



PNEUMATEX®



pleno PI

Montage | Betrieb | 0511

Montage | Exploitation | 0511

Assembly | Operation | 0511

Montage | Werking | 0511

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| 06–09 | Assembly | |
| | Installation | |
| | Electrical connection | <ul style="list-style-type: none">• Connect the appliance plug (1.2)• Connect the control lines (optional)• RS 485 see separate instructions |
| | Terminal plan | |
| 10 11 | Start-up | |
| | Requirements | |
| | BrainCube self-explaining | <ul style="list-style-type: none">• Follow the instructions of the BrainCube!• Turn on the BrainCube (1) by inserting the appliance plug (1.2) |
| | Turn on BrainCube | <ul style="list-style-type: none">• Set Welcome - language - date - time• Perform the start-up according to the instructions• Select <i>standby</i> or <i>auto</i> |
| | Welcome-first start-up | |
| 12–14 | Operation | |
| | General | |
| | <i>auto</i> | <ul style="list-style-type: none">• All functions activated keep in <i>auto</i> operation throughout the year |
| | <i>standby</i> | <ul style="list-style-type: none">• Only display activated execution of maintenance work |
| | <i>menu</i> | <ul style="list-style-type: none">• Functions can be selected, checked and modified |
| | <i>check</i> | <ul style="list-style-type: none">• Maintenance and functional check: <i>Recommended annually by Pneumatex customer service</i> |
| | View, acknowledge messages | |
| | Failure messages | <ul style="list-style-type: none">• Use <i>push</i> to include in the message list, eliminate failures |
| | Inspection | <ul style="list-style-type: none">• System separator ST according to the provisions of the country of use |
| | Disassembly | <ul style="list-style-type: none">• Let the system unpressurize it in advance! |
| 14 | Technical specifications | |
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02

de

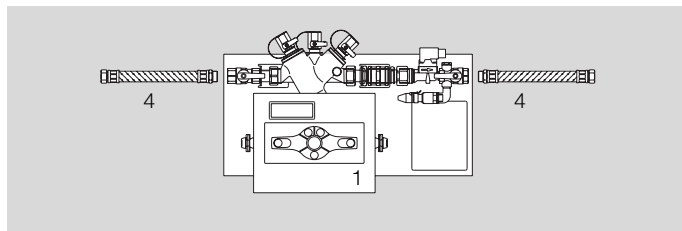
fr

en

nl

Scope of delivery | Function

Scope of delivery



The scope of delivery is described on the delivery note and may include further products apart from Pleno PI. An intermediate storage must be made in a dry, frost-free room.

Funktion Pleno PI is a ready-to-use pressure-maintaining monitoring device as recommended by EN 12828-4.7.4. It ensures that the water header which is necessary for the optimum function of the expansion vessels exists at all times. All operations are controlled and monitored by the BrainCube (1). If the initial pressure is fallen short of, it is automatically made-up. The fillsafe FIQ water make-up monitoring ensures utmost safety:

- Controlled water make-up by means of contact water meter and electronic check of the water make-up quantity, time, and frequency.
- Protection of the drinking water by means of the system separator BA EN 1717.
- Fully-automated, permanently stable pressure maintenance by means of ensuring the water header. Recommended according to EN 12828 as pressure-maintaining monitoring device.
- Uncontrolled water make-up, e.g. due to leakage, is detected and stopped.
- Certified safety according to the rules of the DVGW and SVGW.



