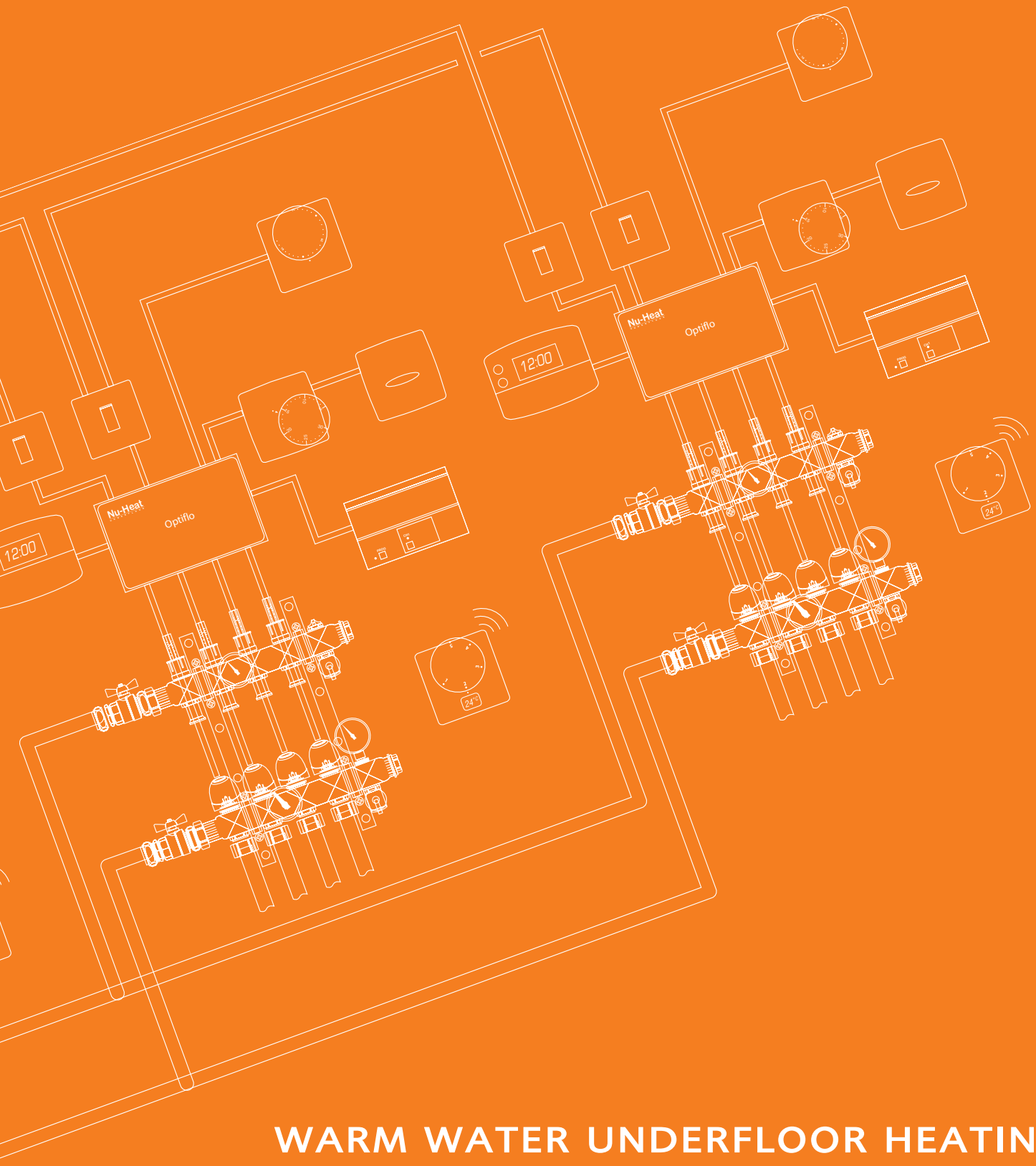
Nu-Heat



WARM WATER UNDERFLOOR HEATING

electrical manual

design | innovation | expertise | service

V4B–AUG 08

Important:

Before starting , determine what type of boiler, cylinder and room thermostats are to be used. Check the **A3 System Information** and **Manifold & Zone Information**. The **A3 System Information** also gives details on which sections of this manual are appropriate.

When the electrical installation is complete use the Checklist in Appendix B to ensure correct operation. Check that all actuator cables are labelled with the correct zone and then sign the label on each wiring box to confirm completion of the electrical commissioning. The heating engineer can then commission the system.

Title Section Contents

Important: To identify which type of system you have, please see your specific **A3 System Information** sheet at the beginning of this folder.

ELECTRICAL MANUAL
FOR NU-HEAT WARM WATER UNDERFLOOR HEATING WITH FASTFLO TUBING AND OPTIFLO CONTROL WITH A COMBINATION BOILER, USER-SUPPLIED CYLINDER OR ENERGYMASTER CYLINDER

1.1 Introduction – all systems

The following pages have comprehensive diagrams showing the purpose of each electrical component and its position in the overall scheme. Parts shown in colour are supplied by Nu-Heat and those shown in outline are generally supplied by others.

Attention to the advice given in this manual will help to ensure a trouble-free and effective installation. The requirements of the relevant British Standards and IEE Wiring Regulations should always be met.

BS7671: 2001 (2004). Requirements for Electrical Installations, IEE Wiring Regulations, Building Regulations Electrical Safety (Part P)

Installation must be carried out by a Competent Person or, failing that, the local building control authority must be notified of the proposed work before commencement and the completed installation must be inspected by a Competent Person.

Safety

Nu-Heat recommends the use of a number of 5A switched fused spurs to supply the boiler and other electrical items that make up the heating system. Supplementary safety isolating switches for switched live conductors may optionally be positioned near wiring centres. These must be connected as shown in the diagrams in this manual. Where live conductors are sleeved in a colour other than brown, coloured marker sleeves should be fitted at the ends of the wires to identify them.

Location of equipment

Nu-Heat electrical wiring centres are designed to be fixed to walls inside the building and should be protected from damage during the installation process.

Optional additional equipment

Where connections are shown to equipment that is not supplied by Nu-Heat, this is for guidance only. In all such cases the supplier's installation information should be checked before fixing and connecting the equipment.

First Fix

The choice of the correct cabling plan depends on the type of boiler to be installed, the type of cylinder and the type and location of the room thermostats that have been chosen. This information is given in the A3 System Information and A3 Manifold & Zone Information prepared by Nu-Heat, which are located at the beginning of this folder.

Select the First-fix cabling plan that matches your system as shown in the **Notes** section of the A3 System Information at the front of this folder.

Second Fix

Wiring schemes are provided appropriate for all types of installation. Select the ones that match your system as shown in the **Notes** section of the A3 System Information at the front of this folder.

If there is any aspect of the installation that you do not understand, please contact Nu-Heat Technical, quoting your QR (system reference) number.

In line with the company policy of product development, Nu-Heat reserves the right to supply different components to those shown.

1.2 System components – Electrical

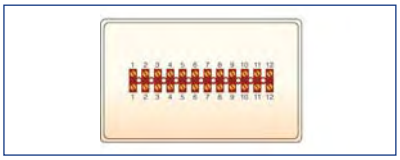
Optiflo and Optiflo LV wiring centres

The Optiflo wiring centre connects the room thermostats to their corresponding actuator on the manifold, allowing them to individually activate the heating system as required. This wiring centre should be mounted near the Optiflo manifold.

The Optiflo LV must be used on systems with low voltage thermostats.

12-way wiring terminal strip

The terminal strip provides connection points for the boiler, cylinder and radiator components of the heating system. Please refer to first-fix cabling diagrams.



Programmable timeclock

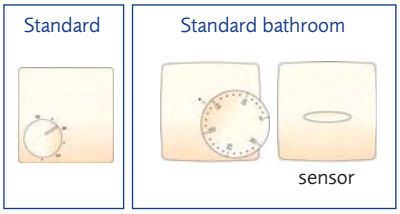
Timeclocks are only required on systems with dial type thermostats. They are usually situated near each Optiflo manifold and are used to set ON-OFF times for the floor heating over a 7-day period.

Room thermostats

Nu-Heat offers a range of thermostats. Please note that cabling requirements can differ. Each room thermostat is connected through the appropriate Optiflo wiring centre to its corresponding actuator on the Optiflo manifold. This means that each room or zone is individually capable of switching on the heating in that room alone. Thermostats should normally be fitted at light switch height out of direct sunlight or draughts and not above local heat sources such as towel rails.

Standard dial thermostat, bathroom thermostat and sensor

The installation of thermostats in bathrooms is governed by IEE regulations. If bathrooms are to operate as separate zones the thermostat must be fitted outside the bathroom with a remote sensor mounted inside the bathroom. The remote sensor is fitted with approximately 3m of flexible cable.

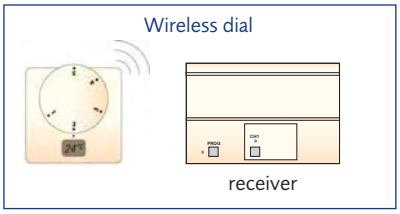


Deluxe dial thermostat, bathroom thermostat and sensor

The installation of thermostats in bathrooms is governed by IEE regulations. If bathrooms are to operate as separate zones the thermostat must be fitted outside the bathroom with a remote sensor mounted inside the bathroom. The remote sensor is fitted with approximately 3m of flexible cable.

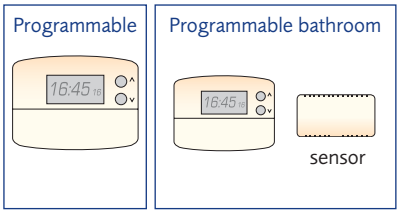
Wireless dial thermostat

Similar in appearance to the standard dial thermostat but with a digital temperature readout, the wireless dial thermostat offers a solution in properties where it is not possible to install cables to all thermostat positions. The mains powered receiver unit(s) should be sited in an area of good reception and connected to the appropriate Optiflo wiring centre(s).



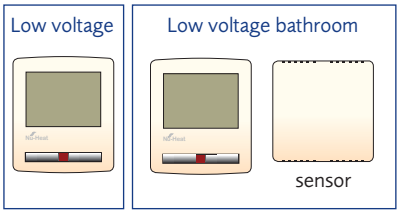
Programmable thermostat/programmable bathroom thermostat

If programmable thermostats are chosen, each room zone is individually programmed for temperature and times of use. With this option no floor heating timeclock is required. The installation of thermostats in bathrooms is governed by IEE regulations. If bathrooms are to operate as separate zones the thermostat must be fitted outside the bathroom with a remote sensor mounted inside the bathroom. The low voltage sensor is connected using 2-core flex, and can be up to 20m away.



Low voltage thermostat

If low voltage thermostats are chosen, each room zone is individually programmed for temperature and times of use. With this option no floor heating timeclock is required. Each thermostat is supplied with a remote sensor probe on a 3m cable for optional use in wet areas or to allow the thermostat body to be positioned out of sight. These thermostats require a deep single gang back box.



Wiring and programming instructions

In all cases, detailed wiring information is contained in this manual.
For programming information, please see the Nu-Heat *User Guide*.

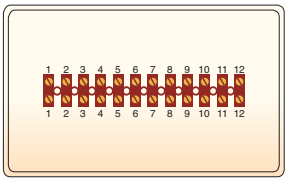
2.1 System with a combination boiler

See the A3 System Information sheet at the beginning of this folder for information on which sections should be referred to.

Installing a new complete underfloor heating system using a combi boiler

Refer to the Combi first-fix cabling plans on the following pages, along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams.

Extending an existing heating system that is fitted with a combi boiler.



Typical 12 way terminal box

Refer to the Combi first-fix cabling plans on the following pages, along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams.

If there is not already a standard 12 way wiring terminal box in the existing system, install the 12 way terminal box supplied by Nu-Heat.

If there is a timeclock mounted inside the combi boiler it should not be used to control the heating, and must be set to 24 hours (continuous).

If there are any radiators or towel rails to be controlled, fit an external timeclock and radiator zone valve.

The valve and timeclock shown should be available locally, and are not supplied as part of your underfloor heating system.

2.2

Combination boiler – first fix

See the A3 System Information for boiler type and the A3 Manifold & Zone Information for details of number and position of manifolds.

