

# Pleno Connect



**Pressure control and water make-up system**  
Pressure maintenance monitoring devices

# Pleno Connect

Pressure maintenance monitoring devices in accordance with EN 12828-4.7.4. Models of the Pleno Connect range ensure that the water reserve required for expansion vessels to operate at optimal efficiency is available at all times. If the level drops below the minimum, water is topped up automatically. The «fillsafe» function electronically monitors and controls water make-up and guarantees maximum system safety.



## Technical description

### Application:

Heating, solar and chilled water systems.  
For systems according to EN 12828, EN 12976, ENV 12977, EN 12952, and EN 12953.

### Media:

Entry: potable water  
Outflow(Consumer side): Non-aggressive and non-toxic system media.  
Addition of antifreeze agent up to 50%.

### Pressure:

Min. admissible pressure, PSmin: 0 bar  
Max. admissible pressure, PS: see Articles

### Temperature:

Max. admissible temperature, TS: 65 °C (PX, PIX), 30 °C (PI9, PI9F)  
Min. admissible temperature, TSmin: 0 °C  
Max. admissible ambient temperature, TA: 40 °C

### Supply voltage:

1 x 230 V (± 10 %) / 50 Hz

### Electrical connections:

Pleno PIX, PI9(F):  
Onsite fuses according to power demand and local norms  
4 potential free outputs (NO) for external alarm indication (230V max. 2A)  
1 RS 485 In/Output  
1 Ethernet RJ45 plug socket  
1 USB Hub plug socket

### Enclosure class:

Pleno PX: IP 65  
Pleno PIX: IP 54  
Pleno PI9(F): IP 54

### Material:

Metal components with medium contact: carbon steel, cast iron, stainless steel, brass, and gunmetal.

### Standards:

Pleno PX, PIX, PI9(F):  
Constructed according to LV-D. 2014/35/EU and EMC-D. 2014/30/EU  
Pleno P BA4 R:  
EN1717 (protection class 4)

## Function, Equipment, Features

### Control unit TecBox

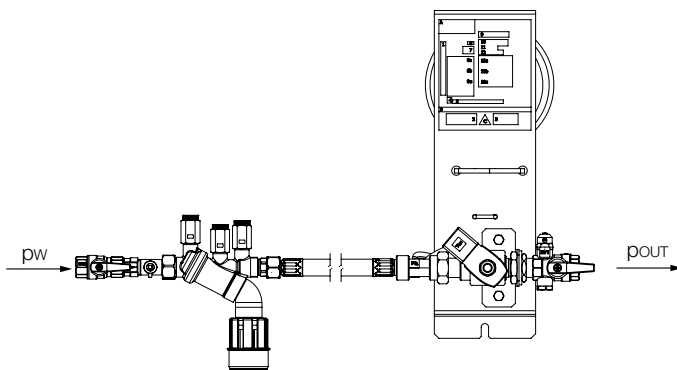
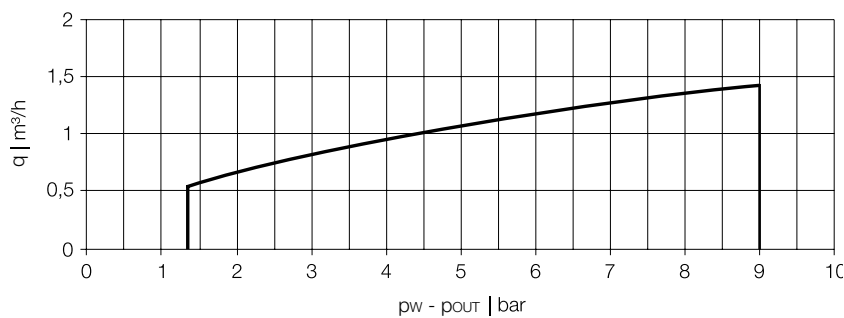
- BrainCube Connect control for an intelligent, fully automatic, safe system operation. Self-optimising with memory function.
- Resistive 3.5" TFT illuminated colour touch display. Web-based interface with remote control and live view. User-friendly, operation-orientated menu layout with slide and tap operation, step-by-step start up procedure guide and direct help in pop-up windows. Representation of all relevant parameters and operation status in plain text and/or graphical, multilingual.
- Standardised integrated connections (Ethernet, RS 485) to the IMI webserver and BMS (Modbus and PNEUMATEX protocol).
- Software updates and data logging via USB connection
- Data logging and system analysis, chronological message memory with prioritisation, remotely controllable with live view.

### Water make-up

- Fillsafe: water-make up monitoring and control with integrated contact water flow meter and solenoid valve.
- PI9: With integrated break tank type AB5 for tap water protection in accordance with EN 1717. Connection for the AB5 break tank can be used alternatively for external fluid tanks.
- PI9F: With integrated break tank type AB5 for tap water protection in accordance with EN 1717.
- PX/PIX: Connection for optional Pleno P BA4R water make-up device for tap water protection in accordance with EN 1717.
- Softsafe monitoring and control for an optional refill water treatment device.

## Diagrams

### Approx. throughput $q$ , Pleno P BA4R + Pleno PX/PIX



### The requirements for $p_w$ must be taken into account for Statico and Compresso:

Pleno PX: Required fresh water pressure Compresso:  $p_w \geq p_0$  (BrainCube) + 1,9 bar,  $p_w \leq 10$  bar

Pleno PX/PIX: Required fresh water pressure Statico:  $p_w \geq p_0$  (BrainCube) + 1,7 bar,  $p_w \leq 10$  bar.

