Installation, Service and Operating Instructions

for use by heating contractor

Viessmann AirflowPLUS AH2A series
Hydronic forced air handler

Viessmann AirflowPLUS

Intertek
3182645

Product may not be exactly as shown

IMPORTANT

Read and save these instructions for future reference.

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Please file in Service Binder

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

- **Product documentation**
  Read all applicable documentation before commencing installation. Store documentation near air handler in a readily accessible location for reference in the future by service personnel.

  

  ▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Installation Requirements".*

- **Warranty**
  Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

  

- **Licensed professional heating contractor**
  The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

  

  ▶*Please see section entitled "Important Regulatory and Installation Requirements".*

- **Advice to owner**
  Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begins.

⚠ WARNING

Follow the Viessmann maintenance schedule of the boiler contained in this manual.

Operating and service documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near air handler in a readily accessible location for reference by service personnel.

Fiberglass wool materials

⚠ WARNING

Inhaling of fiberglass wool materials is a possible cancer hazard. These materials can also cause respiratory, skin and eye irritation.

The state of California has listed the airborne fibers of these materials as a possible cancer hazard through inhalation. When handling these materials, special care must be applied.

Suppliers of fiberglass wool products recommend the following precautions be taken when handling these materials:

- Avoid breathing fiberglass dust and contact with skin and eyes.
- Use NIOSH approved dust/mist respirator.
- Wear long-sleeved, loose fitting clothing, gloves and eye protection.
- Wash work clothes separately from other clothing. Rinse washer thoroughly.
- Operations such as sawing, blowing, tear-out and spraying may generate airborne fiber concentration requiring additional protection.

First aid measures

- If eye contact occurs, flush eyes with water to remove dust. If symptoms persist, seek medical attention.
- If skin contact occurs, wash affected areas gently with soap and warm water after handling.

⚠ WARNING

Appliance materials of construction, may contain toxic or harmful substances which can cause serious injury or loss of life and which are known to the State of California to cause cancer, birth defects and other reproductive harm. Always use proper safety clothing, respirators and equipment when servicing or working nearby the appliance.

Page

Safety

General Information

Product Description

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Startup

Operation

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Additional Information

About these Installation Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information.

WARNING

Warnings draw your attention to the presence of potential hazards or important product information.

▶ Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial product/property damage.

CAUTION

Cautions draw your attention to the presence of potential hazards or important product information.

▶ Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/ property damage.

IMPORTANT

▶ Helpful hints for installation, operation or maintenance which pertain to the product.

▶

▶ This symbol indicates to note additional information

▶ This symbol indicates that other instructions must be referenced.

Necessary Tools

Testing/analysis equipment

(Use only calibrated equipment)

- Multimeter to measure 0 - 230V, 0 - 12A AC and 0-100 mA DC
- Manometer to measure air pressure 0 to 11 "w.c. (accurately) (or a non-electric Magnehelic® manometer may also be utilized)

Cleaning supplies

- Plastic hand brush
- Rags

Special items

- Pipe joint sealant

Important Regulatory and Installation Requirements

Codes

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/ NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, and the Installation Code for Hydronic Heating Systems, CSA B214-01, where required by the authority having jurisdiction.

Instructing the system user

The installer of the system is responsible to ensure the system operator/ultimate owner is made familiar with the system functioning, its activation, and its shut-down.

The following topics must be covered:
- Proper system operation sequence.
- Explain the equipment.
- Demonstrate an emergency shut-down, what to do and what not.
- Explain that there is no substitute for proper maintenance to help ensure safe operation.

Initial start-up

Initial start-up must be performed by a qualified heating contractor. Proper completion of the Maintenance Record by the heating contractor is also required.

Working on the equipment

The installation, adjustment, service, and maintenance of this air handler must be done by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water heating equipment. There are no user serviceable parts on the air handler.

Please carefully read this manual prior to attempting start-up, maintenance or service. Any warranty is null and void if these instructions are not followed.

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please inquire.

Ensure main power supply to equipment, the heating system, and all external controls have been deactivated. Take precautions in all instances to avoid accidental activation of power during service work.

The completeness and functionality of field supplied electrical controls and components must be verified by the heating contractor. These include low water cut-offs, flow switches (if used), staging controls, pumps, motorized valves, air vents, thermostats, etc.

Technical literature

Literature for the Viessmann AirflowPLUS air handler:
- Technical Data Manual
- Installation, Service, and Operating Instructions
- Instructions of other Viessmann products utilized and installed
- Installation codes mentioned in this manual

Leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.

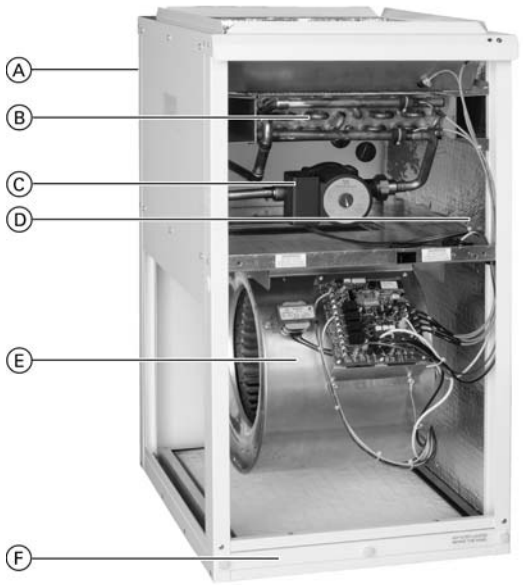
This product comes with several safety instruction labels attached.
Do not remove!
Contact Viessmann immediately if replacement labels are required.

Introduction

The Viessmann AirflowPLUS AH2A series air handlers are to be used in conjunction with Viessmann boilers.

The automatic adjustments are made in heating as well as cooling. This minimizes selecting an oversized heating appliance just to accommodate the cooling load.
The Viessmann AirflowPLUS AH2A series is always the right size.

Components



Legend
Ⓐ Standard adaptors (at the rear)
Ⓑ Heating coil and pump slide out for easy service
Ⓒ Integrate pump with check valve
Ⓓ Fibreglass insulation with reinforced foil face and gasket seals
Ⓔ Fan and controls slide out on rails
Ⓕ Integrated filter rack

Cabinet
All cabinets have a tough, durable powder coat finish on satin coat 20 gauge steel.

Heating coils
All heating coils are copper and assembled using no lead solder. All coils and internal piping conform to ASTM B-68, B-88 and/or B-743 standards.
High density aluminum fins provide maximum heat transfer for small coil surface.

Fan and motor
The ECM fan is a wide body dynamically balanced for extra quiet operation. Multi-directional sleeve bearing motors allow mounting in any direction for maximum installation flexibility.

Circulating pump
The internal circulating pump is matched for maximum performance. All Airflow PLUS air handlers come with internally mounted pumps for ease of installation.

Check valve
A check valve is built into the circulator to protect against backflow of water.

Features

Pump exercise function
If the internal circulating pump has not run in the previous 24 hours, the control will turn the pump on for 1 minute to flush the lines and heat exchanger. This will help ensure that the water lubricated pump does not seize during long periods of inactivity.

Home freeze protection
The Viessmann AirflowPLUS AH2A series air handlers have an integrated sensor which will help prevent the home from freezing due to a faulty thermostat. Should the ambient temperature get too low, the control will turn the air handler on automatically and maintain the home at approximately 40°F (4°C).
Note: this feature will only work if the boiler is turned on and the air handler has power. While in Home freeze protect mode the alarm relay and red light will be on. Refer to page 42.

Status and alarm indicators
A bicolor LED indicator is installed in the air handler housing and is used to indicate alarm, test mode, and normal operation. The indicator will display temperature readings of the sensors during normal operation.

Alarms
Should service problems arise the Viessmann AirflowPLUS AH2A series will notify the user with a housing mounted LED. Dry contacts are provided on the controller which can be connected to an external device such as a warning light or home security system.

Customizing
The heating and cooling features can be field customized to provide maximum comfort for almost any home or location. Refer to page 28, 33, 34 and 35.

Equipment Selection and Sizing

Proper sizing of systems components is crucial for proper operation;

1. Obtain room by room heat loss and/or heat gain
2. Determine heating water temperature
3. Determine duct layout

Make sure a proper room-by-room heat loss and heat gain for the dwelling is calculated using Manual J, HRAI, ASHRAE or other approved sizing method.

Compatibility Charts

Air handler model AH2A-213

Boiler supply water temperature	120°F (28 MBH)	140°F (46 MBH)	160°F (62 MBH)	180°F (72 MBH)
Vitodens 100 B1HA-94	✔	✔	✔	--
Vitodens 100 B1HA-125	✔	✔	✔	--
Vitodens 100 B1KA-125	✔	✔	✔	--
Vitodens 100 B1HE-85	✔	✔	✔	--
Vitodens 100 B1HE-120	✔	✔	✔	✔
Vitodens 100 B1HE-150	✔	✔	✔	✔
Vitodens 100 B1HE-199	✔	✔	✔	✔
Vitodens 100 B1KE-120	✔	✔	✔	--
Vitodens 100 B1KE-199	✔	✔	✔	✔
Vitodens 222 B2TB-68	✔	✔	✔	--
Vitodens 222 B2TB-125	✔	✔	✔	✔
Vitodens 200 B2HB-68	✔	✔	--	--
Vitodens 200 B2HB-94	✔	✔	✔	✔
Vitodens 200 B2HB-125	✔	✔	✔	✔
Vitodens 200 B2HB-160	✔	✔	✔	✔
Vitodens 200 B2HB-199	✔	✔	✔	✔
Vitodens 200 B2HA-285	✔	✔	✔	✔
Vitodens 200 B2HA-311	✔	✔	✔	✔
Vitodens 200 B2HA-352	✔	✔	✔	✔
Vitodens 200 B2HA-399	✔	✔	✔	✔
Vitodens 200 B2HA-530	✔	✔	✔	✔
Vitodens 200 B2HE-85	✔	✔	✔	--
Vitodens 200 B2HE-120	✔	✔	✔	✔
Vitodens 200 B2HE-150	✔	✔	✔	✔
Vitodens 200 B2HE-199	✔	✔	✔	✔
Vitocrossal 300 CU3A-94	✔	✔	✔	✔
Vitocrossal 300 CU3A-125	✔	✔	✔	✔
Vitocrossal 300 CU3A-160	✔	✔	✔	✔
Vitocrossal 300 CU3A-57, 199	✔	✔	✔	✔

Note: Compatibility charts do not take into consideration systems using additional heat emitters, DHW load etc. Ensure the boiler selected meets all of the system requirements for loads generated by additional components. It is the responsibility of the system designer to ensure proper sizing and equipment selection.

Compatibility Charts *(continued)*

Air handler model AH2A-354

Boiler supply water temperature	120°F (44 MBH)	140°F (61 MBH)	160°F (83 MBH)	180°F (98 MBH)
Vitodens 100 B1HA-94	✔	✔	✔	--
Vitodens 100 B1HA-125	✔	✔	✔	--
Vitodens 100 B1KA-125	✔	✔	✔	--
Vitodens 100 B1HE-85	✔	✔	--	--
Vitodens 100 B1HE-120	✔	✔	✔	✔
Vitodens 100 B1HE-150	✔	✔	✔	✔
Vitodens 100 B1HE-199	✔	✔	✔	✔
Vitodens 100 B1KE-120	✔	✔	✔	✔
Vitodens 100 B1KE-199	✔	✔	✔	✔
Vitodens 222 B2TB-68	✔	✔	✔	--
Vitodens 222 B2TB-125	✔	✔	✔	✔
Vitodens 200 B2HB-68	✔	✔	--	--
Vitodens 200 B2HB-94	✔	✔	✔	✔
Vitodens 200 B2HB-125	✔	✔	✔	✔
Vitodens 200 B2HB-160	✔	✔	✔	✔
Vitodens 200 B2HB-199	✔	✔	✔	✔
Vitodens 200 B2HA-285	✔	✔	✔	✔
Vitodens 200 B2HA-311	✔	✔	✔	✔
Vitodens 200 B2HA-352	✔	✔	✔	✔
Vitodens 200 B2HA-399	✔	✔	✔	✔
Vitodens 200 B2HA-530	✔	✔	✔	✔
Vitodens 200 B2HE-85	✔	✔	--	--
Vitodens 200 B2HE-120	✔	✔	✔	✔
Vitodens 200 B2HE-150	✔	✔	✔	✔
Vitodens 200 B2HE-199	✔	✔	✔	✔
Vitocrossal 300 CU3A-94	✔	✔	✔	--
Vitocrossal 300 CU3A-125	✔	✔	✔	✔
Vitocrossal 300 CU3A-160	✔	✔	✔	✔
Vitocrossal 300 CU3A-199	✔	✔	✔	✔

Note: Compatibility charts do not take into consideration systems using additional heat emitters, DHW load etc. Ensure the boiler selected meets all of the system requirements for loads generated by additional components. It is the responsibility of the system designer to ensure proper sizing and equipment selection.

Compatibility Charts *(continued)*

Air handler model AH2A-385

Boiler supply water temperature	120°F (51 MBH)	140°F (74 MBH)	160°F (90 MBH)	180°F (115 MBH)
Vitodens 100 B1HA-94	✔	✔	✔	--
Vitodens 100 B1HA-125	✔	✔	✔	--
Vitodens 100 B1KA-125	✔	✔	✔	--
Vitodens 100 B1HE-85	✔	--	--	--
Vitodens 100 B1HE-120	✔	✔	✔	--
Vitodens 100 B1HE-150	✔	✔	✔	✔
Vitodens 100 B1HE-199	✔	✔	✔	✔
Vitodens 100 B1KE-120	✔	✔	✔	✔
Vitodens 100 B1KE-199	✔	✔	✔	✔
Vitodens 222 B2TB-68	✔	✔	--	--
Vitodens 222 B2TB-125	✔	✔	✔	✔
Vitodens 200 B2HB-68	✔	✔	✔	--
Vitodens 200 B2HB-94	✔	✔	✔	--
Vitodens 200 B2HB-125	✔	✔	✔	✔
Vitodens 200 B2HB-160	✔	✔	✔	✔
Vitodens 200 B2HB-199	✔	✔	✔	✔
Vitodens 200 B2HA-285	✔	✔	✔	✔
Vitodens 200 B2HA-311	✔	✔	✔	✔
Vitodens 200 B2HA-352	✔	✔	✔	✔
Vitodens 200 B2HA-399	✔	✔	✔	✔
Vitodens 200 B2HA-530	✔	✔	✔	✔
Vitodens 200 B2HE-85	✔	--	--	--
Vitodens 200 B2HE-120	✔	✔	✔	--
Vitodens 200 B2HE-150	✔	✔	✔	✔
Vitodens 200 B2HE-199	✔	✔	✔	✔
Vitocrossal 300 CU3A-94	✔	✔	--	--
Vitocrossal 300 CU3A-125	✔	✔	✔	✔
Vitocrossal 300 CU3A-160	✔	✔	✔	✔
Vitocrossal 300 CU3A-199	✔	✔	✔	✔

Note: Compatibility charts do not take into consideration systems using additional heat emitters, DHW load etc. Ensure the boiler selected meets all of the system requirements for loads generated by additional components. It is the responsibility of the system designer to ensure proper sizing and equipment selection.

Before Set-up

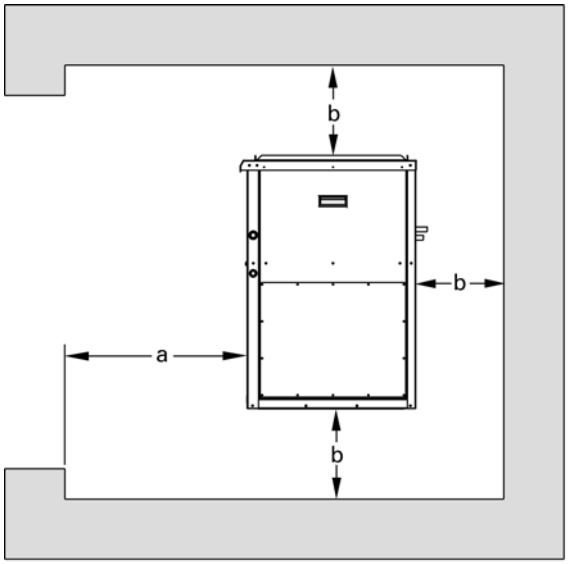
Before placing Viessmann AirflowPLUS in its installation location, ensure all necessary accessories are installed.

CAUTION

The air handler must be installed in such a way that electrical components are protected from water (spraying, splashing, etc.) during operation and service.

Minimum Clearances

Horizontal Installation



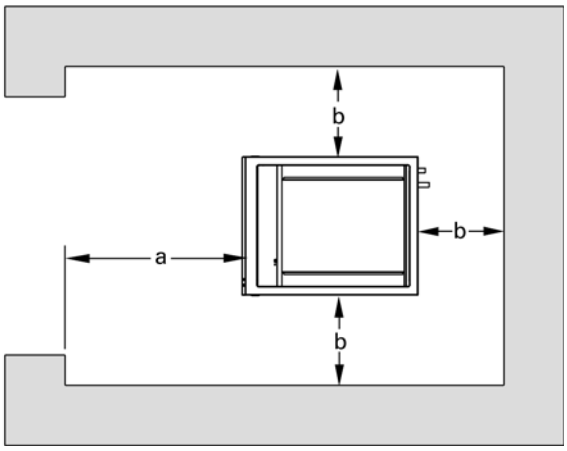
Recommended minimum service clearances

For typical Viessmann AirflowPLUS installation, it is recommended to install the air handler with the clearances shown in the illustration.

a - 24 in. (610 mm)
b - 12 in. (305 mm)

These dimensions reflect the recommended service clearance for the air handler only, ensure adequate clearance is left for the installation of ducting, piping and electrical connections. Only the b clearance may be reduced providing there is enough clearance for ductwork, plumbing and electrical connections, with zero clearance between the air handler unit and ducting being acceptable.

Vertical Installation

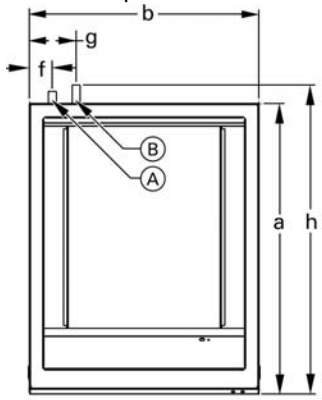


Dimensions

IMPORTANT

The maximum ambient temperature must not exceed 104°F (40°C).

Top view

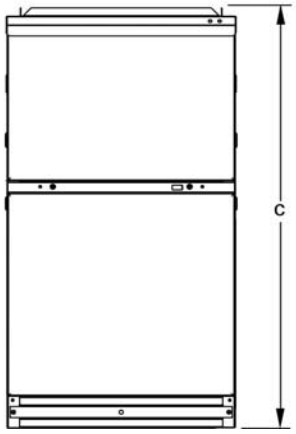


		AH2A-213	AH2A-354	AH2A-385
a	in. (mm)	22¾ (578 mm)	23 (584 mm)	28 (711 mm)
b	in. (mm)	18 (457 mm)	22 (559 mm)	22 (559 mm)
c*	in. (mm)	32½ (826 mm)	34½ (876 mm)	34½ (876 mm)
d*	in. (mm)	22¼ (572 mm)	24⅜ (620 mm)	24⅜ (620 mm)
e*	in. (mm)	23½ (597 mm)	25½ (650 mm)	25½ (650 mm)
f	in. (mm)	2 (51 mm)	1¾ (44 mm)	1¾ (44 mm)
g	in. (mm)	3 (76 mm)	3⅝ (92 mm)	3⅝ (92 mm)
h	in. (mm)	24¾ (629 mm)	25 (635 mm)	30 (762 mm)

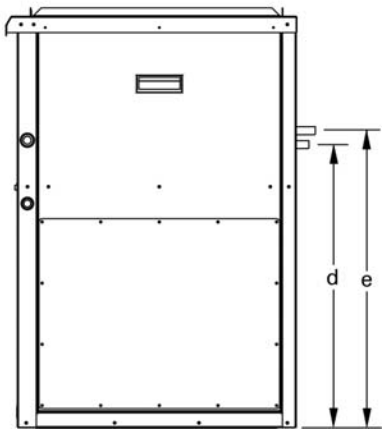
* Using the adjustable levelling feet can add up to 1½ in. (38 mm) to the height of the air handler.

Legend
Ⓐ Heating water supply connection
Ⓑ Heating water return connection

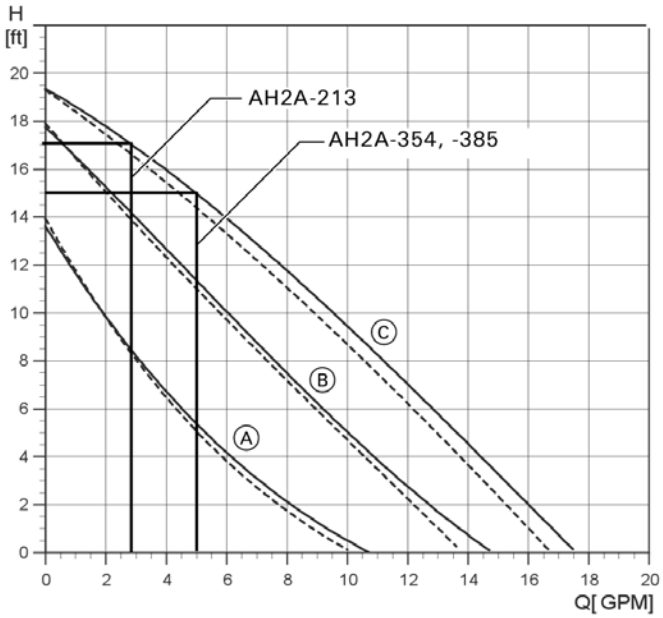
Front view



Side view



Heating Circuit Pumps



Pump Model	Grundfos UPS15-58RU	
Rated voltage	VAC	115
Rated current	Amp	0.74
Capacitor	μF	10
Power consumption	Watts	87

Legend
Ⓐ Speed 1 Pump curve
Ⓑ Speed 2 Pump curve
Ⓒ Speed 3 Pump curve

Note: All Viessmann AirflowPLUS air handlers come with pump speed factory set to speed 3.

