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# **Touchscreen Chip and PIN devices – Guidelines for accessibility**

UK Card Payment Terminal Approval Scheme

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# 1 Introduction

This is a supplement to the paper 'Scheme description and approvals list' – see [UKTAS-SD] in section 9. Its purpose is to give vendors an understanding of the accessibility requirements for UK approvals. Where physical keys are replaced by 'soft' buttons on a touchscreen, there are usability requirements that must be met for both blind and partially sighted people. Touchscreens bring difficulties for many people, including the lack of tactile buttons and a lack of feedback when pressing buttons. For people who are blind the problems are greater because they cannot navigate the touchscreen in the same way as with a physical keypad.

The standard visual information and the visual design of the display and keypad must be made legible to all users, including partially sighted users who rely on using their sight. There must also be an 'accessibility mode' to support blind customers with speech and beeps, and this may also include tactile markings or haptic feedback. This document describes a method that can be used to make a touchscreen Chip and PIN device accessible for people who are unable to see the screen. This method has been tested with blind and partially sighted people.

While RNIB believes that the methods described in this paper are free of intellectual property rights, that cannot be guaranteed, and it is the responsibility of developers and vendors to check this.

Whilst we don't want to stop innovation, from a user point of view it is important to have a consistent method of PIN entry for different payment devices, as it will be difficult for the user to have to learn and use a different method for different devices. However, this document will be reviewed and updated if other simplified and streamlined methods have been developed and have been tested with blind and partially sighted people and proven to be suitable alternatives.

UK approval of touch screen PIN entry devices is dependent on RNIB giving its approval that the PIN entry function and the cardholder interface are suitable for blind and partially sighted people. Devices are approved based on testing performed by RNIB. This includes inspection and operation (for points such as colour contrast and the operation of the interface with audio) and user testing (for points such as ease of use). Vendors of touchscreen PIN entry devices are strongly advised to contact RNIB to obtain advice at the design stage.

Touchscreens offer greater flexibility than traditional keypads, since the software that controls the cardholder interface can change any aspect of its appearance, such as the contrast and font size on the screen.

Vendors must ensure that following RNIB approval, changes to software do not invalidate the approval of the specified device.

Special consideration must be given where a payment terminal is built into a larger device such as a vending machine, to ensure that accessibility options remain easy to access.

Under the Equality Act, merchants must make sure their services are accessible and this includes arrangements for taking payments. This means that a merchant who provides a payment terminal that is not accessible to blind and partially sighted people is likely to be acting unlawfully.

## **2 General Display Requirements**

This section addresses the requirements for customers generally, and for people who are partially sighted or have problems with their vision. Clear visual design will benefit many users, but in particular people who are partially sighted, have a temporary sight loss (such as cataracts) or those who do not have their reading glasses.

The term “Payment transaction information” includes payment-related messages such as the amount of the transaction and whether the transaction has been completed, and instructions for the customer such as to enter the PIN or remove the card. This information should be accessible to blind and partially sighted customers.

### **2.1 PIN pad buttons**

Buttons must be large enough to accommodate a person’s finger, to avoid the risk of selecting an adjacent button by mistake. Smaller buttons will be more difficult to use, for people with tremors or larger fingers.

### **2.2 Font size and type**

Numbers on PIN pad buttons must be a minimum of 5 mm in height. The numbers must not touch the edges of the button.

Text should be in a large font size, a minimum of 5 mm in height for capital letters

The Font type must be sans serif, and should ideally use upper- and lower-case letters for messages and button names (e.g. Enter, Clear or Cancel, and not ENTER, CLEAR or CANCEL). Many partially sighted people will read using the shape of the word to identify it especially if they are expecting to see a particular word (as would be the case for Enter, Cancel and Clear). A larger font in a combination of upper and lower case is easier to read than words in all upper case.

**ENTER** ( 14-point Arial - more difficult to read)

**Enter** (18-point Arial - takes up a similar amount of space and is easier to read)

It is also important to consider the font type that is used, both for text and numbers. For example, in the Arial font the tails of the 6 and 9 in particular curl over and they can easily be confused with an 8. Thus, a font such as Gill Sans (or equivalent), where the tail for the 6 and the 9 (and also the 5) does not curve over, is preferred for numbers.

The symbols on the Cancel, Clear and Enter buttons must follow the conventions of a cross (X) for Cancel, < for Clear and a tick or the letters OK for Enter. The actual words can be used instead, but if the buttons are small then a large icon (at least 5mm high) is preferred.

