

## OVERHEAD CRANE GROUND CLEARANCE ACCIDENT PREVENTION FOR APPLICATION IN HEAVY INDUSTRIES

### About PreAcc:

PreAcc specialises in professional safety consulting services & technological solution design, as well as the development of safety solution technologies for heavy industries, heavy construction, quarry and mining operations, shipyards, ports/terminals, offshore rigs etc.

The core of PreAcc high technology solutions regarding accident prevention:

- To limit false and annoying alerts such that the real alerts are NOT ignored by workers.

- To alert and protect workers and pedestrians.

- Prevent collision with dangerous obstacles and between cranes

- Integration with machine operation

## THE GOAL OF DIAZ-OC WORKER'S SAFETY

Overhead cranes pose a threat to persons working below them, more specifically under the load carried by the overhead crane as well as from the top of the crane falling loose objects.

These areas are danger zones and of high risk. The worker when present in such danger zone must be alerted so he can quickly move away when overhead crane passes over.

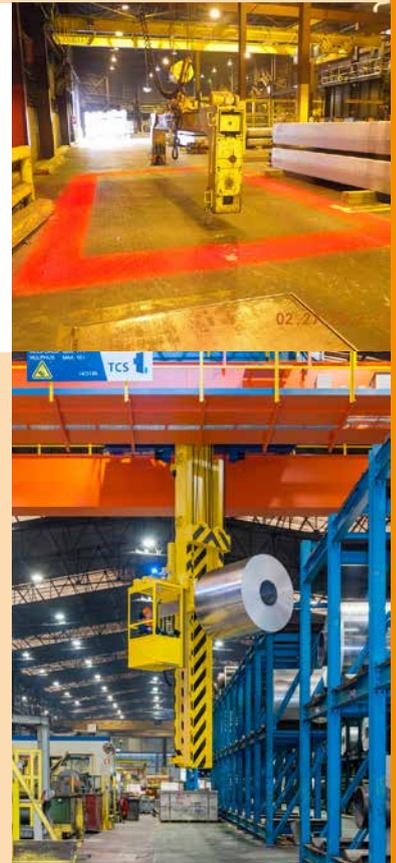
### NOT ENOUGH!! LIGHT AND AUDIBLE ALARMS:

Overhead Crane Warning lights reflecting on the ground underneath a crane e.g. is a method of alerting workers, however might lead to workers ignoring such light when they are always "ON"

Audible alarms are frequently "drowned out" and ignored as workers get used to the beeping sound or just not heard because of the high level of machine noises. Furthermore, audible alarms lack precision as per the exact location of the danger which causes many false alarms.

### ADDED VALUE AND FLEXIBILITY: PREACC TECHNOLOGY

- Worker's exact position relative to the danger zone can be identified when wearing a beacon.
- Collisions with dangerous objects could be prevented when a beacon is placed on such object, as well as prevention of collisions between cranes.
- Workers can also wear a bracelet (PA-bracelet) and can then be personally alerted by a strong vibrating action on his wrist. This in addition to the alert spot lights on the floor and flash light mounted on machines.
- Workers active on machines such as a lathe, fraise or workbench could be alarmed via a flash light or LED strip mounted on workbench and/or associated machine, this in addition to their vibrating bracelet.
- Ground light and/or LED strips and/or spot lights to signal pathways and risk zone access controls.



### UNIQUE AND FLEXIBILITY:

The PreAcc system (high precision EM/RF sensor) projects a danger zone under the crane and / or under the load. Every location is different, the size of the danger zones depend a.o. the type of crane, height of the crane, the load, environment, site complications, hidden areas, multi-storey structures, operations activities, etc.

The PreAcc technology can comply with such specific local demands and could be programmed in the PreAcc system to generate maximum efficiency and safety. The PreAcc high precision EM/RF sensors are mounted on top of the crane

Worker's exact position relative to the danger zone can be identified when wearing an industry standard beacon. Also dangerous objects could be protected when a beacon is placed on such object.

Workers can wear a wireless bracelet (PA-bracelet) and can then be personally alerted by a strong vibrating action on his wrist

Gateway alerts:

Various methods of most efficient alerts adapted to the site situations. Covered safe workzones in production halls e.g workshop in a container, removable office cabin, machine shop organisation and structures with pathways, doors etc. People when stepping out of such safe zones should be alerted by e.g. a rotating flash/light or a curtain of vertical blue lights when the crane / load is above such safe workzone,



