

I/O List for Electric Water Heater

| Pin No. | Port/Signal Name | Direction | Connected Component | Description |
|---------|------------------|-----------|--------------------------------|--|
| 1 | PA0/ADC0 | Input | Temperature Sensor (LM35) | Analog input for temperature sensing. |
| 2 | PA1 | Output | Segment Display Enable Line 2 | Enables second digit of the seven-segment display. |
| 3 | PA2 | Output | Segment Display Enable Line 1 | Enables first digit of the seven-segment display. |
| 4 | PA3 | Output | Segment Display Enable Line DP | Controls the decimal point of the seven-segment display. |
| 5 | PA4 | Output | 4511 Decoder - Segment A | Controls segment A of the seven-segment display. |
| 6 | PA5 | Output | 4511 Decoder - Segment B | Controls segment B of the seven-segment display. |
| 7 | PA6 | Output | 4511 Decoder - Segment C | Controls segment C of the seven-segment display. |
| 8 | PA7 | Output | 4511 Decoder - Segment D | Controls segment D of the seven-segment display. |
| 9 | PC0/SCL | I/O | EEPROM (24C16) | I2C clock line for external EEPROM communication. |
| 10 | PC1/SDA | I/O | EEPROM (24C16) | I2C data line for external EEPROM communication. |
| 11 | PC2 | Input | Not Connected | - |
| 12 | PC3 | Input | Not Connected | - |
| 13 | PC4 | Input | Not Connected | - |
| 14 | PC5 | Output | Segment Display Enable BI | Controls Decoder BI |
| 15 | PC6 | Output | Heating Element Control | Controls heating element (ON/OFF). |

| | | | | |
|----|-----|--------|-------------------------|--|
| 16 | PC7 | Output | Cooling Element Control | Controls cooling element (ON/OFF). |
| 17 | PD0 | Output | HEATING_LED | Blinks when heating element is ON. |
| 18 | PD1 | Output | COOLING_LED | Indicates cooling element activity. |
| 19 | PD2 | Input | UP Button | Digital input to increase the set temperature. |
| 20 | PD3 | Input | DOWN Button | Digital input to decrease the set temperature. |
| 21 | PD4 | Output | ON_LED | Indicator LED for system ON status. |
| 22 | PD5 | Input | Not Connected | - |
| 23 | PD6 | Input | Not Connected | - |
| 24 | PD7 | Input | Not Connected | - |
| 25 | PB0 | Input | Not Connected | - |
| 26 | PB1 | Input | Not Connected | - |
| 27 | PB2 | Input | ON/OFF Button | Digital input to toggle the system ON/OFF. |
| 28 | PB3 | Input | Not Connected | - |
| 29 | PB4 | Input | Not Connected | - |
| 30 | PB5 | Input | Not Connected | - |
| 31 | PB6 | Input | Not Connected | - |
| 32 | PB7 | Input | Not Connected | - |

