



Remote Control of Home Equipment

This document provides information on remote control / 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.

The 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 (with the exception of some lighting and intercom systems – for individuals who can not use standard controls for these systems). [For further information on this and EC services, please visit our website.](#)

Equipment included in this resource is indicative and not meant as an endorsement, alternative equipment and suppliers are available.

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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.



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

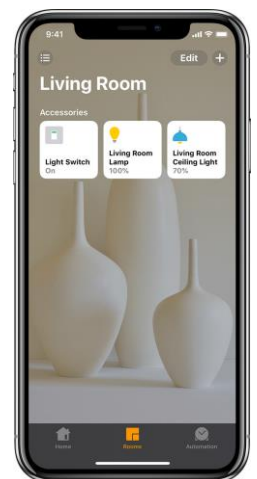


Figure 2: Example of home automation app (Apple HomeKit)

Using Devices 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, and newer ‘Bluetooth’ (📶) remotes are not able to be copied onto an EC system.

You can tell if a remote is InfraRed by holding a phone camera over the transmit end of the remote - you should see the a light appear on the end of the remote when you press a button. Another simple way to check is to put your hand over the end of the remote and press a button - if the equipment does not work the remote is InfraRed!

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.

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>	Some	No, but some control may be possible by use of an interface linking to EC device
Bluetooth (📶)	No	Inbuilt/Proprietary app
WiFi / Network (IP)	Some	Inbuilt/Proprietary app & some EC apps
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 to 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).

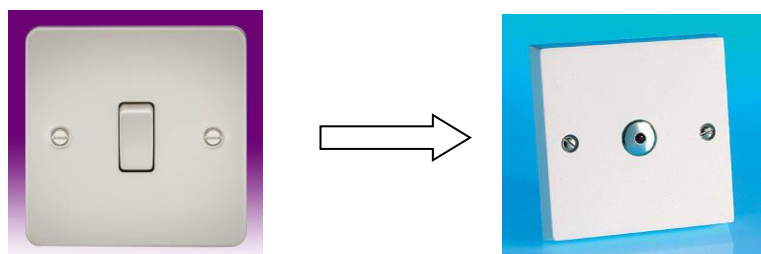


Figure 3: Standard Light switch and IR Lightswitch

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 touch the switch on the wall. These lights can then also be controlled by future EC equipment using IR. The newer of these switches (e.g. [Dimmer Selector](#)) are suitable for LED dimmable lighting, incandescent and halogen lighting.

Installation

As installation of these switches 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, although some can be controlled from a remote control.**

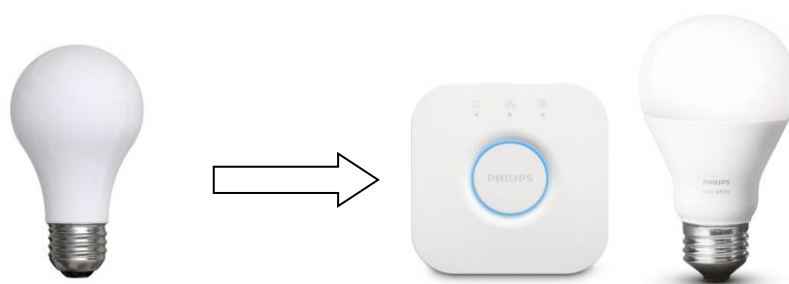


Figure 4: Standard Bulb and an App Controllable Bulb

Installation

Installing the bulb simply requires replacement of the existing bulb (ensure the right bayonet/screw fitting!). In addition to the bulb however, some of these lights require you to buy and plug in a 'hub'/'bridge' to your WiFi Router to allow them to be controlled, although some newer bulbs can be controlled directly from a separate transmitter, so a 'hub'/'bridge' in this case would not be required.



Figure 5: Standard Bulb (GU10 fitment) with a separate remote control transmitter

Lighting Control – Example Products

Type	Brand	Available from:				
IR controllable Light Switches	Varilight	TLC Electrical www.varilight.co.uk	Model	Type	Master / Slave	
			VL JDQE101S	1 gang 100W	Master	
			VL JDQE102S	2 gang 100W	Master	
			VL JDQES001S	1 gang	Slave	
			VL JDQES002S	2 gang	Slave	
			VL YRC8		Optional 8 button Remote Control	
			VL YRE8		Varilight Lightscene Remote Control	
Transmitter controllable Light Switches	IKEA	www.ikea.com	Tradfri E27			
			Tradfri GU10			
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 & EC via interface relay	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, 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.

No funding is possible from Environmental Control Services for any aspect of the installation or maintenance of heating controls or ancillary equipment however these may be controlled via EC if a compatible option is either in place or installed e.g. app based control.

