Danfoss SET3M Electro Mechanical 24 Programmer for Heating and Hot Water Instruction Manual

Contents

Danfoss SET3M Electro Mechanical 24 Programmer for Heating and Hot Water

Product Using Information

1. The unit does not require an Earth connection, but a terminal is provided on the wallplate for Earth continuity purposes.
2. Refer to the wiring diagrams on pages 6-12 and connect the unit as shown.
3. The unit is pre-configured for systems with PUMPED primaries.
4. Clean the installation area of dust and debris.
5. Check the unit and circuit by switching ON the mains supply and testing both the water and HEATING rocker switches.
6. Program the unit only after ensuring proper operation of the services.

Product Usage Instructions

- Setting the clock: Follow the instructions to set the clock on the programmer.
- Programming the unit: Detailed programming steps are provided.
- Using the programmer: Refer to for guidance on using the programmer features.
- Overrides: Learn how to override programmed settings as explained.
- Manual use: In case of manual operation, follow the instructions.

This product complies with the following EC Directives: Electro-Magnetic Compatibility Directive. (EMC) (2004/108/EC) Low Voltage Directive. (LVD) (2006/95/EC)

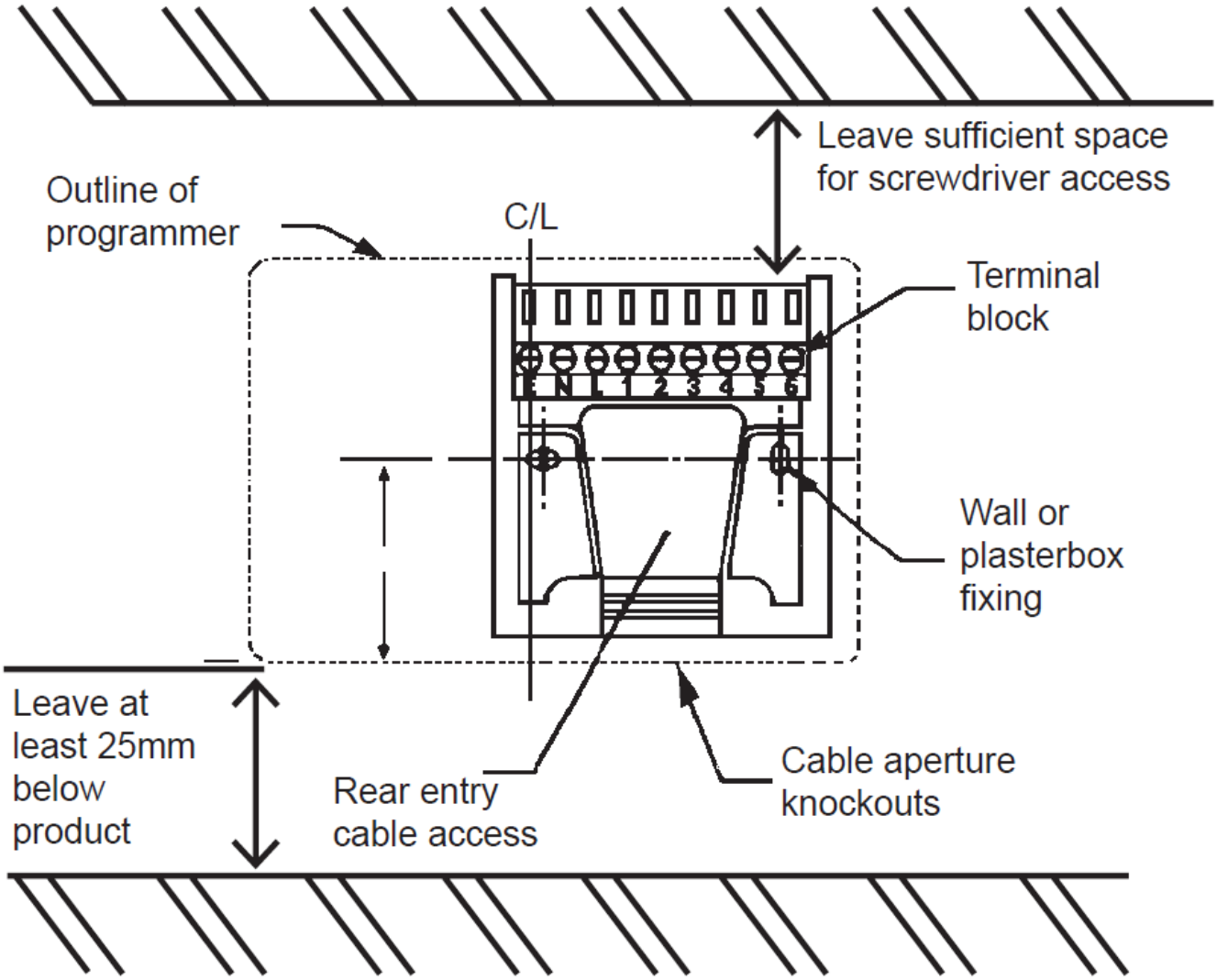
Please Note
This product should only be installed by a qualified electrician or competent heating installer and should be installed by the current edition of the IEEE wiring regulations.

