Installation and Service Instructions

for use by heating contractor

Vitotronic 100, Type GC1B
Digital boiler control unit
For use with Boiler models VD2A, VD2 and CT3

Vitotronic 300-K, Type MW1B
Weather-compensated digital cascade control unit

VITOTRONIC® 100
VITOTRONIC® 300-K

Vitotronic 100

Vitotronic 300-K

Certified as a component part for Viessmann boilers

Product may not be exactly as shown

IMPORTANT

Read and save these instructions for future reference.

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Please file in Service Binder

Safety, Installation and Warranty Requirements

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

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

  

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

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

  

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

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

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

  

⚠ WARNING

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.

Operating and Service Documentation

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

Product Information

Vitotronic 100, Type GC1B
For installation in or mounting on Viessmann boilers only.
Applicable to the following control units:

Order No. 7134555, 7143156, 7511362 from
Serial No. 7143000□□□□□□□□

Order No. 7134555, 7143156, 7511362 from
Serial No. 7187101□□□□□□□□

Order No. 7134555, 7143156, 7511362 from
Serial No. 7248248□□□□□□□□

General

Safety

Installation Examples

Control Unit Installation

Vitotronic 100, Installation

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Vitotronic 100, Installation

Vitotronic 300-K, Installation

Commissioning

Commissioning

Service Scans, Vitotronic 100

For your Safety

⚠ CAUTION

Follow these safety instructions closely to avoid the risk of injury and damage to property.

- **Operation**
  Before operating the boiler, make sure you fully understand its method of operation. Your heating contractor should always perform the initial start-up and explain the system. Any warranty is null and void if these instructions are not followed.
- **Flue gas smell**
  - Deactivate heating equipment.
  - Open windows and doors.
  - Inform your heating contractor.
- **Working on the equipment**
  All personnel working on the equipment or the heating system must have the proper qualifications and hold all necessary licenses. Ensure main power to equipment, heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.
- **Dangerous conditions**
  - Deactivate main power immediately.
  - Close gas supply valve.
- **Maintenance and cleaning**
  Regular inspection and service by a qualified heating contractor is important to the performance of the boiler. Neglected maintenance impacts on warranty; regular inspection ensures clean, environmentally friendly and efficient operation. We recommend a maintenance contract with a qualified heating contractor.
- **Technical Data Manual**
  - Installation Instruction and Service Instructions
  - Operating Instructions and User's Information Manual

Additional applicable literature:
- Accessory manuals

If you smell gas

- Don't smoke! Don't use naked flames or cause sparks (e.g. by switching lights or electrical appliances on and off)
- Open windows and doors
- Close the gas shut-off valve
- Inform your heating engineers/service contractors from outside the building
- Observe the safety regulations of your gas supply company (see gas meter) and those of your heating engineers (see start-up or instruction report).

In emergencies

- Immediately switch off the power supply, e.g. at the separate fuse or power supply disconnect switch (unless there is a smell of gas).
- Close the shut-off valves in the oil pipes or close the gas shut-off valve, whichever applicable.
- Use suitable extinguishers in the event of fire.

Installation of additional components

The installation of additional components which have not been tested together with the boiler can adversely affect the function and performance of the boiler.
Our warranty does not cover and we accept no liability for damage attributable to the installation of such components.

Boiler room conditions

- Do not use a room in which the air is polluted by halogenated hydro-carbons (e.g. as contained in aerosols, paints, solvents and cleaning agents)
- Do not use a room subject to high levels of dust
- Do not use a room subject to permanently high humidity
- The room should be frost-protected
- Max. ambient temperature 95°F (35°C).
- Provide good ventilation and do not close or obstruct vents (if installed).

About these Instructions

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 loss of life, 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 pertain to the product.*

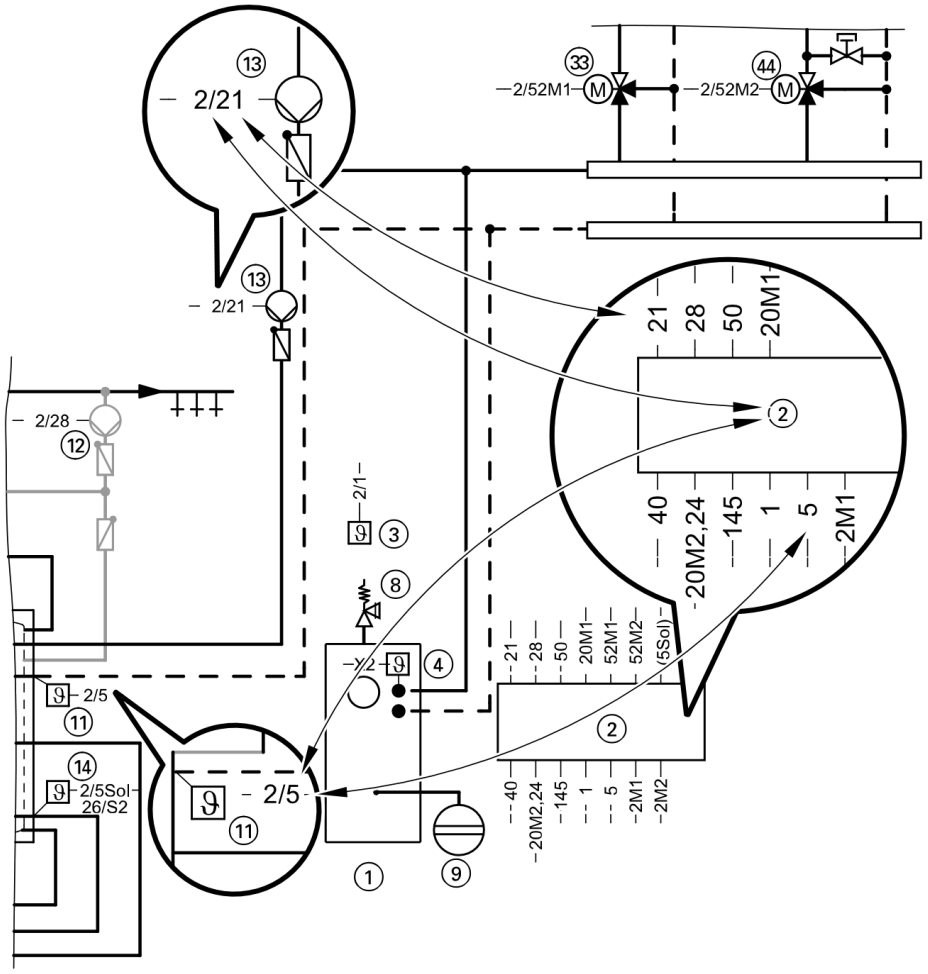
▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

Overview of System Examples

Designations in the System Example

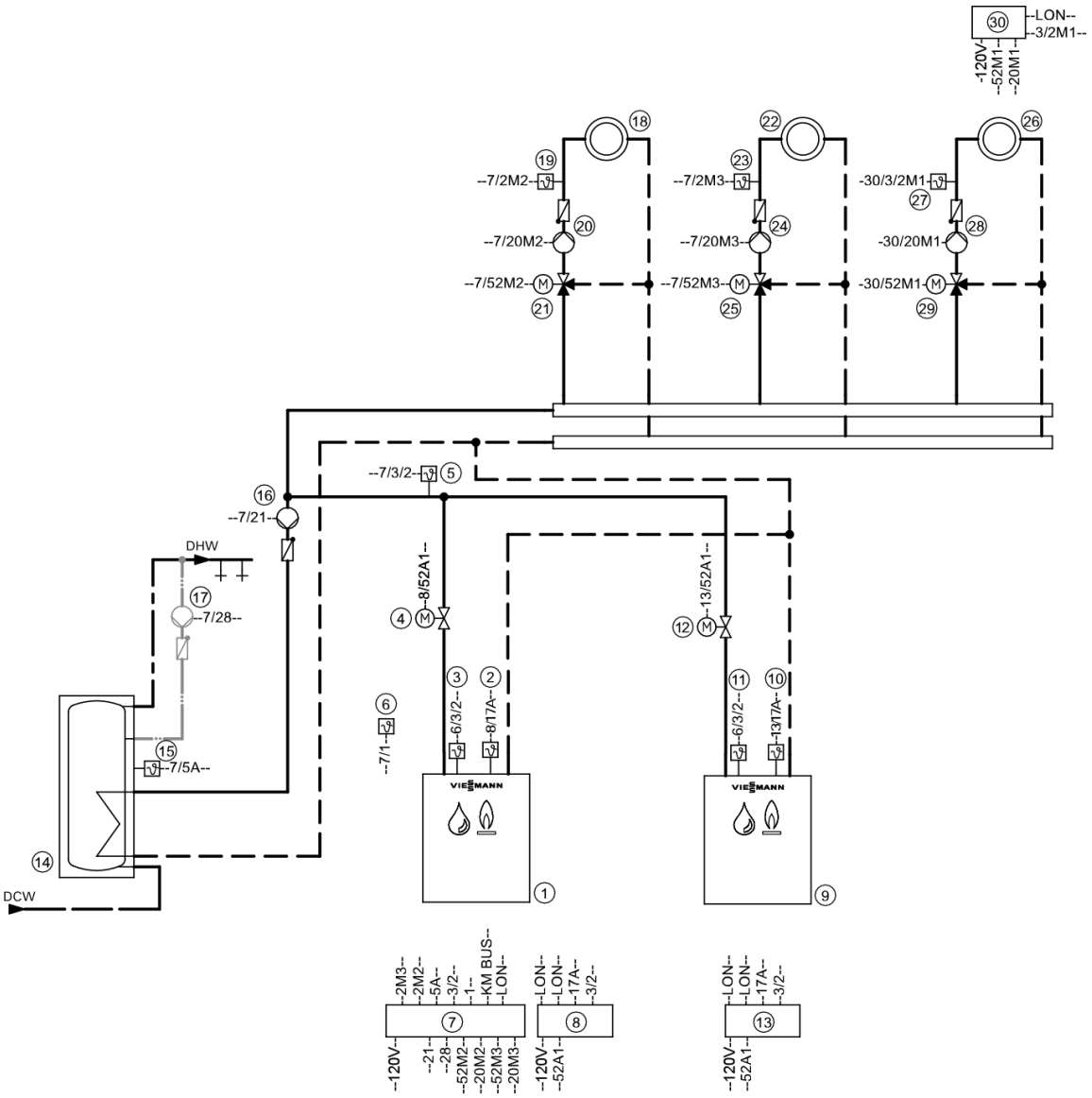


	Boiler	Characteristics	Page
1	Vitorond	Therm-Control	9
2	Vitorond	Shunt pump for every boiler for return temperature raising	17
3	Vitorond	Boiler circuit pump and 3-way mixing valve for raising the return temperature	25
4	Vitocrossal, Vitorond	Low temperature boilers with Therm-Control, with several heating circuits and one low temperature heating circuit	33
5	Vitocrossal, Vitorond	Low temperature boilers with 3-way mixing valve, with several heating circuits and one low temperature heating circuit	41

- These system examples are merely recommendations and must therefore be checked on site for completeness and function.
- Connect three-phase consumers via additional contactors.
- With the Vitotronic 100, the communication module is an accessory.
- With the Vitotronic 300-K, the communication module is integrated.

System Example 1

Multi boiler system: Boiler with Therm-Control



Note: This scheme is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example 1 *(continued)*

Equipment required

Pos.	Description
①	**Boiler I**
②	Therm-Control temperature sensor
③	Boiler water temperature sensor KTS
④	Motorized isolation valve
⑤	Supply temperature sensor, common heating flow VTS as - contact temperature sensor (standard delivery for Vitotronic 300-K) or - immersion temperature sensor
⑥	Outside temperature sensor ATS
⑦	Vitotronic 300-K
⑧	Vitotronic 100
⑨	**Boiler II**
⑩	Therm-Control temperature sensor
⑪	Boiler water temperature sensor KTS
⑫	Motorized isolation valve
⑬	Vitotronic 100
⑭	**DHW tank**
⑮	DHW tank temperature sensor STS
⑯	DHW pump
⑰	DHW recirculation pump
⑱	**Heating circuit 2**
⑳	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve:
⑲	Supply temperature sensor M2 as contact temperature sensor and
㉑	Mixing valve motor M2 or
⑲	Supply temperature sensor M2 as - contact temperature sensor or - immersion temperature sensor and
㉑	Mixing valve motor for flanged mixing valve M2
㉒	**Heating circuit 3**
㉔	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve:
㉓	Supply temperature sensor M3 as contact temperature sensor and
㉕	Mixing valve motor M3

System Example 1 *(continued)*

Equipment required

Pos.	Description
	or
㉓	Supply temperature sensor M3 as - contact temperature sensor or - immersion temperature sensor and
㉕	Mixing valve motor for flanged mixing valve M3
㉖	**Heating circuit 1 at the Vitotronic 200-H ㉚**
㉘	Heating circuit pump M1 Extension kit for one heating circuit with mixing valve:
㉗	Supply temperature sensor M1 as contact temperature sensor and
㉙	Mixing valve motor M1 or
㉗	Supply temperature sensor M1 as - contact temperature sensor or - immersion temperature sensor and
㉙	Mixing valve motor for flanged mixing valve M1
㉚	Vitotronic 200-H and LON communication module (accessory) and LON connecting cable (accessory)
㉛	Outside temperature sensor ATS
	Boiler accessories
㉞	Connection to safety equipment 150 (see page 61)
㉟	Minimum pressure limiter SDB
㊱	Maximum pressure limiter SDB
㊲	Water level limiter (low water indicator) WB
㊳	Central fault message system S
㊴	Flue gas temperature sensor AGS External hook-ups
㊹	- External changeover of stepped/modulating burners
㊽	- External boiler blocking
㊾	- Start boiler externally as the last one in the boiler sequence
	System accessories
㉝	Vitotrol 200A or Vitotrol 300A
㊳	Central fault message system S
㊵	ON/OFF switch

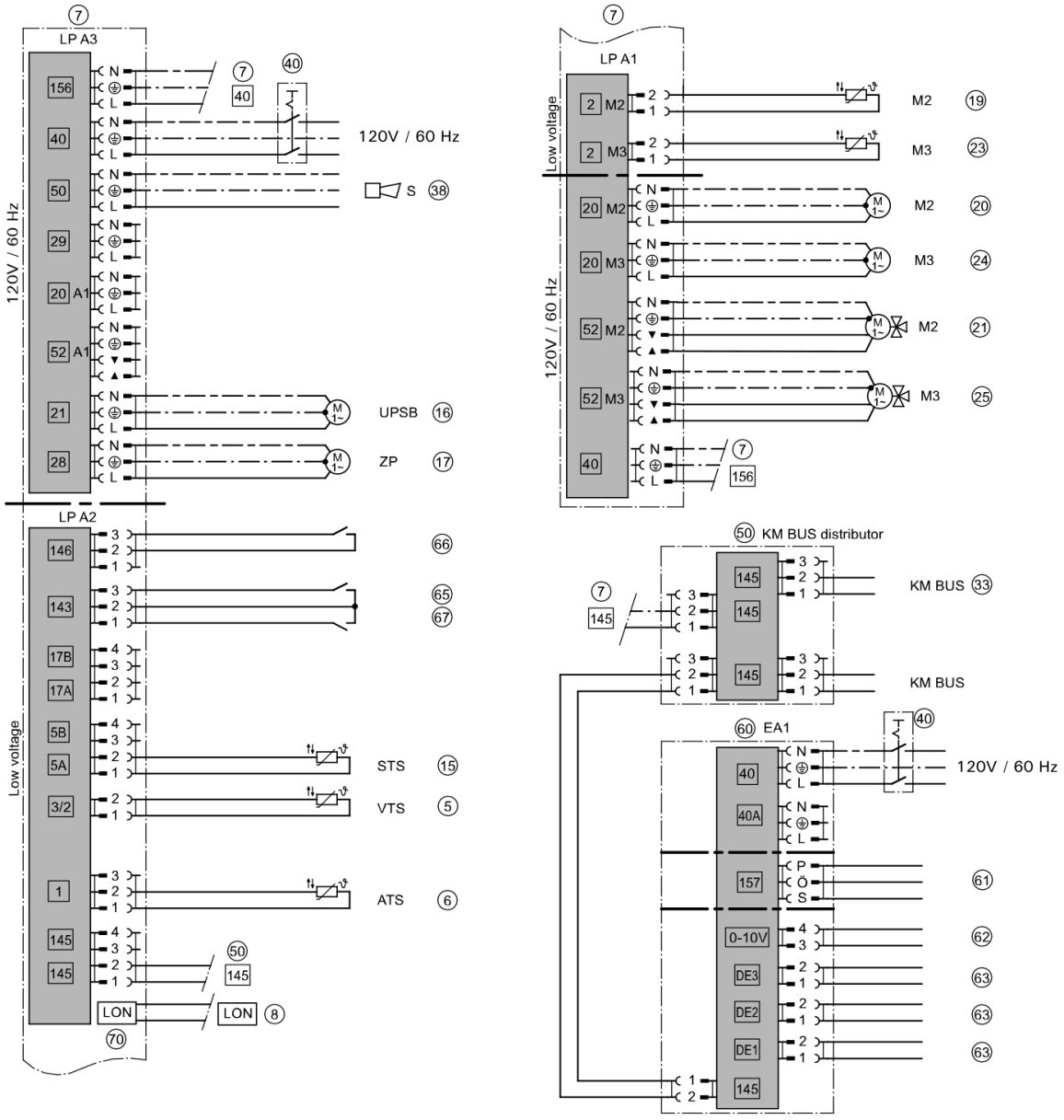
System Example 1 *(continued)*

Equipment required

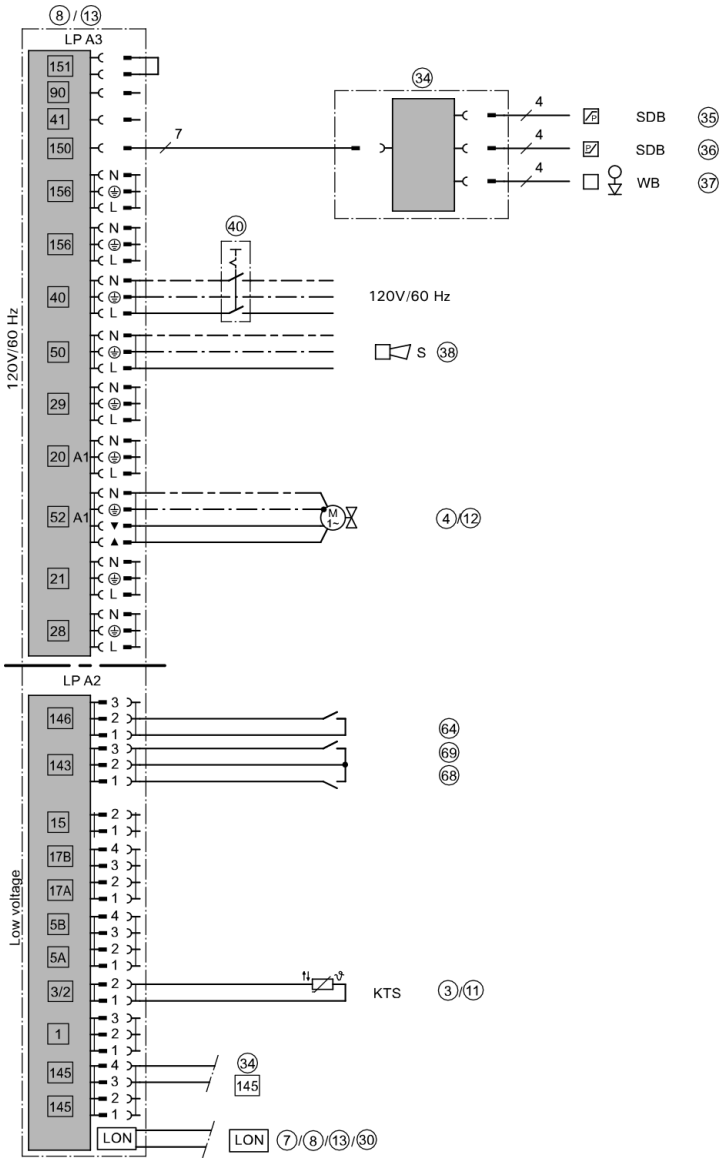
Pos.	Description
⑤⓪	KM BUS distributor, for several KM BUS subscibers
⑥⓪	Extension EA1
⑥①	1 switching output (floating changeover contact): - Switching a feed pump to a substation - Signalling reduced mode for a heating circuit
⑥②	1 analogue input (0 – 10V): - Specifying the set system supply temperature
⑥③	3 digital inputs: - External heating program changeover, separately adjustable for heating circuits 1 to 3 - External demand - External blocking with fault message - Fault message input - Short term operation of DHW recirculation pump
	External hook-ups
⑥⑤	- External blocking/mixing valve closed
⑥⑥	- External demand
⑥⑦	- External heating program changeover/mixing valve open
⑦⓪	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units Vitocom 100 LAN 1

System Example 1 *(continued)*

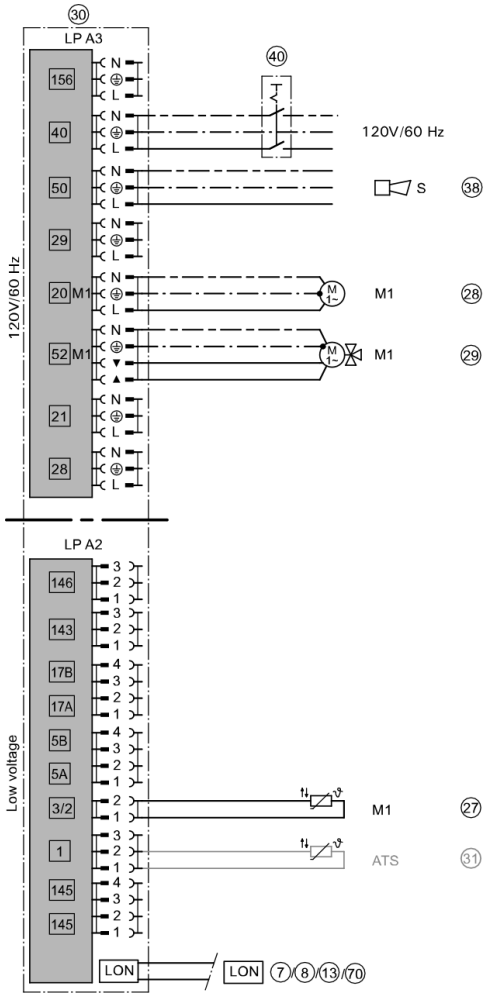
Electrical installation scheme



System Example 1 *(continued)*



System Example 1 *(continued)*



System Example 1 *(continued)*

Code required at every Vitotronic 100

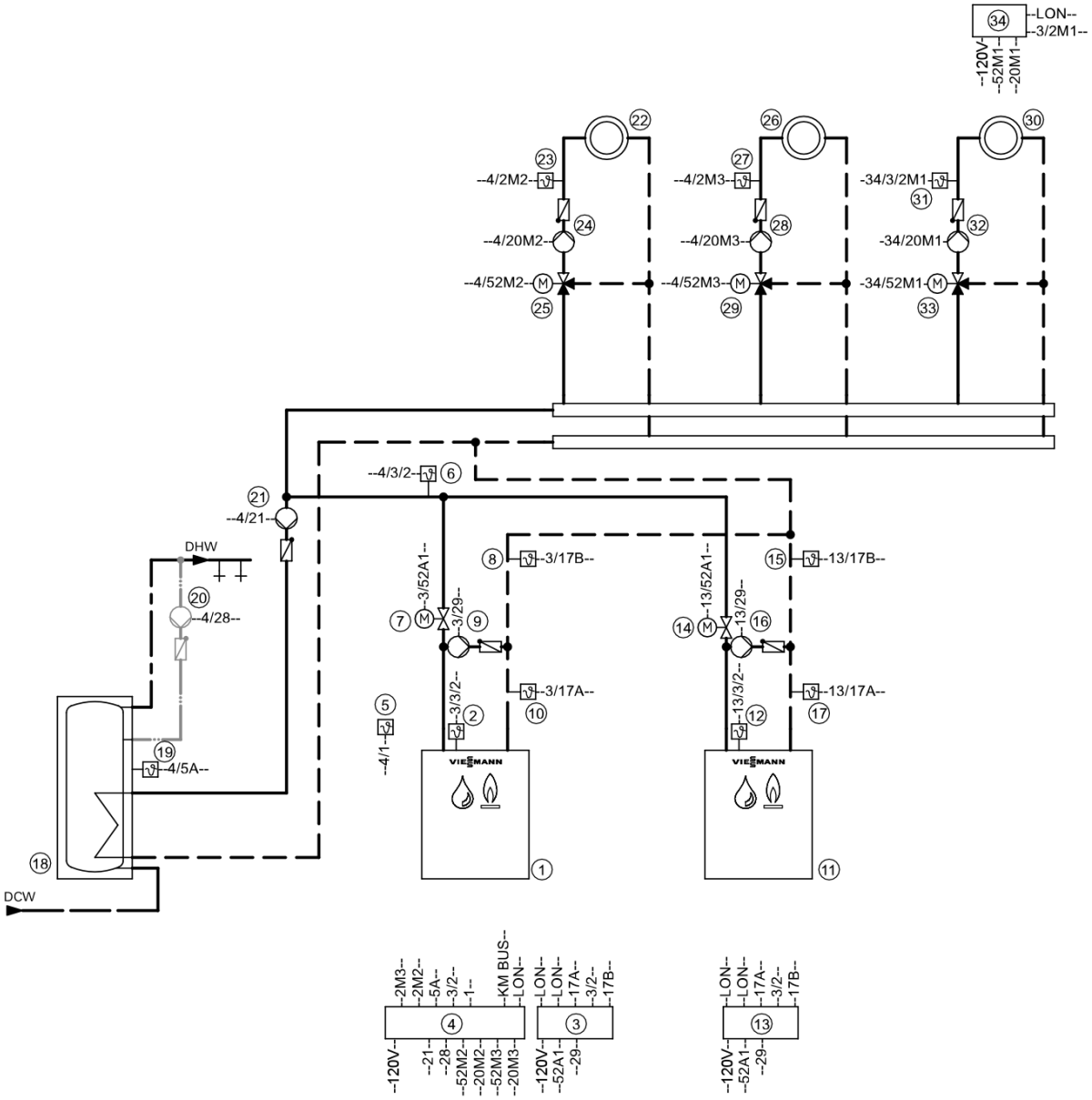
	Group	Function
01:2	2 “Boiler”	Multi boiler system with cascade control via LON
	Boiler number at the Vitotronic:	
07:2	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
4A:1	1 “General”	Therm-Control temperature sensor connection at plug 17A; automatic recognition.
	LON participant number at the Vitotronic:	
77:2	1 “General”	Vitotronic 300-K with two Vitotronic 100 Boiler 2
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 100
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 100
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 100
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 100

System Example 2

Multi boiler system: Boilers with shunt pump for every boiler for return temperature raising



Note: This scheme is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example 2 *(continued)*

Equipment required

Pos.	Description
①	**Boiler I**
②	Boiler water temperature sensor KTS
③	Vitotronic 100
④	Vitotronic 300-K
⑤	Outside temperature sensor ATS
⑥	Supply temperature sensor, common heating flow VTS as - contact temperature sensor (standard delivery for Vitotronic 300-K) or - immersion temperature sensor
⑦	Motorized isolation valve
⑧	Temperature sensor T2 as - contact temperature sensor or - immersion temperature sensor
⑨	Shunt pump
⑩	Temperature sensor T1 as - contact temperature sensor or - immersion temperature sensor
⑪	**Boiler II**
⑫	Boiler water temperature sensor KTS
⑬	Vitotronic 100
⑭	Motorized isolation valve
⑮	Temperature sensor T2 as - contact temperature sensor or - immersion temperature sensor
⑯	Shunt pump
⑰	Temperature sensor T1 as - contact temperature sensor or - immersion temperature sensor
⑱	**DHW tank**
⑲	DHW tank temperature sensor STS
⑳	DHW recirculation pump
㉑	DHW pump
㉒	**Heating circuit 2**
㉔	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve:

System Example 2 *(continued)*

Equipment required

Pos.	Description
㉓	Supply temperature sensor M2 as contact temperature sensor and
㉕	Mixing valve motor M2 or
㉓	Supply temperature sensor M2 as - contact temperature sensor or - immersion temperature sensor and
㉕	Mixing valve motor for flanged mixing valve M2
㉖	**Heating circuit 3**
㉘	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve:
㉗	Supply temperature sensor M3 as contact temperature sensor and
㉙	Mixing valve motor M3 or
㉗	Supply temperature sensor M3 as - contact temperature sensor or - immersion temperature sensor and
㉙	Mixing valve motor for flanged mixing valve M3
㉚	**Heating circuit 1 at the Vitotronic 200-H ㉞**
㉜	Heating circuit pump M1 Extension kit for one heating circuit with mixing valve:
㉛	Supply temperature sensor M1 as contact temperature sensor and
㉝	Mixing valve motor M1 or
㉛	Supply temperature sensor M1 as - contact temperature sensor or - immersion temperature sensor and
㉝	Mixing valve motor for flanged mixing valve M1
㉞	Vitotronic 200-H and LON communication module (accessory) and LON connecting cable (accessory)

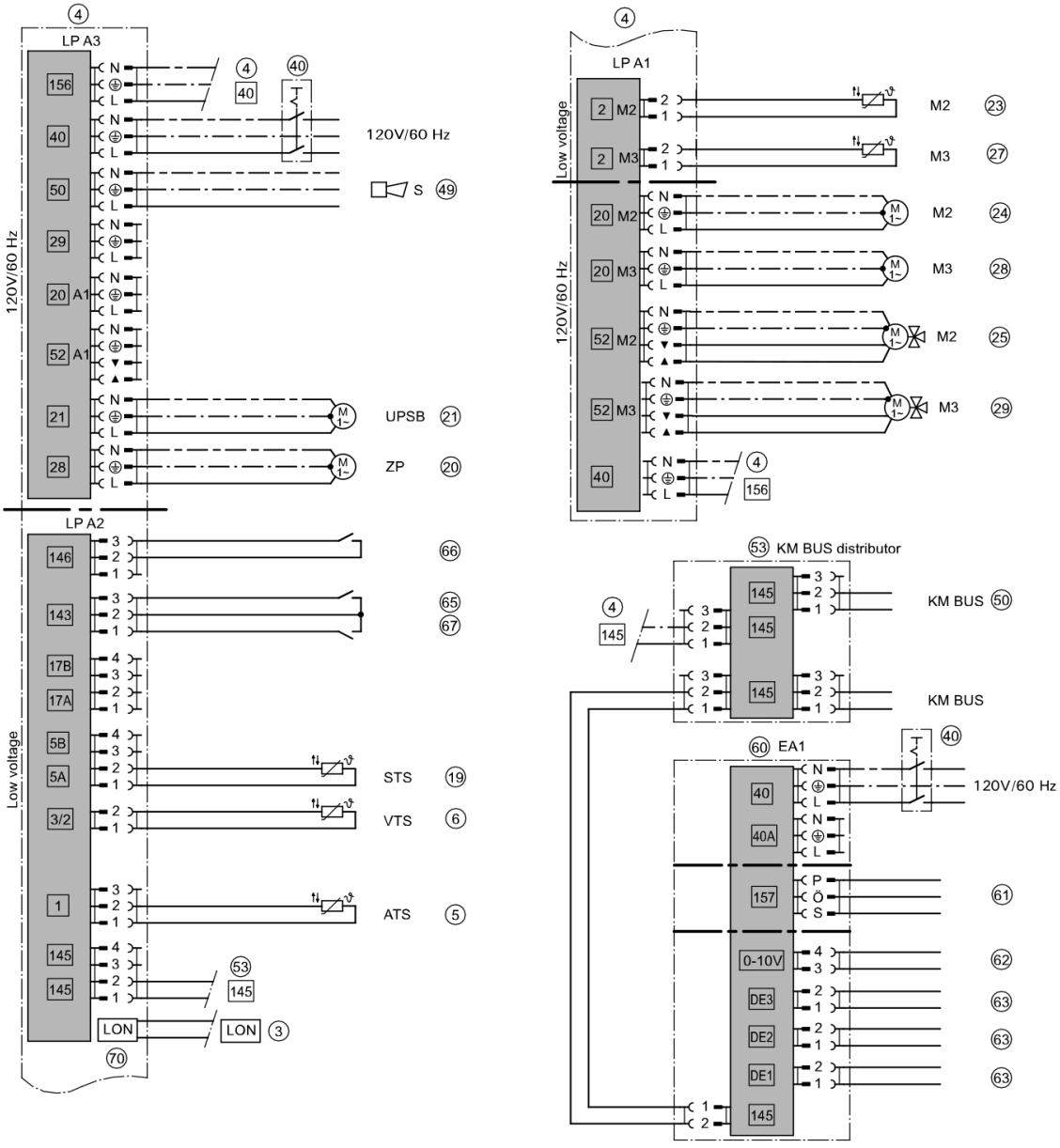
System Example 2 *(continued)*

Equipment required

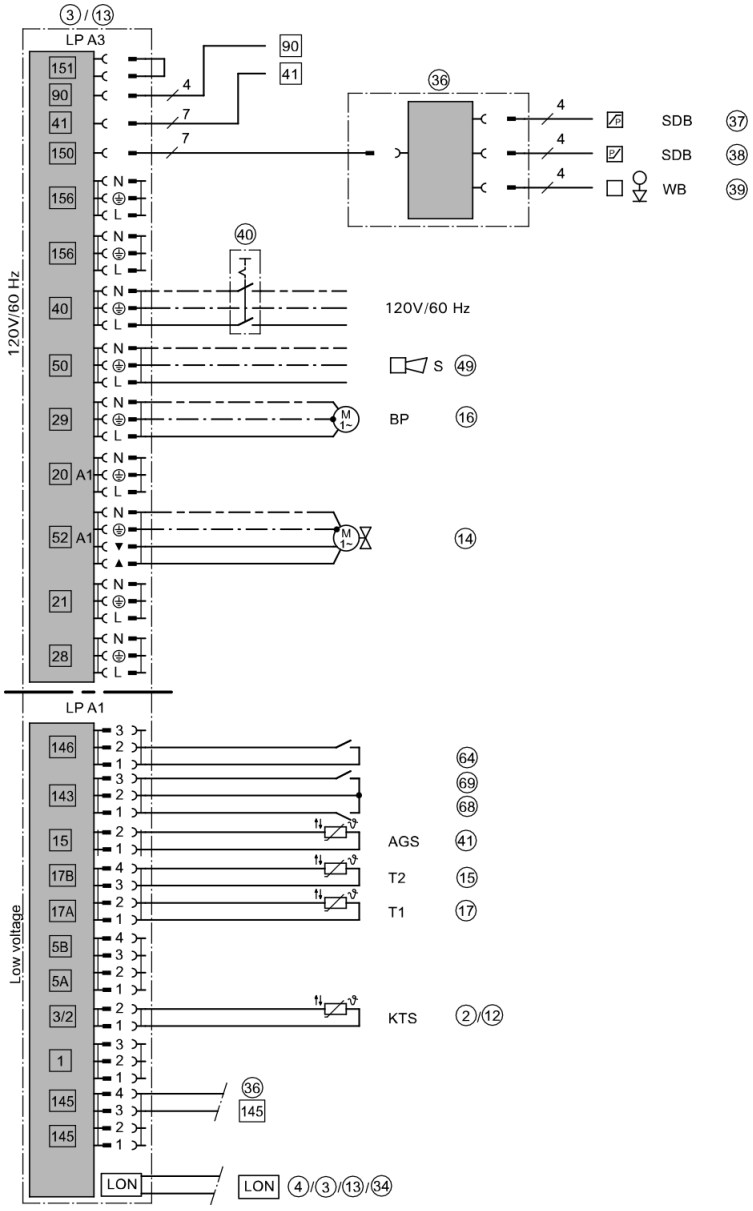
Pos.	Description
㉟	Outside temperature sensor ATS
	Boiler accessories
㊱	Connection to safety equipment [150] (see page 61)
㊲	Minimum pressure limiter SDB
㊳	Maximum pressure limiter SDB
㊴	Water level limiter (low water indicator) WB
㊶	Flue gas temperature sensor AGS
㊾	Central fault message system S External hook-ups
㊹	- External changeover of stepped/modulating burners
㊽	- External boiler blocking
㊾	- Start boiler externally as the last one in the boiler sequence
	System accessories
㊵	ON/OFF switch
㊾	Central fault message system S
㊿	Vitotrol 200A or Vitotrol 300A
㊸	KM BUS distributor, for several KM BUS participants
㊿	Extension EA1
㊶	1 switching output (floating changeover contact): - Switching a feed pump to a substation - Signalling reduced mode for a heating circuit
㊷	1 analogue input (0 – 10V): - Specifying the set system supply temperature
㊸	3 digital inputs: - External heating program changeover, separately adjustable for heating circuits 1 to 3 - External demand - External blocking with fault message - Fault message input - Short term operation of DHW recirculation pump
	External hook-ups
㊺	- External blocking/mixing valve closed
㊻	- External demand
㊼	- External heating program changeover/mixing valve open
㊿	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units

System Example 2 *(continued)*

Electrical installation scheme



System Example 2 *(continued)*



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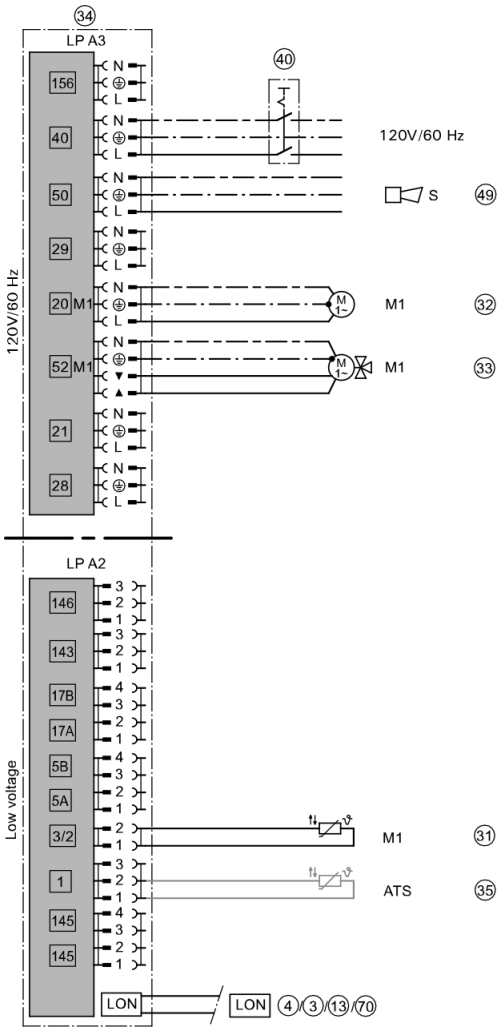
System Example 2 *(continued)*



System Example 2 *(continued)*

Code required at every Vitotronic 100

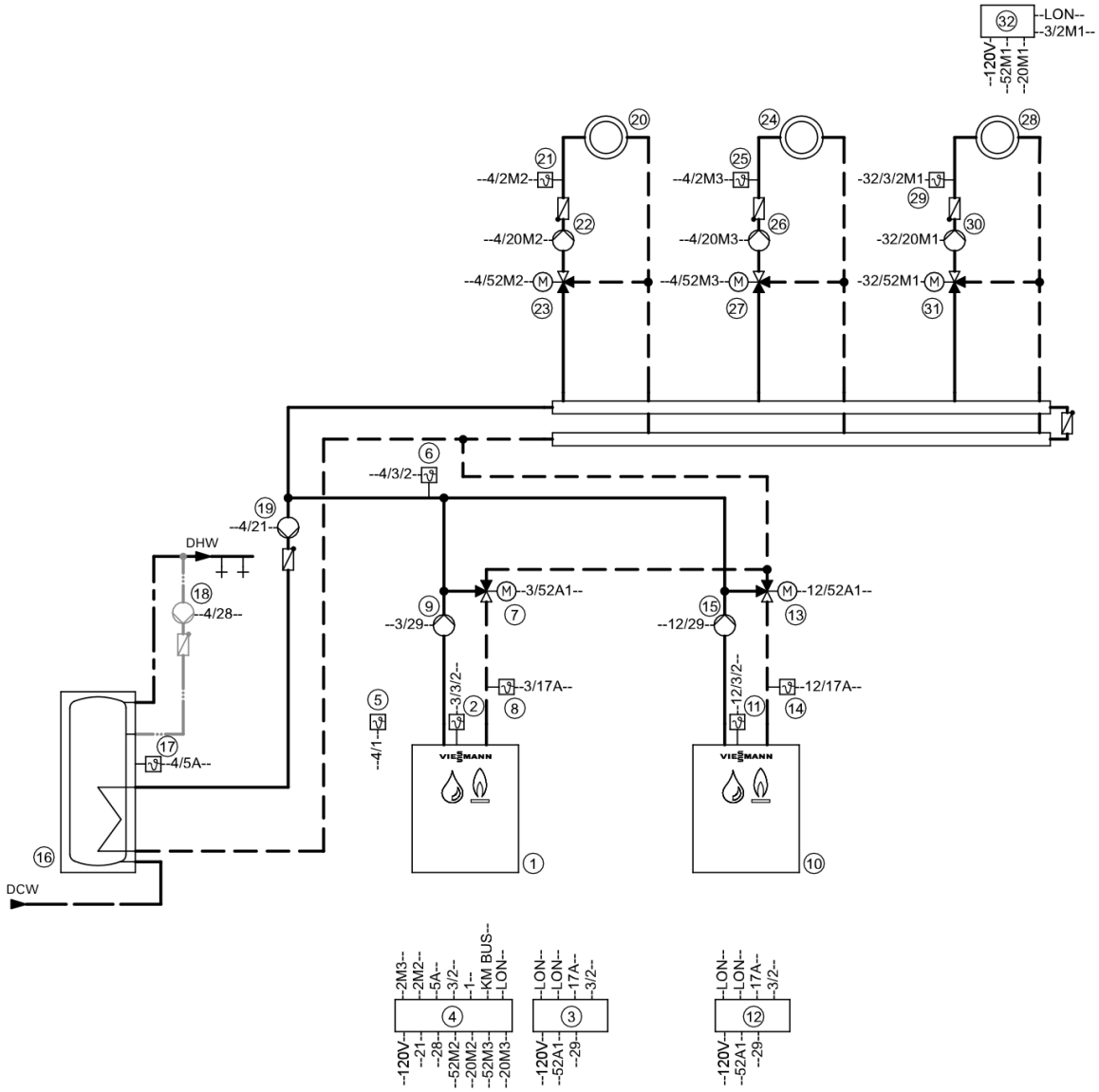
	Group	Function
01:2	2 “Boiler”	Multi boiler system with cascade control via LON
	Boiler number at the Vitotronic:	
07:2	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
4A:1	1 “General”	Temperature sensor T1 connection at plug [17]A; automatic recognition.
4b:1	1 “General”	Temperature sensor T2 connection at plug [17]B; automatic recognition.
	LON participant number at the Vitotronic:	
77:2	1 “General”	Boiler 2
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 100
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 100
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 100
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 100

System Example 3 *(continued)*

Multi boiler system: Boilers with boiler circuit pump and 3-way mixing valve for return temperature raising



Note: This scheme is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example 3 *(continued)*

Equipment required

Pos.	Description
①	**Boiler I**
②	Boiler water temperature sensor KTS
③	Vitotronic 100
④	Vitotronic 300-K
⑤	Outside temperature sensor ATS
⑥	Supply temperature sensor, common heating flow VTS as - contact temperature sensor (standard delivery for Vitotronic 300-K) or - immersion temperature sensor
⑦	3-way mixing valve
⑧	Temperature sensor T1 as - contact temperature sensor or - immersion temperature sensor
⑨	Boiler circuit pump
⑩	**Boiler II**
⑪	Boiler water temperature sensor KTS
⑫	Vitotronic 100
⑬	3-way mixing valve
⑭	Temperature sensor T1 as - contact temperature sensor or - immersion temperature sensor
⑮	Boiler circuit pump
⑯	**DHW tank**
⑰	DHW tank temperature sensor STS
⑱	DHW recirculation pump
⑲	DHW pump
⑳	**Heating circuit 2**
㉒	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve M2:
㉑	- Supply temperature sensor M2 as contact temperature sensor and
㉓	- Mixing valve motor or
㉑	Supply temperature sensor M2 as - contact temperature sensor or - immersion temperature sensor

