

Using the uPASS TARGET Antenna

The uPASS Target Antenna is an external antenna for the uPASS Target reader that can be used to expand the reading scope of the uPASS Target reader in a cost efficient way. Two basic applications are presented here:

1. Supporting the combination of a vehicle entry and exit
2. Extending the reading scope at complex vehicle access gates or other situations where the reading scope may need expansion

Introduction

The uPASS Target is a high-end UHF RFID reader that identifies vehicles and people at up to 10 metres. A built-in antenna is included as standard in the uPASS Target. However, an external antenna can optionally be connected to the uPASS Target for certain applications and conditions.

When to use the external antenna

The external antenna can be used to expand the reading capability of a reader while still using a single interface with the connected 3rd party management system.

- ▶ No extra communication and power cabling is needed. The reader will switch between the internal to the external antennas. The reader and external antenna are connected using a specific 3-metre RF cable, which is provided with the antenna.
- ▶ It is cost efficient, as it avoids the need to purchase two readers.

When to use a second uPASS Target reader instead of an external antenna

- ▶ Where the cabling distance between the reader and external antenna is greater than 3 metres
- ▶ Where it is necessary to identify the detecting antenna to the connected third-party system but the connected third-party system is not able to process the antenna designator information, e.g. if only Wiegand communication is supported.
- ▶ Where LED indication is mandatory. Currently the external antenna does not have LED indication.

Additional remarks

- ▶ The installation and set-up procedures for the external antenna are described in the uPASS Target Install Guide.
- ▶ The uPASS Target output message will specify whether the tag was read by the integrated reader or the external antenna.
- ▶ Available communication interfaces supporting this external antenna indication in its communication frames are:

- RS485 / RS422
- Ethernet

- ▶ The ID message identifies which antenna has identified the tag:

ID message: [<PREF>] [80 <AC> <PH> <RSSI>] [<EL>] [<EPC>] [<DL>] [<DATA>] [<SUFF>] CR LF

Where: AC >= 40 , indicates reading by external antenna, and AC < 40 indicates reading by internal antenna.

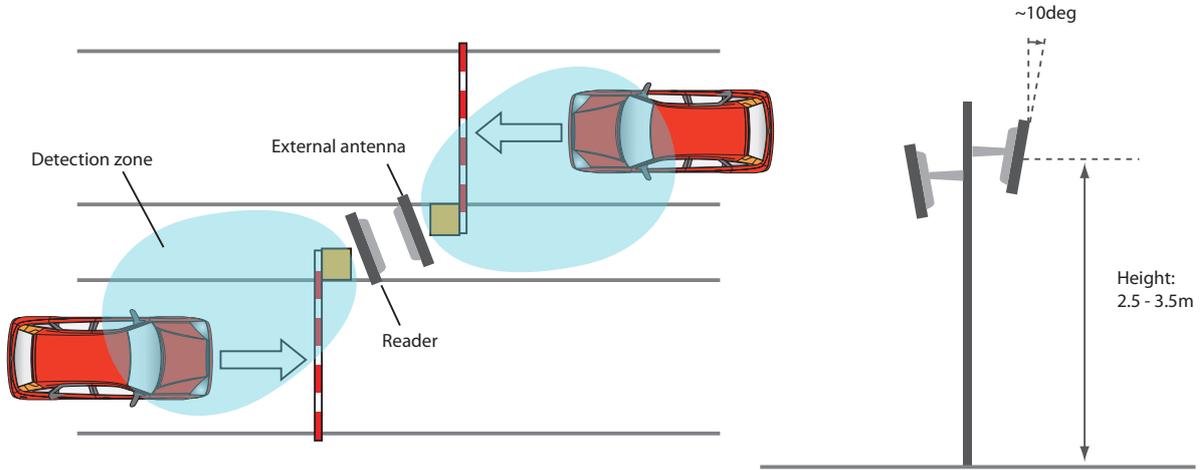
- ▶ Wiegand and C&D outputs (e.g. Wiegand 26) do not support external antenna indication.
- ▶ LED indication is only available on the Reader. If a valid tag is detected in "LED mode: automatic" on the external antenna, then the 'SMILEY' LED indicator on the reader indicates green. This option can be disabled.

For any application where you believe that the standard read range of the uPASS Target is not sufficient, or if you need to be able to identify vehicles at a very high speed, then please contact the Nortech support team on technical@nortechcontrol.com for advice.

Application 1: Back-to-Back

For single lane IN/OUT applications, a single reader and a connected external antenna can provide a viable solution.

Install the antenna and reader close to each other, using the supplied RF cable or your own limited length cable. The reading lobe of the uPASS Target is relatively wide. To position the readers back-to-back, you will need to find the best angle to optimise the read range while minimising the possibility of cross-reads. Please refer to the illustrations below for guidance.



The optimal height for installing both the reader and the external antenna is approximately 3 metres. Please make sure reader and antenna are tilted downwards slightly for optimum reading performance. Adjust power output settings to limit the read range when needed.

Application 2: Extra Wide Range

Connecting an external antenna to the reader offers the ability to expand the read-range. A variety of situations or applications may require you to widen the area in which vehicles or other objects can be identified. If a large or odd-shaped detection area is required, the external antenna can be used.

The optimal height for installing both the reader and the external antenna is approximately 3 metres. Please make sure the reader and antenna are tilted downwards slightly for optimum reading performance. Adjust power output settings to limit the read range when needed.

Two examples of potential setups are shown below. Please keep the reading lobe in mind when figuring out the best reader and antenna position for your specific application.