Installation

The contractor shall adhere to all local, state and national code requirements pertaining to the installation of this equipment.

The Viessmann AirflowPLUS AH2A series air handler can be mounted in most directions. Upflow, downflow, horizontal left and horizontal right. You cannot install the air handler on it's back or suspended with front cover facing down. An adequately sized drain pan and drain connection must be installed under the appliance if installed in or above a finished space.

If installed in an unfinished space, a drain pan is not provided, necessary precautions must taken to ensure proper drainage of water in the event of a water leak (e.g. Floor drain, sump pump, moisture alarm...). This appliance shall not be installed in a non conditioned space where the potential may exist for the appliance and or water lines and drain line to freeze.

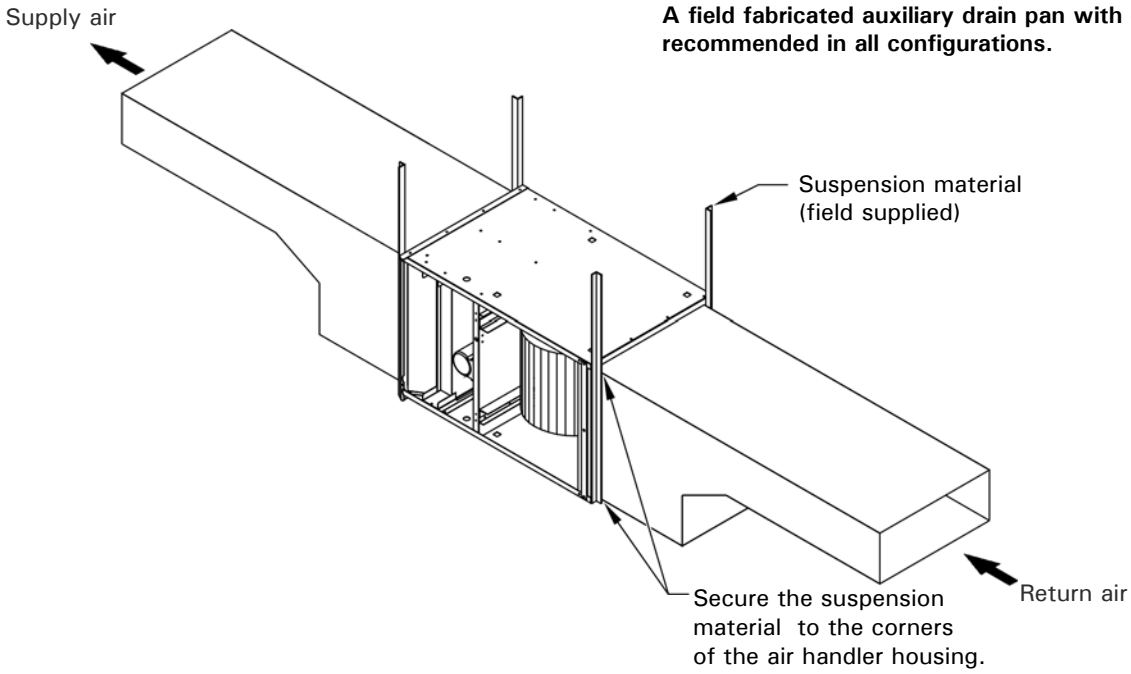
The Viessmann AirflowPLUS AH2A can be suspended by securing straps to the corners of the enclosure (field supplied).

Install the air handler with the door screwed in place to avoid distortion of the cabinet. The installing contractor must ensure that suspension materials are sized and installed to provide sufficient support to the air handler and connected accessory fittings and materials.

Note: System layout examples are provided starting on page 50 of these instructions.

Installation Examples

Horizontal installation



IMPORTANT

A field fabricated auxiliary drain pan with drain pipe is recommended in all configurations.

CAUTION

Return air openings shall not be installed in back panel.

IMPORTANT

You cannot install the air handler on it's back or suspended with front cover facing down.

Note: Return air openings are provided in both the bottom and side panels.

Note: Field selected suspension materials must be sized by installing contractor so as to be of sufficient strength to support air handler weight of 150 lbs. (68 kg) and connected accessory fittings and materials.

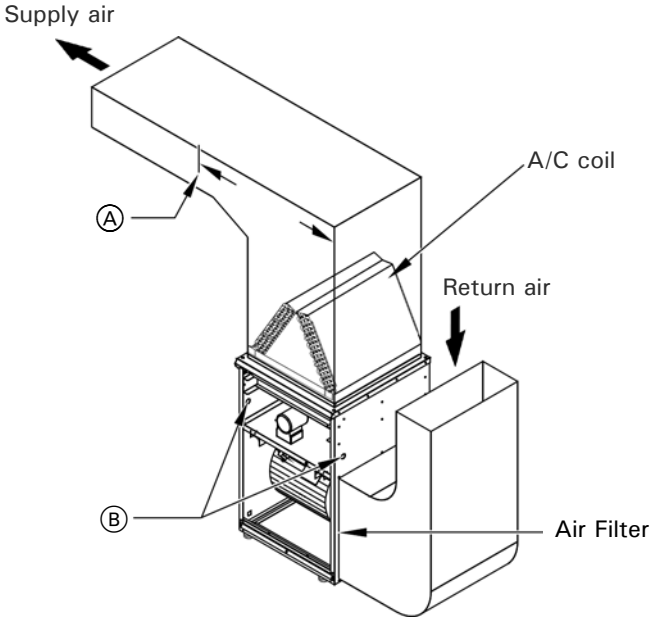
Temperature sensor and low voltage lead routing A/C Coil installed upstream of Air Handler in return plenum. Refer to "Remote Return Air Sensor T5" on page 27 for information.

For an installation over a finished space
A field fabricated auxiliary drain pan with drain pipe is required to prevent damage by overflow due to blocked condensate drain.

Installation Examples *(continued)*

Vertical installation

The A/C coil is installed in the downstream air flow of the Viessmann AirflowPLUS air handler.



IMPORTANT

A field fabricated auxiliary drain pan with drain pipe is required in all configurations.

⚠ CAUTION

Return air openings shall not be installed in back panel.

Ⓐ Supply air temperature sensor lead shall be routed out of air handler casing through knock-out provided in either side of casing and secured to plenum using nylon clips provided.

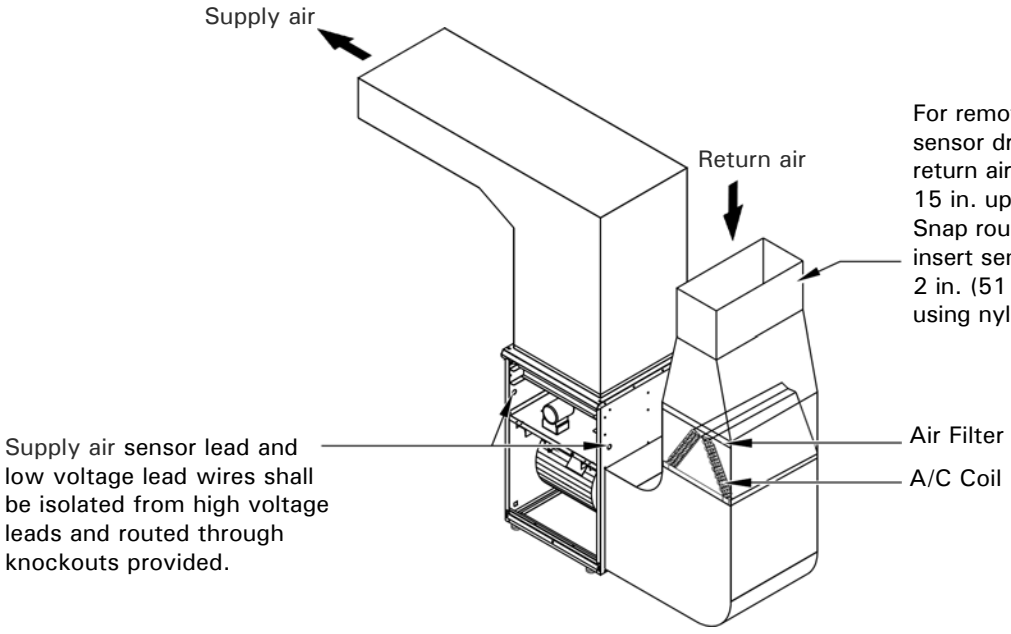
Drill 3/8 in. dia. hole in return air duct a minimum of 15 in. (381 mm) downstream of plenum.

Snap round bushing into hole and insert sensor lead approximately 2 in. (51 mm) and secure to duct using nylon strap included.

Ⓑ Supply air temperature sensor lead and low voltage lead wires shall be isolated from high voltage leads and routed through knockouts provided.

Vertical installation

The A/C coil is installed in the upstream air flow of the Viessmann AirflowPLUS air handler. This will require the use of the remote return air temperature sensor mounted upstream of the A/C coil. See page 27 for additional information regarding the remote return air temperature sensor.



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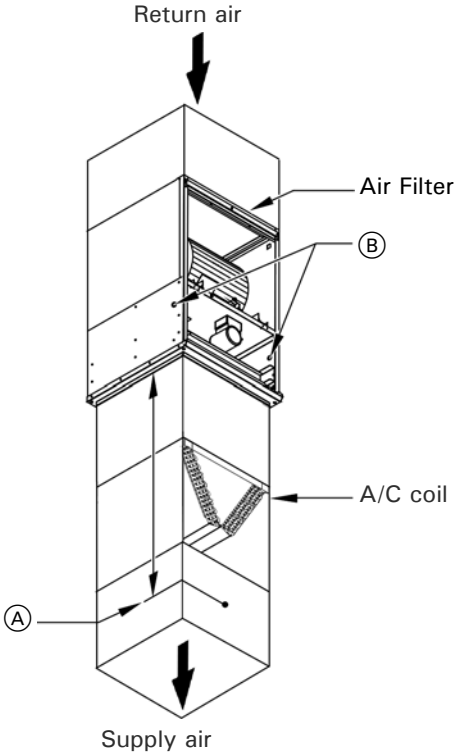
Installation Examples *(continued)*

Vertical installation

The A/C coil is installed in the downflow position of the Viessmann AirflowPLUS air handler.



IMPORTANT

A field fabricated auxiliary drain pan with drain pipe is required in all configurations.

⚠ CAUTION

Return air openings shall not be installed in back panel.

Ⓐ Supply air temperature sensor lead shall be routed out of air handler casing through knock-out provided in either side of casing and secured to plenum using nylon clips provided.

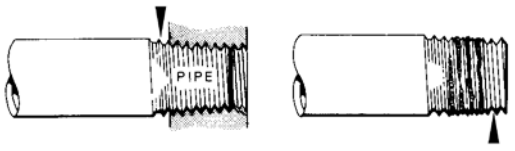
Drill 3/8 in. dia. hole in return air duct a minimum of 15 in. (381 mm) downstream of plenum.

Snap round bushing into hole and insert sensor lead approximately 2 in. (51 mm) and secure to duct using nylon strap included.

Ⓑ Supply air temperature sensor lead and low voltage lead wires shall be isolated from high voltage leads and routed through knockouts provided.

Proper Piping Practice

2 imperfect threads



Leave 2 threads bare

Support piping by proper suspension method.
Piping must not rest on or be supported by the air handler.
Use moderate amount of dope.

This section constitutes an overview only! Refer to subsequent sections for detailed information on individual piping connections.

Use an approved pipe sealant or teflon tape when connecting the following installation fittings.

Connecting to the Heating System

Air handler piping

Depending on the boiler selected and system design it may be required to use a primary, secondary piping arrangement to de-couple the flow through the boiler from the flow through the air handler. Refer to the system layout examples starting on page 50.

Boiler

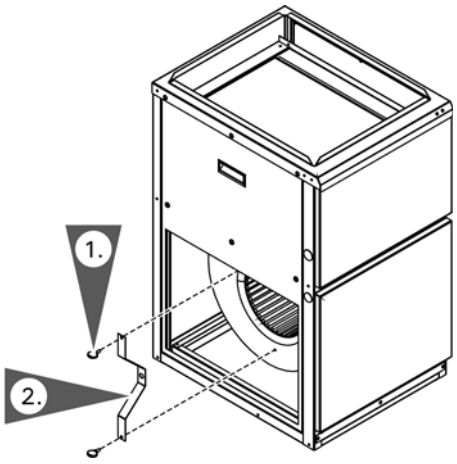
Follow the instructions provided with the boiler for installation and start-up of the boiler. Make sure the heating device is turned off during air handler installation and service. Ensure system has been filled, and all air is purged from the system before turning on the heating boiler.

Duct work

All duct designs must be designed to conform with ARI Manuals “J” and “D” or local codes and requirements.
To minimize fan noise in the living space, it is recommended that the first six feet of supply and return air duct be lined with acoustic insulation.

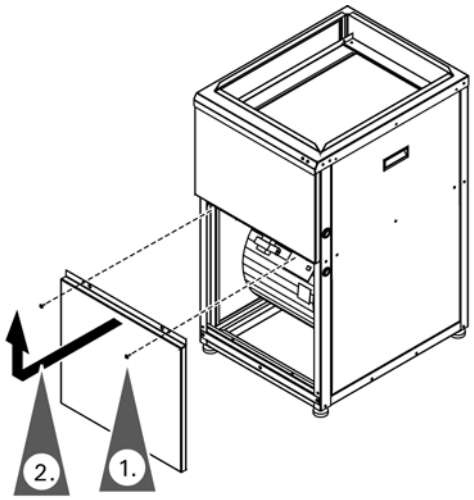
Return and supply air duct work should be the same size as the air handler openings up to the first branch, fitting or transition.

Removing the Blower Shipping Bracket

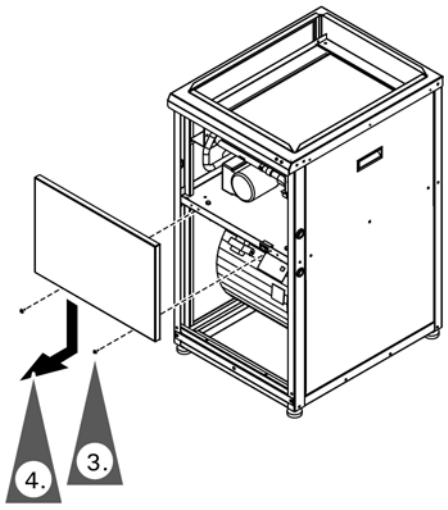


1. Remove the bracket retaining thumb screws and discard.
2. Remove the bracket and discard.

Opening the Air Handler Unit



1. Remove the lower front panel retaining screws and set aside.
2. Tilt the lower front panel forward at the top and lift out.
3. Remove the upper front panel retaining screws and set aside.
4. Slide the upper front panel down and pull out.



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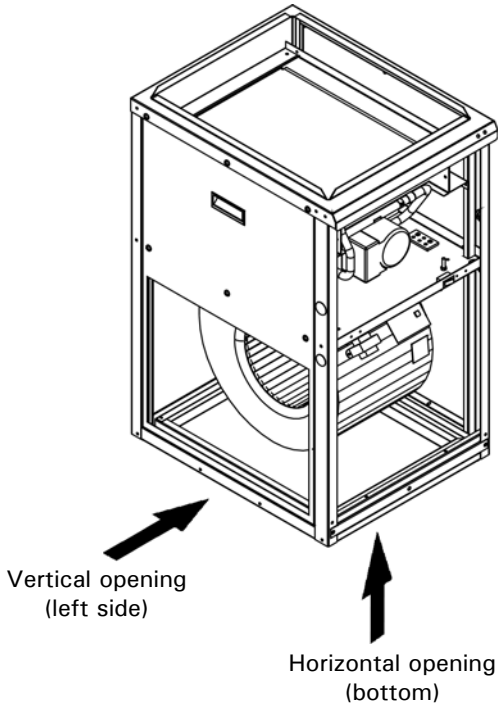
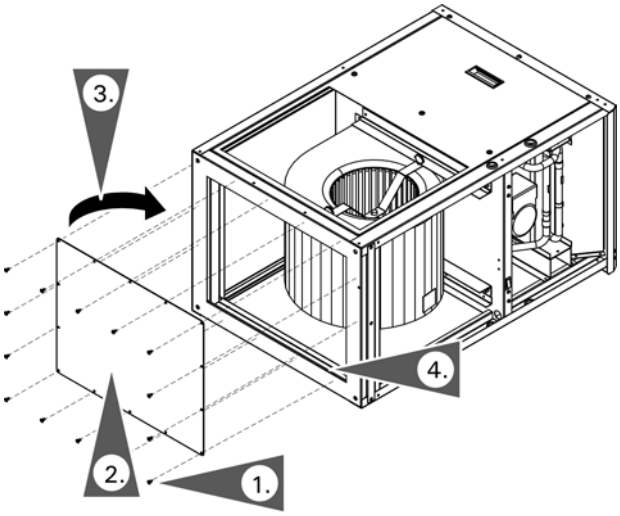
Panels



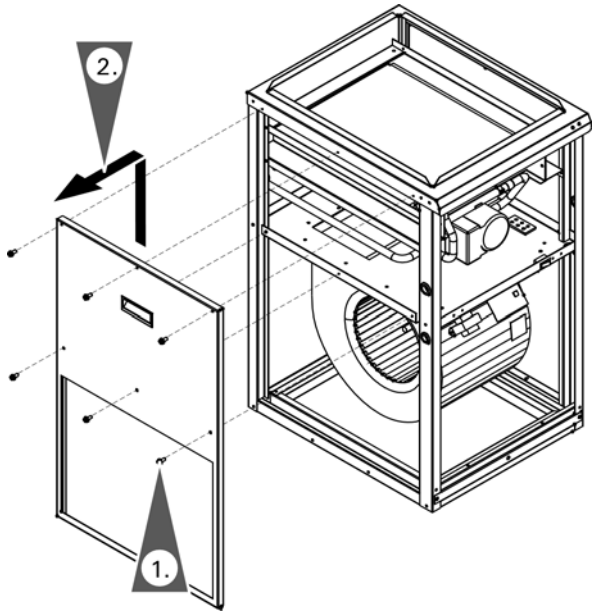
There are 2 return air openings on the air handler. One is located on the left side for vertical installations and one is located at the bottom for horizontal installations. For horizontal installations, remove the bottom panel and install it to the left side panel opening.



Horizontal installation

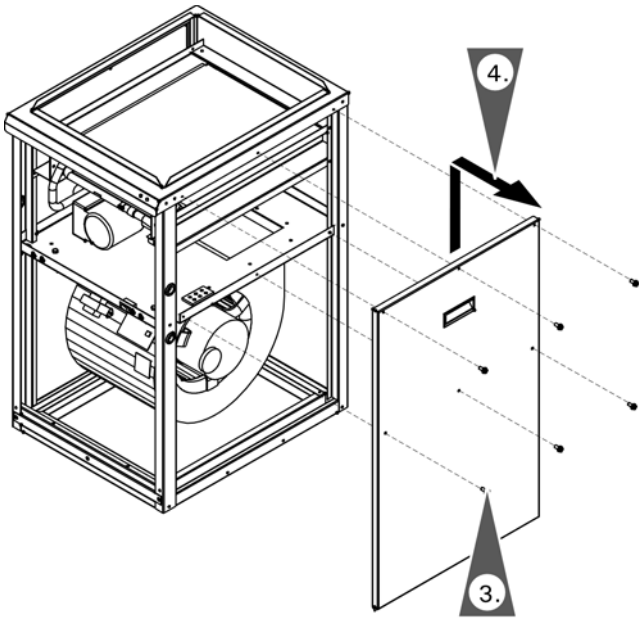
1. Remove the bottom panel retaining screws and set aside.
2. Remove the bottom panel and set aside.
   Note: The fan tray is preinstalled into the bottom of the air handler.
3. Install the bottom panel to the left side of the air handler opening and secure with the retaining screws.
4. Connect the field supplied ducting to the bottom of the air handler.
5. Connect the field supplied ducting as required.

Panels *(continued)*



To change the duct connection side of the air handler for vertical installation, the right and left side panel can be interchanged. To interchange the panels refer to the following instructions.

1. Remove the retaining screws and set aside.
2. Remove the side panel by pulling up on the handle and then out.



3. Remove the retaining screws from the panel on the opposite side and set aside.
4. Remove the side panel by pulling up on the handle and then out.

