Panasonic

Micro Laser Distance Sensor

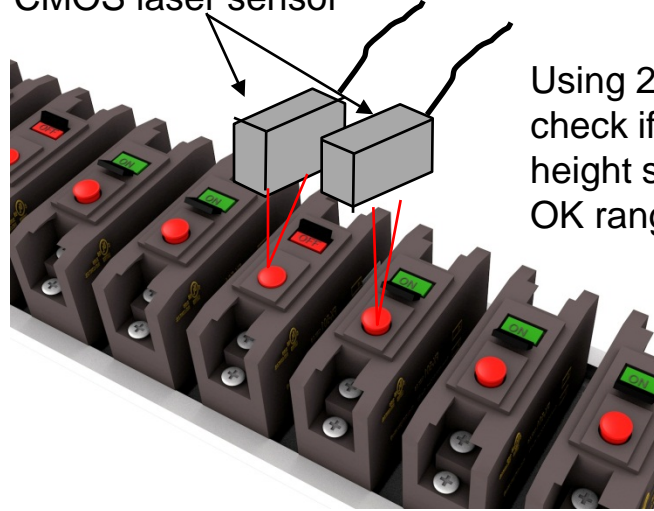# HG-C series Application examples

Panasonic Industrial Devices SUNX Co., Ltd.

2014.12

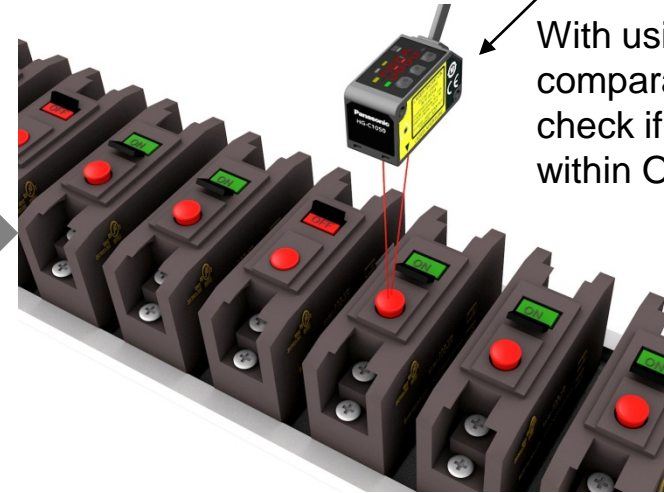# Button height inspection for electric circuit part

Application

Other company's CMOS laser sensor

Using 2 sensors to check if button height stays within OK range

HG-C1050

With using window comparator mode, check if height stays within OK range

| Application	Benefit 1
Part for electric circuit	Save time for setting with using just one sensor.
Issues	**Benefit 2**
Takes time for setting 2 sensors separately. Require 2 points of PLC I/O for inspection.	Only require 1 point of I/O for PLC, which leads to cost reduction.
Product	**Benefit 3**
Micro laser distance sensor HG-C1050	Save money with using only one sensor instead of 2.

Panasonic

Bulge detection of bonded metal parts

Application
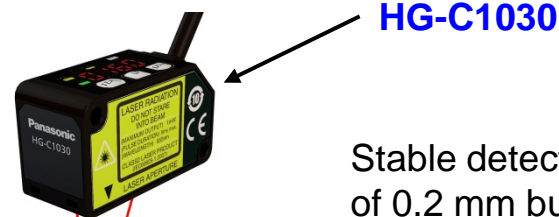
Other company's CMOS laser analog sensor
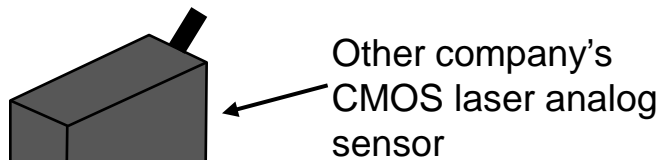
Using measurement sensor from competitor. No issue with precision but high price.

Other company's amplifier

HG-C1030

Stable detection of 0.2 mm bulge

Application	Bimetal part	Benefit 1	Stable detection of 0.2 mm bulge detection in spite of 1/3 price compare to other company.
Issues	Using expensive measurement sensor for 0.2 mm bulge detection. Nice precision but too expensive.	**Benefit 2**	No need to install separate amplifier.
Product	Micro laser distance sensor HG-C1030	**Benefit 3**	Simple operation compare to measurement sensor.

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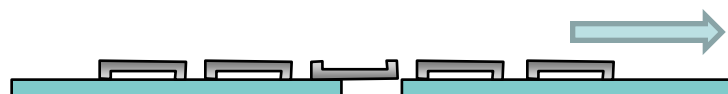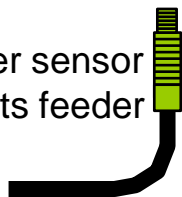# Judging front or back of cover of electronic parts

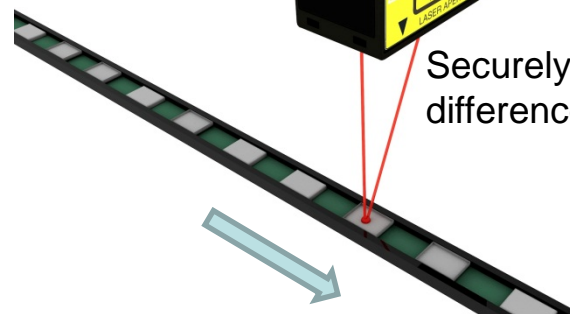## Application

Cover
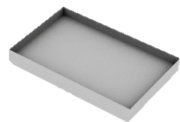
Size: 2 x 3 mm
Front: Height 0.2 mm
Back: Depth 0.1 mm

