

GTM1 : Temperature monitoring ALARM system. Up to 32 sensors



Attention!

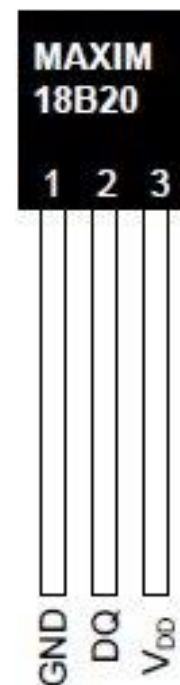
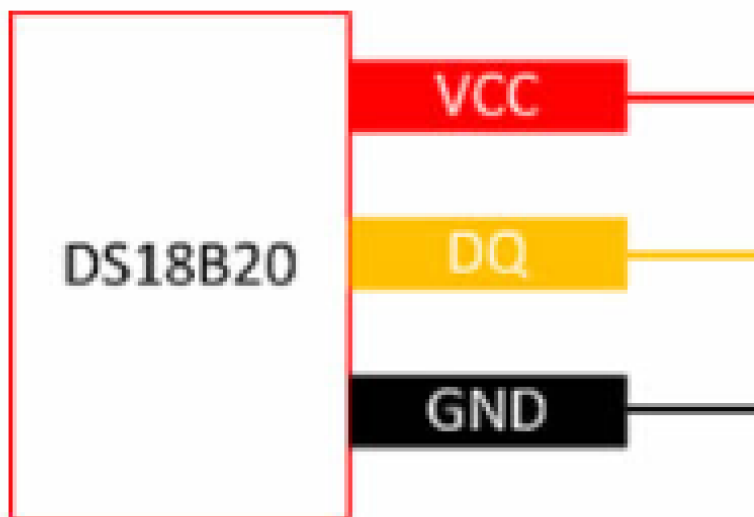
Disconnect power supply before wiring!

The correct wiring procedure is as follows:

- Make sure power is turned off;
- Make wiring connections to the terminals;
- Apply power.

Prepare the module GTM1

- Insert SIM card
- Screw GSM antenna
- Connect **temperature** sensor DS18B20
- to the 1W according connection diagram.



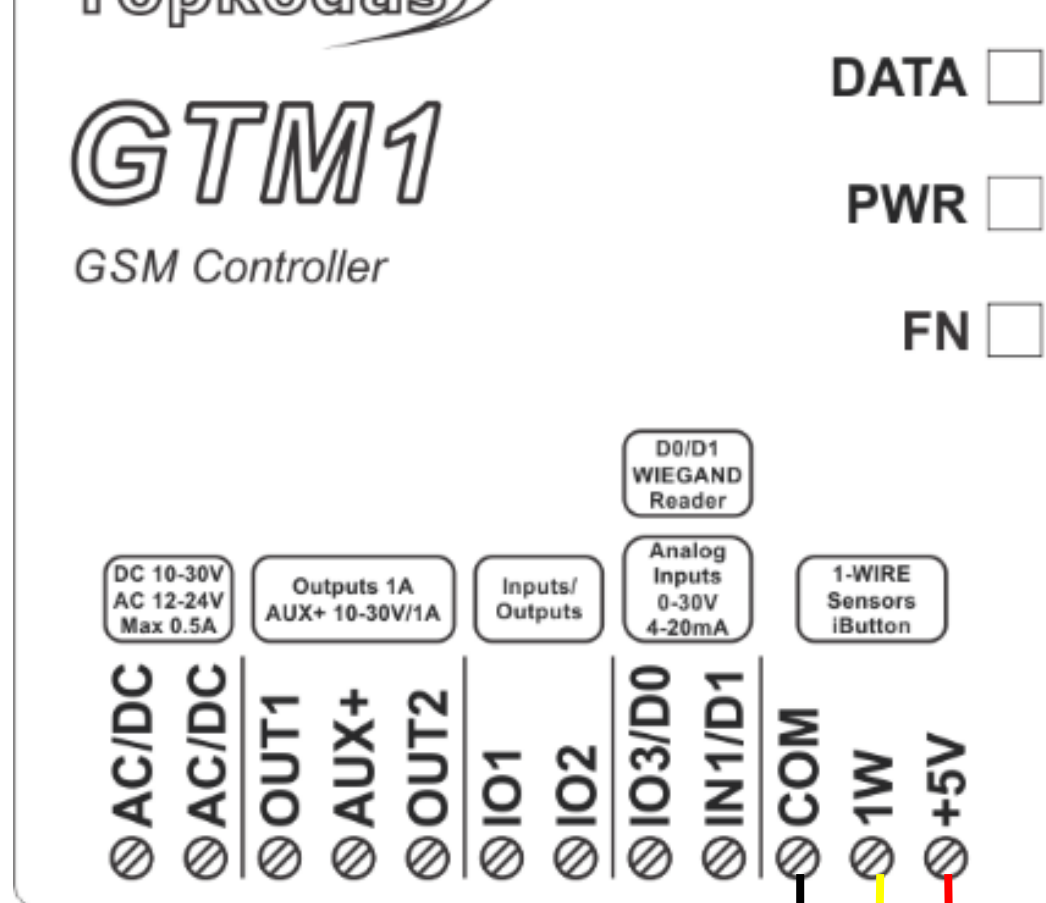
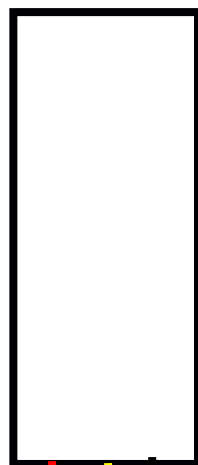
DS18B20 sensor

Red wire to +5V

Yellow wire to 1W

Black wire to COM

DS18B20



The DS18B20 digital thermometer provides

- 12-bit Celsius temperature measurements.
- The DS18B20 communicates over a 1-Wire
- Each DS18B20 has a unique 64-bit serial code,
- which allows multiple DS18B20s to function on the same 1-Wire bus

