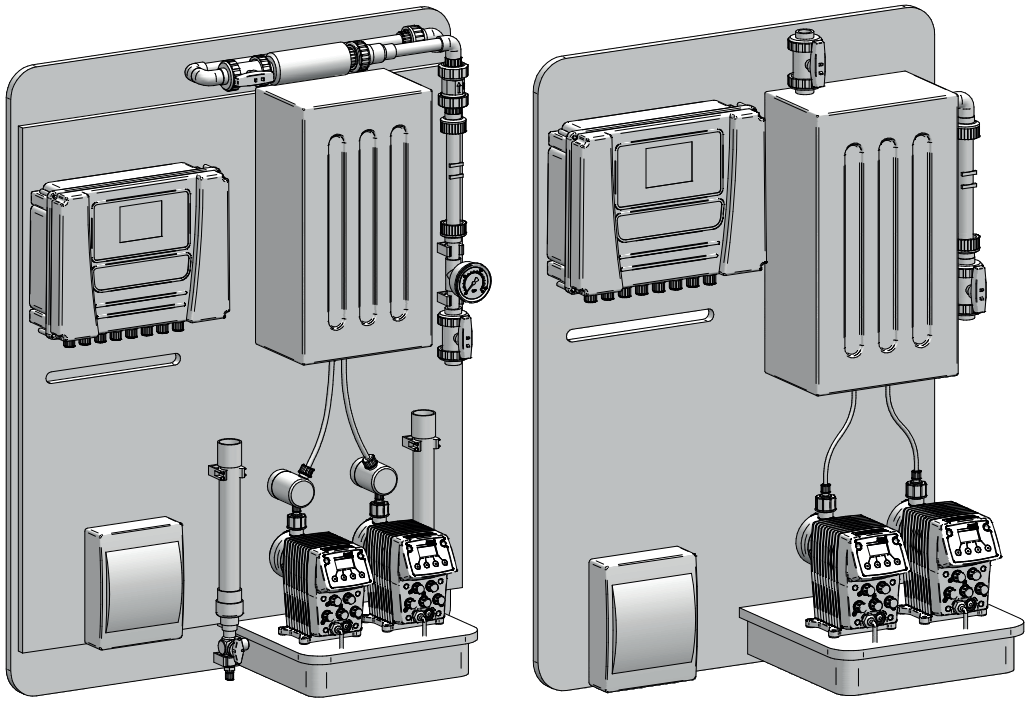
Chlorine Dioxide System
EASYZON Dd

Operating Instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

Original operating instructions

BA-62010-01-V02

Dosing Conveying Control | Liquids Gases Systems

Inhaltsverzeichnis

1 Notes for the Reader

This operating manual contains information and behaviour rules for the safe and designated operation of the device.

Observe the following principles:

- Read the entire operating manual prior to starting-up the device.
- Ensure that everyone who works with or on the device has read the operating manual and follows it.
- Maintain the operating manual throughout the service life of the device.
- Pass the operating manual on to any subsequent owner of the device.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Tab. 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger
	Danger from electrical voltage
	Danger from poisonous substances
	Danger from corrosive substances
	Danger from potentially-explosive substances
	Danger from oxidising substances
	Danger of damage to machine or functional influences

Tab. 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	**SIGNAL WORD**
Description of danger Consequences if ignored. ⇨ The arrow signals a safety precaution to be taken to eliminate the danger.	

1.5 Identification of action instructions

This is how pre-conditions for action are identified:

✓ Pre-condition for action which must be met before taking action.

🛠 A resource such as a tool or auxiliary materials required to perform the operating instructions.

This is how instructions for action are identified:

➔ Separate step with no follow-up action.

1. First step in a series of steps.
2. Second step in a series of steps.

▸ Result of the above action.

✓ **Action completed, aim achieved.**

2 Safety

2.1 General warnings

The following warnings are intended to help you to eliminate the dangers that can arise while handling the system. Risk prevention measures always apply regardless of any specific action.

Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.

DANGER

Mortal danger from electric shock!

Wrongly connected or located cables or damaged ones can injure you.

- ⇨ Perform the electrical installation in accordance with the appropriate circuit diagram.
- ⇨ Replace damaged cables without delay.
- ⇨ Do not use extension cables.
- ⇨ Do not bury cables.
- ⇨ Secure cables to avoid being damaged by other equipment.

DANGER

Danger to life through explosions!

Chlorine dioxide gas (ClO_2) is prone to explode if the concentration in the gas phase becomes too high.

- ⇨ Never use chemicals with a higher concentration than prescribed.
- ⇨ Never heat the chlorine dioxide solution.
- ⇨ Comply with the specifications in Chapter 5 „Technical data“ on page 12.

DANGER

Danger to life from poisoning!

Mixing sodium chlorite and hydrochloric acid outside the reactor will result in the development of chlorine dioxide gas. Chlorine dioxide is a very toxic substance if inhaled and very irritant for the eyes, the respiratory organs and skin. Prevent the uncontrolled development and release of chlorine dioxide gas by complying with the following instructions.

- ⇨ Avoid contact between sodium chlorite and hydrochloric acid outside the reactor.
- ⇨ Mark clearly all material-conducting components (e.g. collecting pans, chemicals canisters, suction lines, hoses, pumps) with a colour. Renew the damaged markings regularly.
- ⇨ Take steps to prevent the mixing of hydrochloric acid and sodium chlorite outside the scope of the controlled processes by separating the chemicals strictly and never swapping suction lines/lances.
- ⇨ Install a gas sensor or a gas warning device which deactivates the system following the presence of chlorine dioxide in the room air.
- ⇨ Install an emergency stop switch with which the system can be deactivated from a safe distance. The emergency stop switch should be located outside the room in which the chlorine dioxide system is located. It should be easily recognisable.
- ⇨ Always wear sufficient personal protective equipment when in the area of the system.
- ⇨ Comply with the safety instructions outlined in the safety data sheets of the chemicals and meet the corresponding safety precautions.

WARNING

Danger of fire!

Dried up sodium chlorite has an oxidising effect and can ignite flammable materials.

- ⇨ Do not allow sodium chlorite to dry on flammable materials.
- ⇨ Use suction lines with a foot valve to avoid leaks when changing the container.
- ⇨ Remove any spilt chemicals with large amounts of water.
- ⇨ Rinse out splashes of chemicals on articles of clothing with large amounts of water immediately.

WARNING

Danger of injury when working on the components.

You may come into contact with dosing media when working on the system components.

- ⇨ Secure the system to prevent it from being turned on accidentally.
- ⇨ Use sufficient personal protective equipment.
- ⇨ Rinse the system before working on individual components so as to remove dosing medium residue. Only use water.
- ⇨ Release pressure in hydraulic parts.
- ⇨ Never look into open ends of plugged pipelines and valves.

WARNING

Caustic burns or other burns through dosing media!

The materials of the components and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.

- ⇨ Make sure that the materials you are using are suitable for the dosing medium.
- ⇨ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium.

CAUTION

Damage to health from by-product!

Chlorine dioxide solutions break down slowly and produce undesired by-products.

- ⇨ Chlorine dioxide must be manufactured on-site.
- ⇨ The chlorine dioxide solution must be thinned to a concentration of 1 - 2 g/l before storage.
- ⇨ Too old chlorine dioxide solutions are not suitable for the disinfection of drinking water.

CAUTION

Danger from hazardous materials!

Escaped dosing medium can result in health hazards and the chemical attack of components.

- ⇨ Dispose of dosing medium residue in the correct fashion.
- ⇨ Clean the affected system parts thoroughly with large quantities of water.

CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

Chlorine dioxide systems and their accessories must only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

- ⇨ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. Comply with Chapter 2.5 „Personnel qualification“ on page 7.
- ⇨ Those performing system settings require an exact understanding of their effects on the production process and operating behaviour. Settings may only be performed by qualified service personnel.
- ⇨ Prevent access to the system for unauthorised persons.

NOTE

Corrosion from hydrochloric acid steam

Hydrochloric acid steam has a corrosive impact and can damage to insufficiently protected components and parts.

- ⇨ The installation location of the system must have ventilation.
- ⇨ Unprotected metal components in the chlorine dioxide room should be painted for their protection.

NOTE

Possible corrosion on the piping

The chlorine dioxide solution is acidic and alters the pH value of the treated water. This can cause long-term damage to the piping.

- ⇨ Never alter the pH value by more than 0.5 pH.
- ⇨ We recommend a total water hardness of at least 5° dH or Ks 4.3 = 0.9 mmol/l
- ⇨ Use the piping made of durable material.

NOTE

Do not dispose of the device in the domestic waste!

Do not dispose of electric devices via the domestic waste.

- ⇨ The device and its packaging must be disposed of in accordance with locally-valid laws and regulations.
- ⇨ Dispose of different materials separately and ensure that they are recycled.

2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device.

The specific consequences can be:

- Failure of major system functions,
- Failure of required maintenance and repair methods,
- Danger for individuals through dangerous dosing media,
- Danger to the environment caused by substances leaking from the system.

2.3 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules apply and must be followed:

- Accident prevention regulations
- Safety and operating provisions
- Safety provisions for handling dangerous substances (mostly the safety data sheets to dosing media)
- Environmental protection provisions
- Applicable standards, specifications and legislation

> The information from standards and technical regulations contained in these operating instructions are to be understood as supplementary information. In no way do they absolve the reader of the obligation to obtain the relevant information themselves. The manufacturer does not accept any responsibility for the up-to-date nature of the recommendations and instructions from standards and technical regulations published in these operating instructions.

2.4 Personal protective equipment

Based on the degree of risk posed by the dosing medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

You will require the minimum of the following personal protective equipment:

Personal protective equipment required	
	Gas mask with filter type "B"
	Safety goggles with safety visor

Tab. 3: Personal protective equipment required

Personal protective equipment required	
	Taiwek overalls
	Safety shoes
	Anti-acid gloves

Tab. 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:

- Commissioning
- Working on the dosing pump while running
- Shut-down
- Maintenance work
- Disposal

2.5 Personnel qualification

Any personnel who work on the system must be in possession of the appropriate special knowledge and skills.

Anybody who works on the system must meet the following conditions:

- Attendance at all the training courses offered by the owner
- Personal suitability for the respective activity
- Sufficient qualification for the respective activity
- Training in handling of the system
- Knowledge of safety equipment and the way this equipment functions,
- Knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity
- Knowledge of fundamental regulations regarding health and safety and accident prevention

All persons must generally have the following minimum qualification:

- Training as specialists to carry out work on the device unsupervised,
- Sufficient training that they can work on the device under the supervision and guidance of a trained specialist.

These operating instructions differentiate between these user groups:

2.5.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.5.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.5.3 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

In the table below you can check what qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Specialist staff	■ Assembly ■ Hydraulic installations ■ Make settings on the software and system components ■ Commissioning ■ Control ■ Maintenance ■ Repairs ■ Taking out of operation ■ Storage ■ Disposal ■ Fault rectification
Trained electricians	■ Electrical installation ■ Rectifying electrical faults
Trained persons	■ Control

Tab. 4: Personnel qualification

3 Intended use

3.1 Notes on product warranty

Any non-designated use of the product can compromise its function or intended protection. This leads to invalidation of any warranty claims!

