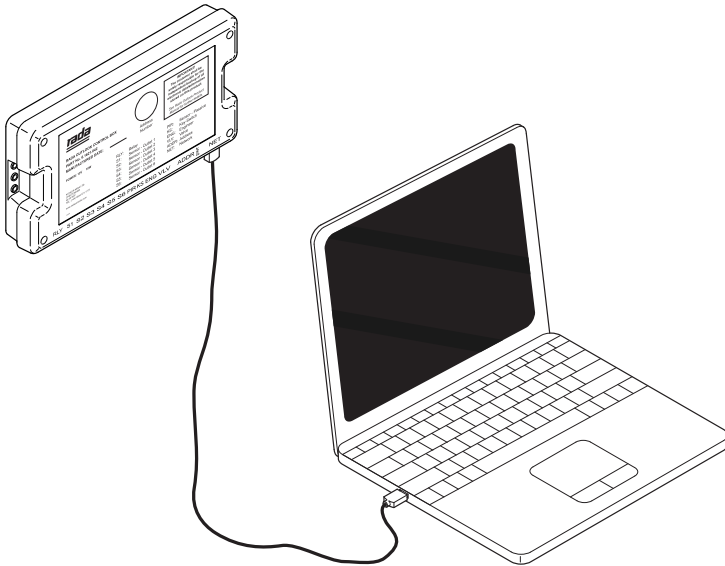




Rada Modbus Universal Configuration Tool and USB Cable



T-logic™ Digital Intelligence



Product Manual

IMPORTANT

Installer: These instructions are for use with the UK version of this product only. This Manual is the property of the customer and must be retained with the product for maintenance and operational purposes.

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DESCRIPTION

The USB contains software that is designed to run on a Laptop or PC with a Windows based operating system

The software communicates with the Sensor Box and allows the user to:

- Control Group Bathing:** Alter the temperature/time settings of water outlets controlled by a Mixer Valve.
- Perform Disinfection Cycle:** Disinfect the Mixer Valve, outlet pipework and fittings.
- Perform Duty Flush:** Periodically flush the Mixer Valve, outlet pipework and fittings to reduce the build up of bacteria.
- Data Logging:** Duty Flush and Disinfection data logs can be recorded to monitor the performance of the washroom.

System Requirements

The USB and Configuration Tool are designed to run on Microsoft Windows XP, Windows Vista Windows 7, Windows 8, Windows 8.1, or Windows 10 operating systems.

Data Storage

Kohler Mira Limited shall not accept liability in contract, tort (including negligence or otherwise) for any loss of profits, business or anticipated savings, or loss or corruption of data, or any indirect or consequential loss arising out of the customer's use of the Rada Product. The customer shall be solely responsible for the independent backup of all data/information stored on the Rada Product. Notwithstanding the foregoing, none of the exclusions and limitations stated above are intended to limit any rights the customer may have under local law or other statutory rights which may not be excluded.

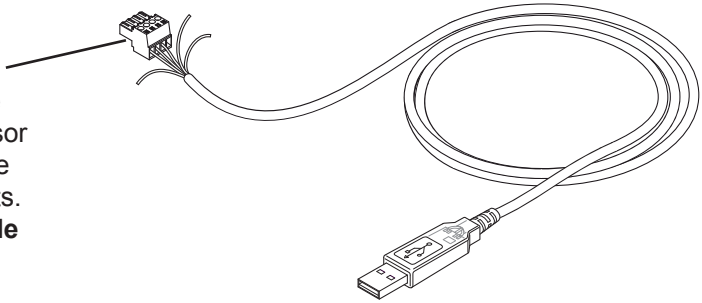
Legionella Control

Every precaution is taken to ensure this product leaves our manufacture and test facility free from microbiological contamination. However the presence of such microorganisms is universal and their control is dependent highly on the quality of on-site water management. The functions of "duty flush" and "thermal disinfection" present in the Rada Product are there to assist in controlling Legionella, but facility owners/managers are responsible for regular cleaning, disinfection and maintenance as required to remain within any applicable control limits. The "duty flush" and "thermal disinfection" functions of the Rada Product may not be enough to control Legionella in any specific location. Kohler Mira Limited only use WRAS approved materials in this product and Kohler Mira Limited take no responsibility for post installation contamination. After installation, suitable additional disinfection/sterilisation must be performed before use.

PACK CONTENTS

- ❑ 1 x RS485 - USB Cable

The cable needs to be connected to the Rada Network Sensor Box according to the system requirements. Refer to “**USB Cable Installation**” for further details.



- ❑ 1 x Installation USB Stick

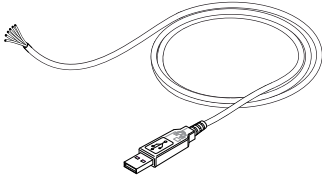


USB CABLE INSTALLATION

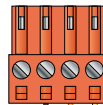
It is recommended that all connections should be made by someone familiar with electronic network installations.

Single Sensor Box

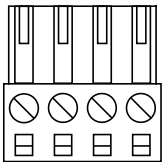
Connect RS485 - USB Cable to Network (NET) port of Sensor Box.



NET

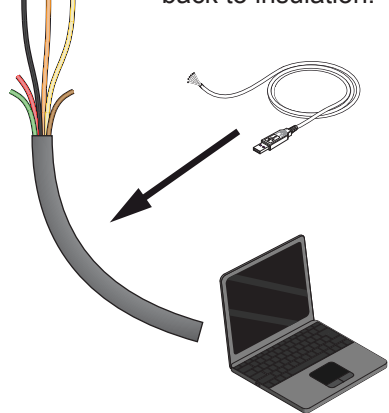


Crop excess wires back to insulation.



