



INSTALLATION AND OPERATING INSTRUCTIONS

Unit, electro-pneumatic
AEPN

DDOC01693

THE KNOW-HOW FACTORY

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1 Supporting documents

NOTICE



Read through the installation and operating instructions before installing or working with the product.

The installation and operating instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.



The documents listed below are available for download on our website www.zimmer-group.com.

- Installation and operating instructions
 - Catalogs, drawings, CAD data, performance data
 - Information on accessories
 - Technical data sheets
 - General Terms and Conditions, including warranty information.
- ⇒ Only those documents currently available on the website are valid.

In these installation and operating instructions, "product" refers to the product designation on the title page!

1.1 Notices and graphics in the installation and operating instructions

DANGER



This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

► You absolutely must comply with the described measures for avoiding these dangers!

⇒ The warning symbols are assigned according to the type of danger.

WARNING



This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

► You absolutely must comply with the described measures for avoiding these dangers!

⇒ The warning symbols are assigned according to the type of danger.

CAUTION



This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

► You absolutely must comply with the described measures for avoiding these dangers!

⇒ The warning symbols are assigned according to the type of danger.

NOTICE



This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

► You absolutely must comply with the described measures for avoiding these dangers!

⇒ The warning symbols are assigned according to the type of danger.

INFORMATION



This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

CAUTION



Risk of injury and material damage in case of non-compliance

Installation, commissioning, maintenance and repairs may only be performed by qualified specialists in accordance with these installation and operating instructions.

The product is state-of-the-art.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.
- ▶ The product may only be used in accordance with these installation and operating instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:
 - Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
 - Additional drilled holes or threads
- ⇒ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.
- ▶ Make sure that the power supply is disconnected before you mount, modify, maintain or repair the product.
- ▶ Avoid power supply faults.
- ▶ Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.
- ▶ Perform maintenance tasks, renovation work or attachment work outside of the machine's danger zone when possible.
- ▶ Always adhere to the required maintenance intervals.
- ▶ When using the product under extreme conditions, adjust the maintenance interval according to the degree of contamination.
- ▶ Check the completeness and tightening torques of all mounting screws.

3 Proper use

NOTICE



The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated installation and operating instructions.
- ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ⇒ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

- The product is designed exclusively for electric operation using a 24 V DC power supply.
- The product may only be used to generate pneumatic pressure.
- The product is not suited to generate negative pressure.
- The product must not be used to compress vapors, aerosols or other technical gases.
- The product is not suited for use in a potentially explosive atmosphere.

4 Personnel qualification

WARNING



Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

5 Product description

The product is designed for areas and applications without stationary pneumatics.

The product can be used to generate pneumatic pressure from electrical energy and operate pneumatic consumers.

A maximum of two pneumatic connections can be controlled independently of each other using integrated solenoid valves.

The product compensates for minor leaks, thus maintaining the operating pressure.

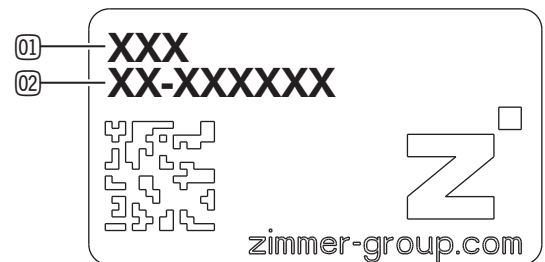
The product is suitable for applications with low on-times and low volumes, e.g. as fall protection or for AGVs.

5.1 Type plate

A type plate is attached to the product.

01 Article number

02 Confirmation number



INFORMATION



► Do not remove the type plate on the product.

► Do not modify the type plate on the product.

⇒ Zimmer Group GmbH shall accept no liability for possible damage or complaints about a product with a modified or removed type plate.

6 Functional description

The product enables the generation and maintenance of pneumatic pressure.

You can choose between two preset pressure ranges depending on the operating pressure of the consumer.

Pressure is applied to the consumer via a valve to which it is connected, and the valve is actuated by a corresponding control signal.

