User's Manual

Tech Logic Security Gates

techlogic

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1 Cautions and Warnings

Caution! The Antenna-Tuner and the Antenna conductor carry voltages up to 1000V.

Warning!

- The device may only be used for the intended purpose designed by the manufacturer.
- The operation manual should be conveniently kept available at all times for each user.
- Unauthorized changes and the use of spare parts and additional devices which have not been sold or recommended by the manufacturer may cause fire, electric shocks or injuries. Such unauthorized measures shall exclude any liability by the manufacturer.
- The liability-prescriptions of the manufacturer in the issue valid at the time of purchase are valid for the device. The manufacturer shall not be held legally responsible for inaccuracies, errors, or omissions in the manual or automatically set parameters for a device or for an incorrect application of a device.
- Repairs may only be executed by the manufacturer.
- Installation, operation, and maintenance procedures should only be carried out by qualified personnel.
- Use of the device and its installation must be in accordance with national legal requirements and local electrical codes .
- When working on devices the valid safety regulations must be observed.
- Please observe that some parts of the device may heat severely.
- Before touching the device, the power supply must always be interrupted. Make sure that the device is without voltage by measuring. The fading of an operation control (LED) is no indicator for an interrupted power supply or the device being out of voltage!
- For installation and dismantling you should wear suitable safety gloves, because parts of antenna housing could be sharp-edged.

Important! Special advice for wearers of cardiac pacemakers:

- Although this device doesn't exceed the valid limits for electromagnetic fields you should keep a minimum distance of 9" (23 cm) between the device and your cardiac pacemaker and not stay in an immediate proximity of the reader's antennas for any length of time.

Notice: Changes or modifications made to this equipment not expresssly approved by Tech Logic may void the FCC authorization to operate this equipment.

2 Performance Features of the TL SECGATE TYPE A/B ANTENNAS

The TL SECGATE A includes the Reader and Multiplexer. The Reader and Multiplexer are mounted inside the antenna base.
The TL SECGATE B antenna is the same antenna without the Reader or Multiplexer.
Up to

- Two antennas (Qty. 1 Type A and Qty. 1 Type B) as a single gate,
- Three antennas (Qty. 1 Type A and Qty. 2 Type B) as a double gate

can be operated.
Depending on the antenna configuration, one, two, or all three read orientations of the RFID tags and various antenna spacing (gate widths) are possible.
The TL SECGATE Type A and B are antennas with tuners and have been optimized as transmitting and receiving antennas for the ID ISC.LR2000 Reader. It is however also possible to operate them with other readers at a transmission frequency of 13.56 MHz and an output impedance of 50 Ω. The read ranges indicated in this document and the tuning procedures may then vary.
The antennas comprise of the electrical antenna conductor, the housing, the ID ISC.DAT Dynamic Antenna Tuner and the connection cable. The antennas are factory tuned to an impedance of 50 Ω in a magnetically neutral environment at a distance of 37.4” (95 cm). When installing in different ambient conditions the antenna can be retuned using the “DATuningTool“ PC software. After tuning, the antennas will retain their settings as long as the ambient conditions remain unchanged.
The antennas can be used for detecting both product and persons. It is suitable for installation indoors or outdoors if weather-protected.

2.1 Available Antenna Types

The following antennas are currently available:

Antenna Type	Description
TL SECGATE A	Antenna with Reader ID ISC.LR2000 and Multiplexor
TL SECGATE B	Antenna only

Table 1: Available Antenna Types

3 Typical Antenna Configuration (Gate Antenna with Two Antennas)

The standard configuration of a gate with three-dimensional tag orientation consists of a Tech Logic SECGATE Type A antenna and a Tech Logic SECGATE Type B antenna.

If a tag moves through the gate horizontally, it can be read at least once. This ensures high reliability of the antenna system.

3.1 Project Notes

The antenna configuration described allows detection of a tag moving horizontally through the capture area of the gate. The tag orientation is non-critical. The tags are detected along a horizontal axis of motion in certain regions within the antennas. The area of detection depends on the tag orientation.

The size of the three-dimensions capture area of the antennas is shown in figure 1.