InfraRed Remote Heating Controls

As Heating controls have moved to being 'Smart' InfraRed remote controls for thermostats appear to now be no longer available.

Smart Heating Controls (app based)

Nest and Hive are the best-known brands of 'smart heating' controls, but there are others such as Heatmiser and Honeywell. 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 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.
	Heatmiser	https://www.heatmiser.com/ - and many online/retail suppliers.
	Honeywell (Lightwave)	https://lightwaverf.com/pages/smart-heating

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

Remote control sockets adaptors do not need significant installation and 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 these will normally be swapped 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 6: 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 changing a socket requires altering the household electrical system these would normally need installing by a qualified electrician in compliance with the building regulations (Part P).



Figure 7: Example Remote Controllable Socket Faceplate

Sockets – Example Products

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



Figure 8: Example phone based intercom

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.

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	
Standalone Intercom Live feed on display, viewed and operated from system monitor. Mobile App available to allow access control by receiving calls. Also allows lock activation from additional module.	CDVI	CDV-IP1B – IP video entry kit, single button	CDVI UK
		CDV-IPRLC – 2Easy IP relay light control module	

Doors

Door control consists of a number of aspects:

- [door mechanism triggers](#) – a device that **triggers** the door to either unlock or open.
- [door lock release](#) – **unlocks** the door so that it may be opened (either by a visitor or by an automatic door opener);
- [door opener/operators](#) – motors that **physically open** (and close) the door;

Door entry systems are also likely to be used in conjunction with an intercom unit, which is completely separate equipment.

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. It may be advisable to discuss the type of door lock with your insurance company.

No funding is possible from Environmental Control Services for any aspect of the installation or maintenance of door openers, locks, or ancillary equipment.

Door Operator 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 of EC provision.**

EC Company	Operator models fitted	Safety Sensors?	Other access control?
DH2 Solutions	Gilgen FD20 CDVI Digiway Plus	Yes	Yes
Possum Controls	Label LET / LET-B	Yes	Yes
Steeper Group	Gilgen FD20 Geze EC Turn	Yes	Yes

Other installers may also be able to install door operators that will be compatible with EC systems. For example:

ASN Doors	Record DFA 127	Yes	Yes
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Some key questions to ask when considering door releases/openers:

- Does the door operator have **voltage free dry contact activation**, which will allow connection to a suitable Environmental Control System at a later date?
- Does the door operator allow for **12V or 24V DC accessories** to be connected, which will allow connection to a suitable Environmental Control System, or lock release?
 - Request that the installation company fit **'flying leads'** to allow for future addition of an external control relay.

This 'flying lead' should be connected to the door opener activation trigger terminals and also any on-board power supply terminals. This makes connection of the door opener to an EC system via the use of relays much simpler and straightforward.

- The installing Company should wire the door opener to any installed lock release as part of the installation process.
- Is the door operator to be fitted on a **fire door (most often within a care home setting)**?
 - The door operator must have spring/hydraulic return.
 - Does the door have a Fire Detection circuit? – can this be wired into the door operator to **automatically close the door** in the event of an alarm condition?
- Does the door operator allow for **monitored [safety sensor](#)** activation?
- Can [full length finger protection](#) be fitted over the door on the hinge side, to protect people from trapping fingers?
- Is there a need for **battery back-up** of the door equipment?
 - Request that the installation company fit a **battery back-up device or power supply**, so that the client will be able to escape the property in the event of a power cut.

If a battery back-up unit is fitted, it is usually recommended that this equipment is serviced regularly to ensure that the batteries remain in a useable condition. Battery replacement periods will vary between different product types, but typically should be considered around 3 to 5 years after installation.

- What further **ongoing support and maintenance** is offered?
 - Consideration should be given to ongoing maintenance (after the initial 1-year standard warranty cover) of the door opener, locking mechanism, and any extra peripherals or battery back-up equipment.
 - **The impact on the client of the failure of the door system should be considered and a plan agreed with the client for when this happens.**
 - **A backup plan should be in place for the client to be able to access the property in event of a failure of the door system.**

A DFG will normally cover the installation of all equipment, and **should include a 12-month warranty** as standard. No maintenance is usually provided beyond year one. It may be possible to extend this cover to 3 or 5 years, or have a rolling maintenance contract, but there will be additional charges for this support.

Common issues

Wooden doors may be problematic with door release mechanisms and operators in wet weather, as they can swell and rub on the frame causing the opener to fault in its operation.

Plastic (multipoint) doors may be problematic with door release mechanisms and operators in hot weather, as they can warp and miss-align the locking points causing the open command to fail.

Outward opening doors may be problematic with door release mechanisms and operators in windy conditions, as they can be prevented from opening or closing correctly causing the opener to fault in its operation.