**Internal Power
(without termination)**

A (yellow)
B (orange)
0V (black)
N/C*



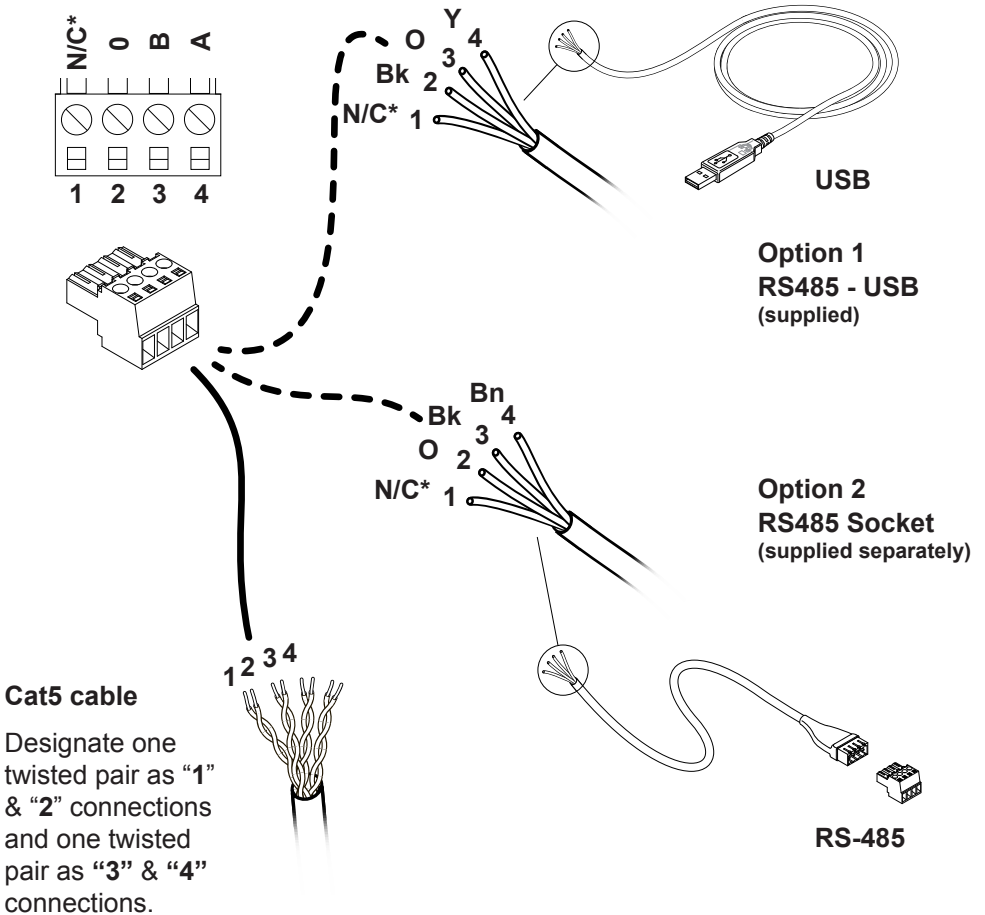
*N/C = Not Connected

Multiple Sensor Boxes

Multiple Sensor Boxes can be connected together, up to a maximum of 31, to form a network (see wiring diagram). The recommended network cable is **Cat5 twisted pair** (not supplied).

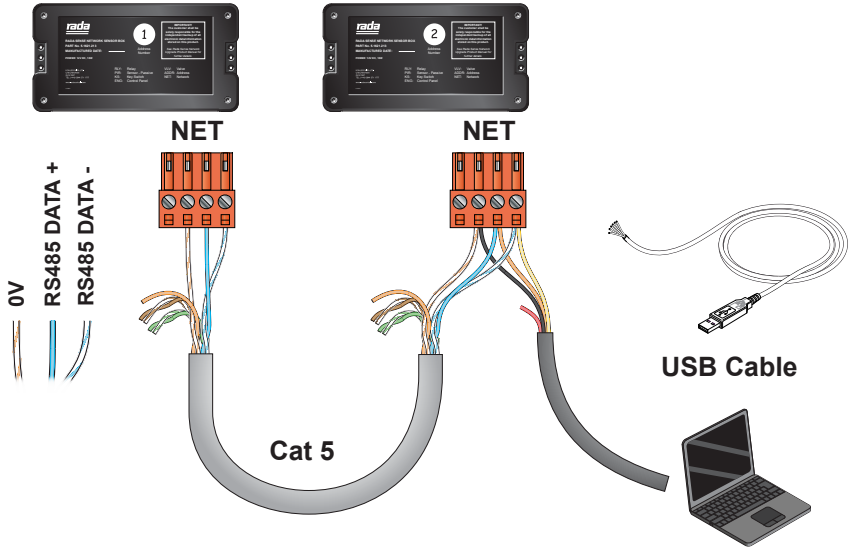
To connect the Sensor Boxes to a PC/Laptop device there are two options:

1. Connect both the RS485 - USB Cable and Cat5 cable to the Network (NET) port of one Sensor Box. Recommended for permanent connection.
2. Connect both the RS485 Socket and Cat5 cable to the Network (NET) port of one Sensor Box. Recommended for temporary connection.

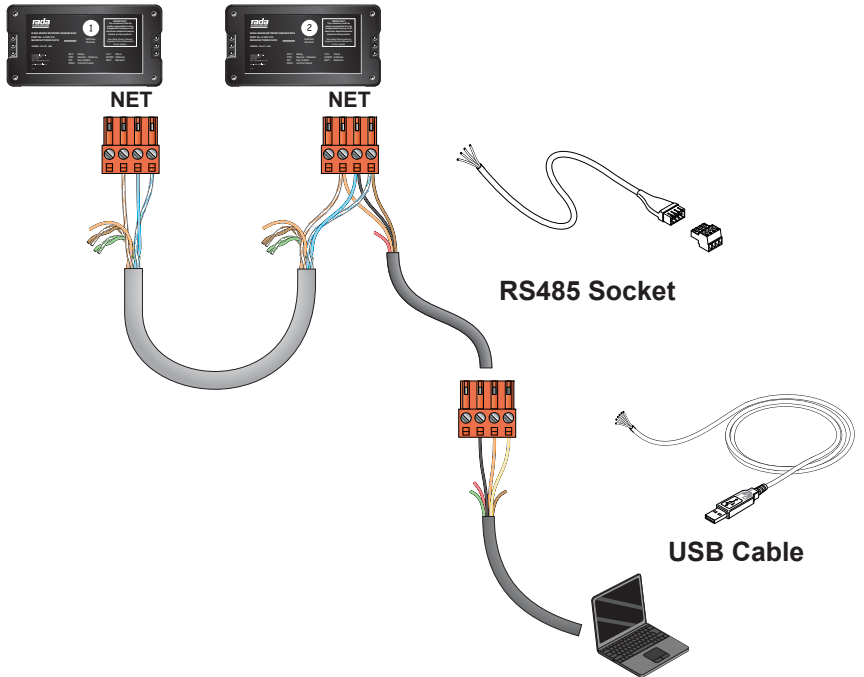


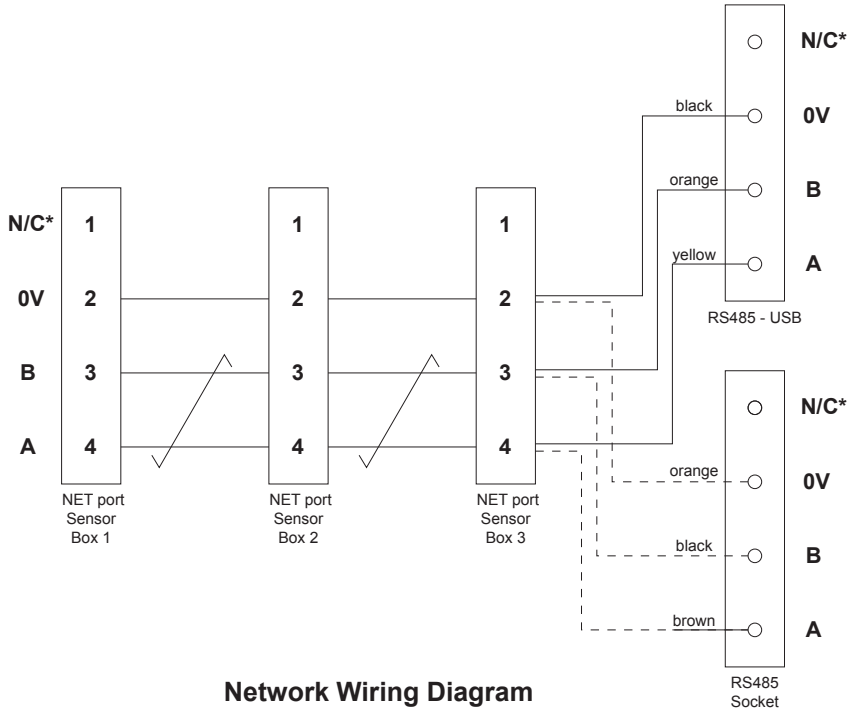
*N/C = Not Connected
1143308-W2-H

Option 1



Option 2





Network Wiring Diagram

*N/C = Not Connected

SOFTWARE INSTALLATION

1. Insert the USB storage stick into the USB port of your computer.
2. Find the USB drive location using Windows Explorer and run the following file:



setup.exe

3. For installation of the USB cable, refer to the corresponding instructions for your operating system under the folder:
<DRIVE LETTER>:\Additional Software\USB Drivers.

