



HOW TO INSTALL TEC-ANGEL

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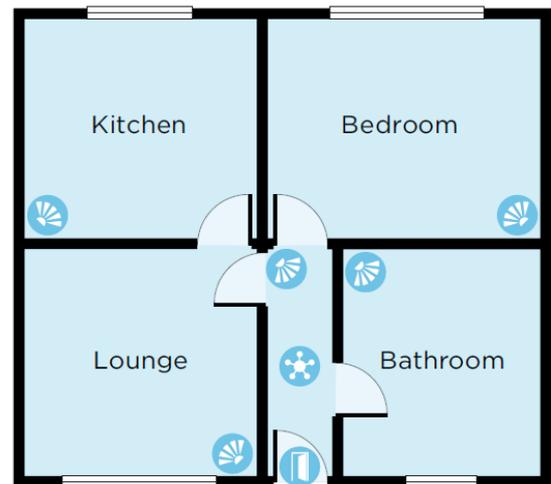
Choosing the locations and installing the equipment

Installing The Hub

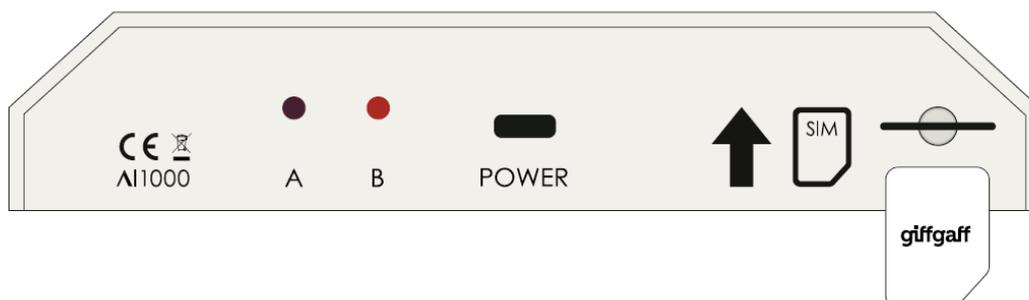
The Hub should be located more or less centrally between all the sensors and near a mains power socket. It is best installed then left forgotten to avoid anyone accidentally thinking “I’d better unplug that at night”. Once in operation no access is needed to it and so the old saying ‘out of sight, out of mind’ could well be applied to its location.

The hub uses the mobile phone network to send the carer text messages. As you consider locations for the hub think to yourself “Would I use my phone here and expect a good network signal to make a call?”. In most installations the hub will probably end up in the hall or the kitchen, or in a large flat or house possibly in a spare bedroom near a window.

When you have decided on the Hub location it’s wise to test that location for the phone signal before fixing the hub to the wall. Our preference is to connect the power *before* inserting the SIM card, but it will work whichever is done first.



Connect the mains adaptor and plug it into the mains outlet. The Warning indicator should flash continuously once power is applied with no SIM card fitted. Then insert the SIM card as per the diagram on the base of the hub (gold contacts towards the back of the hub, notched corner last in and towards the outside edge). The SIM card has been designed to be intentionally difficult to remove without tweezers, so it is important to get it right first time !