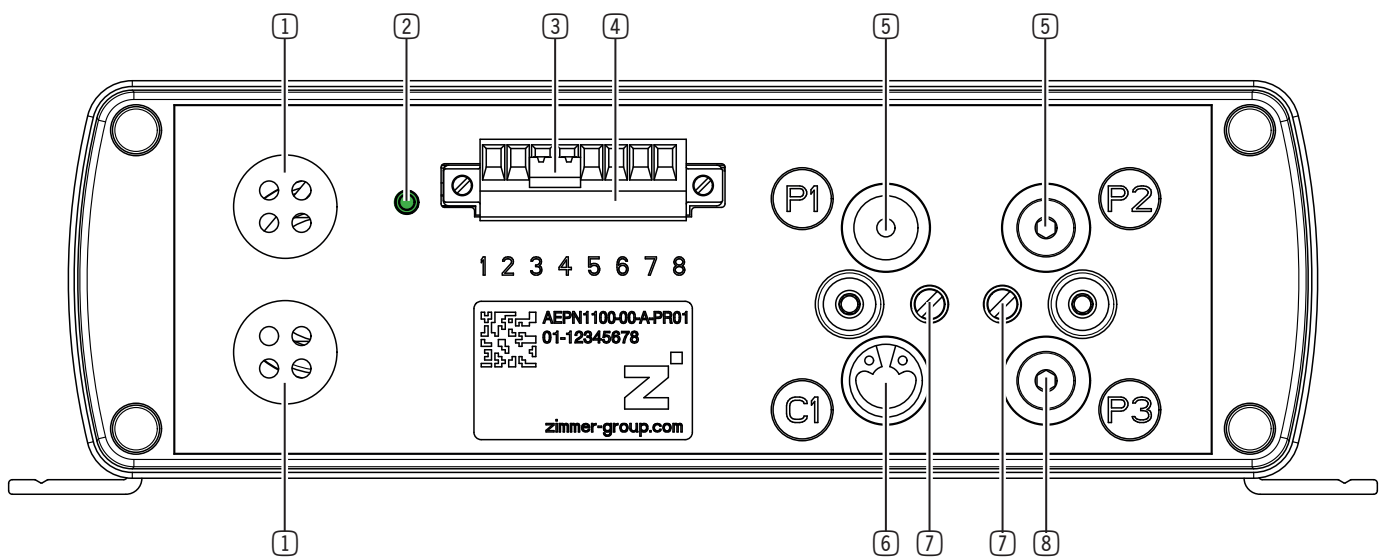
In case of a pressure drop, e.g. due to leaks, the product automatically regulates the pressure when it reaches a defined lower limit until it returns to the upper limit. This maintains the required operating pressure.

The product can be used to vent pneumatic consumers. A quick exhaust valve is provided to expel accruing condensate.

In case of a voltage drop, all valves, and thus the entire system, are vented.

The runtime limitation and the temperature sensors switch the product off in case of overload to prevent the product from overheating.







Various statuses as well as the available system pressure can be read via pins 7 and 8.



- | | |
|-------------------------|------------------------|
| ① Ventilation | ⑤ Pneumatic connection |
| ② LED display | ⑥ Quick exhaust valve |
| ③ Jumper | ⑦ Bleed connection |
| ④ Electrical connection | ⑧ Optional connection |

6.1 LED status display

The LED display flashes every 500 ms using a flash sequence explained in the following. The flash sequence restarts after a pause of 2 s.

Status	Status	Possible cause	Measure	Status signal Pin 8
Operational	 Continuous light	-	-	0 V DC
Information	 Continuous light	<ul style="list-style-type: none"> No motor signal because the motor runtime is longer than 30 s within 180 s. 	<ul style="list-style-type: none"> ► Wait until the product is ready for operation again. ► If the problem has not resolved itself after 3 minutes, contact Customer Service. 	24 V DC
Warning	 2x flashing	<ul style="list-style-type: none"> No motor signal because the temperature of the driver stage is too high. 	<ul style="list-style-type: none"> ► Wait until the product has cooled down. ► If the problem has not resolved itself after 30 minutes, contact Customer Service. 	24 V DC
	 3x flashing	<ul style="list-style-type: none"> No motor signal because the temperature of the compressor is too high. 	<ul style="list-style-type: none"> ► Wait until the product has cooled down. ► If the problem has not resolved itself after 30 minutes, contact Customer Service. 	24 V DC
	 8x flashing	<ul style="list-style-type: none"> Motor operating time 	<ul style="list-style-type: none"> ► Please contact Customer Service. 	24 V DC
Error	 Continuous light	<ul style="list-style-type: none"> Undervoltage 	<ul style="list-style-type: none"> ► Check the supply voltage. 	24 V DC

7 Technical data

INFORMATION



- ▶ You can find the information in the technical data sheet on our website.
- ▶ Please contact Customer Service if you have any questions.

8 Accessories/scope of delivery

INFORMATION



If any accessories not sold or authorized by Zimmer Group GmbH are used, the function of the product cannot be guaranteed. Zimmer Group GmbH accessories are specifically tailored to the individual products.

