Commercial Vitotronic Wiring Guide Overview

For use by licensed heating contractor

For use with:
Vitotronic 100, GC1
Vitotronic 300, GW2
Vitocontrol-S/C, VD2/CT3/RS/VB2
KK10LON

Safety and Installation Requirements

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

Working on the equipment
The installation, adjustment, service and maintenance of this product must be done by a **licensed professional heating contractor** who is qualified and experienced in the installation, service and maintenance of hot-water boilers. There are no user-serviceable parts on the boiler, burner or control.

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

Ensure that the installation literature of other components is referred to.

IMPORTANT

This Commercial Vitotronic Wiring Guide Overview is designed and laid out to familiarize a licensed professional heating contractor with the GENERAL installation and wiring of the commercial line of Vitotronic boiler controls. It is NOT intended or to be regarded as a substitute for the CSA certified technical support literature that is supplied with each of the respective commercial Vitotronic controls and their respective accessories.

The technical support literature of each of the aforementioned products contain the necessary safety and national/local code requirements which if not followed exactly may lead to property damage, personal injury and/or loss of life.

Viessmann Manufacturing Company Inc. assumes no responsibility for damage(s) of any kind caused by inappropriate use or application of this wiring guide and/or failure to read the supporting technical literature referred to.

Please see Appendix

IMPORTANT

Read and save these instructions for future reference

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Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION" and "IMPORTANT". See below.

WARNING

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

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

CAUTION

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

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

IMPORTANT

→ *Helpful hints for installation, operation or maintenance which pertains to the product.*

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

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

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Important Regulatory and Installation Requirements — Section 1

Codes
The installation of this unit must be in accordance with local codes.

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., please use the National Electrical Code ANSI/MFPA 70.

The heating contractor must comply with the Standard of Controls and Safety Devices for automatically fired boilers, ANSI/ASME CSD-1 where required by the authority having jurisdiction.

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

Power supply
Install power supply in accordance with the regulation of the authorities having jurisdiction or, in absence of such requirements, in accordance with National Codes. Viessmann recommends the installation of a disconnect switch to control the 120VAC power supply from outside of the boiler room.

→ *Please read this manual carefully prior to attempting installation, Any warranty is null and void if these instructions are not followed.*

For information regarding other Viessmann System Technology components, please refer to the documentation of the particular product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please contact Viessmann directly.

→ *The comprehensiveness 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.*

Purpose of Wiring Guide Overview

The purpose of this document is to provide a wiring guide overview for the Viessmann product line-up for commercial boiler controls.

Depending on the system and system specific criteria, diagrams/drawings included in this document may not meet your specific installation needs.

It must be understood that this document is not a substitute for the CSA certified manuals which are shipped with their respective controls.

Trademark Information

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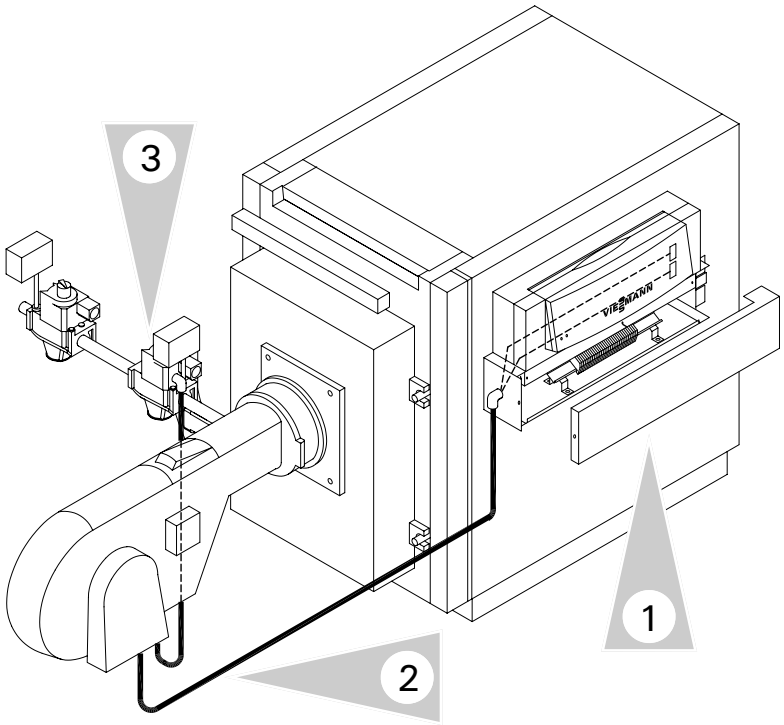
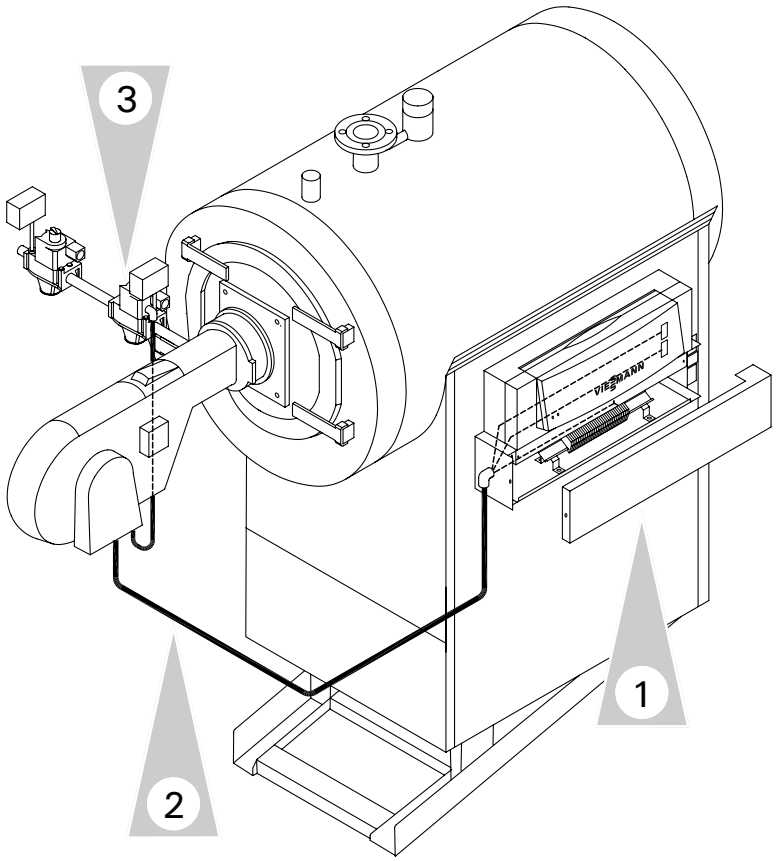
Boiler Control Installation Information

Vitorond VD2 Boiler/Control/Burner



Vitocrossal CT3 Boiler/Control/Burner



Burner Conduit

The controls are mounted on the side of the boilers with the burner conduit to be routed towards the burner.

1 Boiler control mounted on the side of boiler.
Conduit from the burner harness housing points in the direction of the burner.

2 The interconnecting harness coming from the control is routed to the burner. Wires inside the conduit are wired to the burner. Depending on the burner model, there may be plug-in interconnections or hard wired connections to the terminal strip located inside of the burner. Refer to burner schematics before beginning wiring.

3 Gas train wiring comes from the burner housing. Check with supplied equipment to verify if gas train wiring is factory wired or field wired.

IMPORTANT

The length of the conduit is designed to allow for the burner or boiler door to be opened when burner is wired. Do not shorten conduit without ensuring proper access for service.

IMPORTANT

Refer to the correct wiring diagrams when wiring the control to burner. Do not make any connections without the proper documentation.

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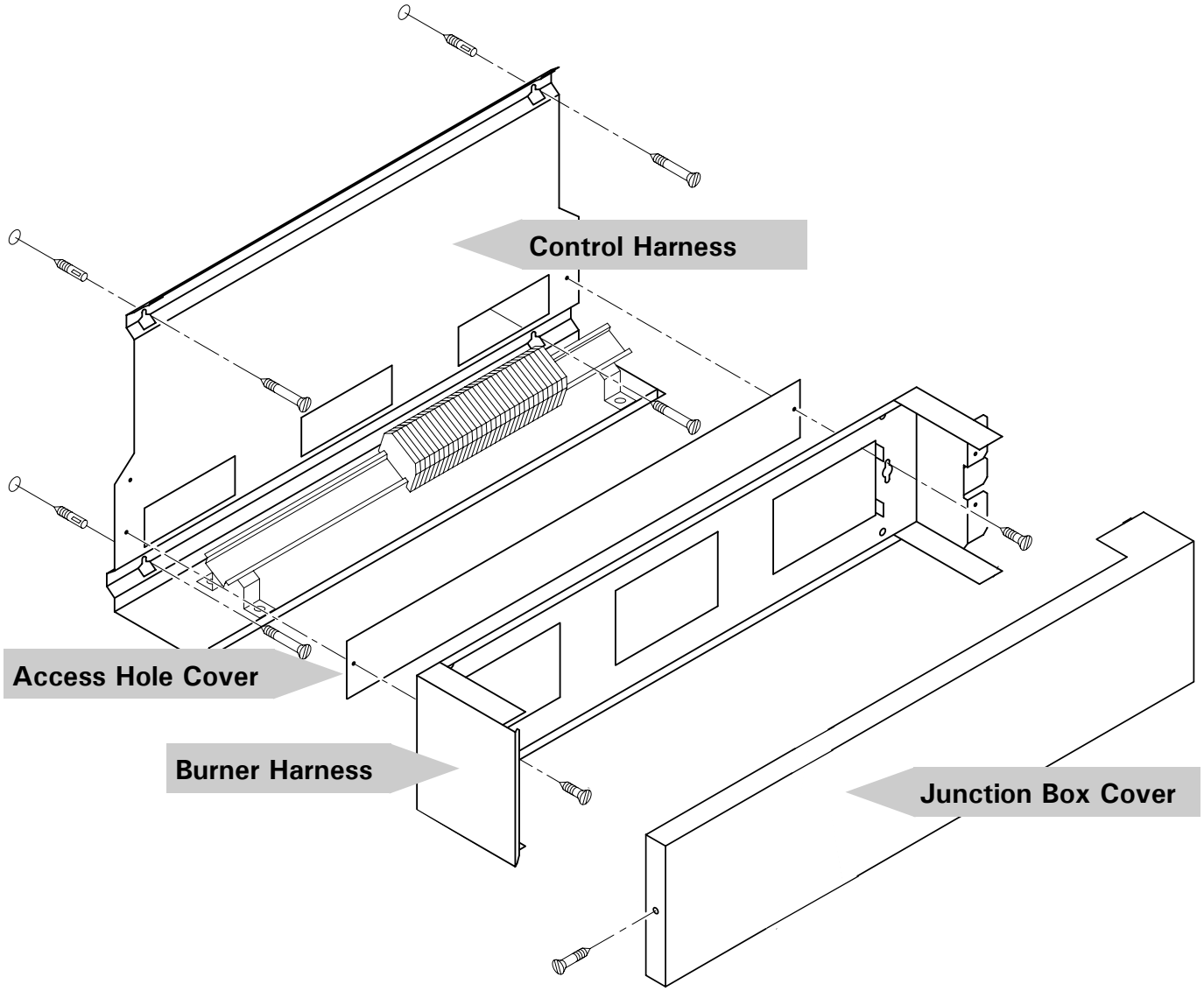
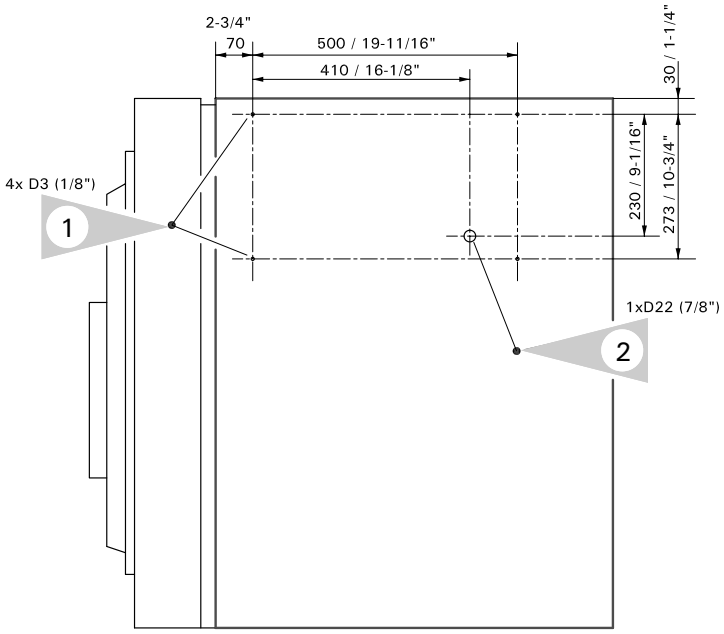
Control Mounting and Wiring Assembly

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Name	Notes
Control Harness	• Mounts to the side of the boiler with respect to the Vitotronic 100/300 boiler control. • Wall mounting bracket for Vitocontrol-S, VD2/CT3/RS/VB2. • The DIN rail is part of this piece for termination of all wiring connections. • Control hangs on two tabs located at top of harness bracket.
Cover	• This piece is only used in conjunction with Vitocontrol-S. • Covers holes in the control harness or wall mounting bracket.
Burner Harness	• The burner harness provides the necessary wiring and conduit to the burner. • The Vitocontrol-S units do not require the conduit. • This part can be flipped to suit the side of the boiler control is mounted on.
Junction Box Cover	• When the control harness is combined with the burner harness a junction box is created. • This covers junction box and held in place with screw at one end.

Vitotronic 100, GC1 and Vitotronic 300, GW2 on Vitorond VD2 boilers (490-1096MBH or 144-321KW)
Refer to boiler manual for more detailed instructions on the boiler jacket assembly



Measurements shown in Imperial and Metric units

Installation Steps

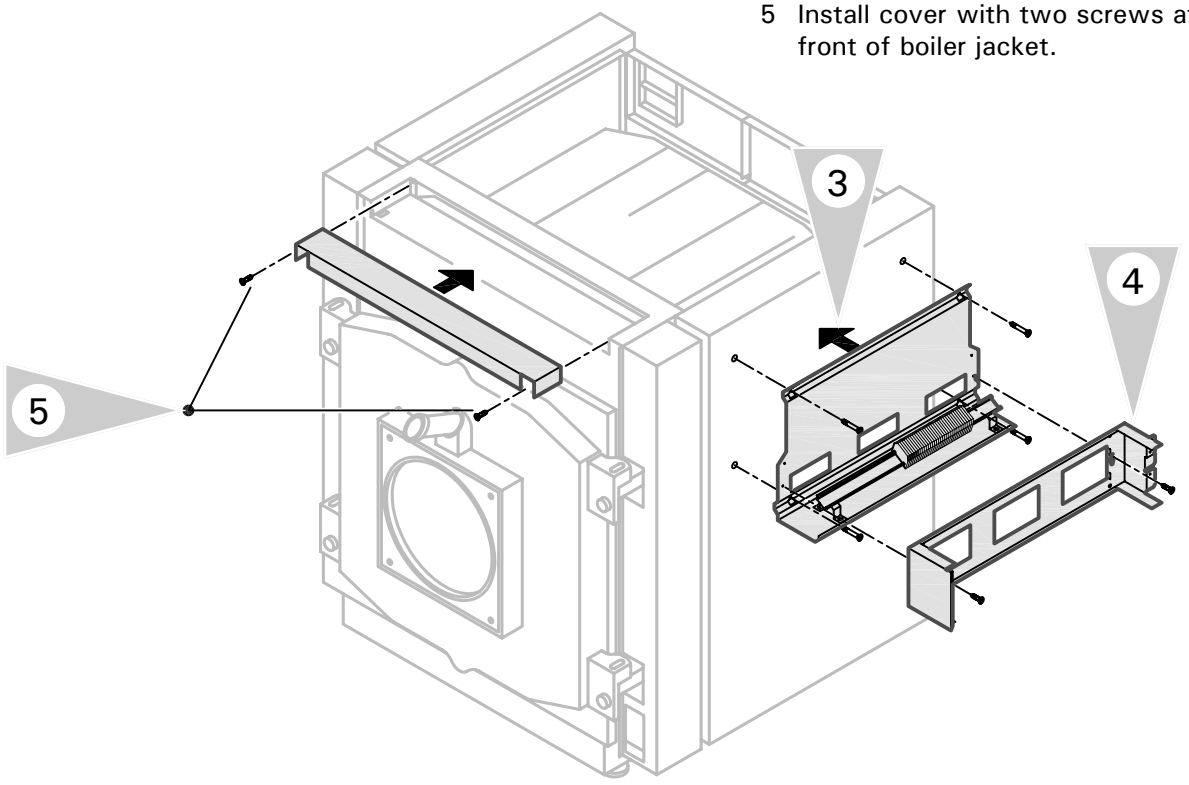
1 Holes for fastening control to control harness (control mounting bracket) to side of boiler jacket. Four holes needed to properly fasten harness (bracket) to jacket with supplied screws.
Drill four 1/8" holes to allow for screws to be fastened.

2 Make 7/8" hole to feed limit capillaries as well as boiler temperature sensor into boiler jacketing. The limits and sensor are to be drawn to rear of boiler.
Note: *Grommet/Bushing for 7/8" hole supplied with boiler control in accessory bag.*

3 Control harness (mounting bracket) is held onto boiler jacket with four screws.

4 Install burner harness onto control harness by guiding behind DIN rail. Fasten with two screws at either end of burner harness.

5 Install cover with two screws at front of boiler jacket.



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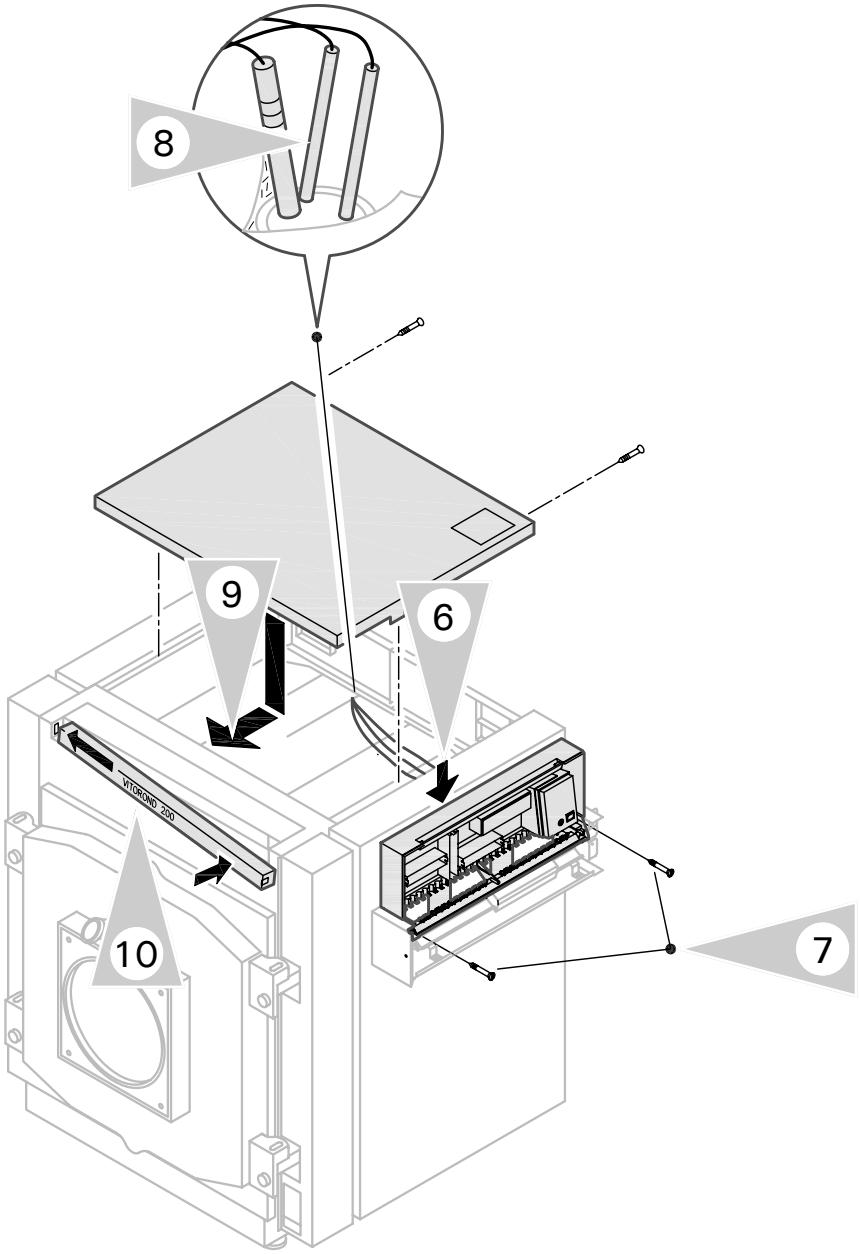
Vitotronic 100, GC1 and Vitotronic 300, GW2 on Vitorond VD2 boilers (490-1096MBH or 144-321KW)
Refer to boiler manual for more detailed instructions on the boiler jacket assembly



Installation Steps Continued

6 Control is installed on two tabs at the top of the control harness (mounting plate). Control pivots down into the burner harness housing.

7 Control fastened down to burner harness housing with two screws.

8 Control limit capillaries fed though newly created hole with bushing in boiler jacket. Capillaries should remain above the boiler insulation. Insert limits into multi-point sensor well at back of boiler.

9 Cover top of boiler with jacket panel. Slide panel forward to ensure panel being locked into position. Insert two screws on rear back lip and fasten top panel to rear panel.

10 Pressure fit display cover onto front of boiler by sliding left edge into position first, followed by pushing right side in.

IMPORTANT

Insert and feed fixed high limit and adjustable high limit capillaries, as well as boiler temperature sensor to rear of boiler.

Ensure limit capillaries are installed into temperature well before installing top panel of boiler jacket.

Ensure limits are pushed completely into individual well.

WARNING

Ensure limit capillaries are not kinked or bent. This will adversely affect the operation of the limit.

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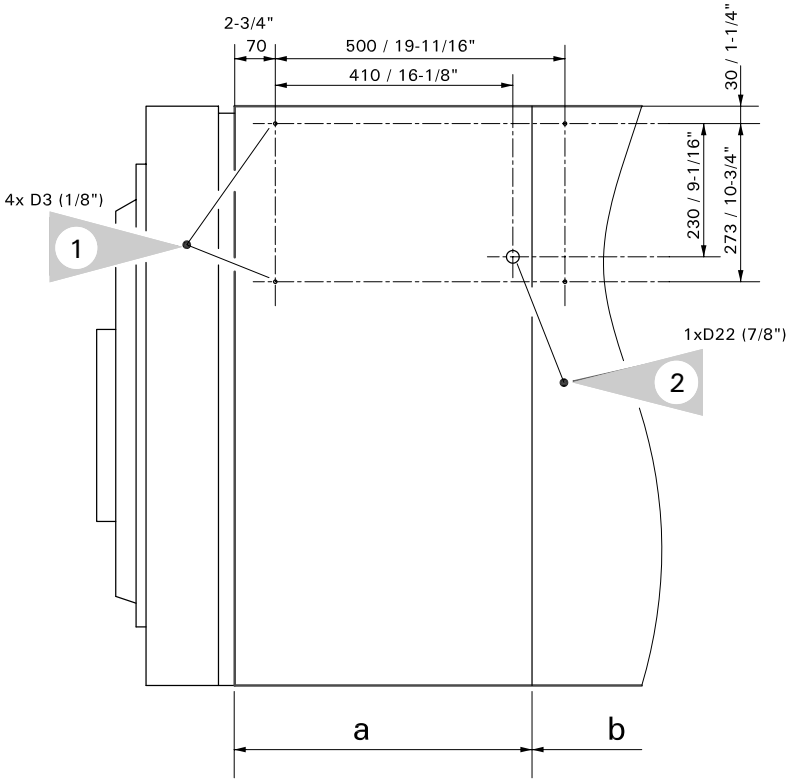
Vitotronic 100, GC1 and Vitotronic 300, GW2 on Vitorond VD2 boilers (1255-4387MBH or 368-1285KW)
Refer to boiler manual for more detailed instructions on the boiler jacket assembly



Measurements shown in Metric and Imperial units

Installation Steps

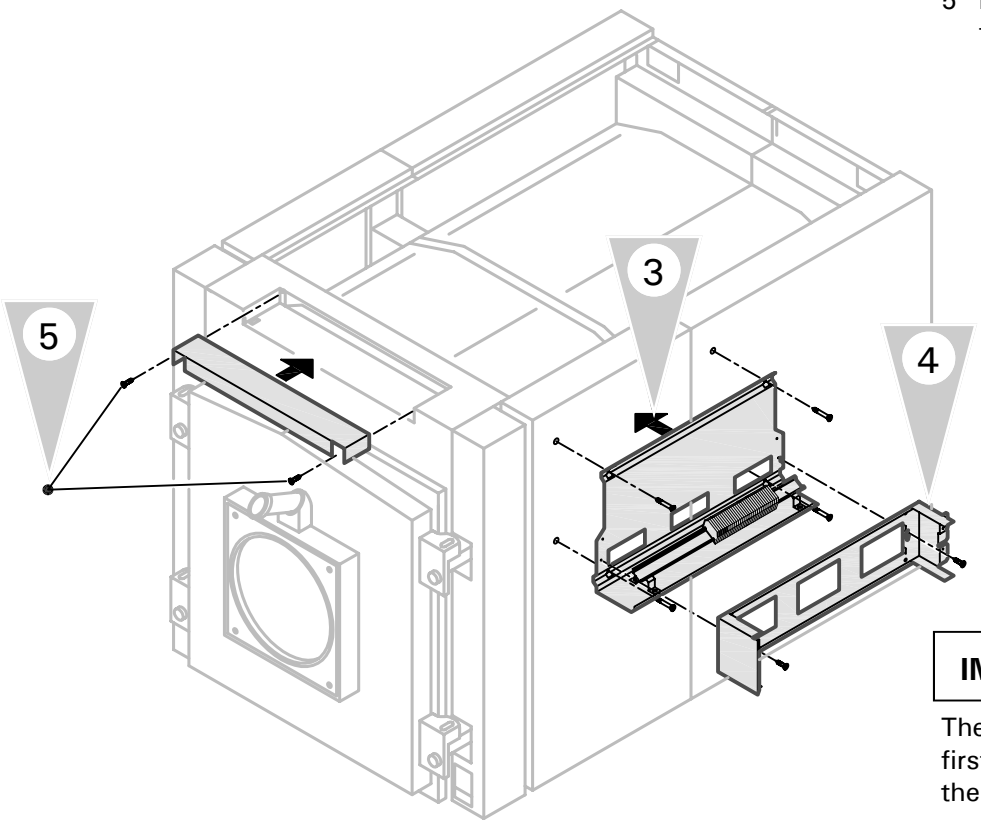
1 Holes for fastening control to control harness (control mounting bracket) to side of boiler jacket. Four holes needed to properly fasten harness (bracket) to jacket with supplied screws. Drill four 1/8" holes to allow for screws to be fastened.

2 Make 7/8" hole to feed limit capillaries as well as boiler temperature sensor into boiler jacketing. The limits and sensor are to be drawn to rear of boiler.
Note: *Grommet/Bushing for 7/8" hole supplied with boiler control in accessory bag.*

3 Control harness (mounting bracket) is held onto boiler jacket with four screws.

4 Install burner harness onto control harness by guiding behind DIN rail. Fasten with two screws at either end of burner harness.

5 Install cover with two screws at front of boiler jacket.



IMPORTANT

The boiler control will cover the first side-panel and a portion of the second.

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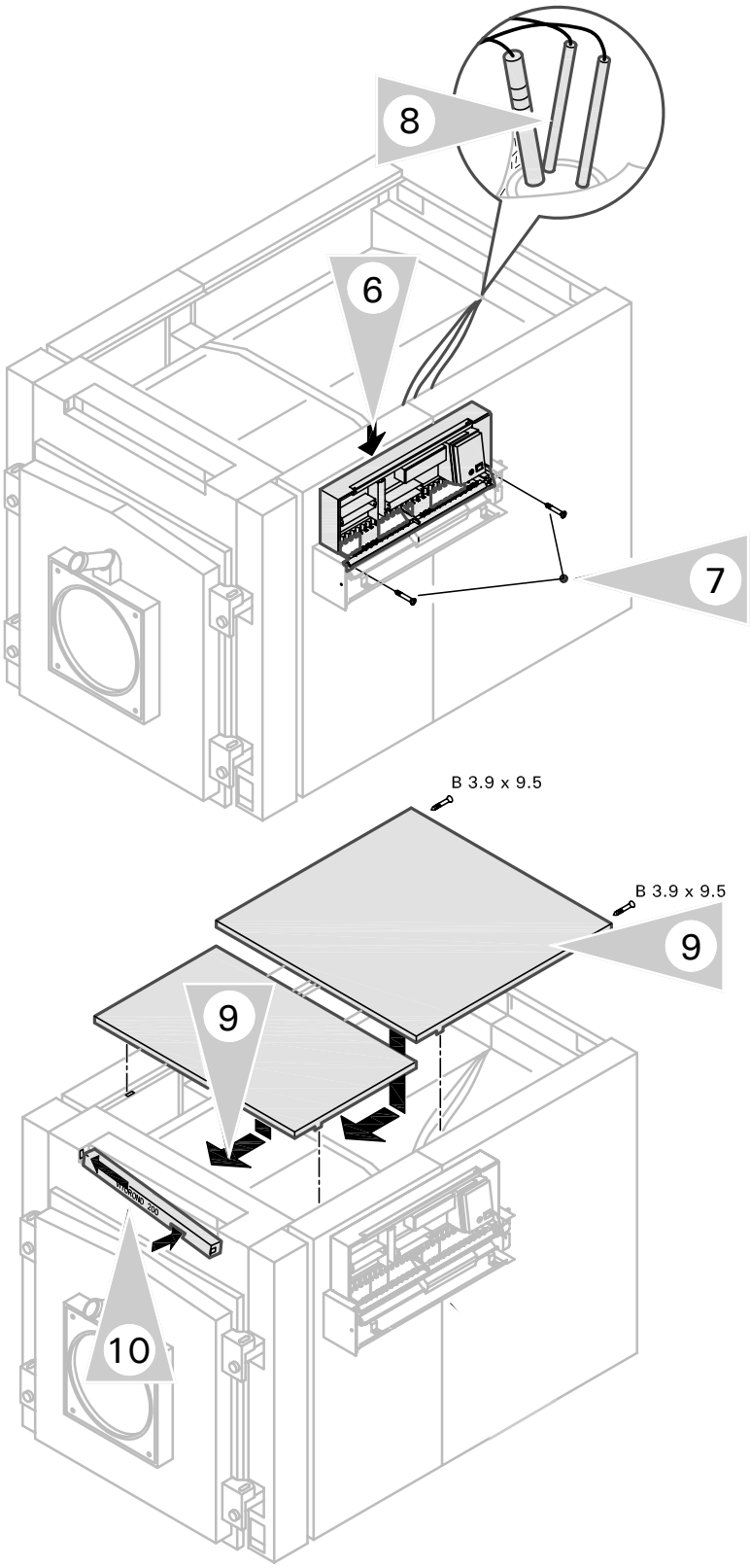
Vitotronic 100, GC1 and Vitotronic 300, GW2 on Vitorond VD2 boilers (1255-4387MBH or 368-1285KW)
Refer to boiler manual for more detailed instructions on the boiler jacket assembly



Installation Steps Continued

6 Control is installed on two tabs at the top of the control harness (mounting plate). Control pivots down into the burner harness housing.

7 Control fastened down to burner harness housing with two screws.

8 Control limit capillaries fed though newly created hole with bushing in boiler jacket. Capillaries should remain above the boiler insulation. Insert limits into multi-point sensor well at back of boiler.

9 Cover top of boiler with jacket panel. Slide front panel forward to ensure panel being locked into position. Place rear panel on top of boiler and slide into place. Insert two screws on rear back lip and fasten top panel to rear panel.

10 Pressure fit display cover onto front of boiler by sliding left edge into position first, followed by pushing right side in.

IMPORTANT

Insert and feed fixed high limit and adjustable high limit capillaries, as well as boiler temperature sensor to rear of boiler.

Ensure limit capillaries are installed into temperature well before installing top panel of boiler jacket.

Ensure limits are pushed completely into individual well.

WARNING

Ensure limit capillaries are not kinked or bent. This will adversely affect the operation of the limit.

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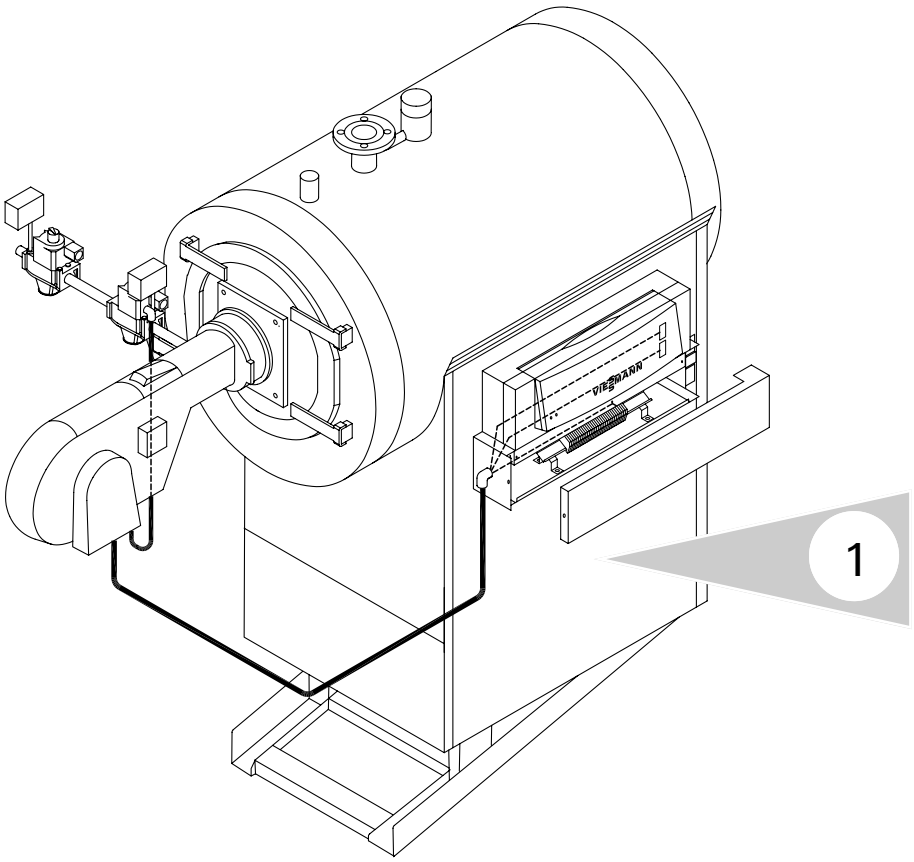
Vitotronic 100, GC1 and Vitotronic 300, GW2 on Vitocrossal CT3 boilers (CT3-17 to CT3-89 models)
Refer to boiler manual for more detailed instructions on the boiler jacket assembly



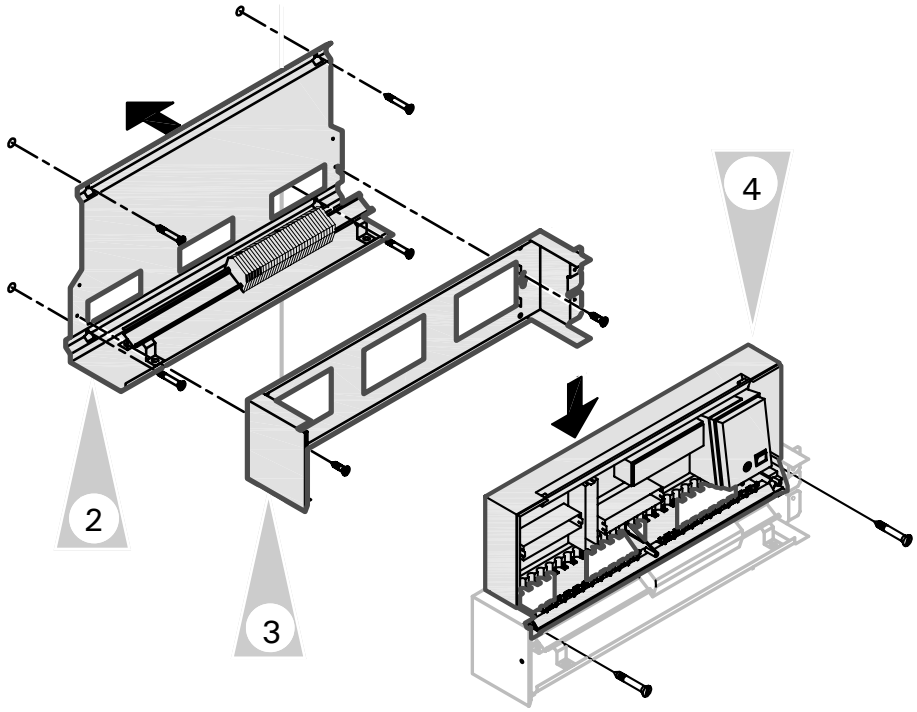
Installation Steps

1 Side panel on Vitocrossal CT3 boiler is designed for mounting control harness without the need for drilling holes.

2 Control harness is fastened to the side of the boiler using the four supplied screws.

3 Burner harness is installed onto the control harness. Position behind DIN rail and fasten screws at either end to secure.

4 Control is installed on two tabs at the top of the control harness (mounting plate). Control pivots down into the burner harness housing. Control fastened down to burner harness housing with two screws. Control limit capillaries fed though rectangular access holes in boiler jacket. Insert limits into multi-point sensor well at back of boiler.



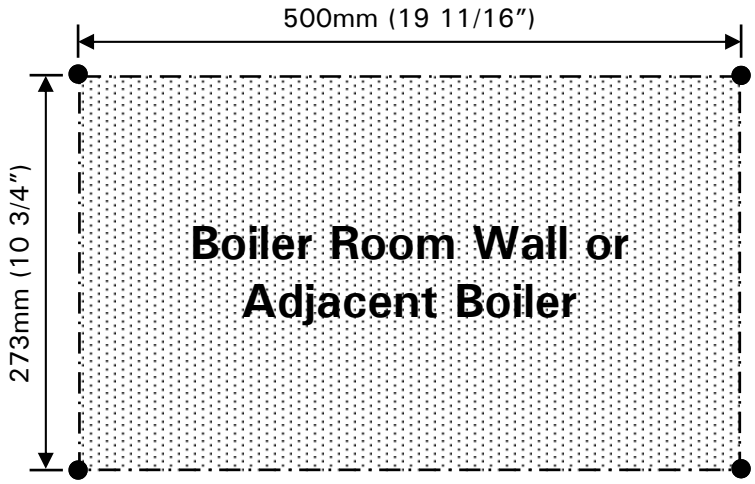
IMPORTANT

Route and insert fixed high limit, adjustable high limit capillaries as well as boiler temperature sensor to rear of boiler before installing boiler jacket and/or cover

Install limit capillaries into correct wells and ensure pushed in all the way.

WARNING

Ensure limit capillaries are not kinked or bent. This will adversely effect the operation of the limit.



Installation Steps

1 Control harness (mounting bracket) is fastened to wall in similar manner as control on side of boiler. Use four screws to support bracket

2 Cover access holes with supplied blank and fasten to control harness along with junction box in step 4.

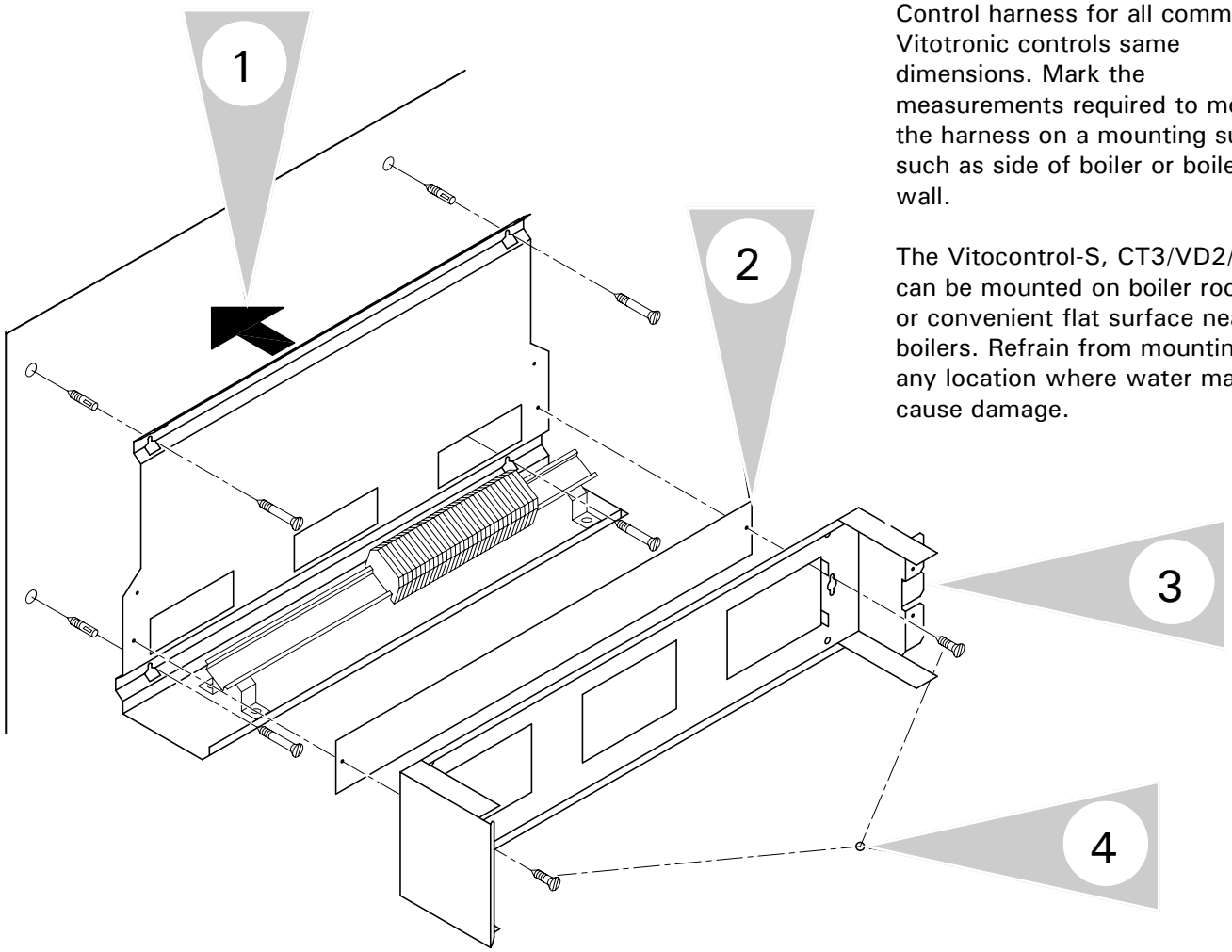
3 The housing similar to that used on individual boiler control provides enclosure for DIN rail and terminal strip.

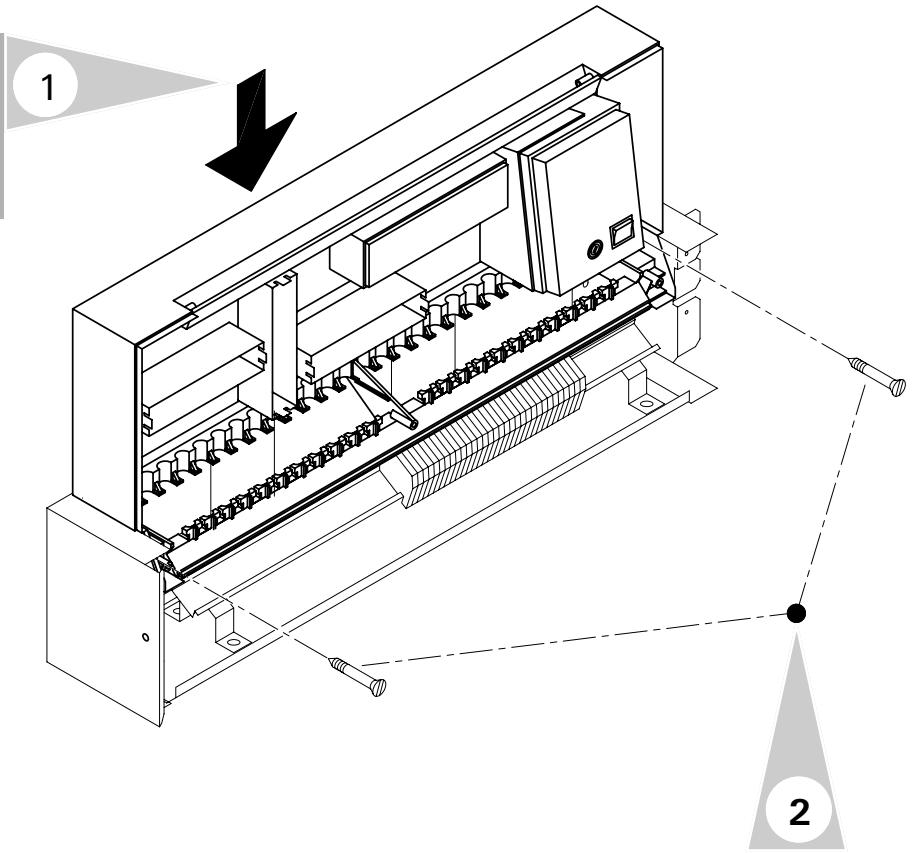
4 Fasten metal housing along with cover for backplate using two screws. Use one screw at either end.

IMPORTANT

Control harness for all commercial Vitotronic controls same dimensions. Mark the measurements required to mount the harness on a mounting surface such as side of boiler or boiler room wall.

The Vitocontrol-S, CT3/VD2/MW1 can be mounted on boiler room wall or convenient flat surface near boilers. Refrain from mounting in any location where water may cause damage.





Control Installation Continued

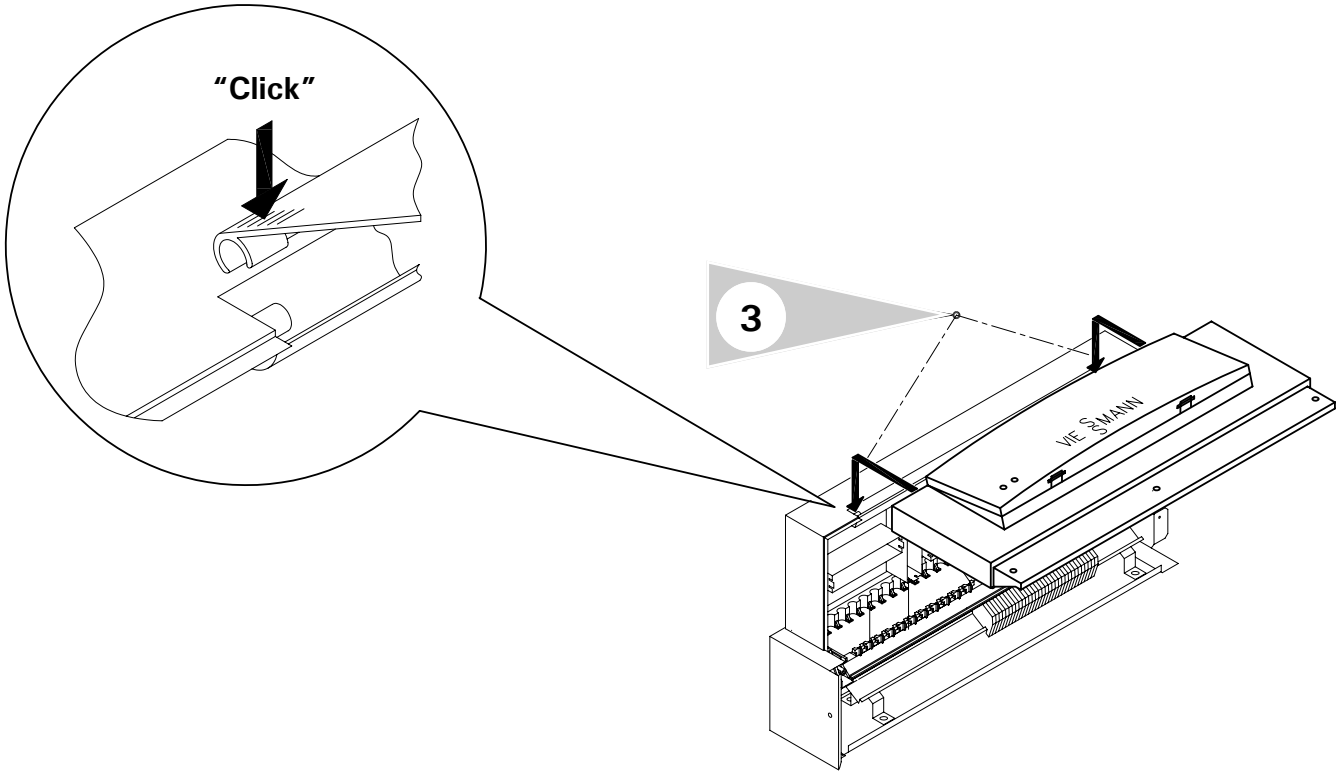
1 Control mounts to tabs at top of control harness. Hang control on tabs upper edge.

2 Allow control to pivot downwards and fasten control to control harness using supplied screws.

3 Install the front of the control onto the rear housing. Press downwards to 'Click' the front cover and rear housing together. When installed properly, the front will be allowed to pivot upwards without separating from rear of control.

IMPORTANT

Plug in quick-connect plugs into sockets with corresponding numbering. To avoid any miswiring of control, refer to electrical section of this wiring overview.



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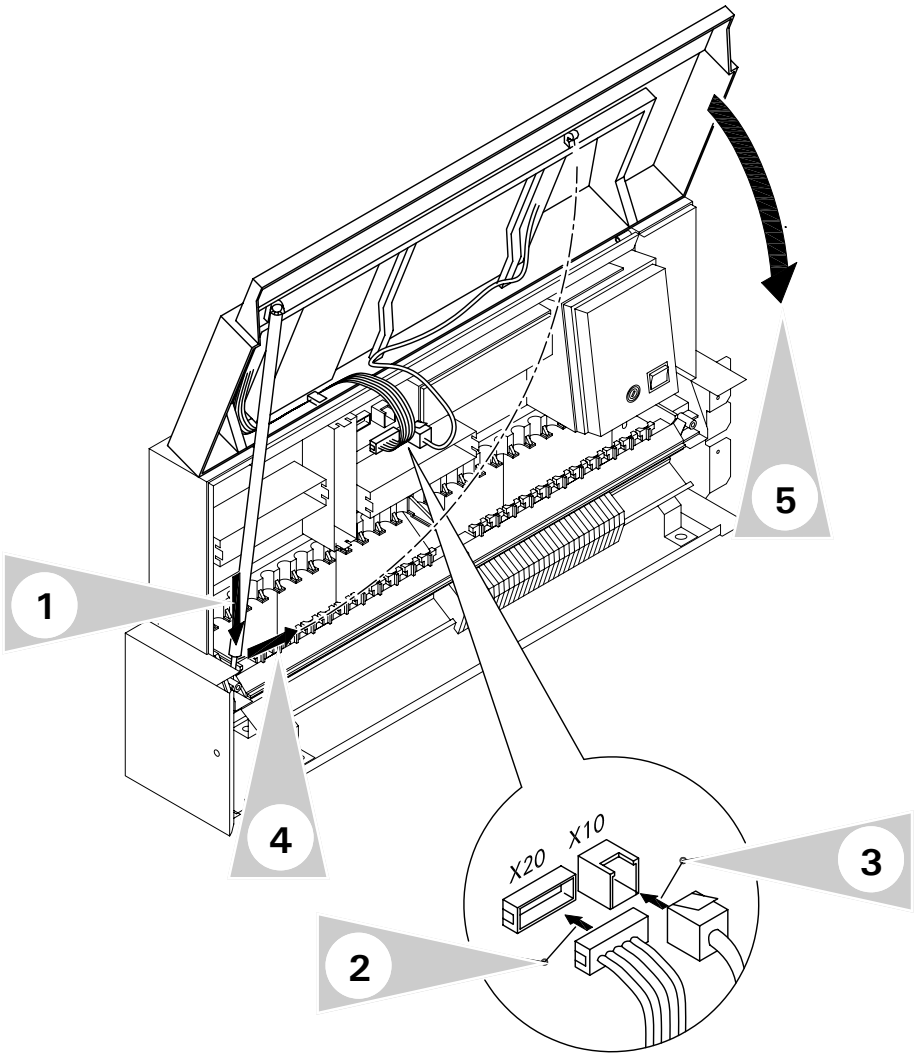


Control Installation Continued

1 The front control housing is held in place by a support rod. The support rod is swung down from the front housing section.

2 Insert plug X20 into its respective socket.

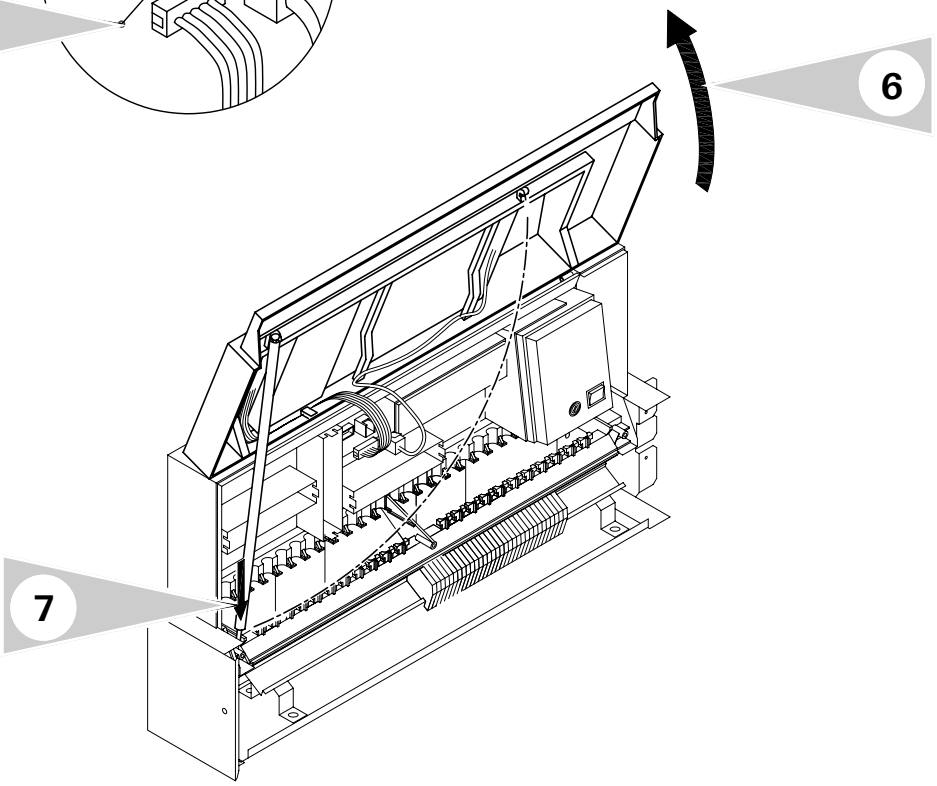
3 Insert plug X10 into its respective socket.

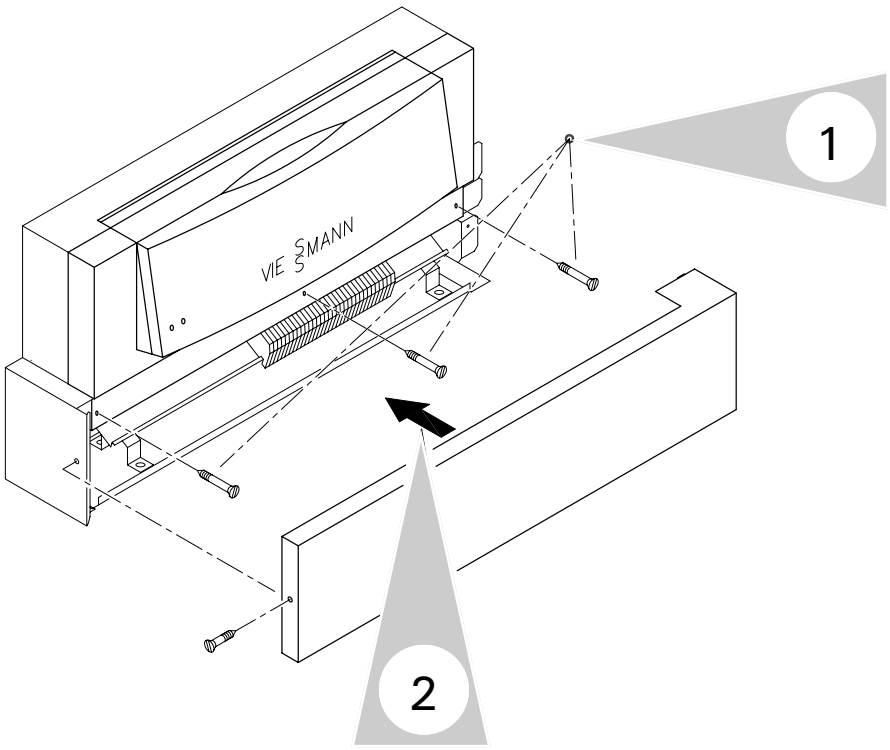
4 Swing the support rod upwards by lifting rod from its locating hole.

5 Front cover is now able to swing down and close.

6 The control can be opened by swinging front section upwards.

7 Unclick the support rod and swing down. Insert into hole in control to properly support front housing.





Control Installation Continued

1 When the control is ready to be closed, the front housing can be fastened down with three screws (supplied). Ensure there are no pinched wires between the rear portion of the control.

2 The junction box cover is used to protect and enclose the control harness DIN rail.
Weave front cover edge between tabs on junction box.
Pivot the cover closed and securely tighten the holding screw.

