

ThermoBarScan  
TM Electronics UK Ltd  
INSTRUCTION BOOKLET



Model: MM7100-2D

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## Introduction

TME's range of unique barcode scanning thermometers use barcodes to identify a location or product for temperature measurement; with the **MM7100-2D**, you can now assign an alarm value with remedial action to these barcodes enabling the user to be instantly alerted to any temperature anomalies. When the barcode is scanned, the **MM7100-2D** will give a visual low or high alarm with a corrective action message which can be set by the user.

Alarms can be set to reflect critical temperature points. For example, if a barcode represents a cooked chicken, then set the low alarm value to 73°C and the high to 80°C. When the user takes the temperature and scans the chicken, they will see an indication of whether the temperature is in the acceptable range and the suggested corrective action if it is not (e.g. adjust oven temperature).

The **MM7100-2D** can also be used for water temperature testing. For monitoring legionella temperatures, a global alarm can be set which gives the critical temperature range at which the legionella bacterium multiplies. When the user scans the product barcode, the display will give an indication of whether or not the temperature is safe.

## PC Set up

### Installing the Software – *What you need*

- Bluetooth dongle

(we recommend the Belkin dongle with Widcom stack)

*OR*

- Bluetooth enabled PC or laptop

Your ThermoBarScan software can be downloaded from the TME website by following this link:

<https://www.tmethermometers.com/software>

### How to install your TME software

! If you need to install a Bluetooth dongle, please install this ***before*** installing the software.

Go to the software link and click to download.



*ThermoBarScan  
Software V 9.2.0*

This will download a zip folder which contains elements of the software as well as the setup.exe file to install the software.

Select **Setup.exe** to start the installation process. You may be prompted to extract the files. Do this and save to your preferred folder.

Click finish to complete the process.

The TME software will automatically create a shortcut icon on your desktop so the software can be easily accessed.

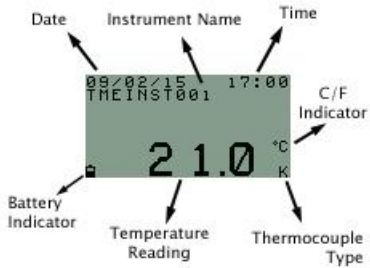
Start the **ThermoBarScan** software by clicking on the desktop icon

## Switching your ThermoBarScan instrument into Bluetooth mode

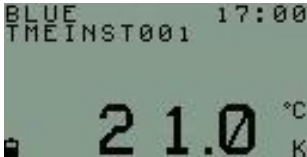
*(For USB version please skip to USB SETUP)*



Turn on your MM7100-2D instrument. You will find the home screen which will display your time, date, instrument name, temperature, temperature scale, thermocouple type and battery life.



Now press the **Bluetooth** Button, the word '**BLUE**' will be displayed in the top left of the display (see image below). This means that the instrument is now in Bluetooth mode and ready to connect to your TME software. The instrument must remain with the Bluetooth enabled (showing '**BLUE**') during discovery and communication.



To disable Bluetooth mode, simply press the Bluetooth button again.

## Discovering your instrument

Select the **Discovery** tab and then **Click Here to start Discovery and Select Instrument**

The screenshot shows the ThermoBarScan software interface. At the top, there is a header with the TME logo and contact information for T.M.Electronics (UK) Ltd. The main window has a menu bar with options: Discovery, USB, Download Data, Translate Barcodes, Setup, Print Barcodes, Alarms, and Information. A message box at the top says "Please select instrument from list below". Below this is a section titled "Click Here To Start Discovery and Select Instrument" with a "Connect" button. A table titled "Instruments In Bluetooth Range" displays the following data:

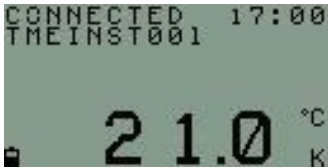
Instrument Type	Serial Number	Name	Bluetooth Add	Connected
ThermoBar			008025DCF1B8	Not Found
MM7100			646E6CC49EE0	Not Found
ThermoBar			646E6CC49EE9	Not Found
ThermoBar			646E6CC49EF0	Not Found
ThermoBar	700651	MM7000-2D	646E6CC49ED9	Found

Below the table is a "Clear All" button. To the right of the table is a "Printers In Range" section with a "Printer Address" field and a "Link Printer To Instrument" button. At the bottom, there is a "CONFIGURATION FILE" section with "Open" and "Save As" buttons.

