bibliotheca
transforming libraries

G-LBPI1011EN.011

RFID gate premium

pre-installation guide

Copyrights & Trademarks

Terms & Conventions

	Text boxes containing a green circle and white "i" contain important information pertaining to the use or configuration of the product. These may also contain tips or recommendations from bibliotheca or bibliotheca customers.

	Text boxes containing a red circle with a white triangle and exclamation point contain either information critical to the successful use or configuration of the product, or a warning. It is important to read and consider the information presented in the hazard text boxes carefully.

	Text boxes containing a blue circle and question mark contain a definition or explanation of a specific term or concept that may not be immediately apparent or common knowledge to all users. The information in these text boxes should assist the reader's understanding of this document's content.

Clickable/Writeable Fields – Bold Text denotes a button, tab, text field, or menu that a user can select or otherwise interact with.

Location/Reference – Italic text denotes the location of a file or folder on a computer, or a specific section within the document or reference to a separate document

Table Of Contents

1 Introduction

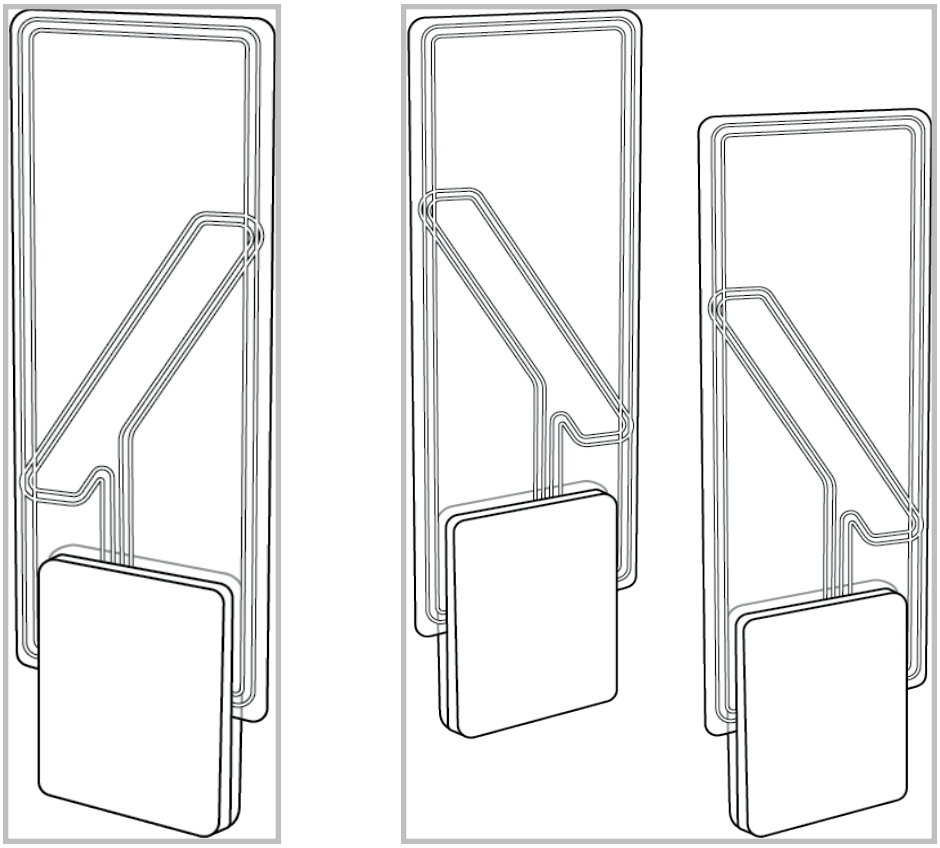
1.1 Introducing the system

With a modern and attractive clear panel design, the bibliotheca RFID gate™ premium not only offers superior detection but perfectly integrates with any library environment. The RFID gate™ premium reduces accidental or deliberate removal of library items by detecting RFID tags in any orientation. Upon detection, a configurable alert provides an immediate audible and/or visual warning.

The RFID gate™ premium system includes at least 2 pedestals. The A pedestal which contains an antenna, the controlling electronics for the system and the local display. The system will also have one B pedestal per aisle which contains an antenna and interconnecting electronics.

The system is available with the following mounting options:

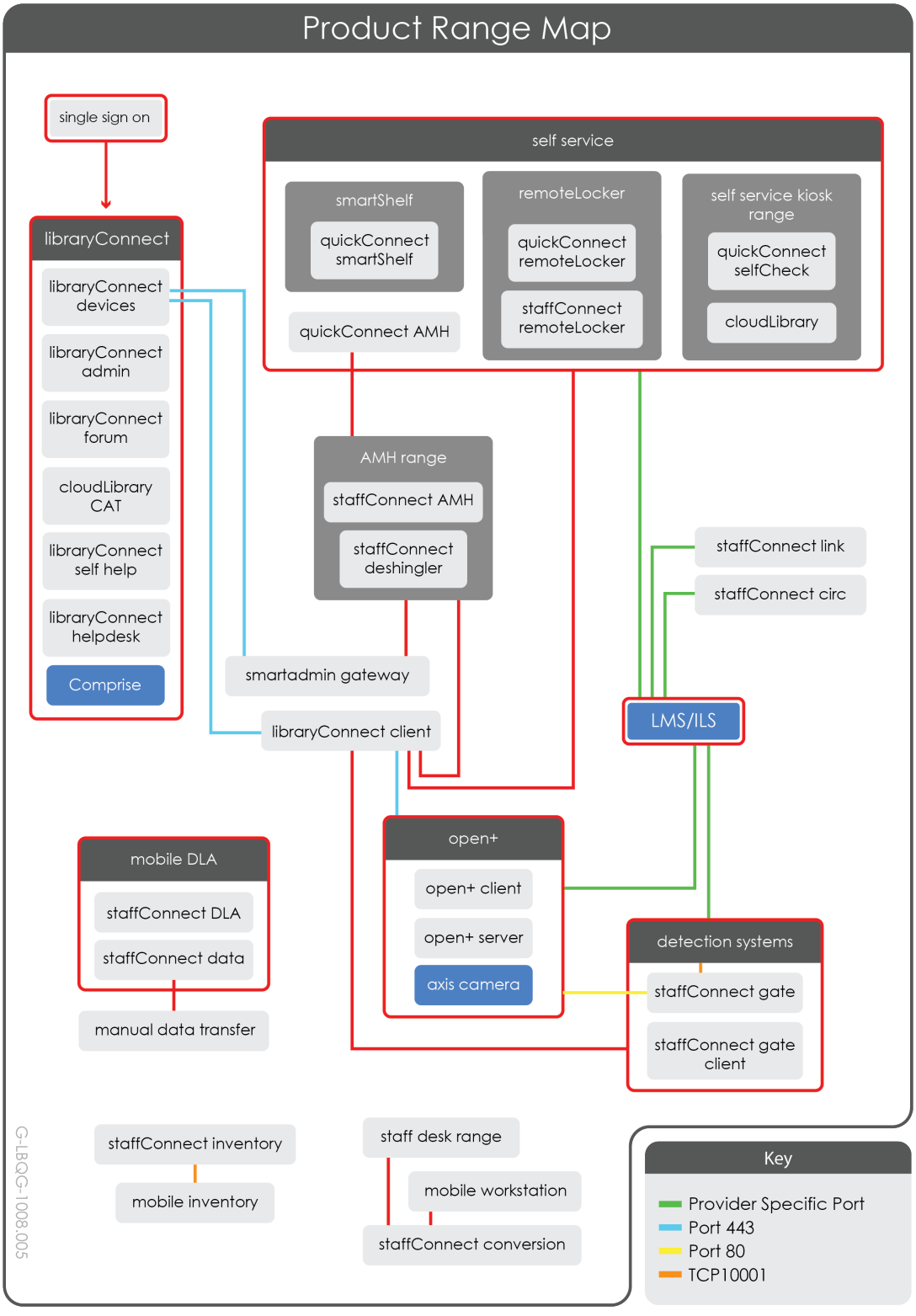
1. Direct mount, with pedestals mounted to the floor and pedestal-to-pedestal wiring routed through a floor mounted threshold wireway.
2. Baseplate, with pedestals mounted to a baseplate and pedestal-to-pedestal wiring routed through the baseplate.
3. Buried cable, with pedestals mounted to the floor and pedestal-to-pedestal wiring routed beneath the floor in electrical conduit.



Other features include:

- Customizable LED lighting colour, alert volume and alert duration.
- Integrated directional patron counter with a small LCD display on the A pedestal for library staff to quickly work out the people count through each gate.
- Connection to staffConnect™ gate software to allow the library staff user to monitor current alerts and people counts and generate time specific reports.

1.2 Product range map



2 Implementation responsibilites

#	Task	Responsibility
1	Develop a plan for the space into which the detection system will be installed. The plan should address all requirements listed in this pre-installation guide.	Library/contractor (may include consultation with bibliotheca)
2	Complete a Detection System Site Survey for your library and return it to your bibliotheca contact. This is an optional step that may involve bibliotheca consultation.	Library/contractor
3	If the site plans a buried cable system, schedule a site visit with a bibliotheca technician so that the site can be inspected to ensure location suitability and proper placement of buried conduit. **This visit is extremely important!** A bibliotheca technician must inspect the site before construction begins. Failure to complete this step may result in costly rework.	Library/contractor
4	For buried cable systems, complete a site visit.	bibliotheca
5	Remove the old detection system (if applicable)	Library/contractor or bibliotheca, depending on purchase arrangements
6	Complete construction on the site, ensuring that all requirements listed in this guide are met. This may also include deploying patron traffic management devices (cones, etc.) where applicable to ensure patron safety during the installation and moving any other equipment and fixtures that would impede the technician.	Library / contractor
7	If the library selects to have a buried power option, where line voltage is provided at the system, it is the responsibility of the library to provide this connection, refer to section 3.1 for additional details.	Library / contractor
8	Gather a representative sample of library materials that the bibliotheca technician will use to test the installation.	Library

#	Task	Responsibility
9	If the system will use the optional staffConnect™ gate software, secure an IP address (static) for the detection system. Provide an Ethernet connection at the location of the A pedestal with 18 in [457 mm] of cable above the floor, terminated in an RJ45 plug, This is also a requirement for access to the system's web interface, unless the site uses DHCP to assign network settings. (DHCP is not an option for staffConnect™ gate.)	Library
10	Move system packages from the delivery area to the installation area.	Library/contractor
11	Install the detection system. This will include all tasks required to install and anchor the system and ensure that it is functioning properly and according to library preferences.	bibliotheca
12	Conduct a system handoff, which will include familiarizing the library with system features and ensuring the system meets library requirements.	Library and bibliotheca
13	Dispose of detection system packaging.	Library/contractor or bibliotheca, depending on purchase arrangements

2.1 Requirements

- Each set of security pedestals requires its own power supply (included with system).
- Each set of security pedestals requires an Ethernet connection at the location of the A pedestal with 18 in [457 mm] of cable above the floor, terminated in an RJ45 plug, where the customer has purchased staffConnect™ gate .
- The measurement from the centre of one pedestal to the centre of another pedestal is recommended to be 63" [1.6 metres]. Refer to the note below.

	Detection of items cannot be 100% guaranteed in any gate setup due to a range of factors. Detection range and rates will likely be reduced for CD and DVD media that contains metallic elements as well as for some older RFID tag types. Libraries wishing to get as close to 100% detection as possible should work with the project team, but should expect distance between gates to be reduced.

3 Specifications

3.1 Electrical specifications

A dedicated power line is recommended, but not required. The recommended installation method is for the library to provide an easily accessible outlet within 6 ft [2 m] of the B pedestal that will contain the power brick.

- Voltage: 100-240 VAC, 50/60 Hz, max 3.0A

If the library prefers to have mains power supplied directly at the location of the detection system, power can be provided using one of the following options:

	It is the responsibility of the library to provide this connection and an electrician will be required to be on site during installation.

