Manual Installation Instructions Maintenance and Warranty

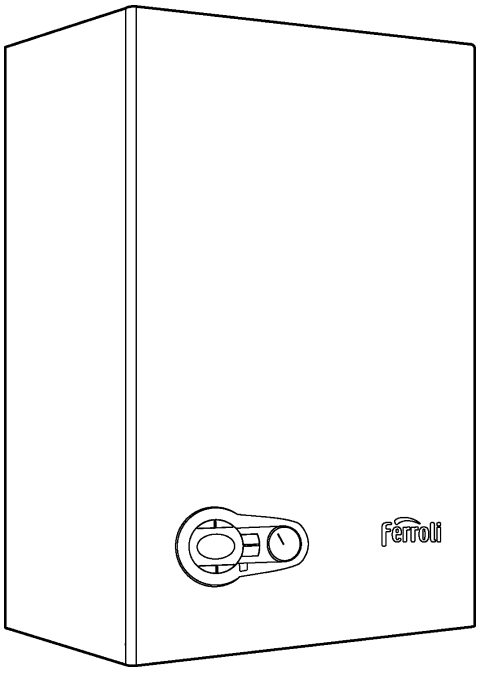
For warranty registration www.ferroli.nl See also the back cover

high efficiency boiler

Sense Sense 4

Blue 3 Blue 5

Blue Sense



Ferroli

Ferroli Netherlands BV
PO Box 3364, 4800 DJ Breda
Konijnenberg 24, 4825 BD Breda
Internet: www.ferroli.nl email:
info@ferroli.nl

General Phone 076-5725725

(Interference report to your installer)

This device meets the strict European directives for safety and energy efficiency. The CE mark indicates.

The room thermostat connection complies with the OpenTherm communication protocol.

Dear Sir / Madam,

The HR unit for heating and hot water will give you besides a great comfort low power consumption, good for you and the environment. This user's manual gives you different advice and guidance to deal properly with your heating system. We therefore advise you to read it carefully and keep it. Contribute move the guide while on the new user of the device.

Warranty and Registration

We ask you, within 30 days from the date of installation, the warranty on registering your device over the internet. This is easy via our website www.ferroli.nl.

installation

The appliance must be installed by a qualified installer, commissioned and maintained to be.

Maintenance

This unit needs servicing at least once every two years. Please contact your installer or service.

The maintenance and any repairs must be performed by qualified installation or maintenance companies (referred to in this document: installer).

Regularly and properly executed maintenance can prevent intermediate tijdse disorders and central heating remains in safe condition.

Dear Installer,

The second part of this manual is an installation guide, which also includes a failure analysis and explanation of the device. Mounting Guide provides a handy help installing the unit.

Considerations before assembly

You will be notified in this chapter important things you should know before installing.

Assembly instruction

This instruction shows how the device installed and commissioned.

Maintenance, service and faults

Refer to this chapter for maintenance and malfunctions.

Operation and technical data

This chapter provides a brief explanation of the device.

You will also find the technical data and the electrical wiring diagram.

Liability

Ferroli Netherlands BV can not be held liable for personal injury and / or property damage caused by non-observance of this manual.

failures

For the meaning of error codes, see pp. 32 and 33.

Maintenance

For necessary maintenance, p. 29 t / m 30 and 40.

Guarantee

For warranty conditions, see p. 42.

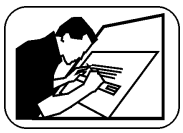
Important data and log warranty

See the back cover.

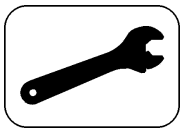
Name and telephone installer or service:

Document Number: DRS9099	Version: 4	Date: January 2012

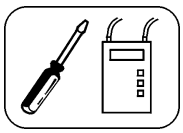
User content



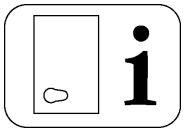
Contains installation instructions



Assembly instruction



Maintenance, service and faults



Operation and technical data

User manual

1. GENERAL

1.1 Introduction

The Blue Sense devices its modern modulating condensing combi aircraft, which provide both hot water and heat for the heating system.

The BlueSense 3 satisfies Gaskeur CW3, CW4 of the BlueSense to Gaskeur and the BlueSense 5 to CW5. The CW-Class has the following meaning:

- CW3: a CW-tapdebiet of at least 6 L / min. 60 o C, a shower function, from 3.6 up to at least 6 L / min. 60 o C (this corresponds to 6 to 10 l / min. At 40 o C), filling a bath with 100 liters of water at 40 o C on average, within 12 minutes.
- CW4: a CW-tapdebiet of at least 7.5 l / min. 60 o C, a shower function, from 3.6 to at least 7.5 l / min. 60 o C (this corresponds to 6 to 12.5 l / min. At 40 o C), filling a bath with 120 liters of water at 40 o C on average, within 11 minutes.
- CW5: a CW-tapdebiet of at least 7.5 l / min. 60 o C, a shower function, from 3.6 to at least 7.5 l / min. 60 o C (this corresponds to 6 to 12.5 l / min. At 40 o C), filling a bath with 150 liters of water at 40 o C on average, within 10 minutes.

In the event of a significant difference between the devices, it is in this manual indicated by stating the type in which the information applies.

The unit is equipped with the most modern technologies, which ensure that both the gas and electricity as low as possible.

In a heat ignites the unit automatically and, depending on the required amount of heat, the unit performs its power on or reduce it right. In a simultaneous heat demand of the heating system and hot water supply hot water priority.

1. measurement flue
2. flue pipe
3. air supply pipe (left-hand connection is also possible)
4. air inlet measuring point
5. A central heating flow pipe
6. hot water
7. A gas line
8. A cold water pipe
9. A central heating return line
10. A condensate drain hose
11. A dirt trap siphon
12. The display and control buttons
13. A pressure gauge central heating installation

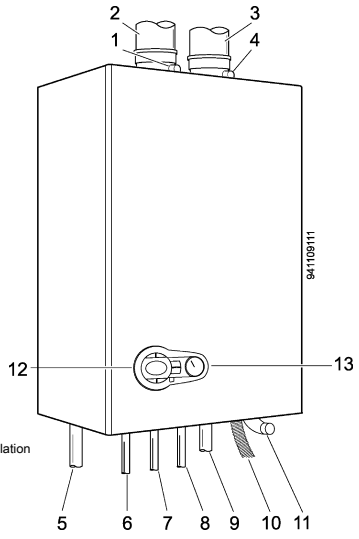


Figure 1.1
device Overview

Explanation of Symbols

Warning
Risk of electric current.

Warning
indicated in the text following this symbol which warned.

Advice / tips / important information
advice or tips are given in the text following this symbol.

1.2 For your safety, please note!

Device malfunction? Do the following:
If after resetting an alarm code (A) the fault is repeated, notify your installer. If Error Codes (F) occur regularly: warn your installer or service.

Do you smell fumes? Do the following:
- Disconnect the boiler from the mains.
- Open windows and doors as wide open as possible.
- Warn all occupants of the house and go out together.
- Call (outside the home) installer, maintenance or energy.

Maintenance of the unit
The device requires maintenance at least once every two years. Please contact your installer or service. On the device, the gas, the flue and air supply pipe no changes should be made.

Do you smell a gas odor? Do the following:
- Do not use flame or sparks and do not smoke.
- Do not use electrical switches.
- Close the main gas valve (usually in the meter cupboard) and the crane under the phone, see p. 5.
- Open windows and doors as wide open as possible.
- Call (outside the home) installer, maintenance or energy.

230V electric voltage (see also p. 14)
Components in this product are under a voltage of 230V. You should never remove the casing of the boiler without first making the appliance from the mains!

hot water
The domestic hot water temperature is about 60 o C and can sometimes be higher.

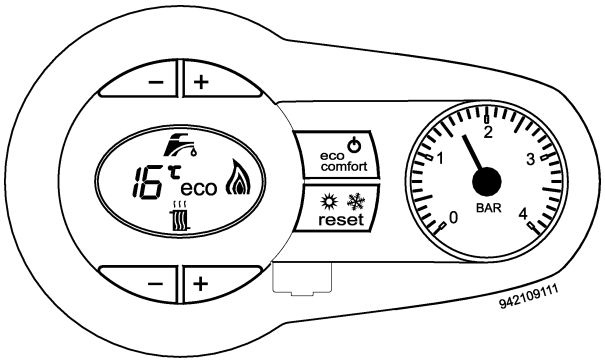
Hot pipes and tubes,
The pipes and radiators can ca. 95 o be C. The flue gas is in operation about 90 o be C. Make sure the pipe connections are always mounted.

Boiler room of the boiler
Make sure the installation area is well ventilated. The ventilation holes must not be made smaller. Flammable materials or liquids should not be stored near the appliance or used. Paper or other material must not rest on or against heaters. The boiler should be around freely! To prevent equipment damage, pollution of the air supply to prevent halocarbons or very dusty. The socket with the power unit must be easily accessible.

Measuring points on top gear
Remove the caps of the measuring points **not!** (No. 1 and 4 in Figure 1.1) There **should** caps on both points!

2. OPERATION

Control panel overview



Explanation controls

Upper adjustment buttons:
Hot water temperature setting, see p. 6.

Lower adjustment buttons:
Setting maximum heating flow temperature, see p. 6.

Economy / comfort button (briefly) See additional explanations on pages 6 and 7.

This button has two functions:
1) Reset key (short press)
2) Menu button for the installer. The symbols and have no meaning.

Pressure gauge:
Indicates the water pressure in the central heating system (+/- 10%). The pressure must be at least 1 bar and must not exceed 2.8 bar.

See p. 9 for refilling and emptying instruction.

Explanation display information during normal operation

Water pressure in the central heating installation (16 bar = 1.6):
During resting position, the pressure will be displayed in the central heating system (+/- 10%) on the display.

Hot water symbol:
When using hot water or heating for comfort mode, you see flashing water drops.

Heating heating symbol:
In heating mode, you will see flashing heat rays.

Flame Symbol:
This symbol is visible when the burner is operating. The bigger flame, the more lights the burner.

Indication comfort / economy for hot water
Comfort: (**eco** **is not visible in the display) the device is** held at temperature for fast delivery of hot water.

Economy: (**eco** **is visible in the display), the unit is not kept** on temperature and it may take longer for you hot water.

temperatures:
If the device is functioning normally and is not in wait, see you at CV-heating the central heating flow temperature and an indication of the water temperature for DHW heating.

Waiting time for burner operation
If " d1 ' " d2 " or " d3 "Can be seen, the unit is in a wait for burner operation. This can take up to four minutes.

3. IN AND OUT OF OPERATION OF THE UNIT

commissioning

1. Open the gas tap.
2. Check the pressure in the heating system is more than 1 bar.

3. Insert the plug in the socket.
3. After a few seconds, FH becomes visible in the display. The unit begins its startup and ontluchtpro- program, which takes about 5 minutes.

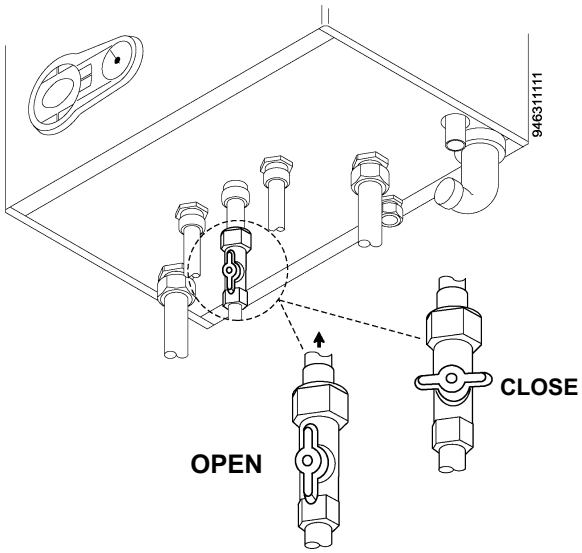
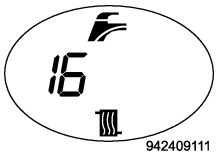
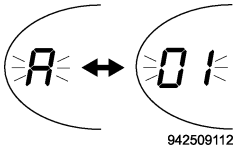


Figure 3.1 The most common situation. Type gas valve and distance relative to gear may differ.



After the launcher you see at rest the pressure in the central heating system (eg. 16 = 1.6 bar). The device is ready for use. Often the unit now start to warm for comfort mode. If flashes a certain code (A or F), or if nothing appears on the display, something is wrong.



Look at page 7 (faults) or you can do something here.

Decommissioning

1. Make sure the burner is not on. Set the room thermostat to a low setting, do not use hot water and wait 30 seconds.

2. Remove the plug from the socket.
3. Close the gas valve (see the drawing above, 3.1).

If you want to take the unit out of operation or when going on holiday, read the advice on p. 8.

4. SETTINGS

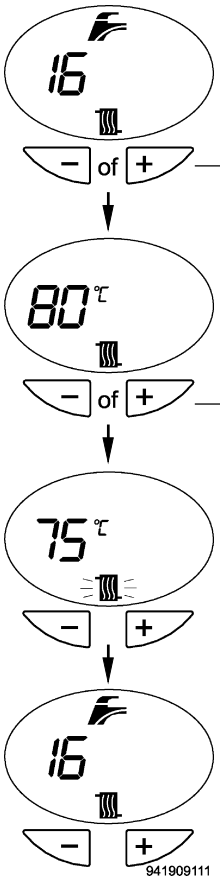
Setting maximum heating flow temperature

The maximum heating flow temperature can be set. This maximum temperature can be changed depending on the required heat and the heating system. At a setting of 80, the heating flow temperature may be 85 o C., which is a good setting for nearly all homes.

Advice for other institutions:

- At low temperature heater 50 is, for example, a good attitude. If your installer has set such a low temperature, do not increase it. There may be a sticker on the casing of your device, where the adjusted data indicate stand.

Changing the maximum heating flow temperature



Follow the instructions for adjusting the maximum heating flow temperature.

or .

time

You should see a few seconds, the set value on the display (eg 80).

set value, for example to 75. Press 1

By (repeated) to the or Pressing button, raise or lower the

Please note that for an adjustment of the 75 central heating flow temperature may be 80 ° C.

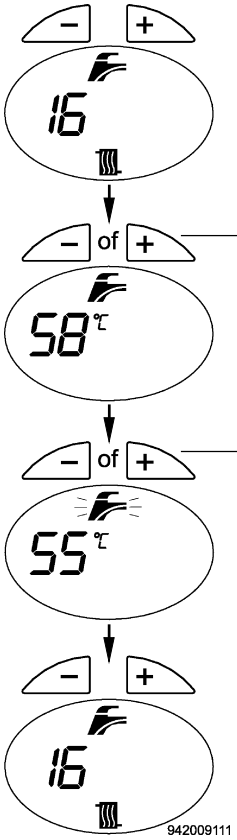
After a few seconds you will see the standard display (with pressure in the heating system). The you set value is stored in the control unit of the device.

Setting hot water temperature

At a setting of 60, there is, at the nominal volumetric flow of hot water of about 60 o C of the device. This is a good setting for almost any situation. If desired, it is possible to increase the setting for the hot water temperature or lower. Take the hot water temperature can be higher or lower.

Very hot water!
When increasing this setting is very hot tap water!

Changing the hot water temperature



Follow the instructions below to adjust the hot water temperature.

or .

time

(eg 58).

set value, for example to 55. Press 1

By (repeated) to the or Pressing button, raise or lower the

You will see the value set on the display

stored in the control unit of the device.

standard display. The you set value is

After a few seconds you will see the

With the use of e.g. a solar or heat-pump water heater, the device should never be switched off and the hot water temperature should be at least 60 o C can be set.

Some connected OpenTherm room thermostats above settings are only possible on the Open Therm room thermostat.

230V-voltage
If you want to make the unit fully energized, unplug the power cord.

Setting comfort / economy mode for hot water

Comfort: (eco is not visible in the display) the device is held at temperature for fast delivery of hot water. Here, the gas consumption slightly higher than in the case of the ECO mode.

Economy: (eco is visible in the display), the device is not kept hot and it may take longer for you hot water. If the unit is on comfort (eco is not visible in the display), the appliance can still optionally be put on the eco or comfort with a suitable OpenTherm room thermostat.

Hot comfort / economy setting

An Open Therm room thermostat can be recognized by the OpenTherm® logo shown opposite. If the (OpenTherm) room thermostat

a setting option for hot water comfort / economy, there are two ways to switch the unit on comfort or economy:

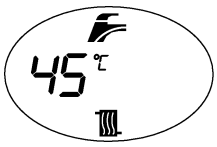
1. Through the eco comfort - button on the unit itself.

2. Through the setting on (OpenTherm) thermostat. Note: If you via

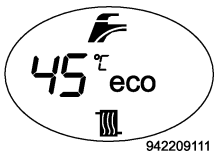
eco comfort - button on the unit **eco** put, it is **Always gear eco, regardless of the setting at the room thermostat. If** you are using the

eco comfort - key switching to comfort you via the room thermostat switch between comfort and economy mode.

The unit automatically set via the room thermostat between comfort and economy:



If you see this display, the phone is properly set up for this purpose. (You will see no **eco**)



942209111

If you **eco** the display shows, press one time the key eco comfort.

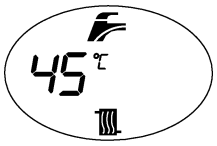
- If the unit now stands at comfort (**eco** not visible), the setting is correct.
- If the device on **eco** remains, is the room thermostat is in economy mode.

To know whether the device setting is correct, the room thermostat should be put on comfort. If you then again at the

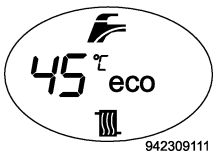
eco comfort - button press and you **sees no eco more on the display, the unit is now set properly in order to** switch between the comfort and economy-mode by the room thermostat.

Hot water comfort / economy by setting an ON / OFF room thermostat:

An ON / OFF room thermostat is a thermostat that does not conform OpenTherm communications, but the unit by closing a contact on or turn off.



If you see this display, the phone is in the comfort mode. If you briefly eco comfort - test **button, you will see eco appear in the** display (economy mode).



942309111

If you see this display, the phone is in the economy mode. If you briefly eco comfort - test **will dismiss the eco** display and the phone is in the comfort mode.

Special situation in solar water heaters!
If you have a Ferroli water heater, this heater will automatically switch on comfort mode on and off. Manually adjust in connection with a government-mandated minimum water temperature allowed in this situation.

The boiler must be in comfort!

5. FAULTS

A ÷ code: **Alarm Code (** *optionally pressing reset)*
With this fault the cause must resolve to be drawn, then the reset button must be pressed. After briefly pressing the reset button, it can be about 10 seconds. time before the unit starts. If an alarm code after reset returns: warn your installer. Wait in any case at least 60 minutes before resetting again.

F ÷ code: **Error Code (** *reset button does not make sense)*
With this fault the cause must be resolved before the device itself, so without the reset button has to be pressed, comes into operation.

If error codes commonly occur: warn your installer.

Faults that may help you solve itself

Empty display:
- The plug is not in the socket.
- There is no power at the socket.
- Possibly the main unit fuse defective. Notify your installer.

F ÷ 37
- The water pressure in the heating system is too low. Fill the installation with (see p. 9). Reset is not required, the unit automatically starts again.

F ÷ 20
- The water pressure in the heating system is low. Fill the heating system at (see p. 9). The terminal functions. Repetition: warn your installer.

F ÷ 21
- The water pressure in the heating system is high. The terminal functions. something draining heating system (see p. 9). Repetition: warn your installer.

F ÷ 40
A ÷ 26
- The water pressure in the heating system is too high (F40) or been too high (A26). The unit is turned off. something draining heating system (see p. 9). Repetition: warn your installer.

A ÷ 01
- Is the gas valve open it? Check this out.
- Then press reset.

A ÷ 06
- Check the condensate drain / siphon clogged (see page 9). Then press reset.

For all other Alarms and Error Codes: warn your installer.

Slow temperature upcoming heating system

If so, check the following:
- Are all radiator valves open?
- Is the room thermostat to the desired temperature (or higher)? You can optionally set night in very cold weather put a few degrees higher.
- The maximum heating temperature is set high enough?
- If weather-dependent control of the device is activated, the correct heating curve has been set? See: Setting curve on p. 27.

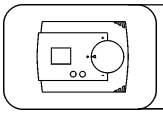
Pay attention! It is also possible that the kamerthermos- acetate controls the device again dependent!

6. MAINTENANCE

This unit needs servicing at least once every two years. Due to various circumstances, it may be decided to shorten it, see p. 28. Please contact your installer or maintenance company. Servicing and repairs may only be performed by qualified installation or maintenance companies. Regularly and carried out maintenance can prevent mid disorders and the unit remains in optimum condition. Depending on the installation, the siphon must be cleaned regularly, see Chapter 8 on p. 9. For maintenance frequency, p. 40.

7. USER ADVICE

In this chapter a number of recommendations are made regarding the use of the unit and installation.



Using the room thermostat

Temperature regulation with a room thermostat

The room thermostat has a regulator, which keeps the temperature at the set value. Increase or decrease the setting up 1 o C (per hour) when too hot or too cold feel of the temperature (except in the morning or if the heater has been out a long time). This prevents the temperature fluctuates too much and the thermostat used as an on / off switch instead of an automatic regulator. Underfloor heating (especially as main heating) a very slow reacting heating system. Keep this in mind to set the room thermostat.

Radiators in the room with the room thermostat always keep open

When using a room thermostat, it is necessary that all the radiators in the room where it hangs fully open. By connecting one or more radiators in this space, the temperature increases in the other areas, while the temperature in the space with the kamerthermos- acetate continues to be normally controlled.

Setting the room thermostat in the summer

Set the room thermostat in the summer around 16 o C. This is sufficient to not take effect unit. Adjustment of the heating setpoint on the unit is not necessary.

Additional room thermostat

In this unit an additional room thermostat can be connected. With an additional thermostat controls a preset temperature in the room where it hangs. The remaining part of the heating system, this is also warmed. Thus, it is not the case that can be heated with two connected thermoelectric spaces defined states independently of each other. Consult your installer for more information.

Below are defined some applications.

Fireplace

When using a fireplace you the part of the house, where it is colder, heat up using the additional thermostat.

frost protection

If the chance exists that can freeze pipes, eg. In a garage, you can keep at a minimum temperature of this space with an additional thermostat.