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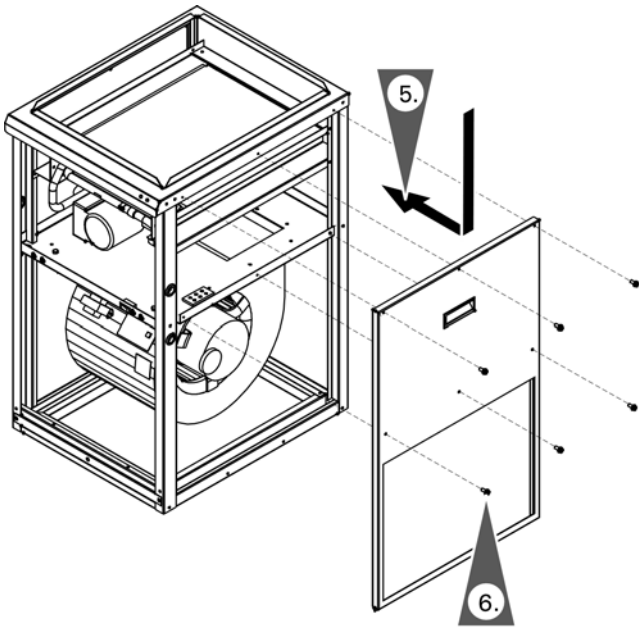
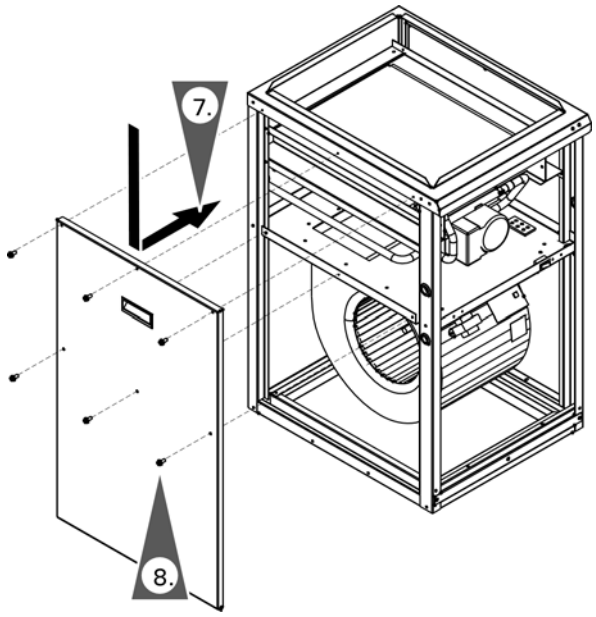
Panels *(continued)*



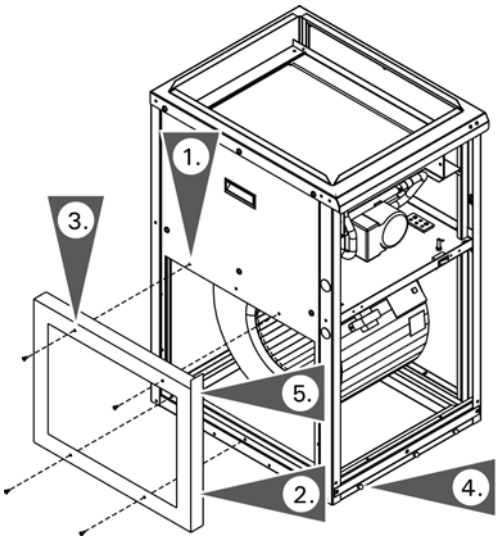
5. Install the side panel (removed from step 2) by placing the panel into the air handler and pushing down with the handle.
6. Reinstall the retaining screws.

Note: To install the filter tray, see page 21.



7. Install the side panel (removed from step 4) by placing the panel into the air handler and pushing down with the handle.
8. Reinstall the retaining screws.

Panels *(continued)*

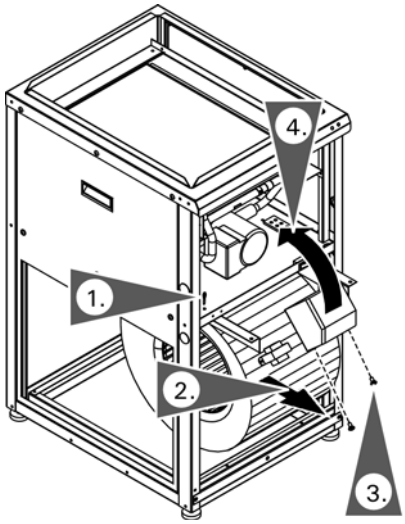


Filter tray for vertical installation

Note: If an A/C condenser is installed upstream, a field supplied filter tray maybe placed elsewhere in the ducting, see page 15.

1. Remove the retaining screws from the side panel.
2. Install the filter tray into the side panel opening.
3. Drill into the filter tray and secure the filter tray to the side panel using the retaining screws.
4. Remove the 3 plastic retaining screws, open the tray and remove the supplied filter.
5. Remove the side panel of the filter tray and insert the filter.
6. Connect the field supplied ducting to the filter tray as required.

Accessing the Connection Board



Accessing the connection board with hinged cover

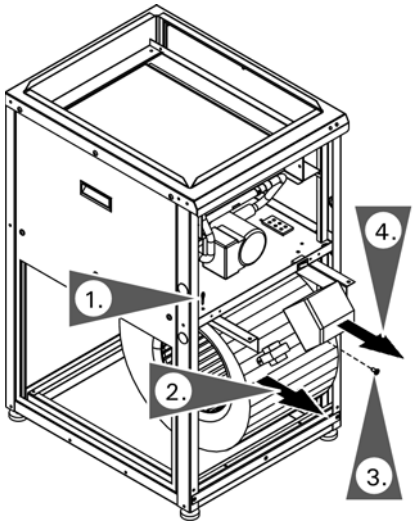
1. Remove the blower assembly retaining screws and set aside.
2. Slide the blower assembly forward.

IMPORTANT

Careful not to slide the blower assembly out too far, it could put excessive strain on the cables.

3. Remove the 2 retaining screws from the connection board cover.
4. Swing the cover up to open.

OR



Accessing the connection board with removable cover

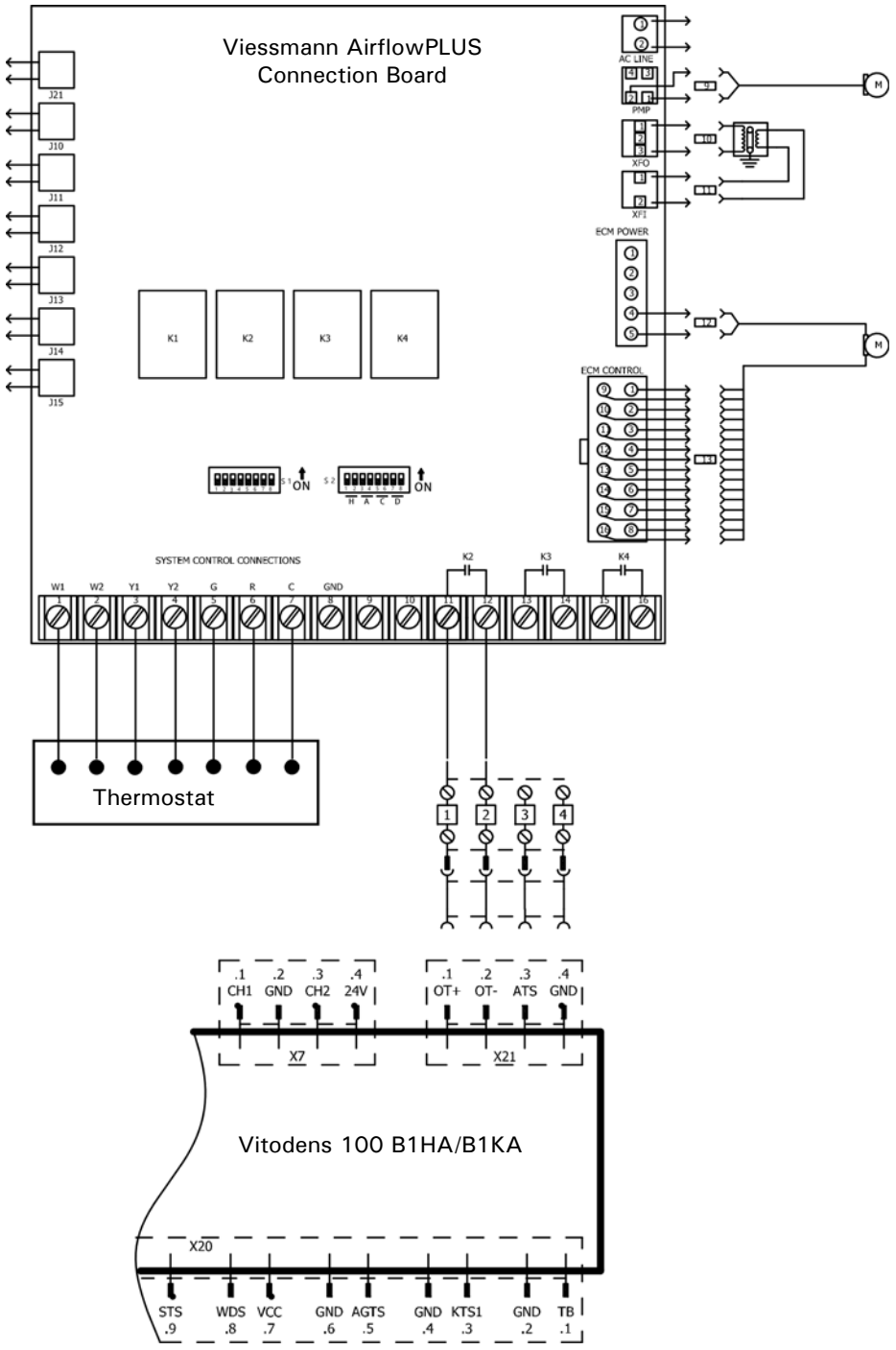
1. Remove the blower assembly retaining screw and set aside.
2. Slide the blower assembly forward.

IMPORTANT

Careful not to slide the blower assembly out too far, it could put excessive strain on the cables.

3. Remove the retaining screw from the connection board cover.
4. Remove cover.

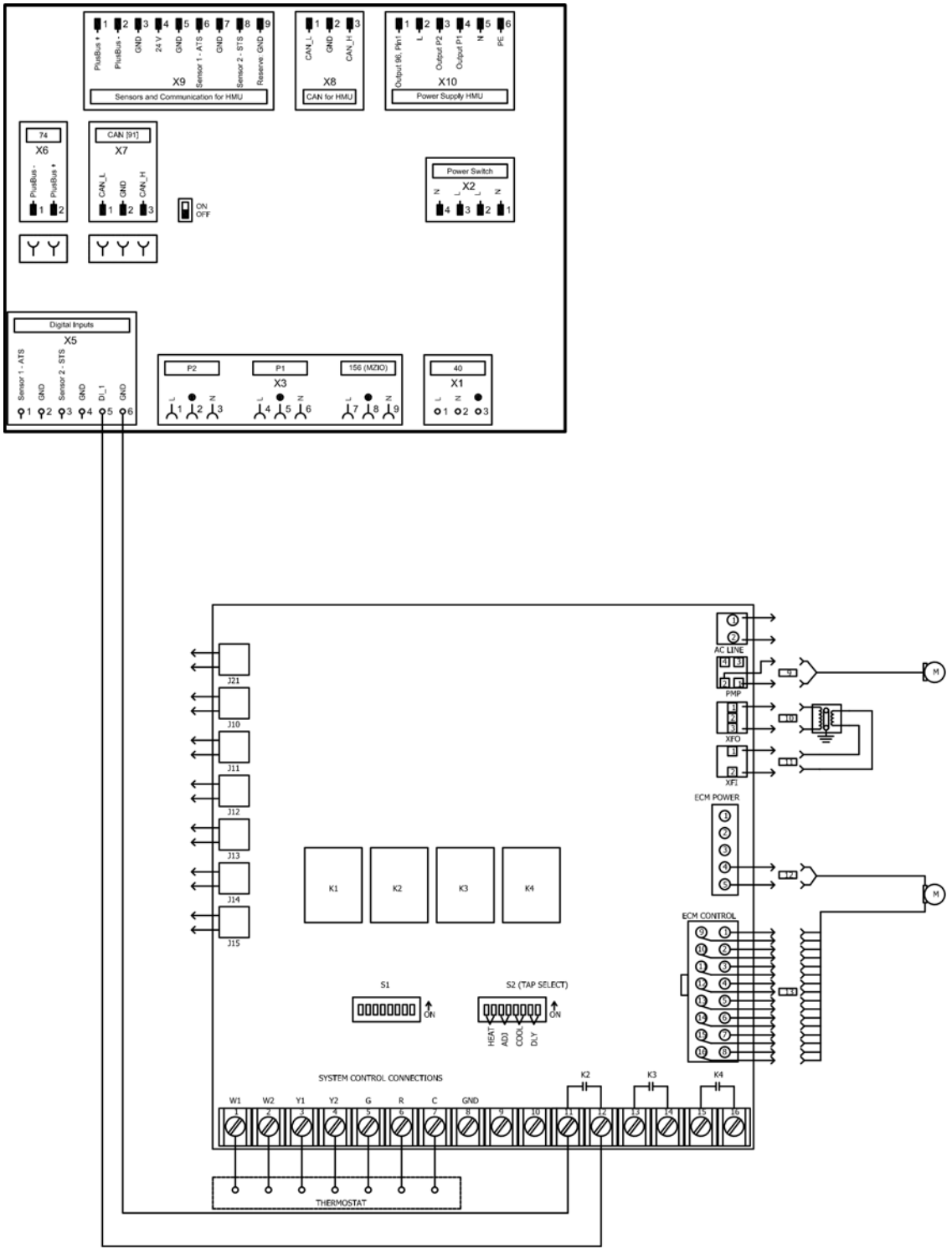
Vitodens 100 B1HA/B1KA Wiring



For more details, refer to the Vitodens 100-W Installation Instructions.

Connect call for heat (K2) relay of the air handler to the OT connection (X21 terminals 1 and 2) of the Vitodens 100 B1HA/B1KA control.

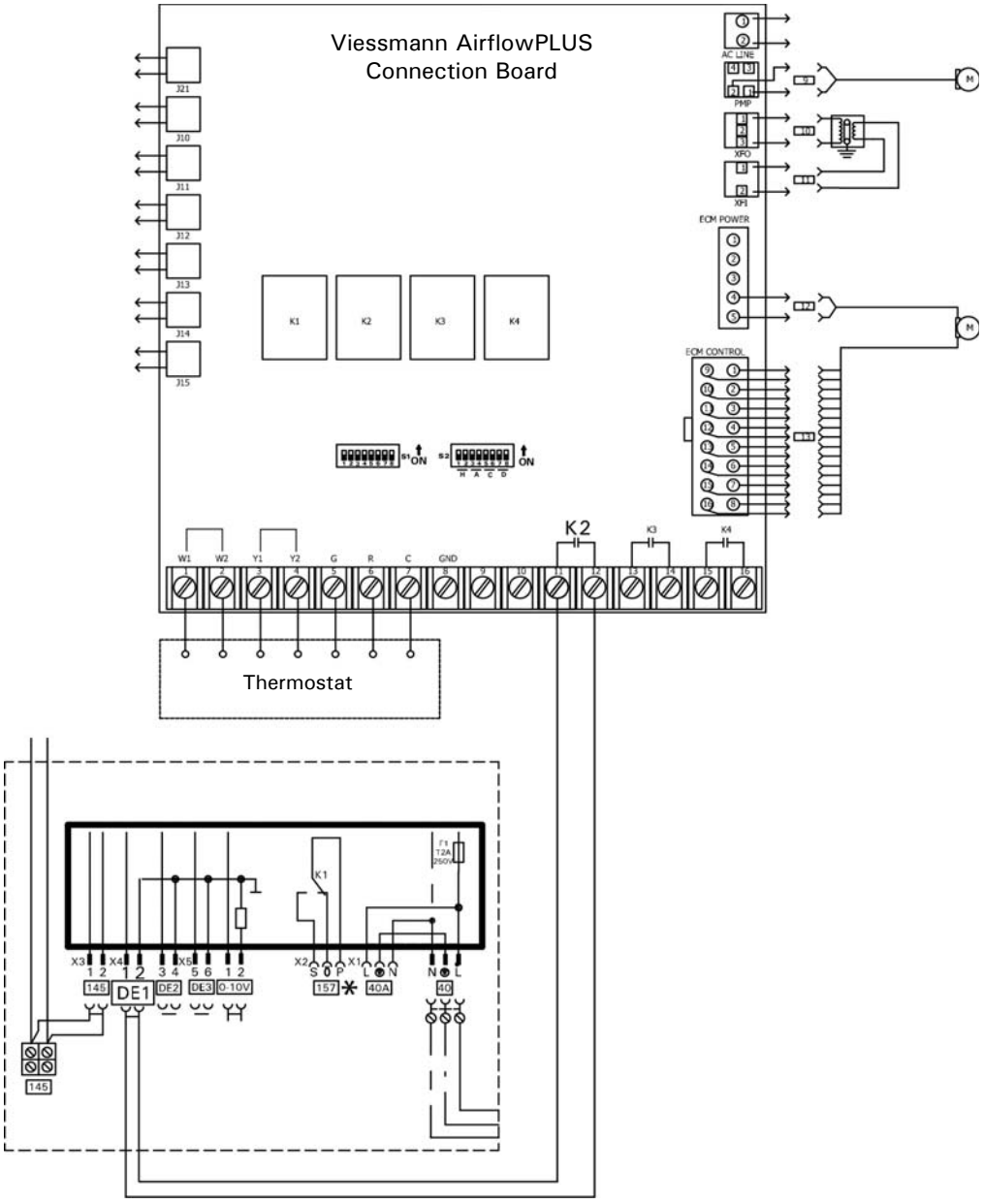
Vitodens 100 B1HE, B1KE



For more details, refer to the Vitodens 100-W Installation Instructions.

Connect call for heat (K2) relay of the air handler to the RT connection (X4 terminals 3 and 4) of the Vitodens 100 WB1B power pump module.

HO1B Wiring

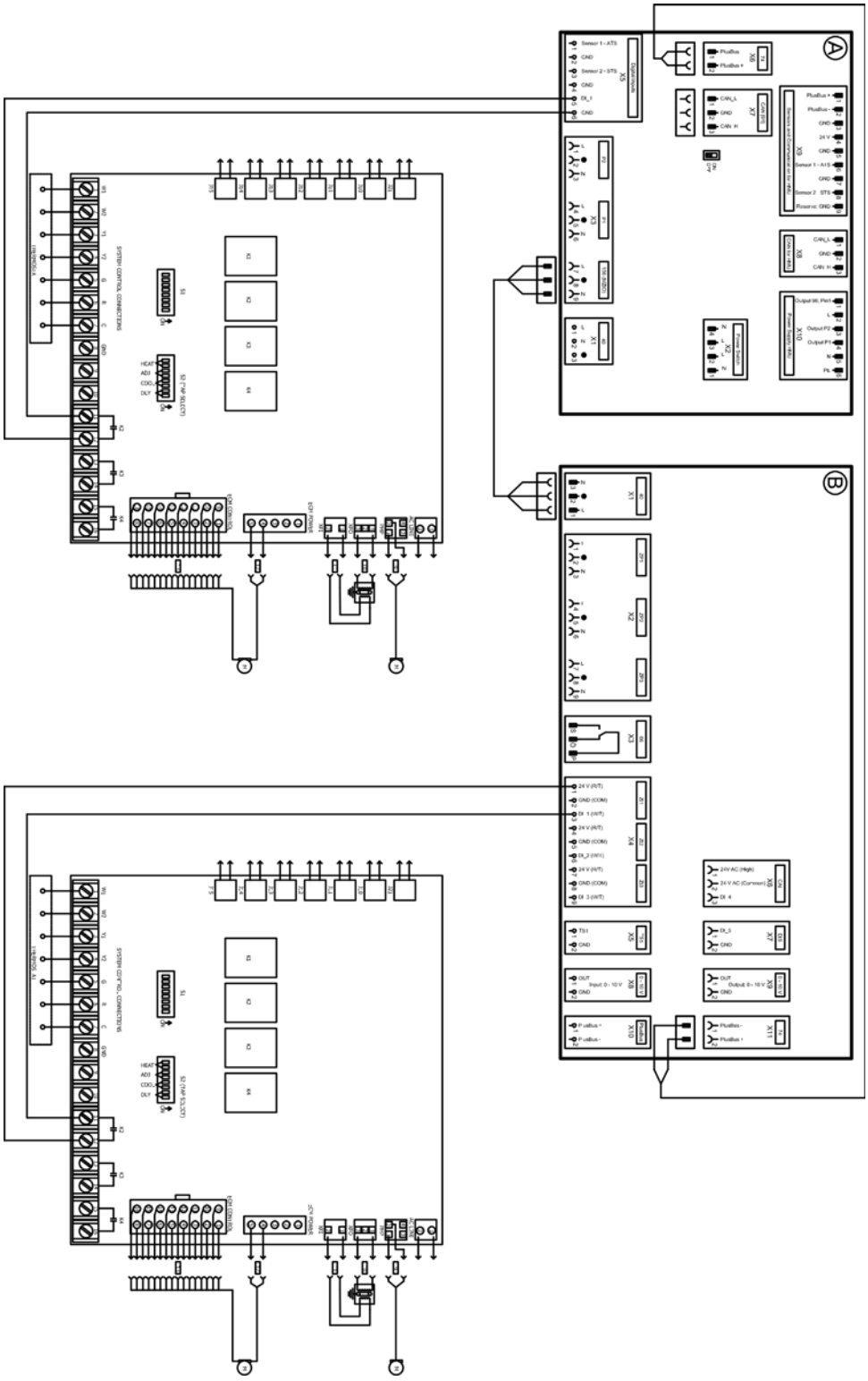


HO1B Connections
(Vitodens 200-W B2HA and B2HB
Vitodens 222-F B2TA and B2TB
Vitocrossal 300 CU3A)

Refer to the appropriate boiler Installation Instructions.

