Microtima
Microelectronics for Traffic Informatics

Series 5 Unit

Programmable Switching Device

Installation and Operation Guide

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1 Introduction

Welcome to the Microtima Series 5 Installation and Operation Guide.

The new Series 5 Controller Unit, the latest variant of our patented controller for school hazard warning signals is the replacement for the reliable and long-lasting Series 4.

Through the use of new technology we are able to offer a wider range of options for the Series 5, including power input and lamp types, as well as the advantages offered by the latest generation of hand-held computing devices (PDA) for programming.

It retains the programming procedure used with Series 4, but has nearly double the capacity that allows up to 12 switch On/Off events within eight distinct switch tables.

Available in versions which can be driven from both mains and low voltage DC power supplies, the Series 5 can be used with any lamp housing from any manufacturer including Dorman, Simmonsigns and Signature.

The Series 5 Controller Unit is built to last and has been designed to allow future additional features to be added. You will be kept informed of new developments when they become available, to allow you to upgrade older Series 5 units to the current product capability and to maintain uniformity across an authority's stock and future-proof their investment.

2 Contact Information

For more details on our full product range of controllers and the associated programming devices, software and cables please see our new website at: www.microtima.co.uk

If you wish to discuss your requirements further, then please contact our Road Safety Product Manager, via:

Microtima Limited
Old Glassworks
Stepney Bank
Newcastle Upon Tyne
Tyne & Wear
NE1 2NP

T: 0191 230 4411
F: 0191 230 4422
E: roadsafety@microtima.co.uk

3 Lamp Housing Installation

The Series 5 unit can be installed in all types of lamp housings available from the major manufacturers.

Lamp housings are typically installed on standard 76 mm diameter traffic sign poles, although they can be installed on poles of larger diameters or mounted on the sign plate.

Note: The New Dorman lamp housing is a one-piece sealed unit, which does not provide access to install or re-program the Series 5 unit. The housing is dispatched with the Series 5 functionality pre-installed. Communication between the PDA and the Series 5 is via Bluetooth wireless technology, which is described on page 63.

Non-standard Housing Installation

The following illustrations and instructions can be used as a guide to installing the lamp housings to suit various situations where standard installation is not possible.

Note: All diagram dimensions are in millimeters and are not drawn to scale.

For all non-standard Signature lamp housing installations please contact Signature Limited, at:

Signature Limited
Signature House
Hainge Road,
Tividale,
West Midlands
B69 2NF
England
Tel: 44 (0) 121 557 0234
www.signatureltd.com

Large Diameter Pole Mounted

When installing the lamp housing to a pole larger than 76 mm diameter, such as a street lighting column it will become necessary to attach channel sections to the housing to accommodate the use of metal banding used to secure the housing to the column.

Up to 140 mm Diameter

When installing a lamp housing onto a pole of up to 140 mm diameter, attach channel sections of 200 mm in length to the housing.

Over 140 mm Diameter

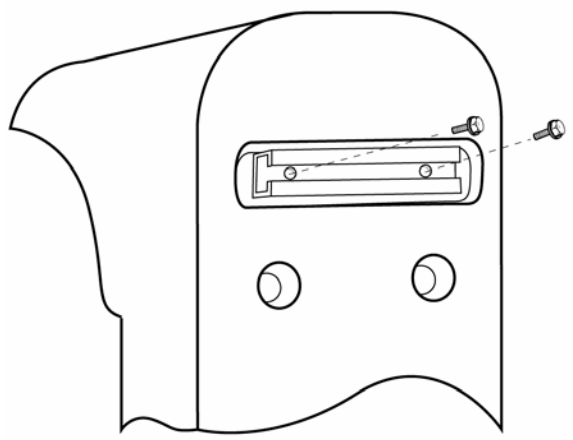
A general rule of thumb when installing a lamp housing onto a column with a diameter larger than 140 mm is to use channel sections with a length equal to the diameter of the column plus 100 mm to 120 mm.

Simmonsigns lamp housings are supplied with three Vari-Fix 'U' bolt sets to suit pole diameters of 76 mm, 89 mm, and 114 mm. To install the lamp housings to poles of greater diameter, use Simmonsigns own Vari-Banding cleat set together conventional 20 mm banding. To order these items, contact Simmonsigns Limited at:

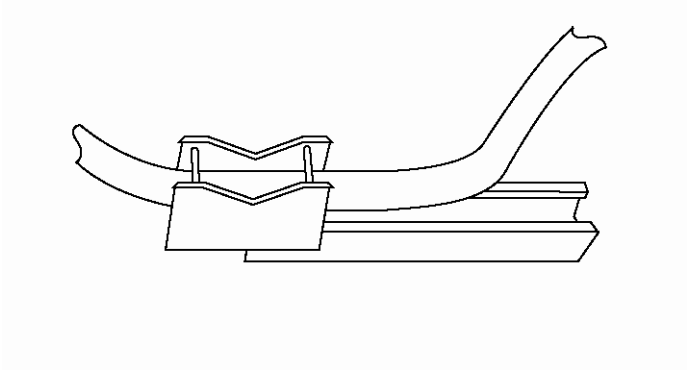
Simmonsigns Limited
Stafford Park 5,
Telford,
Shropshire
TF3 3AS
England
Tel: 44 (0) 1952 293 333
www.simmonsigns.com

Attaching the Channel/Banding Adapter

1. Fix the adapter channel on to the back of the sign using the 2 x set screws as shown below.



2. Slide the attachment clip into the channel and wrap the banding around the post upright, tighten to required torque.



Sign Plate Mounting Options

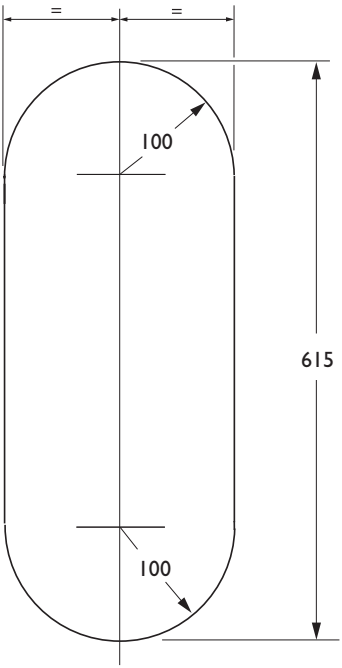
There are two methods of attaching the lamp housing to the sign plate, either by using a stub section of 76 mm diameter pole attached to the channel sections, or by the use of brackets.

The sign plate itself is fixed to channel sections, which are in turn attached to the traffic poles by means of metal banding.

Option 1 - Sign Plate Mounting using Stub Poles

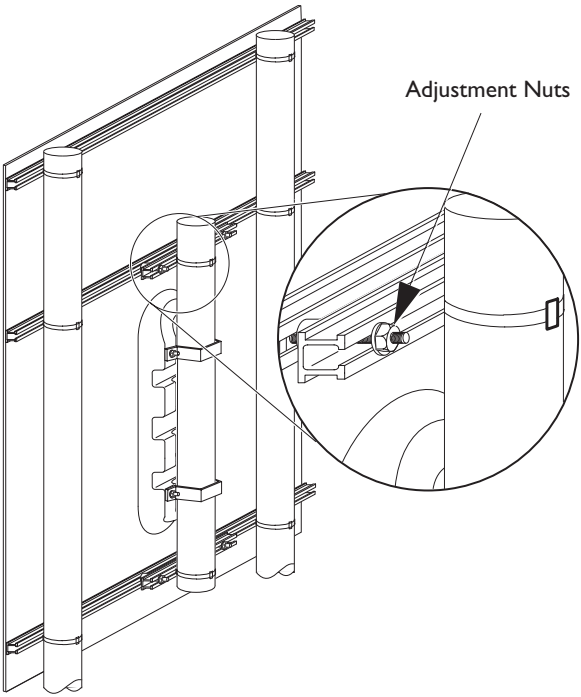
Old Dorman

1. Make a cut out in the sign plate to accommodate the lamp housing, in line with the dimensions in the diagram below.



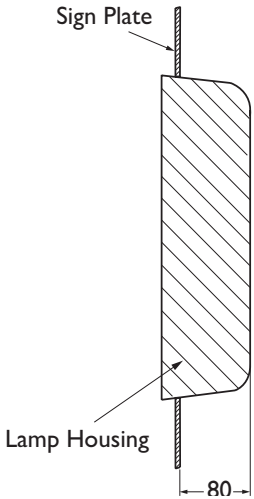
Old Dorman Housing - Sign Plate Cut-out

2. Using standard fixings, attach short lengths of channel to the longer lengths of channel already attached to the sign plate, see diagram over page for location.



Lamp Housing Location

3. Using banding, attach the stub pole to the short lengths of channel and tighten to the required torque.
4. Insert the rear of the housing through the front of the sign plate and attach it to the stub pole using standard mounting brackets.
5. Set the distance between the rear of the sign plate and the rear of the housing to 80 mm by adjusting the nuts used to fix the short channel sections to the longer channel sections shown in the **Lamp Housing Location** diagram above.



Simmonsigns

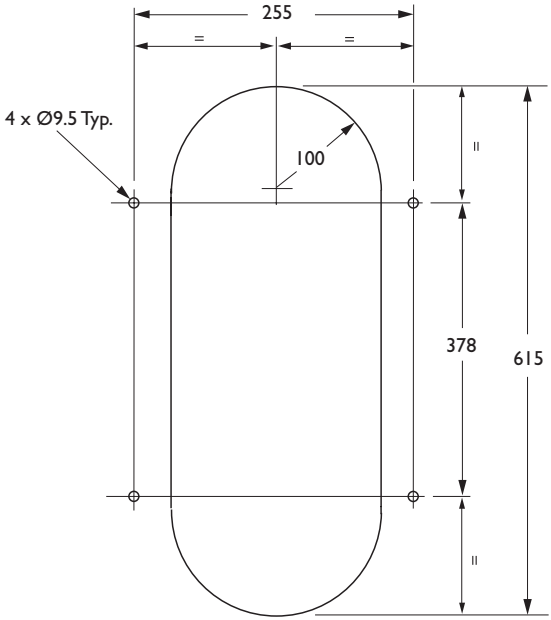
Before commencing installation of a Simmonsigns lamp housing within a sign plate, please contact Simmonsigns Limited to request the Pulsa Vari-Fix plate fixing set, complete with template, see Simmonsigns contact details on page 4.

1. Using the Simmonsigns template as a guide, make a cut out in the sign plate to accommodate the lamp housing.
2. Attach the stub pole to the sign plate; see steps 2 and 3 for the Old Dorman lamp housing installation on previous page.
3. Use the Simmonsigns Vari-Fix 'U' bolt set to attach the housing to the stub pole.

Option 2 – Direct Sign Plate Mounting using Brackets

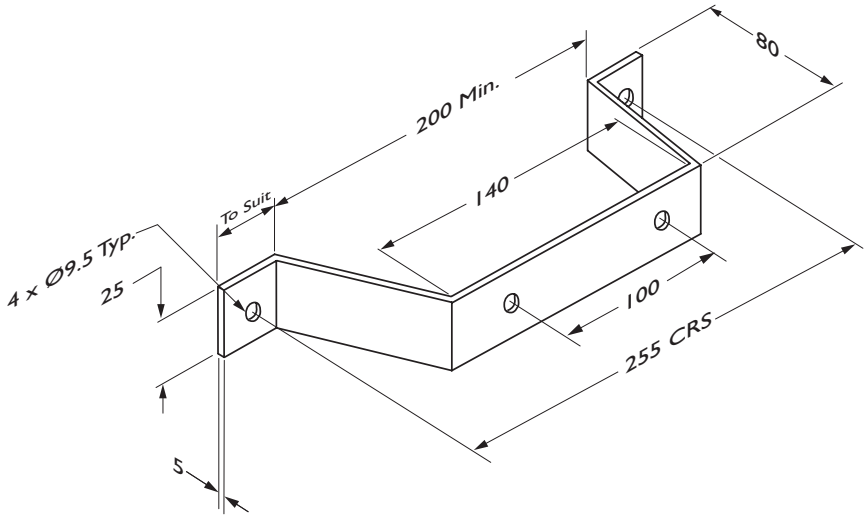
Old Dorman

1. Make a cut out and drill holes in the sign plate in line with the dimensions in the diagram below,



Old Dorman Housing Sign Plate - Drill and Cut-out Plan

2. Using 25 mm x 5 mm flat bar, manufacture two brackets in line with the dimensions in the diagram below,



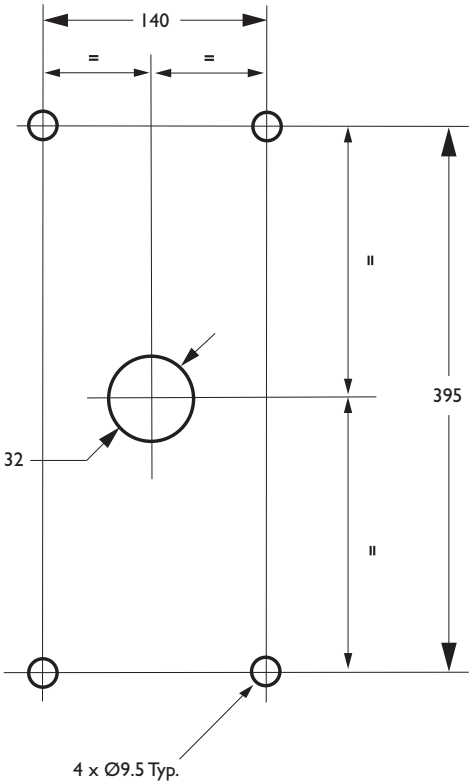
Old Dorman Housing Bracket

3. Using M8 nuts and bolts, attach the brackets to the rear of the sign plate.
4. Insert the housing with the standard M8 bolts attached through the front of the sign plate and insert the bolts through the holes in the brackets, securing with nuts and washers.

Direct Mounting to Sign Plate

New Dorman

1. Drill holes in the sign plate for the lamp housing retaining bolts and also to accommodate the mains cable gland inline with the dimensions shown in the diagram below.



