



Temperature, humidity and pressure sensor

GS7-PT100-1/3B THP

Digital temperature, humidity and atmospheric pressure sensor



GSoc GS7-PT100-1/3B THP with RS485 MODBUS RTU support AA accuracy class & Radiation Shield



GS7-PT100-1/3B THP is a professional 3-in-1 environmental sensor for measuring temperature, humidity, and atmospheric pressure.

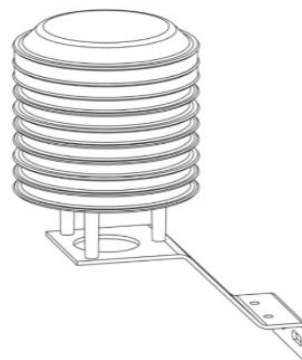
The high-quality Pt100 temperature sensor with Class AA accuracy (DIN IEC 60751) ensures exceptional measurement precision, while the humidity and pressure measurement modules are characterized by stability, low drift, and a wide operating range.

The device uses RS485 (Modbus RTU) communication and is equipped with an anti-radiation shield, enabling reliable measurements in full sunlight and in challenging weather conditions.

Communication	RS485 MODBUS RTU
Temperature measurment range	-40 °C to +70 °C
Temperature measurment resolution	0.01°C
Temperature measurement accuracy	AA class (Pt100-1/3B DIN IEC 60751), i.e., typical $\pm 0.1^{\circ}\text{C}$ over the entire measurement range
Long-term temperature drift	$<0.03^{\circ}\text{C}/\text{year}$
Humidity measurment range	0 – 100 % RH
Humidity measurement resolution	0.1% RH
Humidity measurement accuracy	typical 0.5% RH, max. 1.0% RH
Long-term humidity drift:	$<0.19\% \text{ RH}/\text{year}$
Atmospheric pressure measurement range (operational)	300 – 1250 hPa (full accuracy)
Atmospheric pressure Relative accuracy	typ. $\pm 3 \text{ Pa}$ ($\approx \pm 0.25 \text{ m}$) in the range of 700 – 1100 hPa, 25 – 40 °C
Atmospheric pressure Absoulte accuracy	typ. $\pm 50 \text{ Pa}$ in the range of 300 – 1100 hPa, -0 – +65 °C
Atmospheric pressure Absoulte resolution	0.01 hPa
Power supply	5–30 V DC (typically 12 V DC)
Power consumption	Sleep mode/measurement $\sim 500 \mu\text{A}$ / $2000 \mu\text{A}$ (max. average $\sim 20 \text{ mW}$)
Housing	ABS with porous brass filter
Protection class	IP65 (or higher), Suitable for operation in full sunlight and outdoor conditions

ANTI-RADIATION SHIELD

- › Radiation shield for the temperature and humidity sensor, made of thermoformed plastic.
Cylindrical shape, composed of 7 segments, equipped with a mounting arm and a universal holder
Protects against direct sunlight and precipitation
- › **Dimensions:**
 - Diameter: 17 cm
 - Height: 20 cm



CONNECTING THE MODBUS RTU SENSOR

Name	Description	Color
Power	Supply voltage 5÷30VDC max 20 mW	Brown
Masa	Supply voltage, ground	White
RS-485 A	RS-485 A (9600baud 8N1)	Green
RS-485 B	RS-485 B (9600baud 8N1)	Yellow
Screen	Screen, connect to ground or leave unconnected	Yellow-green

MODBUS RTU COMMUNICATION

TRANSMISSION PARAMETERS

Speed: 9600 baud (fixed)
Format: 8N1 (8 data bits, no parity, 1 stop bit)

ADDRESSING

Address in the range 0–255
Default is set to address 1

READING AND WRITING REGISTERS

- › Data is read from registers using function 0x03 (read holding registers)
- › Data is written to a register using function 0x06 (write single register)

MODBUS RTU register map

Address (holding registers 0x03)	Description
0x0A	A 16-bit word containing the current temperature measurement multiplied by 100 (e.g., 2333 = 23.33 degrees)
0x0B	A 16-bit word containing the current humidity measurement multiplied by 100 (e.g., 2555 = 25.55%)
0x02	Sensor address
0x30	Sensor address change register (0x00 – 0xff)