

## DS3 SERIES

The **AREAscan™** light arrays of the **DS3** series are optoelectronic multibeam devices that can be used to detect, measure and control the position of objects, also transparent and small. Models with 150, 300, 450 or 600 mm detection field height are available, as well as presenting 0.2 - 0.6 m or 0.6 - 1.5 m operating distances.

Internal dip-switches for configuration are available on all models, together with the Teach-in setting button with Remote and self-calibration function, LED indicators for the signalling of the device operating and auto-diagnostic status.

The synchronisation via cable of the emitter and receiver units guarantees high optic and electromagnetic interference immunity. The integrated electronics eliminates the need for an external control unit.

The compact dimensions (35 x 40 mm), easy installation and excellent performances make the **DS3** light grids particularly suitable to the many different applications of automatic packaging and industrial automation in general.



## HIGHLIGHTS

- Operating distance reaching 1.5 m and up to 600 mm controlled height
- Digital PNP and 0 - 10 V analogue outputs
- Simple configuration obtained using the internal dip-switches
- Teach-in setting with Remote and self-calibration function

## APPLICATIONS

- Control of the correct material positioning (opaque and transparent) during functioning (plastic, metal, paper etc)
- Detection of objects with different shapes in the food industry
- Loop control and positioning (also transparent material)
- Detection of objects with different shapes in the food industry

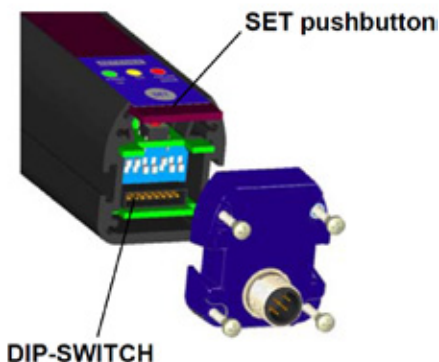


The following operating modes can be selected via internal dip-switches on the receiver unit and the SET and calibration button:

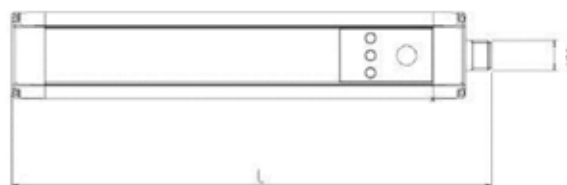
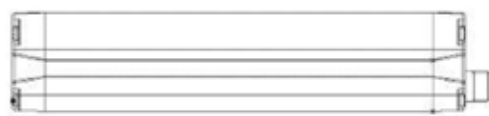
- Scanning with parallel or crossed beams
- Manual calibration or at powering on
- Absolute<sup>1</sup> or relative<sup>2</sup> measurement
- Absolute<sup>3</sup> or relative<sup>4</sup> detection
- Precise detection or with a tolerance channel
- Light or dark output
- Sensitivity level

Notes:

1. In this mode, the analogue output is proportional to the last obscured optic
2. In this mode, the analogue output is proportional to the total number of obscured optics
3. In this mode, a certain object in a certain position in the sensitive area can be detected through Teach-in. The digital output switches every time the object is in this position
4. In this mode, a certain object can be detected through Teach-in. The digital output switches each time the object is inside the sensitive area in any position



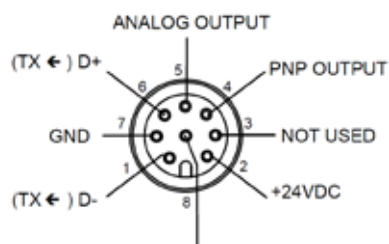
## DIMENSIONS



MODEL	a x b (mm)	h (mm)
DS3-SD-015	35 x 40	226
DS3-SD-030	35 x 40	376
DS3-SD-045	35 x 40	526
DS3-SD-060	35 x 40	676
DS3-LD-015	35 x 40	226
DS3-LD-030	35 x 40	376
DS3-LD-045	35 x 40	526
DS3-LD-060	35 x 40	676

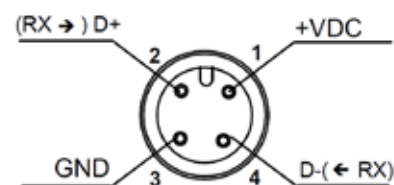
## CONNECTIONS

### RECEIVER (RX)



- |   |          |                                |
|---|----------|--------------------------------|
| 1 | = white  | = SYNC D-                      |
| 2 | = brown  | = +VDC                         |
| 3 | = green  | = NOT USED                     |
| 4 | = yellow | = PNP OUTPUT                   |
| 5 | = grey   | = Analog OUTPUT                |
| 6 | = red    | = SYNC D+                      |
| 7 | = blue   | = 0 V                          |
| 8 | = red    | = REMOTE TEACH-IN /CALIBRATION |

### EMITTER (TX)

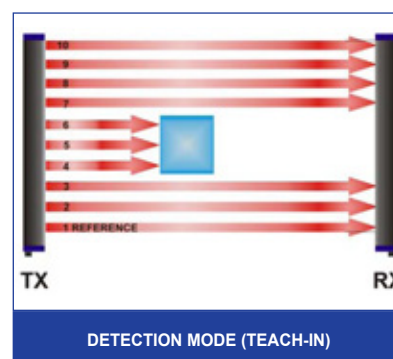
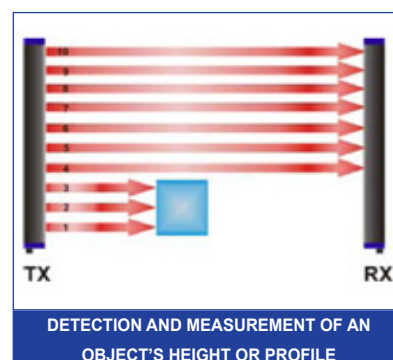
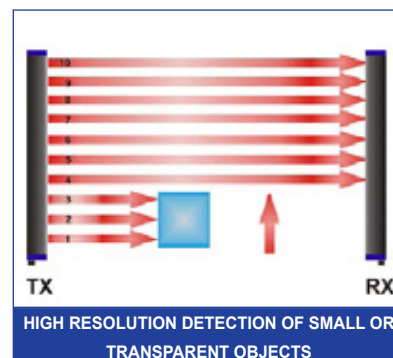


