

Remote Control of Home Equipment

This document provides information on ‘remote control’ or ‘home automation’ equipment that can be installed and potentially used with an Environmental Control (EC) system. This might be useful for those who are looking to:

- setup remote control equipment that can be used with standard remotes or apps - but that might need to be compatible with an EC system in the future (e.g. those with MND or other deteriorating conditions);
- install equipment that will work with an existing environmental control system.

Apart from lighting and intercoms, the range of equipment listed in this document is **not** provided as part of a specialised Environmental Control (EC) system and will be required to be funded and installed by other parties. Equipment included in this resource is indicative and not meant as an endorsement, alternative equipment and suppliers are available. [For further information on this and EC services, please visit our website.](#)

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General Principles

In many cases it might be useful for someone to be able to remote control equipment in the house – for example if someone finds it difficult to get to a device because of mobility issues or risk of falls. This resource provides a range of options for remote controlling equipment. In general this can be done in two ways – making the equipment controllable with a handset remote control, or making it controllable via an app on a phone or tablet.

Many people will use these remote controls as their main way of controlling a device but some individuals may find it difficult to access the control or app and in these cases [an Environmental Control \(EC\) system may be appropriate](#). The intention of this resource is to provide information about equipment that is likely to be compatible with an EC system. This might be useful for those who are looking to:

- setup remote control equipment that can be used with standard remotes or apps - but that might need to be compatible with an EC system in the future (e.g. those with MND or other deteriorating conditions), or;
- install equipment that will work with an existing EC system.

Remote Control

Equipment can be **remote controlled** in a number of ways. Traditionally, equipment was made remote control by using remotes that work **by Infra Red (IR)** like standard TV remotes while some devices such as sockets had Radio Frequency (RF) remotes.

Increasingly devices are being put on the market that are designed to be controlled by **apps or home assistants** like Alexa. These devices use a variety of methods to send the signal – including Bluetooth, over home Wifi or specific ‘new’ RF protocols like Z-Wave.

Using with an Environmental Control (EC)

EC devices generally work by **copying InfraRed (IR)** signals. So, most devices that work on IR can be integrated into an EC system.

‘Traditional’ radiofrequency (RF) remotes are not able to be copied onto an EC system. You can tell if a remote is IR by holding a phone camera over the transmit end of the remote - you should see the led flash. Another simple way to check is to put your hand over the end of it and press a button - if the equipment does not work its IR!

Some, but not all, methods used to make devices ‘smart’ or app controlled can also be ‘copied’ by some EC devices. If a signal can not be ‘copied’ it is often possible to provide **alternative access to apps** to control the devices, for example by using switch access to control an Android or Apple device, or adding an alternative mouse such as a headmouse or eyegaze to access a windows computer; these methods can be cognitively challenging however and require switching between different apps to control different devices.

Most ‘Smart’ controls can, once setup, be controlled by speech using home assistants such as the Amazon Echo (Alexa) or Google Home. Another option is to use **speech output from a communication aid** (AAC device) to speak the commands that these devices recognise.



Figure 1: Amazon Echo - an example of a home assistant

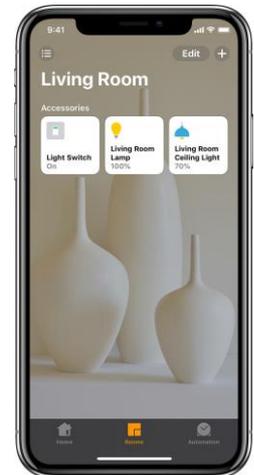


Figure 2: Example of home automation app (Apple HomeKit)

This table provides a rough rule of thumb about different remote types and how controllable they are:

Remote Type	Controllable by EC device?	Controllable by App?
InfraRed (IR)	Yes	EC app
Radio (RF) – <i>may say 433 MHz</i>	No	No
Bluetooth	No	Inbuilt/Proprietary app
WiFi / Network (IP)	No	Inbuilt/Proprietary app
Zwave	Some	Inbuilt/Proprietary app & some EC apps
EasyWave	Some	Inbuilt/Proprietary app & some EC apps
ZigBee	Some	Inbuilt/Proprietary app & some EC apps

