

Register address	Function	Notes
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ModBus register map for RK-2014K/KW controller line

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ATTENTION: The provided register numbers are logical ModBus register numbers.
The actual address transmitted should be one less (e.g. register address 1 is transmitted as address 0 over serial line).

Address ranges and their functions

1..99	Input, output, process and error states (read-only)
100..399	Basic controller settings
10101..14999	Access to all controller settings by number
40000..40999	Device information region
41000..41999	Terminal communication region
42000..42999	External devices communication region

1..99	Input, output, process and error states (all read-only)
1	Measured boiler temperature
2	Measured hot water temperature
3	Measured feeder temperature
4	-
5	Exhaust gas measured temperature
6	Process state
	0 - stop

- 1 - fuelling
- 2 -
- 3 -
- 4 -
- 5 - standby
- 6 - ignition (cleaning)
- 7 - ignition (main)
- 8 - power stabilization (pellet)
- 9 - maximum power
- 10 - modulated power
- 11 - minimum power
- 12 - blow-in (gas removal, pellet)
- 13 - extinction
- 14 - postcombustion
- 15 - cleaning (opening)
- 16 - cleaning (closing)
- 17 - alarm (opening)
- 18 - manual opening
- 19 - start dose
- 20 - stabilization (wood)
- 21 - work (wood)
- 12 - blow-in (gas removal, wood)

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Error bits

- bit 0 - boiler temperature sensor error
- bit 1 - feeder temperature sensor error
- bit 2 - exhaust temperature sensor error
- bit 3 - STB protection error
- bit 4 - safety input active
- bit 5 - capacitive sensor error (unjamming in progress)
- bit 6 - capacitive sensor error (critical - stop)
- bit 7 - boiler overheat
- bit 8 - feeder ignition

	bit 9 - feeder ignition was detected	
	bit 10 - no fuel (pellet)	
	bit 11 - no fuel (drewno)	
	bit 12 - flame vanished	
	bit 13 - hot water / buffer temperature sensor error	
	bit 14 - buffer overheat	
	bit 15 - power loss (including manual power off)	
8	Error bits #2	
	bit 0 - fan jammed	
	bit 1 - too much wood	
9	Thermostat state	
10	-	
11	-	
12	Flame visibility	
	1 - not visible	
	2 - visible	
13	-	
14	Safety input state	
15	-	
16	Exhaust fan output power	0..100
17	Blow-in fan output power	0..100
18	Feeder output	0/1
19	-	
20	Ignition output	0/1
21	Central heating pump output	0/1
22	Hot water pump output	0/1
23	Cleaning mechanism output	0/1
24	Alarm output	0/1
25	-	
26	-	
27	-	
28	-	
29	-	

30	-	
31	Throttle position	0..100
32	External enable boiler output	0/1
33	Measured room temperature (internal sensor)	In units of 0.1C
34	Measured room temperature (extra sensor)	In units of 0.1C
35	Capacitive sensor state	0/1
36	Measured room temperature (final)	In units of 0.1C
37	Measured buffer temperature	
38	Measured fan speed	RPM

100..399

Basic controller settings

100	Desired boiler temperature	
101	Desired hot water temperature	
102	Boiler work	writing "0" issues STOP command; writing "1" issues START command; writing "2" issues "START" with a long button press (controller may return "1" after the write)
103	Boiler work mode	0 - WINTER; 1 - SUMMER
104	-	
105	Error flag	0 - OK, 1 - error; write '0' to clear errors
106	-	
107	Desired DAY room temperature	In units of 0.1C
108	Desired NIGHT room temperature	In units of 0.1C
109	Date - year	
110	Date - month	
111	Date - day	
112	Date - weekday	
113	Time - hour	
114	Time - minute	
115	Time - second	
116	Program mode	0-day, 1-night, 2-OFF, 3-PRG1, 4-PRG2, 5-PRG3

117	Main thermostat hysteresis
118	LCD display brightness
119	LCD display brightness when inactive
120	LCD display contrast
121	Manual setting of turbine speed
122	Desired buffer temperature (pellet)
123	Desired buffer temperature (pellet)
200..299	Minimum allowed values of 100..199 parameters
300..399	Maximum allowed values of 100..199 parameters

