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Safety radar system

The world's first safe 3D radar system, LBK, was developed for the monitoring of hazardous areas in harsh industrial environments. It detects the bodies of persons and in doing so monitors the protected area for access and presence. Up to 6 sensors can be combined via one controller.

Safety at Leuze

Safe radar system LBK

Reliable area monitoring in harsh environments

The world's first safe 3D radar system, LBK, was developed for the monitoring of hazardous areas in harsh industrial environments. It detects the bodies of persons and in doing so monitors the protected area for access and presence. Using the controller, up to 6 sensors can be combined.

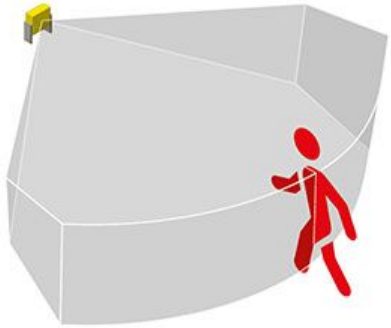
Advantages for you

- Reliable operation, even under harsh ambient conditions with, e.g., dirt, dust, smoke, and light
- Flexible adaptation of the protected area to the application: determine the number and position of the sensors, configure the length and opening angle/width of the area
- Static objects in the protective field are permissible and do not result in shutdown of the safety outputs
- Fast integration due to simple system design and controller with PROFIsafe or FSoE interface
- If desired, configuration and setup service for your application by our certified experts

Highlights

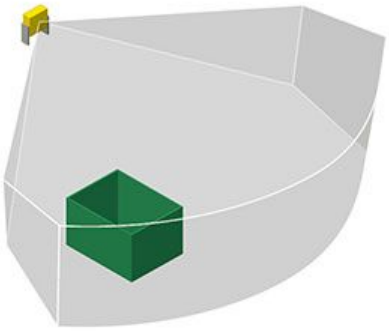
Reliable operation under demanding environmental conditions

The radar principle is resistant to environmental influences such as dirt, dust, sawdust, smoke, oil, humidity and light. This guarantees reliable operation of the machine even under demanding environmental conditions and avoids unnecessary shutdown.



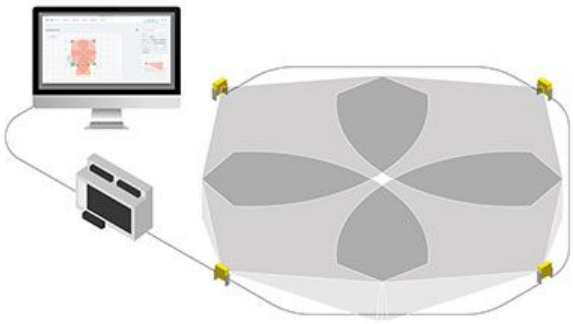
Function

They monitor the protected area for access by and the presence of persons. Even persons who are standing still are not really "static", and are therefore detected reliably by the sensor.
Thanks to the 3D radar principle, areas on steps or pedestals and behind non-metallic shadowing can also be monitored.



Static objects permitted in protected area

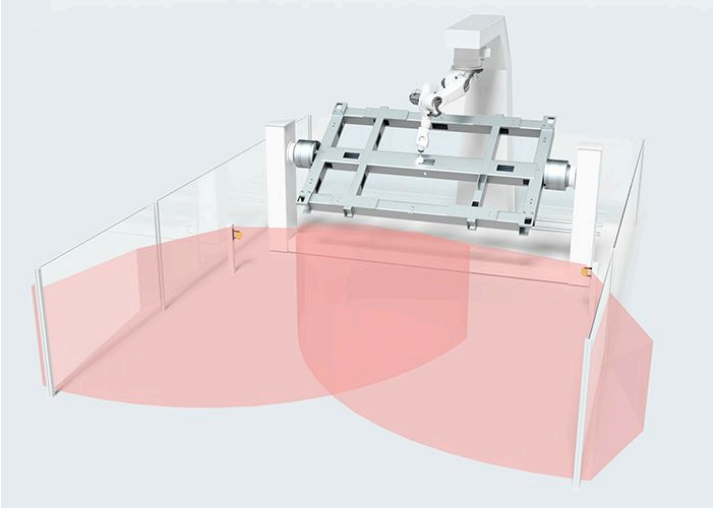
The radar technology reacts sensitively to movements. However, static objects in the monitored area do not cause the safety signal to switch off. Static objects such as pallets, material containers and tool trays are therefore allowed to be placed in the protected area.