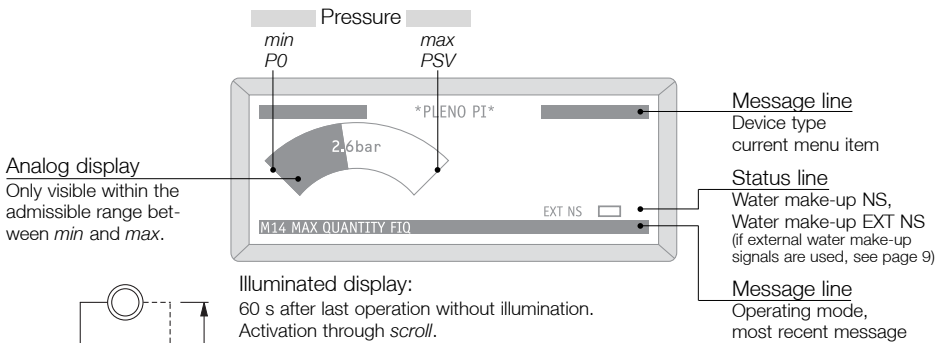
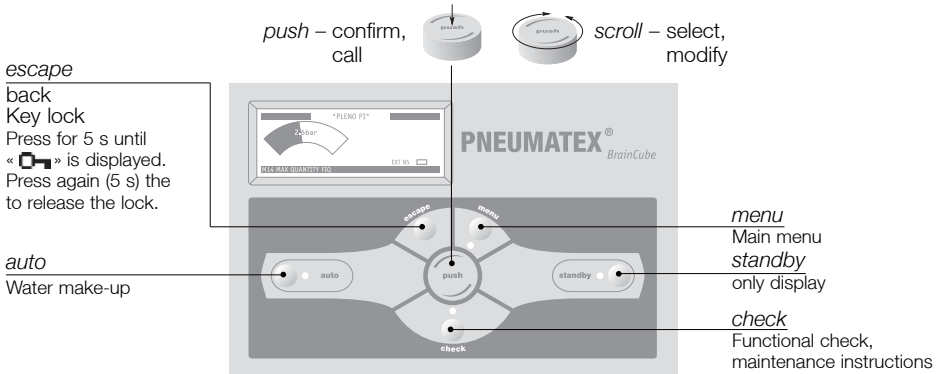
**With respect to the assembly and operation
the general safety instructions
on page 15 are to be observed!**

Operation

BrainCube control

for an intelligent, safe system operation

- Monitoring of all operations, self-optimizing with memory function, self-explaining, operation-oriented menu layout.
- Key lock as protection against unauthorized operation.
- fillsafe water make-up monitoring, check of quantity, time and frequency.

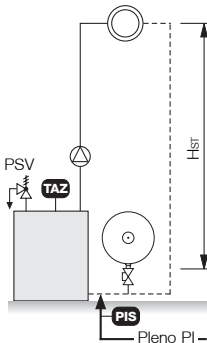


Setting the BrainCube parameters:

- H_{st} Static height
- TAZ Protection temperature at the heat generator
- PSV Safety valve pressure at the heat generator
If the heat generator is placed h (m) lower than the pressure maintenance, the following applies to the BrainCube PSV setting: $PSV - h/10$, if it is placed higher: $PSV + h/10$.

BrainCube display:

- Pressure min $P_0 = H_{st}/10 + p_0$ (TAZ) + 0,3 bar with suction-side integration as shown
- Pressure max PSV



Operation

Applications menu

Main menu

- Start-up ▷
- Check ▷
- Parameter ▷
- Info ▷

see page 10

Start-up

see page 12

Check

manual switching

- Tightness ▷
- Check pumps/valves ▷
- Check outputs ▷
- Water make-up ▷
- View check ▷
- Next check ▷

Info

see page 4
last 20 messages

- Type Pleno PI
- Version V1.01
- Water make-up quant. 10 l
- MinPressure P0 2.00 bar *
- View messages ▷
- View check ▷

Parameter

default: de, en, fr, nl

- Language selection ▷
- Date 12.05.2005
- Time 15:38
- Stat. height HST 15 mWs
- T limiter TAZ <100°C
- Safe.valve PSV 3.0 bar
- Contact water meter
- Statico Primary vessel 200 l
- Output 1 ▷
- Contrast 120

* The pre-pressure at the Statico must set to this minimum operating pressure P0!

