AMBIC®

EasiDoser™

OPERATING INSTRUCTIONS

MODE D'EMPLOI • ANLEITUNG

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Introduction

The EasiDoser™ is an advanced microprocessor-controlled dosing system for dispensing a precise amount of chemical. The dispenser features an electronic circuit board with an LCD display. Programming is set using the keypad on the front of the unit and has a special pump 'Lock-out' that will prevent consecutive dispensing. The EasiDoser™ also has a "delay pump start" feature and a direct mode (Relay Mode) which allows for a timed signal from a microprocessor to control the pump run timing.

The EasiDoser™ is offered in various configurations: one, two or three low volume pumps, or an industrial pump version.

Depending how the unit is programmed, the EasiDoser™ will activate when the circuit receives a 12-230V AC or 12-24V DC machine signal through the Opto Isolator, or closed contact to one of the trigger inputs. Also, it can be used for manual dosing and this is activated by pressing a button on the keypad.

Safety

The EasiDoser™ Chemical Dosing System is designed exclusively for dosing chemicals by function of Time, Time and Speed or Direct (Relay) mode in unrestricted pressure tanks. Any application outside the use described in this operating manual will be taken to be not in accordance with the intended purpose. The manufacturer/supplier will not be held responsible for any losses arising as a result of such use. The user will take full responsibility for use.

USE IN ACCORDANCE WITH THE INTENDED PURPOSE ALSO INCLUDES COMPLYING WITH THE OPERATING MANUAL AND THE CONDITIONS FOR INSPECTION AND MAINTENANCE.

Specifications

Power Source	230V	– Pumping unit	• 220-240V AC 50Hz
		– Fuses	• T1.0A
	115V	– Pumping unit	• 110-120V AC 60Hz
		– Fuses	• T2.0A
Machine Signal -			• 12 – 230V AC
			• 12 – 24V DC
			• Contact switch
Maximum Length of Distribution Tubing			• 10 Metres
Operating Temperature			• 5 – 40 °C
Float Switch			• Normally Open type

Installation (refer to Fig.1, 2, 4)

Electrical Installation - should ideally be carried out by a Qualified Electrician – The 3-core power supply cord MUST remain accessible when the unit has been installed and MUST be connected to Earth. THIS ELECTRICAL SUPPLY SHOULD BE PROTECTED BY AN APPROPRIATE EARTH LEAKAGE CIRCUIT BREAKER.

CAUTION*: To avoid severe or fatal shock, always disconnect main power when servicing the unit.*

Chemical – is sucked up from a chemical container by peristaltic pump(s). The enclosure housing the EasiDoser™ pump(s) is rated at IP44 (IEC 60529); the power unit (**A**) must, therefore, be positioned in a dry location and close to a 220-240V AC power socket (Maximum Power consumed: 50W).

The **enclosure** (**A1**) should be positioned no more than 2 metres vertically above the floor and no more than 3 metres distant from the chemical container(s). Use the drilling template to mark out screw positions and fix the enclosure to a suitable flat surface, using the screws and plastic plugs supplied.

The **chemical container(s) (D)** should be placed securely on the floor and the inlet tube(s) (**C**) from the pump enclosure should be connected to the inlet nipple(s) of the peristaltic pump(s) – each PVC inlet tube should be measured for correct length (cutting the excess tube) and warmed before being pushed over the peristaltic pump spigot and secured with the stainless steel hose clips. Make sure that clips are fitted so that the barb of the fitting on the pump is central in the clip and do NOT over tighten the clip (you risk breaking the plastic nipple). Drop the filter end of the inlet tube(s) into the chemical container(s) – ALWAYS ENSURE that each inlet tube has a FILTER FITTED.