It is possible to connect up to 32 temperature sensors DS18B20

DS18B20 connection with

A long distance UTP or FTP cable

GTM1

GSM Controller

DATA ☐

PWR ☐

FN ☐

DC 10-30V
AC 12-24V
Max 0.5A

Outputs 1A
AUX+ 10-30V/1A

Inputs/
Outputs

D0/D1
WIEGAND
Reader

Analog
Inputs
0-30V
4-20mA

1-WIRE
Sensors
iButton

⊗ AC/DC

⊗ AC/DC

⊗ OUT1

⊗ AUX+

⊗ OUT2

⊗ IO1

⊗ IO2

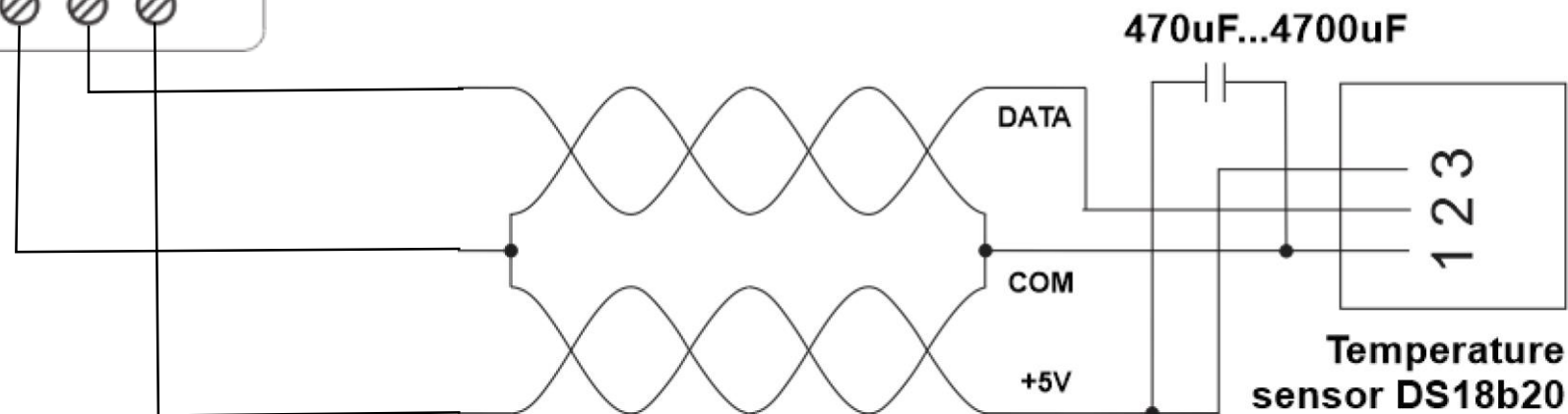
⊗ IO3/D0

⊗ IN1/D1

⊗ COM

⊗ 1W

⊗ +5V



If you need to connect more sensors to 1W

- Connect them as a star or serial.
- Each line should be separated by 82-120 Ohm resistor