Payment transaction information (such as if the transaction has been completed or cancelled) should also be in a minimum of 5 mm height for numbers or capital letters. The amount should ideally be larger so that this is easier to see, and people know how much they are paying.

## 2.3 Colour contrast

Buttons, and the text or labels on them, must be clear and easy to see. This means that the text must contrast well with the button background and the button itself be clear against the overall PIN-pad background. Examples are shown in Figure 4.

A control button (Cancel, Clear and OK/Enter) in a solid colour is much easier to identify as a control button than a button where just the symbol is coloured as some people might struggle to see the symbol. Labelling and colour of the control buttons must be as shown in figure 1:

Button	Label	Colour of button
Cancel	<b>Cancel</b> or <b>X</b>	<b>Red</b>
Clear	<b>Clear</b> or <b>&lt;</b>	<b>Yellow</b>
Enter	<b>Enter</b> , <b>OK</b> or <b>✓</b>	<b>Green</b>

## Figure 1 – Labelling and colour of the control buttons

Colour contrast is very important, particularly on a PIN pad where a partially sighted person might be able to see the location of a button and then work out what number it is based on location rather than the detail of the number itself. A minimum contrast of at least 7:1 is essential between a PIN digit and its background. A higher contrast is preferred (black and white has the best contrast with a contrast ratio of 21:1) but other colour combinations can be used such as white on dark blue or yellow on black, both of which provide a good contrast.

The contrast between the words or symbols on the Cancel, Clear and Enter buttons and the button itself must be at least 4.5:1, providing that the symbols or text are large (at least 5 mm in height). Given the different colours suggested, it could be that the text or icons will need to be different colour in particular for the yellow button. For example, white text can stand out well on a dark red and dark green background but not on yellow and the text/icon colour on yellow must be black or another dark colour. If black text/icons are used on the green and red background, the buttons must be a slightly lighter red or green colour so that the contrast is sufficient.

The contrast between the buttons and surrounding area must be at least 4.5:1. Many partially sighted people are not able to see the numbers on the buttons, but if the buttons stand out well, then they will be able to work out where the numbers are.

For payment transaction information on the screen, the contrast between words and symbols and their background must be at least 7:1.

Care should be taken to avoid problems for people who are colour blind. Thus, red and green should not be adjacent (such as with a symbol or number on a button), and nor should blue and green, red and brown, green and brown or yellow and brown. The contrast ratio will give a good indication of what is acceptable.

Contrast guidelines are based on WCAG 2.1 guidelines<sup>1</sup> for AA and AAA (see [WCAG]) and can be measured using a contrast checker online<sup>2</sup>.

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<sup>1</sup> [WCAG] Web Content Accessibility Guidelines (WCAG) 2.1, W3C Recommendation 05 June 2018, at <https://www.w3.org/TR/WCAG21/>

<sup>2</sup> TGPi Contrast Checker (<https://www.tpgi.com/color-contrast-checker/>)  
WebAIM Contrast Checker (<https://webaim.org/resources/contrastchecker/>)  
Deque Color Contrast Analyzer (<https://dequeuniversity.com/color-contrast>)

### **3 General Audio Requirements**

It is useful for anybody if there is a beep when a digit has been entered on the PIN entry screen, but this is even more important for people who struggle to see the 'dots' or 'stars' that indicate how many digits have been entered. A beep is extra confirmation that the touch has been recognised and a digit has been entered and this must be included.

### **4 Touchscreen Requirements**

The operation of the soft buttons should be as easy for all users as traditional keys, and not be significantly affected by different skin conditions (dry, greasy etc) or tremors. In testing, a touchscreen must respond reliably to a touch and a double-tap for the accessibility mode but should not be so sensitive that it easily allows a touch to be mistaken for a double-tap, resulting in accidental digit entries.

## **5 Accessibility mode for blind customers**

### **5.1 General**

There must be an accessibility mode for blind customers, that enables audio feedback and an accessible PIN entry method. It must be quick and easy to activate the accessibility mode. In an unattended situation the user must be able to do this, and instructions must be given. In an attended situation this can be done by the merchant and must be clear and easy to do. In addition, a method to enable the user to start the accessibility mode independently can be provided; however, an option for the merchant to start the accessibility mode must be provided as users may not know what to do. (See appendix C for guidance of what to include in the instructions provided to the merchant.)

