



Keep these instructions in a safe place for future reference







**Thermino® hp-VT & Thermino® hpPV-VT
Heat Batteries Addendum Manual**



Safety Notice

Symbols and Notices Used and Their Meanings

Symbols			
			
Warning	Electric Hazard	Take note	Cross reference
Warning Notices	Consequences	Likelihood	
⚠️WARNING	Death/serious injury (irreversible)	Potential risk	
⚠️CAUTION	Damage/minor injury (reversible)	Potential risk	



This Addendum manual **MUST** be followed for Sunamp Thermino® Heat Batteries installations with Vaillant Arotherm Plus High Temperature Heat Pumps. This manual should be read in conjunction with the Thermino hp & Thermino iPV Heat Batteries Installation and User Manual.

This Addendum manual **ONLY** contains relevant information on how to setup the hydraulics and electrics, between the Heat Battery and the Vaillant Arotherm Plus Heat Pump for the install and what settings should be applied to the Vaillant Arotherm Plus, Heat Pump Interface and Sensocomfort controls. This is to allow the correct control configuration between the Sunamp Thermino Heat Battery and the Vaillant Arotherm Plus.

Please note that Sunamp takes no responsibility for any other system configuration and installation other than what is documented in this Addendum manual.



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1.2 Sunamp Thermino hp-VT wiring – Thermino hp-VT



Important: Please follow (Table 1) for information regarding the Links.

Link specification	Removed or Fixed
Link 1	Fixed (Factory Setting)
Link 2	Fixed (Factory Setting)

Table 1: Wiring Thermino hp-VT – Link 1 & 2 settings

Link 3 will be provided fixed within the product; for this product type it **MUST** remain in place. Removing the Link 3 will result in increased consumption and running times of the Vaillant Arotherm Plus Heat Pump.

- Run and connect 3 Core mains power supply cable (16A minimum, minimum 2.5mm² CSA) from the Double-pole isolating switch to the Heat Battery controller (Figures 2 and 3).
- Wire the cable via the appliance case grommets and into the control box housing (Thermino hp installation manual Figure 8 and Figures 2 and 3 below).
- Prepare if necessary and wire the mains power cable in the following terminals (Thermino hp installation manual, Figure 10 and Figures 2 and 3 below):
 - **Brown (Live):** Terminal L1 (Live)
 - **Blue (Neutral):** Terminal N1 (Neutral)
 - **Green/Yellow (Earth):** Terminal PE (Protective Earth)



1.2.1 Electric override switch wiring

- Wire a 2 core shielded PVC insulated cable (minimum 0.75mm² CSA, 24 x 0.2mm according to BS 6500) from a 2-pole Volt-free contact switch, run the wire into the appliance via the appliance case cabling grommets and then into the control box housing through the hole available. Secure the cables in Terminal T1 & T2 independently (Figure 2 & Figure 3).



Warning: Please DO NOT connect a fused spur for this connection.

Note: This switch should be off by default. Engaging this switch will put the Heat Battery into electric charging mode only and disable the function of the Vaillant Arotherm Plus Heat Pump until the switch is set



to off. 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.

1.2.2 External heat source sensor cable wiring

- Wire a 2 core PVC insulated cable (minimum 0.75mm² CSA, 24 x 0.2mm according to BS 6500), the heat battery controller in this application acts as hot water thermostat. The cable will act as a hot water heating tank sensor from the heat battery controller terminals T3 & T4 into the Vaillant Heat Pump Interface controller SP1 screw terminals 1&2 (please refer to Vaillant Arotherm Plus Installation manual). Please run the wire into the heat battery appliance via the appliance case cabling grommets and then into the control box housing through the hole available. Secure the cables in Terminals T3 & T4 independently (Figure 2).