Connect call for heat (K2) relay of the air handler to terminals DE1 of the integrated EA1 module. For coding and programming requirements refer to page 40.

Vitodens 200 B2HE Wiring



Control Function

Temperature sensors
The Viessmann AirflowPLUS integrated Control includes five temperature sensors. Temperature sensors are 2-wire devices that are connected to the control board with a two pin connector allowing field replacement of individual sensors.

Circulator
The circulator connection will support up to 5A 115VAC pump motors, activated by control logic on call for heat.

Air conditioning relay (24VAC)
The Air Conditioning relay is on when the A/C cooling function should be active. It is a 24VAC signal that will energize the A/C power contactor.

Fan relay (24VAC 5A Max dry contact)
The fan relay is on at any time the fan is running. The relay presents a contact closure that may be used to activate external air cleaners, humidifiers, etc that should be active while the fan is running.

Heat relay (24VAC 5A Max dry contact)
The heat relay is on when the thermostat calls for heat.

Alarm relay (24VAC 5A Max dry contact)
The alarm relay provides a dry contact closure that is used to indicate an alarm condition. The contacts are closed during an alarm condition.
The alarm relay contacts may be used to activate an external device to alert the user that an alarm condition exists.

Alarm conditions include:
- Heat exchanger freeze protection limit exceeded
- Return air temperature is too low

Supply Water Temperature (T1)

The sensor is mounted at the supply side of the water heating coil.

Freeze Protection Temperature (T3)

The sensor will be mounted above the hydronic heat exchanger to detect freezing temperatures from the A/C heat exchanger that could damage the water heat exchanger. The supply air is also monitored during the cooling mode.

A/C Discharge Air Temperature (T4)

The sensor is installed in the supply air path of the Air Handler, downstream of the air handler and/or air conditioning assembly. Refer to pages 14 and 15.

Remote Return Air Sensor (T5)

Remote return air sensor installation
Note: If the A/C coil is installed in the return air plenum.

- The remote return air sensor must be installed. This sensor is then inserted into the return air duct at a location approximately 15 in. (380 mm) upstream of the A/C coil. (Pages 14 and 15)
- Set dip switches as per the system preference.

The remote return air sensor is preinstalled within the Viessmann AirflowPLUS cabinet complete with a 10 ft. (3 m) cable lead for remote sensor locations. Remove the strap from the sensor lead and install in the required location.

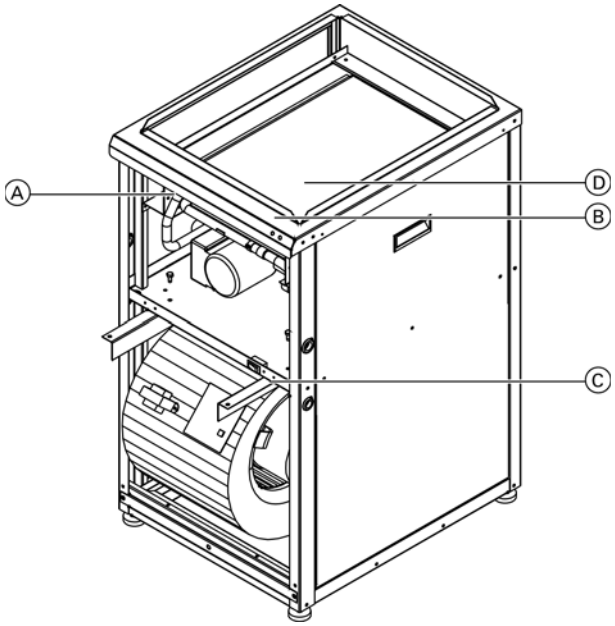
Ambient Sensor (T6)

It should be noted that this is a precautionary measure and is not designed to prevent water line freezing in situations where the ambient temperatures may get too low.

The ambient sensor provides air handler operation when ambient temperatures outside of the air handler cabinet are less than 40°F (4°C). When the temperature rises above 41°F (5°C) the system will resume normal operation.

The sensor connector is plugged onto the control board and routed through the cabinet fan tray openings up to the top panel.

Sensor Locations

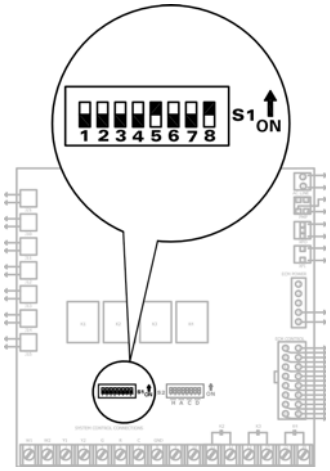


Legend
Ⓐ Supply water temperature
Ⓑ Ambient temperature
Ⓒ Return air temperature
Ⓓ Supply air temperature
Ⓔ Remote air temperature (not shown)

S1 Dip Switch Settings

Dip switches S2 (in the image below) are shown in the factory setting.

Note: The black squares represent the switch positions.



Note: To access the connections board see pages 17 and 21.

Dip switch settings
The dip switch will allow the selection of custom setup options. Refer to Variable Table for system options.

Maximum heating override
The return air temperature will be monitored for unreasonably high values. When the upper limit is reached the unit will override the thermostat and maintain the temperature at the set value.

Minimum cooling override
The return air temperature will be monitored for unreasonably low values. When the lower limit is reached the unit will override the thermostat and maintain the temperature at the set value.

IMPORTANT

Start-up: Do not power the unit until the water supply has been connected and the system purged of air. The circulating pump may come on at anytime. Dry operation of the pump will damage the pump and void warranty.

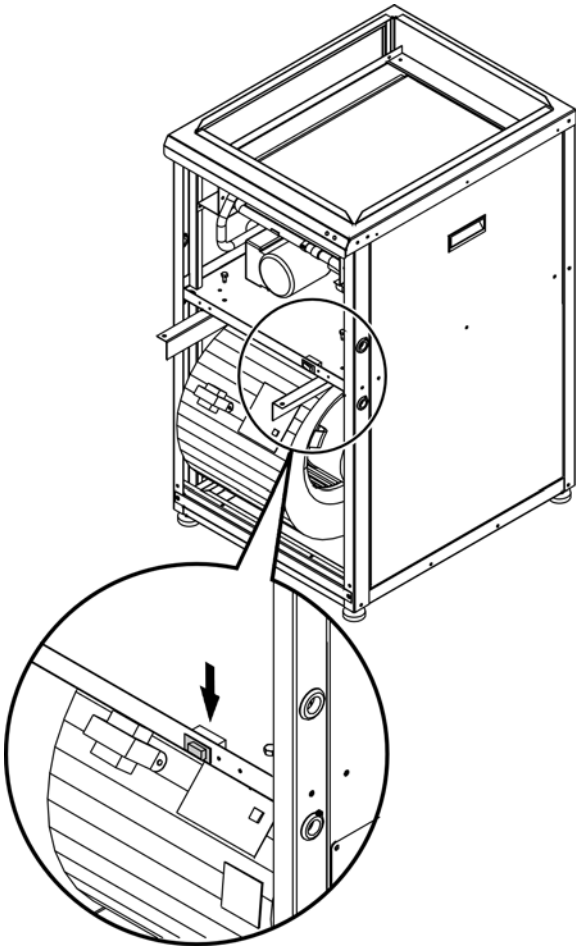
Dip Switch S1 Maximum heating override		Dip Switch S1 Minimum cooling override	
1 2	90°F (32°C)	3 4	65°F (18°C)
1 2	85°F (29.5°C)	3 4	68°F (20°C)
1 2	80°F (26.5°C)	3 4	70°F (21°C)
1 2	75°F (24°C)	3 4	72°F (22°C)

Note: Power to the Viessmann AirflowPLUS air handler must be turned off before changing switch settings.
Note: Factory settings are shown in the grey areas of both charts.

System select dip switch settings
Four system settings are available. Two for use when the evaporator is in the supply air stream, two for use when the evaporator is in the discharge air stream. In each configuration, the hot water threshold of 85°F or 110°F (29°C or 43°C) may be selected, this ensures that only warm air is available during heating operations.

Dip Switch S1 System Settings	
5 6 7 8	Evaporator in Supply Air / 110°F (43°C)
5 6 7 8	Evaporator in Return Air / 110°F (43°C)
5 6 7 8	Evaporator in Supply Air / 85°F (29°C)
5 6 7 8	Evaporator in Return Air / 85°F (29°C)

Door Safety Switch



The door safety switch is located on the internal center support panel. Once the lower front panel is removed, the switch will disconnect power to the control board and fan motor.

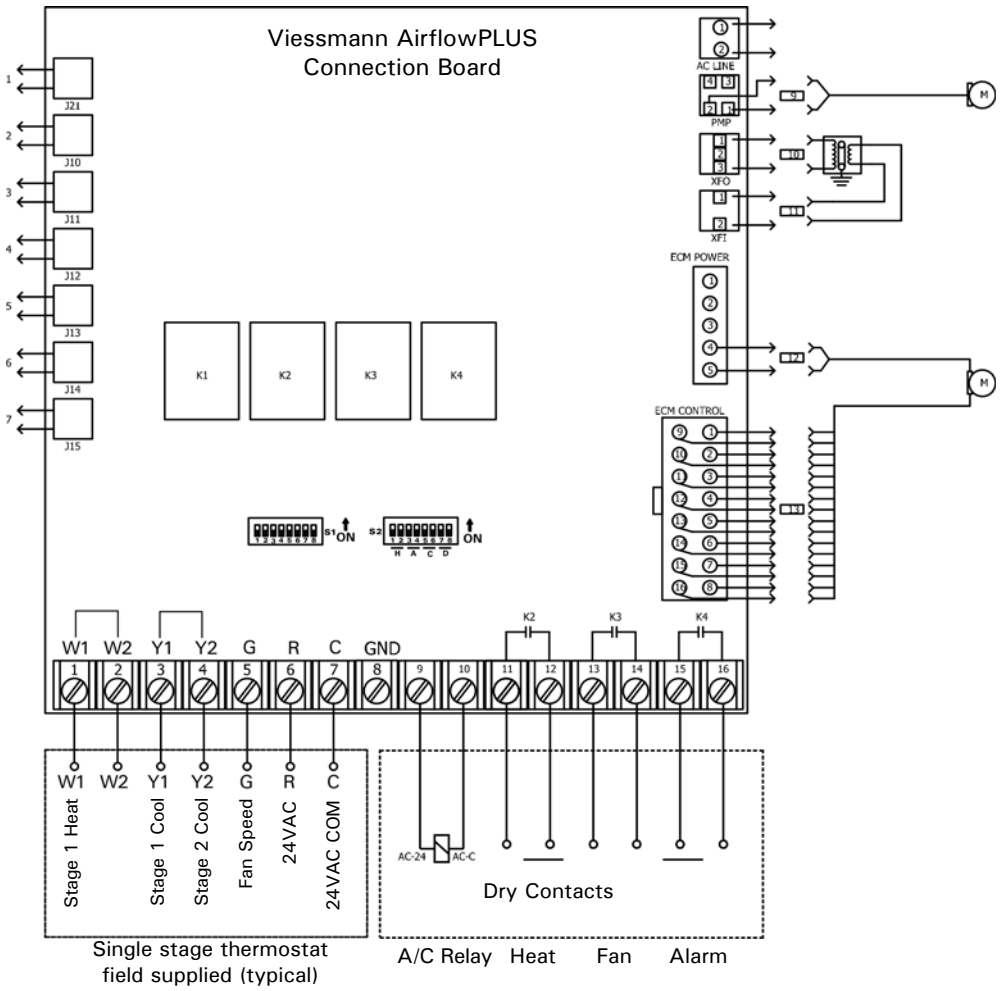
Electrical

Thermostat
Most standard heat/cool, setback, or electronic thermostats are compatible with the Viessmann AirflowPLUS AH2A series air handlers.
Thermostat wire from the thermostat is connected to the screw terminals located on the control board inside the air handler. They should be connected as follows:
RH, RC – power (24VAC)
W – heating
Y – cooling (if present)
G – continuous run fan (if present on thermostat)

Note: During continuous fan operation, the fan speed will operate at 40% of the set cooling speed.

IMPORTANT

A/C condenser must be connected to position "AC relay -Y-C" only. Improper connections will result in loss of protection functions.



Note: Before making the connection to the thermostat for a two stage cooling function, remove the jumper across terminals Y1 and Y2 on the Viessmann AirflowPLUS connection board.

Power Supply

WARNING

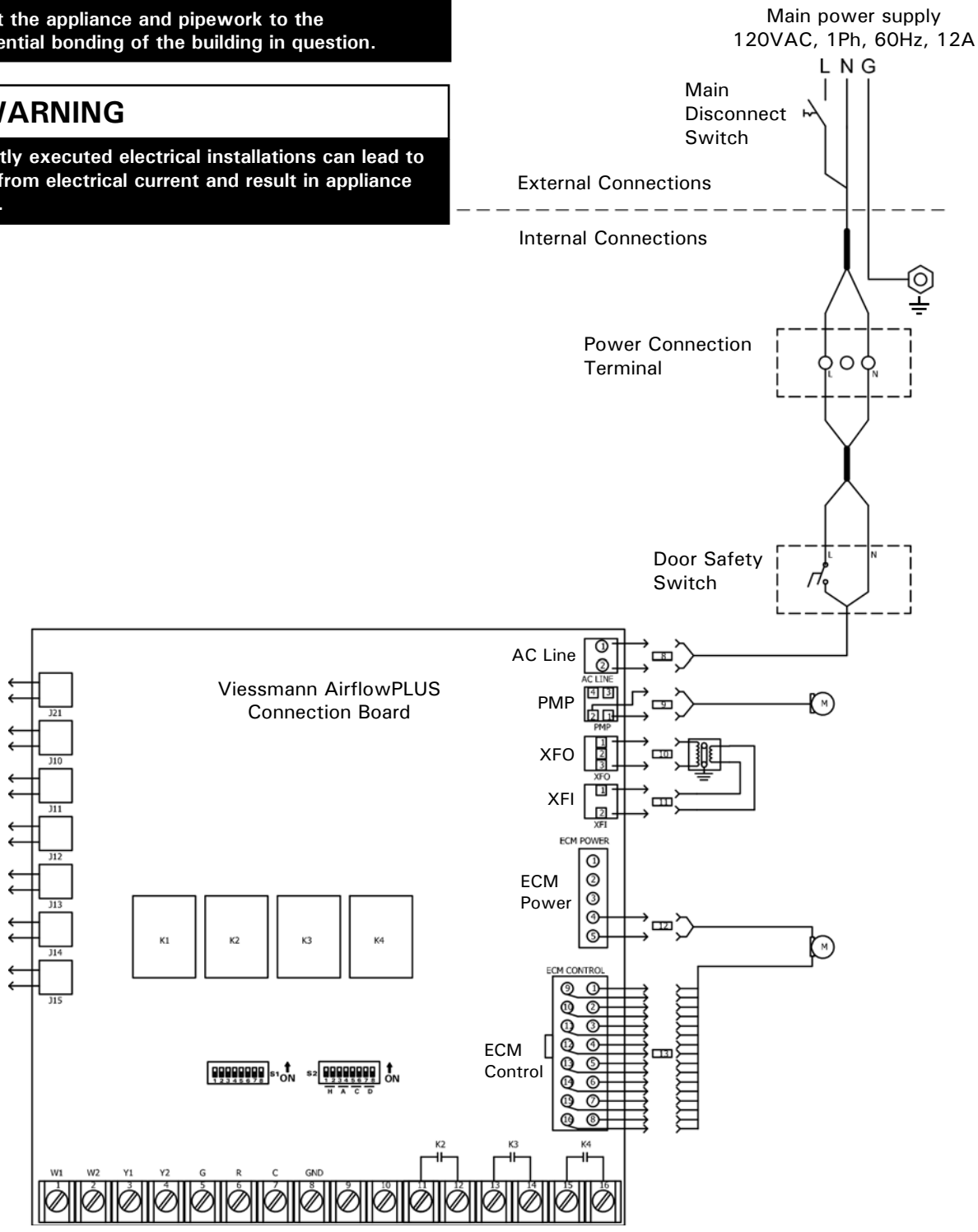
If system components are not grounded, serious injury from electric current can result if an electrical fault occurs.
Connect the appliance and pipework to the equipotential bonding of the building in question.

WARNING

Incorrectly executed electrical installations can lead to injuries from electrical current and result in appliance damage.

WARNING

Power connections L and N are not interchangeable.



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Control Inputs

Heating control
A 24VAC input is provided to control the heating function. When the thermostat calls for heat 24VAC is applied to the W contact and a heating cycle will be initiated.

Note: the heating cycle control will be ignored while a cooling cycle is in progress.

If the heating control is turned off during the initial heat exchanger warm up or during the fan cycle up to speed the heat mode will be terminated with a short run period for the fan prior to shutting down.

When thermostat changes off to on:
Initially pump speed is active, Fan is off. Provide time for heating coil to warm up. After 15 sec. the fan will active at normal operating speed as set up by the selected dip switch settings. See setting fan speed pages 33, 34 and 35.

Cooling control
A 24VAC input is provided to control the cooling function. When the thermostat calls for cooling 24VAC is applied to the Y contact and a cooling cycle will be initiated.

Note: the heating cycle control will be ignored while a cooling cycle is in progress.

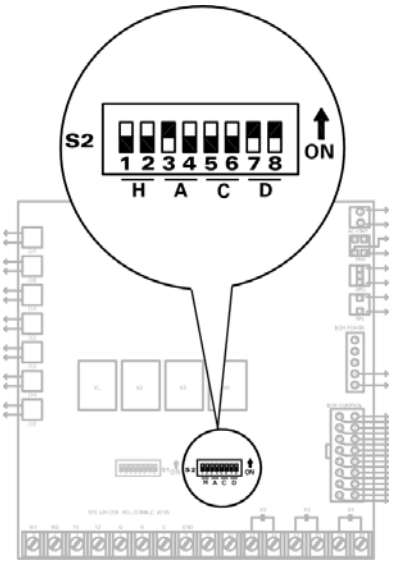
If the cooling control is turned off during the fan cycle up to speed period the cool mode will be terminated without an end of cycle fan period.

Thermostat fan on/auto control
The 24VAC Thermostat Fan On/Auto input will select the fan operation. When the thermostat is in the Auto state the fan will be off while not heating/cooling. In the fan ON position, 24V is applied to the G contact and the fan will run at the lowest speed while not heating/cooling. During a heating cycle the fan is always off during the initial heat exchanger warm up period.

Setting Fan Speed

Dip switches S2 (in the image below) are shown in the factory setting.

Note: The black squares represent the switch positions.



Legend
H Heat
A Adjustment
C Cooling
D Delay

AH2A-213 Viessmann AirflowPLUS Air Handler

1/3 hp ECM - air flow selectable options

Example:

1 2 3 4 5 6 7 8

This example shows the factory setting with a heating fan speed of 1155 CFM (Nominal + 10%) a cooling fan speed of 1290 CFM (Nominal + 10%) and the cooling fan speed profile see chart below for delay.
Both the heating and cooling fan speeds must be selected from dip switch S2 adjustment (Nominal + 10%, Nominal or Nominal -10%).

Note: To access the connections board see pages 17 and 21.

Dip Switch S2 Adjustment	Dip Switch S2 Heating fan speed				Dip Switch S2 Cooling fan speed			
	1 2	1 2	1 2	1 2	5 6	5 6	5 6	5 6
3 4 Nominal +10%	1155 CFM	910 CFM	740 CFM	605 CFM	1290 CFM	1010 CFM	825 CFM	660 CFM
3 4 Nominal	1050 CFM	825 CFM	675 CFM	550 CFM	1175 CFM	925 CFM	750 CFM	600 CFM
3 4 Nominal -10%	924 CFM	726 CFM	594 CFM	484 CFM	1034 CFM	814 CFM	660 CFM	528 CFM

Dip Switch S2 Delay	Dip Switch S2 Cooling Fan Speed Profiles					
	Pre-Run Time	Motor percent	Short Run Time	Motor percent	Motor OFF Time	Motor percent
7 8	5 min.	82%	2 min.	88%	2 min.	75%
7 8	3 min.	82%	2 min.	88%	2 min.	75%
7 8	2 min.	82%	--	--	4 min.	75%
7 8	--	--	--	--	4 min.	75%

Note: for two stage cooling the first sage (Y1) is approximately 65% of maximum speed, a fan only call is approximately 40% of cool speed.

Note: Power to the Viessmann AirflowPLUS air handler must be turned off before changing switch settings. The above values are approximations only, actual results may vary.

Note: Factory settings are shown in the grey areas in the charts above.

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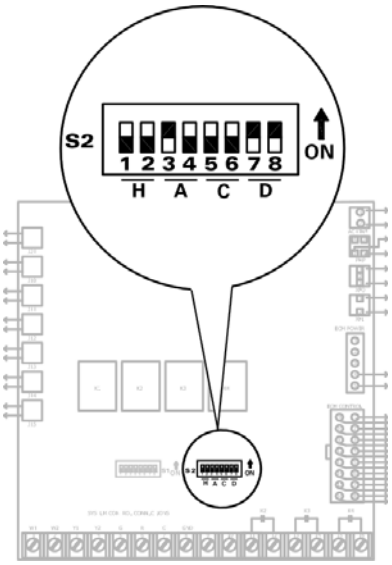
Setting Fan Speed *(continued)*

Dip switches S2 (in the image below) are shown in the factory setting.