Messages

Output 1

- Alarms
- All Messages
- Custom
- Ext.water make-up
- Invers

custom selection
all messages
defined as alarms

Message list

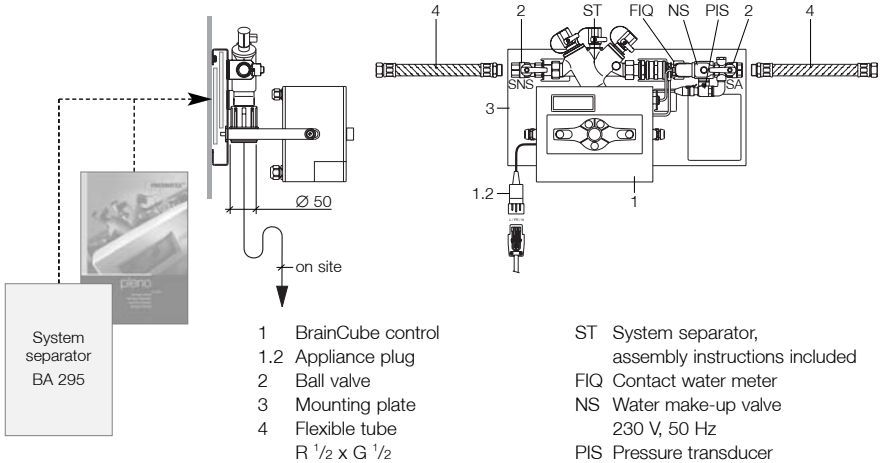
| | | | | | | |
|-----|--------------------|-----|-------------------------------------|-------------------------------------|-------------------------------------|----|
| M01 | Min pressure | PIS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| M02 | Max pressure | PIS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| M07 | Check recommended | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| M11 | Runtime | FIQ | | <input checked="" type="checkbox"/> | | 4) |
| M12 | Leakages | FIQ | | <input checked="" type="checkbox"/> | | 4) |
| M13 | NS leaky | FIQ | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 4) |
| M14 | Max quantity | FIQ | | <input checked="" type="checkbox"/> | | 4) |
| M15 | Water meter | FIQ | | <input checked="" type="checkbox"/> | | 4) |
| M16 | Press. sensor | PIS | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| M21 | Voltage loss | | | <input checked="" type="checkbox"/> | | |
| M22 | Standby | | | <input checked="" type="checkbox"/> | | |
| M27 | internal BrainCube | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 5) |
| ⋮ | Messages | | | | | |

- 1) The default is Output 1 = Alarms
- 2) Control of an external water make-up device
- 3) See terminal plan on pages 8 | 9
- 4) only relevant for «Water make-up active»
- 5) Please inform the Pneumatex customer service immediately in case of messages from M27
- 6) if disabled, M15 and M16 will not be generated

Assembly

Installation

- Pleno PI are fixed horizontally to the wall using the mounting plate (3).
- Screw 2 screws into the wall at the centres of the fastening slots.
- Hang Pleno PI, tighten the screws.
- Connect flexible tubes (4) to SNS and SA.

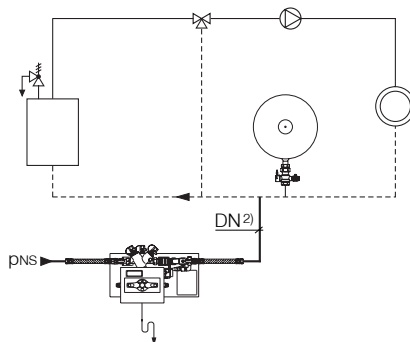


Integration

Directly into the system, preferably on the suction side of the circulation pump in flow direction behind the pressure maintenance. A drain line is to be installed underneath the system separator ST on site.

Pleno PI and Statico

$PNS \geq P_0^1) + 1,5 \text{ bar, max. } 10 \text{ bar}$



1) P_0 = Min. Pressure BrainCube
(*menu - info, page 5*)

2) DN Length
15 $\leq 2 \text{ m}$
20 $\leq 10 \text{ m}$
25 $> 10 \text{ m}$



Assembly

Electrical connection



The electrical connection is to be performed by a specialist according to the applicable local provisions.

The BrainCube is equipped with an appliance plug (1.2). The device is switched on as soon as the plug is inserted. Prior to the works the system must be off-circuit - Disconnect the appliance plug (1.2); turn off potential external voltage on output 1).

! Do not connect the device to the heating emergency switch!

Requirements to the supply network:

- Connection voltage U : 230 V, 50 Hz
- Connection capacity PA : 0,04 kW
- On-site protection : 16 A protected by earth leakage switch, release current 0.03 A
- In case of the deployment in residential buildings we recommend to install commercially available network filters in the branch box.