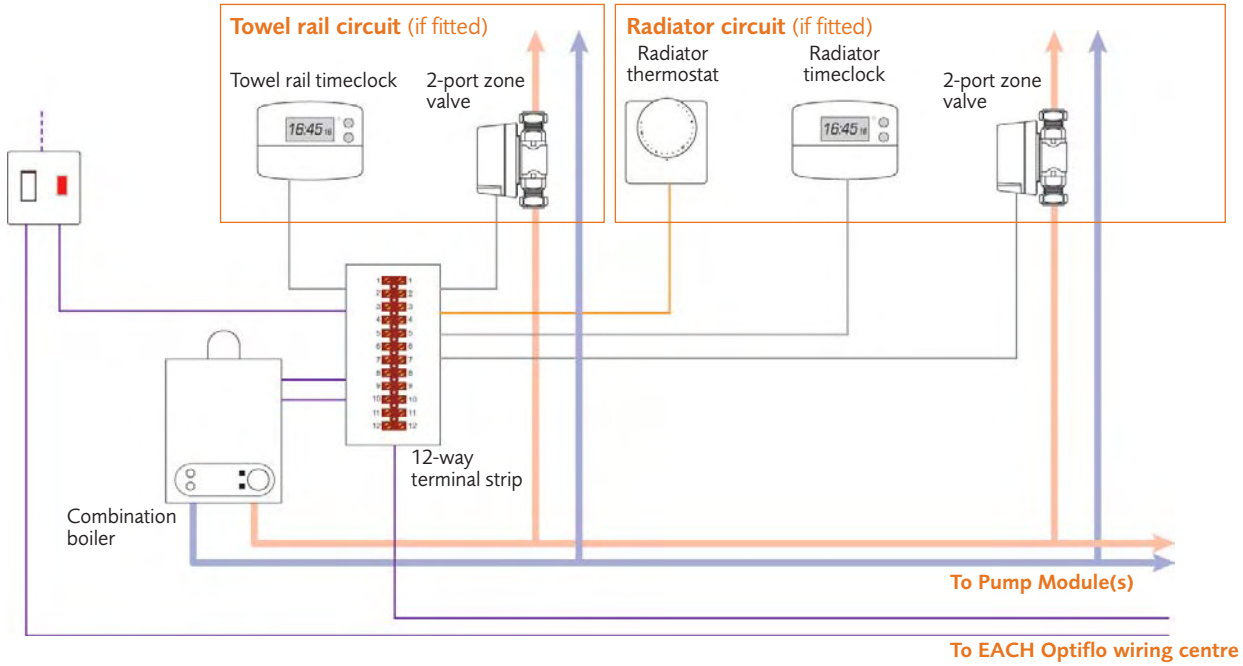
See also Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams on the following pages.

Note: Underfloor heating Pump Module must wire to the Optiflo wiring centre

KEY

Mains cable, 1mm² conductors

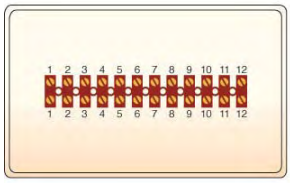
- 5-core + earth
- 4-core + earth
- 3-core + earth
- 2-core + earth
- 2-core flex



3.1 System with a user-supplied hot water cylinder

See the A3 System Information sheet at the beginning of this folder for information on which sections should be referred to.

Installing a new complete underfloor heating system with a user-supplied cylinder

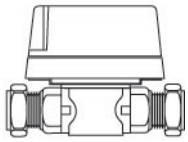


Typical 12 way terminal box

If there is no 12 way wiring terminal box in the existing system, install the 12 way terminal box supplied by Nu-Heat.

If you are extending an existing heating system, and it has a hot water cylinder, you must determine whether the heating controls are S Plan, W Plan or Y Plan. This depends on the type of control valve(s) installed.

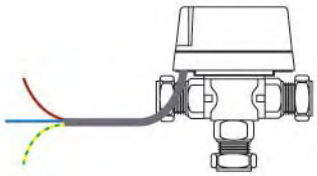
The control valve(s) are usually located near the boiler or hot water cylinder. The Nu-Heat designer will have discussed your existing plumbing arrangement. Confirm this by comparing the appearance of your valve(s) to the illustrations below.


S Plan

S Plan

S Plan installations use 2-port zone valves to control water flow from the boiler to the hot water cylinder and radiator circuit. If your system has one or two of these valves installed then it is S Plan.

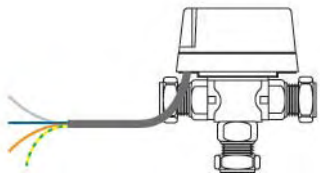
Use the S Plan wiring diagram from the following page along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams.


W Plan 3-core cable

W Plan

Existing installations that use a 3-port zone valve with a 3-core cable are W Plan. Follow the W/Y Plan diagram on the First-fix cabling plan along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams from the following pages.

An additional 2-port zone valve (blocker valve) must be fitted. This item is not supplied.


Y Plan 5-core cable

Y Plan

Existing installations that use a 3-port zone valve with a 5-core cable are Y Plan. Follow the W/Y Plan diagram on the First-fix cabling plan along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams from the following pages.

An additional 2-port zone valve (blocker valve) must be fitted. This item is not supplied.

3.2 User-supplied cylinder: First fix – S-Plan

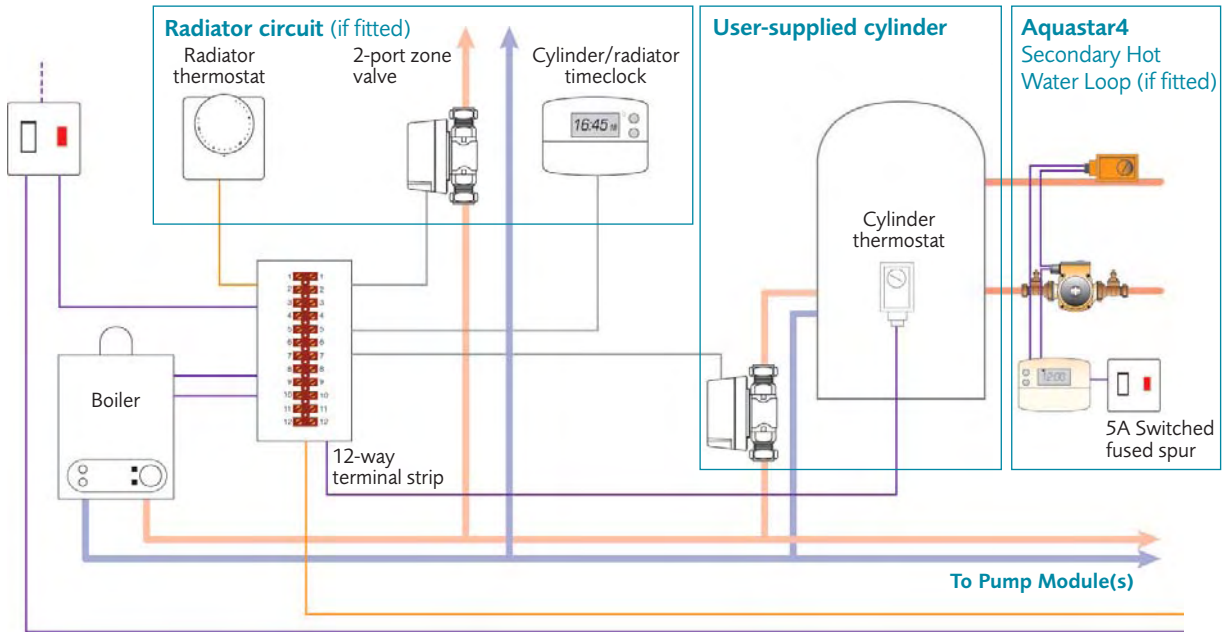
User-supplied cylinder – first fix

See the **A3 System Information** for boiler type and the **A3 Manifold & Zone Information** for details of number and position of manifolds.

See also **Direct Mounted Pump Module** and/or **Remote Mounted Pump Module** first fix diagrams on the following pages.

Note: Underfloor heating Pump Module must wire to the Optiflo wiring centre

KEY
Mains cable, 1mm² conductors
- 5-core + earth
- 4-core + earth
- 3-core + earth
- 2-core + earth
- 2-core flex



User-supplied cylinder: First fix – W & Y-Plan

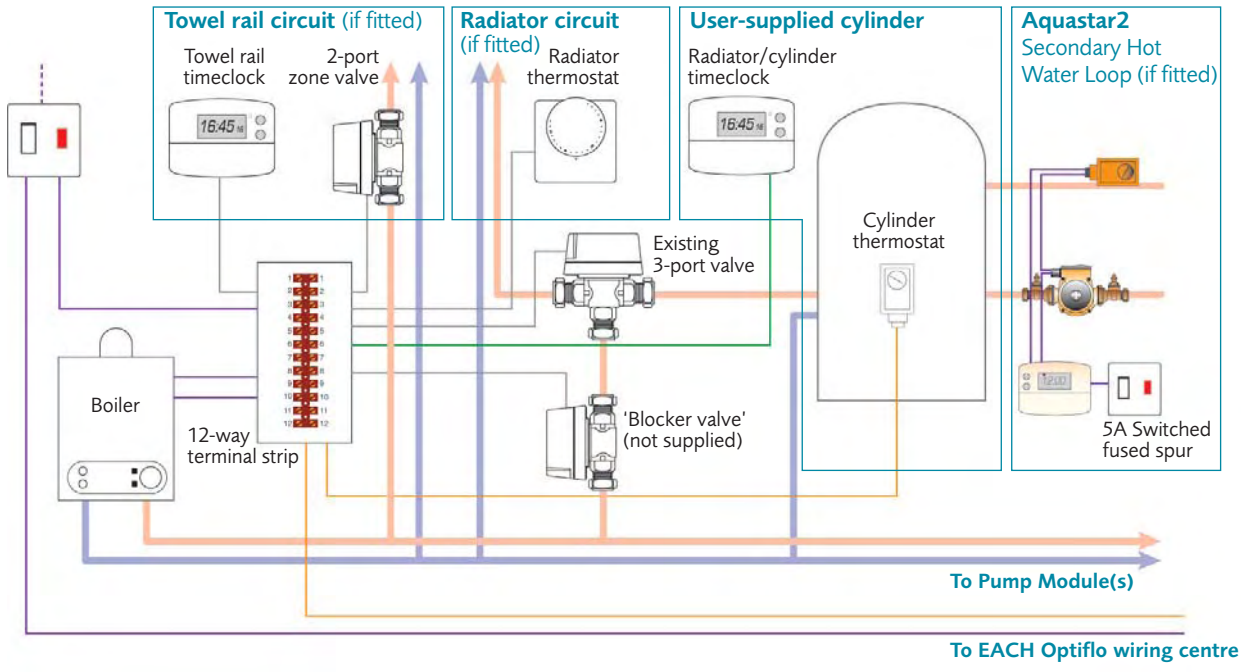
User-supplied cylinder

See the **A3 System Information** for boiler type and the **A3 Manifold & Zone Information** for details of number and position of manifolds.

See also **Direct Mounted Pump Module** and/or **Remote Mounted Pump Module** first fix diagrams on the following pages.

Note: Underfloor heating Pump Module must wire to the Optiflo wiring centre

KEY
Mains cable, 1mm² conductors
- 5-core + earth
- 4-core + earth
- 3-core + earth
- 2-core + earth
- 2-core flex



4.1 System with a Nu-Heat EnergyMaster thermal store cylinder

Installing a new complete underfloor heating system

New installations should always use the S Plan control system based on 2-port zone valves and a 12 way terminal strip.

Use the EnergyMaster first-fix cabling plan along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams on the following pages.

Extending an existing heating system and fitting an EnergyMaster cylinder

If you are extending your existing heating system and fitting an EnergyMaster cylinder, you must ensure that the heating controls are S Plan. The control valve(s) are usually located near the boiler or existing hot water cylinder. If your existing control system is W Plan or Y Plan, based on a 3-port zone valve, you must convert it to S Plan based on 2-port zone valves (not supplied) and a 12-way terminal strip.

Use the EnergyMaster first-fix cabling plan along with the Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams on the following pages.

4.2

EnergyMaster cylinder – first fix

See the A3 System Information for boiler type and the A3 Manifold & Zone Information for details of number and position of manifolds.

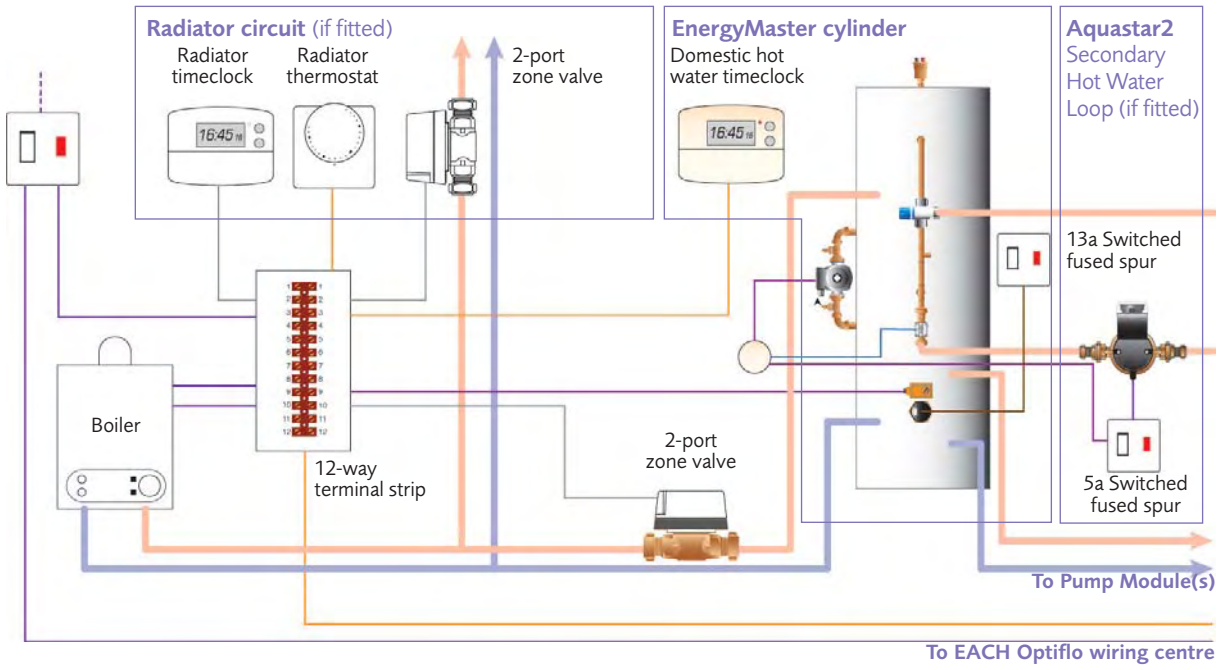
See also Direct Mounted Pump Module and/or Remote Mounted Pump Module first fix diagrams on the following pages.

