

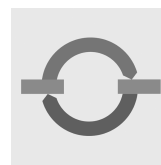
Installation and service instructions

for contractors

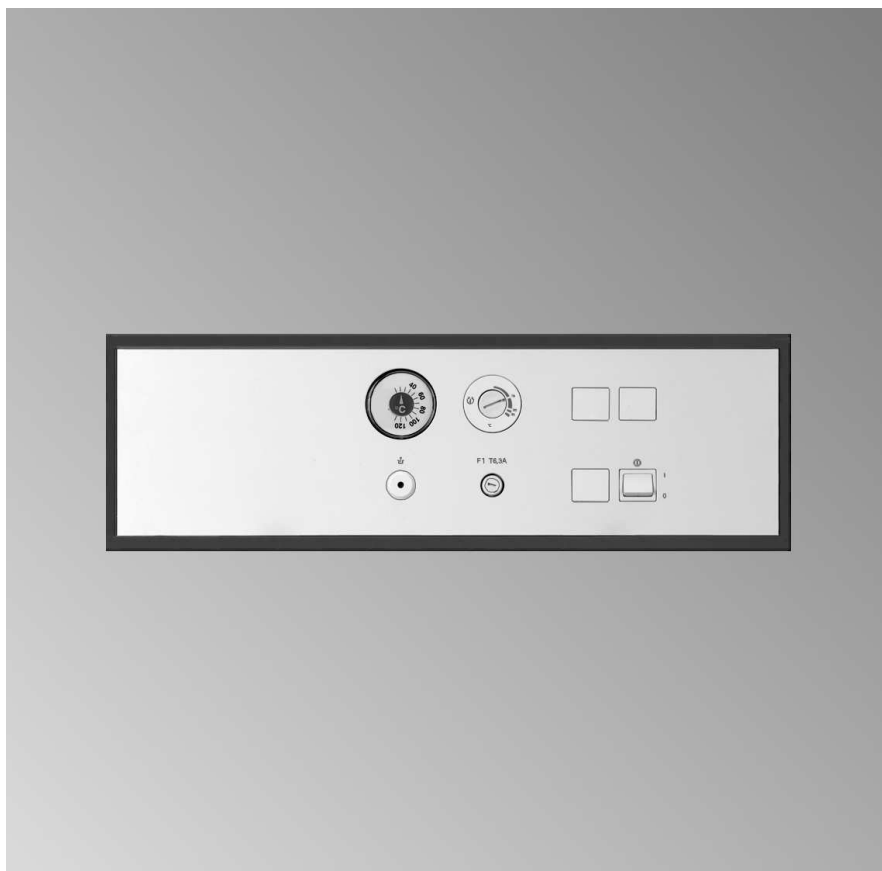
VIESSMANN

Vitotronic 100
Type GC3
Boiler control unit

For applicability, see the last page



VITOTRONIC 100



Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

This symbol warns against the risk of material losses and environmental pollution.

Note

Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.

- Work on gas equipment must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,

- the Code of Practice of relevant trade associations,
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards.

If you smell gas



Danger

Escaping gas can lead to explosions which may result in serious injury.

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

If you smell flue gas



Danger

Flue gas can lead to life-threatening poisoning.

- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors leading to the living space.

Safety instructions (cont.)

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a mains isolator.
- Safeguard the system against unauthorised reconnection.



Please note

Electronic modules can be damaged by electro-static discharges. Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components which fulfil a safety function can compromise the safe operation of your heating system. Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts



Please note

Spare and wearing parts which have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications/conversion can compromise safety and may invalidate our warranty. For replacements, use only original spare parts from Viessmann or those which are approved by Viessmann.