## DNe/DNet standard values for connection pipes for Pleno

Length up to approx. 2 m	<b>DNe</b>	15	<b>DNet</b>	20
Length up to approx. 10 m	<b>DNe</b>	20	<b>DNet</b>	25
Length up to approx. 30 m	<b>DNe</b>	25	<b>DNet</b>	32

DNet: Pipe dimension for the connection of an optional external tank

## Equipment

### Connection pipes

Pleno with installation: see DNe in table DN/DNet  
 Pleno with external tank: see DNet in table DN/DNet

### Pleno Refill

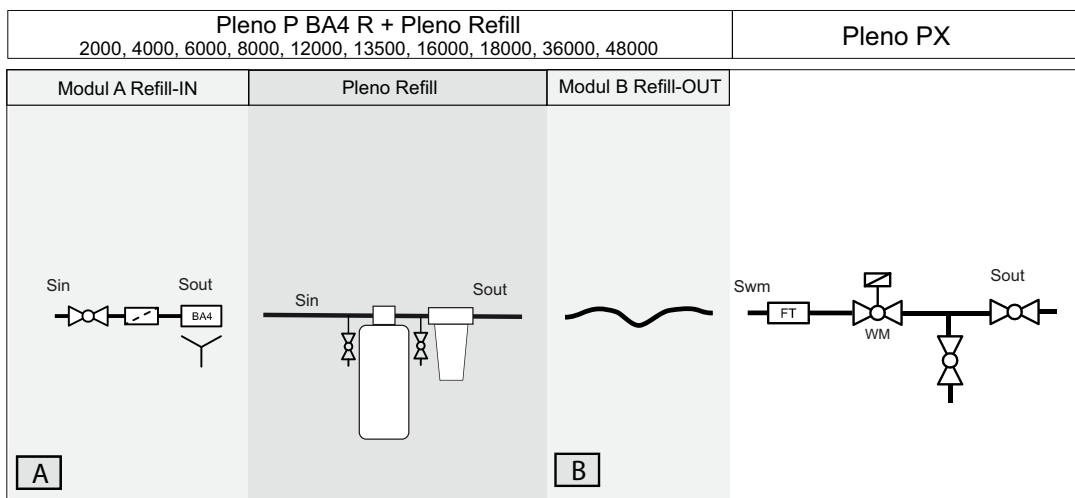
Water softening and demineralization modules in combination with Pleno Connect. Controlled via the BrainCube of the Pleno PI/PIX Connect.