Installation Requirements

To make some aspects of the house controllable requires installation of additional equipment – such as installation of door or window openers or swapping light switches or sockets. Where this is the case, preparatory work will need to be undertaken before the device can be installed. In general this may include:

- Provision of power – many devices like openers require mains power. A **fused spur or socket** may be required to be installed to allow installation.
- Changes to the fabric of the building: in some cases walls may need **reinforcing** to allow the equipment to be fitted; **holes may have be drilled** to allow cables to be run; and trunking (a plastic or metal casing in which cables are run) may have to be put in place to run cables across walls.

Lighting

Lighting can be controlled in a number of ways. Either by changing the main light switch for a remote controllable switch, by changing the bulb for a remote controllable bulb, or by adding remote controllable sockets that can then have a lamp plugged into them.

Infra-red light switches

This option replaces the whole light switch face plate for one that is remote controllable. There may be a range of products available that do this, however if they are to be compatible with an EC system then the remote needs to work by Infra Red (IR).

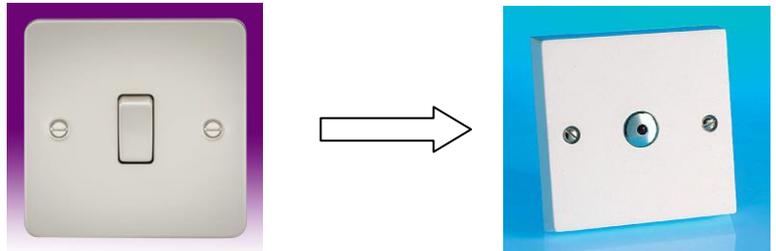


Figure 3: Standard Light switch and IR Lightswitch

Varilight is a brand of light switch manufacturer that provide a switch that is controllable by IR. An attendant IR remote control is available (www.tlc-direct.co.uk - VL YRC8) to provide remote control of the light switches for someone who is not able to press the switch on the wall. These lights can then also be controlled by future EC equipment using IR. These switches are suitable for LED dimmable lighting, incandescent and halogen lighting.

Installation

As they require altering the household electrical system these would normally need installing by a qualified electrician who should install the equipment in compliance with the building regulations (Part P).

Remote Control Lightbulbs ('Smart Lights')

With this option the light bulb is swapped for one that is controllable. This is potentially easier to install – but may be more complex to setup and control. Most of these lights are designed to be controlled **via an app**.



Figure 4: Standard Bulb and a App Controllable Bulb

Installation

Installing the bulb simply requires replacement of the existing bulb (ensure the right bayonet/screw fitting!). In addition to the bulb however, many of these lights require you to buy and plug in a 'hub'/'bridge' to your WiFi Router to allow them to be controlled.

Lighting Control – Example Products

Type	Brand	Available from:	Model	Type	Master / Slave
IR controllable Light Switches	Varilight	www.tlc-direct.co.uk www.varilight.co.uk	iQi401M	1 gang 2 way	Master
			iQi252M	2 gang 2 way	Master
			iQS001	1 gang	Slave
			iQS002	2 gang	Slave
App controllable Lights 'Smart Lights'	Philips Hue	https://www2.meethue.com/en-gb e.g.: https://www.currys.co.uk/gbuk/philips-hue-the-range-886-commercial.html			
	IKEA	https://www.ikea.com/gb/en/products/lighting/smart-lighting/			
App Controllable & Potentially EC controllable (To be confirmed).	LightWave	https://lightwaverf.com/pages/smart-lighting			

Heating Controls

Heating systems that are controlled by a thermostat can potentially be controlled in a number of ways. All options will require changing the thermostat for one that can be remote controlled, and this is likely to require a qualified electrician to install this in compliance with the building regulations (Part P).