Sensing with a fiber sensor
from bottom of parts feeder

HG-C1030

Securely detect the height
difference of 0.1 mm

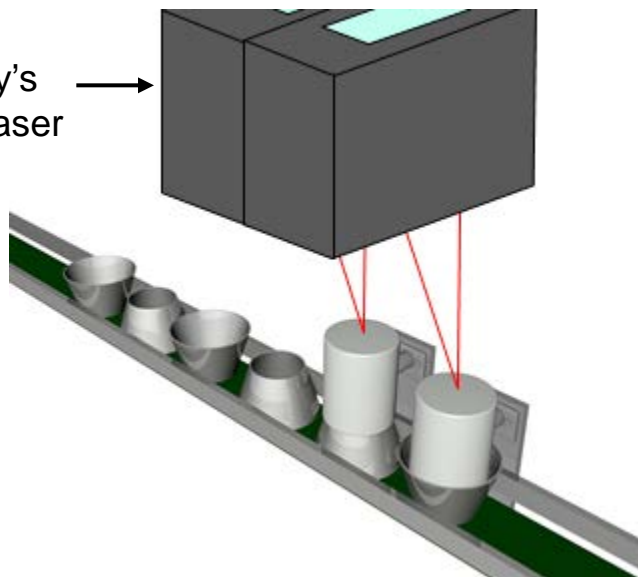| Application		Benefit 1	
	Electronic parts assembly		Possible to detect the height difference of 0.1 mm stably from top.
Issues			
Detecting from bottom with a fiber sensor. Contamination of the fiber cause wrong detection.		**Benefit 2**	
			Easy to adjust by small beam spot.
Product		**Benefit 3**	
Micro laser distance sensor HG-C1030			Not affected by variation of gloss.

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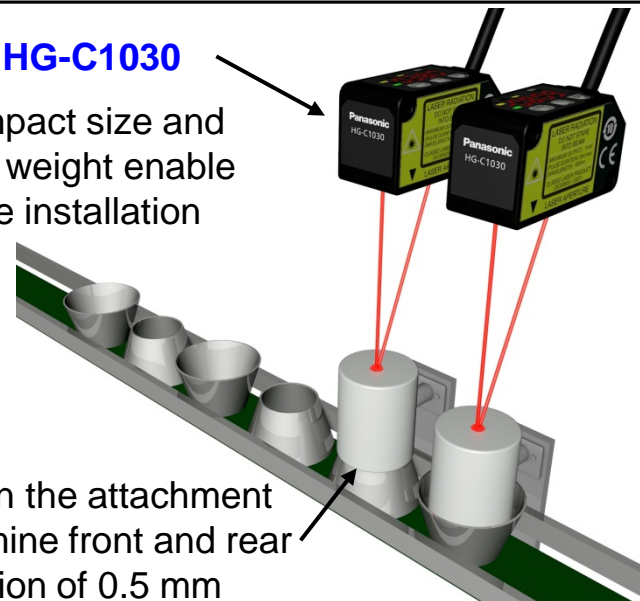# Side determination of electrical part with hole

Application

Other company's CMOS laser sensor

HG-C1030

Compact size and light weight enable close installation

Press down the attachment and determine front and rear with precision of 0.5 mm

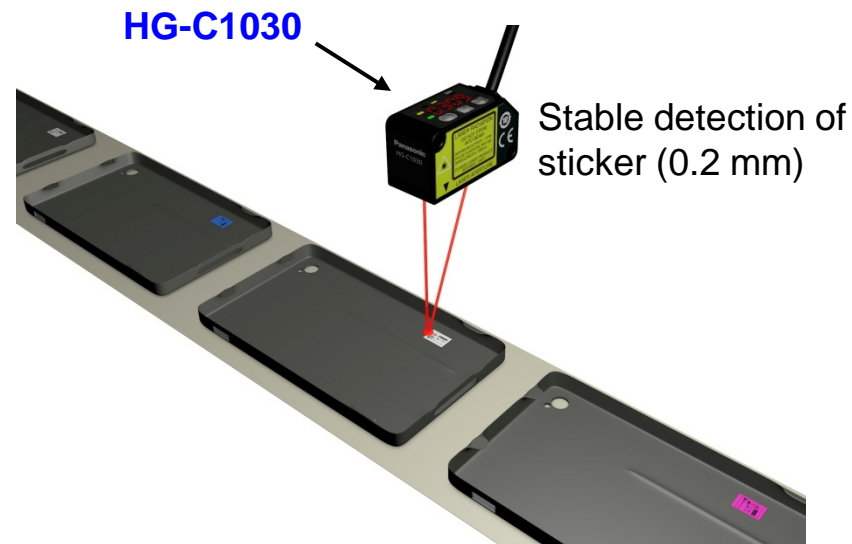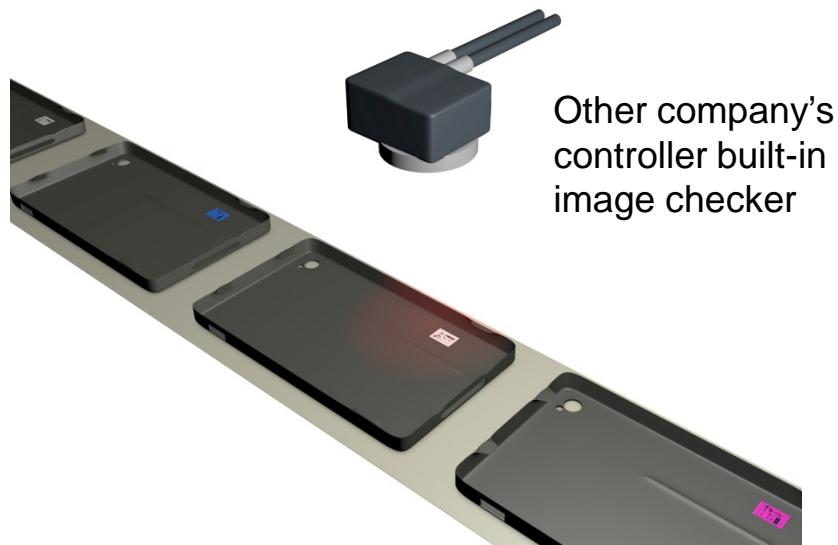| Application	Electronic parts assembly	Benefit 1	Enable flexible installation with compact and amplifier built-in feature.
Issues	Big CMOS laser head size and narrow detection point make installation difficult.	**Benefit 2**	Enable height detection with precision of 0.5 mm.
Product	Micro laser distance sensor HG-C1030	**Benefit 3**	Price is low compared to other company's.

