RS PRO Barcode
Scanning Thermometer

204-8411

Introduction

Welcome to the high accuracy, microprocessor driven, ThermoBarScan thermometer with integral barcode reader and Bluetooth communication.
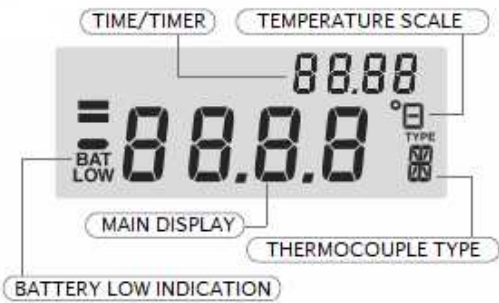
Your thermometer scans both 1D and 2D barcode formats and read barcodes on virtually any medium - paper, plastic cards, mobile phones and LCD displays.

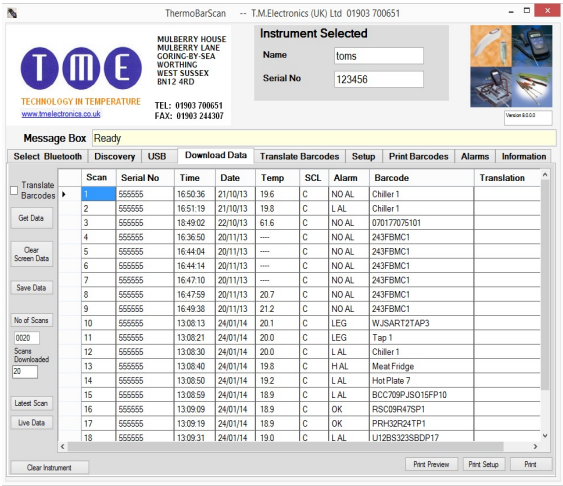Designed for use with thermocouple types K, J, T, R, N, E, S or Infra-Red sensors.

Features

- SINGLE INPUT
- TEMPERATURE ALARMS - USER PROGRAMMABLE
- STORES UPTO 1,000 READINGS
- READABLE BAR CODES INCLUDE:

  ALL UPC/EAN/JAN CODES
  EAN29 CODES
  QR CODE
  CODE 39, CODE 128

- ℃/°F SELECTABLE
- OVERRANGE / OPENCIRCUIT PROBE INDICATION
- RETENTION OF THERMOCOUPLE TYPE AND SCALE
- LOW BATTERY INDICATION

Display fig 1

TIME/TIMER — TEMPERATURE SCALE

88.88

°C
TYPE

BAT LOW — 88.8.8

MAIN DISPLAY

THERMOCOUPLE TYPE

BATTERY LOW INDICATION

Software Screenshot

Scan	Serial No	Time	Date	Temp	SCL	Alarm	Barcode	Translation
1	555555	16:50:36	21/10/13	19.6	C	NO AL	Chiller 1	
2	555555	16:51:19	21/10/13	19.8	C	L AL	Chiller 1	
3	555555	18:49:02	22/10/13	61.6	C	NO AL	070177075101	
4	555555	16:36:50	20/11/13	----	C	NO AL	243FBMC1	
5	555555	16:44:04	20/11/13	----	C	NO AL	243FBMC1	
6	555555	16:44:14	20/11/13	----	C	NO AL	243FBMC1	
7	555555	16:47:10	20/11/13	----	C	NO AL	243FBMC1	
8	555555	16:47:59	20/11/13	20.7	C	NO AL	243FBMC1	
9	555555	16:49:38	20/11/13	21.2	C	NO AL	243FBMC1	
10	555555	13:08:13	24/01/14	20.1	C	LEG	WJSART2TAP3	
11	555555	13:08:21	24/01/14	20.0	C	LEG	Tap 1	
12	555555	13:08:30	24/01/14	20.0	C	L AL	Chiller 1	
13	555555	13:08:40	24/01/14	19.8	C	H AL	Meat Fridge	
14	555555	13:08:50	24/01/14	19.2	C	L AL	Hot Plate 7	
15	555555	13:08:59	24/01/14	18.9	C	L AL	BCC709PJSO15FP10	
16	555555	13:09:09	24/01/14	18.9	C	OK	RSC09R47SP1	
17	555555	13:09:19	24/01/14	18.9	C	OK	PRH32R24TP1	
18	555555	13:09:31	24/01/14	19.0	C	L AL	U12BS323SBDP17	

