SET3E
electronic 24-hour programmer for heating & hot water

Installation & User Instructions

Danfoss

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Installation

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Installation Instructions

Please Note:

This product should only be installed by a qualified electrician or competent heating installer, and should be in accordance with the current edition of the IEEE wiring regulations.

Product specification

Specification	
Power supply	230 ± 15% Vac, 50/60Hz
Switch action	2 x SPDT Type 1B
Switch rating	Max 264Vac, 50/60Hz, 3(1) A
Timing accuracy	± 1 min/month
Power reserve	minimum 10 hours
Enclosure rating	IP30
Max. ambient temperature	45°C
Dimensions, mm (W, H, D)	158 x 99 x 38
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 $\perp$)
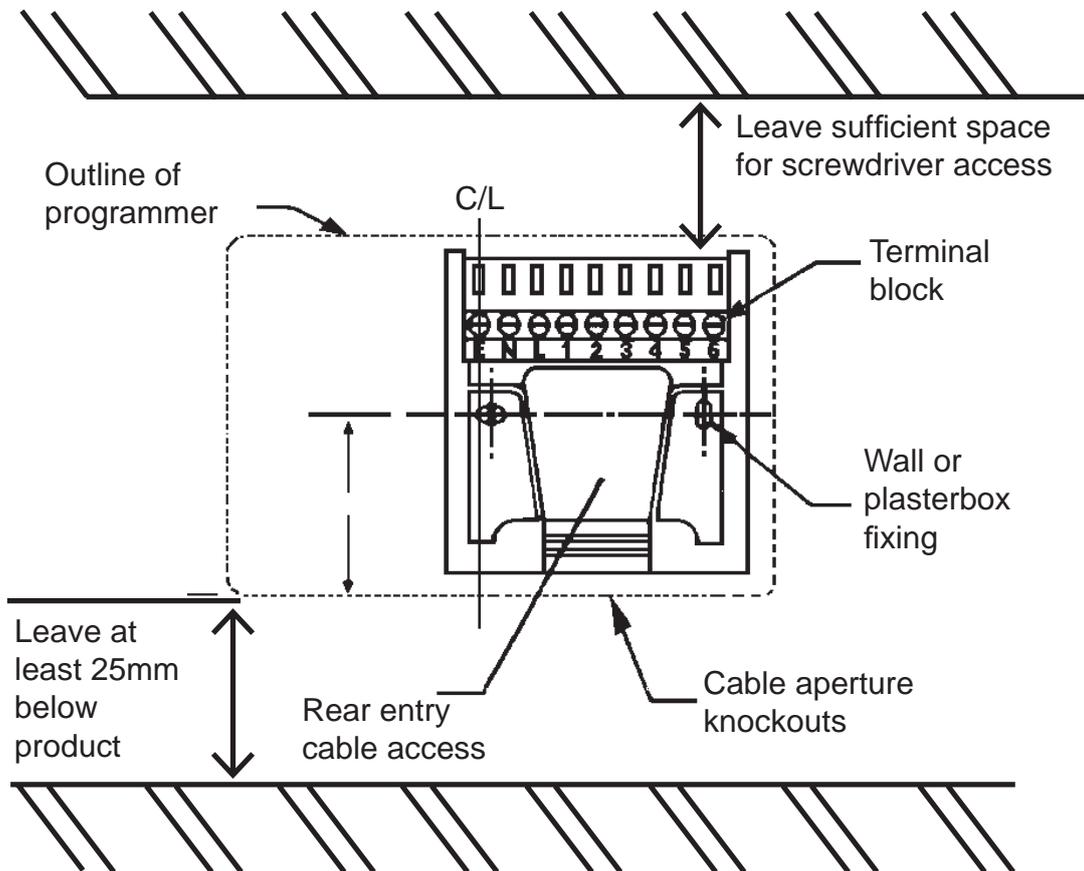
2. Surface cables can only enter from below the unit. If mounted on a flush mounted box, cables can enter from the rear through the aperture in the wallplate.

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 6-10, 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, remove the small link located on the rear of the unit. The link, which is clearly labelled can be found on the bottom RIGHT hand side of the unit.

