

## Short Instruction Manual

<b>Ecodos-L</b>	(1.237.21, 1.237.22)
<b>Ecorinse-L</b>	(1.237.23, 1.237.24)
<b>Ecoset-L</b>	(1.235.40)

(with PCB 2.237.82)



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## 1 General

This manual contains all important information on the function, the operation, the setting, the installation and maintenance and repair of the *ECODOS-L / ECORINSE-L / ECOSET-L* dosing units.

The systems are speed/timed and conductivity controlled dosing units for liquid/solid detergents and liquid rinse products. They are designed for the use in commercial dishwashers.

**All safety information and emphasised points are always to be observed!**

### 1.1 Scope of warranty

Operational safety, functionality and performance of this unit is only guaranteed by the manufacturer under the following conditions:

- maintenance and repair must be performed by authorized personnel.
- the unit is only used in accordance with the contents of this Instruction Manual
- only original spare parts are used for service and repair
- only approved Ecolab products are used.

**In addition, the general warranty and service conditions of the company ECOLAB Engineering GmbH are applicable.**

### 1.2 Applicable regulations

The unit was based on the following regulations:

89/336/EWG                   “Electromagnetic compatibility“(EMV Guideline)

### 1.3 Transport damage

If, when unpacked, the unit is found to have suffered damage in transit, it must not be installed.

### 1.4 Contact address / manufacturer

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## 2 Safety

### 2.1 Safety information



- Connection and repair work on the *ECODOS-L / ECORINSE-L / ECOSET-L* may only be performed by authorised experts.
- Suitable protective clothing is to be worn during maintenance and repair work.
- Safety provisions covering the handling of chemicals are always to be observed.

### 2.2 Emphasised point

The emphasised points CAUTION, WARNING, IMPORTANT and NOTE have the following meanings in this Operating Manual:

	<b>CAUTION</b>	Is used if non-precise observance or non-observance of operating instructions, work instructions, specified sequences and such like may lead to injuries or accidents.
	<b>WARNING</b>	Is used if non-precise observance or non-observance of operating instructions, work instructions, specified sequences and such like may lead to damage to the equipment.
	<b>IMPORTANT</b>	Is used if particular attention in handling the equipment is required.
	<b>NOTE</b>	Is used if attention is to be drawn to a special feature.

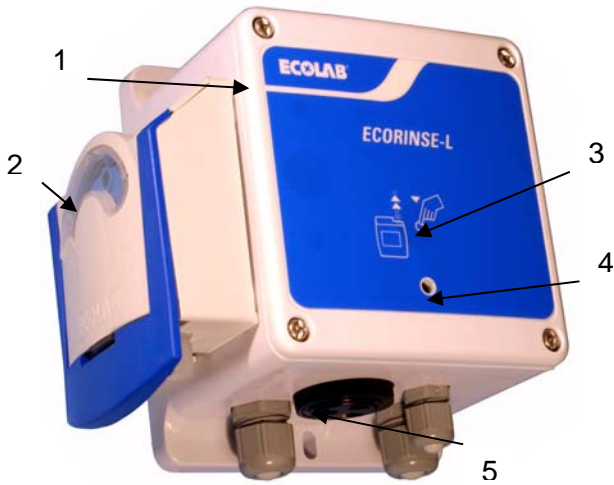
### 2.3 Special safety information for maintenance and repair work

	<b>CAUTION</b>	Suitable protective clothing must be worn when carrying out service and repair work and during handling the system. All relevant safety regulations, which apply when handling chemicals, must always be observed.
		The unit must be installed as far away as possible from any risks and physical hazards.
		Before any repair work is carried out, the dishwasher must be disconnected from the power supply.
		Any material of this unit, which is subject to disposal (packing material, replacement parts etc.) must always be disposed of i.a.w. all applicable local and international environmental protection laws and -regulations.
		Maintenance and repair must be performed by authorized personnel.
	<b>IMPORTANT</b>	Only original spare parts may be used in repairs.