Index

Installation instructions

Preparing for installation

Heating system designs	5
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Installation sequence

Opening/closing the control unit	7
Summary of electrical connections	8
Inserting cables	9
Control thermostat	9
Changing the high limit safety cut-out setting (if required)	9
Connecting the external safety equipment	11
Burner connection	11
Power supply	12

Service instructions

Commissioning, inspection, maintenance	14
--	----

Commissioning

Testing the high limit safety cut-out	14
---	----

Troubleshooting

Diagnostic system	15
-------------------------	----

Designs

Connection and wiring diagram	16
-------------------------------------	----

Components

Components from the parts list	17
--------------------------------------	----

Parts lists

Parts list	18
------------------	----

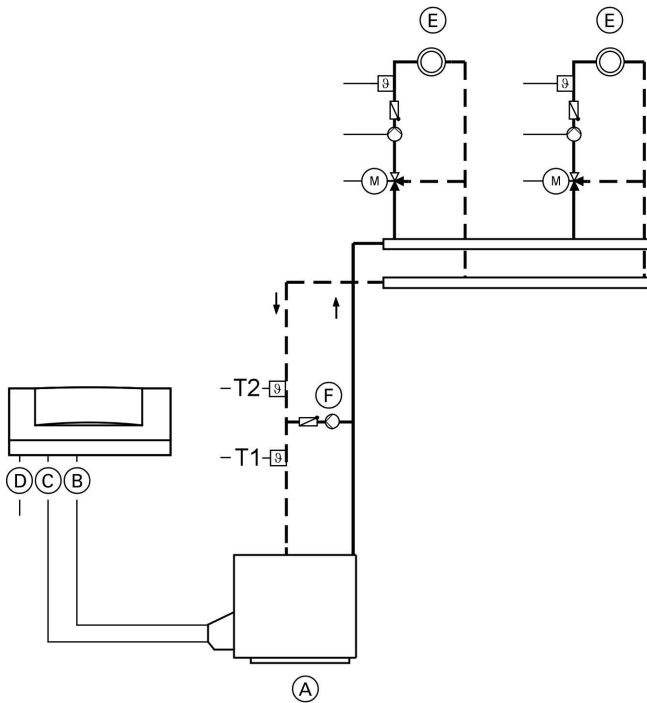
Specification	20
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Keyword index	21
---------------------	----

Heating system designs

System version 1

Return temperature raising facility with shunt pump



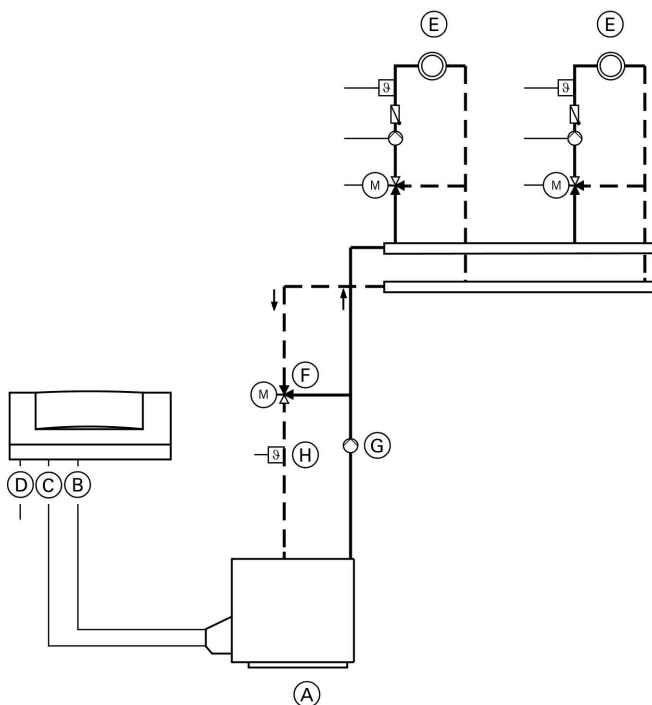
- (A) Boiler with Vitotronic 100, type GC3
- (B) Burner stage 2
- (C) Burner stage 1
- (D) Power supply, 230 V/50 Hz
- (E) Heating circuit with mixer (on-site)
- (F) Shunt pump (on-site)

- T1 Thermostat for closing the mixers if the return temperature at T1 falls below 60 °C (on site)
- T2 Thermostat for switching the shunt pump:
Shunt pump ON if return temperature at T2 falls below 65 °C (on site)

Heating system designs (cont.)

