INXPECT
Sense the world in 3D

HEAVY INDUSTRY

Teach-In function and Use cases

INXPECT SAFETY
RADAR EQUIPMENT

Industrial safety at its best: Inxpect safety radar protective devices (RPD) detect access or presence of operators in dangerous areas and also have the ability to dynamically set the detection and warning zones.

Safety functions:

ACCESS DETECTION

If the operator moves closer to the dangerous area, it places machinery in a safe state.

RESTART PREVENTION

It prevents machinery from restarting while operators are in the dangerous area.

RESISTANT TO DISTURBANCES

DEBRIS

Inxpect Safety Radar Sensors ensure reliable detection even in challenging conditions, including **light**, **smoke**, **dust**, **debris**, and **rain** (up to 45 mm/h).

Inxpect works where optical sensors stop.
High safety without compromising productivity.

LIGHTS

RAIN

DUST

S203A-WT S203A-WLT

Safety first, also in heavy environment.

Discover the new sensors with the TEACH-IN function.

In applications where environmental conditions frequently change, reconfiguring safety devices is crucial to maintaining system robustness without compromising safety. Our new sensors, equipped with the **Teach-In function**, enable fast **"on-field"** reconfiguration without requiring the configuration software (Inxpect Safety Studio).
These sensors are particularly suitable for challenging environments characterized by:

- Variable operating conditions caused by the application process (e.g., drilling machinery).
- Defined obstacles (e.g., tunnel walls).
- Vibrations and oscillatory responses produced by machine operation.

Radar Sensors with Teach-In function

5m Range sensor

9m Range sensor

	Vertical angular coverage	Field of View (FOV)	Number of Detection Fields	Sensitive Protective Equipment functions	Additional functions
S203A-WT	12°	Classic **Corridor**	4	Safeguarding Presence Sensing	**Teach-In**
S203A-WLT	12°	Classic **Corridor**	4	Safeguarding Presence Sensing	Custom target detection **Teach-In**

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HOW DOES THE TEACH-IN FUNCTION WORK?

Technical specifications

The Teach-In function allows the sensor to automatically set the detection distance by detecting the nearest target, whether it is a static or vibrating object.
This makes it particularly suitable for frequently changing environments.

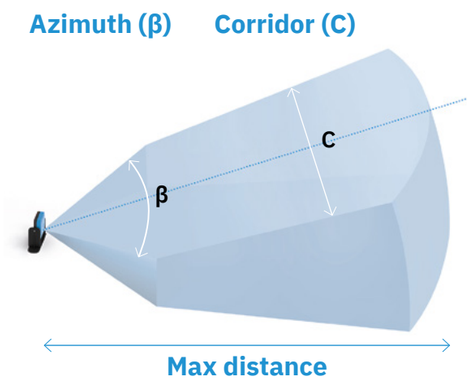
In situations where machinery generates vibrations, it's crucial to ensure system reliability by excluding surrounding objects from the sensors' fields of view.
The Teach-In function automates this adjustment, ensuring optimal sensors performance.

THE LEARNING AREA

The nearest target is detected within a predefined volume known as the **learning area**.

By using this function, the machine operator can automatically adjust the distance of the last detection field of each sensor based on the position of the nearest target.

The parameters of the learning area, i.e. the horizontal angular coverage (Azimuth β) and the width (Corridor C), can be customized.

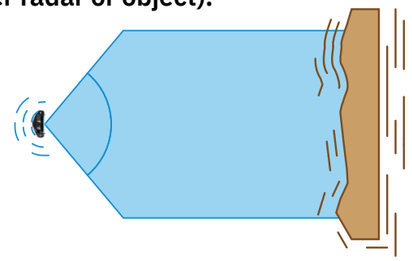


Executing the Teach-In function

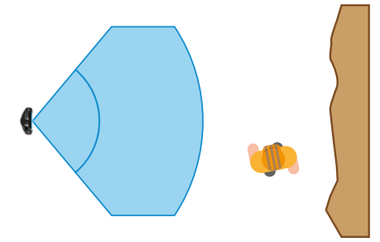
1. Before Teach-In

Once the field of view of each sensor has been set, the environment may change due to industrial processes or operational activities. In such cases, the sensors can be affected by the new environmental conditions, potentially generating undesired alarms or leaving areas unprotected by the radar system.
The Teach-in function addresses this issue: when enabled via an input, all sensors switch to the "learning phase," allowing them to adapt to the updated environment.

