incl. delay)
PIR sensor status	221 MSB	R, RAM	only for UI_31x; PIR sensor function is enabled 30s after power-up	0 .. OK 1 ... failure or not initialised
PIR sensor delay	222 LSB 222 MSB	R, W EEPROM (1s)		[seconds], uint16, range 0...7200
uptime	1000 LSB 1000 MSB 1001 LSB 1001 MSB	R	uptime (s)	
sw reset	1002 LSB 1002 MSB	R, W RAM	Writing non-zero values made SW restart if it has been enabled. See Status LSB bit 1.	
serial number	1003 LSB 1003 MSB 1004 LSB 1004 MSB	R, W OTP EEPROM	Device serial number.	
extended settings	1005 LSB 1005 MSB	R, W RAM	extended settings	bit 0 ... lights up all symbols on LCD (factory test, when set ON knob is disabled)

Real time table

Addr.	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Function	Range
77 LSB		10xsecs		seconds		secs		00-59		
77 MSB	0	10xmins		minutes		mins		00-59		
78 LSB	0	10xhours		hours		hours		00-23		
78 MSB	0	0	0	0	0	day		day	01-07	
79 LSB	0	0	10xdate		date		date		01-31	
79 MSB	0	0	0	10xmonth	month		month		01-12	
80 LSB	10xyear		year		year		year		00-99	
80 MSB	0	0	0	0	0	0	0	0	not used	00

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