ThermoBarScan — T.M.Electronics (UK) Ltd 01903 700651

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Version 8.0.0.0

Instrument Selected

Name: toms
Serial No: 123456

Message Box Ready

Select Bluetooth | Discovery | USB | Download Data | Translate Barcodes | Setup | Print Barcodes | Alarms | Information

Translate Barcodes
Get Data
Clear Screen Data
Save Data
No of Scans: 0020
Scans Downloaded: 20
Latest Scan
Live Data

Clear Instrument

Print Preview | Print Setup | Print

OPERATING INSTRUCTIONS

To Measure Temperature

1. Fit the battery in to the instrument (refer to battery replacement details)
2. Switch thermometer ON.
3. Plug thermocouple into input socket
4. Check temperature scale is correct. (℃/℉)
5. Check thermocouple is correct
6. Take measurement by contacting the object with probe and reading from the display

Changing Temperature Scale **on the Keypad** (℃/℉)

To change the temperature scale simply press the button marked 'SCL'. The temperature scale will alter as shown on the right hand side of the display.

Changing Thermocouple Type

To change thermocouple type, follow the sequence below:

1. Switch the unit OFF.
2. Press and hold the 'SCL; button
3. Switch the unit ON.
4. Release the buttons.

The new thermocouple type will appear in the bottom right hand corner of the display (see fig 1). Repeat steps above until the desired thermocouple type is shown.

Replacing The Battery

The instrument will indicate 'BAT LOW' when the battery needs changing.

To change the battery, firstly remove the unit from the outer case. The battery compartment is on the rear of the instrument. Using a small screwdriver ease back the tab of the battery compartment. The compartment will then lift away.

Please note that we recommend re-setting the time and date when changing the battery. To correctly set the time and date, go to 'Setup' tab with the software.

Open Circuit Thermocouple Detection

An error in the probe is shown on the display by a series of bars ;------' coupled with the word 'INPUT' at the top of the display. This indicates either that the probe has an error or the temperature is out of range.

SPECIFICATIONS

Environmental

Ambient operating range	-30°C to 50°C (-21 to 122°F)
Storage temperature range	-40°C to 60°C (-40 to 140°F)
Humidity	0 to 70% R.H.

RS PRO

ELECTRICAL

Measurement Ranges

	CENTIGRADE			FAHRENHEIT		
K	-200°C	to	1372°C	-328°F	to	2501°F
T	-200°C	to	400°C	-328°F	to	752°F
R	-50°C	to	1767°C	-58°F	to	3212°F
N	-200°C	to	1300°C	-328°F	to	2372°F
J	-200°C	to	1200°C	-328°F	to	2192°F
E	-200°C	to	1000°C	-328°F	to	1832°F
S	-50°C	to	1767°C	-58°F	to	3212°F
I/R	-50°C	to	200°C	-58°F	to	392°F

Accuracy@23°C	±0.15% of reading ±0.2°C
Characterising error	less than 0.05°C
Temperature coefficient	0.01% of reading/°C
Cold junction compensation	0.0075°C/°C
Resolution	0.1°autoranging to 1° 1000°

Note
Strong RF fields may adversely affect measurement accuracy.

General

WEIGHT	155 gms (5.47 oz)
DIMENSIONS	130 x 70 x 33 mm
BATTERY	PP3
BATTERY LIFE	200 Hours

PC Setup

Installing the Software - What you need

● Bluetooth dongle (we recommend the Belkin dongle with Widcomm stack)

OR

● Bluetooth enabled PC or laptop

● GcZhk UfY˙7 8

How to install your Software

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

Place the CD into the CD drive of your PC or laptop.

The CD should 'Autorun' and install. If not, please select '*setup'* and follow these instructions-

Click '*next'* to install the software

You will then be asked to install the software to

C drive directory under '*C:\Program Files\TME'*

 - click *'next'* to accept this.