CAUTION*: Wear protective clothing and eyewear when dispensing chemicals or any other materials. Observe safety handling instructions (MSDS) of chemical manufacturers.*

Layout

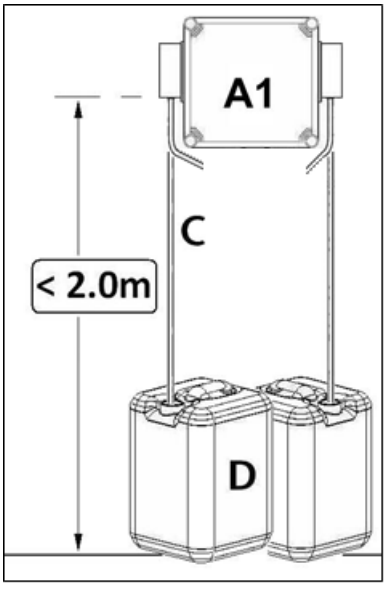


Fig. 1 - General Layout for Twin EasiDoser™

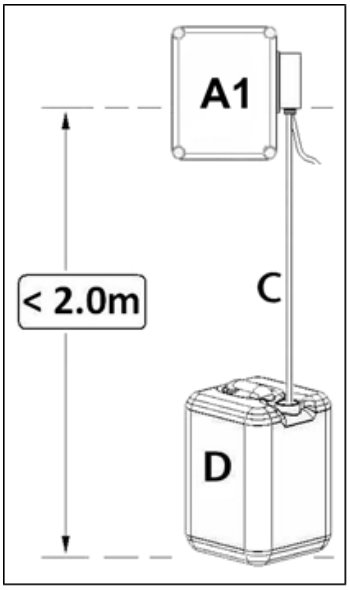


Fig. 2 – General layout for a Single EasiDoser™

Electrical Connections

WARNING!

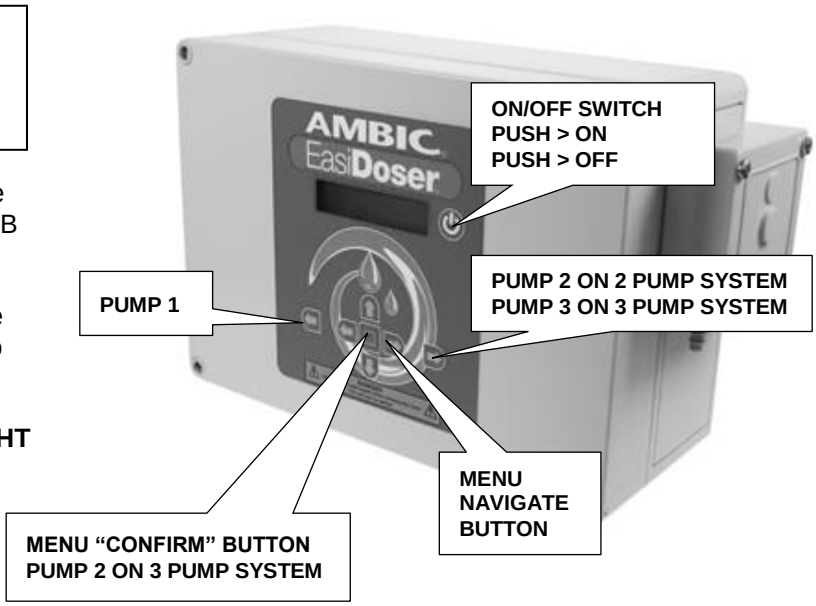
DISCONNECT UNIT COMPLETELY FROM MAINS POWER BEFORE OPENING

Unscrew the 2 screws in the corners of the enclosure. Hinge lid open to reveal the PCB inside lid.

Terminal blocks may be pulled off from the PCB to allow easy connection of wires into Screw Terminals.

Positions of wires are noted **LEFT >> RIGHT** (see PCB Layout diagram below right)

Figure 3 – EasiDoser™ Switch Operations



MAINS = 220-240V AC
- **L** = LIVE – **Brown** wire
- **E** = EARTH – **Green/Yellow** wire
- **N** = NEUTRAL – **Blue** wire

