

- /6.1 DQ0 HOT VALVE
%QX0.2
- /6.3 DQ2 MIXER 1 OUTPUT VALVE
%QX0.4
- NC
- /6.4 DQ3 MIXER 2 OUTPUT VALVE
%QX0.5
- DQ5
%QX0.7
- NC



/7.1

User Manual

Eco-Flow ZERO Water Meter

FG011-A01, FG011-A02, FG011-A03, FG011-A04



- D
- V-
 - FQ0
PTO00
 - C0
 - DIO
%IX0.2
 - C1
 - DI2
%IX0.4
 - DI4
%IX0.6
 - /8.1 TI0-
 - EX0-
 - /8.2 TI1-
 - EX1-
 - C2
 - AIC0
%IW2
 - C3
 - /9.2 AQ1 HOT / CHILLED PROP VALVE
%QW3

- C
- V+
 - EX0+
%IW4
 - /8.2 TI1+ WATER TEMPERATURE
%IW5
 - EX1+
%IW5
 - AIV0
%IW2
 - AIV1
%IW3
 - AIC1
%IW3
 - /9.1 AQ0 AMBIENT PROP VALVE
%QW2

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Declaration of Conformity

1

We hereby declare that this machine complies with the essential health and safety requirements of:-

- The Machinery Directive 2006 / 42 / EC
- The Low voltage Directive 2006 / 95 / EC
- The requirements of the Electromagnetic Compatibility Directive EN61326-1:2006, EN61326-1:2013
- The General Safety of Machinery and food processing Standards applicable
- Materials and Articles intended to come into contact with food Regulation (EC) No. 1935 / 2004

Signed	
G.A.Williams – Quality Manager	

Date	
-------------	--

Machine FG Code.		Machine Serial No.	
-------------------------	--	---------------------------	--

A technical construction file for this machine is retained at the following address:

MONO EQUIPMENT
 Queensway,
 Swansea West Industrial Park,
 Swansea
 SA5 4EB
 UK

MONO EQUIPMENT is a business name of **AFE GROUP Ltd**
 Registered in England No.3872673 VAT registration No.923428136

Registered office: Unit 35,
 Bryggen Road, North Lynn Industrial Estate, Kings Lynn Norfolk, PE30 2HZ

Introduction to the Eco-Flow Zero Water Meter

Congratulations on the purchase of your Eco-Flow Zero Water Meter which has been manufactured to the highest standards by MONO Equipment; a water meter which we are proud to announce has ZERO Water Wastage.

Water is a commodity we cannot live without, and due to population growths, changing weather patterns and global warming etc. it is generally accepted around the world that we should try to conserve as much of this expensive resource as we can. Using the Eco-Flow Zero Water Meter will help towards this goal.

The state-of-the-art water meter features a full-colour touch-screen control panel which provides a simple user-friendly interface to the many features and benefits inherent in the Eco-Touch Zero, including the ability to manage product recipes and control up to 2 mixers simultaneously. Full details can be found online at www.monoequip.com.

This User Manual covers Eco-Flow Zero Water Meter models FG011-A01 & FG011-A03 (non-mixer controls) and FG011-A02 & FG011-A04 (mixer controls).

2.1 Key Features



ZERO Water Wastage technology combined with great energy efficiency



WRAS Approved



User-friendly, icon-driven, touch screen navigation with comprehensive recipe management facility



Tablet and smart phone display air mirroring capability



Energy Monitoring Software with real-time management information via KPI screens, including exceptions reporting on usage times, idling times etc.



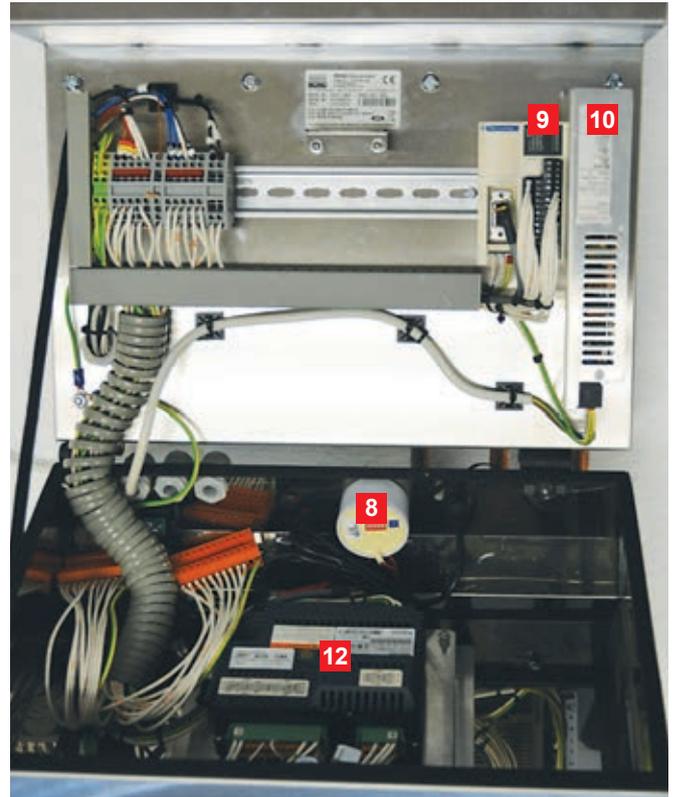
Self-Diagnosis screens. Alarms/ run-time diagnostics



Ethernet and USB compatible

Product Design

3

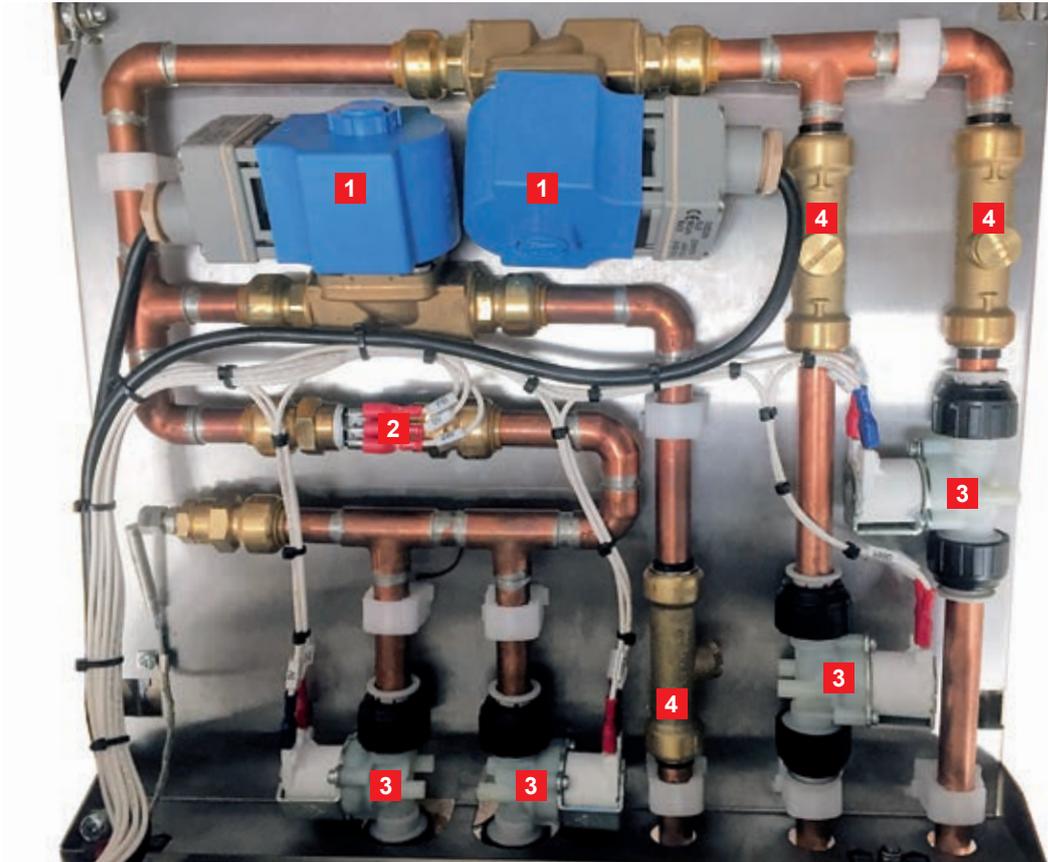


3.1 Product Layout

- | | |
|------------------------------|---|
| 1 HMI Touchscreen | 8 Sounder |
| 2 Hot Water Inlet | 9 Expansion I/O |
| 3 Chilled Water Inlet | 10 Power Supply |
| 4 Ambient Water Inlet | 11 Ethernet Port |
| 5 Water Outlet 1 | 12 HMI Touchscreen Controller Unit |
| 6 Water Outlet 2 | 13 USB Port |
| 7 Temperature Probe | |

Product Design

3



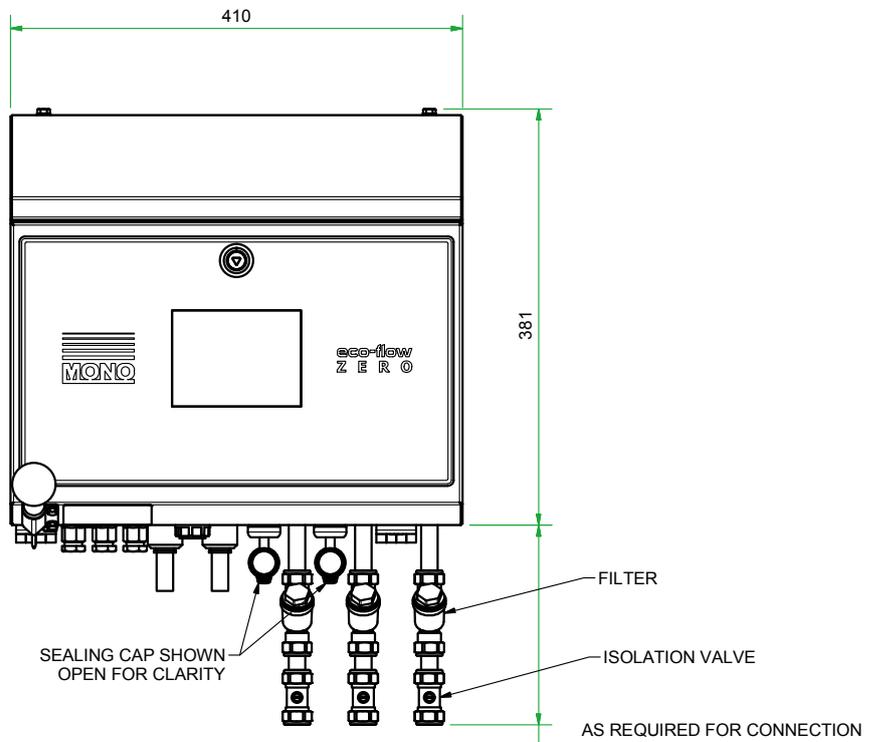
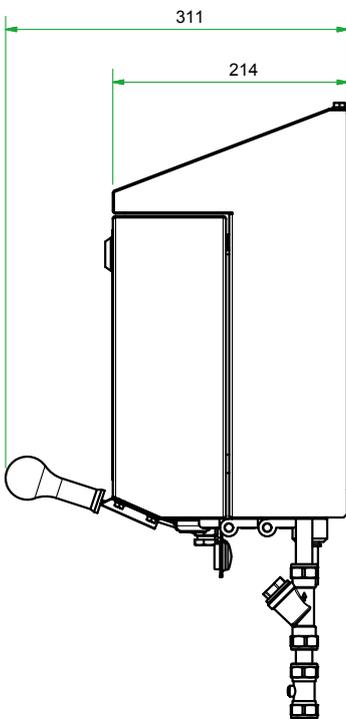
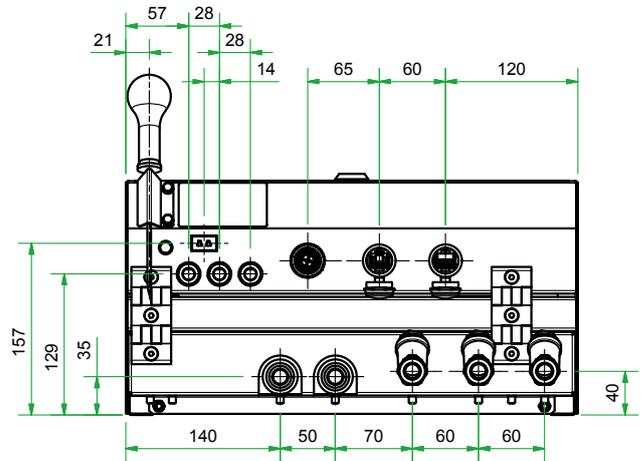
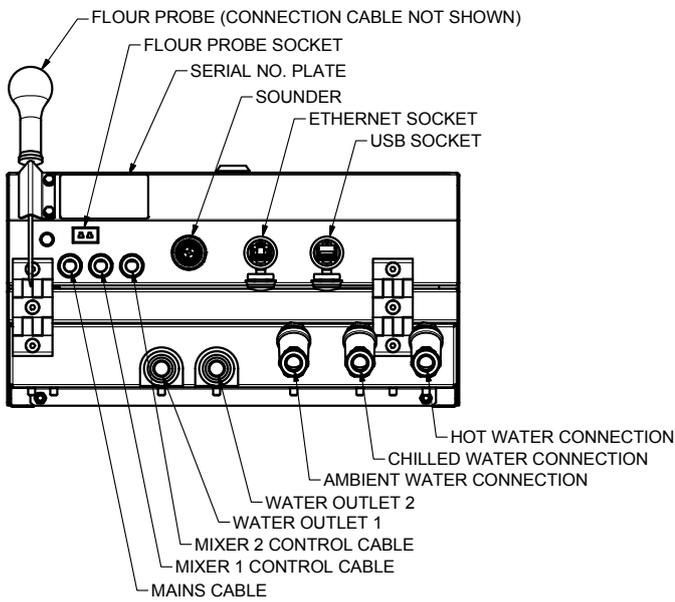
1 Proportional Valve and Controller

