

Technical Note:

## Thermino® xPlus in Back-up Electric Mode



### NOTICE

Please read & understand all these instructions before commencing installation.

Failure to install and operate this system in accordance with these instructions will invalidate the manufacturer's warranty.

Please leave this technical note with the customer for future reference.



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# 1. INTRODUCTION & PURPOSE

## 1.1 GENERAL

The following instructions provide guidance for the installer and end-user of Thermino® xPlus Heat Batteries when used in back-up electric mode (charging via the 2.8kW internal heating element).

The installation of Thermino® xPlus in back-up electric mode must be carried out by a competent installer in accordance with local codes and regulations for plumbing, electrical installations and potable water supply.

Please note that using a Thermino® xPlus in back-up electric mode is not the standard intended use of the product. The primary function of a Thermino® xPlus Heat Battery is to be hydraulically charged by an external heat source (i.e. Heat Pump or Boiler) as a primary source of energy, with an option of adding Solar PV as a secondary source of energy. Both these options require the use of an appropriate Optimino® key from the XX01 and XX02 ranges respectively. For detailed information on standard installation of the Heat Battery, please visit our website for all the latest manuals and technical notes: <https://sunamp.com/en-gb/information-hub/>.

The installation of Thermino® xPlus Heat Batteries in back-up electric mode is a **temporary solution** and **will only be permitted** in the circumstances highlighted below. Otherwise, it will be considered a non-standard installation as it deviates from the intended use of the product, which will **invalidate** the manufacturer's warranty:

- The Heat Pump or Boiler is yet to be installed and commissioned.
- The Heat Pump or Boiler is momentarily non-operational due to maintenance requirements.



- The Heat Pump or Boiler is not operational in DHW mode only.
- For DSR services.

## 1.2 SYMBOLS USED

In these instructions the following symbols are being used to draw the user's attention to information of particular importance.



### WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



### CAUTION

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury or material damage.



### NOTICE

Signals information that is considered important but not hazard related.

## 1.3 ABBREVIATIONS

The following abbreviations are used in the manual throughout

- DHW - Domestic Hot Water
- DSR - Demand Side Response
- PDC - Power Diversion Controller
- PV - Photovoltaic

## 2. SAFETY

### 2.1 GENERAL SAFETY NOTICES



#### WARNING

Only competent persons suitably qualified to carry out plumbing and electrical work may undertake installations, repairs or relocations of the Heat Battery.

Product training on the full range of Thermino Heat Batteries is available from Sunamp or authorised training partners. For more information, please visit:

<https://sunamp.com/en-gb/information-hub/training/>.



#### WARNING

Before commencing the Hydraulic Installation of the Heat Battery, you must ensure that the Heat Battery is electrically isolated from the Mains.



#### WARNING

All Electrical wiring should be carried out by a competent person and be in accordance with the latest local wiring codes and regulations.



#### WARNING

Risk of electric shock – potential dual supply. Always isolate the power supply/ies to the Heat Battery controller before working on the Heat Battery.



#### CAUTION

Each Heat Battery must be protected by its own 16A MCB and have a double pole isolating switch with a contact separation of at least 3mm in both poles, which is located in close proximity to the Heat Battery.



#### CAUTION

Use the strain reliefs supplied with the Heat Battery to ensure cables are secured in place.



### 3. ACCESSING BACK-UP ELECTRIC MODE

#### NOTICE

Please note that using Thermino® xPlus Heat Batteries in back-up electric mode is not the intended use of the product. Please be aware that this may affect the energy efficiency of the product. Therefore, extended use of Thermino® xPlus Heat Batteries in back-up electric mode is not recommended and is restricted to the circumstances mentioned in the Introduction.

#### NOTICE

Engaging the volt-free switch below will put the Heat Battery into electric back-up mode. This can lead to increased electricity consumption, resulting in higher energy costs. This should be explained to the end user and the switch labelled accordingly.

Accessing back-up electric mode in Thermino® xPlus Heat Batteries can be achieved by following the installation procedure outlined below. Please follow these instructions in conjunction with the Thermino® xPlus manual (document D0084) for the correct installation and commissioning of the unit.

#### 3.1 INSTALLATION OF A VOLT-FREE SWITCH



#### WARNING

Risk of electric shock – potential dual supply. Always isolate the power supply/ies to the Heat Battery controller before working on the Heat Battery.