P1 = Pump 1 – **Pink** wire +
Grey wire -

P2 = Pump 2 – **Pink** wire +
Grey wire -

P3 = Pump 3 – **Pink** wire +
Grey wire -

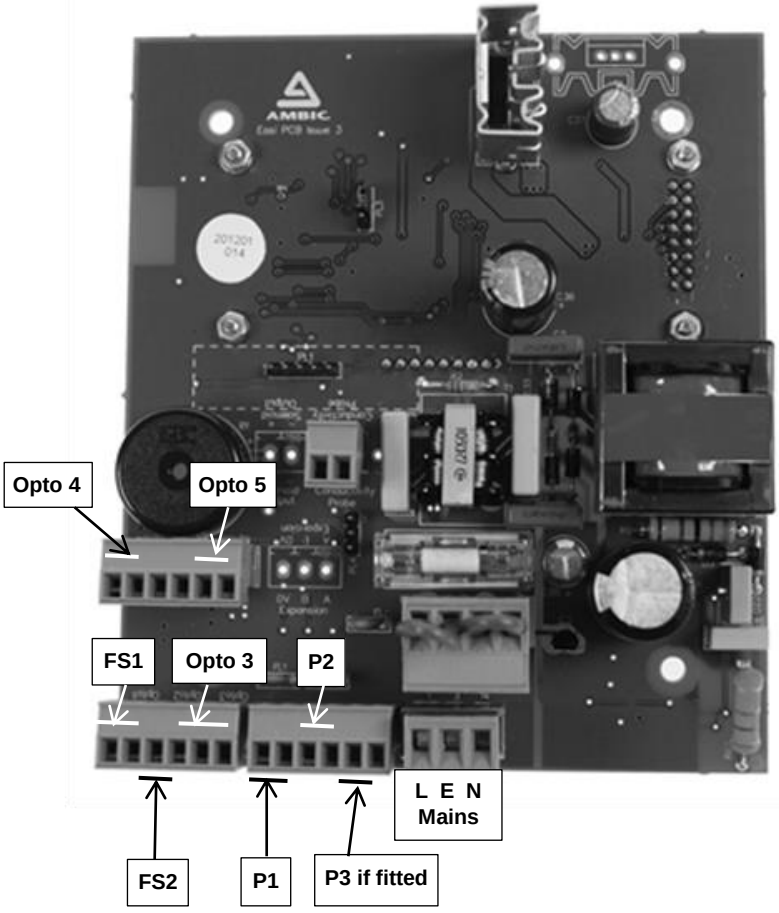
Opto 4 = Signal wire Pump 1
12-230V AC via Opto Isolator
12-24V DC via Opto Isolator
Close contact direct input

Opto 5 = Signal wire Pump 2
12-230V AC via Opto Isolator
12-24V DC via Opto Isolator
Close contact direct input

Opto 3 = Signal wire Pump 3
12-230V AC via Opto Isolator
12-24V DC via Opto Isolator
Close contact direct input

FS1 & 2 = Float Switch 1 & 2
– **Brown** wire
– **White** wire

Figure 4 – EasiDoser™ Electrical Connections



Opto Isolator Connection

For volts-free signal (switch) there is no requirement for Opto Isolator and the switch can be connected directly to the inputs marked on the PCB as Opto 4 & Opto 5. For a 12-24V DC signal or 24-230V AC signal unit, the signal MUST be connected via the Opto Isolator(s) supplied with the unit.

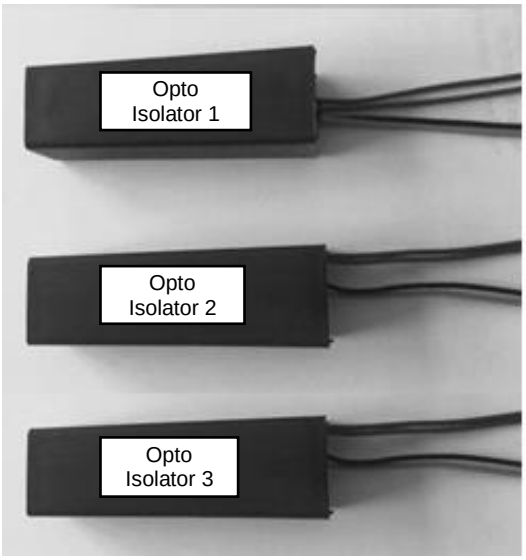


Figure 5 – Opto Isolator

Opto Isolator 1
Brown & Blue – connect to 12-24V DC or 24-230V AC signal
Red & Black – connect to Opto 4

Opto Isolator 2
Brown & Blue – connect to 12-24V DC or 24-230V AC signal
Red & Black – connect to Opto 5

Opto Isolator 3
Brown & Blue – connect to 12-24V DC or 24-230V AC signal
Red & Black – connect to Opto 3

