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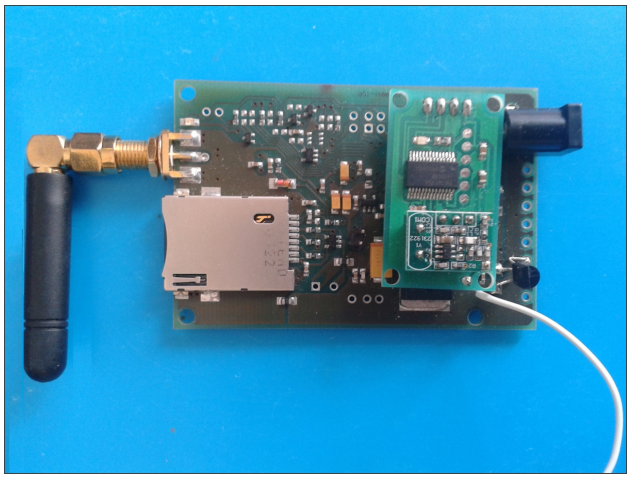
GSM Controller BR900-SMT-RF

Preliminary version

GSM controller for SMS remote monitoring and control applications.
Temperature version for temperature monitoring and wireless AC-switch control.
You can use a mobile phone to set ON or OFF any device (lighting, heating) in you home use AC Sockets with Wireless Remote Control. Control with up to 5 AC-switch RF receivers.



Features:

- Dual or Quad band GSM module
- Control up to 5 AC Socket with Wireless Remote Control (Proove SYS2000, NEXA NEYCR1000)
- 433 MHz RF communication between BR900-SMT-RF and RF AC-Switch RF Receivers
- Internal Smartec SMT160-30 (TO92) temperature sensor for temperature monitoring
- 1 digital input (example, for door contact monitoring)
- Auto heater (output 1) / air conditioner (output 2) control mode
- Configuration with SMS command from cell phone
- Push-Push SIM holder
- Standard 5.5/2.1 power connector (+ centre)
- External stabilized +5VDC power supply, 1.2A min
- Dimensions: 80x55x24mm

Applications:

Temperature monitoring
Heating remote control
Lighting remote control
Other home equipment remote monitoring

Power Supply:

External stabilized +5VDC power supply, 1.2A min
Power connector: 5VDC stabilized, 5.5/2.1 power socket (+ centre)

Preparation of SIM card

1. Disable PIN code request so it will not prompt for a PIN code on turning on.
2. SIM card change if power turn off.

LED indicators

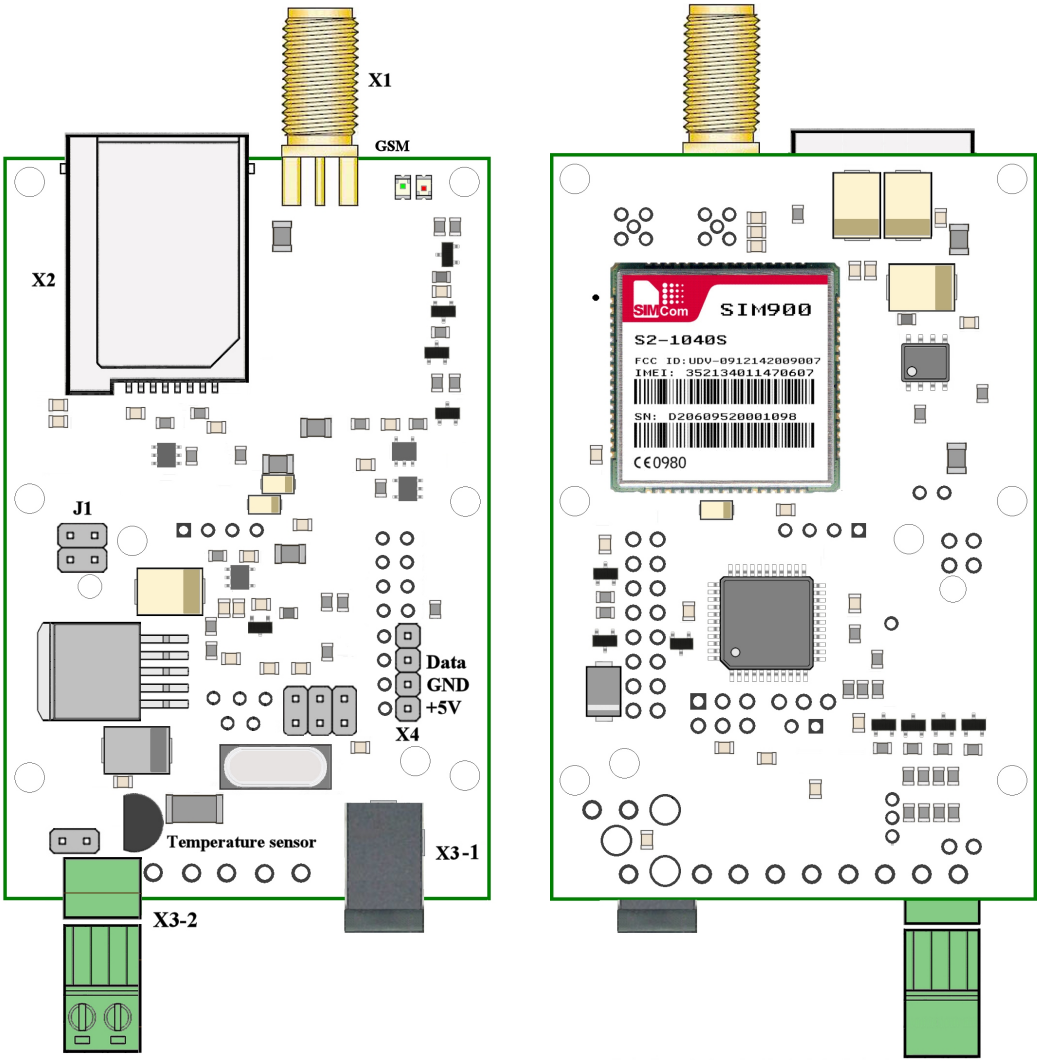
Module status LED indication (Red LED)

