TS715 Si

Electronic single channel timeswitch

Installation & User Instructions

(Including 24V models)

energy saving®
recommended

Certification Mark

This product complies with the following EC Directives:
Electro-Magnetic Compatibility Directive.
(EMC) (89\336\EEC), (92\31\EEC)
Low Voltage Directive.
(LVD) (73\23\EEC), (93\68\EEC)

CE

Danfoss

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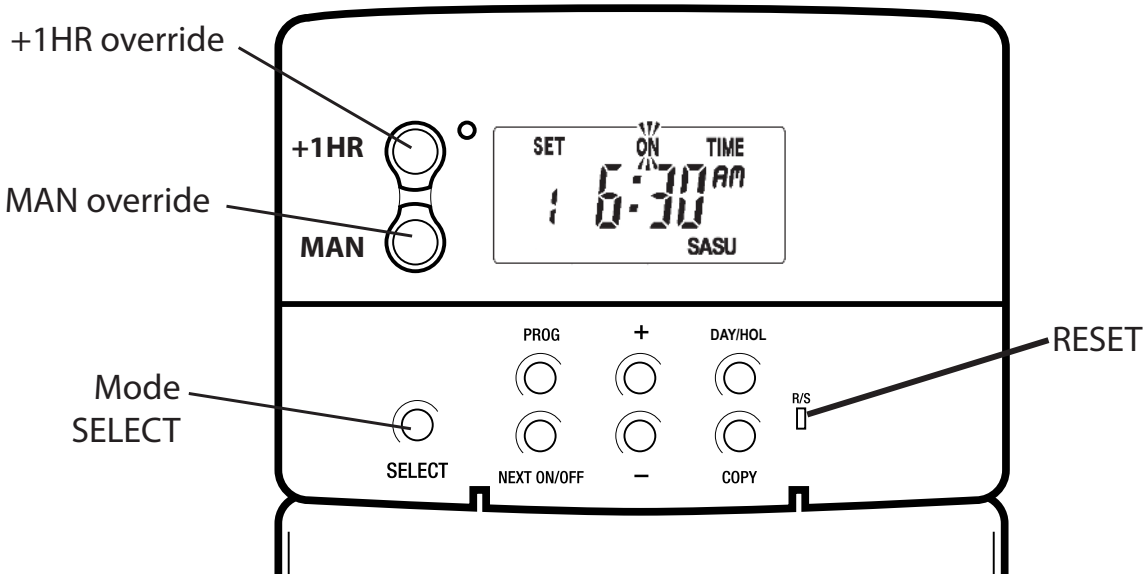


Installation Instructions

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	230V Model	24V Model
Power supply	230 Vac, ±15%, 50/60 Hz	24Vac, ±15%, 50/60Hz
Switching action	1 x SPDT voltage free, Type 1B	
Switch rating	24 - 230 Vac, 3(1)A	
Battery back-up	24 hours minimum	
Setting/Running Accuracy	±1 minute	
Dimensions, mm (W, H, D)	135 x 88 x 32	
Design standard	EN 60730-2-7	
Control Pollution Situation	Degree 2	
Rated Impulse Voltage	2.5kV	
Ball Pressure Test	75°C	

Installation

- Remove wallplate from unit by unscrewing the two screws on the bottom edge of the unit.

- From the top left hand corner of the wallplate, there must be clearances of at least 140 mm to the right, 15mm to the left, 30mm above and 100mm below in order to mount the plug-on module.

- The wallplate must be securely mounted either directly to the wall using suitable wood screws or to a flush mounted 1-gang electrical accessory box using M3.5 screws.

- Cable access can either be from behind for concealed cabling, or from below for surface cabling. If surface cable is used, cut out cable access slot on plug-on module prior to mounting the module.

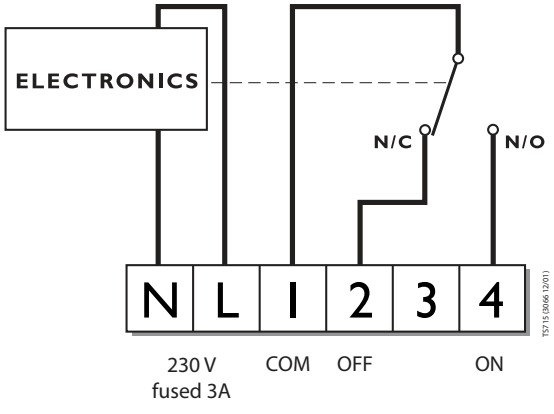
- For wiring connections refer to diagram on page 5.
  TS715-Si models are double insulated and do not require an earth connection, however a parking terminal is provided on the wallplate. This is clearly marked with an Earth symbol.

- Prior to mounting the plug-on module, DIL switches on the rear of the plug-on module must be set. See diagram on page 5 for available options.

- Mount plug-on module to wallplate by locating tabs on top of wallplate in apertures on rear of module, hinge down and press firmly to wallplate before tightening securing screws on bottom of wallplate.

Wiring (*For Wiring Conversion tables see pages 8-11)*

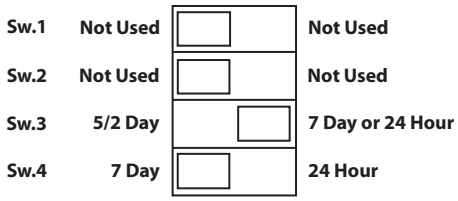
NOTE:
Link terminals L and 1 for standard mains voltage operated systems On 24 volt models power supply must be wired to A & B on wallplate.



Always switch off mains first and never fit programmer to a live wallplate.

