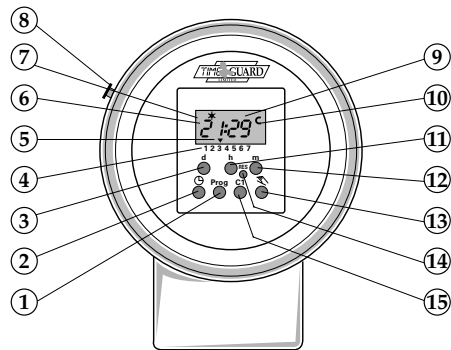


**ROUND PATTERN  
24 HOUR/7 DAY  
ELECTRONIC TIME  
CONTROLLERS**

**Cat Nos. RTS17/RTS173/  
RTS174/RTS274**



**INSTALLATION & OPERATING  
INSTRUCTIONS**



## RTS17/RTS173/RTS174/RTS274 Round Pattern Digital Timeswitches

1. Programming/reviewing button
2. Button for setting current clock time
3. Button for setting day of the week
4. Legend indicating days of the week (1=Mon, 7=Sun)
5. Cursor ▼ for indicating days of the week
6. Hours display
7. Display for automatic summer/winter time (\* = Summer / \* = Winter)
8. External override button (not fitted on RTS17) - accessible when transparent cover is fitted (only overrides channel 1 on two channel RTS274)
9. Minutes display
10. Output status indication ON (G) OFF (C). There are two of these for the two channel RTS274 with legends on the case to identify the channel (C1 or C2).
11. Hours setting button
12. Minutes setting button
13. Override button (replaced by C2 button on two channel RTS274)
14. Reset button (recessed). This button clears all stored data when pressed for 1 second.
15. C1 Button

## 1.0 Description

### 1.1 Application

The RTS series of round pattern digital, double insulated time controllers come with 3 or 4 pin plug-in wireable bases. They are compatible with the bases used for the single and two channel ON/OFF industry standard round pattern timeswitches. Consequently the RTS timeswitches can be considered as plug-in service replacements for these units\* as well as for new installations.

\* Must not be used with industry standard electromechanical bases with earth strips as double insulation may be prejudiced.

## 1.2 Features

- Automatic programme review
- Up to 99 day holiday programme, which can be set up to 99 days in advance
- Override to next programme change
- Permanent ON/OFF facility
- Nickel Hydride power reserve continuously charged while the RTSunit is connected to the mains
- Weekly or daily operation
- Block booking of days in weekly operation without loss of memory locations
- 36 memory locations available for programming

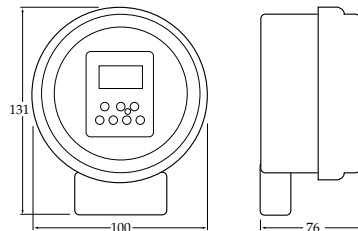
## 1.3 Technical data

|                      |   |
|----------------------|---|
| Type:                | RTS17, RTS173, RTS174, RTS274   |
| Type pf programme:   | Daily or weekly   |
| Operating voltage:   | 220-240V AC 50Hz  |
| *Switching capacity: | 20A, 240V~  |
| Contact material:    | AgSnO2  |
| Type of contact:     | ON/OFF mains linked - RTS17, RTS173, RTS274<br>ON/OFF voltage free - RTS174 |

|                          |   |
|--------------------------|---|
| Time base:               | Quartz  |
| Memory locations:        | 36 (2 required for each ON/OFF programme)   |
| Min. switching interval: | 1 minute  |
| Switching accuracy:      | To the second   |
| Operating accuracy:      | ≤ ± 1 sec./day at 23°C  |
| Power reserve:           | Nickel Hydride rechargeable giving 250 hours back up.<br>On continuous charge while the RTS unit is connected to the mains. |

|  |                          |
|--|--------------------------|
| Ambient temp. range:   | -10 to 35°C              |
| Class of shock protection:                                     | Class 2                  |
| Dirt and moisture protection:                                  | IP20                     |
| Conforms to directives:  | 73/23/EEC and 89/336/EEC |
| Control type:  | 1B                       |
| *For all other loads please contact Timeguard on 020 8450 0515 |                          |

## 1.4 Dimensions



## 2.0 Installation instructions

### 2.1 Safety information

The RTS digital series should only be installed by a trained electrician. The I.E.E wiring regulations must be observed. The supply must be disconnected before wiring commences and a means of isolation with a separation of 3mm in each current path must be provided in the supply to the RTS unit. This product must not be installed where it may come into direct contact with liquids. The RTS unit is suitable for fixed wiring applications only.

