

INDUSTRIAL SAFETY

LBKSystem

Volumetric Linear Safety Barrier



LBK System benefits



Immunity to visible objects like smoke, dust, shavings, machining waste, splashes



A perfect alignment between sensors is not required



Configuration, e.g. the depth of the warning and danger areas, can be made quickly and easily through the provided PC application



The system can detect the presence of humans and can give pre-alarms in order to avoid the sudden stop of the machinery



The system detects which part of the danger area has been entered: different actions can be configured depending on the accessed zone

Personnel protection is becoming increasingly important in all industrial environments. So far, optical technology has been one of the premiere choices for devices dedicated to worker's safety, such as infrared barriers or laser scanners. However, optical devices represent a permanent headache of plant managers.

Inxpect presents the new LBK Safety Barrier System, based on an innovative, radar-based motion sensor technology that ensures that machines enter safety mode as soon as an operator approaches a dangerous area. With no moving parts, no need for alignment and no optics, the Inxpect LBK System is maintenance free and represents the perfect choice for next generation collaborative robotics manufacturing, even in the harshest industrial environments.

LBKSystem

Volumetric Linear Safety Barrier

The LBK Safety Barrier System is a modular, SIL2 / PL-d active protection apparatus composed by two types of devices: LBK-S01 smart motion sensors operating in combination with an LBK-C22 Control unit.

LBK-C22 THE CONTROL UNIT

The **Inxpect LBK-C22** is the control unit used to monitor up to 6 LBK-S01 smart sensors. Intervention of any single sensor results in the deactivation of the controller's safety output.

The LBK-C22 control unit can be configured with the provided PC application, which allow the configuration of sensitivity, size of warning and danger areas, and the functionality of the safety and non-safety relay outputs.

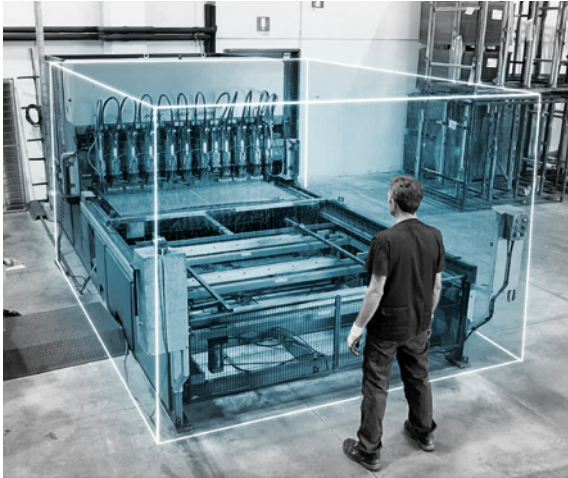
LBK-S01 THE SMART SENSOR

Inxpect LBK-S01 smart motion sensors are based on FMCW radar technology, a proven technique that guarantees best in class performance at detecting and tracking motion in all environmental conditions.

Thanks to Inxpect's proprietary system design, the LBK-S01 delivers unmatched performance at detecting personnel reaching unsafe areas even in the harshest environmental conditions.

Unlike traditional detectors based on optical or pressure sensitive technology, the LBK-S01 can compute in real time the position of personnel moving in the vicinity of a dangerous area. Thanks to Inxpect's advanced signal processing algorithms, the LBK-S01 filters out all disturbances caused by smoke, dust, shavings, machining waste, splashes, resulting in a dramatic reduction of false alarms.

APPLICATION EXAMPLES



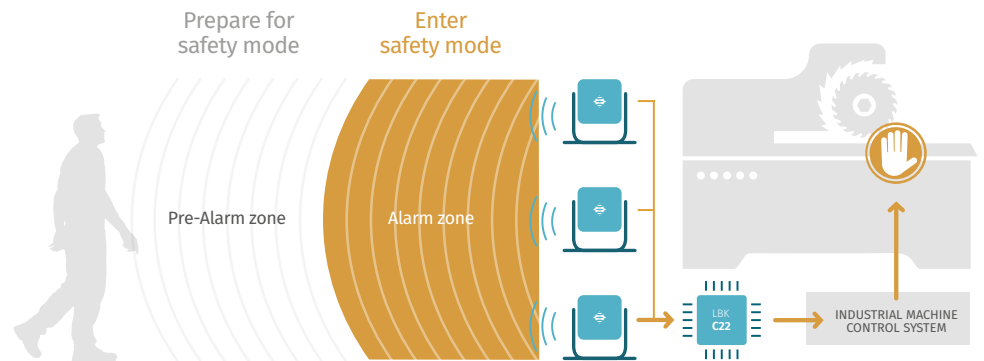
The use of safety devices for personnel protection and in machine safety can vary depending on the individual manufacturing markets. However, there are plenty of industrial applications that may require safety barriers where traditional optical or pressure-sensitive-based solutions cannot be applied. Where light curtains, laser barriers, or safety mats fail, the LBK Volumetric Linear Safety Barrier system is the solution.