Note: Underfloor heating Pump Module must wire to the Optiflo wiring centre

KEY

Mains cable, 1mm² conductors
- 5-core + earth
- 4-core + earth
- 3-core + earth
- 2-core + earth
- 2-core flex

Mains cable, 2mm² conductors
- 2-core + earth



5.1 Mains voltage thermostats

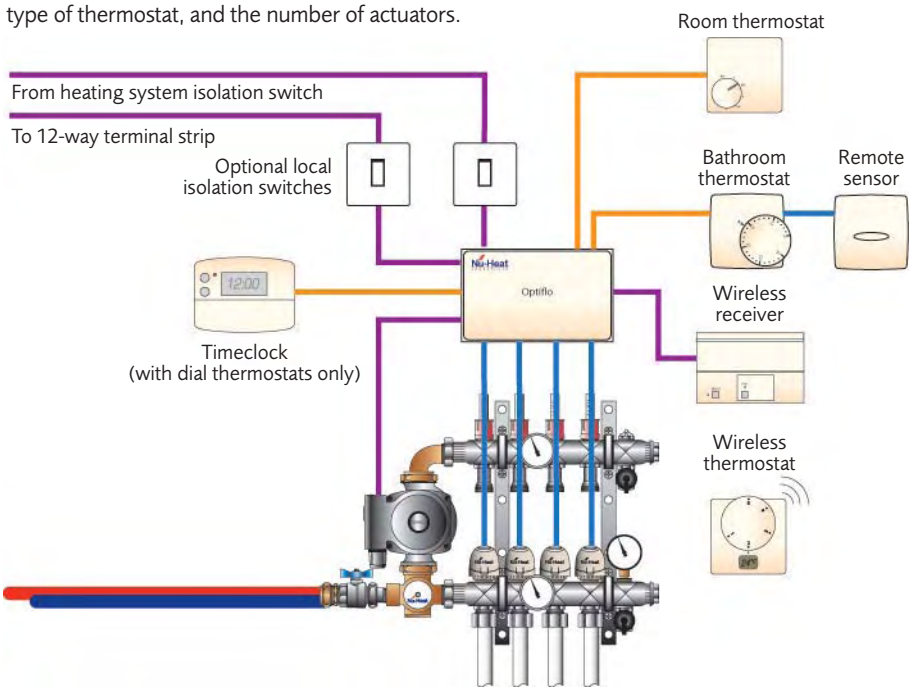
KEY

Mains cable, 1mm² conductors

- 5-core + earth
- 3-core + earth
- 2-core flex
- 4-core + earth
- 2-core + earth

Direct mounted pump module

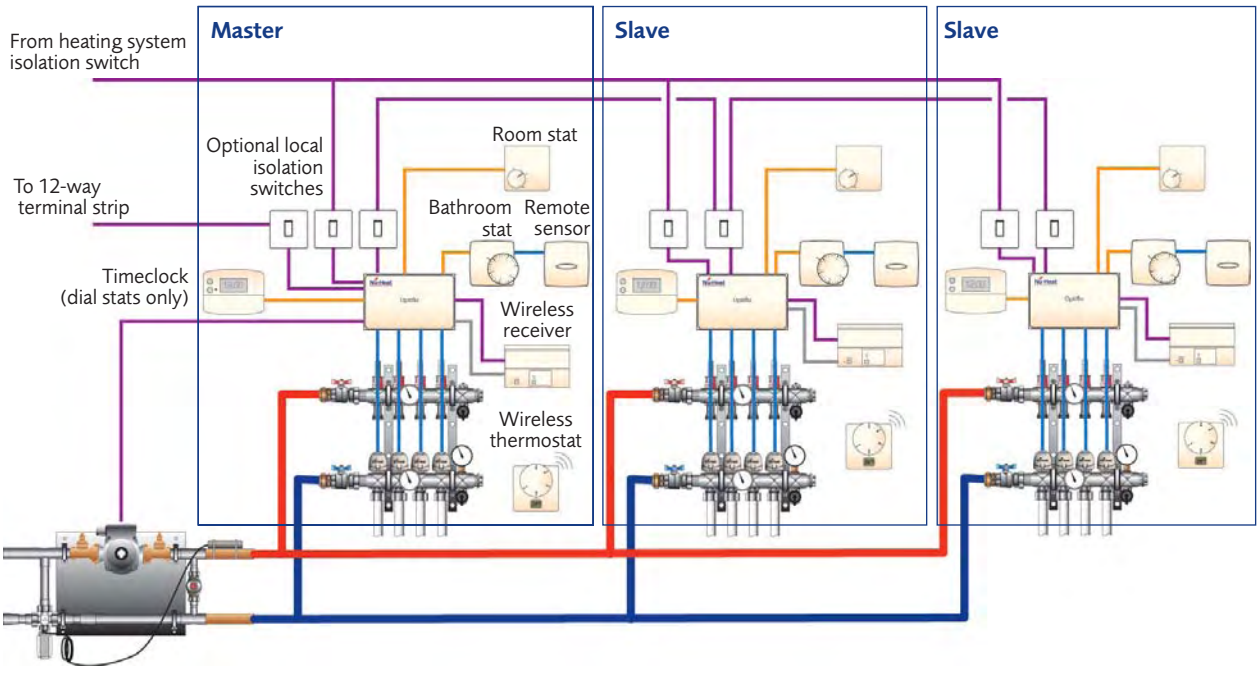
See the A3 Manifold & Zone Information for details of the number of manifolds, the number and type of thermostat, and the number of actuators.



Note: Each direct mounted pump module must follow the diagram above, i.e. each manifold wired as a 'master'.

Remote mounted pump module

See the A3 Manifold & Zone Information for details of the number of manifolds, the number and type of thermostat, and the number of actuators.



Note: Pump modules **must not** be wired to slave Optiflo wiring centres.

6.1 Low voltage (LV) thermostats

KEY

Mains cable, 1mm² conductors

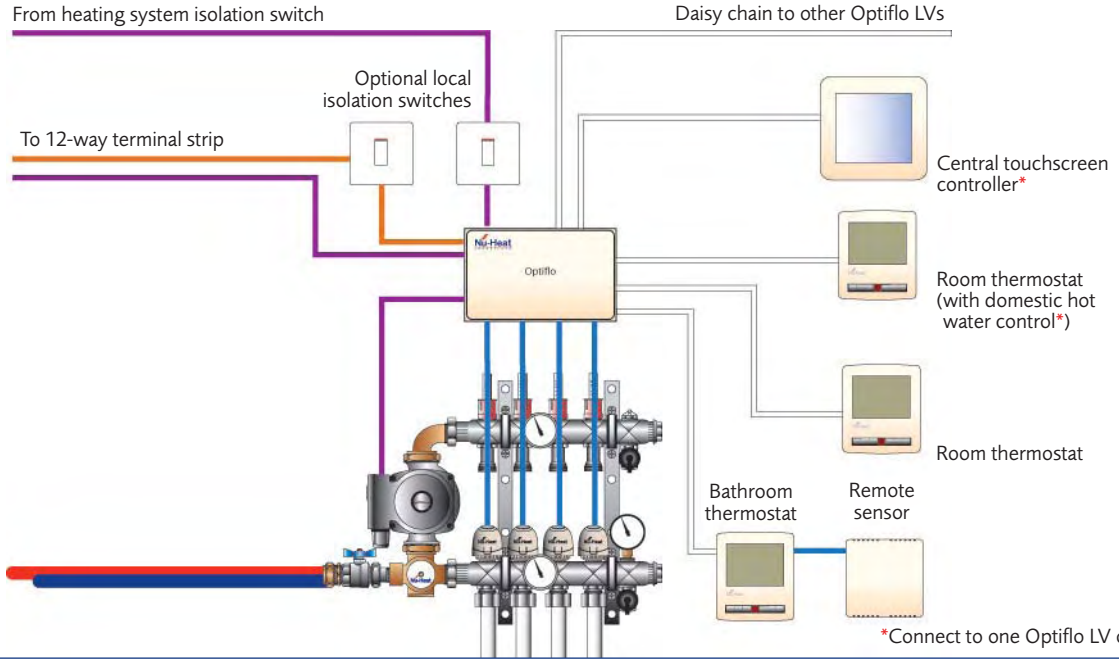
- 5-core + earth
- 3-core + earth
- 2-core flex
- 4-core + earth
- 2-core + earth

Low voltage CAT 5FTP cable

- 4 pair + screen

Direct mounted pump module – Low voltage thermostats

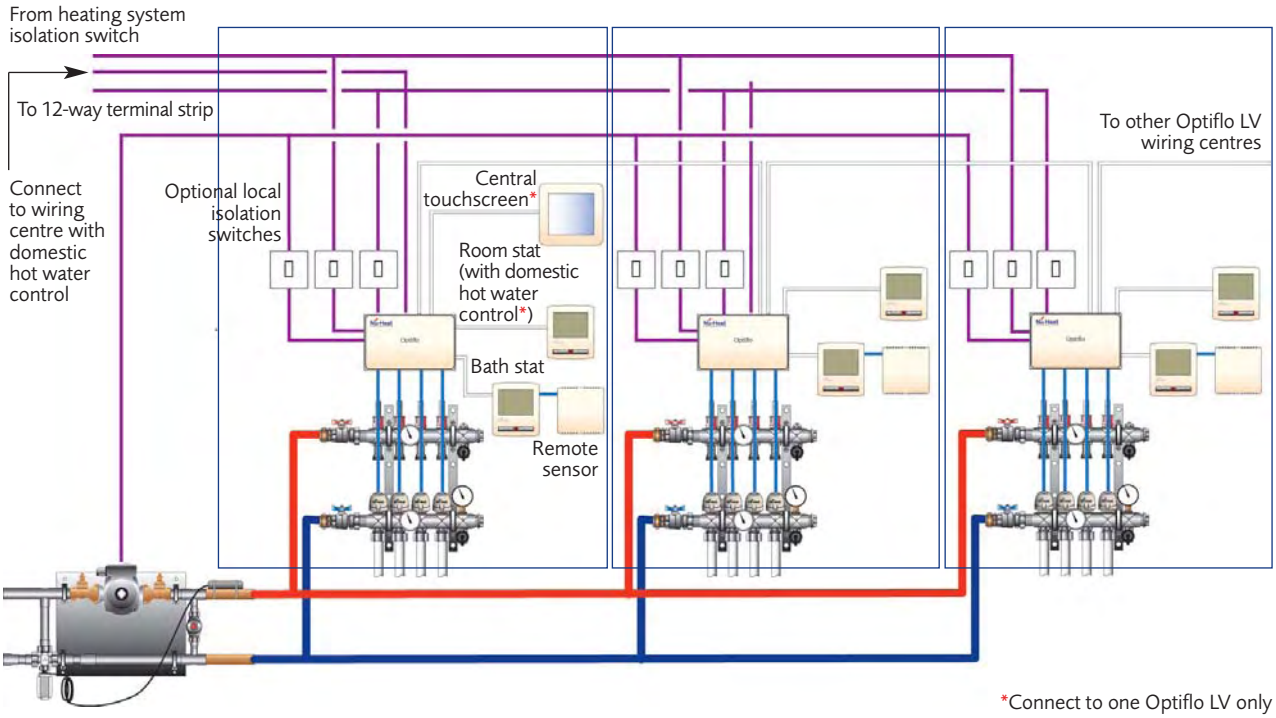
See the A3 Manifold & Zone Information for details of the number of manifolds, the number and type of thermostat, and the number of actuators.



Note: The room thermostat with optional Domestic Hot Water timeclock should only be used with an 'S-plan' or 'W-plan' plumbing scheme.

