



**103**

*Electro-mechanical 24 hour  
timeswitch for controlling hot water and heating  
(Including Factory Replacement Units FRU)*

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**For a large print version of these instructions please call Marketing on 01234 364 621.**



Certification Mark

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



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# Installation Instructions

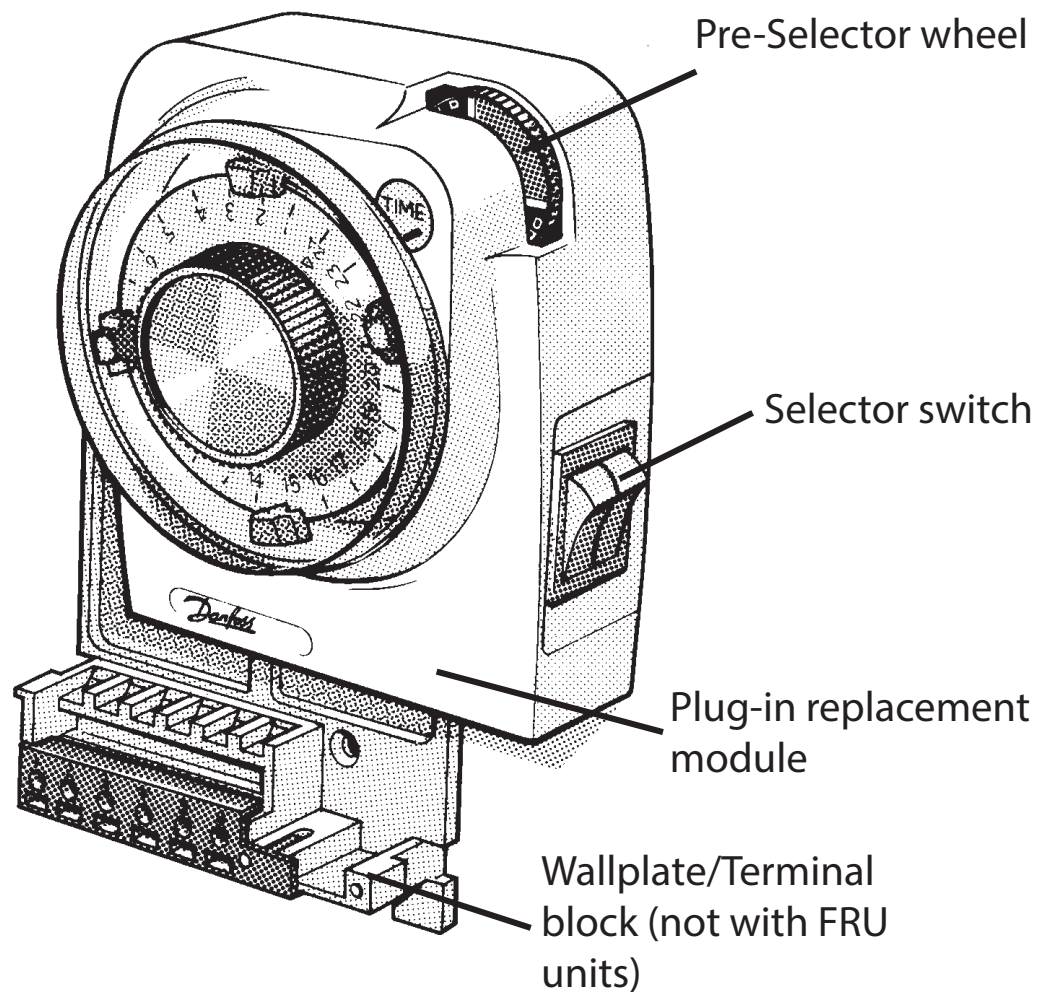
## Please Note:

