ModuSat® Single Plate Heating (SP-H)

The ModuSat® SP Heating interface unit has been designed to provide heating for dwellings or commercial areas served by a communal or district system. The unit is supplied via primary LTHW water, which is provided by centralised plant.

Consisting of a plate heat exchanger, combined with electronic PID control using Pressure Independent Control Valve (PICV) with modulating actuator achieving a low primary return temperature as well as providing differential pressure control and flow rate regulation.

Application

The ModuSat® SP-H unit is designed to operate with Evinox SmartTalk® two-way communication system for remote metering and diagnostics.

Heating

The heating circuit consists of a plate heat exchanger (PHE), safety relief valve, manometer, flow and return temperature sensors, Wilo PWM circulation pump and expansion vessel. The heating circuit flow temperature is controlled by the modulation of the primary flow rate with the integrated PICV actuator. Weather compensation is applied to the set heating temperature using SmartTalk® 2-way communication. Suitable for radiators, underfloor heating or fan coil units.

Features & Benefits

- Pipe & case insulation (Optional)
- Pipework constructed from copper
- External filling loop (Optional)
- SmartTalk two-way communication
- Remote monitoring, alarms, and diagnostics
- Wilo PWM Pump – Provides compliance with EU ErP Directive 2015
- Includes inbuilt TCP/IP technology to operate on an Ethernet network if required
- Capable of reading an electricity meter (Option for ENE3)
- Flushing bypass kit enables the primary side of the system to be flushed and cleaned with out damage to the unit

Very compact design with minimum space required for installation.

BSRIA tested to BS EN 1148:1999.

Excellent thermal efficiency achieved using the latest technology and efficient brazed stainless steel PHE’s.

Integrated PaySmart® technology ready for pre-payment billing upgrade (activated anytime remotely).

Billing app for use on smart phones and tablets.

ViewSmart room controller with optional upgrade to provide ENE3 compliant smart metering.

Electronically controlled PICV for primary flow rate modulation to match the demand, differential pressure control and energy shut-off.

Integrated ultrasonic heat meter MID approved and class 2 accuracy (BS EN 1434).

Also capable of reading:
- Electrical Meter
- Cold Water Meter
- Cooling Meter (Optional extras)

Billing app for use on smart phones and tablets.
Components

A  Primary circuit flow
B  Primary circuit return
E  Dwelling heating flow
F  Dwelling heating return
G  Connection for safety discharge
1  Plate heat exchanger
2  Pressure Independent Control Valve with actuator
3  Ultrasonic energy meter
4  Expansion vessel
5  Low pressure switch
6  Safety relief valve
7  Pressure gauge
8  Secondary circulation pump
9  Safety thermostat (Optional)
10 Control Board
11 Room controller
12 Flushing by-pass kit
13 Filling loop (External)
S1  Primary flow temperature sensor
S2  Primary return temperature sensor
S4  Dwelling flow temperature sensor
S5  Dwelling return temperature sensor
Dimensions

Typical ModuSat® SP Heating Unit

NOTE: 190 MM SHOULD BE ALLOWED FOR THE FLUSHING BYPASS KIT ON THE TOP OF THE UNITS WITH 3/4" CONNECTIONS AND 250 MM FOR THE UNITS WITH 1" CONNECTIONS. IN ADDITION 50 MM SHOULD BE ALLOWED ON BOTH SIDES AND 700 MM IN FRONT OF THE UNIT FOR MAINTENANCE.

All Dimensions in mm

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
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<tbody>
<tr>
<td>SPH-R20</td>
<td>467</td>
<td>53.5</td>
<td>60</td>
<td>165</td>
<td>60</td>
<td>335</td>
<td>42.5</td>
<td>675</td>
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<tr>
<td>SPH-R70</td>
<td>467</td>
<td>53.5</td>
<td>90</td>
<td>185</td>
<td>90</td>
<td>335</td>
<td>42.5</td>
<td>675</td>
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<tr>
<td>SPH-B40</td>
<td>467</td>
<td>53.5</td>
<td>90</td>
<td>185</td>
<td>90</td>
<td>335</td>
<td>42.5</td>
<td>800</td>
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<tr>
<td>SPH-B70</td>
<td>560</td>
<td>75</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>400</td>
<td>82.5</td>
<td>825</td>
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Connections

<table>
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<tr>
<th>Connections</th>
<th>A, B, E, F</th>
<th>G</th>
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</thead>
<tbody>
<tr>
<td>SPH-R20</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>SPH-R70</td>
<td>1&quot;</td>
<td>1/2</td>
</tr>
<tr>
<td>SPH-B40</td>
<td>1&quot;</td>
<td>1/2</td>
</tr>
<tr>
<td>SPH-B70</td>
<td>1 1/4&quot;</td>
<td>1/2&quot;</td>
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## Typical Heating Performances

<table>
<thead>
<tr>
<th></th>
<th>ModuSat® SP-H R20</th>
<th>ModuSat® SP-H R20</th>
<th>ModuSat® SP-H R70</th>
<th>ModuSat® SP-H R70</th>
<th>ModuSat® SP-H B40</th>
<th>ModuSat® SP-H B70</th>
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</thead>
<tbody>
<tr>
<td>Heating performance (kW)</td>
<td>10</td>
<td>7</td>
<td>35</td>
<td>20</td>
<td>60</td>
<td>95</td>
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<tr>
<td>Heating flow rate (kg/s)</td>
<td>0.12</td>
<td>0.17</td>
<td>0.42</td>
<td>0.48</td>
<td>0.72</td>
<td>1.14</td>
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<tr>
<td>Heating flow/return (°C)</td>
<td>60 / 40</td>
<td>45 / 35</td>
<td>60 / 40</td>
<td>45 / 35</td>
<td>60 / 40</td>
<td>60 / 40</td>
</tr>
<tr>
<td>Primary flow/return (°C)</td>
<td>70 / 43.1</td>
<td>70 / 36.7</td>
<td>70 / 42.7</td>
<td>70 / 36.7</td>
<td>70 / 43.1</td>
<td>70 / 42.9</td>
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<tr>
<td>Primary flow (kg/s)</td>
<td>0.09</td>
<td>0.05</td>
<td>0.31</td>
<td>0.14</td>
<td>0.53</td>
<td>0.84</td>
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<td>Residual pump head (kPa)</td>
<td>52</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>46</td>
<td>88</td>
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<tr>
<td>Primary pressure drop (kPa)</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
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</tbody>
</table>

### Technical features
- Nominal pressure: 16 bar
- Power supply voltage: 220/240 Volt (AC) 50 Hz
- Max supply temperature (Primary): 95 °C
- Min DCW static pressure: 1 bar
- Brazing material: Copper
- Heating expansion vessel: 8L
- Max allowable primary pressure drop: 4 bar