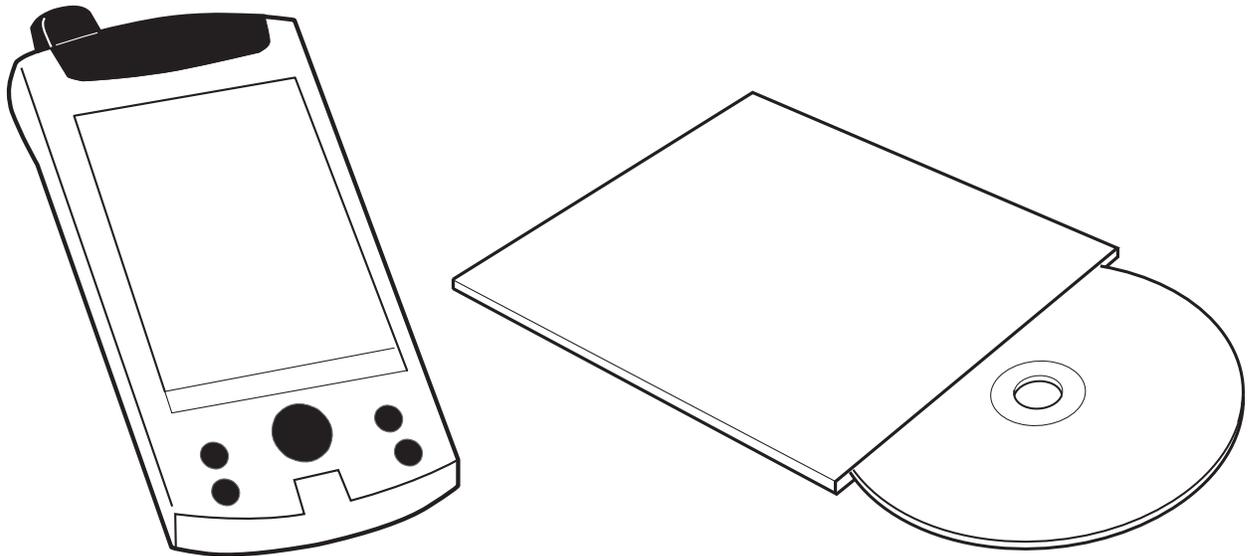




BrainWave™ Electronic Mixing Valve



Programmer Software Guide



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DESCRIPTION

The CD contains software that is designed to run on a Pocket PC PDA.

The software communicates with the mixing valve and allows the user to:

Access Levels

Password Administration: Add new users and change passwords.

Entry Level: Set outlet temperatures, flow times and do thermal disinfection.

Engineering Level: Enable service flush and disinfection, view valve information, set commissioning and service data.

System Requirements

The installation CD is designed to run on Microsoft Windows 98/NT/2000/XP operating systems. The programmer software is designed to run on Microsoft Pocket PC 2002 and Microsoft Mobile Windows for Pocket PC 2003.

INSTALLATION

Please make sure that you have installed Microsoft ActiveSync on to your PC (supplied with your PDA). With your PDA connected to your computer follow the instructions below.

Insert the CD-ROM. The CD should start automatically. If the CD does not start automatically then please use the support instructions on the CD wallet.

Select the install programmer software button from the menu and follow the installation menus. If you are prompted to install "Microsoft.Net Compact Framework", choose "Yes".

The software will automatically download to your PDA. To check if the installation was successful, go to the start menu on the PDA and look for the control panel icon called "Rada Sense".

If you cannot find the link in the start menu go into Programs and double click on the Rada Sense icon.

You are now ready to set up passwords and add new users, please go to the next section.

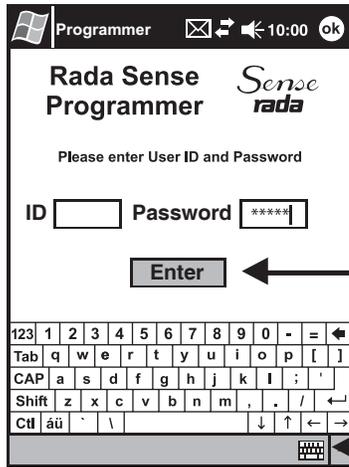
If you wish to install the software on more than one PDA, when you have completed the first installation attach each PDA to your PC and open Microsoft ActiveSync. Select Tools, Add/Remove Programmes, select Kohler Mira Ltd Rada Sense by ticking the box, then click OK.

PASSWORD ADMINISTRATION

Setting up Users and Passwords for a New Installation

A new software installation will have no User IDs and default Passwords.

To gain access to the programmer functions at least one User ID must be entered. It is recommended to change the Passwords from the default values.



Leave the ID box blank and enter 99999 in the Password box.

① Click on "Enter".

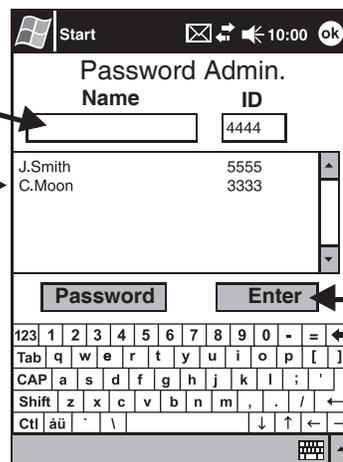
Click here to make the keyboard appear.

Adding a New User

Note! Each user must have a unique ID.

① Enter Name (maximum of 15 characters) and ID (a 4 digit number).

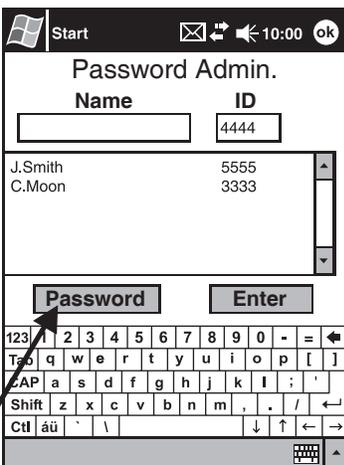
List of valid users and IDs.



