

Installation Instructions



Cascade module / Bus repeater 3200

*Can be used with Lambdatronic
P 3200, H 3200
Version V50.04 B05.01 or higher*

*Read and follow the installation instructions and safety instructions!
Subject to technical change.*

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1 General information

Changing the settings may only be carried out by qualified technicians and only at the service level!

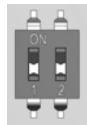
2 Function and parameter setting

2.1 Electrical wiring / plug arrangement



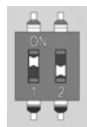
Address selector switch assigns the slave boiler address:

- Address 0 → Slave boiler 1
- Address 1 → Slave boiler 2
- Address 2 → Slave boiler 3



Both switches down

- ☞ Board is used as a cascade module

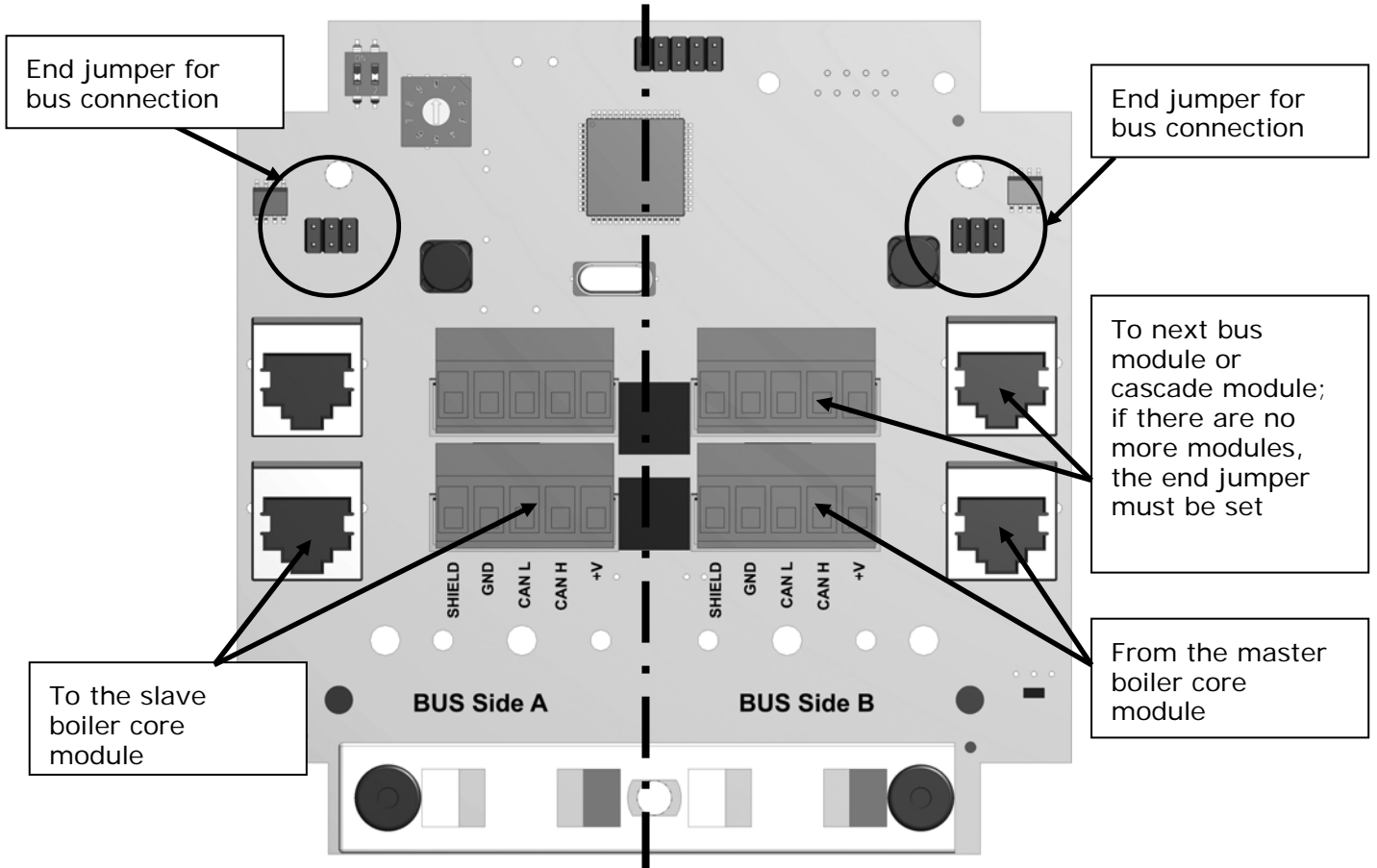


First switch up, second switch down

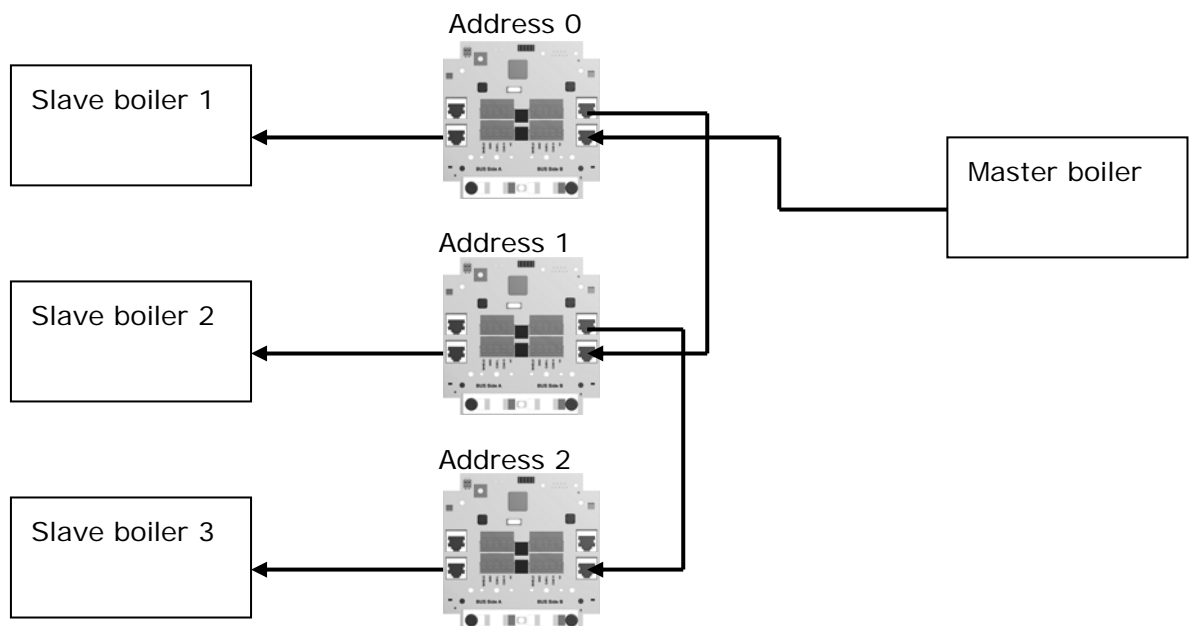
- ☞ Board is used as a bus amplifier
- Only change the switch position when disconnected from the power supply!

Slave boiler connection

Master boiler connection



2.1.1 Bus overview



- ☞ The slave boiler is connected to "Side A" of the cascade module.
- ☞ "Side B" is connected to the master boiler.

➤ Side A / Side B, see page 4

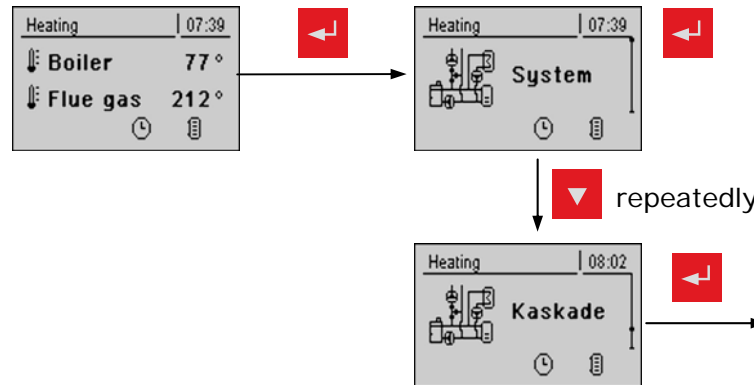
NOTICE

- ☞ The cascade module is to be understood as two separate bus modules; therefore there are also two end jumpers. If the bus cable ends at a module side, set the jumper there!