Product Specification

Specification	
Power supply	230 ± 15% Vac, 50/60Hz
Switch action	2 x SPDT Type 18
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
8all Pressure Test	75°C

Installation

1. Fix the wall plate 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 ⏚)

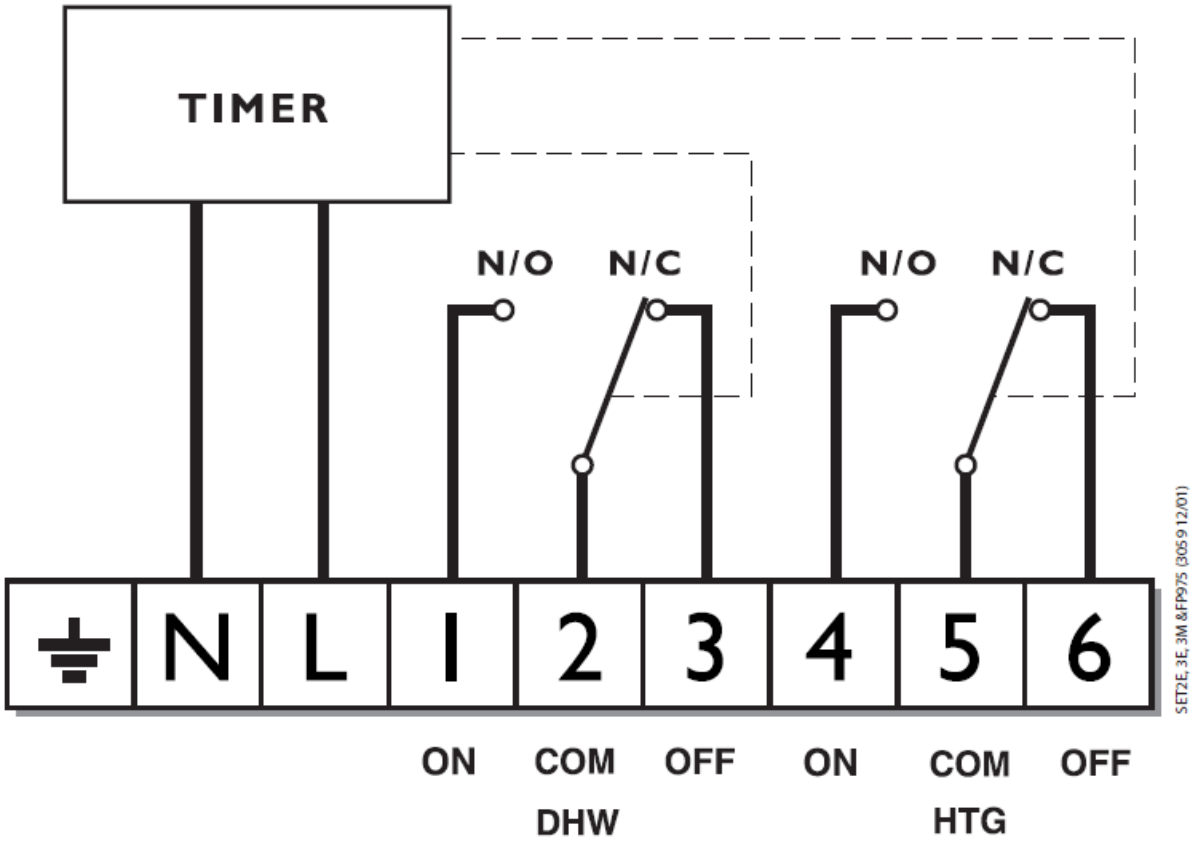


2. Surface cables can only enter from below the unit. If mounted on a flush-mounted box, cables can enter from the rear through the aperture in the wallplate.
3. For mains voltage applications, a link must be fitted between terminals L, 2, and 5.
4. Whilst the unit does not require an Earth connection, A terminal is provided on the wallplate for Earth continuity purposes.
5. Referring to the wiring diagrams, 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, fi t the small plastic shorting link (which can be found taped below the left hand fi xing 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 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 LEDís should now be illuminated.
   Adjust any remote thermostat to check that the services operate correctly.
10. Then press both the WATER and HEATING rocker switches to the OFF position and check that both services do not operate.
11. Finally, press both the WATER and HEATING rocker switches to the TIMED position before 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