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** & **HEATING** rocker switches to the **ON** 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

The following pages contain typical wiring diagrams for various types of systems.
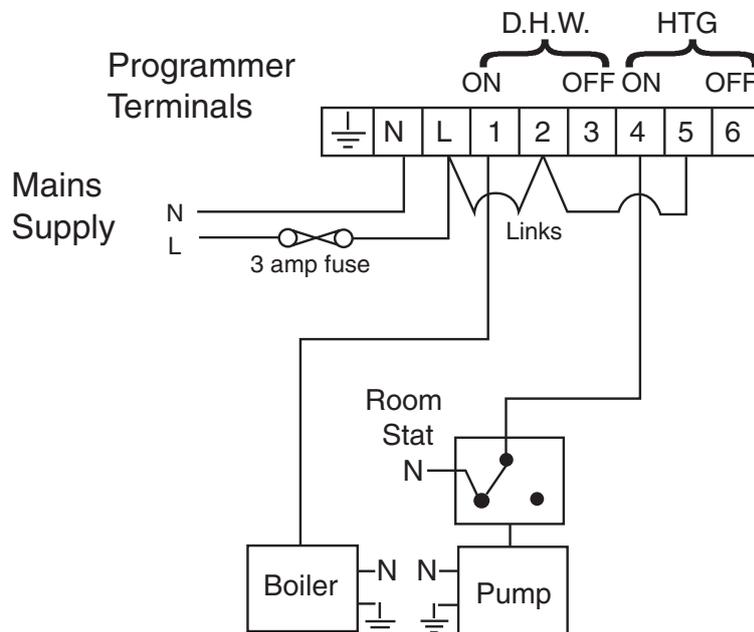
Note: Whilst every attempt has been made to ensure the accuracy of this information it is recommended that the specific information relating to the ancillary controls is obtained from the manufacturers concerned.
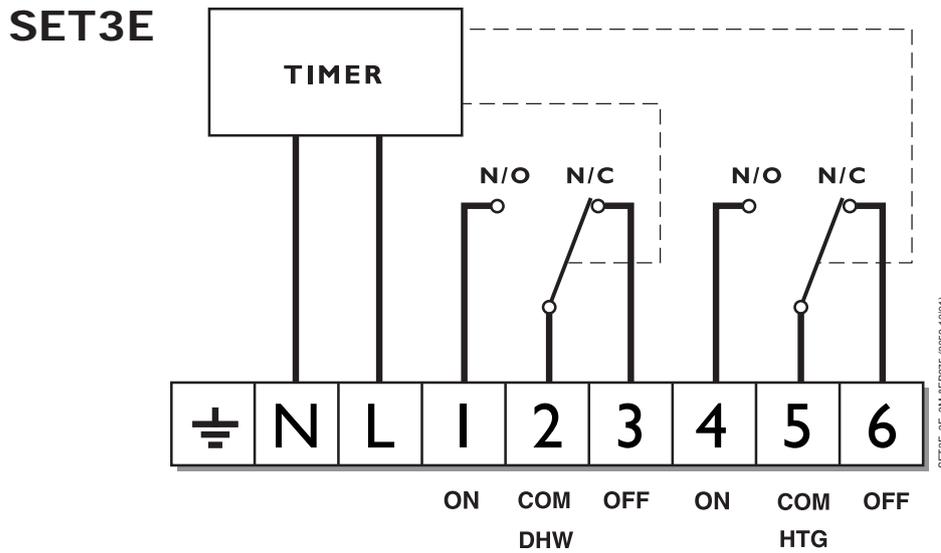
SET3E