➤ For the end jumper position on the board, see page 4

2.2 Master boiler function

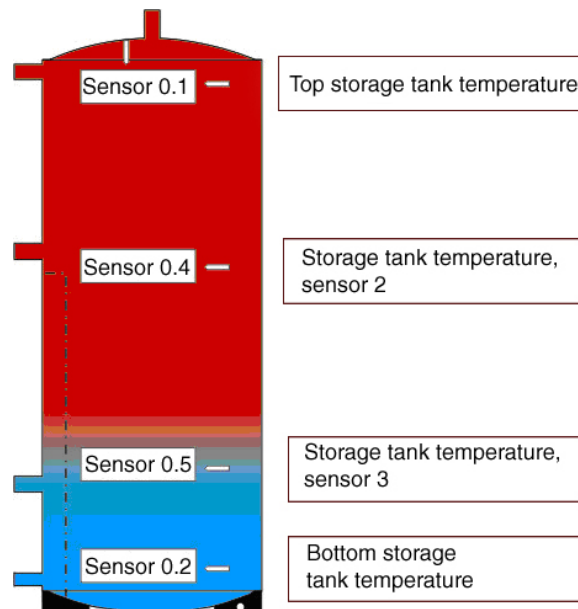
After the hydraulic system has been selected, on the master boiler the parameter "This boiler is the master boiler" must be set to **YES**. This will allow the cascade modules to be recognized and the menu described below will become visible.



2.2.1 Storage tank charge

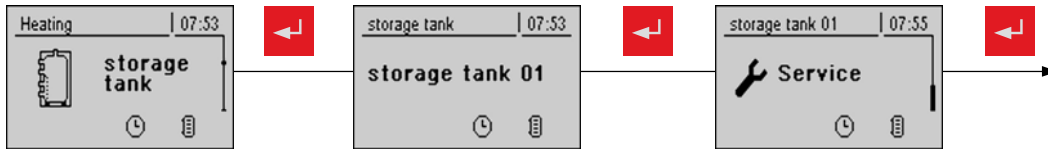
To ensure a correct store charge in the cascade with a storage tank, the storage tank charge is measured and then determined using four sensors.

These sensors must be distributed evenly across the height of the storage tank.



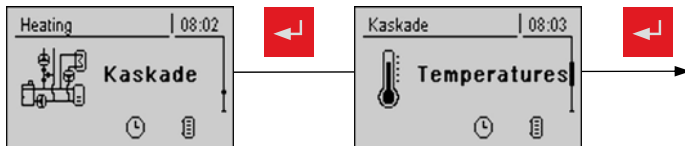
To do this there are four sensor configuration parameters and two parameters that define the storage tank charge.

Assigning sensor configuration parameters



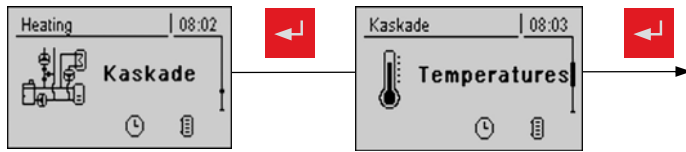
Parameters		Description
Which sensor is used for storage tank top	0.1	Sensor configurations are recommended settings, see page 6, Storage tank charge
Which sensor is used for storage tank, sensor 2	0.4	
Which sensor is used for storage tank, sensor 3	0.5	
Which sensor is used for bottom storage tank	0.2	

Defining storage tank charge



Parameters		Description
Storage tank charge is 100% at the following temperature		Determines the average temperature in the storage tank at which the charge is 100% ☞ Recommended value: 6-8°C below the boiler setpoint
Storage tank charge is 0% at the following temperature		Determines the average temperature in the storage tank at which the charge is 0% ☞ Temperature above which the heating system can no longer be supplied with heat.

2.3 Start points



Start point 1 at storage tank charge

If the storage tank charge is lower than this value, the first boiler is started. This can be the boiler with the highest priority or with the lowest amount of service hours.

☞ It can be either the master or the slave boiler.

If the storage tank charge exceeds this value by 5%, the boiler started at "start point 2" is stopped.

At a storage tank charge of 95% (fixed value), slave boilers 3 and 4 (if present) are stopped.

Start point 2 at storage tank charge

If the storage tank charge is lower than this value, the second boiler is started. If the storage tank charge exceeds this value by 5%, slave boilers 3 and 4 are stopped.

Start point 3 at storage tank charge

If the storage tank charge is lower than this value, slave boilers 3 and 4 are started.

Quick start if storage tank discharge is greater than [% / 10min]

If the storage tank discharge is greater than the set value within 10 minutes, the boiler with the greatest rated heat output will be started (quick start).