Please note that liability is on the side of the user in the following cases:

- The system is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and the section "Intended Use".
- If people operate the product who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco are used.
- Unauthorised alterations are made to the system.
- The user uses different dosing media than those indicated in the order.
- The user does not use dosing media under the conditions agreed with the manufacturer such as modified concentration, density, temperature, contamination, etc.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The system is commissioned before it has been completely and properly installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

3.2 Intended purpose

The chlorine dioxide system is intended for the following purpose: Production of a chlorine dioxide solution (ClO_2) from sodium chlorite ($NaClO_2$), hydrochloric acid (HCl).

3.3 Principles

- The system may only use 7 % sodium chlorite ($NaClO_2$) in accordance with EN 938.
- The system may only use 9 % hydrochloric acid (HCl) in accordance with EN 939.
- Comply with the information regarding the operating and environmental conditions (see section "Technical Data" on page 15).
- The manufacturer's/chemical supplier's EEC safety data sheets for the chemicals included in the scope of delivery of the system are to be complied with and must be held accessible to every user of the system.

4 Product description

4.1 Scope of delivery

The chlorine dioxide system unit is fitted with the following components and provides the following characteristics:

- Plastic base plate for wall mounting
- Diaphragm dosing pumps with calibration cylinder fitted on the wall-plate; back-pressure valves fitted
- Dosing of dilution water with ball valve via the float element flow meter.
- PVDF reactor with PVDF non-return valves
- Safety cabinet with ventilation and activated carbon for the reactor
- Intuitively operable control with LCD display: display of all operatingstates.
- Suction lines for commercially-available canisters as well as float-switches for chemical containers
- Control cabinet key and operating manuals

All optional accessories are specified separately.

Check the scope of delivery for completeness against the delivery note carefully before beginning with the installation and check that the components have not suffered any damage during transport. Notify the supplier or transport company of any damage suffered during transport.

> The system can contain water residue from tests on the test stand.

4.2 Chlorine dioxide (ClO_2) in water treatment

Chlorine dioxide is a potent, fast-acting oxidizing and disinfectant agent, with the following properties:

- A good effect against bacteria, viruses, spores and algae
- Full disinfecting power across a broad pH range (5 – 11)
- A higher disinfecting power than chlorine
- The odour and taste threshold of ClO_2 is higher than chlorine
- Its use does not produce any trihalomethanes (THM) or chloramines
- ClO_2 has a better repository effect than chlorine

4.2.1 The applications of chlorine dioxide

- Process water treatment
- Raw water treatment
- Legionella prevention
- Emergency chlorinating systems
- Water works
- Breweries
- Beverage manufacturer
- Treating food
- Controlling bio films as on e.g. cooling water systems

4.2.2 The preparation of chlorine dioxide

EASYZON produces chlorine dioxide via the acid-chlorite method using diluted chemicals. Both chemicals are mixed with water in a reactor and react to produce chlorine dioxide.

$$4\ HCl + 5\ NaClO_2 \rightarrow 4\ ClO_2 + 5\ NaCl + 2\ H_2O$$

4.2.3 Description of the unit

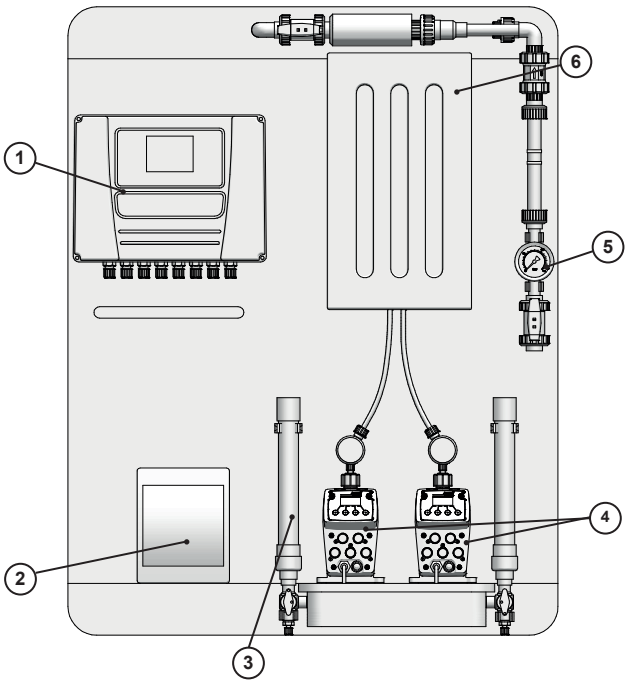


Fig. 1: Components of EASYZON Dd

No.	Description
1	Control system
2	Power supply
3	Calibration column
4	Extraction pumps
5	Dilution control
6	Reactor housing

Tab. 5: Description of the components

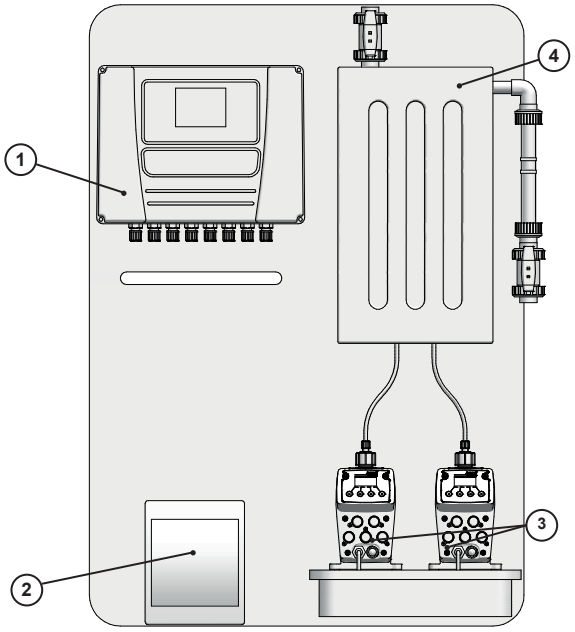


Fig. 2: Components of EASYZON Dd Compact

No.	Description
1	Control system
2	Power supply
3	Extraction pumps
4	Reactor housing

Tab. 6: Description of the components

In the EASYZON plants, chlorine dioxide is wet-produced making 9 % hydrochloric acid and 7.5 % sodium chlorite react in a 1 : 1 ratio so to achieve a 2 % ClO_2 solution (20 g/l in the reactor).

Both reagents are dosed into a reactor by means of two electromagnetic high-precision dosing pumps, whose actual dosing is checked by means of flow sensors.

At the outlet of the reactor, chlorine dioxide is injected into a static mixer where a well-defined quantity of pre-mixing water shall flow in order to dilute the concentrated solution coming out of the generator and convey it safely up to the point of dosage. If the pre-dilution and conveying flow stops, production will stop.

4.3 Rating plate

The rating plate contains information on the safety and functional method of the product. The rating plate must be kept legible for the duration of the service life of the product.

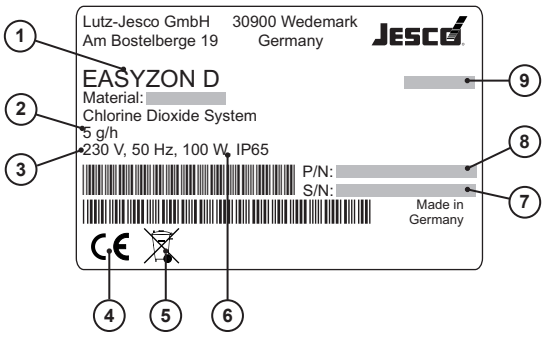


Fig. 3: Typenschild EASYZON Dd

No.	Description
1	Product name
2	Production capacity ClO_2/h
3	Voltage supply, frequency, power consumption
4	Label showing conformity with applicable European directives
5	WEEE label
6	Protection classification
7	Serial number
8	Part number
9	Month/year of manufacture

Tab. 7: Description of the components

5 Technical data

Description		15 Dd Compact	30 Dd Compact	60 Dd	100 Dd	200 Dd	600 Dd	800 Dd	1400 Dd
Power supply		210 – 230 V AC, 50/60 Hz; 1-ph							
Working temperature range	°C	+ 5 to + 40°C							
Place of installation		Ventilated room							
Max. production at 4 bar	g/h ClO_2	18	32	72	115	247	613	844	1478
Max. pressure	bar	10			8	6	8	5	
Max. consumption pr reagent	l/h	0.45	0.8	1.8	2.9	6.2	15.4	21.1	37
Average absorbed power	W	19			25		50	120	

Tab. 8: Technical data

The max. production and max. consumption per reagent data are related to the max. working pressure specified in the table, that shall NEVER be exceeded.

EASYZON is a system for the "in situ" production of the biocidal active agent "chlorine dioxide": In accordance with the biocide ordinance, as of 01/09/2015, the member states of the European Union may only use precursors for biocidal active agents produced "in situ" and which are used as dis-infectants. These precursors must satisfy the quality requirements made of these substances by DIN EN and be sourced from a manufacturer or suppli-er listed in accordance with article 95 of the biocide ordinance. Please ask your supplier to confirm conformity with the biocide ordinance (certificate).

Biocidal active agent:

Chlorine dioxide: EC-Nr. 233-162-8; CAS-Nr. 10049-04-4; DIN EN 12671

Precursors:

Hydrochloric acid (9.0 %): EC-Nr. 231-595-7; CAS-Nr. 7647-01-0; DIN EN 939

Sodium chlorite (7.5 %): EC-Nr. 231-836-6; CAS-Nr. 7758-19-2; DIN EN 938

5.1 Information notes for safety

Substance	Chlorine Dioxide Aqueous Solution
Identification	
Chemical name	Chlorine Dioxide
Molecular formula	ClO_2
Molecular weight	67.47

The EASYZON units produce a 2 % (20 g/l) chlorine dioxide aqueous solution that is perfectly stable and is not harmful.

However, a leak of the solution in the environment releases a low quantity of gaseous ClO_2. We list herebelow the main characteristics of the active principle.

ClO_2 physical and chemical properties

Physical state	Gas
Colour	Yellow
Odour	Typical/suffocating
Vapour pressure	140 kPa at 20 °C
Specific weight of vapours rel. to air	2.3
Dangerous reactions	Gaseous chlorine dioxide can explode at concentrations higher than 10% only.

Gaseous chlorine dioxide emitted after a dispersion of aqueous solution is toxic if inhaled and can cause bronchitis and inflammation of the mucous membranes. It also causes irritation to eyes and skin.

Exposure limits

TLV	0.1 ppm (0.3 mg/m³)
STEL	0.3 ppm (0.9 mg/m³)

First-aid measures

Eye contact	Rinse with copious amounts of water
Skin contact	Rinse with water
Inhalation	Take the injured party away from the area. If required, provide the injured party with oxygen.

Accidental release measures

Aspirate the gas if possible, and wash with copious amounts of water. Reduce with reducing solutions (for ex. sodium bisulphite up to an alkaline pH).