Simple and flexible system design

To guard larger areas, a controller evaluates up to 6 sensors. With 4 channel configurations per controller, up to 24 sensors can be used in one application. The system parameters can be simply adapted to the application using the LBK Designer configuration software.

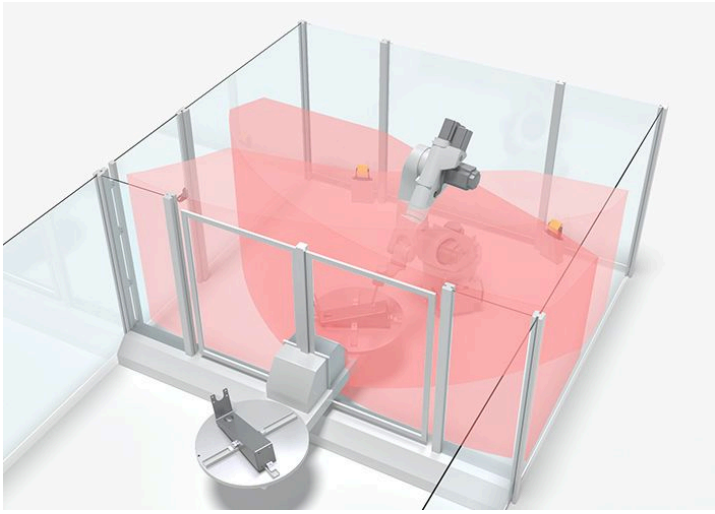
To enable integration into safe fieldbus systems, controllers with PROFIsafe and FSoE interfaces are available. Thus, detailed status information relating to the system can also be queried.



Guarding of hazardous areas in harsh environments

Requirement:
The hazardous working range of the machine is to be guarded against entry by and the presence of persons. Safe operation and high availability must also be guaranteed under harsh ambient conditions – such as dirt, welding sparks, sawdust or humidity.

Solution:
The LBK 3D safety radar system detects movements in the monitored area and operates reliably even under harsh ambient conditions. Furthermore, the radar technology allows the presence of static objects in the monitored area.



Restart protection and monitoring of hidden areas

Requirement:
To prevent danger, the process is not permitted to restart until it has been ensured that no persons are in the work area or in the hidden area.

Solution:
The LBK 3D safety radar system monitors the presence of persons in the protected area and operates reliably even under harsh ambient conditions. Furthermore, the radar technology allows the presence of static objects in the monitored area.

Technical properties

Safe 3D radar system with FMCW modulation for detecting movements
Configurable protected area and warning range, 4 configurable signal outputs
Up to 6 sensors can be combined in one application, dynamic changeover of the configuration during operation

Safety	Performance level PL d, SIL 2 LBK S01: category 2, LBK SBV-x: category 3
Operating range	LBK S01: 4 m, LBK-SBV-01/201: 5 m, LBK SBV205: 9 m
Angle of radiation (horizontal / vertical)	LBK S01: 50° / 15° or 110° / 30° LBK SBV-x: 10°… 100° / 20°
Frequency range	LBK S01: 24 GHz, LBK-SBV-x: 60 GHz
Environmental conditions	Temperature range: -30°C ... 60°C, sensor degree of protection: IP67
Controller with I/O interfaces, optional: SD card slot	Safety: 2x OSSDs Configuration and diagnosis: micro-USB, optional: Ethernet TCP/IP
Controller with safe fieldbus interface, optional: SD card slot	Safety: PROFIsafe or FSoE, 2x OSSDs Configuration and diagnosis: micro-USB, TCP/IP

LBK ISC110E

- Safety relay

LBK ISC110

- Safety relay

LBK SBV201

- Safety radar sensor

Shape of the detection fields: asymm. conical/square

LBK S-01

- Safety radar sensor

Shape of the detection fields: conical

LBK ISC BUS PS

- Safety relay

Interface: Ethernet, PROFINET, USB

Combination product

LBK SBV-01

- Safety radar sensor

Shape of the detection fields: conical

LBK ISC BUS PS

- Safety relay

Interface: Ethernet, PROFINET, USB

LBK ISC110 E-P

- Safety relay

LBK ISC-02

- Safety relay

LBK ISC-03

- Safety relay

LBK ISC100E-F

- Safety relay

LBK ISC110E-F

- Safety relay

LBK ISC110E

- Safety relay

LBK ISC110

- Safety relay

LBK SBV205

- Safety radar sensor

Shape of the detection fields: asymm. conical/square

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