2 Flow Meter

3 Solenoid Valve

4 Non Return Valve

Product Design



Product Specifications

4

Item	Specification
Supply Voltage	230V AC - 240V AC / 110V AC
Fuse Rating	5A
USB	2.0
Display Size	5.7 inch
Display Type	Backlit Colour TFT LCD
Display Resolution	320 x 240 pixels QVGA
Operating Temperature Range	0°C to 50°C (32°F to 122°F)
Weight of Unit	16kg (plus additional 1kg with installation kit)
Weight of Unit (Packaged)	19.8kg (plus additional 1kg with installation kit)
Minimum Inlet Water Pressure	2 bar
Maximum Inlet Water Pressure	10 bar
Chilled Water Inlet Temperature Range	Optimum 1°C to 5°C (33.8°F to 41°F) Range 1°C to 10°C (33.8°F to 50°F)
Hot Water Inlet Temperature Range	Optimum 40°C (104°F) Range 30°C to 60°C (86°F to 140°F)
Ambient Water Inlet Temperature Range	Optimum 15°C to 30°C (59°F to 86°F)
Water Flow Rate	Optimum 10 litre/minute to 15 litres/minute Range 1 litre/minute to 20 litres/minute
Mixer Connectivity	Up to 2 - Escher M60 Premium

Safety Guide

5

5.1 General Safety Precautions

- This equipment must be installed by qualified personnel
- Disconnect all power before working on or inside equipment
- Ensure the mains power supply matches the power requirements of the product
- Do not strike the touch panel with a hard or pointed object, or press the touch panel with excessive force, since it may damage the touch panel or the display
- Do not use this unit in locations where large, sudden temperature changes may cause condensation inside
- Do not store or use the unit where chemicals (such as organic solvents, etc.) and acids can evaporate, or where chemicals and acids are present in the air
 - Corrosive chemicals; acids, alkalinise, liquids containing salt
 - Flammable chemicals: Organic solvents
- Do not use paint thinner or organic solvents to clean the screen. Avoid using cleaning agents.
- Do not store or operate the LCD display in areas receiving direct sunlight, since the sun's UV rays may cause the LCD displays quality to deteriorate
- After turning the unit OFF, be sure to wait 30 Seconds before turning it ON again
- Do not pressure wash or steam clean
- Please conform with storage recommendations as damage may occur if item is stored on its side
- All repairs and maintenance should be carried out by suitably qualified personnel.

Installation Instructions

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6.1 Toolbox Required



- 1 x Flat Headed Screw Driver
- 1 x Fixing Template
- 1 x Electric / Battery Drill
- Suitable Drill Bit (depending on substrate)
- Suitable Rawlplugs (depending on substrate)
- Weighing Scales to Weigh 20+ kg
- Bucket to hold up to 20+ litre of liquid
- 1 x Pencil for marking the fixing positions on the wall
- Spirit level.

Please check that you have all the items listed above before starting the installation procedure.

6.2 General Installation Advice

- Suitable 13 amp socket / power supply
- Suitable access to ambient, chilled and hot water supplies
- Ensure the wall on which the water meter is to be mounted is structurally stable and suitable to hold the weight of the unit
- Ensure the wall is clear of any debris and / or any obstructions (ie. Any old pipework etc)
- Ensure safe manual handling techniques are used throughout
- Hold the Fixing Template supplied at the correct height on the wall and mark the drill holes required using a pencil - ensuring the template is level
- Using the correct size drill bits, drill four holes produced using the Fixing Template and plug with the rawlplugs
- Carefully remove the water meter from the packaging and check that all the items are present
- Locate and mount the water meter on the wall, ensuring it is level.

Installation Instructions

6

- Once the water meter is securely fitted to the wall, the pipework can be installed and connected
- Once connected, you are now ready to commission the water meter.

NOTE: Always connect the mixers with the power switched OFF.

6.3 Installing with Connections to Spiral Mixers Without Timers

- Connect the supplied mixer control cable output of the water meter to the control cable input of the spiral mixer
- Connect the water inlets and outlets using the pipe and fixings supplied.

Cleaning Instructions

7

7.1 Daily Cleaning Procedures

This equipment should be cleaned daily using a soft cloth and approved chloride-free cleaning fluid.

NOTE: Do NOT use paint thinner, organic solvents, or a strong acid compound to clean the unit.

Setup Guide

8



Default screen for Eco-Flow Zero Water Meter with Non-Mixer Controls



Default screen for Eco-Flow Zero Water Meter with Mixer Controls

8.1 The Home Screen

- **STANDBY:** Pressing 'Standby' will take you back to the default home screen which is user - configurable
- **SLEEP:** Pressing 'Sleep' disables the backlight and switches the Eco -Touch Zero Water Meter to screensaver mode. After 10 minutes of inactivity (user-configurable), the screen will automatically enter Sleep Mode.

8.2 System Passwords

Selecting Settings on the Home Screen will give you a numeric keypad. Different passwords will allow you access to a range of specific functions of the device. The table below lists the most commonly used.

Password	Access Granted
3142	General Settings Menu
777460	Advanced Settings Menu (Engineering Settings)
2808	Edit Recipe Menu
4321	Alarms
753951	Testing Options
1793	Device Management Menu
5678	Wallpaper Configuration

Setup Guide

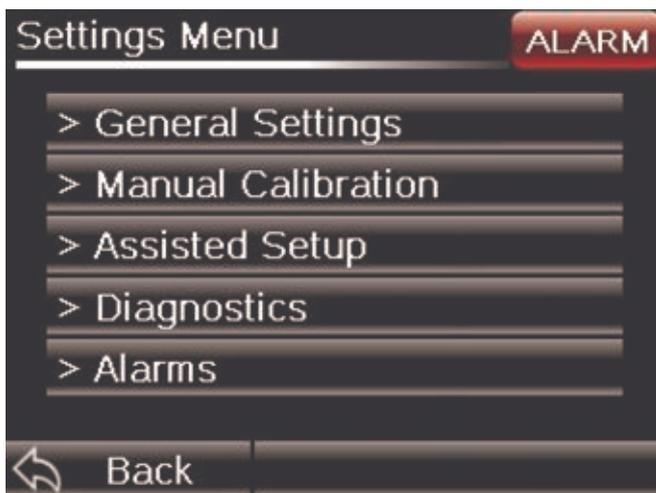
8.3 General Settings

To access the General Settings menu:

- Click on the Settings icon
- Input the password 3142
- Click on the General Settings icon.

On the 'Settings' password screen, the version number is displayed at the base of the screen

- **Flour Temp Every (min)** - Select the duration required between Flour Temperatures checks
- **Sleep Mode Time (min)** - Select the duration of inactivity to enable Sleep Mode
- **Screen Brightness** - Select screen brightness on a scale of 1 to 15
- **Set Date and Time** - Modify Date/Time to adjust current time and date, then press Confirm button
- **Function Layout** - Configure your icon layout. Settings and Flour Temp are mandatory.



Setup Guide

8

8.4. Function Layout

If you wish to change the default layout of the icons you can arrange them to suit your preference. Configure the layout of the icons on the screen by selecting or deselecting options for each row (Top / Bottom). Once finished, press 'Save' to confirm.



Any icons that are already selected will be crossed out and not selectable.



NOTE: 'Settings' and 'Flour' icons are required and cannot be removed.

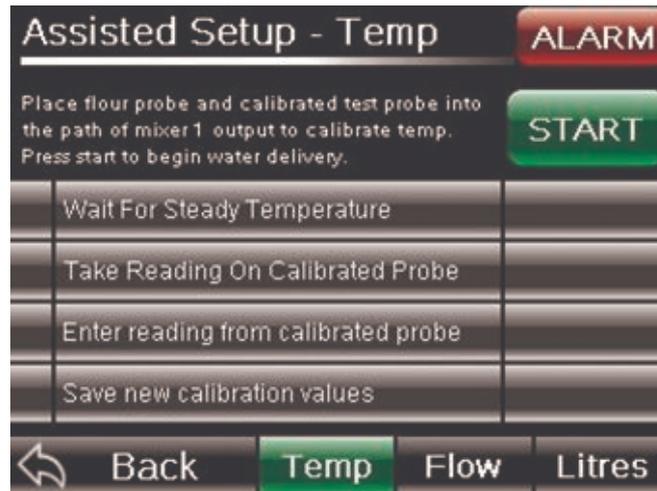
Setup Guide

8

8.5 Assisted Setup - Calibration Procedures

To enter the Assisted Setup menu:

- Click on the Settings icon
- Enter the password 3142
- Click on Assisted Setup icon.



8.5.1 Temperature Calibration

Items Required

- Calibrated Test Probe
- Flour Probe
- Bucket (minimum 20 litres capacity).

Procedure

Place flour probe and calibrated test probe into the path of the mixer 1 output to calibrate the temperature

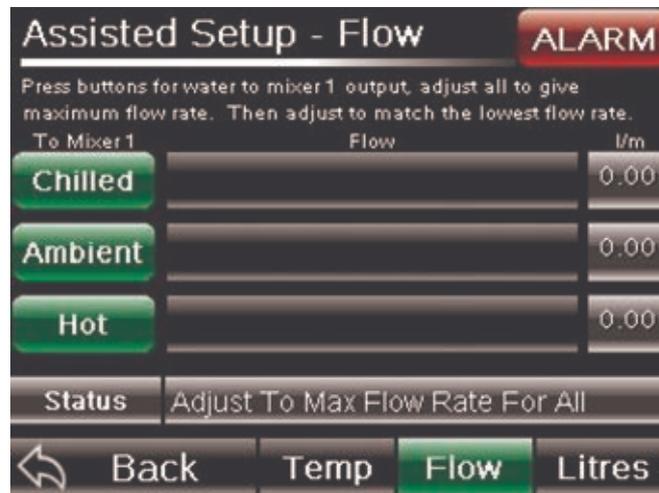
- Press Start button to begin water dispensing
- Wait for Steady Temperature
- Take reading on Calibrated Test Probe
- Enter value from Calibrated Test Probe
- 'Save' calibrated values.

NOTE: If temperature deviation exceeds +/- 10°C it will generate an alarm. The Temperature Probe is factory-calibrated and this guide should be followed to calibrate a future replacement probe if needed).

Setup Guide

8

8.5.2 In-coming Water Pressure Calibration



Item Required

- Flat headed screwdriver.

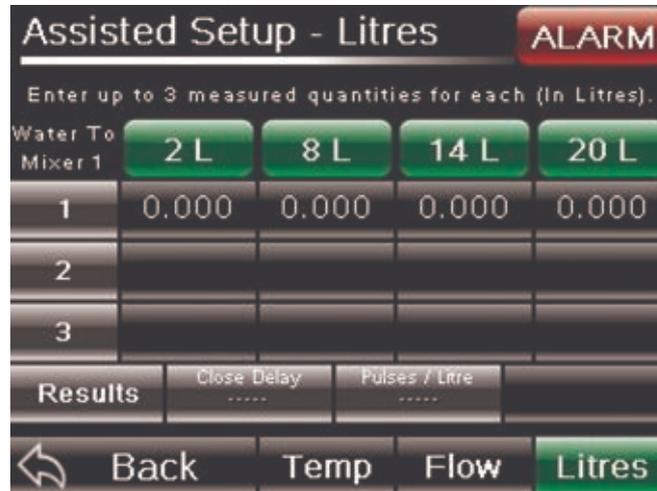
Procedure

- Press the 'Flow' button
- Fully open all flow valves with screwdriver
- Measure all flows by pressing the individual inlet icons on screen, one after the other. This will establish the flow rate of each water supply
- The lowest supply will highlight in green
- Adjust the flow valves to within acceptable tolerances (+/-0.1 litre/minute for green, +/-0.5 litre/minute for yellow)
- Status indicator on screen will inform you of when flow rates are acceptable.

Setup Guide

8.5.3 Out-Going Water Flow Calibration

Press the 'Litres' button on the bottom right of the screen



Items Required

- Large bucket (suitable to hold a minimum of 20 litres)
- Weighing scale (suitable to weight at least 20kg).

Procedure

- Prepare bucket and weighing scale in suitable location, with weighing scale tared with empty bucket in place
- Insert pipe in to bucket
- Select the first green 'Litres' button at the top of the screen
- This will deliver selected litreage
- Enter value from weighing scale (kg)
- Repeat a further two times
- Press 'Save'
- Repeat a further three times for each of the remaining litre quantities.

NOTE: Less than 900 Pulses/Litre or more than 1100 Pulses/Litre will flag up an alarm. Close delay of less than 0 and more than 200 will also flag up an alarm.

Setup Guide

8

8.6 Manual Calibration

This facility is used to fine-tune the results achieved from the Assisted Setup procedure.

