



AUTONOMOUS OUTDOOR VEHICLES INDUSTRY

Use cases brochure



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 PROTECTION

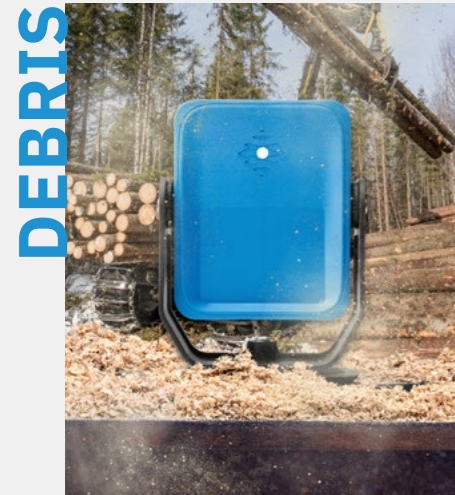
If the operator moves closer to the dangerous area, it places machinery in a safe state.



RESTART PREVENTION

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

RESISTANT TO DISTURBANCES

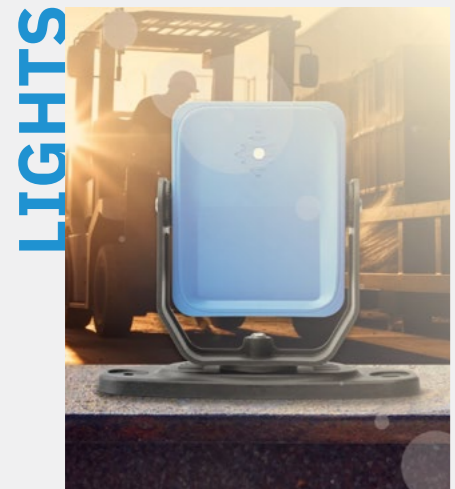


DEBRIS

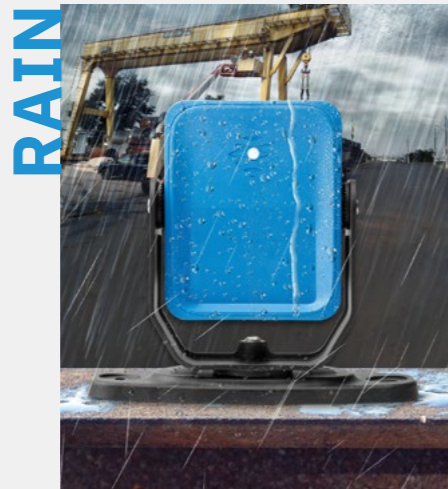
Inxpect Safety Radar Sensors are immune not only to **light, smoke, dust** and **debris**, but also to **rain** (rainfall rate up to 45 mm/h).



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



LIGHTS



RAIN



DUST

Sensors Range

FOV shapes

Up to **9m**
Range

4
Detection fields

4s
Restart timeout

Up to **4m/s**
Max target speed

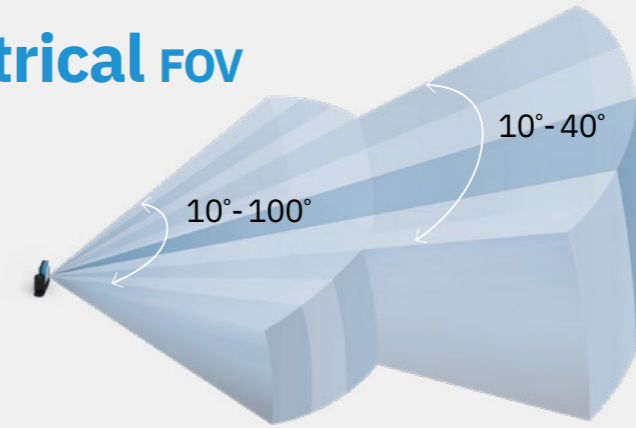
Adjustable angles

RCS
Selectable (for 9m range only)

Symmetrical fov

Available on:

- S201A
- S201A-MLR
- S201A-W
- S203A-W
- S201A-WL
- S203A-WL

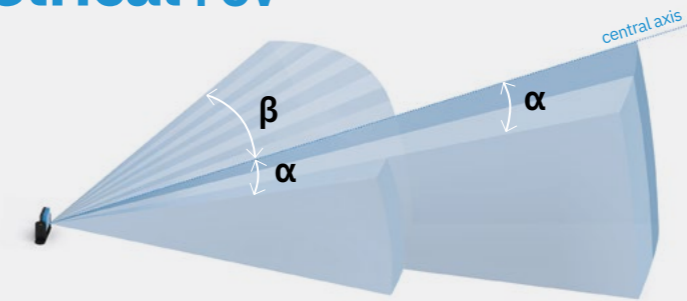


Freely adjustable angles:
Horizontal Plane: 10°-100° [0-5m]
10°-40° [5-9m]

Asymmetrical fov

Available on:

- S201A-W
- S203A-W
- S201A-WL
- S203A-WL



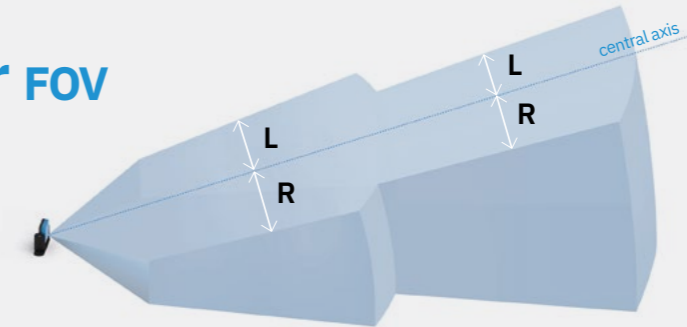
Freely adjustable angles:
Horizontal Plane: 10°-100° [0-5m]
10°-40° [5-9m]

α ≠ β
α: 0°-50° β: 0°-50° [0-5m]
α: 0°-20° β: 0°-20° [5-9m]

Corridor fov

Available on:

- S201A-W
- S203A-W
- S201A-WL
- S203A-WL

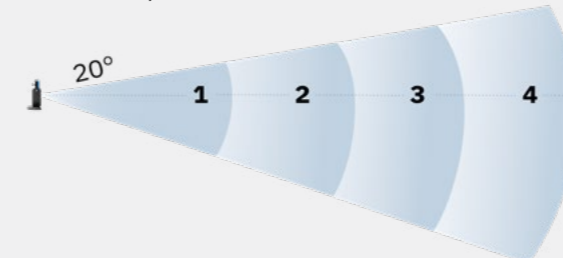


Freely adjustable widths:
Width: 20-800 cm [0-5m]
30-800 cm [5-9m]

L ≠ R
L: 0-400 cm R: 0-400 cm

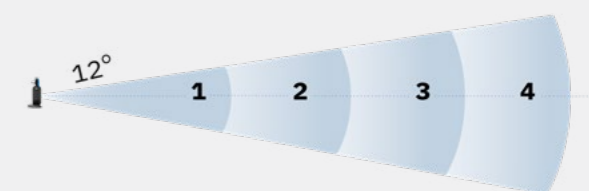
Vertical Plane: 20°

Available on: S201A, S201A-MLR, S201A-W, S201A-WL



Vertical Plane: 12°








Available on: S203A-W, S203A-WL



RADAR SENSORS

Technical specifications











		Vertical angular coverage	FOV	Max target speed	Min settable distance	Settable RCS
4M RANGE	 S101A	Wide 30° Narrow 15°	Symmetrical	1.6 m/s	1 m	-
	 S201A	20°	Symmetrical	2 m/s	0.5 m	-
5M RANGE	 S201A-W	20°	Advanced	2 m/s	0.2 m	-
	 S203A-W	12°	Advanced	2 m/s	0.2 m	-
	 S201A-MLR	20°	Symmetrical	4 m/s	0.5 m	✓
9M RANGE	 S201A-WL	20°	Advanced	4 m/s	0.2 m	✓
	 S203A-WL	12°	Advanced	4 m/s	0.2 m	✓

