Dosing system

Operating and maintenance instructions

eco-CONTROL EC200 DUO

Translation of the German original operating manual
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**Accessories / spare parts**  
**Troubleshooting / Maintenance**  
**Technical data**  
**Disposal**  
**EC-Declaration of Conformity**
1 Introduction

Dear customer,

we congratulate you on buying your dosing system. We are certain that it will fully meet your requirements. We wish you trouble-free and successful operation.

The dosing system eco-CONTROL EC200 DUO is made up of the dosing control and the 2K dispensers.

The dosing system has been designed and tested for the most precise work with our 2K-dispensers. The dosing system has a wide variety of setting options for the dosing quantity and time. All the values that are related to production can be saved and changed at any time. Operation is done via an intuitive operator guidance system using a graphic user interface. It is possible to operate two dispensers at the same time. It is possible to set it up for other dispensers at any time without noteworthy setting-up times.

The 2K-dispensers have been developed and tested for high-precision work with products ranging from low to high viscosity with extremely high repeat precision.

They are rotating displacement systems consisting of a rotor and stator and can be dismantled in no time. A number of voids are produced as a result of the various geometries of the conveying elements. Turning the rotor in the stator creates conveyance which is either proportional to the angle of rotation or rpm-dependent.

Since the direction of flow is reversible, the medium can be sucked back to allow a clean break of the thread. Self-sealing depends on the viscosity.

We would be glad of your help as part of our efforts to maintain our standard of quality at the highest possible level. Please tell us about any possible ways we can improve our product.
## Features

### Functions in brief with your transactions in the document:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 dosing programs: Quantity Start/stop Time program</td>
<td>5.8.1</td>
<td>18</td>
</tr>
<tr>
<td>24 different dosing programs (operation with memory card)</td>
<td>5.11</td>
<td>31</td>
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<tr>
<td>Sucking back of the medium to prevent dripping</td>
<td>5.10.7</td>
<td>24</td>
</tr>
<tr>
<td>Adjustable pot life, automatic mixer filling</td>
<td>5.10.3</td>
<td>22</td>
</tr>
<tr>
<td>Adjustable flush flush time, prevents the medium from hardening in the mixer</td>
<td>5.10.3</td>
<td>22</td>
</tr>
<tr>
<td>Flow quantity per minute can be set</td>
<td>5.10.6</td>
<td>23</td>
</tr>
<tr>
<td>Calibration of the controller / 2K- dispenser for exact working</td>
<td>5.9</td>
<td>19</td>
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<tr>
<td>Connection for foot switch and / or external signal</td>
<td>5.2</td>
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</tr>
<tr>
<td>Pressure monitoring at the medium supply with primary pressure</td>
<td>5.10.10</td>
<td>25</td>
</tr>
<tr>
<td>Dosing pressure monitor</td>
<td>5.10.9</td>
<td>24</td>
</tr>
<tr>
<td>Level monitoring for supply tank / cartridge / tank</td>
<td>8.3</td>
<td>41</td>
</tr>
<tr>
<td>Overcurrent monitoring of the connected 2K-dispensers to protect against damage due to sticking medium, for example.</td>
<td>5.10.14</td>
<td>30</td>
</tr>
<tr>
<td>Visualisation of the operating states via coloured displays</td>
<td>5.4</td>
<td>14</td>
</tr>
</tbody>
</table>
3 Scope of supply

dosing system eco-CONTROL EC200 DUO (delivery as a set with 2K-dispenser)
- 2K dispenser
- Calibration adapter for 2K-dispenser
- Mixer set
- Mains adapter with cable
- SD memory card
- Operating and maintenance instructions
- 2 pressure sensors with installation wrench
- Sticker set for marking components

3.1 Mixer set

The mixer set contains three different mixers in the sizes: Small, medium and large.
(Fig. in original size)
4 Safety

4.1 Informal safety measures
- The operating and maintenance manual must be kept, together with the operating and maintenance manual of the 2K-dispenser, at the site where the dosing system is used at all times.
- The operating instructions for the pressure analysis device flowscreen must always be kept at the point of operation of the dosing system when using the eco-DUO 600 2K dispenser.
- General and local regulations on health, safety and environmental protection must also be provided and complied with.

4.2 Use of symbols
The following symbols are used in these instructions:

<table>
<thead>
<tr>
<th>Text in italics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of keys/buttons, connectors, chapters, screen displays, proper names and input boxes</td>
<td></td>
</tr>
<tr>
<td>Listing of the work flow sequence</td>
<td></td>
</tr>
<tr>
<td>List</td>
<td></td>
</tr>
<tr>
<td>Numbered listing of a work flow sequence</td>
<td></td>
</tr>
<tr>
<td>Legend number in an illustration</td>
<td></td>
</tr>
<tr>
<td>Warning note. Failure to observe these notes may result in injury and damage to the dosing system.</td>
<td></td>
</tr>
<tr>
<td>Reference to technical information about operation and / or about preventing damage.</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Correct use, warranty
The dosing system is designed for controlling our 2K-dispensers in non explosion-protected environments.

Any
- modifications and additions,
- use of non-genuine spare parts,
- repairs by persons or organisations not authorised by the manufacturer
- use without original sensors for monitoring dosing pressure

that are done without the explicit and written approval of the manufacturer, can lead to the warranty being rendered null and void.

The manufacturer shall have no liability whatsoever for damage resulting from failure to follow the Operating and maintenance instructions.

The chemical resistance of the parts which come into contact with the product (see the commissioning and maintenance manual of the 2K-dispenser) must be ensured prior to commissioning.
4.4 Qualifications of the operators and maintenance personnel

The operating organisation is responsible for ensuring that the operators and maintenance personnel are suitably qualified. The Operating and maintenance instructions must have been read and understood. The relevant technical rules and safety regulations must be complied with.

4.5 Organisational measures

The necessary personal protective equipment must be provided by the operating organisation. All safety devices that are fitted must be checked regularly. Safety glasses and overalls must be worn during operation and cleaning to provide protection against any splashes of chemicals.

All of the safety information contained in the respective Operating and maintenance instructions for the 2K-dispenser that are connected to the dosing system must be complied with.