DIL Switch Settings

Before mounting the unit, ensure the 4 DIL switches on the rear have been moved to the required settings.



Tick the INSTALLER SETTING box on the inside flap label to notify user in which mode their unit is set (24hr, 5/2 day or 7 day).

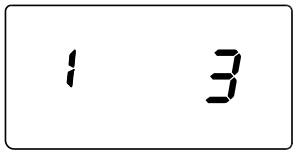
INSTALLER SETTING	
24 Hour	
5+2 Day	
7 Day	

Advanced Programming Options

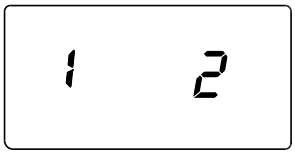
To enter advanced programming press **PROG**, **+** and **DAY/HOL** together and hold for 5 seconds.

Option 1 - (3 or 2 On/Off's per day)

Use **+ or -** to change between 3 and 2 on/off's each day.



3 on/off's each day (Factory setting)



2 on/off's each day

Option 2 - (Disable or enable auto time change)

Press **NEXT**, then use **+** or **-** change between auto time change enabled and auto time change disabled.

Auto time change enabled (Factory setting)

Auto time change disabled

Option 8 - (Advanced Copy Functions)

Press **NEXT**, then **+** or **-** to change between the following copy options:

(0) Standard copy in 7 day and 5+2 day.
(1) Enhanced copy in 7 day, standard copy in 5+2 day
(2) Enhanced copy in 7 day, AB copy in 5+2 day.
For an explanation of the copy features and how to use them please see page 6.
Press **PROG** to return to **RUN**.

Copy Functions Explained

There are 3 possible copy functions available. These are; ***Standard Copy, Enhanced Copy,*** and ***AB copy***. Copy functions are enabled/disabled in the Advanced Programming Options (page 5).

Standard Copy: Pressing copy will copy the previous days events into the displayed day. The unit will then display the 1st event for the new day. This copy function is present only if the unit is set to run in 5+2 or 7 day mode.

Enhanced Copy: The enhanced copy function is available in 7 day mode only. This allows any day to be copied to any other day, or days. To use the enhanced copy function go into the event programming using the **PROG** button, then:

1. Use the **DAY** button to find the day to be copied from.
2. Press the **COPY** button to select the day to be copied from. When selected, the day should begin to flash.
3. Use the **DAY** button to find the day to be copied to.
4. Press **COPY** button to copy the selected day.
5. Repeat steps 3 and 4 to select and copy other days.
6. To stop copying, use the **DAY** button to go back to the flashing day and press the **COPY** button. The previously flashing day will stop flashing to indicate it has been de-selected.

NOTE: When a day has been copied to, it will remain visible and not flashing when the DAY button is used to select other days.

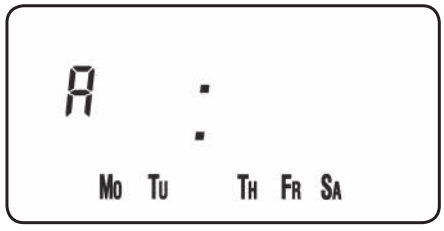
AB Copy: The AB copy function is available in 5+2 mode only and only if activated in the Advanced Programming setting.

A and B days, when selected, can be any group of days e.g. 5+2, 4+3 etc. The days do not have to run in sequence. For example, to operate in a 5+2 day mode the days can be set as follows:

A Days	B Days
Mon Tues Thurs Fri Sat	Wed Sun

To use the AB copy function – press the **PROG** button:

1. This will show the "A" days, with all the days selected.
2. Use the **DAY** button to highlight a day.
3. Subsequent presses of the **DAY** button will increment through the days.
4. Press the **+** button to select a specific day as an "A" day, or press the **–** button to specify a day as a "B" day.
5. Once the day has been selected as an "A" or "B" day the programme will automatically jump to the next day.
6. When the last day of the week is active, pressing **+**, **-**, or **DAY** will move back to the "A" days displayed with no selected (flashing) days (see image below).
7. Repeat 2 to 6 until all selections have been made.
8. When selections are completed, press the **PROG** button to move to event programming.



Event Programming in AB mode

1. Programme "A" day events using the **+** (time advance), **-** (time decrease), and **NEXT** (next period) buttons.
2. Press the **DAY** button to change to programme the "B" days
3. Programme "B" day events using the **+** (time advance), **-** (time decrease), and **NEXT** (next period) buttons.

Service Interval Timer

The TS715 Si is fitted with an installer setback service interval timer. If this feature is required please contact our technical department. Setting instructions for this gas safety feature are only available to bona fide heating installers.

WIRING CONVERSIONS, *(applies only to 230 volt models)*

Wiring conversions for other timeswitches which can be replaced with the Danfoss TS715-Si, refer to the second part of the table. If in any doubt, please contact our Technical Services Department before proceeding with the replacement.