To enter the Manual Calibration menu:

- Click on the 'Settings' icon
- Input the password 3142
- Click on the 'Manual Calibration' button
- **Flour Temperature** - Displays calibration offset. If assisted setup carried out, this will display here
- **Water Temperature** - Displays calibration offset. If assisted setup carried out, this will display here
- **Litre Counter Pulses/Litre** - Pulses/Litre Setting
- **Valve Close Delay** - Close Delay Setting

The base of screen displays Actual Flour / Water Temperatures (Raw) and calibrated Flour / Water Temperatures.

Manual Calibration		ALARM
Flour Temperature (Deg C)	0.0	
Water Temperature (Deg C)	0.0	
Litre Counter (Pulses/Litre)	1000	
Valve Close Delay (Pulses)	100	
	RAW	Calibrated
Flour Temperature	0.0	0.0
Water Temperature	0.0	0.0
Back		

8.7 Setting the Temperature Increase Generated by the Mixer During Operation

- Press on the 'Settings' icon
- Input the password '777460'
- Input the rise in temperature per minute for the mixer
- Click on the 'Advanced Settings' button.

Advanced Settings Menu
> Advanced Settings
> Advanced Options
> Set Factory Defaults
> HMI System Menu
> System Error Log
Back

Advanced Settings	
Mixer Slow Temp (Deg C)	0.2
Mixer Fast Temp (Deg C)	1.2
Allow Remote Connections	<input type="checkbox"/>
Back	

Operating Instructions

9.1 Set Flour Temperature

After initial setup the 'Flour Temperature' icon will flash when it needs recalibrating.



Items Required

- Flour Probe.

Operating Instructions

Procedure

- Press 'Flour Temp'
- Insert probe in to flour
- Press 'Start'
- Wait 60 seconds with probe in flour
- Upon completion of temperature reading, screen returns to home screen
- Return flour temperature probe to the holder
- To see the temperature of the flour taken - press the 'Flour' icon again and the temperature is displayed at the bottom right of the screen.
- Press 'Back' button to return to the home screen

NOTE: Flour temp to be taken a minimum of every 2hrs (configurable).
When required 'Flour Temp' icon will flash red and mixer functions access will be disabled (red icon).



Operating Instructions

9

9.2 Manual Operation



There are two different modes in which the water meter can operate:

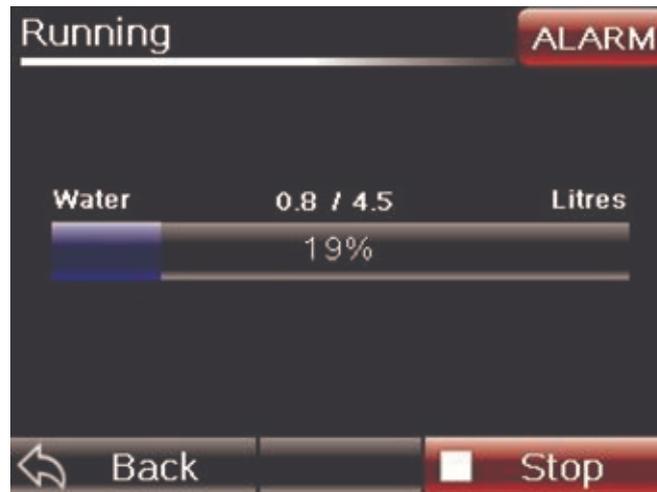
- Water Temperature Mode: Setting the delivered water temperature
- Final Dough Temperature Mode: Setting the final dough temperature.

9.2.1 Water Temperature Mode - Delivers the selected amount of water at a set temperature

- Select 'Manual' Icon
- Select amount of water in litres and temperature using up and down arrows or by entering directly into the value areas on the screen
- Select 'Water Outlet Number' using the number arrow at the bottom of the screen
- Press 'Start' and the water meter will deliver the water required.

Operating Instructions

9



9.2.2 Final Dough Temperature Mode - Delivers to achieve a final dough temperature

- Press the 'Temperature' icon to change to 'Final Temperature' and enter the required final dough temperature required using the up and down arrows or by entering a value directly into the area on the screen.
- Select 'Manual' Icon
- Select amount of water in litres using up and down arrows or by entering directly into the value area on the screen
- Select water outlet number using the number at the bottom centre of the screen.
- Select 'Recipe Card' icon on the right hand side of the screen
- Input Mix Size, Mixer Slow Speed & Mixer Fast Speed and Time
- Pressing the 'Back' icon will return show you the mix settings entered along the bottom of the screen
- Press 'Start' and the water meter will deliver the water required.

Operating Instructions

9



- Prompt shows values to use to manually set up your mixer.

Operating Instructions

9

9.3 Mixer Controls



9.3.1 Mixers Without Timer Controls

Procedure

- Select Mixer (if only 1 mixer is set up then only 1 mixer icon will appear on the screen)
- Select Category (use Page Number at the bottom of the screen to navigate through the menus)
- Select Product (use Page Number at the bottom of the screen to navigate through the menus)
Pressing the 'i' icon will display the Product Information prior to selection, including Base and Extra ingredients.



Operating Instructions

9



- Select 'Mix Size'
- Load your ingredients in to mixer as displayed on the screen
- If mixer is currently in use this will be displayed where 'Start' icon should be
- Press 'Start'. The screen will display water delivery, mixer slow/fast timings.



NOTE: You can exit this screen while running at any time by pressing the 'Back' icon. Re-selecting the relevant mixer icon will return you to Running screen

If you are operating two mixers, you can use the, 'Mixer Number', icon at the bottom of the screen to toggle between the operating mixers.

Operating Instructions

9

9.3.1.1 Adjusting the Mix (if Required)

To add extra water at the end of a mix or to run the mixer for additional time, select the relevant option at the end of a mix.

- Select 'Extra Water' icon to add an extra 0.5 litres to a mix
- Select 'Extra Time' icon to run the mixer on fast speed for an extra 60 seconds
- Repeat the procedure as necessary to achieve the desired dough quality.



Operating Instructions

9

9.3.1.2 Extra Ingredients

Upon completion of a mix, certain recipes will require 'Extra Ingredients'.

- Screen will detail what additional ingredients are required. Add to mixer and press 'Next'.



NOTE: If additional mixing is required, select 'Extra Time' icon.

- Upon adding ingredients and selecting 'Next', mixer will run for set amount of time
- Press the 'Next' button when complete.



- When mix is completed, sounder will enable and the 'Mix Completed' screen will display.

NOTE: Both these can be stopped by pressing the 'Stop' icon at the bottom of the screen.

Operating Instructions

9

9.3.1.3 Repeat Recipe



- Press the 'Next' icon
- Pressing the 'Finish' icon takes you back to the home screen. Pressing the 'Repeat' icon takes you back to the start of the mix.

Operating Instructions

9

9.3.2 Mixers With Timer Controls



Procedure:

- Select Recipe (if only 1 recipe is set up then only 1 recipe icon will appear on the screen)
- Select Category (use Page Number at the bottom of the screen to navigate through the menus)
- Select Product (use Page Number at the bottom of the screen to navigate through the menus)
- Pressing the 'i' icon will display the Product Information prior to selection, including Base and Extra ingredients.



Operating Instructions

9



- Select 'Mix Size'
- Load your ingredients in to mixer as displayed on the screen
- Press 'Start'.



- Using the information provided set your mixer to operate for the set durations for slow and fast speeds
- Once you have done this press the 'Next' button

9.3.2.1 Adjusting the Mix (if Required)

- To add extra water at the end of a mix press the 'Extra Water' icon to add an additional 0.5 litres to a mix
- Start the mixer on Fast speed until the dough is the correct consistency
- Repeat the procedure as necessary to achieve the desired dough quality.
- Press the 'Next' button

Operating Instructions

9

9.3.2.2 Extra Ingredients

Upon completion of a mix, certain recipes will require 'Extra Ingredients'

- On-screen will detail what additional ingredients are required
- Add the ingredients to the mixer



- After loading the extra ingredients set the mixer to mix for the desired amount of time
- Once the mix is complete press the 'Next' button
- Select if you wish to 'Repeat the Recipe' or 'Finish'

NOTE: both of these can be stopped by pressing the 'Stop' button at bottom of the screen.

9.3.2.3 Repeat Recipe

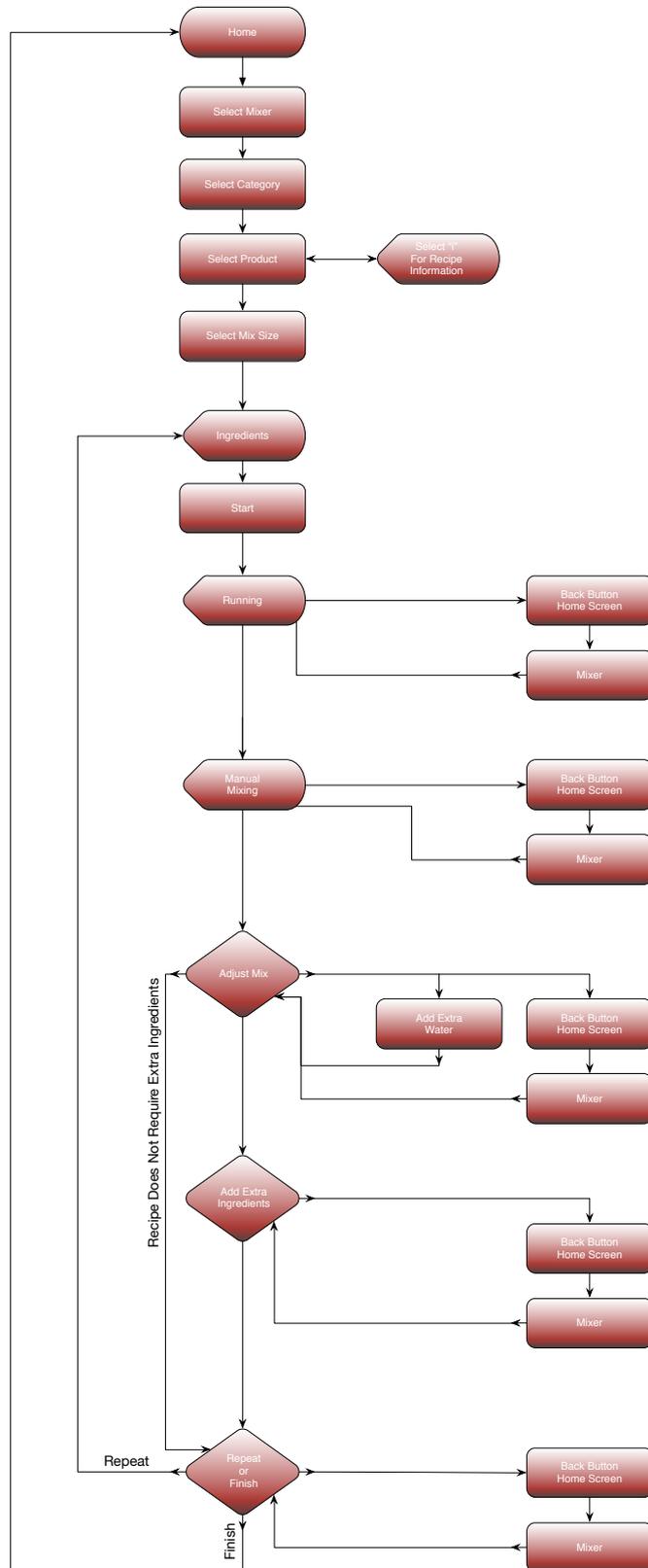


- Pressing the 'Finish' button takes you back to the home screen. Pressing the 'Repeat' button takes you back to the start of the mix.

Operating Instructions

9.4 Mixer Controls Operation Flow Chart

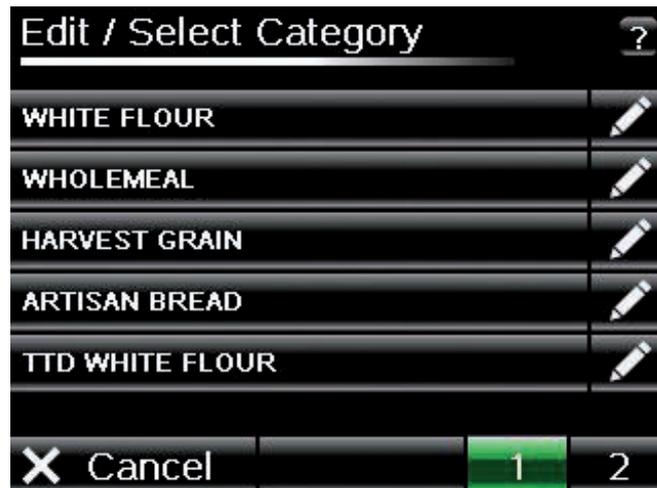
Non Mixer Mode



Category, Product and Product Recipe Handling

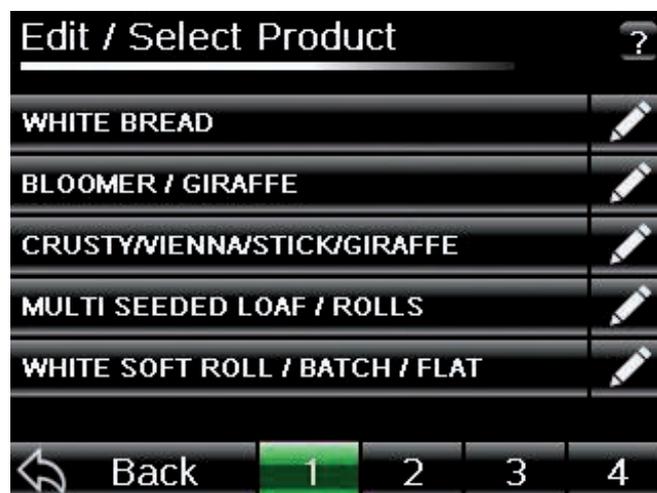
10.1 Edit Category Name

- Press 'Settings' and input password (2808)
- 'Edit Recipe' takes you to Category level
- Press the 'Pencil' icon against the category you wish to change and use the keypad to make the alterations you need to make
- Press 'OK' to save.