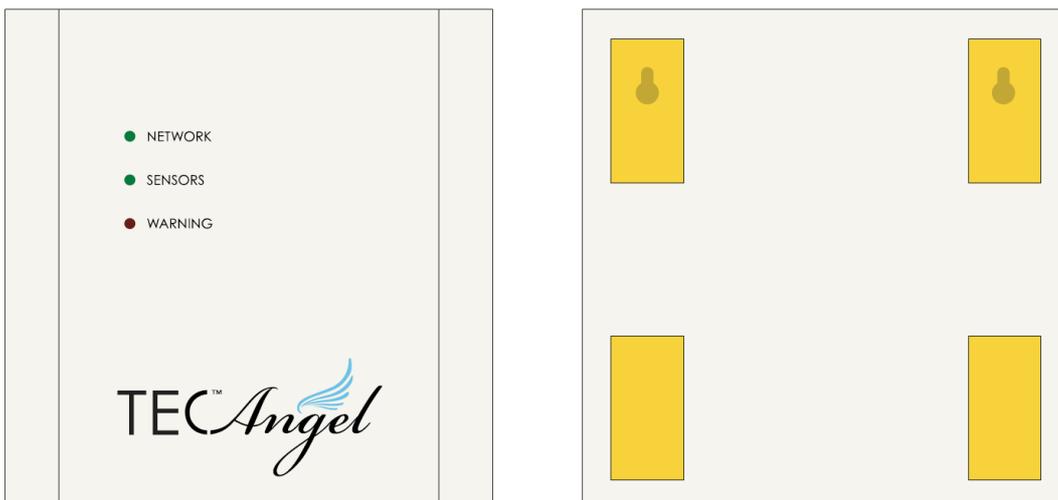
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With the SIM now installed the red Warning indicator may continue to flash for two minutes (or several two minute periods) while the internal battery is charged. If it's still flashing after 10 minutes, verify the SIM card is correctly inserted.

When the battery is charged, the red Warning indicator should stop flashing and remain on a solid red (until a phone is registered as carer). Then, when the Hub finds a GSM network, the green Network indicator illuminates a steady green to show a phone network connection. The Network light should remain a steady green, but if this is flashing it indicates a signal less than 2 bars and it is worth trying a different location for the Hub.

If you insert the SIM card before power is applied, then depending on the charge state of the battery some indicators may come on and the Hub try to connect to the GSM network and after a little while result in a steady green Network indicator (good signal), or a flashing green Network indicator (2 bars or less). The Warning indicator will remain on throughout even when power is applied as initially there is no power, and then later until a phone is registered as carer).



Once the unit has been successful in connecting to the GSM phone network in your chosen location, fix the hub in location with four sticky tabs. The hub should never need to be unplugged once operational, so it does not matter if the mains plug is not easily accessible (in fact it's preferable!).



Identifying The Different Sensors

All the sensors from the standard package, along with the optional Toilet sensor are all pre-allocated to specific rooms; please install them in the correct rooms!

The sensors have a number on the bottom side indicating the room / door they are intended for. Here's a table to summarise the sensor numbers

	No.	Sensor		No.	Sensor
Movement Sensors	0	Hall		8*	Custom Name 1
	1	Lounge		9*	Custom Name 2
	2	Kitchen		10*	Custom Name 3
	3	Bedroom		11*	Custom Name 4
	4	Bathroom		12*	Custom Name 5
	5*	Toilet			
Door Sensor					
	6	Front Door		13*	Side Door
	7*	Back Door		14*	Custom Name Door

* Indicates optional extra sensors.

These same numbers are printed on the press down tabs on the middle tray holding the Standard Package sensors, and on a table printed on the lower tray insert.



Installing The Movement Sensors

For optimum performance please follow these 'golden rules' along with the installation diagrams.

- A movement sensor only needs to detect the movement of the person being cared for only as they enter and exit the room; it does not need to detect movement within the room (although this is a bonus). It does not matter if the sensor's 'view' of the room is blocked by the door itself provided that when the person goes into or out of the room they pass the sensor.
- Near or in a doorway is often a good location.
- Sensors can be mounted in a corner or flat on a wall and have a 90 degree horizontal field of view and so can cover a whole room from an unobstructed corner.
- No sensor should 'see' through doorways into other rooms. For example the hall sensor should detect movement in the hall only, and not be able to detect movement in other rooms such as the lounge by being able to 'see' through the open doorway.
- The movement sensors are designed to be mounted at chest height of the monitored person (**not** high up in the corner of the room where you find most intruder alarm sensors). They intentionally have a narrow vertical field of view to avoid detecting movement of pets at floor level. Because they do not need to 'see' downwards, it is perfectly okay to stand one towards the back of a shelf for example, again at chest height.
- The movement sensors are most sensitive to movement across the sensor at the height of the sensor, not movement towards or away from it.
- If a room has two doors (e.g. the lounge may have doors to the hall and conservatory), then mount the sensor in the middle of the room to detect movement in the main area of the room.
- Ideally, the sensors should be fixed in position to avoid them being moved or turned around, for example when someone cleans. Even if they rest on a shelf, fix them in place using the removable adhesive pads.