- Provide access to line voltage at the location of the B pedestal with a minimum 6 in. pigtail exposed above the floor (this must not be energized during the installation of the system). On the day of installation, the library is responsible for having an electrician on site to make the power connection inside the pedestal via methods like a low profile junction box or by adding a local plug (e.g. NEMA 5-15, BS 1363, etc.) to the pigtail.
- Provide a power cord (3 conductor rated at 250 V [10 A]) from a mains switched fused spur to the location of the B pedestal, terminated with an IEC C13 connector.

	**In some regions like the UK, only option 2 is permitted.** Due to Health and Safety Regulations, local electrical codes, and required industry qualifications for mains electrical wiring and connections, bibliotheca Engineers and Service Partners are not permitted to make power cord connections to mains electrical outlets such as fused mains spurs, whether the spur is live or isolated from the mains power. As a result, providing the power cord connected to a mains spur outlet is the responsibility of the library's nominated qualified electrician.

3.2 Environmental specifications

- Typical ambient temperature range: -25°C [-13 F] to 50°C [122 F]
- Humidity: 0% to 85% RH, non-condensing

3.3 Detection Zone

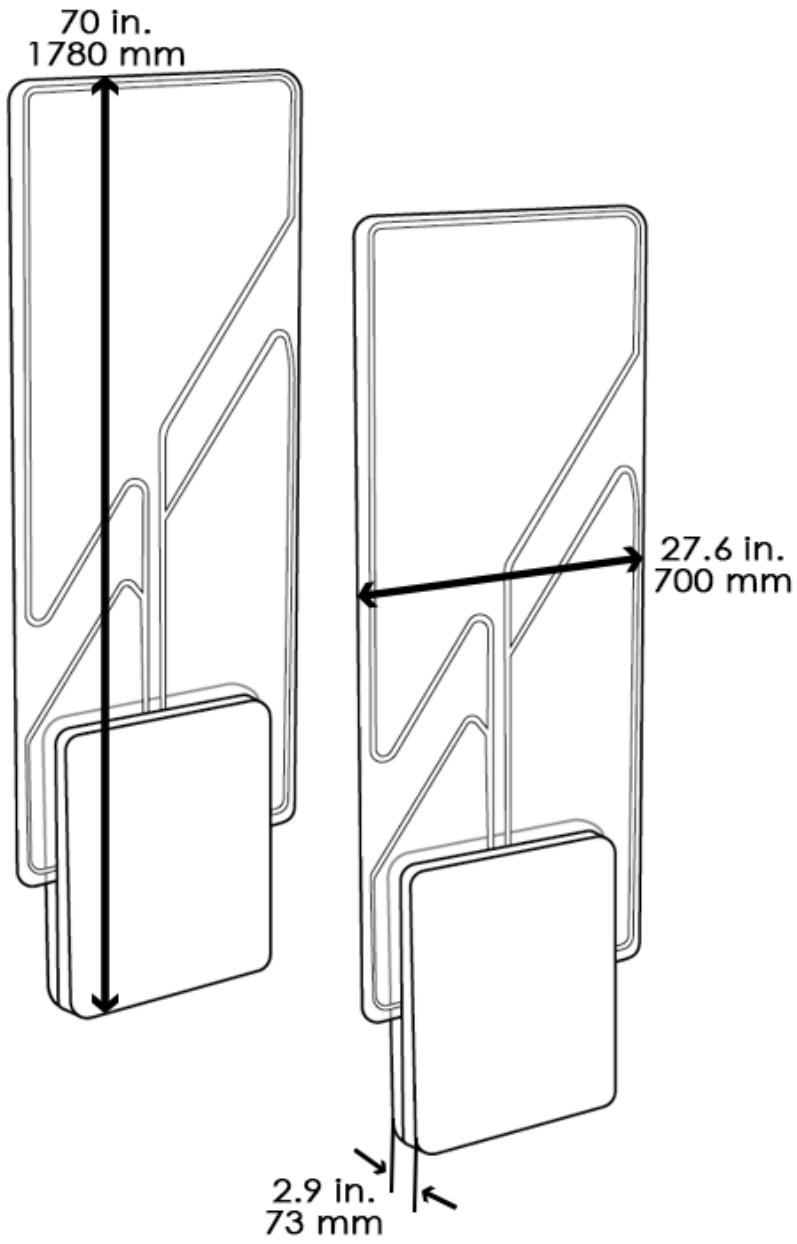
The primary zone of detection between pedestals extends 6 in. [15 cm] to 72 in. [1.82 m] above the floor.

3.4 Shipping weight

Component	Weight
RFID gate premium pedestal, single	62 lb. [28 kg]
Baseplate, single aisle	70 lb. [32 kg]
Baseplate, dual aisle (two boxes)	135 lb. [61 kg]

