ImproX 125 kHz Antenna Readers

Overview

Introduction

The **ImproX 125 kHz Antenna Readers** are compact, 125 kHz Tag Readers. The Antenna Readers include a single bi-coloured Red or Green Status LED. Selected models also include a single tone Buzzer. You can adjust the Buzzer volume to any one of these four levels (off, low, medium and high). You can set the functions of the Buzzer and Status LED to suit the needs of your application.

Selected models feature a 12-button alphanumeric Keypad. You may use the Keypad for Personal Access Code (PAC), PIN-Code or Reason Code entry.

The Antenna Readers are compatible with the SupaGate, IXP110, IXP120, IXP200, IXP220, IXP300 or IXP400 Access Control Systems. You may use the Antenna Readers with the following ImproX hardware:

- ImproX SupaGate Lite Receiver.
- ImproX SupaGate Receiver.
- ImproX SupaGate Plus Receiver.
- ImproX SupaGate Weatherproof Receiver.
- ImproX IXP110 Controller.
- ImproX IXP121 Controller.
- ImproX IXP220 Controller.
- ImproX (MfT) Multi-function Terminal.
- ImproX (TT) Twin Antenna Terminal.

Intended for indoor or outdoor use, selected models feature robust metal housings and fully potted electronic components. The potting compound prevents vandals tampering with the electronic components.

Key Features

- A single bi-coloured Red or Green Status LED.
- Models XTT902 to XTT909 include a single tone Buzzer. You can adjust the Buzzer volume to any one of these four levels (off, low, medium and high).
- Models XTT904 and XTT907 include a 12 button alphanumeric Keypad. You may use the Keypad for Personal Access Code (PAC), PIN-Code or Reason Code entry.
- Model XTT905 includes a 12 button numeric Keypad and a Doorbell facility. You may use the Keypad for Personal Access Code (PAC), PIN-Code or Reason Code entry.
- Models XTT908 and XTT909 are designed to be mounted in a user supplied enclosure. The ImproX CA (XTT909) is approved for use with the following Electrical Conduit Blanking Plates (specific to the European Market): Jung LS994B, Jung CD500, Merten ARTEC and Gira System 55.
- Read/Write Tag capability for various Tag types: Slim Tags (Read Only), Omega Tags (Read Only), WriTag 128 (Read/Write) and WriTag 2048 (Read/Write).
- Reads HID 125 kHz Tags when used with the ImproX TT or IXP121 Controller.
- Operates at a frequency of 125 kHz.

Antenna Reader Tag Read/Write Ranges

The range that the Antenna Readers can read from or write to a Tag is dependent on the type of Tag, type of Antenna Reader and material on which the Antenna Reader is mounted.

Typical ranges are shown below:

NOTE: Mounting the Antenna Reader on a metallic surface reduces the Tag reading range slightly.

NOTE: HID is a registered trademark of HID Global Corporation (an ASSA ABLOY Group Brand).

XTT901 to XTT903 and XTT907

Tag Type	Typical Range (Minimum) (Antenna Reader mounted on non-metallic surface)	
	(mm)	(in)
ISO Credit Card (Slim)	60	2.36
ISO Credit Card (Omega)	60	2.36
Tear Drop Tag	40	1.58
Key Ring Tag	40	1.58
Pico Tag	20	0.78
ISO Credit Card WriTag 2048	60	2.36
ISO Credit Card WriTag 128	60	2.36
HID 125 kHz Tags	30-50	1.18-1.96

Table 1: Typical Read/Write Ranges

XTT904

Tag Type	Typical Range (Minimum) (Antenna Reader mounted on non-metallic surface)	
	(mm)	(in)
ISO Credit Card (Slim)	40-60	1.57-2.36
ISO Credit Card (Omega)	60	2.36
Tear Drop Tag	40	1.58
Key Ring Tag	40	1.58
Pico Tag	20	0.78
ISO Credit Card WriTag 2048	60	2.36
ISO Credit Card WriTag 128	60	2.36
HID 125 kHz Tags	25-50	0.98-1.96