Study room

An additional thermostat in a room, eg. A baby or study, always ensure a minimum temperature.

On holiday? Do not pull the plug from the socket

Allow the unit to stand for the following reasons:

- In the winter should keep the house frost to prevent freezing pipes.
- In an upstream solar or heat pump water heater heating of the water must be guaranteed.
- Every 24 hours, the pump is just switched on to prevent them becoming stuck. If you do not use hot water 24 hours, the unit will temporarily automatically switch to power-saving economy mode until the next water use. This is not visible in the display.

freezing Hazard

To prevent freezing parts of your heating system or water pipes, set the room thermostat transit leagues no lower than about 12 o to set C (depending on the installation). Forget the extra room thermostat, if any!

- Do not close off the gas supply. Leave to stand the device.
- Tighten all radiator valves open, especially in areas with risk of freezing: Put any interconnecting doors open.
- The device is an automatic frost protection, which, however, only prevents the device from freezing itself!
- If the system is drained (because of frost), the unit should be completely drained.

Dealing with hot water

Comfort and economy mode

On p. 6 and 7 explains the comfort and economy mode.

simultaneity

By concomitant use of a kitchen or bath tap and a shower, the bath or shower faucet must be provided with a good automatic thermostatic control.

Save Showers

The Blue Sense, you can apply any savings shower of good quality. See your installer for a good saving showerhead. If you use a low flow showerhead, make sure it is regularly descaled to maintain sufficient flow.

Using a solar (hot water)

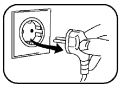
If there is a heater attached to the Bluesense, the unit heats the hot water further, as the water from the water heater is not yet at sufficient temperature. Caution when using a solar water heater:

- Minimum setting DHW setpoint = 60. Check this.
- No changes to the setting of the mixer allowed (minimum 60 o C). An incorrect setting, the temperature may be too high.
- The BlueSense may not be switched off electrically.

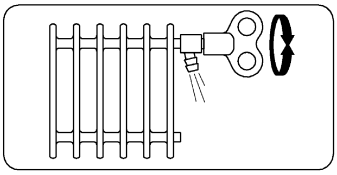
8. TOPPING, BLEEDING AND BLEEDING THE CENTRAL HEATING SYSTEM

Venting the heating system

Set the room thermostat low and do not use hot water. Take the power cord.

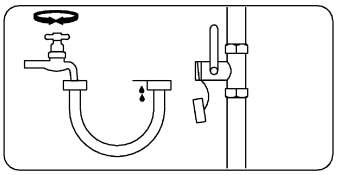
1 

Bleed the system. This is especially in the first two weeks of the required installation.

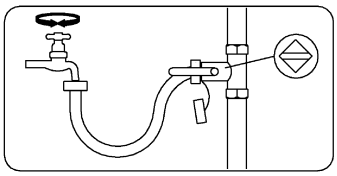
2 

Use the vent key. Start at the lowest point radiators. Finish upstairs. Bleed until no air comes out.

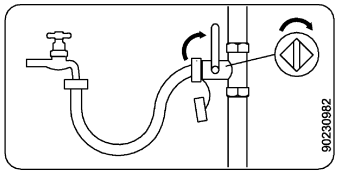
The central heating system (re) filling (first feed point 1 and 2)

3 

- Connect the hose to the tap.
- Remove the cap from the heating fill valve.
- Turn on the water slowly and add the hose with water. Close the valve when the tube is full. This prevents you that air is introduced into the plant.
- Connect the full tubing to the CV-filling valve.
- Open the heating fill valve.
- Turn on the water slowly open.

4 

Fill the manometer indicates 1.6 bar. (At a cold heating system)

5 

- Close the tap at 1.6 bar.
- Vent the installation yet- maals (see point 2), and fill, if necessary, again.
- Connect the CV-fill valve, disconnect the hose from the taps.
- Attach the cap on the central heating fill valve.
- Plug in the power cord.

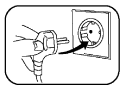
6 

Figure 8.1 Filling and de-aerated instruction

Draining the heating system at high pressure

When heating system draining something?

- With error code F÷21 : The pressure is very high
- With error code F÷40 : The pressure is too high
- With error code A÷26 : The pressure is several times been too high

Repetition of these codes: call your installer.

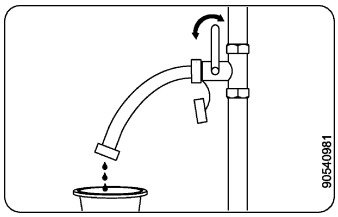


Figure 8.2 Drain instruction

- Connect the hose to the fill valve of the heating system.
- Turn the faucet flow slowly and allows heating water until the pressure is 2.0 bar.
- Connect the CV-fill valve, disconnect the hose from the CV-filling valve.
- Attach the cap on the central heating fill valve.

When bleeding?

- If the installation of a radiator makes bubbled lend sound.
- If a radiator is not properly heated.
- After installing a new device, the system should be vented several weeks on a regular basis.
- Optionally, after refilling the heating system.

filling procedure

A filling procedure may depend on the filling valve, follow these instructions. If no instruction is present, follow the instructions here.

When refilling?

- With error code F÷37 : The pressure is too low.
- With error code F÷20 : The pressure is very low.

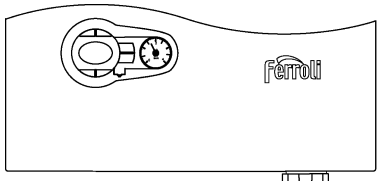
Repeated code F20 or F37: Call your installer.

Pay attention!

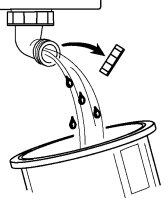
Use only clean tap water and demineralized water. It is not allowed to add chemicals to the water. When adding this will void the warranty on the device. Open all radiator valves. When thermostatic valves: set it to maximum.

Clean dirt canister trap

A possible solution for A06 failure is cleaning the dirt canister.



Pull the plug from the electric socket. Unscrew the cap of the dirt canister.



Water comes out of the trap!

Unscrew the entire dirt canister and clean. Assemble the cap and the cup again.

Forget the gaskets not!

Fill the condensate drain hose and siphon built with about 1 liter of water, p. 20.

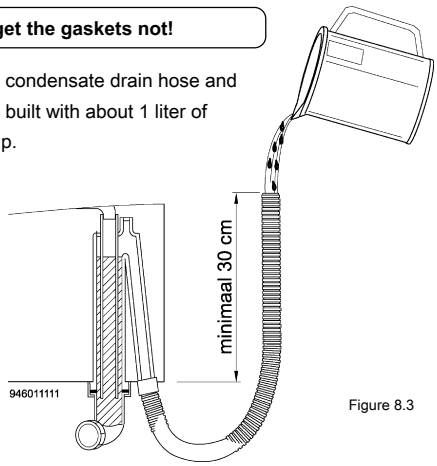


Figure 8.3

9. Notices for installation

9.1 Requirements

Installation of BlueSense should take into account the following requirements:

a. This assembly instructions.
b. The building code, which must include reference to the standards listed below.
c. NEN 1078 Facilities for gas having a pressure of at most 500 mbar, with accompanying clinical practice guideline (NPR3378).

d. Guidelines existing gas drawn by EnergieNed.

e. BS 3028 safety requirements for central heating.

f. BS 1010 safety regulations for low-voltage installations.
g. BS 1006: General requirements for drinking water installations AVWI with accompanying worksheets.
h. 1087 standard for ventilation in residential buildings with accompanying notes (NPR 1088).
i. BS 2757 standard for supply of combustion air and flue exhaust.
j. BS 3215 standard for drainage systems in homes and residential buildings.
k. Fire regulations.

- All rules apply to additions to standards or regulations or future regulations at the time of installing.

- This unit is only to be used for closed heating up to a max. Temperature of 90 o C and closed water systems.

- The installation must be done only by authorized persons. Approvals issued by the energy companies and water distribution organizations.

9.2 Scope

Standard in or near the appliance:

- Suspension rail + fixings.
- Built-in overflow for the heating system (3 bar).
- Built-in analog pressure gauge for the heating system.
- Built-in digital pressure gauge / security.
- Built-in automatic air vent.
- Built-siphon device with dirt canister.
- 3 tubes ø15 mm (about 30 cm long), incl. Gaskets.
- 2 pipes ø22 mm (about 30 cm long), incl. Gaskets.
- User / installation manual
- Condensate drain hose and heating overflow.
- Cord: about 1 meter long, including pronged plug..

Components required for the installation:

- Filling / drainage system serving the heating system.
- Pressure vessel (size dependent on the central heating system).
- Gas valve.
- Inlet combination (KIWA; 8 bar).
- In conclusion, siphon sewer or drain trap, and a plastic drain pipe to the sewer system (outer size ø32 mm).
- 230V socket with earth (easily accessible).
- Room thermostat.
- External Bypass resume (if all radiators are fitted with thermostatic radiator valves) or zone control.

Necessary components in a combination with a solar or heat pump water heater:

- Mixing valve solar water heater (30-70)
- An external flow valve.
- Burner Condition thermostat.

9.3 Appliance Accessories

Thermostats and Accessories

AGPOTherm Plus room thermostat 1201045

A contemporary room thermostat with a simple design. Temperature setting with dial, you can read the data on LCD (Open Therm).

Romeo thermostat 1201060

Luxury clock thermostat with daily and weekly program for automatic control of the room temperature. On large LCD display Additional information can be accessed. This thermostat works weather dependent (Open Therm).

Romeo S room thermostat 1201075

Handheld electronic room thermostat with day-night temperature settings for heating and eco-comfort setting for hot water.

Outside sensor (NTC 10kOhm at 25 o C) 1801295

For the purpose of weather-dependent control.

Roof and wall terminals

For a proper operation of a BlueSense facade with feed-through, one of the wall terminal sets will be chosen below.

HR geveldoorvoerset ø80 / 125mm 1825000

With migratory discharge structure, applicability ingot at a greater distance (max. 3 meters) between the appliance and throughput. Connection 2x80mm.

HR geveldoorvoerset ø60 / 100mm 1,825,008

Complete with connection box and pulling discharge structure (directly back through the wall).

Pay attention! The instructions in these kits may not fully adapted to this unit.

Other flue / air

Facade Inlet nipple 1824031

Serving system air supply from the wall and flue to the roof.

Adapter concentric straight connection 60/100 including measuring points 1840005

Adapter concentric straight connection 80/125 including measuring points 1840010

Connection bend concentrically 60/100 including measuring points 1840015

Accessories serving solar connector

Flow limiter 6 l / min (BlueSense 3) 1,501,085

15 / 15mm compression performance.

Flow rate limiter 7.5 l / min (BlueSense 4) 1,501,081

15 / 15mm compression performance.

Flow limiter 9 l / min (BlueSense 5) 1,501,082

15 / 15mm compression performance.

Mixing valve solar water heater (30-70) 1,580,054

Burner Condition thermostat at heater or heat pump water heater: contact the manufacturer of the heater or heat pump water heater.

9.4 Clearances

Keep in connection with the installation and possible service work account with a minimum clearance.

	Advice:	minimum:
Side	15 cm	4 cm
Bottom side	100 cm	25 cm
Front	100 cm	50 cm *
Top depending flue		28 cm **

* Cm 2 when the door is closed in a cabinet,

** by a concentric wall duct

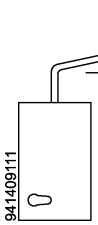
9.5 Flue gas exhaust and air supply:

For all setup situations, the following applies:

• Resistance

The permissible resistance of the air intake and flue gas discharge system is bound to a maximum. Check this by means of a resistance calculation. See page 13.

- **Condensation or rain water in the flue pipe**



Horizontal flue lay at least 50 mm / m gradient!

The condensate and any rain now goes back to the unit.

- **Condensation on the outside air supply pipe**

If the air supply pipe runs by warm, humid conditions, there may occur any condensation forming on the outside of this pipe. In order to prevent this, in this case, this pipe to be vapor-proof insulation.

- **Regulatory flue system**

Observe local requirements eg. Fire, Nuisance and gas company.

- **possible icicles**

If ice formation can occur in the discharge, the discharge is not situated in areas under which people can move or which may cause damage by releasing icicles.

- **Multiple connectivity options**

Use can be made of one of the two air terminals. Annoyingly crossing pipes is prevented. The middle connector is for the combustion gas. a concentric connection is also possible.

- **Noise in a working device.**

The device produces a particular sound. To the choice of the setup account with low noise. It is eg. Not advisable to place the unit in a free arrangement in a bedroom. With a light wall construction is possible that resonances occur.

- **White wisp of condensation in the chimney pipe**

Because BlueSense is an HR unit, so much heat from the combustion gases will be brought to condense. This allows the flue exhaust pipe creating a plume of condensation. Keep this in mind. If it is possible, for this reason it is preferable to make a bovendakse mouth.

For Ferroli flue products, see section *"9.3 Gear Accessories"* or visit: www.ferroli.nl

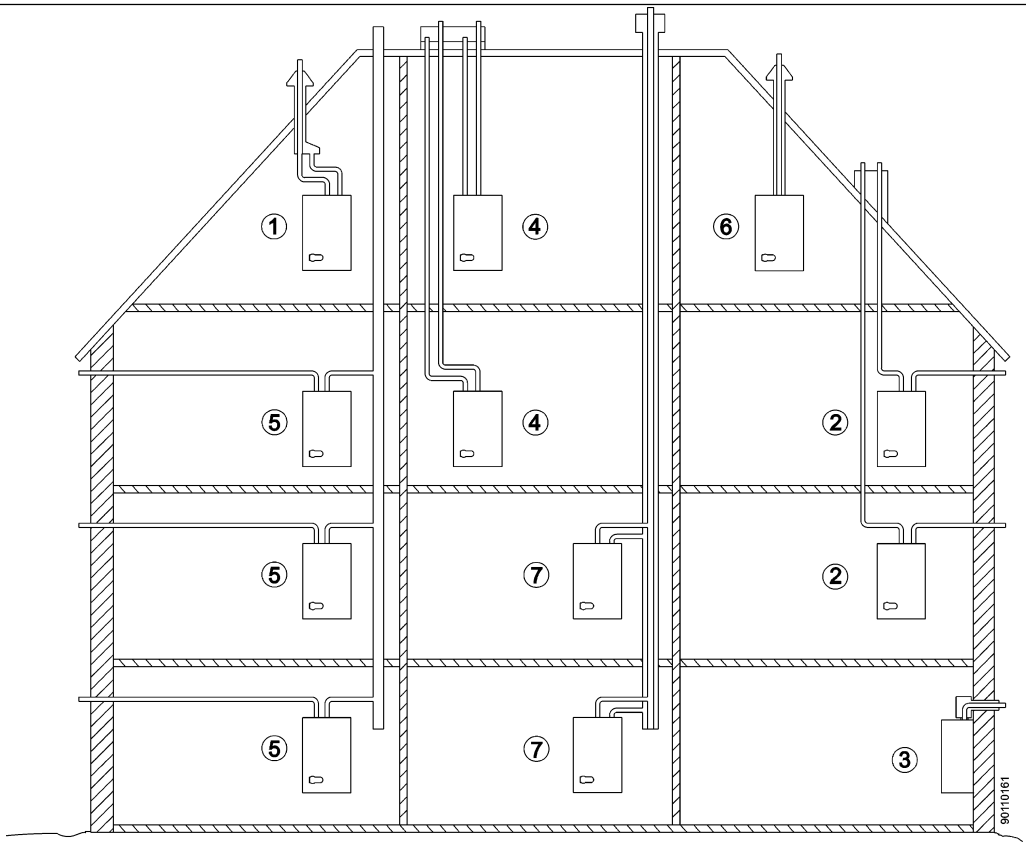


Figure 9.4 up solutions

Arrangement Situation 1 (Class-C33)

Through the roof with a roof terminal HR (individual). In this arrangement, a situation, the air intake and flue gas outlet are placed individually to the roof terminal, said concentrically to pass through the roof.

Arrangement Situation 2 (Class-C53)

Luchtoevoer from the wall and flue gas discharge through the roof (individually or collectively). Adjust only Ferroli the facade inlet cross piece to the air supply pipe. Allows the influence of wind is greatly reduced.

If outlet can include an HR prefabricated chimney used. Make sure there is no bright spot in the vicinity of the air inlet opening (for insects). Locate the hole clear of obstructions or side walls.

Arrangement Situation 3 (Class-C13)

Wall duct. Takes into account a minimum height above the recessed BlueSense of 28 cm. Certain wall terminals are not "pulling", which is really necessary. **Always install a 'migratory' wall terminal (** See page 10. Appliance accessories). Refer NPR3378 for proper placement. Refer Ferroli if you have questions about a "migratory" wall terminal.

Arrangement Situation 4 (Class-C33)

Air supply and flue from the roof using a HR prefabricated chimney (individually or collectively). Both the air inlet and the flue gas discharge are carried out with these HR prefabricated chimney through the roof.

Arrangement Situation 5 (Class C83)

Half CLV system: air supply from the wall and flue gas discharge through the roof (collectively). When this situation occurs, the air supply through the wall and the flue gases go through collective the roof. Refer Ferroli the possibilities with this system. Adjust only Ferroli the facade inlet cross piece to the air supply pipe. Allows the influence of wind is greatly reduced. Make sure there is no point of light in the vicinity of the air inlet opening (for insects). Locate the hole clear of obstructions or side walls.

Setup Method 6 (Class-C33)

Concentric air supply and flue gas discharge through the roof (individual). In this situation, the air intake and flue gas outlet are placed concentrically to the roof.

Arrangement Case 7 (class-C43)

CLV system (collective). In this situation, to be set-up both the air supply and the flue gas discharge brought together to the roof. The resistance of the flue gas exhaust and air supply system, this should be calculated down to the CLV system. Consult Ferroli in a newly created CLV system and follow the general guidelines for these systems.

Specification flue material (klasseC63)

The BlueSense is supplied without a flue gas exhaust system material. This is being indicated with the device class C63. When using a plastic drain system: temperature classification T120.

Use of existing HR flue

Connect the device only to an existing HR flue system, if it has a guaranteed lifespan of at least 15 years.

Resistance Calculation flue-gas outlet / air supply

The need for a resistance calculation

The resistance of the RGA / LTV system increases as the total length of the pipes, and the number of bends. However, because the fan but a certain resistance may be bridged, it is this resistance to a maximum bound. For the device is, therefore, calculated a maximum resistance which should not be exceeded.

Resistance Table for condensing boilers:
separately supply air and flue gas discharge lines. Air supply

		Ø70 ø60 ø80 ø90 ø100				
pipe	1m smooth	4.4 2.0	1.0 0.6	0.3		
	1 m flexible (OBI) *	4.5 2.1	1.1 0.6	0.4		
bend	90°R = D	3.0 1.6	0.9 0.5	0.3		
	90°R = 0.75D	5.2 2.7	1.5 0.9	0.6		
	90°R = D flexible (OBI) * 10.4 5.6	3.3 2.1	1.4	90°R = 1 / 2D		
		12.0 6.2	3.5 2.2	1.4		
	45°R = 0.75D	3.4 1.8	1.0 0.6	0.4		
	45°R = 1 / 2D	4.0 2.1	1.2 0.7	0.5		
course	80-70	-	0.7	-	-	-
	80-60	2.6	-	-	-	-
	90-80	-	-	0.4	-	-
	100-80	-	-	0.5	-	-
inlet	open pipe	4.8 2.5	1.4 0.9	0.6		
	prefabricated chimney	4.8 2.5	1.4 0.9	0.6		
	inlet crosspiece	-	-	6.6	-	-
flue		**Ø70 ø60 ø80 ø90 ø100**				
pipe	1m smooth	5.9 2.7	1.3 0.7	0.4		
	1 m flexible (OBI) *	6.0 2.8	1.5 0.8	0.5		
bend	90°R = D	4.0 2.1	1.2 0.7	0.5		
	90°R = 0.75D	6.9 3.6	2.0 1.2	0.8		
	90°R = D flexible (OBI) * 14.0 7.5	4.4 2.8	1.8	90°R = 1 / 2D		
		16.1 8.4	4.8 2.9	1.9		
	45°R = 0.75D	4.6 2.4	1.4 0.8	0.5		
	45°R = 1 / 2D	5.4 2.8	1.6 1.0	0.6		
course	80-70	-	0.9	-	-	-
	80-60	3.5	-	-	-	-
	90-80	-	-	0.5	-	-
	100-80	-	-	0.7	-	-
debouchment	open pipe	11.5 6.0	3.4 2.1	1.3		
	prefabricated chimney	11.5 6.0	3.4 2.1	1.3		
in and	pressure balance HR80	-	-	15.9 -		-
exhaust pipe	pressure balance HR100	-	-	-	-	10.1
	HR-wall duct	-	-	15.9 -		-
condendsafscheider		-	- 2		-	-

* In the flexible pipes and bends hear the specified resistance values at the inside diameter of the pipe. The other values associated with the outer diameters.

For concentric air intake / flue gas systems, there is a different calculation as that given in the above table. The following combinations are possible up:

- 80/125: 10m right + 2x 90°. turn and 1x 45°. + discharge curve.
- 60/100: + 3m straight course to ø80 / ø125 + 80/125 roof duct.
- 60/100: 5m straight pipe + 1x 90°. bend and wall passage. Shorter lengths or

less turns than in the above combinations is possible. In other combinations consult Ferroli.

The meter unit length of pipe ø80 mm

Because the resistance is a pressure loss, this standard is expressed in Pascal. The resistance of one meter straight pipe then has, for example, an x-number of Pascal resistance. As well as bends and other components in the RGA / LTV-system. In order to facilitate the calculation which the conversion is made of Pascals to feet of pipe length. This is structured as follows. The resistance of one meter straight pipe ø80 in the air supply has a certain value. In the BlueSense 3 may, for example, 99 of these pieces of pipe to be connected in order to reach the maximum resistance. Putting this number, 99 meters, will be used to express the maximum resistance, a factor times any other components must be Exercised down the resistance of the meter tube ø80mm in luchttoevoer.Een curve 90° ø80mm in the air supply is for example 1.5 times the resistivity of 1 meter in the air supply pipe ø80mm. For all of the components has been established that factor, so that the total resistance can be calculated in meters pipe length.

