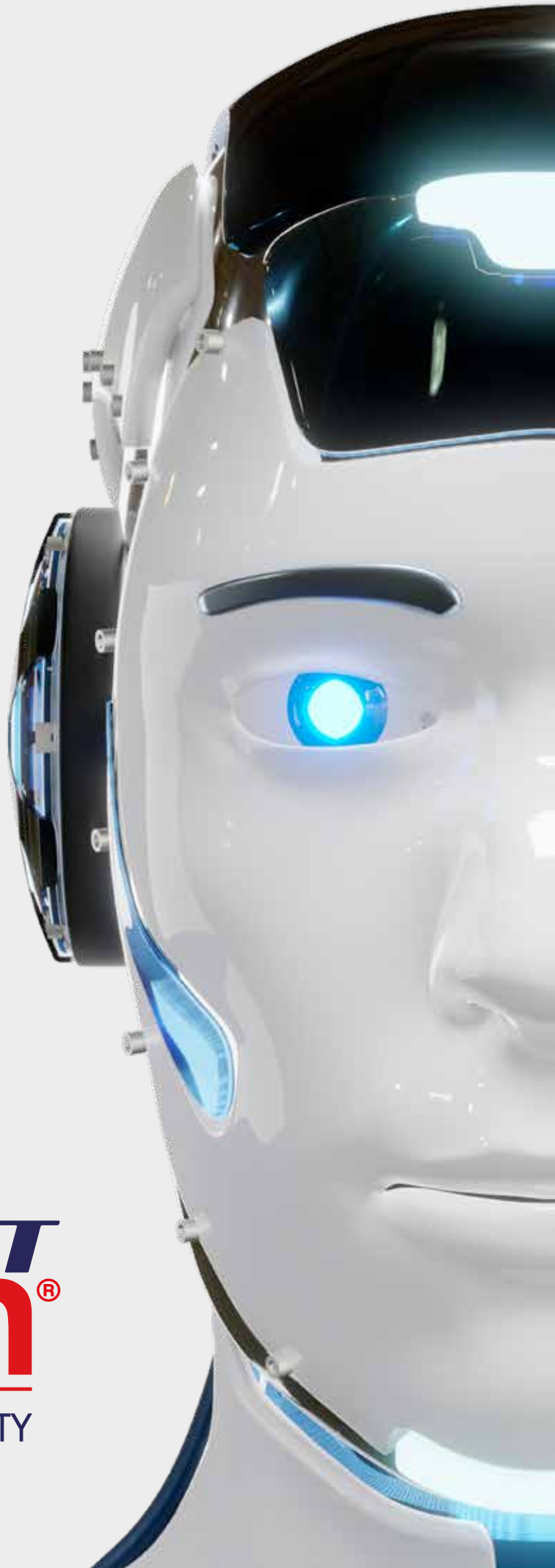


RIELLO ELETTRONICA



gamma  
system



**DIAT**  
**Vision**<sup>®</sup>

SYSTEM FUNCTIONALITY

SISTEMA BREVETTATO

# DIAT Vision®

## SYSTEM FUNCTIONALITY

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DIATVision® is a vision and control system that is used to monitor a specific working zone.

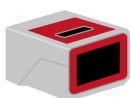
The system is capable of detecting the presence of masses (objects or persons) inside the monitored zone as well as defining, via the Artificial Intelligence, whether it is people or objects.

Inside the total surveyed area, it is possible to determine different zones (currently up to a maximum of 3) with different functioning features (i.e.: pre-alarm, alarm, block).

**Stereocamera**  
con cavo da 1,5 m  
IP 66



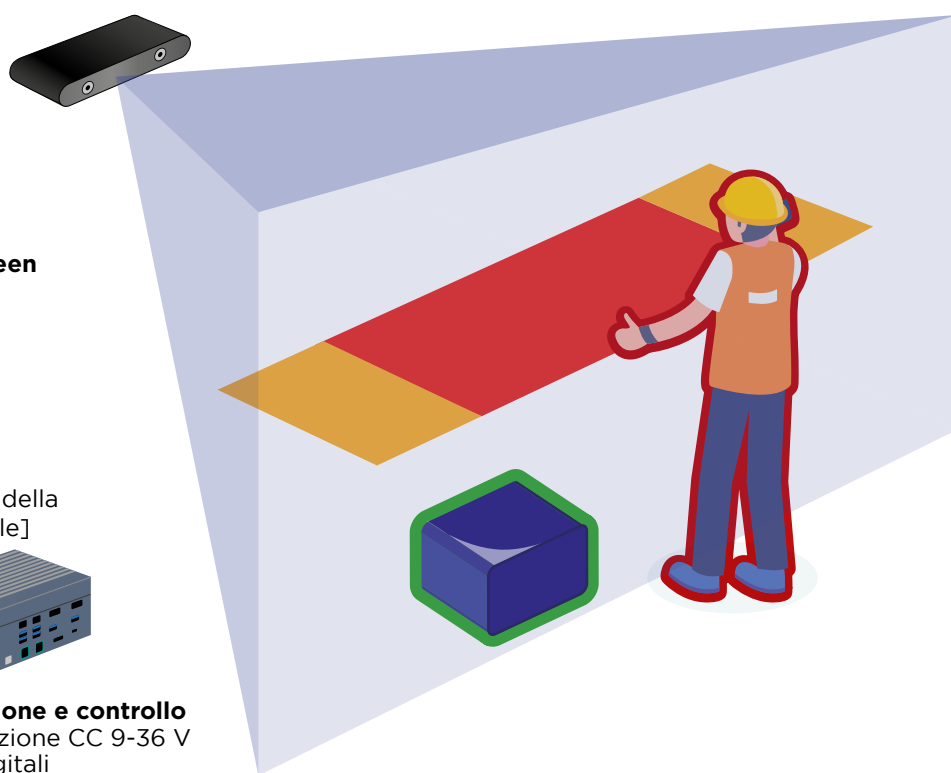
**Monitor touchscreen**  
[opzionale]



