T2 Taximeter
User Guide

This manual describes the operation of the T2 Taximeter once correctly installed and configured by an authorised Aquila Taximeter Dealer. Aquila Electronics Limited reserve the right to change the specification of its products without notice. If any further information is required, please contact your local dealer.

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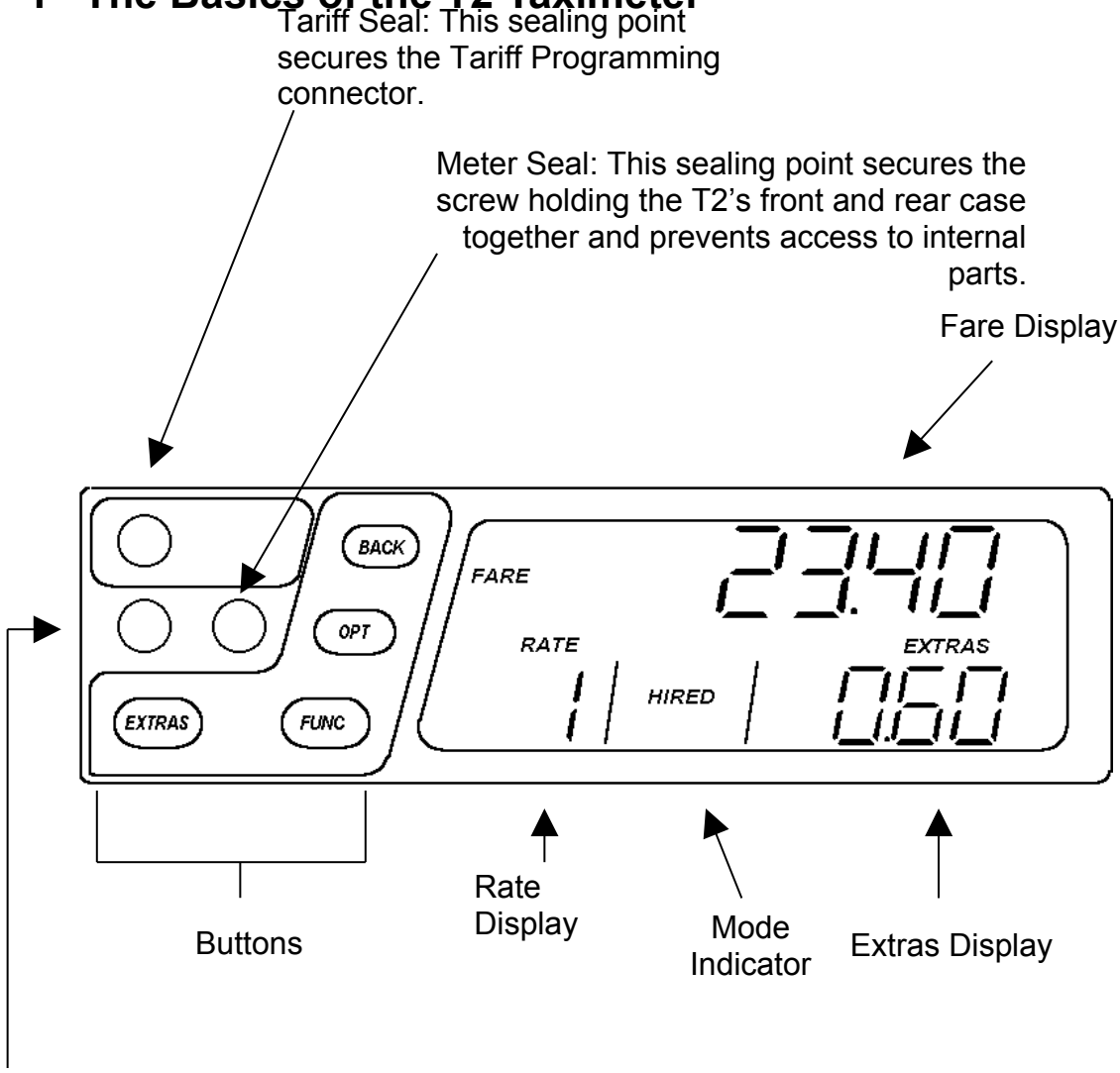
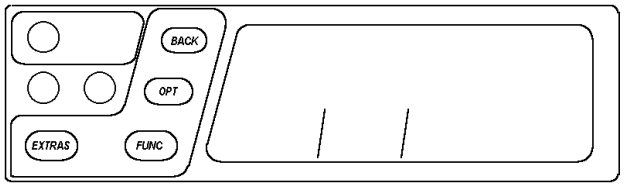
1 The Basics of the T2 Taximeter



Note: The Rate, Fare and Extras displays are used for other purposes in various menus and options.

The diagram of the next page shows how the T2's basic operations work. Following this there are descriptions of each of the T2's operating modes and the functions available in each mode.

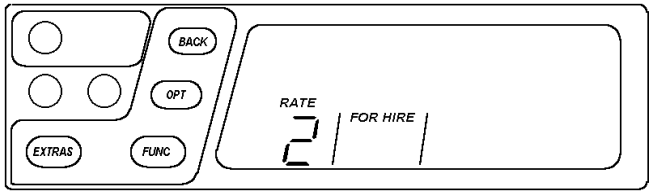
STANDBY MODE



Press FUNC to turn the meter on and get ready for the first journey (go to FOR HIRE mode).

Press EXTRAS to add extras. Hold EXTRAS down and press BACK to clear extras (if allowed in tariff)

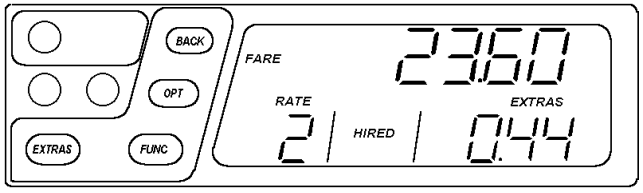
FOR HIRE MODE



Press FUNC to end the current job, clear the display, send details to the totals memory and get ready for the next journey (go to FOR HIRE mode)

Press FUNC to start the journey (go to HIRED MODE)

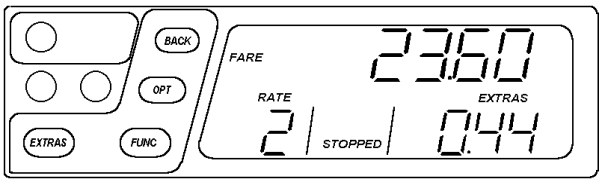
HIRED MODE



Press EXTRAS to add extras.

Press FUNC to end the journey (go to STOPPED mode)

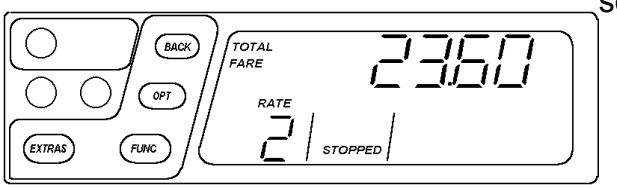
STOPPED MODE



Press EXTRAS to add extras

Press OPT to add the Fare+Extras. Press it again to separate them.

STOPPED MODE (SHOWING TOTAL FARE)



Basic Operation of the T2

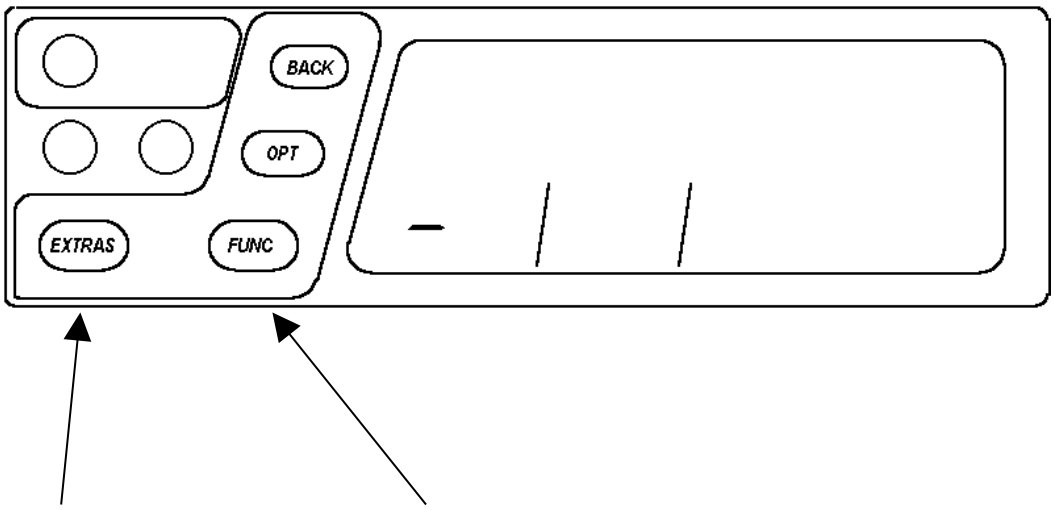
2 Operating Modes

2.1 Standby Mode

When the T2 is first powered up, it enters STANDBY mode. The display is completely blank except for a dash which appears in the Rate Digit if the vehicle moves.
Access to the User Menu system is available from Standby mode. (See section ??)

✓ Optional Feature: A time of day clock may be displayed for 30 seconds if the vehicle moves.

