

**Panasonic**  
INDUSTRY

**Solutions for Liquid  
Dispensing Processes**  
For Clinical Diagnostics  
Instruments



# Life Science

## Our Solutions for Liquid Dispensing Process

Panasonic contributes to factory automation by meeting global customers' rigorous quality standards with our strength of sensing and control technologies.

And now, we move forward in the pursuit of creating a comfortable living and society for all people by bringing our technologies and quality in a new stage called "Life Science".

### Index

- Tube rack detection..... p4
- Static charge removal from reaction container before liquid dispensing..... p5
- Static charge removal from sample cup before liquid level detection..... p6
- Empty detection for reagent/washing liquid..... p7
- Absorption confirmation of waste liquid..... p8
- Full level detection for waste tank..... p9
- Serum/Plasma level detection..... p10
- Other products..... p11

# Solutions by Sensor & Ionizer

Absorption confirmation of waste liquid

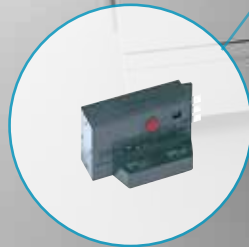
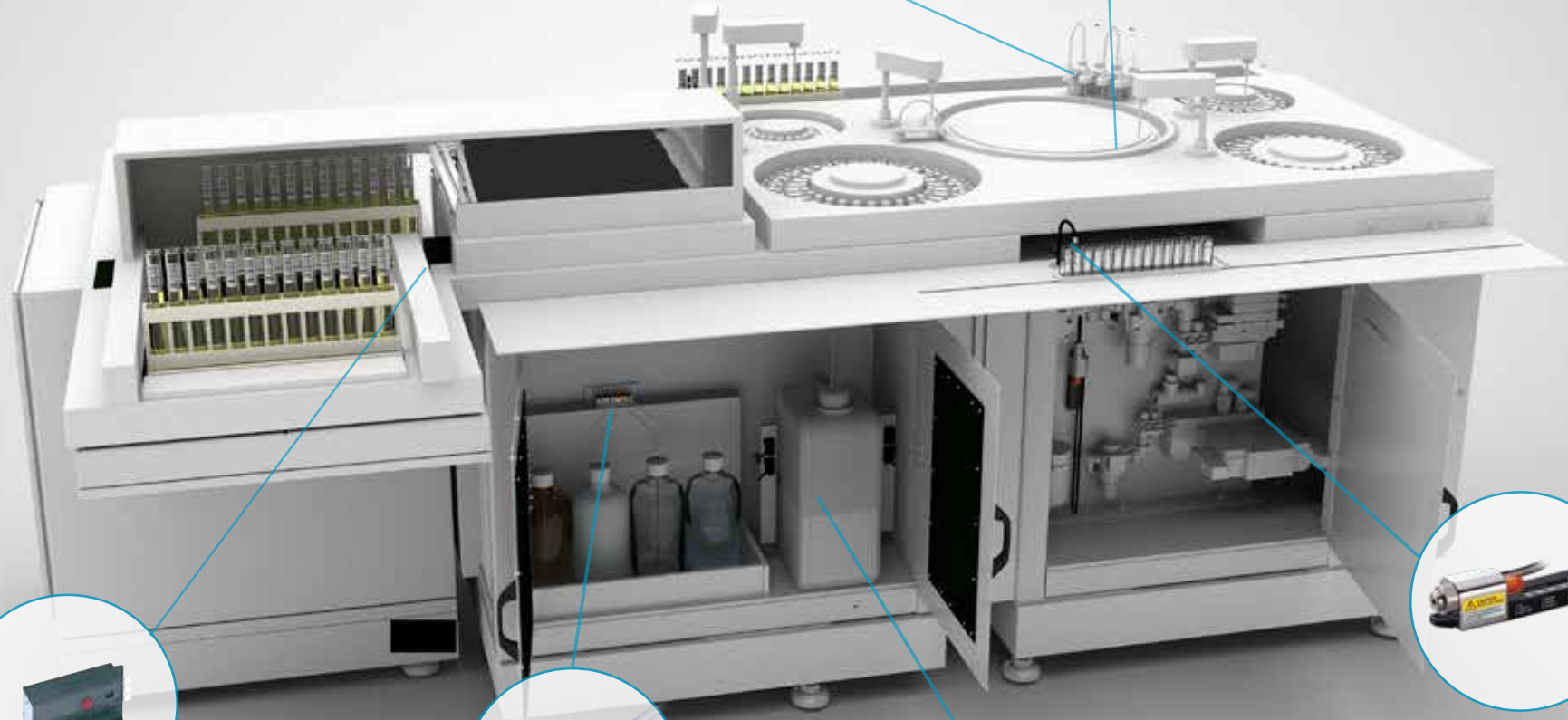