**Sensore ottico**  
per il rilevamento della  
distanza [opzionale]



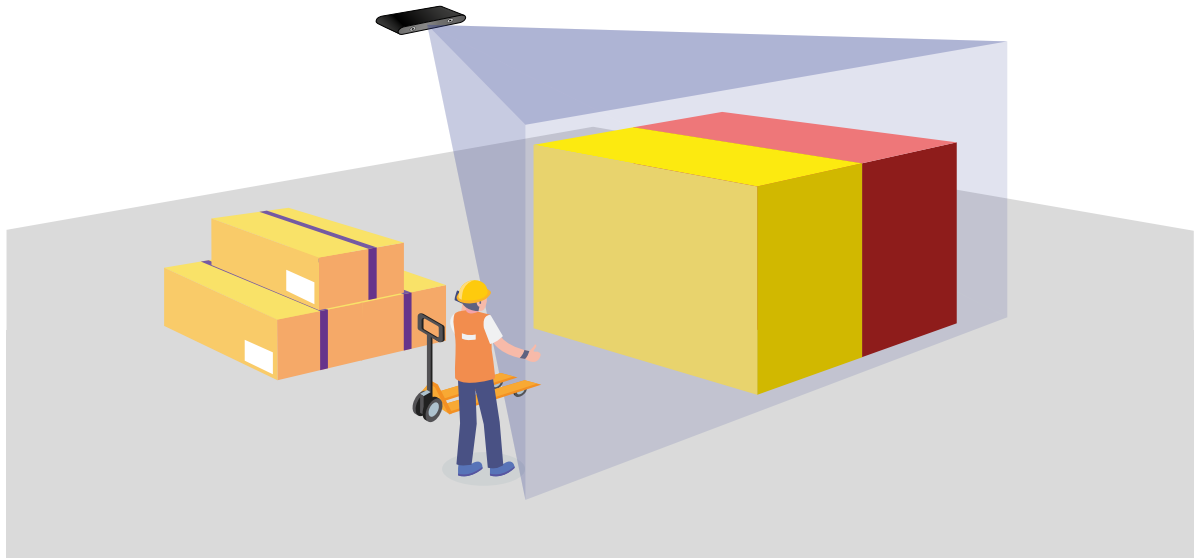
**Unità di elaborazione e controllo**  
Ingresso alimentazione CC 9-36 V  
Uscite statiche digitali  
Dimensioni: 190(L) x 210(P) x 80(H) mm



The system consists of one or more cameras (depending on the type of control or dimension of the area that must be monitored) for monitoring the area, and of one central unit (capable of managing up to 2 cameras) used to process the images and for defining the functioning (definition of the area or areas to monitor; operational features).

The adoption of auxiliary devices (eg : lasers, encoders, markers) allows modifying the depth of the monitored zones in a dynamic way (practically it is possible that the monitored zones modify according to the machine positioning). The selection of the type of the auxiliary device to use depends on the elements subject to surveillance, that is type, dimension, distance, speed of movement.

The camera is to be placed in front of the zone to be monitored, at a height and inclination determined by settings set by a configuration software which determines them on the base of the zone or the zones subject to monitoring.