GTM1

GSM Controller

DATA ☐

PWR ☐

FN ☐

D0/D1
WIEGAND
Reader

DC 10-30V
AC 12-24V
Max 0.5A

Outputs 1A
AUX+ 10-30V/1A

Inputs/
Outputs

Analog
Inputs
0-30V
4-20mA

1-WIRE
Sensors
iButton

⊗ AC/DC

⊗ AC/DC

⊗ OUT1

⊗ AUX+

⊗ OUT2

⊗ IO1

⊗ IO2

⊗ IO3/D0

⊗ IN1/D1

⊗ COM

⊗ 1W

⊗ +5V

82-120 Ohm

max 100m line

Sensor_1 DS18B20

82-120 Ohm

max 100m line

Sensor_2 DS18B20

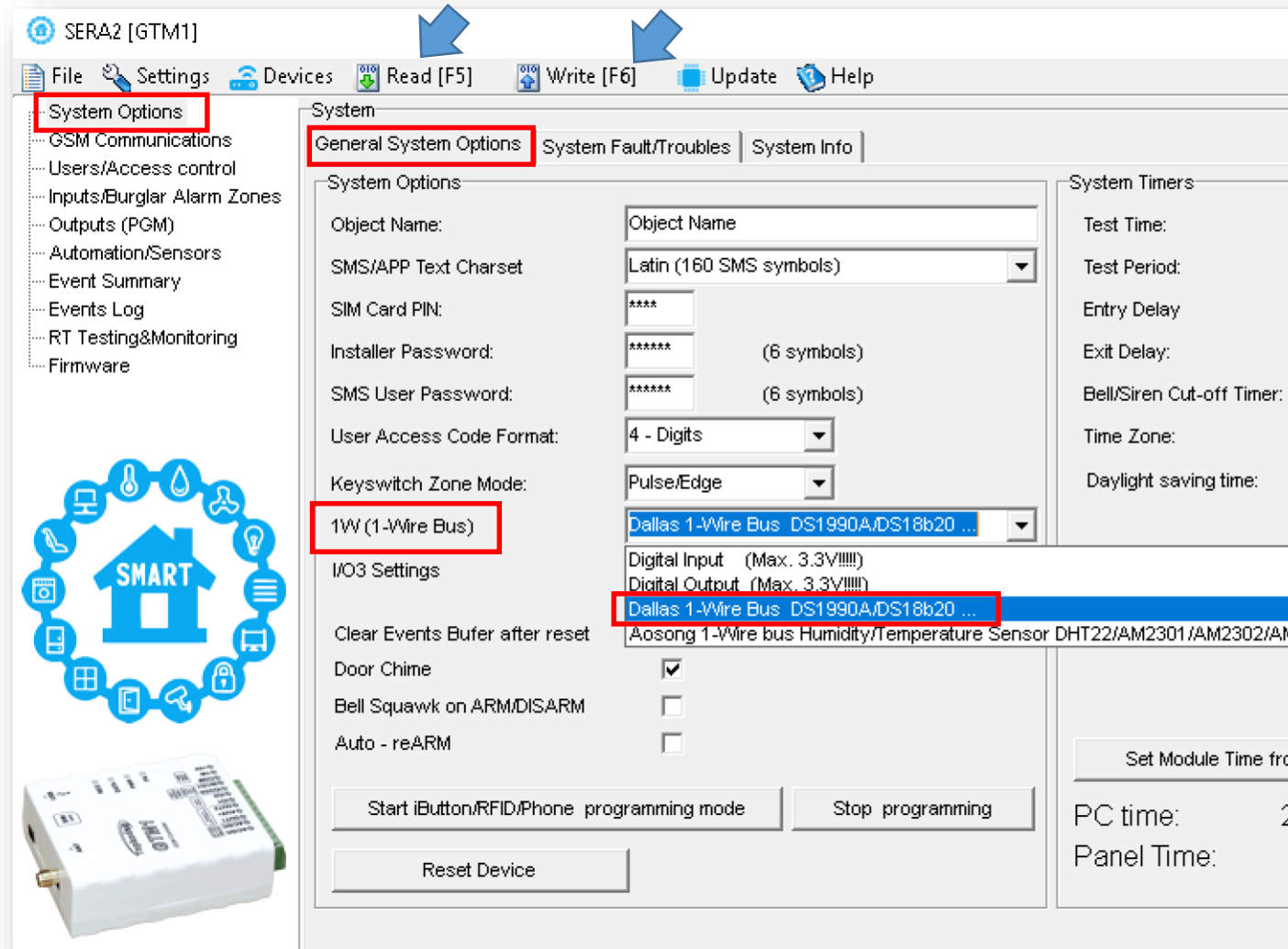
82-120 Ohm

max 100m line

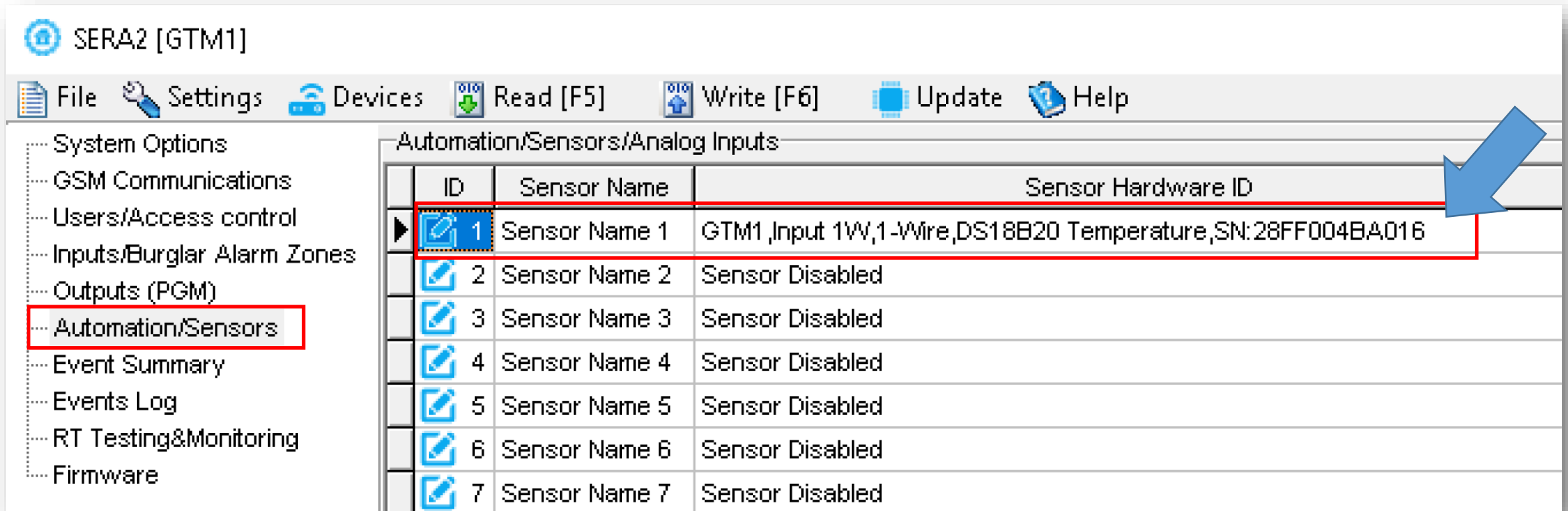
Sensor_3 DS18B20

- Connect the module to the computer via mini USB cable
- Connect the power supply.
- Start free configuration program SERA2
- You will find it in <https://www.topkodas.it/> website
- HELP & SUPPORT> Downloads

- Go to SERA2> System Options> General System Options window.
- Set 1W (1-Wire Bus)> Dallas 1-Wire Bus DS18b20...
- Press “Write” in the command line
- Press “Read” in the command line



- Go to SERA2> Automation/ Sensors window.
- The sensor will appear in the list automatically.
- Double click on the selected sensor's line.



SERA2 [GTM1]