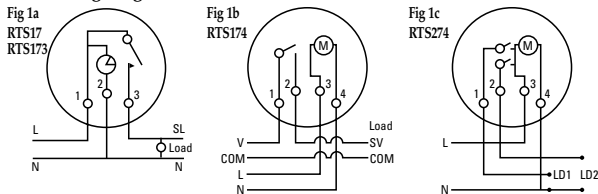
**The RTS digital series must not be used with industry standard electromechanical bases with earth strips as double insulation may be prejudiced.**

### 2.2 Electrical interference

Despite elaborate safety precautions, exceptionally strong electrical fields may interfere with any microprocessor controlled timeswitch. We therefore recommend that you observe the following points before installation:

- Suppress interference caused by inductive loads by means of an RC filter and/or varistor (VDR)
- Do not install the unit in close proximity to sources of interference, eg transformers, contactors, PCs and TV sets
- If interference occurs, we recommend that you carry out a RESET (see section 7.0) before putting the RTS unit back into operation

### 2.3 Wiring diagram



### 2.4 Installation

Three fixing holes B countersunk with central knock out

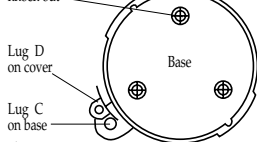


Fig 2

Three cable holes leading to terminals 1, 2 and 3 (terminal cover removed)

Fig 4a RTS17/RTS173

Voltage between V and COM - any AC voltage up to 250V

Fixing screw A for terminal cover which also retains the plug-in timeswitch assembly

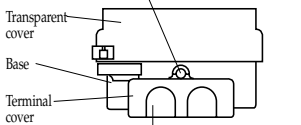


Fig 3

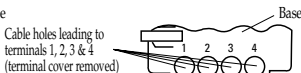


Fig 4b RTS174/RTS274

Remove the transparent cover from the RTS unit by rotating it anticlockwise through 30° and then pulling it clear. Unscrew the screw A (see fig 3), remove the terminal cover and pull the timeswitch plug-in assembly clear of the base. Drill out the three fixing screw holes in the base (see fig 2) and use 3 x No. 8 woodscrews (with wall plugs if necessary) to fix the RTS unit to the mounting surface. Alternatively the unit may be fixed to panelling using 2B.A. or 5mm screws but if the panelling is conducting it must be adequately earthed in accordance with the IEE wiring regulations. In either case ensure that the screws are countersunk and tightened fully so that there is no projection above the surface of the base. Strip 8mm of insulation from the end of each wire and insert in the appropriate terminal (see figs 1 and 4). Securely tighten the terminal screws onto the wires and push the timeswitch plug-in assembly fully home into the base to ensure electrical safety. Remove the appropriate knock-outs in the terminal cover and locate the cover over the cables or conduit, securing with screw A. After commissioning the installation replace the transparent cover by pushing over the base and rotating clockwise ensuring that lugs C and D on the base and cover are lined up as in fig 2.

If the transparent cover is required to be locked this can be achieved by a padlock through the lug C with lugs C and D in the position shown in fig 2. Alternatively the holes in lugs C and D can be lined up, wired and sealed. The fixing screw A (fig 3) securing the terminal cover can also be secured by wiring and sealing.

## 3.0 Getting started

The RTS unit will almost certainly get to the installer with its internal battery in a discharged condition. **Connect the unit to the mains for approx 1 hour to partially charge the battery and then refer to section 6 to see how to set the unit up as either a 24 hour or 7 day timeswitch and how to choose the appropriate summer/winter time change rule or none at all.**

### 3.1 Return to automatic operating mode

If no buttons are pressed for approx. 40 seconds in the reviewing or programme mode, the display reverts to automatic mode with clock time and flashing colon showing. The RTS unit then assumes the switching status dictated by the programme.

### 3.2 Fast setting of hours and minutes

When setting the time or programming, the fast forward function is obtained by holding down button h or m for more than 4 sec.

