

RAIN RFID Antenna Selection Quick Reference Guide

Transport, Logistics & Supply Chain Series

Tap-and-go



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Times-7 designs and manufactures high-performance RAIN RFID antennas that deliver trusted accuracy, reliability, and RF excellence.

Headquartered in New Zealand and supported by a global distribution network, our products power mission-critical applications across retail, healthcare, logistics, manufacturing, and beyond.



Times-7 is a proud member of the RAIN RFID Alliance and an active participant in global industry events.

Fixed RAIN RFID Read Points in Transport, Logistics and Supply Chain



RAIN RFID readpoints underpin every stage of the modern supply chain: from the first tag read at a packing station to the final scan at a delivery bay. Our antennas are deployed across the full chain: at dock doors, on conveyors, inside tunnel readers, at yard gates, in cold stores, and on forklifts. Each installation type has a different combination of read zone requirements, environmental conditions, and mounting constraints. Our range is built to address all of them.

Whether you are tracking pallets at a distribution centre dock door, individual items on a sortation conveyor, or vehicles moving through a yard gate, the fundamental requirement is the same: a read that is reliable, repeatable, and defined, catching what it should catch and ignoring what it should not. We design our antennas from the ground up for these environments, with the gain, beam shape, environmental rating, and mounting flexibility to make every readpoint perform as intended.

Our range covers fixed and mobile installations (such as moving vehicles), item-level and pallet-level tracking, indoor and outdoor deployment, and environments from controlled ambient warehouses to freezer stores, outdoor yards, and food production wash-down areas. If you are specifying a readpoint or reviewing an existing installation that is not performing, the guidance below will help you identify the right antenna for the job.

How to use this guide

For tap-and-go applications, we recommend three antennas from our range: the A1001, A1115 and A5020NF. Each suits a different combination of mounting position, environmental exposure, and read zone control.

We have also included a general guidance section on page 7 for possible antenna configurations. If you have questions regarding antenna selection and antenna placement, our engineering team are available to provide technical support.

Recommended Cold Chain/ Cold Storage Antennas

See pages 4 for guidance on selecting the right antenna for your application, then **pages 5-6** for full specifications, key features, and customer benefits for each of our three recommended cold chain antennas.

Note: The read point design will specify the number of antennas, mounting requirements and accessories.

How to Select the Right Antenna

The right antenna for a supply chain application is determined by four factors working together.

01 Environment Rating

How exposed is the bay? Covered indoor bays need **IP54** as a minimum. Outdoor and exposed bays require **IP67** (temporary immersion up to 1 m, 30 min). Bays subject to high-pressure wash-downs, extreme humidity, or chemically aggressive environments, such as food production, cold stores, mining, require **IP68**, which covers prolonged immersion and sustained moisture.

02 Mounting Position

Mounting position determines beam direction and read-zone shape. **Overhead mounts** read downward into the bay opening, suited to consistent pallet heights and forklift paths. **Side mounts** read horizontally across the bay width. **Floor/embedded mounts** read upward through the pallet base, useful where overhead clearance is limited or where a discreet, in-floor read point is required.

03 Installation Constraints

Customer-facing or aesthetic environments, retail distribution centres, food distribution all favour compact, unobtrusive form factors. **Cable routing, backplates** for easy mounting, and **connector type** all affect deployment time for large rollouts.

04 Read Zone Control

How tightly must the read zone be contained? Adjacent bays, nearby inventory, and crossing forklifts all create false-read risk. The tighter the physical environment, the more important it is to choose an antenna whose **beam pattern and gain** minimise reads outside the intended zone. **The read distance is another critical factor that controls the read zone**, with **far-field** for mid to long distance reads, and **near-field** for close range on surface reads.

05 Asset Types and Tag Orientation

Circular polarisation handles randomly oriented tags reliably, making it the standard choice for dock doors, conveyors, and portals. **Linear polarisation** is better suited to controlled-orientation applications where the tag is always presented at the same angle.



Antennas for tap-and-go applications

Tap-and-go RFID applications depend on a tightly controlled read zone, ensuring the intended item, badge, or tag is captured without unwanted reads from nearby objects. The antennas showcased below are designed for precise, close-range performance across applications from compact kiosks and benchtop stations to outdoor access-control and industrial environments. With options for ultra-compact installations, orientation-independent reading, and fully sealed outdoor use, the range makes it easier to match the antenna footprint and durability to the application while maintaining reliable, repeatable reads.



A1001

When to use:

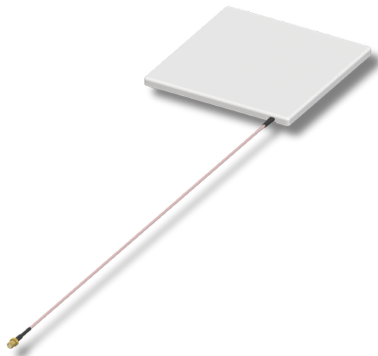
The most compact tap-and-go point: a kiosk, POS terminal, or access-control reader where space is the primary constraint.



Supporting Spec	Key Feature	Customer Benefit
82 x 82 x 9.6mm, 50 grams	Smallest and lightest near-field antenna in the Times-7's portfolio.	Fits into kiosks and compact enclosures where space is limited.
0-10 cm read range	Radiation intensity optimised to peak right at the antenna face.	Reads are restricted to intentional placement close to the antennas surface making this ideal for tap-and- go.
Wideband 865-928 MHz	One part number covers ETSI and FCC.	One stock item ships to any region, so deployments don't require regional BOM variant.
IP54, 0 °C to +50 °C	Standard indoor rating.	Suited to a retail, pharmacy, or office kiosk environment.