Button functions:



Press EXTRAS to enter the User Menu System

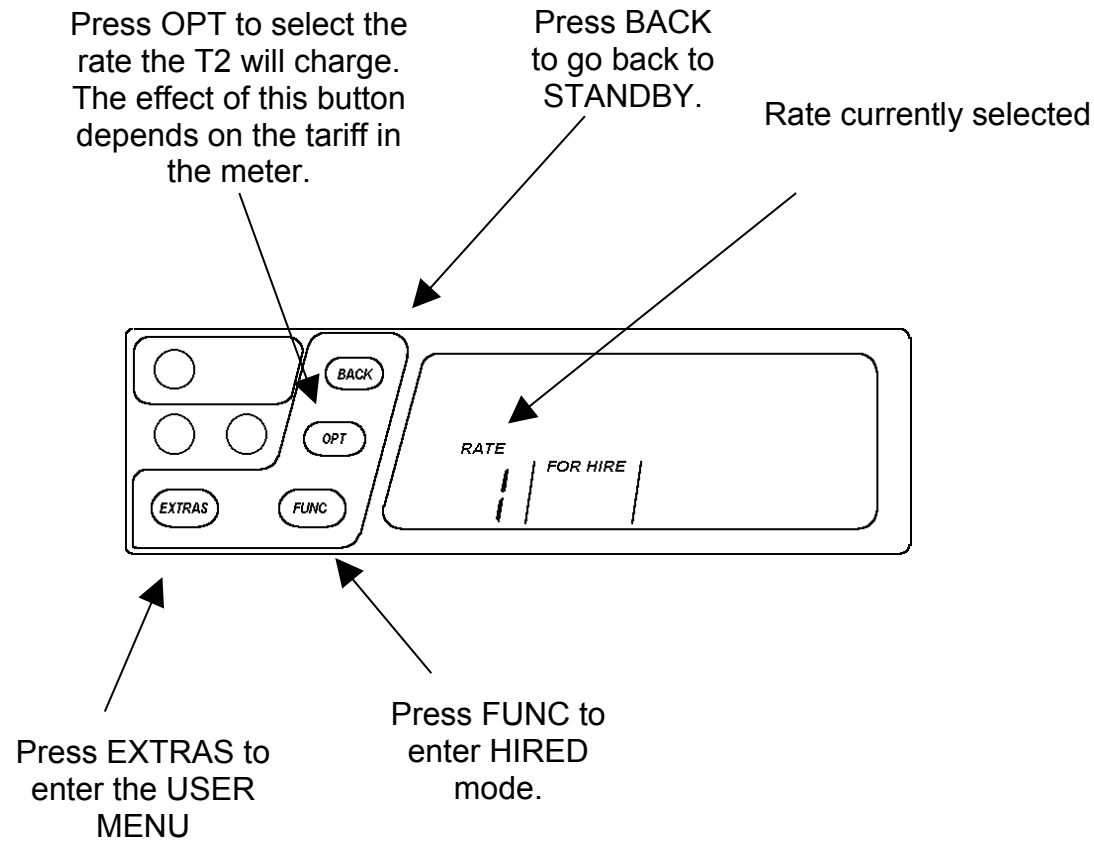
Press FUNC to enter FOR HIRE mode

In certain circumstances, error messages may be displayed when first powering up the T2.

2.2 FOR HIRE Mode

In FOR HIRE mode, the T2 displays the currently selected rate and allows manual rate selections to be made if these are included in the tariff.

✓ Optional Feature: The T2 may optionally display a time of day clock in the Fare Display if allowed in the tariff.



✓ In FOR HIRE mode, the T2 may illuminate the roof sign of your vehicle. This depends, however, on the tariff program in the meter.

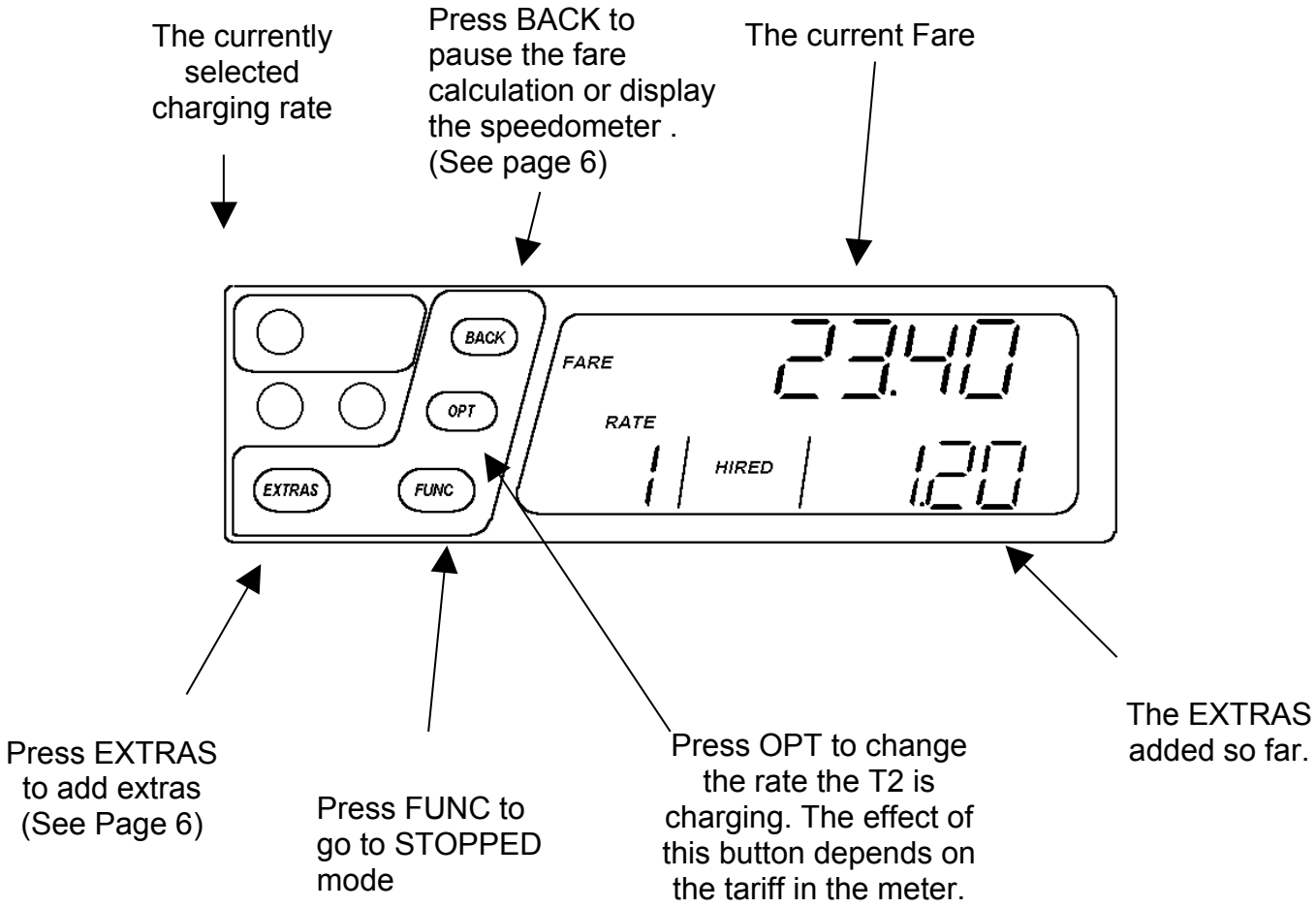
2.3 HIRED Mode

✓ HIRED mode is the mode in which the T2 calculates the fare based on a combination of time and distance. As soon as the meter is placed in HIRED mode, it begins to calculate the fare based on the tariff programmed into it.

There are some conditions which will prevent the T2 from entering HIRED mode from FOR HIRE mode. These include:

1. The Date Stop Feature
2. The absence of a tariff program
3. If the meter's clock is not set and the tariff is "calendar controlled"

In case of items 2 and 3, please contact your dealer for assistance. The Date Stop feature is described in Section 4.5.3.