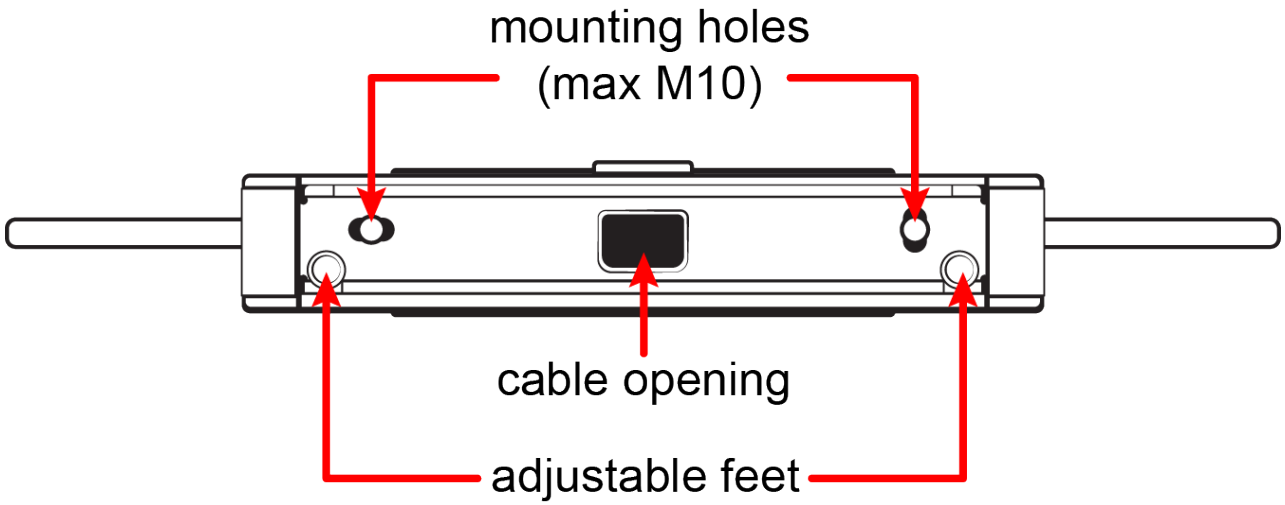
3.5 Pedestal dimensions

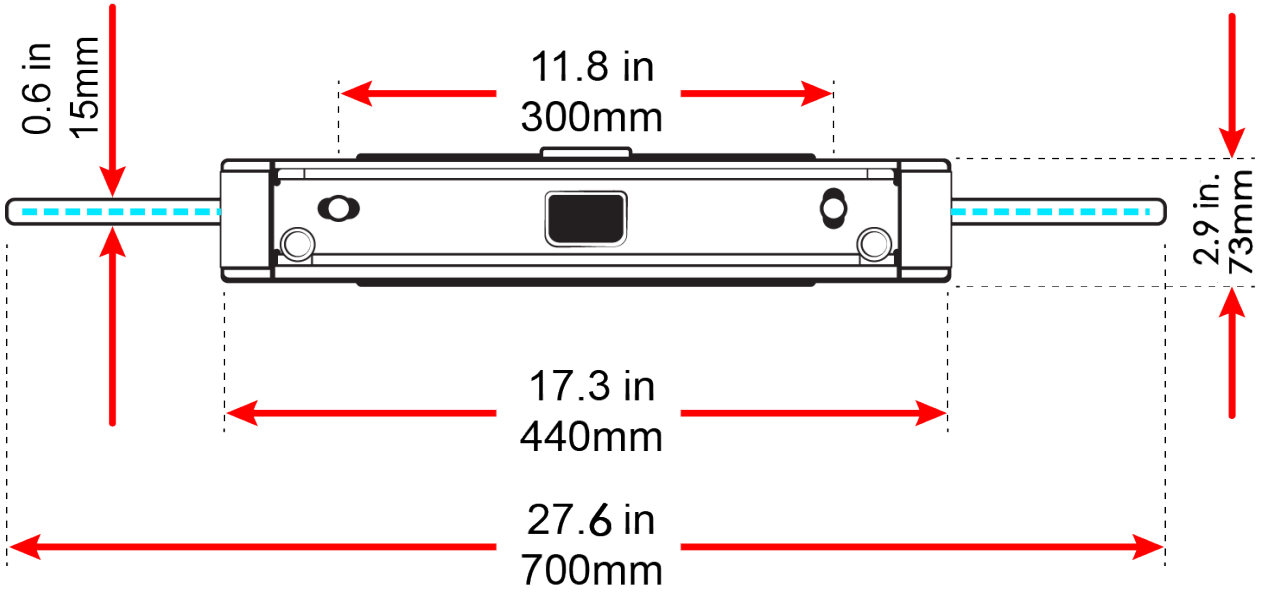
Height	Width	Depth
1780 mm [70"]	73 mm [2.9"]	700 mm [27.6"]



3.6 Foot print dimensions

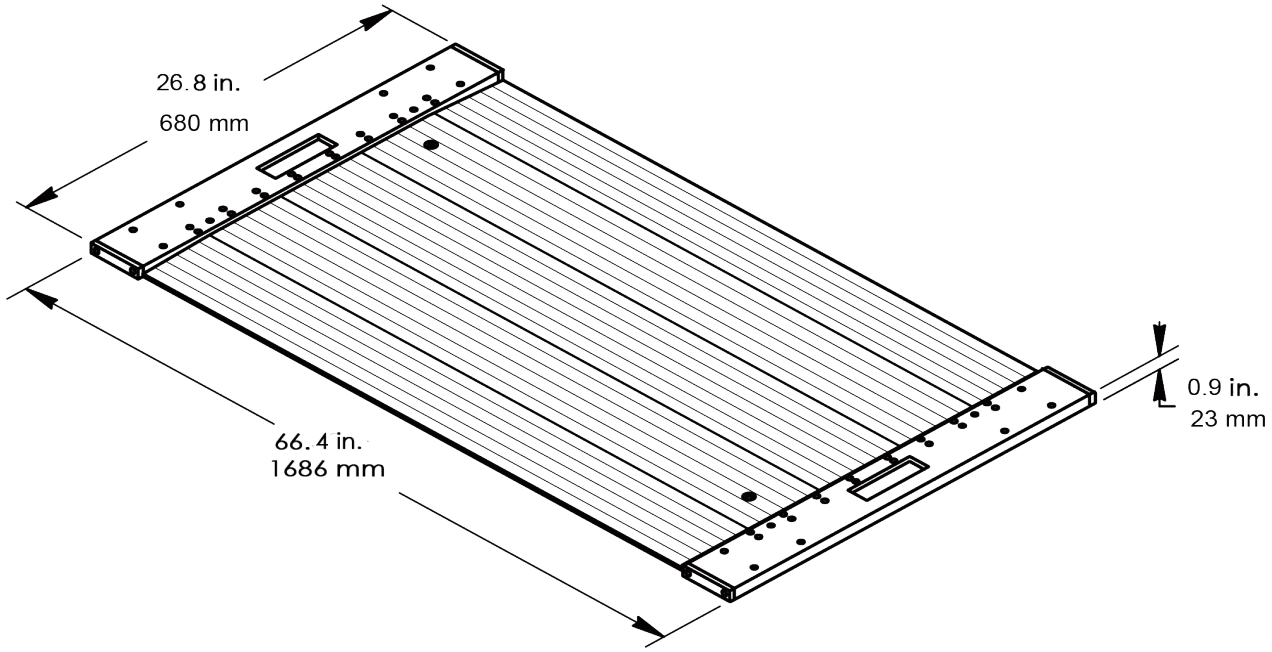
Mounting holes	Cable opening
20 mm x 10 mm [0.8" x 0.4"]	60 mm x 25 mm [2.4" x 1"]