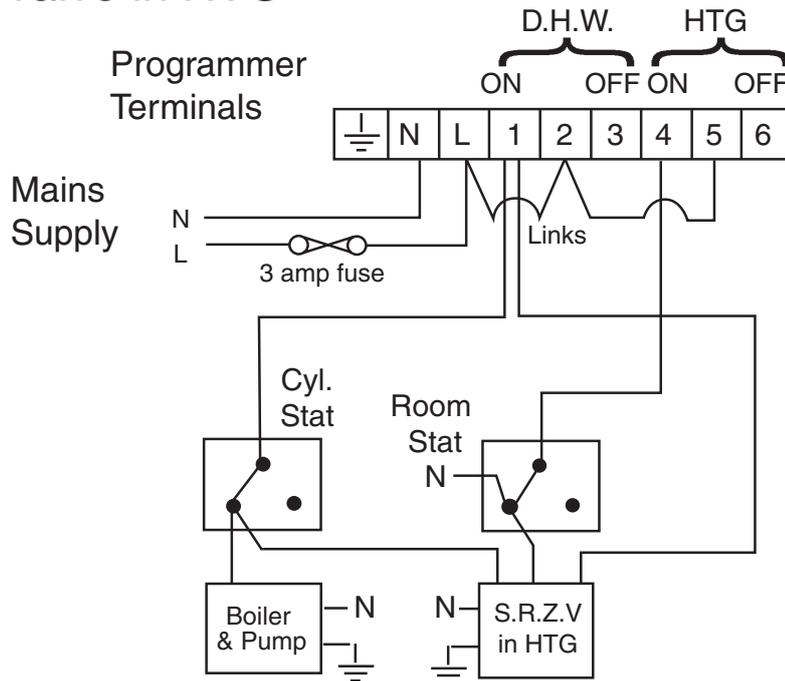NOTE: For mains voltage applications links must be fitted between terminals L, 2 and 5

SET3E Gravity

Typical gravity DHW pumped HTG

SET3E Pumped

Typical fully pumped system with spring return zone valve in HTG

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

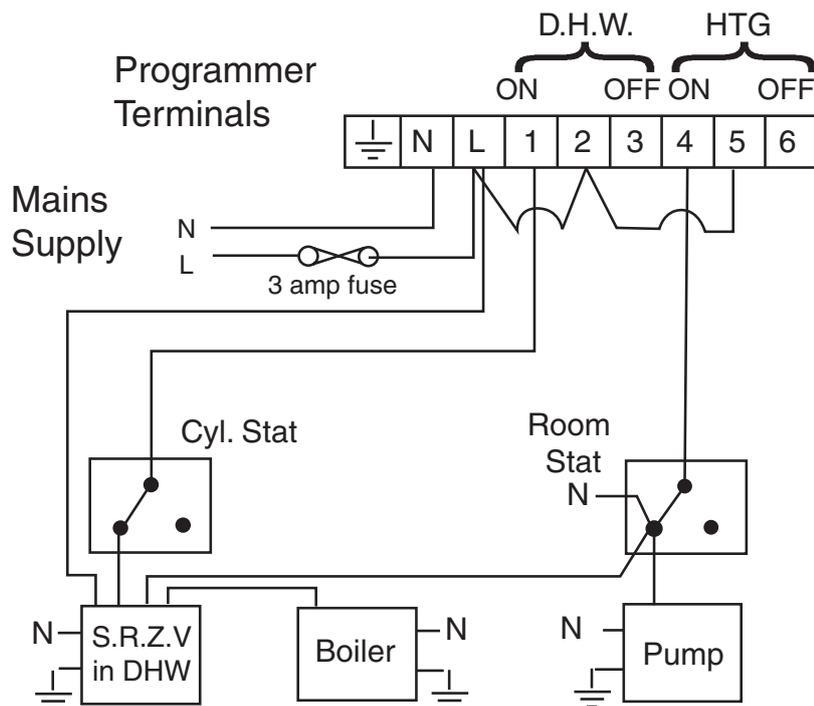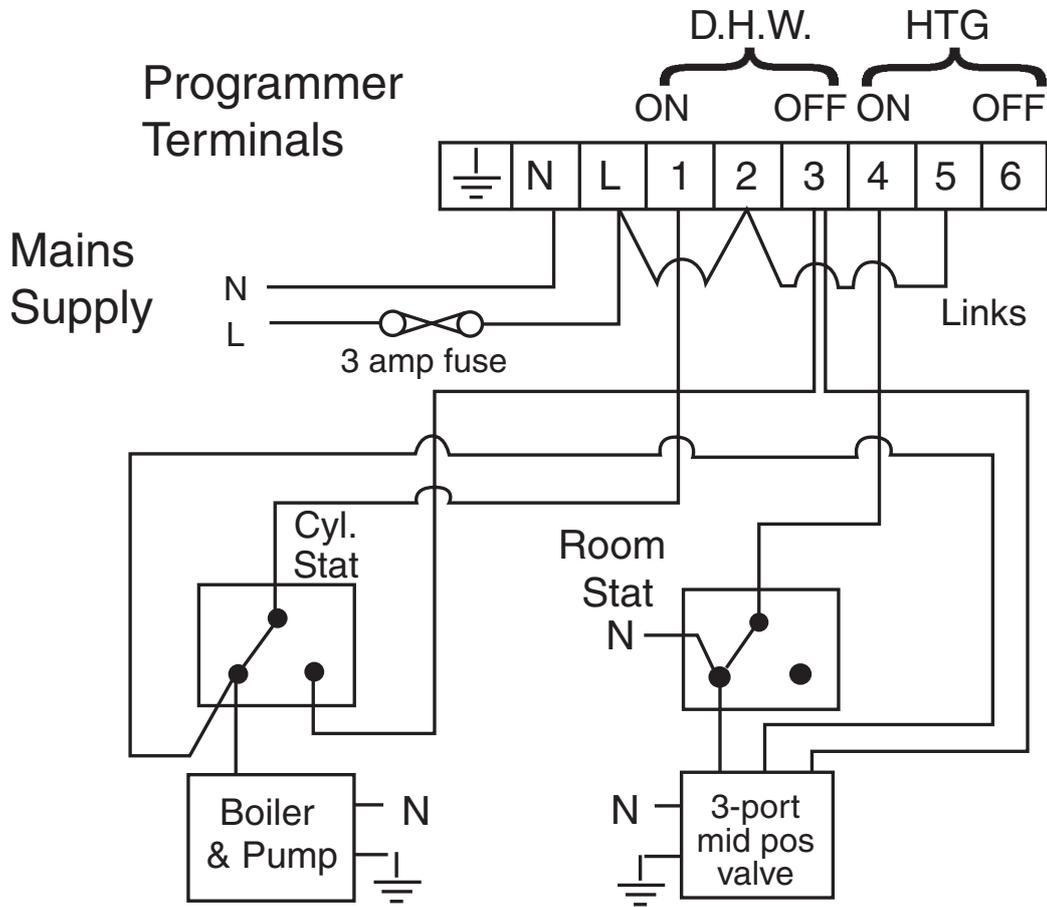## Typical gravity DHW pumped HTG with spring return zone valve in DHW

