

User manual for the ZeroClamp® Control Unit (automation)

06-11

ZeroClamp®

Control Unit:

- Housing
- Supply Cable



Dear Customer,

Thank you for choosing our products. With this purchase, you have decided to work with a control unit of the highest precision and quality.

In this manual you will quickly learn how to assemble and operate the control unit that will help you to perfectly monitor your system.

In the event of product improvements, we reserve the right to make changes regarding versions, models, sizes and materials.

For any further questions, please don't hesitate to contact us!

Please find below our contact information.

Best regards,

Your ZeroClamp® Team

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1.) OPERATING INSTRUCTIONS: control unit

The control unit should only be operated with the appropriate equipment and accessories.
The compressed air should be between 5 bar (min.) and 8 bar (max.).

The control unit has the following four functions:

- a.) clamp and unclamp
- b.) control
- c.) blow out
- d.) sealing air

to a.): **Clamp and unclamp**

To unclamp the clamping system it is required that the white cable be loaded with 24V. As soon as the 24V is removed, the clamping process of the clamping system will get reactivated through the spring breaks.

to b.): **Control**

By loading the red cable with 24V the control will be initiated, and the seating surface will be controlled. When the pallet, or work piece, is positioned correctly, then the yellow/black cable is loaded with 24V.

to c.): **Blow out**

In order to be able to blow out the clamping system, it is required that the grey cable be loaded with 24V.

Caution! The blow out works only, if the system is in 'unclamp' mode!

Do not activate the 'blow out' function when removing the pallet! Otherwise it could cause a partial blockage of the clamping device.

to d.): **Sealing air**

The system is supplied with sealing air through loading the brown cable with 24V.
The air pressure can be regulated in the housing. (Normally 0,5 bar).

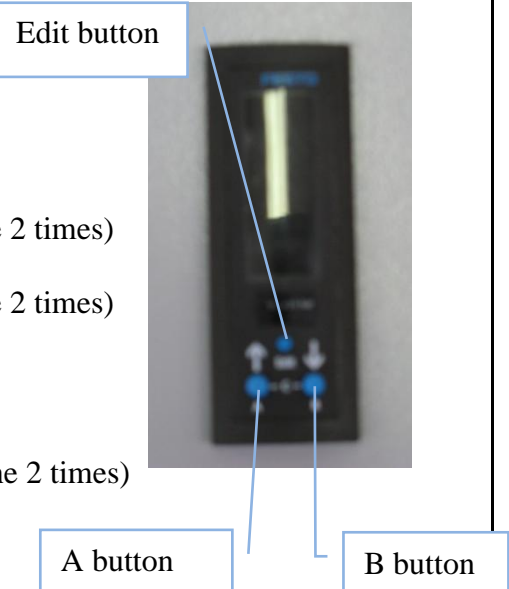


OPERATING INSTRUCTIONS: dynamic pressure sensor

The dynamic pressure sensor has presets of the standard values. These standard values can be programmed as followed:

- Step 1: press Edit
- Step 2: press A until input A starts blinking
- Step 3: press edit
- Step 4: configure $\frac{1}{\sqrt{}}$ and then press Edit
- Step 5: configure SP to 0,90 with the buttons A and B
- Step 6: press Edit twice (maintain a little break in between the 2 times)
- Step 7: configure NC with the buttons A and B
- Step 8: press Edit twice (maintain a little break in between the 2 times)
- Step 9: press A until input B starts blinking, then press Edit
- Step 10: configure $\frac{1}{\sqrt{}}$ and then press Edit
- Step 11: configure SP to 1,00 with the keys A and B
- Step 12: press Edit twice (maintain a little break in between the 2 times)
- Step 13: configure NO with the buttons A and B
- Step 14: press Edit

Now the dynamic pressure sensor has been re-configured.



For the highest possible system precision, the dynamic pressure sensor can be adjusted as needed to the single basis units. Please consult here for the chapter dynamic pressure sensor in our operating instructions.

In order to prevent any unauthorized access to the sensor, we recommend to use a code for a protected access. (See operating instructions).

OPERATING INSTRUCTIONS: pressure control valve and pressure relief valve

Pressure control valve:

The pressure control valve is pre-programmed to 5 bar. In the event of deviations, please set the valve back to 5 bar.

Pressure relief valve:

The pressure relief valve is pre-programmed as well. In case of any new configuration of this valve, it is necessary that the system is first set to the position 'control'. Every clamping pot must be open (don't put on a pallet!). The pressure relief valve should be configured in a way that the dynamic pressure sensor displays a value between 4,3 and 4,5.



SAFETY:

Explanation of Symbols:



You will find this symbol where a particular risk of injury or damage exists with the clamping system.

INTENDED USE:

The control unit should be used only for clamping pallets, clamping pillars and clamping devices. The intended use of this product is in compliance with the producer's prescribed conditions, as well as during assembly, operation, environmental and maintenance conditions. The producer will not take any responsibility for damages occur during unintended use.

SAFETY INSTRUCTIONS:

When the state of the art control unit is delivered, it is safe to operate. But risks may arise, for example, if:

- the control unit is used, assembled or maintained incorrectly.
- the control unit is used for something other than its intended use.
- the EC Machinery Directives, UVV, VDE-directives, safety and assembly instructions are disregarded.

Everybody who is involved in, or responsible for, assembling, commissioning and/or maintenance, must read and understand the instruction manual, specifically Chapter 1, **Safety**. We advise all customers to request written confirmation that the manual has been read and understood.