### 3.3 Setting/changing the current time

Should the time already set in the factory vary slightly, it can be corrected as follows:

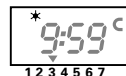
The button must be kept pressed while setting the hours and minutes.



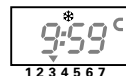
### 3.4 Checking the date, year and summer/winter time change rule

First press the button and then button d. Hold down both buttons for approx 2 sec. The set summer/winter time adjustment rule (eg dat 2 for the UK) will then appear in the LCD display. If you now press the **Prog** button, the year will appear, followed by the date if pressed again. Press the **Prog** button again to return to the automatic programme.

### 3.5 Summer time/winter time time indication



Summer time symbol ★



Winter time symbol ❄

## 4.0 Programming

This note concerns the two channel RTS274 only. When the Prog (programme) button is pressed at the start of a sequence to define ON or OFF time the RTS274 displays two dots adjacent to the channel 1 and 2 markers on the case. The user needs to select which channel this ON or OFF time will be dedicated to by pressing either the C1 or C2 button. If channel 2 is selected by pressing the C2 button the ON symbol (☉) appears adjacent to the channel 2 marker. If the programme requires an OFF time the C2 button should be pressed again in which case the OFF symbol (☾) appears adjacent to the channel 2 marker. Apart from this different start up for each programme entry, the instructions below can be followed for the RTS274. There is no restriction on the relative proportions of programme memory that can be allocated to channels 1 and 2.

In the following examples characters currently undergoing change on the display are shown in bold.

### 4.1 Programming on a weekly basis

The RTS unit has a weekly programme which repeats every 7 days with free block formation for the days of the week. This means that if required the same switching time is valid for several days of the week and only occupies one memory location.

#### Example of a switch-on time

The RTS unit is to switch on (☉) at 6:30 am on Monday (1), Tuesday (2), Wednesday (3) and Friday (5).

The button C1 can be used during programming to select either the switch-on option (☉) or the switch-off option (☾).

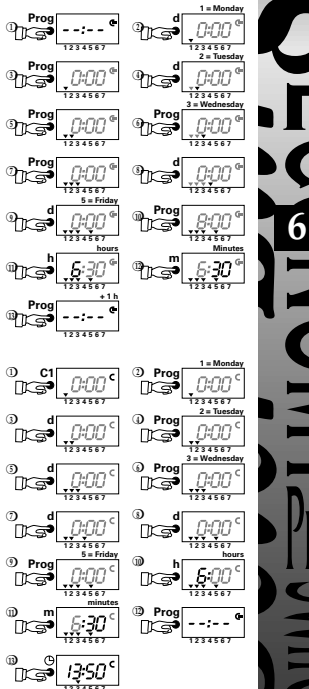
#### Example of a switch-off time

(This follows on from step 13 above.)

The RTS unit is to switch off (☾) at 19:30 on Monday (1), Tuesday (2), Wednesday (3) and Friday (5).

Note:

- When all memory locations are full, the word **End** appears in the LCD display. **End** also appears during programme review and denotes the boundary of currently used programme memory.
- If a switch-on and switch-off time are programmed simultaneously, the switch-off time will always take priority.
- On completing programme (step 13 opposite) the timeswitch should be turned to the operating mode (showing time of day, day of week and output status with colon clashing).

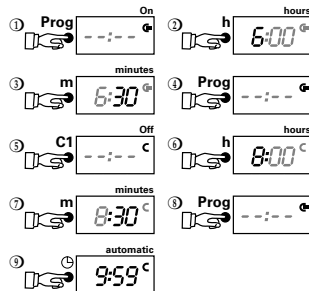


### 4.2 Programming on a daily basis

If you only wish to operate the RTS unit on a daily basis repeating every 24 hours the device has to be started up again first (see 6.2, 6.3, 6.4, 6.6)

Example: Channel C1 is to be switched on at 6:30 (☉) and off again at 8:30 (☾) daily. The button C1 can be used during programming to select either the switch-on option (☉) or the switch-off option (☾).

- When the RTS unit is set up as a daily timeswitch the day marker never appears even in operating mode.

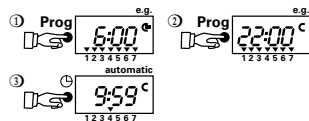


### 4.3 Checking the programme

The stored programme can be checked in automatic mode by pressing the Prog button.

