- **60 registers can be read or written at one request**
- **default values are shown in parentheses in the type column**
- **the whole memory area is mirrored as read-only from register 0x101 (e.g. 257 dec)**
- **supported modbus functions – FC01, FC03, FC15, FC16**

name	address	type	description / defaults	notes
module ID	1 LSB 1 MSB	R	module identification	Module ID is 0322hex
firmware	2 LSB 2 MSB	R	firmware version	FW version (v dec) corresponds with version of this document; for example: FW 13h (19dec) = document V 01900 first three digits: FW version, remaining two digits: document revision
status LSB	3 LSB	R, W RAM	module status lower byte **bit 0** – EEPROM write enable **bit 1** – enable SW reset **bit 4** – EEPROM init	**EEPROM init** is enabled when the INIT switch was ON at the power-up, and switched OFF before bit 4 was set to 1 (indicated by bit 2 in status MSB) **SW reset** Enables device restart (see register 1002)
status MSB	3 MSB	R, RAM	module status upper byte **bit 0** - 0 normal mode - 1 init mode **bit 1** - 1 at the next EEPROM write attempt all data will be saved to EEPROM - 0 at the next write attempt received data will be written to RAM only **bit 2** – EEPROM initialised **bit 3** - reserved **bit 4 –** SW reset **bit 5** - 1 **bit 6** - 0 **bit 7** - revive mode (1 active)	

address	4 LSB	R,W EEPROM	module address (0x01)	**!!!** The changes will become active only after module restart (the register is written immediately, but the new address is effective after restart)
baud rate	4 MSB	R,W EEPROM (9600 bps, 13dec)	communication speed 10dec … 1 200bps 11dec … 2 400bps 12dec … 4 800bps 13dec … 9 600bps 14dec … 19 200bps 15dec … 38 400bps 16dec … 57 600bps 17dec … 115 200bps	**!!!** The changes will become active only after module restart (the register is set immediately)
serial port settings	5 LSB	R,W EEPROM (without parity, one stop bit, 0x00)	settings of serial port bit 0-1 ... parity (00 – without parity, 01 – even, 10 – odd) bit 2 ... number of stop bits (0 – one, 1 - two)	**!!!** The changes will become active only after module restart (the register is set immediately)
	5 MSB		reserved	
EEPROM writes	6 LSB 6 MSB	R, EEPROM	number of EEPROM writing cycles (EEPROM init does not reset register; no overflow)	
relay	7 LSB	R, RAM	output relay status (DO1)	bit 0 ... relay 1, heating
inputs	7 MSB	R, RAM	input DI (window contact), heating/cooling demands;	bit 0 ... reserved bit 1 ... DI bit 2 ... heating demand (PID output HEAT > 5%) bit 3 ... missing sensor (1 – missing sensor, temperature value is invalid, will be set as 0 °C) bit 4 ... reserved
PID output HEAT	8 LSB	R, RAM	heating controller output	in %, range 0 .. 100%
Valve position	8 MSB	R, RAM	Corresponding to reg. **PID output HEAT** with respect to reg. **Contact disconnect**	in %, range 0 .. 100%
Contact disconnect	9 LSB	R,W EEPROM (0x00, normal mode)	in the time heating source is not active – controller output is not active as well. Contact is open, no voltage on output, for energy consumption reduction	0… controller is active 1… economy mode, contact is not active
	9 MSB		reserved	

manual control	10 LSB	R, W RAM	Manual output control; if a corresponding bit is set to 1, the output values are manually defined (see **manual heat output**) otherwise controller output values apply	bit 0 ... reserved bit 1 ... heat output bit 2 - 4 ... reserved
	10 MSB		reserve	
manual heat output	11 LSB	R, W RAM	Manual heat output setting (only if corresponding bit in the **manual control** register is set)	in %, range 0 .. 100%
	11 MSB		reserved	
	12 LSB 12 MSB		reserved	
actual temp set point HEAT	13 LSB 13 MSB	R, RAM	actual heating temperature setpoint incl. setpoint correction	recalculate: set temperature = read value / 100 0 … 0 199.99 … 19999 -0.01 … 0FFFFhex -199.99 … 0B1E1hex
valve opening yesterday	14 LSB 14 MSB	R, EEPROM (0x0000)	time of valve opening at previous day (at midnight the value of **valve open** registry will be written here)	[minutes], **!! attention !!** – at EEPROM init default value will be written
set day/ comfort heating temp	15 LSB 15 MSB	R,W EEPROM (22 °C, 0x0898)	day/comfort heating temperature set by user	recalculate: set temperature = read value / 100 0 … 0 199.99 … 19999 -0.01 … 0FFFFhex -199.99 … 0B1E1hex
set night/ precomfort heating temp	16 LSB 16 MSB	R,W EEPROM (18 °C, 0x0708)	night/precomfort heating temperature set by user	recalculate: measured 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 (12 °C, 0x04B0)	depression/economy mode heating temperature set by user	recalculate: set temperature = read value / 100 0 … 0 199.99 … 19999 -0.01 … 0FFFFhex -199.99 … 0B1E1hex