5.2 Dioxide production room and production reagents storage room

CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

Chlorine dioxide systems and their accessories must only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

- ⇨ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. Comply with Chapter 2.5 „Personnel qualification“ on page 7.
- ⇨ Those performing system settings require an exact understanding of their effects on the production process and operating behaviour. Settings may only be performed by qualified service personnel.
- ⇨ Prevent access to the system for unauthorised persons.

IT IS FORBIDDEN TO SMOKE AND USE OPEN FLAMES in the chlorine dioxide production room and in the chemical reagents storage room/s.

The room where to install the chlorine dioxide producer shall be properly sized so to ensure that people in charge of its operation and maintenance may move easily. It shall be ventilated either naturally or forcedly by means of an air extractor. The room shall not be made accessible to unauthorized people; the generator shall be protected against accidental impacts and/or suspended loads. Production reagents may be normally stored in containers made of plastics such as polyethylene (PE), polypropylene (PP), PVC or plastic reinforced by fiber glass (PRFV). No ferrous material shall be used due to the corrosive properties of the chemicals. Level switches (supplied as a standard) shall always be put into the containers to automatically stop production if the containers are empty.

If possible, place the containers next to the dioxide production plant so to avoid long suction pipes on the pumps.

Moreover, the containers shall be physically separated from each other and arranged into special safety tubs to avoid any mixing and to prevent reagents from leaking into the soil in case of rupture. At their concentrations of use (acid 9 % - chlorite 7.5 %), the reagents do not produce fumes or only produce a very low quantity that is not dangerous. However, we recommend you if possible to convey the vents of the tanks outside the storage room.

Clearly readable warning signs shall be placed to identify the chemical reagent inside the storage tank.

The supplier of the chemical reagents shall provide the relevant safety data sheet and all the indications foreseen by the norms in force, a copy of which shall be kept on the plant.

6 Dimensions

All dimensions in mm.

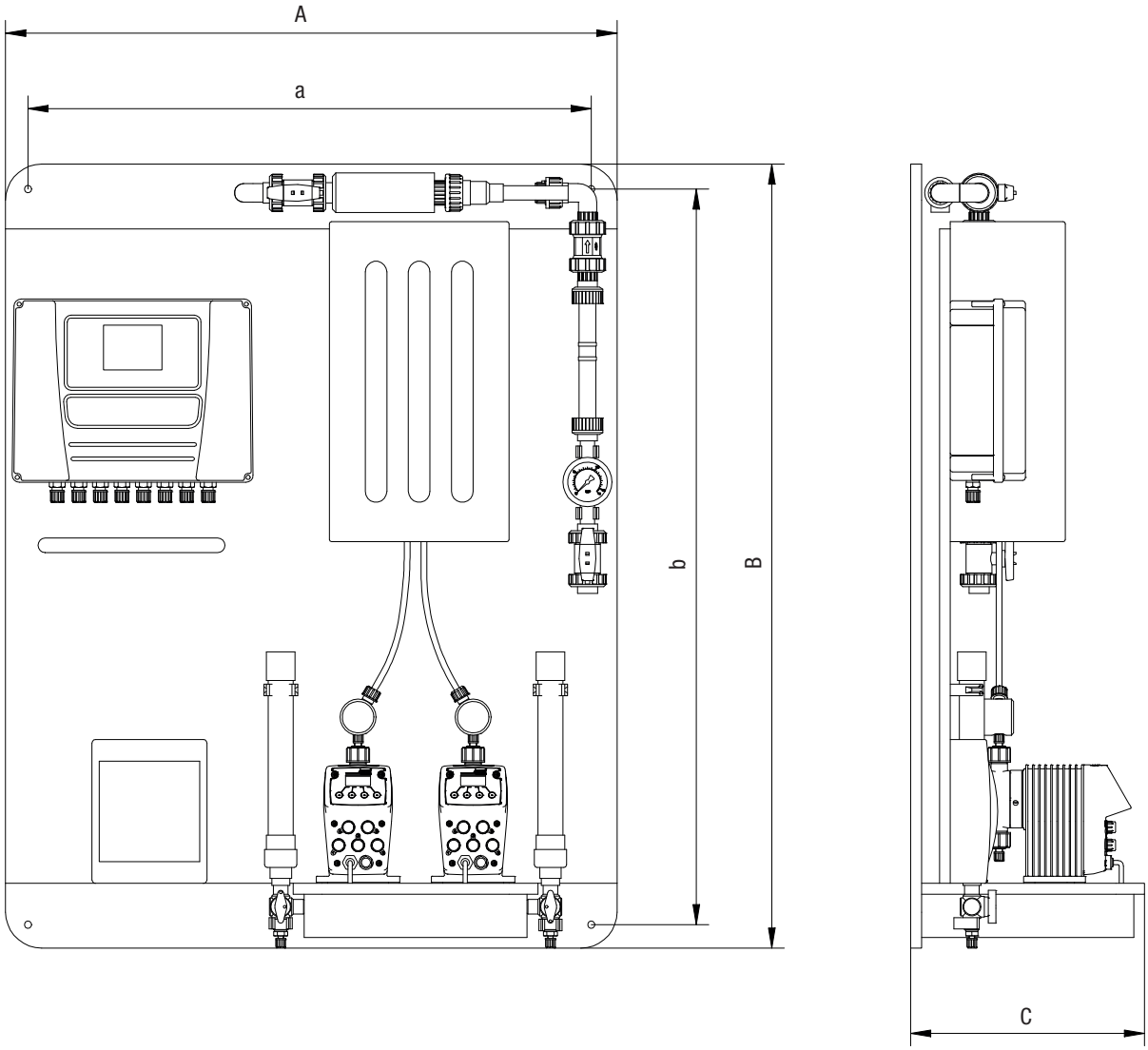


Fig. 4: Dimensions EASYZON Dd

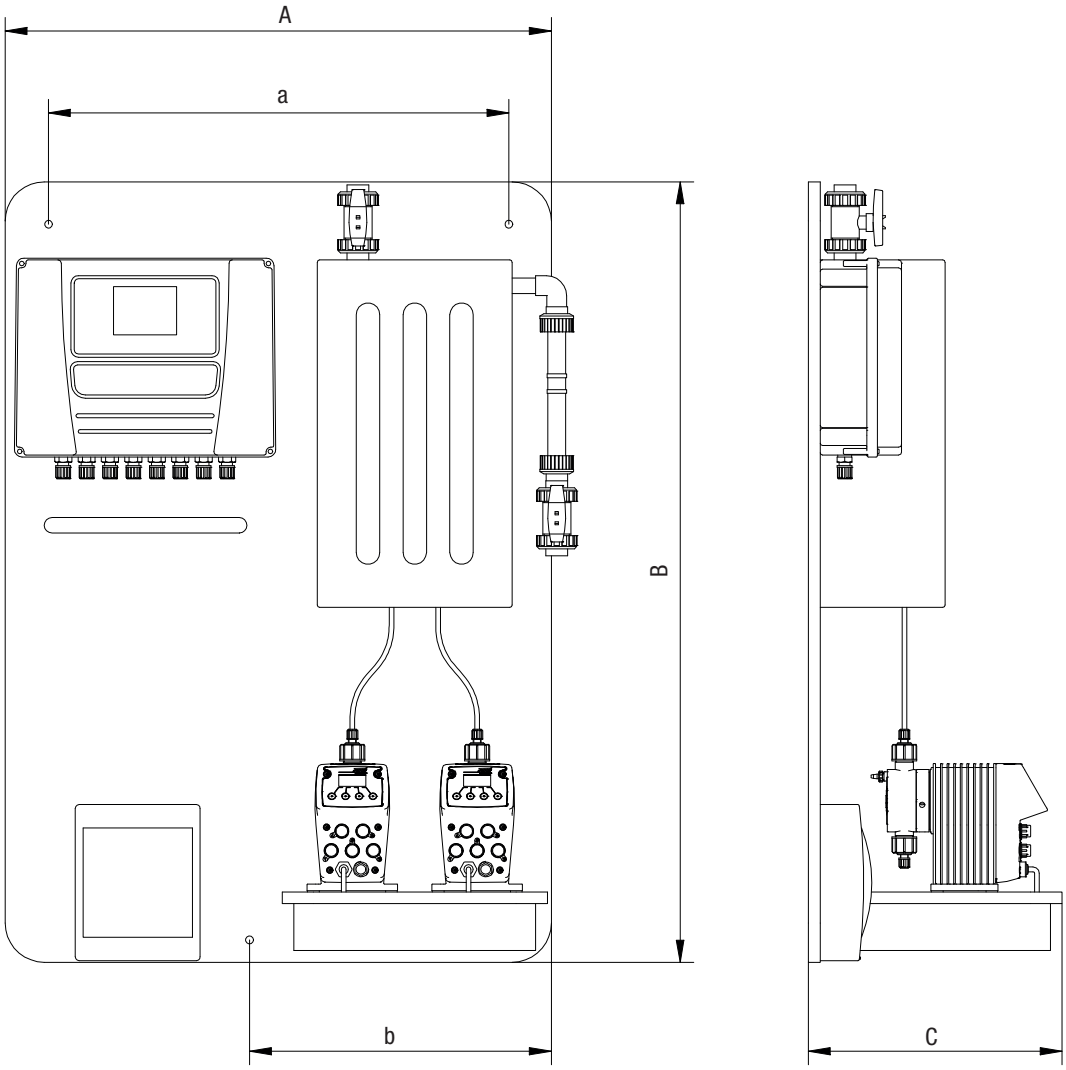


Fig. 5: Dimensions EASYZON Dd Compact

Description	15 Dd Compact	30 Dd Compact	60 Dd	100 Dd	200 Dd	600 Dd	800 Dd	1400 Dd
A/a	700/590		850/770			900/820		1000/920
B/b	1000/330		1090/1010			1350/1270		1700/1620
C	370					420		
Pre-dilution	d.25 – DN20					d.32 – DN25		
Pumps asp.	6 x 4 mm					8 x 6 mm		

Tab. 9: Dimensions

7 Installation

7.1 General Notes

For installation, the local directions and regulations have to be adhered to. This applies to the choice of suitable materials, the handling of chemicals, the hydraulic and electrical installation.

The designer and operating company are responsible for ensuring that the entire system, including the integrated equipment, are designed in such a way that neither system equipment nor buildings are damaged in the case of chemical leakage due to the failure of wearing parts (e.g. pump hose) or burst hoses. The installation must be arranged in such a way that even if the device breaks down no disproportionally high consequential damages can arise. We therefore recommend installing leakage monitors and collecting pans.

The functional security requires, depending on the application, the use of suitable accessories, for example: injection nozzle and static mixer.