System Example 3 *(continued)*

Equipment required

Pos.	Description
㉓	Mixing valve motor M2 for flanged mixing valve M2
㉔	**Heating circuit 3**
㉖	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve M3:
㉕	Supply temperature sensor M3 as contact temperature sensor and
㉗	- Mixing valve motor or
㉕	Supply temperature sensor M3 as - contact temperature sensor or - immersion temperature sensor
㉗	Mixing valve motor M2 for flanged mixing valve M3
㉘	**Heating circuit 1 at the Vitotronic 200-H ㉜**
㉚	Heating circuit pump M1 Extension kit for one heating circuit with mixing valve:
㉙	Supply temperature sensor M1 as contact temperature sensor and
㉛	Mixing valve motor M1 or
㉙	Supply temperature sensor M1 as - contact temperature sensor or - immersion temperature sensor and
㉛	Mixing valve motor for flanged mixing valve M1
㉜	Vitotronic 200-H and LON communication module (accessory) and LON connecting cable (accessory)
㉝	Outside temperature sensor ATS
	Boiler accessories
㉞	Connection to safety equipment [150] (see page 61)
㉟	Minimum pressure limiter SDB
㊱	Maximum pressure limiter SDB
㊲	Water level limiter (low water indicator) WB
㊴	Flue gas temperature sensor AGS
㊼	Central fault message system S External hook-ups
㊹	- External changeover of stepped/modulating burners

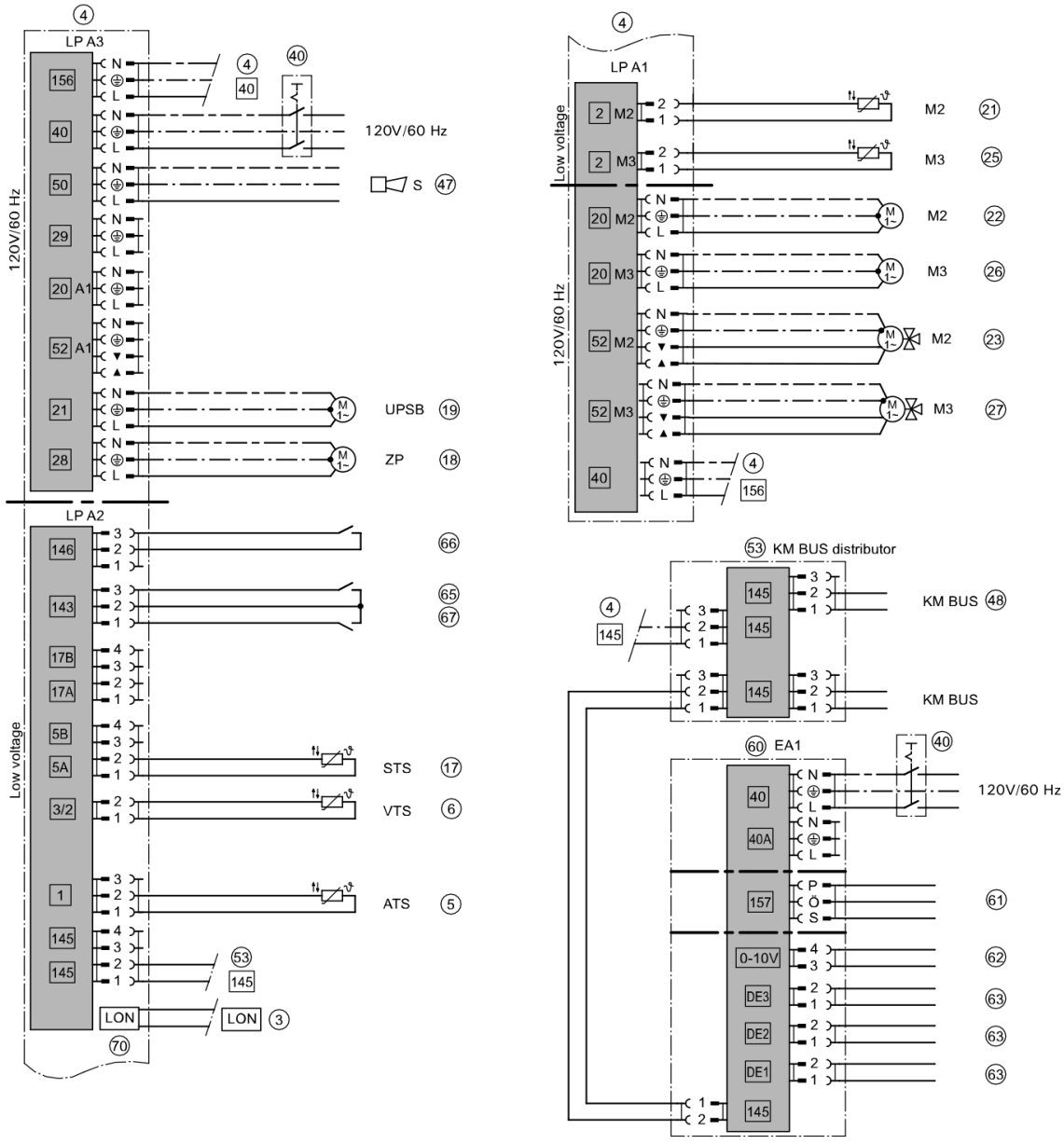
System Example 3 *(continued)*

Equipment required

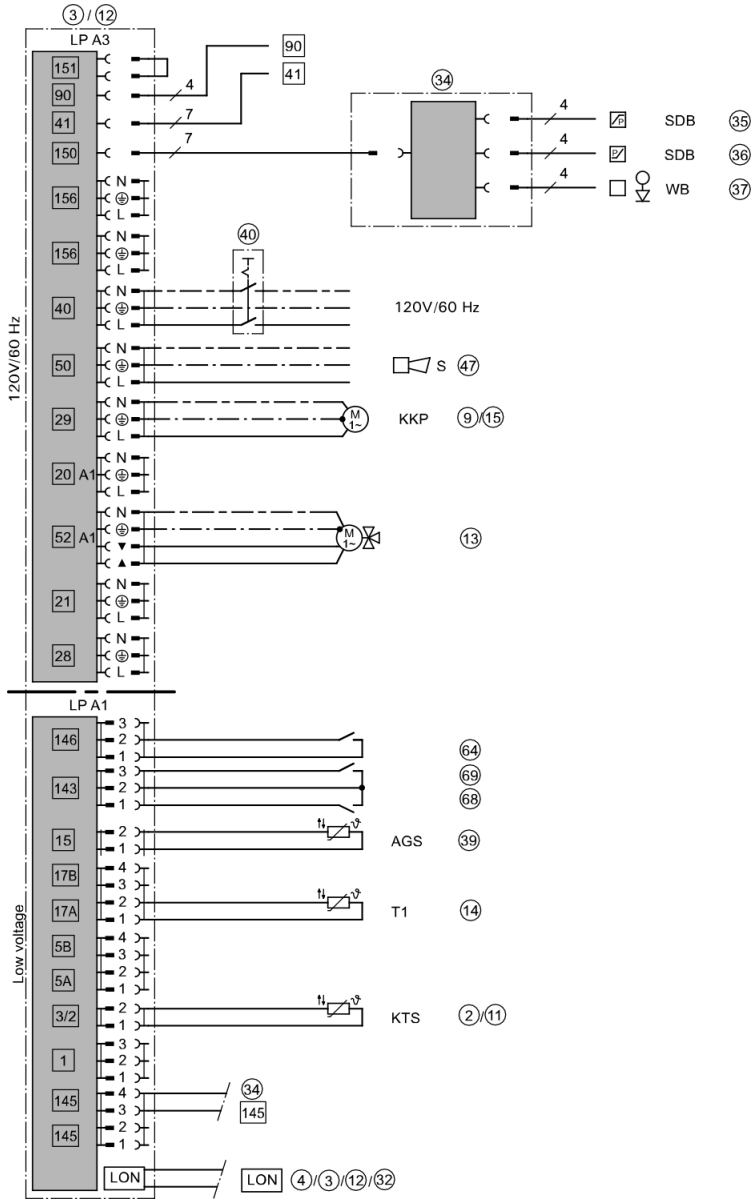
Pos.	Description
⑱	- External boiler blocking
⑲	- Start boiler externally as the last one in the boiler sequence
	System accessories
㊵	ON/OFF switch
㊼	Central fault message system S
㊽	Vitotrol 200A or Vitotrol 300A
㊸	KM BUS distributor, for several KM BUS participants
㊵	Extension EA1
㊶	1 switching output (floating changeover contact): - Switching a feed pump to a substation - Signalling reduced mode for a heating circuit
㊷	1 analog input (0 – 10V): - Specifying the set system supply temperature
㊸	3 digital inputs: - External heating program changeover, separately adjustable for heating circuits 1 to 3 - External demand - External blocking with fault message - Fault message input - Short term operation of DHW recirculation pump
	External hook-ups
㊺	- External blocking/mixing valve closed
㊻	- External demand
㊼	- External heating program changeover/mixing valve open
㊿	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units

System Example 3 *(continued)*

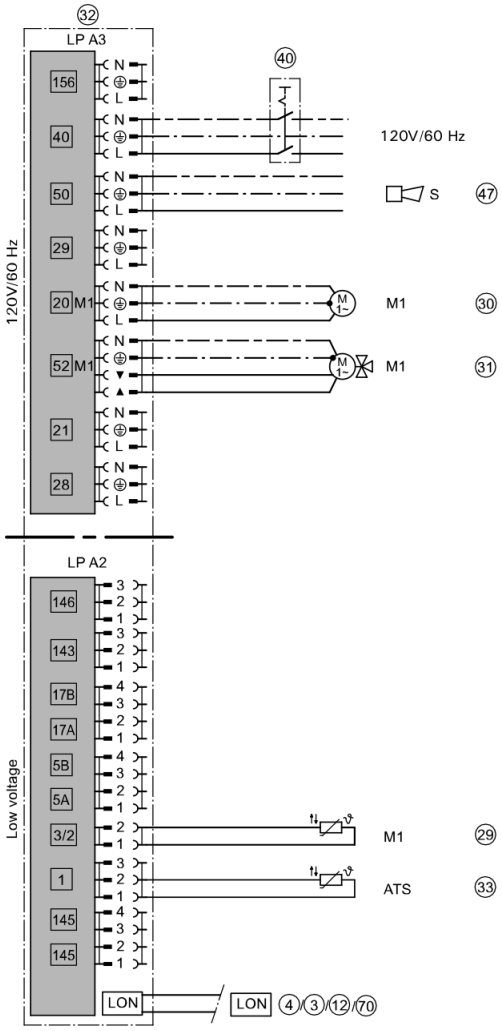
Electrical installation scheme



System Example 3 *(continued)*



System Example 3 *(continued)*



System Example 3 *(continued)*

Code required at every Vitotronic 100

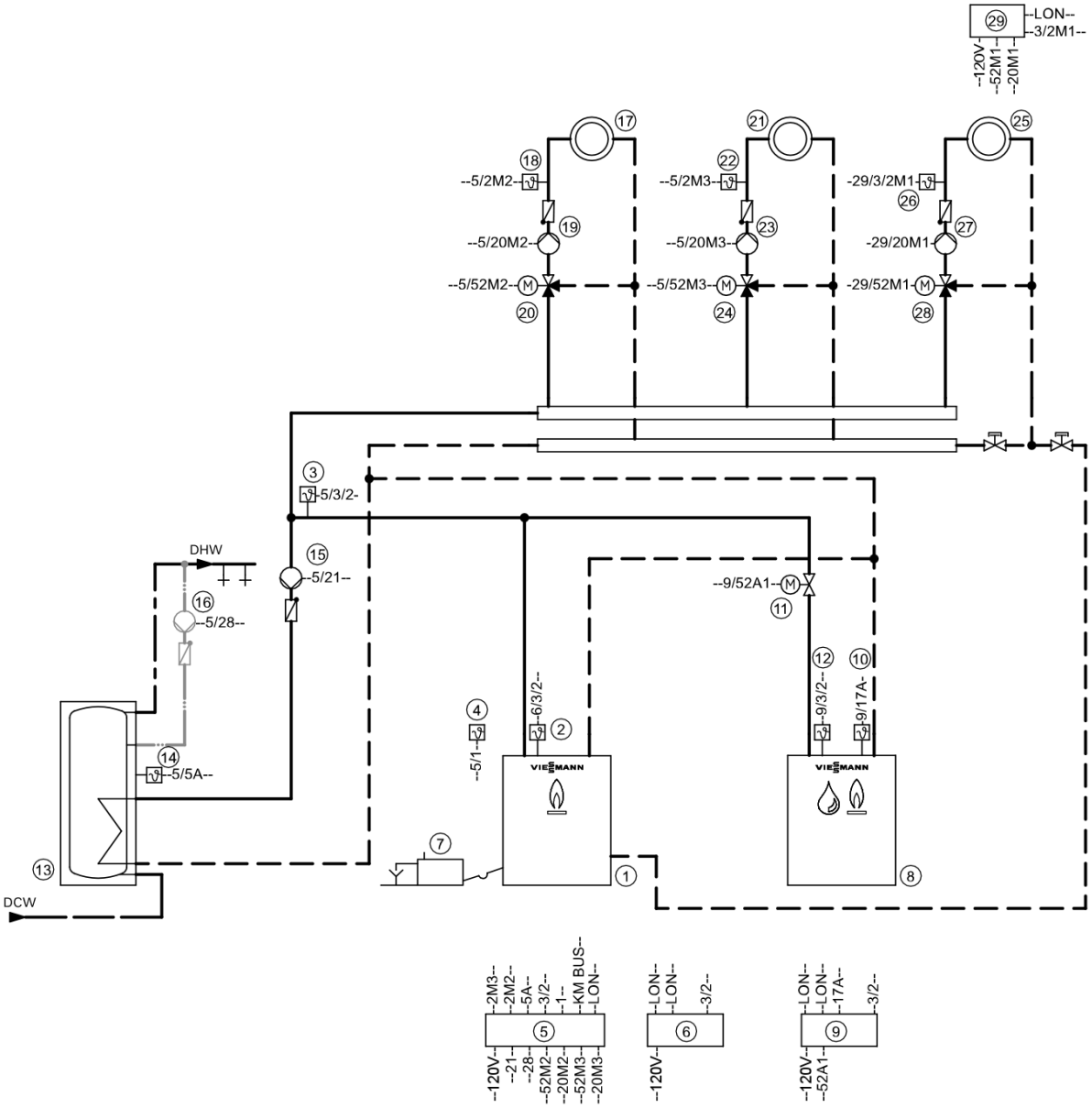
	Group	**Function**
01:2	2 “Boiler”	Multi boiler system with cascade control via LON
	Boiler number at the Vitotronic:	
07:2	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
0C:1	2 “Boiler”	Constant return temperature control
4A:1	1 “General”	Temperature sensor T1 connection at plug [17]A; automatic recognition.
4d:2	1 “General”	Boiler circuit pump connection at plug [29]
	LON participant number at the Vitotronic:	
77:2	1 “General”	Boiler 2
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 100
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 100
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 100
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 100

System Example 4 *(continued)*

Multi boiler system: Vitocrossal and low temperature boilers with Therm-Control, with several heating circuits and one low temperature heating circuit



Note: This scheme is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example 4 *(continued)*

Equipment required

Pos.	Description
①	**Boiler I**
②	Boiler water temperature sensor KTS
③	Supply temperature sensor, common heating flow VTS as - contact temperature sensor (standard delivery for Vitotronic 300-K) or - immersion temperature sensor
④	Outside temperature sensor ATS
⑤	Vitotronic 300-K
⑥	Vitotronic 100
⑦	Neutralizing system
⑧	**Boiler II**
⑨	Vitotronic 100
⑩	Therm-Control temperature sensor
⑪	Motorized isolation valve
⑫	Boiler water temperature sensor KTS
⑬	**DHW tank**
⑭	DHW tank temperature sensor STS
⑮	DHW pump
⑯	DHW recirculation pump
⑰	**Heating circuit 2**
⑲	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve:
⑱	Supply temperature sensor M2 as contact temperature sensor and
⑳	Mixing valve motor M2 or
⑱	Supply temperature sensor M2 as - contact temperature sensor or - immersion temperature sensor and
⑳	Mixing valve motor for flanged mixing valve M2
㉑	**Heating circuit 3**
㉓	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve:
㉒	Supply temperature sensor M3 and
㉔	Mixing valve motor M3 or

System Example 4 *(continued)*

Equipment required

Pos.	Description
㉒	Supply temperature sensor M3 as - contact temperature sensor or - immersion temperature sensor and
㉔	Mixing valve motor for flanged mixing valve M3
㉕	**Heating circuit 1 (low temperature heating circuit) at the Vitotronic 200-H ㉙**
㉗	Heating circuit pump M1 Extension kit for one heating circuit with mixing valve:
㉖	Supply temperature sensor M1 as contact temperature sensor and
㉘	Mixing valve motor M1 or
㉖	Supply temperature sensor M1 as - contact temperature sensor or - immersion temperature sensor and
㉘	Mixing valve motor for flanged mixing valve M1
㉙	Vitotronic 200-H and LON communication module for pos. 29 and LON connecting cable
㉚	Outside temperature sensor ATS
	Boiler accessories
㉜	Connection to safety equipment [150] (see page 61)
㉝	Maximum pressure limiter SDB
㉞	Minimum pressure limiter SDB
㉟	Water level limiter (low water indicator) WB
㊹	Central fault message system S
㊲	Flue gas temperature sensor AGS External hook-ups
㊹	- External changeover of stepped/modulating burners
㊽	- External boiler blocking
㊾	- Start boiler externally as the last one in the boiler sequence
	System accessories
㉛	Vitotrol 200A or Vitotrol 300A
㊵	ON/OFF switch
㊹	Central fault message system S

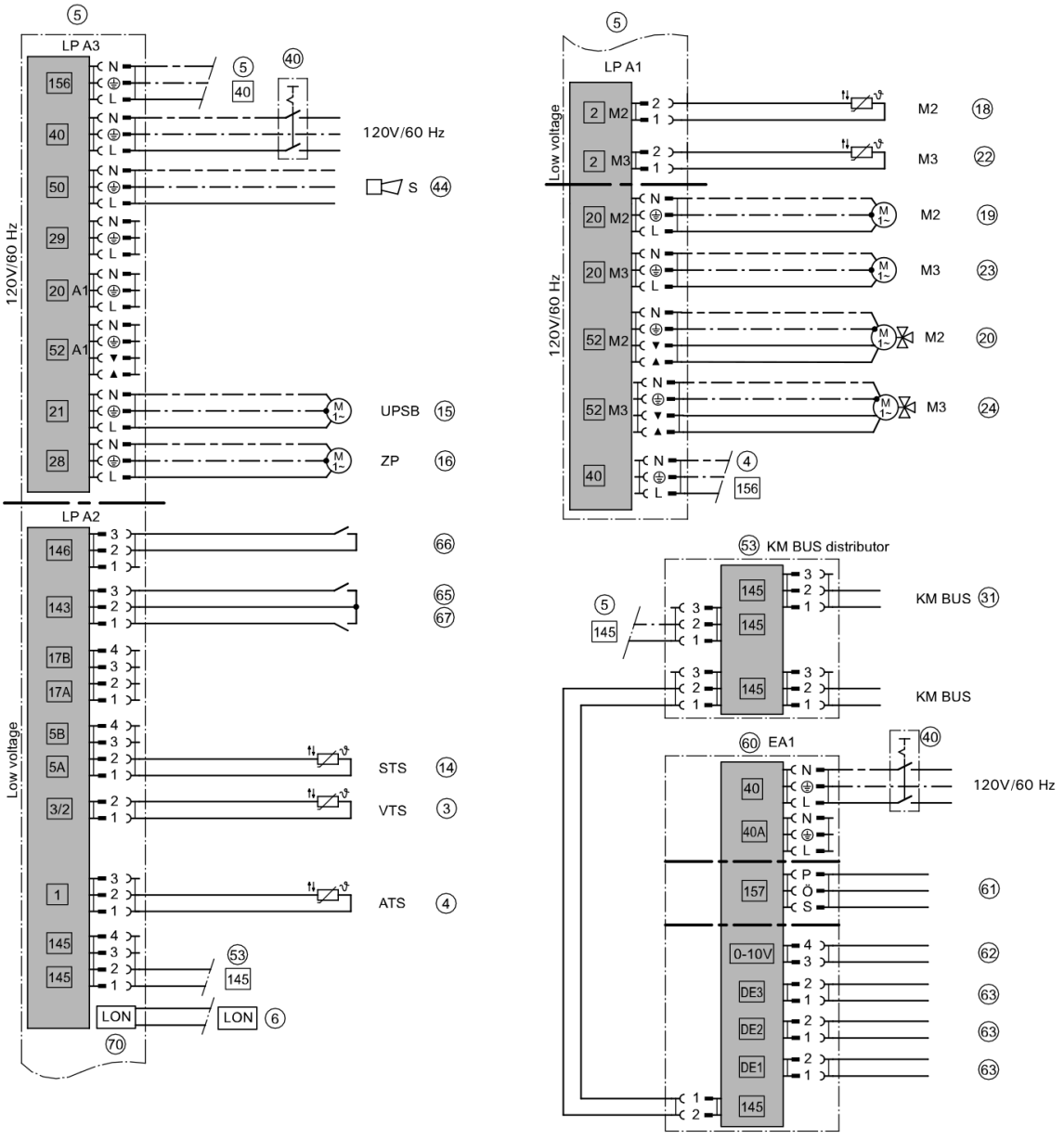
System Example 4 *(continued)*

Equipment required

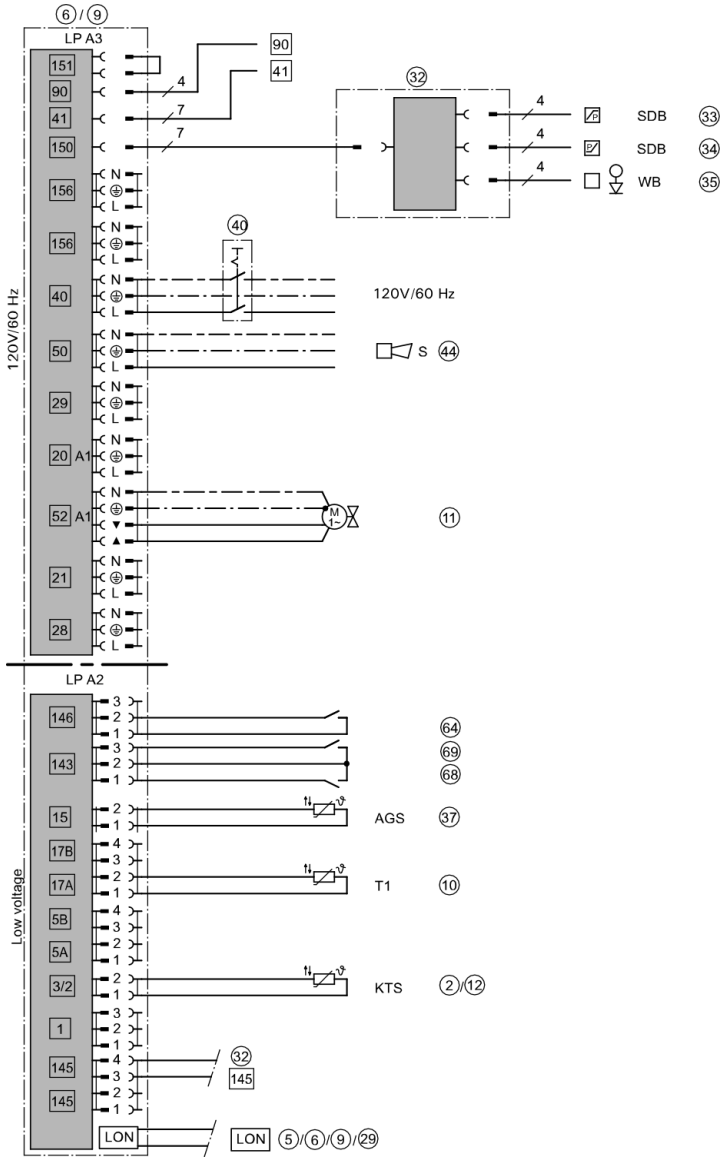
Pos.	Description
⑤③	KM BUS distributor, for several KM BUS participants
⑥⓪	Extension EA1
⑥①	1 switching output (floating changeover contact): - Switching a feed pump to a substation - Signalling reduced mode for a heating circuit
⑥②	1 analog input (0 – 10V): - Specifying the set system supply temperature
⑥③	3 digital inputs: - External heating program changeover, separately adjustable for heating circuits 1 to 3 - External demand - External blocking with fault message - Fault message input - Short term operation of DHW recirculation pump External hook-ups
⑥⑤	- External blocking/mixing valve closed
⑥⑥	- External demand
⑥⑦	- External heating program changeover/mixing valve open
⑦⓪	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units

System Example 4 *(continued)*

Electrical installation scheme



System Example 4 *(continued)*



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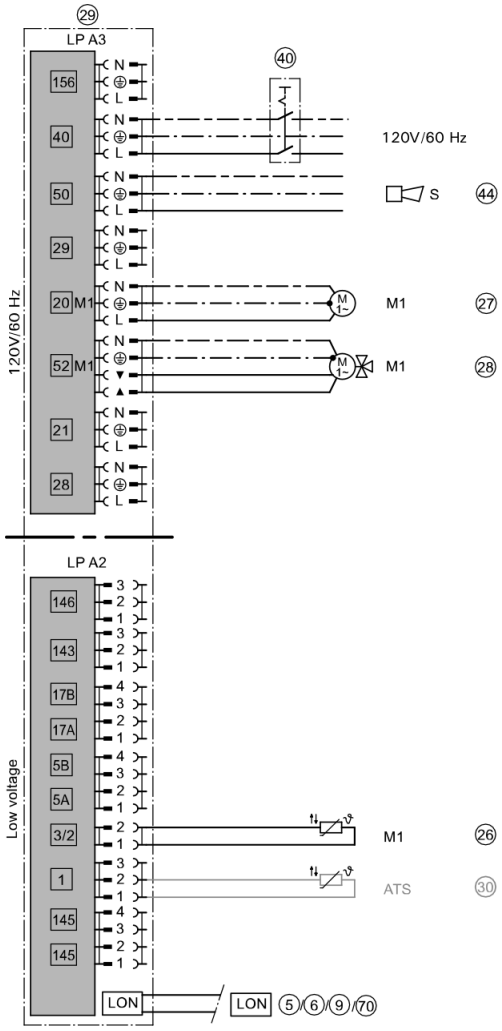
System Example 4 *(continued)*



System Example 4 *(continued)*

Code required at every Vitotronic 100

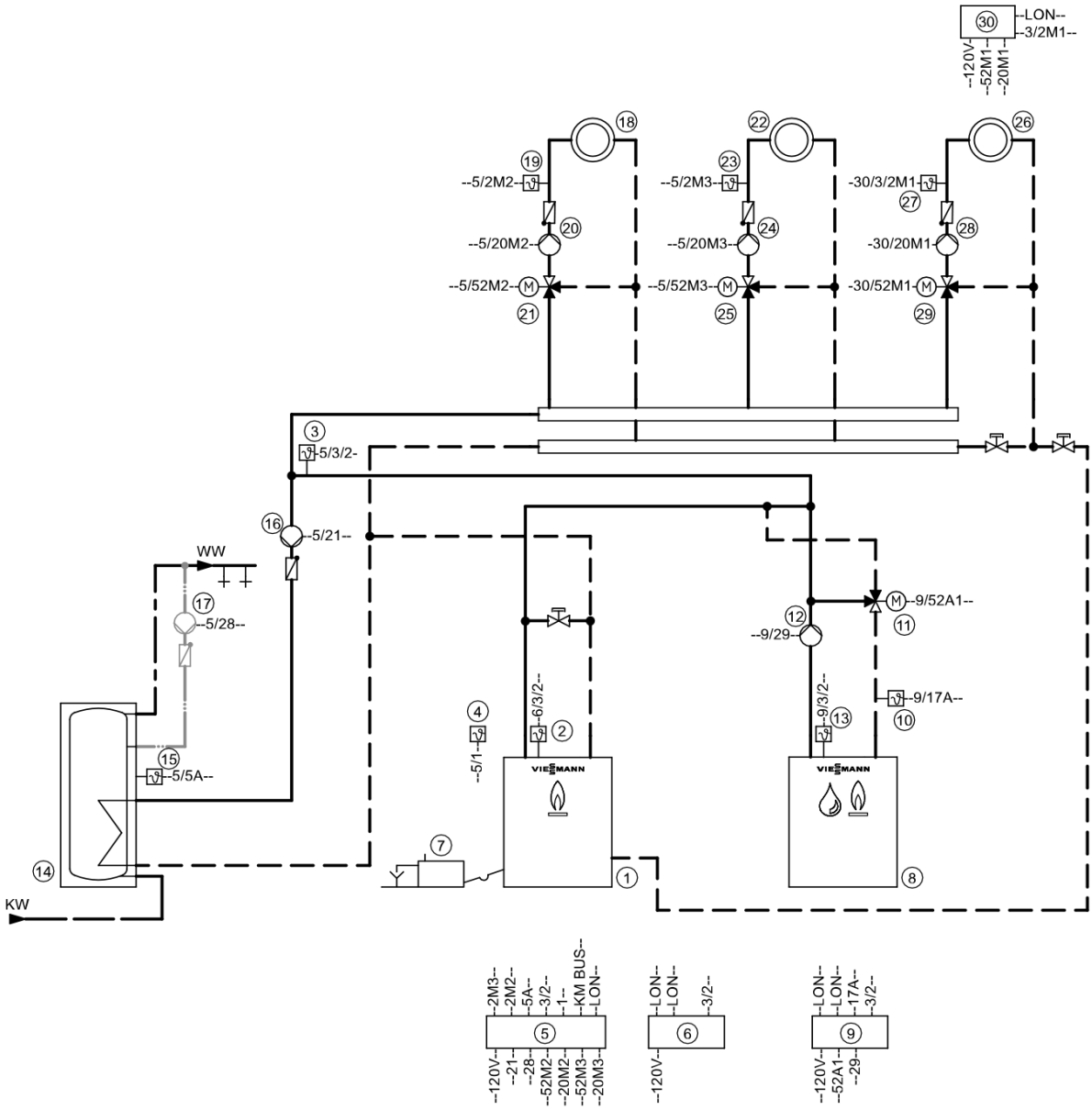
	Group	Function
01:2	2 “Boiler”	Multi boiler system with cascade control via LON
07:2	Boiler number at the Vitotronic:	
	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
4A:1	Only with the Vitotronic 100 of the low temperature boiler:	
	1 “General”	Therm-Control temperature sensor connection at plug 17A; automatic recognition.
0d:0	Only with the Vitotronic 100 of the Vitocrossal:	
	2 “Boiler”	Without Therm-Control temperature sensor
77:2	LON participant number at the Vitotronic:	
	1 “General”	Boiler 2
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 100
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 100
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 100
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 100
39:1 to 39:4	“Cascade”	Permanent lead boiler System with one condensing boiler and several low temperature boilers: Program the condensing boiler as the permanent lead boiler
3A:1 to 3A:4	“Cascade”	Permanent last boiler System with one low temperature boiler and several condensing boilers: Program the low temperature boiler to always be the last boiler.
3C:1	“Cascade”	Conventional strategy 1

System Example 5

Multi boiler system: Vitocrossal and low temperature boilers with 3-way mixing valve, with several heating circuits and one low temperature heating circuit



Note: This scheme is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example 5 *(continued)*

Equipment required

Pos.	Description
①	**Boiler I**
②	Boiler water temperature sensor KTS
③	Supply temperature sensor, common heating flow VTS as - contact temperature sensor (standard delivery for Vitotronic 300-K) or - immersion temperature sensor
④	Outside temperature sensor ATS
⑤	Vitotronic 300-K
⑥	Vitotronic 100
⑦	Neutralizing system
⑧	**Boiler II**
⑨	Vitotronic 100
⑩	Temperature sensor T1 as - contact temperature sensor or - immersion temperature sensor
⑪	3-way mixing valve
⑫	Boiler circuit pump
⑬	Boiler water temperature sensor KTS
⑭	**DHW tank**
⑮	DHW tank temperature sensor STS
⑯	DHW pump
⑰	DHW recirculation pump
⑱	**Heating circuit 2**
⑳	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve:
⑲	Supply temperature sensor M2 as contact temperature sensor and
㉑	Mixing valve motor M2 or
⑲	Supply temperature sensor M2 as - contact temperature sensor or - immersion temperature sensor and
㉑	Mixing valve motor for flanged mixing valve M2
㉒	**Heating circuit 3**
㉔	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve:

System Example 5 *(continued)*

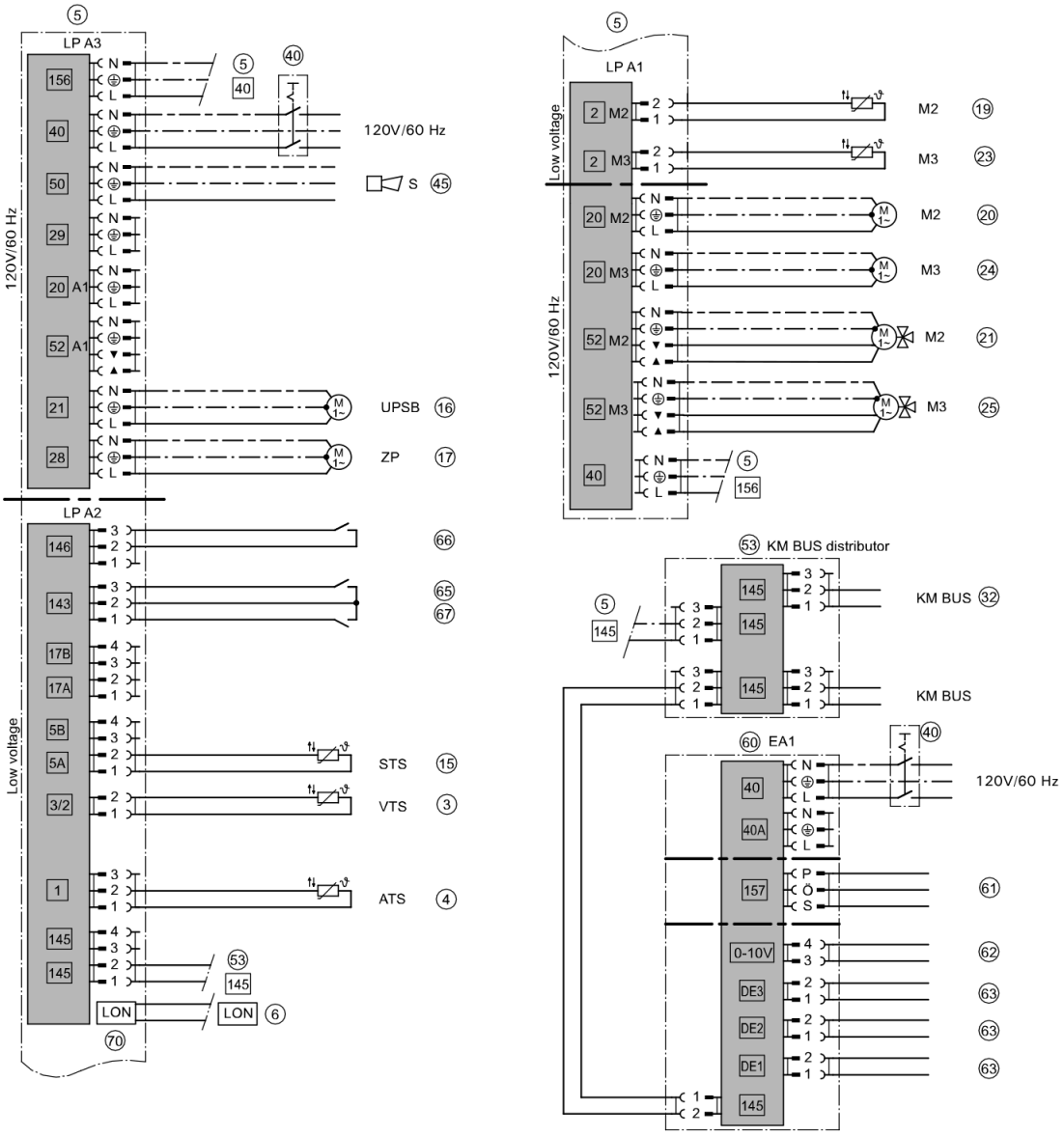
Pos.	Description
㉓	Supply temperature sensor M3 as contact temperature sensor and
㉕	Mixing valve motor M3 or
㉓	Supply temperature sensor M3 as - contact temperature sensor or - immersion temperature sensor and
㉕	Mixing valve motor for flanged mixing valve M3
㉖	**Heating circuit 1 (low temperature heating circuit) at the Vitotronic 200-H ㉚**
㉘	Heating circuit pump M1
㉗	Supply temperature sensor M1 as contact temperature sensor and
㉙	Mixing valve motor M1 or
㉗	Supply temperature sensor M1 as - contact temperature sensor or - immersion temperature sensor and
㉙	Mixing valve motor for flanged mixing valve M1
㉚	Vitotronic 200-H and LON communication module and LON connecting cable
㉛	Outside temperature sensor ATS
	Boiler accessories
㉝	Connection to safety equipment [150] (see page 61)
㉞	Maximum pressure limiter SDB
㉟	Minimum pressure limiter SDB
㊱	Water level limiter (low water indicator) WB
㊺	Central fault message system S
㊳	Flue gas temperature sensor AGS External hook-ups
㊹	External changeover of stepped/modulating burners
㊽	External boiler blocking
㊾	Start boiler externally as the last one in the boiler sequence

System Example 5 *(continued)*

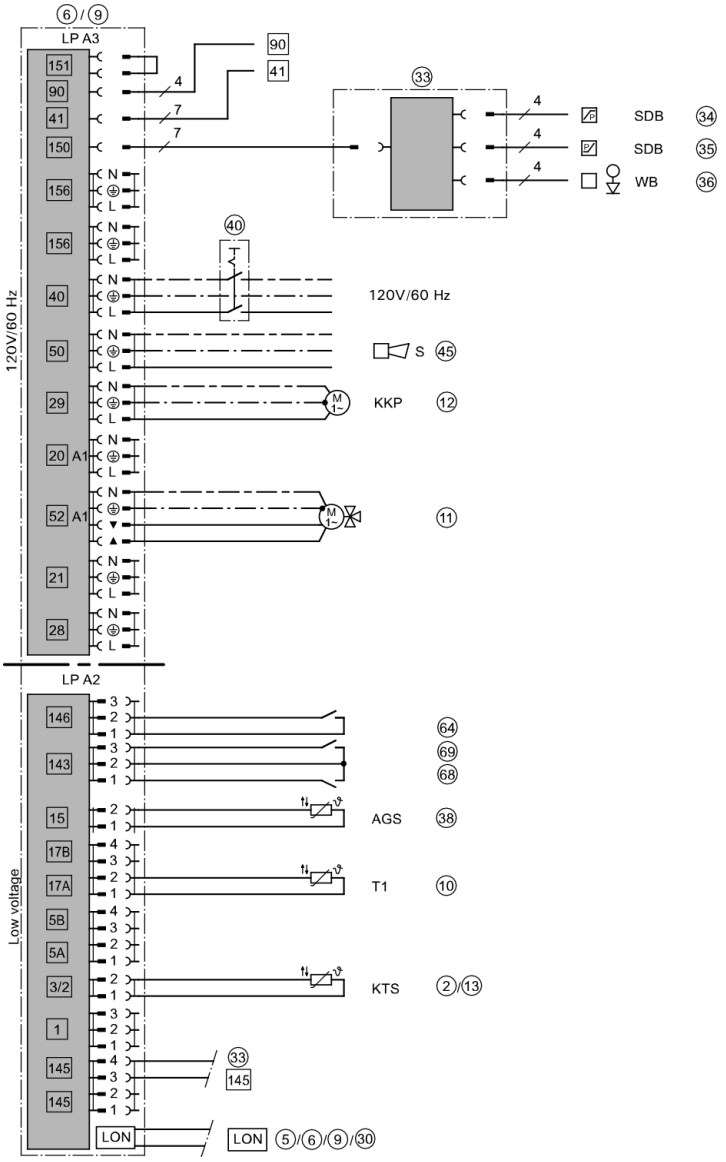
Pos.	Description
	System accessories
㉜	Vitotrol 200A or Vitotrol 300A
㊵	ON/OFF switch
㊺	Central fault message system S
㊸	KM BUS distributor, for several KM BUS participants
㊿	Extension EA1
㊶	1 switching output (floating changeover contact): - Switching a feed pump to a substation - Signalling reduced mode for a heating circuit
㊷	1 analog input (0 – 10V): - Specifying the set system supply temperature
㊸	3 digital inputs: - External heating program changeover, separately adjustable for heating circuits 1 to 3 - External demand - External blocking with fault message - Fault message input - Short term operation of DHW recirculation pump External hook-ups
㊺	- External blocking/mixing valve closed
㊻	- External demand
㊼	- External heating program changeover/mixing valve open
㊿	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units

System Example 5 *(continued)*

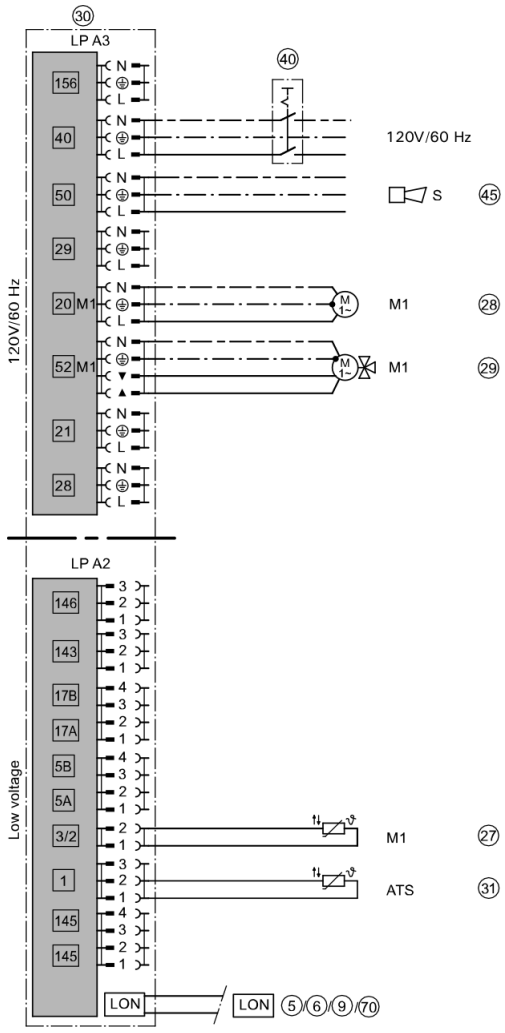
Electrical installation scheme



System Example 5 *(continued)*



System Example 5 *(continued)*



System Example 5 *(continued)*

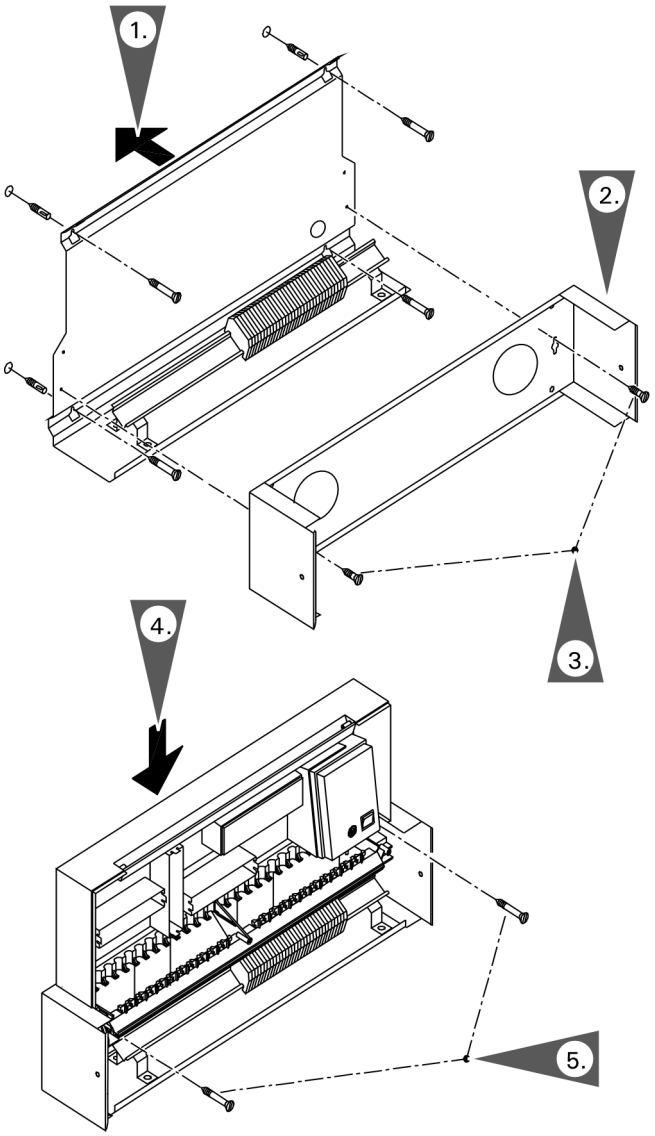
Code required at every Vitotronic 100

	Group	Function
01:2		Multi boiler system with cascade control via LON
07:2	Boiler number at the Vitotronic	
	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
0C:1	Only with the Vitotronic 100 of the low temperature boiler:	
	2 “Boiler”	Constant return temperature control
4A:1	1 “General”	Temperature sensor T1 connection at plug 17A; automatic recognition.
4d:2	1 “General”	Boiler circuit pump connection at plug 29
	Only with the Vitotronic 100 of the Vitocrossal:	
0d:0	2 “Boiler”	Without Therm-Control temperature sensor
	LON participant number at the Vitotronic:	
77:2	1 “General”	Boiler 2
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 100
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 100
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 100
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 100
39:1 to 39:4	“Cascade”	Permanent lead boiler System with one condensing boiler and several low temperature boilers: Program the condensing boiler as the permanent lead boiler.
3A:1 to 3A:4	“Cascade”	Permanent last boiler System with one low temperature boiler and several condensing boilers: Program the low temperature boiler to always be the last boiler.
3b:3	“Cascade”	Stand-alone control, boiler connected in series with supply temperature sensor

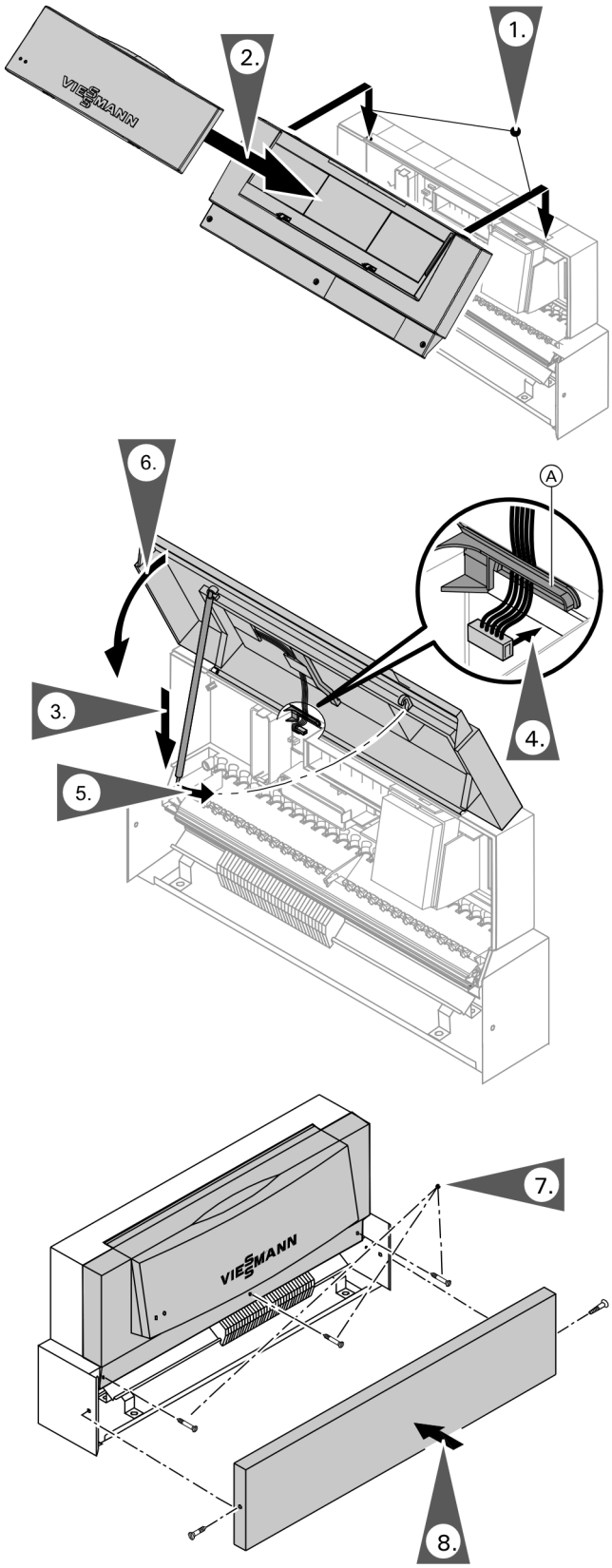
Mounting the Control Unit



1. Fasten the metal back plate to the mounting surface with four fasteners.
2. Install the junction box to the back plate.
3. Fasten the junction box to the back plate with two fasteners.
4. Install the control rear section to the junction box housing. Hook the control to the back plate tabs and pivot downwards.
5. Fasten the control rear section to the junction box with two fasteners.