- |   |         |           |
|---|---------|-----------|
| 1 | = brown | = +VDC    |
| 2 | = white | = SYNC D+ |
| 3 | = blue  | = 0 V     |
| 4 | = black | = SYNC D- |

## TECHNICAL DATA

Power supply:	24 Vdc $\pm$ 15 %
Consumption on emitter unit:	100 mA max.
Consumption on receiver unit:	100 mA max. without load
Outputs:	1 PNP output; max. 10 kW load 1 analog output; 0 - 10 V (D Vmax. 5%)
Load current on PNP output:	100 mA; short circuit protection
Saturation voltage on PNP output:	1 V a T=25°C
Response time:	refer to selection table
Emission type:	infrared 880 nm
Resolution with crossed beams minimum object detectable:	DS3-SD: 0.5 mm DS3-LD: 0.8 mm
Resolution with parallel beams minimum object detectable:	6 mm
Relative measurement precision (parallel beams):	$\pm$ 6 mm
Absolute measurement precision (parallel beams):	$\pm$ 3 mm
Dimensional difference between equally detected objects in the absolute teach-in mode:	$\pm$ 6 mm
Dimensional difference between equally detected objects in the absolute teach-in mode:	$\Delta$ = 12 mm
Operating distance:	0.2 - 0.6 m (SD vers. parallel beams) 0.3 - 0.6 m (SD vers. crossed beams) 0.6 - 1.5 m (LD vers.)
Receiver indicators:	green POWER ON LED orange OUT LED red FAILURE/ERROR LED
Emitter indicators:	green POWER ON LED
Operating temperature:	- 10 ... + 55 °C
Storage temperature:	- 25 ... + 70 °C
Humidity:	15...95 % (uncondensed)
Electrical protection:	class 1
Mechanical protection:	IP 65 (EN 60529)
Vibration resistance:	0.7 mm width, 10 ... 55 Hz amplitude, 10 sweep for X, Y, Z axis; 1 octave/min., (EN 60068-2-6)
Shock resistance:	16 ms (about 10 G) 1.000 shock for axis (EN 60068-2-29)
Housing material:	painted aluminium (shiny black RAL9005)
Optics material:	PMMA
Connections:	M12-4 pole connector for TX M12-8 pole connector for RX
Weight:	DS3-015: 310 g. per unit DS3-030: 530 g. per unit DS3-045: 700 g. per unit DS3-060: 980 g. per unit

## FUNCTIONING MODE



**Note:** different operating modes can be selected: absolute or relative measurement respect to a reference by means of internal dip-switches and absolute or relative detection respect to a reference by means of internal dip-switches and SET button

## SELECTION TABLE

	DS3-SD-015	DS3-SD-030	DS3-SD-045	DS3-SD-060	DS3-LD-015	DS3-LD-030	DS3-LD-045	DS3-LD-060
total length:	226 mm	376 mm	526 mm	676 mm	226 mm	376 mm	526 mm	676 mm
controlled area length:	150 mm	300 mm	450 mm	600 mm	150 mm	300 mm	450 mm	600 mm
n° beams	24	48	72	96	24	48	72	96
response time of crossed beams:	23 ms.	46 ms.	69 ms.	92 ms.	23 ms.	46 ms.	69 ms.	92 ms.
response time of parallel beams:	3 ms.	6 ms.	9 ms.	12 ms.	3 ms.	6 ms.	9 ms.	12 ms.
operating distance:	0.2 ... 0.6 m	0.2 ... 0.6 m	0.2 ... 0.6 m	0.2 ... 0.6 m	0.6 ... 1.5 m	0.6 ... 1.5 m	0.6 ... 1.5 m	0.6 ... 1.5 m

## MODEL SELECTION AND ORDER INFORMATION

MODEL	DISTANCE	CONTROLLED HEIGHT	ORDER N°
DS3-SD-015	short	150 mm	957600100
DS3-SD-030	short	300 mm	957600110
DS3-SD-045	short	450 mm	957600150
DS3-SD-060	short	600 mm	957600170
DS3-LD-015	long	150 mm	957600120
DS3-LD-030	long	300 mm	957600140
DS3-LD-045	long	450 mm	957600160
DS3-LD-060	long	600 mm	957600180

Fixing brackets and screws are supplied with the product

## ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-22-B-03	axial M12 4-pole shielded 3 m connector	95ACC1480
CV-A1-22-B-05	axial M12 4-pole shielded 5 m connector	95ACC1490
CV-A1-22-B-10	axial M12 4-pole shielded 10 m connector	95ACC1500
CV-A1-26-B-03	axial M12 8-pole shielded 3 m connector	95ACC1510
CV-A1-26-B-05	axial M12 8-pole shielded 5 m connector	95ACC1520
CV-A1-26-B-10	axial M12 8-pole shielded 10 m connector	95ACC1530

**Note:** the cabled connectors have to be ordered separately



The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.