Note: The black squares represent the switch positions.



Legend
H Heat
A Adjustment
C Cooling
D Delay

AH2A-354 Viessmann AirflowPLUS Air Handler

1/2 hp ECM - Air Flow Selectable Options

Example:

1 2 3 4 5 6 7 8

This example shows the factory setting with a heating fan speed of 1430 CFM (Nominal + 10%) a cooling fan speed of 1804 CFM (Nominal + 10%) and the cooling fan speed profile see chart below for delay.
Both heating and cooling fan speeds must be selected from dip switch S2 adjustment (Nominal + 10%, Nominal or Nominal -10%).

Note: To access the connections board see pages 17 and 21.

Dip Switch S2 Adjustment	Dip Switch S2 Heating fan speed				Dip Switch S2 Cooling fan speed			
	1 2	1 2	1 2	1 2	5 6	5 6	5 6	5 6
3 4 Nominal +10%	1430 CFM	1050 CFM	830 CFM	830 CFM	1804 CFM	1400 CFM	1050 CFM	800 CFM
3 4 Nominal	1300 CFM	980 CFM	760 CFM	5760 CFM	1640 CFM	1270 CFM	980 CFM	740 CFM
3 4 Nominal -10%	1140 CFM	860 CFM	660 CFM	660 CFM	1440 CFM	1100 CFM	860 CFM	650 CFM

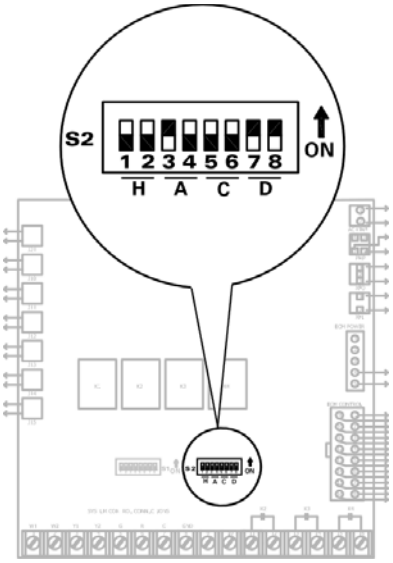
Dip Switch S2 Delay	Dip Switch S2 Cooling Fan Speed Profiles					
	Pre-Run Time	Motor percent	Short Run Time	Motor percent	Motor OFF Time	Motor percent
7 8	5 min.	82%	2 min.	88%	2 min.	75%
7 8	3 min.	82%	2 min.	88%	2 min.	75%
7 8	2 min.	82%	--	--	4 min.	75%
7 8	--	--	--	--	4 min.	75%

Note: for two stage cooling the first sage (Y1) is approximately 65% of maximum speed, a fan only call is approximately 40% of cool speed.
Note: Power to the Viessmann AirflowPLUS air handler must be turned off before changing switch settings. The above values are approximations only, actual results may vary.
Note: Factory settings are shown in the grey areas in the charts above.

Setting Fan Speed *(continued)*

Dip switches S2 (in the image below) are shown in the factory setting.

Note: The black squares represent the switch positions.



Legend
H Heat
A Adjustment
C Cooling
D Delay

AH2A-385 Viessmann AirflowPLUS Air Handler
3/4 hp ECM - Air Flow Selectable Options

Example:


1 2 3 4 5 6 7 8

This example shows the factory setting with a heating fan speed of 1800 CFM (Nominal + 10%) a cooling fan speed of 2060 CFM (Nominal + 10%) and the cooling fan speed profile see chart below for delay.
Both heating and cooling fan speeds must be selected from dip switch S2 adjustment (Nominal + 10%, Nominal or Nominal -10%).

Note: To access the connections board see pages 17 and 21.

Dip Switch S2 Adjustment	Dip Switch S2 Heating fan speed				Dip Switch S2 Cooling fan speed			
	1 2	1 2	1 2	1 2	5 6	5 6	5 6	5 6
3 4 Nominal +10%	1800 CFM	1750 CFM	1620 CFM	1450 CFM	2060 CFM	1900 CFM	1780 CFM	1650 CFM
3 4 Nominal	1650 CFM	1590 CFM	1470 CFM	1320 CFM	1875 CFM	1730 CFM	1620 CFM	1500 CFM
3 4 Nominal -10%	1480 CFM	1430 CFM	1320 CFM	1180 CFM	1680 CFM	1560 CFM	1450 CFM	1350 CFM

Dip Switch S2 Delay	**Dip Switch S2 Cooling Fan Speed Profiles**					
	Pre-Run Time	Motor percent	Short Run Time	Motor percent	Motor OFF Time	Motor percent
7 8	5 min.	82%	2 min.	88%	2 min.	75%
7 8	3 min.	82%	2 min.	88%	2 min.	75%
7 8	2 min.	82%	--	--	4 min.	75%
7 8	--	--	--	--	4 min.	75%

Note: for two stage cooling the first sage (Y1) is approximately 65% of maximum speed, a fan only call is approximately 40% of cool speed.
Note: Power to the Viessmann AirflowPLUS air handler must be turned off before changing switch settings. The above values are approximations only, actual results may vary.
Note: Factory settings are shown in the grey areas in the charts above.

Quick Check

⚠ WARNING

This appliance is not intended for installation in a non conditioned space where the potential may exist for the water and or drain lines to freeze.

1. Is the purge valve installed on the return line from the air handler upstream from the isolation valve?
2. Is the air handler hung and isolated to avoid transmitting vibration through framing and duct work?
3. Full port isolation valves MUST be provided. Restrictive valves will limit performance.
4. Is outdoor cooling unit contactor wired to screw terminals on controller to provide hard-start protection?
5. Are thermostat connections correct, including cooling and continuous run connections?
6. Have the packing materials been removed from the blower and the pump?
7. Is there an installation manual for the home owner?
8. Is the unit accessible? Are there clearances for service and component replacement?
9. Is the supply air temperature stream sensor mounted downstream of the cooling coil?
10. Is the remote return air sensor installed upstream of the A/C coil if the A/C coil is in the return air duct? Refer to page 16.
11. Are the supply air plenum and return duct/drop acoustically lined? [at least 6 ft. (1.8 m)] of the return duct/drop must be lined in addition to the supply plenum).
12. Is the filter cover in place? Is a clean filter in place? Is the supplied filter rack installed?
13. If this appliance is installed with air conditioning, the A/C refrigerant charge and system operation must be verified by a certified/ licensed mechanic prior to commissioning.

Pre-start Checklist

1) ☐ REMOVE PACKING MATERIALS FROM LEFT SIDE OF BLOWER

2) ☐ ONLY IN HORIZONTAL CONFIGURATIONS REMOVE THE PACKING IN THE WATER LINE.

3) ☐ BLEED ALL AIR FROM WATER LINES

4) ☐ BLEED AIR FROM END OF CIRCULATOR AT SLOTTED BLEED SCREW GENTLY OPEN BLEED SCREW ABOUT 1/2 TURN UNTIL AIR BLEEDS OUT ENSURE WATER DOES NOT LEAK ONTO CONTROL BOARD IN FAN COMPARTMENT

5) ☐ DISCHARGE AIR SENSOR INSTALLED DOWNSTREAM OF A/C COIL WHEN A/C COIL INSTALLED IN SUPPLY DUCT DOWNSTREAM OF AIR HANDLER. REFER TO INSTALLATION INSTRUCTIONS.

OR

☐ REMOTE RETURN AIR SENSOR INSTALLED UPSTREAM OF A/C COIL
IF COIL IS INSTALLED IN RETURN AIR DUCT, UPSTREAM OF AIR HANDLER.

OR

☐ IF A/C COIL IS INSTALLED IN RETURN AIR DUCT UPSTREAM OF AIR HANDLER,
AIR FILTER IS INSTALLED UPSTREAM OF A/C COIL

6) ☐ INITIATE CALL FOR HEAT,
☐ PUMP TURNS ON
☐ FAN TURNS ON

7) ☐ DISCONNECT POWER TO OUTDOOR CONDENSER. INITIATE CALL FOR COOLING, ONCE FAN IS RUNNING, CONFIRM 24 VOLT OUTPUT AT Y AND C AT COM RELAY ON MAIN CONTROL. RECONNECT POWER IF TEST SUCCESSFUL

8) ☐ CANCEL CALL FOR COOLING APPROXIMATELY 1 MINUTE LATER, FAN TURNS OFF

Startup Procedure

Do not start the air handler or BOILER until ALL Air has been purged from water lines and air handler pump!

1. Fill the boiler loop with water, but do not start it.
2. Purge all air from the heating boiler.
3. Purge all air from the space-heating loop by closing the isolation valve on the return leg of the loop and open the drain to purge air. Open the return leg isolation valve and then close the drain valve.
4. When there is no bleed screw, we recommend running on high speed #3 for approximately ½ to 1 minute. If this does not work and you can still hear a 'swooshing/swirling' at the pump, then attempt to pulse the air out of the pump by going back and forth between high speed and low speed, 10 seconds on each speed for about 1 minute and that should eliminate the air within the pump.
5. Start the boiler according to the instructions provided with the boiler. Set the design water temperature and wait for the system to shut off.
6. Turn on the power to the air handler and set the room thermostat for heat to energize the fan and pump. If a gurgling sound is present, it should subside within one minute. If noise is still present after one minute, repeat step 3 to purge air as necessary.
7. Check supply and return pipes for temperature differences to make sure there is flow. There should be a noticeable difference in temperature between supply and return lines.

Air Handler LED Indications for Temperature

Temperature for 5 sensors

The Air Handler allows the attachment of up to five sensors.

The LED sequence for displaying five sensors uses a bicolor LED to indicate the sensor number followed by the sensor temperature reading. The sequence starts with a one red blink to indicate sensor T1, this is followed by the temperature indication using green blinks as described above. This is followed by a 2-blink red LED indication for system select. This is followed by a 3 blink red LED indication for sensor T3. This is followed by the T3 temperature reading using green blinks. This continues up to 6 red blinks indicating the reading for sensor T6. After a short delay sequence begins again with 1 red blink.

For example, if sensor T1 is reading 59°F (15°C) and sensor T3 is reading 75°F (24°C) the sequence will start with 1 red blink (sensor T1), 1 green blink, 5 green blinks, 2 red blinks (sensor T3), 2 green blinks, 4 green blinks. The sequence will continue to indicate the temperature, or status, of sensor T4 through T6.

Normal temperature indication

The LED will blink to indicate temperatures between 32°F and 176°F (0°C and 80°C). When the temperature is below 32°F (0°C) it will indicate 0°C. When the temperature is above 176°F (80°C) it will indicate 80°C. Refer to page 38 for fahrenheit conversion.

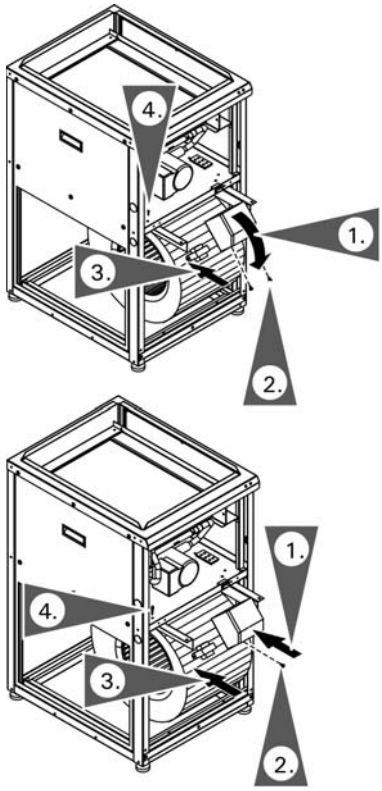
The temperature is indicated by blinking the most significant digit followed by the least significant digit. If the temperature is 79°F (26°C) the led will blink 2 times, short delay, then 6 times.

When the least significant digit of the temperature is 32°F (0°C), the blink indication will substitute 1. If the temperature is 86°F (30°C) the LED will blink 3-1, if it is 122°F (50°C) it will blink 5-1.

If the temperature is between 32°F and 48°F (0°C and 9°C), the LED will blink only the least significant digit, that is, if the temperature is 43°F (6°C) the LED will only blink 6 times. If the temperature is 32°F (0°C), a 1 will be substituted, and the LED will blink 1 time.

First Series of Red Flash(es)		Sensor	Second Series of Red Flash(es)		Green Flash(es)
1	1 sec. pause	T1 Heating Coil Inlet Water Temperature	First digit of temperature reading	1 sec. pause	Second digit of temperature reading
3		T3 Heating Coil Freeze Protection Temperature			
4		T4 Supply Air Temperature			
5		T5 Return Air Temperature			
6		T6 Ambient Air Temperature			
			Example: 3 Red followed by 5 green is 35°C		

Installing Connection Board



Installing connection board with hinged cover

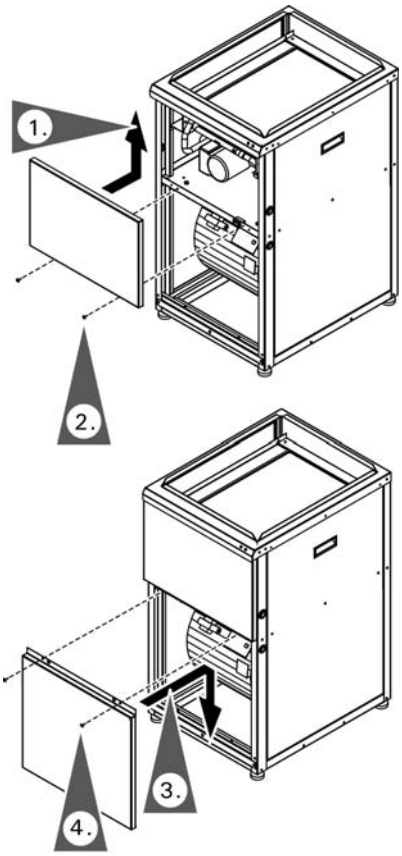
1. Close connection board cover.
2. Secure cover with the retaining screws.
3. Slide in blower assembly.
4. Reinstall retaining screw.

OR

Installing connection board with removable cover

1. Install the connection board cover.
2. Secure cover with retaining screw.
3. Slide in blower assembly.
4. Reinstall retaining screw.

Installing the Access Panels



1. Set the top of the upper front cover in place and slide up.
2. Reinstall retaining screws.
3. Set the bottom of the lower front panel in place and slide up.
4. Reinstall retaining screws.

Indicators

A bicolor LED is used as a system status indicator to indicate alarm, test mode, normal operation, etc.
The indicator will display the temperature sensor values during normal operation. When abnormal behavior is noted the LED will display an indication to indicate the condition.

Flashing LED

°F = °C x 1.8 + 32
e.g. 24 x 1.8 + 32 = 75.2°F

During normal operating mode the LED will blink to indicate the temperature reading of the five sensors. The LED will blink RED to indicate the sensor number. It will then blink the temperature in GREEN.

All temperature readings are in Celsius. Example, while sensor T3 is reading 75°F (24°C) the LED will blink RED 3X then GREEN 2X then GREEN 4X then RED 4X followed by the reading for the next sensor, see LED chart on page 37.

LED flash code will indicate the sensor location in RED and temperature in GREEN.
e.g. 3RED then 2GREEN, pause, 4GREEN = Sensor T3 is 75°F (24°C)

- An 8RED then 8RED flash indicates a bad reading or defective sensor, this may repeat several cycles.

Note: If a defective sensor is present, the audible alarm will sound. For corrective action refer to troubleshooting.

Sensor 1 should see GREEN flashes of 4GREEN – 3GREEN 110°F (43°C) to 8GREEN –2GREEN 180°F (82°C) depending on the temperature of the hot water source. With 120°F (49°C) to 180°F (82°C) entering water the reading would be 3GREEN – 6GREEN 97°F (36°C) to 7GREEN – 1GREEN 160°F (71°C), after the correct number of red flashes to indicate the sensor #.

Refer to page 26 and 27 for sensor numbers and description.

Anytime a fault condition exist, the specific fault condition will be displayed represented by a specific LED flash code (refer to page 43) approximately 2 seconds after the display of temperature reading for temperature sensor T6.

Normal Operation

Heating mode
On a call for heat from the thermostat, the circulating pump will turn on. Giving the pump 15 sec. to heat the coil, the fan will activate heating the home until the thermostat is satisfied.
Once the thermostat is satisfied, the circulating pump will shut down and fan will continue to run for 2 min. During the heating cycle the hot water temperature is monitored. If the hot water temperature drops below a threshold the fan will be turned off. The hot water temperature continues to be monitored after the fan is shut off. When the temperature rises to 10°F (6°C) above the selected threshold the fan will be restarted. The threshold may be set according to the system select switch. The threshold may be set at 110°F or 85°F (43°C or 29°C)

Cooling mode
On a call for cooling from the thermostat, if the fan is on, it will turn off and the A/C relay will be energized. The outdoor condenser will turn on and flood the evaporator coil with refrigerant. The fan will turn on and deliver cool air to the system. After approximately 5 min. (this gives the condenser and coil time to normalize pressures), the microprocessor control will cause multiple fan speed adjustments in order to target the latent load first (humidity) before speeding up to capture the sensible load. Sensor feedback allows this enhanced blower fan feature to protect the outdoor unit from refrigerant slugging caused by lower fan speeds, dirty filters, poor duct design or poor installations.

Summary
In heating mode, most error codes and/or improper unit operation are caused by too low of supply water temperature or sensors not installed correctly. Cooling mode errors are caused by too low or too high of refrigerant charge or gross over sizing of equipment.

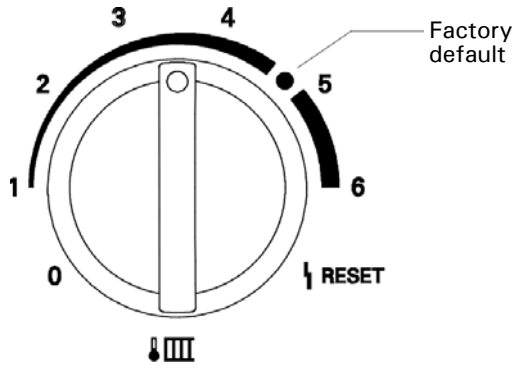
External Heat Demand via Switching Contact - Boilers equipped with HO1B User Interface

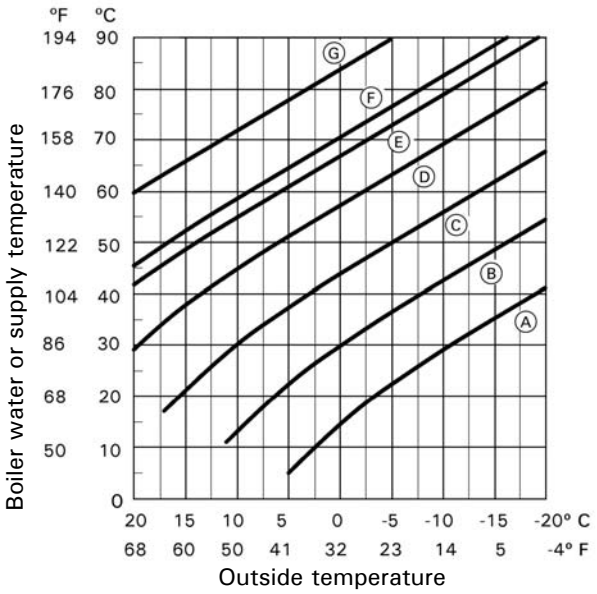
Contact closed:

Set address 3A to 3A:2, for external demand upon closure of DE1.

- The burner is switched ON subject to load. The boiler heats to the set boiler water temperature selected in coding “9b” in the “General” group.
  Limiting the boiler water temperature by means of the set boiler water temperature and the electronic maximum limit of the boiler water temperature (coding “06” in the “Combustion Controller” group)

Heating System Operation - Vitodens 100 B1HE, B1KE





Legend

Ⓐ Selector dial “🌡” setting: 1
Ⓑ Selector dial “🌡” setting: 2
Ⓒ Selector dial “🌡” setting: 3
Ⓓ Selector dial “🌡” setting: 4
Ⓔ Factory default
Ⓕ Selector dial “🌡” setting: 5
Ⓖ Selector dial “🌡” setting: 6

Note: When using the RT connection, refer to the wiring diagram on page 22.

Room dependent control:
Outdoor temperature sensor not **connected**

With no outdoor sensor installed, the “🌡” dial will provide a constant temperature set-point for the boiler based on the dial position selected.

Setting the dial between 1 and 6 will provide a set-point value of 81°F to 178°F (27°C to 81°C) respectively. The dot between 4 and 5 represents the factory default set-point value of 140°F (60°C).

Weather dependent control
Outdoor temperature sensor connected

With the outdoor sensor connected, the boiler will automatically recognize the sensor and switch the set-point dial operation from constant temperature calculated to outdoor reset calculated.