More modern heating systems are being setup to be operated with an app – and/or to learn the heating required based on the occupants’ activity. It is also possible to swap a thermostat for a unit with an InfraRed remote control – this remote control can then be integrated into an EC system.

InfraRed Remote Heating Controls

With this option the thermostat is swapped for one with an InfraRed remote control. This option is likely easier to setup and control via an EC system, however it is also likely that as Heating controls move to being ‘Smart’ this option will become less available. We are only currently aware of one Thermostat that has an IR remote (see table below).

Installation: This will require swapping the heating thermostat, which is normally 230v, and thus as altering the household electrical system these would normally need installing by a qualified electrician (and in compliance with the building regulations (Part P)). After installation, operation is simple – it just requires use of the remote to set the room temperature up or down.

Smart Heating Controls (app based)

Nest and Hive are the best known brands of ‘smart heating’ controls, but there are others such as Heatmiser. All smart heating controls will normally have a physical control but also allow/require the use of an app to control the heating. Control via an app may be easier for some individuals than using the physical thermostat or a physical remote, and may also allow for control via alternative access methods, such as switch scanning, if needed.

Installation

This option also requires swapping the heating thermostat, which is normally 230v, and thus as altering the household electrical system these would normally need installing by a qualified electrician (and in compliance with the building regulations (Part P)). The system will also need connecting to your home network via WiFi or LAN cable and will need configuring and setup via an app.

Following installation control of the system is normally by a Smart thermostat mounted on the wall, but is also possible via the app.

Heating Controls – Example Products

Type	Brand	Available from:
App controllable ‘Smart Heating’ Thermostats	Hive	https://www.hivehome.com/ - and many online/retail suppliers.
	Nest	https://nest.com/uk/ - and many online/retail suppliers.
IR remote thermostats	ProWarm	https://www.theunderfloorheatingstore.com/electric-underfloor-heating/thermostats-controls/prowarm-digital-programmable-remote-thermostat-white

Sockets

It is possible to get remote control sockets and these can give you remote control of anything plugged into them that can be permanently turned on and off. An example of something that will work with these sockets is a standard lamp with a slide switch but, for example, a 'touch lamp' would not work. Sockets can be controlled in two ways: either plugging in a socket adaptor or by replacing the entire socket face plate.

Plug in Remote Control Socket Adaptors

It is possible to get remote control sockets adaptors which do not need significant installation and that can then give you remote control of anything plugged into them that can be permanently turned on and off. Options for this are also detailed in our [Local Services Resource Pack](#).

Many of these sockets work using traditional Radio Frequency (RF) controls – and so are **not** compatible with EC systems. If these sockets are in place when an EC system is installed we will normally swap them for ones that are controlled in a different way and that can be controlled by the EC system.

Some sockets are now available that are controllable by Z-Wave. These may be able to be controlled by EC controllers - but it can not be guaranteed as it depends on the EC controller used.



Figure 5: Example Plug In Controllable Sockets

Remote Control Socket Faceplates

These faceplates allow control of anything plugged into them that can be permanently turned on and off. These are less obtrusive but require more installation than a plug in adaptor. These sockets are normally controlled using the Z Wave protocol, this means they may be able to be controlled by EC controllers - but it can not be guaranteed as it depends on the EC controller used.

Installation: As they require altering the household electrical system these would normally need installing by a qualified electrician in compliance with the building regulations (Part P).



Figure 6: Example Remote Controllable Socket Faceplate

Sockets – Example Products

Type	Brand	Available from:
ZWave Plug In Socket Adaptors	LightWave	https://lightwaverf.com/collections/power-connect-series/products/basic-remote-on-off-socket-kit
ZWave FacePlate Socket	LightWave	https://lightwaverf.com/collections/power-connect-series/products/smart-socket-2-gang

Intercoms

Intercom units can be remote controlled in a number of ways, including through home phones that use the digital DECT technology and from apps (via Wifi). This allows control of the intercom (and potentially door release if this is also installed – see below) from a phone handset – so may be of use for those who may find mobility to the door challenging, but who are able to use a standard phone handset.