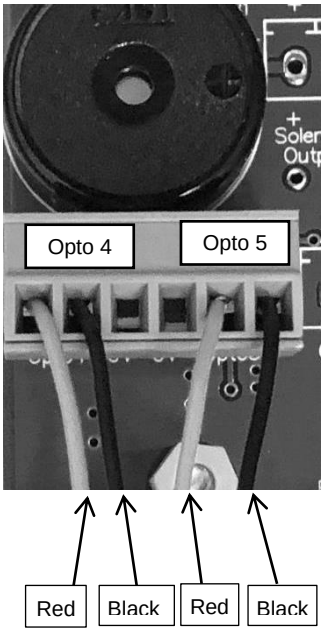
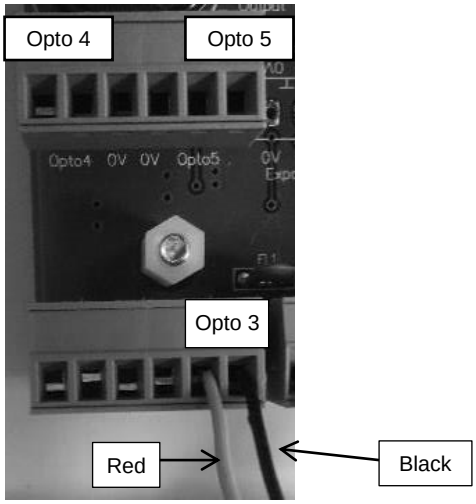


Figure 6 – Opto Isolator position on PCB

The Red & Black wires should be connected to Opto 4 or Opto 5.

Opto 4 triggers the left hand pump and Opto 5 triggers the right hand pump on a 2 pump system.

On a 3 pump system, Opto 3 triggers pump 3.



Initial Set Up – Electrical Connections & Calibration/Programming Functions

The EasiDoser™ control box is connected up as shown in Figure. 4 on page 5. It includes many useful safety and programmable features, for which the following instructions should be read through carefully to ensure efficient operation of the unit.

EasiDoser™ – Power Up/Down & Normal Run Displays

Action	Display	Comment /Action

Switch Mains Power ON
Press on/off Button
	Display Number 1
	`Ambic Equipment`
	`EasiDoser V1.1`
		Displays for 5 seconds.
		Automatically changes to NEXT display.

	Display Number 2
	`Waiting`
	`for Trigger ←0→`
		Pump(s) NOT running. No trigger signal applied or start dose button pressed.

Press On/Off Button
(when switching off the unit/ leaving on standby)
	Display Number 3
	`EasiDoser`
	`Power Down`
		Displays for 2 seconds, then screen blank.
		Unit in “Standby / Off” mode.

Press On/Off Button	Display Number 1
	`Ambic Equipment`
	`EasiDoser V1.1`
		Displays for 5 seconds.
		Automatically changes to display 2.

Disconnect from Mains Power	Display Number 4
	`Powering Down`
	`Bye`
		Unit completely “Off”
		Warning “Bleep” before screen blank.

The EasiDoser™ is supplied as either a single, twin or three pump system and can be set to run up to the maximum number of pumps fitted. This is controlled by the user-programmable settings selected from the menus detailed below.

Pumps are driven by low voltage DC motors and their time or speed of operation is controlled by the voltage applied to each pump motor in order to ensure that the pumps are dispensing the correct quantity of chemical(s).

EasiDoser™ – Basic Menu Option Displays

EasiDoser™ – Set Two Pump Operations

Action	Display	Comment /Action

Press ⇧ Button twice	Display Number 5
	`Enter PIN Code`
	`_`
		Enter the current PIN Code by pressing the buttons (in sequence):-
		(default factory PIN = ⇧ ⇦ ⇨ ⇩)

Correct PIN code entered	Display Number 6
	`Number of Pumps`
	`= 2 ←↓→`
		Press ⇦ ⇨ buttons to change the number of pumps fitted.

From Display 6
Press ⇩ Button once
	Display Number 7
	`Pump Types`
	`12Volt ←↑↓→`
		Press ⇦ ⇨ buttons until correct voltage & pump type displayed.