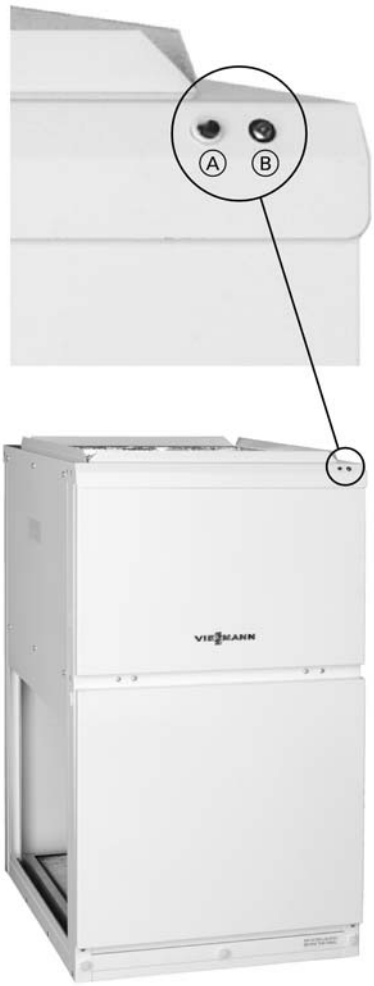
Adjusting the “🌡” dial will select the heating curve corresponding with the heating curve chart. The set-point will be calculated from the design boiler water temperature associated with the heating curve selected, and reset from the actual outdoor air temperature. Setting the dial between 1 and 6 will select the corresponding curve from the chart. The dot between 4 and 5 is the factory default curve.

The display “🌡” indicates when a heat request has been made.

Note: When using the weather compensated operation, ensure that the minimum temperature of the selected heating curve exceeds minimum entering water temperature set on page 28 ‘System Select Dip switch Settings’.

DHW Contact for Air Handler - Vitodens 200 B2HE

Illuminated Alarm Indicator



Legend
Ⓐ Ambient air temperature sensor
Ⓑ Indicator light

- All Viessmann AirflowPLUS AH2A series air handlers are equipped with a housing mounted Illuminated alarm indicator. This indicator light illuminates any time the control mounted alarm relay is activated.
- The control mounted alarm relay is turned on under the following circumstances.

1) **Home freeze protect**
Automatic Home Freeze Protection is initiated when the ambient air temperature reads lower than 40°F (4°C). During this time the alarm relay and heat cycle are turned on until the ambient temperature rises above 54°F (12°C).

2) **Temperature sensor failure**
If a sensor has a bad read, or is malfunctioning, the LED will blink RED 8X-8X rather than the green temperature reading. This 8X blink may repeat. Be sure to cycle through all sensors at least three times to determine is a sensor is faulty.

Alarm Relay and LED Fault Codes

Control LED flash codes

A visual display is provided by the housing mounted LED. This display advises of the current status of the air handler behavior and its environment should unusual conditions exist. Refer to the chart below. When multiple flash codes are being displayed, they will be displayed in the following order:

Flash Code	Explanation	Cause
RRR	Cooling Lockout	Page 42
RRG	Freeze protect cycle in process	Page 42
RGG	Low ambient temperature	Page 42

R = Red
G = Green

Alarm

Alarm Relay is on when an unusual condition is detected. The connector is a two terminal connector that provides a contact closure when the Alarm Relay is on.

It can be silenced again by turning power to the unit off and on. An alarm condition does not mean the unit is not working, it just means the information the control is receiving does not meet specifications. These conditions could be cool supply water, supply air temperature too cold, room air too cold, etc.
The alarm will shut off when the condition is corrected.

Note: There must be 1 sensor on all inputs in the proper locations. If A/C coil is in the return air plenum then the return MUST be installed on the board at the RETURN AIR receptacle with the sensor lead end located 15 in. (381 mm) upstream of the A/C coil in the return air duct.
The supply air sensor (supplied) shall be installed downstream of the heating coil in the supply air ductwork and attached to the SUPPLY AIR receptacle location on the control.

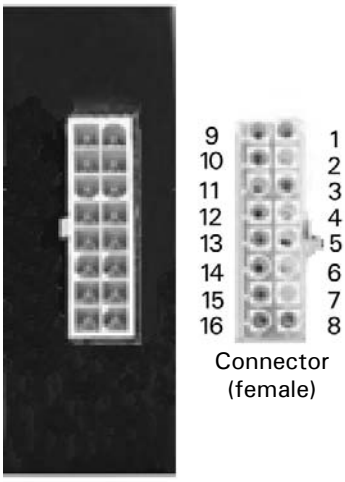
Refer to pages 26 and 27 for detailed sensor information.

Alarm Buzzer Sounding	RED LED Sensor Indication	Followed by:	LED Flash Code	Reason
YES	3 flashes (Freeze Sensor)		7 green flashes, then 7 green flashes	Water coil Freeze Sensor temperature or Supply Air Sensor limit exceeded – inadequate air flow, A/C locked on.
YES	4 flashes (Supply Air Sensor)		7 green flashes, then 7 green flashes	Water coil Freeze Sensor temperature or Supply Air Sensor limit exceeded – inadequate air flow, A/C locked on.
YES	1, 3, 4, 5 or 6 flashes		8 red flashes, then 8 red flashes	Temperature Sensor misread, wait for next indication.
YES	1, 3, 4, 5 or 6 flashes		8 red flashes, then 8 red flashes	Failed Temperature Sensor. Replace.

Temperature Sensor RED LED Flash Code Identification
1 Flashes Water In Temperature Sensor
3 Flashes Water Coil Freeze Temperature Sensor
4 Flashes Supply Air Temperature Sensor
5 Flashes Return Air Sensor
6 Flashes Ambient Temperature Sensor

Checking ECM (DC) Fan Motor Connections

ECM Motor Control



Connector (female)

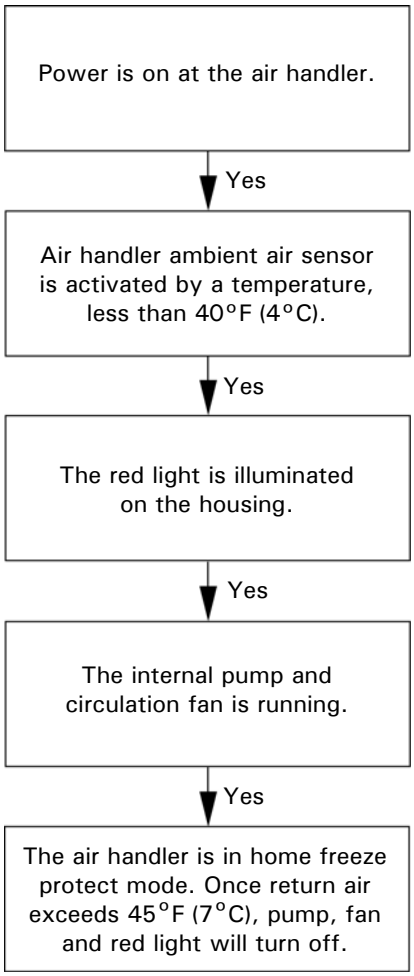
Control (male)

Note: The fan motor operates independent of the controller temperature control logic. Externally installed temperature sensors operate as system safeties only.

Pin number

1 Common C1
2 W/W1
3 Common C2
4 Delay tap select
5 Cool tap select
6 Y1
7 Adjust tap select
8 Output -
9 Return (reversing) valve (heat pump only)
10 Humidistat (BK)
11 Heat tap select
12 24VAC (R)
13 2nd stage heat (EM/W2)
14 2nd stage cool (Y/Y2)
15 Fan (G)
16 Output +

Troubleshooting



Pump does not run
Often, closing the isolation valve on the return leg and opening the drain port so that water flows through the pump can free the pump. For the integrated Grundfos pumps, remove the screw-on cover from the face of the pump, and rotate the shaft one turn with a slotted screwdriver.
If either method fails to free the pump, removal for cleaning or replacement is necessary. The pump exercise function will help prevent pump seizing.

Pump is noisy at start-up
Air is present in heating loop. If sound has not diminished within 1 minute, purge air in accordance with the Start-Up procedures.

Insufficient or no heat
- Plugged air filter or coil. Refer to Maintenance section for filter care and coil cleaning.
- Air in heating loop; purge system.
- Inlet and outlet connections to air handler backwards; reverse connections.
- Supply water temperature set too low or not calibrated properly; check water temperature.
- Restriction in heating loop; remove restrictions, check valves stick, valves too restrictive, left partially closed after purging or closed valve (no or improper flow).

Fan runs for cooling but not for heating
Room thermostat may be connected improperly.

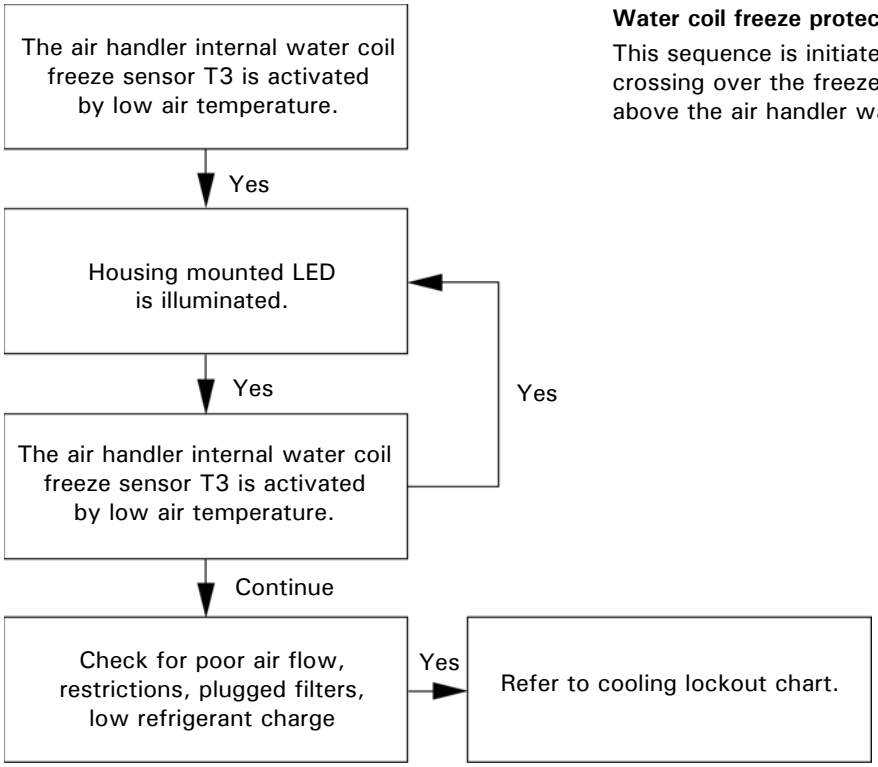
Heating during standby mode
Probable cause is thermal Siphoning. See check valve description for details; repair or replace check valve.

Home freeze protection

This sequence is initiated by extreme low air temperatures [less than 40°F (4°C)] and are detected by the ambient air temperature sensor.

5680 011 - 23

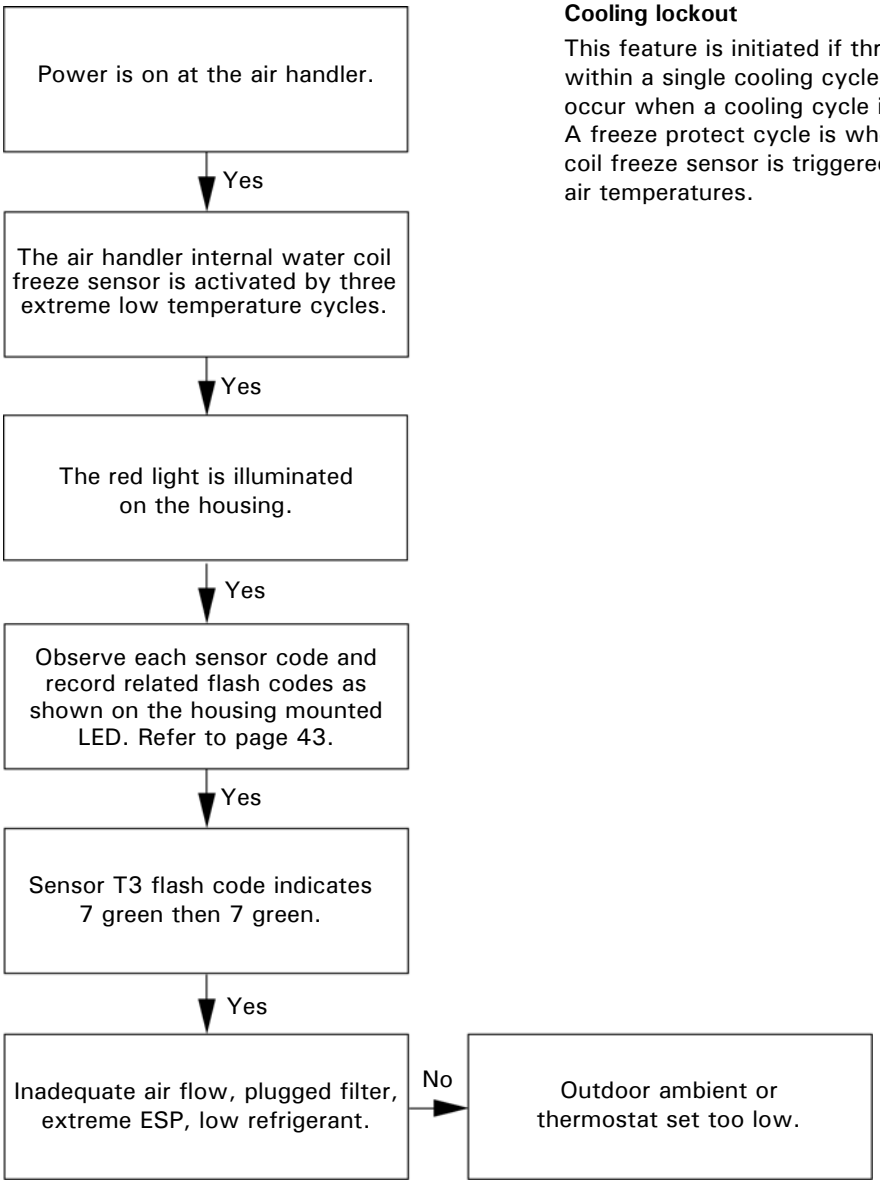
Troubleshooting *(continued)*



Water coil freeze protection

This sequence is initiated by extreme low air temperatures crossing over the freeze protection sensor located directly above the air handler water coil.

Troubleshooting *(continued)*

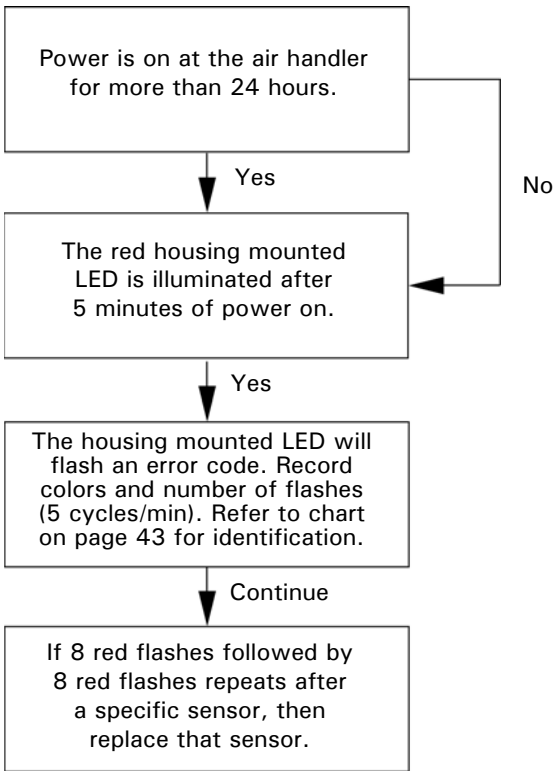


Cooling lockout

This feature is initiated if three freeze protect cycles occur within a single cooling cycle or, if three freeze cycles occur when a cooling cycle is not in progress.
A freeze protect cycle is when the air handler integral A/C coil freeze sensor is triggered by unacceptably low supply air temperatures.

5680 011 - 23

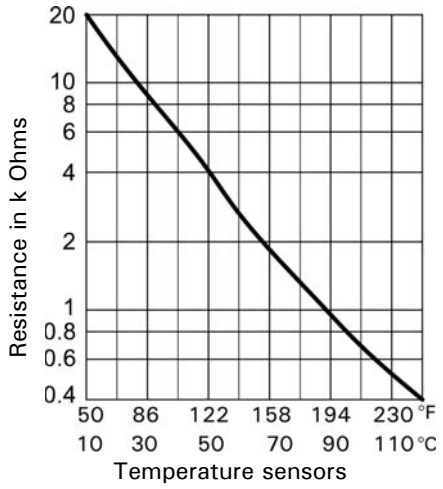
Troubleshooting *(continued)*



Temperature sensor failure identification

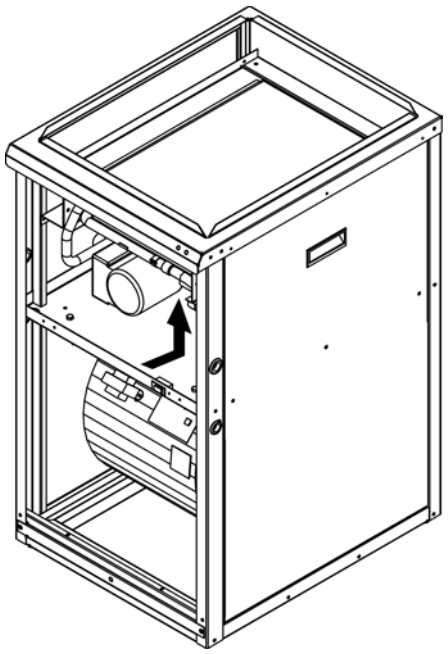
Temperature sensor failure is identified by viewing the housing mounted LED.

Service and Maintenance



Checking temperature sensor

1. Remove cables from temperature sensor.
2. Check the sensor resistance and compare the actual values with the curve in the chart.
3. Replace sensor in case of severe deviation.



Uninstalled sensors

Systems may elect to not use one, or more, of the five sensors. In this case, the absent sensor temperature is replaced by one long green blink following the red sensor number blinks.

Failed Sensors

When a sensor is incorrectly installed or defective, the LED indication will substitute red 8-8 for a normal temperature reading.

Air filter

The Viessmann AirflowPLUS AH2A series of air handlers are provided with a disposable filter media. This filter should be inspected monthly and removed and replaced as required.

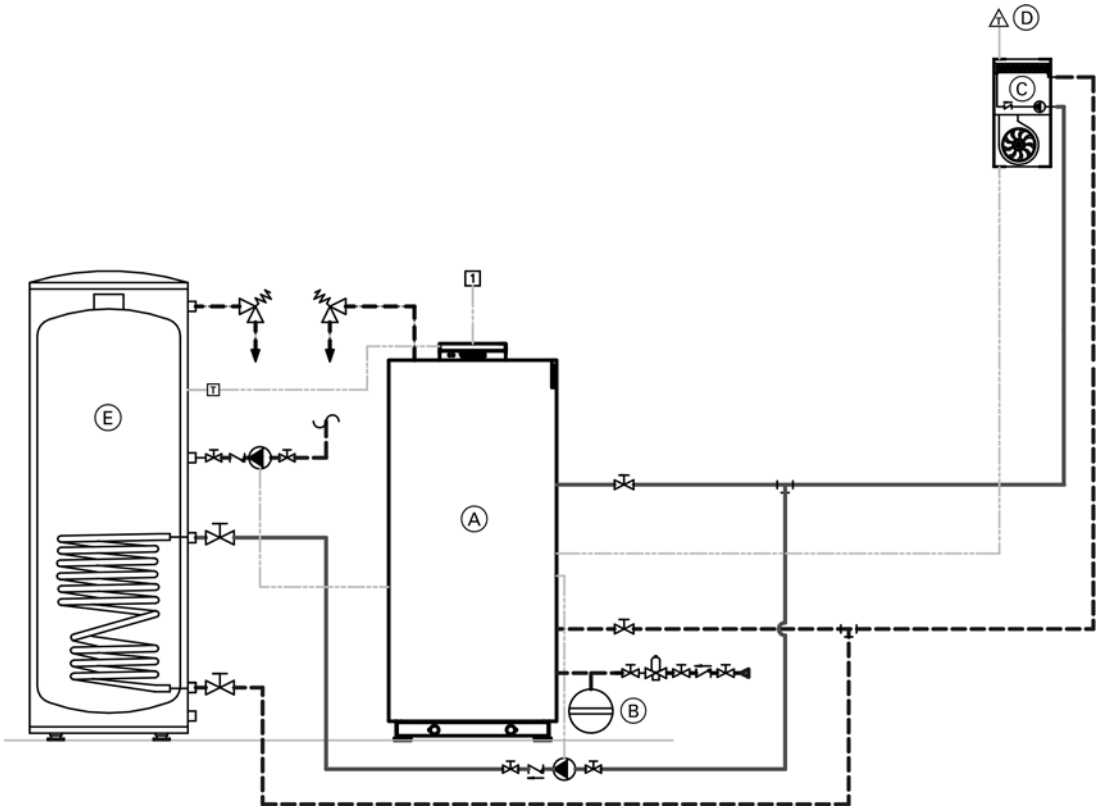
Circulator

The circulator is water lubricated and should require no regular maintenance. The system control has a pump exercise function during prolonged periods of no heat to avoid seizing from long idle periods.

Coils

The heating coil should not require cleaning if the filter maintenance schedule is adhered to. If a filter is damaged or collapses from plugging, dust may foul the coils. If this happens, remove the front covers, replace the filter and carefully vacuum the bottom of the heating coil. During this process, avoid dust from falling into the fan below.