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Boiler Control Wiring Overview

Installation Steps Quick Overview

STEP 1

Review information associated with boiler and boiler control drawings

STEP 2

Install boiler control onto side of boiler and plug in sensors and 120VAC plugs into control from control harness

STEP 3

Supply 120VAC to control

STEP 4

Wire LWCO

STEP 5

Wire burner
- Control connections 41 & 90
- Burner power connections 120/240/208VAC

STEP 6

Control Module Installation
- Valve Module 24VAC/120VAC (Mixing and Isolation)
- Combustion Air Device Adaptor
- Common Combustion Air Device Adaptor
- Output Module
- Any required control outputs

STEP 7

Vitocontrol-S
- Supply 120VAC
- Control Module Installation
- Communications

STEP 8

BMS Control Connections
- Enable/disable
- Burner modulation
- Extension input module 0-10VDC

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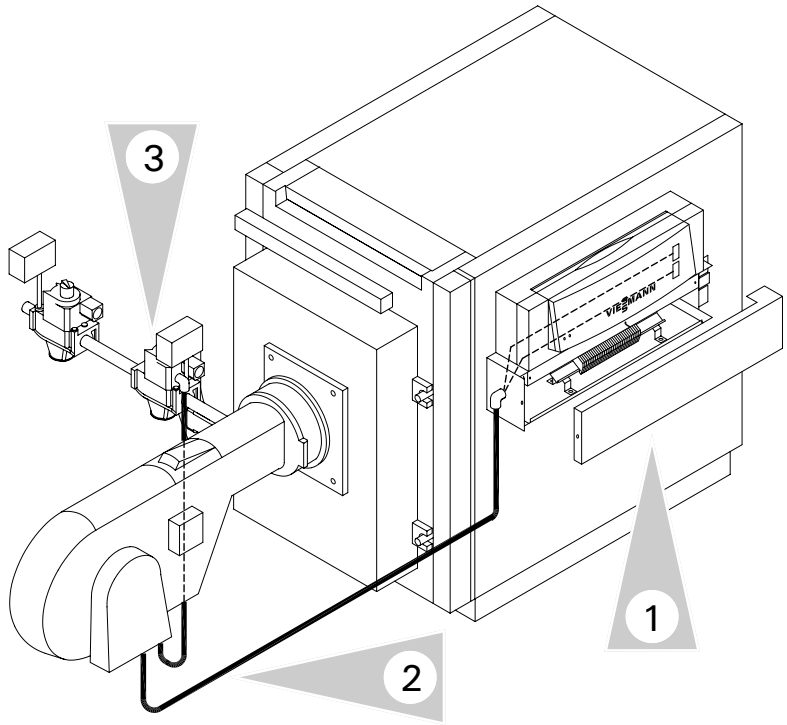
Vitorond VD2 Boiler/Control/Burner



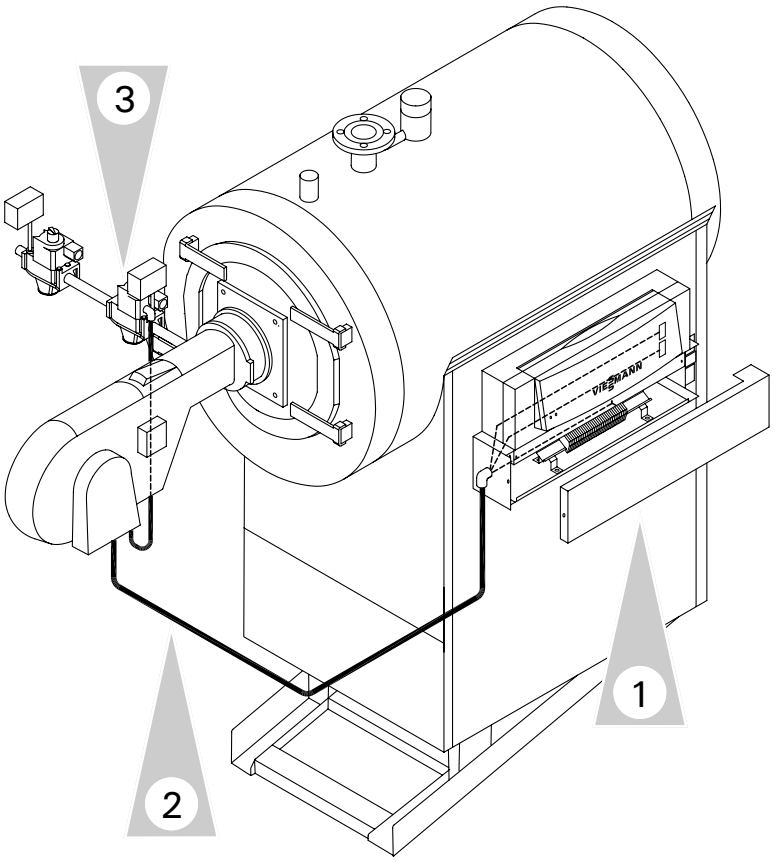
Burner Conduit

1 Boiler control mounted on the side of boiler.
The conduit from the housing points in direction of the burner.

2 The interconnecting harness coming from the control is routed to the burner. The wires contained inside the conduit are wired to the burner. Depending on the model of burner, there may be plug-in interconnections or hard-wired connections to the terminal strip located inside of the burner.

3 Gas train wiring comes from the burner housing. Check with supplied equipment to verify if gas train wiring is factory wired or field wired.

Vitocrossal CT3 Boiler/Control/Burner



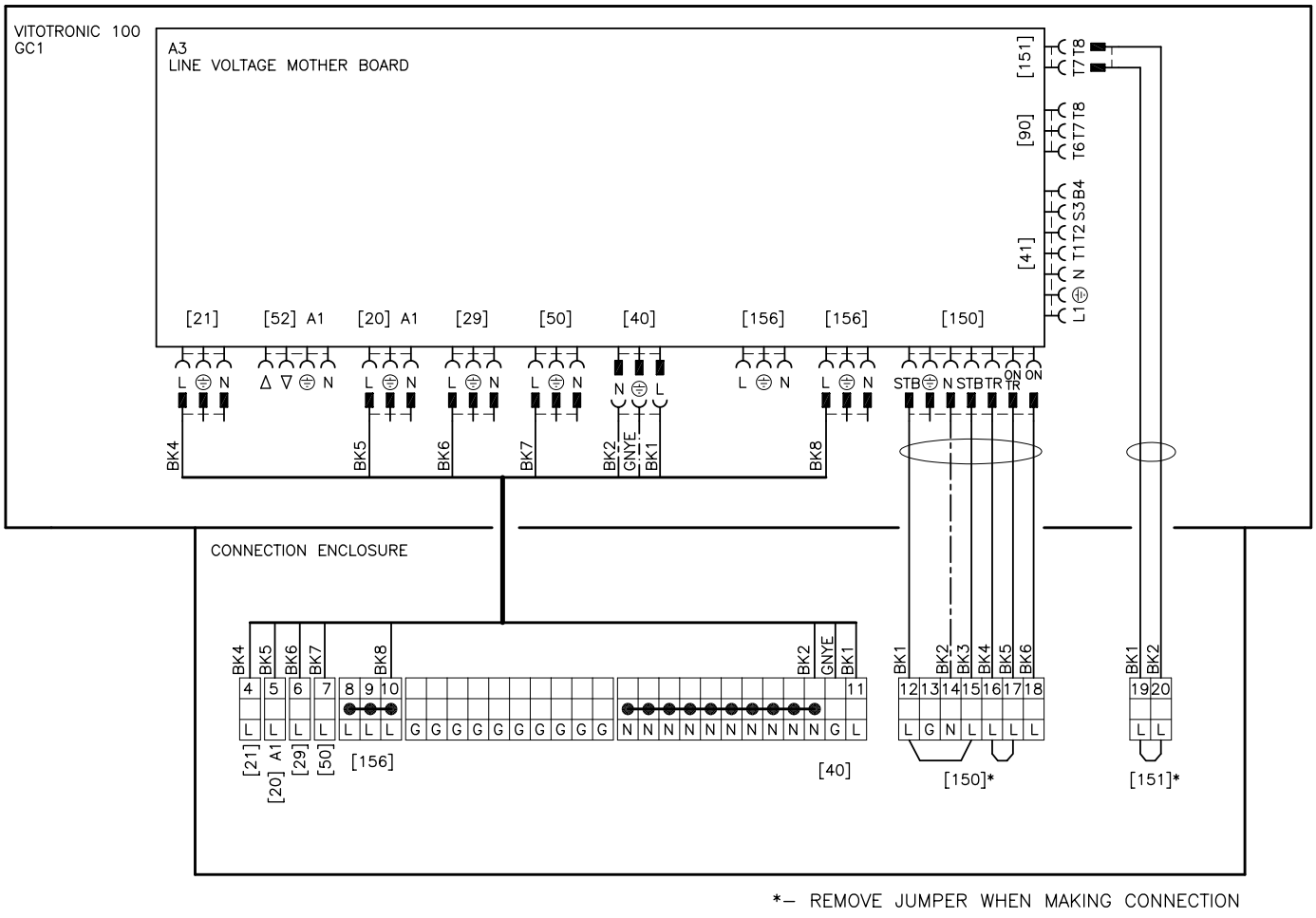
IMPORTANT

The length of the conduit is designed to allow for the burner or boiler door to be opened when burner is wired. Do not shorten conduit without ensuring proper access for service.

IMPORTANT

Refer to the correct wiring diagrams when wiring the control to burner. Do not make any connections without the proper documentation.

Standard Control Junction Box (no modules)



Field Connection	Vitotronic Plug	DIN Rail Terminal	Cable Connection
DHW Pump	**[21]**	4	BK4
Control Output	**[20]A1**	5	BK5
Shunt Pump/Boiler Pump	**[29]**	6	BK6
Alarm	**[50]**	7	BK7
Module Power Supply	**[156]**	8/9/10	BK8
Incoming Power	**[40]**	11/G/N	BK1/G/N
External Safety Devices	**[150]**	12 and 15 16 and 17	BK1 and BK3 BK 4 and BK5
Emergency Shut Off	**[151]**	19 and 20	BK1 and BK2

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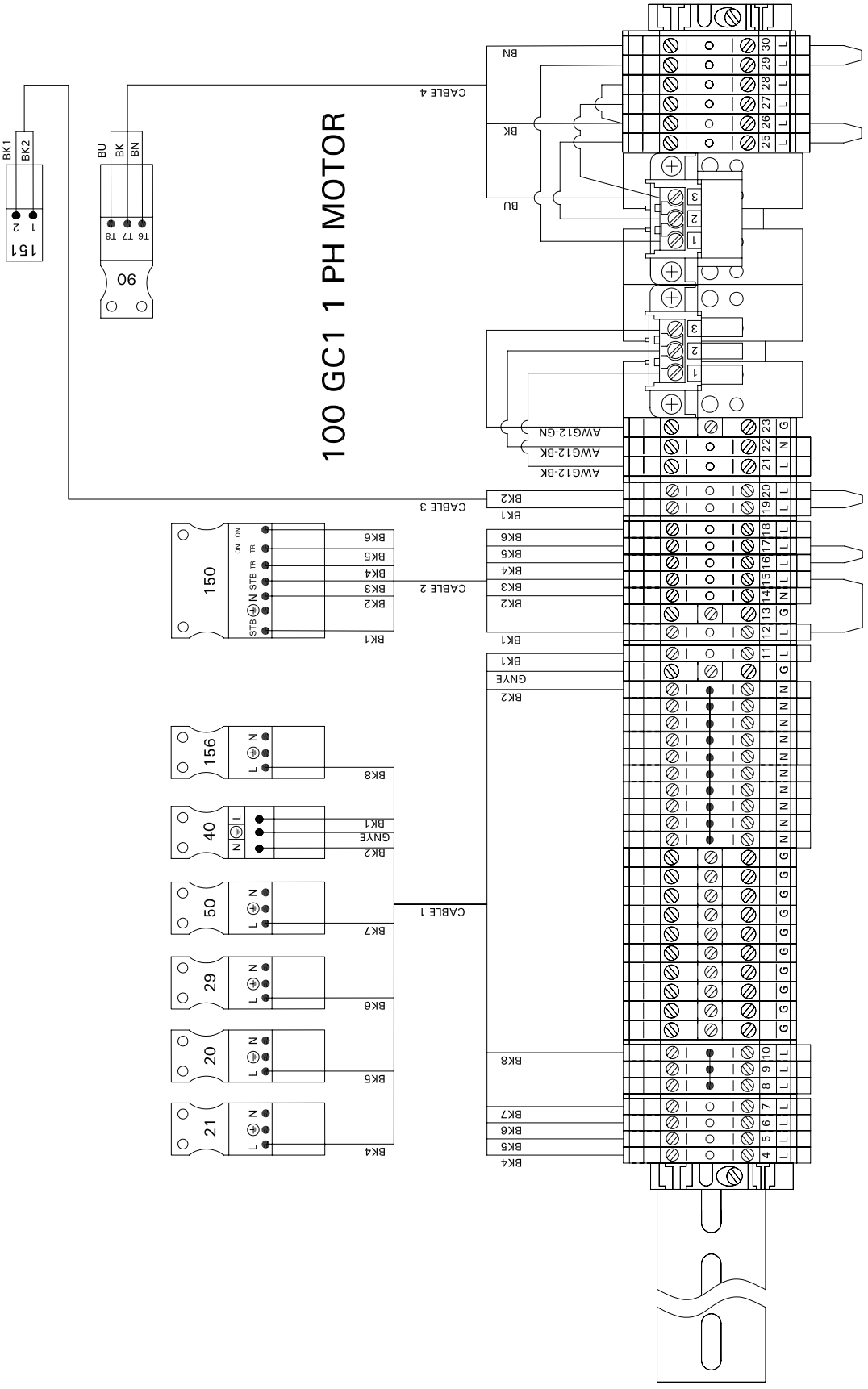
Plugs for control voltage for Vitotronic 100, GC1



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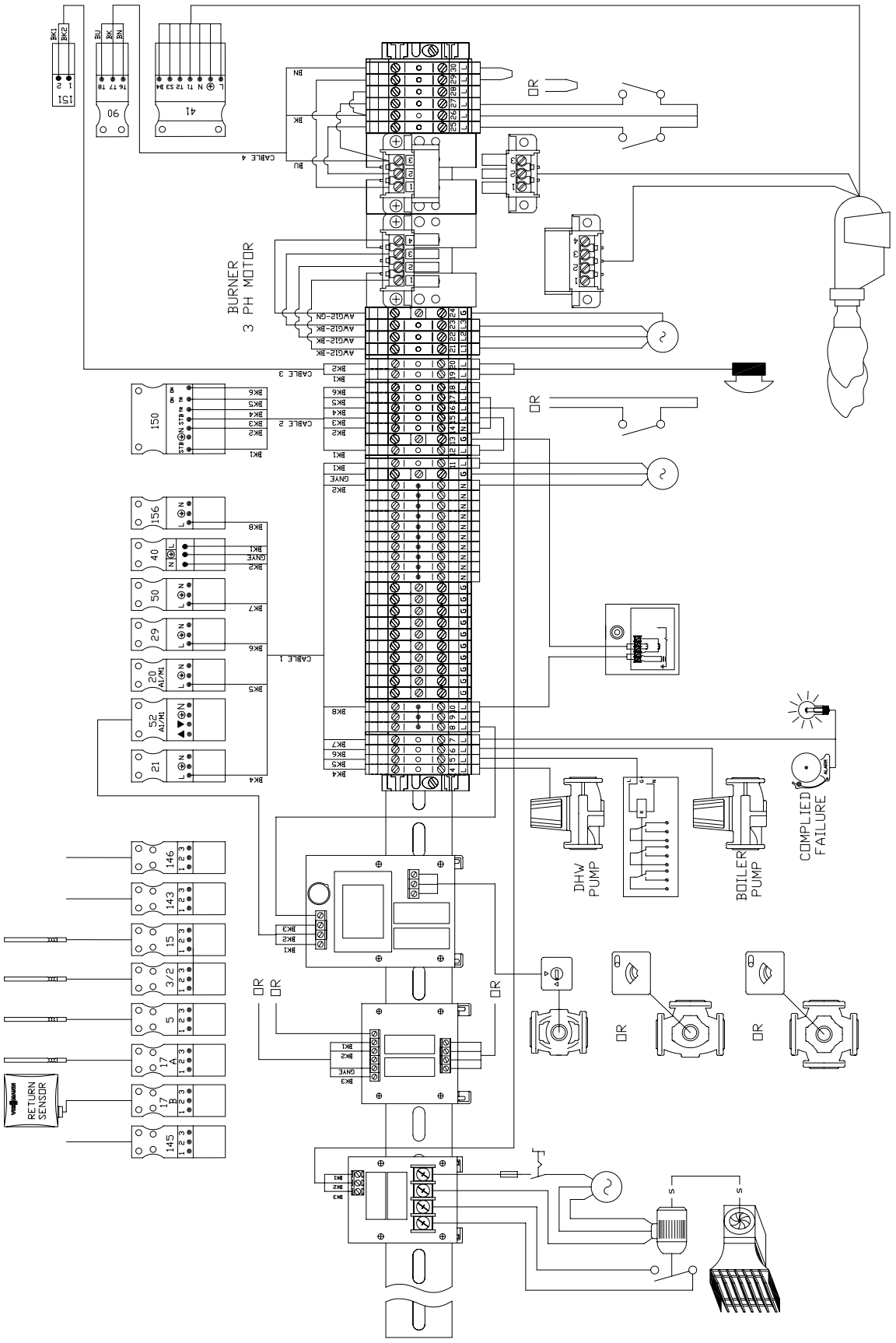
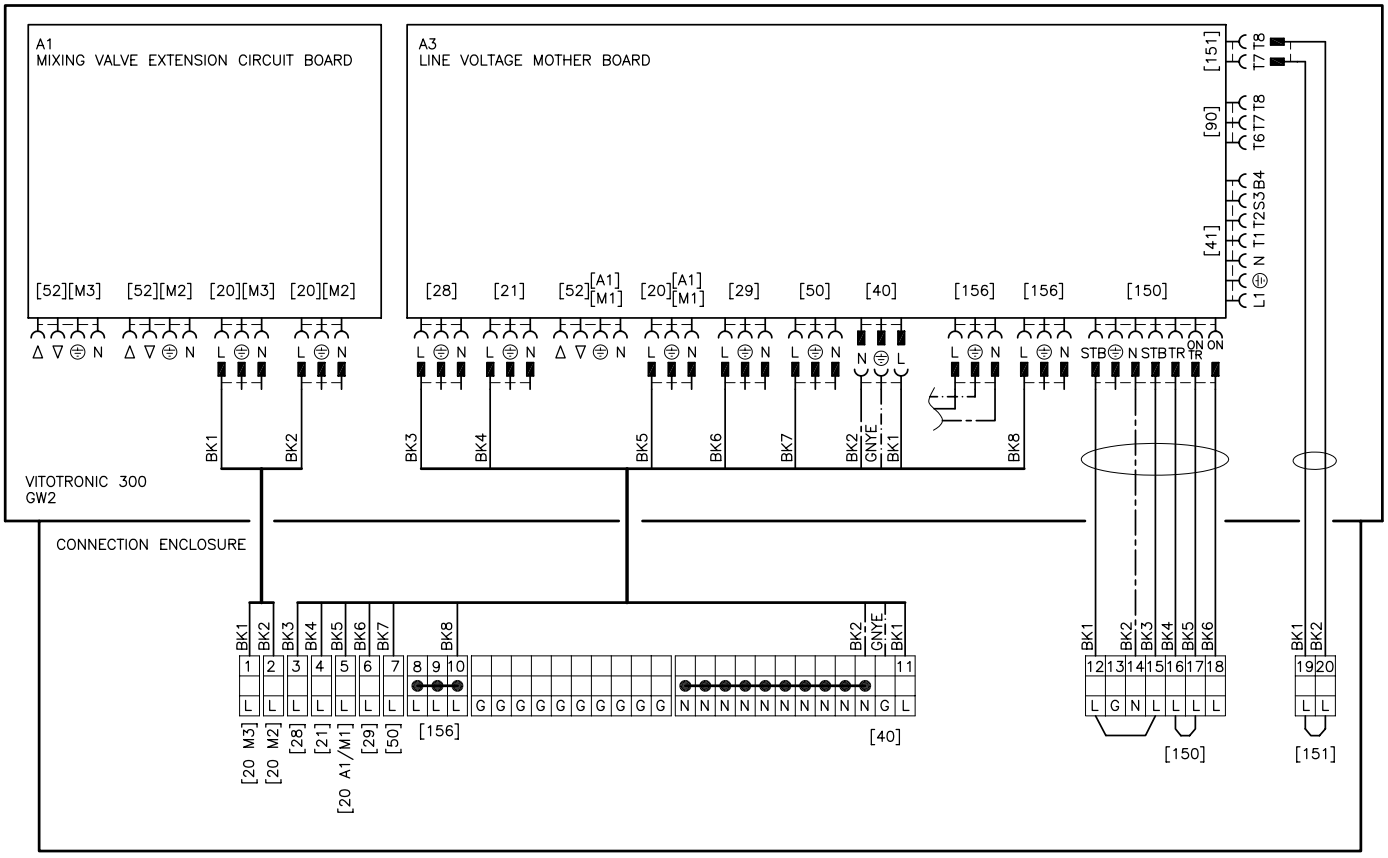
Overview drawing for Vitotronic 100, GC1



Standard Control Junction Box (no modules)



Field Connection	Vitotronic Plug	DIN Rail Terminal	Cable Connection
Heating Circuit Pump	**[20]M2**	1	BK1
Heating Circuit Pump	**[20]M3**	2	BK2
DHW Recirculation Pump	**[28]**	3	BK3
DHW Pump	**[21]**	4	BK4
Control Output	**[20]A1**	5	BK5
Shunt Pump/Boiler Pump	**[29]**	6	BK6
Alarm	**[50]**	7	BK7
Module Power Supply	**[156]**	8/9/10	BK8
Incoming Power	**[40]**	11/G/N	BK1/G/N
External Safety Devices	**[150]**	12 and 15 16 and 17	BK1 and BK3 BK 4 and BK5
Emergency Shut Off	**[151]**	19 and 20	BK1 and BK2

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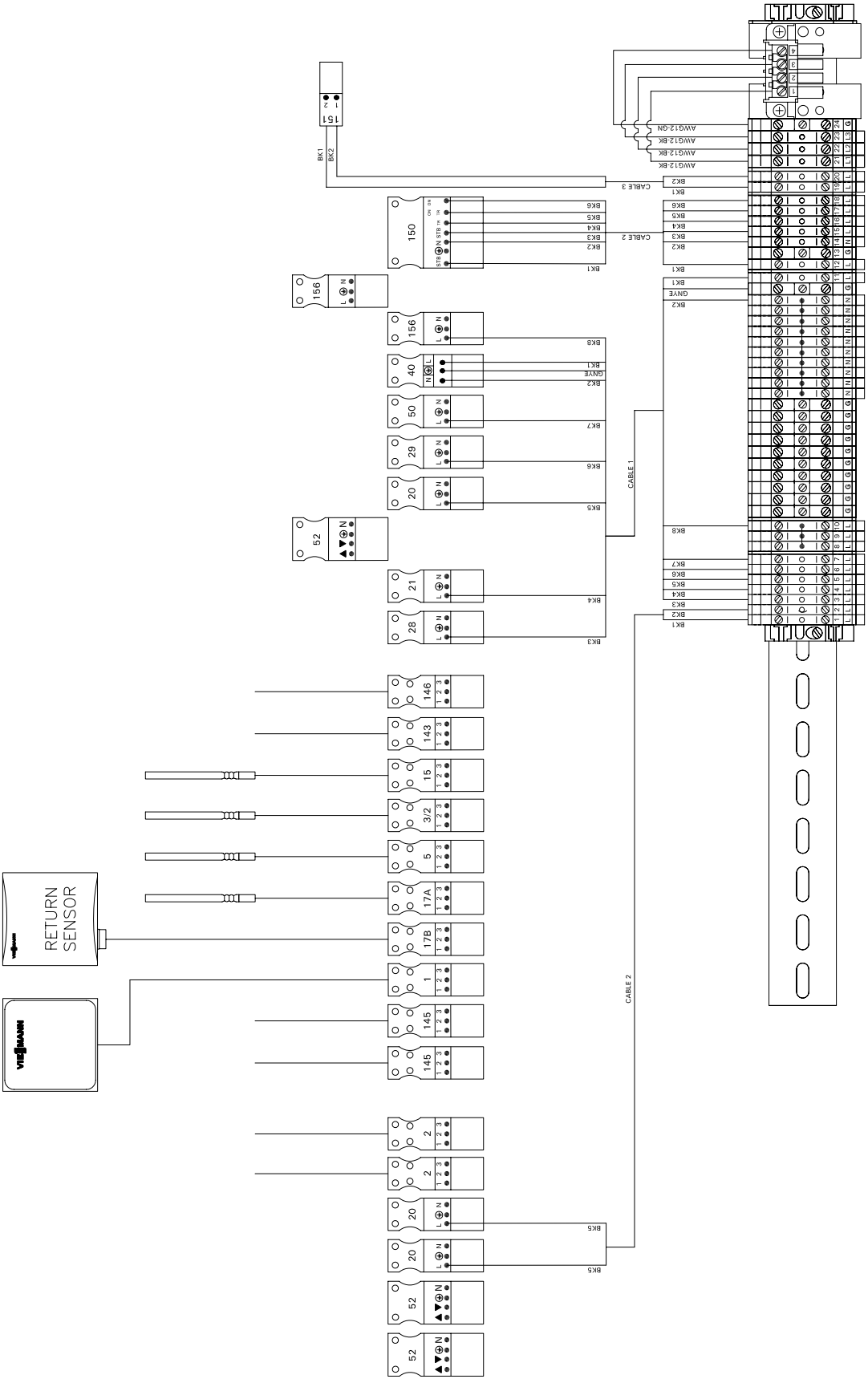
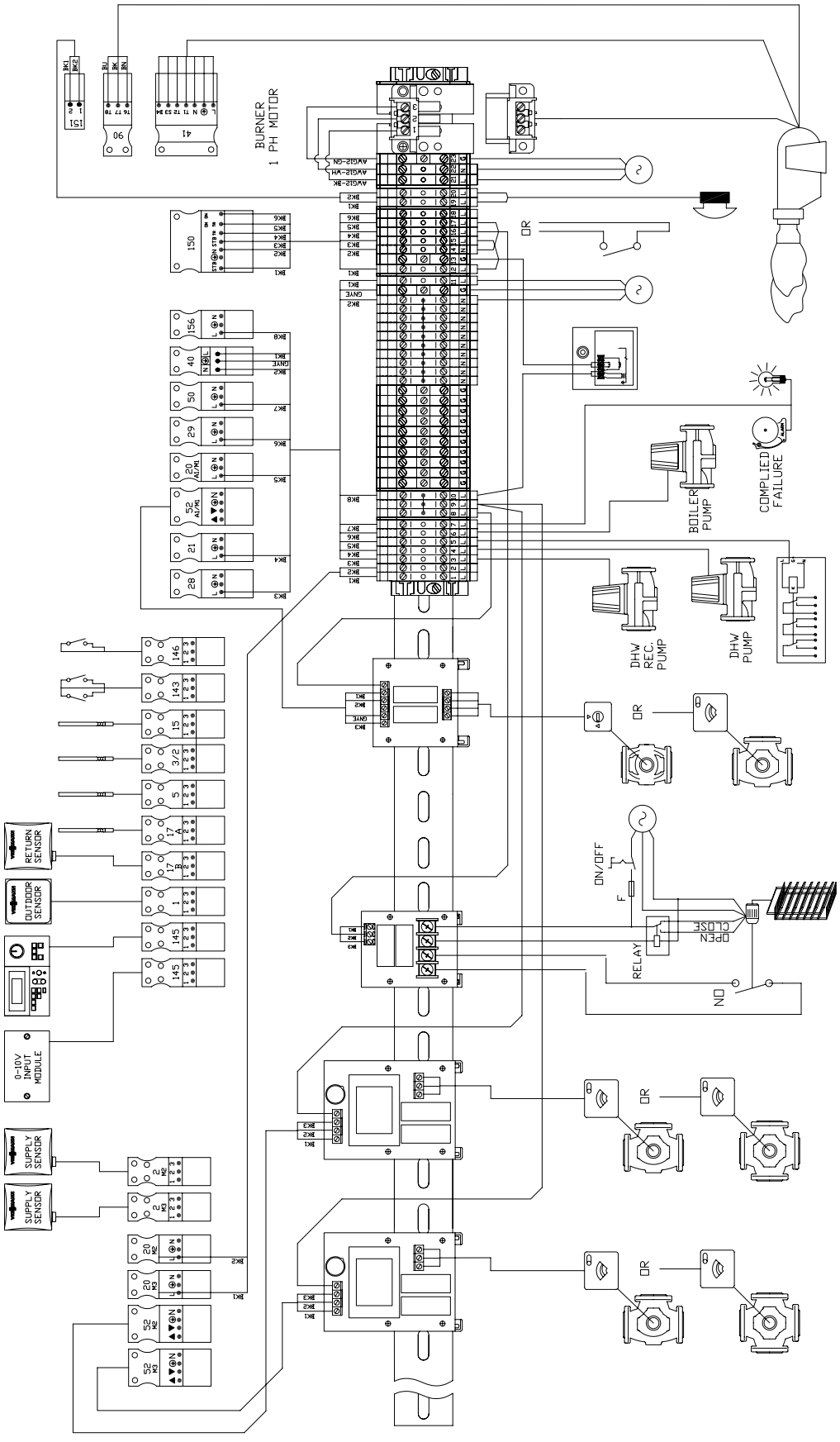
Plugs for control voltage and sensors for Vitotronic 300, GW2



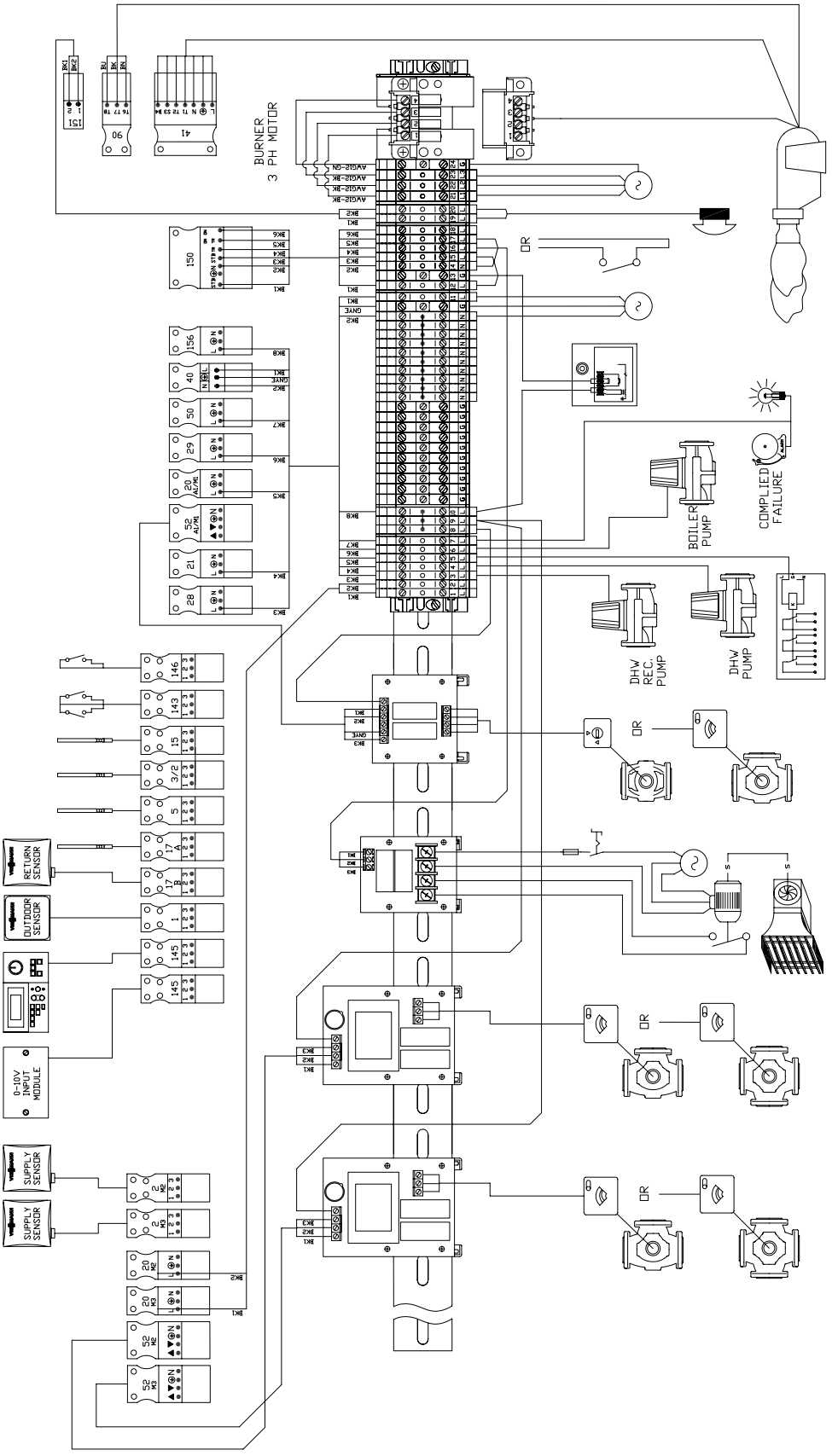
5346540 v1.0 09/2006 Technical information subject to change without notice

Plugs for control voltage and sensors for Vitotronic 300, GW2



5346540 v1.0 09/2006 Technical information subject to change without notice

Plugs for control voltage and sensors for Vitotronic 300, GW2



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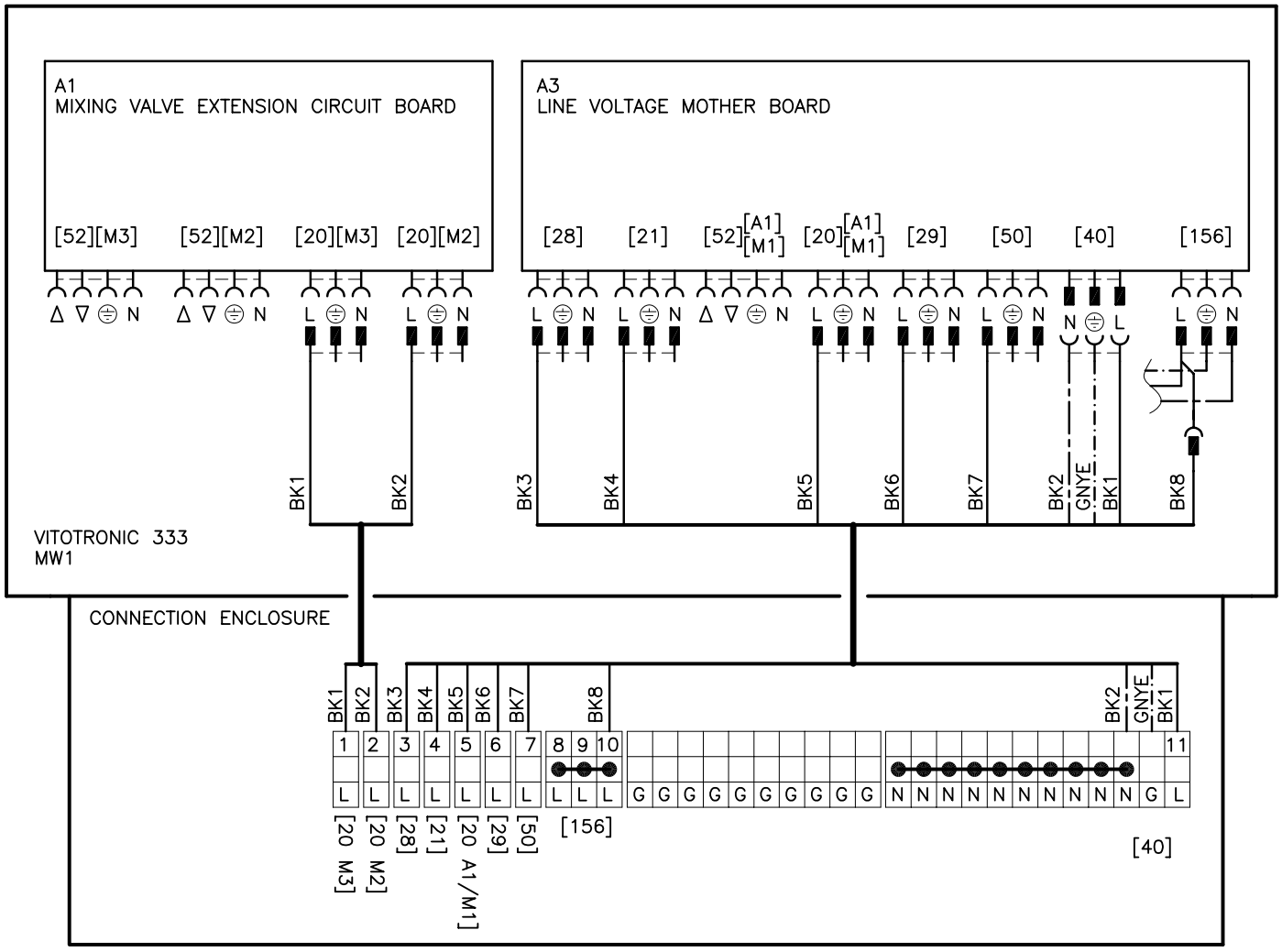
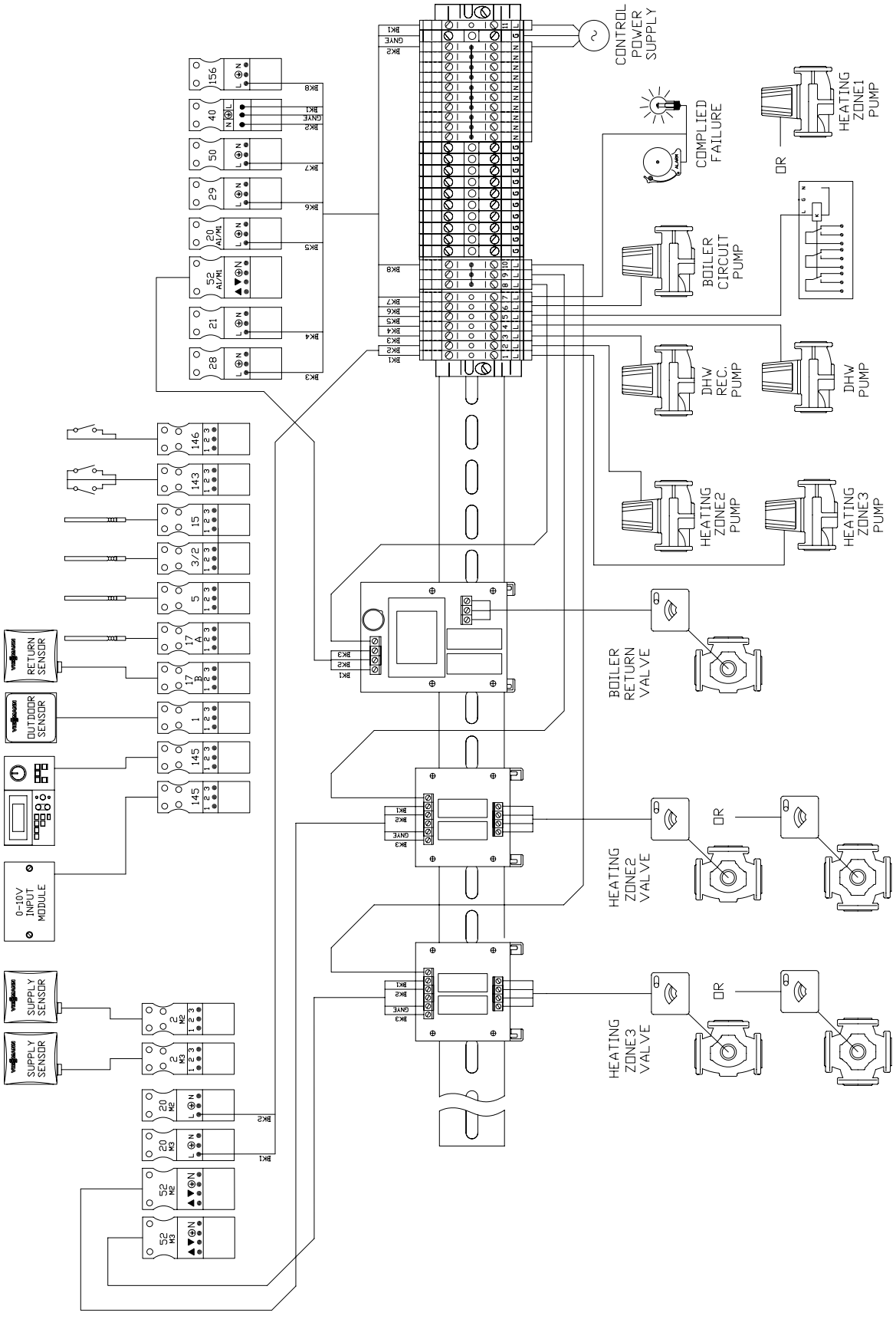
Standard Control Junction Box (no modules)



Field Connection	Vitotronic Plug	DIN Rail Terminal	Cable Connection
Heating Circuit Pump	**[20]M2**	1	BK1
Heating Circuit Pump	**[20]M3**	2	BK2
DHW Recirculation Pump	**[28]**	3	BK3
DHW Pump	**[21]**	4	BK4
Control Output	**[20]A1**	5	BK5
Shunt Pump/Boiler Pump	**[29]**	6	BK6
Alarm	**[50]**	7	BK7
Module Power Supply	**[156]**	8/9/10	BK8
Incoming Power	**[40]**	11/G/N	BK1/G/N

Plugs for control voltage and sensors for Vitocontrol-S, CT3/VD2



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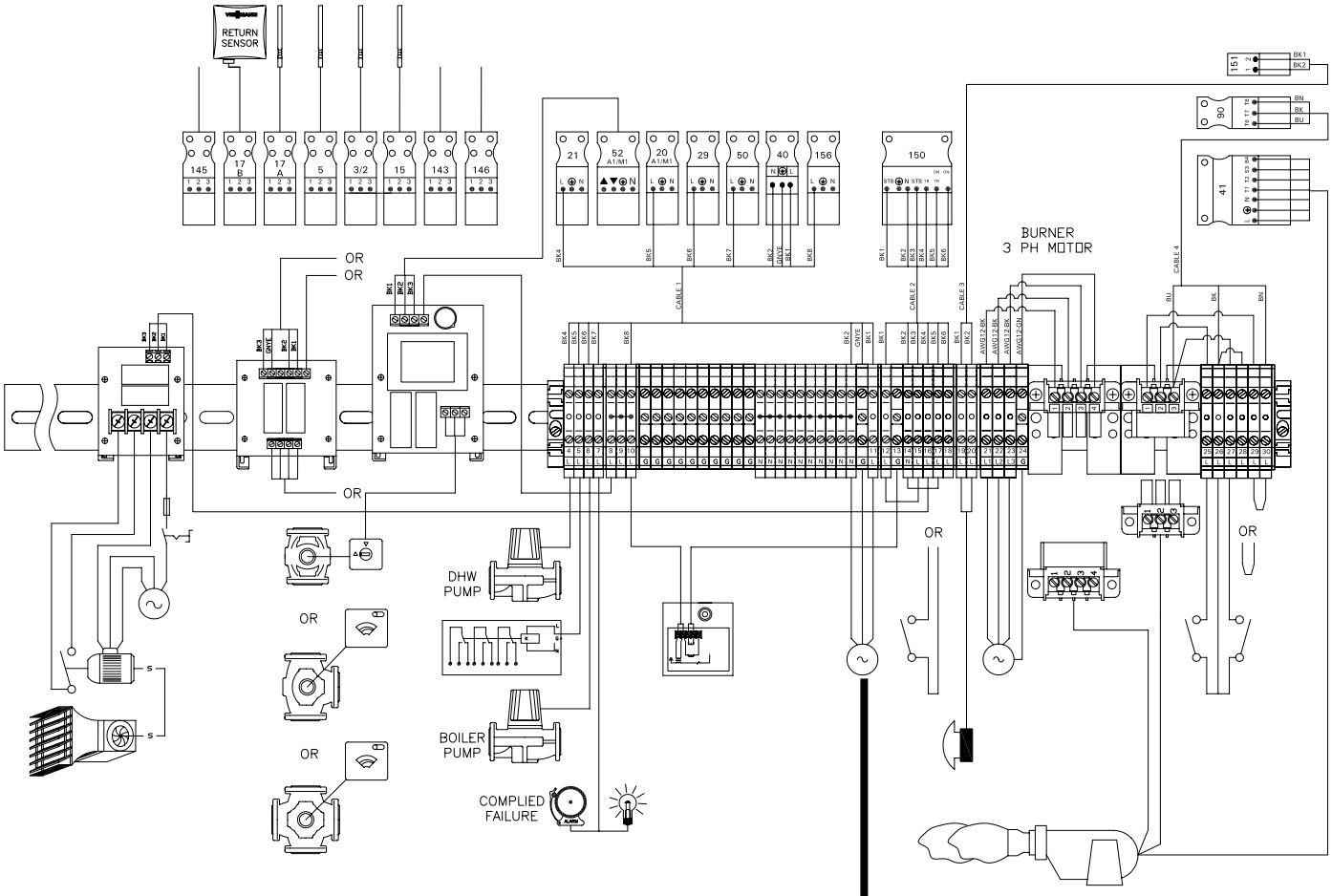
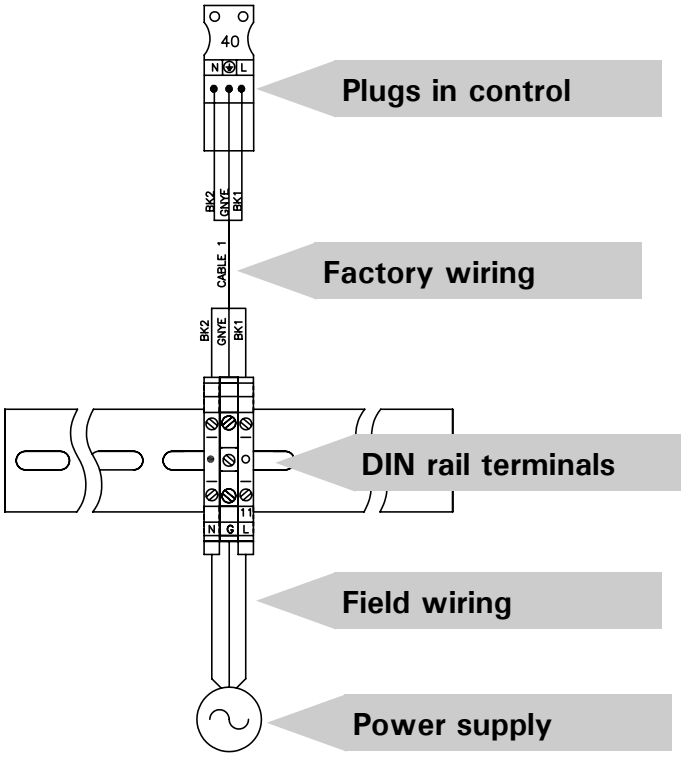
Overview of control DIN rail



How drawings work:

- Example overview drawings showing DIN rails of controls.
- Individual pages show plug, interconnecting wire, DIN rail terminals and output device.
- Pages provide breakdown of individual output and associated modules if any.



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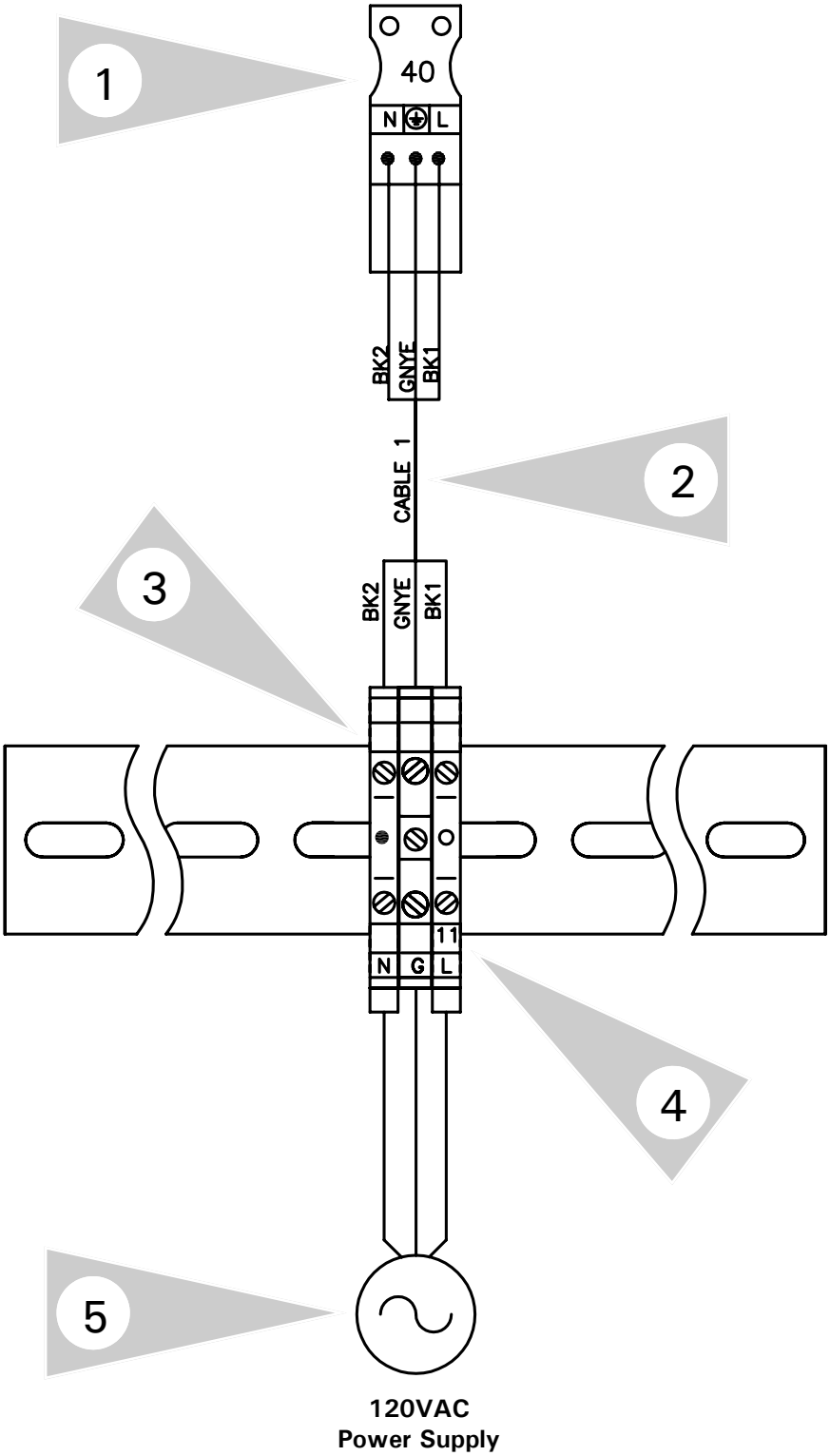
Power Control—120VAC

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, CT3/VD2



120VAC Power Supply

1 Green [40] plug plugged into control from control installation steps.

2 Pre-wired interconnecting harness between [40] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Supply voltage 120VAC terminated at terminal 11. Connection of neutral and ground as well.

5 Incoming power supply from local disconnect powered by remote electrical panel.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Depending how the various control power supplies are wired by the installer/electrician, a single power source for each boiler controls is suggested. This will allow a single boiler control to be shut down while leaving the remaining units to operate as necessary.

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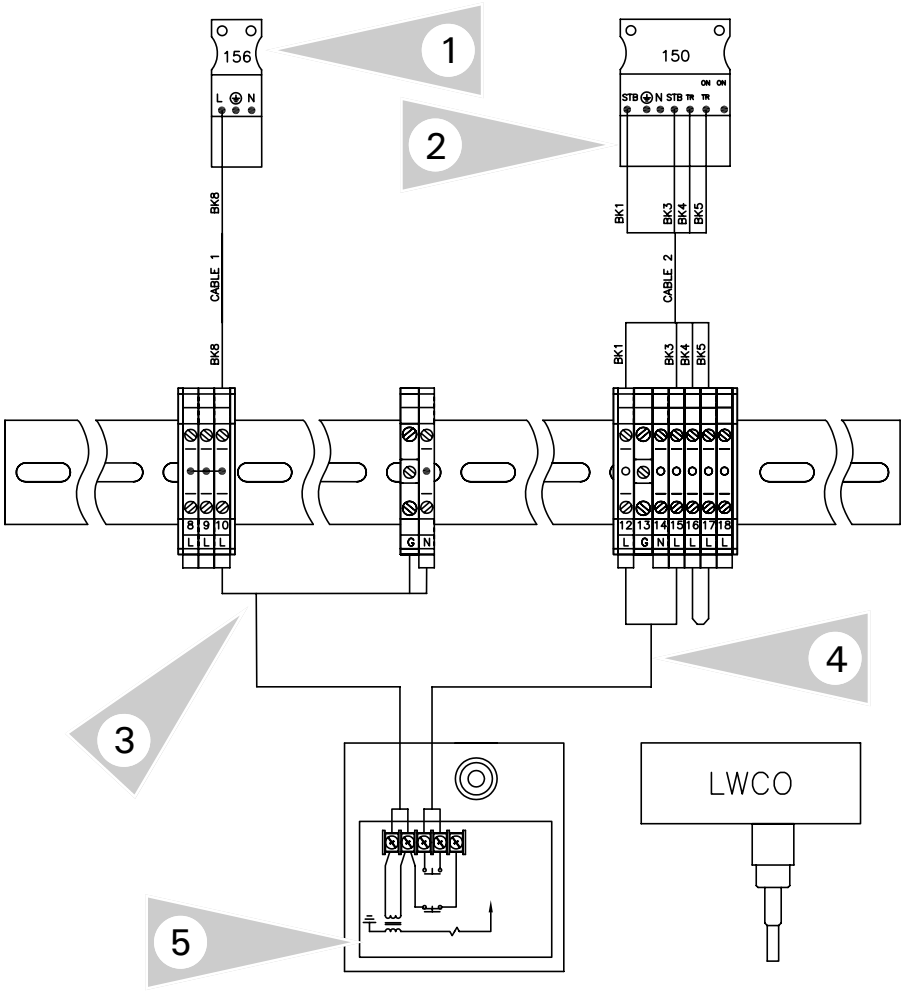
Connection of Low Water Cut Off (LWCO) (Typical)

Applicable for both Vitotronic 100, GC1 and 300, GW2



Installation Steps

1 White [156] plug plugged into control from control installation. Supplies 120VAC to control devices such as LWCO and valve modules.

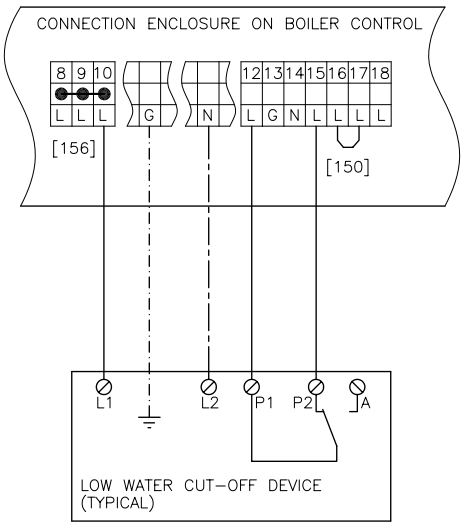
2 Yellow [150] plug used to interrupt burner call for heat during low water condition.

3 Power for the LWCO is from 120VAC coming from [156] plug. The LWCO must be connected to terminal 8 or 9 or 10 inside of control junction box. The neutral and ground connections are made within one of the N and G terminals.

4 The LWCO switch is connected to terminals 12 and 15.

5 Typical low water cut off device which requires external power source.
Ensure no jumpers are used within LWCO between incoming 120VAC terminals and switches.

Alternate LWCO Connection Drawing



IMPORTANT

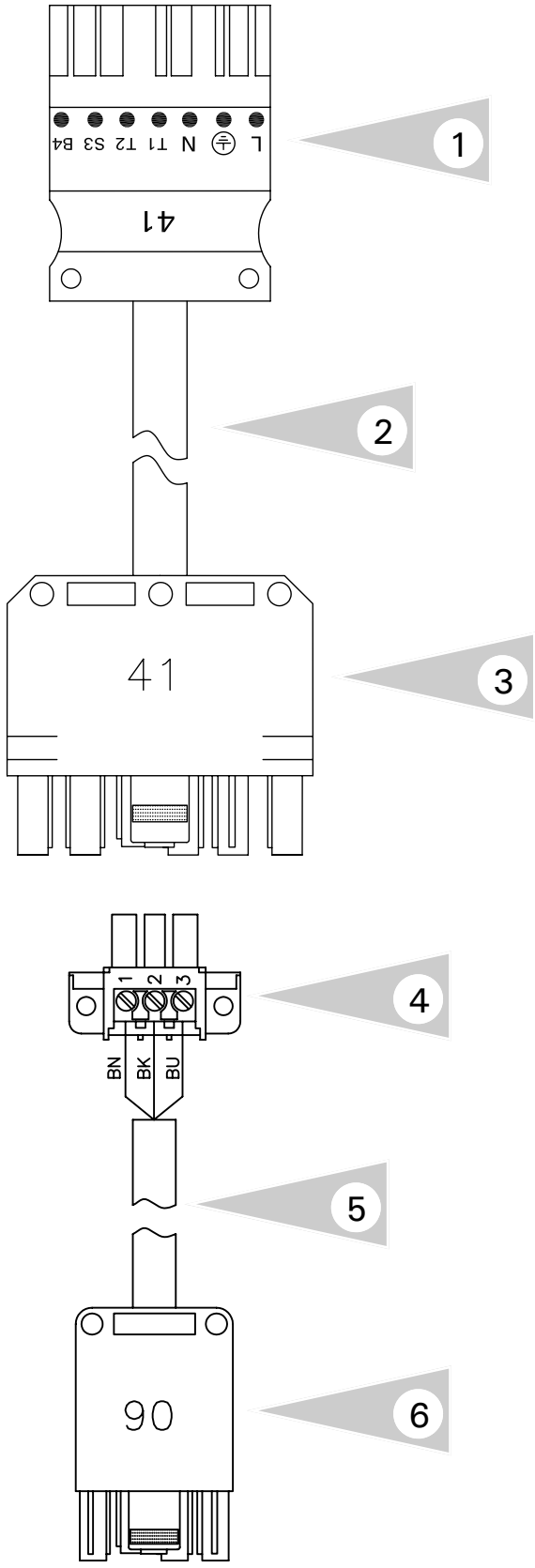
Check LWCO for correct operation after installation and wiring completed. Ensure the control shuts down the burner. When control senses tripped LWCO an error code of C1 will be displayed in control display.

WARNING

When terminating a low water cut off device to the Vitotronic 100, GC1 or Vitotronic 300, GW2 boiler control, the jumper found between terminals 12 and 15 must be removed and discarded. Failure to do so will not allow the control to be shut down a true low water condition.

Connection of Boiler Control Wiring to Burner

Applicable for Vitotronic 100, GC1 and Vitotronic 300, GW2



Overview

1 Control plug end [41]. Plugs into control.

2 Harness between control and burner.

3 Burner end of [41] plug harness. Plugs into burner.

4 Plug-in connection for [90] plug. modulation function of control. Socket for [90] plug located in control connection enclosure.