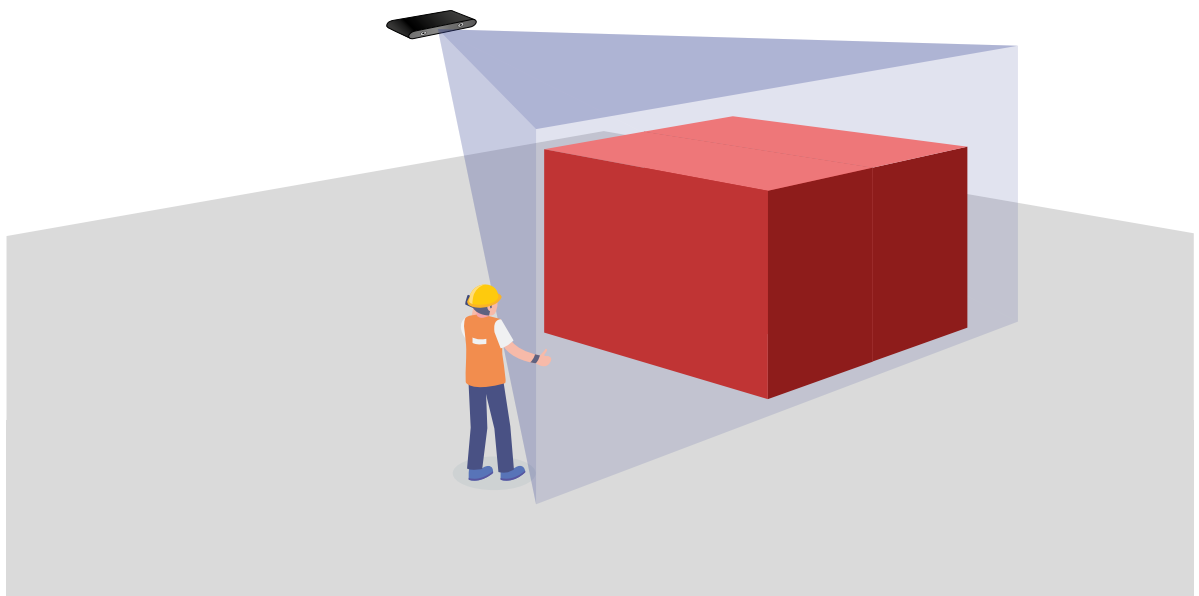


## THE AREAS CAN BE MONITORED ACCORDING TO THREE CONFIGURATIONS:

1

### ONE CENTRAL AREA

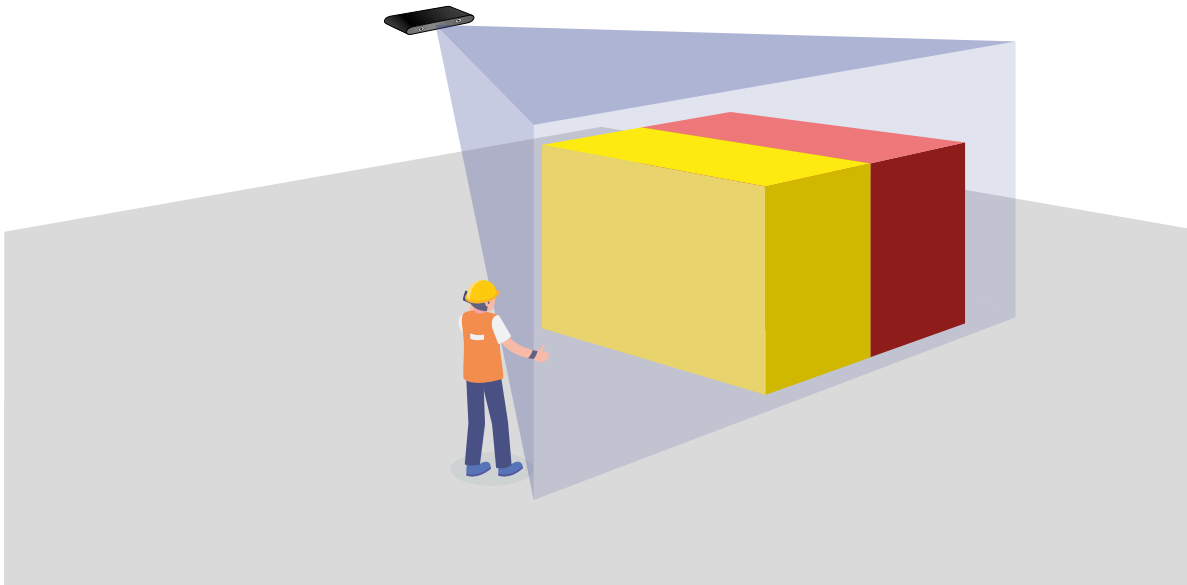
in front of the camera, symmetric to the central plan of the camera.