From Display 7
Press ⇩ Button once
	Display Number 8
	`Pump 1 Mode`
	`Manual Mode ←↑↓→`
		Press ⇦ ⇨ buttons until correct pump mode for Pump 1 is displayed. (Manual, Signal or Direct)

From Display 8
Press ⇩ Button once
	Display Number 9
	`Pump 1 Duration`
	`00:15 ←↑↓→`
		Press ⇦ ⇨ buttons until correct pump duration (run time) is displayed. Run time can be set from 00:00 seconds to 05:00 minutes.
		Default setting: 00:15

From Display 9
Press ⇩ Button once
	Display Number 10
	`Pump 1 Start`
	`Delay = 5s ←↑↓→`
		Press ⇦ ⇨ buttons until correct pump Start Delay is displayed. Pump start delay time can be set from 1 second to 60 seconds.
		Default setting: 5s

From Display 10
Press ⇩ Button once
	Display Number 11
	`Pump 1 Inhibit`
	`00:00 ←↑↓→`
		Press ⇦ ⇨ buttons until correct pump duration (run time) is displayed. Pump inhibit time can be set from:
		00:00 seconds to 30:00 minutes.
		Default setting: 00:00

From Display 11
Press ⇩ Button once
	Display Number 12
	`Pump 1 Speed`
	`= 80% ←↑↓→`
		Press ⇦ ⇨ buttons until correct pump Start Delay is displayed. Pump speed can be set from 40% to 100%
		Default setting: 80%

From Display 12
Press ⇩ Button once
	Display Number 13
	`Conductivity`
	`Pump1 OFF ←↑↓→`
		Press ⇦ ⇨ buttons until correct conductivity is set. Available settings are from
		0.5mS to 9mS.
		Default setting: OFF

From Display 13
Press ⇩ Button once
	Display Number 14
	`Pump 1 Float`
	`N/Open ←↑↓→`
		Press ⇦ ⇨ buttons until correct Float Switch is displayed.
		Default setting: N/Open

Action	Display	Comment /Action
From Display 14 Press ⇩ Button once	Display Number 15 Pump 2 Mode Manual Mode ←↑↓→	Press ⇦ ⇨ buttons until correct pump mode for Pump 2 is displayed. (Manual, Signal or Direct)
From Display 15 Press ⇩ Button once	Display Number 16 Pump 2 Duration 00:15 ←↑↓→	Press ⇦ ⇨ buttons until correct pump duration (run time) is displayed. Run time can be set from 00:00 seconds to 05:00 minutes. Default setting: 00:15
From Display 16 Press ⇩ Button once	Display Number 17 Pump 2 Start Delay = 5s ←↑↓→	Press ⇦ ⇨ buttons until correct pump Start Delay is displayed. Pump start delay time can be set from 1 second to 60 seconds. Default setting: 5s
From Display 17 Press ⇩ Button once	Display Number 18 Pump 2 Inhibit 00:00 ←↑↓→	Press ⇦ ⇨ buttons until correct pump duration (run time) is displayed. Pump inhibit time can be set from: 00:00 seconds to 30:00 minutes. Default setting: 00:00
From Display 18 Press ⇩ Button once	Display Number 19 Pump 2 Speed = 80% ←↑↓→	Press ⇦ ⇨ buttons until correct pump Start Delay is displayed. Pump speed can be set from 40% to 100% Default setting : 80%
From Display 19 Press ⇩ Button once	Display Number 20 Pump 2 Float N/Open ←↑↓→	Press ⇦ ⇨ buttons until correct Float Switch is displayed. Default setting: N/Open
From Display 20 Press ⇩ Button once	Display Number 21 Change PIN Code ↑ 0 ↓	To change the PIN code used to access certain MENU items. (see **Changing PIN**)
From Display 21 Press ⇩ Button once	Display Number 22 Select Language ↑ English ←0→ ↓	Press button □ once to Enter PIN code to access Select Language screens. (see **Changing Language**)
From Display 22 Press ⇩ Button once	Display Number 23 Calibrate ↑ Pump 1 0 ↓	To check dispensing volume of Pump 1 press □ button once. (see **Calibration Method**)
From Display 23 Press ⇩ Button once	Display Number 24 Calibrate ↑ Pump 2 0 ↓	To check dispensing volume of Pump 2. (see **Calibration Method**)
From Display 24 Press ⇩ Button once	Display Number 25 Save Configuration ↑0	Press □ button once. Displays automatically changes to Display 2.