Resistance at wall terminal

(Unit directly on the outer wall), the resistance of a Ferroli-geveldoorvoerset is below the maximum permissible resistance. (80 parallel-to-concentric 100/60)

Calculation of the resistance of a RGA / LTV-system for a BlueSense

1. Set the components with each other;
2. Multiply the number of each component with the resistor;
3. Count the total to.
4. The calculated resistance must be lower than the permissible resistance.

Maximum allowable resistance

BlueSense 3 ..... 99 meter length of pipe BlueSense 4 ..... 87 meter length of pipe BlueSense 5 ..... 61 meter length of pipe

If the resistance is higher than the maximum permitted resistor, this will have a load decrease the effect of more than 5%. In this case the gaskeurlabels are no longer applicable.

Example calculation BlueSense 3. Air Supply

Part	**number**	**resistance**
• straight pipe ø80mm3	.....	3 x 1 = 3
• 45° curve (R = 1 / 2D) 2 2 x 1.2 = 2.4		

Flue Share

• straight pipe ø80mm3	3 x 1,3 = 3,9 .....
• 45° curve (R = 1 / 2D) 2 2 x 1.6 = 3.2	
• roof passage 80 1 HR 1 ..... 15.9 x = 15.9 (Incl. Connector)	

Calculated total resistance: ..... 28.4 m The calculated resistance is 28.4. This is less than the allowable pipe length 99 meters, and is therefore in order.

9.6 Additional considerations before installation

Central heating system

Underfloor

Considerations when using an underfloor heating:

- Use only oxygen-impermeable pipes (DIN 4726/4729) member, in order to prevent corrosion in the appliance one.

- Only when an existing floor heating which is not clear whether the pipes are sufficiently impermeable, for a heat exchanger in order to separate the circuits.
- A 100% hydraulically neutral vloerverwarmingsset is to be applied. the pump from the heating system should not cause no circulation through the apparatus has been switched off central heating pump of the device. Mount a vloerverwarmingsset with a separated system for heating and other heating system.

Water circulation through the plant

- Make sure that the head of the pump is sufficient for the installation, see pp. 36.
- If the unit is substantially the lowest point of the plant, can cause undesirable natural circulation (thermosiphon effect). This depends on the heating pipe loop. Fit any check valve in the return of the unit. See p. 18.

Hand Adjustable bypass for heating system

When the unit is connected to a heating system in which the flow can be blocked (eg. Applied everywhere thermostatic valves), an external manually adjustable bypass is necessary. External manually adjustable bypass needs of the boiler as far as possible be placed.

Potable water supply

Comfort hot water

The DHW convenience of the appliance must correspond to the needs of the user.

placement Consultancy

Locate the unit as close to the taps. Place 12mm optionally an insulated line to the kitchen draw-off point, in order to shorten the waiting time.

Turn off water supply

Through a number of interventions, it is possible the unit to work exclusively for the heating system. Refer Ferroli for more information.

Save Showerheads

The Blue Sense is good for saving shower heads.

Low pressure of tap water

If the available pressure is not sufficient to achieve the desired volume flow, the excess flow valve can be removed and, instead, be placed an adjustable regulator. See page 37.

Solar water heater / heat pump water heater

It is necessary to use a mixer if you attach a solar or heat pump to BlueSense since the outflowing water temperature may be high. This mixing valve is compulsory according to gas inspection.

Make sure the boiler heating water off if the water supplied by a solar or heat pump water heater is too hot. See p. 19 for more information.

circulation pipes

Circulation pipes for tap water are not applicable.

gas

capacity gas meter

Check, before commencing installation, or the gas meter has sufficient capacity. Consider also the consumption of different appliances. Take, if too little gas meter is installed, contact the power company.

Maximum consumption of natural gas (G25) at 25 ± 5 mbar operating pressure:

- **BlueSense 3:** **53 l / min (3.2 m^3 / h)**
- **BlueSense 4:** **62 l / min (3.7 m^3 / h)**
- **BlueSense 5:** **76 l / min (4.6 m^3 / h)**

Old gas distribution / diameter pipeline

Advice: place the device filter in the gas pipe! The connection of the device is not a determining factor for the diameter of the inner conduit.

electrical connection

IP protection class

The device has a fixed connection to the protective class IPX5D.

The device is supplied with a connection cable and plug with earthing contact. This protection class IPX2D.

230V power supply

For the 230V power supply should be placed an outlet with ground edge. These must be fitted easily accessible.

In order to obtain IPX5D is to be realized, the 230V power supply as a permanent connection. In this case, a double-pole main switch with a contact gap of at least 3 mm.

Temperature Controls for heating

OpenTherm-communication protocol

An Open Therm room thermostat can be recognized by the following logo.

A OpenTherm room thermostat is connected with two wires to the unit. By using these two wires, the thermostat communicates with the BlueSense via "OpenTherm" language.

This thermostat is powered from the phone and Such half there are no batteries required. These thermostats may be used to replace the well-known mercury thermostats. See p. 26 for the possible temperature control.

Other points

Multiple room thermostats / frost.

Only one Open Therm room thermostat connected to the BlueSense. However, there may be multiple on / off room thermostat states are connected. This is desirable, for example when using a fireplace to arrange a minimum temperature in the bedroom or for frost protection (in frost-sensitive areas). See page 8 for additional information.

Frost-free boiler room

The boiler room must be frost-free and well ventilated.

10. ASSEMBLY

This chapter provides step by step explanation about the hanging and connecting the unit.

Unpacking the boiler

1. Place the box on the bottom on the ground (the text box is read).

2. Open the pack, remove loose components and the protectors and lift the tank out of the box.

> Do not lift the boiler to the shell on. This may damage the casing. Make sure the packaging material remains out of reach of children.

3. Put the kettle on the back on the ground. Pay attention! Put the kettle in no case law on the ground to prevent damage from falling or terminals at the bottom.

Damage to the boiler

immediately report to the supplier, if any damage to the device.

Considerations for mounting

Read the previous chapter, "Precautions for installation". It presents information on matters that may be prior to the installation of utilities.

Initial commissioning of the unit

The next chapter explains the initial commissioning. Pay attention! Read this section carefully before you complete the installation and commissioning.

electrical connection

IP protection class

The device has a fixed connection to the protective class IPX5D.

The device is supplied with a connection cable and plug with earthing contact.
This protection class IPX2D.

230V power supply

For the 230V power supply should be placed an outlet with ground edge. These must be fitted easily accessible.

In order to obtain IPX5D is to be realized, the 230V power supply as a permanent connection. In this case, a double-pole main switch with a contact gap of at least 3 mm.

For your safety, please note!

This device meets the stringent European safety and energy efficiency. The CE mark indicates.

Since there for heating using natural gas and 230V power supply, we would like to draw your attention to a few things:

Electric voltage 230V

This unit contains components that are under a voltage of 230V. These include the print, the pump, the gas valve and the fan.

Be aware of gas

If you smell a gas odor: trace the leak or close the nipples used. No smoking, no fire!

Hot pipes and tubes,

The pipes and radiators can ca. 95 o be C. The flue gas is in operation about 90 o be C. Make sure the pipe connections are always to be mounted properly to prevent leakage.

metal parts

Be careful with edges of metal parts to prevent injury.

Boiler room

Make sure that the installation room is frost-free and well ventilated.

Use

The device is suitable for use in a closed heating system and hot water for household friendliness.

10.1 Suspending device

The device is designed as a hanging device, and can be attached to practically every wall. The wall should be flat and to be sturdy enough to support the weight of the unit.

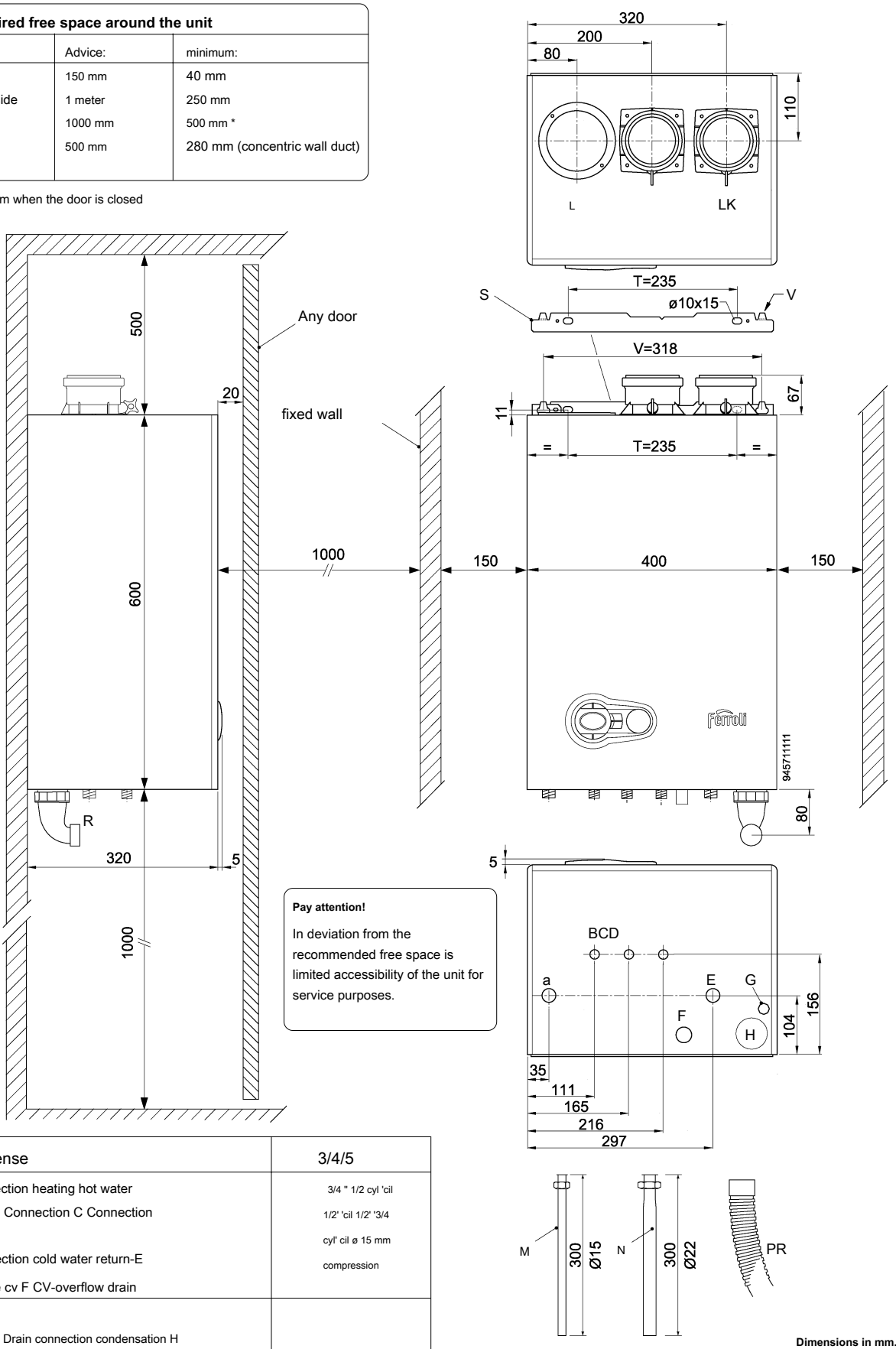
For drilling the holes for the mounting strip on p. 16.

Hang the handset away from a hollow or very light wall. This sound vibration to minimize.

10.2 Dimensions and connections

Required free space around the unit		
	Advice:	minimum:
Side	150 mm	40 mm
underside	1 meter	250 mm
Front	1000 mm	500 mm *
upside	500 mm	280 mm (concentric wall duct)

* 20 mm when the door is closed



Pay attention!

In deviation from the recommended free space is limited accessibility of the unit for service purposes.

Dimensions in mm.

Figure 10.1 Dimensions and connections

BlueSense	3/4/5
A Connection heating hot water	3/4 " 1/2 cyl 'cil
supply B Connection C Connection	1/2' 'cil 1/2' '3/4
gas	cyl' cil ø 15 mm
D Connection cold water return-E	compression
Interface cv F CV-overflow drain	
G Siphon Drain connection condensation H	
Connection siphon dirt collection cup K flue gas	
discharge connection	80 mm
(Also concentric, with adapter) L	
Connections Connection Pipe hot water supply	Ø ø 80
air M / N Connection Pipe gas heating flow /	mm 15 mm
return P Condensate Drain hose (ø outside) R	22 mm 25
Siphon	mm ø

BlueSense
S Suspension rail
T Holes for mounting strip (center distance: 11 mm above the unit) V Gear Suspension points

10.3 Connecting flue and air supply

Parallel connection (ø80 mm)

Separate ventilation and flue system.

standard delivery
Air Supply Pipe right

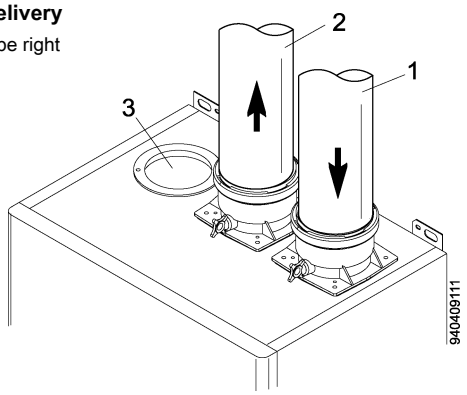


Figure 10.2

Alternative
Air Supply Pipe links

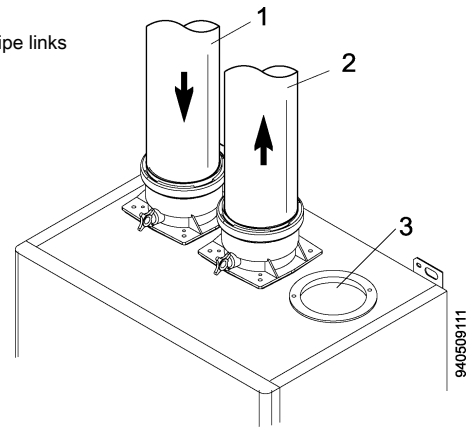


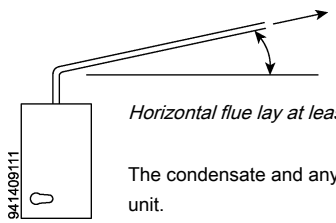
Figure 10.3

1. Air supply connection (connection ø80mm).
   a. Mount the air supply line. Use sturdy barrier material, which also withstands ambient temperatures that can occur. This applies especially to systems or concentric with an air supply pipe which is situated close to the vicinity of a flue gas pipe.

   b. If the air supply pipe runs by warm, humid conditions, there may be on the outside of this pipe condense. In order to prevent this should in this case have to be this pipe damp-proof insulation.

2. The flue gas discharge connection (connection ø80mm).
   a. Mount the flue gas discharge line. On the BlueSense is for connection to discharge material, wall passage and / or roof penetrations, which are suitable for condensing flue gases. When using a plastic drain system: temperature classification T120.

   b. Note the direction of flow of the gases and also to the connection of the pipes.



Horizontal flue lay at least 50 mm / m gradient!

The condensate and any rain now goes back to the unit.

3. Attach the sealing plate (3) in the unused air intake opening, to the left or to the right. This is fitted as standard in the left air intake opening.

applies to the flue and air supply lines:

a. Shortening of this material should be done at right angles and remove the burrs.

b. The material stabbing with a twisting motion into one another and, optionally, to use a petroleum jelly for the lubrication (grease may affect the lip ring).

c. Bracket pipe elements energized at fixed points in the building according to the manufacturer.

d. The weight of the pipe elements must not rest directly on the boiler, also the weight should not be hung directly on the roof duct.

e. With respect to the roof lead-through is that it should be firmly put on the mounting bracket provided with the feed-through.

Use of existing HR flue

Connect the device only to an existing HR flue system, if it has a guaranteed lifespan of at least 15 years.

concentric connection

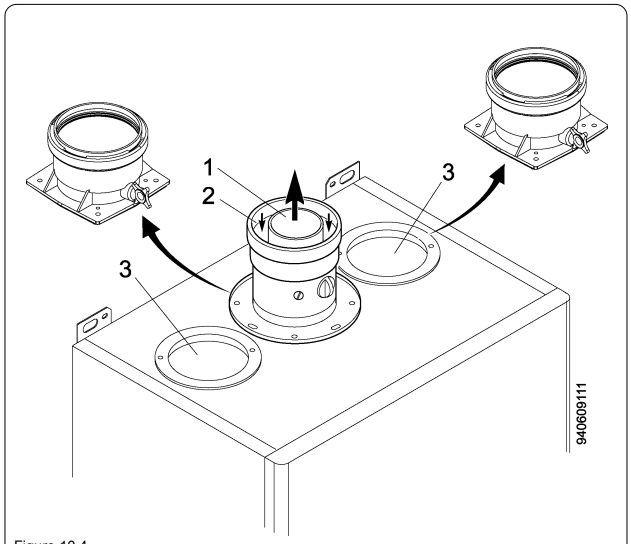


Figure 10.4

1. Remove the existing air supply and the flue gas discharge connection.
2. Mount the concentric connection.
3. Close the two air intake openings with sealing plate (3) off!

Air supply from the installation area (B23 / B33)

In this arrangement, where the unit is "open device" is connected, must meet the requirements set.

Make sure the air vents at all times remain open to ensure sufficient ventilation. Place on the air 90 o- bend (B23) to if necessary. to prevent incident dirt or covering of the opening.

Pay attention!

IP class IPX5D lapses in an "open device". For IPX2D must be placed a 90 ° bend in the air supply. However, it is highly preferred, the air supply is not to be connected to this way, but the unit to be mounted as a closed unit.

10.4 Connecting the lines for central heating and hot and cold water BlueSense 3-4-5

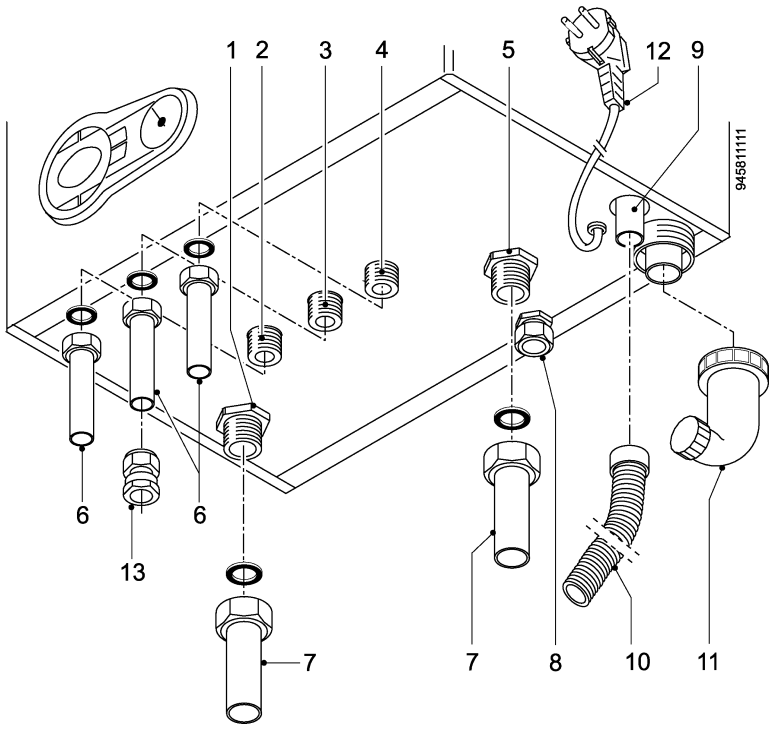


Figure 10.5

1. Connection heating supply (3/4 ")
2. Connection warm water (1/2 ")
3. Connection gas supply (1/2 ")
4. Connection of cold water (1/2 ")
5. Connection cv-return (3/4 ")
6. DHW / gasaansluitpijp ø15 mm, 30 cm long
7. CV-connection pipe ø22 mm, 30 cm long
8. CV-overflow ø15 mm compression
9. Discharge condensation
10. Condensate drain hose (outer dia 25 mm)
11. Dirty Canister of the siphon
12. Mains plug 230V, cable length 1 m. (Post outlet within reach!)
13. Compression fitting (15mm compression / 1/2 " bi. Gas)

Pay attention!
This clamp fitting (13) may not be mounted directly on the 1/2 " gas connection of the boiler!

Close displayed belong to

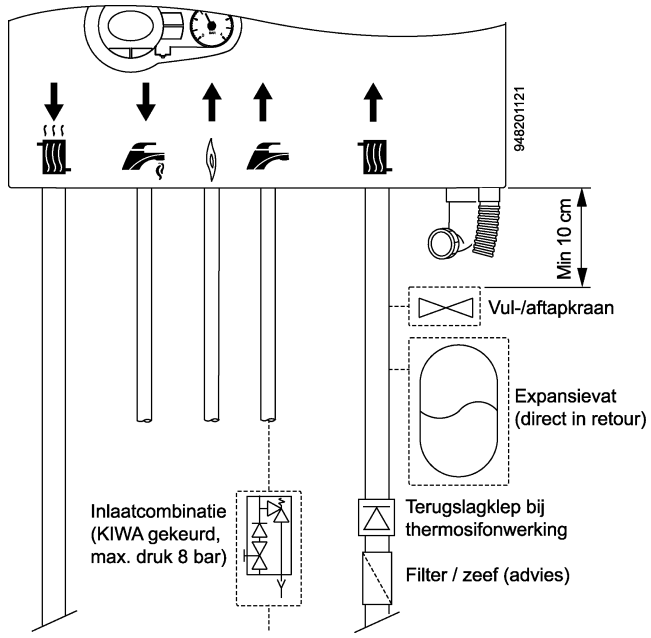


Figure 10.6

Test Water from device

Pay attention! When removing the sealing caps and during assembly of the boiler can test water from the phone lines!

Potential free connection

Lines only connect after 50 cm beugelen and free of tension. Use plastics or rubber inlaid brackets in order to prevent noise during warming.

Underfloor

Apply solely oxygen-impermeable pipes for floor heating. Using a hydraulic system neutral and is not, existing underfloor heating systems (with the possible non-diffusion-tight tubes) to a separation exchanger.

Fine lines

Make sure the pipes and connections are clean cvinstallatie.

expansion

An expansion should always be directly connected to the return connection of the unit.

Place, optionally, a filter / strainer

In existing heating systems, we recommend installing a filter or sieve in the return pipe of the unit.

Unwanted natural circulation (thermosiphon effect)

If the unit is substantially the lowest point of the instal-lation, can cause undesirable natural circulation (thermosiphon effect). This depends on the heating pipe loop. Mount possibly the return of the unit a check valve.