- ▶ For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

- ▶ Transport and storage of the product must be done only with the original packaging.
- ▶ If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.
 - ▶ Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.
- ▶ If the product is stored for an extended period, the following points are to be observed:
 - ▶ Keep the storage location as dust-free and dry as possible.
 - ▶ Avoid temperature fluctuations.
 - ▶ Avoid wind/drafts/water condensation formation.
 - ▶ Package the product so that it is protected from corrosion.
 - ▶ Place additional desiccant under the film as necessary.
 - ▶ Pack the product and do not expose it to direct sunlight during storage.
- ▶ Clean all components. There must be no soiling left on the components.
- ▶ Visually inspect all components.
- ▶ Remove all foreign substances.
- ▶ Close electrical connections using suitable covers.
- ▶ Seal pneumatic connections with suitable covers.

10 Installation

WARNING



Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ▶ Switch off the energy supply of the machine before any work.
- ▶ Secure the power supply against being switched on unintentionally.
- ▶ Check the machine for any residual energy that may be present.

INFORMATION



Further installation information:

- The mounting screws are not included in the scope of delivery.

- ▶ Install the product on an appropriate mounting surface in accordance with the flatness specifications.
- ▶ Make sure that the mounting piece is sufficiently rigid.
- ▶ Ensure the cleanliness of the connection surfaces.
- ▶ Please note the permitted tightening torques of the mounting screws at www.zimmer-group.com/en/td.

10.1 Installing the product

WARNING



Risk of injury caused by inadequate installation materials

If unsuitable mounting elements are used or if the number of mounting elements is insufficient, the product may tear off as a result of the load.

- ▶ Use a suitable mounting piece.
- ▶ Use suitable mounting screws.

NOTICE



Material damage from overheating of the product

If the product overheats, this can shorten the product service life.

- ▶ Do not install supply air and exhaust air ducts through surrounding components.

NOTICE



Material damage and malfunction in case of non-compliance

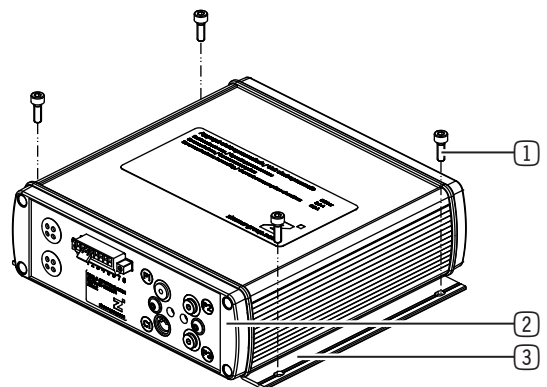
The product draws in ambient air. Insufficient compressed air quality can affect the function and service life of the connected pneumatic products.

- ▶ Note that the cleanliness of the ambient air influences the quality of the compressed air.
- ▶ Choose a location that is as clean as possible.

The product may be installed in the following positions:

- With the front cover downwards
- With the wall mounting brackets downwards
- ▶ Mount the product using the mounting screws.

- ① Mounting screw
- ② Front cover
- ③ Wall mounting bracket



10.2 Installing the energy supply

10.2.1 Connecting consumers

NOTICE



Non-compliance may result in material damage.

- ▶ You can find the information in the technical data sheet on our website.
- ▶ Close off unused connections using pressure-resistant closures.
- ▶ The authorized connections that are available can be found in the accessories list on our website. The necessary ordering information can also be found there.

INFORMATION



We would be happy to design your customer-specific application for you.

- ▶ Please contact Customer Service for the permitted values for volumes and on-times.

- ▶ Use one or both pneumatic connections.
- ▶ When using both pneumatic connections, add together the calculated on-times of the customer-specific application as well as the volumes of all connected consumers.
 - ▶ Compare this value with the values to be observed.
- ▶ Remove the seal with an Allen key.