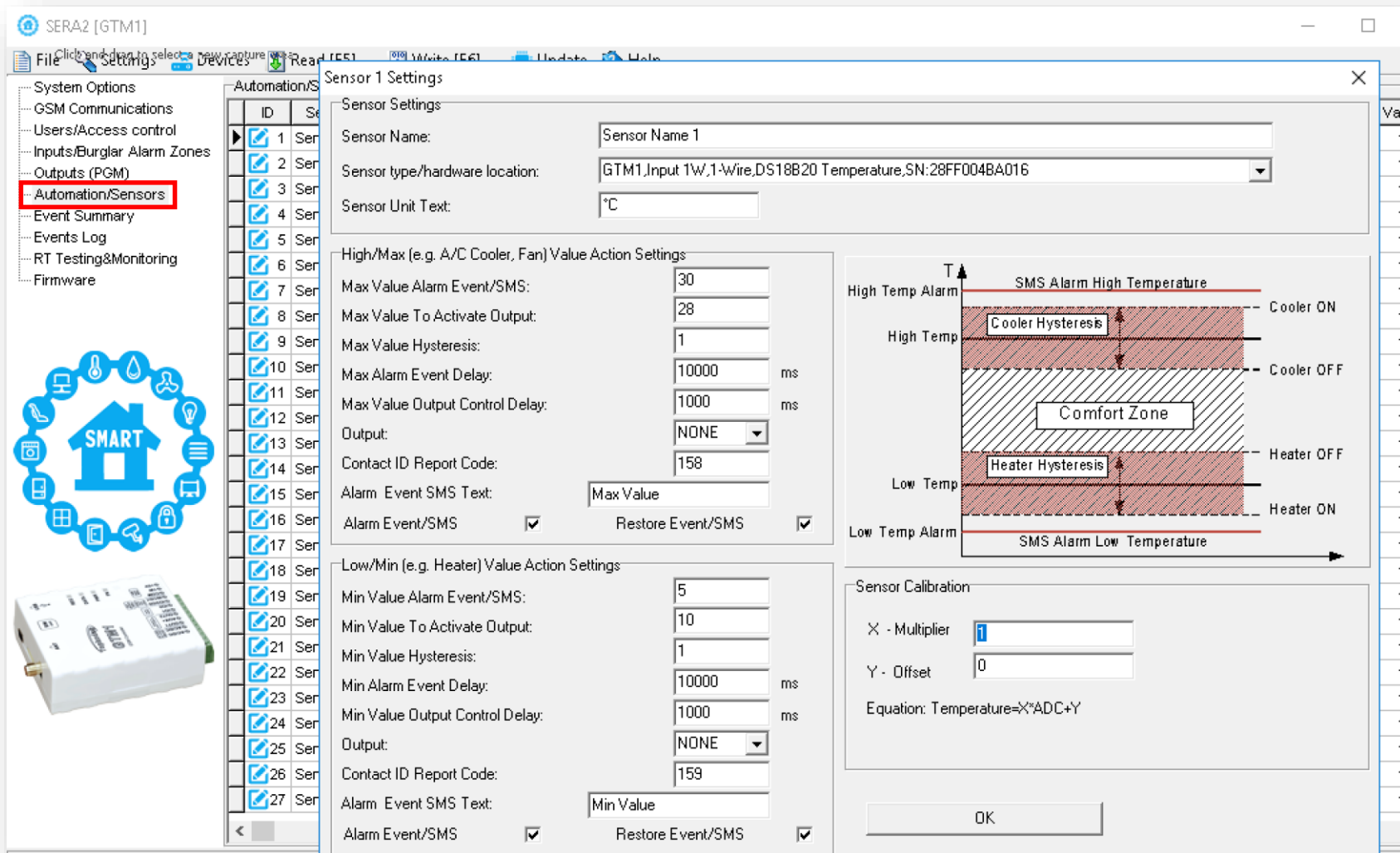
File Settings Devices Read [F5] Write [F6] Update Help

System Options
GSM Communications
Users/Access control
Inputs/Burglar Alarm Zones
Outputs (PGM)
Automation/Sensors
Event Summary
Events Log
RT Testing&Monitoring
Firmware

Automation/Sensors/Analog Inputs

ID	Sensor Name	Sensor Hardware ID
1	Sensor Name 1	GTM1 ,Input 1W,1-Wire,DS18B20 Temperature,SN:28FF004BA016
2	Sensor Name 2	Sensor Disabled
3	Sensor Name 3	Sensor Disabled
4	Sensor Name 4	Sensor Disabled
5	Sensor Name 5	Sensor Disabled
6	Sensor Name 6	Sensor Disabled
7	Sensor Name 7	Sensor Disabled

- Set other parameters of the sensor MIN, MAX, alarm values etc.
- Press “Write” in the command line



The screenshot shows the SERA2 [GTM1] software interface. The left sidebar contains a tree view with the following items: System Options, GSM Communications, Users/Access control, Inputs/Burglar Alarm Zones, Outputs (PGM), **Automation/Sensors** (highlighted with a red box), Event Summary, Events Log, RT Testing&Monitoring, and Firmware. Below the sidebar is a circular icon with a house and the word "SMART" and a photograph of a white electronic device.

The main window displays the "Sensor 1 Settings" dialog box. It is divided into several sections:

- Sensor Settings:**
 - Sensor Name: Sensor Name 1
 - Sensor type/hardware location: GTM1,Input 1W,1-Wire,DS18B20 Temperature,SN:28FF004BA016
 - Sensor Unit Text: °C
- High/Max (e.g. A/C Cooler, Fan) Value Action Settings:**
 - Max Value Alarm Event/SMS: 30
 - Max Value To Activate Output: 28
 - Max Value Hysteresis: 1
 - Max Alarm Event Delay: 10000 ms
 - Max Value Output Control Delay: 1000 ms
 - Output: NONE
 - Contact ID Report Code: 158
 - Alarm Event SMS Text: Max Value
 - Alarm Event/SMS: ☒
 - Restore Event/SMS: ☒
- Low/Min (e.g. Heater) Value Action Settings:**
 - Min Value Alarm Event/SMS: 5
 - Min Value To Activate Output: 10
 - Min Value Hysteresis: 1
 - Min Alarm Event Delay: 10000 ms
 - Min Value Output Control Delay: 1000 ms
 - Output: NONE
 - Contact ID Report Code: 159
 - Alarm Event SMS Text: Min Value
 - Alarm Event/SMS: ☒
 - Restore Event/SMS: ☒
- Sensor Calibration:**
 - X - Multiplier: 1
 - Y - Offset: 0
 - Equation: Temperature=X*ADC+Y

On the right side of the dialog box, there is a diagram illustrating the temperature control logic. The vertical axis is labeled "T" (Temperature). The diagram shows several horizontal bands:

- SMS Alarm High Temperature:** The topmost band.
- High Temp:** A band below the SMS alarm, containing a "Cooler Hysteresis" zone.
- Comfort Zone:** A central band with diagonal hatching.
- Low Temp:** A band below the Comfort Zone, containing a "Heater Hysteresis" zone.
- Low Temp Alarm:** The bottommost band.

 Labels on the right side of the diagram indicate the states: "Cooler ON" for the High Temp band, "Cooler OFF" for the Comfort Zone, "Heater OFF" for the Low Temp band, and "Heater ON" for the Low Temp Alarm band.

An "OK" button is located at the bottom right of the dialog box.

