

DSVCG2-4 | DUCT SENSOR FOR VOC, T AND RH

Modbus register map

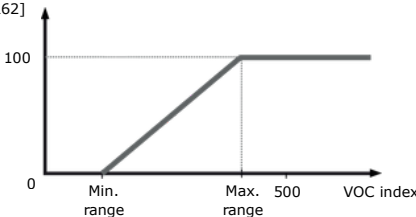


MODBUS REGISTER MAP

INPUT REGISTERS						
Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
↓ General ↓						
1	Device status – errors	R	Indicates the critical faults of the specific device part. When powered by AC, the Supply Voltage Fault is not valid.	Bitwise b0—b15		b0 = Supply Voltage Fault b1 = Internal Voltage Fault b2 = Memory Fault b3 = Sensor Fault b4—b15 = Reserved
2	Device status – warnings	R	Indicates non-critical warnings related to the specific device part. When powered by AC, the Supply Voltage Warning is not valid.	Bitwise b0—b15		b0 = Supply Voltage Warning b1 = Internal Voltage Warning b2 = Reserved b3 = Sensor Warning b4—b15 = Reserved
3	Supply voltage	R	Shows the actual supply voltage of the device. When powered by AC, the displayed value is not valid.	150—340	1/10 VDC	Example: 240 = 24 VDC
↓ Temperature ↓						
11	Temperature level	R	Measured temperature level.	-300—700	1/10 °C	Example: 200 = 20 °C
12	Temperature output level	R	Output value according to the temperature level and the set measurement range (HR11 and HR12).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
13	Temperature alert / alarm	R	Indicates that the measured temperature level is within the OK range (HR13 and HR14), within the Alert range (HR15 and HR16) or in the Alarm range. Temperature [°C] 70 Temperature alert / alarm Alarm Alert OK Alert Alarm T alarm maximum (HR16) T alert maximum (HR14) T alert minimum (HR13) T alarm minimum (HR15) -30	0–2		0 = OK 1 = Alert 2 = Alarm
14	Temperature sensor state	R	Indicates the state of the temperature sensor.	Bitwise b0—b15		0 = Sensor OK 1 = Sensor Problem 2 = Sensor Preheating b3—b15 = Reserved

INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
↓ Relative humidity ↓						
21	Relative humidity level	R	Measured level of relative humidity.	0—1.000	1/10 % rH	Example: 500 = 50 % rH
22	Relative humidity output level	R	Output value according to the relative humidity level and the set measurement range (HR21 and HR22).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
23	Relative humidity alert / alarm	R	Indicates that the relative humidity level is within the OK range (HR23 and HR24), within the Alert range (HR25 and HR26) or in the Alarm range. rH [%] 100 Relative humidity alert / alarm rH alarm maximum [HR26] Alarm rH alert maximum [HR24] Alert rH alert minimum [HR23] OK rH alarm minimum [HR25] Alert 0 Alarm			

INPUT REGISTERS						
Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
33	Dew point delta alert / alarm	R	Indicates that the Dew point delta (Temperature level (IR11) - Dew point level (IR31)) is below the alert / alarm subthresholds (HR33 and HR34). Dew point delta [°C] Dew point alert / alarm 10 OK Dew point delta alert subthreshold [HR33] Alert Dew point delta alarm subthreshold [HR34] Alarm 0	0—2		0 = OK 1 = Alert 2 = Alarm
34	Dew point state	R	Indicates the state of the dew point calculation.	Bitwise b0—b15		0 = Sensor OK 1 = Sensor Problem 2 = Sensor Preheating b3—b15 = Reserved
↓ VOC ↓						
61	VOC index level		Measured VOC index level.	1—500	1	
62	VOC output value		Output value according to the VOC index level and the set measurement range (HR61 and HR62). Analogue output value [IR62]  0 Min. range Max. range 500 VOC index	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output

