

How to set up a TagMaster Long Range RFID Reader



INSTALLATION GUIDE

About this guide

This guide gives a few examples of how to position a TagMaster RFID Reader, ensuring maximum performance, with the purpose of opening a gate or a barrier. It will also give a brief insight of how a Long-Range RFID Reader works. Please note that Reader performance will vary depending on the placement of the Reader, the Tag and technical specifications of the vehicle's windshield. For more information, see Installation Guide for TagMaster Windshield Tag (last section in this guide).

How a Long-Range RFID Reader works

Before explaining how to position the Long-Range RFID system, it is useful to know how the system works in general. The Reader (antenna) emits energy/radio waves in a particular direction. When a passive Tag (IsoCard, Iso Combi Card, headlight or windshield Tag) receives this energy, a small chip within the Tag is powered. When enough power is collected, the Tag transmits a signal. This whole process takes a fraction of a second and repeats continuously as long as the Tag receives power from the antenna. The process is directional, which means that the tag and reader must face each other. The more aligned the Reader and the Tag are, the better performance (read range).

Flashlight and mirror

Think of a flashlight sending out light towards a mirror. The Reader is the flashlight and the Tag is the mirror. In a Long-Range RFID solution, the mirror has to point in such a direction that the light is reflected back towards the flashlight.

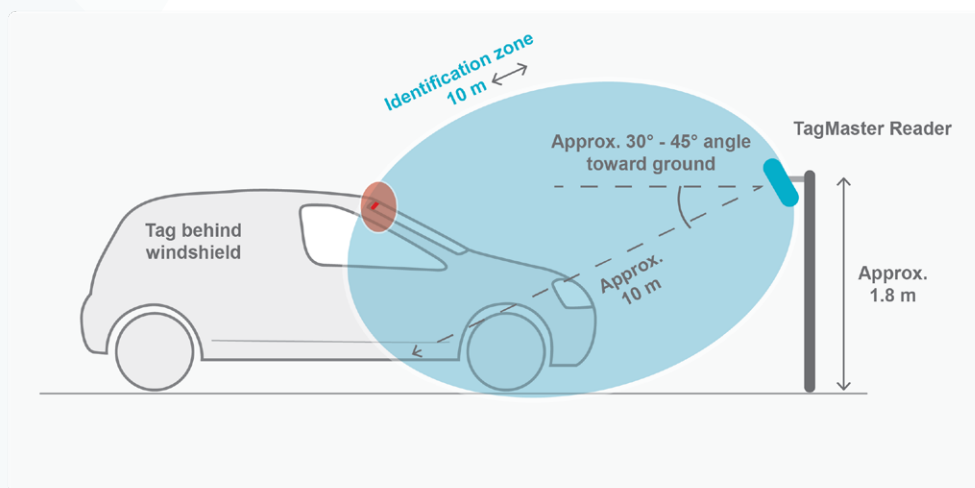
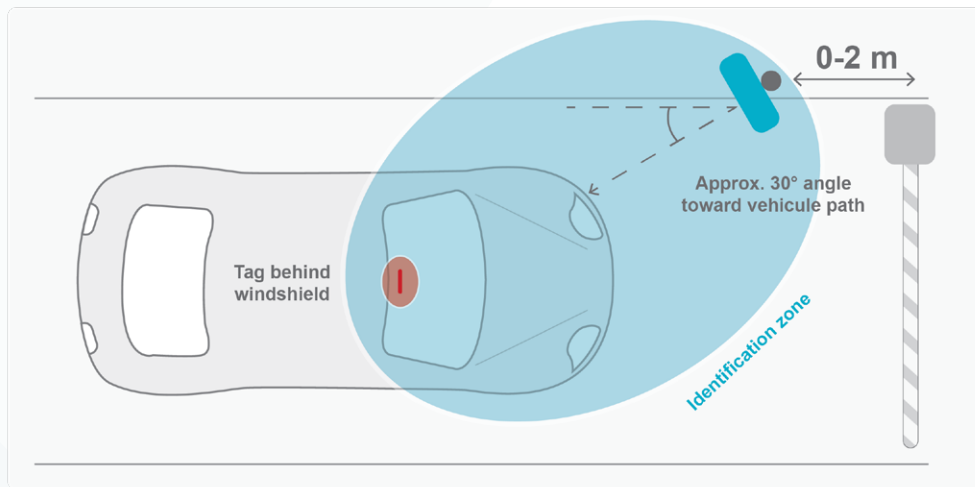
When installing the Long-Range Reader, be aware of the energy bouncing off the Tag. Are the components aligned? Where will the energy go? Will most of it bounce back towards the Reader, or will it bounce up into the sky?