You can set:

- trigger conditions (“Min”, “Max” and “Hys.”) and
- wanted action.
- SMS alarm event values

- Hysteresis (“Hys”) is used to prevent from
- excessively triggering when
- the value fluctuates around the trigger point.

Example:

The wanted minimum temperature is 19°C.

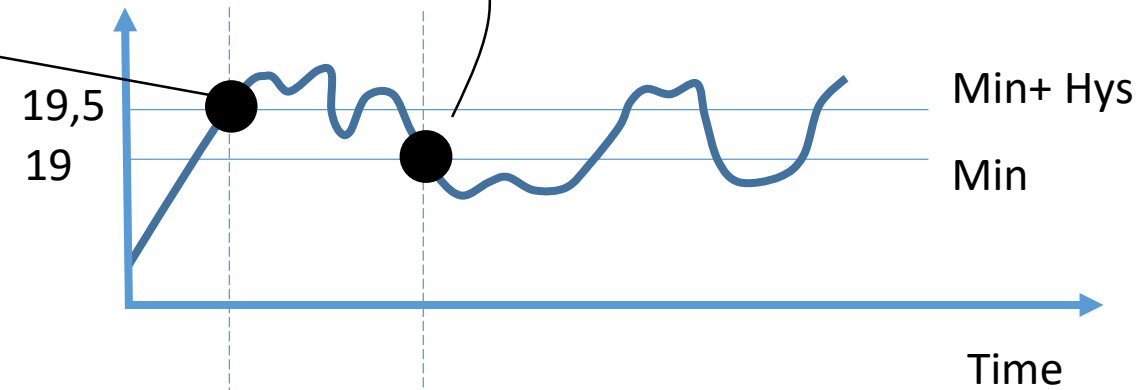
So sensor1: Min=19 and Hysteresis=0.5

- When the controller is switched on,
- Out1 is activated because the temperature is out of range.
- This switches the heater ON

The temperature is going higher.

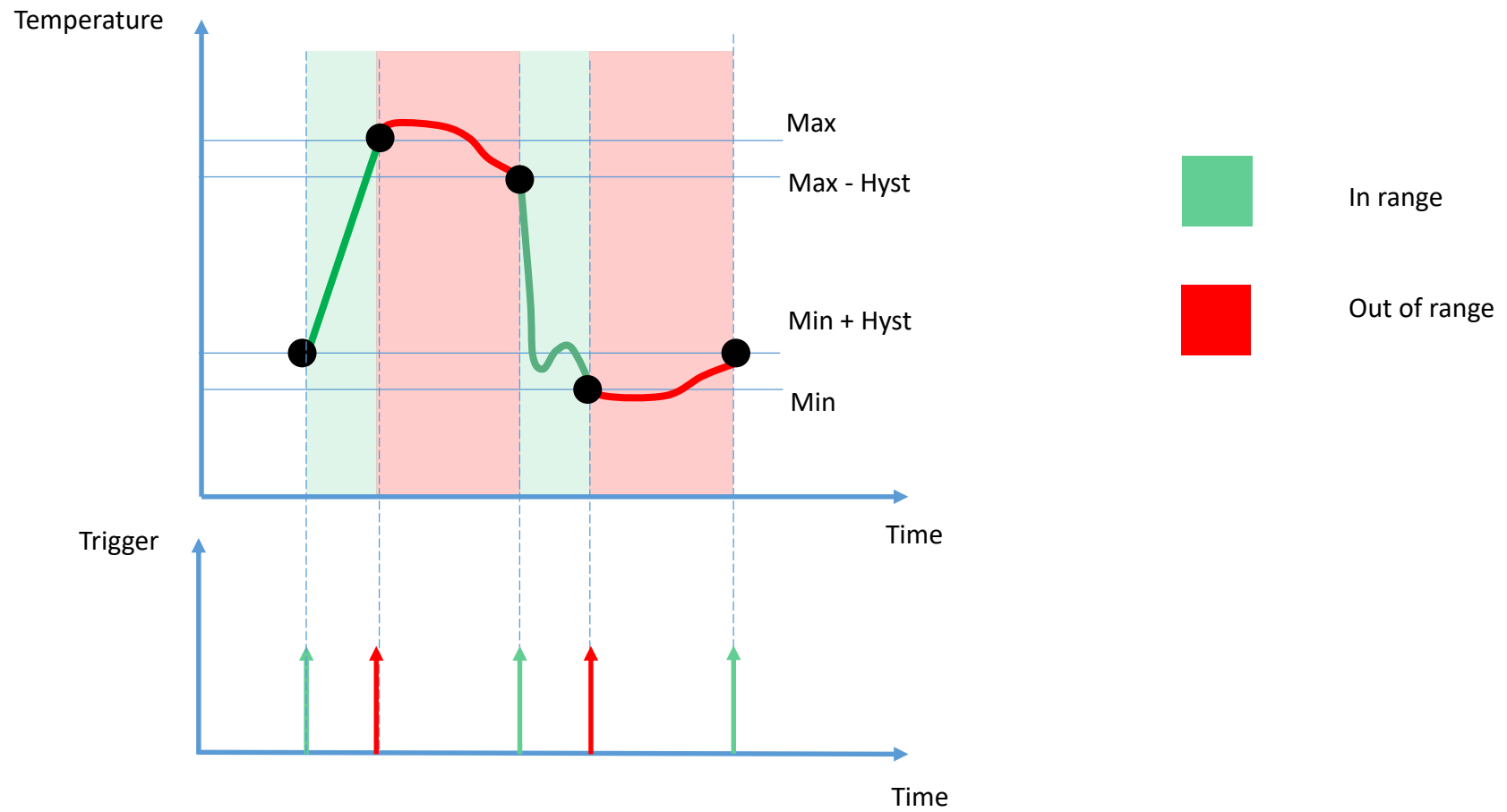
- When temperature reaches 19.5°C ($19.0 + 0.5$)
- it goes in range (trigger condition)
- Out1 is deactivated.
- The heater is switched off.
- The temperature falls and
- when it reached 19°C it goes out of range (trigger conditions)
- The Out1 is activated (heater is switched on).