*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

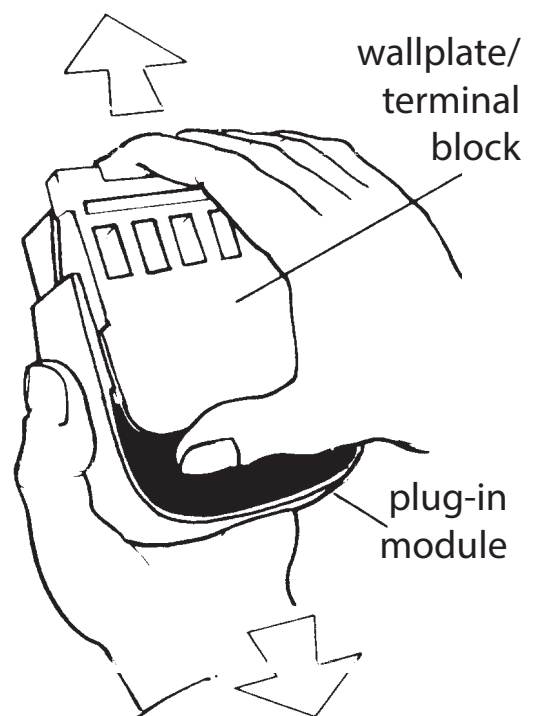
Specification	
Power supply	230 Vac $\pm$ 15%, 50 Hz
Switching action	1 x SPST, Type 1B
Max. Switch Rating	264Vac, 50/60Hz, 6(2)A
Timing Accuracy	$\pm$ 1 min./month
Enclosure Rating	IP20
Max. Ambient Temperature	55°C
Dimensions, mm (W, H, D)	112 x 135 x 69
Design standard	EN 60730-2-7
Control Pollution Situation	Degree 2
Rated Impulse Voltage	2.5kV
Ball Pressure Test	75°C

# Installation



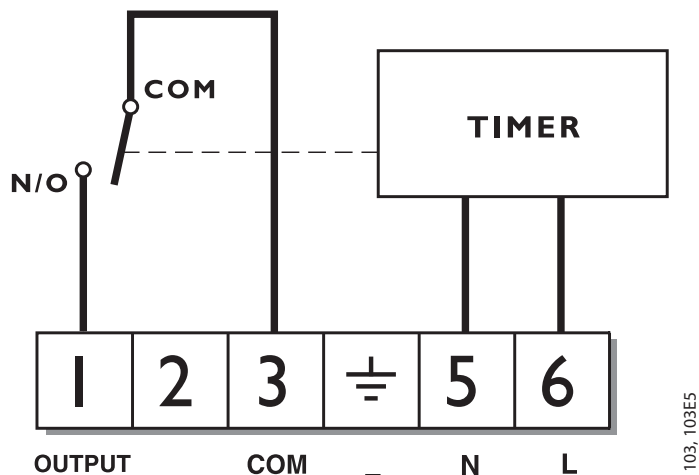
**NB. For FRU units - go straight to to point 4 on page 5**

1. Loosen the fixing screw in the base of the unit to release the grey plastic Wiring Cover. Ensure the protective tape over the thumbwheel remains in place.
2. Holding the unit clockface downwards, press firmly in the centre of the wallplate and slide it from the module as shown.



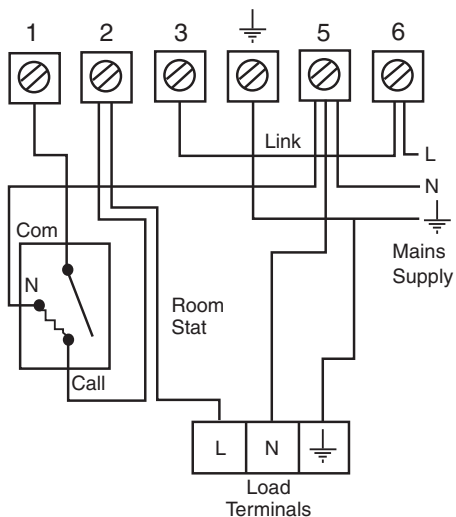
3. Fix the Wallplate/Terminal Block to the wall with countersunk No.8 woodscrews or to a steel box to BS 4662. 1970 or a surface mounting steel or moulded box having centres of 23/8" (60.3mm).
4. Referring to the Wiring Diagrams on page 6, connect the unit as shown. Ensure that terminals 3 and 6 are linked where required (Mains Voltage applications) with insulated cable capable of carrying full load current.
5. Ensure all dust and debris has been cleared away from the area, then plug the module firmly into the wallplate ensuring that the hook at the top of the wallplate engages with the slot at the back of the body. Press the module down until it locates solidly.
6. Cut a cable aperture in the Wiring Cover if necessary; replace the Wiring Cover, and tighten the fixing screw.
7. Switch on Mains & test for correct operation as follows:
  - i) Remove protective tape from pre-selector wheel.
  - ii) Remove dial cover & rotate the clock dial two complete revolutions to clear the mechanism.
  - ii) Check that all positions of the Selector Switch and Tappets operate correctly. (See instructions in User Booklet.)
8. Replace the dial cover. Finally leave this booklet, containing the USER instructions with the Householder.
9. If the unit is to be left turned off and is in a dusty atmosphere, protect the pre-selector wheel by re-affixing the protective tape.

