Surface sensors

	Glossary of technical terms	154
GL serie	Matt/gloss surface sensors - DC	156

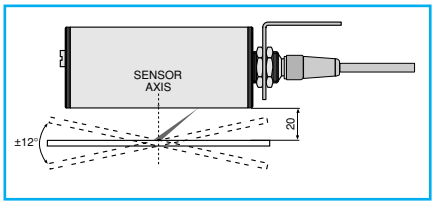
Operating principle

The GL surface-finish optical sensor is capable of discriminating between shiny surfaces and opaque surfaces regardless of their colour. The sensor works according to the principle that light skimming a shiny plane is polarized by the surface itself; on the other hand, an opaque surface will rediffuse the light without polarizing it.
The GL sensor distinguishes between the quantity of polarized light and rediffused light in order to calculate the shininess of the surface. The sensor intervention threshold can be fine-tuned using a trimmer capacitor with an extended adjustment range.

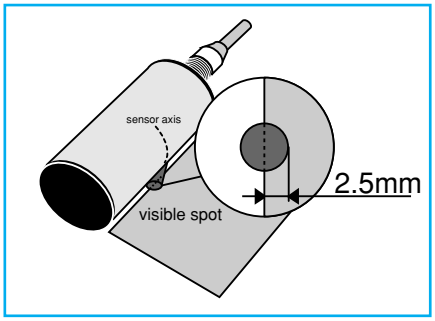
Using

1) The design of this device has a restricted operating range therefore to obtain the best performances it is necessary that the surfaces to be detected are costant in size and angle inclination.

The optimal operating distance between surface to be detected and sensor optics is 20mm. With reference to a glossy surface equivalent to a glass plate it's possible to detect it in an operating range between 12 and 33mm; the maximum angular displacement at tha nominal working distance of 20mm is ±12°; this angle it's reduced up to 0° at the extreme of 12 and 33mm.



2) The diameter of the beam is 5mm; the object will be detected when it will enter the spot of at least 2,5mm.

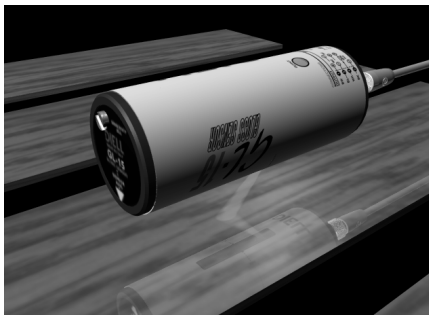


3) To avoid false detection the sensor should be mainted perpendi-cular to the target to be detected (please refer to the optical axis)

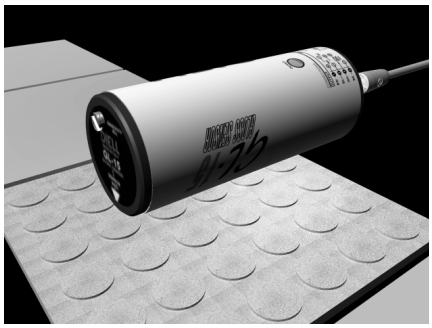
Applications

The GL 15 gloss sensor is able to detect the degree of finish of the object to be detected and can be used in all the cases where it's necessary to verify or to select object that can present a gloss or matt surface according to orientation or working.

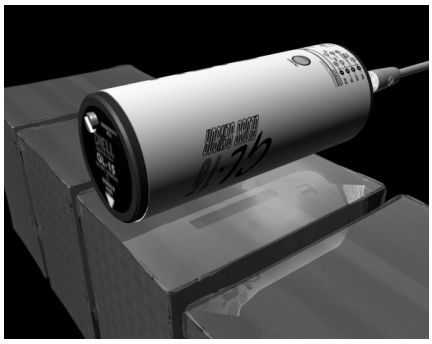
1) Verification of quality of painted or finished surfaces.



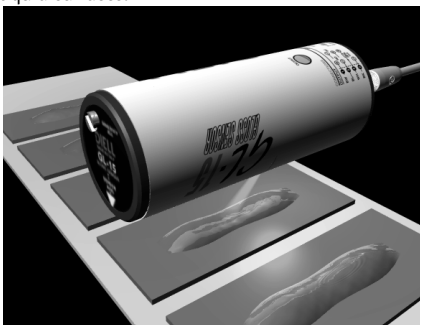
2) Verification of surface of a ceramic tile or coated surface.



3) Detection of transparent films over matt surfaces.



4) Presence detection of liquid (i.e. glue) or liquid surfaces.



