

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, variable speed pump and expansion vessel.

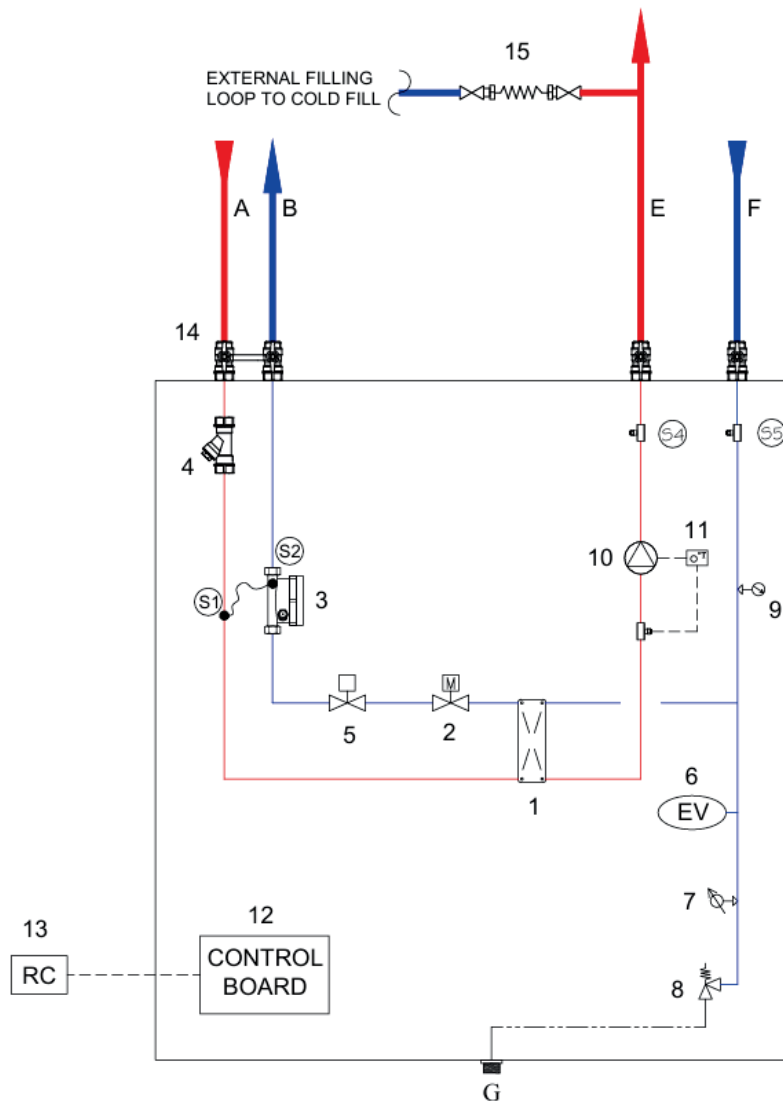
The heating circuit flow temperature is controlled by the modulation of the primary flow rate with the integrated PICV actuator. Weather compensation is applied to the set heating temperature using SmartTalk[®] 2-way communication. Suitable for radiators, underfloor heating or fan coil units.

- ✓ **Very compact design** with minimum space required for installation.
- ✓ **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.
- ✓ **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.
- ✓ **BSRIA tested to BTS 2/2015.**
- ✓ **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)

Features & Benefits

- Pipe & case insulation
- External filling loop (Optional)
- SmartTalk two-way communication
- Remote monitoring, alarms, and diagnostics
- Variable speed pump
- **kiwa** Approved
- 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

Typical ModuSat[®] SP Heating Unit 20R – 60R
Supplied with a removable 3/4" flushing by-pass kit



HYDRAULIC DIAGRAM

Components

- A** Primary flow
- B** Primary return
- E** Secondary flow
- F** Secondary return
- G** Connection for Safety Discharge

Primary Circuit

- 1** Plate Heat Exchanger
- 2** PICV with modulating actuator
- 3** Heat Meter
- 4** Strainer
- 5** Shut-Off Valve (optional)

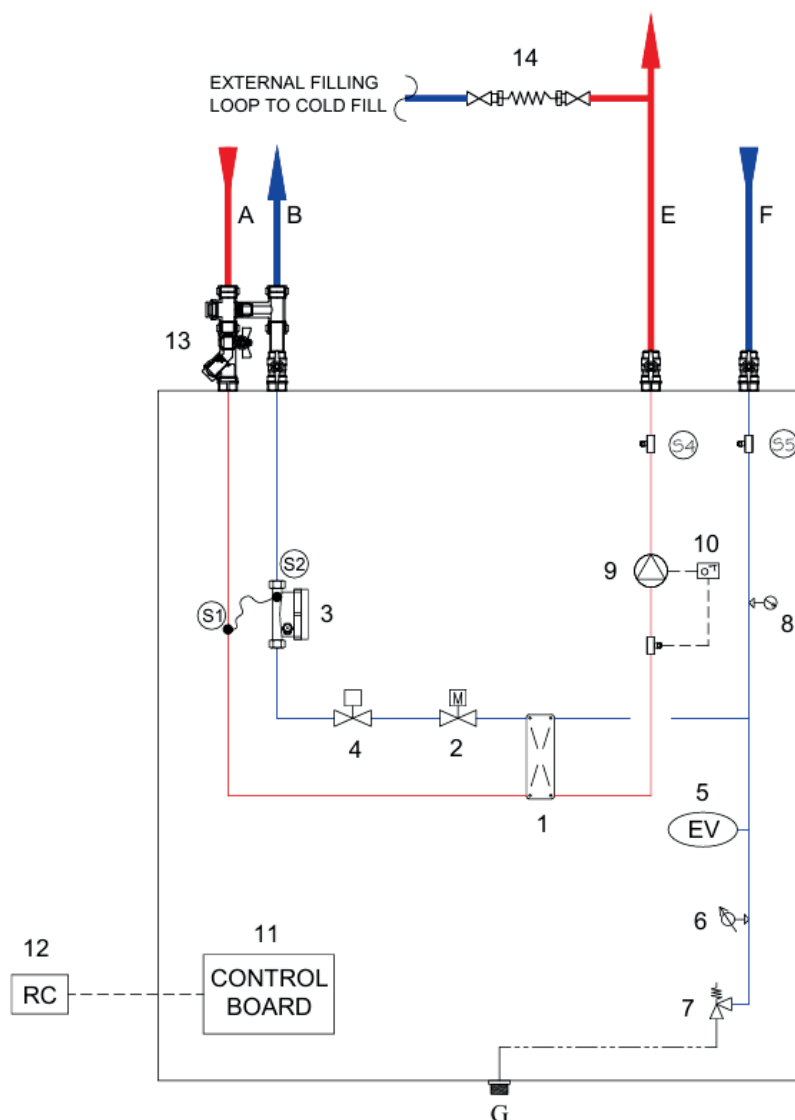
Secondary Circuit

- 6** Expansion vessel
- 7** Pressure Sensor
- 8** Pressure relief valve
- 9** Pressure Gauge
- 10** Pump
- 11** Safety thermostat (Optional)

Controls & Other Items

- 12** Electronic Control Board
- 13** ViewSmart Controller (Optional)
- 14** Flushing by-pass valve set
- 15** External filling loop
- S1, S2** Heat meter temperature sensors
- S4** Secondary flow temperature sensor
- S5** Secondary return temperature sensor

Typical ModuSat® SP Heating Unit 70R - 40B
Supplied with a 1" flushing by-pass kit



HYDRAULIC DIAGRAM

Components

A Primary flow
B Primary return
E Secondary flow
F Secondary return
G Connection for Safety Discharge

Primary Circuit

1 Plate Heat Exchanger
2 PICV with modulating actuator
3 Heat Meter
4 Shut-Off Valve (optional)

Secondary Circuit

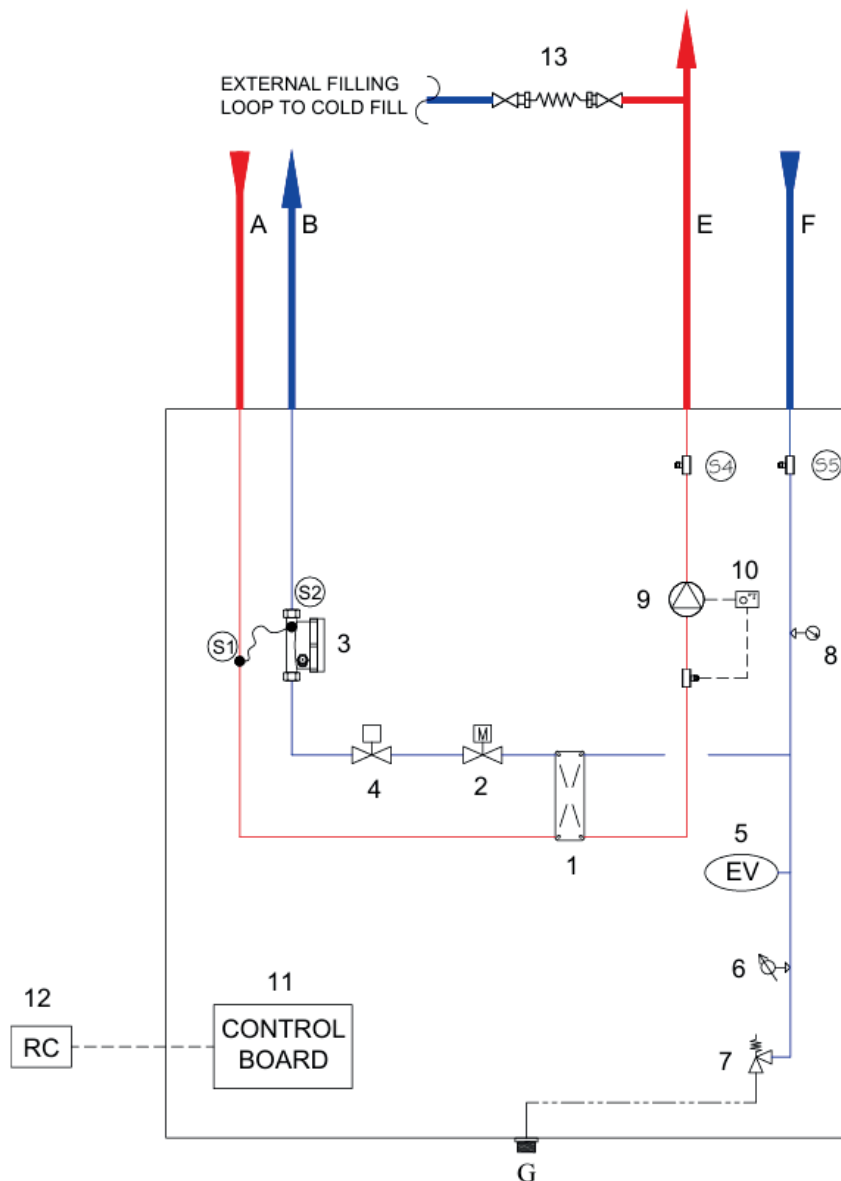
5 Expansion vessel
6 Pressure Sensor
7 Pressure relief valve
8 Pressure Gauge
9 Pump
10 Safety thermostat (Optional)

Controls & Other Items

11 Electronic Control Board
12 ViewSmart Controller (Optional)
13 Flushing by-pass valve set
14 External filling loop

S1, S2 Heat meter temperature sensors
S4 Secondary flow temperature sensor
S5 Secondary return temperature sensor

Typical ModuSat[®] SP Heating Unit 50B - 70B - 70C



Components

A Primary flow
B Primary return
E Secondary flow
F Secondary return
G Connection for Safety Discharge

Primary Circuit

1 Plate Heat Exchanger
2 PICV with modulating actuator
3 Heat Meter
4 Shut-Off Valve (optional)

Secondary Circuit

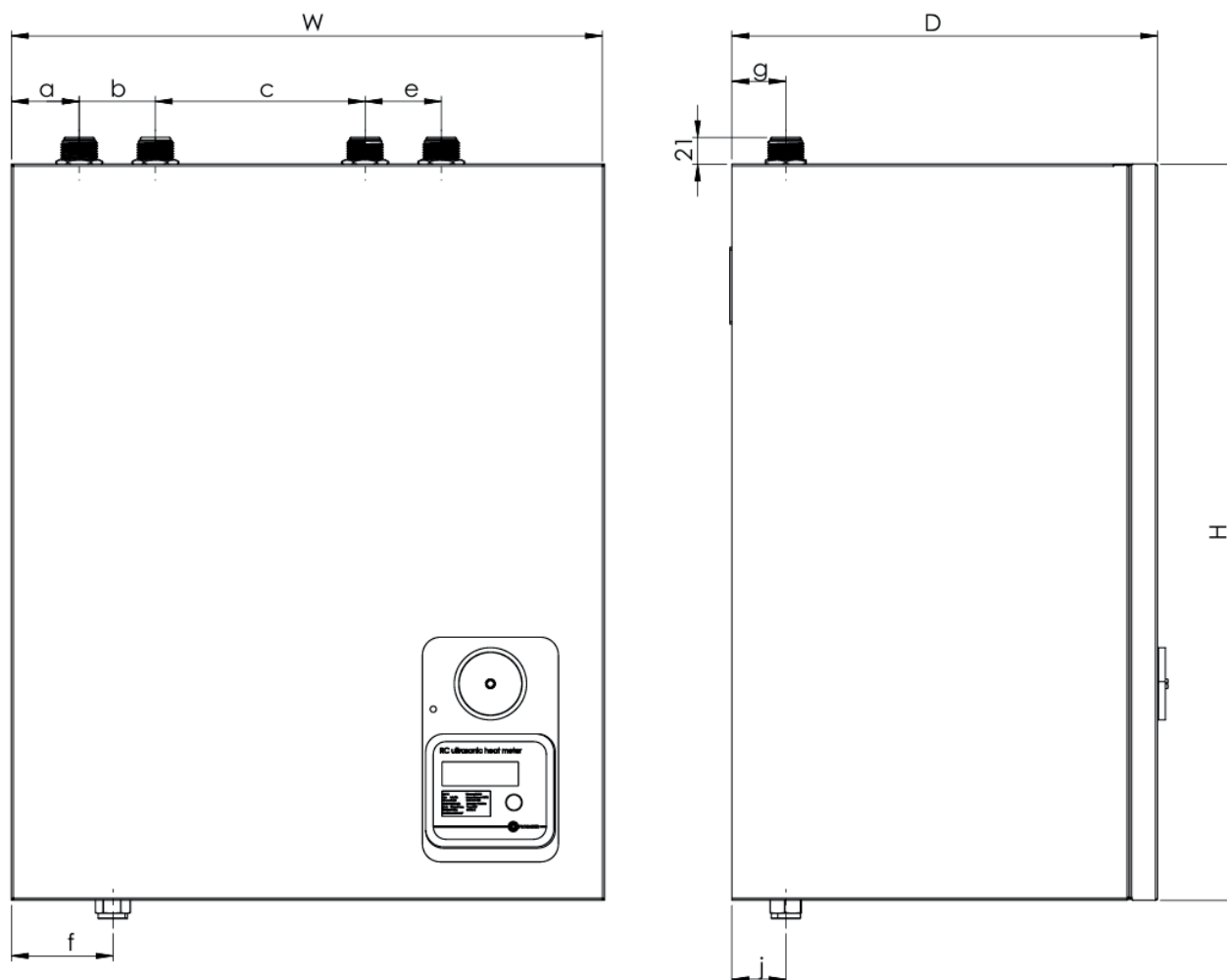
5 Expansion vessel
6 Pressure Sensor
7 Pressure relief valve
8 Pressure Gauge
9 Pump
10 Safety thermostat (Optional)

Controls & Other Items

11 Electronic Control Board
12 ViewSmart Controller (Optional)
13 External filling loop

S1, S2 Heat meter temperature sensors
S4 Secondary flow temperature sensor
S5 Secondary return temperature sensor

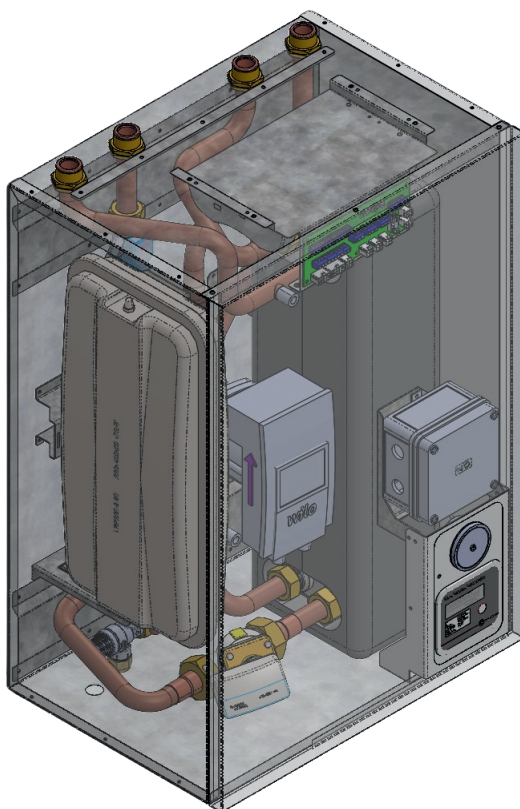
Typical ModuSat® SP Heating Unit



ModuSat® SPH	Connections		Dimensions									Bim Model	
	PF, PR, SF, SR	DR	W	D	H	a	b, e	c	f	g	j	(MAGICCAD)	
SPH-20R	3/4"	1/2"	467	335	580	53.5	60	165	80	42.5	42.5	SPC1	
SPH-30R	3/4"	1/2"	467	335	580	53.5	60	165	80	42.5	42.5	SPC1	
SPH-40R	3/4"	1/2"	467	335	580	53.5	60	165	80	42.5	42.5	SPC1	
SPH-50R	3/4"	1/2"	467	335	580	53.5	60	165	80	42.5	42.5	SPC1	
SPH-60R	3/4"	1/2"	467	335	580	53.5	60	165	80	42.5	42.5	SPC1	
SPH-70R	1"	1/2"	467	335	580	53.5	90	185	80	42.5	42.5	SPC2	
SPH-40B	1"	1/2"	474	335	685	54.5	90	185	133.5	42.5	42.5	SPC3	
SPH-50B	1 1/4"	1/2"	560	370	685	60	120	195	104	57.5	42.5	SPC4	
SPH70B	1 1/4"	1/2"	560	370	685	60	120	195	104	57.5	42.5	SPC4	
SPH-70C	1 1/4"	1/2"	700	470	786	80	120	300	140	57.5	46		
SPH-120C	1 1/2"	1/2"	900	520	790	80	120	300	140	57.5	46		

Typical Heating Performances

ModuSat Model	SPH-20R	SPH-30R	SPH-40R	SPH-R60	SPH-R70	SPH-B40	SPH-B50	SPH-B70
Heating Performances								
HTG Capacity (kW)	6	8	17	21	33	45	80	100
HTG flow rate (kg/s)	0.144	0.191	0.203	0.251	0.395	0.538	0.957	1.196
HTG flow/return temp (°C)	45 / 35	45 / 35	60 / 40	60 / 40	60 / 40	60 / 40	60 / 40	60 / 40
Primary flow (kg/s)	0.061	0.057	0.148	0.182	0.289	0.395	0.716	0.886
Primary flow/return temp (°C)	60 / 36.3	70 / 36.7	70 / 42.6	70 / 42.3	70 / 42.6	70 / 42.8	70 / 43.3	70 / 43.0
Residual pump head (kPa)	46.1	46.7	50.9	42.9	44.3	44.8	70.0	56.5
Primary pressure drop (kPa)	50	50	50	50	50	50	50	52



Technical Features

- Max working pressure: 16 bar
- Power supply voltage: 220/240 Volt (AC) 50 Hz
- Max supply temperature (Primary): 85 °C
- Heating expansion vessel: 8L
- Max allowable primary pressure drop: 4 bar