

The ACTS-40 Explained

The Latronics® 2-Way AC Transfer Switch Explained

The Latronics ACTS-40 will switch between two AC power sources up to a limit of 40A at 230/240V AC (110/120V option also available). It has two AC inputs and one AC output, this output goes to the main loads in a dwelling, RV, caravan or marine vessel.

Here's where it gets interesting; one of the AC inputs is called the Primary and the other is the Secondary. The Primary input is dominant, meaning that the ACTS-40 will always use the power source connected to the Primary input if it is available. If the Primary input power ever disappears or fails then the ACTS-40 will look to the Secondary input to get its power supply. This preferential switching feature alone can be used in a wide range of different scenarios.

The Grid as Backup

In a suburban home there can be a stand alone Inverter connected into the Primary input, and the Grid going into the Secondary input. So, if the batteries in the stand alone Inverter ever ran down too low that the stand alone Inverter switched off, then the ACTS-40 would quickly switch over to the Grid supply as a back up source for the home.

Caravan, Marine & RV

On a boat or in a caravan the "Shore Power" (external water proof GPO male plug) can be wired into the Primary input of the ACTS-40, with the stand alone Inverter as the Secondary input. When pulling up to a mooring or caravan park the Inverter will be running devices, like a fridge, from it's batteries. As soon as the Grid (or a Generator) is plugged in, the transfer switch will swap over to that supply, as it is the Primary (dominant) input for the ACTS-40. When leaving, the Grid/ Generator are simply unplugged, and the ACTS-40 switches back over to the Inverter that is wired into the Secondary input.

Remote Area Power Supply

In a rural home or property without a Grid connection, a generator AC output can be wired into the Primary input of the ACTS-40, and a stand alone Inverter AC output wired into the Secondary input. With the generator off most of the time the power will be sourced from the Secondary input (Inverter); however as soon as the generator is switched on the ACTS-40 will switch to the Primary input (generator). The idea with this setup, is when the solar charge controller (regulator) monitors that the batteries are getting low, it can send a signal to start the (electric start) generator.

As soon as the generator AC supply is up to speed and stable the ACTS-40 will switch over and use that Primary power source while your Latronics Inverter goes into standby sleep mode. Any connected battery charger also gets its power exclusively from the generator, and once the batteries have reached float state, the charge controller will signal the generator to turn off. The ACTS-40 will sense the loss of its Primary power source and switch back to the Inverter supply on the Secondary input that is now running on fully charged batteries.



UPS or Battery Back Up

For a business or even a home it can be vital to have a backup system in case of a natural disaster related power failure or black out. A stand alone battery back up system using a Latronics LS Inverter and ACTS-40 can protect against this.

The grid will be connected into Primary input and the battery powered stand alone inverter will be the secondary input (the inverter would normally be asleep in standby mode, using virtually no battery power). Most days the batteries would be charged from a relatively small solar system, while the house or business would run from the grid as normal. However if there were a grid failure then the transfer switch would swap over to the stand alone inverter without causing any power disruptions for running devices like computers. Once the grid power was restored it would automatically take over again as it is the Primary input.

ACTS-40 device protection

When the ACTS-40 switches over it does it very quickly at 12 milliseconds, but more importantly it makes sure to switch over at the zero crossing. This means that it switches at a position in the AC sine wave where the voltage is momentarily at zero. This is an important feature as it means that devices like computers (even ones without internal batteries) and other sensitive electronics won't experience any spikes, losses or abrupt changes in their power supply.

The Latronics ACTS-40 also has a 5 second timer before switching again, ensuring that any repetitive disruptions do not cause constant switching between the two inputs.

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