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User Guide
Viega Digital Thermostat

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❗ Viega products are designed to be installed by licensed and trained plumbing, mechanical, and electrical professionals who are familiar with Viega products and their installation. **Installation by non-professionals may void Viega LLC's warranty.**

Applications

The digital thermostat is ideal for individual room temperature control. A user-friendly, three-button design allows for easy adjustment of settings. The thermostat can sense either room temperature or floor temperature. Adjustable temperature setback function allows for energy savings. The thermostat can control up to four powerheads directly or can be connected to a zone / circulator control box. With optional floor sensor, the thermostat provides floor high or low limit function for floor protection or floor warming.

Features
■ Compact Design
■ Digital LCD Display
■ Regulates Floor or Room Temperature
■ Optional Floor Sensor
■ Setback Function
■ On / Off Switch

Specifications
■ Control: Microprocessor control
■ Accuracy: 0.1°F
■ Set Temperature Range: 41°F - 99°F, 0.5°F increments
■ Environment Range: 32°F - 122°F
■ Power Supply: 24 VAC +/_ 10% 60Hz 15 W max
■ Output: TRIAC output 24 VAC, 15 W max
■ Optional Floor Sensor: NTC thermistor (10K Ohms), 10' cable
■ Floor limiting range: 41°F - 98.6°F
■ Electrical Protection: Class II - IP30

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Cover Screw
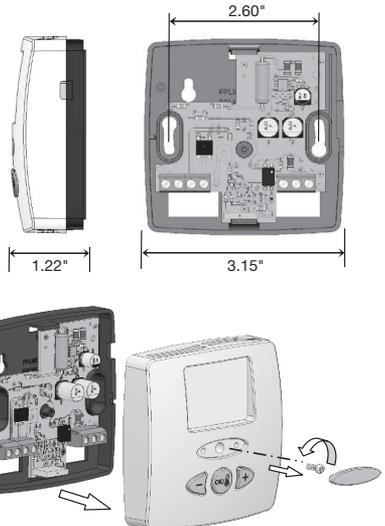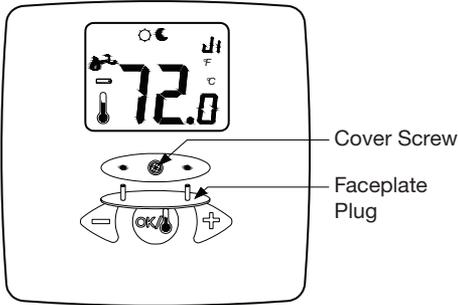
Faceplate
Plug

Installation
- Remove oval rubber plug from front of thermostat faceplate.
- Using a small Phillips screwdriver remove screw securing thermostat faceplate to mounting plate.
- Remove the faceplate from mounting plate.
- Insert the thermostat wire through the bottom left opening in the thermostat.
- Attach the mounting plate to the wall approximately 60" above the floor and a minimum of 8" away from any openings. Do not locate the thermostat behind doors or above or next to any heat generating equipment.
- Wire the thermostat as outlined in pages 3-5.
- Attach the thermostat faceplate and secure with the cover screw.
- Install the faceplate plug to hide the cover screw.

~60"

Do not install thermostats
in these locations

Min. 8"
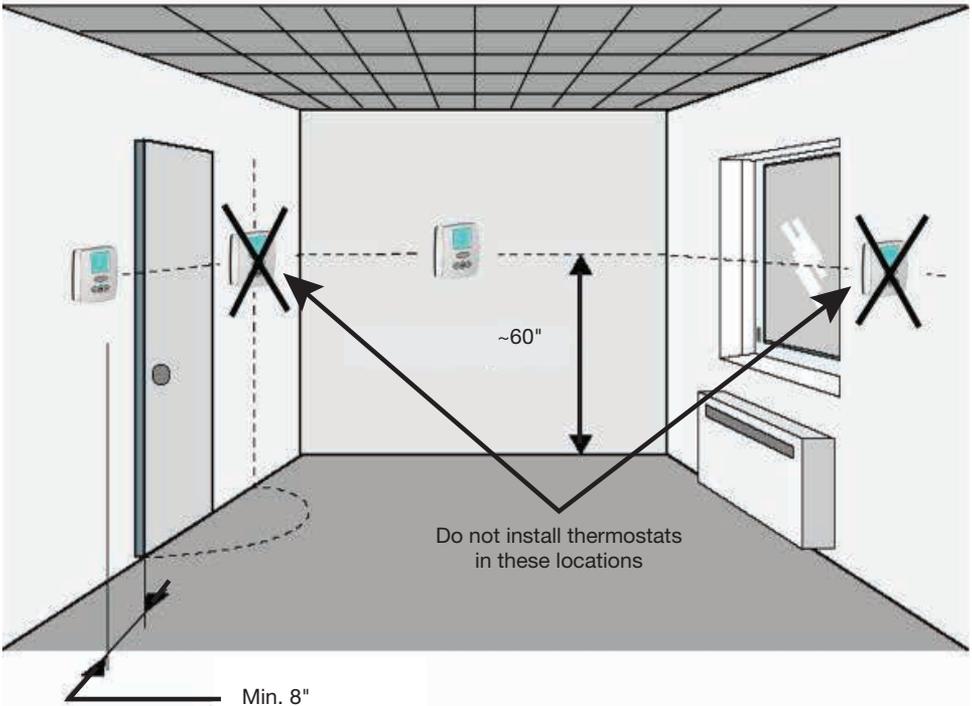
Wiring Thermostat to Zone Control

