



Distance Sensor DS30

Reliable background suppression
in highly reflective surroundings

The Distance Sensor DS30 – High performance

The Distance Sensor comprises modern technology in a minimum of space – and is unbeatable value for money. The specification for the DS30 lies exactly between the distance sensor DS60/DS40 and the standard sensors for close-range distance measurement. Its capacity as a low-cost high performer sets new standards.

The specific product characteristics of the DS30

The DS30 distance sensor operates by time-of-flight measuring. It is as compact as a photoelectric switch. However it has an extremely high performance with a scanning range of two metres. The DS30 distance sensor is the perfect solution for accurate distance measurement, maintaining set distances and scanning for object-presence.

The high resolution and reproducibility make the DS30 highly accurate and reliable, even with diffuse reflections. Its high functional reserves ensure perfect function even under dirty conditions. But what makes the DS30 distance sensor a truly outstanding product in its class is its precise background suppression. Nothing can interfere with distance measurement by a DS30.

Applications: The DS30 distance sensor is in a league of its own

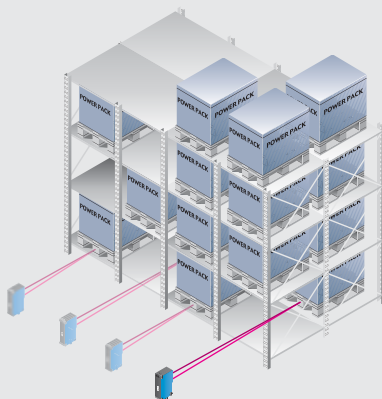
DS30: Scanning for object presence

The DS30 can detect even very dirty objects with high precision. The switch output is activated when the distance measured is less than the distance taught.

Task:

Scan for presence of Europallets in high-bay stores.

Once the distance to the wall of the empty bay has been taught, the DS30 can detect even very dirty pallets. The DS30 switches and signals that the bay is occupied.



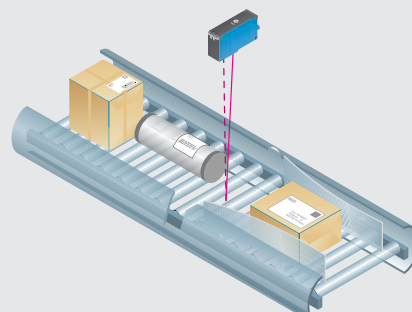
DS30: Detecting objects

The DS30 is insensitive to all colours and surfaces. Since it can also detect objects at an angle, it is the perfect solution for scanning parcels, packages and objects with shiny surfaces.

Task:

Detection of parcels for triggering bar code scanners.

Its virtual insensitivity to surface type makes the DS30 ideal for detecting packages and parcels of all shapes. When the DS30 detects an object within its 2-metre range, it gives a signal (e.g.) to a bar code scanner which then reads the code.





The DS30 distance sensor simplifies projection

Are you scanning for black-and-white characteristics?

Then you've found them. The DS30 has a range of 2 metres, regardless of whether the object is black or white.

Do you require adaptive reduction of switching frequency for dark objects at long distance?

You've got it! The switch frequency is always the same, whether black or white, close by or at 2 metres' distance.

Do you need a simple setting characteristic?

The DS30 is what you're looking for. Just install it, align it and teach it. It's as simple as that!

DS30: Maintaining distance

Through its scanning range of 2 metres and its compact design, the DS30 is perfect for distancing with cranes, suspension and floor-conveyors.

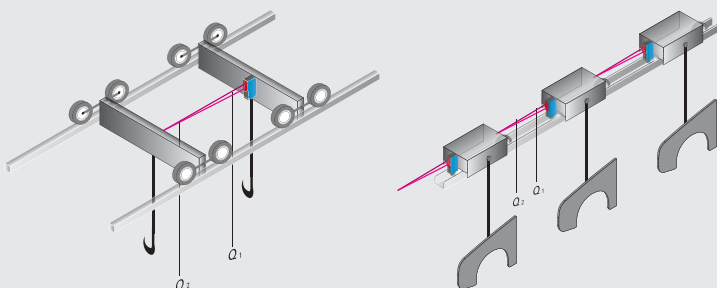
Task:

Distance control of conveyor sections

If the distance between conveyor segments is less than the set value, the DS30 switches and can (for example) trigger a braking operation. Even very dirty conveyor sections are reliably detected.