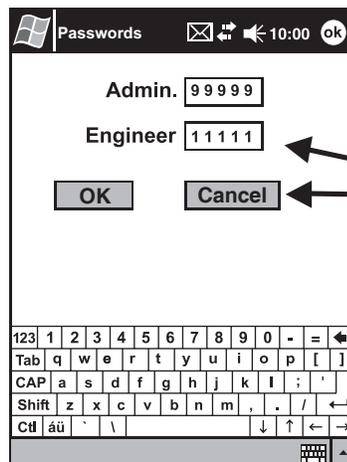
② Tap "Enter".

Adding a Password

Note! Password contains up to 5 alphanumeric characters.



③ Tap on "Password".



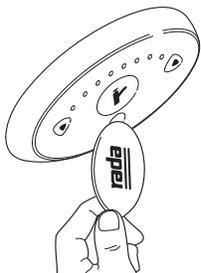
④ Default passwords shown.

Enter new Passwords in boxes, then tap "OK".

ENTRY LEVEL

Login and Read Valve Data

Disable User Interface

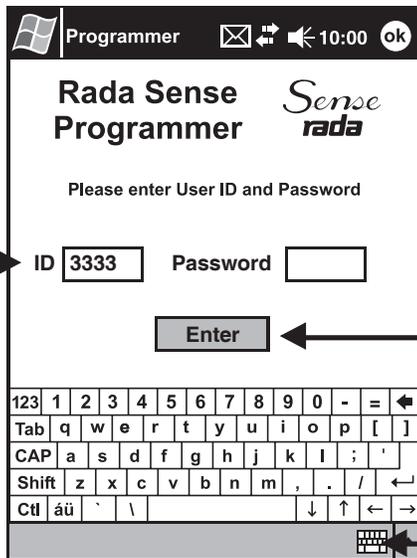


Disable the Control Panel with the magnetic key (Control panel is disabled when it is not illuminated).

Login

Login Screen

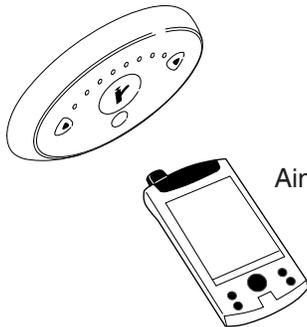
① Enter ID but leave Password box blank.



② Tap on "Enter".

Click here to make the keyboard appear.

Read Valve Data

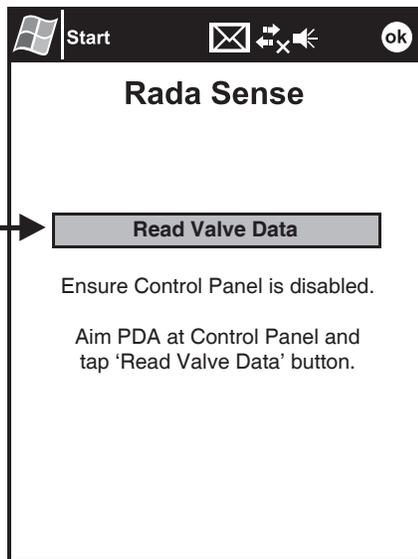


Aim the Programmer at the Control Panel.

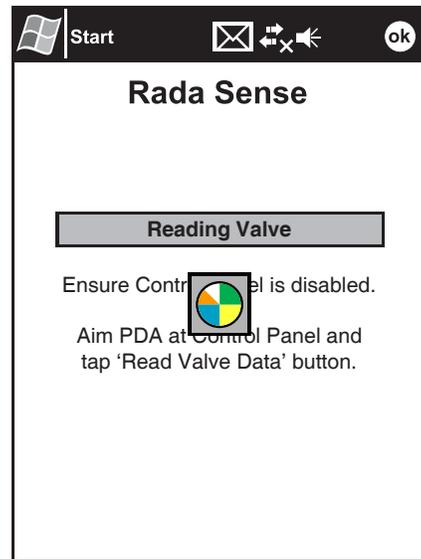
① Tap here to read current valve data.

Note! If an error occurs, refer to "Error Messages".

Read Valve Data is successful when the main menu is displayed.

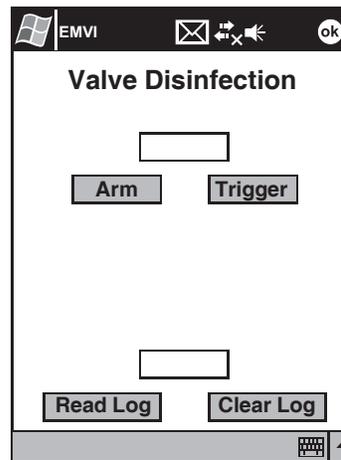
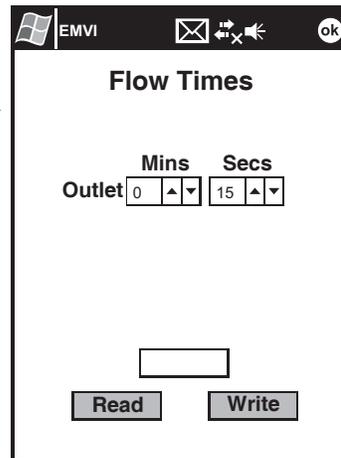
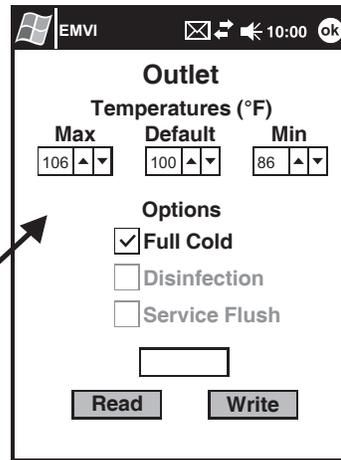
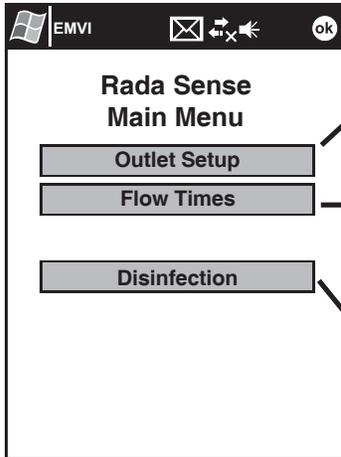