Fig. 1: channel 1 switch-on (☉) occurs daily at 6:00

Fig. 2: channel 1 switch-off (☾) occurs daily at 22:00

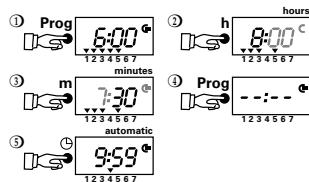


### 4.4 Changing the programme

Fig. 1: Stored switching time in a weekly programme switch-on Monday to Friday 6:00 am.

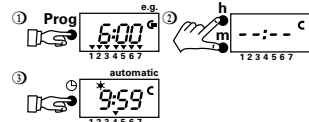
Fig. 2 & 3: Changing of switch-on time for channel 1 with buttons h and m Monday to Friday to 7:30am

If necessary, button d can be used to redefine the days for which the switching time is valid. Store this setting by pressing the Prog button.



### 4.5 Individual deletions

In automatic mode, the stored switching times can be checked using the Prog button and individually deleted by pressing the h and m buttons simultaneously. Only the switching time currently on display will be deleted.



## 4.6 General deletion of all switching times

Note: This action clears all stored switching times. (The current time and the selected time adjustment rule remain). If the buttons **d + h + m** are pressed simultaneously in the programming or checking mode, all switching times will be deleted at once.

## 5.0 Switching functions

### 5.1 Output override

During automatic mode, the RTS unit output can be switched from on (**G**) to off (**C**) or off to on by pressing the button . For the two channel RTS274 the C1 and C2 buttons can be used to override the outputs of channels C1 and C2.

When the button is pressed, the timeswitch changes output status. The override will be corrected by the next contrary switching command.

Override is also available at the push butto on the side of the case except for the RTS17.

### 5.2 Permanent ON/OFF

In automatic mode, the buttons **m** and can be used to switch the RTS unit permanently on (fig. 1/• **G**) or permanently off (fig. 2/• **C**). Hold down the **m** button first and then select the switching status with the button .

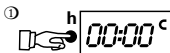
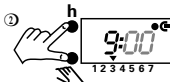
When a permanent setting is cancelled by holding down the **m** button first and then pressing the button once or twice, the dot next to the switching status display disappears (see fig. 3). Once the setting has been cancelled, the time switch performs a programme review, which involves checking the stored programme and then sets the correct switching status.

### 5.3 Holiday programme

The holiday programme allows the normal operating programme to be interrupted for a maximum of 99 days (switching status off = **C**). The holiday programme can be programmed up to a maximum of 99 days in advance. The holiday program always begins and ends at midnight. The current day is not counted.

Example: On **Monday**, a holiday programme is activated which is to apply for a period of 2 days from **Friday** inclusive. The **h** button must be held down throughout the setting operation!

Whenever a holiday programme is active, the symbol appears in the display.



## 5.4 Interrupting a holiday programme

If you wish to cancel a holiday programme, the holiday programme display must be reset to 00:00 as described above using the buttons **d**, **h** and **m**. The symbol disappears. When a holiday programme is cancelled, the timeswitch performs a programme review, which involves checking the stored programme and then sets the correct switching status.

## 6.0 Summer/winter time adjustment

Important note:

The RTS17 is pre-programmed with the dat 2 (see 6.2) rule which applies to the UK for automatic summer and winter time change. If you wish to change the automatic time adjustment rule pre-programmed in the factory, you can select a new time adjustment rule from table 6.2, and programme this as described in chapter 6.1 to 6.7

### 6.1 Changing the automatic summer/winter time adjustment

Select the required automatic adjustment rule from the selection table in 6.2. First press the button and then button **d**. Hold down both buttons for approx. 2 sec. The set summer/winter time adjustment rule will then appear in the LCD display (e.g. dat 2). To change the automatic summer/winter time adjustment, press the button **C1** the appropriate number of times, and then store the setting using the **Prog** button.

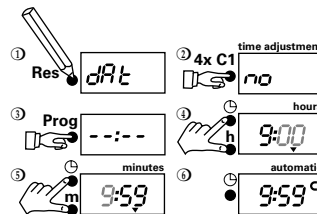
You can then change the year using button **d**, and store it by pressing the **Prog** button. The current day can then be changed with button **d** and the month with button **m**. Again, store by pressing the **Prog** button.