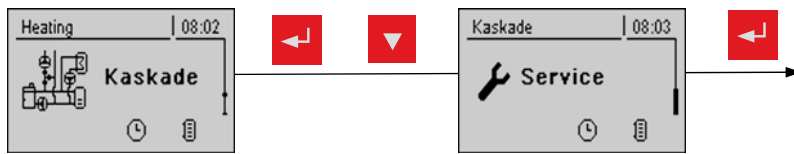
☞ A value of 15% has been proven in practice.

Reducing the overall output of the cascade before the storage tank is loaded

If the storage tank charge exceeds "start point 1", the boiler control variable for the boilers that are still active will be reduced using the boiler loading pump.

☞ A value of 30% - 40% has been proven in practice.

2.4 Boiler priorities



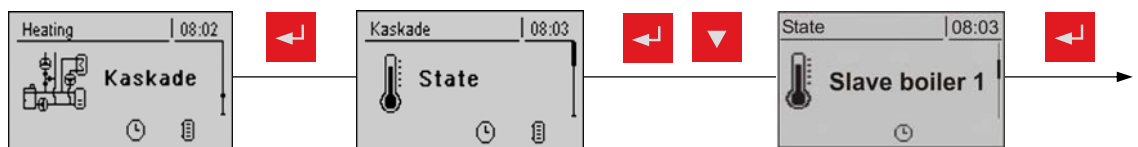
The following parameters are given:

- Start priority of the master boiler (1-4)
- Start priority of slave boiler 1 (1-4)
- Start priority of slave boiler 2 (1-4)
- Start priority of slave boiler 3 (1-4)

These parameters determine the order in which the boilers are started. If the same priorities are assigned (e.g. all boilers have the value 1), the service hours are included in the decision. In this case, the boiler with the least service hours → service hour adjustment is started.

2.5 Other settings / information

- ☞ The top storage tank must be set at 90 °C because the storage tank requirement is calculated using the charge and the storage tank management must be deactivated.
- ☞ Outside of the storage tank loading times for the master boiler, all boilers are stopped and no storage tank loading takes place.
- ☞ If a boiler is switched off or is malfunctioning, by demand, another boiler in the cascade starts.
- ☞ If the release contact is used with a boiler, this boiler switches off and is no longer available to the cascade group. This can be recognized on the master boiler in the menu:



If the value is "0", the boiler has been switched off or has a malfunction or an open release contact.

If this value is "1", the boiler is in "standby" operating status and can be started at any time.

2.6 Slave boiler function

The boiler type is set / configured as explained earlier.

The following parameters must be set:

Parameters	Description
Variable mode activated YES	
Minimum speed of boiler loading pump 35 %	➤ See page 2.7, Summary of recommended settings
Which pump is used for the storage tank	➤ See page 12, Hydraulic systems

This concludes the configuration of the slave boiler; it receives all of the other specifications from the master boiler.

If the master controller fails (e.g. due to power failure, ...), an emergency program is activated on the slave boiler. Now the slave boiler is controlled at a constant boiler setpoint until the master boiler is reactivated.

2.6.1 Hydraulic components that can be used on the slave boiler

- Heating circuit 1 and 2
 - ☞ The master boiler takes over external temperature and heating circuit release
- Circulation pump
- Difference controller
 - ☞ Only the pump outputs and the sensor inputs of the slave boiler can be used

Storage tank and boiler must be controlled from the master boiler. All of the system extensions must be connected to the master boiler using bus modules.

It is recommended that the console also be connected to the master boiler because the majority of settings are done on this boiler.

When an RBG 3200 console requires access to a heating circuit from the slave boiler, it must be connected to the slave boiler.