4.6 Preparation for commissioning - visual inspection

The dosing system must be visually examined each day before the start of work and before all shift changes. If there is any doubt as to the system’s readiness for operation, it must be shut down immediately and inspected by a specialist before operation resumes.

4.7 Preventing material damage to the motors of the 2K-dispenser

The 2K-dispenser lead (connector 16, Chapter 5.2, Connections, on page 12) may only be connected and disconnected when the power supply is isolated. The electronics in the drive motor could be damaged if this precaution is not taken.

The 2K-dispenser should only be operated with the original pressure sensors connected, which have been adapted to the controller.
4.8 Sources of danger due to dosing system

Failure to follow the instructions given below can result in damage to the unit and possible severe injury to persons in the vicinity.

- Very high dosing pressures can be produced, depending on the viscosity and the speed of rotation, and this could result in unintended spurting out of the medium. **Check the flow quantity in relation to the dosing needle used (needle cross-section).**

- When it is started up for the first time and after being refilled, air bubbles that are included in the medium could cause an uncontrollable spurting out of the outlet nozzle. **Only start production operation once the dosing system has been completely bled.**

- Wear suitable protective clothing if chemical, corrosive or dangerous products are being used. **Note and comply with the safety stipulations and the information from the manufacturer.** Ensure sufficient bleeding or extraction of air. Take special safety precautions if working with dangerous media, for example, provide eye flushing facilities if working with corrosive chemicals.
5 Operation

Before commissioning the dosing system, the safety information in Chapter 4, Safety, starting on page 8, must have been read and understood.

5.1 Displays and controls

<table>
<thead>
<tr>
<th>Item</th>
<th>Function, description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+2</td>
<td>Graphic display</td>
</tr>
<tr>
<td>3</td>
<td>Mains switch</td>
</tr>
<tr>
<td>4</td>
<td>NAVI wheel</td>
</tr>
<tr>
<td></td>
<td>Select and set variable values and input dialog confirmations.</td>
</tr>
<tr>
<td>5</td>
<td>Key (without Fig., below)</td>
</tr>
<tr>
<td></td>
<td>For service, software update.</td>
</tr>
<tr>
<td>6</td>
<td>Key START</td>
</tr>
<tr>
<td></td>
<td>Starts the dosing / function</td>
</tr>
<tr>
<td>7</td>
<td>Key STOP</td>
</tr>
<tr>
<td></td>
<td>Stops the dosing / function; emergency stop</td>
</tr>
<tr>
<td>8</td>
<td>Key PRG / Esc</td>
</tr>
<tr>
<td></td>
<td>Selection of programming, quitting an input dialog.</td>
</tr>
<tr>
<td>9</td>
<td>Key INFO</td>
</tr>
<tr>
<td></td>
<td>Brings further information onto the display, used to quit page 2 in the dosing programs.</td>
</tr>
<tr>
<td>10</td>
<td>Return</td>
</tr>
<tr>
<td></td>
<td>Confirmation of a selection / value input.</td>
</tr>
</tbody>
</table>

Shortcut keys for dosing programs

| 11   | Time program on the right, next to the key |
| 12   | Start / stop program is a status LED |
| 13   | Quantity program |

![Image of eco-CONTROL EC200 DUO display and controls]
5.2 Connections

<table>
<thead>
<tr>
<th>Item</th>
<th>Function, description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 + 15 System plugs *</td>
<td></td>
</tr>
<tr>
<td>16 Motor A / B</td>
<td></td>
</tr>
<tr>
<td>17 USB</td>
<td>Data transfer with PC, interface</td>
</tr>
<tr>
<td>18 Foot switch</td>
<td>Foot switch for hands-free operation</td>
</tr>
<tr>
<td>19 System plugs *</td>
<td></td>
</tr>
<tr>
<td>20 USB</td>
<td>Data transfer with PC, interface</td>
</tr>
<tr>
<td>21 +24 V/DC 100VA *</td>
<td>Mains plug, connection for power supply</td>
</tr>
<tr>
<td>22 Memory Card</td>
<td>Card reader for MMC/SD memory card</td>
</tr>
<tr>
<td>24 Primary pressure monitoring</td>
<td>Pressure sensor connection for medium components A and B</td>
</tr>
<tr>
<td>25 Dosing pressure monitor</td>
<td>Pressure sensor connection for medium components A and B</td>
</tr>
</tbody>
</table>

* See section 8.3, page 41 for pin-outs

(The primary pressure does not apply for self-levelling liquids)
### 5.3 Symbols on the screen

<table>
<thead>
<tr>
<th>Designation / function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing program Quantity</td>
<td>See 5.8.1, Dosing programs, page 18</td>
</tr>
<tr>
<td>Dosing program Start / stop</td>
<td>See 5.8.1, Dosing programs, page 18</td>
</tr>
<tr>
<td>Dosing program Time</td>
<td>See 5.8.1, Dosing programs, page 18</td>
</tr>
<tr>
<td>flow rate</td>
<td>Dosing quantity per minute(^1).</td>
</tr>
<tr>
<td>Sucking back</td>
<td>Preventing dripping of the medium. The amount of medium that is &quot;sucked back&quot; into the 2K-dispenser in connection with the dosing process.</td>
</tr>
<tr>
<td>Calibrating</td>
<td>Matching the 2K-dispenser by determining the effective flow rate.</td>
</tr>
<tr>
<td>Saving</td>
<td>Used to save the last values that had been amended. Only applies if a SD memory card has been inserted.</td>
</tr>
<tr>
<td>Start / stop</td>
<td>Shows the current controlling of the 2K-dispenser (high/low). The switch is set to I during dosing.</td>
</tr>
<tr>
<td>Relative quantity, capacity</td>
<td>Dynamic display of the flow rate, for example</td>
</tr>
<tr>
<td>Fault</td>
<td>Plain text messages in the status line give information on the relevant error message. Details can be called up with the Info key.</td>
</tr>
</tbody>
</table>

\(^1\) In ml or g
5.4 Functional and operational schematic

The interaction of the screen displays, the input dialog and the function keys:

The control system has an intuitive input dialog. The selection or the change of a value is offered on the screen to suit the relevant program section. The corresponding area (A) on the screen is then shown as inverse or framed.