DECT based systems are typically able to be controlled by EC systems directly. App based systems may not be able to be controlled directly from an EC system, however could be controlled via the app using alternative access methods (e.g. switch scanning).

Installation: The intercoms below are battery powered and thus do not require installation of mains power by the intercom. The home (DECT) phone based units will need a power supply by the base station. In addition, the external units need mounting/installing (i.e. fixing to the wall by drilling and screwing).

The app based systems will require connection to the WiFi router and installation of the proprietary app on a phone. These systems (e.g. the Ring system) usually require a very fast internet speed to operate successfully - it is unlikely that a “standard” internet connection speed will give satisfactory operation. It is recommended that the Wifi speed is checked before installation.



Figure 7: Example phone based intercom

Type	Brand	Model number	Available From
DECT Phone based intercoms Simple, cheap and easy to install wireless intercom.	Response	CL3622B - Wireless door intercom DECT phone	www.responseelectronics.com
		CL6011B -Wireless door entry intercom	
App based Intercom Live feed on display, can be installed and viewed on iOS, Android and windows devices. Requires fast internet connection.	Ring	Video door bell 2 - Wireless door video intercom	www.ring.com
		Video door bell PRO - Wireless door video intercom	

Doors

Door control consists of a number of aspects:

- door lock release – unlocks the door so that it may be opened (either by a visitor or by a door opener);
- door opener/operators - motors that physically open the door; and
- door mechanism triggers – controllers that trigger the door to either unlock or open.

Door entry systems are also likely to be used in conjunction with an intercom unit.

Installation of door equipment will involve alterations to the fabric of the building (see each section below) and may involve replacement of the door. The security level of the door will vary according to the lock type used. Wooden doors may be problematic with door release mechanisms and operators as they can warp and rub on the frame, causing the opener to fail.

Door Operators (Openers)

BS:EN16005 is the European Standard that is the code of practice for safety in the use of automatic doors for pedestrian use. Automatic and low energy door operators should be fitted for as safe use as possible. Safe installation of door operators should include the use of safety sensors and finger protection devices. The table below provides example door operator manufacturer and operator models.



Figure 8: Example door operator unit

Installation

Installation involves the provision of the opener device above the door – fitting of this may involve reinforcing the wall above the door (depending on the type of wall) and there must also be sufficient clearance above the door for the operator to be fitted. Door openers also require power, and so a fused spur or socket should be in place above the door (in a position that does not interfere with the mounting of the opener, i.e. to the side).

Installers

All the **EC Companies** listed in the table below state that they are able to supply and install door operators and ancillary equipment and ensure that the systems are compatible for any current or future requirements for EC provision.

Other contractors may also be able to install door operators that will be compatible with EC systems.

Some key questions to ask:

- Does operator allow for **voltage free dry contact activation**, which will allow for suitable EC equipment to be fitted at a later date?
- Does operator allow for **12 or 24V DC accessories** to be connected, e.g. electronic lock release?
- Does door operator allow for **monitored safety sensor** activation?
e.g. <https://www.bea-sensors.com/en/product/4safe/>
- Is the door operator to be fitted on a **fire door**?
 - The door operator must have spring/hydraulic return.
 - Does the door have a UK Fire certificate?
 - Does the door have a Fire Detection circuit?

Door Lock Release

Door lock releases may either be retro-fitted to doors, or built into the door from manufacture. The security and strength of the door lock will vary according the type of lock – and this should be considered (including in terms of household insurance).

There are a multitude of electronic lock releases available on the market. Example locks and supplier are identified in the table below.

Installation

Door release mechanisms require mains power and so a fused spur or socket should be appropriately sited. Installation of the door release into an existing door will involve modification of the door. **Some key points to note:**

- The Higher security Yale release has a higher holding force than the standard release, for example, the Trimec has a holding force of 680Kg.
- Dead Bolt release has a holding force of 250Kg.
- Locks should be **FAIL SECURE** (so that in the event of a power cut the lock will remain locked). Fail SAFE locks will UNLOCK in the event of a power cut.
- Locks should have a DC input of 12 or 24V.
- Magnetic locking mechanisms (Maglocks) should not normally be used.