The instruments within Bluetooth range and previously connected instruments will be displayed and their Bluetooth addresses shown. The software will try to connect to each in turn, retrieving their name and serial number, these will be marked as **'Found'**. If the connection is unsuccessful, the instrument will be marked **'Not Found'**. To connect with your chosen instrument, select the Bluetooth address.

The instrument will automatically connect. There is **no need** to select the Connect button unless you wish to re-connect.

Once connected, the software will display the instrument's name and serial number and the word **connected** will be displayed in the top left of the display on the MM7100-2D instrument (see image below). To swap between multiple devices, simply click on another instrument.





## USB Set Up

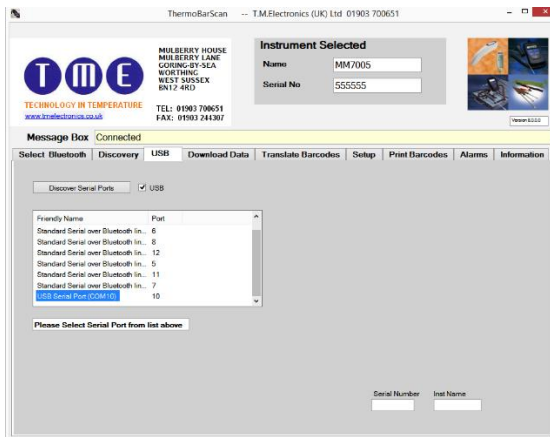
Click on the **USB** tab.

Turn instrument on and connect to computer with the cable provided.

Press the USB button - 'USB' will appear on display.

Click on the **Discover Serial Ports** Button.

Select the appropriate 'USB Serial Port' and the instrument will automatically connect. The Name and Serial Number will be displayed.



## Setting instrument parameters

Using the TME software, under **Setup** tab, you are able to set the instrument's parameters. These are:

1. **Set Time and Date** – the time and date is read from your PC. To set the time and date, select **Read Time/Date** and then **Set Time/Date to System**
2. **Set Sensor Type** – sets the thermocouple type e.g. K/T
3. **Set Temperature Scale** – sets the temperature scale e.g. °C / °F
4. **Set Instrument Name** – allows you to identify the instrument with its own specified name
5. **Set Print Header** – allows you to assign a heading for the print reports when using the Bluetooth Printer

Other features include:

**Autoswitch on?** – allows you to check to see if the autoswitch on/off function has been enabled

**Battery power?** – allows you to monitor battery life

The screenshot shows the Thermoscan software interface. At the top left is the TME logo and company information: MULBERRY HOUSE, MULBERRY LANE, GORING-UP-SEA, WORTHING, WEST SUSSEX, BN12 4RD. Contact details include TEL: 01903 700651 and FAX: 01903 244307. The website is www.tmelectronics.co.uk. The 'Instrument Selected' section shows 'Name: Thermoscan' and 'Serial No: 666666'. A message box at the top says 'Set Up Instrument Parameters Here'. Below this is a navigation bar with tabs: Select Bluetooth, Discovery, USB, Download Data, Translate Barcodes, Setup (selected), Print Barcodes, Alarms, and Information. The 'System Time' is 10:00:18 and 'System Date' is 05-28-2014. The main area is divided into 'Read Instrument Information' and 'Set Instrument Information'. The 'Read' section has buttons for Read Time/Date, Read TIC Type, Read Scale, Read Inst Name, Read Print Header, Autoswitch on?, and Battery Power?. The 'Set' section has buttons for Set Time/Date, Set Sensor Type, Set Temperature Scale, Set Inst Name, Set Print Header, and Toggle Autoswitch Off. At the bottom, there is an 'Enter Calibration Password' field and a 'Clear Screen' button.

Once you have set your parameters, you can check that the settings have been stored by using the **Read** functions. The instrument is now ready for use.