EasiDoser™ – Changing Pin Code

Action	Display	Comment /Action
Use MENU to select	Display Number 21 Change PIN Code ↑ 0 ↓	To change the PIN code used to access certain MENU items.
Press ☐ Button once	Display Number 5 Enter PIN code _	**Enter the current PIN Code** by pressing the buttons (in sequence):- (default factory PIN = ⇧ ⇦ ⇨ ⇩)
If incorrect PIN entered	Display Number 26 Incorrect PIN Code entered	Reverts to **Display 21** after a short delay,
After correct PIN is entered and a short delay	Display Number 27 Enter new PIN ↑ → ↑ →_	**Enter a new 4-digit PIN Code** by pressing any combination of these four buttons:- ⇦ ⇨ ⇩ ⇧ New PIN is displayed as it is entered.
After final PIN digit entered and a short delay	Display Number 28 Saved PIN Code ↑ → ↑ →_	Displays new PIN. Reverts to **Display 21** after a short delay,

EASIDOSER™ – CHANGING MENU LANGUAGE

By using the MENU screens, it is possible to set the screen language to either

ENGLISH, FRANCAIS, or DEUTSCH as may be most appropriate.

Use MENU to select

Display Number 5

```
Enter PIN code
_
```

The default PIN code is entered by pressing the buttons (in sequence):-

⇧ ⇦ ⇨ ⇩

SETTING ENGLISH MENU

From Display 21

Press ⇩ Button once

Display LS

Display Number 22

```
Select Language
English     ← 0 →
```

Press ⇨ button once to move to SET FRENCH MENU - **Display LF** (see below).

Press □ Button once confirms English

Display E

```
EasiDoser          ↑
Change Language    ↓
```

Press ⇩ button once to return to OPERATION MENU (**Display 7 or 8**)

ENGLISH MENU set .

SETTING FRENCH MENU

From Display LS

Press ⇨ Button once

Display LF

```
Select. Langue
Francais    ← 0 →
```

Press ⇨ button once to move to **Display LD** or button ⇦ to return to **Display LS**.

Press □ Button once

Display F

```
EasiDoser          ↑
Select. Langue     ↓
```

Press ⇩ button once to return to OPERATION MENU (**Display 7 or 8**)

FRENCH MENU set.

SETTING GERMAN MENU

From Display LS

Press ⇨ Button TWICE

Display LD

```
Wahlen Sprache
Deutsch     ← 0 →
```

Press ⇦ button once to return to **Display LF** button ⇦ TWICE to return to **Display LS**.

Press □ Button once

Display D

```
EasiDoser          ↑
Wahlen Sprache     ↓
```

Press ⇩ button once to return to OPERATION MENU (**Display 7 or 8**)

GERMAN MENU set.

EasiDoser™ – Pump 1 Calibration Method

Action	Display	Comment/Action
	Display Number 23 Calibrate ↑ Pump 1 0 ↓	
Press ⇩ Button once		To check the dispensing volume of Pump 1 take the calibration vessel and place distribution /delivery tube into the vessel.
	Display Number 5 Enter PIN Code –	
Press □ Button once		The default PIN code is entered by pressing the buttons (in sequence):- ⇧ ⇦ ⇨ ⇩
	Display Number 29 Press □ to Start Calibration	
Once correct PIN entered		Press button □ once - pump 1 runs for 1 minute and then stops. Then the display reverts to next display.
	Display Number 30 Volume Dispensed 1 ml ← 0 →	
When Pump stops		Check the volume dispensed and using ⇨ enter the correct volume dispensed. Then press button □ once.
	Display Number 23 Calibrate ↑ Pump 1 0 ↓	
		Press button ⇩ once to select Pump 2 Calibration.

For DUAL Pump Operation BOTH Pumps MUST be calibrated.