**Further accessories, product and selection details:** Datasheet *Pleno Refill*.

## Principle scheme

### Pleno PX

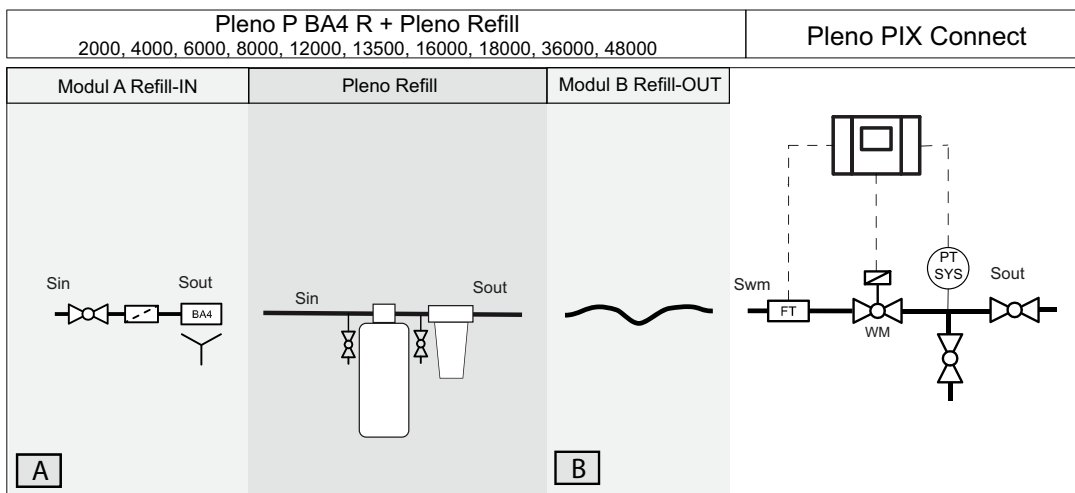
Grey area is optional



Pleno P BA4 R = Modul A + Modul B

### Pleno PIX Connect

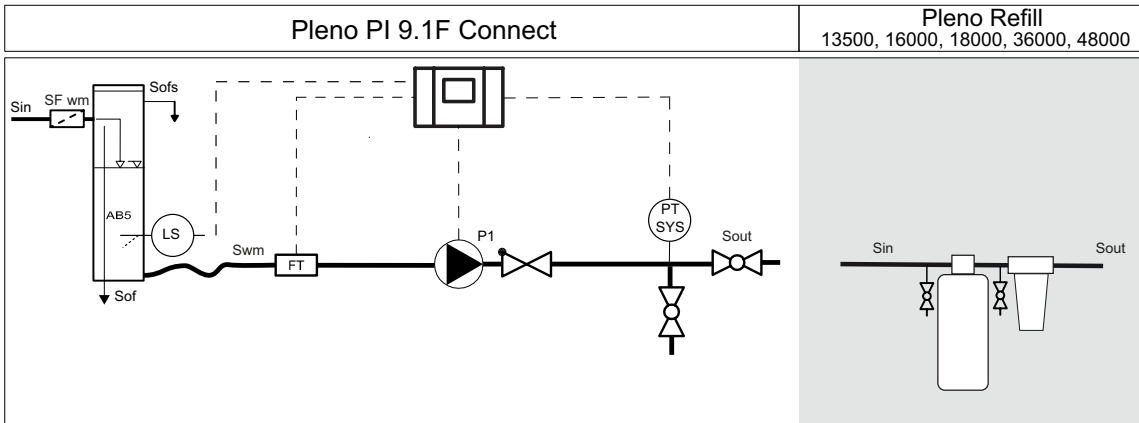
Grey area is optional



Pleno P BA4 R = Modul A + Modul B

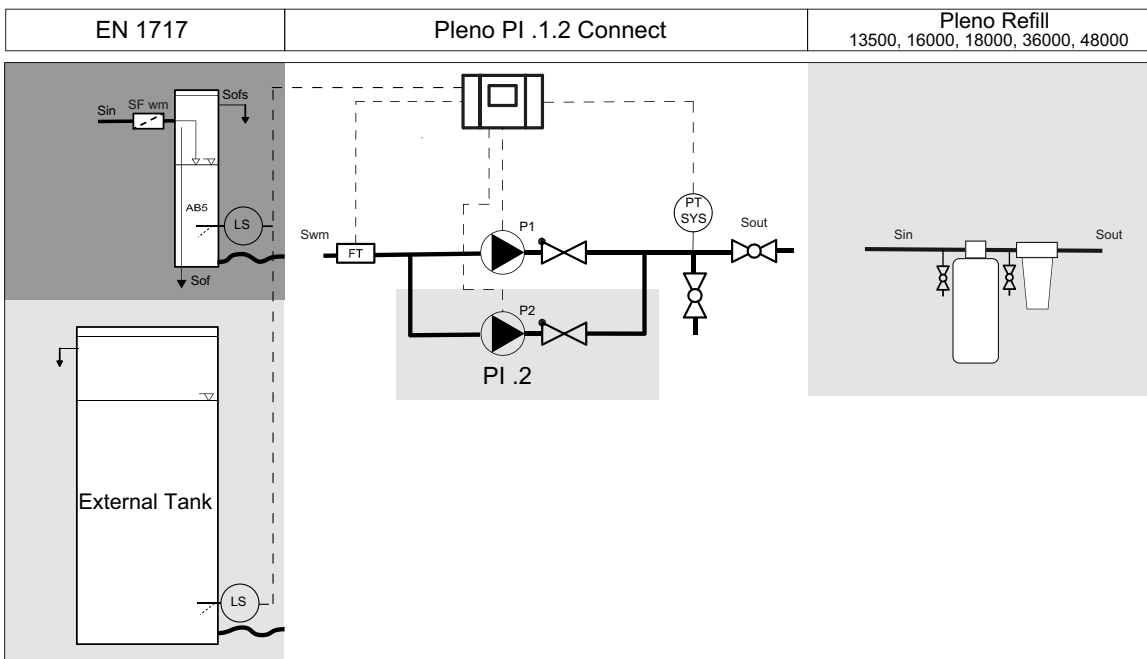
### Pleno PI 9.1 F Connect

Grey area is optional



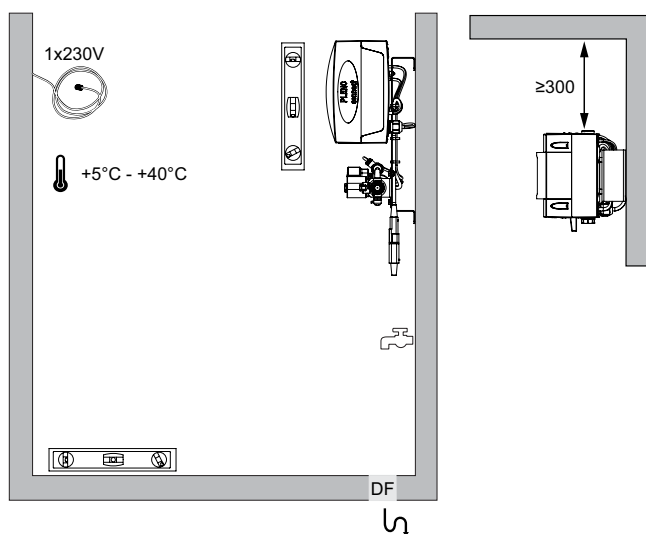
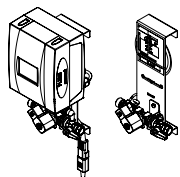
### Pleno PI 9.1/PI 9.2 Connect

Dark grey area is standard, light grey is optional

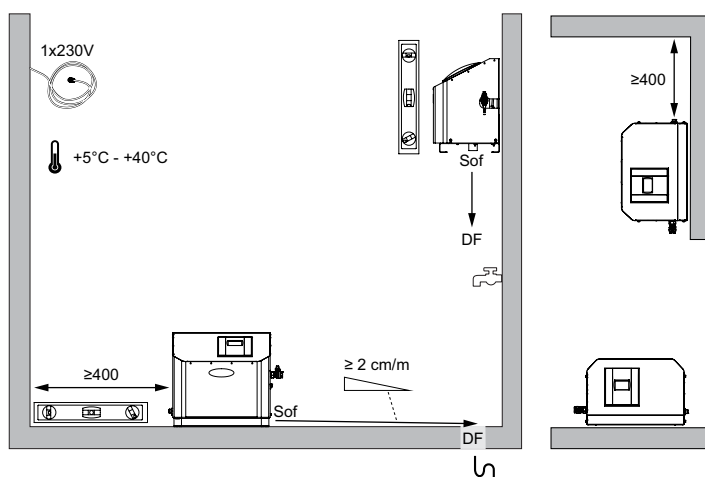
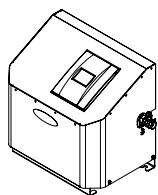


## Installation

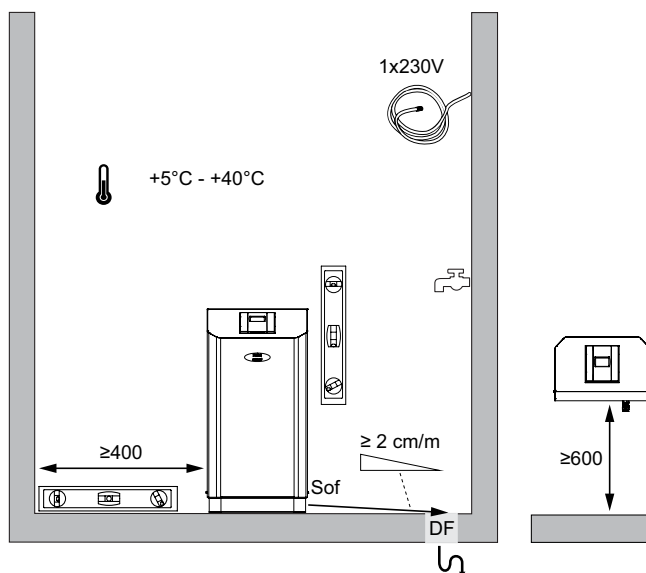
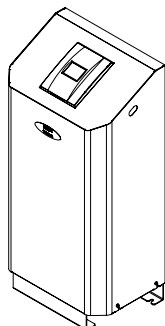
### Pleno PIX / PX