Fit a **VOLT-FREE** switch on the charge link between terminals 1 & 2 in the controller wiring centre. Closing this switch will force the unit into electric back-up mode. When using an Optimino PV key of type 'XX02' and a power diverter is installed, the unit will charge via Solar PV if PV energy is available. If scheduled reheat times are programmed on the PDC, the unit will charge via grid supply during these periods. Please note, it is not recommended to programme scheduled reheat times once a Thermino xPlus product is connected to an external heat source as this might lead to increased grid electricity consumption. Please refer to Figure 1 below:

**Volt-Free** switch should be connected to terminals 1 & 2. This will set the unit into 'electric back-up' mode.

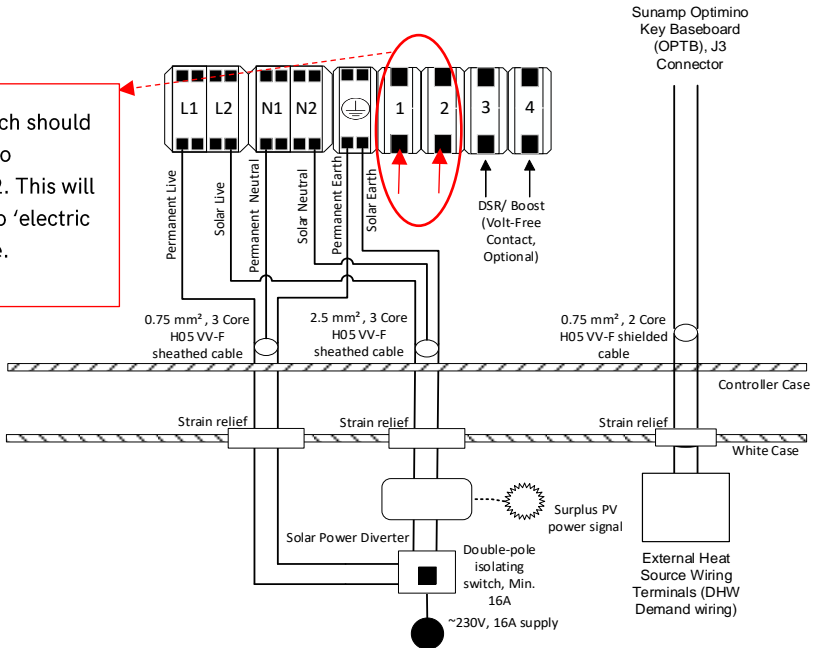


Figure 1: setting Thermino xPlus in back-up electric mode by installing a Volt-Free switch





You can alternate between 'external heat source charging mode' and 'internal heating element (electric) charging mode' by closing & opening this switch.

'internal heating element (electric) charging mode' = Switch closed (ON).

'external heat source charging mode' = Switch open (OFF).



#### NOTICE

If an external heat source is installed and operational, every time back-up electric mode is activated, the unit will experience a 5-minute timer between external to internal heat source switchover to avoid simultaneous heat source operation. This protects the Heat Battery and external heat source from overheating.



#### NOTICE

If a boost button is wired in terminals 3 & 4 in the wiring centre and a myenergi eddi PDC is installed, the DSR functionality will only work if the solar/permanent output is wired to the power diverter relay & sensor board, please see Figure 2 below:

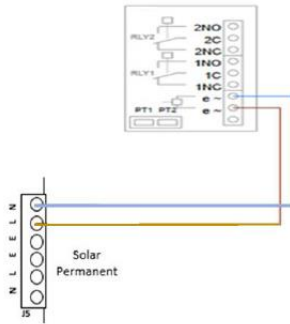
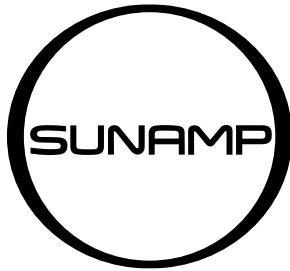


Figure 2: myenergi eddi relay & sensor board

Please follow document **D0085** for programming boosts/reheat times for the various solar diverters, and for more information on solar PV wiring, installation & settings instructions. Setting a scheduled reheat/boost time ending right before your main hot water consumption period of the day will ensure comfort & maximise the use of PV-generated electricity.



Part Number: D0093

Version Number: 1.0

Publication Date: 11.09.2024

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