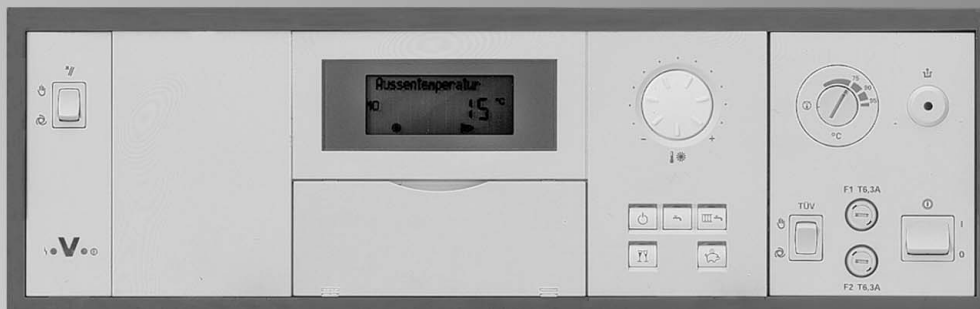


Datasheet

Part numbers and prices: see the respective boiler pricelist



File in
Vitotec folder, register 18



VITOTRONIC 200 Type GW1

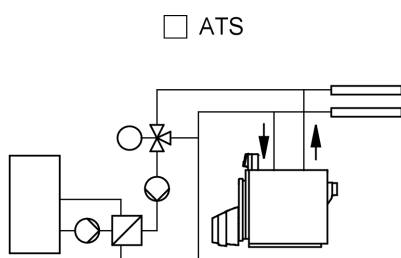
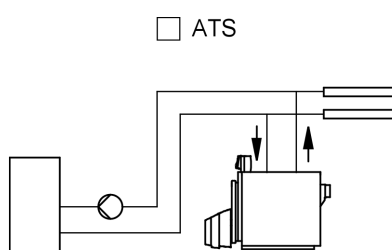
For operation with modulating boiler water temperature.
For two-stage or modulating burners.
For heating systems with one system circuit.
With cylinder temperature control or control unit of a cylinder primary system with mixer assembly.
With integral diagnostics system.
Programming unit with illuminated plain text display.
External equipment is connected via system plugs.

Benefits

- Uniform, simple operation:
 - Different control levels for system user and heating contractor
 - Easy to read through generously sized, illuminated plain text displays
 - Illuminated operating mode selector keys
 - Easy setting of switching times
 - Digital time switch for individual and 7-day programs. When your program is changed, the set times for DHW heating and circulation pump will be automatically matched.
 - Plug & Work function for automatic recognition and adaptation of sensors and system accessories
- Automatic summer/winter time changeover
- Service interval display for demand-dependent maintenance
- Indication of fuel consumption
- Quick installation, commissioning and maintenance due to the Rast-5 plug-in system, function modules in a plug-in modular design and integral diagnostics system
- Optolink laptop interface for scanning and setting of parameters with a laptop
- Standardised LON BUS for complete integration into building management systems
- Remote monitoring in conjunction with a Vitocom 300

Application

Vitotronic 200, type GW1



Weather-compensated, digital boiler control unit:

- For single boiler systems
- For one system circuit
- For two-stage or modulating burners
- With cylinder temperature control or control unit of a cylinder primary system with a mixer assembly
- With boiler protection functions
 - Therm-Control
 - shunt pump
 - or
 - constant return temperature control, (only if no cylinder primary system is connected)
- With capability to communicate via LON BUS (order a LON communication module separately)
- With integral diagnostics system

