HeliTacker

Transpoder tracker system for Helipad/airfield

Aerolighting
Switzerland

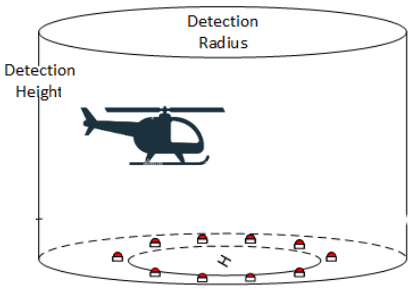
SUMMARY

Product summary:

This system is intended to automatically switch on the lighting system. The system is constantly monitoring all transponders emitting near the helipad. When an aircraft/helicopter is detected into the defined zone of the helipad, the lighting system will automatically switch on.

Detection

The HeliTacker is constantly running and receiving all transponder information sent per aircraft and helicopters in the coverage zone. Depending on the position of the antenna and the filed topology, transponder information can be received up to 100 km.

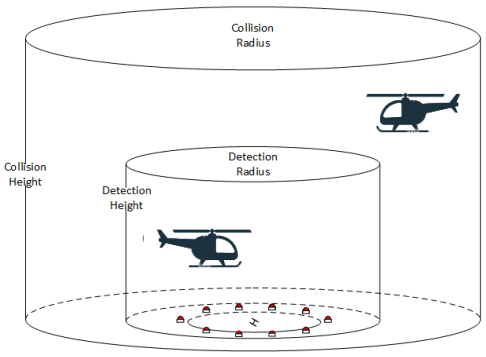


The HeliTracker allow to easily set up the detection radius and altitude. This virtual cylinder will represent the 3-dimensional zone where the aircraft/helicopter will switch the lighting system ON.

Transponder dataset of each aircraft will be demodulated and decoded. If an aircraft enters in the detection zone, the output will toggle to ON. This aircraft will be tracked until it has landed or leave the detection zone.

Simultaneous Traffic Detection

A second zone called “collision zone” represent a second detection cylinder. This zone allows to switch ON a second output. It allows to detect if two aircraft/helicopter are present at the same time into the same airspace. This output can be used for example to visually inform the approaching pilots that a second traffic has been detected by connecting a flashing beacon to this output.



The “detection zone” and the “collision zone” are working independently of each other. The “collision zone” can be set inside or outside the detection zone. The “collision zone” can be, for example used to monitor a second zone.

Transponder Filtering

Each transponder responds to a single address. This address is factory programed into the transponder of the aircraft/helicopter and will never change. It results that an aircraft/helicopter can be easily identified by the HeliTracker.

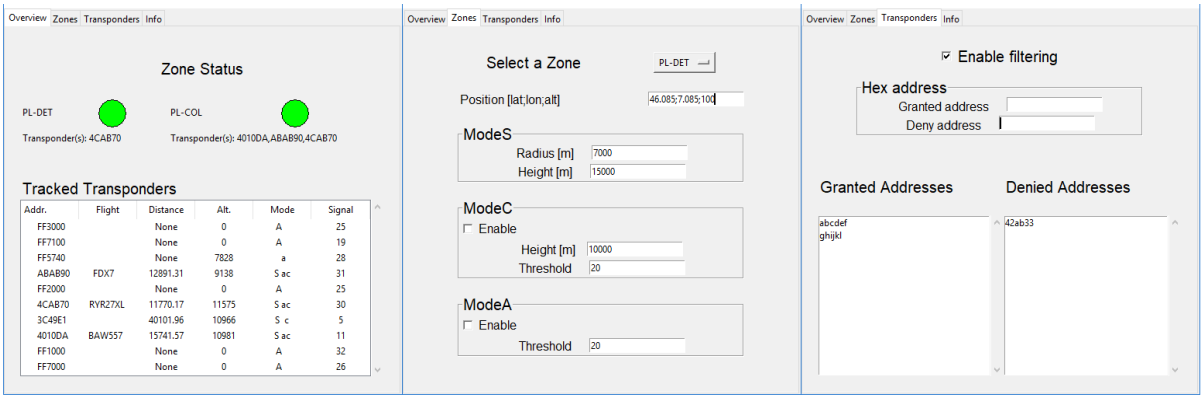
Based on the uniqueness of each transponder address, the HeliTacker allow to define advanced filtering setting. These filtering options can be optionally activated using the graphical user interface.

Two modes of filtering can be activated:

The inclusive mode: The HeliTracker will only operate (switch ON/OFF) with datasets received from aircraft/helicopter with address set into the “granted addresses” list. If an aircraft will enter in the detection zone, but the address of his transponder is not matching the list, the output will not switch

If no address is inserted into the list. The inclusive filtering mode is deactivated.

The exclusive mode: The HeliTracker will operate (switch ON/OFF) with all transponder, only transponder address listed into the “denied address list” will be omitted.



ADS-B OUT?

All aircraft/helicopter are equipped with a mode-S transponder. But not all mode-S transponders are equipped with ADS-B OUT functionality. The ADS-B out will allow the transponder to broadcast the position of the aircraft. If this information is not transmitted directly by the transponder, the HeliTracker will estimate the distance between the aircraft and the HeliTracker by measuring the power level of the received signal.

This mode can be activated or deactivated by using the graphical user interface. The user can set the power level limit to switch on the system.

Transponder/aircraft not equipped with ADS-B out functionality will considerably reduce the precision of the HeliTracker detection and increase the number of wrong detection.

TECHNICAL DESCRIPTION:

Mechanical characteristics:

Design	Aluminum case with touch screen (approx.: 300x200x60mm)
Delivered material:	HeliTacker main computer – antenna with 20m cable – power supply
Supply Voltage:	110-240 Vac
Power:	20W (standby)
Output:	1 relay for each zone Detection zone: NO relay (max 500mA @ 230V) Collision zone: NO relay (max 500mA @ 230V)
Connection	Power supply, antenna, outputs