### PI 9.1 F



### PI 9.1 / PI 9.2



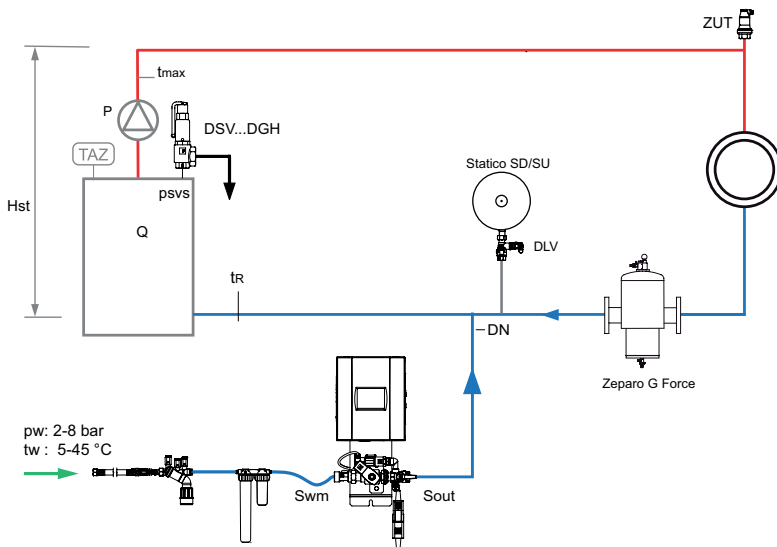
## Application examples

### Pleno PIX Connect with Statico pressurisation

TecBox with 1 solenoid valve, 1 electronic water meter, Pleno P BA4 R for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

#### Example for heating systems

(May require changes to meet local legislation)

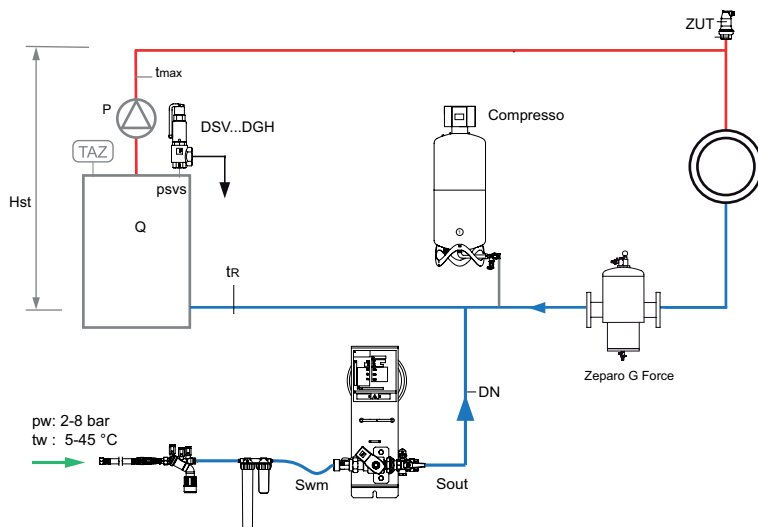


### Pleno PX with Compresso pressurisation

Hydraulic unit with 1 solenoid valve, 1 electronic water meter, Pleno P BA4 R for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

#### Example for heating systems

(May require changes to meet local legislation)



**Zeparo G-Force** for the central separation of sludge.

**Zeparo ZUT** for automatic venting during filling and during draining.

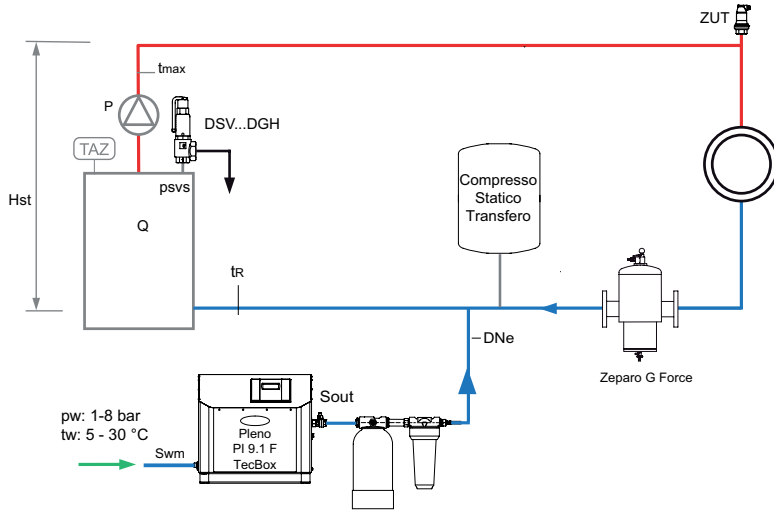
**Further accessories, product and selection details, see:** Datasheet *Pleno*, *Zeparo* and *Accessories*.

**Pleno PI 9.1 F Connect with integrated break tank**

TecBox with 1 pump, 1 electronic water meter, 1 AB5 break tank for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

**Example for heating systems**

(May require changes to meet local legislation)

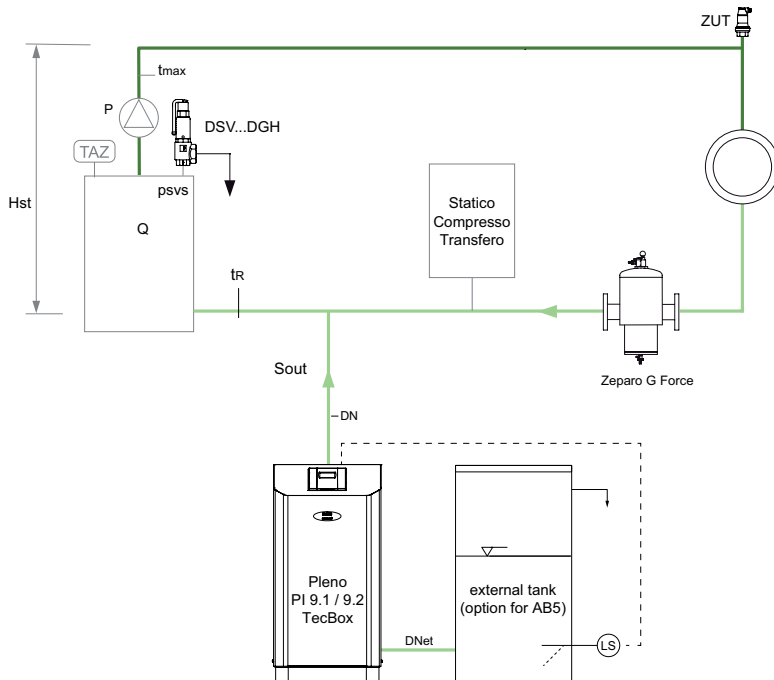


**Pleno PI 9 Connect with external fluid tank**

TecBox with 1 pump (PI9.1) or 2 pumps (PI9.2), 1 electronic water meter, and external fluid tank for antifreeze reserve.