Vitotronic 200 in conjunction with the following Viessmann boilers:		Fuel	Lower boiler water temperature			Burner operating mode	
			without limit	for stage 1/base load ≥60 %	<60 %	stage 2	mod.
Low temperature oil/gas fired boiler	Vitomax 300	Oil Gas	—	50°C 60°C	60°C 65°C	x	x
	Vitoplex 100, type SX1	Oil Gas	—	50°C 60°C	60°C 65°C	x	x
	Vitoplex 200, type SX2						
	Vitoplex 300	Oil Gas	—	40°C 50°C	50°C 60°C	x	x
	Vitorond 200, from 125 kW rated output	Oil Gas	—	50°C 60°C	60°C 65°C	x	x
Gas fired condensing boiler	Vitocrossal 200, from 87 kW rated output	Gas	x	—	—	—	x
	Vitocrossal 300, from 87 kW rated output	Gas	x	—	—	x	x

5822 212-5 GB

Specification

Construction and function

Modular construction

The control unit comprises a basic unit, electronic modules and a programming unit.

Basic unit:

- ON/OFF switch
- TEST key
- Emissions test switch
- Optolink laptop interface
- Control thermostat
 - DIN TR 77703
 - or
 - DIN TR 96803
- High limit safety cut-out
 - DIN STB 116904
 - or
 - DIN STB 98103
- Operating and fault displays
- Wiring chamber
 - Connection of external equipment via system plugs
 - Connection of three-phase consumers via additional contactors

Programming unit:

- With digital time switch
- Illuminated display with plain text support
- Adjustment and display of temperatures and codes
- Fault message display
- All adjustments and the most important codes as plain text
- Rotary selector for the temperature in standard mode
- Keys:
 - Temperature for reduced mode
 - Program selection
 - Holiday program
 - Party and economy mode
 - DHW temperature
 - Heating curve for boiler water temperature (= system flow temperature)

Functions

- Weather-compensated control of the boiler water temperature (= system flow temperature)
- Electronic maximum and minimum temperature limit
- Demand-dependent heating circuit pump and burner stop (not for burners on boilers with a lower boiler water temperature limit)
- Adjustment of a variable heating limit
- Anti-seizing pump protection
- Integral diagnostics system
- Flue gas temperature monitoring with flue gas temperature sensor
- Maintenance display
- Adaptive cylinder temperature control unit with priority control (heating circuit pump OFF)
- Auxiliary function for DHW heating (short-term heating to a higher temperature)
- Optional control of a cylinder primary system with mixer assembly
- Optional connection of external fault messaging
- Therm-Control start-up system:
 - Vitoplex 100 (80 to 460 kW rated output)
 - Vitoplex 200 (90 to 560 kW rated output)
 - Vitoplex 300 (80 to 1750 kW rated output)

The factory-fitted Therm-Control start-up system regulates the heating circuit control unit or the heating circuit pumps and must **reduce the total boiler water volume flow by at least 50 % ($\Delta t=20\text{ K}$) during the start-up phase** (e.g. during commissioning or after night or weekend shutdown). Select the heating circuits accordingly.

Note

If it is not possible to reduce the boiler water volume flow, e.g. in older systems or heating systems with a large water content (commercial nurseries), we would recommend the application example in the technical guide of the relevant boiler.

The requirements of DIN EN 12831 for heating load calculation are met. To reduce the heat-up load, the night setback is reduced in case of low outside temperatures. The flow temperature will be raised for a limited time to reduce the heat-up time after a setback period.

According to the Energy Savings Order [Germany], the temperature in each room must be individually controlled, e.g. through thermostatic radiator valves.

Control characteristics

- P characteristics with two-point output
- Thermostat for limiting the max. boiler water temperature: 95 °C, may be changed to 100 or 110 °C
- Adjusting the high limit safety cut-out: 120 °C, may be changed to 110 or 100 °C
- Heating curve setting range:
 - Slope: 0.2 to 3.5
 - Level: -13 to 40 K
 - Max. limit: 20 to 130 °C
 - Min. limit: 1 to 127 °C
- Range of the set DHW temperature: 10 to 60 °C, may be changed to 10 to 95 °C

Boiler coding card

For matching to the boiler (can be found within boiler).

Time switch

Digital time switch

- Day and week program, annual calendar
- Automatic summer/winter time changeover
- Automatic function for DHW heating and DHW circulation pump
- Time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are factory-set
- Switching times are individually programmable, i.e. up to four switching periods per day.