Table 2: Typical Read/Write Ranges

XTT905

Tag Type	Typical Range (Minimum) (Antenna Reader mounted on non-metallic surface)	
	(mm)	(in)
ISO Credit Card (Slim)	40	1.57
ISO Credit Card (Omega)	40	1.57
Tear Drop Tag	20	0.78
Key Ring Tag	20	0.78
Pico Tag	10	0.39
ISO Credit Card WriTag 128	40	1.57
ISO Credit Card WriTag 2048	40	1.57
HID 125 kHz Tags	20-40	0.78-1.57

Table 3: Typical Read/Write Ranges

XTT906 and XTT908

Tag Type	Typical Range (Minimum) (Antenna Reader mounted on non-metallic surface)	
	(mm)	(in)
ISO Credit Card (Slim)	40	1.57
ISO Credit Card (Omega)	40	1.57
Tear Drop Tag	30	1.18
Key Ring Tag	30	1.18
Pico Tag	20	0.78
ISO Credit Card WriTag 128	40	1.57
ISO Credit Card WriTag 2048	40	1.57
HID 125 kHz Tags	30-50	1.18-1.96

Table 4: Typical Read/Write Ranges

XTT909

Tag Type	Typical Range (Minimum) (Antenna Reader mounted on non-metallic surface)	
	(mm)	(in)
ISO Credit Card (Slim)	50	1.96
ISO Credit Card (Omega)	50	1.96
Key Ring Tag	25	0.98
Pico Tag	25	0.98
ISO Credit Card WriTag 128	50	1.96
ISO Credit Card WriTag 2048	50	1.96
HID 125 kHz Tags	25-50	0.98-1.96

Table 5: Typical Read/Write Ranges

Approvals

XTT901 to XTT907

- CE Approved.
- FCC Approved.

XTT908 and XTT909

- CE Approved.
- FCC Approval Pending.

Specifications

Physical

XTT901 ImproX (MMA) Mullion Antenna Reader

Dimensions		
Length	:	59 mm (2.3 in).
Width	:	43 mm (1.7 in).
Height	:	16 mm (0.6 in).
Approximate Weight	:	67 g (2.4 oz).
Housing Material	:	ABS Plastic.
Colour	:	Dark Grey.

XTT902 ImproX (MA) Micro Antenna Reader

Dimensions		
Length	:	88 mm (3.5 in).
Width	:	54 mm (2.1 in).
Height	:	25 mm (1 in).
Approximate Weight	:	100 g (3.6 oz).
Housing Material	:	ABS Plastic.
Colour	:	Dark Grey.

XTT903 ImproX (MHA) Metal Antenna Reader

Dimensions		
Length	:	75 mm (3 in).
Width	:	72 mm (3 in).
Height	:	27 mm (1 in).
Approximate Weight	:	220 g (7.8 oz).
Housing Material	:	Die-cast Zinc Alloy.
Colour	:	Satin Nickel.

XTT904 ImproX (KHA) Metal Keypad Antenna Reader

Dimensions		
Length	:	142 mm (5.5 in).
Width	:	76 mm (3 in).
Height	:	27 mm (1 in).

Approximate Weight	:	510 g (18 oz).
Housing Material	:	Die-cast Zinc Alloy.
Colour	:	Satin Nickel.

XTT905 ImproX (KMA) Mullion Keypad Antenna Reader

Dimensions		
Length	:	116 mm (4.5 in).
Width	:	38 mm (1.5 in).
Height	:	18 mm (0.7 in).
Approximate Weight	:	41 g (1.5 oz).
Housing Material	:	ABS Plastic.
Colour	:	Black.

XTT906 ImproX (RA) Rod Antenna Reader

Dimensions		
Length	:	83 mm (3 in).
Diameter	:	20 mm (0.8 in).
Approximate Weight	:	160 g (5.5 oz).
Housing Material	:	PVC sheathing with Polyurethane potting.
Colour	:	White.

XTT907 ImproX (KA) Keypad Antenna Reader

Dimensions		
Length	:	113 mm (4.5 in).
Width	:	81 mm (3 in).
Height	:	32 mm (1 in).
Approximate Weight	:	200 g (7 oz).
Housing Material	:	ABS Plastic.
Colour	:	Dark Grey.

XTT908 ImproX (DPA) Door Entry Panel Antenna Reader

Dimensions		
Length	:	68 mm (3 in).
Width	:	68 mm (3 in).
Height	:	15 mm (0.5 in).
Approximate Weight	:	176 g (6 oz).
Housing Material	:	ABS Plastic.
Colour	:	Black.