10.2 Edit Product Name

- Press 'Settings' and input password (2808)
- 'Edit Category' takes you to Product level
- Select Category required
- Press the 'Pencil' icon against the product you wish to change and use the keypad to make the alterations you need to make
- Press 'OK' to save.



Category, Product and Product Recipe Handling

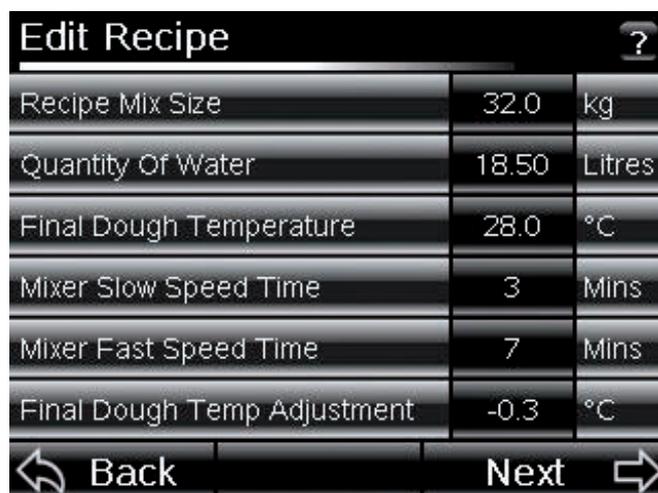
10.3 Edit Product Recipe

- Press 'Settings' icon (password 2808)
- Press 'Edit Recipe' icon
- Press 'Edit Category'
- Press 'Select' icon.



10.3.1 Edit Product Recipe

- Recipe Mix Size: Base recipe size
- Quantity of Water: Required water amount in litres
- Final Dough Temperature: Temp of dough °C
- Mixer Slow speed Time: Slow speed duration in minutes
- Mixer Fast Speed Time: Fast speed duration in minutes



Select each of the above icons and enter the required value by pressing on the number for each entry and entering via the keypad

- Press the 'Next' icon.

Category, Product and Product Recipe Handling

10.3.2 Edit Mix Sizes



N.B Please calculate your mix sizes and ensure they are divisible into your base mix size e.g. if your base mix is set to 32kg then you have the option of 16kg, 8kg, 4kg etc.

- Select each of the above icons and enter the required value by pressing on the number for each entry and entering via the keypad
- Press the 'Next' icon.

10.3.3 Edit Ingredients

There are up to 10 'Ingredients' listed, 5 per page.



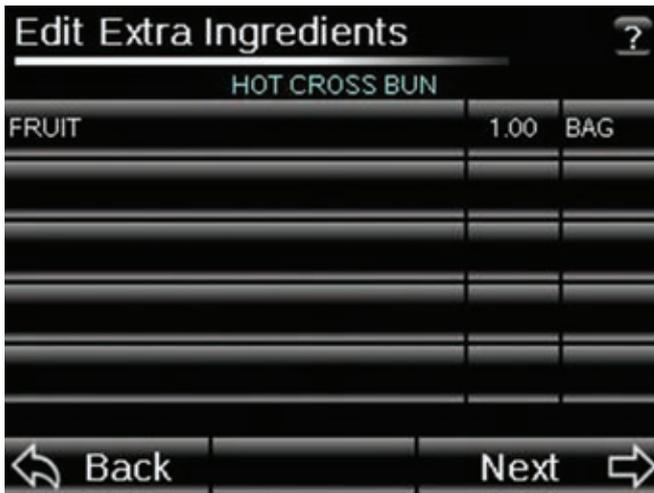
- Select each of the above ingredient value icons and enter the required value by pressing on the number for each entry and entering via the keypad
- Press the 'Next' icon.

Category, Product and Product Recipe Handling

10

10.3.4 Edit Extra Ingredients

- Enter Ingredients and values in relevant columns/rows
- 1st Column: Ingredient
- 2nd Column: Amount
- 3rd Column: Units



There are up to 5 Extra Ingredients

- 'Confirm' edited recipe with 'Save' icon, or 'Cancel'
- 'Edit Complete'.

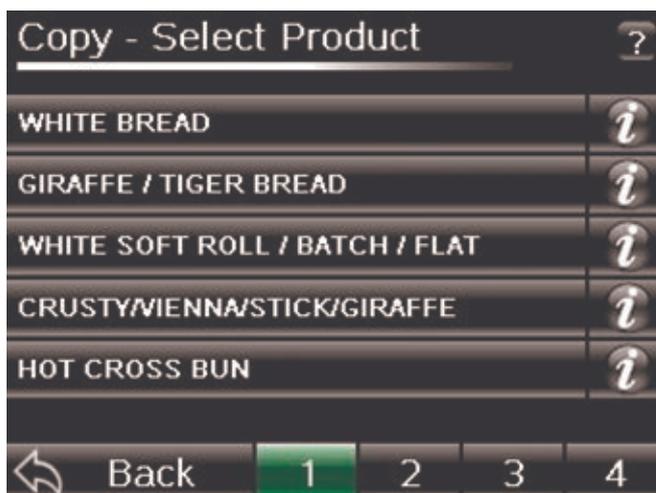
Category, Product and Product Recipe Handling

10

10.4 Copy Product Recipe

This will duplicate a recipe entry to a new or existing (overwriting it in the process) location.

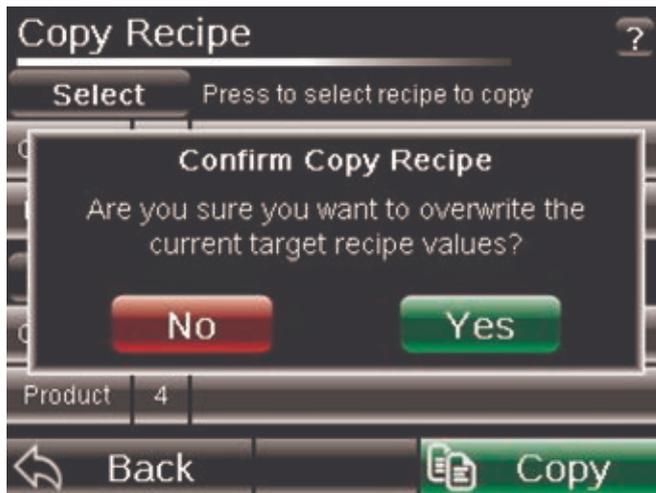
- Press 'Settings' icon and input password (2808)
- Press 'Enter'
- Press 'Copy Recipe'
- Press the 'Select' button to select the Recipe to copy
- Select 'Category' to copy
- Select 'Product' to copy (selecting 'i' will display recipe information and will return you to the Copy Recipe Home Page)



Category, Product and Product Recipe Handling

10

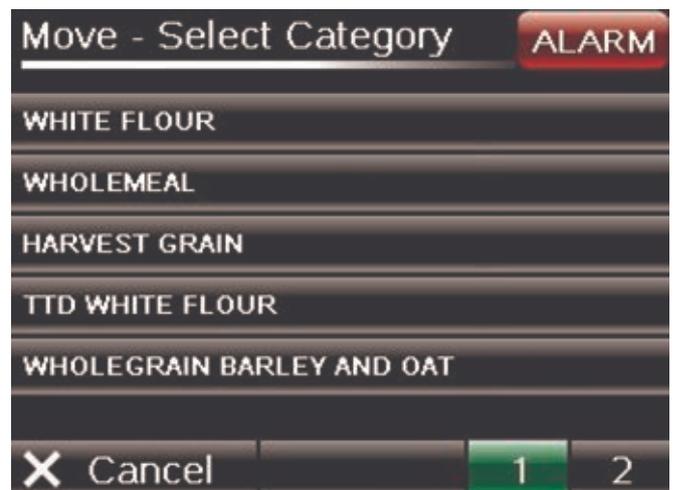
- Press 'Select' to select Recipe Destination
- Select 'Category' destination (this can either be an existing category or a blank category, with the blank 'Category' slot name being edited later)
- Select 'Product' destination slot to copy to. If selecting an existing recipe, this will overwrite it. If selecting a blank slot, it will copy the name and the recipe information to this slot
- Press 'Copy' and 'Confirm'.



10.5 Move Product Recipe

This will move an existing recipe entry to a new or existing (overwriting it in the process) location. The previously stored location of the recipe selected to move will then be blank.

- Select 'Category' to move
- Select 'Product' to be moved (selecting 'i' will display recipe information – this will return you to the 'Move Recipe' home page)



- Select 'Category' destination (this can be an existing category or a blank category, with the blank category slot name being edited later)

Category, Product and Product Recipe Handling

10



- Select 'Product' destination. If selecting an existing recipe, this will overwrite it. If selecting a blank slot, it will 'Move' the name and the recipe information to this slot.
- Press 'Move' and 'Confirm'.



Category, Product and Product Recipe Handling

10

10.6 Delete Product Recipe

This will delete an existing recipe entry and leave a blank slot in its place.

- Press 'Settings' icon and input password (2808)
- Press 'Delete Recipe' button



- Select 'Product Category'
- Select 'Product' to be deleted (selecting 'i' will display recipe information – this will return you to the 'Delete Recipe' home page)



- Press 'Delete' and 'Confirm'.

Common Spare Parts

11

11.1 Electrical Spare Parts

Proportional Solenoid Valve



Part no:	A900-34-413
Dimensions:	Inlet/Outlet: 1/2"

Proportional Valve Coil



Part no:	B867-06-004
Dimensions:	79mm(w) x 30mm(d) x 20mm(h)

Flow Meter



Part no:	A900-34-396
Dimensions:	Inlet / Outlet: 3/8" 55mm(w) x 30mm(h)

Controller & HMI Screen



Part no:	B801-93-027
Dimensions:	5.7" Screen 169mm(w) x 129mm(h) x 75mm(d)

HMI Screen



Part no:	B801-93-029
Dimensions:	5.7" Screen 169mm(w) x 129mm(h) x 25mm(d)

Controller



Part no:	B801-93-031
Dimensions:	5.7" Screen 169mm(w) x 129mm(h) x 50mm(d)

Power Supply



Part no:	B801-93-032
Dimensions:	150mm(w) x 144mm(h) x 38mm(d)

Remote I/O Module



Part no:	B801-80-045
Dimensions:	55mm(w) x 90mm(h) x 70mm(d)

Solenoid Valve Push Fit



Part no:	A900-34-397
Dimensions:	Inlet/Outlet: 3/8"

Common Spare Parts

11

11.1 Electrical Spare Parts Continued

Hand Held Probe



Part no:	B842-96-006
Dimensions:	Probe Length: 115mm Probe Diam: 3.3mm Cable Length: 2m

Size 14 Cable Clamp Shell



Part no:	B842-25-022
Dimensions:	Cable Opening: 7mm - 18.5mm

12 Way Female Plug



Part no:	B842-25-021
Dimensions:	Length: 38mm Diam: 28mm

Facia Socket K Type Thermocouple



Part no:	B900-96-001
Dimensions:	14.25mm(w) x 23.3mm(h) x 21.5mm(d)

K-Type Thermocouple, Grounded Junction 0.5mm Diam



Part no:	B873-95-009
Dimensions:	Probe Length: 200mm Cable Length: 1.5m

USB Extension Cable



Part no:	B801-93-028
Dimensions:	Cable Length: 1m Cap: 25m x 40mm

Sounder



Part no:	B723-92-002
Dimensions:	60mm(w) x 44mm(d) x 52mm (diam)

3 Pin 13A Mains Plug



Part no:	B835-25-002
Dimensions:	N/A

Mixer Connection Cables



Part no:	B801-93-030
Dimensions:	Length: 3m

Common Spare Parts

11

11.1 Electrical Spare Parts Continued

Ethernet Socket



Part no:	B842-06-035
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Dimensions:	Sealed 22mm
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USB Socket



Part no:	B842-06-036
-----------------	-------------

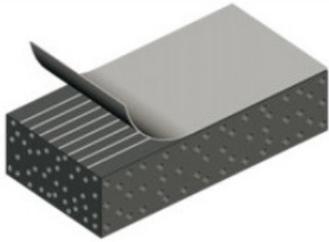
Dimensions:	Sealed 22mm
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Common Spare Parts

