Paul Peuser GmbH
Vertrieb und Service
ELSTER Messtechnik GmbH

Operation Manual
Dosing control device DG ST - 45 Version 1.94

Dosing control device for Contact counter devices and control of magnet valves

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1. General Information

This manual is for a trained operators. Basic steps of the workflow are not covered in that manual.

Please read this manual carefully before setting up operation of the dosing device for contact counter devices..

2. General Safety Information

The device is build and checked with best available technology and left the factory functional and safety checked.
In case you recognize any damage when receiving the package please contact transportation company immediately. If this is the case, please do not install the device.

Be advised, that in case of improper mounting, installation commissioning, operation, maintenance and removing any covers and safety features can result in heavy damage of the hole system and risk of injuring operators and others. The manufacturer of the dosing device can't be claimed for any damage and injured operators/people during improper use.

Mounting, installation, operation and maintenance of the dosing device should be done from appropriate qualified staff only, which is certified with corresponding qualification of DIN VDE 0105 and. IEC 364.

The operation of the system needs to be run from qualified and trained staff of the facility only, where the system is installed. In any case, you need to follow instruction in the operation manual.

In general you need to follow regulation of VDE100, BGV A3 and BetrSichV for opening and servicing electrical devices!

Damaged parts of the whole construction/system are not allowed to use any more and need to be powered off immediately. Please, mark damaged parts appropriate. Electrical network, like switch devices, must have easy access and should not covered or block by any other equipment.

Protection class
The device does have protection class IP 65 – anyway it needs to be protected against any kind of water and aggressive acid or alkaline substances, solvent or oil.

Installation
The construction/system must installed shock-proof, hit-proof and fall proof. Additional it needs to be protected against any kind of heat. The connecting cable must be mounted/protected against all risks referred in actual VDE100, BGV A3 and BetrSichV.

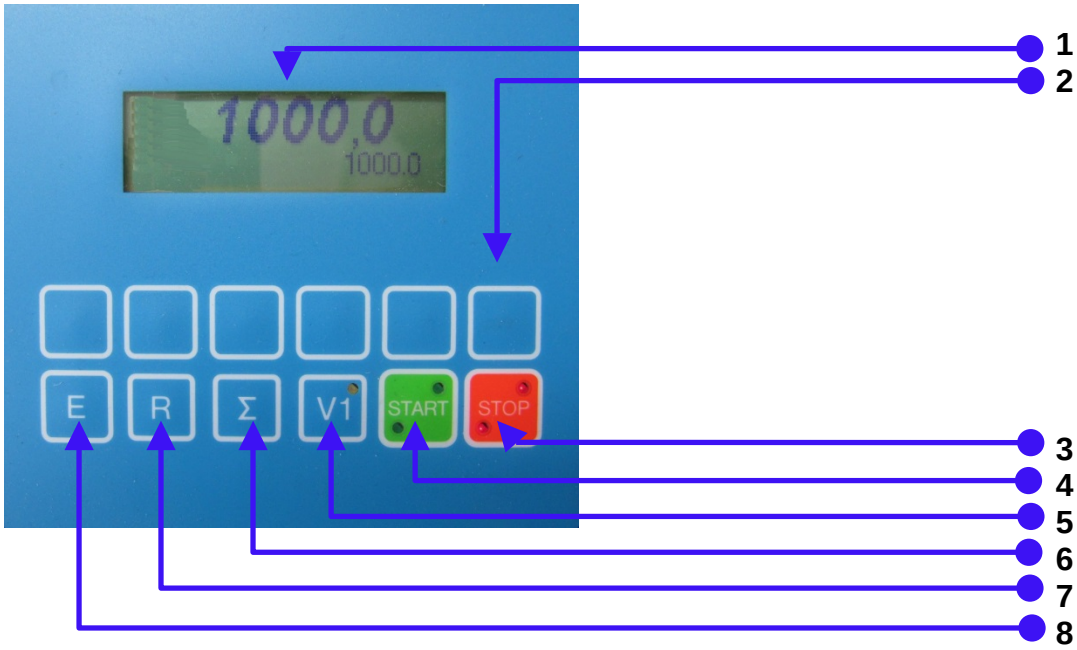
Cleaning
If you are cleaning the construction/system you need to power off the system and disconnect any power. Additionally, it needs to be protected against resetting and you need to double check and make sure there is no power. Do not use any kind of aggressive cleaning fluid or solvent. A damp cloth can be used- make sure it isn't wet.