CONFIGURATION TOOL

Site Details

Rada Modbus Universal Configuration Tool (en-GB)

08 April 2014 14:03:09

File Help

Site Details Locate Valves Valve Setup Outlet Setup Dutyflush Setup Dutyflush Log Disinfection Setup Disinfection Select Valve

Site Name

Address 1

Address 2

Address 3

Post Code

Site Manager

Telephone No.

E-mail

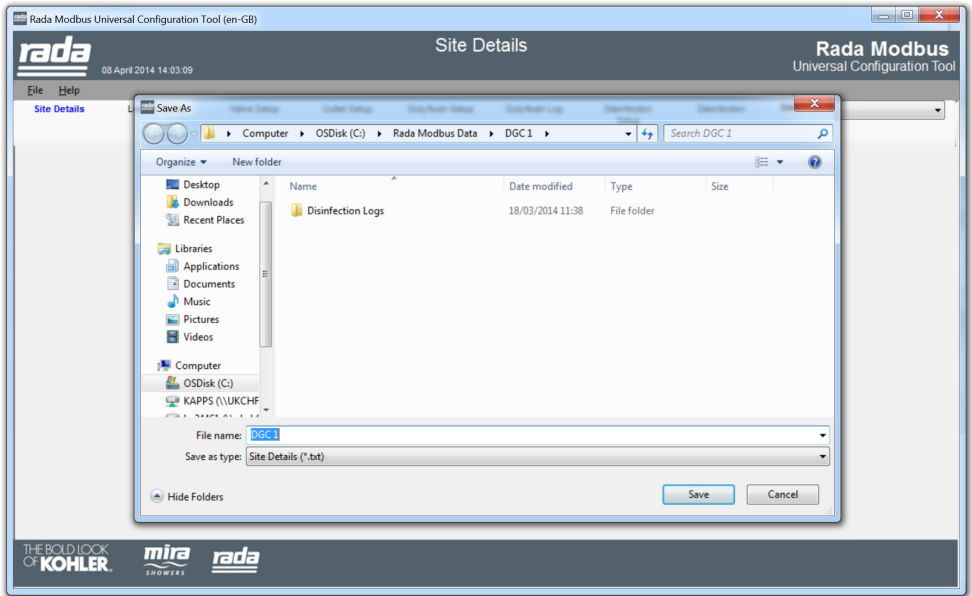
*Mandatory Field

THE BOLD LOOK OF KOHLER. mira SHOWERS rada

Check the Sensor Box is connected to both the Mixer Valve and the PC/Laptop device. Double click the “**Rada Modbus Universal Configuration Tool**” icon on the desktop or search for and run the file “**Rada Modbus.exe**”.

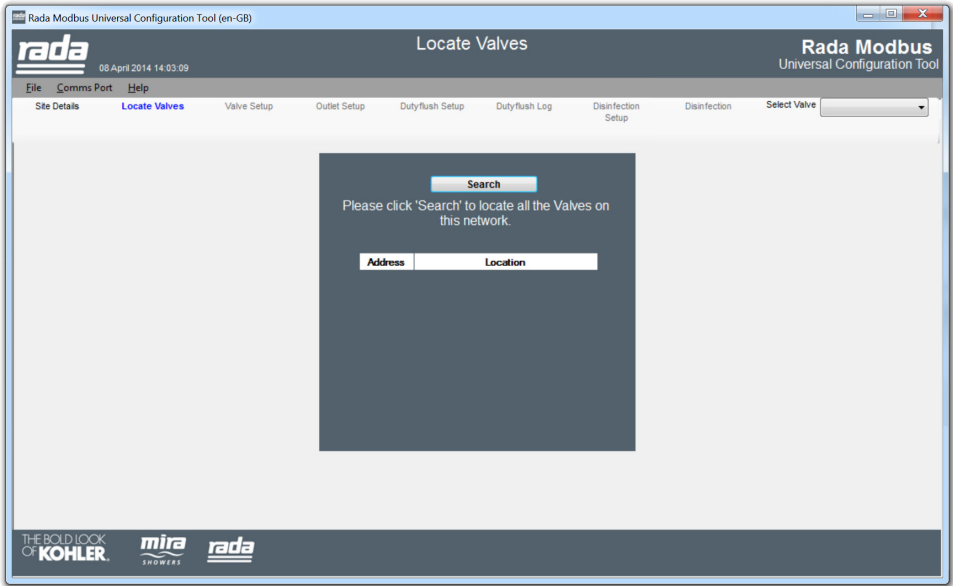


Enter the site details in the above screen and save using “**File**”, “**Save**”. A folder with the “**Site Name**” will be created automatically.



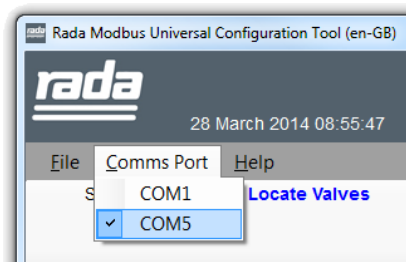
Enter the name of the file to be saved and press **“Save”**. A new text file will be created and used automatically each time the Configuration Tool is started.

Locate Valves



The “**Locate Valves**” screen is where all connected Sensor Boxes are identified and their current settings are read into the Configuration Tool.

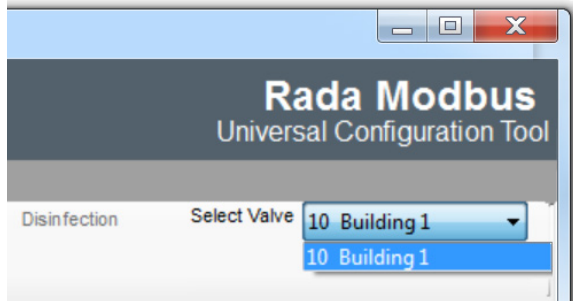
Select the Com Port where the RS485 - USB Cable is connected.



Press “**Search**” to find all connected Sensor Boxes.

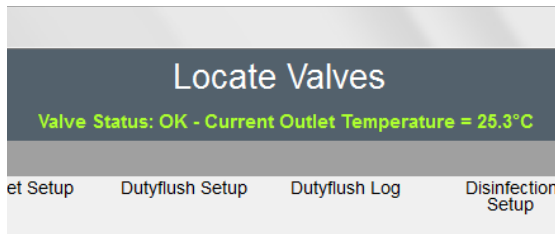
All devices found are listed with their network address and location. (When connecting to a device for the first time there will be no location assigned.)

Select Valve



Change the selected Sensor Box and Mixer Valve from any of the main screens by using the drop down menu in the top right corner.

Valve Status



The “**Valve Status**” is displayed under the title of the screen. Error messages will appear in red. The current outlet temperature is also displayed.

