SET3M

electro-mechanical 24 programmer for heating & hot water

Installation & User Instructions

WATER

HEATING

OFF

TIMED

CONST.

Danfoss

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Installation Instructions

Product specification

Specification	
Power supply	230 ± 15% Vac, 50/60Hz
Switch action	2 x SPDT Type 1B
Switch rating	Max 264 Vac, 50/60Hz, 3(1) A
Setting accuracy	± 5 minutes
Timing accuracy	± 1 min/month
Enclosure rating	IP30
Max. ambient temperature	45°C
Dimensions, mm (W, H, D)	158 x 98 x 58
Design standard	EN 60730-2-7
Control Pollution Situation	Degree 2
Rated Impulse Voltage	2.5kV
Ball Pressure Test	75°C

Specification

Installation

1. Fix the wallplate to the wall or flush mounted box as required. The connections are at the top and the vertical centre line of the unit, at the position shown on the diagram below C/L (in line with terminal ⏚)

Outline of programmer

C/L

Leave sufficient space for screwdriver access

Terminal block

E N L 1 2 3 4 5 6

Wall or plasterbox fixing

Leave at least 25mm below product

Rear entry cable access

Cable aperture knockouts
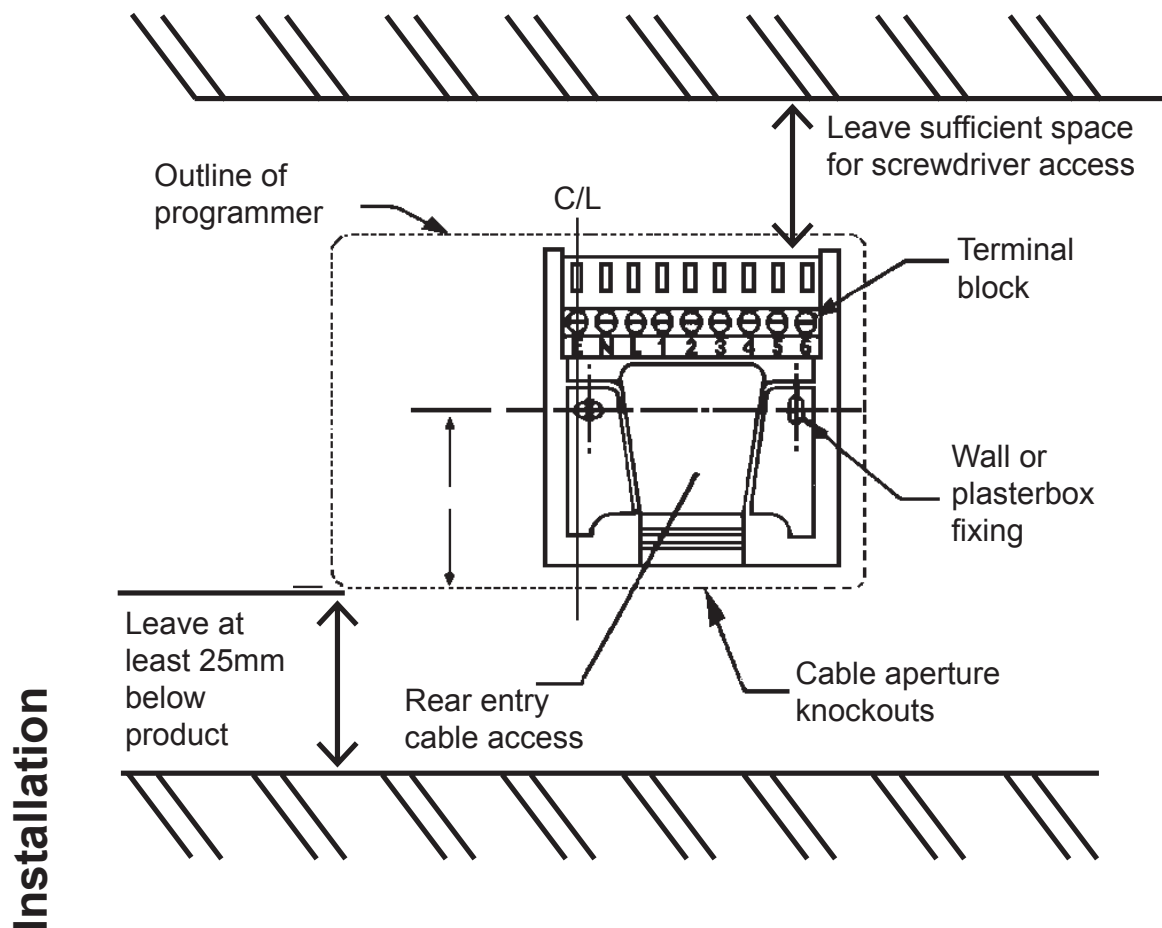
2. Surface cables can only enter from below the unit. If mounted on a flush mounted box, cables can enter from the rear through the aperture in the wallplate.

3. For mains voltage applications a link must be fitted between terminals L, 2 and 5.

4. Whilst the unit does not require an Earth connection, a terminal is provided on the wallplate for Earth continuity purposes.

