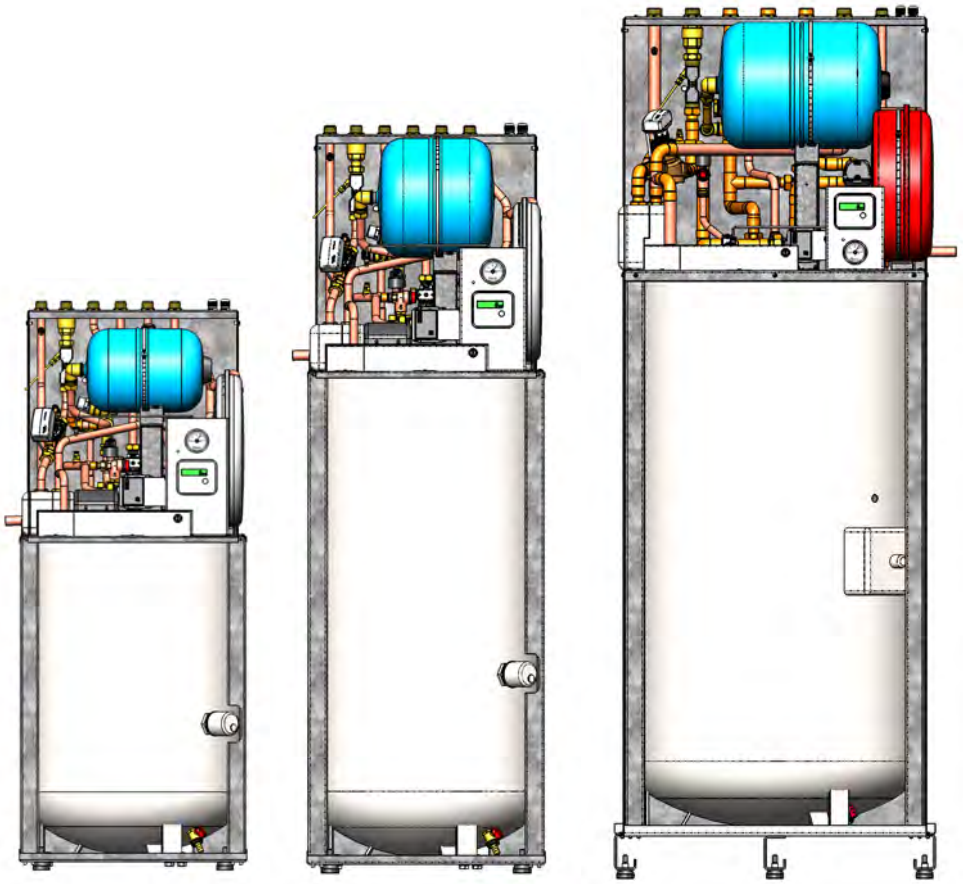
ModuSat FS

Instructions for Installation and Service



ModuSat FS 80, 150, 200, 300 & 400

Floor Standing Storage Models

Evinox Energy Ltd T. +44 (0)1372 722277 E. info@evinoxenergy.co.uk W. www.evinoxenergy.co.uk

2551372G

CONTENTS

Warning to the User

Do not remove or adjust any component part of this unvented water heater: contact the installer.

If this unvented water heater develops a fault, such as a flow of hot water from the discharge pipe, switch the heater off and contact the installer.

Warning to the installer

This installation is subject to building regulation approval; notify the Local Authority of intention to install.

Use only manufacturer's recommended replacement parts.

Please leave this manual with the householder after installation.

INSTALLED BY:

Name: _____

Address: _____

Tel No. _____

Completion date: _____

Label for ModuSat FS 80

Main features (BS EN12897 2006)	
Manufacturer:	Evinox Energy Ltd Unit B Blenheim House 1 Blenheim Road Epsom Surrey KT19 9AP Tel : + 44 (0)1372 722277 Fax : + 44 (0)1372 744477 www.evinoxenergy.co.uk
Model:	ModuSat FS 80
Serial number:	_____
Max primary flow temperature:	80 °C
Max primary pressure:	10 bar (Optional 16 bar)
DHW storage max pressure:	7.0 bar
Max secondary circuit pressure:	3,0 bar
Max water supply pressure:	12.0 bar
Immersed electric heater:	3000 W, 220/240 Volt (AC)
Secondary max operating pressure:	3,0 bar
Water expansion vessel charge press.:	6,0 bar
DHW setting range:	20-80 °C
Safety thermostat intervention:	85 °C
PT relief valve:	7.0 bar / 90 °C
Expansion relief valve setting:	6,0 bar
Primary heating power:	12 kW
Primary flow rate (Nom):	720 l/h
Storage capacity:	80 l
Standing heat loss:	1,08 kWh/24h
Weight (full load):	177.5 kg

Label for ModuSat FS 150

Main features (BS EN12897 2006)	
Manufacturer:	Evinox Energy Ltd Unit B Blenheim House 1 Blenheim Road Epsom Surrey KT19 9AP Tel : + 44 (0)1372 722277 Fax : + 44 (0)1372 744477 www.evinoxenergy.co.uk
Model:	ModuSat FS 150
Serial number:	_____
Max primary flow temperature:	80 °C
Max primary pressure:	10 bar (Optional 16 bar)
DHW storage max pressure:	7.0 bar
Max secondary circuit pressure:	3,0 bar
Max water supply pressure:	12.0 bar
Immersed electric heater:	3000 W, 220/240 Volt (AC)
Secondary max operating pressure:	3,0 bar
Water expansion vessel charge press.:	6,0 bar
DHW setting range:	20-80 °C
Safety thermostat intervention:	85 °C
PT relief valve:	7.0 bar / 90 °C
Expansion relief valve setting:	6,0 bar
Primary heating power:	15 kW
Primary flow rate (Nom):	720 l/h
Storage capacity:	150 l
Standing heat loss:	1,80 kWh/24h
Weight (full load):	270 kg

Label for ModuSat FS 200

Main features (BS EN12897 2006)	
Manufacturer:	Evinox Energy Ltd Unit B Blenheim House 1 Blenheim Road Epsom Surrey KT19 9AP Tel : + 44 (0)1372 722277 Fax : + 44 (0)1372 744477 www.evinoxenergy.co.uk
Model:	ModuSat FS 200
Serial number:	_____
Max primary flow temperature:	80 °C
Max primary pressure:	10 bar (Optional 16 bar)
DHW storage max pressure:	7.0 bar
Max secondary circuit pressure:	3,0 bar
Max water supply pressure:	12.0 bar
Immersed electric heater:	3000 W, 220/240 Volt (AC)
Secondary max operating pressure:	3,0 bar
Water expansion vessel charge press.:	6,0 bar
DHW setting range:	20-80 °C
Safety thermostat intervention:	85 °C
PT relief valve:	7.0 bar / 90 °C
Expansion relief valve setting:	6,0 bar
Primary heating power:	20 kW
Primary flow rate:	800 l/h
Storage capacity:	200 l
Standing heat loss:	2,88 kWh/24h
Weight (full load):	325 kg

Label for ModuSat FS 300

Main features (BS EN12897 2006)	
Manufacturer:	Evinox Energy Ltd Unit B Blenheim House 1 Blenheim Road Epsom Surrey KT19 9AP Tel : + 44 (0)1372 722277 Fax : + 44 (0)1372 744477 www.evinoxenergy.co.uk
Model:	ModuSat FS 300
Serial number:	_____
Max primary flow temperature:	80 °C
Max primary pressure:	10 bar (Optional 16 bar)
DHW storage max pressure:	7.0 bar
Max secondary circuit pressure:	3,0 bar
Max water supply pressure:	12.0 bar
Immersed electric heater:	9000 W – 415 Volt (AC) 3 Phase
Secondary max operating pressure:	3,0 bar
Water expansion vessel charge press.:	6,0 bar
DHW setting range:	20-80 °C
Safety thermostat intervention:	65 °C
PT relief valve:	7.0 bar / 90 °C
Expansion relief valve setting:	6,0 bar
Primary heating power:	29,6 kW
Primary flow rate:	1300 l/h
Storage capacity:	300 l
Standing heat loss:	2,88 kWh/24h
Weight (full load):	541 kg

Label for ModuSat FS 400

Main features (BS EN12897 2006)	
Manufacturer:	Evinox Energy Ltd Unit B Blenheim House 1 Blenheim Road Epsom Surrey KT19 9AP Tel : + 44 (0)1372 722277 Fax : + 44 (0)1372 744477 www.evinoxenergy.co.uk
Model:	ModuSat FS 400
Serial number:	_____
Max primary flow temperature:	80 °C
Max primary pressure:	10 bar (Optional 16 bar)
DHW storage max pressure:	7.0 bar
Max secondary circuit pressure:	3,0 bar
Max water supply pressure:	12.0 bar
Immersed electric heater:	9000 W – 415 Volt (AC) 3 Phase
Secondary max operating pressure:	3.0 bar
Water expansion vessel charge press.:	6,0 bar
DHW setting range:	20-80 °C
Safety thermostat intervention:	65 °C
PT relief valve:	7.0 bar / 90 °C
Expansion relief valve setting:	6,0 bar
Primary heating power:	29,6 kW
Primary flow rate:	1500 l/h
Storage capacity:	400 l
Standing heat loss:	2,81 kWh/24h
Weight (full load):	650 kg

1 GENERAL INFORMATION

1.1 Warnings

The ModuSat unit requires mains electrical connections and connection to the primary, low temperature hot water system and mains cold water supply to function.
A pre-installation rig is available to the installer to help position and space the pipe connections to the unit during first fix, prior to the ModuSats being delivered to site.
Installation must be carried out by a competent engineer in line with current regulations.
Failure to read and follow the instructions provided within this document may cause potential injury or failure of the equipment.
Therefore it is advised that the installer reports any equipment faults or defects to an authorised Evinox representative.
Any modifications or adjustments carried out without EVINOX official authorisation will invalidate the warranty and absolves Evinox from any liability.
Evinox has the right to make any changes or modifications to the products without prior notice.

1.2 Symbols

Follows a list of symbols used in this manual:

IMPORTANT NOTE REGARDING CORRECT INSTALLATION

CAUTION !

IMPORTANT NOTE REGARDING PERSONAL SAFETY AND CARE

CAUTION !

DANGER OF ELECTRICAL SHOCK!

1.3 Safety Instructions

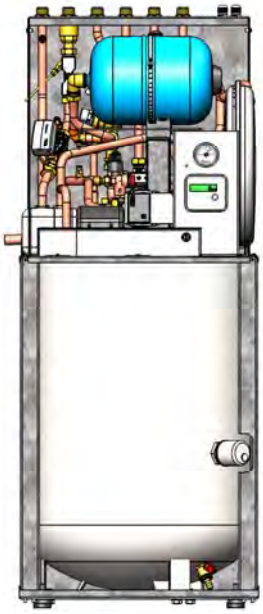
All installation and maintenance operations must be carried out by competent engineers according to current regulations
In case of water leaks:

- Disconnect the electric power supply
- Slowly close the main water isolation valves to the unit
- Inform Evinox or approved Evinox engineer

We recommend the unit is checked at least once a year by an authorised maintenance engineer. If the unit is subject to excessively heavy usage or non domestic installations (for example in a light commercial environment), we recommend having it checked more than once per year.

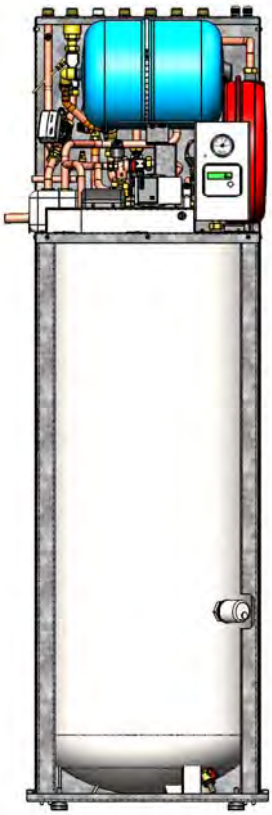
Disconnect the electrical supply prior to starting any work on a ModuSat FS.

ModuSat FS 80

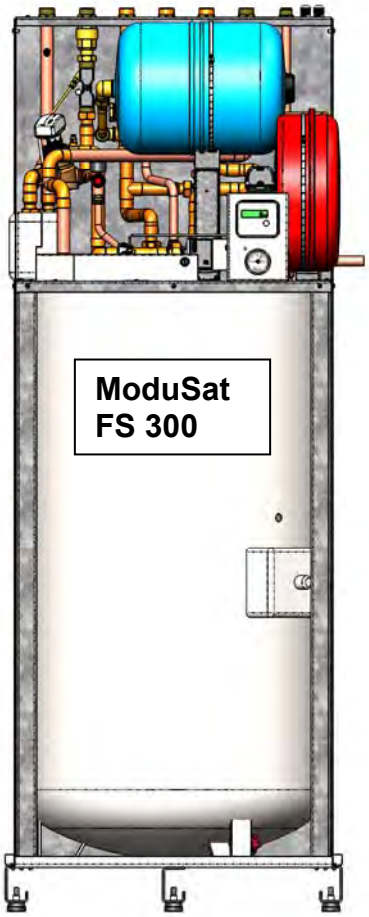


ModuSat FS 150

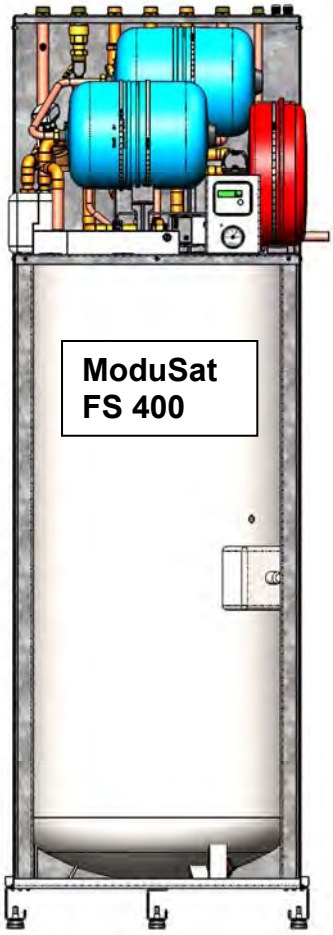
ModuSat FS 200



ModuSat FS 300



ModuSat FS 400



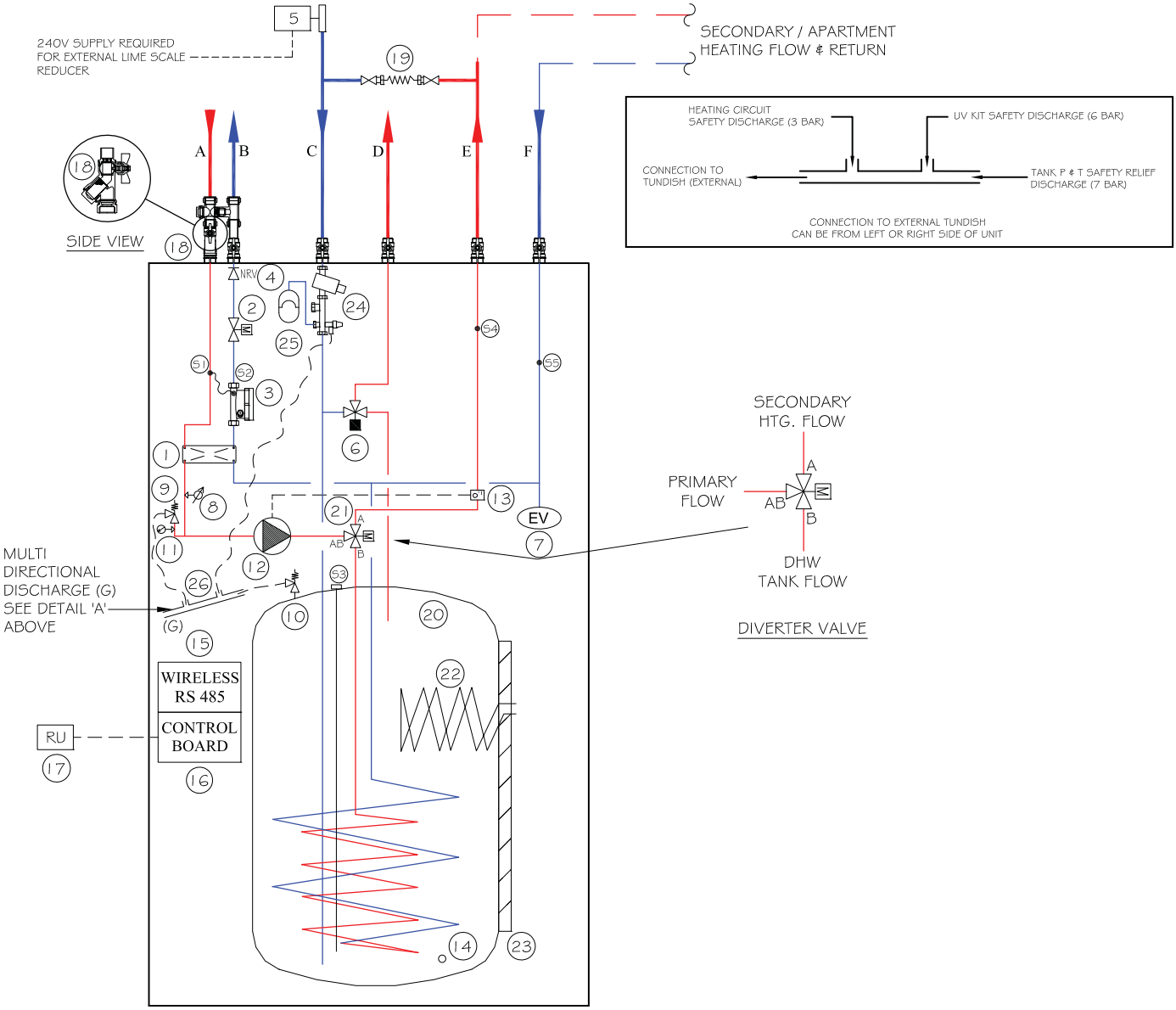
Please note: Images shown include the optional factory fitted immersion heater.

Tank Without immersion heater fitted

2 TECHNICAL FEATURES

2.1 *Hydraulic Schematics & dimensions*

ModuSat FS 80 & 150 Schematic



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

Primary Circuit Side

1 Insulated plate heat exchanger
2 Pressure independent control valve (PICV) with actuator
3 Heat meter
4 Non-return valve

DHW Secondary Side Circuit

5 External lime scale reducer (Optional)
6 Blending valve

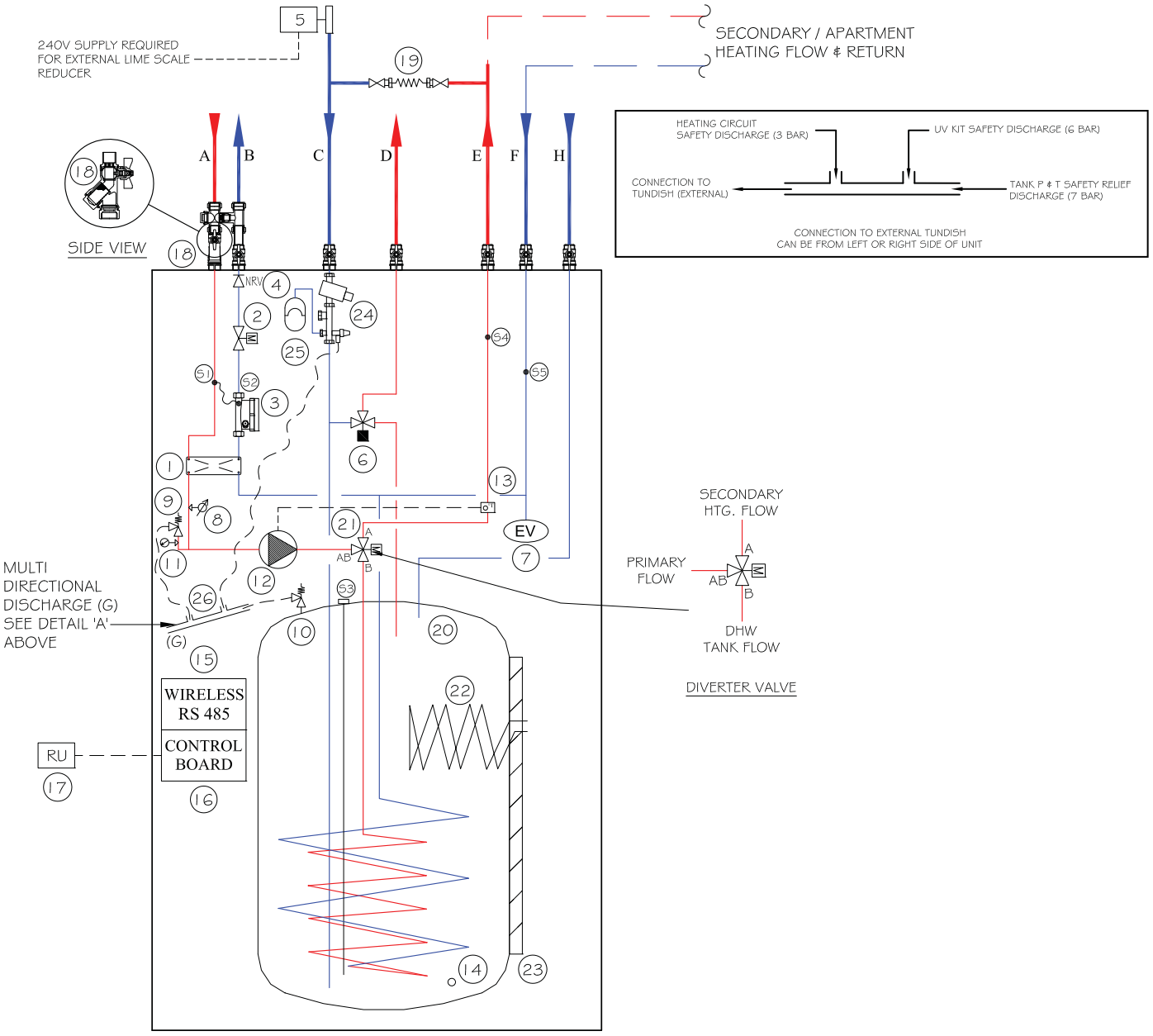
Heating Secondary Side Circuit

7 Heating expansion vessel
8 Pressure sensor
9 Safety relief discharge
10 P&T Safety relief discharge
11 Manometer
12 Circulation pump
13 UFH safety thermostat (Self resetting) (Optional)
14 Drain point

Controls & Other Items

15 Wireless RS 485 (Optional)
16 Electronic control board
17 Room control unit
18 IV (Strainer + flushing bypass assembly)
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

ModuSat FS 200 Schematic



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 2 Pressure independent control valve (PICV) with actuator
3 Heat meter
4 Non-return valve

DHW Secondary Side Circuit

5 External lime scale reducer (Optional)
6 Blending valve

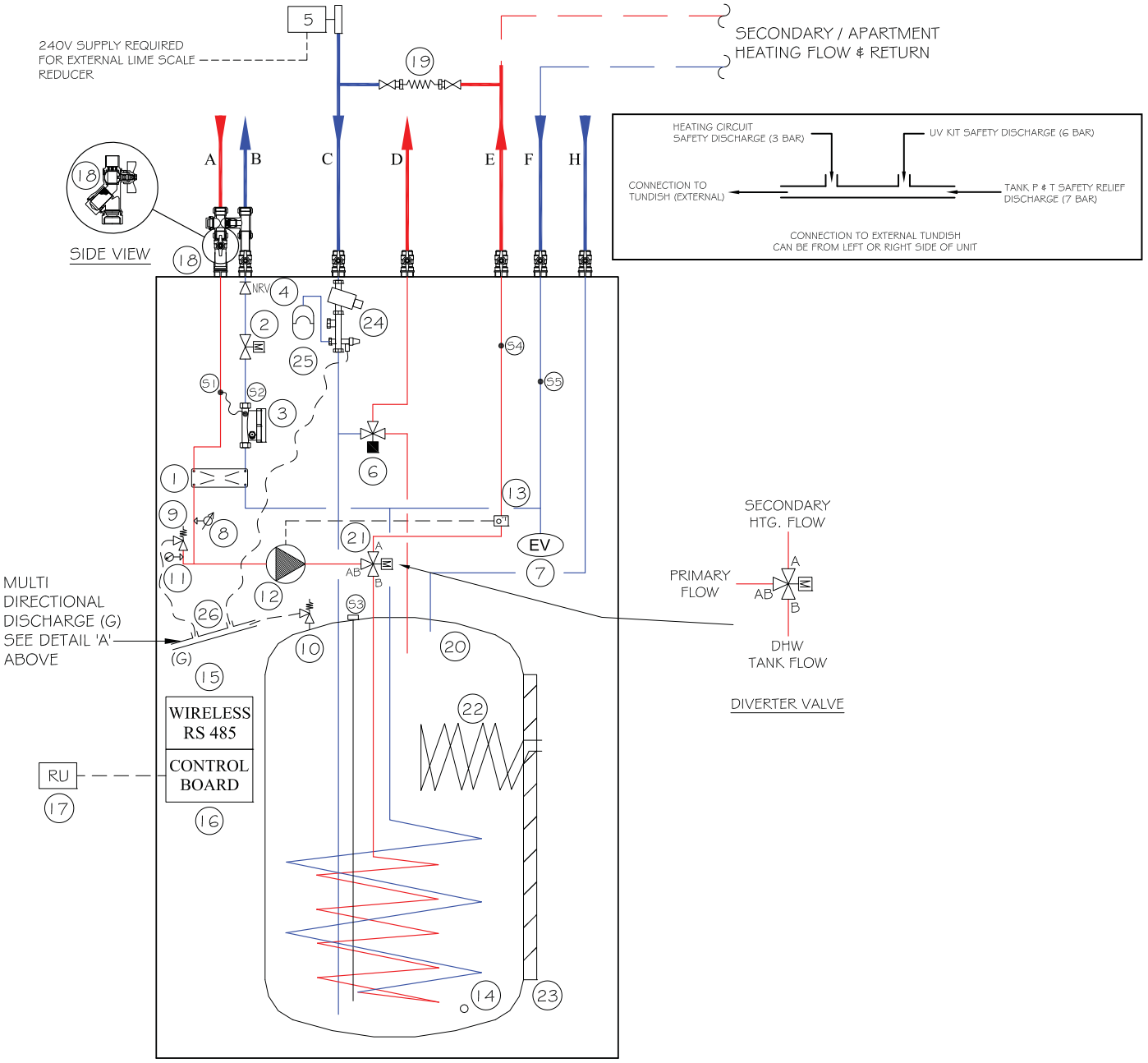
Heating Secondary Side Circuit

7 Heating expansion vessel
8 Pressure sensor
9 Safety relief discharge
10 P&T Safety relief discharge
11 Manometer
12 Circulation pump
13 UFH safety thermostat (Self resetting) (Optional)
14 Drain point

Controls & Other Items

15 Wireless RS 485 (Optional)
16 Electronic control board
17 Room control unit
18 IV (Strainer + flushing bypass assembly)
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 discharg

ModuSat FS 300 & 400 Schematic



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
2 Pressure independent control valve (PICV) with actuator
3 Heat meter
4 Non-return valve

DHW Secondary Side Circuit

5 External lime scale reducer (Optional)
6 Blending valve

Heating Secondary Side Circuit

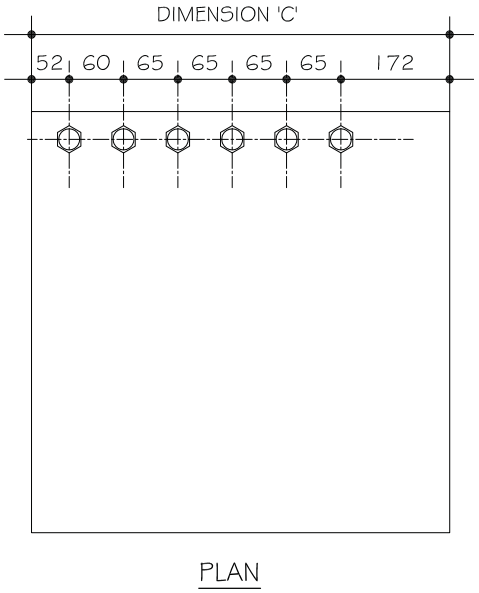
7 Heating expansion vessel
8 Pressure sensor
9 Safety relief discharge
10 P&T Safety relief discharge
11 Manometer
12 Circulation pump
13 UFH safety thermostat (Self resetting) (Optional)
14 Drain point

Controls & Other Items

15 Wireless RS 485 (Optional)
16 Electronic control board
17 Room control unit
18 IV (Strainer + flushing bypass assembly)
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

2.2 Dimensions

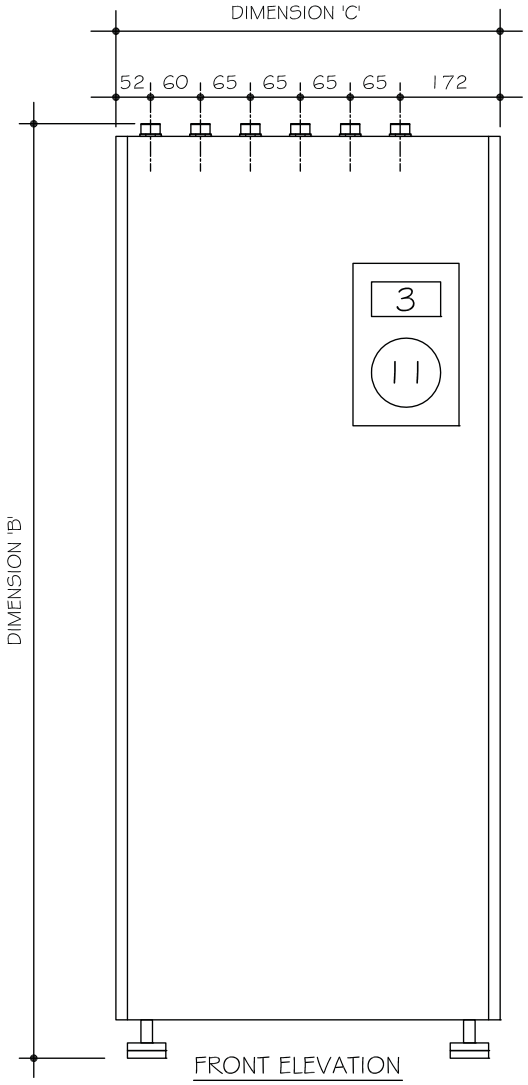
ModuSat FS 80 & 150



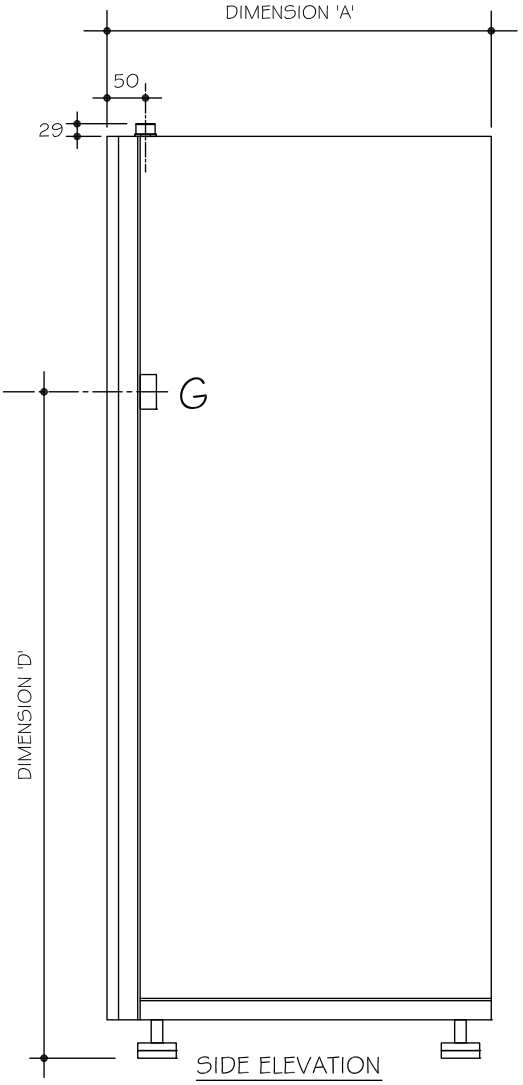
PLAN

	FS 80	FS 150
Dimension A	560	560
Dimension B	1370	1720
Dimension C	545	545
Dimension D	825	1185

G – Discharge pipe to exit through left or right side of unit through the provision provided.

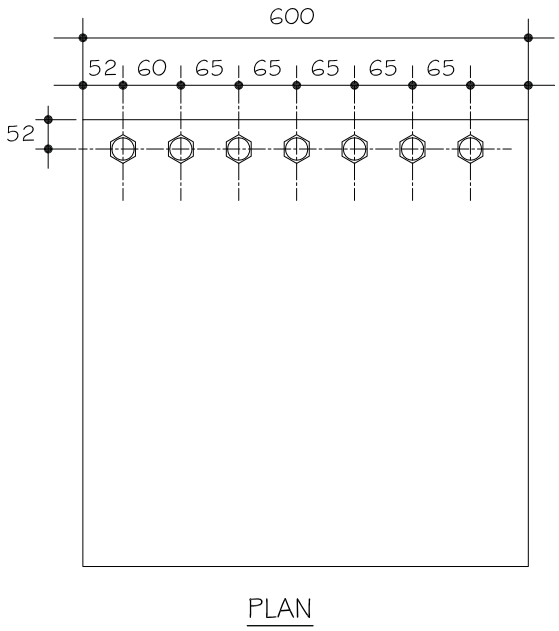


FRONT ELEVATION



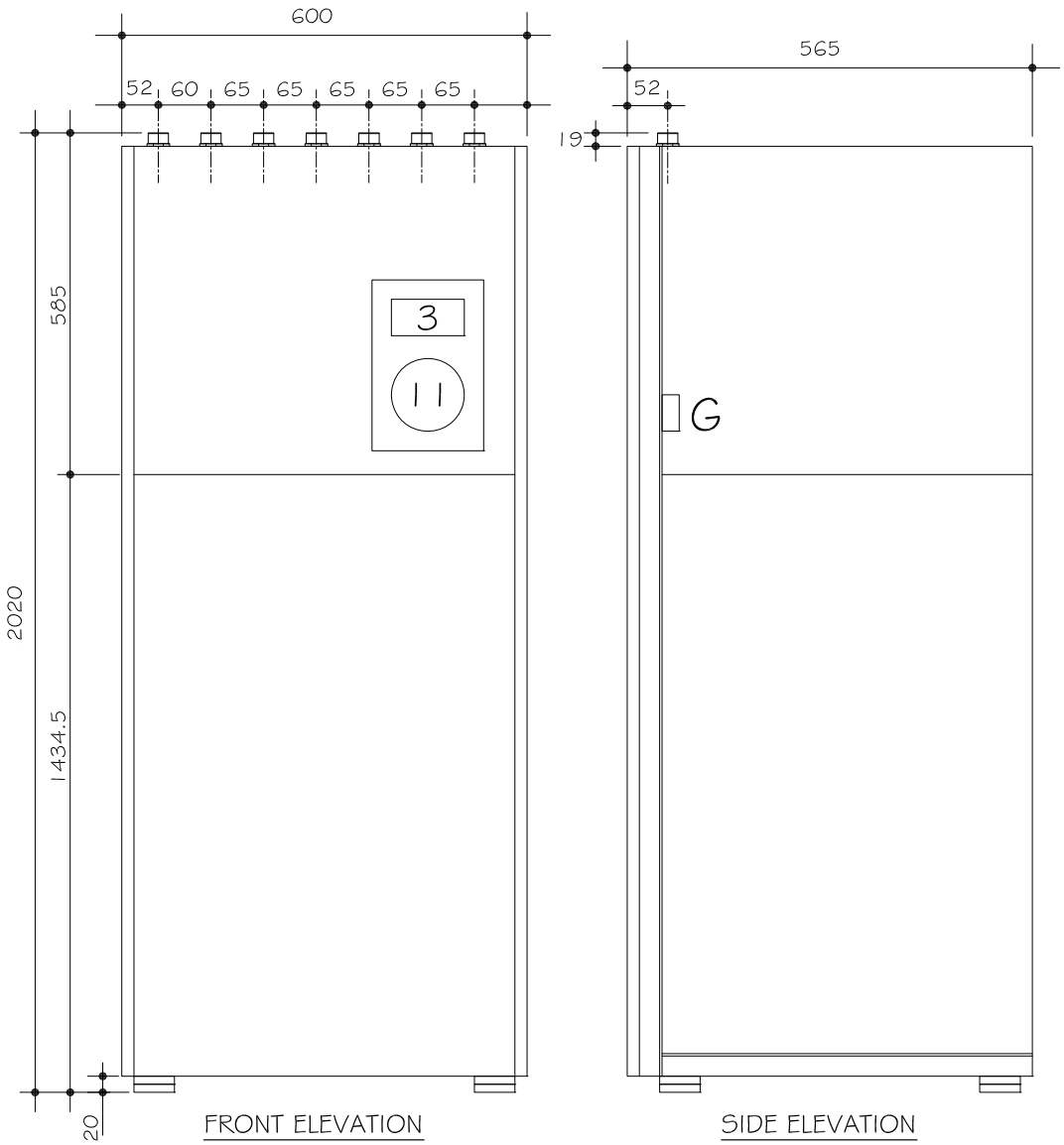
SIDE ELEVATION

ModuSat FS 200

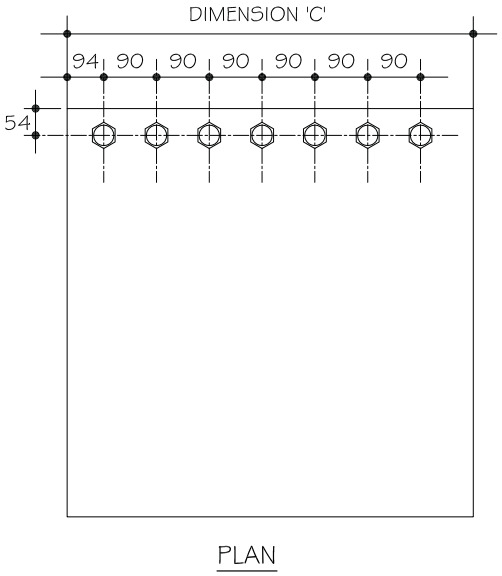


PLAN

G – Discharge pipe to exit through left or right side of unit through the provision provided.

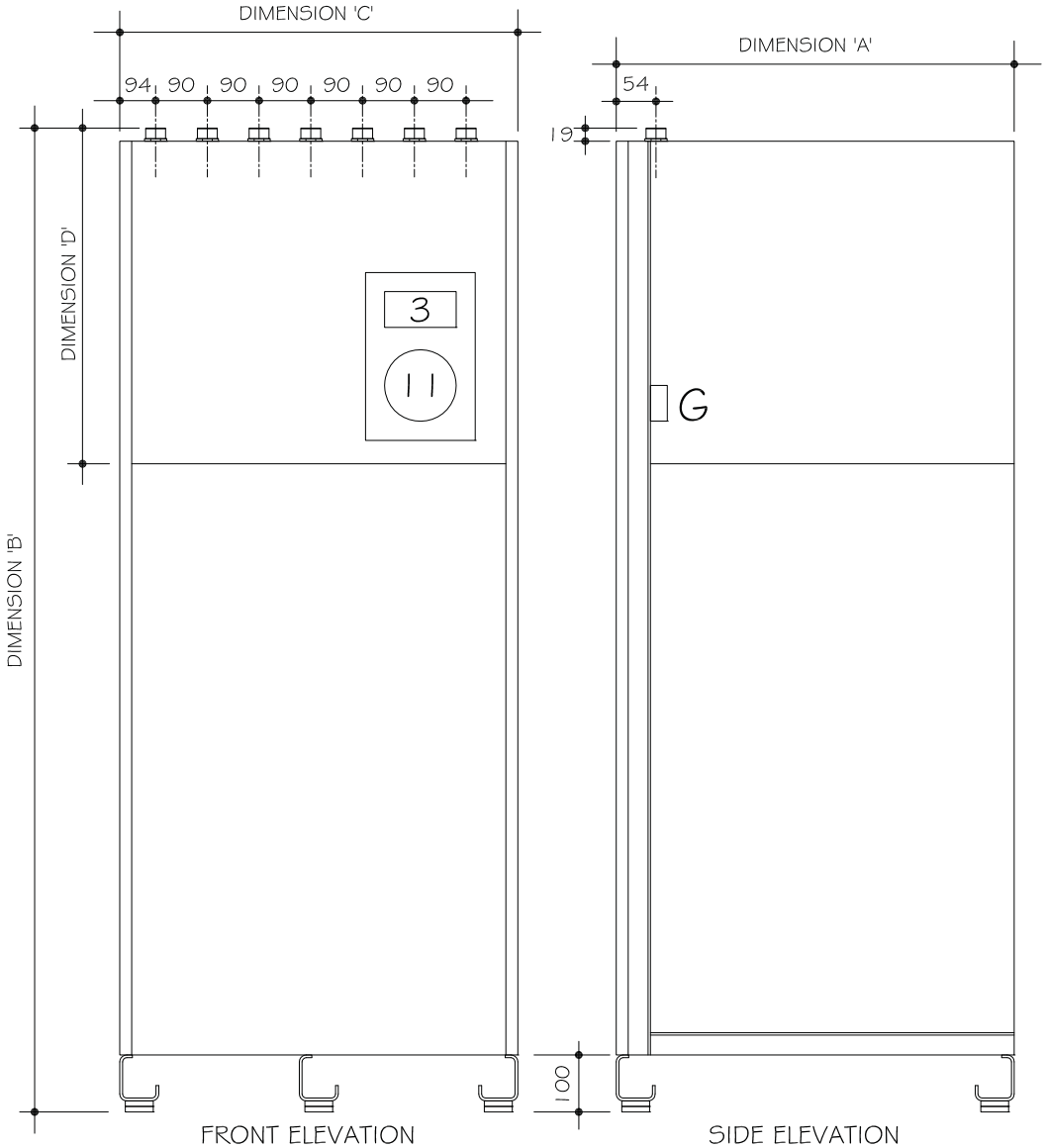


ModuSat FS 300 & 400



PLAN

	FS 300	FS 400
Dimension A	775	775
Dimension B	2070	2320
Dimension C	760	760
Dimension D	624	643



FRONT ELEVATION

SIDE ELEVATION

2.3 Technical data

ModuSat FS 80 & 150

Electrical	ModuSat FS 80	ModuSat FS 150
Electric supply	220/240 Volt (AC)	
Frequency	50 Hz	
Current absorption (Without immersion Heater)	0.6A	
Optional immersion heater	220/240 Volt (AC)	

Hydraulic connections	ModuSat FS 80	ModuSat FS 150
Primary circuit supply	¾" ext. thread	
Primary circuit return	¾" ext. thread	
Apartment circuit supply	¾" ext. thread	
Apartment circuit return	¾" ext. thread	
DHW supply	¾" ext. thread	
DCW inlet	¾" ext. thread	

Hydraulic characteristics	ModuSat FS 80	ModuSat FS 150
Max primary temperature	80 °C	
Max primary pressure	10 bar (Optional 16 bar)	
Recommended max apartment circuit cold fill pressure	1.5 bar	
Max water supply pressure	12 bar	
Max DHW storage tank pressure	8 bar	
Internal unvented kit pressure relief valve setting	6 bar	
PT relief valve setting	7 bar – 90 °C	
Nominal DHW storage tank pressure	3.5 bar	
Secondary heating circuit expansion vessel size	8 Litres	
DWH storage capacity	80 l	150 l

Weight	ModuSat FS 80	ModuSat FS 150
Shipping Weight	97.5kg	120kgs
Weight (full load)	177.5kg	270kgs

ModuSat FS 200

Electrical	ModuSat FS 200
Electric supply	220/240 Volt (AC)
Frequency	50 Hz
Current absorption (Without immersion Heater)	0.6A
Optional immersion heater	220/240 Volt (AC)

Hydraulic connections	ModuSat FS 200
Primary circuit supply	¾" ext. thread
Primary circuit return	¾" ext. thread
Apartment circuit supply	¾" ext. thread
Apartment circuit return	¾" ext. thread
DHW supply	¾" ext. thread
DHW secondary return	¾" ext. thread
DCW inlet	¾" ext. thread

Hydraulic characteristics	ModuSat FS 200
Max primary temperature	80 °C
Max primary pressure	10 bar (Optional 16 bar)
Recommended max apartment circuit cold fill pressure	1.5 bar
Max water supply pressure	12 bar
Max DHW storage tank pressure	8 bar
Internal unvented kit pressure relief valve setting	6 bar
PT relief valve setting	7 bar – 90 °C
Nominal DHW storage tank pressure	3.5 bar
Secondary heating circuit expansion vessel size	10 Litres
DWH storage capacity	200 l

Weight	ModuSat FS 200
Shipping Weight	
Weight (full load)	

ModuSat FS 300 & 400

Electrical	ModuSat 300	ModuSat 400
Electric supply	220/240 Volt (AC)	
Frequency	50 Hz	
Current absorption (Without immersion Heater)	1.5A	
Optional immersion heater	9000 W – 415 Volt (AC) 3 Phase	

Hydraulic connections	ModuSat FS 300	ModuSat FS 400
Primary circuit supply	1” ext. thread	
Primary circuit return	1” ext. thread	
Apartment circuit supply	1” ext. thread	
Apartment circuit return	1” ext. thread	
DHW supply	1” ext. thread	
DHW secondary return	¾” ext. thread	
DCW inlet	1” ext. thread	

Hydraulic characteristics	ModuSat 300	ModuSat 400
Max primary temperature	80 °C	
Max primary pressure	10 bar (Optional 16 bar)	
Recommended max apartment circuit cold fill pressure	1.5 bar	
Max water supply pressure	12 bar	
Max DHW storage pressure	8 bar	
PT relief valve setting	7 bar – 90 °C	
Secondary heating circuit expansion vessel size	14 Litres	
DWH storage capacity	300 l	390 l

Weight	ModuSat 300	ModuSat 400
Shipping Weight	241kg	
Weight (full load)	541kg	

Typically, communal heating installations operate at a static system pressure of a maximum 6 - 8 bar.

However, for higher system pressures the ModuSat is designed to work up to a maximum of 10 bar as standard. As an option, where higher static pressures are expected the ModuSat can be supplied with a max 16 bar operating pressure.

3 INSTALLATION

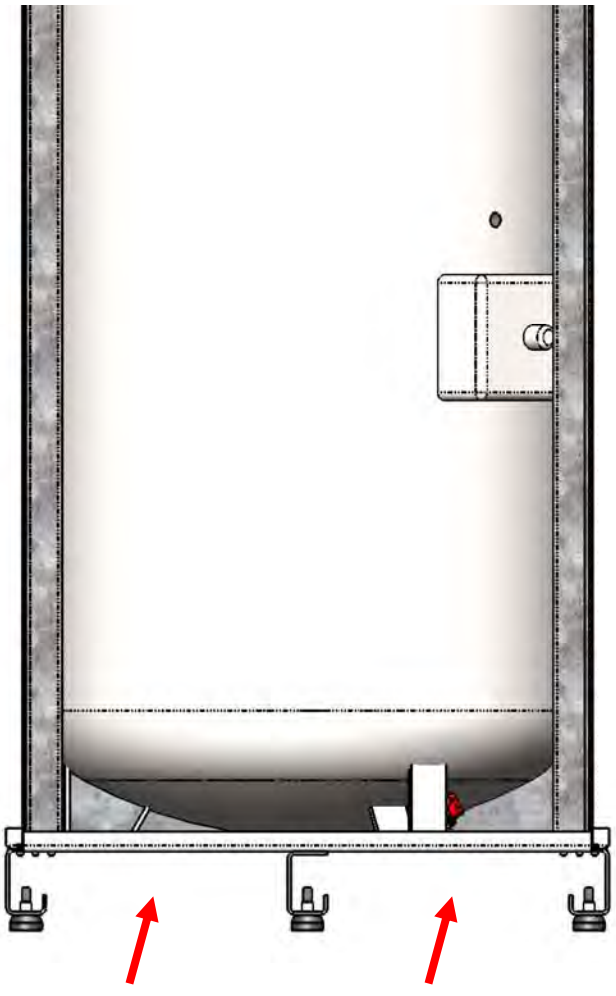
The installation and commissioning of the units should be carried out only by competent and qualified personnel according to the current regulations and standards.

3.1 Recommended handling procedure

ModuSat 80, 150 & 200 - The unit should be moved into position still within its packaging and on its pallet to prevent any damage whilst being positioned. Once correctly sited, the unit should be lifted from pallet and into final position.

ModuSat 300 & 400 Handling (Instructions below are for the FS 300 & 400 units only)
The unit should be moved into position as follows:

Handling from the front or back



Slide pallet truck under unit carefully between the feet (As indicated in the images above) and manoeuvre in to position.

The ModuSat FS may have been transported and handled many times if you consider the on-site storage, handling and installation, therefore it is vitally important that all unions and connections are checked and tightened as required. In case of damage please contact Evinox immediately. Packaging materials must be properly disposed of in line with current environmental guidelines.

It is recommended that at least two people perform any lift. Clear the route of the carton from point of delivery to point of installation. Take care to avoid trip hazards, slippery or wet surfaces and where possible climbing steps and stairs. Always seek assistance if required. If a sack truck is used it is recommended that the carton is strapped to the truck, to prevent the unit from falling.
When unpacking the unit from the carton, it is recommended that at least two people perform any lift. It is recommended that the bottom end of the carton is cut and the carton flaps are opened.
Ensure the protective cover over the ModuSat FS pipe connections on the top of unit are kept in place to prevent ingress of any debris, and then remove the carton by sliding it up over the top of the unit.

Take care when lifting this appliance and ensure your back is kept straight at all times. Avoid twisting at the waist - reposition the feet instead.

Avoid upper body bending when holding the appliance and keep the ModuSat FS as close to the body as possible. Safety footwear and gloves are recommended. PPE should be used when lifting this appliance - to protect against any injury caused by possible sharp edges and also to ensure a good grip.

3.2 ModuSat FS positioning

There are no specific requirements with regards to location and venting / airflow. However, to ensure the correct operation the temperature of the location of the unit should, whilst running, not exceed 40 °C with the humidity between 15% to 85% RH.

The unit must be sheltered from the extremes of weather and temperature; it should therefore not be installed or stored outdoors. The ModuSat FS is designed to be used internally and within a well protected area.

The equipment must be level and the floor loading strength must be suitable to bear the weight of the equipment (refer to technical characteristics for weights).
A minimum 600mm clearance should be left on the front and a minimum 50mm on both sides of the unit for access, maintenance and parts replacement. Dimensions for safety bend / drains should be as per the guidelines within this document and current building and G3 regulations. Please note: - As the P&T discharge can exit the unit on either side, once it has been decided on the final discharge route, additional space must be allowed on the relevant side in line with G3 regulations.

Ensure that the environment where the ModuSat FS is to be installed complies with current regulations and guidelines.

3.3 Checks before connecting the ModuSat FS

Before connecting the ModuSat FS the primary and secondary system must be thoroughly flushed to remove all residues, dirt etc, that may be present and would compromise / cause damage to the appliance.
The system should also be thoroughly rinsed to ensure all cleaning products used are fully removed.

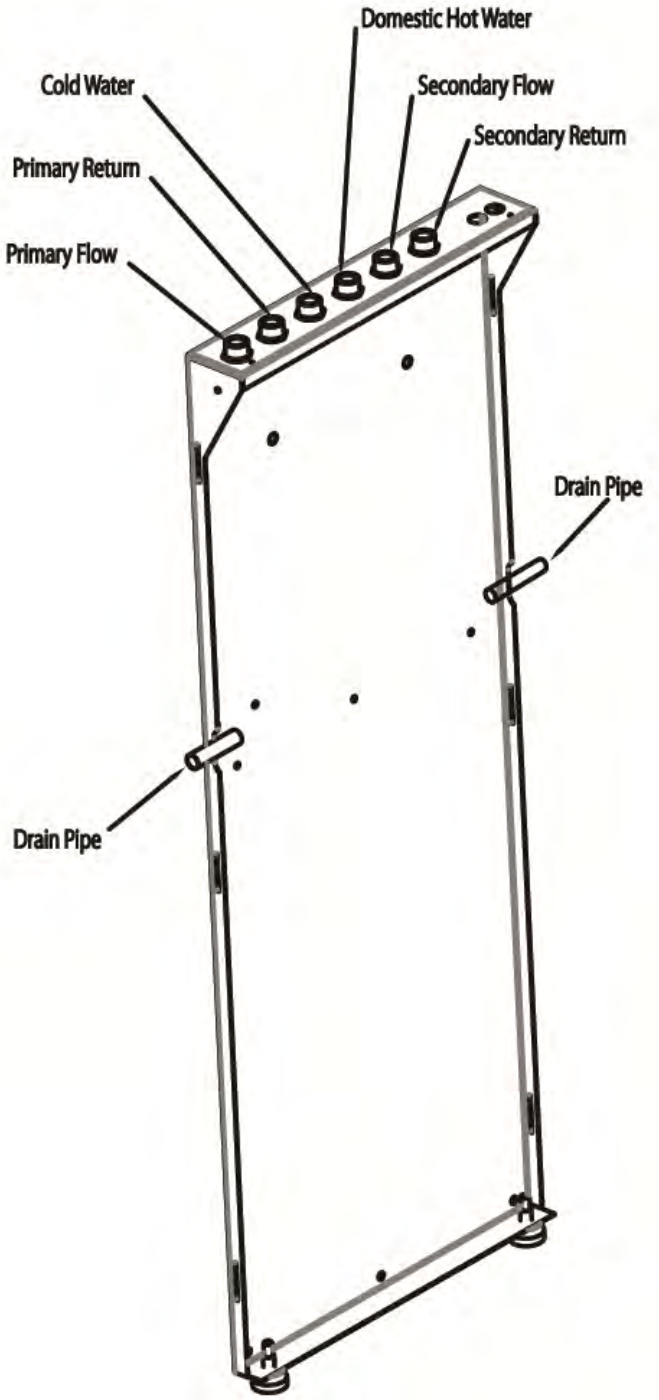
Disconnect the electrical power before any installation works.
The unit requires a 220/240Volt (AC) – 50Hz supply, check the Line and Phase polarity. Protect the cables to prevent any damage.
Make sure that there is an efficient, reliable earth connection to protect against possible electric shocks, in line with current electrical regulations.

All electrical wiring should be installed / checked by qualified personnel in line with current regulations. EVINOX are not liable for damage caused by incorrect electric connections or faulty wiring.

The ModuSat should be provided with additional fused protection. This will be via a suitable rated fused switch adjacent to the HIU position.

3.4 Use of Pre-installation Rig

A pre-installation rig is available upon request on a sale or return basis. It consists of a back panel constructed of steel. This will enable the installer to arrange the piping entering and leaving the unit during first fix prior to the unit being delivered / installed. The configuration of the pre-installation rig will be as per the unit being supplied and the project requirements.



HOW TO INSTALL PRE-INSTALLATION RIG

STEP1: Temporarily fix the Pre-Installation Rig against the wall in the required position.
STEP2: Fit the Evinox Flushing Bypass & Valve Kit to the rig and then make final connections to the pipework running to the HIU.
STEP3: Shut off isolation valves, pressure test pipework and then disconnect the valve unions and lift away the Pre-Installation Rig leaving the valves ready for the ModuSat arrival.
STEP4: Take the Pre-Installation Rig to the next apartment and repeat the process.

NB: Please take care of the Pre-Installation Rig as this is typically purchased on Sale and Return basis. Damaged pre-installation rigs cannot be returned for credit.

Please refer to section 2.2 for the relevant model dimensions and typical connection configuration.

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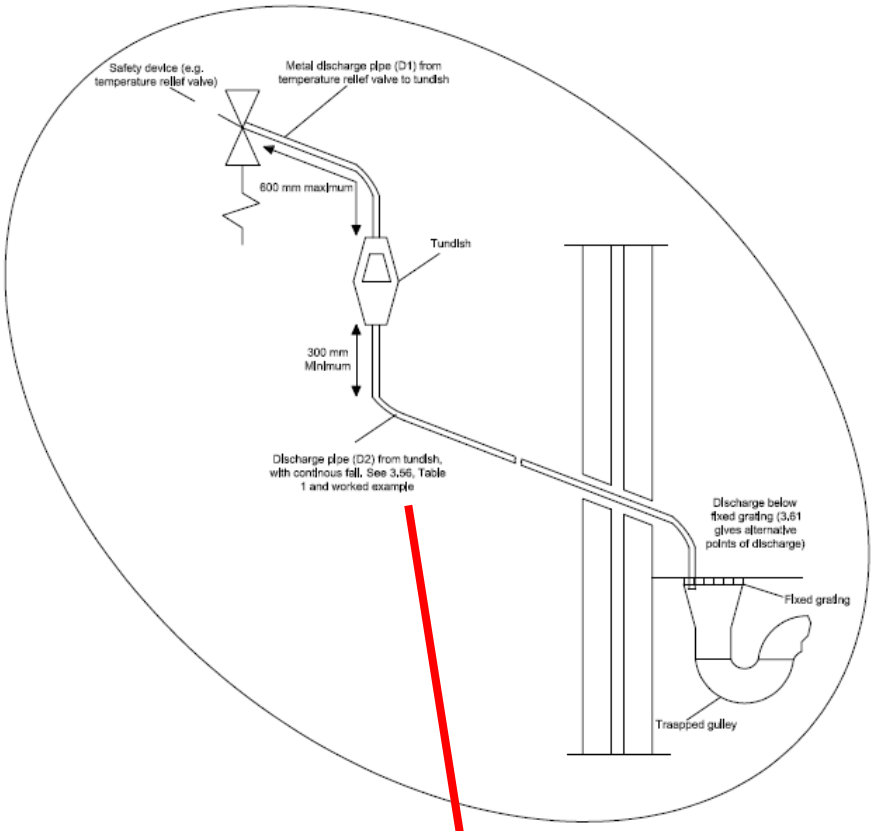
Typical Evinox Valve Kit Installation

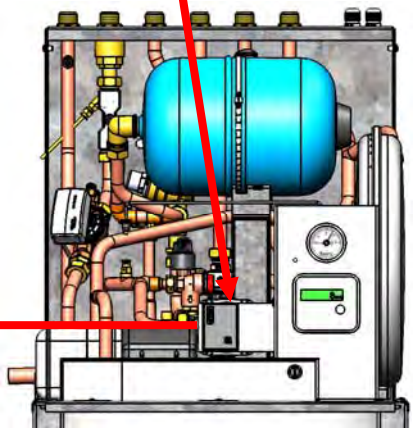
3.5 Installation of Safety Discharges

The opening temperature of the P & T valve is 90°C.

The position of the tundish should be visible to the occupants and must be positioned away from any electrical devices. Refer to the drawing below for typical tundish position, discharge pipe and connection details. The relief valve connections should not be altered or used for any other type of connection.

The incoming cold water supply pipe must be fitted with a stopcock / isolation valves (and in line with current water bylaws) before the cold water enters the ModuSat, as the unvented kit is contained within the HIU itself. A drain cock is fitted inside the ModuSat.





Note: For further information about the hydraulic arrangement please refer to pages 5-7 in this manual.

Worked example

The example below is for a G 1/2 temperature relief valve with a discharge pipe (D2) having 4 no. elbows and length of 7m from the tundish to the point of discharge.