DANFOSS RANDALL TS715-Si	**MAINS**		
	⏚	**N**	**L**
	⏚	**N**	**L**
The existing wallplate may be used when replacing the following, but the wiring must be between L & COM terminals of wallplate.			
ACL LS111, LS711, LP111 & LP711	⏚	N	L
DRAYTON TEMPUS ONE & TEMPUS TWO	⏚	N	L
LANDIS & GYR RWB3	⏚	N	L
LANDIS & GYR RWB30	⏚	N	L
The TS75/TS15 wallplate must be used to replace the existing wallplate when replacing t age systems, fit wire link between terminal 1 & L of wallplate.			
GRASSLIN 45, 45A, 45E	⏚	2	1
HONEYWELL ST6100	⏚	N	L
HORSTMANN 423 PEARL, EMERALD & TOPAZ	⏚	N	L
HORSTMANN KMK2A YMK2	⏚	3	4
HORSTMANN 425 CORONET	⏚	N	L
DANFOSS RANDALL 911	⏚	N	L
DANFOSS RANDALL 103, 103E, 103E5 & 103E7	⏚	5	6
RANDALL 3020	⏚	1,7	6
DANFOSS RANDALL SET1	⏚	N	L
RANDALL TSR2	⏚	3	2
PEGLER SUNVIC SP20 & SP25/30	⏚	N	L
POTTERTON MYSON EP4001	⏚	N	L

LOAD				An additional terminal block may be required where these disconnected leadss (or pairs of leads) should be terminated			
COM	OFF	SPARE	ON				
1	2	3	4	A	B	C	D

reconnected as shown below. In addition, in mains voltage systems, fit wire link

1	2	4	3				
1	3	4	2				
-	3	1	4	2			
2	3	1	4				

he following timeswitches. Wiring details are shown below. In addition, in mains volt-

3	-		4				
1	2	3	4	-	-		
3	-	1	4	2	5	6	
1	-		2				
5	6	1	4	2	3		
5	4	2	6				
3	-	2	1				
-	-	2	4	3	5		
5	6	2	4				
1	-	4	5	6	7		
3	4	S	5				
5	2		4	A	B	C	D

DANFOSS RANDALL TS715-Si	MAINS		
	⏚	N	L
	⏚	N	L
The TS75/TS15 wallplate must be used to replace the existing wallplate when replacing tl age systems, fit wire link between terminal 1 & L of wallplate.			
SANGAMO M6	⏚	4,5	6
SANGAMO 410 FORM 8	⏚	4,5	3
SANGAMO S254 FORM 2, S408 FORM 5, S251 FORM 2	⏚	N	L
SANGAMO S610 FORM 2, S611 FORM 2, S612 FORM 2, S408 FORM 4, S408 FORM 6, S253 FORM 2, S255 FORM 2	⏚	N	MOTOR LIVE
SANGAMO S409 FORM 8	⏚	3,N	3,L
SANGAMO S263 FORM 2 SANGAMO S264 FORM 2	⏚	N	L
SMITHS IND. MKI, MKII	⏚	N	L
SMITHS IND. CENTROLLER 30	⏚	1	2
SMITHS IND. CENTROLLER 40	⏚	1	2
SWITCHMASTER	⏚	N	L
TOWERCHRON TC	⏚	2	1
VENNER VENNERETTE MKIIA	⏚	N	L
VENNER VENNERETTE MKIVA	⏚	2	3
VENNER VENOTIME (WITH NEON INDICATING CIRCUIT ON)	⏚	N	L
VENNER VENOTIME (WITH NEON INDICATING POWER ON)	⏚	N	L
VENNER VENNERON, VENNERON P	⏚	3	2

LOAD				An additional terminal block may be required where these disconnected leadss (or pairs of leads) should be terminated			
COM	**OFF**	**SPARE**	**ON**				
1	**2**	**3**	**4**	**A**	**B**	**C**	**D**

he following timeswitches. Wiring details are shown below. In addition, in mains volt-

3	2	7	1	8			
-	2	6	1	7	8		
-	-		LOAD				
SWITCH LIVE	-		LOAD				
6	-	1	2				
-	OFF		ON				
P2	-	P1	P3				
-	-	3	4,5	6			
-	-	3	4,5				
4	-	2	1	3			
4	-	3	7	8	9	10	11
LINE	-		LOAD				
4	-		1				
-	1	2	3				
2	1		3				
1	-		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.

Please note: A timeswitch is a single channel programmer. It will allow you to set your system's On and Off periods.

User Instructions

Your timeswitch

The TS715-Si allows you to switch your system on and off at times that suit you.

You can programme up to 3 seperate ON/OFF times per day.

Preset Programmes

Your TS715-Si comes ready programmed with a set of operating times which often suit most people.

Event No.	Hot Water & Heating	Mon-Fri	Sat-Sun**
1	1st ON	6:30	7:30
2	1st OFF	8:30	10:00
3*	2nd ON*	12:00*	12:00*
4*	2nd OFF*	12:00*	12:00*
5	3rd ON	17:00	17:00
6	3rd OFF	22:30	22:30

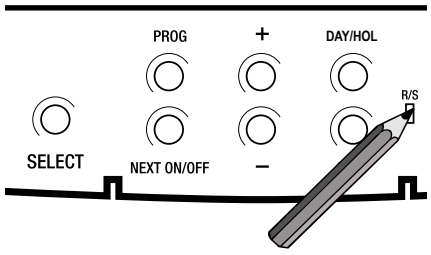
* Not applicable if unit set to 2 ON/OFFs per day by installer
**Not applicable if unit set to 24 hour mode by installer
See page 16 for explanations of different settings

If you want to change any of these settings, you can do so by following the instructions on pages 16-21. First, follow the steps on page 14-15 to set the correct time and date.

Before you start

Open the flap on the front of the clock. Press the **RESET** button using a non-metallic object (e.g. pencil/matchstick) until you hear a click and the red light on the front of the unit comes on and the LCD goes blank.

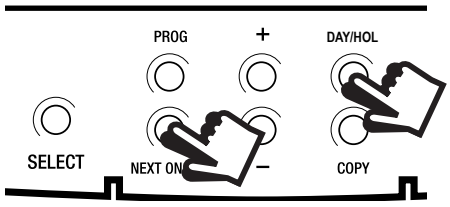
This will reinstate the preset programmes and sets correct day and time.