11

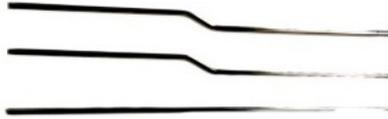
11.2 Mechanical Spare Parts

Neoprene Door Seal Tape



Part no:	A900-12-036
Dimensions:	Length: 275mm x 2 Length: 410mm x 2

Chrome Pipe Installation Kit



Part no:	011-02-01400
Dimensions:	Length: 1m

Chrome Pipe Installation Kit Straight Only



Part no:	011-02-01300
Dimensions:	Length: 1m

Chrome Pipe Installation Kit Offset



Part no:	011-02-01200
Dimensions:	Length: 1m Offset: 30mm

Polythene Tube



Part no:	A900-23-014
Dimensions:	Length: 1m Diameter: 19mm

Double Hinge



Part no:	A900-27-231
Dimensions:	N/A

Non Return Valve



Part no:	A900-34-398
Dimensions:	22mm x 22mm

Door Latch



Part no:	A900-27-232
Dimensions:	N/A

Door Key - Triangular



Part no:	A900-27-099
Dimensions:	N/A

Common Spare Parts

11

11.2 Mechanical Spare Parts Continued

Lanyard

Part no: A900-34-412

Dimensions: 377mm Length

Lanyard

Part no: A900-34-411

Dimensions: 456mm Length

Bowl Crook

Part no: 310-00-00800

Dimensions: N/A

Isolation Valve

Part no: A900-34-406

Dimensions: 15mm Compression

Removable Filter

Part no: A900-34-399

Dimensions: 15mm Compression

Hose Push Fit

Part no: A900-34-407

Dimensions: 15mm Compression

Common Spare Parts

11.2 Mechanical Spare Parts Continued

Copperwork Backplate Complete



Part no:	011-02-01500
Dimensions:	N/A

Copperwork Backplate Section A



Part no:	011-02-01600
Dimensions:	N/A

Copperwork Backplate Section B



Part no:	011-02-01700
Dimensions:	N/A

Copperwork Backplate Section C

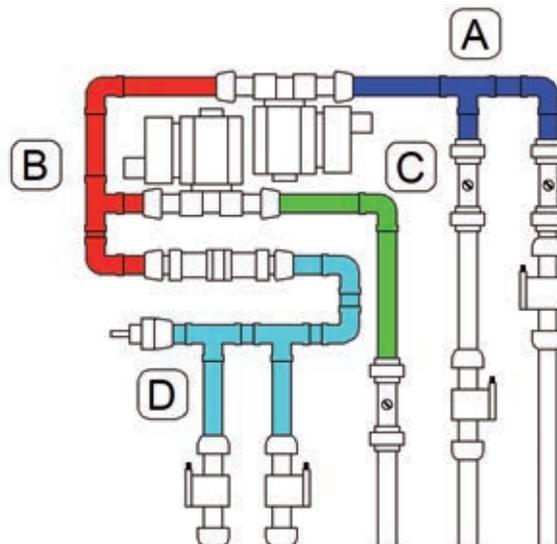


Part no:	011-02-01800
Dimensions:	N/A

Copperwork Backplate Section D



Part no:	011-02-01900
Dimensions:	N/A



Electrical Diagrams

12

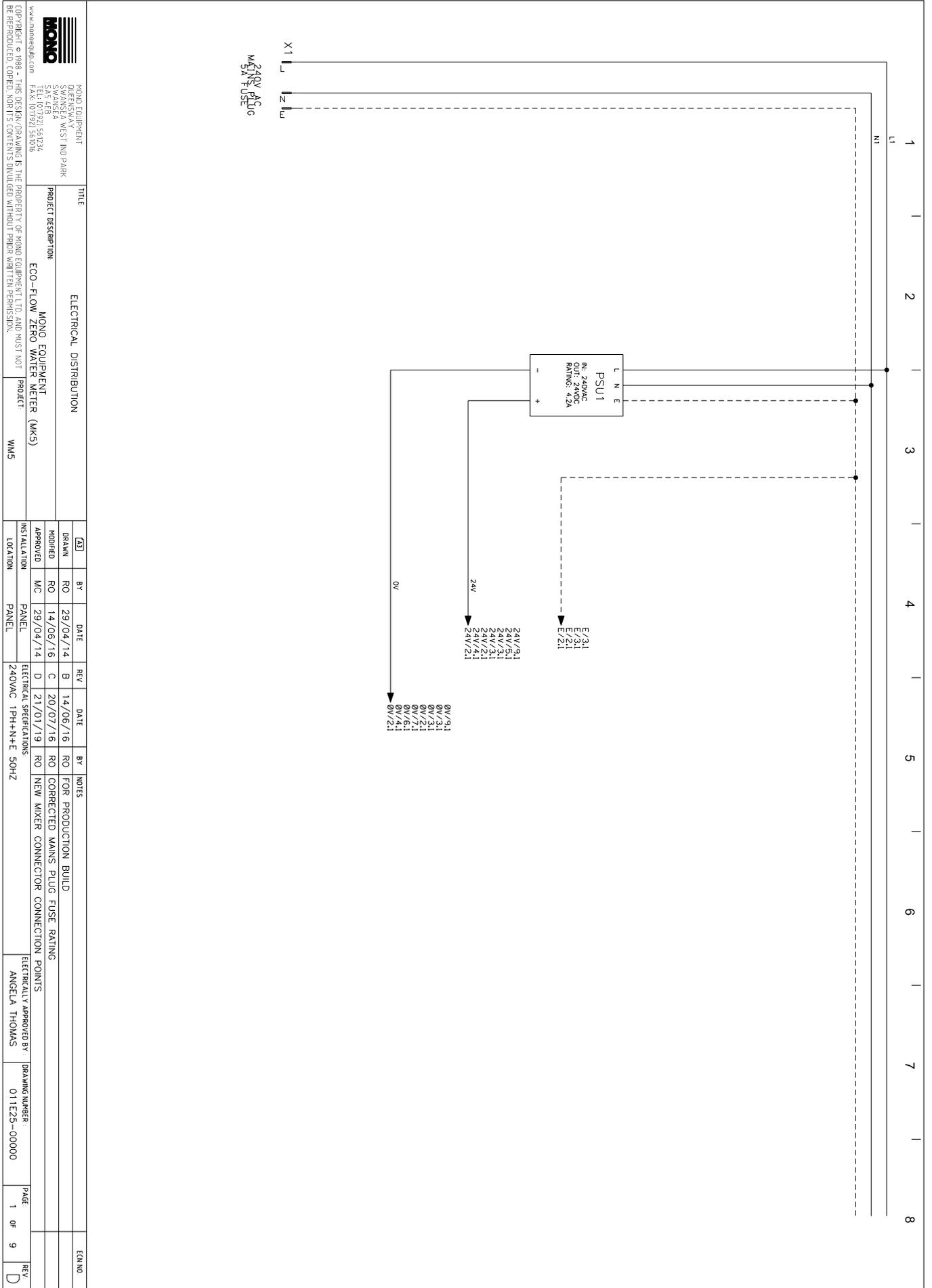
12.1.1 Wiring Diagrams

Page	Page Description
1	Electrical Distribution
2	HMI Controller Layout
3	Remote I/O Layout
4	Controller Inputs
5	Controller Inputs
6	Controller Outputs
7	Controller Outputs
8	Controller Analogue Inputs

Revision History

Revision	Date	Page Description
A	25/11/2013	As Built Wiring Diagrams
B	14/06/2016	Product Wiring Diagrams

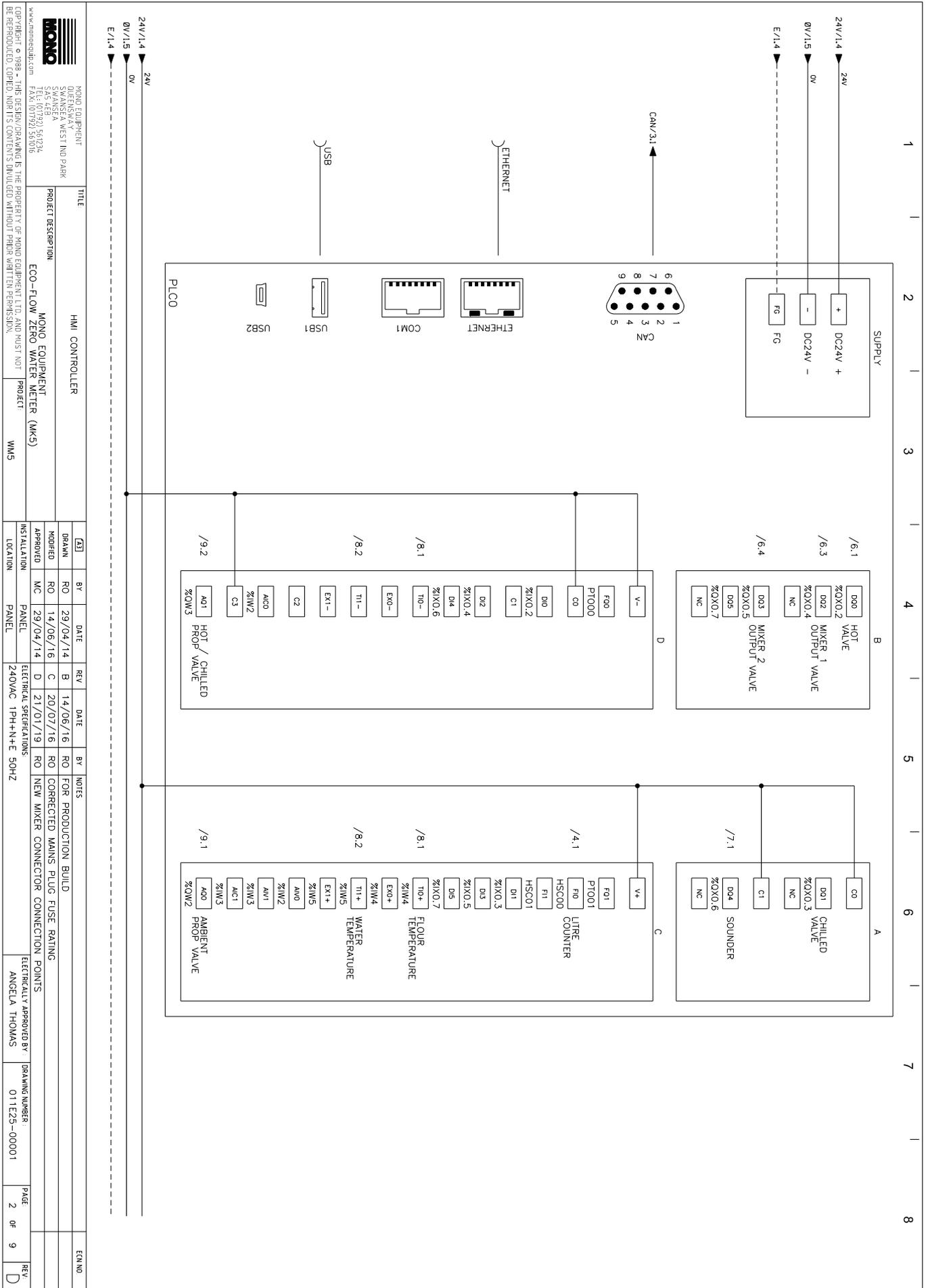
Electrical Diagrams



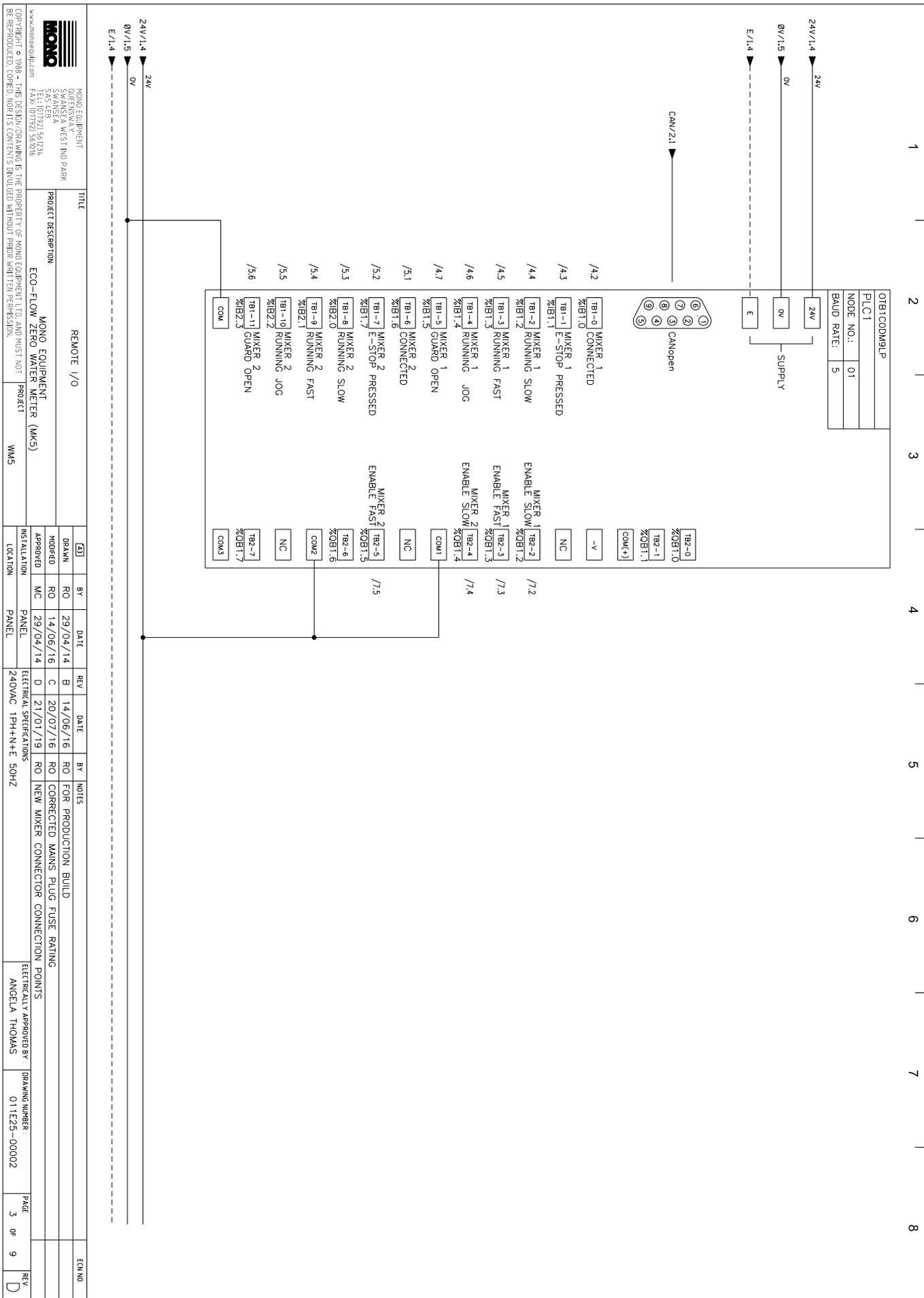
		MONO EQUIPMENT QUEENSLAND 5/55 LEB SWANSEA QLD 4101 TEL: 07 321 56 724 FAX: 07 321 56 724 www.monoequipment.com		TITLE ELECTRICAL DISTRIBUTION		PROJECT DESCRIPTION MONO EQUIPMENT ECO-FLOW ZERO WATER METER (MKS)		PROJECT WMS	
DATE	BY	DATE	REV	DATE	BY	NOTES			
29/04/14	RO	29/04/14	B	14/06/16	RO	FOR PRODUCTION BUILD			
14/06/16	RO	29/04/14	C	20/07/16	RO	CORRECTED MANS PLUG FUSE RATING			
29/04/14	MC	21/01/19	D		RO	NEW MIXER CONNECTOR CONNECTION POINTS			
INSTALLATION		ELECTRICAL SPECIFICATIONS		ELECTRICALLY APPROVED BY		DRAWING NUMBER:		PAGE	
PANEL		240VAC 1PH+N+E 50HZ		ANGELA THOMAS		011E25-00000		1 of 9	
REV		DATE		BY		NOTES		REV	
D									