Connections terminal box 230 V – cover 1

- Floating output 1

Connections terminal box SELV – cover 2

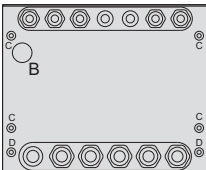
- RS 485 interfaces (only possible after software update; observe separate instructions of use).
- Exchange fuses F200 (10 AT 5 x 20), e.g. in case of a failure of the NS water make-up valve.

Connections on the back wall

B: Use the special adapter to execute the updates for software and languages. Only by the Pneumatex customer service!

Connection network supply through appliance plug (1.2)

- Disconnect the appliance plug (1.2) and screw it off.
- Connect PE, N, L at the labelled terminals and screw up the appliance plug again.
- Only plug in the appliance plug (1.2) again during the start-up.



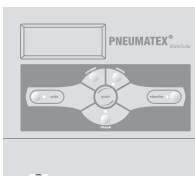
SELV terminal box

Open cover 2:

1. Open cover 1.
2. Unscrew 4 torx screws (C).
3. Carefully pull cover 2 to the front for several cm until the plugs for the display and keyboard flat ribbon cables are accessible.
4. Fold the support for «20 display» and «14 keyboard» to the outside.
5. Carefully pull cover 2 to the front to remove it.

Close cover 2:

Push the cover into the guiding slots of the case and fasten with screws (D).



Terminal box 230V

Open cover 1:

Release 2 torx screws (D), carefully pull the cover to the front to remove it.

Close cover 1:

Cover 2 must be closed. Push cover 1 into the guiding slots of the case and fasten with screws (D).



