DAVEY

DAVEY
SumpMaster

Mini

Level Control systems
For Manual Sump Pumps up to 750W
1 or 2 Pump Systems

Please pass these instructions on to the operator of this equipment.

DSM-Mini-0.4 = 10A combined Max
DSM-Mini-0.75 = 15A combined Max

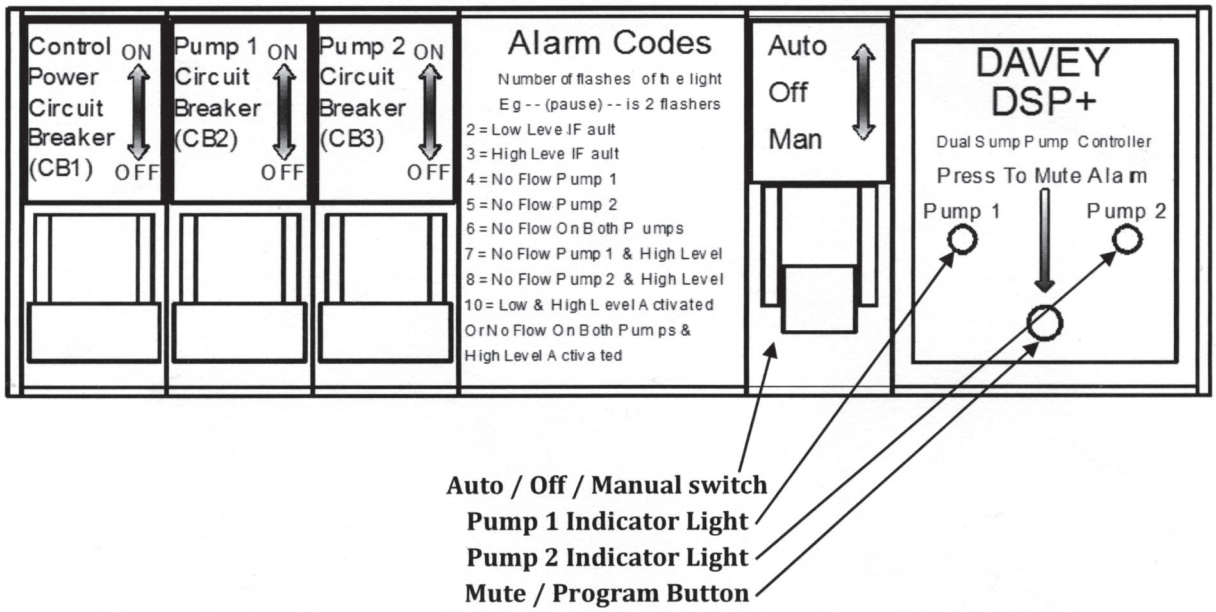
Introduction

The SumpMaster Mini controller operates two pumps in order to maintain a desired level within your system. The SumpMaster Mini comes in both single phase 10A and 15A models. Please note that the 15A model requires a single phase power outlet rated to 15A. The 15A lead has a longer earth pin that will not fit into, and must not be installed in, a 10A outlet.

The SumpMaster Mini 10A model is capable of running 2 x 0.55kW (nominal) pumps with a rating of 5 Amps Full Load Current each. The SumpMaster Mini 15A model is capable of running 2 x 0.75kW (nominal) pumps with a rating of 7.5 Amps Full Load Current each.

The SumpMaster Mini rotates the lead pump after each cycle. In order to safeguard the life of your pumps a number of protection features are built in. If a fault has occurred the user will be alerted by the buzzer, external alarm light, LEDs and (optional) BMS output. The alarm light is located on top of the panel.

Figure1 – SumpMaster Mini Front Panel



Operational Instructions

Run Pump/s Float Input

When the 'Auto/Off/Manual' switch is in the 'Auto' position, and the 'Run Pump/s' float input is activated, the lead pump will start, followed by the lag pump. The delay between starting the lead pump and the lag pump is known as the 'lag pump' delay.

The input needs to stay continually on because when the input deactivates both pumps will be turned off.