Note: The Vitotronic 100 GC1B boiler control must be mounted directly to the boiler (see boiler installation instructions).The 300-K MW1B can be mounted remotely.

Fitting the Control Unit Front



1. Snap on the control cover to the control housing.
2. Snap on the interface cover to the control cover.
3. Release the stay bar and lock in position.
4. Insert the plug from the programming unit to the control.
   Note: Route the ribbon cable through retainer Ⓐ.
5. Return the stay bar to the control cover and lock in position.
6. Close the control cover.
7. Secure the control cover to the front housing with supplied fasteners.
8. Install the junction box cover and support with a supplied screws.

Note: Route the ribbon cable through retainer Ⓐ.

Legend
Ⓐ Cable retaining tab

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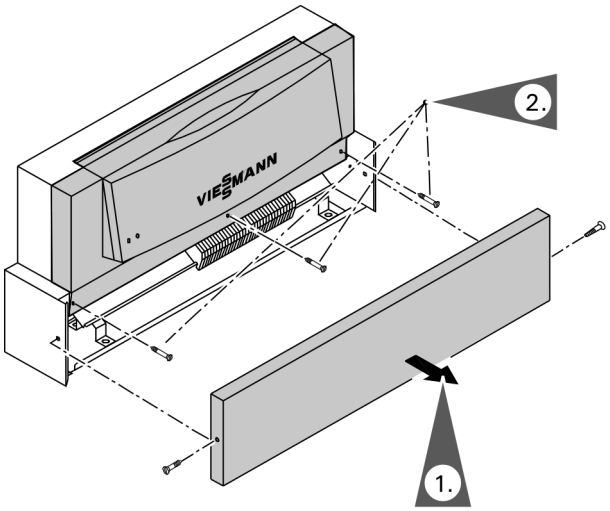
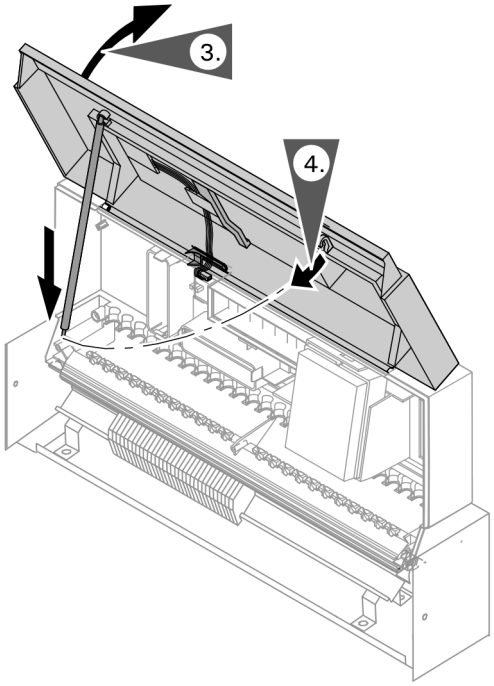
Opening the Control Unit

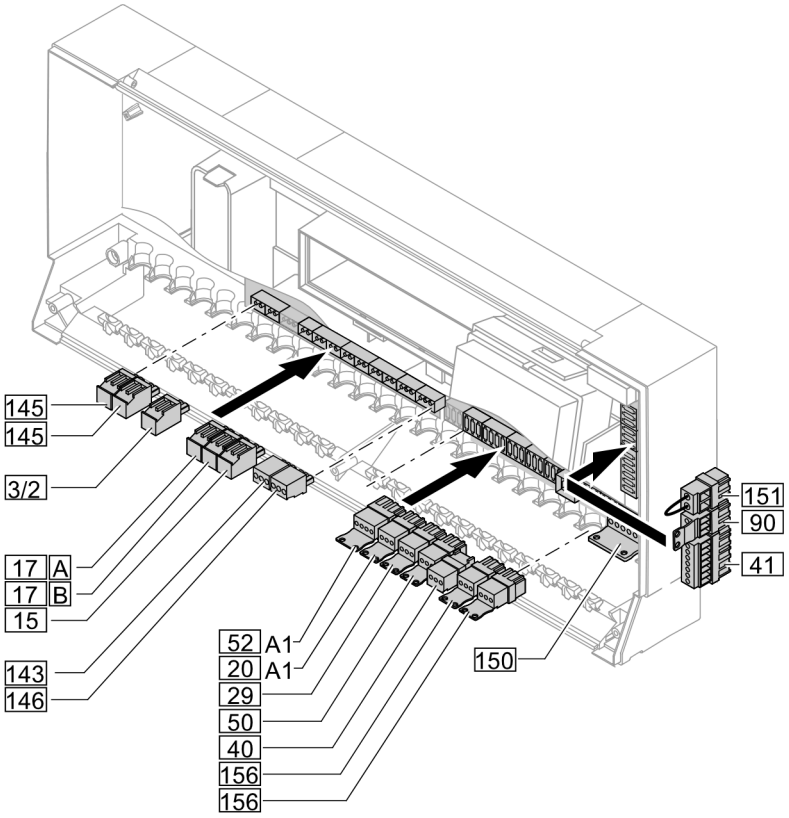




1. Remove the junction box cover screws and remove the cover.
2. Remove the front housing screws.
3. Swing up the front part of the control housing.
4. Position the stay bar so that it supports the front housing.

Overview of Electrical Connections

Note: When connecting plugs 143 and 146, bundle the individual cores of the cables close to the terminals. This prevents the cores from shifting into the neighboring voltage area.



Main PCB low voltage

- 3 Boiler water temperature sensor
- 15 Flue gas temperature sensor (accessory)
- 17A Therm-Control temperature sensor
  or
  Return temperature sensor T1
  (standard delivery with Vitorond, accessory for Vitocrossal)
- 17B Return temperature sensor T2 (accessory)

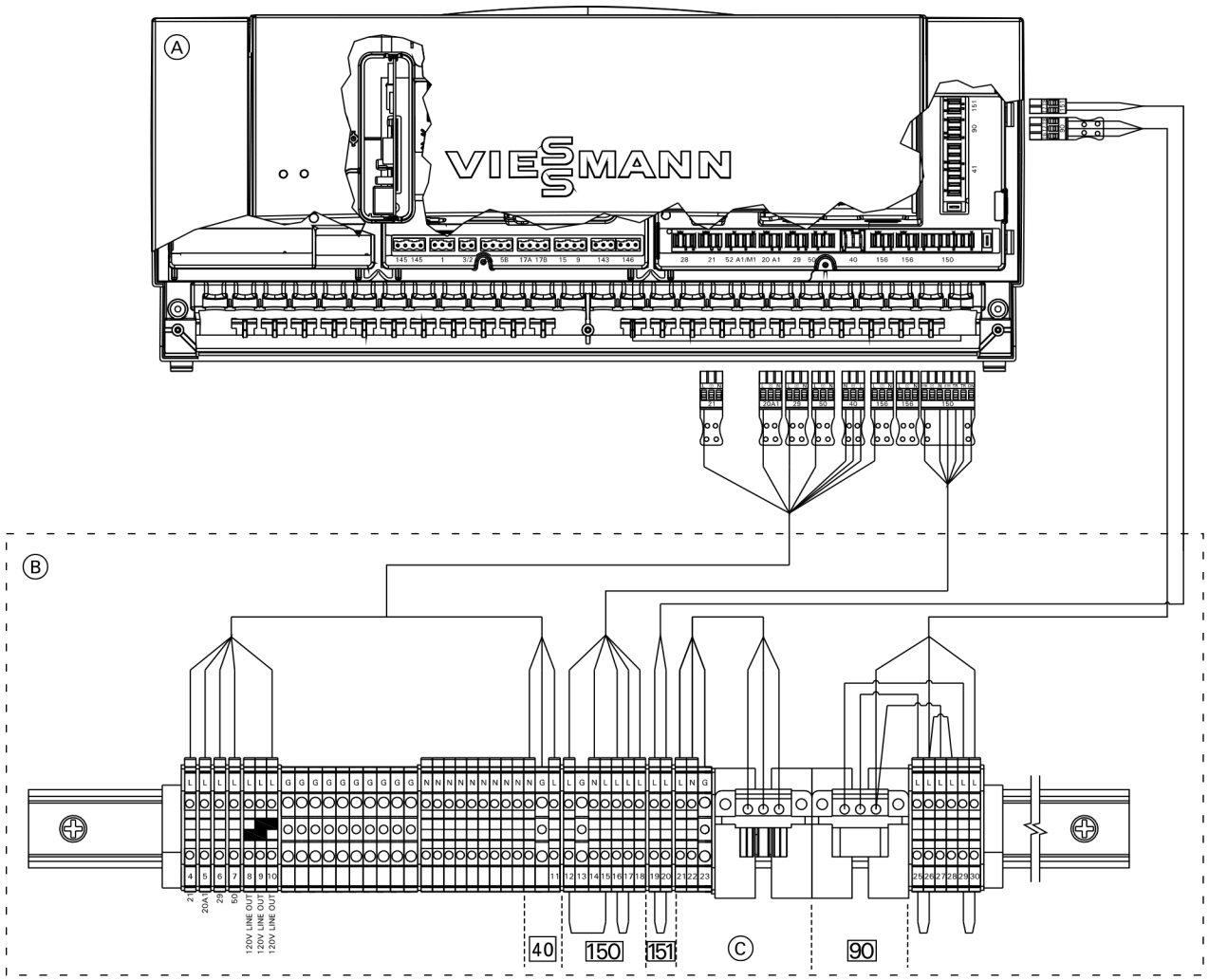
- 143 External hook-up
- 145 KM BUS participant (accessory)
- 146 External hook-up

Main PCB 120V~

- 20A1 Switching output pump/shunt pump
- 29 Boiler pump
- 40 Power supply
- 41 Burner (call for heat)
- 50 Central fault message
- 52A1 Isolation valve
- 90 Burner stage 2/mod.
- 150 External connections, e.g. supplementary safety equipment (low water cut-off)
- 151 Safety chain, floating
- 156 Power supply connection for accessories

Prior to making any connections ensure that the control and junction box have been installed as per the boiler Installation Instructions.

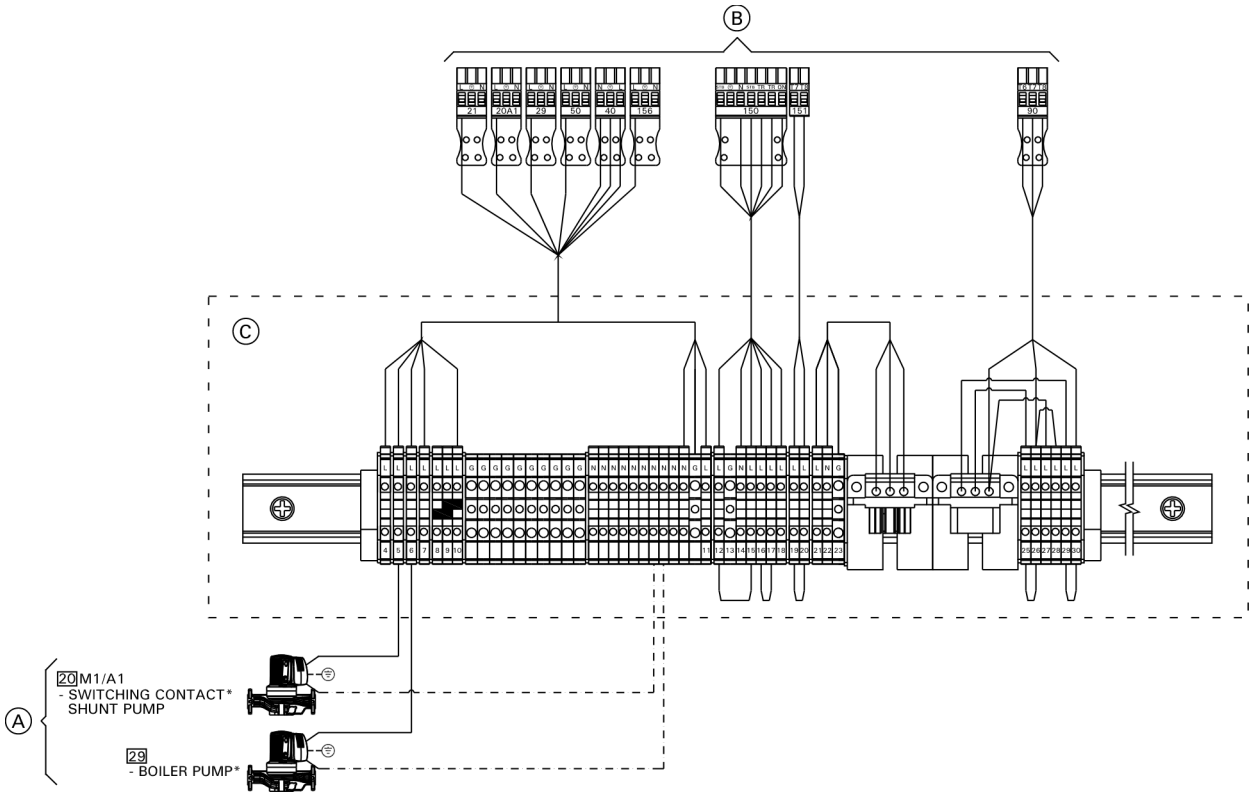
Overview of Electrical Connections *(continued)*



Legend

Ⓐ Vitotronic 100
Ⓑ Junction box
Ⓒ Burner motor power supply (refer to page 69)
40 Vitotronic 100 GC1B power supply

Pump Connection Overview



Legend

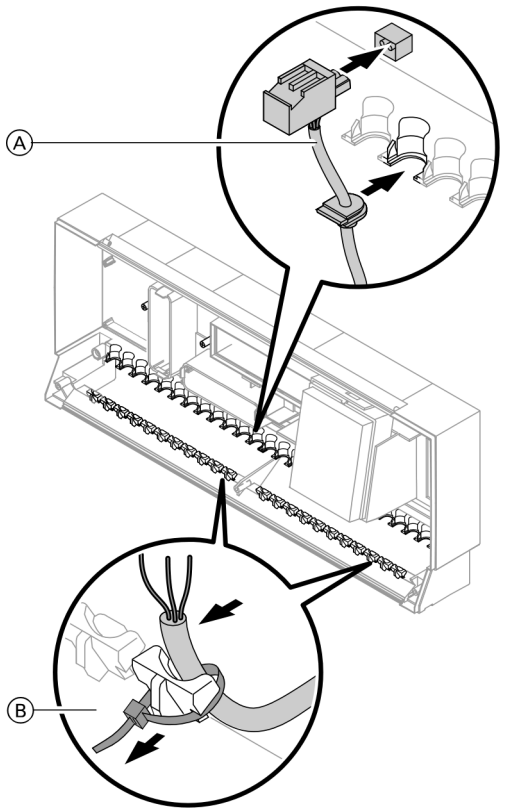
Ⓐ 120V pump output
Ⓑ To the Vitotronic control unit
Ⓒ Junction box

Rated current: 2A~
* Maximum output 6FLA shared between all 120V outputs.

Pumps 120V
Available pump connections

20	M1/A1	Switching contact/shunt pump
29		Boiler pump
21		No Function

Inserting Cables and Applying Strain Relief

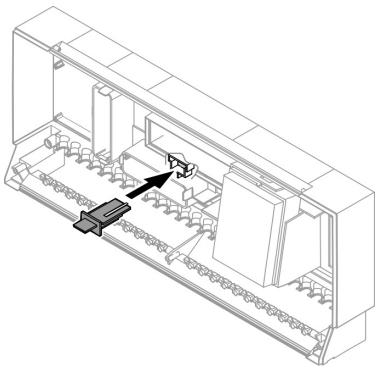


- Control unit fitted on the boiler:
  Route cables from below through the front panel of the boiler into the wiring chamber of the control unit.
- Control unit fitted to the side of the boiler:
  Route cables from below out of the cable channel into the control unit.

Legend

Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 4 in. (100 mm) insulation

Inserting the Boiler Coding Card

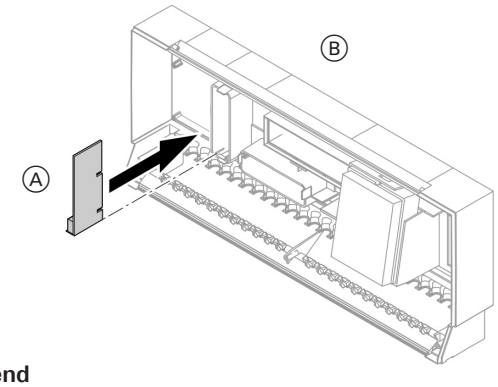


Only use the boiler coding card supplied with the boiler (see table in chapter “Components”).

Insert the boiler coding card into slot “X7”, through the recess in the cover.

Boiler	Coding card	Identification	Spare parts no.
Vitocrossal 300, CT3	1040	7841118	7841118
Vitorond 200, VD2, VD2A	1020	7841111	7841111

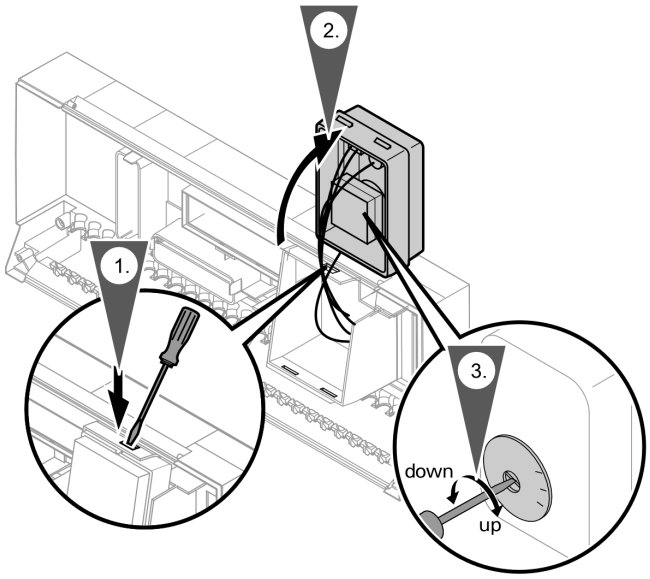
Inserting the LON Communication Module



Making the LON connection, see page 83.

Legend
Ⓐ LON communication module (accessory)
Ⓑ Vitotronic 100 GC1B

Adjusting the Fixed High Limit (if required)



When adjusting the fixed high limit to lower temperatures, it can not be adjusted back to a higher temperature. Also when adjusting the fixed high limit, the adjustable high limit and the electronic temperature limiter must also be adjusted (see chart below).

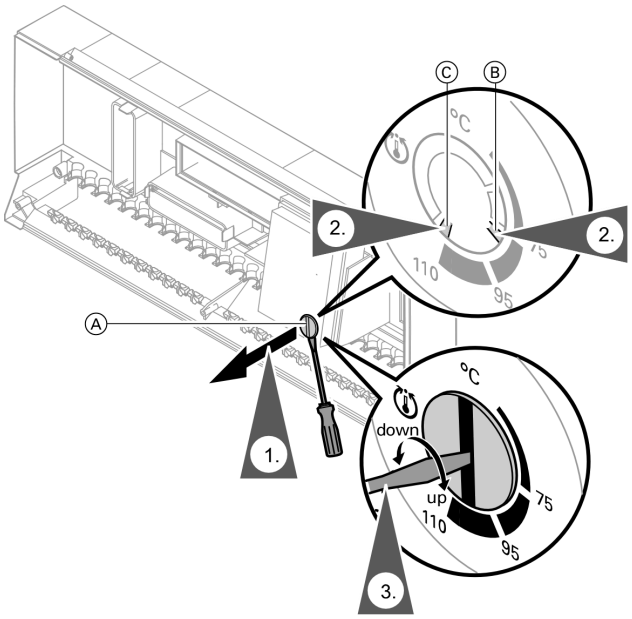
⚠ WARNING

Disconnect power to the control and burner!

1. Unclip the fuse box and swing upwards.
2. Turn the slotted screw on the rear of the fixed high limit until the slot points to the desired temperature.
3. Re-fit the fuse box.

	Non-condensing boiler (VD2/VD2A) °F (°C)			**Condensing boiler (CT3)** °F (°C)
	Factory set at;	Adjustable to;		Factory set at;
Fixed high limit	230°F (110°C)	210°F (99°C)	248°F (120°C)	210°F (99°C)
Adjustable high limit	212°F (100°C)	203°F (95°C)	230°F (110°C)	203°F (95°C)
Coding address for the electronic maximum temperature limit of Vitotronic 100; set coding address 06 (see boiler coding section) to the temperature as shown or less	200°F (93°C)	188°F (87°C)	223°F (106°C)	188°F (87°C)

Changing the Adjustable High Limit (if required)



Note: Excessive DHW temperatures can damage the DHW tank. If the system is operated in conjunction with a DHW tank, ensure that the maximum permissible water temperature is not exceeded. If necessary, install suitable safety equipment for this purpose.

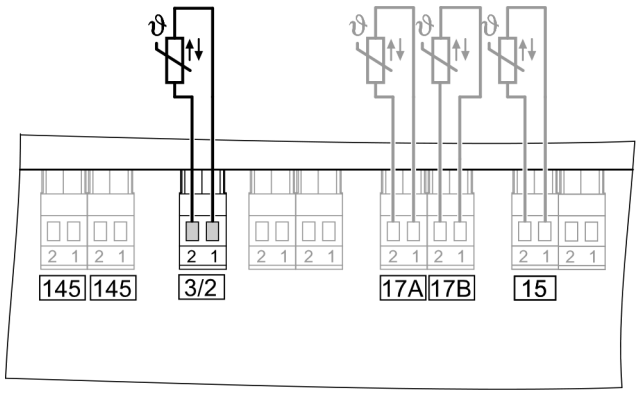
1. Remove rotary selector Ⓐ.
2. Using a pair of pointed pliers, break the restraining tab Ⓑ or Ⓒ out of the stop dial as shown.
3. Install rotary selector Ⓐ. Turn rotary selector Ⓐ to the required temperature. The slot should line up to the selected temperature.

Note: The control comes factory preset to a maximum allowable adjustable high limit of 100°C. Once the adjustable high limit is changed the temperature can be reduced to a minimum of 75°C.

Legend

Ⓐ Rotary selector
Ⓑ Break required tab
or
Ⓒ Break required tab

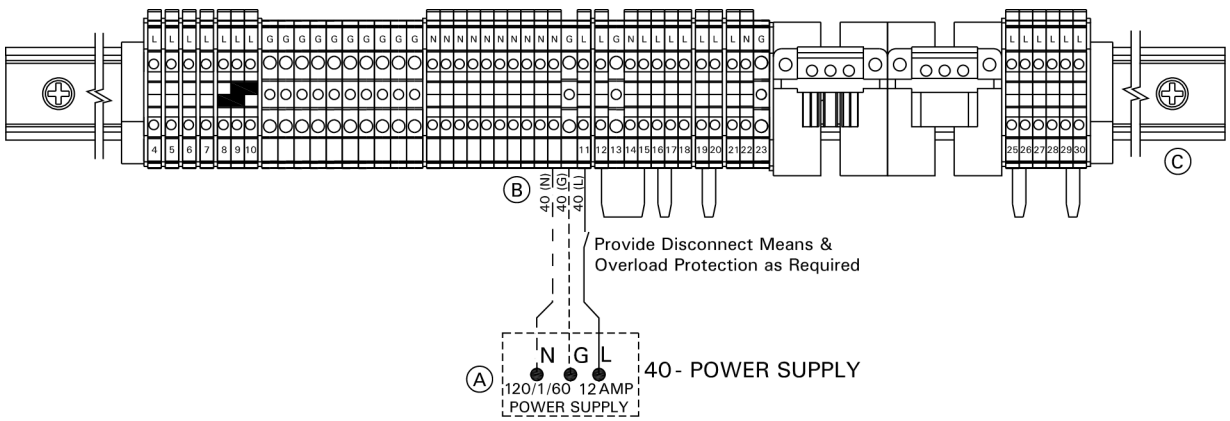
Connecting Sensors



Legend

Main PCB low voltage
3 Boiler water temperature sensor
15 Flue gas temperature sensor (accessory)
17A Therm-Control temperature sensor
or
Return temperature sensor T1 (standard delivery for Vitorond accessory for Vitocrossal)
17B Return temperature sensor T2 (accessory)

Power Supply



Legend
L: Line
N: Neutral
G: Ground

Ⓐ Power supply 120VAC, 1PH, 60Hz, provide disconnect means and overcurrent protection as per local codes

Ⓑ Terminals N, G and 11 (in junction box)

Ⓒ Junction box

1. Ensure that the main power supply to the control contains overcurrent protection with a minimum rating of 12A and 2-pole disconnect.

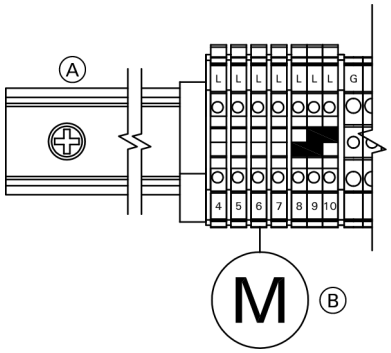
⚠ WARNING

The control must be grounded.
Ensure that "L", "N" and "G" are not interchanged.

2. Connect power supply wire to the connection [40] terminals 11, N and G on the DIN rail inside the junction box.

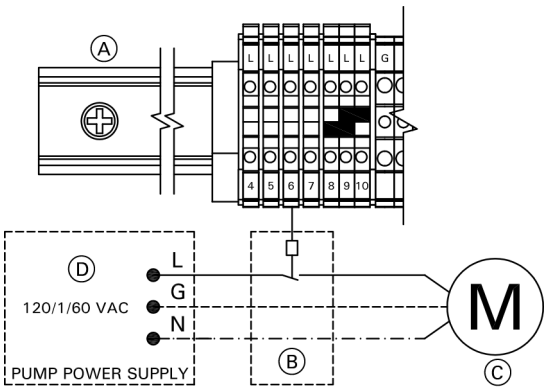
5793 309 - 06

External Connections



120V pumps with an amperage draw of < 2FLA

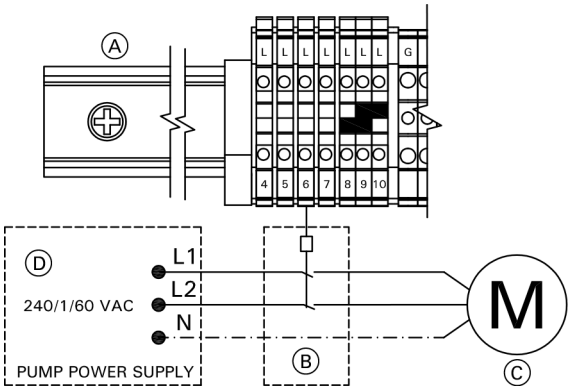
Legend
Ⓐ Din rail
Ⓑ Pump



120V pumps with an amperage draw of > 2FLA

Contactor specification 120VAC 1A

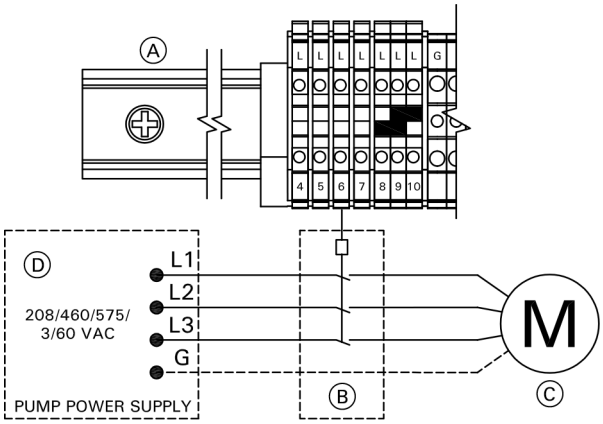
Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



240V single phase pumps

Contactor specification 120VAC 1A

Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

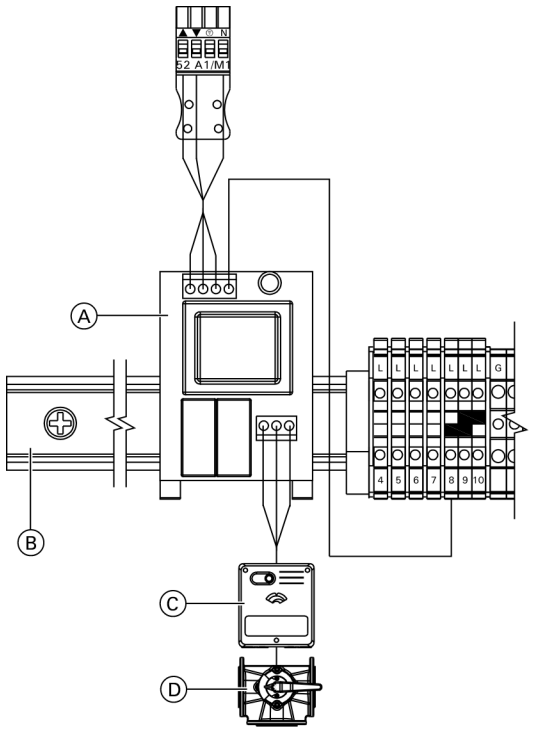


208/460/575V 3 phase pumps

Contactor specification 120VAC 1A

Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

Connecting Actuators



Legend

Ⓐ 24V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve

120V Valve Adaptor

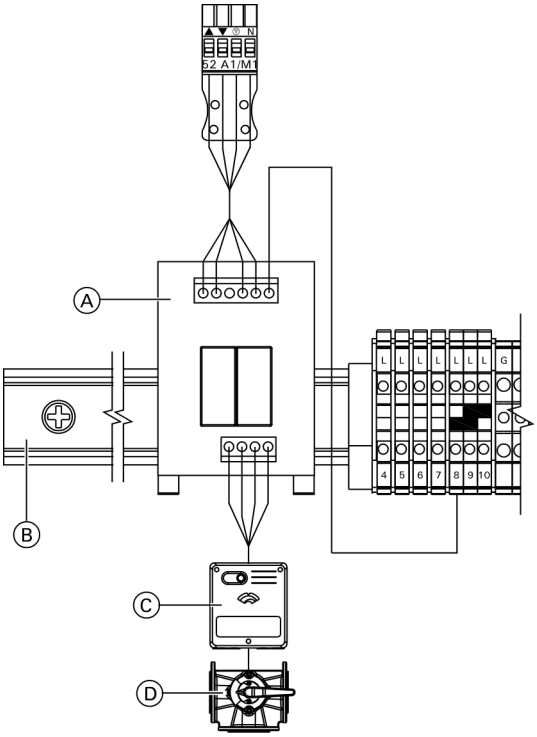
Rated voltage:	120VAC
Rated current:	max. 0.1 FLA

24V Valve Adaptor

Rated voltage:	24VAC
Rated current:	max. 0.15 FLA

52 A1 / M1: for boiler protection (via 100% low temperature protection package) or motorized isolation valve.

Operating time: 5 to 199 sec. selected via coding address “40”.



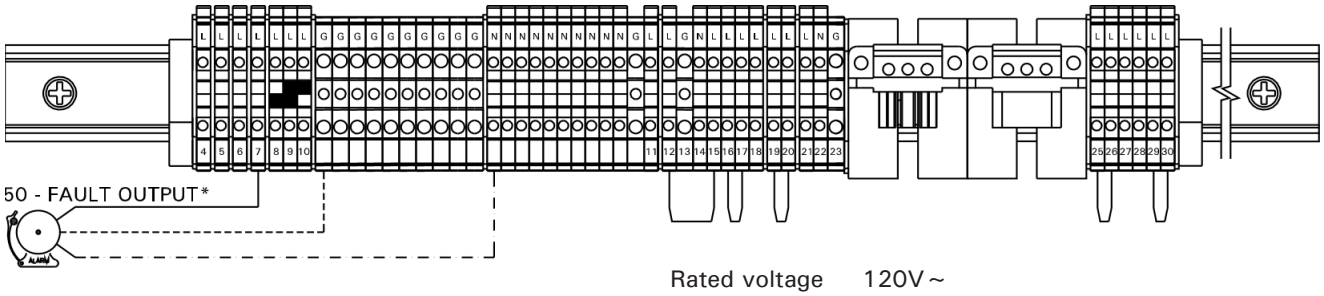
Legend

Ⓐ 120V Mixing Valve Adaptor
Ⓑ DIN Rail (in connection enclosure)
Ⓒ 120V Valve Actuator
Ⓓ Valve

1. Disconnect power to control.
2. Install 120V or 24V valve adaptor on DIN rail inside connection enclosure.

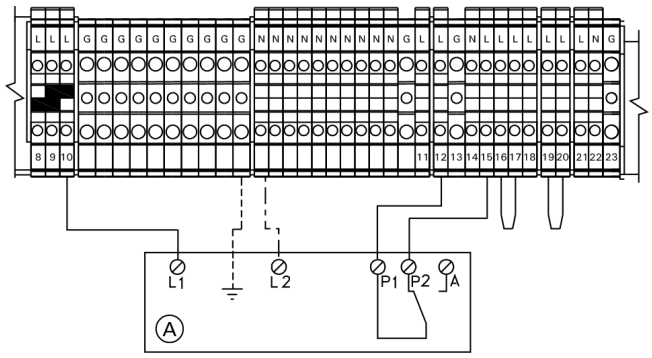
   Refer to the valve adaptor Installation Instructions.
3. Insert the plug 52 into socket 52 on the Vitotronic control.
4. Fasten cable with tie.
5. Connect black wire of the adaptor to terminals 8,9 or 10 on the Din rail.
6. Connect valve actuator wires to the adaptor terminals

Connecting the Central Fault Message Facility



Rated voltage 120V ~
Rated current max. 2A ~

Connection of Low Water Cut-off Device 150



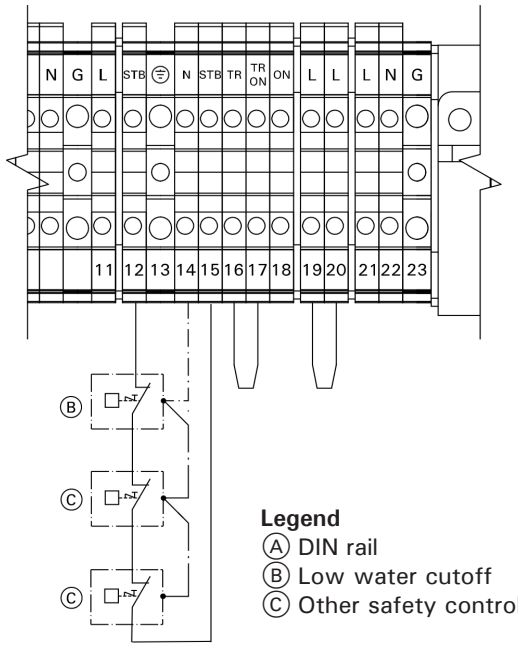
1. Remove jumper between terminals 12 and 15.
2. Make connection as shown in diagram.

CAUTION

The diagram shown is only a simplified conceptual drawing of a typical low water cut off (LWCO) device. Refer to the manual specific to the device for interconnection details.

156 Power supply for accessories.
150 Connection for external equipment.
Ⓐ Low water cut-off (typical)

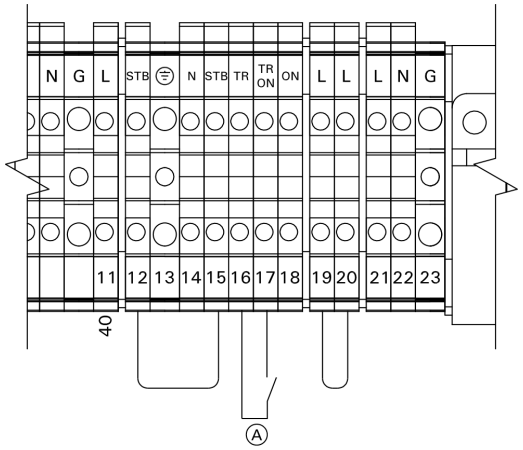
Connections to Safety Equipment 150



1. Connect the external safety equipment in series.

Legend
Ⓐ DIN rail
Ⓑ Low water cutoff
Ⓒ Other safety controls

External Burner Blocking 150



Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

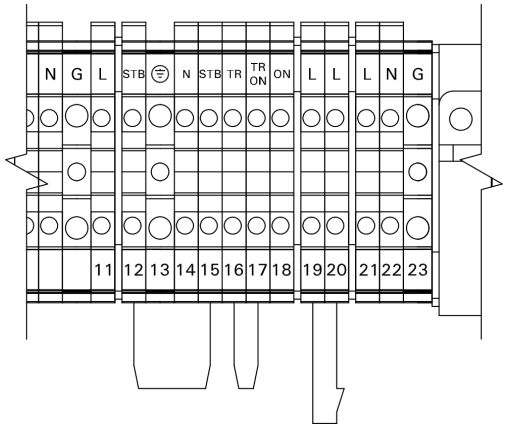
Remove jumper from DIN terminals 16 and 17.

Note: Connect only safety shutdown equipment (dry contact), e.g. a combustion air device adaptor, to these terminals.

Opening this contact leads to a burner control shutdown.

Note: The heating system has no frost protection during blocking. The boiler is not held at the lower boiler water temperature.