The status bar (B) provides plain text messages in accordance with the input dialogs.

**NAVI wheel** (See 5.1, Displays and controls, page 11)

Enables rapid selection, input and confirmation of different functions.

The **rotation** of the NAVI wheel switches to the next or previous selection, depending on the direction of rotation, or changes a value.

A **press** of the NAVI wheel confirms a selection or a change in value that had just been made. (Alternatively, the Return key can also be used for confirmation)

The illumination of the NAVI-wheel signalises the following operating states: Blue = Ready for operation, Green = Dosing in progress, Red = Fault.

**Changing a setting value**

1. Select the value to be changed by rotating the NAVI wheel, the value is shown in inverse.
2. **Press the NAVI wheel**, numbered items can be selected individually.
3. Select a numbered item by rotating the NAVI wheel, the numbered item flashes.
4. **Press the NAVI wheel**, the numbered item is shown in inverse.
5. Change the value by rotating the NAVI wheel and press the NAVI wheel for confirmation, the numbered item flashes again. Another numbered item can be selected.
6. If further numbered items are to be changed, start again from 3., and if not, continue.
7. Press the PRG key to confirm the change, the value that has just been set is shown in inverse, if other values can be changed in the input dialog, these can now be reached by rotating the NAVI wheel.

**Esc**

Used to quit an input dialog. In some cases it also assumes other functions. If that is the case, this is shown in plain text in the status line.
5.5 Starting up for the first time

**Caution:** The 2K-dispenser lead (connector 16, Chapter 5.2, Connections on page 12) may only be connected and disconnected when the power supply is isolated. The electronics in the drive motor could be damaged if this precaution is not taken.

- Operate the 2K-dispenser in accordance with the operating manual.
- Ensure that the mains switch has been turned off.
- Ready the dispenser(s) for operation in accordance with the supplied commissioning and maintenance manual.
- Connect the plugs of the 2K-dispenser(s).
- Attaching the pressure sensors
  
  - eco-DUO 450: Connect the plugs of both 2K-dispenser pressure sensors to the dosing system.
  
  - eco-DUO 600: Commission the flowscreen analysis system* (plug connections of both pressure sensors, connecting the flowscreen analysis system with the system plugs (19, see section 5.2) and setting in section 5.10.14)

- Connect the power supply to the control system.
- Connect the mains plug of the mains adapter to the electrical mains.
- Turns on the mains switch.

* according to the manual delivered with the device
5.5.1 Save the calibration values of the dosing pressure sensors

- Press PRG, system selection menu, display 2 appears.

- Select Administration, display 25 appears.

- Select Calib. outp. pressure A, display 51 appears.

- Enter the calibration data supplied with the sensor

- Offset determination, please select the "pressureless set new" and confirm it with OK, this must take place with unpressurised sensor. Confirm the whole process with OK and leave the screen.

- Carry out the same setting with pressure sensor B.

**Notice:** The dosing system is only ready for operation when the 2K-dispenser is connected.

**Tip:** Use the stickers provided (letters A and B), to mark the following components.
- Both motors and dispensers and their plugs
- Pressure sensors and their plugs
- Supply lines for the media used
5.6 **Starting up**

- Turns on the mains switch.
- Position the new mixer where necessary. The dosing system set is ready for operation.

5.6.1 **Important settings**

Some important settings must be made to ensure problem-free operation of the 2K-dosing station. The following set-up makes the process easier:

- Mixer used
- Mixing ratio
- Pot life
- or flush time
- Pressure tolerance of the input pressure monitor, where used

5.7 **Shutting down**

The unit is shut down in reverse order of setting up.

5.8 **The dosing programs and their areas of application**

**General**

In order to achieve the most accurate results with the *eco-CONTROL EC200 DUO*, all the main factors for a reproducible dosing operation can be set.

The dosing system must be recalibrated each time the medium is changed. See 5.9, Calibrating page 19.

All the parameters of a dosing program can be saved. When using a memory card, 24 program slots are available for permanent storage. Without the memory card, the data is stored temporarily on program slot 00. It is kept until the dosing system is switched off.

<table>
<thead>
<tr>
<th>Dosing program</th>
<th>Flow quantity</th>
<th>Flow rate</th>
<th>Dosing time</th>
<th>Sucked back quantity</th>
<th>Suck back speed</th>
<th>Pause before Sucking back</th>
<th>Material density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity program</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Start / stop program</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Time program</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
### 5.8.1 Dosing programs

**Quantity program**  
*Quantity program* is used to give out a fixed and defined quantity of medium. Depending on the 2K-dispenser and the medium used, it is possible to set very small amounts per dosing. The dosing time is determined by the volume flow. The dosing operation can be broken off at any time until the set time has expired (*STOP key*).

**Start / stop program**  
The *Start / stop program* is used if the 2K-dispenser is set to convey the medium over an individual period controlled by the operator (or external control). The output quantity can be defined. The dosing quantity is determined by the volume flow.

**Time program**  
The *time program* is used if the dosing is to be done for a set period. This is triggered by the operator (or an external controller). The output quantity can be defined. The dosing operation can be broken off at any time until the set time has expired (*STOP key*). The maximum dosing time that can be set is 99.99 seconds.

### 5.8.2 Operating modes

**Dosing manually**  
In the three dosing programs the dosing is initiated by pressing the *START* key. The *quantity program* and the *time program* end the dosing by itself once the set values have been reached or at the end of the set dosing time.  
In the *Start / stop program* dosing can be ended by pressing the *STOP* key.

**Dosing with the foot switch**  
The dosing system reacts to the foot switch being activated as follows:

<table>
<thead>
<tr>
<th>Dosing program</th>
<th>Press the foot switch</th>
<th>... and release it again</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity program</td>
<td></td>
<td><em>Quantity program ends</em></td>
</tr>
<tr>
<td>Start / stop program</td>
<td>Dosing on</td>
<td>Dosing off</td>
</tr>
<tr>
<td>Time program</td>
<td></td>
<td><em>Time program ends</em></td>
</tr>
</tbody>
</table>

In the quantity and time programs the dosing can be stopped by pressing the *STOP* key before the specified values have been reached (*EMERGENCY STOP*). A set pause and a return flow are carried out as well.
Dosing by means of an external controller
As in the case of dosing with the foot switch, but the triggering and termination of the
dosing are done by supplying an electrical signal. See 8.3, Interface description, page 41.