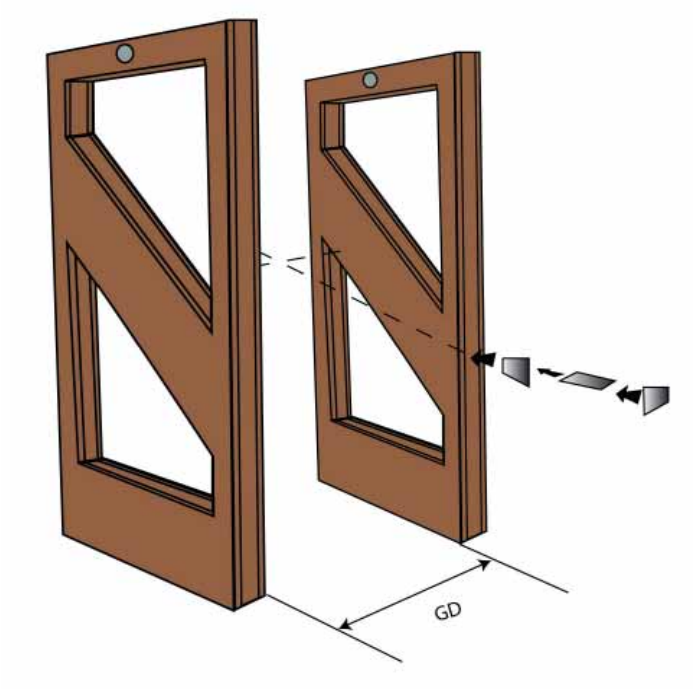

Figure 1: Capture Area and Tag Orientation

📖**Notes**:

- Note that the entire capture area of the antenna is larger than the three-dimensional area shown in the drawing. This means that there are tag orientations in which the tag can be detected outside the capture area.
- If multiple gates are arranged with short distances between each other, these will mutually interfere with each other. The readers for the respective gates must then be synchronized.

- To achieve three-dimensional capture of the tag in the capture area drawn above, the following conditions must be met:
  - The gate distance GD depends on the antenna configuration (see Table 1).
  - The tags should be at least ISO card size (46 mm x 75 mm).
  - The activation field strength of the tags should be less than or equal to 80 mA/m.
  - The distance from tag to tag should be greater than 4” (10 cm). If the tag to tag distance is reduced, the gate distance must be reduced correspondingly. This applies in particular to distances under 2” (5 cm).
  - The maximum number of tags (serial number or data) depends on the traverse speed with which the tags are brought through the capture area of the gate (see Table 4.1). The number of tags may be increased in the gate distance GD is correspondingly reduced and the maximum speed adjusted accordingly.
  - The antenna should be at least 50 cm from metal parts.
  - There should be no interference of the reader from other electrical devices in the environment. The Noise Level difference should be less than 30 mV.
  - The ID ISC.LR2000 Reader should be set to an RF power of 8 watts.
  - If multiple gates are operated at the same time at a distance of less than 26’ (8 m), the readers must be synchronized.

The following antennas are currently available:

	Antenna Type A and B
Gate Distance (GD)	≤ 37.4” (95 cm)
Number of tags at traverse speed 1 m/s Read serial number Read data	 16 8

Table 2: Design Notes

4 Technical Data

4.1 Antenna Tech Logic SECGATE Type A and B

Mechanical Data	
Housing	Wood
Dimensions (W x H x D)	30.5” x 66.8” x 4.5” 77.5 cm x 169.7 cm x 11.4 cm
Weight Tech Logic SECGATE A Tech Logic SECGATE B	 Approximately 59 lbs (26.8 kg) Approximately 57 lbs (25.9 kg)
Enclosure rating	IP54
Color	Customer specified stain

Mechanical Data	
Mounting Number of attaching points Recommended anchors Recommended minimum load capacity of the floor fastener	 2 Ø 3/8” (1 cm) 5000 N / anchor
Maximum horizontal load on the top edge of the antenna	250 N*

The outside dimensions of the antenna are shown in Figure 2.