Connections to Terminal 151



External shut-off

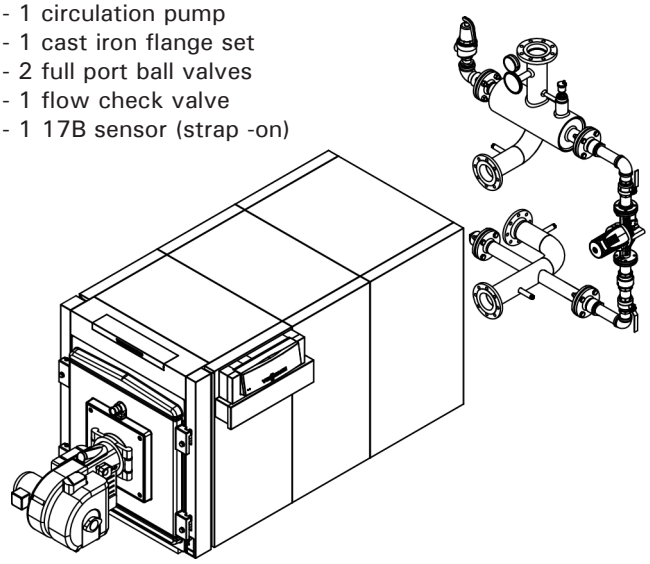
1. Remove jumper between terminals 19 and 20.
2. Connect dry contact. Controlled switch-off takes place when the contact is opened.

WARNING

The terminals should be used for safety switch-off purposes only (e.g. through a high limit thermostat). During switch-off, there is no frost protection of the heating system and the boiler is not kept at the minimum boiler water temperature.

Vitotronic 100, GC1 with 30% LTP Package (VD2 only)

30% LTP Package consists of:
- 1 circulation pump
- 1 cast iron flange set
- 2 full port ball valves
- 1 flow check valve
- 1 17B sensor (strap -on)



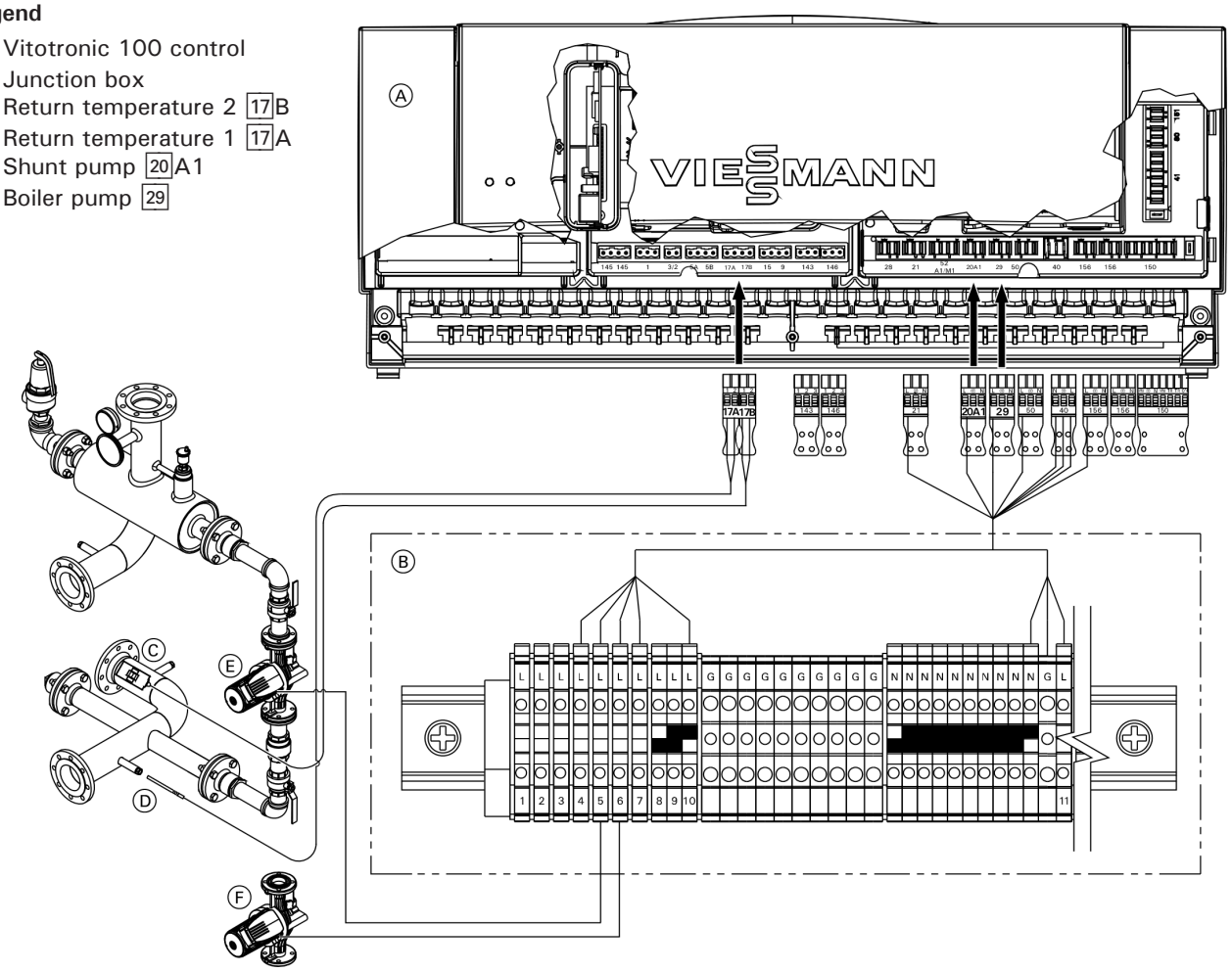
Each pump output: 120V single phase
Max. pump current: 2 FLA

IMPORTANT

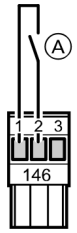
Pump current larger than 2 FLA will require a contactor or isolation relay (see page 59).

Mandatory Coding Address Changes
0C:5 - Constant control of return water temperature.
0d:2 - Switching contact
4A:1 - 17A Sensor installed
4b:1 - 17B Sensor installed
4C:2 - Connections at plug 20A1
Therm control switch contact
4d:2 - Boiler circuit pump

Legend
- Ⓐ Vitotronic 100 control
- Ⓑ Junction box
- Ⓒ Return temperature 2 [17]B
- Ⓓ Return temperature 1 [17]A
- Ⓔ Shunt pump [20]A1
- Ⓕ Boiler pump [29]



External Changeover of Multi Stage/Modulating Burners



Legend
Ⓐ External changeover (floating contact)

Connection at plug 146.

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

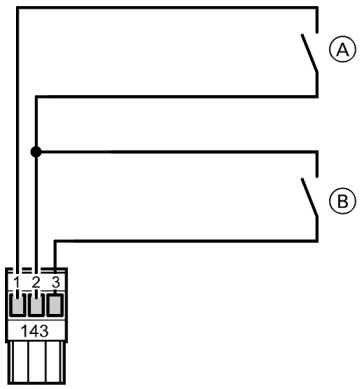
Contact open: modulating mode

Contact closed: two stage mode

Code
Set code "02:2" in group 2 "Boiler".

Note: When scanning the burner version, the address for modulation appears even after an external changeover (no rewriting).

Blocking Boiler Externally/Adding to the Boiler Sequence



Legend
Ⓐ Blocking boiler externally (floating contact)
Ⓑ Start boiler externally as the last one in the boiler sequence (floating contact)

Connection at plug 143.

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

Contact Ⓐ:

- Contact closed:
  The boiler is removed from the boiler sequence.
  The isolation valve or the 3- way mixing valve are closed for constant return temperature control.
  Shunt pump or boiler circuit pump are switched off.
  The heat demand has to be met by the other boilers.

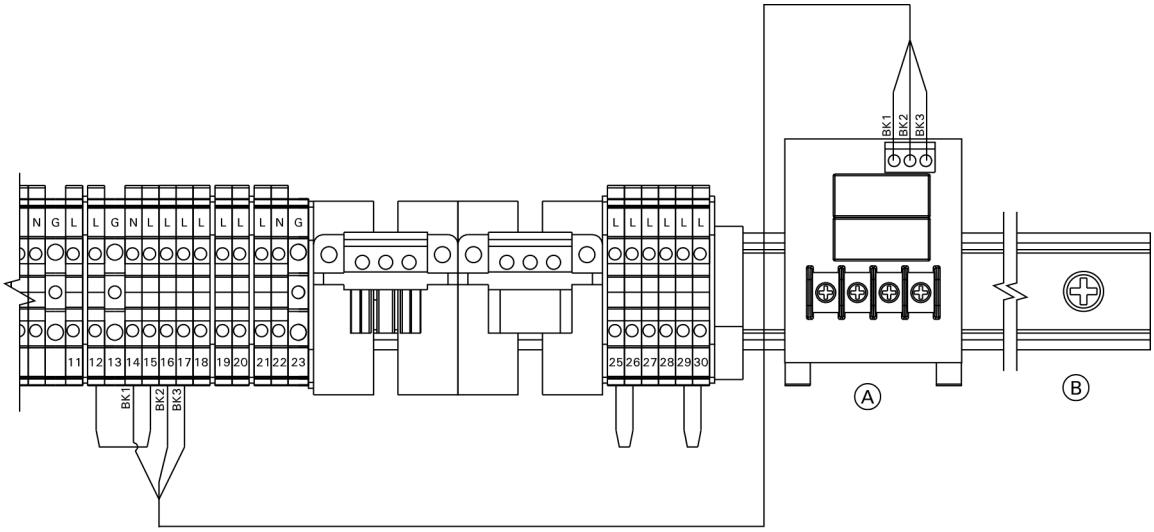
Note: If all boilers are blocked or there is no other boiler available for duty, there will be no frost protection for the heating system.

- Contact open:
  The boiler is integrated into the current boiler sequence.

Contact Ⓑ:

- Contact closed:
  The heat demand of the heating system is met by the other boilers. This boiler is started if the output of these boilers is insufficient.
- Contact open:
  The boiler is integrated into the current boiler sequence.

Connection of Combustion Air Device



Legend

Ⓐ Combustion Air Device Adaptor
Ⓑ DIN Rail in connection enclosure

Connection of the Combustion Air Device Adaptor

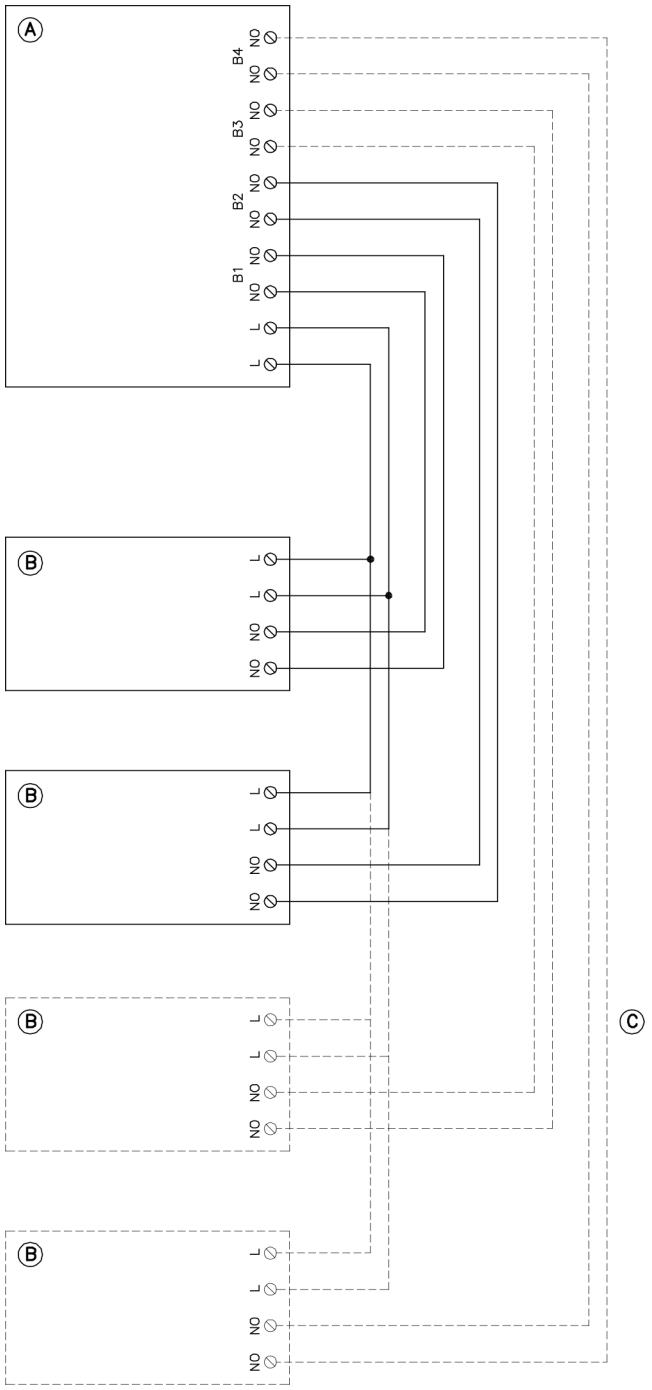
1. Disconnect power to control and burners.
2. Install Combustion Air Device Adaptor, on DIN Rail inside connection enclosure (refer to installation manual of Combustion Air Device Adaptor).
3. Remove jumper between terminals 16 and 17.
4. Make connection as shown in the diagram.

IMPORTANT

Wire BK2 must be connected to terminal 16 and BK3 to terminal 17 - DO NOT reverse.

For more detail, refer to the combustion air device Installation Instructions.

Connection of Combustion Air Device on Multiple Boiler Systems



If a single combustion air device is required for a multiple boiler system, a Common Combustion Air Interface must be installed.

Rated voltage: 120VAC
Rating current: max 5 FLA

1. Install Combustion Air Device Adaptor on each boiler.

2. Install Common Combustion Air Device Interface, as per supplied manual.

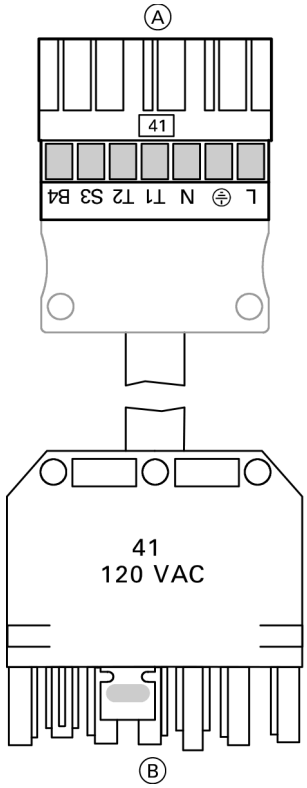
3. Make connection as shown in the diagram at left.

Refer to Installation and Operating Instructions of Common Combustion Air Device Interface for details.

Legend

Ⓐ Common Combustion Air Device Interface (wall mount)
Ⓑ Combustion Air Device Adaptorthe boiler control junction box
Ⓒ Interconnecting wiring (field supplied and connected)

Burner Connection, Burner Control Wiring



Legend
Ⓐ To boiler control unit
Ⓑ To burner

For burners with plug-in connection

The burner cables are included in the standard delivery of the Vitotronic. Connect the burner in accordance with applicable codes.

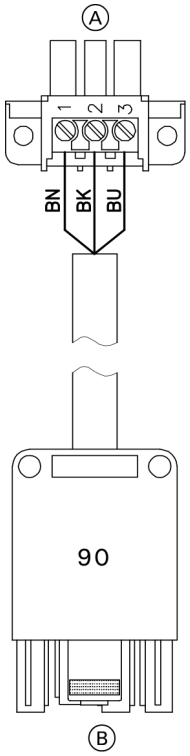
Terminal codes

L	Phase via fixed high limit to the burner
⏚	Ground connection
N	Neutral connection to the burner
T1,T2	Control circuit
S3	Connection for burner fault indicator
B4	Connection for burner hours counter

1. Disconnect power to burner and boiler control.
2. Connect plugs 41 and plug 90 to respective counter plugs in boiler control unit.
3. Connect the 7-pole plug 41 and the 3-pole plug 90 to the burner.

CAUTION

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



Legend
Ⓐ To plug-in connection in the Vitotronic boiler control junction box
Ⓑ To burner

Terminal codes

1,2,3	Control circuit "2nd stage burner or modulation controller" (via two-point controller with 2-stage operation; via three-point controller with modulating operation)
1	From burner
2	Modulating down
3	Modulating up/2nd stage ON

Colour codes as applicable
BK Black
BN Brown
BU Blue

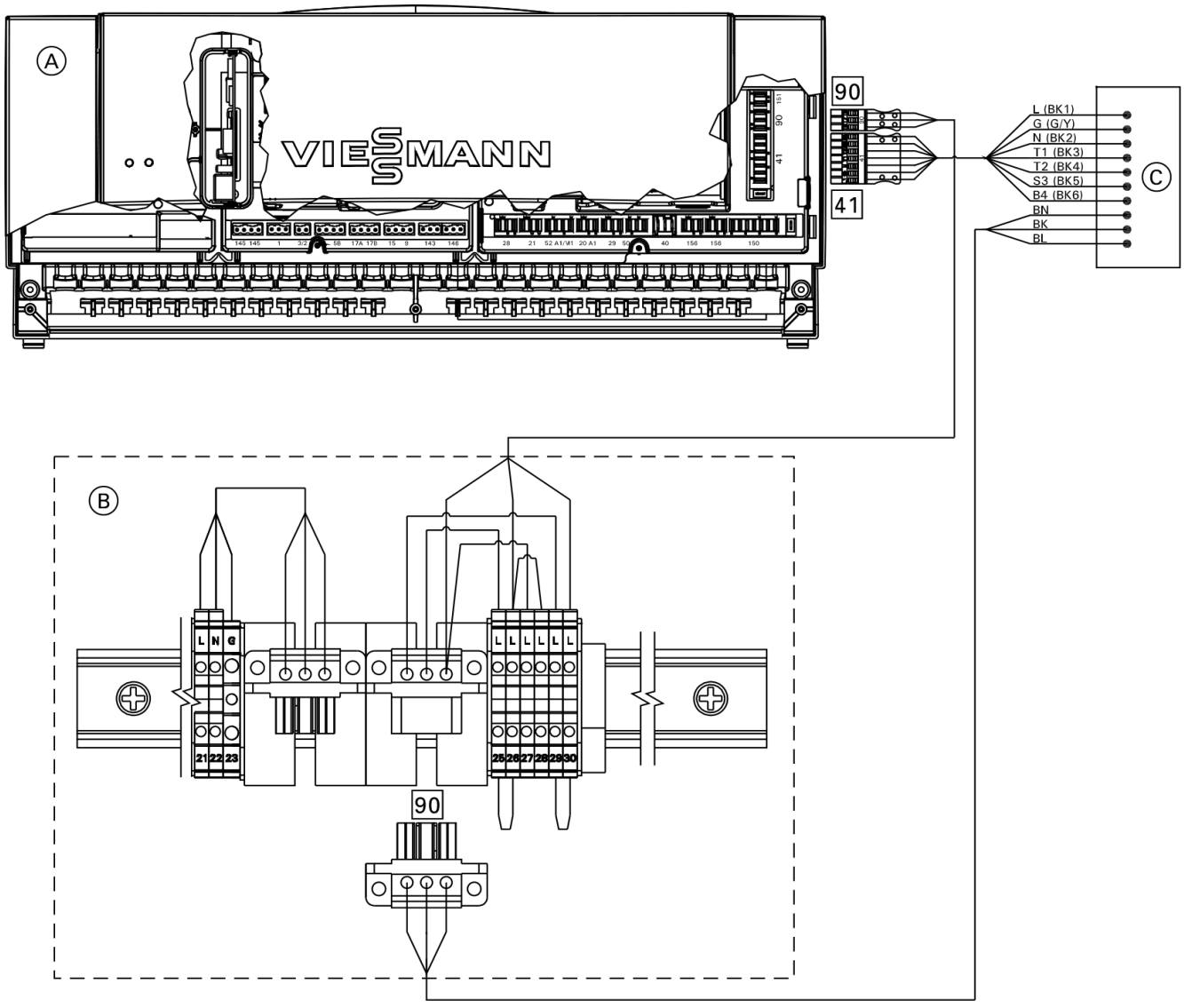
Burner Connection, Burner Control Wiring *(continued)*

⚠ CAUTION

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

For burner without plug-in connection
The burner cables are included in the standard delivery of the Vitotronic. Connect the burner in accordance with applicable codes.

Note: Write the terminal numbers or markings on the drawing for future reference.

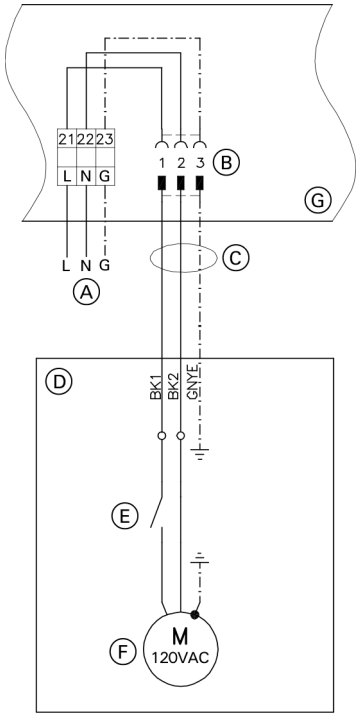


Legend

Ⓐ Vitotronic 100 control
Ⓑ Junction box
Ⓒ Burner
41 Burner, 1st stage
90 Burner, 2nd stage/modulation

Refer to burner manufacturer's instruction on detailed connections for Viessmann controls.

Burner Connection, Motor Power Supply



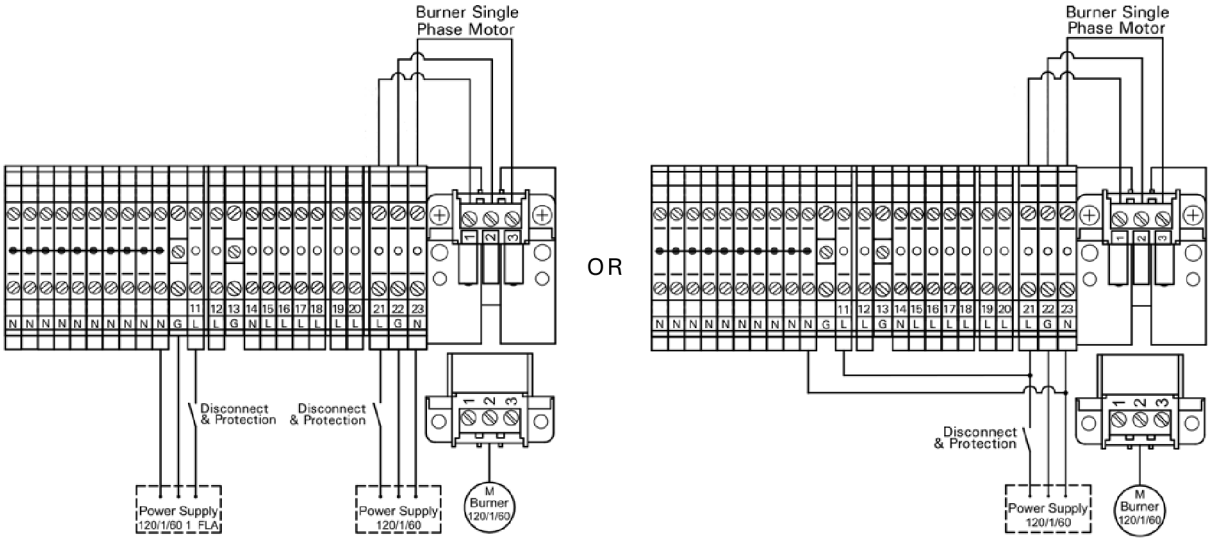
Legend

Ⓐ Burner motor power supply 120VAC, 1PH
Ⓑ Connection terminals and plug inside connection enclosure
Ⓒ Cable and conduit- factory supplied
Ⓓ Burner
Ⓔ Motor starter
Ⓕ Burner motor
Ⓖ Connection enclosure on boiler control

CAUTION

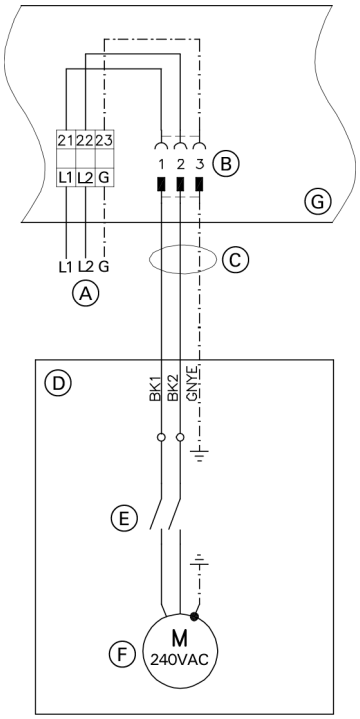
The control must be grounded. Ensure that "L", "N" and "G" are not interchanged.

1. Ensure that the main power supply to the control contains overcurrent protection with a maximum rating of 15A and 2 pole disconnect.
2. Connect power supply wire to the Connection 40 terminals 11, N and G on the DIN rail inside the connection enclosure.



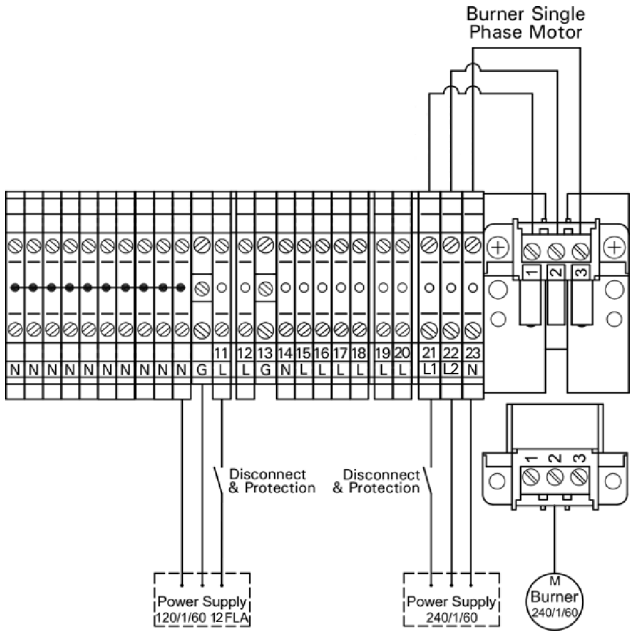
Supply power must be sufficient to cover both the 12A control plus the required motor amperage.

Burner Connection, Motor Power Supply



Legend

Ⓐ Burner motor power supply 240VAC, 1PH
Ⓑ Connection terminals and plug inside connection enclosure
Ⓒ Cable and conduit- factory supplied
Ⓓ Burner
Ⓔ Motor starter
Ⓕ Burner motor
Ⓖ Connection enclosure on boiler control



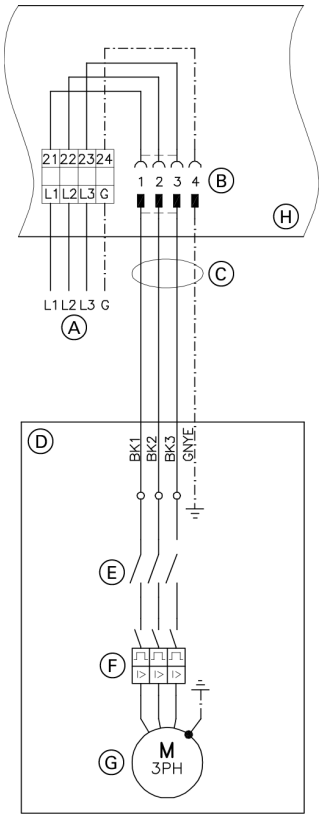
Burner motor power supply connection

For burners with 240VAC, 1PH power supply and connection in conduit.

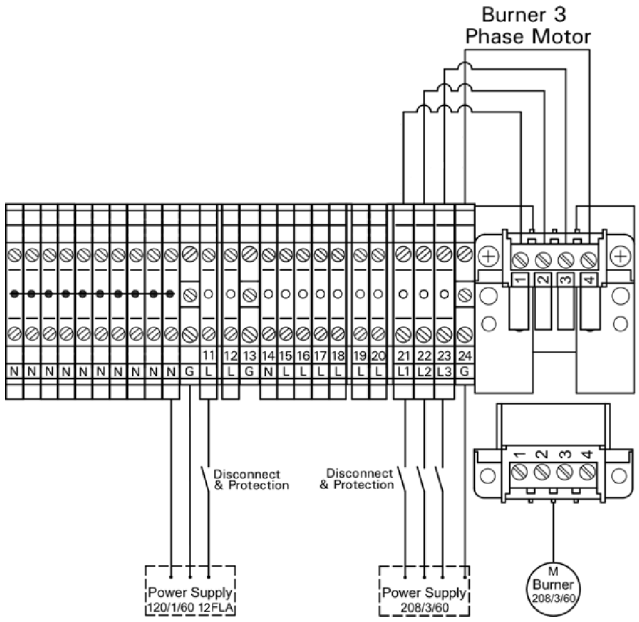
See burner manual for correct fuse and wire gauge sizing, and specific connections for Viessmann controls.

1. Disconnect power to burner and boiler control.
2. Connect 240VAC power to the terminals 21, 22 and 23 on the DIN rail inside the connection enclosure. Provide fuseable disconnect means according to local codes.
3. Connect supplied power cable to the motor terminals on the burner.
4. Connect cable plug to the socket on the DIN rail in the connection enclosure.

Burner Connection, Motor Power Supply *(continued)*



Ⓐ Burner motor power supply 3PH 208, 460 or 575V
Ⓑ Connection terminals and plug inside connection enclosure
Ⓒ Cable and conduit- factory supplied
Ⓓ Burner
Ⓔ Motor starter
Ⓕ Overload
Ⓖ Burner motor
Ⓗ Boiler junction box



Burner motor power supply connection (continued)
For burners with 3PH 208, 460 or 575V power supply.

CAUTION

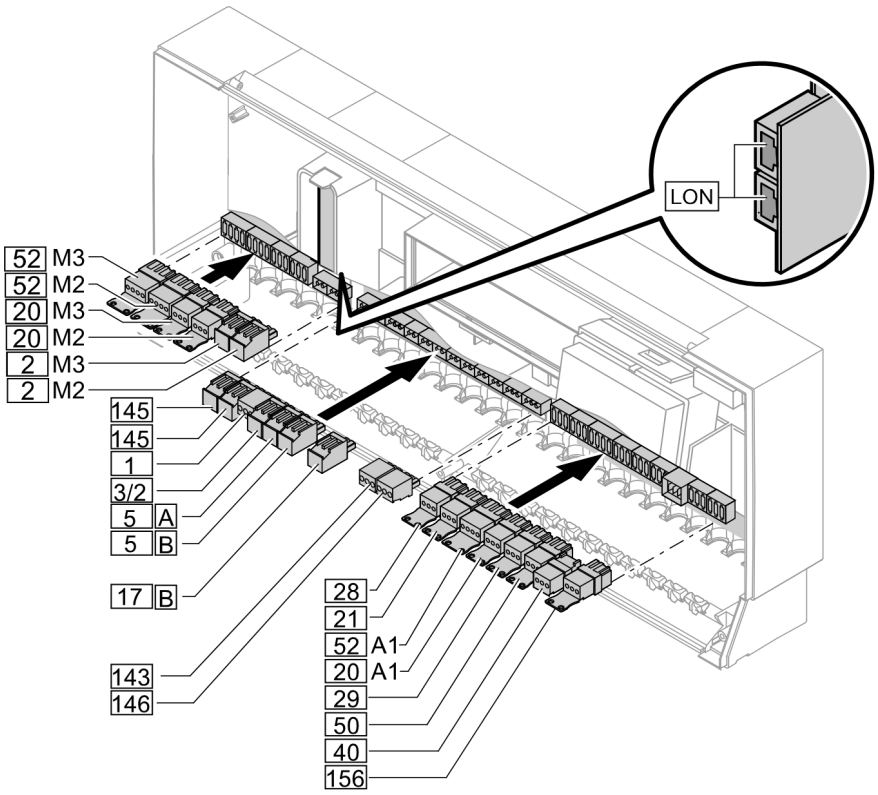
During commissioning check for correct motor rotation. If motor rotates in opposite direction than indicated on the burner, disconnect power supply and reverse wires BK1 and BK2 on the burner terminals.

See burner manual for correct fuse and wire gauge sizing, and specific connections for Viessmann controls.

1. Disconnect power to burner and boiler control.
2. Connect 3PH power to the terminals 21, 22, 23 and 24 on the DIN rail inside the connection enclosure. Provide fusible disconnect means according to local codes.
3. Connect supplied power cable to the motor terminals on the burner.
4. Connect cable plug to the socket on the DIN rail in the connection enclosure.

Overview of Electrical Connections

Note: When connecting plugs 143 and 146, bundle the individual wires of the cables close to the terminals. This ensures that, should there be an error, for example when detaching a wire, the wires cannot drift into the adjacent voltage area.



Extension for heating circuits 2 and 3 with mixing valve

2 M2/M3 Supply temperature sensor
20 M2/M3 Heating circuit pump
52 M2/M3 Mixing valve motor

Main PCB low voltage

1 Outside temperature sensor
3/2 Supply temperature sensor, common heating flow
5 A DHW tank temperature sensor
5 B DHW tank temperature sensor 2 for primary store system (optional accessory, not used)
17 B Return temperature sensor T2 (optional accessory, not used)
or
Temperature sensor primary store system (optional accessory, not used)
143 External hook-up
145 KM BUS participant
146 External hook-up
LON LON BUS, connecting cable for data exchange with the Vitotronic 100 GC1B, Vitotronic 200-H HK1B, Vitocom LAN 1

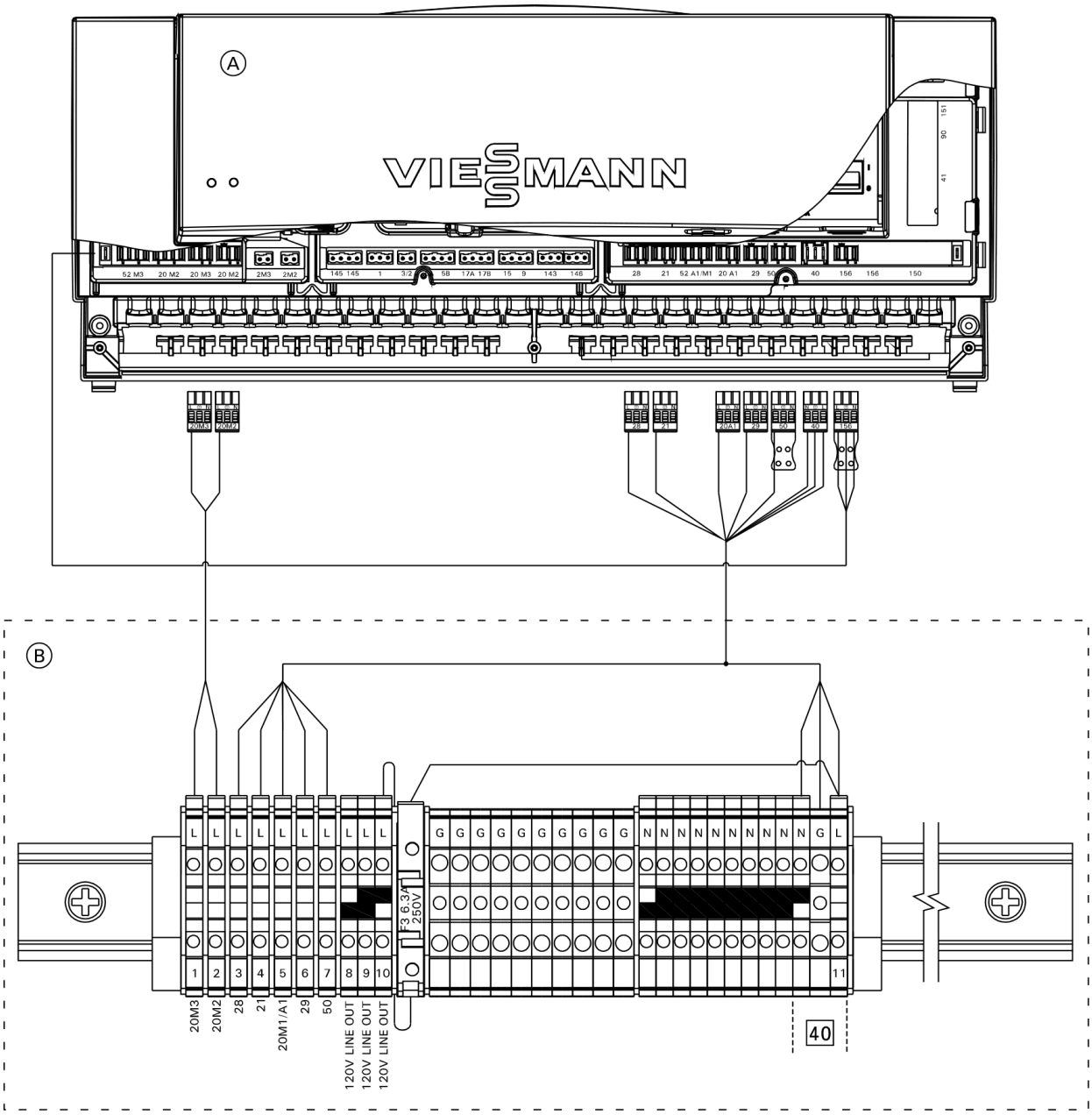
Main PCB 120V~

20 A1 Heating circuit pump
or
Primary pump, primary store system
21 Circulation pump for DHW tank heating (optional accessory, not used)

28 DHW recirculation pump (on site)
29 Shunt pump or distribution pump (on site)
40 Power supply
50 Central fault message
52 A1 Motor for 3-way mixing valve, primary store system
or
Motor for 3-way mixing valve, return temperature control
156 Power supply connection for mixing valve module circuit M2 and M3

Note: When inserting cables and applying strain relief see page 74.

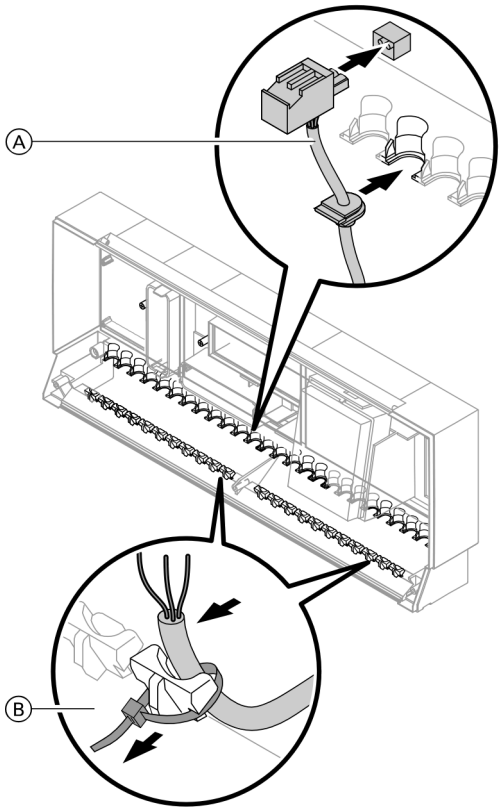
Overview of Electrical Connections *(continued)*



Legend

Ⓐ Vitotronic 300-K
Ⓑ Junction box
40 Vitotronic 300-K power supply connection

Inserting Cables/Leads and Applying Strain Relief



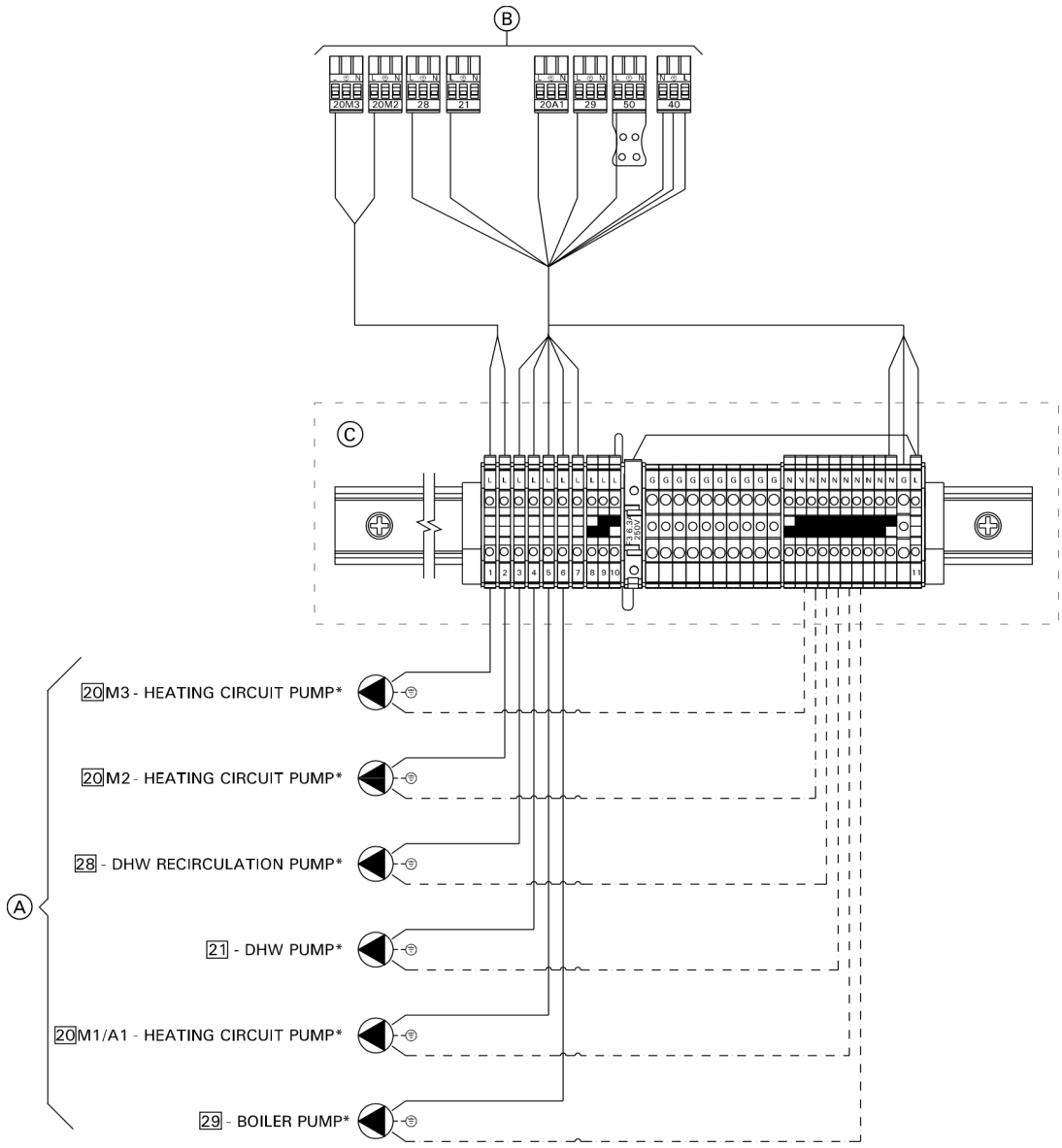
Run the cables from the connection enclosure into the control unit.
Apply strain relief to cables.

Cables with moulded strain relief clamp:

Connect cable and strain relief clamp.
OR
Fasten cable to the cable lead with cable tie.

Legend
Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 4 in. (100 mm) insulation.

Connecting Pumps



Legend

Ⓐ 120V Pump outputs
Ⓑ To the Vitotronic control unit
Ⓒ Junction box

Rated current: 2A~

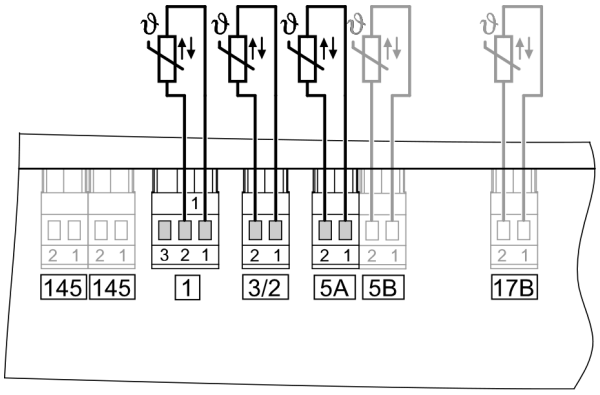
* Maximum pump output 6FLA shared between all 120V outputs.