Valve Setup



The Setpoint is the outlet temperature of the Mixer Valve to all six outlets. Input the desired “**Setpoint**” temperature and press “**Write**”.

The “**Location**” is a name you give to the Sensor Box to identify it (usually the location of the device). Input a location name (up to 16 characters) and press “**Location**”.

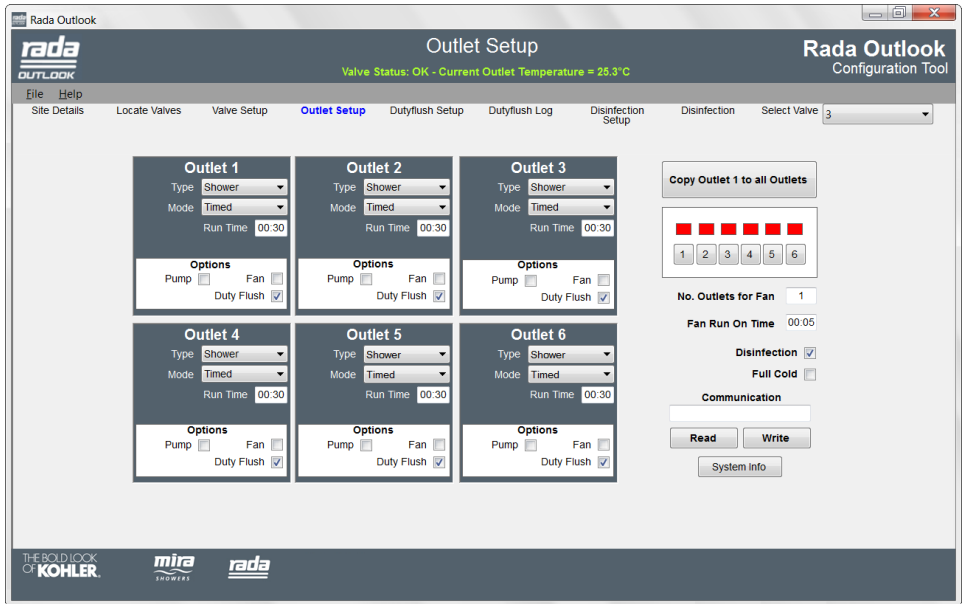
The “**Set Calibration No.**” is used only if the Mixer Valve is required to be calibrated. This is necessary if the internal Mixer Valve Assembly or the Mixer Valve Control PCB are replaced. For further details see “**Maintenance - Valve Calibration**”.

Activate any of the outlets to turn the Mixer Valve back on.

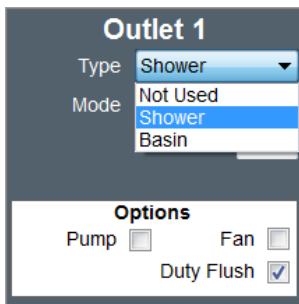
The current settings can be retrieved from the valve by pressing “**Read**”.

The number of valve operations, valve “on-time” and time since last use are displayed in the Usage Statistics field.

Outlet Setup

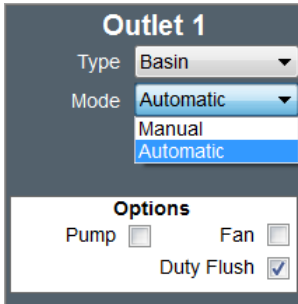


This screen shows how each of the six outlets are configured to operate. Alter the various settings for each individual outlet.



Select the outlet usage “Type”.

Outlet Setup - Basin



Outlet 1

Type: Basin

Mode: Automatic

Options

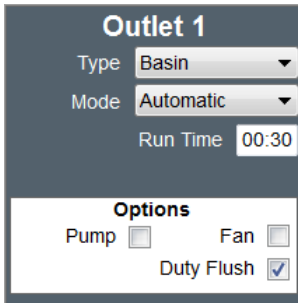
Pump Fan

Duty Flush

Select the **“Mode”**.

“Manual” - The outlet can be turned on or off with the sensor. The outlet stops automatically after the **“Run Time”** duration.

“Automatic” - The outlet runs continuously if the sensor is active continuously (i.e. hand held over the sensor). Once the sensor is uncovered, the outlet stops after the **“Run Time”** duration.



Outlet 1

Type: Basin

Mode: Automatic

Run Time: 00:30

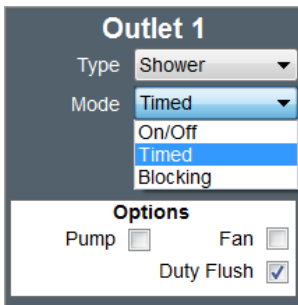
Options

Pump Fan

Duty Flush

Set the required **“Run Time”** (mins:secs).

Outlet Setup - Shower



Outlet 1

Type: Shower

Mode: Timed

Options

Pump Fan

Duty Flush

Select the **“Mode”**.

“On/Off” - The outlet can be turned on or off with the sensor. The outlet stops automatically after the **“Run Time”** duration.

Outlet 1

Type

Mode

Run Time

Options

Pump Fan

Duty Flush

“Timed” - The outlet is turned on with the sensor and stops automatically after the **“Run Time”** duration.

Outlet 1

Type

Mode

Run Time

Blocking Time

Options

Pump Fan

Duty Flush

“Blocking” - The outlet will function the same as **“Timed”** mode but cannot be restarted during the **“Blocking Time”** period.

If the **“Mode”** is set to **“Blocking”**, set the required **“Run Time”** and **“Blocking Time”** (mins:secs).

Outlet Setup - Options

Outlet 1

Type

Mode

Run Time

Options

Pump Fan

Duty Flush

Tick the boxes for the required options as follows:

“Pump” - If a pump is available and required when this outlet is turned on.

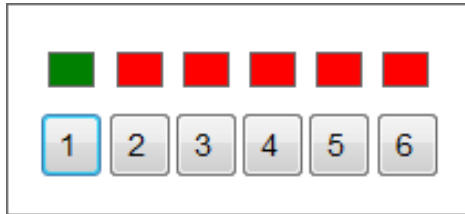
“Fan” - If a fan is available and required when this outlet is turned on. (See also **“No. of outlets for Fan”** and **“Fan Run On Time”**.)

“Duty Flush” - To include the outlet when a Duty Flush Cycle is performed.

Extra Outlet Options

“Copy Outlet 1 to all outlets” - Press to make the settings on all outlets the same as Outlet 1.

Press the required outlet number(s) to test the designation and flow. The boxes turn green when the outlets are switched on. The outlets turn off automatically after 5 seconds.



“No. Outlets for Fan” - Enter a number from 1 - 6 to control the number of outlets required to be active simultaneously for the fan to be switched on.

“Fan Run On Time” - The length of time the fan operates after all outlets are switched off. (Up to a maximum of 59 mins 59 secs.)

