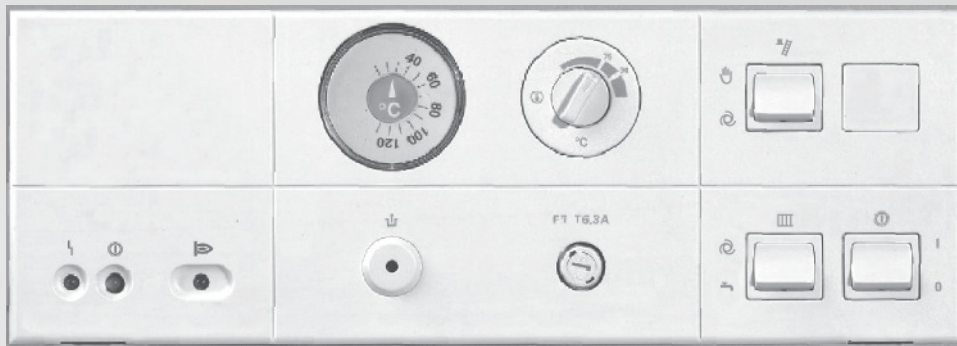


Technical Data Manual

VITOTRONIC 100

Digital boiler control unit
for modulating temperature heating systems

VIESMANN



Vitotronic 100

Model **KW10B**, Part No. 7834 238

Digital boiler control

With outdoor reset control

For heating systems with one modulating temperature heating circuit (without mixing valve)

With analog boiler water temperature display

Integrated pump connections

Viessmann quick-connect plug-in system

OpenTherm functionality



Certified as a component
part for Viessmann boilers

Product Information

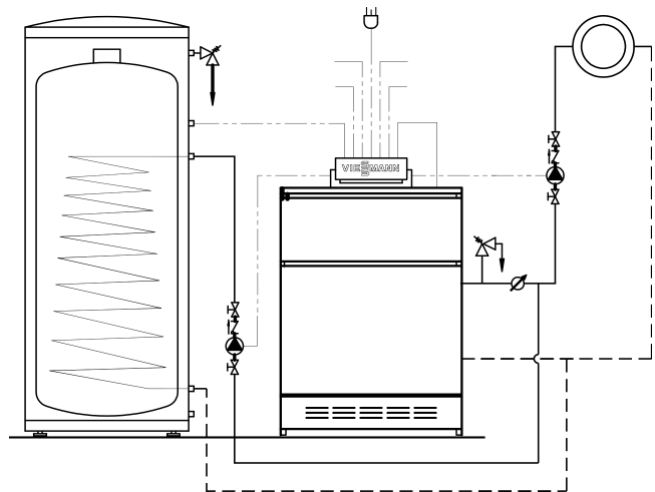
The benefits at a glance:

- digital boiler control
- space heating circuit controlled by room thermostat and outdoor reset logic
- single-stage or two-stage boiler control (depending on burner)
- integrated diagnostic system
- built-in boiler low temperature protection
- short assembly time and start-up due to diagnostic and wire terminals
- digital boiler control:
 - for single-boiler systems
 - outdoor reset control
 - for heating circuits without mixing valves
 - for single-stage or two-stage burner
 - with analog temperature display
 - with integrated diagnostic system

Standard equipment:

Vitotronic 100, Model KW10B with;

- adjustable fixed high limit
- power supply cord
- outdoor temperature sensor
- boiler temperature sensor
- DHW temperature sensor
- 120VAC boiler pump and DHW pump outputs



Application

In conjunction with the following Viessmann boiler Boiler Model and Series		Fuel	Minimum boiler water temperature	
			without low limit	with low limit (average temp.)
Oil-fired hot water heating boiler with power burner	Vitorond 100	Oil		104° F (40° C)
Oil-/Gas-fired hot water heating boiler with power burner	Vitola 200	Oil/Gas	X	
Atmospheric gas-/propane-fired hot water heating boiler	Vitogas 050, RS Series (single-/two-stage)	Gas		120° F (49° C)
Atmospheric gas-fired hot water heating boiler	Vitogas 100, GS1 Series, up to 240 MBH/70 kW	Gas		104° F (40° C)
	Vitogas 100, GS10 Series, up to 380 MBH/111 kW	Gas		120° F (49° C)

Structure and Operation

Functionality Overview

- outdoor reset functionality with the ability to connect to room thermostat demand type connection
- reset curve adjustments with rotary dial settings as well as WWSD adjustments
- integrated DHW control and pump output adjustable set point with rotary dial settings
- operational DHW settings with DIP switch settings;
 - DHW priority
 - DHW post purge time
- relay test functionality
 - pumps: DHW and boiler
 - burner: 1st and 2nd stage
 - alarm output
- LON addressing with rotary dial settings
- multi-boiler operation when used in conjunction with Vitocontrol-S MW1 cascade control
- minimum boiler protection
- two stage burner operation
- compiled fault output (dry contact) and LED indicators
- 0-10VDC BMS set point control