New Dorman Housing Sign Plate - Drill Plan

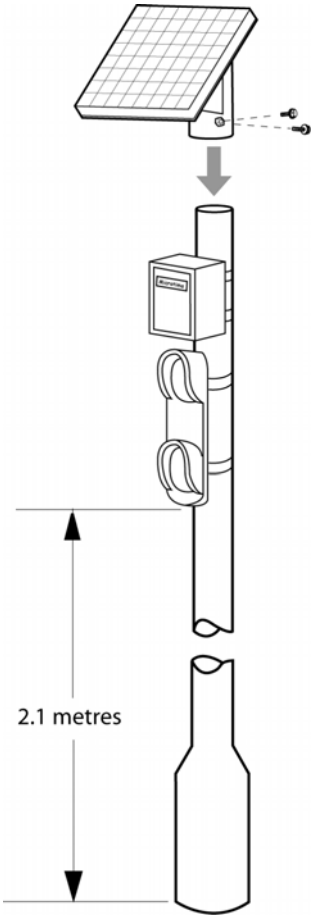
2. Screw four M5 x 55 mm long studs into the pre-tapped holes at the rear of the lamp housing.
3. Insert the cable through the central hole in the sign plate and pass the four studs through their respective holes. Secure the housing assembly to the sign plate using M5 nyloc nuts.

4 Installation

The solar panel must face due south as its orientation is vital to the reliable operation of the system. The only permitted exception to this rule is where the panel would be in shadow or otherwise not exposed to full light conditions throughout the day.

Solar Panel Mounting

1. Ensure the correct diameter mounting bracket is used to suit the column.
2. Place the solar panel mounting bracket over the top of the column. Slide down until the top of the bracket comes to a halt by hitting the top of the column.
3. Rotate the bracket so that the solar panel faces due south.
4. Insert and tighten the fixing bolts through the welded nuts until they clamp the bracket to the column.



Battery Box Mounting

The battery box is supplied with channel sections fitted to the rear of the box. These are used to attach the box to the column using standard 20 mm banding.

Situate the box below the solar panel but above the lamp housing.

Battery Wiring Connections

The wiring is completed in two separate stages:

A. Solar panel to battery box

B. Battery box to lamp housing

Solar Panel to Battery Box.

1. Connect the solar panel cable gland to one of the battery box cable glands using the supplied conduit cut to the required length.
2. The battery box includes a cable labelled 'to solar panel'. Feed this cable though the conduit and into the terminal box on the solar panel.

3. Connect the cables observing the polarities. The rating label on the back of the solar panel illustrates how the power cables are connected.

Note: The rating label on the back of the solar panel uses grey to represent negative polarity, however, the power cable's negative wire is black.

Battery Box to Lamp Housing

1. Using the supplied conduit cut to the required length, connect the second battery box cable gland to the lamp housing. One end of this conduit is to be inserted through the hole drilled in the lamp column for the power cable entry into the lamp housing, although do not insert the conduit into the column at this stage.
2. The battery box includes a cable labelled 'to Series 5 unit'. Feed this cable through the conduit to the lamp column and into the lamp housing.
3. Locate the fused connection block within the lamp housing to which the Series 5 unit is connected and remove the fuse.
4. Connect the power cable to this connection block, observing polarities: red wire to red wire, and black wire to black wire.
5. Finally, after double-checking the wiring, replace the fuse. The Series 5 unit should begin operating, indicated by the flashing red status LED on the front of the unit.

Note: Wiring Details are shown on Page 20

5 Wiring Details

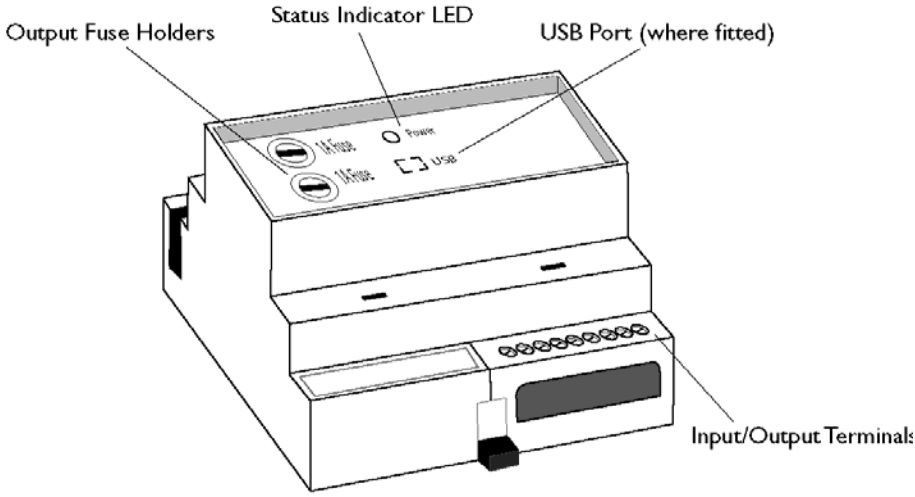
The following wiring diagrams illustrate the variants of the Series 5 unit and serve as a guide to installing the unit.

> **Caution!** Variants of the Series 5 unit look very similar, therefore, before any electrical connection is made, check the unit's identification plate to ensure that both the input and output supply types (AC or DC) and voltages are suitable for the equipment to be used.

Wiring of Mains Power Supplied Units

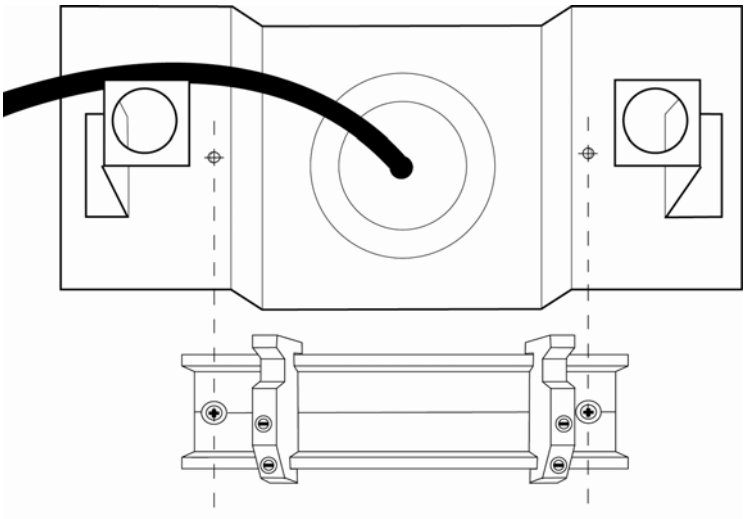
The mains supply to the Series 5 unit must come directly from the fused connection block within the lamp housing.

When replacing manually switched flasher control units, the key switch in the existing circuit must NOT be included in the replacement circuit. The switch mechanism can be left in place with the wiring removed or otherwise disconnected.

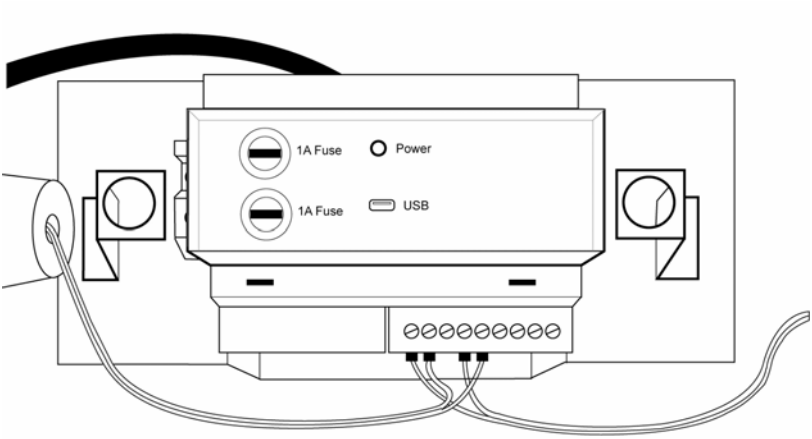


Replacing the timer in the Dorman Twin Flash MK1

1. Remove the existing Series 4 or 5 Timer from the lamp housing.
2. Fit the supplied, pre-drilled DIN rail back into the lamp housing using the two self-tapping screws provided. These screws will fit into the same holes that were used by the removed timer.



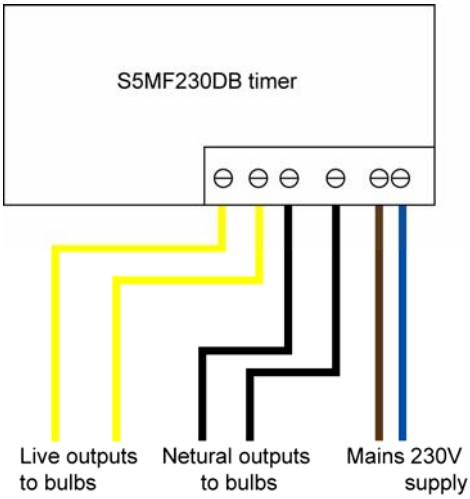
3. Position the DIN rail grey plastic guides to the ends the DIN rail.
4. Securely attach the New Timer on the DIN rail between the grey plastic guides. This will clip into place.
5. Move in the grey plastic guides to outer edges of the New Timer and tighten the locking screws to secure in place.



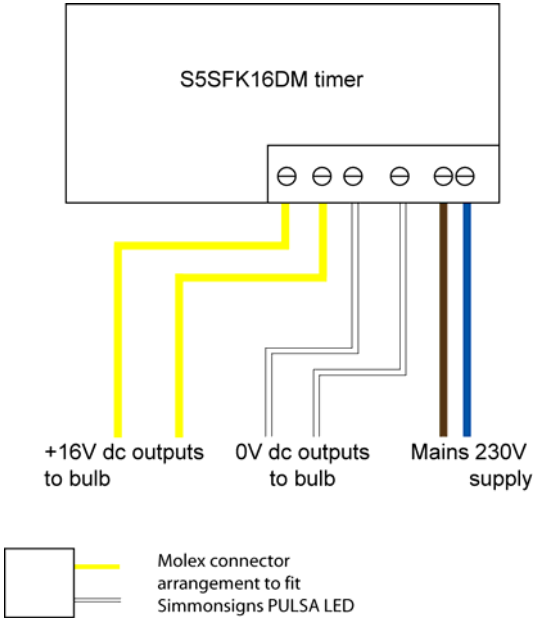
6. Wire the Timer using the flying lead provided.

Wiring Diagrams

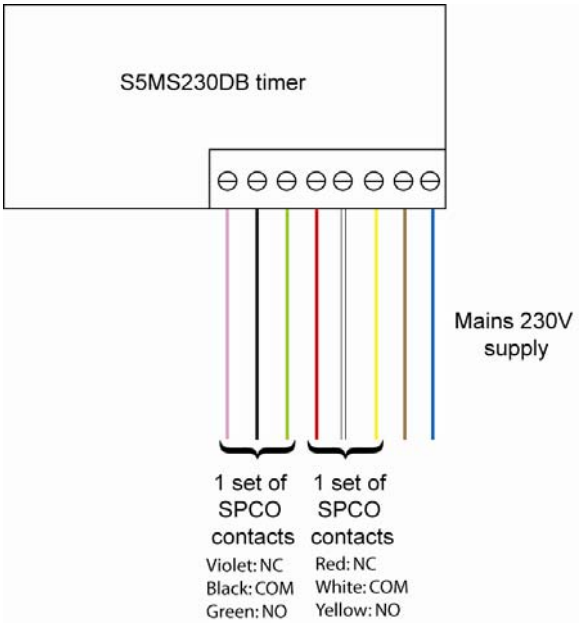
S5MF230DB



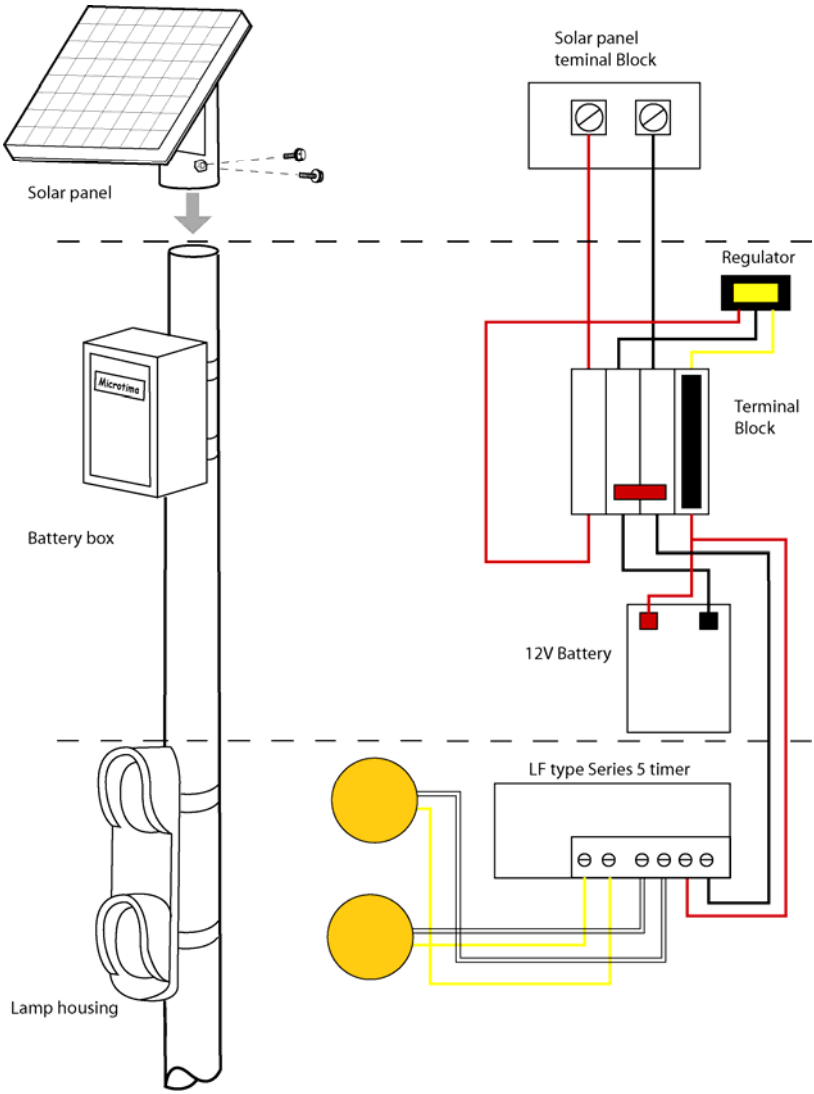
S5SFK16DM


S5SFK16DM timer
+16V dc outputs to bulb
0V dc outputs to bulb
Mains 230V supply
Molex connector arrangement to fit Simmonsigns PULSA LED