### INTERFACES:

#### - Interface with the lightning system , warning lights:

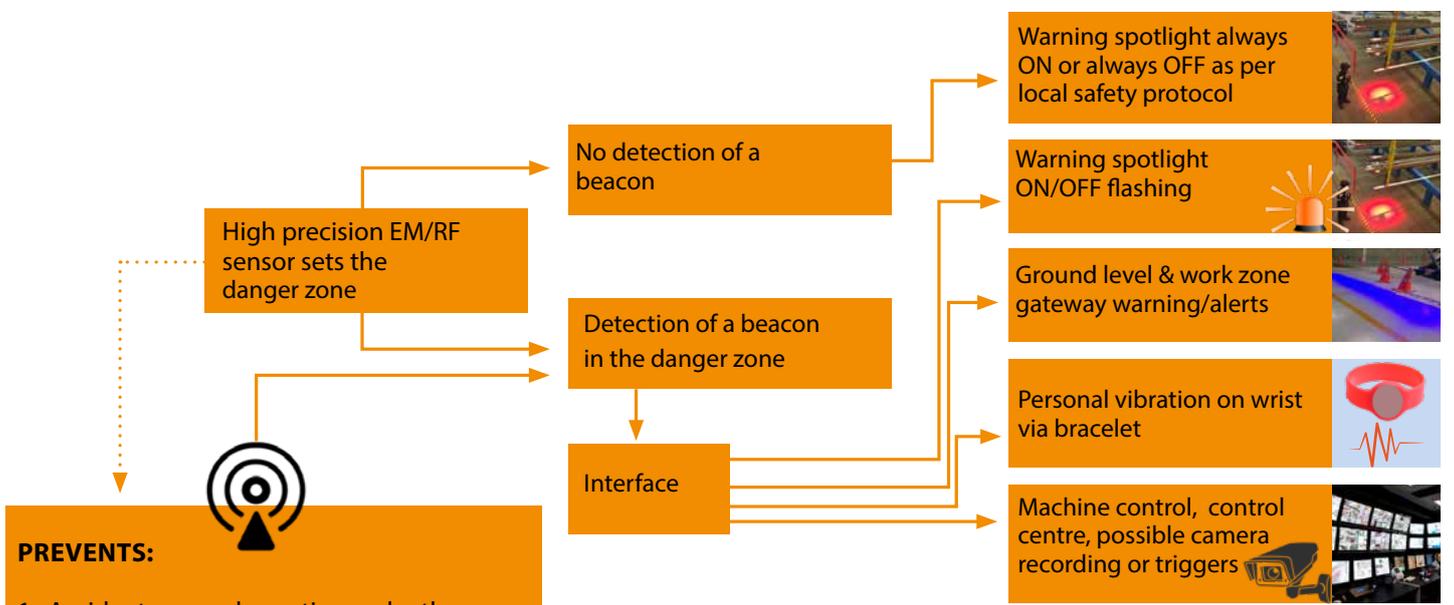
Enable the spots to start flashing "on/off", changing light colours which provide extra alerts

#### - Interface with the PreAcc transmitter

Activate groundfloor alerts such as flashlights, bracelet, etc.

#### - Interface with other units

For example with the controls that drive the crane, camera systems, recording systems etc.



**PREVENTS:**

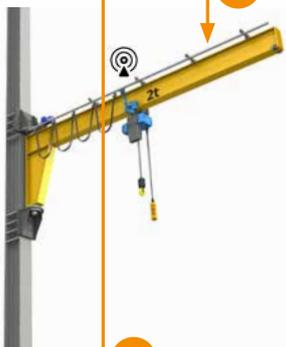
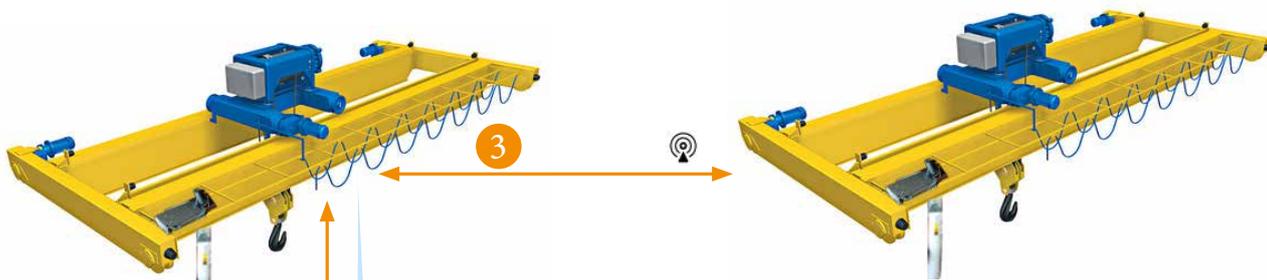
1. Accidents: a worker active under the load or crane
2. Accidents: a worker active at a workstation under the load or crane
3. Collision between overhead cranes
4. Collision between overhead crane and floor or wall mounted cranes
5. Collision between crane or load with dangerous objects
6. Accidents: a person stepping out of a covered area (roof) in a production hall like a cabin, office or workplace

**PREACC IS COMPLIANT TO THE FOLLOWING :**

The PreAcc solution will not interfere with WiFi , Blue tooth or other RFID devices in the vicinity nor will these devices interfere with the PreAcc system.

**EM DETAILS:**

- MIDAL: Multiband Industrial Detection and Localisation Technology.
- High precision EM/RF sensor: ISM bandwidths, ultra low energy beacons, 100 to 1.000 less than class-3 blue-tooth.
- Specially designed antenna's: Standard setting covers a distance (from the top of the crane) of maximum 35 meter to determine the danger zone.



**DIAZ-OC HIGHLIGHTS**

PreAcc's technology is designed to work in heavy industries, to work from high overhead cranes in harsh and poor visibility conditions including in excessive steam. The unique PreAcc detection technology is essential for good detection precision, limiting false alerts/warnings and is not restricted by:

- High position of the detection devices from the ground
- Heat, hot water vapour,
- A lot of metal around (building structure, raw material, large factory machines and equipment) and in some cases, hot moving steel.
- Weather related factors (fog, rain, snow, sunlight), dust and mud because of the adapted non-interference EM field generation.
- Adapted danger zone size specific to the industry's safety needs; linear (long rectangle) shape to cover entire width of the overhead crane or square shape to cover area immediately below the overhead crane load.



[www.preacc.net](http://www.preacc.net)



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