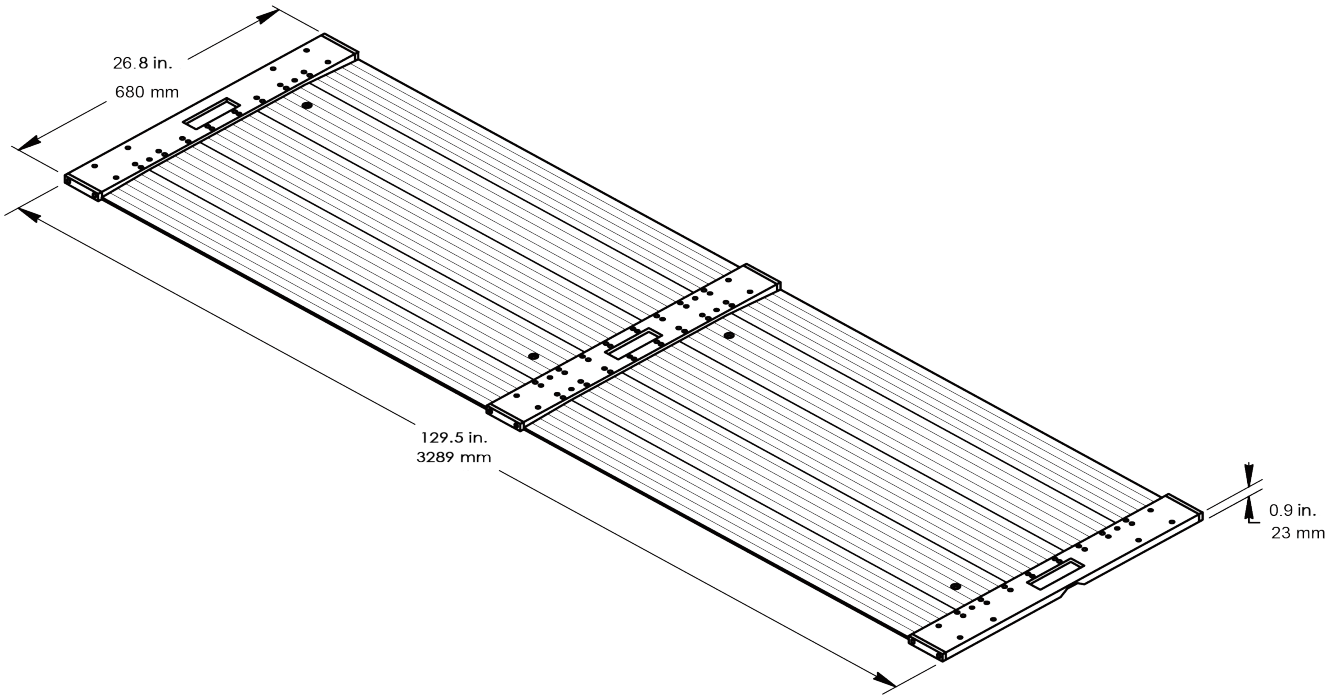
3.7 Single baseplate dimensions

Height	Width	Depth
Base - 13 mm (0.5")* Plates - 23 mm (0.9")	1686 mm (66.4")	680 mm (26.8")



3.8 Dual baseplate dimensions

Height	Width	Depth
Base - 13 mm (0.5")* Plates - 23 mm (0.9")	3289 mm (129.5")	680 mm (26.8")



4 Facility requirements

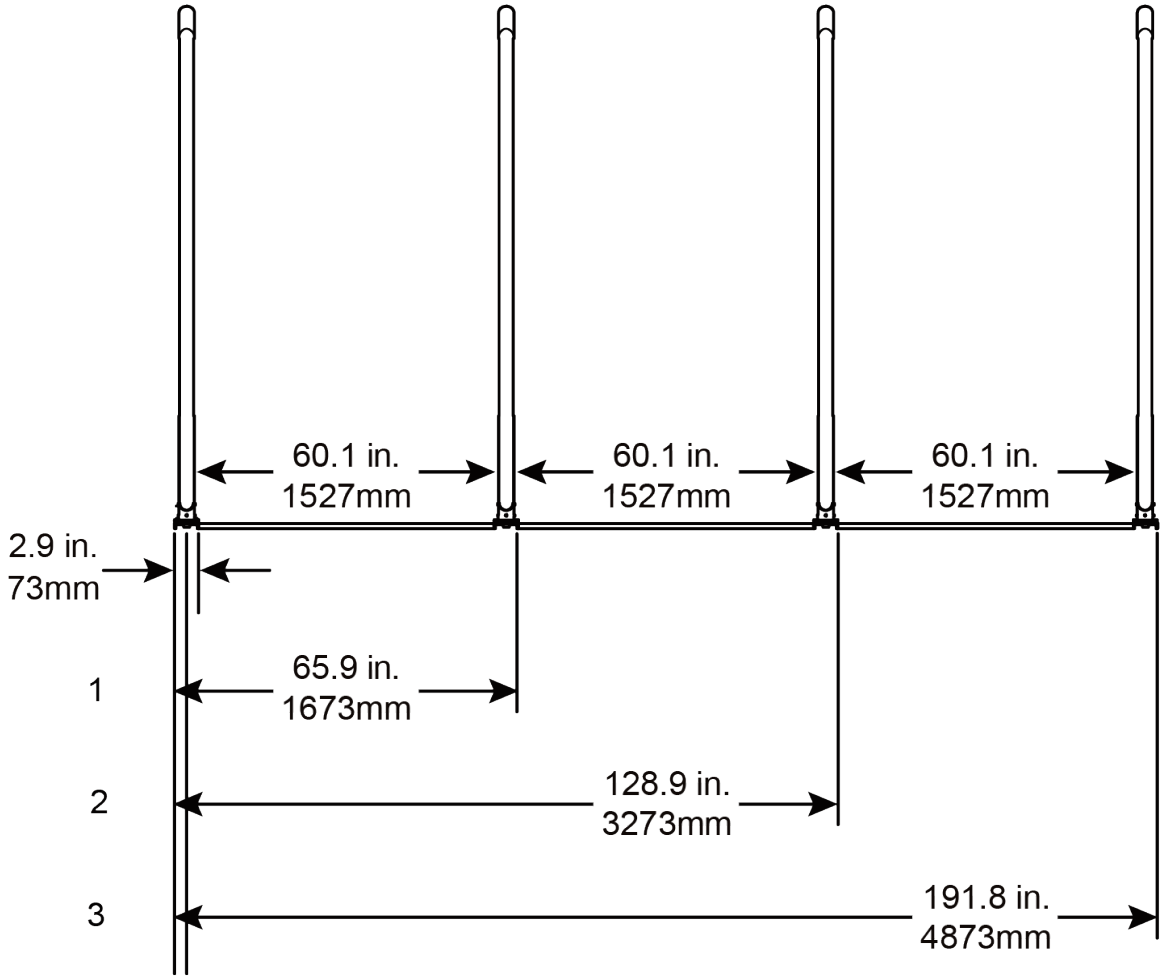
4.1 Space requirements: system dimensions