Pumps 120V

Available pump connections

20	A1/M1	High temperature circuit pump
20	M2	Heating circuit M2 pump
20	M3	Heating circuit M3 pump
21		DHW pump
28		DHW recirculation pump
29		System pump

Connecting Sensors



Installation point for outside temperature sensor

- North or north-western wall, 6.6 to 8.2 ft. (2 to 2.5 m) above ground level; in multi storey buildings, in the upper half of the second floor
- Not above windows, doors or ventilation outlets
- Not immediately below balconies or gutters
- Never render over

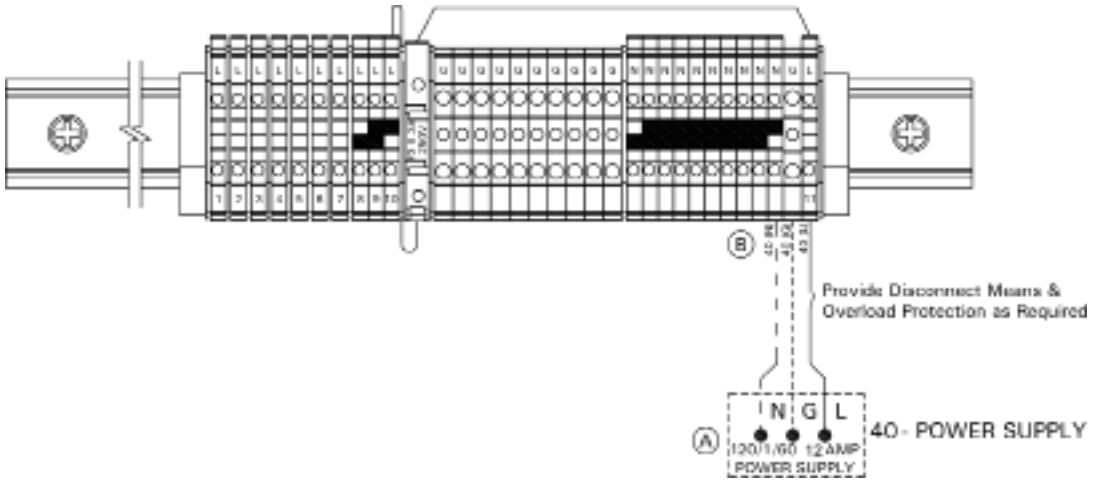
Outside temperature sensor connection

Two wire communication cable 16 AWG
(maximum length 95 ft. (30 m)

Legend

[1]	Outside temperature sensor
[3]/[2]	Common supply temperature sensor
[5]A	DHW tank temperature sensor 1
[5]B	DHW tank temperature sensor 2 for primary store system (optional accessory, not used)
[17]B	Return temperature sensor T2 or Temperature sensor primary store system (optional accessory, not used)

Power Supply



Legend
L: Line
N: Neutral
G: Ground

Ⓐ Power supply 120VAC, 1PH, 60Hz, 12FLA provide disconnect means and overcurrent protection as per local codes

Ⓑ Terminals N, G and 11 (in junction box)

Ⓒ Junction box

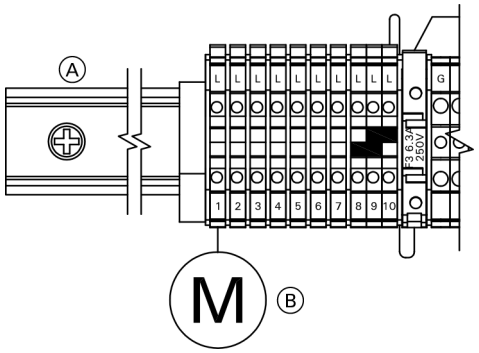
1. Ensure that the main power supply to the control contains overcurrent protection with a minimum rating of 12A and 2-pole disconnect.

⚠ WARNING

The control must be grounded.
Ensure that "L", "N" and "G" are not interchanged.

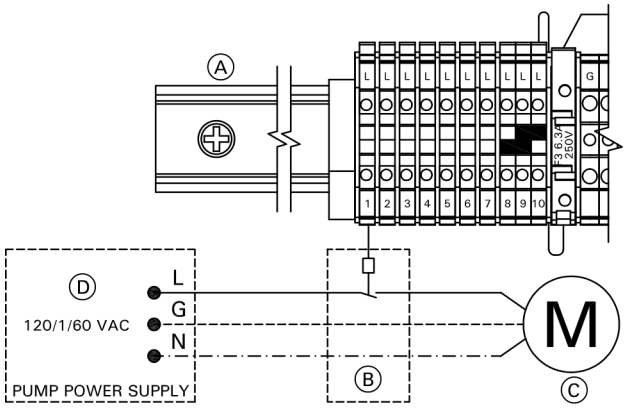
2. Connect power supply wire to the connection 40 terminals 11, N and G on the DIN rail inside the junction box.

External Connections



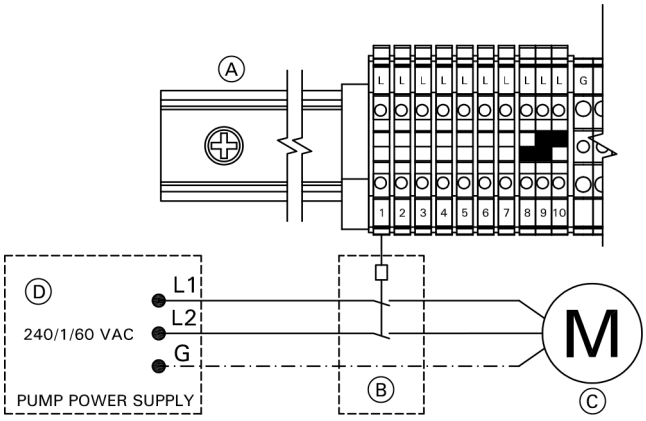
120V pumps with an amperage draw of <2FLA

Legend
Ⓐ Din rail
Ⓑ Pump



120V pumps with an amperage draw of >2FLA
Contactor specification 120VAC 1A

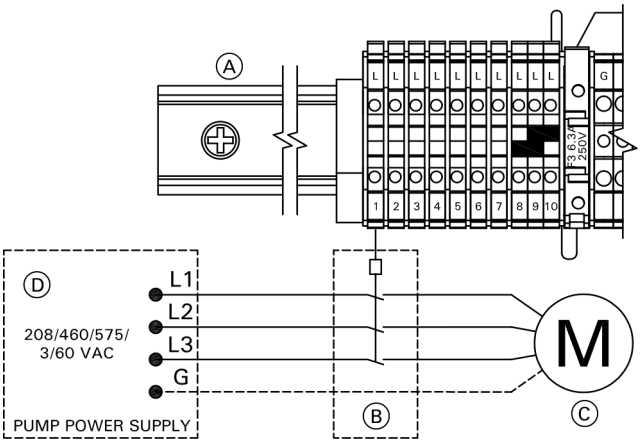
Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



240V single phase pumps

Contactor specification 120VAC 1A

Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



208/460/575V 3 phase pumps

Contactor specification 120VAC 1A

Legend
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

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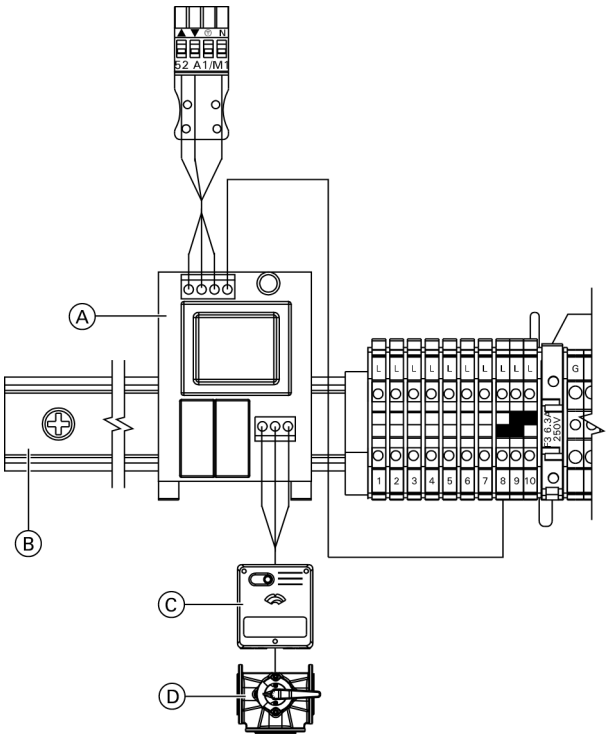
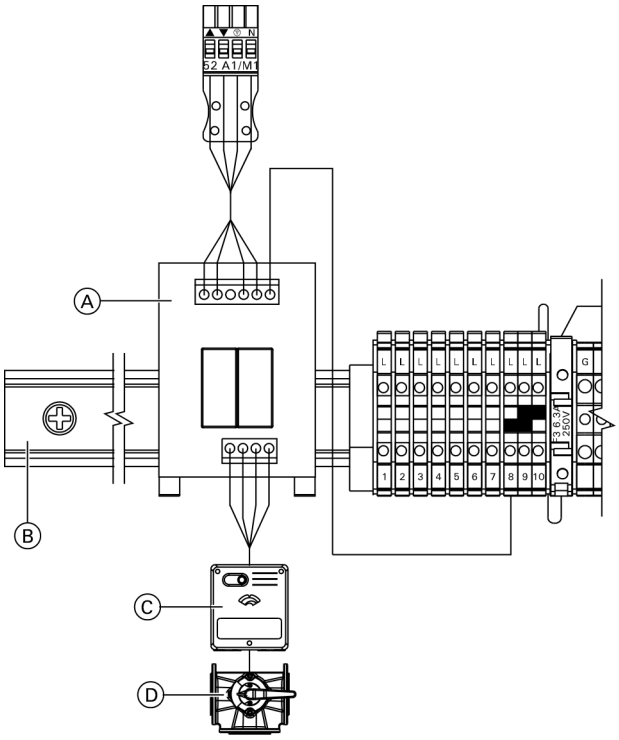
Connecting Actuators



Legend
Ⓐ 24V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve



Legend
Ⓐ 120V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve

120V Valve Adaptor

Rated voltage:	120VAC
Rated current:	max. 0.1 FLA

24V Valve Adaptor

Rated voltage:	24VAC
Rated current:	max. 0.15 FLA

Operating time: 5 to 199 sec. selected via coding address “40”.

Available connections

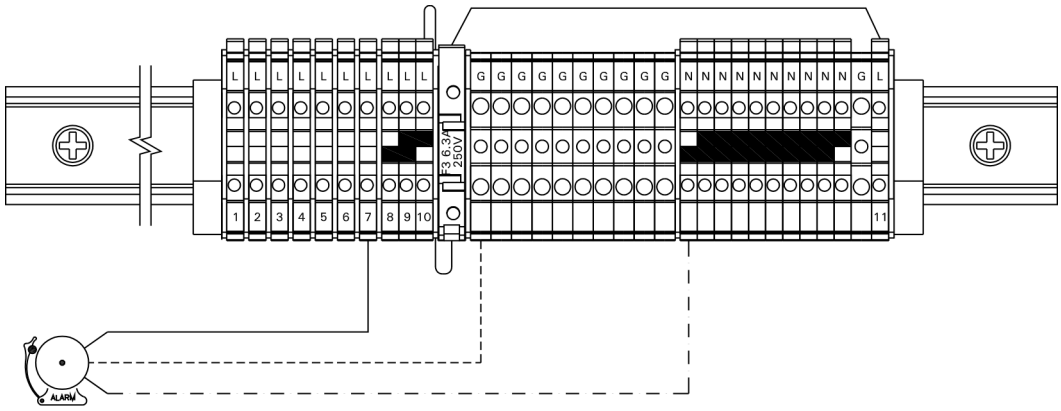
52 A1 Motor for 3-way mixing valve, primary store system
52 M2 For heating circuit 2
52 M3 For heating circuit 3

Rated voltage:	120V~
Rated current Max.:	0.1A~
Motor runtime for 3-way mixing valve:	10 to 255 sec, adjustable via coding addresses “6A” in the”DHW”group, “C3” in the HC2 group and “C3” in the HC3 group.

1. Disconnect power to control.
2. Install 120V or 24V valve adaptor on DIN rail inside connection enclosure.
3. Insert the plug 52 into socket 52 on the control.
4. Fasten cable with tie.
5. Connect black wire of the adaptor to terminals 8,9 or 10 on the Din rail.
6. Connect valve actuator wires to the adaptor terminals

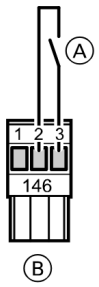
Refer to the mixing valve adaptor Installation Instructions for additional information.

Connecting the Central Fault Message Facility



Rated voltage	120V ~
Rated current	max. 2A ~

External Demand Via Switching Contact



Legend

Ⓐ Floating contact
Ⓑ Plug 146 of the control unit

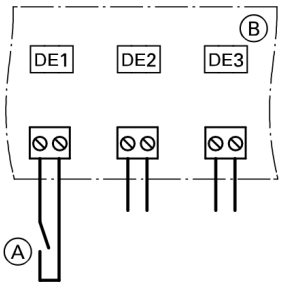
Connection

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

Connection options:

- Plug 146
- Extension EA1 (accessory, see page 160)

With the contact closed, the boiler burners are started subject to load. They heat to the set supply temperature selected in coding address "9B" in the "General" group. The temperature is limited by this set value and the electronic maximum supply temperature limit (coding address "37" in the "Cascade" group).



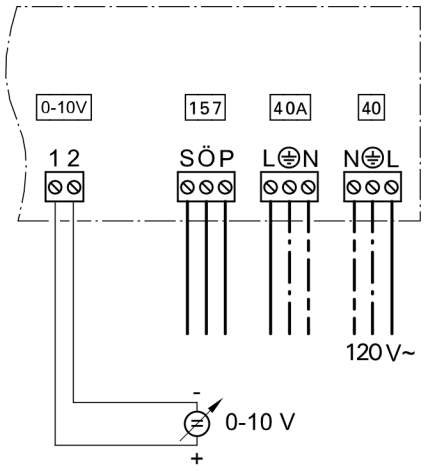
Legend

Ⓐ Floating contact
Ⓑ Extension EA1

Codes

Plug 146	Extension EA1
No code required.	Set "5D", "5E" or "5F" in the "General" group to 2.

External Demand via 0–10V Input

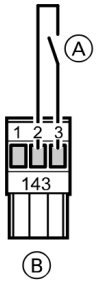


Connection at input 0 – 10V at extension EA1 (see page 160).

0 - 1V ≙ no default set supply temperature
1V ≙ set value 50°F (10°C)
10V ≙ set value 212°F (100°C)
Observe coding address “1E” in the “General” group.

Optional
Temperature range from 86 to 248°F (30 to 120°C):
0 - 1V ≙ no default set supply temperature
1V ≙ 86°F (30°C)
10V ≙ 248°F (120°C)

External Blocking via Switching Contact



Legend
Ⓐ Floating contact
Ⓑ Plug 143 of the control unit

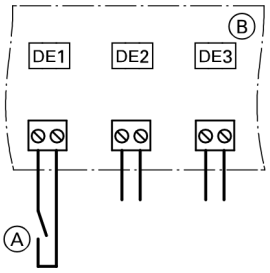
Connection options:
- Plug 143
- Extension EA1 (accessory, see page 160)

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

With the contact closed, the burners of all boilers will be subject to a control shutdown.
Any connected shunt or distribution pump is stopped.
Shut-off devices are closed.

Note: The heating system has no frost protection during blocking. The boilers are not held at the lower boiler water temperature.

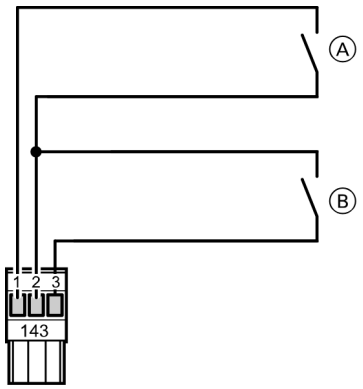


Legend
Ⓐ Floating contact
Ⓑ Extension EA1

Codes

Plug 143	Extension EA1
Set coding address “99” in the “General” group, which the input should influence.	Set “5D”, “5E” or “5F” in the “General” group to 3 or 4.

External “Mixing Valve Closed”/”Mixing Valve Open”



Legend

Ⓐ External “Mixing valve open” (floating contact)
Ⓑ External “Mixing valve closed” (floating contact)

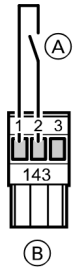
Connection at plug 143.

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

Codes

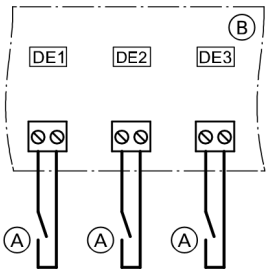
External “Mixing valve open”	External “Mixing valve closed”
Via coding address “9A” in the “General” group, this function is assigned to the heating circuits.	Via coding address “99” in the “General” group, this function is assigned to the heating circuits.

External Heating Program Changeover



Legend

Ⓐ Floating contact
Ⓑ Plug 143 of the control unit



Legend

Ⓐ Floating contact
Ⓑ Extension EA1

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

Connection options:

- Plug 143
- Extension EA1 (accessory, see page 160)

Codes

Plug 143	Extension EA1
This function is assigned to the heating circuits via coding address “91” in the “General” group.	Set “5D”, “5E” or “5F” in the “General” group to 1. This function can be assigned to the heating circuits via coding address “D8” in the “Heating circuit...” group.

Preselected heating program (Contact open)		Coding		Changed heating program (Contact closed)
⏻	Central heating OFF/ DHW OFF	D5:0 (factory set condition)	⇔	Permanent operation with reduced room temperature/DHW OFF
or	Central heating OFF/DHW ON	D5:1	⇔	Constant operation with standard room temperature, DHW in accordance with coding address “64”
or	Central heating ON/DHW ON			

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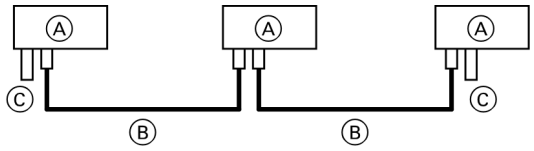
Making the LON Connection

Connection with Viessmann LON cable

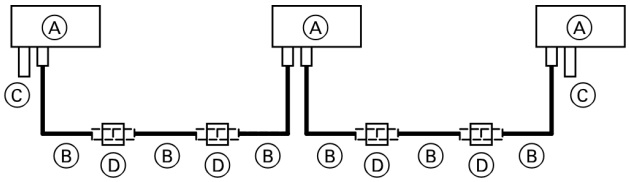


The line may be up to ≤ 23 ft. (7 m) long

Legend

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminator

Connection with Viessmann LON cable and coupling

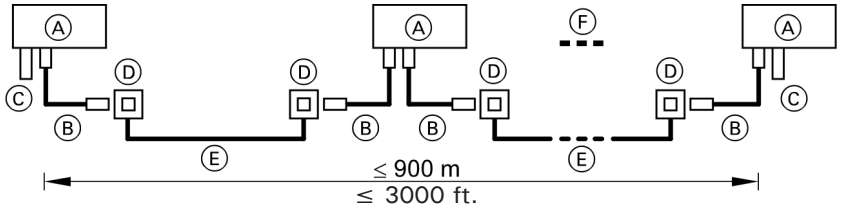


Installation spacing 23 to 69 ft. (7 to 21 m)

Legend

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Max. 3 cables between 2 appliances
Ⓒ Terminator
Ⓓ LON coupling

Connection with LON cable, on-site cable and LON junction box



The line may be up to ≤ 3000 ft. (900 m) (with LON junction boxes)

Legend

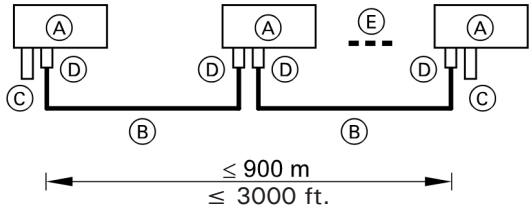
Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminator
Ⓓ LON junction boxes
Ⓔ On-site cable
Ⓕ Up to 99 participants

The Viessmann LON system is designed for the "Line" BUS topology with a terminator at both ends (accessories). The transfer distances for LON are subject to the electrical properties of the respective cabling. For this reason, only use the stated cable types. Use only one type of cable within the LON.

Observe the cabling requirements for the operation of the LON interface FTT 10-A (see www.echelon.com).

All Viessmann equipment is connected via RJ45 plugs. The Viessmann LON system always requires the cores "1" and "2" and the screen. The cores are interchangeable. The installation is therefore safe from pole errors.

Connection with on-site cable and LON plug



The line may be up to ≤ 3000 ft. (900 m) (with LON plug)

Legend

Ⓐ Control unit or Vitocom
Ⓑ On-site cable
Ⓒ Terminator
Ⓓ LON plug
Ⓔ Up to 99 participants

Testing the Fixed High Limit -Vitotronic 100

The minimum circulation volume should be 10% of the circulation volume at rated load.
Reduce the heat consumption as far as possible.

1. Hold down the “TEST” key until the burner has shut down: Thermostat is bridged. The fixed high limit must shut down the burner at the latest when the safety temperature has been reached.
2. Release the “TEST” key.
3. Wait until the boiler water temperature has dropped approx. 15 to 20 K below the selected safety temperature.
4. Reset the fixed high limit by pressing reset button.

Operating instructions

Changing the Language on the Vitotronic 300-K

At the commissioning stage, the display is in German (default setting).

Extended menu:

1. ☰
2. “Einstellungen” (Settings)
3. “Sprache” (Language) Deutsch DE (German)
4. Set the required language with ▲/▼

Setting the Date and Time on the Vitotronic 300-K

During commissioning, or after prolonged time out of use, the time and date need to be reset.

Extended menu:

1. ☰
2. “Settings”
3. “Time / Date”
4. Set current time and date.

Matching the Coding Addresses to the System Version

Vitotronic 100
Check all addresses in Code 1 and adjust if required.
Check the following coding address and adjust accordingly in Code 2:

	Group	Function
"0C"	2 "Boiler"	Return temperature control
"0D"	2 "Boiler"	Therm-Control
"4C"	1 "General"	Function plug 20
"4D"	1 "General"	Function plug 29
"4E"	1 "General"	Function plug 52
"98"	1 "General"	Viessmann system number
"9C"	1 "General"	Monitoring LON participants

Matching the control unit to a two-stage burner

Matching coding addresses according to the burner used

Address	Meaning	Setting
03:...	Fuel	Gas operation: 0 (factory set condition) Oil operation: 1 (irreversible)
08:...	Units and tens of the maximum burner output	Example: Max. burner output: 225 kW – select: 25 **Note:** Values up to and including 199 kW can be entered directly.
09:...	Hundreds of the maximum burner output	Example: Max. burner output: 225 kW – select: 2
0A:...	Ratio of output base load to maximum burner output in percent	Example: Output burner stage 1 135 kW Max. burner output: 225 kW (135 kW : 225 kW) · 100% = 60%

Matching the control unit to a modulating burner

Note: The burner must be fully adjusted. To achieve a wide modulating range, set the minimum output as low as possible (take the chimney and flue system into account).

Matching coding addresses according to the burner used

Address	Meaning	Setting
03:...	Fuel	Gas operation: 0 (factory set condition) Oil operation: 1 (irreversible)
08:...	Units and tens of the maximum burner output	Example: Max. burner output: 225 kW – select: 25 **Note:** Values up to and including 199 kW can be entered directly.
09:...	Hundreds of the maximum burner output	Example: Max. burner output: 225 kW – select: 2
15:...	Modulation range runtime	Calculate runtime (s) of servomotor between base load and max. burner output
0A:...	Ratio of output base load to maximum burner output in percent	Example: Output burner stage 1 135 kW Max. burner output: 225 kW (135 kW : 225 kW) · 100% = 60%
05:...	Ratio of partial output at ½ of the servomotor runtime to maximum burner output in percent	Example: Partial output 171 kW Max. burner output: 225 kW (171 kW : 225 kW) · 100% = 76%

Matching the Coding Addresses to the System Version *(continued)*

Vitotronic 300-K

Check all addresses in Code 1 and adjust if required.
Check the following coding addresses
and adjust accordingly in Code 2:

	Group	Function
"39"	"Cascade"	Permanent lead boiler
"3A"	"Cascade"	Permanent last boiler
"4C"	"General"	Function plug 20
"4D"	"General"	Function plug 29
"4E"	"General"	Function plug 52
"55"	"DHW"	DHW tank temperature control function
"7A"	"General"	Central control
"98"	"General"	Viessmann system number
"9C"	"General"	Monitoring LON participants

Selecting the Boiler Sequence at the Vitotronic 300-K

Subject to the set codes in the "Cascade" group and internal control calculations, the control unit offers various boiler sequences.

Coding addresses that influence the boiler sequence:

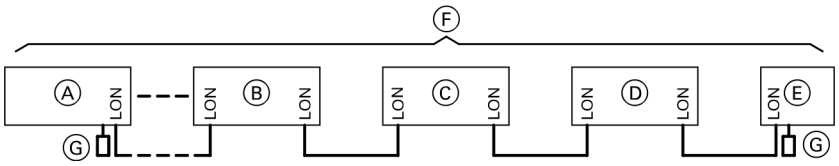
"38"	Changing the lead boiler and the boiler sequence
"39"	Permanent lead boiler
"3A"	Permanent last boiler
"41" to "44"	ECO thresholds

- Via the ECO threshold, every boiler can be blocked or enabled subject to the outside temperature.
- If the boiler is required to achieve the set supply temperature in the case of enabled boilers failing, the ECO threshold is disabled.
- At least the lead boiler remains active if all boilers in a system are blocked by the ECO threshold.

1. Press ☰.
2. "Boiler sequence"
3. Select the required boiler sequence and confirm with OK.

Connecting the Control Unit to the LON

Example of a multi boiler system



Legend

Ⓐ Vitotronic 100
Ⓑ Vitotronic 100
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-H
Ⓔ Vitocom
Ⓕ LON system
Ⓖ Terminal end resistor

- The LON communication module must be fitted into every Vitotronic 100 (see page 56).

Note: The communication module is integrated in the Vitotronic 300-K.

- Vitotronic 200-H:
  The LON communication module (accessory) must be fitted.

Installation and service instructions, Vitotronic 200-H

- Within one LON, the same participant number must not be allocated twice.
- Within one LON, the system number (coding address "98" in the "General" group) must always be the same.
- Only one Vitotronic may be programmed as fault manager.
- The data transfer via the LON system can take several minutes.

Connecting the Control Unit to the LON *(continued)*

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Multi boiler system. Set code “01:2” in group 2 “Boiler”.	Multi boiler system. Set code “01:2” in group 2 “Boiler”.	--	--	--
Boiler number 1. Code “07:1” in group 2 “Boiler”.	Boiler number 2. Set code “07:2” in group 2 “Boiler”.	--	--	--
With LON communication module Code “76:1” in group 1 “General”; automatic recognition.	With LON communication module Code “76:1” in group 1 “General”; automatic recognition.	With LON communication module Code “76:1” in the “General” group; automatic recognition.	With LON communication module Code “76:1” in the “General” group; automatic recognition.	--
--	--	Number of connected boilers. Set codes “35:1” to “35:4” in the “Cascade”group.	--	--
Participant no. 1. Code “77:1” in group 1 “General”.	Participant no. 2. Set code “77:2” in group 1 “General”.	Participant no. 5. Set code “77:5” in the “General” group.	Participant no. 10. Set code “77:10” in the “General” group.	Participant no. 99.
Control unit is not fault manager. Code “79:0” in group 1 “General”.	Control unit is not fault manager. Code “79:0” in group 1 “General”.	Control unit is fault manager. Set code “79:1” in the “General” group.	Control unit is not fault manager. Set code “79:0” in the “General” group.	Device is fault manager.
--	--	Control unit transmits the time. Code “7B:1” in the “General” group.	The control unit receives the time. Set code “81:3” in the “General” group.	Device receives the time.
--	--	Control unit transmits outside temperature. Set code “97:2” in the “General” group.	Control unit receives the outside temperature. Set code “97:1” in the “General” group.	--
LON participant remote monitoring. Code “9C:20” in group 1 “General”.	LON participant remote monitoring. Code “9C:20” in group 1 “General”.	LON participant remote monitoring. Code “9C:20” in the “General” group.	LON participant remote monitoring. Code “9C:20” in the “General” group.	--

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Connecting the Control Unit to the LON *(continued)*

Carrying out a LON participant check at the Vitotronic 300-K

Communication with the system devices connected to the fault manager is tested by means of a participant check. Preconditions:

- The control unit must be programmed as fault manager (code "79:1").
- The LON participant no. must be programmed in all control units (coding address "77").
  The LON participant list in the fault manager must be up to date.

Carrying out the participant check:

1. Press OK and ☰: simultaneously for approx. 4 sec.
2. "Service functions"
3. "Participant check"
4. Select participant (e.g. participant 10).
   The participant check for the selected participant is initiated.
   - Successfully tested participants are designated with "OK".
   - Unsuccessfully tested participants are designated with "Not OK".

Note: To carry out a new participant check, create a new participant list with "Delete list?" (participant list is updated).

Note:
- Vitotronic 100:
  During the participant check, the display for the relevant participant flashes for approx. 1 min.
- Vitotronic 200-H:
  During the participant check, the display for the relevant participant shows the participant no. and "Wink" for approx. 1 min.

Checking Actuators and Sensors at the Vitotronic 100

Carrying out a relay test

1. Press OK and ☰ simultaneously for approx. 4 sec.
   🔧 flashes on the display.
2. With select "⇄" and confirm with OK.
3. Select required actuator (output)
   with ▲/▼ (see following table).
   The display shows the number for the activated actuator and "ON".

The following actuators (relay outputs) can be controlled subject to the system equipment level:

Display	Explanation
0	All actuators have been switched off.
1	Burner "ON" or burner stage 1 "ON" or modulation controller ramps up (modulating burner).
2	Burner stages 1 and 2 "ON" or modulation controller neutral (modulating burner).
3	Modulation controller ramps down (modulating burner).
5	Output [20] "ON".
6	Output [29] "ON".
7	Output [52] "Open".
8	Output [52] "Neutral".
9	Output [52] "Closed".
11	Output central fault message [50] "ON".

Note: During burner operation, the connected pumps are started.

Checking sensors

Actual temperatures can be scanned in the "i" menu.

Refer to the Operating Instructions

Checking Actuators and Sensors at the Vitotronic 300-K

Carrying out a relay test

1. Press OK and ☰: simultaneously for approx. 4 sec.
2. "Actuator test"

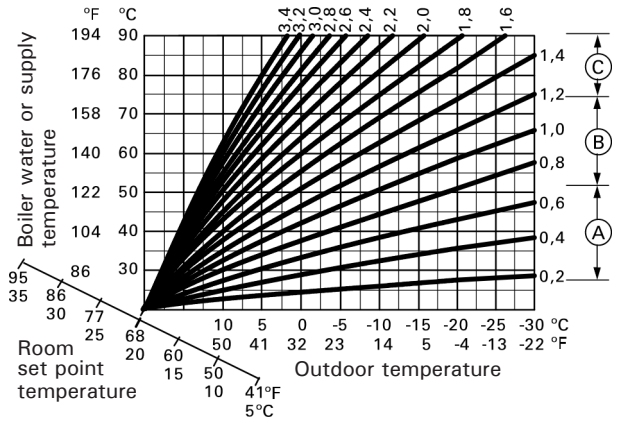
The following relay outputs can be controlled subject to the system equipment level:

Display		Explanation
"All actuators"	OFF	All actuators have been switched off.
"Output 20"	ON	Output 20 enabled.
"Output 52"	Open	-
"Output 52"	Neutral	-
"Output 52"	Closed	-
"DHW tank prim pump"	ON	Output for circulation pump for DHW tank heating enabled.
"DHW circ pump"	ON	Output for DHW recirculation pump enabled.
"Output 29"	ON	Output 29 enabled.
"Central fault mess."	ON	-
"Htg circ pump HC2"	ON	Output heating circuit pump enabled (heating circuit with mixing valve M2).
"Mixing valve HC2"	Open	Output "Mixing valve open" enabled (heating circuit with mixing valve M2).
"Mixing valve HC2"	Closed	Output "Mixing valve closed" enabled (heating circuit with mixing valve M2).
"Htg circ pump HC3"	ON	Output heating circuit pump enabled (heating circuit with mixing valve M3).
"Mixing valve HC3"	Open	"Mixing valve open" enabled (heating circuit with mixing valve M3).
"Mixing valve HC3"	Closed	Output "Mixing valve open" enabled (heating circuit with mixing valve M3).
"EA1 output 1"	ON	Contact "P - S" on plug [157] for extension EA1 closed.
"AM1 output 1"	ON	Output enabled.
"AM1 output 2"	ON	Output enabled.
"Solar circuit pump"	ON	Output for solar circuit pump [24] at solar control module, type SM1, enabled.
"Solar circ pmp min"	ON	Output for solar circuit pump [24] at solar control module, type SM1, switched to minimum speed.
"Solar circ pmp max"	ON	Output for solar circuit pump [24] at solar control module, type SM1, switched to maximum speed.
"SM1 output 22"	ON	Output [22] at solar control module, type SM1, enabled.

Checking sensors

1. Press OK and ☰: simultaneously for approx. 4 sec.
2. "Diagnosis"
3. Select group (see overview on page 97).
4. Scan actual temperature of the relevant sensor.

Adjusting Heating Curves



The heating curves illustrate the relationship between the outside temperature and the boiler water or supply temperature.
To put it simply: The lower the outside temperature, the higher the boiler water or supply temperature.
The room temperature, again, depends on the boiler water or the supply temperature.

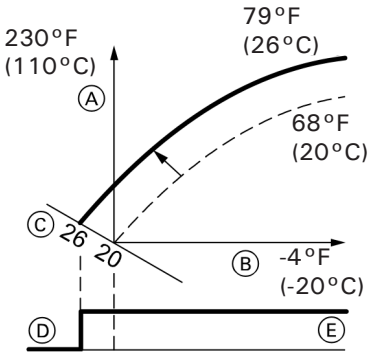
Settings in the factory set condition:

- Slope = 1.4
- Shift = 0

Example of outside temperature 7°F (−14°C)

Legend

Ⓐ Underfloor heating system, slope 0.2 to 0.8
Ⓑ Low temperature heating system, slope 0.8 to 1.6
Ⓒ Heating systems with a boiler water temperature in excess of 167°F (75°C), slope greater than 1.6



Legend

Ⓐ Boiler water temperature or supply temperature
Ⓑ Outside temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump OFF
Ⓔ Heating circuit pump ON

Selecting the set room temperature

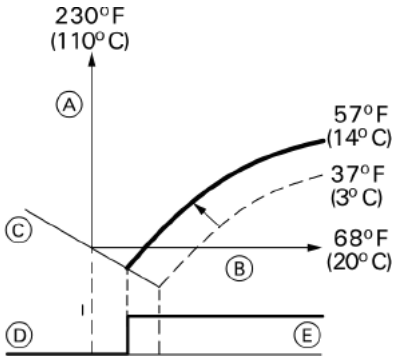
Individually adjustable for each heating circuit.
The heating curve is offset along the axis of the set room temperature. When the heating circuit pump logic function has been enabled, it modifies the starting and stopping characteristics of the heating circuit pump.

Standard set room temperature

Changing the standard room temperature from 68 to 79°F (20 to 26°C)

Refer to the Operating Instructions

Adjusting Heating Curves *(continued)*



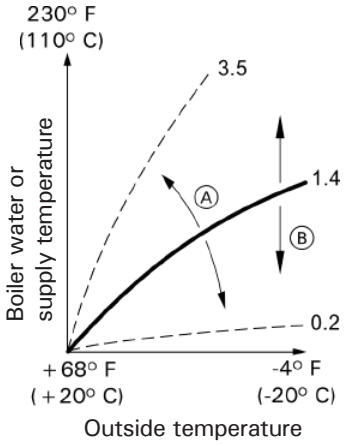
Legend

Ⓐ Boiler water temperature or supply temperature
Ⓑ Outside temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump OFF
Ⓔ Heating circuit pump ON

Reduced set room temperature

Changing the reduced room temperature from 37 to 57°F (3 to 14°C)

Refer to the Operating Instructions



Legend

Ⓐ Changing the slope
Ⓑ Changing the shift (vertical parallel offset of the heating curve)

Changing the slope and shift

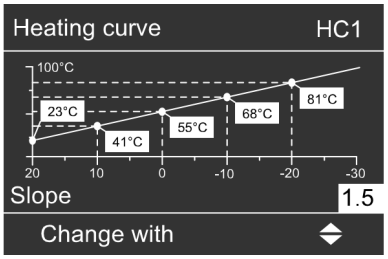
Individually adjustable for each heating circuit.

Extended menu:

1. ☰
2. "Heating"
3. Select heating circuit.
4. "Heating curve"
5. "Slope" or "Shift"
6. Select heating curve according to the system requirements.

Example:

Heating curve setting with slope 1.5:



Calling up Service Level

1. Press OK and ☰ simultaneously for approx. 4 sec. 🔧 flashes on the display.
2. Select required function, e.g. relay test.

Exiting the Service Level

1. Select ⑨ with ▸ "Serv".
2. Confirm with OK. "OFF" flashes.
3. Confirm with OK.

Note: The system exits the service level automatically after 30 min.

Scanning Operating Data

Operating data can be scanned in the "i" menu.

Refer to the Operating Instructions

Brief Scan

1. Press OK and ☰ simultaneously for approx. 4 sec. 🔧 flashes on the display.
2. Confirm with OK.
3. Select required scan. For example, “b” for “Boiler coding card” (see following table).
4. Confirm selected scan with OK.

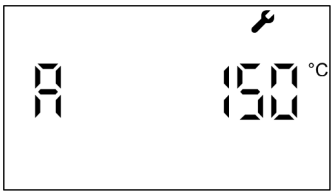
For explanation of individual scans, see the following table:

Brief scan	**Display**				
0	0	0	0	0	0
0	-	System scheme (here 0)	Software version Control unit		Software version Programming unit
2	-	-	Maximum flue gas temperature		
3	-	-	Set boiler water temperature		
6	-	Number of KM BUS participants		Number of LON participants	
7	SNVT configuration 0:Auto 1:Tool	Software version communication coprocessor		Software version LON module	
8	-	Subnet address/system no.		Node address	
9	-	Burner type		Appliance type	
b	-	Boiler coding card			
L	Burner: 0: OFF 1: Burner stage 1/ base load 2: Burner stage 2/full load	Isolation valve: 0: OFF 1: Preheating 2: Control Closed 3: Control 4: Control Open 5: Open 6: Run-on	Output reduction in % 0: OFF		
E ③	-	-	-	Software version Plug-in adaptor for external safety equipment	

Scanning and Resetting Service Display

After the limits set at coding address “1F”, “21”, “23” in group 2 “Boiler” have been reached, the red fault indicator begins to flash and the display shows:

- The specified hours run and 🔧.
- The specified interval with 🕒 and 🔧.
- The specified max. flue gas temperature and 🔧.



Acknowledging a service

Press OK to acknowledge a service message.

Note: An acknowledged service message that was not reset reappears after 7 days.

After a service has been carried out (resetting service)

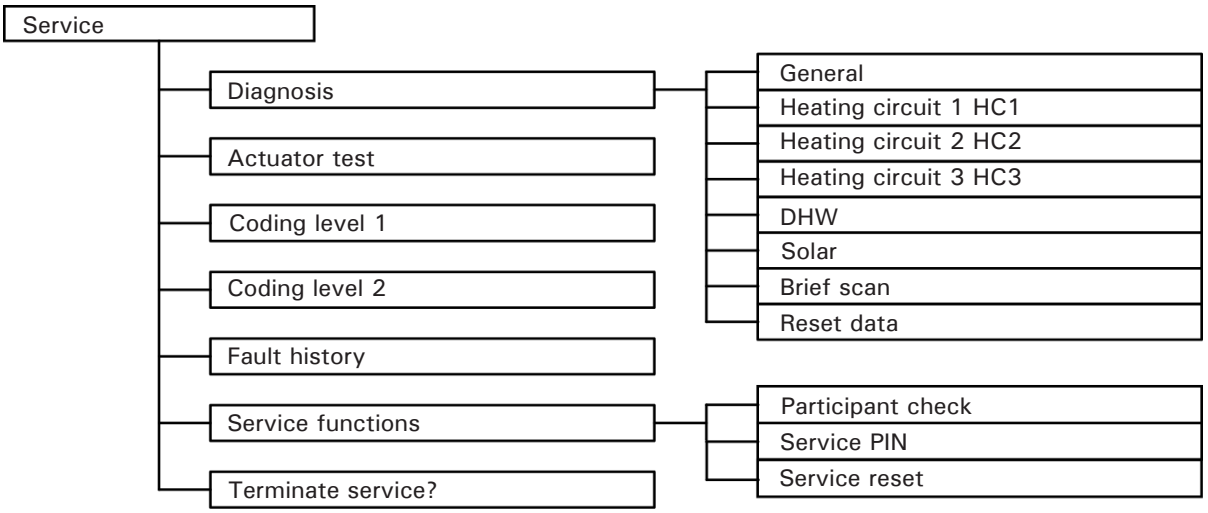
Reset code “24:1” to “24:0” in group 2 “Boiler”.

Note: The selected service parameters for hours run and time interval restart at 0.

Calling up the Service Menu

Service menu overview

Press OK and ☰ simultaneously for approx. 4 sec.



"Coding level 2" is only displayed if this level has been enabled:

Press OK and ⮌ simultaneously for approx. 4 sec.

Scanning Operating Data

Operating data can be scanned in six areas (see "Diagnosis" in the overview "Service menu").
Operating data on heating circuits with mixing valves and solar can only be scanned if the components are installed in the system.
For further information on operating data, see chapter "Brief scan".

Note: "- - -" appears on the display if a sensor that has been scanned is faulty.

Calling up operating data

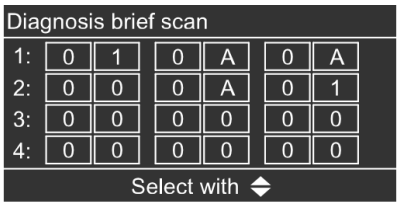
1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. Select required group, e.g. "General".

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0. The value "Adjusted outside temp" is reset to the actual value.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. "Reset data"
4. Select required value or "All details".

Brief Scan



In the brief scan, you can scan temperatures, software versions and connected components, for example.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. "Brief scan".
4. Press OK. The display shows 9 lines with 6 fields each.

For an explanation of the relevant values in the individual lines, see the following table:

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	System schemes 01 to 10		Control unit software version		Programming unit software version	
2:	2	0	0	0	Appliance identification ZE-ID	
3:	0	0	Number of KM BUS participants		Software version Solar control module	
4:	0	0	0	0	0	0
5:	0	0	0	0	Software version, extension AM1	Software version, extension EA1
6:	0	0	0	0	0	0
7:	Subnet address/system number		Node address		0	0
8:	SNVT config. 0: Auto 1: Tool	Software version Communic. coproc.	Software version Neuron Chip		Number of LON participants	
	System circuit HC1		**Heating circuit HC2**		**Heating circuit HC3**	
9:	0	0	0	0	0	0
10:	0	0	0	0	0	0
11:	0	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0
			Note: The displays in fields 3 and 5 are the same.			

Scanning and Resetting Service Display

No service interval can be set at the Vitotronic 300-K. In other words, no service display is shown.

Note: If a service display appears on the Vitotronic 300-K, MW1B, the display will show "Participant fault" and the participant number.

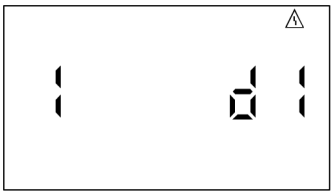
Fault Display

In the event of a fault, the red fault display flashes at the control unit. The 2- digit fault code and ⚠ flash on the display.

Note: If a central fault message facility is connected, this is started.

Other current faults can be displayed with ▲/▼.
For an explanation of the fault code, see chapter “Fault codes”.