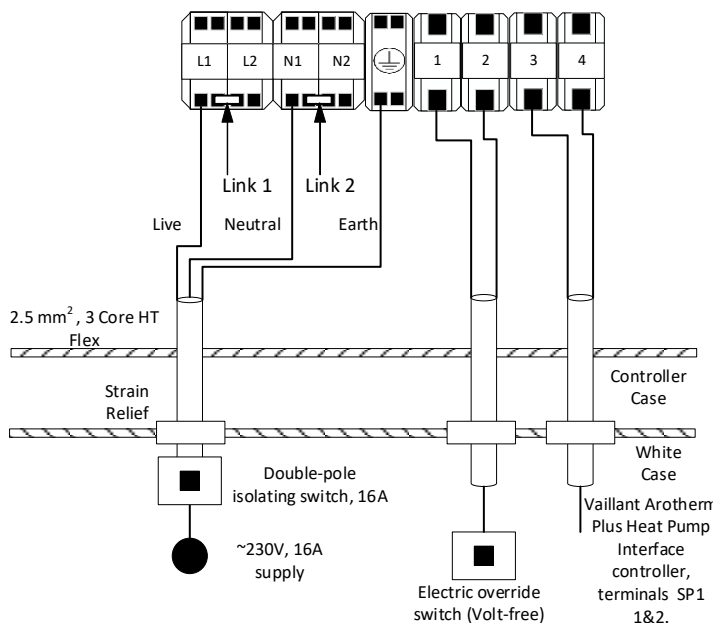


Figure 2: Thermino hp-VT system wiring

1.3 Sunamp Thermino hp-VT hydronics and controls schematic

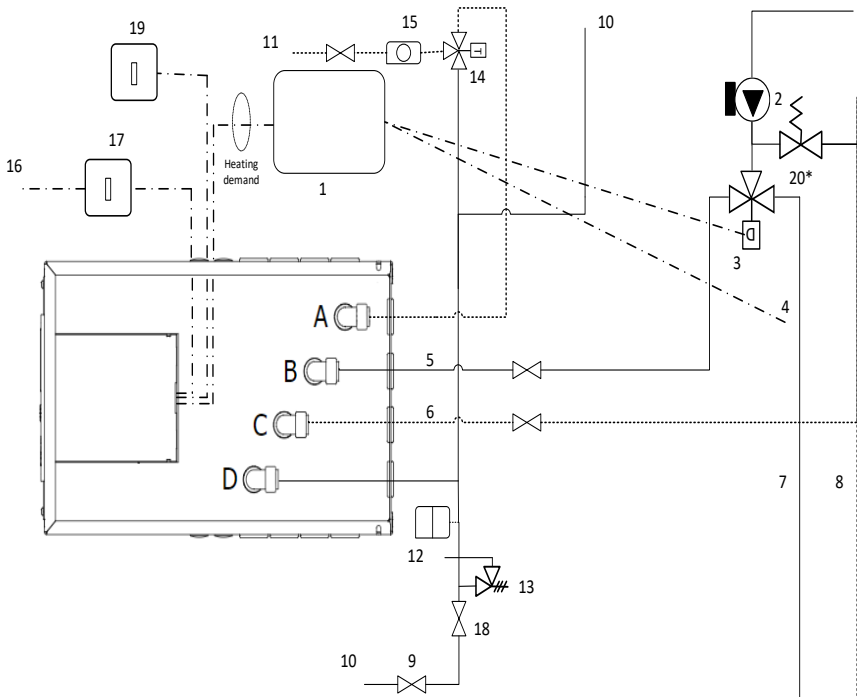


Figure 3: Example wiring option 1.2 schematic (see *Thermino hp* installation manual, Figure 3 for piping and electrical exit options available)



Item	Description				
1	Vaillant Heat Pump Interface	8	Central Heating Return	15	Hot Water flow regulator
2	Circulation pump (*1)	9	Check valve	16	230VAC 16 A power supply
3	Diverter Valve (Normally Open to Heating)	10	Mains Cold Water Supply	17	Double-pole isolating switch, (Min.16A)
4	Vaillant Heating Thermistor	11	Hot water supply to dwelling	18	Cold Water Mains Pressure regulator
5	Flow from Heat Pump to Heat Battery	12	Expansion Vessel	19	Electric Override Switch (Volt-free)
6	Return to Heat Pump from Heat Battery	13	Mains Expansion Relief Valve (max. of 10 bar)	20	Auto-bypass valve (*2)
7	Central Heating Flow	14	Hot Water Tempering Valve		
<p>Notes:-</p> <p>*1 The circulation pump may be located in the Heat Pump enclosure and is controlled by the heat pump controller, please check Heat Pump manual.</p> <p>*2 Auto-bypass valve should only be fitted to allow for minimum flow in defrost mode if flow rates and heat battery pressure drops exceed the pressure limitations of the heat pump circulation pump.</p>					