XTT909 ImproX (CA) Conduit Antenna Reader

Dimensions		
Length	:	39 mm (1.5 in).
Width	:	27 mm (1 in).
Height	:	14 mm (0.5 in).
Approximate Weight	:	10 g (0.3 oz).

Environmental

Temperature		
Operating	:	-25°C to +60°C (-13°F to +140°F).
Storage	:	-40°C to +80°C (-40°F to +176°F).
Humidity Range	:	0 to 95% relative humidity at +40°C (+104°F) non-condensing.
Approvals (Test Information)	:	IEC 1000-6-3. IEC 61000-6-1.
Dust and Splash Resistance		
XTT901, XTT906, XTT908	:	Designed to work in an indoor or outdoor environment similar to IP66. The Antenna Readers are, therefore, sealed (potted) against water.
XTT902, XTT903, XTT904, XTT907	:	Designed to work in an indoor or outdoor environment similar to IP53. The Antenna Readers are, therefore, sealed (potted) against water.
XTT905	:	Designed to work in an indoor or protected outdoor environment similar to IP42. The Antenna Reader is, therefore, not sealed against water.
XTT909	:	The IP rating for this Antenna Reader is equivalent to the selected Cabinet's rating.
Drop Endurance	:	2 m (6.56 ft) drop (in packaging).

Operator or Installer Interfaces

Buzzer		
Volume and Tone	:	Single tone, 4-step adjustable volume.
		NOTE: The ImproX MMA (XTT901) does not include a buzzer.
Keypad		
Keys		
XTT904 and XTT907	:	12 Alphanumeric keys.
XTT905	:	12 Numeric keys.
Status Indicators		
Status LED	:	Bi-coloured Red or Green (externally visible).

Installation Information

Accessories

You will find the following when unpacking your ImproX Antenna Reader:

XTT901 to XTT904 and XTT907

- Either an ImproX MMA Antenna Reader (XTT901-1-0-GB-XX) housed in a Dark Grey, ABS Plastic housing. The ImproX MMA consists of a Front Cover and a Backing Plate. The Front Cover (including the potted electronic components) assembly includes 8 m (26 ft) of 4-core, 0.5 mm solid strand Communications Cable.
- Or an ImproX MA Antenna Reader (XTT902-1-0-GB-XX) housed in a Dark Grey, ABS Plastic housing. The ImproX MA consists of a Front Cover and a Backing Plate (the Backing Plate is attached with a Self-tapping Screw (M2 x 6 mm)).
- Or an ImproX MHA Antenna Reader (XTT903-1-0-GB-XX) housed in a Zinc alloy die-cast housing. The ImproX MHA consists of a Front Cover and a Backing Plate (the Backing Plate is attached with a Hexagonal Screw (M3 x 8 mm)).
- Or an ImproX KHA Antenna Reader (XTT904-1-0-GB-XX) housed in a Zinc alloy die-cast housing. The ImproX KHA consists of a Front Cover and a Backing Plate (the Backing Plate is attached with a Hexagonal Screw (M3 x 8 mm)).
- Or an ImproX KA Antenna Reader (XTT907-1-0-GB-XX) housed in a Dark Grey, ABS Plastic housing. The ImproX KA consists of a Front Cover and a Backing Plate (the Backing Plate is attached with a Self-tapping Screw (M3 x 8 mm)).
- An Allen Key (2 mm) (XTT903-1-0-GB-XX and XTT904-1-0-GB-XX models only).
- Four Brass Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- An extra Serial Number Label.

XTT905

- An ImproX KMA Antenna Reader housed in a Black, ABS Plastic housing. The ImproX KMA consists of a Front Cover and a Mounting Bracket (the Mounting Bracket is attached with a Self-tapping Screw (M2 x 6 mm)).
- Two Counter-sunk Self-tapping Screws (M2 x 6 mm).
- Two Counter-sunk Self-tapping Screws (2.9 mm x 25 mm).
- Two Wall Plugs (5 mm).
- An extra Serial Number Label.

