



**UC102 – room controller, heating, change-over, knob + RTC, 2 × DI,  
1 × DO, RS485**

**UC200 – room controller, heating and cooling, knob + RTC, 2 × DO,  
2 × DI, RS485**

(backlight versions have BL suffix, variants without LCD and knob have /DK suffix)

- 60 words can be read or written at the same time (i.e. 120 bytes)
- whole range can be addressed bitwise
- the whole memory is mirrored as read-only from address 0x101 (e.g. 257 dec)

name	register	type	description	notes / defaults
module ID	1 LSB 1 MSB	R	module type identification	UC102 ... 0325hex UC102/DK ... 032Fhex UC102BL ... 0331hex UC200 ... 0301hex UC200/DK ... 0335hex UC200BL ... 0332hex
firmware	2 LSB 2 MSB	R	firmware version	old LCD displays: less than 100 new LCD displays: 100 and above (PCB V1.6 and above)
status LSB	3 LSB	R, W RAM	module status lower byte <b>bit 0</b> – write to EEPROM enabled <b>bit 1</b> – SW reset enable <b>bit 4</b> – init EEPROM	<b>Init EEPROM</b> follows if the INIT switch was ON at power up, and if INIT switch was OFF at setting bit 4 to 1 (indicated by bit 2 in Status MSB)
status MSB	3 MSB	R, RAM	module status upper byte <b>bit 0</b> 0: normal mode 1: init mode <b>bit 1</b> 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 <b>bit 2</b> – 1 – EEPROM initialized <b>bit 3</b> – N/A <b>bit 4</b> – 0 <b>bit 5</b> – SW reset enabled <b>bit 6</b> – 0 <b>bit 7</b> – commissioning mode (1...active)	SW reset enabled: see reg. 3 LSB bit 1, reg. 1002.
address	4 LSB	R, W EEPROM	Modbus module address  (default = 1, 0x01)	!!! the change will be effective after restart only (however the register will be set immediately)



baud rate	4 MSB	R, W EEPROM	communication speed 10 <sub>dec</sub> ... 1 200 bps 11 <sub>dec</sub> ... 2 400 bps 12 <sub>dec</sub> ... 4 800 bps 13 <sub>dec</sub> ... 9 600 bps (default) 14 <sub>dec</sub> ... 19 200 bps 15 <sub>dec</sub> ... 38 400 bps 16 <sub>dec</sub> ... 57 600 bps 17 <sub>dec</sub> ... 115 200 bps	!!! the change will be effective after restart only (however the register will be set immediately)
serial port settings	5 LSB	R, W EEPROM	serial line parameter settings  (default = no parity, 1 stop bit, 0x00)	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	
EEPROM writes	6 LSB 6 MSB	R, EEPROM	number of EEPROM writing cycles (EEPROM initialization does not reset register; no overflow)	EEPROM writes
relay	7 LSB	R, RAM	output relay status (DO1- DO2)	bit 0 ... relay 1, heating bit 1 ... relay 2, cooling (only UC200)
inputs	7 MSB	R, RAM	digital inputs state (DI1 ... occupancy, DI2 ... window contact) and input states, binary heating / cooling demands. DI1 and DI2 are physical input states regardless of the <b>inputs settings</b> setting.	bit 0 ... input DI1 bit 1 ... input DI2 bit 2 ... heating demand (PID output heat > 5%) bit 3 ... cooling demand (PID output cool > 5%)
pid output HEAT	8 LSB	R, RAM	heating controller output	in %, range 0 .. 100%
pid output COOL	8 MSB	R, RAM	cooling controller output	in %, range 0 .. 100%
	9 LSB 9 MSB		reserved	
manual control	10 LSB	R, W RAM	manual output control; if a bit is set to 1, the output goes to state defined below (see <b>manual heat output, manual cool output</b> ); if set to 0, PID output values apply	bit 0 ... reserved bit 1 ... heat output bit 2 ... cool output (UC102 in c/o mode) bit 3 – 4 reserved bit 5 ... change over (1 = c/o active) (only UC102)
	10 MSB	R, W RAM	reserved	
manual heat output	11 LSB	R, W RAM	manual heat output setting (only if the corresponding bit in the <b>manual control</b> register is set)	in %, range 0 .. 100%
manual cool output (UC102 in c/o mode)	11 MSB	R, W RAM	manual cool output setting (only if the corresponding bit in the <b>manual control</b> register is set)	in %, range 0 .. 100%