7.2 Installation location

The installation room of the production and dosing system must satisfy the following requirements and specifications:

- The room must be lockable and the chemicals must be stored in a lockable room.
- People are not permitted to remain in the room. An exception is provided by the presence in the room of only those chemicals required for the continuation of works.
- The room must be secured against access by unauthorised persons.
- The room air temperature must lie between 5 °C and 40 °C.
- It must be possible to ventilate the room.
- It must be possible to dispose of chemicals safely (recommendation: water connection, sink, water hose, floor drain with odour trap).
- The room is to be marked with warning signs (hazard warnings and safety precautions).
- The installation location must be separated from other spaces by fireproof equipment.

The following must also be observed:

- Install the system in such a way that permits easy access from all sides. A minimum of a half a metre clearance to other objects from all sides must be maintained. If the chemical containers are placed in direct proximity to the system, space requirements can increase accordingly.
- The device is to be mounted vertically. The underside of the unit should be approx. 1 m above the ground.
- The system is not intended for outdoor use.
- Fluid, dust and other foreign objects may not be permitted to Enter the components.
- Avoid exposure to direct sunlight.
- Relative humidity may not be permitted to exceed 92 %.
- The atmosphere may not be condensing or corrosive.
- An escape route must be present.
- It must be possible to mount a gas warning device.
- It must be possible to mount an emergency-stop switch outside the room in which the chlorine dioxide system is located.

7.3 Mechanical installation

The mechanical installation of the producer consists in positioning the panel on the wall where the cabinet containing the reactor and the dosing pumps are installed; for large plants, we suggest you to lay the panel on the floor and arrange a supporting kerb at least 10 cm high, and to securely fasten it to the wall.

The bottom panel of the production plant shall be fastened by means of the four/six holes (d. 10 mm) at the top and bottom of the structure itself. For small plants the height from the floor may vary from 40 to 70 cm compared to the base of the dosing pumps, for larger plants from 10 to 30 cm.

7.4 Pre-dilution circuit

CAUTION

Siphoning risk of the chemicals!

Siphoning risks occur when – while using the pre-dilution circuit - the dosage is executed in an open system (e.g. a tub), in a point that is lower than the base of the reagents storage tanks.

⇨ Always foresee a hydraulic rupture of the siphon also when using special anti-siphon valves.

Before being put into the water to be treated, chlorine dioxide shall be dosed in a derived pre-dilution circuit, whose aim is to favour and accelerate its dilution as well as to avoid conveying the concentrated solution up to the point of dosage.

The pre-dilution water (ca. 500 – 1000 l/h) can be drawn from a piping, a tub or a pressurized network by means of a recirculation pump. The flow of pre-dilution water shall then be conveyed as far as the producer and from there to the point of dosage.

The pipings used for the circuit above may be made of rigid PV-U, PVC-C or PVDF, or black polyethylene with PVDF inside covering. The piping diameter shall be the same of the connections placed on the machine.

7.5 Additional connections

- Foot valves are placed into the storage tanks and are connected to the suction of the dosing pumps by means of a soft PVC pipe (see tTab. 9 „Dimensions“ on page 15 for its diameter).
- Minimum level switches are placed into the storage tanks and are connected to the electronic control unit.

7.6 Hydraulic installation

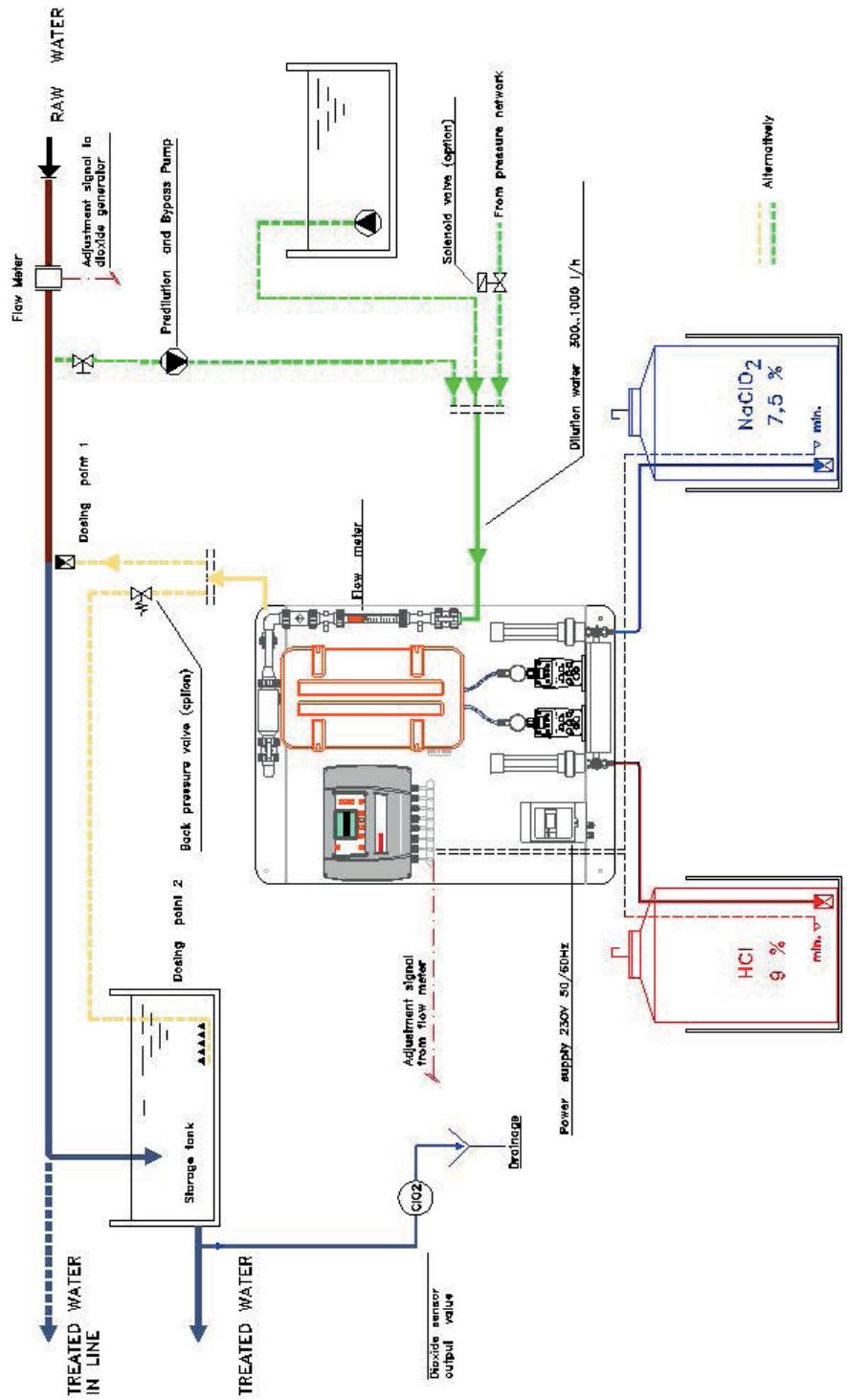


Fig. 6: Hydraulic diagram

7.7 Electrical installation

7.7.1 Description of the electrical connections

Input/Output	Terminals	Description of the connection	Terminals already connected (x)
PWR	+ -	Power supply 12 V DC and 24 V DC/V AC 50/60 Hz	x
24 V DC	1 + 2 -	Auxiliary power supply 24 V DC – MAX 500 mA Power supply test flow sensor	
DO 1	45 46	Pump Control – Acid	x
DO 2	3 4	Pump Control – Chlorite	x
DO 3	47 48	Reserve	
DO 4	5 6	Signal Relay Production ON	
DO 5	49 50	Control Relay Pre-dilution Pump	
DO 6	7 8	Control Relay Air Extractor Reactor Room(for Compact models not applicable)	x
DO 7	51 52	Signal Relay Production Stop	
DO 8	9 10	Signal Relay Pre-dilution Failure	
DO 9	53 54	Reserve 24 V DC Output – MAX 500 mA (for Compact models not applicable)	
DO 10	11 12	Signal Relay Reagents Level Pre-alarm	
DO 11	55 56	To be configured Default: Relay Alarm Gaseous Dioxide in the Air (for Compact models not applicable)	
DO 12	13 14	To be configured Default: Alarm ClO_2 Test Value Thresholds Exceeded (for Compact models not applicable)	
DI 1	57+ 58-	Remote OFF/Remote Reset	
DI 2	15+ 16-	Empty Level Switch – Acid	
DI 3	59+ 60-	Empty Level Switch – Chlorite	
DI 4	17+ 18-	free	
DI 5	61+ 62-	free	
DI 6	19+ 20-	free	
DI 7	63+ 64-	free	
DI 8	21+ 22-	Minimum Level Switch – Acid (for Compact models not applicable)	
DI 9	65+ 66-	Minimum Level Switch – Chlorite (for Compact models not applicable)	
10	23 24	To be configured Reserve	
11	67 68	To be configured Reserve	

Tab. 10: Description of the electrical connections

Input/Output	Terminals	Description of the connection	Terminals already connected (x)
12	25 26	To be configured Default: Flow sensor test sample: Black wire on M25; M26 free (for Compact models not applicable)	
DI 13[1]	69+ 70-	Flow Sensor – Acid	x
DI 14[1]	27+ 28-	Flow Sensor – Chlorite	x
DI 15[1]	71+ 72-	Reserve	
DI 16[1]	29+ 30-	Pre-Dilution Flow Sensor	x
AO 1	73 + 74 -	4 – 20 mA Analog Output – Production %	
AO 2	31 + 32 -	4 – 20 mA Analog Output – Chlorine Dioxide Residual Value (only with sensor connected) (for Compact models not applicable)	
AO 3	75 + 76 -	4 – 20 mA Analog Output – Chlorite Value (only with sensor connected) (for Compact models not applicable)	
AI 1[2]	33 + 34 -	Green-brown: 0 – 2 V Analog Input Temperature Value white-yellow: (for Compact models not applicable)	
AI 2[3]	77 + 78 -	4 – 20 mA Analog Input Chlorine Dioxide Measurement Sensor (for Compact models not applicable)	
AI 3[3]	35 + 36 -	4 – 20 mA Analog Input Measurement Sensor Gaseous Chlorine Dioxide in the Air	
AI 4[3]	79 + 80 -	4 – 20 mA Analog Input Chlorite Measurement Sensor/Acid Tank Lev. Sensor (for Compact models not applicable)	
AI 5[3]	37 + 38 -	4 – 20 mA Analog Input Free/Chlorite Tank Lev. Sensor (for Compact models not applicable)	
AI 6[4]	81 + 82 -	4 – 20 mA/Pulse Analog Input Flow Rate Value	
AI 7[4]	39 + 40 -	4 – 20 mA/Pulse Analog Input Proportional to external signal	
RS232	83 RX 84 TX 85 GND	RS232 Serial (for Compact models not applicable)	
	41 H 42 L 43 GND	Free	
RS485	86 A 87 B 88 GND	RS485 Serial	
OPT	44	Power Supply 5 V DC	

Tab. 10: Description of the electrical connections

[1] Active or passive 4 – 20 mA inputs

[2] Inputs that can be switched from mA to pulse by software

7.8 Power cables

The power cables used to connect the producer shall be of a non-flame propagating type (IEC 20-22 and version 1).

We recommend the following cross sections:

- 1 mm² to connect signals and controls.
- 1.5 mm² to connect the power supply of the producer and of the dosing pumps.

7.9 Grounding

The equipment shall be connected to an earthing system accomplished according to IEC 64-8/5 standards by means of a proper wire.

7.10 Safety instructions

Based on the power absorbed by the producer, as specified in Tab. 8 „Technical data“ on page 12, we recommend you to install a proper differential magneto-thermal switch on the power supply line, which shall also disconnect the line in case of maintenance on the equipment. Moreover, all the plant shall be accomplished in compliance with IEC 64-8/4 standards.

7.11 Protection fuse of the electronic control unit

In case of a failure you need to access the protection fuse.

Perform the following working steps:

1. Power off the electronic control unit.
   ▶ The display shall turn off.
2. Remove the 4 fastening screws of the panel; the fuse is placed on the top left of the master card of the electronic control unit.
3. You can access the fuse having the function and value below:

Fuse	Description	Value (A)
F1 (5 x 20)	24 V CC power supply	5.0

Tab. 11: Protection fuse

4. Close the panel.
5. Power on again.
6. Check the operation of the plant. Should the failure occur again, contact the technical service of the supplier of the machine.

✓ **Access gained.**

8 General information

8.1 Description of the keys

Key	Description
On/Off	Production ON/OFF (no matter the production mode set)
i	Information key; press this key to Enter a menu showing an overview of the main machine data, the main parameter values and the events logbook.
up/down	Press these keys to scroll the lines inside the pages or increase/decrease values in EDIT mode.
Enter	Press this key to: ■ Enter the EDIT mode ■ confirm a parameter editing ■ acknowledge an alarm
alarm	Press this key to Enter the alarms section
F1	Press the four function keys F1/F4 to Enter the functions listed at the bottom of the display and corresponding to each function key.

Tab. 12: Description of the keys

8.2 Description of the signals

The home page shows the main information about the operation of the machine. In detail, it displays the following items:

- Machine status (*ON*, *OFF*, *Stop*, *Remote Stop*, *Bleed*, *Calibration* etc.)
- *Stroke (displacement)* value of the dosing pumps, expressed in %
- *Production value* in g/h
- Production water *flow rate*, expressed in m^3/h
- *Gas in the air* measured by the sensor (sensor connected to the machine)
- Production *set point value* (manual or automatic)
- *Residual ClO_2* value (sensor connected to the machine)
- *Chlorite* value (sensor connected to the machine)
- *Production mode* set
- Graphics of the *reagents and pre-dilution water flow sensors*
- Graphics of the machine in *alarm status* with danger triangle.
- Operation mode (*manual*, *automatic proportional*, *automatic from flow rate*, *automatic from flow rate + test*, *automatic from test*, *batch*)
- Control keys *F1 – F4 description*. The bottom line of each page shows the “functions” of the four F1 – F4 keys placed under the display. The various functions will be specified according to the page shown.

Herebelow a picture showing the home page with the information listed above. On the picture of the home page as well as on the pictures of the menus always all possible options are shown. Depending on your Easyzon model fewer options may be seen.

8.3 Users

Three user levels are foreseen to set the parameters of the machine. Each level can be Entered by means of a password enabling its access. Higher-level passwords allow to Enter lower access levels. The three user levels are the following:

- OPERATOR: for users in charge of operating the machine
- SERVICE: for users in charge of maintaining the machine
- MANUFACTURER: for the manufacturer

Each user can change his/her password and those with a lower level inside his/her own configuration level. The default password for the Operator Menu is 0000.

Passwords will be indicated as follows:

- PSW0000: Operator Password
- PSWSSSS: Service Password

> This manual describes the operations related to the *OPERATOR* menu only.

9 Configuration menu

This chapter describes the various configuration menus allowing to fully configure the machine.

These menus can be accessed to by means of the function keys F1 to F4 placed under the LCD display. The home page shows the four keys below, whose functions are described in the next sections:

- *Change*
- *Bleed*
- *Adjust*
- *Menu*

9.1 Change

In this menu level, the operator can enter the operation parameters of the current *Operation Mode*. Access to this function is also granted when the machine is ON. If no key is pressed for more than 15 seconds, the screen automatically goes back to the home page. Choose between *Manual operation* and *Automatic operation*.

➔ Press key `Enter` to enter the edit mode; press key `up/down` to set the new value, then confirm it with `Enter`.

9.2 Bleed

This function allows the operator to bleed the pumps when an accidental deactivation of the pumps occurs or after the reagent boxes have been replaced.

Perform the following working steps:

1. Turn off the machine.
2. Open the manual vent placed on the dosing head of the pump.
3. Press `START`.
   ▸ The pumps will pulse at their max. frequency and for the number of strokes shown under field *Max. Pulse No*.
4. When the pump is activated again, close the vent to dose again the reagent into the reactor.
   ▸ After the flow sensor on the reagent line has detected at least 10 consecutive passages of the dosed flow, the electronic control unit stops the operation of that pump. When both sensors have detected the correct passage of the reagents, this phase is terminated. This phase can also end when the set max. pulse no. has been attained or by pressing key `STOP`. The max. pulse no. default value is 100, its setting range is 10 – 500.

✓ **Pump bleeded.**

9.3 Calibration

Access to this function is only granted when the machine is OFF.

The following options are available:

- *Manual pump calibration*
- *Automatic pump calibration*
- *Dioxide probe calibration*
- *Chlorite probe calibration*

➔ Press key `up` or `down` to scroll the various options; to enter the option required press key `Enter`.

9.3.1 Manual calibration of the pumps

➔ Press key `up` or `down` to scroll the various parameters; press key `Enter` to enter the *Edit* mode, press key `up` or `down` to edit the field or the description, then press `Enter` again to confirm.

In this menu, the operator can execute the manual calibration of the pumps by means of two graduated cylinders (mounted on versions..DP/1) from where the dosing pumps can aspirate the fluid.

Perform the following working steps:

1. Set the max. number of pulses (default value 100).
2. Press key `START`.
   ▸ The machine will produce the max. number of pulses set
3. Enter the *Acid Total Volume* and *Chlorite Total Volume* values resulting as the difference between the initial value and the final value of the graduated cylinders.
   ▸ The volumes per pulse will be automatically calculated and displayed in the first two parameters of the page.

✓ **Manually calibrated.**

If the sequence is aborted with the key `STOP` or if the operator leaves the page without entering the new total volumes, the electronic control unit will keep the previously calculated values.

Should the volumes per pulse calculated deviate from each other by a percentage value higher than the one set by the manufacturer, the previous values remain unchanged.

Should the volumes per pulse calculated deviate from each other by a percentage value lower than the max. value set by the manufacturer, the calibration is accepted and the electronic control unit adjusts the working frequency of the dosing pumps in order to equal the dosed volumes of both reagents.

9.3.2 Automatic calibration of the pumps

(as option)

Unlike the manual calibration operation, the automatic calibration is performed in a “semi-automatic” mode by means of the two calibration cylinders placed on the machine (version ..DP/2). Each cylinder integrates two sensors that can read the volume aspirated by the pump.

Perform the following working steps:

1. If the cylinders are not full, fill both.
1. Press `START` to start the calibration. Otherwise the message *Fill the calibration cells and press START!* is displayed.
   ▸ The pumps start at their max. frequency aspirating the volume contained in the cylinder. At the end of this operation, the *Volume per Pulse* value is automatically calculated. If the calibration is aborted before it is completed, the reagents volume values remain unchanged.

✓ **Automatically calibrated.**

As described for the manual calibration, should the volumes per pulse calculated deviate from each other by a percentage value higher than the one set by the manufacturer, the previous values remain unchanged.

➔ Press *BACK* to go back to the calibration page.

9.3.3 Calibration of the dioxide sensor

(not for compact models)

The dioxide sensor shall be calibrated in order to linearize it according to actual measurement values. The calibration operation is performed by Entering at least two values (points) passing through the straight line representing the measured value. The first point corresponds to *zero* (test sample without chlorine dioxide), while the second point *DPD* (gain) corresponds to the chlorine dioxide detected in the water by means of a portable photometer (20 s) using DPD reagents. Other indirect measurement methods, for ex. chlorine measurements, can result in severe system errors. Given its high stability, the zero point is generally calibrated only once, therefore only the second point is usually processed.

Perform the following working steps:

1. Press key `up`/`down` to scroll the various options; to enter the option required press key `Enter`.
2. Press `Enter`.
3. Press *BACK* to go back to the calibration page; move with `up`/`down` onto *Second point DPD*, then press `Enter` to Enter the page.

To calibrate the second point (gain), the sample of water to be analyzed passing in the probe-holder and touching the sensor shall contain a proper concentration of the chemical to be measured (chlorine dioxide in this case, but it can also refer to chlorite or other chemicals). Proper concentration means a value not lower than 0.1 mg/l, unless otherwise indicated in the sensor instruction manual.

If only one point is calibrated (zero or DPD), the other point remains unchanged.

4. Press `Enter`.
5. Press key *BACK* once or many times to repeat the calibration, go to page *Calibrations* and select another sensor or go back to the home page.

✓ **Calibration of the dioxide sensor done.**

9.3.4 Calibration of the chlorite sensor

(not for compact models)

The chlorite sensor shall be calibrated in order to linearize it according to actual measurement values. The calibration operation is performed by Entering at least two values (points) passing through the straight line representing the measured value. The first point corresponds to *zero* (test sample without chlorite), while the second point *DPD* (gain) corresponds to the chlorite detected in the water by means of a portable photometer (20 s) using DPD reagents. Given its high stability, the zero point is generally calibrated only once, therefore only the second point is usually processed.

➔ Repeat the operations described under section 9.3.3 „Calibration of the dioxide sensor“ on page 23.

9.4 Menu

Access to this function is only granted when the machine is OFF. No result is achieved when attempting it while the machine is ON.

The following options are availabe:

- *Operator*
- *Service*
- *Manufacturer*

➔ Press `up`/`down` to scroll the various options; to enter the option required press `Enter`.

9.4.1 Operator

The following options are available:

- Run Mode
- General Parameters
- Probes Parameters

➔ Press `up`/`down` to scroll the various options; to enter the option required press `Enter`.

9.4.1.1 Run Mode

The following options are available:

- *Manual*
- *Direct Run Mode*
- *Flow Run Mode*
- *Flow + Analysis Run Mode*
- *Analysis Run Mode*
- *Batch*

➔ Press key `up` or `down` to scroll the various options; to Enter the option required press `Enter`.

Manual mode

This mode of function permits to control the production (expressed in g/h) of the machine setting a fixed parameter chosen by the operator. This fixed parameter has to lay in an interval between 0 and the maximum production value of the producer itself.

Perform the following working steps:

1. To select the manual mode press `Enter`.
2. Rress `up` and confirm the choice with `Enter`. The *% Production reduction* parameter allows to set a lower maximum value of production compared to the maximum one of the machine.
3. Press `up` or `down` to scroll the various parameters.
4. Press `Enter` to Enter the *Edit* mode.
5. Press `up` or `down` to edit the field or the description
6. Press `Enter` again to confirm.
7. Coming back to the main screen pushing the *HOME* key, it is possible to set the production value pushing the `ADJUST` key.