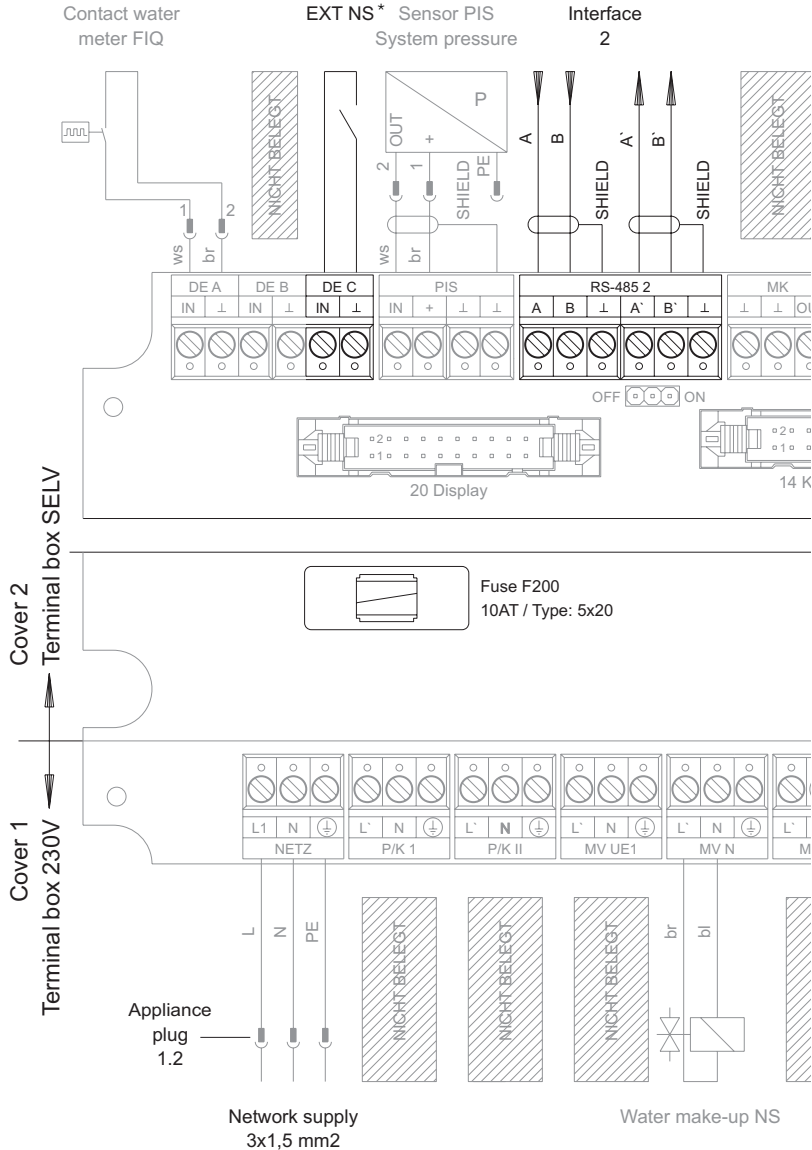
1.2



Assembly

grey connections
= delivery scope
Pneumatex

Terminal plan



08

de

fr

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Start-up

Requirements

We recommend to have the start-up performed by the competent Pneumatex customer service.

Requirements:

- The steps described in the «Assembly» section have been completed.
- The electrical power supply is ensured.
- The connected consumer system is operative and filled with water.

Start-up services by the Pneumatex customer service are to be ordered separately. They are subject to charges according to the prices specified in the country-specific Zoom. The service range corresponds to the descriptions of this chapter.

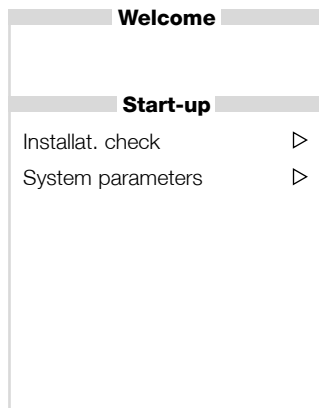
BrainCube self-explaining

All start-up steps and operations are described in the BrainCube. Please follow these instructions. The following notes are only intended as amendments.

Turn on the BrainCube

Connect the appliance plug (1.2). The BrainCube is ready for the start-up. During the initial startup it displays «Welcome» (after 4 min. without action automatic change to *standby* with display function, then through *menu – start-up*).

«Welcome» for initial start-up




- Set language, date, time; Standard languages: de, en, fr, nl, other languages upon request.
- Check the installation.
- Set the desired parameters (see BrainCube pages 4 | 5).
- The BrainCube calculates the minimum pressure P0 of the system and the resulting switching points for Pleno PI. The pre-pressure at the Statico must set to this minimum operating pressure P0!
- The safety valve pickup pressure PSV is checked for plausibility.

Start-up

| Start-up | |
|-----------------|---|
| Water make-up | ▷ <ul style="list-style-type: none">• Select water make-up <i>yes</i> or <i>no</i>. <i>yes</i>: water make-up function active <i>no</i>: water make-up function inactive• Inquiry whether external water make-up signal is to be used. <i>yes</i>: external water make-up signal on DEC (see terminal plan p. 8 9); determines the water make-up switching points <i>no</i>: built-in pressure transducer PIS determines the water make-up switching points• Water make-up function is checked automatically. |
| IBN complete | ▷ <ul style="list-style-type: none">• The system can only take up the operation after all start-up steps have been completed and confirmed. |
| standby or auto | ▷ <ul style="list-style-type: none">• <i>standby</i>: Select if Pleno PI does not take up the operation, but the display function is to be activated.• <i>auto</i>: Select if all requirements for the start-up have been fulfilled and the Pleno PI is to take up the operation. |

Please observe the following after the start of the *auto* operation:

- If desired, activate the key lock  (see page 4).
- After the start of the *auto* operation the water make-up runs up to the calculated pressure ($P_0 + 0,3$ bar).

**The start-up has now been completed.
The Pleno PI works automatically.**

Operation

General

The Pleno PI works in a nearly maintenance-free manner. The operation is controlled and monitored by the BrainCube (see pages 4 | 5). Operating states and deviations from the regular operation are displayed and can be transmitted to the control room through message contacts or the RS 485 interface (only after software update) if required.



