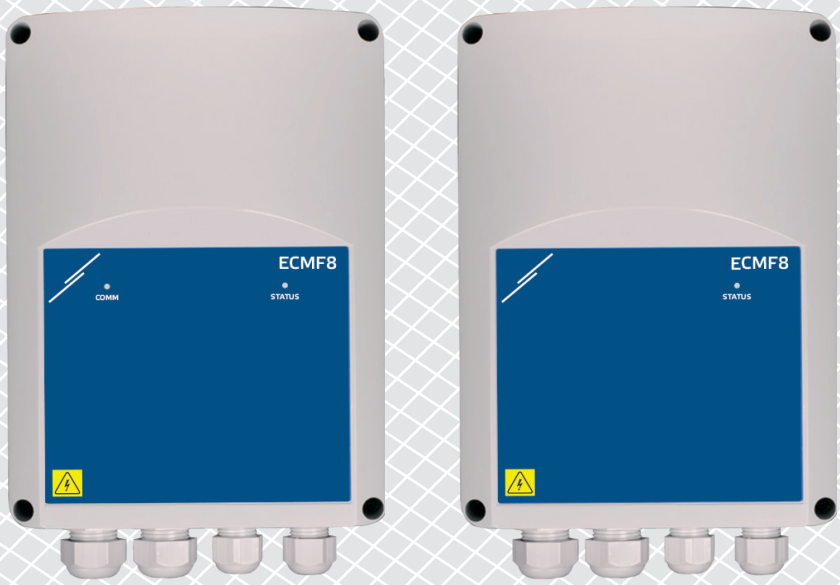
ECMF8 | HVAC CONTROLLER FOR EC FANS / VFD

Modbus register map



MODBUS REGISTER MAP

INPUT REGISTERS

		Data type	Description	Data	Values
1	Analogue / Modulating input 1 value	unsigned int.	Measured input value 1 when voltage / current / PWM/ digital input selected	0—1.000	600 = 60,0% 1000 = 100,0 %
2	Analogue input 1 frequency	unsigned int.	Measured input 1 frequency in PWM mode	0-8.000	8.000 = 8,000 Hz
3	AO1 output value	unsigned int.	Output Value of AO1	0 – 1.000	100 = 10% Output
4	AO1 Output type	unsigned int.	Output type of AO1	0—3	0 = OFF 1 = Voltage 2 = Current 3 = PWM
5	TI 1 Measured RPM	unsigned int.	Measured RPM Input 1	0 - 10000	0 = Stop or signal loss 100 RPM
6 - 10			Reserved, returns 0		
11	Analogue / Modulating input 2 value	unsigned int.	Measured input value 2 when voltage / current / PWM	0 - 1000	600 = 60,0 % 1000 = 100,0 %
12	Analogue input 2 frequency	unsigned int.	Measured input 1 frequency in PWM mode	0 – 8000	8000 = 8,000 Hz
13	AO2 output value	unsigned int.	Output Value of AO2	0 – 1000	100 = 10 % Output
14	AO2 output type	unsigned int.	Output type of AO2	0 - 3	0 = OFF 1 = Voltage 2 = Current 3 = PWM
15	TI 2 Measured RPM	unsigned int.	Measured RPM Input 2	0 – 10000	0 = Stop or signal loss 100 = 100 RPM
16-29			Reserved, returns 0		
30	Device State	unsigned int.	Device status	0 – 65535	Bit 3: Tacho input 2 error - (0 = OK, 1 = Fault) Bit 2: Tacho input 1 error - (0 = OK, 1 = Fault) Bit 1: Sensor 2 (outside) communication status (0 = OK, 1 = Lost) Bit 0: Sensor 1 (outside) communication status (0 = OK, 1 = Lost)

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

HOLDING REGISTERS

		Data type	Description	Raw data range	Default values	Values	
1	Device slave address	unsigned int.	Modbus device address	1 - 247	1		
2	Modbus baud rate	unsigned int.	Modbus communication baud rate	0 – 6	2	0 = 1 = 2 = 3 = 4 = 5 = 6 =	4.800 9.600 19.200 38.400 57.600 115.200 230.400
3	Modbus parity	unsigned int.	Parity check mode	0—2	1	0 = 1 = 2 =	8N1 8E1 8O1
4	Device type	unsigned int.	Device type (Read only)	ECMF8-AO-DM = 2108 ECMF8-AO-WF = 2109 ECMF8-AO-EW = 2110			
5	HW version	unsigned int.	Hardware version of the device (Read only)	XXXX		0 x 0100 =	HW version 1.0
6	FW version	unsigned int.	Firmware version of the device (Read only)	XXXX		0 x 0100 =	FW version 1.0
7			Reserved, returns 0				
8	Modbus Time Out	unsigned int.	Time Out Of Modbus, after which the output is set to OFF	0 - 60	0	0 = 1 = 60 =	Time Out – Min Value 1 min 60 min
9	Modbus network bus termination (NBT)	unsigned int.	Set device as end device of the line / or not by connecting NBT	0 - 1	0	0 = 1 =	disconnected connected
10	Modbus registers reset	unsigned int.	Resets Modbus Holding registers to default values. When finished this register is automatically reset to '0'	0 - 1	0	0 = 1 =	Idle Reset Modbus Registers
11	Control type input 1	unsigned int.	Input control type of output 1	0 - 1	0	0 = 1 =	Single input (In1) Differential input (In1 – In2)
12	Input source output 1	unsigned int.	Input source selection for output 1	0 - 2	0	0 = 1 = 2 =	Analogue / Modulating input Modbus Overwrite

