FORK
LIGHT BARRIERS

WITH IO-LINK

::: di-soric

FORK LIGHT BARRIERS
WITH IO-LINK

MORE FLEXIBLE, FASTER, MORE PRECISE, SIMPLER AND EVEN MORE RUGGED – WITH THE EXACT SAME SIZE.

For decades, di-soric has been developing fork light barriers that set new standards. We are now offering the fork light barrier 4.0 with an innovative dual operation concept, either over IO-Link with the configuration of all sensor functions including 4 selectable sensor modes or through easy manual switching point adjustment with a potentiometer.

Very easy operation

Adjustment of the switching point and NO/NC changeover using a potentiometer

Backward compatible

with previous di-soric OGU models in terms of design and M8 connection

Push-pull output

pnp or npn function in one device

Even more rugged design

in a powder-coated metal housing* with full encapsulation and IP67, compatible with all OGU and standard mounting options

Ready-to-run: 4 preconfigured sensor modes

- Standard
- High Resolution
- Power
- Speed

Fork openings of 5 – 250 mm

for a wide variety of applications

IO-Link

Selection of the sensor mode or teach-in over IO-Link

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* OGU 005, 061, 071, 091 in anodised aluminum housing

THE EVOLUTION:
FORK LIGHT BARRIERS 4.0

APPLICATION-SPECIFIC CONFIGURATION
INSTEAD OF SPECIFIC HARDWARE.

Instead of keeping various forks on hand for different applications,
you can save the application-specific configuration, load it into the fork as needed
or select the necessary operation mode and get started right away.
Device swapping works just as easily.

	4 SENSOR MODES	
	Standard	■ Switching frequency: 5000 Hz ■ Reproducibility: 0.02 / 0.01 mm[1]
	High Resolution	■ Resolution for small parts detection improved by 30%
	Power	■ Increased transmitting power and thus increased function reserve with reduced sensitivity to dirt
	Speed	■ Fast operation at up to 14000 Hz switching frequency
	DIAGNOSTICS	Qualitative and quantitative diagnostics: ■ Analysis of process stability and teach-in quality (qualitative) ■ Current process values, min/max, teaching and threshold measured values (quantitative)
	EASY MAINTENANCE	■ Device swapping without manual intervention or specialized knowledge thanks to IO-Link 1.1 with data storage in the master ■ Smart Sensor Profile – fully compliant with standards

OUR SERIES:

[1] Fork light barriers OGU / OGUL with fork openings up to 80 mm

OGU – OUR MEDIUM FORMAT.
STANDARD IN THE FINEST GRADATIONS.

HIGH RESOLUTION COMBINED WITH AMAZING SPEED AND PRECISION – WITH RED AND INFRARED LEDS – WITHOUT LASERS.

Fork light barriers are the preferred choice wherever small objects or object positions must be detected quickly, precisely and independently of their surface. High switching frequency and maximum resolution means that our medium formats are capable of reliably detecting rapid motion sequences, even of very small parts with diameters starting from 0.2 mm.

The outstanding reproducibility standard of 0.02 mm enables the extremely precise position recognition of objects.