3.2

SERIE	GL

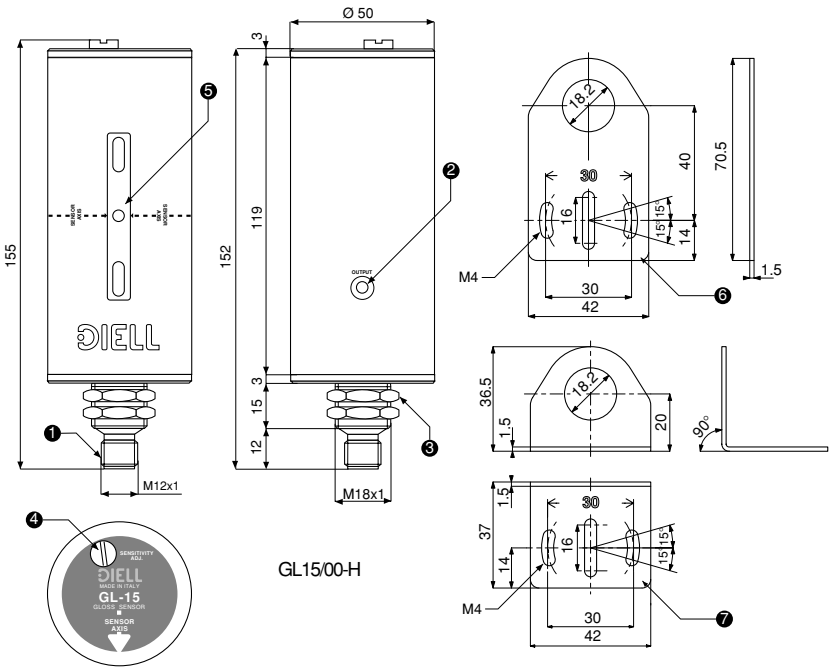
Matt/gloss surface sensors - DC

- Capable to detecting the difference between gloss and matt surfaces
- Optical triangulation sensing mode
- Red light emission with visible spot
- Fine sensitivity adjustment (10 turns trimmer)
- Innovative housing (patented)
- Fast installation provide by standard M18x1
- Standard M12 connector exit
- DECOUT® output (NPN-PNP-NO-NC)
- IP67 protection degree
- Complete protection against electrical damage

3 YEARS warranty

CE

DIMENSIONAL DRAWING



Key

1	M12 plug-in exit
2	Red LED (output activated)
3	Mounting and tightening assembly (metal nuts supplied)
4	Protection screw (remove the screw to adjust sensitivity)
5	Optical windows
6	Axial mounting bracket ST18-A, included
7	90° mounting bracket ST18-C, included