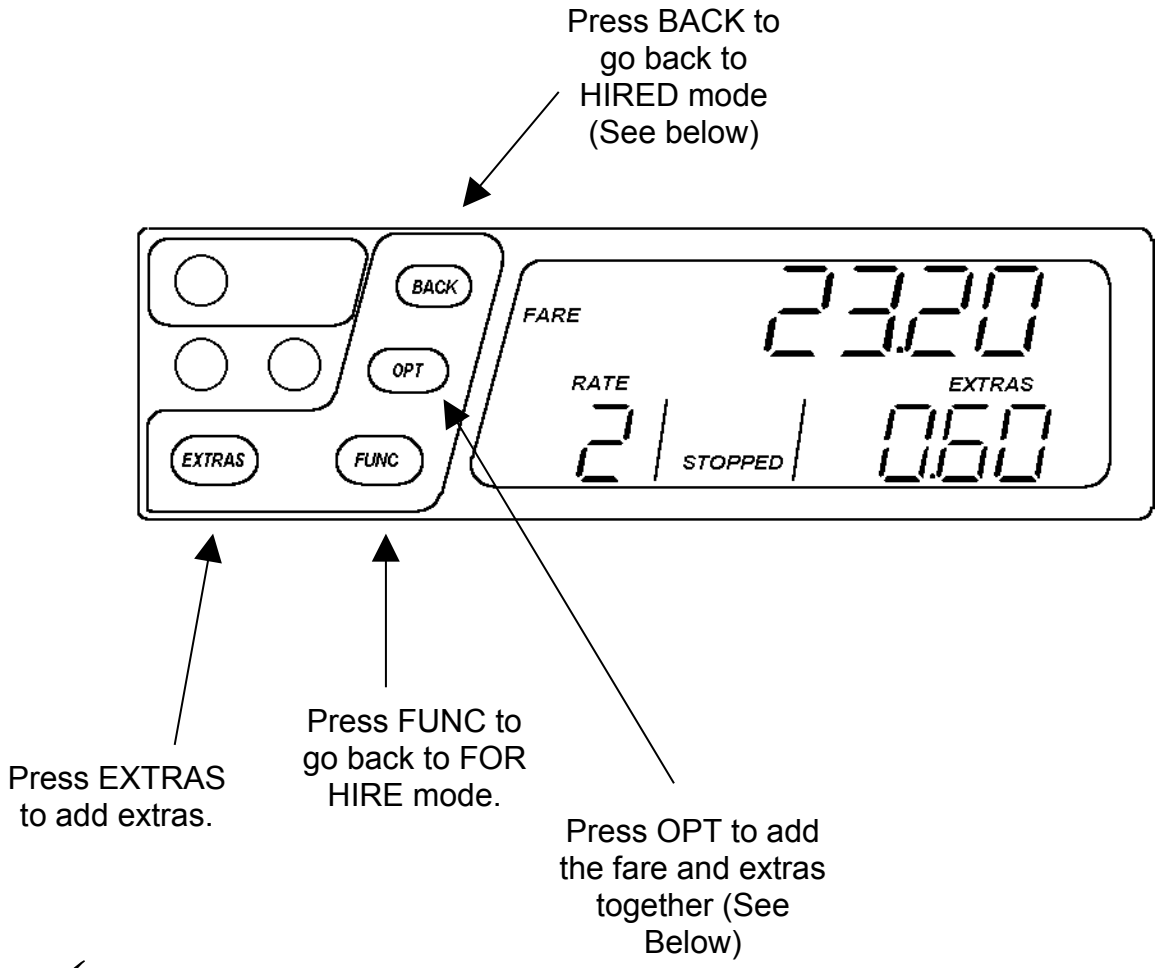
Functions in HIRED Mode

- ✓ If enabled in the tariff program, the BACK button can be pressed to pause the fare calculation. In this case the fare is “frozen” until the BACK button is pressed again. To indicate that the fare is paused, the HIRED and STOPPED legends flash alternately. When re-started, the fare starts from the point at which it was paused. This feature is sometimes called “dead-stop”.
- ✓ If enabled in the tariff program, the T2 may display a speedometer in the EXTRAS display area. This is only available if there are no extras currently shown. To turn the speedometer on or off, press the BACK button. If the “pause” function above is also available, hold the BACK button down for 2 seconds to activate the speedometer.

Note: Since the T2 (in common with most taximeters) includes time in the fare calculation in HIRED mode, it is not appropriate to do in-vehicle distance related accuracy testing in HIRED mode. STOPPED mode should be used for this purpose.

2.4 STOPPED Mode

The T2 is normally placed in STOPPED mode at the end of the journey and left there until the passenger has paid the fare. In this mode, the time element of the fare calculation is stopped, but the taximeter continues to calculate the fare on the basis of distance only.



- ✓ If the T2 is programmed to do so, pressing the OPT button in STOPPED mode will cause the fare and extras to be added together and the legend "TOTAL FARE" to be illuminated. The exact behaviour of this feature has several possible options. If you require any further information, please contact your dealer.
- ✓ If the T2 is programmed to calcuulate discounts, the percentage discount cam be selected by holding OPT and pressing EXTRAS with the fare and extras added together.

Since the T2 continues to calculate the fare on a distance basis only, STOPPED mode may be used for in-vehicle testing.

3 Tariffs, Options and PIN Numbers

This section explains some basic principles as they apply to the T2 Taximeter.

3.1 Tariffs

A taximeter needs to be programmed with a *tariff* in order for it to charge the correct fares and comply with the needs of your business and local regulations.

The T2 is programmed with a tariff by your dealer. As well as the charging information, the tariff also includes:

- Information about calendar dates, times and days of the week for so-called “calendar” tariffs.
- The dates and times to change the clock forwards and backwards for Summer and Winter time.
- Configuration of options such as the totalling of the fare and extras in stopped mode
- Configuration of the circuits used to activate the roof sign lamp(s) on the vehicle.

Because of this, the behaviour of an T2 can change greatly depending on the tariff programmed into it. If you require any help with the operation of your taximeter, please contact your local dealer.

3.2 Tariff Code

Tariff programming information is generated by staff at Aquila Electronics in conjunction with local dealers. In order to keep an accurate record of the large number of programs written, and to assist in the diagnosis of problems, every Aquila tariff is uniquely numbered This number can be displayed in the “Info” user menu (See section 4.4.2).

If given this number, staff at Aquila can quickly find out how your T2 has been programmed and answer any queries you may have.

3.3 Receipt Programs

The T2 can optionally be programmed with one or more receipts for printing on a suitable Receipt Printer. Like the tariff program, the Receipt Program has a unique code number which can be used to identify it to your dealer.

3.4 PIN Numbers

In order to allow a level of control over the use of certain features of the T2, PIN numbers are used. The term PIN is borrowed from the banking industry and stands for “ Personal Identification Number”.

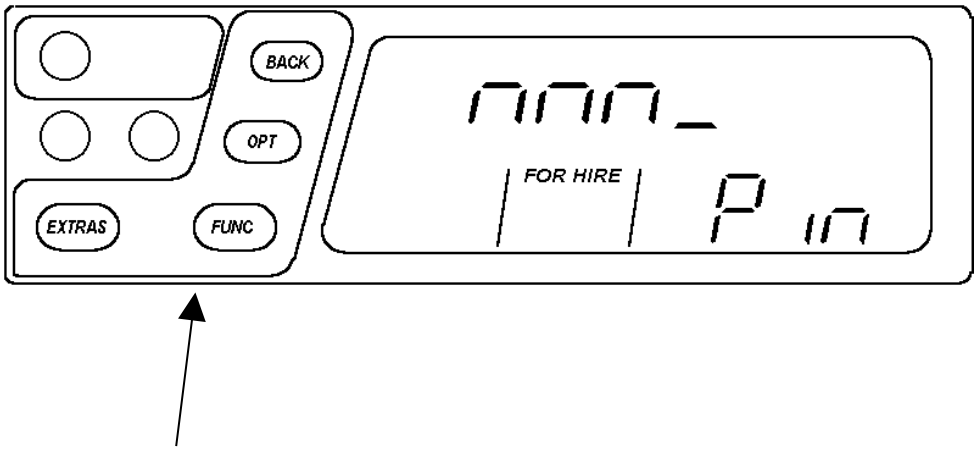
The T2 uses six-digit PIN numbers with each digit taking a possible value of 1,2,3, or 4. This allows PIN’s to be entered directly into the meter using the five buttons, and provides 4096 combinations.

The T2 comes with two factory set PIN numbers. The PIN’s are:

- **The Totals PIN:** This is used to control access to the totals features of the T2. See section 4.2 for details.
- **The Date Stop PIN** This is used to program the T2 to only work for a specified period of time. See 4.5.3 for details.

3.5 Entering a PIN Number

When a PIN is required, the T2's display looks like:



Enter the 6-digit PIN using the buttons for the numbers 1 to 4.

For example, the PIN number 413211 would be entered as:
BACK, EXTRAS, OPT, FUNC, EXTRAS, EXTRAS

✓ If no keys are pressed for approximately 30 seconds, the PIN entry times out.

4 The User Menus

The T2's user menus allow:

- Information to be read out of the meter, including the totals information
- Certain functions of the meter and meter/vehicle interface to be tested
- Certain features of the meter to be enabled, disabled or configured

The User Menus are available when the T2 is in FOR HIRE or STANDBY modes. To access the menu system, press the EXTRAS button in either of these modes (see Sections 2.1 and 2.2).

The User Menus include the following sections:

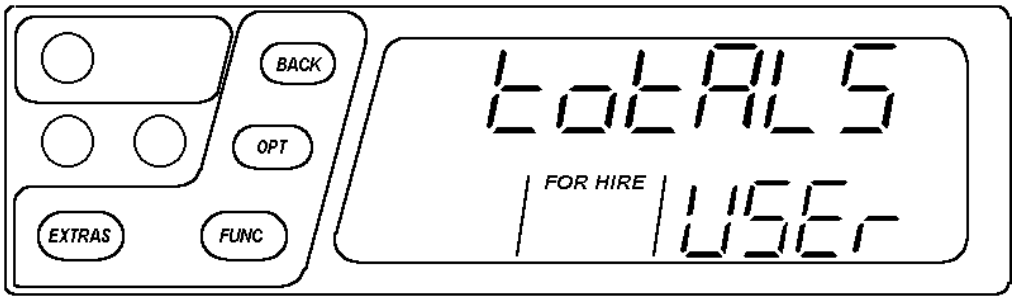
Section	***Description***
Totals	Allows access to read the meter's totals information. The meter's totals may also be configured and reset in this section.
Print Out	This section is available if the T2 has a receipt program in place, and is used to print out receipts on an optional printer.
Info	Allows access to various "Information" items.
Features	Allows access to various features.