The OGU fork light barriers, available as red-light or infrared-light variants, achieve virtually the same level of performance as laser light barriers in terms of resolution and reproducibility.
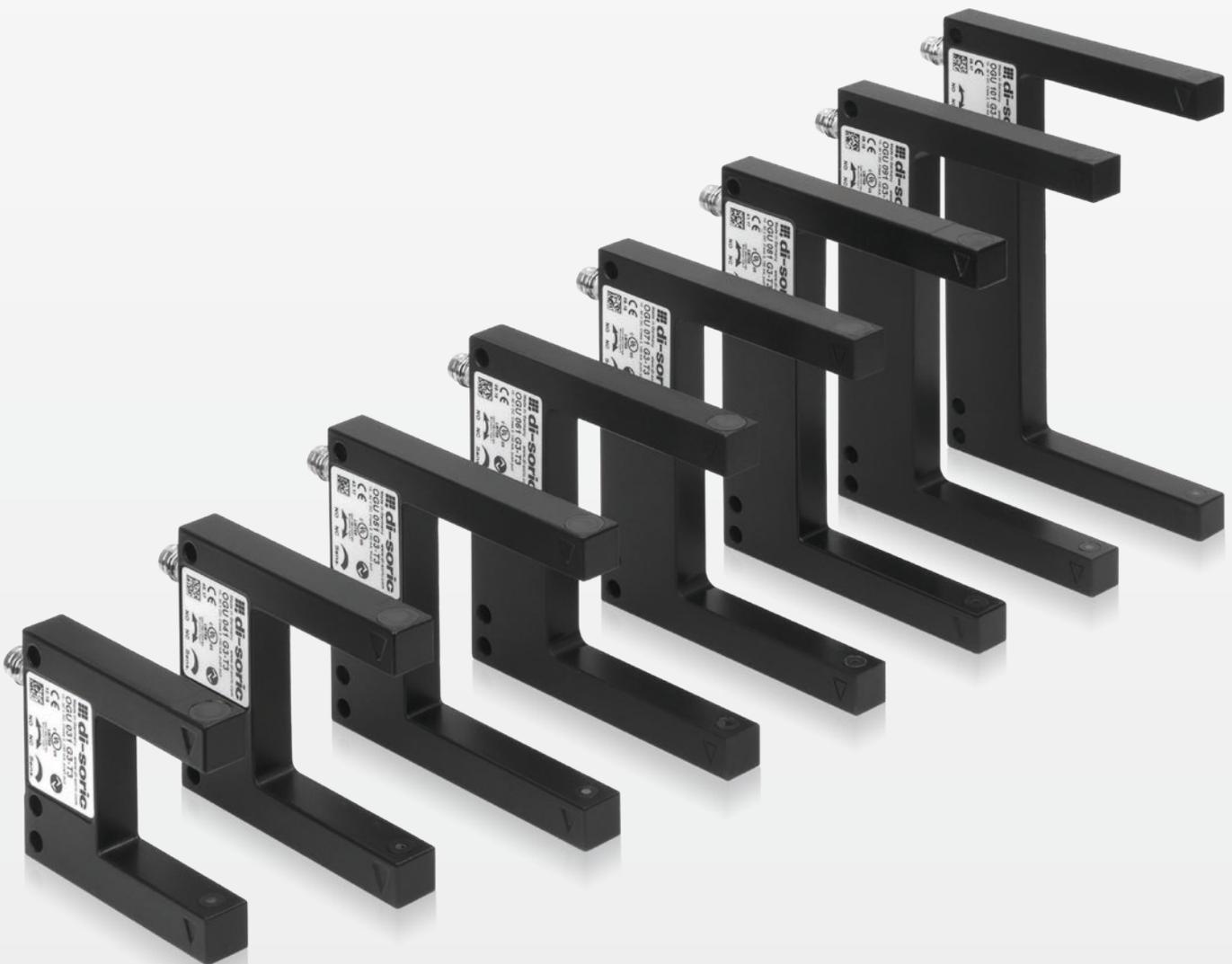
FORK OPENINGS IN INCREMENTS OF 10 MM:
# 30 . 40 . 50 . 60 . 70 . 80 . 90 . 100 MM

WE HAVE EXACTLY THE FORK YOU NEED IF YOU WANT TO ACHIEVE MAXIMUM PERFORMANCE WITHIN A MINIMAL INSTALLATION SPACE.

In contemporary mechanical engineering, design is playing an ever greater role – our slim OGU fork light barriers in the medium format are available in increments of 10 mm and are suitable for the most diverse machine designs. Thus, you can always find the optimally matching fork light barrier for your planned design.

Accumulation monitoring

OGU 081 G3-T3

With the „Power" sensor mode, cleaning cycles are reduced to a minimum through increased transmission power and thus increased functional reserve.
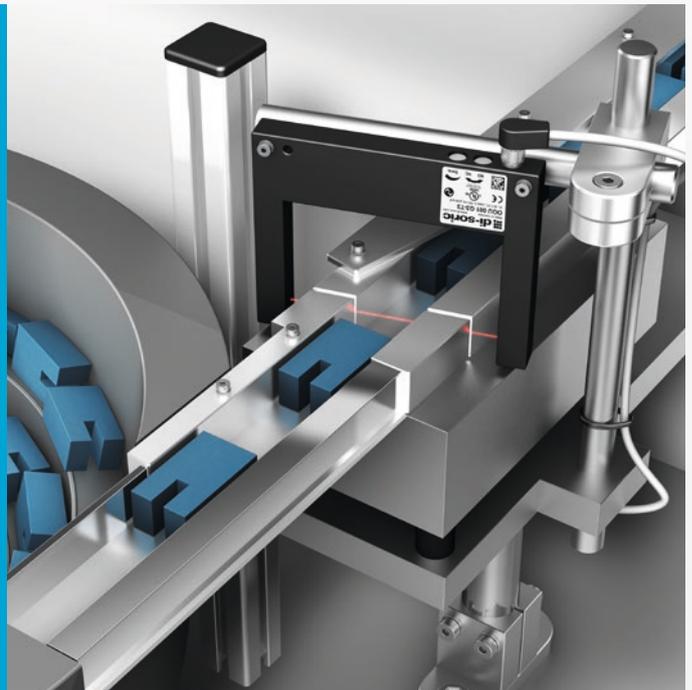
Trigger for high-speed labelers

OGU 081 G3-T3

With the "Speed" sensor mode, it is possible to increase the throughput speed to a maximum at a switching frequency of 8,000 Hz – with consistent precision and reproducibility.

OGU – OUR SMALL ONES: 5, 10 AND 20 MM.
SUPER-FAST ON THE SHORT DISTANCE

### SO SMALL AND YET SO TOUGH –
SPEED UP YOUR MACHINES.

The OGU 005 and 010 are not only our smallest fork light barriers but also our fastest:
With a switching frequency of up to 14,000 Hz, they are among the fastest forked light barriers
worldwide. Install our fork light barriers, even without the potentiometer being accessible,
and simply configure using IO-Link – a greater amount of space cannot be conserved.