INPUT REGISTERS

Input register	Data Type	Description	Raw Data Range	Resolution / Unit	Values
63	VOC index alert / alarm	R Indicates that the measured VOC index level is above the alert / alarm thresholds (HR63 and HR64). VOC index 500 VOC index alert / alarm VOC index alarm threshold [HR64] VOC index alert threshold [HR63] 1	0—2		0 = OK 1 = Alert 2 = Alarm
64	VOC index sensor state	R Indicates the state of the VOC sensor.	Bitwise b0—b15		0 = Sensor OK 1 = Sensor Problem 2 = Sensor Preheating b3—b15 = Reserved
65	VOC index air quality indication	R Indicates air quality based on the VOC air quality index level.	0—7		0 = Preparing 1 = Excellent 2 = Very good 3 = Good 4 = Fair 5 = Poor 6 = Bad 7 = Very bad
66	VOC index air quality trend	R Indicates an air quality trend over the past minutes based on the VOC index.	0—3		0 = Preparing 1 = Stable 2 = Improving 3 = Deteriorating
↓ Analogue Output ↓					
162	Analog Output State	R Output value according to the selected source (HR161).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
↓ Relay Output ↓					
192	Relay Output State	R Indicates the state of the relay output based on the settings in HR193 and HR194. Relay output state Activation threshold [HR193] Hysteresis [HR194]	0—1		0 = De-energised 1 = Energised

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

HOLDING REGISTERS

Holding register	Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
↓ General ↓						
1	Device slave address	R/W	Modbus device address.	1—247		1
2	Modbus baud rate	R/W	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	R/W	Parity check mode.	0—2	0 = 8N1 1 = 8E1 2 = 8O1	1
4	Device type	R	Device type.	XXXX	Device specific	1829 = DSVCG2-4
5	HW version	R	Hardware version of the device.	XXXX	Hardware version specific 0x0100 = HW version 1.00	Depends on the hardware release
6	FW version	R	Firmware version of the device.	XXXX	Firmware version specific 0x0100 = FW version 1.00	Depends on the firmware release
9	Modbus network resistor termination (NBT)	R/W	To avoid communication losses and reflections on the Modbus line, the NBT in two devices (at both ends of the line) must be activated.	0—1	0 = NBT disconnected 1 = NBT connected	0
10	Modbus registers reset		Resets the Modbus Holding registers to the default values. When finished, this register is automatically reset to '0'.	0—1	0 = Idle 1 = Reset Modbus Registers	0
↓ Temperature ↓						
11	Minimum temperature range	R/W	Minimum temperature value that corresponds to the minimum output value.	-300—HR12	1/10°C Example: -100 = -10 °C	0

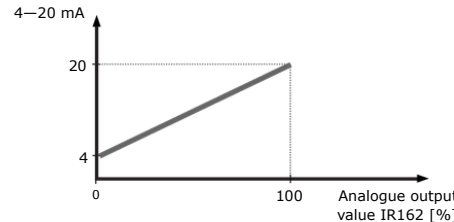
HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
12	Maximum temperature range	R/W	Maximum temperature value that corresponds to the maximum output value.	HR11—700	1/10 °C	Example: 500 = 50 °C	500
13	Temperature alert minimum	R/W	Minimum temperature alert level used to control IR13.	HR15—HR14	1/10 °C	Example: 200 = 20 °C	190
14	Temperature alert maximum	R/W	Maximum temperature alert level used to control IR13.	HR13—HR16	1/10 °C	Example: 300 = 30 °C	300
15	Temperature alarm minimum	R/W	Minimum temperature alarm level used to control IR13.	-300—HR13	1/10 °C	Example: 100 = 10 °C	100
16	Temperature alarm maximum	R/W	Maximum temperature alarm used to control IR13.	HR14—700	1/10 °C	Example: 400 = 40 °C	400
19	Temperature relay activation threshold	R/W	Temperature threshold at which the relay should be enabled.	-300—700	1/10 °C	Example: 400 = 40 °C	400
↓ Relative humidity ↓							
21	Minimum relative humidity range	R/W	Minimum relative humidity value that corresponds to the minimum output value.	0—HR22	1/10 % rH	Example: -100 = -10 % rH	0
22	Maximum relative humidity range	R/W	Maximum relative humidity value that corresponds to the maximum output value.	HR21—1000	1/10 % rH	Example: 500 = 50 % rH	500
23	Relative humidity alert minimum	R/W	Minimum relative humidity alert level used to control IR23.	HR25—HR24	1/10 % rH	Example: 300 = 30 % rH	300