Options

With optional OT thermostat via digital two wire communication, providing local or remote user interface

- DHW set point adjustment and time scheduling
- outdoor reset adjustment and time scheduling
- slope, daytime/night time settings
- boiler status and temperature displayed on thermostat
- can be installed within living space or adjacent to boiler

With optional LON communication module

- communications to Vitotronic 050, HK1M mixing valve controls
- communications to Vitocontrol-S, MW1 cascade control
- enables connection with extension output module
- BACnet communications utilizing Versatronik 505, BACIP

Modular structure

The control unit consists of:

System ON/OFF switch, analog temperature display and override switch.

- adjustable high limit (type RAK 51.1/3382, Mfg. Etheco or type TR 97.55180.251, Mfg. EGO)
- fixed high limit (type RAK 75.4/3412, Mfg. Etheco or type STW 56.10525.400, Mfg. EGO)
- electronic circuit board with power supply and integrated outdoor reset function
- integrated diagnostic system (power, burner call and fault indicators)

Boiler-specific functions

The Vitotronic 100 control unit controls the boiler temperature according to heat demand input (room thermostat connections) or the calculated outdoor reset set point.

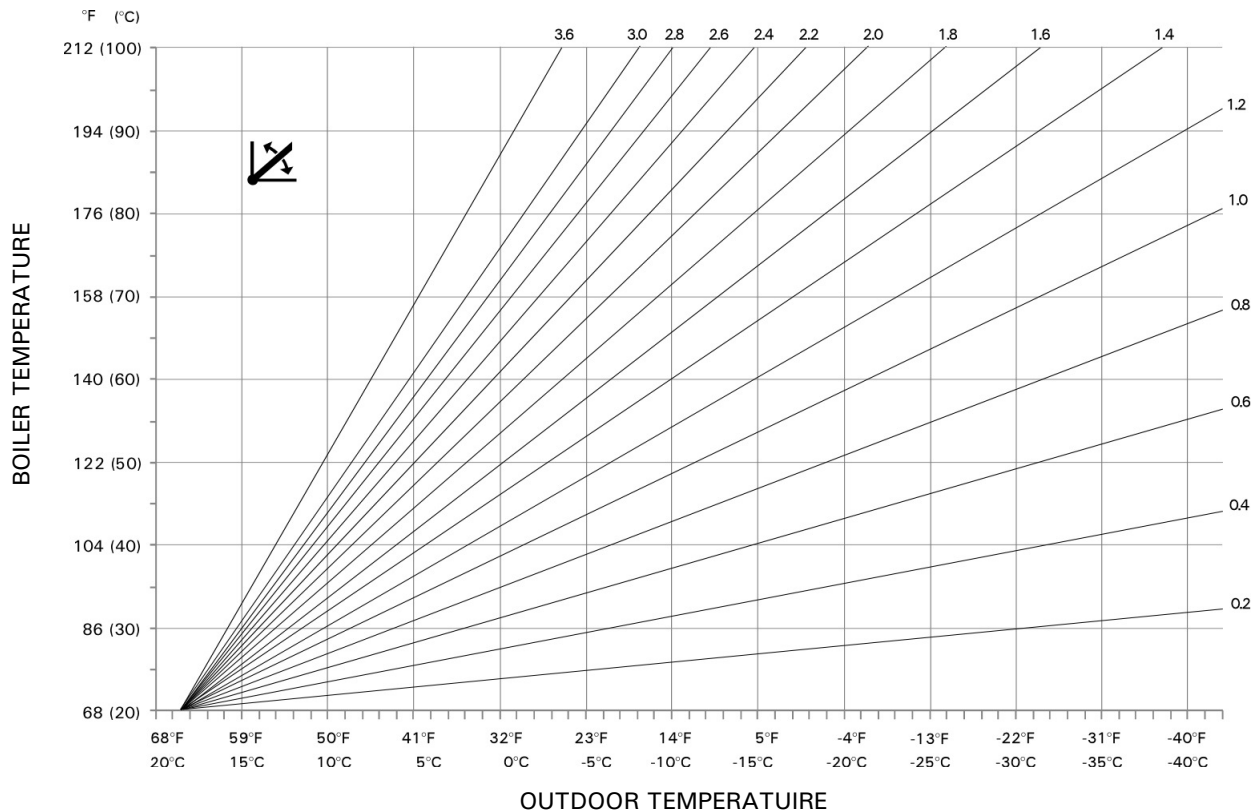
Boiler water temperature is limited through the adjustable aquastat. Minimum boiler water temperature protection is achieved with the built-in pump aquastat and the outdoor reset control.