### 3 Assembly

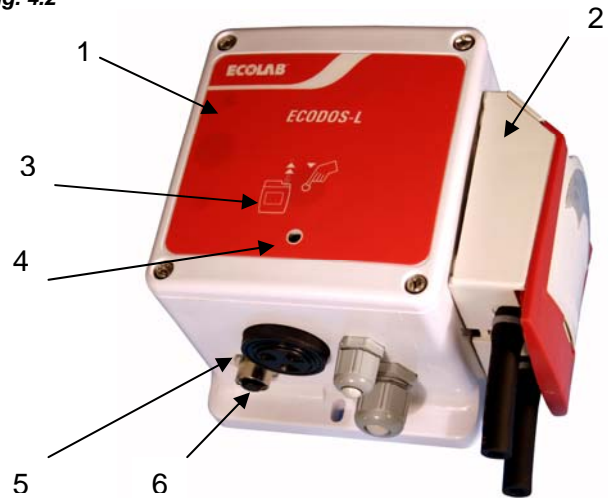
#### Ecorinse-L

Fig. 4.1



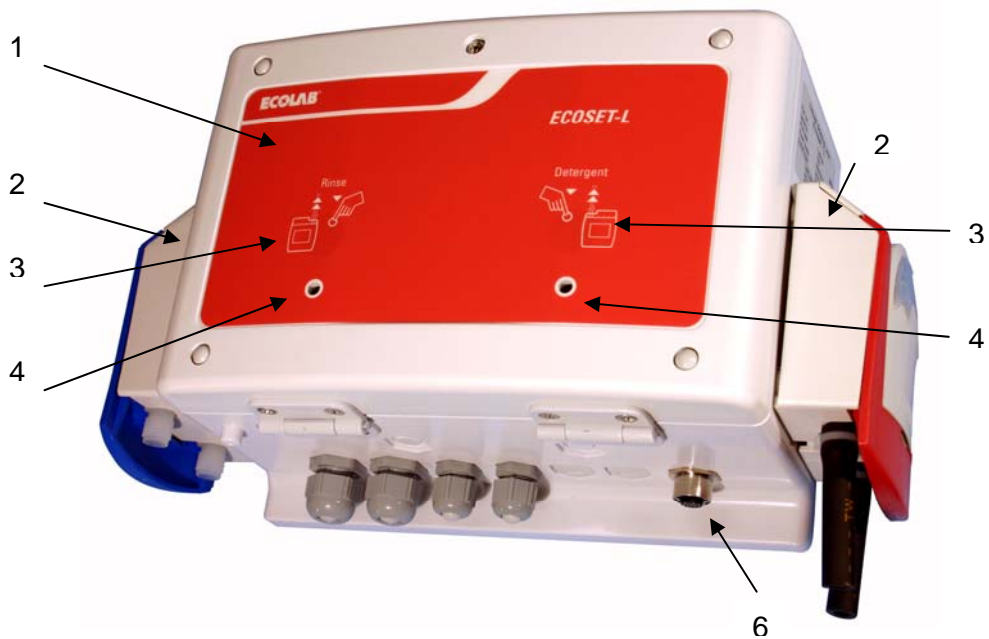
#### Ecodos-L

Fig. 4.2



#### Ecaset-L

Fig. 4.3



No.	Description
1	Housing w. cover
2	Pump head
3	Prime button / Quit button
4	LED operation / LED fault ind.
5	Alarm buzzer
6	Inductive probe connector

## 4 Functional description, operation and settings

The control electronic is supplied with voltage via an external transformer (see accessory list) as soon as the corresponding enabling signal from the dishwasher is applied. The green LED at the front side of the unit lights up continuously in operation mode or is flashing in standby mode.

The metering can be performed in “continuous controlled”, “timed controlled” or in “conductivity controlled” dosing mode. These modes can be set on the PCB

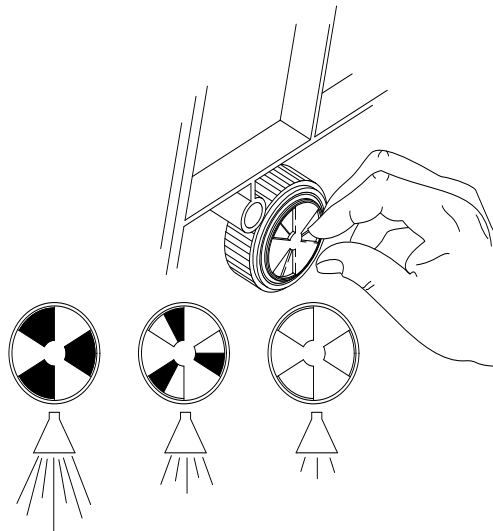
### 4.1 Settings

Detailed description see: “Operation manual Ecodos-PCB 2.237.82”

### 4.2 Adjustment of buzzer volume


The unit comprises a buzzer for the acoustical alarm indication. It's volume can be changed by manually turning the inner disk (see illustration below).