Only authorized and qualified operators may do installations and removals, connecting and commissioning. Operation methods that could affect the functional safety of the control unit must not be ignored.



Do not reach into the open mechanical system of the clamping bolt pick up.



Make sure that electrical power is disconnected during assembly, maintenance and during the calibration process.



Maintenance, modifications and additions may be carried out only in safe working environments, outside of any danger zones!



Make sure that the control unit can not be activated by any operator or other persons during the mounting, connecting, setting, commissioning or testing of the system.



Make sure that during operation any release of the clamping bolt can be prevented. If a mistake or negligence should cause a release, then immediately intervention is required: remove energy connection after locking, activate security valves or switches.



If clamping bolt axis is in horizontal position or working overhead make sure that the device or stage is tightened and will not fall down. During the clamping process it is important that a safe axial arrangement will be reached at all clamping points.

Any additions or modifications at the control unit (additional functions, etc.), that are not offered in the ZeroClamp[®] line, can be made only after obtaining written permission from ZeroClamp[®] GmbH.

Only original ZeroClamp[®] base units may be used.

When using the clamping bolt in any other customer-owned devices, it is necessary to make sure that the fastening material is resistant enough, and that the fit is tight enough, to clamp the bolt correctly. If necessary, or desired, please contact us for further consultation. Our company does not assume any responsibility for damages caused by unintended use.

If the control unit will be used in an environment where abrasive dusts, corrosive liquids or aggressive vapors will be present, then it is necessary to receive permission from ZeroClamp[®] before the system is operated.

Finally, all safety and incident prevention directives must be followed and respected in the workplace.

The control unit is equipped with an air outlet, which is located on the left side of the device. The outlet must remain uncovered. When installing into other devices it is important to ensure that there is an air supply.

WARRENTY:

The warranty period is 12 months, beginning from the date of shipment from ZeroClamp®. The warranty covers intended use only, when used on single-shift operations.

CONTENTS INCLUDED WITH DELIVERY:

- Control unit
- Control cable - 10 m
- Mounting hook
- Operating instructions control unit and the dynamic pressure sensor

TECHNICAL DETAILS:

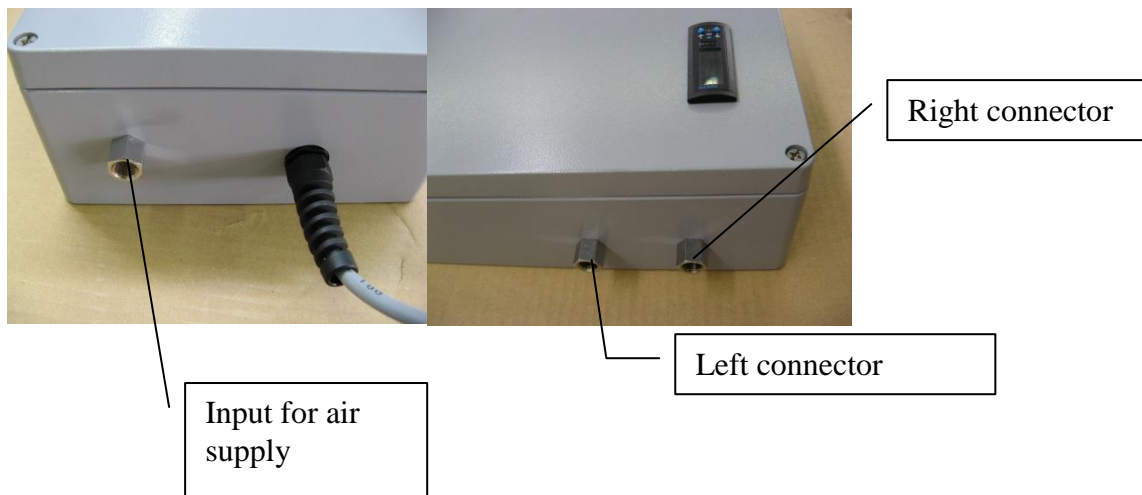
The operating pressure must be 5 bar or more.

Operating temperature must be between 15°C and 40°C.

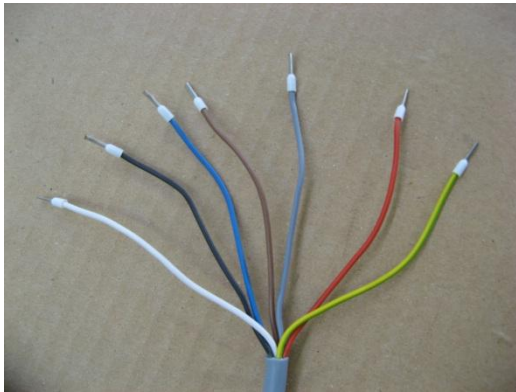
Mounting position is random.

GENERAL MOUNTING INSTRUCTIONS:

In the process of mounting the control unit it is important to make sure, that both compressed air outlets are installed correctly. The right connector is meant to be used to control the blow out process and the sealing air. The left connector opens the clamping system. The connector located at the control cable, is meant to be used for the air supply.



Cable assignment:



white:	Input 'release clamping system'
black:	Power supply 24V
blue:	Ground (GND)
brown:	Input 'sealing air'
grey:	Input 'clean / blow out clamping system'
red:	Input 'monitor clamping system'
black/yellow:	Output 'signal ok'

MAINTENANCE and CARE:

- The ZeroClamp[®] control unit is designed to be EASY TO MAINTAIN. Opening and servicing of the system by the customer is not necessary.
- Please make sure that the seating surface of the interface is always clean.