10101..14999

Access to all controller settings by number

1xxyy	Access to settings by number	xx - section number 01..49; yy - parameter number 01..99
15101..19999	Minimum allowed values of 10101..14999 settings	
20101..24999	Maximum allowed values of 10101..14999 settings	

40000..40999

Device information region (read-only)

40000..40031	Producer name	Every register contains one ASCII character.
40032..40055	Device name	Every register contains one ASCII character.
40056..40063	Device firmware version	Every register contains one ASCII character.
40064	Burner work time	(in hours)
40065	Burner ignition count	

41000..41999

Terminal communication region

41000 ... 41511	Current display data	Read-only. Reading 41000 register updates remaining registers with new image. Each register contains 2x8 block of display pixels, columns first. Consecutive blocks describe entire 128x64 display area, 2x8 blocks rows first.
41512	Stan wirtualnej klawiatury	Register is reset after ~1.5 seconds. To simulate longer keypresses write must be repeated. Despite automatic reset it is recommended to write '0' when key is released.
	0 - no key pressed	
	1 - OK	
	2 - Esc	
	3 - Plus	This state is reset as soon as the key is handled.
	4 - Minus	This state is reset as soon as the key is handled.
	5 - Menu	
	(add 128 to the key code if this is key repetition and not first write after pressing it)	
41513	Menu state	Read-only. Terminal can check for '0' (main screen) and can interpret pressing Esc from there as exit from communications mode.
	0 - on main screen	
	x - on other display, outside main screen	
41999	Terminal support flag (0 - not supported, 1 - supported)	Read-only.

42000..42999

External devices communication region

42000	Virtual thermostat 0	
	0 - thermostat off	
	1..600 - number of seconds during which the thermostat remains active (decreased automatically)	
	601+ - invalid values (thermostat active time limited to 10min)	
42001	Virtual thermostat 1	Same as thermostat 0.
42002	Virtual thermostat 2	Same as thermostat 0.
42003	Virtual thermostat 3	Same as thermostat 0.
42004	-	
42005	-	

42006 -
42007 -

43000..43999

Special settings region

43000..43041	Daily program PRG1	Region of 42x16 bits. Consecutive bits describe consecutive 15-minute ranges starting from Monday's midnight. Earlier ranges are placed on less significant bits.
43042..43083	Daily program PRG2	
43084..43125	Daily program PRG3	
43126..43167	Daily program PRGV (vacuum)	
43998	Number of supported daily programs	Read-only. For RK-2014K/KW: 4 daily programs.
43999	Region function	Read-only. For RK-2014K/KW: value of 3 - daily programs.

44000..44999

Error log region (read-only)

44000..44199	Error log events	Each event occupies two registers (even & odd). Events are recorded sequentially with wrap-around. The reader must find the topmost empty event - the log starts right after it. If region end is reached, the log continues from first entry (special case: if last event slot is empty, the log starts from first register). There should be at least one empty event to determine log start, but the reader should not rely on this (i.e. in case the log gets corrupted). Size of this region should be obtained from register 44998.
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even Event ID

0 or 255 - empty
1..49 - error code

1 - boiler temperature sensor error

Ignore event arguments
Hour = Argument 1
Minute = Argument 2

2 - feeder temperature sensor error
3 - exhaust temperature sensor error
4 - safety input active
5 - capacitive sensor error
6 - boiler overheat
7 - feeder ignition
8 - no fuel (pellet)
9 - no fuel (drewno)
10 - flame vanished
11 - hot water temperature sensor error
12 - buffer overheat
13 - power loss (including manual power off)
14 - buffer temperature sensor error
15 - power loss (including manual power off)
50..249 - date timestamp

odd Argument 1 (lower byte)
 Argument 2 (higher byte)

44998 Error log size

44999 Error log region format ID

Year = (Event ID-50)+2000
Month = Argument 1
Day = Argument 2

Number of registers (not events) in 44000..44199 region.
Equal to 200 for RK-2014K/KW.
Equal to 1 for this format