

# SmartControl

## Thermostat



### 1. Specifications

#### General

Name : SmartControl Thermostat  
Type : SC220  
Size : (H) 92 mm x (W) 82 mm x (D) 67 mm

#### Input

Rated Supply Voltage : 230 V AC  
Frequency : 50 Hz  
Terminals : 4 mm<sup>2</sup> conductor, torque 0.5 Nm

#### Output [Load]

Rated Supply Voltage : 230 V AC  
Frequency : 50 Hz  
Maximum current [Load] : 20 Amp  
Terminals : 4 mm<sup>2</sup> conductor, torque 0.5 Nm

#### Thermostat

Operating Temperature Range : 20 °C to 65 °C  
Delta Temperature : 3 °C to 10 °C  
Life Cycle switching : 50 000  
Thermal cut out : 90 °C  
Thermal cut out manual reset : 300 operations

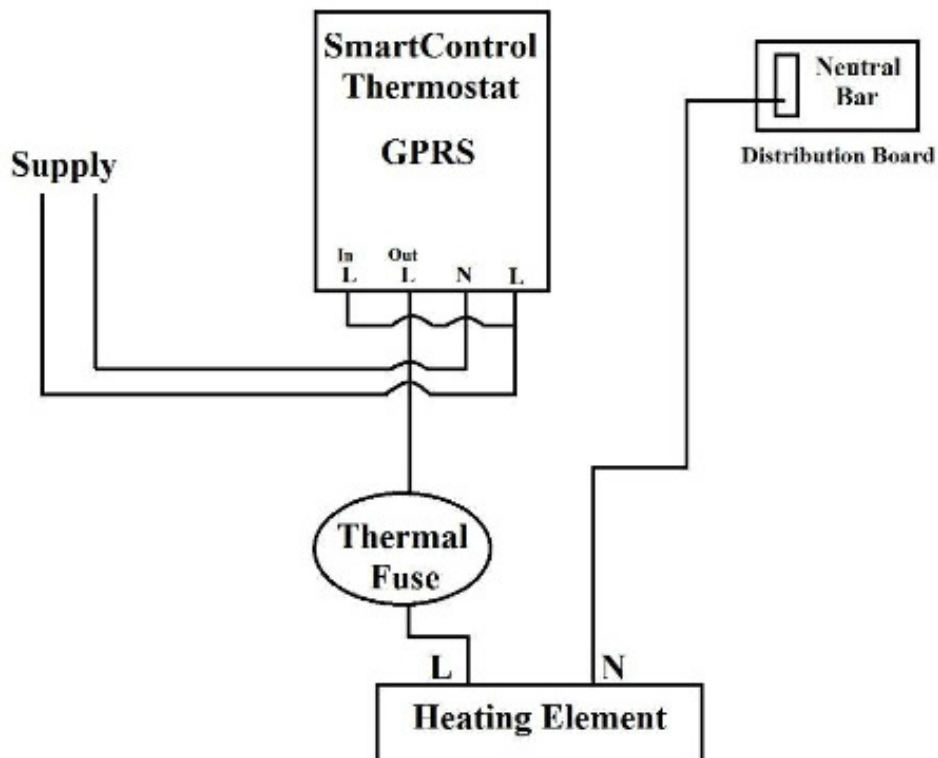
#### Option 1: GSM Communication

Type : GSM [GPRS]  
Frequency : 900 MHz, 1800 MHz, 1900 MHz

#### Option 2: Wi-Fi Communication

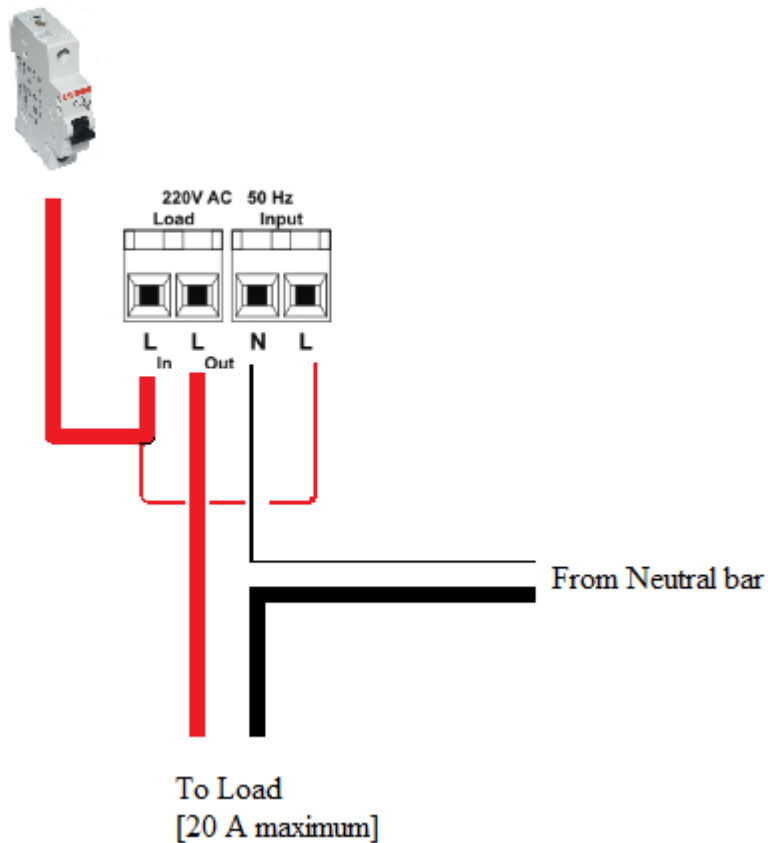
Type : FCC/CE/IC certified 2.4-GHz IEEE 802.11b/g  
Configurable transmit power : 0 to 10 dBm

## 2. Wiring Diagram

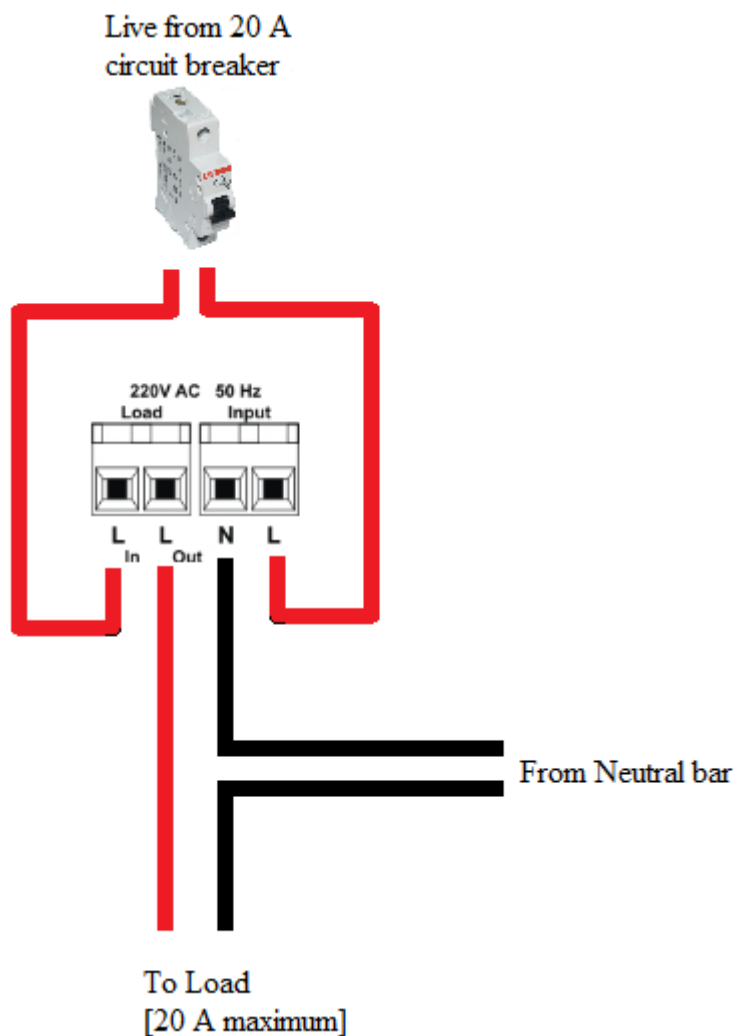


**Installation option 1:** N and L wires: required rating 10 mA AC, Lin and Lout wires rated for 20A AC minimum.

Live from 20 A  
circuit breaker



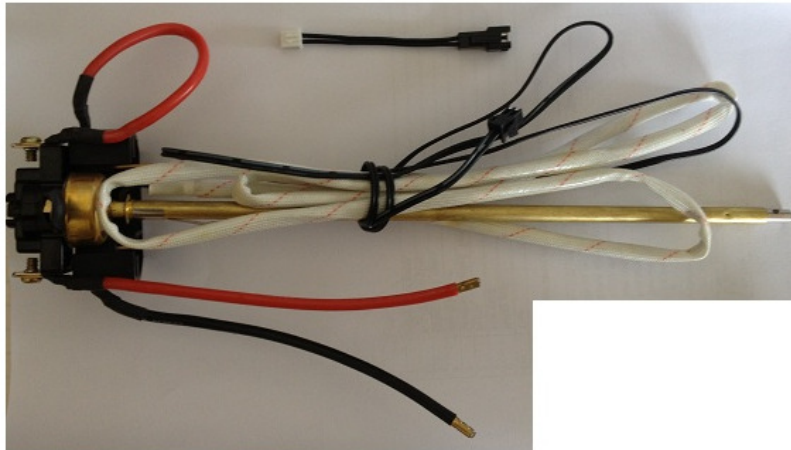
**Installation option 2:** N and L wires: required rating 10 mA AC minimum, Lin and Lout wires rated for 20A AC minimum.



### 3. General installation information

#### Important:

1. **Configuration** : The SmartControl can be used in the following configurations:
  - a. **Load control**: in this configuration a 2 pin molex resistor link must be installed in the NTC molex socket. Only the approved resistor link that is shipped with the unit may be used.
  - b. **Temperature control**: in this configuration the Thermostat 2 pin molex must be installed in the NTC molex socket. Only approved SABS Thermostat that is shipped with the unit may be used.



2. **Switch ON Delay**: The SmartControl GPRS/Wi-Fi load switch has a delayed relay switch ON, which can be between 1 and 10 minutes default. On power up the blue, red and green LED will flash and after the delay the green LED will stay on, Blue LED will slow flash.
3. **Circuit breakers**: Each appliance connected to the SmartControl GPRS/Wi-Fi device must be individually protected with a circuit breaker before the SmartControl GPRS, smaller or equal to 20A.
4. **Earth Leakage**: an Earth Leakage breaker must protect all the appliances connected to the SmartControl GPRS/Wi-Fi device.
5. **Terminals**: The tightening torques for the SmartControl GPRS/Wi-Fi terminal screws are 0.5 Nm and must be maintained annually by a qualified electrician.
  - L** : Live, 230V AC , 10 mA minimum.
  - N** : Neutral, 10 mA minimum.
  - L load** : Live to appliance.
  - L in** : Live in, from circuit breaker, 20A maximum. **If this is not connected the device will indicate a fault because no AC is present.** Please note that L load and Lin must not be swapped.
6. **Conductor**: The maximum conductor size used is 4 mm<sup>2</sup>, and it is recommended that ferrules be used.
7. Please note that the device terminals must always be treated as live connections, irrespective of the LED indication.
8. **GSM device only**: Before the power is switched on the GSM antenna must be installed, the SMA connector must only be hand tighten.
9. **GSM device only**: After installation the Amber LED must flash, if it is solid on the signal strength for the GPRS unit is not sufficient. To correct this, the antenna location must be changed to get better GSM GPRS signal.

10. **GSM device only:** If the signal is sufficient check that the Red LED on the GPRS board [look in from the top] is in fast double flash mode. Now the button next to the NTS connector can be pushed to register the device.
11. **Wi-Fi device only:** After installation the Amber LED must flash, if it is solid on the signal strength for the Wi-Fi unit is not sufficient. To correct this, the Wi-Fi router antenna location must be changed to get better Wi-Fi signal to the unit. The unit has a built-in antenna and care must be taken that it is not covered by a metal cover that can interfere with the signal.
12. **Wi-Fi device only:** If the signal is sufficient check that the Wi-Fi Blue LED is in fast double flash mode. Now the button next to the NTS connector can be pushed to register the device.

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#### 4. *SmartControl LED indications:*


 **Blue LED:**

- Flashing: device is active– **Correct.**
- Any other state:
  - First check that the circuit breaker is ON.
  - Contact the electricity supplier.



 **Red LED:**

- OFF : Relay is OFF – **Correct.**

**Green LED:**


-  • ON : Relay is ON and there is an output voltage on the terminals - **Correct**

**Red & Green LED:**

-  • Flashing fast: Relay is OFF and in soft pickup mode. Usually after power failure - **Correct**
- 

#### 5. *Fault Conditions:*

 **Red & Green LED:**

-  • Both solid ON : Relay failure, switch circuit breaker off and contact the electricity supplier.

 **Red LED:**

- Flashing: Over Temperature. Faulty installation, switch circuit breaker off and contact the electricity supplier.

## 6. GPRS:

### **Blue LED:**

- Flashing: device is active– **Correct.**

### **Amber LED:**

- OFF : Signal is insufficient – **Incorrect.**
- Slow Flash : Signal is sufficient – **Correct.**
- Fast Flash : Signal is excellent – **Correct.**

### **Red LED:**

- Double flash : GPRS is connected - **Correct**

## 7. Wi-Fi:

### **Blue LED:**

- Flashing: device is active and waiting to connect – **Correct.**
- Double Flash: device is connected to network – **Correct.**

### **Amber LED:**

- OFF : Signal is insufficient – **Incorrect.**
- On : Signal is low – **Incorrect.**
- Slow Flash : Signal is sufficient – **Correct.**
- Fast Flash : Signal is excellent – **Correct.**

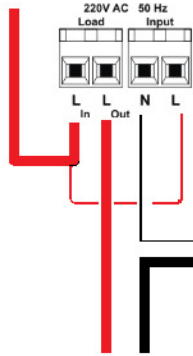
## 8. Warning



**Danger: please note that there are high voltages present on this equipment.**

## 9. Test measurements:

Live from 20 A  
circuit breaker



| Measurement taken 30 seconds after switch on |     |      |   |   | LED status     |         |           |
|----------------------------------------------|-----|------|---|---|----------------|---------|-----------|
|                                              | Lin | Lout | N | L | Value measured | Red LED | Green LED |
| Measurement 1                                |     |      | X | X | 230 V AC       | N/A     | N/A       |
| Measurement 2                                | X   |      | X |   | 230 V AC       | N/A     | N/A       |
| Measurement 3                                |     | X    | X |   | 0 V AC         | On      | Off       |

| Measurement taken after switch on |     |      |   |   | LED status     |         |           |
|-----------------------------------|-----|------|---|---|----------------|---------|-----------|
|                                   | Lin | Lout | N | L | Value measured | Red LED | Green LED |
| Measurement 1                     |     |      | X | X | 230 V AC       | N/A     | N/A       |
| Measurement 2                     | X   |      | X |   | 230 V AC       | N/A     | N/A       |
| Measurement 3                     |     | X    | X |   | 230 V AC       | Off     | On        |

**Tools required:** Measuring instrument that can measure AC, range 0 to 250 VAC.

- **Please note that these measurements must be taken by a qualified electrician.**
- **Electrical connections must always be considered as energised irrespective of the LED indications.**

## 10. *Thermostat installation:*

### Remove thermostat and replace with supplied geyser temperature probe

1

Remove the existing thermostat by disconnecting all the wires on the connector terminal block of the thermostat.



2

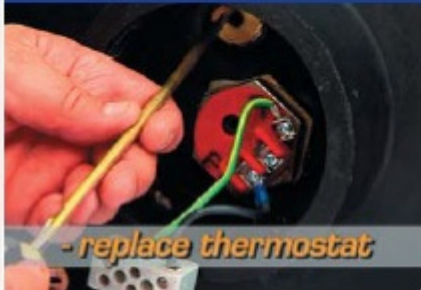
Pull the thermostat out of the pocket.

Please note that certain types of geysers require the user to remove the front part of the geyser temperature probe as provided.



3

Ensure that you insert the geyser temperature probe into the correct pocket.



4

Insert the new geyser temperature probe and connect the live wires once again on the connector terminal block



11. End