2

## TWO ZONES, LEFT AND RIGHT

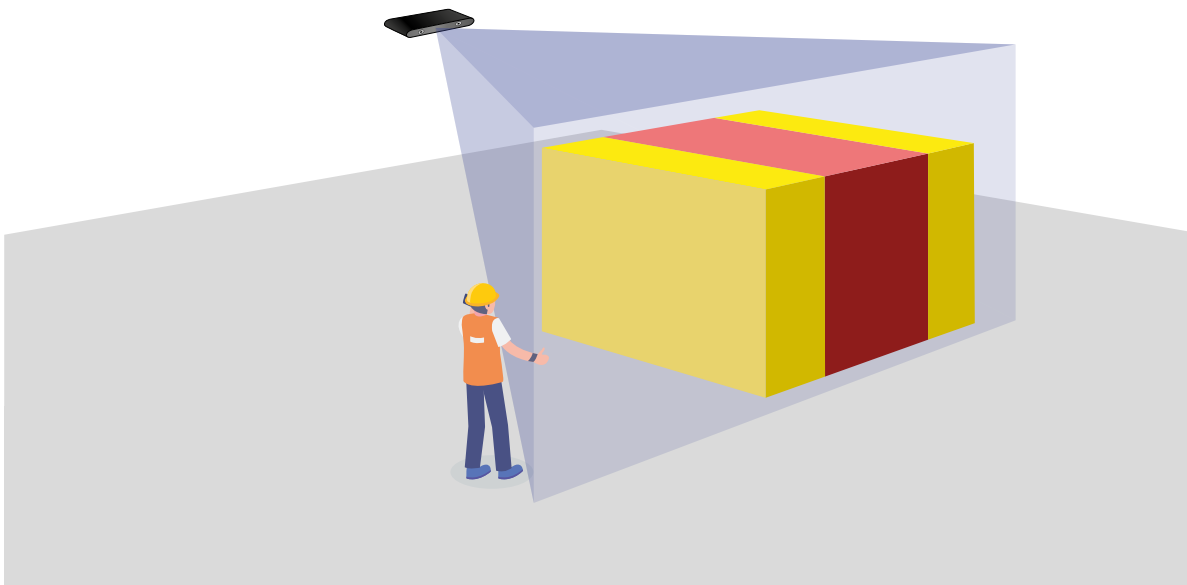
one of the zones potentially dynamic in depth (through an auxiliary device).



3

