Evinox ModuSat Single Plate Double Circuit HIU

Installation Manual

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 *Application*

The Evinox ModuSat Single Plate Double Circuit (SPDC) heat interface unit (HIU) provides high efficiency heating and independent fast recovery hot water, designed for installation with a suitable external domestic hot water storage tank fed by the unit. The Evinox ModuSat SPDC unit requires electrical supply to function.

Consisting of a single plate heat exchanger, pump and control valve. The ModuSat can provide direct control of underfloor heating output temperature without the need for any underfloor pumps, blending valves or mixing valves.

1.2 *Symbols*

	**IMPORTANT NOTE REGARDING CORRECT INSTALLATION**
	**WARNING REGARDING PERSONAL SAFETY**
	**WARNING OF DANGER OF ELECTRIC SHOCK**

1.3 *Warning*

- ☐ **Follow the instructions.** These instructions must be read and observed carefully before installing and operating the ModuSat heat interface unit. Failure to read and follow the instructions provided within this document may cause a safety hazard or/and failure of the equipment.
- ☐ **Qualified personnel only.** The Evinox heat interface unit must be installed, commissioned and maintained by a qualified and competent personnel in accordance with this document as well as national regulations and standards.
- ☐ **Warning of transport damage.** Always check to ensure that the ModuSat heat interface unit has not been damaged during the transport.
- ☐ **Warranty.** Any modifications or adjustments carried out without Evinox Energy official authorisation will invalidate the warranty and absolve Evinox Energy from any liability.
- ☐ **Product modifications.** Evinox Energy reserves the right to make changes or modifications to the products without prior notice.

1.4 *Safety instructions*

The Evinox heat interface unit must be installed, commissioned and maintained by a qualified and competent personnel in accordance with this document as well as national regulations and standards.

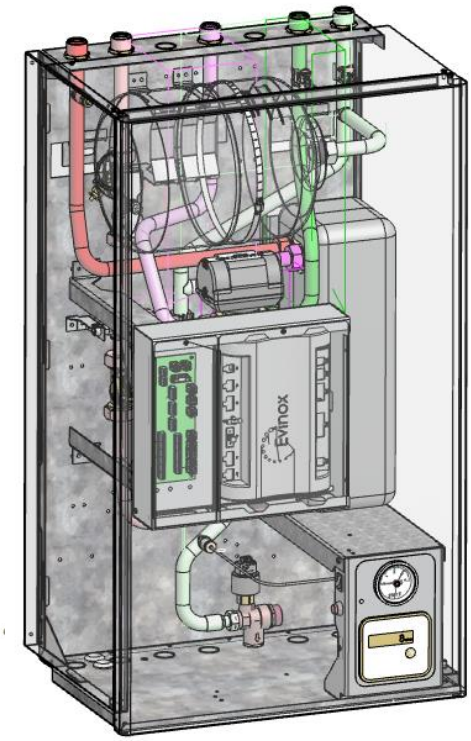
	**High temperatures.** Take necessary precautions when working on the unit as high operating temperatures may cause severe skin burns.
	**Risk of Electric shock.** Disconnect the electricity supply before starting any works on the unit.
	**Qualified personnel.** Electrical installation must only be carried out by technical personnel.
	**In the case of water leak.** ☐ Take caution of hot water ☐ Slowly close the isolation valve at the top of the unit ☐ Contact Evinox Energy

1.5 *Maintenance requirements*

We recommend the unit is checked at least every 24 months 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 every 24 months.

2 TECHNICAL FEATURES

2.1 *Typical ModuSat SPDC Unit*

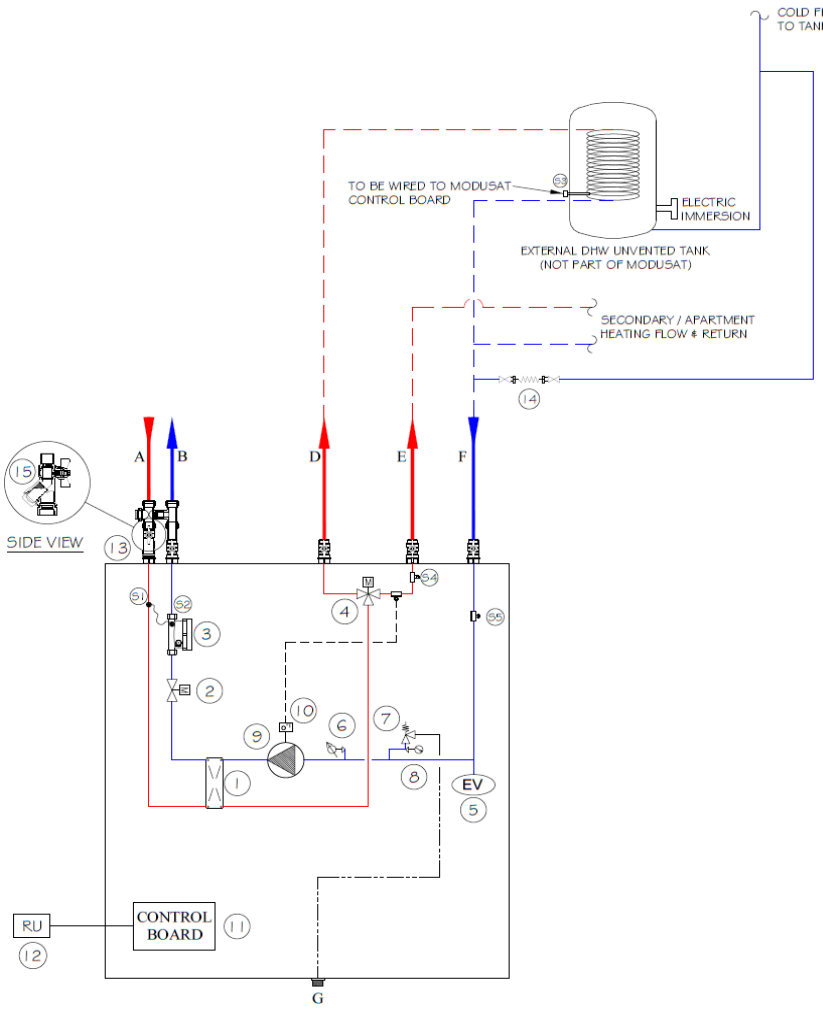


Note: The product may look different from the image shown.

2.2 *Function and operation*

- **District or communal heating system** – the primary thermal energy is used to produce domestic hot water and heating.
- **Domestic hot water (DHW) –** the DHW is prepared in an unvented DHW tank which is heated by a secondary flow from the ModuSat HIU. The secondary flow is prepared via a plate heat exchanger and is supplied to an external DHW tank coil flow and the space heating flow by means of a motorised diverter valve. The electronically controlled Pressure Independent Control Valve (PICV) modulates the primary flow rate to maintain temperature in the secondary flow. This unit operates with the DHW taking priority over HTG – when temperature in the DHW tank drops below the set value, the heating operation will be temporarily cut.
- **Heating (HTG)** – when the space heating demand is requested by the end user controller, the heating operation is started. The electronically controlled PICV is used to modulate the primary flow rate to match the heating demand. The unit has an integrated circulation pump on the secondary circuit which is switched on when the heating or DHW is demanded.

2.3 *Typical Schematic (All Top Connections)*



CIRCUIT DIAGRAM

Components

A Primary / LTHW flow
B Primary / DH return
D DHW tank coil flow
E Secondary / Apartment heating flow
F Secondary / Apartment heating common 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

Heating Secondary Side Circuit

4 Motorised diverter valve
5 Heating expansion vessel
6 Low pressure switch
7 Safety relief discharge
8 Manometer
9 Heating circulation pump
10 Safety thermostat (optional)

Controls & Other Items

11 Electronic control board
12 ViewSmart room controller
13 Flushing by-pass valve set
14 Filling loop (External)

S1, S2 – Heat meter temperature sensors
S3 – Tank temperature sensor
S4 – Secondary / Apartment heating flow temperature sensor
S5 – Secondary / Apartment return temperature sensor

Note: Other connection arrangements may be used.