Panasonic

Sticker detection on smart phone cover

Application

Other company's controller built-in image checker

HG-C1030

Stable detection of sticker (0.2 mm)

Application	Benefit 1
Assembly inspection	Stable detection of sticker with thickness of 0.2 mm.
Issues	**Benefit 2**
Application is sticker detection and simple but using image checker to avoid influence of color variation. Equipment become expensive.	Detecting height difference and not affected by color variation.
Product	**Benefit 3**
Micro laser distance sensor HG-C1030	Save time for adjustments and settings compare to image checker.

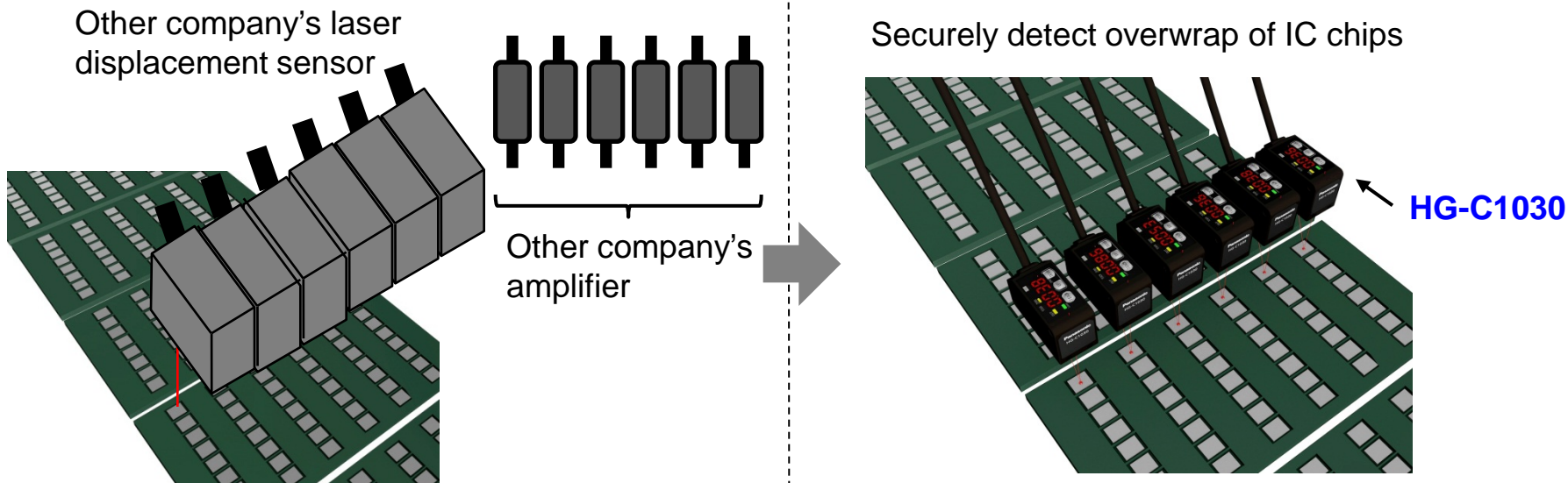**Panasonic**

Parallelism measurement of the shaft

Application

Digital dial gauge

88.88

88.88

Control parallelism with using digital dial gauge

HG-C1030

Parallelism measurement of shaft

Panasonic HG-C1030

Panasonic HG-C1030

Application	Benefit 1
Resin shaft	Enable contactless parallel measurement with high accuracy.
Issues	
Pressing down the gauge cause subduction to resin shaft and this result in unstable measurement. Laser measurement sensor is too expensive.	**Benefit 2**
	Easy Zero set.
Product	**Benefit 3**
Micro laser distance sensor HG-C1030	Lower price than other company's laser measurement sensor and easier to install.

Panasonic

Detecting overwrap of IC chips

Application

Other company's laser displacement sensor

Other company's amplifier

Securely detect overwrap of IC chips

HG-C1030

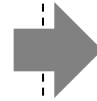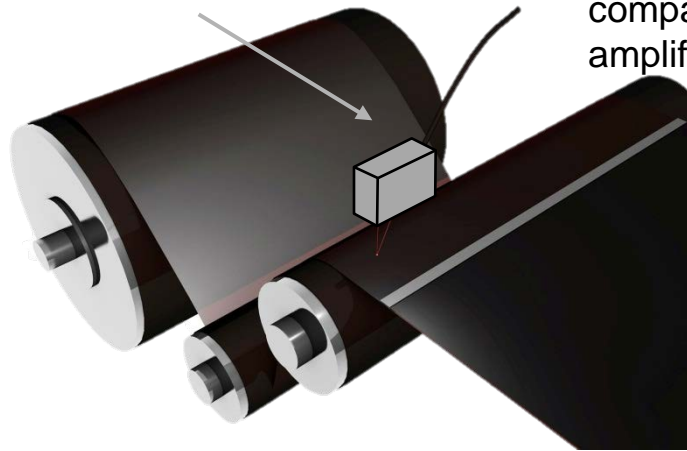| Application		Benefit 1	
	IC chip conveyor	No need to place separated amplifier. Less wiring, easy installation.	
Issues		**Benefit 2**	
Customer wants to detect overwrap of 60 µm IC chip. Laser displacement sensor is expensive.		Easy setup by 2-point teaching like regular sensor.	
Product		**Benefit 3**	
Micro laser distance sensor HG-C1030		Price is low compared to high end displacement sensor.	