Setting heating power 80%

By default, the unit set at 80% heating power. In the settings menu can be raised or lowered power.

10.5 Bypass in the central heating system with automatic closure (including thermostatic) radiator valves

An external hand adjustable bypass (or always open radiator valve) is necessary if the device to a central heating system is connected where the flow can be blocked (eg. If anywhere thermostatic valves are used). Ferroli advocates to put away the manually adjustable bypass as far away from the boiler to maximize the water content of the bypass circuit.

The integrated quick air release valve at the device should not be used as a bypass.
During normal operation, the tap must be closed! See also p. 36.

10.6 Connecting a solar or heat pump water heater

A solar or heat pump water heater is also referred to on this page as 'boiler'. This' water heater is a water preheater. The Blue Sense is suitable to be used as a heater for sunlight systems (with a maximum water temperature of 85 o C). For information about the water pressure Section 14.3. Read the manual of the boiler, eg. for the recommended distance between the boiler and the boiler.

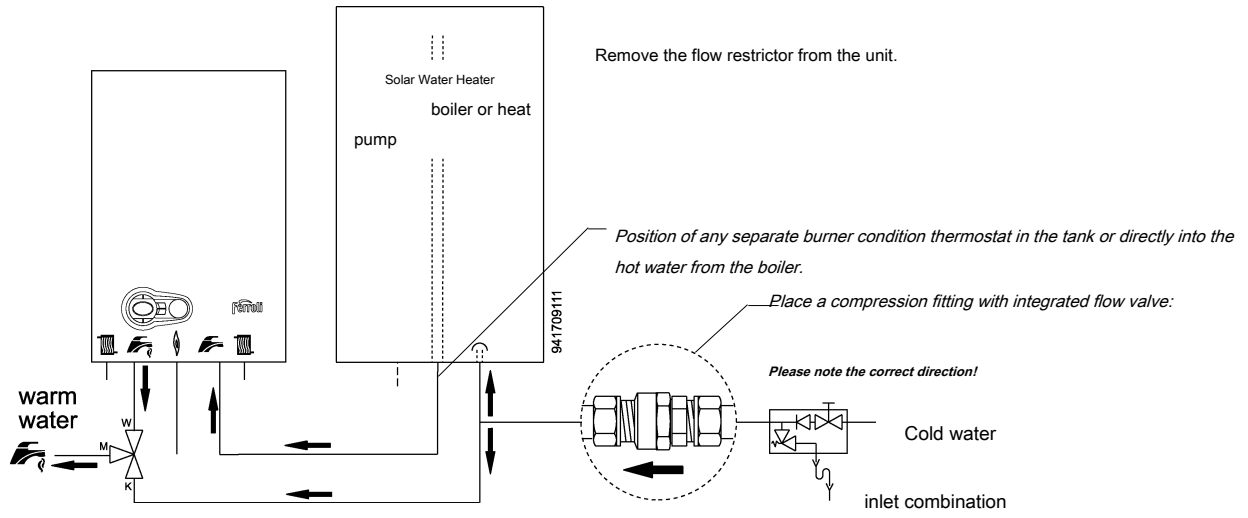
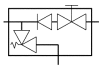


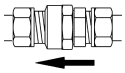
Figure 10.7

For the electrical connection, see also p. 21, and the installation requirements of the solar heater or heat pump!

Fit:

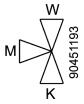


An inlet combination



An excess flow valve with gaskets. (Note that flow direction: O-ring has to be pressed through the water flow in the limiter!)

- BlueSense 3 : 6 l / min, item no. 1501080
- BlueSense 4 : 7.5 l / min, item no. 1501081
- BlueSense 5 : 9 l / min, item no. 1501082



A thermostatic mixing valve. W = K = Cold Water Hot water connection terminals M = Mixing water to the house installation

This valve is required.

Thermostatic mixing valve

On sunny days, the temperature in a solar water heater to 85 o incur C. In order to avoid a too high temperature hot water, the installation of a thermostatic mixing valve is needed.

Important: tapwatertempratuur not change setting!

Set the hot water temperature (DHW setpoint) not less than 60!

- **not turn off device:** Switch when using eg. A solar or heat pump water heater never BlueSense out!
- **Comfort mode:** In combination with a solar or heat pump water heater, the BlueSense should always be set to comfort!

Room thermostat connector BlueSense

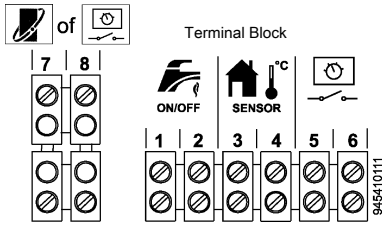


Figure 10.8

1. Solar water heater or heat pump water heater with Open-Therm-connection, which is suitable to switch off tap- water feature:

1-2	Transfer 7-8 OpenTherm connection to the boiler.
	Room thermostat connection to boiler

2. Boiler with built brandervoorwaarde- thermostat:

1-2	Connection condition burner thermostat for Turning on / off of tap water in combination device: - = contact closed flow sensor activated. - contact open = flow sensor activated.

3. Boiler without burner thermostat condition:

1-2	Place in the hot water pipe between the water heater and the combi-device an external burner condition thermostat set at 60º C. Place this thermostat directly with (or preferably in) the hot-water outlet of the water heater. **ATTENTION:** External thermostats / contacts must be suitable for 15 mAmp.DC direct current.

10.7 Connecting gas side

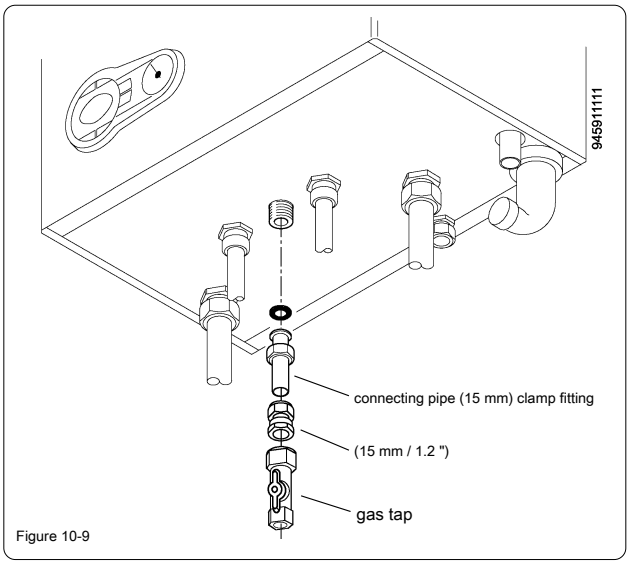


Figure 10-9

1. Is the device suitable for the delivered gas?
2. Remove the plastic cap of the apparatus;
3. Assemble the connecting pipe and the 15mm compression / 1/2 " internal thread coupling (included);
4. Assemble a gas shut-off valve in the gas line; If the unit is mounted on an old steel gas pipeline, it is recommended a filter in place the gas pipeline (between the unit and the gas valve).

Fine line

Blow the pipe for installation or by knocking out the dirt to prevent defects of the gas control.

Stress-free connection

Mount the connector in such a way that the lines in the device are stress-relieved.

Connection

Connect the gas line to the known and current gas regulations. Take into account the additional requirements of the local power company. The connection of the device is not a determining factor for the diameter of the inner conduit. This should be determined depending on the length of the conduit.

check gas leakage

When checking for gas leakage from the inner pipe must be ensured that the device is not squeezed out together with the inner conduit.

control gas block

If also the gas valve must be checked for tightness, the test pressure must not be higher than 150mbar (1500 mmWG).

At a higher pressure leakage may occur due to damage of the membrane.

10.8 Connecting condensate drain + CV overflow

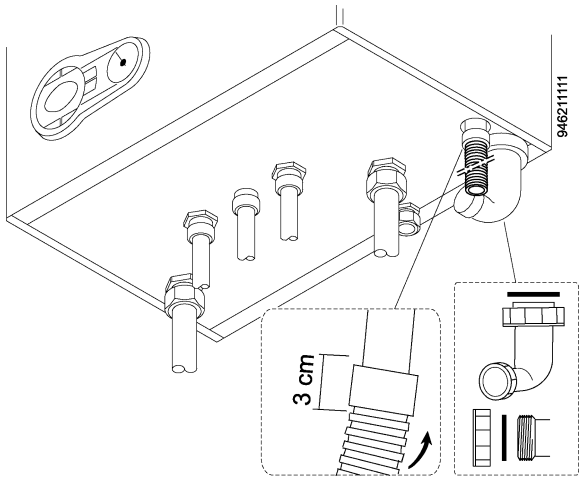


Figure 10.10

- Slide the drain hose about 3 cm over the connection pipe;
- Place the dirt canister with the cap forward so that it can be easily cleaned.

Fill the siphon device by approximately 1 liter of water pouring through the condensaf-supply hose into the unit. This is to prevent egress of combustion gas from the trap.

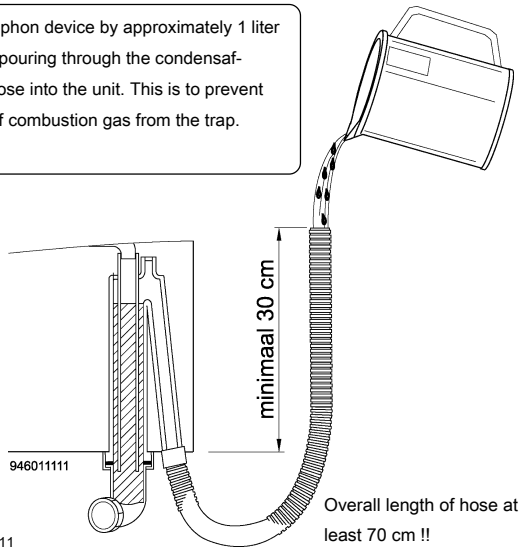


Figure 10-11

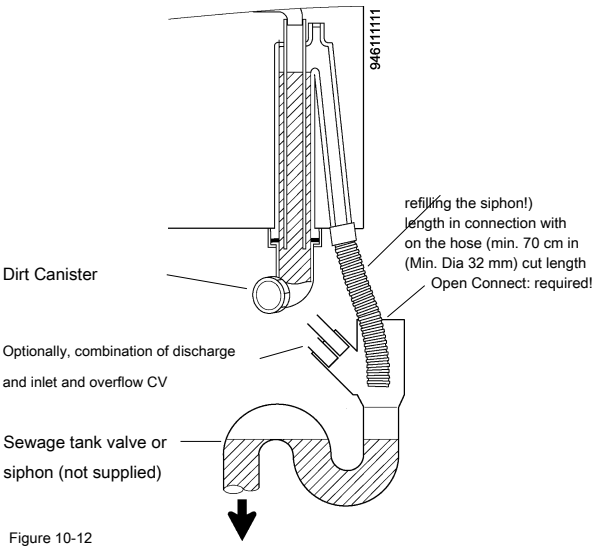
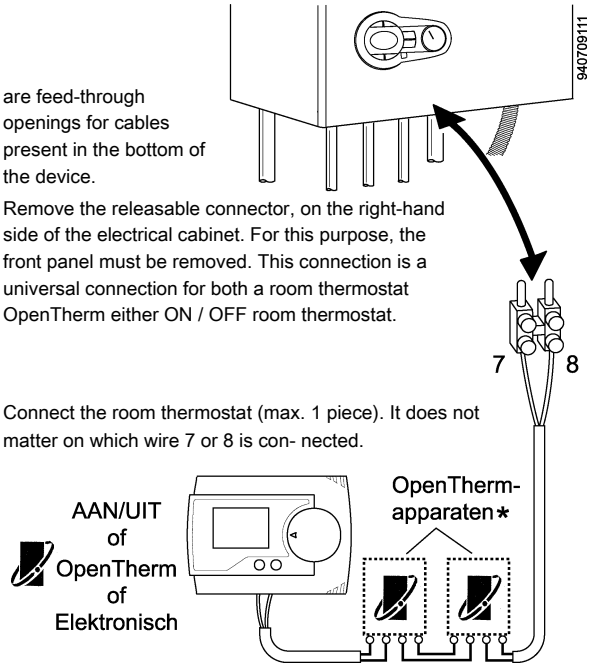


Figure 10-12

- Put the drain to frost (eg. Not in the gutter).
- Mount the sewer drain sloped.
- The trap should be easily accessible for maintenance.

10.9 Connecting the room thermostat, any outdoor sensor or boiler sensor

Connecting a room thermostat



are feed-through openings for cables present in the bottom of the device.

Remove the releasable connector, on the right-hand side of the electrical cabinet. For this purpose, the front panel must be removed. This connection is a universal connection for both a room thermostat OpenTherm either ON / OFF room thermostat.

Connect the room thermostat (max. 1 piece). It does not matter on which wire 7 or 8 is con- nected.

Figure 10-13

Room thermostat with anticipation stream

This unit can not be connected ON / OFF room thermostat with a heat acceleration (anticipation stream), for example. Honeywell T87F.

Appliances energized

Make sure your device (and possibly. OpenTherm other devices) is disabled during the installation! Otherwise there is a risk that the thermostat and boiler malfunction.

If an Open Therm room thermostat is plugged in, sometimes dilapidated some functions on the device and serve these settings on the thermostat if necessary. be adjusted (depending on the model room thermostat).

* Any other OpenTherm devices always connected between the room thermostat and the boiler. Another Opentherm apparatus may be a solar or heat recovery unit. For details, see the instructions for that device. this check the correct operation of the room thermostat and the boiler.

Connecting an external sensor or additional room thermostat

Remove the front panel

- Tighten the screws to the underside of the front panel. (It is not necessary to completely remove the screws!)
- Pull the front panel at the bottom forward and lift it out of its suspension points (upper side).

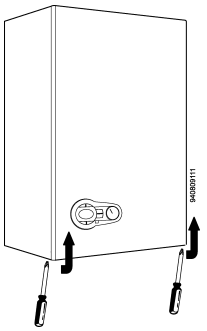


Fig 10.14

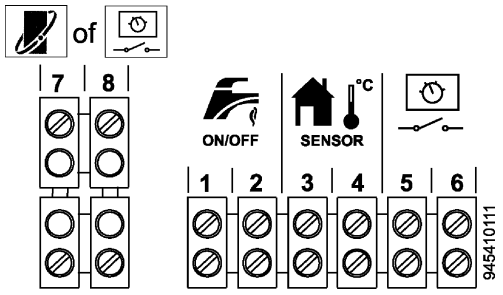


Figure 10-15

1-2 applies to the case of type BlueSense 3/4/5:		
	CONTINUITY = ON:	**OPEN CONNECTION = OFF:**
	flow Sensor enabled (default)	Flow sensor OFF: no hot water available
3-4 Option: connecting external sensor (NTC 10kOhm at 25 o C) 1)		
5-6 Connecting an extra ON / OFF room thermostat with potential-free contact. For an explanation right at 'connecting an additional room thermostat " 2).		
7-8 Universal room thermostat-terminal: Connect one OpenTherm or one on / off room thermostat or one electronic thermostat.		

1) Connecting an external sensor (3-4)

Connect the outside when using the civil liability regime of the device or a third-party control of an Open Therm room thermostat. Mount the external sensor on an outside wall, out of the sun and on the north or north-east side of the housing, min. 1 meter from the ground, and is not affected by a possible heat source, such as a ventilation opening or a window.

2) Connect (option) ON / OFF room thermostat

On the terminal 5-6 may be a (or more) extra be connected to ON / OFF-switching thermostat. Requirements / comments on the additional thermostat:

- There is NO additional OpenTherm thermostat cuts are closed.
- This additional thermostat should be a stress-free on / off switching thermostat.
- A thermostat with a heat acceleration (anti cipatiestroom), for example. Honeywell T87F, is not working properly.
- If there are two additional ON / OFF thermostats are connected in parallel serve terminal 5 - 6 to be connected.
- There may be two so-called NO "Power Stealing" - thermostats are connected to this jack.

11. FIRST COMMISSIONING OF THE UNIT

taking 11.1 Preparations and business

Follow steps 1-10 before plugging the mains plug into the socket

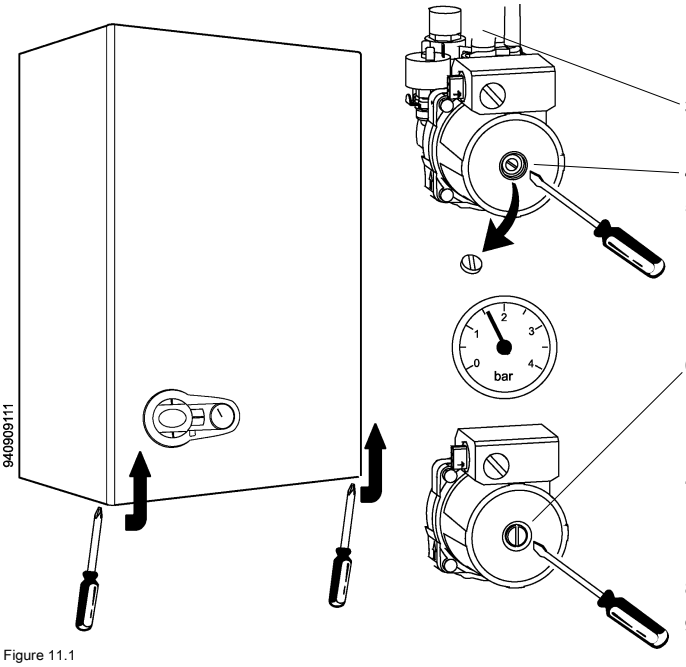


Figure 11.1

1. Record type and serial number of the device on the back cover.

2. Remove the front panel of the jacket

Tighten the screws to the underside of the front panel slightly loose. Pull the front panel at the bottom forward slightly and lift the front panel from its suspension points.

3. On the air vent valve is, instead of a tip cap a small tube plugged in. The vent will always work automatically.

4. Loosen the axis of the pump

5. Fill the system slowly (due to bleeding)

Use only clean tap water. Do not use demineralised water. It is not allowed to add chemicals to the water. When adding this will void the warranty on the device.

6. Purge the pump

Unscrew the sealing cap from the pump a turn and vent the pump. Make sure the pump switch is in the highest position.

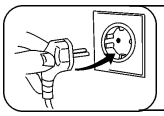
7. Fill the hot water portion

Open the inlet assembly and vent the hot water portion using the hot water taps.

8. Check connections for leaks (also in the unit)

9. Vent the gas line

10. Check the pump. This MUST at max. Speed stand!



commissioning

1. Open the gas tap.

2. Insert the plug in the socket (with earth connection).

The socket should be easily accessible;

3. Make sure the pump switch on max. Speed is!

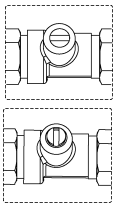
4. The device starts with startup and vented his program,

which takes about 5 min (FH visible in the display.);

5. Very important:

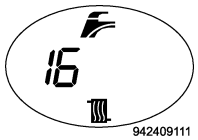
Make sure the unit is well vented.

If necessary, use the snelont- luchtingskraantje behind the electrical box.



6. Turn the tap after use close!

7. After starting you can see the pressure in the heating system (e.g. 16 = 1,6 bar). The device is ready for use or immediately starts for central heating or hot water comfort mode.



8. Check the operation for DHW

Turn the hot water tap and check if the device is working properly.

Measure the volume flow: BlueSense 3: ± 6 l / min.

BlueSense 4: ± 7.5 l / min.

BlueSense 5: ± 9 l / min.

9. Check operation for the heating-use

Set the room thermostat high.

Make sure the device for heating mode works well.

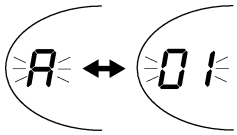
10. Replace the front panel of the unit

Tighten the screws.

11. Vent the heating installation, and if necessary, fill once again at.

Alarms and Error Codes

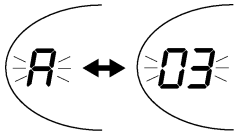
If a particular code flashes or there is nothing to see on the display, something is wrong. A code consists of the letter A or F and a number. The letter and number are alternately flashing on the display.



Alarm Code A01.

Possible Cause + solution:

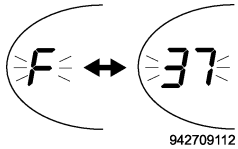
- The gas valve is close, or the gas pipe is not properly vented. Check this out. To start the machine again, press reset



Alarm Code A03.

Possible Cause + solution:

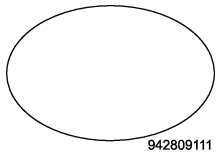
- No water circulation. The pump is not running. Check this out. To start the machine again, press reset



Error code F37.

Possible Cause + solution:

- The water pressure in the heating system is too low. Fill the installation with (see p. 9). Reset is not required. After filling, the device comes automatically into operation (start-up program).



Empty display.

Possible Cause + solution:

- The plug is not in the socket;
- There is no voltage at the electric socket. This can be checked by connecting another device to it.
- The fuse inside the unit is defective.

Instruct the user

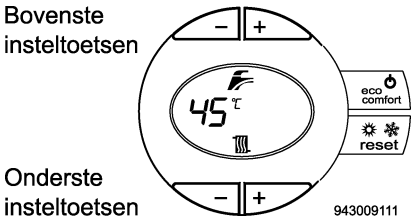
- In the room where the room thermostat is always all radiators should be open.
- The first weeks after appliance installation the radiators must be properly vented. P. 9.
- Explain the use of comfort / economy mode off (blz.6-7).

11.2 Tuning the device to install (installer menu) also see pp. 24 and 25

INSTALLERS MENU

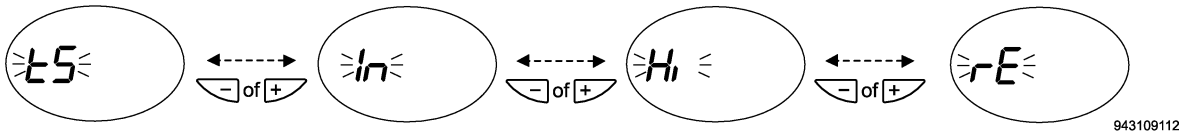
1 **You want to start INSTALLERS MENU?**

The RESET button reset a minimum of 20 seconds to press, you enter the 4 menus for the installer. (Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed).