Shortest switching interval: 10 minutes

Power backup: 5 years

Setting heating programs

The heating system frost protection (see frost protection function) applies to all heating programs.

You can select the following heating programs with the program keys:

- Heating and DHW
- DHW only
- Standby mode

Optional external heating program changeover.

Frost protection function in conjunction with the Vitocrossal

- The frost protection function will be switched ON if the outside temperature drops below approx. +1 °C, i.e. the heating circuit pump will be switched ON and the boiler water temperature will be maintained at least at 10 °C.
- The frost protection function will be switched OFF, when the outside temperature exceeds approx. +3 °C, i.e. the heating circuit pump and burner will be switched OFF.

Specification cont

Frost protection function in conjunction with the Vitomax 300, Vitoplex 100, 200 and 300, Vitorond 200

- The frost protection function will be switched ON if the outside temperature drops below approx. +1 °C, i.e. the heating circuit pump will be switched ON and the boiler water temperature will be maintained at the lower temperature (see table on page 2).
- Standby mode
The frost protection function will be switched OFF, when the outside temperature exceeds approx. +3 °C, i.e. the heating circuit pump and burner will be switched OFF.
- Heating and DHW
The frost protection function will be switched OFF if the outside temperature exceeds approx. +3 °C, i.e. the heating circuit pump will be switched OFF and the lower boiler water temperature required for each boiler will be maintained.

Summer mode

(DHW only)

The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder thermostat).


The respective lower boiler water temperature of each boiler is maintained.

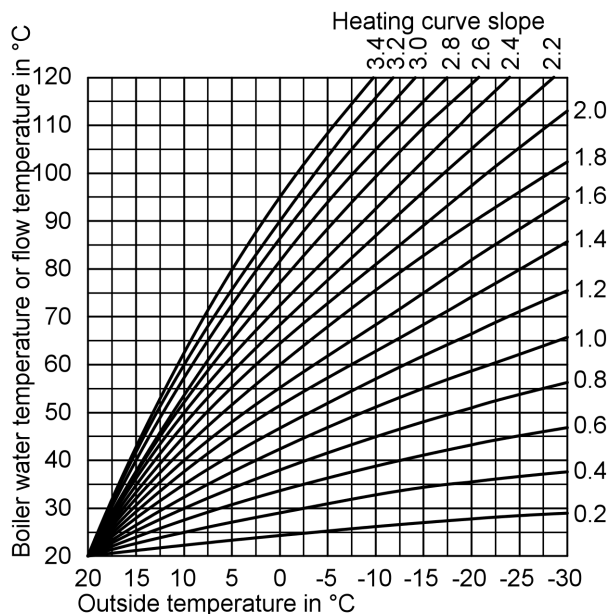
Adjusting the heating curves (slope and level)

The Vitotronic 200 controls the boiler water temperature (= system flow temperature), subject to weather conditions.

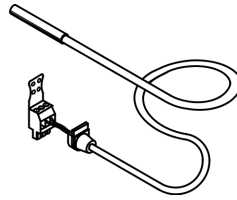
The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.

Adjusting the heating curve matches the boiler water temperature to these conditions.

The upper boiler water temperature is limited by the thermostat  and the electronic maximum temperature limiter.



Boiler water temperature sensor



Specification

Lead length 3.7 m, fully wired
Protection IP 32 to EN 60529; safeguard through appropriate design and installation

Permissible ambient temperature
– during operation 0 to +130 °C
– during storage and transport -20 to +70 °C

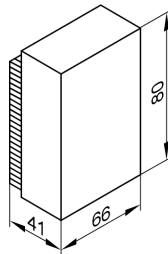
Outside temperature sensor

Installation location:

- North or north-western wall of the building
- 2 to 2.5 m above the ground, for multi-storey buildings in the upper half of the second floor

Connection:

- 2-core lead, length up to 35 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230/400 V cables

