

R 312 Modbus – 8 SSR outputs, output power 3 A/24 V AC

R 313 Modbus – 8 SSR outputs, output power 1 A/230 V AC

- 17 words can be read at once (tj, 34 byte)
- 272 bits can be addressed (e.i. whole range)
- Supported Modbus functions – F01, F03, F15, F16

name	address	type (def)	description	note
module ID	1 LSB 1 MSB	R	Module identification	R312 -> 8033hex R312 -> 8034hex
firmware MSB	2 LSB 2 MSB	R	Firmware version	
status LSB	3 LSB	R, W RAM	module status lower byte bit 0 – enable EEPROM write bit 1 – SW reset enable bit 4 – enable EEPROM init	
status MSB	3 MSB	R, RAM	module status upper byte bit 0 - 0 normal mode - 1 init mode bit 1 - 1 at the next write attempt received data will be written to EEPROM - 0 at the next write attempt received data will be written to RAM only bit 2 – EEPROM init bit 3 bit 4 – 0 bit 5 – SW reset enable bit 6 – 0 bit 7 – 1	
address	4 LSB	R,W EEPROM (0x01)	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 (9600 bps)	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 written immediately, but the baud rate is effective after restart)

SSR	5 LSB	R, W RAM	relay outputs on/off	bit 0 is SSR 1 bit 1 is SSR 2 bit 2 is SSR 3 bit 3 is SSR 4 bit 4 is SSR 5 bit 5 is SSR 6 bit 6 is SSR 7 bit 7 is SSR 8
	5 MSB	R, W RAM	reserved	
SSR com	6 LSB	R,W EEPROM (0x00)	0- when no communication, relays stay in last state 1- when no communication, relays are set to SSR state values	bit 0 is SSR 1 ... bit 7 is SSR 8
SSR state	6 MSB	R,W EEPROM (0x00)	relays go on or off (according to corresponding bits) if there was no communication with module for a given time and in SSR com the corresponding relay bit is set to 1	bit 0 is SSR 1 ... bit 7 is SSR 8
SSR time	7 LSB	R,W EEPROM (0x00)	time [in s] since communication, after which SSR will be set in required state	If set on 0, nothing happens when communication is not active
SSR start enable	7 MSB	R,W EEPROM (0x00)	startup relay behaviour 0 – relays are not commanded 1 – the corresponding relay is set to its module startup SSR start value	bit 0 is SSR 1 ... bit 7 is SSR 8
SSR start	8 LSB	R,W EEPROM (0x00)	SSR state after power-up	bit 0 is SSR 1 ... bit 7 is SSR 8
SSR PWM	8 MSB	R,W EEPROM (0xFF)	On corresponding outputs PWM will be generated (rather than on/off control over reg. 5 LSB)	bit 0 is SSR 1 ... bit 7 is SSR 8
PWM time	9 LSB 9 MSB	R,W EEPROM (60 s)	PWM cycle time, in 100ms; 0 ... PWM function off 10 ... 1 second 65535 ... 6553.5 seconds	unsigned 16bit range [1 ... 65535]

SSR1 on time	10 LSB 10 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	unsigned 16bit; range [0 .. 1000]; 0 ... 0% 1 ... 0,1% 10 ... 1,0% 100 ... 10,0% 999 ... 99,9% 1000 ... 100,0%
SSR2 on time	11 LSB 11 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR3 on time	12 LSB 12 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR4 on time	13 LSB 13 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR5 on time	14 LSB 14 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR6 on time	15 LSB 15 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR7 on time	16 LSB 16 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
SSR8 on time	17 LSB 17 MSB	R, W RAM	Time [in %*10] of SSR activity during one PWM cycle	see register 10
	18 LSB 18 MSB	R	reserved	
EEPROM writes	19 LSB 19 MSB	R, EEPROM	number of EEPROM write cycles (stops at overflow)	unsigned 16bit
	20 LSB 20 MSB 21 LSB 21 MSB	R	reserved – internal use SN	
	22 LSB 22 MSB	R	reserved – internal use SPS	
uptime	1000 LSB 1000 MSB 1001 LSB 1001 MSB	R	uptime [s]	16bit access only
SW reset	1002 LSB 1002 MSB	R, W RAM	writing of a non-zero value executes software restart (function must be enabled in Status LSB bit 1).	16bit access only
serial num	1003 LSB 1003 MSB 1004 LSB 1004 MSB	R, W OTP EEPROM	module serial number (one-time programmable only, at production time)	16bit access only
serial port settings	1005 LSB	R,W EEPROM (no parity,	Serial port settings bits 0,1 – parity 0 none	16bit access only



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MODBUS

R312, R313

8 × SSR type outputs

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		one stopbit, (0x00)	1 even 2 odd bit 2 – 0 one stopbit 1 two stopbits	!!! The changes will become active only after module restart
	1005 MSB		reserved	

Revision:

07. 08. 2017 ver. 100

12. 09. 2019 ver. 101

14. 01. 2022 ver. 101 – stylistic adjustments, change logo