**Example for cooling systems**

(May require changes to meet local legislation)



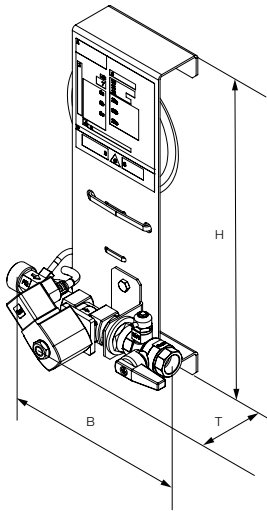
**Zeparo G-Force** for the central separation of sludge.

**Zeparo ZUT** for automatic venting during filling and during draining.

**Further accessories, product and selection details, see:** Datasheet *Pleno*, *Zeparo* and *Accessories*.



## Control unit TecBox, Pleno PX



### Pleno PX

Hydraulic unit. Water make-up without pumps. 1 solenoid valve, 1 electronic water meter, connection for Pleno P BA4 R.

Connection in (Swm): G3/4.

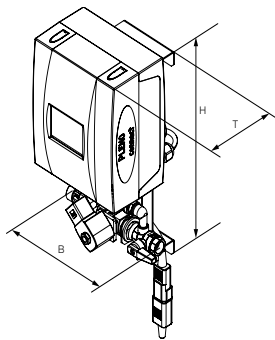
Connection out (Sout): G1/2.

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	Kvs	EAN	Article No
PX	10	198	356	150	1,1	0,02	1,0	7640161641792	30106010011

T = Depth of the device

Pel = Electric load

## Control unit TecBox, Pleno PIX Connect



### Pleno PIX Connect

Control unit TecBox. Water make-up without pumps. 1 solenoid valve, 1 electronic water meter, connection for Pleno P BA4 R, BrainCube control.

Connection in (Swm): G3/4.

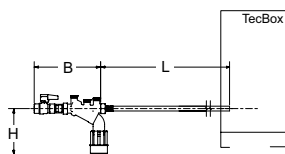
Connection out (Sout): G1/2.

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	Kvs	EAN	Article No
PIX	10	198	392	190	4,3	0,04	1,2	5901688829851	30106020001

T = Depth of the device

Pel = Electric load

## Water make-up protection module



### Pleno P BA4 R

Hydraulic unit for water make up operation with Vento/Transfero Connect. Consists of a shut off valve, check valve, filter and back flow preventer type BA (protection class 4) according to EN 1717.

With connection for Pleno Refill modules.

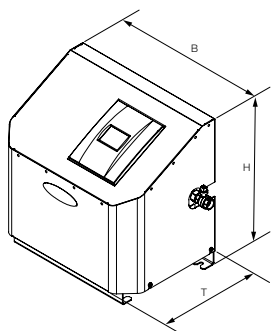
Connection (Swm): G1/2

Type	PS [bar]	B	L	H	m [kg]	qwm [l/h]	EAN	Article No
BA4 R	10	210	1300	135	1,1	350	7640161630147	813 3310

qwm = maximum water make-up volume

T = Depth of the device

## Control unit TecBox, Pleno PI 9 F Connect



### Pleno PI 9.1 F Connect

Control unit TecBox. Water make-up with pumps.  
1 pump, 1 electronic water meter, integrated wall mounting bracket.  
Integrated break tank type AB5.  
Connection in (S<sub>wm</sub>): G1/2  
Connection out (S<sub>out</sub>): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.1 F	10	520	500	350	24	0,75	74	1-8	100-450 *)	5901688829868	30106050002

T = Depth of the device

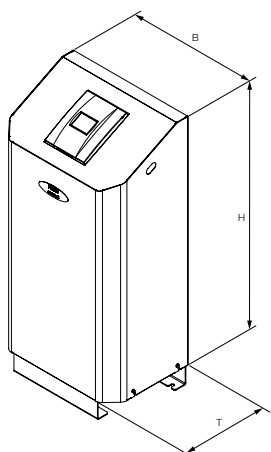
Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

\*) depending on pressure values at S<sub>wm</sub> and S<sub>out</sub>

## Control unit TecBox, Pleno PI 9 Connect



### Pleno PI 9.1 Connect

Control unit TecBox. Water make-up with pumps.  
1 pump, 1 electronic water meter. Floor standing.  
Integrated break tank type AB5.  
Connection in (S<sub>wm</sub>): G1/2  
Connection out (S<sub>out</sub>): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.1	10	520	1056	350	25	0,75	74	1-8	100-450 *)	5901688829875	30106030003

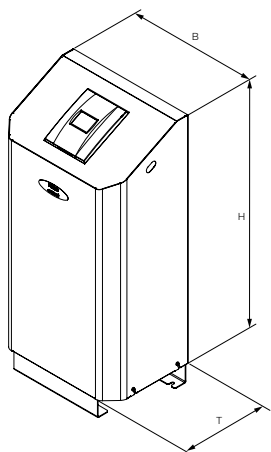
T = Depth of the device

Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

\*) depending on pressure values at S<sub>wm</sub> and S<sub>out</sub>



### Pleno PI 9.2 Connect

Control unit TecBox. Water make-up with pumps.  
2 pumps (one for reserve), 1 electronic water meter. Floor standing.  
Integrated break tank type AB5.  
Connection in (S<sub>wm</sub>): G1/2  
Connection out (S<sub>out</sub>): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.2	10	520	1056	350	33	0,75	74	1-8	100-450 *)	5901688829882	30106040002

T = Depth of the device

Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

\*) depending on pressure values at S<sub>wm</sub> and S<sub>out</sub>

## Pleno Refill 6000, 12000 / Pleno Refill Demin 2000, 4000

### Pleno Refill

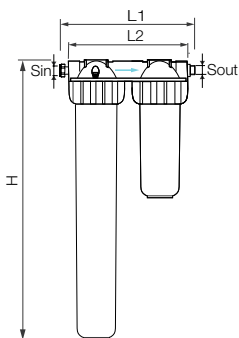
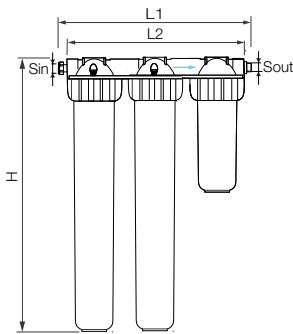
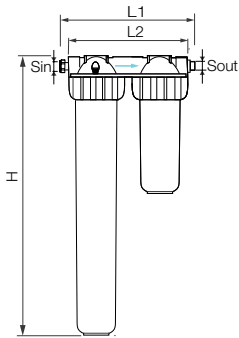
Hydraulic unit for water softening together with Transfero/Vento Connect Tec Boxes. Filter with 25 µm mesh size to protect the hydronic system. Softening bottle filled with high grade resin. Designed for plug&play mounting together with Transfero/Vento Connect.