2.4 *Technical Parameters*

Electrical

	ModuSat SPDC
Electric supply	220 / 240 Volt (AC)
Frequency	50 Hz
Current absorption	0.6 Amps

Hydraulic connections

		SPDC-20	SPDC-40B
Primary circuit supply	A	3/4"	1"
Primary circuit return	B	3/4"	1"
DHW supply	D	3/4"	1"
Apartment circuit supply	E	3/4"	1"
Apartment circuit return	F	3/4"	1"
Drain	G	1/2"	1/2"

Hydraulic characteristics

Pipework material	Copper	
Plate heat exchanger material	Stainless steel 316L	
Operating medium	Water	
Primary circuit max pressure	16 bar	
Primary minimum differential pressure	50 kPa* (0.5 bar) *may vary depending on the required output	
Primary maximum differential pressure	400 kPa* (4 bar) *may vary depending on the required output	
Secondary circuit recommended cold fill pressure	1.5 bar	
Apartment heating maximum pressure	3 bar	
Apartment heating expansion vessel size	8 L	
DHW max pressure	5 bar	
DCW min pressure	1.5 bar	1.5 bar
Max supply temperature (Primary)*	85 °C	

*Max temperature of Evinox Flushing by-pass valve set

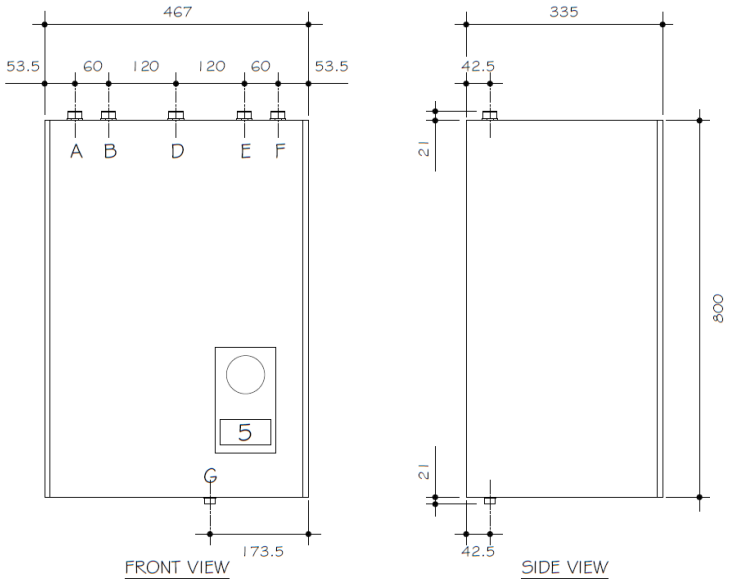
Weight

	Dry	Wet
Weight SPDC-20	27.5 kg	29.5 kg

For other models please contact Evinox.

2.5 *Typical Dimensions*

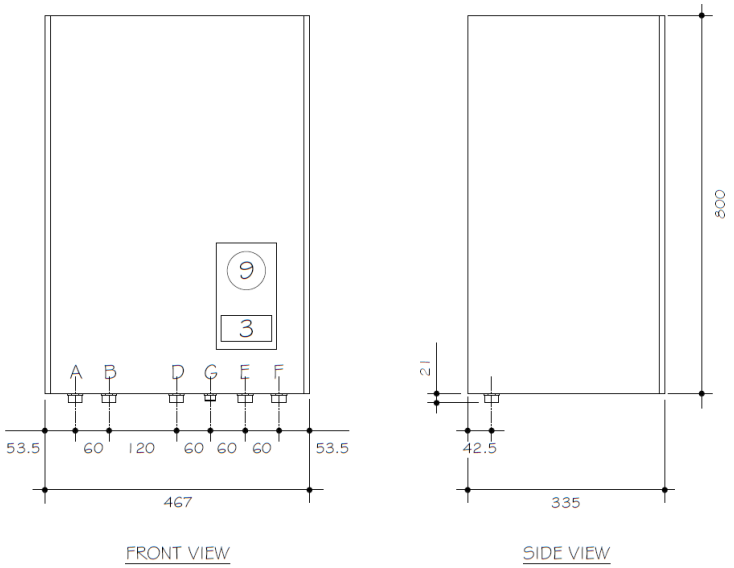
TL1 – **ModuSat SPDC-20** All Top Connections



Connections of valve kits:
A, B, D, E, F: 3/4" BSP
G: 3/4'' compression

Minimum space requirements for access and servicing: Top: 190 mm (To allow for H-type flushing by pass), Front: 700 mm, Side: 50 mm, Bottom: Sufficient space to connect the drain.
Please Note: Flushing bypass to be installed on primary connections A & B**.**

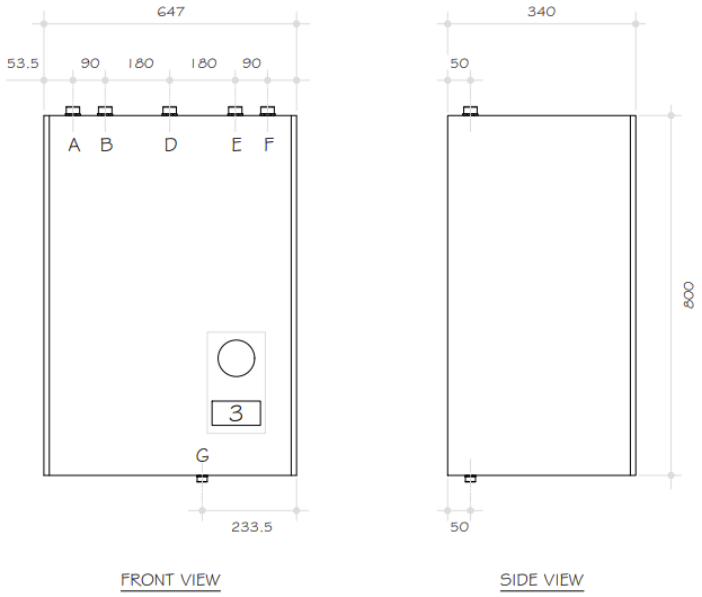
BL4 – **ModuSat SPDC-20** All Connections at the Bottom



Connections of valve kits:
A, B, D, E, F: 3/4" BSP
G: 3/4'' compression

Minimum space requirements for access and servicing: Top: 190 mm (To allow for H-type flushing by pass), Front: 700 mm, Side: 50 mm, Bottom: Sufficient space to connect the drain.
Please Note: Flushing bypass to be installed on primary connections A & B**.**

TL1 –**ModuSat SPDC-40B** All Top Connections



Connections of valve kits:
A, B, D, E, F: 1” BSP
G: 1/2" compression

Minimum space requirements for access and servicing: Top: 250 mm (To allow for H-type flushing by pass), Front: 700 mm, Side: 50 mm, Bottom: Sufficient space to connect the drain.
Please Note: Flushing bypass to be installed on primary connections A & B**.**

3 INSTALLATION

The Evinox heat interface unit must be installed, commissioned and maintained by qualified and competent personnel in accordance with this document as well as national regulations and standards.

3.1 *Handling*

- ☐ The unit should be moved into position before lifting still within its packaging to prevent any damage whilst being positioned. Only once it is safely situated, the unit should be removed from its packaging and lifted into position.
- ☐ The ModuSat unit may have been transported and handled many times prior to the installation, therefore it is vitally important that all unions and connections are checked and tightened as required. In case of damage please contact Evinox Energy on 01372 722277 immediately.
- ☐ Packaging materials must be disposed in accordance with the requirements of the construction site or the property.

	**Lifting.** Take care when lifting this appliance. It is recommended that at least two people perform the lifting.
	**Leave caps over the connections.** Ensure that the protective cover (caps) over the ModuSat pipe connections are kept in place to prevent ingress of any debris.

