

CCTV **privacy masking** guide



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For other information please contact:

British Security Industry Association
t: 0845 389 3889
f: 0845 389 0761
e: info@bsia.co.uk
www.bsia.co.uk

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1 The need for privacy masking

'Privacy Masking' is the common term covering the need to restrict what can be seen by means of Closed Circuit Television (CCTV) systems. It applies equally to images displayed in real time for surveillance purposes and images recorded for later use. There are two key articles of UK legislation that determine the legal requirements for privacy masking, the Human Rights Act 1998 and the Data Protection Act 1998.

1.1 The Human Rights Act 1998 (HRA)

The HRA implemented in the UK gives fundamental rights and freedom to everybody, this Act is based on the European Convention on Human Rights (ECHR) and in Article 8 it states that:

"Everyone has the right to respect for his private and family life, his home and his correspondence"

1.2 The Data Protection Act 1998 (DPA)

The DPA places obligations on people and organisations who hold and use personal data. The DPA sets out eight data protection principles that state the data must be:

- 1) fairly and lawfully processed;
- 2) processed for limited purposes and not in any manner incompatible with those purposes;
- 3) adequate, relevant and not excessive;
- 4) accurate;
- 5) not kept for longer than is necessary;
- 6) processed in accordance with individuals' rights;
- 7) secure;
- 8) not transferred to countries without adequate protection.

To assist in the application of these Data Protection Principles within the operation of CCTV systems, the Information Commissioner published a CCTV Code of Practice (CCTV CoP) in 2000. Key points in the code of practice relating to privacy include, but are not limited to, the following:

"The equipment should be sited in such a way that it only monitors those spaces which are intended to be covered by the equipment.

If domestic areas such as gardens or areas not intended to be covered by the scheme border those spaces which are intended to be covered by the equipment, then the user should consult with the owners of such spaces if images from those spaces might be recorded.

Operators must be aware of the purpose(s) for which the scheme has been established.

Operators must be aware that they are only able to use the equipment in order to achieve the purpose(s) for which it has been installed.

If cameras are adjustable by the operators, this should be restricted so that operators cannot adjust or manipulate them to overlook spaces that are not intended to be covered by the scheme.

If it is not possible physically to restrict the equipment to avoid recording images from those spaces not intended to be covered by the scheme, then operators should be trained in recognising the privacy implications of such spaces being covered."

In addition there will be other legislation that will affect aspects of camera installation such as the Town and Country Planning Order 1995. These may not impact on DPA or HRA issues directly, but may limit how a CCTV system may be installed. Consideration should also be given to other byelaws introduced by local government. These will vary from region to region.

2 Methods of restricting camera views

A CCTV system should be designed to limit its coverage so that it does not cover areas or 'spaces', which are outside its intended use. When designing a system, the spaces to be surveyed and those surrounding it should be considered from a DPA and HRA perspective and the level of privacy for each space determined. Should camera fields of view need to overlap one or more of the surrounding spaces, then action must be taken to enforce the DPA and HRA requirements.

There are various methods by which DPA and HRA restrictions may be satisfied. One approach is through the select positioning of the cameras to be used to ensure that private space cannot be seen. Where the camera view does infringe on a private space, then either written permission from the person who owns or resides in that space should be obtained, or physical or electronic image masking should be employed.

2.1 Camera positioning

The most effective way to restrict the field of view of a camera is by careful selection of camera position and lens field of view to prevent the camera from overlooking private areas. With fixed cameras this can be relatively straightforward, but with moveable Pan, Tilt and Zoom (PTZ) cameras this may involve setting pan and tilt movement limits either physically or within the control system's settings to restrict the horizontal and or vertical rotation of the unit. If control system settings are used to limit the field of view, it is important to make certain that these are protected via a key switch or pass code so that they cannot be subsequently altered or overridden by unauthorised persons.

2.2 Masking

The type of masking used should ensure that when in force, the area to be restricted from view remains private. There are currently two main types of masking, these are:

2.2.1 Physical masking

External physical barriers such as walls, embankments or trees and vegetation in combination with camera positioning can be used to mask the views of private areas. However, it is important to remember and take into account that the coverage provided by vegetation may vary due to seasonal changes, growth and pruning.

2.2.2 Electronic masking

There are several ways that electronic masking may be applied. The most typical takes place in or close to the camera but could also be within the recording device; subsequently allowing authorised users access to the masked part of the image. In either case the mask must always be correctly applied when required. Masks can be applied in various ways depending on the DPA and HRA limitations. Masked areas of the image are commonly referred to as 'Zones'. Examples include:

- a) Masked areas (usually rectangles) of solid, uniform colour so that no detail or movement in the scene covered by them can be seen through them.
- b) Masks that blur or pixellate the image so that they cover to allow movement, but no fine detail to be seen, such that targets can still be tracked or incidents detected in areas covered by the masks.
- c) Masks that engage only when the camera zooms in on an area, using the diminutive size of an object when far away to conceal detail.

With controllable cameras there is a need to dynamically adjust the size and position of the zone in accordance with pan, tilt and zoom. Maintaining the integrity of the privacy masking system is important, such that its configuration can be protected to prevent settings being altered, bypassed or overridden by unauthorised persons.

There are several factors affecting the accuracy of electronic masking. On PTZ cameras, mask size and shape needs to automatically adjust in order to cope with changes in perspective as the camera pans, tilts and zooms.

This issue becomes more acute with the degree that the camera is tilted, especially in cases where the areas to be masked fall well below the horizontal horizon of the camera. The suitability of the method of electronic privacy masking should be verified prior to the procurement and installation of equipment. Other factors that can affect the privacy masking are:

- a) The speed of mask drawing and updating due to the capabilities of the hardware being used to generate the masks. This can result in the mask lagging a short time behind changes in the image due to pan, tilt and zoom.
- b) The resolution and accuracy of feedback of pan, tilt and zoom position to the mask generator. This can result in the mask shifting towards one of the sides of the privacy zone, which in turn may result in part of the private area becoming visible. Making the masks slightly larger than the private area when setting them up usually compensates for this.
- c) The calibration and setup of generic privacy mask generators designed for use in conjunction with a range of cameras, lenses and pan and tilt units. Where the privacy masking system is not integral to the camera unit, some form of calibration is normally required in order that the privacy masking will work correctly.

Where the privacy masking is applied either in the camera module or within a dome camera assembly that is supplied complete with camera, there is usually no calibration required, as all necessary parameters are factory set.

Where systems require calibration, the accuracy of that calibration is normally critical to the subsequent accuracy of the privacy masking. Calibration should therefore be carried out carefully and in accordance with the instructions and, if necessary, training sought from the manufacturer of the equipment. The calibration should particularly take into account the non-linearity of the zoom lens (i.e. the amount that a fixed point in the centre of the scene moves in the image as the lens is zoomed in and out).

3 References

Convention for the Protection of Human Rights and Fundamental Freedoms as amended by Protocol No. 11,
Council of Europe, Rome 4. XI. 1950

<http://conventions.coe.int/treaty/en/Treaties/Html/005.htm>

Home Office Communications Directive, Human Rights Act - An Introduction, HRG 110/2000

<http://www.opsi.gov.uk/acts/acts1998/80042--d.htm>

The Information Commissioner, CCTV Code of Practice, July 2000.

<http://www.ico.gov.uk> (under the 'for organisations' heading in the 'topic specific guides' section)

The Information Commissioner, The Data Protection Act 1998

<http://www.opsi.gov.uk/acts/acts1998/19980029.htm>