✓ **Manual mode set.**

Direct run mode

The direct run mode is an operational mode when the production is proportionally modified through an external control signal. The signal is provided by an analogic regulator (0/4 – 20 mA) or by an impulsive one (0 – 7200 p/h max.). In both cases the signal will modulate in a strictly proportional way the dioxide production with no interfereces by the electronic control unit.

The operator shall set the parameters related to this kind of operation, in detail:

- **Inlet prop. - AI7**: setting range 4 – 20 mA or pulse → It represents the type of incoming external control signal.
- **I. Dig. Cp/min**: 100 → It represents the max. value of the incoming external control signal with a pulse-emitting input.
- **Max. production rate (%)**: 100 → This parameter allows to reduce the max. production capacity of the machine so to limit its potential while operating in automatic mode.

Perform the following working steps:

1. To select this operation mode, press `Enter`.
2. Press `up` and confirm the choice with `Enter`.
3. Press `up` or `down` to vizualize the following pages.
4. Press `up` or `down` to scroll the various parameters.
5. Press `Enter` to Enter the *Edit* mode.
6. Press `up` or `down` to edit the field or the description
7. Press `Enter` again to confirm.

✓ **Direct run mode set.**

Flow run rate

In the flow run rate mode the production control is regulated by the flow rate measure. The flow rate referred to the untreated water. The signal is provided by an analogic regulator (0/4 – 20 mA) or by an impulsive one. In both cases the operator has to set the full scale value corresponding to 20 mA or the pulse emission costant (1 pulse per X liters).

The operator shall set the parameters related to this kind of operation, in detail:

- **Flow rate input - AI6**: setting range 4 – 20 mA or pulse → It represents the type of signal coming from the flow meter.
- **Flow rate F.S. (mc/h)**: 100 → It represents the maximum flow rate value corresponding to 20 mA, or the maximum value presumed when a pulse input is foreseen.
- **Pulse frequency (l/imp)**: 10 → It represents the pulse emission constant when a pulse-emitting water counter input is foreseen.
- **Max. production rate (%)**: 100 → This parameter allows to reduce the max. production capacity of the machine so to limit its potential while operating in automatic mode.

Perform the following working steps:

1. To select this operation mode, press `Enter`.
2. Press `up` and confirm the choice with `Enter`.
3. Press `up` or `down` to vizualize the following pages.
4. Press `up` or `down` to scroll the various parameters.
5. Press `Enter` to Enter the *Edit* mode.
6. Press `up` or `down` to edit the field or the description
7. Press `Enter` again to confirm.

✓ **Flow run rate set.**

Automatic from flow rate + analysis

(not for compact models)

In the *Flow + Analysis Run Mode* the production control is regulated by the flow rate measure of the untreated water and by the residual dioxide chlorine analysis value. The signal in both cases is provided by an analogic regulator (0/4 – 20 mA) or by an impulsive one. The main parameter observed is the flow rate measure, whereas, the residual dioxide measure contribute to production regulation in a partial way and, in any case, proportional to the flow rate. Its effect (weight) in the regulation can be set in a range from 5 to 50 %. The applied regulation is PID type.

The following parameters can be set:

> All PID parameters shall be Entered with the utmost care by duly qualified personnel only.

- **Flow rate input AI6**: setting range 4 – 20 mA or pulse → It represents the type of signal coming from the flow meter.
- **Max. Measured flow (mc/h)**: 100 → It represents the maximum flow rate value corresponding to 20 mA, or the maximum value presumed when a pulse input is foreseen.
- **Pulse frequency (l/imp)**: 10 → It represents the pulse emission constant when a pulse-emitting water counter input is foreseen.
- **Analysis probe**: external → This parameter sets, if the test sensor is internal, therefore directly connected to the electronic control unit, or external, therefore connected to a device connected to the electronic control unit through an analog signal retransmitting the sensor measure.
- **F. Scale. An. probe (g/l)**: 001 → If an external sensor is foreseen, this parameter allows to Enter the full scale value of the sensor or of the value corresponding to 20 mA of the incoming external signal.
- **ClO_2 Influence (%)**: 010 → In the operation mode *Automatic from Flow Rate + Test*, the setting destined to the test component is executed according to a preset percentage weight of "Incidence" referred to the total setting. The residual percentage value of the setting is reserved to the flow rate. Both components are independent from each other (summative setting).
- **Proportional band (%)**: 010 → This parameter sets the setting range, that is the value (compared to the full scale value of the sensor used) within which the PID setting is performed.
- **Integrative time (min)**: 0000 → This parameter sets a time value inside the PID setting integrating the delay time (time elapsing between the dosing operation and the relevant sensor reading change) included in any dynamic system.
- **Derivative time (min)**: 0000 → This parameter sets a time value inside the PID setting creating an anticipation of further events (for ex. a tub between the dosing operation and the test).
- **Max. production rate (%)**: 100 → This parameter allows to reduce the max. production capacity of the machine so to limit its potential while operating in automatic mode.
- **Sample flow check**: no → This parameter enables to control the sample flow touching the reading sensor. This can only occur when a flow sensor is mounted on the probe holder.

Perform the following working steps:

1. To select this operation mode, press Enter.
2. Press up and confirm the choice with Enter.
3. Press up or down to vizualize the following pages.
4. Press up or down to scroll the various parameters.
5. Press Enter to Enter the *Edit* mode.
6. Press up or down to edit the field or the description
7. Press Enter again to confirm.

✓ **Flow run rate set.**

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm.

Analysis run mode

(not for compact models)

In the *Analysis Run Mode* the production control is proportional to the gap between a desired set value compared to the analysis value measured. The analysis can be performed using a probe directly connected to the control device or using an external tool with a analogic signal (0/4 – 20 mA) as outputs to the control unit.

The applied regulation is PID type.

The operator shall set the parameters covering the type of operation, in detail:

> All PID parameters shall be Entered with the utmost care by duly qualified personnel only.

- **Analysis Probe**: external → This parameter sets if the test sensor is internal, therefore directly connected to the electronic control unit, or external, therefore connected to a device connected to the electronic control unit through an analog signal retransmitting the sensor measure.
- **F. scale an. probe (mg/l)**: 001 → If an external sensor is foreseen, this parameter allows to Enter the full scale value of the sensor or of the value corresponding to 20 mA of the incoming external signal.
- **Proportional band (%)**: 010 → This parameter sets the setting range, that is the value (compared to the full scale value of the sensor used) within which the PID setting is performed.
- **Integral time (min)**: 0000 → This parameter sets a time value inside the PID setting integrating the delay time (time elapsing between the dosing operation and the relevant sensor reading change) included in any dynamic system.
- **Derivative time (min)**: 0000 → This parameter sets a time value inside the PID setting creating an anticipation of further events (for ex. a tub between the dosing operation and the test).
- **Max. production rate (%)**: 100 → This parameter allows to reduce the max. production capacity of the machine so to limit its potential while operating in automatic mode.
- **Sample flow check**: no → This parameter enables to control the sample flow touching the reading sensor. This can only occur when a flow sensor is mounted on the probe holder.

➔ Press key up or down to scroll the various parameters; press Enter to Enter the *Edit* mode, press key up or down to edit the field or the description, then press Enter again to confirm.

Batch

The batch mode allows to produce a “diluted” ClO_2 solution. The production occurs stocking this solution in a tank whose minimum and maximum levels control respectively the start and stop of the production. The concentration range is programmable from 0,5 to 2,5 g/l.

In order to set this function mode the first step is to set the inputs (storage level) and the output (solenoid on the prediluition line) mandatory to the correct system functioning.

For more informations look at chapters „Configuration inputs 8, 9, 10, 11, 12“ on page 26 and „Configuration outputs 10, 11, 12“ on page 26 described in the next pages.

The operator shall set the parameters covering the type of operation, in detail:

Flow rate input AI6: setting range 4 – 20 mA or pulse → It represents the type of signal coming from the flow meter of the pre-dilution water that controls the production.

Flow rate F.S. (m3/h): 01.00 → It represents the maximum flow rate value corresponding to 20 mA, or the maximum value presumed when a pulse input is foreseen.

Pulse constant (l/p): 001.0 → It represents the pulse emission constant when a pulse-emitting water counter input is foreseen.

Solution max. conc. (g/l): 1.50 → This parameter sets the concentration value of the solution produced and stored. Setting range 0.5 – 2.5 g/l.

Solenoid valve closing delay (s): 1.50 → This parameter sets the delay time to close the disconnecting valve of the pre-dilution line/tank filling. Setting range 00 – 60 s.

➔ Press up or down to scroll the various parameters; press Enter to enter the Edit mode, press up or down to edit the field or the description, then press Enter again to confirm.

9.4.1.2 General Parameters

In this menu is possibe to set basic parameters as follows:

- *Operator Password*
- *Language*
- *Config. Digital Outputs*
- *Config. Digital Inputs*

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm.

Operator Password

In this menu the operator can change the password that allow him/her the access to the user profiles. The password should be a number from 0000 to 9999. The default password (operator user) is “0000”.

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm.

Language

In this menu page the user can switch the language picking it from the list.

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm.

Configuration outputs 10, 11, 12

(not for compact models)

It is possible to set the digital outputs (10, 11 and 12 relays), couple them to one of the following parameters or to the operation mode:

- *Min level reagent alert* (with switch level linked)
- *Pre-alarm gas detector* (with probe linked)
- *Min ClO_2 Alert* (with probe linked)
- *Max ClO_2 Alert* (with probe linked)
- *Max Chlorite Alert* (with probe linked)
- *Extra max batch lev. Alert* (only in batch mode)
- *Batch Load Solenoid Com.* (only in batch mode)
- *Lack sample flow alarm* (with probe linked)

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm. Repeat the operations above to configure all the outputs.

Configuration inputs 8, 9, 10, 11, 12

It is possible to set the inputs configuration 8 – 12 (8, 9 and 12 already have default settings), couple them to one of the following parameters or to the operation mode:

- *Acid min level switch* (input where link the probe)
- *Chlorite min level switch* (input where link the probe)
- *Manual mode reduct. (%)*
- *Analys. Sample flow sensor* (input where link the probe)
- *Batch Storage min. Lev.* (only in batch mode)
- *Batch Storage max. Lev.* (only in batch mode)
- *Batch Storage ex.max. lev.* (only in batch mode)

➔ Press up or down to scroll the various parameters; press Enter to enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm. Repeat the operations above to configure all the outputs.

9.4.1.3 Probes Parameters

This menu allows the operator to enable the analysis probe for gas and chemicals level taks. Furthermore it is possible to set the parameters of the probes.

- *Residual Chlorine Dioxide*
- *Chlorite*
- *Gas detector*
- *Reagents levels measuring*

➔ Press up or down to scroll the various parameters; press Enter to Enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm.