Panasonic

Detecting a seam of functional sheet

Application
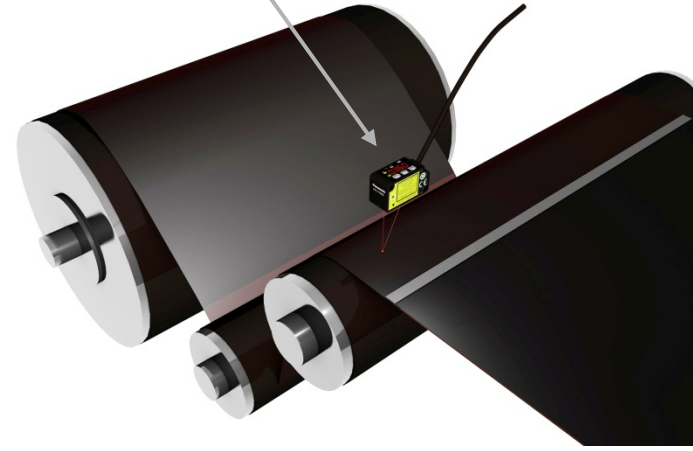
Other company's CMOS laser sensor

Other company's amplifier

HG-C1030

Seam (overwrap): Detect 0.15 mm height difference

Application	
Polarizing film processing	

Issues	Benefit 1
Want to detect a seam / overwrap of sheet material (thickness = 0.15 mm), but detection was unstable.	Possible to stably detect overwrap of thickness = 0.15 mm sheet.

Benefit 1

Possible to stably detect overwrap of thickness = 0.15 mm sheet.

Issues

Want to detect a seam / overwrap of sheet material (thickness = 0.15 mm), but detection was unstable.

Benefit 2

Easy installation and setting by amplifier build-in.
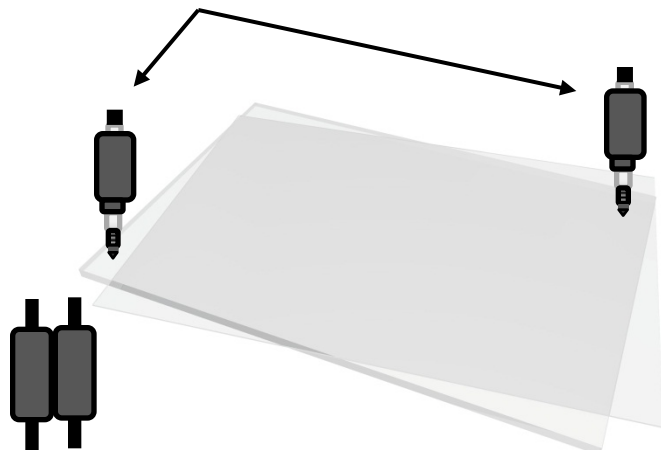
Product

Micro laser distance sensor HG-C1030

Benefit 3

Low cost compared to laser measurement sensor.

Panasonic

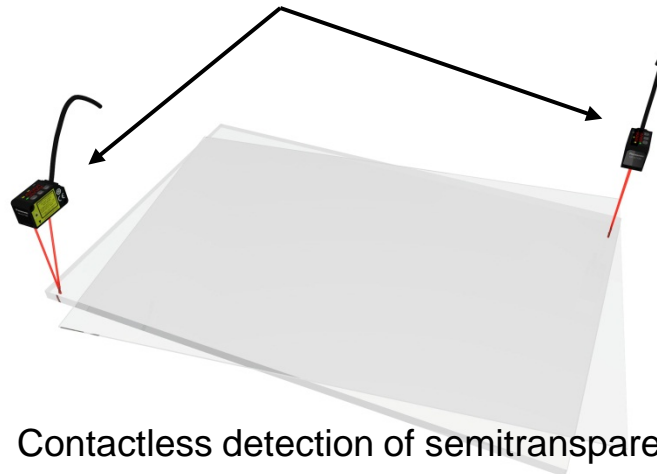# Detection of protection sheet for glass substrate

Application

Other company's contact measurement sensor

HG-C1100

Other company's amplifier

Contactless detection of semitransparent sheet with laser beam

| Application	Protection sheet for glass substrate	Benefit 1	Stable detection of semitransparent sheet by laser beam.
Issues	Customer considered that this application can not be solved by beam sensor and installed contact measurement sensor.	Benefit 2	No need to concern about scar of the sheet by contact less solution.
Product	Micro laser distance sensor HG-C1100	Benefit 3	Low cost, compact and amplifier build-in solution.

Panasonic

Distance measurement between robot and metal

Application

Other company's CMOS laser sensor
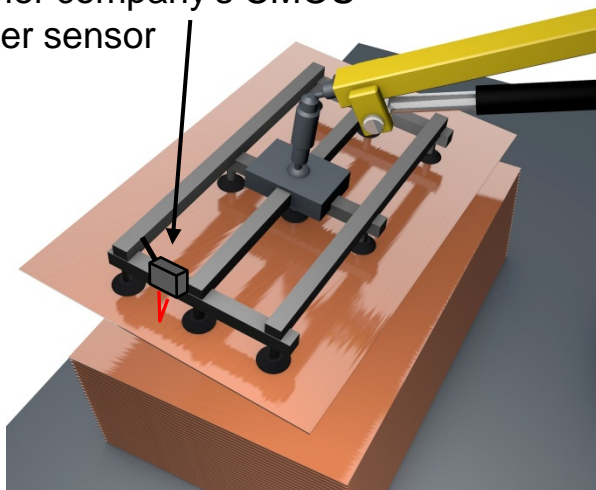
HG-C1100
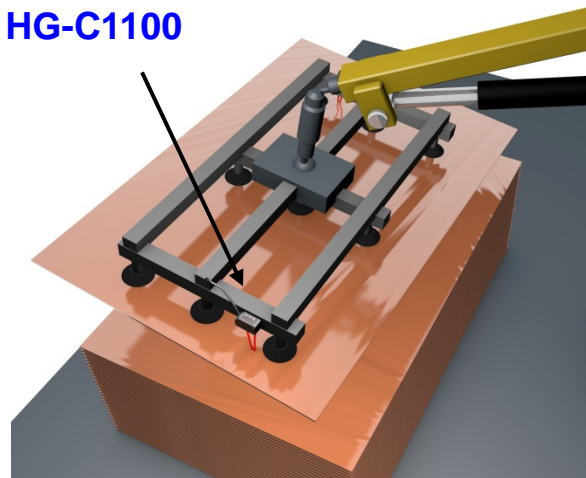
Ultra compact size and light weight realize installation to moving part.

| Application		Benefit 1	
Handling robot of metal sheet		Easy installation with compact size and amplifier built-in specification.	
Issues		**Benefit 2**	
Size of other company's CMOS laser sensor is big for installation and takes time for adjustment.		Light weight of 85 g realizes installation to moving part, such as robot hand.	
Product		**Benefit 3**	
Micro laser distance sensor HG-C1100		Easy adjustment of distance between metal sheet and suction pad with display of actual distance value in mm.	