*Fig. 5.1*



## 5 Mounting and installation

### 5.1 Pre-installation requirements

	<b>NOTE</b>	<b>Mounting and installation guidelines will be suggested as the preferred method. However varying types of conditions and surrounding physical environments will dictate the actual mounting and installation. The installation must be in accordance with all local regulations.</b>
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In order to ensure correct operation of the unit, the following dimensions must not be exceeded:

- Mounting height: max. 1.8 meters
- Distance between unit and product container: max. 3.0 meters

### 5.2 Overview

Not available for field test units.

### 5.3 Wall mounting

Perform the mounting as follows:


1. Mark two drilling holes by using the holes of the unit housing as a template and drill holes.
2. Mount the housing using appropriate wall anchors (screws and dowels, p/o delivery content).

### 5.4 Installation of the product feed line and the metering hose

Perform the installation of the product feed- and metering line as follows:

1. Mark water level within the wash tank and drain tank.
2. Drill appropriate hole into wash tank wall.
3. Install an appropriate tank connector to the tank wall.
4. Install metering hose between unit and tank connector.
5. Install the product feed line between the unit and the pick up probe (if available).

### 5.5 Installation of conductivity sensor

	<b>NOTE</b>	<b>When selecting the measuring and metering points in the tank, the flow conditions in the wash liquor must be considered. The measuring point must always be behind the metering point with regard to the flow direction.</b> <b>In order to ensure correct operation of the unit, the following installation instructions for the measuring cell must be followed:</b>
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Distance from	Distance
tank corners	at least 50 mm
heating elements	as far as possible

Perform the installation and connection of the conductivity sensor as follows:

1. Drill an appropriate hole into the tank wall.
2. Install sensor into tank.
3. W. Inductive probe:
  - Connect sensor w. plug to unit
- W. 2-wire probe:
  - Install the connection cable to the sensor.
  - Connect the cable to screw terminal "7 8" of PCB

### 5.6 Electrical connection

See: "Operation manual Ecodos-PCB 2.237.82"

## 6 Maintenance and repair instructions

	<b>CAUTION</b>	Any service and repair work must be carried out by authorized personnel only. Ensure, that the power supply from the dishwasher is interrupted.
	<b>WARNING</b>	Only the original spare parts must be used. Before any repair work is carried out, the unit must be disconnected from its power source. Following each repair work a functional test of the unit must be performed.
	<b>NOTE</b>	The following points are to be given particular attention during servicing of the unit: - Condition of all product leading parts - Condition of all electrical wiring

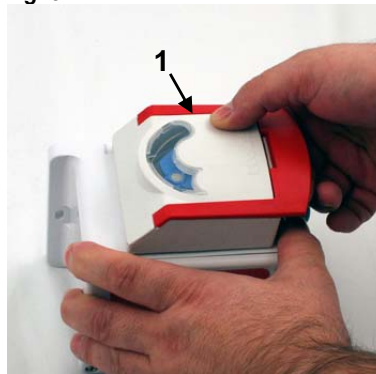
### Repair policy:

Any maintenance and repair is limited to parts of the pump head, peristaltic tube and the PCB. For all other defective components, the unit must be either returned to the equipment center or disposed in accordance with the environmental regulations.

### 6.1 Replacement of peristaltic tube

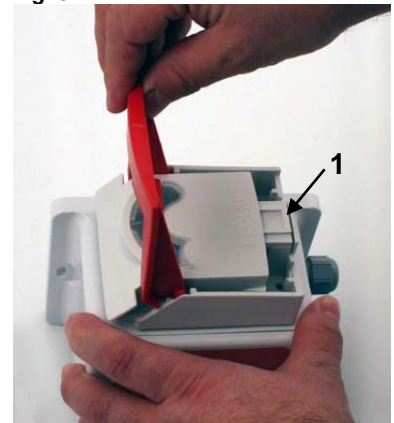
1. Loosen tube ties and remove product feed- and metering tube from fittings.

Fig. 6.1



2. Open lever while pressing strap (1) on back wall and lift lever.

Fig. 6.2



3. Remove old peristaltic tube.
4. Clean tube housing and remove old silicone residues.
5. Insert new peristaltic tube and lubricate tube.

Fig. 6.3





6. Push cover on back wall and click blue lever into strap.

Fig. 6.4



Fig. 6.5



Fig. 6.6



Fig. 6.7

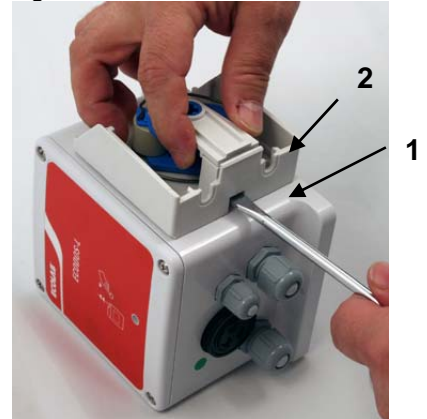


## 6.2 Replacement of roller assy

Perform the replacement of the roller assy as follows:

1. Remove cover (see Chapter [6.1](#)).
2. Remove old peristaltic tube.
3. Clean tube housing and remove old silicone residues.
4. Press fixation strap (1) with screw driver and lift of holder of roller assy (2).