DS30: Other possible uses

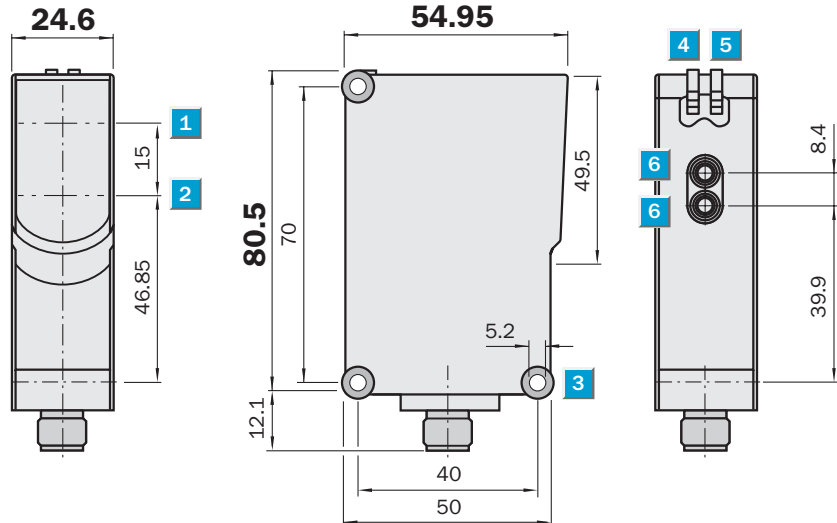
The precise background suppression even makes it possible to use the DS30 in surroundings where there are other reflectors, reflective safety clothing, shiny metal objects etc. Typical fields of application are in the rubber, paper and steel industries.



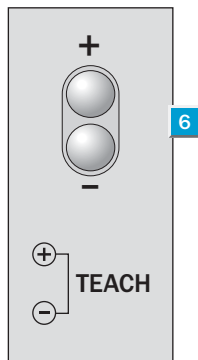
	Scanning distance 100 ... 2000 mm
Distance Sensor	

- 2000 mm on black and white
- Background suppression up to 100 m (also glossy objects)
- High switching dynamics: from black to high lustre

Dimensional drawing

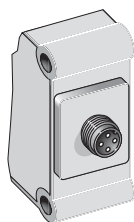


Adjustments possible

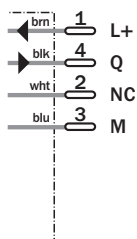


- 1 Optical axis, sender
- 2 Optical axis, receiver
- 3 Through hole \varnothing 5.2 mm
- 4 Indicator LED yellow: operating voltage active
- 5 Indicator LED green: switching status display
- 6 Setting for scanning distance: double teach button

Connection type



M12, 4-pin



Accessories
Mounting
Plug-in connection, M12, 4-pin
Weather protection

Technical data		DS30	-P	-N								
Connection type	Plug M12, 4-pin											
Scanning distance, adjustable ¹⁾	100 mm ... 2000 mm											
Light source ²⁾	Laser diode, infrared light - 850 nm											
Teach resolution	10 mm											
Light spot diameter at 2 m	Ø 20 mm											
Supply voltage V_S ³⁾	10 ... 30 V DC											
Current consumption ⁴⁾	< 1.7 W											
Ripple ⁵⁾	$\leq 5 V_{PP}$											
Switching output	PNP	HIGH = $V_S - (< 2 V)$ /LOW = 0 V										
	NPN	HIGH = V_S /LOW = < 2 V										
Output current I_A ⁶⁾	100 mA											
Switching frequency	50/s											
Switching threshold	Adjustable via double teach button											
Laser class	1 (EN 60 825-1)											
VDE protection class ⁷⁾	<input type="checkbox"/>											
Enclosure rating	IP 65 (EN 60 529)											
Ambient temperature ⁸⁾	Operation -40 ... +55 °C											
	Storage -40 ... +75 °C											
Weight	120 g											