To fully reset the unit see page 27.

Choice of 24hr or AM/PM display

Press and hold **DAY/HOL & NEXT ON/OFF** for 2 seconds to toggle between 24hr clock and AM/PM display, as required.



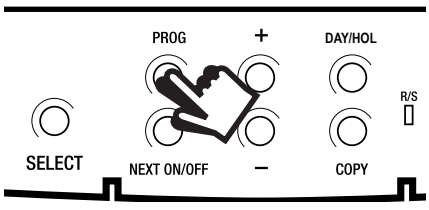
Setting the correct Time and Day

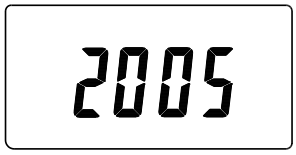
These settings are made during manufacture and only need to be made in the unlikely event that the unit has lost the settings.

Setting the Date

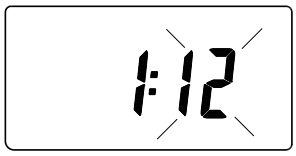
Press and hold **PROG** for 5 seconds to display year.

Use the **+** or **-** buttons to set the correct year.

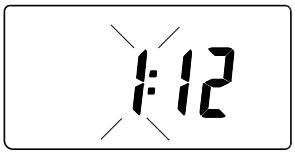




Press **DAY/HOL** to display day and month. Use the **+** or **-** buttons to set the correct month (Jan = 1, Feb = 2 etc.).



Press **DAY/HOL** to display day and month. Use the **+** or **-** buttons to set day of month.



Press **PROG** to display the time.

The words **SET TIME** will appear at the top of the display & the time will flash on and off.

Use the **+** or **-** buttons to set the correct time (press and hold to change in 10 min. increments).

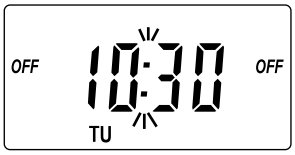
Setting the Day

The day of the week is set automatically.

Accepting the preset programmes

If you are happy to use the preset programmes on page 13, you don't need to do anything else.

To accept the factory presets just press the **PROG** button once until the time appears and colon in the display begins to flash.



Your unit is now in **RUN** mode and will control your heating and hot water according to the preset programmes.

Before you change the preset programmes

Your installer will have set your unit to operate in one of the following modes:

- **5/2 day** - one set of programmes for weekdays and another for weekends **(page 17-18)**
- **7 day** - different settings for each day of the week **(page 19-20)**
- **24 hour** - one set of programmes for the whole week **(page 21)**

! *See INSTALLER SETTING tick box on inside flap label to ascertain which mode your unit is set.*

Please Note

The unit must be programmed in sequence and ON/OFF times cannot be set out of sequence.

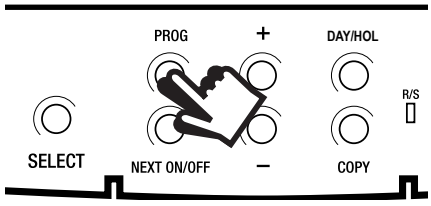
If you want to leave a preset time as it is, simply press **NEXT** to move on to the next setting.

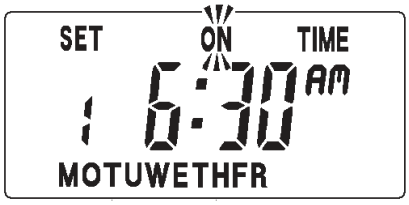
Your installer will have set your unit to programme either 2 or 3 ON/OFFs per day. If your clock has been installed to allow 3 ON/OFFs and you do not wish to use one of the ON/OFF settings, simply programme the ON time to be the same as the OFF time and the setting will not operate.

Programming the ON/OFF Times in 5/2 day mode

1. Press **PROG** once until **SET ON TIME** appears at the top of the display and **MOTUWETHFR** appears at the bottom of the display.

   Use the **+** or **-** buttons to set the time you would like your system to first come on in the morning (Event 1).

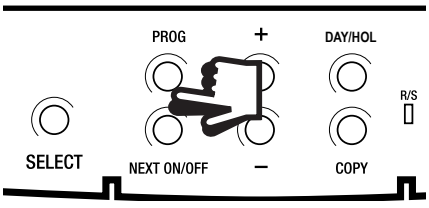


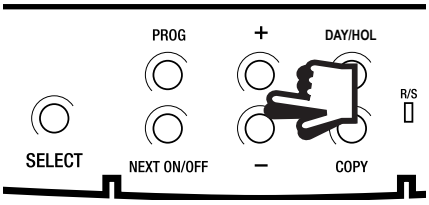


2. Press **NEXT ON/OFF** once only.

   Use the **+** or **-** buttons to set the time you want your system to go off (Event 2).

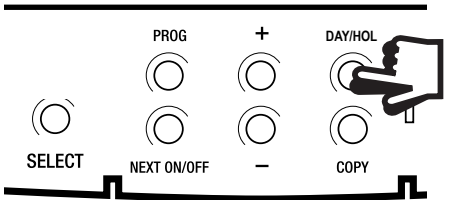
   To move to the next setting, i.e. when you would like your system to come on again (Event 3) press the **NEXT ON/OFF** button again.