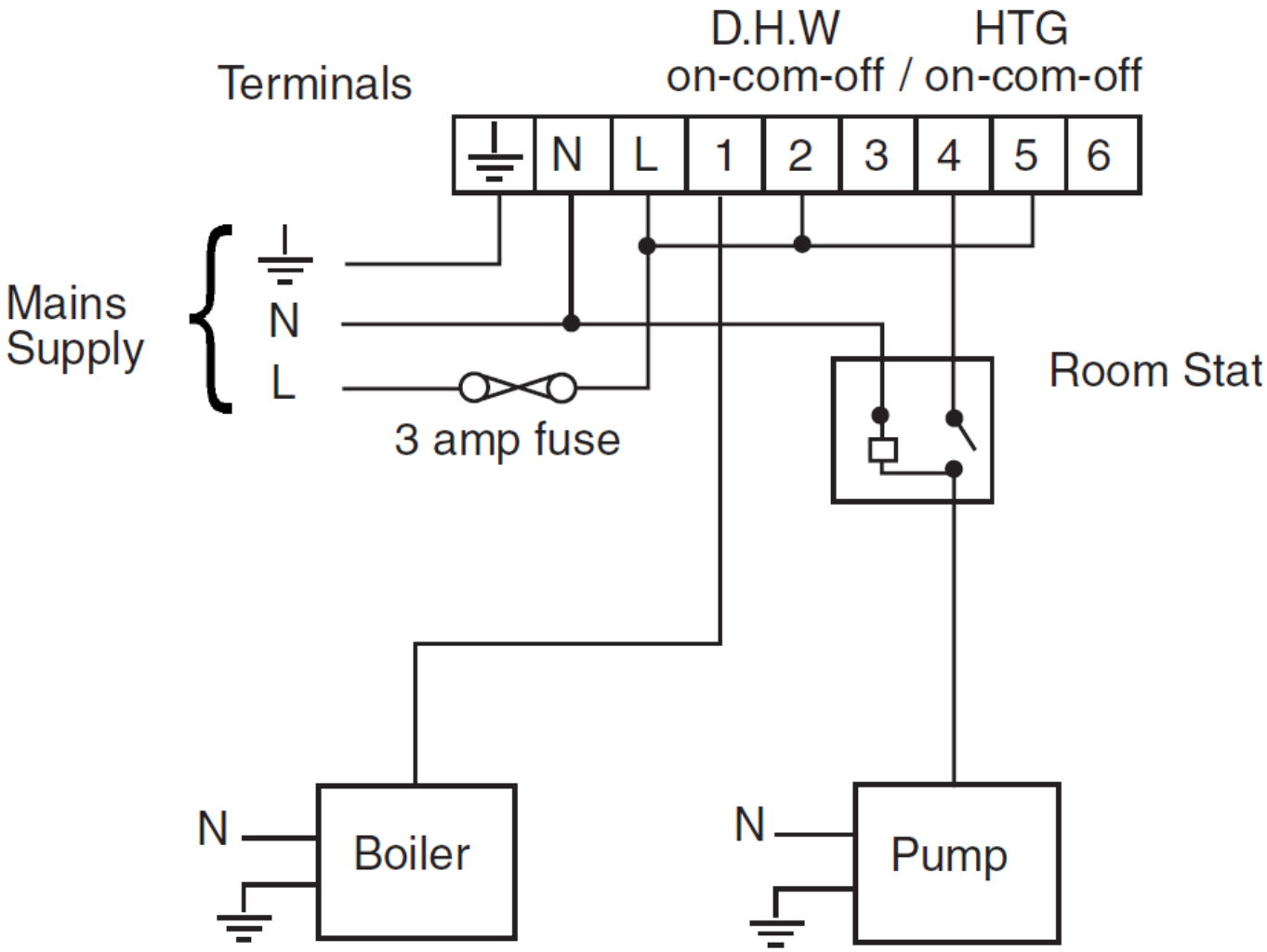


Wiring: For mains voltage applications, a link must be fitted between terminals L, 2, and 5.