Residual ClO_2 sensor
(not for compact models)

After the connection between the sensor (or the output of an analysis instrument with “extern” sensor) and the AI2 input (input 4 – 20 mA, terminals 77 – 78 on the junction box) the operator shall set the parameters as follow.

- **Sensor**: Absent → Through this parameter it is possibile to confirm the presence of the sensor.
- **AI Sensor Input**: -- → Set the analogic input number linked to the the sensor. Actually the only available input is the 02.
- **F.Scale. an. probe (mg/l)**: 0.5 → Setting this parameter the operator can insert the sensor full – scale value and then the corrispondent value at 20 mA.
- **Minimum level (mg/l)**: 0.00 → Trough this parameter it is possibile to set a threshold in order to signal a minimum level. It is possible to couple it with a relay output for remote control.
- **Maximum level (mg/l)**: 0.50 → Trough this parameter it is possibile to set a threshold in order to signal a maximum level. It is possible to couple it with a relay output for remote control.
- **Max production off**: NO → Switching on “YES” the operator will obtain the production stop after passing the maximum threshold seen in the previous paragraph. The production will start again after the misuared value will be lower than the threshold minus the hysteresis.
- **Hysteresis (mg/l)**: 0.01 → This is set on the hysteresis value concerning the maximum and the minimum level.
- **Alarm delay (s)**: 060 → Set the alarm delay compared to the warning for passing both threshold.

For the first calibration and following corrections see chapter 9.3.3 „Calibration of the dioxide sensor“ on page 23.

If the the probe is a passive one, in other words it needs external power supply, the operator shall switch the jumper cable as in the follwing pictures.

➔ Press up or down to scroll the various parameters; press Enter to Enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm. Press *BACK* and up or down to move to another sensor.

Chlorite Sensor

(not for compact models)

After the connection between the sensor (or the output of an analysis instruments with “extern” sensor) and the AI4 input (input 4 – 20 mA, terminals 79 – 80 on the junction box) the operator shall set the parameters as follow.

- **Sensor**: Absent → Through this parameter it is possibile t confirm the presence of the sensor.
- **AI Sensor input**: -- → Set the analogic input number linked to the the sensor. Actually the only available input is the 04.
- **F.Scale. an probe (mg/l)**: 2.0 → Setting this parameter the operator can insert the sensor full – scale value and then the corrispondent value at 20 mA.
- **Maximum level (mg/l)**: 0.80 → Trough this parameter it is possibile to set a threshold in order to signal a maximum level. It is possible to couple it with a relay output for remote control.
- **Hysteresis (mg/l)**: 0.01 → This is set on the hysteris value concerning the maximum and the minimum level.
- **Alarm delay (s)**: 060 → Set the alarm delay compared to the warning for passing both threshold.

For the first calibration and following corrections see the chapter 9.3.4 „Calibration of the chlorite sensor“ on page 23.

If the the probe is a passive one, in other words it needs external power supply, the operator shall switch the jumper cable as in the follwing pictures.

➔ Press up or down to scroll the various parameters; press Enter to Enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm. Press *BACK* and up or down to move to another sensor.

Gas detector sensor

After the connection between the sensor (or the output of an analysis instruments with “extern” sensor) and the AI3 input (input 4 – 20 mA, terminals 35 – 36 on the junction box) the operator shall to set the parameters as follow.

Sensor: Absent → Through this parameter it is possibile to confirm the presence of the sensor.

- **AI Sensor input**: -- → Set the analogic input number linked to the the sensor. Actually the only available input is the 03.
- **F.Scale. an probe (mg/l)**: 2.0 → Setting this parameter the operator can insert the sensor full – scale value and then the corrispondent value at 20 mA.
- **Pre – alarm level (ppm)**: 0.20 → Through this parameter it is possible to set a threshold to signal a gas in air pre –alarm. Reaching the threshold can activate a programmable relay output (8 – 9) for a remote warning or a ventilation unit in production room.
- **Alarm level (ppm)**: 0.30 → Through this parameter it is possible to set a threshold to signal a gas in air alarm. Reaching this threshold will block the production. Also this threshold is coupable to a programmable relay output (8 – 9) for a remote warning or to an abatament rain system.
- **Hysteresis (ppm)**: 0,01 → This is set on the hysteris value concerning the maximum and the minimum level.
- **Alarm delay (s)**: 060 → Set the alarm delay compared to the warning for passing both threshold.

The calibration of this kind of probes can be done only by trained staff and in presence of a calibrated generator.

If the the probe is a passive one, in other words it needs external power supply, the operator shall switch the jumper cable.

➔ Press up or down to scroll the various parameters; press Enter to Enter the *Edit* mode, press up or down to edit the field or the description, then press Enter again to confirm. Press *BACK* and up or down to move to another sensor.

Reagents level meter

Option is not available: If activated, follow the instructions on a specific manual.

9.5 Saving and dowloading data

It is possible to save data on a USB device the following parameters:

- Dioxide chlorine production in g/h
- Flow rate of treated water in mc/h (if it is set in settings)
- Residual dioxide chlorine value in mg/l (if it is set in settings)
- Residual Chlorite value in mg/l (if it is set in settings)
- Residual dioxide gas-in-air value in ppm. (if the specific probe is connected).

Perform the following working steps:

1. Turn off the generator.
2. Open the control unit front mas.
3. Insert the USB device in the specific jack on the right side of the junction box).
4. Close the front mask.
5. Turn on the generator.

✓ **USB device inserted.**

9.6 Information

➔ Press i to Enter this menu. No password is requested.

The following information are availabe:

- *Equipment data*
- *Main values*
- *History*

➔ Press up or down to scroll the various options; to enter the option required press Enter.

9.7 Equipment data

In this menu the main data about the machine are summarized like: *model identification*, *registration number*, *year of manufacture* etc.

➔ Press up or down to scroll the various options.

9.8 Main values

In these pages the machine main values are summarized so that the operator does not have to scroll many menus to visualize them. These parameters are not changeable

➔ Press up or down to scroll the various options.

9.9 History

> A precise setting of the configuration parameters is essential to ensure the proper operation of the machine. We suggest you therefore to frequently check the data set before starting the plant.

This page shows an overview of the main operation values of the machine, so to display them at the same time and avoid entering the single menus.

The logbook contains the latest 50 events occurred (the oldest one being cancelled). Press up/down to scroll the lines of the logbook.

10 Commissioning

10.1 Controls and preliminary arrangements

Perform the following working steps:

1. Make sure that all hydraulic connections have been completed and that unions have been well tightened.
2. Power on the installation.
3. Make sure that voltage is powered to the electronic control unit (the display is powered on), but keep the producer off.
4. Put a bucket full of water where to temporarily immerse the suction pipes of the dosing pumps. In fact, the first part of the start phase shall be carried “blank”, i.e. without using any chemical product, so that you can check the tightness of all hydraulic circuits and avoid any problem in case of leakage to be repaired.
5. Connect small pipes 6 x 4 mm in size and made of flexible PVC to the drain spouts of the vent valves mounted at the outlet of the pumps; these small pipes are to be put back into the bucket from which to aspirate.
6. Later these small pipes shall be put back into their tanks.

✓ **Controls and preliminary arrangements done.**

10.2 Pumps bleed

> Since the plant is tested at the factory, no problem should occur during this phase, unless electrical connections have been improperly wired.

Perform the following working steps:

1. Open the inlet and outlet valves of the pre-dilution unit on the plant.
2. Start the pre-dilution pump.
3. Set the flow rate to ca. 600 – 800 l/h by means of the ball valve at the inlet of the flow meter.
4. Press keys *BLEED* and *START* on the electronic control unit to begin the start-up phase.
   ▶ This phase automatically controls the operation of the dosing pumps for about two minutes at their maximum working frequency.
5. Press key *STOP* to stop the phase.
6. Open the vent valve placed in the front section of the dosing pumps head by rotating it by 2 – 3 turns so to bleed air from the suction pipes.Close the vent valve again only after water has started to come out. Carry out this operation on both dosing pumps.
7. If the BLEED phase stops while performing these operations, press again *START* to start a new cycle.
8. After bleeding the pumps and after water has started to flow into the reactor, close the vent valves and lift fully up the (green) coils of the flow sensors beneath the reactor. Then lower them down gradually until the relevant LEDs on the electronic control unit display (Acid and Chlorite) distinctly and continuously blink.

✓ **Pumps bleeded.**

10.3 Control of the safety systems

Perform the following working steps:

1. Repeat the bleed operation several times. Make sure no hydraulic circuit is leaking.
2. Lift a flow sensor up until the relevant LED on the electronic control unit stops blinking.
   ▶ After 8 pulses the producer shall stop.
3. Place the sensor again as described before.
4. Reset the shutdown (`alarm` and then `Enter`).
5. Repeat the same operation with the other sensor.
6. Remove first one minimum level switch and then the other from the storage tanks.
   ▶ The producer shall stop after a 10s delay (to avoid oscillations). Put the switch into the tank.
7. Reset the shutdown (key `alarm` and then `Enter`).
8. Repeat the same operation with the other sensor. If no stop occurs, check the electrical connections and the proper operation of level switches.

✓ **Control of the safety systems done.**

10.4 Check of the pumps flow rate and setting of configuration parameters

IMPORTANT

Perform the following working steps:

1. Power the producer off.
2. Connect the suction of the dosing pumps to proper suction pipes inserted into graduated cylinders.
3. Carry out one or more bleed operation.
4. Calibrate the pumps as described in the *calibration* menu. Execute a manual calibration, then Enter the total aspirated values in the relevant parameters.
5. Enter the desired operation mode in Menu/Operator/Operation Mode.
6. Start the producer.

✓ **Check done.**

10.5 Start-up

Perform the following working steps:

1. Put the suction pipes of the dosing pumps into the storage tanks of the production reagents.
2. Repeat one bleed phase as described above.
3. Set the required operation mode and the relevant parameters on the electronic control unit, in compliance with the instructions supplied in the relevant chapter.

✓ **Start-up done.**

11 Production safety and malfunctions

The main safety devices that ensure the proper operation of the machine are listed herebelow:

11.1 Inductive flow sensors

11.1.1 Alarm description

They monitor the actual dosing of the reagents. Each pulse from the dosing pumps shall correspond to a pulse from the flow sensor that will signal the passage of the fluid. The sequential and continuous lack of 8 consecutive pulses on the same dosing pump shall stop the production and operation of the machine. The message *no … dosage* is displayed.

Press the `alarm` key to Enter the alarm details signaling which pump stopped production.

REMOTE SIGNALING: Closed contact to terminals 51 – 52.