3.2 *Positioning*

The heat interface unit should be installed in a sheltered environment and is not suitable for outdoor installation. It is recommended that the surrounding environment conditions do not exceed 40 °C with the relative humidity from 15% to 85%.

Note: It is recommended not to place electrical devices, such as control boards and other devices, underneath the unit in case of a water leak. The manufacturer cannot accept any responsibility for goods damaged in such a way.

	**Maintenance space.** It should be ensured that sufficient space around the unit is provided to allow the future maintenance and servicing of the unit. The removal of the front panel should not be restricted.

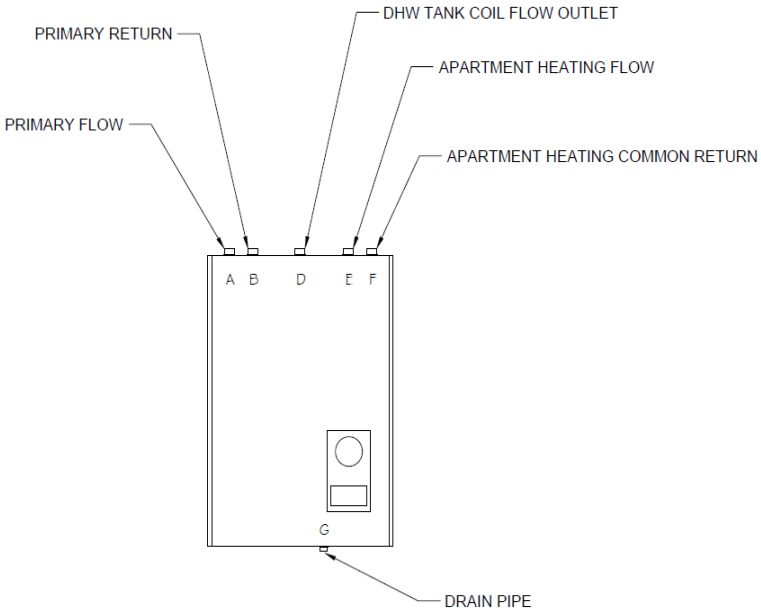
3.3 *Hydraulic connections*

Connection arrangement.
Ensure that the hydraulic connections of the pipework piped up to the unit are correct and follows the hydraulic schematic. The manufacturer cannot accept any responsibility for any damage caused to the unit due to crossed connections.
Any Evinox engineer callout/visit due to this issue will be chargeable.

The ModuSat heat interface unit is designed to be wall mounted with the typical primary connections and domestic water hydraulic connections. (Other configurations are available; please refer to pages 6 to 7 of this manual for details).

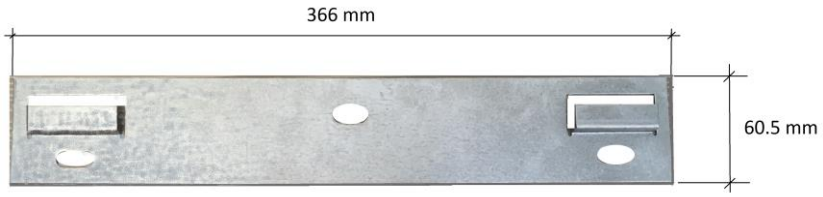
The Evinox Energy flushing by-pass valve kit should be installed prior to connecting the unit and the valves left in an isolated position.

The whole system should be cleaned and flushed before installing the heat interface unit to ensure the ModuSat unit is not damaged.



3.4 *Wall fixing*

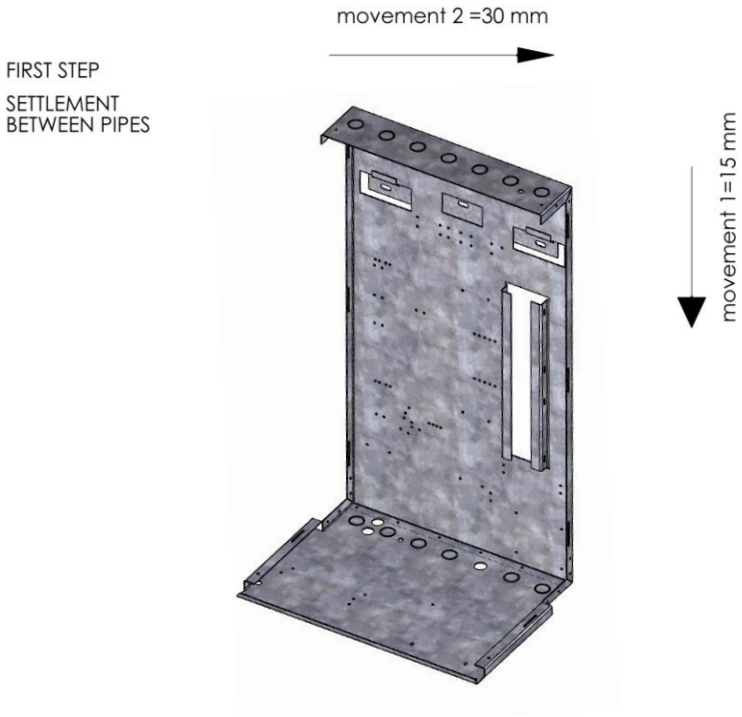
The ModuSat unit is designed to be wall mounted. There are drillings on the back plate of the unit that ensure mounting with the wall fixing bracket.



3.5 *Use of Pre-installation Rig*

A pre-installation rig is available upon request. It 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



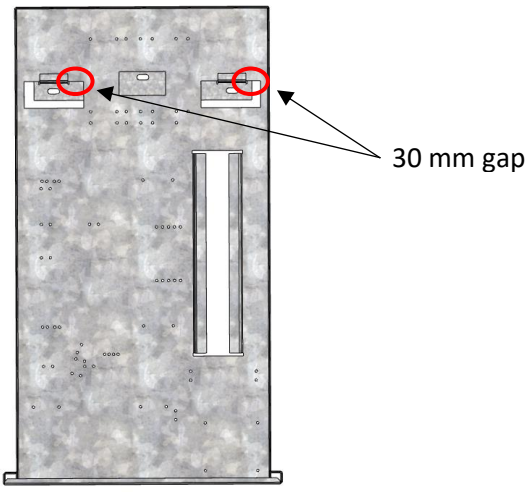
STEP1: Securely fix the mounting bracket to the wall in the required position. Hang the ModuSat SPDC Pre-Installation Rig on the wall fixing bracket. Then slide down by 15mm and across to the right by 30mm, as indicated in diagram.

STEP2: Fit the Evinox Energy Flushing Bypass & Valve Kit to the rig and then make final connections to the pipework running to the ModuSat.

STEP3: Shut off isolation valves, pressure test pipework and then disconnect the valve unions.

STEP4: To remove the pre-installation rig slide the rig to the left taking all connections off centre, slowly lift and remove.

Maintenance Space
In order to remove the ModuSat heat interface unit, ensure that 30 mm gap is left between the hook and the edge of the cutout in the pre-installation rig as shown in the image below.

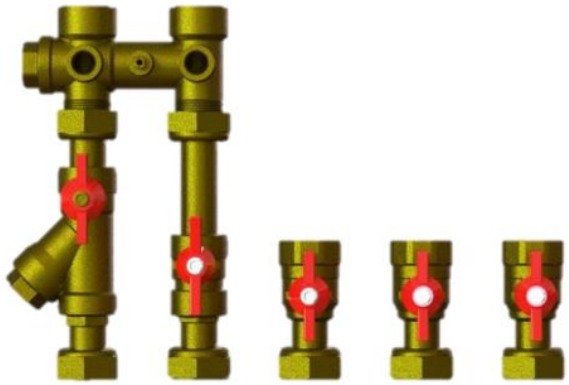


3.6 *Evinox Flushing By-pass Kit*

Evinox flushing by-pass kit ensures that the ModuSat unit can be isolated from the systems circuits. It includes an “H” shape by-pass valve with binder points for differential pressure measurement. The “H” shape by-pass valve is used for the system cleaning and flushing. The flushing by-pass kit also includes a strainer valve and 4 isolation valves.