SET3M Gravity
Typical gravity DHW pumped HTG

Wiring – Gravity systems

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

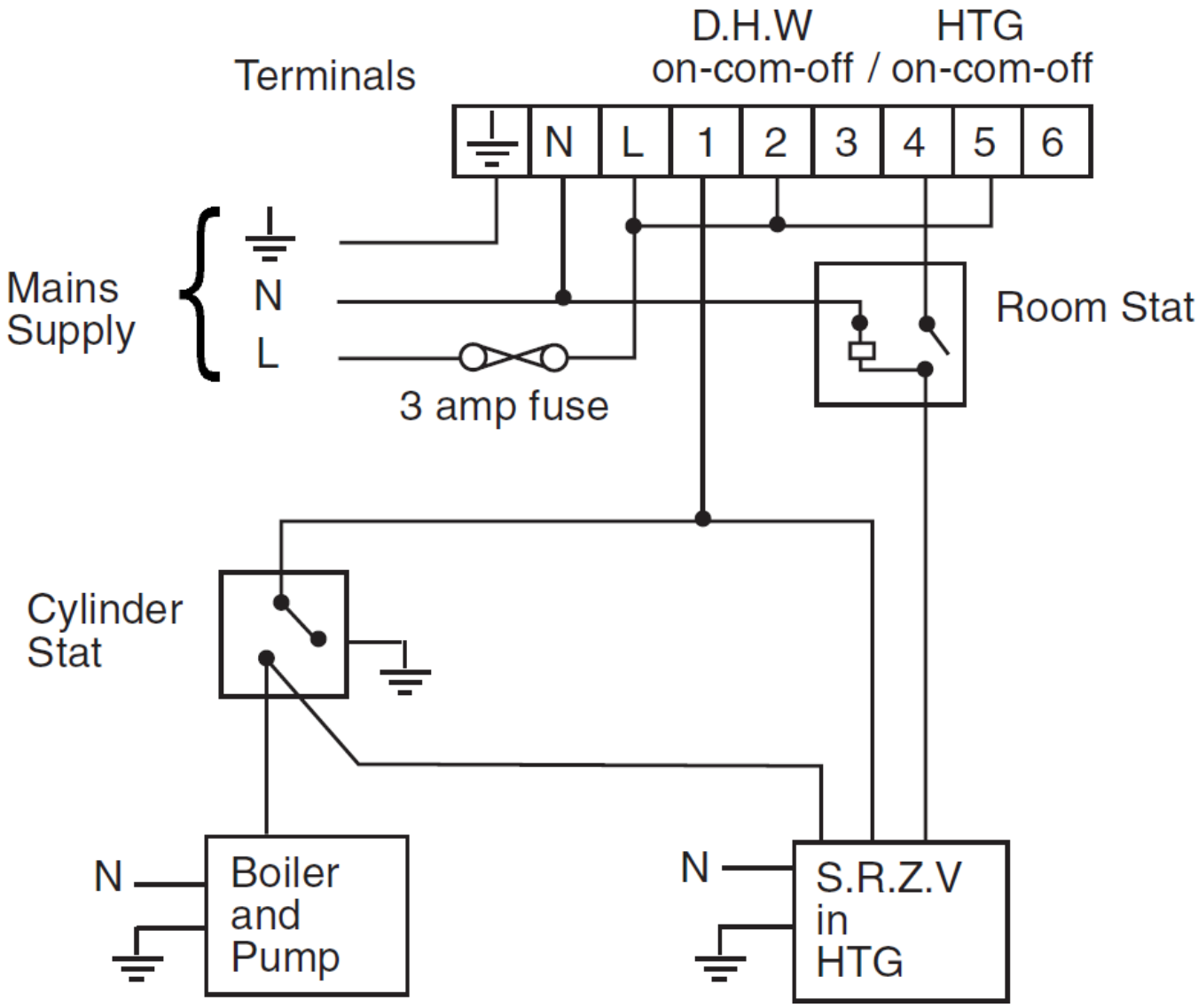


SET3M Pumped

- Typical fully pumped system with spring return zone valve in HTG

Wiring – pumped systems

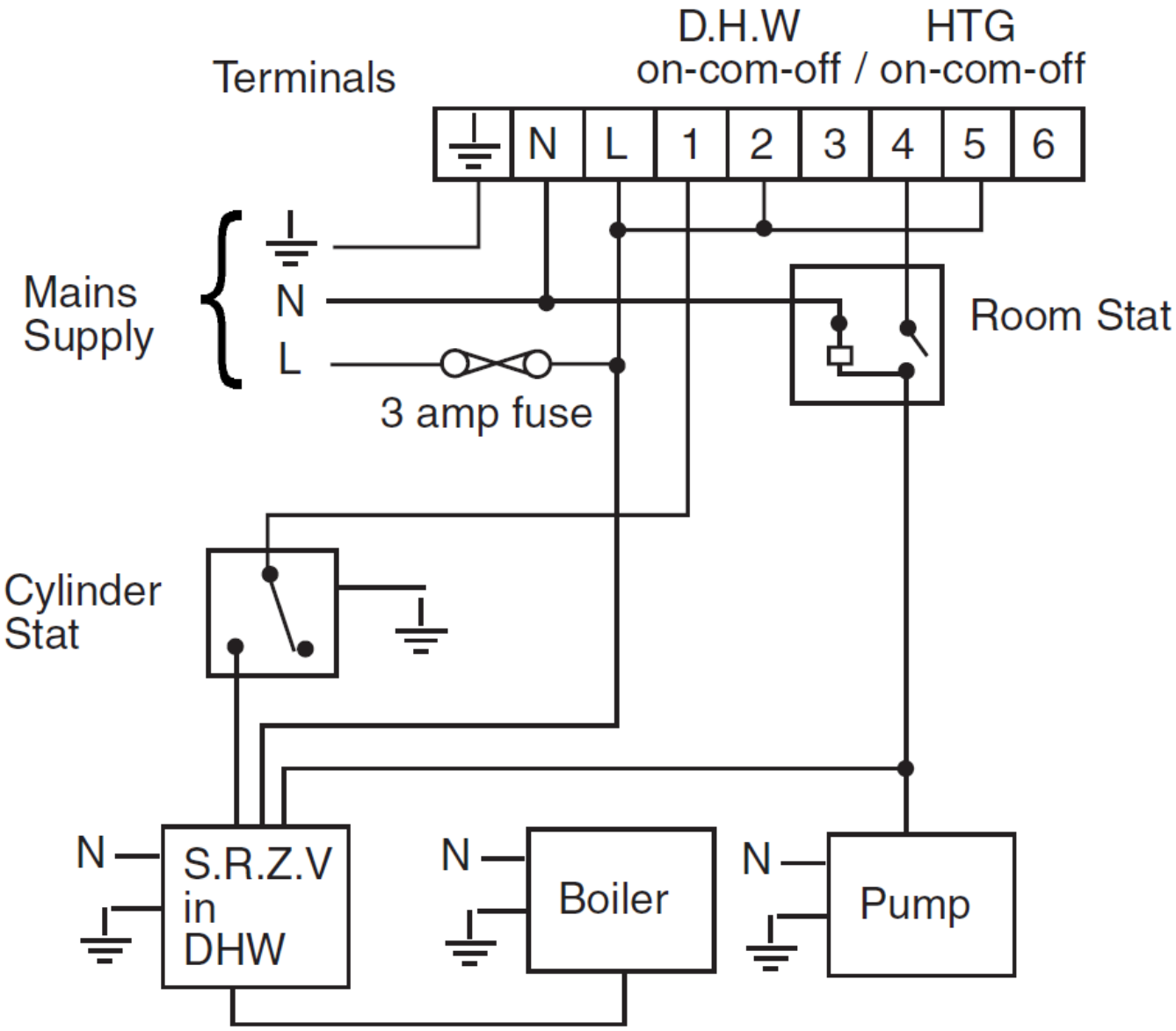
- Other Danfoss Randall products suitable for use with the above circuit:-
- AT cylinder thermostat; RMT room thermostat;
- HP22 or HP28 motorised zone valve with spring return actuator and SPST auxiliary switch