High-speed metering application

OGU 010 G3-T3

With the "Speed" sensor mode and a switching frequency of 14,000 Hz, it is possible to measure the speed of small plastic gears on a test bench.
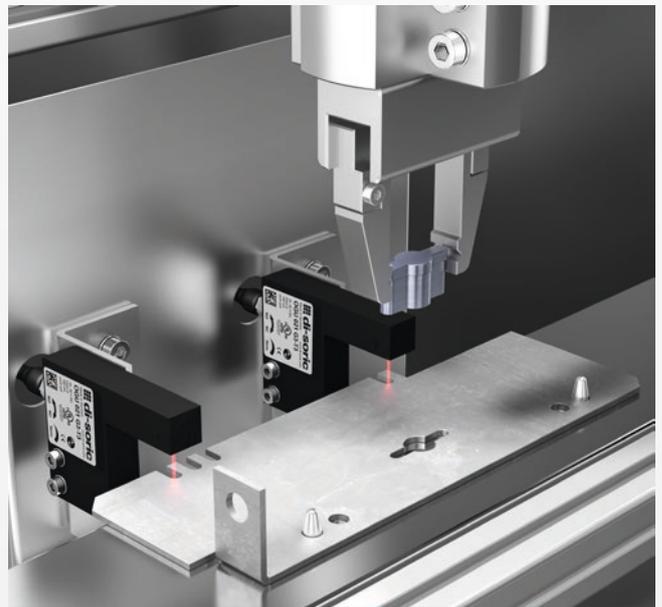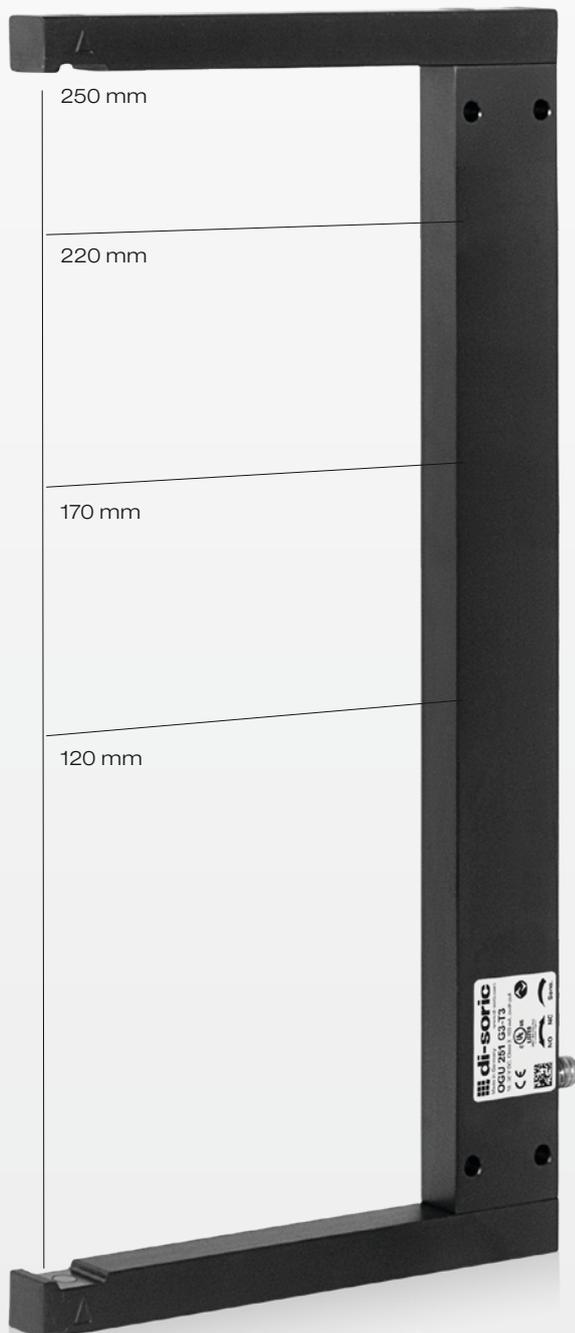

Position monitoring in the device

OGU 021 G3-T3

Configuration using IO-Link and the compact design make it possible to integrate two fork light barriers in the assembly device

IO-Link

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OGU – OUR LARGE SIZES.
IS IT ALRIGHT IF IT'S A BIT OVER?