### 6.2 Selection table for automatic summer/winter time adjustment

| Setting Rule | Beginning of Summer time | Beginning of Winter time | Applies To    |
|--------------|--------------------------|--------------------------|---------------|
| dat 2        | Last Sunday in March     | Last Sunday in October   | UK, EU        |
| dat 3        | 1st Sunday in April      | Last Sunday in October   | North America |
| no           | No Adj.                  | No Adj.                  |               |

Note:- Rules dat and dat 1 are also stored but these no longer apply to any country.

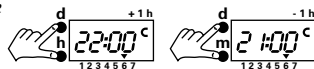
### 6.3 Initial start-up without automatic summer/winter time adjustment with daily (24 hour) programmes



When the button is released after entering the time, both dots between the hour and minute display should flash. If not, repeat the setting.

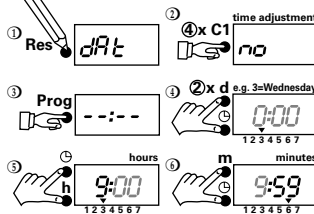
#### 6.4 Manual summer/winter time adjustment

If no automatic summer/winter time adjustment has been selected (rule no), the time can be corrected manually by +/- one hour.

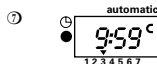


#### 6.5 Initial start-up without summer/winter time adjustment with weekly (7 day) programmes

Button **d** must be used to set the current day of the week (1=Monday, 3=Wednesday, 7=Sunday) otherwise the unit will revert to daily operation.

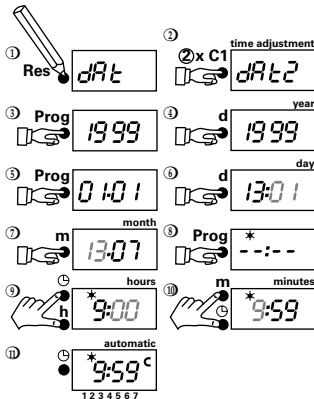


When the button **⊖** is released after entering the time, both dots between the hour and minute display should flash. If not, repeat the setting.



#### 6.6 Initial start-up with automatic summer/winter time adjustment with daily (24 hour) programmes

Example shown below  
Selected adjustment rule dat 2  
Programming date 13/7/99  
Programming time 9:59



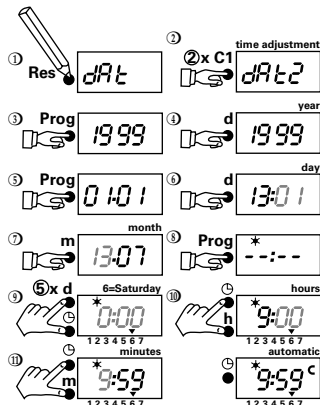
The button **C1** can be used to set the required time adjustment rule from the table in chapter 6.2

When the button **⊖** is released after entering the time, both dots between the hour and minute display should flash. If not, repeat the setting.

#### 6.7 Initial start-up with automatic summer/winter time adjustment with weekly (7 day) programmes.

The button **C1** can be used to set the required time adjustment rule from the table in chapter 6.2.

When the button **⊖** is released after entering the time, both dots between the hour and minute display should flash. If not, repeat the setting.



#### 7.0 Reset

All stored data is deleted by pressing this button!  
Press RES button (Fig 1/12) with a biro or similar implement for approx. 1 second.

#### 8.0 Operating priorities

|   |   |
|---|---|
| A | A permanent ON/OFF switch setting takes priority over all other programmes                    |
| B | A holiday programme takes priority over an output override or the automatic programme         |
| C | An output override changes the switching status until the next contrary switching command     |
| D | If the switch-on and switch-off time are identical, the switch-off time always takes priority |

#### 9.0.5 Year Guarantee

In the unlikely event of this product becoming faulty, due to defective material or manufacture, within 5 years of the date of purchase, please return it to your supplier with proof of purchase and it will be replaced free of charge.

Should you encounter any difficulty please contact our helpline on 020 8450 0515.

HELPLINE  
**020-8450-0515**



For a product brochure please contact:  
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020-8452 1112

Designed and manufactured in the U.K. 67-058-86 (2)