The angle between Tag and Reader makes a big difference when installing vehicular Long-Range RFID solution. Try to direct the Reader directly towards the point where most vehicles will have the Tag, normally the windshield or the headlight glass.

A low mounted reader might have difficulties reading windshield tags. A high mounted Reader might have trouble with headlight Tags. headlight Tags work well with a low mounted reader, placed a bit higher than the approaching headlights. Windshield Tags require high mounted readers.

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How to position a Reader on the side of a barrier or gate using windshield tags



How to position the reader:

Distance from barrier: Approximately 2m before barrier if possible, on a pole or similar close to the road. The identification zone will reach the vehicle earlier during the approach and open the barrier a bit sooner to give the vehicle a smoother passage.

Height: approx. 1,8m.

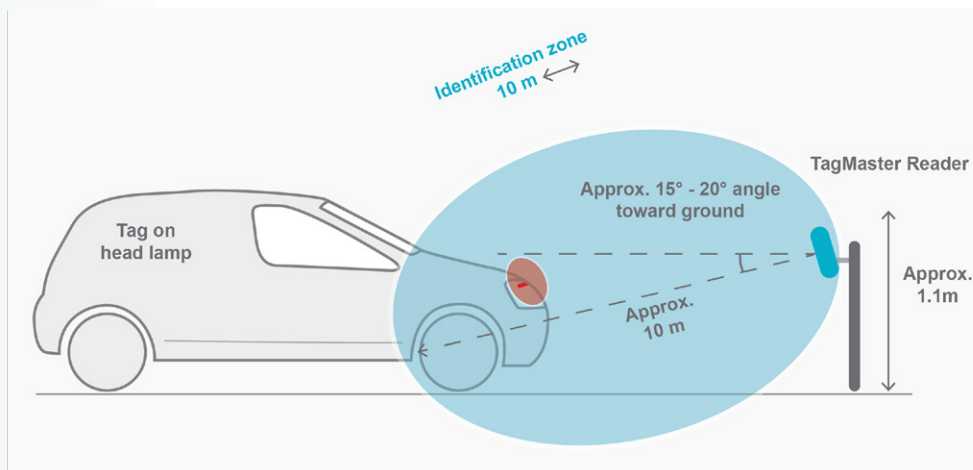
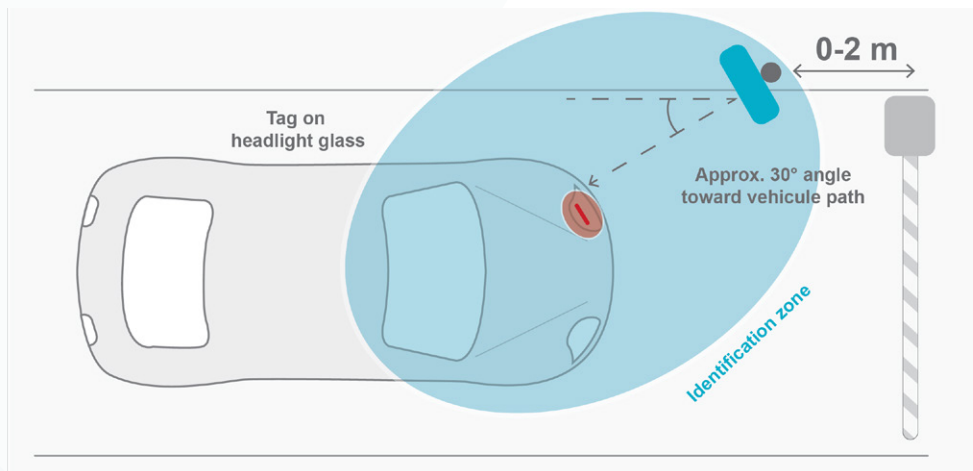
Orientation: 30° to 45° towards the ground,
20° - 30° towards the vehicle's path.

Readers: XT Mini, XT-1, XT-5.

Tags: ISO Card, ISO Combi Card,
Windshield Tag.

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How to position a Reader on the side of a barrier or gate using headlight tag



How to position the reader:

Distance from barrier: Approximately 2m before barrier if possible, on a pole or similar close to the road. The identification zone will reach the vehicle earlier during the approach and open the barrier a bit sooner to give the vehicle a smoother passage.

Height: approx. 1,0 - 1,2 m.

Orientation: 15° to 20° towards the ground,
30° towards the vehicle's path.