Remote mounted pump module – Low voltage thermostats

See the A3 Manifold & Zone Information for details of the number of manifolds, the number and type of thermostat, and the number of actuators.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL Switched Live
L Live
N Neutral
E Earth
Live voltage marker sleeve

7.1 System with combination boiler – Second-fix: 12-way terminal strip

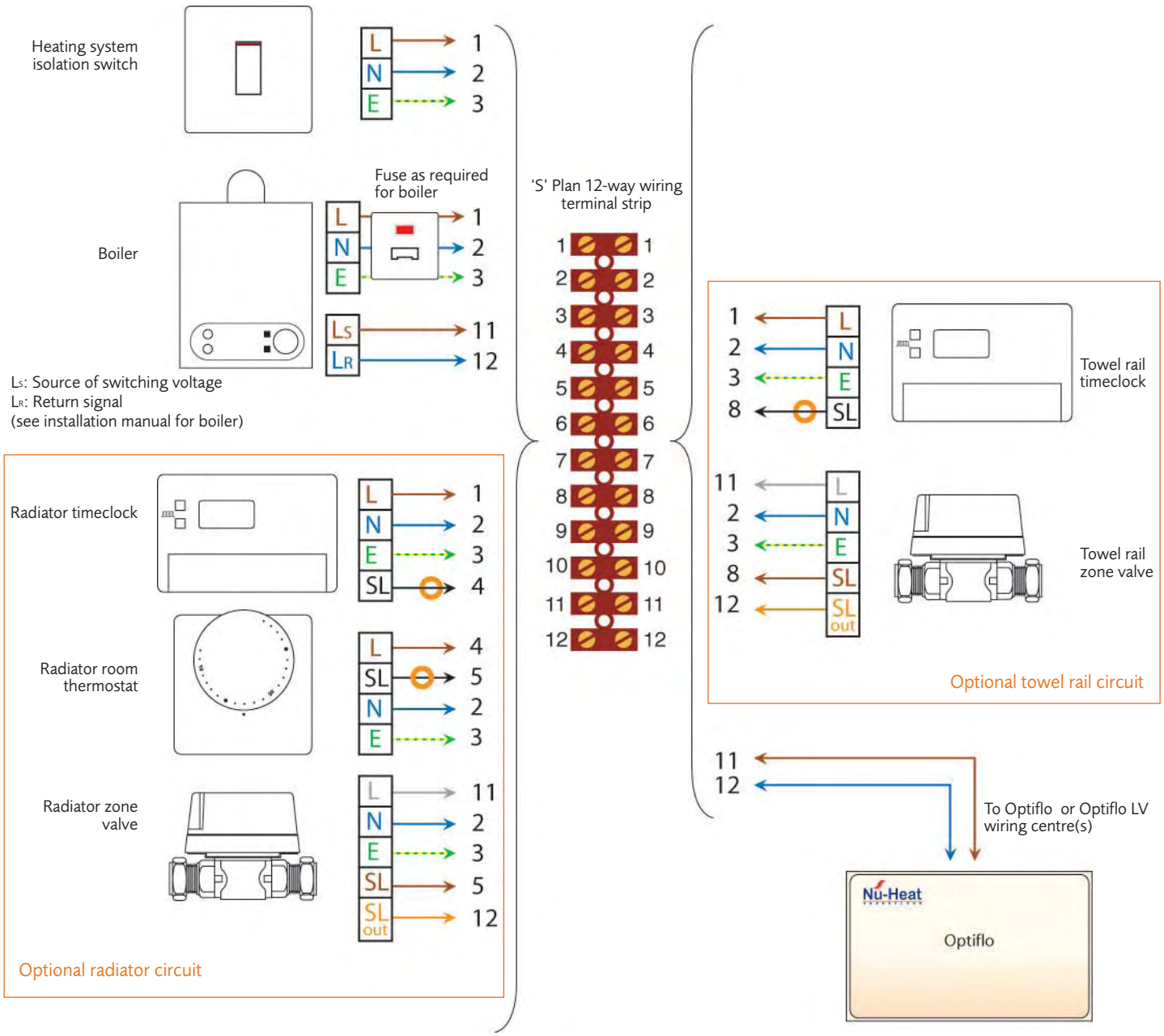
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plans for systems with combi boilers and any third party manufacturer documentation.

When radiators or towel rails are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

If the boiler has an integral time clock it should be set to constant or 24 hours.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
○	Live voltage marker sleeve
RAD	Radiator switched live
HW	Hot water switched live
P	Boiler pump

8.1 System with user-supplied cylinder – S Plan

Second-fix: 12-way terminal strip

Boiler with mains voltage switching (the majority of modern boilers)

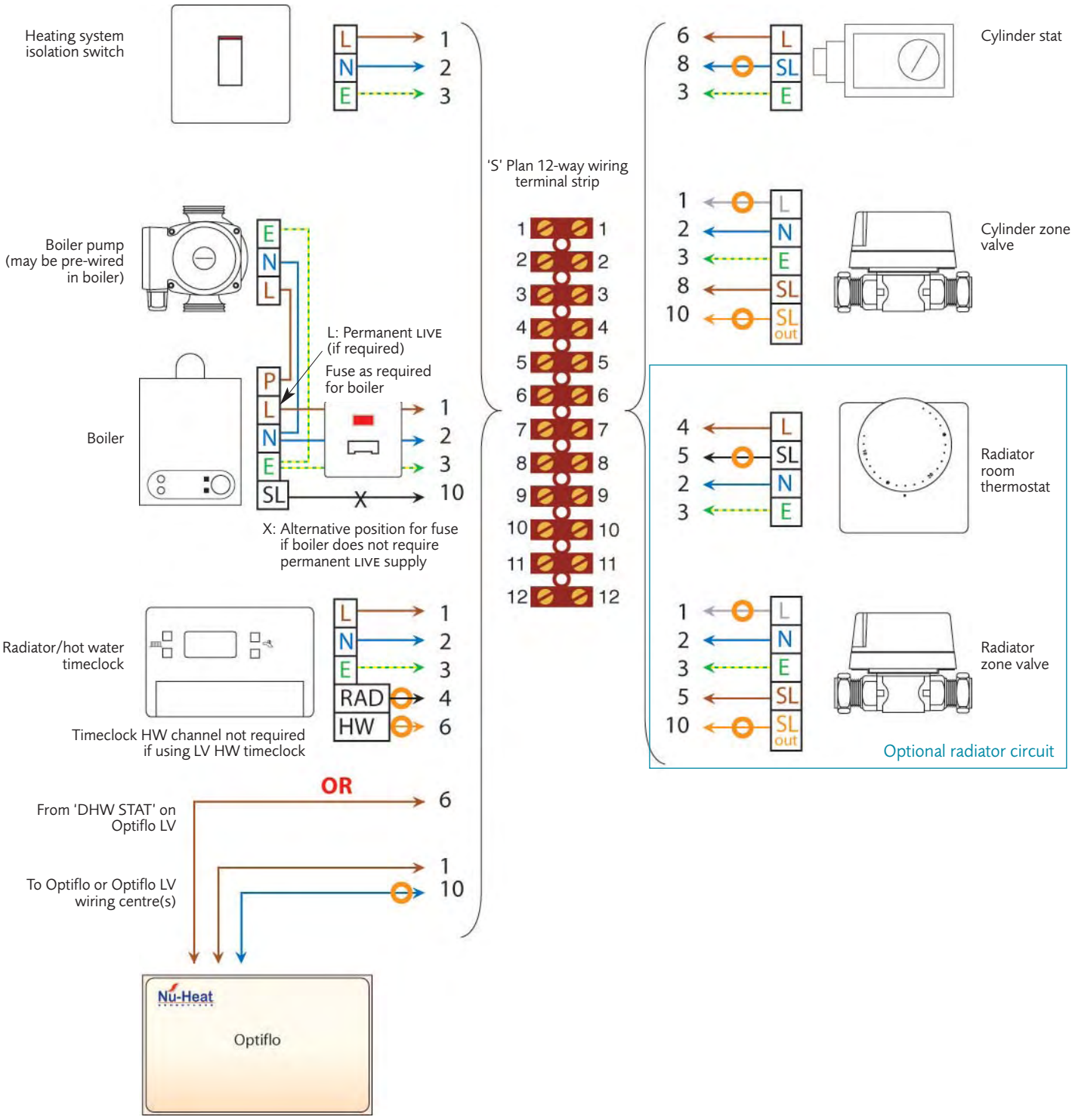
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with a user-supplied cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

If the boiler has an integral time clock it should be set to constant or 24 hours.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
○	Live voltage marker sleeve
RAD	Radiator switched live
HW	Hot water switched live
P	Boiler pump

8.2 System with user-supplied cylinder – S Plan

Second-fix: 12-way terminal strip

Boiler with low voltage switching (a minority of higher specification boilers)

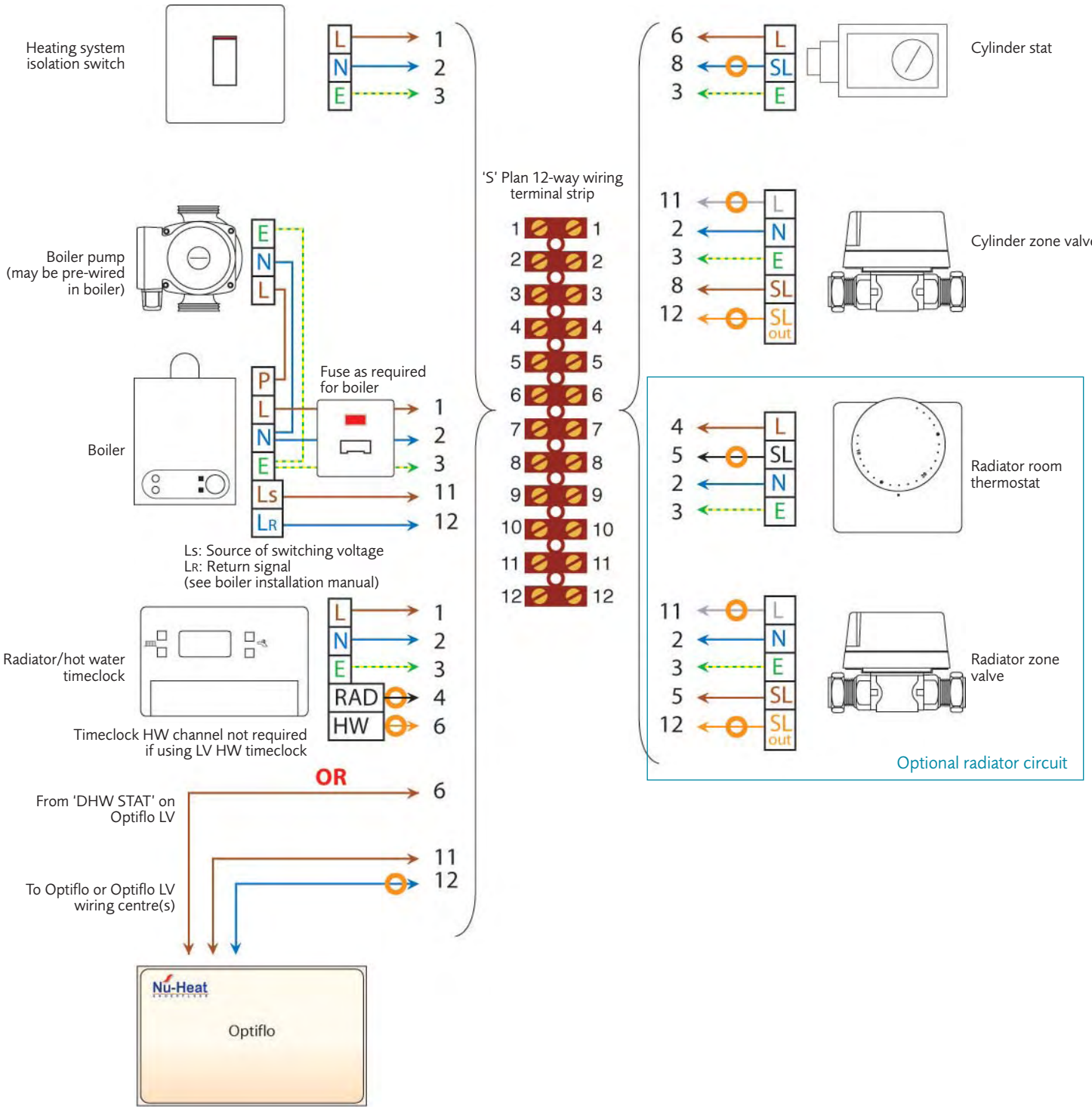
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with a user-supplied cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

If the boiler has an integral time clock it should be set to constant or 24 hours.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
○	Live voltage marker sleeve
RAD	Radiator switched live
HW	Hot water switched live
P	Boiler pump

8.3 Existing system with user-supplied cylinder – W Plan

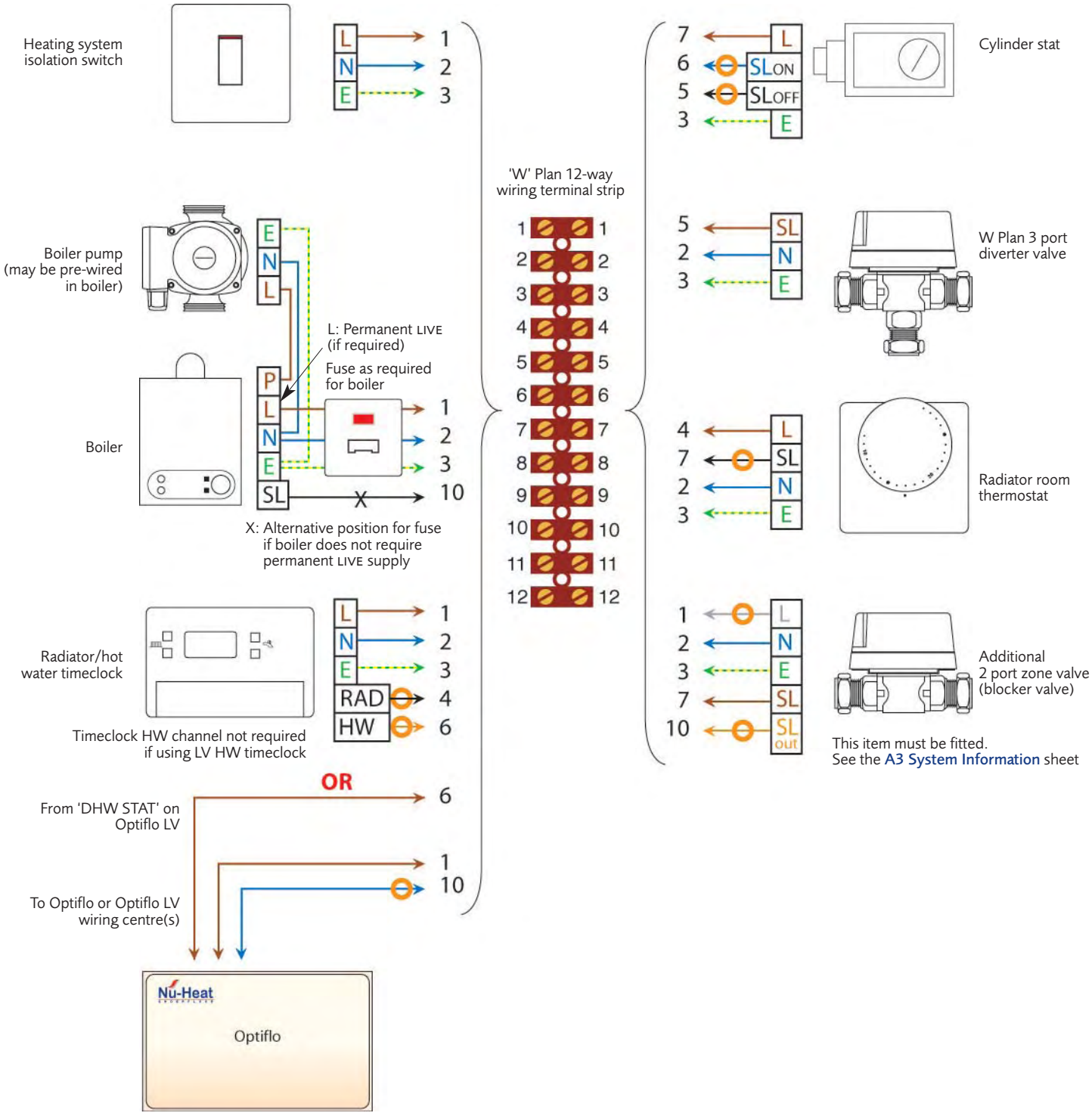
Second-fix: 12-way terminal strip

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with a user-supplied cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
○	Live voltage marker sleeve
RAD	Radiator switched live
HW	Hot water switched live
P	Boiler pump