②

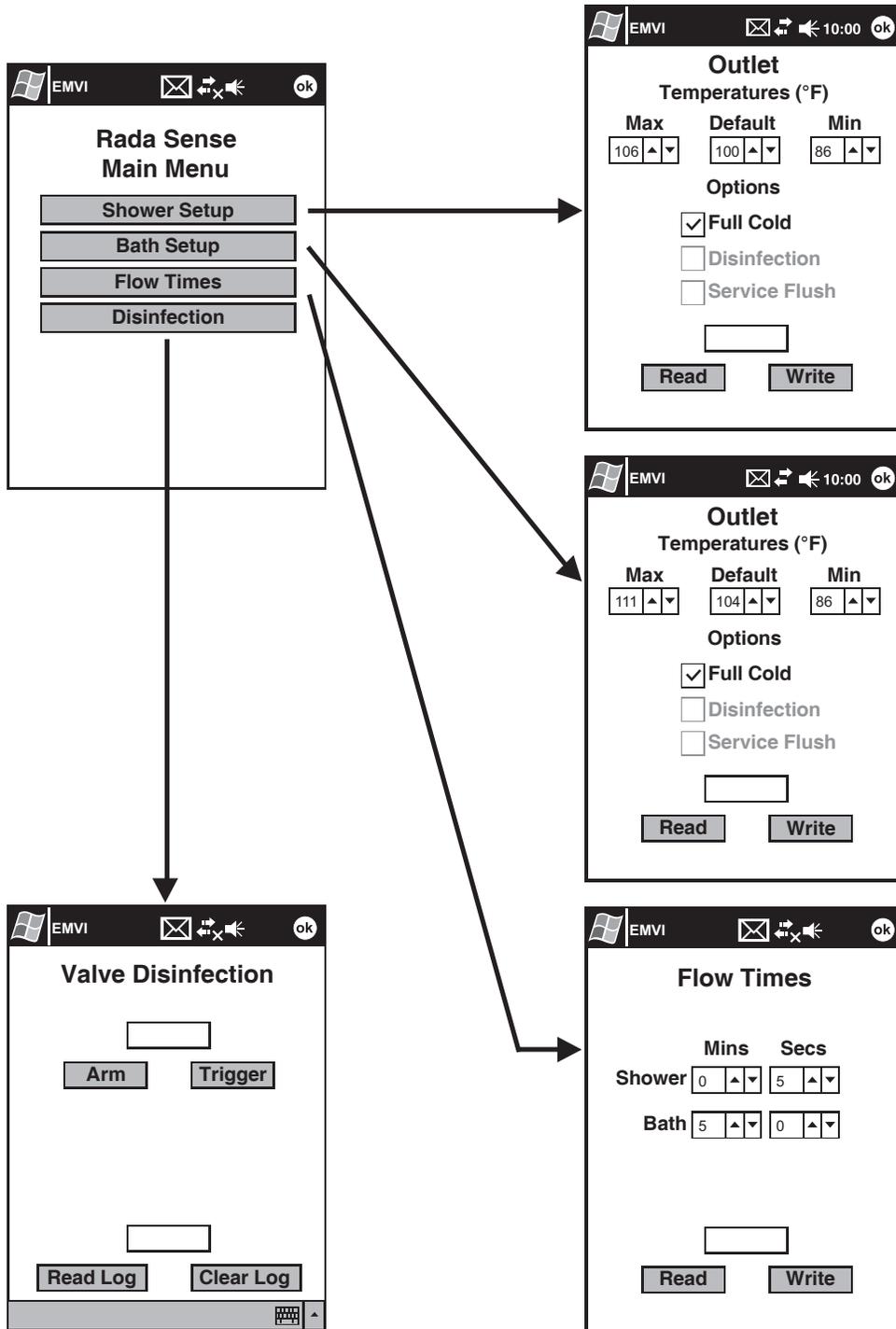


Main Menu (Single / Outlet)

Tap on one of these options.



Main Menu (Bath / Shower)



Setting Outlet Temperatures

Enter the temperature range available to user (30°-50°)
Note! Default = Switch on temperature

The screenshot shows the 'Outlet Temperatures' screen in the EMVI interface. It features three input fields for 'Max' (106), 'Default' (100), and 'Min' (86) temperatures. Below these are three options: 'Full Cold' (checked), 'Disinfection', and 'Service Flush'. At the bottom are 'Read' and 'Write' buttons. A 'Warning' dialog box is shown, asking 'Do you want to Write the changes to the valve?' with 'Yes', 'No', and 'Cancel' buttons. Annotations include: an arrow pointing to the temperature fields with the text 'Enter the temperature range available to user (30°-50°) Note! Default = Switch on temperature'; an arrow pointing to the 'Full Cold' checkbox with the text 'If checked the user can select full cold.'; an arrow pointing to the 'Disinfection' checkbox with the text 'Refer to "Engineering Menu".'; and an arrow pointing to the 'Write' button with the text 'Warning menu if "Write" is not tapped'.

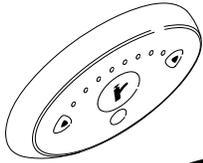
Note! Changes will not be stored in valve until "Write" is tapped (refer to "Storing Setup to the Valve").

Setting Flow Times

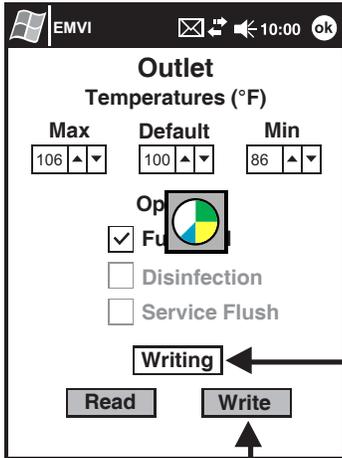
The screenshot shows the 'Flow Times' screen in the EMVI interface. It features two rows of input fields: 'Shower' (Mins: 0, Secs: 5) and 'Bath' (Mins: 5, Secs: 0). At the bottom are 'Read' and 'Write' buttons. An annotation points to the 'Shower' fields with the text 'Enter the flow time before automatic switch off (5 secs - 59 minutes, 59 seconds)'.

Note! Changes will not be stored in valve until "Write" is tapped (refer to "Storing Setup to the Valve").