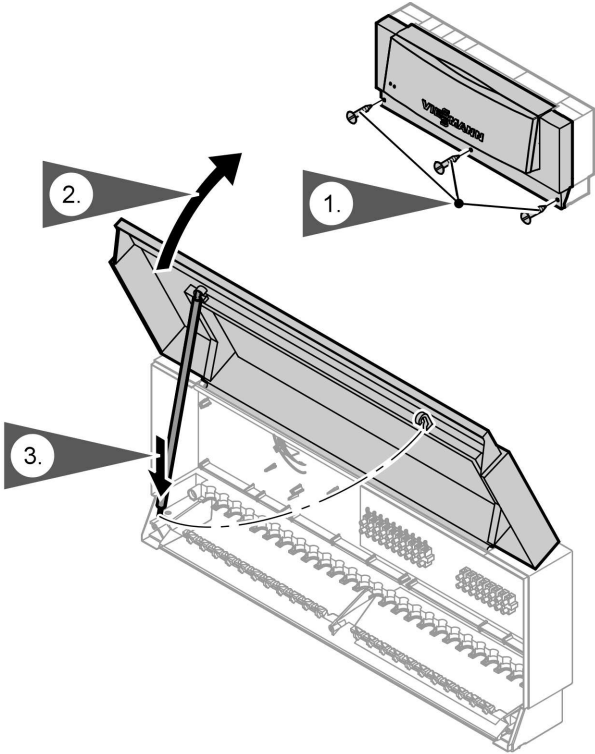
System version 2

Return temperature raising facility with shunt pump and three-way mixing valve



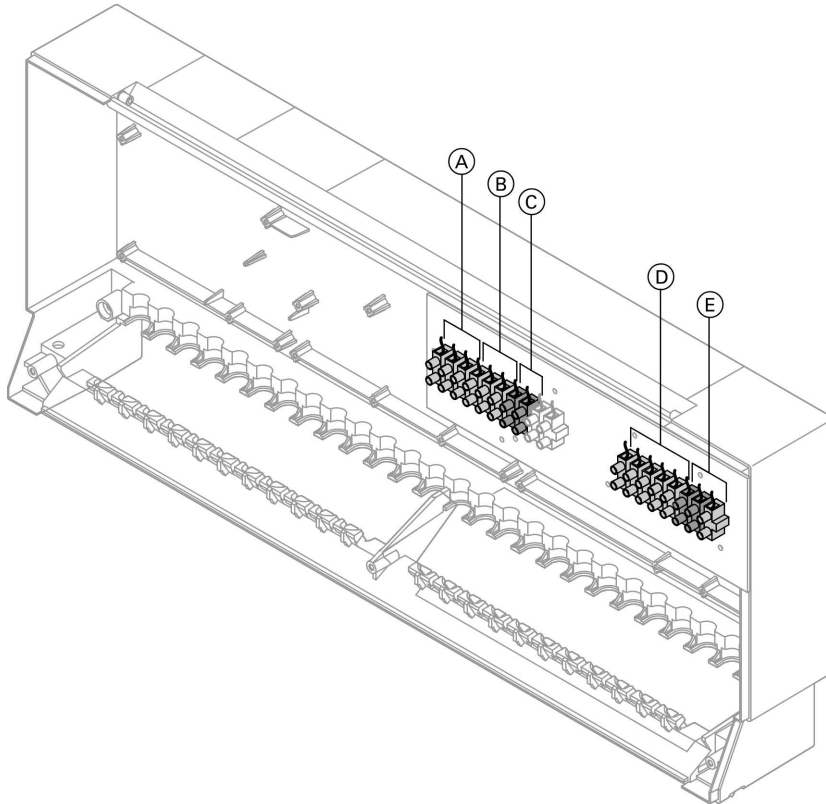
- (A) Boiler with Vitotronic 100, type GC3
- (B) Burner stage 2
- (C) Burner stage 1
- (D) Power supply, 230 V/50 Hz
- (E) Heating circuit with mixer (on-site)
- (F) Mixer motor for raising the return temperature (on-site)
- (G) Boiler circuit pump (on-site)
- (H) Temperature sensor for raising the return temperature to 65 °C (on-site)