8.4 Existing system with user-supplied cylinder – Y Plan

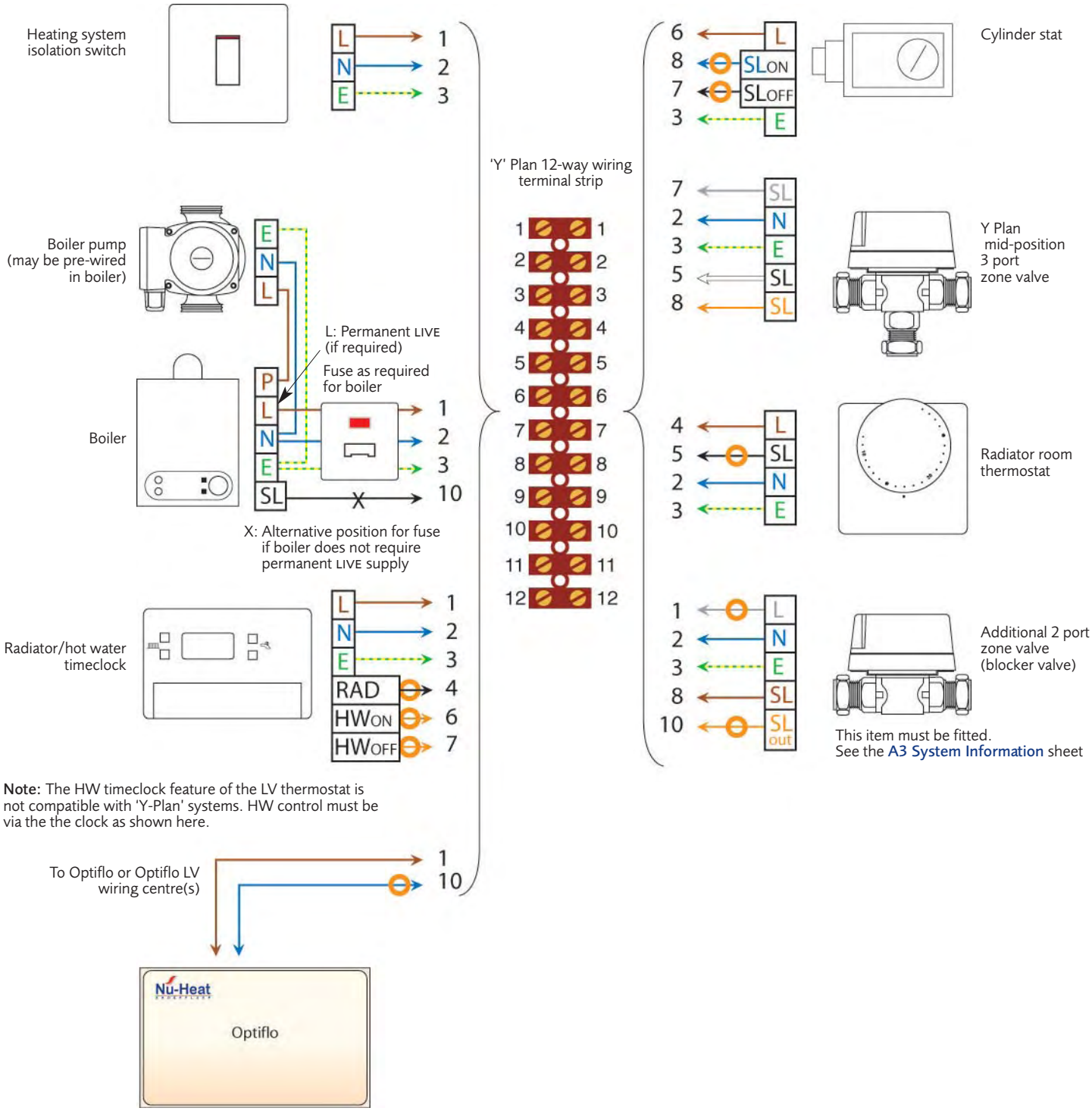
Second-fix: 12-way terminal strip

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with a user-supplied cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
P	Boiler pump
○	Live voltage marker sleeve
RAD	Radiator switched live

9.1 System with Nu-Heat EnergyMaster cylinder – Second-fix: 12-way terminal strip. Boiler with mains voltage switching (the majority of modern boilers)

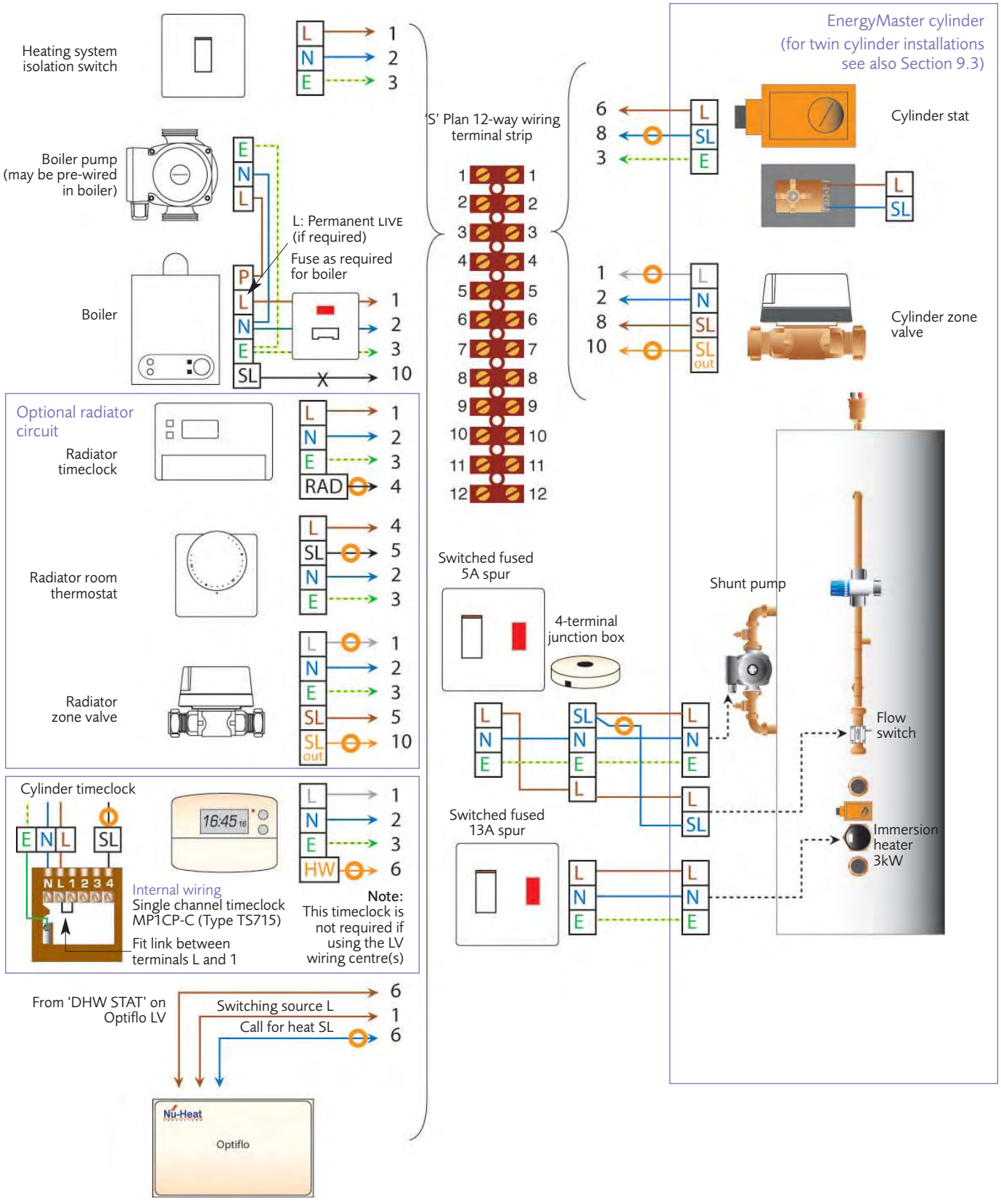
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with an EnergyMaster cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

If the boiler has an integral time clock it should be set to constant or 24 hours.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
P	Boiler pump
○	Live voltage marker sleeve
RAD	Radiator switched live

9.2 System with Nu-Heat EnergyMaster cylinder – Second-fix: 12-way terminal strip

Boiler with low voltage switching (a minority of higher specification boilers)

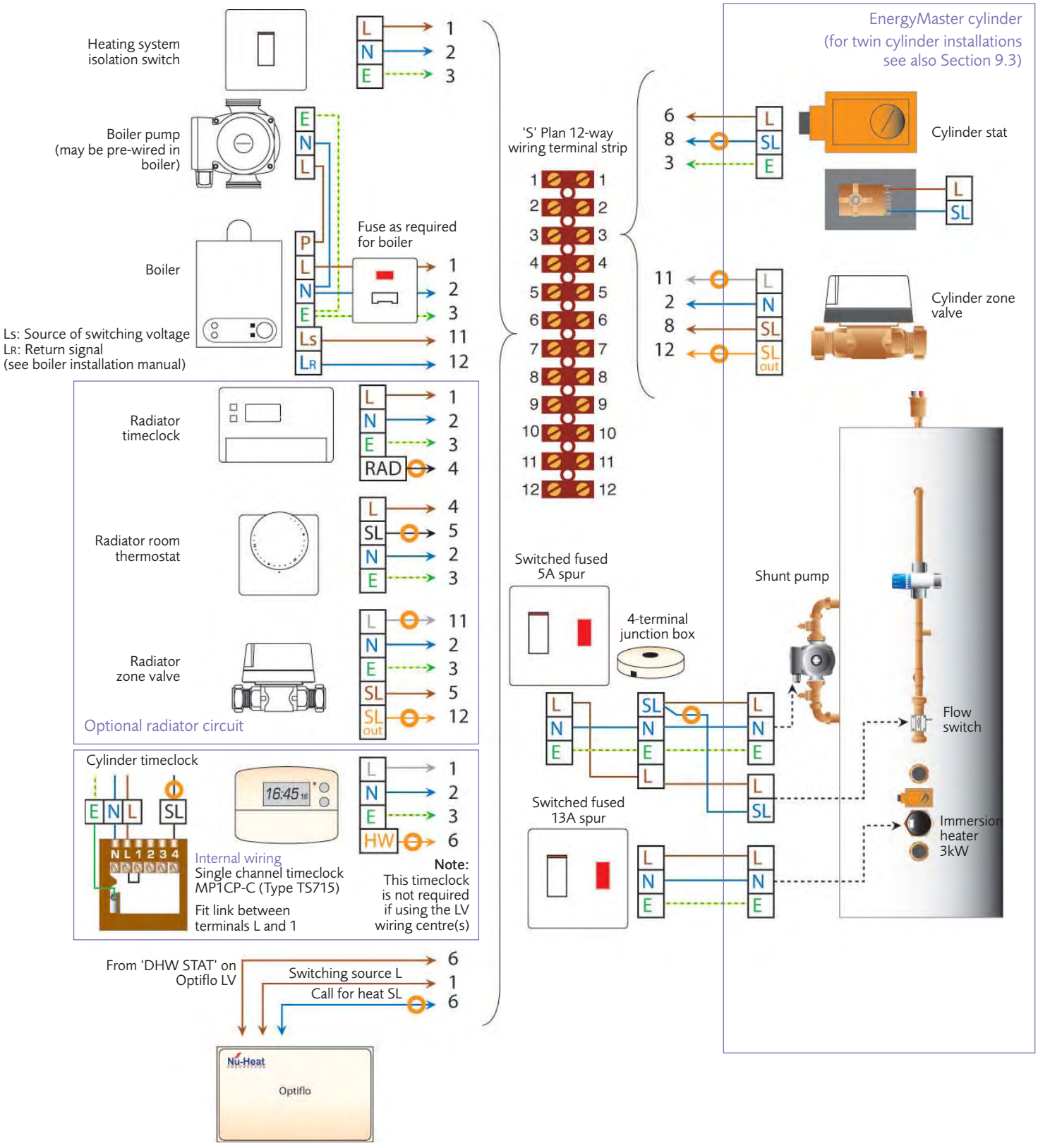
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for systems with an EnergyMaster cylinder and any third party manufacturer documentation.

When radiators are used in conjunction with underfloor heating, the parts shown must be fitted in order to give independent control.

If the boiler has an integral time clock it should be set to constant or 24 hours.

Always refer to the boiler manufacturer's wiring instructions for identification of boiler terminals.



KEY

Note: colour of wires may vary from those shown.

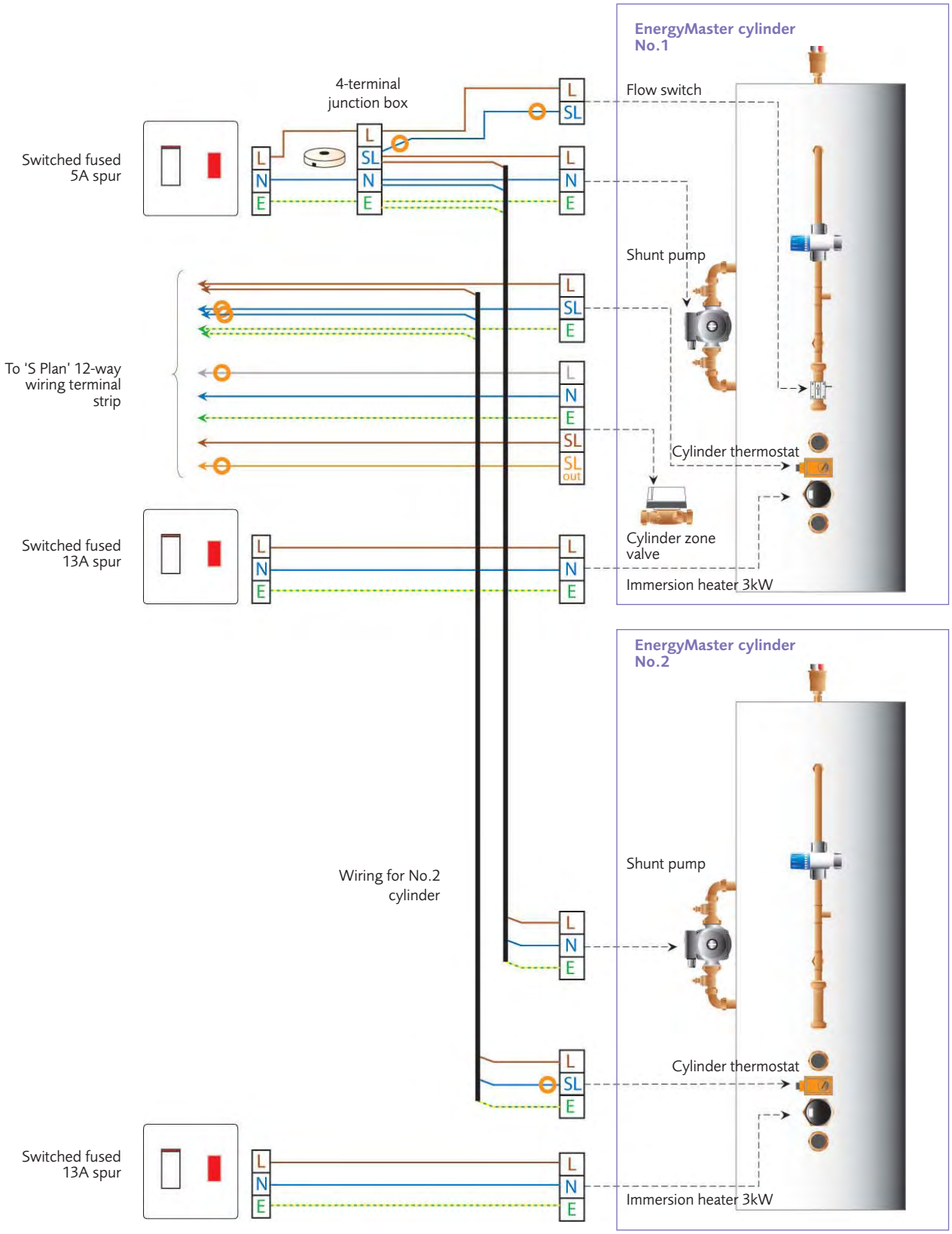
Earth where required.

SL Switched Live
L Live
N Neutral
E Earth
Live voltage marker sleeve

9.3 System with Dual Nu-Heat EnergyMaster cylinders – Second-fix: Dual EnergyMaster cylinders

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the main first-fix cabling plan for systems with an EnergyMaster cylinder and any third party manufacturer documentation.



KEY

Note: colour of wires may vary from those shown.

Earth where required.

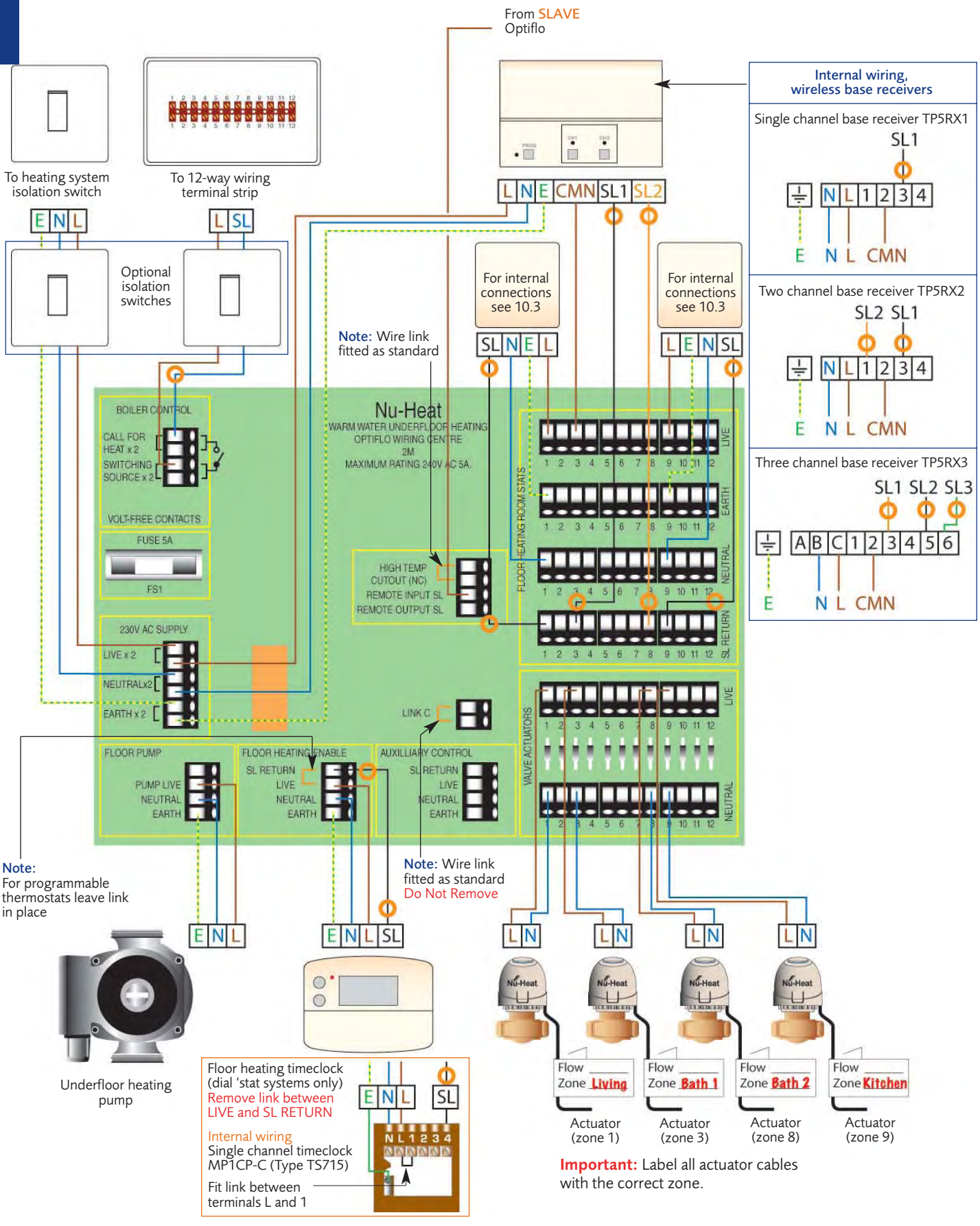
SL Switched Live
L Live
N Neutral
E Earth
Live voltage marker sleeve

10.1 Connection of Master Optiflo wiring centre – Second-fix: mains voltage and wireless thermostats

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for mains voltage thermostats.

See specific detail on thermostat terminals



KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
○	Live voltage marker sleeve

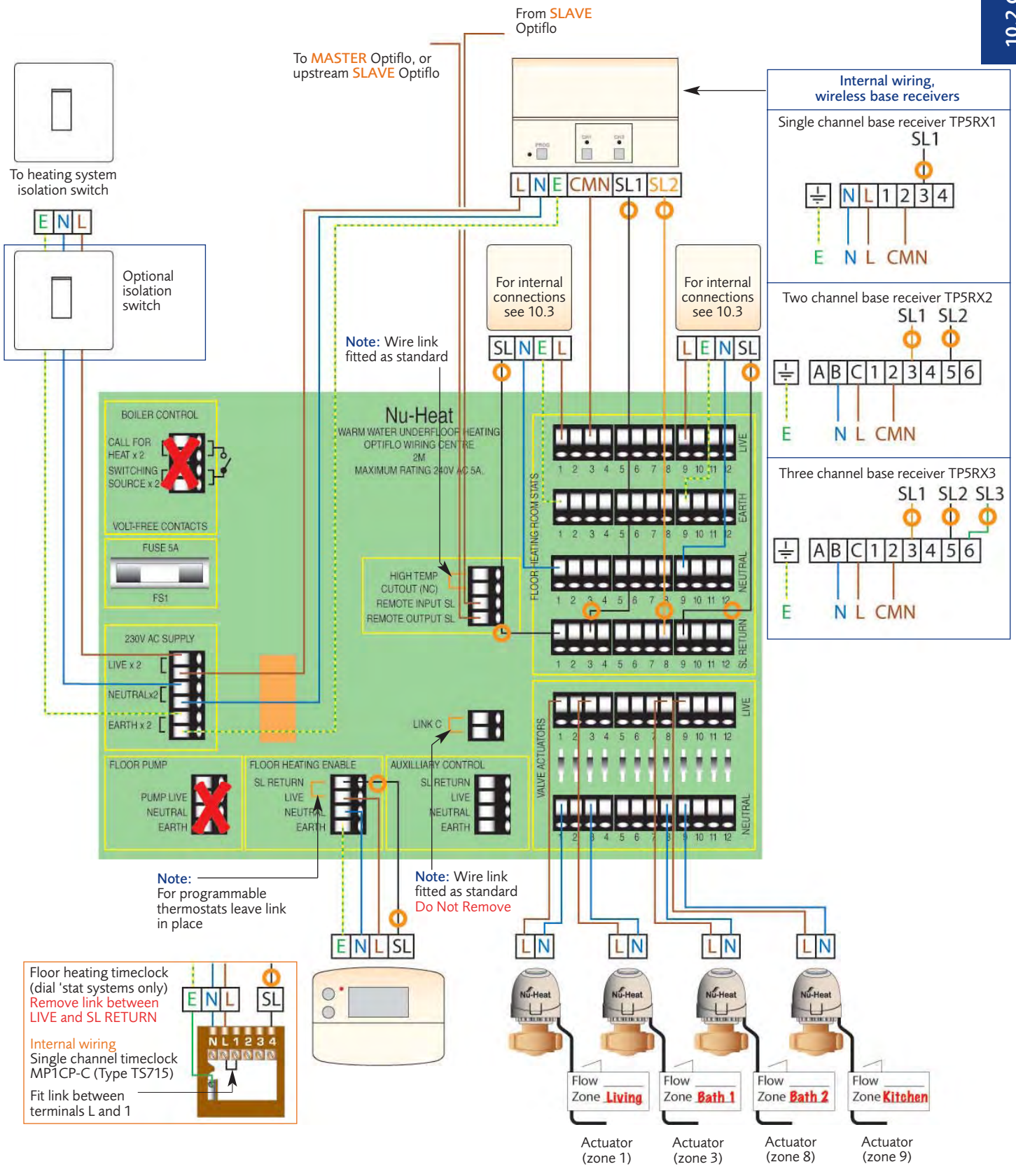
10.2 Connection of Slave Optiflo wiring centre –
Second-fix: mains voltage and wireless thermostats

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for mains voltage thermostats.

See specific detail on thermostat terminals.

Note: Pump modules **must not** be wired to slave Optiflo wiring centres.



KEY

Note: colour of wires may vary from those shown.

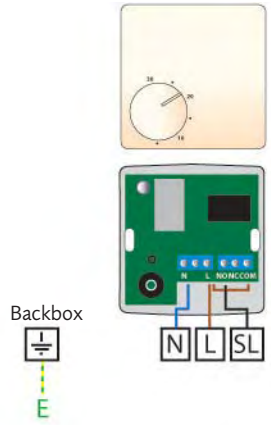
Earth where required.

SL Switched Live
L Live
N Neutral
E Earth
Live voltage marker sleeve

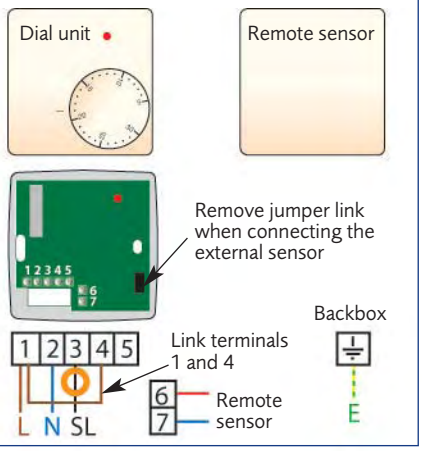
10.3 Connection mains voltage room thermostats – Second-fix

Standard dial thermostat

Dial thermostat RET230

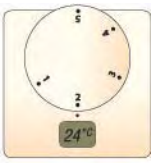


Alternative Bathroom thermostat BATHSTAT



Wireless dial thermostat

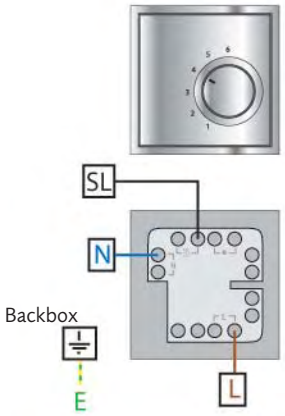
Wireless dial unit RETBRF



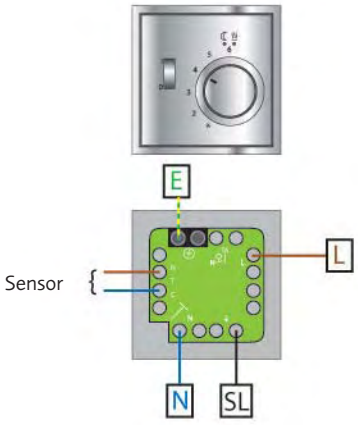
(no cable)

Deluxe dial thermostat

Dial thermostat SS230

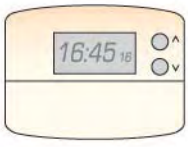


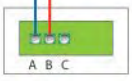
Bathroom thermostat SSBATH



Programmable thermostat

Digital programmable thermostat TP5000, and TP5000B for wet areas





Remote sensor

KEY

Note: colour of wires may vary from those shown.

Earth where required.

SL	Switched Live
L	Live
N	Neutral
E	Earth
O	Live voltage marker sleeve

Note: All low voltage board must wire back to the 12-way terminal strips.

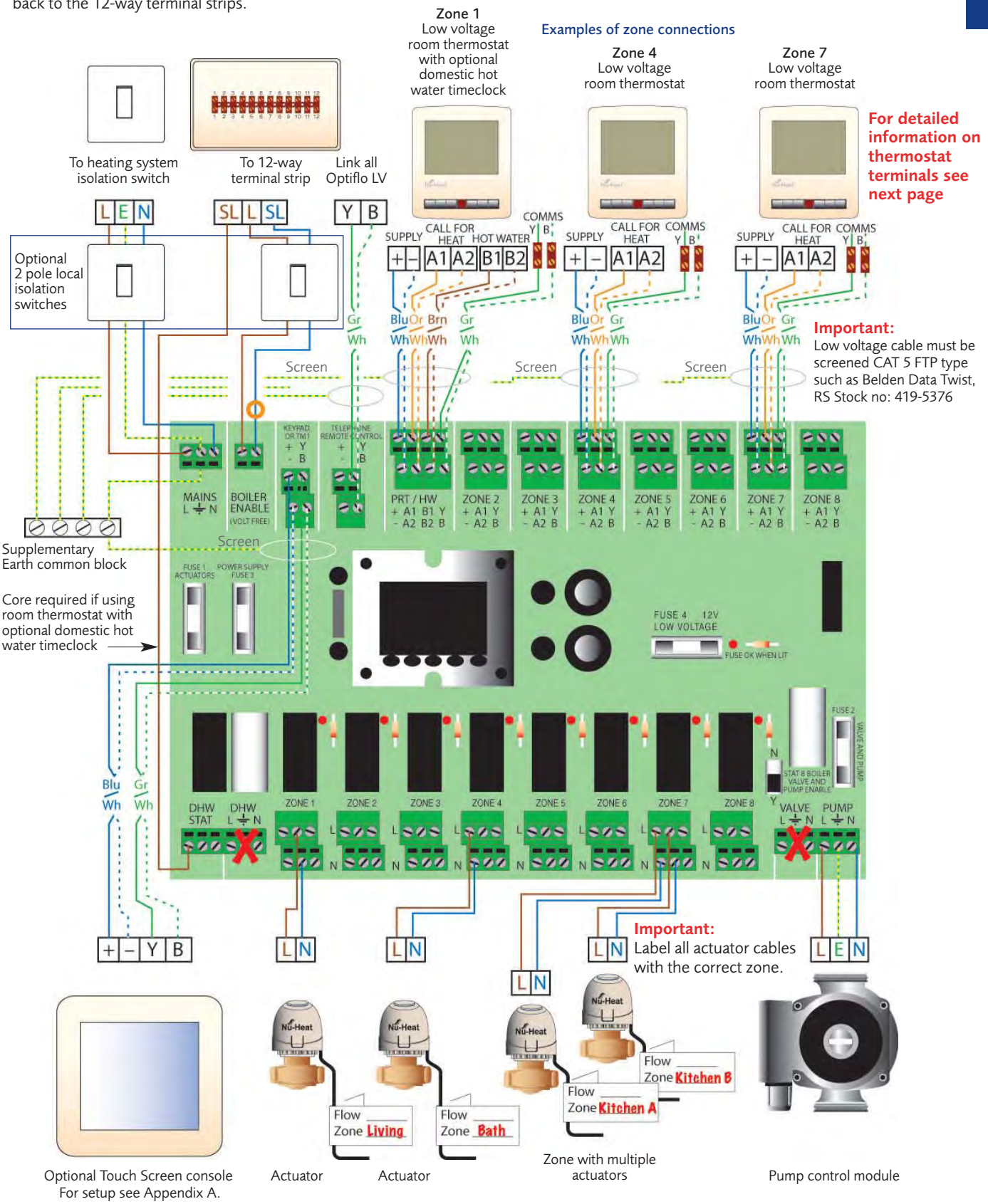
11.1 Connection of Optiflo LV wiring centre – Second-fix

Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with the first-fix cabling plan for low voltage thermostats.

See specific detail on thermostat terminals.

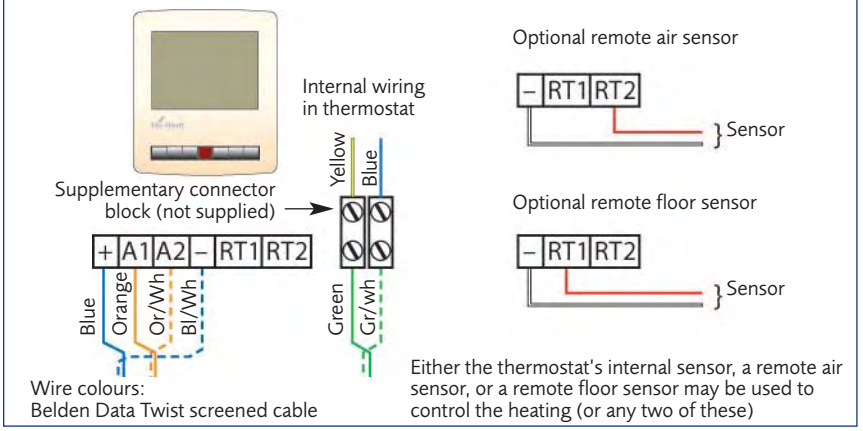
The room thermostat with optional Domestic Hot Water timeclock should only be used with an 'S-Plan' or 'W-Plan' plumbing scheme.



11.2 Connection to LV room thermostats

Programmable low voltage thermostat

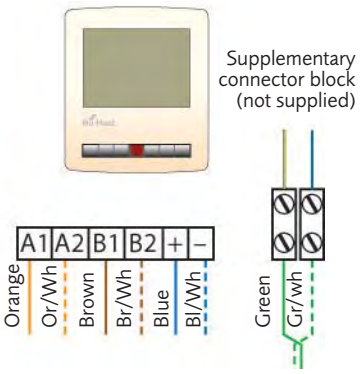
Low voltage thermostat PRTN



Wire colours:
Belden Data Twist screened cable

Either the thermostat's internal sensor, a remote air sensor, or a remote floor sensor may be used to control the heating (or any two of these)

Low voltage thermostat PRTN



Remote sensor setup

ENABLING THE REMOTE SENSOR OPTION IN THE LV THERMOSTAT

Thermostat

Floor sensor

Air sensor

With the unit powered up:

- Press ⏻ to turn the unit off.
- Press 🕒 for three seconds to enter programme mode.
- Scroll through to feature 13 (sensor mode) using the 🕒 button.
- Use the ▼ / ▲ buttons to set sensor mode to **05**.
- Scroll through to feature 10 (Air sensor selection) using the 🕒 button.
- Use the ▼ / ▲ buttons to set the remote air sensor mode as required.
  - **00** – Remote air sensor disabled
  - **01** – Remote air sensor enabled
- Scroll through to feature 11 (Floor sensor selection) using the 🕒 button.
- Use the ▼ / ▲ buttons to set the remote floor sensor mode as required.
  - **00** – Remote floor sensor disabled
  - **01** – Remote floor sensor enabled
- Press ⏻ to return to normal operation, this saves your settings.

Error Codes

E1: Remote floor sensor disconnected
E2: Remote air sensor disconnected

KEY

Note: colour of wires may vary from those shown.

Earth where required.

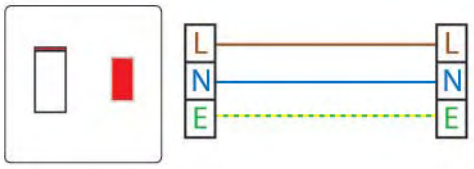
SL	Switched Live
L	Live
N	Neutral
E	Earth
	Live voltage marker sleeve

12.1 Optional hot water loop pump –
Second-fix: Nu-Heat Aquastar hot water loops

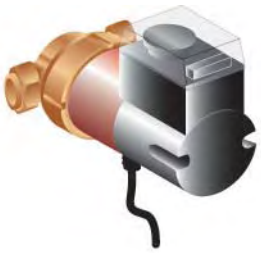
Notes: See introduction for wiring safety notes.

These diagrams should be read in conjunction with any third party manufacturer documentation.

Aquastar 2 hot water loop

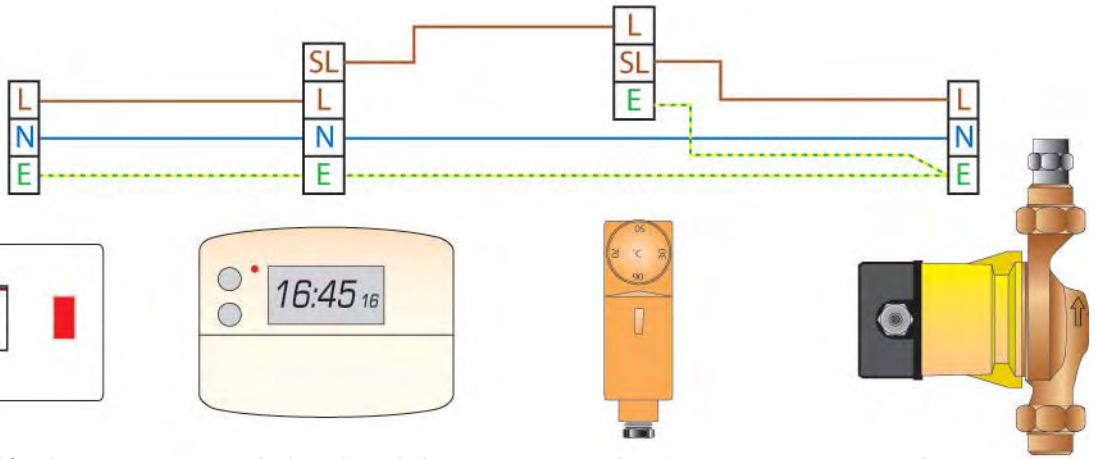


Switched fused 5A spur



Domestic hot water pump with integral timeclock and thermostat

Aquastar 3 hot water loop



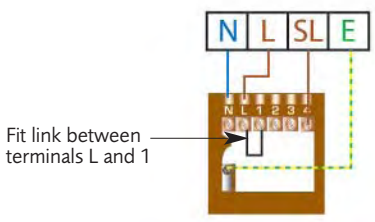
Switched fused 5A spur

Single channel timeclock MP1CP-C (type TS715)

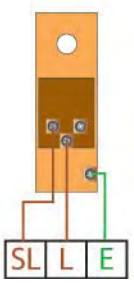
Pipe thermostat

Domestic hot water pump

Internal wiring



Internal wiring



Appendix A – Setting up electrical equipment for commissioning

Complete illustrated operating instructions for all the following electrical equipment are given in the Nu-Heat *User Guide*.

Systems with dial thermostats

Timeclock

SETTING UP TIMECLOCKS

The single-channel timeclock supplied with each Optiflo manifold to control the underfloor heating is programmed with factory default settings.

Underfloor heating takes longer to heat up and cool down than radiators.

If the timeclock is disconnected from the mains a battery symbol will blink on the display. After the 2nd midnight (24 – 48 hours) the settings will be lost. When mains power is reconnected the factory settings can be restored by inserting a non-metallic object in the R/S hole under the flap.

Standard

Deluxe

SETTING UP STANDARD DIAL THERMOSTATS (styles may vary)

Normal temperatures are 21˚C for day-rooms and 18˚C for bedrooms.

Rotation can be limited by setting the stops behind the dial.

Standard bathroom

sensor

Deluxe bathroom

sensor

SETTING UP BATHROOM DIAL THERMOSTATS (styles may vary)

The switch on the side of the unit should be in the central position (where applicable).

Normal temperature is 23˚C for bathrooms.

Rotation can be limited by setting the stops behind the dial. (*Please note the position of the dial before removal as it must be replaced in the same position to indicate the correct temperature*.)

Wireless dial

receiver

SETTING UP WIRELESS DIAL THERMOSTATS

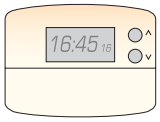
- Check that the base receiver has power.
- **Thermostat:** With the thermostat close to the receiver unit; remove dial, press and hold LEARN button for 3 seconds. The unit will transmit continuously for 5 minutes.
- **Receiver:** Press and hold PROG and CH1 together (or CH2/CH3 if appropriate) until green light flashes.
- Refit and adjust thermostat dial. A call-for-heat from the thermostat should cause the correct channel light to show.
- Check that the thermostat still works in its intended position and that a call-for-heat is sent to the base receiver. If communication fails at a distance the base receiver may need re-siting.
- Repeat for every thermostat, dedicating each to a different receiver channel.

Rotation can be limited by setting the stops behind the dial.

Appendix A – Setting up electrical equipment for commissioning – continued

Systems with programmable thermostats

Programmable



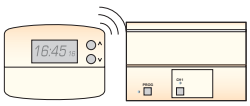
SETTING UP PROGRAMMABLE THERMOSTATS

The battery-powered programmable thermostat is supplied with factory default settings.

Flip down the front panel to gain access to the battery cover. Fit the batteries as indicated.

TIME and DAY/DATE are set automatically.

Wireless programmable



receiver

SETTING UP WIRELESS PROGRAMMABLE THERMOSTATS

The battery-powered programmable thermostat is supplied with factory default settings.
TIME and DAY/DATE are set automatically.

- Check that the base receiver has power. Press the ▼ on all the wireless thermostats to ensure that they are in non-transmitting mode and bring the first thermostat close to the base receiver.
- **Thermostat:** Hold down the ▼ and + buttons together for 3 seconds. The unit will now transmit continuously for 5 minutes.
- **Receiver:** Press and hold PROG and CH1 together (or CH2/CH3) until green light flashes.
- **Thermostat:** Press the ▼ or ▲ arrows to cancel transmission. A call-for-heat from the thermostat should cause the correct channel light to show.
- Check that the thermostat still works in its intended position and that a call-for-heat is sent to the base receiver. If communication fails at a distance the base receiver may need re-siting.
- Repeat for every thermostat, dedicating each to a different receiver channel.

Appendix A – Setting up electrical equipment for commissioning – continued

Low voltage

For complete programming instructions see *User Guide*.

Systems with programmable low voltage thermostats

SETTING UP LOW VOLTAGE THERMOSTATS

The thermostat is supplied with factory default settings.

To set features:

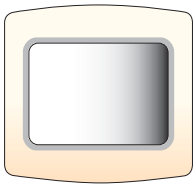
- With the thermostat off, press ⏲ for 3 seconds.
- The centre of the LCD display will show 02 (feature number) and 01 (feature setting).
- Press ⏲ to accept and proceed to feature 03, **Temperature calibrate**.
- Use the ▼/▲ keys to change the calibration setting to match the actual room temperature.
- Press ⏲ to accept proceed to feature 04, **Frost mode**.
- Check feature 04, **Frost mode** is set to 01 (enabled).
- Press ⏲ to accept. Press twice more to proceed to feature 07, **Comms#**.
- Each thermostat must be set to a different two digit Comms number, starting at 01.
- Press ⏻ to store and exit.

To set the clock:

- With the thermostat on, press ⏲ twice and use the ▼/▲ keys to set the minutes.
- Press H to accept. Use the ▼/▲ keys to set the hours. Press H to accept.
- Use the ▼/▲ keys to set the day. Press A to store and exit. The clock is now set.

Frost mode:

- Press the H button to switch the thermostat into frost protection mode. With the * symbol on the screen the frost protection temperature will be maintained. Press H to cancel again.



For complete programming instructions see *User Guide*.

SETTING UP THE REMOTE TOUCH SCREEN CONSOLE

Ensure that all the low voltage thermostats have been set up as above.

- Switch on the Touch Screen console (hold the probe on the screen for more than 5 seconds).
- At the Main Menu press the SYSTEM icon.
- At the System screen press the NETWORK icon.
- At the Network screen use the ▼/▲ keys to select the number of thermostats on the system.
- Press SETUP to accept.
- The Thermostat Setup screen shows ◀ THERMOSTAT 1 ▶ . Use the arrow keys to select each thermostat in turn.
- Each thermostat has an associated Address (equivalent to the Comms number) which will have been automatically gathered from the thermostats connected on the system.
- Enter appropriate Names for each thermostat. To enter digits in a name first press the ABC button.
- Press STORE to save the changes.

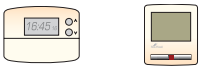
Information on all other features of the remote Touch Screen is contained in the Nu-Heat *User Guide*.

Appendix B – Electrical control checklist

Zone heating control

The pipes below the flow valves on the Optiflo manifold should have been marked during installation of the plumbing with the zones to which they run.

It is essential for the operation of the system that room thermostats, actuators and flow valves are correctly matched to each other. To check that the matching is correct:

1 Refer to A3 System Information and Manifold & Zone Information Check system type	Check zone details and positions of the Optiflo manifolds. Take note of any split zones where room thermostats may be required to activate more than one valve actuator.	
	Systems with timeclock and dial thermostats 	**Systems with programmable thermostats** 
2 At every manifold	**Important:** Turn off the heating system isolation switch. **Important:** Disconnect all manifold pumps – running a dry pump will result in damage to the pump and possibly to control equipment. Turn on the heating system isolation switch. Turn all timeclocks to OFF. Set all room thermostats to minimum.	**Important:** Turn off the heating system isolation switch. **Important:** Disconnect all manifold pumps – running a dry pump will result in damage to the pump and possibly to control equipment. Turn on the heating system isolation switch. Set all room thermostats to 5°C: Press the ▼ arrow repeatedly | Press the ▼ arrow repeatedly & press A to accept
3 Go to manifold A	All actuators should be OFF with the central button down. Set the local timeclock to ON.	All actuators should be OFF with the central button down.
4 Start at the first zone	Set the zone room thermostat temporarily high to produce a call-for-heat. Check that the correct electrical actuator opens on the manifold. The central button will lift proud of the white cap after a delay of approximately two minutes. Label the actuator cable to match the pipe. Set the room thermostat to minimum.	Set the zone room thermostat high to produce a call-for-heat, using ▲ button, | and press A to accept. Check that the correct electrical actuator opens on the manifold. The central button will lift proud of the white cap after a delay of approximately two minutes. Label the actuator cable to match the pipe. Set the zone room thermostat to 5°C using the ▼ button, | press A to accept
5 Repeat for other zones	Repeat stage 4 for all other zones on the manifold.	Repeat stage 4 for all other zones on the manifold.
6 Reset	Set the local timeclock to OFF.	Not applicable.
7 Go to next manifold	Repeat steps 3 to 6 for each manifold in turn.	Repeat steps 3 to 6 for each manifold in turn.
8 Finishing	**Important:** Turn off the heating system isolation switch. Reconnect all manifold pumps. Turn on the heating system isolation switch. Set all room thermostats to normal setting.	**Important:** Turn off the heating system isolation switch. Reconnect all manifold pumps. Turn on the heating system isolation switch. Set all room thermostats to normal, | press A to accept.
9 Confirmation	Sign the label on each Wiring Centre lid to show you have completed and checked the electrical functions.	

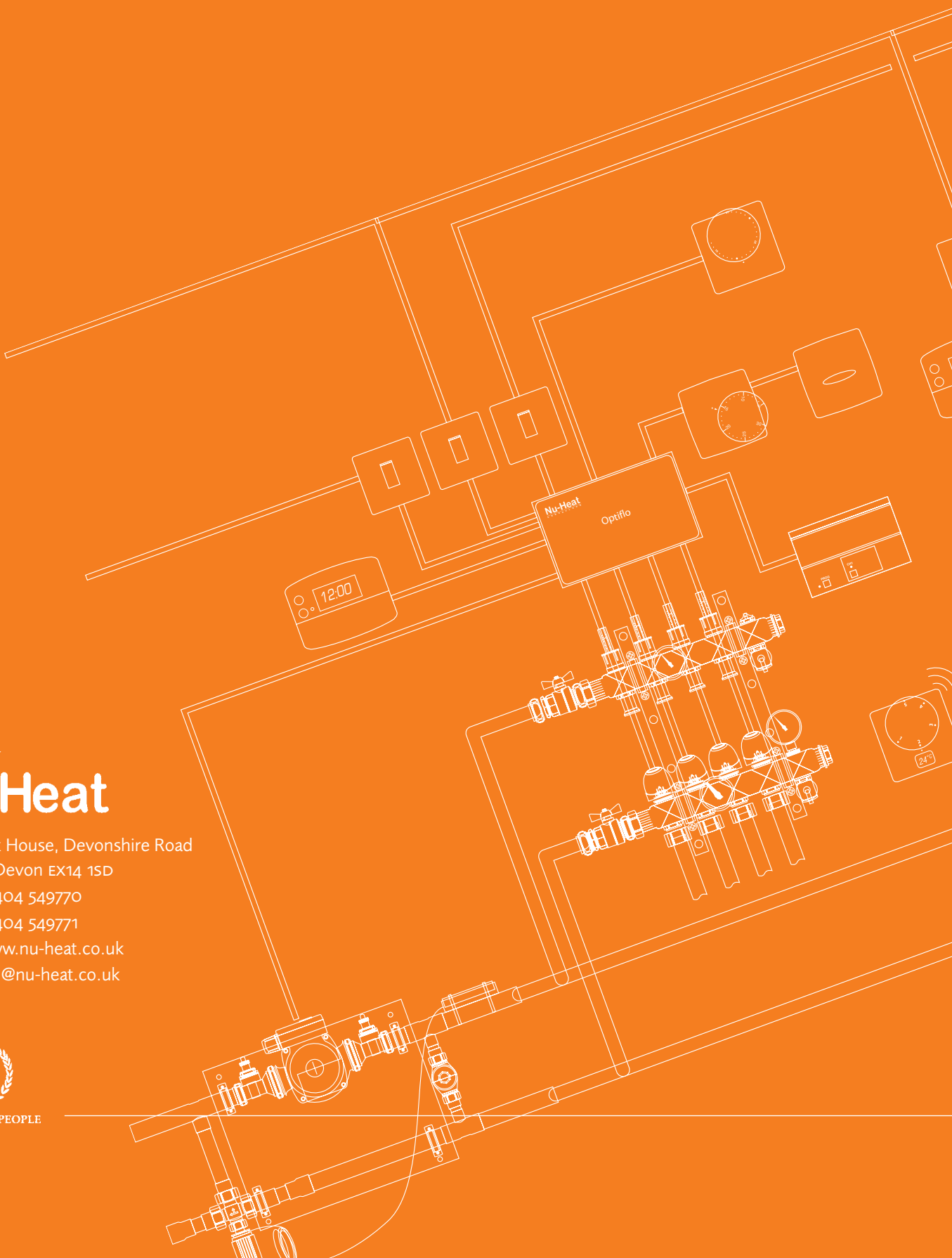
Appendix B – Electrical control checklist – continued

Boiler control

The boiler must have been commissioned.

System with combination boiler	• Turn **ON** any Supplementary Isolation Switches next to all the Optiflo manifolds, to enable signals to and from the boiler. • Systems with timeclock control: set underfloor heating timeclocks to **ON**. • Check that the boiler and boiler pump are controlled by calls-for-heat from the underfloor heating room thermostats. Check at least one heating zone on each Optiflo manifold by turning up the room thermostat.
System with user-supplied cylinder	• Turn **ON** any Supplementary Isolation Switches next to all the Optiflo manifolds, to enable signals to and from the boiler. • Systems with timeclock control: set underfloor heating timeclocks to **ON**. • Check that the boiler and boiler pump are controlled by calls-for-heat from the underfloor heating room thermostats. Check at least one heating zone on each Optiflo manifold by turning up the room thermostat. • Set the hot water timeclock to **ON**. • Check that the boiler and boiler pump are also controlled by the cylinder zone valve, which is in turn controlled by the cylinder thermostat.
System with Nu-Heat EnergyMaster cylinder	• Turn **ON** any Supplementary Isolation Switches next to all the Optiflo manifolds, to enable signals to and from the boiler. • Systems with timeclock control: set underfloor heating timeclock to **ON**. Make sure that the hot water timeclock is set to **OFF**. • Turn the cylinder thermostat up until it clicks on. • Check that the boiler and boiler pump are controlled by calls-for-heat from the underfloor heating room thermostats. Check at least one heating zone on each Optiflo manifold by turning up the room thermostat. • Turn the underfloor heating timeclocks **OFF** (where appropriate) and turn the room thermostats down. Switch the hot water timeclock **ON**. The boiler should fire and the boiler pump should run. • Leave the cylinder thermostat set in the range 65°C to 70°C. Set the boiler thermostat at least 10°C higher.

If there is any aspect of the installation that you do not understand, please contact Nu-Heat Customer Support for advice.



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