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

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

Programmer Terminals

D.H.W.

HTG

ON   OFF ON   OFF

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains Supply

N
L

3 amp fuse

Links

Cyl. Stat

Room Stat

N

Boiler & Pump   N

N

3-port mid pos valve

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

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

Programmer Terminals

Mains Supply

D.H.W.   HTG
ON   OFF ON   OFF

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

N
L

3 amp fuse

Links

Cyl. Stat

Room Stat
N

N — S.R.Z.V. in DHW

Boiler — N

N — S.R.Z.V. in HTG

Wiring - pumped systems

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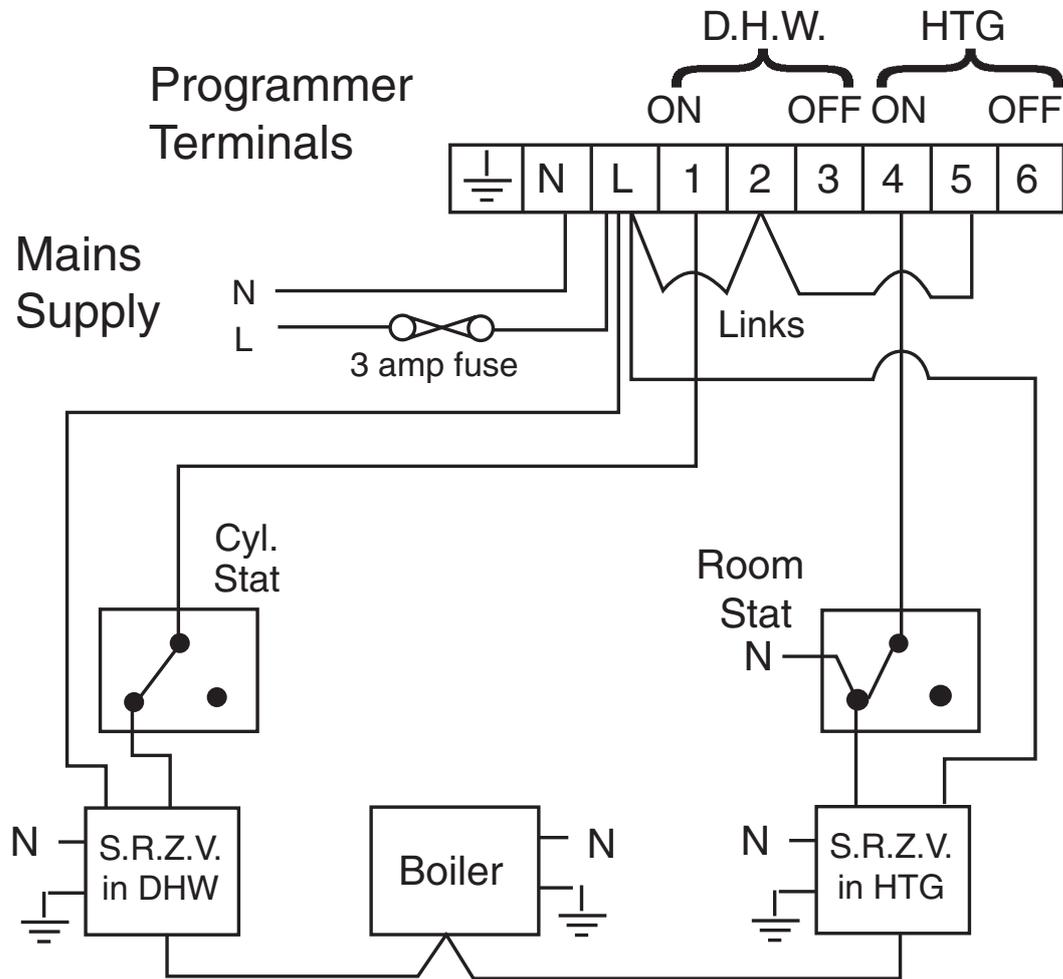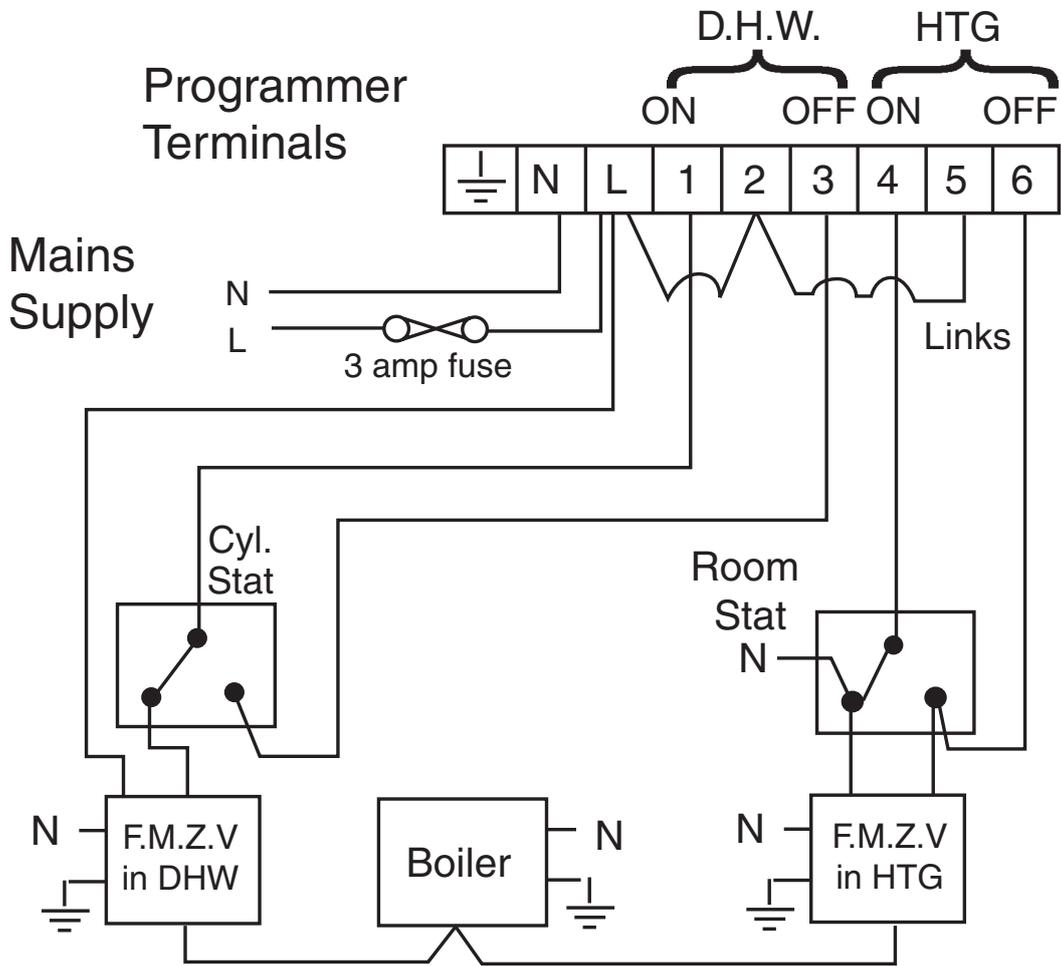2 x HP22 or HP28 motorised zone valve with spring return actuator and SPST auxiliary switch