Static charge removal from sample cup before liquid level detection

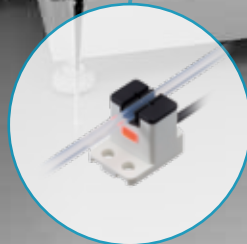


Pre-analytical process

Serum/Plasma level detection



Tube rack detection



Empty detection for reagent/washing liquid



Static charge removal from reaction container before liquid dispensing

Full level detection from waste tank

Tube sample transportation process  
Before liquid dispensing

Application

## Tube rack detection

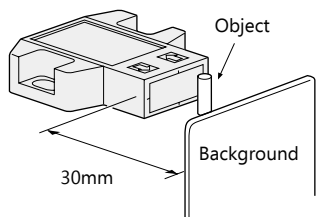
### Customer Feedback

- 1) Want ability to detect tube rack stably even within a narrow space.  
"Sensor erroneously detects object behind tube rack"
- 2) Want sensors to work using a 5VDC power supply.  
"There is an increase cost to use sensors with a 24VDC power supply."

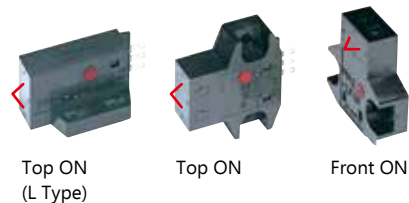
### Our Solution

Convergent Reflective Micro Photoelectric Sensor **PM2**

- 1) Possible to detect stably even within a narrow space without being affected by background conditions that can only detect a limited distance.
- 2) Sensors can utilize 5 to 24 VDC power supply providing direct power from the PC board.



Even specular background will not affect sensing performance as long as the sensor is placed 30 mm away.



Product line up based on the three mounting conditions above.



Convergent Reflective Micro Photoelectric Sensor **PM2**

Reaction container transportation process  
Before dispensing

Application

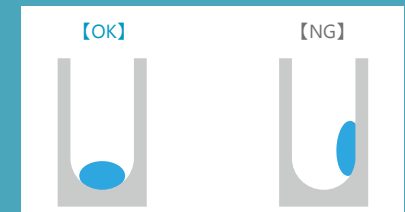
**Static charge removal from reaction container before liquid dispensing**

Ultra-compact Ionizer  
**ER-VS02**  
Tubes/Nozzle: **ER-VA** □

### Customer Feedback

Want to dispense liquid into reaction container correctly.

"When reaction container is charged with static electricity, the liquid will stick to side of the container and not fall to the bottom."



### Our Solution

Ultra-compact Ionizer **ER-VS02**

- Reliable dispensing into reaction container by using an ionizer to remove static charge from the container.
- Ability to install in narrow spaces by using tube nozzle attachment.





Liquid level detection process  
Dispensing

Application

## Static charge removal from sample cup before liquid level detection

### Customer Feedback

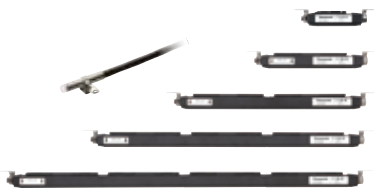
Want to prevent capacitive proximity sensor from malfunctioning.

"When sample cup is charged with static electricity, capacitive sensor won't detect the liquid level properly due to a malfunction. This will cause an inspection error because aspiration nozzle sucks up air."

### Our Solution

Area Ionizer **ER-X**

- Capacitive proximity sensor correctly detects the liquid level by removing static charge from sample cup.
- Ability to remove static charge without volatilization of sample and reagent using airless ionizer.
- Product line up includes; Spot type (ER-X001), Compact type(ER-X008, width 80mm), and Wide type (ER-X064, width 640mm).