This section describes the space required for the system itself. Note that additional space is required to :

- Service the system and avoid interference
- Meet the needs of staff and customers

4.1.1 System dimensions: 63 in. (1600 mm) width

The following image displays the width of a full system (from 1 aisle to 3 aisles) when the centre-to-centre width of each aisle is set to 1600 mm/ 63".



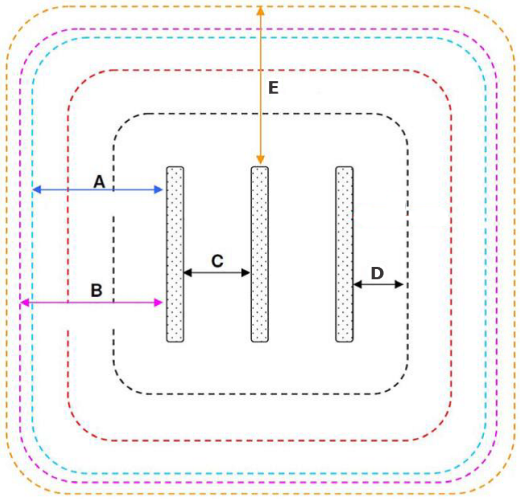
4.2 Positioning of equipment

Required clearances

A	Distance to secured items.*	Min. 6' (1.8 metres)
B	Distance to other RFID devices (e.g. staff station, selfChecks).	Min. 8'3" (2.5 metres)
C	Distance between pedestals (clear aisle width).	60.1" (1527 mm)
D	Distance from metal objects.	Min. 1'8" in (0.5 metres)
E	Distance from another set of security gates.**	Min. 26'3" (8 metres)

*Note that the field will extend through walls so items in adjacent rooms need to meet same clearance specifications.

** In situations where two sets of security gates are within 26' 3" [8 metres] of each other, the readers in both sets of A pedestals must be synchronised. The synchronisation process is detailed in the RFID gate™ installation guide.



4.2.1 Antenna performance

Performance

Reads up to 8 tags per second in all 3 orientations.

- Optimal coverage is achieved within 1,600 mm [63"] of centre-to-centre separation.
- Detection of items cannot be 100% guaranteed in any gate setup due to a range of factors.
- Detection range and rates will always be reduced for CD and DVD media that contains metallic elements. Libraries wishing to get as close to 100% detection as possible should work with the project team, but should expect distance between gates to be reduced.

RFID specification

Operating frequency: 13,56 MHz,

Max. Transmitting power: 4 W

Supported tags types: ISO 15693, ISO 18000-3-A, (Infineon my-d, NXP I-Code, SLI, SLIx, SLIx2, TI HFI)

4.3 Staff and patron considerations

In addition to avoiding interference, the system placement decision should include the following considerations:

- Visibility and access of library staff to the detection system.
- Space to identify and stop patrons before they leave the library when an alarm occurs.
- Compliance with ADA/DDA guidelines, which specify a minimum distance of 4 feet [1,22 m] from the system to a door.
- Space to avoid accidental alarms caused by patrons standing near the detection system with secured items and to eliminate two-way traffic (enter and exit) through system aisles.
- Positioning so that patrons are not required to change directions when exiting the library and so they can easily determine how to exit the library.

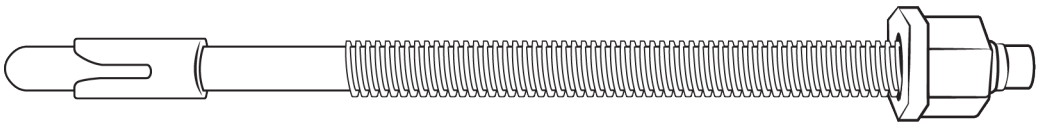
4.4 Floor requirements

The floor to which direct mount and buried cable systems are anchored must be:

- A minimum of 3.5 in. [8.9 cm] thick and made of flat, high quality concrete.
- Free of reinforcing rods, conduit and heating elements directly under the mounting feet.

An example of the recommended mounting bolt is shown below, actual hardware may vary, but will have similar dimensions. The mounting bolt must have 40-55mm of thread left above the floor.

Hilti Kwik Bolt 3 Expansion Anchor 3/8" x 5" Part #: 00282524



A raised floor can be accommodated with proper anchoring, though additional hardware from the library may be required. Contact bibliotheca for more information.

If the library has underfloor heating, the buried cable option is not recommended. Additionally, if there is underfloor heating in the location of the gates, the library is responsible for any in-floor drilling for the anchor bolts.

4.5 Synchronizing systems

Synching between 2 RFID gate premium systems requires that you connect the A pedestals with each other using a shielded, twisted-pair cable. For example: LiYCY (TP) 2x2x0,25 mm2.

This must be done any time the 2 systems are located within 8 m of each other.

4.6 Buried cable layout requirements

This section address issues pertinent only to sites wanting to use buried conduit to route cable.