Merchant activation must be via a button or icon on screen. The wording "Accessibility mode" or an icon of an eye with lines through are possible solutions – see figure 3 for example (BS 8300-2:2018). This must be present as soon as the amount is shown and before the PIN entry process is started and it must be clearly visible on screen. This way, the amount and instructions can be spoken before PIN entry.



**Figure 3 - Example of accessibility mode symbol**

If the screen is blanked out when the accessibility mode is started the user must be informed in the audio instructions.

## **5.2 Accessible PIN entry method**

Preferably a single standard PIN entry method for blind people must be provided for all touchscreen PIN entry devices, as described below. This ensures that a blind customer does not have to learn or remember different methods of PIN entry.

Whilst we don't want to stop innovation, from a user point of view it is important to have a consistent method of PIN entry for different payment devices. This document will therefore be updated if other better accessible methods are developed and tested with blind and partially sighted people. The following method has however been tested with blind and partially sighted people.

### **Method of PIN entry:**

The customer puts their finger on the screen and hears either a beep (indicating that this is a PIN digit position), the function (if this is a control button, e.g. 'Enter button', 'Clear last digit button' or 'Cancel button'), or a spoken message saying where the PIN pad is (e.g. 'PIN pad below').

By starting at a corner of the screen, the customer can find the 1, 3, Cancel or Enter button. Then by moving around the screen up, down, left and right, and hearing either beeps or the function of a control button, the PIN digit and control buttons can be found.

To enter a PIN digit, once the required digit is located, the customer lifts their finger and double taps anywhere on the screen to enter the digit. The device then indicates in speech how many digits have been entered so far (e.g. "first digit entered", "second digit entered" etc). When the correct number of digits has been entered, the customer navigates to the Enter button and double taps anywhere on the screen. The device then tells the user that PIN entry is complete and if the transaction is approved the user is informed. If errors occur (such as the wrong PIN was entered) the user is informed and given instructions on how to proceed (such as by retrying). PIN digits must not be spoken and the beeps for all the digits must be the same for security reasons.

It is important that the user can do a double tap anywhere on the screen to activate the digit, as a blind person would not necessarily tap on the actual digit.

The 'Clear last digit' button's function is to clear the last digit: selecting it will clear the last digit and the user will be told how many digits are remaining.

If there is no 'clear last digit button' then the cancel button can function as a 'Clear all digits' button. Activating this will clear all digits and the user will be told that 'All digits cleared, please re-enter your PIN'.

If the user does not select a digit or the Enter button after 10 seconds, they should get a reminder saying the number of digits entered and asking them to continue entering PIN digits or select the Enter button. Some video examples of the standard accessible PIN entry method are given in the references in section 9.

### 5.3 PIN pad layout

In accessibility mode, the PIN pad layout must be one of the layouts shown in figure 4. The reason to standardise the layout is because it is more difficult to learn a new layout when you can't see the PIN pad. Using different devices with the same layout will help a blind user.