## THREE ZONES - ONE CENTRAL ZONE AND TWO SIDE ZONES (E.G.: CORRIDORS)

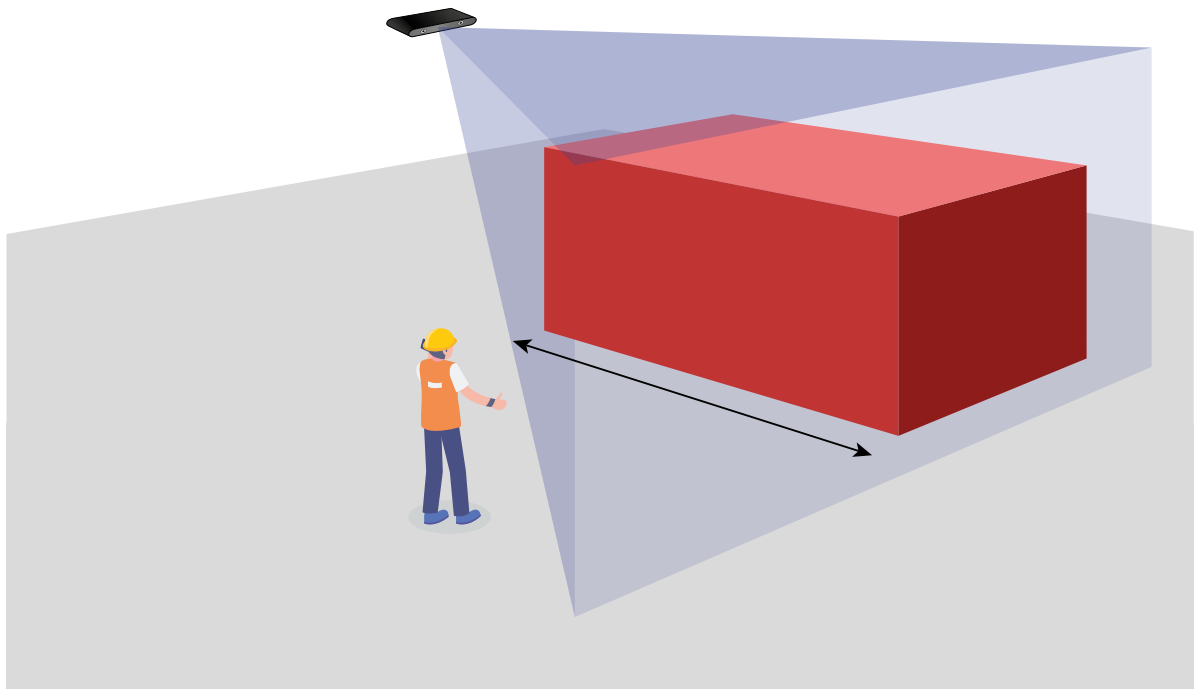
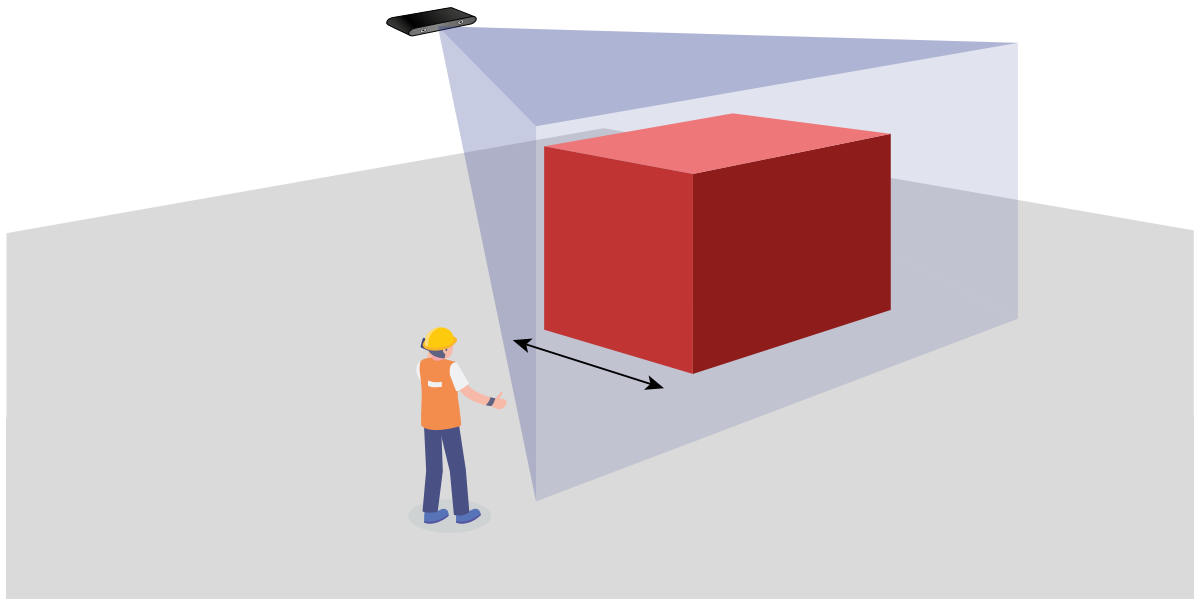
left side and right side of the central zone.