2.7 Summary of recommended settings

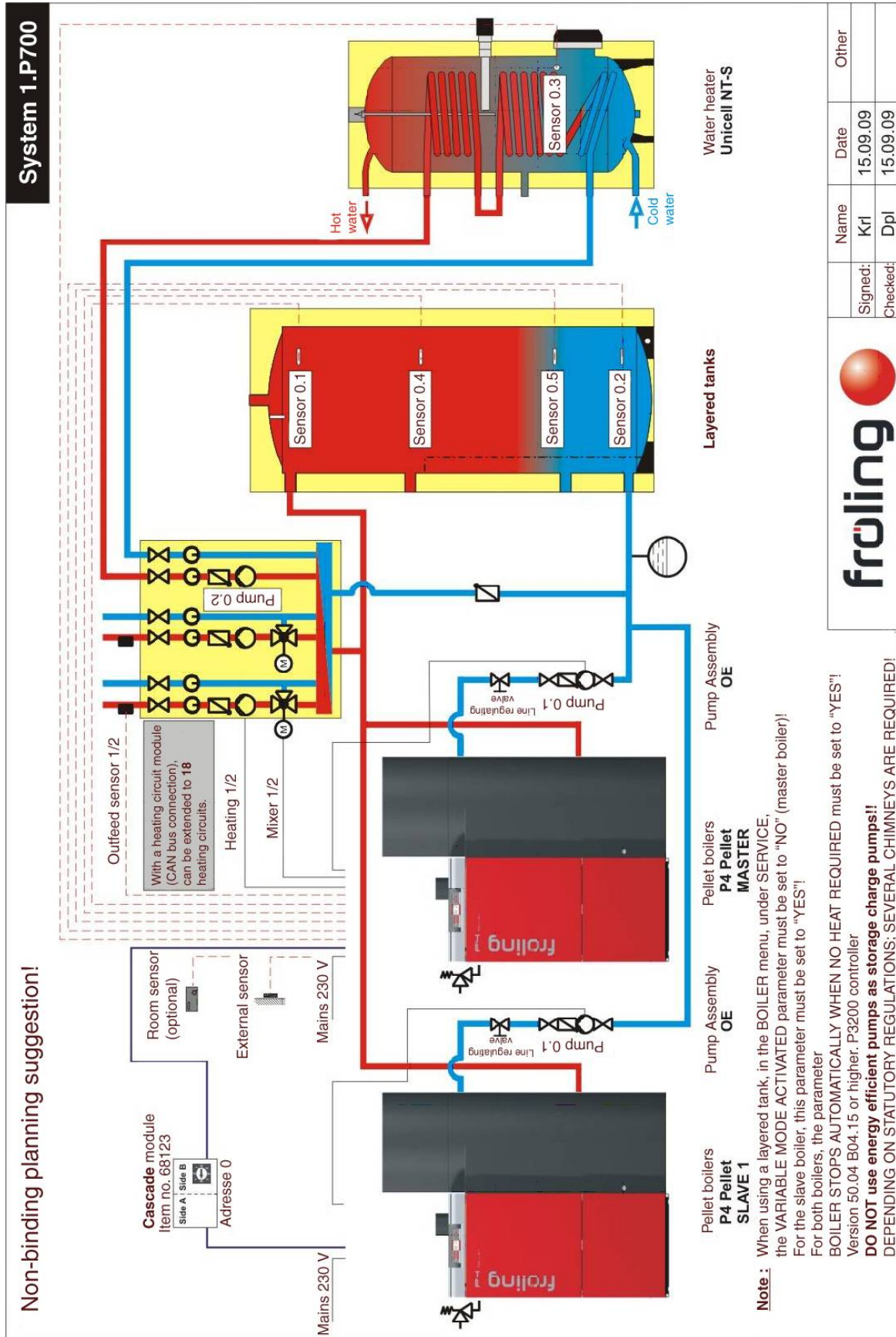
2.7.1 Master boiler

Hydraulic system	System 1.2 / Variants 2,3,5
Boiler off when no heat required	YES
In a cascade, this boiler is master	YES
Storage tank 01 → Temperatures →	
Top storage tank, minimum temperature startup point (in the cascade, this is the maximum storage tank temperature)	90 °C
Storage tank 01 → Service →	
Which sensor is used for storage tank top	Sensor 0.1
Which sensor is used for storage tank, sensor 2	Sensor 0.4
Which sensor is used for storage tank, sensor 3	Sensor 0.5
Which sensor is used for bottom storage tank	Sensor 0.2
Cascade → Temperatures →	
Storage tank charge is 100% at the following temperature	68 °C (6-7°C below the boiler setpoint)
Storage tank charge is 0% at the following temperature	40 to 45 °C
Start point 1 at storage tank charge	75 %
Start point 2 at storage tank charge	55 %
Start point 3 at storage tank charge	40 %
Quick start if storage tank discharge is greater than	15 %
Reduce the overall output of the cascade before the storage tank is fully loaded	30 %
Cascade → Service →	
Start priority of the master boiler	1
Start priority of slave boiler 1	2
Start priority of slave boiler 2	3
Start priority of slave boiler 3	4
If they have the same priority, the service hours apply	
Mode	Transition operation

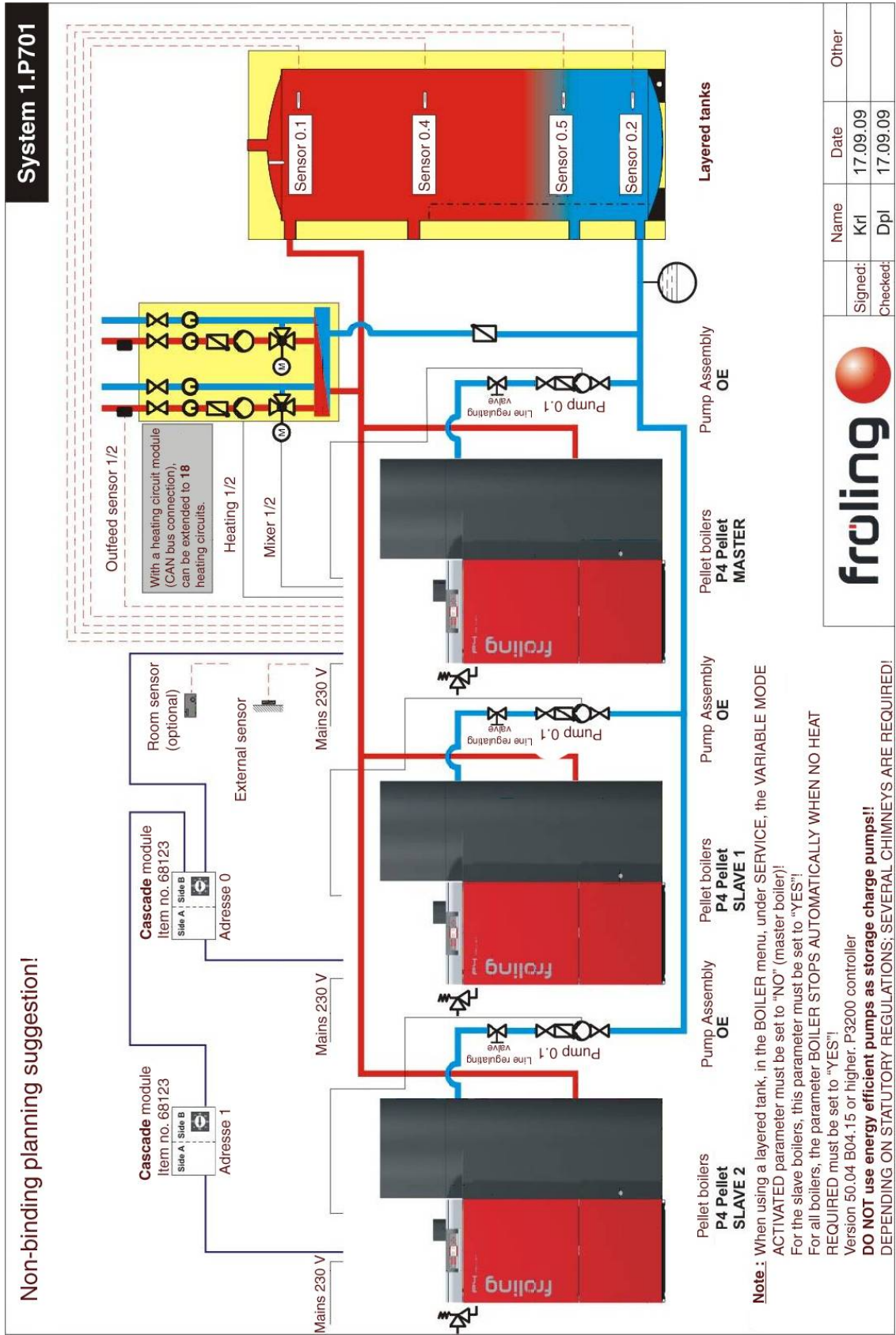
2.7.2 Slave boiler

Hydraulic system	Slave boiler for boiler sequence control
Boiler off when no heat required	YES
Boiler → Service →	
Variable mode activated (P4)	YES
Minimum speed of boiler loading pump	35 %
Which pump is used for the storage tank	Pump 0,1
Mode	Winter mode

2.8 Hydraulic systems



		Signed:	Name	Date	Other
		Checked:	Krl	15.09.09	
			Dpl	15.09.09	



Your Notes