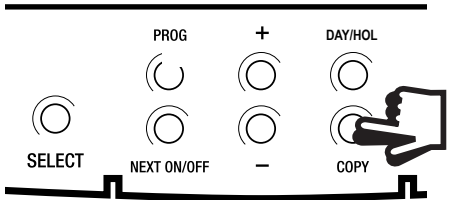


3. Continue programming system **ON** and **OFF** times for weekday Events 4, 5 & 6 as in Step 2.

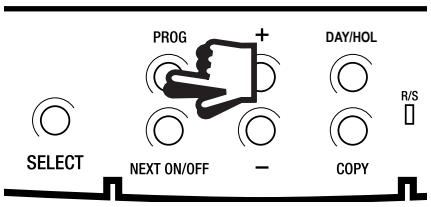
4. Press the **DAY/HOL** button once and **SASU** will appear at the bottom of the display.



5. To set the times required for **SA** and **SU** repeat steps 1 to 3 or if the same settings are required press **COPY**.



6. Press the **PROG** button once to return the unit to RUN mode (time appears & colon in the display begins to flash).

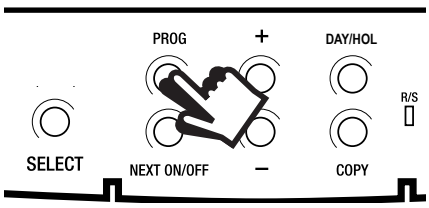


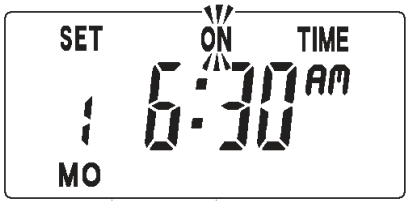
7. **Proceed to page 22.**

Programming the ON/OFF Times in 7 day mode

1. Press **PROG** once until **SET ON TIME** appears at the top of the display. Note the current day is displayed. Press the **DAY/HOL** button until the required day is displayed.

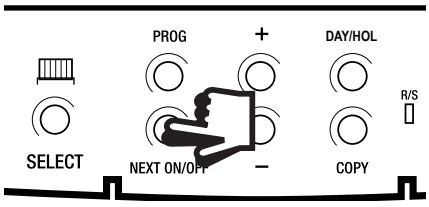
   Use the **+** or **-** buttons to set the time you want your system to first come on in the morning (Event 1).

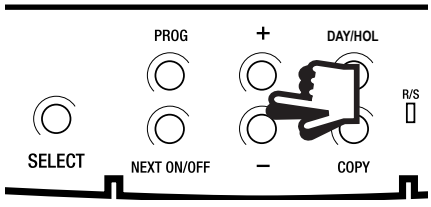




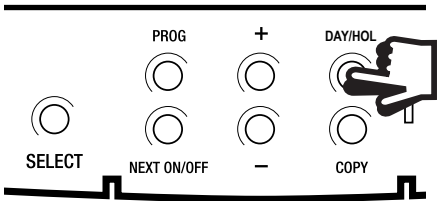
2. Press **NEXT ON/OFF** to move to Event 2.

   Continue programming the system **ON** and **OFF** times in this way by using the **+** or **-** buttons to set the time you want and pressing the **NEXT ON/OFF** button to move to the next setting.

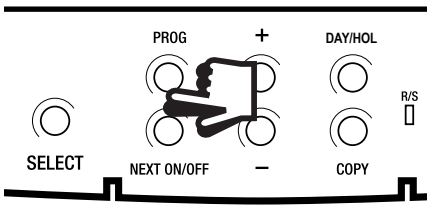




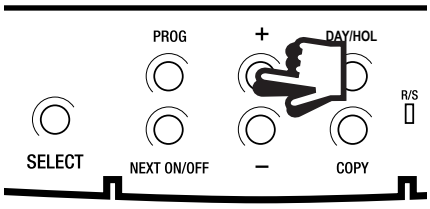
3. Press **DAY/HOL** button once only. The next day will appear at the bottom of the display.



Continue programming the rest of the week by pressing:



a) **NEXT ON/OFF** button to move to the next setting,

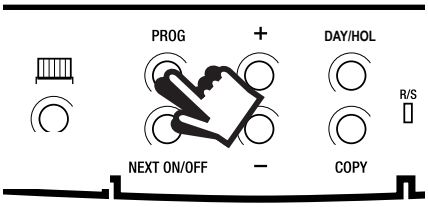


b) **+** or **-** buttons to amend the time,

c) **DAY/HOL** to advance to the next day.

d) To copy the previous day press the **COPY** button.

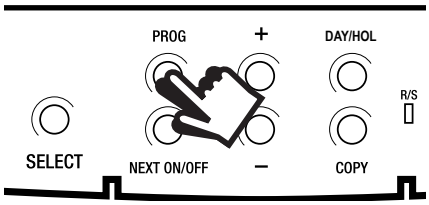
4. Press the **PROG** button to return the unit to **RUN** mode (time appears & colon in the display begins to flash).

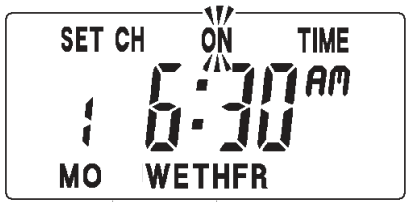


5. **Proceed to page 22.**

Programming the ON/OFF Times in 24 hour mode

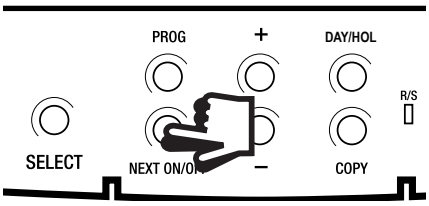
1. Press **PROG** once until **SET ON TIME** appears at the top of the display.