Storing Setup to the Valve

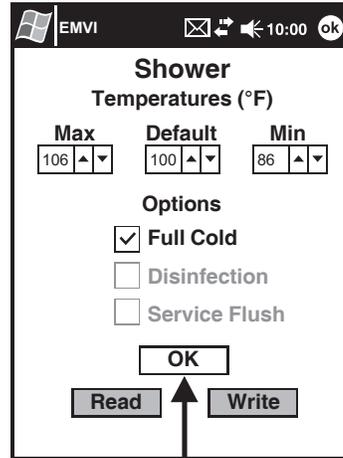


Aim the Programmer at the Control Panel and tap “Write”.



Writing the changes to the valve.

Tap “Write”.

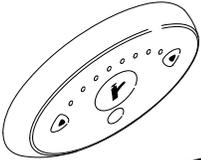


“OK” means the setup changes have been stored.

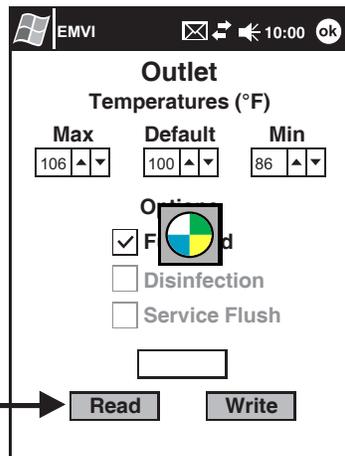
If “OK” is NOT displayed or an error is displayed then the changes have not been stored.

Caution! The outlet temperature must be re-checked after a new temperature has been programmed, refer to ‘Checking Setup is Stored’.

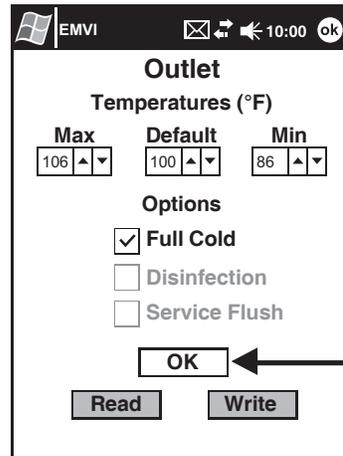
Checking Setup is Stored



Aim the Programmer at the Control Panel and tap “Read”.



Tap “Read”.

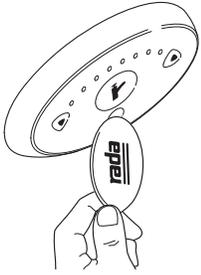


“OK” means the setup has been read from valve.

Check setup is correct.

Thermal Disinfection

Disable User Interface

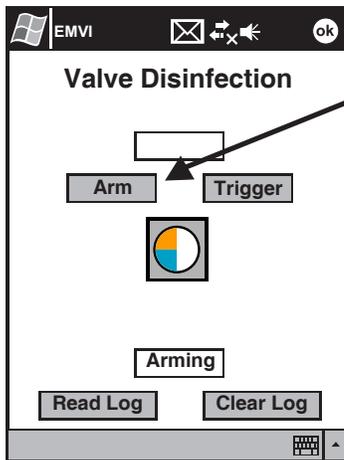


Disable the Control Panel with the magnetic key.

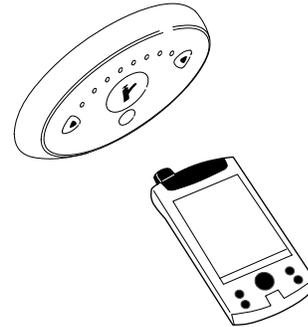
Note! The disinfection programme is factory set for a minimum of 5 minutes at 140°F. If you need to change the configuration, refer to '**ENGINEERING LEVEL**'.

WARNING! The water flow during disinfection will be very hot and may scald on contact. The valve must be supervised throughout the disinfection process and no-one should approach the outlet within 3 metres.

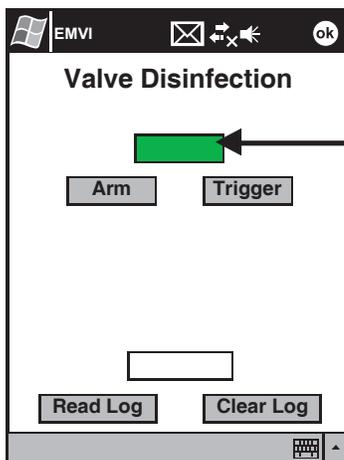
Thermal Disinfection (Arming)



Aim the Programmer at the Control Panel and tap "Arm".



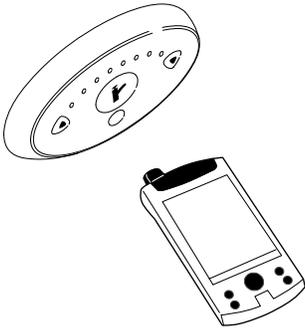
Check that "Disinfection" is checked. Refer to "Setting Disinfection: Step 2, Outlet Setup".



If "Disinfection not enabled" is displayed, refer to "ENGINEERING LEVEL", section "Setting Disinfection: Step 1, Valve Setup".

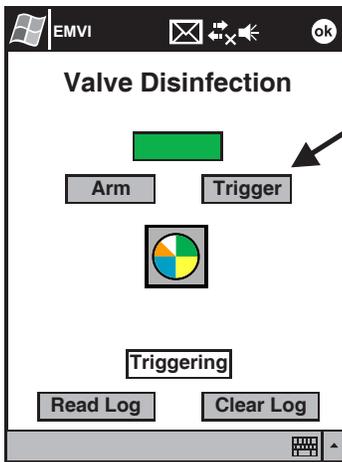
Disinfection is Armed when the box turns green.

Thermal Disinfection (Triggering)

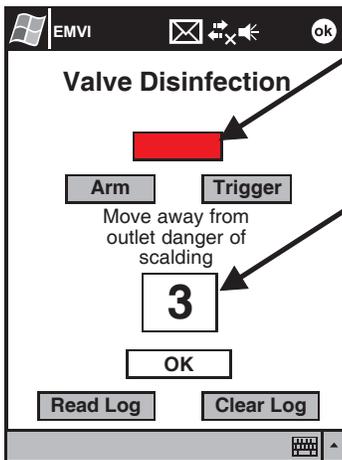


Aim the Programmer at the Control Panel and tap “**Trigger**”.