**IMPORTANT: Remove tape prior to putting unit into service.**



## TYPICAL EXTERNAL CIRCUITS

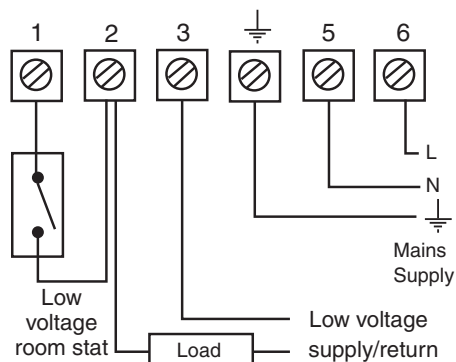
103 Terminals



1) Control of Heating Function only  
(Mains Voltage)

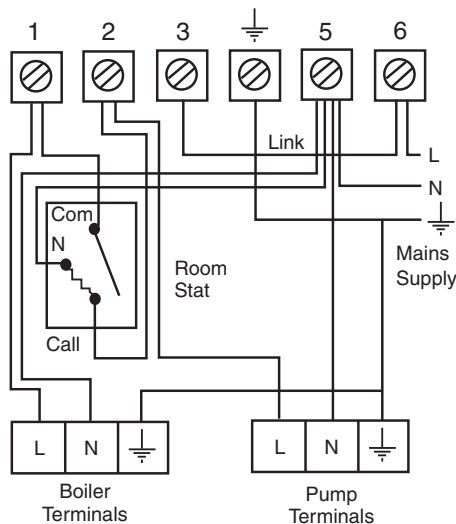
Note: If room thermostat is not required, join timeswitch terminals 1 and 2 with a link suitable for full load current).

103 Terminals



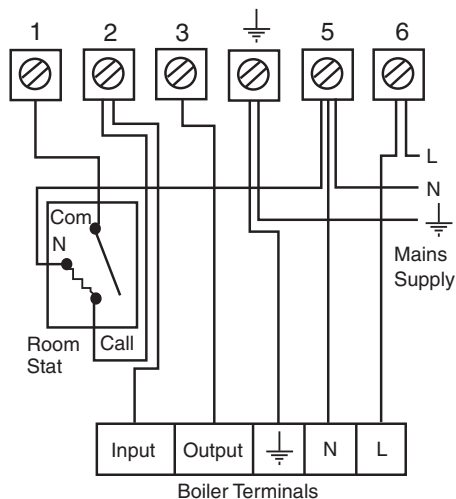
2) Control of Low Voltage Systems  
(e.g. warm air gas valves, low voltage burners)

103 Terminals



3) Typical gas or oil fired heating system  
with gravity hot water primary and  
pumped heating

103 Terminals

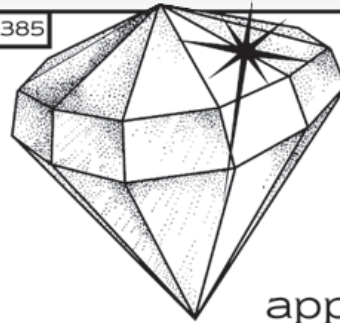


4) Typical control of heating when used with  
combination type boilers

# 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.

**What is a programmer?**

*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

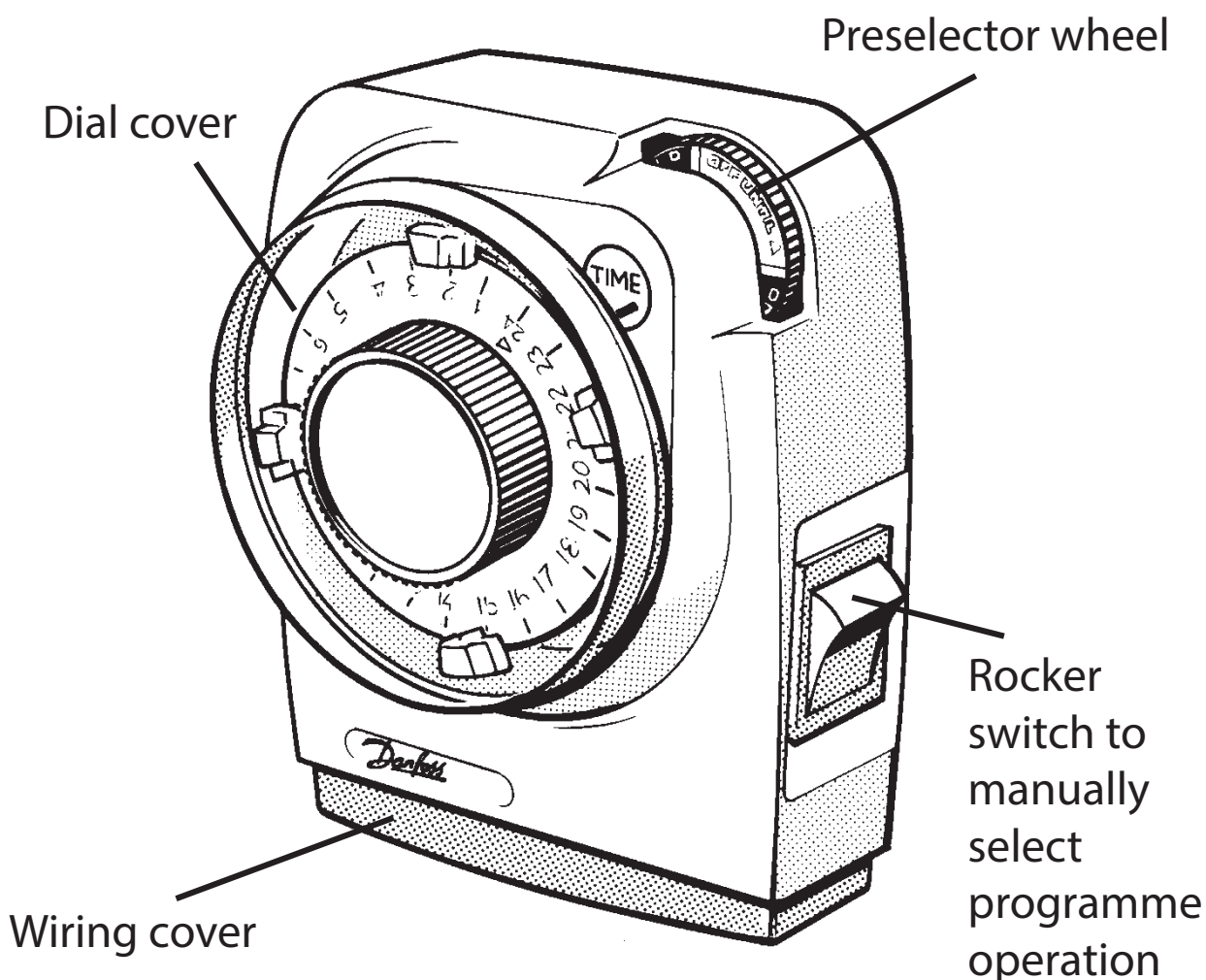
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Your 103 timeswitch has one time output which can be used to control your heating and hot water at the same times.

Normally the 103 provides 2 ON periods and 2 OFF periods each day. However 1 ON and 1 OFF period can be obtained by using the Pre-Selector Wheel (see page 12).

You can choose whether the 103 controls your hot water & heating at the programmed times, constantly ON or constantly OFF.