¹⁾ Remission 6% ... 90%

²⁾ Average service life 100 000 h, at $T_A = +25$ °C, Laser category 1 (EN 60825-1: Nov. 2001; IEC 60825-1:AM2:2001)

³⁾ Limit values, reverse polarity protected

⁴⁾ Without load, 24 V and ambient temperature 25 °C

⁵⁾ Must be within V_S tolerances

⁶⁾ Outputs Q short-circuit protected

⁷⁾ Reference voltages 50 V DC

⁸⁾ Do not distort cable below 0 °C, between -40 °C ... -25 °C warm up time max. 5 min

Order information	
Type	Order no.
DS30-P1241	1040034
DS30-N1241	1042181

Dimensional drawings and order information

SENSICK screw-in system M12, 4-pin, enclosure rating IP 67

Female connectors M12, 4-pin, straight

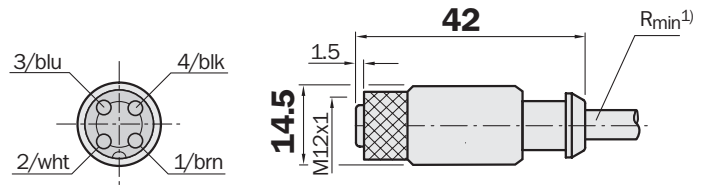
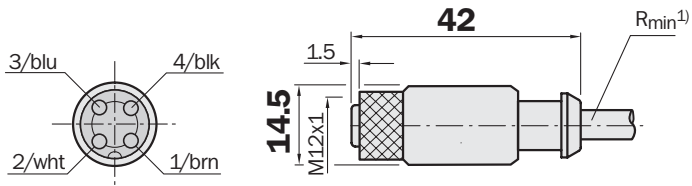
Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

Type	Order no.	Contacts	Cable length
DOL-1204-G02M	6009382	4	2 m
DOL-1204-G05M	6009866	4	5 m
DOL-1204-G10M	6010543	4	10 m
DOL-1204-G15M	6010753	4	15 m

Female connector M12, 4-pin, straight

Cable diameter 4.5 mm, 4 x 0.34 mm², sheath PUR

Type	Order no.	Cable length
DOL-1204-G05MC	6025901	5 m



Female connectors M12, 4-pin, angled

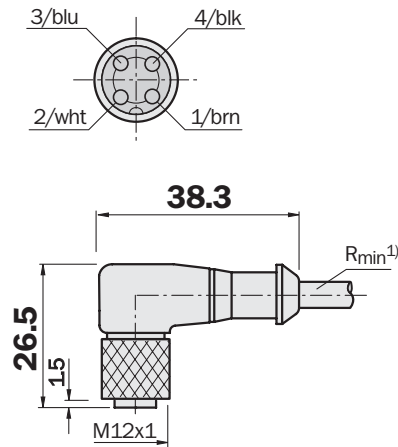
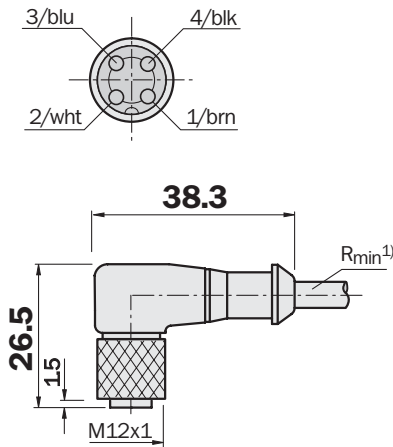
Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

Type	Order no.	Contacts	Cable length
DOL-1204-W02M	6009383	4	2 m
DOL-1204-W05M	6009867	4	5 m
DOL-1204-W10M	6010541	4	10 m