This must be done within 30 seconds of Arming or the valve must be Armed again.



Triggering the disinfection.



Disinfection is triggered when box turns red.

Waterflow starts when countdown reaches 0.

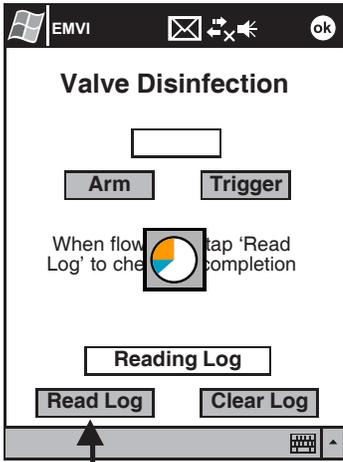
Note! The Control Panel is enabled during disinfection, if any sensor is activated then the disinfection cycle is aborted.

WARNING! For continued protection against legionella, thermal disinfection must be carried out on a regular basis. Please consult your national guidelines for details.

Thermal Disinfection (Checking for Completion)

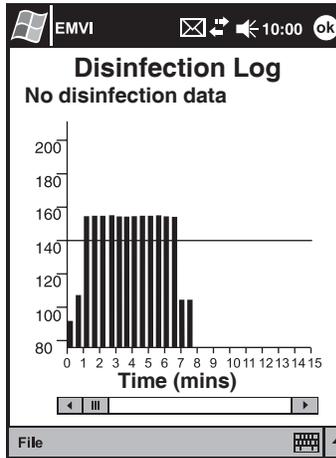


Aim the Programmer at the Control Panel and tap **“Read Log”**.



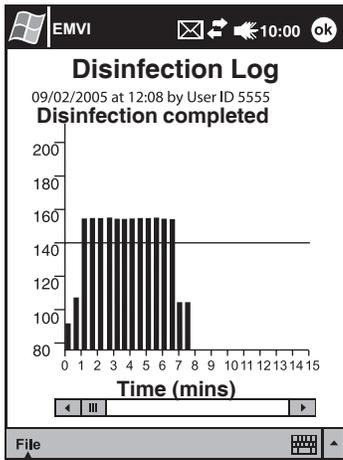
Tap **“Read Log”**.

Reading the disinfection log.



“Disinfection Completed” indicates temperature held for correct time.

Thermal Disinfection (Saving Log)

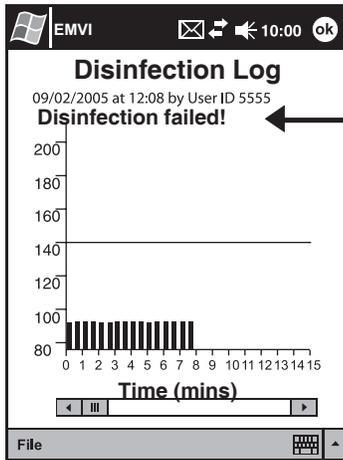


Tap **“File”** to save log to file.

Disinfection Completed	
Time(s)	Temp.(F)
0	86
30	104
60	158
90	158
120	158
150	158
180	158
210	158
240	158
270	158
300	158
330	158

Log file format (Use Pocket Word to view).

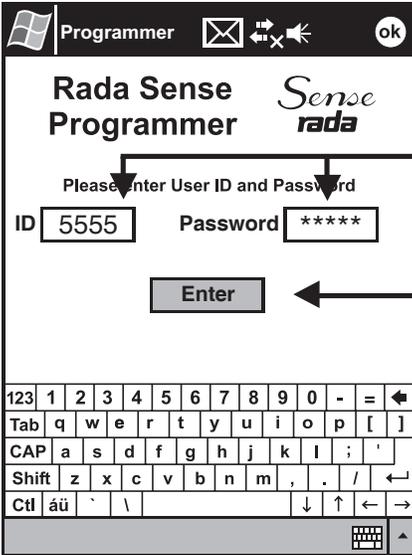
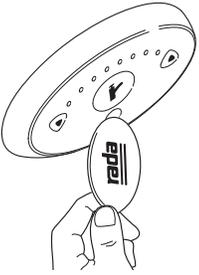
Thermal Disinfection (Failed Disinfection)



“Disinfection failed!” Indicates temperature not held for long enough.
Check water supply and disinfect once it has been corrected.

ENGINEERING LEVEL

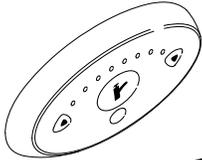
Login and Read Valve Data Disable User Interface



① Enter User ID and Engineer Password.

② Tap on "Enter".

Read Valve Data

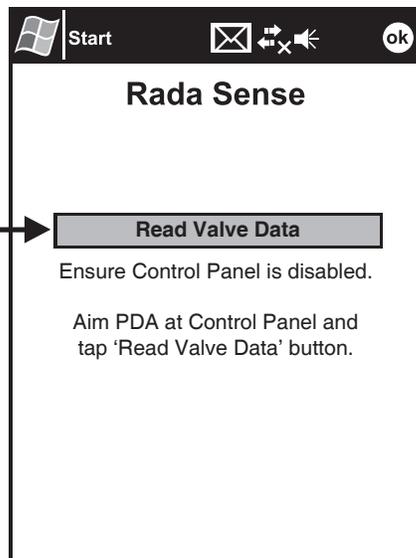


Aim the Programmer at the Control Panel.

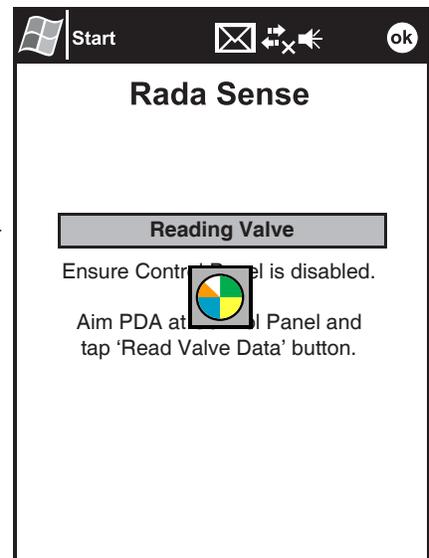
① Tap here to read current valve data.