HERE YOU GO! – WHERE OTHERS HAVE GIVEN UP LONG AGO, WE WILL EVEN ADD A BIT: 120 . 170 . 220 . 250 MM

The perfect alignment of transmitter and receiver in our large fork light barriers is assured – as is the visible red light, which further eases the setup of your application. However, the fact that even at such fork openings, small parts in the millimeter range are precisely identified with a reproducibility down to 0.03 mm, makes them excellent.
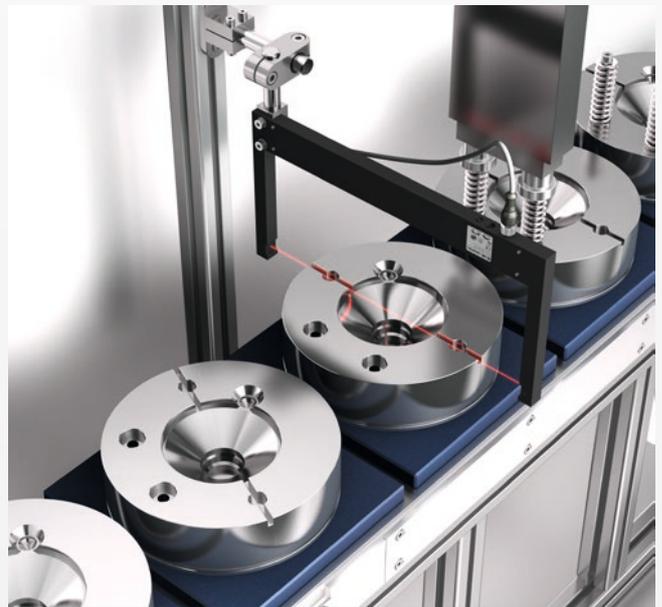
250 mm

220 mm

170 mm

120 mm

di-soric
OGU 251 G3-T3

Position monitoring of the groove in the circular piece

OGU 251 G3-T3

Large fork light barriers with red light LED enable fast commissioning. Glossy objects can be monitored with high precision

IO-Link

c UL us LISTED

OGU STAINLESS STEEL.
PRACTICALLY INDESTRUCTIBLE.

FOR INDUSTRIAL ENVIRONMENTS REQUIRING EXCEPTIONAL FLEXIBILITY AND HIGH PROCESS RELIABILITY.

The OGU Stainless Steel sensors are especially well-suited to applications in packaging technology, the pharmaceutical industry, cosmetics industry and product feeding. Frequent batch changes and modifications to critical production parameters can be implemented easily and quickly using the IO-Link configuration. Available fork openings: 10, 30, 50, 80, and 120 mm.

Additional benefits of the OGU Stainless Steel fork light bariers in the V4A housing:

- Suited to areas with high standards with respect to hygiene and cleanliness
- Preferred field of application: Packaging technology, pharmaceutical industry and cosmetic industry as trigger sensors or for controlling product feeding
- Fast and precise, and therefore ideal for high-performance packaging machines
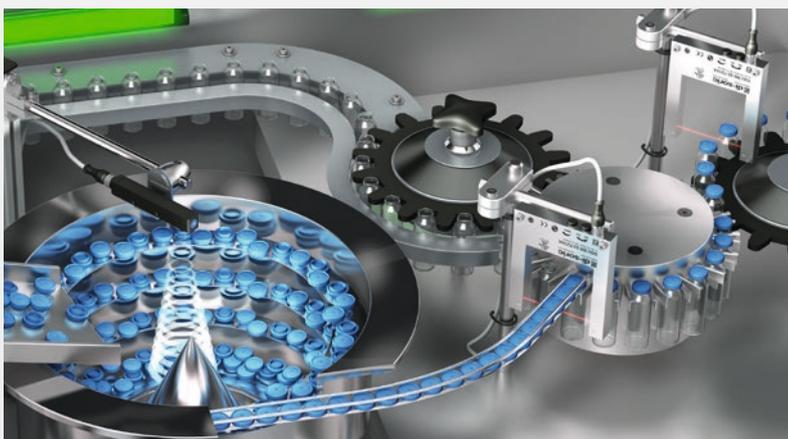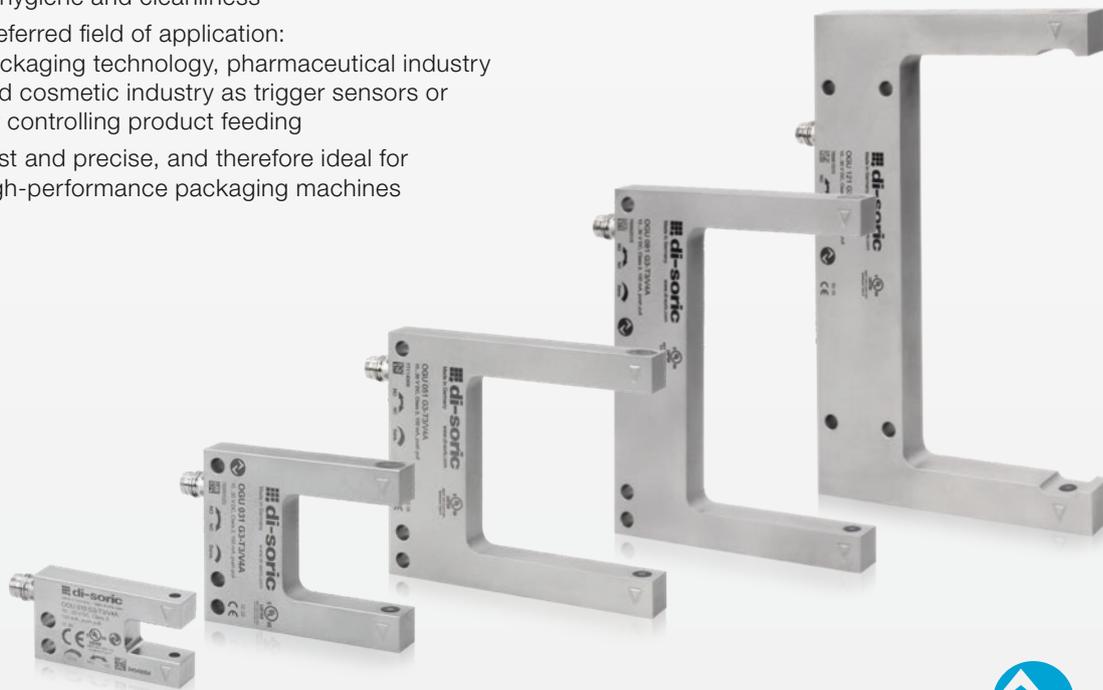
Feed control and fast trigger sensor in a sealing machine