2 By pressing on the lower adjustment keys − of + you can choose from four different submenus

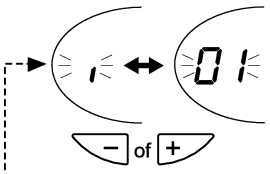
1. INSTELLINGENMENU **2. INFORMATIEMENU** **3. STORINGSMENU** **4. WIS STORINGSHISTORIE**



3

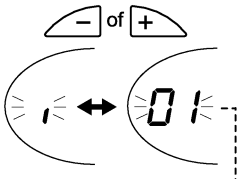
See also p. 24.

Druk kort op reset en u komt in het instellingenmenu.

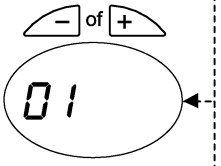


Met de onderste toetsen doorloopt u de lijst met instellingen.

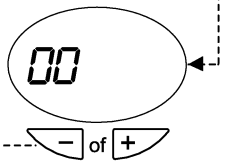
Zie volgende bladzijde voor de instellingenlijst.



Drukt u 1x kort op één van de bovenste toetsen, verschijnt de waarde van de betreffende instelling.



Druk nogmaals op één van de bovenste toetsen om de waarde van de instelling aan te passen.

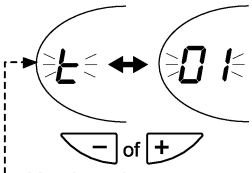


Druk op 1 van de onderste toetsen om terug te gaan naar de lijst met instellingen.

Als u 1x kort op reset drukt, ziet u het begin van het INSTELLINGENMENU weer.

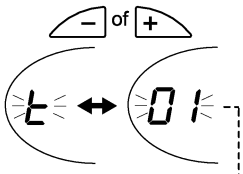
See also p. 25.

Druk kort op reset en u komt in het informatiemenu.

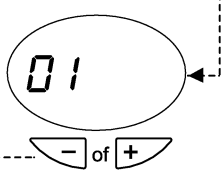


Met de onderste toetsen doorloopt u de lijst met informatienummers.

Zie volgende bladzijde voor de getoonde informatie.



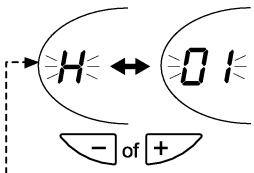
Drukt u 1x kort op één van de bovenste toetsen, verschijnt de waarde van het betreffende informatienummer.



Druk op 1 van de onderste toetsen om terug te gaan naar de lijst met informatienummers.

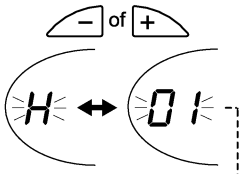
Als u 1x kort op reset drukt, ziet u het begin van het INFORMATIEMENU weer.

Druk kort op reset en u komt in het storingsregistratiemenu.

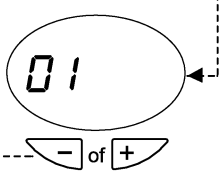


Met de onderste toetsen doorloopt u de lijst met storingsposities.

H01 is de laatst opgetreden storing, H02 de voorlaatste, enz.



Drukt u 1x kort op één van de bovenste toetsen, verschijnt de foutcode van de betreffende storingspositie. (bijv. 01=A01)



Druk op 1 van de onderste toetsen om terug te gaan naar de lijst met storingsposities.

Als u 1x kort op reset drukt, ziet u het begin van het STORINGSMENU weer.

Druk 3 seconden op eco comfort (eco/comfort-toets) en u verwijdert de foutcodes uit de toestelhistorie.

Hierna wordt het gewone display direct weer zichtbaar.

4 **You want to stop INSTALLERS MENU?**

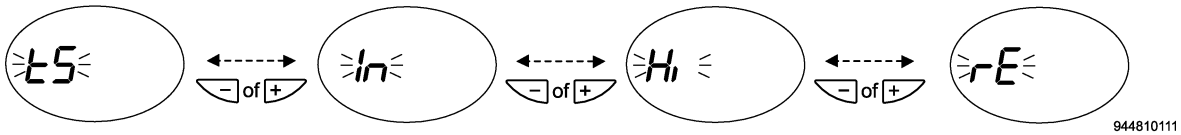
Then 20 seconds on the reset button reset (Or wait about 15 minutes) and stops the Installer menu.

1 **You want to start INSTALLERS MENU?** For all menus, p. 23. RESET button reset pressing at least 20 seconds, you enter the 4 menus for the installer.

(Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed).

2 By pressing on the lower adjustment keys − of + you can choose from four different submenus

1. INSTELLINGENMENU **2. INFORMATIEMENU** **3. STORINGSMENU** **4. WIS STORINGSHISTORIE**



944810111

3			
Druk kort op reset en u komt in het instellingenmenu. See below.	Druk kort op reset en u komt in het informatiemenu. See p. 25.	Druk kort op reset en u komt in het storingsregistratiemenu.	Druk 3 seconden op eco comfort (eco/comfort-toets) en u verwijdert de foutcodes uit de toestelhistorie.

11.2.1 Settings Menu BlueSense

The RESET button reset pressing at least 20 seconds, you enter the 4 menus for the installer.

(Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed). After the 20 seconds, is shown on the display: **tS.** This is all right the settings menu. Release the RESET button. By pressing the RESET button reset briefly pressing, you enter the settings menu itself.

The display shows the first **i ÷ 01 (** the letter i and the number 01 will flash alternately). With the lower adjustment keys or CV-CV + − + You can scroll through the menu of i to i ÷ 01 ÷ 16.

With the upper adjustment keys unemployment or WW + − + you can change the set value.

ATTENTIE : De gewijzigde waarden worden pas door de ketelregeling overgenomen nadat met de onderste insteltoetsen doorgeschakeld is naar een andere instelling of nadat men het instelmenu heeft verlaten !!!!!!! Dit is om te voorkomen dat direct geregeld gaat worden op toevallig foutief ingestelde waarden.

Instel	Omschrijving instelling.	Instelling vanaf fabriek		Instelbereik
i ÷ 01	Afstemming van print op toestelmodel 1 = Warmtewisselaar bithermic met ingebouwde warmwaterspiraal. 2 = Warmtewisselaar monothermic met separaat voorraadvat voor warm water. 3 = Warmtewisselaar monothermic met platenwisselaar voor warm water.	**moet 1 zijn**		1 - 3
i ÷ 02	Ontsteekniveau (%.) Niet lager instellen dan 20.	40		00 - 100
i ÷ 03	Toestel type BlueSense 3, 4 of 5 (CW klasse)	4		3 - 5
i ÷ 04	CV-stijgingslijn cv aanvoertemperatuur (°C/min)	1		1 - 10
i ÷ 05	Pomp regeling voor CV 0 = Pomp loopt alleen bij CV vraag plus een nadraaitijd 1 = Pomp loopt continu (maar niet tijdens warmwatervraag) 2 = Modulerende pompregeling voor CV met een nadraaitijd.	2		0 - 2
i ÷ 06	Modulerende regeling pomp minimum (%). Niet lager instellen dan 20.	30		00 - 100
i ÷ 07	Modulerende regeling pomp maximum (%). Niet lager instellen dan 40.	75		00 - 100
i ÷ 08	Begrenzing maximale instelling cv-setpoint (°C) voor de CV ontwerpconditie.	90		20 - 90
i ÷ 09	Begrenzing capaciteitsinstelling voor cv (%)	80		00 - 100
i ÷ 10	Maximaal vermogen voor tapwaterbereiding (%)	100		00 - 100
i ÷ 11	Ventilatortoerental tijdens Stand-by (Hz). Niet lager instellen dan 25.	0		00 - 100
i ÷ 12	Modulerende pompregeling dT (°C) voor CV. Niet hoger instellen dan 25.	18		00 - 60
	dT = temperatuurverschil tussen aanvoer- en retour CV bij ontwerpcondities. Bijvoorbeeld installatie 90-70 → dT = 20 (ook 18 is ok) en bij 60-50 → dT = 10.			
i ÷ 13	Weersafhankelijke regeling stooklijn (0 = weersafhankekijke regeling uit) (zie blz. 27)	0		00 - 10
i ÷ 14	Voetpunt stooklijn van de weersafhankelijke regeling (zie blz. 27)	30		20 - 40
	Voetpunt = gewenste CV-aanvoertemperatuur bij een buitentemperatuur van 20°C.			
i ÷ 15	Het minimum startpunt van de CV-stijgingslijn bij warmtevraag (°C)	45		20-80
i ÷ 16	Functie van optioneel extern relais met potentiaalvrij maakcontact.	0		0-5
	0 = Externe gasklep. Relais is bekrachigd bij warmtevraag/branderbedrijf.			
	1 = Externe signalering. Relais is bekrachtigd bij storing.			
	2 = Niet van toepassing voor de BlueSense			
	3 = Niet van toepassing voor de BlueSense			
	4 = Externe extra CV pomp. Relais is bekrachtigd als de ketelpomp in bedrijf is.			
	5 = Externe fail-safe signalering. Relais is bekrachigd bij normaal bedrijf en in standby.			

Door de RESET knop meer dan 20 seconden in te drukken kan men het menu weer verlaten.
Nadat minimaal 15 minuten geen knop is ingedrukt wordt het menu ook verlaten.

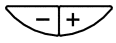
11.2.2 Information Menu BlueSense

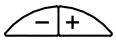
The RESET button  pressing at least 20 seconds, you enter the 4 menus for the installer.
(Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed). After the 20 seconds, is shown on the
display: tS. This is the setting menu (see p. 24). Release the RESET button.

Press for information menu on the lower adjustment button CV +  . **The display is visible: In.**

By pressing the RESET button  briefly pressing, you enter the information menu itself.

The display shows the first t: 01 (the letter T and the number 01 will flash alternately). With the lower

adjustment keys or CV-CV +  You can scroll through the menu t: 01 to F: 13.

With the upper adjustment keys unemployment or WW +  You can read the measured value.

Info	Omschrijving meetwaarde (indicatieve meetwaarden).	Eenheid		Bereik
t ÷ 01	Temperatuur aanvoersensor 1 (van dubbelsensor)	°C		0-125
t ÷ 02	Temperatuur aanvoersensor 2 (van dubbelsensor)	°C		0-125
t ÷ 03	Temperatuur retoursensor	°C		0-125
t ÷ 04	Temperatuur tapwatersensor	°C		0-125
t ÷ 05	Temperatuur buitentemperatuursensor (knippert indien niet aangesloten)	°C		-30-70
t ÷ 06	Temperatuur rookgassensor	°C		0 - 125
F ÷ 07	Toerental ventilator	Hz		0 - 250
L ÷ 08	Actuele branderbelasting in het regelbereik (0 = minimum en 100 = maximum)	%		0 - 100
F ÷ 09	Indicatie tapwaterhoeveelheid (aangegeven waarde delen door 10 = l/min).	l/min x 10		0 - 99
	Dit geldt niet voor het keteltype BlueSense A.			
P ÷ 10	Druk in CV installatie (aangegeven waarde delen door 10 = bar)	bar x 10		0 -100
P ÷ 11	Modulerende pomp % modulatie (100 = max toerental)	%		10 - 100
P ÷ 12	Niet van toepassing voor de BlueSense.			
F ÷ 13	Brander vlamsignaal	microAmp x 10		00 - 100

Door de RESET knop meer dan 20 seconden in te drukken kan men het menu weer verlaten.
Nadat minimaal 15 minuten geen knop is ingedrukt, wordt het menu ook verlaten.

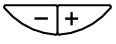
11.2.3 Fault Menu BlueSense

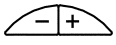
The RESET button  pressing at least 20 seconds, you enter the 4 menus for the installer.
(Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed). After the 20 seconds, is shown on the
display: tS. This is the setting menu (see p. 24). Release the RESET button.

Press the menu 2x interference on the lower adjustment button CV +  . **The display is visible: Hi.**

By pressing the RESET button  briefly pressing, you enter the fault menu itself.

The display shows the first H: 01 (the letter H and the number 01 will flash alternately). H01 is the latest failure. With the lower adjustment keys or

CV-CV +  You can walk through the fault menu: H02 is the latest fault, etc.

Press 1x on one of the upper adjusting keys or WW WW +  , the error code of the relevant fault position
(Example: 01 = A01).

The RESET button to press more than 20 seconds can exit the menu again. After at least 15 minutes no button is pressed,
the menu will also exit.

11.2.4 Menu Erase Fault History BlueSense

The RESET button  pressing at least 20 seconds, you enter the 4 menus for the installer.
(Tel for this purpose, preferably, the rotating hooks on the display as soon as the RESET button is pressed). After the 20 seconds, is shown on the
display: tS. This is the setting menu (see p. 24). Release the RESET button.

Press the menu Erase fault history 3x the lower control button CV +  . **The display is visible: re.**

This is the Clear fault history menu. The eco

/ comfort button  Pressing for 3 seconds, remove all fault codes from the fault history.
After this, the normal display is immediately visible again, the fault history is cleared.

11.3 Overview of room thermostats and weather-related schemes

Choice of temperature control manually or automatically	Service:	necessary components	Settings BlueSense and / or liability regime Thermostat
Room Temperature Controls: Number 1 and 2			
1 Right away room thermostat	manual	room thermostat [1] ON / OFF type or OpenTherm	
2 Right away room thermostat	Automatically	clock Thermostat [1] ON / OFF type or OpenTherm	
Weather-dependent systems [2]: number 3 t / 7 m			
3 Each room separately, None independently from each other	setback	**The liability regime of the BlueSense** • jumper at input ON / OFF room thermostat BlueSense • outdoor sensor [3] • bypass [4] • everywhere thermostatic (radiator) cranes [5]	Activate the liability regime of BlueSense in the WA-menu. Select a curve and a nadir. See p. 27. [6]
4 Every space separately, Manual independently from each other	(Night) reduction • room thermostat ON / OFF type or using a room- thermostat OpenTherm	**The liability regime of the BlueSense** • outdoor sensor [3] • bypass [4] • everywhere thermostatic (radiator) cranes [5]	Activate liability regulations BlueSense in the WA-menu. Select a curve and a nadir. See p. 27. [6]
5 Each separate space, independently from each other	Automatic setback	**OT-room thermostat control WA [7]** See the explanation liability regime • e.g. Ferroli Romeo clock thermostat • outdoor sensor [3] • bypass [4] • everywhere thermostatic (radiator) cranes [5]	in the manual Open Therm room thermostat. [7] The liability regime of can stay out BlueSense itself. [8]
6 Each separate space with ruimtetempera- setback temperature compensation [9] from leaving where the room- thermostat hangs.	Automatic	**OT-room thermostat control WA [7]** See the explanation liability regime • e.g. Ferroli Romeo clock thermostat • outdoor sensor [3] • bypass [4] • everywhere thermostatic (radiator) cranes [5]	in the manual Open Therm room thermostat. [7] The liability regime of can stay out BlueSense itself. [8]
7 separately in every room, dep details. from **WA external controller** depending details Type WA-regulator	Type WA-WA • regulator controller with potential-free contact • see note [10]		See explanation of the liability scheme manual WA controller

1) For a good temperature thermostat must have one of the two properties listed:

a. Two-wire electronic ON / OFF (clock) thermostat setting cycle (**potential-free contact)**

> This unit can not be connected ON / OFF room thermostats with a heat acceleration (anticipation stream), for example, the T87F. This function incorrectly.

b. OpenTherm (clock) thermostat (two-wire, depending on the type is elimination of keep warm position possible).

2) It should be noted that an WA-scheme does not reflect simply a power saving.

3) The external sensor is to be a NTC sensor 10 kOhm, connected to the appliance. For more information on page 21.

4) Are there thermostatic valves fitted, there must exist a bypass. Set it well.

5) may be in the room where the room thermostat is not thermostatic (radiator) valves mounted on radiators and / or convectors. However, this may cause a fluctuation in room temperature of +/- 1 o C. Therefore we recommend anywhere to use thermostatic (radiator) valves to control the temperature after each indi vidual space.

6) The liability of the menu BlueSense activate weather-dependent control of the device. The correct value depends on the heating system. See page 27 for the correct value and possible adjustment of the base point.

7) Some clock thermostats, such as Ferroli Romeo, have a built-liability regime. Note: The heating setpoint, set the BlueSense is also the maximum heating flow temperature for this situation.

8) If the liability regime used an OT room thermostat, the liability regime of the Blue Sense can also be put to. In this case, the liability regime of the BlueSense as additional weather-dependent temperature limitation.

9) The temperature compensation ensures that the system also responds to the impact of the rain, the wind and the sun.

10) When connecting an external third-party controller, the pump should be put on continuous rotation.

- Connect ON / OFF control contact connection 7-8.
- I ÷ 05 setting of the setup menu should be put on this one: see page 24.
- The temperature sensor at least 1 meter from the BlueSense should come to be mounted on a central heating pipe.

11.4 Follow steps 1 t / m 7 for adjusting the Weather-dependent control

The settings depend on the heating system, crack density of the home and the desired aanwarmsnelheid.

1. Ensure that an external sensor is connected!

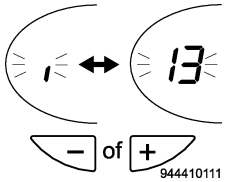
2. Activate the settings menu, see p. 24.

3. Adjust the settings i ÷ 13 (floating) and i ÷ 14 (nadir) in.

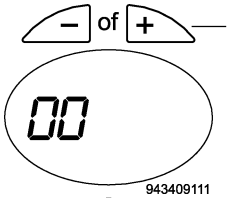
> Can i ÷ 13 ÷ 14 and i only set if a properly functioning external sensor is connected!

4. Continue with the bottom adjustment keys to i ÷ 13 (heating curve).

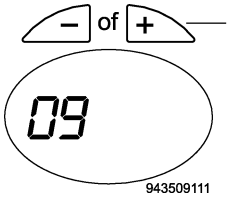
(The letter i and blink rate 13 alternately)



5. Set the correct heating curve i ÷ 13.



Press 1x on − or + and you can see the set heating curve. At 00 is off the weather-dependent control.

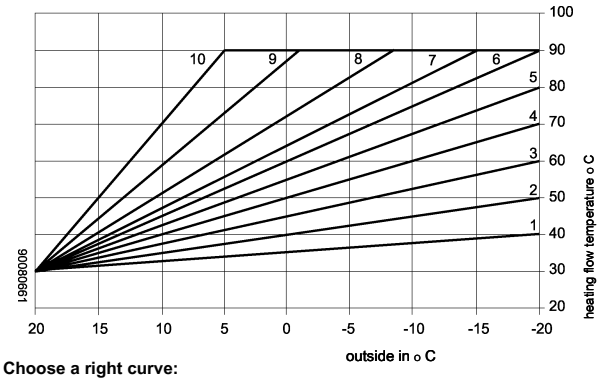


Adjust − or + proper heating curve.

See opposite for advice.

Pay attention! The value is only adapted to the system as soon as you lower the setting keys by switching to another institution.

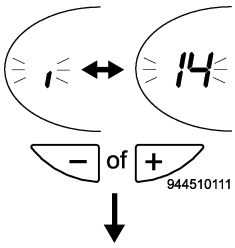
Heating curves: when heating setpoint 90 o C, and a base point of 30. By adjustment of the foot point, sliding along the heating lines.



Choose a right curve:

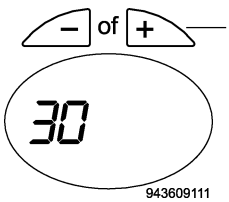
Radiators and / or convectors 90/70 o C: ..... curve 9 Nageïsoleerde house + oversized radiators: ..... curve 7 or 8 radiators + floor heating as additional heating: .... heating line 8 or 9 Low Temperature Heating: heating curve 5

6. Continue with the bottom adjustment keys to i ÷ 14 (foot point).



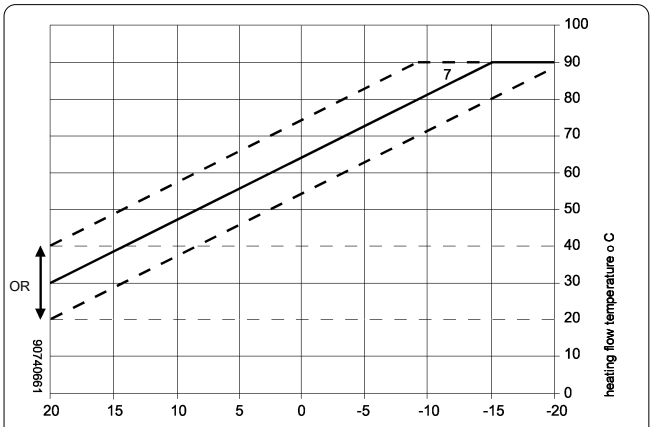
(The letter i and 14 flash alternately).

7. Set the desired foot point with i ÷ 14.



Press 1x on − or + and you see it set base point (30 in this example). Adjust − or + the desired value.

Pay attention! The value is only adapted to the system as soon as you lower the setting keys by switching to another institution.



Foot point shift

Weather-dependent control is set. Exit if the settings menu for the installer, see below p. 24.

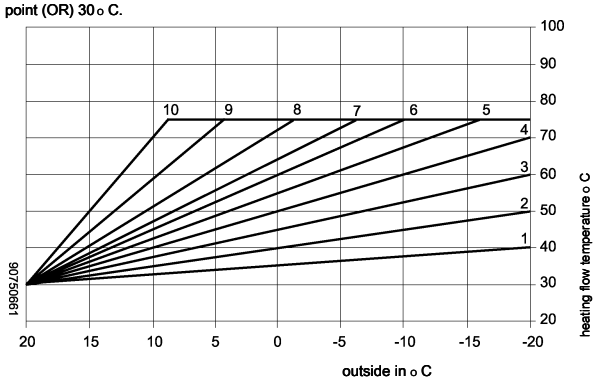
Influence of the heating setpoint the heating curves

The heating set point determines the maximum desired heating flow temperature. The heating curves are, as it were bounded by the central heating set point.

This influence is true both when the weather-dependent control of the BlueSense itself, as in an activated weather-dependent control of an OpenTherm room thermostat. See the user menu on page 6 for an explanation of the setting of the heating setpoint.

The weather-dependent control of the BlueSense works as a maximum limit for other external govern- boot.

This graph is for a central heating set point setting of 75 o C and a base point (OR) 30 o C.



12. MAINTENANCE

12.1 General information

Regularly and properly executed maintenance can prevent incremental failures and keep it in safe condition.