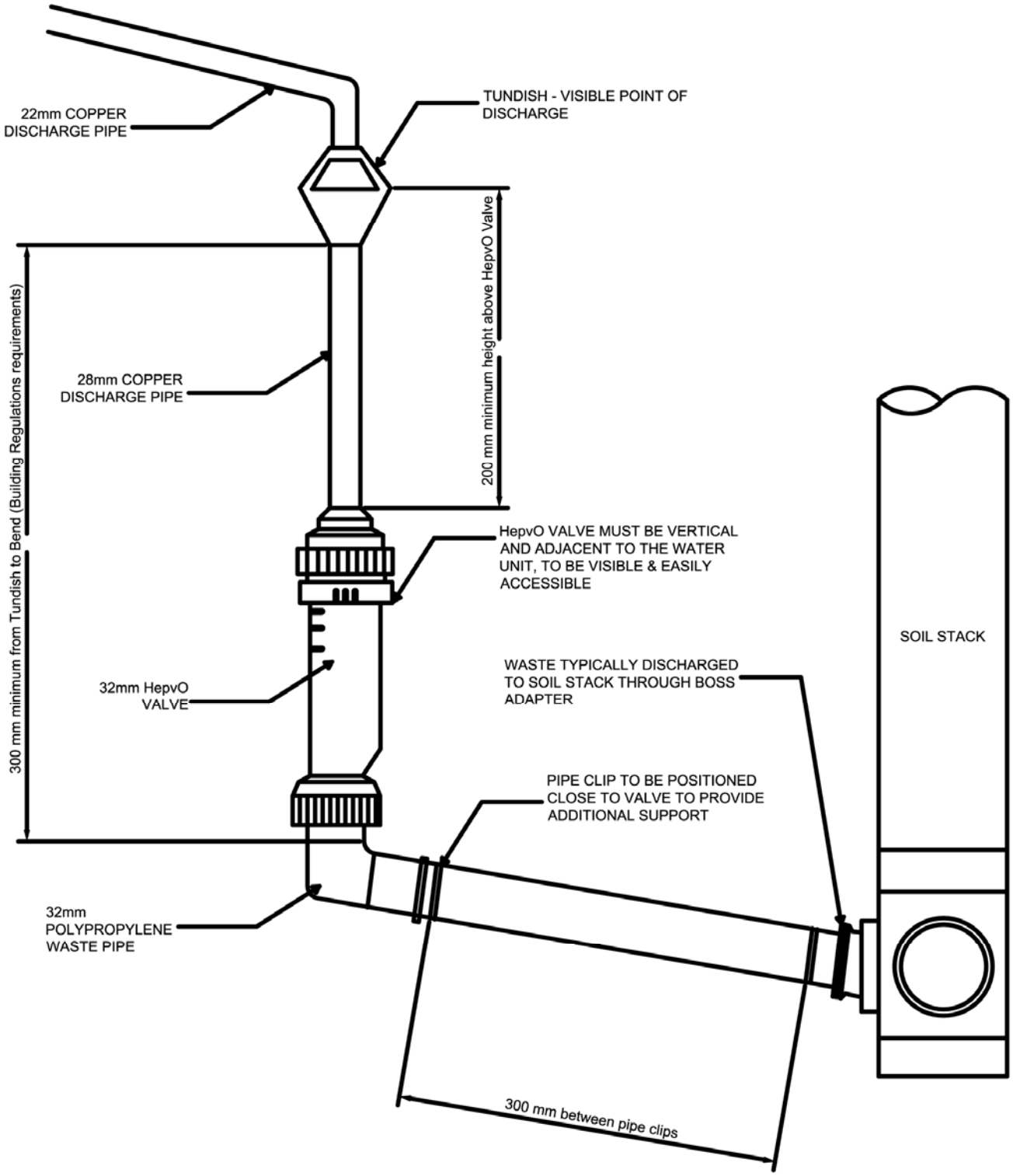
From Table 1

- Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G 1/2 temperature relief valve is 9.0m
- Subtract the resistance for 4 no. 22mm elbows at 0.8m each = 3.2m
- Therefore, the maximum permitted length equates to 5.8m
- 5.8m is less than the actual length of 7m, therefore calculate the next largest size
- Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valve equates to 18m.
- Subtract the resistance for 4 no.28mm elbows at 1.0m each = 4m
- Therefore the maximum permitted length equates to 14m
- As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

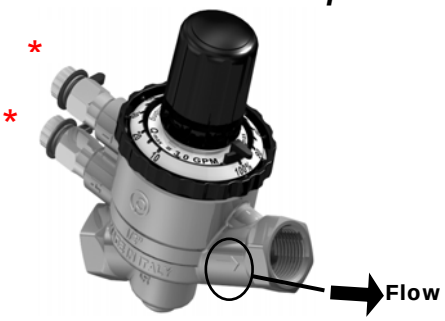
Table 1
Sizing of copper discharge pipe D2 for common temperature relief valve outlet sizes

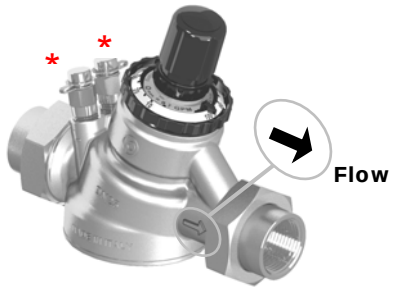
Valve outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed expressed as a straight pipe (i.e. no elbows or bends)	Resistance created by each elbow or bend
G 1/2	15mm	22mm 28mm 35mm	Up to 9m Up to 18m Up to 27m	0.8m 1.0m 1.4m
G 3/4	22mm	28mm 35mm 42mm	Up to 9m Up to 18m Up to 27m	1.0m 1.4m 1.7m

Optional Way to Discharge P & T Valve



3.6 Pressure Independent Control Valve (PICV) Adjustment



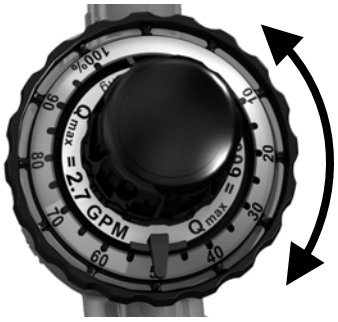


The PICV contained within the ModuSat is a combined flow regulation, DP control and energy valve. The valve will be pre-set during commissioning based on the design parameters, however adjustment can be to the Qmax (Maximum flow) if required.

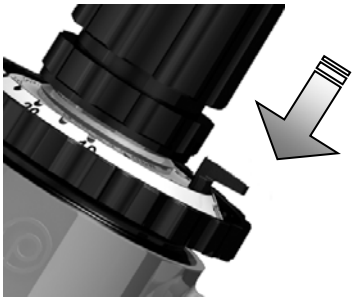
TECHNICAL DATA	91L ¾"	93L 1"
	ModuSat 80, 150 & 200	ModuSat 300 & 400
Max flow rate	1000 l/h 0.278 l/s	2200 l/h – 0.611 l/s
Max. Flow accuracy [Δp 0.3 ÷ 1 bar]	±5%	±5%
Start-up Δp →Q=const.	25 kPa 0.25 bar	25 kPa – 0.25 bar
Max Δp	400 kPa – 4 bar	400 kPa – 4 bar
Temperature	-10 ÷ 120 °C	-10 ÷ 120 °C
Max working pressure	2500 kPa 25 bar	2500 kPa 25 bar
Connections	Rp 3/4" F EN10226-1	Rc - EN10226-1

MANUAL ADJUSTMENT OF THE QMAX (MAXIMUM PRIMARY FLOW)

Carefully Lift up locking device



Select the flow rate by rotating the pre-setting ring



Carefully Push down locking device

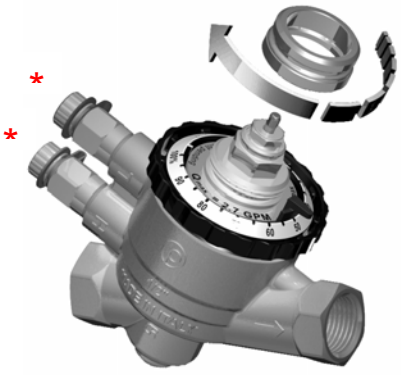
	91L ¾"		93L 1"	
	ModuSat 80, 150 & 200		ModuSat 300 & 400	
PRE-SETTING %	Flow l/h	Flow l/s	Flow l/h	Flow l/s
100%	1000	0,278	2200	0.611
90%	900	0,250	1980	0.550
80%	800	0,222	1760	0.489
70%	700	0,194	1540	0.428
60%	600	0,167	1320	0.367
50%	500	0,139	1100	0.306
40%	400	0,111	880	0.244
30%	300	0,083	660	0.183
20%	200	0,056	440	0.122
10%	100	0,028	220	0.061

FOR THE CORRECT USE OF THIS PRODUCT, WATER QUALITY MUST BE HIGH AND COMPLY WITH CURRENT BSRIA & CIBSE GUIDELINES AND EVINOX REQUIREMENTS.

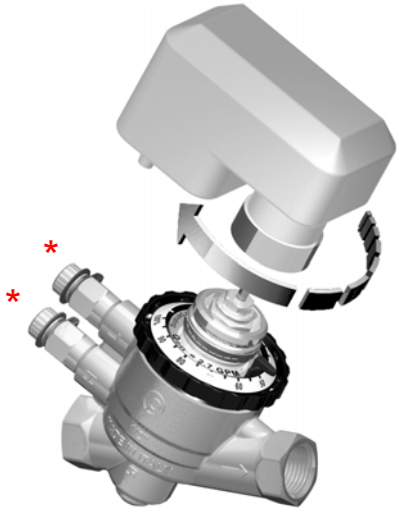
Please note that the flow rates stated are subject to a + / - 5% tolerance.

TYPICAL ACTUATOR FITTING / REMOVAL

Carefully remove the handwheel



Screw the ring adaptor by hand

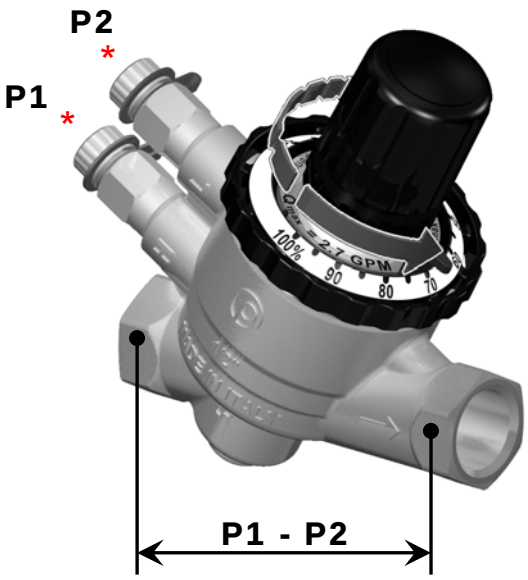


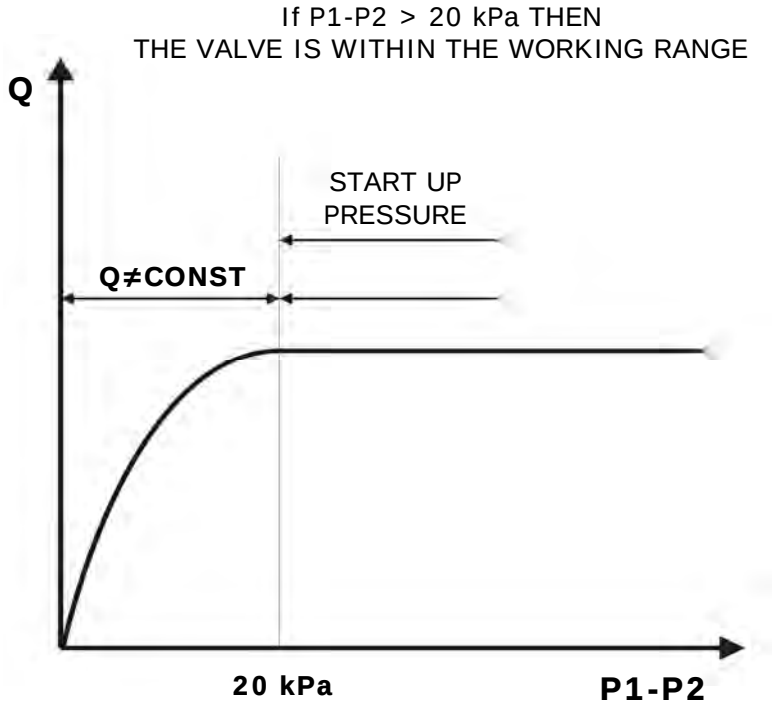
Screw the nut actuator by hand

The removal is the reverse of the above as the actuators are pre-fitted. Removal should only be carried out in the event of failure and following discussion and approval from an Evinox engineer.

In the event that the pressure parameters need to be checked during operation, temporary binder points can be installed for testing purposes by an Evinox engineer to ensure they are within the max / min tolerance, the following data can be checked:-

For 91L ¾" – ModuSat 80, 150 & 200

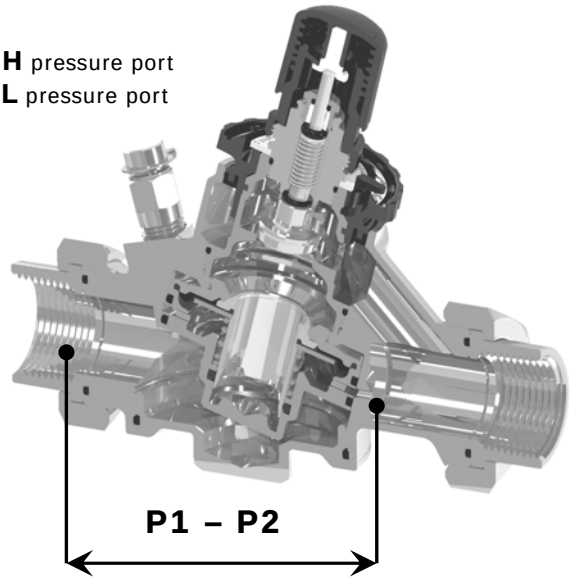




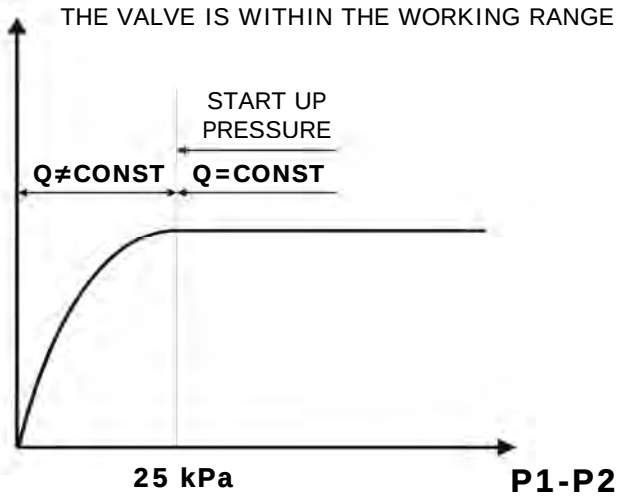
* Please note that the binder points are not supplied with the valve as standard. Temporary binder points can be installed by an Evinox engineer should any checks be required.

For 93L 1” – ModuSat 300 & 400

P1 = H pressure port
P2 = L pressure port



If P1-P2 > 25 kPa THEN
THE VALVE IS WITHIN THE WORKING RANGE



4 PRIMARY AND SECONDARY CIRCUIT

Prior to the circuits being filled and isolated, they must be full pressure tested in line with the design requirements and current regulations.

4.1 Water treatment

It's important to prevent corrosion and oxidisation. Therefore, the quality and cleanliness of the water within both the primary and secondary circuits is vitally important, to prevent damage to the Modusat components and to ensure that the efficiency and service life of the unit is maintained.
It is therefore necessary to fully flush and treat both primary and secondary circuits using suitable water treatment chemicals.