## To generate Barcodes

There are a number of websites offering free utilities to convert text into Barcodes. We recommend using the following website which will give you a step-by-step guide for generating your barcodes:

[www.barcodesinc.com/generator/index.php](http://www.barcodesinc.com/generator/index.php)

Your MM7100-2D instrument can read both 1D and 2D barcodes in the following formats:

All UPC/EAN/JAN Codes  
EAN28 Codes  
Code 39, Code 128  
Interleave 25  
PDF417  
QR Code  
Data Matrix  
GS1-DataBar™  
RSS, RSS Limited, RSS-14  
RSS-14 Stacked, RSS-Expand

For generating 2D or QR Codes:

<https://www.barcodesinc.com/generator/qr/>

Alternatively many office products now come with a Barcode font. Please note that your MM7100-2D instrument can read a 1D barcode with a **maximum of 32 characters including spaces**.

You can generate the barcodes yourself or use the **print barcode** tab in the software if you have the TME Barcode printer.

## To take a reading using your MM7100-2D

The MM7100-2D instrument has the ability to record barcode and temperature information by scanning and logging, or by logging the temperature alone. Additionally, you can also use the instrument for asset management by scanning the barcode of each asset.

The new 1D and 2D scanner can read barcodes on virtually any medium – paper, plastic cards, mobile phones and LCD displays.

### To scan a barcode:

Connect a thermocouple sensor to the top of the instrument and wait for the temperature reading to stabilize. Once the reading has stabilized, press the **Scan** button. This will activate the Barcode Scanner and freeze the temperature measurement. You will also see the word **scan** at the left hand corner of the screen.

Scan the barcode, when read the instrument will Bleep.

The instrument has now stored the **Barcode information, time, date and temperature** to the internal memory. Up to 1000 readings can be stored on the instrument.

Whilst in SCAN mode the store number will be shown at the top right of the instrument display. After scanning, the display will revert to showing the time and temperature.

### To Log a reading (without Barcode information)

Connect a thermocouple sensor to the top of the instrument and wait for the temperature to stabilize. Once the reading has stabilized, press the **Log** button. The word **Log** will appear at the top left of the display to indicate that the device has recorded the reading, with the store number at the top right.


You will have now logged the **time, date and temperature** to the internal memory.

## Retrieving information – Downloading to TME Software

Use the software to discover and connect as before.

When connected select the **Download Data** tab and then select the **Get Data** button.

The data stored on the instrument will then appear as a numbered list.



The screenshot shows the ThermobarScan software interface. At the top, there is a header with the TME logo and contact information for Mulberry House, Worthing, West Sussex. The 'Instrument Selected' section shows the name 'Thermoscan' and serial number '600666'. The main window has several tabs: Select, Bluetooth, Discovery, USB, Download Data (active), Translate Barcodes, Setup, Print Barcodes, Alarms, and Information. The 'Download Data' tab is active, displaying a table of scan data. The table has columns for Scan No, Serial No, Time, Date, Temp, SCL, Alarm, Barcode, and Translation. The data is as follows:

Scan No	Serial No	Time	Date	Temp	SCL	Alarm	Barcode	Translation
1	666666	15:43:24	27/05/14	21.0	C	OK	CHILLER1	
2	666666	15:43:38	27/05/14	20.9	C	L.AL	ROASTCKN1	
3	666666	09:15:19	28/05/14	18.2	C	H.AL	FREEZER2	
4	666666	09:15:26	28/05/14	18.4	C	OK	CHILLER1	
5	666666	09:15:35	28/05/14	19.0	C	L.AL	ROASTCKN1	

Below the table, there are buttons for 'Get Data', 'Clear Screen Data', 'Save Data', and 'Live Data'. There is also a 'Clear Instrument' button at the bottom left and 'Print Preview', 'Print Setup', and 'Print' buttons at the bottom right.