Electrical Diagrams

12

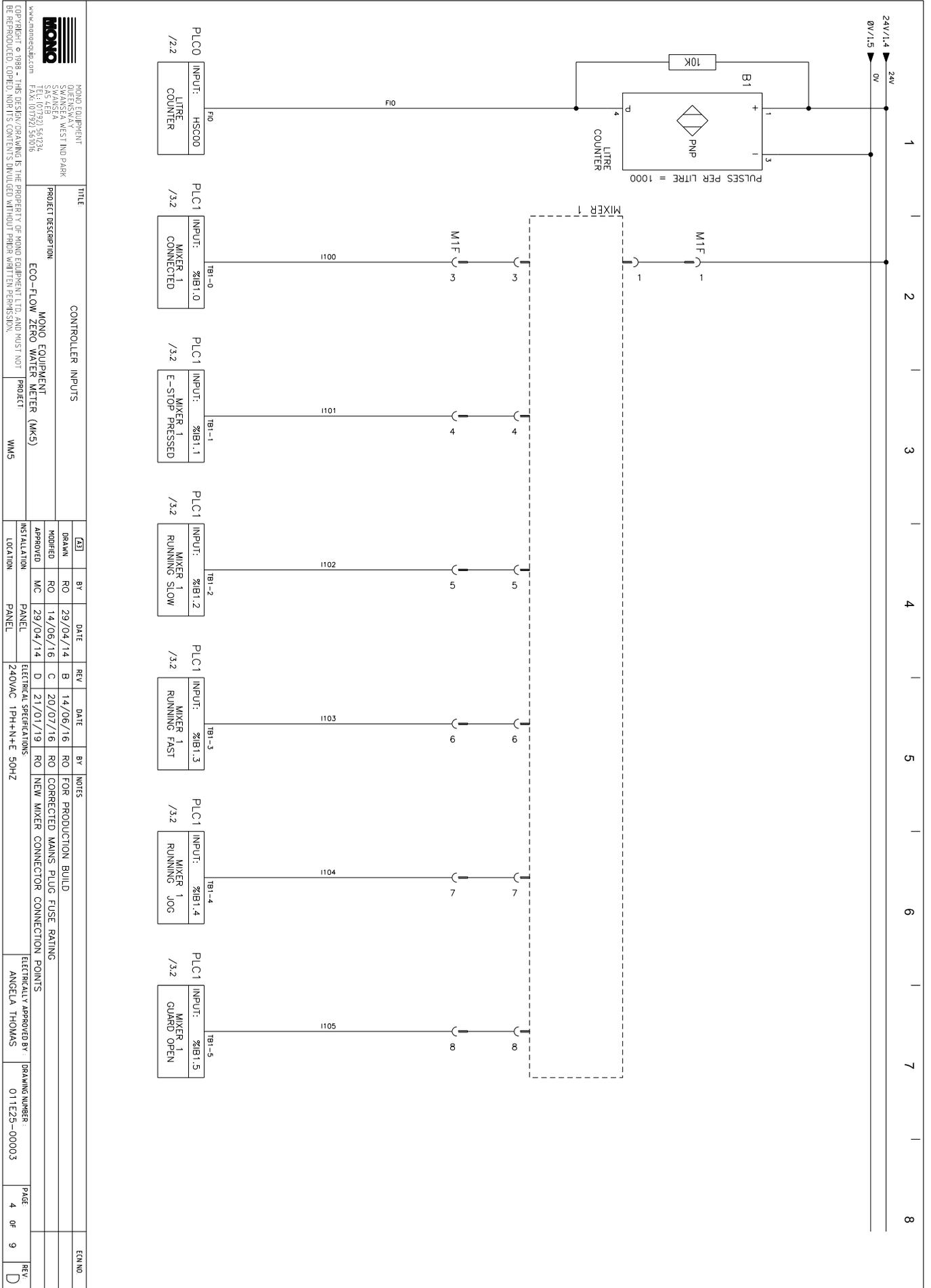


Electrical Diagrams

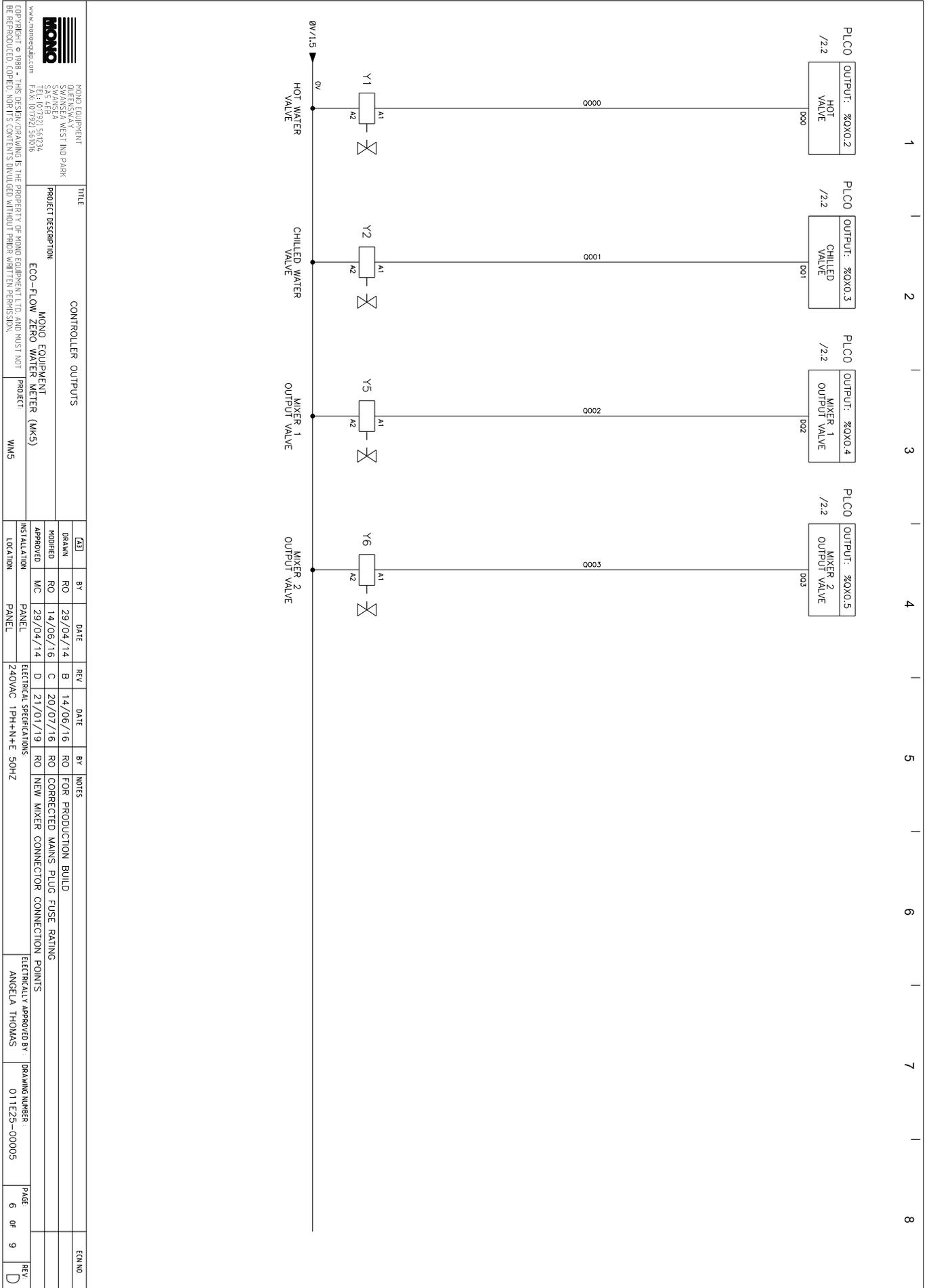


Electrical Diagrams

12



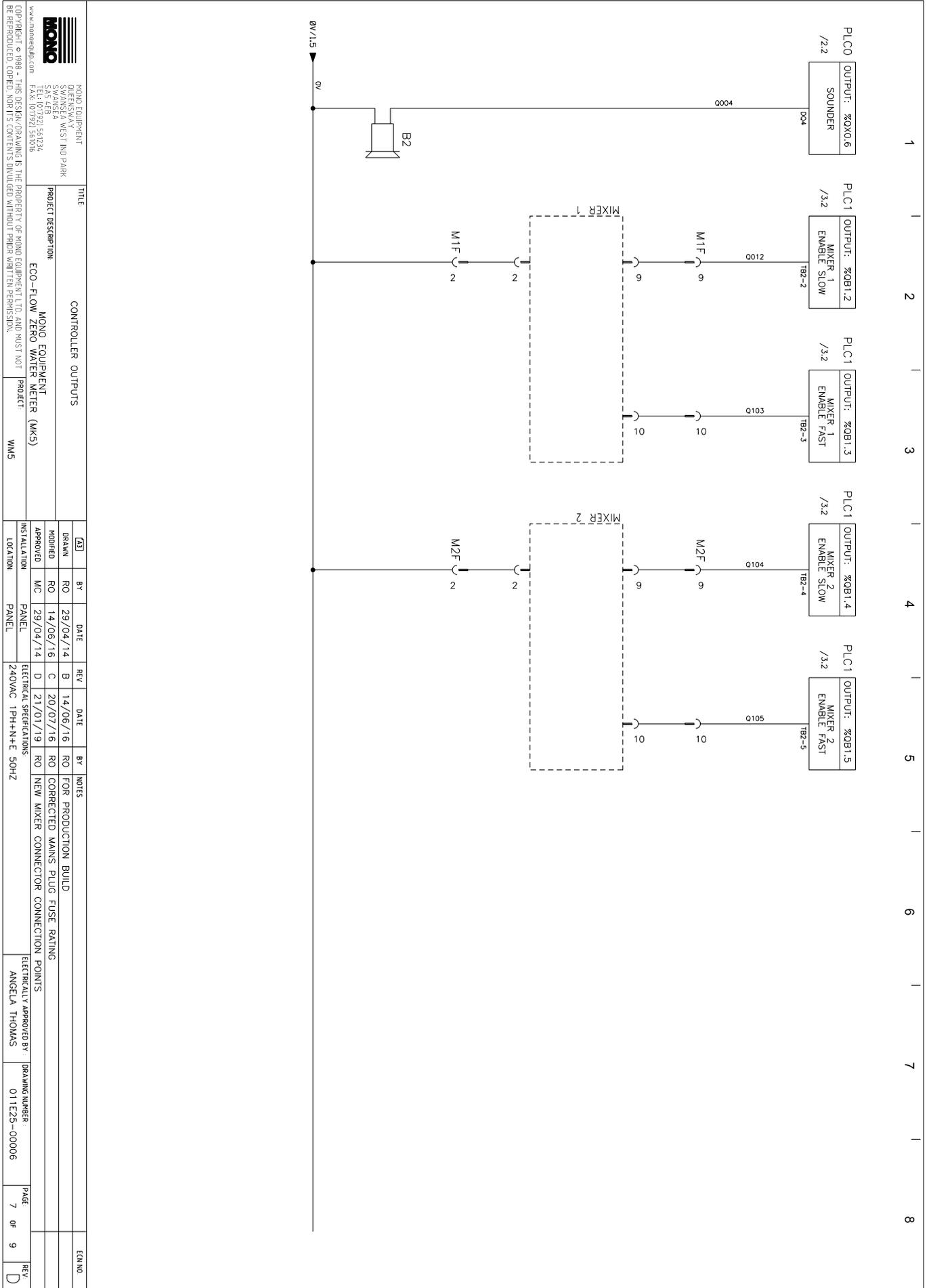
Electrical Diagrams



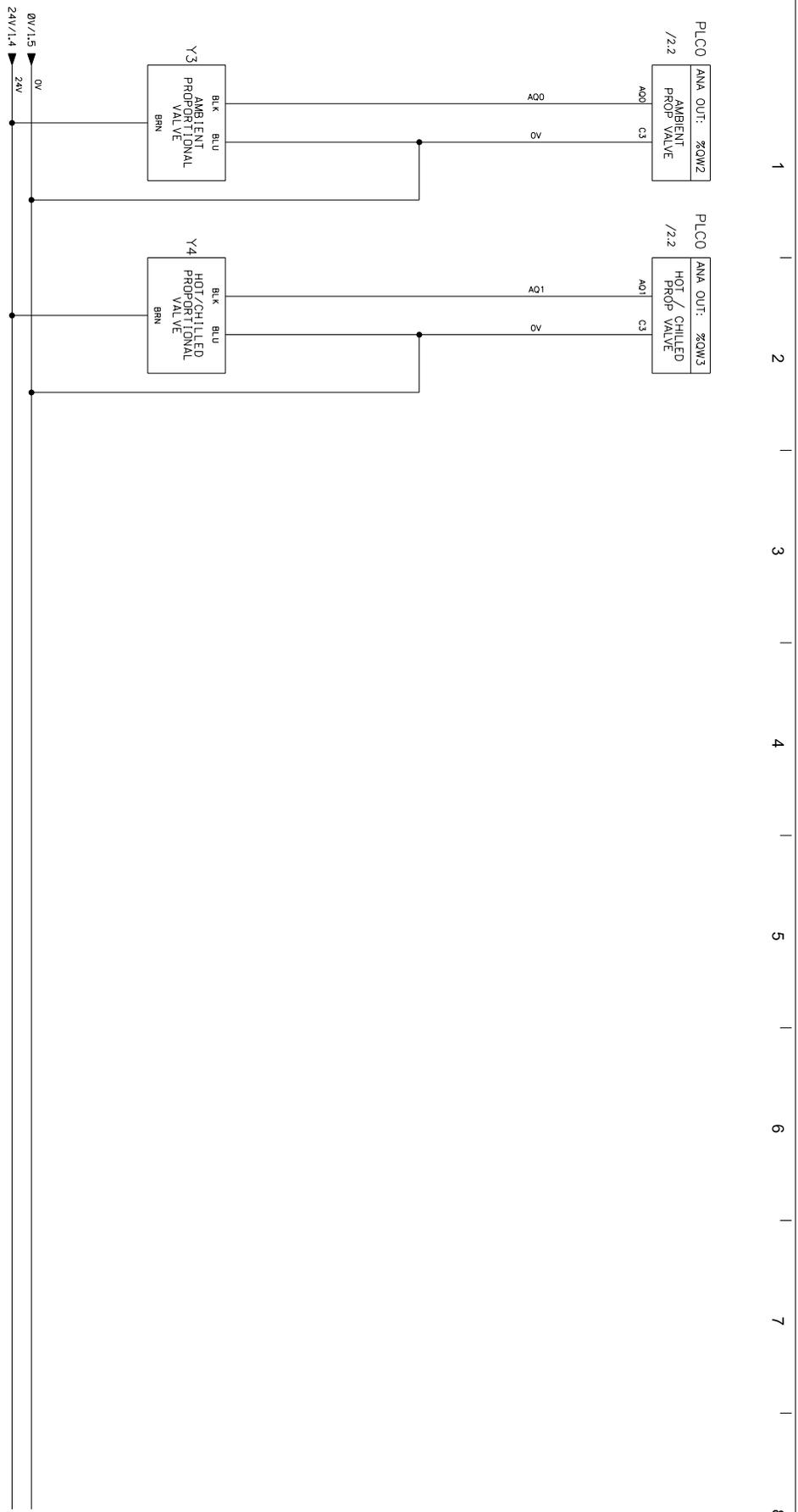
		MONO EQUIPMENT QUEENSWAY SWANSEA SA5 4EB TEL: 01792 56724 FAX: 01792 56706 www.monoequip.com		TITLE CONTROLLER OUTPUTS		PROJECT DESCRIPTION MONO EQUIPMENT ECO-FLOW ZERO WATER METER (MKS)		PROJECT WMS		DATE 29/04/14		REV B 14/06/16		BY RO		NOTES FOR PRODUCTION BUILD		ECN NO																	
DRAWN RO		29/04/14		C 20/07/16		RO		CORRECTED MAINS PLUG FUSE RATING		14/06/16		RO		CORRECTED MAINS PLUG FUSE RATING		POINTS		APPROVED MC		29/04/14		RO		NEW MIXER CONNECTOR CONNECTION		POINTS		ELECTRICALLY APPROVED BY ANGELA THOMAS		DRAWING NUMBER: 011E25-00005		PAGE 6 OF 9		REV D	
INSTALLATION LOCATION		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL		ELECTRICAL SPECIFICATIONS 240VAC 1PH+N+E 50HZ		PANEL	

Electrical Diagrams

12



Electrical Diagrams



		MONO EQUIPMENT QUEENSWAY 8 MANNING STREET SMANSEA SA5 4EB TEL: 01792 567234 FAX: 01792 567010 www.monoequipment.com		TITLE CONTROLLER ANALOGUE OUTPUTS		PROJECT DESCRIPTION MONO EQUIPMENT ECO-FLOW ZERO WATER METER (MK5)		PROJECT WMS		DATE DRAWN: 29/04/14 MODIFIED: 14/06/16 APPROVED: 29/04/14		LOCATION PANEL		REV B 14/06/16 C 20/07/16 D 21/01/19		BY RO FOR PRODUCTION BUILD RO CORRECTED MANS FUSE RATING RO NEW MIXER CONNECTOR CONNECTION POINTS		NOTES ELECTRICAL SPECIFICATIONS: 240VAC 1PH+N+E 50HZ		APPROVED BY ANGELA THOMAS		DRAWING NUMBER: 011E25-00008		PAGE 9 OF 9		REV D	
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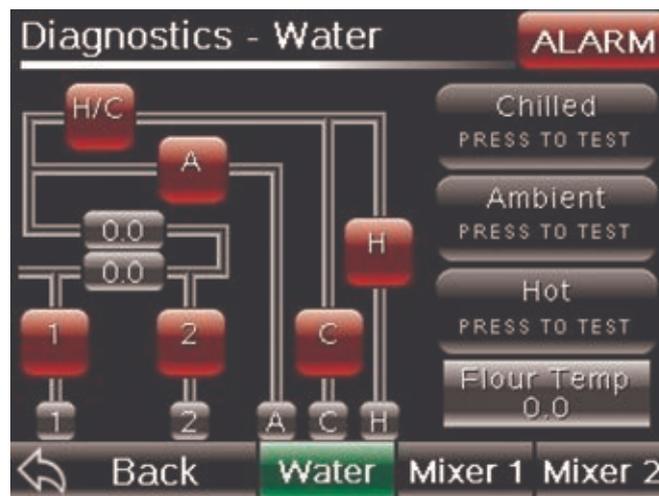
Troubleshooting

13

13.1 Diagnostics

- Press 'Settings' icon and input password (3142)
- Press 'Diagnostics'.

13.1.1 Water



Overview

- Layout of piping displayed. Red icons allow you to open/close the valves. The two readings display flow and temperature.

Flour Temp

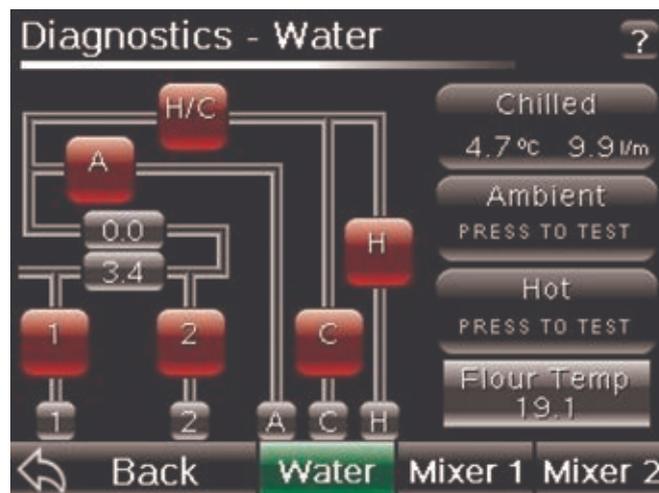
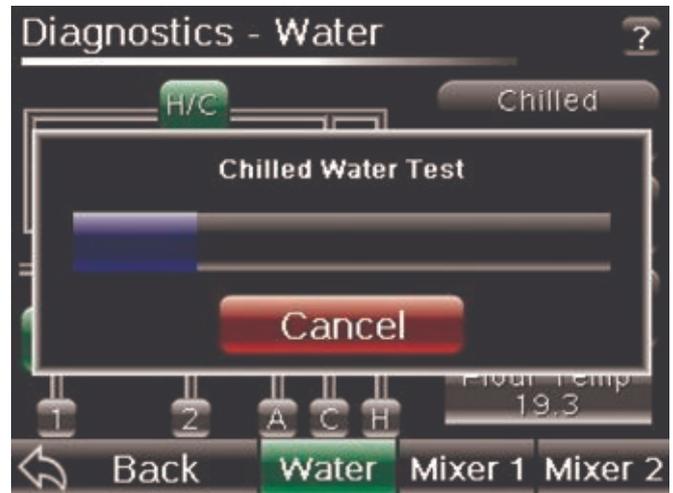
- Displays real time calibrated Flour Temperature.

Troubleshooting

13

Chilled / Ambient / Hot Test