Parameter	Recommended
Hardness (TH)	About 10 °F
Chlorides	Up to 100 mg/l
PH	7 to 8,5
Resistivity	Higher than 2000 Ohm/cm
Salinity	Up to 50 mg/l
Conductivity	200 crs
TDS	0-200 ppm
Iron	Up to 1 mg/l
Copper	Up to 1 mg/l

Typical Water Quality Guidelines

Typical water quality guidelines are as follows:

pH – this measures the alkalinity of the water, neutral alkalinity is pH7. Heating systems require an alkaline pH.
TDS – this measures the dissolved solids in the system and is a measure of the cleanliness of the water. Recommended levels 0-200 ppm.
Conductivity – this is the measure of the ability of water to pass an electrical current and is affected by the presence of dissolved solids. Recommended levels 200 crs.
Free copper – this measures the level of copper in the system in mg/litre. Recommended levels are under 1 mg/l.
Total iron – this measures iron concentration in mg/litre. Recommended levels are under 1 mg/l.

4.2 Cleaning

The cleaning and treatment of the systems must be carried out strictly in accordance with BSRIA and CIBSE guidelines and the relevant British Standards. It is a requirement that the following is undertaken:

- Clean the boiler room plant.
- Cleaning of the primary circuit, with the ModuSat FS isolating valves closed and the flushing bypass fully opened.
- Cleaning of the horizontal pipework and the ModuSat FS unit.
- Cleaning of the apartment heating circuit.
- Use of a dirt separator in the boiler room and strainer on each ModuSat FS, which is supplied as part of the valve kit, to provide additional system protection.

During the final fill and treatment the systems must be fully vented to remove all air, and the system pressure adjusted to design requirements (that form part of the design criteria and specification). If the tender specification does not enforce a particular standard then Evinox requirements would be the BSRIA AG 1/2001.1 standard.

Note: Never leave the system filled with raw untreated water for any length of time.
In order to guarantee the optimal performance of the unit check that the water quality is within BSRIA and CIBSE requirements and guidelines.
SCALE BUILD UP AND CORROSION Topping up the circuit with non treated fresh water can produce:

- Dissolved oxygen – Thus leading to potential corrosion
- Carbonates: (produce scale build up): the water top ups must be reduced to the minimum.

N.B: Scale and other residues may clog the heat meters within the ModuSat units, causing errors in the energy consumption calculations.

WATER TREATMENT IS A STRICT REQUIREMENT AND MUST BE CHECKED IN THE FOLLOWING CASES:

- Circuits with large capacity that produce large amounts of dissolved oxygen.
- Frequent top ups due to leaks, repair and maintenance.
- Use of water with characteristics that are not in line with the recommendations within this manual or in line with BSRIA / Evinox requirements.

4.3 Precautions

The correct operation of the unit, as well as the entire system, depends on good water quality. Water treatment is often an afterthought and consideration is not given to the amount of damage that can result from a poor cleaning and treatment regime.

The warranty of the ModuSat storage unit is strictly related to the instructions and procedures indicated in this manual and the warranty does not cover any damage caused by scale and/or corrosion resulting from poor water quality.

The components and materials used in the system assembly should also be checked to ensure they do not contribute to dissolved oxygen that can cause corrosion.
Also:-

- Ensure there are no depression pockets in the system
- Remove gas permeable parts and materials
- Ensure the expansion vessels are properly sized and the pre-charge pressure value in order to guarantee positive pressure, with respect to the ambient pressure, throughout the circuits.
- Use suitable chemicals (such as BIONIBAL available from Evinox), which are suitable for the materials and equipment used and that **PREVENT/INHIBIT CORROSION**.

Please note: If the completed installation includes boiler plant supplied by Evinox, then only BIONIBAL, which is approved by Evinox, should be used in the primary and secondary circuits.

Our technical personnel, who will visit the project during the course of the installation and at its completion to arrange for its final commissioning and calibration, do so to assist the contractor and install team. This is to deal with any questions and queries; they do not perform the role of quality control or inspector of the installation or provide approval for the works carried out. The systems compliance with the consultant's requirements and current standards and legislation remains the exclusive responsibility of the installer / M&E contractor and comments provided by Evinox are for guidance & advice only.

4.4 Bionibal

BIONIBAL corrosion inhibitor is approved by Evinox and is a requirement in installations that incorporate our boiler plant. Thorough research shows that Bionibal protects your installation in 4 key ways:

- **FIRST LEVEL** - corrosion inhibition and prevention of rust build up.
- **SECOND LEVEL -** acidic component that stops bacteria and algae growth, particularly useful in under floor heating working at low temperatures.
- **THIRD LEVEL -** prevents the adherence of suspended particles such as tartar, keeping the surfaces clean (pumps, valves, heat meters, etc.).
- **FOURTH LEVEL -** provides traceability to enable the dosage to be fully monitored and guarantee the best protection level. It also provides a trace element to enable any leaks to be quickly identified.

Electrolytic corrosion prevention, in a circuit employing different metals.
IT IS ADVISABLE to **ADD** a suitable approved corrosion inhibitor before the system is put in operation.

Bionibal dosage and use (If used & when required if Evinox boiler plant is installed)

NEW INSTALLATIONS:

Fill the circuit with water and check for leaks. Empty the circuit in order to discard any installation residuals (if necessary clean it with an appropriate product and make sure that the circuit is well rinsed).
Once the circuit is well cleaned, fill it with water again and add **BIONIBAL** according to the dosage indicated.

EXISTING INSTALLATIONS:

Because **BIONIBAL** doesn't dissolve existing limes and other residuals accumulated over the years, proceed with empting the circuit and perform a thorough cleaning process of it. Use accredited companies for this work.
Once the circuit is well cleaned, fill it with water again and add **BIONIBAL** according to the dosage indicated below:

IMPORTANT WARNING

Bionibal must only be put in a thoroughly clean installation that has been fully checked. It is therefore imperative to fill the entire system one or more times with clean water and flush / drain as required. In some cases, the system may need washing by a suitable product:

SUGGESTED DOSE

- 2 litres for every 100 litres of primary network
- 1 litre for every 100 litres of the radiator circuit capacity
- 2 litres for every 100 litres of the under floor heating circuit capacity with oxygen blocking barrier pipes

The system cannot be overdosed with Bionibal and will not cause system damage.

Restore the correct concentration every time the circuit is emptied / topped up with raw untreated water.

4.5 Initial opening / filling of the unit

The DHW storage tank is hydraulically separated from the primary circuit, however it should be filled and pressurised before initial unit running. In order to guarantee the safety

and correct functioning of the unit, the start up procedure must be carried out by competent qualified installation personnel.

To fill the DHW tank proceed as follows:

- Fully open incoming mains water supply to the ModuSat.
- Vent tank via the hot water outlet to fully remove any air from the tank.
- Once this has been completed the tank coil can then be fully primed.

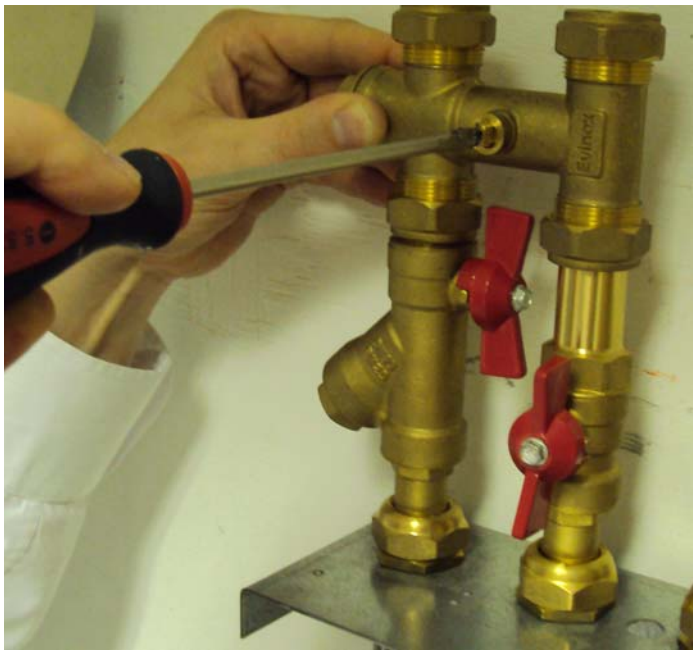
- As the heating and hot water coil share a common hydraulic system and are controlled via a 3 way diverter valve, the heating circuit and hot water tank must be fully filled and vented together. This should be done in such a way so as to ensure that all air is removed prior to system operation (Please refer to hydraulic arrangements pages 5-7 in this manual)
- To open the unit to the primary network, it is critical that the flushing bypass remains open (in full bypass position). Then slowly open both the primary flow and return valves. This is to be done slowly to prevent any excessive hydraulic shock to the unit components.
- Once this has been done the bypass can be slowly closed.

4.6 Flushing Bypass

Flushing bypass

Unit bypassed

Isolation valves are closed (Handles in horizontal position) and bypass is open. Turn screw in horizontal position for flushing of primary system.

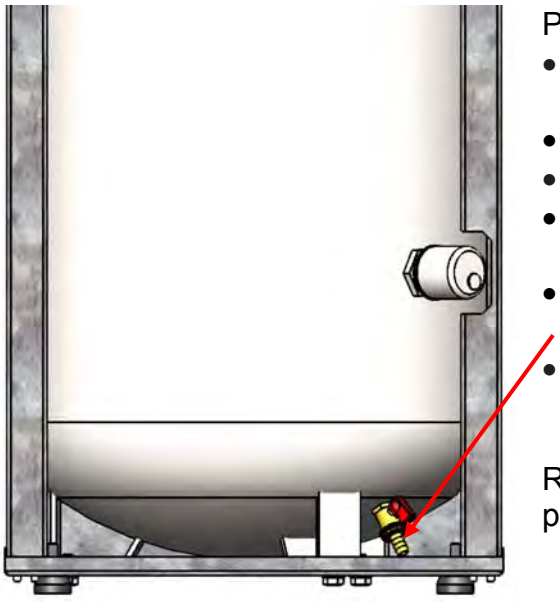


Unit in normal operation (Open to primary system)

Isolation valves are opened (Handles in vertical position) and bypass valve is closed with screw in vertical position. HIU is open to primary system for normal operation.

4.7 Tank draining

The cylinder drain is located on the bottom part of the integrated tank.



Procedure:

- Switch off and isolate all mains electricity supply to the unit.
- Close hot isolation valve
- Slowly close the mains water supply valve.
- Slowly open the primary F & R bypass valve and then slowly close both the flow and return valves.
- Drain down hot water system including the tank (use drain cock).
- Check pressure in expansion vessel(s) and recharge if necessary.

Refilling and re-opening the HIU is as per the process for the initial opening and filling of the HIU.

5 ELECTRIC CONNECTIONS

The MODUSAT requires a 220/240V (AC) 50Hz mains supply connection.

Before attempting the installation, repair or any maintenance fully disconnect the electrical supply.

Follow the instructions below to connect the electric power supply to the unit: cover pipes and cables in order not to cause any damage.

- Use cables of a suitable size for the installation.
- Ask a qualified technician to check the electric wiring because Evinox is not responsible for possible damage caused due to missing earth connection or any incorrect wiring.
- Check also that the cable size and installation is adequate for the maximum electric power needed and as indicated in this manual and the ModuSat data label.

It is vital that the unit has a good reliable earth connection in line with current regulations and to ensure protection against possible electric shocks.
Clearly identify the earth wire and connect it to the relevant earth connection.
Important! If immersion is used then this will require its own separate 2 pole switched fused connection with suitable fuse rating.
Extension cords, multiple plugs, and other adapters must not be used.

To enable the supply to be isolated, the pipes within the modusat or connected to it should not under any circumstances be used for electric earth connections. The ModuSat storage unit has no protection against lighting or other overvoltage shocks. The unit is not protected from lightning.

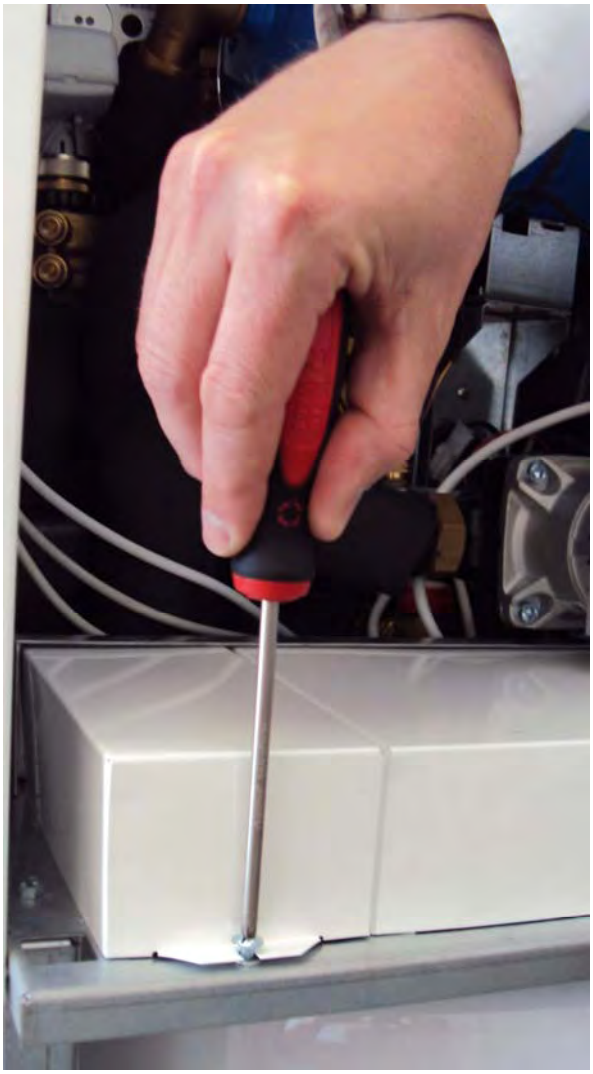
Auxiliary connections

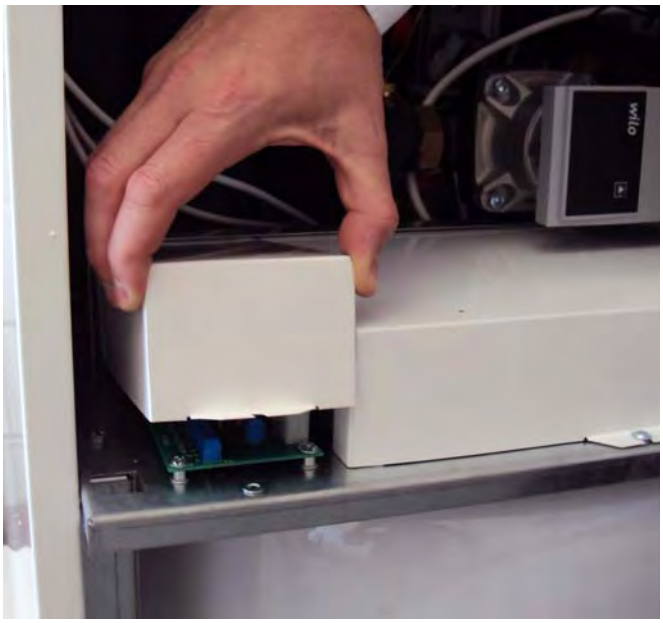
Don’t connect the Evinox room controller unit to a mains supply as this will cause permanent damage.

- Use the relevant terminal connections and a suitable 4 wire shielded cable (4 x 0.35mm²) for this connection and follow the procedure on the following page before the procedure for connections is followed.
- Disconnect the electric supply to the unit using the external switch
- When connecting external valves or pumps to the control board of the ModuSat, it must be ensured that each connection does not exceed 1amp @ 230 volts.