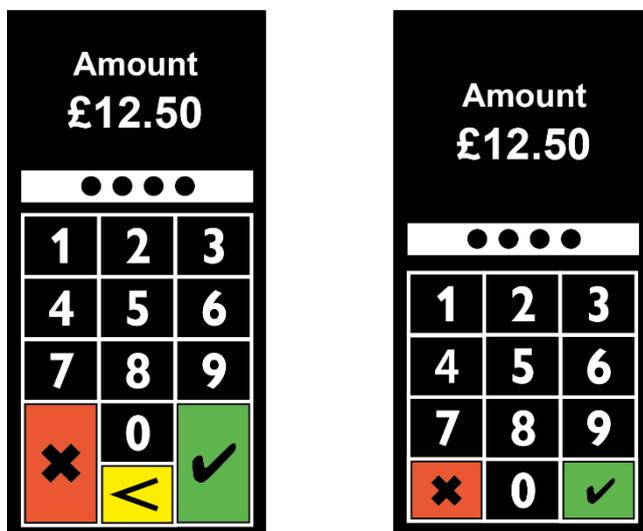


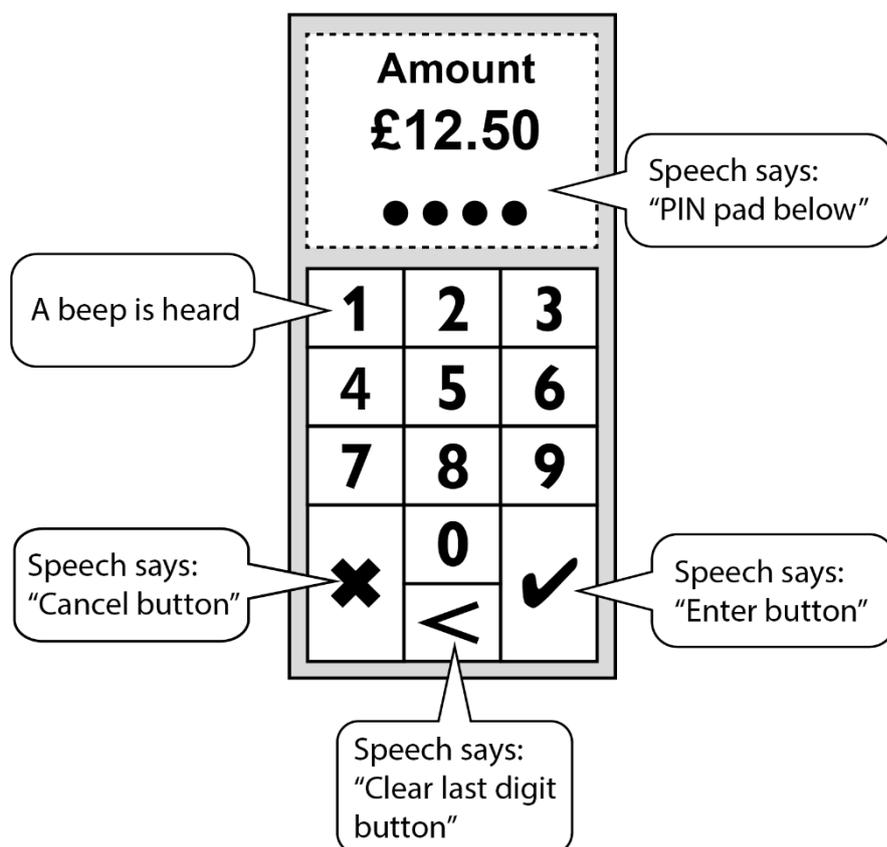
Figure 4 – PIN pad layout, with and without a Clear (<) button

If there is no Clear button as shown in the right image of Figure 4. Then the Cancel button is a multi-function button and works as follows:

- If PIN digits have been recorded, it operates as a 'clear-all-digits' button'.
- If no PIN digits have been recorded, it operates as a Cancel button and cancels the transaction as in the normal operating mode.

With a small portrait-oriented screen, the PIN pad must be located at the bottom of the screen. The space above the PIN pad must be clearly labelled in speech. Figures 4 and 5 show the layout of such a screen. The PIN pad on a portable portrait-oriented screen must also be locked in the vertical portrait position and not change orientation to horizontal/landscape if the screen is turned.

In the case of a large screen, where the screen is larger than the PIN Pad, the PIN pad in accessibility mode must be at a location that is easy to reach, and the areas around the PIN pad, when touched, must give information of where the PIN Pad is (e.g. "PIN pad on the right", "PIN Pad above", "PIN Pad below" etc). Consideration must be given to the location of the touchscreen and to people of different heights and in wheelchairs.



**Figure 5 - A portrait-oriented screen layout filling the whole screen**

## 5.4 Amount to pay and instructions prior to PIN entry

On activation of the accessibility menu, the amount to pay must be spoken.

After the payment amount has been spoken, the device should give spoken instructions to the user on how to enter their PIN.

The full instructions should only be interruptible by inserting the payment card, so that a user who is familiar with the device can skip the instructions and go straight to the PIN entry screen to speed up the process, but somebody who is not familiar with the device cannot accidentally interrupt the instructions by touching the screen.

The full instructions must include:

- The location of the PIN pad.
- The layout of the PIN pad - for example, what control buttons are available.
- How to locate and select digits and control buttons on the PIN pad, and the audio feedback, including how many digits have been entered. The feedback must include suggestions on where to start. For example, if the user is expected to start at a corner then this must be stated, or if there is a tactile pip on the glass to identify the 5 then this can be used as a starting point.
- How to submit the digits by doing a double tap
- How to submit a PIN by selecting Enter
- How to clear digits if an incorrect digit has been entered.
- How to cancel the transaction.

The user must be able to interrupt these full instructions by inserting their card and continue with the PIN entry if they are confident to do so. A short reminder of the layout (as opposed to the full instructions) must be spoken when the PIN entry screen opens after people have inserted their card.