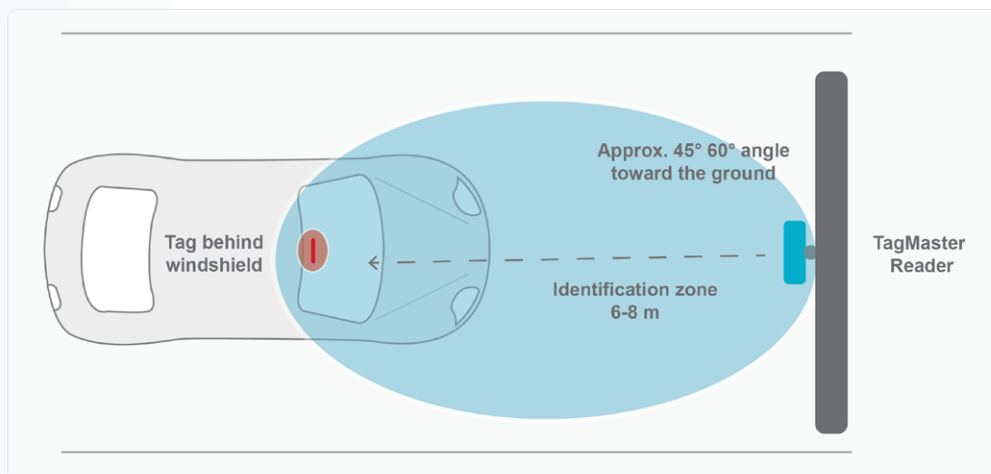
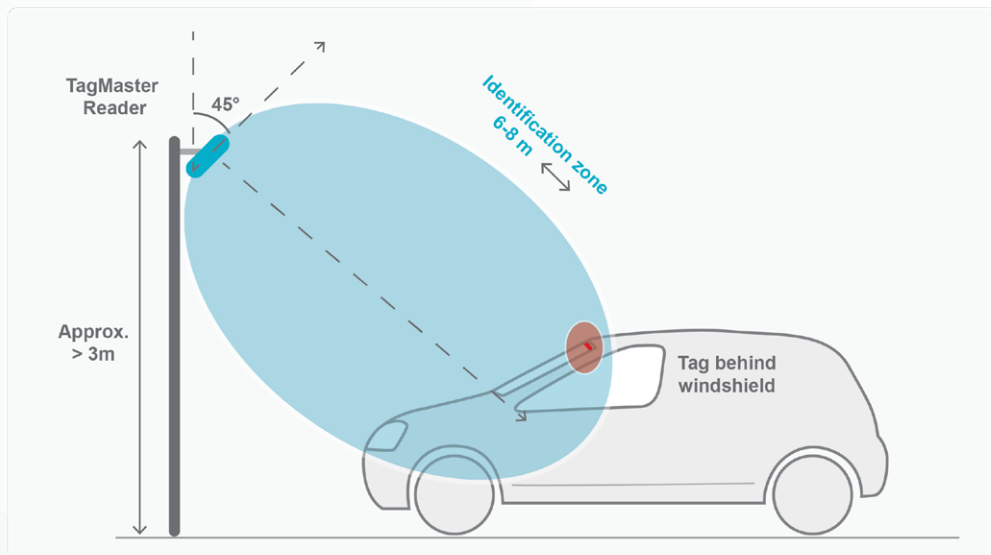
Orientation: 10° to 15° towards the ground,
30° towards the vehicle's path.

Readers: XT Mini, XT-1, XT-5.

Tags: Headlight Tag, product no: 227000.

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How to position a Reader **above** an entrance or gate



How to position the reader:

Distance from ground level to Reader: 2,5 – 3m.

Position: Centred above the entrance or gate.

Angle: Reader pointing towards the ground at an **45° - 60°** angle.