Depending on the valve kit ordered the types of valves may differ. A typical valve kit is shown below.

Evinox FLUSH-KIT-SP3 for ModuSat SPDC shown below.



	**Close isolation valves.** Leave the isolation valves in closed position after installing the valve kit and prior to connecting the unit as shown in the image above.
	**Provide isolation valves and a strainer.** If Evinox valve kit is not used, it must be ensured that there are isolation valves provided. The strainer on the primary inlet is required to ensure the components in the unit are protected from debris and sediments.
	**Tighten the connections.** When connecting the ModuSat heat interface unit, ensure that all the connections are tightened to avoid any leaks.

3.7 *Setting Primary in a Flushing Position*

When the unit is installed and the primary network is cleaned or flushed, the valve kit should be used to ensure the unit is bypassed while cleaning or flushing the system.

To open the by-pass:

- ☐ Ensure both isolation valves are in the closed position as shown in the picture. Ensure that the isolation valves are closed slowly.
- ☐ Use a suitable screwdriver or other tool to twist the screw on the H-shape by-pass valve into the open position.
- ☐ Ensure that the primary system is clean before opening the valves.

3.8 *First fill of the primary system*

⚠	**Clean and flush the system before connecting the unit.** Filling the system should be performed only after the system has been fully flushed and clean. Poor water quality may cause failure of the operation of the unit.
☞	**Water quality.** It is recommended that the flushing and cleaning of the primary circuit, domestic water circuit and secondary heating circuit is performed by professional personnel in accordance with current standards, regulations and BSRIA guidelines.
⚠	**In the case of a water leak.** ☐ Take caution of hot water ☐ Slowly close the isolation valve at the top of the unit ☐ Contact Evinox Energy
☞	**The ModuSat pump should not be used for flushing.** The pump integral to the unit should not be used for flushing and cleaning the system. Failure to meet this requirement will invalidate the warranty.

Filling the primary circuit

Please take care when filling the ModuSat unit.

- ☐ Slowly close the by-pass while the isolation valves are in the closed position
- ☐ Slowly open the isolation valves on the primary circuit to the design pressure.
- ☐ Visually check that there are no leaks. Tighten the connections of the valve kit if necessary.
- ☐ If there is a leak internal to the unit, ensure the isolation valves are left in a closed position.

3.9 *First fill of the apartment heating system*

The ModuSat unit is fitted with a manometer gauge that is mounted in the front panel. This gauge reading should be used when filling the secondary circuit.

- ☐ An external filling loop should be used for filling the secondary circuit with the mains water.
- ☐ Open the isolation valves slowly when filling the system.
- ☐ Cold fill should be done to about 1.5 bar in a single story dwelling. The pressure required will depend on the head of the system (difference between the lowest and highest point).
- ☐ Once the required pressure is reached, close the filling loop ball valve, vent the system and repeat it again.

4 Water treatment

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.

	**Water treatment in accordance with these instructions.** Please confirm with the water treatment consultants that the chemicals used and cleaning method statement complies with the requirements set out in this section.
	**Water quality may damage the unit.** Poor water quality may damage the components used in the unit and invalidate the warranty. The manufacturer cannot take responsibility for any damage of the unit caused by poor water quality.
	**Chemical cleaning and dosing.** Chemical cleaning and dosing of the system should be in line with the current regulations, standards and guidelines. Which are, but are not limited to: ☐ BSRIA Application Guide BG29/2021 ☐ BS7593:2006 ☐ Requirements of Thames Water Utilities ☐ The Water Industry Act 1991, Section 119 ☐ HSE The Control of Legionellosis 1991 ☐ HSC Approved Code of Practice and Guidance HSG274, Part 2

4.1 *Water Quality Guidelines*

	Recommended
Hardness (TH)	Up to 150 mg/l (as $CaCO_3$)
Chlorides (Cl^-)	Up to 150 mg/l
PH	7.5 – 9.0
Resistivity	> 2000 Ohm/cm
Sulphate (SO_4^{2-})	Up to 70 mg/l
Conductivity	200 crs
TDS	0-200 ppm
Free carbon dioxide (CO_2)	Up to 5 mg/l
Manganese (Mn)	Up to 0.1 mg/l
Iron (Fe)	Up to 0.2 mg/l (or 5ppm)
Copper	Up to 1 mg/l

Typical Water Quality Guidelines

- ☐ TH - Total hardness is caused by calcium and magnesium.
- ☐ pH – this measures the alkalinity of the water, neutral alkalinity is pH7. Heating systems require an alkaline pH. Lower pH will increase the corrosion risk.
- ☐ TDS – dissolved solids in the system and is a measure of the cleanliness of the water (satisfactory level should be within TDS of 10% of the mains water).
- ☐ Conductivity – this is the measure of the ability of water to pass an electrical current.
- ☐ Free copper – the level of copper in the system.
- ☐ Total Iron and Manganese – this measures iron concentration in mg/litre. These are strong oxidants and may increase the risk for corrosion.

Visual inspection should be carried out ensuring that the water is clear, bright and free from particulate matter. The system must be fully vented, pressurised and dosed with anti-corrosion and anti-bacteria growth inhibitor.

	**High DHW temperature may cause scaling.** High operating temperatures on the domestic hot water circuit may lead to scaled DHW plate heat exchanger. It is recommended to set the DHW temperature to maximum of 55°C especially in hard water areas.

4.2 *Dosing Secondary System*

Once the system is cleaned and flushed the inhibitors should be added to the secondary side to prevent the corrosion or bacteria growth.

A suitable long term corrosion inhibitor and inhibitor for preventing the bacteria should be introduced in a proportion of the system volume.

	Excessive filling of the secondary circuit with untreated water may lead to scale build up and corrosion. This may damage the ModuSat unit or reduce the performance.
	Please confirm with the water treatment consultants that the chemicals used and cleaning method statement complies with the requirements set out in this section.
	Evinox Energy do not take responsibility for approving inhibitors used for dosing the system.

4.3 *Warranty due to Water Quality*

The warranty of the ModuSat 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:-

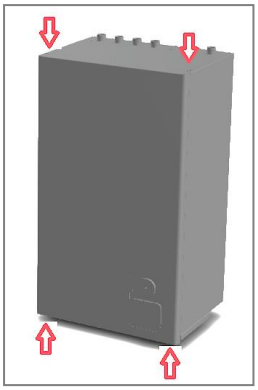
- ☐ Ensure there are no depression pockets in the system
- ☐ Remove gas permeable parts and materials
- ☐ Ensure the expansion vessels are properly sized and the pre-charge pressure valve in order to guarantee positive pressure, with respect to the ambient pressure, throughout the circuits.

5 Electrical Connections

	**Risk of Electric shock.** Disconnect the electric supply before starting any works on the unit.
	**Qualified personnel.** Electrical installation must only be carried out by technical personnel. .
	**Overvoltage or lightning.** The ModuSat unit has no protection against lightning or other overvoltage shocks.
	**Power supply via un-switched double pole fused connection.** The ModuSat requires a 220/240V (AC) 50Hz mains supply connection through an un-switched fused connection fitted with a 3 Amp fuse (to BS1632). Extension cords, multiple plugs, and other adapters must not be used. The device must be earthed.
	**Follow the instructions** Any damage caused by an incorrect connection will invalidate the warranty. Evinox Energy cannot accept any responsibility for incorrect wiring.

The ModuSat wiring board is located within the ModuSat itself under a removable metal cover. To access the connection board, the full front case cover should be removed. The connection board is found in the centre of the unit to your left. To take off the cover the retaining screw should be removed and the cover lifted off.