See Appendix A for an example of both these instructions.

## 5.5 Audio output

The device must support high-quality audio output. Ideally there should be an option to use headphones. The speech quality must be good and clear with no obvious accents. It must be possible to use the device without headphones as it cannot be assumed that all blind people will carry headphones. In addition, many people now use wireless earbuds that require pairing with a device, and this is not likely to be practical when paying using Chip and PIN.

## 5.6 Audio volume

It must be possible to adjust the volume of the audio output and it must be loud enough to be heard in a busy shopping environment.

It would be useful to have the option to plug in headphones so that the user can listen to the instructions using headphones. This should be in addition to the instructions being read out by the device using the device's speakers as not all users will have headphones with them that can be plugged in, and this cannot be relied on.

## 5.7 Training

It is useful if a training mode is present, enabling the user to try out selecting digits before they enter their actual PIN number, and giving the user the option to select it if required or to skip it if they are familiar with the device.

Ideally an app that can be downloaded on Android and iOS with a training mode would be recommended so that people can practise at home and don't need to do that in a shop. See Appendix B for a description of the Training mode.

## 6 Tactile markings

A tactile edge to indicate where the touchscreen starts (if this is not the edge of the device) is also useful so that the user knows where the active touch screen is. This is particularly important if there is a large border that is not part of the touch screen. There could be tactile markings on the screen surround, to help a blind user navigate the PIN pad, as shown in figure 2. Alternatively speech could help the user (see 5.3)

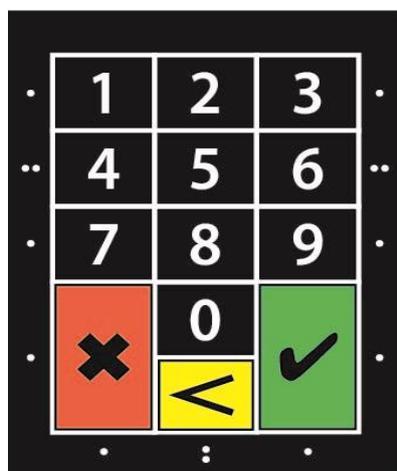


Figure 2 - Example of tactile markings

There could also be tactile markings on the screen itself (e.g. a pip on the number 5 or raised ridges to indicate the button edges or the edge of the touchscreen).

Engraved markings cannot be felt and should be avoided.

## **7 Tactile overlay**

A tactile overlay can be considered if this is a permanent feature of the device (i.e., it is permanently fixed to the device and cannot be removed).

If the tactile overlay can be removed, then the device should have a dedicated storage area for the overlay so that the overlay will always be present when needed and cannot be misplaced by the merchant. This is important as if the overlay is lost then this means that the device is not accessible to people who are unable to see the screen, and this should be avoided. A software solution as described in section 5 will always be present on the device.

If an overlay is used it is important that it is easy to enter the PIN, but that accidental digit entries are avoided (e.g. when exploring the device by touch which blind people will need to do, or by people with tremors).

## **8 Merchant information**

The merchant will need to be able to start the process and know what to do when they have a blind or partially sighted customer. It is therefore vital that information is provided to the merchant when they obtain the device and that it is clear and obvious what to do to assist a blind customer (if they have forgotten or did not fully read the information provided).

The following are suggestions to help with this.

- The button to select the accessibility mode is easy to identify and clearly shown on the screen at the appropriate time (e.g. the amount screen before the user inserts their card)
- The instructions for the user are clear and easy to understand.
- The instructions must be spoken by the device.

In addition, it is important to ensure that when the merchant obtains the device, they are aware that they need to be able to use the accessibility mode to ensure that blind and partially sighted people can pay.

- On purchase, the information about the accessibility mode must be emphasised to the merchant.
- Instructions on how to activate and use the accessibility mode must be included with the device.
- A demonstration video should ideally be provided so that the merchant knows what to expect when using the accessibility mode.
- A demonstration video should ideally be provided to help blind and partially sighted people know how to use the device

See section 9 for references and some example videos and Appendix C for more information for the merchant.

## 9 References and further information

[RNIB] 'What are accessible chip and PIN devices?', RNIB, at <https://www.rnib.org.uk/sight-loss-advice/technology-guides-everyday-living/accessible-chip-pin>

[UK Finance] 'Scheme description and approvals list' at <https://www.ukfinance.org.uk/policy-and-guidance/guidance/card-terminal-security-and-accessibility>

### Videos of accessible touchscreen Chip and PIN devices

The following vendors have informed us that they have prepared videos describing the accessibility mode:

[Verifone video] at <https://www.facebook.com/Verifone/videos/introducing-verifone-navigator/578492682581011/>

[Ingenico video] at <https://www.youtube.com/watch?v=srQuu3ZWdnA>.