The 'lag pump' delay time is adjustable (see page 5 for more information).

Manual

When the 'Auto/Off/Manual' switch is in the 'Manual' position, the lead pump will start followed by the lag pump with a fixed 2 second delay between.

All the pump protection features are still available in 'Manual' mode.

Off

When the 'Auto/Off/Manual' switch is in the 'Off' position, the pumps will not operate.

All outputs including pumps, buzzers, alarm outputs, alarm conditions will also be cleared/reset.

Alarms

There are three types of alarms; High Level, Low Level, and No Flow. The behaviours of alarms 'Low Level' and 'No Flow' differ depending on whether the SumpMaster Mini is running in 'Low Level Float' or 'Flow Switch' mode. (See step 6 in installation instructions for information on how to change modes).

High Level
'High Level' fault will activate when the high level input is on for a continuous period of 1 second.

If the controller is in 'Auto' and the pumps are not running, the lead pump will be turned on followed by the lag pump 2 seconds later.

If the level falls and the high level float input deactivates, the pumps will turn off and continue to behave as normal.

Low Level
In 'Low Level Float' mode; a Low Level fault will be registered when at least one pump is running and the low level input is on for a continuous period of 5 seconds. Both pumps will be switched off. The pumps will stay off whilst the 'low level' condition is active, if the level rises and the 'low level' float is deactivated the pumps will again become available.

No Flow
- In 'Low Level Float' mode; 'No Flow' fault is not present.
- In 'Flow Switch' mode; when a pump is started the flow switch input should be activated. If it is not activated before the lag pump being turned on then the pump is automatically disabled and a 'no flow' fault is displayed. If flow is found the lag pump will continue to operate. The Alarm light on the top of the unit will flash to indicate that the pump has been disabled.
- If both pumps are running and no flow is detected, both pumps will be shut down and assigned 'no flow' faults.

All alarms will activate the Alarm light, buzzer and BMS output. The Alarm light will flash different codes depending on the status of the alarms (see section 'Alarm Codes' for more information).

These alarms are not active when the 'Auto/Off/Manual' switch is in the 'Off' position.

Once an alarm has been activated it will stay on until cleared. To clear an alarm set the 'Auto/Off/Manual' switch to 'Off'.

Alarm Codes

When an alarm has been activated the alarm light will flash. The alarm light will flash a different code depending on which alarm/s have been activated. The table below describes the codes and possible scenarios.

Description	No of flashes	Pattern
Low Level Fault Only	2	•• •• •• etc
High Level Fault Only	3	••• ••• ••• etc
No Flow Fault Pump 1 Only	4	•••• •••• •••• etc
No Flow Fault Pump 2 Only	5	••••• ••••• ••••• etc
Both pumps No Flow Fault	6	•••••• •••••• etc
No Flow Fault Pump 1 and High Level activated	7	••••••• ••••••• etc
No Flow Fault Pump 2 and High Level activated	8	•••••••• •••••••• etc
Internal Fault	9	••••••••• ••••••••• etc
Low and High Level activated or Both pumps No Flow Fault and High Level activated	10	•••••••••• •••••••••• etc

Low Level Only
The 'Low Level' alarm has been tripped.

High Level Only
The 'High Level' alarm has been tripped.

No Flow Fault Pump 1 Only
A 'No Flow' fault has been found on pump 1. A 'No Flow' fault could occur if something got lodged in the impeller and the pump overloaded or if the pump loses prime.

No Flow Fault Pump 2 Only
A 'No Flow' fault has been found on pump 2. A 'No Flow' fault could occur if something got lodged in the impeller and the pump overloaded or if the pump loses prime.

Both pumps No Flow Fault
Both pump 1 and pump 2 have registered a 'No Flow' fault. It is likely that the 'Run Pump/s' float input has failed to turn off and the pumps are dry running.

No Flow Fault Pump 1 and High Level activated
There has been a 'No Flow' fault on pump 1 and a 'High Level' alarm has been activated.

No Flow Fault Pump 2 and High Level activated
There has been a 'No Flow' fault on pump 2 and a 'High Level' alarm has been activated.