**MAXIMUM CONTROL HEIGHT: IS THE SAME FOR THE ENTIRE MONITORED ZONE, BUT DIFFERENT SETTINGS CAN BE CONFIGURED FOR EACH ZONE (CURRENTLY UP TO A MAXIMUM OF THREE ZONES), THAT IS**

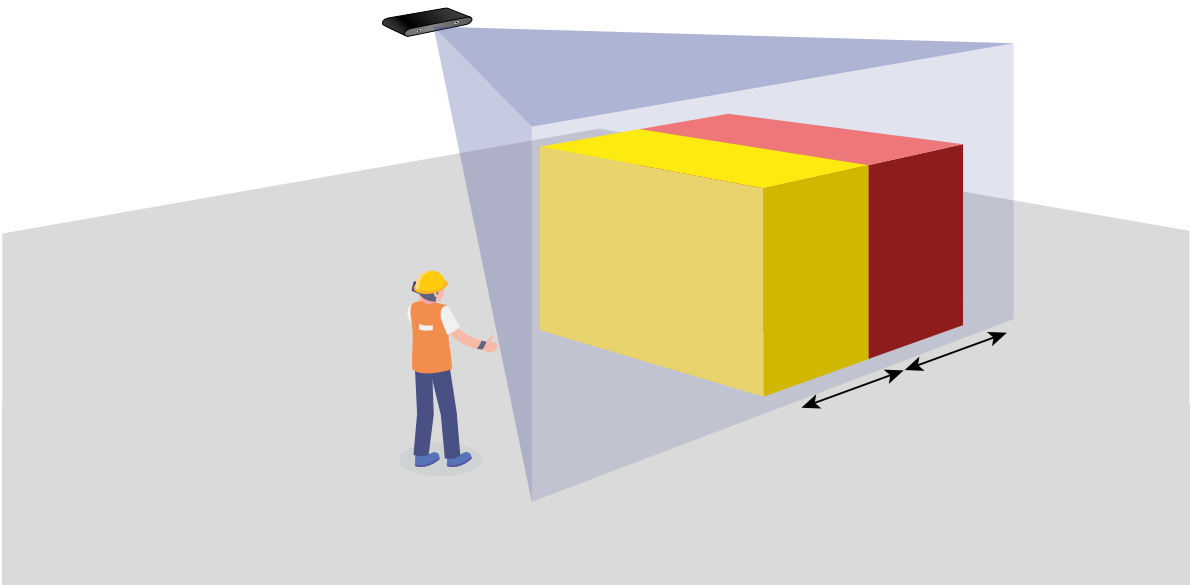
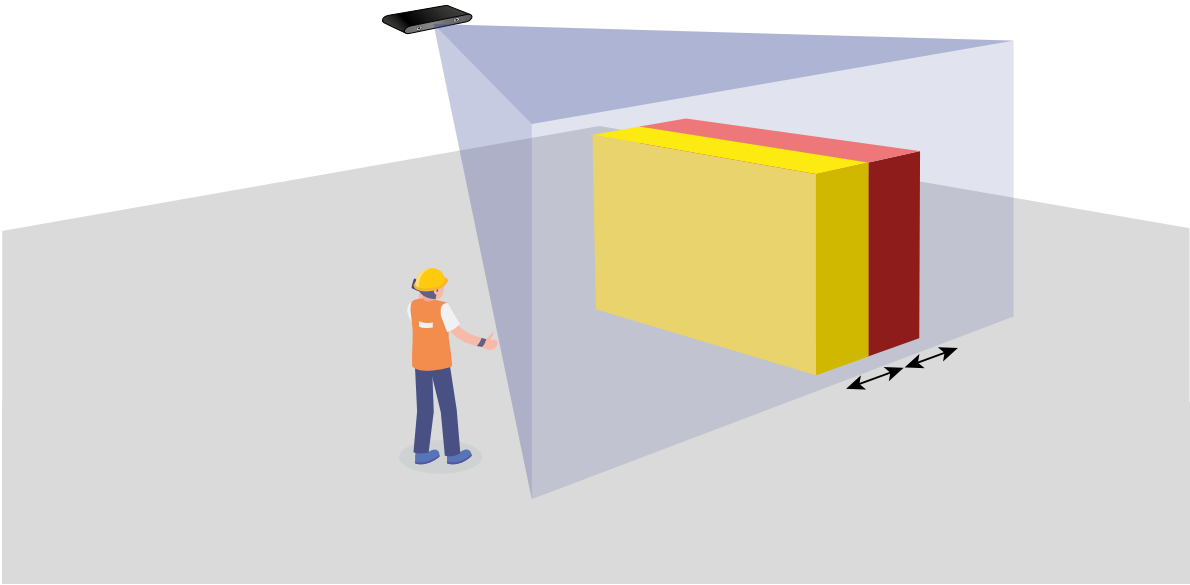
## DEPTH

Maximum distance from the camera.



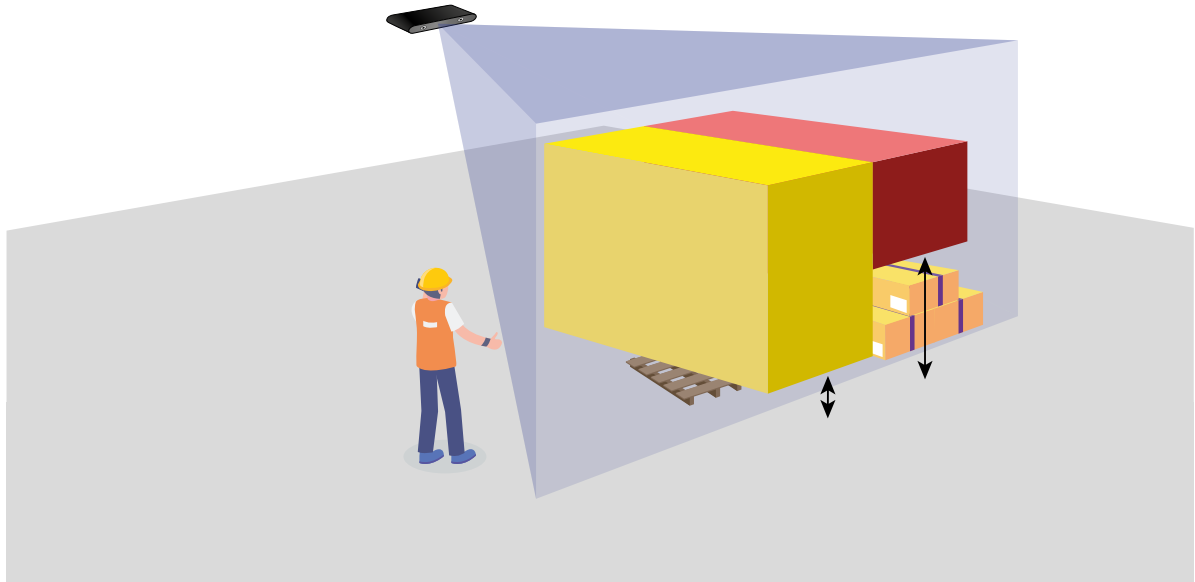
# WIDTH

symmetric to the plan of the central line of the camera, left and right side.