Product OGU 050 G3-T3/V4A

Fork light barriers with V4A housing for feed control and as fast trigger sensors in pharmaceutical sealing machines

OGUP – OUR STRONG ONES.
FOR WHEN THINGS GET DIRTY.

LONG AFTER OTHER SENSORS HAVE GIVEN UP, THE OGUPS STILL HAVE PLENTY OF RESERVES LEFT.

Available with fork openings of 20, 30, 50 or 80 mm, the OGUP series ensures precise object detection regardless of the surface, even in dirty and oily production environments. With reproducibility of 0.03 mm, the fork light barriers offer a high degree of precision paired with maximum function reserve.

Additional benefits of the rugged OGUP infrared high-performance light barriers:

- Maximum function reserve while maintaining high switching accuracy
- Power sensor mode set by default; the Standard, High Resolution and Speed sensor modes can be freely selected
- Preferred field of application: mechanical engineering applications involving large amounts of dust, coolant or oil
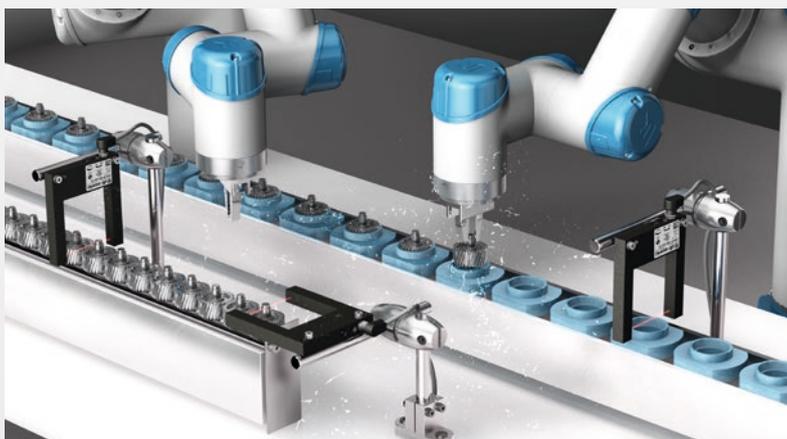
Reliably functioning accumulation and position monitoring

OGUP 050 G3-T3

Fork light barriers of the OGUP series are equipped with infrared high-performance LEDs. This reduces cleaning cycles in a dirty environment to a minimum.

MAXIMUM PRECISION: OGUL LASERS.
UNMATCHED RESOLUTION.

LASER FORK LIGHT BARRIERS ARE USED
WHEN THE SMALLEST PARTS MUST BE DETECTED.

The OGUL series available with fork openings of 30, 50, 80 and 120 mm is the best solution
when the goal is process-reliable and fast detection of very small objects down to a size
of just 0.03 mm. With OGUL, the position and alignment of thin wires, drill bits or cannulae
can effortlessly be defined down to a (reproducible) accuracy of 0.01 mm.

Additional benefits of the precise
OGUL Lasers / OGUL Laser Stainless Steel:

- Fast, reliable detection of the smallest parts with a high functional reserve
- 4 pre-configured sensor modes:
  Standard mode is the default. The High Resolution, Speed and Power modes
  can be selected via IO link
- Preferred field of application:
  Detection of very small parts in assembly, handling and
  packaging technology, as well as quality control
- Robust, powder-coated metallic housing or cleanroom-compatible V4A stainless
  steel housing for areas with strict requirements for hygiene and resistance to
  cleaning agents – both in the high protection class IP67
- OGUL lasers work reliably and with high process safety
  in a temperature range between –25 °C and 60 °C

FOR DETECTION OF THE
SMALLEST FEATURES.