Units for all applications including Transfero Connect and Vento Connect with the use of a flow throttle that is included with each Transfero/Vento Connect.

### Softening unit with wall mounting bracket and 25 µm filter

3/4" swivelling nut, 1/2" external thread suitable for flat gasket, with flow limiter.

Type	Capacity l x °dH	S <sub>in</sub>	S <sub>out</sub>	H	L1	L2	m [kg]	EAN	Article No
Refill 6000 filter	6000	G3/4	G1/2	571	305	275	4,1	7640153570864	813 3010
Refill 12000 filter	12000	G3/4	G1/2	571	450	420	7,8	7640161631946	813 3011

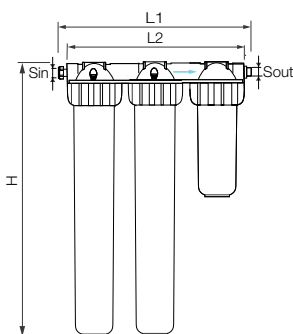


### Demineralisation unit with wall mounting bracket and 25 µm filter

3/4" swivelling nut, 1/2" external thread suitable for flat gasket, with flow limiter.

Type	Capacity l x °dH	S <sub>in</sub>	S <sub>out</sub>	H	L1	L2	m [kg]	EAN	Article No
Refill Demin 2000 filter	2000	G3/4	G1/2	571	305	275	4,1		813 3015
Refill Demin 4000 filter	4000	G3/4	G1/2	571	450	420	7,8		813 3016

→ = Flow direction

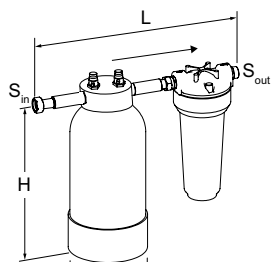


**Pleno Refill 16000, 36000, 48000 / Pleno Refill Demin 13500, 18000**

**Units suitable for all installations including Transfero Connect and Vento Connect**

**Pleno Refill**

Hydraulic unit for water softening together with Vento/Transfero Connect Tec Boxes. Filter with 25 µm mesh size to protect the hydronic system. Softening bottle filled with high-grade resin. Designed for plug&play mounting together with Transfero/Vento Connect.


**Softening unit**

3/4" swivelling nut, 3/4" external thread suitable for flat gasket.

Nominal pressure: PS 8

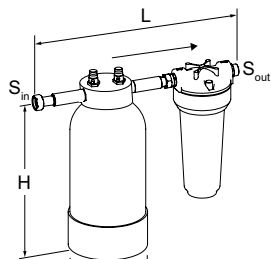
Max. working temperature: 45°C

Min. working temperature: > 4°C

Type	Capacity l x °dH	S <sub>in</sub>	S <sub>out</sub>	D	H	L	m [kg]	EAN	Article No
Refill 16000	16000	G3/4	G3/4	195	383	475	8,6	7640161630475	813 3210
Refill 36000	36000	G3/4	G3/4	220	466	475	12,5	7640161630482	813 3220
Refill 48000	48000	G3/4	G3/4	270	458	475	15,7	7640161630499	813 3230

**Pleno Refill Demin**

Hydraulic unit for water demineralisation together with Vento/Transfero Connect Tec Boxes. Filter with 25 µm mesh size to protect the hydronic system. Desalination bottle filled with high-grade resin.


**Demineralisation unit**

3/4" swivelling nut, 3/4" external thread suitable for flat gasket.

Nominal pressure: PS 8

Max. working temperature: 45°C

Min. working temperature: > 4°C

Type	Capacity l x °dH	S <sub>in</sub>	S <sub>out</sub>	D	H	L	m [kg]	EAN	Article No
Refill Demin 13500	13500	G3/4	G3/4	220	466	475	12,5	7640161630505	813 3260
Refill Demin 18000	18000	G3/4	G3/4	270	458	475	15,7	7640161630512	813 3270

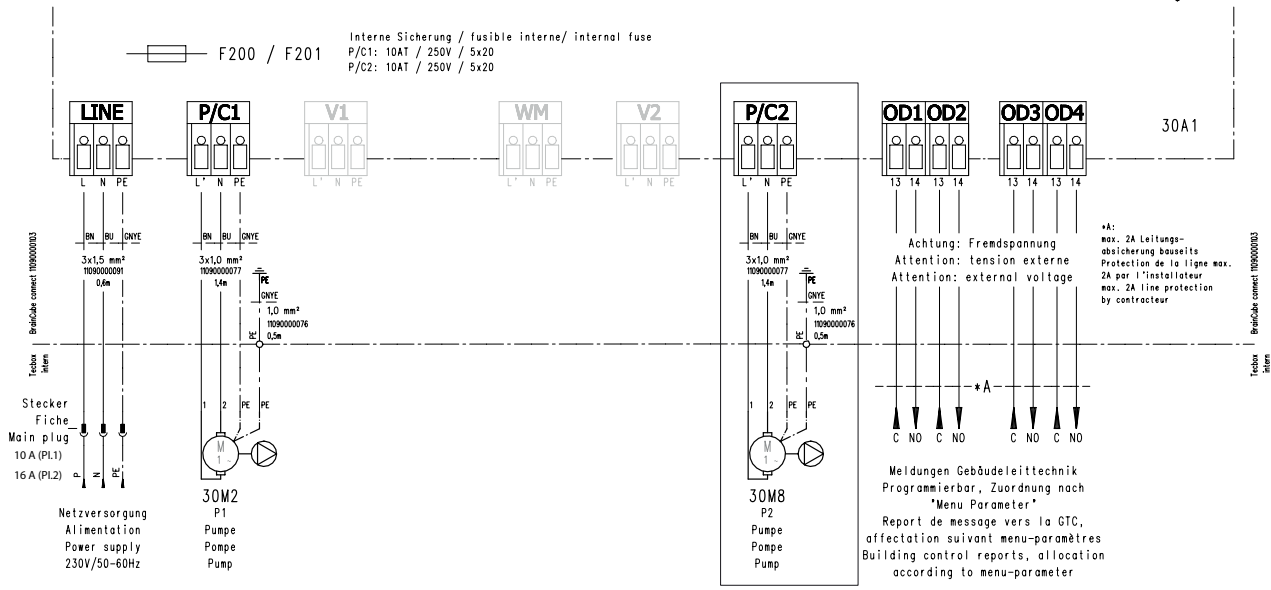
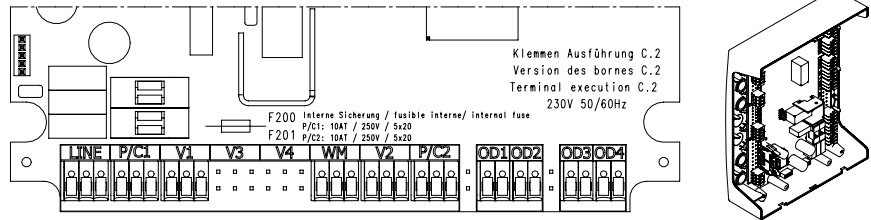
→ = Flow direction