Servicing
If you are servicing the construction/system you need to power off the system and disconnect any power. Additionally, it needs to be protected against resetting and you need to double check and make sure there is no power. Service is only allowed and performed by manufacturer or qualified personnel which is appropriate qualified and fulfil requirements matching DIN VDE 0105 or IEC 364.

Attention!
Not following this general safety advice can result in any damage of the construction/system and may also result in any risk of inquiry.

3. Description

3.1. Controls



Pos	Identification
1	Double spaced LC-Display (illuminated)
2	6 Position Keys – dedicated to 6 digit LC-display (from left to right)
3	"STOP"- Push-button (illuminated)
4	"START"- Push-button (illuminated)
5	"V1"-Push-button (Option)
6	"∑"- Push-button (sum Push-button)
7	"Reset"-Push-button
8	"E" – Enter Push-button

3.2. Function

- Before you start the dosing process you need to adjust the desired volume data displayed on the LCD-Display and save it.
- The dosing process will start with the "START"- Push-button (illuminated).
- To interrupt the dosing process press the "STOP"- Push-button (illuminated) at any time.

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4. Installation

Connecting electrical power to the dosing device you need to consider VDE regulation and local regulation.

4.1. Wall Installation

- Mounting the device on a wall – you can use some screws and use the already drilled holes on the backside of the device.

4.2. Electrical Connection

- Release the 2 screws of the clamping box and remove the cover.
- Guide the connection cables through the M-fittings at the bottom side of the device into the interior of the device.
- Connect the cables like shown in chapter 7 wiring data.
- When finsihed make sure to close the device.

5. Operation

After connection the power you need to do the pre settings as follows.

5.1. Pre-select dosing

- Press "E"-push button – LCD-display flashing

- Use "Position keys" to adjust the desired value (this depends on the pulse sequence of the connected Contact -water flow meter).

- The 6 Position keys are assigned to the first row of the LCD display from the left to the right.

- Press "E"-push button – selected value will be saved.

5.2. Dosing-process

- After pressing the "START"push-button (illuminated) the magnet valve will open and the dosing is in process.
- After reaching the pre-selected dosing amount the magnetic valve will close automatically. The pre-selected dosing amount will be displayed again in the LCD display.

- Pressing the "STOP"-push button (illuminated)- you are able to interrupt the dosing at any time.

- Pressing the "START"- push-button (illuminated) at any time will continue the dosing process. If you didn't change the dosing amount the process will continue as pre-selected.

- Connecting additional external Start/Stop push buttons - you are able to use start/stop feature from any place.

5.3. Changing dosing amount

- Pressing the "Reset"-push button will set the dosing amount to 0. To select a new value, please see above.

- If you already stopped the process using the "STOP"- Push-button (illuminated) you can still use the "R"-Taste Push button as describe above.

5.4. Unit Counter

- Press the “Unit“ push button - the total amount of previous dosing will be displayed for 6 seconds in the lower part of the LCD display.

- Press the "R"- and "∑"-push button at the same time you will reset the unit counter to 0.

5.5. Set Decimal point

- To open the device just pull the safety pin on the right side of the device.
- Swing out the cover – on the backside you see a four terminal DIL switch.
- **Adjustment**

DIL switch 1	ON	comma 0,1
DIL switch 2	ON	comma 0,01
DIL switch 1&2	ON	comma 0,01

5.6. Einstellen der Zählfunktion

- **Adjustment**

DIL switch 3	ON	subtraction
	OFF	addition
DIL switch 4	ON	Bouncing reed contact

6. Option Subtractions switch off

Dosing control devices with subtractions switch off are identical and the same as the basic dosing device.
The only difference with this option is the possibility to subtract the overshoot amount during closing sequence of the valve from the required dosing volume. With this option the valve will close when the desired value – V1 (overshoot amount) is reached. You need to determine the overshoot amount in multiple calibration dosing runs using a liquid volume meter. Enter that value using the “V1” push button.
Requirement for running continuously well you need the same environment and conditions, like flow-through, pressure, temperature, control air and more.
In case off not archiving the adjusted dosing amount (example: the overshoot amount entered is to high will result in not archiving the dosing amount) the display will be reset to the adjusted value after 15 seconds.