In general, a distinction between the *auto* and *standby* operating modes is made. With respect to the workers' protection the Pleno PI is to be considered in operation in both operating modes. Prior to works at the electric components the Pleno PI is to be put out of operation. The appliance plug (1.2) is to be disconnected.

auto

After the successful start-up the Pleno PI remains in the *auto* operation the whole year, whether the connected heating or cooling system is turned on or not. This is required to maintain the pressure maintenance.

In the *auto* operation all functions are performed and monitored automatically.

standby

This operating mode is particularly suited for maintenance work.

The *standby* operation can be set manually. The pressure maintenance and water make-up is out of function, failure messages are neither displayed nor registered.

menu

You can use the main menu to select, check, and modify all functions of the Pleno PI.

check

Under *check* the maintenance instructions are integrated.

We recommend a preventive annual maintenance and functional check. The Pneumatex customer service is ready to render these services for you (at your expense).

In the special *check* menu all required services are listed and described. The direct dialog with the BrainCube provides more details.

In the *check* menu the *auto* operation is deactivated. Messages that occur during functional checks or during the adjustment of pumps and valves are stored in the message list. After the completion of the maintenance work the *auto* operation must be activated again.

With respect to works at the system separator (e.g. cleaning of the built-in dirt filter, functional check) the included instructions BA 295 are to be observed.

12

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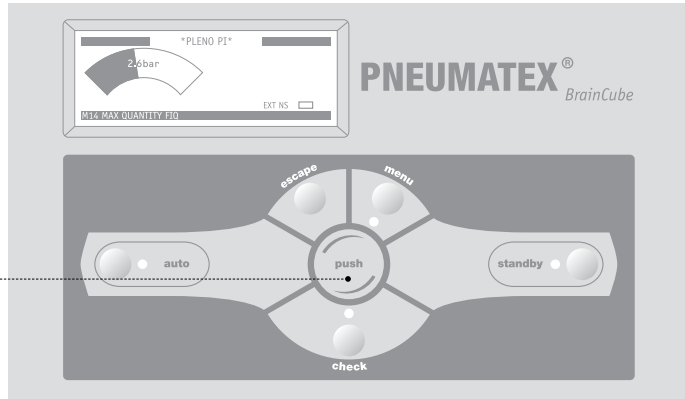
en

nl

! Annual maintenance recommended!

Operation

View, acknowledge messages

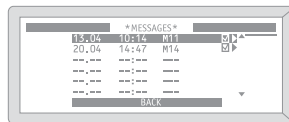


Deviations from the parameters that have been set and calculated by the BrainCube, but also operating notes are displayed in the lower line of the display. If there is a current message use *push* to open the message list.

push



Use *push* to open the message list



The last 20 messages are displayed.
The message list can also be opened through *menu - info*.

scroll



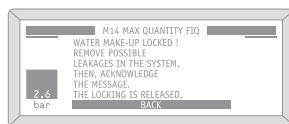
Use *scroll* to select messages.

Use *push* to view the help text and acknowledge with *push* if prompted.

Failure messages

Please observe the terminal plan (pages 8 | 9), in particular with respect to failures M11, M15, M16.

Are all devices connected properly, are the fuses ok?



In case of failures specific functions can be locked. The acknowledgment is made automatically after the failures have been eliminated or you are prompted to acknowledge the message. Eliminate all failures as linkages cannot be excluded.

If you are not able to restore the full functionality please contact the Pneumatex customer service.

Operation

Test

Pleno PI are not subject to a specific test obligation, system separator ST according to the provisions of the country of use.

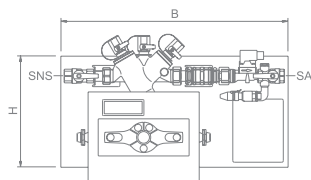
Disassembly

The Pleno PI must be depressurized prior to the inspection or disassembly.