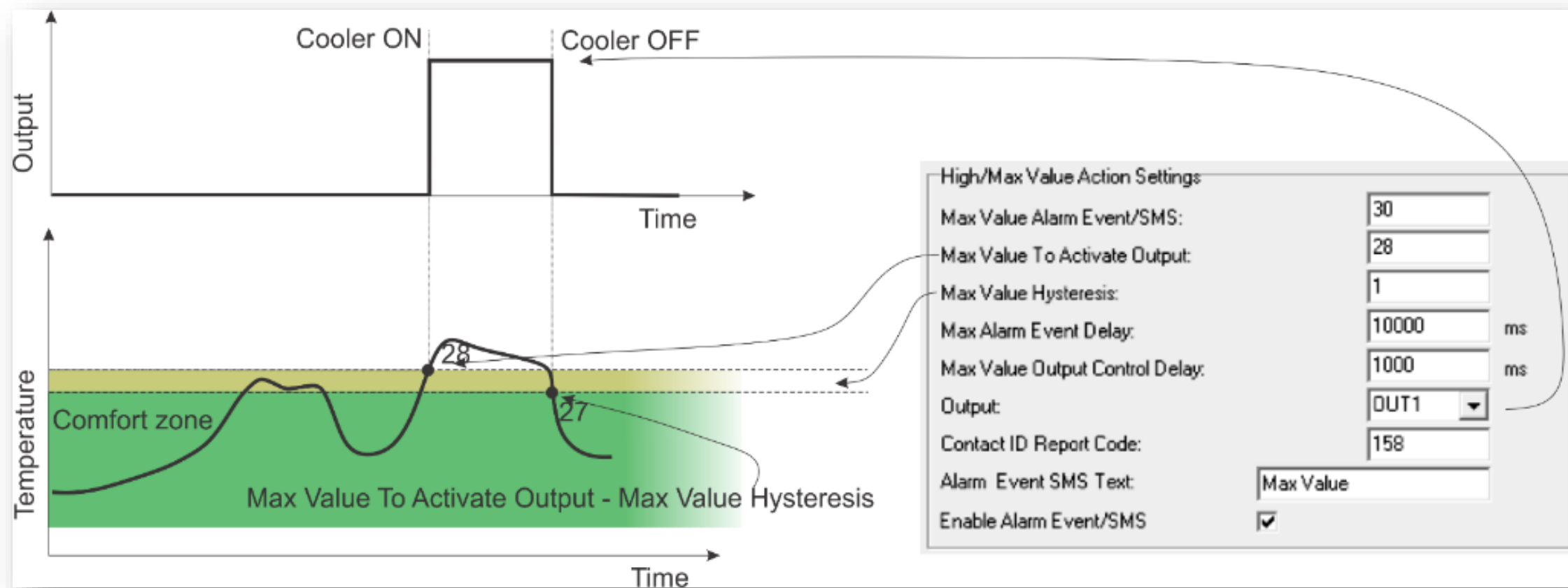
Temperature



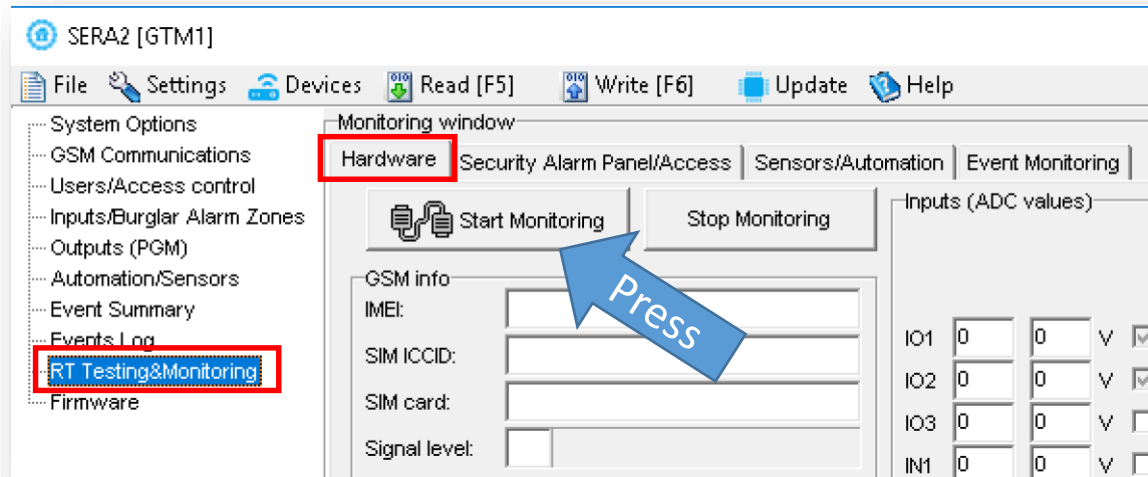
Output status



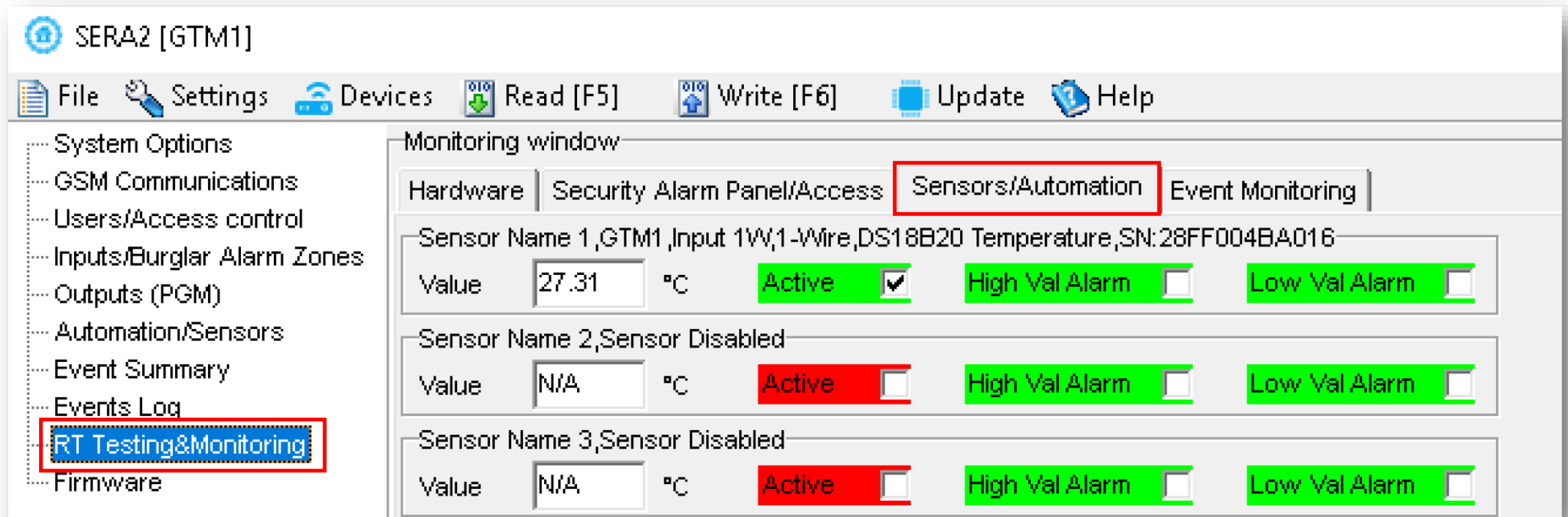




- Go to SERA2> RT Testing & Monitoring > Hardware
- Press “Start Monitoring”



- Go to RT Testing & Monitoring> Sensors Automation



High Value Alarm

SERA2 [GTM1]

File Settings Devices Read [F5] Write [F6] Update Help

System Options
GSM Communications
Users/Access control
Inputs/Burglar Alarm Zones
Outputs (PGM)
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RT Testing&Monitoring
Firmware

Monitoring window

Hardware Security Alarm Panel/Access Sensors/Automation Event Monitoring

Sensor Name 1,GTM1,Input 1W,1-Wire,DS18B20 Temperature,SN:28FF004BA016