The 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 into Bluetooth Mode

(For USB version please skip to USB SETUP)

Turn on your instrument and press the Bluetooth button. The word BLUE will be displayed in the top right hand corner. 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 the 'Click Here to Start Discovery and Select Instrument' tab.
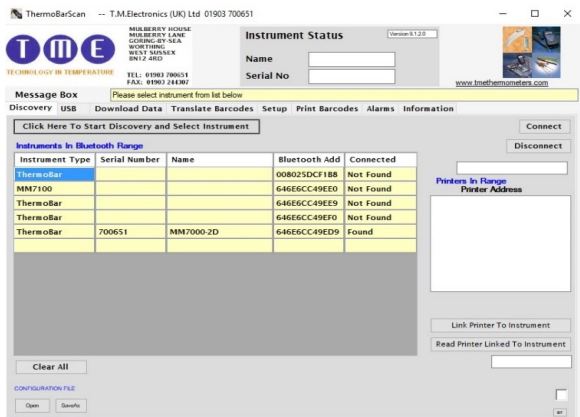
The instruments within Bluetooth range and previously connected instruments will be displayed and their Bluetooth addresses shown. The software will try to connect to each in turn, retrieving their name and serial number, these will be marked as **'Found'**. If the connection is unsuccessful, the instrument 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.

To swap between devices, simply click on another instrument.

Pairing your Instrument to a Bluetooth Printer

You are able to print data (print header, time, date, temperature and barcode information) directly from your instrument to a 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

Printing 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 your printer is on and instrument is in Bluetooth mode.

Press the **Scale (SCL)** button on the instrument. You will find that the dispaly will show the letter **'S'** (single), release the button.

The printer will print out your latest scan data.

To print all data, press and **hold** the **Scale (SCL)** 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.

USB Setup

For ThermoBarScan instruments with USB connection only.

Click on the **USB** tab.

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

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

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

Select the appropriated 'USB Serial Port' and the instrument will automatically connect. The Name and Serial Number will be displayed.
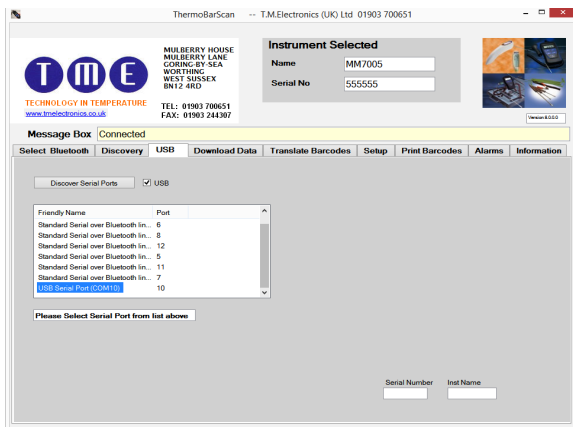
Setting Instrument Parameters

Using the 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 or T.

3. **Set Temperature Scale** - sets the temperature scale e.g °C / °F

5. **Set Print Header** - allows you to assign a heading for the print reports when using a Bluetooth Printer.

Other features include:

Autoswitch On - allows you to check if the autoswitch on/off function has been enabled.

Battery Power - allows you to monitor battery life.

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

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

All UPC/EAN/JAN Codes
EAN28 Codes
Code 39, Code 128
Interleave 25
PDF417
QR Code
Data Matrix
GS1-DataBarTM
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 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 a Barcode printer.

To Take a Reading

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

To take a reading, 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.

Scan the barcode, when read the instrument will bleep.

When the barcode has been read the temperature, barcode information, date and time will be logged to the internal memory. Up to 1,000 readings can be stored on the instrument.

Whilst in SCAN mode the instrument will show the total number of readings taken at the top of the instrument display. After scanning, the display will revert to showing the time and temperature.

If the scanner is unable to read a barcode, it will automatically time-out after 30 seconds.

To Cancel the Scanner

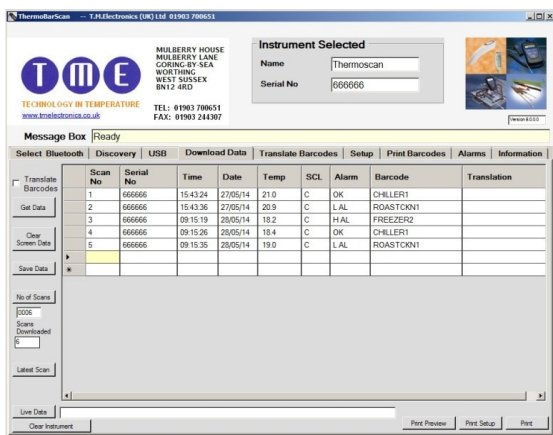To cancel the scanner, simply press the Scan button again.

