

## GMP252

### A.2.1 Measurement Data

Table 52 Modbus Measurement Data Registers (Read-Only)

Register Number (Decimal)	Address (Hexadecimal)	Register Description	Data Format	Unit
1	0000 <sub>hex</sub>	Measured CO <sub>2</sub> value	32-bit float	ppm
3	0002 <sub>hex</sub>	Compensation T	32-bit float	°C
5	0004 <sub>hex</sub>	Measured T	32-bit float	°C
257	0100 <sub>hex</sub>	Measured CO <sub>2</sub> value	16-bit signed integer	ppm (up to 32 000 ppm)

Register Number (Decimal)	Address (Hexadecimal)	Register Description	Data Format	Unit
258	0101 <sub>hex</sub>	Measured CO <sub>2</sub> value	16-bit signed integer	ppm <sup>1)</sup> (scaled, up to approx. 320 000 ppm)

1) The ppm output of the second Measured CO<sub>2</sub> value register (number 258) is scaled and must be multiplied by 10.

### A.2.3 Status Registers

Table 54 Modbus Status Registers (Read-Only)

Register Number (Decimal)	Address (Hexadecimal)	Register Description	Data Format	Notes
2049	0800 <sub>hex</sub>	Device status	16-bit	0 = Status OK. 1 = Critical error. 2 = Error. 4 = Warning.
2050	0801 <sub>hex</sub>	CO <sub>2</sub> status	16-bit	0 = Status OK. 2 = CO <sub>2</sub> reading not reliable. Appears during transmitter start-up. 256 = Measurement not ready. Appears during transmitter start-up.




Multiple statuses can be present simultaneously. In those cases, the value of the status register is the sum of the status values. For example, the value of the device status register is **6** if a warning (**4**) and an error (**2**) are present simultaneously.

# HMP60

## Modbus registers ⓘ

Registers are numbered in decimal, starting from 1. Register addresses in actual Modbus messages (Modbus Protocol Data Unit (PDU)) are in hexadecimal and start from zero. Register number 1 corresponds to address 0<sub>hex</sub> in the actual Modbus message.

**CAUTION!** Reading the wrong register(s) may result in correct-looking values. Check the reference documentation of your Modbus host (PLC) to verify which notation it uses for Modbus register addresses.

## Measurement data registers ⓘ

Table 1. Modbus measurement data registers (read-only)

Register number	Address	Register description	Data format	Unit
Floating point values				
1	0000 <sub>hex</sub>	Relative humidity	32-bit float	%RH
	0001 <sub>hex</sub>			
3	0002 <sub>hex</sub>	Temperature <sup>1</sup>	32-bit float	°C
	0003 <sub>hex</sub>			
9	0008 <sub>hex</sub>	Dew/frost point temperature	32-bit float	°C
	0009 <sub>hex</sub>			
15	000E <sub>hex</sub>	Absolute humidity	32-bit float	g/m <sup>3</sup>
	000F <sub>hex</sub>			
17	0010 <sub>hex</sub>	Mixing ratio	32-bit float	g/kg
	0011 <sub>hex</sub>			
19	0012 <sub>hex</sub>	Wet-bulb temperature	32-bit float	°C
	0013 <sub>hex</sub>			
27	001A <sub>hex</sub>	Enthalpy	32-bit float	kJ/kg
	001B <sub>hex</sub>			
Integer values				
257	0100 <sub>hex</sub>	Relative humidity	16-bit integer	%RH * 10
258	0101 <sub>hex</sub>	Temperature <sup>1</sup>	16-bit integer	°C * 10
261	0104 <sub>hex</sub>	Dew/frost point temperature	16-bit integer	°C * 10
264	0107 <sub>hex</sub>	Absolute humidity	16-bit integer	g/m <sup>3</sup> * 10
265	0108 <sub>hex</sub>	Mixing ratio	16-bit integer	g/kg * 10
266	0109 <sub>hex</sub>	Wet-bulb temperature	16-bit integer	°C * 10
270	010D <sub>hex</sub>	Enthalpy	16-bit integer	kJ/kg * 10

<sup>1</sup> Only temperature output is available in probe model HMP110T.

## Status registers

Table 1. Modbus status data registers (read-only)

Register number	Address	Register description	Data format	Note
513	0200 <sub>hex</sub>	Error status	16-bit integer	0000 <sub>hex</sub> : One or more errors active 0001 <sub>hex</sub> : No errors
516	0203 <sub>hex</sub> 0204 <sub>hex</sub>	Error code	32-bit integer	
518	0205 <sub>hex</sub> 0206 <sub>hex</sub>	Security hash	32-bit integer	Security hash changes when any change is made to device settings or adjustments, but also returns back to the previous value if such changes are reverted completely.

Table 2. Error codes on Modbus interface

Error code register value	Corresponding error
1	Temperature measurement error. [44]
2	Humidity measurement error. [45]
4	Humidity sensor failure. [46]
8	Capacitance reference error. [47]
16	Ambient temperature out of range. [48]
32	Firmware checksum mismatch. [49]
64	Device settings corrupted. [50]
128	Additional configuration settings corrupted. [51]
256	Sensor coefficients corrupted. [52]
512	Main configuration settings corrupted. [53]
2048	Supply voltage out of range. [55]
8192	Non-volatile memory read/write failure. [57]
16384	Calibration certificate checksum mismatch. [58]

If several errors are active at the same time, the Modbus error code register contains the sum of currently active error codes.

Refer to [Error messages in Insight software](#) for more information about the error states.