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

Wiring – pumped systems

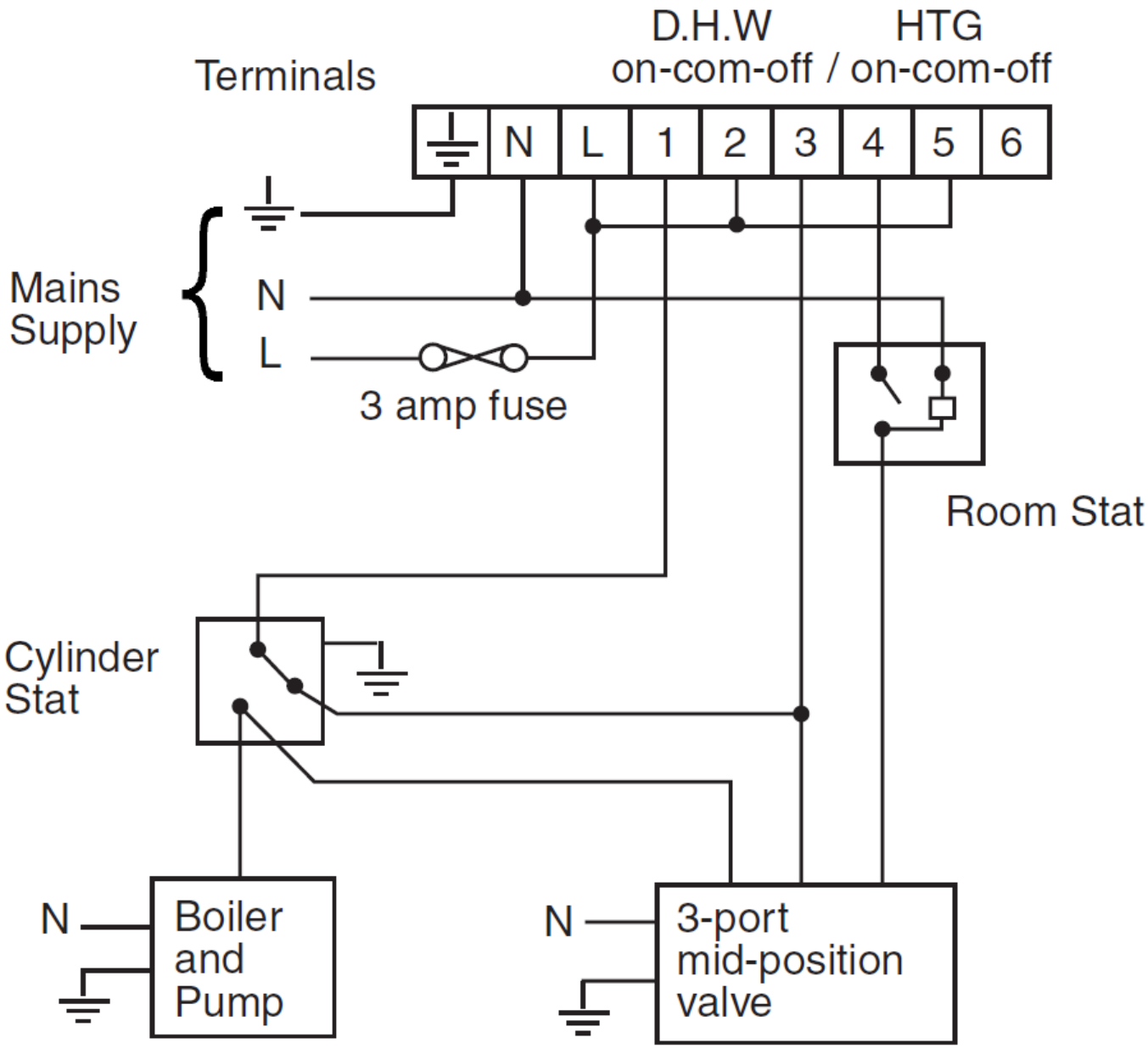
- Other Danfoss Randall products suitable for use with above circuit:-
- AT cylinder thermostat;
- RMT room thermostat;
- HP28C motorised zone valve with spring return actuator and SPDT auxiliary switch