Note! If an error occurs, refer to "**Error Messages**"

Read Valve Data is successful when the main menu is displayed.



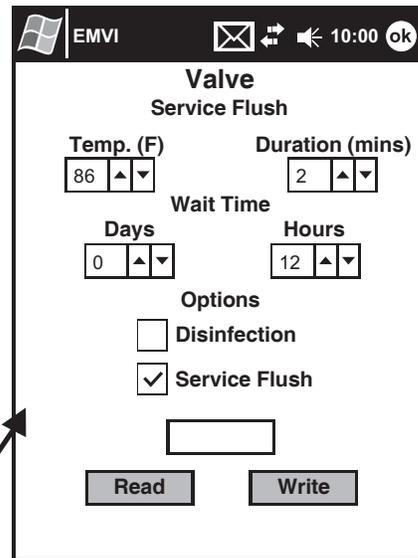
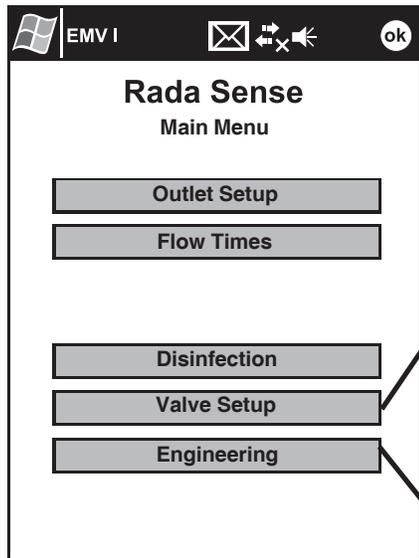
②



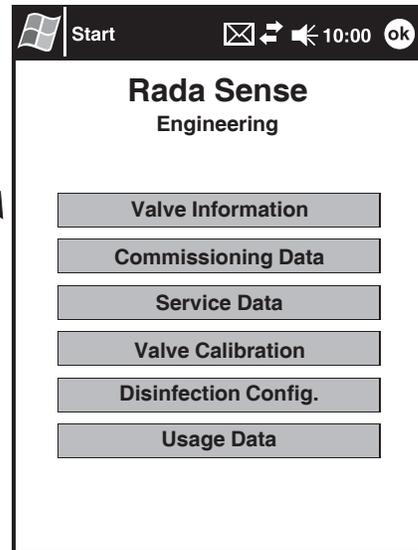
Main Menu

Additional Engineering options

Tap on one of these Options.



Refer to "Setting Service Flush: Step 1, Valve Setup".



Refer to "Engineering Menu".

Setting Service Flush: Step 1, Valve Setup

Enter temperature, duration and wait time.

Check this box to enable Service flush.

Note! Changes will not be stored in valve until “Write” is tapped (refer to “Storing Setup to Valve”).

Setting Service Flush: Step 2, Outlet Setup

Check this box to enable Service flush.

Check that “Service Flush” is checked.

Note! Changes will not be stored in valve until “Write” is tapped (refer to “Storing Setup to Valve”).

Setting Disinfection: Step 1, Valve Setup

EMVI 10:00 ok

Valve
Service Flush

Temp. (F) 86 ▲▼ Duration (mins) 2 ▲▼

Days 0 ▲▼ Wait Time Hours 12 ▲▼

Options

Disinfection

Service Flush

Read Write

Check this box to enable disinfection.

Note! Changes will not be stored in valve until “Write” is tapped (refer to “Storing Setup to Valve”).

Setting Disinfection: Step 2, Outlet Setup

EMVI 10:00 ok

Outlet
Temperatures (°F)

Max. 106 ▲▼ Default 100 ▲▼ Min. 86 ▲▼

Options

Full Cold

Disinfection

Service Flush

Read Write

Check this box to select this outlet for disinfection.