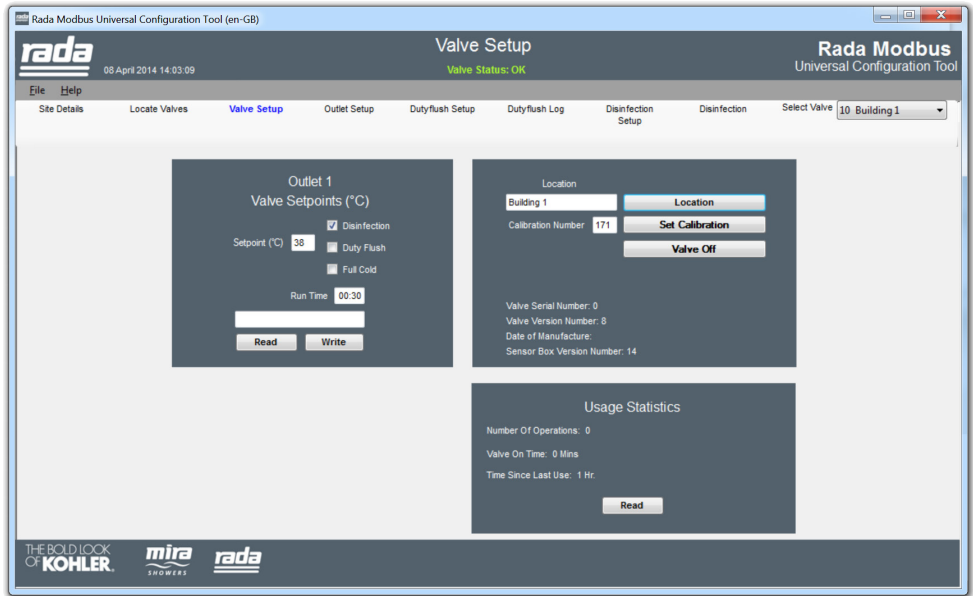
“Disinfection” - Enables a **Disinfection Cycle** to be performed on all outlets.

“Full Cold” - Alters the Mixer Valve to deliver full cold water immediately.

When all alterations are made, press **“Write”** to transfer the settings to the Sensor Box and Mixer Valve.

“System Info” - Creates a file with the current Sensor Box settings. A diagnostic tool for use by Service Engineers.

Rada Sense Valve Setup



The Setpoint is the outlet temperature of the Mixer Valve to all six outlets. Input the desired “**Setpoint**” temperature and press “**Write**”.

Tick the “**Disinfection**” box to enable the Thermal Disinfection feature (see “**Disinfection & Disinfection Setup**”).

Tick the “**Duty Flush**” box to enable the Duty Flush feature (see “**Duty Flush Setup**”).

Tick “**Full Cold**” box to enable the Mixer Valve to deliver only cold water to the outlet.

Input the “**Run Time**” in mm:ss. The outlet is turned on with the Control Panel and stops automatically after the “**Run Time**” duration.

Press “**Write**” to send the settings to the Network Sensor Box.

The current settings can be retrieved from the valve by pressing “**Read**”.

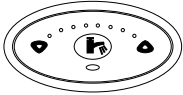
The “**Location**” is a name you give to the Sensor Box to identify it (usually the location of the device). Input a location name (up to 16 characters) and press “**Location**”.

The “**Set Calibration No.**” is used only if the Mixer Valve is required to be calibrated.

This is necessary if the internal Mixer Valve Assembly or the Mixer Valve Control PCB are replaced. For further details see “**Maintenance - Valve Calibration**”.

Press “**Valve Off**” to turn the Mixer Valve OFF and enable the **Calibration No.** to be changed.

Activate one of the outlets with the Control Panel to turn the Mixer Valve back ON.



Control Panel

Press “**Read**” under “**Usage Statistics**” to show the following information:

“**Number Of Operations**”

The number of times the Mixer Valve has been commanded to flow water from any of the available outlets. The counter starts when the Mixer Valve is factory tested.

“**Valve On Time**”

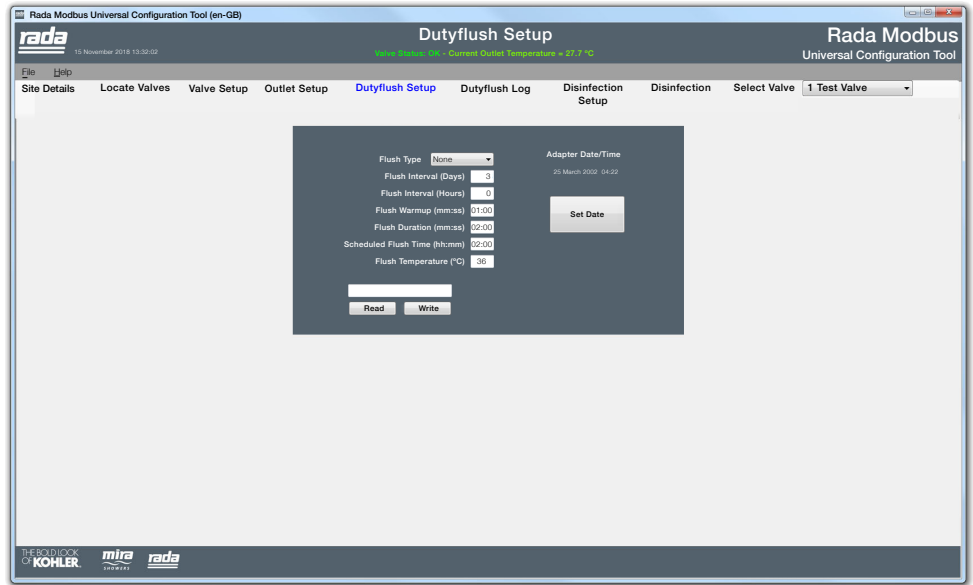
The total amount of time the outlets have been activated. The timer starts when the Mixer Valve is commanded to flow water from any of the available outlets. The timer stops when the Mixer Valve is commanded to stop the water flow.

“**Time Since Last Use**”

The amount of time the outlets have been inactive. The timer resets and restarts each time the Mixer Valve is commanded to stop the water flow or the power is cycled off/on.

It is recommended that these values are noted after commissioning is complete.

Duty Flush Setup



The Duty Flush Cycle settings for all outlets are controlled here. A Duty Flush Cycle will be performed on all outlets that have their “**Duty Flush**” option checked. See “**Valve Setup**”.

“Flush Type”:

- “**None**” - Duty Flush disabled for all outlets.
- “**Standard**” - Duty Flush Cycle activates according to the settings.
- “**Smart**” - Duty Flush Cycle activates according to the settings and the period of inactivity. The system detects if an outlet is used within the “**Flush Interval**” and suspends the flush cycle automatically until the “**Flush Interval**” has expired. This conserves the water when it is not needed.

“**Flush Interval (Days)**” - Use if the time between flush cycles is greater than 23 hours. Input value between 1 - 983 days. Set “**Flush Interval (Hrs)**” to zero when using this option.

“**Flush Interval (Hrs)**” - Use if the time between flush cycles is less than 24 hours. Input value between 1 - 23 hours. Set “**Flush Interval (Days)**” to zero when using this option.

“**Flush Warmup**” - Time allowed for water to reach “**Flush Temperature**” (mins:secs).

“Flush Duration” - Length of time to flush the Mixer Valve, outlet pipework and fittings (mins:secs).

“Scheduled Flush Time” - The time of day set to perform the Duty Flush Cycle (24 hour clock).

“Flush Temperature” - The temperature of the water during the Duty Flush Cycle (° C). The temperature range is 30° C - 45° C.