5 Cabling between control connection enclosure and burner.

6 Modulation [90] plug. Connection made in burner to allow modulation of burner.

[41] Plug Terminal Identification

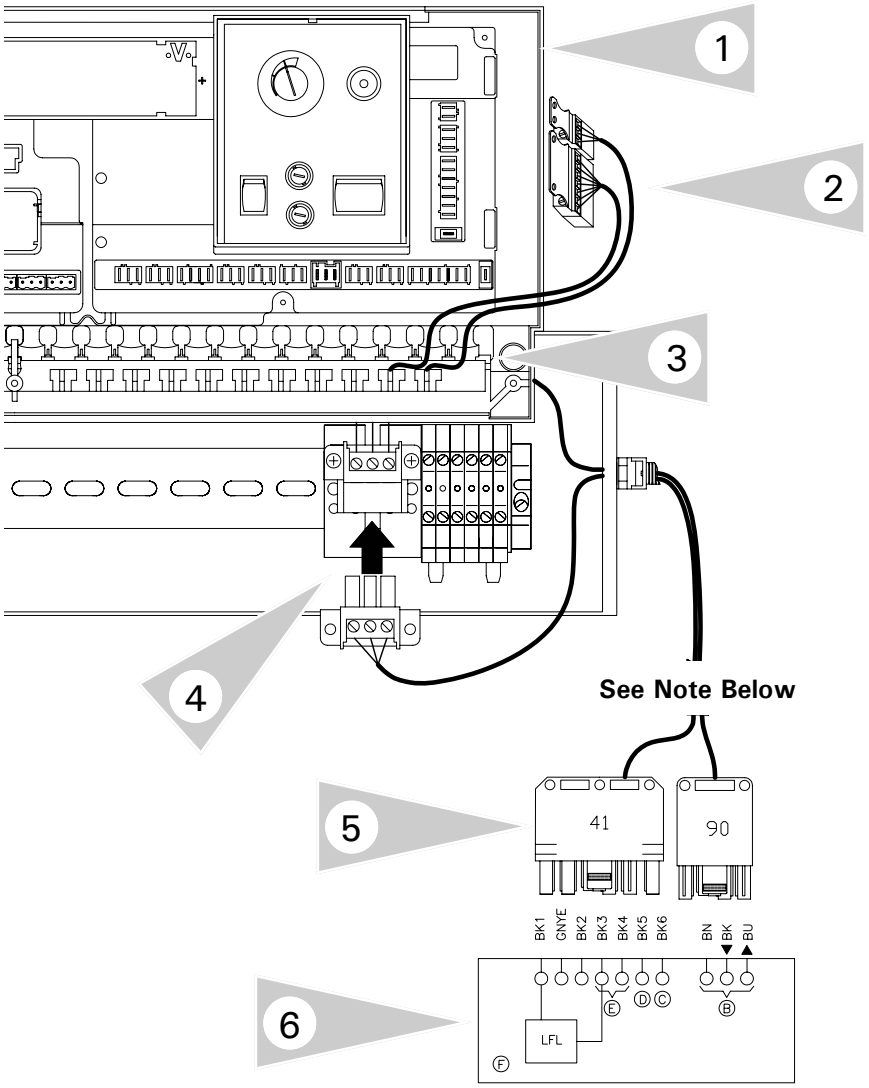
Terminal ID	Function
L1	Line voltage via FHL
⏚	Ground
N	Neutral Connection to the burner
T1, T2	Control Circuit via AHL
S3	Connection for burner fault indicator
B4	Connection for burner hour counter

[90] Plug Terminal Identification

Terminal ID	Function
1	Signal from burner
2	Modulation down
3	Modulation up/2nd stage ON

Connection of Boiler Control Wiring to Burner (plug-in connection)

Applicable for Vitotronic 100, GC1



Overview

1 Boiler control with open front access cover.

2 The [41] and [90] burner plugs are plugged into control at far right hand side. The two plugs are designed for their specific location and placement.

3 The [41] and [90] plug harness is fed from inside of the control into the control harness junction box.
A grommet is used to hold the harness in place.

4 The [90] plug harness is interrupted by terminal blocks that allow building management or control systems to provide remote burner modulation. Ensure that the DIN rail mounted plug is plugged in for proper operation.

5 Burner plugs are found at end of burner harness to allow the control to be interfaced with the burner by plugging in corresponding [41] and [90] plugs.

6 Corresponding burner plugs found in burner to mate with [41] and [90] plugs from control.

Note:
Refer to specific boiler manual for information regarding the routing of [41] and [90] cables. Burner/boiler model will determine how the [41] and [90] cables are routed.

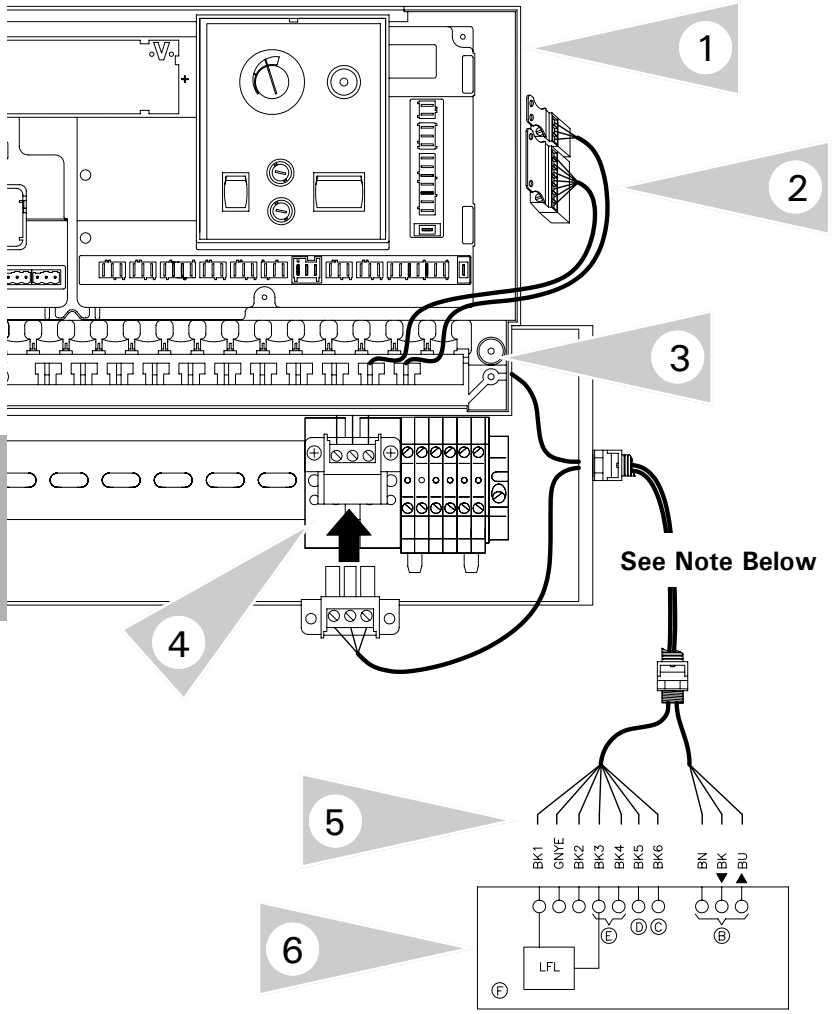
Please note that some control harnesses may have a single [41] plug for burner operation and powering of burner blower motor. Other harnesses may have [41] and [90] for both burner and modulation operation.

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

Connection of Boiler Control Wiring to Burner (hard-wired connection)

Applicable for Vitotronic 100, GC1



Overview

1 Boiler control with open front access cover.

2 The [41] and [90] burner plugs are plugged into control at far right hand side. The two plugs are designed for their specific location and placement.

3 The [41] and [90] plug harness is fed from inside of the control into the control harness junction box.
A grommet is used to hold the harness in place.

4 Control harness assemblies for the Vitotronic 300, GW2 are not equipped for BMS access to the [90] plug modulation harness.

5 Hard wired terminals are found at the end of the control/burner interconnection harness. Refer to burner specific manual for information on the proper terminal connections.

6 Burner terminal strip located in specific burner.

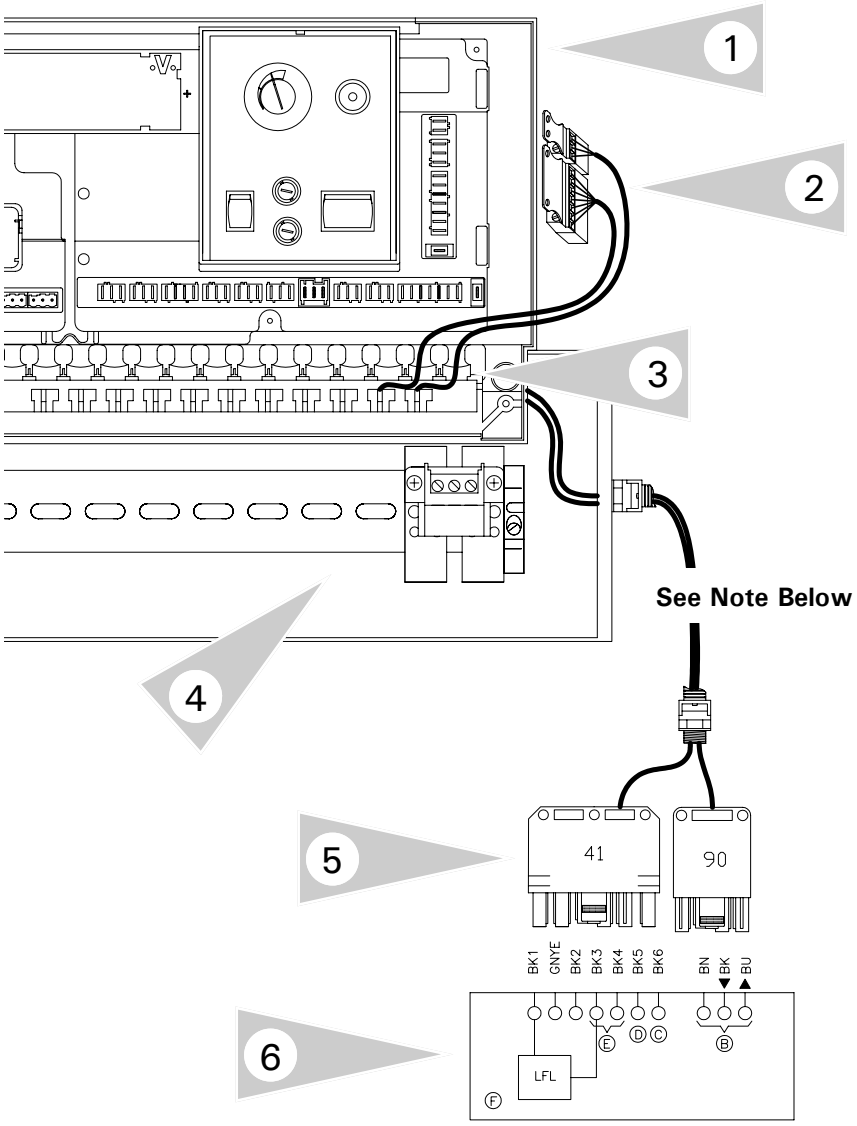
Note:
Refer to specific boiler manual for information regarding the routing of [41] and [90] cables. Burner/boiler model will determine how the [41] and [90] cables are routed.

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

Connection of Boiler Control Wiring to Burner (plug-in connection)

Applicable for Vitotronic 300, GW2



Overview

1 Boiler control with open front access cover.

2 The [41] and [90] burner plugs are plugged into control at far right hand side. The two plugs are designed for their specific location and placement.

3 The [41] and [90] plug harness is fed from inside of the control into the control harness junction box.
A grommet is used to hold the harness in place.

4 The [90] plug harness is interrupted by terminal blocks that allow building management or control systems to provide remote burner modulation. Ensure that the DIN rail mounted plug is plugged in for proper operation.

5 Burner plugs are found at end of burner harness to allow the control to be interfaced with the burner by plugging in corresponding [41] and [90] plugs.

6 Corresponding burner plugs found in burner to mate with [41] and [90] plugs from control.

Note:
Refer to specific boiler manual for information regarding the routing of [41] and [90] cables. Burner/boiler model will determine how the [41] and [90] cables are routed.

Please note that some control harnesses may have a single [41] plug for burner operation and powering of burner blower motor. Other harnesses may have [41] and [90] for both burner and modulation operation..

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

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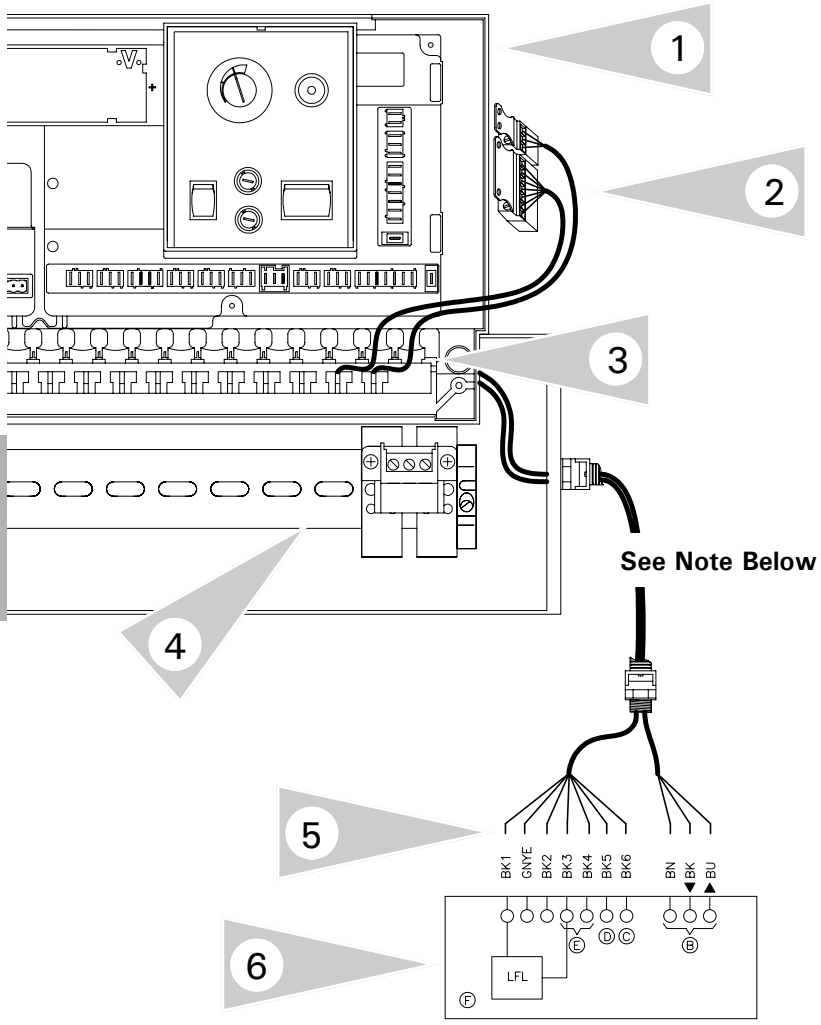
Connection of Boiler Control Wiring to Burner (hard-wired connection)

Applicable for Vitotronic 300, GW2



Overview

1 Boiler control with open front access cover.

2 The [41] and [90] burner plugs are plugged into control at far right hand side. The two plugs are designed for their specific location and placement.

3 The [41] and [90] plug harness is fed from inside of the control into the control harness junction box.
A grommet is used to hold the harness in place.

4 Control harness assemblies for the Vitotronic 300, GW2 are not equipped for BMS access to the [90] plug modulation harness.

5 Hard wired terminals are found at the end of the control/burner interconnection harness. Refer to burner specific manual for information on the proper terminal connections.

6 Burner terminal strip located in specific burner.

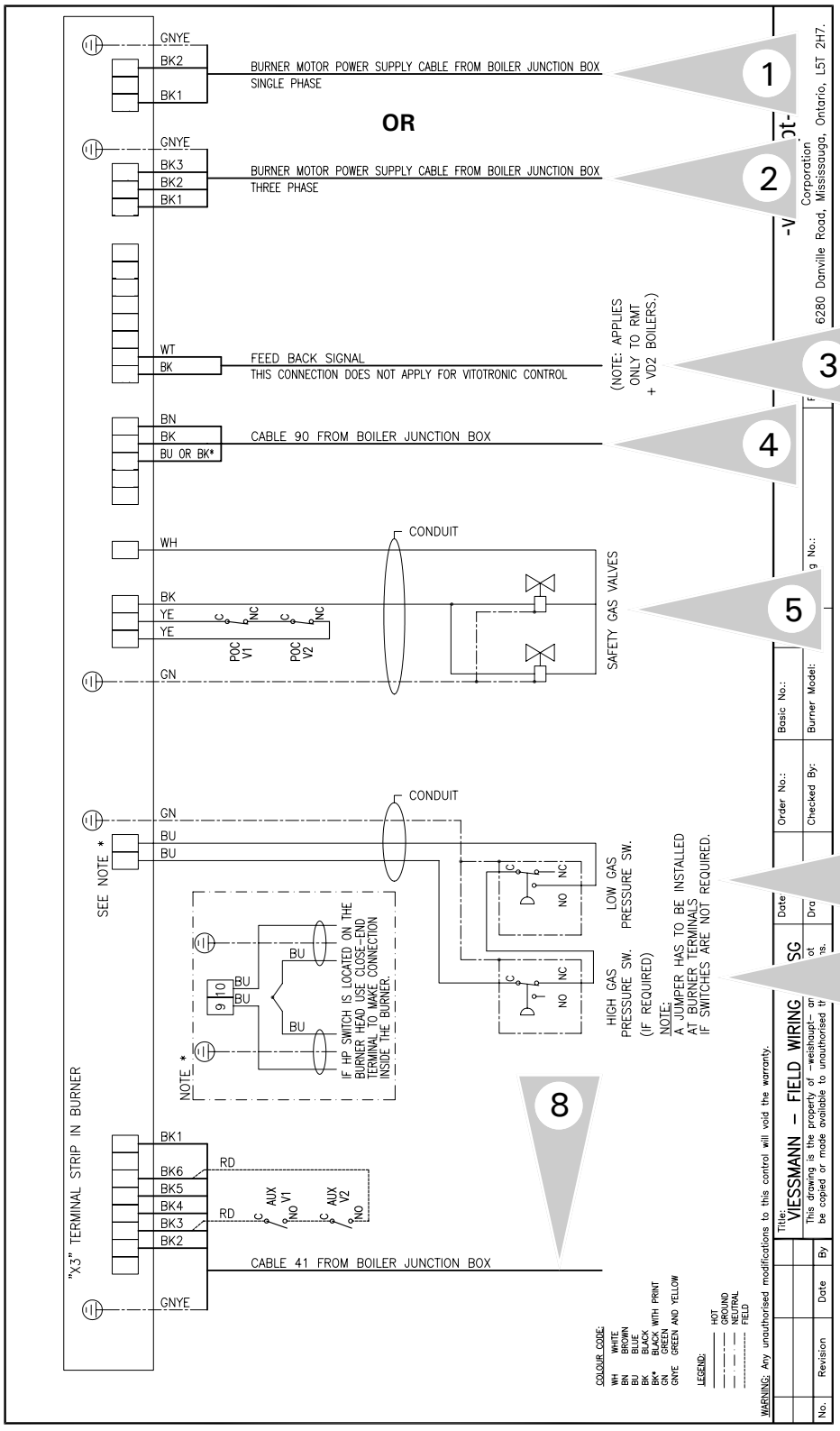
Note:
Refer to specific boiler manual for information regarding the routing of [41] and [90] cables. Burner/boiler model will determine how the [41] and [90] cables are routed.

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

Weishaupt Burner Schematic G Series Burner (typical)

Refer to job specific burner schematic contained in burner information package



Overview

1 Burner motor power supply connections for single phase motors.

2 Burner motor power supply connections for three phase motors.

3 Burner potentiometer used for burner positioning for BMS systems.

4 Modulation [90] plug connection from control or BMS.

5 Gas valve connection along with POC connections.

6 Low gas pressure switch.

7 High gas pressure switch.

8 [41] from boiler control provides 120VAC to power LFL (flame safeguard) as well as providing call for heat.

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

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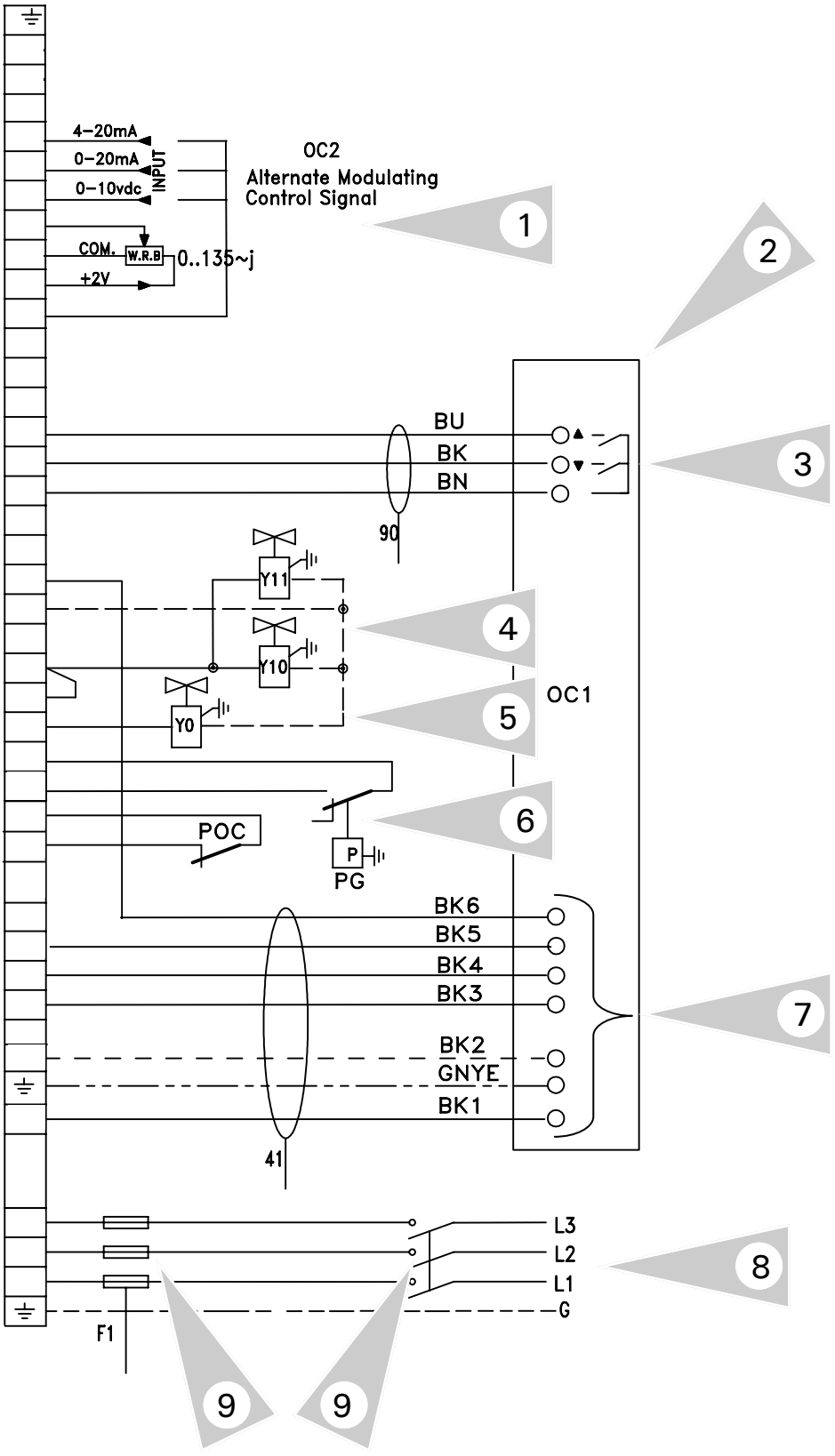
Riello Burner Schematic (typical)

Refer to job specific burner schematic contained in burner information package



Overview

1 Alternate modulating control signals. Refer to burner schematic for correct applicability.

2 Operating control such as Vitotronic 100, GC1 or Vitotronic 300, GW2.

3 Modulating [90] plug output. Dry contact floating signal from control or BMS.

4 Gas valve connection.

5 Pilot valve.

6 Proof of closure and gas pressure switches.

7 [41] connection from boiler control provides 120VAC to power LFL (flame safe-guard) control as well as providing call for heat.

8 Incoming burner blower motor connections.

9 Field supplied disconnect and fuses for burner blower motor.

CAUTION

Refer to burner manual for proper control/burner interconnection information. All terminations should be double-checked before turning on power.

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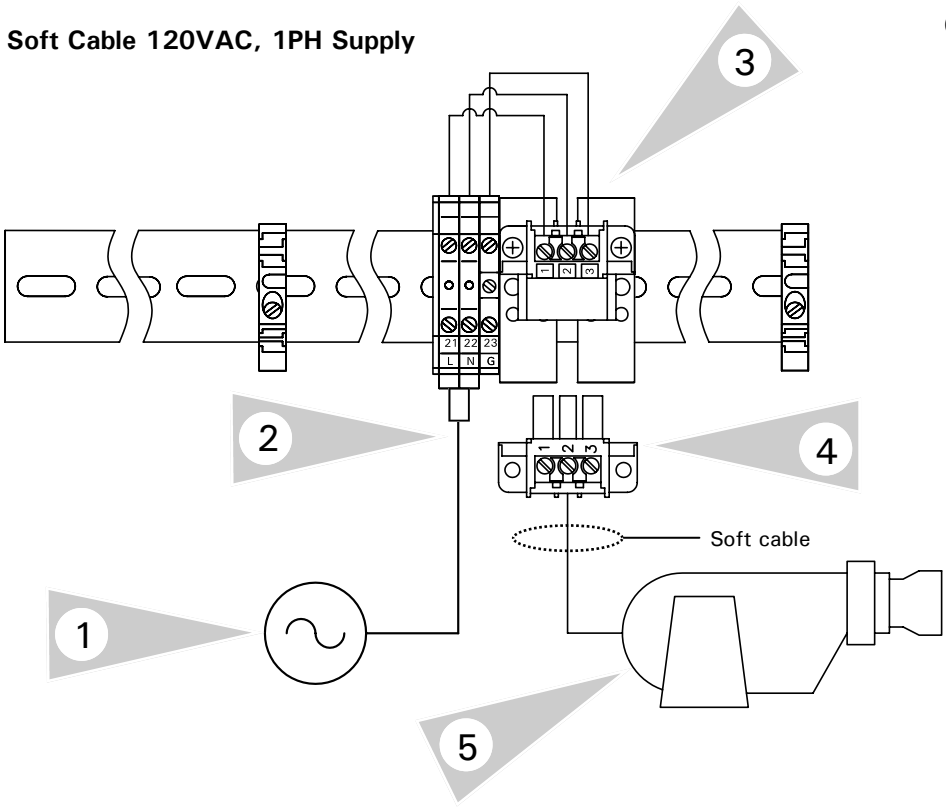
Connection of Boiler Power Wiring to Burner

Applicable for both Vitotronic 100, GC1 and 300, GW2

Soft Cable 120VAC, 1PH Supply



Connection Overview

1 Incoming burner motor power supply 120VAC, 1PH. Ensure polarity of L/G/N is not reversed.

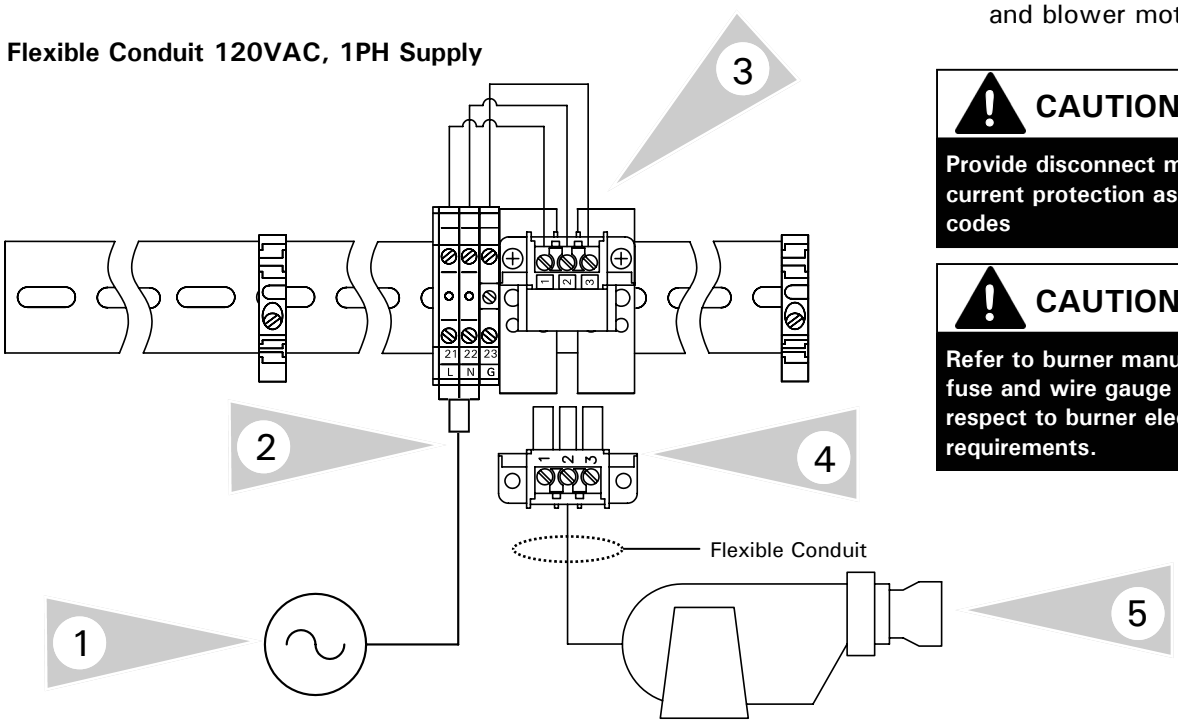
2 Connect 120VAC supply to terminals 21, 22 and 23 on the DIN rail inside of boiler control harness. Provide fuseable disconnect according to local codes.

3 DIN rail mounted female socket inside boiler control junction enclosure used for wiring burner power.

4 Corresponding plug for burner wiring is pre-wired for termination in the burner and plugs into receptacle mounted on DIN rail. Refer to burner manual for correct termination inside of burner.

5 Burner contains motor starter and blower motor.

Flexible Conduit 120VAC, 1PH Supply



CAUTION

Provide disconnect means and over current protection as required by local codes

CAUTION

Refer to burner manual for correct fuse and wire gauge sizing with respect to burner electrical requirements.

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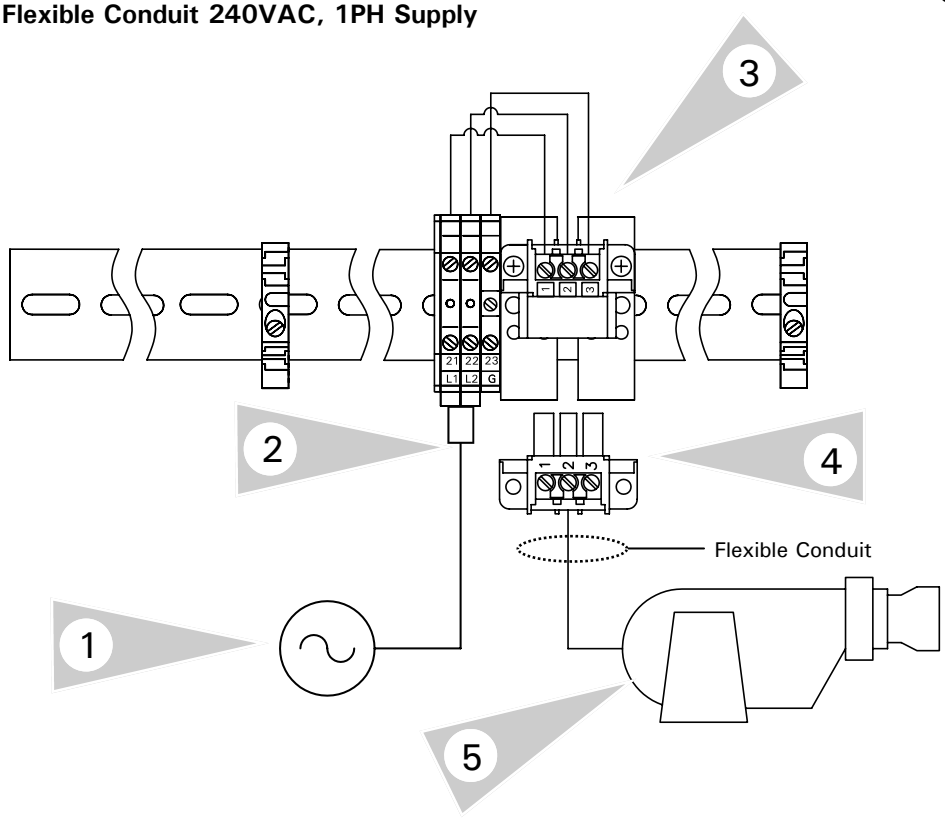
Connection of Boiler Power Wiring to Burner (hard wired connection)

Applicable for both Vitotronic 100, GC1 and 300, GW2

Flexible Conduit 240VAC, 1PH Supply



Connection Overview

1 Incoming burner motor power supply 240VAC, 1PH.

2 Connect 240VAC power to terminals 21, 22 and 23 on the DIN rail inside of boiler control connection enclosure. Provide fuseable disconnect according to local codes.

3 DIN rail mounted female socket inside boiler control junction enclosure used for wiring burner power.

4 Corresponding plug for burner wiring is pre-wired for termination in the burner and plugs into receptacle mounted on DIN rail. Refer to burner manual for correct termination inside of burner.

5 Burner contains motor starter and blower motor.

CAUTION

Refer to burner manual for correct fuse and wire gauge sizing with respect to burner electrical requirements.

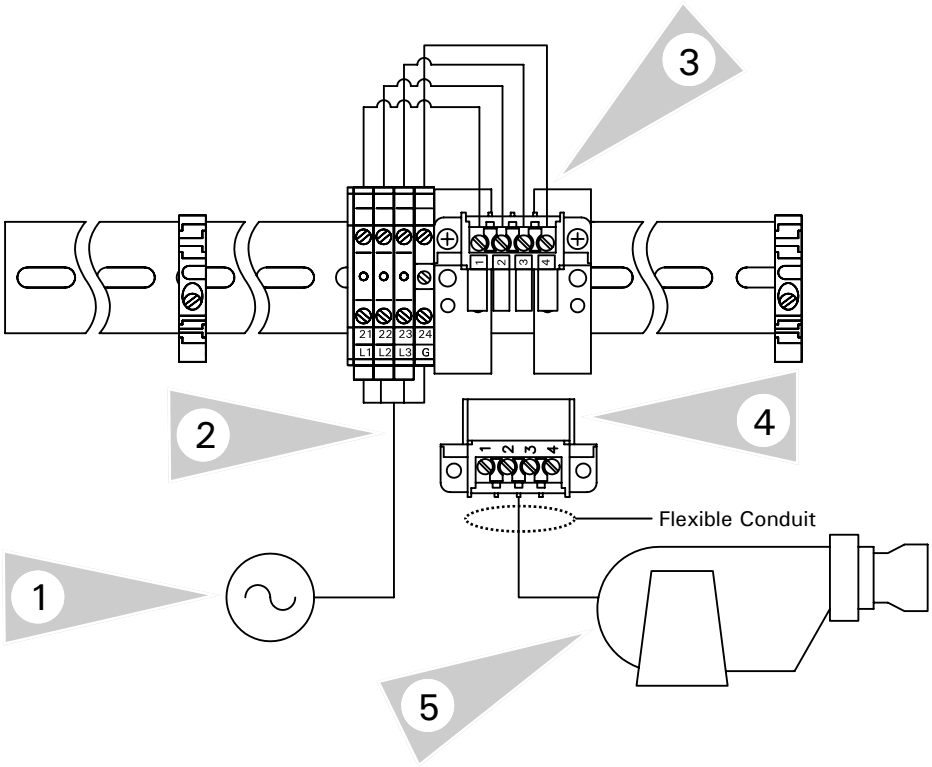
CAUTION

Provide disconnect means and over current protection as required by local codes

Connection of Boiler Power Wiring to Burner (hardwired connection)

Applicable for both Vitotronic 100, GC1 and 300, GW2

Flexible Conduit 208/460/575VAC, 3PH Supply



Connection Overview

1 Incoming burner motor power supply 208/460/575VAC, 3PH.

2 Connect 208/460/575VAC, 3PH power to terminals 21, 22 and 23 on DIN rail inside of burner harness connection enclosure.

3 DIN rail mounted female socket inside boiler control junction enclosure used for wiring burner power.

4 Corresponding plug for burner wiring is pre-wired for termination in the burner and plugs into receptacle mounted on DIN rail. Refer to burner manual for correct termination inside of burner.

5 Burner contains motor starter and blower motor.

CAUTION

Provide disconnect means and over current protection as required by local codes

CAUTION

Refer to burner manual for correct fuse and wire gauge sizing with respect to burner electrical requirements.

CAUTION

During start-up, check for correct motor rotation. If motor rotates in the opposite direction than indicated on the burner, disconnect power supply and reverse wires BK1 and BK2 on the burner terminals.

Ensure work is carried out by only qualified personnel.

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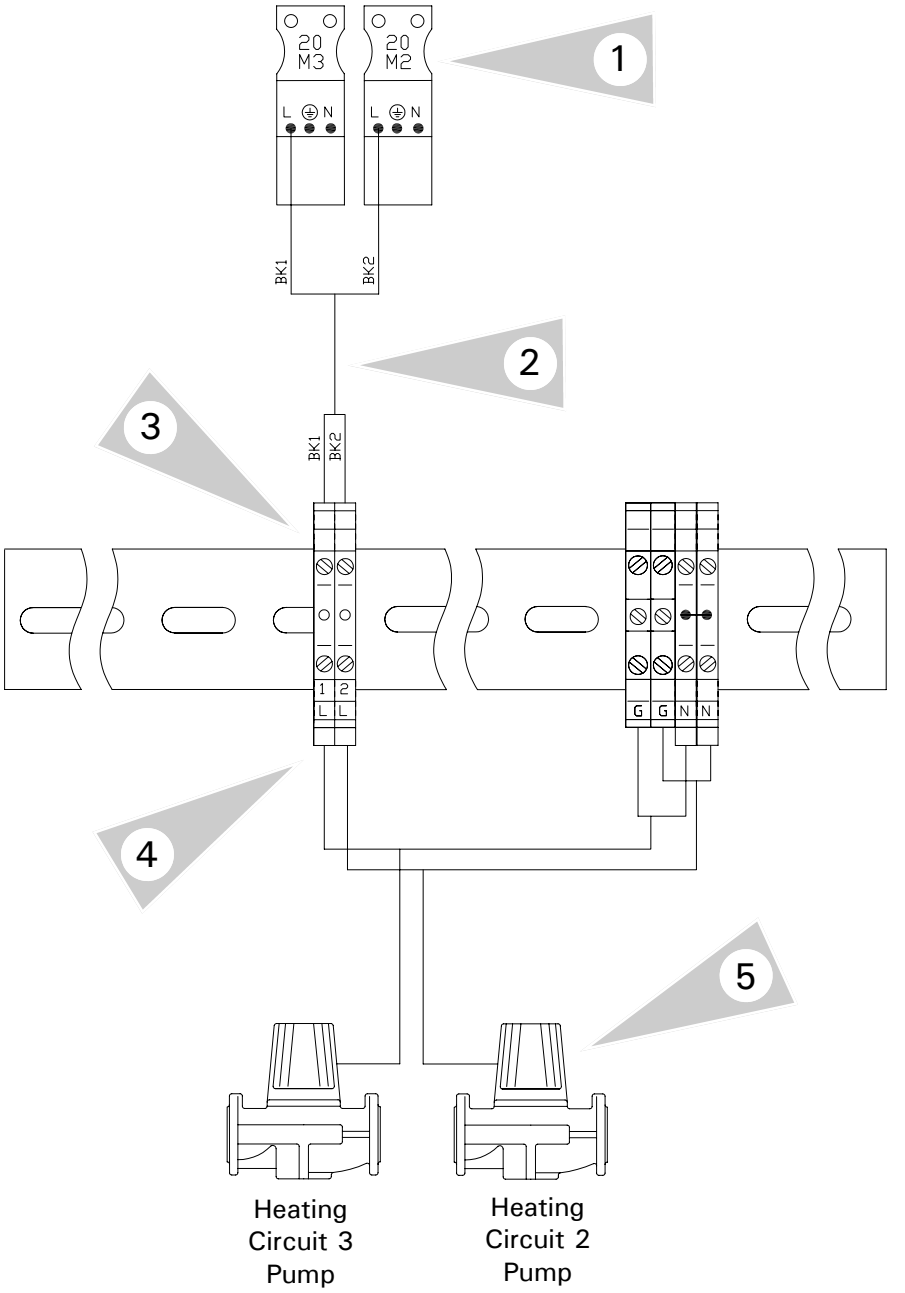
Control Output Drawings

Pump Outputs—Heating Circuit Pumps [20][M2] and [20][M3]: 120VAC Output

Applicable for Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [20][M2] and [20][M3] plugs are plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness for [20][M2] and [20][M3] plug between DIN rail terminals.

3 Terminals on DIN rail inside control junction box.

4 Output voltage 120VAC at terminal 1 and 2 on DIN rail for both pump outputs.
Neutral and Ground terminals provided if necessary.

5 Connected fractional horsepower pump or circulator. Refer to pump installation manual for proper wiring connections inside of pump.

120VAC Pump Output
Rated current: max **2FLA**
Recommended connection wire size: AWG 14

Connect the 3-wire cable from the pump to the corresponding terminals inside of control harness junction box.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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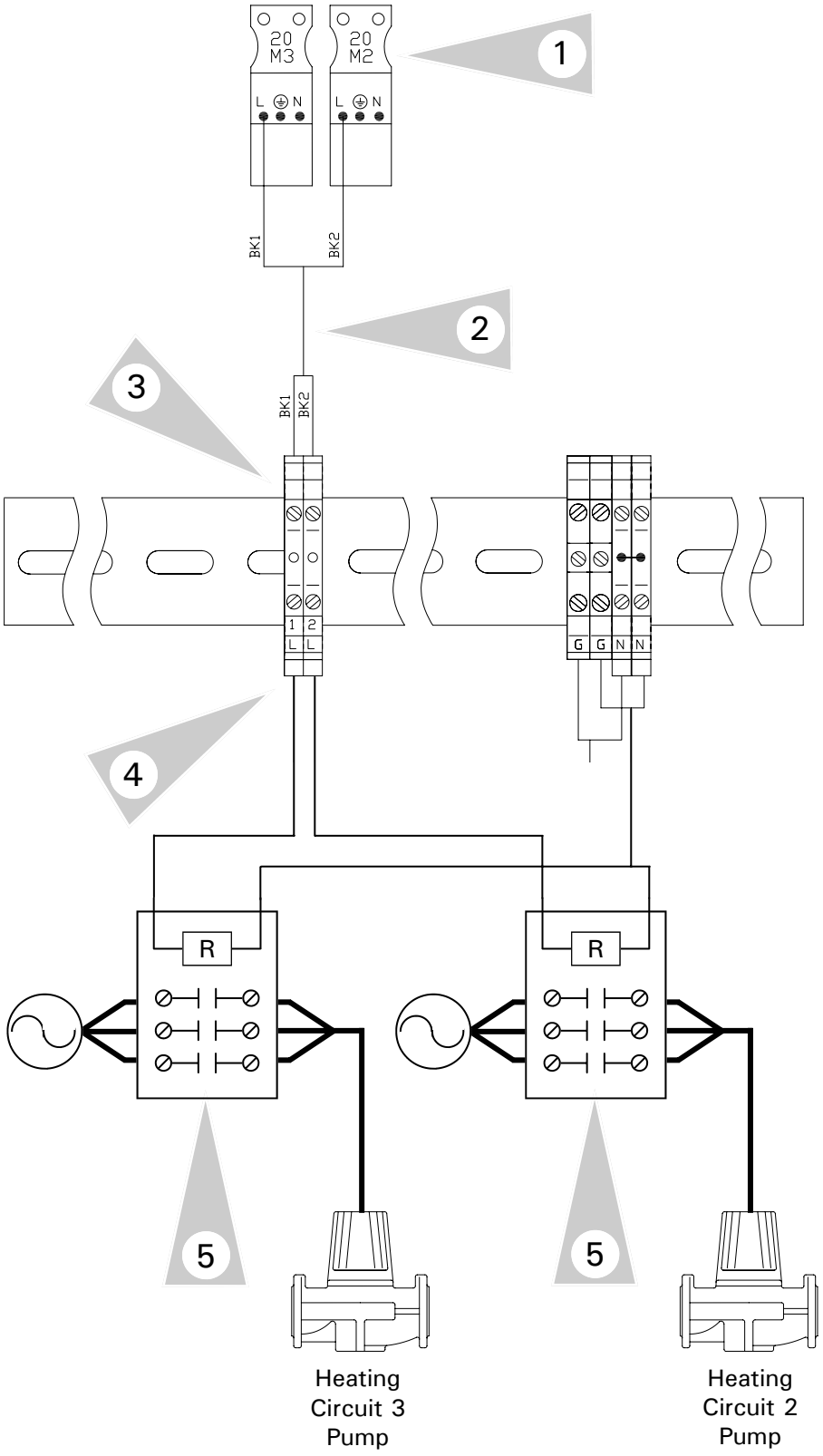
Pump Outputs—Heating Circuit Pumps [20][M2] and [20][M3]: Contactor

Applicable for Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [20][M2] and [20][M3] plugs are plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness for [20][M2] and [20][M3] plug between DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 1 and 2 for both pump outputs.

5 Field supplied motor starter or contactor.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

240VAC or 208/575VAC 3PH Pumps
Please note:
Field supplied contactor and/or motor starter to power pump from external power source.

Output from control to activate the contactor:
Rated current: max. 2FLA
Please ensure all connections and wire sizes comply with local and national codes.

1 Select the contactor and the connecting wire in accordance with the rating of the pump to be connected.
2 Connect pump and power supply to contactor.
3 Connect contactor coil to the corresponding terminals.
4 Ensure proper pump rotation.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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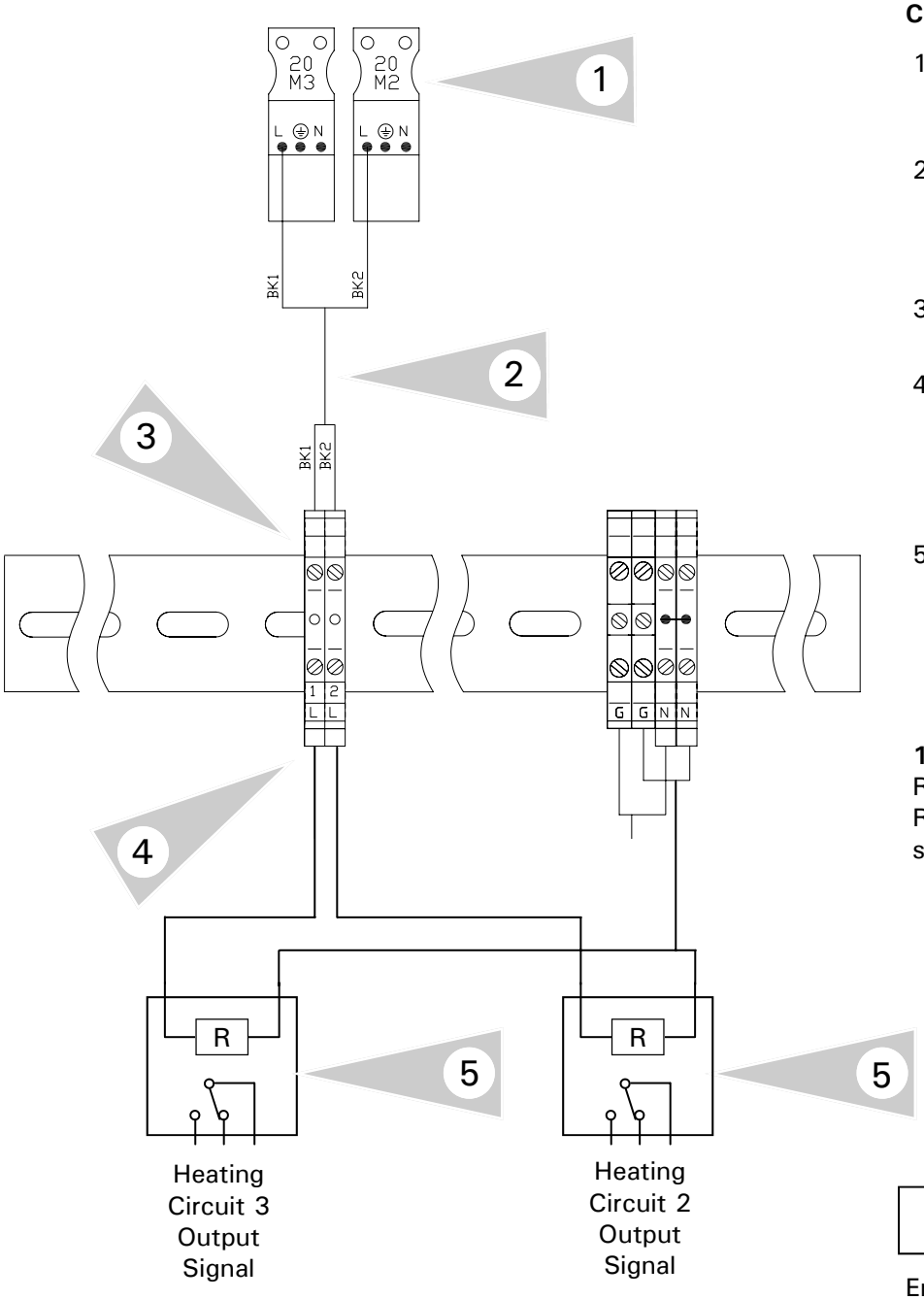
Pump Outputs—Heating Circuit Pumps [20][M2] and [20][M3]: Dry Contact Control Signal

Applicable for Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [20][M2] and [20][M3] plugs plugged into control from control installation steps.

2 Pre-wired interconnecting harness for [20][M2] and [20][M3] plug between DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 1 and 2 for both pump outputs.
Neutral and Ground terminals provided if necessary.

5 Connected devices.
Field supplied 120VAC relay.
Relay can either be mounted in control junction box or remotely.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

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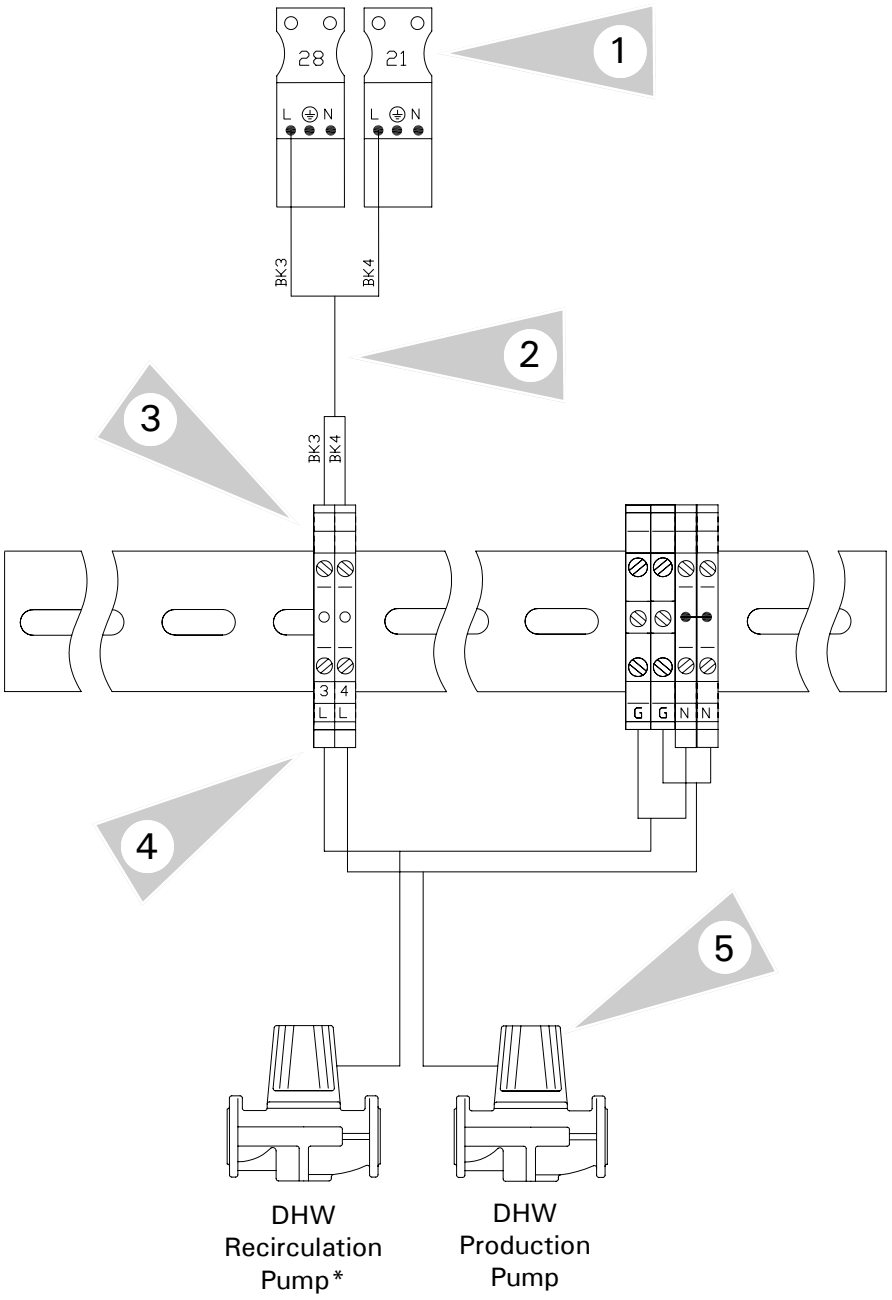
Pump Outputs—DHW Recirculation Pump [28] and DHW Production [21]: 120VAC Output

Applicable for Vitotronic 100, GC1*, Vitotronic 300, GW2 and Vitocontrol-S, MW1



***Note:** Vitotronic 100, GC1 does not have DHW Recirculation output

Connection Overview

1 White [28] and [21] plugs are plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness for [28] and [21] plug between DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 3 for DHW Recirculation pump and terminal 4 for DHW production pump.

5 Connected fractional horsepower pump or circulator. Refer to pump installation manual for proper wiring connections inside of pump.

120VAC Pump Output
Rated current: max **2FLA**
Recommended connection wire size: AWG 14

Connect the 3-wire cable from the pump to the corresponding terminals inside of control harness junction box.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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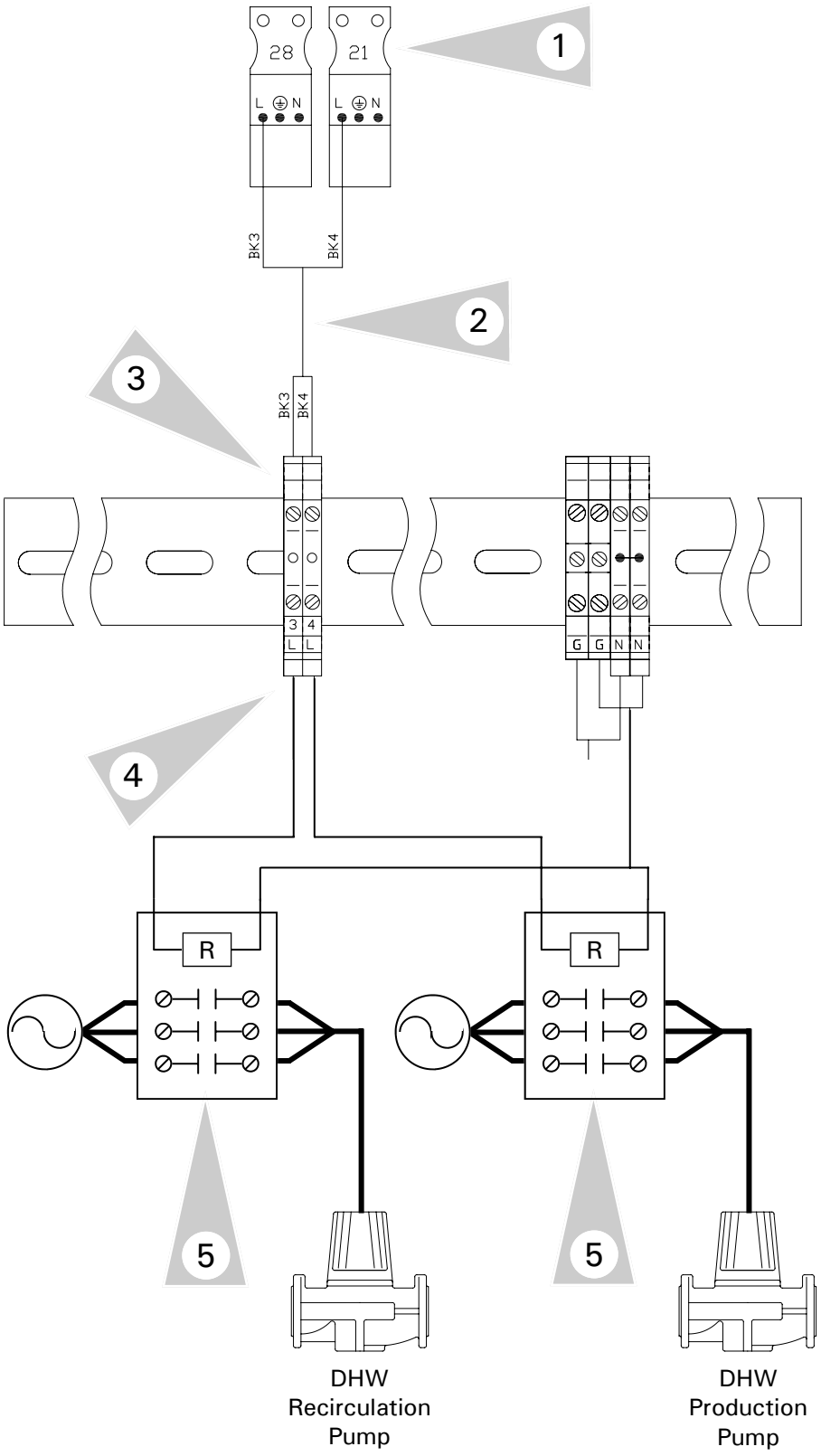
Pump Outputs—DHW Recirculation Pump [28] and DHW Production Pump [21]: Contactor

Applicable for Vitotronic 100, GC1*, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [28] and [21] plugs are plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness for [28] and [21] plug between DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 3 for DHW Recirculation pump and terminal 4 for DHW production pump.

5 Connected device

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

240VAC or 208/575VAC 3PH Pumps
Please note:
Field supplied contactor and/or motor starter to power pump from external power source.

Output from control to activate the contactor:
Rated current: max. 2FLA
Please ensure all connections and wire sizes comply with local and national codes.

1 Select the contactor and the connecting wire in accordance with the rating of the pump to be connected.
2 Connect pump and power supply to contactor.
3 Connect contactor coil to the corresponding terminals.
4 Ensure proper pump rotation.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

***Note:** Vitotronic 100, GC1 does not have DHW Recirculation pump output.

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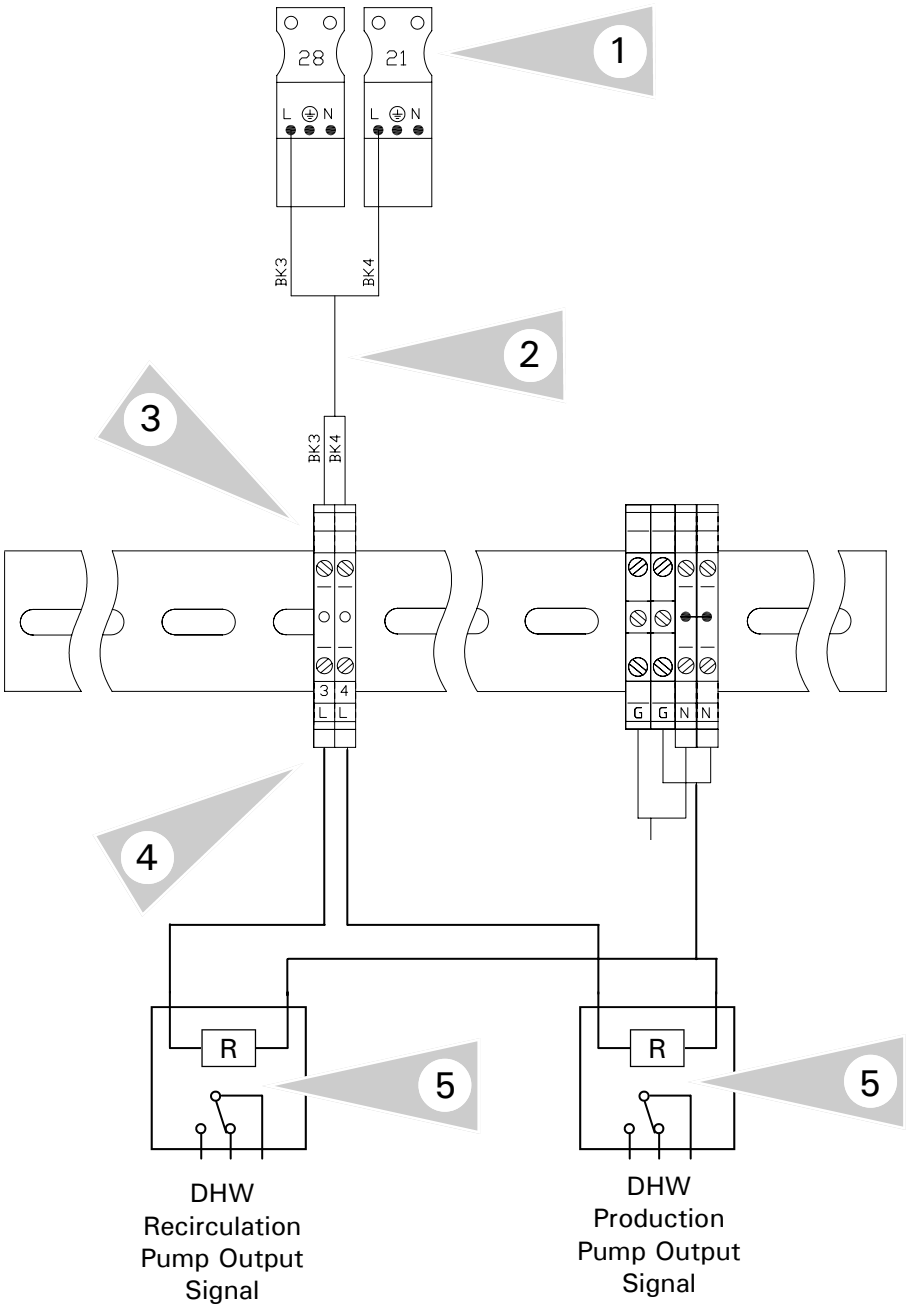
Pump Outputs—DHW Recirculation [28] and DHW Pump [21]: Dry Contact Control Signal

Applicable for Vitotronic 100, GC1*, Vitotronic 300, GW2 and Vitocontrol-S, MW1



***Note:** Vitotronic 100, GC1 does not have DHW Recirculation pump output.

Connection Overview

1 White [28] and [21] plugs are plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness for [28] and [21] plug between DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 3 for DHW Recirculation pump and terminal 4 for DHW production pump.

5 Connected device. Field supplied 120VAC relay. Relay can either be mounted in control junction box or remotely.

120VAC Pump Output
Rated current: max **2FLA**
Recommended connection wire size: AWG 14

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

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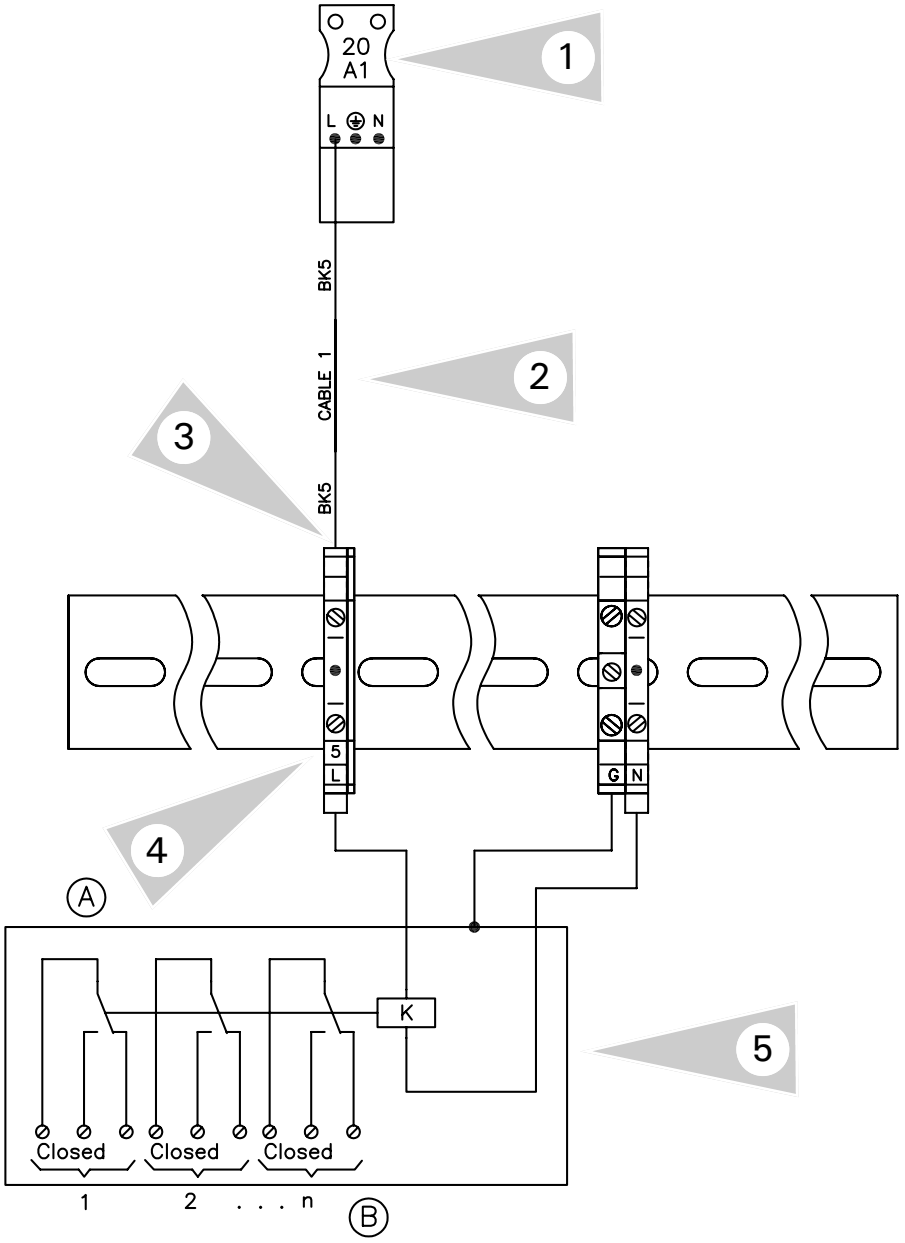
Pump Outputs—Switched Output [20][A1]/[M1]: Dry Contact Control Signal

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



(A) Field supplied relay

(B) Contacts of field supplied relay

Connection Overview

Refer to applicable control manual for coding information regarding this output.

1 White [20][A1]/[M1] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [20][A1]/[M1] plug and DIN rail terminals.

3 Terminals on DIN rail inside control junction box.

4 Output voltage 120VAC at terminal 5 field supplied relay. Neutral and Ground terminals provided if necessary.

5 Field supplied relay for signal to BMS or other control devices.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14.

IMPORTANT

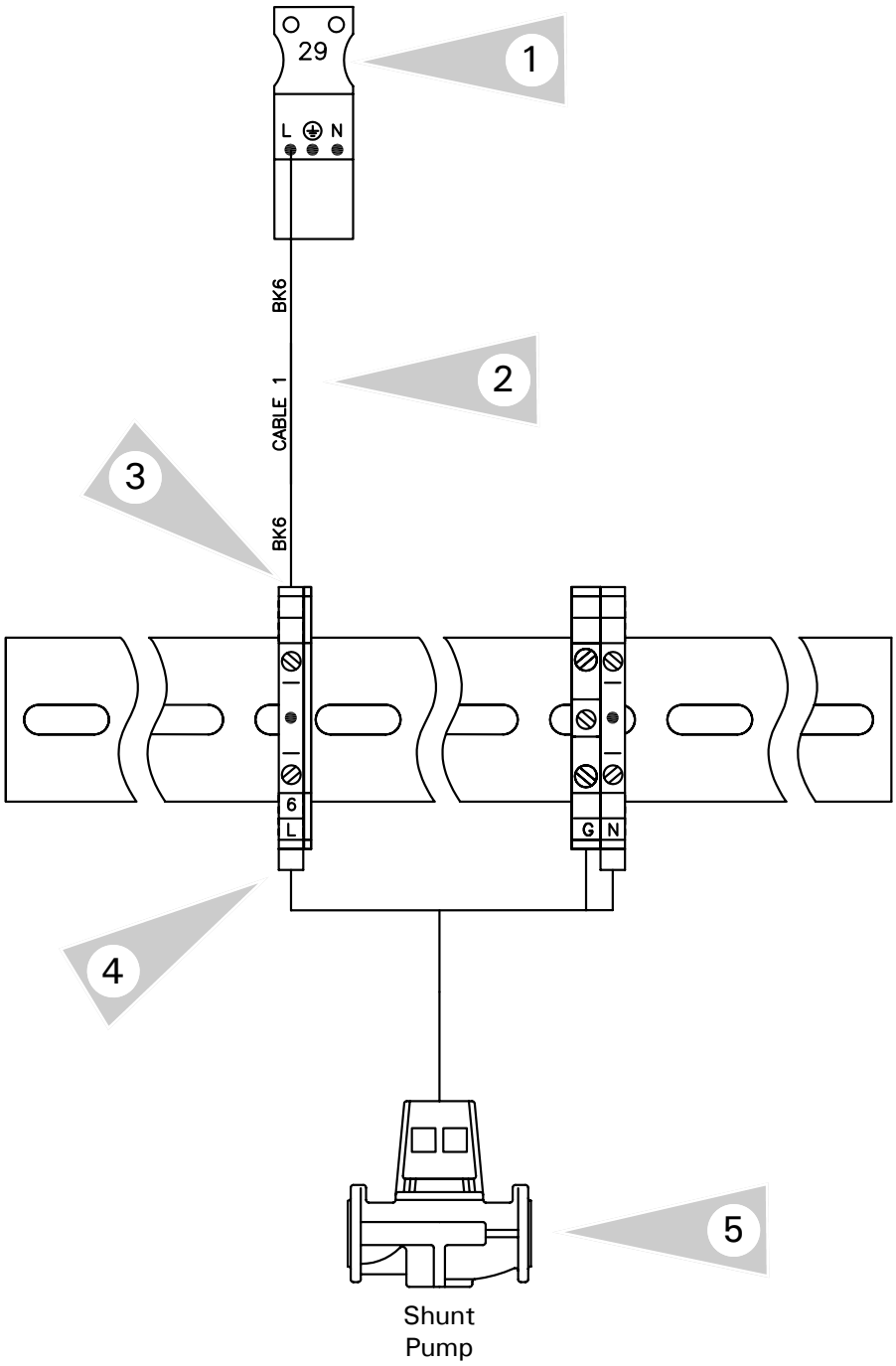
Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

Pump Outputs—Shunt Pump [29]: 120VAC Output

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt pump.

5 Connected fractional horsepower pump or circulator. Refer to pump installation manual for proper wiring connections inside of pump.

120VAC Pump Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

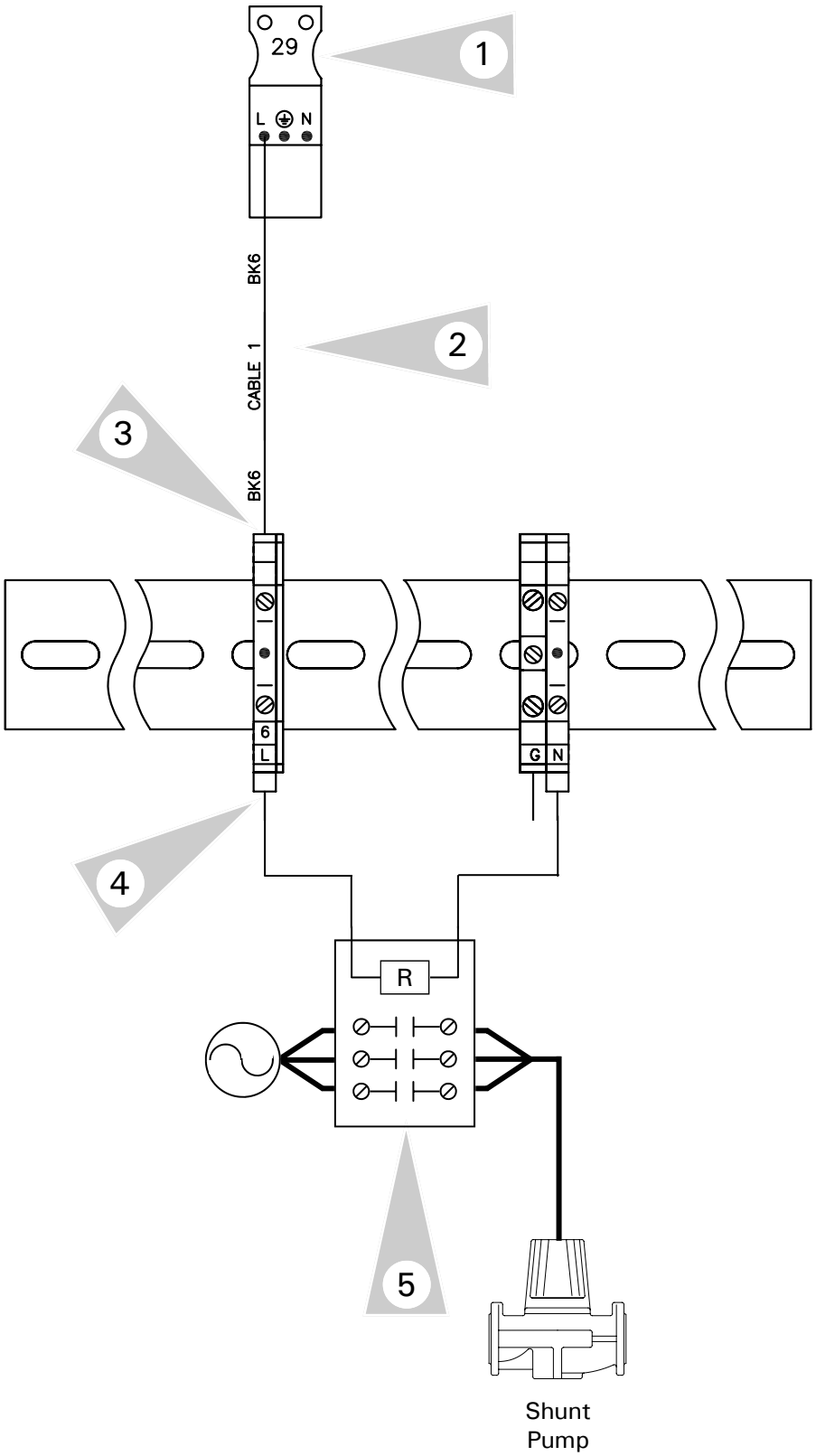
Connect the 3-wire cable from the pump to the corresponding terminals.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

Pump Outputs—Shunt Pump [29]: Contactor

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Shunt Pump

Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt pump.

5 Connected device.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

240VAC or 208/575VAC 3PH Pumps
Please note:
Field supplied contactor and/or motor starter to power pump from external power source.

Output from control to activate the contactor:
Rated current: max. 2FLA
Please ensure all connections and wire sizes comply with local and national codes.

1 Select the contactor and the connecting wire in accordance with the rating of the pump to be connected.
2 Connect pump and power supply to contactor.
3 Connect contactor coil to the corresponding terminals.
4 Ensure proper pump rotation.

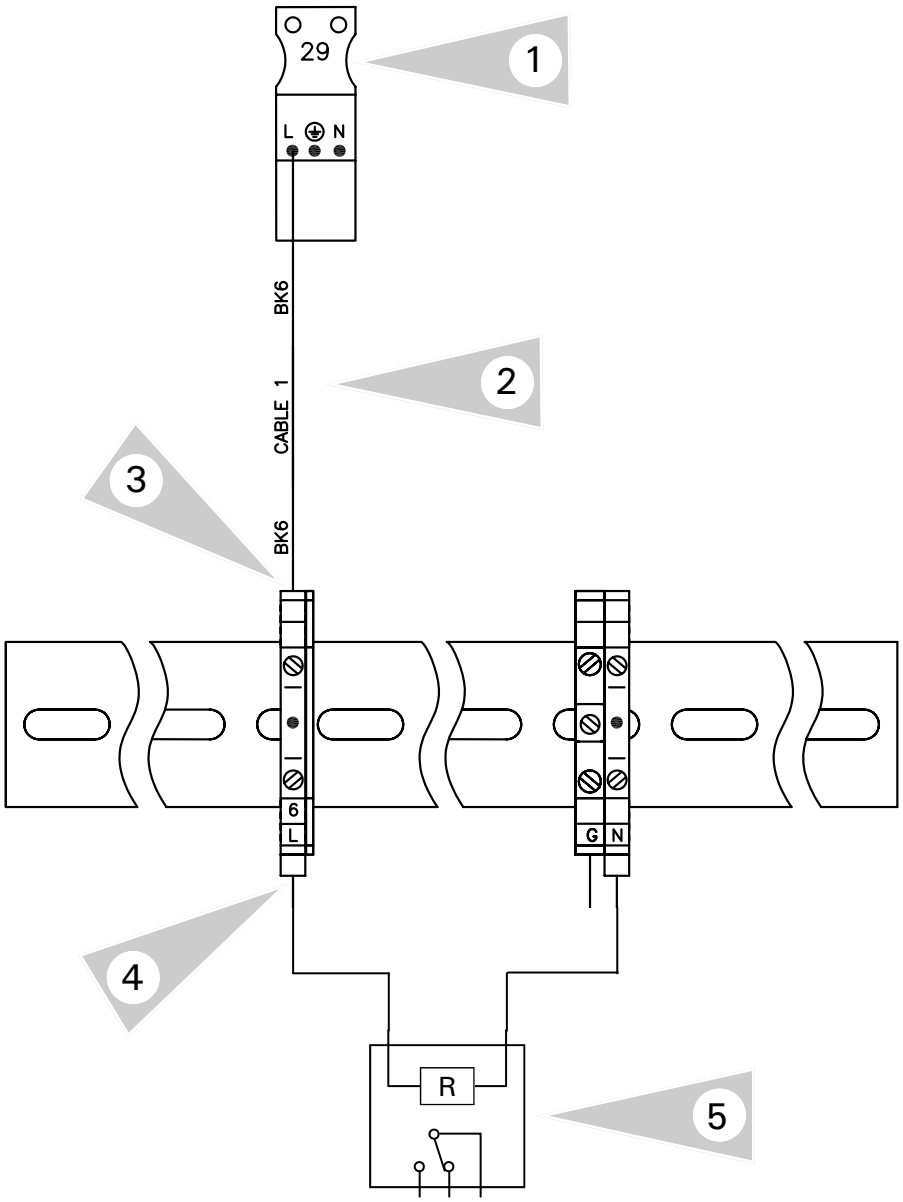
IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

5346540 v1.0 09/2006 Technical information subject to change without notice

Pump Outputs—Shunt Pump [29]: Dry Contact Control Signal

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Shunt
Pump Signal

Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt/Boiler pump.
Neutral and Ground terminals provided if necessary.

5 Connected device
Field supplied 120VAC relay. Relay can either be mounted in control junction box or remotely.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

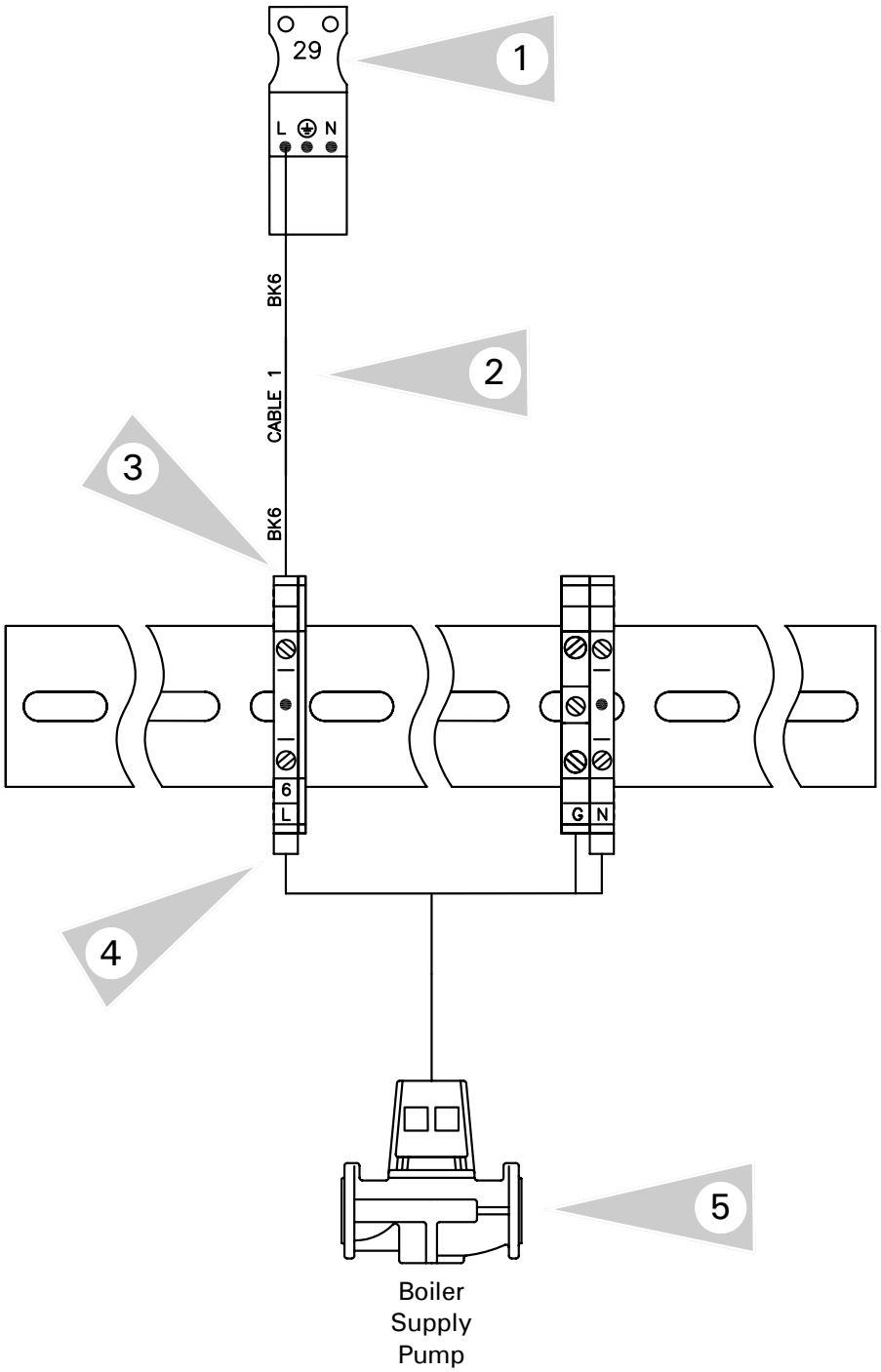
IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

5346540 v1.0 09/2006 Technical information subject to change without notice

Pump Outputs—Boiler Supply Pump [29]: 120VAC Output

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt/Boiler pump.
Neutral and Ground terminals provided if necessary.

5 Connected fractional horsepower pump or circulator. Refer to pump installation manual for proper wiring connections inside of pump.

120VAC Pump Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

Connect the 3-wire cable from the pump to the corresponding terminals.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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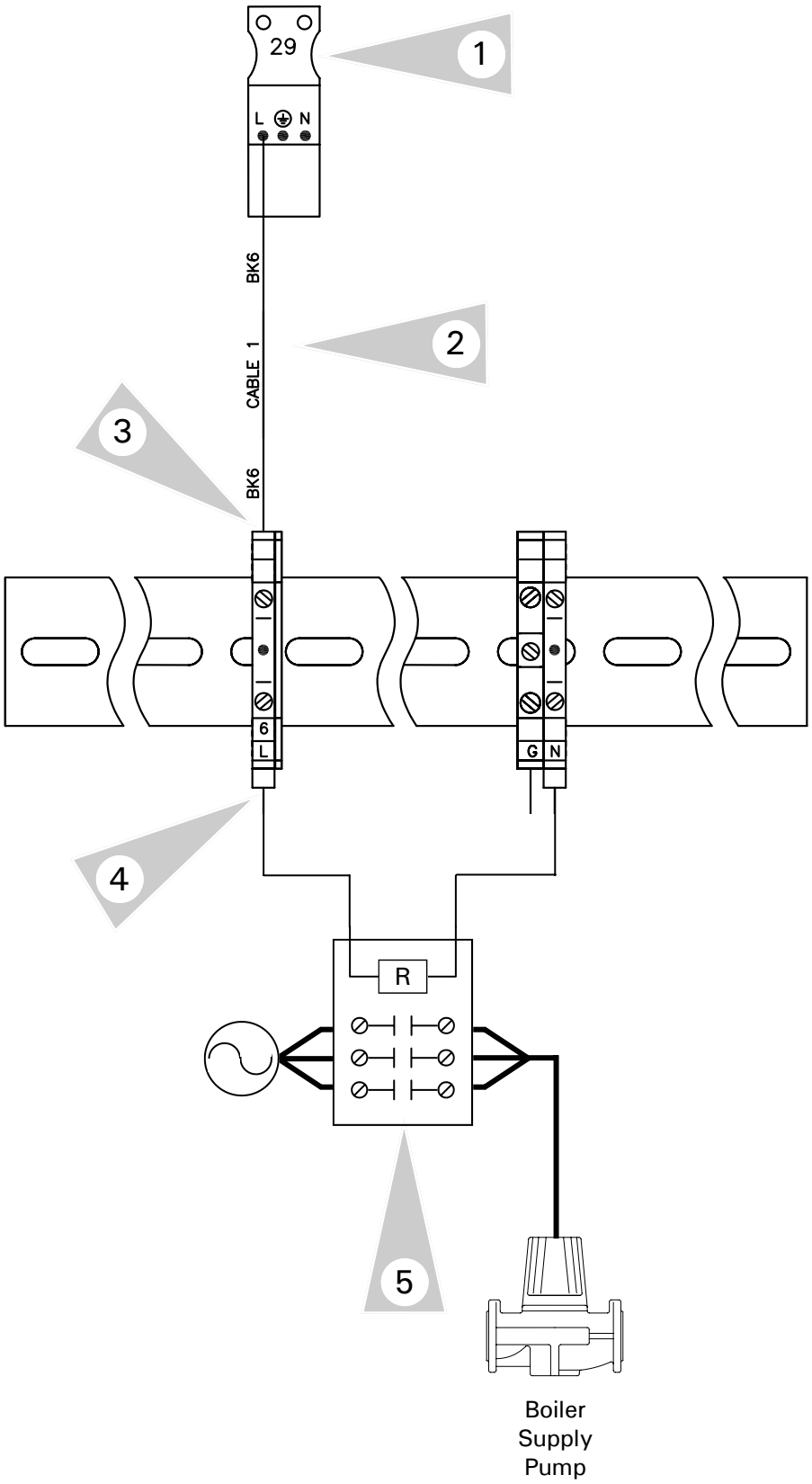
Pump Outputs—Boiler Supply Pump [29]: Contactor

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Boiler Supply Pump

Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt/Boiler pump.
Neutral and Ground terminals provided if necessary.

5 Connected device.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

240VAC or 208/575VAC 3PH Pumps
Please note:
Field supplied contactor and/or motor starter to power pump from external power source.

Output from control to activate the contactor:
Rated current: max. 2FLA
Please ensure that all connections and wire sizes comply with local and national codes.

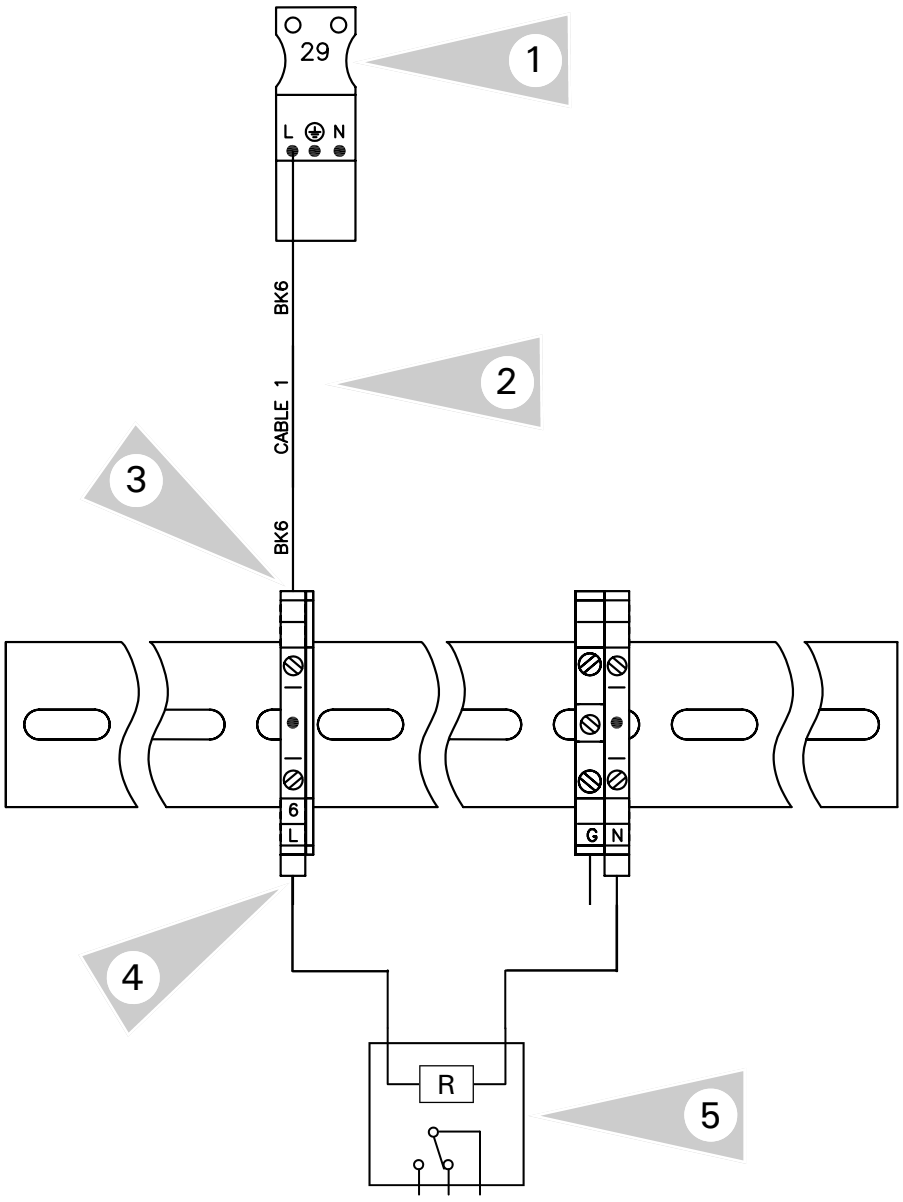
1 Select the contactor and the connecting wire in accordance with the rating of the pump that is to be connected
2 Connect pump and power supply to contactor.
3 Connect contactor coil to the corresponding terminals.
4 Ensure proper pump rotation.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

Pump Outputs—Boiler Supply Pump [29]: Dry Contact Control Signal

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Boiler
Supply
Pump Signal

Connection Overview

1 White [29] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [29] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 6 for Shunt/Boiler pump.
Neutral and Ground terminals provided if necessary.

5 Connected device
Field supplied 120VAC relay.
Relay can either be mounted in control junction box or remotely.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

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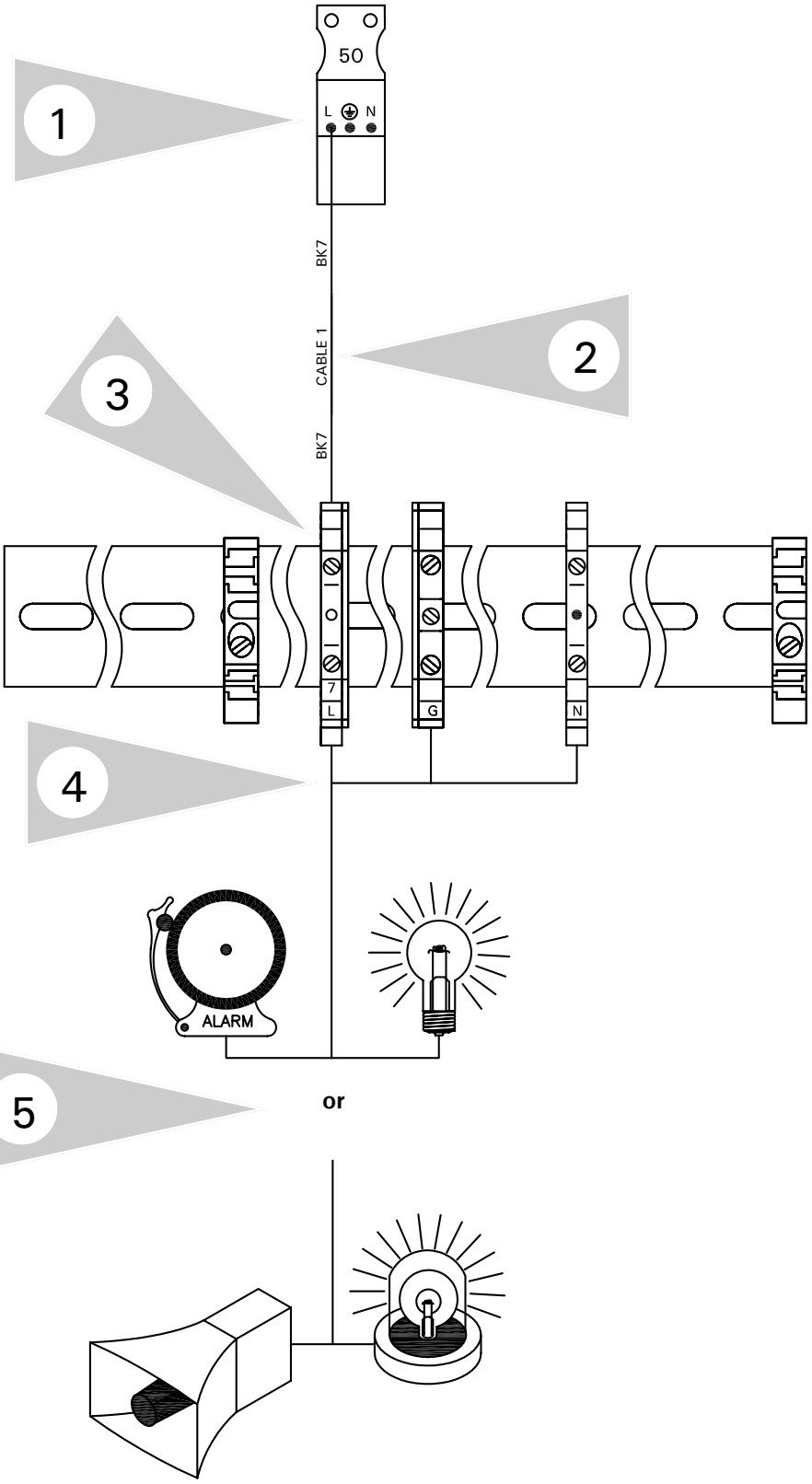
Alarm Output—Compiled Alarm [50]]: 120VAC Output

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 Red [50] plug is plugged into control from previous control installation steps.

2 Pre-wired interconnecting harness between [50] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 7. Connection of Neutral and Ground as well can be used when powering light or buzzer..

5 Connected device to indicate alarm status.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

Connect the 3-wire cable from the alarm device to the corresponding output terminals.

IMPORTANT

Follow instructions supplied with alarm output device.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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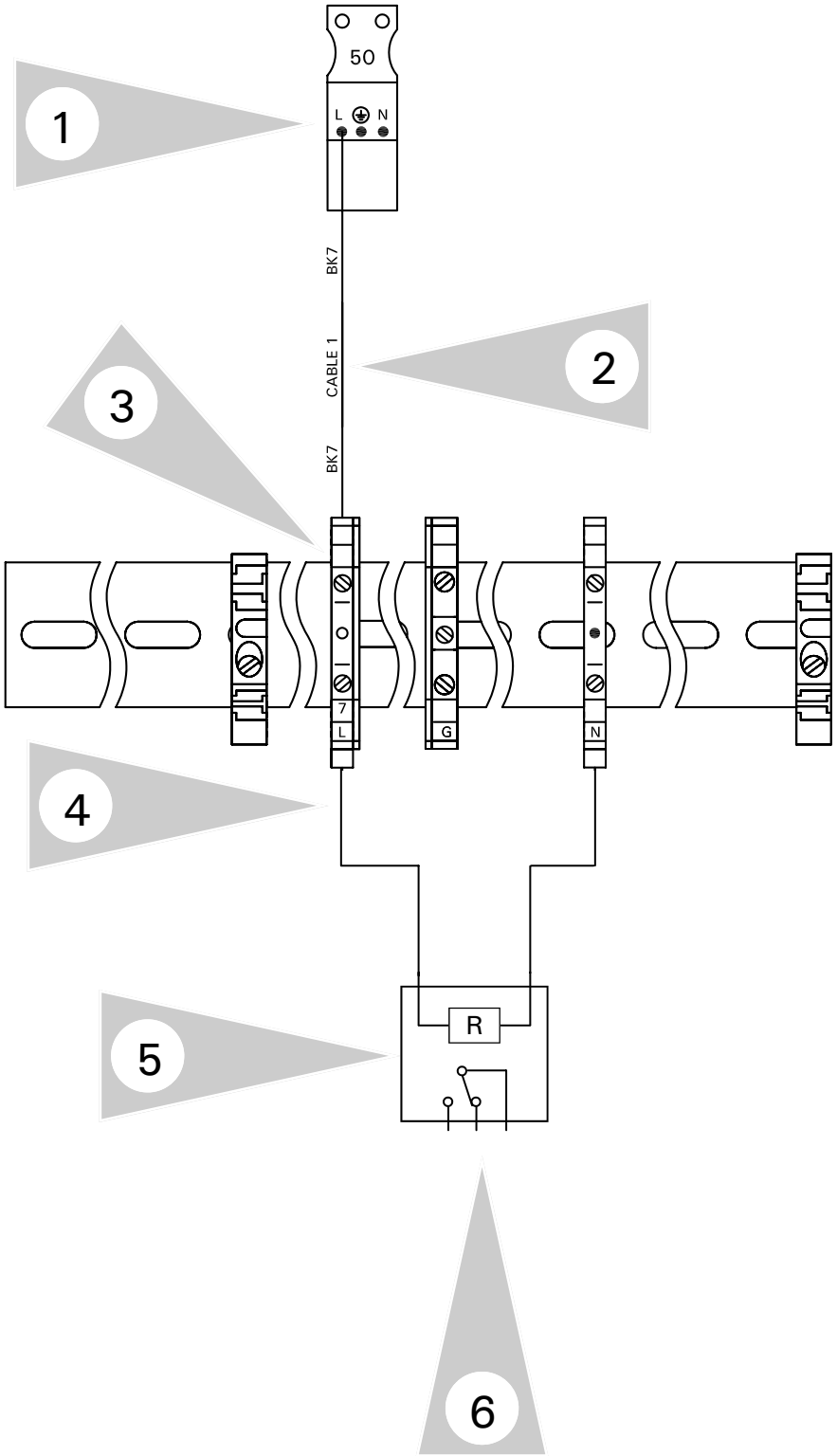
Alarm Output—Compiled Alarm [50]: Dry Contact Control Signal

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 Red [50] plug is plugged into control from control installation steps.

2 Pre-wired interconnecting harness between [50] plug and DIN rail terminals.

3 Terminals on DIN rail inside of control junction box.

4 Output voltage 120VAC at terminal 7.

5 Connected device to indicate alarm status.
Field supplied 120VAC relay.
Relay can either be mounted in control junction box or remotely.

6 Relay contacts provide alarm status condition. Connection to relay dry contact terminals is a function of type of alarm output required. Dry contacts can either be normally open or normally closed contact.

120VAC Output
Rated Current: max **2FLA**
Recommended connection wire size: AWG 14

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

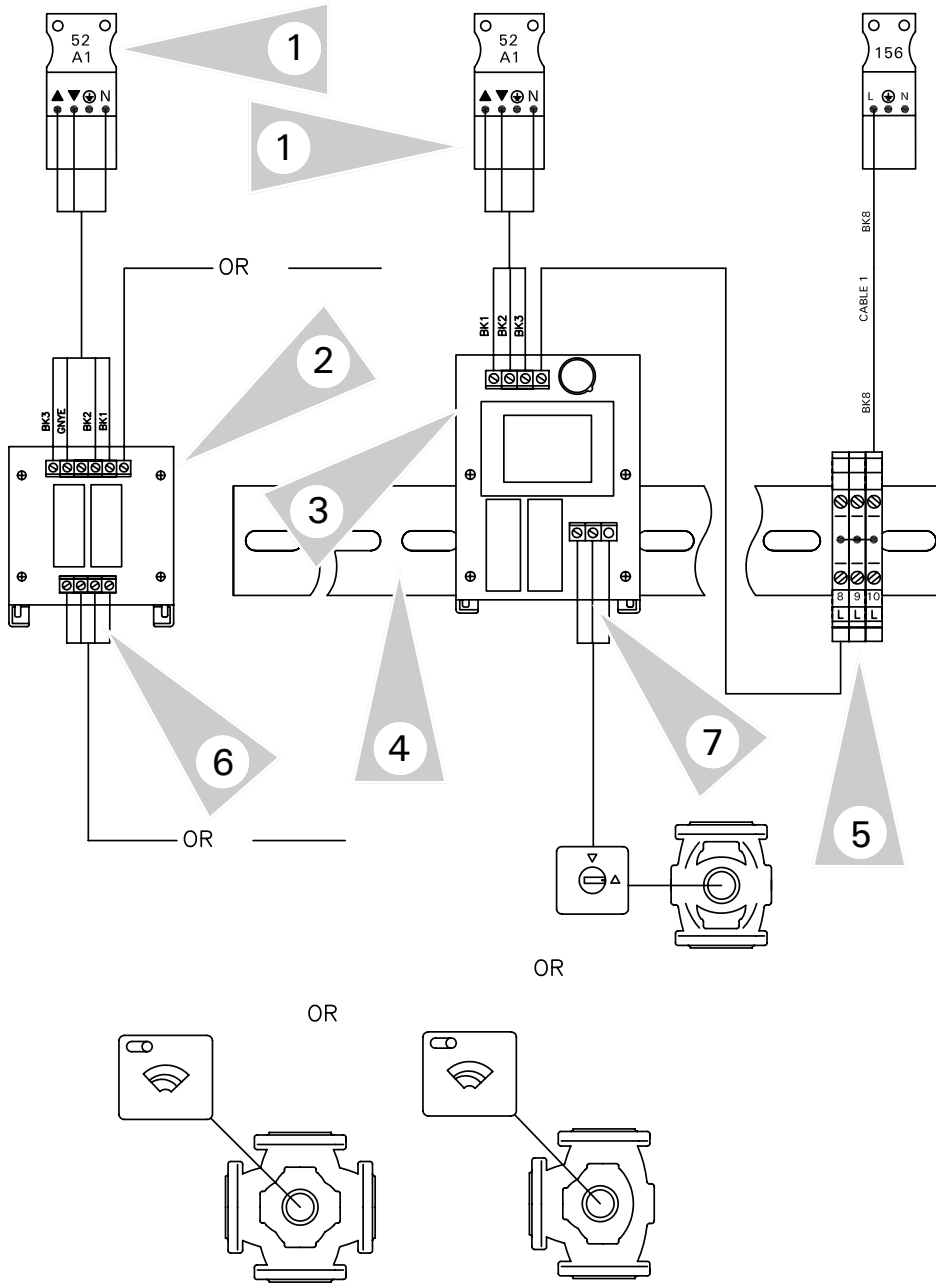
IMPORTANT

Contact rating of field supplied contactor or relay will determine the loads that can be switched. Consult contact rating information on the side of relay/contactor housing or manufacturer directly

5346540 v1.0 09/2006 Technical information subject to change without notice

Valve Adapter Module—Valve Output [52][A1/M2/M3]: 24VAC or 120VAC Output

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, MW1



Connection Overview

1 Black [52] plugs are pre-wired to modules. Plug into socket within control for specific valve output to be controlled by adaptor.

2 The 120VAC valve adaptor identified by two relays on PCB.

3 The 24VAC valve adaptor identified by two relays and transformer on PCB. Terminals on DIN rail inside control junction box.

4 Modules are mounted onto DIN rail located inside of control connection enclosure.

5 Both modules have a single wire which is terminated in [156] terminal blocks, terminals 8, 9 or 10. This provides 120VAC power for the operation of the module adaptors.

6 The 120VAC valve actuator is wired into output terminal block of adapter. Wires connected to the G/N/L2/L1 terminals.

7 The 24VAC valve actuator is wired into output terminal block of adaptor. Wires connected to the Open/Close/Common terminals.

Technical Information

120VAC Valve Adaptor
Rated Voltage: 120VAC
Rated Current: max 0.1FLA
Recommended connection wire size: AWG14

24VAC Valve Adaptor
Rated Voltage: 24VAC
Rated Current: max 0.15FLA
Recommended connection wire size: AWG14

IMPORTANT

Once the installation has been completed, ensure that necessary testing steps are taken to verify the proper rotation of the valve actuator.

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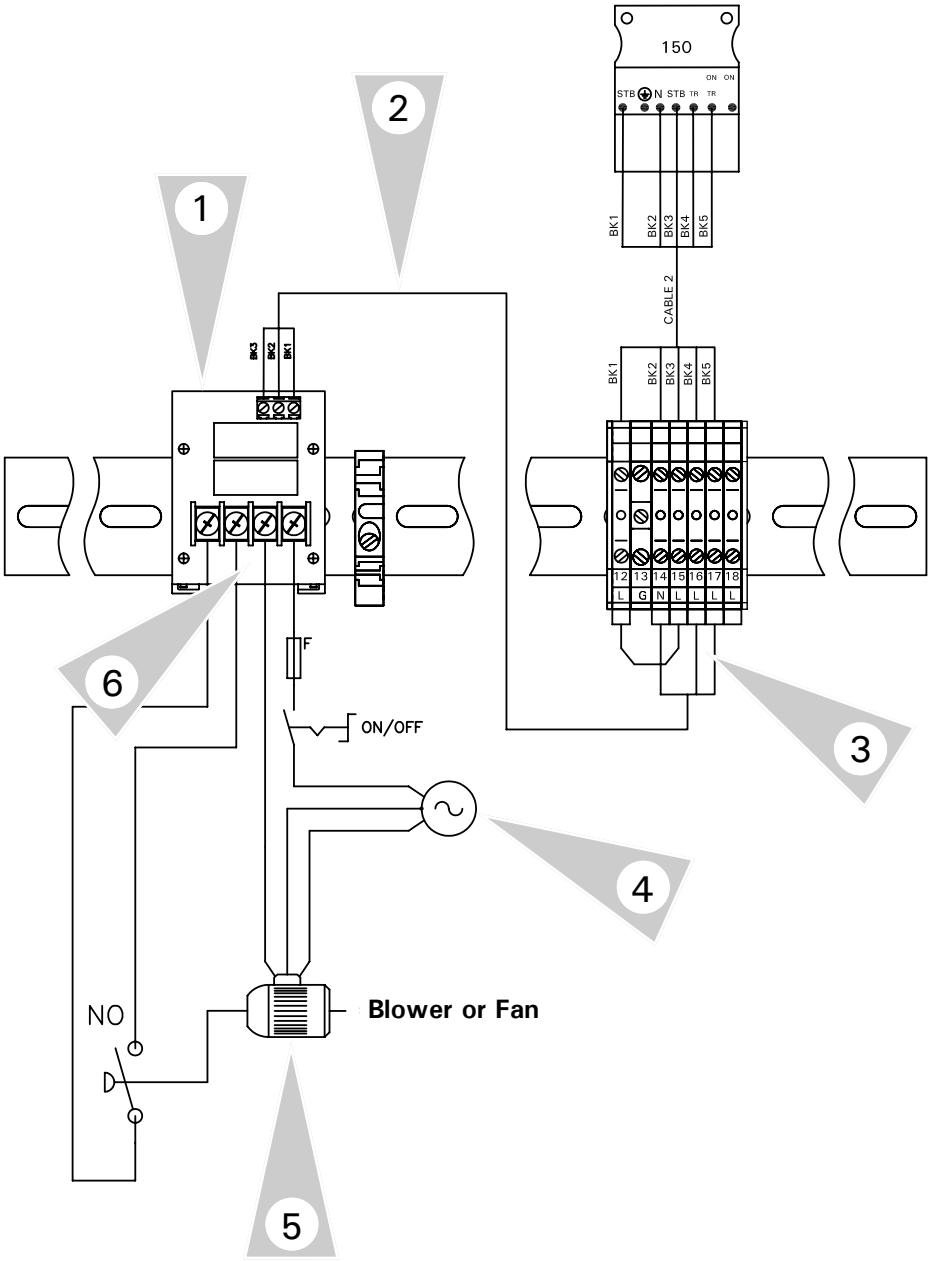
Combustion Air Device Adapter Module—Blower/Fan Single Boiler

Applicable for Vitotronic 100, GC1 and Vitotronic 300, GW2



Connection Overview

1 The combustion air device adaptor module is mounted onto the DIN rail inside of the control harness connection enclosure.

2 Wire the interconnection cabling between the adaptor and control.

3 Connect the harness from the module to the [150] terminal blocks. Remove jumper between terminals 16 and 17.

4 Field supplied equipment:
Power supply for damper
Local device disconnect
Device protection.

5 Drive motor for damper or blower.

6 Connection of normally open proving switch. Closes on damper opening or blower air movement.
Proving switch terminated at NO/NO terminals of adapter.
Combustion air device connected to terminals L/L on adaptor module.

Technical Information

Combustion Air Device Adaptor
Rated Voltage: 120VAC
Rated Current: max 5FLA
Recommended connection wire size: AWG 14

IMPORTANT

Wire BK2 must be connected to terminal 16 and BK3 to terminal 17. **DO NOT REVERSE.** Failure to ensure this will affect the operation of the connected device.

Failure to remove jumper between terminals 16 and 17 will not shut down the burner regardless of the state of the air proving switch.

IMPORTANT

Ensure combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes.

CAUTION

When making connections with individual boiler interface adaptors, ensure the power is turned off at the boiler control.

Section 3.5.6

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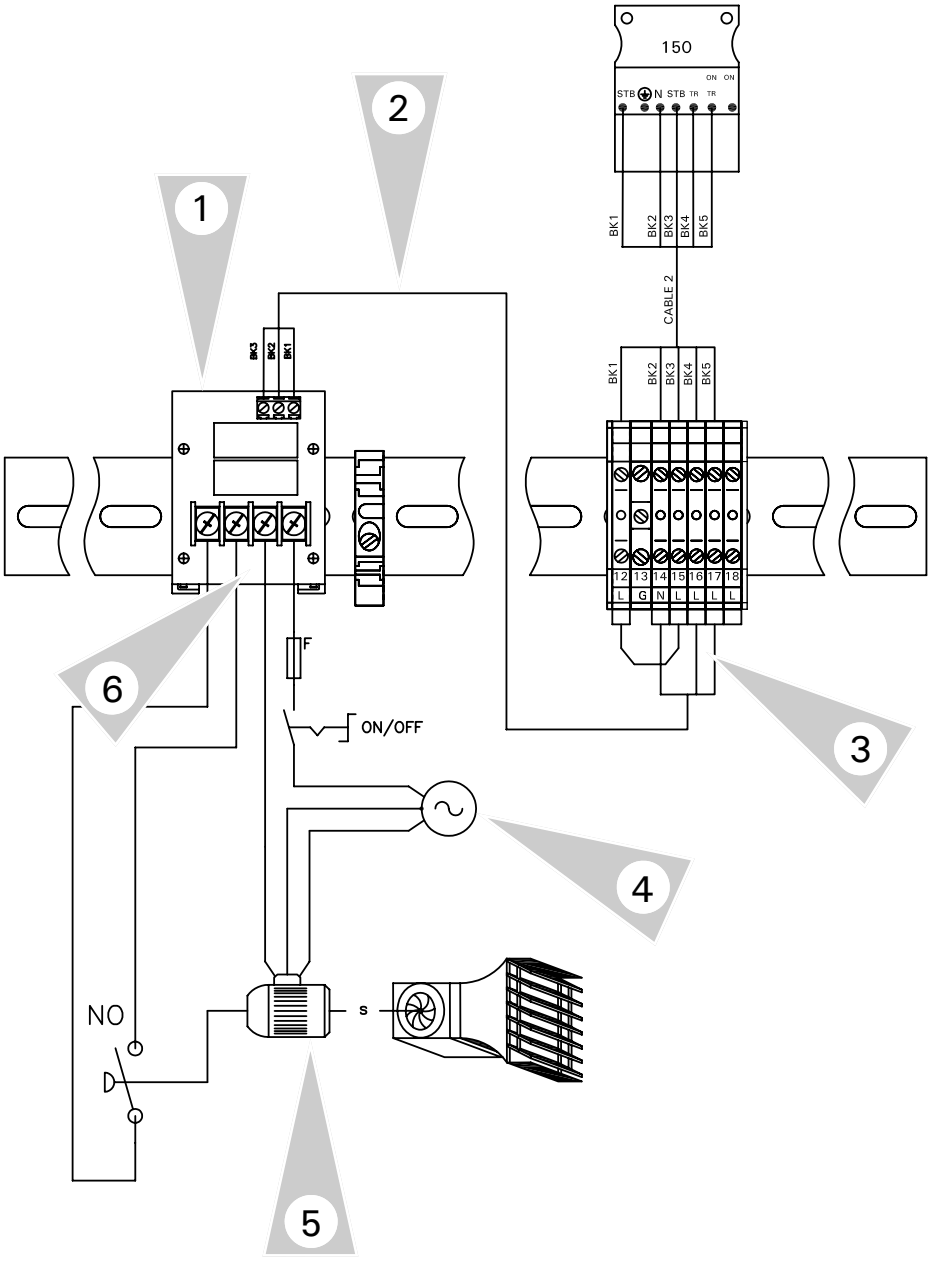
Combustion Air Device Adaptor Module—Damper (spring close) Single Boiler

Applicable for Vitotronic 100, GC1 and Vitotronic 300, GW2



Connection Overview

1 The combustion air device adaptor module is mounted onto the DIN rail inside of the control harness connection enclosure.

2 Wire the interconnection cabling between the adaptor and control.

3 Connect the harness from the module to the [150] terminal blocks. Remove jumper between terminals 16 and 17.

4 Field supplied equipment:
Power supply for damper
Local device disconnect
Device protection.

5 Drive motor for damper or blower.

6 Connection of normally open proving switch. Closes on damper opening or blower air movement.
Proving switch terminated at NO/NO terminals of adapter.
Combustion air device connected to terminals L/L on adaptor module.

Technical Information

Combustion Air Device Adaptor
Rated Voltage: 120VAC
Rated Current: max 5FLA
Recommended connection wire size: AWG 14

IMPORTANT

Wire BK2 must be connected to terminal 16 and BK3 to terminal 17. **DO NOT REVERSE.** Failure to ensure this will affect the operation of the connected device.

Failure to remove jumper between terminals 16 and 17 will not shut down the burner regardless of the state of the air proving switch.

IMPORTANT

Ensure combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes.

CAUTION

When making connections with individual boiler interface adaptors, ensure the power is turned off at the boiler control.