- To move between the sections, press the EXTRAS button.
- To select one of the sections, press FUNC
- To move between the sub-menus, press EXTRAS

To back out of an item, press BACK. To exit completely, press BACK repeatedly.

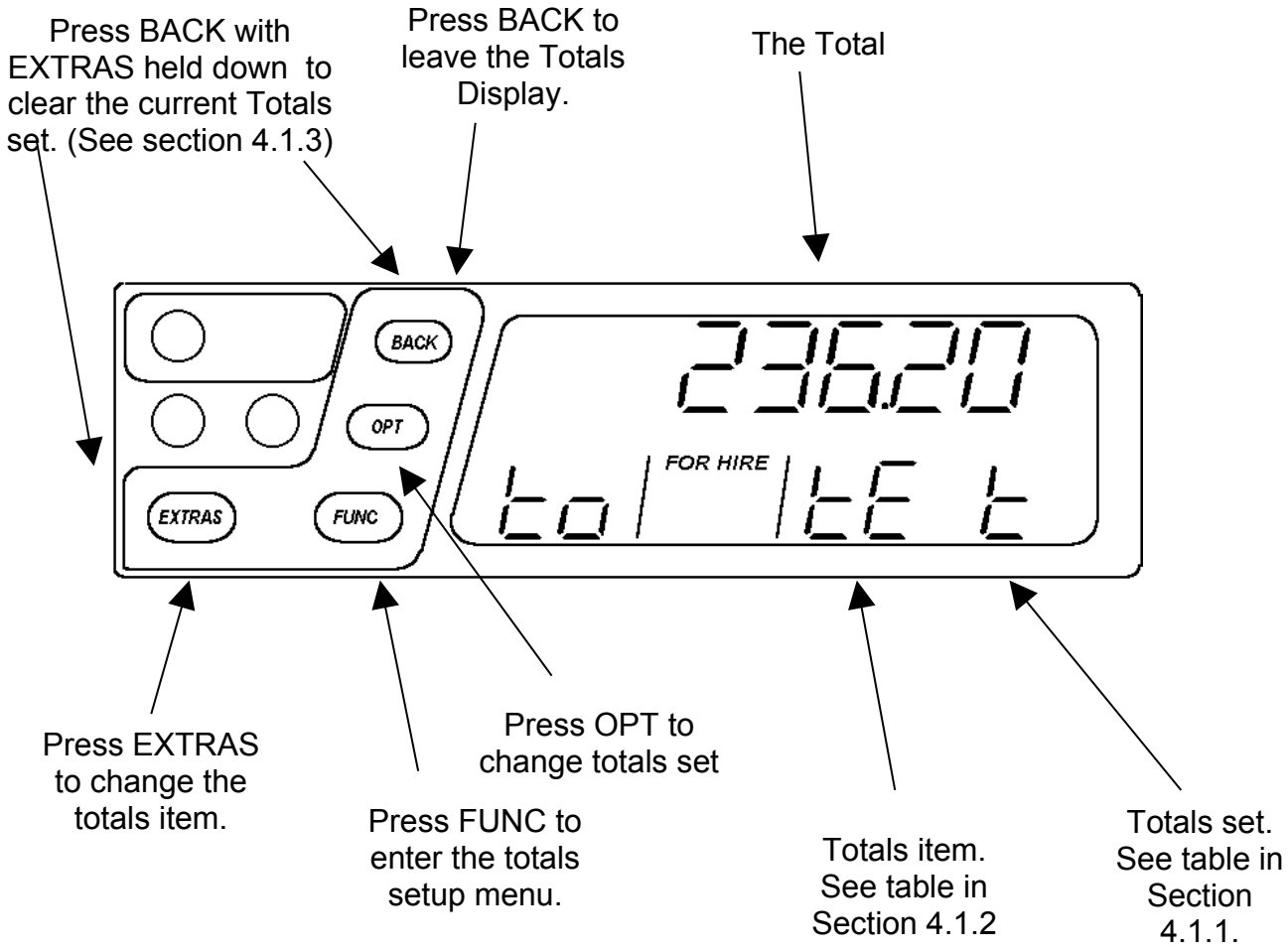
If no button is pressed for a continuous period of 10 seconds or 30 seconds (depending on the tariff program), the T2 automatically leaves the User Menus and goes back to the previous mode.

Most of the menu items also time-out in a similar way.



4.1 User Menus: Totals

The T2 stores running totals of your earnings and other journey information for later recall. To access the totals, press OPT from the “Totals” prompt.



✓ If allowed in the tariff programme, a Totals Setup menu is available by pressing OPT. See section 4.2 for details.

4.1.1 The 3 Sets of Totals

Three separate sets of totals are stored:

Display	Description
t	"Temporary Totals". These may be reset by any user.
p	"Permanent Totals".
L	"Last Journey" totals. This set represents the last journey only.

✓ If the "Permanent" totals are shown as "Hidden", this means that the "Totals Hidden" option has been selected. See section 4.2.1 for details.

✓ The T2 includes an option called "No Job" which causes particularly short journeys to be disregarded by the totals system. See section 4.2.2 for details.

4.1.2 Items in each set of Totals

Each set of totals includes the following items:

Display	Description	Included In Last Journey Totals
tE	Total Earnings = Fares + Extras + Tips	✓
F	Fares	✓
E	Extras	✓
dc	Discounts	✓
Hr	Hirings	×
td	Total Distance travelled including between hirings	✓
pd	Paid Distance: Distance travelled while hired.	✓ (Paid distance during last Journey)
Ud	Unpaid Distance: Distance while not hired	✓ (Unpaid distance since last recorded journey)
nJ	"No Jobs": Number of short journeys for which totals have not been incremented. Included in this is the number of journeys which have been interrupted by the removal of power from the T2.	✓ (Number of "No Job" journeys since last recorded journey)
PU	"Power Ups": Count of number of times power has been applied to the T2	✓

In the case of the "Last Journey" totals, the "Hirings" total is absent. Some of the other items have the meanings a indicated in the table above.

4.1.3 Clearing a Totals Set

✓ It is possible to clear the “Temporary” totals set by holding down the EXTRAS button and pressing BACK.

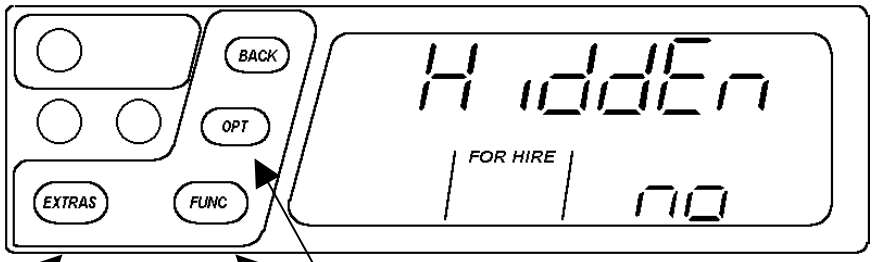
4.2 User Menus: Totals Setup

To enter the Totals Setup menu, press FUNC while the T2 is showing a totals item.

The Totals Setup menu is only available if enabled in the tariff program.

The Totals Setup menu includes a series of options. To move between the items, press the EXTRAS button.

4.2.1 “Permanent” Totals Hidden Option

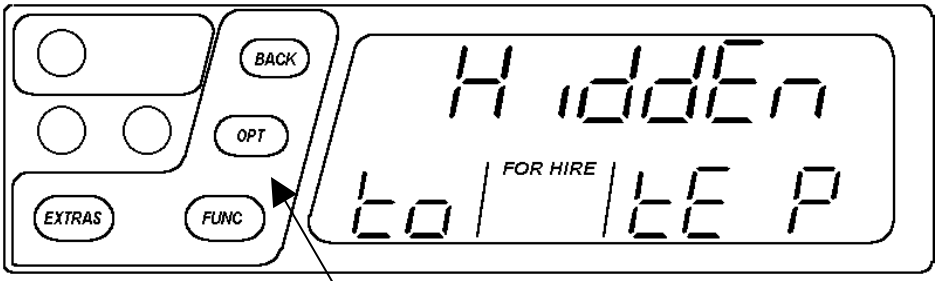


Press EXTRAS to move to the next item.

Hold down FUNC and press OPT to turn on/off after entering the Totals PIN

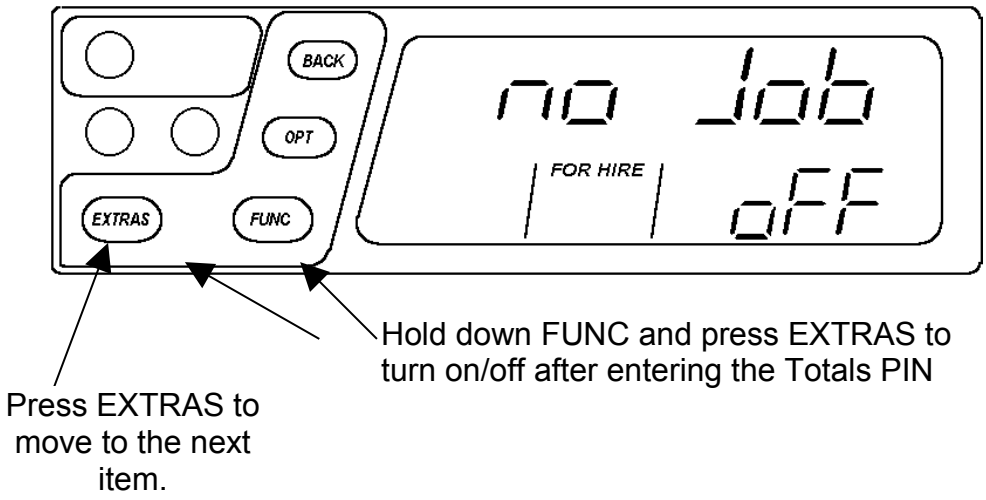
With this option set to “on”, the “Permanent” Totals are always hidden from view until the user enters the Totals PIN.

