

Positioning of PIN entry devices at the Point of Sale

Introduction

With the increased use of PEDs (PIN entry devices) at the PoS (Point of Sale), there is a need to position new hardware in a way that is easily accessible by all customers and operators. The PED (pin entry device) may incorporate a smart card chip and/or magnetic stripe reader.

The PED terminal is yet another piece of technology equipment to be placed on an already crowded retail counter. Its placement is critical to ease of use, while accessible, useable and secure facilities are essential for successful operation.

Experience from countries using PIN entry systems shows that following the introduction of these devices at the point of sale, initially, a large number of people have trouble using them. This can cause confusion and embarrassment for the customer, and can have a detrimental effect on customer flow.

Access & location

The PED needs to be accessible to as many customers as possible. To assist the widest possible range of users, and where there is no conflict with merchant conditions of use, or security requirements, the PED terminal should be able to be operated in the following ways:

- Held easily in one hand;
- stable whilst operated on a shop counter surface; or
- operated while in a mounting bracket

The mounting of the PIN entry device should allow all users to operate it comfortably. Standard counter heights on which PEDs are installed may make access difficult for some users, and it should be possible for a staff member to re-locate it, so it is in comfortable reach of a short or disabled user. The requirements and abilities of the tallest, shortest, able-bodied and disabled members of the population will be very different. It is recommended that operation of the PED controls should not require a tight grip or twisting of the wrist to move or steady it for use.

Placement of the terminal

To ensure that the terminal is in a location that enables users to interact with it comfortably these recommendations have been made:

Installation location	Recommendation
Minimum height from floor	The centre of the '5' key shall not be below 31.5" from floor-level where an operator stands to use the terminal
Maximum height from floor	The center of the '5' key shall not be above 49.2" from floor-level where an operator stands to use the terminal
Best location range	Recommended that the pin pad terminal be at a height between 35.5" and 39.4"

It is recommended that the relation between the height of the PED and the angle of the display to horizontal follow these guidelines:

Heigh (inches)	Angle (degrees)
31.5"– 35.5"	0°-30°
35.5" – 43.3"	30°-60°
43.3" – 49.2"	60°-90°

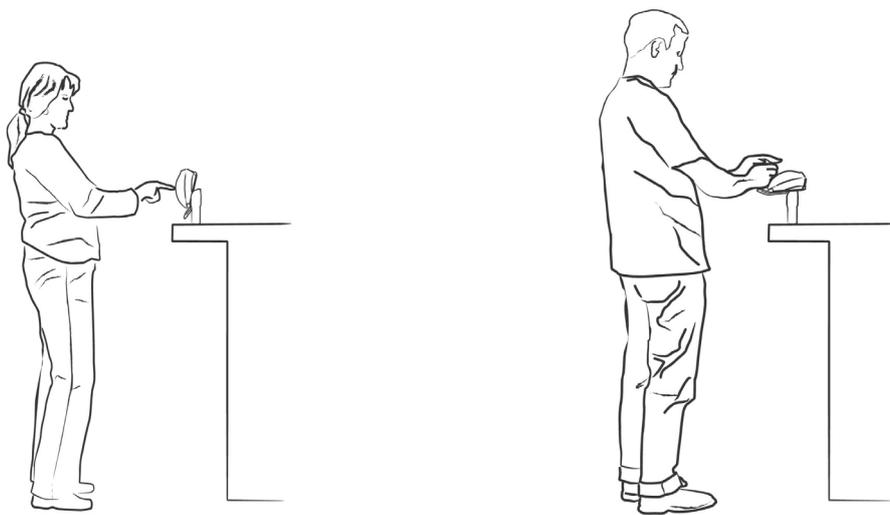


Fig. 1: Counter mounted PED showing angle adjustability for a short female and a tall male user.

The PED needs to be mounted so that it is not obstructed by the counter edge and is situated in a user's comfortable reach, not at full arm length. Users at each extreme of the population, the tallest and shortest, must be considered.

Recommendations state that when installed the '5' key on the PED should not be more than 8" from the front of the counter. This keeps the reach distance short and enables a user to stand close to the terminal.

Display

In addition, when the device is mounted in a bracket to promote stability, the display should be tilted correctly to make it easy to read and to avoid any reflection of light. The viewing angle should allow people of different heights to read the display.

Disabled use

The elderly, and people with disabilities, can face significant barriers in accessing information technology and electronic commerce. This problem risks them becoming marginalized and isolated from the community and has legal implications if they are unable to use technology. Retailers must comply with relevant legislation, The Americans with Disabilities Act (1990) and its subsequent amendments, so that technology and equipment is accessible to all customers.

Pin Pad placement considerations

Accessible counters to accommodate the needs of disabled users should be provided. Counters should have no edge or lip. Interactive equipment in accessible areas should be no higher than 48" from the floor, and with a reach distance of no more than 8" from a counter edge. If there is an obstruction the height is reduced to 46" from the floor.

Ideally, a PED at an accessible counter should be 40" from the floor so that it can be easily viewed and operated. To accommodate different users it is preferable, that the PED be on an adjustable mounting so it can be viewed and reached from a comfortable height and angle.

Some customers will have trouble inserting their card into the terminal, this can be eased by staff assistance, contactless card technology, and detachable keypads. A keypad removable from its mounting, that allows wheelchair users to place it on their lap for transactions makes operation easier, and enables further compliance with disability acts.

Penalties for non compliance with ADA requirements are substantial. An upward adjustment was introduced in 2014 setting the maximum penalty for a first violation at \$75,000, and the maximum penalty for a second violation at \$150,000.



Fig. 2: Counter mounted PED upright for disabled used.

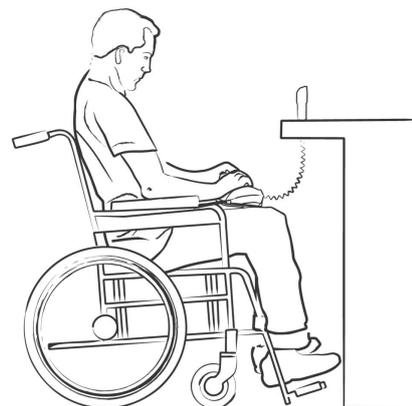


Fig. 3: Disabled user with PED detached from counter mounting.

Privacy

An important part of PED location and mounting is that it provides privacy and security for all users. This can be through shielding around the device, and by placing the device so that a users body hides it from others during use. Privacy issues surrounding PIN discovery are of particular concern to blind and vision-impaired users.

Shielding needs to be mounted so that it doesn't exclude right or left handed users, and remains in position when the device is removed.

Summary of mounting considerations

To be accessible for the whole population PED mounting needs to consider the following:

- Adjustable: angle of display and pin pad surface
- Detachable from mounting
- Location: easy reach for clients and staff
- Security: "rule out shoulder-surfing", placement of shielding, adherence to PCI guidelines