ModuSat® Floor Standing Heat Interface Units

The Evinox ModuSat® FS heat interface unit has been designed to provide apartments and communal housing developments with high efficiency heating and independent fast recovery hot water.

Consisting of a fast recovery hot water tank and 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.

Features & Benefits

- Global warming potential (GWP) of the cylinder insulation = 0
- Ultrasonic heat meter MID approved and class 2 accuracy (BS EN 1434)
- Simple to install due to factory assembled pipe work, internal wiring and integrated heat meter
- Integrates readily with renewable energy sources
- Excellent thermal efficiency achieved using the latest technology and efficient brazed stainless steel PHE’s
- Integrated PaySmart® technology ready for prepayment billing upgrade (activated remotely at any time)
- Billing app for use on smartphones and tablets
- Integrated hot water storage within the ModuSat reduces central plant peak load
- Fully integrated unvented kit
- Easy access for servicing
- Minimal maintenance requirements
- External filling loop (Optional)
- SmartTalk® two-way communication
- Wilo PWM Pump – Provides compliance with EU ErP Directive 2015
- Electronically controlled PICV’s for primary flow rate modulation to match demand, differential pressure control and energy shut-off
- Hot water blending valve for additional DHW temperature safety
- Electric immersion heater (Optional)
- Includes inbuilt TCP/IP technology to operate on an Ethernet network if required
- ViewSmart room controller with optional upgrade to provide ENE3 compliant Energy Display Device
- Remote monitoring, alarms and diagnostics
- No annual gas appliance inspections required
- Capable of reading an electricity meter (Option for ENE3)

Application

The ModuSat® FS 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, pressure gauge, 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.

Domestic Hot Water

Domestic hot water is generated in an unvented cylinder via a high efficiency coil. The primary heat network flows through the heat exchanger coil and transfers the thermal energy to the potable water in the tank.

General industry guidelines recommend heating the full volume of the cylinder up to 60°C for at least one hour per day. This programme can be set up using our ViewSmart or selected third part thermostat suppliers.
ModuSat® FS 80 & 150 Circuit Diagram

Components
A  Primary / LTHW flow
B  Primary / LTHW return
C  Domestic cold water Inlet
D  Domestic hot water outlet
E  Secondary / Apartment heating flow
F  Secondary / Apartment heating return
G  Connection for safety discharge

Primary Circuit Side
1  Insulated plate heat exchanger (Heating)
2  Pressure independent control valve (PICV) with actuator
3  Heat meter
6  Blending valve
7  Heating expansion vessel
8  Pressure sensor
9  Safety relief valve
10 P&T Safety relief discharge
11 Pressure gauge
12 Circulation pump
13 Safety thermostat external (Optional)
14 Drain point

Secondary Side Circuit
2  Pressure independent control valve (PICV) with actuator
3  Heat meter
6  Blending valve
7  Heating expansion vessel
8  Pressure sensor
9  Safety relief valve
10 P&T Safety relief discharge
11 Pressure gauge
12 Circulation pump
13 Safety thermostat external (Optional)
14 Drain point

Controls & Other Items
16  Electronic control board
17  Room control unit
18  Flushing bypass
19  Filling loop (External)
20  DHW storage tank with heating coil
21  Motorised diverter valve
22  Electric immersion heater (Optional)
23  Tank insulation
24  Unvented kit (With balanced cold feed)
25  Potable expansion vessel
26  Multi directional discharge
27  Tank safety thermostat
ModuSat® FS 80 & 150 Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>FS 80</th>
<th>FS 150</th>
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</thead>
<tbody>
<tr>
<td>Dimension A</td>
<td>mm 1127</td>
<td>1720</td>
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<tr>
<td>Dimension B</td>
<td>mm 849</td>
<td>1199</td>
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</table>

Connection Details

| A, B, C, D, E, F | 3/4" | 3/4" |

G - DISCHARGE PIPE TO EXIT THROUGH LEFT OR RIGHT SIDE OF UNIT THROUGH THE PROVISION PROVIDED.
Technical Details

ModuSat® FS
HIU with Integrated Tank

ModuSat® FS 200 Circuit Diagram

Components
A  Primary / DH flow
B  Primary / DH return
C  Domestic cold water inlet
D  Domestic hot water outlet
E  Secondary / Apartment heating flow
F  Secondary / Apartment heating return
G  Connection for safety discharge
H  DHW secondary return connection

Primary Circuit Side
1  Insulated plate heat exchanger (Heating)
2  Pressure independent control valve (PICV) with actuator - Heating
3  Heat meter

Secondary Side Circuit
6  Blending valve
7  Heating expansion vessel
8  Pressure sensor
9  Safety relief valve
10 P&T Safety relief discharge
11 Pressure gauge
12 Circulation pump
13 Safety thermostat external (Optional)
14 Drain point

Controls & Other Items
16 Electronic control board
17 Room control unit
18 Flushing bypass
19 Filling loop (External)
20 DHW storage tank with heating coil
21 Motorised diverter valve
22 Electric immersion heater (Optional)
23 Tank insulation
24 Unvented kit (With balanced cold feed)
25 Potable expansion vessel
26 Multi directional discharge
27 Tank safety thermostat
ModuSat® FS 200 Dimensions

**Connection Details**

<table>
<thead>
<tr>
<th>Connection Details</th>
<th>FS 200</th>
<th>A, B, C, D, E, F, H</th>
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<tr>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
</tbody>
</table>
ModuSat® FS 300 & 400 Circuit Diagram