### Overview

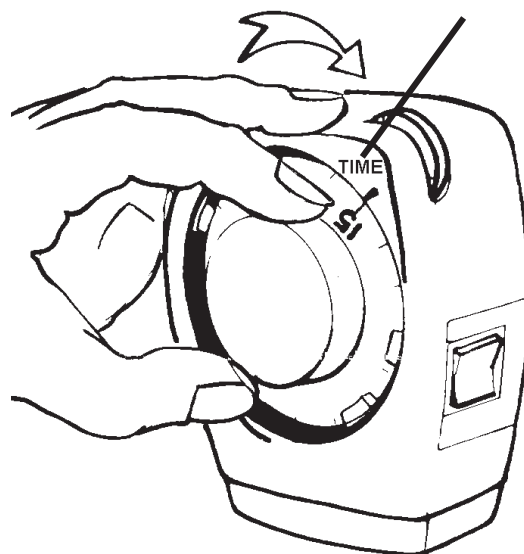


## Setting the time of day

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*The dial on the front of the 103 displays the hours of the day using the 24hour clock.*

- ☐ Remove dial cover (turn slightly to the left and pull off)
- ☐ Turn the dial clockwise until the correct time is aligned to the TIME mark (as shown).



**IMPORTANT:** turn the dial **clockwise only**

**!** *Remember you will have to re-set the time after a power-cut, and also when the clocks change in Spring and Autumn.*

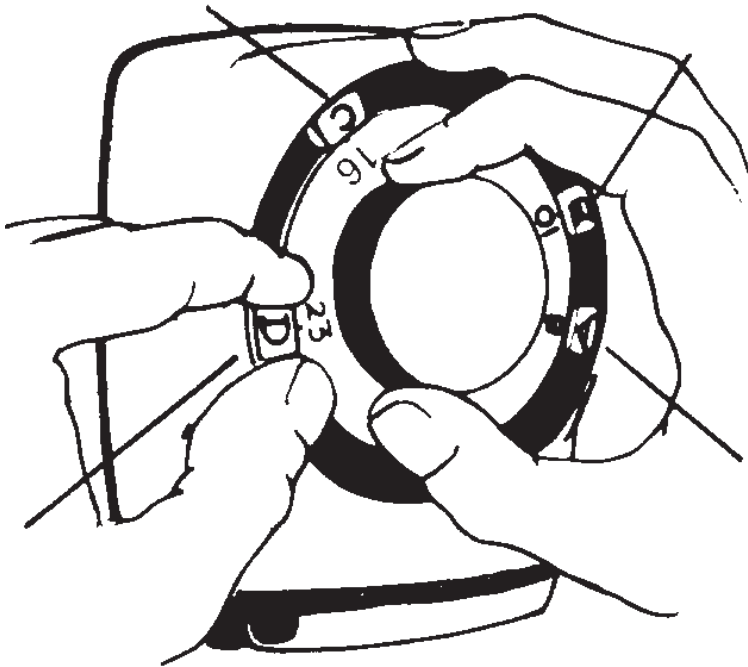
## Setting the programme (Tappets A, B, C, D)

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1. If not already done so, remove the dial cover (turn slightly to the left & pull off)
2. Decide when you want your hot water and heating to come on and go off. While gripping the dial knob slide the RED tappets to the required ON times and the BLUE tappets to the required OFF times (the tappets may be quite stiff to move)

## Example:

If you want your system ON between 8am and 10am and again between 4pm and 11pm, set the tappets as shown. (A to 8, B to 10, C to 16, D to 23).



A = 1st ON

B = 1st OFF

C = 2nd ON

D = 2nd OFF

### Remember:

Red tappets (A and C) switch ON

Blue tappets (B and D) switch OFF

3. Ensure that the installer has removed the protective tape covering the pre-selector wheel.
4. Using the dial knob, rotate the dial completely at least twice, clockwise only, to clear the mechanism.

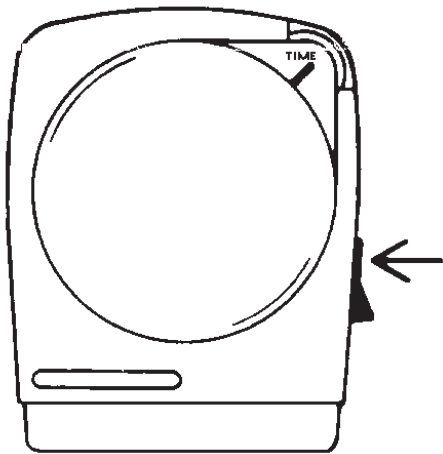
*Note: Tappets can be moved around the dial in a clockwise or anti-clockwise direction, as convenient.*