- Connect the R terminal of the thermostat to the R terminal of the zone control. R supplies power to the thermostat.
- Connect the W terminal of the thermostat to the W terminal of the zone control. W is the switching signal.
- Connect the C terminal of the thermostat to the C terminal of the zone control. C is common.

> **i** Factory jumper between 3 and 4 must remain in place for use with 2-wire powerhead. Factory jumper between 3 and 4 must be removed for use with 4-wire powerheads and zone valves. Up to (4) powerheads may be controlled from a single thermostat without the use of an external relay. Refer to zone control, zone valve, and powerhead product instructions for further details.
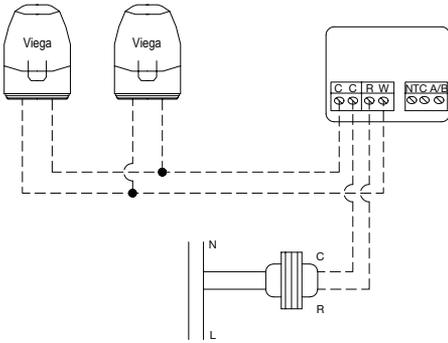
Zone Control (18060, 18062) with Optional Priority
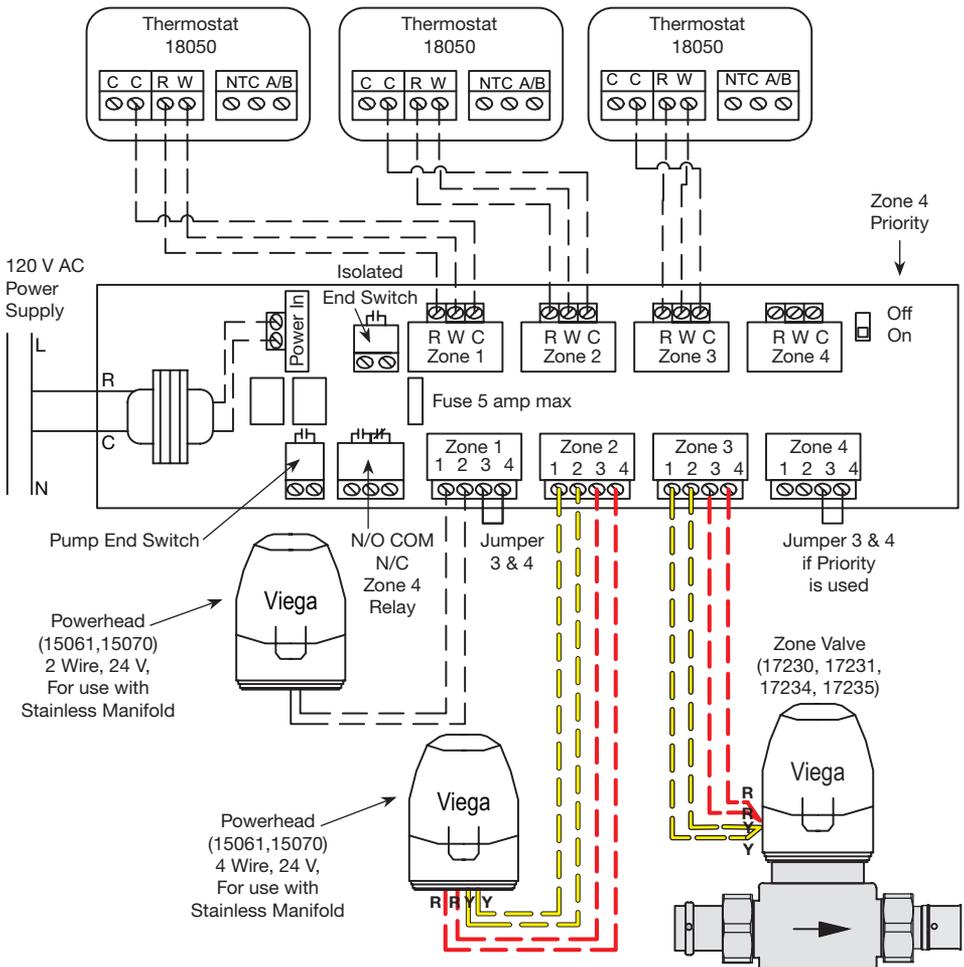
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Wiring Thermostat to Powerhead

