TIMES-7™
INTELLIGENT TRACKING | SMART TECHNOLOGY

RAIN RFID Antenna Selection Quick Reference Guide

Transport, Logistics & Supply Chain Series

Indoor Portals



RAIN ALLIANCE

Copyright © 2026 Times-7

Table of Contents

How to use this guide	3
How to select the right antenna	4
A8065 Combo Doorway Portal Solution (V/H/D)	5
A5060 Circularly Polarised Antenna	6
A5010 Circularly Polarised Antenna	6
A5020CP Circularly Polarised Antenna	7
A3042 Robust SlimLine High Gain Antenna	7
A6590C Circularly Polarised Antenna	8
A5531C Circularly Polarised Antenna	8
Times-7 Portal	9
How an indoor portal readpoint is configured – configuration examples	10
Global partner network and contact details	11

TIMES-7™
INTELLIGENT TRACKING | SMART TECHNOLOGY

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.

RAIN® ALLIANCE

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

Fixed RAIN RFID readpoints for indoor portals



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 indoor portal tracking we recommend these antennas: the **A8065 Combo, A5060, A5010, A5020CP, A3042, A6590C, A5531C and the Times-7 Portal**. Each suits a different combination of mounting position, environmental exposure, and read zone control.

We have also included a general guidance section on page 10 for possible antenna configurations. If you have questions regarding antenna selection and antenna placement, our engineering team are available to provide technical support.

Recommended antennas for indoor portal tracking

See page **4** for guidance on selecting the right antenna for your application, then **pages 5-9** for full specifications, key features, and customer benefits for each of our recommended antennas.

Note: The readpoint 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.

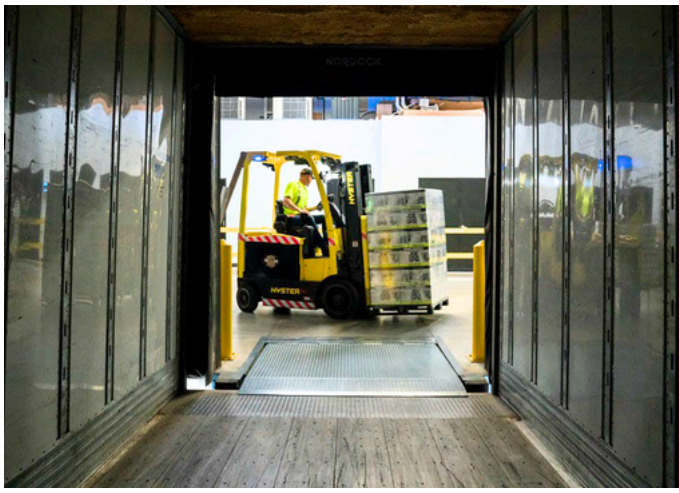
01 **Environment Rating**

How exposed is the readpoint? Covered indoor readpoints generally need **IP54** as a minimum. Outdoor and exposed readpoints require **IP67** (temporary immersion up to 1 m, 30 min). Readpoints subject to high-pressure wash-downs, extreme humidity, or chemically aggressive environments, such as food production, cold stores and 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 readpoint 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 indoor portal tracking

Indoor RFID portals enable automated identification and tracking of tagged items as they move through doorways and designated transition points. Common applications include retail stockroom entrances, warehouse access points and internal inventory movements.

Reliable detection depends on selecting antennas with the appropriate beam pattern, polarisation and coverage for the doorway dimensions, tag orientation and movement of items. The right antenna configuration helps ensure consistent tag detection while minimising unintended reads from surrounding areas.



A8065 Combo Doorway Portal Solution

When to use:
A purpose-built doorway portal for item-level tracking where tagged items may pass through at different heights and orientations, such as retail stockrooms or internal asset-tracking doorways.