System Layout 1



Legend

Ⓐ Vitocrossal 300 CU3A high mass boiler
Ⓑ System fill with expansion tank
Ⓒ Viessmann AirflowPLUS air handler
Ⓓ Thermostat (field supplied)
Ⓔ Indirect fired DHW storage tank

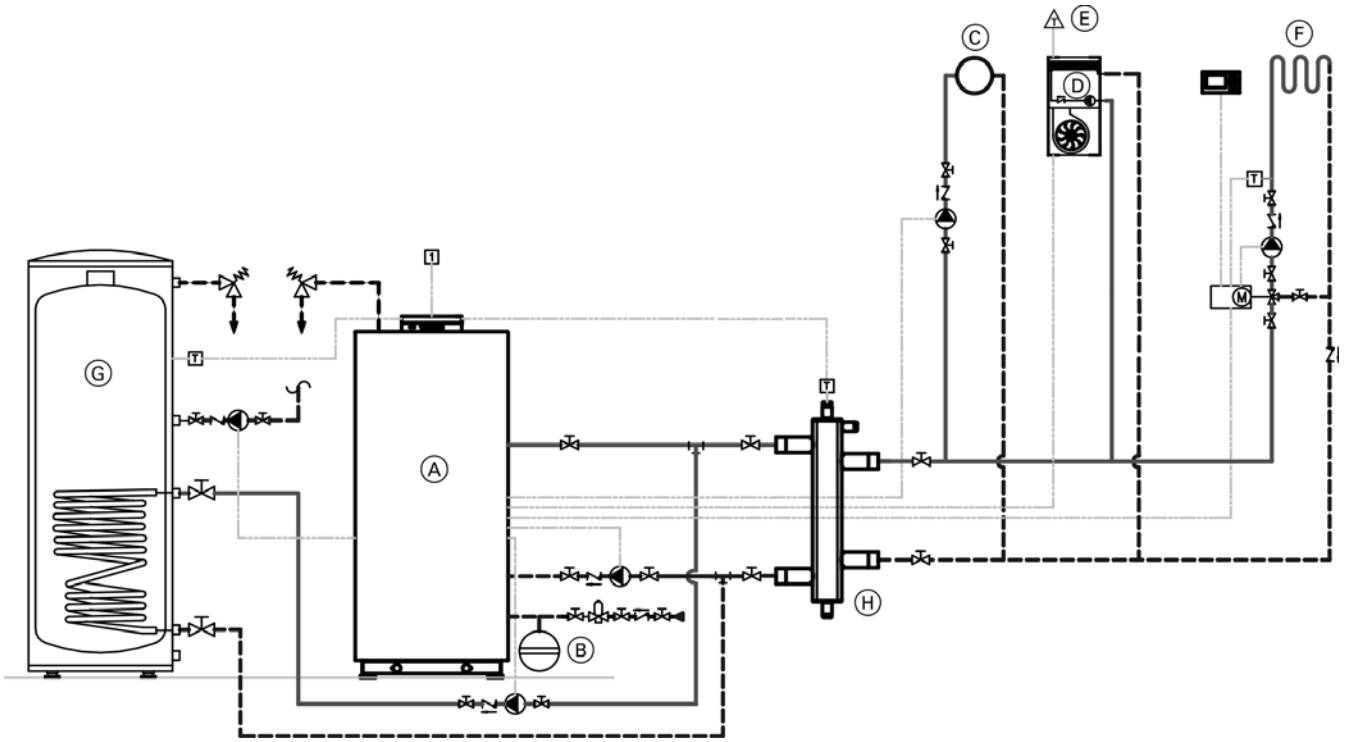
Refer to page 25 for the Viessmann AirflowPLUS connection to external heat demand of the boiler.

IMPORTANT

Please note location of expansion tank.

Sizing of field-supplied pumps are critical for proper boiler operation in this system layout. An undersized pump may cause short-cycling and/or improper operation of the boiler.

System Layout 2



Legend

Ⓐ Vitocrossal 300 CU3A high mass boiler
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating loop with mixing valve
Ⓖ Indirect fired DHW storage tank
Ⓗ Low loss header (or closely spaced tees)

Refer to page 25 for the Viessmann AirflowPLUS connection to external heat demand of the boiler.

IMPORTANT

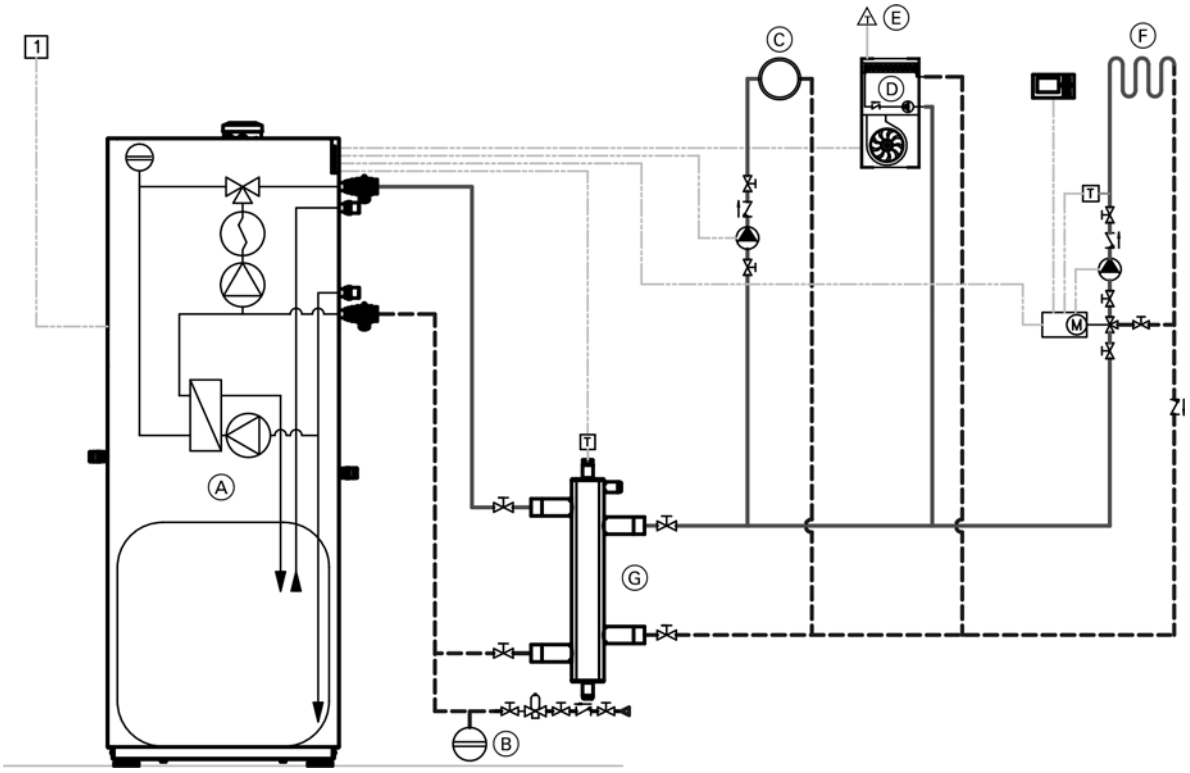
The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

System separation is required of underfloor heating systems employing non-oxygen diffusion barrier tubing. All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

The 3-way mixing valve, built-in to achieve the low temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

System Layout 3



Legend

Ⓐ Vitodens 222-F B2TA/B boilers
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating loop with mixing valve
Ⓖ Low loss header (or closely spaced tees)

Refer to page 25 for the Viessmann AirflowPLUS connection to external heat demand of the boiler.

IMPORTANT

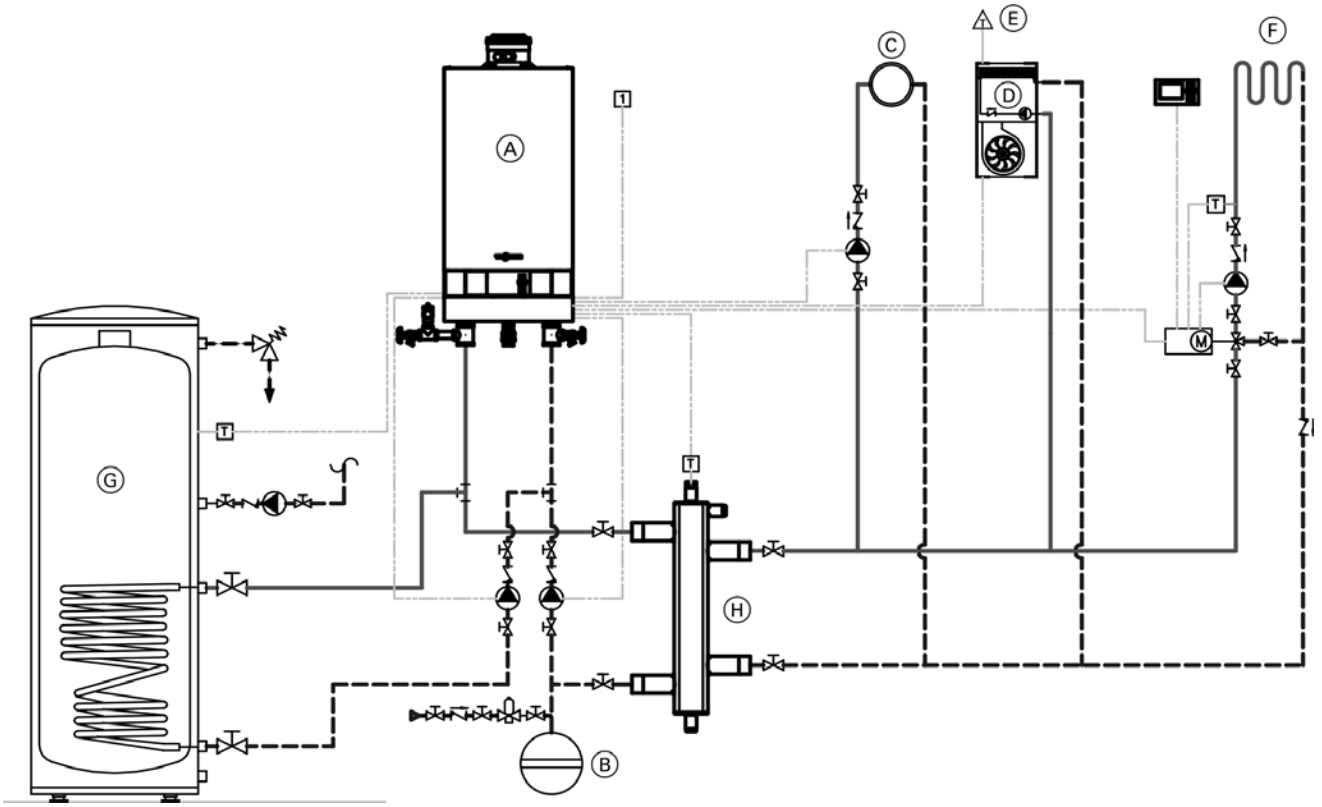
The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

System separation is required of underfloor heating systems employing non-oxygen diffusion barrier tubing. All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

The 3-way mixing valve, built-in to achieve the low temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

System Layout 4



Legend

Ⓐ Vitodens 200 B2HA/B boilers
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handle
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating loop with mixing valve
Ⓖ Indirect fired DHW storage tank
Ⓗ Low loss header (or closely spaced tees)

Refer to page 25 for the Viessmann AirflowPLUS connection to external heat demand of the boiler.

IMPORTANT

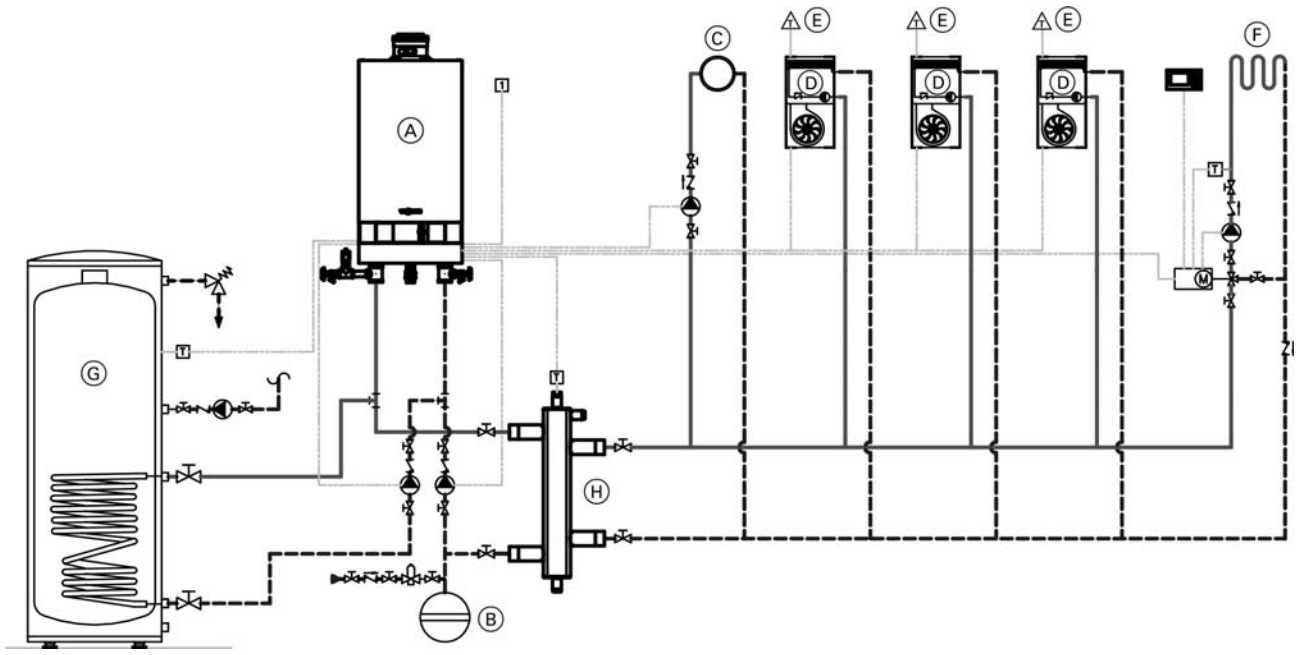
The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

System separation is required of underfloor heating systems employing non-oxygen diffusion barrier tubing. All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

The 3-way mixing valve, built-in to achieve the low temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

System Layout 5



Legend

Ⓐ Vitocrossal 300 CU3A high mass boiler / Vitodens 200 B2HA/B boilers (shown)
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating loop with mixing valve
Ⓖ Indirect fired DHW storage tank
Ⓗ Low loss header (or closely spaced tees)

Note: For installations with multiple air handler units, the call for heat from each air handler must be connected in parallel to the boiler demand.

Note: The low loss header is optional with the Vitocrossal 300 CU3A boiler.

IMPORTANT

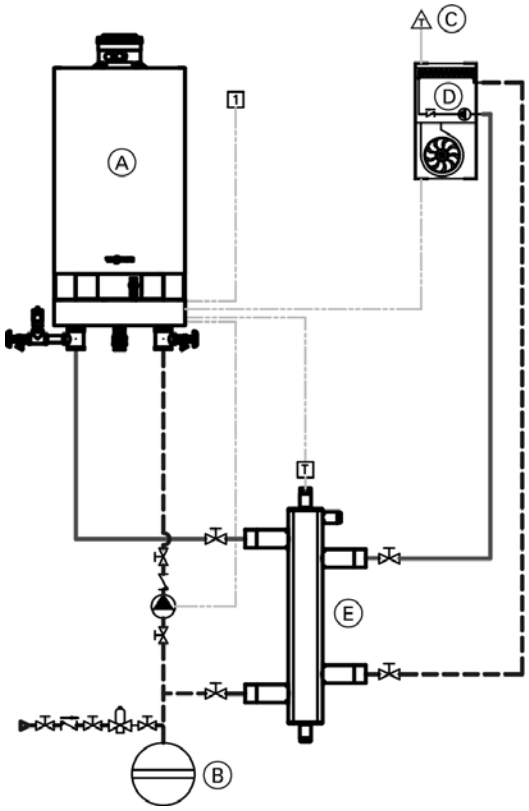
The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

System separation is required of underfloor heating systems employing non-oxygen diffusion barrier tubing. All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

The 3-way mixing valve, built-in to achieve the low temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

System Layout 6



Legend

Ⓐ Vitodens 200 B2HA/B boilers
Ⓑ System fill with expansion tank
Ⓒ Thermostat (field supplied)
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Low loss header (or closely spaced tees)

Refer to page 25 for the Viessmann AirflowPLUS connection to external heat demand of the boiler.

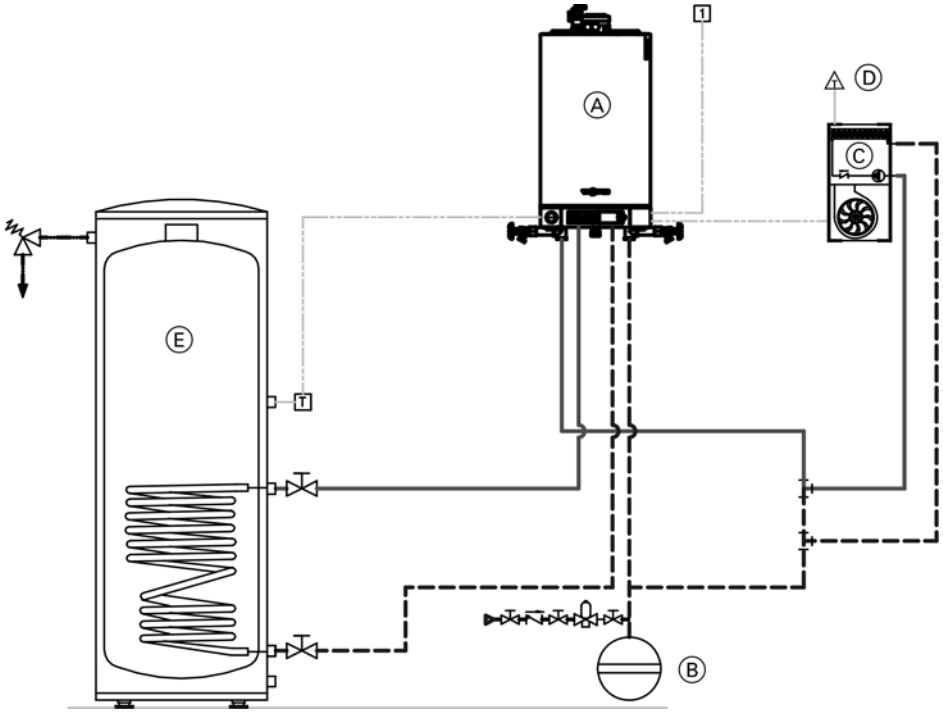
IMPORTANT

The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

Sizing of field-supplied pumps are critical for proper boiler operation in this system layout. An undersized pump may cause short-cycling and/or improper operation of the boiler.

System Layout 7



Legend

Ⓐ Vitodens 100 B1HA/B1HE boiler
Ⓑ System fill with expansion tank
Ⓒ Viessmann AirflowPLUS air handler
Ⓓ Thermostat (field supplied)
Ⓕ Indirect fired DHW storage tank
Ⓖ Closely spaced tees (optional LLH accessory)

For Vitodens 100 B1HE refer to page 23 for the Viessmann AirflowPLUS connection to OT of the boiler.
For Vitodens 100 B1HE refer to page 24.

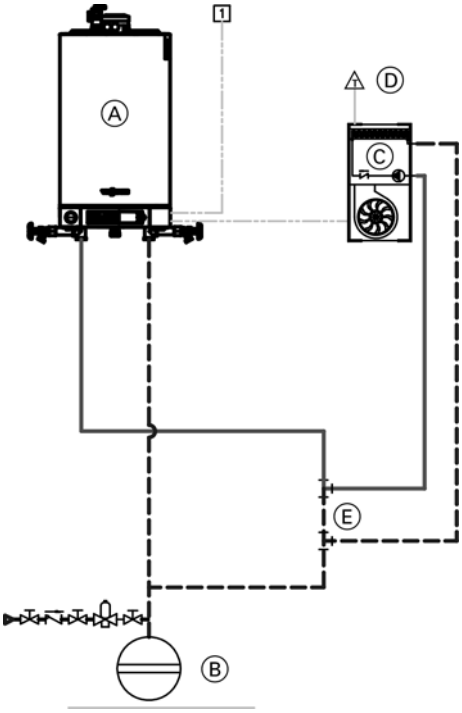
IMPORTANT

The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

Please note location of expansion tank.

If the heating system does not include a DHW storage tank connected to the boiler the DHW demand contacts of the boiler may be connected to the Viessmann AirflowPLUS heat demand, use the DHW temperature set point to set the desired supply temperature to the air handler.