Typical fully pumped system with 3-port midposition valve

Wiring – pumped systems

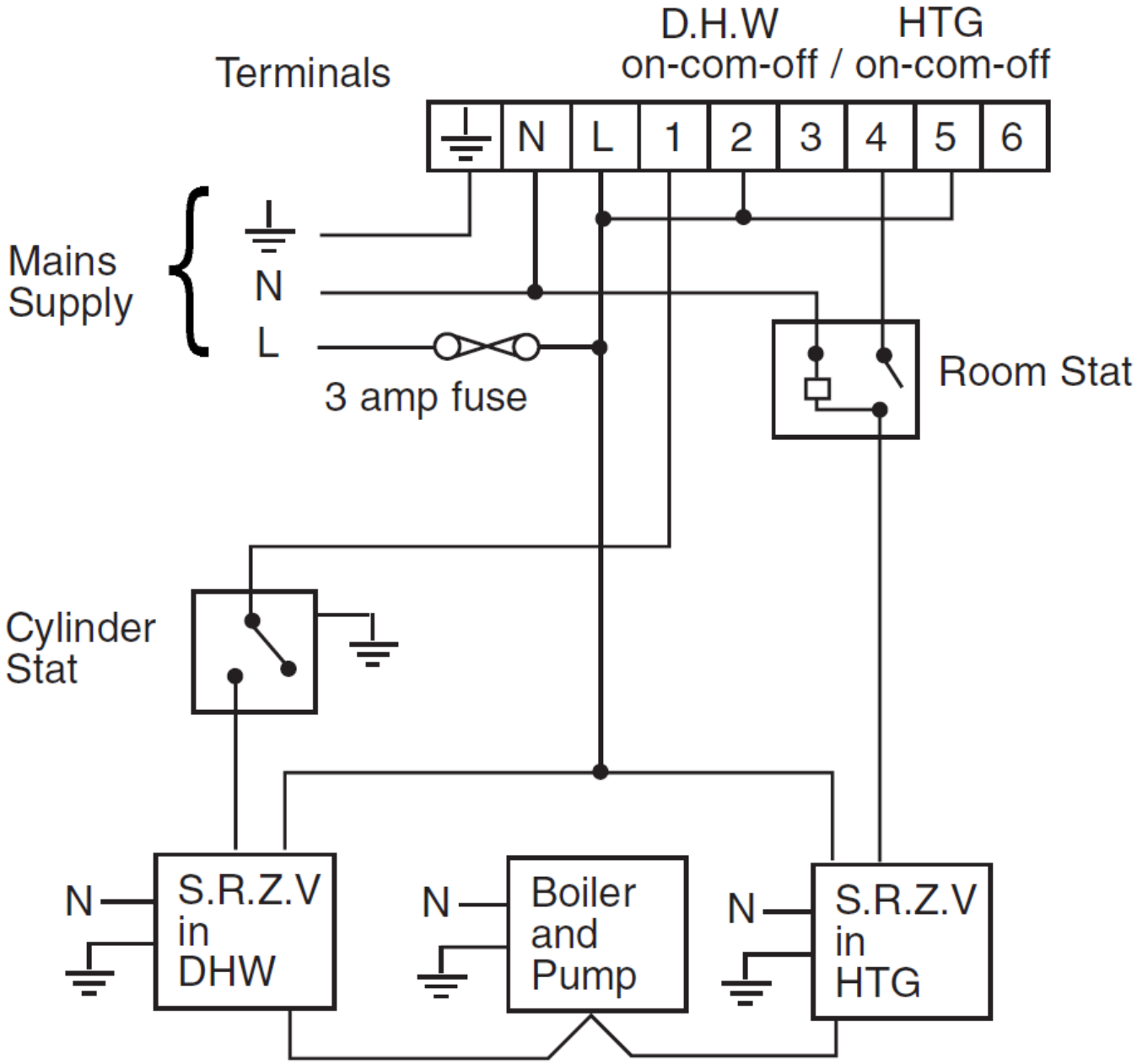
- Other Danfoss Randall products suitable for use with the above circuit:-
- AT cylinder thermostat;
- RMT room thermostat;
- HS3 3-port mid-position valve with spring return actuator



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

Wiring – pumped systems

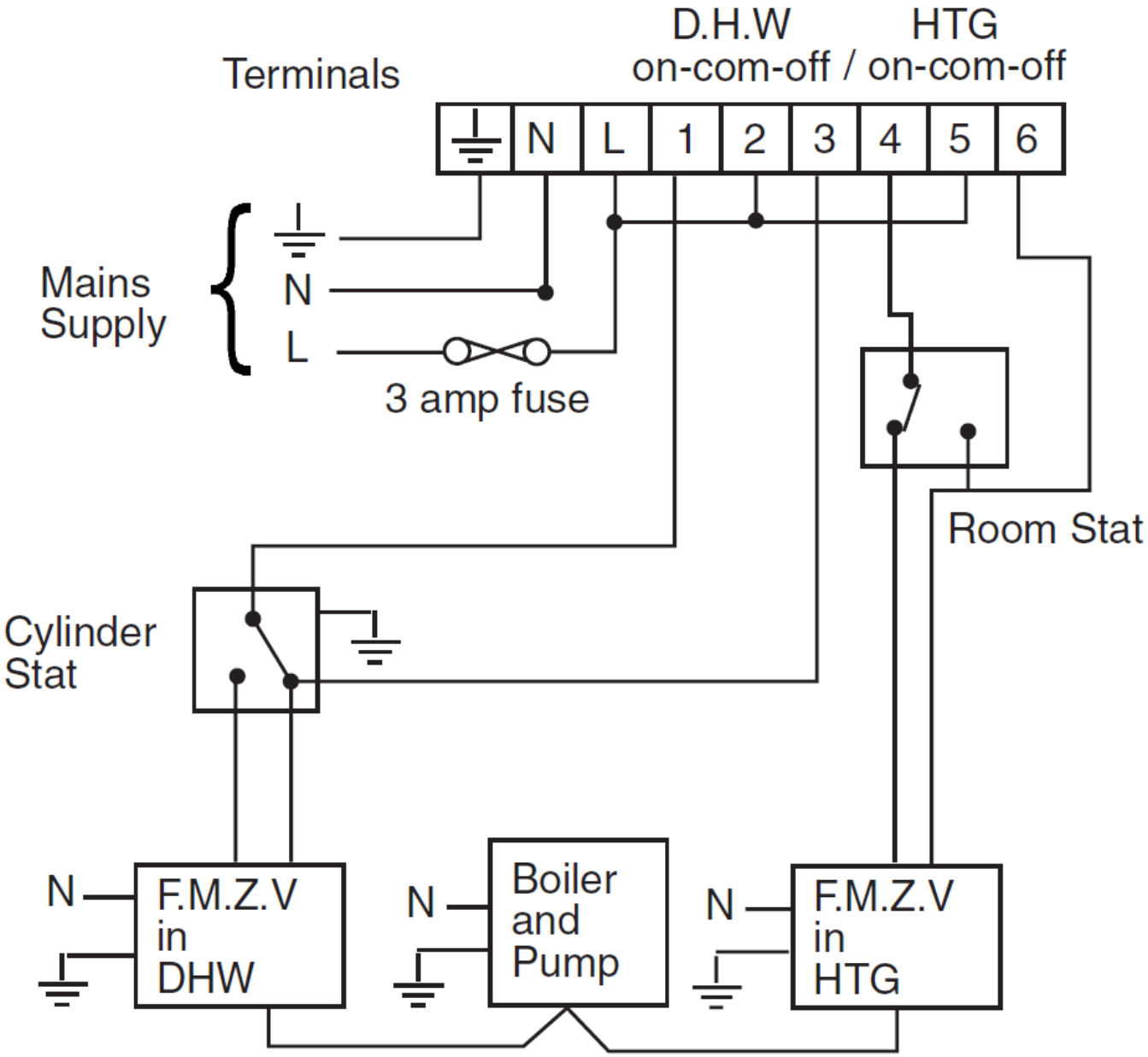
- Other Danfoss Randall products suitable for use with above circuit:-
- AT cylinder thermostat;
- RMT room thermostat;
- 2 x HP22 or HP28 motorised zone valve with spring return actuator and SPST auxiliary switch