Internal Fault
Once this alarm has been activated it will stay on until the power is cycled. If the fault does not clear after cycling the power, contact your local service agent.

Note: Under no circumstance should the until be open unless done so by a qualified technician or service agent.

Low and High Level activated OR both pumps No Flow Fault and High Level activated
Both 'Low Level' and 'High Level' alarms have been activated. This may happen if the 'Run Pump/s' float input is stuck in the off position. If both pumps register 'No Flow' then it is inevitable that the 'High Level' alarm will get tripped.

Delays
All inputs have inbuilt delay timers.

- Start Pump/s input - 1 second. (Fixed)
- Start Pump/s input off (pumps stop) - 0.5 seconds. (Fixed)
- Low Level alarm - 5 seconds. (Fixed)
- High Level alarm - 1 second. (Fixed)
- Lag pump start delay - programmable (see step 5 in installation instructions).
- Flow switch alarm – programmable, equivalent to lag pump start delay.

LEDs
There are two LEDs located in the unit which display information about the status of the pumps.

- When a pump is on the corresponding LED will be solid ON.
- When the 'Auto/Off/Manual' switch is in 'Auto' and both pumps are available but not running (neither has been shut down due to a 'no flow' fault), the LEDs will alternate.

Description	Led Action
Auto (pumps available)	Alternate LEDs On
Pump On	Solid On
Pump Off	Solid Off

Test Mode
There is a test mode to enable the checking of the peripherals. Enable the test mode by placing the 'Auto/Off/Manual' switch into 'Off' position and holding the 'Mute Program' button down.

- After 5 seconds the internal buzzer and alarm light will turn on.
- After a further 2 seconds the BMS relay will turn on.
- After a further 1 second the Pump 1 LED will begin to flash.
- After a further 2 seconds the Pump 1 output will turn on and Pump 1 LED will stay on.
- After a further 1 second the Pump 2 LED will begin to flash.
- After a further 2 seconds the Pump 2 output will turn on and Pump 2 LED will stay on.

Releasing the program button at any time stops the test and turns off all outputs.

Start Up LED Sequence
On power up the present mode of the unit will be indicated by flashing both LEDs together.

The first block indicates whether the unit is in 'Low Level Float' or 'Flow Switch' mode.

Two flashes represent 'Low Level Float', and five flashes 'Flow Switch'.

The second block indicates the 'lag pump' delay in seconds (x10).

Between the first and second block is a break of approximately 3 seconds.

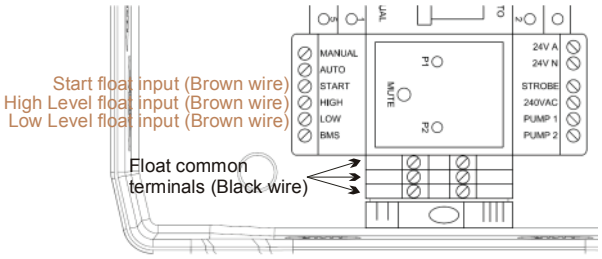
For example;

• • • First block - 2 ('Low Level Float' mode), second block - 1 ('lag pump' delay = 10 secs)

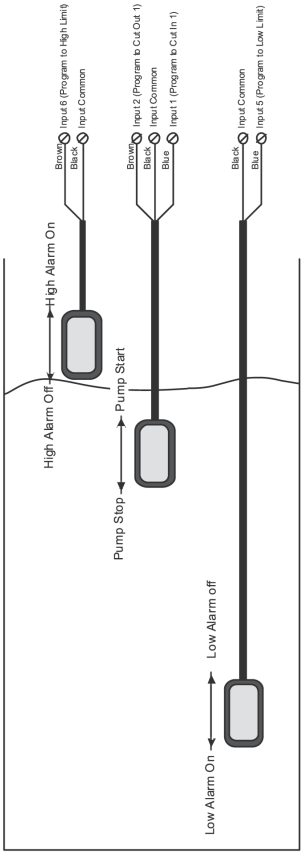
• • • • • • • First block - 5 ('Flow Switch' mode), second block - 2 ('lag pump' delay = 20 secs).