Table 2: Explanation of components for **Thermino hp-VT**

2 Thermino hpPV-VT

2.1 Sunamp Thermino hpPV-VT controller wiring diagram

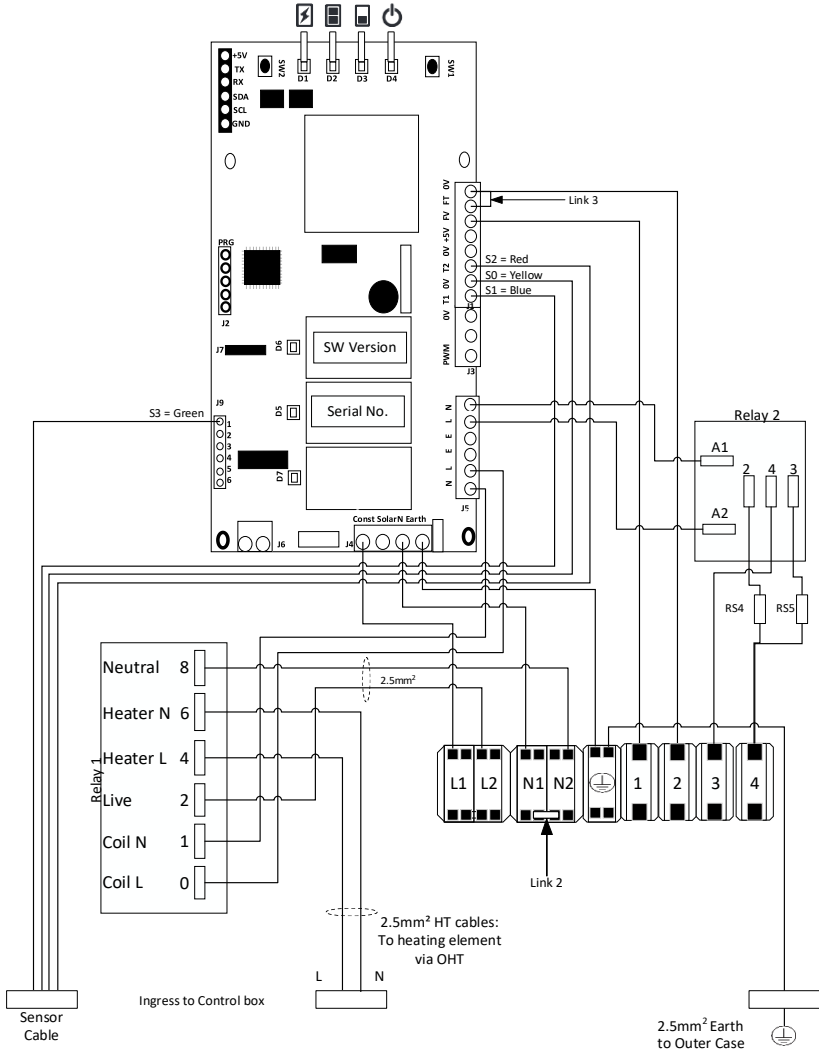


Figure 4: Internal controller wiring diagram (wire sizes= 0.75mm^2 , unless stated otherwise)

2.2 Sunamp Thermino hpPV-VT wiring



Important: Please follow (Table 3) for information regarding the Links.

Link specification	Removed or Fixed
Link 1	Removed (Factory setting)
Link 2	Fixed (Factory setting)
Charge Link	Fixed (Factory setting)

Table 3: Wiring Thermino hpPV-VT – Link 1 & 2 settings

Link 3 will be provided fixed within the product; for this product type it **MUST** remain in place. Removing the Link 3 will result in increased consumption and running times of the Vaillant Arotherm Plus Heat Pump.