Notice: If a memory card is being used, press the foot switch briefly to load the saved and
most recently run program and to display it on the screen. Press the foot switch once
again to start the dosing. It behaves in exactly the same way with an external signal.

5.9 Calibrating

Preparation
• Mount the calibration adapter (see 2K-dispenser operating manual).
• Connect to the controller the 2K-dispenser that has been made ready for operation
  and bled.

Caution: The 2K-dispenser lead (connector 16, Chapter 5.2, Connections on page
12) may only be connected and disconnected when the power supply is isolated. The
electronics in the drive motor could be damaged if this precaution is not taken.
• Keep at hand a suitable vessel (calibration vessel) to catch and measure the quantity
  required for calibration.

5.9.1 Automatic calibration

Notice: During the calibration operation the dosing system cannot be operated by
either the foot switch or an external control signal.
• Press PRG, system selection menu,
  display 2 appears.

• Select Calibration auto
• Select motor A or B, menu Calibration auto, display 15
  appears.

Select whether the calibration is to be done with quantity unit ml(μl) or g(mg)* and confirm this, the set quantity can
be set as desired.

• Set and confirm the set quantity.
  The value preset in the dosing system is to be regarded as the ideal value.

• Position the calibration vessel under the calibration adapter of the 2K-dispenser.
• Press the START key, the calibration starts, the 2K-dispenser is switched on and conveys the quantity specified by the system. This process can be repeated as often as desired. e.g., for comparative measurements.
• The ACTUAL quantity that goes into the calibration vessel is determined in the previously set measuring unit. See also 5.10.4, Dosing quantity.
• Input and confirm the ACTUAL quantity that has been determined.
• Select the OK button and confirm, the next dialog to save the calibration value appears (display 17).

• Accept or discard the suggested program slot, confirm this, and the system has been calibrated.

5.9.2 Calibration manual

The Calibration manual function provides a simplified option to recalibrate the system without having to run through the entire process in the Calibration auto menu. This can be helpful, for example, after changing the stator, in the event of batch-related product variations, etc., whereby the set dosing value is not to be changed (QA documents, etc.).

Caution: Setting the flow rate in the Calibration manual menu also changes the dosing results of all the dosing programs by a linear factor.

• Press the PRG key, system selection menu, display 2 appears.
• Select Calibration manual.
• Select motor A or B, menu Calibration manual, display 40 appears.

• Confirm the flow rate and set the desired value with the NAVI wheel
• Press the NAVI-wheel key, system selection menu, display 2 appears.
5.10 Settings

5.10.1 Mixing ratio

If a dosing program is active, the mixing ratio is shown in the right-hand display and can be changed. The value for dispenser A can be set (1:1 to 5:1).

See also 5.14, Changing a dosing program

NOTE for dosing in the right mixing ratio by volume or weight:

- Is your system calibrated in g, please use the mixing ratio in weight (gravimetric).
- Is your system uncalibrated, please use the mixing ratio in volume.

5.10.2 Mixer size

If a dosing program is active, the mixer size is shown in the right-hand display and can be changed. The three sizes of the supplied mixer set are available for selection: Small, medium and large.

See also 5.14, Changing a dosing program

The mixer size is taken into account in the flow quantity in the Rinse mixer functions.
5.10.3 Setting the pot life, flush the mixer

The pot life is shown in display 26.3. It can be set in every program (Chapter 5.14). It then starts running backwards on every dosing. The remaining time is shown.

It is compulsory to enter the pot life.

Once the pot life has expired, dosing takes place (empty shot) in accordance with the set mixer size, filling it with "fresh" medium.

Empty shot = single dosing
Continuous = ongoing in accordance with the pot life.

The Rinse function can be activated after a pot life has been entered.

The value must be smaller than the pot life. It starts running backwards after the mixer has been filled (while the pot life is running). The remaining time is shown.

Once the flush time has expired, the mixer is rinsed once with the component from the selected dispenser (A or B). This ensures that the mixer is filled with just one medium and protected against sticking. The quantity corresponds to the set mixer size.
5.10.4 Dosing quantity

**General on determining the dosing amount.**

![Notice:](image)

If a value that differs from 100% is set in the Calibration manual menu (section 5.9.2), this affects the results of the dosing.

The smallest dosing quantities can be determined most easily via the weight. We recommend setting the material density first.

Dose your required quantity with the Start / stop program and weigh it. Now input in the quantity program the quantity in g.

**Setting the dosing amount as a value**

1. Press the Quantity program shortcut key, display 3 appears.
2. Ensure that the required quantity unit* has been selected in the Quantity display area.
3. Set and confirm the dosing amount.

![Display 3](image)

5.10.5 Dosing time

1. Press the Time program shortcut key, display 10 appears.
2. Set, confirm and save the dosing time.

The set value remains active until the next change or until the dosing systems is switched off. Alternatively, a value of its own for the flow rate can be assigned to each dosing program (See 5.14, Changing a dosing program, page 33).

![Display 10](image)

5.10.6 Flow rate

The flow rate in quantity/min can be set in each dosing program. The maximum possible flow rate that can be set depends on the set mix ratio. A set mix ratio of 1:1 results in the following maximum flow rates:

- eco-DUO450: 12 ml/min (6 ml/min per dispenser (A or B))
- eco-DUO600: 32 ml/min (16 ml/min per dispenser (A or B))

![Display 34](image)

- Selecting, changing and saving the displayed value.

---

*Note:*

- * in the Quantity display area refers to the selected quantity unit; g (grams), ml (milliliters), etc.
The bar chart shows in what range (%) the flow rate is.

The set value remains active until the next change or until the dosing systems is switched off. Alternatively, a value of its own for the flow rate can be assigned to each dosing program (See 5.14, Changing a dosing program, page 33).

### 5.10.7 Sucking back

In order to effectively prevent any dripping of the medium, a value for the sucking back can be set. For safety reasons, the sucking back is restricted to a maximum quantity of 0.02ml.

- Selecting, changing and saving the displayed value.

The sucking back is done after each dosing operation.