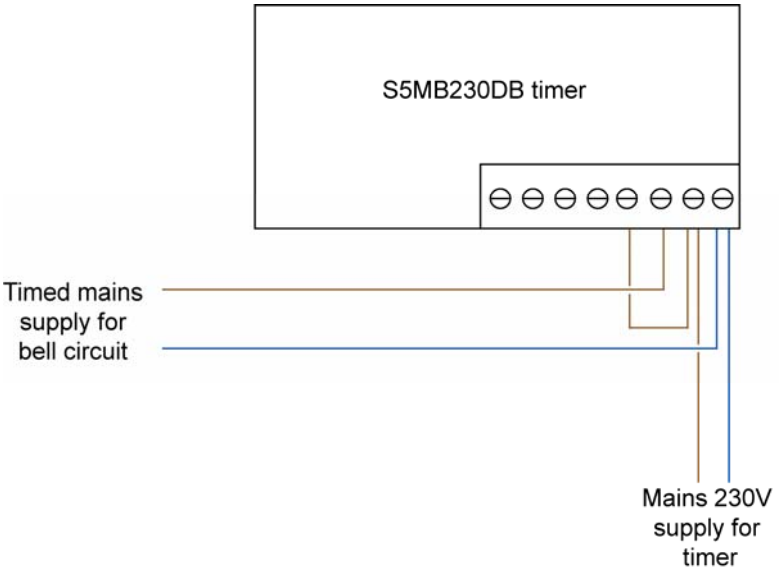
S5MS230DB


S5MS230DB timer
Mains 230V supply
1 set of SPCO contacts
Violet: NC
Black: COM
Green: NO
1 set of SPCO contacts
Red: NC
White: COM
Yellow: NO

Solar Panel, Battery Box, Battery and Lamp Housing wiring



S5MB230DB


S5MB230DB timer
Timed mains supply for bell circuit
Mains 230V supply for timer

6 Programming Features

Creating a New Data File

1. To create a new data file, click 'System/Series 5/New DataFile' as shown in the screen below to open the 'Datafile Creator' screen.



2. Click Start Date ..... to open the 'Start Date Select' dialog, displaying a calendar.



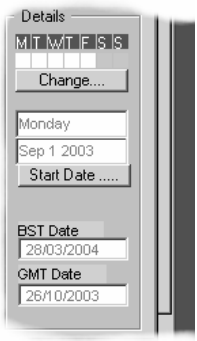
3. Scroll through the months and years using ◂ and ▸.
4. The start date is normally the first day of the autumn term. Therefore select the month and year and then click on the actual day on which schedule is to start.

The box representing the start day automatically turns pink and the boxes representing all the other days of the year are either filled with blue to represent a weekend day or remain white to represent a school day.

The order of the schedule remains unchanged until a mask is applied.

GMT / BST Date Entry

Once the start date has been entered the British Summer Time (BST) and Greenwich Mean Time (GMT) correction dates are generated automatically in the **BST Date** and **GMT Date** fields shown below.



Switch Tables

Tabs located at the top of the data file dialog indicate the eight Switch tables.

Switch tables are programmed to hold the on and off times for the duration that the flashing lights are switched on and off during a day. The On/Off time periods from a switch table can be assigned to any day of the year by applying that switch table. To edit On/Off times see ***Adding On/Off Times to Switch Tables*** on page 26.

Eight switch tables are available and from within each table twelve On/Off times are available for any particular day, although it would be a very rare occasion that all twelve would be required.

Switch Table Masks

Each day of the week can have a switch table number assigned to it.

5. Click 

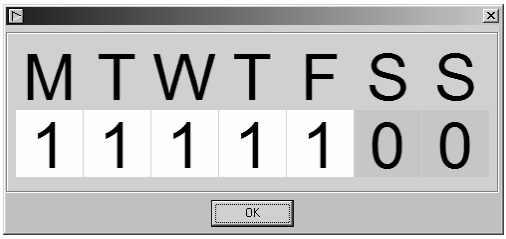
to open the switch table mask window.



The default setting for the switch number mask for every day is **0**. This means that the Series 5 cannot be programmed on this day (a **0** switch number is generally applied at weekends or holidays).

Altering Switch Numbers

To change the switch table number for any day, simply click on the number.



Clicking once on the **0** below the M (Mondays) changes the **0** to a **1**, thereby switch table **1** (**Switch 1**) is applied on Mondays.

The number can be clicked again to change to **2**, thereby applying switch table **2** (**Switch 2**) and so on until it reaches **8**. The number then defaults back to **0**.

Note: Up to eight switch tables are available.

Applying a Typical Mask to the Year Schedule

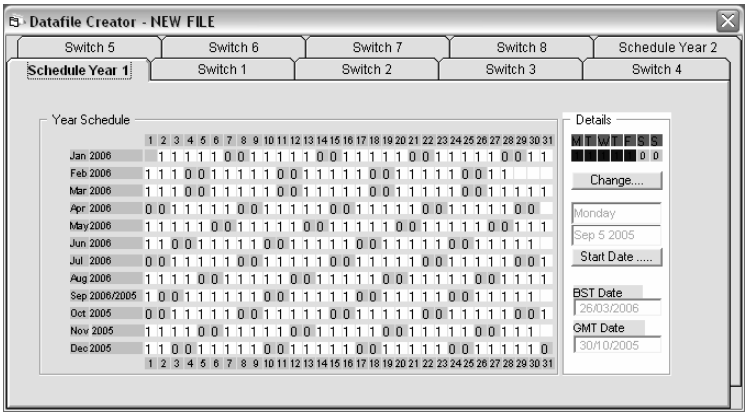
A common mask is for every school day to be represented by a single switch table, i.e. switch number **1** and for every weekend and holiday to be represented by **0**.



6. To perform this operation, click on the switch number situated below every weekday once until **1** is displayed in all of the boxes as shown above.
7. Leave the weekends as **0** and click 

.
8. Click the box representing January 1st in the 'Datafile Creator' window. Notice that the box turns pink.
9. Click the box that represents December 31st.

The yearly schedule then becomes filled with the mask shown above.



In the example the Schedule is now full of switch numbers, although holidays still need to be applied, as the school warning lights are not required to flash during holiday periods.

To apply bank holidays and other holidays see ***Applying Holidays*** on page 28.

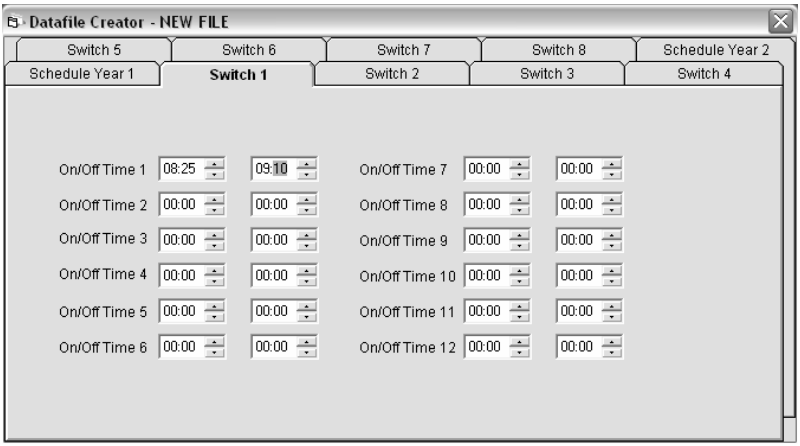
10. Click Change.... to open the Switch Table mask window again.
11. Change the switch number for every day to **0** by clicking each number until it reaches **8** and then rolls over to **0**.
12. Finally, click OK to save the changes and close the window.

Adding On/Off Times to Switch Tables

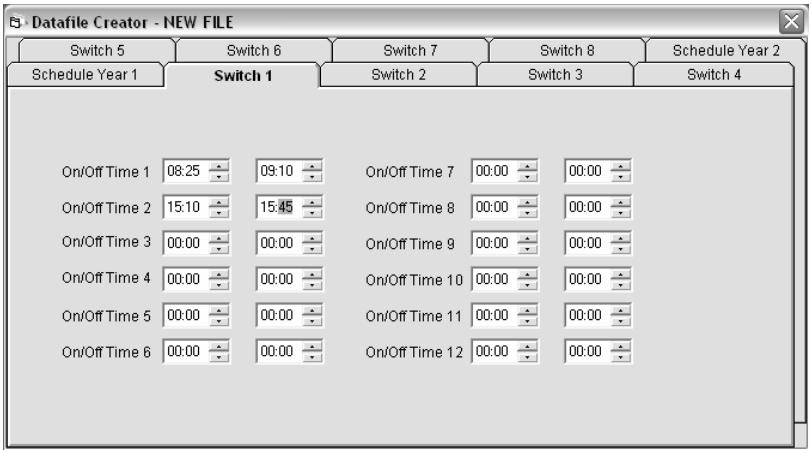
Up to twelve switch periods are available for any given day although it would be highly unlikely to use all of these periods.

The example deals with only two switch periods: **08:25** to **09:10** (school opening time) and **15:10** to **15:45** (school closing time).

13. Open switch table 1 by clicking on the **Switch 1** tab in the **Datafile Creator** window.



14. To set the first 'On' time click on the first two digits in the box to the left of **On/Off Time 1**.
15. Highlight the first 'On' hour and enter the required hour (**08**) by typing **0** then **8**.
16. Similarly highlight the 'On' minute and enter the required minute (**25**) by typing **2** then **5**.
17. Enter the 'Off' time in the box to the right of the 'On' time box.

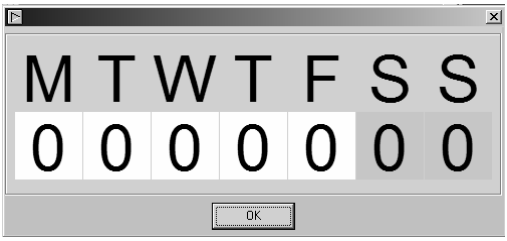


18. Enter the second pair of On/Off times in the same way as the first pair.
19. The data file creation is now complete.
20. Click the **Schedule** tab to return to the 'Datafile Creator' screen.

Applying Holidays

The following example shows how to make the first seven days of January into a holiday.

1. Open an existing data file and apply the following switch table mask.

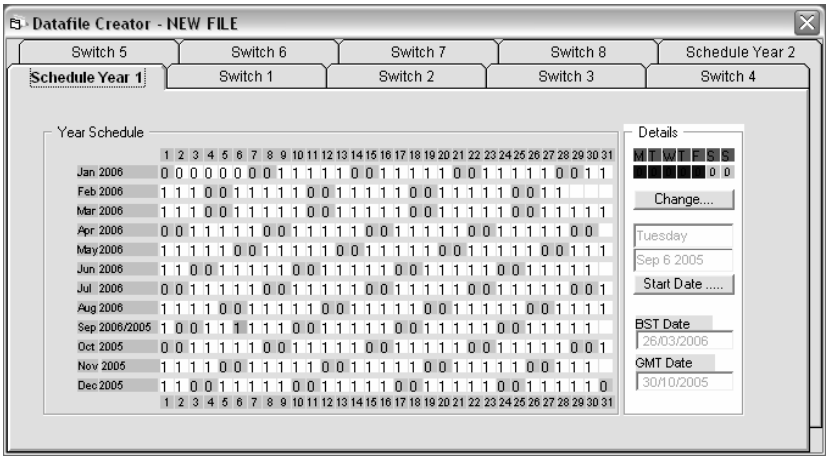


2. Click on the box representing January 1st.
3. Click on the box representing January 7th. This changes the switch table numbers on days January 1st to January 7th inclusive to **0** and results in the Series 5 unit not flashing on those days.

This procedure is followed for any holiday period by simply clicking once on the first day of the holiday and then once on the last day.

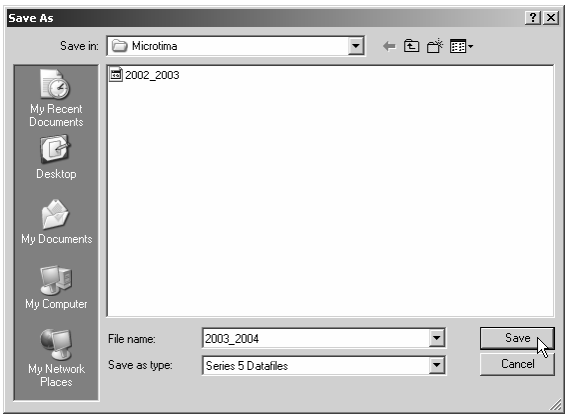
Note: If the holiday is to be for one day only, then simply click on that day twice.

The result of making the first seven days of January a holiday is shown below.



Saving a Data File

1. Click **System**, **Save Datafile** to open the 'Save As' window.
2. Choose a folder to store the saved data files.



3. Enter a name for the data file in the **File name:** field and click Save.

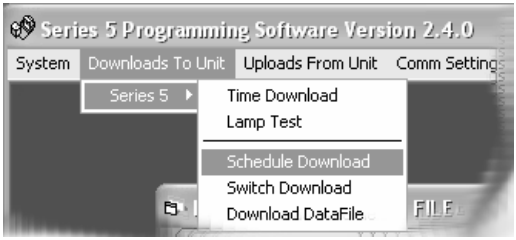
The data file is now saved and ready to be downloaded to the Series 5 unit.

Editing an Existing Data File

It is possible to edit an existing data file, see ***Annual Reprogramming*** on page 79.

For example, to apply a new annual schedule to last year's switch tables. The programming software allows the download of the new year's schedule or switch tables independently while retaining the parts of the old data file that are still applicable.