5.   Referring to the wiring diagrams on page 6-12, connect the unit as shown.

6.   The unit is supplied ready for use in systems having PUMPED primaries.

   Should the unit be required for use in a system having GRAVITY primaries, fit the small plastic shorting link (which can be found taped below the left hand fixing screw hole of the wallplate) over the two pins on the rear of the plug-in module. These pins can be found in the recess near to the bottom edge of the plug-in module.

7.   Ensure all dust and debris are cleared from the area.

8.   Locate the module on the latches at the bottom of the wallplate and hinge upwards to fully engage the unit connectors into the wallplate. Tighten the two fixing screws to secure the unit to the wallplate.

9.   Before setting the programme, check the unit and circuit.

   Switch ON the mains supply and press both **WATER** and **HEATING** rocker switches to the **CONSTANT** position - both red LED's should now be illuminated. Adjust any remote thermostat to check the services operate correctly.

10. Then press both **WATER** and **HEATING** rocker switches to the **OFF** position and check that both services do not operate.

11. Finally, press both **WATER** and **HEATING** rocker switches to **TIMED** position prior to programming the unit.

Wiring Diagrams

The following pages contain typical wiring diagrams for various types of systems.

Note: Whilst every attempt has been made to ensure the accuracy of this information it is recommended that the specific information relating to the ancillary controls is obtained from the manufacturers concerned.
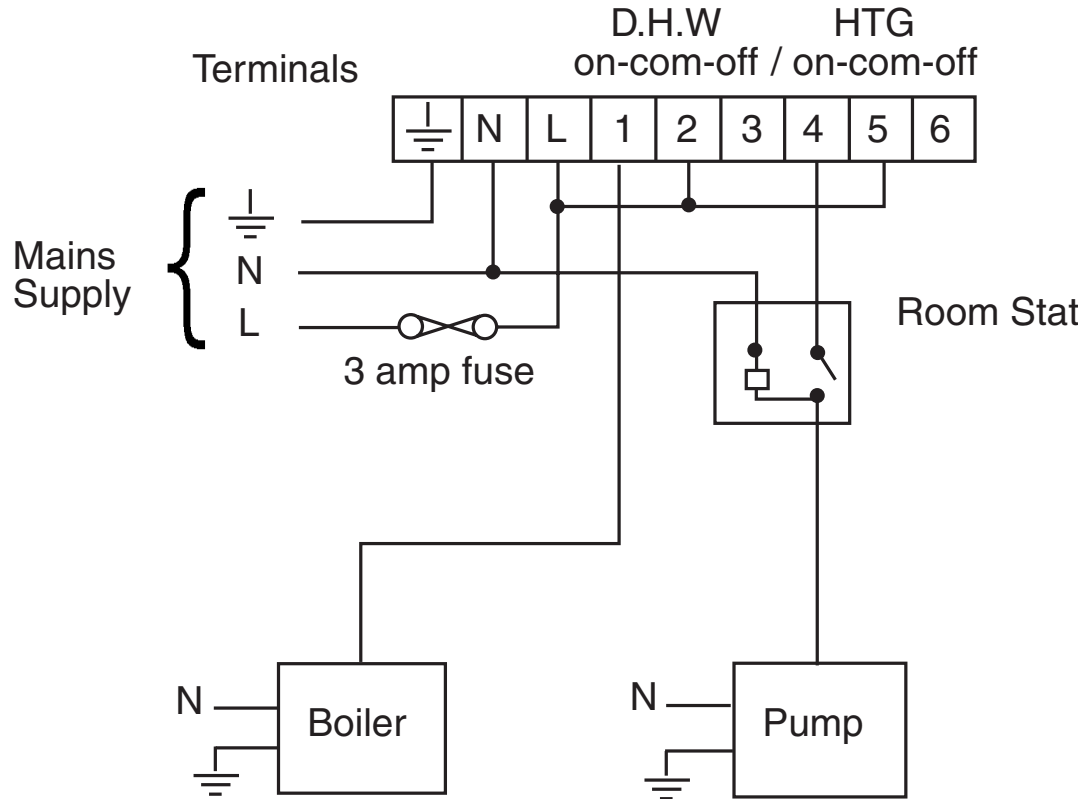
SET3M
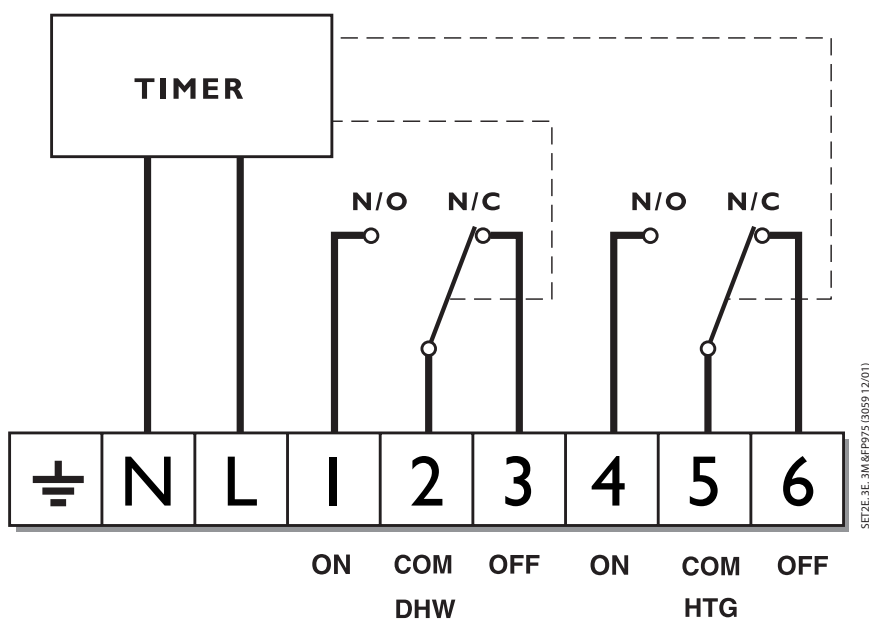
For mains voltage applications a link must be fitted between terminals L, 2 and 5.