Note: Once the battery isolator tab is removed the indicator on the movement sensors **will not indicate detected movement** until the sensors have communicated with the hub (instead the indicator may flash every 10 seconds indicating a lack of connectivity with the hub). *Provided the hub is up and running*, after removing the isolator tab and allowing about 10 seconds for the sensor to settle down, the red indicator light should show movement as it is detected (this can be later disabled with the "TEST off" message).

Provided the hub is running, you should be able to 'walk test' each sensor almost immediately when the battery isolator tab is removed. Remember in your walk test, that the person you are caring from might move more slowly than you and give off less heat than you, so if in your chosen location a sensor doesn't reliably detect you, it certainly won't reliably detect a more slight person you are caring for !

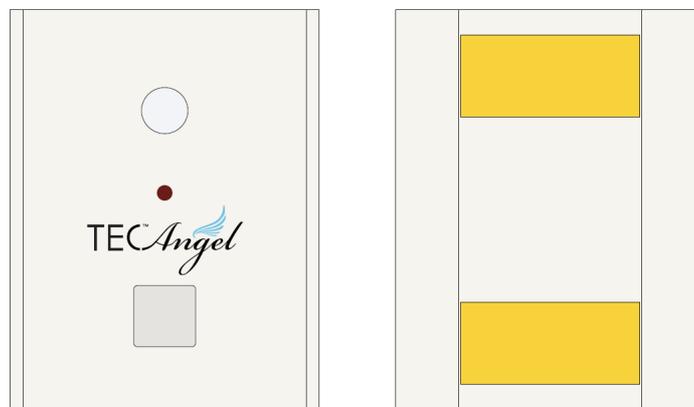
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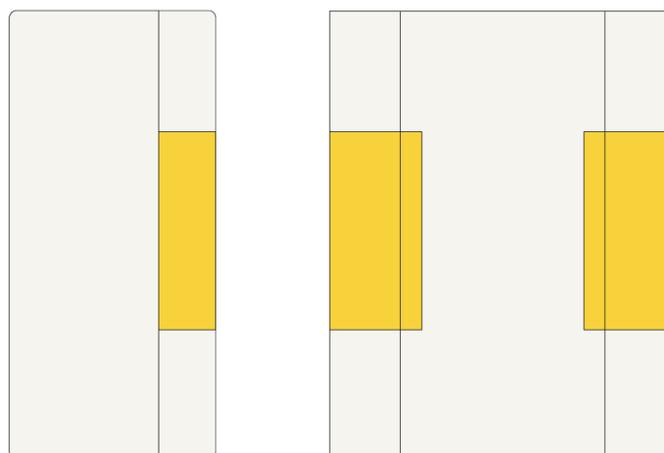
Once you have decided on the locations for each sensor, install the sensors with the sticky tabs provided. Wallpaper, in particular, is a challenging surface to fix the movement sensors to with self-adhesive pads as the long-life batteries in the sensors make them quite heavy. Again wipe the surface, but for wallpaper be extra vigorous to remove both dust and loose or delaminated surface paper !

Place the self-adhesive pads on the sensor, referring to the diagrams below for placement of the self-adhesive pads.

For movement sensors to be mounted flat to the wall place two self-adhesive pads on the flat back of the sensor as shown below:



For corner-mounted movement sensors, place one pad on each side over the edge between the flat back and the chamfered corner:



Hold the sensor in both hands and move it towards the desired location so that your hands hit the wall before the sensor. With your fingers, gradually move the sensor closer to the wall into the correct location while keeping your hands braced against the wall.

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When it is in location press it hard into the wall with pressure on all four corners of the front plate of the sensor using both hands, with thumbs at the bottom and fingers at the top. Avoid pressing the sides of the housing outwards as you will be able to break them! Also, avoid pressing on the white sensor lens at the top of the front plate or excessive pressure on the panic button.