set temp correction	12 LSB 12 MSB	R, W RAM	setpoint correction set by user; resets at each operation mode change  (limits are set in the <b>min</b> and <b>max rel. temp correction</b> registers, in depression/economy mode correction is not added to setpoint)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
actual temp set point HEAT	13 LSB 13 MSB	R, RAM	actual heating setpoint incl. setpoint correction (reg. 12)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
actual temp set point COOL	14 LSB 14 MSB	R, RAM	actual cooling setpoint incl. setpoint correction (reg. 12)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set day/ comfort heating temp	15 LSB 15 MSB	R, W EEPROM	day/comfort mode heating temperature setpoint set by user  (default = 21°C, 0x0834)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set night/ pre-comfort heating temp	16 LSB 16 MSB	R, W EEPROM	night/standby mode heating temperature setpoint set by user  (default = 19°C, 0x076C)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set depression/ economy heating temp	17 LSB 17 MSB	R, W EEPROM	depression/ economy mode heating temperature setpoint set by user  (default = 12°C, 0x04B0)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set day/ comfort cooling temp	18 LSB 18 MSB	R, W EEPROM	day/comfort mode cooling temperature setpoint set by user  (default = 24°C, 0x0960)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex



set night/ pre-comfort cooling temp	19 LSB 19 MSB	R, W EEPROM	night/standby mode cooling temperature setpoint set by user  (default = 26°C, 0x0A28)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set depression/ economy cooling temp	20 LSB 20 MSB	R, W EEPROM	depression/ economy mode cooling temperature setpoint set by user  (default = 35°C, 0x0DAC)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
actual temp	21 LSB 21 MSB	R, RAM	actual temperature measured by the internal sensor incl. correction (see <b>temp sensor corr</b> )	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
actual outside temp	22 LSB 22 MSB	R, W RAM	actual outside temperature, if reg 29 bit 7 is set on, this register is set as external regulation temperature	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
set presence mode	23 LSB 23 MSB	R, W EEPROM	presence status set by user (displayed symbols depend on the configuration register <b>regulator settings</b> , if set to <b>hotel</b> then comfort, standby, off; if set to <b>residential</b> then day, night, depression, auto, party)  UC102 (default = comfort/day, 0x0001) UC200 (default = depression/night, 0x0002)	bit 0 ... comfort (occupied house) <i>or</i> day (sun + occupied house) bit 1 ... standby (empty house) <i>or</i> night (moon + occupied house) bit 2 ... off (off) <i>or</i> depression (empty house) bit 3 ... auto (clock) – <i>only when residential</i> bit 4 ... party (sun + drink + clock, after 2h goes to auto) – <i>only when residential</i> bit 5 to 14 ... reserved bit 15 ... write enable (if set to 1 value will be written into register, if in 0 attempt will be ignored)
	24 LSB 24 MSB		reserved	



actual control mode	25 LSB	R, RAM	actual mode used for control, if on <b>manual</b> then the <b>actual control mode</b> is equal to <b>set presence mode</b> , if on <b>auto</b> then according to time schedule (displayed symbols depend on the configuration register <b>regulator settings</b> , if set to <b>hotel</b> then comfort, standby, off; if set to <b>residential</b> then day, night, depression, auto, party)	bit 0 ... comfort/day bit 1 ... standby/night bit 2 ... off/depression
	25 MSB		reserved	
regulator settings	26 LSB	R, W EEPROM	controller configuration UC102 (defaults = residential, absolute, valve status, valve protection on, valve type NC, PI control, 0x53)  UC200 (defaults = hotel, relative, valve status, valve protection on, NC valves, PI control, 0x10)	bit 0 ... presence mode type (0 – hotel, 1 - residential) bit 1 ... temperature correction display (0 –relative, 1 – absolute) bit 2 ... heating/cooling symbols display: 1 – media status according to the c/o signal, 0 – valve status) bit 3 ... reserved bit 4 ... valve exercising (1 – enabled) bit 5 ... valve polarity (0 – NC, 1 – NO) bit 6 ... temp. correction reset when control mode (reg. 25 LSB) changes bit 7 ... control mode (0 – PI, 1 – on/off)
inputs settings (inputs enable, inputs logic)	26 MSB	R, W EEPROM	input configuration DI1 – presence DI2 – window contact  (default: inputs enabled for control, active when on, 0x0F)	bit 0 ... DI1 enabled bit 1 ... DI2 enabled bit 2 ... DI1 logic (0: NC, 1: NO) bit 3 ... DI2 logic (0: NC, 1: NO)
P band	27 LSB 27 MSB	R, W EEPROM	controller P-band (PI control mode) or hysteresis (on/off control mode)	in 0.1 K (2 K, 0x0014)
I const	28 LSB 28 MSB	R, W EEPROM	controller I – constant; if out of bounds, a new recalculated value is set after restart	in seconds; if set to 0, integration part is disabled  (60 min, 0x0E10)