5.1 Modusat Wiring Connections

The modusat wiring board is located within the modusat itself under a removable metal cover. To access the wiring board the full front case cover (Or front top cover if a 200, 300 or 400 litre unit) should be removed. The connections board will be to your left as shown, to take off the cover the retaining screw should be removed and the cover lifted off.

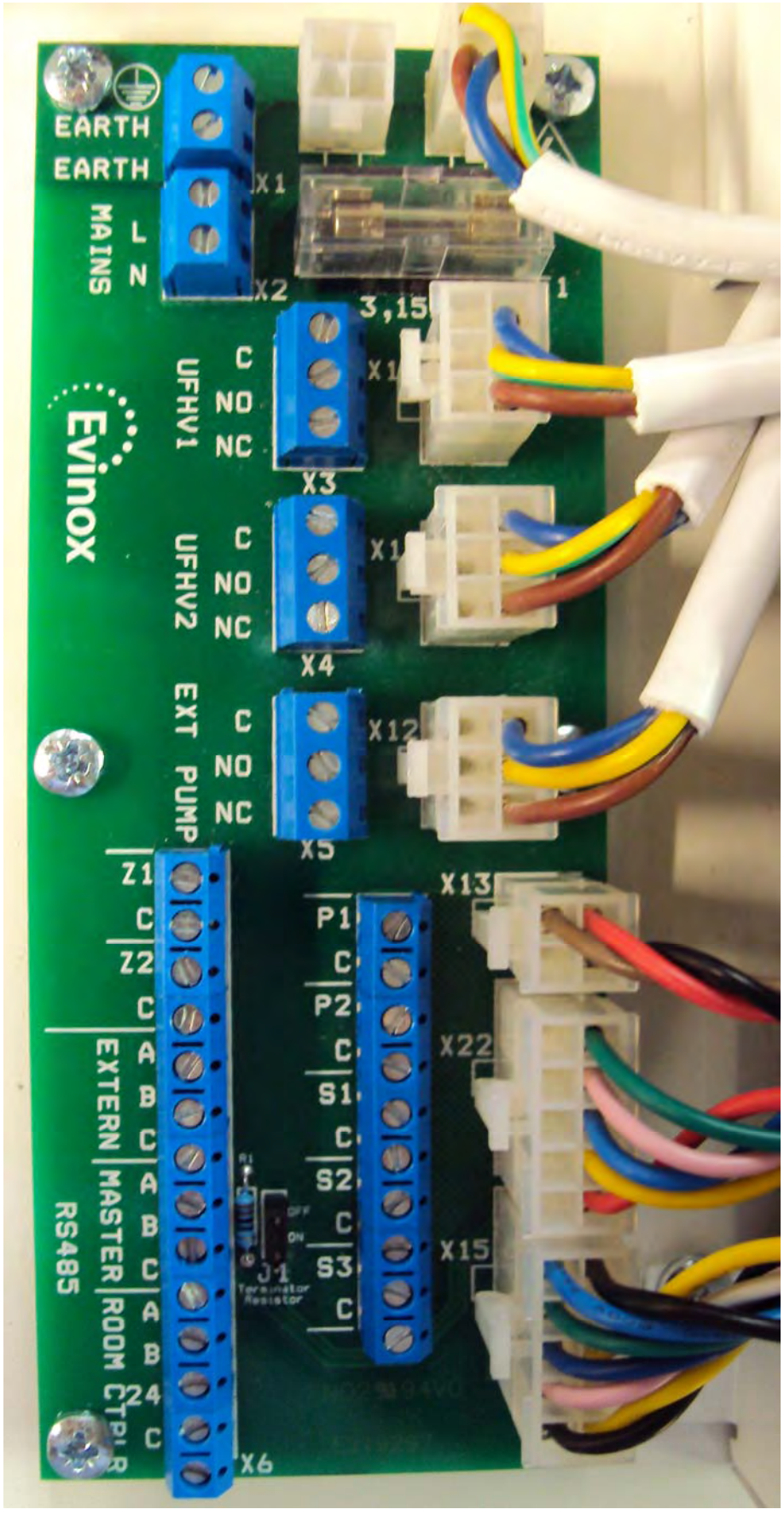




The connections board will then be accessible (as shown on the following page) and all required connections can be made simply using the clearly labelled screw down terminal connections. Guides for the various connection applications and requirements are detailed in the wiring principle drawings shown on pages 31-32.

Evinox strongly recommend in accordance with best practice that all wiring connections to the board, especially the BUS and room controller are terminated using ‘bootlace ferrule’ connectors. These connectors ensure a good connection and the whole cross sectional area of the wiring is intact.

5.2 ModuSat Connection Board (Visible once the cover is removed)



Please Note: When connecting external valves or pumps to the control board of the ModuSat, it must be ensured that each connection does not exceed 1amp @ 220/240 volts (AC)

5.3 Room controller connections

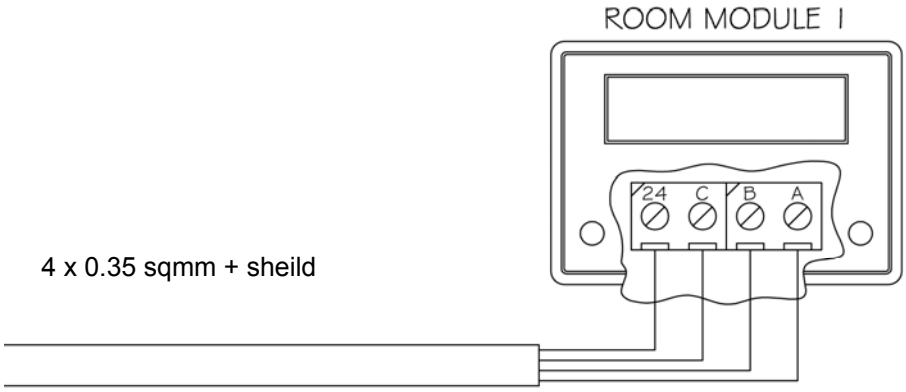
The Room controller is a white ABS box with a graphic display. It should be installed in the main living area of the dwelling. It must be connected to the control wiring board within the ModuSat (please refer to the electrical diagram) using a 4x0.35 mm2 screened cable. The cable must not be installed adjacent to other 220/240 Volt (AC). The ModuSat room controller's power is supplied by the ModuSat board and does not require batteries or additional power cabling.

Dimensions: H= 80 mm, L= 130 mm, D= 22 mm

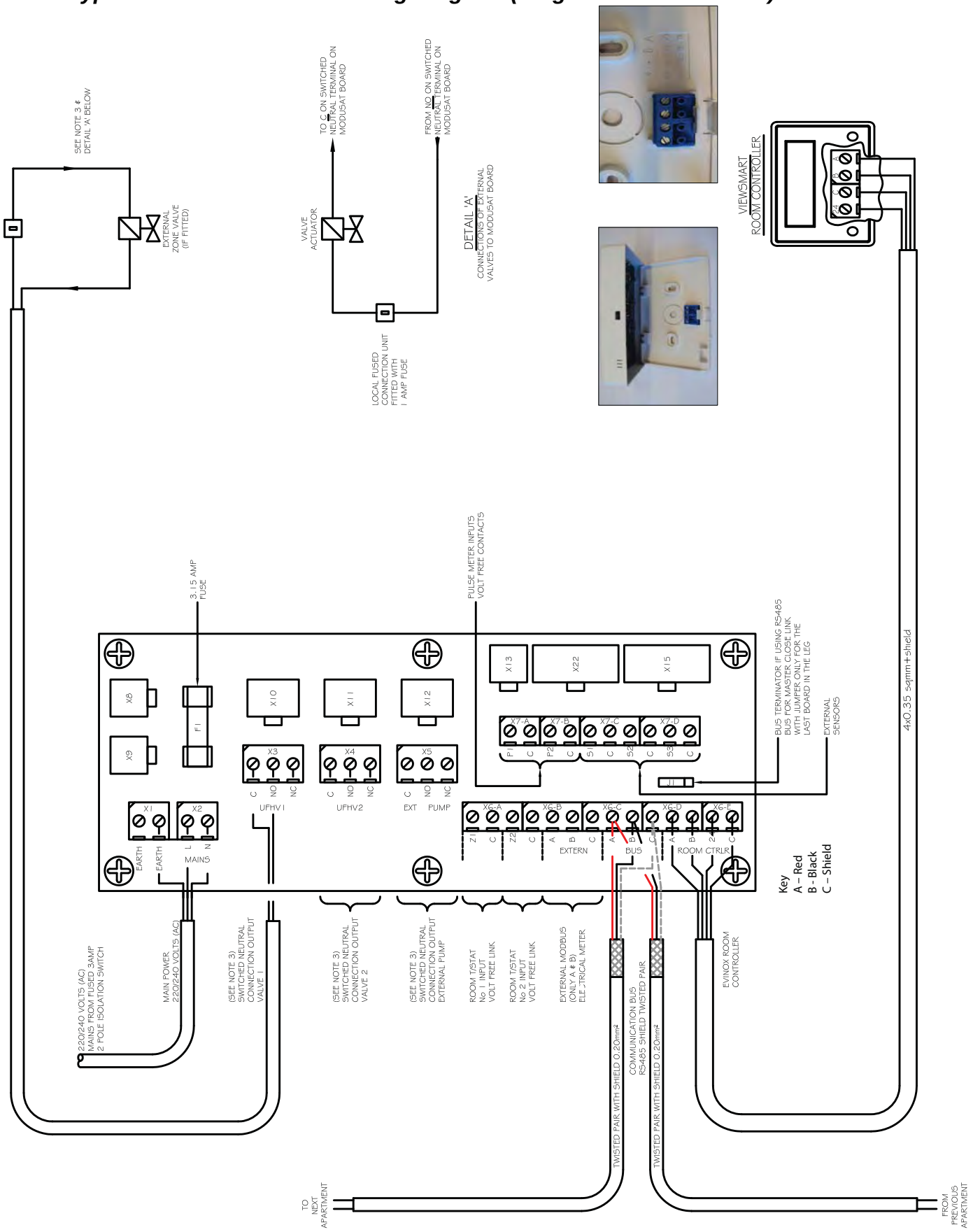
To open the cover to access connections, use a screwdriver in the tab at the bottom as shown below

Once the tab has been releasees the cover can be hinged up to access connection

Connection terminal with room controller

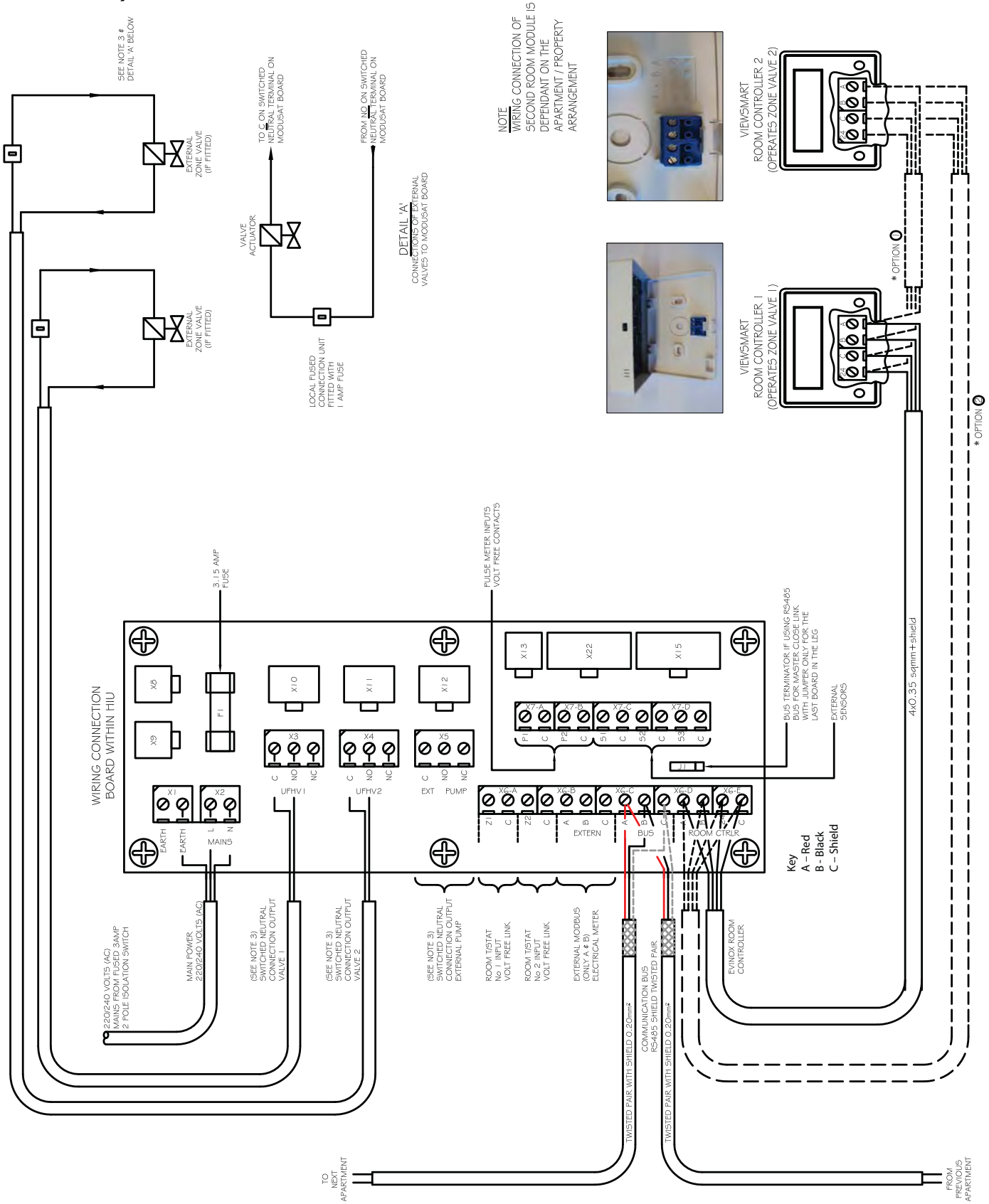


5.4 Typical ModuSat Electric Wiring Diagram (Single Room Controller)



Note 3: Pumps & valves must have localized power supply. Switched neutral connection to be fitted with 1 amp in-line fuse on neutral cable.

5.5 Typical ModuSat Electric Wiring Diagram with 2 Zone Control (2 Room Controllers)



Note 3: Pumps & valves must have localized power supply. Switched neutral connection to be fitted with 1 amp in-line fuse on neutral cable.

6 COMMISSIONING

Full unit commissioning will be carried out by Evinox engineers, however initial checks prior to this can be carried out.