The set value remains active until the next change or until the dosing systems is switched off. Alternatively, a value of its own for the sucking back can be assigned to each dosing program (See 5.14, Changing a dosing program, page 33).

### 5.10.8 Dosing time

1. Press the *Time program* shortcut key, display 10 appears.
2. Set, confirm and save the dosing time.

The set value remains active until the next change or until the dosing systems is switched off. Alternatively, a value of its own for the flow rate can be assigned to each dosing program (See 5.14, Changing a dosing program, page 33).

### 5.10.9 Dosing pressure monitor

The dosing pressure monitor protects the 2K-dispenser. If the mixer were blocked, the pressure inside the dosing pumps could increase to a level where they could be damaged.

In the dosing program currently opened (see also 5.14, Changing a dosing program), the value for the dosing pressure monitor can be entered in level 2 (display 26.1).
5.10.10 Tolerance value primary pressure monitoring

- Press PRG, system selection menu, display 2 appears.
- Select Administration, display 25 appears.

- Select Inp. pressure tolerance, display 29 appears.

- In the pressure tolerance input dialog, enter the tolerance and confirm with OK, display 25 appears.

5.10.11 Password protection

The password protection blocks access to the settings of the controller and all function keys. Dosing is possible via a foot switch (optional) and an external signal (system plug). The most recently selected dosing program is always run and shown on the display.

Setting range for the password: 0000 to 9999
Time of the automatic blocking after the last input: 30 seconds.

Turning on password protection

- Press the PRG key, system selection menu, display 2 appears.
- Select and confirm Administration, the Administration menu, display 25 appears.
• Select Password protection, display 41 appears.

• Press the Navi wheel, display On, changes to Off, Protection active appears in the status bar.
• Select and confirm the password (code).
• Set the password by turning* the Navi wheel.
• Press the OK button and confirm, password protection has been activated.

* Dynamic behaviour: The faster it is turned, the quicker the range of numbers changes.

Note: If no further buttons are pressed, the password protection blocks the controller after 30 seconds.

Releasing the controller (if password protection has been activated)

The start screen is shown when it is in the blocked state. Display 42 appears if a button is pressed.
• Select the correct password by turning the Navi wheel and confirm it by pressing, then the start screen appears.

Note: If no further buttons are pressed, the password protection blocks the controller after 30 seconds.

Turning off password protection

Release the controller as described above.

• Press the PRG key, system selection menu, display 2 appears.
• Select and confirm Administration, the Administration menu, display 25 appears.
• Select **Password protection**, display 41 appears.

• Press the **Navi wheel**, display **Off**, changes to **On**, **Protection inactive** appears in the status bar.

• Press the **OK** button and confirm, password protection has been deactivated.
5.10.12 Analogue Input

**Description:** The flow rate for the connected pumps is regulated proportional to the applied analogue signal (V or mA). This function is only effective in the *Start / stop program*.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Analog signal</th>
<th>Input resistance / resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>0-10V</td>
<td>$R_i = 20,k\Omega / 10,\text{bit}$</td>
</tr>
<tr>
<td>A2</td>
<td>0-40mA</td>
<td>$R_i = 100,\Omega / 10,\text{bit}$, maximum input voltage $+5,\text{V}$</td>
</tr>
<tr>
<td>GND</td>
<td>GND Analog</td>
<td></td>
</tr>
</tbody>
</table>

**Notice:** Whatever the setting of the flow rate in the *Start / Stop program*, the maximum flow rate of the pump (12 or 32 ml/min) must always be assumed. This setting does not affect the return.

**Switching the analogue input on / off**

- Press the **PRG** key, **system selection menu**, display 2 appears.
- Select and confirm **Administration**, the **Administration menu**, display 25 appears.

- Select **Analogue input**, display 43 appears. The current setting is shown in the status bar.

- Select the desired setting and press **Navi wheel**, the status bar displays **Press OK to accept**.
- Select the **OK** button and confirm, the setting is activated.
Notice: If one of the two analogue inputs is active, this will be indicated in plain text in the display of the Start / Stop Program (display 44) instead of the dynamic flow rate display.

5.10.13 Time and date

- Press PRG, system selection menu, display 2 appears.
- Select Administration, display 25 appears.

- Select Set the time, the time and the date can be set by field in the status bar using the NAVI-wheel.
- Confirm the setting with PRG
5.10.14 System and error messages

Switching error messages on / off

- Press the PRG key, the start screen, display 2 appears.

- Press and hold down the START key.
- Press the Quantity program key, Config. error messages are displayed (display 33).

Select the desired error message and press the Enter key to switch on or off.

Auto fill Automatic filling after the initialization of the dosing program.

Output pressure sensors Monitoring of the pressure sensors.

ATTENTION The monitoring of the dosing pressure is a safety feature. With deactivated sensors your system is not protected against over pressure.

The volume is set with the NAVI wheel and confirmed with the Enter key.

Press the Esc key to quit the menu.

All the values that are set here are saved permanently in the dosing system.
Notice: The overcurrent monitoring is set permanently to ON.
The primary pressure and level monitoring functions protect the 2K-dispenser. This effectively prevents any damage due to running dry if there is too little medium.
(Connection for the level signal, see 5.2, Connections, page 12)

Error message memory card

If the memory card is defective or has not been inserted, when the dosing system is switched on a corresponding message (display 37) is shown for 3 seconds.
5.11 Creating dosing programs

Only possible when using a memory card, a diskette symbol appears in the display at the lower right. If there is no memory card, then only program 00 (volatile memory) is available.

The creation of a dosing program is done as part of the Save function by inputting a dosing program number.
• Select the dosing program (e.g. quantity program).
• Set the values (quantity, flow rate, sucking back).
• Save and input a dosing program number.

Use a memory slot that is still free so that no existing data is overwritten.

All the setting options for this dosing program are now available for editing. Do this as described below under 5.14.

5.12 Selecting the dosing program

Only possible if using a memory card. If there is no memory card, then only program 00 (volatile memory) is available.

• Press PRG, system selection menu, display 2 appears.
• Select Programs, display 26.5 appears.

• Press Enter for longer than 1 second, display 26.4 appears.