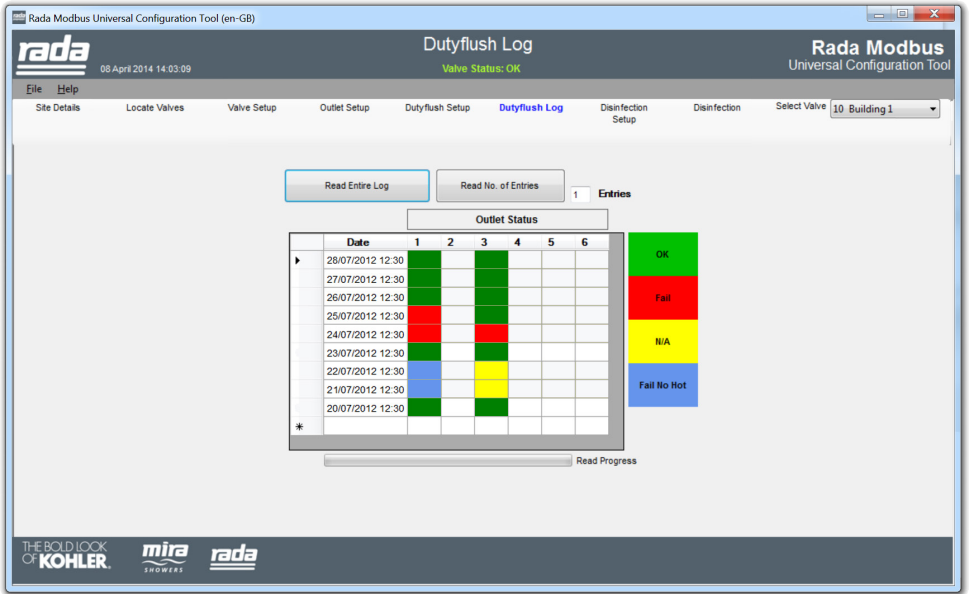
When all alterations are made, press **“Write”** to transfer the settings to the Sensor Box and Mixer Valve.

“Set Date” - Sets the Sensor Box’s date and time to the current PC/Laptop date and time.

Default Values:

Flush Type	Standard/None
Flush Interval (Days)	3
Flush Interval (Hours).....	0
Flush Warmup (mm:ss)	01:00
Flush Duration (mm:ss)	02:00
Scheduled Flush Time (hh:mm).....	02:00
Flush Temperature.....	36° C - 38° C

Duty Flush Log



The Duty Flush Log records the results every time a Duty Flush Cycle is performed.

Enter the number of data entries you wish to see and press **“Read No. of Entries”** or press **“Read Entire Log”**. The table consists of the following:

“Date” - The date and time of the cycle.

“Outlet Status” - If the cycle was successfully performed on each of the six outlets.

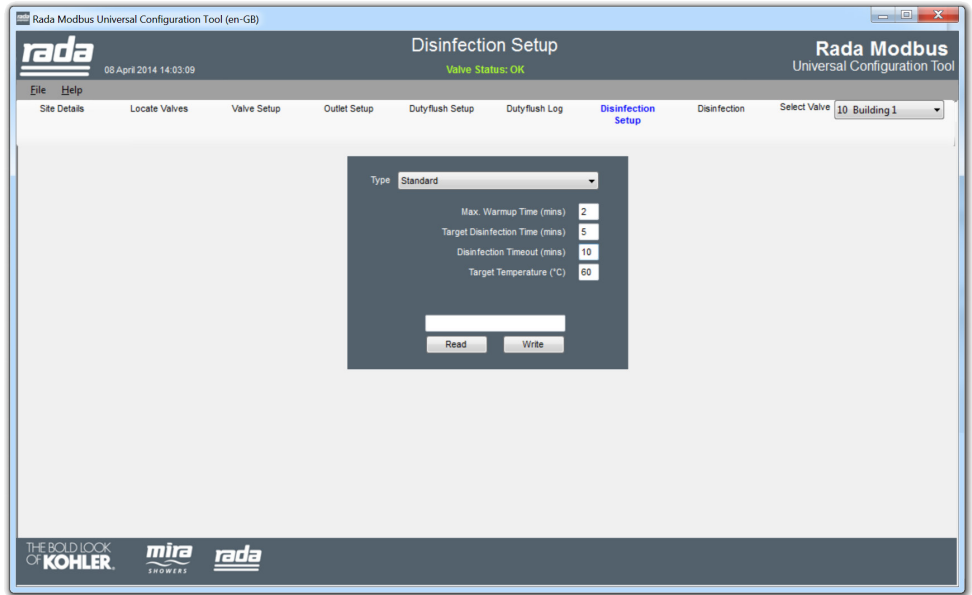
OK Duty Flush successful.

Fail Duty Flush failed or interrupted.

N/A Duty Flush not required. Usually seen when the Duty Flush Setup is set to **“Smart”** mode. The outlet was used within the **“Flush Interval”**, so that particular duty flush cycle was not necessary and the water was conserved automatically.

Fail No Hot Duty Flush failed to reach the required temperature.

Disinfection & Disinfection Setup



The Thermal Disinfection function can only work with at least one Passive Infrared Sensor (Proximity sensor) installed and linked to the Sensor Box.

IMPORTANT! PLEASE READ CAREFULLY

Thermal disinfection mode is a potentially hazardous process!



Warning! The Thermal Disinfection mode is not an automated process when used with the “**Rada Modbus Universal Configuration Tool**” software. It is activated by the supervisor manually and will raise the water temperature to exceed the safe level for bathing and will scald or even kill. It is therefore the responsibility of the supervisor to make sure the process is carried out correctly and safely.

Rada Outlook can be connected to a BMS (Building Management System) or web server allowing Thermal Disinfection to become a completely automated process. It is still the responsibility of the site owner / site operator to make sure the system has adequate safe guards to prevent any potential injury during the process.

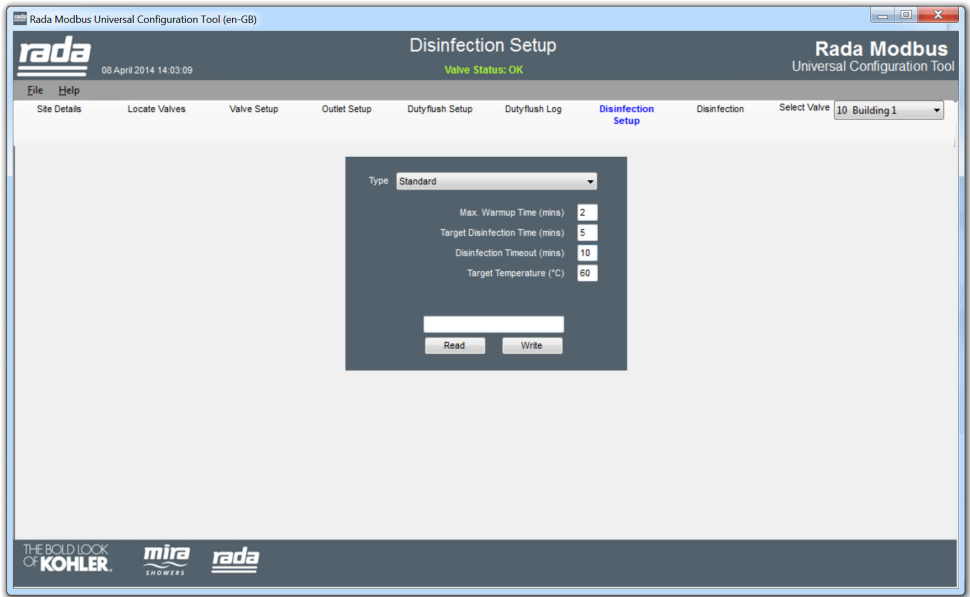
The following safety measures must be observed:

- **The disinfection process is not to be initiated unless adequate systems are in place to ensure that the area is clear of any persons prior to and during the disinfection process.** For this reason, the cycle can only be triggered **15 minutes** after the Mixer Valve was last activated.
- A Proximity sensor connected to the Sensor Box must be used to detect the presence of any person in the affected area. Make sure it is fit for purpose according to the expected humidity levels during the Thermal Disinfection cycle. This will depend upon the size of washroom, the Proximity sensor position and the number of outlets used.
- The Proximity sensor system should be checked to ensure that the appropriate area is covered adequately and that the disinfection process can be aborted successfully.
- The operation of the Proximity sensor should be checked regularly and just before each disinfection cycle.