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

Wiring – pumped systems

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



Replacement

Please see the 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 that are fitted. Consult the column headed ìNOTE: The conversion applies only if ….î to determine how the SET3M programmerís GRAVITY or PUMPED link should be set. If there is any doubt about how the existing programmer is connected, don’t hesitate to contact our Technical Services Department before proceeding with the 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.

Replacement

Danfoss Randall SET3M (PUMPED)	MAINS			WATER			HEATING			NOTE: This conversion only applies if...				
	⏚	N	L	ON	COM	OFF	ON	COM	OFF					
	⏚	N	L	1	2	3	4	5	6		A	B	C	D
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	Pumped/Gravity link is set to pumped				
Potterton Mini-Minder	⏚	N	L	3	-	1	4	-	2					
Potterton EP2000, EP3000	⏚	N	L	3	-	1	4	5	2		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			
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 Centroller 90	⏚	1	2	5	-	-	4	-	-		3	6		
Smith Ind Centroller 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

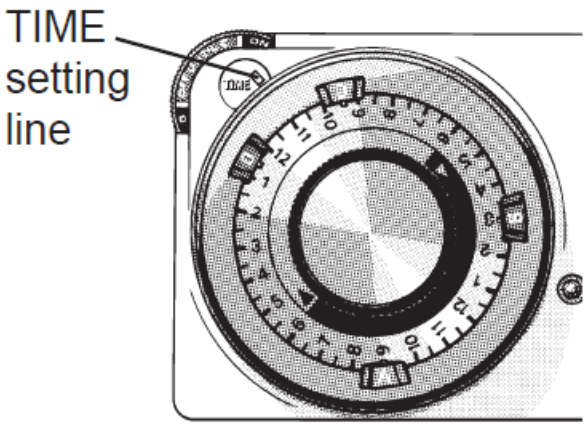
Your programmer

Your Programmer & Setting the Clock

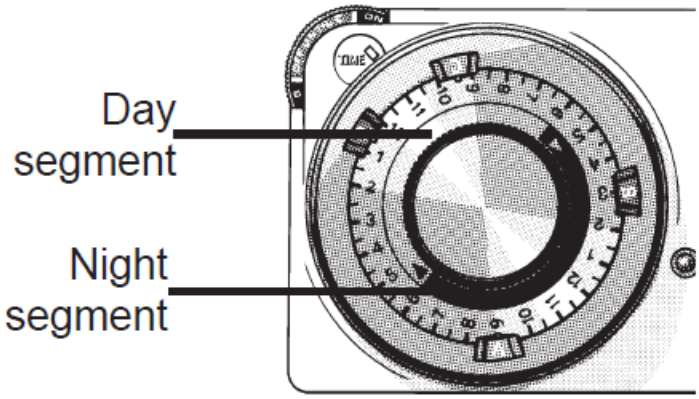
- The SET3M programmer allows you to switch your hot water and heating on and off at times that suit you.
- Four tappets on the timing dial let you decide when you want your hot water and heating to come on and go off each day.
- The programmer provides 2 ON times and 2 OFF times per day. Using two simple 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.