XTT906 and XTT908

- Either an ImproX RA Antenna Reader (XTT906-1-0-GB-XX) housed in PVC sheathing. The ImproX RA includes 8 m (26 ft) of 4-core cable.
- Or an ImproX DPA Antenna Reader (XTT908-1-0-GB-XX) housed in a Black, ABS Plastic housing. The ImproX DPA includes 8 m (26 ft) of 4-core, 0.5 mm Solid Strand Communications Cable.
- A Piezo-electric, External Drive Buzzer.
- A bi-colour Red or Green, White Diffused Lens, Hi-bright, 5 mm, 2-Terminal LED (XTT906-1-0-GB-XX model only).
- An extra Serial Number Label.

XTT909

- 10 ImproX CA Antenna Reader printed circuit board assemblies.
- An extra Serial Number Label.

General

Remember the following when installing your Antenna Reader:

Antenna Reader Distance

The ideal cable distance between the Terminal, Controller or Receiver and its Antenna Reader ranges between 2 m to 16 m (7 ft to 53 ft). Achieve this by using a good quality shielded multi-strand 3-pair twisted cable. The cross-sectional area of the cable must not be less than 0.2 mm^2 (0.0003 in^2).

Cable Specifications

The cable specifications should be similar to the following:

- Conductor Resistance: < 2 ohms.
- Capacitance, Core to Earth: < 160 pF/m.
- Capacitance, Core to Core: < 100 pF/m.

Distance between Antenna Readers from the SAME Terminal, Controller or Receiver

To avoid mutual interference, install the Antenna Readers no closer than 150 mm (6 in) apart.

Distance between Antenna Readers from DIFFERENT Terminals, Controllers or Receivers

To avoid mutual interference, install the Antenna Readers no closer than 500 mm (20 in) apart.

Mounting the Antenna Readers

CAUTION: Make certain that you mount the Antenna Reader on a vibration-free surface.

Select the mounting position of the Antenna Reader, considering accessibility, routing of wires and visibility of the externally visible LED.

XTT901 ImproX (MMA) Mullion Antenna Reader

Secure the ImproX MMA to the mounting surface, using two suitable screws and wall plugs, nuts and bolts, rivets or double-sided adhesive tape.

The Antenna Readers design offers a choice of three cable exit holes (see Figure 1). These are:

- Through the centre of the Backing Plate.
- Through the top of the Front Cover.
- Through the bottom of the Front Cover.

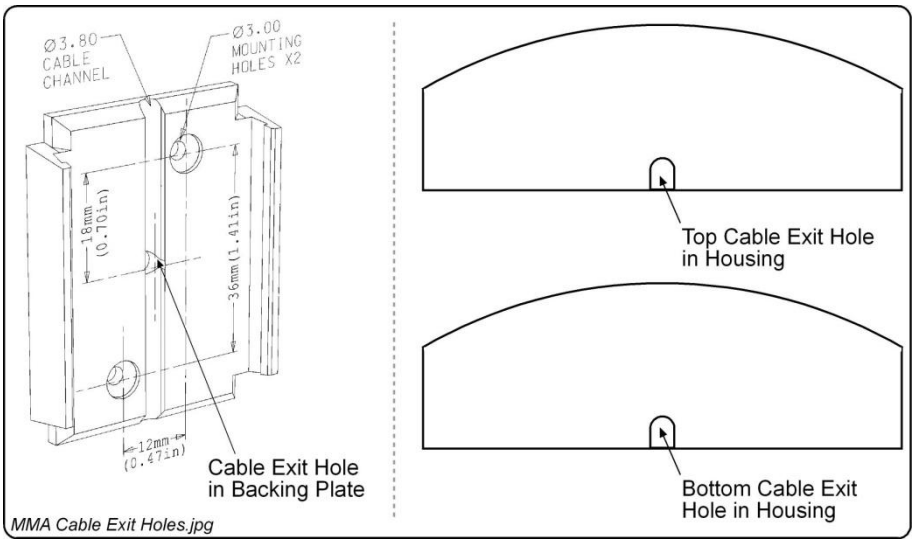

Figure 1: ImproX MMA Cable Exit Holes

If you are going to use the cable exit hole at the centre of the Backing Plate, drill a corresponding hole in the mounting surface. Use the Backing Plate as a template to mark the position for this hole.

If you are going to use the cable exit hole at the top or bottom of the Front Cover, remove the thin plastic wall using a sharp tool.

Mounting the Front Cover onto the Backing Plate

CAUTION: Once clipped together, separation of the Backing Plate and Front Cover is likely to cause damage to the Antenna Reader.