System Layout 8



Legend

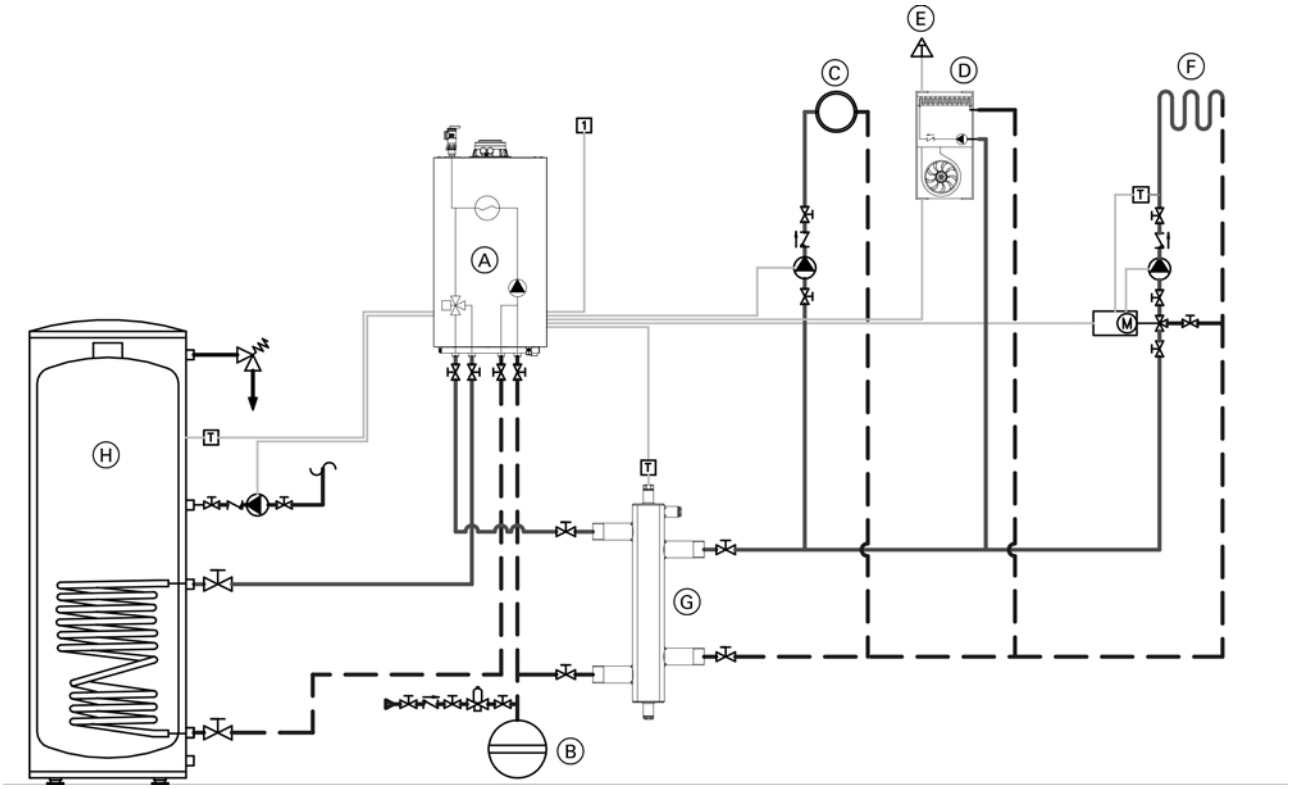
Ⓐ Vitodens 100 B1KA/B1KE boiler
Ⓑ System fill with expansion tank
Ⓒ Viessmann AirflowPLUS air handler
Ⓓ Thermostat (field supplied)
Ⓔ Low loss header (or closely spaced tees)

For Vitodens 100 B1HE refer to page 23 for the Viessmann AirflowPLUS connection to OT of the boiler.
For Vitodens 100 B1HE refer to page 24.

IMPORTANT

The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.
Please note location of expansion tank.

System Layout 9



Legend

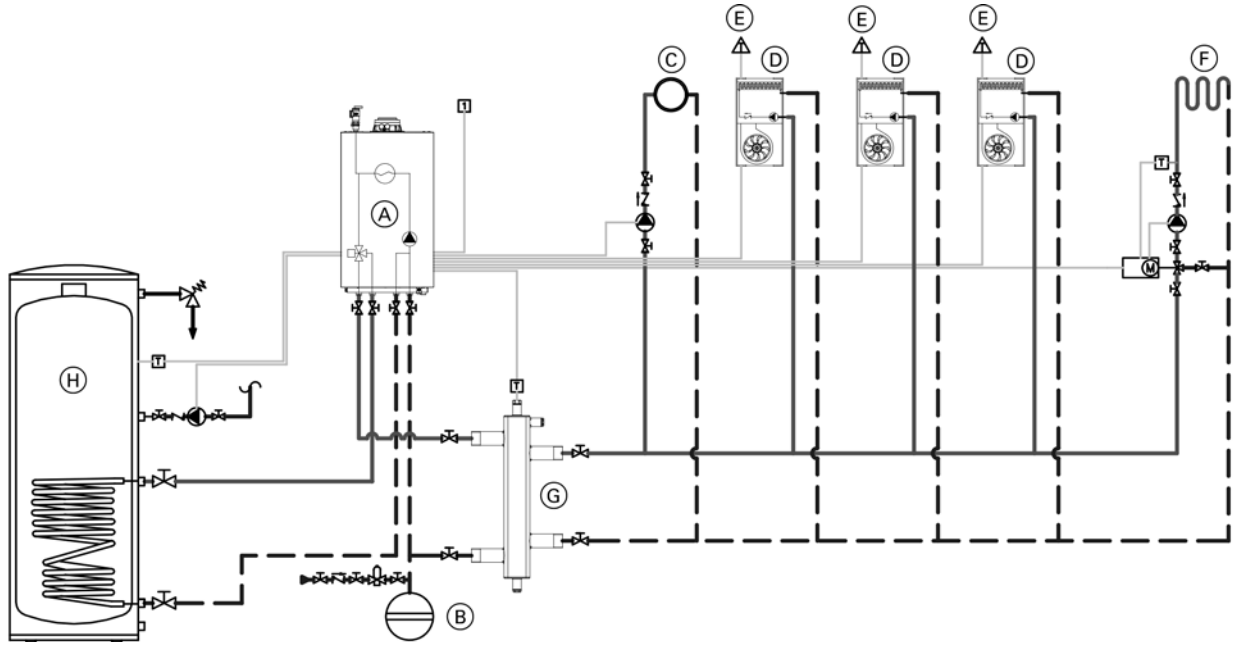
Ⓐ Vitodens 200 B2HE series boiler
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating circuit with mixing valve
Ⓖ Low loss header (or closely spaced tees)
Ⓗ DHW tank

Refer to page 26 for the Viessmann AirflowPLUS connections.

IMPORTANT

The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.
Please note location of expansion tank.

System Layout 10



Legend

Ⓐ Vitodens 200 B2HE series boiler
Ⓑ System fill with expansion tank
Ⓒ High temperature heating loop
Ⓓ Viessmann AirflowPLUS air handler
Ⓔ Thermostat (field supplied)
Ⓕ Low temperature heating circuit with mixing valve
Ⓖ Low loss header (or closely spaced tees)
Ⓗ DHW tank

Refer to page 26 for the Viessmann AirflowPLUS connections

IMPORTANT

The use of a low-loss header (or closely spaced tees with a maximum spacing of 4X pipe diameter) is strongly recommended if the maximum water flow rate in the application concerned exceeds the maximum or minimum flow rates of the boiler, or if the system flow rates are unknown.
The low-loss header is available as accessory part.
Please note location of expansion tank.

Electrical Connections

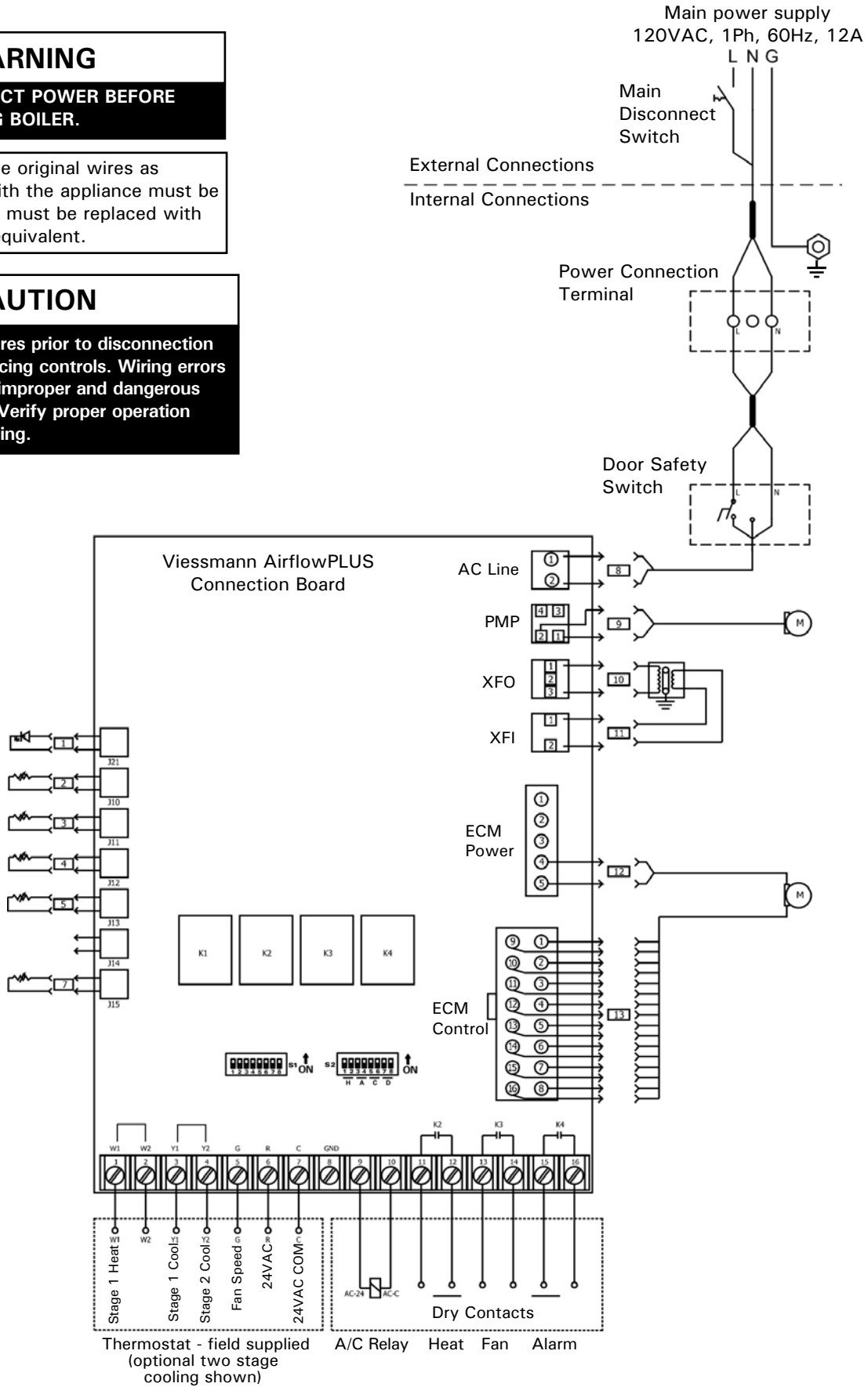
WARNING

DISCONNECT POWER BEFORE SERVICING BOILER.

If any of the original wires as supplied with the appliance must be replaced, it must be replaced with the exact equivalent.

CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



Electrical Connections *(continued)*

Legend

1 Diagnostic LED
2 Ambient temperature sensor
3 Return air temperature sensor
4 Supply air temperature sensor
5 Freeze protection temperature sensor
7 Supply water temperature sensor
8 A/C power
9 Pump motor
10 24VAC transformer secondary
11 24VAC transformer primary
12 ECM power
13 ECM control

Legend

AC Line

① 115VAC line
② 115VAC neutral

Pump (PMP)

① 115VAC neutral
② 115VAC line

XFO

① 24VAC
② N/C
③ 24VAC-COM (GND)

XFI

① 115VAC line
② 115VAC neutral

ECM Power

① N/C
② N/C
③ N/C
④ 115VAC neutral
⑤ 115VAC line

ECM Control

① Common C1
② W/W1
③ Common C2
④ Delay tap select
⑤ Cool tap select
⑥ Y1
⑦ Adjust tap select
⑧ Output
⑨ Return valve (heat pump only)
⑩ Humidistat (BK)
⑪ Heat tap select
⑫ 24VAC (R)
⑬ 2nd stage heat (EM/W2)
⑭ 2nd stage cool (Y/Y2)
⑮ Fan (G)
⑯ Output +

Technical Data

	Description	AH2A-213	AH2A-354	AH2A-385
Motor (ECM)	hp	1/3	1/2	3/4
Motor rated amps - loaded (1050 RPM)	AMPS	5.0	7.7	9.6
- locked rotor	AMPS	**	**	**
Electrical	VOLTS/PH/HZ	120/1/60	120/1/60	120/1/60
Heating BTUH (kW)	120°F (49°C)	28,000 (8)	44,000 (13)	51,000 (15)
	140°F (60°C)	46,000 (13)	61,000 (18)	74,000 (22)
	160°F (71°C)	62,000 (18)	83,000 (24)	90,000 (26)
	180°F (82°C)	72,000 (21)	98,000 (29)	115,000 (33)
Flow	USG/min (L/H)	3 (681)	5 (1135)	5 (1135)
Nominal (CFM)	Heating .5" e.s.p.	600	1,200	1,600
	Cooling .5" e.s.p.	700	1,400	1,800
	Heating .2" e.s.p.	1,100	1,300	1,900
	Cooling .2" e.s.p.	1,200	1,600	2,100
Cooling capacity	(tons)	1.5 - 3.0	2.50 - 4.0	3.5 - 5.0
Cabinet	D x W x H* in.	22¾ x 18 x 32½	23 x 22 x 34½	28 x 22 x 34½
	(mm)	(578 x 457 x 825)	(584 x 559 x 876)	(711 x 559 x 876)
Supply air opening	in.	16 x 20	20 x 20	20 x 25
	(mm)	(406 x 508)	(508 x 508)	(508 x 635)
Return air opening	in.	14 x 18	18 x 18	18 x 23
	(mm)	(356 x 457)	(457 x 457)	(457 x 584)
Weight	lb.	85	100	110
	kg	(39)	(45)	(50)
Circulating pump *				
Type		Grundfos 15/58RU		
Volts	AC	115	115	115
Motor horsepower	hp	1/25	1/25	1/25
Capacitor	MFD/VOLTS	10/180	10/180	10/180
Motor rated amps - loaded	AMPS	0.74	0.74	0.74
- locked rotor	AMPS	4.44	4.44	4.44
Maximum working pressure	PSI	145	145	145
Min./max. fluid temperature	°F	120/200	120/200	120/200
	(°C)	(49/93)	(49/93)	(49/93)
Hydronic heating coil				
Construction	Copper tubing, aluminum fins, galvanized steel support frame			
Rows...fins/in.		3...12	3...12	3...12
Total face area	sq. ft. (m^2)	1.3 (0.12)	2.8 (0.26)	2.8 (0.26)
Piping connections				
Supply	in.	½ FIP	¾ FIP	¾ FIP
Return	in.	½ FIP	¾ FIP	¾ FIP
Pressure drop through the coil	feet of head [@ 160°F (71°C) supply water temperature]	12	2	2

* Using the adjustable levelling feet can add up to 1½ in. (38 mm) to the height of the air handler.

** If motor speed decreases below the programmed stall speed, the motor will shut down and after a delay period, the control will attempt to restart the motor. Starting current is limited to significantly less than full load current.

Permissible ambient temperature

Installation in living spaces or boiler rooms (standard ambient conditions;

- During operation 32 to 104°F (0 to +40°C)
- During storage and transport -4 to 149°F (-20 to +65°C)

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Parts List

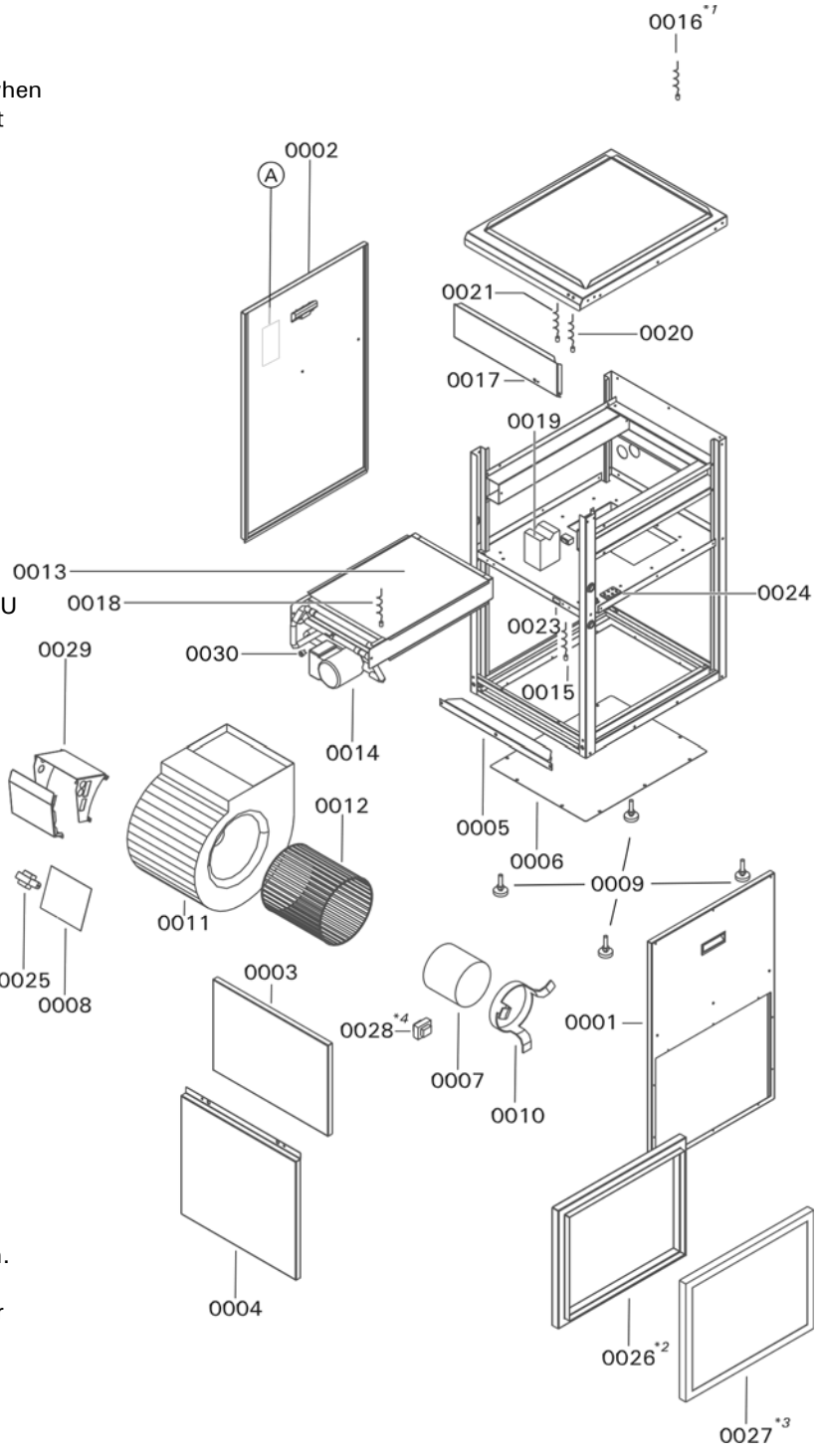
Model No.	Serial No.
AH2A 213	7561230□□□□□□□□□
AH2A 354	7561231□□□□□□□□□
AH2A 385	7561232□□□□□□□□□

Ordering Parts:
Please provide Model and Serial Number Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.

Parts
0001 Side panel with return air opening
0002 Side panel
0003 Front panel, top
0004 Front panel, bottom
0005 Bracket for air filter
0006 Panel, return air
0007 Fan motor
0008 Circuit board
0009 Leveling feet (set of 4)
0010 Bracket for fan motor
0011 Blower housing
0012 Blower wheel
0013 Hot water coil
0014 Circulation pump head, GF UPS15-58RU
0015 Sensor for return air (T5)
0016 Sensor for AC discharge air (T4) *1
0017 Sensor for freeze protect (T3)
0018 Sensor for supply water (T1)
0019 Pump support block
0020 Sensor, ambient (T6)
0021 Diagnostic LED
0023 Door safety switch
0024 Terminal block (main power supply)
0025 Transformer, 120VAC / 24VAC
0026 Filter frame *2
0027 Air filter *3
0028 Power factor correction choke *4
0029 Circuit board enclosure
0030 Flow check valve

Other Parts (not illustrated)
0022 Sensor clamp
0050 Technical Data Manual
0051 Installation and Operating Instructions
0052 Parts List

*1 Sensor installed in downstream plenum.
*2 For floor-standing installations only.
*3 Please purchase quality replacement air filters from a local hardware store:
AH2A 213 16 x 20 in.
AH2A 354 20 x 20 in.
AH2A 385 20 x 25 in.
*4 Only for Model AH2A 385.



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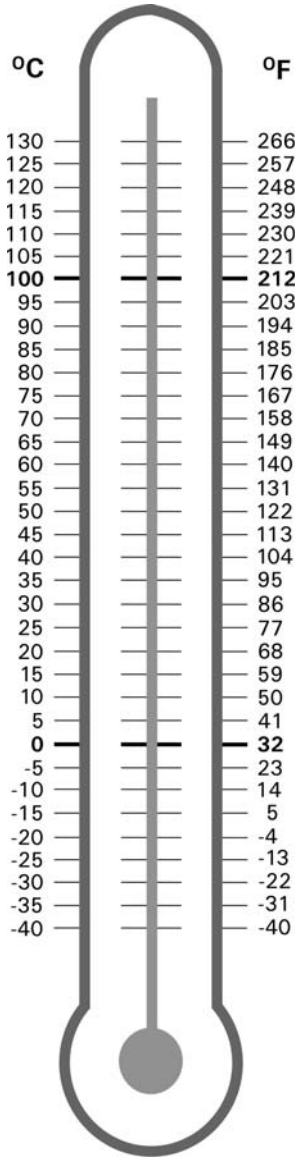

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