## Selecting operating mode

The Rocker Switch on the side of the unit is used to select how your 103 controls your hot water & heating system. You can manually select either:

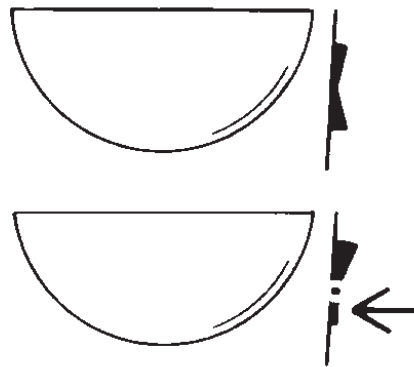
- ☐ hot water & heating follow set programmed
- ☐ hot water & heating constantly ON
- ☐ hot water & heating constantly OFF

### Switch positions



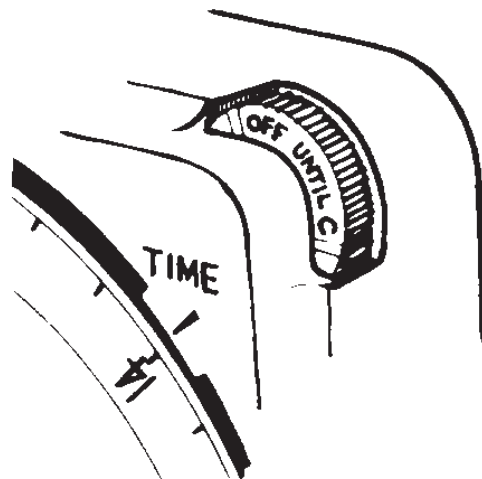
*TIMED - system follows set programme*

*System OFF*



*CONSTANT - system remains permanently ON*

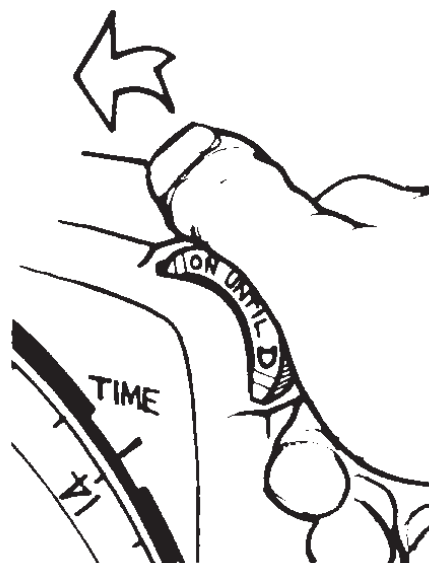
The 103 unit is now set, and the current status of the timeswitch can be seen on the wheel at the top righthand corner of the unit, (e.g. "OFF UNTIL C").



# Overriding the programme using the Pre-Selector wheel

The pre-selector wheel can be used to override the set programme on occasions when you need to change from your normal heating routine.

By turning the wheel **anti-clockwise** you can turn the unit ON when it is OFF and vice versa.



## Example:

- ☐ Your programme is set so that your heating comes on at 4pm but you arrive home earlier than usual, at 2pm and need the heating ON immediately.
- ☐ Turn the wheel anti-clockwise until it displays ON UNTIL 'D' as shown.
- ☐ Thus the system is turned ON manually at 2pm but will revert to the set programme at the next operation (i.e. OFF at 11pm)

### Some other useful pre-selections are:

#### **ALL DAY ON (1 ON/1 OFF)**

Turn the Wheel to display "ON UNTIL D".

#### **ALL DAY OFF**

Turn the Wheel to display "OFF UNTIL A".

**!** *Note: Do not operate the pre-selector whilst a tappet is close to the TIME mark. This may cause the time of day setting of the clock to be altered, and the time would then need to be reset as shown on page 9.*







**Still having problems?**

ENGINEERING  
TOMORROW



*Call your local heating engineer:*

Name:

.....

Tel:

.....

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

*Visit our website:*

**[www.heating.danfoss.co.uk](http://www.heating.danfoss.co.uk)**

*Email our technical department:*

**[ukheating.technical@danfoss.com](mailto:ukheating.technical@danfoss.com)**

*Call our technical department*

**01234 320 256**

*(9:00-5:00 Mon-Thurs, 9:00-4:30 Fri)*

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