Maintenance and service reporting

This manual, on page 40 and 41, are printed maintenance and service reports. This chart shows per year now what should be done every year. The indicated size of the maintenance intervals corresponds to the available knowledge and state of the art at the time of printing this requirement. New insights or technical considerations may be conducted modifications afterwards. Here, the most current available version is considered No. servicing conditions for this unit, downloadable from our website: www.ferroli.nl.

A good and completed report gives you or your colleagues have a clear picture of the history of this unit. By completing this report can also be shown that the maintenance conducted serving any guarantees.

If it appears that by experience or an executed maintenance, frequent maintenance is required, it may be decided to shorten the maintenance intervals. For example, this may be required in highly polluted air-supply air, very intensive use, your practical, low temperature systems, or other conditions, indicating that it is necessary to shorten the time limits.

We advise you to indicate on pp. 40 and 41 in the maintenance and service reports which activities are carried out. Because of this, colleagues next visit more information on the device.

equipment needed

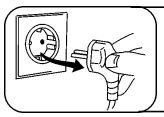
Multimeter, pressure meter (measurement accuracy +/- 2 Pascal), CO / CO_2- meter, water flow meter and thermometer. All meters should be calibrated.

230V-voltage
In the device components are present which are connected to a voltage of 230V. These are, among others, the pump, the circuit board and the fan.

hot items
If the unit for a short time functioned ago, can eg. The exchanger, the burner and the water transport pipes ran a high temperature. Enter only work out, as they have cooled.

metal parts
Be careful of possible sharp edges of metal parts.

12.2 Maintenance interval



Set the room thermostat low, do not use hot water and remove the plug from the socket.

Remove the front panel

- Tighten the screws to the underside of the front panel slightly loose. It is not necessary to completely remove the screws.
- Pull the front panel at the bottom forward and lift it to the upper side from its suspension points.

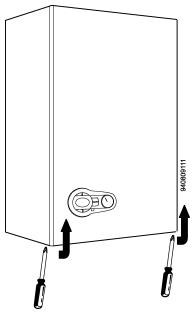


Figure 12.1

12.2.1 Maintenance CV changer

- Remove the air intake pipe of the fan.
- Remove the fan and burner check that the exchanger tubes are clean. Clean it optionally with a soft brush.

12.2.2 dirt collector cup of the siphon (see also p. 20)

- Grab a bucket and keep it under the dirt canister.
- Unscrew the cap of the dirt canister.
- Remove the dirt collection cup and rinse it.
- Unscrew the cap on the dirt canister, fill it with water and reinsert it.

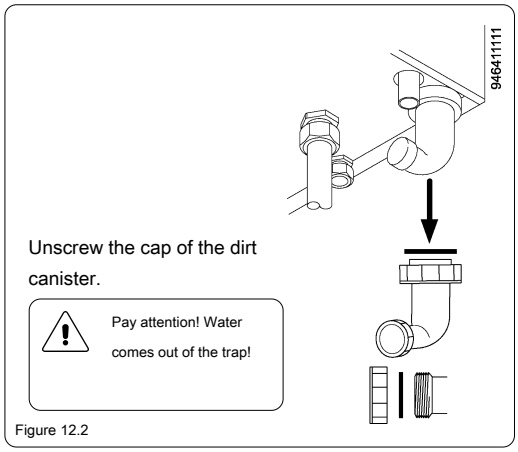


Figure 12.2

Electrode 81/82 12.2.3 flame (ignition and ionization) is replaced

Replace the flame electrode in a lot of pollution, A01 or A06 interference. Before fitting the spark gap. This should be 4 mm ± 0.5 mm!

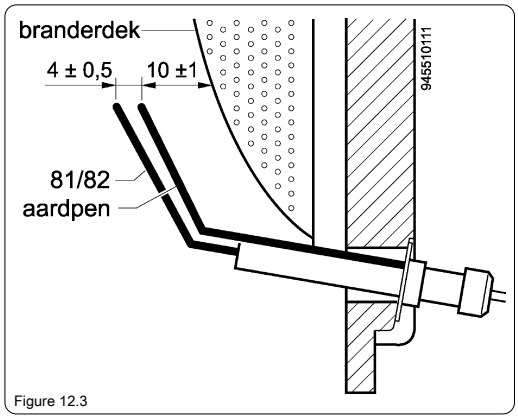
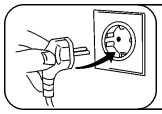


Figure 12.3

12.2.4 Replace the burner gasket and place the fan back burner.



Take the unit back into operation.
ALWAYS follow the following order: 12.2.5 - Check / correct 12.2.6.

12.2.5 Measure the gas supply pressure

At the measuring point (1) (figure 12.4) of the gas valve, the gas pressure can be measured. Check the following:

- If the device is not in operation, the pre-pressure remains constant between a value of 20-30 mbar?
- Does not drop too much gas pressure going into operation of the unit (minimum pressure 20 mbar at full load)?

12.2.6 Check the gas pressure setting of the gas valve (measuring points (1) and (2) opening with Torx T10)

Measuring conditions of gas pressure setting

VERY IMPORTANT! DELETE the front panel of the jacket. there **MUST** measured with open gear! Measuring only if the set **minimum power** burns, after waiting one minute.

- Use an accurate pressure meter (measurement precision ± 2 Pa.). Set the pressure gauge on Pascal and calibrate.
- Connect the pressure gauge: **"PLUS" Connecting to the measuring point controlled gas pressure (2).**

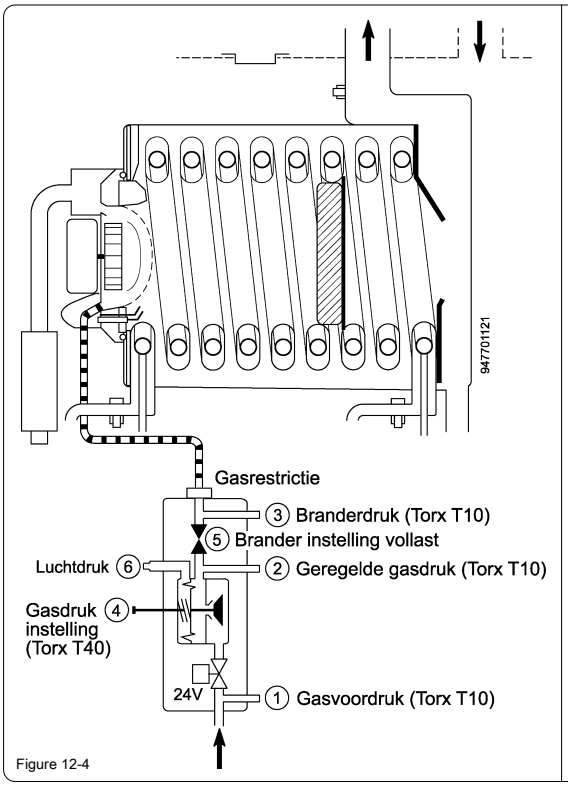
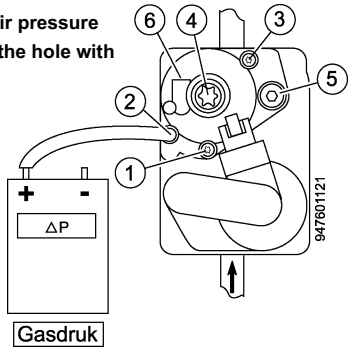


Figure 12-4

Opening (6) for ambient air pressure must be open! Screen or the hole with a protective cap!



1 Measuring point gas pressure (20-30 mbar) 2 Measuring point regulated gas pressure (minimum load) of 3 Measurement point at full load, the burner pressure setting screw 4 for gas pressure setting of 5 Institution CO_2 burner at full load (hexagon 4 mm) Pressure Setting 6

be measured **WITHOUT** phone casing.

Omrekenwaarde:
0,1mbar = 10Pa = 1mmwk 1mbar = 100 Pa = There 10mmwk **MUST**

The burner can **NOT** properly be set merely by measuring the burner pressure (3) and if available. to correct!

at measuring point (2) at minimum load.

- A PLUS gas pressure: **so more gas than air - DOM mixture**
- A NEGATIVE gas pressure: **so less gas than air - ARM mengse**
- **Recommended adjustment of the gas control valve: from -5 to 0 Pascal**

(Note: -5 to say that the gas pressure 5 Pascal is lower than the atmospheric pressure)

gas **not between - 5 and 0 Pa:** Adjust the gas pressure to 0 Pascal at minimum load.

adjust if necessary

- The adjusting screw (4) is sealed. Seal the adjusting screw after adjusting again with Torx T40!
- Set the gas pressure in exactly 0 Pascal.

check CO_2 the combustion gases at full load

This should be at full load, 8.0 - 9.5% (see p. 30). CO_2 possibly corrected with burner adjustment (5) at full load!

Remember the points on the gas again to close and seal the gas! Result of the measurement gas pressure

12.2.7 Gas Consumption

- Measuring gas consumption at max. Power. See p. 38 for maximum gas consumption.

12.2.8 Flame Electrode Functioning

- Check (listen if any) or at the start is a good spark for ignition.
- Check the condition of the cable to the flame electrode.

12.2.9 Flue gas leakage burner

Check (using eg a hot plate) on the appliance flue gas leakage between the central heating exchanger and the burner.

12.2.10 CO_2- percentage of full load / m

CO-value full load

12.2.13 CO_2- percentage of low load

CO-value low-load

Measure the CO and CO_2- percentage in the flue.

- at full load: tap fully open.
- at low load: in heating mode.

Important! : Front Panel before the CO / CO_2- does measurement. Near the opening surrounding the measurement probe during the measurement well.

Proper values of CO_2 in flue gases:

- Natural gas (G25): low-position 7.5-9.5% CO_2 full load 8-9.5% CO_2

If the CO_2- values differ, check:

- at low load: the gas pressure adjustment gas valve, See 12.2.6.
- at full load: the gas, see 12.2.7.
- gasrestrictie (presence / pollution) Note: CO_2- rate is not a measure of pollution!

Allowed values of CO in waste gases: at low-load / full load.

(Applies to natural gas)

permitted value	Rating
≤300 ppm	No objection to the use Higher CO value: find the cause of the high CO
> 300 ppm ≤1000 ppm	value and dissolve Impermissible high CO value: Turn the boiler off. Warn people not to turn on the unit. Find the
> 1000 ppm	cause of the high CO value and dissolve.

Accuracy: 20%

If the CO value is too high, check:

- the burner.
- the gas pressure setting low position, see 12.2.6.
- flue gas exhaust and air supply, see p. 13.
- flue gas recirculation.

12.2.14 Operation tap water

Check DHW.

12.2.15 water flow controller

Open a hot water tap and measure the flow. Replace the terminal unit at an excessive deviation (over 15%). See also the DHW charts on p. 37 and the technical specifications on p. 38. Also check the filter at the inlet of the flow sensor.

12.2.16 Hot water temperature

Open a hot water tap and measure the temperature. When the burner is operating for tap water, is visible on the display:

12.2.17 Links

Check the gas, tap water and central heating connections for confirmation and leakage. If necessary:

- Tighten connections
- Replace the case of leakage, the gasket or o-ring.

12.2.18 Operation for heating operation

Set the room thermostat and check the operation to resume. As soon as the burner is for heating operation, is visible in the display: As the central heating pump is energized every 24 hours for a moment, it can not get stuck in principle.

12.2.19 pressure of the heating system

- The pressure should be about 1.6 bar (at a cold heating system).
- If the pressure is on the low side (lower than 1 bar), the central heating installation has to be replenished.

When complaints from residents about extra topping or many F20 / F21 / F37 / F40 / A26-faults in the fault memory: check the expansion vessel and the heating on landfill.

12.2.20 Flue gas outlet and the air supply

Verify (connections) the air supply and flue system is in good condition and the connections are tight.

12.2.21 tappings gas block

Ensure that the nipples on the gas valve is closed! Use Torx T10.

Fit the front panel back into place.

Remember, relating to electrical safety, to the front panel by screwing the screws. Paper or other material must not rest on or against heaters. The boiler should be around freely. Check it and set it to any of the residents!

Make sure the measuring points in the flue and air supply connections on top of the unit are closed!

13. SERVICE PARTS AND FAILURES

13.1 Overview of handset and service parts (see p. 34)

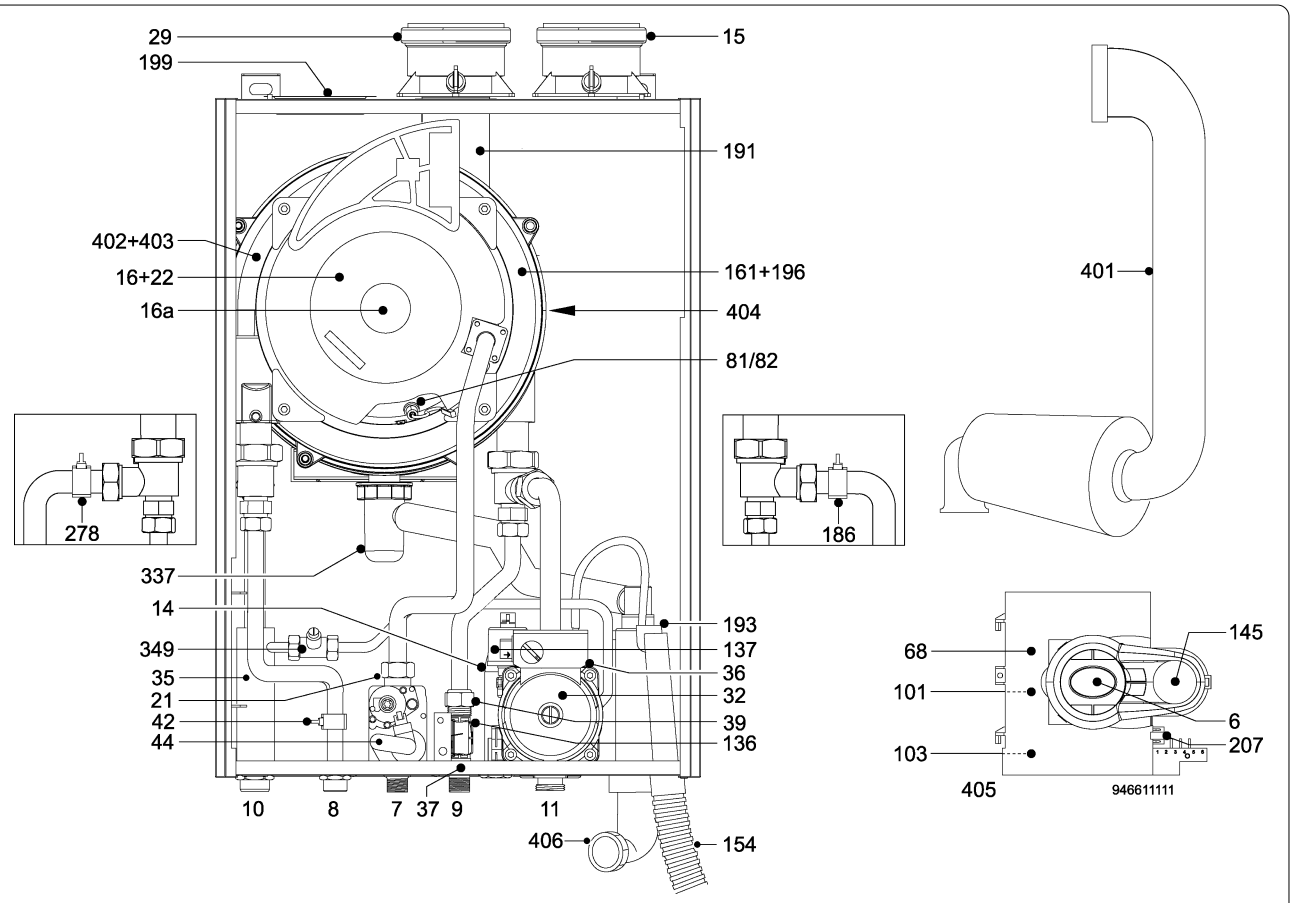


Figure 13.1 Service parts BlueSense 3-4-5

components:

- Smoke / fire / sparks banned!
- Unplug the power cord and connect the gas tap!

Fat with O-ring connections

When removing and reattachment of an O-ring connection, we recommend using (acid-free) fat. This facilitates the replacement of the part.

Genuine Parts Ferroli

Ferroli only original parts to ensure proper and safe operation.

Returning items to Ferroli

It is necessary for parts that are sent back to Ferroli, be provided with a completed return label. Place a sticker (see example below), of which about 10 have been packed with the unit, on this label or write the serial number and type of device on this label.

serial number of the device

	Description ..... Order care when replacing
6	An instrument panel 3296452
7	8 gas
	Hot water outlet 9
	Feed cold tap water 10
	Flow-cv 11
	Return CV 14
	Safety valve CV 3291012
15 + 29	Set LTV RGA 80 mm with 80 mm 1,802,305
16	Fan (on order, see 16 + 22) Fan 16a Print 3296302
16 + 22	Unit fan and burner 3,296,492
21	Gas injector 3296200
32	Pump complete Blue Sens 3-4 3,296,405
	Pump compl. Blue Sens 5 (Universal 3-4-5). 3296406 35
	Air separator 3296455
36	Automatic air vent pump Wilo 3291106
37	Strain flow sensor 3292072
39	Water flow regulator 6 l / min. BS-3 3291064
	Water flow regulator 7.5 l / min. BS-4 .. 3291110 Water flow rate controller 9 l / min. BS-5 3291065
42	DHW Sensor 15 mm snap-..... 3,720,065
44	Gas control VK8205VE2005 3,296,201
68	Electrical cabinet empty (for order, see 68 + 101) 68 + 101 Set electrical box with print ABM03 3,296,420
81/82	Flame Electrode (ignition and ionisation) 3.29641 million ....

	Description Order .....
101	Print ABM03 (for order, see 68 + 101) 103
	Print shaft-mounted relay LC32 (optional) 3,296,421
136	Flow Sensor 3296011
137	CV-pressure sensor 3293404
145	Gauge 3296108
154 + 406	Set condensate discharge hose with vuilopvang-
	bottle trap 3291005
161 + 196	Set heat exchange with condensate drip tray
	Heat exchanger bi-thermic BS 3-4 3296104
	Heat exchanger bi-thermic BS 5 3,296,103
186	Temperature sensor 18 mm snap-3720060 .....
191	Temperature flue 3296338
193	Siphon device 3291002
199	Sealing cap alternative air supply 203
	Power cable with plugs 3296645 .....
207	Appliance Wiring Crown Stones 3296644
278	Temperature (double) snap-18mm 337 3.29613 million
	Dirt Canister condensate 3291465
349	Quick Purge faucet 3296105
401	Air intake fan 3296303
402 + 403 +	Insulation Gasket burner burner 3,296,462
404	Insulation heat 3296127
405	Cable harness Blue Sense 3 - 4 - 5 3,296,642
406	Dirt Canister siphon (see, for order 154 + 406)

13.2 Error list of possible causes and solutions

determine software version

There are slight differences in software versions available. Sometimes it is important to know which software version concerns, reference is made to this software version. Here's how to determine which software has the unit: Pull the power plug (if the unit is not in operation), wait a minute and plug in the power cord. After about 10 seconds, you will see two numbers for some time, eg. "31" on the display. This means software version 3.1. FH follows below.

FH **Startup / venting program: FH is not a fault!**

If the appliance plug into the socket is inserted or when the unit is refilled after the central pressure was too low or after some failures, begins approximately 5 minute vented program. Here, the fan is running, and also the pump is alternately energized.

d 1 / d2 / or / d3 **Waiting time for burner operation d1, d2 and d3 are no faults!**

If " d1 ' " d2 " or " d3 "Can be seen, the unit is in a wait for the burner operation. This can take up to four minutes.

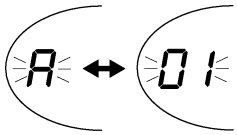
d1 = After waiting water

d2 = waiting time after CV

d3 = waiting time of ignition, or

Alarms and Error Codes

The unit is controlled and monitored by onboard electronics. If a fault is detected will disable the device anywhere in the unit, depending on the type of fault, and display a code on the display. associated with the most faults Alarms or Error Codes. A code consists of the letter A or F and a number. The letter and number are alternately flashing on the display, eg. A ÷ 01.



942509112

Alarm codes (A)

The device is locked. The cause must be resolved, and the reset button must be pressed to restart the unit. After 5x reset is disabled this feature. You will need to remove the power cord for the reset function is working again.

If an Alarm Code (A) returns after a reset: warn your installer. Waits in an emergency case at least 60 min. Again reset for you.

A↔01 **No ionisation signal (during ignition)**

- Check that the gas valve is open;
- Check the flame electrode: contacts / dirt / earth fault. Replace the flame electrode in doubt.
- Check the distance between the electrode and ground stake = 4.0 mm ± 0.5 mm.
- Check the gas pressure; Vented gas;
- Make sure the gas to the gas burner passage. Check gas pressure at startup.
- Check the operation of the fan.
- Make sure the condensate well drained. If necessary, clean the trap.
- Check the air / flue.
- Does the print defect?

A↔02 **False flame signal**

There flame is detected while the throttle valve is closed. Is the gas valve is defective? (Does not close properly) Does the print defect?

A↔03 **Excessive heating flow temperature**

The heating flow temperature has been too high or too low.

- Check the operation of the pump.
- Make sure the radiators and / or bypass open. Flow must always be possible;
- Check the history data or regularly F08 prevent failures.
- Check correct electrical resistance of the heating flow sensors (in dual sensor!).

A↔04 **Too high temperature of flue gases**

F07 error has occurred three times in the last 24 hours, see error code F07.

A↔05 **fan Error**

There is no timely feedback of the frequency signal from the fan to the PCB.

- Are the connectors on the fan?
- Check the operation of the fan. (When the fan needs to be replaced may be electrically not be separated when there are voltage (230 V) is set to the device)

A↔06 **Within 4 minutes, five times the loss of flame signal detected**

- Check the flame probe (contact / contamination). Replace the ionisation in doubt;
- Control flue-gas outlet / air supply system (for review: removing cap in the air feed)
- Check the condensate drain; Clean event. The siphon and / or condensate. Cover the electrical box.
- Check with a poor and irregular burning stove or at regularly occurring A06 faults the burner.

A↔26 **3x Water pressure too high in one hour (3x F40)**

- Probably the expansion piece. Check and replace if necessary. the expansion.
- The unit switches off.