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

Programmer Terminals

D.H.W.
ON   OFF

HTG
ON   OFF

| ⏚ | N | L | 1 | 2 | 3 | 4 | 5 | 6 |

Mains Supply

N

L

3 amp fuse

Links

Cyl. Stat

Room Stat

N

N — F.M.Z.V in DHW

Boiler — N

N — F.M.Z.V in HTG

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

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 whether the SET3E GRAVITY or PUMPED is the correct conversion. 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 SET3E is a direct plug-in replacement for a Danfoss Randall SET5, although it does not offer 5/2 day programming option

Danfoss Randall SET 3E (PUMPED)

| | MAINS | | | WATER | | | HEATING | | | NOTE: This conversion applies only if..... | An additional terminal block is required where these disconnected leads (or pairs of leads) should be terminated | | | |
				ON	CO-M	OF-F	ON	CO-M	OF-F		A	B	C	D
	⏚	N	L	1	2	3	4	5	6					
Danfoss Randall 922/972	⏚	N	L	3	2	1	6	5	4	Pumped/Gravity link is set to pumped				
Danfoss Randall 4033	⏚	7	6	4	1	5	2	-	3					
Danfoss Randall SET 5	⏚	N	L	1	2	3	4	5	6	Pumped/Gravity link is set to pumped				
Glowworm Mastermind	⏚	N	L	3	-	1	4	-	2	Pumped/Gravity link is set to pumped				
Honeywell ST7100	⏚	N	L	8	6	7	5	3	4					
Honeywell ST6300	⏚	N	L	3	-	1	4	-	2					
Honeywell ST6400	⏚	N	L	3	-	1	4	-	2					
Horstmann 423 Amethyst 7 & 10	⏚	2,3	1	5	-	4	7	-	6		8			
Horstmann 424 GEM	⏚	2,3	1,10	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	Pumped/Gravity link is set to pumped				

Programmer	⏚	N	L	3	-	1	4	5	2	Pumped/Gravity link is set to pumped	A	B	C	D
Potterton EP2000, EP3000	⏚	N	L	3	-	-	-	-	2	Pumped/Gravity link is set to pumped				
Randall 3033	⏚	1,7	6	4	-	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. 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 Venotrol 80M & 80PM (with air stat)	⏚	N,3	L	2	-	1	A/S	-	4		A/- S,5			
Venner Venotrol 80M & 80PM (air stat linked)	⏚	N,3	L	2	-	1	5	-	4					

TACMA

THE ASSOCIATION OF CONTROLS MANUFACTURERS

11385

Crystal Mark

Clarity approved by Plain English Campaign

The text below has been edited and approved by the Plain English Campaign, who has issued a Crystal Mark to be displayed with it.

What is a programmer?

... an explanation for householders.

Programmers allow you to set 'On' and 'Off' time periods. Some models switch the central heating and domestic hot water on and off at the same time, while others allow the domestic hot water and heating to come on and go off at different times.

Set the 'On' and 'Off' time periods to suit your own lifestyle. On some programmers you must also set whether you want the heating and hot water to run continuously, run under the chosen 'On' and 'Off' heating periods, or be permanently off.

The time on the programmer must be correct. Some types have to be adjusted in spring and autumn at the changes between Greenwich Mean Time and British Summer Time.

You may be able to temporarily adjust the heating programme, for example, 'Override', 'Advance' or 'Boost'. These are explained in the manufacturer's instructions.

