

***VAYU Sense brings the internet of things to pharmaceutical production, enabling real-time process supervision on any mobile device for optimized yield and output.***

## About VAYU Sense

VAYU Sense, based in Germany and Israel, is bringing to market biological detection technology that allows identification of extremely subtle fluctuations in gaseous concentrations with unprecedented accuracy, in real-time, and that delivers results to mobile devices.

Its technology will positively impact a wide range of industries including pharmaceutical production, food production and oil industry refineries. VAYU Sense's technology can even detect the early signs of contamination in platelet units.

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**VAYU**sense

**NEUMO**

VAYU Sense in collaboration with NEUMO



Real-Time Measurement  
of Biological Activity for  
Superior Yield in Drug  
Production and More

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# VAYU Meter

## Smart Fermentation Processes

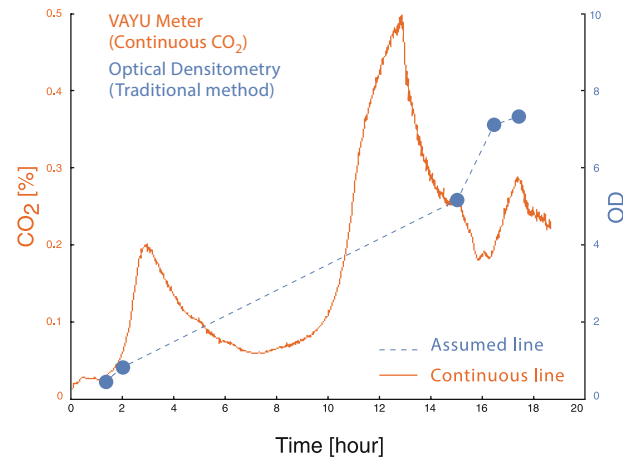
Optimizing pharmaceutical production yields is a challenge

Knowing how to optimize pharma yield during growth processes – when to add nutrients, change fermentation conditions, and terminate the process – is presently difficult. Incorrect timing results in waste of resources and consequently lower profits. Current technologies either cannot monitor the fermentation process continuously, or are intrusive, or are fairly inaccurate. They may miss subtle but important fluctuations in gaseous concentrations that are crucial for optimizing yield and fermenter throughput.

VAYU Meter – Optimized yield via continuous measurement and online monitoring

VAYU Meter measures, records and analyzes CO<sub>2</sub> levels using its proprietary infrared technology, enabling pharmaceutical companies to optimize drug yield. The device is highly sensitive and non-intrusive to the fermentation process. Measurements are performed continuously and automatically while the growth matter is in the fermenter, so analysis is performed in real-time. All can be viewed and controlled online by an operator, on multiple devices and displays.

**VAYU Meter can measure both:**  
**<sup>12</sup>CO<sub>2</sub> and Isotope <sup>13</sup>CO<sub>2</sub>**



VAYU Meter **continuous** measurement in orange provides more insightful information than existing **discrete** optical density measurement in blue

VAYU Meter – Empowers operators to intervene in fermentation processes at the right moment

- ✓ **Minute-by-minute results** that correlate to biomass, the gold standard for measuring bacterial activity.
- ✓ **Perfect information about the moment** when yield is maximized, enabling real-time process intervention.
- ✓ **Integration into global smart factory initiatives** enabling remote monitoring via a PC, laptop, or mobile phone.

**VAYU Meter can reduce the cost of a fermentation event by up to 40%**

# VAYU Med

## Immediate Detection of Contaminated Platelets

Bacterial contamination in platelets can cause sepsis

Bacterial contamination, especially of platelets, is a major challenge for blood banks. Up to 4,000 of the platelet units transfused each year in the United States are contaminated with bacteria, which may cause sepsis – fatal in 10% of the patients who contract it. Because of the magnitude of the problem, and the lack of practical approaches for testing platelets before they are transfused into the patient, the FDA has limited platelet shelf life to 5 days.

VAYU Med – Instant measurement of platelets in real-time

VAYU Med detects various microorganism contaminations in platelets. Results are provided on the spot, just before the platelets are infused to patients. There is no need to withdraw a platelet sample to be sent off-site for analysis in a laboratory. With the test, many samples that were once discarded too early, due only to an arbitrary expiration date, could still be used to treat patients.