- Connect the C and R terminals of the thermostat to transformer.
- Connect the other C terminal and W terminal of the thermostat to Viega powerhead.
- Up to (4) powerheads may be controlled from a single thermostat without the use of an external relay.

Wiring Thermostat to Four Wire Powerhead / Zone Valve Head

- Connect a yellow wire from the powerhead/ zone valve head to the C terminal on the digital thermostat.
- Connect the other yellow wire from the powerhead/zone valve head to the W terminal on the thermostat.
- The red wires can be connected to the boiler contact (TT), pump relay or other auxiliary device requiring contact closure.
- Connect the C terminal from the transformer to the C terminal on the thermostat.
- Connect the R terminal from the transformer to the R terminal on the thermostat.

Legend: Zone Controls	
– – – – – – – –	Low Voltage
——————	Line Voltage

To T-T Boiler Contact, Pump Relay or other auxiliary device requiring contact closure
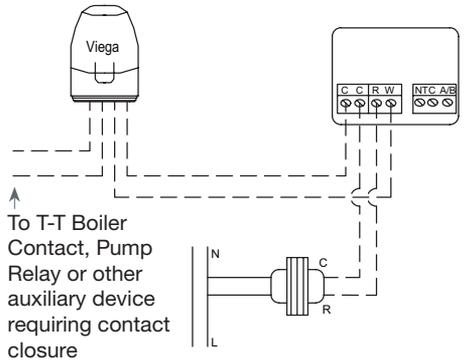
Wiring Floor Sensor

The digital thermostat floor sensor is a two-wire, water-sealed probe that can be used to accurately measure slab or floor temperatures. Floor sensor should be placed in conduit for protection and repair. ½" PEX (capped or plugged) is commonly used as conduit for the slab sensor. Sensor should be 18" from line voltage (110V). If crossing line voltage wire, cross at 90° angle. Line voltage interference can result in inaccurate readings of the sensor.
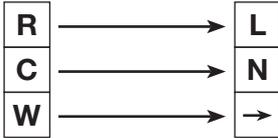
- Connect one wire of the floor sensor to one NTC terminal of the digital thermostat.
- Connect the other wire of the floor sensor to the other NTC terminal of the digital thermostat.

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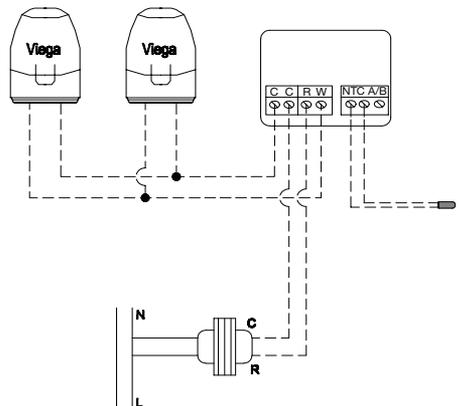
Corresponding Zone Control and Thermostat Terminals

Zone Control - 18060/62   Zone Control - 18032
Thermostat - 18050   Thermostat - 18029

R	→	L
C	→	N
W	→	→

Resistance Chart	
Temperature	**Resistance (kΩ)**
50°F	~ 19.5 kΩ
59°F	~ 15.5 kΩ
68°F	~ 12.5 kΩ
77°F	~ 10kΩ
86°F	~ 8kΩ

Testing Floor Sensor

Tools
A good quality electrical test meter capable of measuring up to 5,000kΩ (1kΩ = 1,000Ω). A good quality analog or laser thermometer. If an analog style thermometer is used it must be left on the floor long enough for it to acclimate to the floor temperature.