## MINIMUM HEIGHT FROM GROUND

can be configured separately for the central zone and the two side zones. This piece of information allows the user to plan thresholds from the ground to be excluded from monitoring for different needs (eg.: presence of pedalboards, fairleads, etc...)

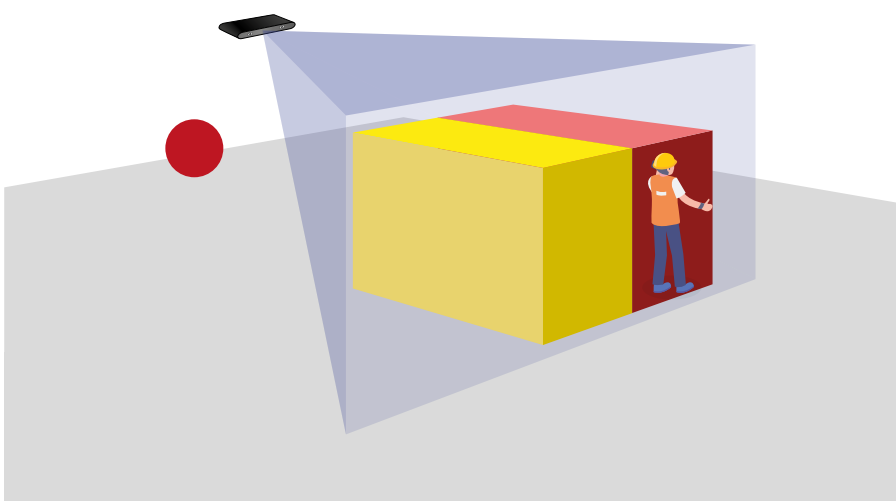
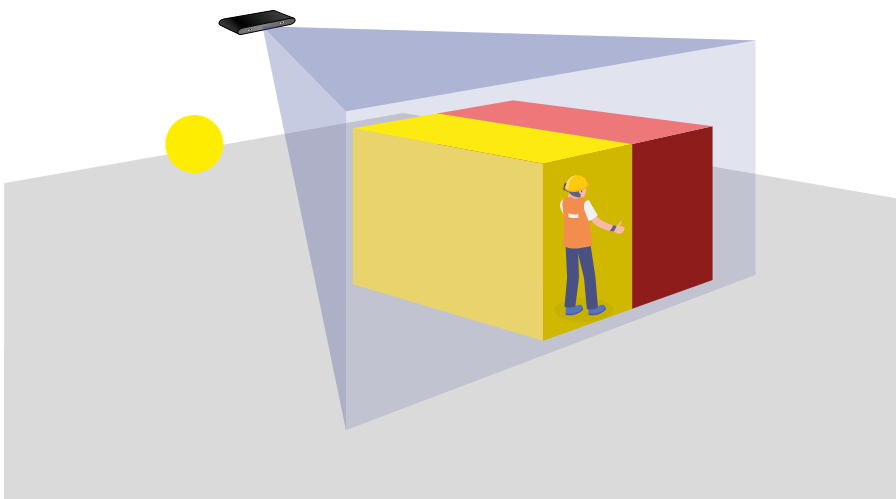
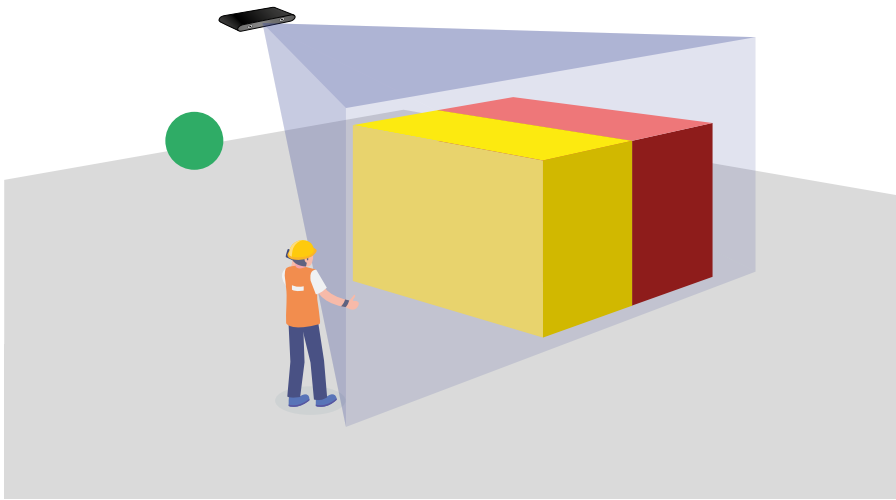


The possibility to divide the monitored zone in different zones and be capable of detecting the distance and positioning of special elements on the monitored “scene” allows adopting the DIATVision® solution in different fields.

- Industrial machines where there is a central element which moves along (e.g.: machines for woodworking)
- Robotic arms which move and “invade” first a zone and then another one.
- Logistic zones where there is the simultaneous presence of self-propelling robots and personnel who can get into each other’s way and slow down the production cycle.