Vibrating conditions (either radar or object).



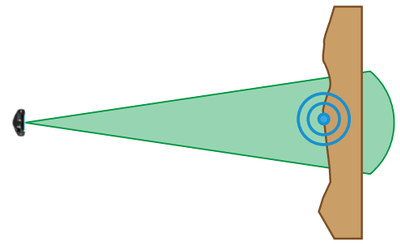
Safety area compromised by environmental changes.



2. Learning phase

Once activated, the Teach-In learning process begins. All sensors switch to the learning phase, so they detect the nearest target in the area.

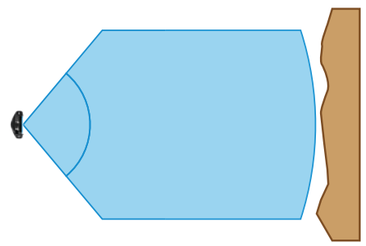
The sensor is now learning the new distance.

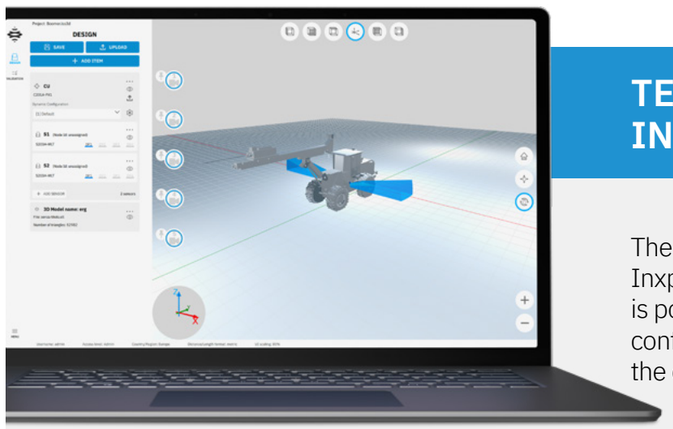


3. After Teach-In

At the end of the learning phase, the sensors are updated with the new detection distances, allowing the operator to continue working safely.

The sensor is set with the updated field of view.





