GREATER RAND MANUFACTURING

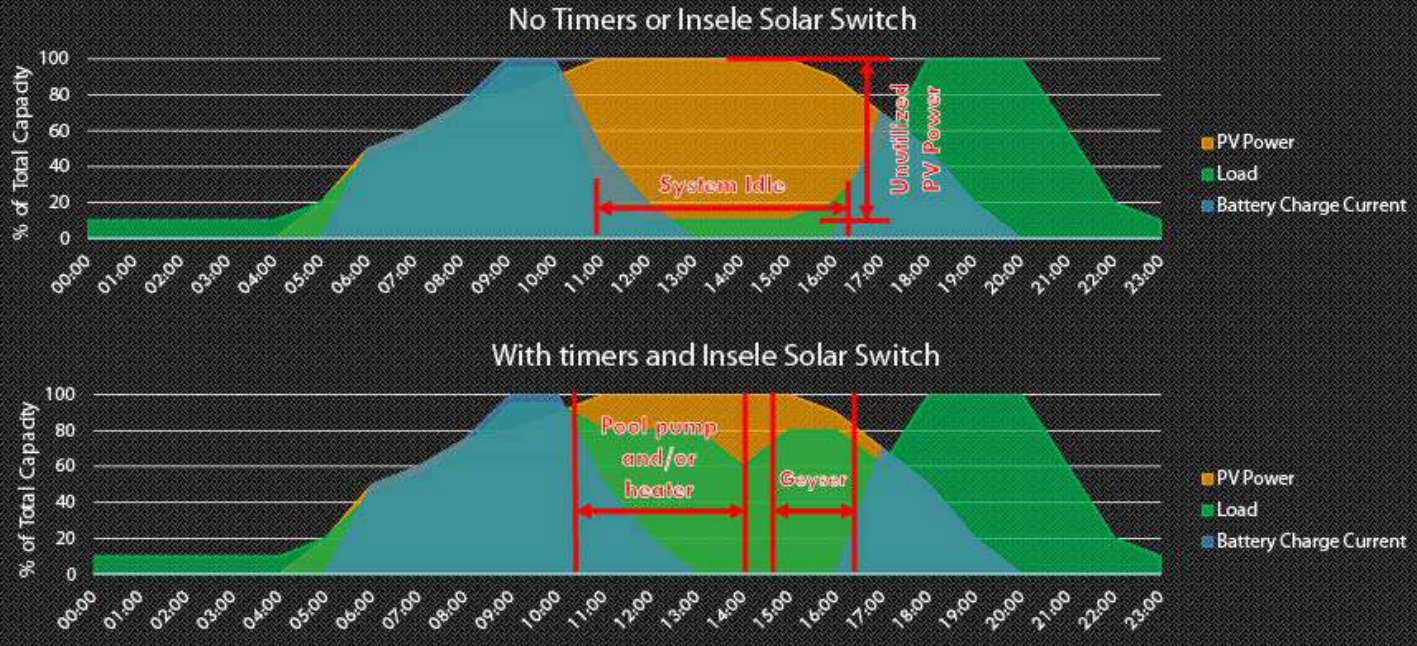
SOLAR SWITCH
Qualification Guide

Peak Solar Detection Switch for Improved Solar System Management

SOLAR SYSTEM INEFFICIENCIES

- A lot of potential power from the solar panels is not used during peak solar hours
- To avoid battery drain and damage, many large loads such as pool pumps, pool heaters, geysers and air conditioners are left off the solar system
- Solar panels have the potential to produce surplus power on clear days that could be utilised for these larger loads
- In most cases the system battery is charged first and then the system idles with a relatively low load for the rest of the working day
- Timers are used in many cases to run some of the larger loads during these idle hours
- Timers can help manage solar load but cannot account for cloud cover inwhich case the loads need to be managed manually which is not always possible or practical

TYPICAL SOLAR SYSTEM POWER CURVE BEFORE AND AFTER USING INSELE SOLAR SWITCH AND TIMERS



MANAGING LOADS ACCORDING TO PV INPUT WITH THE SOLAR SWITCH

- As we can see from the typical solar system graphs, a lot of potential power is underutilised on an unmanaged solar installation.
- By using the Insele Solar Switch in conjunction with a timer one can assign loads to these underutilised times, whilst monitoring solar availability.
- The Insele Solar Switch can detect if there is sufficient solar power available and allow the assigned load to run based on the timer setting
  - For example, if it is a sunny clear day and the timer is set to run the load, the Insele Solar Switch will let the pool pump run on the solar panel power. However, if it is a cloudy day and not enough solar power is available the load will not run.
- The Insele Solar Switch has been designed with an override timer that can allow the load to run for a preselected limited time on the Inverter power should the need arise.
- As long as the timer is used to ensure that the loads are distributed throughout the day and do not exceed the maximum power that the inverter system can supply in any one period, one can very simply connect and run a variety of these "Optional" Loads through the Insele Solar Switch.
- The number of possible loads is dependent on the size of the solar installation and the loads (see the capacity guide)

SOLAR SWITCH APPLICATIONS

POOL PUMP

POOL HEATER

HEAT PUMP

JACUZZI PUMP

JACUZZI HEATER

BOREHOLE PUMP

IRRIGATION PUMP

GEYSER

AIR CONDITIONER

INSELE SOLAR SWITCH SPECIFICATIONS

- Operation is extremely simple and only requires that the switch and solar sensor are properly installed. The switch will then connect the Inverter/Solar power to the load unless there is inadequate solar energy. When the solar energy is low, the switch will then switch off the load. Once the solar energy is again adequate, then power is reconnected to the load.
- The preset timer can be set to run for approx. 24, 30 , 60 or120 minutes and the activation time needs to be configured at installation.
- The switch is designed to fit onto a standard DIN power rail in the DB board or a similar connection on a remote DB for the pool, pump control or appropriate fixing for standalone installations.
- Installation should be done by an authorised installer and evaluated by a competent person for installation within the Solar Inverter System.

Input Voltage	100-240 Vac
Surge Current	40A (AC) (@230v)
Operating Current	30A (AC) (@230v)
Frequency	50/60Hz
Mains transient protection	YES
Override switch	YES
Dual line out	YES
Isolated Power Supply	YES

CONCLUSION

- By using the Insele Solar Switch one can optimise the energy produced by their solar installation
- Optional loads can be use on PV power only, saving on electricity bills
- Automated solar control for user convenience
- The Solar Switch has multiple applications and can manage various types of loads