Paxton

What's in the box?
Hands free demonstration unit
Figure 8 IEC power lead.
Net2 demonstration cards and keyfobs
Hands free keycard
Documentation

Operation

The system comprises of a standard P50 proximity reader and a hands free interface.

1. Power up.

Power up the unit and the reader LED's will cycle through while the unit configures itself.
All 3 LED's will now be lit.

This unit has been loaded with modified software to demonstrate the wireless range and flexibility of the Net2Air Hands free system. The reader will respond to a token with a beep and a flashing Green LED as soon as a valid read is achieved.

2. Presenting passive tokens.

A range of standard Net2 tokens is included for comparison tests. Present any Paxton or EM4100 token to the reader. The reader will beep at the normal passive read range.

3. The keycard.

A hands free keycard is provided. This card can be used in three ways:

i.   Passive - The keycard contains an ID chip that any P series unit can read up to 80 mm.
ii. Active   - The keycard has a hands free transmitter/receiver that will operate up to 1100 mm.
              Bring the keycard into range and the unit will respond using the hands free interface.
              The keycard must be then taken out of range again before a second read can take place.
iii. Manual - The keycard transmitter can be activated from button 1. (Left). Pressing this button will
              produce a response up to 50 metres from the reader. Button 2 in not active on this card.

The push button on the stand is not active with this demonstration system.
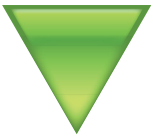
AN1082 - Hands free - How does it work?

The hands free system increases the effective read range of a standard Paxton P or KP series reader to a maximum of 2.5 metres.

The system comprises of a hands free interface, a compatible reader (see read range table) and hands free tokens (keycard or keyfob). The system operates by using the field being transmitted by the P series reader. This wakes up the token which then communicates with the interface. The interface contains a long range receiver aerial.

Existing P and KP readers can be used without modification. The hands free interface takes its

Hands free keyfob

P series reader

Net2 control unit

Hands free interface

Switch2 control unit

Hands free keycard
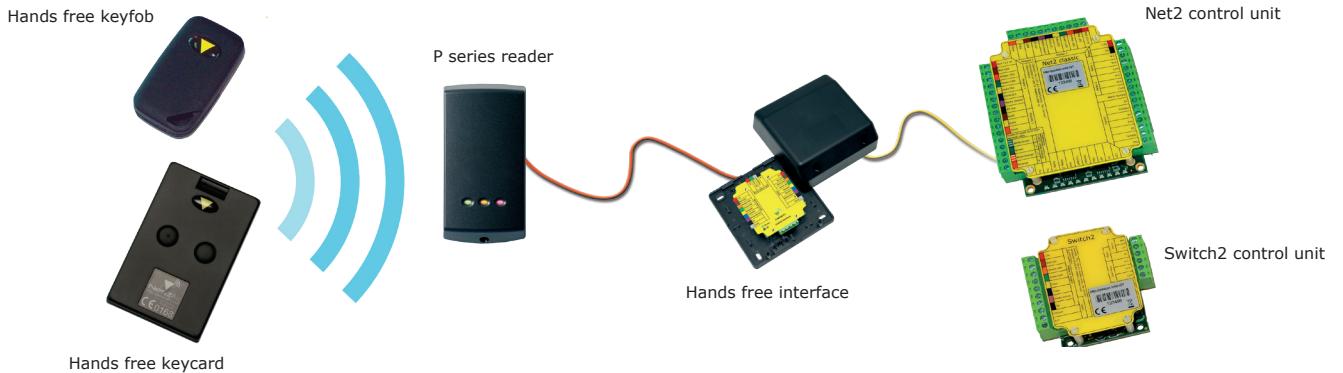
power from the control unit and therefore does not require a power supply.

Hands free tokens also include a standard PROXIMITY ID chip and can therefore be presented to any compatible proximity reader whether they are using the hands free interface or not.

Overview

The P series reader is constantly transmitting the address of the interface it is connected to. When the hands free token comes in range, it wakes up and transmits its card number to the interface just identified. This ensures that it only communicates with the correct interface board, allowing several interface boards to be placed within range of each other.

The token then shuts down for two seconds to stop repeated transmissions and preserve battery life. After this two second period, the token checks to see if it is still in the same field. If so, it shuts down and checks again two seconds later. If it finds no field, it shuts down completely until woken again by a fresh transmission from a reader.