Components
A  Primary / DH flow
B  Primary / DH return
C  Domestic cold water inlet
D  Domestic hot water outlet
E  Secondary / Apartment heating flow
F  Secondary / Apartment heating return
G  Connection for safety discharge
H  DHW secondary return connection

Primary Circuit Side
1  Insulated plate heat exchanger (Heating)
2  Pressure independent control valve (PICV) with actuator - Heating
3  Heat meter

Secondary Side Circuit
6  Blending valve
7  Heating expansion vessel
8  Pressure sensor
9  Safety relief valve
10  P&T Safety relief discharge
11  Pressure gauge
12  Circulation pump
13  Safety thermostat external (Optional)
14  Drain point

Controls & Other Items
16  Electronic control board
17  Room control unit
18  Flushing bypass
19  Filling loop (External)
20  DHW storage tank with heating coil
21  Motorised diverter valve
22  Electric immersion heater (Optional)
23  Tank insulation
24  Unvented kit (With balanced cold feed)
25  Potable expansion vessel
26  Multi directional discharge
27  Tank safety thermostat
Technical Details

ModuSat® FS 300 & 400 Dimensions

**Dimension A**
- FS 300: 2070 mm
- FS 400: 2320 mm

**Dimension B**
- FS 300: 1491 mm
- FS 400: 1741 mm

**Connection Details**
- A, B, C, D, E, F: 1”
- H: 3/4”

G - DISCHARGE PIPE TO EXIT THROUGH LEFT OR RIGHT SIDE OF UNIT THROUGH THE PROVISION PROVIDED.
Technical Details

ModuSat® FS Storage Range - Technical Data

<table>
<thead>
<tr>
<th>Water Capacity</th>
<th>ModuSat® 80</th>
<th>ModuSat® 150</th>
<th>ModuSat® 200</th>
<th>ModuSat® 300</th>
<th>ModuSat® 400</th>
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</thead>
<tbody>
<tr>
<td>Litres</td>
<td>80</td>
<td>150</td>
<td>200</td>
<td>300</td>
<td>400</td>
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<tr>
<td>Primary flow rate at 80°C Nom / Max</td>
<td>l/h</td>
<td>720</td>
<td>850</td>
<td>720</td>
<td>900</td>
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<tr>
<td>Exchanger power Nom / Max</td>
<td>kW</td>
<td>12</td>
<td>24</td>
<td>15</td>
<td>32</td>
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<tr>
<td>Continuous DHW Flow rate at 45 °C</td>
<td>l/m</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Pre-Heat Times from 10 °C to 60 °C</td>
<td>mins</td>
<td>23</td>
<td>12</td>
<td>35</td>
<td>16</td>
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<tr>
<td>Re-Heat Time to 60°C after 70% of volume drawn off</td>
<td>mins</td>
<td>16</td>
<td>8</td>
<td>24</td>
<td>11</td>
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<tr>
<td>Flow at 45°C for 10 min (Storage at 60°C)</td>
<td>l/m</td>
<td>11</td>
<td>21</td>
<td>28</td>
<td>42</td>
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<tr>
<td>Flow at 45°C for 12 min (Storage at 60°C)</td>
<td>l/m</td>
<td>9</td>
<td>18</td>
<td>24</td>
<td>36</td>
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</table>

Cold water temperature assumed to be at 10°C

Please note - The above figures are based on nominal / typical primary parameter. The DHW tank coil outputs can be improved subject to primary system performance. For further information please contact the Evinox Technical Department on 01372 722277.

Technical features

- Maximum Primary Operating Pressure: 10 bar (Optional 16 bar)
- Power Supply Voltage: 220/240 Volt (AC) 50 Hz
- Maximum Absorbed Electrical Power: 0.6 Amp
- Max Supply Temperature (Primary): 90°C
- DHW Maximum Temperature: 60°C
- DHW Maximum Pressure: 7 Bar
- DHW Operating Pressure: 3.5 Bar

Expansion Vessel Sizes

<table>
<thead>
<tr>
<th>Floor Standing Unit</th>
<th>Heating secondary side circuit</th>
<th>DCW</th>
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</thead>
<tbody>
<tr>
<td>ModuSat® FS 80</td>
<td>8 Litre</td>
<td>8 Litre</td>
</tr>
<tr>
<td>ModuSat® FS 150</td>
<td>8 Litre</td>
<td>12 Litre</td>
</tr>
<tr>
<td>ModuSat® FS 200</td>
<td>10 Litre</td>
<td>18 Litre</td>
</tr>
<tr>
<td>ModuSat® FS 300</td>
<td>14 Litre</td>
<td>24 Litre</td>
</tr>
<tr>
<td>ModuSat® FS 400</td>
<td>14 Litre</td>
<td>36 Litre</td>
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Weights

<table>
<thead>
<tr>
<th>ModuSat® FS</th>
<th>Shipping Weight</th>
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<tbody>
<tr>
<td>FS 80</td>
<td>97.5 Kg</td>
</tr>
<tr>
<td>FS 150</td>
<td>120.0 Kg</td>
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<tr>
<td>FS 200</td>
<td>130.5 Kg</td>
</tr>
<tr>
<td>FS 300</td>
<td>241.0 Kg</td>
</tr>
<tr>
<td>FS 400</td>
<td>285.0 Kg</td>
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