Example:
Fault code “d1” burner fault



Acknowledging faults

Press OK; the standard display appears.

Note: A fault message facility, if connected, will be switched off.
If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

Calling up acknowledged fault messages

Press OK for approx. 4 sec.

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. Select ⚠ with ▸ and activate fault history with OK.
3. Select fault messages with ▲/▼.

Fault Codes

Displayed fault code	System characteristics	Cause	Measures
0F	Control mode.	Service "0F" is only displayed in the fault history.	Service the appliance. **Note:** After the service, set code "24:0" in group 2 "Boiler".
30	The burner is started and stopped via a adjustable high limit.	Short circuit, boiler water temperature sensor	Check the boiler water temperature sensor (see page 158).
38	The burner is started and stopped via a adjustable high limit.	Lead break, boiler water temperature sensor	Check the boiler water temperature sensor (see page 158).
60	Boiler with maximum temperature, no output reduction, mixing valve return temperature control "Open".	Short circuit, temperature sensor 17A	Check temperature sensor (see page 158).
68	Boiler with maximum temperature, no output reduction, mixing valve return temperature control "Open".	Lead break, temperature sensor 17A	Check temperature sensor (see page 158). Without temperature sensor: Set code "4A:0" in group 1 "General".
70	Shunt pump constantly "ON".	Short circuit, temperature sensor 17B	Check temperature sensor (see page 158).
78	Shunt pump constantly "ON".	Lead break, temperature sensor 17B	Check temperature sensor (see page 158). Without temperature sensor: Set code "4b:0" in group 1 "General".
A0	Boiler cools down.	Fault, safety equipment at "X7" of plug-in adaptor 2 for external safety equipment	Check safety equipment and reset if required.
A1	Boiler cools down.	Fault, safety equipment at "X3" of plug-in adaptor 2 for external safety equipment	Check safety equipment and reset if required.
A2	Boiler cools down.	Fault, safety equipment at "X2" of plug-in adaptor 2 for external safety equipment	Check safety equipment and reset if required.

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
A3	Boiler cools down.	Fault, safety equipment at "X1" of plug-in adaptor 2 for external safety equipment	Check safety equipment, and reset if required.
AA	Control mode.	Therm-Control configuration fault: Plug 17A not plugged in.	Insert plug 17A. For Vitocrossal, code "0d: 0" in group 2 "Boiler" must be selected.
AC	Control mode.	Return temperature control configuration error: Code "0C:1" in group 2 "Boiler" has been set, but plug 17A is not plugged in and/or code "4E:0" in group 1 "General" is not set.	Insert plug 17A and check codes.
Ad	Control mode.	Isolation valve configuration error: Code "0C:2", "0C: 3" or "0C:4" in group 2 "Boiler" is set and code "4E:1" in group 1 "General" is set.	With isolation valve: Set code "4E:0" in group 1 "General". Without isolation valve: Set code "0C:1" in group 2 "Boiler".
b0	Control mode.	Short circuit, flue gas temperature sensor	Check the flue gas temperature sensor (see page 158).
b1	Control mode.	Communication fault, programming unit	Check connections and replace the programming unit if required.
b5	Control mode.	Internal fault	Check PCB and plug-in connections; replace PCB if required.
b6	Constant mode.	Invalid hardware recognized	Check coding address "92" in group 1 "General"; "92:161" must be set.
b7	Boiler is regulated by the adjustable high limit.	Boiler coding card faulty	Plug in boiler coding card or replace.
b8	Control mode.	Lead break, flue gas temperature sensor	Check the flue gas temperature sensor (see page 158). Without flue gas temperature sensor: Set code "1F:0" in group 2 "Boiler".

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
bF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.
C1	Boiler cools down.	External safety equipment at plug [150]	Check connection and external safety equipment.
C8	Boiler cools down.	Fault, low water indicator at "X7" of plug-in adaptor 1 for external safety equipment	Check the system water level; reset low water indicator.
C9	Boiler cools down.	Fault, maximum pressure limiter at "X3" of plug-in adaptor 1 for external safety equipment	Check system pressure; reset maximum pressure limiter.
CA	Boiler cools down	Fault, minimum or maximum pressure limiter 2 at "X2" of plug-in adaptor 1 for external safety equipment	Check system pressure, reset minimum or maximum pressure limiter 2.
Cb	Boiler cools down	Additional fixed high limit fault or temperature limiter at "X1" of plug-in adaptor 1 for external safety equipment	Check system temperature; reset fixed high limit.
CE	Control mode.	Communication fault, plug-in adaptor 1 for external safety equipment	Check plug-in adaptor. Without plug-in adaptor: Set code "30:0" in group 1 "General".
CF	Control mode. No communication via LON.	Communication fault, LON communication module of control unit	Check LON communication module and replace if required.
d1	Boiler cools down	Burner fault	Check the burner
d2	Control mode.	Communication fault, plug-in adaptor 2 for external safety equipment	Check plug-in adaptor. Without plug-in adaptor: Set code "31:0" in group 1 "General".
d4	Boiler cools down	The fixed high limit has responded or fuse F2 has blown	Check the fixed high limit or the burner, burner loop and fuse F2.

Fault Display

In the event of a fault, the red fault display flashes at the control unit. “Fault” is displayed and ⚠ flashes.
The fault code is displayed with OK.

Note: If a central fault message facility is connected, this is started.

For an explanation of the fault code, see chapter “Fault codes”.
For some faults, the type of fault is also displayed in plain text.

Acknowledging faults

Follow the instructions on the display.

Note: The fault message is transferred to the menu.
A fault message facility, if connected, will be switched off.
If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

Calling up acknowledged fault messages

Extended menu:

1. ☰
2. “Fault”

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. “Fault history”
3. “Display?”

Fault Codes

Displayed fault code	System characteristics	Cause	Measures
10	Activates at 32°F (0°C) outside temperature.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 158).
18	Activates at 32°F (0°C) outside temperature.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 158).
20	Stand-alone control unit without supply temperature sensor (poss. supply temperature not high enough).	Short circuit, common supply temperature sensor	Check supply temperature sensor (see page 158).
28	Stand-alone control unit without supply temperature sensor (poss. supply temperature not high enough).	Lead break, common supply temperature sensor	Check supply temperature sensor (see page 158).
40	Mixing valve is closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check supply temperature sensor (see page 158).
44	Mixing valve is closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check supply temperature sensor (see page 158).
48	Mixing valve is closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check supply temperature sensor (see page 158).
4C	Mixing valve is closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check supply temperature sensor (see page 158).
50	DHW tank primary pump "ON": Set DHW temperature = set supply temperature Priority control is cancelled. or With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Short circuit, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 158).
51	With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Short circuit, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 158).
58	DHW tank primary pump "ON": Set DHW temperature = set supply temperature Priority control is cancelled. or With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Lead break, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 158).
59	With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Lead break, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 158).

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
60	Boiler with maximum temperature, no output reduction, mixing valve return temperature control “Open”.	Short circuit, temperature sensor [17]A	Check temperature sensor (see page 158).
68	Boiler with maximum temperature, no output reduction, mixing valve return temperature control “Open”.	Lead break, temperature sensor [17]A	Check temperature sensor (see page 158). Without temperature sensor: Set code “4A:0” in the “General” group.
70	Shunt pump constantly “ON”. With primary store system: 3-way mixing valve “Closed”; no DHW heating.	Short circuit, temperature sensor [17]B	Check temperature sensor (see page 158).
78	Shunt pump constantly “ON”. With primary store system: 3-way mixing valve “Closed”; no DHW heating.	Lead break, temperature sensor [17]B	Check temperature sensor (see page 158). Without temperature sensor: Set code “4b:0” in the “General” group.
90	Control mode.	Short circuit, temperature sensor [7], connection to solar control module.	Check temperature sensor [7] (see separate installation and service instructions).
91	Control mode.	Short circuit, temperature sensor [10], connection to solar control module.	Check temperature sensor [10] (see separate installation and service instructions).
92	No solar DHW heating.	Short circuit, collector temperature sensor, connection of temperature sensor [6] at solar control module.	Check sensor at the solar control unit (see separate installation and service instructions).
93	Control mode	Short circuit, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit (see separate installation and service instructions).
94	No solar DHW heating.	Short circuit, DHW tank temperature sensor, connection of temperature sensor [5] at solar control module.	Check sensor at the solar control unit (see separate installation and service instructions).
98	Control mode	Lead break, temperature sensor [7], connection to solar control module.	Check temperature sensor [7] (see separate installation and service instructions). Set coding address “20” in the “Solar” group.
99	Control mode	Lead break, temperature sensor [10], connection to solar control module.	Check temperature sensor [10] (see separate installation and service instructions). Set coding address “20” in the “Solar” group.
9A	No solar DHW heating.	Lead break, collector temperature sensor, connection of temperature sensor [6] at solar control module.	Check sensor at the solar control unit (see separate installation and service instructions).

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
9B	Control mode.	Lead break, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit (see separate installation and service instructions).
9C	No solar DHW heating.	Lead break, DHW tank temperature sensor, connection of temperature sensor [5] at solar control module.	Check sensor at the solar control unit (see separate installation and service instructions).
9E	Control mode.	No flow rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message (see separate installation and service instructions).
9F	Control mode.	Solar control module faulty. Displayed if a fault occurs at these devices for which there is no fault code in the Vitotronic.	Check solar control unit (see separate installation and service instructions).
AB	Control mode, DHW tank may be cold.	Primary store system configuration error: Code "55:3" has been selected in the "DHW" group, but plug [17]B is not plugged in and/or codes "4C:1" and "4E:2" in the "General" group have not been set.	Insert plug [17]B and check codes.
B1	Control mode.	Communication fault, programming unit	Check connections and replace the programming unit if required.
B5	Control mode.	Internal fault	Check PCB is plugged in correctly.
B6	Constant mode.	Invalid hardware recognized	Check coding address "92" in the "General" group; "92:187" must be set. **Note:** Code "8A:176" must be selected so that coding address "92" is displayed.
BA	Mixing valve "Closed".	Communication fault, PCB, extension for heating circuits 2 and 3 with mixing valve	Check that the PCB and ribbon cable are plugged in, and replace PCB if required.
BC	Control mode without remote control.	Communication fault, remote control Vitotrol system circuit A1 (heating circuit 1)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BD	Control mode without remote control.	Communication fault, remote control Vitotrol, heating circuit with mixing valve M2 (heating circuit 2)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BE	Control mode without remote control.	Communication fault, remote control Vitotrol with mixing valve M3 (heating circuit 3)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
C2	Control mode.	Lead break, KM BUS to solar control module or Vitosolic	Check KM BUS cable and appliance. Without solar control unit: Set code “54:0” in the “General” group.
CF	Control mode. No communication via LON.	Communication fault, LON communication module of control unit	Check LON communication module and replace if required.
D3	Control mode.	Communication fault extension EA1	Check connections (see page 80). Without extension EA1: Set code “5B:0” in the “General” group.
D5	Boiler ramps to the electronic maximum boiler water temperature limit.	Boiler does not log in at the cascade control unit	Check communication via participant check, leads/ cables to the Vitotronic 100 and codes.
D6	Control mode.	Input DE1 at extension EA1 reports a fault	Remove fault at appliance concerned.
D7	Control mode.	Input DE2 at extension EA1 reports a fault	Remove fault at appliance concerned.
D8	Control mode.	Input DE3 at extension EA1 reports a fault	Remove fault at appliance concerned.
DA	Control mode without room influence.	Short circuit, room temperature sensor, system circuit A1 (heating circuit 1)	Check the room temperature sensor (see page 158).
DB	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check the room temperature sensor (see page 158).
DC	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check the room temperature sensor (see page 158).
DD	Control mode without room influence.	Lead break, room temperature sensor, system circuit A1 (heating circuit 1)	Check room temperature sensor (see page 158) and adjustment of the remote control (see separate installation and service instructions).
DE	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check room temperature sensor (see page 158) and adjustment of the remote control (see separate installation and service instructions).
DF	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check room temperature sensor (see page 158) and adjustment of the remote control (see separate installation and service instructions).

Boiler Temperature Control of the Vitotronic 100

Brief description

- The boiler water temperature is regulated by starting and stopping the burner or through modulation.
- The set boiler water temperature is specified by the Vitotronic 300-K cascade control unit.

Functions

The boiler water temperature is captured by the following equipment:

Upper control range limits

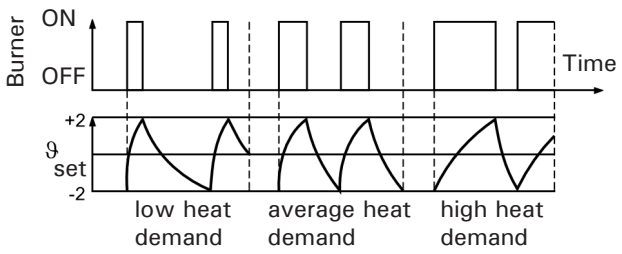
- Fixed high limit
- Adjustable high limit
- Electronic maximum temperature limit:
  – Changed via coding address “06” in the “Boiler” group.

For adjustment and setting limitations see page 56.

Lower control range limits

- In standard mode and when frost protection is enabled, the boiler water temperature will be regulated subject to the respective boiler.

Boiler Temperature Control of the Vitotronic 300-K



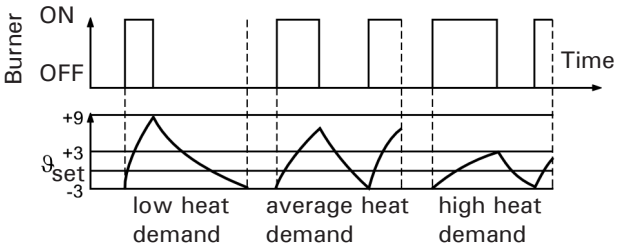
Switching hysteresis, burner

Permanent switching hysteresis

Code "04:0"

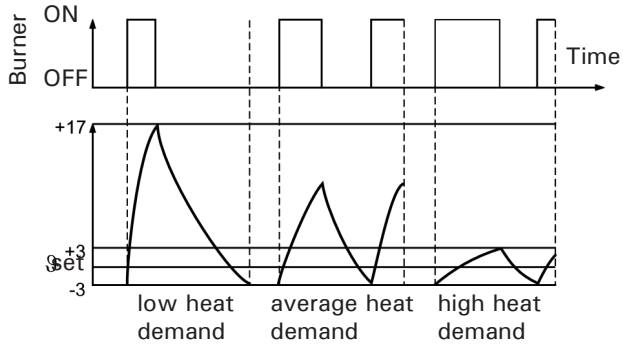
Heat demand-dependent switching hysteresis

The heat demand-dependent switching hysteresis takes the boiler load into account.
The switching hysteresis, i.e. the burner runtime varies subject to actual heat demand.



ERB50 function

Code "04:1"
Subject to heat demand, values between 6 and 12 K result.



ERB80 function

Code "04:2"
Subject to heat demand, values between 6 and 20 K result.

Control sequence

Boiler goes cold

(set value − 2 K)
The burner start signal is selected as the set boiler water temperature minus 2 K, and the burner starts its own monitoring program.

Note: The burner start may be delayed by a few minutes subject to the number of auxiliary circuits and the combustion type.

Boiler heats up

(Set value + 2K)
The burner shuts down.
Modulating burner:
The burner stop point is determined by the stop differential (coding address "13" in the "Boiler" group).

Cascade Control of the Vitotronic 300-K

Brief description

The supply temperature is regulated by starting or stopping the burners or by starting/stopping individual burner stages.

- Stand-alone control
- Sequential control
- Subject to the system version, we differentiate between condensing strategy and two conventional strategies.

Set supply temperature

The set supply temperature is determined from the following parameters:

- Set supply temperature of system circuit A1 (heating circuit 1) and heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
- Set supply temperature of further consumers.
- Set DHW temperature.
- External demands.
  Upper control range limits:
  Maximum limit of the system supply temperature (coding address "37" in the "Cascade" group).
  Lower control range limits:
  Minimum limit of the system supply temperature (coding address "36" in the "Cascade" group).

Cascading Layouts

Boilers connected in parallel

- Without and with supply temperature sensor.
- Set code "3B:0" or "3B:1" in the "Cascade" group.
- The cascade control specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value.

The following control strategies are available:

- Condensing strategy (see page 111)
- Conventional strategy 1 (see page 111)
- Conventional strategy 2 (see page 112)

Boilers connected in series

- Without and with supply temperature sensor.
- Set code "3B:2" or "3B:3" in the "Cascade" group.
- The control strategy is set automatically to conventional strategy 2, code "3C:2" (see page 112).
- The cascade control specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value. If the lead boiler (condensing boiler) does not achieve the specified set value, it will only act to control the return temperature of the conventional boiler downstream. The conventional boiler is started late and is also shut down late.
- **With supply temperature sensor:**
  Set code "3B:1" or "3B:3" in the "Cascade" group.
  The control deviation is calculated from the set supply temperature and the actual supply temperature to determine the start and shutdown criteria.
- **Without supply temperature sensor:**
  Set code "3B:0" or "3B:2" in the "Cascade" group.
  To determine the start and stop criteria, the control deviation is calculated from the set boiler water temperature and the estimated average actual boiler water temperature of the currently active boilers.
  Only boilers with open isolation valves are taken into consideration.

Sequential control

- With supply temperature sensor.
- Set code "3B:4" in the "Cascade" group.
- The control strategy is set automatically to conventional strategy 2, code "3C:2" (see page 112).
- The cascade control unit regulates to the specified set supply temperature by stipulating the output for each individual boiler. The lead boiler can be operated in modulating mode. All other boilers are operated in two stages via a specified output (incl. modulating burners).

Cascade Control of the Vitotronic 300-K *(continued)*

Control strategies

Condensing strategy
(code "3C:0" in the "Cascade" group)

Benefit: Optimum utilisation of the condensing effect and long burner runtimes.
Set code "3C:0" in the "Cascade" group.
It is the aim of the condensing strategy to operate as many boilers as possible at the lowest output level.

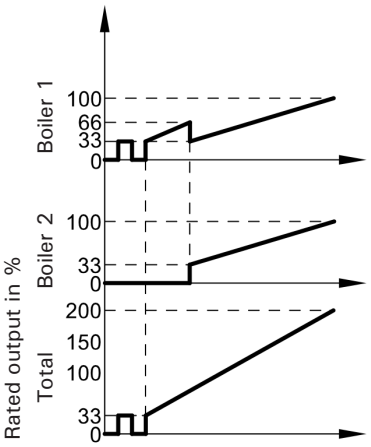
- **Starting criterion:**
  Boilers are started via an output statement (code "3D:1" in the "Cascade" group). An additional boiler will start if the currently required output can also be achieved by the currently active boilers plus the next boiler in the boiler sequence (see below).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address "46" in the "Cascade" group and the boiler started last will be shut down.

Example for the different control strategies

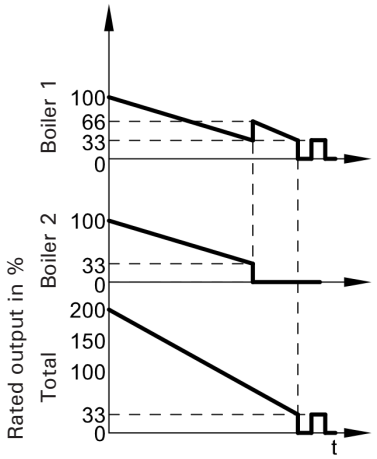
Two-boiler system with modulating burners:

- Boiler 1: 100% rated output (base load set to 33%)
- Boiler 2: 100% rated output (base load set to 33%)

Starting



Shutdown

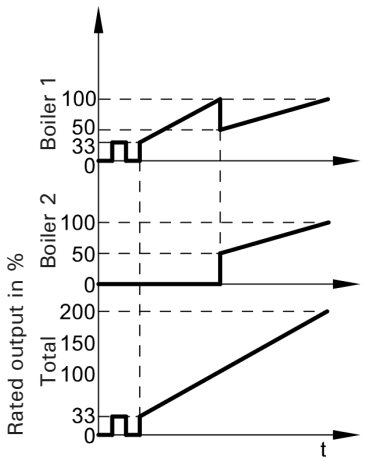


Conventional strategy 1
(code "3C:1" in the "Cascade" group)

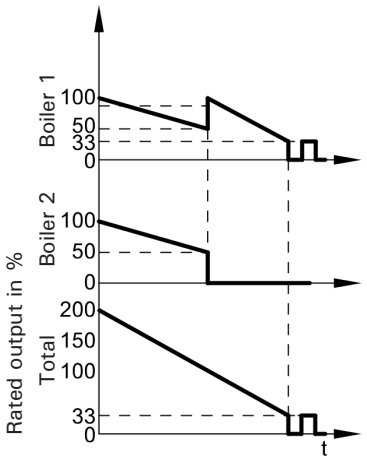
Benefit: As few boilers as possible are active.
Set code "3C:1" in the "Cascade" group.
Conventional boilers are preferably operated at their upper output range, to reliably prevent formation of condensate due to low return temperatures. With this strategy, an additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature. A boiler will be shut down when the remaining boilers can achieve the required output on their own.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the "Cascade" group is exceeded (see below).
- **Shutdown criterion:**
  Boilers are shut down via an output statement (code "3D:1" in the "Cascade" group). A boiler is shut down when the currently required output can be achieved without the boiler that was started last.

Starting



Shutdown



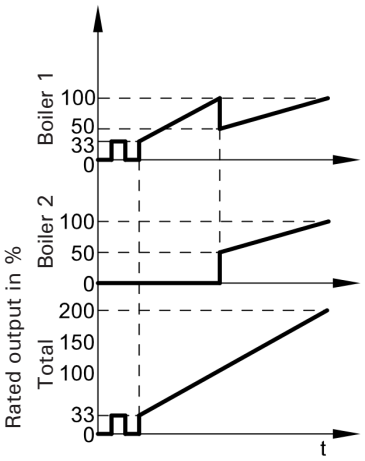
Cascade Control of the Vitotronic 300-K *(continued)*

Conventional strategy 2
(code "3C:2" in the "Cascade" group)

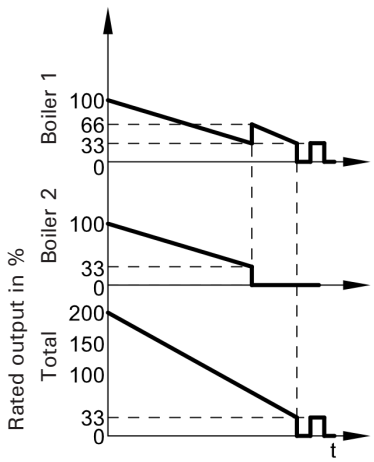
Benefit: Long burner runtimes.
Code "3C:2" in the "Cascade" group (factory set condition).
An additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature.
A boiler will be shut down if the burners were returned to their minimum output because of a large negative control deviation and the output is still too high.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the "Cascade" group is exceeded (see below).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address "46" in the "Cascade" group and the boiler started last will be shut down.

Starting



Shutdown



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Heating Circuit Control Unit of the Vitotronic 300-K

Brief description

- The control unit has control circuits for one system circuit A1 (heating circuit 1) and two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
- The set supply temperature of every heating circuit is determined from the following parameters:
  – Outside temperature
  – Set room temperature
  – Operating mode
  – Heating curve slope and shift
- The supply temperature of the system circuit corresponds to the common system supply temperature.
- The supply temperature of the heating circuits with mixing valve is regulated by the gradual opening or closing of the mixing valves. The mixing valve motor control changes the actuating and pause times subject to the control differential (control deviation).

Functions

The system circuit is subject to the boiler water temperature and its control range limits.
The heating circuit pump is the only actuator.
The supply temperature of the heating circuits with mixing valve is recorded by the supply temperature sensor of the relevant heating circuit.

- Upper control limit: Electronic maximum supply temperature limit Coding address “C6” in the “Heating circuit...” group.
- Lower control range limit: Electronic minimum supply temperature limit Coding address “C5” in the “Heating circuit...” group.

Time program

In accordance with the time program in the “Heating and DHW” heating program, the control unit regulates between “Central heating at standard room temperature” and “Central heating at reduced room temperature”.
Every operating mode has its own set level.
4 time phases per day can be selected.

Outside temperature

A heating curve must be set for matching the control unit to the building and the heating system.
The heating curve characteristics determine the set boiler water temperature subject to outside temperature. An average outside temperature is used for control purposes. This comprises the actual and the adjusted outside temperature.

Room temperature

In conjunction with the remote control and room temperature hook-up (coding address “B0” in the “Heating circuit...” group):
Compared with the outside temperature, the room temperature has a greater influence on the set boiler water temperature (changed via coding address “B2” in the “Heating circuit...” group).
In conjunction with heating circuits with mixing valve:
For control differentials (actual value deviation) above 2 K room temperature, the influence can be increased again (coding address “B6” in the “Heating circuit...” group):

- Quick heat-up
  The set room temperature must be raised by at least 2 K by the following measures:
  – Enabling party mode
  – Changing from central heating with reduced temperature to central heating with standard temperature
  – Start optimization (coding address “B7” in the “Heating circuit...” group)
  Quick heat-up will stop when the set room temperature has been reached.

- Quick setback
  The set room temperature must be reduced by at least 2 K by the following measures:
  – Enabling economy mode
  – Changing from central heating with standard temperature to central heating with reduced temperature
  – Stop optimization (coding address “C1” in the “Heating circuit...” group)
  Quick setback will stop when the set room temperature has been reached.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

DHW temperature

Priority control

- With priority control: (code "A2:2" in the "Heating circuit..." group):
  The set supply temperature is set to 32°F (0°C) during DHW tank heating. The mixing valve closes and the heating circuit pump is switched off.
- Without priority control: The heating circuit control unit continues to operate with the same set value.

Heating circuit pump logic (economy mode)

The heating circuit pump is switched off [set supply temperature set to 32°F (0°C)] if the outside temperature exceeds the value selected via coding address "A5" in the "Heating circuit..." group.

Extended economy mode

The heating circuit pump is switched off [set supply temperature set to 32°F (0°C)] if one of the following criteria is met:

- The adjusted outside temperature exceeds the value selected via coding address "A6" in the "Heating circuit..." group.
- The heating circuit pump can be switched off for a time calculated by the control unit when changing over from heating mode to reduced mode.

  Requirement:
  – There is no risk of frost.
  – Coding address "B0" in the "Heating circuit..." group must be set to 0.

  The idle period can be individually adjusted via coding address "A9" in the "Heating circuit..." group.

  Note: If, during the pump idle period, the system is switched over to heating mode or the set room temperature is increased, the heating circuit pump is switched on, even if the period has not yet expired.
- The actual room temperature exceeds the value selected via coding address "B5" in the "Heating circuit..." group.
- The mixing valve has been closed for 12 min. (mixing valve economy function, coding address "A7" in the "Heating circuit..." group).

System dynamics

You can influence the control characteristics of the mixing valves via coding address "C4" in the "Heating circuit..." group.

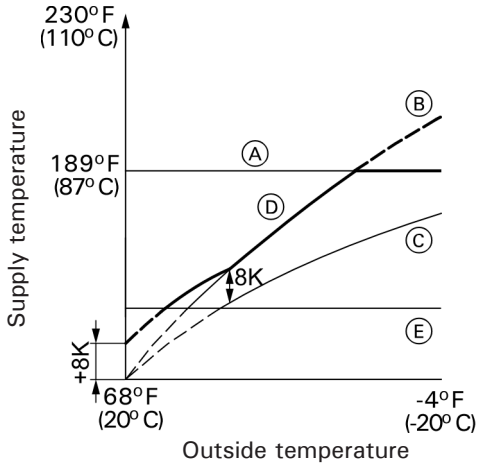
Central control

Central control for a heating circuit can be programmed via coding address "7A" in the "General" group.
The heating and holiday program then applies to all additional heating circuits of the system.
For these heating circuits, when the heating and holiday program is enabled, "Central control" is displayed. Any holiday programs that may have been set will be deleted. Party and economy modes cannot be enabled on all control units.

Frost protection

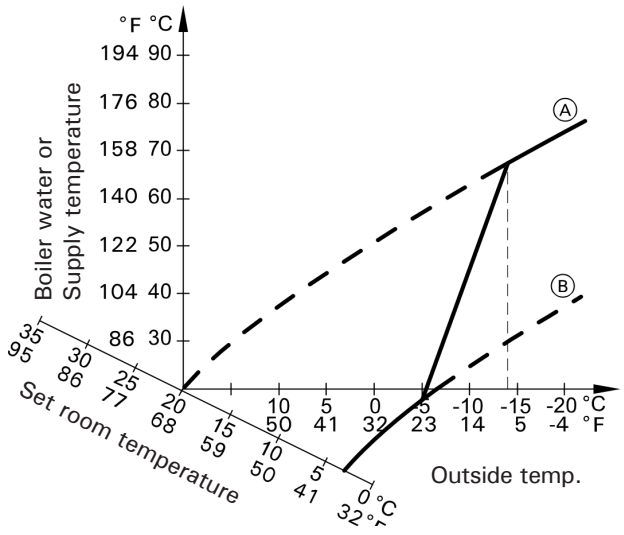
The supply temperature is maintained in accordance with the heating curve for the reduced set room temperature, but at min. 50°F (10°C).
A variable frost limit can be set in accordance with coding address "A3" in the "Heating circuit..." group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*



Legend

Ⓐ Maximum supply temperature limit (coding address "37" in the "Cascade" group)
Ⓑ Slope = 1.8 for system circuit
Ⓒ Slope = 1.2 for heating circuit with mixing valve
Ⓓ Common supply temperature (at a differential temperature = 8 K)
Ⓔ Lower common supply temperature



Legend

Ⓐ Heating curve for operation with standard room temperature
Ⓑ Heating curve for operation with reduced room temperature

Supply temperature control

Differential temperature:
The differential temperature is adjustable via coding address "9F" in the "General" group, factory set condition 8 K.
The differential temperature is the value by which the common supply temperature should be higher than the highest currently required supply temperature of the heating circuit with mixing valve.

- System with only one heating circuit with mixing valve:
  The common set supply temperature is regulated automatically to 8 K above the set supply temperature of the heating circuit with mixing valve.
- System with system circuit and heating circuits with mixing valve:
  The common set supply temperature operates in accordance with its own heating curve. The differential temperature of 8 K towards the set supply temperature of the heating circuits with mixing valve is set at the factory.

Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.
The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9" in the "Heating circuit..." group.

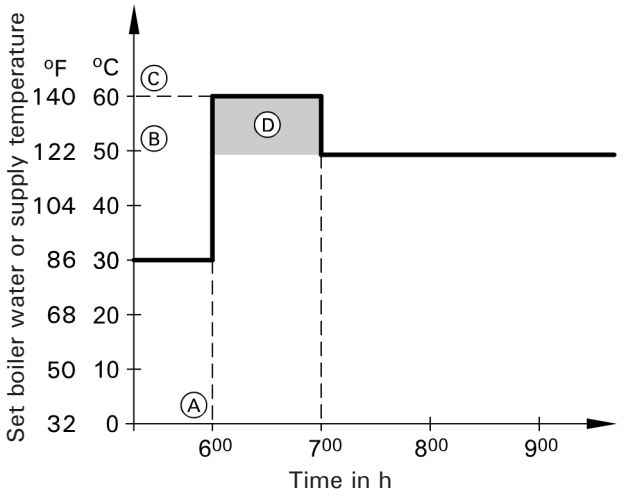
Example using the settings in the factory set condition

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or supply temperature will be raised in accordance with the selected heating curve. The boiler water or supply temperature increase can be automatically raised.
The value and duration of the additional increase of the set boiler water or supply temperature can be adjusted in coding addresses "FA" and "FB" in the "Heating circuit..." group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

Example using the settings in the factory set condition



Legend

Ⓐ Start of operation with standard room temperature
Ⓑ Set boiler water or supply temperature in accordance with the selected heating curve
Ⓒ Set boiler water or supply temperature in accordance with coding address "FA":
122°F + 20% = 146°F
(50°C + 20% = 60°C)
Ⓓ Duration of operation with raised set boiler water or supply temperature in accordance with coding address "FB": 60 min.

Control sequence

Mixing valve circuit

The mixing valve motor will not be controlled within the "neutral zone" (±1 K).

Supply temperature drops

(Set value −1 K)
The mixing valve motor receives the signal "Mixing valve open". The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

Supply temperature rises

(Set value +1 K)
The mixing valve motor receives the signal "Mixing valve closed". The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

DHW Tank Temperature Control of the Vitotronic 300-K

Brief description

- The DHW tank temperature control is a constant temperature control. This is the result of starting and stopping the circulation pump for DHW tank heating. The switching differential is ±2.5 K.
- When the DHW tank is heated, a set supply temperature is specified that is 20 K higher than the set DHW temperature (adjustable via coding address "60" in the "DHW" group).

Functions

Time program

An automatic or an individual time program may be selected for DHW heating and the DHW recirculation pump. Compared with the heating circuit heat up phase, DHW heating starts 30 min. earlier in automatic mode.
The individual time program enables up to 4 time phases per day to be set for DHW heating and the DHW recirculation pump for every day of the week.
All DHW tank heating sequences will be completed independently of the time program.

In conjunction with coding address "7F" in the "General" group

- Detached house Code "7F:1":
  - Automatic mode
    The heating times for heating circuit 1 are applied to systems with two or three heating circuits.
  - Individual time program
    The time phases for DHW heating and the DHW recirculation pump have the same effect on all heating circuits.
- Apartment building
  Code "7F:0":
  - Automatic mode
    For systems with two or three heating circuits, the heating times for the relevant heating circuit will be applied.
  - Individual time program
    The time phases for DHW heating and the DHW recirculation pump can be adjusted individually for each heating circuit.

Priority control

- With priority control: (code "A2:2" in the "Heating circuit..." group):
  The set supply temperature is set to 32°F (0°C) during DHW tank heating. The mixing valve closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Frost protection

The DHW tank will be heated to 68°F (20°C) if the DHW temperature sinks below 41°F (5°C).

Auxiliary function for DHW heating

This function is activated by providing a second set DHW temperature via coding address "58" in group "DHW" and activating the fourth DHW phase for DHW heating.

Set DHW temperature

The set DHW temperature can be adjusted between 50 and 140°F (10 and 60°C).
The set value range can be extended to 203°F (95°C) via coding address "56" in the "DHW" group.
The set default value of the programming unit and/or the Vitotrol 300A remote control units can be allocated via coding address "66" in the "DHW" group.

DHW recirculation pump

This delivers hot water to the draw-off points at adjustable times.
Four time phases can be selected at the control unit for every day.

Auxiliary circuits

DHW heating in conjunction with the heating circuits can be disabled or enabled by changing over the heating program (see coding address "D5" in the "Heating circuit ..." group).

System with primary store system

The above functions also apply in conjunction with primary store systems.
Set the following codes:
"55:3" in the "DHW" group; "4C:1", "4E":
2 in the "General" group.

System with solar control unit

A third set DHW temperature can be specified via coding address "67" in the "DHW" group.
The DHW tank is only reheated by the boiler if the temperature falls below this value.

DHW Tank Temperature Control of the Vitotronic 300-K *(continued)*

Control sequence

Code "55:0" in the "DHW" group, DHW tank heating

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (adjustable via coding address "60").

The DHW tank is hot (set value +2.5 K):

- The common set supply temperature is returned to the set weather-compensated value.
- Pump run-on:
  The circulation pump runs on after DHW tank heating until one of the following criteria is met:
  – The set DHW temperature is exceeded by 5 K.
  – The set max. run-on time is reached (coding address "62").
- Without pump run-on (code "62:0").

Code "55:1" in the "DHW" group, adaptive DHW tank heating

With adaptive DHW tank heating, the speed of the temperature rise during DHW heating is taken into account.

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (adjustable via coding address "60").

The DHW tank is hot:

- The control unit checks whether the boiler will be required to supply heat after the DHW tank has been heated up or whether residual boiler heat should be transferred to the DHW tank. Accordingly, the control unit determines the burner and circulation pump stop times to prevent the set DHW temperature being substantially exceeded after the DHW tank has been heated up.

Code "55:2" in the "DHW" group, DHW tank temperature control with 2 DHW tank temperature sensors

DHW tank temperature sensor 1 enables the circulation pump for DHW tank heating and is evaluated for stop conditions during the pump run-on time.
DHW tank temperature sensor 2:
The DHW tank heating will be switched on early if a lot of hot water is drawn off. The DHW tank heating will be switched off early if no hot water is drawn off.

DHW tank goes cold:

- Set value −2.5 K, adjustable via coding address "59"
  or
- Actual DHW temperature at sensor 2 < set DHW temperature x factor for start time (adjustment via coding address "69")

The DHW tank is hot:

- Set value +2.5 K
  and
- Actual DHW temperature at sensor 2 > set DHW temperature x factor for stop time (adjustment via coding address "68")

Code "55:3" in the "DHW" group, DHW tank temperature control, primary store system

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (change via coding address "60").
- The primary pump in the primary store system starts.
- The 3-way mixing valve opens and then regulates to the specified set value.
- The circulation pump for DHW tank heating cycles (briefly switches on and off) until the set supply temperature has been reached (set DHW temperature + 5 K). Then it runs constantly. If, during heating, the actual value falls below the required set temperature, the circulation pump for DHW tank heating will temporarily cycle again.

The DHW tank is hot:

- DHW tank temperature sensor 1:
  Actual value ≥ set value
  and
  DHW tank temperature sensor 2:
  Actual value > set value −1.5 K:
- The common set supply temperature is returned to the set weather-compensated value.
- The circulation pump for DHW tank heating stops immediately when the 3-way mixing valve is fully opened.
  or
- The circulation pump for DHW tank heating stops after expiry of the run-on time that is selected via code "62".

Calling up Coding Level 1

Note: Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.

1. Press OK and ☰ simultaneously for approx. 4 sec. 🔧 flashes on the display.
2. With ▸, select ① for coding level 1 and confirm with OK. I flashes on the display for the coding addresses of group 1.
3. Select the group for the required coding address with ▲/▼:
   1: "General"
   2: "Boiler"
   6: "All codes std device". In this group, all coding addresses of coding level 1 are displayed in ascending order.
   Confirm selected group with OK.
4. Select the coding address with ▲/▼.
5. Select value according to the following tables with ▲/▼ and confirm with OK.
6. If you want to reset all codes to their factory set delivered condition:
   Select ⑦ with ▸ and confirm with OK.
   When ⧓ flashes, confirm with OK.

Note: This also resets codes on coding level 2.

7. Exit coding level 1:
   Press ⮌.
8. Exit the service level:
   Select ⑨ with ▸ "Serv".
   Confirm with OK.
   "OFF" flashes.
   Confirm with OK.

Note: The system exits the service level automatically after 30 min.

Group 1 "General"

Coding

Coding in the factory set condition		Possible change	
System design			
00:1	No Function.	00:0	Set automatically if code "01:2" is set. Boiler control unit is linked into the cascade.
Servomotor runtime			
40:...	Runtime, valve actuator at plug 52 A1. Factory set condition specified by boiler coding card.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
Participant no.			
77:1	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99.

Group 2 "Boiler"

Coding

Coding in the factory set condition		Possible change	
System design			
01:1	Single boiler system.	01:2	Multi boiler system with Vitotronic 300-K control via LON.
		01:3	Do Not Adjust.
Burner type			
02:1	Two-stage burner.	02:1	Single stage burner.
		02:2	Modulating burner.
Gas/oil operation			
03:0	Gas operation.	03:1	Oil operation (irreversible).
Boiler/burner			
05:...	Modulating burner: Burner curve. Factory set condition specified by boiler coding card.	05:0	Linear burner curve.
		05:1 to 05:99	Non-linear burner curve. $(P_T : P_{max}) \cdot 100$ P_T in kW: Partial output at ⅓ of the servomotor runtime P_{max} in kW: Maximum output

Group 2 "Boiler" *(continued)*

Coding in the factory set condition		Possible change	
Boiler water temperature maximum limit			
06:87	Set to 189°F (87°C).	06:20 to 06:127	Adjustable from 68 to 261°F (20 to 127°C). Observe the adjustable high limit settings.
Boiler			
07:1	Consecutive boiler number in multi boiler system.	07:2 to 07:4	Consecutive boiler number in multi boiler system.
Flue gas monitor			
1F:0	With flue gas temperature sensor: Flue gas temperature is not monitored for service display.	1F:1 to 1F: 482°F (250°C)	When the limit for the flue gas temperature is exceeded, 🔧 is displayed.
Burner service in 100 hour			
21:0	No service interval (hours run) selected.	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h; 1 step ≙ 100 h
Service interval in months			
23:0	No interval for service.	23:1 to 23:24	Interval adjustable from 1 to 24 months.
Service status			
24:0	No 🔧 display.	24:1	🔧 display (the address is automatically set and must be manually reset after a service has been carried out).

Calling up Coding Level 2

Note:
- In coding level 2, all codes are accessible, including the codes from coding level 1.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.

1. Press OK and ☰ simultaneously for approx. 4 sec. 🔧 flashes on the display.
2. Press OK and ⮌ simultaneously for approx. 4 sec.
3. With ▸, select ② for coding level 2 and confirm with OK. I flashes on the display for the coding addresses of group 1.
4. Select the group for the required coding address with ▲/▼:
   1:"General"
   2: "Boiler"
   6: "All codes std device". In this group, all coding addresses of coding level 2 are displayed in ascending order.
   Confirm selected group with OK.
5. Select the coding address with ▲/▼.
6. Select value according to the following tables with ▲/▼ and confirm with OK.
7. If you want to reset all codes to their factory set condition: Select ⑦ with ▸ and confirm with OK. When ⧓ flashes, confirm with OK.

Note: This also resets codes on coding level 1.

8. Exit coding level 2:
   Press ⮌.
9. Exit the service level:
   Select ⑨ with ▸ "Serv".
   Confirm with OK.
   "OFF" flashes.
   Confirm with OK.

Note: The system exits the service level automatically after 30 min.

Group 1 “General”

Coding

Coding in the factory set condition		Possible change	
00:1	No Function	00:0	Set automatically if code “01:2” is set. Boiler control unit is linked into the cascade.
30:0	Without plug-in adaptor 1, external safety equipment. Do Not Adjust.	30:1	With plug-in adaptor 1, external safety equipment; automatic recognition.
31:0	Without plug-in adaptor 2, external safety equipment. Do Not Adjust.	31:1	With plug-in adaptor 2, external safety equipment; automatic recognition.
32:0	Without extension AM1.	32:1	With extension AM1; automatic recognition.
33:1	Function output A1 at extension AM1: Heating circuit pump.	33:3	Circulation pump for neutralizing system or flue gas/ water heat exchanger.
34:0	Function output A2 at extension AM1: DHW recirculation pump.	34:3	Circulation pump for neutralizing system or flue gas/ water heat exchanger.
40:...	Runtime, valve actuator at plug 52A1. Delivered condition specified by boiler coding card.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
4A:0	Sensor 17A not connected.	4A:1	Sensor 17A available (e.g. Therm-Control temperature sensor); automatic recognition.
4b:0	Sensor 17B not connected.	4b:1	Sensor 17B available (e.g. return temperature sensor T2); automatic recognition.
4C:2	Connection at plug 20A1: Switching contact, Therm-Control.	4C:1	Do Not Adjust.
		4C:3	Circulation pump – flue gas/water heat exchanger.
4d:1	Connection at plug 29: Shunt pump.	4d:2	Boiler circuit pump.
		4d:3	Boiler circuit pump with isolation valve function.
4E:0	Connection at plug 52: Motorized isolation valve.	4E:1	Motor for 3-way mixing valve for return temperature control.
		4E:2	Do Not Adjust.
4F:5	Run-on time, shunt or boiler circuit pump 5 min.	4F:0	No pump run-on.
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min.