• Select the desired dosing program number and confirm, the dosing program is activated and can be used.
5.13 **Copying the dosing program**

Only possible if using a memory card. If there is no memory card, then only program 00 (volatile memory) is available.

- Select the dosing program to be copied (see 5.12), display 26.5 appears.

- Select the disc symbol at the bottom right, display 27 appears.

- Enter the dosing program number of the new storage space and confirm with OK.
5.14 Changing a dosing program

Only possible if using a memory card. If there is no memory card, then only program 00 (volatile memory) is available.

- Press PRG, system selection menu, display 2 appears.
- Select Programs, display 26.5 appears.

- Press Enter for longer than 1 second, display 26.4 appears.

- Select the desired dosing program number and confirm, the dosing program is activated and can be edited.

Two levels are available for the settings of a program:

**Level 1**

<table>
<thead>
<tr>
<th>Program no.</th>
<th>01 / 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Start / stop</td>
</tr>
<tr>
<td>Speed</td>
<td>02.001 g/min</td>
</tr>
<tr>
<td>Suckback</td>
<td>0.000 g/min</td>
</tr>
<tr>
<td>Speed</td>
<td>03.000 g/min</td>
</tr>
<tr>
<td>Pause</td>
<td>0.00 s</td>
</tr>
<tr>
<td>Calibr.</td>
<td>A: ☐ B: ☐</td>
</tr>
</tbody>
</table>

**Mixture** 1.0:1.0  
**Mixer** small  
**Pot time** 00 : 23 : 45  
**Blank shot** ☐ endless  
**Flush** ☐  
**Flushing Time** 00 : 23 : 00  
**Flush A** ☐  
**Flush B** ☐  
Program no. 07

**Note:** The value in the Pause function defines the amount of time between stopping the dosing and starting the sucking back.
Level 2

The pressure unit Bar can be changed over to psi.
Select the disk symbol on the bottom right to save.

Output pressure monitoring only with eco-DUO 450

5.15 Dosing, selected directly without dosing program

- Select the dosing program, this can be done with the shortcut keys for the dosing programs
  - Quantity program
  - Time program
  - Start / stop program.

- The associated main display appears for the relevant dosing program.

- Make settings for dosing where necessary.
- If the pot life has not yet been entered, a message appears. Enter the pot life and press Start.
- If the mixer has not yet been filled (after every program change) a message appears. Press Start, the mixer is filled and the dosing system is ready for operation.
- Press the Start key and dosing begins.

- After the first dosing operation the display changes to the associated detail display for the relevant dosing program.
5.16 Dosing, using a dosing program

See 5.12, Selecting the dosing program on page 31.

5.17 Monitoring / displaying dosing pressure

The dosing pressure monitored by the sensors can be displayed as follows when the dosing program is activated.

- Select letter G in the right display (display 26.6) and confirm, the relevant dosing pressure is shown for both pressure sensors in the left display (display 26.7).

The range of the display corresponds the the settings in the dosing program.

5.18 Manual flush

- Press PRG, system selection menu, display 2 appears.
- Select Manual flush A (or B), display 52 appears and a single dosing takes place in the selected dispenser (A or B). The dosing quantity corresponds to the set mixer size. Display 2 then appears again.
5.19 Bleeding the 2K-dispenser after filling / refilling it and after cleaning

Caution: Do not switch on the Control system until medium has been delivered to it. Otherwise there is a risk of damage to the equipment. Even a short test run can cause irreparable damage to the stator.

The 2K-dispenser must be bled when it is used for the first time and each time after refilling or cleaning. Do this in accordance with the notes given in the operating instructions of the 2K-dispenser.
It is best to use the start / stop program with a medium flow rate to control the 2K-dispenser.

5.20 Error messages

5.21 Clearing error messages
If an error message is present, a flashing symbol appears in the status bar and an acoustic signal sounds. (if not switched off, see 5.10.14, System and error messages, page 30)

• Press the Info key, the acoustic signal is switched off, and the corresponding error message appears.
  - Overcurrent shutdown! Check the pump and motor
  - Check the minimum fill level
  - Check the compressed air
  - Fill level A (or B) minimum
• Correct the error and clear the error message with OK.

Caution: If the error message Overcurrent switching appears, the 2K-dispenser must be cleaned before any further use.

5.22 Error message dosing pressure monitor error
If an error is present in one of the two dosing pressure monitor sensors, an error message appears in the display. The error-code number provided enables us to describe the error exactly. Please tell us the number or replace the relevant sensor.
5.23 Service

5.23.1 Operating information

- Press PRG, system selection menu, display 2 appears.
- Select Service and confirm, display 3 appears.

All the main system and operating times are displayed. The language for the displays can be set.

5.23.2 Formatting the memory card

- Insert the memory card
- Press the PRG key, the start screen, display 1 appears.
- Press and hold down the START key.
- Press the PRG key.
- Release both keys again, the memory card is reformatted and all data on the card is deleted. A confirmation message appears on the display: Chipcard initialized and ok.
## Accessories / spare parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20118</td>
<td>MMC/SD memory card</td>
</tr>
<tr>
<td>2</td>
<td>20164</td>
<td>Mains adapter</td>
</tr>
<tr>
<td>3</td>
<td>20781</td>
<td>Pressure sensor (primary pressure monitoring)</td>
</tr>
<tr>
<td>4</td>
<td>20165</td>
<td>Foot switch cpl. for eco-CONTROL EC200</td>
</tr>
<tr>
<td>5</td>
<td>20055</td>
<td>Plug for foot switch</td>
</tr>
<tr>
<td>6</td>
<td>20313</td>
<td>&quot;Extender&quot; cable extension 5m cpl.</td>
</tr>
<tr>
<td>7</td>
<td>20314</td>
<td>&quot;Extender&quot; cable extension 10m cpl.</td>
</tr>
<tr>
<td>8</td>
<td>20326</td>
<td>eco-REMOTE 232 interface ext. Program selection</td>
</tr>
</tbody>
</table>
## Troubleshooting / Maintenance

### Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>dosing system cannot be operated, no display.</td>
<td>no 2K-dispenser connected</td>
<td>Connect 2K-dispenser (ensure that the mains plug has been removed beforehand)</td>
</tr>
<tr>
<td></td>
<td>Mains switch turned off</td>
<td>Turn on the mains switch</td>
</tr>
<tr>
<td></td>
<td>Mains adapter has no power or is defective</td>
<td>Check the mains adapter</td>
</tr>
<tr>
<td>Dosing program cannot be saved, only program 00 is offered</td>
<td>No MMC/SD memory card inserted, or not formatted</td>
<td>Insert / format the MMC/SD memory card</td>
</tr>
</tbody>
</table>

### Error messages

<table>
<thead>
<tr>
<th>Error messages</th>
<th>Possible cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overcurrent monitoring</td>
<td>Dispenser components do not run smoothly due to hardened medium or as a result of dry running.</td>
<td>Dismantle and clean the 2K-dispenser, replace the stator if necessary. See the operating instructions for the 2K-dispenser.</td>
</tr>
<tr>
<td>Level of medium critical</td>
<td>Not enough medium in the supply tank</td>
<td>Fill up with the medium. If the error message remains, check the sensor and sensor input, if applicable, brief &quot;emergency operation“ without level monitoring.</td>
</tr>
<tr>
<td>Motor A (B) not type 450...</td>
<td>Incorrect 2K-dispenser connected.</td>
<td>Connect the 2K-dispenser eco-DUO 450</td>
</tr>
<tr>
<td></td>
<td>Drive motor plug not connected.</td>
<td>Connect the plug</td>
</tr>
<tr>
<td>Error on sensor A (B)</td>
<td>Sensor faulty or not connected.</td>
<td>Check the sensor connection, replace.</td>
</tr>
</tbody>
</table>

In eco-DUO 600, pressure monitoring is done via the flowscreen analysis system. The set value of the output pressure sensors must be set to OFF (see 5.10.14).

### Maintenance

The dosing control can be regarded as maintenance free. The ventilation louvres in the mains adapter and housing must be kept clear at all times. Do not use any aggressive solvents or cleaners for cleaning, only a damp cloth. Isolate from the power supply before cleaning.
## Technical data

### 8.1 Dosing control

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (h x w x d)</td>
<td>110 x 240 x 210 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 1.3 kg</td>
</tr>
<tr>
<td>Supply</td>
<td>24 V DC, mains adapter supplied</td>
</tr>
<tr>
<td>Mains adapter</td>
<td>230 V / 50 / 60 Hz</td>
</tr>
<tr>
<td>Performance</td>
<td>max. 50 W depending on the output set</td>
</tr>
<tr>
<td>On / off switch</td>
<td>yes</td>
</tr>
<tr>
<td>Interface</td>
<td>RS232 / USB</td>
</tr>
<tr>
<td>Dosing pressure monitor</td>
<td>0 to 40 bar</td>
</tr>
<tr>
<td>External memory</td>
<td>MMC/SD card min 64 MB max. 24 dosing programs</td>
</tr>
<tr>
<td>Operating conditions</td>
<td>+10°C to +40°C (Ta.), air pressure 1 bar</td>
</tr>
<tr>
<td>Medium temperature</td>
<td>+10°C to +40°C</td>
</tr>
<tr>
<td>Storage conditions</td>
<td>dry / dust free -10 to +40°C</td>
</tr>
</tbody>
</table>

### 8.2 2K-dispenser

See the commissioning and maintenance manual supplied with the 2K-dispenser.
## 8.3 Interface description

### 8.3.1 System plugs

<table>
<thead>
<tr>
<th>Suitable system plugs from the manufacturer Wieland</th>
<th>Article number (Wieland)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains switch (2-pin)</td>
<td>25.345.3253.0, RM5.08</td>
</tr>
<tr>
<td>System plugs 19</td>
<td>25.345.4053.0, RM5.08</td>
</tr>
<tr>
<td>System plugs 15</td>
<td>25.345.4253.0, RM5.08</td>
</tr>
<tr>
<td>System plugs 14</td>
<td>25.630.1453.0, RM3.5</td>
</tr>
</tbody>
</table>

Compatible plug terminals: Manufacturers Phoenix-Contact and Weidmüller

![System plugs diagram]

### System plugs (14)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Type</th>
<th>Area</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>+24V/100mA</td>
<td>+24V/100mA</td>
<td>for supplying the connected sensors</td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>IL1</td>
<td>Digital input</td>
<td>0/24V</td>
<td>Level sensor 1</td>
</tr>
<tr>
<td>IL2</td>
<td></td>
<td></td>
<td>Level sensor 2</td>
</tr>
<tr>
<td>OA1</td>
<td>Analogue output</td>
<td>0-5V</td>
<td>Dosing pressure A (no pressure=0V)</td>
</tr>
<tr>
<td>OA2</td>
<td></td>
<td></td>
<td>Dosing pressure B (no pressure=0V)</td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>OA3</td>
<td>Analogue output</td>
<td>0-5V</td>
<td>Pot life / rinsing time (pot life expired=0V)</td>
</tr>
<tr>
<td>OHC</td>
<td>Collector*</td>
<td>max. 24V/10mA</td>
<td>not set</td>
</tr>
<tr>
<td>OHE</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OMC</td>
<td>Collector*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OME</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* galvanically separated
### System plugs (15)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Type</th>
<th>Area</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1C</td>
<td>Collector*</td>
<td></td>
<td>Dosing (Dosing running=transistor interconnected)</td>
</tr>
<tr>
<td>O1E</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O2C</td>
<td>Collector*</td>
<td>max. 30V/10mA</td>
<td>Remote mode (local operating mode or no ecoRemote connected=transistor interconnected)</td>
</tr>
<tr>
<td>O2E</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O3C</td>
<td>Collector*</td>
<td></td>
<td>not set</td>
</tr>
<tr>
<td>O3E</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISS</td>
<td>Make contact</td>
<td>0-24V</td>
<td>ext. Start (0V= Stop, 24V=Start)</td>
</tr>
<tr>
<td>IA1</td>
<td></td>
<td>0-10V</td>
<td>Analogue input 1 (voltage)</td>
</tr>
<tr>
<td>IA2</td>
<td></td>
<td>4-20mA</td>
<td>Analogue input 2 (current)</td>
</tr>
<tr>
<td>GND</td>
<td></td>
<td>GND analogue</td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td></td>
<td>GND sensor</td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* galvanically separated

### Foot switch (18)

1. Contact via make contacts
2. Contact via make contacts
3. not set

Matching plug Part No. 20055

(view of rear of controller EC200)
8.3.2 Logical links of the outputs

**Dosing (system plug 15, pins O1C + O1E)** The output has H-level during the dosing process, otherwise it has L-level.

**Fill level alarm (system plug 19, pins OFC + OFE)** The output is activated following successful initialisation (H-level). It switches to L-level if the connected fill level sensor switches to L-level.