Optical Bubble Sensor  
BE-A

Liquid level detection  
Dispensing

Application  
**Empty detection for reagent /  
washing liquid**

**Customer Feedback**  
Want to detect liquid level without contacting the liquid.  
-Electrode Sensor-  
"Sensor may break down due to corrosion when in contact with the reagent\*."  
(\*Corrosion depends on characteristics of reagent)  
"During maintenance, operator may expose themselves to a bio-hazard risk by touching reagent."  
-Float Switch-  
"Switch may break down due to crystallization of reagent or it may corrode."

**Our Solution**  
Optical Bubble Sensor **BE-A**

- Safe and easy liquid detection without coming in contact with the liquid.
- Sensor does not come in contact with reagent preventing any malfunctioning from crystallization of the reagent or by corroding the sensor.
- Sensor does not require maintenance eliminating the risk of bio-hazard exposure.
- Ability to use up reagent by detecting that the tube is empty.



Hassle-free one-touch attachment  
without the need for tools!

**Product line up based on applicable tube sizes**  
φ 2mm/ φ 3mm/ φ 4mm  
Perfectly fits into applicable tubes without pressing the tube or obstructing flow rate.



Waste liquid discharge process  
After analysis

Application

## Confirmation for waste liquid discharge

### Customer Feedback

Want to confirm if waste liquid is discharged from reaction container after analysis process.

"Only monitoring pump operation but not confirming liquid discharge can raise concerns of leakage when liquid is not discharged properly."

