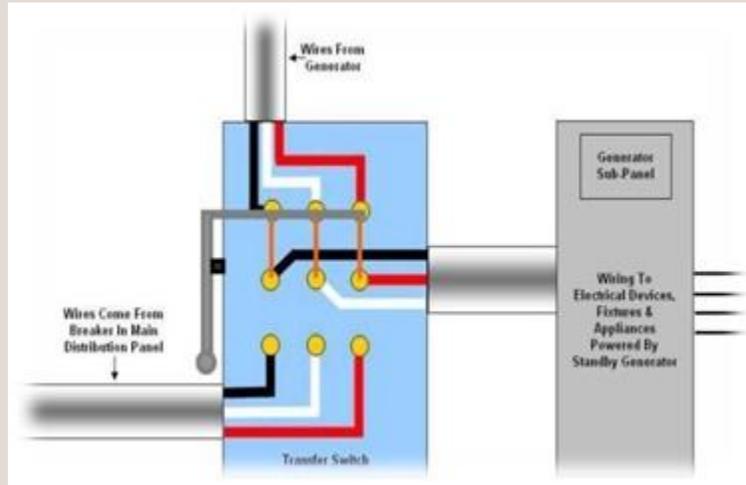


# What is a transfer switch?



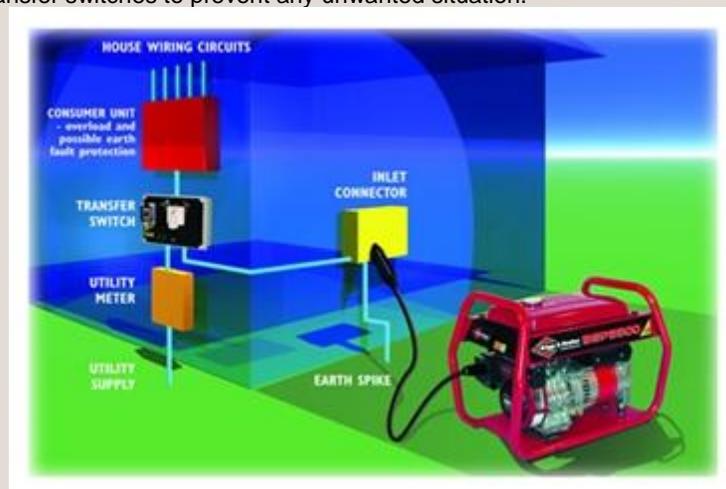
An electrical device that is used to switch load between two sources is termed as a **transfer switch**. They are mostly used to connect a generator to one's household wiring in a safe manner.

Nowadays these switches are installed as a permanent part of the control panel and makes switching between the generator and incoming power as simple as operating a bulb switch.

It really adds to the safety of household equipment and prevents any dangerous voltage crossing that may lead to fire or any other mishap.

## Need of transfer switch

Transfer switches are usually not used in common houses where there is no need of backup generators. But those having one must use transfer switches to prevent any unwanted situation.



Generators are connected to the household appliances via two methods. The first method is to connect generators directly to these appliances using power cord.

This method is quite inefficient and looks messy as well creating tangled wires and mesh. This complete situation can be avoided if we connect the generator directly to our household wiring.

In this way there would be no need of meshy cords. There would be only one cord which would connect directly to the main circuitry.

However this method requires a change over or a transfer switch that may switch the connections as soon as the grid power is turned on. This is really important for the safety of the worker as well as home circuitry.

## Utility

The utility of the switch is just changing the contacts so that the home or any other circuitry may be prevented being powered up at the same time. It involves the switching of contacts from utility to generator power.

They perform following functions:



- Detects if there is any interrupt in the **utility power**.  
Nowadays these switches are made using solid state devices and are very efficient in detection of any cut off in the grid power.
- Sends a signal to the generator as soon as power cut off is detected. This signal instantly turns on the generator and resumes power within Nano seconds.
- Makes sure that generator is available for power delivery. This point is very important as any lapse in power delivery can lead to data loss or even loss of consumer items.
- Transfer of load power from utility power to the generator.
- Detects and generates a signal as soon as the utility power has returned.
- After the power has returned the transfer switch again shifts the load to the utility power.
- At the same time it generates a signal that stops the generator.