LED status RED	**Module status**
Permanently off	Device off
Short blinking after power on and after 15-20 sec periodic blinking	SIM card read process
Short blinking (periodic)	Module in work
Permanently on	Module work with modem

GSM Modem LED indication (Green LED)

LED status GREEN	**GSM Modem status**
Permanently off	Device off
Fast blinking (period 1s, ton 0,5s)	Net search / Not registered / Turning off
Slow blinking (period 3s, ton 0,3s)	Registered full service
Permanently on	A call is active

Hardware



Top view Bottom view

X1 - GSM Antenna SMA female connector
X2 - Push-push SIM holder
X3-1 - Power connector 5.5/2.1 (+ centre), 5VDC stabilized power supply
X3-2 - Plugin Terminal Connector for digital input (left contact – GND / right contact - Input)
X4 - Socket for RF transmitter module (5VDC power supply)
1 - +5VDC
2 – GND
3 – Transmit data
4 – Not used

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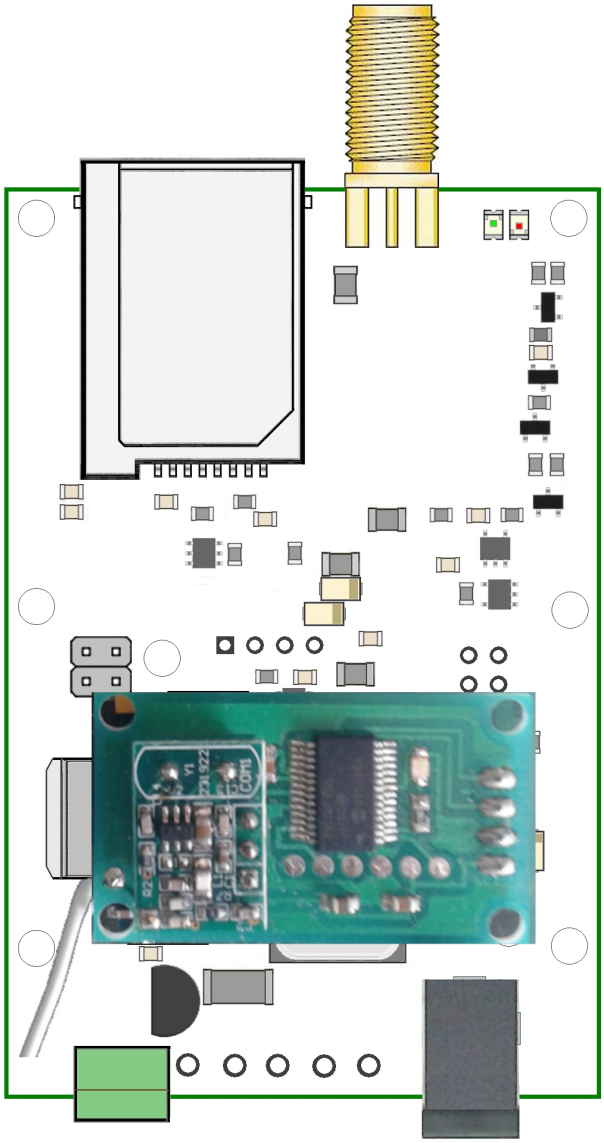
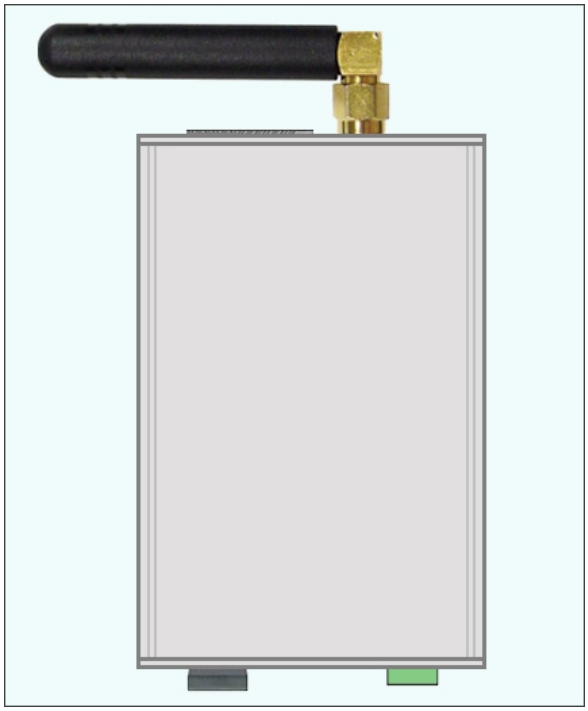