Please consult the national or local authority Legionella Legislation or Guidelines as appropriate for your country/area to see how the Thermal Disinfection process can be used to meet the required level of hygiene.

The disinfection cycle and its settings are controlled in the “**Disinfection**” and “**Disinfection Setup**” screens. Disinfection is enabled or disabled in the “**Outlet Setup**” screen.

Disinfection Settings



Description of disinfection modes.

“Standard” - Flushes full hot water during the warmup duration period until the disinfection setpoint is achieved. Then flushes for the target disinfection time duration.

“Exponential” - Flushes full hot water during the warmup duration period until the disinfection setpoint is achieved. Then flushes for the target disinfection time duration but this duration time will decrease the higher the temperature of hot water that can be achieved (up to the maximum/'upper' disinfection temperature).

“Cold Options” - Both standard and exponential modes are available as 'Cold Supply' options whereby the cold inlet pipework can be thermally disinfected - See 'Disinfection of Cold Supply' section.

“Eco Modes (Outlook Only)” - All standard/exponential modes (both regular and Cold Supply variants) are available as 'Eco' modes.

Note! “Eco Modes” - 30 seconds after the **“Target Temperature (C)”** is reached, the water switches to a repeating 10 second flow from each outlet to reduce the amount of hot water used during the disinfection cycle. The **“Disinfection Log”** starts recording the results 2 minutes after the water switches to the 10 second flow. This is to allow the water temperature to stabilize before the **“Disinfection Log”** starts recording.

Adjust these settings according to the national or local authority Legionella Legislation or Guidelines as appropriate for your country/area.

“Max. Warmup Time (mins)” - The maximum time allowed for the disinfection temperature to be reached. If the temperature is not reached within this period, then the disinfection will be cancelled. (If unsure, leave as default.)

“Target Disinfection Time (mins)” - The minimum duration of the cycle.

“Disinfection Timeout (mins)” - The maximum duration of the cycle. If cycle is not completed within this period, then the disinfection will be cancelled. (If unsure, leave as default.)

“Target Temperature (C)” - The minimum temperature required to perform a successful disinfection cycle.

“Upper Temperature (C)” - If the water temperature is between the **“Target Temperature”** and the **“Upper Temperature”**, the disinfection time is progressively reduced. The reduction is computed continuously and has the effect of halving the time for each 5° C increase above the **“Target Temperature”**. Should the temperature rise above the **“Upper Temperature”** then no further time reduction accrues.

Exposure to temperatures over 80° C can limit the life of the Rada Outlook product.

When all alterations are made, press **“Write”** to transfer the settings to the Control Box and Mixer Valve.

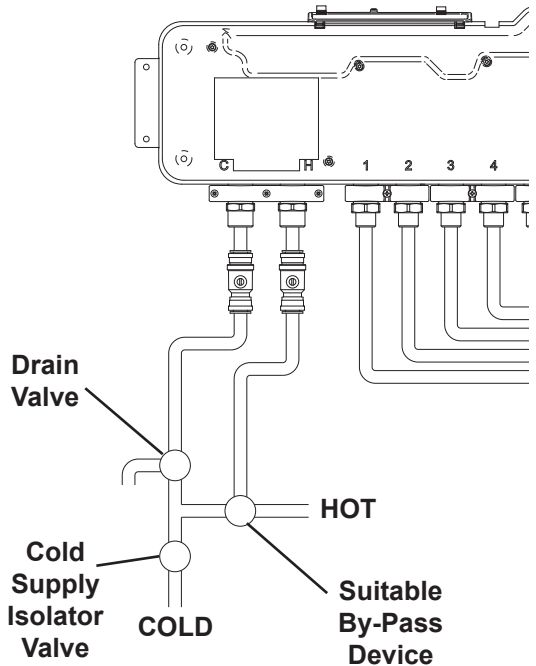
Disinfection Settings Table :

Outlook		Sense	
Standard	Exponential	Standard	Exponential
Max Warmup (min) 02:00	Max Warmup (min) 02:00	Max Warmup (min) 02:00	Max Warmup (min) 02:00
Target Disinfection time (min) 05:00	Target Disinfection time (min) 19:00	Target Disinfection time (min) 05:00	Target Disinfection time (min) 20:00
Disinfection Timeout (min) 10:00	Disinfection Timeout (min) 25:00	Disinfection Timeout (min) 10:00	Disinfection Timeout (min) 25:00
Target Temperature 60 degrees	Target Temperature 60 degrees	Target Temperature 60 degrees	Target Temperature 60 degrees
Upper Temperature N/A	Upper Temperature 70 degrees	Upper Temperature N/A	Upper Temperature 70 degrees

Disinfection of Cold Supply

The Rada Product is able to disinfect the cold supply pipes as well as the digital mixing valve and each of the outlets. In order for this to happen, the cold supply must have a suitable by-pass device to allow a feed from the hot supply (to disinfect the entire cold water supply of a building, the by-pass should be located close to the water meter or the stand pipe). The by-pass diverts the hot water flow through the cold supply pipe temporarily for the disinfection cycle. Once this by-pass is active, the Rada Product can be set to automatically disinfect through the cold supply.

The thermal disinfection of cold supply pipes is dependent upon local or national legislation and may not be required in every installation. The cold supply disinfection is generally required when the system is either used for the first time or has not been in use for a prolonged period (to make sure that the cold supply pipes are free from high levels of bacteria).



1. Close cold supply isolator valve.
2. Turn by-pass valve to allow hot water to flow into cold pipework.
3. Operate Cold Supply Disinfection routine.
4. Turn by-pass valve to stop water entering cold pipework.
5. Open drain valve and remove residual hot water from cold pipework to valve.
6. Close drain valve and re-open cold supply isolator valve.
7. Allow up to 1 hr for Outlook valve brass material to cool.
8. Operate as normal.

WARNING!

- As with any type of thermal disinfection process, the feature is not to be used unless adequate systems are in place to ensure that the area is clear of any persons prior to and during the disinfection process. This includes any exposed or uninsulated pipework that will reach an unsafe temperature.