Female connector M12, 4-pin, angled

Cable diameter 4.5 mm, 4 x 0.34 mm², sheath PUR

Type	Order no.	Contacts
DOL-1204-W05MC	6025904	5 m



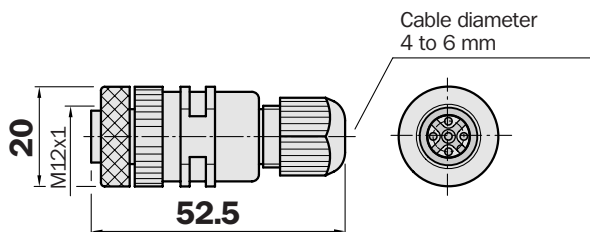
¹⁾ Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

Dimensional drawings and order information

SENSICK screw-in system M12, 4-pin, enclosure rating IP 67

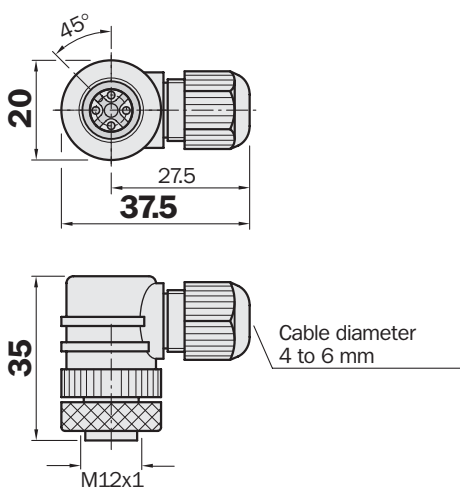
Female connector M12, 4-pin, straight

Type	Order no.	Contacts
DOS-1204-G	6007302	4



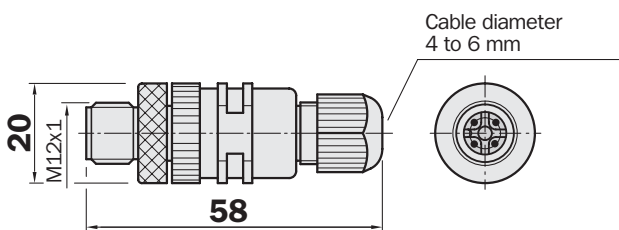
Female connector M12, 4-pin, angled

Type	Order no.	Contacts
DOS-1204-W	6007303	4



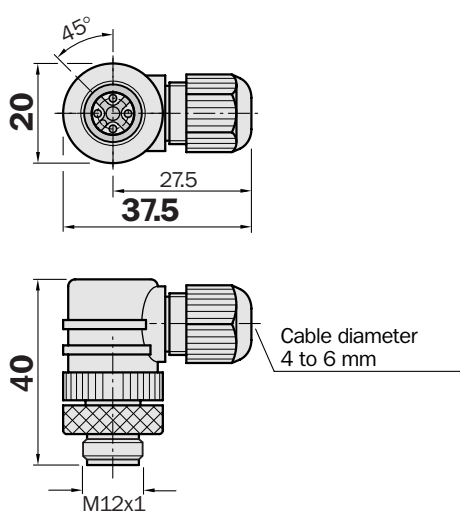
Male connector M12, 4-pin, straight

Type	Order no.
STE-1204-G	6009932



Male connector M12, 4-pin, angled

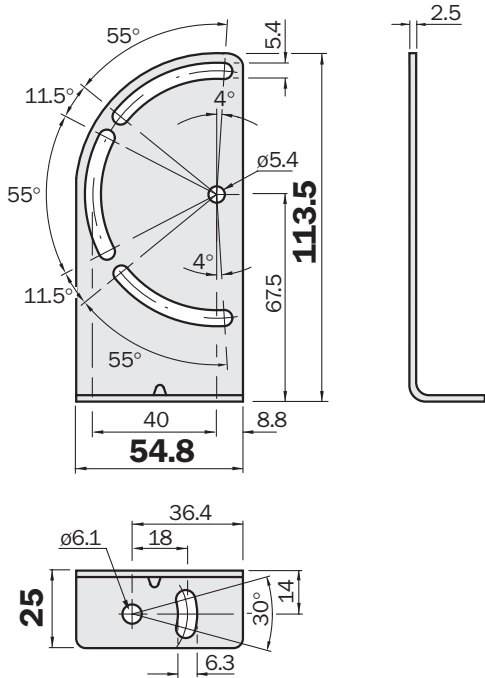