### Other functions within the **Download Data** tab

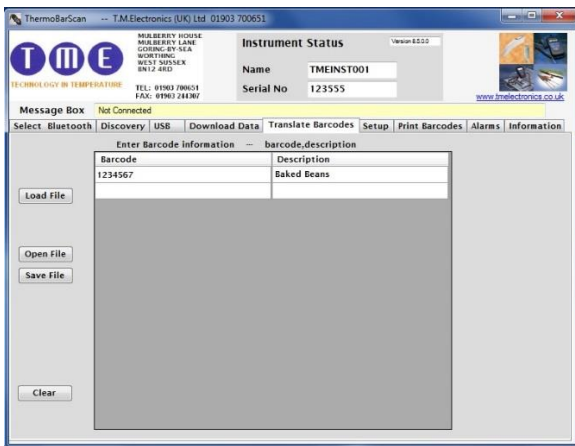
1. **Clear Screen Data** – clears downloaded data from software
2. **Latest scan** – displays the latest scan
3. **Live data** – displays the instrument's data in real time (scan no, serial number, time, date temperature, temperature scale, alarms, barcode)
4. **Clear instrument** – clears all data stored within the instrument's memory
5. **Print preview** – allows you to preview your data before printing
6. **Print setup** – allows you to set up your printer
7. **Print** – print data directly from software
8. **Save Data** – saves your data as a CSV (comma separated value) file

## Retrieving information - *Translating Barcodes*

Your TME software has the ability to 'translate' your barcodes to a user specified description. This is particularly useful if your barcodes are coded to represent a product or location.

Select the **Translate Barcode** Tab to enter your barcode and the description you wish to use - you can either load a CSV file with barcodes and descriptions or enter the information manually. To enter manually, type in the barcode followed by the product description.

When complete, this information may be saved to a file and reloaded for subsequent downloads. To reload the file, select **Open File**



To upload your barcodes to your MM7100-2D instrument, select **Load File**. This will store the barcode information on your device. You are now ready to download and translate your barcode information from the instrument.

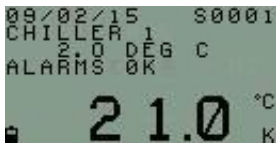
Select the **Download Data** tab and then tick the **Translate Barcodes** box and press the **GET DATA** button.

You will now find that the barcode information will have the description you have provided under the translation column.

## Retrieving Information – *Viewing logged Data on your Device*

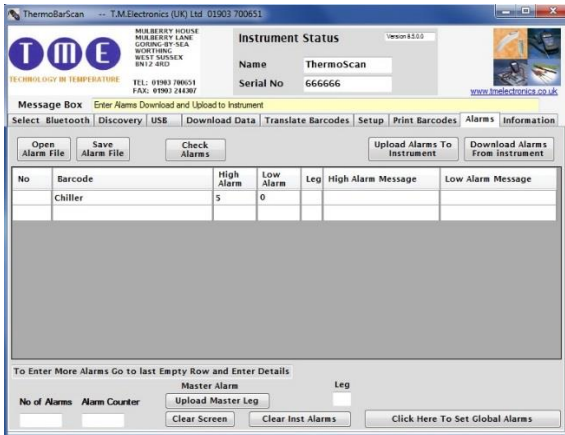
Your MM7100-2D allows you to recall logged data on the device.

Simply press the **Arrow Buttons** on the keypad to view the **temperature, barcode information, date and time** of any previous logs or scans. The store number is given at the top right of the display.



## High and Low Alarms – Generating your Alarms in TME software

You can generate your alarm parameters for existing product barcodes within your TME software.



Firstly, discover and connect your instrument.

Select the **Alarms** tab and enter the product barcode text which you would like to assign the alarms to, followed by the high alarm limit and low alarm limit. Select **Upload Alarms to Instrument**

The alarm values are now assigned to this barcode and you are ready to use your instrument. When you scan this Barcode any alarm condition will be displayed on the instrument.

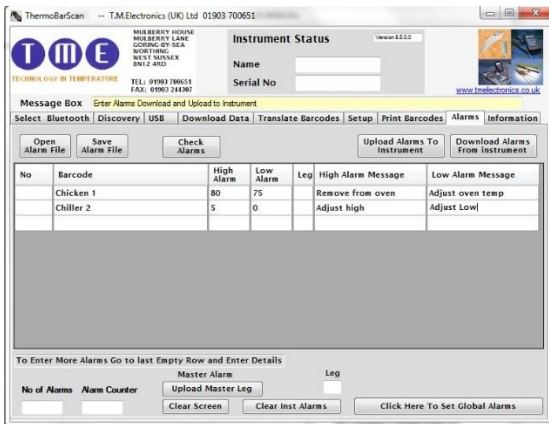
Alternatively, you can open an existing CSV file and upload the alarms to the instrument.