Group 1 "General" *(continued)*

Coding in the factory set condition		Possible change	
6C:0	No run-on time neutralizing system.	6C:1 to 6C:255	Run-on time neutralizing system at output A1 at extension AM1, adjustable from 1 to 255 sec.
6d:0	No run-on time neutralizing system.	6d:1 to 6d:255	Run-on time neutralizing system at output A2 at extension AM1, adjustable from 1 to 255 sec.
76:0	Without LON communication module.	76:1	With LON communication module; automatic recognition.
77:1	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99.
78:1	LON communication enabled.	78:0	LON communication disabled.
79:0	Control unit is not fault manager.	79:1	Control unit is fault manager.
80:6	If a fault occurs for at least 30 sec, a fault message is displayed.	88:0	Immediate fault message.
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 sec; 1 step ≙ 5 sec
88:0	Temperature displayed in °C (Celsius).	88:1	Temperature displayed in °F (Fahrenheit).
8A:175	Do Not Adjust.	-	-
93:0	Fault messages during emissions test function/ service display do not affect central fault messages.	93:1	Fault messages during emissions test function/ service display affect central fault messages.
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300).	98:1 to 98:5	System number adjustable from 1 to 5.
9b:0	Do Not Adjust.	-	-
9C:20	Monitoring LON participants: If there is no response from a participant, values specified by the control unit are used after 20 min and a fault message is issued	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min.
9d:0	Do Not Adjust.	-	-

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Group 2 “Boiler”

Coding

Coding in the factory set condition		Possible change	
01:1	Single boiler system.	01:2	Multi boiler system with cascade control via LON.
		01:3	Do Not Adjust.
02:1	Two -stage burner	02:0	Single stage burner.
		02:2	Modulating burner.
03:0	Gas operation.	03:1	Oil operation (irreversible).
		03:2	Set automatically if no boiler coding card or an incorrect boiler coding card is inserted.
04:...	Switching hysteresis, burner: Factory set condition specified by the boiler coding card.	04:0	Switching hysteresis 4 K (see page 109).
		04:1	Switching hysteresis, heat demand-dependent (see page 109) ERB50 function (values from 6 to 12 K).
		04:2	ERB80 function (values from 6 to 20 K).
05:...	Modulating burner: Burner curve Factory set condition specified by the boiler coding card.	05:0	Linear burner curve.
		05:1 to 05:99	Non-linear burner curve $(P_T : P_{max})\cdot 100$ P_T in kW: Partial output at ⅓ of the servomotor runtime P_{max} in kW: Maximum output
06:87	Maximum limit of the boiler water temperature set to 189°F (87°C).	06:20 to 06:127	Maximum limit adjustable from 68 to 261°F (20 to 127°C). Observe the adjustable high limit settings.
07:1	Consecutive boiler number in multi boiler system.	07:2 to 07:4	Consecutive boiler number in multi boiler system.
08:...	Maximum burner output in kW. Factory set condition specified by the boiler coding card.	08:0 to 08:199	Maximum output adjustable from 0 to 199 kW.
09:...	Maximum burner output in kW. Factory set condition specified by the boiler coding card.	09:0 TO 08:199	Maximum output adjustable from 0 to 19,900 kW. 1 step ≙ 100 kW
0A:...	Burner base load in kW. Factory set condition specified by the boiler coding card.	0A:0 to 0A:100	Non-linear burner curve $(P_G:P_{max})\cdot 100$ % P_G in kW: Base output P_{max} in kW: Maximum output

Group 2 “Boiler” *(continued)*

Coding in the factory set condition		Possible change	
0C:5	Modulating isolation valve, independent of the set boiler water temperature.	0C:0	No Function.
		0C:1	Constant return temperature control.
		0C:2	Time-controlled isolation valve.
		0C:3	Isolation valve switching, subject to the set boiler water temperature.
		0C:4	Modulating isolation valve, subject to the set boiler water temperature.
0d:2	With Therm-Control, affects the isolation valve (function disabled with code “0C:1”).	0d:0	Without Therm-Control.
		0d:1	With Therm-Control, affects the mixing valves of downstream heating circuits.
13:...	Stop differential in K The burner is switched off when the set boiler water temperature is exceeded. Factory set condition specified by the boiler coding card.	13:0	Without stop differential.
		13:2 to 13:20	Stop differential adjustable from 2 to 20 K.
14:...	Minimum burner runtime in min. Factory set condition specified by the boiler coding card.	14:0 to 14:15	Minimum runtime adjustable from 0 to 15 min.
15:10	Runtime servomotor modulating burner 10 sec.	15:5 to 15:199	Runtime adjustable from 5 to 199 sec.
16:...	Burner offset with start optimization in K (temporary reduction of the set boiler water temperature after burner start). Factory set condition specified by the boiler coding card.	16:0 to 16:15	Offset adjustable from 0 to 15 K.
1A:...	Start optimization in min. Factory set condition specified by the boiler coding card.	1A:0 to 1A:60	Duration of start optimization adjustable from 0 to 60 min.
1b:60	Time from burner ignition before control starts 60 sec.	1b:0 to 1b:199	Control delay adjustable from 1 to 199 sec.
1C:120	Signal B4 at plug 41 is not available: Compensation of signal delay for hours run meter. Time from burner start signal initiation at T2 in plug 41 to opening of the solenoid valve. At each burner start, 120 sec. will be taken off the runtime.	1C:1 to 1C:199	Delay adjustable from 1 to 199 sec. This time is deducted from the operating time for every burner start. E.g. operating situations in which the burner is shut down via the mechanical adjustable high limit, but a burner demand is still present (hours run continue to be counted). If required, change coding address “06”.

Group 2 "Boiler" *(continued)*

Coding in the factory set condition		Possible change	
1F:0	With flue gas temperature sensor: Flue gas temperature is not monitored for service display.	1F:1 to 1F: 482°F (250°C)	When the flue gas temperature limit is exceeded, 🔧 is displayed.
21:0	No service interval (hours run) selected.	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h. 1 step ≙ 100 h.
23:0	No interval for service.	23:1 to 23:24	Interval adjustable from 1 to 24 months.
24:0	No 🔧 display.	24:1	🔧 display (the address is automatically set and must be manually reset after a service has been carried out).
26:0	Burner fuel consumption (stage 1): No count if "26:0" and "27:0" are programmed.	26:1 to 26:99	Input of 0.1 to 9.9; 1 step ≙ 0.1 L/h or gallons/h
27:0	Burner fuel consumption (stage 1): No count if "26:0" and "27:0" are programmed.	27:1 to 27:199	Input of 10 to 1990; 1 step ≙ 10 L/h or gallons/h
28:0	No burner interval ignition.	28:1 to 28:24	Interval adjustable from 1 to 24 h. The burner is force started for 30 sec each time.
29:0	Burner fuel consumption (stages 1 and 2); No count if "29:0" and "2A:0" are programmed.	29:1 to 29:99	Input of 0.1 to 9.9; 1 step ≙ 0.1 L/h or gallons/h
2A:0	Burner fuel consumption (stages 1 and 2); no count if "29:0" and "2A:0" are programmed.	2A:1 to 2A:199	Input of 10 to 1990; 1 step ≙ 10 L/h or gallons/h
2b:5	Maximum preheating time of the isolation valve 5 min.	2b:0	No preheating time.
		2b:1 to 2b:60	Preheating adjustable from 1 to 60 min.
2C:5	Maximum run-on time of the isolation valve 5 min.	2C:0	No run-on time.
		2C:1 to 2C:60	Run-on time adjustable from 1 to 60 min.
2d:0	Shunt pump control function only "ON" if the boiler is enabled.	2d:1	Shunt pump control function permanently "ON".

Calling up Coding Level 1

Note:

- The codes are displayed as plain text.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one system circuit and one or two heating circuits with mixing valve: In the following, the system circuit is designated “Heating circuit 1” and the heating circuits with mixing valve as “Heating circuit 2” or “Heating circuit 3”. If the heating circuits were given individual designations, the selected designation and “HC1”, “HC2” or “HC3” appear instead.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. “Coding level 1”
3. Select group of required coding address:
   - “General”
   - “Cascade”
   - “DHW”
   - “Solar”
   - “Heating circuit 1/2/3”
   - “All codes std device”
     In this group, all coding addresses from coding level 1 (except the coding addresses from the “Solar” group) are displayed in ascending order.
4. Select coding address.
5. Select value according to the following tables and confirm with OK.
6. If you want to reset all codes to their factory set condition:
   Select “Standard setting” in “Coding level 1”.
   Note: This also resets codes from coding level 2.

"General" Group

Coding

Coding in the factory set condition		Possible change	
System design			
00:1	One system circuit A1 (heating circuit 1), without DHW heating	00:2 to 00:10	For system schemes, see the following table.

Value address 00: ...	Description
2	One system circuit A1 (heating circuit 1) with DHW heating (automatic recognition)
3	One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating
4	One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating
5	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating (automatic recognition)
6	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating (automatic recognition)
7	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating
8	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating
9	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating (automatic recognition).
10	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating (automatic recognition).

Coding in the factory set condition		Possible change	
Servomotor runtime			
40:125	3-way mixing valve actuator runtime in conjunction with permanent return temperature control at plug 52 A1 125 sec.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
Participant no.			
77:5	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 4 = Boiler control unit 5 = Cascade control unit 10 - 98 = Vitotronic 200-H 99 = Vitocom
Detached house/apartment building			
7F:1	Detached house.	7F:0	Apartment building. Separate adjustment of holiday program and time program for DHW heating possible.
General			
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The relevant code is only enabled when you exit the service level (see page 51)	8F:1	Operation in the standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu; blocked in the extended menu.
Set supply temperature for external demand			
9B:70	Set supply temperature for external demand 158°F (70°C).	9B:0	No default set value.
		9B:1 to 9B:127	Set supply temperature adjustable from 34 to 260°F (1 to 127°C).

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
Number of boilers in cascade			
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K.
Min. system supply temperature			
36:0	Electronic minimum system supply temperature limit set to 32°F (0°C).	36:1 to 36:127	Minimum limit adjustable from 32 to 260°F (0 to 127°C).
Max. system supply temperature			
37:80	Electronic maximum system supply temperature limit set to 176°F (80°C).	37:20 to 37:127	Maximum limit adjustable from 68 to 260°F (20 to 127°C). **Note:** Value must not be higher than the lowest value of coding address "06" in the "Boiler" group of every Vitotronic 100, GC1B.
Control type			
3B:1	Stand-alone parallel boiler circuit with supply temperature sensor (see page 110).	3B:0	Stand-alone parallel boiler circuit without supply temperature sensor (see page 110).
		3B:2	Stand-alone serial boiler circuit without supply temperature sensor (see page 110).
		3B:3	Stand-alone serial boiler circuit with supply temperature sensor (see page 110).
		3B:4	Sequential control with supply temperature sensor (see page 110).
Control strategy			
3C:2	Conventional strategy 2 (see page 112).	3C:0	Condensing strategy (see page 111).
		3C:1	Conventional strategy 1 (see page 111).

"DHW" Group

Coding

Coding in the factory set condition		Possible change	
DHW			
67:40	For solar DHW heating: Set DHW temperature 104°F (40°C). Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:0	No third set value.
		67:10 to 67:95	Set DHW temperature adjustable from 50 to 203°F (10 to 95°C) (limited by boiler specific parameters). Observe the setting of coding address "56".
Enable DHW recirculation pump			
73:0	DHW recirculation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min. up to 6 times per hour for 5 min. during the time program.
		73:7	Constantly "ON".

"Solar" Group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the factory set condition		Possible change	
Speed control solar circuit pump			
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave pack control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
DHW tank maximum temperature			
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum DHW tank temperature 140°F (60°C).	08:10 to 08:90	The maximum DHW tank temperature is adjustable from 50 to 194°F (10 to 90°C).
Stagnation time reduction			
0A:5	To protect system components and heat transfer medium: the speed of the solar circuit pump is reduced if the actual DHW temperature is 5 K below the maximum DHW tank temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	The solar circuit flow rate at maximum pump speed is 7 L/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 L/min; 1 step ≙ 0.1 L/min.
Extended solar control functions			
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW tanks.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
Priority DHW heating			
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve.	A2:0	Without DHW tank priority applicable to heating circuit pump and mixing valve.
		A2:1	DHW tank priority applies only to the mixing valves.
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1$ K	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$AT > RT_{set} + 5$ K
2	$AT > RT_{set} + 4$ K
3	$AT > RT_{set} + 3$ K
4	$AT > RT_{set} + 2$ K
5	$AT > RT_{set} + 1$ K
6	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1$ K $AT > RT_{set} - 9$ K

Coding in the factory set condition		Possible change	
Extended economy function mixing valve			
A7:0	Only for heating circuits with mixing valve: Without mixing valve economy function.	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been closed for longer than 20 min. Heating circuit pump "ON": - If the mixing valve changes to control function. - If there is a risk of frost.
Pump idle time, transition reduced mode. Operation			
A9:7	With pump idle time (heating circuit pump "OFF"). (See function description on page 114).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15. 1: short idle period 15: long idle period

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
Extended economy function mixing valve			
Weather-compensated/room temperature hook-up			
B0:0	With remote control:*2 Heating mode/reduced mode: weather-compensated.	B0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		B0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		B0:3	Heating mode/reduced mode: with room temperature hook-up
Economy function room temperature			
B5:0	With remote control:*2 No room temperature dependent heating circuit pump logic function.	B5:1 to B5:8	Heating circuit pump logic function, see the following table.

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

	With heating circuit pump logic function:	
Parameter address B5:...	**Heating circuit pump "OFF"**	**Heating circuit pump "ON"**
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the factory set condition		Possible change	
Min. supply temperature heating circuit			
C5:20	Electronic minimum supply temperature limit 68°F (20°C) (only in operation at standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 32 to 260°F (1 to 127°C) (limited by boiler-specific parameters).
Max. supply temperature heating circuit			
C6:75	Electronic maximum supply temperature limit set to 167°F (75°C).	C6:10 to C6:127	Maximum limit adjustable from 50 to 260°F (10 to 127°C) (limited by boiler-specific parameters).
Heating program - changeover			
D5:0	With external heating program changeover (observe setting for coding addresses "5D", "5E" and "5F" in the "General" group). Heating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the settings of the set reduced room temperature).	D5:1	The heating program changes to "Constant operation with standard room temperature".
External heating program changeover to heating circuit			
D8:0	No heating program changeover via extension EA1.	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension EA1.
		D8:3	Heating program changeover via input DE3 at extension EA1.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
Slab curing function (Not Used)			
F1:0	Do not adjust.	--	--
Party mode time limit			
F2:8	Time limit for party mode or external heating program changeover via push button: 8 h*1. **Note:** Observe settings of coding addresses "5D", "5E", "5F" in the "General" group, as well as "D5" and "D8" in the "Heating circuit..." group.	F2:0	No time limit*1.
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1.
Start temperature raising			
F8:-5	Temperature limit for raising reduced mode 23°F (-5°C); see example on page 115. Observe the setting of coding address "A3".	F8: +10 to F8:-60	Temperature limit adjustable from +50 to -76°F (+10 to -60°C).
		F8:-61	Function disabled.
End temperature raising			
F9:-14	Temperature limit for raising the reduced set room temperature 7°F (-14°C); see example on page 115.	F9: +10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76°F (+10 to -60°C).
Set supply temperature increase			
FA:20	Raising the set boiler water or supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 115.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50%.
Duration set supply temperature increase			
FB:30	Duration for raising the set boiler water or supply temperature (see coding address "FA") 60 min. See example on page 115.	FB:0 to FB:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

*1 Party mode ends automatically in the "Heating and DHW" heating program when the system changes over to operation with standard room temperature.

Calling up Coding Level 2

Note:

- In coding level 2, all codes are accessible, including the codes from coding level 1.
- Codes that have No function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one system circuit and one or two heating circuits with mixing valve:
  In the following, the system circuit is designated "Heating circuit 1" and the heating circuits with mixing valve as "Heating circuit 2" or "Heating circuit 3".
  If the heating circuits were given individual designations, the selected designation and "HC1", "HC2" or "HC3" appear instead.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. Press OK and ↩ simultaneously for approx. 4 sec.
3. "Coding level 2"
4. Select group of required coding address:
   - "General"
   - "Boiler"
   - "DHW"
   - "Solar"
   - "Heating circuit 1/2/3"
   - "All codes std device" In this group, all coding addresses (except the coding addresses from the "Solar" group) are displayed in ascending order.
5. Select coding address.
6. Select value according to the following tables and confirm with "OK".
7. If you want to reset all codes to their factory set condition:
   Select "Standard setting" in "Coding level 2".
   Note: This also resets codes from coding level 1.

"General" Group

Coding

Coding in the factory set condition		Possible change	
00:1	One system circuit A1 (heating circuit 1), without DHW heating.	00:2 to 00:10	For system schemes, see the following table.

Coding

Value address 00: ...	Description
2	One system circuit A1 (heating circuit 1) with DHW heating (automatic recognition)
3	One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating
4	One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating
5	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating (automatic recognition)
6	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating (automatic recognition).
7	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating
8	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating
9	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating (automatic recognition).
10	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating (automatic recognition).

Coding in the factory set condition		Possible change	
12:5	With extension EA1: DHW recirculation pump runtime for brief operation: 5 min.	12:1 to 12:60	Runtime adjustable from 1 to 60 min.
1E:0	With extension EA1 (analog input 0-10V): Temperature demand from 32 to 212°F (0 to 100°C): 1V ≙ 50°F (10°C) 10V ≙ 212°F (100°C)	1E:1	Temperature demand from 86 to 248°F (30 to 120°C): 1V ≙ 86° F (30°C) 10V ≙ 248° F (120°C)
2E:0	Do Not Adjust.	-	-
2F:0	Do Not Adjust.	-	-
40:125	3-way mixing valve actuator runtime in conjunction with permanent return temperature control at plug [52]A1 125 sec.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
4A:0	Sensor [17]A not available.	4A:1	Sensor [17]A available (e.g. return temperature sensor T1); automatic recognition.
4B:0	Sensor [17]B not available.	4B:1	Sensor [17]B available (e.g. return temperature sensor T2); automatic recognition.
4C:0	Connection at plug [20]A1: Heating circuit pump.	4C:1	Primary pump, primary store system.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
4D:1	Connection at plug 29: Shunt pump.	4D:0	Distribution pump.
4E:1	Connection at plug 52A1: 3-way mixing valve for return temperature control.	4E:2	Motor for 3-way mixing valve, primary store system.
4F:5	Run-on time, shunt or distribution pump 5 min.	4F:0	No pump run-on.
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min.
54:0	Without solar thermal system.	54:1	With Vitosolic 100; automatic recognition.
		54:2	With Vitosolic 200; automatic recognition.
		54:3	With solar control module, type SM1, without auxiliary function; automatic recognition.
		54:4	With solar control module, type SM1, with auxiliary function, e.g. central heating backup; automatic recognition.
5B:0	Without extension EA1.	5B:1	With extension EA1; automatic recognition.
5C:0	Function output 157 at extension EA1: Central fault message.	5C:1	Accessories pump.
		5C:2	No Function.
		5C:3	Heating circuit pump A1 is switched to low speed (reduced mode).
		5C:4	Heating circuit pump M2 is switched to low speed (reduced mode).
		5C:5	Heating circuit pump M3 is switched to low speed (reduced mode).
5D:0	Function input DE1 at extension EA1: No Function.	5D:1	Heating program changeover.
		5D:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5D:3	External blocking.
		5D:4	External blocking with fault message.
		5D:5	Fault message input.
		5D:6	Brief operation, DHW recirculation pump (push button function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
5E:0	Function input DE2 at extension EA1: No Function.	5E:1	Heating program changeover.
		5E:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5E:3	External blocking.
		5E:4	External blocking with fault message.
		5E:5	Fault message input.
		5E:6	Brief operation, DHW recirculation pump (push button function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
5F:0	Function input DE3 at extension EA1: No Function.	5F:1	Heating program changeover.
		5F:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5F:3	External blocking.
		5F:4	External blocking with fault message.
		5F:5	Fault message input.
		5F:6	Brief operation, DHW recirculation pump (push button function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
6E:50	No display correction of the outside temperature.	6E:0 to 6E:49	Display correction –5 K to Display correction –0.1 K
		6E:51 to 6E:99	Display correction +0.1 K to Display correction +4.9 K
76:0	Without LON communication module.	76:1	With LON communication module (automatic recognition).
77:5	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 – 4 = Boiler control unit 5 = Cascade control unit 10 – 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
78:1	LON communication enabled.	78:0	LON communication disabled.
79:1	With LON communication module: Control unit is fault manager.	79:0	Control unit is not fault manager.
7A:0	Without central control of heating circuits.	7A:1	With central control (see page 114): System circuit A1 (heating circuit 1).
		7A:2	Heating circuit with mixing valve M2 (heating circuit 2).
		7A:3	Heating circuit with mixing valve M3 (heating circuit 3).
7B:1	With LON communication module: Control unit transmits the time.	7B:0	Time not transmitted.
7F:1	Detached house.	7F:0	Apartment building. Separate adjustment of holiday program and time program for DHW heating possible.
80:6	If a fault occurs for at least 30 sec., a fault message is displayed.	80:0	Immediate fault message.
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 sec; 1 step ≙ 5 sec.
81:1	Automatic summer/wintertime changeover.	81:0	Manual summer/wintertime changeover.
		81:2	Use of the radio clock receiver Do Not Adjust.
		81:3	With LON communication module: The control unit receives the time.
82:3	Summer time starts: March	82:1 to 82:12	January to December
83:5	Summer time starts: Week 5 of the selected month.	83:1 to 83:5	Week 1 to week 5 of the selected month

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
84:7	Summer time starts: Last Sunday of the selected month.	84:1 to 84:7	Monday to Sunday
85:10	Wintertime starts: October.	85:1 to 85:12	January to December
86:5	Wintertime starts: Week 5 of the selected month.	86:1 to 86:5	Week 1 to week 5 of the selected month
87:7	Summer time starts: Last Sunday of the selected month.	87:1 to 87:7	Monday to Sunday
88:0	Temperature displayed in °C (Celsius).	88:1	Temperature displayed in °F (Fahrenheit).
8A:175	Do Not Adjust.	-	-
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The relevant code is only enabled when you exit the service level (see page 97).	8F:1	Operation in the standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu; blocked in the extended menu.
90:128	Time constant for calculating adjusted outside temperature 21.3 h.	90:1 to 90:199	Fast (low values) or slow (high values) matching of the supply temperature, subject to the set value when the outside temperature changes. 1 step ≙ 10 min.
91:0	Connection at terminals 1 and 2 in plug 143 disabled (external heating program changeover) (see page 82).	91:1	Contact affects the following heating circuits: System circuit A1 (heating circuit 1).
		91:2	Heating circuit with mixing valve M2 (heating circuit 2).
		91:3	Heating circuits without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M2 (heating circuit 2).
		91:4	Heating circuit with mixing valve M3 (heating circuit 3).
		91:5	Heating circuits without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M3 (heating circuit 3).
		91:6	Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		91:7	System circuit A1 (heating circuit 1) and heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
96:1	With extension for heating circuits 2 and 3 with mixing valve.	96:0	Without extension for heating circuits 2 and 3 with mixing valve.
97:2	With LON communication module: The control unit sends the outside temperature to the Vitotronic 200-H.	97:0	The outside temperature of the sensor connected to the control unit is only utilized internally.
		97:1	The control unit receives the outside temperature from the Vitotronic 200-H.
98:1	With LON communication module: Viessmann system number (in conjunction with monitoring several systems via Vitocom LAN1).	98:1 to 98:5	System number adjustable from 1 to 5.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
99:0	Connection at terminals 2 and 3 in plug 143 disabled (external blocking/ external "Mixing valve closed") (see page 81).	99:1	No Function.
		99:2	External "Mixing valve closed" Heating circuit with mixing valve M2 (heating circuit 2).
		99:3	No Function.
		99:4	External "Mixing valve closed" Heating circuit with mixing valve M3 (heating circuit 3).
		99:5	No Function.
		99:6	External "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:7	No Function.
		99:8	External blocking.
		99:9	No Function.
		99:10	External blocking/external "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2).
		99:11	No Function.
		99:12	External blocking/external "Mixing valve closed" Heating circuit with mixing valve M3 (heating circuit 3).
		99:13	No Function.
		99:14	External blocking/external "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:15	No Function.
9A:0	Connection at terminals 1 and 2 in plug 143 disabled (external "Mixing valve open") (see page 82).	9A:1	No Function.
		9A:2	External "Mixing valve open" Heating circuit with mixing valve M2 (heating circuit 2).
		9A:3	No Function.
		9A:4	External "Mixing valve open" Heating circuit with mixing valve M3 (heating circuit 3).
		9A:5	No Function.
		9A:6	External "Mixing valve open" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		9A:7	No Function.
9B:70	Set supply temperature for external demand 158°F (70°C).	9B:0 to 9B:127	Set value adjustable from 32 to 260°F (0 to 127°C).
9C:20	With LON communication module: Monitoring LON participants. If there is no response from a participant after 20 min., the values specified inside the control unit are used. Only then will a fault message be issued.	9C:0	No monitoring.
		9C:5 to 9C:60	Time adjustable from 5 to 60 min.
9F:8	Differential temperature 8 K; only in conjunction with heating circuits with mixing valve M2 and M3.	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K.

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K.
36:0	Electronic minimum system supply temperature limit set to 32°F (0°C).	36:1 to 36:127	Minimum limit adjustable from 32 to 260°F (0 to 127°C).
37:80	Electronic maximum system supply temperature limit set to 176°F (80°C).	37:20 to 37:127	Maximum limit adjustable from 68 to 260°F (20 to 127°C). **Note:** Value must not be higher than the lowest value of coding address "06" in the "Boiler" group of every Vitotronic 100.
38:0	No lead boiler or boiler sequence changeover; see function description in chapter "Cascade control".	38:1	Lead boiler changeover: Every first day of the month, the boiler with the shortest number of hours run by its burner becomes the lead boiler.
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run. 1 step ≙ 100 hours run
39:0	No permanent lead boiler.	39:1 to 39:4	Boiler 1, 2, 3 or 4 is the permanent lead boiler.
3A:0	No permanent last boiler.	3A:1 to 3A:4	Boiler 1, 2, 3 or 4 is permanently the last boiler.
3B:1	Stand-alone parallel boiler circuit: With supply temperature sensor (see page 110).	3B:0	Stand-alone parallel boiler circuit: Without supply temperature sensor (see page 110).
		3B:2	Stand-alone serial boiler circuit: Without supply temperature sensor (see page 110).
		3B:3	Stand-alone serial boiler circuit: With supply temperature sensor (see page 110).
		3B:4	Sequential control with supply temperature sensor (see page 110).
3C:2	3C:2 Conventional strategy 2 (see page 112).	3C:0	Condensing strategy (see page 111).
		3C:1	Conventional strategy 1 (see page 111).
3D:1	Output statement for condensing strategy and conventional strategy 1.	3D:0	No output statement. **Note:** Vitotronic 300-K regulates only according to conventional strategy 2.
3E:0	Distribution pump only runs when there is a heat demand.	3E:1	Distribution pump always runs; shutdown through "External blocking" signal.
3F:0	Without DHW tank priority control for distribution pump.	3F:1	With DHW tank priority control for distribution pump.
41:31	No ECO threshold boiler 1.	41: – 30 to 41: + 30	ECO threshold boiler 1 adjustable from -22 to + 86°F (– 30 to + 30°C).
42:31	No ECO threshold boiler 2.	42: – 30 to 42: + 30	ECO threshold boiler 2 adjustable from -22 to + 86°F (– 30 to + 30°C).

"Cascade" Group *(continued)*

Coding in the factory set condition		Possible change	
43:31	No ECO threshold boiler 3.	43:–30 to 43:+30	ECO threshold boiler 3 adjustable from -22 to +86°F (–30 to +30°C).
44:31	No ECO threshold boiler 4.	44:–30 to 44:+30	ECO threshold boiler 4 adjustable from -22 to +86°F (–30 to +30°C).
45:60	Start integral threshold set to 60 K x min.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched on.
46:40	Stop integral threshold set to 40 K x min.	46:1 to 46:255	Stop integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched off.
47:15	Stop differential set to 15 K.	47:2 to 47:30	Stop differential adjustable from 2 to 30 K. **Note:** One boiler or one burner stage will be switched off if the actual supply temperature exceeds the set supply temperature by this value.
48:35	Do Not Adjust.	--	--
49:40	Do Not Adjust.	--	--

"DHW" Group

Coding in the factory set condition		Possible change	
55:0	DHW tank heating, hysteresis ± 2.5 K.	55:1	Adaptive DHW tank heating enabled.
		55:2	DHW tank temperature control with 2 DHW tank temperature sensors.
		55:3	DHW tank temperature control, primary store system.
56:0	Set DHW temperature adjustable from 50 to 140°F (10 to 60°C).	56:1	Set DHW temperature adjustable from 50 to 194°F (10 to 95°C). **Note:** Observe the max. permissible DHW temperature. Adjust the adjustable high limit "⏱".
58:0	Without auxiliary function for DHW heating.	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 50 to 194°F (10 to 95°C). (observe coding addresses "56" and "63").
59:0	DHW tank heating: Set start point –2.5 K Set stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value.
5A:0	For DHW heating: The set supply temperature is determined by the highest system supply temperature demand.	5A:1	For DHW heating: The set supply temperature is determined by the DHW tank supply temperature demand.
60:20	During DHW heating, the common supply temperature is max. 20 K higher than the set DHW temperature.	60:10 to 60:50	The differential between the common supply temperature and the set DHW temperature is adjustable from 10 to 50 K.
61:1	The circulation pump for DHW tank heating is started immediately.	61:0	The circulation pump for DHW tank heating is started depending on the boiler water temperature.

"DHW" Group *(continued)*

Coding in the factory set condition		Possible change	
62:10	DHW pump with a run-on time after DHW tank heating of max. 10 min.	62:0	DHW pump without run-on.
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min.
64:2	During party mode and after external changeover to constant operation with the standard room temperature: Constant DHW heating enabled and DHW recirculation pump "ON".	64:0	No DHW heating, DHW recirculation pump "OFF".
		64:1	DHW heating and DHW recirculation pump according to time program.
66:4	Input of the set DHW temperature: At the control unit programming unit and all installed Vitotrol 300A remote controls.	66:0	At the control unit programming unit.
		66:1	At the control unit programming unit and remote control system circuit A1 (heating circuit).
		66:2	At the control unit programming unit and remote control heating circuit with mixing valve M2 (heating circuit 2).
		66:3	At the control unit programming unit and remote control heating circuit with mixing valve M3 (heating circuit 3).
		66:5	At the remote control system circuit A1 (heating circuit 1).
		66:6	At the remote control heating circuit with mixing valve M2 (heating circuit 2).
		66:7	At the remote control heating circuit with mixing valve M3 (heating circuit 3).
67:40	For solar DHW heating: Set DHW temperature 104°F (40°C). Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:0	No third set value.
		67:10 to 67:95	Set DHW temperature adjustable from 50 to 194°F (10 to 95°C). (limited by boiler specific parameters). Observe the setting of coding address "56".
68:8	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating stop point at set value x 0.8.	68:2 to 68:10	Factor adjustable from 0.2 to 1; 1 step ≙ 0.1
69:7	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating start point at set value x 0.7.	69:1 to 69:9	Factor adjustable from 0.1 to 0.9; 1 step ≙ 0.1
6A:75	Runtime, actuator, mixing valve, heat exchanger set, Vitotrans 222, (80 and 120 kW): 75 sec.	6A:10 to 6A:255	For heat exchanger set Vitotrans 222 (240 kW): set 113 sec. Runtime adjustable from 10 to 255 sec.
70:0	DHW recirculation pump "ON" according to time program when DHW heating is enabled.	70:1	DHW recirculation pump "ON" according to time program.
71:0	DHW recirculation pump: "ON" according to time program.	71:1	"OFF" during DHW heating to the first set value.
		71:2	"ON" during DHW heating to the first set value.
72:0	DHW recirculation pump: "ON" according to time program.	72:1	"OFF" during DHW heating to the second set value.
		72:2	"ON" during DHW heating to the second set value.
73:0	DHW recirculation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min. up to 6 times per hour for 5 min. during the time program.
		73:7	Constantly "ON".
75:0	DHW recirculation pump "ON" during economy mode according to time program.	75:1	DHW recirculation pump "OFF" during economy mode.

"Solar" Group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the factory set condition		Possible change	
00:8	The solar circuit pump starts when the collector temperature exceeds the actual DHW temperature by 8 K.	00:2 to 00:30	The differential between the actual DHW temperature and the start point for the solar circuit pump is adjustable from 2 to 30 K.
01:4	The solar circuit pump stops when the differential between the collector temperature and the actual DHW temperature is less than 4 K.	01:1 to 01:29	The differential between the actual DHW temperature and the stop point for the solar circuit pump is adjustable from 1 to 29 K.
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave pack control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
03:10	The temperature differential between the collector temperature and actual DHW temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between the collector temperature and actual DHW temperature is adjustable from 5 to 20 K.
04:4	Controller amplification of the speed control 4%/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10%/K.
05:10	Minimum speed of the solar circuit pump 10% of the maximum speed.	05:2 to 05:100	Minimum speed of the solar circuit pump is adjustable from 2 to 100%.
06:75	Maximum speed of the solar circuit pump 75% of the maximum possible speed.	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100%.
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum DHW tank temperature 140°F (60°C).	08:10 to 08:90	The maximum DHW tank temperature is adjustable from 50 to 194°F (10 to 90°C).
09:130	The solar circuit pump stops if the collector temperature reaches 266°F (130°C) (maximum collector temperature to protect the system components).	09:20 to 09:200	The temperature is adjustable from 68 to 392°F (20 to 200°C).
0A:5	To protect system components and heat transfer medium: The speed of the solar circuit pump is reduced if the actual DHW tank temperature is 5 K below the maximum DHW tank temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.
0B:0	Frost protection function for solar circuit switched off.	0B:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	Delta T monitoring switched off.

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
0D:1	Night circulation monitoring switched on. Unintentional flow rate is captured in the solar circuit (e.g. at night).	0D:0	Night circulation monitoring switched off.
0E:1	Calculation of solar yield with Viessmann heat transfer medium.	0E:2	Calculation of solar yield with water as heat transfer medium (never adjust, as operation is only possible with Viessmann heat transfer medium).
		0E:0	Calculation of solar yield switched off.
0F:70	The solar circuit flow rate at maximum pump speed is 7 L/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 L/min. 1 step ≙ 0.1 L/min
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.
11:50	Set solar DHW temperature 122°F (50°C). - Target temperature control switched on (code "10:1"): Temperature at which the solar heated water in the DHW tank is to be stratified. - Extended control functions set to heat two DHW tanks (code "20:8"): The second DHW tank is heated when one DHW tank reaches its set DHW temperature.	11:10 to 11:90	The set solar DHW temperature is adjustable from 50 to 194°F (10 to 90°C).
12:10	Minimum collector temperature 50°F (10°C). The solar circuit pump will only start when the set minimum collector temperature is exceeded.	12:0	Minimum collector temperature function disabled.
		12:1 to 12:90	The minimum collector temperature is adjustable from 1
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor
		20:9	Solar heating of two DHW tanks.
22:8	Start temperature differential for central heating backup: 8 K. Switching output [22] is switched on when the temperature at sensor [7] exceeds the temperature at sensor [10] by the selected value.	22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 2 to 30 K.

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
23:4	Stop temperature differential for central heating backup: 4 K. Switching output [22] is switched off when the temperature at sensor [7] falls below the stop point. The stop point is the sum of the temperature at sensor [10] and the value selected for the stop temperature differential.	23:2 to 23:30	Stop temperature differential for central heating backup is adjustable from 1 to 29 K.
24:40	Start temperature for thermostat function 104°F (40°C). Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function, e.g. for reheating. Switching output [22] is switched on when the temperature at sensor [7] falls below the start temperature for the thermostat function. Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function, e.g. for utilizing excess heat. Switching output [22] is switched on when the temperature at sensor [7] exceeds the start temperature for the thermostat function.	24:0 to 24:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
25:50	Stop temperature for thermostat function 122°F (50°C). Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function e.g. for reheating. Switching output [22] is switched off when the temperature at sensor [7] exceeds the start temperature for the thermostat function. Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function e.g. for utilizing excess heat. Switching output [22] is switched off when the temperature at sensor [7] falls below the start temperature for the thermostat function.	25:0 to 25:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
26:1	Priority for DHW tank 1 – with alternate heating. Only when setting code "20:8"	26:0	Priority for DHW tank 1 – without alternate heating
		26:2	Priority for DHW tank 2 – without alternate heating.
		26:3	Priority for DHW tank 2 – with alternate heating.
		26:4	Alternate heating without priority for one of the DHW tanks.
27:15	Alternate heating time 15 min. The DHW tank without priority is heated at most for the duration of the set alternate heating time if the DHW tank with priority is heated up.	27:5 to 27:60	The alternate heating time is adjustable from 5 to 60 min.
28:3	Alternate pause time 3 min. After the selected alternate heating time for the DHW tank without priority has expired, the rise in collector temperature is captured during the alternate pause time.	28:1 to 28:60	The alternate pause time is adjustable from 1 to 60 min.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
A0:0	Without remote control.	A0:1	With Vitotrol 200A; automatic recognition.
		A0:2	With Vitotrol 300A or Vitohome 300; automatic recognition.
A1:0	Only with Vitotrol 200A: All possible settings at the remote control can be accessed.	A1:1	Only party mode can be set at the remote control.
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve.	A2:0	Without DHW tank priority applicable to heating circuit pump and mixing valve.
		A2:1	DHW tank priority applies only to the mixing valves.
A3:2	Outside temperature below 34°F (1°C): Heating circuit pump "ON". Outside temperature above 37°F (3°C): Heating circuit pump "OFF".	A3:-9 to A3:15	Heating circuit pump "ON/ OFF" (see the following table).

Note: If a value below 34°F (1°C) is selected, there is a risk that pipes outside the thermal envelope of the building could freeze up. The standby mode in particular should be taken into consideration, e.g. during holidays.

Parameter Address A3:...	Heating circuit pump	
	"ON"	"OFF"
-9	14°F (-10°C)	18°F (-8°C)
-8	16°F (-9°C)	19°F (-7°C)
-7	18°F (-8°C)	21°F (-6°C)
-6	19°F (-7°C)	23°F (-5°C)
-5	21°F (-6°C)	25°F (-4°C)
-4	23°F (-5°C)	27°F (-3°C)
-3	25°F (-4°C)	28°F (-2°C)
-2	27°F (-3°C)	30°F (-1°C)
-1	28°F (-2°C)	32°F (0°C)
0	30°F (-1°C)	34°F (1°C)
1	32°F (0°C)	36°F (2°C)
2 to 15	34°F (1°C) to 57°F (14°C)	37°F (3° C) to 61°F (16°C)

Coding in the factory set condition		Possible change	
A4:0	With frost protection.	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected. **Note:** Observe information regarding coding address "A3".
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) AT > RT_{set} + 1 K.	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	AT > RT_{set} + 5 K
2	AT > RT_{set} + 4 K
3	AT > RT_{set} + 3 K
4	AT > RT_{set} + 2 K
5	AT > RT_{set} + 1 K
6	AT > RT_{set}
7 to 15	AT > RT_{set} - 1 K AT > RT_{set} - 9 K

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
A6:36	Extended economy control disabled.	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will be stopped and the mixing valve closed at a variable value, adjustable between 41 to 95°F (5 and 35°C) plus 34°F (1°C). The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.
A7:0	Only for heating circuits with mixing valve: Without mixing valve economy function.	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been closed for longer than 12 min. Heating circuit pump "ON": - If the mixing valve changes to control function. - If there is a risk of frost.
A9:7	With pump idle time (heating circuit pump "OFF") (See function description on page 114).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15. 1: short idle period 15: long idle period
AA:2	With output reduction by temperature sensor 17A.	AA:0	Without output reduction.
		AA:1	No Function.
B0:0	With remote control:*2 Heating mode/reduced mode: weather-compensated.	B0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		B0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		B0:3	Heating mode/reduced mode: with room temperature hook-up
B2:8	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Room influence factor 8.	B2:0	Without room influence.
		B2:1 to B2:64	Room influence factor adjustable from 1 to 64.
B5:0	With remote control:*2 No room temperature dependent heating circuit pump logic function.	B5:1 to B5:8	Heating circuit pump logic function, see the following table.

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

Parameter address B5:...	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	Heating circuit pump "ON"
1	1 $RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	2 $RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	3 $RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	4 $RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	5 $RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	6 $RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	7 $RT_{actual} > RT_{set}$	- 1 K $RT_{actual} < RT_{set} - 2$ K
8	8 $RT_{actual} > RT_{set}$	- 2 K $RT_{actual} < RT_{set} - 3$ K

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
B6:0	With remote control:*2 Without quick heat-up/ quick setback.	B6:1	With quick heat-up/quick setback (see function description on page 113).
B7:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Without start optimization.	B7:1	With start optimization, max. heat up time delay 2 h 30 min.
		B7:2	With start optimization, max. heat up time delay 15 h 50 min.
B8:10	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Heat-up gradient start optimization 10 min/K.	B8:11 to B8:255	Heat-up gradient adjustable from 11 to 255 min/K.
B9:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Without learning start optimization.	B9:1	With learning start optimization.
C0:0	With remote control:*2 Without stop optimization.	C0:1	With stop optimization, max. setback time delay 1 h.
		C0:2	With stop optimization, max. setback time delay 2 h.
C1:0	With remote control:*2 Without stop optimization.	C1:1 to C1:12	With stop optimization of setback time delay, adjustable from 10 to 120 min; 1 step ≙ 10 min
C2:0	With remote control:*2 Without learning stop optimization.	C2:1	With learning stop optimization.
C3:125	Only for heating circuits with mixing valve: Mixing valve runtime 125 sec.	C3:10 to C3:255	Runtime adjustable from 10 to 255 sec.
C4:1	System dynamics: Mixing valve control characteristics	C4:0 to C4:3	Controller responds too quickly (cycles between "Open" and "Closed"): select a lower value. Controller responds too slowly (temperature is not held sufficiently): select a higher value.
C5:20	Electronic minimum supply temperature limit 68°F (20°C) (only in operation at standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 34 to 260°F (1 to 127°C).
C6:75	Electronic maximum supply temperature limit set to 167°F (75°C).	C6:10 to C6:127	Maximum limit adjustable from 50 to 260°F (10 to 127°C).
C8:31	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 No room influence limit.	C8:1 to C8:30	Room influence limit adjustable from 1 to 30 K.
D5:0	With external heating program changeover (observe setting of coding address "5D", "5E" and "5F" and "91" in the "General" group): Heating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the settings of the set reduced room temperature).	D5:1	The heating program changes to "Constant operation with standard room temperature".