The heating will not work if the room thermostat has switched the heating off. And, if you have a hot-water cylinder, the water heating will not work if the cylinder thermostat detects that the hot water has reached the correct temperature.

User Instructions

Your programmer

The SET3E allows you to switch your hot water & heating on and off automatically, at times that suit you.

The programmer provides 2 ON times and 2 OFF times per day, and by the use of a simple rocker switch you can run your heating and hot water separately, to suit your lifestyle.
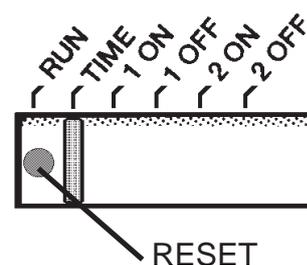

◄ and
ADVANCE
button

► and
+1 HOUR
button

Slider switch

Rocker switches
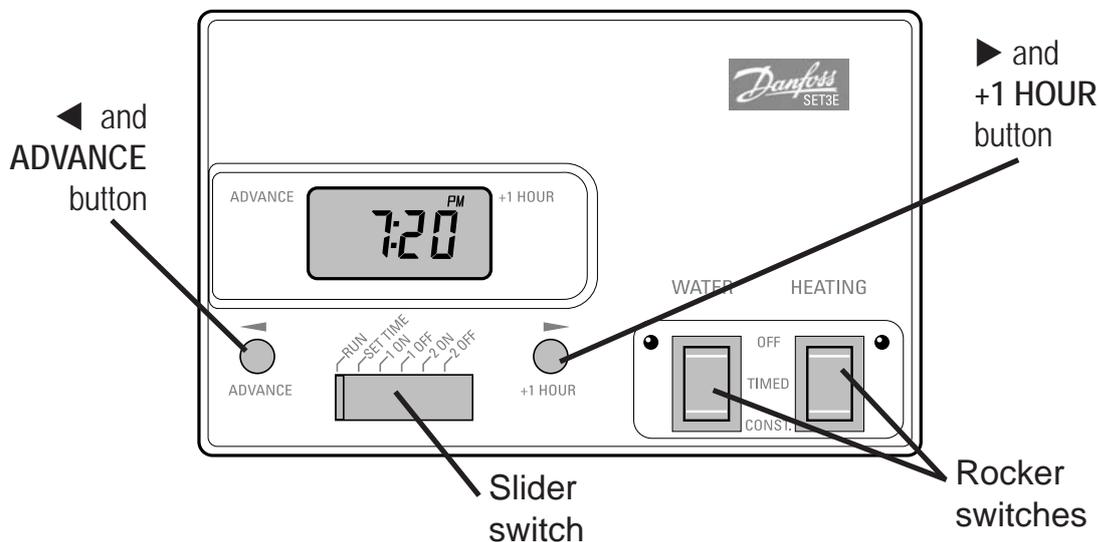
Resetting the Unit

IMPORTANT: Before you start you should reset the unit. This will reinstate the preset programmes.

To do this:

❏   move slide switch to **SET TIME** position

❏   using something non-metallic (i.e a matchstick) press into the small hole as shown opposite

RESET

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Setting the Clock

❏ Move the slider to **SET TIME** position

❏ Use ◄ and ► keys to set the correct time
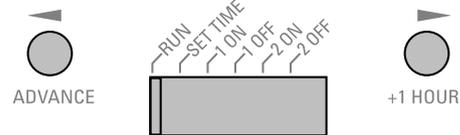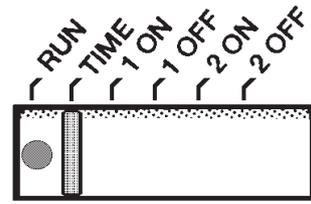
Preset programme

The unit is supplied with the following preset programme which will be active after the unit has been RESET (see page 14):
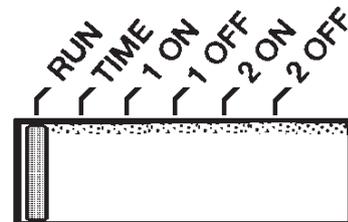
ON at 6:30am, OFF at 8:30am.
ON at 5:00pm, OFF at 10:30pm.

To alter these times to suit your requirements, follow the instructions on page 16.

Accepting the preset programmes

If you are happy to use the preset programmes above you don't need to do anything else.