POSITION AND COMPLETENESS MONITORING
IN PART FEEDING

Components must be checked for their position and completeness before they are fed to assembly machines. For this purpose, di-soric has a wide selection of product solutions that increase productivity, minimize machine downtimes and even prevent machine damage.
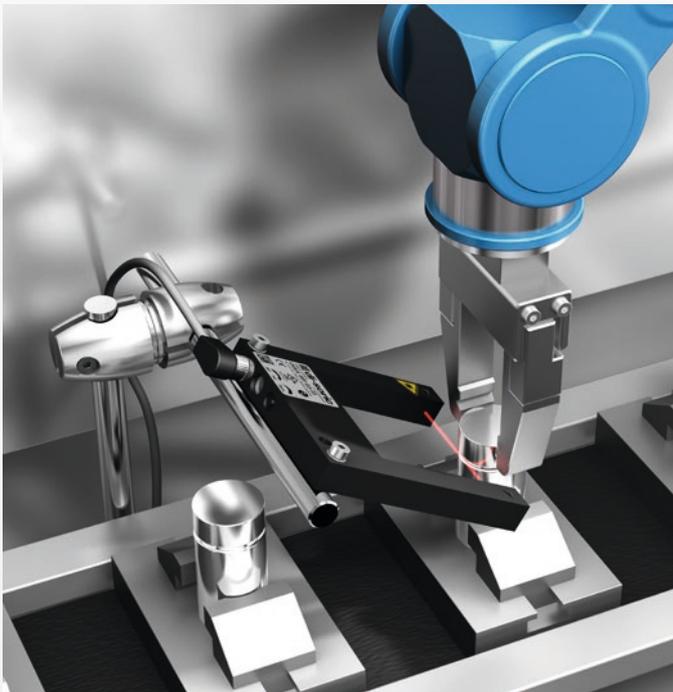
Position monitoring: groove present?

OGUL 051 G3-T3

The correct position of cylindrical components is verified by checking for the presence of a small groove. Our OGUL laser fork light barrier features a clearly visible laser beam and handles this task with functional reliability.

In the NC position of the potentiometer, the switching output is switched off if no groove is present, and the product can be rejected.

Cannulae monitoring

OGUL 031 G3-T3

A feeding unit transports disposable syringes in a hanging position to their final assembly station at a high speed. A rotary table is used to fit plastic caps on the syringes.
Before this table, the needles pass through a laser fork light barrier from the OGUL series. The thin needle has to be detected as present before the system is allowed to put the cap on.

The challenge in this application:
the cannula measures 0.3 mm, so the cycle times are short. Users in the clinical sector rely on the presence of a fully functional disposable syringe in every package.

On the left in the figure: an OGU 031 G3-T3/V4A for detecting the plastic caps.
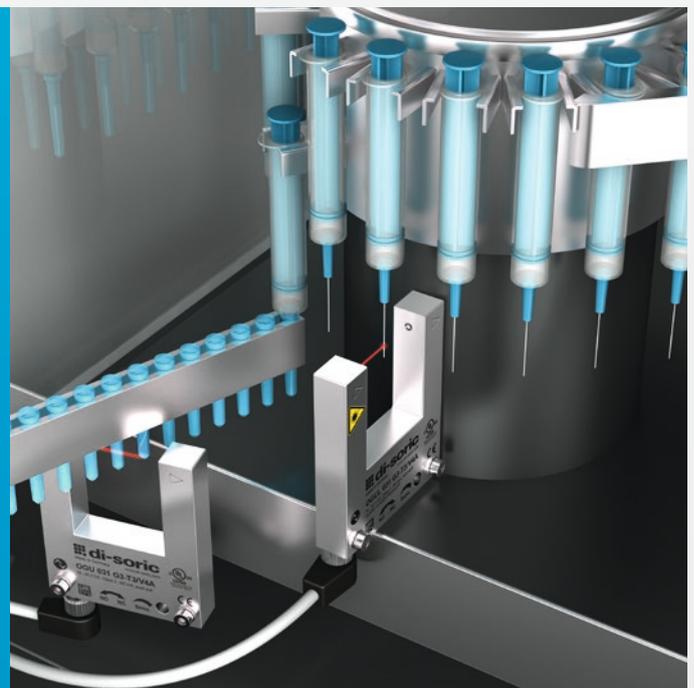
COMPLETE SOLUTIONS USING IO-LINK:
TEAMWORK BY DI-SORIC.

SOLUTIONS. CLEVER. PRACTICAL.

IO-Link provides true added value over the entire service life of a system. The installation and commissioning of highly diverse sensors is simpler and faster whenever the use of plug connectors replaces full wiring. IO-Link products from di-soric allow for the creation of flexible, affordable, space-saving systems that will be available to the customer faster than ever. The advantages of an IO-Link are even more evident when it comes to parameter configuration and diagnostics. For the first time, system operators have an affordable standard that enables an unobstructed view and access to all interacting sensors at the process level.

SMART THANKS TO IO-LINK.
SAVE TIME AND MONEY.

EASY, FAST AND SAFE.

Field devices with an IO-Link interface feature on-board digital intelligence. This allows them to swap position, process, status and device information easily in a digital format. The sensor can be configured directly using the IO-Link master. Settings can be applied to the sensor directly via drag and drop by means of a control panel.