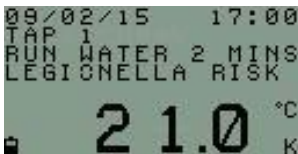
## Adding Remedial Actions to your Alarms

With the MM7100-2D, there is the option for you to set your own remedial action message for an alarm situation.

Within the **Alarms** tab, enter (or upload) your product barcode text followed by your High alarm message and Low alarm message. Select **Upload Alarms to Instrument**



Your alarm values and remedial message have now been assigned to your product barcode. When the barcode is scanned, your alarm condition will be displayed with the remedial action. As an example, the following picture is showing the display indicating that there is a legionella risk with the remedial message advising to 'run water for 2 minutes'.



## Generating your Alarms in TME software – *Setting Global Alarms*

The Global Alarms feature allows the user to set a global alarm to the instrument.

Under the **Alarms** tab, select ***Click Here to Set Global Alarm***. This will display the Global alarm fields.



The screenshot shows a configuration window for global alarms. It is divided into two columns: 'Low Alarm' and 'High Alarm'. Under 'Low Alarm', there is a text input field labeled 'Global Low Message'. Under 'High Alarm', there is a text input field labeled 'Master High message'. Below these fields are four buttons: 'Upload Global Alarms To Instrument', 'Download Global Alarms From Instrument', 'Delete Global Alarms', and 'Switch Back To Individual Alarms'.

Enter the high and low alarm fields, you also have the option of setting a remedial message. Select ***Upload Global Alarm to Instrument***

The instrument has now been set with these alarm values and is ready to use.

## Generating your Alarms in TME software – Using your MM7100-2D for water temperature testing (Legionella)

Your TME software includes a feature which will set your instrument to the alarm limits for legionella temperature testing as recommended by the health and safety executive. The legionella bacterium multiplies at temperatures between 20.0°C to 50.0°C.

To use this feature, go to the **Alarms** tab and enter the capital letter 'G' under the **Leg** field and then **Upload Master Leg**



Master Alarm		Leg
Upload Master Leg		G
Clear Screen	Clear Inst Alarms	

Your instrument will now be set to alert you if the temperature falls between 20°C and 50°C by displaying 'LEGIONELLA RISK'.

### Other functions in the **Alarms** tab:

1. **Open Alarm File** – opens an existing CSV file
2. **Save Alarm File** – Saves your barcode and alarm data
3. **Upload Alarms to Instrument** – uploads your barcode, alarm and message data to your instrument
4. **Download Alarms from Instrument** – downloads any pre-programmed barcodes, alarms and messages from your instrument
5. **Check Alarms** – checks the alarms which have been listed for any errors
6. **Upload Master Leg** – uploads master legionella alarm to the instrument
7. **Clear Screen** – clears screen of data
8. **Clear Inst Alarms** – clears all alarms on the instrument
9. **Upload Global Alarm to Instrument** – uploads the global alarms to the instrument
10. **Download Global Alarm from Instrument** – downloads the global alarms which have been set to the instrument
11. **Delete Global Alarms** – deletes the global alarms which have been set to the instrument

## High and Low Alarms - *Manually generating your Alarm Barcodes*

As well as having the ability to pair your alarms with product barcodes within your TME software, you can also manually generate an alarm barcode and pair it to a product barcode.

To generate your alarm barcode you must use the following code template:

\*--H\_\_\_\_L\_\_\_\_\*

“H” stands for the high alarm limit and “L” stands for the low alarm limit. Each of the 4 digit spaces after the defining limits are laid out in this order:

*Hundreds, Tens, Units, Decimal*

**For example:**

60°C High Alarm Limit and 30°C Low Alarm Limit will be entered as:

\*--H0600L0300\*



250°C High Alarm Limit and 100°C Low Alarm Limit will be entered as:

\*--H2500L1000\*



5°C High Alarm Limit and 1.2°C Low alarm Limit will be entered as:

\*--H0050L0012\*



You can generate barcodes on your PC or use the TME Barcode Printer.