## Wiring diagrams

230 V/ 50/60 Hz

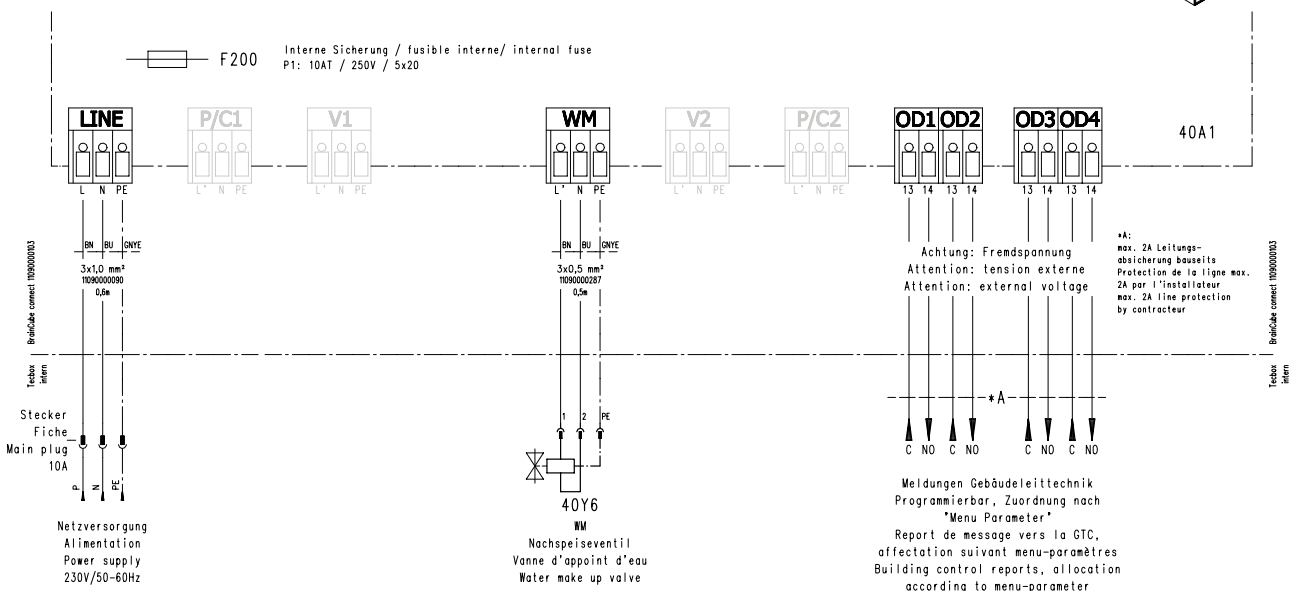
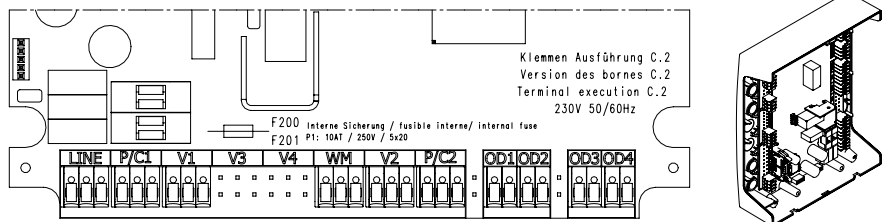
### Power Supply Pleno PI 9.1 (F) / PI 9.2

- P1 : Hauptpumpe / pompe principale / main pump
- P2 : Nebenpumpe / pompe auxiliaire / booster pump
- V1 : Nicht belegt / non utilisé / not used
- WM : Nicht belegt / non utilisé / not used
- V2 : Nicht belegt / non utilisé / not used