Fields of application

- Robot automated areas
- Food and beverage industry
- Hazardous machinery
- Material handling equipment
- Packaging machinery
- Special machine construction

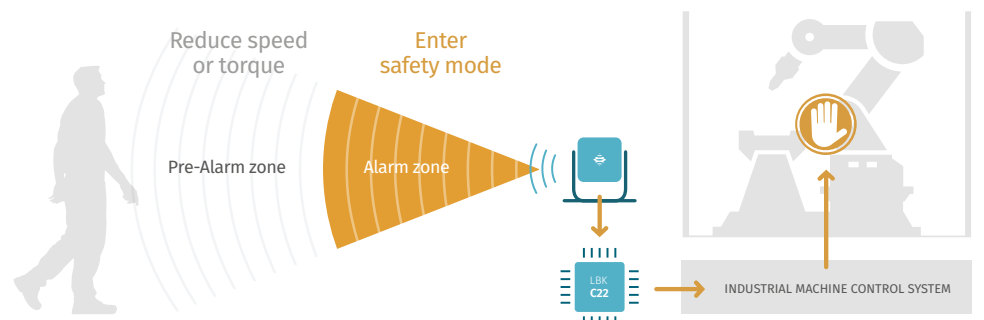
EXAMPLE 1

Safety on automated machine tools



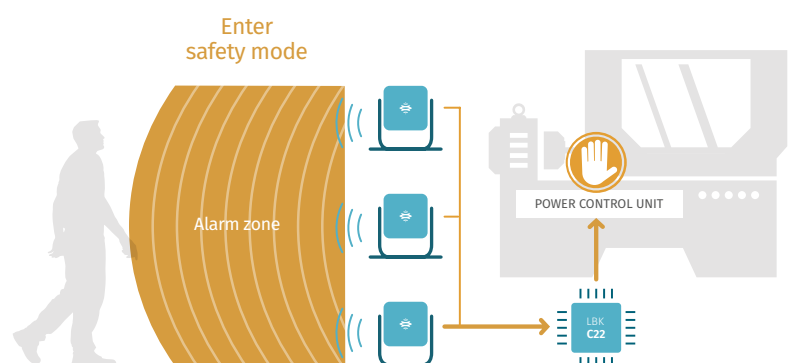
EXAMPLE 2

Safety on automated robot arm

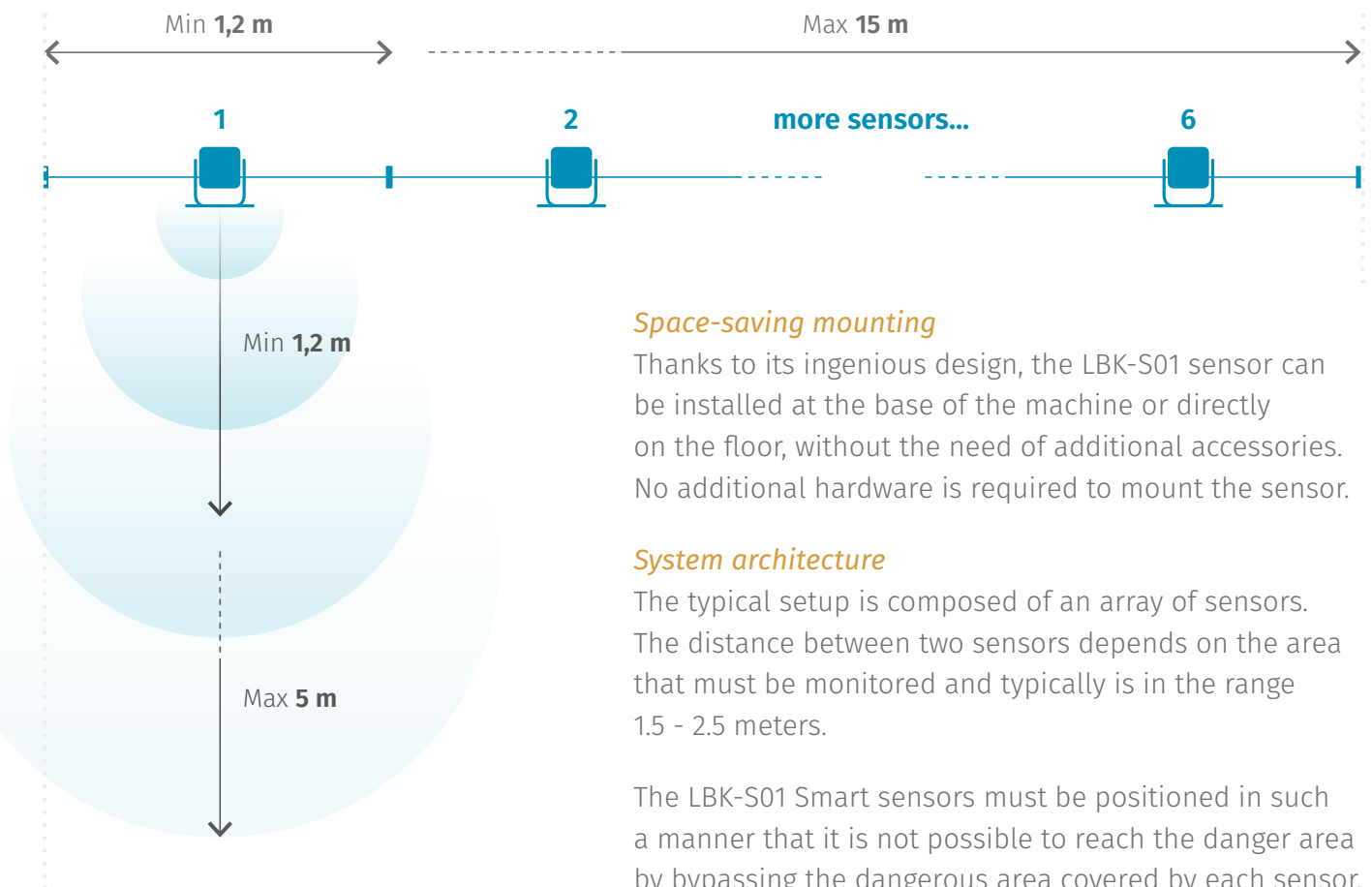


EXAMPLE 3

Safety on machines without automation



SET UP OF THE LBK SYSTEM



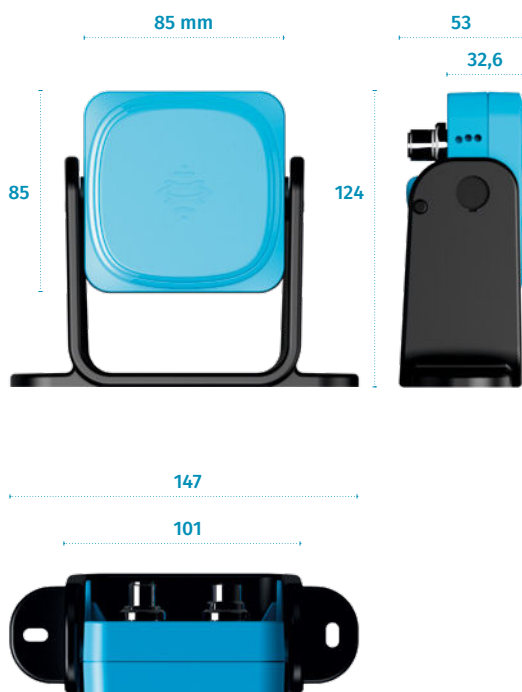
Space-saving mounting

Thanks to its ingenious design, the LBK-S01 sensor can be installed at the base of the machine or directly on the floor, without the need of additional accessories. No additional hardware is required to mount the sensor.

System architecture

The typical setup is composed of an array of sensors. The distance between two sensors depends on the area that must be monitored and typically is in the range 1.5 - 2.5 meters.

The LBK-S01 Smart sensors must be positioned in such a manner that it is not possible to reach the danger area by bypassing the dangerous area covered by each sensor.



Safety integrity level	SIL2 (IEC 61508)
Performance level	PL d (EN ISO 13849)
Safe state in the event of a fault	At least one OSSD is in the OFF state



	LBK-S01 Smart Sensor	LBK-C22 Control Unit
Protection class	IP67	IP20
Safety outputs (OSSD)		Type1 contact-based force guided relay technology
TM Safety inputs		3-redundant digital inputs function configurable
Auxiliary outputs (non-safety)		2-non safety relays