Downloading a New Schedule

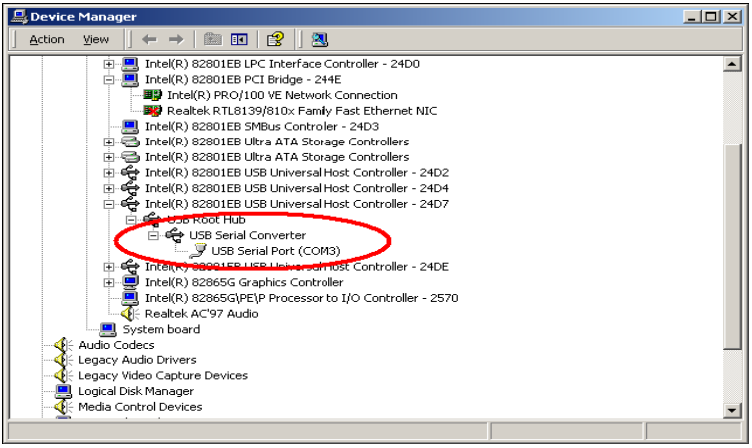


If, for example, the switch table data is to be kept but a new schedule is to be downloaded (which is performed every year) then click **Schedule Download** from the **Downloads To Unit** tab after creating a schedule.

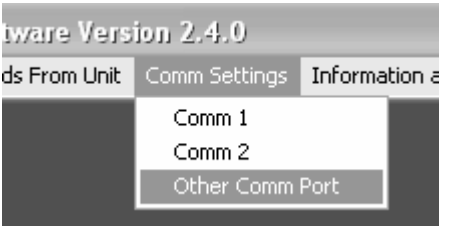
The Series 5 receives the new schedule, but retains the existing switch tables.

Connecting a PC to the Series 5 Unit

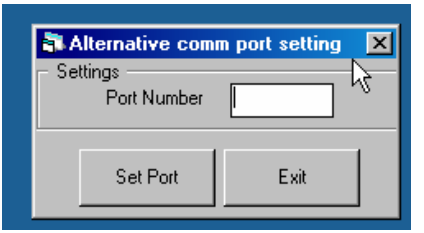
Insert the supplied USB cable into the USB socket at the front of the unit. The PC will locate the drivers for the Series 5 USB port and assign a COM port number. You can then navigate to the Control panel and go to the Device Manager to get the COM port number the driver has assigned the Series 5 timer.



In the case above, the driver has assigned COM3 to the USB Serial port on the Series You must note this number as it needs to be entered in the Comm settings box on the menu bar.



Go to "Comm Settings" and then down to "Other Comm Port". Clicking on this item displays the "Alternative Comm Port" box.

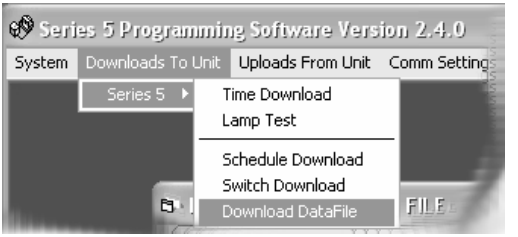


In the example above we needed to note that "COM3" was assigned to the Series 5 timer. So, we simply type "3" in the port number box and click "Set port". The box will close.

If connected correctly the unit number and unit time information is displayed in the status bar at the bottom of the screen.



Downloading a Data File



Having connected the PC to the Series 5 unit, click **Downloads To Unit, Series 5, Download Datafile** to send the data file to the unit. A progress bar shows when the download has completed. The Series 5 now operates to the time data entered previously, providing the clock is set correctly in the unit.

Synchronising the Series 5 Time

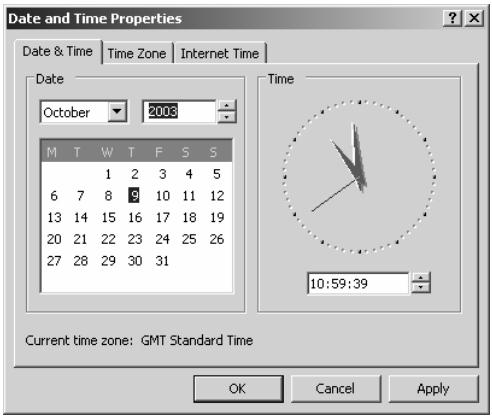
It is possible to synchronise the time used by the Series 5 unit with the PC clock using the programming software, see ***Downloading PC System Time*** on page 35.

First check that the PC time and date are correct by double clicking the clock in the task bar to open the 'Date and Time Properties' window.

Setting the PC System Time and Date

Changing the PC time or date isn't normally necessary, however should the need arise follow the procedure below.

1. Open the computer's Date and Time window by clicking **Start**/ **Control Panel**, and then double-click **Date and Time**.

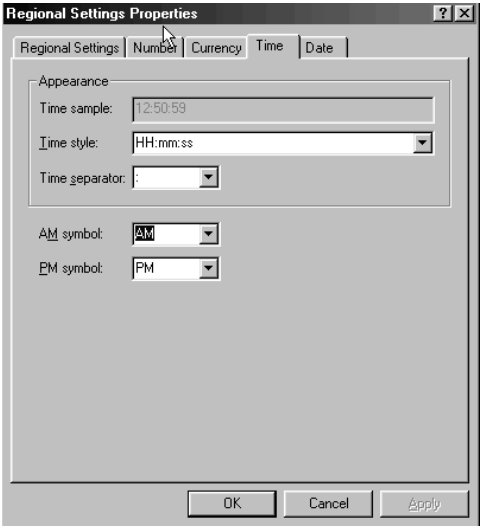


2. From the **Date & Time** tab, select the item to change.
   - To change the hour, double-click the hour, and then click the arrows to increase or decrease the value.
   - To change the minutes, double-click the minutes, and then click the arrows to increase or decrease the value.
   - To change the seconds, double-click the seconds, and then click the arrows to increase or decrease the value.
3. Set the date by clicking on the date to be applied (normally today's date).
   - To change the month, click the arrow in the month list, and then click the correct month.
   - To change the year, click the arrows in the year list.
   - To change the day, click the correct day on the calendar.
4. Click 

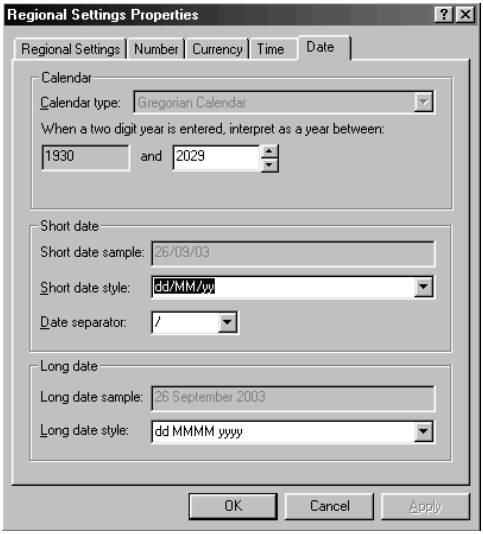
to save the changes made and to close the window.

Time/Date Format

For the unit to use the downloaded data files correctly it must be synchronised with PC running the Series 5 Programming Software. To successfully synchronise the two, the PC must have its time and date set to the format detailed below.



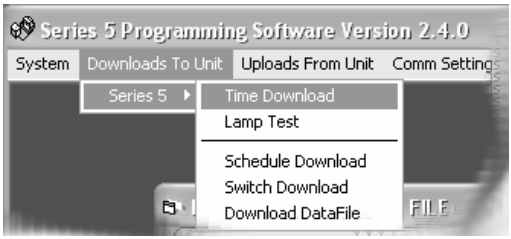
1. From the PC Start menu select **Settings/Control Panel/Regional Settings** to open the 'Regional Settings Properties' dialog.
2. Click the 'Time' tab and set the time format as shown.
3. Click Apply to apply the changes.



4. Click the 'Date' tab and set date format as shown.
5. Click Apply to apply the changes and then click OK to close the dialog.

Downloading PC System Time

1. Check that the PC system time is correct.
2. Note the unit's current time which is displayed at the bottom of the screen,
3. Click 'Downloads to Unit', 'Series 5', 'Time Download'.



The unit's current time should now match the PC system time.

Uploading Data Files

As a check and to examine a data file loaded into the Series 5 unit, click 'Uploads from Unit', 'Series 5', 'Upload Datafile' to open the datafile screen.



2 Year programming

In response to customer requests, Microtima have developed PC programming software that allows the series 5 to run for two years.

Note that this software is called "Series 5 Programming Software V3.1.0".

It is also necessary to have V2.0 or greater firmware installed in the Series 5 controller.

If a PDA is to be used for onsite programming, it must have Series 5 2005 V2.0 software installed.

The method of applying the schedule for the second year is identical to the method used in single year programming software (I.E. Versions 2.4 and below).

Note that the switch tables will apply globally to both the year 1 Schedule and the year 2 schedule.

7 Installing USB drivers for /U variants

The USB programmed Series 5 variants (Product codes ending in /U) are designed to work with the Series 5 PC Programming Software (Version 2.4.0 and above). A USB driver must be loaded on to the PC in order for communication to take place with the Series 5 unit.

Microtima include drivers for the following versions of Microsoft Windows™:

- Windows 98,
- Windows 2000,
- Windows XP.

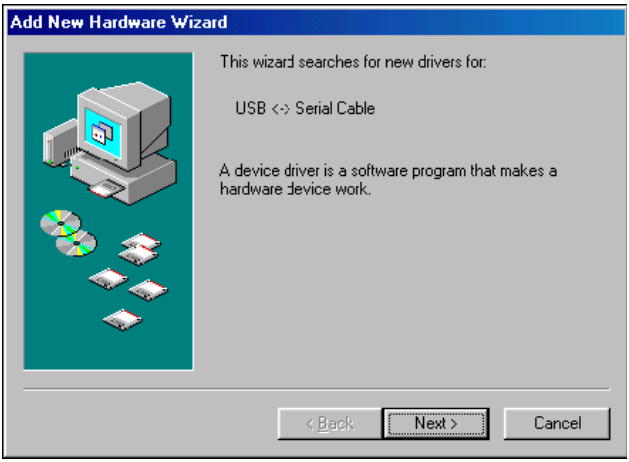
Windows 98 Installation

To install the drivers in Windows 98, follow the instructions below:

If a device of the same type has been installed on your machine before and the drivers that are about to be installed are different from those installed already, the original drivers need to be uninstalled. Please refer to the Uninstalling Series 5 Devices section of this document for further details of this procedure.

Download the latest USB drivers from the Microtima website (http://www.microtima.co.uk) or located them on the Microtima Installation CD, Double click the zip file to unzip the drivers to a location on your PC.

Connect the Series 5 device to a spare USB port on your PC. The Windows **Add New Hardware Wizard** opens. Windows may display the following message **Building driver databas**e. Click **Next** to proceed with the installation.



Select **Search for the best driver for your device. (Recommended)**. as shown below, click **Next**.



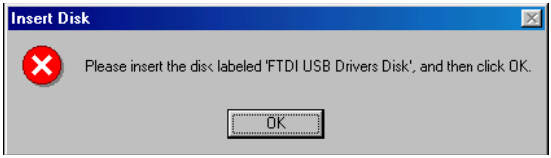
Check the box next to **Specify a location**. Click **Browse** and locate the driver files. Click **Next** to proceed with the installation.



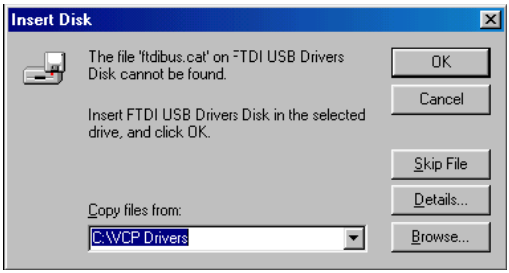
Windows may display a message reading **Building driver database** at this point which may take a few minutes to pass. Once Windows has found the required files, click **Next** to install the device.



If the driver being installed does not have Microsoft WHQL signature files (.CAT files), the wizard requests a driver disk to attempt to find them. Click **OK** on the **Insert Disk** message box.



The following window appears to assist in locating the file. To proceed with the installation without the .CAT file, click **Skip File**.

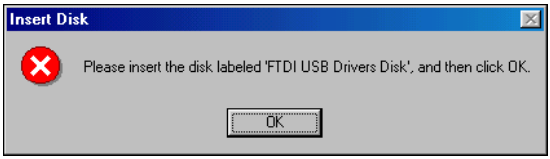


If the driver being installed is Microsoft WHQL certified, then the .CAT files are located with the other driver files and should be installed automatically.

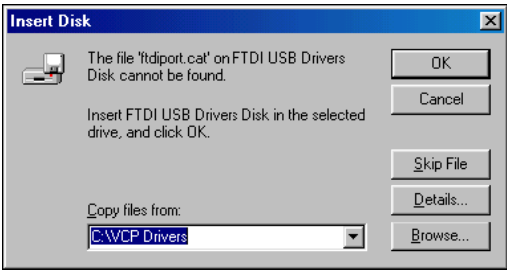
Windows should then display a message indicating that the installation of the serial converter driver was successful. The COM port emulation driver must now be installed. Click **Finish** to complete the installation of the serial converter and proceed to the COM port emulation driver.



Under Windows 98, the COM port emulation driver is automatically installed from the same location as the serial converter driver. However, if the driver is not WHQL certified as explained previously for the serial converter driver, the wizard asks for the location of .CAT files. Click **OK** on the **Insert Disk** message box.

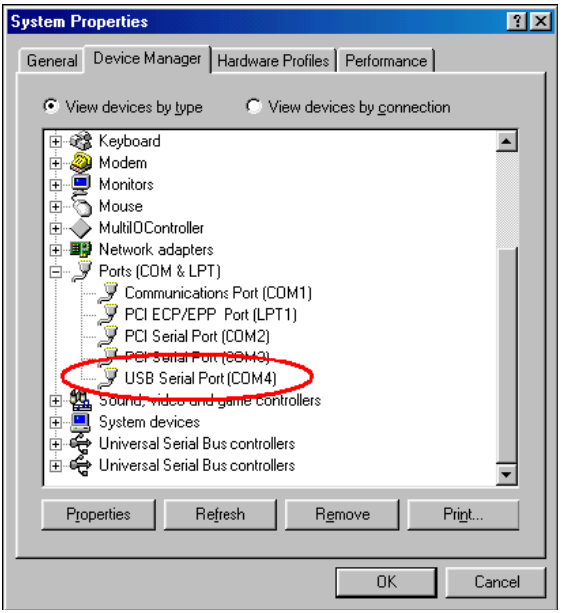


The following window appears to assist in locating the file. To proceed with the installation without the .CAT file, click **Skip File**.



If the driver being installed is Microsoft WHQL certified, then the .CAT files are located with the other driver files and should be installed automatically.

Open the Device Manager (located in **Control Panel > System** then select the **Device Manger** tab) and select **View devices by type**. The device appears as an additional COM port with the label **USB Serial Port**.



Windows 2000 Installation

If a device of the same type has been installed on your machine before and the drivers that are about to be installed are different from those installed already, the original drivers need to be uninstalled. Please refer to the Uninstalling Drivers section of this document for further details of this procedure.

Download the latest USB drivers from the Microtima website (http://www.microtima.co.uk) or located them on the Microtima Installation CD, Double click the zip file to unzip the drivers to a location on your PC.

Connect the Series 5 device to a spare USB port on your PC.

The **Found New Hardware Wizard** launches.

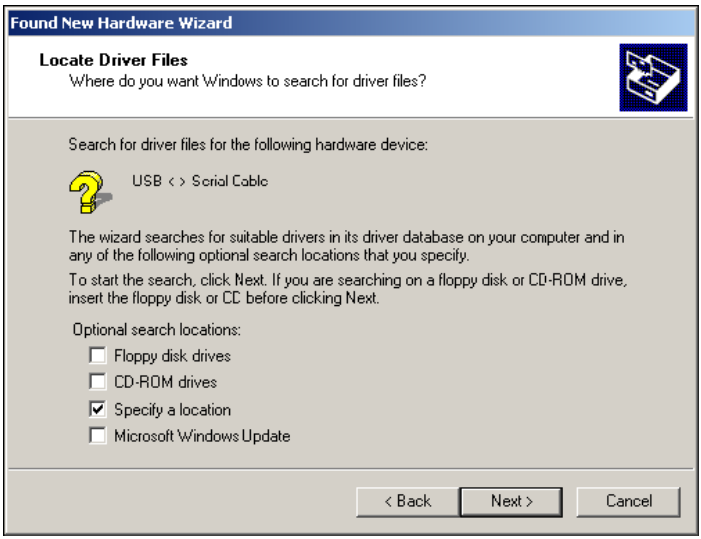
Click **Next** to proceed with the installation.



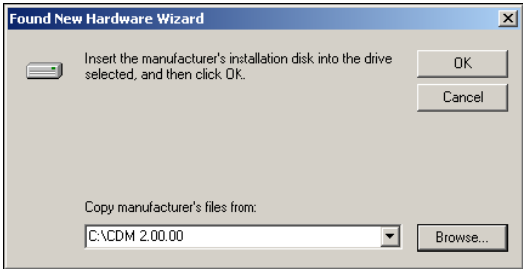
Select **Search for a suitable driver for my device (recommended)** as shown below and then click **Next**.



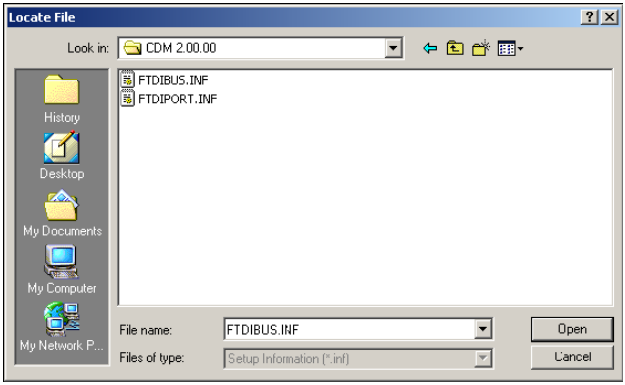
Check the box next to **Specify a location**.



Click **Next**, a dialog box opens, enter to the location of the drivers in the field.



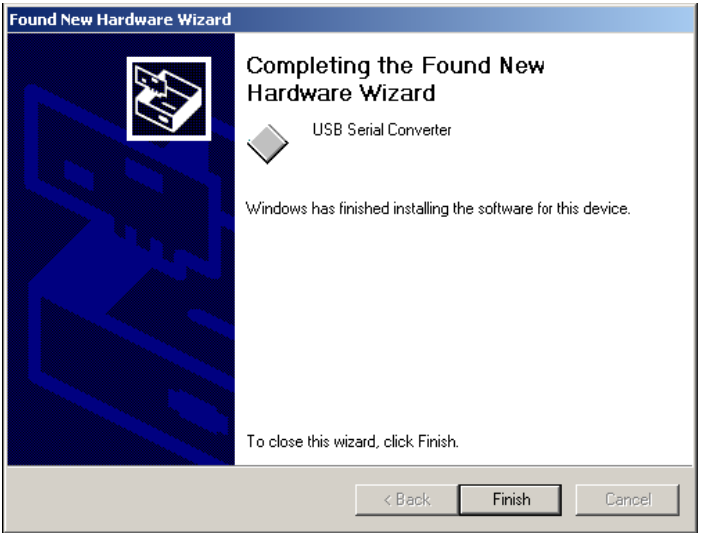
Click **Browse** to display an open file dialog box.



Locate the folder containing the latest drivers downloaded from the Microtima website (www.Microtima.co.uk) or the installation CD, click **Open**, and **OK**. The PC autoselects the correct INF file, in this case FTDIBUS.INF. Click **Next** to proceed.



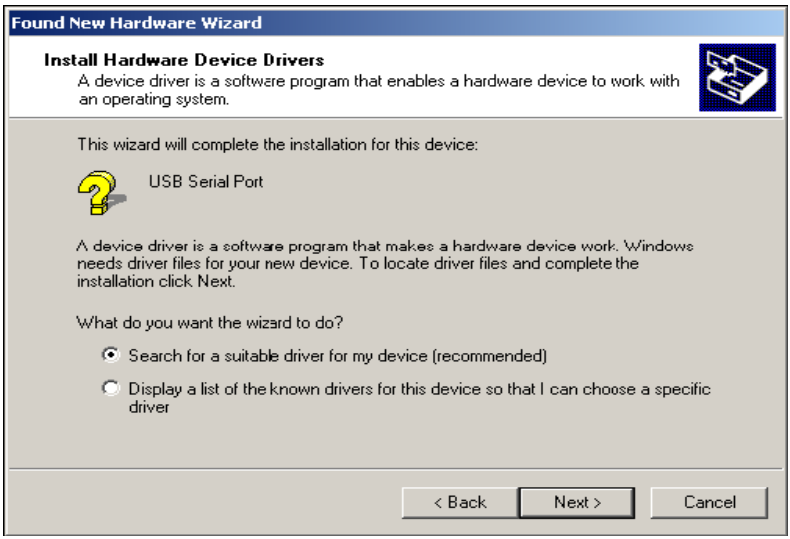
Windows should then display a message indicating that the installation was successful. Click **Finish** to complete the installation for the serial converter driver for this port of the device. The COM port emulation driver must be installed next.



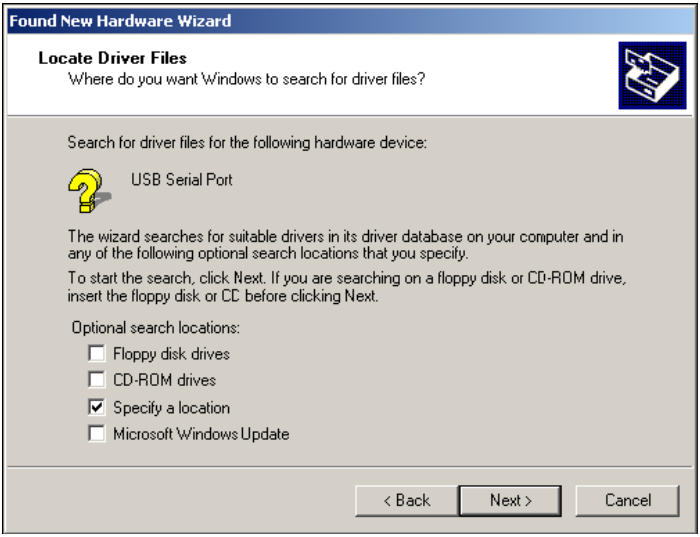
The COM port emulation driver is loaded as indicated in the following steps. Click **Next** to proceed with the serial port installation.



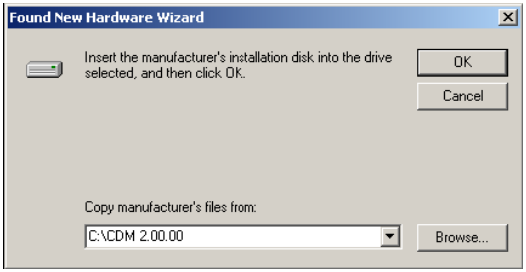
Select **Search for a suitable driver for my device (recommended)** as shown below and then click **Next**.



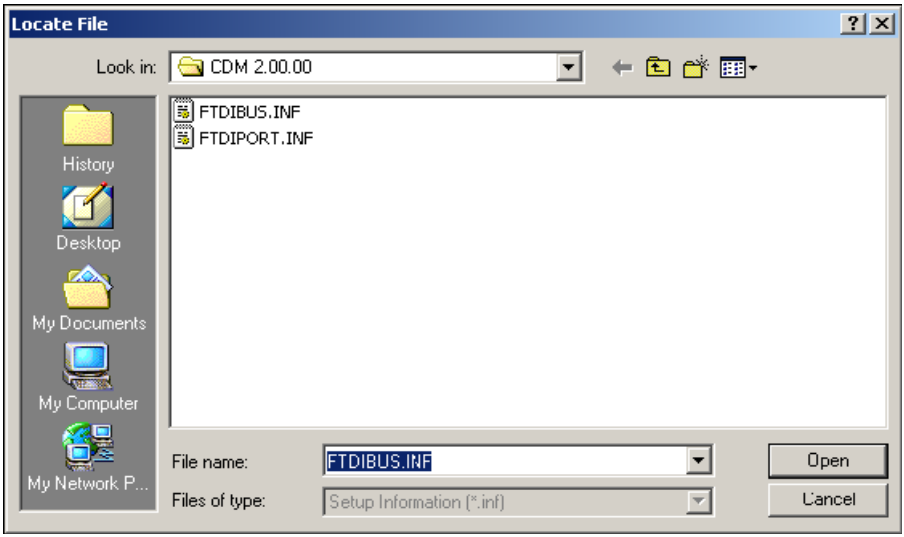
Check the box next to **Specify a location**.



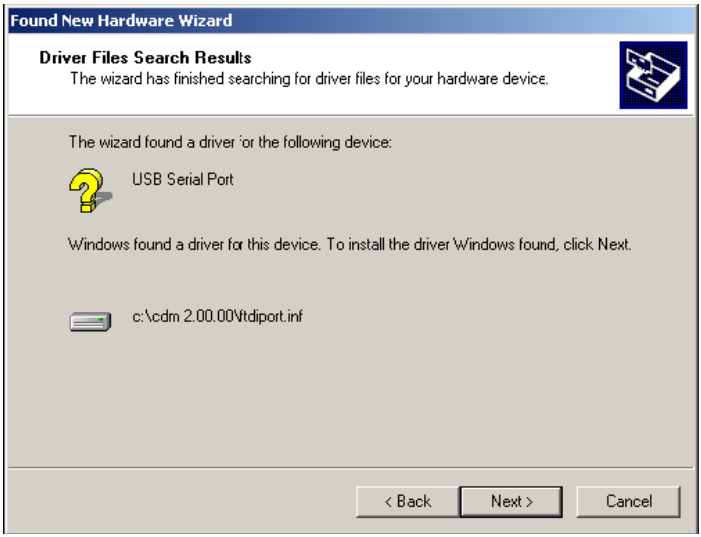
Click **Next,** a dialog box opens, enter the location of the drivers.



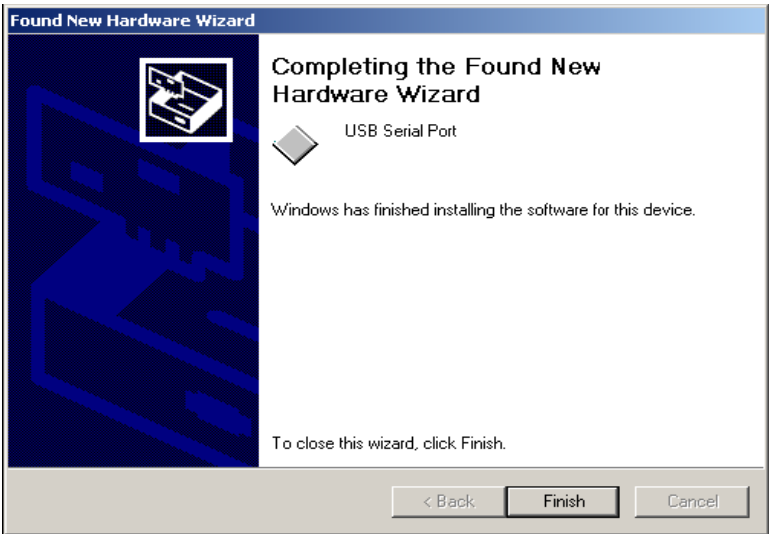
Click **Browse** to display an open file dialog box.



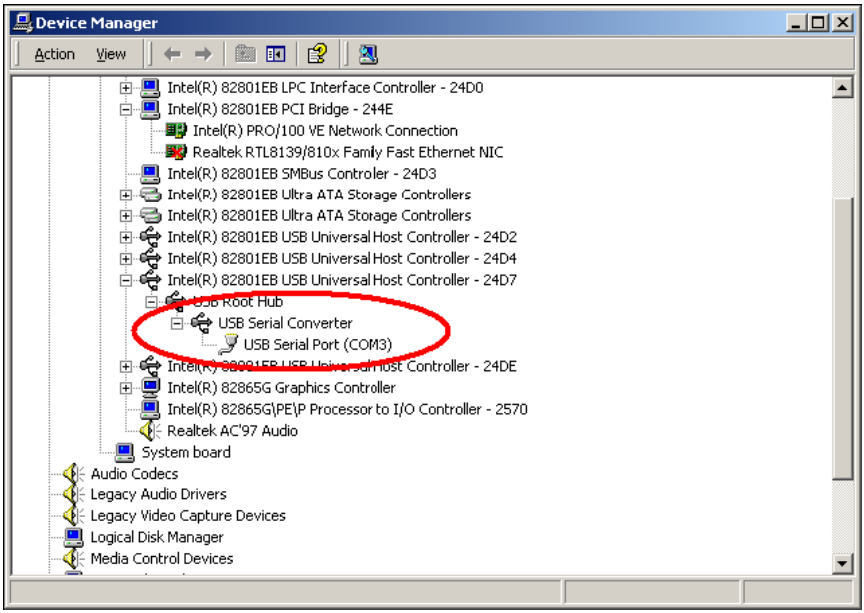
Locate the folder containing the latest drivers downloaded from the FTDI web site above and click **Open**, then click. The PC autoselects the correct INF file, in this case FTDIPORT.INF. Click **Next** to proceed.



Windows should then display a message indicating that the installation was successful. Click **Finish** to complete the installation for this port of the device.


Found New Hardware Wizard
Completing the Found New Hardware Wizard
USB Serial Port
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

By examining the Device Manager (located in **Control Panel\System** then select the **Hardware** tab and click **Device Manger…**) and viewing by connection (**View > Devices by connection**), the device appears as a **USB Serial Converter** with an additional COM port with the label **USB Serial Port**.



Uninstalling Series 5 devices

When uninstalling devices from Windows 2000, it should always be done through **Add/Remove Programs** as this uses the FTDI driver uninstaller program to remove files and registry entries to leave a clean system. Other methods may leave fragments of the driver that may interfere with future installations.

Windows XP installation

If a device of the same type has been installed on your machine before and the drivers that are about to be installed are different from those installed already, the original drivers need to be uninstalled. Please refer to the Uninstalling USB Drivers section of this document for further details of this procedure.

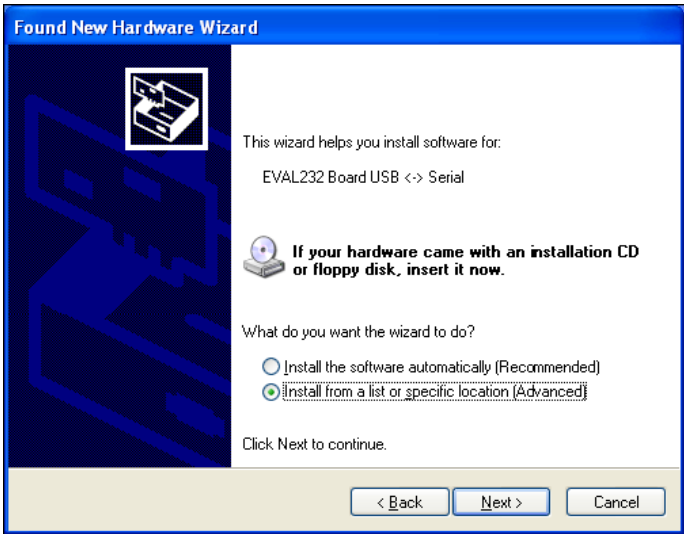
Download the latest USB drivers from the Microtima website (http://www.microtima.co.uk) or located them on the Microtima Installation CD, Double click the zip file to unzip the drivers to a location on your PC.

If you are running Windows XP or Windows XP SP 1, temporarily disconnect your PC from the Internet. This can be done by either removing the network cable from your PC or by disabling your network card by going to the **Control Panel > Network and Dial-Up Connections**, right clicking on the appropriate connection and selecting **Disable** from the menu. The connection can be re-enabled after the installation is complete. This is not necessary under Windows XP SP 2 if configured to ask before connecting to Windows Update. Windows XP SP 2 can have the settings for Windows Update changed through **Control Panel > System** then select the **Hardware** tab and click **Windows Update**.

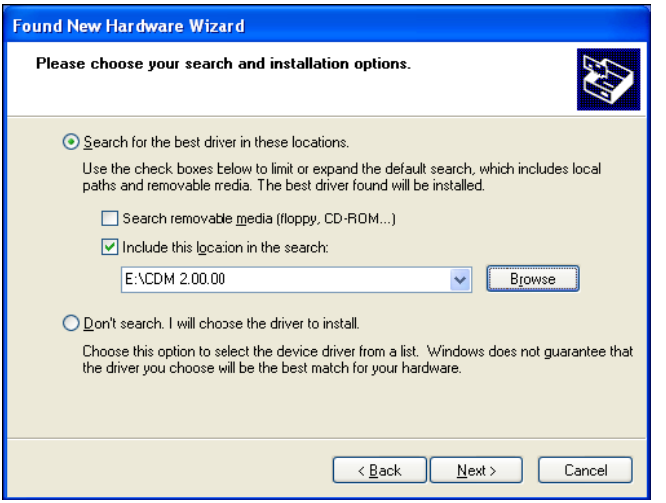
Connect the Series 5 device to a spare USB port on your PC. The Windows **Found New Hardware Wizard** opens. If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the screen below is shown. Select **No, not this time** from the options available and then click **Next** to proceed with the installation. If there is an available Internet connection, Windows XP will silently connect to the Windows Update website and install any suitable driver it finds for the device in preference to the driver manually selected.



Select **Install from a list or specific location (Advanced)** as shown below and then click **Next**.



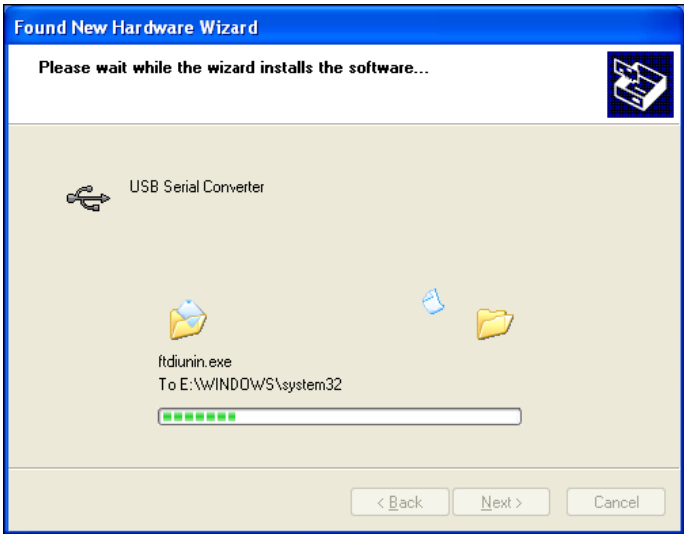
Select **Search for the best driver in these locations** and enter the file path in the combo-box (**E:\CDM 2.00.00** in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.



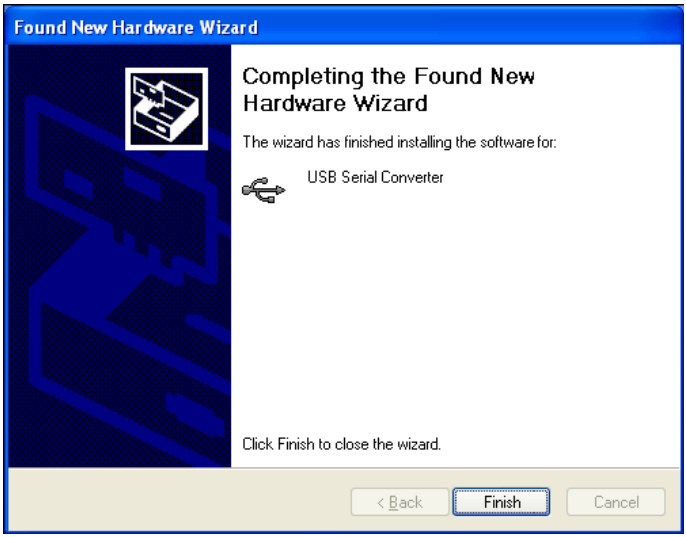
If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen is displayed unless installing a Microsoft WHQL certified driver. Click on **Continue Anyway** to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



The following screen will be displayed as Windows XP copies the required driver files.



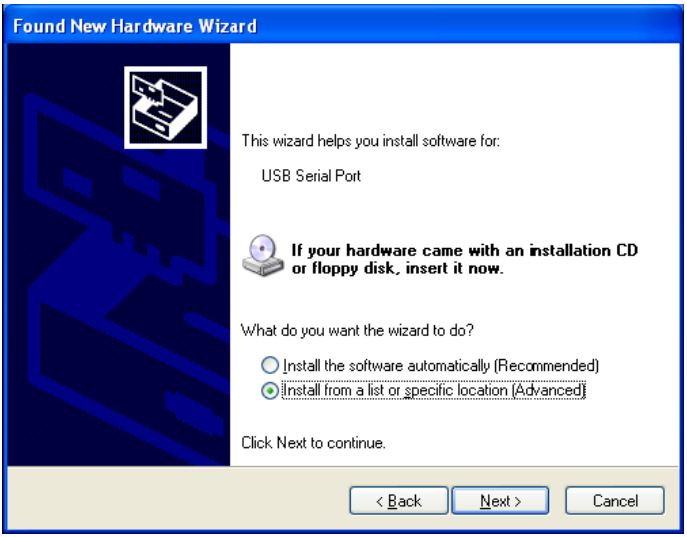
Windows should then display a message indicating that the installation was successful. Click **Finish** to complete the installation for the first port of the device.



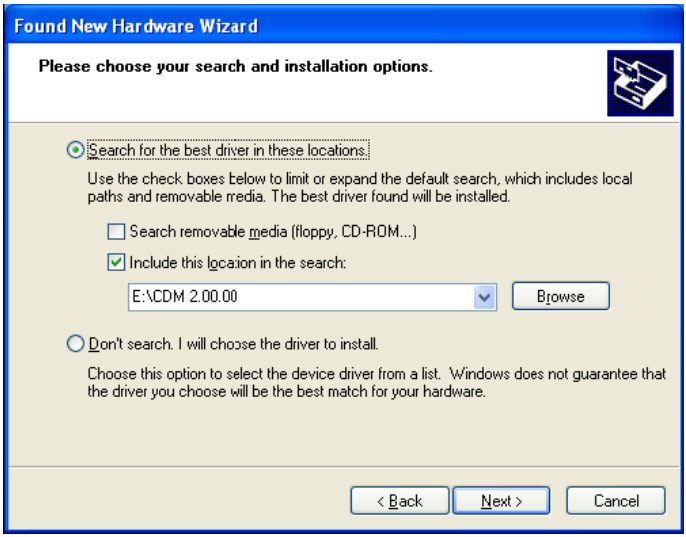
The Found New Hardware Wizard opens automatically to install the COM port emulation drivers. Select **No, not this time** and click **Next** to proceed with the installation.



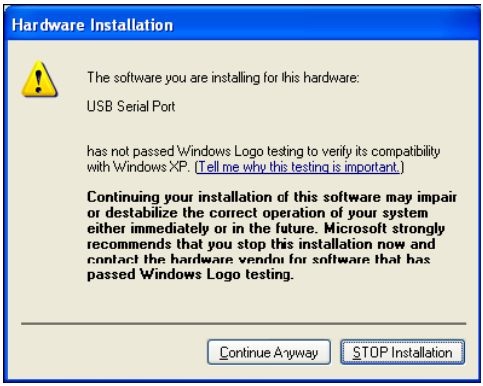
Select **Install from a list or specific location (Advanced)** and click **Next**.



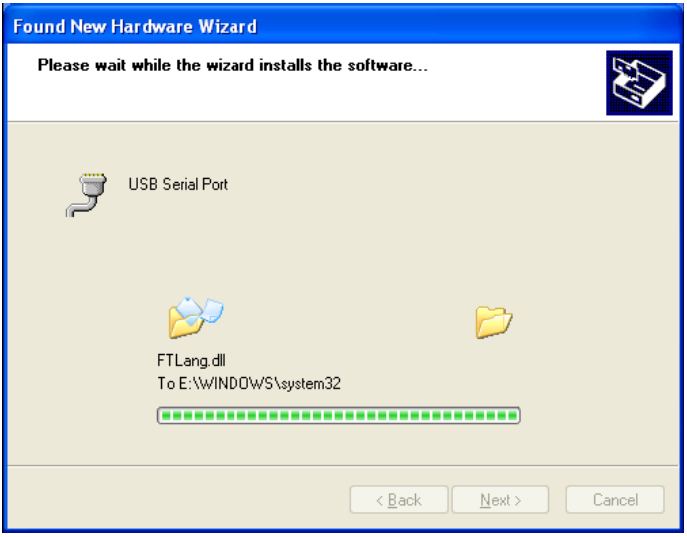
Select **Search for the best driver in these locations** and enter the file path in the combo-box (**E:\CDM 2.00.00** in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click **Next** to proceed.



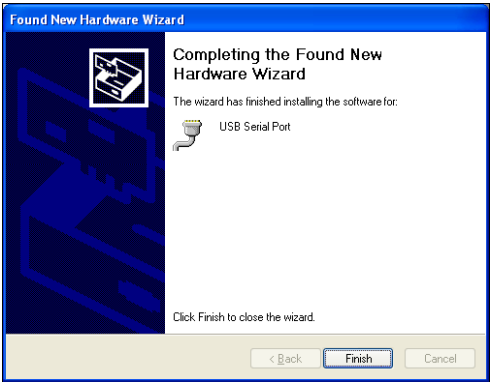
If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen is displayed unless the driver is a Microsoft WHQL certified driver. Click on **Continue Anyway** to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message appears.



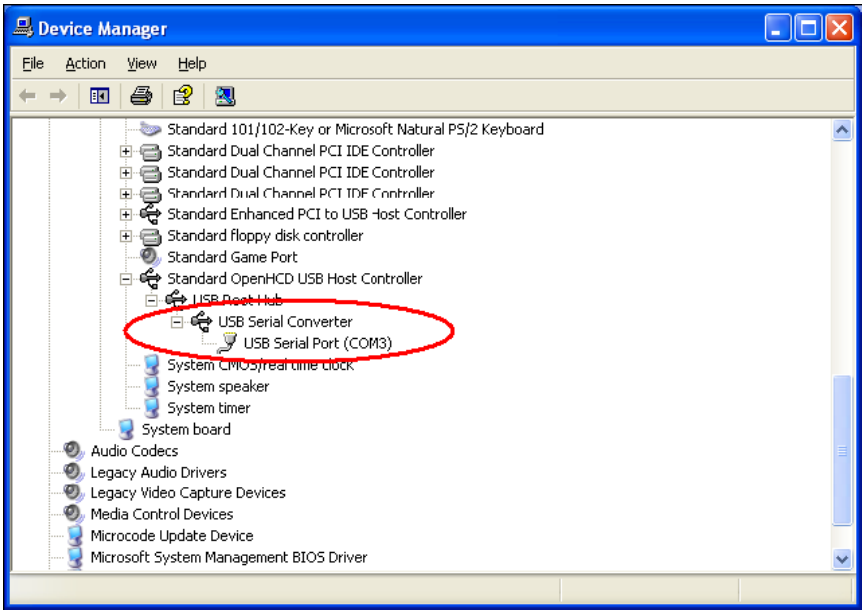
The following screen is displayed as Windows XP copies the required driver files.



Windows should then display a message indicating that the installation was successful. Click **Finish** to complete the installation.



Open the Device Manager (located in **Control Panel > System** select the **Hardware** tab and click **Device Manger**) and select **View > Devices by Connection**, the device appears as a **USB Serial Converter** with an additional COM port with the label **USB Serial Port**.



8 Advanced Features

COM Port Selection

Most PCs have two COM ports (COM1 and COM2), although newer PCs may have only one (COM1).

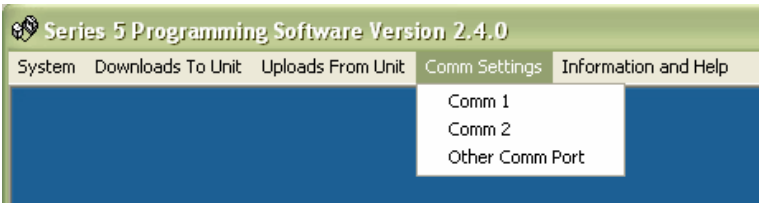
The current version of the software (v2.4.0) has been released to allow the user who has a PC/laptop with no COM port, (only a USB port) to communicate with their series 5 units via the USB to serial converter.

In this case, the user can manually enter the COM port that their Operating System has assigned to their USB to serial converter.

The number of the COM port selected will be displayed in the status bar at the bottom of the interface window.

When running the programming software, ensure that no other programs are running that use the COM port chosen otherwise there will be a PC conflict.

Click 'Comm Settings' and then click either 'Comm1' or 'Comm2' depending on your choice or availability of port (or manually enter your chosen port). A tick will appear next to the selected port number, as shown below.

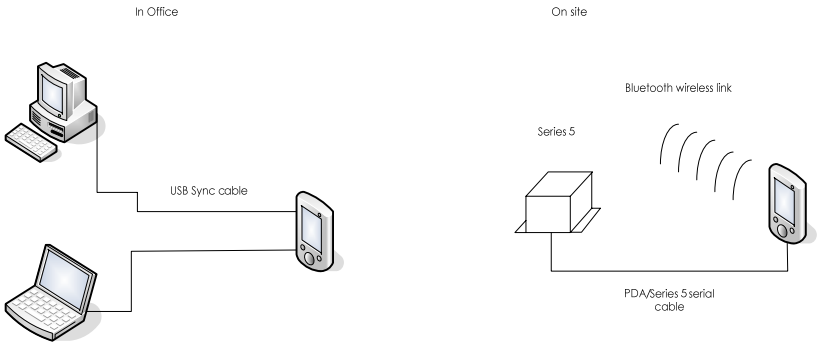


PDA setup

To correctly set-up the PDA supplied with the Series 5 unit please follow the points below:

- Refer to the documentation supplied with your Pocket PC for instructions on installing Microsoft Active Sync.
- The supplied PDA connection cable is split to include both USB and serial connectors to connect to the PC. Connect the cable to either the PC's serial port or USB port depending upon specification and/or port availability (refer to iPAQ PDA installation instructions if necessary).
- Practical experience has shown that the USB link is preferable, because synchronization and data transfer are faster.
- Connect the PDA to the mains power supply and the Microsoft ActiveSync software automatically detects the PDA.
- Open the Microsoft ActiveSync Explorer and copy the data files created using the Series 5 software (on PC) to a suitable location on the PDA.

Note: Save the data file in the PDA's iPAQ File Store directory to create a backup of the file. This is the only location that will retain its data in the event of power loss. The data file can then be re-installed from this location if necessary.



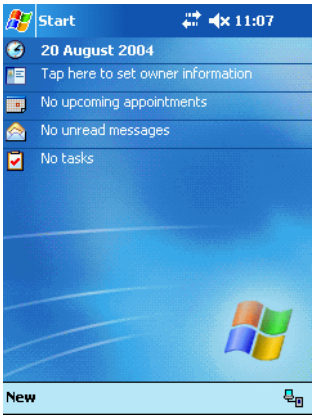
Scheme for using PDA as remote programming device

ActiveSync allows the user to navigate the files and directories contained on the PDA from the users desktop PC.

This is useful as it allows the user to create datafiles on their PC using the Series 5 Programming Software and then to drag a copy of the created datafiles from PC to PDA.

Series 5 CE Storage Program

The PDA is pre-loaded with the Series 5 CE Storage program. To run the program, select **Series 5** from the PDA's **Start** menu.

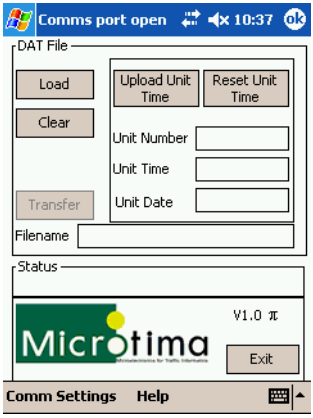


Connecting the PDA to the Series 5 Unit

Note: Before connecting the PDA to the Series 5 unit, check that the PDA's Regional Settings are set for the United Kingdom. This is vital because it sets the iPAQ's time and date format to that which is compatible with the series 5 unit.

The Series 5 software opens by default in serial cable mode.

1. Using the serial cable, connect the PDA to the Series 5 unit.



2. Using the stylus, tap [Upload Unit Time]. This returns the details of the series 5 unit including serial number, current time and date.

3. If the user wishes to synchronise the time in the series 5 unit with the PDA, then tap the [Reset Unit Time] button. The updated time in the series 5 unit will be displayed on the screen.

Downloading a Data File from the PDA to the Series 5 Unit

4. To transfer a data file into the series 5 unit, tap the Load button. A list of the available data files that the user has loaded onto the iPAQ will be displayed.

5. Tap the data file that you wish to program the series 5 unit with. The filename that you have chosen will be displayed in the Filename \My Documents\ bar. You are now ready to download the data file.

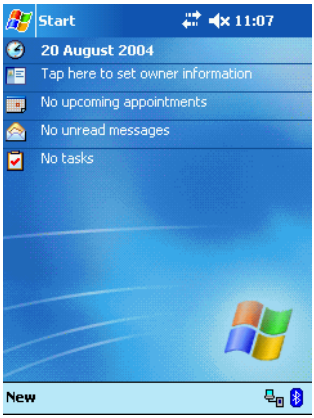
6. Tap the Transfer button and the file will begin downloading to the series 5 unit. The progress is indicated by a blue bar in the Status area. When the transfer is complete, the Status area will display a message stating "DATA SENT". This confirms that the data file has not been corrupted in transmission.

Note: Only data files created with version 2.0.0 or greater of the PC's Series 5 Programming software can be used with the Series 5 unit.

Using the PDA with Bluetooth Manager

In some situations, access to the Series 5 unit for re-programming using the conventional serial port connector will not be available. In these situations we have introduced Bluetooth wireless technology to re-program the Series 5 unit, which does not require a physical connection between the PDA and the unit.

Note: All Bluetooth enabled units are pre-configured at the factory with device names reflecting their operating locations. For example, a unit located outside St. Bede's Roman Catholic School is configured with the device name: ST BEDES RC1. The user can specify to Microtima what they wish the device names to be up to a maximum of 50 characters.

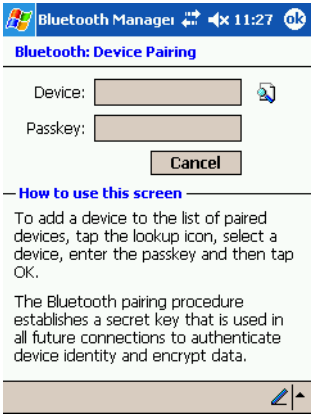


- Turn your Bluetooth connection on. A blue light will start to flash, indicating that Bluetooth is active.

Pairing

In most cases, Microtima will pair each Bluetooth equipped series 5 unit with the customer's iPAQ at build time. However, if the customer orders more series 5 units at a later date and does not wish to return their iPAQ to Microtima, details of the pairing devices are as follows.

1. Open the PDAs Bluetooth Manager. If no previous communication has taken place between the Series 5 unit and the PDA then tap the 'Tools' item on the menu in the bottom left of the screen. A sub-menu will pop up.
2. Tap 'Paired devices' from this sub-menu. A list of Bluetooth paired devices will pop up, along with the 'Add' and 'Remove' buttons.
3. Tap Add and a 'Device Pairing' screen will appear.



4. Tap the  icon and the iPAQ will begin searching for any Bluetooth enabled devices within range. The 'Bluetooth Browser' screen will open and the Bluetooth icon in the top right corner will spin round indicating that the iPAQ is searching for devices.

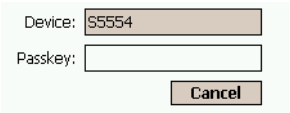


Note: That any type of Bluetooth enabled device (Series 5, mobile phone, PC, etc) can be picked up during this search. You must know the Unique name of the unit you are searching for.

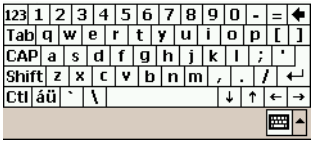
For example When the PDA has detected the device it's name is then displayed on the Bluetooth Browser screen.



5. Tap the device icon, this will bring up the Authentication screen. The user must enter a passkey to ensure a totally secure bond between their iPAQ and Series 5 unit. This security prevents other Bluetooth devices from interacting with the Series 5 unit.



6. Tap in the bottom right hand corner. A keyboard will pop up in the lower half of the screen.



Note: Microtima set up all series 5 units to have the default passkey of '1234'.

7. Enter the default passkey via the keyboard and tap ok in the top right of the screen.

   The screen will show a small message box that says: 'adding device'. Once this task has been completed, the Series 5 device will be displayed in the 'Bluetooth Browser' screen. You will be able to tell that the Series 5 unit has been permanently paired with the iPAQ because the device icon (as shown below) will have a small tick next to it, indicating that it is paired with the iPAQ.

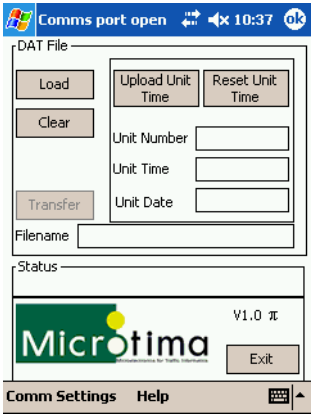


   This pairing will persist and does not need to be repeated every time the Series 5 is reprogrammed.

   All of the Bluetooth screens may now be closed, as the iPAQ is now ready to program the Series 5 unit.

Factory-paired and previously paired units

8. For factory-paired Series 5 Units (or previously paired units) open the 'Series 5 2003' software from the Start menu. The screen shown below will appear:



9. Tap 'Comm Settings' then tap 'Select Bluetooth port'. The Bluetooth Browser screen will appear and show all the paired Series 5 devices:



10. Tap the device icon that you wish to reprogram. The Bluetooth Browser will disappear and the Programming interface will again be available. However, the iPAQ is now connected to the Series 5 unit that is to be reprogrammed.

Refer back to page 35 for notes on reprogramming data files and setting times.

The Bluetooth connection brings an added feature, where the lamps may be activated for 20 cycles (as a test). This is simply done by tapping the 'Lamp Test' button which is only available when a Bluetooth port is selected.

Backing up and restoring operation

Leaving the PDA off AC power can result in the installed Microtima Software "disappearing" from the Start menu. This is because any third party software installed in RAM memory (as the Series 5 software is) will not be backed up if battery power runs low.

We strongly recommend leaving the PDA connected to AC power at all times, but should this not be practical a backup file held in ROM can be used to restore Series 5 software.

Another approach is to use an in-car charger to keep the PDA battery in good order while traveling between sites.

Extended periods off AC power have shown that even the backup file can be lost.

In order to get around this, Microtima supply a copy of the backup file on the "Series 5 CD" that also contains PC programming software.

We recommend copying this file (or backup file on PDA as it is the same file) to desktop PC for safe-keeping.

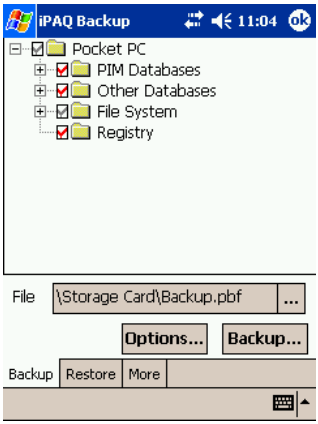
PDA variants

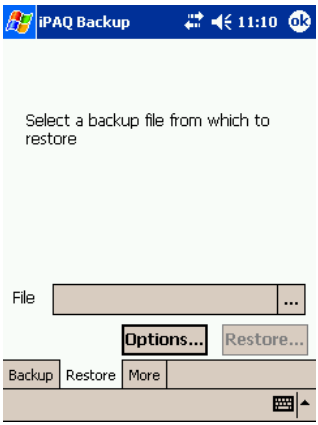
IPAQ 1940/5550

To restore the Series 5 software, select **Programs** in the start menu. A list similar to the one below appears. Find **IPAQ Backup** and tap it.

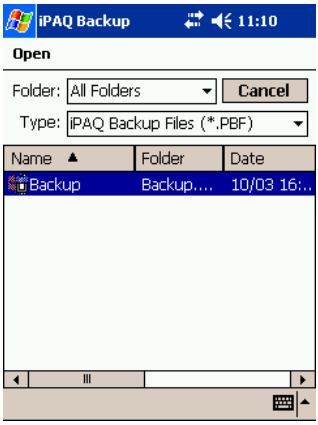


The main Backup screen appears. Tap the grey tab that says **Restore**.