5.1 *Removing the Front panel*

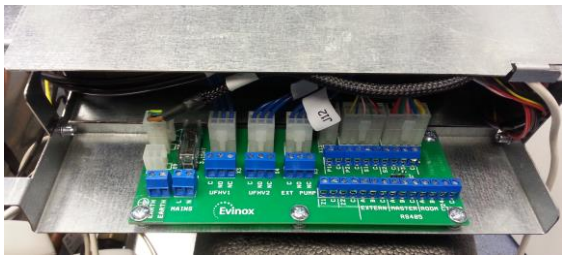


To access the wiring board, the front panel must be removed.

- ☐ The front panel is fixed with four screws – two at the top of the unit and two at the bottom as shown with are.
- ☐ Untighten the screws and remove the panel pushing it upwards firs and then removing it towards yourself.
- ☐ The panel is powder coated stainless steel. Take care when removing and placing the front panel to ensure the surface is not damaged. Ensure
- ☐ After the works are finished, place the panel on the unit and tighten the screws.

5.2 *ModuSat Wiring Connections*

The ModuSat® wiring board is located within the ModuSat® itself behind the metal cover

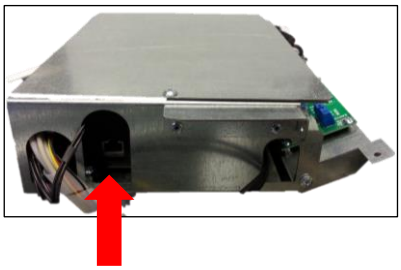


To access the connection board, take off the cover. The retaining screw should be removed and the cover lifted off. The connection board also has two screws which will need to be removed and the board can be pulled out from its position. The board is now accessible and all required connections can be 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 24-26.

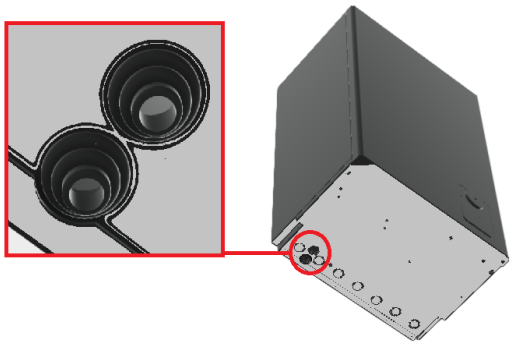
	The Control Board The control board is located behind the connection board. The control board cover must not be removed. Doing so may invalidate the warranty.
	Connection Terminations Evinox Energy strongly recommend in accordance with best practice that all wiring connections to the board, especially the BUS and room controller are terminated using 'bootlace ferrule' connectors. These connectors ensure a good connection and that the whole cross sectional area of the wiring is intact.

5.2.1 RJ45 Connections

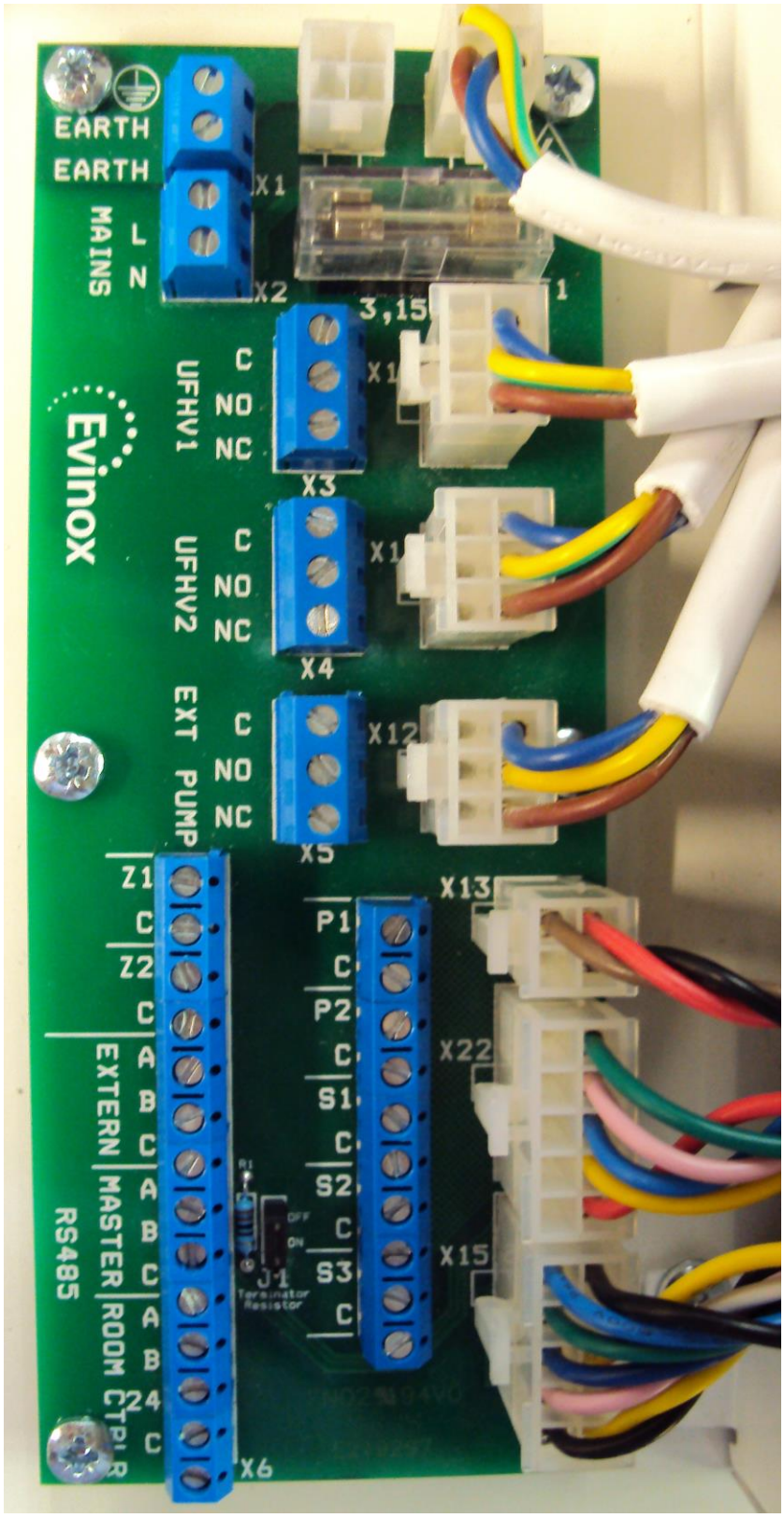
If the TCP/IP network is used, instead of the BUS termination the RJ45 can be connected to the control board. The RJ connection can be found at the side of the control board as shown below with the red arrow.



Cable glands are fitted at the bottom of the ModuSat® case as shown in below:



5.3 *ModuSat Connection Board*



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

5.4 *Typical ModuSat® Electric Wiring Diagram with 2 Zone Control (2 Evinox ViewSmart Room Controllers)*

See drawing – STD-MOD-BMS-A

5.5 *ViewSmart 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 connection board within the ModuSat (please refer to the electrical diagram). The cable must not be installed adjacent to other 220/240 Volt (AC) lines.

	**Power Supply for ViewSmart** The ModuSat room controller's power is supplied by the ModuSat board and does not require batteries or additional power cabling.
	**External Valve and Pump Requirements** When connecting external valves or pumps to the control board of the ModuSat it must be ensured that each connection does not exceed 1amp @ 220/240V (AC).
	**Cable Requirement** ViewSmart should be connected to ModuSat connection board with 4 core x 0.33 mm^2 screened cable

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.

Step 1
To open the cover to access connections, use a screwdriver in the tab at the bottom as shown below.