## **Types of transfer switches**

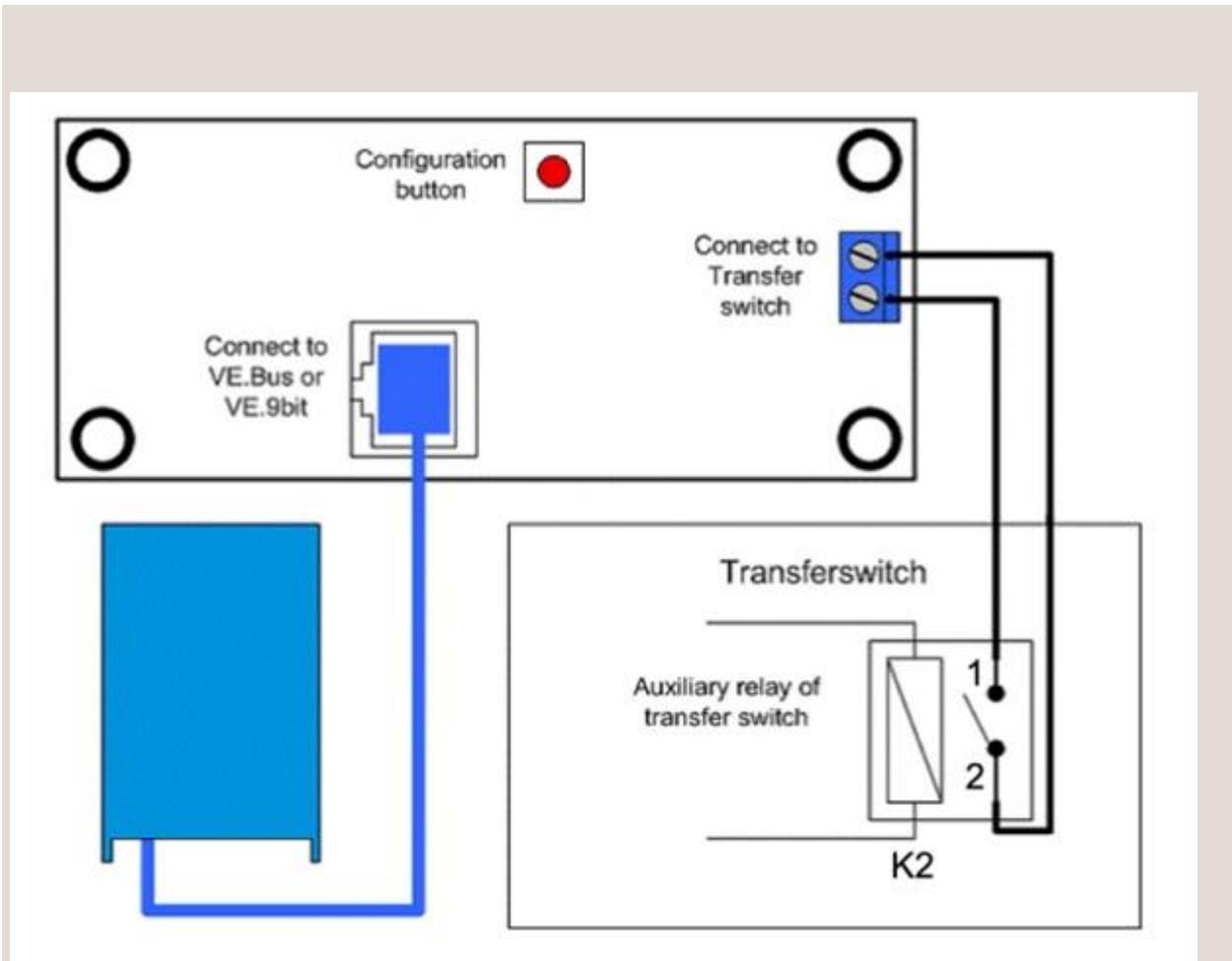
There are numerous classes of transfer switches available in market depending upon need. They are classified as following:

- **Open transition transfer switch:** These switches are normally referred to as break before make switches. This transfer switch breaks contact with one source of power before contacts are transfers to the generator or backup power source.
- **Closed transition transfer switch:** These switches are referred to as make before make transfer switch. As this transfer switch usually makes the new connection before breaking the previous connection so there is some interruption of two incoming powers.
- **Soft Loading transfer switch:** A soft loading transfer switch performs active changeover with the incoming power.
- **Static transfer switch:** This switch is same as the previous ones except that the changeover is done with help of silicon controlled rectifiers (SCRs) here.

## **Precautions**

Like every electrical component transfer switches also have some precautions that must be taken into account. All connections must be tight and wiring should be high quality and if possible fire proof.

A complete wiring diagram should be made and strictly followed in order to enable easy understanding and troubleshooting in future.



Source: <http://engineering.electrical-equipment.org/panel-building/what-is-a-transfer-switch.html>