4.6.1 Conduit requirements

The conduit used for cable routing in buried cable systems must meet the following requirements:

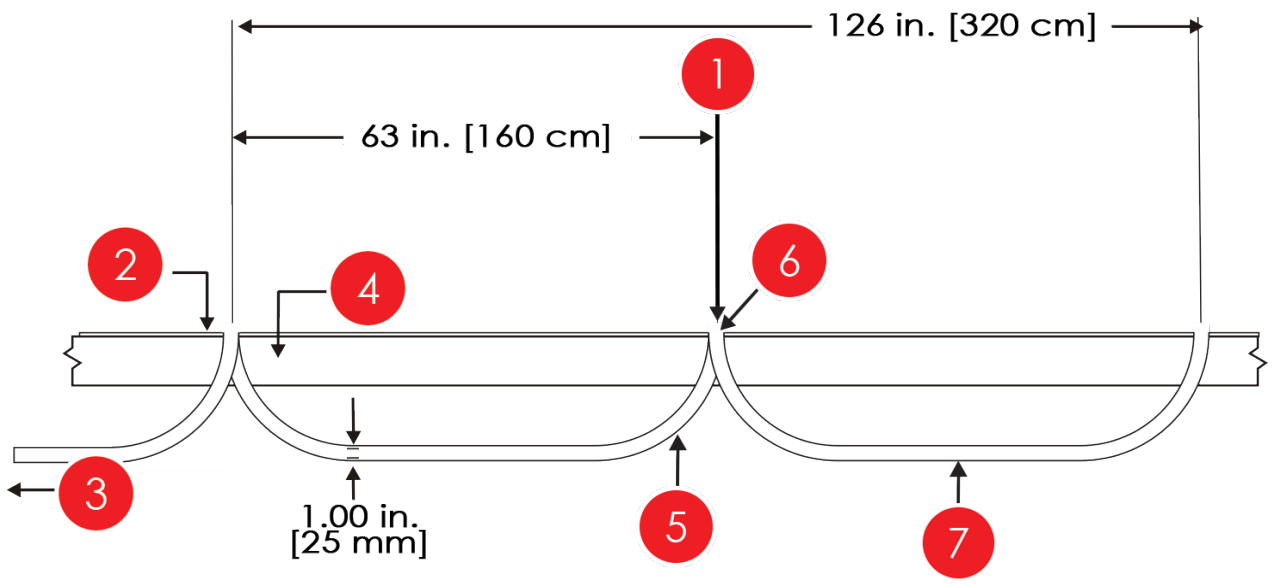
- It must have a minimum inside diameter of 1.00 in. [25 mm].
- The pedestal to pedestal conduit run must not exceed 75 in. [190 cm].
- The conduit bend radius must be typical of electrical industry standards.
- Stub ups must be cut flush with the floor so they do not impede mounting the pedestals to the floor.

Separate conduit required for mains power coming into the system.

bibliotheca strongly recommends non-metallic conduit for buried cable systems whenever local electrical regulations permit its use. When metallic conduit must be used, you must ensure that the conduit does not come in contact with any other metal. This includes metal on the system itself.

4.6.2 Aisle width

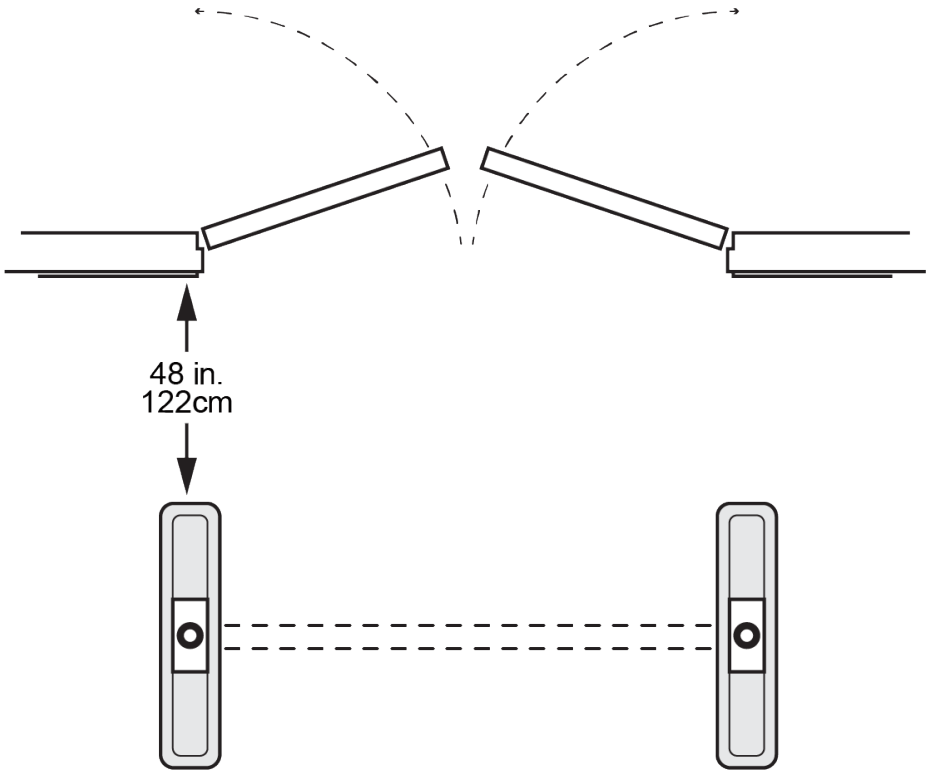
Aisle width: 1600 mm centre-to-centre (1527 mm clear aisle width).