NOTE: After a good read, you must take the token away from the reader's field before you can repeat a test at the same door.
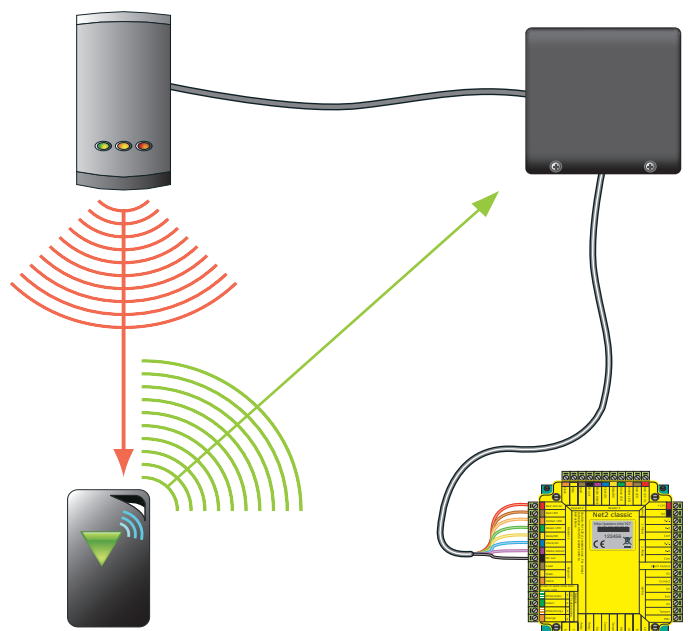
Reader Position

The read range of the system depends on the type of reader chosen.

Read Range	
P38	0.85 m
P50	1.1 m
P75	1.5 m
P200	2.5 m
P200 metal mount	2.0 m
Long Range Reader	5.0 m

When a reader is connected to a hands free interface board for the first time the reader firmware will be modified to enable the reader to transmit the address of its interface every 100ms.

The location of both reader and the interface directly affects the operation of the system.

As the reader is constantly transmitting interface information, it must be placed outside the field of adjacent readers, loop aerials etc, or this data may be corrupted.

For example, the minimum distance between a P200 and a P50 reader should be greater than the combined read range of 3.6m (P200 hands free range = 2.5m + P50 hands free range = 1.1m)

When using in and out readers, users may be picked up by both readers as they move through the door which will affect the reliability of any Roll Call or Anti-passback application. Ensure that sufficient spacing is provided between these readers for optimum range and reliability.

Interface Position

The token communicates with the interface using a wireless device at 2.4GHz. This frequency is ideal for low power, short-range communication and enables the high speed transmission of secure, encrypted data packets.

The interface should be physically positioned within 15 metres of the reader regardless of the actual cable length between them. Wireless technology can be susceptible to environmental factors so if problems are experienced it may be necessary to reposition or move the interface closer to the reader.

The hands free interface contains the main radio aerial and so should not be housed in a metal enclosure, behind metal girders, reinforced concrete, etc or the read range will be greatly reduced.

Keycard Operation

The keycard will operate as a passive (short range), hands free (same as the keyfob) or long-range hands free token.

Before the keycard buttons will operate, the card needs to know the unique address of the interface(s) it will be working with and its button setting. This is done by first using the keycard in HANDS FREE mode on each reader/interface that is required to be used in long-range mode.

The keycard stores this address and button information for future use.

There are two buttons on the keycard - each can store a maximum of 7 interface addresses in its memory. If it should be used on an eighth interface it will overwrite the first one that was stored, and so on.

When you press a button on the keycard, it transmits the card number to all the stored interface addresses that are using that button. If two interfaces are likely to be within range, (e.g. In and Out barriers) you should set the interfaces to use a different button for each. (see ins-30037)

NOTE: A keycard has a range of typically 5m (maximum 50m). This is achieved by initiating the data with the pressing of a button rather than the incoming signal from a reader. This range can only be achieved in free space with a good line of sight between user and interface. In many secure areas such as car parks, metal gates and fencing can disrupt the radio signal resulting in a reduction in read range. As usual, the positioning of the interface is important and the range may be greatly improved if the interface is located well above ground level giving a clear line of sight to the user.