



298.00 EUR  
incl. 19% VAT, plus [shipping](#)

- LoRaWAN !

**Support:**  [LoRa keys/format](#) |  [AT Commands Manual](#)

LS-111P is designed to measure Carbon Dioxide (CO<sub>2</sub>), Temperature and Humidity by LoRa® long-range and low-power wireless connectivity. It is integrated LoRa® wireless technology, CO<sub>2</sub> sensor knowhow and high-performance MCU solution for various IoT markets usage. With calibrated CO<sub>2</sub> sensor module and compensated Temperature/ Humidity sensor integration, the data is ready for use. It is perfect for monitoring air quality in schools, office buildings, greenhouses, factories, hotels, hospitals, transportation lines and anywhere high levels of carbon dioxide are generated.

**Features:**

- LoRaWAN™ compliant
- High receiver sensitivity, long range solution
- Integrated with calibrated CO<sub>2</sub> sensor
- Accuracy: ±50 ppm, ±3% of reading
- Range: 0 ~ 10,000 ppm
- Integrated with compensated Temp/ RH sensor
- Wide range DC power-in, 8~24V /or Micro-USB DC power-in, 5V
- Display CO<sub>2</sub> concentration, Temp/ RH
- Alarm LED indicator

|                 |   |
|-----------------|---|
| LoRa® Module    | GlobalSat LM-130H LoRaWAN™ Module   |
| Frequency       | 863 ~ 870 MHz (EU)<br>902 ~ 928 MHz (US)<br>920 ~ 928 MHz (ROA)   |
| LoRa® Antenna   | External Omni Antenna   |
| Sensitivity     | 824 ~ 960 MHz 2dBi SMA Male connector<br>-132 dBm @ 980 bps   |
| Tx Power        | Up to 100 mW  |
| Sensing Element | <ul style="list-style-type: none"> <li>• CO<sub>2</sub>: Gold-plated infrared (NDIR) wave-guide technology with Automatic Baseline Correction (ABC) and passive gas diffusion (no moving parts)</li> <li>• Temperature &amp; Humidity: CMOS sensor</li> </ul> |

|                       |  |
|-----------------------|--|
| Response Time         | <ul style="list-style-type: none"><li>• CO<sub>2</sub>: &lt; 10 sec. @ 30 cc/min. flow rate &lt; 3 min. diffusion time</li><li>• Temperature: min. 3 sec. ■ max. 30 sec. at τ 63%</li><li>• Humidity: &lt; 8 sec. at τ 63%</li></ul> |
| Accuracy (at 25 ■)    | <ul style="list-style-type: none"><li>• CO<sub>2</sub>: ±50 ppm or ±3% of reading</li><li>• Temperature: ±0.5 ■</li><li>• Humidity: ±5 %RH</li></ul>   |
| Repeatability         | <ul style="list-style-type: none"><li>• CO<sub>2</sub>: ± 20 ppm + (±reading * 1%)</li><li>• Temperature: ±0.3 ■</li><li>• Humidity: ±0.3 %RH</li></ul>  |
| Zero Drift            | <ul style="list-style-type: none"><li>• CO<sub>2</sub>: &lt; ± 10 ppm/yr. with Automatic Baseline Correction (ABC)</li><li>• Temperature: &lt; 0.04 ■/yr</li><li>• Humidity: &lt; 0.5 %RH/yr</li></ul>                               |
| Measurement Range*    | <ul style="list-style-type: none"><li>• CO<sub>2</sub>: 0 ~ 10,000 ppm</li><li>• Temperature: -40 ~ +125 ■</li><li>• Humidity: 0 ~ 85 %RH</li></ul>  |
| Pressure Dependence   | CO <sub>2</sub> : 1.6 % reading per kPa  |
| Operation Temperature | -10 ~ +60 ■  |
| Operation Humidity    | 0 ~ 85 %RH, Non condensed.<br>0 to 50 ■  |
| Storage Temperature   | -20 ~ +70 ■  |
| Warm-up Time          | ≤ 1 min. (at full specs ≤ 15 mins)   |
| LED Indicator         | Orange LED x 1 (by threshold setting, default is 800 ppm)<br>Red LED x 1 (by threshold setting, default is 1000 ppm)   |
| Dimension             | Wall-mount: 113.57(H) x 80(W) x 28.79(D) mm  |
| Weight                | 101 ±2g  |
| Case Material         | ABS  |
| Accessories           | LoRa <sup>®</sup> Antenna (External Omni Antenna) x 1<br>Sensor Programmable Cable (Optional)  |
| Certification         | CE, FCC, Telec, ThingPark  |