Opening/closing the control unit



Installation

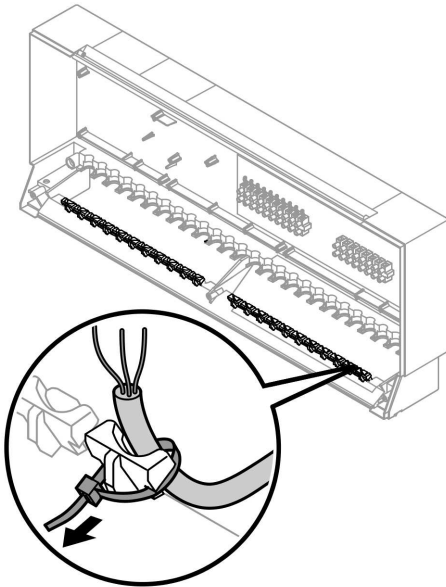
Summary of electrical connections



Terminals:

- Ⓐ Power supply connection 230 V/
50 Hz
- Ⓑ Burner stage 2
- Ⓒ Switching contact for "enable
burner"
- Ⓓ Burner stage 1
- Ⓔ External safety equipment
(230 V~)

Inserting cables



Control thermostat

The control thermostat is supplied with a factory setting of 75 °C.

When adjusting the high limit safety cut-out to 100 °C, do **not** adjust the control thermostat **above** 75 °C.

Burner note

Burner stage 2 switches ON and OFF 5 K below burner stage 1.

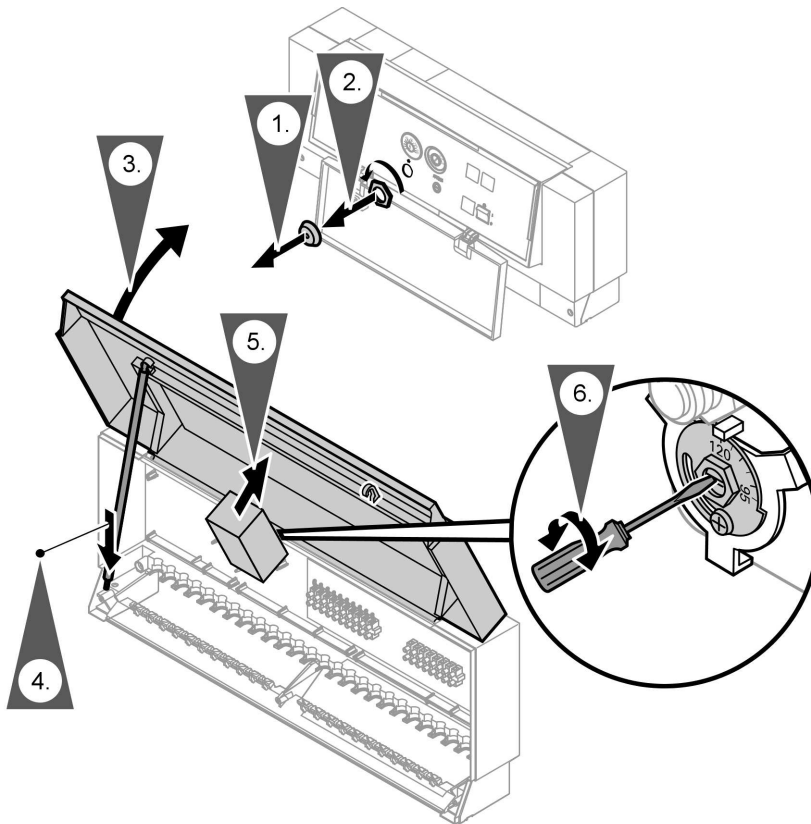
Changing the high limit safety cut-out setting (if required)

The high limit safety cut-out is set to 110 °C in the delivered condition.

Installation sequence

Changing the high limit safety cut-out setting (if . . . (cont.)

Conversion to 100 °C

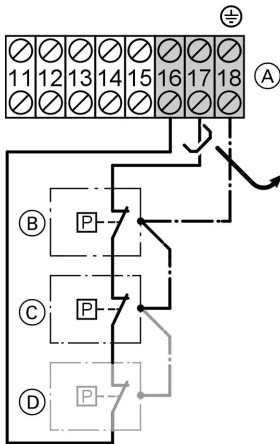


Note

When adjusting the temperature to 100 °C, do **not** adjust the control thermostat above 75 °C.

Connecting the external safety equipment

- !** **Please note**
 'Live' contacts lead to short circuits or phase failure.
 The external connections must be at **zero volt**.



