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Basic Heating Control

The Viega Basic Heating Control is designed to control the supply water temperature to a hydronic system in order to provide outdoor reset operation. The Basic Heating Control uses a floating action actuator mounted on a diverting or mixing valve to regulate the supply water temperature. The control has a Liquid Crystal Display (LCD) to view system status and operating information.

Functions include:
- User comfort adjustment to increase or decrease building space temperature
- Advanced settings to fine-tune building requirements
- Optional indoor sensor for room air temperature control (Stock Code 16016)
- Test sequence to ensure proper component operation
- 120 VAC power supply
- Powered system circulator pump output
- CSA C US certified (approved to applicable UL standards)

Technical Information

Control
Microprocessor PID control; this is not a safety (limit) control

Packaged Weight
3.1 lbs. (1420 g) Enclosure black PVC plastic

Dimensions
6⅝" H x 7 9/16" W x 2 13/16" D (170 x 193 x 72 mm)

Approvals
CSA C US, meets ICES & FCC regulations for EMI/RFI

Ambient Conditions
Indoor use only, 32 to 102°F (0 to 39°C), <90% RH non-condensing

Power Supply
120 VAC +/- 10% 50/60 Hz 1300 VA

Floating Output
24 VAC 0.34 A 8 VA

Relays
240 VAC 10 A 1/3 hp, pilot duty 240 VA

Sensors
NTC thermistor

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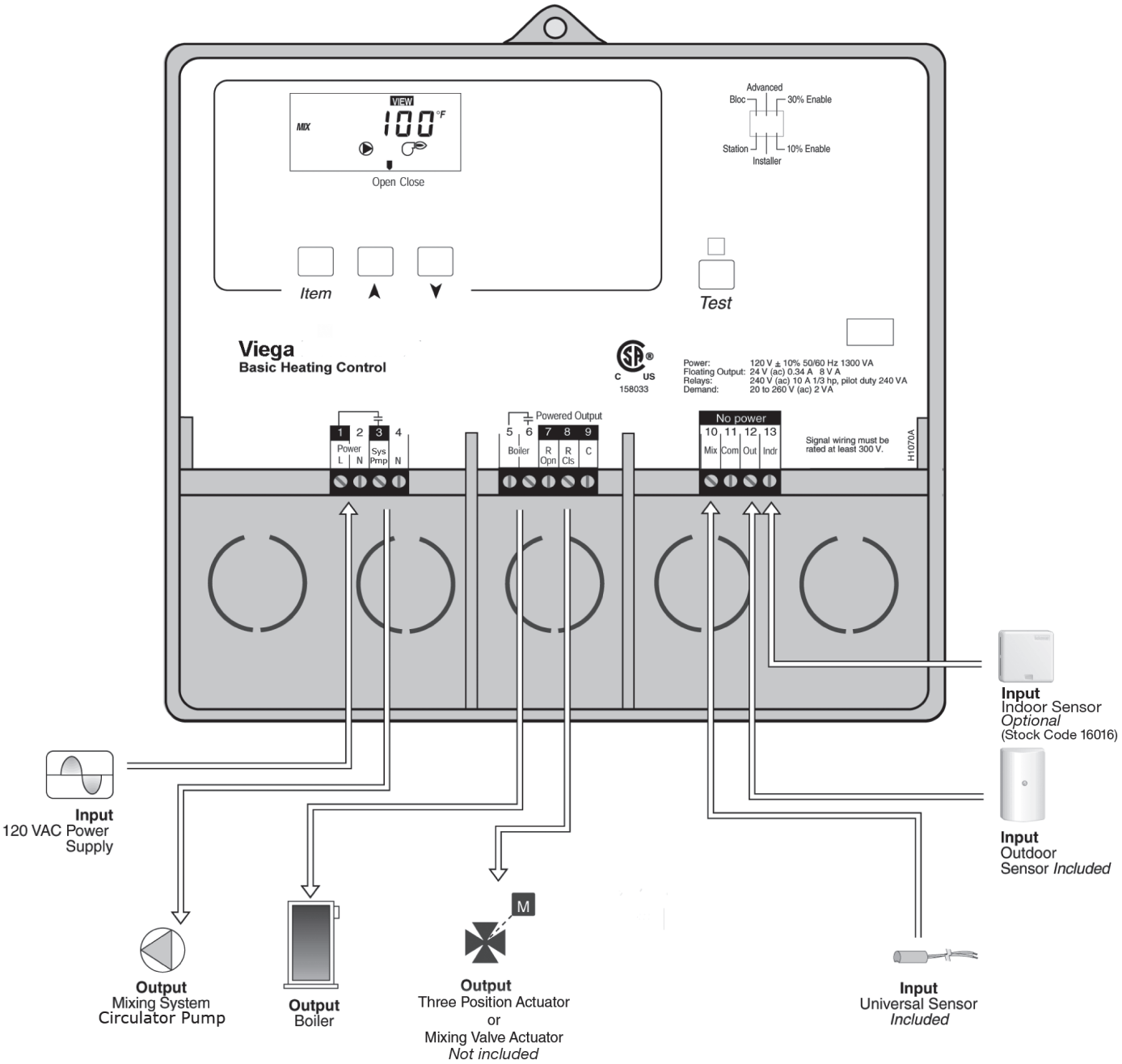