Fig. 6.8



5. Carefully remove roller assy from pump head housing.

Fig. 6.9



6. Insert new roller assy, mount roller holder.
7. Reinstall pump head (see Chapter [6.1](#)).

### **6.3 Replacement of PCB**

Perform the replacement of the PCB as follows:

1. Remove cover.
2. Remove all cables from PCB.
3. Remove the screws from PCB and install new PCB simultaneously in reverse order.

### **6.4 Replacement of buzzer**

Perform the replacement of the buzzer as follows:

1. Remove screws from housing cover and carefully remove cover with seal.
2. Remove the two buzzer connectors from the screw terminal "ALARM AC24V" of the PCB.
3. Unscrew and remove coupling nut from buzzer and remove buzzer.
4. Install new buzzer simultaneously in reverse order.

## 7 Trouble shooting

Symptom	Possible cause	Corrective action
Pump does not work when power is applied	<ul style="list-style-type: none"> <li>- Pump motor / solenoid valve defective</li> <li>- Tube rollers blocked</li> </ul>	<ul style="list-style-type: none"> <li>- Replace pump motor / solenoid valve</li> <li>- Replace tube roller assy</li> </ul>
Pump does not work at conductivity mode	<ul style="list-style-type: none"> <li>- Measuring probe not connected to PCB</li> <li>- Only in 2-wire mode: DW filled with DEMI-water (cond &lt; 100µS/cm)</li> </ul>	<ul style="list-style-type: none"> <li>- Connect probe to "1 ...6" resp. "7 8"</li> <li>- Connect a wire link between "3" and "4"</li> </ul> <p><b>ATTENTION:</b> Metering starts the moment Ecodos-L stands live and conductivity &lt; setpoint</p>
Pump does not draw / meter product	<ul style="list-style-type: none"> <li>- Product shortage</li> <li>- Peristaltic tube defective</li> <li>- Product feed hose squeezed or damaged</li> <li>- Foot valve blocked</li> <li>- Pick up probe defective</li> <li>- Metering line defective</li> <li>- Check valve blocked</li> </ul>	<ul style="list-style-type: none"> <li>- Replace product container</li> <li>- Replace tube</li> <li>- Replace hose</li> <li>- Clean foot valve, replace if required</li> <li>- Replace pick up tube</li> <li>- Replace metering line</li> <li>- Replace check valve</li> </ul>
Product leakage from pump head	<ul style="list-style-type: none"> <li>- Peristaltic tube defective</li> <li>- Tube nuts defective</li> <li>- Inlet or outlet fittings defective</li> </ul>	<ul style="list-style-type: none"> <li>- Replace tube</li> <li>- Replace tube nuts</li> <li>- Replace fittings</li> </ul>

Electronic related (see also Instruction Manual Ecodos-PCB, ),

Symptom	Possible cause	Corrective action
LED does not illuminate when power is applied from the dishwasher	<ul style="list-style-type: none"> <li>- Transformer defective, wiring defective</li> <li>- PCB defective</li> </ul>	<ul style="list-style-type: none"> <li>- Check transformer, wiring and replace if required</li> <li>- Replace PBC</li> </ul>
Green LED flashes	<ul style="list-style-type: none"> <li>- System in standby mode</li> </ul>	<ul style="list-style-type: none"> <li>- Press QUIT button for 2 seconds to return in operation mode</li> </ul>
Red LED flashes	<ul style="list-style-type: none"> <li>- Low level detection</li> <li>- No capsule inserted</li> <li>- Max. dosage time exceeded</li> </ul>	<ul style="list-style-type: none"> <li>- Replace container</li> <li>- Insert capsule</li> <li>- Replace container/capsule</li> <li>- Check pump functionality</li> <li>- Check solenoid valve/water supply</li> </ul>
Red LED permanent on (only at inductive mode)	<ul style="list-style-type: none"> <li>- Measuring probe not connected</li> <li>- Measuring probe defective</li> </ul>	<ul style="list-style-type: none"> <li>- Connect inductive probe</li> <li>- Replace inductive probe</li> </ul>