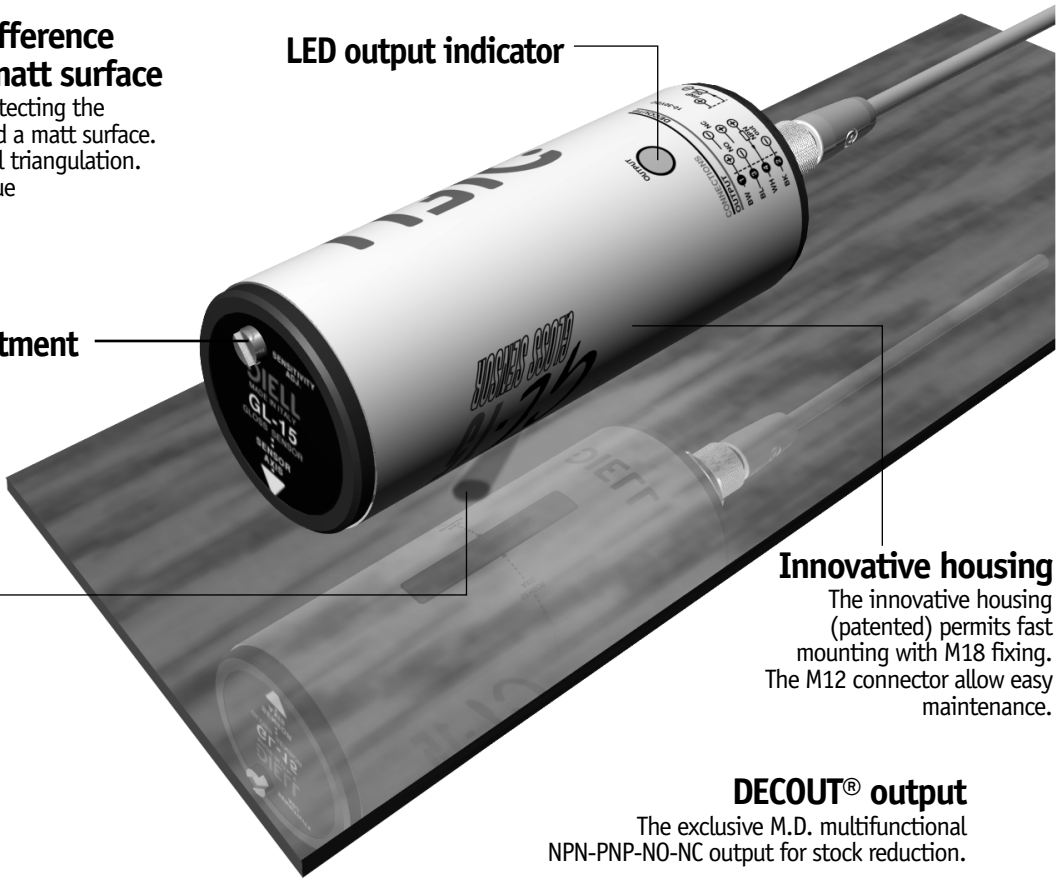
Connector **CD12L/0B-050A0** included

Capable to detect difference between gloss and matt surface

The GL sensor is capable of detecting the differency between a gloss and a matt surface. This is performed using optical triangulation. Therefore representing a unique solution to surface detection.

LED output indicator

Fine sensitivity adjustment



RED emission with visible spot

For fast installation and precise regulation.

Innovative housing

The innovative housing (patented) permits fast mounting with M18 fixing. The M12 connector allow easy maintenance.

DECOUT® output

The exclusive M.D. multifunctional NPN-PNP-NO-NC output for stock reduction.

ORDERING SYSTEM

G L 1 5 / 0 0 - H

serie			cable exit
surface detection sensor	GL	H	M12 plug-in exit
model			
sensing distance 20mm	15		
output state			logic
NO/NC output	0	0	NPN/PNP output

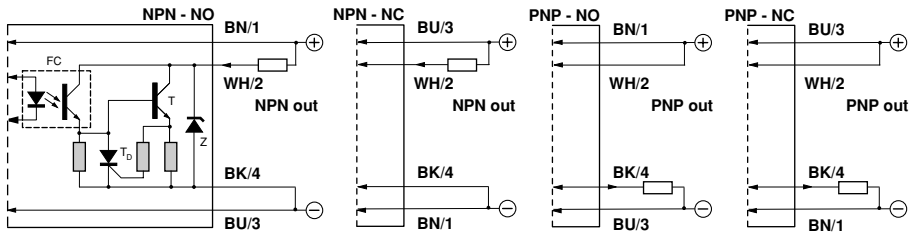
SPECIFICATIONS

Model	GL15/00-H
Nominal sensing distance Sn (1)	20mm +50 / -25%
Sensitivity adjustmeny	10 turns trimmer
Emission	red (660nm)
Differential travel	≤10%
Repeat accuracy	5%
Operating voltage	10,8-30Vdc
Ripple	≤10%
No-load supply current	40mA
Load current	≤100mA
Leakage current	≤10µA
Voltage drop	1,2Vmax. I_L=100mA
Output type	NPN or PNP, NO or NC
Switching frequency	500Hz
Time delay before availability	100ms
Supply electrical protections	transient
Output electrical protections	short circuit (with hold)
Temperature range	-25...+55°C (without freeze)
Temperature drift	10% Sr
Interference to external light	2000lux (incandescent lamp), 5000lux (sunlight)
Protection degree (DIN 40 050)	IEC IP67
LED indicators	red (output activated)
Housing material	black PVC, nickeel-plated brass (cable exit)
Lenses material	transparent PMMA
Tightening torque	5Nm
Weight (approx.)	500g

(1) with a sheet of glass, 3mm thickness

WIRING DIAGRAMS

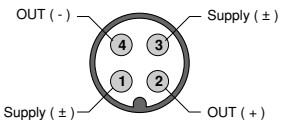
DECOUT® output



In case of combined load, i.e. resistive and capacitive, the maximum admissible load is 0,1 µF for max. output voltage and current

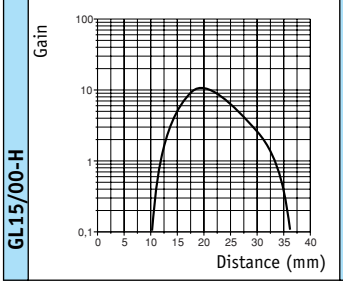
CONNECTORS

M12 (H type)

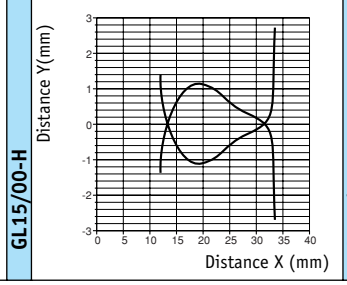


CHARACTERISTIC CURVES

Excess gain



Parallel displacement



Angular displacement