[PAX video] at [https://youtu.be/jW5\\_Xu9ywvM](https://youtu.be/jW5_Xu9ywvM)

We will add additional videos describing other vendors' devices when we are informed of them.

# Appendix A Speech examples

## Example speech

The process that is used on most touchscreen Chip and PIN devices is as follows:

1. Merchant enters the amount
2. Merchant selects the accessibility button (e.g., eye icon)
3. The device will start to speak automatically and it will say something along the lines of:

"The total amount is XX pounds and YY pence.  
Please listen to the following instructions or to interrupt and pay please swipe, tap, or insert your card.

The card slot is located at the [bottom/top] of the device.  
The layout is standard telephone layout with 1, 2, 3 at the top and Cancel, [Clear] and Enter across the bottom. The numbers are not spoken but the Cancel, [Clear] and Enter buttons speak the words "Cancel", ["Clear all/Clear last digit"] and "Enter".

Slide your finger across the screen. If you start above the PIN Pad you will hear "PIN Pad below". As you slide your finger, you will hear a beep for each digit. When you have found the desired digit, lift your finger and double tap anywhere on the screen to select the digit.

You will hear "first digit entered" followed by "second digit entered" as you enter numbers.

Once you have entered all digits find the Enter button at the bottom right of screen, then double tap anywhere on the screen to confirm.

There is a Cancel button at the bottom left [which also functions as a Clear all digits button] [and a Clear last button in the middle].  
[There might be some tactile markings around the edge to indicate where the rows and columns of the PIN pad are.]

Please tap, insert or swipe your card to enter your PIN".

[Some instructions on where to tap/insert or swipe the card should be added)

**Note:**

These instructions are repeated after 10 seconds if the user does not insert their card.

These instructions are interrupted if the user inserts their card so that if they are familiar with the device, they don't need to listen to the full instructions each time.

Touching the screen should not interrupt the instructions at this stage.

4. When the user inserts their card the PIN pad will appear, and short instructions will be spoken (just as a reminder if they missed the full instructions) along the lines of:

“Please enter PIN. The layout is standard telephone layout with 1, 2, 3 at the top and Cancel, [Clear] and Enter across the bottom.

Slide your finger across the screen. Find the digits using the beeps, then double tap anywhere on the screen to enter the digit.

When finished find the Enter button at the bottom right, then double tap to confirm”.

**Note:**

These short instructions can be interrupted by touching the screen. This is so that the user can speed up the process if they are familiar with the device and start entering their PIN.

5. The user enters their PIN using the beeps and the Cancel, [Clear] and Enter buttons as reference points.

**Notes:**

- If there is an area above the PIN pad that is not used for PIN entry, the device must, when this area is touched, say “PIN Pad below”. If there is an area below the PIN pad then it could say “PIN Pad above”. This may change depending on where the keypad is displayed on the device. On some larger devices a small part of the screen will usually be used to display the keypad.
- When a digit is touched there will be a beep or the word ‘digit’ is spoken
- If the user activates a digit the device will say: “First digit entered”, “Second digit entered” etc
- When the control buttons are touched the device will speak: “Cancel button”, “Clear all digits button” or “Enter/OK button”

- If the user activates the 'Clear last digit button' the device will say: "Last digit cleared, X digits remaining"
- If the user activates the 'Cancel button' the device will say: "Transaction cancelled, please remove your card" or any other message that is appropriate and is shown visually on the screen
- If the user activates the 'Enter button' the device will say: "Transaction Approved, please remove your card" or "Incorrect PIN, please re-enter your PIN" or any other message that is appropriate and is shown visually on the screen
- If the user does not activate a digit or the Enter button after 10 seconds, they should get a reminder saying: "XX digits entered, please continue with PIN or select the Enter button at the bottom right"

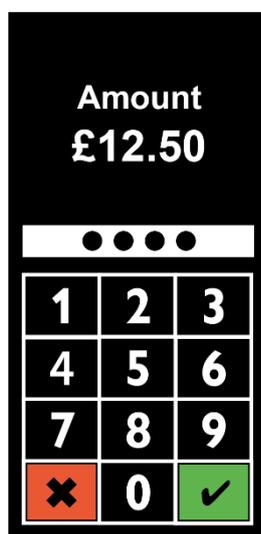
## Appendix B Training mode

Touch screen PIN entry devices are appearing in shops more frequently replacing PIN entry devices with physical buttons, the standard touch screen ones were not initially accessible for people who are unable to see the screen. RNIB is working with different companies to come up with accessible solutions. Accessibility will be built into all new devices and the information here explains how a training mode can work to give people the opportunity to try this out in a safe environment.