EasiDoser™ – Pump 2 Calibration Method

Action	Display	Comment/Action
	Display Number 24 Calibrate ↑ Pump 2 0 ↓	
Press ⇩ Button once		To check the dispensing volume of Pump 2 take the calibration vessel and place distribution /delivery tube into the vessel.
	Display Number 5 Enter PIN Code –	
Press □ Button once		The default PIN code is entered by pressing the following buttons (in sequence):- ⇧ ⇦ ⇨ ⇩
	Display Number 29 Press □ to Start Calibration	
Once correct PIN entered		Press button □ once - pump 2 runs for 1 minute and then stops. Then the display reverts to next display.
	Display Number 30 Volume Dispensed 1 ml ← 0 →	
When Pump stops		Check the volume dispensed and using ⇨ enter the correct volume dispensed. Then press button □ once.
	Display Number 24 Calibrate ↑ Pump 2 0 ↓	
		Press button ⇩ once to save the configuration.

To check the Pump Statistics, switch OFF the unit by pressing the button **on the front of the unit. Then press both the down arrow and the** **button at the same time.**

EasiDoser™ – Pump Statistics

Action	Display	Comment /Action
Press ⇩ Button and Power on/off button	Display Number 31 Pump Statistics ↑ ↓	Press the ⇩ button
Press ⇩ Button once	Display Number 32 Pump 1: 0.35L ↑ 0000:03:08 0 ↓	Shows amount delivered by Pump 1 on 1st line and on the 2nd line shows the length of time the pump has been running for.
Press ⇩ Button once	Display Number 33 Pump 2: 0.35L ↑ 0000:03:08 0 ↓	Shows amount delivered by Pump 2 on 1st line and on the 2nd line shows the length of time the pump has been running for.

EasiDoser™ – Warning Displays

IF LEVEL PROBES ARE FITTED IN CHEMICAL CONTAINERS

When Drum 1 becomes LOW in chemical	Display Number 34 Float Alarm 1	Sounder activates and display shown below **automatically alternates** with normal operational displays. **** Refill/replace container 1 as soon as possible ****
When Drum 2 becomes LOW in chemical	Display Number 35 Float Alarm 2	Sounder activates and display shown below **automatically alternates** with normal operational displays. **** Refill/replace container 2 as soon as possible ****
If BOTH Drums 1 & 2 become LOW in chemical	Display Number 36 Float 1 & 2 Alarm	Sounder activates and display shown below **automatically alternates** with normal operational displays (e.g. **Display 2 & 3 or 4**). **** Refill/replace BOTH containers as soon as possible ****

If Optional Level Probes (e.g. AFF/200-50-10 – Float Switch Assembly for 20-25 Litre Container) are fitted, LOW level of Chemical activates Float Switch as below:-

- Sounder will operate 3 times every 2-3 seconds.
- Sounder sequence will continue to operate at 1 minute intervals.
- Warning Displays (as shown above) will alternate with the normal run displays.
- When the container is refilled/replaced, the Sounder and Warning Displays stop automatically only when the pump makes its first Dispensing cycle after refill.
- Sounder CANNOT be muted until level of Chemical rises above “LOW”.

Initial Set Up – Priming & Setting up the system ready to use

Switch on the power at the electric socket and on the front of the pumping unit. Set the program for direct mode. Press the appropriate button in the front of the unit to activate the required pump and liquid will start to be drawn up through the pump(s). Allow unit to run until liquid has passed through the pump(s) and is flowing out in a continuous stream from the end of the distribution pipe. Reset the direct mode to your required setting.

Operation

Depending on the set up of the unit the pump(s) will either run for a set duration or continuously until the signal is removed:
Manual mode – pressing the dose button for 1 second activates for a set duration.
Signal mode – receipt of either a 12-24V DC or a 12-230V AC signal activates for a set duration.
Direct mode – receipt of either a 12-24V DC or a 12-230V AC signal activates the unit and it will run continuously until this signal is removed.

WARNING – Refill chemical container(s) BEFORE IT IS EMPTY and SWITCH OFF PUMP UNIT whilst refilling. In the event that chemical supply is exhausted, it will be necessary to re-prime system as described in the “Initial Set Up section” above.

Maintenance

In order to preserve the efficiency and reliability of the EasiDoser™ system, we recommend that the following parts be inspected regularly for physical wear and replaced EVERY 1 – 2 YEARS, depending on the chemical used and the frequency of use.

Peristaltic pump tubes	- Grease the tubes with silicone every six months
Inlet tube filters (part ATS/419).	- Clean regularly with warm water

For optimum results and safety use all the parts supplied by the manufacturer.

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