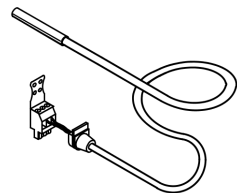


Specification

Protection IP 43 to EN 60529; safeguard through appropriate design and installation

Permissible ambient temperature during operation, storage and transport -40 to +70 °C

Cylinder temperature sensor



Specification

Lead length 5.8 m, fully wired

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Specification cont

Protection	IP 32 to EN 60529; safeguard through appropriate design and installation	Permissible ambient temperature	0 to +90 °C
		– during operation	-20 to +70 °C
		– during storage and transport	

Specification – Vitotronic 200

Rated voltage	230 V~	Rated capacity of the relay outputs	
Rated frequency	50 Hz	20 Heating circuit pumps	
Rated current	2 x 6 A	or	
Power consumption	10 W	Primary pump cylinder primary system	
Protection class	I	Circulation pump	
Protection	IP 20 D to EN 60529; safeguard through appropriate design and installation	or	
Function	Type 1B to EN 60 730-1	Flue gas/water heat exchanger	
Permissible ambient temperature		or	
– during operation	0 to +40 °C	Switching output	4(2) A, 230 V~*1
	Installation in living spaces or boiler rooms (standard ambient conditions)	21 Cylinder primary pump	4(2) A, 230 V~*1
– during storage and transport	-20 to +65 °C	28 DHW circulation pump	4(2) A, 230 V~*1
		29 Shunt pump	4(2) A, 230 V~*1
		50 Central fault message	4(2) A, 230 V~*1
		52 Mixer motor constant return temperature control	
		or	
		Motor – three-way mixing valve, cylinder primary system	0.2(0.1) A, 230 V~*1
		41 Burner	4(2) A, 230 V~
		90 Burner, two-stage	1(0.5) A, 230 V~
		90 Burner, modulating	0.2(0.1) A, 230 V~

Delivered condition

Vitotronic 200

Type GW1

Part no. 7187 097

- Programming unit
- Outside temperature sensor
- Boiler water temperature sensor
- Cylinder temperature sensor
- Bag with technical documentation

Heating system with DHW cylinder

Order separately:

- Circulation pump with check valve for regulating the cylinder temperature
- or
- Vitotrans 222 cylinder primary system with mixer assembly

Communication

The LON communication module (accessories) is required for communication with other control units.

Accessories

Notes regarding room temperature hook-up (RS function) for remote control units

The RS function must not have an effect on boilers with a lower temperature limit.

Vitotrol 200

Part no. 7450 017

KM BUS user

The Vitotrol 200 remote control regulates the heating program for one heating circuit and the required set room temperature in standard mode, from any room in the house.

The Vitotrol 200 is equipped with illuminated heating program keys and a party or economy key.

The fault display shows faults on the control unit.

WS function:

Installation at any point in the building.

RS function:

Installation in the main living room on an internal wall opposite radiators. Never install inside shelf units, niches, immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).

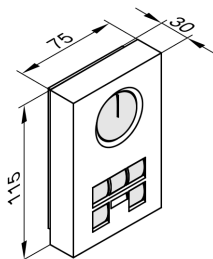
The integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature as well as a rapid heat-up at the start of the heating operation (if suitably encoded).

Connection:

*1 Total up to 6 A, 230 V~.

Accessories cont

- 2-core lead, length max. 50 m (even if connecting several remote control units)
- Never route this lead immediately next to 230/400 V cables
- LV plug as standard delivery



Specification

Power supply via KM BUS	
Power consumption	0.2 W
Protection class	III
Protection	IP 30 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +65 °C
Set room temperature range	10 to 30 °C adjustable from 3 to 23 °C or 17 to 37 °C

The set room temperature for reduced mode is adjusted at the control unit.

Vitotrol 300

Part no. 7179 060

KM BUS user

The Vitotrol 300 remote control regulates the required set room temperature for one heating circuit in standard and reduced mode, the heating program and the switching times for central heating, DHW heating and the DHW circulation pump.