Technical specifications

- | | | |
|--------------------------------|---------------------------|---|
| • PS: | 10 bar | Max. admissible pressure |
| • TS: | 30 °C | Max. admissible temperature |
| • TU: | 40 °C | Max. admissible ambient temperature |
| • SNS: | Rp 1/2 | Water make-up connection |
| • SA: | Rp 1/2 | Output water make-up connection |
| • pns: | P0 + 1,5 bar, max. 10 bar | Flow pressure of the fresh water network (see page 6) |
| • PA: | 0,04 kW | Electrical connection capacity |
| • U/F: | 230 V/50 Hz | Voltage/Frequency |
| • IP: | 54 | Degree of protection acc. to EN 60529 |
| • KVS: | 0,7 m ³ /h | Flow parameter |
| • B x H x T: | 600 x 250 x 280 mm | Width x Height x Depth |
| • G: | 5 kg | Weight |
| • addition of antifreeze agent | up to 50% | |

Artikel-N°: 813 1010



Safety

Application



Pleno PI is a pressure-dependent, automatic water make-up without pump with FIQ contact water meter through system separator ST BA according to EN 1717, for closed heating, solar and cooling water systems. Other applications than the ones described require the agreement with Pneumatex. The declaration of conformity is included and certifies the compliance with the EU Directives. The special provisions at the place of installation of the Pleno PI are to be observed.

Complying with the instructions



The assembly, operation, maintenance, and disassembly must be performed according to these instructions and using state-of-the-art technology. Please contact the Pneumatex customer service in case of uncertainties.

Staff



The assembly and operating staff must provide of the appropriate knowledge and must be instructed.

Place of installation



The access to the place of installation is to be restricted to trained and specialized staff. Connections for electric units, fresh water, and waste water must comply with the device requirements.

Observing the parameters



Please refer to the label for details regarding the manufacturer, year of construction, production number and the technical specifications. It is important that admissible temperatures and pressures are not exceeded.

Electrical connection



The electrical cabling and the connection must be performed by a specialist according to the applicable local provisions. Prior to performing any work on electrical components, it must be ensured that the system is not alive.

The non-compliance with these instructions, in particular the safety instructions, may result in functional impairments, destruction or defects of the Pleno PI and may also pose a risk of injury. In case of the violation of such instruction, any and all claims for warranty and liability are excluded.



Konformität | Conformité | Conformity | Conformiteit

Hersteller: Pneumatex AG, Mühlerainstrasse 26, CH-4414 Füllinsdorf
erklärt hiermit, dass die Produkte

Pleno PI

mit den folgenden EG-Richtlinien, einschliesslich der letzten Änderungen sowie mit den entsprechenden Rechtsakten zur Umsetzung der Richtlinien in nationales Recht übereinstimmen:

73/23/EWG und 89/336/EWG,

und dass folgende harmonisierten Normen zur Anwendung gelangten:

EN 61000-6-2:2001, EN 55022:1998 + A1:2000 + A2:2003,

EN 60335-1:2002.

Constructeur: Pneumatex AG, Mühlerainstrasse 26, CH-4414 Füllinsdorf
déclare par la présente que

Pleno PI

est conforme aux dispositions des directives CE suivantes, y compris les dernières modifications, et à la législation nationale appliquant ces directives:

73/23/CEE et 89/336/CEE,

et que les normes harmonisées suivantes ont été appliquées:

EN 61000-6-2:2001, EN 55022:1998 + A1:2000 + A2:2003,

EN 60335-1:2002.

Manufacturer: Pneumatex AG, Mühlerainstrasse 26, CH-4414 Füllinsdorf
herewith declares that the products

Pleno PI

are in conformity with the provisions of the following EC directives, including the latest amendments, and with national legislation implementing these directives:

73/23/EEC and 89/336/EEC,

and that the following harmonized standards have been applied:

EN 61000-6-2:2001, EN 55022:1998 + A1:2000 + A2:2003,

EN 60335-1:2002.

Fabrikant: Pneumatex AG, Mühlerainstrasse 26, CH-4414 Füllinsdorf
verklaart hiermede dat

Pleno PI

voldoet aan de bepalingen van de volgende EG-richtlijnen, de laatste wijzigingen inbegrepen, en met de nationale wetgeving die deze richtlijnen van toepassing stelt:

73/23/EWG en 89/336/EWG,

en dat de volgende geharmoniseerde normen zijn toegepast:

EN 61000-6-2:2001, EN 55022:1998 + A1:2000 + A2:2003,

EN 60335-1:2002.

Edwin Jost
Quality Manager



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| | | | |
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