With RF-transmitter module



With enclosure

SMS command for control

SMS command for ON, OFF external devices

2345S1 … 2345S5	Status info	Set output *)
2345R1 … 2345R5	Status info	Reset output *)
2345R0 (or 2345R)	Status info	Reset all outputs *)

Request status info

2345I	Status info	Read status SMS

SMS command

	Auto control disable 2345A0	**Auto control enable 2345A1**	**Auto control enable 2345A1**
Heater (RF output 1)		**Enable heater 2345B1**	
Air Conditioner (RF output 2)			**Enable air condition 2345B0**
	Output 1...5	Output 1	Output 2
	 Lamp, Fan, Pump, Heater, Air conditioner..	 Heater	 Air conditioner

SMS command	**Text** (length 16 characters)	**Text** (length 16 characters)	**Text** (length 16 characters)
	Default text	Default text	Default text
2345X1,text	Input event 1	Input event 1	Input event 1
2345X2,text	Output 1	Output 1	Output 1
2345X3,text	Output 2	Output 2	Output 2
2345X4,text	Output 3	Output 3	Output 3
2345X5,text	Output 4	Output 4	Output 4
2345X6,text	Output 5	Output 5	Output 5
2345X7,text	Temperature low	Temperature low	Temperature low
2345X8,text	Temperature norm	Temperature norm	Temperature norm
2345X9,text	Temperature high	Temperature high	Temperature high

Temper. Level	Auto-control disable		direct output control
T high	> +27 Celsius		enable
T low	< +18 Celsius		

Temper. Level	Heater enable, air conditioner disable		direct output control
T high	> +27 Celsius	Heater OFF	Disable for Output 1
T low	< +18 Celsius	Heater ON	

Temper. Level	Heater disable, air conditioner enable		direct output control
T high	> +27 Celsius	Air condit. ON	Disable for Output 2
T low	< +18 Celsius	Air condit. OFF	

SMS command	Answer SMS	Function
2345L+18	Output 1 OFF Output 2 OFF Output 3 OFF Output 4 OFF Output 5 OFF I1=1 T=+22 T:+18+27 F=0 AUTO: disable E 6 (Status info)	Set minimum temperature level **default:** +18
2345H+25		Set maximum temperature level **default:** +27
2345F0		Timeout filter 0 – 20sec, 1: 5min, 2: 10min ... 9: 45min; **default 0**
2345I	Status info	Read status SMS
2345N1,+37122842913 2345N2,+37122842914 2345N3 2345N4	Number 1 added	Set up to 4 cell phone numbers for alarm SMS at position 1..4 without number = clear number
2345P2010	Passw: 2010, 2010 – new password	Change password; **default password 2345** If forgot password you can with jumper restore default password 2345. Set jumper, power ON, wait 15-20 sec, power OFF, remove jumper
2345S1 … 2345S5	Status info	Set output *)
2345R1 … 2345R5	Status info	Reset output *)
2345R0 (or 2345R)	Status info	Reset all outputs *)
2345E1 2345E0 or 2345E	Status info	Enable alarm SMS, **default** enable Disable alarm SMS
2345A0 (or 2345A) 2345A1	Status info AUTO: disable or AUTO: Heater or AUTO: Air cond.	0 - auto control disable (default) 1 - auto control enable
2345B0 (or 2345B) 2345B1	Status info	1 - auto control heater (default) 0 - auto control air condition
2345X7,Temperature low 2345X2,text … 2345X6,text	7:Temperature low	Set SMS text message for input events, outputs name and temperature events. Text up to 16 characters. Example 2345X2,Heater 2345X1 - disable SMS for Input 1
2345V1 2345V0 (or 2345V)	Status info	Digital event 1-0 Digital event 0-1