The Vitotrol 300 provides an illuminated display as well as illuminated heating program keys, a party or economy key, automatic summer/winter time changeover, keys for holiday program, day and time.

WS function:

Installation at any point in the building.

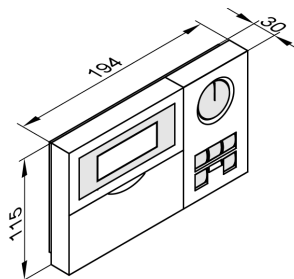
RS function:

Installation in the main living room on an internal wall opposite radiators. Never install inside shelf units, niches, immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).

The integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature as well as a rapid heat-up at the start of the heating operation (if suitably encoded).

Connection:

- 2-core lead, length max. 50 m (even if connecting several remote control units)
- Never route this lead immediately next to 230/400 V cables
- LV plug as standard delivery



Specification

Power supply via KM BUS	
Power consumption	0.5 W
Protection class	III
Protection	IP 30 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +65 °C
Set room temperature range	
– for standard mode	10 to 30 °C adjustable from 3 to 23 °C or 17 to 37 °C
– for reduced mode	3 to 37 °C

Flue gas temperature sensor

Part no. 7450 630

For scanning the flue gas temperature, flue gas temperature monitoring and maintenance indication, if the set temperature has been exceeded.

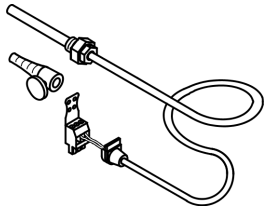
With threaded cone.

Installation on the flue pipe. The distance from the boiler must be approx. 1.5 times the flue pipe diameter, measured from the boiler edge (back) to the chimney stack.

- Condensing boilers with Viessmann balanced flue system: Order the balanced flue pipe with connector for the flue gas temperature sensor separately.
- For condensing boilers with on-site flue pipe: The aperture required for the flue pipe installation must be designed and approved by the supplier. Install the flue gas temperature sensor into a stainless steel sensor well (on site provision).

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Accessories cont



Specification

Lead length	3.8 m, fully wired
Protection	IP 60 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +60 °C
– during storage and transport	-20 to +70 °C

Sensor well

Part no. 7819 693

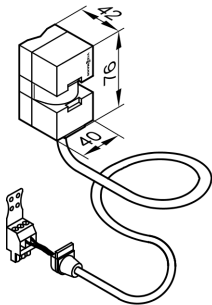
R ½" x 200 mm

For the cylinder temperature sensor, part of the standard delivery of Viessmann DHW cylinders.

Contact temperature sensor

Part no. 7183 288

For capturing the flow and return temperature.



Specification

Lead length	5.8 m, fully wired
Protection	IP 32 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +120 °C
– during storage and transport	-20 to +70 °C

Immersion temperature sensor

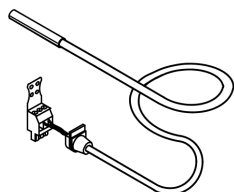
- With sensor well R ½" x 100 mm.

Part no. 7450 641

- With sensor well R ½" x 150 mm.

Part no. 7173 188

For capturing the flow and return temperature.



Specification

Lead length	3.8 m, fully wired
Protection	IP 32 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +90 °C
– during storage and transport	-20 to +70 °C

Radio clock receiver

Part no. 7450 563

For receiving the DCF 77 time signal (location: Mainflingen near Frankfurt/Main).

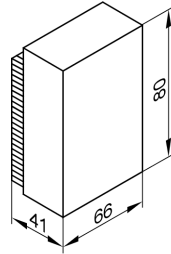
Radio controlled setting of time and date.

Install on an outside wall, facing the transmitter. The reception may be reduced by metallic elements in the building structure, e.g. steel reinforced concrete, neighbouring buildings and sources of electro-magnetic interference, e.g. HV and public transport lines.

Connection:

Accessories cont

- 2-core lead, length up to 35 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230/400 V cables.



Plug-in adaptor for external safety equipment

Part no. 7143 526

With cables (3.0 m long), plug [145](#) and [150](#).