A1115

When to use:
A standard benchtop tap-and-go point, such as retail POS or pharmacy pick verification, where a slightly larger and more defined read zone than the A1001 is preferred.



Supporting Spec	Key Feature	Customer Benefit
150 x 150mm read footprint	Small read footprint	Fits within small enclosures
Far-field equivalent gain -10.5 dBi	Far-field response suppressed by design, while maintaining strong above surface performance	Items outside of the read zone are excluded, while those within the zone are consistently read.
Near-field antenna	Near-field magnetic coupling makes tag orientation irrelevant within the antennas field	Tags are read regardless of item orientation
IP54, 0 °C to +50 °C	Standard indoor unit.	Suited to a typical retail or benchtop environment.

A5020NF

When to use:
Tap-and-go, such as an outdoor access-control badge reader or a wash-down production read point.



Supporting Spec	Key Feature	Customer Benefit
IP68, -30 °C to +65 °C	Fully sealed near-field antenna, unique in the near-field range.	Works as an outdoor tap-and-go or badge reader where the IP54-rated A1115 and A1001 are not rated to go.
Read range up to 50mm from the surface	Close proximity required for reads	Confirms only the badge or item presented, not anything in a pocket or bag nearby.
Wideband 865-928 MHz	One part number for both regulatory regions.	One stock item ships to any region, so deployments don't require regional BOM variant.
150.7 x 149.4 x 14.5mm	Same A5020 footprint and VESA mounting as the rest of the series.	Familiar size and equivalent installation to the other A5020 series products

How a cold chain readpoint is configured

A tap-and-go RAIN RFID readpoint is designed around the location where a tag, item or badge is intentionally presented. The antenna is positioned close to this interaction point to create a defined read zone. Near-field antennas are particularly suited to these applications because they provide controlled, short-range RFID performance. The antenna can be integrated into a benchtop, kiosk, access-control reader or enclosure, with the antenna size and environmental rating selected to suit the installation.

What determines the number and position of antennas

Presentation point

Position the antenna directly beneath or behind the area where the user naturally presents the item or badge.

Required read zone

The antenna footprint should match the intended interaction area.

Tag position and orientation

Where tag orientation is variable, a true near-field antenna such as the A1115 can help provide consistent reads regardless of how the tag is presented.

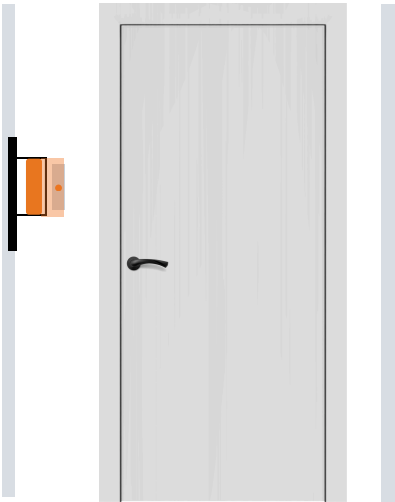
Installation space

Compact applications such as kiosks and POS terminals may require a small antenna such as the A1001. For larger benchtops, the A1115 and A5020NF are suitable options.

Operating environment

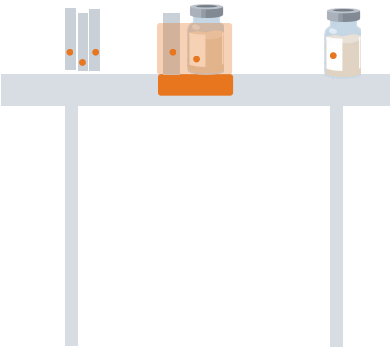
Indoor benchtop or kiosk applications can use standard indoor antennas such as A1001 or A1115, while outdoor access-control or wash-down installations require an appropriately rated antenna such as the IP68 A5020NF.

Schematic side elevation, with orange rectangles showing antenna position, orange dots representing RFID tags and orange shading indicative antenna coverage. (Schematics are illustrative only)



Single antenna, front mounted

The antenna creates a short, controlled read zone immediately in front of the reader, helping ensure that the badge intentionally presented is read rather than other badges nearby.



Single antenna, embedded or mounted on table / counter

A defined read footprint helps isolate the presented item from other tagged products surrounding the workstation, supporting fast, intuitive tap-and-go scanning.



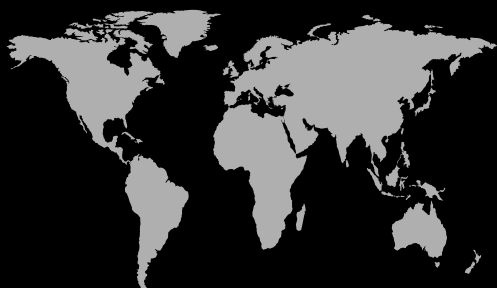
Global Partner Network

Times-7 works with a worldwide network of authorised distributors and integration partners to deliver local expertise, fast product availability, and trusted support.

Many popular models are stocked regionally, with rapid-ship options and clear lead times for build-to-order antennas.

Find your local Times-7 antenna partner:

<https://www.times-7.com/partners/distributors>



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