Value	0.19	°C	Active <input checked="" type="checkbox"/>	High Val Alarm <input type="checkbox"/>	Low Val Alarm <input checked="" type="checkbox"/>
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Sensor Name 2,Sensor Disabled

Value	N/A	°C	Active <input type="checkbox"/>	High Val Alarm <input type="checkbox"/>	Low Val Alarm <input type="checkbox"/>
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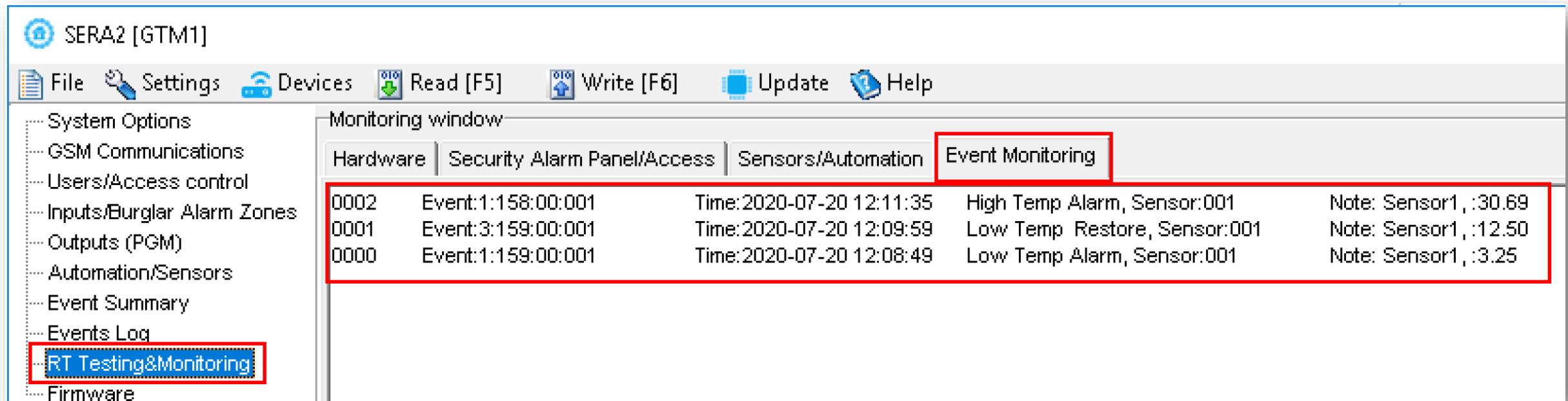
Sensor Name 3,Sensor Disabled

Value	N/A	°C	Active <input type="checkbox"/>	High Val Alarm <input type="checkbox"/>	Low Val Alarm <input type="checkbox"/>
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Sensor Name 4,Sensor Disabled