1. Pedestals centered on conduit
2. Finished floor
3. To power source if buried power option selected
4. Sub floor
5. Conduit bend radius to be typical of electrical industry standards
6. Conduit opening flush with the floor
7. The maximum length of the conduit is 75" [190.5 cm]

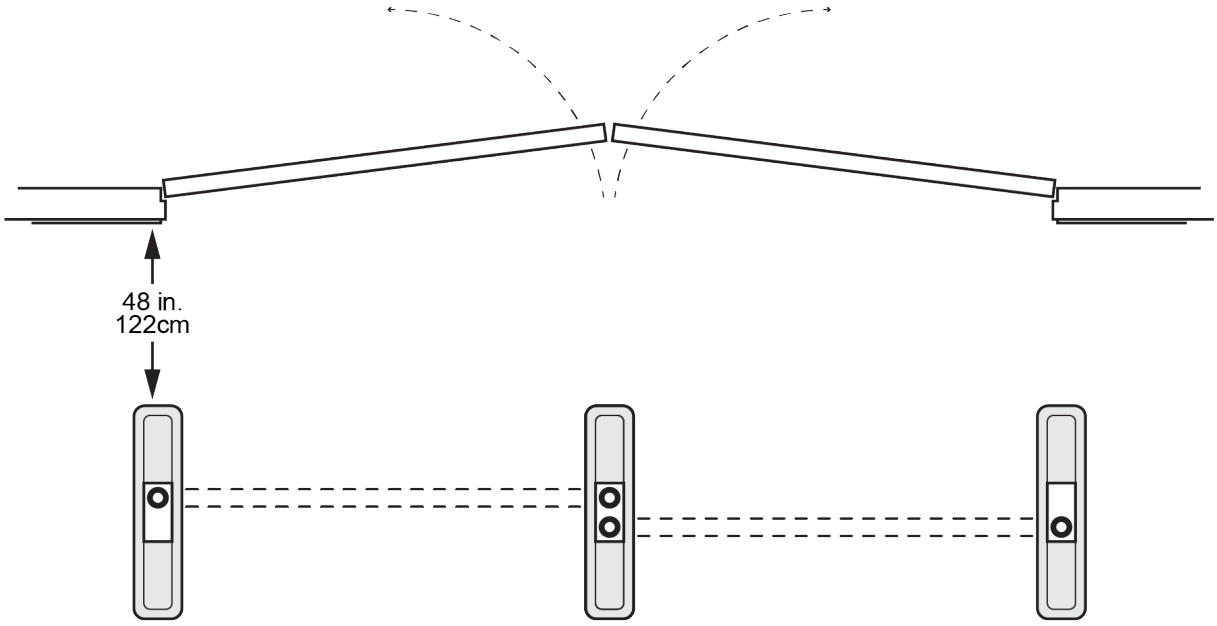
4.6.3 Layout: top view, single aisle

1. If applicable in the region, in order to meet ADA guidelines, it is recommended to set the gates back 48 in [122 cm] from the doors.
2. Conduit opening centered on mounting foot opening.



4.6.4 Layout: top view, multiple aisles

1. The conduit position in the mouting foot opening is staggered.
2. If applicable in the region, in order to meet ADA guidelines, it is recommended to set the gates back 48 in [122 cm] from the doors.
3. Perpendicular front-to-front orientation.
4. Perpendicular back-to-back orientation



4.7 Related product requirements

If you plan to use the optional staffConnect™ gate software to monitor the system, see the *staffConnect gate Pre-Installation Guide* for additional site requirements.

See also the *libraryConnect Pre-Installation Guide* and *libraryConnect™ devices Pre-Installation Guide*.

5 Providing a connection to external devices

This addendum is designed for contractors, access control/barrier suppliers or customers to describe the options, considerations and technology used when linking our RFID gate™ and RFID gate™ premium devices to external systems, such as security alarms, security turnstiles or automatic doors.

5.1 How it works

In short, the connection between the RFID gate™ and RFID gate™ premium device and the external device works by closing a circuit (briefly completing the connection) when the gate detects an item that still has security on it. This will trigger the function of the external device. The security setting on the item must either correspond to a valid AFI value or an enabled EAS setting.

Where the circuit is open or closed as default depends on the requirements of the third party device. Unfortunately, as all external devices are different, bibliotheca cannot provide instructions on where to connect the cabling on the external device, except that it should be an input relay.

5.2 Requirements

- The external device must support a relay input,
- it must be specified that the connect should be "Normally Open",
- the contacts are dry contacts and no voltage is supplied by the gates so power for the signal should be provided by the external device.

5.3 Considerations

- bibliotheca will provide and support one relay output from the reader on the A pedestal of each security gate system. This means that individual third party devices cannot be controlled independently when using one A pedestal and multiple B pedestals in a system.
    - If the customer requires each device to be controlled individually (for example, a specific turnstile to close when a specified antenna is triggered), then each gate aisle would have to consist of an A and a B pedestal (with all A pedestals synchronised to avoid interference).

When positioning the gates, in relation to an access control system (automatic doors, security turnstiles etc.)

- Ensure that the gates are positioned library side of the external device (so that when a patron is exiting the library, they must pass through one of the aisles of the security gate system before they get to the access control system).
- Ensure that, if the external device includes metal or emits a radio frequency signal (RF or RFID), the device is placed at an appropriate distance from the gate system, to eliminate any interference. Minimum distances for metal or magnestied devices and devices using RFID can be found in the pre-installation guide for the relevant product.
- The gate system may need to be moved further away from an access control system using a smartcard (MiFare/NFC) reader.

6 Contact bibliotheca Support

Please be ready with your library's customer number, case number, any applicable error messages or conditions, and the product version or serial number.

The Americas


+55 19 2515 7930
support-br@bibliotheca.com


+1 877 207 3127 (select option 2)
support-ca@bibliotheca.com


+1 877 207 3127 (select option 2)
support-us@bibliotheca.com

Asia and Pacific


+61 3 8555 3388
support-au@bibliotheca.com


+86 21 51078671
support-cn@bibliotheca.com


+85 2 3719 8122
support-hk@bibliotheca.com


+81 3 6273 0159
support-jp@bibliotheca.com


+82 02 6310 6565
support-kr@bibliotheca.com


+65 6 9044 270
support-sg@bibliotheca.com

Europe


+32 (0) 3 808 11 45
support-be@bibliotheca.com


+45 7027 1008
support-dk@bibliotheca.com


+358 3410 93347
support-fi@bibliotheca.com


+33 (0)1 56 24 11 76
support-fr@bibliotheca.com


+49 7121 9264 115
support-de@bibliotheca.com


+39 800 011 060
support-it@bibliotheca.com


+31 (0)85 7600 840
support-nl@bibliotheca.com


+45 7027 1008
support-no@bibliotheca.com


+46 8408 39145
support-se@bibliotheca.com


+41 41 726 9950
support-ch@bibliotheca.com


+44 (0)161 498 1150
support-uk@bibliotheca.com

bibliotheca®
transforming libraries