- (A) Terminals inside the control unit
 (B) Low water indicator

- (C) Maximum pressure limiter
 (D) Further safety equipment

1. Remove jumper between terminals "16" and "17".
2. Connect external safety equipment in series.

Burner connection

Make the on-site burner connection. The burner cable is **not** part of the standard delivery.

Recommendation for on-site burner cable:

Stage 1: 5 x 0.75 H05V2V2

Stage 2: 3 x 0.75 H05V2V2

Installation sequence

Power supply

Directives/guidelines

Regulations

Carry out the power supply connection and all earthing measures (i.e. fault current circuit) in accordance with IEC 364, the requirements of your local electricity supply company, VDE or national regulations.

Protect the power supply cable to the control unit with an appropriate fuse.

Main switch requirements (if required)

For DIN VDE 0116 combustion equipment the main switch that is installed on site must comply with the requirements of DIN VDE 0116 "section 6".

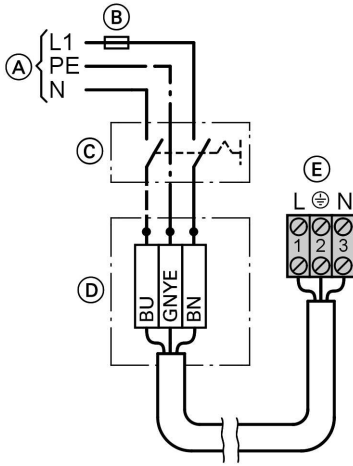
The main switch must be fitted outside the installation room and **all** non-earthed cables must be isolated with contact separation of at least 3 mm at the same time.

Recommended power supply cable

Three-core cable selected from the following options:

- H05VV-F3G 0.75 mm²
- H05RN-F3G 0.75 mm²

Power supply (cont.)



- (A) Power supply 230 V~
- (B) Fuse (on site)
- (C) Mains isolator, two-pole (on-site)
- (D) Junction box (on-site)
- (E) Terminals inside the control unit

1. Check whether the power supply cable to the control unit has appropriate fuse protection.
2. Connect the power supply cable in the on-site junction box.



Danger

Incorrect core terminations can cause severe injuries and damage to the equipment.

Take care not to interchange wires "L1" and "N":

L1 brown

N blue

PE green/yellow

Colour coding in accordance with DIN IEC 60757

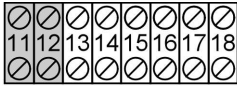
BN brown

BU blue

GNYE green/yellow

Installation

Testing the high limit safety cut-out

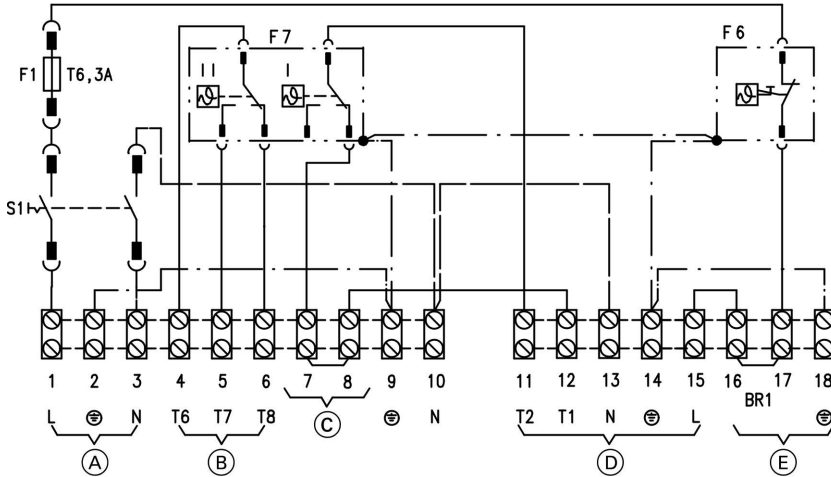


1. Insert jumper (A) between control unit terminals "11" and "12". The thermostat (U) is bypassed. The high limit safety cut-out switches the burner OFF, when the boiler water temperature reaches the safety temperature.
2. Wait until the boiler water temperature has dropped 25 to 30 K below the safety temperature setting.
3. Remove jumper (A) between control unit terminals "11" and "12".
4. Reset the high limit safety cut-out by pressing