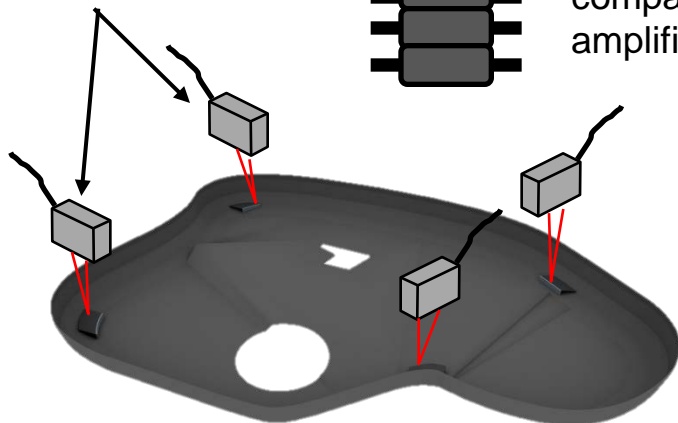**Panasonic**

Thickness measurement of urethane parts

Application
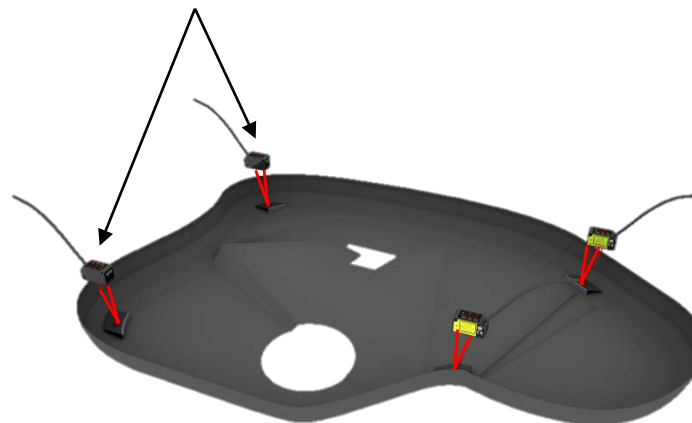
Other company's CMOS laser sensor
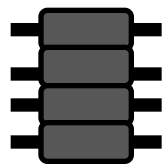
Other company's amplifier

HG-C1100

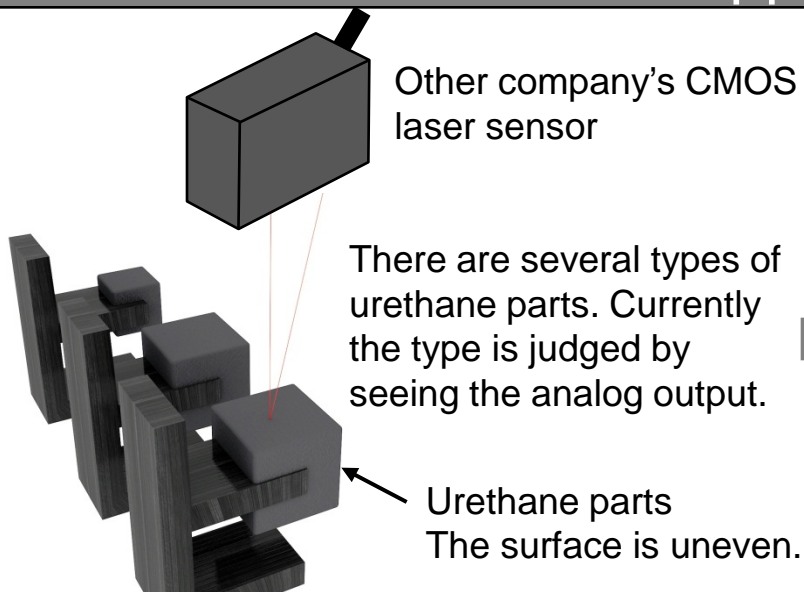Tape (2 to 5 mm thickness) detection on automotive part

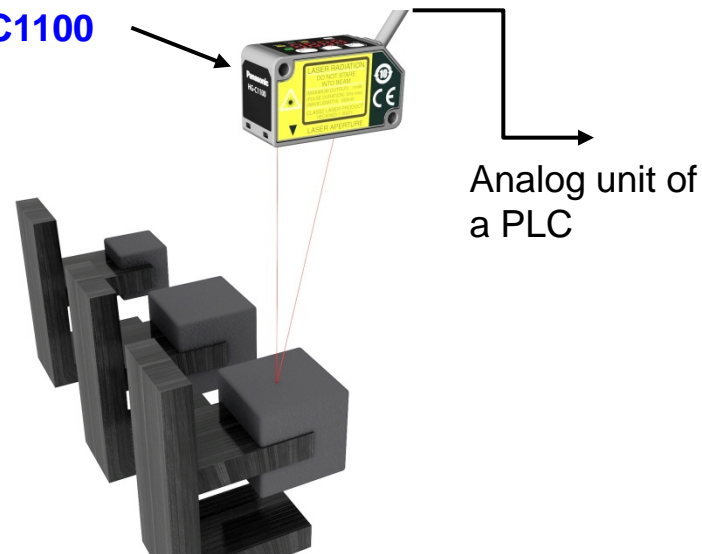Stable detection of urethane tape (thickness 2 to 5 mm)

Application	
Automotive part	

Issues	
Enable detection but require space for big laser head and the amplifier. Price as set is expensive.	

Product	
Micro laser distance sensor HG-C1100	

Benefit 1	
Stable detection of black urethane tape.	

Benefit 2	
Easy installation and setting thanks to amplifier build-in specification and reduce maintenance time.	

Benefit 3	
Low cost compared to other CMOS laser sensor.	

Panasonic

Thickness measurement of urethane parts

Application

Other company's CMOS laser sensor

There are several types of urethane parts. Currently the type is judged by seeing the analog output.

Urethane parts
The surface is uneven.