SET3M Gravity
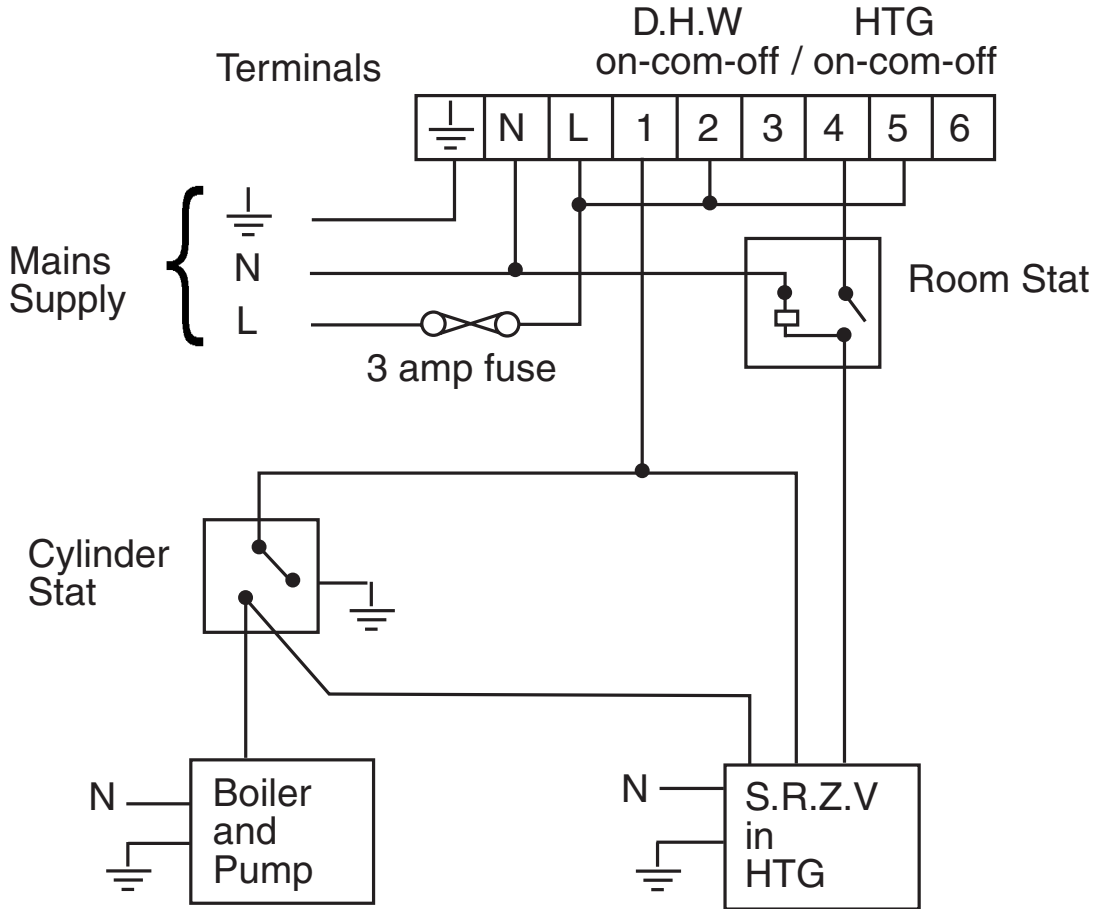
Typical gravity DHW pumped HTG

Other Danfoss Randall products suitable for use with above circuit:-
RMT room thermostat

SET3M Pumped

Typical fully pumped system with spring return zone valve in HTG

Terminals

D.H.W HTG
on-com-off / on-com-off

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains Supply

⏚
N
L

3 amp fuse

Room Stat

Cylinder Stat

N — Boiler and Pump

N — S.R.Z.V in HTG

Other Danfoss Randall products suitable for use with above circuit:-
AT cylinder thermostat;
RMT room thermostat;
HP22 or HP28 motorised zone valve with spring return actuator and SPST auxiliary switch