   Use the **+ OR -** buttons to set the time you want your system to first come on in the morning (Event 1).

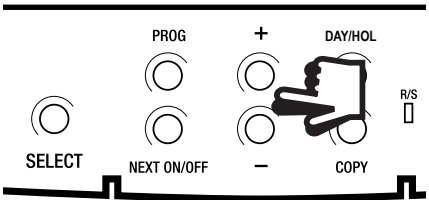
2. Press **NEXT ON/OFF** to move to Event 2.



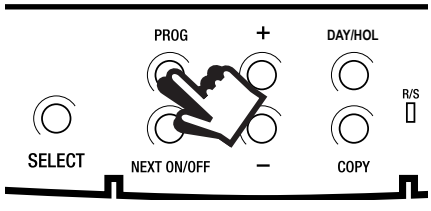
   Continue programming the system **ON** and **OFF** times by pressing:

   a) **NEXT ON/OFF** button to move to the next setting,

   b) **+** or **-** buttons to amend the time,

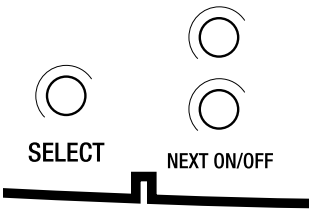


3. Press the **PROG** button to return the unit to RUN mode (time appears & colon in the display begins to flash).



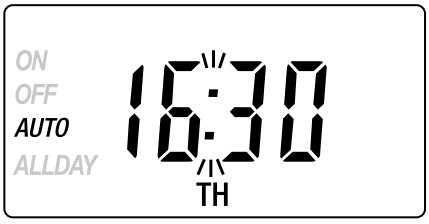
4. **Proceed to page 22.**

Running your Programme



To run the programme:
press the **SELECT** button.

Each time you press the **SELECT** button the display will change between **ON, OFF, ALLDAY** and **AUTO**.

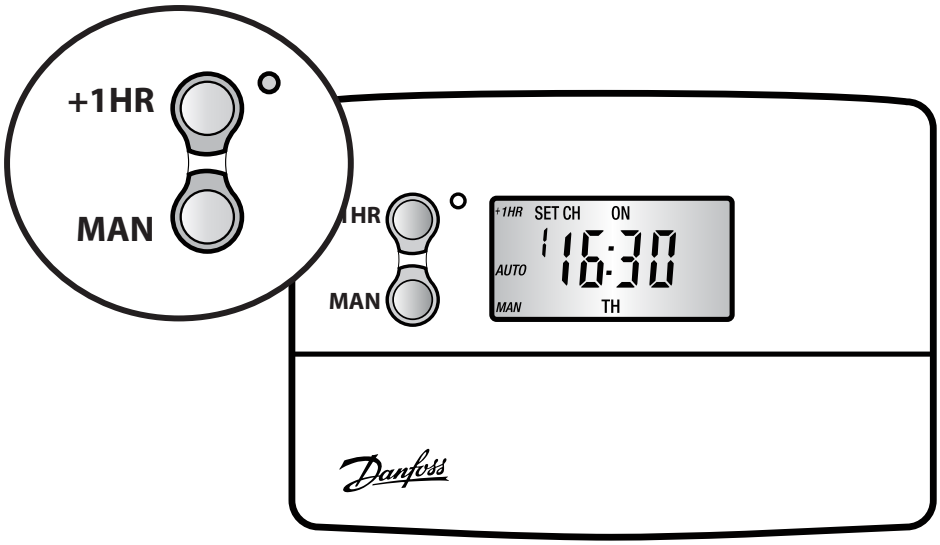


- **AUTO** = the system will come on and go off at the programmed times.
- **ON** = the system will remain on constantly.
- **OFF** = the system will not come on.
- **ALLDAY** = the clock will turn the system on at the first programmed ON and will leave it on until your last programmed OFF.

Select the option you require depending on your circumstances, time of year, etc.

Temporary override buttons

Sometimes you may need to change the way you use your heating temporarily, i.e. due to unusually cold weather. The TS715 Si has two convenient overrides which can be selected without affecting the set programme.



+1HR = pressing this button when the unit is in AUTO or ALLDAY mode will cause the system to remain on for an extra hour. If it is pressed while the unit is OFF, the system will come on immediately for 1 hour then go off again. +1HR will be shown in the display.

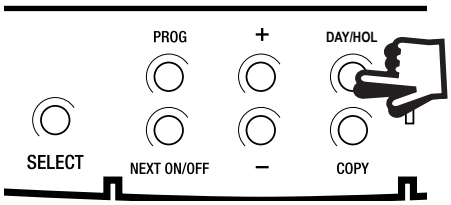
MAN = pressing this button when the unit is in AUTO or ALLDAY mode will cause the system to go OFF until the next programmed ON, or vice versa. MAN will be shown in the display.

Holiday Programme

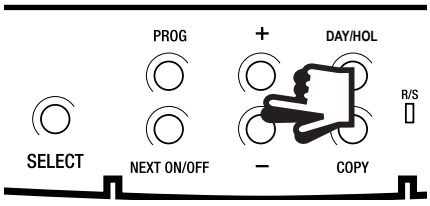
To automatically bring the heating back on when returning from holiday the TS715 Si has a built in holiday feature.

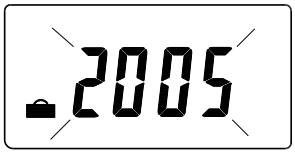
Follow the steps below to set the date that the heating system needs to come back on.