HG-C1100

Analog unit of a PLC

Application	Benefit 1
Automotive parts manufacturing	Peak hold function can avoid jitters by uneven surface.
Issues	
The output is unstable due to uneven urethane surface. The sensor head is large.	**Benefit 2** Amplifier build-in, ultra compact size.
Product	**Benefit 3**
Micro laser distance sensor HG-C1100	High linearity like a displacement sensor.

Panasonic

Measurement of remaining wire material

Application

Other company's convergent reflective sensor

Measure remaining of wire material by HG-C

HG-C1100
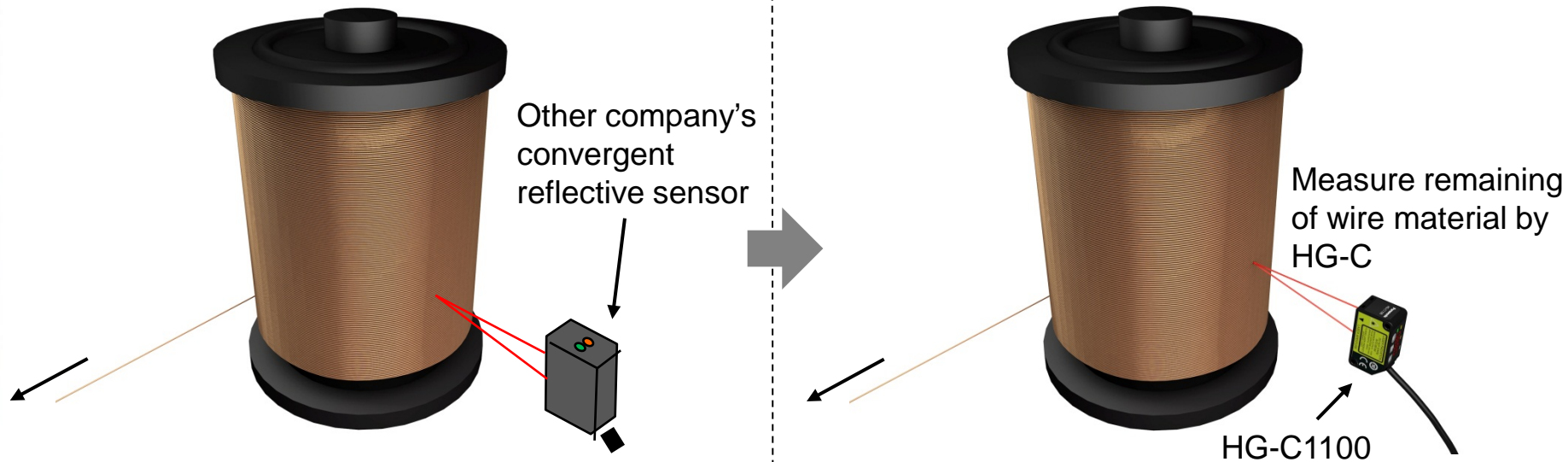
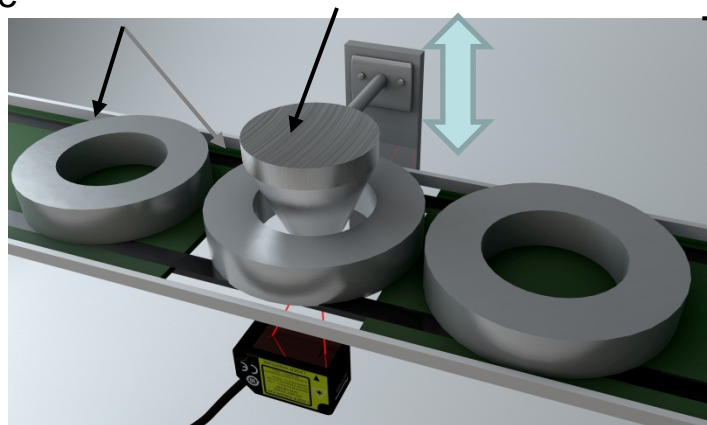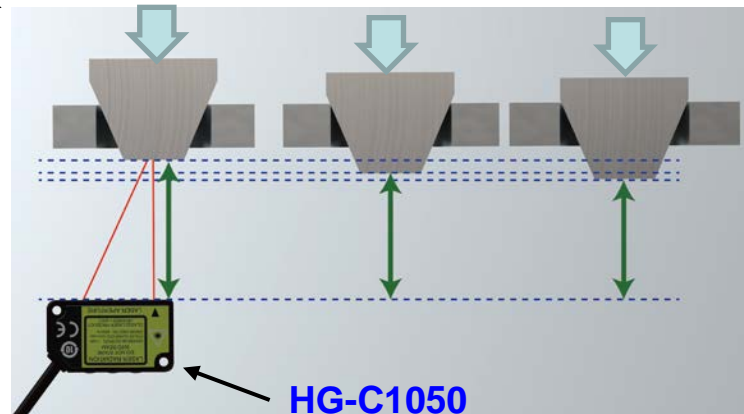| Application	Benefit 1
Wire for coil	Stable detection of remaining, even thin wire.
Issues	
Ideal is detecting just before running out of material but not enough accuracy with convergent reflective type sensor.	**Benefit 2**
	Easy adjustment with actual value display.
Product	**Benefit 3**
Micro laser distance sensor HG-C1100	Compact, amplifier build-in and low cost

Panasonic

Indirect bore determination

Object with different bore

Press down the attachment and measure from bottom

Difference of bore result in distance difference of the attachment and enable to determine by HG-C

HG-C1050

Application	
Metal part	

Issues	Benefit 1
Customer considered that unable to determine object bore which external diameters are the same. Only can be done by image checker.	Difference of distance to attachment can be used for determination of bores.

	Benefit 2
	Easier setting and determination compare to image checker.