✓ To remove the “block” and read the “Permanent” totals, hold down EXTRAS and press OPT



Hold down EXTRAS and press OPT to remove “Hidden”.

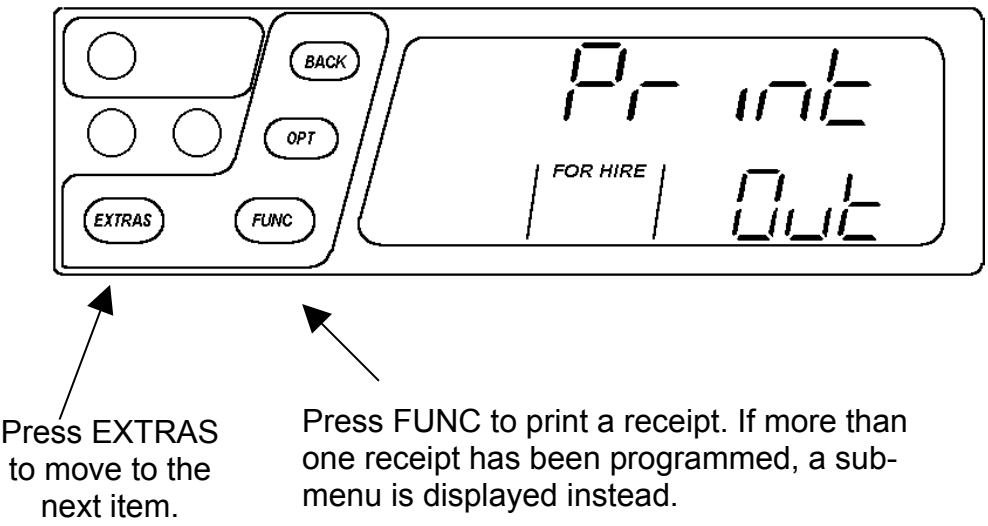
4.2.2 Totals “No Job”



With this option turned “on”, the T2 does not record totals information for short journeys.

4.3 User Menus: “Print Out”

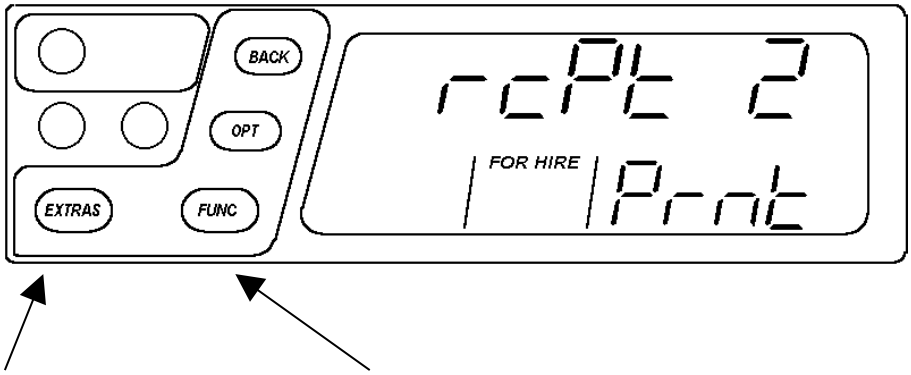
The “Print Out” menu option is only available if a receipt programme has been inserted into the T2. Its correct use also requires the connection of a suitable Receipt Printer.



Assuming that a receipt printer is connected to the T2 and switched on, a receipt may be printed:

✓ If only one receipt choice is available, pressing OPT will print it.

✓ If more than one receipt choice is available, pressing OPT gains access to a menu of the choices.



Press EXTRAS to move to the next receipt.

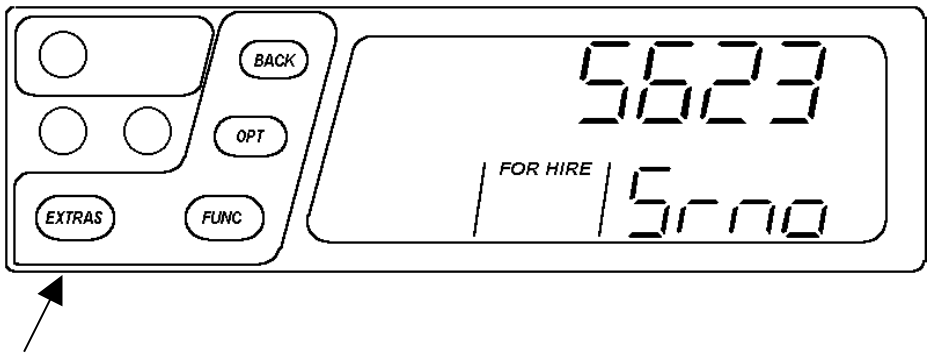
Press FUNC to print the selected receipt.

4.4 User Menus: Info

The info menu contains a series of items giving information about the meter and its status.

4.4.1 Serial Number

This entry shows the T2's serial number which should match the number printed on the front panel.

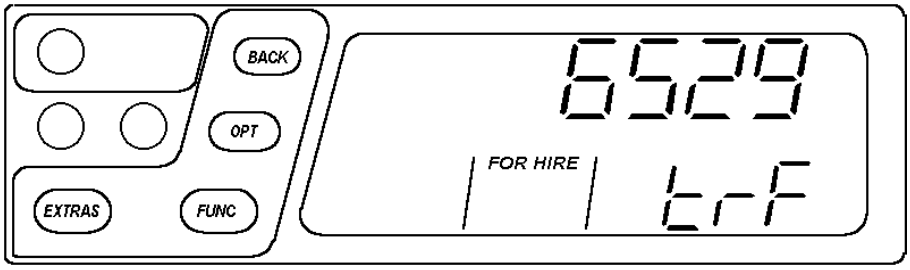


Press EXTRAS to move to the next item.

4.4.2 Tariff Number

See sections 3.1 and 3.2 for details of the tariff numbering scheme.

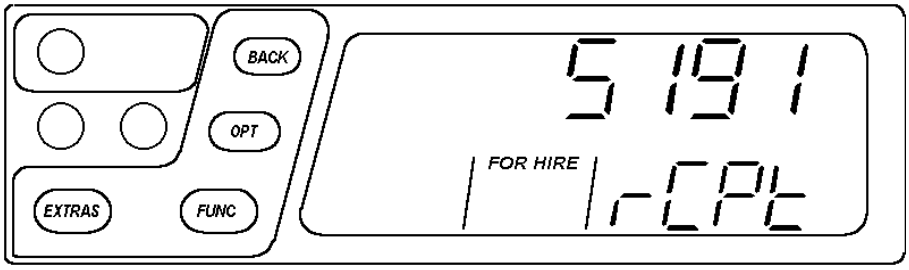
This item shows the Tariff Number of the tariff currently programmed into the T2. If there is no tariff installed, "no trF" is shown.



Press EXTRAS to move to the next item.

4.4.3 Receipt Number

See section 3.3 for details of the receipt number.

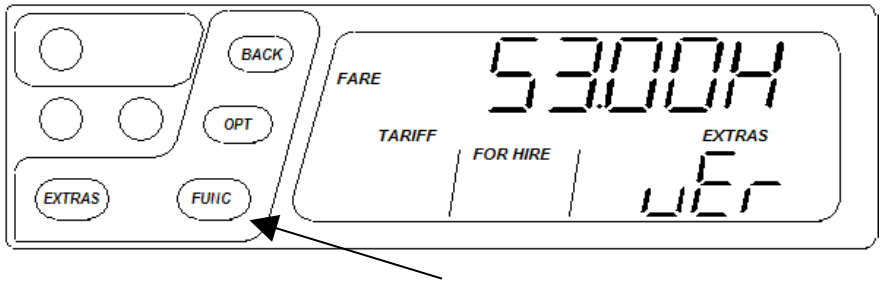


Press EXTRAS to move to the next item.

4.4.4 Software Version and Software Checksum

This item shows the version of the software in the T2.

You may need to tell your dealer the software version in the event of a query.



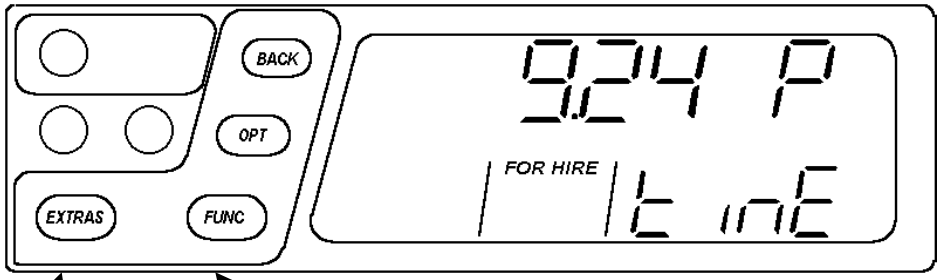
Press EXTRAS to move to the next item.