CONTROL UNITS

Technical specifications



	Fieldbus	Digital I/O	SD backup SD restore	Configuration	Dynamic setting of detection fields	
TYPE A	 C201A-PNS	PROFIsafe MODBUS	✓	-	Ethernet USB	Up to 32 configurations switchable in real time
	 C201A-F	FSoE MODBUS	✓	-	Ethernet USB	Up to 32 configurations switchable in real time
	 C202A	MODBUS	✓	-	Ethernet USB	Up to 8 configurations switchable in real time* <small>*from FW 2.0.0 onwards</small>
	 C203A	-	✓	-	USB	Up to 8 configurations switchable in real time* <small>*from FW 2.0.0 onwards</small>
TYPE B	 C201B-P	PROFIsafe MODBUS	✓	✓	Ethernet USB	Up to 32 configurations switchable in real time
	 C201B-F	FSoE MODBUS	✓	✓	Ethernet USB	Up to 32 configurations switchable in real time
	 C202B	MODBUS	✓	✓	Ethernet USB	Up to 8 configurations switchable in real time
	 C203B	-	✓	✓	USB	Up to 8 configurations switchable in real time



RUGGEDIZED INXPECT CONTROL UNITS

With IP67 protection the Ruggedized Inxpect Control Units are resistant to dirty and wet environments.

- Resistance to vibrations in accordance with:
- **IEC 60068-2-64** Fh (equipment in wheeled vehicles, Spectrum A.3)
 - **IEC/EN 61496-1:2020** (ground vehicle installations, 5M3)
 - **ISO 15003:2019** (agricultural machinery, L3)

Technical details:

Connectors	C201B-RP/-RF	C201B-R	C203B-R
Ethernet	✓		✓
USB			✓
Fieldbus	✓		
I/O & sensors	✓	✓	✓



C201B-RP/-RF

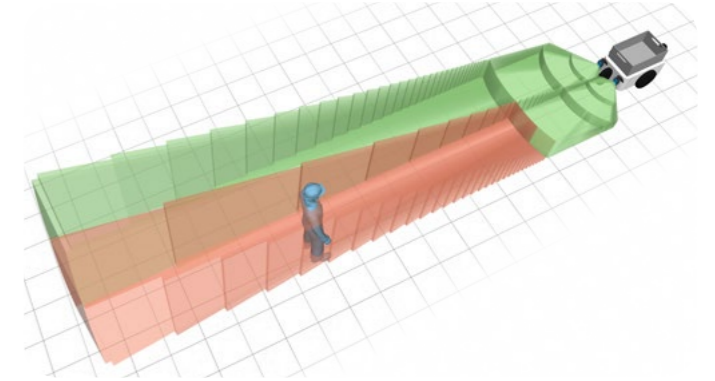
C202B-R

C203B-R

OUTDOOR MOBILE ROBOTS

Inxpect brings dynamic safety configurations to the AGV world. Inxpect 3D radars are ideal as anti-collision sensors: they're robust to dust, debris, smoke, rain and light reflections.

They are effective at detecting suspending loads, provide volumetric coverage and fit perfectly for indoor and outdoor applications.



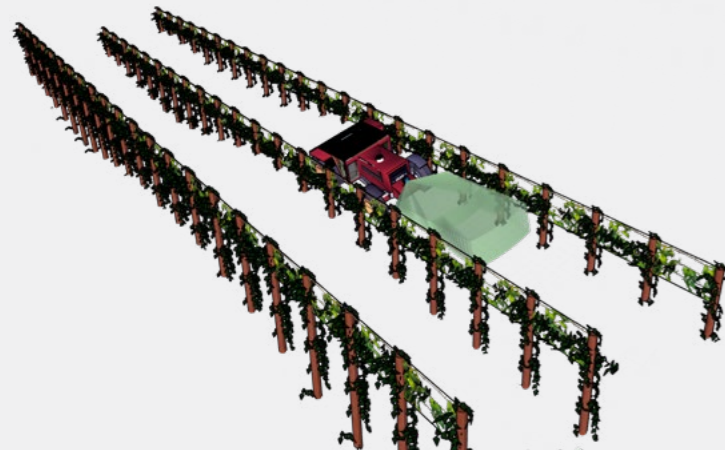
Product list:

Quantity	Products
1	C201A-PNS
2	S203A-WL
2	Cable
1	Bus terminator

AGRICULTURAL AUTONOMOUS MACHINERY

Inxpect safety radars enhance agricultural safety by detecting human presence and halting machinery to prevent accidents.