Wiring - pumped systems

Typical gravity DHW pumped HTG with spring return zone valve in DHW

Terminals

D.H.W   HTG
on-com-off / on-com-off

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains
Supply
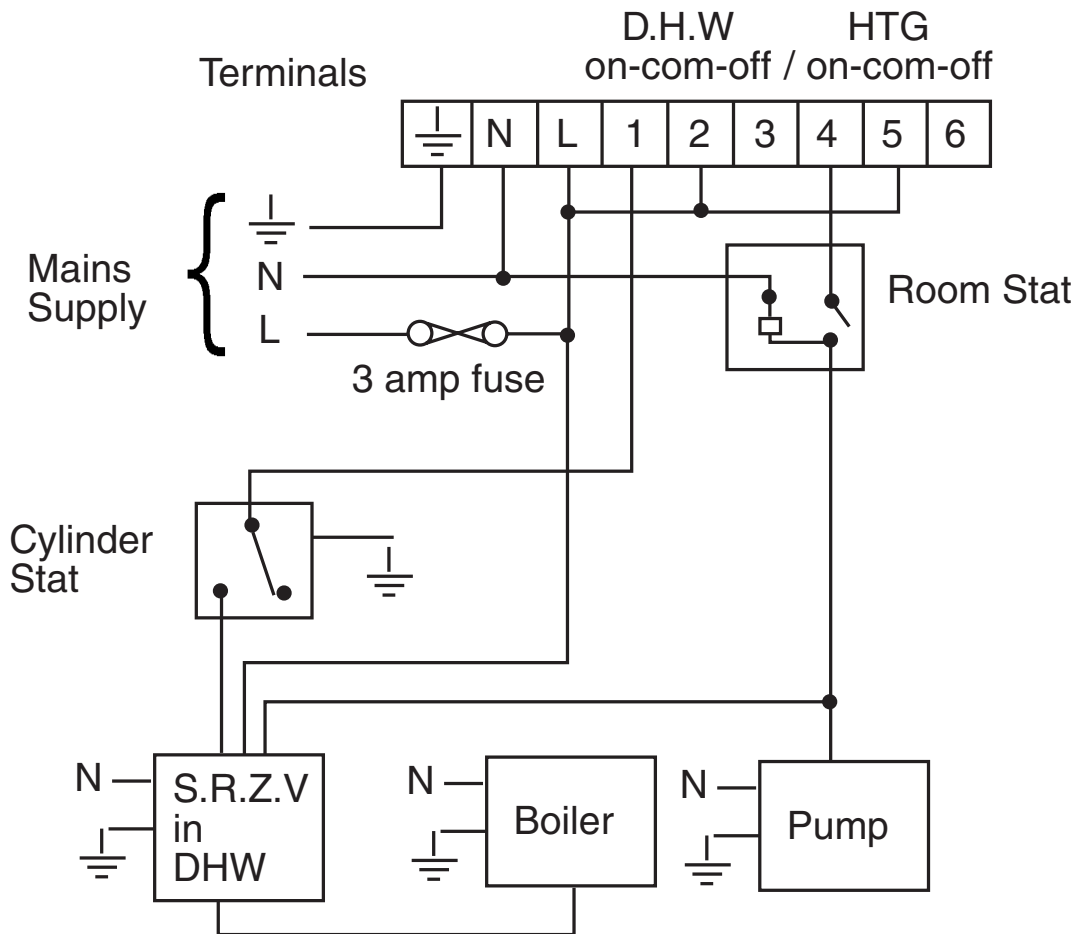
⏚
N
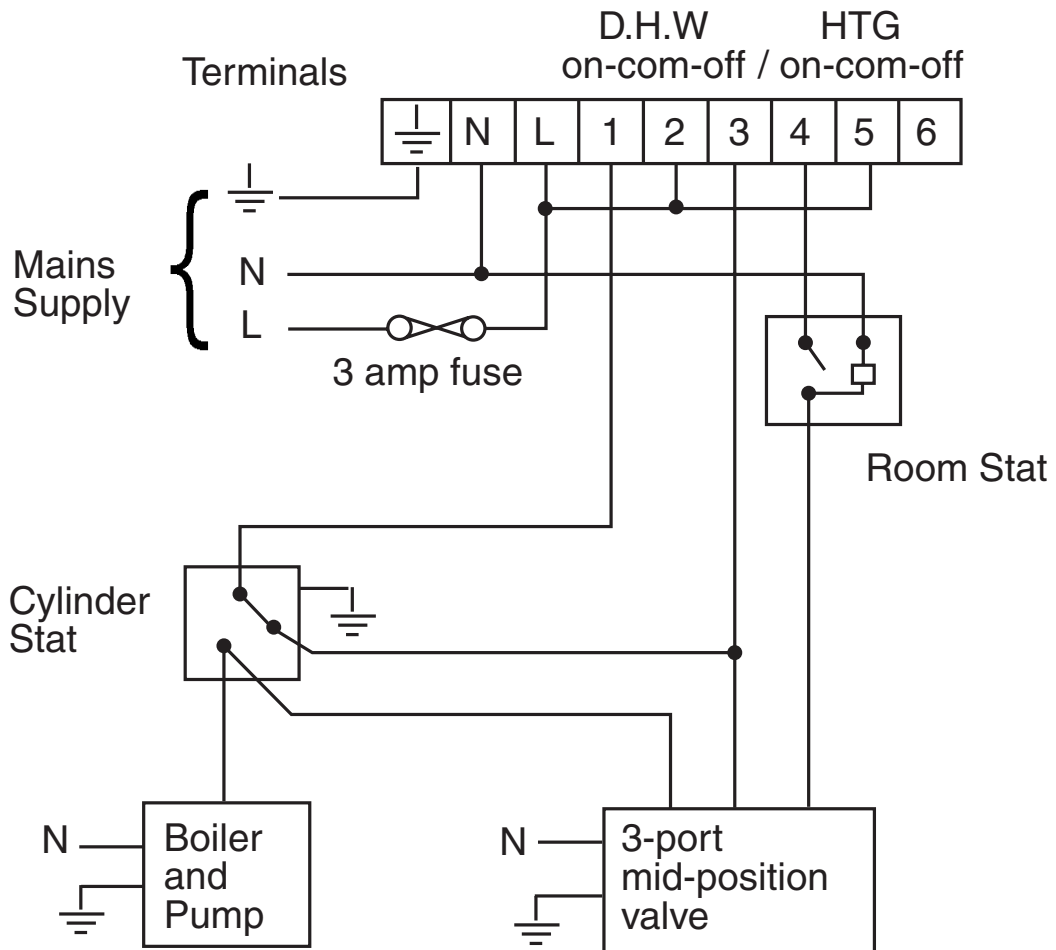L