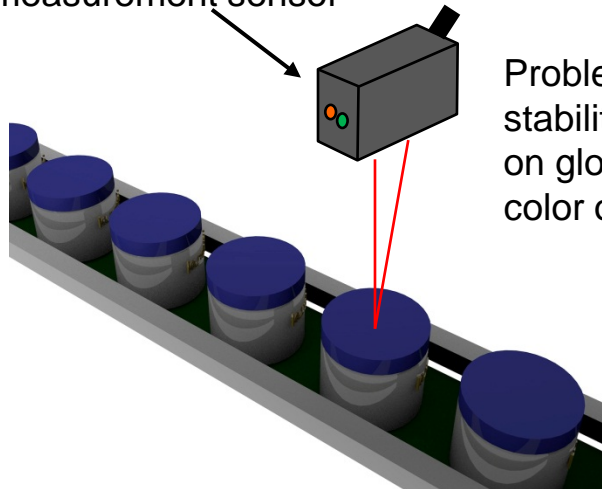| Product	Benefit 3
Micro laser distance sensor HG-C1050	Lower cost compare to image checker.

Panasonic

Detection of cap for cosmetic container
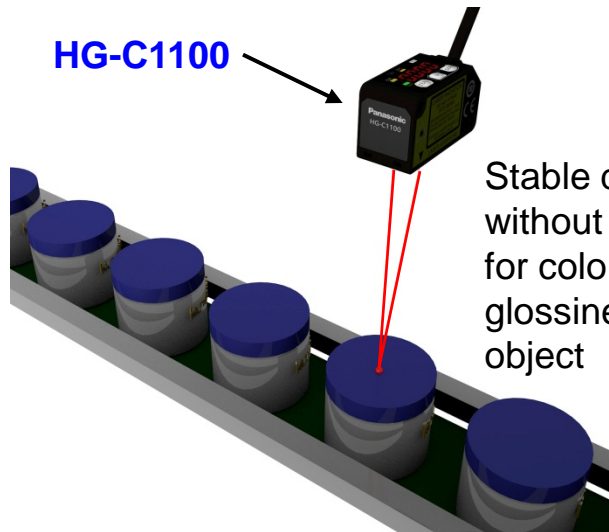
Application

Other company's measurement sensor

Problem with stability depend on glossiness and color of the object

HG-C1100

Stable detection without influence for color and glossiness of the object

|	
Application Cosmetic container	**Benefit 1** Enable stable detection without influence of glossiness and color of the object.
Issues Existing measurement sensor had trouble with stability depend on glossiness and color of the objects.	**Benefit 2** Bright laser spot enable easy installation and adjustment.
Product Micro laser distance sensor HG-C1100	**Benefit 3** Simple setting by just pressing teaching button.

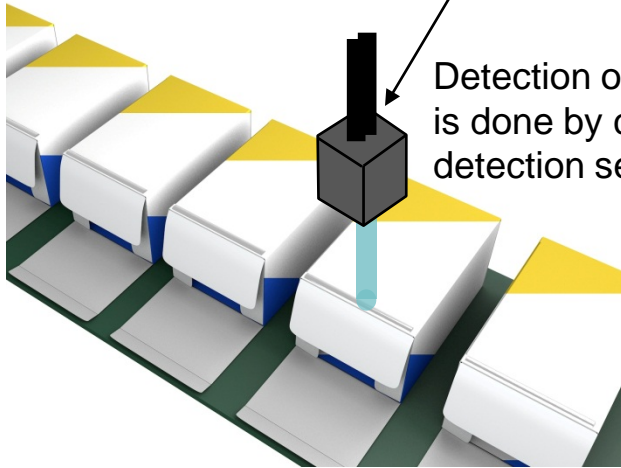**Panasonic**

Detection of hot melt

Application

Other company's amplifier

Other company's color detection sensor
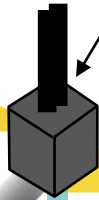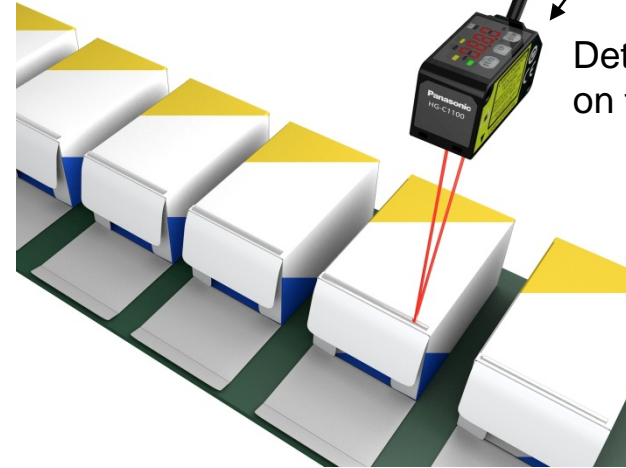
Detection of hot melt is done by color detection sensor

HG-C1100

Detect hot melt on the white box

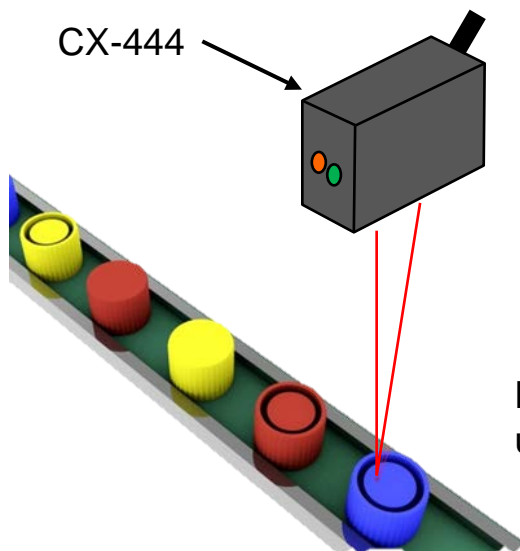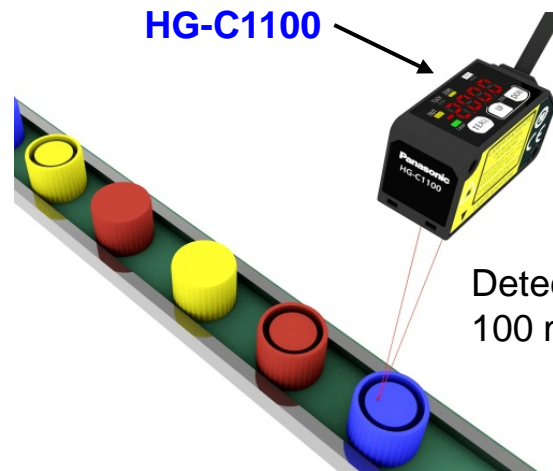| Application	Benefit 1
Food packaging	No influence of shiny background due to height detection of hot melt itself.
Issues	**Benefit 2**
Shiny background (package) will make detecting unstable.	No need for amplifier installation. (Amplifier build-in)
Product	**Benefit 3**
Micro laser distance sensor HG-C1100	Easy adjustment with display at the top of the product.