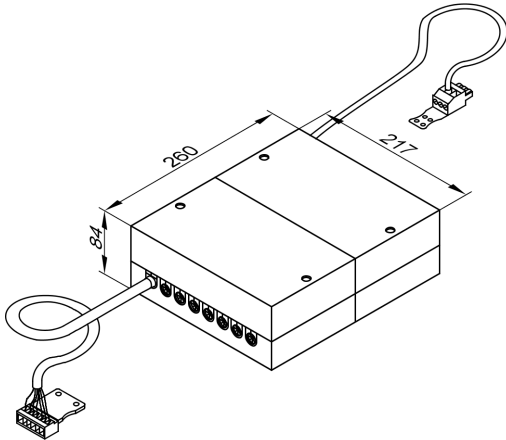
Up to 4 additional pieces of safety equipment may be connected, for example:

- Low water indicator
- Minimum pressure limiter
- Maximum pressure limiter
- Additional high limit safety cut-out

Optional connection of 3 external fault messaging devices (zero-volt contacts).

Specification

Protection	IP 20D to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +65 °C



Function extension 0–10 V

Part no. 7174 718

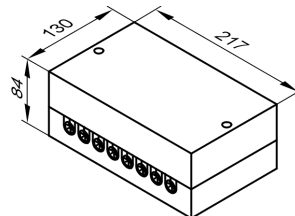
KM BUS user

Including cables equipped with plug [40](#) and [145](#).

To default a set boiler water temperature via a 0–10 V input for a temperature range of 10 to 100 °C or 30 to 120 °C (0 to 1 V ≙ boiler OFF)

and

to signal reduced mode and regulate a heating circuit pump to a lower speed.



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	1 W
Rated breaking capacity of the relay output	4(2) A 230 V

Accessories cont

Protection

IP 30 to EN 60529; safeguard through appropriate design and installation

Permissible ambient temperature

- during operation 0 to +40 °C
- during storage and transport -20 to +65 °C

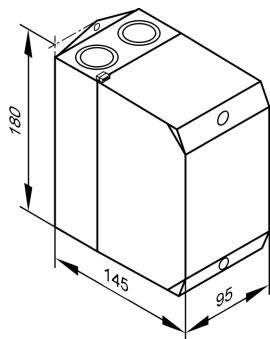
Contacteur relay

Part no. 7814 681

With 4 N/C and 4 N/O contacts.

Specification

Coil voltage 230 V~/50 Hz
Rated current (I_{th}) 16 A



Mating plug 41 and 90

Part no. 7408 790

required for an on-site burner without mating plug.

Vitocom 300, type FA3, FE1 and FI1

- Type FA3
Part no. 7143 428
- Type FE1
Part no. 7143 430
- Type FI1
Part no. 7143 429

In conjunction with a Vitodata 300:

- For remote reporting, remote monitoring and scanning of faults and/or data points via the internet
- For remote switching, remote setting of parameters and codes for heating systems via the internet

Configuration via:

- Vitosoft 200, type LNR via Optolink
- Vitodata 300

Data points provided by the heating control unit are hooked up to Vitocom 300 via LON. Additional settings can be made during commissioning, if system-specific special functions, such as monitoring limits, are required.

Fault messages are reported to the Vitodata 300 server via the internet. These messages are then transferred by the Vitodata 300 server to the following communication services:

- PC with internet access
- Fax
- Text message to D1/D2/E-Plus/O₂ [or other] mobile phones
- E-mail
- Voicemail

On-site requirements:

- Analog telephone connection
 - for type FA3 with TAE socket, code 6NN
 - for type FI1 with RJ45 socket (ISDN)
- LON communication module (accessories)

Standard delivery:

- LON connecting cable RJ45 — RJ45 for data exchange between the Vitotronic and Vitocom 300 (7.0 m long)
- Power supply unit*1
- Mains cable from the power supply unit to the basic module
- Basic module*1 (with 8 digital inputs, 2 digital outputs and 2 sensor inputs):
 - Type FA1: with integral analog modem and connecting cable for telephone socket TAE 6N (2.0 m long)
 - Type FE1: with connecting cable with RJ45 plug and sub-D plug (9 PIN) as a modem connecting cable (GSM modem accessories) or a suitable external ISDN terminal adaptor
 - Type FI1: with integral ISDN modem and connecting cable with RJ45 plug for ISDN socket (2.0 m long)

Accessories:

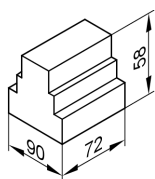
Accessories	Part no.
Wall mounting enclosure for the installation of the Vitocom 300 module, if no control panel or electrical distribution panel is available	
2 rows	7143 434
3 rows	7143 435

*1 Carrier rail installation TS35 to DIN EN 50 022, 35 x 15 and 35 x 7.5.

Accessories cont

Accessories	Part no.
Expansion module*¹	
– 10 digital inputs – 7 analog inputs (2 may be configured as pulsed inputs) – 2 digital outputs – See the basic module for dimensions	7143 431
or	
– 10 digital inputs – 7 analog inputs (2 may be configured as pulsed inputs) – 2 digital outputs – 1 M BUS interface with connection of up to, for example, 250 M BUS capable heat meters with M BUS slave interface to EN 1434-3 – See the basic module for dimensions	7159 767
Uninterruptible power supply unit*¹ (UPS)	7143 432
Additional rechargeable battery pack*¹ for UPS	
– practical for: 1 basic module, 1 expansion module and allocation of all inputs – required for: 1 basic module and 2 expansion modules	7143 436
Extension of the connecting cable	
Installation distance 7 to 14 m	
– 1 connecting cable (7.0 m long) and 1 LON coupling RJ45	7143 495 and 7143 496
Installation distance 14 to 900 m	
– 2 LON plug-in connector RJ45 and 2-core cable, CAT5, screened or JY(St) Y 2 x 2 x 0.8	7199 251 and on-site
or	
– 2 connecting cables (7.0 m long) and 2 LON sockets RJ45, CAT6 and 2-core cable, CAT5, screened or JY(St) Y 2 x 2 x 0.8	7143 495 and 7171 784 and on-site

Power supply unit (standard delivery, Vitocom 300):

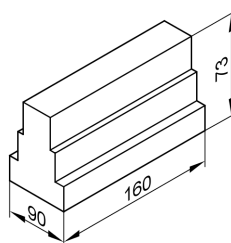


Specification

Rated voltage	85 to 264 V ~
Rated frequency	50/60 Hz
Rated current	0.55 A
Output voltage	24 V –
Output current	1.5 A

Protection class	II
Protection	IP 20 to EN 60529; safeguard through appropriate design and installation
Potential separation primary/secondary	SELV to EN 60 950
Electrical safety	EN 60 335
Permissible ambient temperature	
– for operation with supply voltage U _E 187 to 264 V	-20 to +55 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– for operation with supply voltage U _E 100 to 264 V	-5 to +55 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transport	-25 to +85 °C

Basic module (standard delivery, Vitocom 300):



Specification

Operating voltage	24 V –
Rated current	
– Type FA3	600 mA
– Type FE1	300 mA
– Type FI1	500 mA
Protection class	II
Protection	IP 20 to EN 60529; safeguard through appropriate design and installation
Function	Type 1B to EN 60730- 1
Permissible ambient temperature	
– during operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transport	-20 to +65 °C

For further technical details, see the Viessmann technical guide "Communication systems".

LON communication module

Part no. 7172 173

PCB for data exchange with the Vitotronic 050 and/or Vitocom 300.

For the connecting cables, see section Vitocom.

*¹Carrier rail installation TS35 to DIN EN 50 022, 35 x 15 and 35 x 7.5.

Tested quality

VDE approval in conjunction with Viessmann boilers

Printed on environmentally friendly
chlorine-free bleached paper

Subject to technical modifications

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