Instructions
- Measure the floor temperature.
- Disconnect the floor sensor wires at the thermostat
- Connect the electrical tester to the floor sensor wires and measure resistance.
- Compare the measured temperature and resistance to what is listed in the table above.
- If the measured resistance is higher or lower by +/-5%, you may have a damaged sensor or the sensor wire may be broken or shorted. Example: if the floor temperature is 77°F the resistance should be 10,000Ω.

> **i** Do not apply voltage to the floor sensor at any time. This will damage the sensor.

Programming

Start Up
- Use the switch on the right side of the thermostat to power on or power off the heating.

> **⚠ CAUTION!**
> In this mode, your installation can freeze.

- The setting temperatures are kept in memory indefinitely.

Display Window
1 Operating mode menu (programming parameter)
2 Boiler in operation
3 Fan/AC operation
4 When displayed thermostat indicates the measured air temperature or floor temperature if floor sensor is attached. If flashing attention is required to one of the below:
   - Actual floor temperature is below the minimum floor temperature set in the thermostat parameters
   - Actual floor temperature is above the maximum floor temperature set in the thermostat parameters
   - Floor sensor is short circuited
5 Measured temperature or set temperature
6 Programming parameter
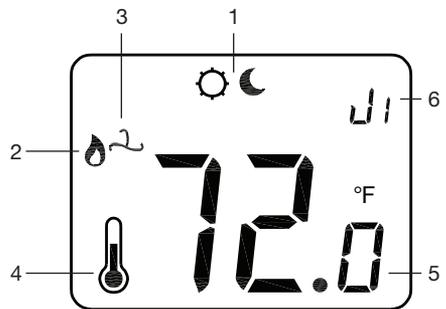
Operating Mode Menu
Press OK button to cycle through operating mode menus. When in desired operating mode press either the + or - button to activate the flashing display. Desired temperature can be set by using the + or - button to increase or reduce temperature setting.

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Comfort Operating Mode

☼ ☾

70.0 °F

Places thermostat in comfort temperature operation indefinitely.

Reduced Operating Mode

☼ ☾

63.0 °F

Places thermostat in reduced temperature operation indefinitely. Returning to Comfort Operating Mode takes thermostat out of Reduced Mode.

Parameter Menus

- Press the OK key and hold for 7 seconds, then use + or - to select the installation parameter to be adjusted.
- Press OK to toggle between the parameter setting or to edit the value.
- If the value starts to blink you can use + or - keys to adjust this value.
- Press + and - keys at the same time to reset this value to the factory default value. Once you have adjusted the value press OK to validate this parameter value. When you have finished, use + or - keys to go to the End display and then press OK key to exit installation parameter menu.
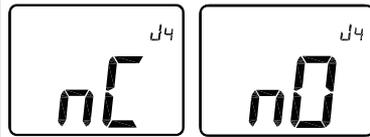
J0 Parameter

J0 **72.0** °F   J0 **20.0** °C
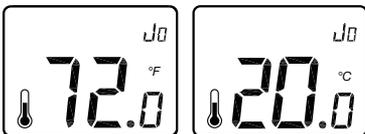
Allows selection of either Celsius or Fahrenheit temperature display. Factory default is °F.

J1 Parameter

J1 **CLd**   J1 **Hot**
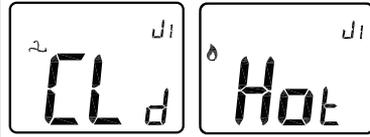
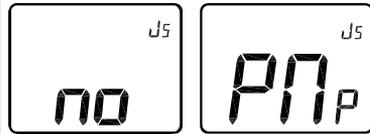Select CLd for thermostat control of cooling systems or Hot for heating applications. Factory default is Hot.

J4 Parameter

J4 **nC**   J4 **nO**

Select NC if using normally closed actuating motors or NO if normally open actuators are being used. Viega Actuators (powerheads, zone valves) are normally closed and NC is the default setting.

J5 Parameter

J5 **no**   J5 **PNp**

Parameter allows exercising of system pump if system is inactive for a 24 hour period. Exercise duration is one minute daily. Select PNp for pump exercising or no to disable this feature. Factory default is for pump exercising no.