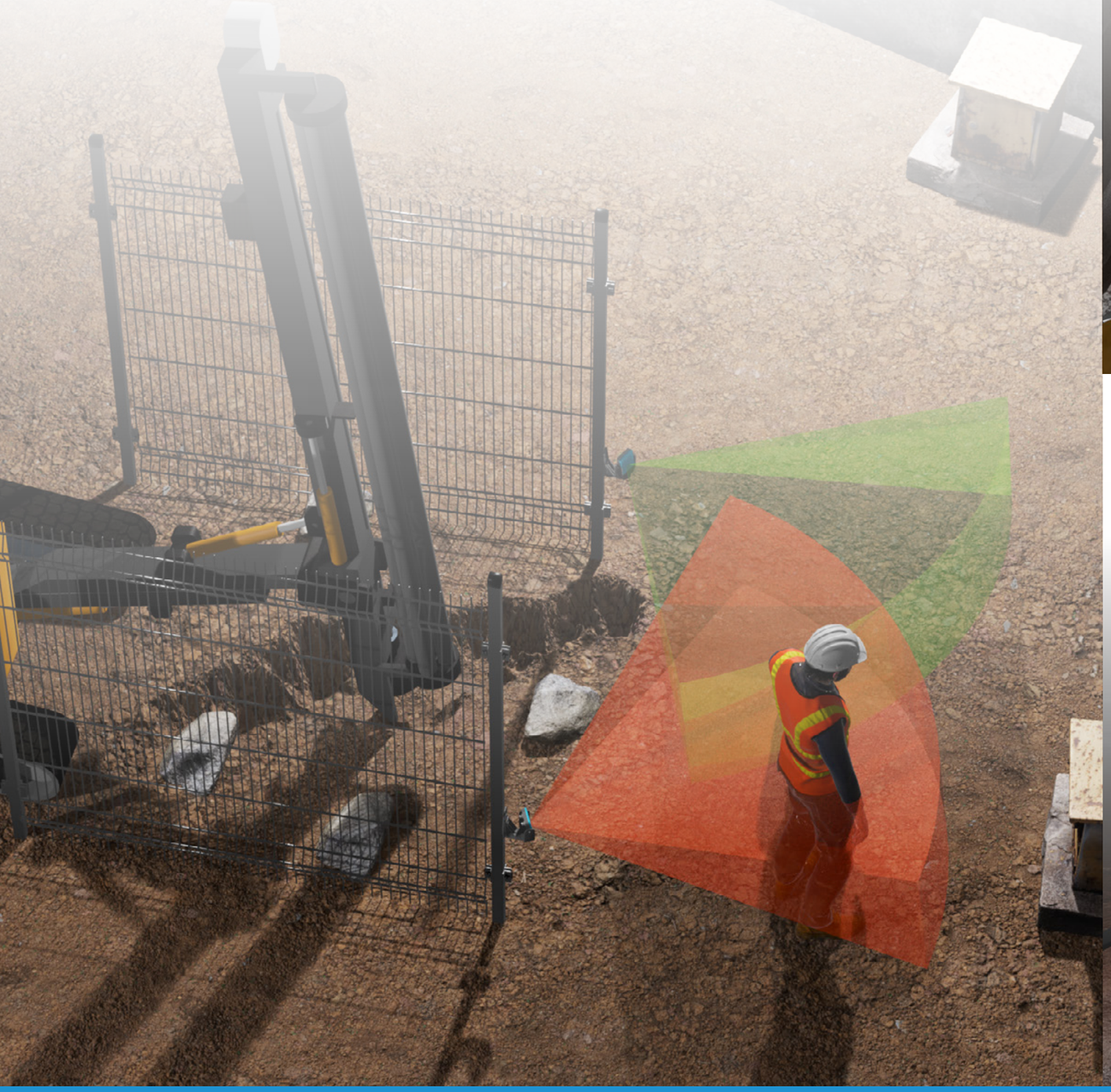
TEACH-IN SETUP ON INXPECT SAFETY STUDIO

The Teach-In function can be configured in the Inxpect Safety Studio software. By doing that, it is possible to set up the process **"on-field"** by configuring the parameters for the learning area and the digital input.

ACCESS DETECTION
SURFACE DRILLING

Our radar safety system is the ideal solution for drilling machines operating in harsh environments, offering exceptional robustness against dust and water.

Thanks to the radar, there is no need for a front cage, improving usability and operational efficiency without compromising safety. This allows easier access and a more streamlined workflow, ensuring maximum productivity in tough conditions.



ISOLATION AREAS
FOR MIXED FLEET ZONES

To prevent unauthorized access to areas where heavy mobile machines operate, Inxpect Safety radar sensors are used to monitor and secure these zones.

Their immunity to harsh environmental conditions, such as dust and water, makes them an ideal choice for mining applications.

ACCESS DETECTION
UNDERGROUND DRILLING

The Inxpect safety radar system provides a reliable solution for human detection in challenging environments. Dust-resistant radar sensors, strategically placed on either side of the rig, monitor up to 9 meters around the machine.

When an operator is detected, the system triggers an immediate alarm, stopping the drilling process and reducing the risk of accidents.

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