Panasonic

Judging front or back of bottle caps

CX-444

Detection is unstable.

HG-C1100

Detect stably at 100 mm distance.

Application		Benefit 1	
Food packaging machine		Possible to detect height difference of 2 mm stably at 100 mm distance.	
Issues		**Benefit 2**	
Want to detect it at 100 mm distance, it is, however, unstable with the CX-444.		Not affected by color or gloss of the objects.	
Product		**Benefit 3**	
Micro laser distance sensor HG-C1100		Low cost compared to laser measurement sensor.	

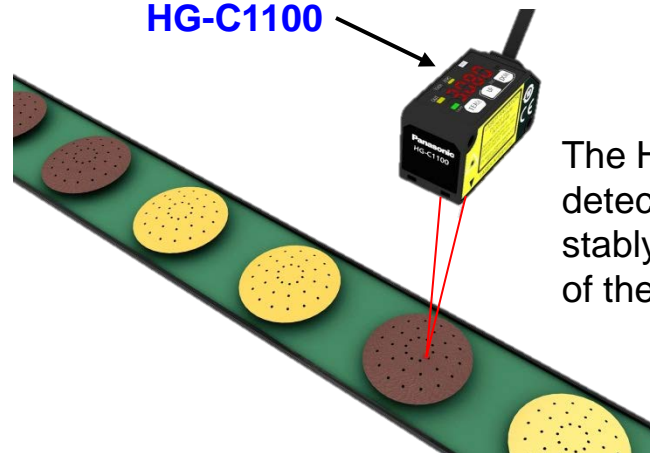**Panasonic**

Detecting cookies

Application

Other company's CMOS laser sensor
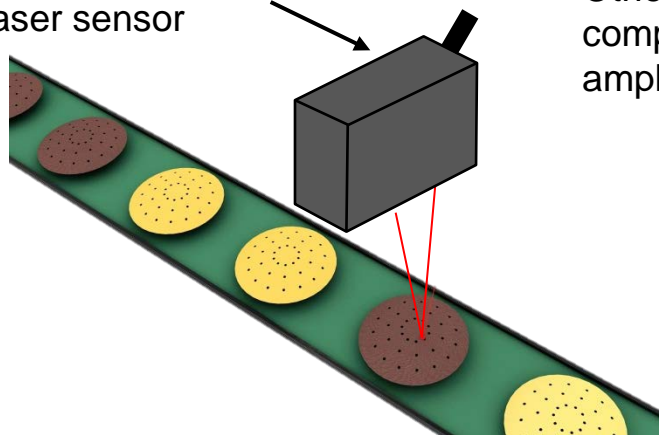
Other company's amplifier

HG-C1100

The HG-C can detect the cookies stably regardless of the colors.

Application		Benefit 1	
Manufacturing of cookies		Price advantage compared to other company's sensor.	
Issues			
Surface condition varies by tastes, toppings, and baking. In addition, there are different colors of the conveyor such as white, green and etc.		**Benefit 2**	
		Since the HG-C is a self-contained sensor and has a digital display, condition can be checked while detecting.	
Product		**Benefit 3**	
Micro laser distance sensor HG-C1100		One-piece system makes maintenance easy.	

Panasonic

Detecting spray can cap

Application

Other company's CMOS laser sensor

Other company's amplifier

Spray cans

HG-C1100

Detects the height difference of 0.5 mm regardless of the cap color.

| Application	Spray can manufacturing	Benefit 1	No need to place separated amplifier. Less wiring, easy installation.
Issues	Customer wants to detect even slightly crooked cap (0.5 mm) Current sensor is large and requires separate amplifier.	**Benefit 2**	The HG-C is not affected by the color of the cap.
Product	Micro laser distance sensor HG-C1100	**Benefit 3**	Price is low compared to high end displacement sensor.

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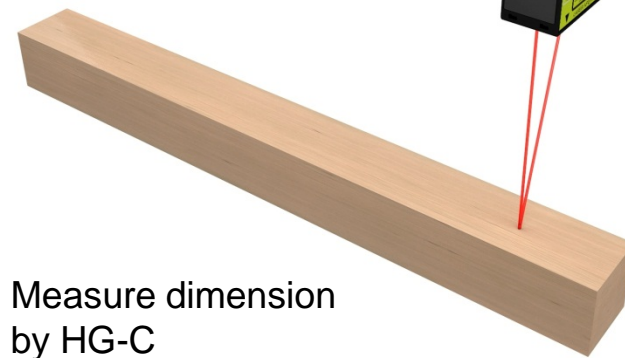# Measurement of wood for house construction

Application

Measuring wood dimension by using digital dial gauge
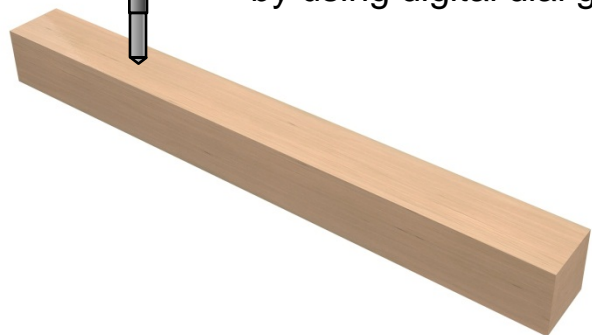
HG-C1100

Measure dimension by HG-C

Application Wood for house construction	**Benefit 1** High accuracy measurement without contact.
Issues Contact type method cause damage to wood. Laser measurement sensor is too expensive.	**Benefit 2** Easy adjustment with actual value display.
Product Micro laser distance sensor HG-C1100	**Benefit 3** Lower price than laser measurement sensor from competitor and easier to install.

Panasonic