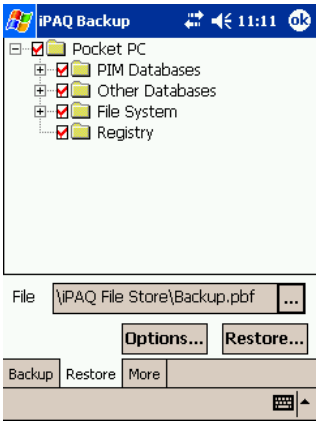




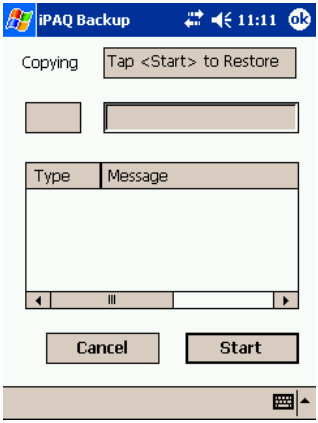
Tap the grey box with three black dots in it to open the list of valid backup files that are held on the PDA.



Tap once to select the required backup file. There should only be one file visible. Once tapped, the file is highlighted with a blue band as above and the user is returned to the restore screen:

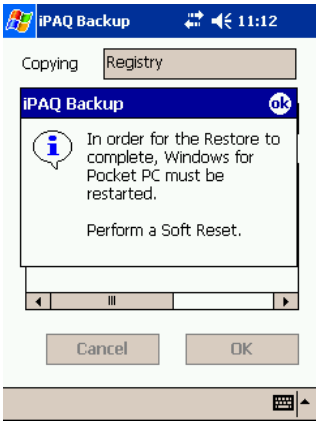


Tap the grey **Restore…** button.



Another screen opens as above. Tap the **Start** button to begin the restore process. You are updated on progress during the restore by a blue progress bar and messages in the message box.

Once the restore process is complete you will be asked to perform a soft reset;



On both devices (1940 and 5550) this is done by inserting the stylus into a small round hole in the case of the device.

The 1940 has its reset button located on the left hand edge of the case, about 1/3rd of the way up from the bottom

The 5550 has its reset button located on the bottom edge of the case, about 2 cm to the left of the large rectangular serial connector.

Once the reset has taken effect, the PDA has the Series 5 software restored.

IPAQ 2210

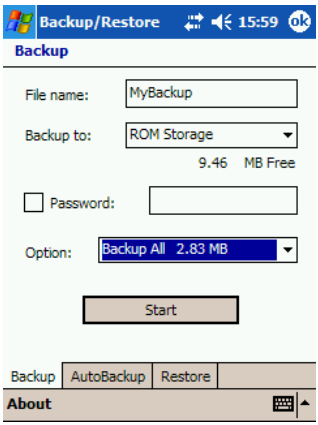
No backup as device has persistent memory and will not lose software or settings.

IPAQ 1950

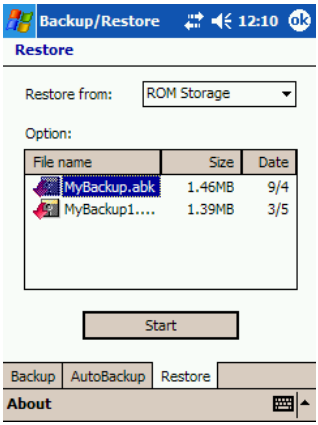
No backup as device has persistent memory and will not lose software or settings.

Acer n30

Go to **Programs** and tap **Backup Restore**. The backup screen opens as shown:

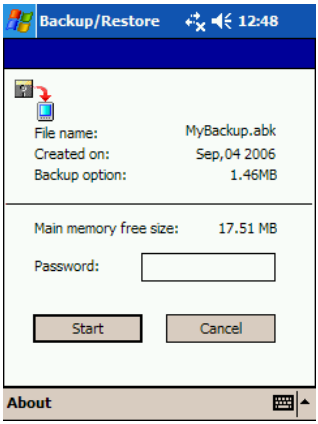


Tap the **Restore** tab at the bottom of the screen, the appropriate screen is displayed.

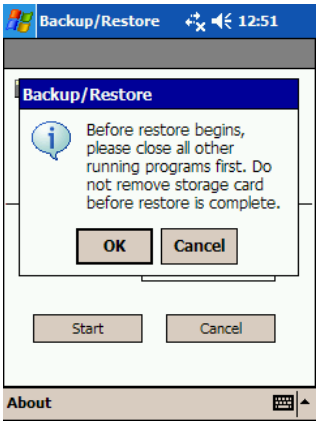


A drop down list allows the user to choose the location to load the backup file from. The two options are **ROM storage** and **SD-MMC card**. Factory default setting is for the backup file to be held in ROM storage and if a valid backup file is located in the ROM storage area, it is displayed in this box

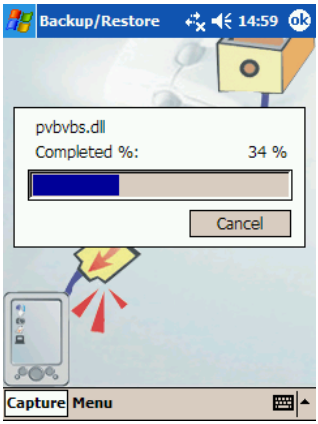
Select the required backup file, there should normally only be one file. Tap the grey **Start** button to begin the restore process.



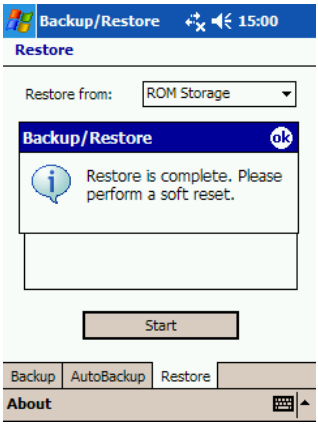
The message below appears. Comply with the message and tap **OK**. You will be taken to another screen



A progress bar is displayed to show the progress of the restore process.



Once the process has reached 100%, a message appears:



A soft reset is carried out by inserting the stylus into a small round hole on the case of the device.

The Acer n30 has its reset button located to the left hand side of the rectangular connector on the bottom edge of the case.

Other Series 5 Variants

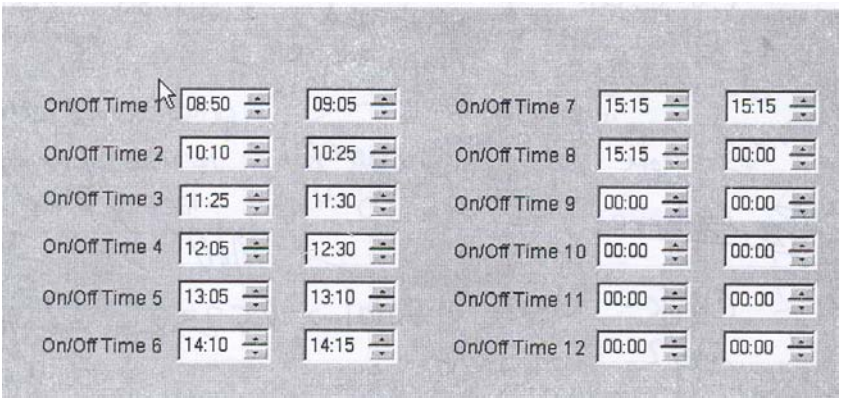
School bell timer S5MB230DB/U or B

The Series 5 is available in different variants to perform other functions than the School crossing warning light controller it is most commonly used for.

The bell timer rings to signal the start of every lesson period and the end of every lesson period. This involves using the Series 5 PC programming software in a slightly different way.

See below for an example screenshot of a typical set of bell switch tables for a school campus. The top row (On/Off Time 1) shows that the bell will ring once for 5 seconds at 0850 and once at 0905 for 5 seconds.

This convention is followed throughout the rest of the switch tables if required (I.E. In most cases, only one switch table is required to cover every school day, but if a non-standard pattern of class changes is required then all other 7 switch tables are still available for use).



Radar Interactive School sign S5MR230DS/U or B

The timing functionality of the Series 5 is used to bring the display of the Radar Interactive speed sign into operation

This means that the flashing amber lights of the traditional diagram 4004 school warning sign are replaced with a real-time interactive amber LED display of vehicle speeds.

The programming is done in exactly the same way as one would program a series 5 timer to run a pair of flashing lights, in that during the period the lights would normally be flashing, the radar sign will be active and any approaching vehicles will cause the sign to display their approach speed. If no traffic is traveling along the road that the sign is monitoring, the display will stay blank.

Once the timed active period has finished, the signs display will then stay blank regardless of any vehicles approaching.

CE Conformity

Declaration of Conformity

The manufacturer:	Microtima Ltd
Declares that the product:	Microtima Series 5 Controller
Type:	S5MF230DB/U S5MF230DB/B S5SFK16DM/U S5SFK16DM/B S5LFN12DB/U S5LFN12DB/B
Firmware version:	1.5

Complies with the essential requirements of article 3 of the R&TTE directive when used for its intended purpose.

Harmonized standards applied:	**Other means of providing conformity:**
EN50293:2000	HD 638.4.5
EN55022:1994 +A1:1995 +A2:1997	
EN61000-3-2:2000	
EN61000-3-3:1995 +A1:2001	

Address:	Old Glassworks Stepney Bank Newcastle upon Tyne NE1 2NP
Place, date of issue:	Newcastle, 01/08/2006
Name and Signature:	A. Gorham BEng (hons), MIET 

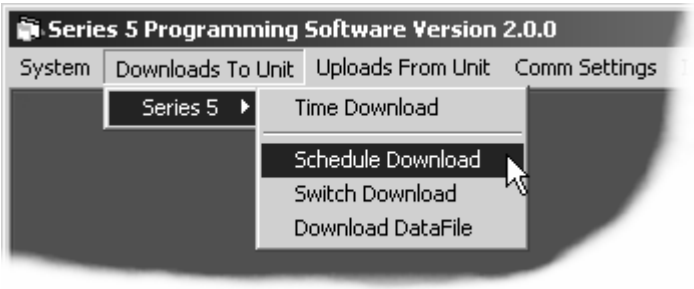
9 Annual Reprogramming

Annual reprogramming of a data file can be achieved very quickly and simply and eliminates the need to create a new data file each year.

Assuming that the switching times have not changed from the previous year then only the following steps need be taken:

1. Start the Series 5 Programming Software and open the data file to be updated.
2. Change the start date to the first day of the upcoming school term.
3. Apply the switch table mask to the year by clicking once on January 1st and then once on December 31st. This will update the schedule for the coming year.
4. Apply holidays as required, see ***Applying Holidays*** on page 28.
5. Save the data file.
6. Apply the schedule to the Series 5 unit by clicking 'Schedule Download' from the 'Downloads To Unit' tab.

A time bar appears on the screen to indicate that the data is being downloaded to the Series 5 unit. When the bar disappears the download is complete.



Selecting the 'Schedule Download' option overwrites the schedule on the data file, but retains the existing switch tables.

10 Maintenance

The system requires minimal maintenance and has no field serviceable components apart from exchanging fuses for new items as listed in the table below.

Battery Box	20 mm, 3.15 A quick blow fuse
Series 5 Unit	2 x 20 mm, 1 A quick blow fuse
Lamp Housing	Mains 2 A fuse

11 Troubleshooting / FAQs

The Series 5 unit is rigorously tested prior to dispatch to ensure that it is in good working order. If, however, a problem does occur, please refer to the FAQs below to eliminate all other possible causes before returning unit to us:

FAQ	Possible Cause
Unit LED does not flash?	• Check the fuses in lamp housing and the base post. • Check the two 20 mm, 1A quickblow fuses located in the screwed holders at the front of the unit. • Check that the mains supply is available.
When connecting the unit to a PC, the unit time and date are not displayed?	• Ensure that version 2.0.0 or later of the Series 5 Programming Software is being used. • Check that the serial cable is securely connected at both the PC COM port and at the Series 5 unit connector. • Ensure that the cable is connected to the PC COM port specified in the programming software, see COM Port Selection on page 60. If you are unsure as to which COM port the cable should be connected, simply connect the cable to the alternative PC COM port.
The Unit time/date are displayed, but do not make sense?	• Ensure that the PC time/date format is correct; see Time/Date Format on page 34, then download the time to the unit again.
iPAQ does not communicate with Series 5 unit (cable mode).	• iPAQ COM port can sometimes lock-up. Perform reset of iPAQ.
Bluetooth enabled iPAQ cannot communicate with Series 5 unit.	• Ensure that Bluetooth is turned off before powering off iPAQ. This is a known issue that causes the Bluetooth port to lock up.

12 Warranty details

Series 5 Units

Each Microtima Series 5 comes with a limited 2 year warranty against defective materials or components. This is a return to base warranty where we will undertake to repair or replace the faulty unit at our discretion.

Pocket PC products

Microtima pass on the Original Manufacturer's warranty to customers purchasing a Pocket PC product.

In the event of a warranty claim being necessary, we are happy to forward a customer's Pocket PC to the manufacturer, but please note that any repair costs incurred will be the responsibility of the customer and not Microtima.

Customers are of course free to send any faulty devices back to the manufacturer directly.

Dorman lamp housings and LED pods

Dorman offer a 5 year warranty on their products and Microtima will handle any warranty claims for Dorman products we have supplied.

Repair details for units in warranty

If warranty repair is required, please contact Microtima and quote the Serial Number of the faulty unit. If the unit is in warranty, we can issue an RMA number and the unit can be returned free of charge to:

Freepost RLZL - JCUL - UGEJ
Microtima Ltd.
Old Glassworks
Stepney Bank
NEWCASTLE UPON TYNE
NE1 2NP

A repair or replacement will be issued by return.

Repair details for out of warranty units

Any products that require repair but are out of warranty can be posted back to our normal address:

Microtima Ltd
Old Glassworks
Stepney Bank
Newcastle upon Tyne
NE1 2NP

Upon receipt, we will inspect and test the unit and issue a quote for repair.

A standard list of repair costs is available on request.

If the repair cost of the unit comes to 75% or more of the cost of a brand new unit, we will supply a new Series 5 at a discounted price.

Notes

Microtima Limited
Old Glassworks
Stepney Bank
Newcastle Upon Tyne
Tyne & Wear
NE1 2NP
England

Phone +(44) 191 230 4411
Fax +(44) 191 230 4422

www.microtima.co.uk

Microtima Series 5 Unit

Installation and Operation Guide

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Part No. S5MAN
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CE