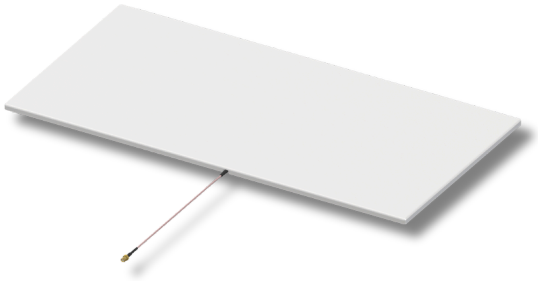


A8065 (V / H / D)

Supporting Spec	Key Feature	Customer Benefit
A8065V + A8065H + A8065D	Three antenna elements combine vertical, horizontal and dual-linear polarisation.	Improves detection of tags passing through a doorway in different orientations.
A8065V: 7.5 dBi, 25° × 120° beam	High-gain vertical linear element with a narrow beam across the doorway.	Provides targeted coverage for vertically oriented tags moving through the entrance.
A8065H: 6 dBi, 30° × 110° beam	Horizontal linear element complements the vertical element.	Provides targeted coverage for horizontally oriented tags that the vertical element may miss.
A8065D: 3 dBi horizontal / 4 dBi vertical, dual element	Overhead element provides both horizontal and vertical linear polarisation.	Adds overhead coverage to improve detection of tags passing through the doorway.
700 × 90 × 9.6 mm, 0.58 kg per unit	Slim, lightweight design for integration into door frames.	Fits discreetly into doorways without bulky portal structures.
Pre-drilled pilot holes and adhesive foam strip	Supports mounting directly to suitable door-frame surfaces.	Simplifies installation and reduces the need for additional mounting hardware.
IP54; -20 °C to +55 °C	Protection against dust and splashing water within the specified operating range.	Suitable for a range of indoor retail and warehouse environments.

A5060 Circularly Polarised Antenna

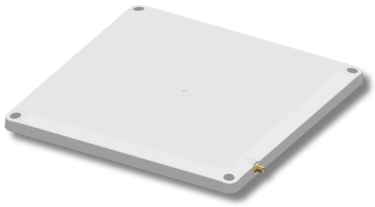
When to use:
Industrial portals where concentrated coverage is needed, particularly in busy warehouses, densely tagged environments or installations with adjacent readpoints.



Supporting Spec	Key Feature	Customer Benefit
10.5 dBiC; 25° × 60° beamwidth	High-gain antenna with a narrow, directional read zone.	Concentrates RFID coverage in the intended area, helping reduce unwanted reads nearby.
Circular polarisation	Supports detection of tags in different orientations.	Improves read consistency when tagged items are not uniformly positioned.
-25 dB front-to-back ratio	Strong rejection of RF energy behind the antenna.	Helps reduce unintended reads from tagged stock behind the portal.

A5010 Circularly Polarised Antenna

When to use:
Standard-width indoor doorways where broad, symmetrical coverage is needed for tagged goods moving through the opening.



Supporting Spec	Key Feature	Customer Benefit
8.5 dBiC; 68° symmetrical beamwidth	Balanced coverage in both planes.	Provides a consistent coverage pattern across the intended doorway area.
Circular polarisation	Supports tags presented at different orientations.	Improves read consistency when tagged items are not uniformly positioned.
IP67	Dust-tight housing with protection against temporary immersion.	Suitable for indoor areas exposed to dust, moisture or routine cleaning.
250 × 250 × 14 mm profile (flush)	Slim, aesthetic and compact antenna panel.	Suitable for space-constrained, customer-facing environments.
Flush or stud mounting; 100 × 100 mm VESA on stud version	Multiple mounting configurations.	Allows installers to choose a mounting arrangement suited to the doorway structure.
-20 dB front-to-back ratio	Reduced RF radiation behind the antenna.	Helps limit unwanted detection of tags located behind the readpoint.

