

Modbus Registers

Dew Point Sensors

Models:

DEA, DEC, DEE, DEK, DEM



Introduction

1. Communication parameters

Default settings:

Address:.....1

Baud rate:.....9600

Data Length:.....8

Parity:.....None

Stop Bit:1

Response Time out:....1 second

Response Delay:0 ms

Inter-frame spacing:...7 char

2. Holding register definition

Logical channels, data and related holding registers

- Modbus read command: 0x03
- Modbus write command:
 - 0x06 for single register
 - 0x10 for multiple register
- Coil registers write command: 0x05

3. Process Data Format

Supports two data types:

- IEEE 754 float data, and
- Unsigned int data

Float Format

Value (Decimal)	IEEE 754 float	Register N		Register N+1	
		High Byte	Low Byte	High Byte	Low Byte
123.4	0x42F6CCCD	0xCC	0xCD	0x42	0xF6

Unsigned int format

Value (Decimal)	Unsigned int	Register N		Register N+1	
		High Byte	Low Byte	High Byte	Low Byte
123456789	0x075BCD15	0xCD	0x15	0x07	0x5B

4. Byte Order

Data is little end, and least significant bit transmitted first

32bit: CD AB

64bit: GH EF CD AB

5. Holding Register: Process Data Table

Holding Register Addr	Data type	No of byte	Data	Unit	Read / Write
0	FLOAT_L	4	Temperature	°C or °F	R
2	FLOAT_L	4	Relative Humidity	%RH	R
4	FLOAT_L	4	Pressure Dew Point	°Ctd or °Ftd	R
6	FLOAT_L	4	Atmospheric Dew Point	°Ctd or °Ftd	
8	FLOAT_L	4	Mixing Ratio	g/kg	R
10	FLOAT_L	4	Absolute Humidity	mg/m ³	R
12	FLOAT_L	4	Absolute Humidity	g/m ³	R
14	FLOAT_L	4	Moisture (Weight)	PPMw	R
16	FLOAT_L	4	Moisture (volume)	PPMv	R
18	FLOAT_L	4	Enthalpy	kJ/kg	R
20	FLOAT_L	4	Line Pressure (abs)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
22	FLOAT_L	4	Water Activity (aw)		R
24	FLOAT_L	4	Gas Density	kg/m ³	R
26	FLOAT_L	4	Pressure (normalised to 20°C)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
28	FLOAT_L	4	Moisture (volume) (normalised to 20°C)	PPMw	R
30	FLOAT_L	4	Gas Density (normalised to 20°C)	kg/m ³	R
38	FLOAT_L	4	Moisture (volume) (normalised to atmosphere)	PPMw	R

Holding Register Addr	Data type	No of byte	Data	Unit	Read / Write
40	FLOAT_L	4	Atmospheric Pressure (default = 1.01325 bar or 1013.25hPa)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
42	FLOAT_L	4	Gause Pressure = Address 20 (Line Pressure) – Address 40 (Atm. Pressure)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
101	UNSIGNED INT	2	Software (SW) Version		R
102	UNSIGNED INT	2	Hardware (HW) Version		R
103	DOUBLE_L	8	Serial Number		R

6. Holding Register: Communication Configuration Table

Note:

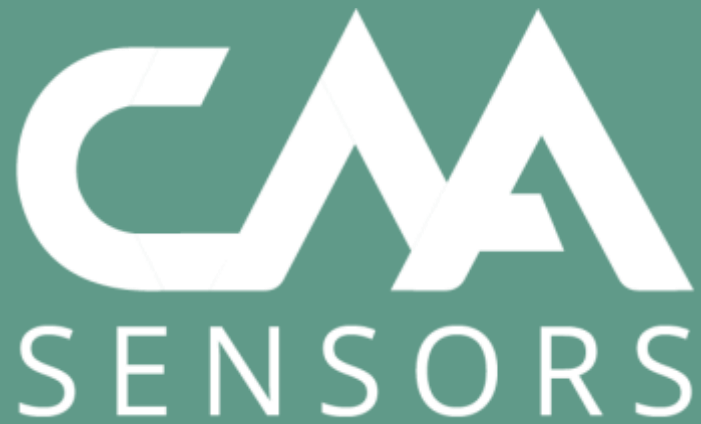
These settings will take effect after writing a "1" to the holding register address 50. Then Modbus master must change communication settings accordingly in order to communicate with the slave.

Holding Register Addr	Data type	No of byte	Contents	Default	Read / Write
50	UNSIGNED INT	2	Restart device (Write "1"to restart device)		W
51	UNSIGNED INT	2	Device address: Range = 1...247	1	R/W
52	UNSIGNED INT	2	Baud rate: 12 = 1200 bps 24 = 2400 bps 48 = 4800 bps 96 = 9600 bps (default) 144 = 14400 bps 192 = 19200 bps 384 = 38400 bps 560 = 56000 bps 576 = 57600 bps 1152 = 115200 bps	96	R/W
53	UNSIGNED INT	2	Parity: 0 = None (default) 1 = Odd 2 = Even	0	R/W

Holding Register Addr	Data type	No of byte	Contents	Default	Read / Write
54	UNSIGNED INT	2	Stop bit: 1 = 1 bit (default) 2 = 2 bit	1	R/W
55	UNSIGNED INT	2	Response Time Out: Range = 0...255 ms Step = 1 ms/step Default = 0 ms	0	R/W

7. Coil Register Table

Coil Register Addr	Data type	No of byte	Contents	Default	Read / Write
0	UNSIGNED INT	2	Restart Modbus Communication Read: Always 0 Write: 0x0000 = Do Nothing 0xff00 = Restart	0	R/W



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