Installation Instructions

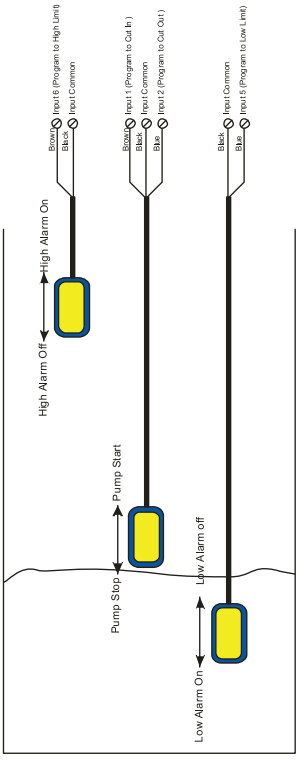
1. Mount the unit securely to a wall.
2. Connect up floats (Run Pump/s, High Level, Low Level floats). However if you are using a flow switch, connect normally open (N.O.), contact of the flow switch to the 'Low Level' input.



Tank or Pit Emptying
All common float wires connect to float common terminals
Brown wires connect as follows:
Lowest float (low level alarm float) connects to LOW terminal
Middle float (start/stop float) connects to START terminal
Highest float (high level alarm connects to HIGH terminal



Tank Filling
All common float wires connect to float common terminals
Blue wires connect as follows:
Lowest float (low level alarm float) connects to LOW terminal
Middle float (start/stop float) connects to START terminal
Highest float (high level alarm connects to HIGH terminal



3. Connect pumps (P1 Output, P2 Output) lead, into three pin sockets on the bottom of the SumpMaster Mini.

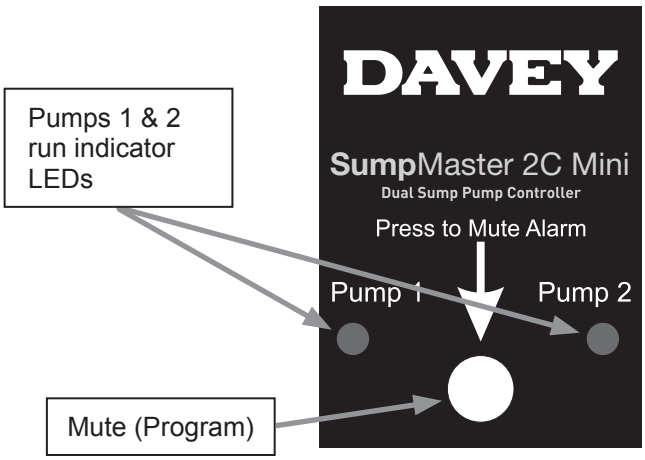
4. Ensure floats and flow sensor (if used), are placed in the correct position and operate without fouling.

5. Turn both Pump circuit breakers to the OFF position.

6. Place the Auto/Off/Manual switch in the OFF position.

7. Power up the unit by plugging in the 3 pin plug and turning on the power switch.

8. Configuring the 'lag pump' delay. The 'lag pump' delay can be configured as follows;
   i) If the 'Mute Program' button is held when the power is applied (use the control circuit breakers to turn the power on & off) the buzzer will beep approximately every two seconds, each beep represents a 10 second increment for the lag pump delay, release the button when the required number of seconds has been reached.
      Eg. Three beeps = 30 seconds.
   ii) After releasing the 'Mute Program' button the power up routine will acknowledge the change.
   iii) The factory default for the 'lag pump' delay is 30 seconds.



9. Configure 'Low Level Float' or 'Flow Switch' mode (see Alarms for more information). The power up routine will flash the LEDs in order to display the present mode the unit is operating in. The unit can be put into 'Low Level Float' or 'Flow Switch' mode as follows.