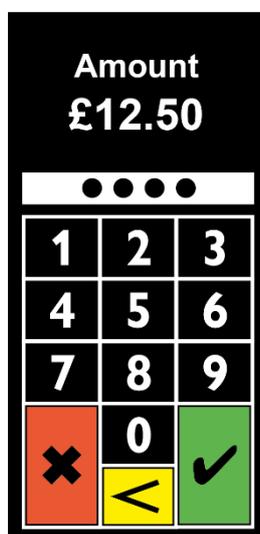
The PIN entry device has a touchscreen that is used by both the merchant and the customer. The device uses speech and audio to tell the user how to enter their PIN. The merchant will enter the amount to pay and then hand the device to the user who will then enter their PIN number using the touchscreen. The layout of the keypad will usually look like one or other of the designs below.

**Layout 1** is a standard telephone layout with one, two, three at the top and Cancel, Zero and Enter at the bottom.

**Layout 2** is a standard telephone layout with one, two, three at the top and Cancel, Clear and Enter at the bottom.



Layout 1



Layout 2

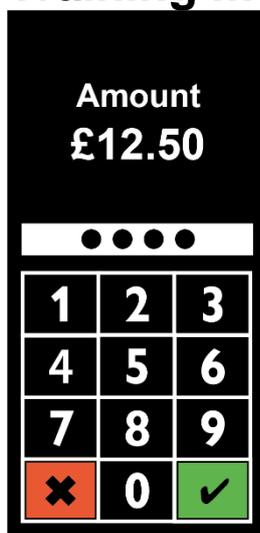
On the device, there will be a button labelled 'Training' to take the user to the training screen. This will usually be activated by the merchant.

It is useful to have a training mode on the device so that a user can become familiar with how the device is used. When the device is in the training mode, the device will speak the numbers after they are selected so that the user can check they have input the correct number. When the device is used for a real transaction, the numbers will not be spoken.

**Note:**

It would also be really useful to have an app available where people can practise entering their PIN. It will be much easier to practise this in a quiet familiar environment, rather than a busy shop.

## Training mode speech – Layout 1



“This is the training mode. Please listen to these instructions on how to enter your PIN.

The PIN Pad is located towards the bottom half of the screen.

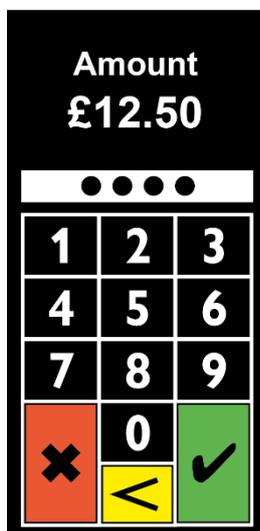
Layout is standard telephone layout with one, two, three at the top and Cancel, Zero and Enter at the bottom. If you are too high on the screen the device will tell you “PIN pad below”. The numbers are not spoken for security reasons, but the buttons at the bottom left and right will speak the words Cancel and Enter. Move your finger on the glass and use the beeps to find the right digit. Lift your finger and double tap anywhere on the screen to enter it. In this training mode, the device will speak the digit after you have entered it so you can confirm that you have entered the correct digit. It will only speak the digit in this training mode and will not do this when paying for your purchase. Please enter some random numbers to practice, but do not enter your real PIN number. The cancel button at the bottom left also functions as a ‘Clear all digits button’ when

digits have been entered. Selecting this button will either cancel the transaction or clear all digits. Once you are familiar with the device, find the enter button at the bottom right. Then double tap anywhere on the screen to exit the training mode”.

When a number is entered using a double tap the speech says:  
“Number X entered”

When digits have been entered and the ‘Clear all digits button’ is selected and activated the speech will say:  
“All digits cleared, please re-enter your PIN”

## Training mode speech – Layout 2



“This is the training mode. Please listen to these instructions on how to enter your PIN.

The PIN Pad is located towards the bottom half of the screen.