Type	Order no.
STE-1204-W	6022084



Dimensional drawings and order information

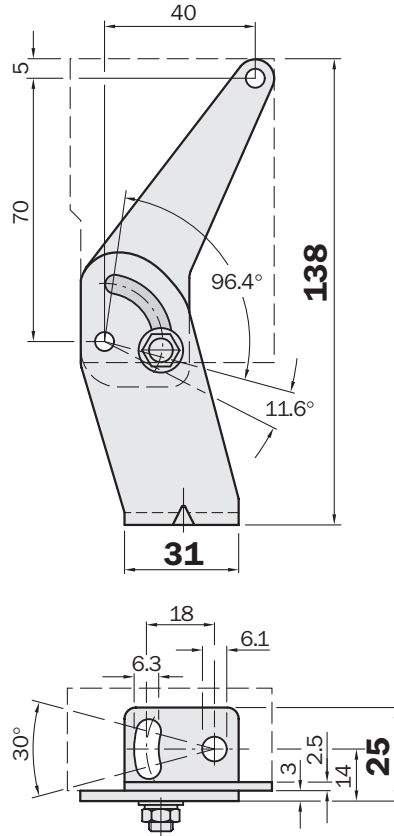
Mounting bracket for DS30

Type	Order no.
BEF-WN-W23	2019085



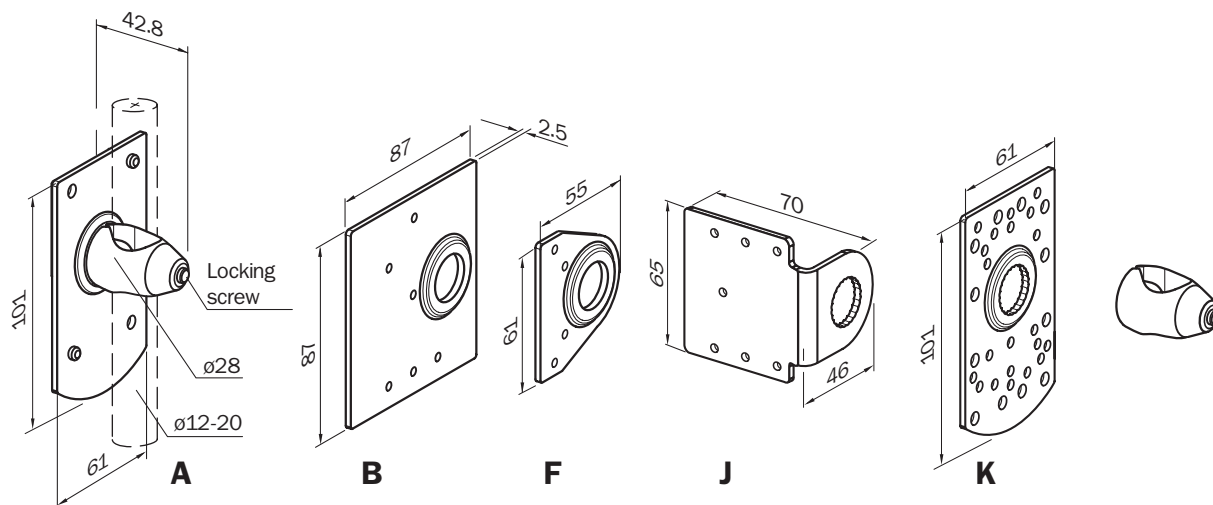
Mounting bracket for DS30

Type	Order no.
BEF-WN-W27	2009122



Dimensional drawings and order information

Universal bar clamps for sensors and reflectors



Mounting plates	Type	Order no.	for device/reflector type
A	BEF-KHS-A01	2022458 ¹⁾²⁾	DS30
B	BEF-KHS-B01	2022459 ¹⁾²⁾	P250, P250F, PL30A, PL40A, PL50A, PL80A, C110
F	BEF-KHS-F01	2022463 ¹⁾²⁾	PL20A, PL20F, P250, P250F
J	BEF-KHS-J01	2022719 ¹⁾²⁾	PL20A, PL20F, PL40A, PL50A, P250, P250F, C110