valve opening daytime	18 LSB 18 MSB	R, EEPROM (0x0)	valve opening time in actual day (sums up % and time of valve opening – only if reg. **Contact disconnect** is zero).	[minutes], **!! attention !!** – at EEPROM init default value will be written
valve opening total	19 LSB 19 MSB 20 LSB 20 MSB	R, EEPROM (0x0)	total time of valve opening (adds reg. **valve opening daytime** at midnight, value is copied in reg. **valve opening yesterday** and then is set to zero), lower word on lower address	[minutes], **!! attention !!** – at EEPROM init default value will be written
actual temp	21 LSB 21 MSB	R, RAM	actual temperature measured by the sensor incl. correction (see **temp sensor corr**), if sensor is disconnected -> indication in reg. 7MSB and value will be set on 0°C i.e. starts to heating up	recalculate: actual temprature = (read value + correction) / 100 0 … 0 199.99 … 19999 -0.01 … 0FFFFhex -199.99 … 0B1E1hex
RTC synchronisation	22 LSB 22 MSB	R, W RAM	by writing of non-zero value (rising edge, previous values is zero) RTC will be set to 23:00:00	(functional at 16bit access)
set presence mode	23 LSB 23 MSB	R,W EEPROM (comfort/ day, 0x0001)	presence mode status	bit 0 … comfort bit 1 … depression bit 2 … economy bit 3 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 controlling mode	25 LSB	R, RAM	actual mode used for controlling, if on manual then the actual controlling mode is equal to **set presence mode**	bit 0 … comfort/day bit 1 … standby/night bit 2 … off/depression
PID output integrated	25 MSB	R, RAM	integrated PID output - reg. **valve position** (value/min, 30min. integration)	[%]
regulator settings	26 LSB	R,W EEPROM (protection enabled, valves type NO, PI controlling, 0x30)	controller configuration	Bit 0 … bit3 ... reserved bit 4 ... valve exercising (1 – function enabled) bit 5 ... valve polarity (0 – NC, 1 – NO) bit 6 ... reserve bit 7 ... control mode (0 – PI, 1 – On-Off)

inputs settings (inputs enable, inputs logic)	26 MSB	R,W EEPROM (input enabled for controlling, input is active when closed, 0x0A)	inputs settings DI ... window contact	bit 0 … reserve bit 1 … enable DI for controller function bit 2 ... reserved bit 3 ... input logic DI (0– NC – normally close, 1– NO–normally open)
P band / On-Off hysteresis	27 LSB 27 MSB	R,W EEPROM (2 K, 0x0014)	controller P-band (PI control mode) or hysteresis (on/off control mode)	in 0.1 K
I const	28 LSB 28 MSB	R,W EEPROM (60 min, 0x0E10)	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
	29 LSB 29 MSB		reserved	
	30 LSB 30 MSB		reserved	
temp sensor corr	31 LSB 31 MSB	R,W EEPROM (0 °C, 0x0000)	temperature sensor correction -20.00 to 20.00	recalculate: temperature = read value / 100 0 … 0 199.99 … 19999 -0.01 … 0FFFFhex -199.99 … 0B1E1hex
RTC	32 LSB 32 MSB 33 LSB 33 MSB 34 LSB 34 MSB 35 LSB 35 MSB	R,W RAM	real time clock	See table, BCD coding
DI filtration HIGH period	36 LSB 36 MSB	R,W EEPROM (200 samples = 10s, 0x00C8)	filtration DI high level, 50ms / sample, total number of samples	range 0 .. 65535, 0 = OFF
DI filtration HIGH samples	37 LSB 37 MSB	R,W EEPROM (60 samples, 0x003C)	filtration DI high level, minimal number of HIGH level samples for level DI to be declared HIGH	range 0 .. 65535, less or equal to **DI filtration HIGH period** check

DI filtration last HIGH samples	38 LSB 38 MSB	R, RAM	number of samples from the last period on HIGH level	
uptime	1000 LSB 1000MSB 1001 LSB 1001MSB	R	uptime [s], lower word on lower address	
SW reset	1002 LSB 1002MSB	R,W RAM	writing of a non-zero value executes SW reset (function must be enabled in Status LSB bit 1).	

address	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	function	range
32 LSB		10xseconds			seconds				seconds	00-59
32 MSB	0	10xminutes			minutes				minutes	00-59
33 LSB	0		10xhour	10xhour	hours				hours	00-23
33 MSB	0	0	0	0	0	day			day	01-07
34 LSB	0	0	10xdate		date				date	01-31
34 MSB	0	0	0	10xmonth	month				month	01-12
35 LSB	10xyear				year				year	00-99
35 MSB	0	0	0	0	0	0	0	0	not used	00

Release notes

07/2017 – The first modbus table version.

01/2022 ver. 101 – stylistic adjustments, change logo