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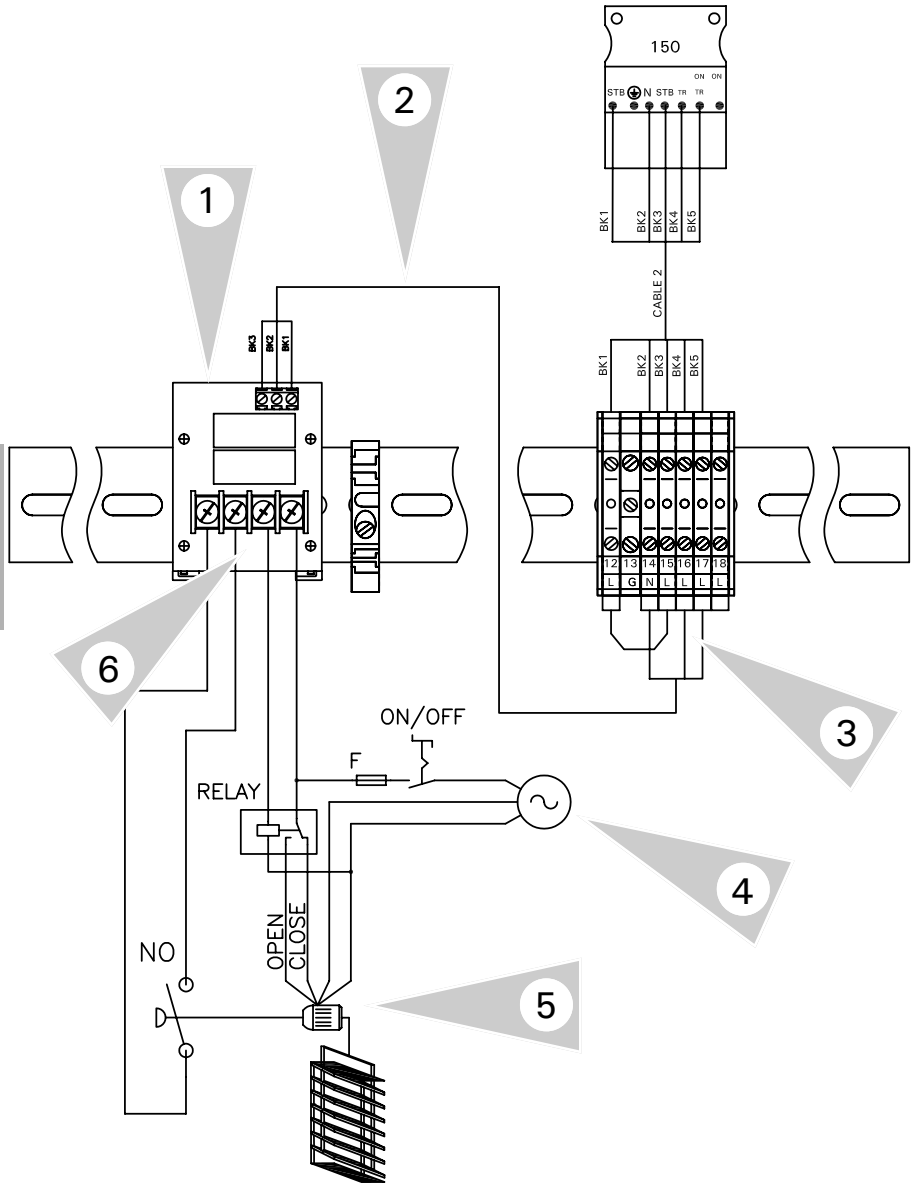
Combustion Air Device Adaptor Module—Damper (power open/close) Single Boiler

Applicable for Vitotronic 100, GC1 and Vitotronic 300, GW2



Connection Overview

1 The combustion air device adaptor module is mounted onto the DIN rail inside of the control harness connection enclosure.

2 Wire the interconnection cabling between the adaptor and control.

3 Connect the harness from the module to the [150] terminal blocks. Remove jumper between terminals 16 and 17.

4 Field supplied equipment:
Power supply for damper
Local device disconnect
Device protection (fuse)
Switching relay

5 Drive motor for damper or blower.

6 Connection of normally open proving switch. Closes on damper opening or blower air movement.
Proving switch terminated at NO/NO terminals of adapter.
Combustion air device connected to terminals L/L on adaptor module.

Technical Information

Combustion Air Device Adaptor
Rated Voltage: 120VAC
Rated Current: max 5FLA
Recommended connection wire size: AWG 14

IMPORTANT

Wire BK2 must be connected to terminal 16 and BK3 to terminal 17. **DO NOT REVERSE.** Failure to ensure this will affect the operation of the connected device.

Failure to remove jumper between terminals 16 and 17 will not shut down the burner regardless of the state of the air proving switch.

IMPORTANT

Ensure combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes.

CAUTION

When making connections with individual boiler interface adaptors, ensure the power is turned off at the boiler control.

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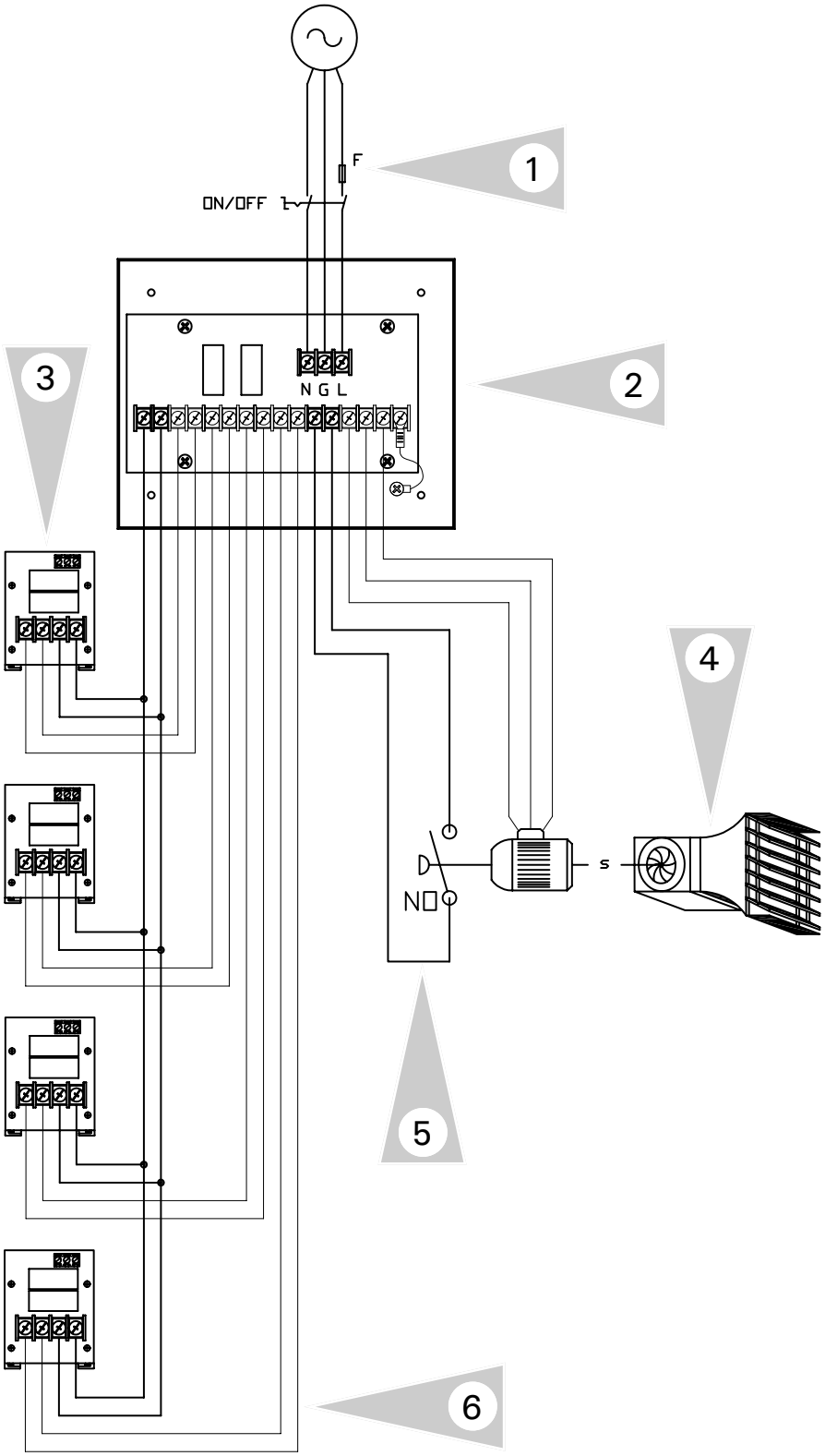
Common Combustion Air Device Interface—System Overview

Applicable for Vitotronic 100, GC1



Connection Overview

1 Incoming power supply to the common combustion air device Interface.
Note: Field supplied disconnect switch and circuit protection.

2 Common combustion air device interface. Connections from incoming power supply, individual boiler adaptors and damper/blower assembly.

3 Individual boiler combustion air device adaptor.

4 Combustion air device:
Blower
Power open/spring close damper
Power open/power close damper

5 Air proving switch connected to interface.

6 Interconnection wiring between all applicable boilers to interface module.

Field supplied equipment:
Power supply for damper
Local device disconnect
Device protection
Damper device with P switch

IMPORTANT

A four-wire interconnection between each boiler and the common combustion air device interface is required. This is a 120VAC circuit.

IMPORTANT

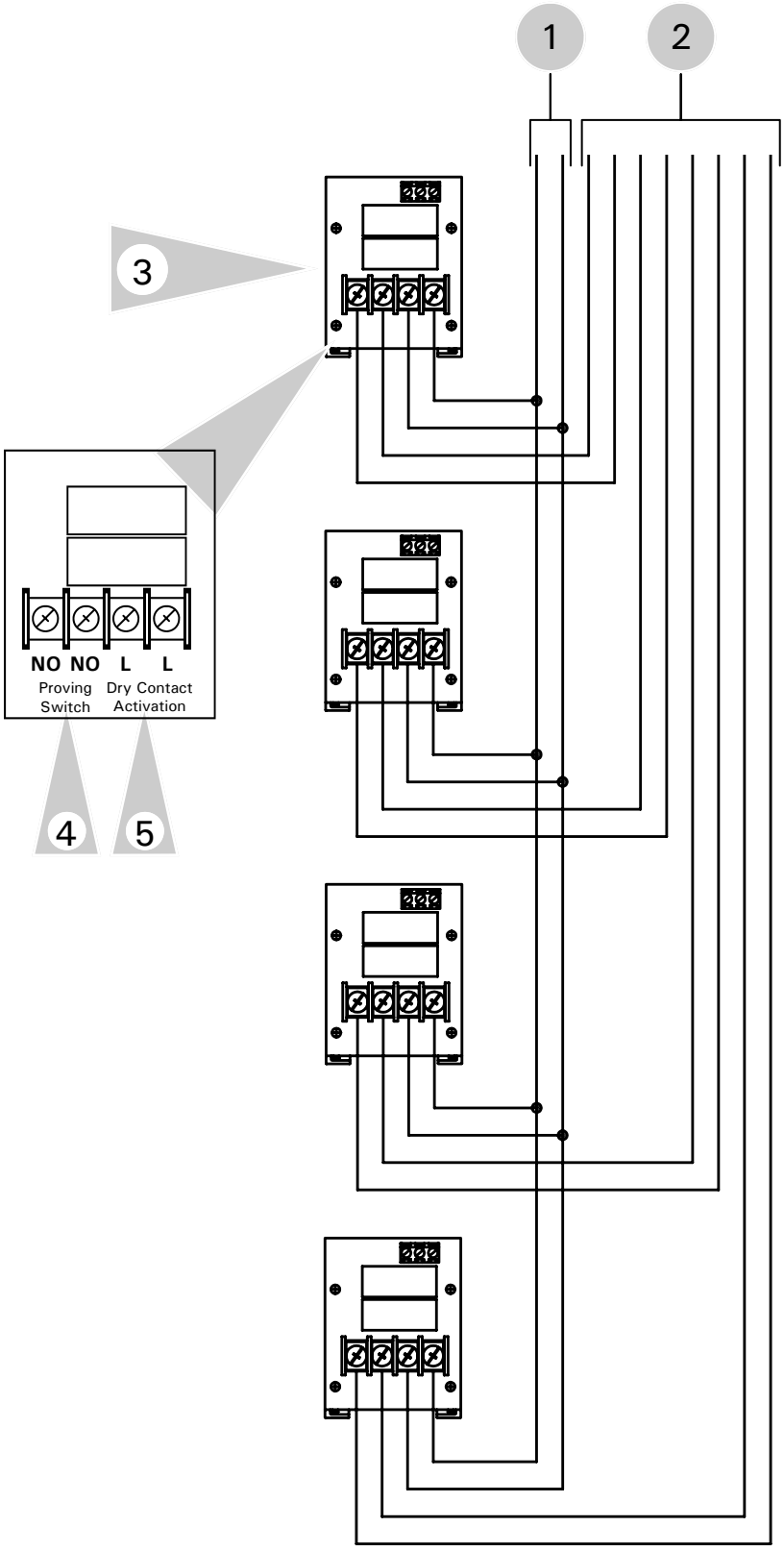
Ensure that combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes.

Common Combustion Air Device Interface—System Boiler Connections

Applicable for Vitotronic 100, GC1



Connection Overview

1 Call for heat demands from individual boiler combustion modules.
Note: All demand connections are paralleled together terminated in common combustion air device interface.

2 Individual proving switch signals provide damper/blower status.
All individual connections come from common combustion air device interface.

3 Individual boiler combustion air device adaptor. Mounted on each boiler control DIN rail.

4 Air proving switch terminals on each adaptor module. The marking NO refers to Normally Open.

5 Terminals which provide call for combustion air device demand.

IMPORTANT

A four-wire interconnection between each boiler and the common combustion air device interface is required. This is a 120VAC circuit.

IMPORTANT

Ensure that combustion air device is suitable for intended application.

CAUTION

When making connections with individual boiler interface adaptors, ensure the power is turned off at the boiler control.

CAUTION

Provide disconnect means and over current protection as required by local codes.

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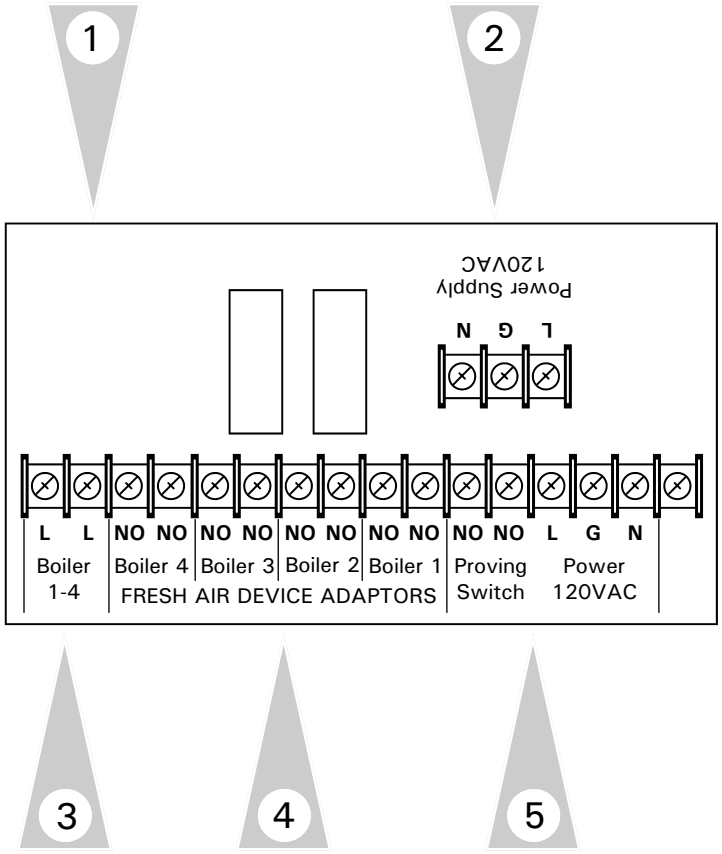
Common Combustion Air Device Interface—Overview

Applicable for Vitotronic 100, GC1



Connection Overview

1 Common combustion air device interface.

2 Incoming power supply for operation of blower or damper.
Note:
Power supply rated for 120VAC.

3 Boiler connection terminals from LL of combustion air device modules.

4 Air proving switch terminals on each adaptor module. The marking NO refers to *Normally Open*.

5 Connections for combustion air device (blower or damper) and air proving switch.
Note: 120VAC 5FLA.

IMPORTANT

A four-wire interconnection between each boiler and the common combustion air device interface is required. This is a 120VAC circuit.

IMPORTANT

Ensure that combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes.

CAUTION

When making connections with individual boiler interface adaptors, ensure the power is turned off at the boiler control.

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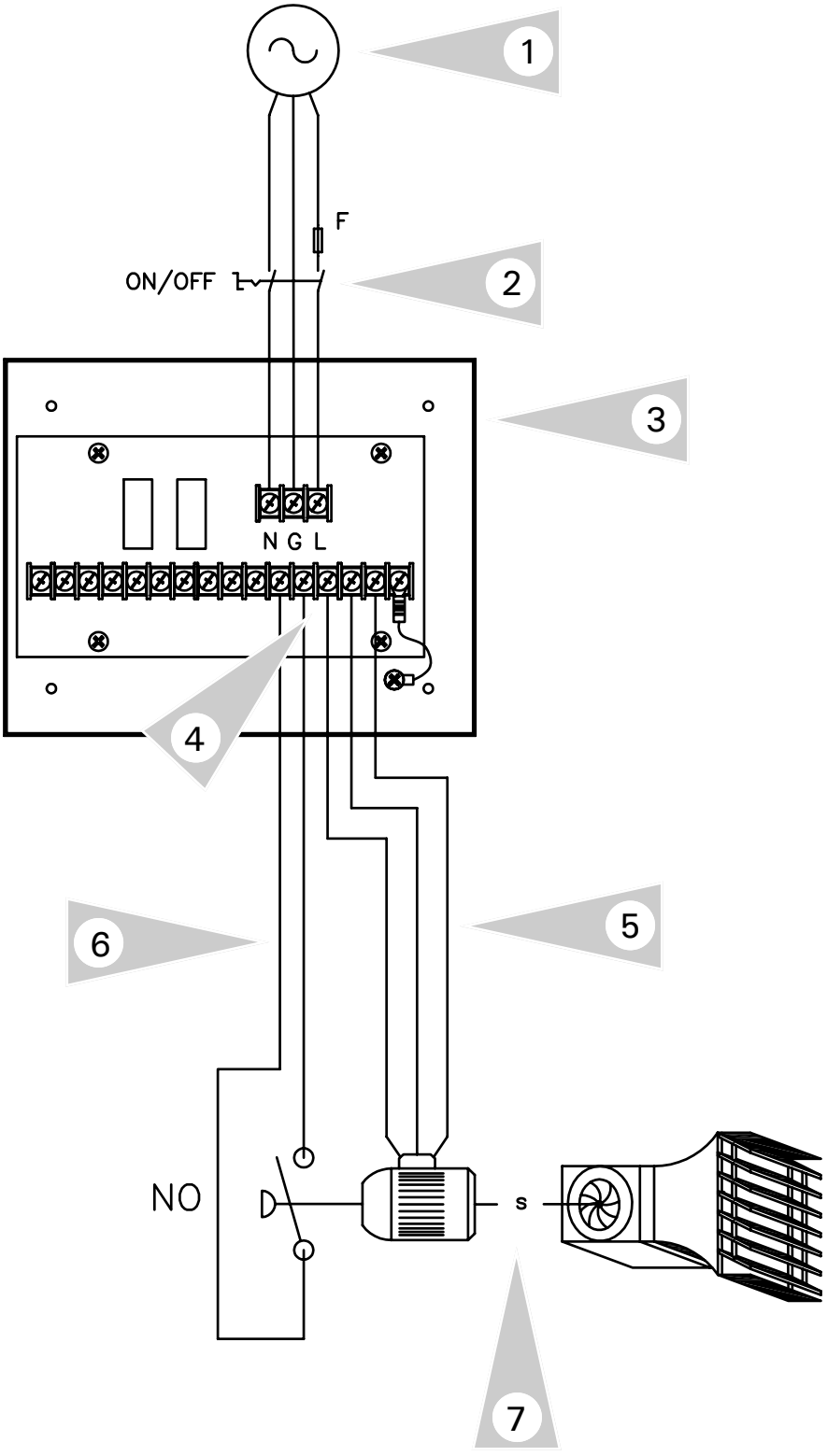
Common Combustion Air Device Interface—System: Blower/Damper

Applicable for Vitotronic 100, GC1



Connection Overview

1 Incoming power supply to power combustion air device.
Note:
120VAC supply required

2 Field supplied local disconnect and circuit protection.

3 Common combustion air device interface.

4 Terminals on circuit board to terminate air proving switch from air device and terminals to power device.
Note:
120VAC 5FLA maximum

5 Field supplied wire for interconnection between interface and combustion air device.

6 Field supplied wire for interconnection of air proving switch and interface.

7 Combustion air device such as damper or blower.

NOTE: This drawing is applicable for blower or damper. Suitable for power open/spring close damper only.

IMPORTANT

Ensure that combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes

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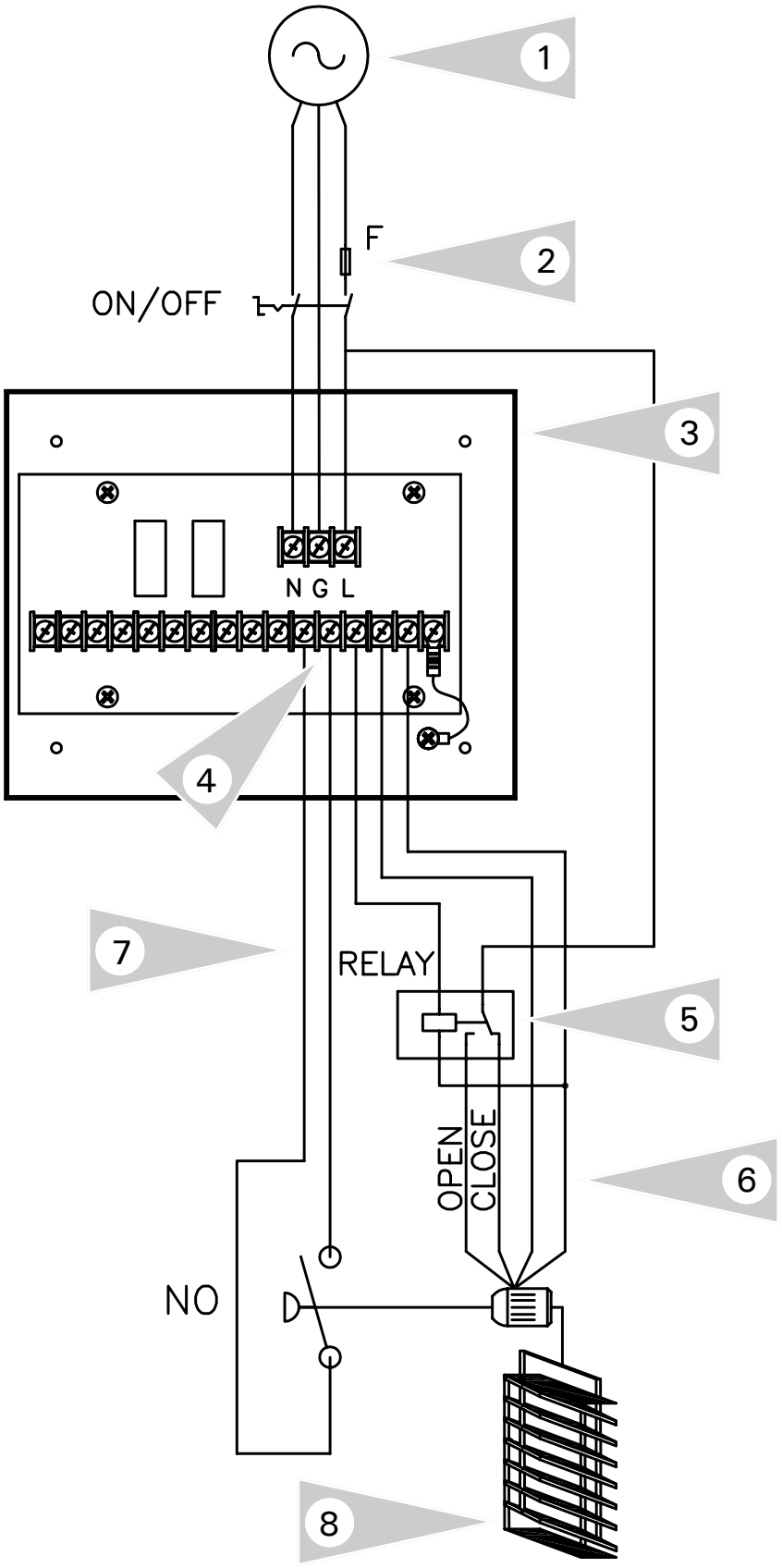
Common Combustion Air Device Interface—Damper Power Open/Close

Applicable for Vitotronic 100, GC1



Connection Overview

1 Incoming power supply to power combustion air device.
Note:
120VAC supply required

2 Field supplied local disconnect and circuit protection.

3 Common combustion air device interface.

4 Terminals on circuit board to terminate air proving switch from air device and terminals to power device.
Note:
120VAC 5FLA maximum

5 Field supplied and wired 120VAC relay for operation of power open/power close damper.
Note:
120VAC bypass around interface to normally closed contact of relay.

6 Field supplied wire for interconnection between interface and combustion air device.

7 Field supplied wire for interconnection of air proving switch and interface.

8 Combustion air device such as damper.

NOTE:
This drawing is suitable for power open/close damper only.

IMPORTANT

Ensure that combustion air device is suitable for intended application.

CAUTION

Provide disconnect means and over current protection as required by local codes

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Control Demand Connections

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Control Demand Connections Overview & BMS Control Interface Considerations

BMS Control Interface Considerations

How to Demand Burner?

Control Burner Demand Considerations

- ☐143 Demand Dry-contact
- ☐146 Demand Dry-contact
- ☐150 Demand Dry-contact
- ☐143/146 Demand Dry-contact
- ☐0-10VDC Demand signal

How to Modulate Burner?

Burner Modulation Considerations

- ☐0-10VDC signal direct to burner
- ☐Modulation by control
- ☐90 terminal connections for BMS

Control Demand Connections Overview

Connections and terminations	Vitotronic 100, GC1	Vitotronic 100, GC1 w/Vitotronic 333	Vitocontrol-S, VD2/ CT3 Vitotronic 333	Vitotronic 300
Plug [143] Terminals 1 and 2	Stage 1 demand (Coding 01:01) Stage 1 demand (Coding 01:03)	Boiler Disable	Operating program change/Mixing valve “open”	Operating program change/Mixing valve “open”
Plug [143] Terminals 2 and 3	Stage 2 demand (Coding 01:01) Stage 2 demand (Coding 01:03)	Switch in boiler as last in sequence	Remote disable/mixing valve “close”	Remote disable/mixing valve “close”
Plug [146] Terminals 1 and 2	Change-over demand from modulation to staging	Change-over demand from modulation to staging	N/A	Change-over demand from modulation to staging
Plug [146] Terminals 2 and 3	External demand (Coding 01:01) Boiler Enable (Coding 01:03)	N/A	External heat demand	External heat demand
[150]Terminal block Terminals 16 and 18	Burner demand	Burner demand	N/A	Burner demand
[150] Terminal block Terminals 16 and 17	Burner disable	Burner disable	N/A	Burner disable
[151] Terminal block Terminals 19 and 20	Burner/Control disable	Burner/Control disable	N/A	Burner/Control disable

Notes:
Refer to manual for specific coding changes. Functions of Vitotronic 100, GC1 change when communicating to Vitocontrol-S, VD2/CT3/VB2/RS/GS.
Coding 01:01 allows boiler to maintain minimum boiler water temperature independent of external control.
Coding 01:03 allows boiler not to maintain minimum boiler water temperature. When call for heat takes place, minimum temperature must be satisfied.
Coding 01:03 does not allow boiler to maintain minimum boiler water temperature unless terminals 2 and 3 of Plug [146] are closed.
Dry contact to Plug [143] terminals 1 and 2 as well as 2 and 3 for low/high fire respectively.
When using Plug [146] in BMS applications, contact closure is required to demand burner.
When jumper between 16 and 17 is not present either through control disable from BMS or other device, the control override function will not provide a call for heat to burner.
External demand control set point for Plug [146] (terminals 2 and 3) is adjustable at address 9b for Vitotronic 100, GC1 standalone or Vitocontrol-S, CT3/VD2 control.

CAUTION

Ensure that all connections and functions are understood to achieve the desired response and result of burner control and modulation.

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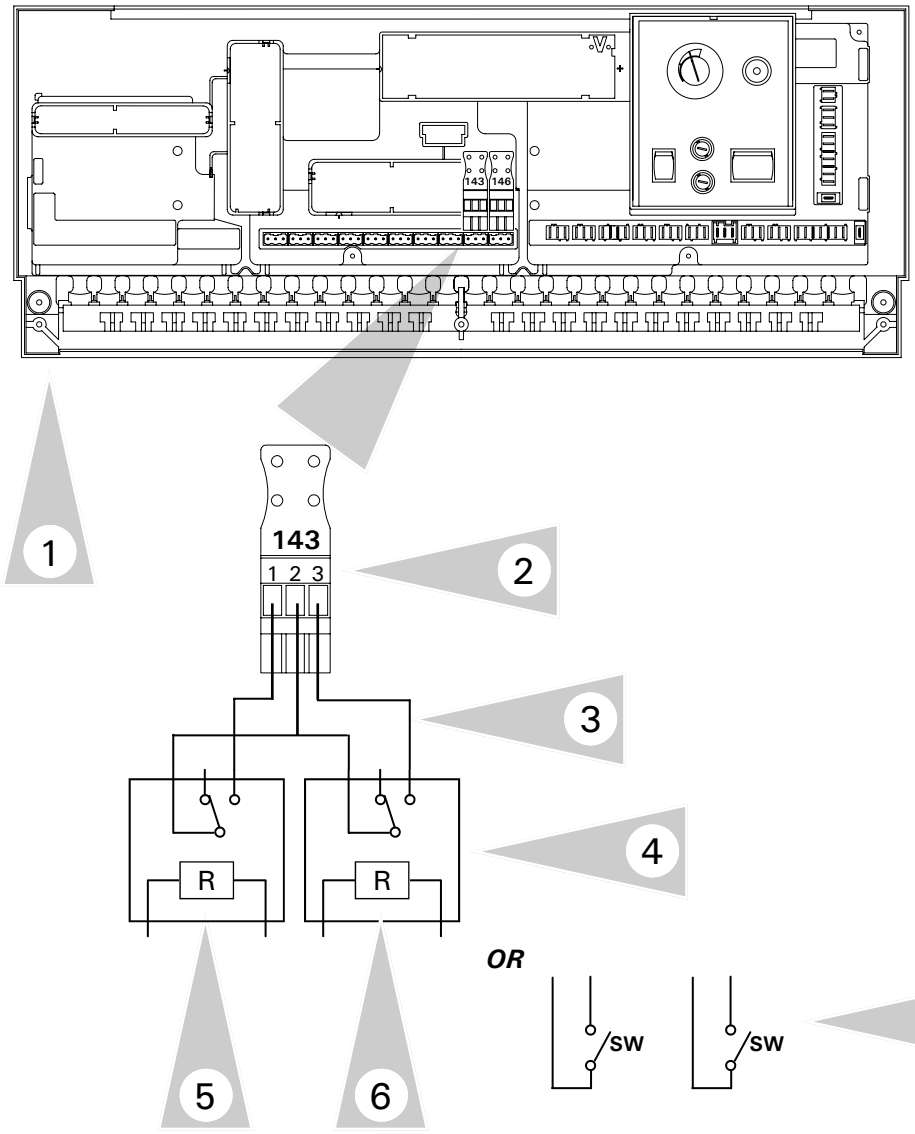
BMS Connections—Single/Multiple Boilers—Burner Demand

Applicable for Vitotronic 100, GC1 (without communication)

Burner Demand:
1st stage: dry contact to [143] plug
2nd stage: dry contact to [143] plug

Primary Consideration(s):
Boiler maintains constant minimum boiler water temperature based on coding card with ***or*** without demand signal.
Adjustable high limit or electronic maximum will limit operation of burner call-for-heat.

Configurations:
1st stage demand dry contact wired to Plug [143] terminals 1 and 2.
2nd stage demand dry contact wired to Plug [143] terminals 2 and 3.
Boiler coded for 01:01.
Boiler maximum temperature limit address 06.



Connection Overview

1 Boiler control.

2 Plug [143] used to interconnect control devices with boiler control. Ensure [143] plug is plugged into the correct socket found in the boiler control.

3 Field supplied interconnection wire between [143] plug and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 First stage demand relay (field supplied). When coil energized, dry contact switch is made and control fires first stage of burner.

6 Second stage demand relay (field supplied). When coil is energized, dry contact switch is made and control drives burner to second stage.

7 Instead of relays, it may be possible to use simple switches to control burner low and high fire demands.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Record all coding changes for future reference.
Ensure only knowledgeable coding changes are made.

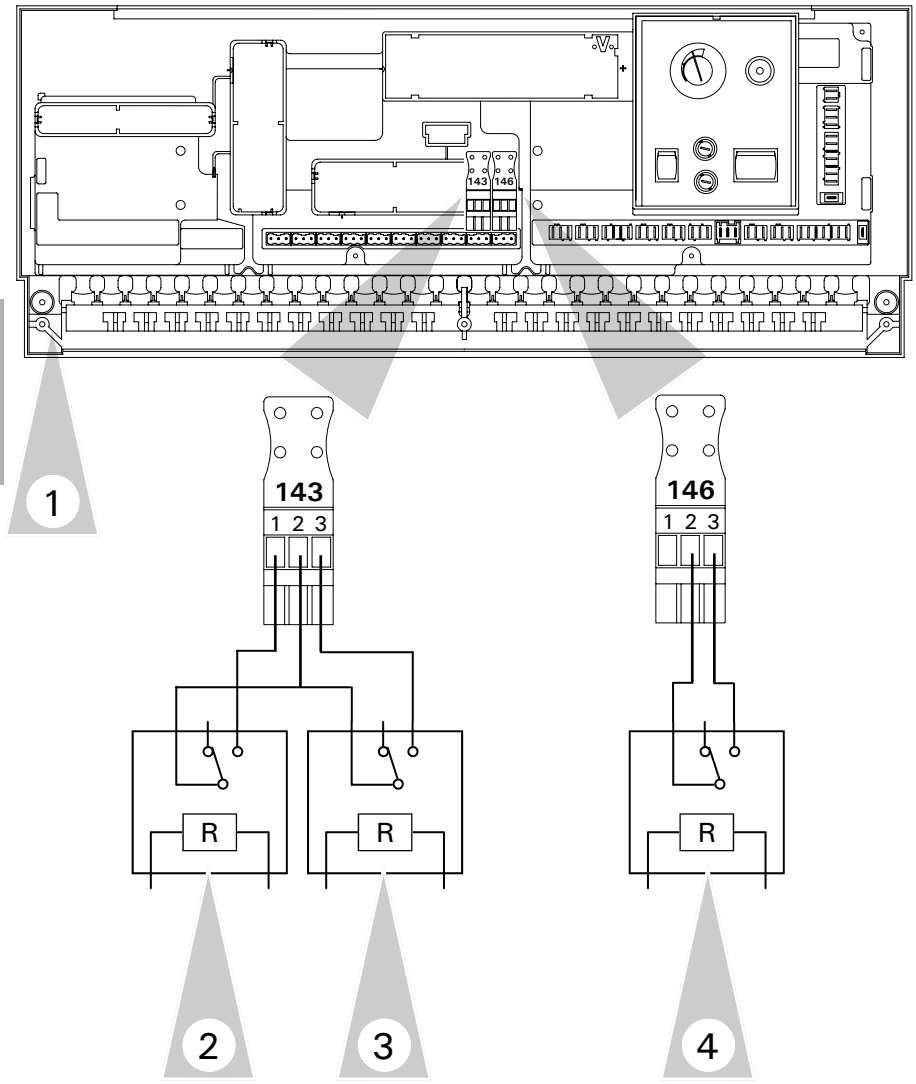
BMS Connections—Single/Multiple Boilers—Burner Demand

Applicable for Vitotronic 100, GC1 (without communications)

Burner Demand:
1st stage: dry contact to 143 plug
2nd stage: dry contact to 143 plug

Primary Consideration(s):
Boiler will not maintain minimum boiler water temperature as long as contact at [146] plug is open.
Burner will fire when control detects demand signal at [146] plug.
Control will provide call for heat to burner until boiler reaches minimum boiler water temperature based on coding card.

Configurations:
1st stage demand dry contact wired to Plug 143 terminals 1 and 2.
2nd stage demand wired to Plug 143 terminals 2 and 3.
Dry contact "enable" wired to Plug 146 terminals 2 and 3.
Boiler coded for 01:03.
Boiler maximum temperature limit address 06.



Connection Overview

1 Boiler control.

2 Field supplied relay and wiring interconnections to call burner onto low fire.

3 Field supplied relay and wiring interconnections to call burner onto high fire.

4 Field supplied relay and wiring interconnections to provide operation demand when contact is closed between terminals 2 and 3.

Note: Relays used to provide dry contact demands to plugs [143]/[146] are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Record all coding changes for future reference.
Ensure only knowledgeable coding changes are made.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Single/Multiple Boilers—Burner Demand [146]

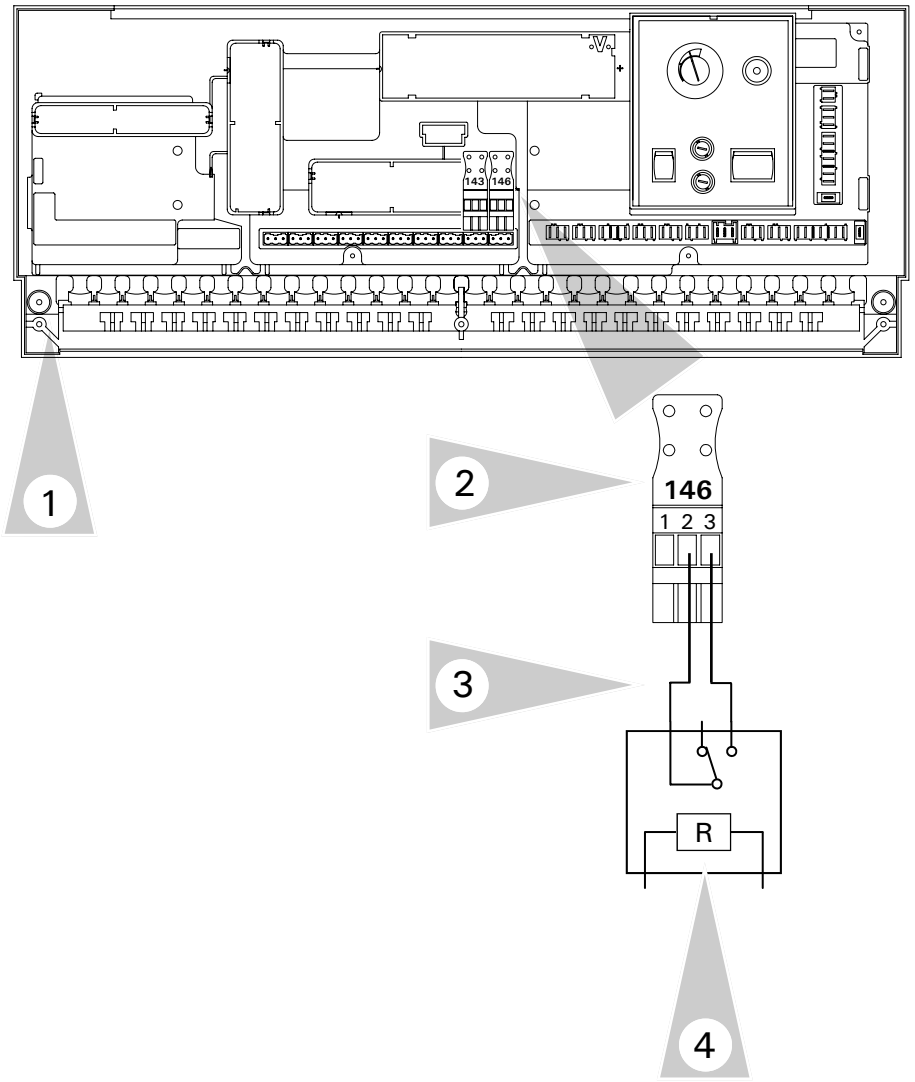
Applicable for Vitotronic 100, GC1 (without communications)

Burner Disable:
Dry contact to [146] plug

Primary Consideration(s):
Boiler maintains minimum boiler water temperature.
Burner operation can be started with override switch.

Configurations:
Burner demand dry contact wired to Plug 146 terminals 2 and 3.
Boiler coded for 01:01.

Notes:
Minimum boiler water temperature maintained when contact open.
Boiler temperature set point can be adjusted on the user interface.
Demand contact closure causes boiler temperature set point to be based on address 9b.
Boiler switch-off differential address 13.
Boiler maximum temperature limit address 06.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 2 and 3.
Closed contact demands burner if boiler water temperature below 9b setting.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner demand when contact is closed between terminals 2 and 3.

Field supplied relay
24VAC
120VAC
24VDC

Note: Relays used to provide dry contact disable to plug 146 is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

BMS Connections—Single/Multiple Boilers—Burner Demand [150]

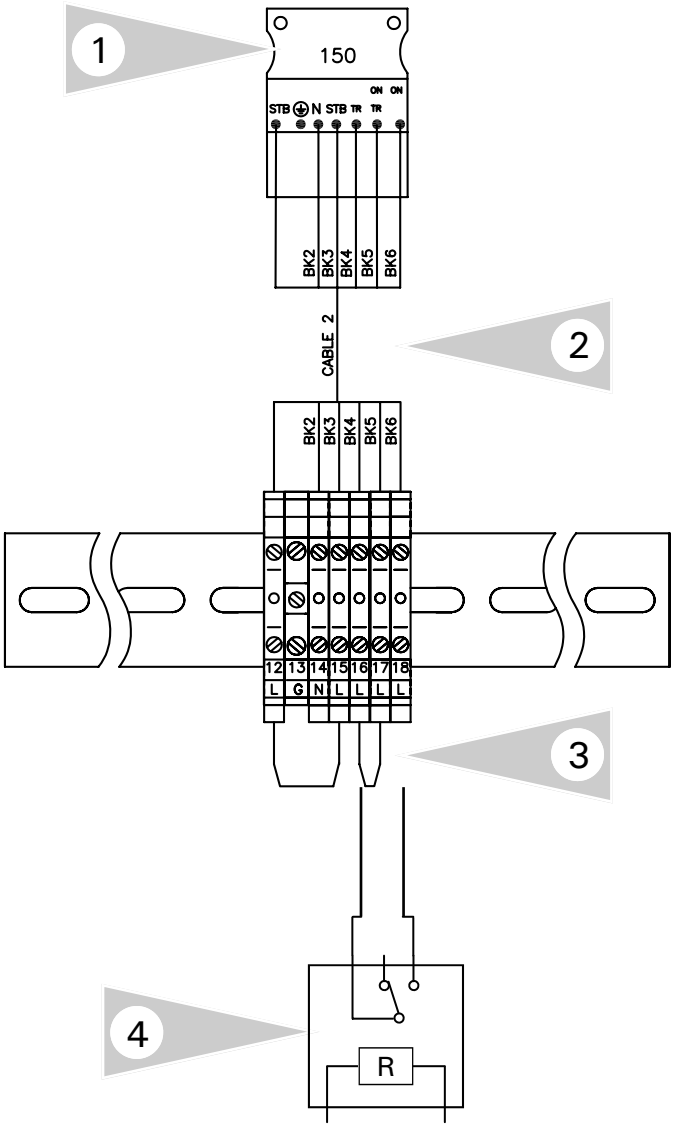
Applicable for Vitotronic 100, GC1 (without communications)

Burner Demand:
Dry contact to [150] terminal block

Primary Consideration(s):
Dry contact demand part of the 120VAC burner call-for-heat circuit.

Configurations:
Burner demand contact wired to terminals 16 and 18

Notes:
By-passes controls internal call for heat.
FHL and AHL remain part of the burner control circuit.
Control can call burner on depending on coding/configuration (minimum temperature) and presence of factory jumper from terminals 16 to 17.
Control override switch remains functional (low fire) when turned ON.
Removal of 16 to 17 jumper, disables override functionality as well as control internal call for heat (minimum temperature).



Connection Overview

1 The [150] plug is plugged into the boiler control during the installation process. This plug is yellow in colour.

2 Multiple wire conductor between [150] plug and the DIN rail mounted terminal block.

3 Two jumpers are found on the [150] DIN rail mounted terminal block. A jumper between terminals 12 and 15 is generally removed when installing the LWCO. The second jumper is found between terminals 16 and 17 for BMS connections. This jumper may or may not need to be removed depending on the desired operation of the burner demand.

4 Field supplied relay (dry contact) to demand burner ON connected to [150] terminal block.

Note: Relays used to provide dry contact demands to [150] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

Connections to the [150] terminal block are part of the 120VAC burner call-for-heat circuit. Ensure relay contacts or switch are suitable for this application.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Single/Multiple Boilers—Burner Disable [146]

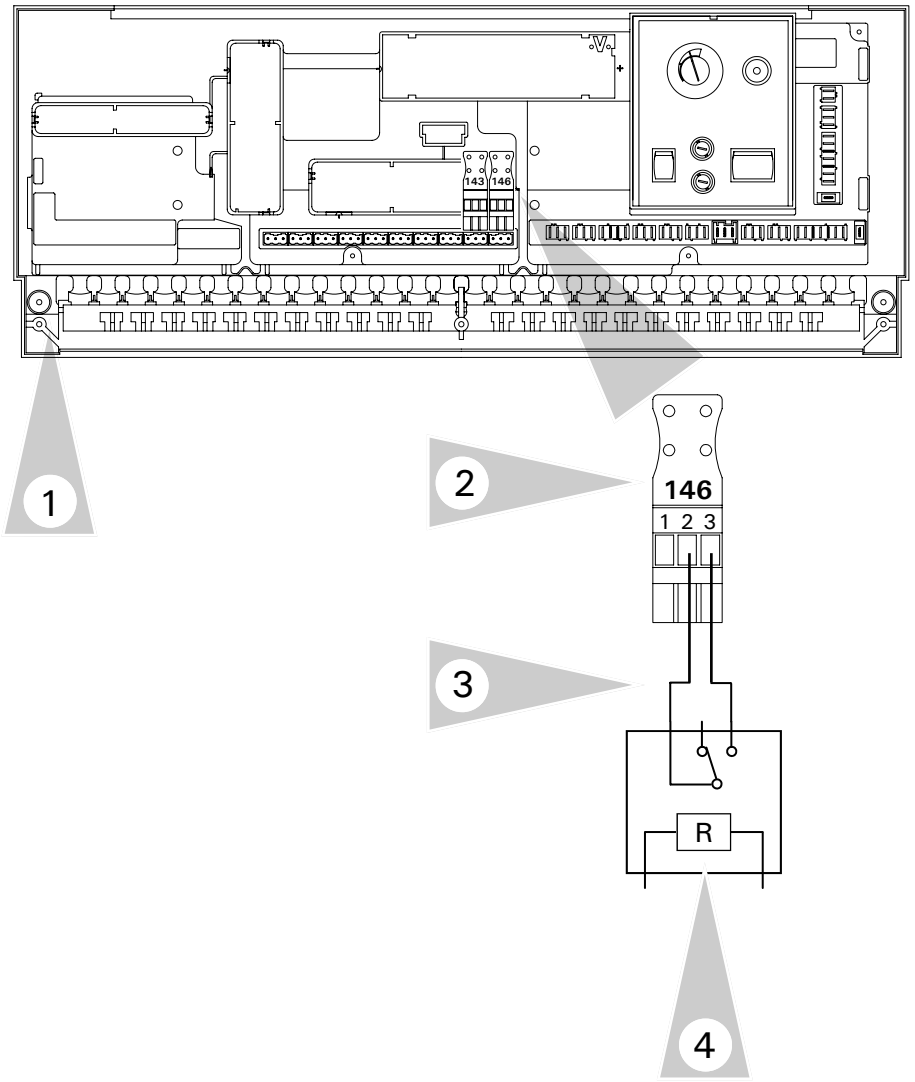
Applicable for Vitotronic 100, GC1 (without communications)

Burner Disable:
Dry contact to [146] plug

Primary Consideration(s):
Boiler does not maintain minimum boiler water temperature.
Burner operation can be started with override switch

Configurations:
Burner disable dry contact wired to Plug 146 terminals 2 and 3
Boiler coded for 01:03

Notes:
Minimum boiler water temperature is not maintained when contact open.
Boiler temperature set point cannot be adjusted on the user interface.
Boilers which require minimum temperature protection will operate until minimum temperature is satisfied upon receiving a demand signal.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface disable signal to control via terminals 2 and 3.
Open contact disables burner.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner disable when contact is open between terminals 2 and 3.

Note: Relays used to provide dry contact disable to plug 146 is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

BMS Connections—Single/Multiple Boilers—Burner Disable [150]

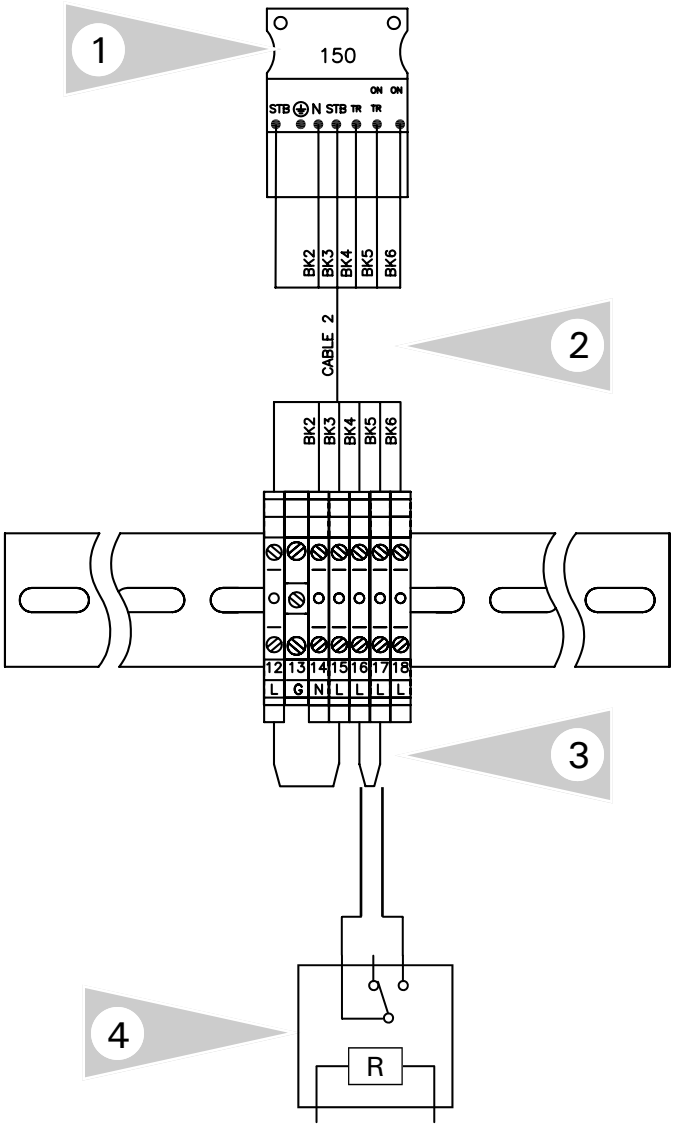
Applicable for Vitotronic 100, GC1 (without communications)

Burner Disable:
Dry contact to [150] terminal block

Primary Consideration(s):
Dry contact disable part of the 120VAC burner call-for-heat circuit.

Configurations:
Burner disable contact wired to terminals 16 and 17 with jumper removed.

Notes:
Depending on how the field supplied relay is wired, it may be possible to disable the burner when the relay is powered or not powered. When jumper 16 to 17 is removed, the control does not have the capability to maintain minimum boiler water temperature or provide freeze up protection. Override functionality does not occur when 16 and 17 open.



Connection Overview

1 The [150] plug is plugged into the boiler control during the installation process. This plug is yellow in colour.

2 Multiple wire conductor between the [150] plug and the DIN rail mounted terminal block.

3 Two jumpers are found on the [150] DIN rail mounted terminal block. A jumper between terminals 12 and 15 is generally removed when installing the LWCO. The second jumper is found between terminals 16 and 17 for BMS connections. This jumper may or may not need to be removed depending on the desired functionality.

4 Field supplied relay (dry contact) to demand burner ON connected to [150] terminal block.

Note: Relays used to provide dry contact demands to [150] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

Connections to the [150] terminal block are part of the 120VAC burner call for heat circuit. Ensure relay contacts or switch are suitable for this application.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Single/Multiple Boilers—Burner/Control Disable [151]

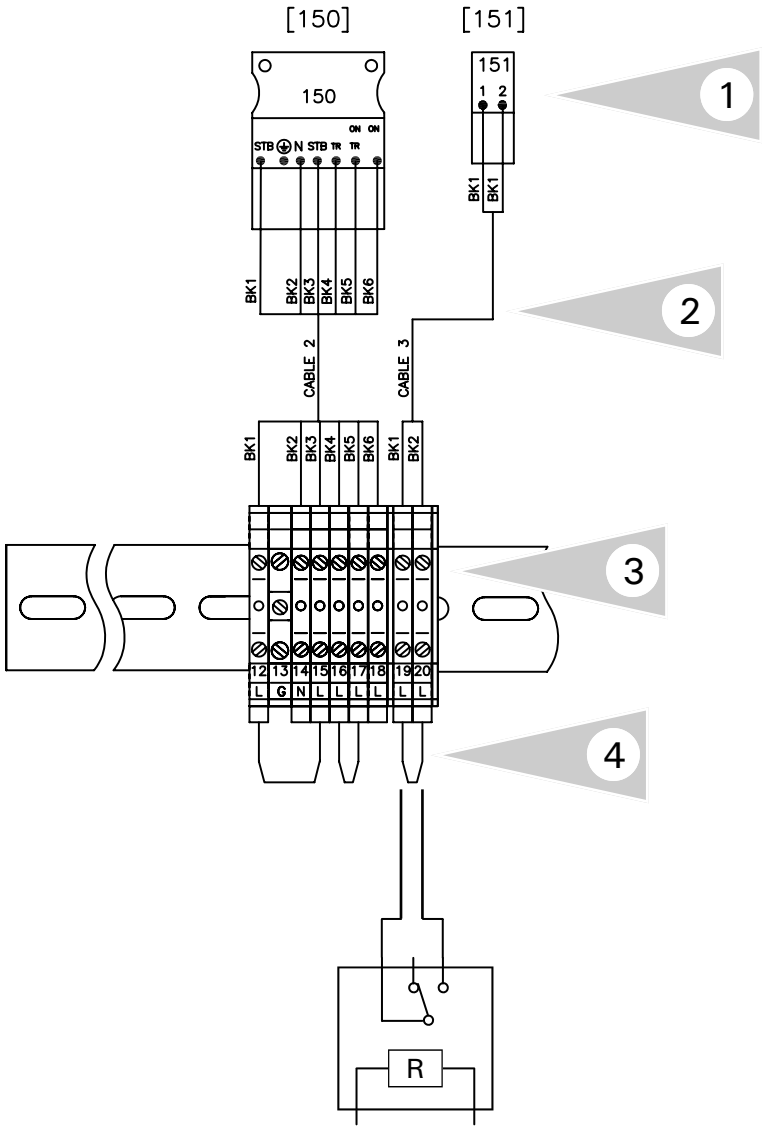
Applicable for Vitotronic 100, GC1 (without communications)

Burner Disable:
Dry contact to [151] terminal block.

Primary Consideration(s):
Dry contact disable part of the 120VAC burner call-for-heat circuit. Opening of the [151] junction will disable the entire control providing a complete control shutdown of burner and pumps.

Configurations:
Burner disable contact wired to terminals 19 and 20.

Notes:
Depending on how the field supplied relay is wired, it may be possible to disable the burner when the relay is powered or not powered. When jumper 19 to 20 is removed or disabled, the control does not have the capability to maintain minimum boiler water temperature or provide freeze-up protection.



Connection Overview

1 The [151] plug is plugged into the boiler control during the installation process. This plug is opaque in colour.

2 Two wire conductor between [151] plug and the DIN rail mounted terminal block.

3 The [151] terminal blocks are mounted on the DIN rail.

4 There is one jumper found on the [151] DIN rail mounted terminal block. A jumper between terminals 19 and 20 is generally removed when installing an emergency shutdown device.

5 Field supplied relay (dry contact) to disable burner/ control connected to [151] terminal block.

Note: Relays used to provide dry contact disable to [151] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

Connections to the [151] terminal block are part of the 120VAC control voltage. When open, the control will experience a complete control shutdown. Ensure relay contacts or switches are suitable for this application.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Single/Multiple Boilers—Burner Modulation [90]

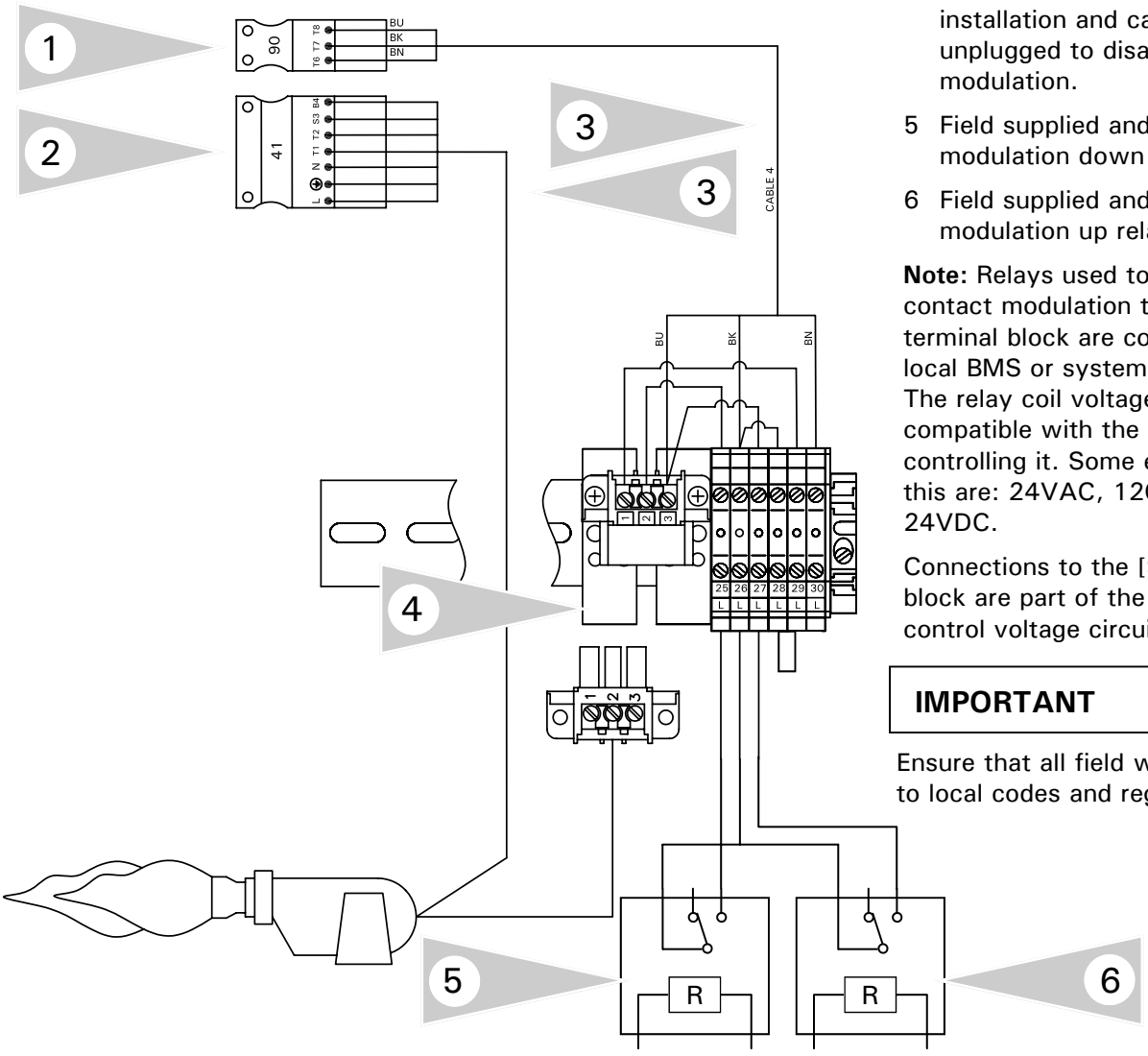
Applicable for Vitotronic 100, GC1 (without communications)

Burner Modulation:
Dry contact to [90] terminal block.