### Our Solution

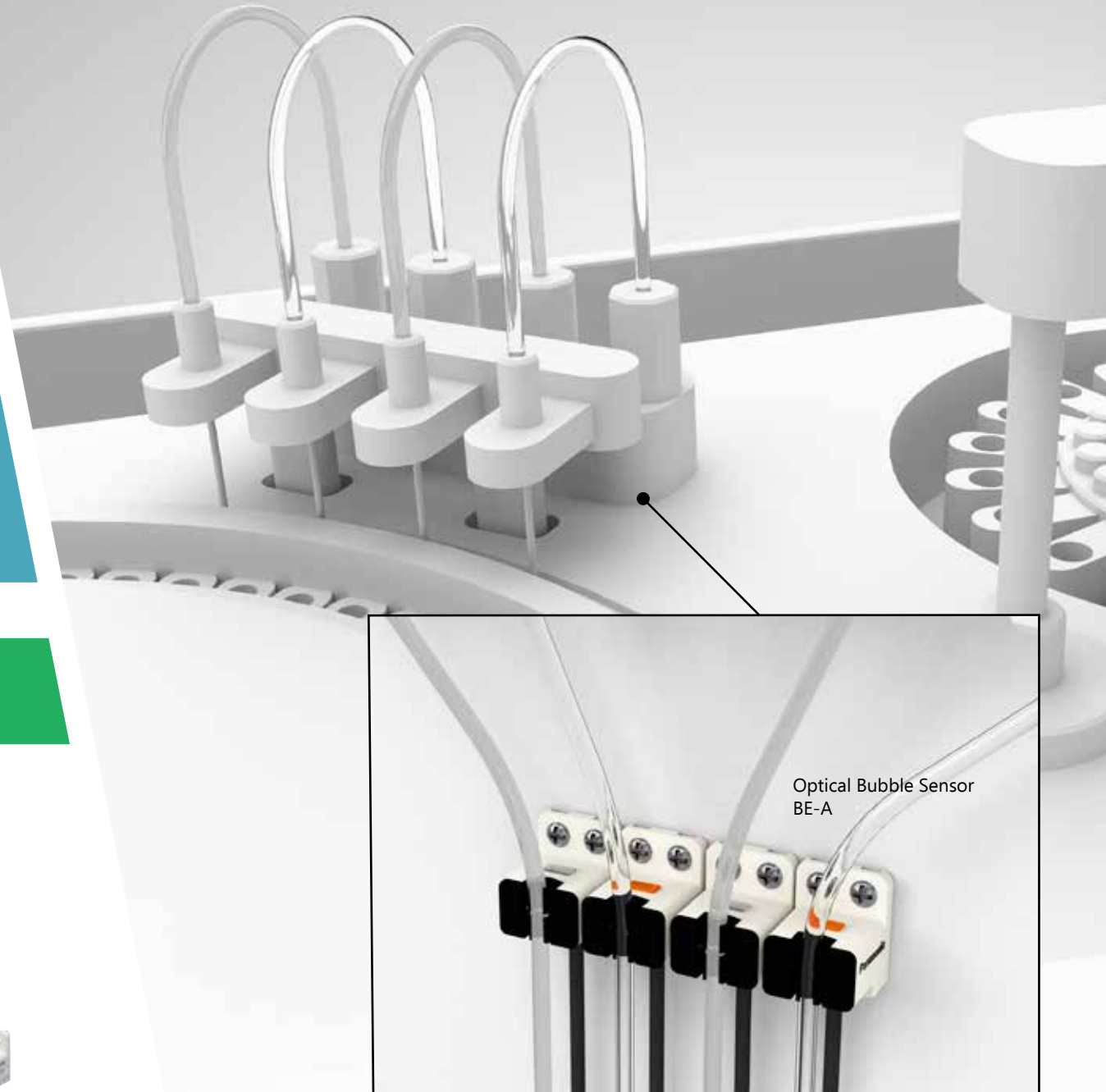
#### Optical Bubble Sensor BE-A

- Liquid in the tube is directly detected during aspiration, preventing leakage of waste liquid in advance.
- Equipped with two outputs; Liquid-absent-ON & Liquid-present-ON.
- Allows for direct power supply from PC board because it can operate with 5 to 24 VDC power supply.
- Allows for a proximity attachment (10mm)