① Pneumatic connection

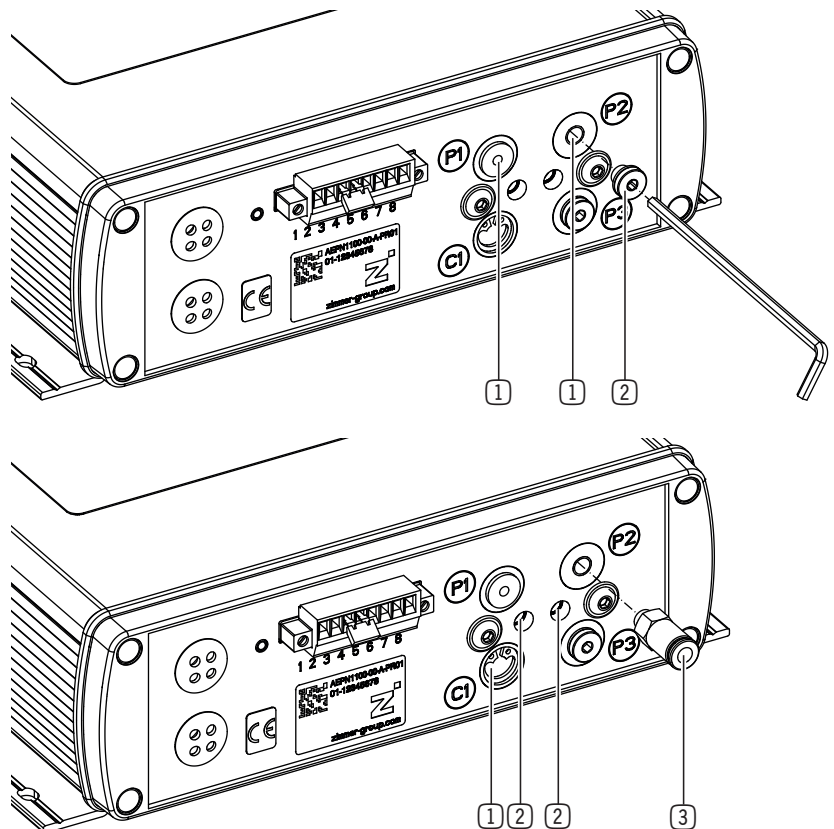
② Seal

- ▶ Select a suitable screw fitting.
- ▶ Mount the screw fitting in the provided connection.
- ▶ Connect the consumer via the screw fitting.

① Quick exhaust valve

② Air relief connections C2 and C3

③ Screw fitting



INFORMATION



Recommendation

- ▶ Mount an additional quick exhaust valve in proximity to the consumer for quick bleeding of the consumer connected to the P2 pneumatic connection.
- ▶ Keep the hose length as short as possible for a quick air supply and bleeding.

10.2.2 Setting the pressure range

You can switch the pressure between two pressure ranges.

Pressure range [bar]	Setting
4.5 – 5.5	<ul style="list-style-type: none"> ► Open pin 4 or connect pin 4 to GND by pulling the jumper.
5.5 – 6.5	<ul style="list-style-type: none"> ► Connect pin 4 to 24 V DC by installing the jumper between pin 3 and pin 4. <ul style="list-style-type: none"> • The jumper is already installed between pin 3 and pin 4 upon delivery.

10.2.3 Installing the electrical system

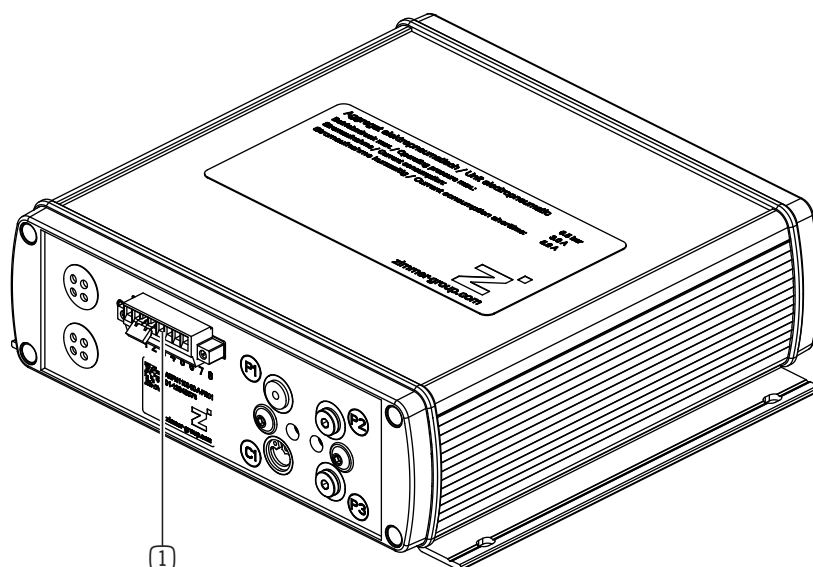
NOTICE



Non-compliance may result in material damage.

- Secure the electrical supply lines to be mounted with a suitable strain relief to prevent the uncontrolled removal of the pins.

- Connect the product according to its assignment diagram.



① Electrical connection

10.2.3.1 Pin assignment

INFORMATION



Pin 2 (GND) is the reference ground for all additional inputs and outputs on the plug.