## 8 Spare parts list

Description	Item No.
Peristaltic Pump Head	123742
Hold Lever Blue	32374203
Hold Lever Red	32374212
Hold Lever Green	223743
Pump Roller Assy	223757
Peristaltic Pmp Repl.Tube, 3 Cc	P92180884
Peristaltic Pmp Repl.Tube, 1/8 Cc	92170125
Peristaltic Pmp Repl.Tube, 1/4 Cc	P92180892
Peristaltic Pmp Repl.Tube, 1/2 Cc	418271009
Cable Fitting M16x1,5	32370123
Nut M16x1,5	32370148
Cable Fitting M12x1,5	32370149
Nut M12x1,5	32350156
Buzzer	418534232
Seal Ecodos-L / Ecorinse-L	413071140
Front Label Ecodos-L	223782
Front Label Ecorinse-L	417501924
Front Label Ecoset-L	418931008
Screw Ecodos-L / Ecorinse-L (4x)	418811360
Screw Ecoset-L (4x)	223752
Pc-Board	287409
Gear Motor Dc 24 V	E99000128
Transformer Ac 240/24v, 15 W	418463277
2-Wire Conductivity Probe	32370142
Measuring Cable For 2-Wire Probe	123742
Inductive Sensor (W. 0.2m Cable)	32374203
Inductive Sensor (W. 3.0m Cable)	32374212
Inductive Sensor (W. 6.0m Cable)	223743
Extension Cable (6.0m)	223757
Extension Cable (3.0m)	P92180884
Mounting Plate Ecodos/Ecorinse	92170125

\* Accessory part

## 9 Technical data

Supply voltage:	AC 24 V, 15 W, 50-60 Hz
Safety type:	Ecodos-L / Ecorinse-L / Ecoset-L: IP 54
Protective class:	III
<u>Detergent metering pump</u>	
Delivery rate:	Tube size = 3 CC: app. 0.6 ... 6 l/h
Head of suction: (dependent on back pressure)	Max. 2 m column of water
Back Pressure:	Backpressure = 0 bar
<u>Rinse metering pump</u>	
Delivery rate: (dependent on back pressure)	Tube size = 1/2 CC: app. 110 ml/h ... 1,20 l/h Tube size = 1/4 CC: app. 55 ml/h ... 0,6 l/h Tube size = 1/8 CC: app. 28 ml/h ... 0,3 l/h
Head of suction: (dependent on back pressure)	Max. 2 m column of water
Backpressure:	Max. 3.5 bars (0,35 MPa)
<u>Inputs:</u>	
Power supply "POWER AC24V":	Power supply via external transformer (AC 24V, 15 W) (p/o unit)
Enable "IN1":	5VDC-contact, not galvanic isolated
Low level "IN2":	5VDC-contact, not galvanic isolated
Conductivity sensor 2-wire "7 8":	"P120" probe (part no. 418811360)
Inductive sensor "1 ... 6":	Inductive probe (part no. 2874xx)
<u>Outputs:</u>	
24V AC-output "OUT AC24V":	AC24V, max. 15W*, Triac
24V DC-motor "DC-Motor + -":	DC24V, speed controlled, max. 15W*
24V AC-output "ALARM AC24V":	Alarm, AC24V, max. 15W*, Triac
	*) total power consumption max. 15W
<u>LED indicators</u>	
Front side:	Operation indication (green) Fault indication (red)
At PCB:	
"100%" -LED:	Concentration indicator
"OUT" -LED:	AC-Output indicator
<u>Control functions</u>	
Continuous mode:	Speed: app. 4 to 40 rpm
Time control mode:	Delay: 0 to 63 sec. Dosing time: 1 to 126 sec. Speed: app. 4 to 40 rpm
Conductivity mode:	Concentration range: 0 ... 25.2 mS/cm* t max. 10 to 1260 sec Speed: app. 4 to 40 rpm *: In 2-wire probe w. probe P120
Accuracy conductivity measuring:	
Inductive mode:	± 10% of value for conductivity ≤ 3mS/cm ± 5% of value for conductivity > 3mS/cm ± 10% of value w. P120 probe
2-wire mode:	
Ambient temperature:	Max. 50°C
Dimensions Ecodos-L / Ecorinse-L:	150 x 95 x 145 mm (W x D x H)
Weight Ecodos-L / Ecorinse-L:	Approx. 2 kg
Dimensions Ecoset-L:	215 x 160 x 150 mm (W x D x H)
Weight Ecoset-L:	Approx. 4 kg

Because of the company's policy of continuous improvements to its products, the specifications may be changed without notice.