Step 2
Once the tab has been released the cover can be hinged up to access connection

Step 3
Connection terminal with room controller

5.6 *BUS and TCP/IP system wiring*

Typical Modbus system architecture

See drawing - STD-MOD-2013-BUS 1 - E

Typical TCP/IP system architecture

See drawing - STD-MOD-2015-TCP-IP-4

6 SETTING INTO OPERATION / COMISSIONING

	**Evinox Commissioning Engineers** The unit should be commissioned by Evinox Energy commissioning engineers to validate the warranty unless otherwise specified by Evinox Energy.
	**System Checklist Prior Commissioning** It is important that the system is fully ready for the works to be carried out.
	**Report to Evinox** If there is a problem with the unit, isolate it from the hydraulic connections and the power (if necessary) and report to Evinox Energy.

6.1 *Pre-commissioning checklist*

	Pre-requisite of Commissioning	Check
1	Primary network and plant room fully operational and complete (including water treatment) in line with these instructions	☐
2	Secondary system fully operational including water treatment in line with these instructions	☐
3	The ModuSat® unit is installed as per the hydraulic connections in line with these instructions	☐
4	Electric connections and supply is complete and all controls functional in line with these instructions	☐
5	Evinox SmartTalk system installed, tested and operational (including the broadband connection)	☐
6	Apartment reference and postal address schedule issued to Evinox	☐

6.2 *Pressure Independent Control Valve (PICV)*

	1600 l/h PICV	3609 l/h PICV
Maximum flow rate	1600 l/h +/- 10%	3609 l/h +/- 10%
Start up ΔP	25 kPa	25 kPa
Max differential ΔP	400 kPa	400 kPa
Valve size	DN20	DN25
Thread	G 1”	G 1 1/4”
Actuator Stroke	2.5 mm	5.5 mm
Actuator control signal	0-10V	0-10V
Mechanical pre-setting	Not available	Available

3609 l/h PICV set points (if required)

Pre-set	Flow l/h	Pre-set	Flow l/h
0.6	600	2.4	2193
0.8	777	2.6	2370
1.0	954	2.8	2547
1.2	1131	3.0	2724
1.4	1308	3.2	2901
1.6	1485	3.4	3078
1.8	1662	3.6	3255
2.0	1839	3.8	3432
2.2	2016	4.0	3609

Valve Tolerances
The maximum flow rate will vary depending on the varying differential pressure across the units and the resulting flow rate may differ from the value shown above. The valve should be set to 125% above the design flow rate. The project specific set-point (if required) can be confirmed by Evinox Energy.

Tighten Actuator Connections
Ensure that the actuators are tightened to ensure the operation of the unit.

6.3 *Pump*

The standard pump fitted in ModuSat SPDC units is Wilo Para 15/7 Pulse-width modulation (PWM) circulation pump.

Larger pumps be factory fitted in ModuSat SPDC units. Contact Evinox technical team for more details.

Please note: When the unit is switched over to heating mode the pump will run for 2 mins prior to the heating valve opening, this is not a fault in the unit but a normal control function.

Wilo Para 15/7 Pump LED – Description of Status

LED	Indicators	Diagnosis	Status	Remedy
Solid green	Pump in operation	Pump runs according to 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 >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

6.4 *Initial Commissioning Procedure*

The following will be checked when commissioning the unit. The method may vary depending on the project.

	Evinox Energy Commissioning Checklist	Check
1	Check if the unit is connected correctly to the hydraulic circuits. Confirm that the unit is correctly connected to the electrical supply.	☐
2	Set the unit into operation by installing firmware, checking if all the components are functional.	☐
3	Confirm the unit performs hot water and heating function. If Evinox ViewSmart Room Controller is used this will include ViewSmart functionality check.	☐
4	Ensure the unit has an ID number, record serial numbers of the control board and the heat meter.	☐

	**Evinox Technical Personnel** Evinox Technical Personnel who will visit the project during the course of the installation and at completion to arrange for 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.**
	**Booking Commissioning** All commissioning must be booked 6 weeks in advance and will be carried out to a pre-agreed programme that will be confirmed with the client prior to commissioning.
	**Warranty** Evinox Energy Commissioning is required for warranty validation.

7 HIU SERVICING AND INSPECTION

HIU inspection should be carried out every 2 years in line with the current regulations, standards and guidelines. Which is, but not limited to *BSRIA Heat Interface Unit Guide BG62/2015*

	Evinox Energy HIU Servicing and Inspection Checklist	Check
1	No leaks associated with HIU	☐
2	Visual inspection of primary isolation valves	☐
3	Strainer valves clean where accessible	☐
4	Primary differential pressure above required minimum	☐
5	Thermal insulation intact	☐
6	Secondary heating system pressure within nominal range	☐
7	Control valves respond to demand for both heating and hot water	☐
8	Heating pump is functional	☐
9	Primary supply temperature as commissioned	☐
10	Heat meter registers demand	☐
11	Appliance can be read remotely (where applicable)	☐
12	Consumer satisfied with heating and hot water performance	☐
13	Take primary water sample	☐

8 WARRANTY

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

- Transportation damage
- Installation in which the instructions and good practice were not complied with
- Improper use of the device, abnormal use conditions, tampering by unauthorised personnel or inadequate maintenance; corrosion and/or sludge accumulation; lack of electrical energy; absence of suitable drainage; exceeding operating limits, electrical and water system faults
- Frost damage
- Wear due to normal use
- Malfunctioning of system controls and or safety systems
- Corrosion due to oxygenation poor water quality or roaming currents
- The pump being run against a closed system.

From commissioning, ModuSat® appliances have a warranty against all manufacturing faults and material defects for a period of:

- 5 years for the stainless-steel plate heat exchangers
- 2 years for parts and labour. Note: where Evinox Energy do not carry out the commissioning the two-year warranty will cover parts only with no labour cover.

The ModuSat® warranty will always start from the commissioning date providing this date is within six months of the date of invoice to allow for project completion. If the ModuSat® is commissioned outside the 6-month extension date, the warranty will reduce accordingly.

This warranty is strictly limited to the supply, free of charge, of parts acknowledged as being defective after inspection by our technical department. Any costs arising from this inspection will be charged if the part is deemed not to be defective. The defective parts must be returned otherwise the replacement part will be charged for.

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® must be fitted with the ModuSat® Flushing by-pass isolation valve kit for ease of servicing and undertaking 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 record details of the unit and commence the warranty when we commission the ModuSat® 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 Energy, 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.