Layout is standard telephone layout with one, two, three at the top and Cancel, Clear and Enter at the bottom. If you are too high on the screen the device will tell you “PIN pad below”. The numbers are not spoken for security reasons, but the buttons at the bottom left, middle and right will speak the words Cancel, Clear last digit and Enter. Move your finger on the glass and use the beeps to find the right digit. Lift your finger and double tap anywhere on the screen to enter it. In this training mode, the device will speak the digit after you have entered it so you can confirm that you have entered the correct digit. It will only speak the digit in this training mode and will not do this when paying for your purchase. Please

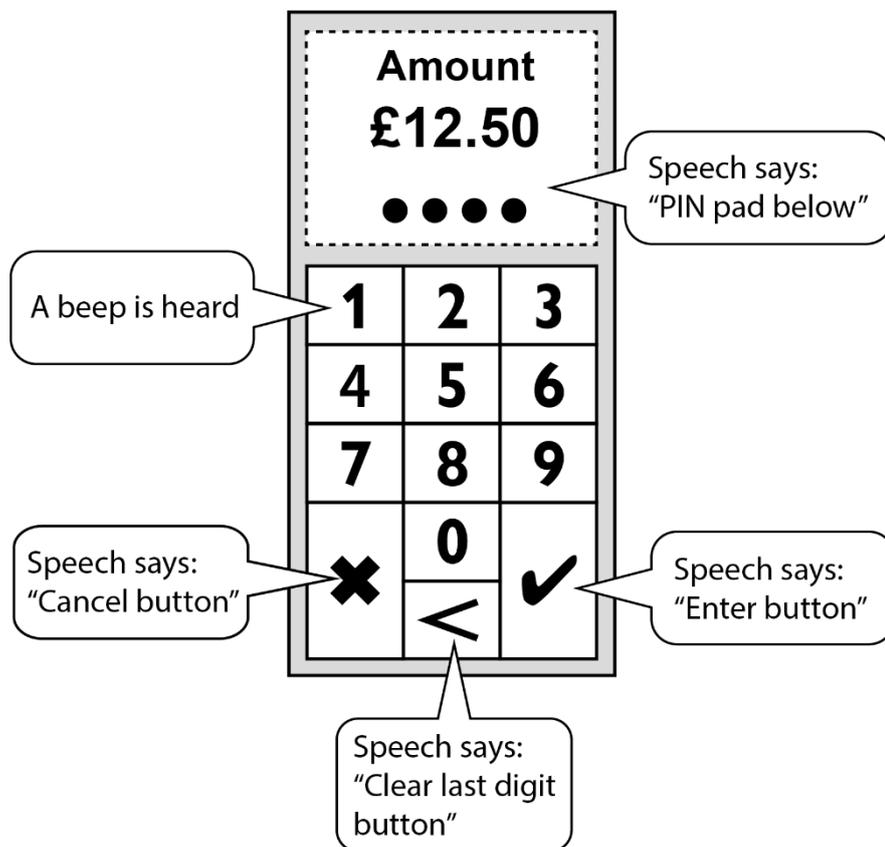
enter some random numbers to practice, but do not enter your real PIN number. The Cancel button at the bottom left will cancel the transaction. The Clear last digit button will clear all the last digit so the digit can be re-entered. Once you are familiar with the device, find the Enter button at the bottom right. Then double tap anywhere on the screen to exit the training mode”.

When a number is entered using a double tap the speech says:  
“Number X entered”

When the ‘Clear last digit button’ is selected and activated the speech will say:  
“Last digit cleared, XX digits remaining”

### Notes:

If you are too high on the screen the device will tell you “PIN pad below”. This may change depending on where the keypad is displayed on the device. On some larger devices a small part of the screen will usually be used to display the keypad.



**Figure 5 - A portrait-oriented screen layout filling the whole screen**

## Appendix C Instructions for merchants

It is important to inform the merchant of the accessibility mode and how to use this so that they know how to activate this and how to potentially help the customer.

The following items need to be covered in the instructions:

- Explain what the accessibility mode is
- How to access it and turn it on
- How it works (be able to explain to the customer that the numbers are not spoken for security reasons, that they need to navigate the PIN pad using beeps and the spoken buttons, that they need to do a double tap etc. The same information that is spoken to the customers)
- If a training mode is provided, there should be instructions for the merchant explaining how to activate it and how it works
- The merchant needs to know how to adjust the volume
- It would be very useful to provide a demo video (see section 9 for some examples)