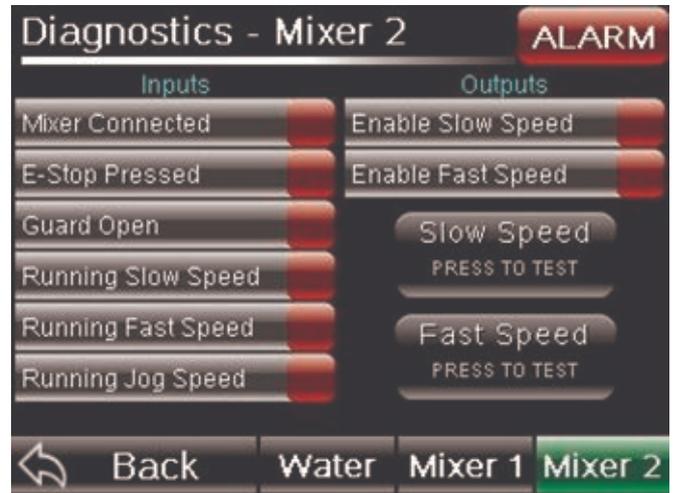
- Pressing this will test the temperature and flow rate of the selected inlet. A popup screen will display which Mixer outlet the water will be delivered from. 5 seconds to stabilise and then 5 seconds to measure the flow and temperature. This will display your results on screen.



Troubleshooting

13

13.1.2 Mixers



- Displays Input and Output status
- Mixer speed can be selected via relevant icons.

Troubleshooting

13

13.2 Statistics

Selecting 'Statistics' will present you with two icons, 'Historic' and 'Batch'.

- Historic - This will display statistics from day 1 of operation of the device (note this can be reset via factory reset)



- Batch - This will display statistics from the last time the Reset icon (pictured below) was selected.

Water Usage		From 7-5-14	ALARM
Total Water Dispensed		14 Litres	
Chilled Water Dispensed		9 Litres	
Ambient Water Dispensed		3 Litres	
Hot Water Dispensed		2 Litres	
Water Dispensed Manual		8 Litres	
Water Dispensed Mixer 1		0 Litres	
Water Dispensed Mixer 2		0 Litres	
Calculate Cost			
Back	Water	Stats	Valve Mixer

Above shows a 'Batch Statistics' screen which has the date in blue denoting when the batch counter was last reset.

Troubleshooting

13

13.2.1 Statistics - Water

- Displays water usage statistics. Cost can be calculated by entering values accordingly. Adjust costs by tapping the cost and entering a monetary value in pence.

Water Usage		ALARM
Total Water Dispensed	0 Litres	
Chilled Water Dispensed	0 Litres	
Ambient Water Dispensed	0 Litres	
Hot Water Dispensed	0 Litres	
Water Dispensed Manual	0 Litres	
Water Dispensed Mixer 1	0 Litres	
Water Dispensed Mixer 2	0 Litres	
Calculate Cost		
Back Water Stats Valve Mixer		

Water Cost			?
	Cost / Litre	Total	
Chilled Water	0.03	0	
Ambient Water	0.01	0	
Hot Water	0.02	0	
Total Cost For Delivered Water		0	
Back Water Electricity			

13.2.2 – Statistics - Stats

- Left Graph: Displays deliveries at specific temperatures, between the set values
- Right Graph: Displays flour temperature readings
- Highest reading will show at 100%, all other readings scaled accordingly.