Primary Consideration(s):
Dry contact for modulation is part of the 120VAC burner modulation circuit. Two field supplied and wired relays required.

Configurations:
Jumper between terminals [25] and [26] must be removed and discarded.
Jumper between terminals [29] and [30] must be moved across [28] and [29].
Burner modulation downwards connect to terminals [25] and [26].
Burner modulation upwards connect to terminals [26] and [27].

Notes:
It will not be possible to drive burner to high fire with the control mounted override switch because of BMS modulation control.



Connection Overview

1 The [90] plug is plugged into the boiler control during the installation process. This plug is grey in colour.

2 The [41] plug is plugged into the control during the installation process. This plug is brown or possibly black in colour.

3 The interconnections between the [41] and [90] plugs are factory wired.

4 Located on the DIN rail is a plug/socket combination for the burner modulation. The plug is inserted into the socket during installation and can be unplugged to disable modulation.

5 Field supplied and wired modulation down relay.

6 Field supplied and wired modulation up relay.

Note: Relays used to provide dry contact modulation to [90] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are: 24VAC, 120VAC, 24VDC.

Connections to the [90] terminal block are part of the 120VAC control voltage circuit.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—External Changeover of Modulation to Staging [146]

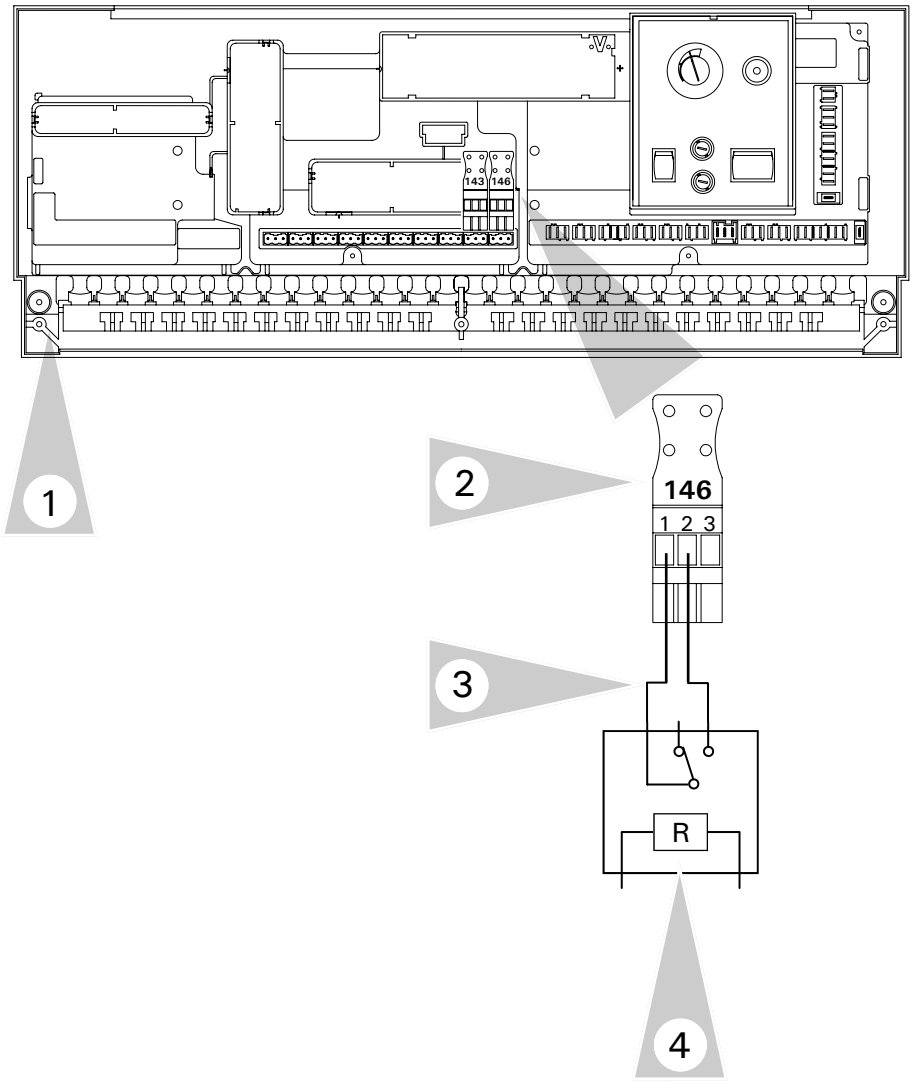
Applicable for Vitotronic 100, GC1 (without communications)

External Changeover of Staged to Modulating Burner:
Dry contact to [146] plug.

Primary Consideration(s):
Dual fuel equipped systems.

Configurations:
Dry contact to [146] plug onto terminals 1 and 2.
Boiler coding 02:2 for modulating burner.
Contact open: Modulating operation.
Contact closed: Two stage operation.
Burner must be set to modulating.

Notes:
When burner type is scanned in the control, modulation appears.
This function is generally used in conjunction with a manufacturer supplied burner panel which provides the switch over contact. Refer to wiring schematic of panel for specific information regarding burner.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 1 and 2. Open contact removes staging burner demand.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner changeover from modulation to staged operation when contact is closed between terminals 1 and 2.

Note: Relays used to provide dry contact demand to plug [146] is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

BMS Connections—Burner Demand [146]

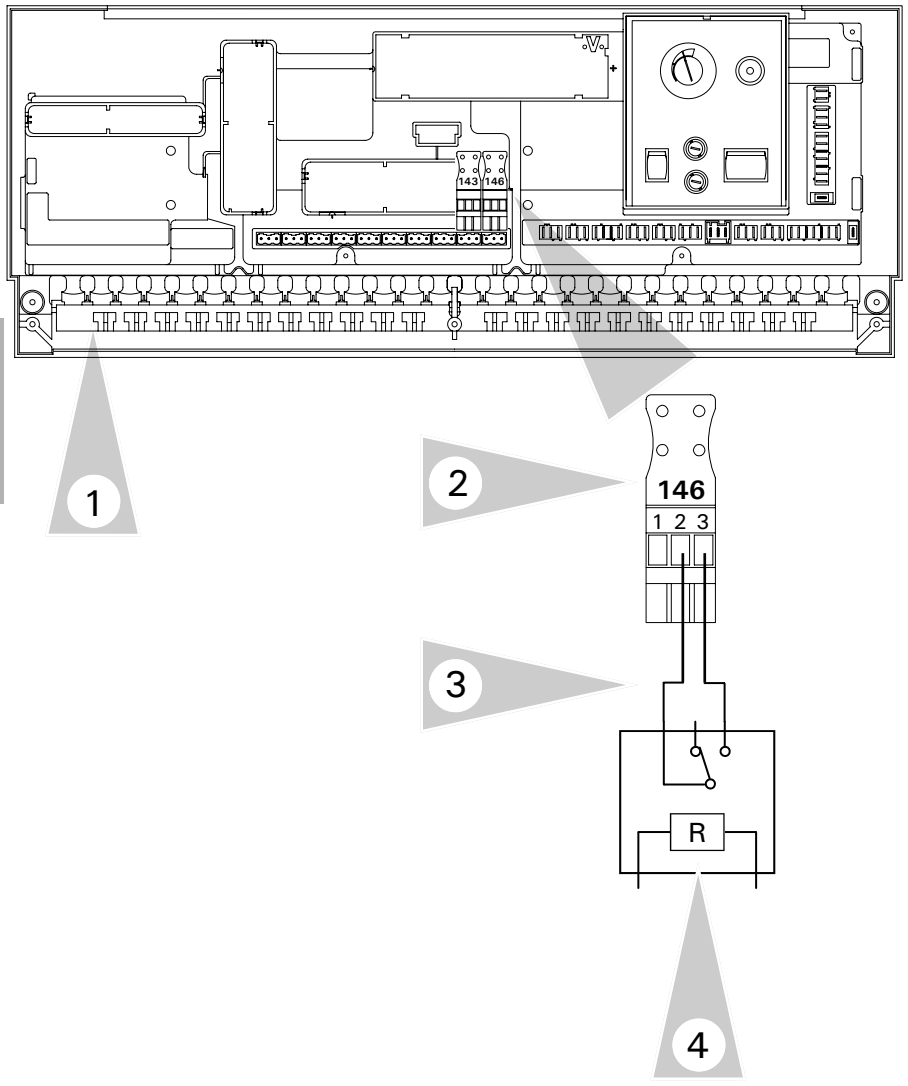
Applicable for Vitotronic 300, GW2

Burner Demand:
Dry contact to 146 plug terminals 2 and 3

Primary Consideration(s):
Burner operation can be started with override switch
Adjustable high limit and electronic limit settings will limit operation of boiler/burner.

Configurations:
Boiler water temperature set point is determined by address 9b when contact is closed on plug [146].
Electronic high limit is adjusted at address 06.
Burner switch-off differential adjusted at address 13.

Notes:
External demand only overrides outdoor reset calculation. Once the contact at plug [146] is opened, the calculated boiler water temperature will return to calculation from outdoor reset or DHW demand.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 2 and 3. Open contact removes burner demand.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner demand when contact is open between terminals 2 and 3.

Note: Relays used to provide dry contact demand to plug [146[is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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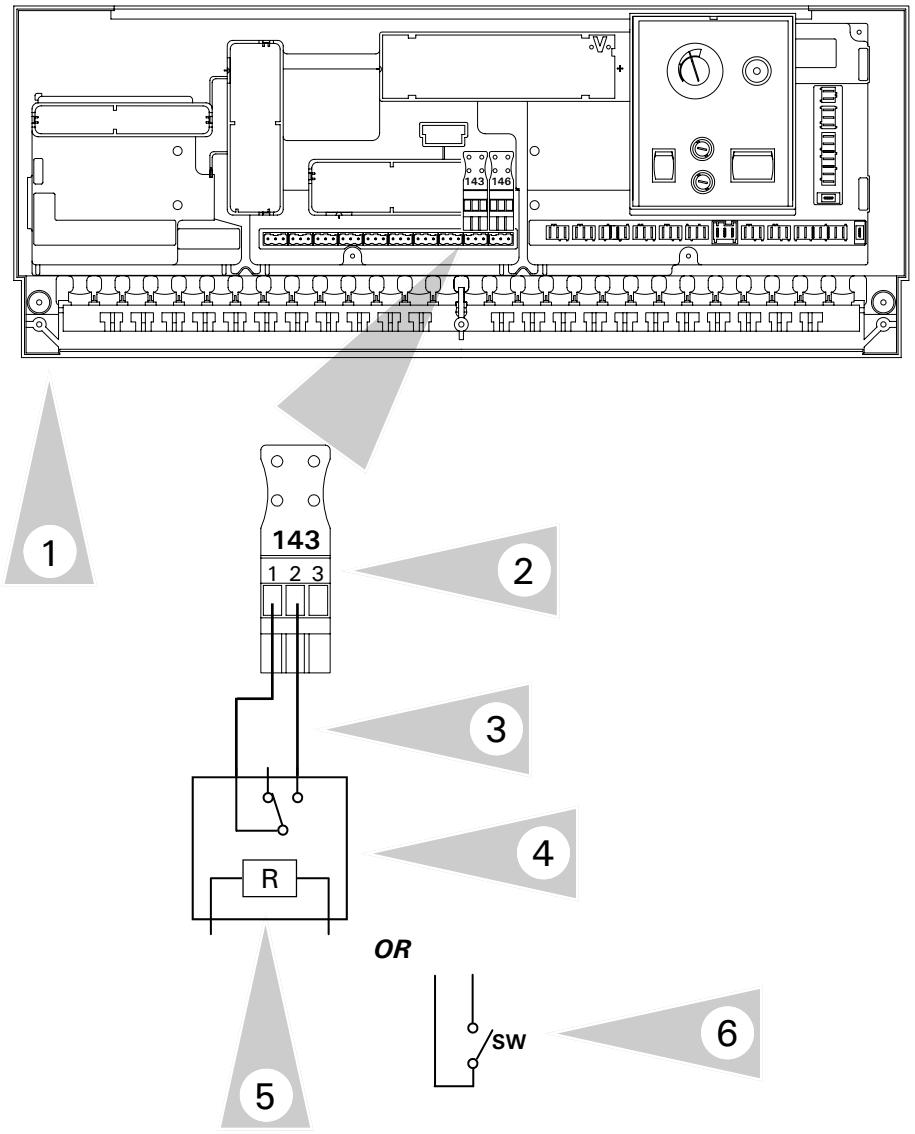
BMS Connections—External Change of Heating Program/Mixing Valve Open [143]

Applicable for Vitotronic 300, GW2

External Change of Heating Program *OR* Open Valves Demand:
Dry contact to [143] plug.

Primary Consideration(s):
Only one selection allowed either External Change of Heating Program or Open Valves demand.
Select which valves are affected by the change of heating program or open mixing valve demand.

Configurations:
External change of heating program Plug [143] terminals 1 and 2.
Open mixing valves demand Plug 143 terminals 1 and 2.
Address 91 change required for Change of Heating Program demand.
Address 9A change required for Open Valves demand.



Connection Overview

1 Boiler control.

2 Plug [143] used to interconnect control devices with boiler control. Ensure Plug [143] is plugged into the correct socket found in the boiler control.

3 Field supplied interconnection wire between Plug [143] and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and change over or mixing valve demand takes place.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

BMS Connections—External Disable/Mixing Valve Close [143]

Applicable for Vitotronic 300, GW2

External Disable/Close Mixing Valves:
Dry contact to [143] plug.

Primary Consideration(s):
There is no frost protection during external disable or close mixing valves demand. No minimum boiler water temperature is maintained during the contact closure.

Configurations:
Dry contact to [143] plug is connected to terminals 2 and 3.
Coding address 99 allows selection of operation between disable and mixing valve close demand.

Connection Overview

1 Boiler control.

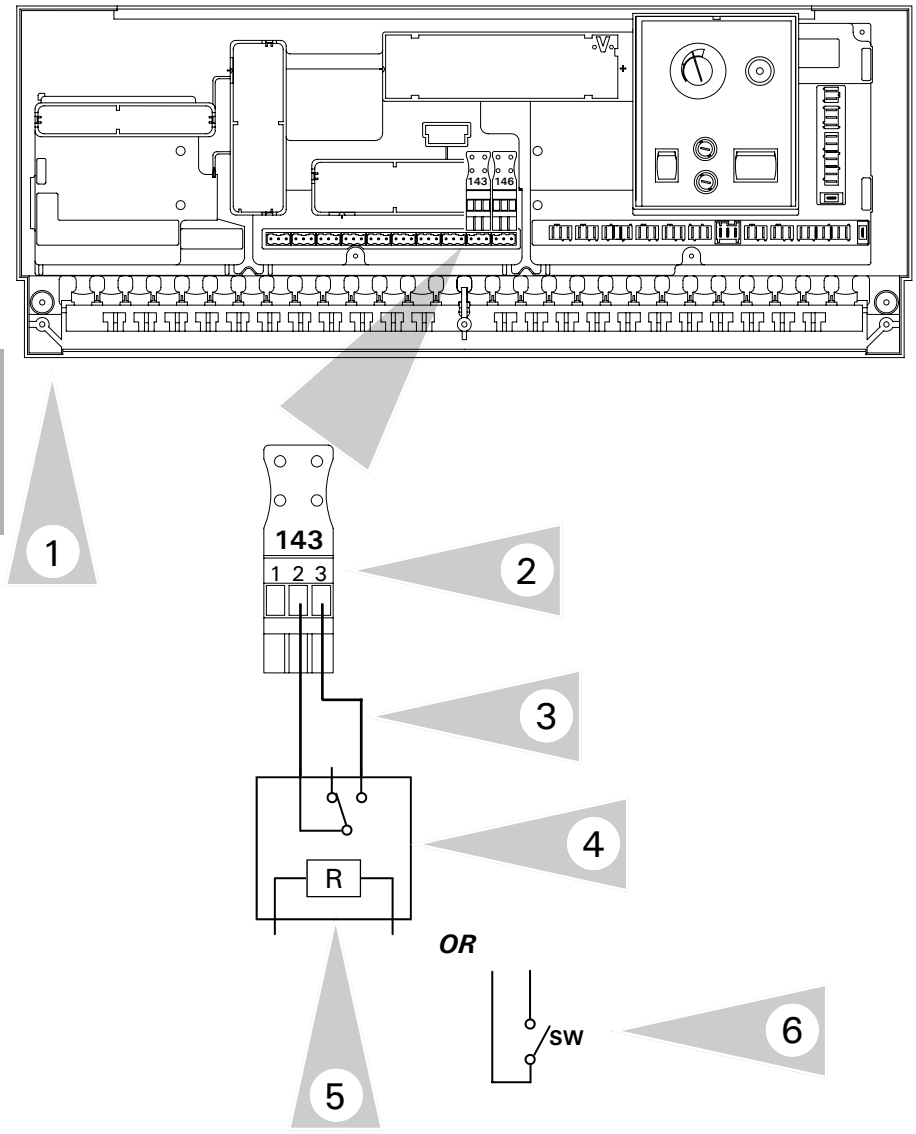
2 Plug [143] used to interconnect control devices with boiler control. Ensure plug [143] is plugged into the correct socket found in the boiler control.

3 Field supplied interconnection wire between plug [143] and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and disable or close mixing valves demand takes place.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.



IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

BMS Connections—Burner Demand [150]

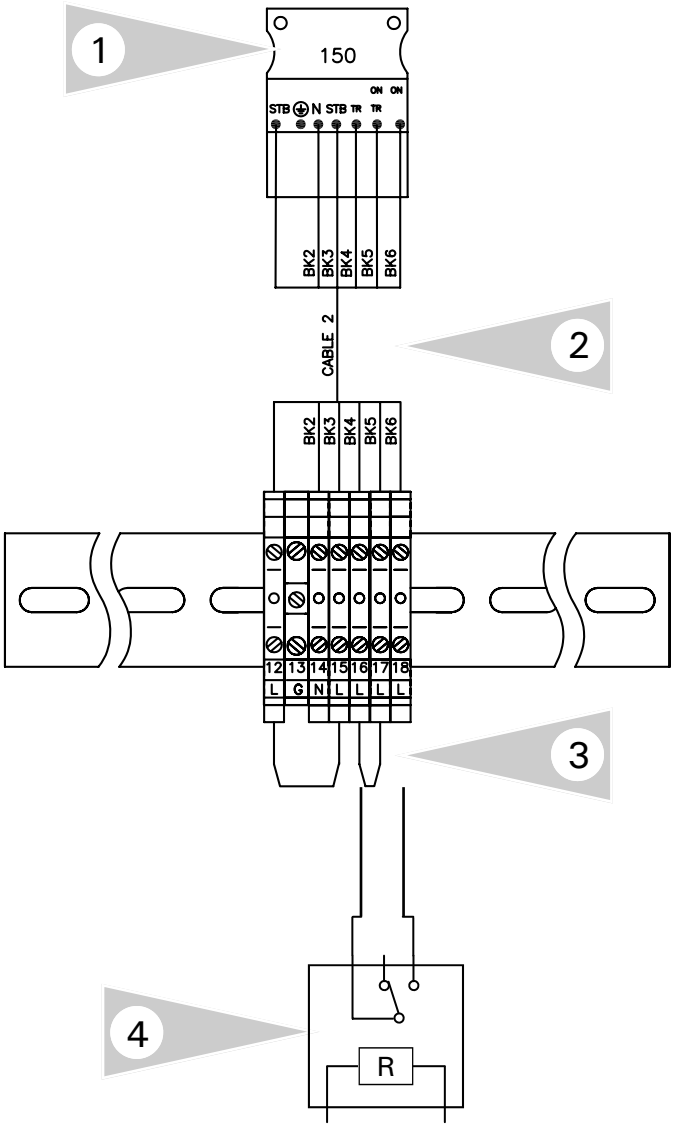
Applicable for Vitotronic 300, GW2)

Burner Demand:
Dry contact to 150 terminal block.

Primary Consideration(s):
Dry contact demand part of the 120VAC burner call-for-heat circuit.

Configurations:
Burner demand contact wired to terminals 16 and 18

Notes:
By-passes controls internal call for heat.
FHL and AHL still part of the burner control circuit.
Control can call burner on depending on coding/configuration (minimum temperature).
Control override switch remains functional (low fire) when switched.
Removal of 16 to 17 jumper, override not functional and inactive.



Connection Overview

1 The [150] plug is plugged into the boiler control during the installation process. This plug is yellow in colour.

2 Multiple wire conductor between [150] plug and the DIN rail mounted terminal block.

3 Two jumpers are found on the [150] DIN rail mounted terminal block. A jumper between terminals 12 and 15 is generally removed when installing the LWCO. The second jumper is found between terminals 16 and 17 for BMS connections. This jumper may or may not need to be removed depending on the desired control functionality.

4 Field supplied relay (dry contact) to demand burner ON connected to [150] terminal block.

Note: Relays used to provide dry contact demands to [150] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

Connections to the [150] terminal block are part of the 120VAC burner call-for-heat circuit. Ensure relay contacts or switch are suitable for this application.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Burner Disable [150]

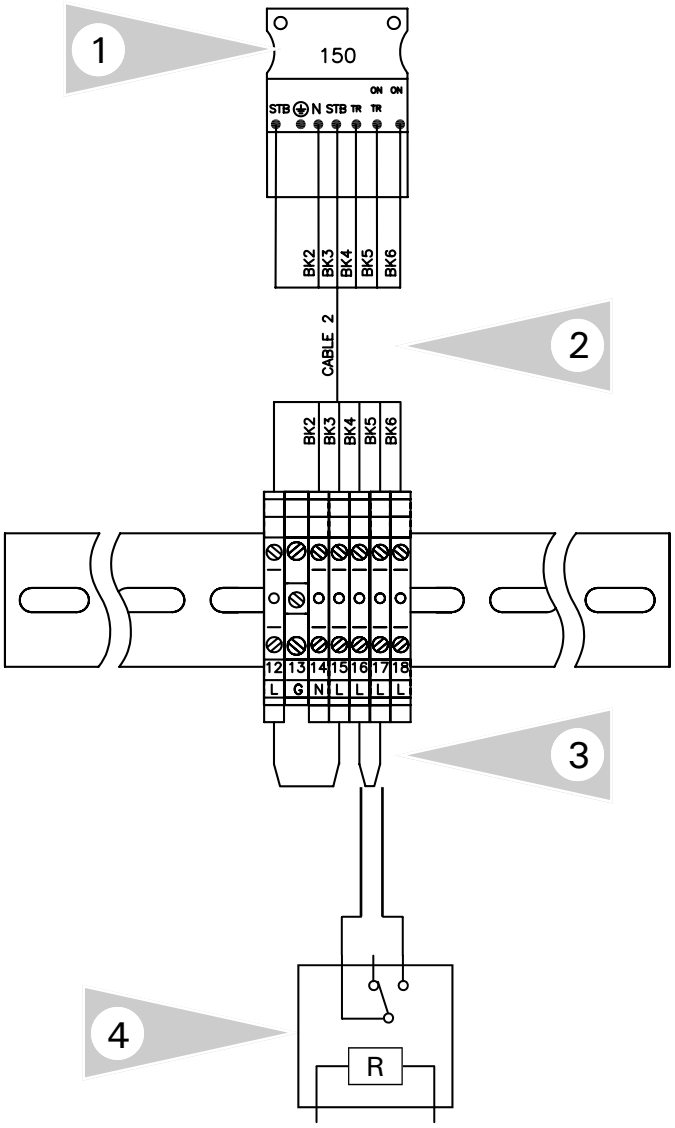
Applicable for Vitotronic 300, GW2

Burner Disable:
Dry contact to [150] terminal block

Primary Consideration(s):
Dry contact disable part of the 120VAC burner call-for-heat circuit.

Configurations:
Burner disable contact wired to terminals 16 and 17.

Notes:
Depending on how the field supplied relay is wired, it may be possible to disable the burner when the relay is powered or not powered. When jumper 16 to 17 is removed, the control does not have the capability to maintain minimum boiler water temperature or provide freeze-up protection.



Connection Overview

1 The [150] plug is plugged into the boiler control during the installation process. This plug is yellow in colour.

2 Multiple wire conductor between [150] plug and the DIN rail mounted terminal block.

3 Two jumpers are found on the [150] DIN rail mounted terminal block. A jumper between terminals 12 and 15 is removed when installing the LWCO. The second jumper is found between terminals 16 and 17 for BMS connections. This jumper is removed when connecting external control relay. Open contact does not allow burner call for heat signal.

4 Field supplied relay (dry contact) to demand burner ON connected to [150] terminal block.

Note: Relays used to provide dry contact demands to [150] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

Connections to the [150] terminal block are part of the 120VAC burner call-for-heat circuit. Ensure relay contacts or switch are suitable for this application.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Burner/Control Disable [151]

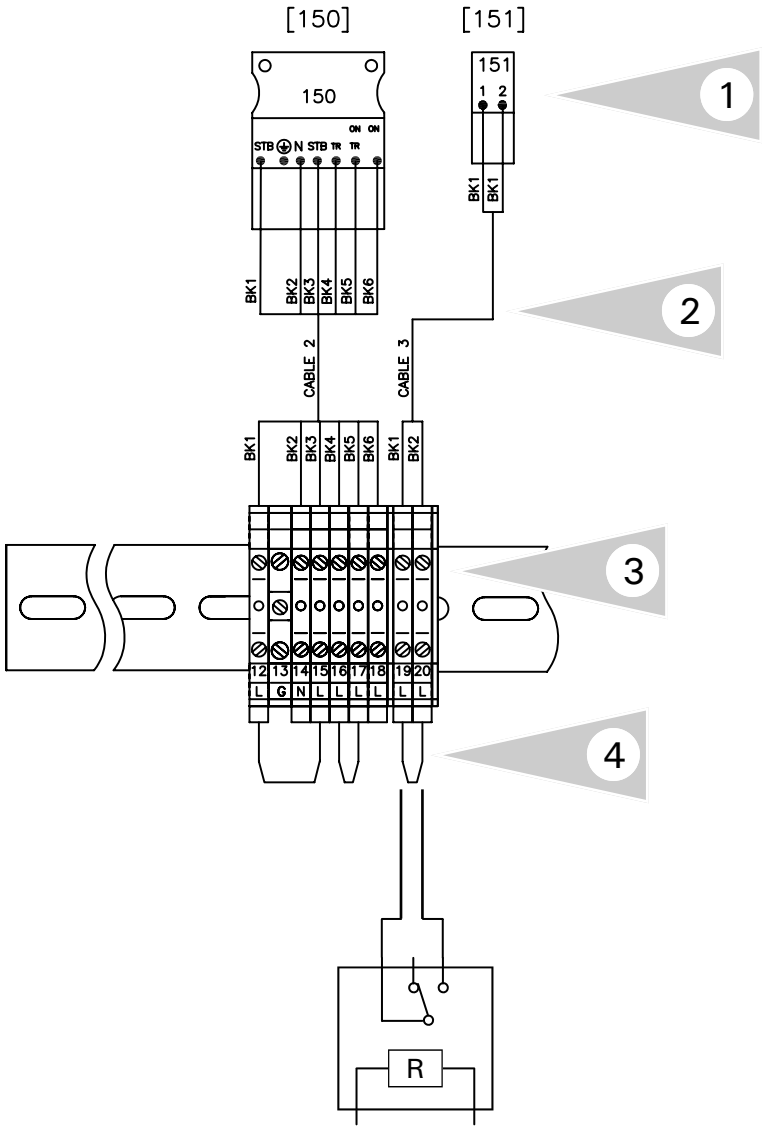
Applicable for Vitotronic 300, GW2

Burner Disable:
Dry contact to 151 terminal block.

Primary Consideration(s):
Dry contact disable part of the 120VAC burner call-for-heat circuit. Opening of the [151] junction will disable the entire control providing a complete control shutdown.

Configurations:
Burner disable contact wired to terminals 19 and 20.

Notes:
Depending on how the field supplied relay is wired, it may be possible to disable the burner when the relay is powered or not powered. When jumper 19 to 20 is removed or disabled, the control does not have the capability to maintain minimum boiler water temperature or provide freeze up protection.



Connection Overview

1 The [151] plug is plugged into the boiler control during the installation process. This plug is opaque in colour.

2 Two wire conductor between [151] plug and the DIN rail mounted terminal block.

3 The [151] terminal blocks are mounted on the DIN rail

4 One jumper found on the [151] DIN rail mounted terminal block. A jumper between terminals 19 and 20 is removed when installing an emergency shutdown device.

5 Field supplied relay (dry contact) to disable burner/ control connected to [151] terminal block.

Note: Relays used to provide dry contact disable to [151] terminal block are controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are: 24VAC, 120VAC, 24VDC.

Connections to the [151] terminal block are part of the 120VAC control voltage. When open, the control will experience a complete control shutdown. Ensure relay contacts or switch are suitable for this application.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

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BMS Connections—External Changeover of Modulation to Staging [146]

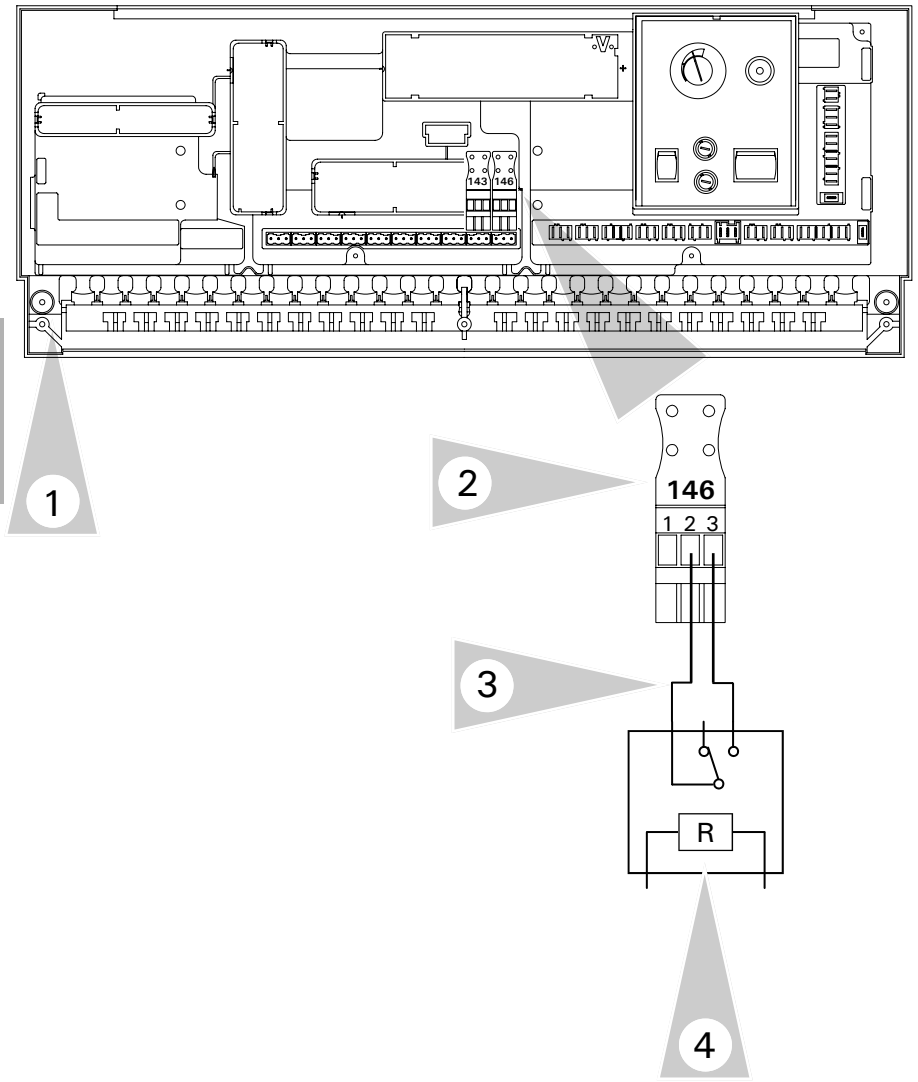
Applicable for Vitotronic 300, GW2 (without communications)

External Changeover of Staged to Modulating Burner:
Dry contact to [146] plug.

Primary Consideration(s):
Dual fuel equipped systems.

Configurations:
Dry contact to [146] plug onto terminals 2 and 3.
Boiler coding 02:2 for modulating burner.
Contact open: Modulating operation.
Contact closed: Two stage operation.
Burner must be set to modulating.

Notes:
When burner type is scanned in the control, modulation appears.
This function is generally used in conjunction with a manufacturer supplied burner panel which provides the switch over contact. Refer to wiring schematic of panel for specific information regarding burner.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 2 and 3. Open contact removes staging burner demand.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner changeover from modulation to staged operation when contact is closed between terminals 2 and 3.

Note: Relays used to provide dry contact demand to plug [146] is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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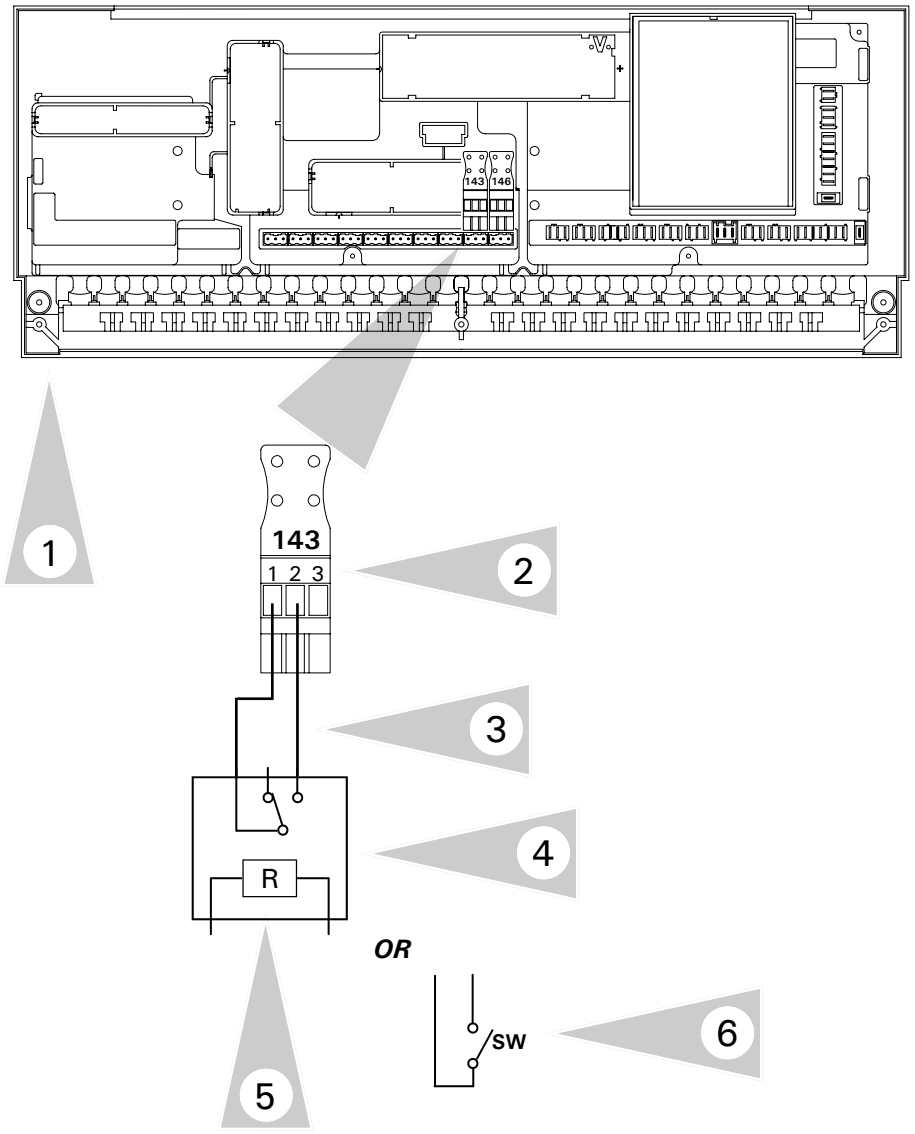
BMS Connections—External Change of Heating Program/Mixing Valve Open [143]

Applicable for Vitocontrol-S, MW1 (CT3/VD2/RS/VB2)

External Change of Heating Program *OR* Open Valves Demand:
Dry contact to [143] plug.

Primary Consideration(s):
Only one selection allowed either External Change of Heating Program or Open Valves demand.
Select which valves are affected by the change of heating program or open mixing valve demand.

Configurations:
External change of heating program Plug 143 terminals 1 and 2.
Open mixing valves demand Plug 143 terminals 1 and 2.
Address 91 change required for Change of Heating Program demand.
Address 9A change required for Open Valves demand.



Connection Overview

1 Boiler control.

2 Plug [143] used to interconnect control devices with boiler control. Ensure Plug [143] is plugged into the correct socket found in the boiler control.

3 Field supplied interconnection wire between Plug [143] and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and change over or mixing valve demand takes place.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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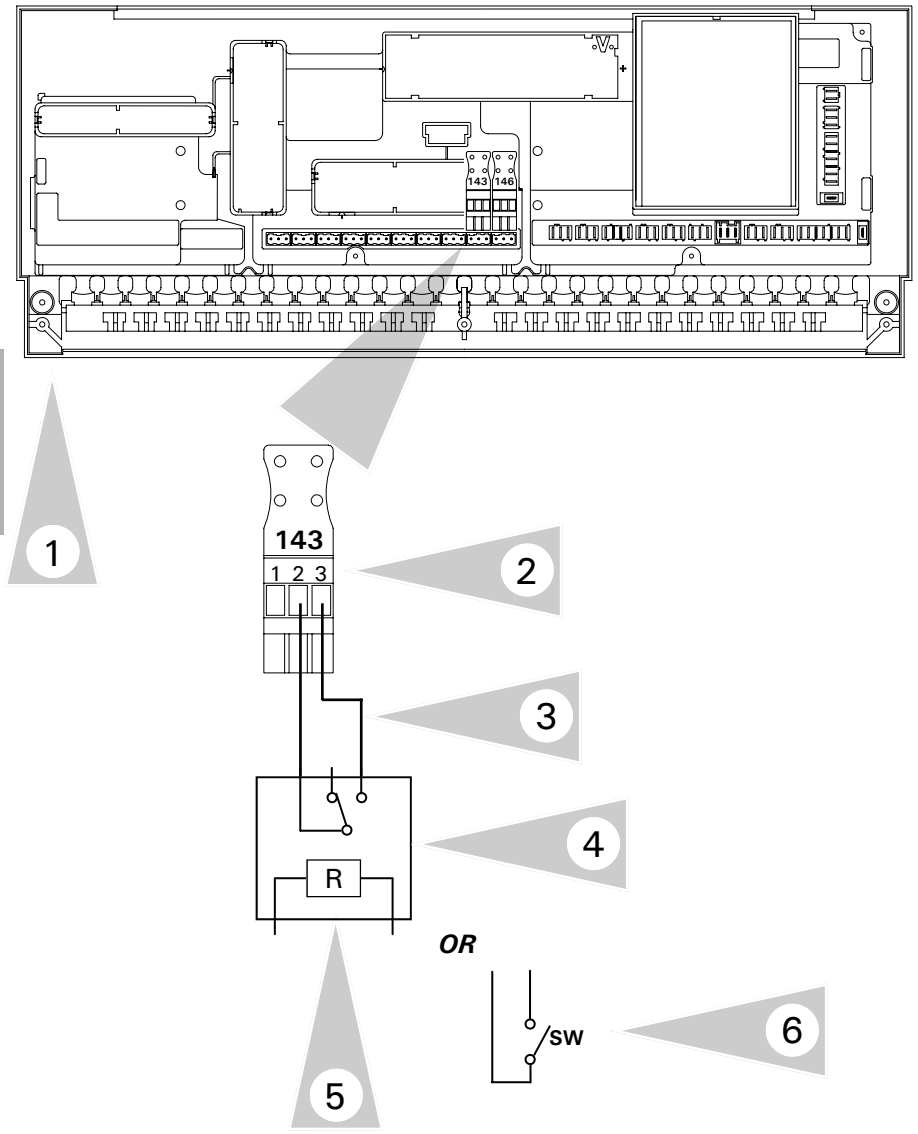
BMS Connections—External Disable/Mixing Valve Close [143]

Applicable for Vitocontrol-S, MW1 (CT3/VD2/RS/VB2)

External Disable/Close Mixing Valves:
Dry contact to [143] plug.

Primary Consideration(s):
There is no frost protection during external disable or close mixing valves demand. No minimum boiler water temperature is maintained during the contact closure.

Configurations:
Dry contact to [143] plug is connected to terminals 2 and 3.
Coding address 99 allows selection of operation between disable and mixing valve close demand.



Connection Overview

1 Boiler control.

2 Plug 143 used to interconnect control devices with boiler control. Ensure plug [143] is plugged into the correct socket found in the boiler control.

3 Field supplied interconnection wire between plug [143] and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and disable or close mixing valves demand takes place.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

No minimum boiler water temperature or freeze-up protection when control is disabled.

BMS Connections—External Demand [146]

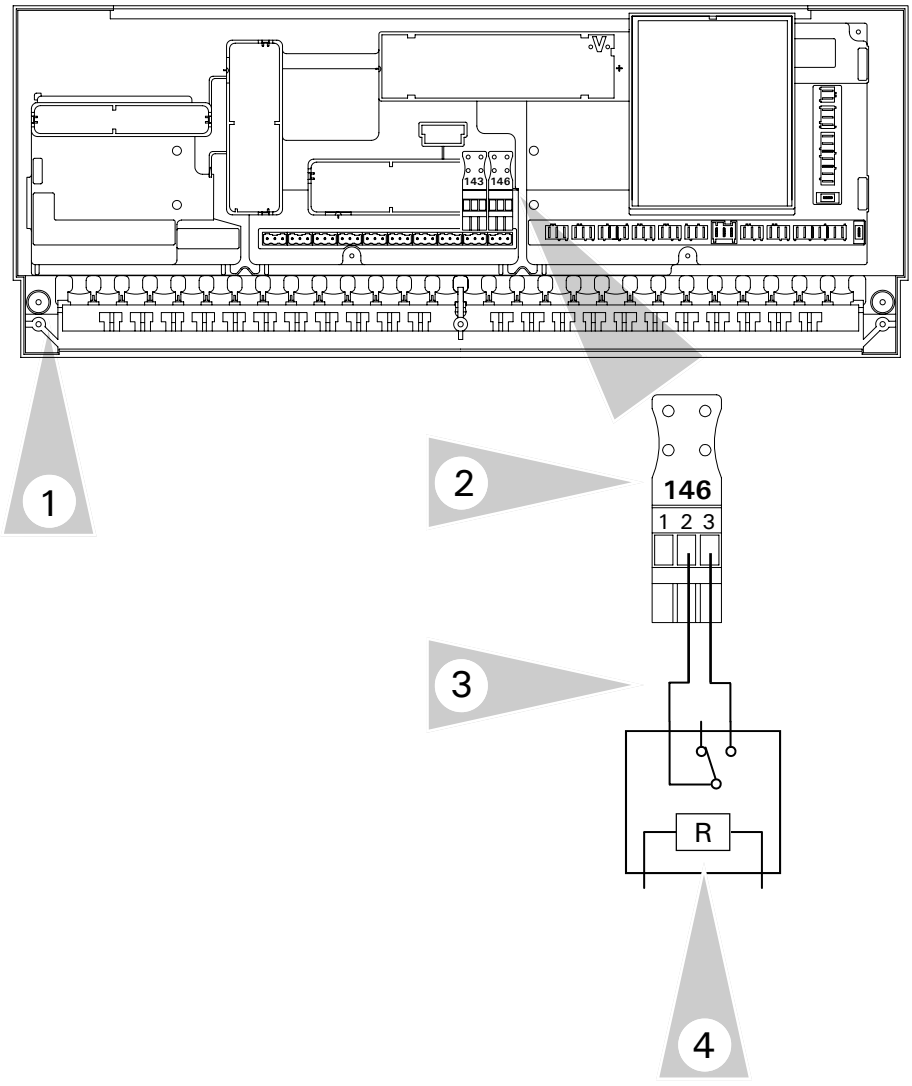
Applicable for Vitocontrol-S, MW1 (CT3/VD2/RS/VB2)

External Demand:
Dry contact to [146] plug

Primary Consideration(s):
The external demand input allows a dry contact to elevate the common supply/LLH above the calculated outdoor reset value.

Configurations:
Dry contact terminated at terminals 2 and 3
Common supply water temperature set point is determined by address 9b when contact is closed on plug [146].
Coding address 36 limits minimum supply temperature.
Coding address 37 limits maximum supply temperature calculated.
Coding address 47 determines the switch-off differential.

Notes:
Scan 8 in the diagnosis screen displays calculated set point temperature.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 2 and 3. Open contact removes demand.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide external demand when contact is closed between terminals 2 and 3.

Note: Relays used to provide dry contact demand to plug [146] is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Boiler Disable [143]

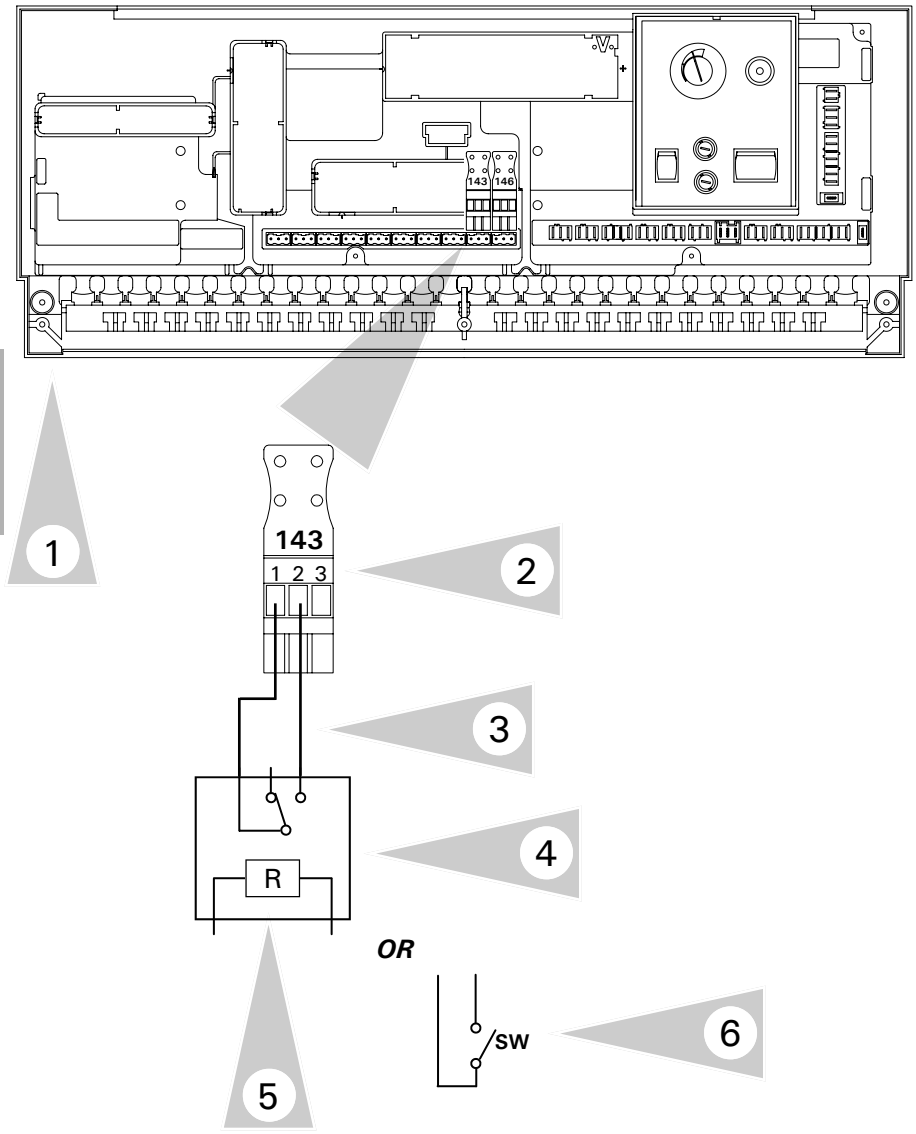
Applicable for Vitotronic 100, GC1 in conjunction with Vitocontrol-S, MW1 (CT3/VD2)

Boiler Disable:
Dry contact to 143 plug to terminals 1 and 2.

Primary Consideration(s):
To be able to disable a boiler from a sequence. The boiler/shunt pump as well as the return elevation valve are tuned off/closed. If all the boilers are disabled, the system will not maintain minimum boiler water temperature and frost protection is not possible.

Configurations:
Boiler disable terminated to plug [143] terminals 1 and 2.

Notes:
Opening the contact will put the boiler back in the current boiler sequence.



Connection Overview

1 Boiler control.

2 Plug [143] used to interconnect control devices with boiler control. Ensure plug [143] is plugged into the correct socket in the boiler control.

3 Field supplied interconnection wire between Plug 143 and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and the boiler is taken out of the current sequence.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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BMS Connections—Switch in Boiler as Last in Sequence [143]

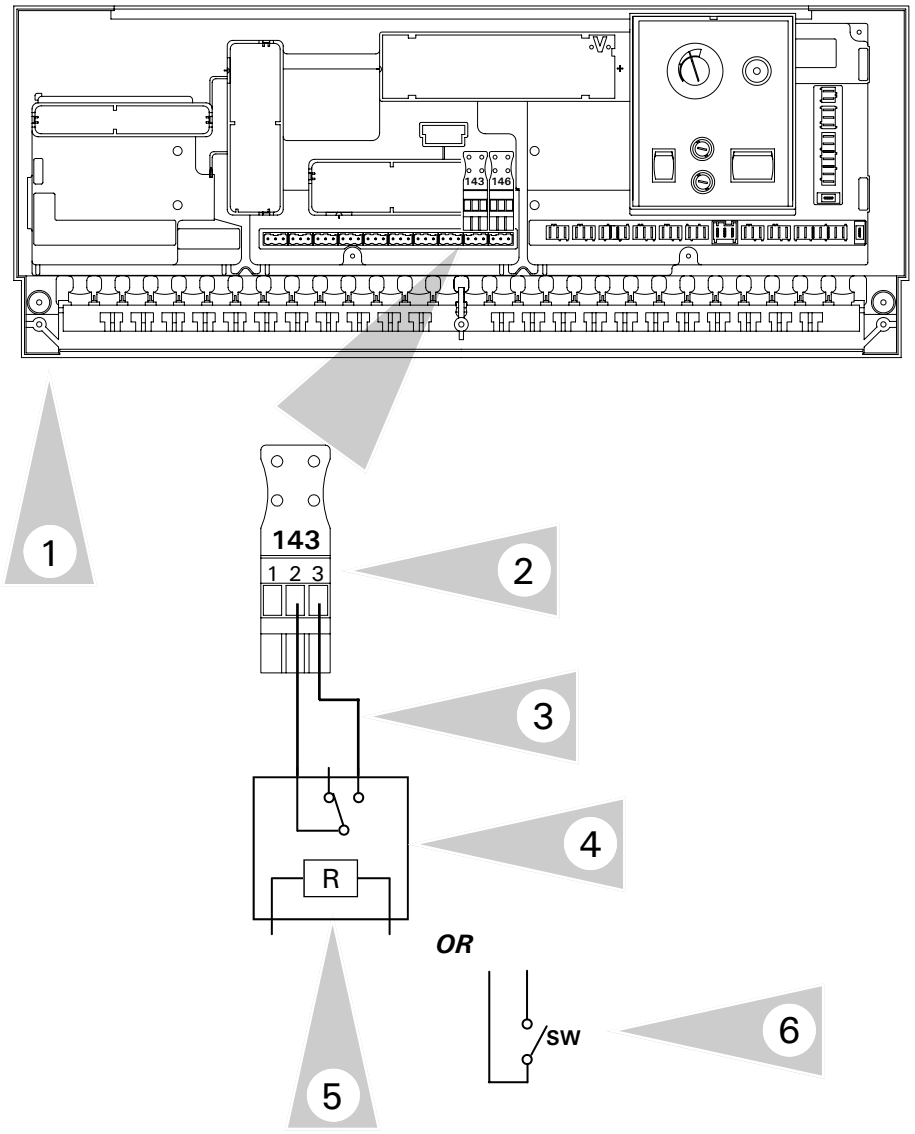
Applicable for Vitotronic 100, GC1 in conjunction with Vitocontrol-S, MW1 (CT3/VD2)

Switch in boiler as last in sequence:
Dry contact to [143 plug].

Primary Consideration(s):
Changes rotation of current boiler sequence.

Configurations:
Dry contact to 143 plug is connected to terminals 2 and 3.
Closed contact switches boiler to last in burner sequence.

Notes:
Function used if a particular boiler is to be used for a specific period of time.



Connection Overview

1 Boiler control.

2 Plug [143] used to interconnect control devices with boiler control. Ensure plug [143] is plugged into the correct socket in the boiler control.

3 Field supplied interconnection wire between plug [143] and control device.

4 Field supplied relay:
24VAC
120VAC
24VDC

5 Field supplied control relay. When coil energized, dry contact switch is made and boiler is placed at end of the rotation cycle.

6 Instead of relays, it may be possible to use simple switches to provide similar control functionality.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

BMS Connections—External Changeover of Modulation to Staging [146]

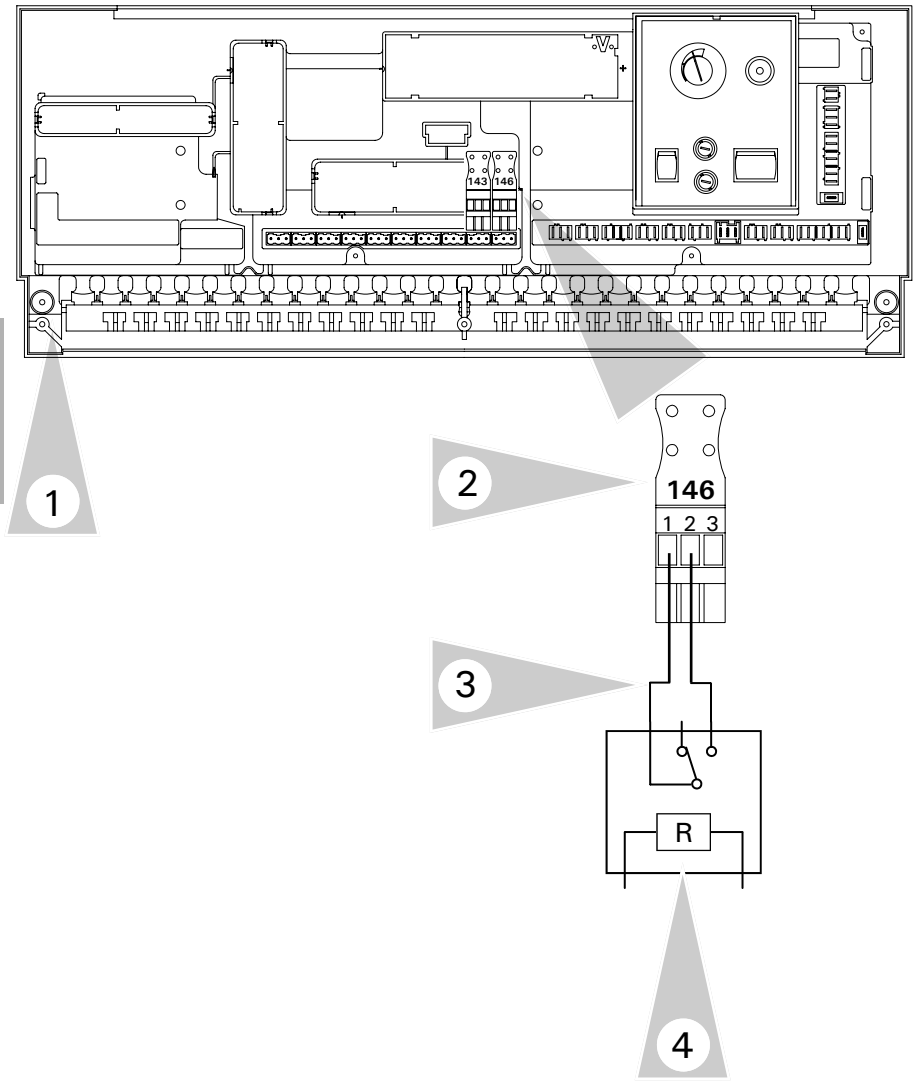
Applicable for Vitotronic 100, GC1 in conjunction with Vitocontrol-S, MW1 (CT3/VD2)

External Changeover of Staged to Modulating Burner:
Dry contact to [146] plug.

Primary Consideration(s):
Dual fuel equipped systems.

Configurations:
Dry contact to [146] plug onto terminals 1 and 2.
Boiler coding 02:2 for modulating burner.
Contact open: Modulating operation.
Contact closed: Two stage operation.
Burner must be set to modulating.

Notes:
When burner type is scanned in the control, modulation appears.
This function is generally used in conjunction with a manufacturer supplied burner panel which provides the switch over contact. Refer to wiring schematic of panel for specific information regarding burner.



Connection Overview

1 Boiler control.

2 Plug [146] used to interface demand signal to control via terminals 1 and 2. Open contact removes staging burner demand.

3 Field supplied relay and wiring interconnections.

4 Field supplied relay to provide burner changeover from modulation to staged operation when contact is closed between terminals 1 and 2.