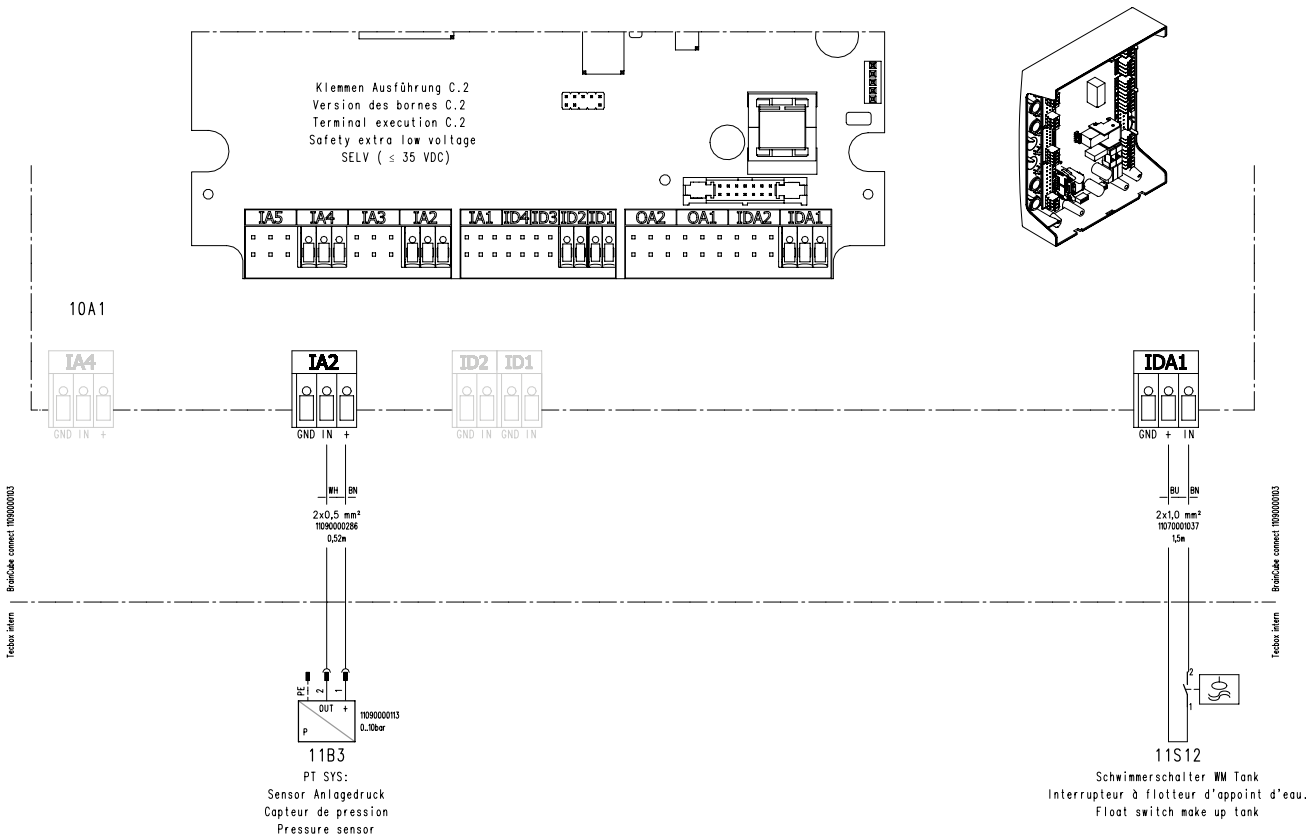


### Power Supply Pleno PIX Connect

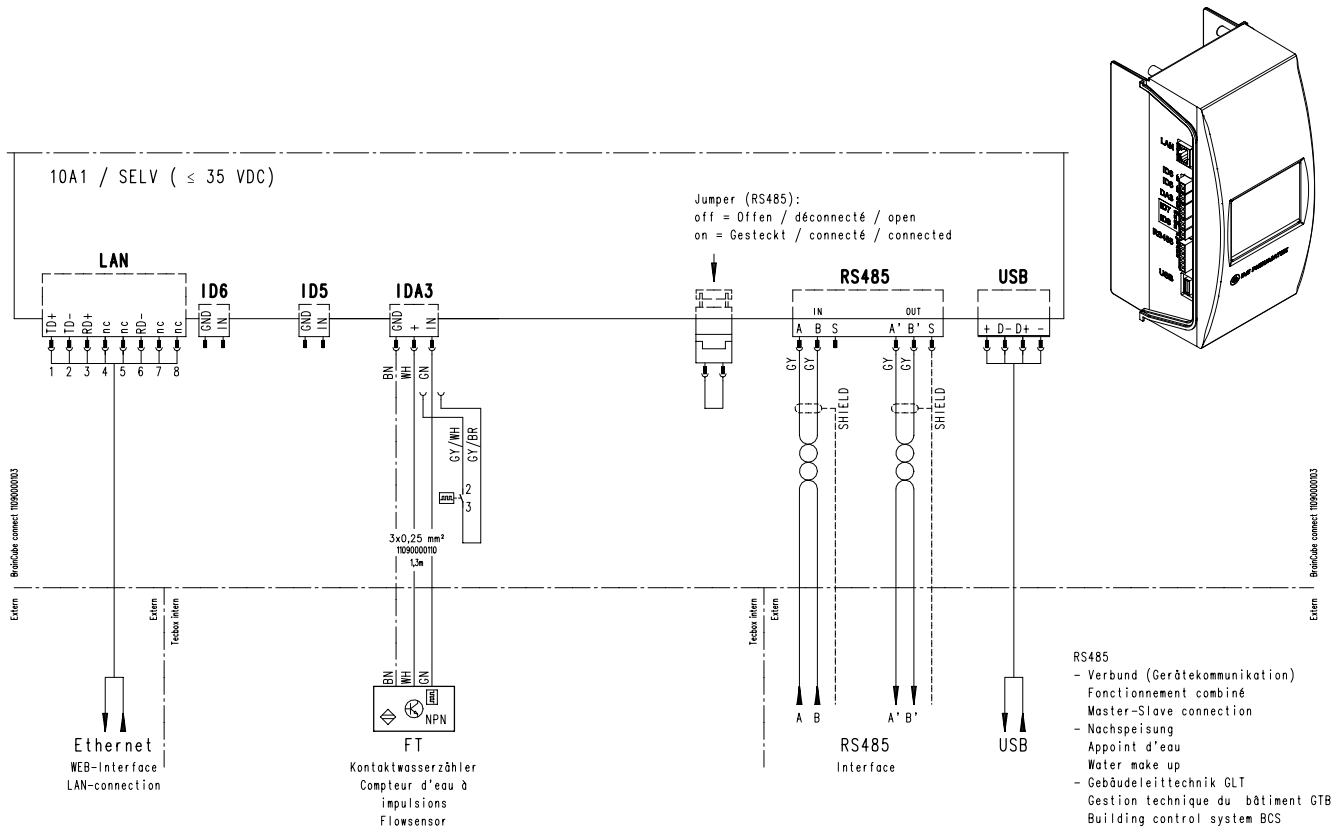
- P1 : Hauptpumpe / pompe principale / main pump
- P2 : Nicht belegt / non utilisé / not used
- V1 : Nicht belegt / non utilisé / not used
- WM : Nicht belegt / non utilisé / not used
- V2 : Nicht belegt / non utilisé / not used



24 V



Safety Extra Low Voltage connections



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