   With the 'Auto/Off/Manual' switch in the 'Off' position:

   i) To change from 'Low Level Float' to 'Flow Switch' mode, press the 'Mute Program' button 5 times in quick succession (within 5 seconds), the buzzer will beep for each button press.

   ii) To change from 'Flow Switch' to 'Low Level Float' mode, press the 'Mute Program' button 2 times in quick succession (within 5 seconds), the buzzer will beep for each button press.

   iii) No change will occur if already in the same mode.

   iv) The controller will then flash the Start Up sequence to acknowledge the change. (See Start Up LED sequence for more information)

   Note: The factory default mode is for 'Low Level Float' operation.

10. Turn on both pump circuit breakers.

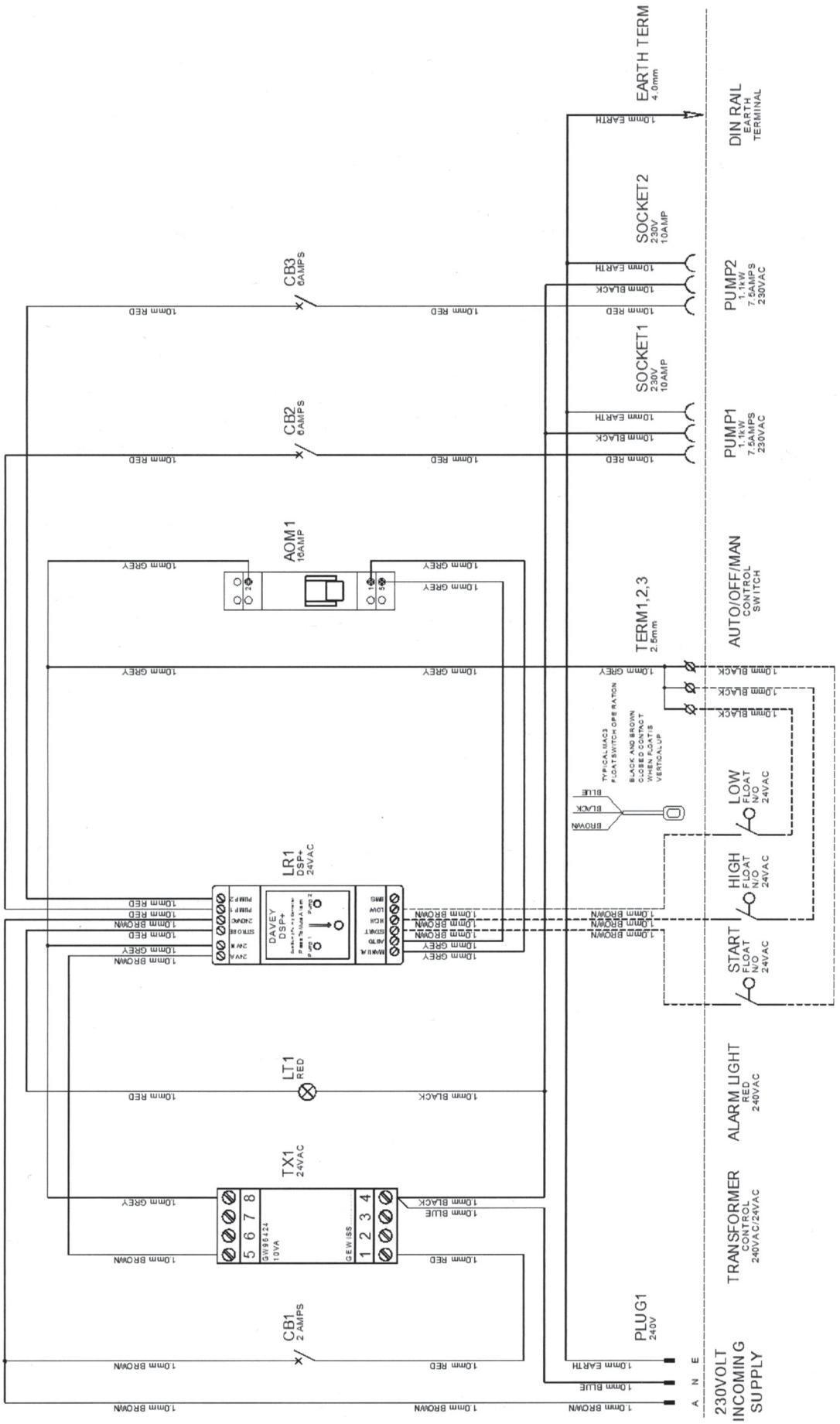
11. Place the Auto/Off/Manual switch in the Auto position, the pumps will now run when the start float is activated.