Note: Relays used to provide dry contact demand to plug [146] is controlled by local BMS or system controller. The relay coil voltage must be compatible with the system that is controlling it. Some examples of this are 24VAC, 120VAC and 24VDC.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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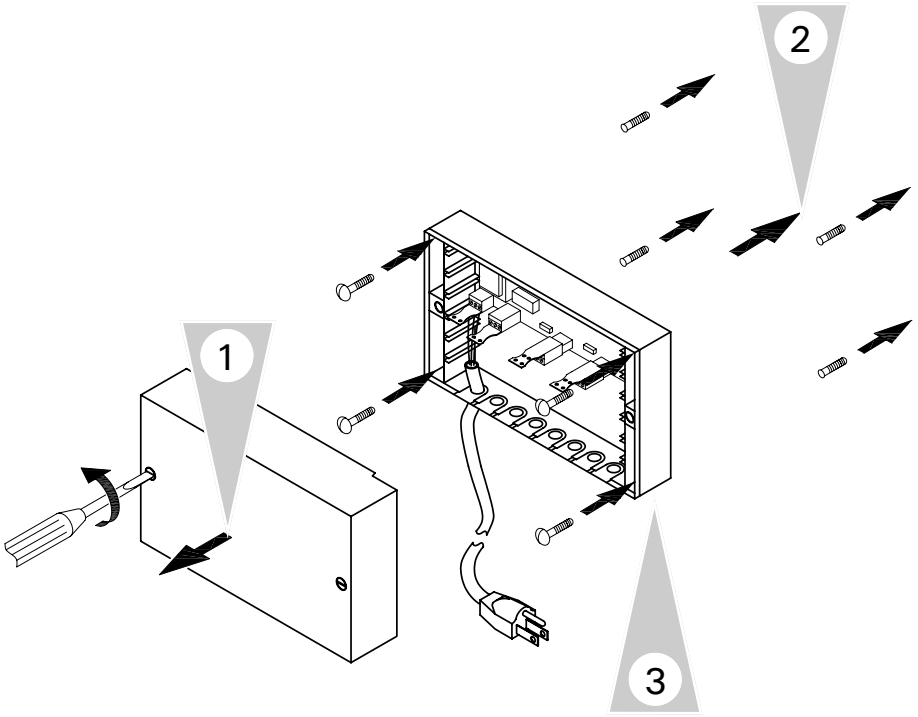
BMS Connections—Single/Multiple Boilers—0-10VDC 145 KM-BUS

Applicable for Vitotronic 100, GC1 (without communications)



Connection Overview

1 Remove cover from extension input module by loosening screws on either side of front cover. They are a slotted screw head.

2 Fasten to wall or surface with screws to securely mount.

3 All connections to the extension input module are made using the supplied plugs and installing the plugs into the respective socket on the circuit board.

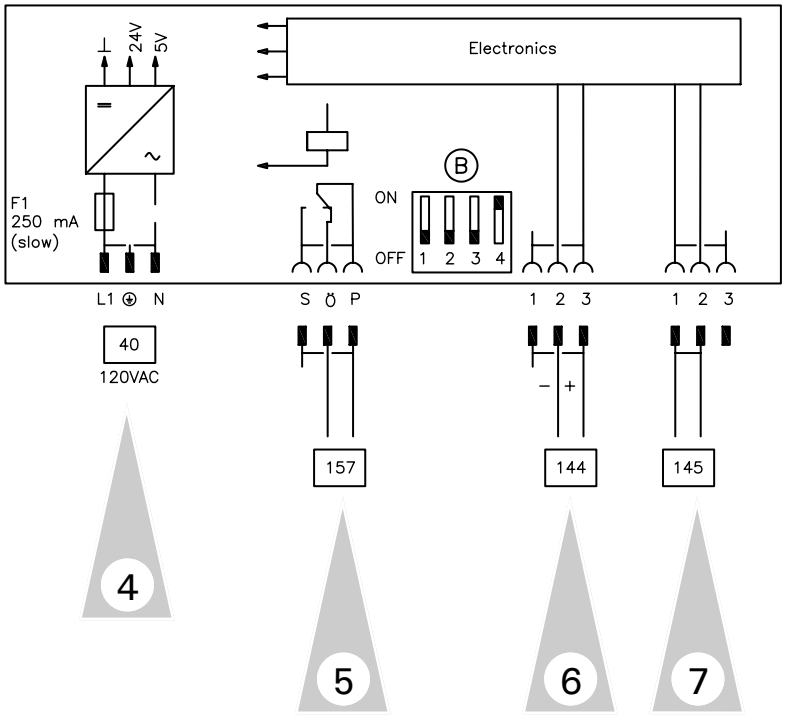
4 Incoming 120VAC power to module via grounded plug-in cable.

5 Switched output from module.

6 Input signal 0-10VDC onto terminals 2 and 3 of [144] plug. Terminal 2 of plug 144 is — Terminal 3 of plug 144 is +

7 Communication to boiler controls via [145] KM-BUS onto plug [145] terminals 1 and 2.

Note:
Coding address 9d is coded to 01 when module connected to control. Coding address 01 must be set to either 01 or 03 depending on application. Minimum temperature is maintained when input signal greater than 1VDC. Refer to manual for proper addressing.
DIP switch selectable range of temperatures, refer to manual



IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

BMS Connections—Single/Multiple Boilers—0-10VDC 145 KM-BUS

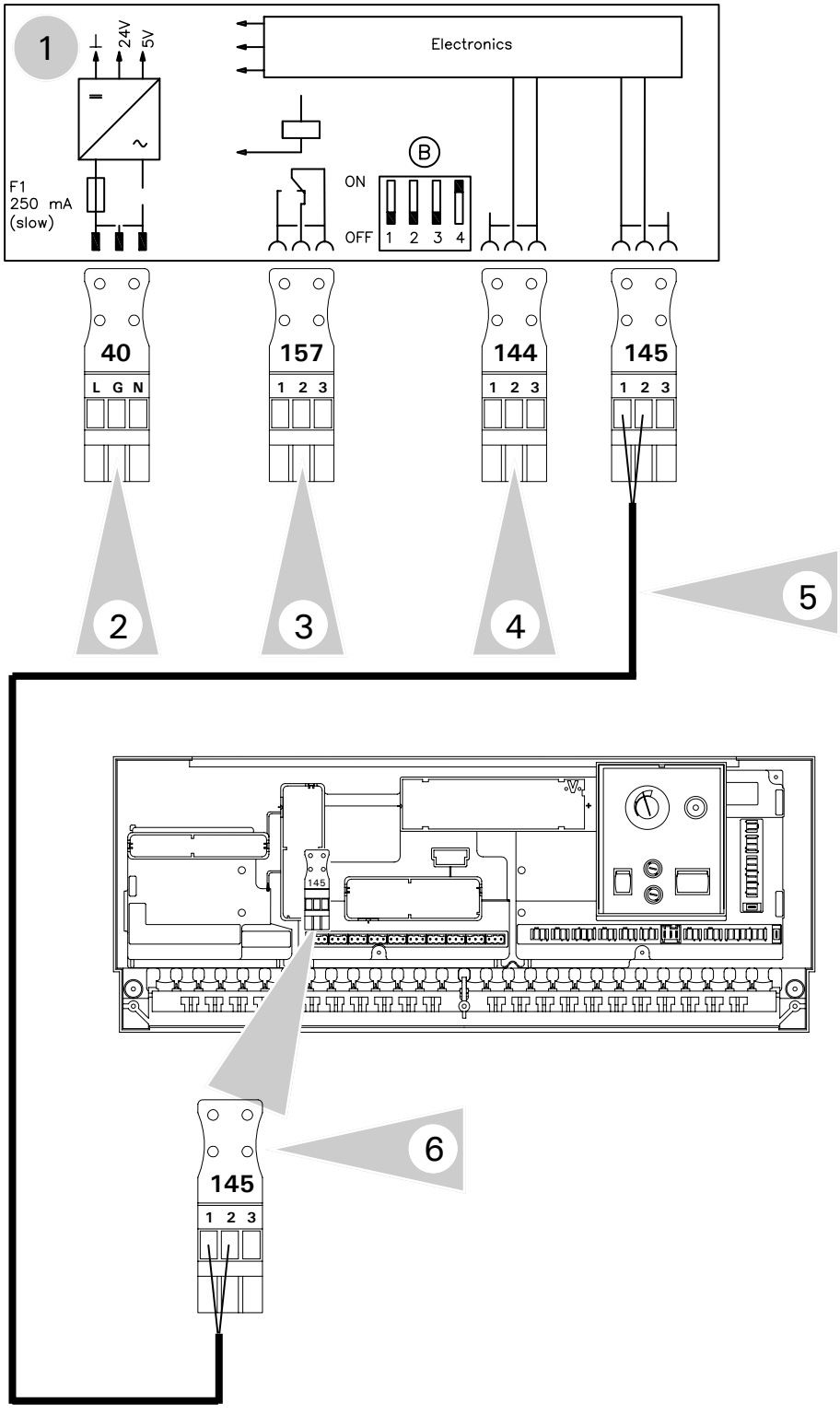
Applicable for Vitotronic 100, GC1 (without communications)

Configuration:

Boiler coded for 01:01

Input 0-10VDC signal wired to terminals 2 and 3 of plug [144]

Boiler will maintain minimum boiler water temperature regardless of 0-10VDC signal.



Connection Overview

1 Input Extension Module 0-10V provides signal to boiler control via 145 KM-BUS.

2 Incoming 120VAC power source.

3 Switched output.

4 Control signal 0-10VDC from BMS connected to plug [144].

5 Plug [145] KM-BUS communication between input module to boiler control. Field wired and terminated in input module and into [145] plug in boiler control.

6 Plug [145] plugged into control.

IMPORTANT

If proximity to high voltage wires cannot be avoided, use stranded, twisted pair or shielded wire. Ensure that only one end of wire is grounded.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Review manuals for specific information regarding addressing, values and detailed information.

CAUTION

When routing and running wiring for communication between control devices, there is the possibility of electromagnetic interference. Avoid running wires beside or near high voltage 120/240VAC conductors.

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BMS Connections—Single/Multiple Boilers—0-10VDC 145 KM-BUS

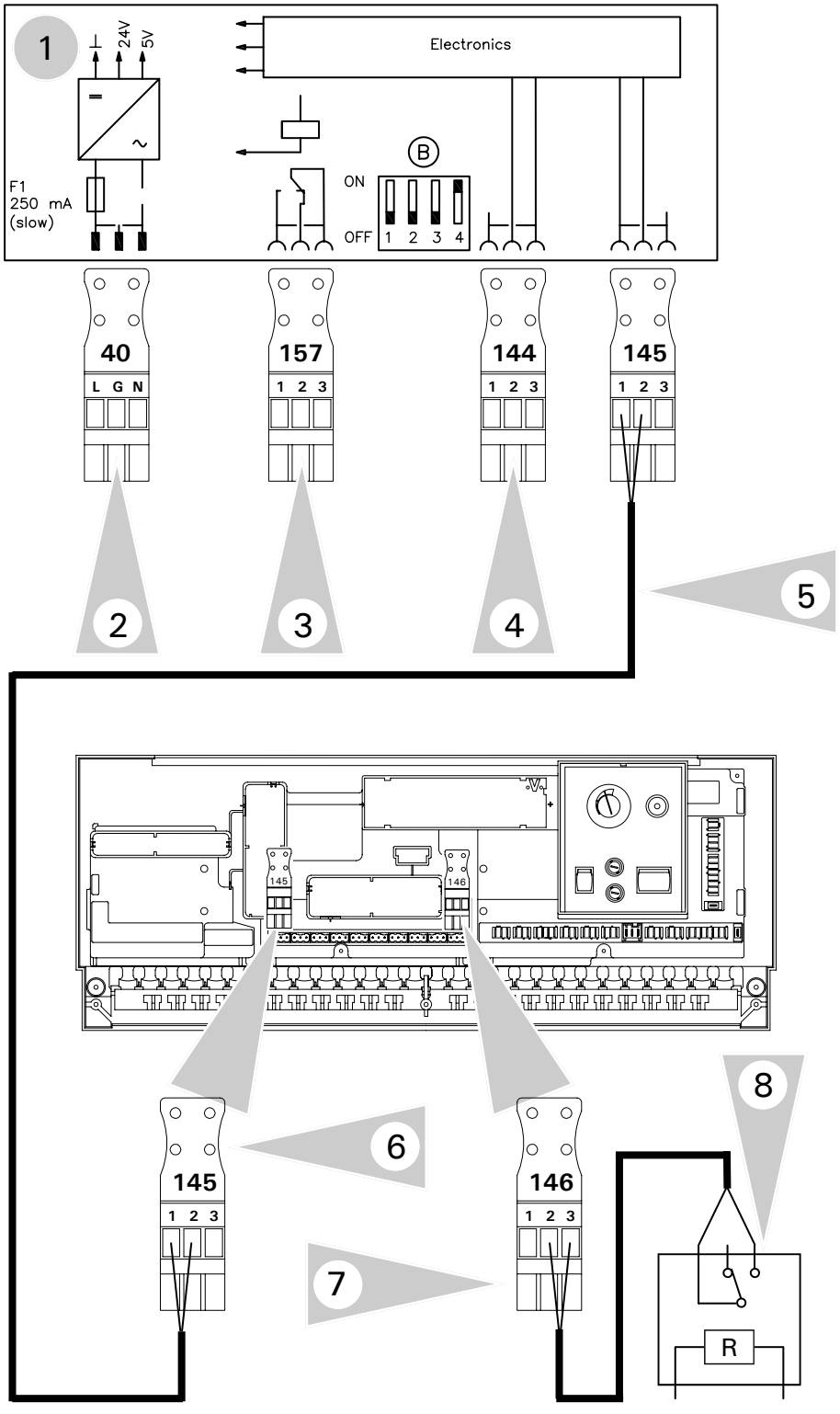
Applicable for Vitotronic 100, GC1 (without communications)

Configuration:

Boiler coded for 01:03.

Input 0-10VDC signal wired to terminals 2 and 3 of plug [144].

A signal of 0-1VDC, will not maintain minimum temperature. If minimum temperature necessary, contact closure 2 and 4 on [144] is necessary.



Connection Overview

1 Input Extension Module 0-10V provides signal to boiler control via 145 KM-BUS.

2 Incoming 120VAC power source.

3 Switched output.

4 Control signal 0-10VDC from BMS connected to plug [144].

5 Plug [145] between input module and boiler control. Field wired and terminated in input module and into [145] plug in boiler control.

6 Plug [145] within control.

7 Plug [146] in control used to main minimum boiler water temperature when contact closed and 0-10VDC signal at 0VDC.

8 Field supplied and wired relay into [146] plug.

IMPORTANT

If proximity to high voltage wires cannot be avoided, use stranded, twisted pair or shielded wire. Ensure that only one end of wire is grounded.

IMPORTANT

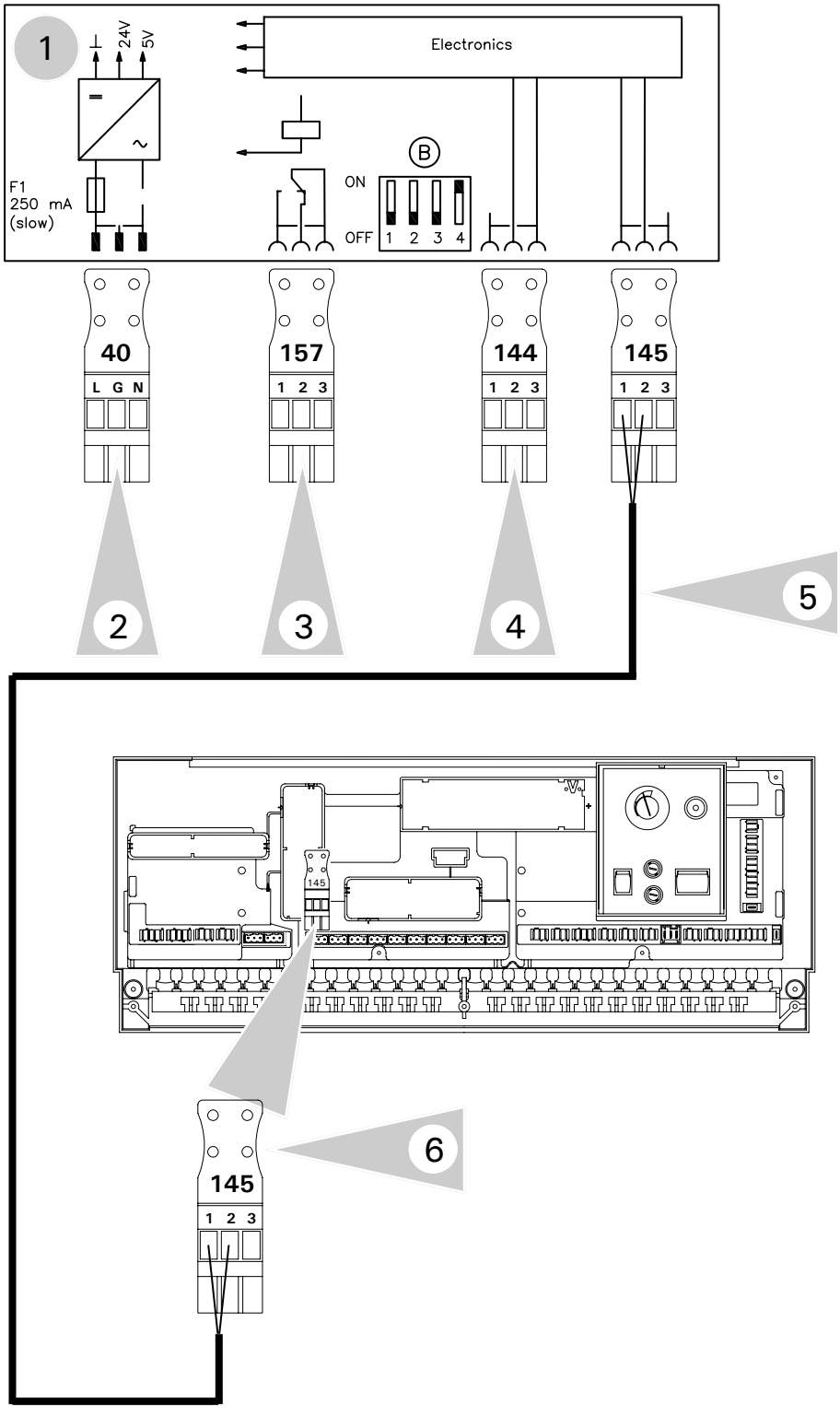
Ensure that all field wiring conforms to local codes and regulations.

CAUTION

When routing and running wiring for communication between control devices, there is the possibility of electromagnetic interference. Avoid running wires beside or near high voltage 120/240VAC conductors.

BMS Connections—Single Boiler—0-10VDC 145 KM-BUS

Applicable for Vitotronic 300, GW2 (without communications)



Connection Overview

1 Input Extension Module 0-10V provides signal to boiler control via 145 KM-BUS.

2 Incoming 120VAC power source.

3 Switched output.

4 Control signal 0-10VDC from BMS connected to plug [144].

5 Plug [145] KM-BUS communication between input module to boiler control. Field wired and terminated in input module and into [145] plug in boiler control.

6 Connection of 145 KM BUS communications within control.

IMPORTANT

If proximity to high voltage wires cannot be avoided, use stranded, twisted pair or shielded wire. Ensure that only one end of wire is grounded.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Review manuals for specific information regarding addressing, values and detailed information.

CAUTION

When routing and running wiring for communication between control devices, there is the possibility of electromagnetic interference. Avoid running wires beside or near high voltage 120/240VAC conductors.

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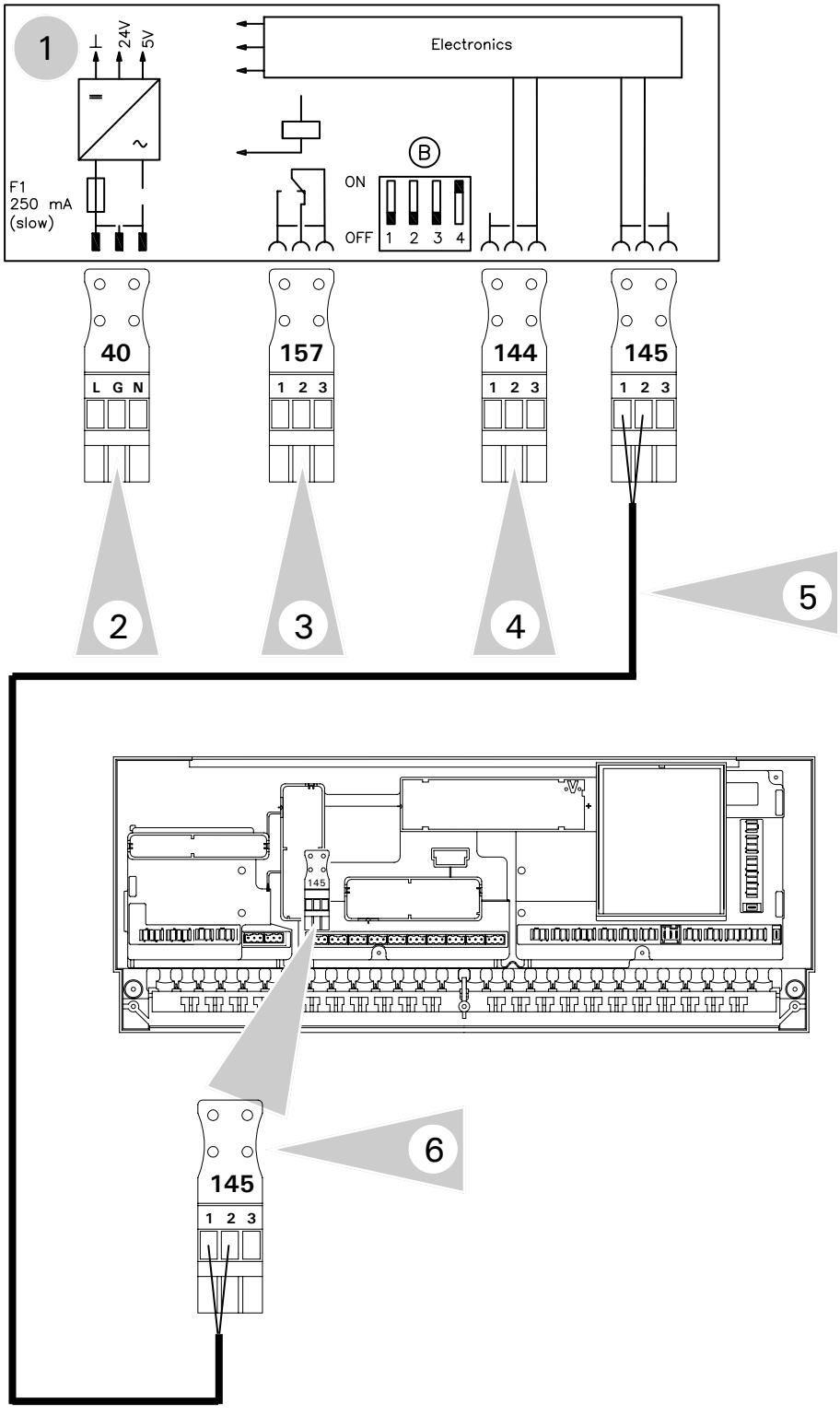
BMS Connections—Single Boiler—0-10VDC 145 KM-BUS

Applicable for Vitocontrol-S, CT3/VD2, MW1



Connection Overview

1 Input Extension Module 0-10V provides signal to boiler control via 145 KM-BUS

2 Incoming 120VAC power source.

3 Switched output

4 Control signal 0-10VDC from BMS connected to plug [144].

5 Plug [145] KM-BUS communication between input module to boiler control. Field wired and terminated in input module and into [145] plug in boiler control.

6 Connection of 145 KM BUS communications within control.

IMPORTANT

If proximity to high voltage wires cannot be avoided, use stranded, twisted pair or shielded wire. Ensure that only one end of wire is grounded.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

IMPORTANT

Review manuals for specific information regarding addressing, values and detailed information.

CAUTION

When routing and running wiring for communication between control devices, there is the possibility of electromagnetic interference. Avoid running wires beside or near high voltage 120/240VAC conductors.

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Communication Interconnection Information

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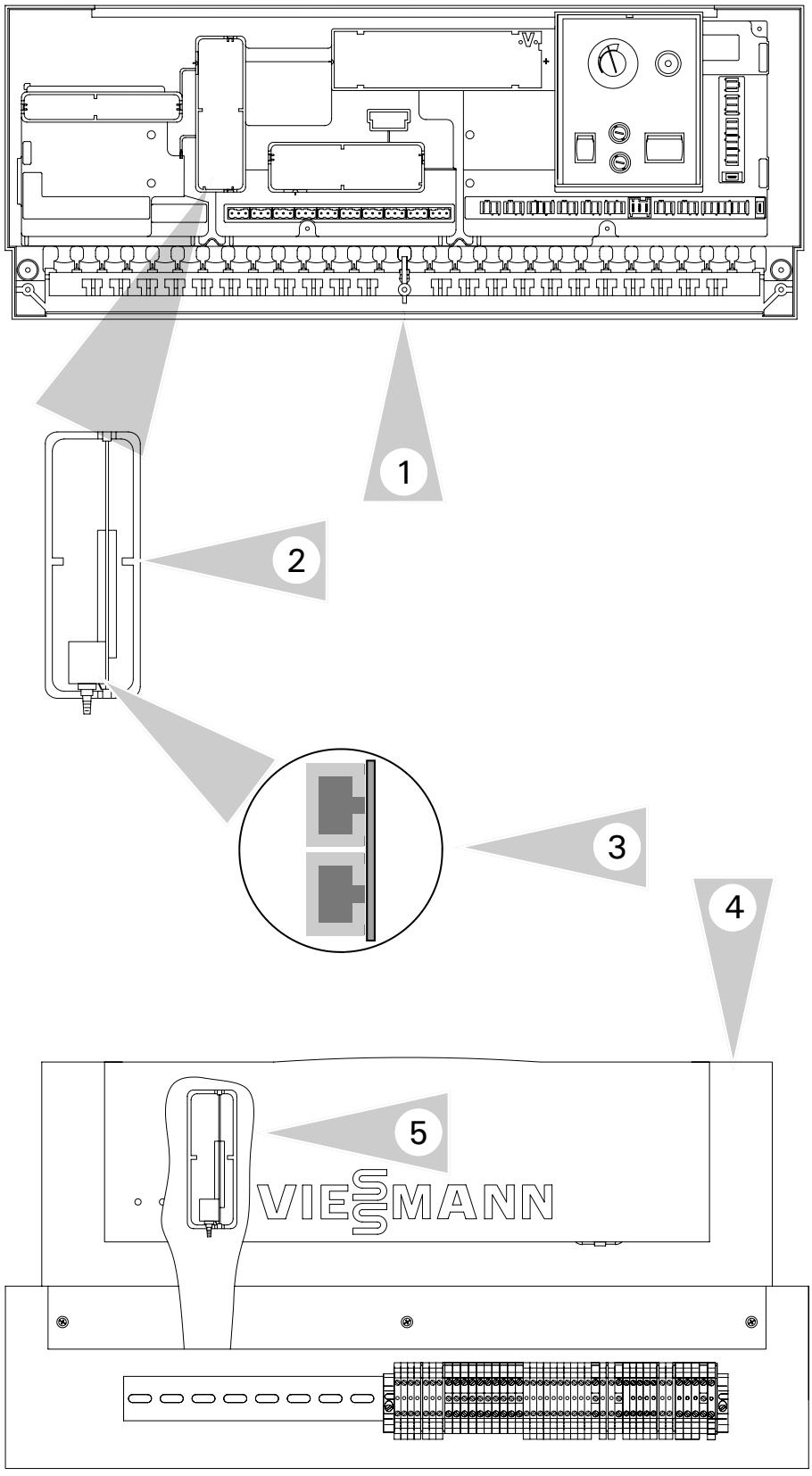
LON Connections—General Installation of LON Communication Card

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2 and Vitocontrol-S, CT3/VD2/RS/VB2, MW1



Connection Overview

Refer to manual specific to control. Detailed information regarding coding and set up to be referenced within.

1 Open control showing location of LON card and its location within.

2 The LON card is plugged into main motherboard. Install LON card with two RJ45 sockets facing downwards.

3 Drawing showing two RJ45 sockets from the bottom of the LON card. The communication cable is plugged into either of these receptacles. For continuous communications, the remaining socket is used for the outgoing communication cable. Where the control is at the end of a communication BUS, an-end-of-line termination resistor is installed.

4 Communication cable shown with control front closed in relation to the junction box with DIN rail below.

5 Installed LON card.

IMPORTANT

Refer to control specific manual with respect to proper addressing when installing the LON communication card for single and multiple boilers.

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

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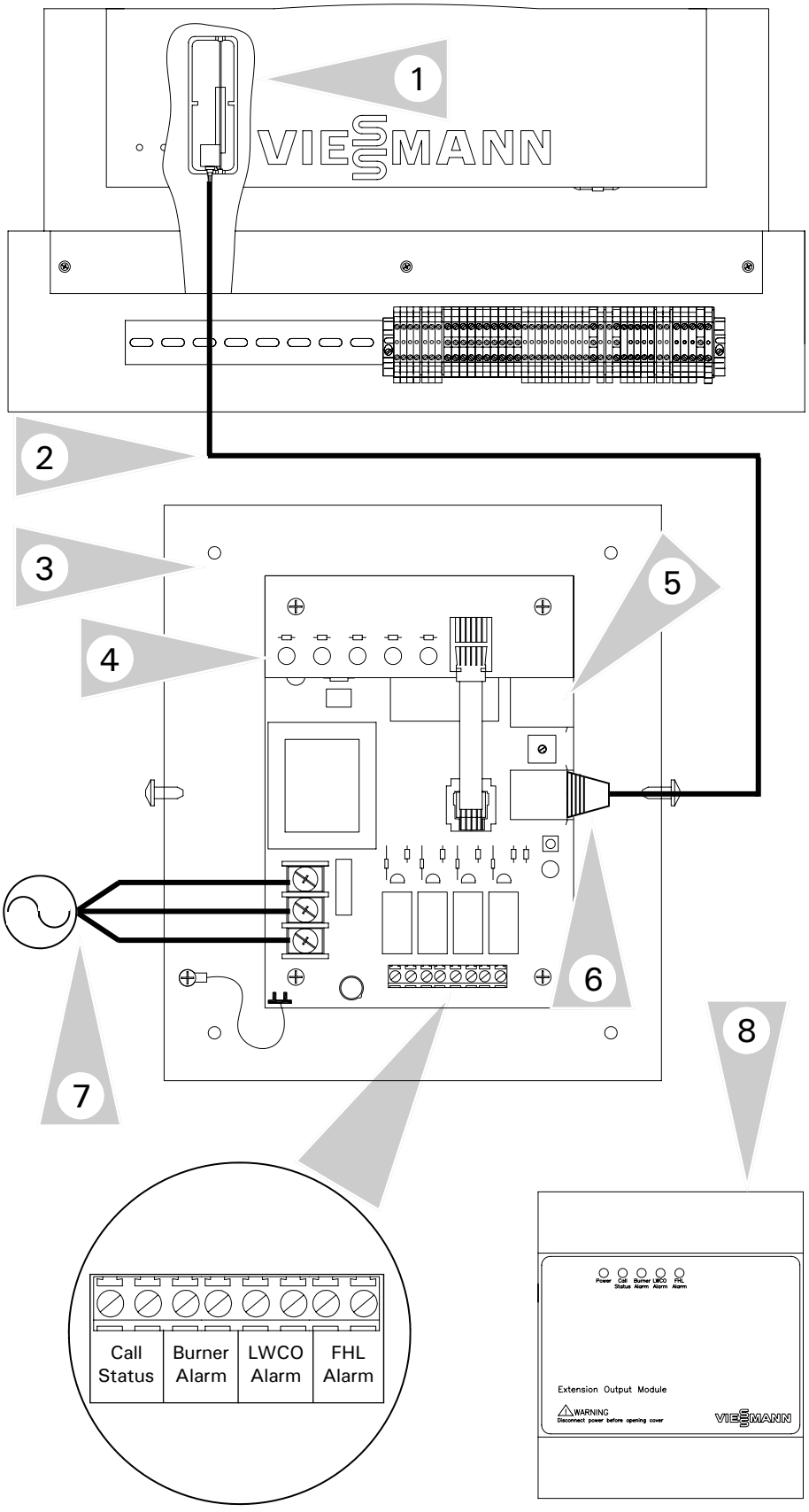
LON Connections—Extension Output Module (Optional)

Applicable for Vitotronic 100, GC1, Vitotronic 300, GW2



Connection Overview

Refer to manual specific to control. Detailed information regarding the Extension Output Module connections, coding and set-up to be referenced within.

1 Control showing location of LON card and its location within.

2 A CAT-5 cable is supplied with the output module. The RJ45 is plugged into the control and terminates into the output module.

3 Output Module housing.

4 Indication LED's within output module. The LED status is visible with cover on through the label.

5 Second RJ45 socket for termination resistor or continuation of LON communication to successive boiler control.

6 The LON communication cable from the control is plugged into the Output Module.

7 Field-wired incoming power supply for the output module. It requires 120VAC for its operation.

8 Lid of output module.

Technical Information

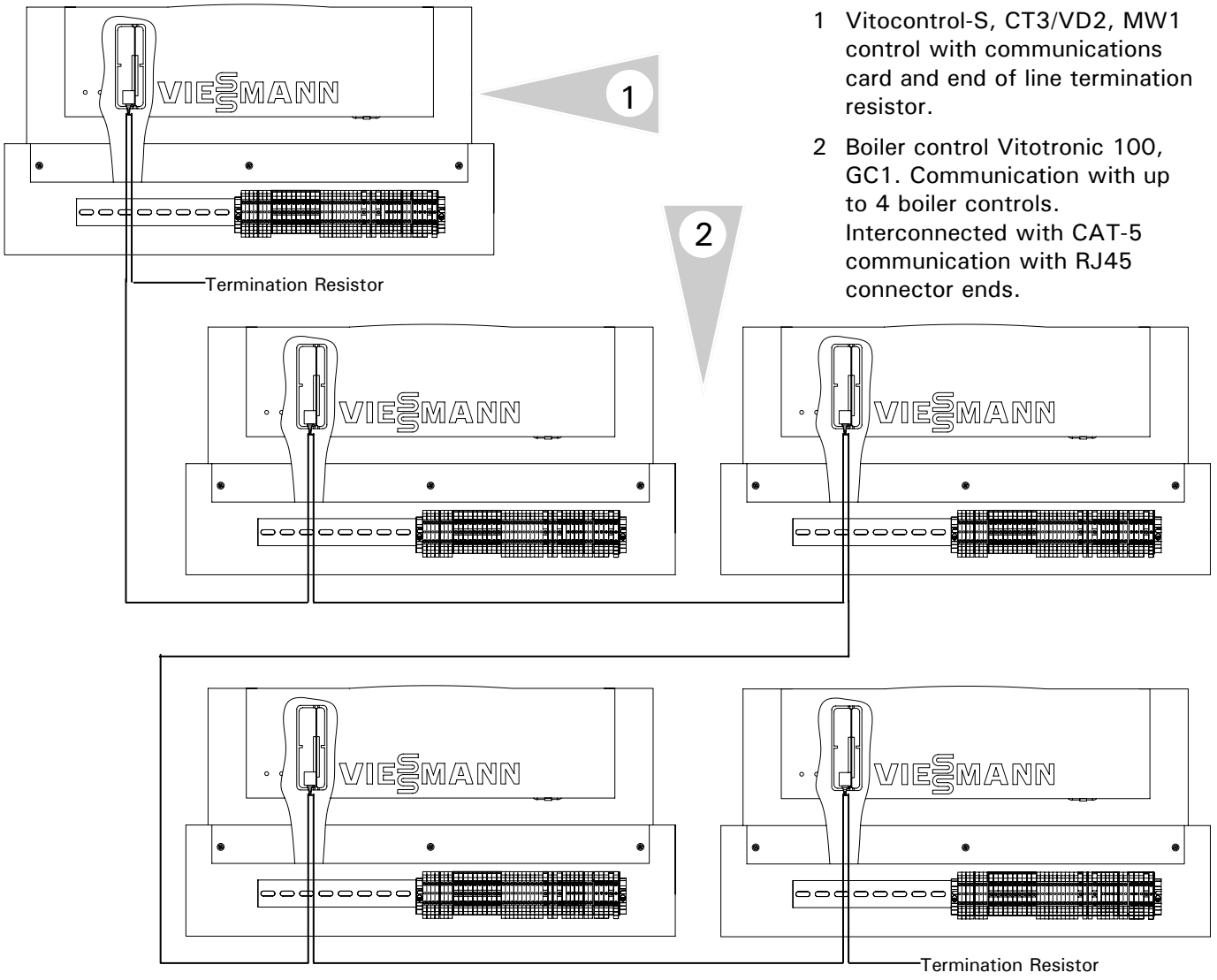
Power supply:
120VAC
Output Contact Rating
Maximum 30VAC/VDC
Maximum 0.5FLA

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

LON Connections—System Overview

Applicable for Vitotronic 100, GC1, and Vitocontrol-S, CT3/VD2



Connection Overview

1 Vitocontrol-S, CT3/VD2, MW1 control with communications card and end of line termination resistor.

2 Boiler control Vitotronic 100, GC1. Communication with up to 4 boiler controls. Interconnected with CAT-5 communication with RJ45 connector ends.

Technical Information

Distance between controls with Viessmann communication cable 7m/23Ft.
Up to three extensions between controls totalling 21m/69Ft in length.
Communication with up to 99 participants on with a total length of 900m/3000Ft.

IMPORTANT

Refer to control specific manual with respect to proper addressing when installing the LON communication card for single and multiple boilers.

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

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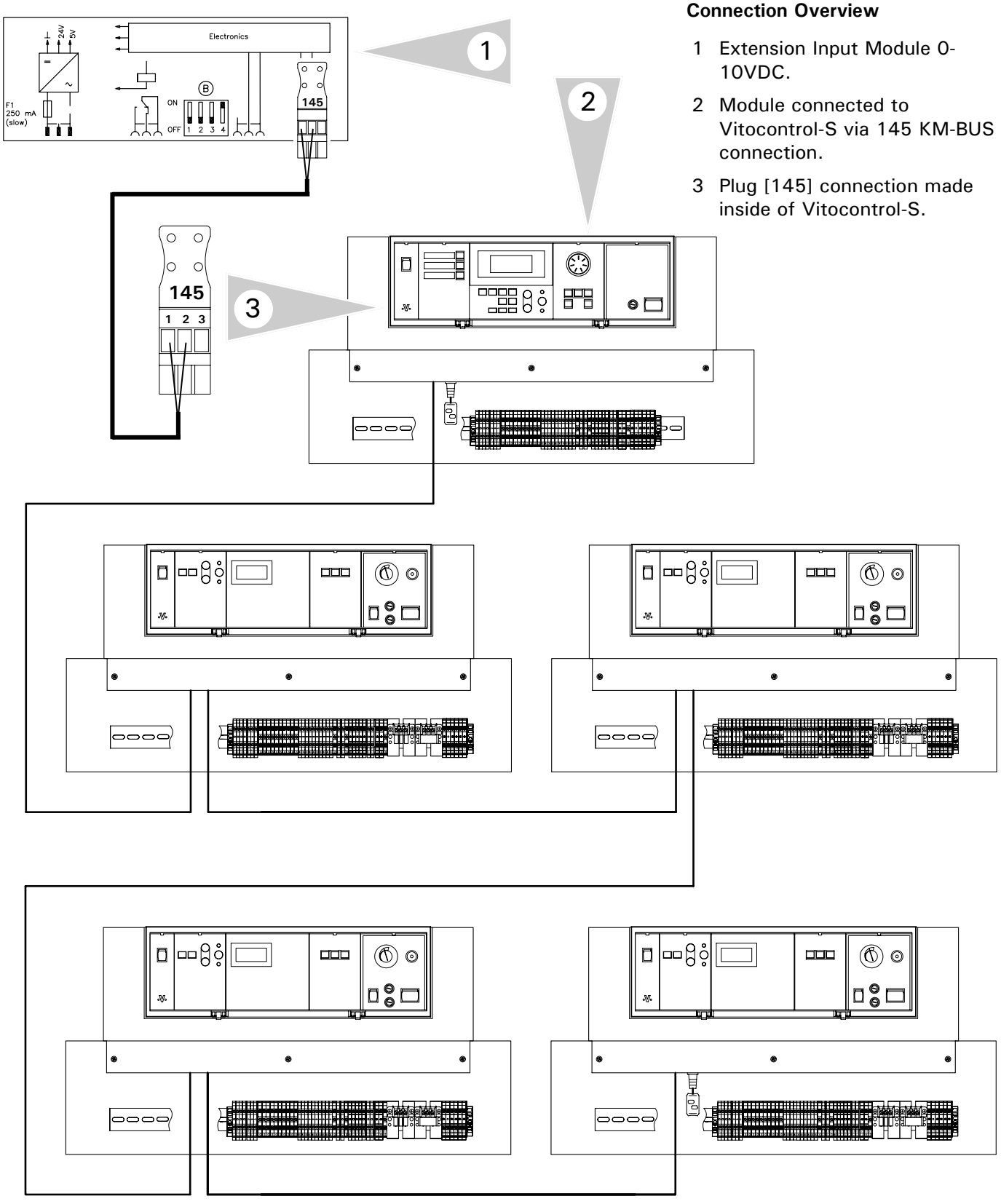
LON Connections—System Overview with Extension Input Module 0-10VDC

Applicable for Vitotronic 100, GC1, and Vitocontrol-S, CT3/VD2



Connection Overview

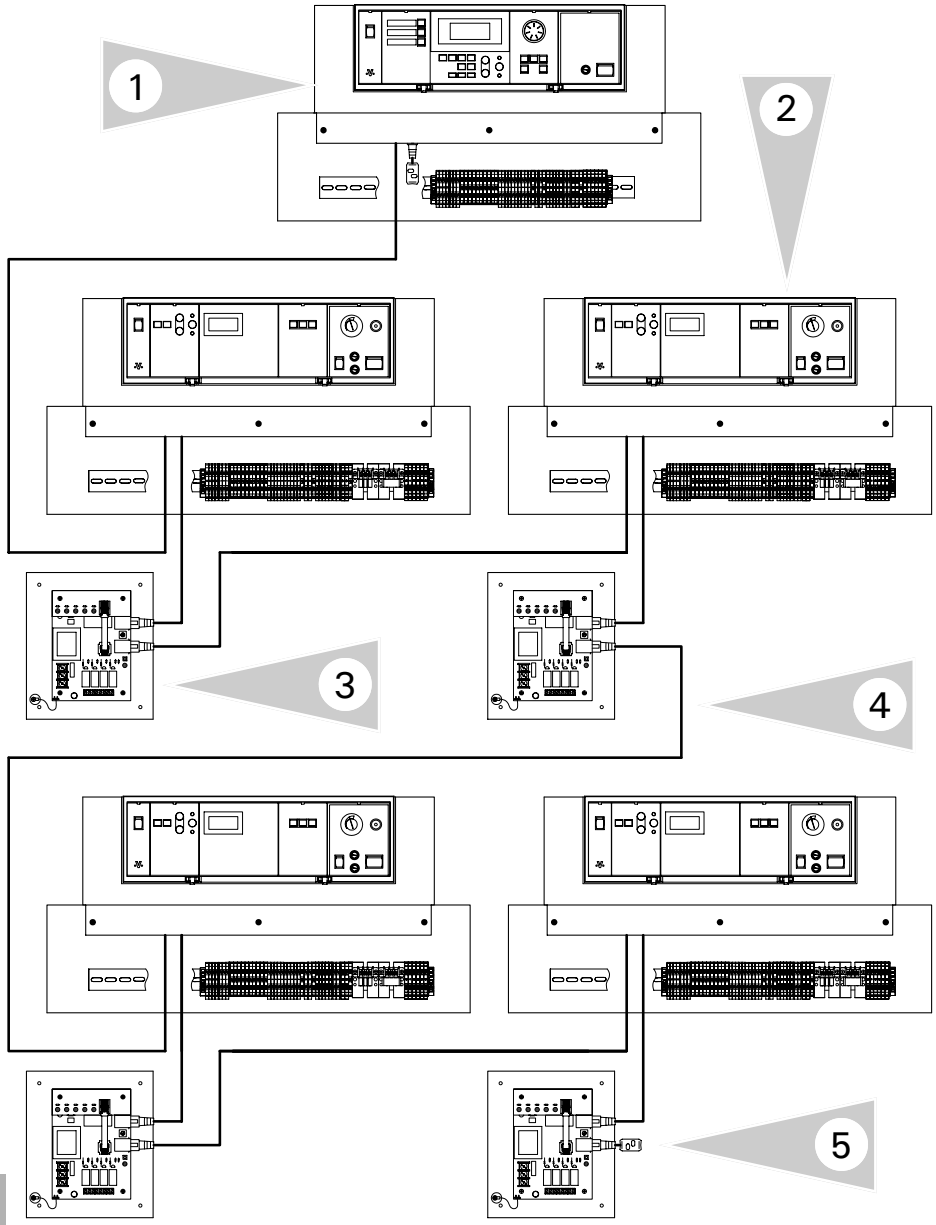
1 Extension Input Module 0-10VDC.

2 Module connected to Vitocontrol-S via 145 KM-BUS connection.

3 Plug [145] connection made inside of Vitocontrol-S.

LON Connections—System Overview with Extension Output Module

Applicable for Vitotronic 100, GC1, and Vitocontrol-S, CT3/VD2



Connection Overview

1 Vitocontrol-S, CT3/VD2, MW1 control with communications card and end-of-line termination resistor.

2 Boiler control Vitotronic 100, GC1. Communication with up to 4 boiler controls.

3 Extension output module for each boiler control interconnected by CAT-5 communication cabling.

4 Communication cable CAT-5 between devices.

5 End-of-line termination resistor is plugged into the last device on the communication BUS between the devices.

Technical Information

Distance between controls with Viessmann communication cable 7m/23Ft.
Up to three extensions between controls totalling 21m/69Ft in length.
Communication with up to 99 participants on with a total length of 900m/3000Ft.

IMPORTANT

Refer to control specific manual with respect to proper addressing when installing the LON communication card for single and multiple boilers.

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

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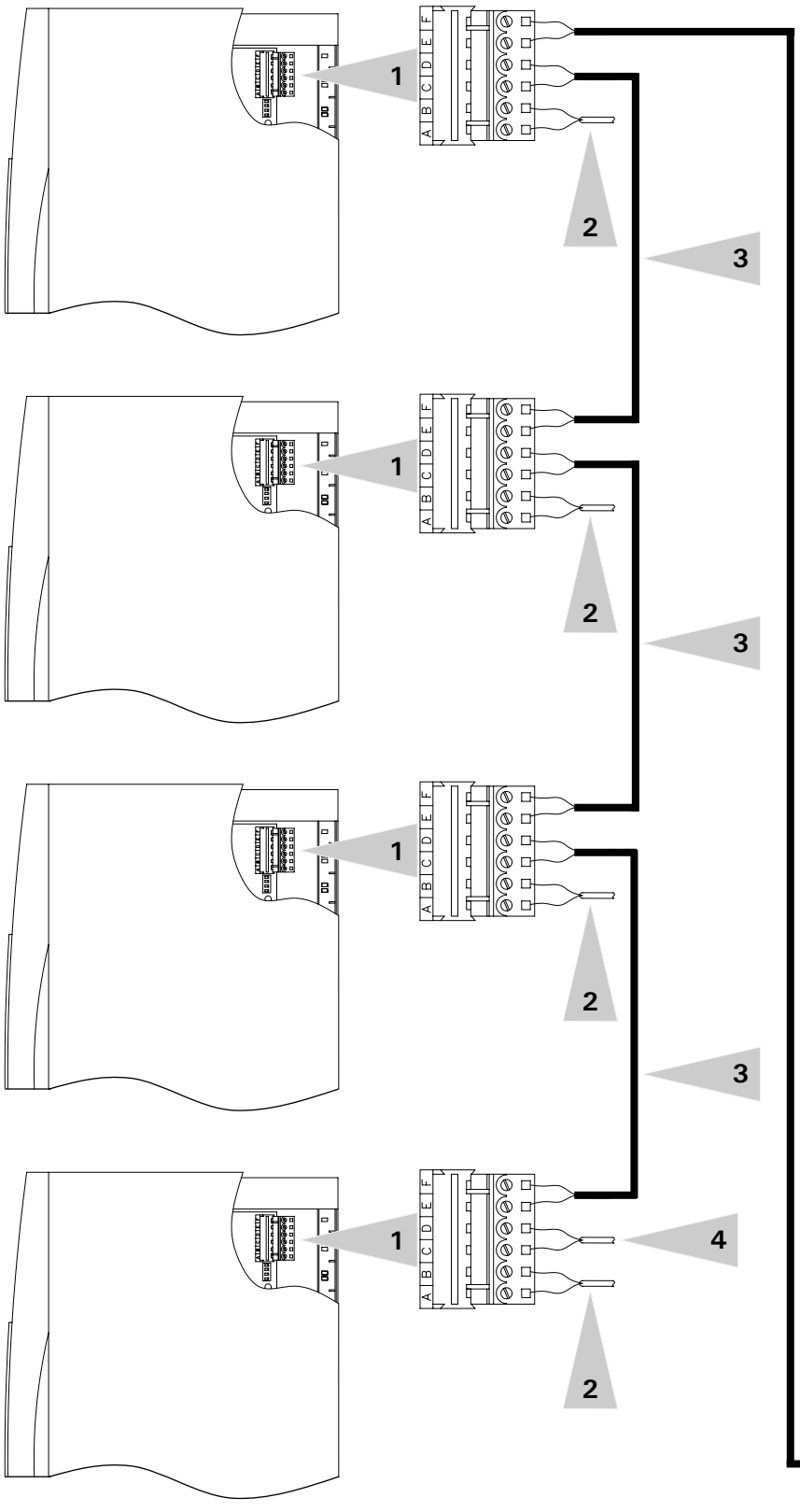
LON Connections—System Overview

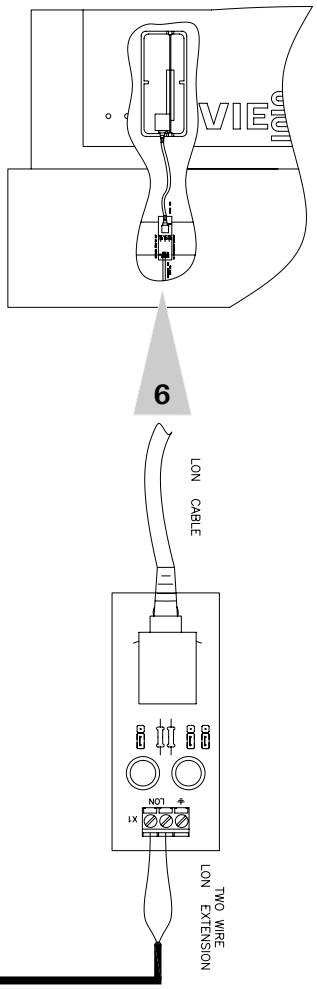
Applicable for Vitotronic 100, KK10LON, and Vitocontrol-S, CT3/VD2

Note: Shown as BUS wiring configured as free topology with RJ45 adapter.



Connection Overview

1 Plug connections in each KK10 control for terminating communication and boiler temperature sensor.
2 Boiler temperature sensor termination for each control.
3 Communication wiring between controls. Use shielded two wire cabling to minimize EMI between KK10LON controls and Vitocontrol-S, RS/VB2.
4 Communication connection is not used.
5 RJ45 Adapter board.
6 CAT-5 cabling with RJ45 ends plugged into Adapter board and LON communication board inside of Vitocontrol-S, RS/VB2.



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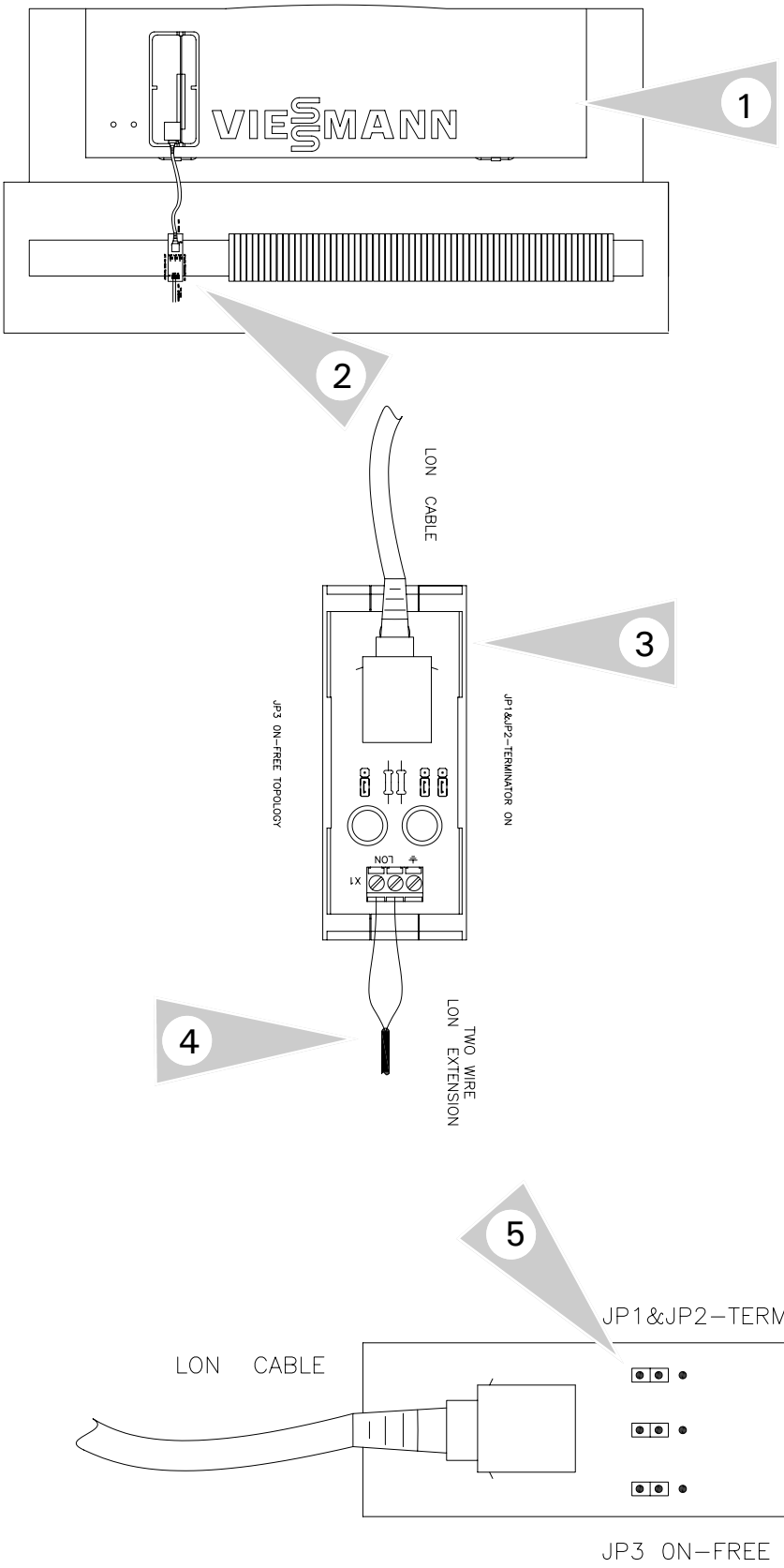
LON Connections—System RJ45LON Adapter Overview

Applicable for Vitotronic 100, GC1, and Vitocontrol-S, RS/VB2



Connection Overview

1 Vitocontrol-S, RS/VB2 system control capable of communicating with up to four boiler controls Vitotronic 100, KK10LON.

2 Installation of the RJ45 LON Adaptor provides the ability to interface the two wire connection from the KK10LON controls to the Vitocontrol-S, RS/VB2. The adaptor and Vitocontrol-S use CAT-5 connection cable supplied with the adaptor. Refer to the RJ45 adaptor manual for specific information.

3 Jumper settings on adaptor board must be checked for proper operation. Refer to the specific manual for necessary settings.

4 Communication connections to KK10LON controls.

5 Verify the RJ45 Adaptor jumpers have been set to correspond with the system. Jumpers JP1, JP2 and JP3 must be set to ON. This configuration allows for a Free BUS Topology with the adaptor acting as the termination resistor. Refer to adaptor manual for detailed information.

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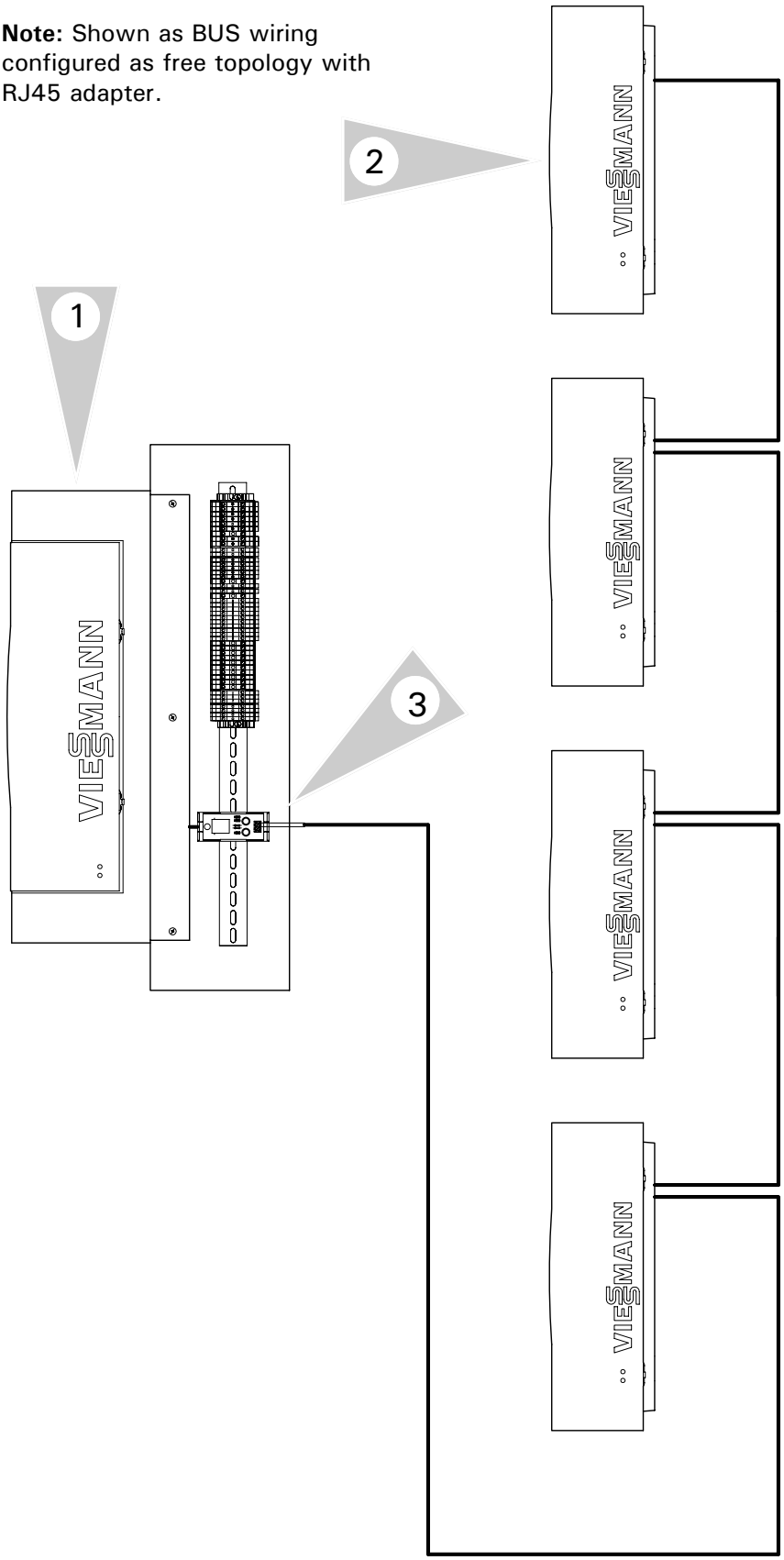
LON Connections—System Overview BUS Topology Example

Applicable for Vitotronic 100, KK10LON, and Vitocontrol-S, RS/VB2

Note: Shown as BUS wiring configured as free topology with RJ45 adapter.