controller settings 2	29 LSB	R, W EEPROM	controller configuration 2 default: (UC102 c/o normal, 0x00) (UC200 none, 0x00)	bit 0 to 3 ... reserved bit 4 ... function "heating only" (duplication of heating output – only UC200) bit 5 ... function "cooling only" (duplication of cooling output – only UC200) bit 6 ... c/o inverted (only UC102) bit 7 ... internal/external temp. (0 – internal temp., 1 – external temp. – reg 22)
	29 MSB		reserved	
	30 LSB 30 MSB		reserved	
	31 LSB 31 MSB		reserved	
	32 LSB 32 MSB		reserved	
min rel. temp correction	33 LSB 33 MSB	R, W EEPROM	minimum relative user temperature correction, a positive value is saved and is taken as negative limit  (default = -3.5 °C, 0x015E)	recalculate: <b>minimum correction = -(read value/100);</b> -10.00 ... 1000
max rel. temp correction	34 LSB 34 MSB	R, W EEPROM	maximum relative user temperature correction  (default = 3.5 °C, 0x015E)	recalculate: <b>maximum correction = (read value/100);</b> 10.00 ... 1000
min day, night, depression temp	35 LSB 35 MSB	R, W EEPROM	minimum temperature which user can set as setpoint for day, night, and off modes -199.99 to 199.99  (default = 10 °C, 0x03E8)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
max day, night, depression temp	36 LSB 36 MSB	R, W EEPROM	maximum temperature which user can set as setpoint for day, night, and off modes -199.99 to 199.99  (default = 40 °C, 0x0FA0)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex



temp sensor corr	37 LSB 37 MSB	R, W EEPROM	correction: adds to the actual temperature measured by the internal sensor -20.00 to 20.00  (default = -1.1 °C)	recalculate: temperature = read value / 100  0 ... 0 199.99 ... 19999 -0.01 ... 0FFFFhex -199.99 ... 0B1E1hex
	38 LSB 38 MSB		Reserved	
step temp	39 LSB	R, W EEPROM	step for user temperature setpoints setting  (default = 0.5 °C, 0x32)	step = read value / 100  1 ... 0.01 50 ... 0.5 100 ... 1 etc.
step minutes	39 MSB	R, W EEPROM	time step for time schedule setting  (default = 5 mins, 0x05)	in minutes
	40 LSB 40 MSB		reserved	
show mode	41 LSB 41 MSB	R, W EEPROM	data that roll on the LCD display (default = 1)	bit 0 ... temperature bit 1 ... outside temp. bit 2 ... current time bit 3 ... humidity (default = temperature, 0x0001)
show time	42 LSB	R, W EEPROM	time (in 100 ms) to display each value in show mode (default = 3 s, 0x1E)	see <b>show mode</b>
edit return time	42 MSB	R, W EEPROM	time (in s) of user inactivity to return from edit mode to show mode (default = 30 s, 0x1E)	
quick edit mode number	43 LSB	R, W EEPROM	number of mode which is editable through quick edit menu (short push of the knob)  (default = 0x01)	0 ... push function inactive 1 ... presence mode 2 ... reserved
change over period (only UC102)	43 MSB	R, W EEPROM	time delay when changing from heating to cooling and back (default = 30, 0x1E)	in mins, 1 to 255
long push time	44 LSB	R, W EEPROM	time (in 100 ms) evaluated as long push (go to time schedule menu / leave menu)  (default = 1.5 s, 0x0F)	for editing of the time schedule and presence or fan mode
super long push time	44 MSB	R, W EEPROM	time (in 100 ms) evaluated as superlong push (go to settings menu)  (default = 5 s, 0x32)	for actual time and basic setpoints settings