Installers

Each of the EC companies listed in the table below can advise if they are able to supply, install and interface with these lock systems and ensure that the systems are compatible for any current or future requirements for EC provision.

Other contractors may also be able to install door operators that will be compatible with EC systems.

Door Mechanism Triggers

Door release and opening can be triggered from an EC system, however it is always recommended that another method of triggering the release/opener is provided. In many cases this method may be used as the main method. Suggested methods of triggering, are:



Figure 9: Example "dead bolt" motorised lock release

- KeyFob access (if client is able to press trigger button) - note that a transmitter and receiver will be required.
- Proximity readers (if client is able to place a card over the reader) with tokens that are held up to the reader.
- Long range proximity readers (if client is able to drive within range of the reader), these work with 'tokens' having up to 5 meters range, although having these work from a range of 1.5m is typical.

Door Openers -Example Products

Type	Manufacturer	Model	Supplier
Operator/Opener	ABLOY	DA460	Abloy is might
	GILGEN	FD20	Gilgen Door Systems
	LABELUK	LET/LET-B	Label UK
	DORMA	ED100LE	Dormakaba
	GEZE	ECTurn	Geze
Electronic Lock release	Standard Yale (12V AC/DC)	Diax	CDVI-GAER Advanced Access
	High(er) Security Yale Mortice (dead bolt) (12V DC)	Trimec ES150	110151-010 Advanced Access
			DBR-SEC Advanced Access
uPVC motorised multipoint lock (Electronic open, mechanical lock)	Winkhaus	AV2e	Winkhaus
Triggers	KeyFob access	Various	Rtr Services Rtr Services CDVI
	Proximity readers	Various	Paxton Group
	Long range proximity readers	Various	Paxton Group
	HandsFree Tokens (for proximity reader)	Various	Paxton Group

EC Contractors and Door Operator options

EC Company	Operator models fitted	Inward & outward open door	Maximum door weight	Suitable for a Fire door?	Safety Sensors?	Other access control?
DH2 Solutions	FD20 DA460	Yes	250Kg	Yes	Yes	Yes
Possum Controls	DA460 LET / LET-B	Yes	125Kg	Yes	Yes	Yes
Steeper	DA460	Yes	125Kg	Yes	Yes	Yes

Window, Blinds and Curtains

There are a number of ways windows, blinds and curtains can be operated via remote control, some are controlled by infra-red (IR), some are by Radio (RF) and some via apps.

As with other equipment IR systems are likely to be able to be controllable from an EC system and RF systems are unlikely to be controllable. However some systems (such as Somfy equipment) have interface units available that will allow operation of RF blinds via an EC system. App based systems may not be able to be controlled directly from an EC system, however could be controlled via the app using alternative access methods (e.g. switch scanning).

Installation

Most window openers will require mains power and thus an appropriately sited fused spur or socket. Some blind and curtain openers are now rechargeable battery operated. Window operators may require alternation of the existing window, but more likely will require a new window unit with electronic lock fittings built in. All systems will require work to the fabric of the building, i.e. in fixing and fitting the operator units.

Installers

It may also be possible to have these supplied and fitted by the EC contractors listed in the table above. Please contact these organisations directly to discuss the requirement for your specific situation.

Other contractors may also be able to install window operators that will be compatible with EC systems.

As with doors, a key question to ask is: does the unit **allow for voltage free dry contact activation**, which could allow for suitable EC equipment to be fitted at a later date?

Windows – Example Products

Type	Example Supplier
Window control equipment	www.windowmaster.com
Roller and vertical blind track equipment	www.somfy.com www.eclipseblinds.co.uk
Curtain track equipment	www.silentgliss.co.uk