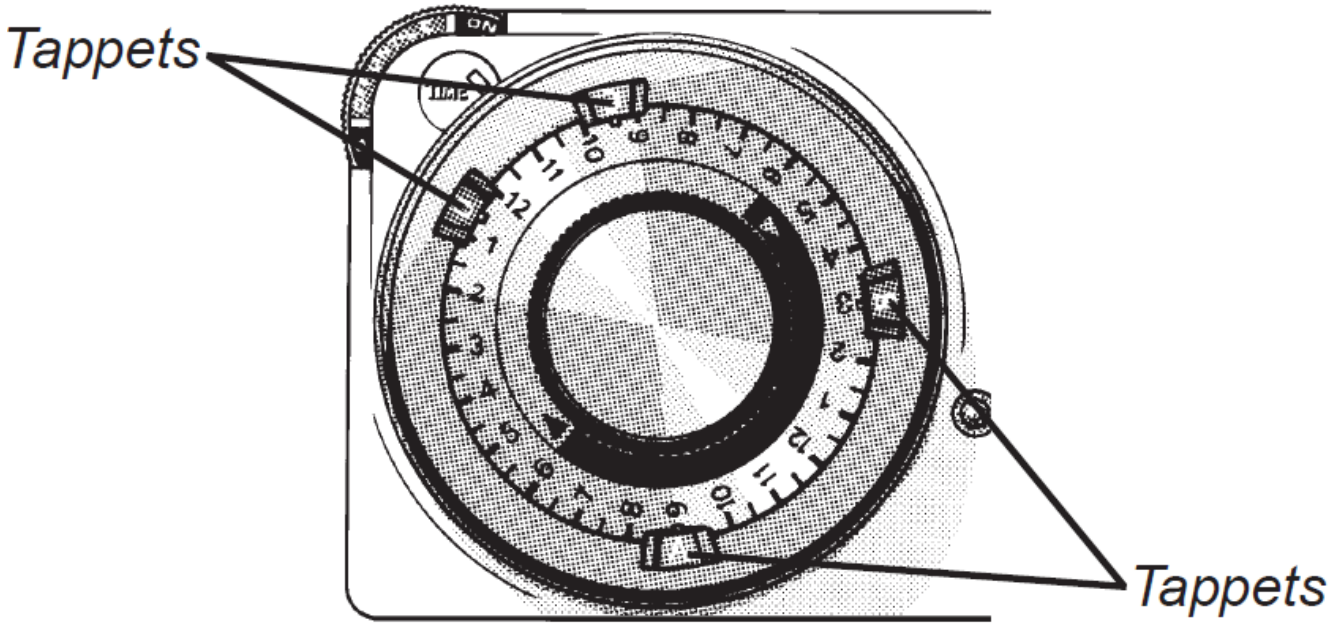
- Day segment, covering 6.00 am-6.00 pm, has an aluminium finish
- Night segment, covering 6.00 pm-6.00 am, is coloured black

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

1.



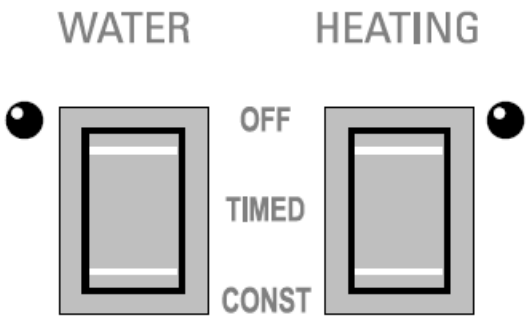
If you have not already done so, remove the dial cover

2. Hold the black & silver knob with one hand and move the red tappet marked ëAí clockwise to the time you want your HEATING/HOT WATER to switch on in the morning.
   NB. you may fi nd the tappets quite stiff, so you may have to push them quite fi rmly to move them.
3. Hold the black knob with one hand and move the blue tappet marked ëBí 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 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.

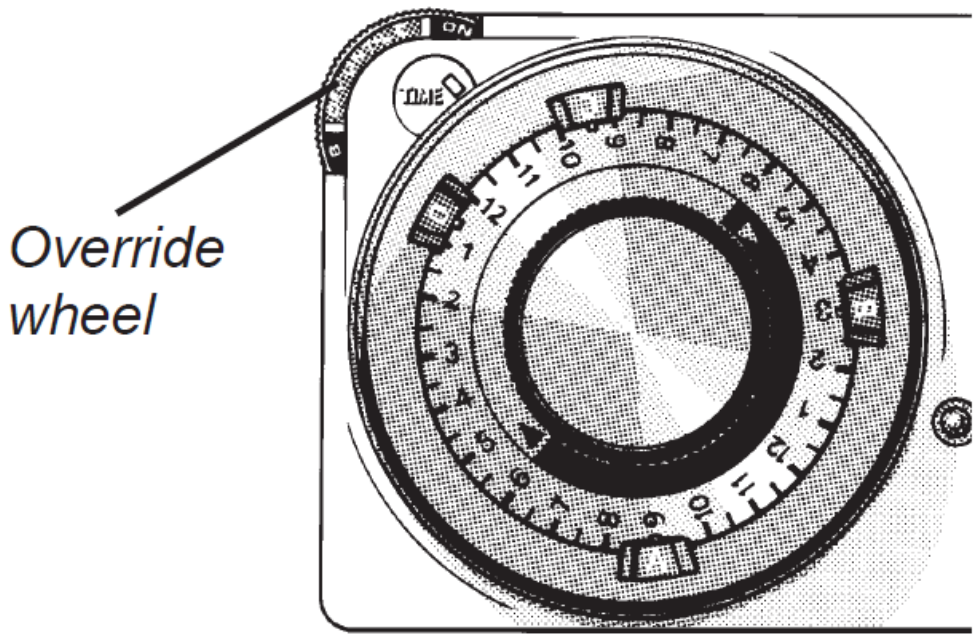
HEATING switch

- 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.



- 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 at 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.

Danfoss Randall Ltd

- Ampthill Road
- Bedford
- MK42 9ER
- Tel: 01234 364621
- Fax: 01234 219705

FAQ

- **Q: Do I need an Earth connection for the SET3M programmer?**
  - **A:** The unit does not require an Earth connection, but a terminal is provided for Earth continuity purposes.
- **Q: How can I check if the SET3M unit is functioning correctly before programming?**
  - **A:** Switch ON the mains supply and test both the water and HEATING rocker switches. Ensure both red LEDs illuminate in CONSTANT position and do not operate in OFF position.

Documents / Resources

	Danfoss SET3M Electro Mechanical 24 Programmer for Heating and Hot Water [pdf] Instruction Manual SET2E, 3E, 3M, SET3M Electro Mechanical 24 Programmer for Heating and Hot Water, SET3M, Electro Mechanical 24 Programmer for Heating and Hot Water, Programmer for Heating and Hot Water, Heating and Hot Water, and Hot Water

References

- User Manual