1. Press **DAY/HOL**



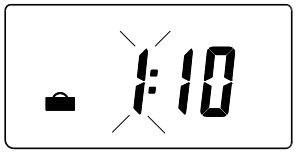
2. Use the **+** or **-** buttons to select the year.



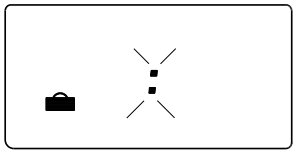


3. Press **DAY/HOL**, then use the **+** and **-** buttons to select the month.

4. Press **DAY/HOL** again, then use the **+** and **-** buttons to select the day in month.



5. Press **DAY/HOL** to turn heating off and enter holiday mode.



To cancel holiday mode press **DAY/HOL**.

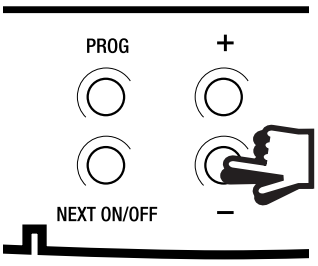
Changing clocks forward & back

This is handled automatically. Should the installer have turned off Automatic Time Change then follow the instructions below.

Open the flap on the front of the unit to reveal the programming buttons.

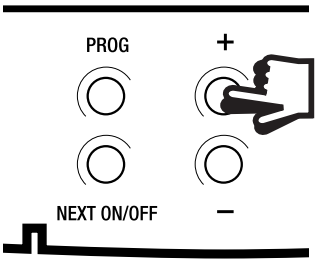
To change from **Summer to Winter** (clocks back) -

- **press and hold - button**



To change from **Winter to Summer** (clocks forward) -

- **press and hold + button**



NOTE: After the first time this change has been made this feature will only allow the clock to be changed in the opposite direction.

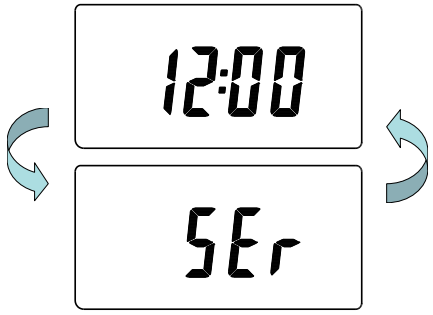
Take care when making this change for the first time. If it is made in the wrong direction the unit will have to be reset and any user-settings re-entered

(see pages 14-15 on how to Reset the unit and how to set the Time and Day).

Service Interval Timer

- If the property is owned by a landlord he may, for gas safety reasons, have instructed the installer to set the service interval timer.

- If set, 28 days prior to the boiler service due date, a momentary visual and audible warning will remind you to have the boiler serviced in the next 28 days. This will be repeated each day at noon.



- If the boiler is not serviced within 28 days the daily audible warning will sound for 1 minute at the beginning of each hour and must be cancelled each day by pressing any button on the unit.

- In addition, all overrides and programming buttons will be disabled and the heating and hot water will operate for a set portion of each programmed hour.

- The installer will cancel or reset the service interval timer as part of the boiler service.

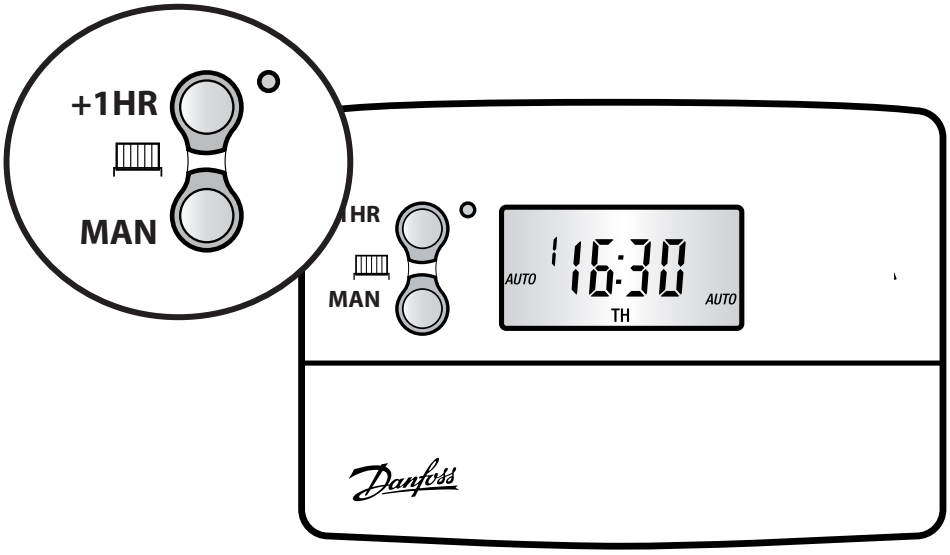
- This is a gas safety feature that can only be accessed by an installer.

- When the service interval timer is set the service due date can be viewed in RUN mode by pressing and holding the **COPY** button.

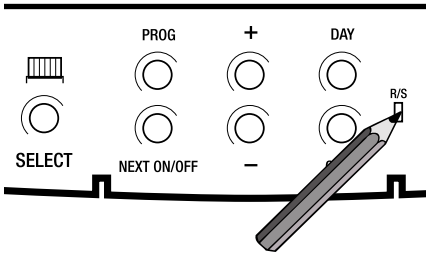
Making a Full Reset

If it is necessary to fully reset the unit, including the date and time, follow the instructions below.