The electrical energy must be supplied via a power supply unit that meets industrial standards.

Pin	Function	Explanation	Plug: Molex, 395040008
1	PWR IN	24 V DC IN	
2	GND	0 V DC supply voltage	
3	PWR OUT	24 V DC OUT for Pin 4, Pin 5 and Pin 6	
4	Input for pressure switchover	Signal for pressure range ► For more information, refer to the "Setting the pressure range" section.	
5	Input for valve 1	Signal P1: • 0 V DC = valve 1 closed • 24 V DC = opens valve 1	
6	Input for valve 2	Signal P2: • 0 V DC = valve 2 closed • 24 V DC = opens valve 2	
7	Analog output	0 to 10 V DC output • Proportional to the pressure in bar: • 0 V DC = 0 bar • 10 V DC = 10 bar	
8	Digital output	Status signal • 0 V DC: OK • 24 V DC: Warning or error ► For more information, refer to the "LED display" section.	

Plug: Molex, 395040008

Cable size AWG	16, 18, 20, 22, 24, 26, 28, 30
Cable size [mm ²]	0.05 – 1.31

INFORMATION



► Refer to the technical data sheet on our website for the connection diagram.

11 Commissioning

NOTICE



Non-compliance may result in material damage.

Exceeding the maximum on-time can cause an overload, thus damaging the product.

- ▶ Adhere to the maximum on-time.

11.1 Checking operational readiness

NOTICE



Non-compliance may result in material damage.

- ▶ Only check the operational readiness of the product with suitable pneumatic consumers.

- ▶ Check all mounting screws for the prescribed tightening torque.
- ▶ Check all connections for leaks.
- ▶ Check the operating pressure via the output sensor signal or via a pressure gauge connected between the product and consumer.
- ▶ Check the energy supply.
- ▶ Make sure that all cable connections were mounted corresponding to the pin assignment.
- ▶ Make sure that there is no warning or fault signal.
- ▶ Check whether the LED lights up green and the product is ready for operation.

12 Maintenance

NOTICE

**Material damage resulting from blowing out with compressed air**

Blowing out the product with compressed air can cause malfunctions.

- ▶ Never purge the product with compressed air.

NOTICE

**Material damage caused by unsuitable cleaning materials**

Liquid and solvent-based cleaning agents can cause malfunctions.

- ▶ Do not clean the product with any cleaning agents that are liquid or contain solvents.

INFORMATION



- ▶ Please contact customer service to configure the product for maintenance-free operation.

- ▶ Note that the product could become damaged under the following circumstances:

- Improper use and use that does not comply with the performance data
- Dirty environment
- Moist/wet environment
- Unprotected environment
- Permissible temperature range not observed

Perform a regular visual inspection of the product to check for any damage or contamination.

- ⇒ Dismantling and reassembling the product without authorization may result in complications, as special installation equipment is required in some cases. Zimmer Group GmbH accepts no liability for any resulting malfunctions or damage.

13 Decommissioning/disposal

INFORMATION



When the product reaches the end of its operational phase, it can be completely disassembled and disposed of.

- ▶ Disconnect the product completely from the power supply.
- ▶ Dispose of the components properly according to the material groups.
- ▶ Comply with the locally applicable environmental and disposal regulations.

14 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer Group GmbH



Am Glockenloch 2

77866 Rheinau, Germany



+49 7844 9138 0



info@zimmer-group.com



www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: Unit, electro-pneumatic

Type designation: AEPN

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch

Authorized representative for the
compilation of relevant technical
documents

Rheinau, Germany, 2022-09-06

(Place and date of issuance)

Martin Zimmer
(Legally binding signature)
Managing Partner

15 Declaration of Conformity

In terms of EU Pressure Equipment Directive 2014/68/EC (Annex III, 1., A1)

Name and address of the manufacturer:

Zimmer Group GmbH



Am Glockenloch 2

77866 Rheinau, Germany



+49 7844 9138 0



info@zimmer-group.com



www.zimmer-group.com

We hereby declare that the product described below

Product designation: Unit, electro-pneumatic

Type designation: AEPN

conforms to the requirements of the 2014/68/EC directive in its design and the version we put on the market.

The following harmonized standards have been used:

DIN EN ISO 4414	Pneumatic fluid power - General rules and safety requirements for systems and their components
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A full list of applied standards can be obtained from the manufacturer.

Michael Hemler

Authorized representative for the
compilation of relevant technical
documents

Rheinau, Germany, 2022-09-06

(Place and date of issuance)

Martin Zimmer
(Legally binding signature)
Managing Partner