System Overview

1 The Vitocontrol-S unit for operation with KK10LON boiler controls.

2 The KK10LON boiler control is equipped with a communication board which allows it to communicate to the Vitocontrol-S, RS/VB2.

3 The RJ45LON adapter which provides conversion from CAT5 communications to two wire. As well, the RJ45LON adapter can be configured for either Free Topology or BUS Topology.

Note:
Review manual for Vitotronic 100, KK10 with respect to DIP switch settings as well as other information.

Technical Information

Distance between controls with Viessmann communication cable 7m/23Ft.
Up to three extensions between controls totalling 21m/69Ft in length.
Communication with up to 99 participants on with a total length of 900m/3000Ft.

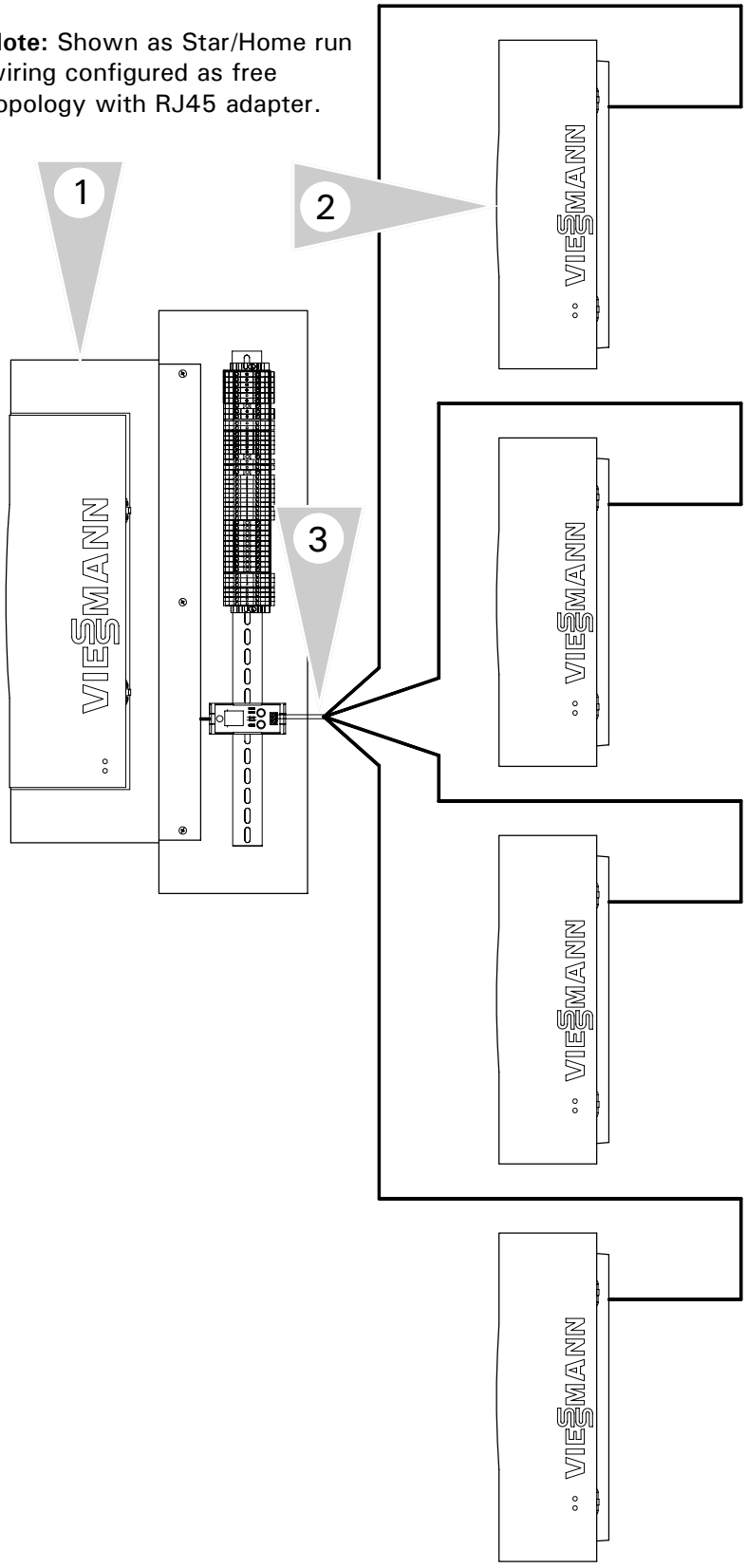
IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

LON Connections—System Overview Free Topology Example

Applicable for Vitotronic 100, KK10LON, and Vitocontrol-S, RS/VB2

Note: Shown as Star/Home run wiring configured as free topology with RJ45 adapter.



System Overview

1 The Vitocontrol-S unit for operation with KK10LON boiler controls.

2 The KK10LON boiler control is equipped with a communication board which allows it to communicate to the Vitocontrol-S, RS/VB2.

3 The RJ45LON adapter which provides conversion from CAT5 communications to two wire. As well, the RJ45LON adapter can be configured for either Free Topology or BUS Topology.

Note:
Review manual for Vitotronic 100, KK10 with respect to DIP switch settings as well as other information.

Technical Information

Distance between controls with Viessmann communication cable 7m/23Ft.
Up to three extensions between controls totalling 21m/69Ft in length.
Communication with up to 99 participants on with a total length of 900m/3000Ft.

IMPORTANT

Ensure that all field wiring conforms to local codes and regulations.

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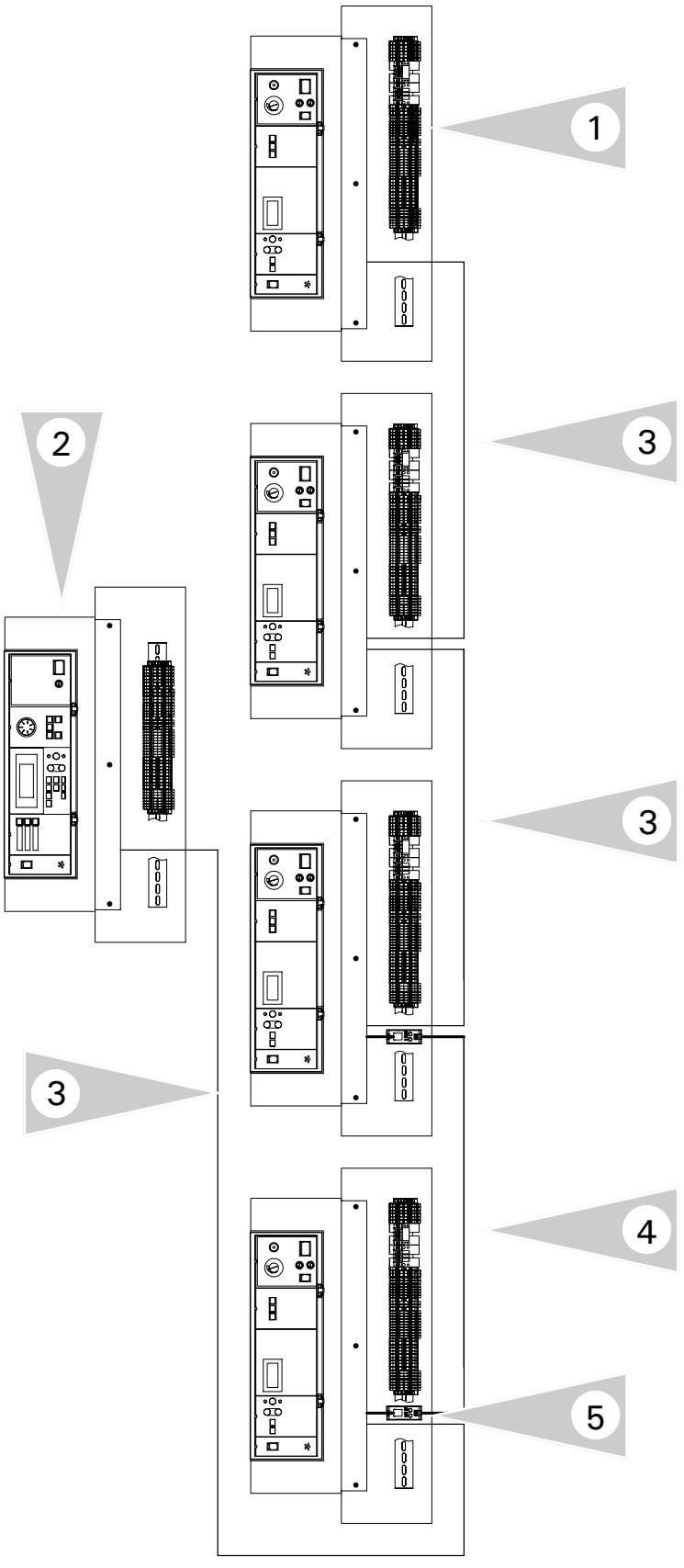
LON Connections—System Alternative RJ45LON Adaptor Overview

Applicable for Vitotronic 100, GC1, and Vitocontrol-S, CT3/VD2



Connection Overview

1 Vitotronic 100, GC1 control with communications card and end-of-line termination resistor.

2 Vitocontrol-S, CT3/VD2, MW1 control with communications card and end-of-line termination resistor.

3 CAT-5 Communication wire between controls,

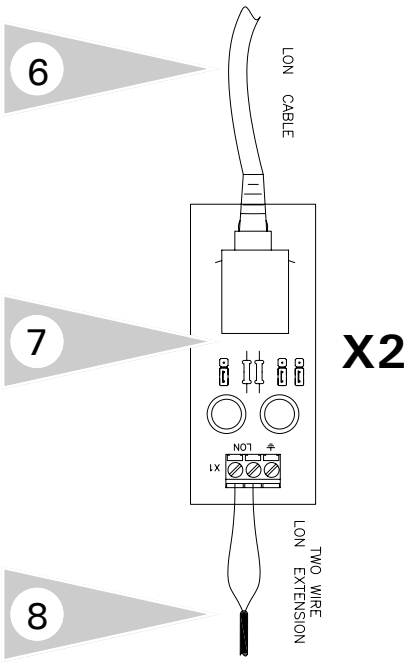
4 Two wire cable between RJ45LON adaptors.

5 Install RJ45LON adaptor onto DIN rail of control. Jumpers JP1 and JP2 must be in the OFF position. The RJ45LON adapter is then used as a wiring converter between CAT-5 and two wire.

6 Communication from control.

7 RJ45LON adaptor.

8 2-wire communications cable between controls.



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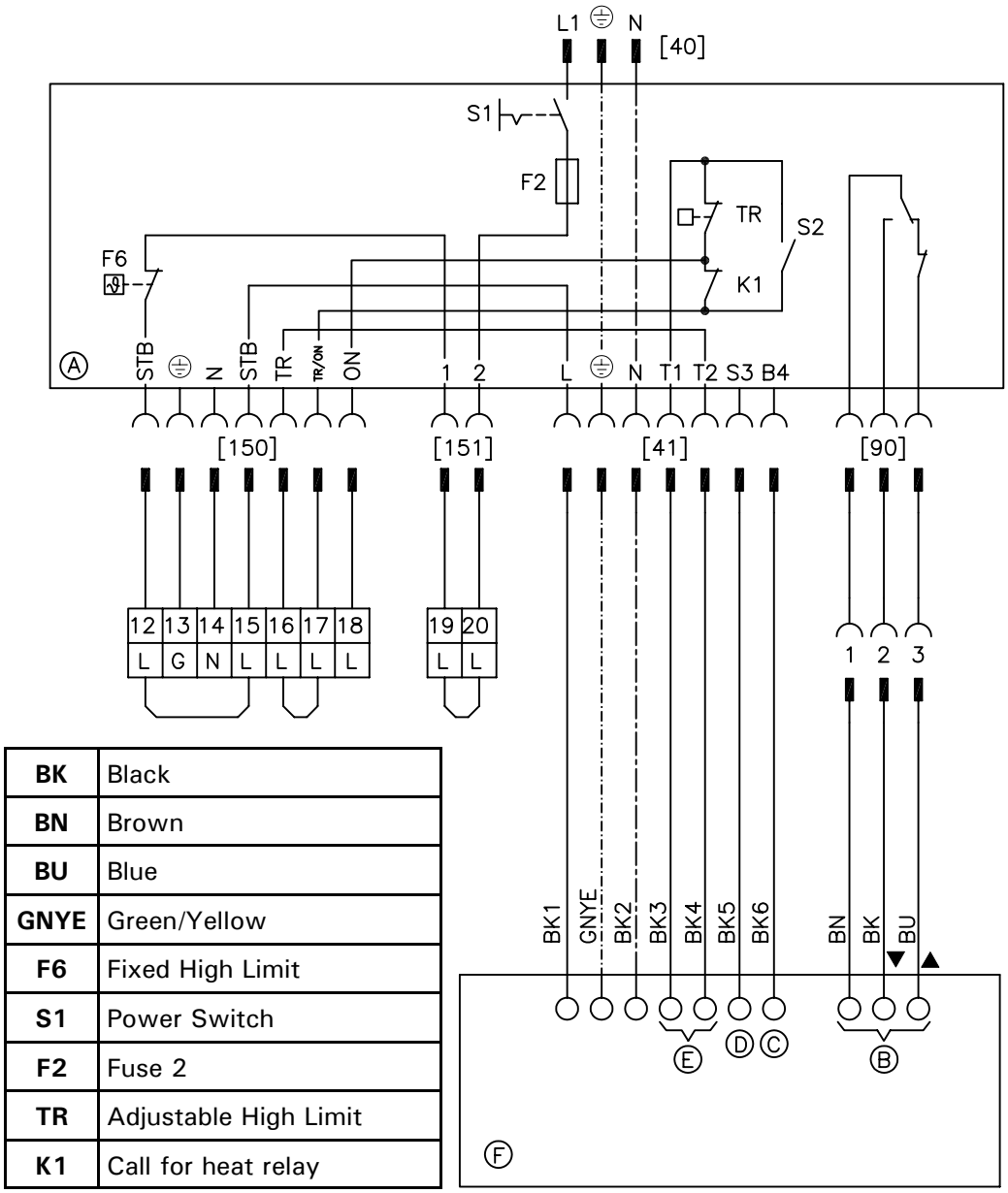
Basic Diagnostic Plug [41] Drawings

Connection of Boiler Control Wiring to Burner

General Overview



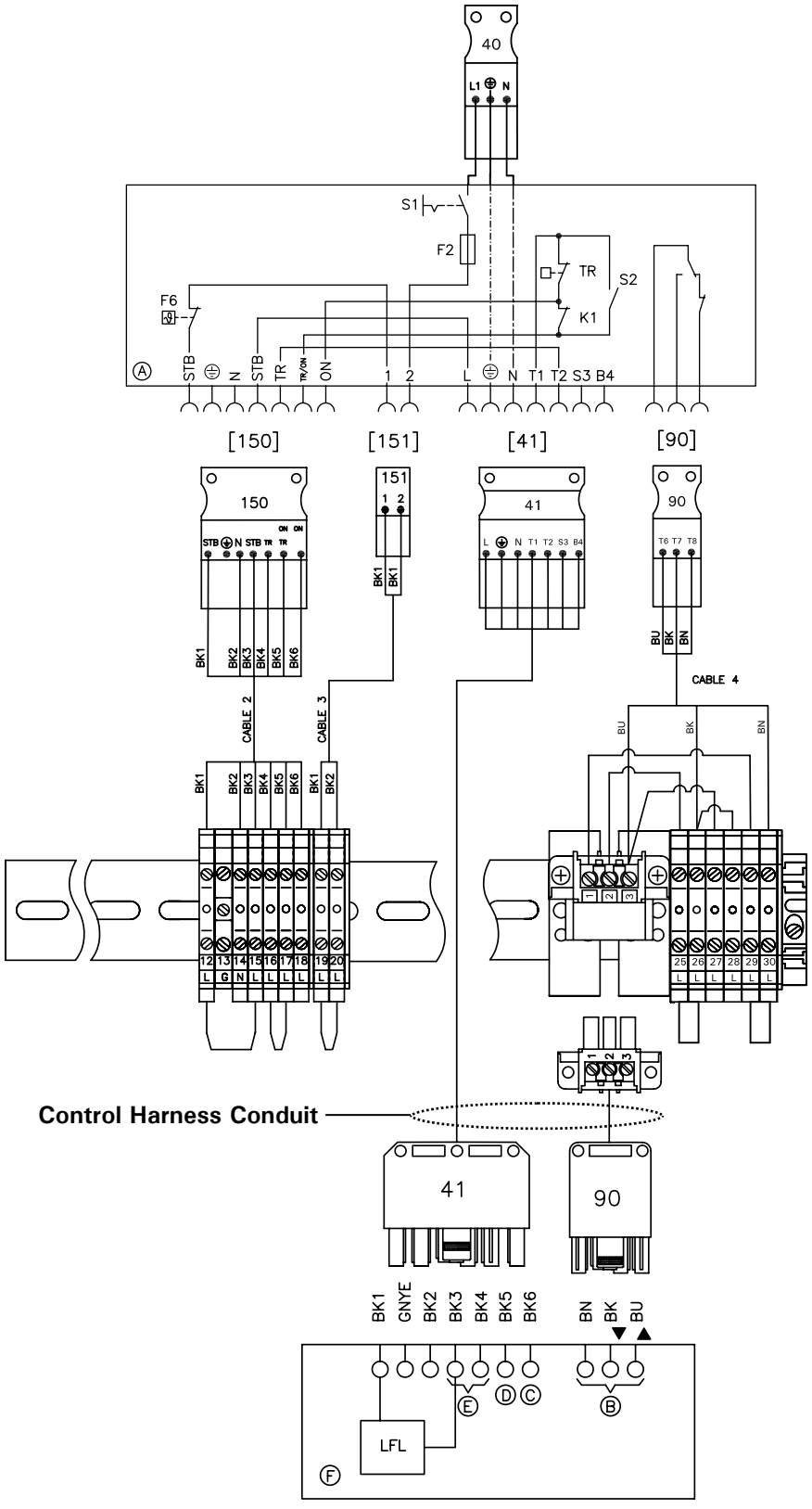
BK	Black
BN	Brown
BU	Blue
GNYE	Green/Yellow
F6	Fixed High Limit
S1	Power Switch
F2	Fuse 2
TR	Adjustable High Limit
K1	Call for heat relay

A	Control Unit
B	2nd stage or modulating connection
C	Hour counter connection
D	Burner fault connection
E	Basic control/burner circuit connections
F	Burner

[40]	Power supply connection of control 120VAC
[41]	Burner, 1st Stage
[90]	Burner, 2nd Stage/Modulation
[150]	Plugs for external equipment
[151]	Safety circuit. Emergency shut-off

Connection of Boiler Control Wiring to Burner (plug-in connection)

Applicable for Vitotronic 100, GC1



120VAC Path Overview

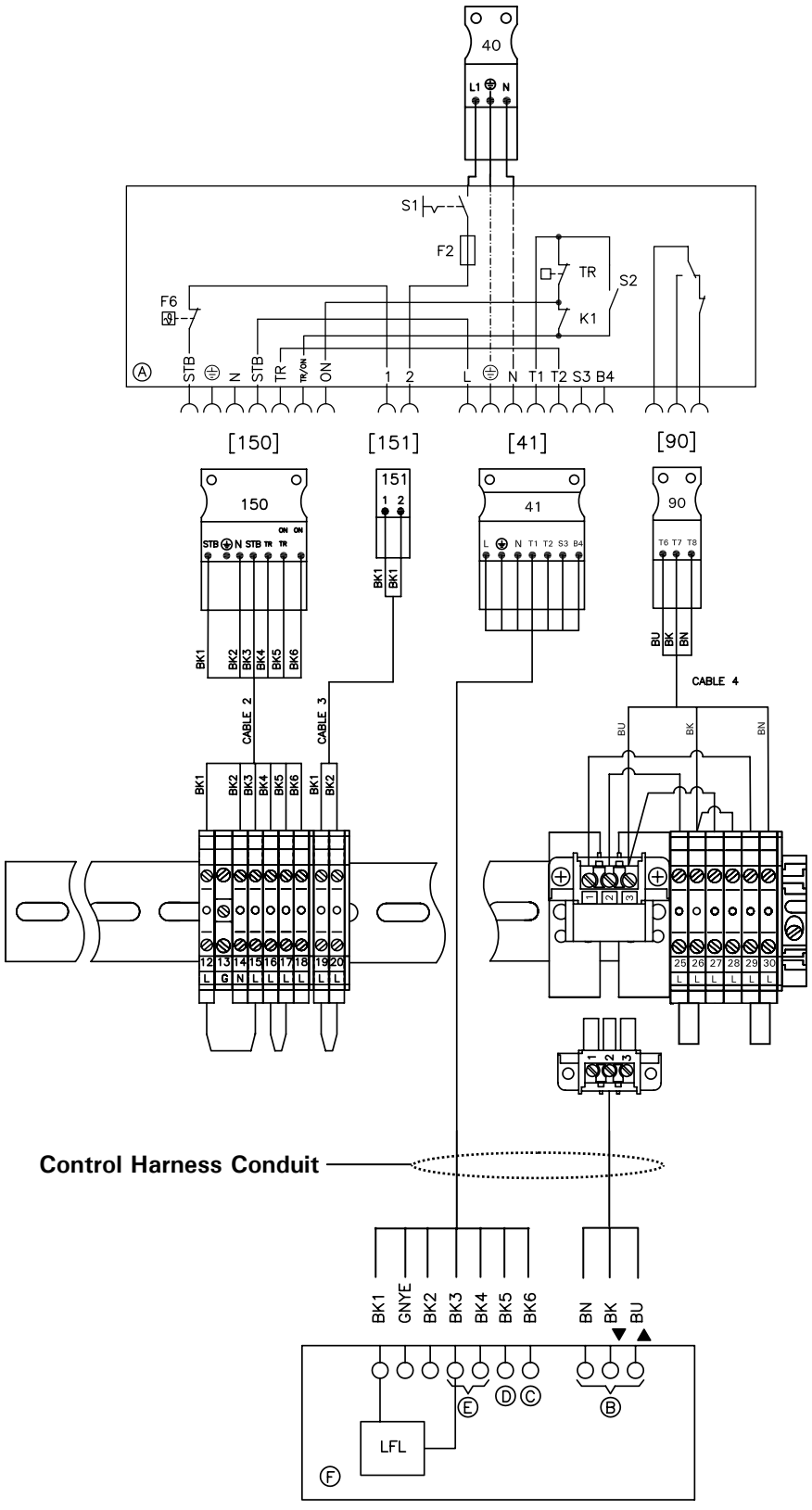
- 120VAC on **L** of [40] plug.
- 120VAC through **S1** switch.
- **F2** fuse.
- [**151**] plug jumper.
- **F6** Fixed high limit.
- [150] plug terminal jumper across 12 and 15 (LWCO connection).
- **STB** of 150 plug to **L** of [41] plug.
- **L** of [41] plug powers flame safe guard of burner.
- 120VAC returns back to control on **BK3**.
- **BK3** to **T1** of [41] plug.
- **TR** adjustable high limit.
- **K1** call-for-heat relay to **TR/ON** of [150] plug.
- Jumper across 17 and 16 of [150] plug.
- **TR** of [150] plug to **T2** of [41] plug.
- **T2** of [41] plug to burner and call-for-heat.

CAUTION

This is a generic drawing only! Follow the burner manufacturer's interconnection drawings for interfacing burner with Viessmann controls.

Connection of Boiler Control Wiring to Burner (hard-wired connection)

Applicable for Vitotronic 100, GC1



120VAC Path Overview

- 120VAC on **L** of [40] plug.
- 120VAC through **S1** switch.
- **F2** fuse.
- [**151**] plug jumper.
- **F6** Fixed high limit.
- [150] plug terminal jumper across 12 and 15 (LWCO connection).
- **STB** of 150 plug to **L** of [41] plug.
- **L** of [41] plug powers flame safe guard of burner.
- 120VAC returns back to control on **BK3**.
- **BK3** to **T1** of [41] plug.
- **TR** adjustable high limit.
- **K1** call-for-heat relay to **TR**/**ON** of [150] plug.
- Jumper across 17 and 16 of [150] plug.
- **TR** of [150] plug to **T2** of [41] plug.
- **T2** of [41] plug to burner and call-for-heat.

CAUTION

This is a generic drawing only! Follow the burner manufacturer's interconnection drawings for interfacing burner with Viessmann controls.

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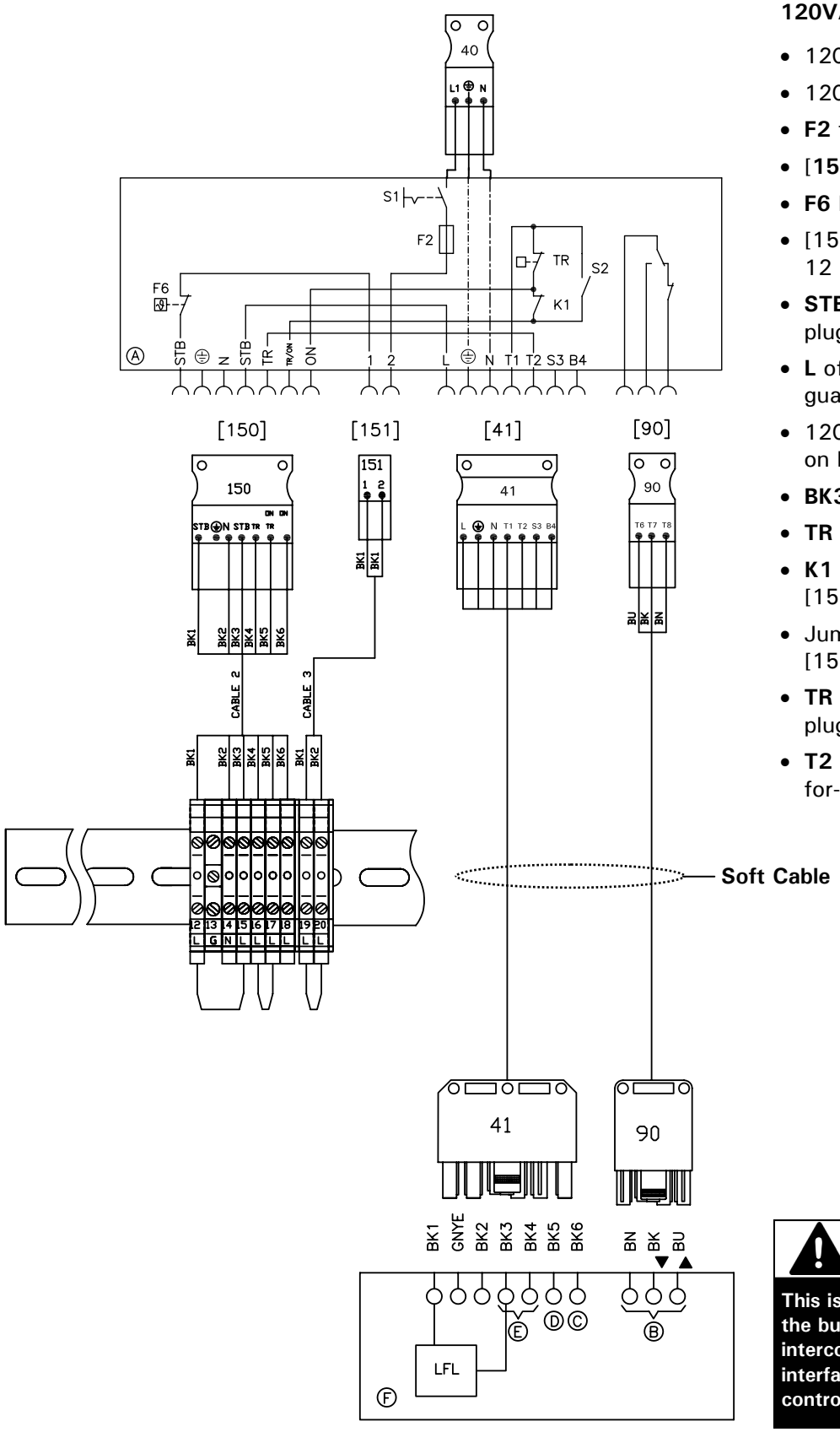
Connection of Boiler Control Wiring to Burner (plug-in connection)

Applicable for Vitotronic 300, GW2



120VAC Path Overview

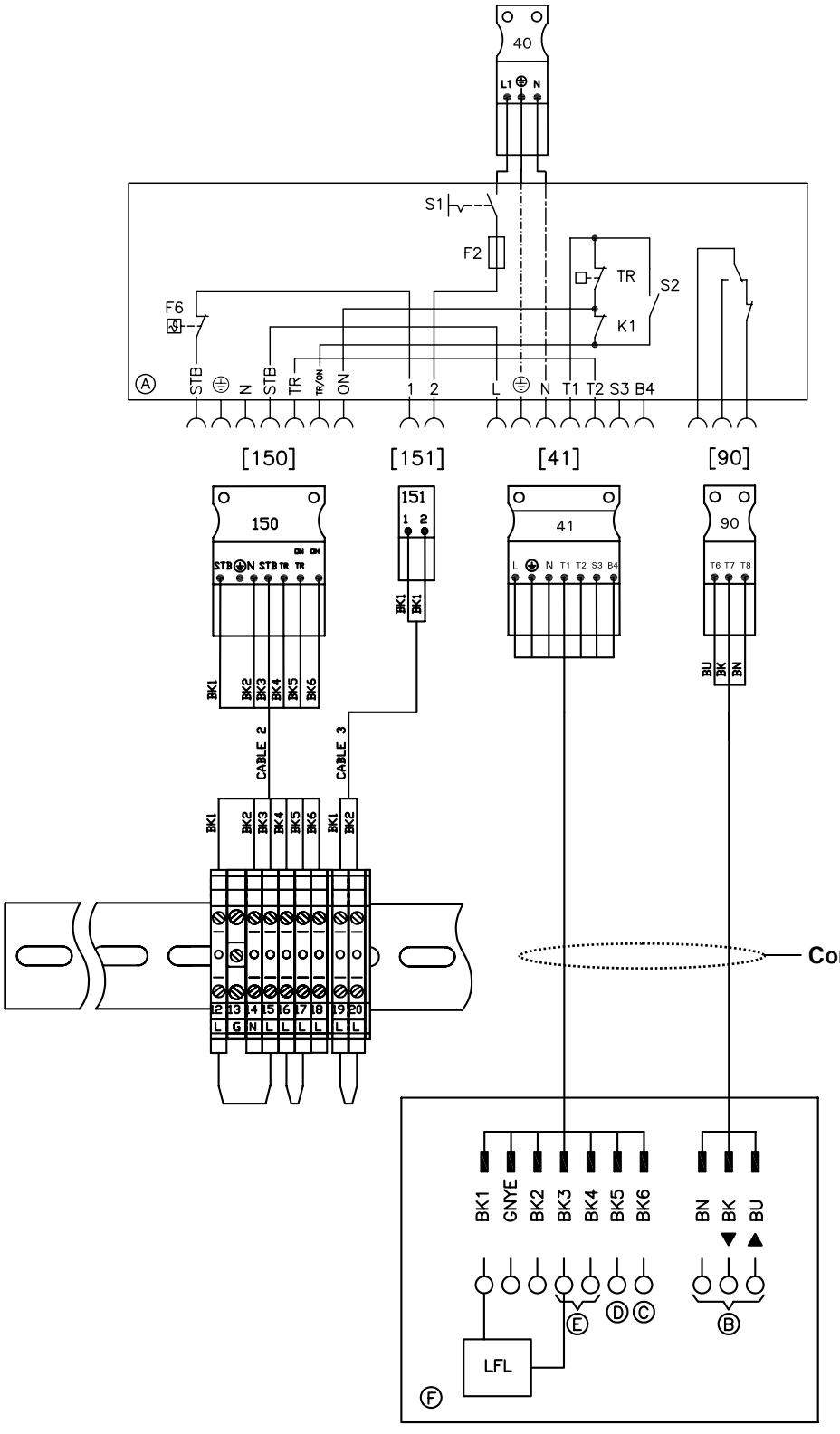
- 120VAC on **L** of [40] plug.
- 120VAC through **S1** switch.
- **F2** fuse.
- [**151**] plug jumper.
- **F6** Fixed high limit.
- [150] plug terminal jumper across 12 and 15 (LWCO connection).
- **STB** of 150 plug to **L** of [41] plug.
- **L** of [41] plug powers flame safe guard of burner.
- 120VAC returns back to control on **BK3**.
- **BK3** to **T1** of [41] plug.
- **TR** adjustable high limit.
- **K1** call-for-heat relay to **TR**/**ON** of [150] plug.
- Jumper across 17 and 16 of [150] plug.
- **TR** of [150] plug to **T2** of [41] plug.
- **T2** of [41] plug to burner and call-for-heat.

CAUTION

This is a generic drawing only! Follow the burner manufacturer's interconnection drawings for interfacing burner with Viessmann controls.

Connection of Boiler Control Wiring to Burner (hard-wired connection)

Applicable for Vitotronic 300, GW2



120VAC Path Overview

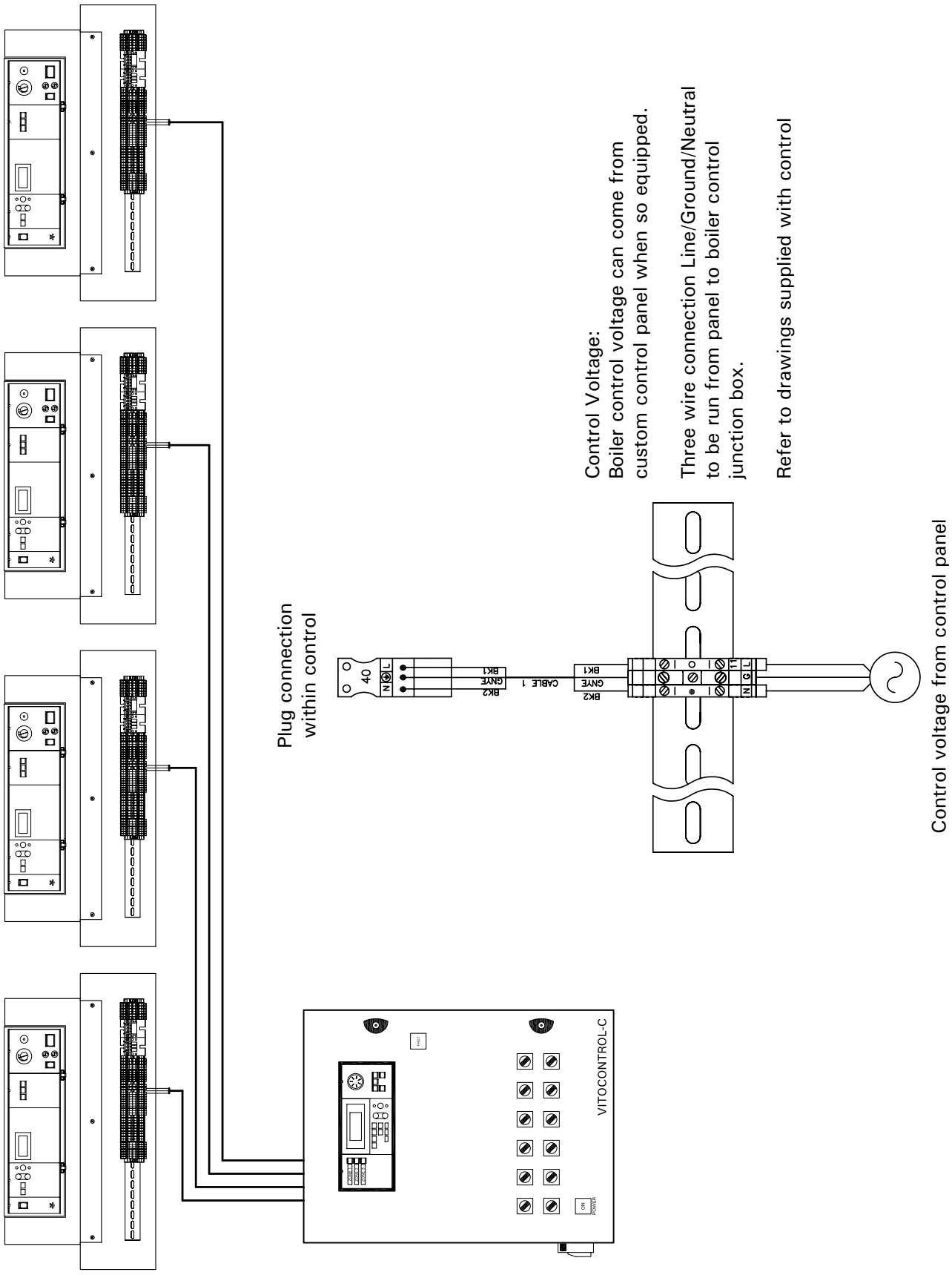
- 120VAC on **L** of [40] plug.
- 120VAC through **S1** switch.
- **F2** fuse.
- [**151**] plug jumper.
- **F6** Fixed high limit.
- [150] plug terminal jumper across 12 and 15 (LWCO connection).
- **STB** of 150 plug to **L** of [41] plug.
- **L** of [41] plug powers flame safe guard of burner.
- 120VAC returns back to control on **BK3**.
- **BK3** to **T1** of [41] plug.
- **TR** adjustable high limit.
- **K1** call-for-heat relay to **TR/ON** of [150] plug.
- Jumper across 17 and 16 of [150] plug.
- **TR** of [150] plug to **T2** of [41] plug.
- **T2** of [41] plug to burner and call-for-heat.

CAUTION

This is a generic drawing only! Follow the burner manufacturer's interconnection drawings for interfacing burner with Viessmann controls.

Vitocontrol-C Drawings

Vitocontrol-C *Boiler control power interconnections from panel to control example*



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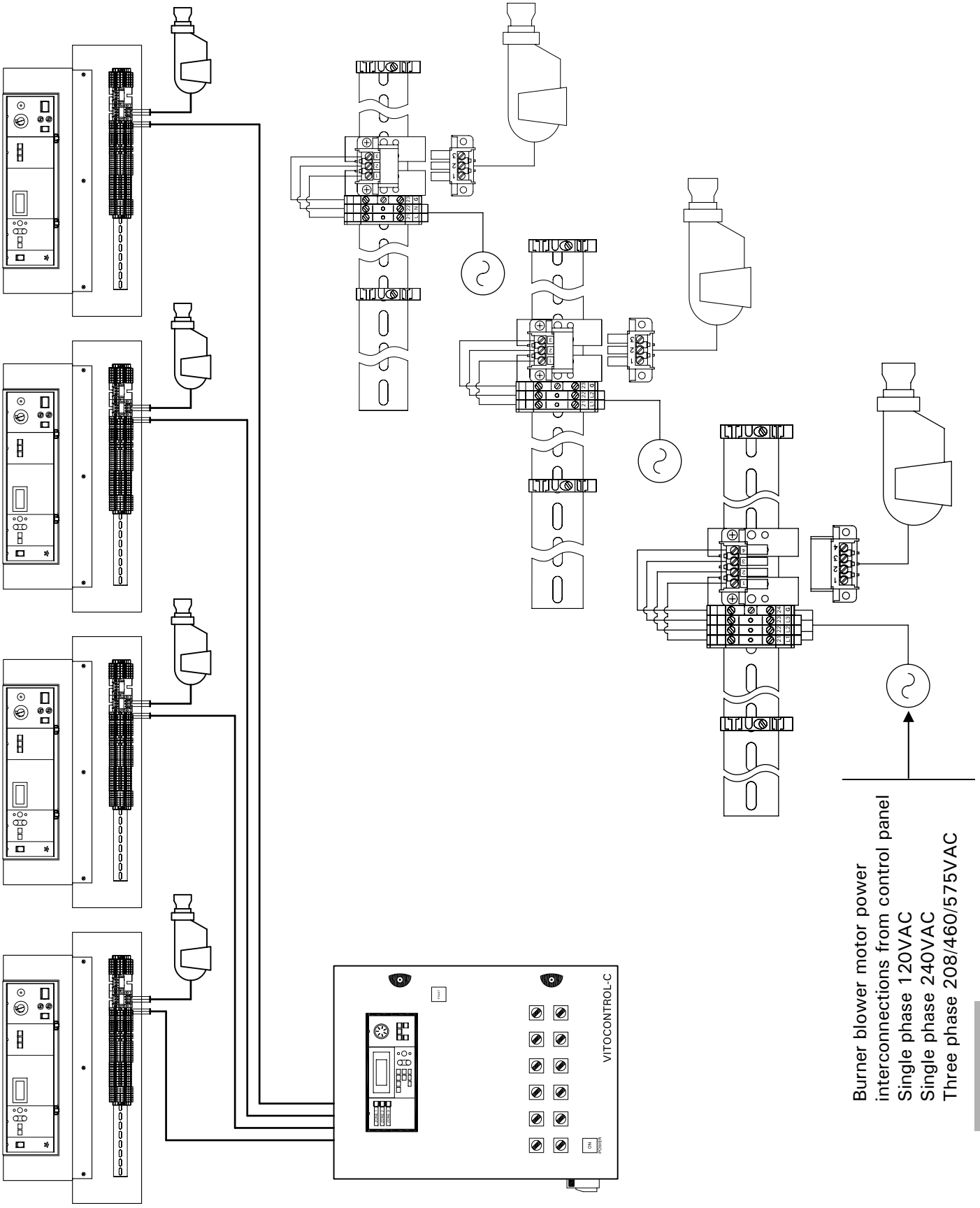
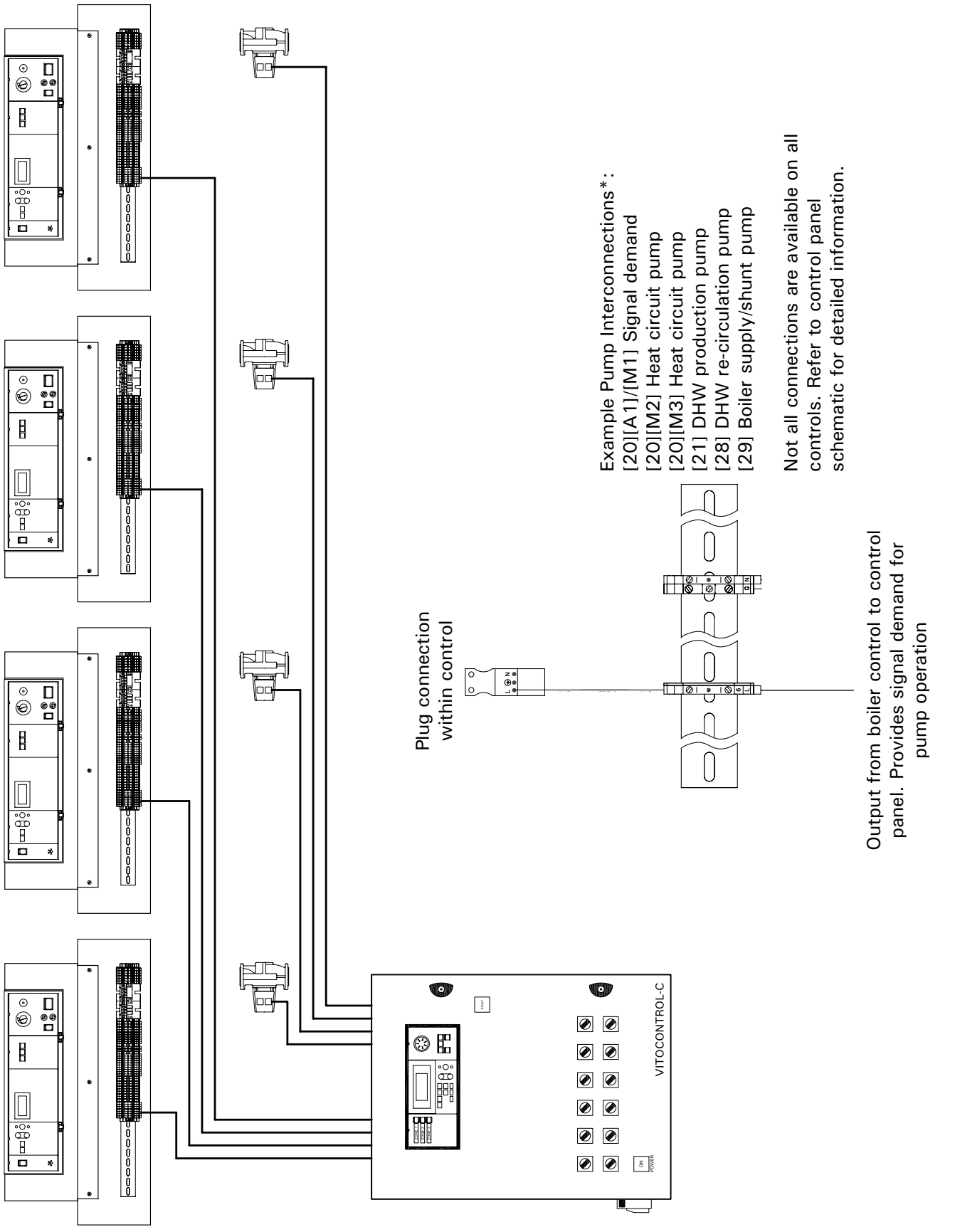
Vitocontrol-C *Burner/Blower power interconnections example*



Vitocontrol-C *Pump interconnections between boiler control and panel example*



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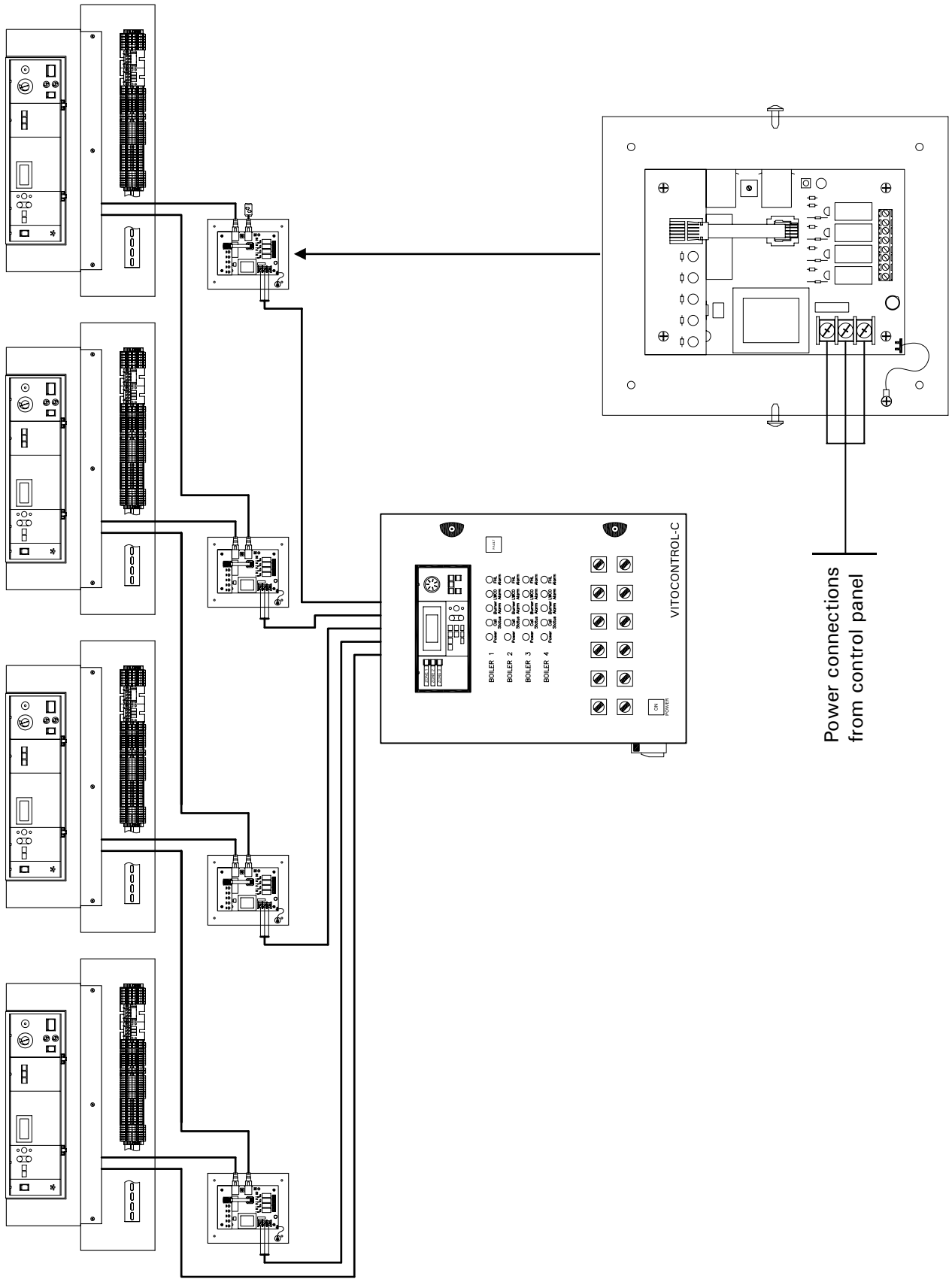
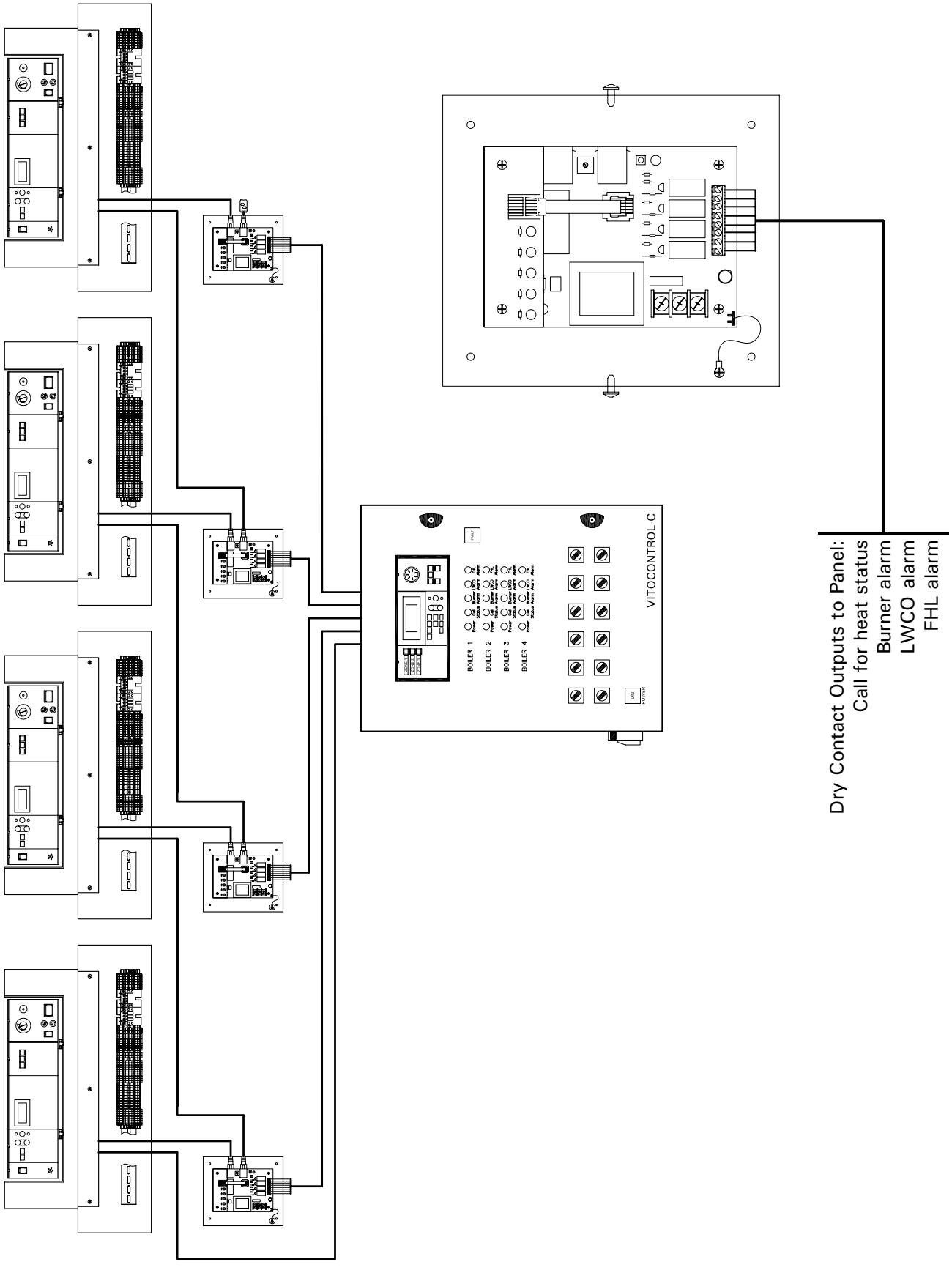
Vitocontrol-C *Extension Output Module power interconnections between module and panel example*



Vitocontrol-C *Extension Output Module interconnections between module outputs and panel example*



5346540 v1.0 09/2006 Technical information subject to change without notice

Related Information

General Information **Section 8.0**

Code information
Related manual information

Codes and Alternate Resources

Applicable for Canada and USA

Canada

The installation of this unit shall be in accordance with local codes or, in the absence of local codes use CAN/CSA-B149.1 or CAN/CSA-B149.2 installation codes for gas burning appliances for Canada. Refer to code CSA B-139 Standard for oil burning installations.

Always use the latest editions of 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.

USA

The installation of this unit shall be in accordance with local codes or, in the absence of local codes use National Fuel Gas Code ANSI Z223.1 installation codes for gas burning appliances for USA. Refer to code NFPA 31 Standard for oil installations.

Always use the latest editions of codes.

In the USA use the National Electrical Code ANSI/NFPA 70.

The heating contractors must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1.

Alternate Resources

Web Site Links

www.csa.ca
www.csa-international.org
www.csa-international.org/testing_certification_us/
www.ansi.org
www.ansi.org/library/
www.viessmann.ca
www.viessmann.us
www.viessmann.com
www.ciph.com
www.hrai.ca

Related Manuals

Applicable for Canada and USA

Important

Manual revision occurs without notice. Please consult with Viessmann or Viessmann sales representative for most current manual version.

Line	Manual	Viessmann Number	Version	Date
1	Vitorond 200, VD2 (small) TDM	5285 661	v1.3	05/2006
2	Vitorond 200, VD2 (small) Installation Instructions	5285 663	v1.1	07/2006
3	Vitorond 200, VD2 (small) Service Instructions	5285 664	v1.2	06/2006
4	Vitorond 200, VD2 (large) TDM	5285 428	v1.3	07/2006
5	Vitorond 200, VD2 (large) Installation Instructions	5285 429	v1.4	07/2006
6	Vitorond 200, VD2 (large) Service Instructions	5285 431	v1.4	06/2006
7	Vitorond 200, VD2 Operating Instructions	5285 432	v1.1	05/2004
8	Vitocrossal 300, CT3 TDM	5285 871	v1.1	06/2006
9	Vitocrossal 300, CT3 Installation Instructions	5285 873	v1.1	06/2006
10	Vitocrossal 300, CT3 Service Instructions	5285 875	v1.0	06/2005
11	Vitocrossal 300, CT3 Operating Instructions	5285 874	v1.0	06/2005
12	Door Safety Switch Install. Instructions Supp.	5265 700	v1.6	03/2005
13	Vitotronic 050, HK1M Install. and Service Instructions	5285 967	v1.0	11/2005
14	Vitotronic 050, HK1M Operating Instructions	5285 968	v1.0	11/2005
15	Vitotronic 050, HK1S and HK3S Install. Instructions	xxxx xxx	v1.0	08/2006
16	Vitotronic 050, HK1S and HK3S Operating Instructions	xxxx xxx	v1.0	08/2006
17	Vitotronic 100, GC1 Install. and Service Instructions	5285 938	v1.3	09/2005
18	Vitotronic 100, GC1 Operating Instructions	5285 939	v1.1	09/2005
19	Vitotronic 300, GW2 Install. and Service Instr	5285 941	v1.2	11/2005
20	Vitotronic 300, GW2 Operating Instructions	5285 942	v1.2	11/2005
21	Vitocontrol-S, MW1 for VD2&CT3 Install./Service Instructions	5285 944	v1.2	07/2006
22	Vitocontrol-S for VD2&CT3 Operating Instructions	5285 945	v1.2	07/2006
23	Extension Input Module, 0-10V Installation Instructions	5285 999	v1.0	09/2005
24	Combustion Air Device Adaptor Install. & Operating Instructions	5285 972	v1.0	06/2005
25	Common Combustion Air Device Interface Install. & Operating Instructions	5285 973	v1.0	06/2005
26	Extension Output Module Install. & Operating Instructions	5285 971	v1.0	06/2005
27	Valve Adaptor Module, 24VAC	5285 969	v1.0	06/2005
28	Valve Adaptor Module, 120VAC	5285 970	v1.0	06/2005

Note:

Information regarding the KK10LON, please refer to the supplement manual. The supplement manual is applicable for installations using the KK10LON boiler control as well as Vitocontrol-C panels with the communication cards installed inside.

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