11.1.2 Malfunction and remedy

Malfunction	Remedy
Air inside the small aspiration pipes of the dosing pumps	■ Regulate the green roundy probe on its tube lifting it up completely. ■ Lower it until at every pump pulse the probe sensor symbol flashes.
Disconnected dosing pump	■ Open the dosing pump vent and perform a bleed phase (see chap. 9.2 „Bleed“ on page 22). ■ If the problem shall return check where the air enters the system.
Dosing pump membrane break	■ Replace the membrane. ■ Perform later a reagents calibration before rebooting the machine (see chap. 9.3.1 „Manual calibration of the pumps“ on page 22).
Flow probe soiling	■ Dismount the probe (pay attention to the float). ■ Unscrew the superior and inferior threaded rings tube-holders, remove the float and clean with compressed air or running water. ■ Reinsert the float and the stop in the sensor holder. ■ Reassamble the probe. Perform a bleed phase (see chap. 9.2 „Bleed“ on page 22).
Consumed probe float. It occurs when the operator put the green coil in a too low position and at the same time the volume dosed by the pump is correct.	■ Substitute the float dismounting and mounting the probe as explained in the previous paragraph. ■ Perform a bleed phase (see chap. 9.2 „Bleed“ on page 22).

Tab. 13: Malfunction and remedy

Empty reagent tanks	Check the reason for the minimum level switches placed in the tanks or in the water tank to not activate.

Tab. 13: Malfunction and remedy

REMOTE SIGNALING: Closed contacts at 51 – 52 terminals

11.2 Empty reagents tanks

In the storage tanks there are mounted empty level switches. In cas of signal by one of these switches, after 10 seconds the production will block and then the machine operation showing *Error Device*.

Pushing the `alarm` key, the operator will see the malfunction in detail. The display will show which switch caused the production block.

➔ To reset the anomaly and reboot the machine press `Enter`.

The release can occur only thanks to a level restoration; it means that only when the level switch stops to signal the machine restart.

REMOTE SIGNALING: Closed contacts at 51 – 52 terminals

11.3 Analogic input anomaly

This alarm warns that an analogic input (its number is shown on the alarm screen) shows an input value lower than 4 mA. This mean that the contact could be interrupted. The involved inputs could be equally flowrate measure input, sensor inputs etc.

➔ To reset the anomaly and reboot the machine press `Enter`.

Malfunction	Remedy
Signal wire interruption or anomaly of the signal emitter	Damage restoration. Provisionally, the specific input can be disabled setting the configurations in the operation mode menu or in the sensor menu.

Tab. 14: Malfunction and remedy

11.4 Gas detector pre-alarm

> It is important to stress that air the room in case of gas in air is necessary. Furthermore, if you need to operate on the machine wear the Personal Protective Equipment (PPE) as shown in chap. 2.4 „Personal protective equipment“ on page 7.

If the gas detector sensor is present (see chap. „Gas detector sensor“ on page 27), this alarm shows that the ClO_2 gas value in t air reached the early-warning threshold. The pre-alarm does not block the production.

➔ To reset the anomaly and reboot the machine press `Enter`.

Malfunction	Remedy
Possible gas loss from the reactor valves or leak in the prediluition system	Air the room abudantly. Verify the prediluition pipes entirety and also check that there are no loss from reactor valves.

Tab. 15: Malfunction and remedy

11.5 Threshold exceeded ClO_2 gas detector

It is important to stress that air the room in case of gas in air is necessary. Furthermore if you need to operate on the machine wear the Personal Protective Equipment (PPE) as shown in chap. 2.4 „Personal protective equipment“ on page 7.

The presence of this alarm indicates that the gas-in-air measure exceed the safety operator threshold. This alarm blocks the production.

➔ To reset the anomaly and reboot the machine press `Enter`. The machine will not restart until the gas-in-air value will be lower than the threshold minus the hysteresis.

11.6 Pre-diluition flow lack

11.6.1 Alarm Description

In case of a signal (open contact with producer on) produced by the prediluition flowmeter at minimum flowrate and dioxide transport to the dosage point delayed by a set value, the production will be blocked showing the *Error Device* display.

Pushing `alarm` the operator will see the malfunction in detail. The display will show which switch caused the production block.

➔ To reset the anomaly and reboot the machine press `Enter`.

11.6.2 Malfunction and Remedy

Malfunction	Remedy
Closure of a manual valve placed on the pre-diluition line	■ Check the cause and then open that valve again.
Turning off or thermal block of the pre-diluition pump/ circulator	■ Verify the pump/circulator functioning. ■ Reboot both.

Tab. 16: Malfunction and remedy

REMOTE SIGNALING: Closed contacts at 09 – 10 terminals.

12 Maintenance

CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

Chlorine dioxide systems and their accessories must only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

- ⇨ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. Comply with Chapter 2.5 „Personnel qualification“ on page 7.
- ⇨ Those performing system settings require an exact understanding of their effects on the production process and operating behaviour. Settings may only be performed by qualified service personnel.
- ⇨ Prevent access to the system for unauthorised persons.

All routine and/or extraordinary maintenance operations shall be carried out on the plant by skilled technical personnel only.

Power off the plant before carrying out any operation that may involve the disassembling of hydraulic components of the plant. While performing these operations always wear personal protective equipment, such as anti-acid gloves, splash guard protection goggles and clothing made of anti-acid material (e.g. PVC).

The main checks or routine maintenance operations that shall be carried out at regular intervals are listed herebelow.

Maintenance	Intervals
Check the tightness of all pipings, joints, valves and hydraulic components of the installation at regular intervals.	regularly
Replace the dosing membranes and the sets of seals of the dosing pumps and reactor valves.	recommended: every six months max.: annually
Check that the flow sensors are properly positioned	recommended: every week max.: monthly

Tab. 17: Maintenance

13 Disassembling

WARNING

Danger of injury when working on the components.

You may come into contact with dosing media when working on the system components.

- ⇨ Secure the system to prevent it from being turned on accidentally.
- ⇨ Use sufficient personal protective equipment.
- ⇨ Rinse the system before working on individual components so as to remove dosing medium residue. Only use water.
- ⇨ Release pressure in hydraulic parts.
- ⇨ Never look into open ends of plugged pipelines and valves.

All the operations described herebelow as well as any action on the machine not merely consisting in setting parameters or adjusting the stroke of the pumps shall be carried out wearing personal protective equipment, such as anti-acid gloves, mask with activated carbon filter specific for chlorine dioxide and anti-acid clothing.

Before disassembling the producer for transfer, repair or disposal reasons, empty the chlorine dioxide in the reactor with the utmost care.

If the machine is still working, just pump water instead of chemical products for a few hours until the reactor is properly rinsed.

If the machine is faulty, let some water in by force, e.g. by means of a pressurized rubber pipe at the inlet of the pumps or the reactor. The outlet of the producer shall be diverted into a container that shall be closed at the end of the operation and given to specialized firms for its disposal.

In both cases, the reactor outlet shall be plugged (just close the two ball valves if the pre-dilution section is foreseen) before disassembling the producer. In fact, if moved or placed horizontally the machine might leak some dioxide residues.

Since the machine is to be classified as “special waste”, please contact specialized firms or the supplier for its disposal.

14 Warranty claim

Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: ..... Phone: ..... Date: .....

Address: .....

Contact person: .....

Manufacturer order no.: ..... Date of delivery: .....

Device type: ..... Serial number: .....

Nominal capacity / nominal pressure: .....

Description of fault: .....

.....

.....

.....

.....

.....

.....

.....

Service conditions of the device

Point of use / system designation: .....

.....

.....

Accessories used (suction line etc.): .....

.....

.....

.....

.....

Commissioning (date): .....

Duty period (approx. operating hours): .....

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

15 Declaration of no objection

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: ..... Part-no.: .....

Order No.: ..... Date of delivery: .....

Reason for repair: .....

.....

.....

Dosing medium

Description: ..... Irritating: ☐ Yes ☐ No

Properties: ..... Corrosive: ☐ Yes ☐ No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: ..... Phone: .....

..... Fax: .....

..... Email: .....

Customer No.: ..... Contact person: .....

Date, Signature: .....

16 EU Declaration of Conformity

(DE) EG-Konformitätserklärung
Hiermit erklären wir, dass das nachfolgend bezeichnete Gerät aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der aufgeführten EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung am Gerät verliert diese Erklärung ihre Gültigkeit.

(EN) EC Declaration of Conformity
We hereby certify that the device described in the following complies with the relevant fundamental safety and sanitary requirements and the listed EC regulations due to the concept and design of the version sold by us.
If the device is modified without our consent, this declaration loses its validity.

(FR) Déclaration de conformité CE
Nous déclarons sous notre propre responsabilité que le produit ci-dessous mentionné répond aux exigences essentielles de sécurité et de santé des directives CE énumérées aussi bien sur le plan de sa conception et de son type de construction que du modèle que nous avons mis en circulation.
Cette déclaration perdra sa validité en cas d'une modification effectuée sur le produit sans notre accord explicite.

(ES) Declaración de conformidad CE
Por la presente declaramos que, dados la concepción y los aspectos constructivos del modelo puesto por nosotros en circulación, el aparato mencionado a continuación cumple con los requisitos sanitarios y de seguridad vigentes de las directivas de la U.E. citadas a continuación.
Esta declaración será invalidad por cambios en el aparato realizados sin nuestro consentimiento.

(NL) EU-overeenstemmingsverklaring
Ondergetekende Lutz-Jesco GmbH, bevestigt, dat het volgende genoemde apparaat in de door ons in de handel gebrachte uitvoering voldoet aan de eis van, en in overeenstemming is met de EU-richtlijnen, de EU-veiligheidsstandaard en de voor het product specifieke standaard. Bij een niet met ons afgestemde verandering aan het apparaat verliest deze verklaring haar geldigheid.

(PT) Declaração de conformidade CE
Declaramos pelo presente documento que o equipamento a seguir descrito, devido à sua concepção e ao tipo de construção daí resultante, bem como a versão por nós lançada no mercado, cumpre as exigências básicas aplicáveis de segurança e de saúde das directivas CE indicadas.
A presente declaração perde a sua validade em caso de alteração ao equipamento não autorizada por nós.

Bezeichnung des Gerätes:	Anlage zur Herstellung und Dosierung von Chlordioxid
Description of the unit:	Chlorine dioxide system
Désignation du matériel:	Dioxyde de chlore
Descripción de la mercancía:	Diocydo de chloro
Omschrijving van het apparaat:	Installatie voor aanmaak en dosering van Chloordioxide
Designação do aparelho:	Instalações de produção e medição de dióxido de cloro
Typ: **Type:**	EASYZON Dd
EG-Richtlinien: **EC directives:**	2006/42/EG, 2014/35/EU, 2014/30/EU Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten. The protective aims of the Low Voltage Directive 2014/35/EU were adhered to in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.
Harmonisierte Normen: **Harmonized standards:**	DIN EN ISO 12100:2011-03, DIN EN 809:2012-10 DIN EN 61000-6-2:2005, DIN EN 61000-6-3:2007 + A1:2011, DIN EN 61000-6-4:2007
Dokumentationsbevollmächtigter: **Authorized person for documentation:**	Lutz-Jesco GmbH

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 02.05.2018

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

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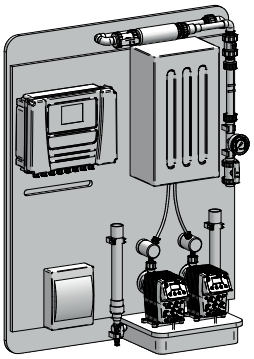

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