## Manually generating your Alarm Barcodes - *Preset Alarm Codes*

There is a preset alarm barcode for Legionella temperature monitoring. This is preset with the temperature limits of 20.0°C to 50.0°C – the temperature range at which the legionella bacterium multiplies. This Barcode is:

\*--HLEG\*      And the barcode will be:



## Manually generating your Alarm Barcodes - *Global Alarms*

To set alarms to all readings use the following format:

\*--A\_\_\_\_B\_\_\_\_\*

The capital A stands for the high alarm limit and the capital B stands for the low alarm limit. Each of the 4 digit spaces after the defining limits are laid out in this order:

*Hundreds, Tens, Units, Decimal*

To set Legionella Alarm limits to all readings use:

\*--ALEG\*      And the barcode will be:



## **Manually generating your Alarm Barcodes - *Assigning Alarm values to a Barcode***

Once you have generated your alarm barcodes, you will need to assign them to your product or location barcode.

To assign barcodes, firstly scan your product/location barcode and then scan your alarm barcode. The device will then store this information and the barcodes will now be assigned to the chosen alarm values.

## **Manually generating your Alarm Barcodes – *Taking a reading with assigned barcodes***

Temperature readings are taken as previously described (see 'to take a reading'). Scan the paired product/location barcode. You will now find that when the product/location barcode is scanned, the display on the device will indicate whether the temperature taken is above or below the alarm limits. The display will then revert back to a normal temperature display.

## Deleting Alarms

Alarm barcodes can be deleted by generating the following 'delete' barcode. You are able to use the barcode in this manual if you wish:

\*--D\* And the barcode will be:



To delete alarms, firstly scan the product/location barcode and then the delete barcode. To delete Global Alarms use:

\*--E\* And the barcode will be:



## Understanding displayed alarms

The following alarm conditions will be displayed on your instrument:

'High Alarm'	= High Alarm limit breached
'Low Alarm'	= Low Alarm limit breached
'Alarms Ok'	= Within Alarm Limits
'Legionella Risk'	= Outside of safe Legionella temperature limits
'No Alarms Set'	= No alarm has been set to the product barcode

When data is downloaded to the TME software using the **Download Data** tab, the following codes apply:

'H AL'	= High Alarm
'L AL'	= Low Alarm
'OK'	= Within Alarm Limits
'NO A'	= No alarm limits set for Barcode
'NO I'	= No input
'LEG'	= Outside of Legionella Limits (i.e. between 20°C and 50°C)

## Using a TME Bluetooth Printer - *Pairing your instrument to a TME Bluetooth Printer*

You are able to print data (print header, time, date, temperature and barcode information) directly from your instrument to a TME Bluetooth Printer. To do this, you must firstly pair the two devices:

**Discover** the instrument and printer you wish to pair in the software.

When discovered, highlight the address of the instrument and printer and press **Link Printer to Instrument**. This will pair the two devices together. To check that the devices are paired, click the **Read Printer Linked to Instrument**. The printer address will appear in the field below to indicate that the devices are paired.

The devices are now ready for use.

Note: you can create a print header in the **Setup** tab.

## Using a TME Bluetooth Printer - *Printing Data from your paired instrument and printer*

You have the option of printing either the last reading or all data from the instrument.

To print single data, firstly ensure that your printer is on and that your instrument is in Bluetooth mode.

Press the **Down Arrow** button on the instrument. You will find that the display will show the letter **S**. Release the button.

The printer will print out your latest scan data.

To print all data, press and **hold** the **Down Arrow** button. You will find that the display will change from the letter **S** (single) to the letter **A** (all).

The printer will print out all your data.