They can adjust the Radar Cross Section (RCS) value to meet specific customer needs, ensuring optimal performance in various agricultural settings.

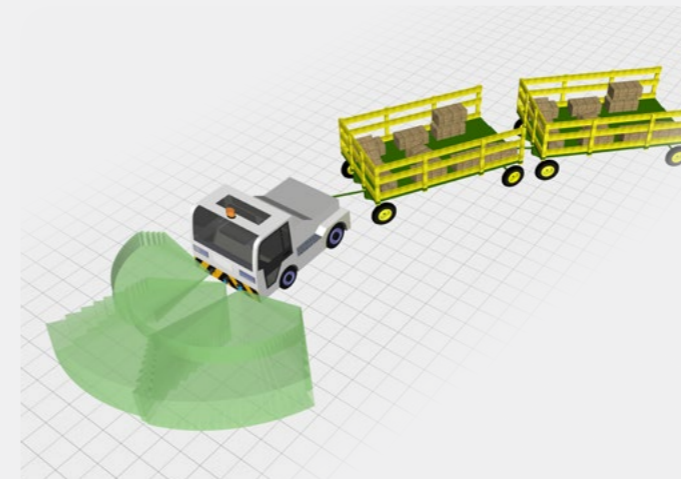


Product list:

Quantity	Products
1	C201B-RP
1	S203A-WL
1	Cable
1	Bus terminator

DRIVERLESS TOW TRACTOR

Lab tests have certified the robustness of the solution when used on strong vibrating equipment (e.g. agriculture, construction, drilling), and the immunity against harsh environment disturbances like rain, fog and any light conditions makes the radar sensor the perfect choice for outdoor applications.



Product list:

Quantity	Products
1	C203A
3	S203A-WL
3	Cables
1	Bus terminators



STANDARD ISO 3691-4:2023

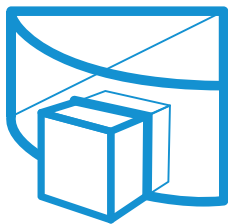
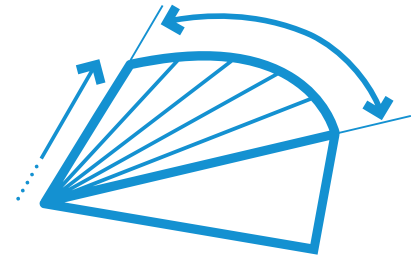
Safety Radar Equipment can be used as a personnel detection means to reach the compliance with the relevant requirements for the detection of persons in the path (par. 4.8.2) of ISO 3691-4, the ISO standard for Driverless industrial trucks (e.g AGV, AMR) and their systems.

FEATURES

Dynamic selectable configurations

The field of view is dynamically selectable both in distance and in horizontal aperture.

The perfect solution for complex safety applications, from mobile robots to advanced industrial automation.



Static Object Detection function

Inxpect Safety Radar Sensors are equipped with Static Object Detection option that, when enabled, can keep the machinery stopped as long as obstacles are present in the detection area.

This prevents the mobile robot from restarting when static objects are in the path.



Inxpect S.p.A.

Via Serpente, 91
25131 Brescia (IT)
T +390305785105
safety@inxpect.com
www.inxpect.com

Inxpect Deutschland GmbH

Am Holzacker, 29
D-91085 Weisendorf (DE)
T +4991357366926
hello@inxpect.de
www.inxpect.de

Inxpect Electronics Co., Ltd.

1303, No.111 Yinli Center Building,
South Youyi Road, Xiqing Economic and
Technological Development Zone, Tianjin (CN)
hello-china@inxpect.com
www.inxpect.com

Inxpect Ibérica SL

C/ Sant Josep 28, Les Franqueses del Vallès
08520 Barcelona (ES)
T +34935507946
info@inxpect.es
www.inxpect.es

Inxpect North America Corp.

10375 N. Baldev Court, Suite B
Milwaukee, Wisconsin 53092 (US)
T 4148587644
hello@inxpect.us
www.inxpect.us