Specifications

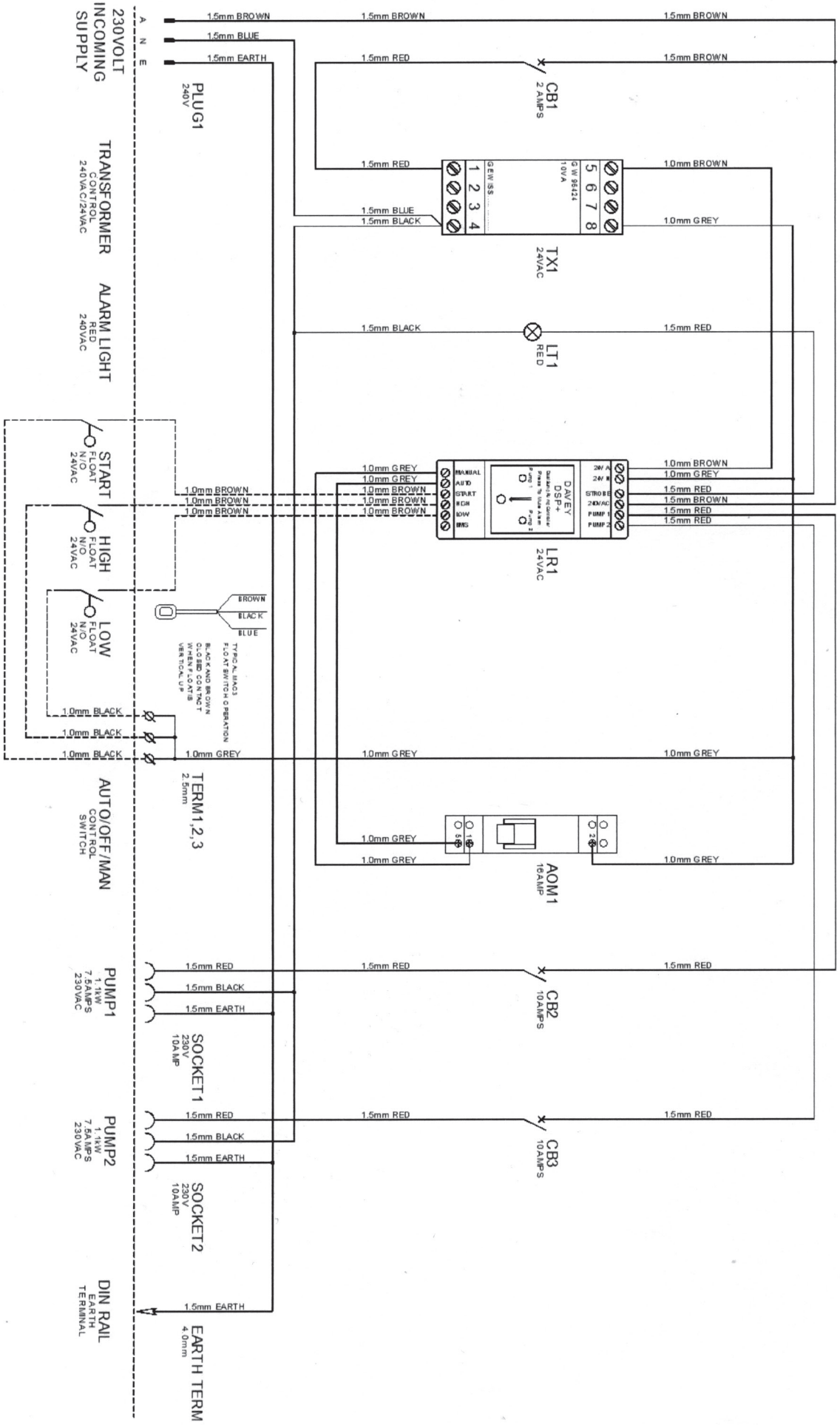
Item	Description
EMC/EMI filtering	Designed to monimise conducted and radiated emissions.
Standard Transducer	N/A
Time based functions	±5% of real time
Switched inputs	Voltage free - internal supply 24Vac - read threshold - 2mA
Operating temperature	0 to 50ºC
Enclosure	IP53
Motor circuit breakers	Standard - IEC947 – Start current 10x FLC
Wiring	Standard - AS3000
Input supply Voltage – 1 phase **– Control**	230Vac 24Vac - 20mA min 120mA max
Input supply tolerance – 1 phase	-20% + 10%
Input frequency range	48 to 62Hz
Enclosure size	200W x 200H x 120D (mm)