K	BEF-KHS-K01	2022718 ¹⁾	W11, W12-2, W12L-2, W14-2, W18-3, W23-2, W24-2, W27-3, W30, W32, W34, KT2, KT5, KT10, CS1/3, LUT3, DS60, PL20A, PL20F, PL30-A, PL40A, PL50A, PL80A, P250, P250F, C110, DS30
	BEF-KHS-KH1	2022726	Clamp without mounting plate

1) Order no. includes bar support and mounting material.

2) Mounting plate does not contain threads; the sensor/reflector is mounted from the sensor-/reflector side with self-cutting screws.

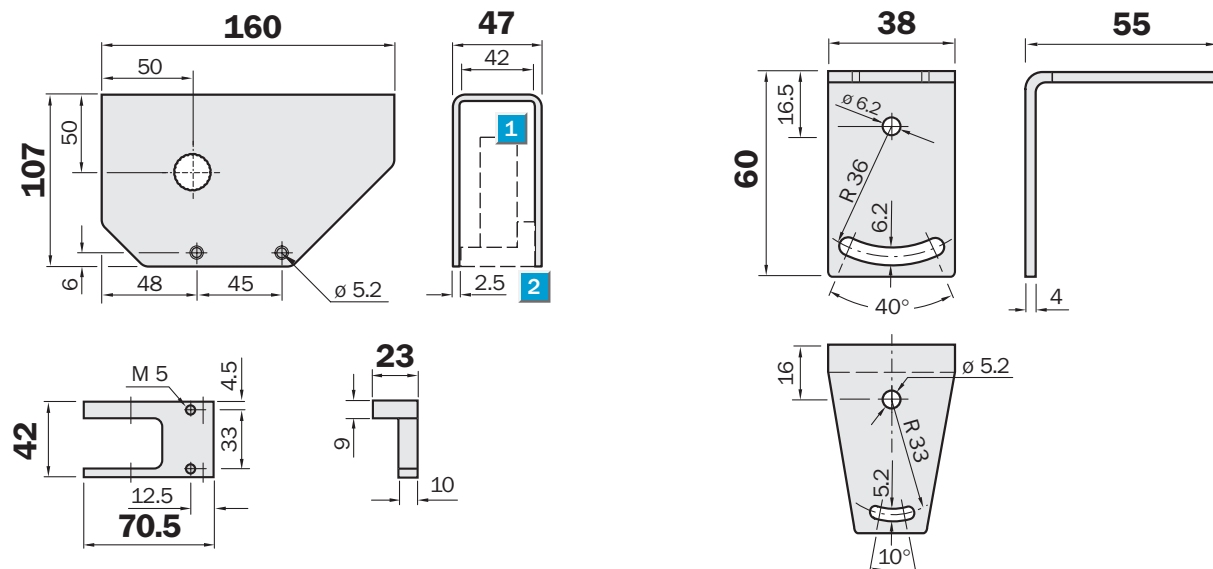
Special accessories

Weather protection hood for DS30 *)

Type	Order no.	1	2
OBW-KHS-M01	2023240	Sensor	Clamp with mounting material included with delivery

Mounting bracket for weather protection hood OBW-KHS-M01

Type	Order no.
BEF-WN-OBW	2023251



*) Also suitable as bar support with separate bar clamp BEF-KHS-KH1 (Order no. 2022726)

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