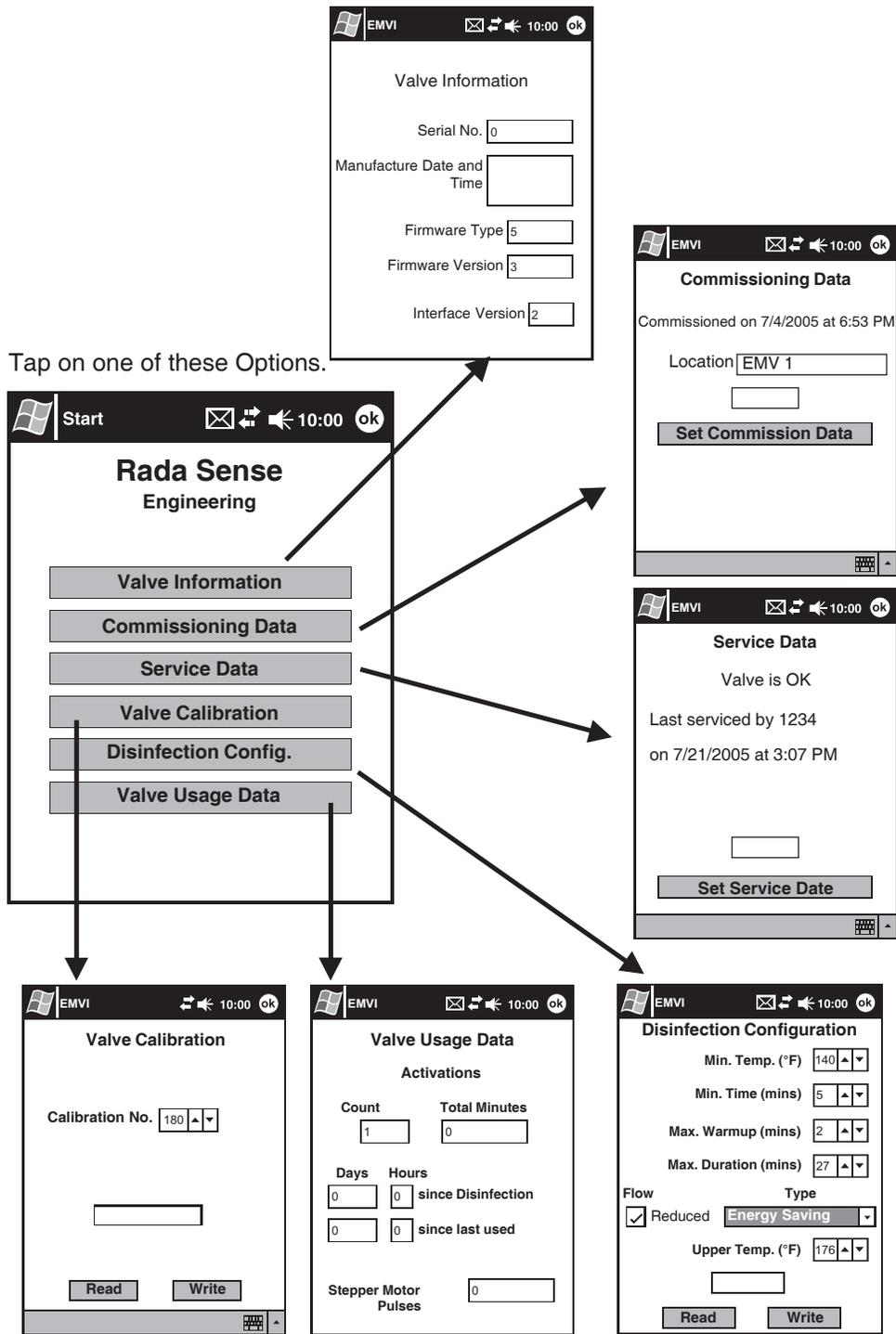
Warning ok

'Disinfection' in Valve Setup must be checked to enable this function

Check that “Disinfection” is checked.

Note! Changes will not be stored in valve until “Write” is tapped (refer to “Storing Setup to Valve”).

Engineering Menu



Valve Information (Engineering Level Only)

Valve Information

Serial No. 0

Manufacture Date and Time

Firmware Type 5

Firmware Version 3

Interface Version 2

Unique number setup in factory.

These numbers state exactly which version of firmware is in the valve.

These numbers state exactly which version of Interface Software is in the control panel.

Note! Not shown on older versions of Interface Software.

Commissioning Data (Engineering Level Only)

Commissioning Data

Commissioned on 7/4/2005 at 6:53 PM

Location EMV I

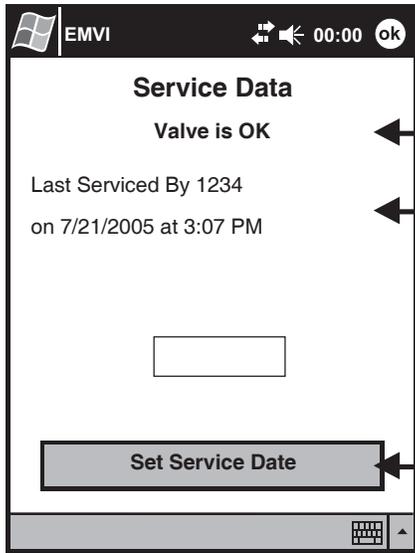
Set Commission Data

Location text can be set here.
Tap here to display the keyboard.

Tap here to set the Commissioned Date in the valve to the current date and to store the location text.

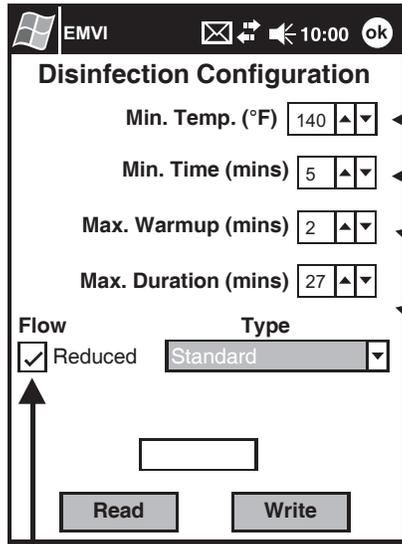
Note! If the valve has a location text set, then it will be displayed in the titlebar (as shown, "EMVI" next to the start menu).

Service Data (Engineering Level Only)



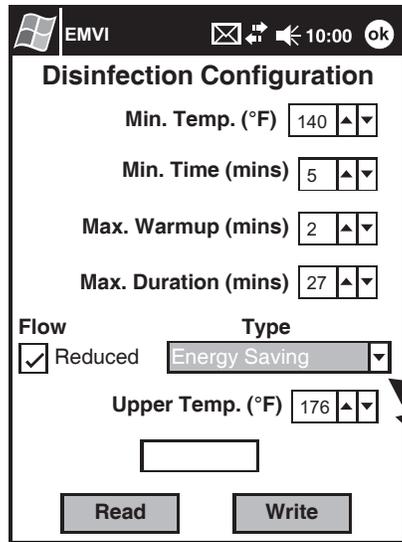
- ← “Valve is OK” means that no errors have been detected by the valve.
- ← User ID and Date of last service.
- ← Tap here to set the Serviced Date in the valve to the current date.

Disinfection Configuration (Engineering Level Only)



- ← Enter minimum temperature required to disinfect.
- ← Enter minimum disinfection duration.
- ← If disinfection temperature is not reached within this period, then disinfection will be cancelled (if unsure, leave as default).
- ← If disinfection is not completed within this period, then disinfection will be cancelled (if unsure, leave as default).

If checked, the flow rate will be reduced during disinfections to save water.



- ← If “Type (Energy Saving)” is selected, then the valve will reduce the required period for disinfection proportionally as the temperature increases up to the limit specified in “Upper Temp. (°F)”.
Warning! Time reduction is not permitted by some National/Local Regulations. If in doubt, select “Standard” settings.

Valve Usage Data (Engineering Level Only)

EMVI 10:00 ok

Valve Usage Data

Activations

Count: 1

Total Minutes: 0

Days: 0

Hours: 0

Since Disinfection

Since last used

Stepper Motor Pulses: 0

These are counted from when the valve is first switched 'ON'.