A↔41 **Insufficient water circulation CV**

After igniting burner 3x not increase heating flow **temperature (at least 1 ° C increase after 15 sec. required).**

- Check the operation of the pump;
- Make sure the radiators and / or bypass open. There must always be possible flow
- Make sure the heating flow sensor is clicked on the tube (contact area).
- Is the heating flow sensor fault?

A↔42 **Too large temperature difference between the two measuring elements in the supply dual sensor**

- Is the sensor properly clicked on the line.
- Check the resistance of the two measuring elements of the heating flow dual sensor.
- Check the wiring to the sensor.

A↔44 **Insufficient water circulation**

- Check water quantity.
- Check water sensor.
- Make sure water sensor is attached properly.

A↔61 **Flame signal Fault**

- Check the flame electrode.
- Check print.

A↔62 **throttle error**

- Check throttle wiring.
- Check print.

A↔63 **Print Issues**

- Reset, and if necessary, replace the PCB.

A↔65 **Print Issues**

- Reset, and if necessary, replace the PCB.

Error codes (F)

The phone is locked. With this fault the cause must be resolved before the device itself, so without the reset button has to be pressed, comes into operation. Pressing the reset button is in a Fault code (F) no effect. Some of these faults may disappear, but sometimes come back regularly.

If Error Codes (F) commonly occur: warn your installer. Mention to call the type of unit and the fault code.

F↔07 **Excessive smoke temperature**

The heat exchanger sensor measures more than 2 min. A too high flue gas temperature

- Check the entire supply and verbrandingsgasafvoercircuit, including the heat exchanger.

F↔08 **Excessive heating flow temperature**

- The heating flow temperature is higher than 99 o become C. Make sure the flow of the heating system is in order; If the temperature is below 89 o C comes it will again ignite the unit at present heat demand.
- Check the operation of the pump;
- If the pump at the highest level?
- Make sure the radiators and / or bypass open. There must always flow are possible.
- Check resistance heating flow sensor.

F↔09 **Too high heating-return temperature**

- The heating-return temperature is higher than 99 o become C. Make sure the flow of the heating system is in order; If the temperature is below 89 o C comes it will again ignite the unit at present heat demand.
- Check the operation of the pump.
- Make sure the radiators and / or bypass open. Flow must always be possible.
- Check resistance heating return sensor.

F↔10 **CV-feeding-twin-error sensor (sensor 1): defective or not connected**

- Are the plugs connected to the sensor?
- Check whether the sensor is defective. The resistance at 25 o C should be approximately 10 kOhm.

F↔11 **Heating return sensor error: not connected or defective**

- Are the plugs connected to the sensor?
- Check whether the sensor is defective. The resistance at 25 o C should be approximately 10 kOhm.

F↔12 **DHW sensor fault**

- Are the plugs connected to the sensor?
- Check whether the sensor is defective. The resistance at 25 o C should be approximately 10 kOhm.

F↔13 **Flue gas sensor fault**

- Make sure the sensor is connected properly and is not short.
- Also check the connection to the PCB.
- Check whether the sensor is defective. The resistance at 25 o C is approximately 10 kOhm.

F↔14 **Heating flow dual-sensor error (sensor 2) defective or not connected**

- The plugs are properly clicked on the sensor?
- Check whether the sensor is defective. The resistance at 25 o C should be approximately 10 kOhm.

F↔15 **fan Error**

- Are the connectors on the fan?
- Check the operation of the fan.

F↔20 **Water pressure is very low: 0,4 - 0,7 bar**

- Make sure the expansion is in order.
- Heating system refill, if expansion is in order.
- The terminal functions.

F↔21 **Water pressure is very high: 2,5 - 2.8 bar**

- Make sure the expansion is in order.
- Heating system draining something like expansion is in order.
- The terminal functions.

F↔34 **Low voltage**

- Make sure the 230 V AC power from the power grid is sufficiently high.

F↔35 **frequency error**

- The print is faulty. Replace it.

F↔37 **Water pressure is too low (below 0.4 bar),**

- State institution i ÷ 01 or 1? See pp. 23 and 24.
- The heating system pressure is too low: Refill.
- With sufficient heating print: cv-pressure sensor in order?
- Make sure the expansion is in order.

F↔39 **Outside error**

- If external sensor connected: Check connection: the sensor is defective? Table p. 39.

F↔40 **Water pressure CV too high (above 2.8 bar)**

- State institution i ÷ 01 or 1? See. pp 23 and 24.
- Check the expansion tank.
- The unit switches off.

F↔42 **Large temperature difference between the two measuring elements in heating flow sensor**

- Is the sensor properly clicked on the line.
- Check the resistance of the two measuring elements of the heating flow dual-sensor.
- Check the wiring to the sensor.

F↔43 **Too rapid temperature rise CV**

- Check heating water circulation.

F↔47 **CV-pressure sensor error.**

Water pressure sensor not connected or defective.

F↔50 **Print Error**

Replace the print.

F↔64 **Reset error.**

Getting started as energized.

F↔66 **Programming error.**

Replace the print.

14. OPERATION AND TECHNICAL DATA

14.1 Operation of the unit

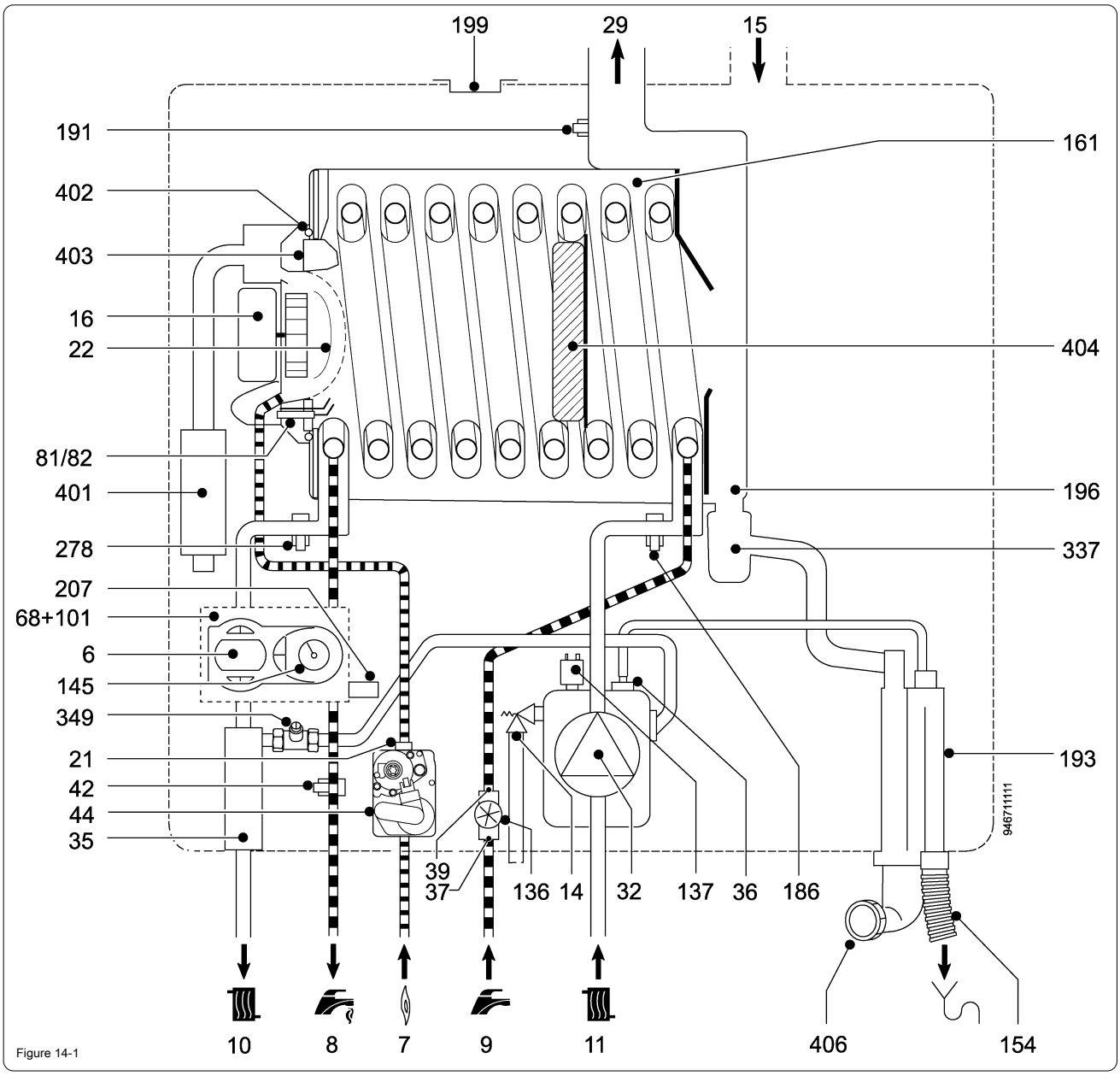


Figure 14-1

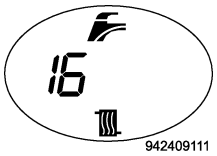
Legend

6. An instrument panel
7. gas supply
8. Exhaust hot water
9. Cold water supply
10. Supply CV
11. Return CV
14. Safety valve CV
15. Air supply Connection 80 15 + 29 mm. Set LTV RGA 80 mm with 80 mm
16. Fan 16 +
22. Unit fan and burner 16a. fan Print
21. gas injector
22. burner
29. Flue gas outlet connection 80 mm
32. Pump complete BlueSense 3-4
32. Pump complete BlueSense 5 (universal)
35. Air separator
36. Automatic air vent pump Wilo
37. Sieve flow sensor
39. Water flow regulator 6 l / min. BlueSense 3
39. Water flow regulator 7.5 l / min. BlueSense 4
39. Water flow rate controller 9 l / min. BlueSense 5
42. DHW Sensor clip-on 15 mm
44. Gas control VK8205VE2005
68. Elektra empty cabinet
68 + 101. Set electrical box with print ABM03
81/82. Flame Electrode (ignition and ionisation)
101. Print ABM03
103. Print shaft-mounted relay LC32 (optional) (not shown)
104. Fuse 15.3 Amp (not shown)
136. flow Sensor
137. CV pressure sensor
145. Gauge
154. Condensate drain hose
154 + 406. Set condensate discharge hose with dirt collection bottle trap
161. Heat exchanger bi-thermic 161 + 196. Heat exchanger bi-thermic BlueSense 3-4161 + 196. Heat exchanger bi-thermic BlueSense 5
186. Temperature sensor clip-on 18 mm (return)
191. Temperature flue
193. Siphon device
196. Condensate
199. Sealing cap alternative air supply
203. Power cable with connectors 230 (not shown)
207. Device Connection Kroon Steentjes (not shown)
278. Temperature sensor (double) clip-on 18 mm (flow)
337. Dirt Canister condensate
349. Quick Purge faucet
401. air intake fan
402. gasket burner
403. insulation burner
404. Heat insulation
405. Cable harness BlueSense 3-4 - 5 results (not shown)
406. Canister dirt trap

operation:

startup Cycle

1. The plug is inserted into the socket.
2. After about 10 seconds, you will see two numbers for some time, eg. 30, in the display. This means software version 3.0.
3. The fan (16) rotates. You see "FH" on the display.
3. At the same time, the pump (32) (cyclic on / off).



After the boot program (about 5 min.) Is the pressure in the central heating system (16 = 1.6 bar) as shown alongside. The device is ready for use.

If flashes a certain code (A or F), or if nothing is whole-time on the display, something is wrong. See Section 13.2 on p. 32 and 33.

inflammation

Inflammation Procedure:

1. There is heat: : Hot water heating; : central heating.
2. • in hot water demand the pump stops (32).
   • in CV-demand pump will run (32).
3. The ventilator (16) is controlled.
4. The combined flame electrode (81/82) passes sparks.
5. The gas valve (44) opens the gas supply
6. The gas enters the fan, which blows the gas / air mixture to the burner.
7. In the burner, the mixture is ignited by the flame electrode (81/82), and then the heat through the heating exchanger (161) to the flowing central heating water is transferred gene.

8. The flame signal is measured with the flame electrode. If after lighting sufficient flame signal is measured, the flame symbol appears on the display:

The size of the flame is dependent on the burner capacity.

9. The following is the release of the arrangement. If the device does not ignite after the opening of the throttle valve, the device gives a flame failure (A01) to.

restart

If the ignition fails the first time, the unit makes 2 ignition takes time before it breaks down. If the unit is reset after a flame failure, is performed only one ignition attempt.

If a flame failure five times is reset, the reset button does not work anymore. In this case, the plug should briefly be unplugged from the electric socket!

end heat

1. Gas control (44) stops the gas supply.
2. The fan (16) runs after.
3. After heating heating turns the heating pump after depending on institution i ÷ 05, p. 24.

Waiting times (signaling d1, d2, or d3) d1: after water demand, the unit switches only after a waiting period of at any heating operation.

d2: even if the burner off by a high central heating flow temperature, there is a wait.
d3: Repeated ignition attempt, there is a wait.

direct protections

Flame electrode (81/82)
During ignition and burn controls the printing of the flame remains. The flame signal the function display indicates whether said signal is present. If the signal is not there or is lost, the unit of A1 fault. This fault is to eliminate the RESET button.

Delta-T security heat exchanger (278 and 186)
In order to protect the heat exchanger (161) against an excessively large temperature difference, in case of insufficient waterdoor- flow, the temperature difference between the central heating may supply tube (278) and a heating return sensor (186) will not be too large. If temperature difference is too large, the power is modulated.

Excessive heating flow temperature
If the heating flow-dual-sensor (278) for a long time a temperature of more than 105 o C measurement, the unit provides a fault-A3.

Low pressure in the heating system (137)
If the heating-water pressure drops below ± 0,4 bar, the device switches off and gives the device a fault-F37. When the pressure has been sufficient, the fault is automatically canceled. If the pressure is on the low side, between 0.4 and 0.7 bar, F20 becomes visible. This allows the occupant is alerted that there needs to be refilled.

High pressure in the heating system (137)
Heating water pressure is very high (2.5 - 2.8 bar) ..... F21 burner remains in operation. Heating water pressure too high (> 2.8 bar): F40 ..... The burner is off.

Error code F40 3x occurred: ..... A26 The burner is off.

Safety valve, heating side (14)
This valve comes into force at a central-heating pressure greater than 3 bar.

Frost protection (278)
The phone is using a frost protection function via the heating flow sensor (278) protected against freezing. If the temperature at this sensor is below 5 o is C, the unit at low speed on and switch turns off after a temperature rise to 15 o C.

Prevent jamming of the pump (32)
To prevent the pump (32) is stuck, this is, if 24 hours has been no heating demand, driven a few seconds.

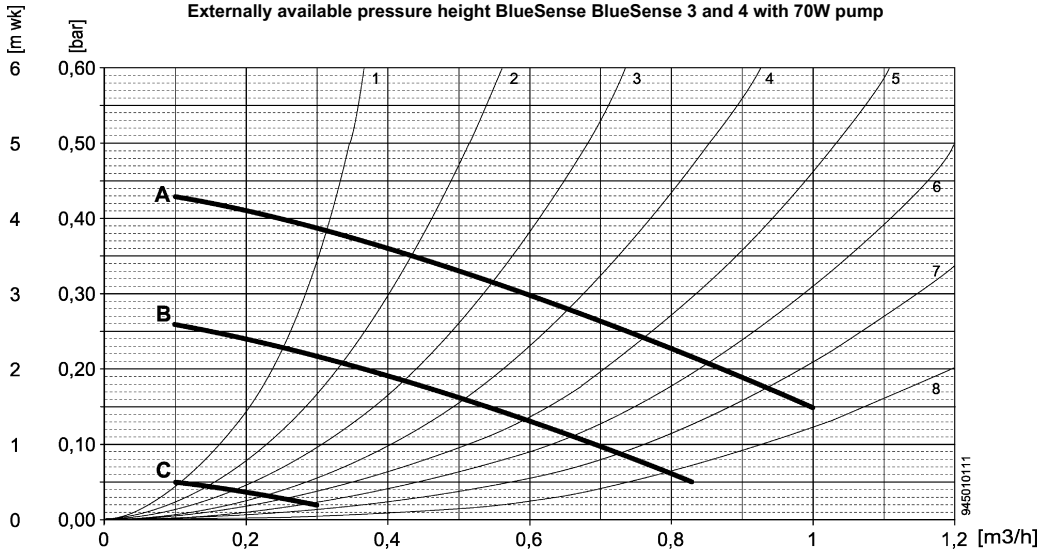
flue gas sensor
This sensor will switch the device off if these 2 minutes, a temperature measurement that is higher than the set value.

This flue system is protected against excessive temperatures.

14.2 External available pump head for the heating system

In the graphs below, the externally available pressure height of the central heating pump is shown.

Externally available pressure height BlueSense BlueSense 3 and 4 with 70W pump



explanation:

a Modulation 100%: 70W maximum speed.

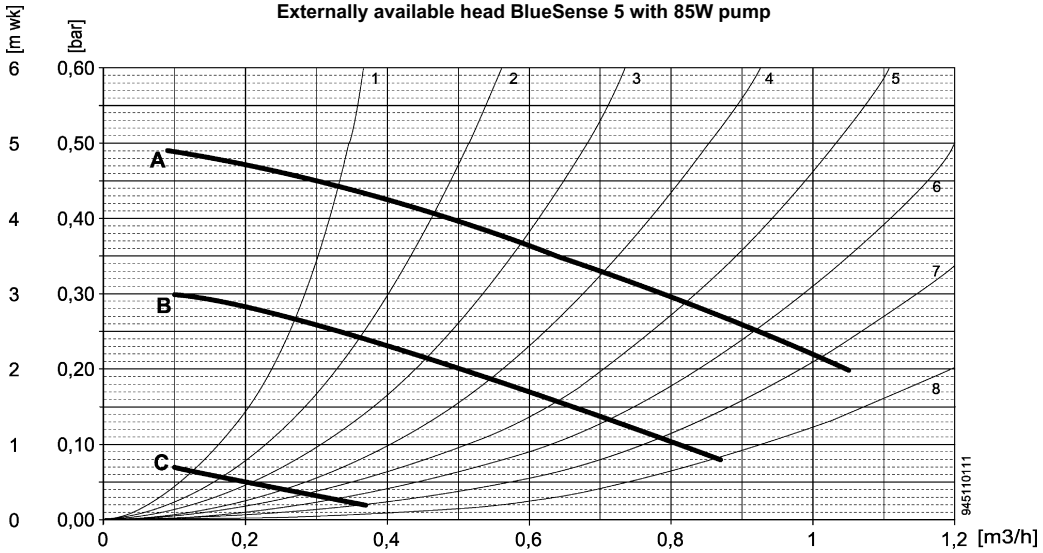
B 75% Modulation: 50W factory setting **speed burner start CV.**

C 30% Modulation: 15W low speed.

1-8 are examples of resistance lines of a heating system: 1 = high-resistance

8 = low resistance

Externally available head BlueSense 5 with 85W pump



explanation:

a Modulation 100%: 85W maximum speed.

B 75% Modulation: 60W factory setting **speed burner start CV.**

C 30% Modulation: 20W low speed.

1-8 are examples of resistance lines of a heating system: 1 = high-resistance

8 = low resistance

Figure 14-2

Control enough water in the heating system

1. In the installed heating capacity is necessary, a given water flow (m3 / h). In this flow of water, the central heating installation has a certain resistance (bar). If the water stream decreases, the resistance will decrease in accordance with a given line: the resistance lines 1-8.

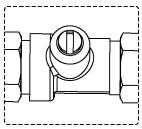
2. The central heating pump gives a certain head (bar) which is dependent on the water flow (m3 / h).
3. Make sure the head is sufficiently high.

Advice

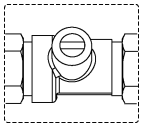
In relation to the restriction of the flow noise in (especially thermostatic) radiator valves, it is advisable to dimension a heating system at max. 2 mwc (0.2 bar) pressure loss. Optionally set the maximum speed of the heating pump with i ÷ 07 (see p. 24).

Influence of the built fast air release valve

If the rapid air release valve is put open, the available head descends through the resulting open connection between the heating flow and heating return. The integrated quick air release valve may be opened only temporarily put to vent faster!



CLOSE (factory setting) The quick air release valve must be closed during normal operation.



OPEN

Possibly only when commissioning to bleed faster.

14.3 DHW side pressure drop

The DHW side pressure drop

In the graphs shown on the left is shown the DHW side pressure drop of only the appliances.

The actual flowing water quantity is determined by the available cold water inlet pressure on the unit with a fully open valve and the pressure loss of the respective water area.

What to do when a low pressure

If the inlet pressure when the device is too low, for example in multi-storey buildings, the volume flow may be too low. In order to increase the volume flow can again the tonnage

limiter out of the device to be removed, so that the risk is present that the volume flow can again be too large in order to heat the water sufficiently. The amount limiter is located in the outlet of the domestic hot water flow sensor, see p. 31.

Place an adjustable tap to adjust the flow right now.

The flow should be at all times equal to the cw-tapdebiet.

- BlueSense 3: ± 6 l / min.
- BlueSense 4: ± 7.5 l / min.
- BlueSense 5: ± 9 l / min.