3 amp fuse

Room Stat

Cylinder
Stat

N — S.R.Z.V in DHW

N — Boiler

N — Pump

Other Danfoss Randall products suitable for use with above circuit:-
AT cylinder thermostat;
RMT room thermostat;
HP28C motorised zone valve with spring return actuator and SPDT auxiliary switch

Wiring - pumped systems

Typical fully pumped system with 3-port mid-position valve

Terminals

D.H.W
on-com-off / on-com-off

HTG

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains Supply

⏚

N

L

3 amp fuse

Room Stat

Cylinder Stat

N — Boiler and Pump

N — 3-port mid-position valve

Other Danfoss Randall products suitable for use with above circuit:-
AT cylinder thermostat;
RMT room thermostat;
HS3 3-port mid-position valve with spring return actuator

Typical fully pumped system with spring return zone valve in each service

Terminals

D.H.W — on-com-off / HTG — on-com-off

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains Supply { ⏚ N L

3 amp fuse

Room Stat

Cylinder Stat

N — S.R.Z.V in DHW

N — Boiler and Pump

N — S.R.Z.V in HTG

Other Danfoss Randall products suitable for use with above circuit:-
AT cylinder thermostat;
RMT room thermostat;
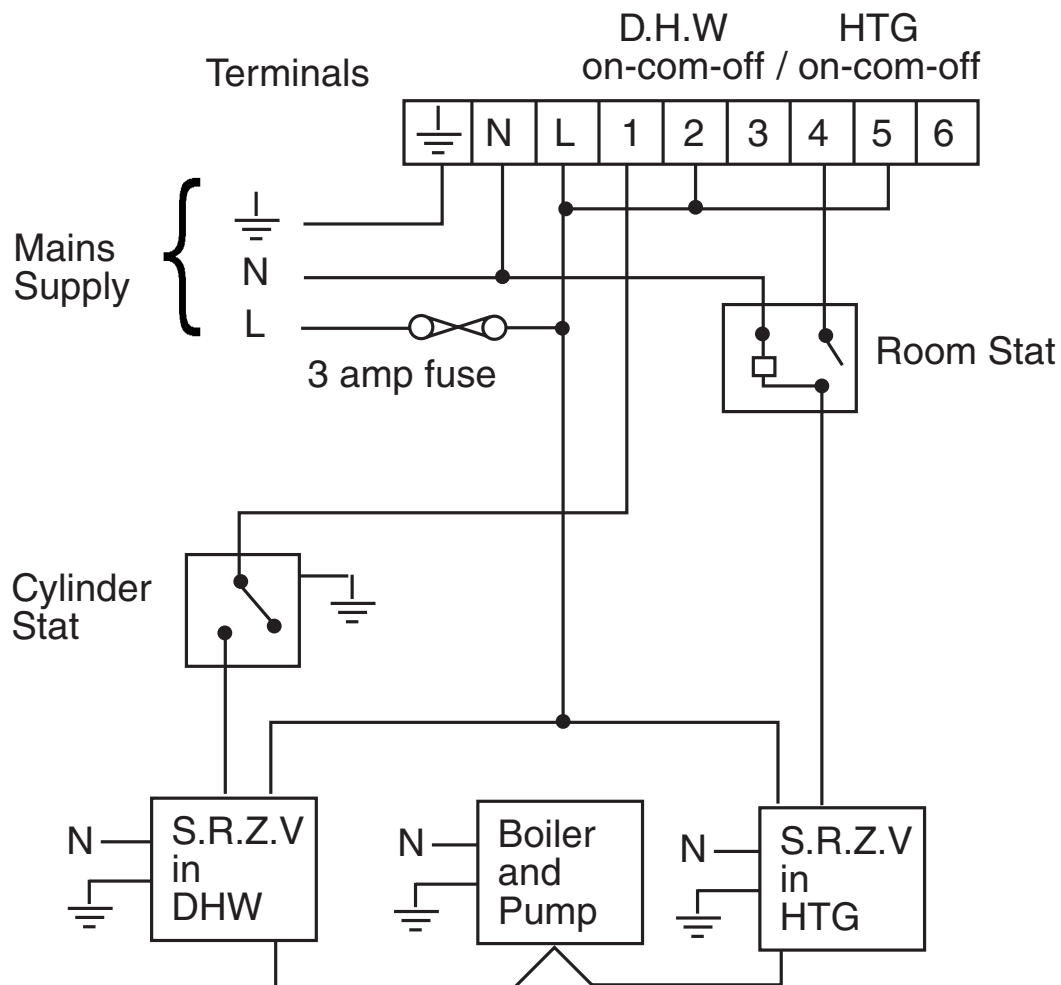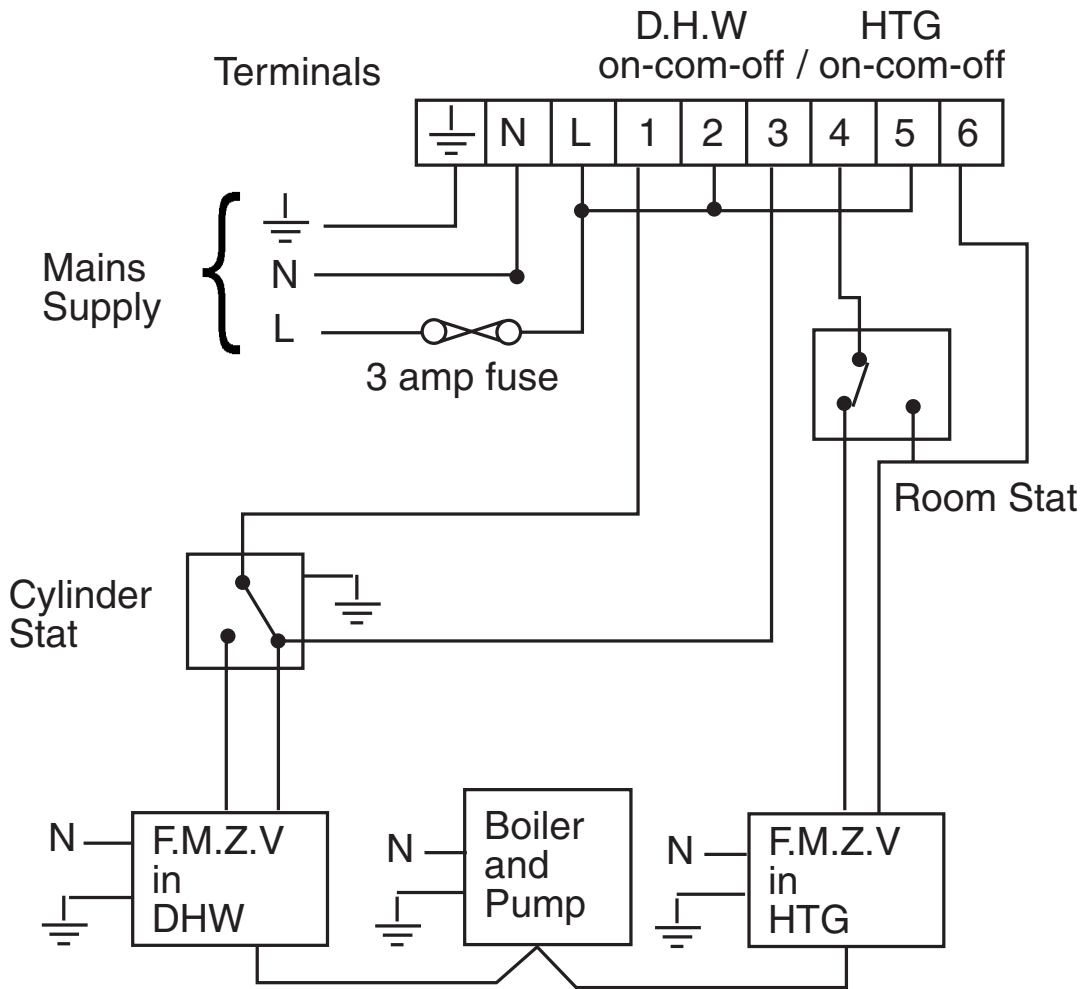2 x HP22 or HP28 motorised zone valve with spring return actuator and SPST auxiliary switch

Wiring - pumped systems

11

Typical fully pumped system with fully motorised zone valve in each service

Other Danfoss Randall products suitable for use with above circuit:-
AT cylinder thermostat;
RMT room thermostat

Wiring - pumped systems

Replacement

Please see overleaf for a table containing replacement wiring information.

Some time controls are connected in different ways depending upon the type of system and/or the controls which are fitted. Consult the column headed "**NOTE: The conversion applies only if....**" to determine how the SET3M programmer's GRAVITY or PUMPED link should be set. If there is any doubt about the way in which the existing programmer is connected, please contact our Technical Services Department before proceeding with replacement.

Note: The SET3M is a direct plug-in replacement for any existing programmers using the British Gas Standard Wallplate. This includes the Horstmann 425 Tiara and Diadem electro-mechanical and 525 & 527 electronic programmers.

Danfoss Randall SET3M (PUMPED)	MAINS			WATER			HEATING			NOTE: This conversion only applies if...	A	B	C	D
	⏚	N	L	ON 1	COM 2	OFF 3	ON 4	COM 5	OFF 6					
Danfoss Randall 922/972		N	L	3	2	1	6	5	4	Pumped/Gravity link is set to pumped				
Glowworm Mastermind		N	L	3	-	1	4	-	2					
Horstmann 423 Amethyst 7 & 10		2,3	1	5	-	4	7	-	6		8			
Horstmann 424 GEM		2,3	1, 1-0	4	5	6	7	8	9	Terminals 5,8 & 10 are linked				
Horstmann Leucite 423 & 424		2	1	3	5	4	6	7	8	Terminals 5 & 7 are linked				
Honeywell ST669		N	L	6	8	7	3	5	4					
Landis & Gyr RWB2		N	L	3	-	1	4	-	2					
Potterton Mini-Minder		N	L	3	-	1	4	-	2					
Potterton EP2000, EP3000		N	L	3	-	1	4	5	2	Pumped/Gravity link is set to pumped	A	B	C	D
Randall 3033		1,7	6	4	-	5	2	-	3					
Danfoss Randall 4033		7	6	4	1	5	2	-	3					
Sangamo Form 1 410 & 414		4,5	6	1	3	2	8	-	7					
Sangamo S409/1		N,- 1,3	L	2	-	-	5	-	-		6,4			

| Controller	Conn.									Notes			
Sangamo S409/3	⏚	3,6	7	5	-	4	1	-	2				
Satchwell 'Libra' & DHP 2201	⏚	1	2	6	7	8	3	4	5				
Satchwell ET 1401 & ET 1451	⏚	1	2	7	6	8	4	3	5				
Smith Ind Controller 90	⏚	1	2	5	-	-	4	-	-		3	6	
Smith Ind Controller 1000	⏚	N	L	3	-	1	4	-	2	Pumped/Gravity link is set to Pumped			
Switchmaster 800 & 805	⏚	N	L	3	-	4	1	-	2				
Switchmaster 900 & 9000	⏚	N	L	3	-	4	1	-	2	Pumped/Gravity link is set to Pumped	A	B	C
Venner CHC/W2 (with stat)	⏚	N,-2,4	L	1	-	-	A/S	-	-		A/-S,-3A-/S,3		
Venner CHC/W2 (air stat linked)	⏚	N,-2,4	L	1	-	-	3	-	-				
Venner Ventrolnol 80M & 80PM (with air stat)	⏚	N,3	L	2	-	1	A/S	-	4	Used in a system having independent control of hot water	A/-S,5		
Venner Ventrolnol 80M & 80PM (air stat linked)	⏚	N,3	L	2	-	1	5	-	4				

User Instructions

Your programmer

The SET3M programmer allows you to switch your hot water and heating on and off at times that suit you.

Four tappets on the timing dial let you decide when you want your hot water and heating to come on and go off each day. The programmer provides 2 ON times and 2 OFF times per day. Using two simple rocker switches you can control your heating and hot water separately, to suit your lifestyle.
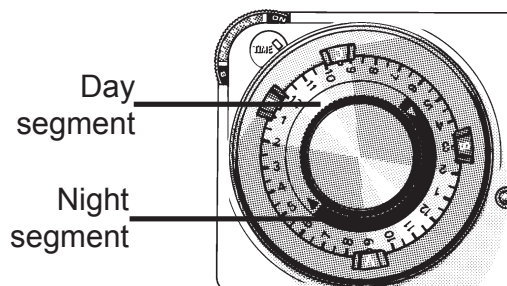
Setting the Clock

❏ Remove the dial cover

❏ Turn the dial clockwise until the correct time is lined up with the **TIME** setting line

TIME setting line
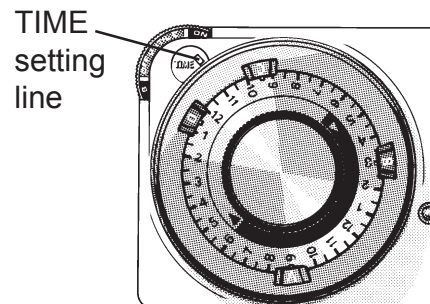
Day segment, covering 6.00am-6.00pm, has an aluminium finish

Day segment

Night segment

Night segment, covering 6.00pm-6.00am, is coloured black

!

IMPORTANT:
If you have a powercut you will have to reset the time - and also when the clocks change in Spring and Autumn

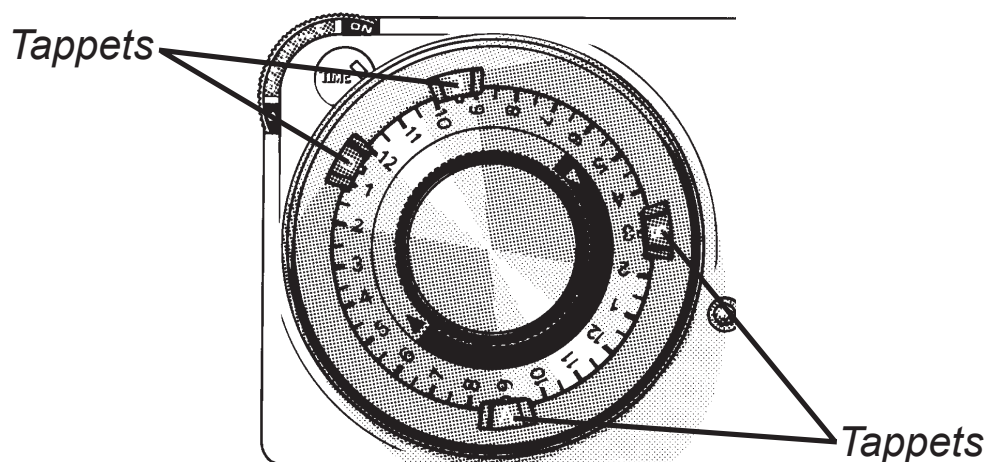# Programming the unit

There are four TAPPETS on your timing dial, two red and two blue:

❑   the **red** tappets are the **ON** switches

❑   the **blue** tappets are the **OFF** switches

Tappets

Tappets

1   If you have not already done so, remove the dial cover

2   Hold the black & silver knob with one hand and move the red tappet marked 'A' clockwise to the time you want your HEATING/HOT WATER to switch on in the morning.

   *NB. you may find the tappets quite stiff, so you may have to push them quite firmly to move them.*

3   Hold the black knob with one hand and move the blue tappet marked 'B' to the time you want your HEATING/ HOT WATER to switch off in the morning.

4   You can set your other two tappets in the same way to set your HEATING/HOT WATER for the afternoon or evening.

!   *DO NOT switch the programmer on and off with the mains switch as this will stop the clock/timer and affect the timed programme.*

Using the Programmer

The 2 rocker switches are used to select how the SET3M controls your hot water and heating. The heating and hot water can be operated together or independently of each other (i.e. during the summer when only hot water is required).

WATER   HEATING

OFF
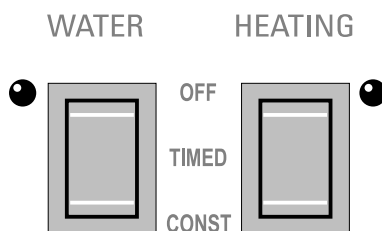
TIMED

CONST

WATER switch

❏ **OFF** - the Hot Water is manually switched OFF and will stay off until you change the position of the switch

❏ **Timed** - the Hot Water will come on and go off at the times you have programmed

❏ **Constant** - the Hot Water will come on manually and stay on constantly until you change the position of the switch

A red light adjacent to the WATER switch is lit whenever the Water is switched on.

HEATING switch

❏ **OFF** - the Heating is manually switched OFF and will stay off until you change the position of the switch

❏ **Timed** - the Heating will come on and go off at the times you have programmed

❏ **Constant**- the Heating will come on manually and stay on constantly until you change the position of the switch

A red light adjacent to the HEATING switch is lit whenever the Heating is switched on.

Overrides

Sometimes you may need to change the way you use your heating or hot water temporarily, i.e. due to unusually cold weather. The SET3M has one convenient override which can be selected without affecting the set programme.

The RED/BLUE wheel on the lefthand corner of the unit is an OVERRIDE SWITCH.
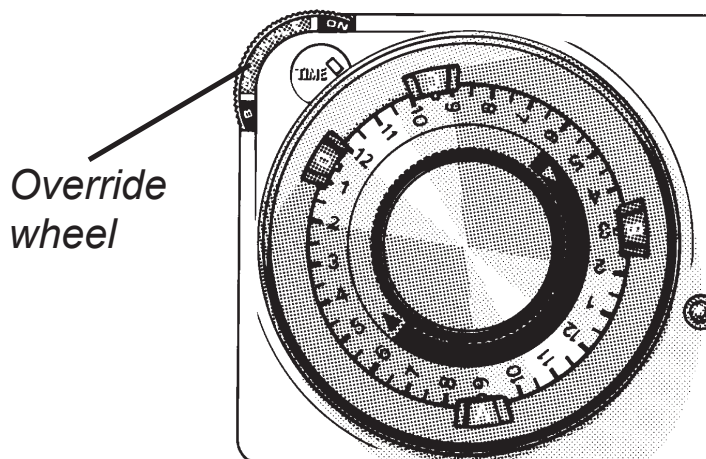
Override wheel

❏   When it shows **RED** the clock is **ON**

❏   When it shows **BLUE** the clock is **OFF**

Manual Use

If you do not wish to use the timer facility, you can switch your heating and hot water on or off manually by using the OVERRIDE wheel without having to change the settings on the timer itself.

To use, turn the override wheel **anti-clockwise** until the thumbwheel displays the setting you require.

The override will automatically cancel at the next pre-set time change.

Still having problems?

Call your local heating engineer:

Name: ....

Tel: ....

Visit our website:

www.danfoss-randall.co.uk

Email our technical department:

drl_technical@danfoss.com

Call our technical department

0845 121 7505
(8.45-5.15 Mon-Thurs, 8.45-4.45 Fri)

For a large print version of these instructions please contact the Marketing Services Department on 0845 121 7400.