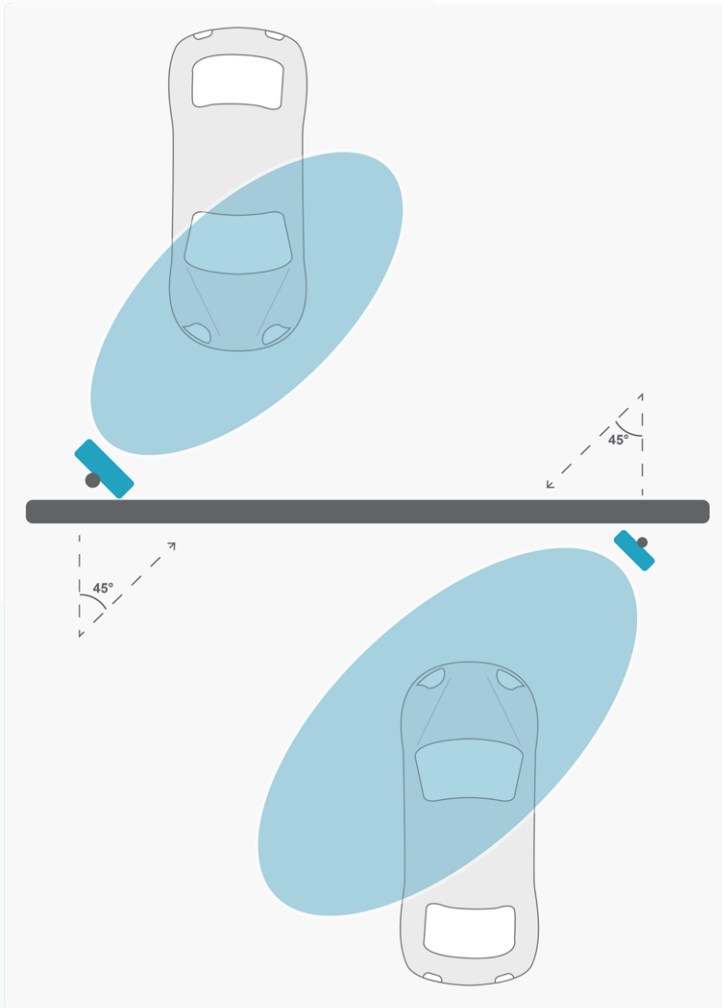
Height: **approx. > 3 m.**

Readers: XT Mini, XT-1, XT-5.

Tags: ISO Card, ISO Combi Card, Windshield Tag.

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How to position Readers on both sides of a gate or barrier



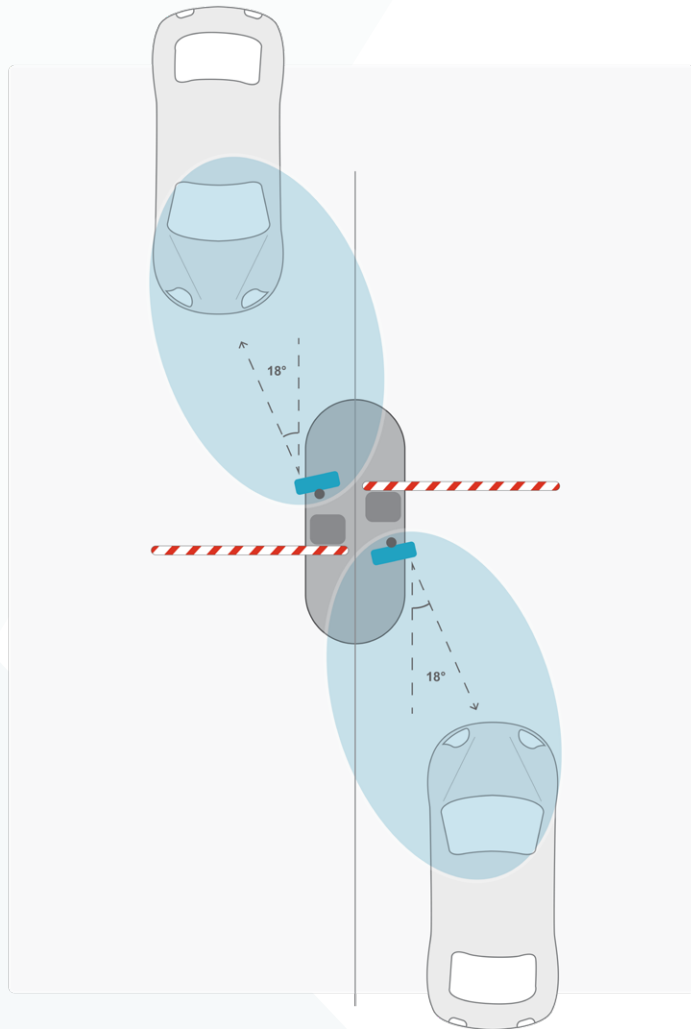
How to position the reader:

Position: Place the reader on the right side of the gate (right-hand traffic).

Angle: 30° - 45° towards the vehicle's path.

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Set up for centrally positioned Readers and road barriers



How to position the reader:

Position: Centrally positioned readers and road barriers.

Position one reader in each direction..

Angle: 15° - 20° towards the vehicle's path

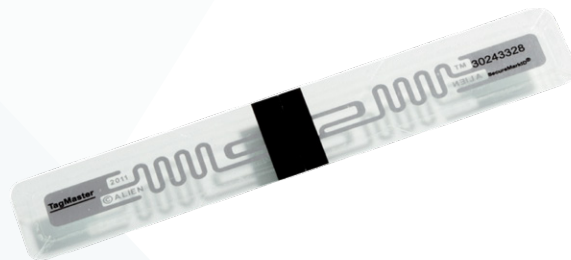
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Additional installation guides



Windshield Tag :

link : <https://www.tagmaster.com/traffic-solutions/rfid/windshield-tag/>



Headlight Tag :

link : <https://www.tagmaster.com/traffic-solutions/rfid/headlight-tag/>