Electronic boiler control

- single boiler systems
- heating circuits without mixing valves
- single and two stage burners
- analog temperature display

Structure and Operation *(continued)*

Heating curve



Technical data

Power: 120 VAC, 1 Phase, 60 Hz, 15A pre-fuse

Burner switching capacity: 120 VAC, 2.5A (full load)

Room thermostat: 24 VAC

Anticipator setting: 0.1 A

Fixed high limit: 230° F (110° C) max. (fixed)

Adjustable high limit: 167° F to 239° F max.
(75° C to 115° C) max. (adjustable)

Boiler & DHW Pump output: 120 VAC, 1 Phase, 60 Hz,
3A (full load)

Outdoor temperature sensor: 5k Ohms at 77° F (25° C)
max. wire length up to
95 ft. (35 m)

Boiler temperature sensor: 10K

DHW temperature sensor: 10K

Main fuse: 6.3A

Main pump output fuse: 6.25A

Certification: CSA certified in conjunction with Viessmann
boilers

Features

Function	Description	KW10B	KK10	KW10	KK10LON
120VAC Power connection	Control Power	●	●	●	●
Boiler Pump	120V output for boiler pump	●	●	●	●
DHW Pump	120V output for DHW pump	●			
Burner connection	Harness connection for burner	●	●	●	●
Low Water Cut-off	Powers LWCO device	●			
Outdoor Temperature Sensor	5K ohm sensor	●			
Boiler Temperature Sensor	10K ohm sensor	●	●	●	●
DHW Temperature Sensor	10K ohm sensor	●			
TT Stage 1	Call for heat first stage	●	●	●	●
TT Stage 2	Call for heat second stage	●	●	●	●
OpenTherm Communication	OT connection for OT enabled room thermostat/device	●			
Fault Output	Compiled Fault Indication Dry Contact	●			
0-10VDC Input/Ext Demand	Coded function either 0-10VDC or external demand	●			
Lon Communications	Daisy-chained LON connection when optional LON board installed	●			●
Override Switch	Mounted on face of control	●			
Diagnostic LED Sensor Flash	Flash based on sensor issue	●			
Power Switch		●	●	●	●
Pump Aquastat min. temp. control		●	●	●	●
Electronic minimum temperature control				●	●
External pump module		●	●	●	●
Integrated pump boiler and DHW pump connection		●			
Relay Test		●			
Selectable boiler pump operation based on TT demand or continuous operation		●			
Electronic DHW set point control		●			
DHW Priority Override Timer	With TT demands only	●			
Front Panel mounted AHL and FHL		●	●	●	●
Front panel mounted analog temperature gauge		●	●	●	●
All relays with sockets with locking tabs		●			
Field replaceable motherboard - no hardwired PCB connections		●			
Second Stage	Second stage burner demand*	●			

Connections

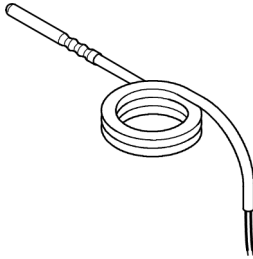
Function	Connection	Description
120VAC power connection	40	control power
Boiler pump	20	120VAC output for boiler pump
DHW pump	21	120VAC output for DHW pump
Burner connection	41	harness connection for burner
Second stage	191	second stage burner demand
Low water cut-off	LWCO	powers LWCO device
Outdoor temperature sensor	1	5K ohm sensor
Boiler temperature sensor	3	10K ohm sensor
DHW temperature sensor	5	10K ohm sensor
TT stage 1		call for heat first stage
TT stage 2		call for heat second stage
OpenTherm communication	OT	OT connection for OT enabled room thermostat/device
Fault output	AL	Compiled fault indication
0-10VDC input/ext demand	A1	coded function either 0-10VDC or external demand
LON communications	C1/C2	Daisy-chained LON connection when optional LON board installed

Terminal connections

- screw-type connection
- RAST-5 quick connects
- Low voltage sensor and communication screw type connections

Accessories

Boiler water / DHW temperature sensor



Cable length: 5.2 ft. (1.6 m), ready to plug in.

Maximum ambient temperature

- at operation: (in rooms and installation sites with normal ambient conditions) 32 to 104 °F (0 to 40 °C)
- when storing or transporting: -4 to +149 °F (-20 to +65 °C)

Minimum boiler temperature protection and freeze-up

- controlled by electronic boiler temperature sensor
- DIP switch enabled/disabled

Outdoor temperature sensor



Installation site: North or northwest side of building
6.6 to 8.2 ft. (2 to 2.5 m) above ground,
for multi-storey buildings mount sensor
on upper half of second storey.

Connection: 2-wire cable, cable length 1000 ft. (300 m)
with a wire size of min. AWG 16 copper.

The cable to the outdoor sensor must not be laid near line
voltage wiring (120/240 V).

Maximum ambient temperature at operation, when storing
or transporting: -40 to +158 °F (-40 to +70 °C)

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

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