

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	Input	Not Connected	-
18	PD1	Input	Not Connected	-
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	Output	HEATING_LED	Blinks when heating element is ON.
23	PD6	Output	COOLING_LED	Indicates cooling element activity.
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	-