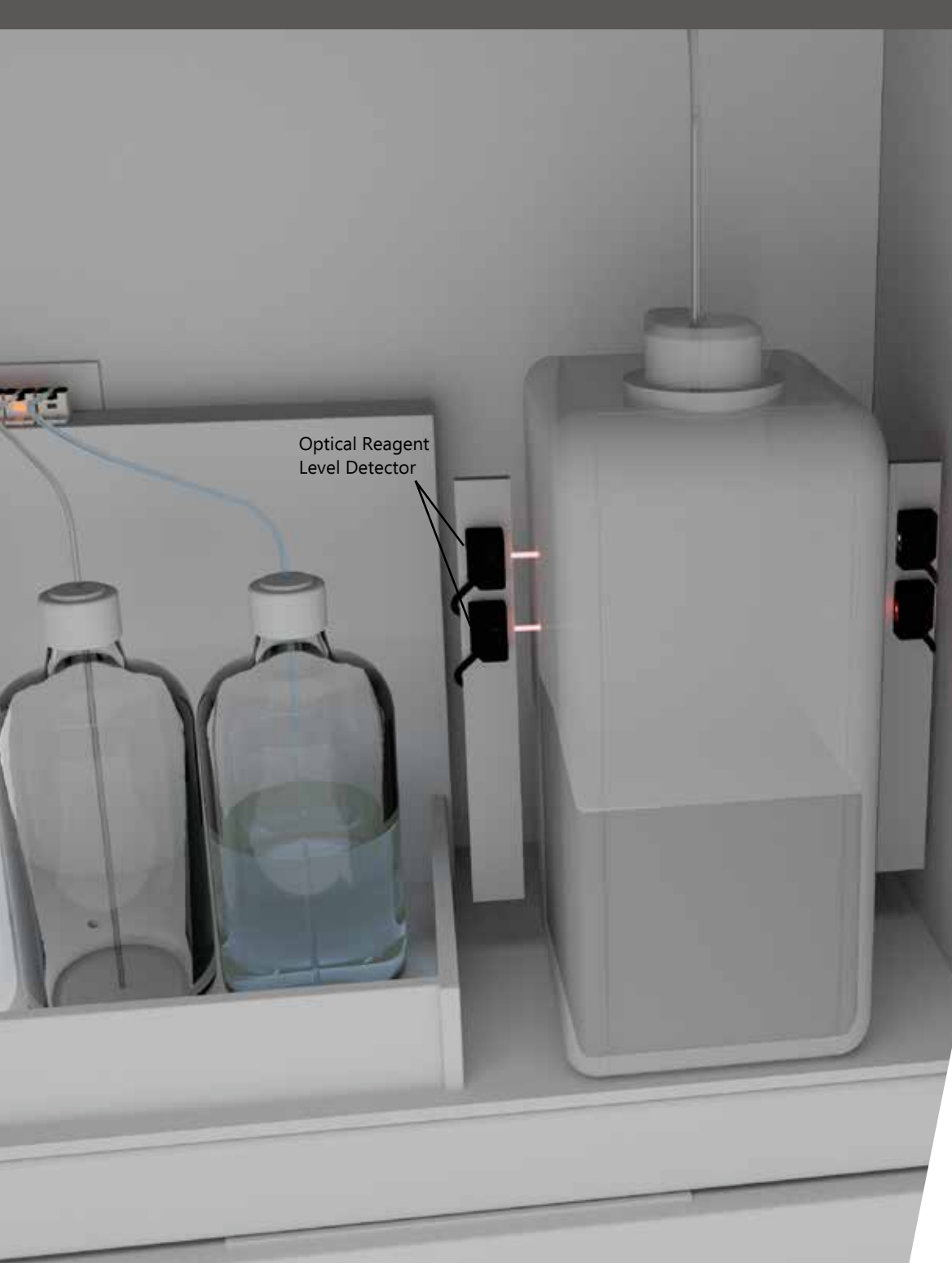
Staggered pattern  
【10mm】



Parallel pattern  
【15.5mm】







Waste liquid discharge process  
After analysis

Application  
**Full level detection of waste tank**

**Customer Feedback**

- Want to detect liquid level stably but reduce the need of replacing waste tank.
- Capacitive Proximity Sensor-
- "False detection due to a droplet, foam or thin layer inside waste container requires the need to attach, detach and readjust sensor when replacing waste tank."

**Our Solution**  
Optical Reagent Level Detector

**COMING SOON**  
For more information please email us at:  
[biomedical@ml.jp.panasonic.com](mailto:biomedical@ml.jp.panasonic.com)

Pre-analytical process

Application

## Serum/Plasma Level Detection

### Customer Feedback

Want to speed up liquid level detection.

-Pressure Sensor-

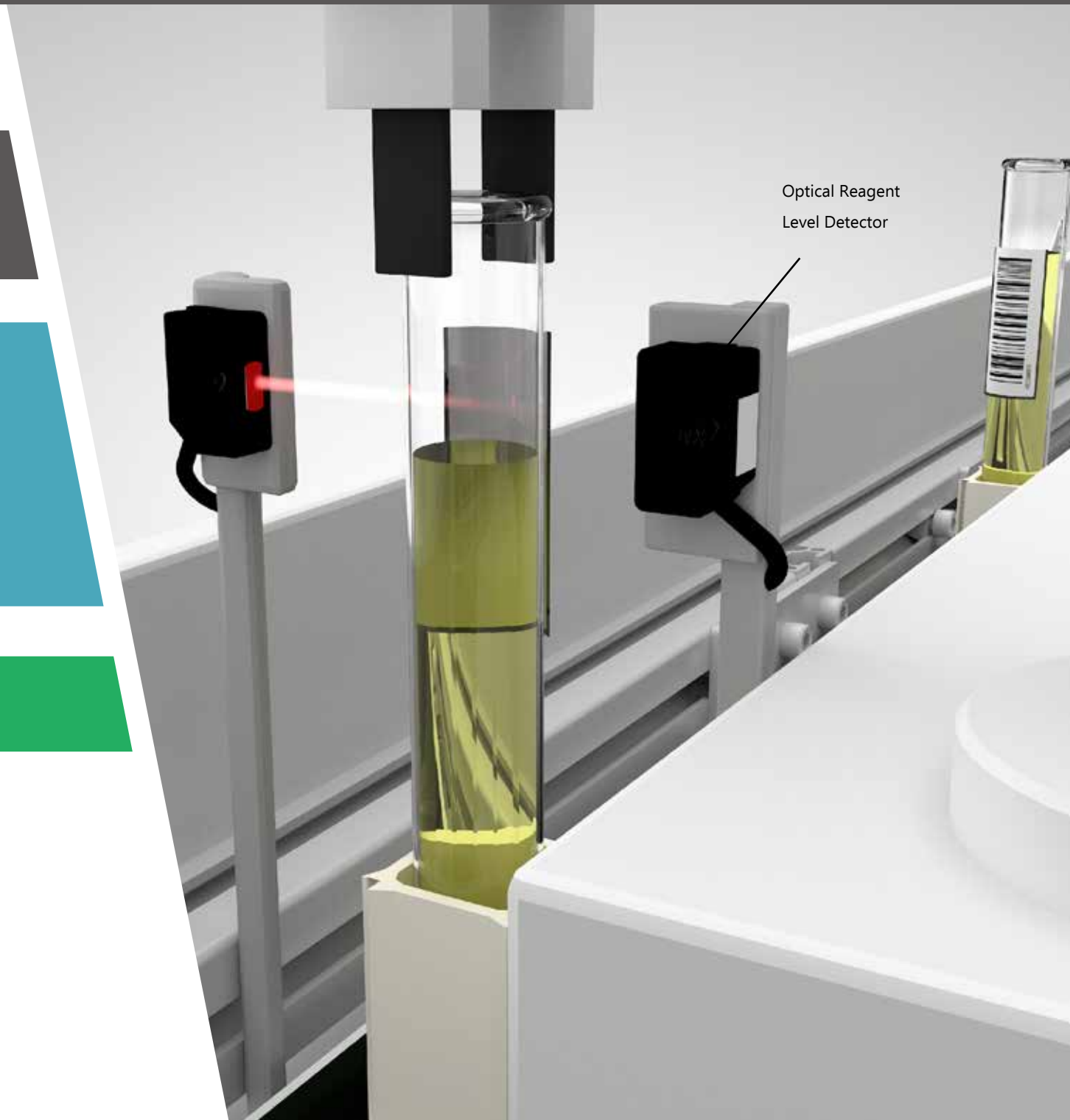
"It takes time to detect liquid level because the probe needs to be slowly lowered to detect liquid level."