Furthermore, the system is capable of detecting how many persons are present in the various monitored zones; this function allows being able to signal the presence of persons beyond a given threshold (configurable setting) as well as detecting whether an individual is simultaneously in two zones (central or side zone) or in one zone only (this function is useful for checking the anti-bypassing of industrial machines).

DIATVision® supplies a set of output signals (Fig.7-8-9) which the hosting system will process to take appropriate actions (slowing down and/or machine stop, acoustic alarms, etc...). These signals can be recognized according to the zone where the system detects an anomalous presence and according to the nature of detection (person or generic object).



Of course, the device manages any possible anomaly of the internal system but it is also capable of detecting if a camera has been tampered with (orientation and inclinations of the camera).



# TECHNICAL CHARACTERISTICS

<b>Minimum configuration</b>	<ul style="list-style-type: none"> <li>• 1 camera</li> <li>• 1 control unit</li> <li>• Power cord for control unit</li> <li>• Set of cables for connecting the camera (standard length)</li> </ul>
<b>Optional</b>	<ul style="list-style-type: none"> <li>• 1 adjustable rod for camera height and inclination</li> <li>• Set of cables for connecting the camera to the control unit (length greater than standard = 10 m.)</li> </ul>
<b>Physical installation settings</b>	Detection of height and inclination of the camera via software that makes use of settings such as application field, volume and number of zones to monitor, etc.
<b>Max visual field (FOV) (1 camera)</b>	110° x 70°
<b>Maximum / minimum area that can be monitored (1 camera)</b>	Width: up to 250 cm.(approx..) with camera positioned at 100 cm. from the monitored zone. Height: depending on the application - max 220 cm. Width: 50 cm. - 10 m.
<b>Number of monitored zones (max)</b>	3 (possibility of 1 dynamic zone as to the other ones with the adoption of an auxiliary device)
<b>Number of cameras that can be connected per control unit (max)</b>	2
<b>Response time</b>	≥ 220 ms
<b>Camera resolution</b>	720p
<b>Minimum dimension of the obstacle</b>	20 cm
<b>Maximum distance between camera and control unit (via USB cable 3.0)</b>	10 m
<b>Power supply</b>	9-36V (control unit)
<b>Working temperature</b>	Control unit: from 0 to 50°C Camera: From -10 to +45°C
<b>Degree of protection</b>	Camera: IP66
<b>Static outputs</b>	6 (per camera)
<b>I/O Interfaces</b>	Digital, static outputs

# CONTROL UNIT

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## Reference Standards

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<b>EMI</b>	CE & FCC class A (EN61000-6-4/-6-2)
<b>EMS</b>	IEC 61000-4-2 (ESD, contact: 34kV, air: 38kV w/ expansion) IEC 61000-4-3 (RS, 10V/m from 80-1000MHz, 3V/m from 1400-2000MHz, 1V/m from 2000-2700MHz, 1kHz sine wave, 80% AM) IEC 61000-4-4 (EFT, 32kV at 5KHz on power port, 31kV at 5KHz on signal port) IEC 61000-4-5 (Surge, 32kV line to earth CM on power port, 31kV line to earth CM on signal port) IEC 61000-4-6 (CS, 10Vrms with 1kHz sine wave, 80% AM from 0.15MHz-80MHz) IEC 61000-4-8 (power-frequency magnetic fields) IEC 61000-4-11 (voltage DIPs & voltage interruptions)

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# CAMERA

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<b>EMC directive</b> (2014/30/EC)	EN 55032/AC:2016 and EN 50561-1/AC :2015
<b>RoHS</b> (2011/65/EU)	EN IEC 61000-3-2:2019
<b>LVD</b> directive 2006/95/EC now 2014/35/EU	EN 61000-3-3:2014 EN 62368-1:2014

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# EXAMPLES OF APPLICATION

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**Analysis of corridors close to the production line** (automatic assembly lines, paper mills production lines) reporting the presence of obstacles (eg: plate-forms or boxes) or of operators moving dangerously close to the safety devices (safety mats, safety edges, safety barriers).

**Supervision of automated logistic zones** reporting in advance the presence of things or persons and thus avoiding the useless activation of robots/AGV protections and improving the working time.

**Verification of the presence of personnel inside the robotized zones** during the setting phases with the exact count of persons who take turns in the various operating zones (check-in and check-out).

**Verification of zones close to operating machines** that move with a pendulum motion (right/left) by modulating the zone of detection according to the machine positioning.

**Checking that** before entering a working zone, **all personnel wear the required personal protective equipment.**

**Checking that persons cannot climb over** or stay close to dangerous zones.

**Control /Surveillance of dangerous zones** where heavy machines are moving and various operators are present (zones for goods loading/unloading or zones where heavy charges are handled).



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