Even device replacement can be carried out quickly and easily with IO-Link and data storage in the master using the Smart Sensor Profile, without any expert knowledge.

5 REASONS TO CHOOSE OUR FORK LIGHT BARRIERS WITH IO-LINK.

1 **Cost reduction** thanks to reduced stockkeeping
- One sensor can provide the solution for various applications by adjusting the configuration. Application-specific sensors are no longer necessary.

2 **Implementation of innovative machine concepts** thanks to consistent communication
- Recipe management in the IO-Link master, remote maintenance, diagnostics, sensor-configuration in accordance with the standardized Smart Sensor Profile

3 **Reduction of commissioning times** through standard cabling and data storage in the master
- Standard plug connectors and push/pull outputs
- The sensor can be configured directly over the IO-Link master and is saved in the master with IO-Link 1.1

4 **Increased machine productivity** through configuration and identification
- Additional functionality integrated directly into the sensor: Sensor modes, teach-in, evaluation of signal values, pulse extension, operation lock

5 **Revolutionizing maintenance** through self-diagnostics and data storage
- Process stability diagnostics (e.g. function reserve)
- Easy device swapping without manual intervention or specialized knowledge thanks to data storage in IO-Link 1.1 master

Diagnostics: Qualitative process stability

Qualitative and quantitative diagnostics for the analysis of process stability and teach-in quality (qualitative), process values min / max, teach, switching point (quantitative)

Configuration: Sensor mode Power – High function reserve

Increased transmitting power and thus increased function reserve with reduced sensitivity to dirt

TECHNICAL DATA
OGU WITH IO-LINK

Fork opening in mm	SMALL ONES			MEDIUM FORMAT			
	5	10	20	30	40	50	60
Red light, 660 nm			OGU 021 G3-T3	OGU 031 G3-T3	OGU 041 G3-T3	OGU 051 G3-T3	OGU 061 G3-T3
Infrared light, 880 nm	OGU 005 G3-T3	OGU 010 G3-T3	OGU 020 G3-T3	OGU 030 G3-T3		OGU 050 G3-T3	
Resolution (Smallest detectable part)	Ø 0.2 mm (min. Ø 0.1 mm)[1]	Ø 0.2 mm (min. Ø 0.1 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]
Reproducibility	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm
Adjustable switching frequency	10000 Hz (up to 14 000 Hz)[2]	10000 Hz (up to 14 000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]
Housing dimensions H / W / D	25 / 45 / 10 mm	25 / 45 / 10 mm	40 / 50 / 10 mm	50 / 60 / 10 mm	60 / 70 / 10 mm	70 / 80 / 10 mm	80 / 80 / 10 mm
Housing material							
Zinc die-cast black powder-coated		▪	▪	▪	▪	▪	
Aluminum black anodized	▪						▪

Switching output	Push-pull/pnp/npn adjustable via IO-Link, 100 mA, NO/NC (switchable via potentiometer or IO-Link)
Interface	**IO-Link V1.1	COM 2	Smart Sensor Profile**
Sensitivity adjustment	**Using potentiometer or IO-Link**
Sensor modes	**Standard** – General applications **High Resolution** – For detection of the smallest objects **Power** – Increased function reserve **Speed** – Safe detection of fast-moving parts
Protection type /class	IP67 / III
Connector	Plug, M8, 3-pin
Connection cable	TK …
	Factory setting: Sensor mode **Standard**, [1] in sensor mode **High Resolution,** [2] in sensor mode **Speed**

				LARGE SIZES			
70	**80**	**90**	**100**	**120**	**170**	**220**	**250**
OGU 071 G3-T3	OGU 081 G3-T3	OGU 091 G3-T3	OGU 101 G3-T3	OGU 121 G3-T3	OGU 171 G3-T3	OGU 221 G3-T3	OGU 251 G3-T3
	OGU 080 G3-T3			OGU 120 G3-T3			
Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.5 mm (min. Ø 0.3 mm)[1]	Ø 0.5 mm (min. Ø 0.4 mm)[1]	Ø 1.0 mm (min. Ø 0.8 mm)[1]	Ø 1.0 mm (min. Ø 0.8 mm)[1]
0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.03 mm	0.03 mm	0.03 mm
5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 6500 Hz)[2]	5000 Hz (max. 6500 Hz)[2]
90 / 80 / 10 mm	100 / 80 / 10 mm	110 / 80 / 10 mm	120 / 80 / 10 mm	144 / 90 / 12 mm	194 / 140 / 12 mm	244 / 140 / 12 mm	274 / 140 / 12 mm
	▪		▪	▪	▪	▪	
▪		▪					▪