Door Mechanism Triggers

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

- **KeyFob** access, similar to a car remote control (if client is able to press trigger button) - note that both a transmitter and receiver will be required.
- **Proximity** readers (if client is able to hold a card or fob) with tokens that are held against the reader.
- **Long range proximity** readers (if client is able to drive within range of the reader), these work with 'tokens' having up to a 5-meter read range, although a typical range of operation is nearer 1.5m.

Door Operators (Openers)

BS: EN16005:2012 is the European Standard for best practice for the requirements of Powered Pedestrian Door Sets, and covers test methods and Safety in the use of automatic doors for pedestrian use. City & Guilds provide Accreditation for engineers and organisations meeting that standard ([Directory - Doorsafe Register](#)).

The [Automatic Door Suppliers Association train installers](#) in applicable standards and test methods for Pedestrian doors.



Figure 9: Example door operator unit

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.

Installation of Door Openers

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 this could be by the fitting of wooden battens across the span of the door opening) 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 suitable 13Amp socket should be in place above or close to the door (in a position that does not interfere with the mounting or operation of the opener, i.e. to the side).

Door Lock Release Mechanisms

A Door lock release may either be retro-fitted to a door, 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 are identified in the table and pictures below.

Installation of Door Lock Release Mechanisms

Installation of the door release into an existing door will involve modification of the door and/or door frame. If the lock has been fitted in a new door, this will replace an existing door at the property. The main different types of locking system are included in below.

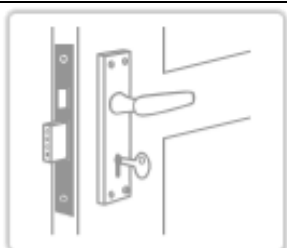
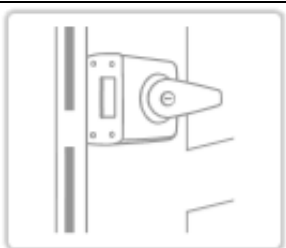
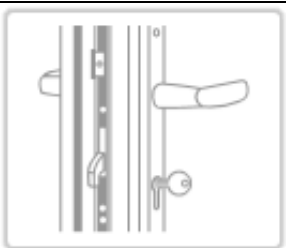
5 lever mortice deadlock	Rim automatic deadlatch	Multi-point locking system
		
		

Figure 10: Different types of locking system

Some key points to note about door lock release mechanisms:

- The Higher Security Yale (Rim type) release has a higher holding force than a standard 12V Surface Lock release. For example, the 'Trimec' release has a holding force of 680Kg.
- Dead Bolt release (for Mortice type locks) has a holding force of 250Kg.
- Locks should always 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 operate from either **12V** or **24V** DC. Some devices are operated by AC or DC.
- Magnetic locking mechanisms (Maglocks) or shootbolts would not ordinarily be used, but can also be fitted and linked should it be required.

Door Opener and lock release mechanism - Example Products

Type		Manufacturer	Model	Supplier
Operator/Opener		RECORD	DFA127	Record
		GILGEN	FD20	Gilgen Door Systems
		LABELUK	LET/LET-B	Label UK
		DORMA	ED100LE	Dormakaba
		GEZE	ECTurn	Geze
		CDVI	Digiway Plus	CDVI UK
Electronic Lock release	Standard Yale (12V AC/DC)	Diax	CDVI-GAE	Advanced Access
	High(er) Security Yale	Trimec ES110	110111-060	Advanced Access
	Mortice (dead bolt) (12V DC)		DBR-SEC	Advanced Access
	uPVC motorised multipoint lock (Electronic open, mechanical lock)	Winkhaus	AV2e	Winkhaus
Triggers	KeyFob access	Various		RTR Services CDVI
	Proximity readers	Various		Paxton Group
	Long range proximity readers	Various		Paxton Group
	HandsFree Tokens (for proximity reader)	Various		Paxton Group

Window, Blinds and Curtain Openers

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).

No funding is possible from Environmental Control Services for any aspect of the installation or maintenance of window, blinds, curtain openers or ancillary equipment however these may be controlled via EC if a compatible option is either in place or installed.

Installation of Window, Blind or Curtain Openers

Most window openers will require mains power and thus an appropriately sited fused spur or socket (which will likely need installation by a qualified electrician). 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 of Window, Blind or Curtain Openers

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, Blinds and Curtains – Example Products

Type	Example Supplier
Window control equipment	www.windowmaster.com VELUX Smart home - VELUX Touch remote
Roller and vertical blind track equipment	www.somfy.com www.eclipseblinds.co.uk
Curtain track equipment	www.silentgliss.co.uk