Wiring Diagrams

1. SumpMaster Mini 10 Amp model



2. SumpMaster Mini 15 Amp model



NOTES

Davey Warranty

Davey Water Products Pty Ltd (Davey) warrants all products sold will be (under normal use and service) free of defects in material and workmanship for a minimum period of one (1) year from the date of original purchase by the customer as marked on the invoice, for specific warranty periods for all Davey products visit daveywater.com.

This warranty does not cover normal wear and tear or apply to a product that has:

- been subject to misuse, neglect, negligence, damage or accident
- been used, operated or maintained other than in accordance with Davey's instructions
- not been installed in accordance with the Installation Instructions or by suitably qualified personnel
- been modified or altered from original specifications or in any way not approved by Davey
- had repairs attempted or made by other than Davey or its authorised dealers
- been subject to abnormal conditions such as incorrect voltage supply, lightning or high voltage spikes, or damages from electrolytic action, cavitation, sand, corrosive, saline or abrasive liquids,

The Davey warranty does not cover replacement of any product consumables or defects in products and components that have been supplied to Davey by third parties (however Davey will provide reasonable assistance to obtain the benefit of any third-party warranty).

To make a warranty claim:

- If the product is suspected of being defective, stop using it and contact the original place of purchase. Alternatively, phone Davey Customer Service or send a letter to Davey as per the contact details below
- Provide evidence or proof of date of original purchase
- If requested, return the product and/or provide further information with respect to the claim. Returning the product to the place of purchase is at your cost and is your responsibility.
- The warranty claim will be assessed by Davey on the basis of their product knowledge and reasonable judgement and will be accepted if:
  - o a relevant defect is found
  - o the warranty claim is made during the relevant warranty period; and
  - o none of the excluded conditions listed above apply
- The customer will be notified of the warranty decision in writing and if found to be invalid the customer must organise collection of the product at their expense or authorise its disposal.

If the claim is found to be valid Davey will, at its option, repair or replace the product free of charge.

The Davey warranty is in addition to rights provided by local consumer law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

For any internet connected products the consumer is responsible for ensuring a stable internet connection. In the event of a network failure the consumer will need to address the concern with the service provider. Use of an App is not a substitute for the User's own vigilance in ensuring the product is working to expectation. Use of a Smart Product App is at the User's own risk. To the fullest extent permitted by law Davey disclaims any warranties regarding the accuracy, completeness or reliability of App data. Davey is not responsible for any direct or indirect loss, damage or costs to the User arising from its reliance on internet connectivity. The User indemnifies Davey against any claims or legal actions from them or others relying on internet connectivity or App data may bring in this regard.

Products presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the products. The repair of your products may result in the loss of any user-generated data. Please ensure that you have made a copy of any data saved on your products.

To the fullest extent permitted by law or statute, Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from Davey products. This limitation does not apply to any liability of Davey for failure to comply with a consumer guarantee applicable to your Davey product under local laws and does not affect any rights or remedies that may be available to you under local laws.

For a complete list of Davey Dealers visit our website (daveywater.com) or call:

DAVEY

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*** Installation and operating instructions are included with the product when purchased new. They may also be found on our website.**

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