Status info

Output 1 ON, Output 2 OFF, Output 3 ON, Output 4 OFF Output 5 OFF	outputs state
I1=1	inputs state
T=+22	temperature
T:+18+25	temperature level
AUTO: disable	auto mode
F=0	temperature filter
E	alarm SMS enable/disable (E – enable, D – disable)

*) direct control for Out.1 disabled if heater enabled and if auto-control enabled,
direct control for Out.2 disabled if air condition enabled and if auto-control enabled.

Temperature monitoring and control

Heater auto-control mode
AC Switch/Receiver 1 (Output 1)
(2345A0, 2345B1)

Low level		High level
Temperature low	Temperature normal	Temperature high
Output 1 ON		Output 1 OFF

Air conditioner auto-control mode
AC Switch/Receiver 2 (Output 2)
(2345A0, 2345B0)

Low level		High level
Temperature low	Temperature normal	Temperature high
Output 2 OFF		Output 2 ON

Auto-control disable
(2345A0)

Low level		High level
Temperature low	Temperature normal	Temperature high
SMS "Temperature low"	SMS "Temperature normal"	SMS "Temperature high"

Temperature setpoints

2345L+18 set setpoint for minimum temperature level
2345H+27 set setpoint for maximum temperature level

AC Switch/Receiver initialization

Reset AC switch (reset all address)

Press button, keep > 7 sec and wait until red LED blinking.
After red LED blinking let go button and short press button.
Should be Relay switching.

Set AC Switch/Receiver 1 to address 1

Reset AC switch 1

- **2345A0** and wait answer SMS - if set auto mode, disable auto mode
- **2345R0** and wait answer SMS - reset all outputs
- **2345S1** and wait answer SMS - set outputs 1
- press button on AC Switch/Receiver 1
- Power OFF-ON on BR900-SMT-RF device
- wait AC Switch/Receiver 1 Relay switching
- Power OFF-ON on BR900-SMT-RF device
- if AC Switch/Receiver 1 turned ON, then address installation OK
- **2345R0** and wait answer SMS - reset all outputs

Set AC Switch/Receiver 2 to address 2

Reset AC switch 2

- **2345A0** and wait answer SMS - if set auto mode, disable auto mode
- **2345R0** and wait answer SMS - reset all outputs
- **2345S2** and wait answer SMS - set outputs 2
- press button on AC Switch/Receiver 2
- Power OFF-ON on BR900-SMT-RF device
- wait AC Switch/Receiver 2 Relay switching
- Power OFF-ON on BR900-SMT-RF device
- if AC Switch/Receiver 2 turned ON, then address installation OK
- **2345R0** and wait answer SMS - reset all outputs

Set AC Switch/Receiver 3 to address 3

Reset AC switch 3

- **2345A0** and wait answer SMS - if set auto mode, disable auto mode
- **2345R0** and wait answer SMS - reset all outputs
- **2345S3** and wait answer SMS - set outputs 3
- press button on AC Switch/Receiver 3
- Power OFF-ON on BR900-SMT-RF device
- wait AC Switch/Receiver 3 Relay switching
- Power OFF-ON on BR900-SMT-RF device
- if AC Switch/Receiver 3 turned ON, then address installation OK
- **2345R0** and wait answer SMS - reset all outputs

Set AC Switch/Receiver 4 to address 4

Reset AC switch 4

- **2345A0** and wait answer SMS - if set auto mode, disable auto mode
- **2345R0** and wait answer SMS - reset all outputs
- **2345S4** and wait answer SMS - set outputs 4
- press button on AC Switch/Receiver 4
- Power OFF-ON on BR900-SMT-RF device
- wait AC Switch/Receiver 4 Relay switching
- Power OFF-ON on BR900-SMT-RF device
- if AC Switch/Receiver 4 turned ON, then address installation OK
- **2345R0** and wait answer SMS - reset all outputs

Set AC Switch/Receiver 5 to address 5

Reset AC switch 5

- **2345A0** and wait answer SMS - if set auto mode, disable auto mode
- **2345R0** and wait answer SMS - reset all outputs
- **2345S5** and wait answer SMS - set outputs 5
- press button on AC Switch/Receiver 5
- Power OFF-ON on BR900-SMT-RF device
- wait AC Switch/Receiver 5 Relay switching
- Power OFF-ON on BR900-SMT-RF device
- if AC Switch/Receiver 5 turned ON, then address installation OK
- **2345R0** and wait answer SMS - reset all outputs