RTVS1

TRANSFORMER FAN SPEED CONTROLLERS WITH MODBUS RTU COMMUNICATION

Modbus register map

MODBUS REGISTER MAP

INPUT REGISTERS

		Data type	Description	Raw data	Values
1	Actual output selected	unsigned integer	Actual step from the autotransformer	0—5	0 = OFF 1 = First step 2 = Second step 3 = Third step 4 = Fourth step 5 = Fifth step
2	Desired output	unsigned integer	Desired output value received over Modbus or manually input	0—5	0 = OFF 1 = First step 2 = Second step 3 = Third step 4 = Fourth step 5 = Fifth step
3	Status unregulated output	unsigned integer	Status of the relay controlled by Modbus or device	0—1	0 = OFF 1 = ON / 230 VAC
4	Input Current	unsigned integer	Current drawn from the device	0—100	0 = 0 amperes 10 = 1 ampere
5			Reserved, returns 0		
6	Device state	unsigned integer	State of the device	0—9	0 = Device OK 1 = ADC Error 2 = EEPROM error 3 = Frequency error 4 = TK detected 5 = Remote sensor lost 6 = Overload 7 = Overcurrent 8 = Overheating 9 = Current sensor fault
7	Sensor value	unsigned integer	Sensor output in percentage, if automatic mode is selected	0—1.000	0 = 0 % 1000 = 100 %
8	Sensor status	unsigned integer	Status of the sensor device	0—1, 4	0 = OK 1 = Sensor fault 4 = Heating
9	TK detection	unsigned integer	Status of TK detection	0—2	0 = OK 1 = TK detected 2 = Not used
10	Relay Mode	unsigned integer	Relay output functionality	0—3	0 = Manual 1 = Alarm indication 2 = Output active 3 = Output Inactive

Note: The input registers can be read via the Modbus command: “Read input registers”.

HOLDING REGISTERS

		Data type	Description	Raw data	Values	Factory default values
1	Device slave address	unsigned integer	Modbus device address	1—247		1
2	Modbus baud rate	unsigned integer	Modbus communication baud rate	0—6	0 = 4.800 1 = 9.600 2 = 19.200 3 = 38.400 4 = 57.600 5 = 115.200 6 = 230.400	2
3	Modbus parity	unsigned integer	Parity check mode	0—2	0 = 8N1 1 = 8E1 2 = 8O1	1
4	Device type	unsigned integer	Device type. Read only	4000—4004	4000 = RTVS1-75L22 4001 = RTVS1-50L22 4002 = RTVS1-35L22 4003 = RTVS1-25L22 4004 = RTVS1-15L22	
5	HW version	unsigned integer	Hardware version of the device. Read only	XXXX	0x0100 = HW version 1.0	
6	FW version	unsigned integer	Firmware version of the device. Read only	XXXX	0x0200 = FW version 2.0	
7			Reserved, returns 0			
8	Modbus Time Out	unsigned integer	Time Out Of Modbus, after which the output is set to OFF	0—60	0 = Time Out OFF 1 = 1min 60 = 60min	0
9	Modbus network resistor termination (NBT)	unsigned integer	Set device as end device of the line / or not by connecting NBT	0, 1	0 = NBT disconnected 1 = NBT connected	0
10	Modbus registers reset	unsigned integer	Resets Modbus Holding registers to default values. When finished this register is automatically reset to '0'	0, 1	0 = Idle 1 = Reset Modbus Registers	0
11	Control Set	unsigned integer	Automatic – takes value from sensor. Manual Control – takes value from register 12	0—2	0 = Manual 1 = Auto forward 2 = Auto reverse	1
12	Manual output Step	unsigned integer	Desired output Value manually set	0—5	0 = OFF 1 = Step 1 ... = ... 5 = Step 5	0

HOLDING REGISTERS

		Data type	Description	Raw data	Values	Factory default values
13	Output Update Interval	unsigned integer	Time delay to update the output in automatic mode	5 s—600 s	5 = 5 s 60 = 1 min 600 = 10 min	5 s
14	TK Detection Control	unsigned integer	Define whether TK is used for detection or not	0, 1	0 = TK detection OFF 1 = TK detection ON	0
15	Manual Relay Control	unsigned integer	Relay ON or OFF	0, 1	0 = Relay OFF 1 = Relay ON	0
16	Hysteresis delta	unsigned integer	The difference between the upwards switching and downwards switching step percentage	2—10	2 = 2% 3 = 3% ... ... 10 = 10%	2
17	Communication Lost Output State	unsigned integer	Set output when Modbus communication is lost	0, 1	0 = OFF 1 = Last step selected	
18	Sensor output register value number	unsigned integer	Select which sensor output will be used as input to the device	1, 2, 11, 22, 27, 32	1 = Digital potentiometer 2 = Temperature/analogue input 11 = Relative Humidity 22 = CO_2/CO_2eq 27 = CO/TVOC 32 = NO_2	2
19	Relay output mode	unsigned integer		0—3	0 = Manual 1 = Alarm indication 2 = Output active 3 = Output Inactive	1
20			Reserved, returns 0			
21	Input value step 1	unsigned integer	Input value to switch to output step 1	0—1.000	170 = Switches to output step 1 at 17 % input value and steps down to output step 0 at 17 % - Hysteresis delta (HR16) set	170
22	Input value step 2	unsigned integer	Input value to switch to output step 2	0—1.000	340 = Switches to output step 2 at 34 % input value and steps down to output step 1 at 34 % - Hysteresis delta (HR16) set	340
23	Input value step 3	unsigned integer	Input value to switch to output step 3	0—1.000	510 = Switches to output step 3 at 51 % input value and steps down to output step 2 at 51 % - Hysteresis delta (HR16) set	510

HOLDING REGISTERS

		Data type	Description	Raw data	Values	Factory default values
24	Input value step 4	unsigned integer	Input value to switch to output step 4	0—1.000	680 = Switches to output step 4 at 68 % input value and steps down to output step 3 at 68 % - Hysteresis delta (HR16) set	680
25	Input value step 5	unsigned integer	Input value to switch to output step 5	0—1.000	850 = Switches to output step 5 at 85 % input value and steps down to output step 4 at 85% - Hysteresis delta (HR16) set	850
26—30			Reserved, return 0			

Note: The holding registers can be managed via the following Modbus commands: “Read Holding Registers”, “Write Single Register” or “Write Multiple Registers”.

The free Sentera configuration and monitoring software 3SModbus can be downloaded via: *https://www.sentera.eu/en/3SMCenter*