Just return the slider to the **RUN** position.

Programming the unit

You can programme your heating and hot water to come on and go off twice a day, to suit your requirements. To programme your unit:
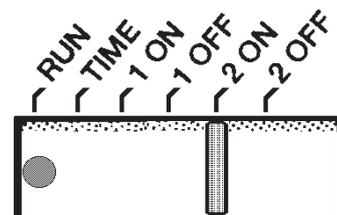
❏ Move the slider to the 1st ON position and use ◀ and ▶ keys to set the time you want the programmer to first come on
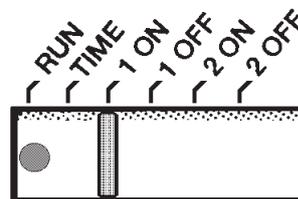
❏ Move the slider to the 1st OFF position and use ◀ and ▶ keys to set the time you want the programmer to first go off
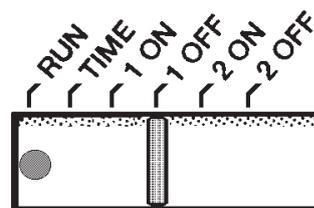
❏ Move the slider to the 2nd ON position and use ◀ and ▶ keys to set the time you want the programmer to next come on

❏ Move the slider to the 2nd OFF position and use ◀ and ▶ keys to set the time you want the programmer to next go off
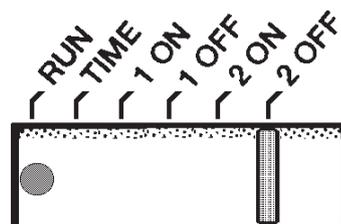
! Remember to return the slider switch to the RUN position after programming

Temporary User Overrides

Sometimes you may need to change the way you use your system temporarily, i.e. due to unusually cold weather, increased hot water requirements. The SET3E has two convenient overrides which can be selected without affecting the set programme.

Note: This will only work when the slider switch is in the RUN position and will automatically cancel at the start of the next programmed event.

Advance

❏ Press the **ADVANCE** button once to move forward to the next programmed event

❏ **If the system is on it will go off. If it is off it will come on**

❏ A bar on the left of the LCD will remind you that you have selected Advance

❏ To cancel the override, press the **ADVANCE** button again
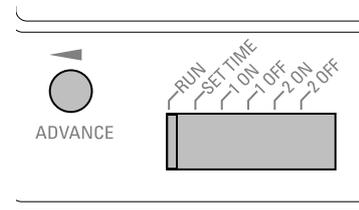
1 Hour Extra

❏ Press **+1 HOUR** button once if you need an extra hour of operation

❏ **If the system is off it will come on. If it is already on it will add an extra hour so the system stays on for an extra hour**

❏ A bar on the right of the LCD will remind you that you have selected +1 hour

❏ To cancel the override, press the **+1 HOUR** button again
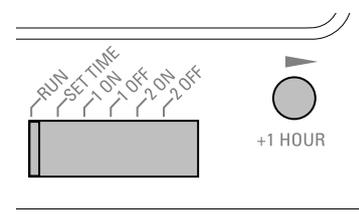
Manual Switch Settings

The 2 rocker switches are used to select how the SET3E controls your hot water and heating. The hot water and heating systems can be controlled independently but share the same time settings.
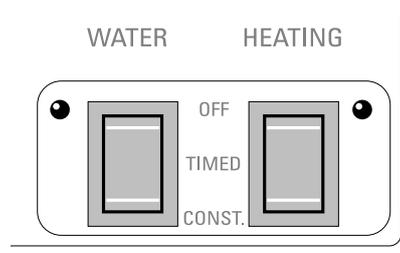
WATER switch

❏ **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, plus any temporary overrides
❏ **CONSTANT** - the hot water will come on manually and stay on constantly until you change the position of the switch

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, plus any temporary overrides
❏ **CONSTANT** - the heating will come on manually and stay on constantly until you change the position of the switch

Memory Backup

IMPORTANT
If the SET3E is ever disconnected from the mains the display will go blank but the unit will keep your programme time and settings for up to 10 hours.

When power is restored the unit will continue to function as normal.

For power cuts or disconnections of greater then 10 hours, when mains power is restored you must reset the unit (see page 14). This will reinstate the factory preset programmes and set the time of day to noon.

Still having problems?

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.

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