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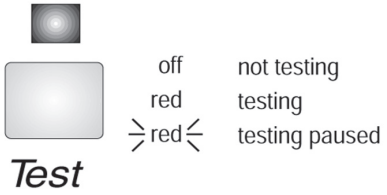
Testing the Control

The Basic Heating Control has a built-in test routine that is used to test the main control functions. The Basic Heating Control continually monitors the sensors and displays an error message whenever a fault is found. See the following pages for a list of the Basic Heating Control's error messages and possible causes. When the **Test** button is pressed, the test light is turned on. The individual outputs and relays are tested in the following test sequence.



Test Sequence
Each step in the test sequence lasts 10 seconds.

During the test routine, the test sequence may be paused by pressing the **Test** button. If the **Test** button is not pressed again for 5 minutes while the test sequence is paused, the control exits the entire test routine. If the test sequence is paused, the **Test** button can be pressed again to advance to the next step. This can also be used to rapidly advance through the test sequence. To reach the desired step, repeatedly press and release the **Test** button until the appropriate device and segment in the display turn on.

Testing Sensors

A good quality test meter capable of measuring up to 5,000kΩ (1kΩ = 1000Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with a good quality digital thermometer. If a thermometer is not available, a second sensor can be placed alongside the one to be tested and the readings compared.

First measure the temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is performed. Using the chart below, estimate the temperature measured by the sensor. The sensor and thermometer readings should be close. If the test meter reads a very high resistance, there may be a broken wire, a poor wiring connection, or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor, or the sensor may be defective. To test for a defective sensor, measure the resistance directly at the sensor location.

Example: If outdoor temperature is 70° F the resistance should be 11,883.

Do not apply voltage to a sensor at any time as damage to the sensor may result.

Measured resistance should be within +/- 5% to what is listed below.

Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω
-50	-46	490,813	90	32	7,334
-45	-43	405,710	95	35	6,532
-40	-40	336,606	100	38	5,828
-35	-37	280,279	105	41	5,210
-30	-34	234,196	110	43	4,665
-25	-32	196,358	115	46	4,184
-20	-29	165,180	120	49	3,760
-15	-26	139,402	125	52	3,383
-10	-23	118,018	130	54	3,050
-5	-21	100,221	135	57	2,754
0	-18	85,362	140	60	2,490
5	-15	72,918	145	63	2,255
10	-12	62,465	150	66	2,045
15	-9	53,658	155	68	1,857
20	-7	46,218	160	71	1,689
25	-4	39,913	165	74	1,538
30	-1	34,558	170	77	1,403
35	2	29,996	175	79	1,281
40	4	26,099	180	82	1,172
45	7	22,763	185	85	1,073
50	10	19,900	190	88	983
55	13	17,436	195	91	903
60	16	15,311	200	93	829
65	18	13,474	205	96	763
70	21	11,883	210	99	703
75	24	10,501	215	102	648
80	27	9,299	220	104	598
85	29	8,250	225	107	553

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