HOLDING REGISTERS

		Data type	Description	Raw data range	Default values	Values	
13			Reserved, returns 0				
14	Analogue/ Modulating input 1	unsigned int.	Analogue/Modulating Input type selection	1 — 4	1	1 = 2 = 3 = 4 =	0 – 10 VDC 0 – 20 mA PWM Digital
15-16			Reserved, returns 0				
17	Control type output 1	unsigned int.	Output 1 control type	0 - 1	0	0 = 1 =	Output 1 Output 1 and 2
18	Minimum output 1	unsigned int.	Output 1 minimum value	200 - 600	200	300 = 600 =	30% 60%
19	Maximum output 1	unsigned int.	Output 1 maximum value	600 - 1.000	1.000	600 = 1.000 =	60% 100%
20	Value overwrite output 1	unsigned int.	Value overwrite for output 1	0 - 1.000	0	0 = 400 = 1.000 =	OFF 40% 100%
21	Off level Output 1	unsigned int.	Off level Output 1	0—400	0	0 = 400 =	0% 40%
22	Output 1 Inverse mode	unsigned int.	Inverse mode output 1	0 - 1	0	0 = 1 =	Disabled Enabled
23	Analogue / Modulating Output 1 mode	unsigned int.	Output type Analogue / Modulating output 1	0 – 3	1	0 = 1 = 2 = 3 =	OFF Voltage Current PWM
24	AO1 PWM Voltage Source selection	unsigned int.	AO1 PWM voltage source	0 - 1	0	0 = 1 =	+12 VDC Open Collector
25	PWM Frequency	unsigned int.	Select the PWM frequency of the outputs AO1 and AO2	1 - 8	1	1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 =	1 kHz 2 kHz 3 kHz 4 kHz 5 kHz 6 kHz 7 kHz 8 kHz
26	Tacho Input 1 Enable	unsigned int.	Tacho Input 1 enable / disable.	0 - 1	0	0 = 1 =	Disable Enable

HOLDING REGISTERS

		Data type	Description	Raw data range	Default values	Values	
27	Tacho Input 1 Setup	unsigned int.	Setup number of pulses per revolution for tacho signal of the motor / fan.	1 – 100	1	10 =	10 pulses per revolution
28-30			Reserved, returns 0				
31	Control type input 2	unsigned int.	Input control type of output 2	0 - 1	0	0 = 1 =	Single input (In2) Differential input (In2 – In1)
32	Input source output 2	unsigned int.	Input source selection for output 2	0 - 2	0	0 = 1 = 2 =	Analogue / Modulating input Modbus Overwrite
33			Reserved, returns 0				
34	Analogue/ Modulating input 2 mode	unsigned int.	Analogue/Modulating Input type selection	1 - 4	1	1 = 2 = 3 = 4 =	0 – 10 VDC 0 – 20 mA PWM Digital
35-36			Reserved, returns 0				
37	Control type output 2	unsigned int.	Output 2 control type	0 - 1	0	0 = 1 =	output 2 output 2 and 1
38	Minimum output 2 value	unsigned int.	Output 2 minimum value	100 - 600	200	300 = 600 =	30% 60%
39	Maximum output 2 value	unsigned int.	Output 2 maximum value	600 - 1.000	1.000	600 = 1.000 =	60% 100%
40	Output overwrite 2 value	unsigned int.	Value overwrite for output 2	0 - 1.000	0	0 = 400 = 1.000 =	OFF 40% 100%
41	Off level Output 2	unsigned int.	Off level output 2	0 – 400	0	0 = 400 =	0% 40%
42	Output 2 Inverse mode	unsigned int.	Inverse mode output 2	0 - 1	0	0 = 1 =	Disabled Enabled

HOLDING REGISTERS

		Data type	Description	Raw data range	Default values	Values	
43	Analogue / Modulating Output 2 mode	unsigned int.	Output type Analogue / Modulating output 2	0 - 3	1	0 = 1 = 2 = 3 =	OFF Voltage Current PWM
44	AO2 PWM Voltage Source selection	unsigned int.	AO2 PWM voltage source	0 - 1	0	0 = 1 =	+12 VDC Open Collector
45			Reserved, returns 0				
46	Tacho Input 2 Enable	unsigned int.	Tacho Input 2 enable / disable.	0 - 1	0	0 = 1 =	Disabled Enabled
47	Tacho Input 2 Setup	unsigned int.	Setup number of pulses per revolution for tacho signal of the motor / fan.	1 - 100	1	10 =	10 pulses per revolution
48-51			Reserved, returns 0				
52	LED's brightness control	unsigned int.	The intensity of LED 2	0 - 10	5	0 = 1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 = 9 = 10 =	0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
53-60			Reserved, returns 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