- Run and connect 4 Core mains power supply cable (16A, minimum 2.5mm² CSA) from the Solar Power Diverter to the Heat Battery. (Thermino iPV installation manual, Section 3.9 and Figures 5 and 6 below).



- Wire the cable via the appliance case grommets and into the control box housing (Thermino iPV installation manual, Figure 8 and Figures 5 and 6 below).



- Prepare if necessary and wire the mains power cable in the following terminals (Thermino iPV installation manual, Figure 10 and Figure 5 and 6 below):
 - **Brown (Live):** Terminal L1 (Permanent Live)
 - **Black (Live):** Terminal L2 (Modulating Live)
 - **Blue/ Grey (Neutral):** Terminal N1 (Neutral)
 - **Green/Yellow (Earth):** Terminal PE (Protective Earth)

2.2.1 External heat source sensor cable wiring

- Wire a 2 core shielded PVC insulated cable (minimum 0.75mm² CSA, 24 x 0.2mm according to BS 6500), the heat battery controller in this application acts as hot water thermostat. The cable will act as a hot water heating tank sensor from the heat battery controller terminals T3 & T4 into the Vaillant Heat Pump Interface controller SP1 screw

terminals 1&2 (please refer to Vaillant Arotherm Plus Installation manual). Please run the wire into the heat battery appliance via the appliance case cabling grommets and then into the control box housing through the hole available. Secure the cables in Terminals T3 & T4 independently (Figure 5).

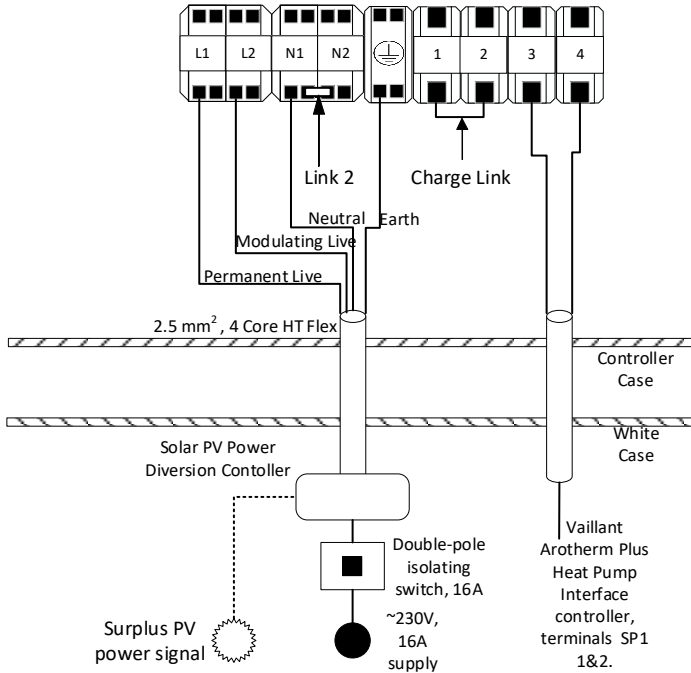


Figure 5: Thermino hpPV-VT system wiring

2.2.2 Solar Power Diverter wiring



For wiring and setup of the Solar Power Diverter, please follow the instructions in section 3.9 of the *“Thermino ePV & Thermino iPV Heat Batteries Installation and User Manual - D0043”*