Event Monitoring

- Go to SERA2> RT Testing & Monitoring> Event Monitoring

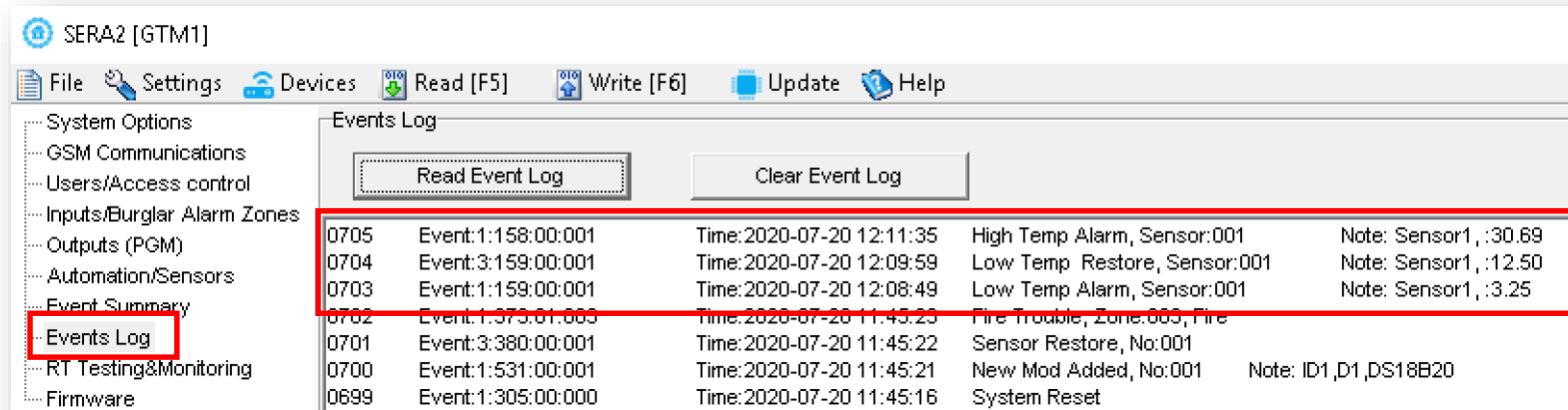
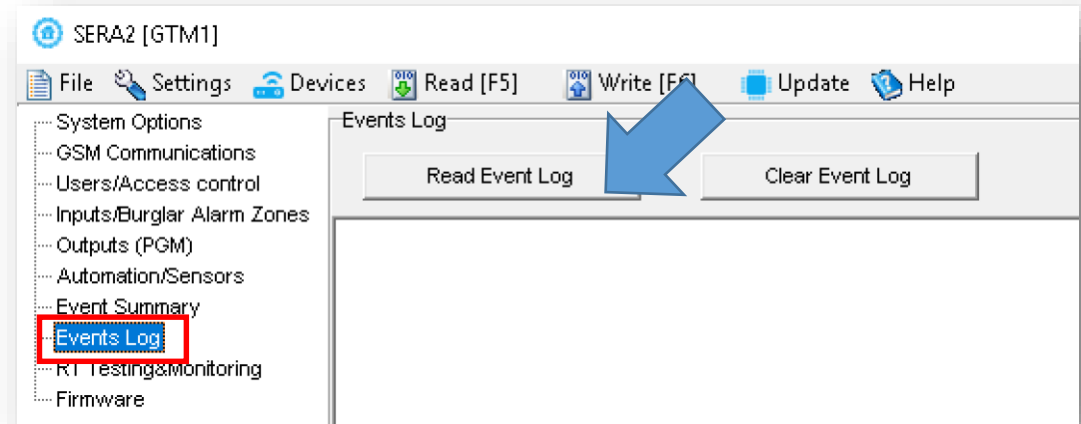


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Event ID	Event Description	Time	Event Details	Note
0002	Event:1:158:00:001	Time:2020-07-20 12:11:35	High Temp Alarm, Sensor:001	Note: Sensor1, :30.69
0001	Event:3:159:00:001	Time:2020-07-20 12:09:59	Low Temp Restore, Sensor:001	Note: Sensor1, :12.50
0000	Event:1:159:00:001	Time:2020-07-20 12:08:49	Low Temp Alarm, Sensor:001	Note: Sensor1, :3.25

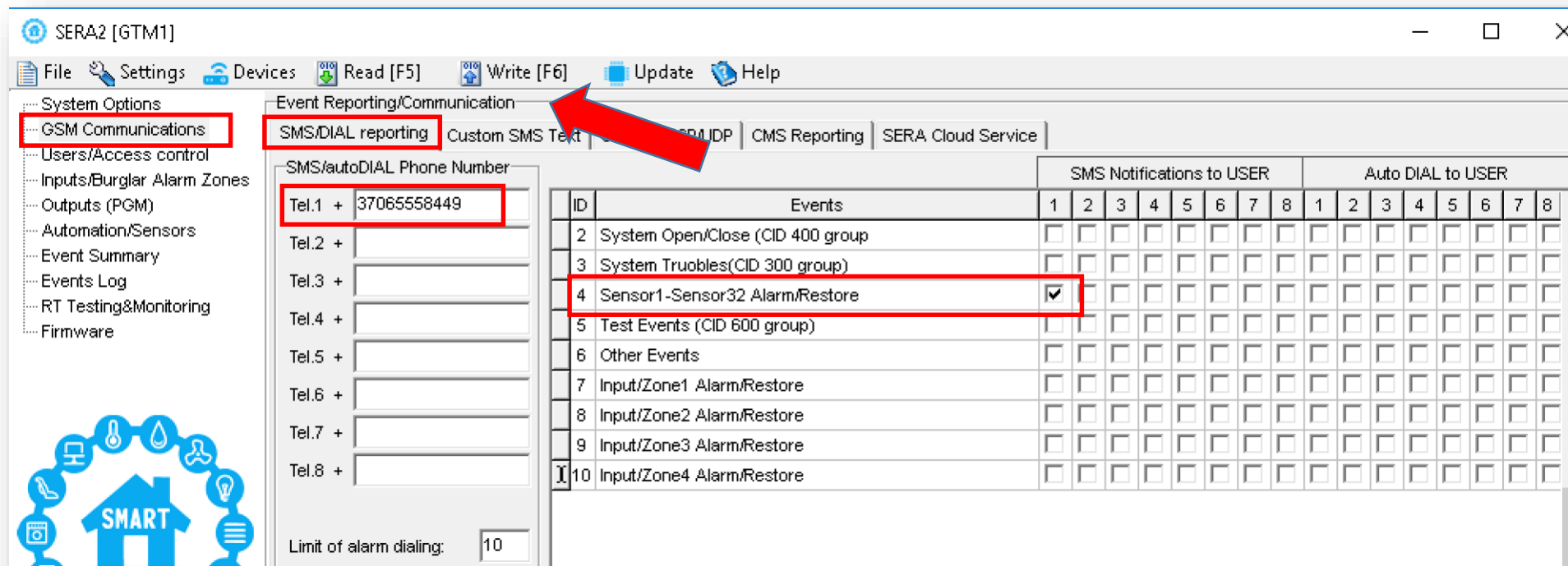
Read Events Log

- Go to SERA2> Events Log
- Press “Read Event Log” button



Alarm SMS

- Go to SERA2> GSM Communication > SMS/ DIAL reporting
- Enter your phone number
- Mark alarm events
- Press “Write” in the command line



More information via email:

info@topkodas.it