6.1. Adjust V1

- press "V1"- push button – LCD-display flashing.

- use the "position" push button to enter desired value (this depends of the impulse sequence oft he connected contact liquid meter.

- 6 Position Keys – dedicated to 6 digit LC-display (from left to right).

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E

- press"V1"- push button to save the value – Eingestellter Wert wird gespeichert.

7. Option pulse divider

Devices marked with "IU" contain an integrated pulse divider allowing to connect fow-through measure tools which are not able to handle pulse factor of 1, 10, 100 oder 1000 Impulse / liter.
This will convert the input pulse - example:52,5 pulse/liter to 10 pulse/liter.

7.1. Range pulse divider

The range of the pulse divider depends on settings (refer to **Fehler! Verweisquelle konnte nicht gefunden werden.**- set decimal point)

1:1 to 9,999:1
1:1 to 99,99:1
1:1 to 999,9:1
1:1 to 9999:1

Example: Decimal point set to 1- then the pulse divider must set in this example to 5,25. Without a decimal point you need to set the value of 52,5.If you do not need the pulse divider set it to 1.

7.2. Adjusting pulse divider

- Power-off the device.
- Press and hold push button "E" and "R" at the same time and power on the device.
- The factory setting of the pulse divider is flashing in the display.
- Use "Positionkeys" to enter the desired value.
- 6 Position Keys – dedicated to 6 digit LC-display (from left to right)
- To set the decimal point, press and hold "E"-push button and use the releated position key to select the decimal point.
- Press and hold"E"-push button and additional press the
- "R"-push button ---> pulse divider is activated

8. Technical data

General

Voltage	230V AC, ± 10%, other voltages available on request		
Temperature	0 bis 50 °C		
Input	Reed switch, NAMUR-transmitter,		
Frequency	max. 1000 Hz		
Output	Floating output - relais contact		
Display	LC-Display, 6 digit ▪ Pre selection amount ▪ Total sum		
Adjustment / Programming	keypad		
Chassis	Wall mounting	(l x w x h)	240 x 120 x 100 mm
	Panel mounting	(l x w)	144 x 144 mm
Protection class	IP 65 IP 43 (Panel mounting))		
Weight	2,2 kg		

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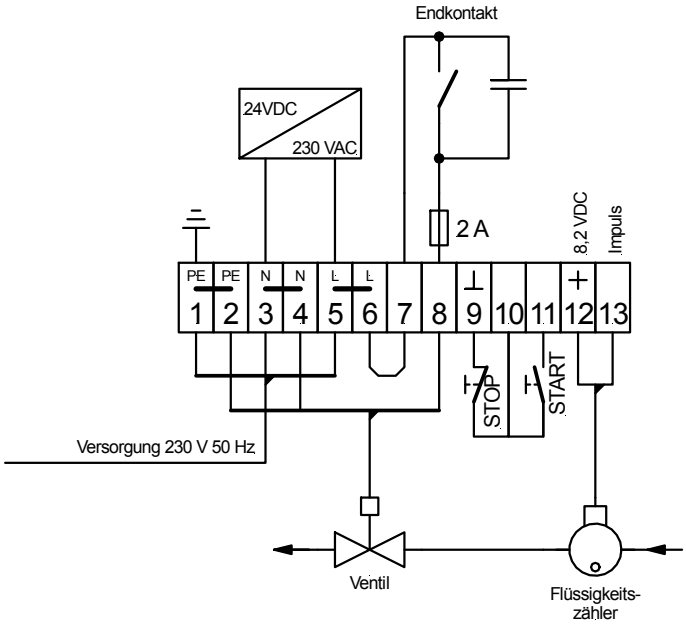
9. Wiring diagram



9.1. Protection / Fuse

- Main supply of the dosing device max. B6A.
- Protection of 230V AC valve with T 2,0A