2.3 Thermino hpPV-VT hydronic and controls schematic

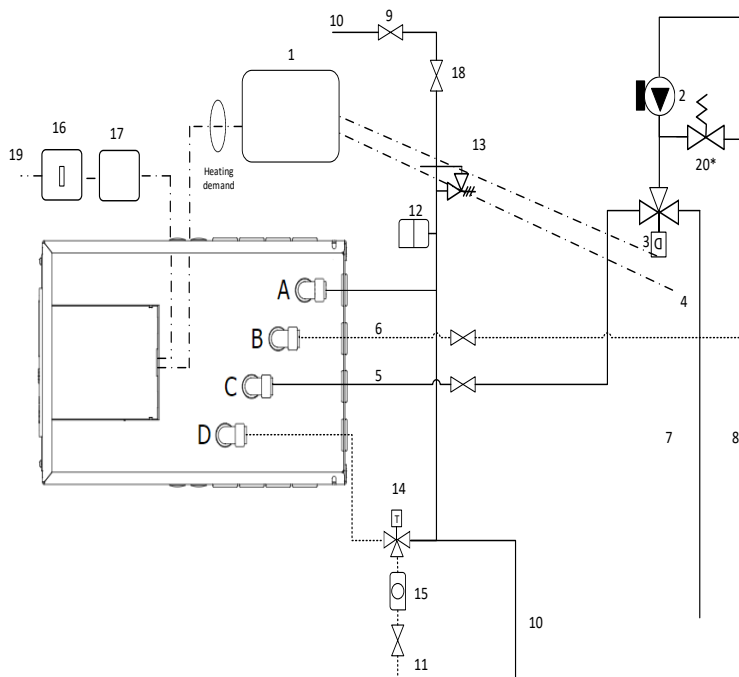


Figure 6: Example wiring option 2.2 schematic (see *Thermino hpPV-VT installation manual Figure 3a* for piping and electrical exit options available)

Item	Description				
1	Vaillant Heat Pump Interface controller	8	Central Heating Return	15	Hot Water flow regulator
2	Circulation pump (*1)	9	Check valve	16	Double-pole isolating switch, (Min.16A)
3	Diverter Valve (Normally Open to Heating)	10	Mains Cold Water Supply	17	Solar Power Diverter
4	Vaillant Heating Thermistor	11	Hot water supply to dwelling	18	Cold Water Mains Pressure regulator
5	Flow from Heat Pump to Heat Battery	12	Expansion Vessel	19	Electrical supply from Dwelling consumer board ~230V AC, 16A
6	Return to Heat Pump from Heat Battery	13	Mains Expansion Relief Valve (max. of 10 bar)	20	Auto-bypass valve(*2)
7	Central Heating Flow	14	Hot Water Tempering Valve		
<p>Notes:-</p> <p>*1 The circulation pump may be located in the Heat Pump enclosure and is controlled by the heat pump controller, please check Heat Pump manual.</p> <p>*2 Auto-bypass valve should only be fitted to allow for minimum flow in defrost mode if flow rates and heat battery pressure drops exceed the pressure limitations of the heat pump circulation pump.</p>					

Table 4: Explanation of components for **Thermino hpPV-VT**

3 Vaillant heat pump settings



Before making changes to the Vaillant Arotherm Plus Heat Pump controllers, first ensure that you have properly reviewed the previous sections of this Addendum manual and the **Thermino hp & Thermino iPV**, particularly in regard to Heat battery specifications as well as location, electrical supply and water supply requirements. This supported with the Vaillant Arotherm Plus Heat Pump Installation manual provided with the heat pump.

3.1 Vaillant Sensocomfort settings

In the Installer level menu please apply the following settings for DHW settings ONLY (please check Vaillant Arotherm Plus Sensocomfort installation and user manual),

Setting	Value required
Max cylinder charging time.	120 minutes
Cylinder charging anti-cycling time: min	Minimum setting
DHW target temperature	70°C
Cylinder charging hysteresis	5K
Cylinder charging offset	5K
Anti-legionella. Day & time	OFF

Table 5: Vaillant Sensocomfort settings



NOTE: If following a DHW daily timed schedule, please ensure that a minimum time window in line with the installed heat battery and heat pump capacities is chosen and that potential defrost cycles during this window are accounted for.



3.2 Vaillant Heat Pump Interface settings

Change Heat pump Compressor output in DHW mode from Eco to Normal, this is available in the DHW settings of the Heat Pump Interface (please check Vaillant Arotherm Plus installation and user manual).

4 Other Information



Please refer to the **Thermino hp or Thermino iPV Installation and User Manuals** for other information regarding the Heat Battery Installation, such as: Maintenance, Troubleshooting, Commissioning, Warranty and Recycling.

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Sunamp Ltd.
1 Satellite Park
Macmerry
East Lothian
Scotland, EH33 1RY
General Enquiries +44 (0)1875 610001

info@sunamp.com

www.sunamp.com