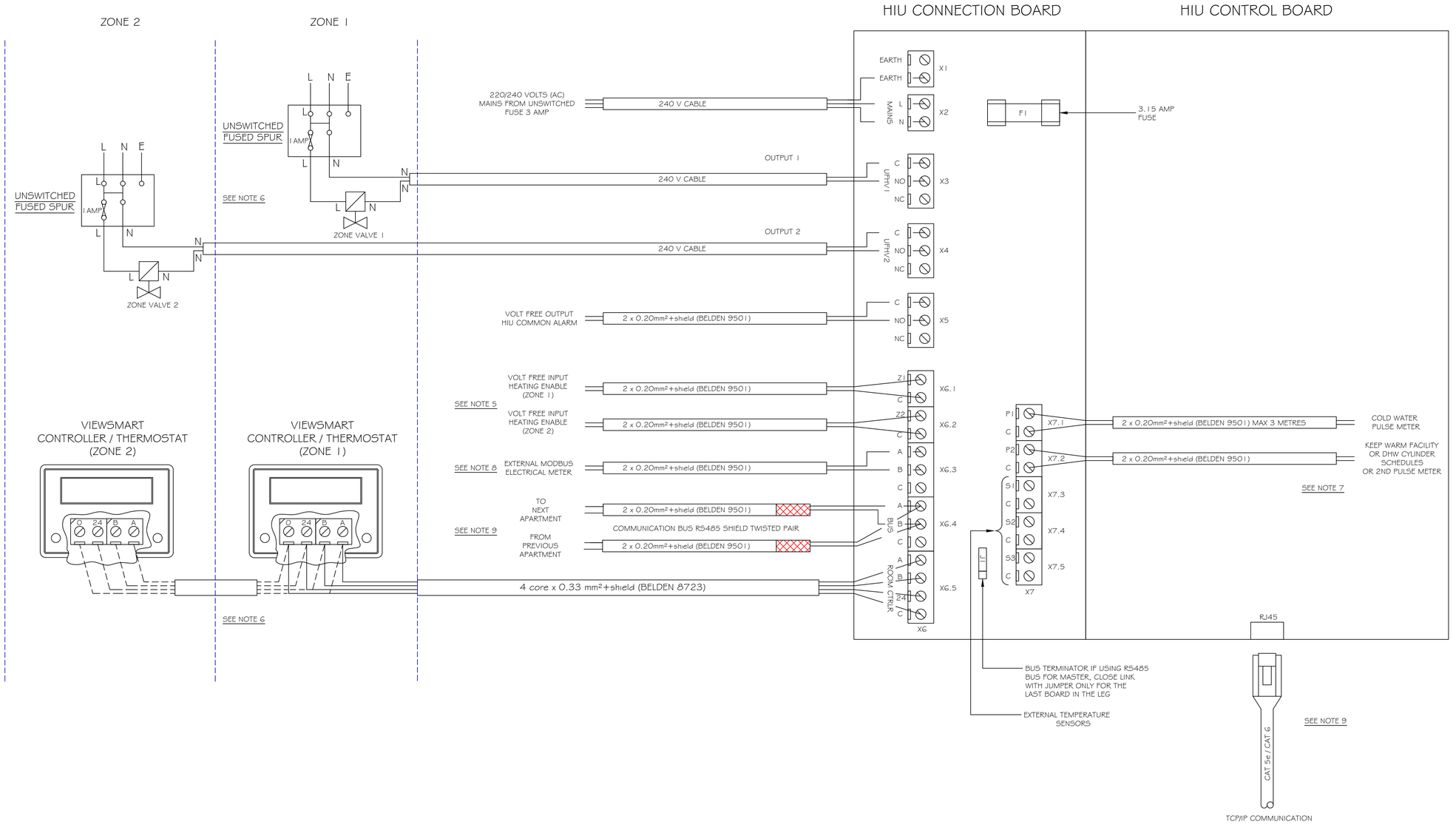
Installation of the Evinox Energy unit should only be carried out by suitably skilled and qualified personnel. If failure occurs due to poor or faulty installation work, this will invalidate the warranty.

Your Evinox Energy appliance is one of the most reliable and technically advanced products available on the market, however, it is imperative that it is installed, commissioned and serviced in accordance with Evinox Energy installation and servicing manuals to ensure long life, reliability and efficiency.

Exclusions to the Warranty

The following are not covered by the warranty:

- 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 arising from external elements affecting the ModuSat® Unit i.e. (effect of storm, moisture, freezing, etc.)
- All consecutive incidents resulting from a failure to check the safety components (pressure relief valve etc.)
- Scaling, nor its consequences
- Corrosions due to chloride concentrations in domestic hot water higher than 60 mg/l
- The wear of the safety relief valve
- Cost of postage for returned parts.



NOTES

1. Electric wiring of MODUSAT and VIEWSMART

The MODUSAT connection board is inside the unit shall be connected to the ViewSmart by means of a 4x0.33 sq mm + shield cable (BELDEN 8723) having a max. length of 25m.

2. Shield Termination

The Screening on the bus communication cable (RS Part no 528-2106). Connect together and put in terminal 'C'
This screening must be connected to earth at the amplifier at the start of the run. The screening must not be connected to anything at the end of the run. This will enable any electrical disturbance to travel one direction down the screening to earth.

3. External Pumps & Valves

Pumps & valves must have a localised power supply. Switched neutral connection to be fitted with 1 amp in-line fuse on live cable.

4. Termination

Bootlace ferrules to be used for connections to the connection board and ViewSmart.

5. Heating

When Evinox ViewSmart is used, Z1-C and Z2-C connections not needed. Z1-C and Z2-C only to be used for 3rd party controller to enable heating. Other configurations are available.

6. Zone valves and second ViewSmart controller

Zone valves and a second ViewSmart controller are only needed when two zone are used. Current Part L1A Building Regulations stipulate that all new heating systems in dwellings that are not open plan and with area greater than 150 m² must include at least two heating zones, each controlled by a thermostat and zone valve.

7. Keep Warm Facility and DHW cylinder schedules

When Evinox ViewSmart is used, P2-C connection is not needed for KWF control. P2-C only to be used for 3rd party controller to enable Keep Warm Facility or DHW cylinder schedules. P2-C can also be used for 2nd pulse meter.

8. Electricity Meter

Electricity consumption displayed on the ViewSmart. Extra credits towards BREEAM.

9. RS-485 or TCP/IP Communication

Depending on the project specification RS-485 or TCP/IP communication protocol can be used.

REV	DATE	REVISION
A	25.07.22	AMENDED VIEWSMART CONNECTION DETAILS

Evinox Energy Ltd.
Barwell Business Park
Leatherhead Road
Chessington
London KT9 2NY
Tel: 44 (0) 1372 722 277
Fax: 44 (0) 1372 744 477
www.evinox.co.uk

