# Load management

## Increase the self consumption

With its unique technology the PowerRouter can control additional loads to improve the self consumption. By means of applying an external relay it is now also possible to manage and switch on additional selected loads (see fig. 1) when there is a surplus of solar energy. For example, a water heater or boiler can be prepared and switched on to make optimal use of the surplus of energy. In this way the use of self-generated energy is further maximized. This can be very advantageous especially when it's not allowed to feed-in or when the feed-in tariff is lower than the electricity tariff. By intelligently using surplus energy, electricity costs are decreased.

### How it works

The PowerRouter is provided with two user-selectable relays in the connection areas (see fig. 2). These relays are controlled by the PowerRouter. To switch on additional loads an external relay (PowerRouter accessory) is needed (fig. 3).

When using a 3-phase sensor in the installation, be aware of the fact that the relays react only on the netted counter (total generated energy – total consumed energy of all three phases).

### Activation of load management

To activate the feature "load management", the PowerRouter software installation tool is needed. The following settings within the installation tool are necessary to activate load management:

> Activation point of the relay: At what feed-in current to the grid shall the additional load be switched on?
> De-activation point of the relay: At what consumed current from the grid shall the additional load be switched off?
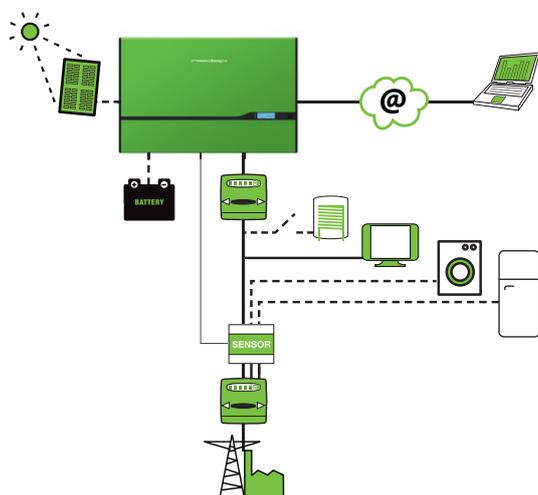> Minimal timeframe of the additional load shall be activated.
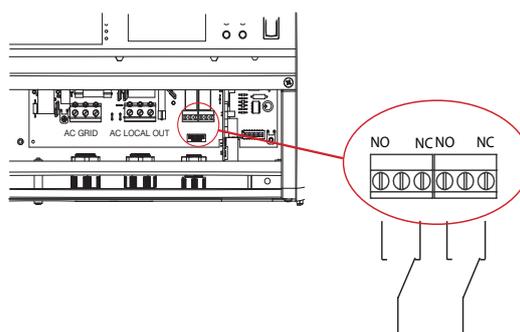


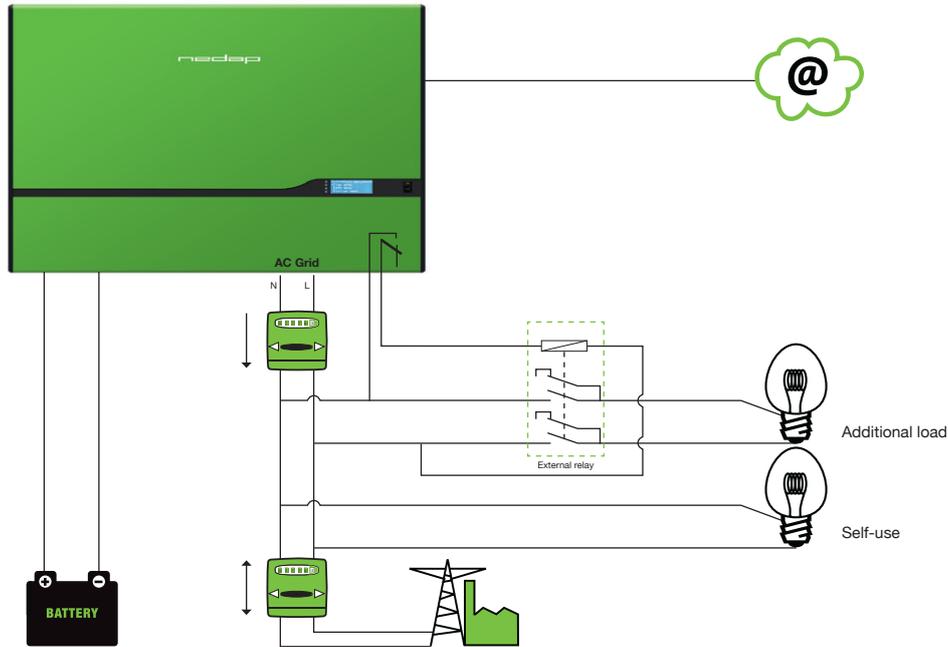Figure 1. Switching on additional loads



Figure 2. User-selectable relays

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Figure 3. Installation schematic with external relay

## Example of an installation

> Considering extra load of 3 kW
> Considering switch on if level > 3 kW
> Considering switch off if level < -600 Watt

Switch on extra load if the surplus is > 3 kW. I.e. if the required power for local loads and charging the battery is supplied by solar energy and still 3 kW is available for feed-in, the load of 3 kW is switched on.

In this example the system owner wants to keep the additional load switched on as long as it is for 80% supported by solar energy, whereas it is switched off if the level is (–(100%-80%) x 3 kW = -600 W) -600 Watt.

Please note that in a self-use situation, as a result of the -600 W setting, the battery could be used to support up to 600 W while the extra load remains switched on. Even if the battery has reached the minimum state of charge for self-use, up to 600 W can be obtained from the grid without switching off the additional load.

## Availability

| PowerRouter | Type | Required accessory | Firmware* |
|---|---|---|---|
| PowerRouter Solar Inverter (3.0, 3.7 and 5.0 kW) | PR30/37/50S | External Relay p/n PRA1RLY | Firmware 4.0 or higher |
| PowerRouter Solar Battery - self-use (3.0, 3.7 and 5.0 kW) | PR30/37/50SB-BS | External Relay p/n PRA1RLY | Firmware 4.0 or higher |
| PowerRouter Solar Battery - UPS backup (3.0, 3.7 and 5.0 kW) | PR30/37/50SB-PR | External Relay p/n PRA1RLY | Firmware 4.0 or higher |

*Please note: This feature requires firmware revision 4.0 or higher. If the PowerRouter is not provided with this firmware revision, upgrade the PowerRouter to the latest firmware revision. Check the firmware revision via the display under menu "service", sub menu "revision" or by checking the PowerRouter software installation tool. More information about the latest software can be found on the website www.PowerRouter.com.

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