

- **bit address = 16 \* (word address -1) +1**
- **supported modbus functions – F01, F03, F15, F16**

Name	Address	Type (def.)	Description	Note
module ID	1 LSB 1 MSB	R	module identification	module ID is 8050hex
firmware	2 LSB 2 MSB	R	firmware version	
status LSB	3 LSB	R, W RAM	module status lower byte <b>bit 0</b> – EEPROM write enable <b>bit 1</b> – SW reset enable <b>bit 2</b> – central write enable <b>bit 3</b> – system monitor enable <b>bit 4</b> – EEPROM init <b>bit 5</b> – calibration offset <b>bit 6</b> – calibration span <b>bit 7</b> – calibration enable	<b>EEPROM init</b> is enabled when the INIT switch was ON at power-up, and switched OFF before bit 4 was set to 1 (indicated by bit 2 in status MSB) <b>SW reset</b> is executed by writing of non-zero value in reg. 1002 <b>calibration</b> is enabled when the INIT switch was ON at power-up, and switched OFF before bit 7 was set to 1 (indicated by bit 3 in status MSB) <b>calibration offset</b> change bit 7 from 1 to 0 and set bit 5 to 1 <b>calibration span</b> change bit 7 from 1 to 0 and set bit 6 to 1 during every calibration <b>all</b> data will be written in eeprom
status MSB	3 MSB	R	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 all data will be saved to EEPROM - 0 at the next write attempt received data will be written to RAM only <b>bit 2</b> – 1 – EPROM initialised <b>bit 3</b> – 1 – calibration enabled <b>bit 4</b> – central write enable indication <b>bit 5</b> – SW reset enable indication <b>bit 6</b> – failed to read data from eeprom	

			<b>bit 7</b> – system monitor mode active	
address	4 LSB	R,W EEPROM (1)	module address	!!!The changes will become active only after module restart (the register is written immediately, but the new address is effective after restart)
baud rate (comm speed)	4 MSB	R,W EEPROM (13)	10 <sub>dec</sub> ... 1200 bps 11 <sub>dec</sub> ... 2400 bps 12 <sub>dec</sub> ... 4800 bps 13 <sub>dec</sub> ... 9600 bps 14 <sub>dec</sub> ... 19200 bps 15 <sub>dec</sub> ... 38400 bps 16 <sub>dec</sub> ... 57600 bps 17 <sub>dec</sub> ... 115200 bps	!!!The changes will become active only after module restart (the register is written immediately, the new baud rate is effective after restart)
input range for AI1...AI4	5 LSB 5 MSB	R,W EEPROM (AAAAhex)	Ahex ... voltage -10, 10 V Bhex ... voltage -5, 5 V Chex ... voltage -1, 1 V Dhex ... voltage -0.5, 0.5 V	bit 0 – bit 3... channel 1 bit 12 – bit 15... channel 4
input range for AI5...AI8	6 LSB 6 MSB	R,W EEPROM (AAAAhex)	Ehex ... voltage -0.15, 0.15 V Fhex ... current -20, 20 mA  <b>For current measuring is necessary to pull-up resistor 125ohm via DIP switches</b>	bit 0 – bit 3... channel 5 bit 12 – bit 15... channel 8
channel 1 value	7 LSB 7 MSB	R	the AI values are ranged 0000 <sub>hex</sub> – FFFF <sub>hex</sub> which is (0 <sub>dec</sub> – 65535 <sub>dec</sub> )  0000 <sub>hex</sub> is for lower limit FFFF <sub>hex</sub> is for upper limit	values of analogue input channels
channel 2 value	8 LSB 8 MSB	R		
channel 3 value	9 LSB 9 MSB	R		
channel 4 value	10 LSB 10 MSB	R		
channel 5 value	11 LSB 11 MSB	R		
channel 6 value	12 LSB 12 MSB	R		
channel 7 value	13 LSB 13 MSB	R		
channel 8 value	14 LSB 14 MSB	R		
channels	15 LSB	R, W EEPROM (0xFF)	Measured channels <b>0</b> – on specific bit mean that specific channel <b>will not</b> measure <b>1</b> - on specific bit mean that specific channel <b>will</b> measure	bit 0 ... input channel 1 (AI1) bit 7 ... input channel 8 (AI8)