DHW side pressure drop across the BlueSense 3

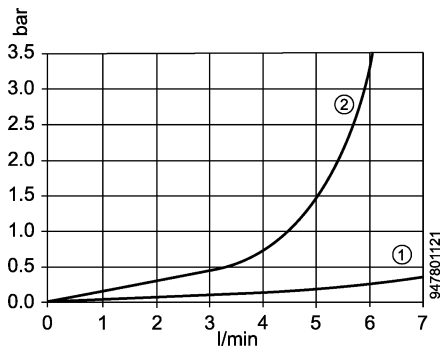


Figure 14-3

DHW side pressure drop across the BlueSense 4

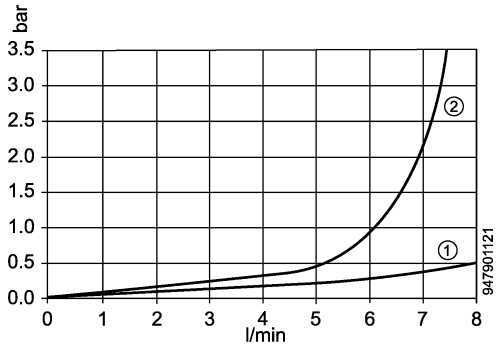


Figure 14.4

drop across the BlueSense 5

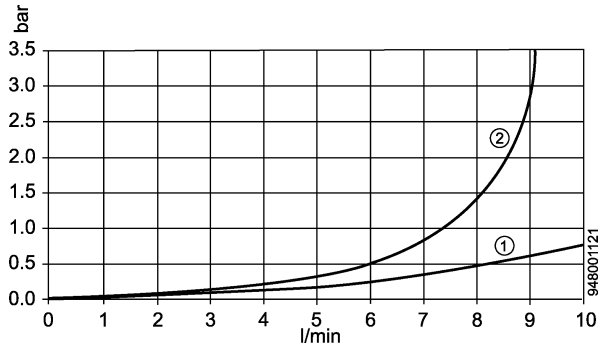


Figure 14-5

1. The pressure loss with volume limiter.
2. The pressure loss without volume limiter. DHW side pressure

14.4 Specifications

Specifications		BlueSense 3 min - max	BlueSense 4 min - max	BlueSense 5 min - max
Central heating				
nominal load cv = Q (Hi = lower heating value)	kW	5.8 to 21.6	5.8 to 25.0	6.7 to 29.5
nominal load cv (upper value)	kW	6.4 to 23.9	6.4 to 27.7	7.4 to 32.7
power (P) 80/60 ° C *	kW	5.7 to 21.2	5.7 to 24.5	6.6 to 28.9
50/30 ° C *	kW	6.2 to 22.9	6.2 to 26.5	7.2 to 31.3
* set up cv-sided output	%	80 (= 17.0 KW)	80 (= 19.6 KW)	80 (= 23.1 KW)
adjustment range cv-sided output	%	30-100	30-100	30-100
full-load efficiency (CE) ow 80/60 ° C	%	97.8 to 98.0	97.8 to 98.0	97.8 to 98.0
full-load efficiency (CE) ow 50/30 ° C	%	107.5 to 106.1	107.5 to 106.1	107.5 to 106.1
HR107 efficiency (CE) ow 36/30 ° C	%	108.8	108.8	108.8
water content, heating side	l	1.7	1.7	2.1
regulation		modulating	modulating	modulating
allowable pressure (PMS)	bar	3	3	3
heating flow temperature (setting range)	° C	80 (30-90)	80 (30-90)	80 (30-90)
t max	° C	95	95	95
DHW				
nom. load Qnw domestic hot water (DHW) (Hi = ow) kW		5.8 to 25.0	5.8 to 29.0	6.7 to 33.1
nom. DHW load (values)	kW	6.4 to 27.7	6.4 to 32.2	7.4 to 36.7
Tap output	kW	5.7 to 25.0	5.7 to 29.0	6.6 to 33.1
water content DHW side	l	0.2	0.2	0.2
tapdrempel	l / min.	1.5	1.5	1.5
DHW set point (setting range)	° C	60 (40-65)	60 (40-65)	60 (40-65)
allowable max. water pressure (PMW)	bar	9	9	9
Effective device latency	s	21	25	21
CW tapdebiet (60 ° C)	l / min.	6	7.5	9.0
Year Use Efficiency (Hi)	%	90.7	89.8	94.5
burner Technology				
gas (G25; max)	m3 / h (l / min)	3.08 (51.3)	3.57 (59.5)	4.07 (67.8)
gas supply pressure G25 (tolerance)	mbar	25 (20-30)	25 (20-30)	25 (20-30)
maximum resistance LTV / RGA	m. length of pipe	153	123	95
device category		II2L3P	II2L3P	II2L3P
maximum flue gas temperature	° C	105	105	105
min. flue gas stream / max. flue gas stream	m3 / h	9-40	9-47	11-54
NO_x class		5	5	5
device class		C13, C23, C33, C43, C53, C63, C83, B23, B33		
CO_2 percentage of flue gas (low-load / full load) G25% nominal		8.7 to 9.2	8.7 to 9.2	8.7 to 9.2
electrical				
power consumption (resting - min. - max.)	W	From 2.5 to 27 - 90	From 2.5 to 27 - 100	From 2.5 to 32 - 120
food	V / Hz	230/50	230/50	230/50
ON / OFF room thermostats		Yes (however thermostats with anticipation current functioning incorrectly)		
modulating room thermostat (standard)		OpenTherm	OpenTherm	OpenTherm
IP rating (at regular 230V socket)		IPX5D	IPX5D	IPX5D
IP class of the device delivery (with the plug)		IPX2D	IPX2D	IPX2D
structural information				
weight	kg	25	25	26.5
dimensions (hxbxd)	mm	600x400x320	600x400x320	600x400x320
tap water connections (compression connection pipe)	ø mm	15 (unit: G1 / 2 ", including connecting pipe Ø15mm, 30 cm long.)		
heating flow connection / heating return connection	ø mm	22 (unit: G 3/4 ", include the connection pipe ø22mm, 30 cm long).		
gas	inch	G1 / 2 " (bi) (unit: G1 / 2 ", include the connection pipe Ø15mm, 30 cm long.) + Fitting 15 mm 1/2"		
flue connection	ø mm	80 (60mm without adapter)		
air supply connection	ø mm	80 (2 possibilities ø80)		
concentric flue gas outlet / air supply	ø mm	with adapter 60/100 or 80/125		
material heat exchanger / burner material		heat exchanger / burner: stainless steel (INOX)		
Temperature class combustion afvoersyst.		T120		

14.5 Electrical wiring diagram and connections to the device connector (see also p. 21)

Electrical resistance of the sensors

° C	kOhm	° C	kOhm	° C	55 kOhm	° C	90 kOhm
- 5	42.3	25	10.0	30	3.0		0.9
0	32.2	5	26.3		8.1	60	2.5	95	0.8
10	19.9	15	15.9	35	6.5	65	2.1	100	0.7
20	12.5			40	5.3	70	1.8		
				45	4.4	75	1.5		
				50	3.6	80	1.3		

Data of the NTC temperature sensors (tolerance ± 2 ° C).

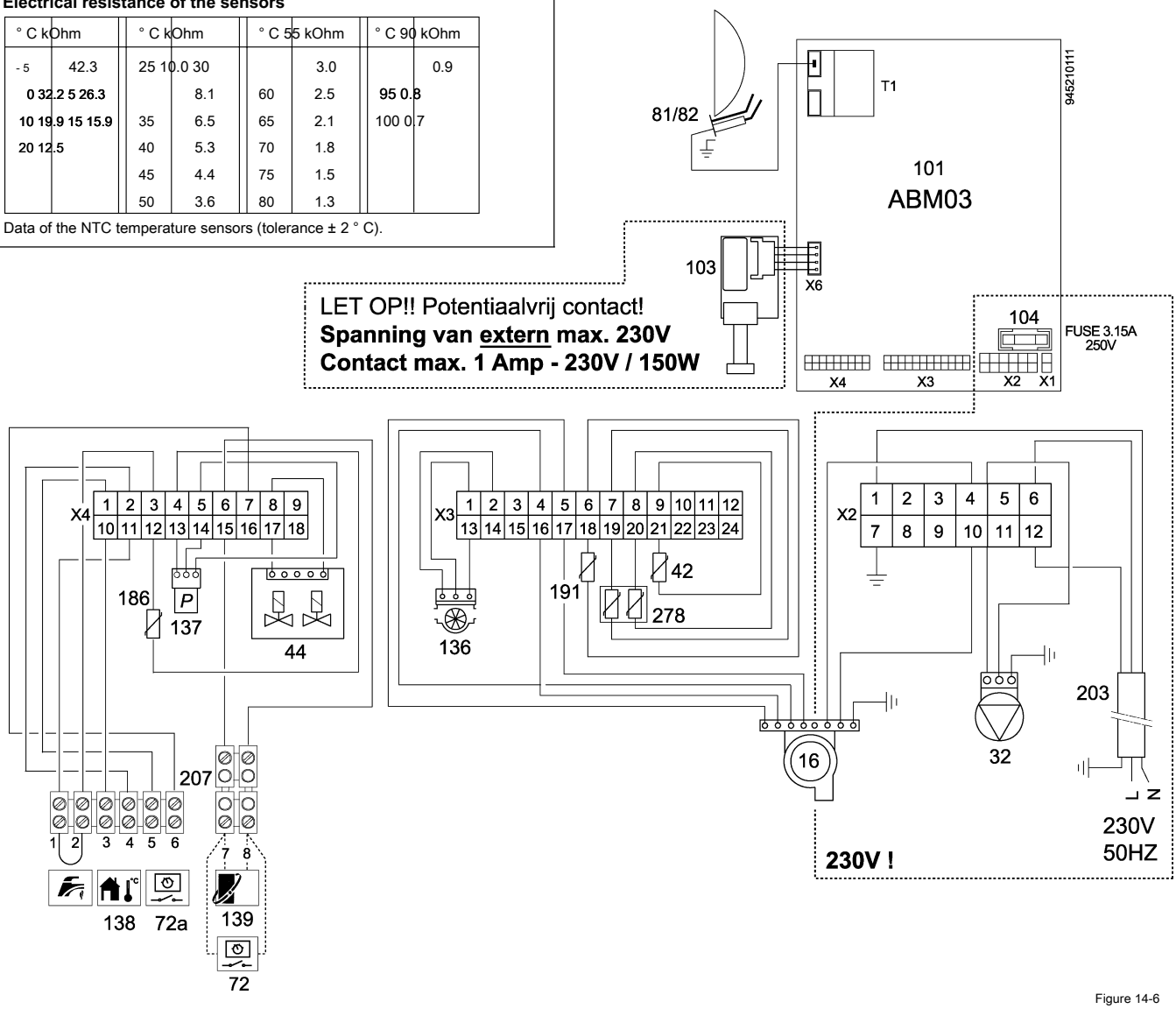


Figure 14-6

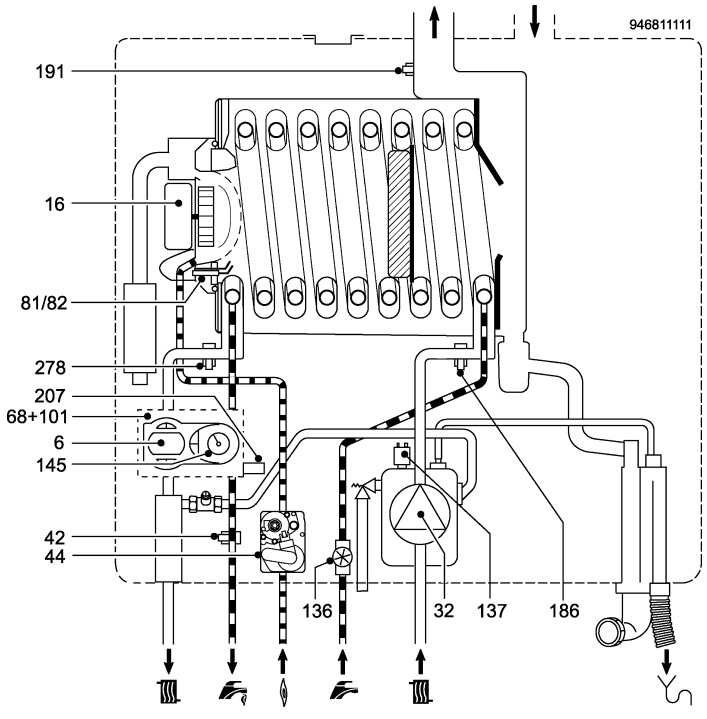


Figure 14.7 Shown type BlueSense 3/4/5

1-2 **WITH CONTINUITY (Normal DHW)**
activated Flow Sensor

NO CONTINUITY (No DHW)
Flow sensor off 3-4 Option: Connection of an external sensor
(NTC 10kOhm at 25o C)

5-6 Connection for one or more additional ON / OFF room thermostats. See also page 21. 7 -. 8 Universal room thermostat connection. Connect one OpenTherm or one on / off room thermostat. Also see p. 21. A thermostat with heat transmission (anticipation current) does not operate correctly.

6 Control panel 16, fan 16a Fan Print 32 42 Service water pump Sensor

clip-on 15mm 44 Gas control valve VK8205VE2005 68 Electrical Housing 72 ON / OFF-room thermostat

state (without anticipation current) 72a Connection (extra) ON / OFF room thermostat 81/82 Flame Electrode (Ignition and ionisation) 101 103 Optional Print ABM03 printopsteek- relay with potential-LC32

tiaalvrij normally open contact 104 3.15 Amp fuse 136 flow sensor 138 Outside sensor (optional) 139 Opentherm connection

(See p. 21) 137 CV pressure sensor 145 186 Temperature Gauge

clip-18mm (return) 191 Temperature flue 203 with Power

230V plugs 207 Toestelaansluitkroon- rhinestones 278 Temperature (Double) snap-18mm (supply)

15. MAINTENANCE AND SERVICE REPORTING Ferroli BlueSense For the latest information and advice maintenance, see www.ferroli.nl

Pay attention! To avoid unnecessary costs, it is important that your unit is serviced at least every two years.

Type toestel	
Serienummer	
Datum in bedrijf	

Installateur	
Adres	
Telefoon nummer	

	Inspectiewerkzaamheden		Bedrijfsjaar														
			0	1	2	3	4	5	6	7	8	9	10	11	12		
1	Warmtewisselaar				R		R		R		R		R		R		
2	Vuilopvangbeker onder toestel				R		R		R		R		R		R		
3	Sifonaansluiting warmtewisselaar				C		C		C		C		C		C		
4	Afstelling vlamelektrode	4 ±0,5 mm			C/V		C/V		C/V		C/V		C/V		C/V		
5	Isolatie in branderruimte				C/V		C/V		C/V		C/V		C/V		C/V		
6	Isolatie op brandervoorplaat				C/V		C/V		C/V		C/V		C/V		C/V		
7	Brander pakking				C/V		C/V		C/V		C/V		C/V		C/V		
8	Ventilator/brander				R		R		R		R		R		R		
9	Luchtinlaatbuis ventilator				R		R		R		R		R		R		
10	Rookgaslekkage brander				C		C		C		C		C		C		
11	Werking tapwaterbedrijf	setpoint			C		C		C		C		C		C		
12	Tapwatervolumestroom	l/min			M		M		M		M		M		M		
13	Warm watertemperatuur	gr.			M		M		M		M		M		M		
14	Koppelingen (lekkage)				C		C		C		C		C		C		
15	Werking voor cv-bedrijf	setpoint			C		C		C		C		C		C		
16	Druk in de cv-installatie	bar			C		C		C		C		C		C		
17	Rookgasafvoer/luchttoevoer				C		C		C		C		C		C		
18	Meetnippel gasblok				C		C		C		C		C		C		
19	Montage/bevestiging voorpaneel				C		C		C		C		C		C		
20	Filter tapwater/perlators van de kranen				R		R		R		R		R		R		

Bij regelmatige branderstoring de onderstaande punten extra controleren

21	Gasvoordruk (bij vollast)	mbar			M		M		M		M		M		M		
22	Gasdrukinstelling offset	Pa			M		M		M		M		M		M		
23	Gasverbruik (vollast)	L/min			M		M		M		M		M		M		
24	O2-CO2 meting vollast	%			M		M		M		M		M		M		
25	O2-CO2 meting laagstand	%			M		M		M		M		M		M		

Datum onderhoud									
Paraaf monteur									

R = reinigen
C = controleren
V = vervangen
M = meten
C/V = controleren en indien nodig vervangen

LET OP!
Papier of ander materiaal mag niet op of tegen de verwarmingsketel liggen
De verwarmingsketel moet rondom vrij zijn, controleer dit

Notes for service and maintenance (log)

16. WARRANTY

This product is guaranteed to the installer by Ferroli Netherlands BV under the following conditions. The installer ensures that product under the same conditions the following to the user:

1. All Ferroli Netherlands BV to supply boilers are guaranteed for a period of two years from the date of installation if the devices are registered for warranty or 2.5 years from the date of manufacture of the equipment, any defects, insofar as defects due to manufacturing, material and / or workmanship, such at the assessment of Ferroli Netherlands BV.

2. In addition, the heat exchanger is guaranteed for a period of ten years from the date of installation if the devices are registered for warranty or 10.5 years from the date of manufacture of the equipment, any defects, insofar as defects due to manufacturing -, material and / or workmanship, at the discretion of Ferroli Netherlands
BV.

3. The circumstances are now supplied by Ferroli boilers Netherlands BV, serve normally to make demands and to meet the operating and maintenance instructions Ferroli Netherlands BV, while installation and maintenance by certified and accredited installers must be made.

4. Warranty, concern for the implementation of the guarantee lies initially with the installer or dealer where it was purchased. Please also always your installer or supplier.

5. Complaints regarding defects must as soon as possible after its discovery, but no later than 14 days after the expiry of the aforementioned warranty periods, at Ferroli Netherlands BV to be presented when crossing the claim period any claim against Ferroli Netherlands BV for those deficiencies expires. Legal action must be brought within one year after timely complaint under penalty of forfeiture. Complaints must be made stating the defects and with reference to the original delivery, and the name, address and telephone number of the customer, indicating the date of installation, boiler type and the type of numbers / serial numbers. A client must Ferroli Netherlands BV

6. Claims guarantee lapse if the client:
   a. itself performs repairs without the express permission of Ferroli Netherlands BV beforehand.
   b. When an attempt was made to repair by third parties.
   c. If the type or product serial number removed, altered or defaced
   d. Upon incorrect use of the components and / or device.
   e. Damage to the component and / or device due to misuse.
   f. Deferred maintenance.

7. If by Ferroli Netherlands BV claims to be accepted by the customer warranty will Ferroli Netherlands BV under guarantee defects elimination by repair or replacement of the defective part, or not in the business of Ferroli Netherlands BV, or by sending a replacement part . This always at the discretion of Ferroli Netherlands BV.

8. Repair or replacement of parts do not extend the original warranty period as a result.

9. If Ferroli Netherlands BV in compliance replaces its warranty obligations parts / products, the replaced parts / products owned by the Ferroli Netherlands BV and serve on components / products without any change to and protected from further damage, at the request of Ferroli Netherlands BV franco return to be sent to Ferroli Netherlands BV to give address.

10. At Ferroli Netherlands BV returned parts must be accompanied by part of:
   a. name, address, telephone number and / or email address.
   b. type device.
   c. serial number of the device.
   d. description of the problem (not just defective or something like that)
   e. delivering correspondence that has already been before with the client.

11. The parts are returned, if they prove to be defective in such a way that it does not meet the guarantee, therefore the property of Ferroli Netherlands BV. This is different only if in the transportation of the defective parts, is clearly written by the client that the client wants to receive the defective parts return. Ferroli Netherlands BV has obtained ownership regarding defective parts, then Ferroli Netherlands

    BV is entitled to destroy them.

12. Ferroli Netherlands BV is not in any obligation pursuant held above described warranty, if and as long as the customer does not fulfill its obligations only with Ferroli Netherlands BV negotiated agreement meets, including the breach of client payment, prior or the relevant transaction relating to, or subsequent deliveries.

13. Warranty Exclusion:
   - Transportation costs
   - wages
   - Shipping costs
   - Transportation costs
   - Administration costs
   - subsistence
   - Secondary damage such as fire damage, business damage, water damage or injury.
   - Faulty, improper and / or other than normal use.
   - Normal wear and tear.
   - Disassembly and assembly costs to the applicable installation regulations of the product shall be borne by the client.

14. For the subsequent damage to the Ferroli device, other than in respect of a defect covered by the warranty described above is not ensured by Ferroli Netherlands BV. Ferroli Netherlands BV towards the user shall not be liable for user suffered pure financial loss and / or loss of any kind.

17. CE MARKING AND GASKEURLABELS

Declaration of Conformity: Manufacturer: Ferroli SpA

Address: 37047 San Bonifacio (VR) Italy. Herewith

declares:

The Ferroli boilers with the type designation: BlueSense 3 BlueSense 4, 5 BlueSense

Comply with the EEC directives:

- Gas Appliance Directive (90/396 / EEC)
- Efficiency Directive (92/42 / EEC).
- Low Voltage Directive for electrical equipment (73/23 / EEC).
- Directive on electromagnetic compatibility (89/336 / EEC). The following

harmonized standards were used:

- European standard for central heating appliances (EN-483)

February 2011

President
Cav. del Lavoro
Dante Ferroli

Register Warranty: 30 days after commissioning Notes

You can register the warranty on the Internet at www.ferroli.nl. Or fill out the warranty card at the back of this manual fully.
The completed warranty card you can, please send within 30 days after commissioning, in a sealed envelope to:

Ferroli Netherlands BV
Answer No. 238 4800 VB
Breda

IMPORTANT INFORMATION Ferroli BlueSense

SPECIFICATIONS

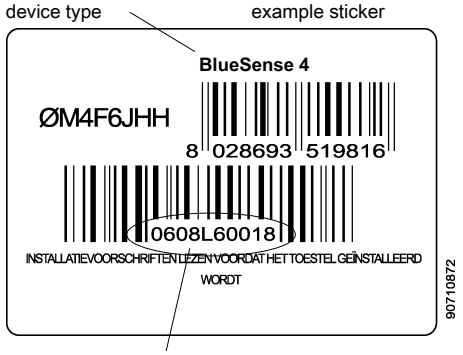
Device type: BlueSense .....

Serial Number: …… L .....

Date of introduction: ……

Installer: paste the sticker with machine type and serial number
(See the inside of the jacket).
Owner: instead of sticking the stickers, write above the device data.

device type example sticker



This is the serial number (letter L in the middle). This or a similar label is placed at the bottom of the unit.

DATA INSTALLER

Name: ……

Street name + number .: ……

Zip code and city: ……

Signature installer: ……

DATA Directory

Name: ……

Street name + number .: ……

Zip code and city: ……

---

warranty Card

You can transmit serving the guarantee register via the Internet, you can see www.ferroli.nl this guarantee, please send within 30 days after commissioning, in a sealed envelope to: Ferroli Netherlands BV, Answer No. 238, 4800 VB Breda

Installation address:

Name: _____

Street name + number: Postal _____

code and city: _____

Signature owner:

Provided by (information site):

Name: _____

Street name + number: Postal _____

code and city: _____

Signature installer:

Device information:

Date of introduction: _____

Installer: paste the sticker with machine type and serial number
(See the inside of the jacket).
Owner: instead of sticking the stickers, write what device data.

Device type: Serial _____

number: . . . . L. . . . .

Stamp and signature installer: