**SRC for thermostat component:**

**Input**:

1. event(bool) --> input (on/off button)

2. event(nat) --> desired\_temp

3. nat --> current\_temp

**State:**

1. thermostat\_on := 0

2. heat\_source := 0

**Local variables:**

1. nat min\_temp := (initial value ?)

2. nat max\_temp := (initial value ?)

**Output:**

final temperature(how to output changed temp → nat?)

**State transitions conditions:**

1. Current temp exceeding max temp (alarm)
2. Current temp below min temp ( alarm)
3. Heat incubator to reach desired temp
4. Cool incubator to reach desired temp
5. Switch off heat source when desired temp reached

**Body of SRC:**

// if current temp changed

if input?

then {

thermostat\_on := input

// if current\_temp above max temp

if current\_temp > max\_temp:

then {

if heat\_source == 1:

// disable heat source

then heat\_source := 0

// TODO: handle output

}

// if current temp below min temp

else if current\_temp < min\_temp:

then {

if heat\_source == 0:

then heat\_source := 1

// TODO: handle output

}

}

// if desired temp input is present

else if desired\_temp? :

then {

// heater

if desired\_temp < max\_temp ^ current\_temp < desired\_temp:

then {

if heat\_source == 0:

then heat\_source := 1

// TODO: handle output

}

// cooler

else if desired\_temp > min\_temp ^ current\_temp < desired\_temp:

then {

if heat\_source == 1:

then heat\_source := 0

// TODO: handle output

}

}

// if desired and current temp are same, switch off heat source

if current\_temp == desired\_temp ^ heat\_source == 1:

then heat\_source := 0