1. Press and hold the **+1HR** and **MAN** buttons on the left hand side of the product.



2. Press the **RESET** button and hold for 3 seconds.



3. Release the **RESET** button. The display will change to show **the current time**.

Example

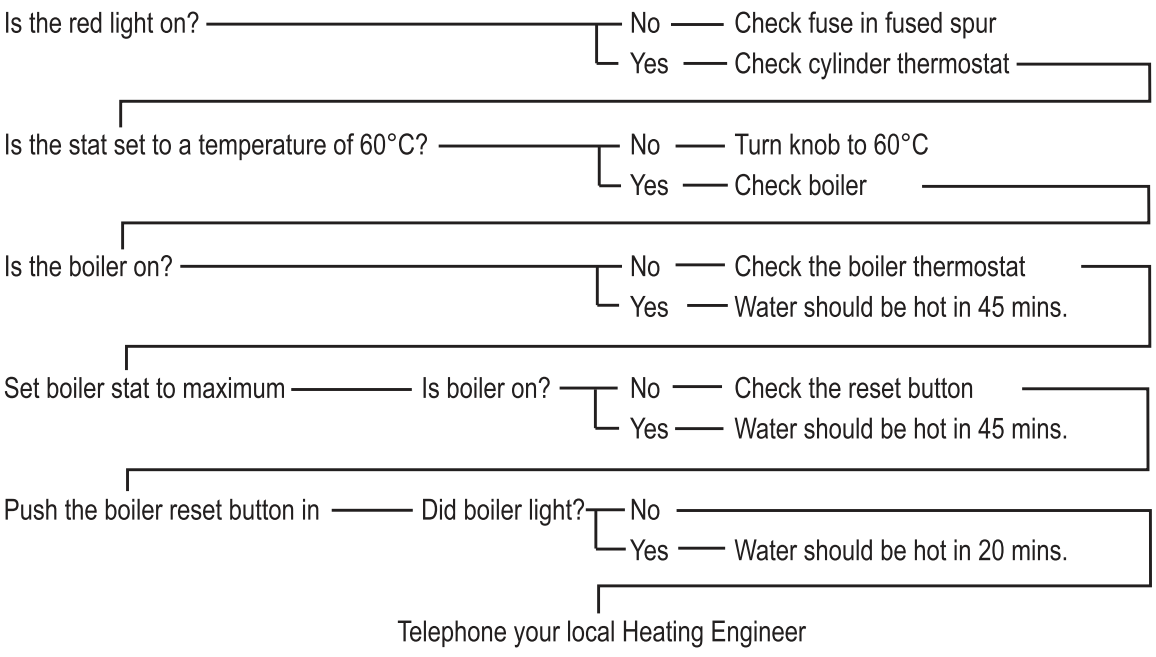
4. Finally, release both the **+1HR** and **MAN** buttons.

The unit is now fully reset and must be re-programmed, see pages 17-21.

Fault Check List

No Hot Water

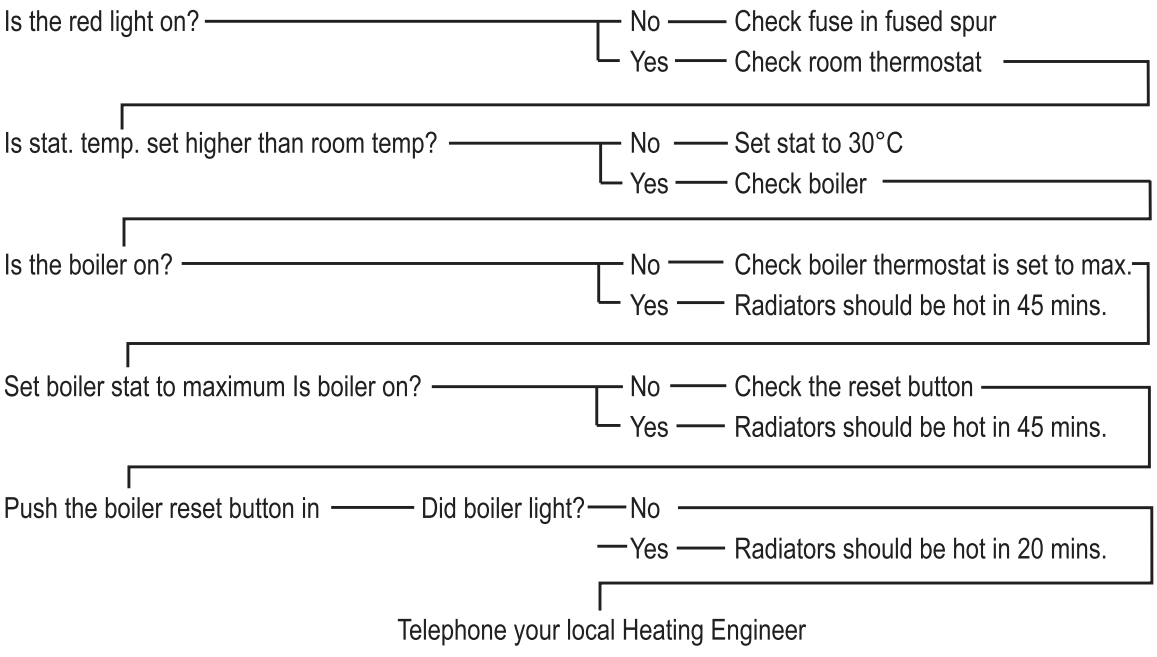
Check TS715 programmer. Make sure selector is set to ON.



After the water has been heated, return the programmer and other controls to the required settings.

No Heating

Check TS715 programmer. Make sure selector is set to ON.



After the heating has come back on, return the programmer and other controls to the required settings.

Still having problems?

Call your local heating engineer:

Name: .....

Tel: .....

For problems relating to your ***heating controls*** ...

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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