Diagnostic system

System characteristics	Cause	Measures
Boiler cold, burner does not start	High limit safety cut-out activated	Checking the high limit safety cut-out
	External safety equipment	<ul style="list-style-type: none"> ■ Check connection ■ Check external safety equipment
	Fuse F1 dropped out/blown	Check connections and burner, and replace fuse if required
	Burner in a fault state	Check the burner

Connection and wiring diagram



F1 Fuse 6.3 A slow, 250 V~

F6 High limit safety cut-out \uparrow 110 °C (100 °C)

F7 Control thermostat \downarrow 75 °C (70 to 100 °C)

S1 ON/OFF switch $\text{\textcircled{I}}$

Terminals

$\text{\textcircled{A}}$ Power supply, 230 V/50 Hz

$\text{\textcircled{B}}$ Burner stage 2

$\text{\textcircled{C}}$ Switching contact for "enable burner" (remove jumper when connecting)

$\text{\textcircled{D}}$ Burner stage 1

$\text{\textcircled{E}}$ External safety equipment (remove jumper when connecting)

Components from the parts list

Fuse

F1: 6.3 A slow, 250 V
Switching capacity H

Max. power loss ≤ 2.5 W, for protecting the overall unit

High limit safety cut-out

- 965.122X6.01A, T&G, DIN STB 98103
- Set to 110 °C in the delivered condition, can be changed to 100 °C (see page 9)
- Electromechanical temperature switch according to the liquid expansion principle with lockout
- Intrinsically safe; also lockout in case of capillary tube leaks or ambient temperatures below -10 °C
- Limits the boiler water temperature to the maximum permissible value by shutdown and lockout
- Main attachment M 10, capillary 3600 mm long, sensor \varnothing 3 mm, 180 mm long
- Electrical testing in accordance with VDE 0701
- Function test via high limit safety cut-out test circuit

Control thermostat

- Type EMF-13-TK/b1, DIN TR 77703
 - Set to 75 °C in the delivered condition, adjustment range 70 to 100 °C
- Note**
Do not set to less than 70 °C, and make upper setting at least 15 K lower than the high limit safety cut-out.
- Electromechanical temperature switch according to the liquid expansion principle
 - Controls the maximum boiler water temperature
 - Two-stage thermostat: Burner stage 2 switches ON or OFF 5 K below burner stage 1
 - 6 mm setting axis (flattened), selector button pushed onto the front of the axis
 - Capillary 3500 mm long, sensor \varnothing 3 mm, 180 mm long
 - Electrical testing in accordance with VDE 0701

Parts lists

Parts list

Spare part ordering notes

Quote the part and serial no. (see type plate (A)) and the item no. of the required part (as per this parts list). Obtain standard parts from your local supplier.