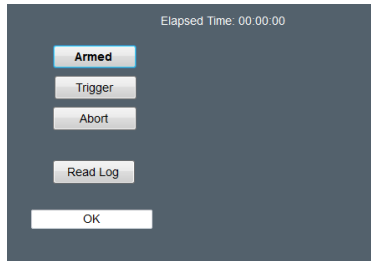
- Set the Disinfection Type to “**Standard Cold Inlet Supply**” or “**Exponential Cold Inlet Supply**” depending upon the requirements for the site conditions and perform the disinfection cycle according to the instructions in this guide.
- Reset the by-pass to normal position after the disinfection cycle has finished to restore the cold water supply.

Disinfection cycle



Warning! Thermal disinfection mode is a potentially hazardous process! Make sure all safety measures in this guide have been adhered to before activating the Thermal Disinfection process.

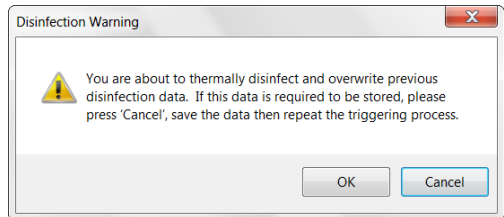
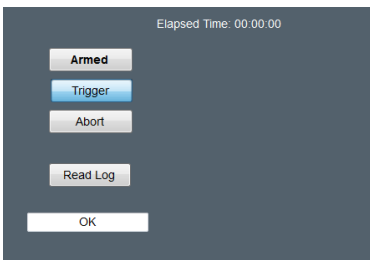
A disinfection cycle can only be initiated when the Mixer Valve is switched off using the “**Valve Off**” button in the “**Valve Setup**” screen.



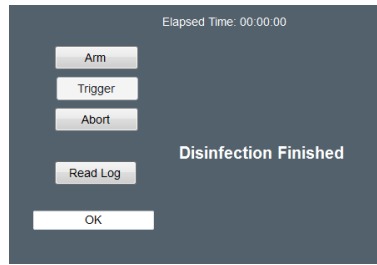
Press “**Arm**” to enable the disinfection feature.

Arming the disinfection cycle is confirmed when the box states “**Armed**”.

Press “**Trigger**” within 10 seconds of arming to activate the disinfection cycle.

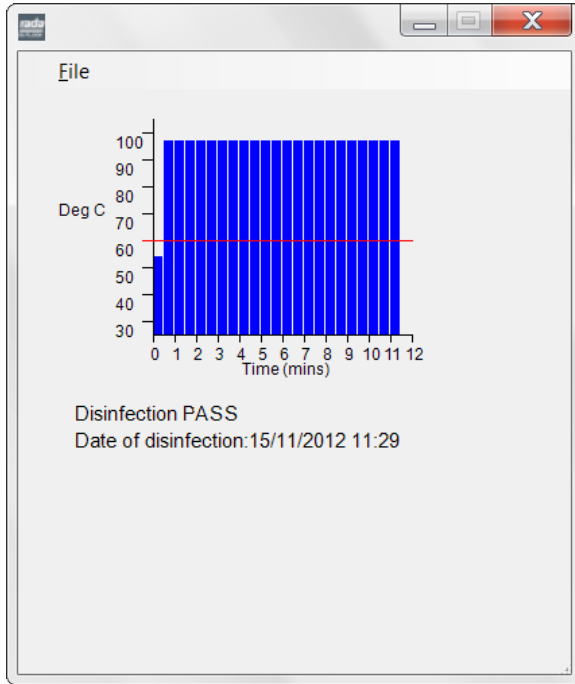


Confirm the trigger by pressing “**OK**”.

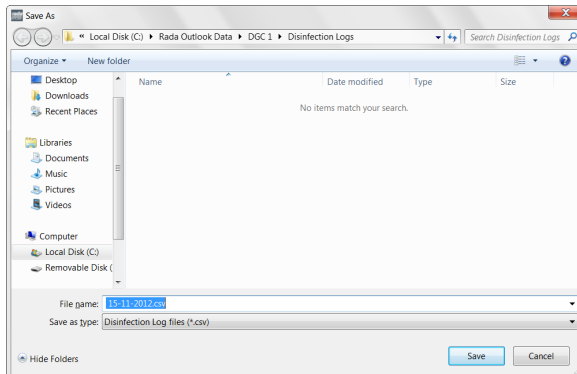


Water flow starts when the countdown reaches “0”.

Press “**Abort**” to stop the cycle.



If the log has indicated a failed disinfection cycle, check the hot water supply for sufficient temperature and flow rate and recommence the disinfection cycle.

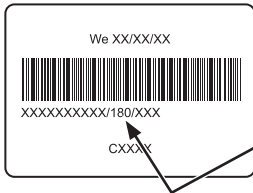
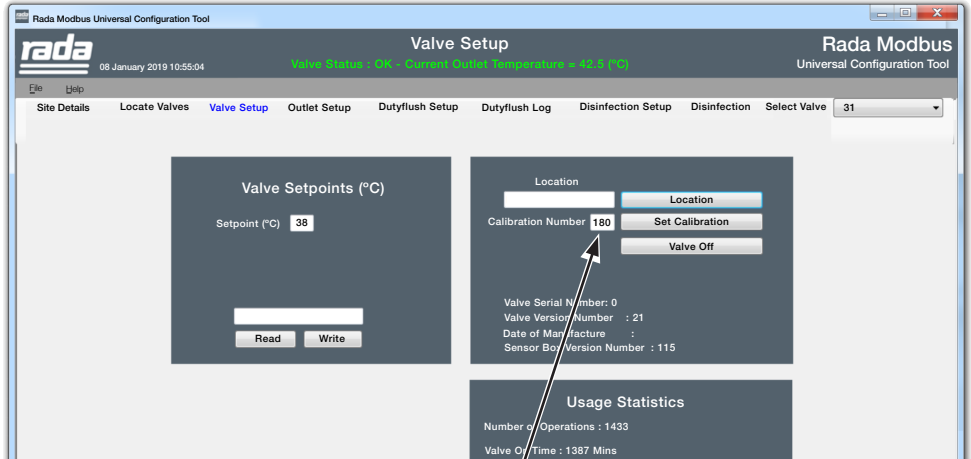


The log can be saved by using **“File”, “Save”**. A folder called **“Disinfection Logs”** is created automatically within the **“Site Name”** folder (see **“Site Details”**). Accept the default file name of the date the log was created, or rename if required and press **“Save”**.

MAINTENANCE

Valve Calibration

The valve calibration number **must** be set if the internal Mixer Valve Assembly or the Mixer Valve Control PCB are replaced. The calibration number is required and can be found on the Mixer Valve body.



Calibration No.

Press “**Valve Off**” to turn off the Mixer Valve and enable the **Calibration No.** to be changed.

Enter the calibration number and press “**Set Calibration No.**”.

Activate any of the outlets to turn the Mixer Valve back on.

GUARANTEE

Guarantee

Rada Modbus Universal Configuration Tool and RS485 - USB Cable

We guarantee these products against any defect in materials or workmanship for the period of **one year** from the date of purchase. For terms and conditions refer to the back cover of this guide.

NOTES

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CUSTOMER SERVICE

Your product has the benefit of our manufacturer's guarantee which commences from date of purchase or from the date of commissioning when product commissioning has been conducted within the UK by the Rada Commercial Field Service Team.

Outside of the UK please contact your local agent for all guarantee terms and conditions or visit www.radacontrols.com for further information.

For UK (only) Customer Service & Post Installation enquiries, including details of the Rada Commissioning, Responsive and Maintenance Contract Service Packages please contact:



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