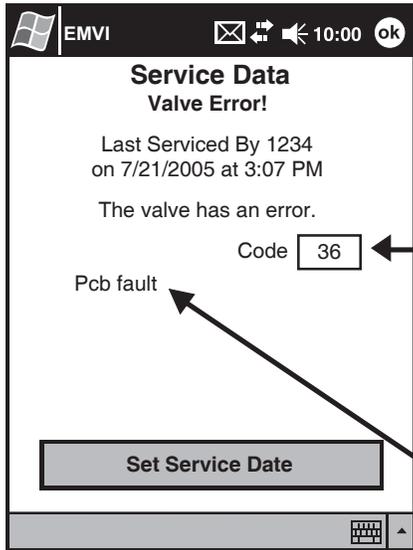
Either time since the valve was last used or since the last Service flush.

This indicates how much work the motor has done. This information is required by the service engineer or agent for diagnostic use.

FAULT FINDING

Self Diagnosed Errors

If the valve has detected an error, the “**Service Data**” screen will be automatically displayed as soon as “**Read Valve Data**” has completed.



Unique code number of error shown here (refer to “**Self Diagnosed Errors Table**”).

Text shows faulty component.

Self Diagnosed Errors Table

Code	Error Text	Cause / Rectification
3	Over temperature - T1	Outlet temperature is too high or thermistor fault a. The inlet/outlet fittings may be blocked: check the inlet/outlet strainers. b. Cold water supply failure: reinstate supply.
7	Over temperature - T2	c. Safety circuit may require resetting: enable the control panel with magnetic key to reset. d. If the symptom has not been rectified, contact Armstrong Hot Water, Inc.
4	Temperature sensor fault	Thermistor fault a. Contact Armstrong Hot Water, Inc.
60	Stepper motor stuck	The stepper motor is stuck, the motor belt is broken or the assembly is jammed. a. Contact Armstrong Hot Water, Inc.
70	Stepper motor position error	The mixer assembly is jammed or very stiff. a. Contact Armstrong Hot Water, Inc.
Any other	Pcb fault	A fault has occurred on the Control PCB. a. Memory may require resetting: switch the power supply to the electronic mixing valve, OFF then ON. b. If the symptom has not been rectified, contact Armstrong Hot Water, Inc.

VALVE CALIBRATION

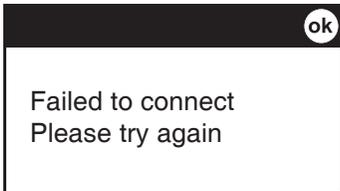
Caution! The valve **must** be calibrated, if the mixing valve assembly or the control pcb are replaced. The calibration number is required and this will be found on the mixing valve body.

Enter calibration number.

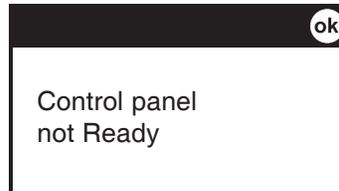
The calibration number will not be stored until "OK" is tapped.

Aim the Programmer at the Control Panel and tap "Write".

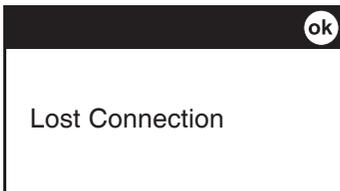
ERROR MESSAGES



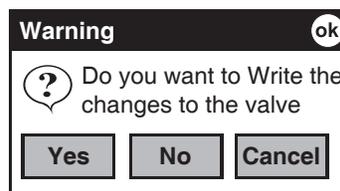
Or



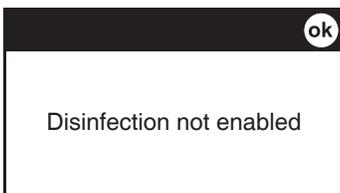
Control Panel not disabled or Programmer not aimed at Programming window.



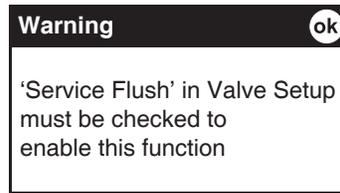
Lost connection during communication.



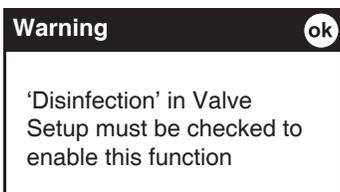
Check that "Write" is tapped. Refer to "Setting Outlet Temperatures".



Check that "Disinfection" is checked. Refer to "Setting Disinfection: Step 2, Outlet Setup".



Check that "Service Flush" is checked. Refer to "Setting Service Flush: Step 1, Valve Setup".



Check that "Disinfection" is checked. Refer to "Setting Disinfection: Step 1, Valve Setup".

Customer Care

Armstrong Hot Water, Inc. Limited Warranty and Remedy

Armstrong Hot Water, Inc. ("Armstrong") warrants to the original user of those products supplied by it and used in the service and in the manner for which they are intended, that such products shall be free from defects in material and workmanship for a period of one (1) year from the date of installation, but not longer than 15 months from the date of shipment from the factory. This warranty does not extend to any product that has been subject to misuse, neglect or alteration after shipment from the Armstrong factory. Except as may be expressly provided in a written agreement between Armstrong and the user, which is signed by both parties, Armstrong DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

The sole and exclusive remedy with respect to the above limited warranty or with respect to any other claim relating to the products or to defects or any condition or use of the products supplied by Armstrong, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability, or any other basis or theory, is limited to Armstrong's repair or replacement of the part or product, excluding any labor or any other cost to remove or install said part or product, or at Armstrong's option, to repayment of the purchase price. As a condition of enforcing any rights or remedies relating to Armstrong products, notice of any warranty or other claim relating to the products must be given in writing to Armstrong: (i) within 30 days of last day of the applicable warranty period, or (ii) within 30 days of the date of the manifestation of the condition or occurrence giving rise to the claim, whichever is earlier. IN NO EVENT SHALL ARMSTRONG BE LIABLE FOR SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF USE OR PROFITS OR INTERRUPTION OF BUSINESS. The Limited Warranty and Remedy terms herein apply notwithstanding any contrary terms in any purchase order or form submitted or issued by any user, purchaser, or third party and all such contrary terms shall be deemed rejected by Armstrong.

BrainWave™ EMV is covered by a 5-year warranty against defects in materials or workmanship from the date of purchase/shipment. Armstrong reserves the rights to replace either the complete product, certain components of the product and/or replacement internal operating parts.