Parts

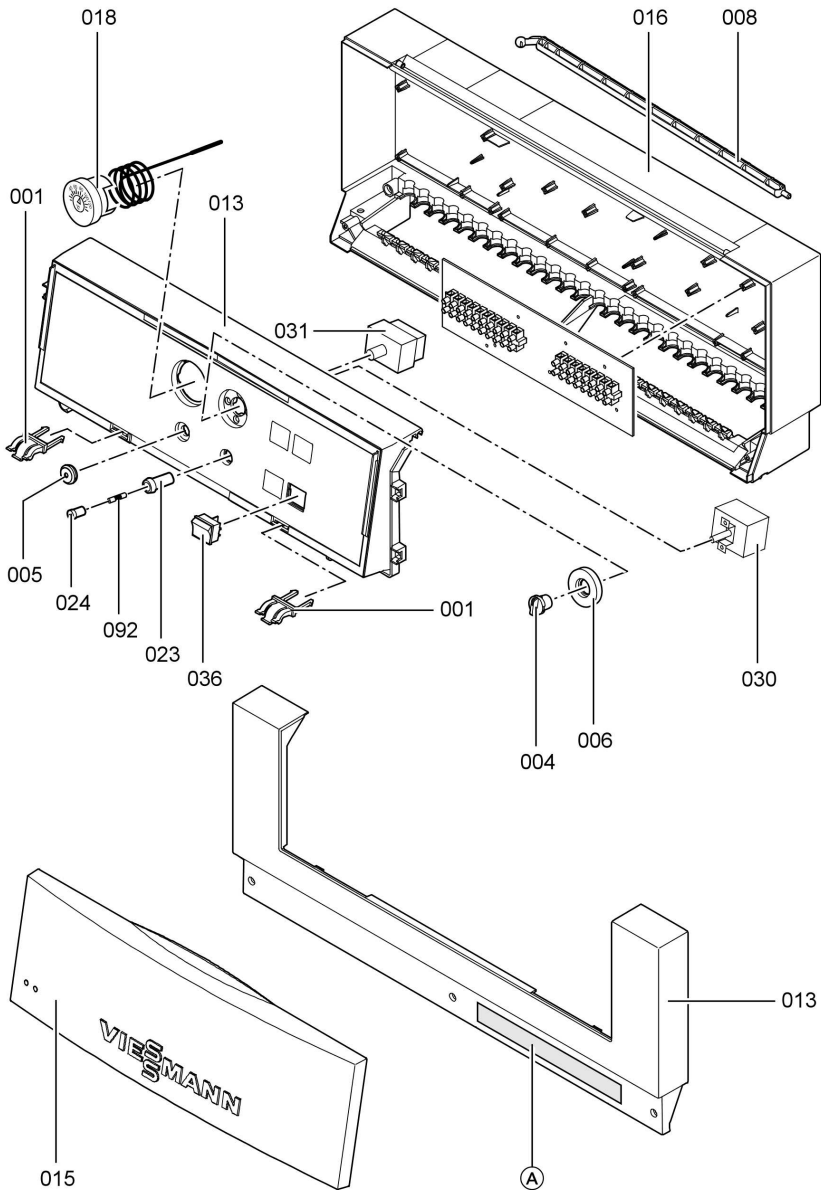
- 008 Supporting stay
- 013 Front casing section with frame
(with item 001)
- 004 Rotary selector for control thermostat
- 005 Cover plug for high limit safety cut-out
- 006 Thermostat stop dial

- 015 Front flap
- 016 Casing back
- 018 Thermometer
- 023 Fuse holder
- 024 Fuse holder cap for control fuse
- 030 High limit safety cut-out
- 031 Control thermostat
- 036 Two-pole switch
- 092 Fuse 6.3 A/250 V~, slow

Parts not shown

- 084 Installation and service instructions
- 081 Operating instructions
- 099 Fixing screw pack

Parts list (cont.)



5862 960 GB

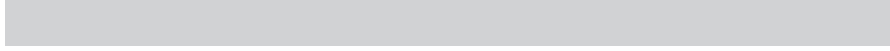
Specification

Specification

Rated voltage	230 V~	Rated capacity of outputs at 230 V~
Rated frequency	50 Hz	■ Burner stage 1 4 (2) A~
Rated current	6 A~	■ Burner stage 2 1 (0.5) A~
Protection class	I	■ Total max. 6 A~
Protection	IP 30 to EN 60529, safe- guard through ap- propriate design and installation	
Function	Type 1 B to EN 60730-1	
Permiss. ambient temperature		
■ during opera- tion	0 °C to + 40 °C Installation in the living space and boiler rooms (standard ambient temperature)	
■ during storage and transport	-20 °C to + 65 °C	

Keyword index

B		M	
Burner.....	8	Main switch.....	12
C		O	
Commissioning.....	14	Opening/closing the control unit.....	7
Components.....	17	P	
Connection and wiring diagram.....	16	Parts list.....	17
Connections.....	8	Parts lists.....	18
Control thermostat.....	17	Power supply.....	12
E		Power supply cable.....	12
Electrical connections.....	8	Power supply connection.....	8
External safety equipment.....	8	S	
H		Safety equipment.....	8
Heating system versions.....	5	Spare parts.....	18
High limit safety cut-out		Specification.....	20
■ Changing.....	9	System versions.....	5
■ Technical data.....	17	T	
■ Testing.....	14	Terminals.....	8
I		W	
Inserting cables.....	9	Wiring diagram.....	16
Installation information.....	5		



Applicability

Product information/applicability

Vitotronic 100, type GC3

Only for integration/installation in/on
Viessmann boilers.

Applicable to control units

Part no. 7243 275

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