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

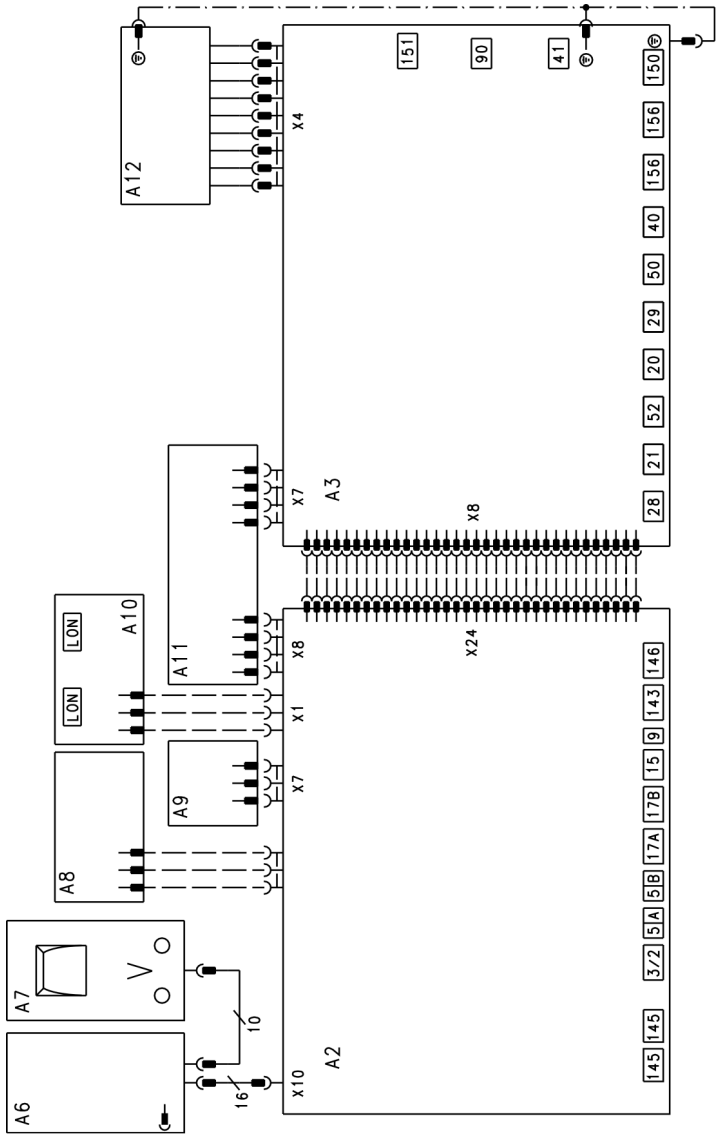
"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
D8:0	No heating program changeover via extension EA1	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension EA1.
		D8:3	Heating program changeover via input DE3 at extension EA1.
E1:1	With remote control: Set day temperature adjustable at the remote control unit from 50 to 86°F (10 to 30°C).	E1:0	Set day temperature adjustable from 37 to 73°F (3 to 23°C).
		E1:2	Set day temperature adjustable from 63 to 99°F (17 to 37°C).
E2:50	50 With remote control: No display correction of the actual room temperature.	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
F1:0	Do not adjust.	--	--
F2:8	Time limit for party mode or external heating program changeover via push button: 8 h*1. **Note:** Observe settings of coding addresses "5D", "5E", "5F" in the "General" group, as well as "D5" and "D8" in the "Heating circuit..." group.	F2:0	No time limit*1.
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1.
F8:-5	Temperature limit for raising reduced mode 23°F (-5°C); see example on page 115. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from +50 to -76°F (+10 to -60°C).
		F8:-61	Function disabled.
F9:-14	Temperature limit for raising the reduced set room temperature 7°F (-14°C); see example on page 115.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76°F (+10 to -60°C).
FA:20	Raising the set boiler water or supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 115.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %.
FB:30	Duration for raising the set boiler water or supply temperature (see coding address "FA") 60 min. See example on page 115	FB:0 to FB:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

*1 Party mode ends automatically in the "Heating and DHW" heating program when the system changes over to operation with standard room temperature.

Connection and Wiring Diagram

Overview

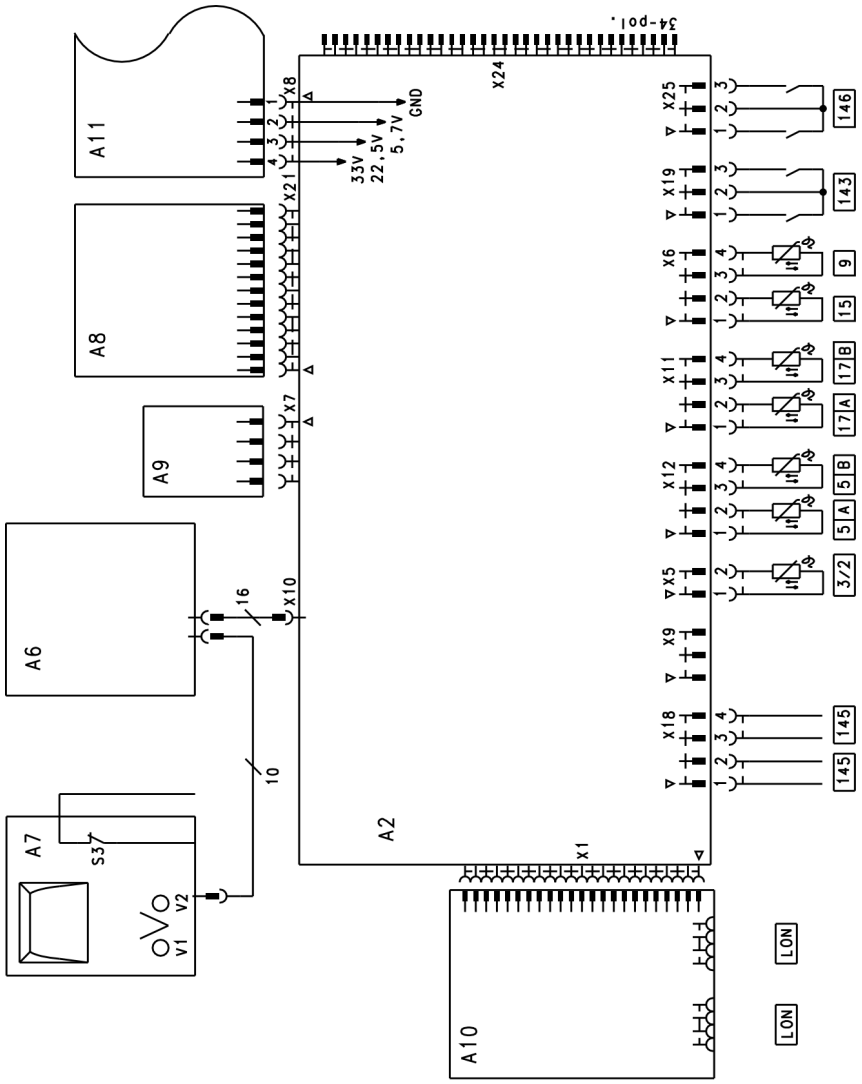


Legend

A2 Main PCB low voltage
A3 Main PCB 120V ~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A9 Boiler coding card
A10 LON communication module (accessory)
A11 Power supply unit PCB
A12 Boiler control section
X Electrical interfaces

Connection and Wiring Diagram *(continued)*

Main PCB low voltage



Legend

3	Boiler water temperature sensor
5 A	No Function
5 B	No Function
9	No Function
15	Flue gas temperature sensor
17 A	Therm-Control temperature sensor or Return temperature sensor T1
17 B	Return temperature sensor T2
143	External hook-up
145	KM BUS participant
146	External hook-up
LON	Connecting cable for data exchange (accessory)
S3	Emissions test switch "🔧"
V1	Fault indicator (red)
V2	ON indicator (green)
X	Electrical interfaces

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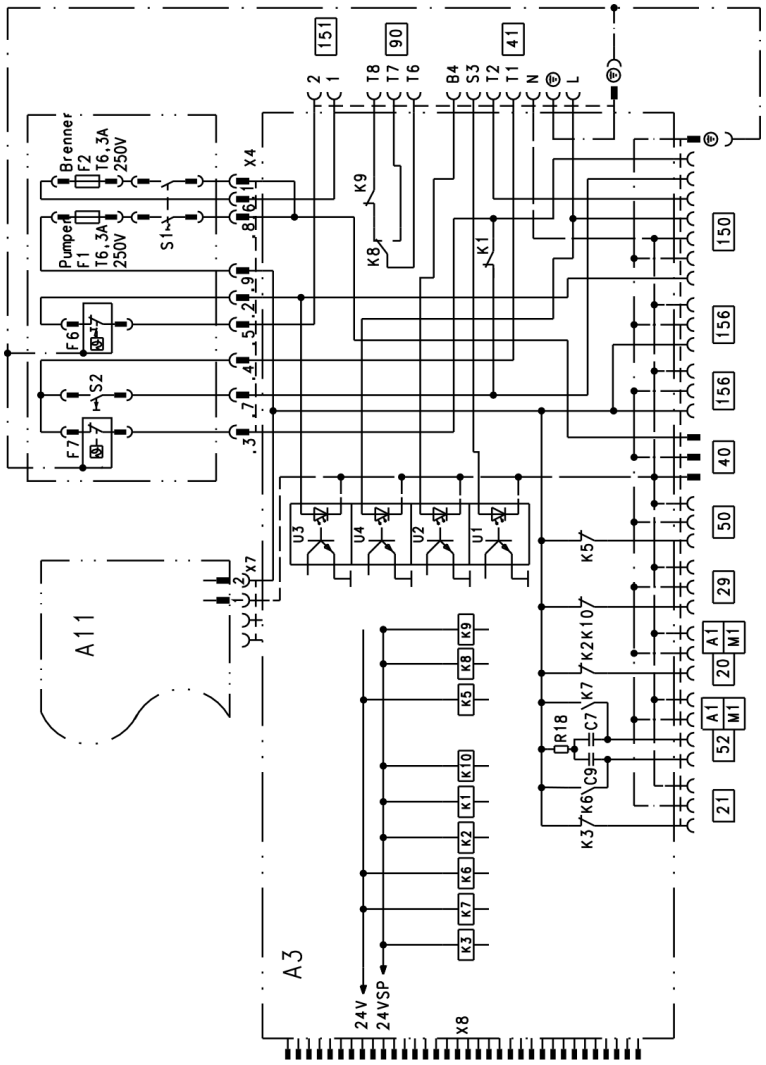
Connection and Wiring Diagram *(continued)*

Main PCB 120 V~

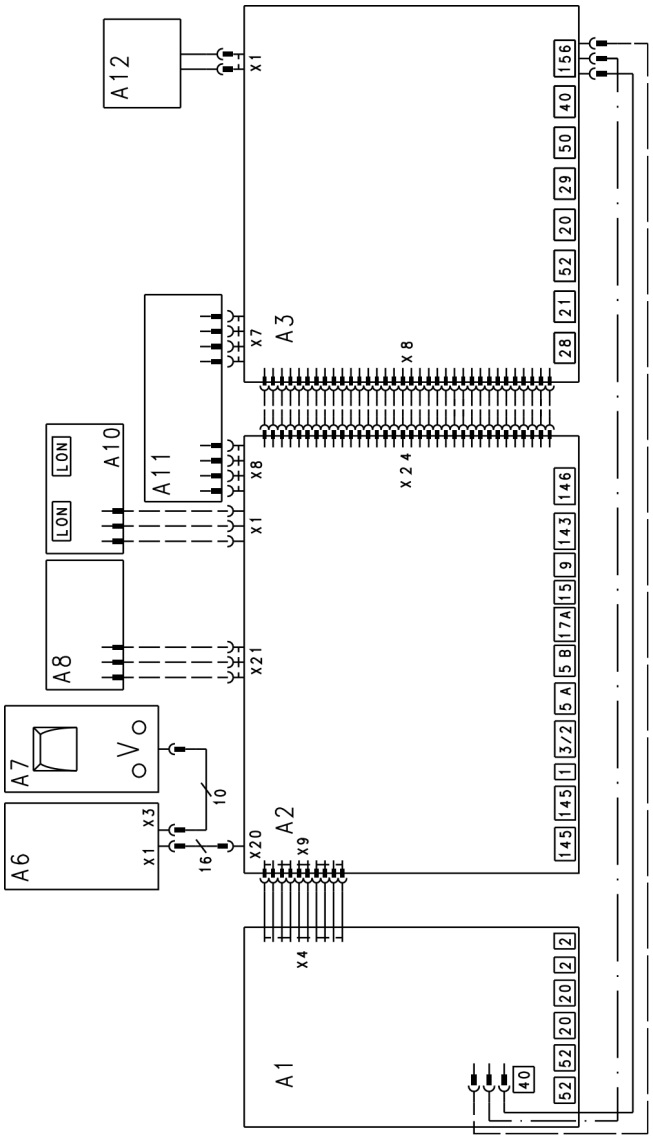


Legend

20	Circulation pump – flue gas/water heat exchanger or Switching output	150	External connections (remove jumper when connecting) ⓐ External safety equipment ⓑ External blocking
21	No Function	151	Safety chain (floating)
29	Shunt pump or boiler circuit pump (on site)	156	Power supply connection for accessories
40	Power supply, 120V/60 Hz	F1, F2	Fuse
41	Oil/gas burners	F6	Fixed high limit "⇧"
50	Central fault message	F7	Adjustable high limit
52	Motorized isolation valve or Motor, 3-way mixing valve, return temperature control	K1-K10	Relay
		S1	ON/OFF switch
		S2	TEST key
90	Burner stage 2/modulating	X	Electrical interfaces

Connection and Wiring Diagram

Overview

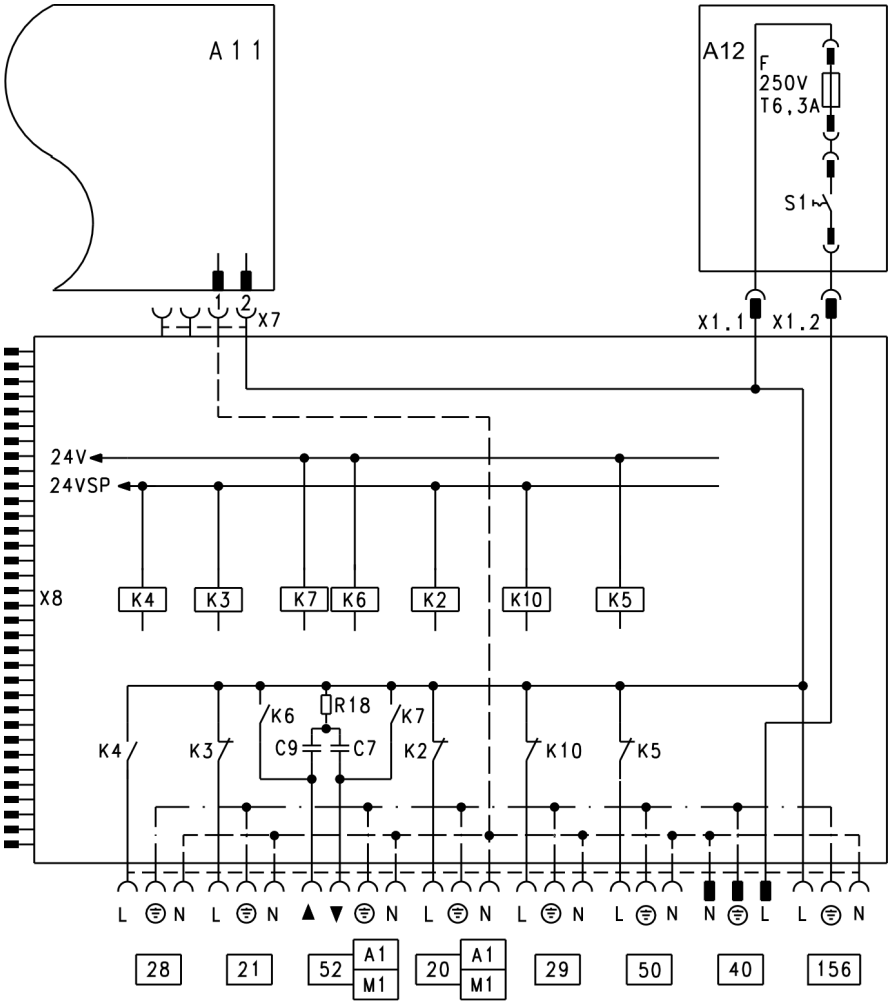


Legend

A1 PCB, extension for heating circuits 2 and 3 with mixing valve
A2 PCB low voltage
A3 PCB 120V~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A10 LON communication module (accessory)
A11 Power supply unit PCB
A12 ON/OFF switch
X Electrical interfaces

Connection and Wiring Diagram *(continued)*

PCB 120V~

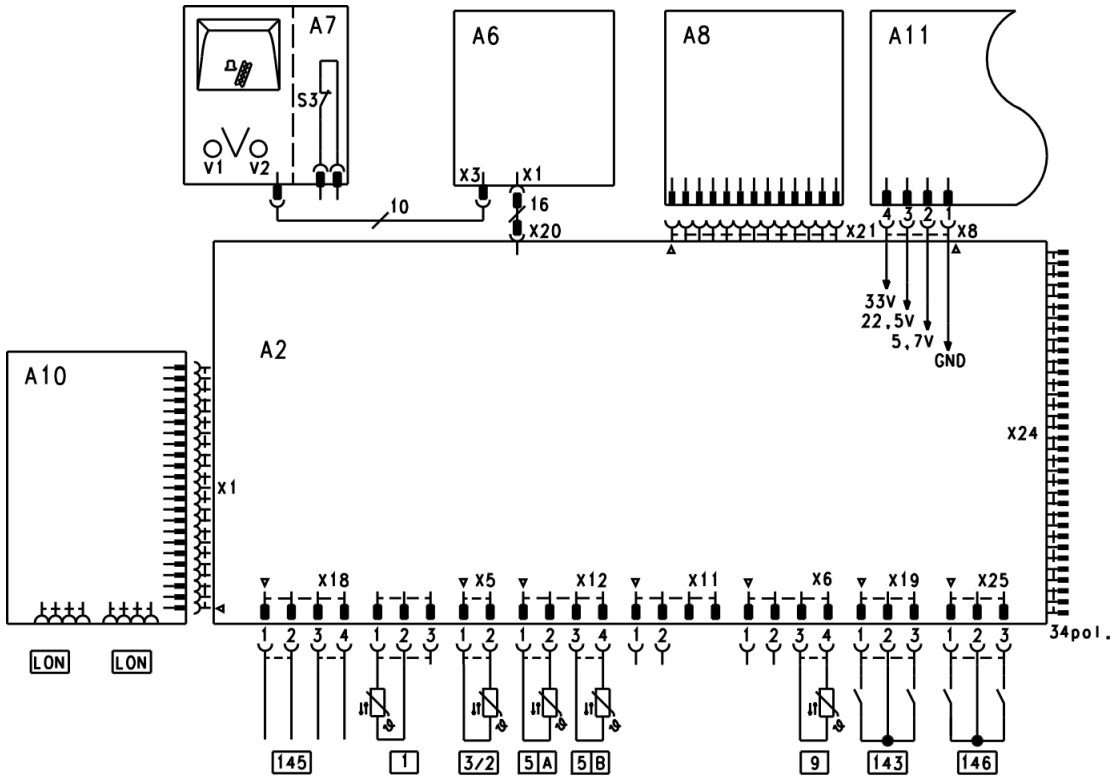


Legend

20	Heating circuit pump
21	Circulation pump for DHW tank heating (accessory)
28	DHW recirculation pump (on site)
29	Shunt pump or distribution pump (on site)
40	Power supply, 120V/60 Hz
50	Central fault message
52	Motor for 3-way mixing valve, primary store system (optional accessory) (Not Used)
156	Power supply connection for accessories
F	Fuse
K1-K10	Relay
S1	ON/OFF switch
X	Electrical interfaces

Connection and Wiring Diagram *(continued)*

PCB low voltage



Legend

1	Outside temperature sensor	143	External hook-up
2	Supply temperature sensor	145	KM BUS participant
5 A	DHW tank temperature sensor	146	External hook-up
5 B	DHW tank temperature (sensor 2 for primary store system optional accessory) (Not Used)	LON	Connecting cable for data exchange (accessory)
		S3	Emissions test switch "🧹"
9	No Function	V1	Fault indicator (red)
17 B	Return temperature sensor T2 or Temperature sensor primary store system (optional accessory) (Not Used)	V2	ON indicator (green)
		X	Electrical interfaces

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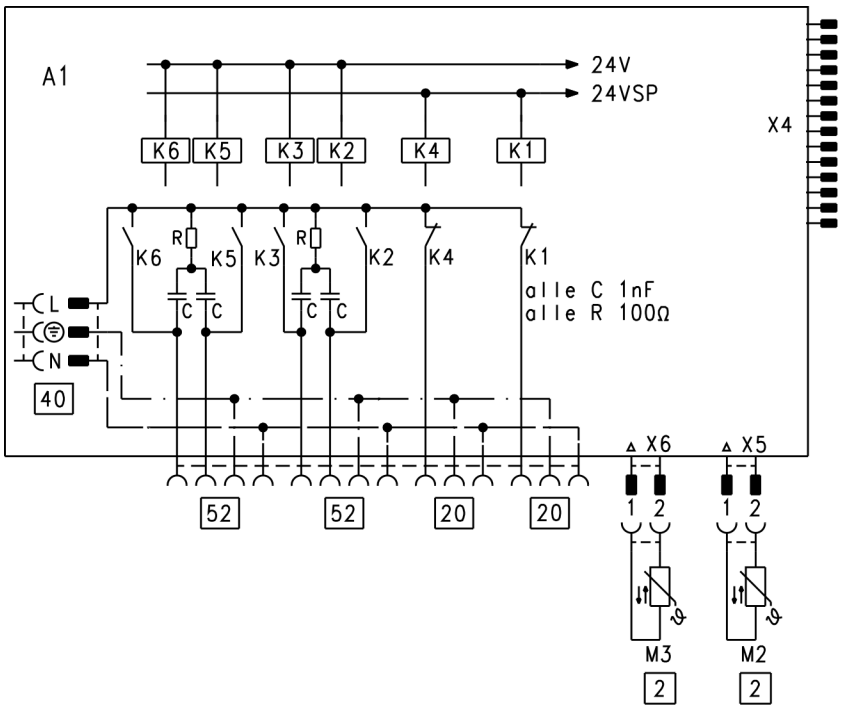
Connection and Wiring Diagram *(continued)*

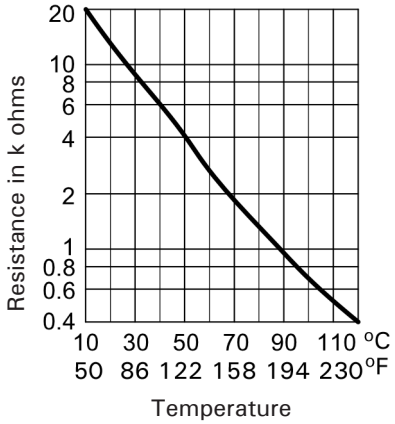
PCB, extension for heating circuits 2 and 3 with mixing valve



Legend

2	Supply temperature sensors
20	Heating circuit pumps
40	Power supply
52	Mixing valve motors
K1-K6	Relay
X	Electrical interfaces

Sensors



Boiler water, DHW tank, supply, return and room temperature sensors

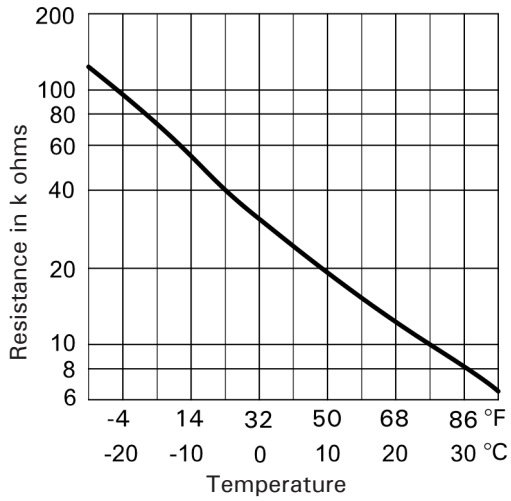
Boiler water, DHW tank, supply, return and room temperature sensors

Note:

- The supply temperature sensor can be used as a contact or immersion temperature sensor.
  Note: The supply temperature sensor in the mixing valve extension kit is a contact temperature sensor.

Viessmann NTC 10 kΩ (blue identification)

1. Pull corresponding plug.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, check the installation and replace the sensor if required.

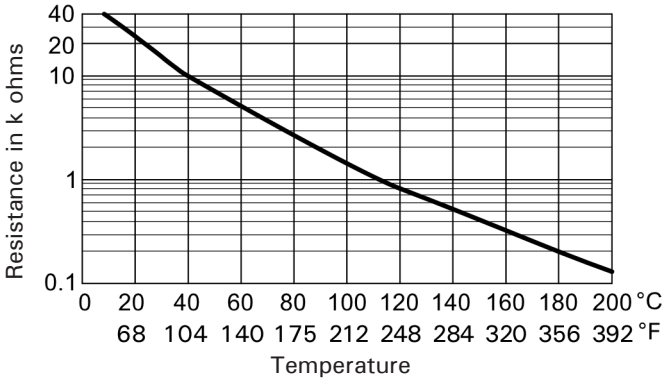


Outside temperature sensor

Outside temperature sensor

Viessmann NTC 10 kΩ (blue identification)

1. Pull plug 1.
2. Check the sensor resistance across plug terminals “1” and “2” and compare with the curve.
3. If the results are very different from the curve, disconnect the wires from the sensor and repeat the test on the sensor.
4. Depending on the result, replace the lead or the outside temperature sensor.



Flue gas temperature sensor

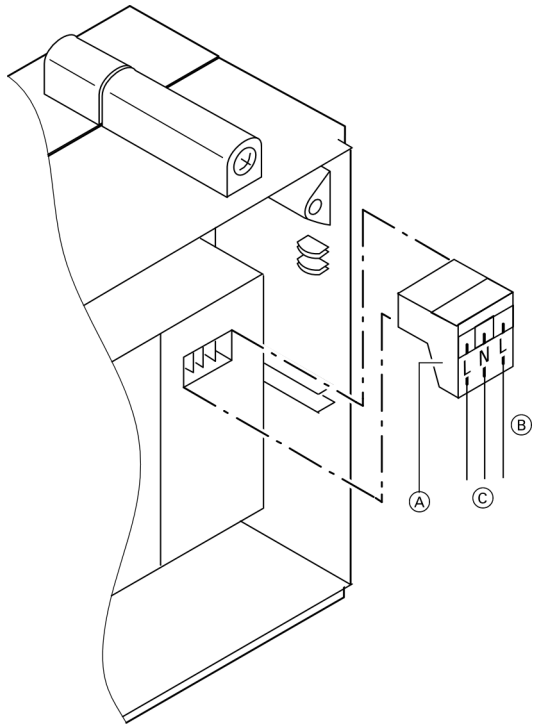
Flue gas temperature sensor

Viessmann NTC 20 kΩ (orange identification)

When a limit entered in the Vitotronic 100 is reached (see coding address “1F” in group 2 “Boiler”), a service message appears.

1. Disconnect plug 15.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, check the installation and replace the sensor if required.

Mixing Valve Motor Kit



▲ Mixing valve “Open”
▼ Mixing valve “Closed”

Legend
Ⓐ Mixing valve plug
Ⓑ Field wiring
Ⓒ Connection to mixing valve adaptor

Components:
- Mixing valve motor (not for flanged mixing valve)
- Connecting plug for the heating circuit pump
- Supply temperature sensor as contact temperature sensor for measuring the supply temperature, with connecting cable 19 ft. (5.8 m) long.

Changing the rotational direction (if required)

1. Insert 3-pin plug Ⓐ in the mixing valve motor rotated through 180°.
2. Check the rotational direction.

Manual mixing valve adjustment

Lift the motor lever, unhook the mixing valve handle and pull plug Ⓐ.

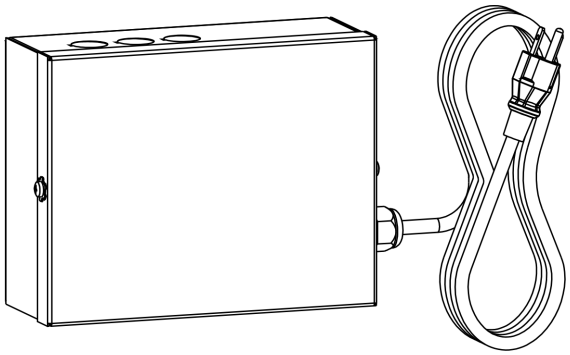
Specification mixing valve motor

Rated voltage	120V~
Rated frequency	60 Hz
Power consumption	4 W

Permissible ambient temperature

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

Extension EA1 Accessory (optional)



Digital data inputs DE1 to DE3

Functions:

- External heating program changeover, separate for heating circuits 1 to 3
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW recirculation pump

When connecting external contacts, observe the requirements of safety category II, i.e. 8.0 mm air-gap and creep path or maintain a 2.0 mm insulation thickness against 'live' parts.

Input function assignment

Select the input functions by means of the following codes in the "General" group at the boiler control unit:

- DE1: Coding address "5D"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Assigning the heating program changeover function to the heating circuits

The allocation of the heating program changeover to the relevant heating circuit is selected via coding address "D8" in the "Heating circuit..." group:

- Code "D8:1": Changeover via input DE1
- Code "D8:2": Changeover via input DE2
- Code "D8:3": Changeover via input DE3

The effect of the heating program changeover is selected via coding address "D5" in the "Heating circuit..." group.

Duration of the heating program changeover

- Contact constantly closed:
  The changeover is active as long as the contact is closed.
- Contact only closed briefly via push button:
  The changeover is enabled for the time selected in coding address "F2" in the "Heating circuit..." group.

DHW circulation pump runtime for brief operation

The DHW recirculation pump can be started outside the times when it is enabled according to the time program.

The DHW recirculation pump is started by closing the contact at DE1, DE2 or DE3 by means of a push button. The runtime is adjusted via coding address "3D" in the "General" group.

Analogue input 0–10V

The 0–10V hook-up provides an additional set boiler water temperature:

0–1V Is taken as "no default for set boiler water temperature".

Note: Ensure DC separation between the LV output and the earth conductor of the onsite voltage source.

Coding address "1E" in the "General" group:

- "1E:0" ≙ temperature demand adjustable in the range from 32 to 212°F (0 to 100°C) 1V ≙ 50°F (10°C) set value change 10V ≙ 212°F (100°C) set value change
- "1E:1" ≙ temperature demand adjustable in the range from 86 to 248°F (30 to 120°C) 1V ≙ 86°F (30°C) set value change 10V ≙ 248°F (120°C) set value change

Output 157

Connection of a central fault messaging facility or signalling reduced mode (reduction of the heating circuit pump speed).

Select the function of output 157 via coding address "5C" in the "General" group.

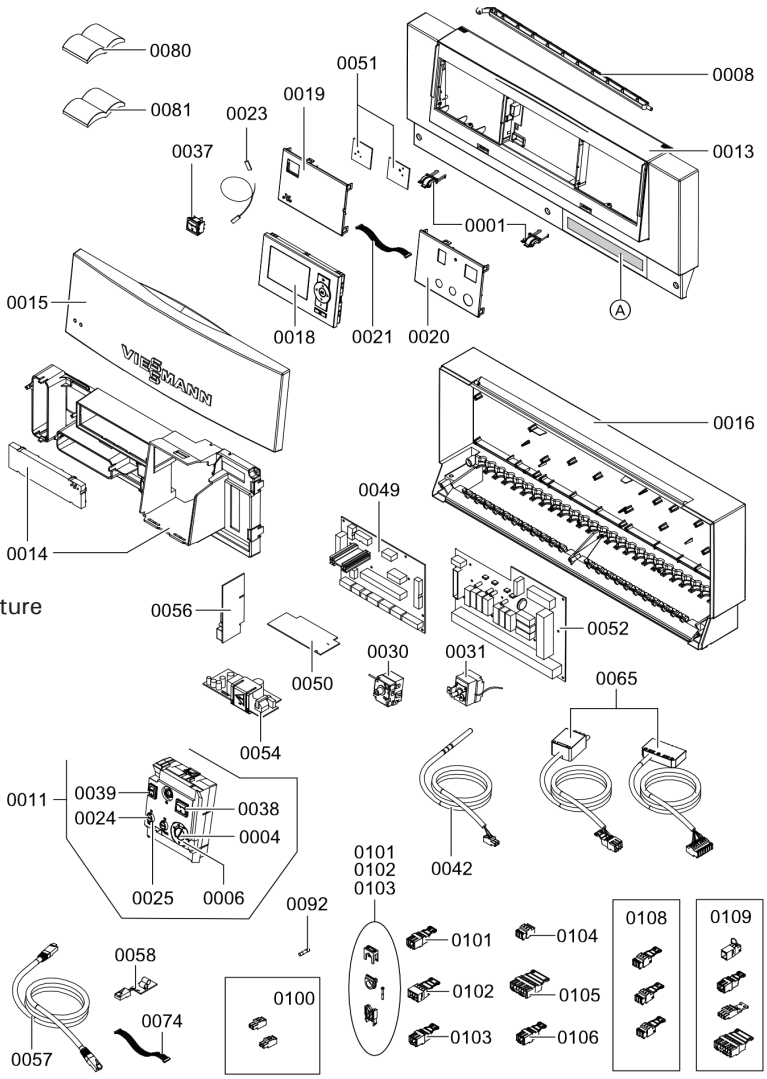
Refer to the EA1 module Installation Instructions

Parts List Vitotronic 100

Ordering Replacement Parts:
Please provide model no. and serial no. from rating plate Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.

Parts

0001 Hinges
0004 Adjustable high limit rotary selector
0006 Adjustable high limit stop dial
0008 Supporting stay
0011 Safety valve with wiring
0013 Casing front with frame (see positon 001)
0014 PCB cover
0015 Front flap
0016 Rear section of enclosure
0018 Programming unit
0019 Fascia left
0020 Fascia right
0021 Ribbon cable, 10-pole
0023 Connecting cable, emissions test switch
0024 Fuse holder cap for control fuse
0025 Fuse holder for control fuse
0030 Fixed high limit
0031 Adjustable high limit
0037 Emissions test switch, 1-pole
0038 ON/OFF switch, 2-pole
0039 Push button, single-pole (test key “TÜV”)
0042 Temperature sensor (boiler water temperature sensor or DHW tank temperature sensor)
0049 Main PCB low voltage
0050 PCB
0051 Optolink PCB and emissions test switch
0052 Main PCB 120V~
0054 Power supply unit PCB
0056 LON communication module
0057 LON connecting cable
0058 LON terminator
0065 Burner connecting cable with plug [41] and burner connecting cable with plug [90]
0074 Connecting cable, 16-pole
0080 Installation and service instructions
0081 Operating instructions
0092 Fuse 6.3 A (slow)/250V~
0100 Plug for LV (7 pieces)
0101 Plug for pumps (3 pieces)
0102 Plug [52] (3 pieces)
0103 Plug [156] (3 pieces)
0104 Power supply plug [40] (3 pieces)
0105 Plug [150]
0106 Plug [50] (3 pieces)
0108 Plugs [143], [145], [146]
0109 Burner plugs [41], [90], [151] and [191]
Ⓐ Rating plate



Parts List Vitotronic 300-K

Part No.	Serial No.
7533388	7514784□□□□□□□□□

Please provide Serial Number Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.

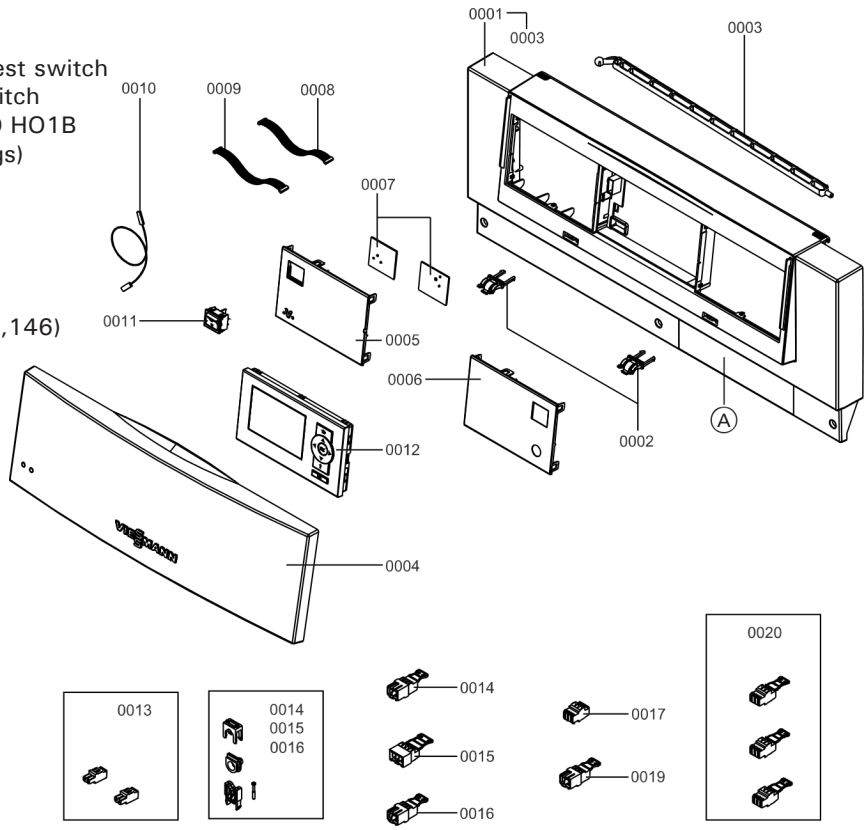
Parts for Operating Enclosure Assembly

0001 Housing, front with support arm
0002 Hinges for control housing (set of 2)
0003 Support arm
0004 Flip-down cover
0005 Cover panel, left
0006 Cover, right with fuse
0007 Circuit boards SA142/143 for emissions test switch and for Optolink
0008 Flat cable, 10-pole
0009 Flat cable, 16-pole
0010 Connecting cable for emissions test switch
0011 Switch, 1-pole emissions test switch
0012 Programming unit, Vitotronic 200 HO1B
0013 Accessory pack (low voltage plugs)
0014 3-Pole plug, male, #20 (set of 3)
0015 4-Pole plug, #52 (set of 3)
0016 3-Pole plug, #156 (set of 3)
0017 3-Pole plug, #40 (set of 3)
0019 3-Pole plug, #50 (set of 3)
0020 Accessory pack (plugs #143,145,146)

Other Parts (not illustrated)

0100 Technical Literature Set
0101 Installation Instructions
0102 Operating Instructions
0103 Parts List
0104 Wiring Diagram

Ⓐ Rating plate with serial number

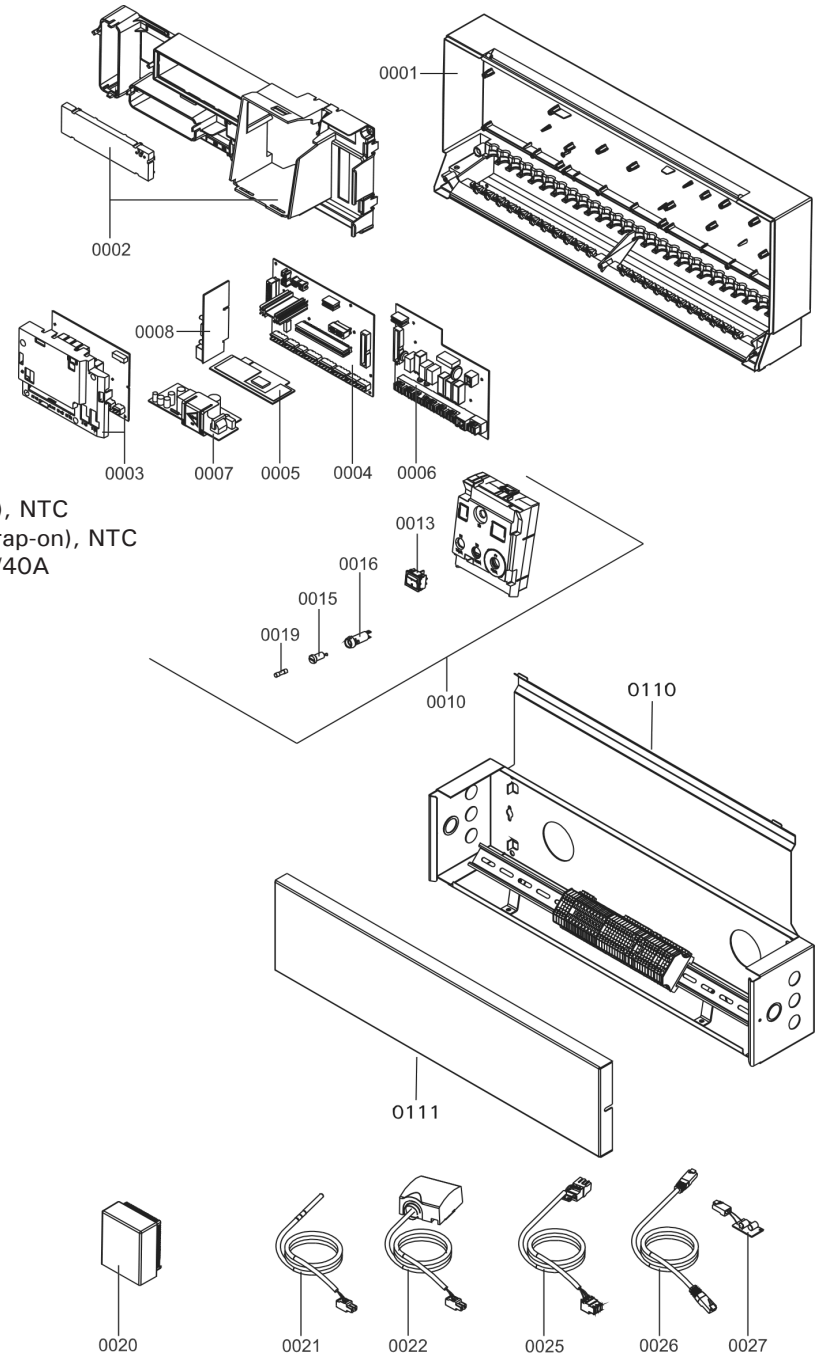


Parts List Vitotronic 300-K *(continued)*

Part No.	Serial No.
7533388	7514784□□□□□□□□□□

Parts for Connection Enclosure Assembly

0001	Housing, back
0002	Motherboard, cover
0003	Extension module MV 2 + 3
0004	Motherboard MB200
0005	Circuit board CU102 for software
0006	Motherboard (line voltage, MB202)
0007	Circuit board SP102-A20 NRX for power supply
0008	LON communication module
0010	Control panel (wired, 120/1/60)
0013	Switch, 2-pole (on/off)
0015	Fuse holder cover
0016	Fuse holder
0019	Fuse, T6.3A/250V (set of 10)
0020	Outdoor temperature sensor, NTC
0021	DHW temperature sensor (immersion), NTC
0022	Supply/return temperature sensor (strap-on), NTC
0025	Connecting cable, HC-extension 156/40A
0026	LON Connecting cable (7m), RJ45
0027	LON terminal end resistor (set of 2)
0110	Electrical box
0111	Cover panel for electrical box



Specification Vitotronic 100 AND 300-K

Vitotronic 100

Rated voltage	120V~
Rated frequency	60 Hz
Rated current	2 x 6A
Power consumption	10 W
Protection class	I
IP rating	IP 20 D to EN 60529, ensure through design/installation

Permiss. ambient temperature

- During operation: 32 to 104°F (0 to +40°C) Installation in living spaces or boiler rooms (standard ambient conditions)
- During storage and transport -4 to 149°F (-20 to +65°C)

Rated relay output breaking capacity at 120V~

20	Circulation pump – flue gas/water heat exchanger or Switching output	2A~ *3
29	Shunt pump/boiler circuit pump	2A~ *3
50	Central fault message	2A~ *3
52	Isolation valve or Motor, 3-way mixing valve, return temperature control	0.1A~ *3
41	Burner plug	3A~
90	Burner plug (two-stage)	0.5A~
90	Burner plug (modulating)	0.1A~

*3 Total max. 6 A~

Vitotronic 300-K

Rated voltage	120V~
Rated frequency	60 Hz
Rated current	6A
Power consumption	10 W

Permiss. ambient temperature

- During operation: 32 to 104°F (0 to +40°C) Installation in living spaces or boiler rooms (standard ambient conditions)
- During storage and transport -4 to 149°F (-20 to +65°C)

Rated relay output breaking capacity at 120V~

20	Heating circuit pump or Primary pump, primary store system	2A~ *2
20	M2 Mixing valve circuit M2 pump	2A~ *2
20	M3 Mixing valve circuit M3 pump	2A~ *2
21	Circulation pump for DHW tank heating	2A~ *2
28	DHW recirculation pump	2A~ *2
29	Shunt pump/distribution pump	2A~ *2
50	Central fault message	2A~ *2
52	Mixing valve motor, extension kit, mixing valve or Motor, 3-way mixing valve, return temperature control or Motor, 3-way mixing valve, primary store system	0.1A~ *2
52	M2 Mixing valve actuator circuit M2	0.1A~ *2
52	M3 Mixing valve motor, extension kit, mixing valve	0.1A~ *2

*2 Total max. 6A~ (shared between all 120V outputs)

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