To Retrieve the Information

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.

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 instruments data in real time (scan number, serial number, time, date, temperature, temperature scale, alarms and barcode.)

4. **Clear Instrument** - clears all data stored within the instruments 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 the software.
8. **Save Data** - saves your data as a 'CSV' file.

Saving your Data

To save your data, select the **Download Data** tab and download your data as before.

Select **Save File** button.

In the box that appears, select where you wish to save the data, type in a file name and click save.

Your data will be saved as a CSV (comma separated value) file which can be readily imported to a spreadsheet.

Retrieving Information - Translating Barcodes

Your 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.

To translate the barcodes select the **Translate Barcode** tab.

When complete this information may be saved to a file and reloaded for subsequent downloads.
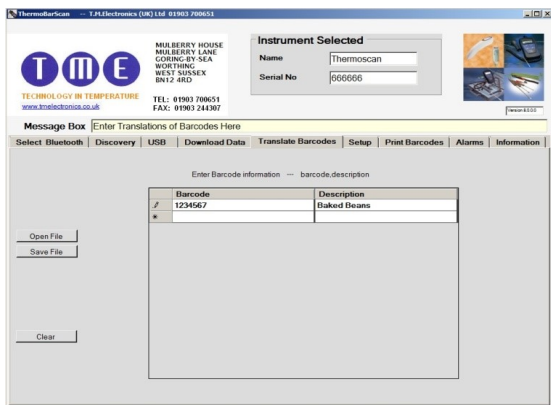
Once you have listed your information, press the **Open File** button to load the information to the software.

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 be replaced with the description you have provided.

Printing your Barcodes using a Barcode Printer

You are able to print barcodes directly from the software to the 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 **Discovery** button. You will find that the printer's address has been listed in the **Printer Address** field - highlight this and select the **Connect** button.
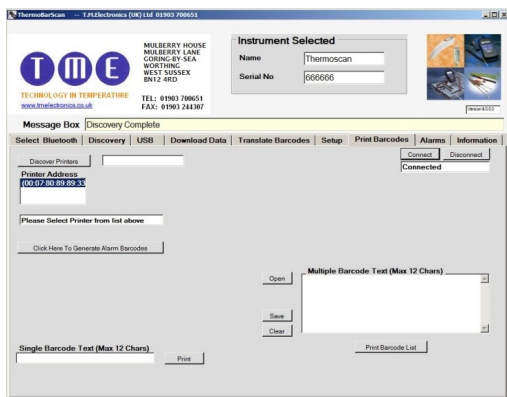
The printer is now connected and you will have the option of creating single or multiple barcodes.

Setting High and Low Alarms

Your instrument uses barcodes to identify a location or product for a temperature measurement: you can now assign alarm values to these barcodes. The instrument will then give a visual warning of Low or High alarms for a barcode.

When the instrument scans a barcode an alarm indication will be shown.

Alarms can be set to reflect critical temperature points. Each alarm barcode includes a unique alpha/numeric code which represents high and low alarm values. If these alarm values are exceeded a visual alarm will be shown on the thermometer display.

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 temperature is in the acceptable range.

If the equipment is used for monitoring Legionella temperature, a barcode can be used which give the critical temperature range at which Legionella bacterium multiplies. When the user scans the barcode, the display will give an indication of whether the temperature is safe (see the following information on generating your barcodes).

High and Low Alarms - Generating your Alarms in Software

You can generate your alarm parameters for existing product barcodes within your software.
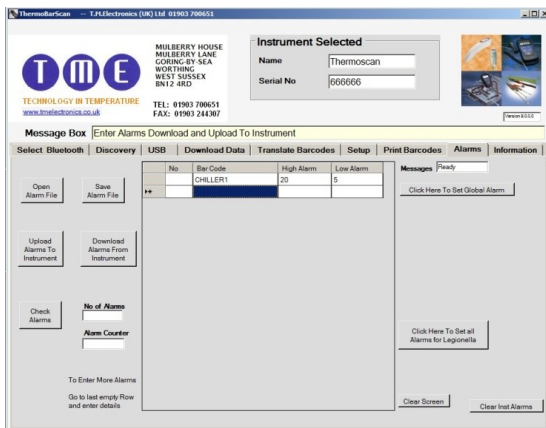
Firstly, discover and connect your instrument.