Press and hold FUNC to display the software checksum.

4.4.5 Time of Day

You can change the time between 12hour and 24hour format here. You can also make minor adjustments to the time to allow for the accuracy of the T2's clock.

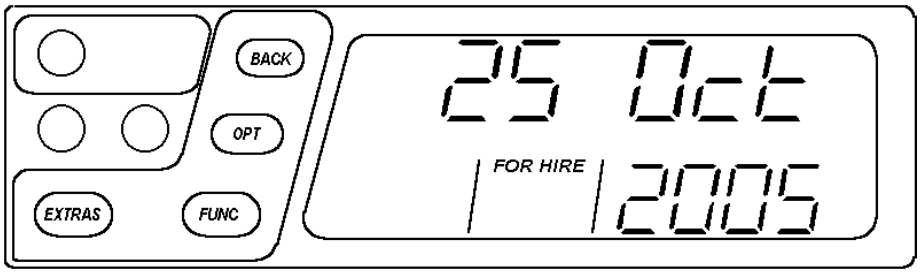
Press BACK, with FUNC held down to adjust the time forwards, OPT to adjust the time backwards.



Press EXTRAS with FUNC held down to change between 12 and 24 hour clock.

Press and hold down FUNC to adjust the time and 12/24 hour clock display.

4.4.6 Date

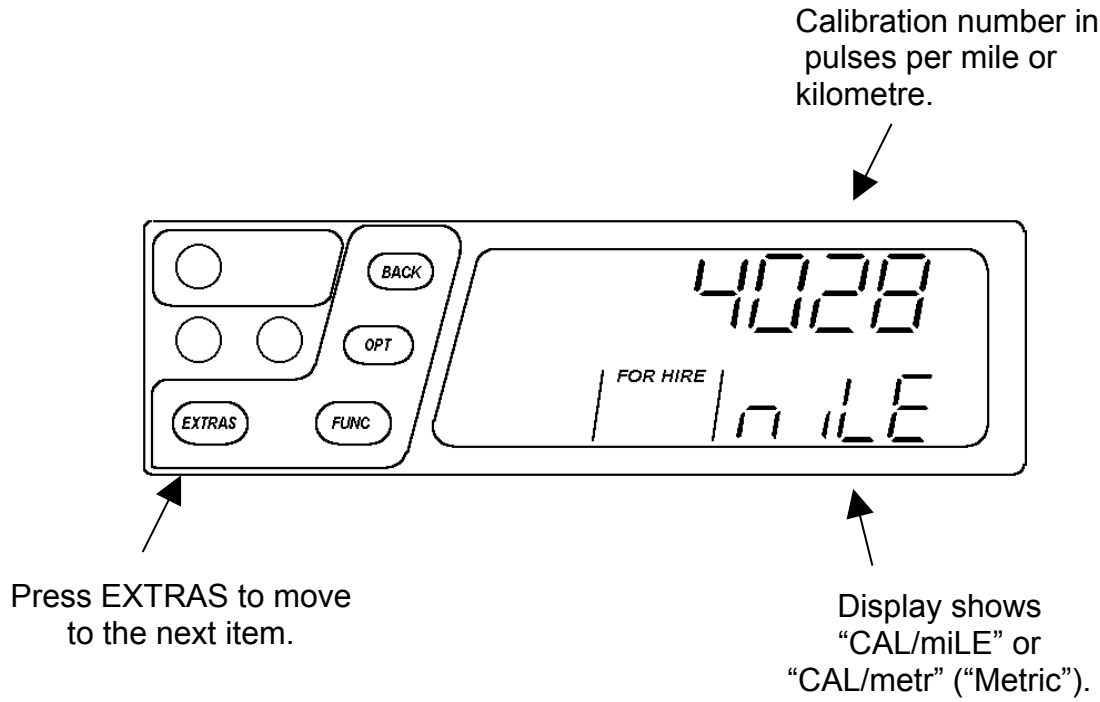


Press EXTRAS to move to the next item.

4.4.7 Calibration

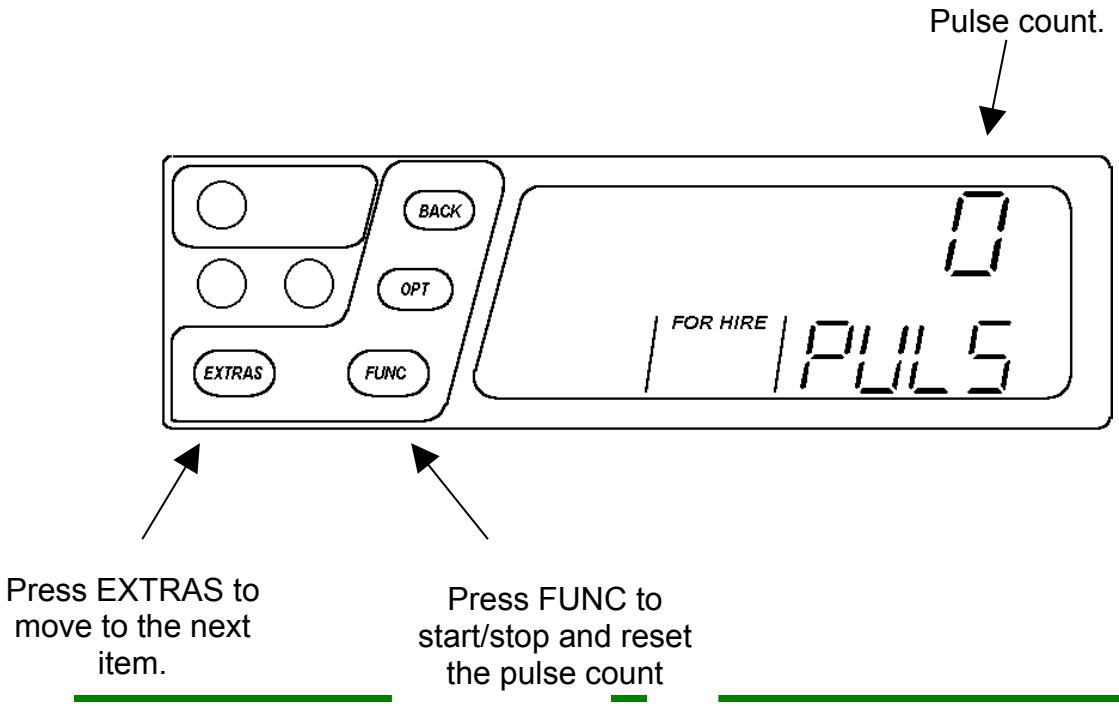
The T2 is programmed by your dealer with a number of ***pulses per mile/kilometre.*** This item allows you to check the value.

You may need to provide this information to your dealer in the case of a query.



4.4.8 Info Menu: Pulse Count

This item is a test facility for verifying that the pulse signal used to provide distance information to the T2 is working correctly. The pulse count facility displays a continuous count of pulses received.



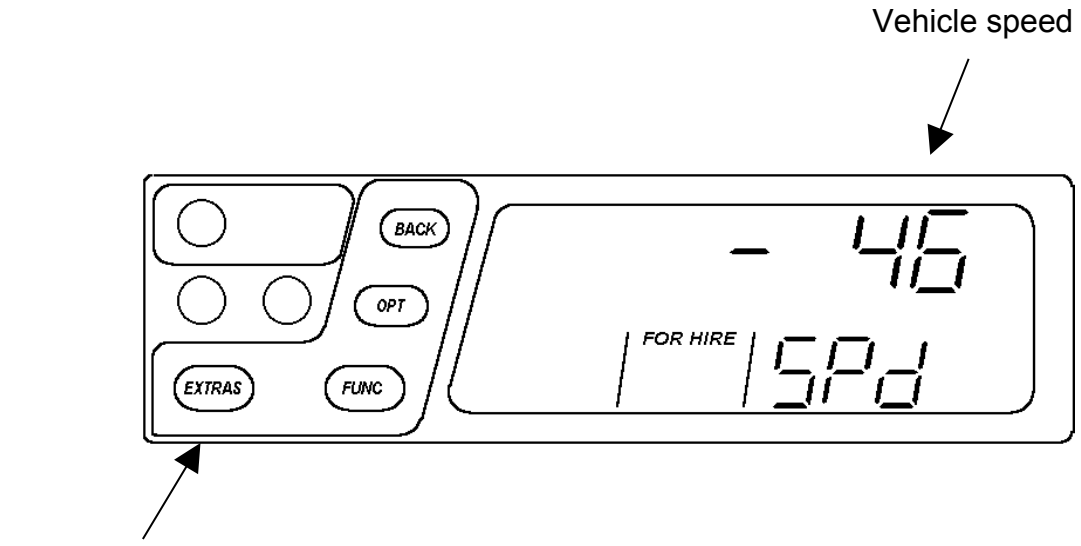
The initial display shows a pulse count of “0” with the text “PULS”.

- To start the pulse count, press the FUNC button.
- To stop the pulse count, press the FUNC button
- To clear the pulse count back to “0”, press FUNC again.

When the Pulse Count is in the active “counting” condition, it will not time-out after 10 or 30 seconds. To exit, press BACK.

4.4.9 Speed Display

This item shows the vehicle’s current speed in the same units (miles/km) as the totals information.

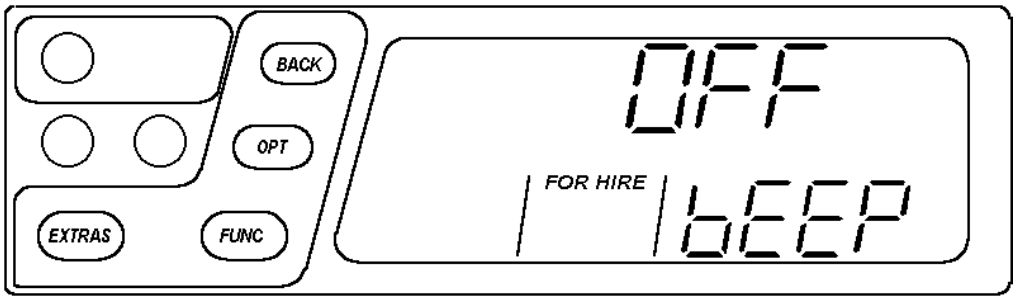


4.5 User Menus: Features

The Features section of the User Menus allows the control of some of the T2’s additional functions.

4.5.1 Beep On/Off

The T2’s sounder can be turned on and off using this item.



Press the EXTRAS with FUNC held down to turn the beep on/off..

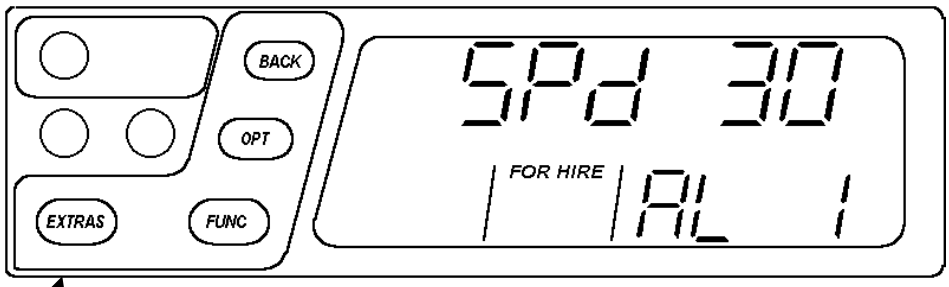
Hold down the FUNC button to change the setting.

4.5.2 Speed Alarms

The T2 has two independent speed alarms which will warn you if you exceed the speeds(s) you set in this menu item. The two speed alarms occupy two positions in the Features menu.
When a speed alarm setting is exceeded, the T2 emits a sequence of audible beeps.

Press BACK, with FUNC held down to increase the speed setting, or OPT to decrease it.

Current alarm setting. "—" indicates that the alarm is turned off.

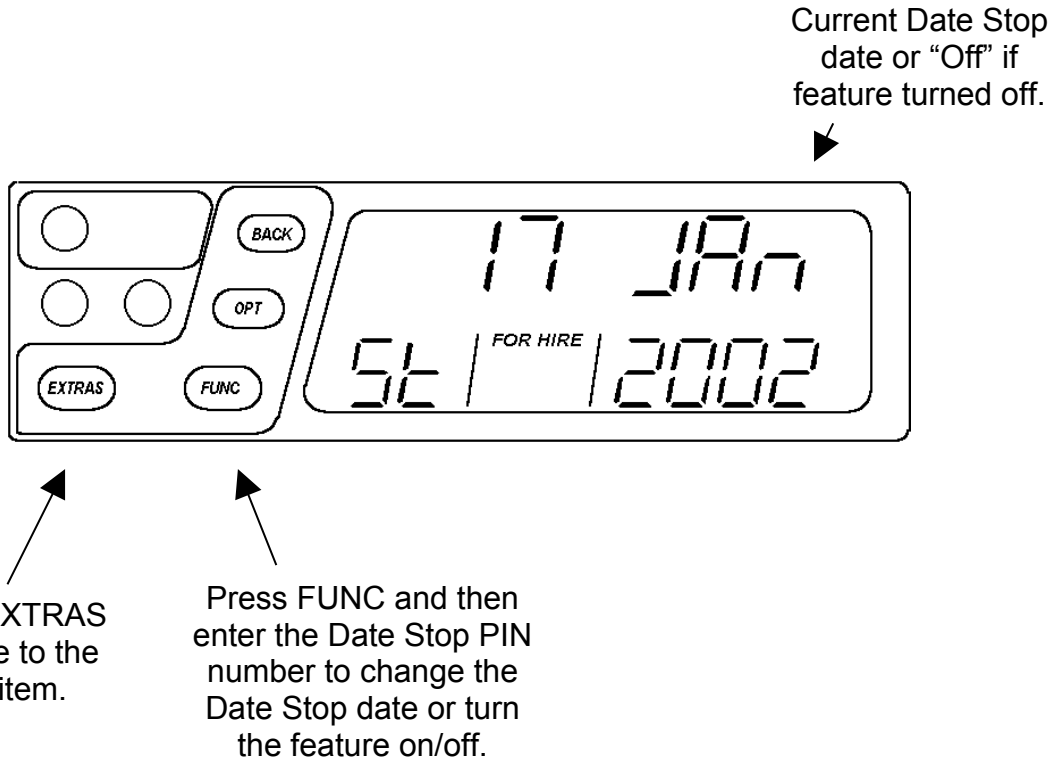


Press EXTRAS with FUNC held down to turn the alarm on/off.

Hold down FUNC to change the setting.

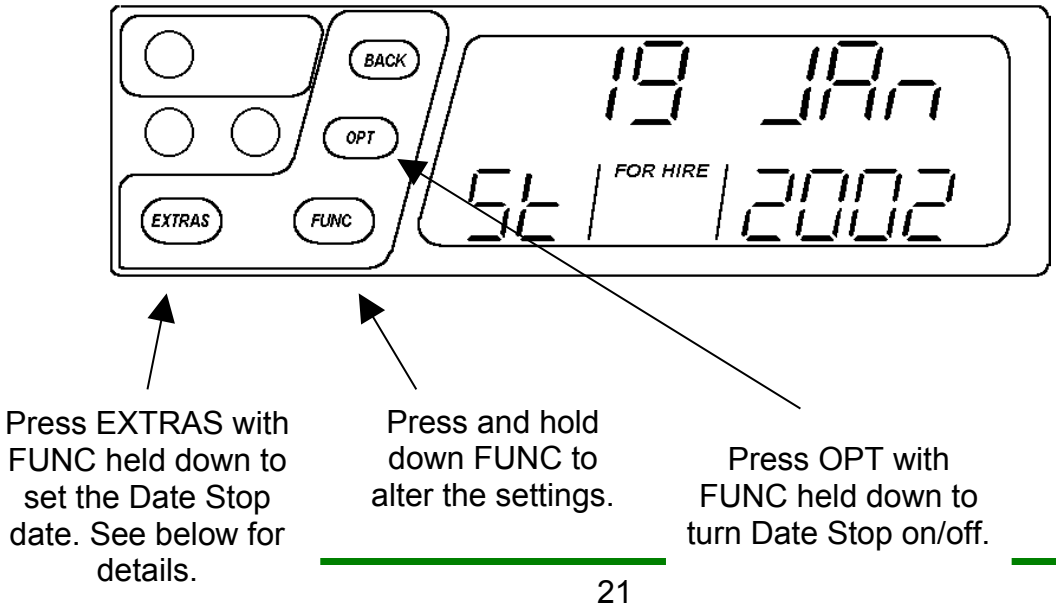
Alarm being viewed/set. (1 or 2)

The Date Stop feature allows the T2 to be programmed to work only up to a certain date. This item shows the current setting of the feature and allows the disable PIN to be used to set the Date Stop date or turn the feature on/off.



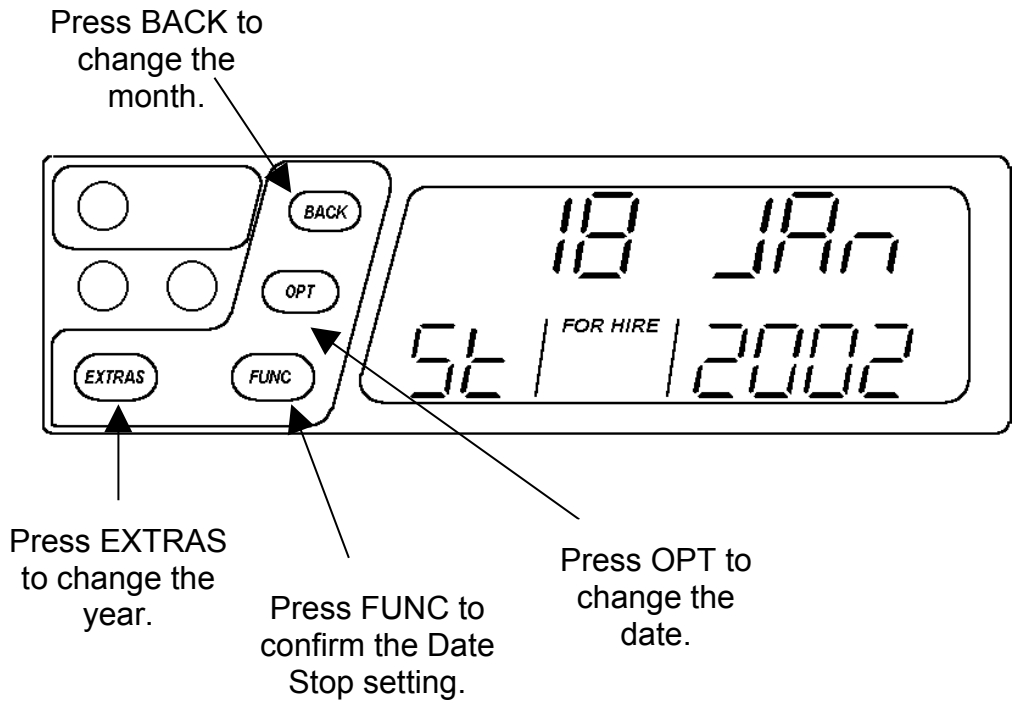
If the Date Stop feature is currently enabled, the date is shown. If it is not currently enabled, the word “OFF” is shown.
To configure the Date Stop feature:

- Press FUNC
- Enter the Date Stop PIN number.
- The button presses for configuring the feature are shown below:



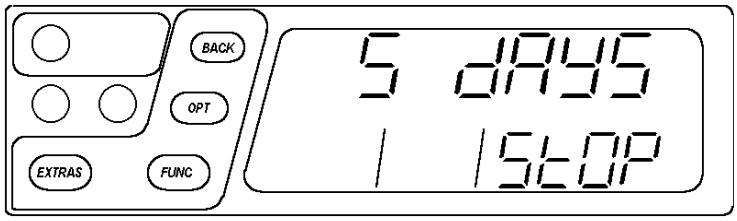
Setting the Date Stop Date

During setting of the Date Stop date, the legend “St” flashes. Use the key presses below to set the date:

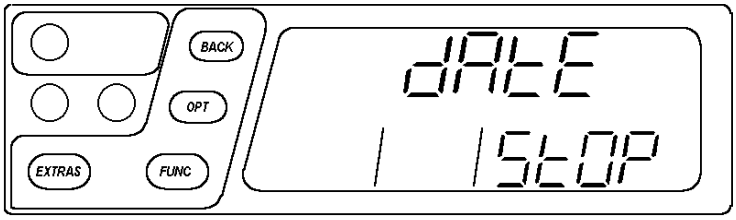


Date Stop Warning Messages

If the current date is 7 days or less from the Date Stop date, the T2 shows a warning message whenever it is switched on.



If the current date/time is past midday on the Date Stop date, the warning shown below is produced. This message is also displayed as an error message if FUNC is pressed to enter HIRED mode from FOR HIRE mode.



5 T2 Power Up Test

From software version 49.00, the T2 performs an extended power up self-test before commencing normal operation. There is therefore a few seconds' delay.

If the test is unsuccessful, the keypad backlighting flashes. If this occurs, then please contact your dealer for advice.

6 The T2's Battery and Clock

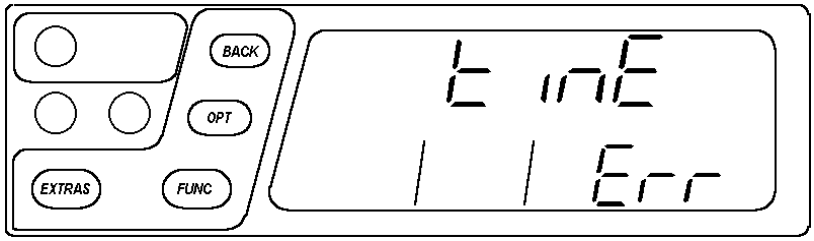
Since the T2 has a "real time clock", it has an internal "battery" which maintains the clock when the meter is removed from a source of power. The T2 clock will continue to keep time for a period of three weeks, after which it will need to be set again.

6.1 Re-charging the Battery

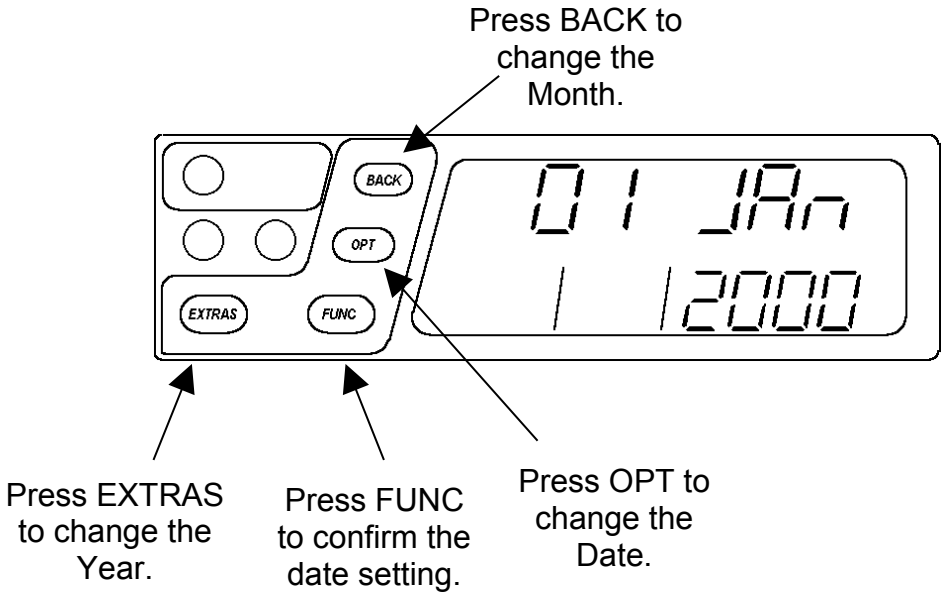
If the internal battery has completely discharged, the T2 should be connected to a source of power for a period of at least 15 minutes.

6.2 Setting the Clock

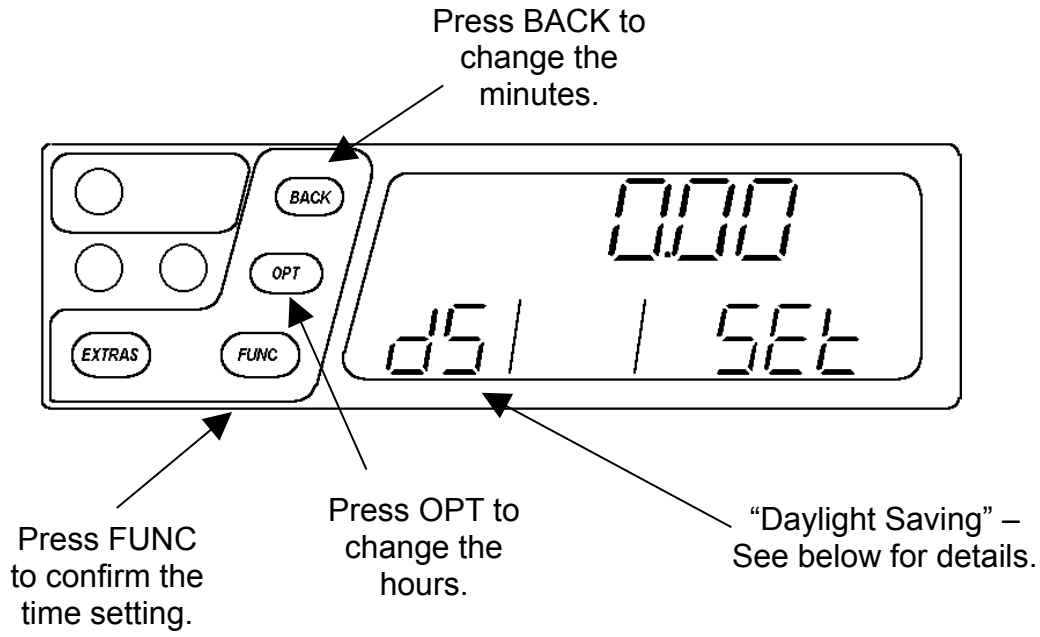
If the T2's battery is discharged, the clock should be set when it is first connected to power. If the clock needs to be set, the T2 shows:



After the message has disappeared, set the current date using the buttons:



Once the date has been confirmed, the time of day must be set:



Note: if the letters "dS" are shown in the rate window, the time shown takes account of "daylight saving". This means that the tariff program includes adjustments for Winter and Summer time and that such an adjustment is in force on the date you have entered.
Once the date and time have been entered, the T2 enters STANDBY mode as normal.

7 Product Specifications

Electrical/Mechanical Characteristics	
Supply Voltage	8v to 16v
Mechanical class	M3
Electromagnetic class	E3
Temp range	-25 to +70 ºc

Pulse Input	
Input type	Schmitt trigger circuit
Input impedance	9.4kΩ
Open circuit voltage	0.6 x Vs
Signal level	Low: Max 2.4v High: Min 3.4v
Range of constant K	800 p/km to 65535 p/km
Maximum Speed	220km/h

Displays	
Type	8- segment LED displays
Colour	Red
Height	0.4”/0.5” (10.25mm/12.8mm)

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