Try and avoid pulling the sensor off and repositioning it as this will weaken the adhesive.

When you are happy with the sensor installation, walk test the sensor, but see the Note above that walk testing requires the Hub to be running.



Installing One-Piece Door Sensors

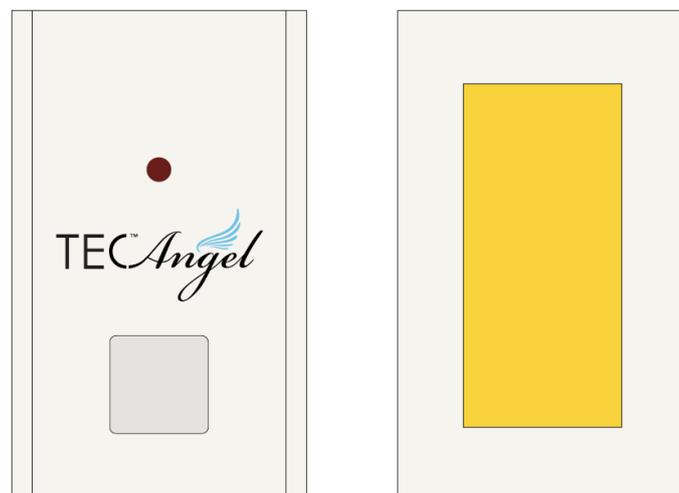
The standard door sensors detect a door opening using an innovative one-piece design. Similar to the compass found in many mobile phones, they use a magnetometer to detect *rotation* of the sensor as the door swings open on its hinges.

The sensor should be mounted with the writing and logo on the case the right way up. It is best placed in the middle of the door, ideally at chest height where the panic button on it is easily activated.

Avoid placing it on the inside of a door directly opposite a large metal door knocker on the outside or particularly close to metal coat hooks inside the door. Also if coats are hung on the door, avoid placing it where keys or money in coat pockets could hang at the same height as the sensor.

If need be it can, though, be placed near either edge of the door at any height if necessary, as the rotation angle remains the same when the door is opened wherever the sensor is on the actual door.

When you have decided on the location, place one self-adhesive pad on the rear of the door sensor to cover as much of the area of the rear surface of the sensor as possible as shown below. Wipe the door area to be used, then affix the door sensor with the sticky pad in location.



Once you are happy with the sensor location, and **with the door closed**, remove the battery isolator tab and the sensor will begin its self-calibration:

- The indicator will flash for five seconds to show it is live, and then continue to flash if it is still detecting movement.
- When the detects a 'still' position the indicator will come on and stay on. It needs to remain still with the door closed for about 10 seconds to work out where the 'closed' position of the door is. If it detects movement it will flash briefly and then restart its 10 second countdown with the indicator on again.
- After being still for 10 seconds it will have determined the normal 'closed' position for the door. Then the indicator will turn off to show it is ready to determine the 'open' position of the door.

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- Open the door and it will flash again for a few seconds to show it has determined the door 'open' position (just before halfway open).
- Once calibrated, *provided the door sensor can make radio contact with the hub*, then the indicator will be off when the door is closed, come on steadily for 2-3 seconds as the door opens and flash every 2.5 seconds while the door remains open. If the sensor cannot make radio contact with the hub (eg the hub is off), then the indicator will flash once every 10 seconds to indicate such, and not report the open / closed state of the door.
- The Indicator can be switched off later by sending a "TEST off" message.

If the sensor is knocked off the door it will need recalibrating when re-affixed in position. Simply open the case, pop a battery out for 5 seconds, then re-insert the battery and clip the case back together with the door closed and it will begin the calibration process as outlined above. It will also recalibrate if the batteries are replaced.

There are a few doors where the one-piece rotational sensors are not suitable: Sliding doors (e.g. patio doors), Doors which swings open at more than a right angle, and doors made primarily out of metal. In such cases, please contact our Care Line for a replacement two-piece door sensor.