Select the Alarms tab and enter your 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.

Generating your Alarms in Software - Setting Global Alarms

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

Select **Click Here To Set Global Alarm**. This will display the Global Alarm field.

Enter the high alarm and low alarm field, and 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 software - for water temperature testing (Legionella)

Your Software includes a feature which will set your instrument to the alarm limits for legionella temperature testing as recommended by the Heath and Safety Executive. The legionella bacterium multiplies at temperatures between 20 C to 50 C.

To use this feature, select the **Click Here to Set Global Alarm**. Under the **High Alarm** field, enter the capital letter **'G'** and then **Upload Global Alarm to Instrument**.

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

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 and alarm data to your instrument.
4. **Download Alarms from Instrument** - downloads any pre-programmed barcodes and their alarms from your instrument.
5. **Check Alarms** - checks the alarms which have been listed for any errors.
6. **Download Global Alarm from Instrument** - downloads the global alarms which have been set to the instrument.
7. **Delete Global Alarm** - deletes the global alarm set to the instrument.

High and Low Alarms - Using Barcodes to set alarm limits

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 100C Low Alarm Limit will be entered as:

--H2500L1000

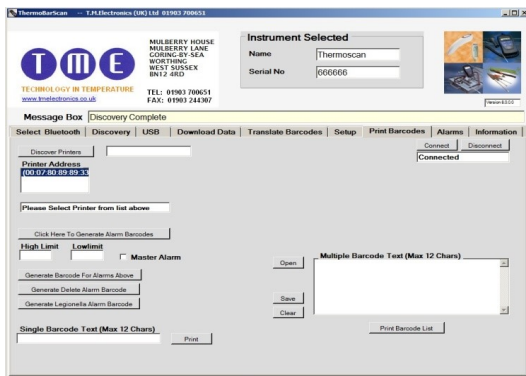5 C High Alarm Limit and 1.2 C Low Alarm limit will be entered as:

--H0050L0012

You can generate barcodes on your PC and print or use the Barcode Printer

High and Low Alarms - Printing Alarm Barcodes from your Bluetooth Printer

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

Discover your printer as previously (after selecting your system 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.

Manually Generating your Alarm Barcodes - Pre-set Alarm Codes

There is a pre-set alarm barcode for Legionella temperature monitoring. This is pre-set with the temperature limits of 20 C to 50 C - the temperature range at which legionella bacterium multiplies. This Barcode is:

--HLEG

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

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 the scan your alarm barcode. The device will then store this information and the barcodes will now be assigned to the chosen alarm values.

How to Use the New 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 of 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:

--D

Understanding Displayed Alarm Codes

The following codes will be displayed on your instrument -

'H AL' = High Alarm
'L AL' = Low Alarm
'FINE' = Within Alarm Limits
'LEG'   = Outside of safe Legionella temperature limits
'nOAL' = No Alarm assigned to 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

New Countdown Timer

The range now has a new built-in 1 & 2 minute timer function. This is to help the used to comply with the HSE ACoP L8 requirement that hot water run at a tap reached required temperature within one minute and cold water within two minutes. This feature is designed to ensure that the correct temperature is being taken when carrying out the hot and cold water temperature 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 prefixed with either '--1' for 1 minute timer or '--2' for two minute timer. For example:

For 1 minute timer (hot water) the barcode could be:

For 2 minute timer (cold water) the barcode could be:

To take your readings using the timer, first scan your barcode to active 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 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.

Accessories

A wide variety of thermocouple probes are available for use with this instrument.

Please view the RS PRO range of compatible probes.

Recalibration

It is recommended that the calibration of thermometers is performed annually. You may wish to consider our high accuracy thermocouple simulator for use as a calibration check on this or any other thermocouple instrument.

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https://www.rs-online.com

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