J6 Parameter

J6 **Air**   J6 **FLr**
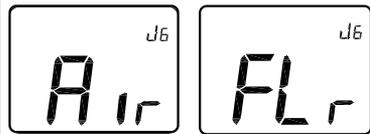
Select Air if thermostat is to control room ambient air temperature or Flr for floor temperature regulation. If Flr regulation is selected the thermostat will ignore room ambient air temperature. If no floor sensor is connected to thermostat, the thermostat will control the ambient air temperature. Air regulation is the factory default.

Ao Parameter

```
Ao
🌡 no
```
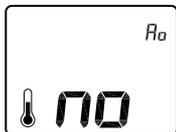
This parameter is used to calibrate the thermostats internal air sensor if there is a variance in temperature between the actual room air temperature and the sensor reading.

The calibration must be done after one full day with the thermostat set at the same temperature in accordance with the following description: Put a thermometer in the room at 60" distance from the floor (like the thermostat) and check the real temperature in the room after one hour. When you enter in the calibration parameter, no is displayed to indicate no calibration has been made.

To enter the value read on the thermometer press the OK key. The actual value xx.x must be blinking. Now enter the real value with the - or + keys and validate your adjustment by pressing the OK key.

The message Yes should be displayed. The value will be stored in the internal memory. If you need to recalibrate, return to the installation menu and press the OK key when the message Yes is displayed. Then the actual value xx.x should be blinking.

The old value will be erased if you enter a new value. You could also erase the calibration by pressing - and +. When the value blinks, the message no must be displayed.

Fo Parameter

```
Ao
🌡 no
```
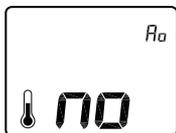
This parameter is used to calibrate the thermostats external floor sensor if there is a variance in temperature between the actual room floor temperature and the sensor reading. Calibration must be done as outlined above.

FL Parameter

```
FL
41.0 °F
```

Adjust to set the floor temperature low limit. Adjustment range is 41°F to the FH setting. The default is 41°F.

FH Parameter

```
FH
83.0 °F
```

Adjust to set the floor temperature high limit. Adjustment range is 83°F to 99°F with 83°F being the default setting.

J7 Parameter

```
J7          J7
rEG         HYs
```

Select rEG for proportional band regulation of thermostat or HYs for the thermostat to operate on a static differential of 0.3°K. If HYs is selected Cy, bp, and Cp parameters become non-functional and require no settings. rEG is the factory default setting.

Cy Parameter

```
Cy
15
```

Proportional integral regulation time cycle value in minutes. This feature is only available if rEG regulation is selected in the J7 parameter. The default setting is 15 minutes and is recommended for radiant slab heating applications. Other possibilities are:
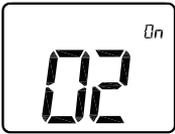
- Oil Burner << 20 >>
- Gas Burner << 10 >>
- Zone Valve << 10 >>
- Heat Pump << 20 >>

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on Parameter

```
On
02
```

Minimal starting time in minutes. Adjustable from 0 to half of the cy parameter setting. Default is 02.

of Parameter

```
On
02
```

Minimal resting time between two heating cycles in minutes. Adjustable from 0 to half of the cy parameter setting. Default is 02.

bp Parameter

```
bP
3.6 °F
```

Sets the differential temperature of the proportional bandwidth with respect to how well insulated the house is. The better insulated the house, the smaller the bandwidth temperature required. This feature is only available if rEG regulation is selected in the J7 parameter. The default setting is 3.6°F. Other suggested settings:

- Well insulated house << 2.7°F >>
- Poor insulated house << 7.2°F >>

Cp Parameter

```
CP
0.0 °F
```

Adjust setting to match the current load of the device being controlled by the thermostat. If the current draw of the device being controlled by the thermostat is less than 2 amp. then adjust this value to match the value selected in bp parameter. If the amp. draw is greater than 2 amp. set this value to the actual amperage. This function is only available if rEG regulation is selected in the J7 parameter. The default setting is 0.0°F.

CLr Parameter

```
CLr
```

While in this parameter press and hold the OK button until the thermostat restarts to restore all factory defaults to thermostat.

End Parameter

```
End
```

Press and hold OK button to exit programming menu and resume normal thermostat operation.

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