not used	15 MSB	R		
up time	16 LSB 16 MSB 17 LSB 17 MSB	R	Time [secs] from power-up or reset	
number EE writes	18 LSB 18 MSB	R	Number of EEPROM writes – address, BR, range, ...	counter 0 ... FFFEh, counter stops at FFFEh
number EE cal	19 LSB 19 MSB	R EEPROM	Number of EEPROM writes – calibration	counter 0 ... FFFEh, counter stops at FFFEh
offset 10V	20 LSB 20 MSB 21 LSB	R EEPROM	Value of OFC register for range 10V	
not used	21 MSB	R		
span 10 V	22 LSB 22 MSB 23 LSB	R EEPROM	Value of FSC register for range 10 V	
not used	23 MSB	R		
offset 5 V	24 LSB 24 MSB 25 LSB	R EEPROM	Value of OFC register for range 5 V	
not used	25 MSB	R		
span 5 V	26 LSB 26 MSB 27 LSB	R EEPROM	Value of FSC register for range 5 V	
not used	27 MSB	R		
offset 1 V	28 LSB 28 MSB 29 LSB	R EEPROM	Value of OFC register for range 1 V	
not used	29 MSB	R		
span 1 V	30 LSB 30 MSB 31 LSB	R EEPROM	Value of FSC register for range 1 V	
not used	31 MSB	R		
offset 0,5 V	32 LSB 32 MSB 33 LSB	R EEPROM	Value of OFC register for range 0,5 V	
not used	33 MSB	R		

span 0,5 V	34 LSB 34 MSB 35 LSB	R EEPROM	Value of FSC register for range 0,5 V	
not used	35 MSB	R		
offset 0,15 V	36 LSB 36 MSB 37 LSB	R EEPROM	Value of OFC register for range 0,15 V	
not used	37 MSB	R		
span 0,15 V	38 LSB 38 MSB 39 LSB	R EEPROM	Value of FSC register for range 0,15 V	
not used	39 MSB	R		
offset 20 mA	40 LSB 40 MSB 41 LSB	R EEPROM	Value of OFC register for range 20 mA	
not used	41 MSB	R		
span 20 mA	42 LSB 42 MSB 43 LSB	R EEPROM	Value of FSC register for range 20 mA	
not used	43 MSB	R		
system monitor channel	44 LSB	R, W	Channel for manual measuring, only 3 lower bits 0...7 – channels 1...8	
system monitor mode	44 MSB	R, W	System monitor mode: 0 – manual measuring 1 – offset measuring (AVDD+AVSS)/2 2 – reference measuring 3 – temperature measuring 4, 5 – not used 6 – analogue power supply measuring (AVDD-AVSS)/2 7 – digital power supply measuring (DVDD-DGND)/2	System monitor mode is active only if: 1 – is enabled by respective bit in reg. 3 LSB 2 – reg. 44 LSB value is 10100xxxbin  In this mode is multiplexer set according 3 lower bits of reg. 44 LSB and AD converter is nonreseting, only during reg. 44 set respective register of converter
system monitor value	45 LSB 45 MSB	R	Value read in system monitor mode	Sign 16bit integer from converter

up time	1000 LSB 1000 MSB 1001 LSB 1001 MSB	R	Time [secs] from power-up or reset	
SW reset	1002 LSB 1002 MSB	R, W RAM	SW reset is executed by writing of non-zero value, if SW reset is enabled in reg. 3 LSB	
serial number	1003 LSB 1003 MSB 1004 LSB 1004 MSB	R, W EEPROM (OTP)	module serial number (one time programmable only, at the production)	not implemented yet
serial port settings	1005 LSB	R, W EEPROM (0)	serial port settings <b>bit 0, 1</b> – parity 0 none 1 even 2 odd <b>bit 2</b> – 0 one stopbit 1 two stopbity	<b>!!!</b> The changes will become active only after module restart (the register is written immediately, but the changes are effective after restart)
	1005 MSB	R	reserve	
DIP switch	1006 LSB	R	Actual dip switch value	
	1006 MSB	R	reserve	

## **Revision:**

08. 08. 2019 ver. 103

14. 01. 2022 ver. 103 – stylistic adjustments, change logo