allowed operation modes	45 LSB 45 MSB	R, W EEPROM	settings that user is able to perform 0 ... disabled 1 ... enabled <b>UC102:</b> (default = temp corr, RTC time, presence mode, time programme 0x0581) <b>UC200:</b> (default = temp corr, 0x0001)	bit 0 ... temp corr. bit 1 ... heating day temp bit 2 ... heating night temp bit 3 ... heating depression temp bit 4 ... cooling day temp bit 5 ... cooling night temp bit 6 ... cooling depression temp bit 7 ... RTC time bit 8 ... presence mode bit 9 ... reserved bit 10 ... time programme
presence mode edit mask	46 LSB 46 MSB	R, W EEPROM	states in presence mode that user is able to switch between  (default = all, 0x001F)	bit 0 ... day (sun + occupied house) bit 1 ... night (moon + occupied house) bit 2 ... depression (empty house) bit 3 ... auto (clock) bit 4 ... party (sun + drink + clock, after 2h goes to auto)
	47 LSB 47 MSB		reserved	
display symbols	48 LSB 48 MSB	R, W RAM	displayed symbols	bit 0 ... spanner bit 1 ... boiler bit 2 ... alarm bell bit 3 ... tap bit 4 ... fan lower bit 5 ... fan upper bit 6 ... fan auto bit 7 ... fan manual bit 8 ... fan manual speed1 bit 9 ... fan manual speed2 bit 10 ... fan manual speed3 bit 11 ... fan auto speed1 bit 12 ... fan auto speed2 bit 13 ... fan auto speed3 bit 14 ... setting bit 15 ... write enable write enable (if set to 1 value will be written into register, if in 0 attempt will be ignored)
RTC	49 LSB 49 MSB 50 LSB 50 MSB 51 LSB 51 MSB 52 LSB 52 MSB	R, W EEPROM	Real time clock  (not subject to INIT command)	see table; to write to those registers, write to EEPROM must be enabled in the <b>status LSB</b> register





display symbols 2	53 LSB 53 MSB	R, W RAM	displayed symbols	bit 0 ... error bit 1 ... No. bit 2 - 14 ... reserve bit 15 ... write enable write enable (if set to 1 value will be written into register, if in 0 attempt will be ignored)
program Monday num. 1 time	54 LSB 54 MSB	R, W EEPROM	time schedule, Monday, time of event No. 1, in mins since 0:00 (midnight)  (default = 06:00 h, 0x0168)	e.g. 121 ... 2h 1min
program Monday num. 1 value	55 LSB 55 MSB	R, W EEPROM	time schedule, Monday, event No. 1, value  (default = 0)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
program Monday num. 2 time	56 LSB 56 MSB	R, W EEPROM	time schedule, Monday, time of event No. 2, in mins since 0:00 (midnight)  (default = 08:00 h, 0x01E0)	e.g. 121 ... 2h 1min
program Monday num. 2 value	57 LSB 57 MSB	R, W EEPROM	time schedule, Monday, event No. 2, value  (default = 1, 0x0001)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
program Monday num. 3 time	58 LSB 58 MSB	R, W EEPROM	time schedule, Monday, time of event No. 3, in mins since 0:00 (midnight)  (default = 14:00 h, 0x0348)	e.g. 121 ... 2h 1min
program Monday num. 3 value	59 LSB 59 MSB	R, W EEPROM	time schedule, Monday, event No. 3, value  (default = 0, 0x0000)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
program Monday num. 4 time	60 LSB 60 MSB	R, W EEPROM	time schedule, Monday, time of event No. 4, in mins since 0:00 (midnight)  (default = 22:00 h, 0x0528)	e.g. 121 ... 2h 1min
program Monday num. 4 value	61 LSB 61 MSB	R, W EEPROM	time schedule, Monday, event No. 4, value  (default = 1, 0x0001)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
program Monday num. 5 time	62 LSB 62 MSB	R, W EEPROM	time schedule, Monday, time of event No. 5, in mins since 0:00 (midnight)  (default = 06:00 h, 0x0168)	e.g. 121 ... 2h 1min
program Monday num. 5 value	63 LSB 63 MSB	R, W EEPROM	time schedule, Monday, event No. 5, value  (default = disabled, 0x8000)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled



program Monday num. 6 time	64 LSB 64 MSB	R, W EEPROM	time schedule, Monday, time of event No. 6, in mins since 0:00 (midnight)  (default = 06:00 h, 0x0168)	e.g. 121 ... 2h 1min
program Monday num. 6 value	65 LSB 65 MSB	R, W EEPROM	time schedule, Monday, event No. 6, value  (default = disabled, 0x8000)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
program Tuesday num. 1 time	66 LSB 66 MSB	R, W EEPROM	time schedule, Tuesday, time of event No. 1, in mins since 0:00 (midnight)  (default = 06:00 h, 0x0168)	e.g. 121 ... 2h 1min
...	...	...	...	...
program Sunday Event 6 value	137 LSB 137 MSB	R, W EEPROM	time schedule, Sunday, event No. 6, value  (default = disabled)	0 ... day/comfort 1 ... night/standby 2 ... off/depression bit 15 = 1 ... event is disabled
	138 LSB 138 MSB	R, RAM	reserved	
	139 LSB 139 MSB	R, RAM	reserved	
actual rh	140 LSB 140 MSB	R, RAM	actual relative humidity measured by the internal sensor, incl. correction (see <b>rh sensor corr</b> )	signed 16bit register [in 0.01 %]
	141 LSB 141 MSB	R, RAM	reserved	
rh sensor corr	142 LSB 142 MSB	R, W EEPROM	humidity sensor correction (default = + 3.0 %)	signed 16bit register [in 0.01 %]



backlight config	143 LSB 143 MSB	R, W EEPROM	<p>Configuration LCD and knob backlight function.</p> <p>If the bit0 is centrally disabled by 0, all backlight functions are 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 (default = 0x0009)</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 <b>LCD backlight intensity high</b>, this function has higher priority than afterglow function, 0 – switch on backlight on level <b>LCD backlight intensity low</b>, afterglow function could change this level)</p> <p>bit 2 ... manual knob backlight (1 – permanently switch on backlight on level <b>knob backlight intensity high</b>, this function has higher priority than afterglow function, 0 – switch on backlight on level <b>knob backlight intensity low</b>, 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(see registers <b>backlight afterglow</b>), after defined time from the last user activity set backlight back to low level; 0 – no response on user activity)</p>
LCD backlight intensity high	144 LSB	R, W EEPROM	intensity LCD backlight – higher level (default = 100 %)	[0 ... 100 %]
LCD backlight intensity low	144 MSB	R, W EEPROM	intensity LCD backlight – lower level (default = 0 %)	[0 ... 100 %]
knob backlight intensity high	145 LSB	R, W EEPROM	intensity knob backlight – higher level (default = 100 %)	[0 ... 100 %]
knob backlight intensity low	145 MSB	R, W EEPROM	intensity knob backlight – lower level (default = 0 %)	[0 ... 100 %]



LCD backlight afterglow	146 LSB	R, W EEPROM	time of LCD backlight afterglow level after last user activity (turn/push knob), if set to 0 = no backlight (default = 3 s)	[1 s]
knob backlight afterglow	146 MSB	R, W EEPROM	time of knob backlight afterglow level after last user activity (turn/push knob), if set to 0 = no backlight (default = 3 s)	[1s]
	147 LSB 147 MSB		reserved	
	148 LSB 148 MSB 149 LSB 149 MSB		reserved - internal	
uptime	1000 LSB 1000 MSB 1001 LSB 1001 MSB	R	uptime (s)	number of seconds after last power on / reset
SW reset	1002 LSB 1002 MSB	R, W, RAM	the device resets if reset is enabled (see reg. 3), and a non-zero value is written to this register.	
serial num	1003 LSB 1003 MSB 1004 LSB 1004 MSB	R, W OTP EEPROM	module serial number, written at the factory (one time programmable)	

Real time table

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

Revisions:

14. 01. 2022 ver. 201

12. 10. 2023 ver. 201\_1 – error in description of reg. 10LSB fixed