Before initial start up of the unit please ensure that the following are carried out:

- Check that the tank, primary and secondary circuits are clean, treated and filled.
- Check that the air has been removed from the circuits and that the relief valve is properly closed.
- Check that all pipework to the HIU is connected properly.
- Check all pipe connections and joints are tight.
- Ensure that the tank drain cock is closed.
- Check pressure(s) in expansion vessel and recharge if necessary.
- Chock open P & T valve on top of tank (by fitting manual lever)
- Slowly open the cold water main and fill tank with water until if freely discharges through the outlet from the P & T valve
- Remove chock and close P & T valve.
- Test delivery of water from tank by opening and running all taps, both hot and cold water and any other outlets i.e. showers etc.
- Check operation of expansion relief valve on the internal unvented kit by lifting manual release lever and discharging water.
- Make sure that the electric wiring connections are as per the instructions and wiring.
- Check that there is no leakage from the tank or connections.
- Check that the voltage and fuse rating of the electrical supply is correct (Please refer to the wiring diagrams in this manual), and that the earth connection is correct and in-line with current regulations.
- Check the connection of any other components i.e. thermostats, probe etc.
- If the pressure is below 1 bar, top up the circuit to a cold fill pressure of 1.5 bar as low pressure will stop the pump from running due to the inbuilt safety parameters.
- Ensure all valves are opened slowly and the procedure of keeping the bypass valve fully open, then opening the primary flow and return valves, followed by the closing of the bypass is adhered to as previously described. This prevents the components being exposed to excessive hydraulic shock.

If there is a problem with any of the above listed checks, contact Evinox immediately and DO NOT OPERATE THE UNIT until rectified.

6.1 Initial Commissioning Procedure

Only after having checked the above and all is acceptable, can the unit be powered up and initial checks carried out. According to the installation type, identify the operations to use to start the unit, then:

- Switch on electric power to the ModuSat using the external fused switch.
- Check that the Room Unit display powers on
- Check indicator LEDs on valve actuators, these will blink red for approx 1 min on initial start-up, following this they will go solid green. The LED's will flash green when the actuator is either being opened or closed.
- Check that the pump starts and runs automatic venting procedure and three port valve fully diverts to hot water mode (Port B). Check status of pump LED (See page 38). (When the unit is switched over to heating mode please note that the pump will run for 2 mins prior to the heating PICV opening, this is not a fault in the unit but a normal control function as the HIU asses the current heating circuit flow temperature.)

- check that the unit storage tank temperature rises and achieves factory pre-set default of 55°c
- Check 3 port valve fully diverts to heating (Port A) when commissioning switch is used and heat circuit warms up (Refer to section 6.2 for use of the commissioning switch)
- check the correct operation of the safety limit thermostat (when installed)

6.2 Apartment Circuit Balancing

It is vital that both the DHW circuits and heating circuits are fully balanced as per the specification and design parameters. This should be carried out and completed prior to commissioning work has been carried out.

We would again highlight that our technical personnel, who will visit the project during the course of the installation and at its completion to arrange for its final commissioning and calibration, do so to assist the contractor and install team to deal with any questions and queries. They do not perform the role of quality control or inspector of the installation or provide approval for the works carried out. The systems compliance with the consultant's requirements and current standards and legislation remains the exclusive responsibility of the installer / M&E contractor and comments provided by Evinox are for guidance / advice only.

Once the initial commissioning checks have satisfactorily been carried out and checking the operation of both the heating and hot water functions. The unit will then require full commissioning by an Evinox engineer. During the commissioning procedure the unit will be fully set up to the system design parameters. All commissioning must be booked well in advance and will be carried out to a pre-agreed programme.

The items checked during commissioning, whilst not exhaustive, will include the following:

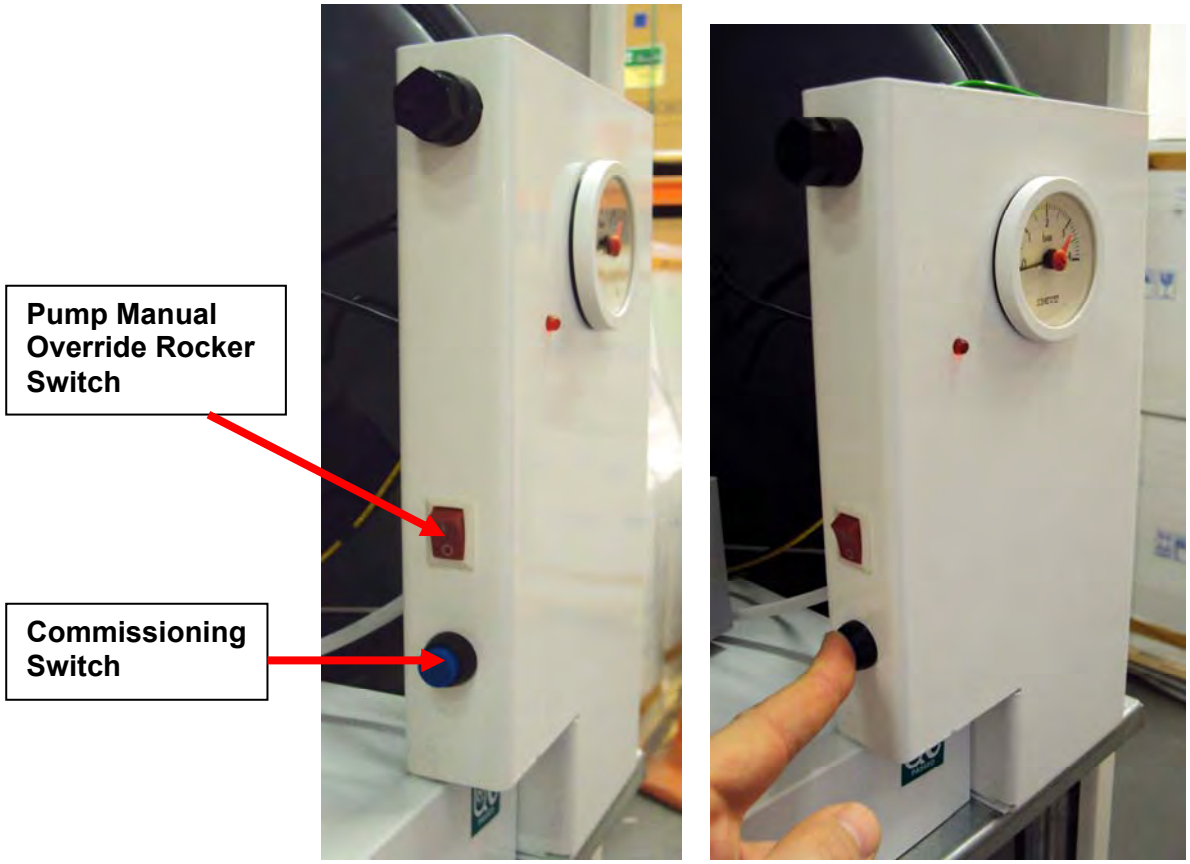
- Hydraulic connections
- Electrical connections
- Primary flow rate and temperature
- Secondary flow rate and temperature
- Pump PWM settings
- DHW storage temperature
- DHW draw-off rate and outlet temperature
- Setting of unit parameters and unit functions
- Meter reading
- Check of domestic hot water blending valve operation
- Check operation of all safety devices

Once all of the following has been carried out a certificate will be issued:

- All commissioning has been carried out satisfactorily.
- The unit is installed to Evinox's requirements.
- The unit is operating within design parameters.

6.3 Use of the commissioning switch

The commissioning switch is located inside the case of the ModuSat next to the manometer and heat meter display. This switch enables the unit to be put into a manual heating 'on' mode prior to full unit commissioning to enable the testing of the secondary / apartment heating circuit. Please note that this function should not be used until the secondary installation is complete i.e. flushed, treated and refilled to the correct pressures.



To enable the heating run mode setting the button should be depressed and held in for approximately 30 seconds. The 3 port diverter valve will then fully switch over to heating mode (Port A). The unit will then run at a pre-set output temperature of 45°C thus providing a safe temperature for UFH circuits and also a gentle warm up of radiator circuits. This function will run for a pre-set period of approx. 45minutes.

Once the cycle has finished, the 3 port diverter valve will then divert back to DHW mode (Port B) if the tank is calling for heat i.e. the tank is below the factory pre-set of 55ºC. The unit will remain in DHW mode until the tank temperature is satisfied whilst there is power to the ModuSat.

If the heating needs to be run again, the process is repeated and then the cycle will start and run for a further 45 mins.

Please note: The rocker switch above the commissioning push button is the Pump Manual Override. This should NOT be operated or used by persons other than Evinox Engineers as it is for emergency use only.

6.4 Adjustment of TMV

The ModuSat unit is fitted with an internal blending valve on the DHW outlet from the integral storage tank. This enables the DHW storage temperature to be higher to improve DHW recovery and draw off rates but also ensure that the DHW to outlets does not exceed the design / safe temperatures as an additional fail safe protection.

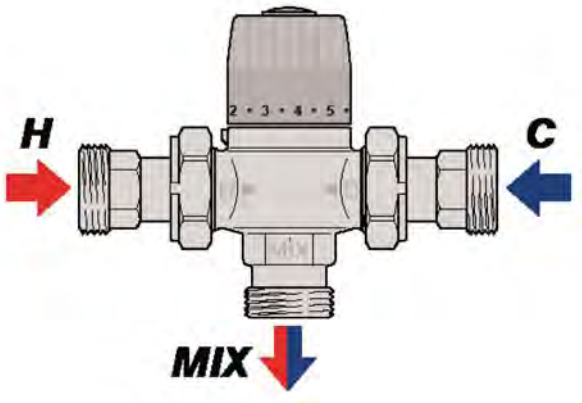
The nominal parameters for the valve are as follows:-

Cold supply water temperature	15ºC +/- 2ºC
Hot supply water temperature	75ºC +/- 2ºC
Nominal cold water pressure	3 Bar +/- 0.2 Bar
Nominal hot water pressure	3 Bar +/- 0.2 Bar
Blended flow rate	18 +/- 4

The water outlet set temperature is achieved within 15 seconds and the mixed water temp is approximately **55ºC +/-2°C**.

The default valve setting is **55ºC if this needs adjustment this can be done by** loosening the top screw and turning the dial to the required setting. It should be noted that as both pressure and flow rates influence the mixed water temperature it is most important that these are checked and verified during installation / initial checks.

Please also note that there are tolerances within the temperature and flow settings as detailed within the tables above.



Technical Characteristics

Working Range: **30÷65 °C**

Max working temperature: **90 °C**

Accuracy: **±2 °C**

Max static pressure(structural pressure): **10 bar**

Max working pressure: **5 bar**

Min	
1	36°C
2	40°C
3	44°C
4	50°C
5	55°C
Max	

Please refer to the hydraulic layouts on pages 5-7 with details of the blending valve orientation.

6.5 Pump Start-up - Wilo PWM Pump

The Wilo Pulse-width modulation (PWM) pump features dry running protection to eliminate burn out and provides compliance with the 2015 pump efficiency regulations.

Description of the pump

The pump consists of a hydraulic system, a glandless pump motor with a permanent magnet rotor, and an electronic control module with an integrated frequency converter. The control module provides speed control by a PWM signal from the ModuSat control board and indicator LED to display the pump operating status.

Please note: When the unit is switched over to heating mode the pump will run for 2 mins prior to the heating PICV opening , this is not a fault in the unit but a normal control function as the HIU asses the current heating circuit flow temperature.

Pump LED – Description of Status

LED	Indicators	Diagnosis	Status	Remedy
Lights green	Pump in operation	Pump runs according its setting	Normal operation	
Blinks quick green	PWM model:	Pump in standby	Normal operation	
Blinks red/ green	Pump in function but stopped	Pump restarts by itself after the fault is disappeared	1. Low voltage U<160 V or High voltage U>253 V	1. Check voltage supply 195 V < U < 253 V
			2. Module overheating: temperature inside motor too high	2. Check water and ambient temperature
Blinks red	Pump out of function	Pump stopped (blocked)	Pump does not restart by itself due to a permanent failure	Change pump
LED off	No power	No power to pump	1. Pump is not connected to power supply	1. Check cable connection
			2. LED is damaged	2. Check if pump is running
			3. Electronics are damaged	Change pump

6.6 Warranty

The warranty has value if good practice has been strictly observed for installation and use. Evinox is not liable for equipment breakdown and damage to persons and objects caused by:

- Transportation
- Installation in which the Standards in force and good practice were not complied with
- Improper use of the device, abnormal use conditions, tampering by unauthorised personnel or inadequate maintenance; therefore by: Corrosion and/or sludge accumulation; lack of electrical energy; absence of suitable drainage; exceeding operating pressures; electrical and water system faults
- Freezing or fortuitous causes
- Wear due to normal use
- Malfunctioning of control and safety parts
- Corrosion due to oxygenation or roaming currents
- The pump being run against a closed system.

From commissioning, ModuSat FS appliances are guaranteed against all manufacturing faults and material defects for a period of:

- 5 years for the stainless steel tank and its integrated exchanger
- 2 years for parts and labour * (Where Evinox do not carry out the commissioning or have a developer agreement in place the two year warranty will cover parts with no labour cover)

However, the ModuSat FS warranty will always start from the date of the serial number and will be extended by a maximum of 6 months to allow for project completion. If the ModuSat FS is commissioned before the 6 month extensions the warranty will start from the commissioning date.
This guarantee is strictly limited to the supply, free of charge, of parts acknowledged as being defective after inspection by our technical departments, with the exclusion of labour and transport costs arising from this. These parts once again become the property of Evinox and must be returned to them without delay.
Failure to comply with the relevant installation requirements of the Building Regulations, Local Water Byelaws and Building Standards will invalidate any warranty claim.

The ModuSat FS must be fitted with our isolation valve kit for servicing and warranty work. Warranty calls that include draining the system will be chargeable if isolation valves have not been fitted.
It is imperative that the level of corrosion protector within the system is kept within industry guidelines at all times. Special attention should be given to ensure that, after any decoration or building works where radiators might be removed, the system is replenished with chemicals. Non-use of inhibitor will invalidate the warranty.
We will register the warranty when we commission the boiler and ModuSat FS units.
Any warranty claims that are a result of user error, poor installation or lack of servicing will be chargeable. Please note that all replacement parts provided under warranty are subject to factory inspection to determine cause of failure. Replacement parts are chargeable until passed as faulty by Evinox, when a credit will be provided. Any parts that have failed as a result of poor servicing or misuse will not be covered by our warranty.
Any modifications to the appliance will invalidate the warranty.

Installation of the Evinox unit should only be carried out by suitably qualified personnel (I.e. approved to install unvented systems in line with Water Supply (water fittings) Regulations 1999 and Building Regulations 1991 Part C (B.R Part C 1992) and also have relevant approval for associated plumbing and electrical works.

If failure occurs due to poor or faulty installation work carried out by non qualified personnel, this will invalidate the warranty.

Your Evinox appliance is one of the most reliable and technically advanced products available. However, it is imperative that it is installed correctly, commissioned and serviced in accordance with Evinox installation and servicing manuals to ensure long life, reliability and fuel savings.

Exclusion of the Guarantee
The following are not covered by the guarantee:
a) Electric indicators

- Electric degradation of parts resulting from connection and installation on electricity supply whose voltage measured at the entry of the apparatus would be lower by 15 % or higher of 10 % than the nominal voltage of 230 volts
- Degradation of parts coming from external elements with apparatus (effect of storm, moisture, freezing, etc)
- Seals
- Automatic air vents
- All consecutive incidents resulting from a lack to check the safety components (unvented kit etc)
- Scaling, nor its consequences
- Corrosions due to chloride concentrations in domestic hot water higher than 60 mg/l
- The wear of the P and T valve

b) Postage costs of the parts, labour and displacement
Note: in a constant preoccupation with an improvement of our materials, any modification considered to be useful by our engineering departments and commercial can intervene without notice.

* See full terms and conditions of warranty

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