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# Instruction Manual PSE 200 Positioning System

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halstrup-walcher GmbH

Stegener Straße 10  
D-79199 Kirchzarten  
Germany

Phone: +49 (0) 76 61/39 63-0  
Fax: +49 (0) 76 61/39 63-99

E-Mail: [info@halstrup-walcher.com](mailto:info@halstrup-walcher.com)  
Internet: [www.halstrup-walcher.com](http://www.halstrup-walcher.com)

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## Purpose of instruction manual

This instruction manual describes the features of the PSE 200 positioning system and provides guidelines for its use.

Improper use of this instrument or failure to follow these instructions may cause injury or equipment damage. All individuals responsible for operating this instrument must therefore be properly trained and aware of the hazards, and must carefully follow these operating instructions and the safety precautions detailed within.

### **Contact the manufacturer if you do not understand any part of this instruction manual.**

Handle this manual with care:

- It must be readily available throughout the lifecycle of the instrument.
- It must be provided to any individuals who assume responsibility for operating the instrument at a later date.
- It must include any supplementary materials provided by the manufacturer.

The manufacturer reserves the right to continue developing this instrument model without documenting such development in each individual case. The manufacturer will be happy to determine whether this manual is up-to-date.

## Conformity

This instrument corresponds to the state of the art and meets all legal requirements set forth in EC directives as evidenced by the CE label.



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The manufacturer owns the copyright to this instruction manual. This manual contains data, instructions and drawings pertaining to the features and usage of this instrument; copying this manual in part or in full or distributing it to third parties is prohibited.

# 1 Safety precautions

## 1.1 Appropriate use

The PSE 200 positioning system is a complete system consisting of an actuator and a closed loop for positioning rotating machine components with torques of up to 10 Nm. The system is especially suited for control and positioning tasks in mechanical and apparatus engineering and for rotating machinery, rotary actuators, flap adjustment units and valve actuators.

**The PSE 200 is not a stand-alone instrument and may only be used if coupled to another machine.**

Always observe the operating requirements—particularly the permissible supply voltage—indicated on the rating plate and in the “Technical data” section of this manual.

The instrument may only be handled as indicated in this manual. Modifications to the instrument are prohibited. The manufacturer is not liable for damages caused by improper use or failure to follow these instructions. Violations of this type render all warranty claims null and void.

## 1.2 Shipping, assembly, electrical connections and start-up

Only technical personnel who are appropriately trained and authorized by the operator of the facility may assemble the instrument and set up its electrical connections.

The instrument may only be operated by appropriately trained individuals who have been authorized by the operator of the facility.

Specific safety precautions are given in individual sections of this manual.

## 1.3 Troubleshooting, maintenance, repairs, disposal

The individual responsible for the electrical connections must be notified immediately if the instrument is damaged or if errors occur.

This individual must take the instrument out of service until the error has been corrected and ensure that it cannot be used unintentionally.

This instrument requires no maintenance.

Only the manufacturer may perform repairs that require the housing to be opened.

The electronic components of the instrument contain environmentally hazardous materials and materials that can be reused. For this reason the instrument must be recycled in accordance with the environmental guidelines of the jurisdiction in question once it has been taken permanently out of service.

## 1.4 Symbols

The symbols given below are used throughout this manual to indicate instances when improper operation could result in the following hazards:



**WARNING!** This warns you of a potential hazard that could lead to bodily injury up to and including death if the corresponding instructions are not followed.



**WARNING:** This warns you of a potential hazard that could lead to significant property damage if corresponding instructions are not followed.



**INFORMATION:** This indicates that the corresponding information is important for operating the instrument properly.

## 2 Instrument description

### 2.1 Features

The PSE 200 positioning system controls positioning sequences, e.g., by adjusting the angle of rotation or linear position of a spindle or valve by a predefined value and within a specific amount of time.

The motor switches off when the final position is reached.

If an external control unit is connected, the actual position is read out as an analogue output signal (e.g., 4-20 mA); an analogue input signal (e.g., 0-10 V) is required for the target value.

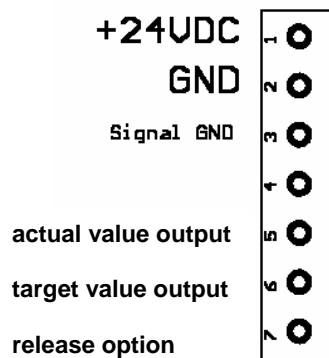
### 2.2 Installation

Three bores (for M8 bolts) are located on the output-shaft side of the PSE 200 positioning system; these bores should be used for mounting the instrument onto the machine in question. The connection of the output shaft must be friction locked. The positioning of the actuator and device to be controlled should be the same (e.g., all the way to the left) prior to installation.



**Never apply force to the plastic housing, e.g., for supporting weight.**


### 2.3 Electrical connections



Pins 1 (+24VDC) and 2 (GND) are for connecting the required operating voltage; pin 3 (signal GND) is for the ground for the target and actual values. Pin 4 (actual value output) is for a signal of 0 ... 10 V (or 4 ... 20 mA, depending on the design) and can, for instance, be used to connect an instrument for taking measurements. Pin 6 (target value input) is for a signal of 0 ... 10 V (or 4 ... 20 mA, depending on the design) and is used for positioning the gear.

Pin 7 of the terminal is for the 'release option': if the instrument detects a signal of 0 V here, the gear either stops or simply does not start, depending on the target value; if it detects a signal of +24VDC, it 'releases' the gear, which can then be positioned to a target value.

### 3 Technical data

|  |   |
|--|---|
| <b>Physical data</b>                                       |   |
| output torque  | 1 Nm, 5 Nm, 10 Nm   |
| motor speed  | 30 min <sup>-1</sup> , 5 min <sup>-1</sup> , 2 min <sup>-1</sup> , 1 min <sup>-1</sup> , 0.5 min <sup>-1</sup> , 0.25 min <sup>-1</sup> |
| output shaft   | 12 H 8 circular shaft   |
| maximum axial thrust                                       | 20 N  |
| maximum radial force                                       | 30 N  |
| positioning range  | max. 50 revolutions   |
| dimensions (w x h x d)                                     | 80 x 120 x 100 mm   |
| <b>Electrical data</b>                                     |   |
| power output   | 3 W (30 % OT)   |
| supply voltage   | 24 VDC +20 % / -15 %  |
| nominal current  | 1 A   |
| no-load current  | 0.2 A   |
| positioning resolution                                     | 0.5 % of positioning range  |
| positioning accuracy                                       | 2 % of positioning range  |
| output signal  | 0 to 10 V and 4 to 20 mA  |
| analogue target value                                      | 0..10 V or 0/4...20 mA  |
| <b>Ambient conditions</b>                                  |   |
| resistance to vibration<br>as stipulated in DIN IEC 68-2-6 | 10...55 Hz 1.5 mm /<br>55...1000 Hz 10 g /<br>10...2000 Hz 5 g  |
| shock resistance as stipulated in<br>DIN IEC 68-2-6        | 50 g 11 ms  |
| EMC standards  | CE  |
| conformity   |  declaration of conformity available upon request    |
| ambient temperature  | 0° C to +45° C  |
| storage temperature  | -10° C to +70° C  |
| relative humidity  | 0...80 %  |
| protection class   | IP55  |
| weight   | approx. 900 g   |

# 4 Dimension drawings