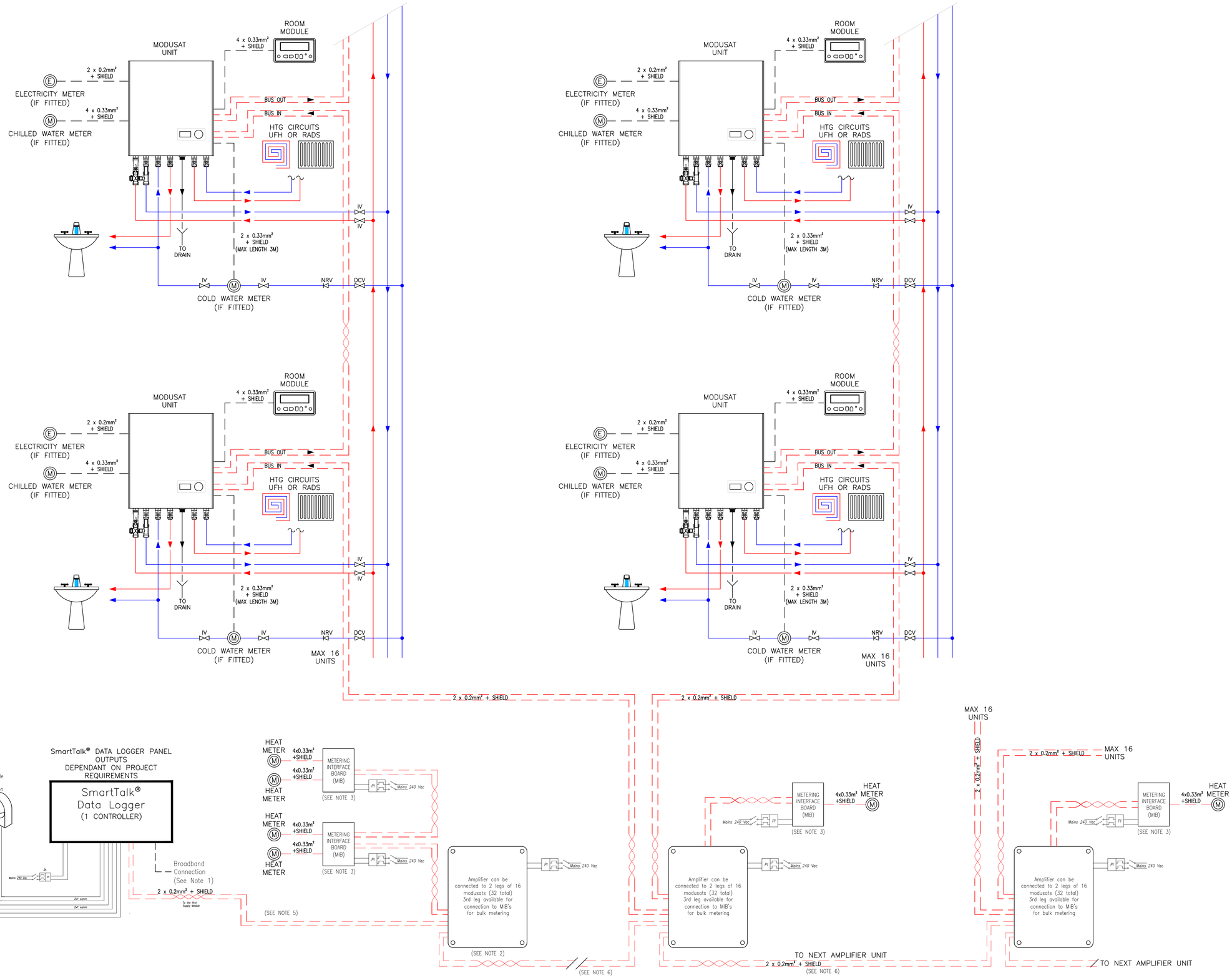
CLIENT

PROJECT

TITLE
TYPICAL WIRING
CONNECTION ARRANGEMENT
WITH TWO ROOM CONTROLLERS

DRAWN	CHECKED	DATE	SCALE
AK	PL	SEP 2018	N.T.S.

DRAWING No STD/MOD/BMS A



NOTES

1. STATIC IP ADDRESS (MINIMUM 1GB DATA PER MONTH).
2. AMPLIFIER FOR PLANT ROOM BULK METERING AS REQUIRED.
3. EACH MIB IS ABLE TO CONNECT TO TWO HEAT METERS. MAX HEAT METER CABLE LENGTH 10M
4. MAXIMUM CABLE LENGTH FROM AMPLIFIER TO THE LAST MODUSAT HIU 500M
5. MAXIMUM CABLE LENGTH FROM MASTER CONTROLLER TO THE FIRST AMPLIFIER 100M
6. MAXIMUM CABLE LENGTH BETWEEN AMPLIFIERS 500M

REV	DATE	REVISION
E	10/09/19	AMENDED HIU PIPEWORK CONFIGURATION
D	25/5/16	MASTER -> SmartTalk® DATA LOGGER
C	14/12/15	MIB'S & HEAT METERS INDICATED ADDITIONAL NOTES ADDED
B	5/5/15	METERS, CABLE SPECIFICATIONS ADDED
A	18/6/13	ADDITIONAL TEMPERATURE SENSOR ADDED

Evinox Energy Ltd.
Barwell Business Park
Leatherhead Road
Chessington
London KT9 2NY
Tel: 44 (0) 1372 722 277
Fax: 44 (0) 1372 744 477
www.evinox.co.uk

CLIENT

PROJECT

TITLE
MODUSAT SmartTalk DATA LOGGER AND SUPPLY UNIT BUS PRINCIPLE SYSTEM ARCHITECTURE

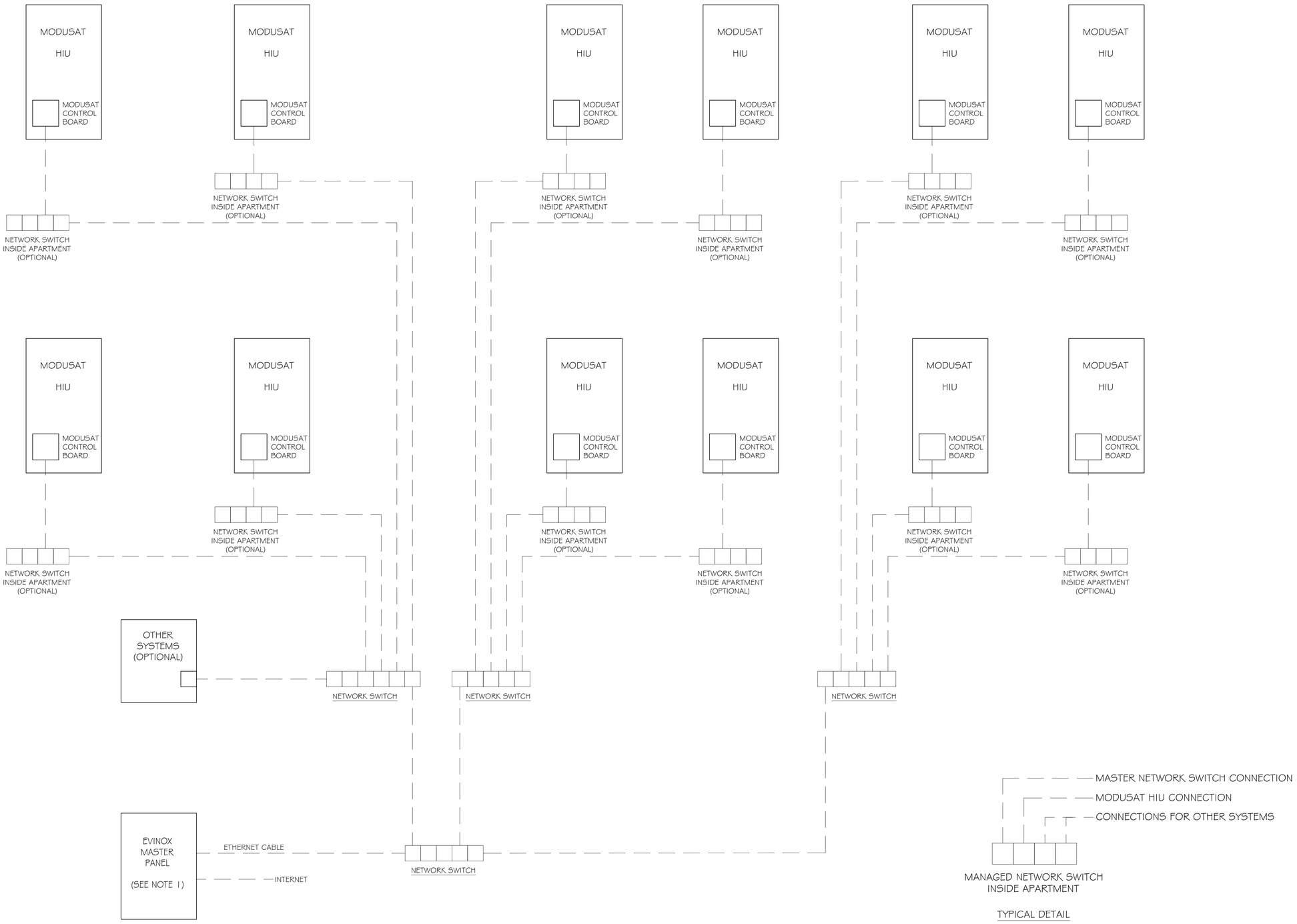
DRAWN	CHECKED	DATE	SCALE
BJW	JAL	AUGUST 2016	N.T.S

DRAWING No
STD/MOD/2013/BUS 1

E

NOTES

1. PLEASE REFER TO DRAWING No STD-MOD-2019-MAS-TCPIP FOR MASTER PANEL DETAILS.



TYPICAL DETAIL

REV	DATE	REVISION
REV. 4	26.07.22	AMENDED DATA LOGGER CONNECTION DETAILS

Evinox Ltd.
Barwell Business Park 37
Leatherhead Road
Chessington
London KT9 2NY
Tel: 44 (0) 1372 722 277
Fax: 44 (0) 1372 744 477
www.evinox.co.uk

CLIENT

PROJECT

TITLE
TYPICAL TCP / IP NETWORK FOR MODUSAT SYSTEM

DRAWN	CHECKED	DATE	SCALE
BJW	SS	JAN. 2015	N.T.S.

DRAWING No STD-MOD-2015-TCP/IP 4