Usage Satatistics				ALARM
Hours Active		0:28:22		
Hours Dispensing		0: 0 :10		
Water Temperature		Flour Temperature		
Deliveries	1	Readings	1	
0 5 10 15 20 25 30 35 40 45 50 0 5 10 15 20 25 30 35 40 45 50				
Back Water Stats Valve Mixer				

Troubleshooting

13

13.2.3 Statistics - Valve

- The Valve statistics page will display how many times a valve has been cycled and how long that valve has been energised or in operation. This is accessible from the 'Valve' icon on the bottom of the screen.

	Cycles	Hours Active
Chilled Valve	2	0: 0 : 3
Hot Valve	3	0: 0 : 7
Mixer 1 Output Valve	1	0: 0 : 10
Mixer 2 Output Valve	0	0: 0 : 0
Ambient Mixer Valve	1	0: 0 : 4
Hot / Chilled Mixer Valve	1	0: 0 : 10

13.2.4 Statistics - Mixer

- The Mixer Usage details the running time of each mixer and how long at each speed setting it has been running.

	Hours Active
Mixer 1 Running Fast Speed	0: 0 : 0
Mixer 1 Running Slow Speed	0: 0 : 0
Mixer 1 Running Jog Speed	0: 0 : 0
Mixer 2 Running Fast Speed	0: 0 : 0
Mixer 2 Running Slow Speed	0: 0 : 0
Mixer 2 Running Jog Speed	0: 0 : 0

Troubleshooting

13

13.3 Alarms

Date	Time	State
21/02/14	10:11:36	ACTIVE
21/02/14	09:53:09	ACTIVE

Back Active Historic Log

Active

- Current alarms and their status, with date and time.

Historic

- Will display cleared alarms and current alarms along with date/time etc.

Log

- Displays entire alarm history and allows the alarm log to be saved to USB via this icon.

Troubleshooting

13

13.3.1 Alarm List

Alarm	Alarm Description	Action
ENTERED AND FLOUR VALUES DEVIATE > +/- 10	Entered Calibration Temperature deviates from Measured Flour Temperature	Check measurement and repeat procedure
ENTERED AND WATER VALUES DEVIATE > +/- 10	Entered Calibration Temperature deviates from Measured Water Temperature	Check measurement and repeat procedure
TIME-OUT FOR STEADY WATER + FLOUR TEMP	Stable Temperature Probe Reading of Water not achieved within required time	Check ambient water supply is steady with regards to temperature
WATER AND FLOUR VALUES DEVIATE > +/- 5	Internal & External Temperature probes exceed allowable temperature deviation	Check that both probes are positioned correctly in the flow of water
CAN BUS ERROR	Communications error with Remote I/O unit	Call a Service Engineer
CAN REMOTE I/O COMMUNICATION FAULT	Communications error with Remote I/O unit or Remote I/O unit in fault.	
FLOW OUT OF RANGE > = 20L/minute	Flow rate exceeds limit during Assisted Setup	Reduce flow rate using isolation valves.
MIXER 1 RUN FAST SPEED TIME-OUT	Mixer 1 fails to run at fast speed	Check mixer connections, then check diagnostics screen. Persistent problems, contact service engineer.
MIXER 1 RUN SLOW SPEED TIME-OUT	Mixer 1 fails to run at slow speed	
MIXER 2 RUN FAST SPEED TIME-OUT	Mixer 2 fails to run at fast speed	
MIXER 2 RUN SLOW SPEED TIME-OUT	Mixer 2 fails to run at slow speed	
FLOUR TEMP PROBE BROKEN WIRE	Temperature Probe Fault	Check that probe is connected. If connected and error persists, replace probe
FLOUR TEMP PROBE CONFIG ERROR	Temperature Probe configuration error	Call a Service Engineer
FLOUR TEMP PROBE INVALID VALUE	Temperature Probe invalid value	Check that probe is connected. Replace probe if faulty, if error persists, call service engineer
FLOUR TEMP PROBE OVER RANGE	Temperature Probe exceeds valid range.	Check that probe is connected. Replace probe if faulty, if error persists, call service engineer
WATER TEMP PROBE CONNECTION ERROR	Temperature Probe fault	Call a Service Engineer
WATER TEMP PROBE CONFIG ERROR	Temperature Probe configuration error	

Troubleshooting

13

Alarm	Alarm Description	Action
WATER TEMP PROBE INVALID VALUE	Temperature Probe invalid value	Call a Service Engineer
WATER TEMP PROBE OVER RANGE	Temperature Probe exceeds valid range	
WATER LOW FLOW RATE DETECTED	During normal operation if flow drops below minimum for a set period	Check water supply flow rates
WATER TEMP DEVIATION (A / T) A = ACTUAL T = TARGET	Water temperature deviates by 5°C from set point	Indication only
REPEATED WATER TEMP DEVIATION	Water temperature deviates by 5°C from setpoint 5 times within an hour	Call a Service Engineer
CALIBRATE LITRES VALUES OUT OF RANGE	Calibrated pulses per litre is more than 1100 or less than 900.	Repeat calibration process
FLOUR TEMPERATURE LIMITED HIGH (50)	Measured flour temperature exceeds 50°C	Warning to indicate setpoint has been limited to 50°C. Check Probe is measuring correctly
FLOUR TEMPERATURE LIMITED LOW (0)	Measured flour temperature below 0°C	Warning to indicate setpoint has been limited to 0°C. Check Probe is measuring correctly
WATER SETPOINT LIMITED HIGH (40)	Water Setpoint has reached high limit.	Warning to indicate that Setpoint limit has been reached. Check flour temperature is sensible value
WATER SETPOINT LIMITED LOW (0)	Water Setpoint has reached low limit	Warning to indicate that Setpoint limit has been reached. Check flour temperature is sensible value
FILE TRANSFER ERROR	Data transfer to USB Memory Stick error	Check Memory Stick is formatted FAT32 and is situated correctly in the USB port
RECIPE ERROR	Recipe load error	Re-try loading recipe from main page. If persistent problems, call a service engineer
SAVE ALARM LOG ERROR	Alarm Log save error	Check Memory Stick is formatted FAT32 and is situated correctly in the USB port
SAVE ALARM LOG - USB MISSING ERROR	Saving Alarm Log to USB Memory Stick error	Check Memory Stick is formatted FAT32 and is situated correctly in the USB port
SOFTWARE VERSION MISMATCH	Software version between screen and controller are different	Reload software

Device Management

14

Device Management allows you to backup / update / restore recipes and update your system software.

14.1 Backup

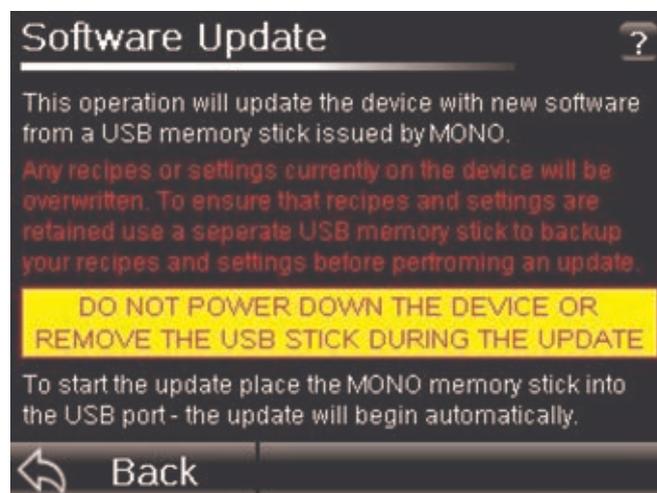
- Insert a USB memory stick into the USB port
- Select 'Backup' from the Device Management Screen (This will back up your recipes, data and settings to a USB stick)
- Select 'Backup to USB'.

NOTE: Any recipes or settings on current stick will be erased.



14.2 Update

- Select 'Update' from the Device Management screen
- When the screen below is displayed, insert your USB memory stick containing the required software update.



Device Management

14

14.3 Restore

- Select 'Restore' (This will restore recipes, data and settings from a previous backup on USB stick)
- Select 'Restore from USB' to begin

NOTE: Restoring will overwrite existing recipes, data and settings on system with information stored on USB memory stick.



14.4 Restore - Advanced

Allows you to select to restore Recipes only, or Settings and data only

- Select 'Restore' (This will restore recipes, data and settings from a previous backup on USB stick)
- Select 'Advanced' at the bottom right hand corner of the screen to begin.



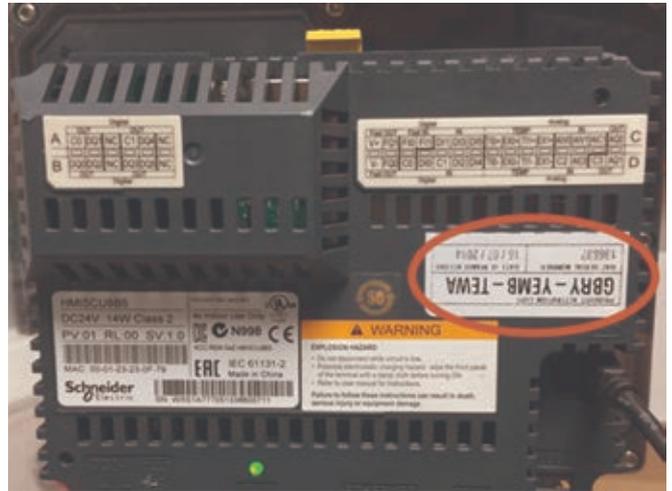
NOTE: Selected item to restore will overwrite existing info.

Device Management

14

14.5 Product Activation

- When a product requires activation this screen will appear
- Enter your Product Activation Code by pressing the code entry field.



Alternatively you can go through a Restore by using the 'Restore' icon and going through the Restore procedure listed previously.

Device Management

14

14.6 Remote Access



- Access the Advanced Settings menu and ensure the checkbox for 'Allow Remote Connections' is ticked
- Ensure your device is connected to the same wireless network as your iPhone, iPad or Android device
- Install Vijeo Design Air on your iPhone, iPad or Android device
- Open the application on your iOS / Android device and you will see a list of remote servers
- Select the required remote server.

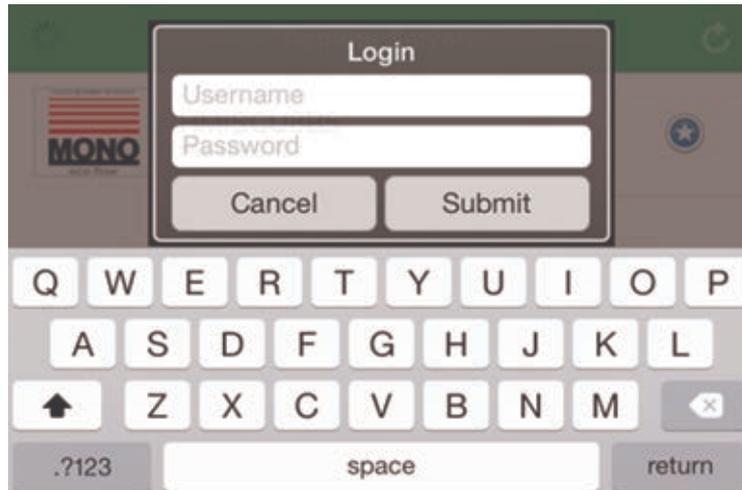


Vijeo Design Air



Device Management

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- You will then have to enter the Username and Password to access this device
- Upon entering the correct Username and Password you will have access to the Eco-Flow Zero Water Meter.



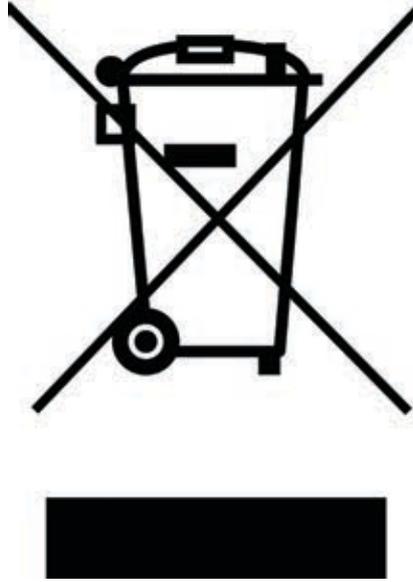
Screen Capture from Controller



Screen Capture from iPhone 4S

NOTE: The blue icon in the top right hand corner of the screen denotes that there is a remote connection open.

Disposal Advice

15

The Eco-Flow Zero Water Meter must be removed by an approved Waste Carrier and disposed of in accordance with the WEEE Directive 2012/19EU.

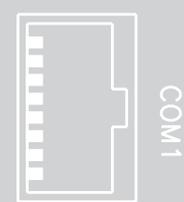
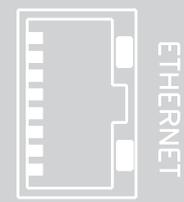
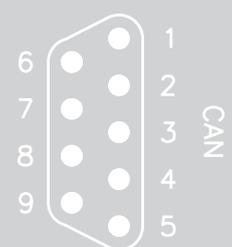
Maintenance Procedures

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16.1 Maintenance Procedures

- Calibrate Probe Weekly
- Check Filters are free from debris and cleaned annually
- Ensure hinges operate correctly and oil as required.

Notes



MONO Equipment

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