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
24	Relative humidity alert maximum	R/W	Maximum relative humidity alert level used to control IR23.	HR23—HR26	1/10 % rH	Example: 700 = 70 % rH	700
25	Relative humidity alarm minimum	R/W	Minimum relative humidity alarm level used to control IR23.	0—HR23	1/10 % rH	Example: 100 = 10 % rH	100
26	Relative humidity alarm maximum	R/W	Maximum relative humidity alarm level used to control IR23.	HR24—1000	1/10 % rH	Example: 900 = 90 % rH	900
29	Relative humidity relay activation threshold	R/W	Relative humidity threshold at which the relay should be enabled.	0—1000	1/10 % rH	Example: 400 = 40 % rH	400
↓ Dew point ↓							
31	Minimum dew point range	R/W	Minimum dew point value that corresponds to the minimum output value.	-300—HR32	1/10 °C	Example: -100 = -10 °C	0
32	Maximum dew point range	R/W	Maximum dew point value that corresponds to the maximum output value.	HR31—700	1/10 °C	Example: 500 = 50 °C	500
33	Dew point delta alert subthreshold	R/W	Dew point delta alert subthreshold used to control IR33.	HR34—100	1/10 °C	Example: 20 = 2 °C	20
34	Dew point delta alarm subthreshold	R/W	Dew point delta alarm subthreshold used to control IR33.	0—HR33	1/10 °C	Example: 20 = 2 °C	20
↓ VOC ↓							
61	Minimum VOC range	R/W	Minimum VOC index level that corresponds to the minimum output value. It cannot be set higher than the maximum VOC range (HR62).	0—500	1 VOC index point	Example: 50 = 50 VOC index points	0
62	Maximum VOC range	R/W	Maximum VOC index level that corresponds to the maximum output value. It cannot be set lower than the minimum VOC range (HR61).	0—500	1 VOC index point	Example: 50 = 50 VOC index points	100

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
63	VOC index alert threshold	R/W	VOC alert level used to control IR63.	0—HR64	1 VOC index point	Example: 50 = 50 VOC index points	150
64	VOC index alarm threshold	R/W	VOC alert level used to control IR63.	HR64—500	1 VOC index point	Example: 50 = 50 VOC index points	400
69	VOC relay activation threshold	R/W	VOC threshold at which the relay should be enabled.	0—500	1 VOC index point	Example: 50 = 50 VOC index points	400
↓ Analogue output ↓							
161	Output source	R/W	Indicates the actual source of the signal used for the analogue output.	Bitwise b0 is LSB		b0 = Override (highest priority) b1 = Temperature b2 = Relative Humidity b3 = Dew Point b5 = VOC Index Points b6—b15 = Reserved	b1
162	Output override value	R/W	Override value for the analogue output.	0—1.000	1/10 %	Example: 1.000 = 100 % Output	0
163	Output type	R/W	Select analogue / modulating output type. 	0—6		0 = 0—10 VDC 1 = 0—20 mA 2 = PWM 12 VDC 3 = PWM Open Collector 4 = 2—10 V 5 = 4—20 mA 6 = 0—5 V	0
↓ Relay output ↓							
191	Relay output source	R/W	Indicates the actual source of the signal used for the relay output.	Bitwise b0 is LSB		b0 = Override (highest priority) b1 = Temperature b2 = Relative Humidity b5 = VOC Index Points b6—b15 = Reserved	b1
192	Relay Output override value	R/W	Override value for the relay output.	0—1		0 = De-energised (OFF) 1 = Energised (ON)	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							