Installing Two-Piece Door Sensors

For doors that open by sliding, open more than 90 degrees or are primarily made of metal, then you need to use a two-piece door sensor. This familiar and well-used method uses a magnet and a magnet sensitive switch in the sensor to detect when the magnet moves away from the sensor as the door opens.

The two-piece door sensor is identical looking to the one-piece door sensor except for the addition of the magnet sensitive switch inside the main sensor and the magnet supplied in a smaller plastic housing. In two-piece use, the moment the magnet first comes close enough to the sensor, the sensor realises it has to work with the magnet (and not the rotation sensor), and switches to that mode of operation. If you have a two-piece sensor but wish to install it on a normal door, you can simply install the main sensor part as with the one-piece sensor and dispense with the plastic-housed magnet.

For two-piece use the magnet must approach the main body of the sensor on the right hand side with the TEC-Angel logo the correct way up (if printed on) and the panic button below the indicator light (see diagram).



You can mount either the magnet or the main part of the sensor on the moving part of the door. The magnet is of course smaller and less prone to being knocked if the location means it is in an exposed position when the door is open. For sliding doors, ensure the part to be installed on the sliding door is not in a position where it will be knocked off if the door is opened fully.

cont'd...



If required by the location and orientation of the door opening, you can mount the main sensor upside down (i.e. panic button above indicator, logo inverted – if printed on) provided the magnet still approaches it from the correct side:

- Find a location where the two parts can be within 10mm (just under ½ an inch) when the door is closed, but where neither is likely to get knocked off when the door is open.
- Place one self-adhesive pad on the rear of the door sensor to cover as much of the area of the rear surface of the sensor as possible.
- Wipe the door or frame to remove dust, and remove the adhesive backing paper to expose the outer surface of the self-adhesive pad.
- Ensure you have the correct side facing towards where the magnet will be (the right hand side when the indicator is above the panic button).
- Hold the sensor in both hands and move it towards the desired location so that your hands hit the door or frame before the sensor. With your fingers gradually move the sensor closer to the door into the correct location while steadying it with your hands.
- When it is in location press it hard with pressure on all four corners of the front plate (using both hands, with thumbs at the bottom and fingers at the top). Avoid pressing the sides of the housing outwards as you will be able to break them!
- Try and avoid pulling it off and repositioning it as this will weaken the adhesive.
- Mount the magnet using the self-adhesive tape already fixed to the back of it in a similar fashion. It is symmetrical and has not got a right or wrong way up.

Once installed and with the isolating tab removed, *provided the door sensor can make radio contact with the hub*, then the indicator will be off when the door is closed, come on steadily for 2-3 seconds as the door opens and flash every 2.5 seconds while the door remains open. If the sensor cannot make radio contact with the hub (eg the hub is off), then the indicator will flash once every 10 seconds to indicate such, and not report the open / closed state of the door.

The Indicator can be switched off later by sending a “TEST off” message.



Extra sensors and how ARC Angel deals with rooms with no sensors

If an area of a house covering several rooms is largely unused, then it may be able to be covered by a single sensor. For example if the cared for person lives mainly on the ground floor of a house but goes upstairs infrequently to access a spare room, then the whole of the top floor can be covered by a single sensor on the landing. Simply fix the extra sensor on the landing and rename it 'Upstairs'.

This approach is fine provided they only go into that area of the house for one purpose. It fails however, if for example the area contained a spare room where a person sits and reads for hours at a time, and a bathroom where visits might be considerably shorter. In this scenario protection is reduced as it cannot warn of an overstay in the bathroom perhaps due to a fall, as this whole 'Upstairs' area has to be set to allow many hours in the spare room reading.

Protection is considered as 'reduced', because an alert cannot be raised as quickly as it might otherwise be if the upstairs bathroom had its own sensor.

Adding a single extra sensor to the upstairs bathroom would allow that room to have a shorter overstay alert period and improve the protection level. The sensor on the landing will still provide a general 'Upstairs' area where the subject might be expected to stay for considerably longer in any room accessed off the landing, but excluding the bathroom which is then individually covered and alerts after a shorter duration.



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