

Honeywell
HPMA115S0-XXX



Nova Fitness
SDS011



PLANTOWER
PMS 7003



SENSIRION
SPS30



SHARP
GP2Y1010AU0F



SHIYEI TECHNOLOGY
PPD42NJ

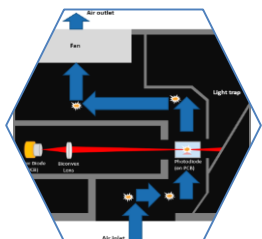
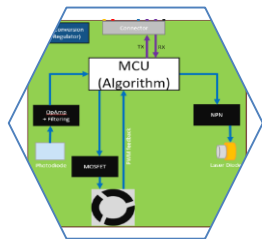
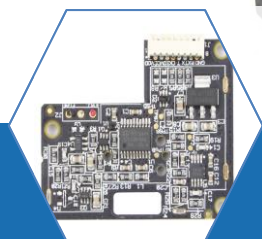


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Particle Sensor Comparison 2019

From detection to measurement, discover manufacturers' technical choices and device manufacturing costs.



Due to increasing air quality level requirements, air and gas particulate matter sensing has become an ever-growing market, particularly in semiconductor, indoor depollution and automotive applications.

Only a few well-known companies share this market, which is worth more than \$100 million today. Many products have already been released in different applications, for different particle sizes.

However, these particle sensors must respect dimensional constraints to be integrated into other systems. They must operate for years without maintenance and have a reasonable selling price to reach as many areas as possible.

In this comparative report, System Plus Consulting analyzes seven particle sensors from the top main manufacturers: Honeywell's HPMA115S0-XXX, Nova Fitness' SDS011, Plantower's PMS 7003, Sensirion's SPS30, Sharp's GP2Y1010AU0F, and Shiyei Technology's PPD42NJ and PPD71.

In this analysis technical choices made by manufacturers are highlighted, at the printed circuit boards, electronic

components and hardware levels. Block diagrams help readers to understand the component functions and the mechanical design. Different tables compare the common chipsets and main parts identified, their respective costs. Then, combined with manufacturing hypotheses, a manufacturing price is estimated for each system.

For further details on gas and particle sensors market and technology, consult Yole Développement's linked report.

COMPLETE TEARDOWN WITH

- Main features
- Block diagrams
- Teardown
- Printed circuit board characteristics and component identification
- Chipset comparison tables
- Added value comparison table
- Manufacturing cost comparison table

Title: Particle Sensor Comparison

Pages: 85

Date: September 2019

Format: PDF & Excel file

BoM Cost – Comparison Table - Chipset

Product :	MCU	Operational Amplifier	Voltage Regulator	Photodiode
Sharp GP2Y1010AU0F	N/A	Brand : Sharp Part number : S126 Description : ASIC TSSOP16 \$0.41/unit (1,000,000 units)	N/A	Brand : Sharp Part number : PD413PI2E00F Description : IR Photodiode 960nm 150mW 90 ° Radial TH \$0.179/unit (1,000,000 units)
Shinyei PPD42NJ	N/A	Brand : JRC Part number : NJM2902M Description : IC OpAmp Quad 500kHz SO14 \$0.209/unit (1,000,000 units)	N/A	Brand : Mnfr not identified Part number : P/N not identified Description : Photodiode Side View with 3mm Diameter lens TH \$0.178/unit (1,000,000 units)
Shinyei PPD71	Brand : STMicroelectronics Part number : STM8S003F3P6TR Description : IC MCU 8-Bit 16MHz 8KB Flash TSSOP20 \$0.205/unit (1,000,000 units)	Brand : Hamamatsu (estimated) Part number : P/N not identified Description : ASIC Photodiode + amplifier + I²C interface SOP12 \$0.743/unit (1,000,000 units)	Brand : Torex Semiconductor Part number : XC6223A331MR-G Description : IC LDO Voltage Regulator 3.3V 300mA SOT23-5 \$0.099/unit (1,000,000 units)	Brand : Hamamatsu (estimated) Part number : P/N not identified Description : ASIC Photodiode + amplifier + I²C interface SOP12 -

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AUTHOR



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LINKED REPORT

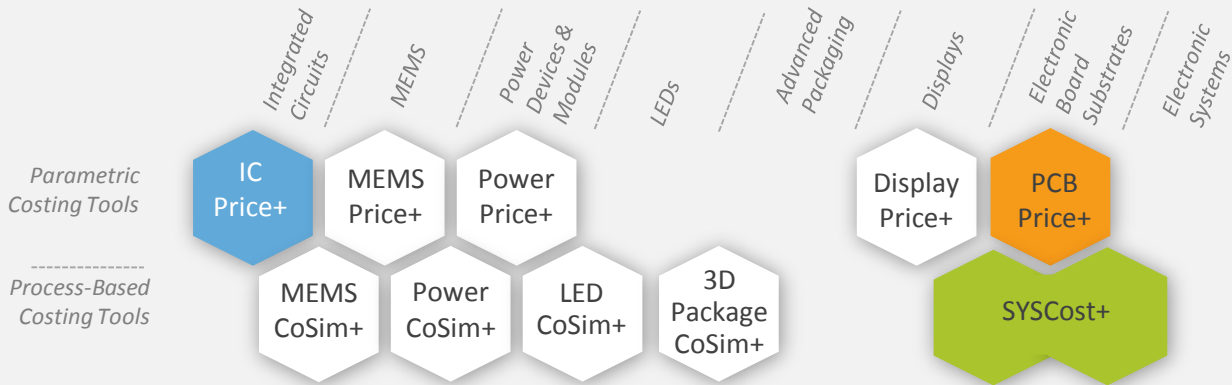


Gas and Particle Sensors 2018 – Air quality is breathing life into the sensor market!

Market and Technology Report by Yole Développement

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