A5020CP Circularly Polarised Antenna

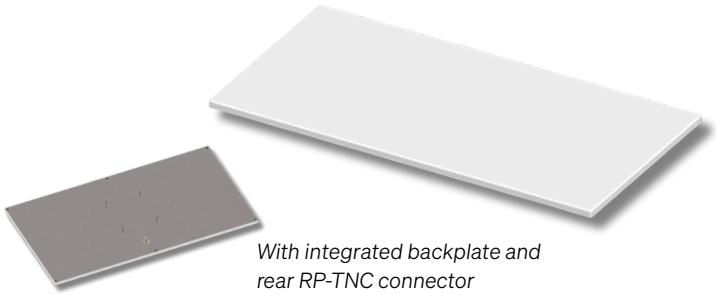
When to use:
Indoor transfer points where available mounting space is limited, including humid, chilled or wash-down-prone environments where the installation and cleaning conditions are compatible with the antenna.



Supporting Spec	Key Feature	Customer Benefit
IP68	Sealed housing designed for demanding environmental conditions.	Provides protection against water and dust in areas exposed to moisture or cleaning.
-30 °C to +65 °C operating temperature	Wide operating temperature range.	Suitable for installations that experience significant temperature variation, including chilled environments.
5 dBiC; 105° symmetrical beamwidth	Wide coverage from a compact antenna.	Covers a broad read area.
150.7 × 149.4 × 14.5 mm	Compact, low-profile panel.	Fits into narrow spaces where a larger antenna may be impractical.
Circular polarisation	Accommodates varying tag orientations.	Improves read consistency when tagged items are not uniformly positioned.
Flush or 100 × 100 mm VESA mounting	Flexible mounting options.	Simplifies integration into existing structures.

A3042 Robust SlimLine High Gain Antenna

When to use:
Indoor industrial portals requiring a narrow read zone, easy mounting via integrated VESA studs and a rear RF connection, particularly where cables need to be concealed behind the antenna.



With integrated backplate and rear RP-TNC connector

Supporting Spec	Key Feature	Customer Benefit
10.5 dBiC; 25° × 60° beamwidth	High-gain antenna with focused directional coverage.	Helps concentrate reads within the intended portal area and reduce detection of nearby stock.
-25 dB front-to-back ratio	Strong RF rejection behind the antenna.	Helps limit unwanted reads from tagged items behind the antenna.
Rear RP-TNC connector	RF connection positioned behind the antenna.	Allows cables to be routed out of sight for a cleaner installation.
Integrated 100 × 100 mm VESA mounting studs	Built-in mounting points on the rear metal backplate.	Supports secure mounting without requiring front-facing fasteners.
IP54; -20 °C to +55 °C	Protection against dust and splashing water.	Environmental coverage suitable for covered industrial doorways and warehouse deployments.

A6590C Circularly Polarised Antenna

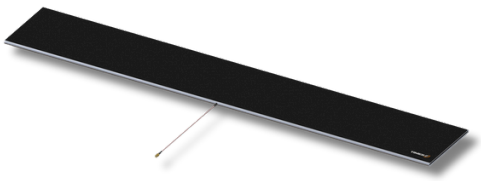
When to use:
Indoor doorways where overhead or side-mounted antennas are impractical and tagged items, assets or people need to be detected as they cross the threshold.



Supporting Spec	Key Feature	Customer Benefit
9 dBiC; 20° × 80° beamwidth	High-gain antenna with a directional radiation pattern.	Provides focused coverage of the doorway area when installed under the floor.
915 × 305 × 8 mm	Ultra-low-profile ground antenna.	Can be positioned beneath suitable floor coverings or mats for discreet installation.
-24 dB front-to-back ratio	Strong rejection of RF energy behind the antenna.	Helps direct detection towards the crossing area rather than beneath the floor.
IP65; -20 °C to +55 °C	Dust-tight housing protected against water jets.	Suitable for indoor thresholds where dust or moisture may be present.
2 m RP-TNC cable or 300 mm SMA lead options	Choice of connection arrangements.	Offers flexibility in positioning the reader and routing cables.