TECHNICAL DATA
OGU STAINLESS STEEL WITH IO-LINK

Fork opening in mm	OGU STAINLESS STEEL				
	10	30	50	80	120
Red light, 660 nm		OGU 031 G3-T3/V4A	OGU 051 G3-T3/V4A	OGU 081 G3-T3/V4A	OGU 121 G3-T3/V4A
Infrared light, 880 nm	OGU 010 G3-T3/V4A				
Resolution (smallest detectable part)	Ø 0.2 mm (min. Ø 0.1 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.3 mm (min. Ø 0.2 mm)[1]	Ø 0.5 mm (min. Ø 0.3 mm)[1]
Reproducibility	0.02 mm	0.02 mm	0.02 mm	0.02 mm	0.02 mm
Adjustable switching frequency	10000 Hz (up to 14000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]	5000 Hz (max. 8000 Hz)[2]
Housing dimensions H / W / D	25 / 45 / 10 MM	50 / 60 / 10 mm	70 / 80 / 10 mm	100 / 80 / 10 mm	144 / 90 / 12 mm
Housing material					
Stainless steel V4A	▪	▪	▪	▪	▪
Zinc die-cast black powder-coated					
Switching output	Push-pull/pnp/npn adjustable via IO-Link, 100 mA, NO/NC (switchable via potentiometer or IO-Link)				
Interface	**IO-Link V1.1	COM 2	Smart Sensor Profile**				
Sensitivity adjustment	**Using potentiometer or IO-Link**				
Sensor modes	**Standard** – General applications **High Resolution** – For detection of the smallest objects **Power** – Increased function reserve **Speed** – Safe detection of fast-moving parts				
Protection type /class	IP67 / III				
Connector	Plug, M8, 3-pin				
Connection cable	TK …				
	Factory setting OGU V4A: Sensor mode **Standard,** [1] in the **High Resolution** sensor mode, [2] in the **Speed** sensor mode				

OGUP WITH IO-LINK

OGUP			
20	**30**	**50**	**80**
OGUP 020 G3-T3	OGUP 030 G3-T3	OGUP 050 G3-T3	OGUP 080 G3-T3
Ø 2 mm (min. Ø 0.2 mm) [1]	Ø 2 mm (min. Ø 0.2 mm) [1]	Ø 2 mm (min. Ø 0.2 mm) [1]	Ø 2 mm (min. Ø 0.2 mm) [1]
0.03 mm	0.03 mm	0.03 mm	0.03 mm
200 Hz (max. 8000 Hz)[2]	200 Hz (max. 8000 Hz)[2]	200 Hz (max. 8000 Hz)[2]	200 Hz (max. 8000 Hz)[2]
40 / 50 / 10 mm	50 / 60 / 10 mm	70 / 80 / 10 mm	100 / 80 / 10 mm
▪	▪	▪	▪

Factory setting OGUP: Sensor mode **Power,** [1] in the **High Resolution** mode, [2] in the **Speed** sensor mode

TECHNICAL DATA
OGUL LASER WITH IO-LINK

Fork opening in mm	OGUL Laser			
	30	50	80	120
Red light laser, class 1	OGUL 031 G3-T3	OGUL 051 G3-T3	OGUL 081 G3-T3	OGUL 121 G3-T3
Resolution (Smallest detectable part)	Ø 0.05 mm (min. Ø 0.03 mm)[1]	Ø 0.05 mm (min. Ø 0.03 mm)[1]	Ø 0.05 mm (min. Ø 0.04 mm)[1]	Ø 0.1 mm (min. Ø 0.05 mm)[1]
Reproducibility	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Adjustable switching frequency	5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]
Housing dimensions H / W / D	50 / 60 / 10 mm	70 / 80 / 10 mm	100 / 80 / 10 mm	144 / 90 / 12 mm
Housing material				
Stainless steel V4A				
Zinc die-cast black powder-coated	▪	▪	▪	▪
Switching output	Push-pull/pnp/npn adjustable via IO-Link, 100 mA, NO/NC (switchable via potentiometer or IO-Link)			
Interface	**IO-Link V1.1	COM 2	Smart Sensor Profile**			
Sensitivity adjustment	**Using potentiometer or IO-Link**			
Sensor modes	**Standard** – General applications **High Resolution** – For detection of the smallest objects **Power** – Increased function reserve **Speed** – Safe detection of fast-moving parts			
Protection type /class	IP67 / III			
Connector	Plug, M8, 3-pin			
Connection cable	TK …			
	Factory setting OGUL: Sensor mode **Standard**, [1] in the **High Resolution** sensor mode, [2] in the **Speed** sensor mode			

OGUL Laser Stainless Steel

30	50	80	120
OGUL 031 G3-T3/V4A	OGUL 051 G3-T3/V4A	OGUL 081 G3-T3/V4A	OGUL 121 G3-T3/V4A
Ø 0.05 mm (min. Ø 0.03 mm)[1]	Ø 0.05 mm (min. Ø 0.03 mm)[1]	Ø 0.05 mm (min. Ø 0.03 mm)[1]	Ø 0.1 mm (min. Ø 0.05 mm)[1]
0.01 mm	0.01 mm	0.01 mm	0.01 mm
5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]	5 000 Hz (max. 10 000 Hz)[2]
50 / 60 / 10 mm	70 / 80 / 10 mm	100 / 80 / 10 mm	144 / 90 / 12 mm
▪	▪	▪	▪

SOLUTIONS. CLEVER. PRACTICAL.

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