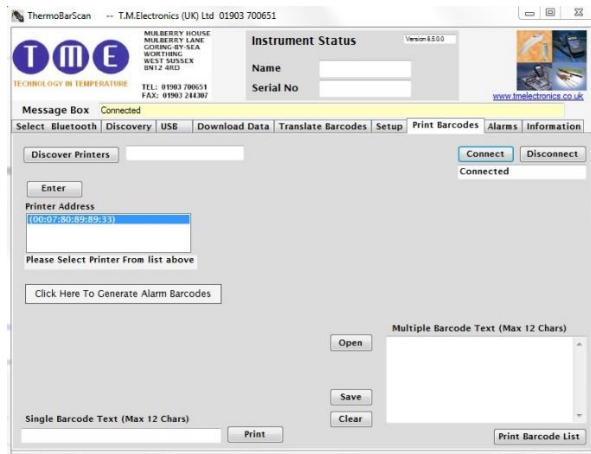
## Using a TME Bluetooth Printer - *Printing your Barcodes using the TME Barcode Printer*

You are able to print your barcodes directly from the software to the TME Barcode Printer.



To do this, you will firstly need to connect your Barcode Printer to the software.

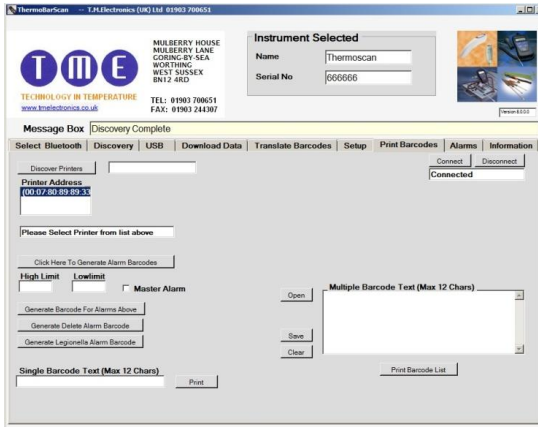
Select the **Print Barcodes** tab and click the **Discover Printers** button. You will find that the printer's address has been listed in the **Printer Address** field - highlight this and select the **Connect** button.



The printer is now connected and you will have the option of creating single barcodes or multiple barcodes.

## Using a TME Bluetooth Printer - *Printing Alarm Barcodes from your TME Bluetooth Printer*

Users of the TME Barcode Printer may print alarm barcodes from the software.



**Discover** your printer as previously (*after selecting your system's Bluetooth*)

Go to the **Print Barcodes** tab, highlight the printer address and **connect**. Your printer will now be connected.

Select **Click Here To Generate Alarm Barcodes**. This will display the fields required for generating your alarms.

To generate a barcode with high and low alarms, enter your high limit and low limit and then select **Generate Barcode For Alarms Above**

The information will appear in the **Single Barcode Text** field.

To print the alarm barcode, select **Print**.

If you wish to generate a Legionella alarm barcode, select **Generate Legionella Alarm Barcode**

To print the Legionella alarm barcode, select **Print**

The process will be the same for generating and printing the delete barcode.

## New Countdown timer

The MM7000 range now has a new built-in 1 & 2 minute timer function. This is to help the user comply with the HSE ACoP L8 requirement that hot water run at a tap reaches the required temperature within one minute and the cold water within two minutes. This feature is designed to ensure that the correct temperature is being taken when carrying out hot and cold water checks. When the timer is activated, a counter will appear at the top right of the instrument display but the instrument will only record the temperature once the time count is complete.

The timer is activated by using a barcode pre-fixed with either '--1' for one minute or '--2' for two minute timer. For example:-

For one minute timer (hot water) the barcode could be-

For two minute timer (cold water) the barcode could be-

To take your readings using the timer, first scan your barcode to activate the timer followed by your location/asset barcode. Hold your temperature probe under the running water. Once the timer count is complete, the temperature will be recorded alongside the location barcode together with the time and date.

Alternatively, you can prefix your location barcodes with '--1' or '--2'. This will start the timer in the same way but will automatically log the temperature data against the location barcode on completion of the timer count. If you are unsure whether your MM7100-2D has this feature or if you would like to upgrade, please feel free to contact our sales team on (01903) 700651 or [sales@tmthermometers.com](mailto:sales@tmthermometers.com)

## Generating Log Books from your downloaded data

Please go to [www.tmtherometers.com](http://www.tmtherometers.com) where you will find an example of how to set up your log book.