A5531C Circularly Polarised Antenna

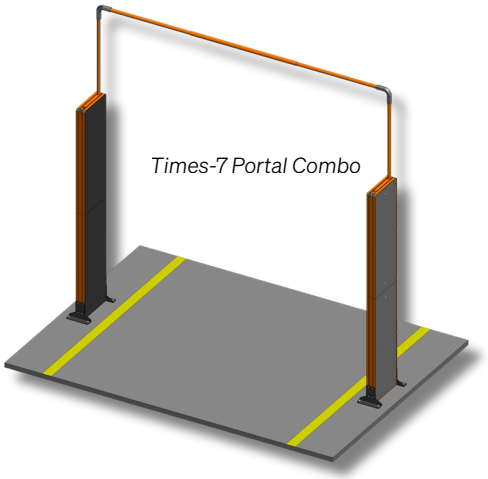
When to use:
Indoor floor-level detection points where a long, narrow antenna is better suited to the doorway geometry than the wider A6590C.



Supporting Spec	Key Feature	Customer Benefit
9.5 dBiC; 13° × 85° beamwidth	High-gain antenna with a narrow beam in one plane and broad coverage in the other.	Provides a more concentrated read zone across a defined crossing point.
1,200 × 195 × 10 mm	Long, narrow ground antenna.	Fits across wider thresholds while maintaining a relatively small floor footprint.
Maximum distributed load: 500 kg; point load: 690 kPa (100 psi)	Designed for specified moderate traffic loads.	Supports suitable pedestrian and wheeled-cart movement when correctly installed.
IP53; 0 °C to +50 °C	Limited dust and water-spray protection for indoor use.	Suitable for sheltered indoor thresholds without significant water exposure.
Right-hand circular polarisation (RHCP)	Supports tags presented at different orientations.	Helps detect tags at varying orientations as they cross the floor-level readpoint.

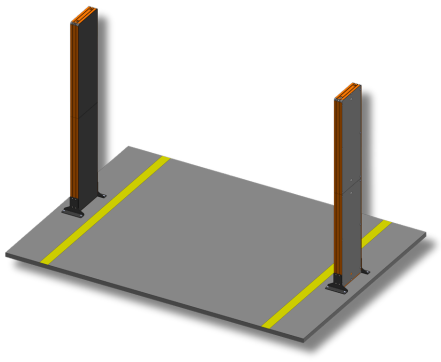
Times-7 Portal

When to use:
Indoor warehouse receiving and dispatch points where tagged pallets, cartons or individual items need to be identified as they move through a defined portal. Particularly suitable for distribution centres, logistics facilities and multi-lane installations.

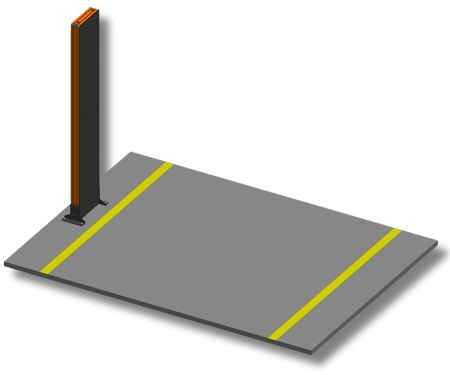


Times-7 Portal Combo

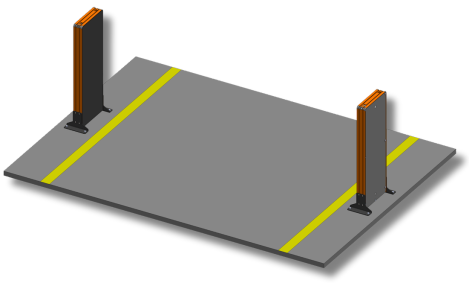
Supporting Spec	Key Feature	Customer Benefit
10 dBiC typical gain; 50° horizontal beamwidth	High-gain, focused read zone.	Helps capture tags moving through the target lane while reducing unwanted reads from adjacent areas.
-20 dB front-to-back ratio	Reduced RF radiation behind each antenna unit.	Helps limit detection of tagged stock outside the intended read area.
Circular polarisation	Supports reading tags at different orientations.	Improves read consistency when tagged items are not uniformly positioned.
Portal System: four antenna units, two per side	Dual-sided coverage across the portal opening.	Provides coverage from both sides for pallet and carton tracking, including challenging loads.
Portal Tower: two antenna units on one side	Full-height, single-sided configuration.	Provides an option for taller loads where antennas cannot be installed on both sides.
Portal Base: two lower antenna units	Concentrates coverage at lower pallet heights.	Provides a configuration suited to lower-height loads without requiring full-height towers.
IP54; -20 °C to +55 °C operating	Industrial enclosure protection and a wide operating temperature range.	Suitable for permanent installation at covered warehouse and distribution-centre readpoints.
Reader-agnostic	Compatible with standard RAIN RFID readers.	Allows integration with existing reader infrastructure without requiring a proprietary reader.
Optional Cable Bridge, designed for openings of 2.4–3.2 m	Accessory connects the portal structure across the opening.	Provides an integrated arrangement for managing cables across suitable portal widths.