Under system and error messages, the fill level monitoring function on page 30 in chapter 5.10.14, System and error messages can be used to activate or deactivate the monitoring of the sensors.

**Ready (system plug 19, pins ORC + ORE)** An initialization is carried out after the control system has been switched on. The output is activated when the initialization has been successfully completed (H-level).

**Error output (system plug 19, pins OEC + OEE)** The output is activated following successful initialisation (H-level). If vacuum, overpressure or overcurrent is registered, the output switches to L-level.

**Connections for primary pressure monitoring** The sensors for primary pressure monitoring are connected to the connections Input Pressure A and Input Pressure B (24). Entering the tolerance value is described on page 25 in Section 5.10.10.

---

### System plugs (19)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Type</th>
<th>Area</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>I0A</td>
<td>galvanically separated</td>
<td>max. 24V/10mA</td>
<td>Safety shutdown</td>
</tr>
<tr>
<td>I0C</td>
<td>galvanically separated</td>
<td>max. 24V/10mA</td>
<td>Sensor fill level</td>
</tr>
<tr>
<td>I1A</td>
<td>galvanically separated</td>
<td>max. 24V/10mA</td>
<td>Sensor fill level</td>
</tr>
<tr>
<td>I1C</td>
<td>galvanically separated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFC</td>
<td>Collector*</td>
<td>max. 30V/10mA</td>
<td>Fill level alarm (no alarm=transistor interconnected)</td>
</tr>
<tr>
<td>OFE</td>
<td>Emitter*</td>
<td></td>
<td>Ready for operation (no error=transistor interconnected)</td>
</tr>
<tr>
<td>ORC</td>
<td>Collector*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORE</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEC</td>
<td>Collector*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEE</td>
<td>Emitter*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* galvanically separated
**Inputs**

- **Input SS**: 0 or 24VDC
- **Input A1**: 0 to 10V
- **Input A2**: 4 to 20mA
- **Inputs I0, I1**: +24V, ext. switch

**Outputs**

- **Output OxC**: +24V
- **Output OxE**: GND

**External Load**

- **External switch + load are examples!**

---

**Digital Outputs**: max 30VDC / 10mA, NPN-Transistor
**Digital Inputs (Opto-coupler)**: max 10mA at 24VDC, \(1,5V = 0; \>12...24V = 1\)
**Integrated Resistor 2K2**
**Digital Inputs (without Opto-coupler)**: \(1,5V = 0; \>12...24V = 1\)
**Inputs (I0, I1)**: C = Cathode; A = Anode
**Outputs (O1..3; OF, OR, OE)**: C = Collector; E = Emitter
**Dosing-Control eco-CONTROL EC200**

Art.-Nr.: 20120

- SS
- A1
- A2
- GND
- 1x A
- 1x C
- 0xC
- 0xE

**Inputs, related to ground (Gnd)**

**Opto-coupler Inputs**

**Opto-coupler Outputs**

---

**Digital Outputs:** max 30VDC / 10mA, NPN-Transistor

**Digital Inputs (Opto-coupler):** max. 10mA at 24VDC, \(<1,5V = 0; >12...24V = 1\)

**Integrated Resistor 2K2**

**Digital Inputs (without Opto-coupler):** \(<1,5V = 0; >12...24V = 1\)

**Inputs (I0, I1):** C = Cathode; A = Anode

**Outputs (O1..3):** OF, OR, OE; C = Collector; E = Emitter
Digital Outputs: max. 30VDC / 10mA, NPN-Transistor
Digital Inputs (Opto-coupler): max. 10mA at 24VDC, <1.5V = 0; >12...24V = 1
integrated Resistor 2K2
Digital Inputs (without Opto-coupler): <1.5V = 0; >12...24V = 1
Inputs (I0, I1.): C = Cathode; A = Anode
Outputs (O1..3; OF, OR, OE): C = Collector; E = Emitter
9 Disposal

Dispose of the dosing system in an environmentally safe way. All materials and products left in containers must be treated in accordance with the appropriate recycling requirements.

Electrical components must not be disposed of together with household waste. They must be taken to the collection points provided for this purpose.

2002/96/EU (WEEE)* EU DIRECTIVE concerning used electrical and electronic equipment.

This unit complies with RoHS requirements.

10 EC-Declaration of Conformity

in accordance with the EC-Machinery Directive 2006/42/EG, Appendix II A

We,

ViscoTec Pumpen- und Dosiertechnik GmbH
Amperstraße 13
D-84513 Töging

hereby declare that the machinery described below complies in its design and construction and in the version marketed by us with the basic safety and health requirements of the EC Directive 2006/42/EG.

Product description

<table>
<thead>
<tr>
<th>Function</th>
<th>dosing system with dispenser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>eco-CONTROL EC200 DUO with 2K-dispenser eco-DUO 450 and eco-DUO 600</td>
</tr>
</tbody>
</table>

Harmonised standards applied

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN EN ISO 12100:2011-03</td>
<td>Safety of machinery</td>
</tr>
<tr>
<td>DIN EN 809:2011-01</td>
<td>Pumps and Pump Units for Liquids (Common safety requirements)</td>
</tr>
<tr>
<td>DIN EN ISO 13857:2008-06</td>
<td>Safety of machinery - Safety distances</td>
</tr>
<tr>
<td>DIN EN 61000-6-3:2011-09</td>
<td>Electromagnetic compatibility</td>
</tr>
<tr>
<td>DIN EN 61000-6-2:2011-06</td>
<td>Electromagnetic compatibility, Immunity</td>
</tr>
</tbody>
</table>

Töging, 11.06.2014
Georg Senftl
Managing Director and Person authorised to collect the technical documents (address see above)