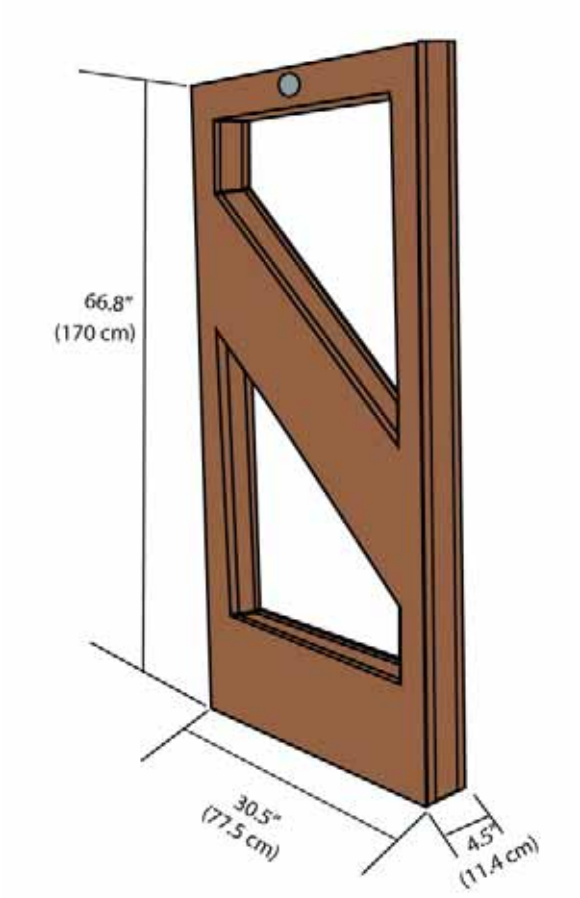

Figure 2: Antenna outside dimensions

Electrical Data	
Customer Supply Voltage	115 VAC, 2.9 Amps
Gate Supply Voltage	24 V ± 15% Noise Ripple: max. 150 mV
Power Consumption	max. 32 VA
Operating Frequency	13.56 MHz
Transmit Power	4 W -- 12 W
Maximum transmitting power per antenna	10 W
Permissible overall transmitting power per antenna gate USA (per. FCC Part 15)	8.0 W
Interfaces	RS232, RS485 Ethernet (TCP/IP)
Protocol Modes	FEIG ISO Host BRM (Data Filtering and Data Buffering) Scan Mode (RS 232/485/422) Notification Mode (TCP/IP)
Supported Transponders	ISO 15693, ISO 18000-3-A, I-Code 1 z.B.I-Code SLI, my-d, STMLRI512/64, Tag-it HFI
Ranges/pass-through width in gate Type A and B **One tag orientation** **All tag orientations**	 approx. 45.3” (115 cm)** approx. 41.3” (105 cm)***
Antenna connection	1 x SMA plug (50 Ω)
Antenna connector cable	RG58, 50Ω, approx. 6.6’ (2 m) long

**Antenna spacing (antenna center), same flow direction, Tag 46 mm x 75 mm ISO 15693, sensitivity / minimum field strength H_{min} = 80 mA/m rms, transmitting power 8 W, tag orientation parallel to antenna for horizontal movement through the antenna. The detection performance also depending on the strength of the transponder to answer signal.

***Tag 46 mm x 75 mm ISO 15693, sensitivity / minimum field strength H_{min} = 80 mA/m rms, transmitting power 8 W, aligned in all 3 dimensions for horizontal movement through the antenna. The detection performance also depending on the strength of the transponder answer signal.

4.2 Contact Information

Only Tech Logic approved technicians or personnel should work on Tech Logic Security Gates. Any unauthorized service done on the security gates, including opening the gate pedestals or the power supply cabinet, can void any warranties that the customer has with Tech Logic. Any questions or concerns regarding the security gates can be directed to Tech Logic at:

Toll Free: 1-800-494-9330
For calling outside of the U.S.: 1.651.747.0492
E-mail: customercare@tech-logic.com
Customer Support Center: http://www.tlcdelivers.com/helpdesk/
For the customer support center you will need your TLC Customer ID and zip code.

4.3 Approval

The technical data for the ID ISC.LRM2000 reader built into the Tech Logic SECGATE A antenna can be found in the power supply panel which is included with the device.

Product Name:	Tech Logic SECGATE A antenna
Model:	TLSECGATEA
FCC ID: **IC**:	V3WTLSECGATEA 7400A-SECGATEA
Notice for USA and Canada	This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions. (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.