Times-7 Portal System



Times-7 Portal Tower



Times-7 Portal Base

How an indoor portal readpoint is configured

An indoor RFID portal uses antennas positioned around or near a doorway to automatically detect tagged items moving between designated areas, such as a retail stockroom and sales floor or between warehouse zones.
Antennas can be mounted on the sides, overhead or at floor level, depending on the doorway dimensions, direction of movement and required read-zone coverage.
The aim is to achieve reliable tag detection within the intended transition area while minimising unintended reads from nearby inventory or adjacent spaces.

Schematic front elevations, with orange rectangles showing antenna position, orange dots representing RFID tags and orange shading indicating antenna coverage.
(Schematics are illustrative only)



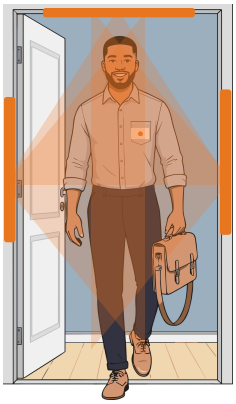
Overhead mounted

Antennas mounted above the doorway provide downward coverage to detect tagged items passing through the transition area.
Suitable for tracking items carried or transported beneath the antenna, particularly where a defined read zone is required to limit unintended reads from surrounding areas.



Floor mounted

A low-profile antenna, flush-mounted or embedded in the floor, detects tagged items moving across the doorway.
Suitable for customer-facing transition zones and applications requiring the detection of tags without being obtrusive.



Multi-antenna mounting

Antennas can be positioned at different heights or mounting locations to provide coverage from multiple directions, improving detection of tags with varying orientations while minimising unintended reads from surrounding areas.

What determines the number and position of antennas

Doorway dimensions and available mounting positions
The width and height of the opening determine antenna placement and whether coverage is required from one or multiple directions.

Tag orientation and product materials
Tag placement, orientation and materials such as liquids or metals can influence RF performance and may require antennas positioned at different angles.

Read-zone requirements
Focused antenna coverage helps distinguish items passing through the doorway from stationary inventory in surrounding areas.

Item density and movement
The number of tagged items moving through simultaneously, their speed and whether they are carried individually or in bulk, influence the coverage required for reliable detection.



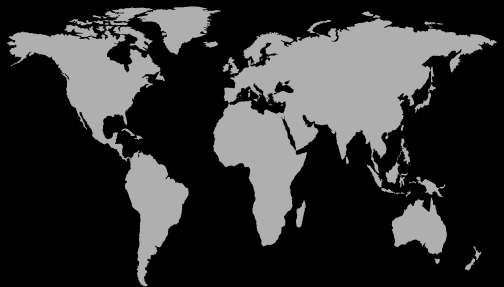
Global Partner Network

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



TIMES-7
INTELLIGENT TRACKING | SMART TECHNOLOGY

Times-7 Research Ltd
10 Te Puni Street
Petone
Lower Hutt 5012
New Zealand
Phone: +64 4 974 6566
Email: sales@times-7.com

For more information, visit
www.times-7.com

© 2026 Times-7 Research Ltd. All rights reserved. Specifications are subject to change without notice.

SCL / QG / Indoor portal / V1 10/26