### Our Solution

Optical Reagent Level Detector

### COMING SOON

For more information please email us at:  
[biomedical@ml.jp.panasonic.com](mailto:biomedical@ml.jp.panasonic.com)



## Product Offering

Micro Photoelectric Sensor  
PM-25/PM-45/PM-65 SERIES



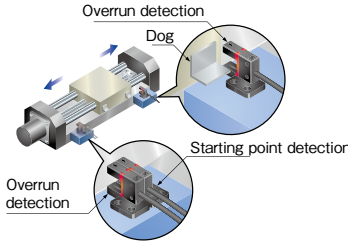
### Detecting starting point and overrun of moving object

Industry's first  
IP64 Protection!\*

Reliability with  
CE marking

No ridges on  
sensing surface

No joint seam



\*PM-25 & 45 Series Only

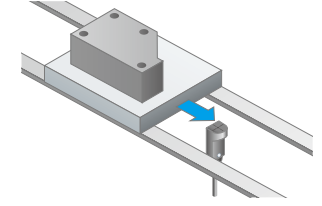
Rectangular-shaped  
Inductive Proximity Sensor  
GX-F/H SERIES



### Detecting starting point of turntable

IP68G  
protective construction

Repeatability  
0.04mm or less



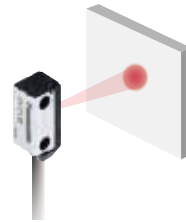
Ultra-minute  
Photoelectric Sensor  
EX-Z SERIES



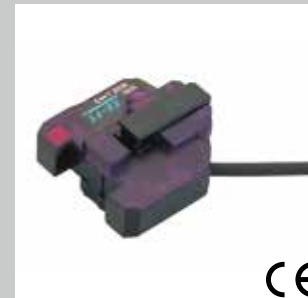
### Cap detection for test tube

The World's No.1  
in Compactness

Spotlight is clearly visible



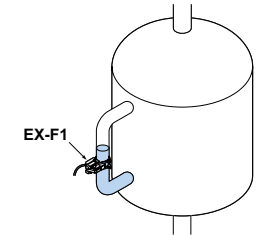
Pipe-mountable Liquid  
Level Detector  
EX-F1 SERIES



### Liquid detection in the pipe

Applicable pipe diameter  
from  $\phi 6$  to 13mm

Easy installation, No need  
for sensitivity adjustment



Digital Pressure Sensor  
DP-100 SERIES



### Clog detection during blood sample aspiration

Current value and threshold value  
can be visible at the same time

Operation status can be  
recognized at a glance

Current value



Threshold value

Dual display allows direct  
setting of threshold value



Standard  
operation

During  
setting

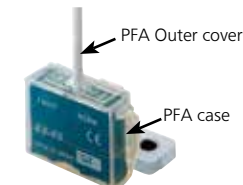
Leak Detector  
EX-F60/EX-F70 SERIES



### Leak detection of reagent/washing liquid

Chemical resistance by  
fluororesin material

Easy installation, No need  
for sensitivity adjustment



# Global Network



North America

Europe

Asia Pacific

China

Japan

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