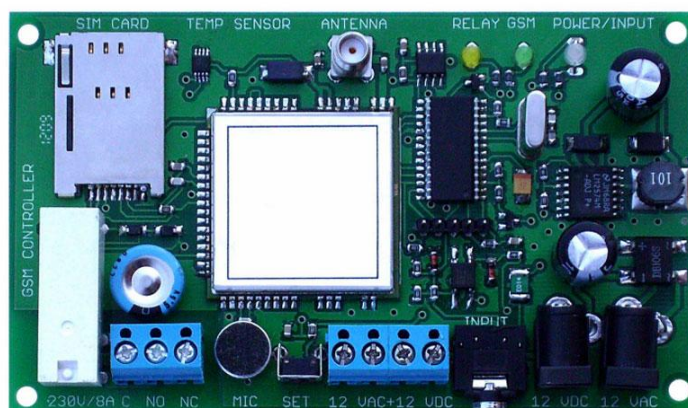
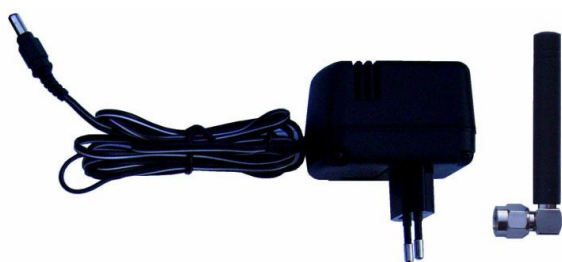




Intelligent power sockets

IQsocket™ BOARD / IQSB-GSM

...makes your life more comfortable



User Guide

IQSB-GSM

firmware documentation v.1.1R2
(for firmware v1.1)

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1. Introduction

It's a fact that communication technologies help us to live our lives easier. There was never such an importance of data networking features implementations at products which have had no networking features in the past. Need of data communication in companies even in homes is specially visible in this Internet age. Intelligent restarter IQsocket IQSB-GSM is a member of wide product family of intelligent power controllers which helps people to run some tasks remotely. These IQsocket products has following main features:

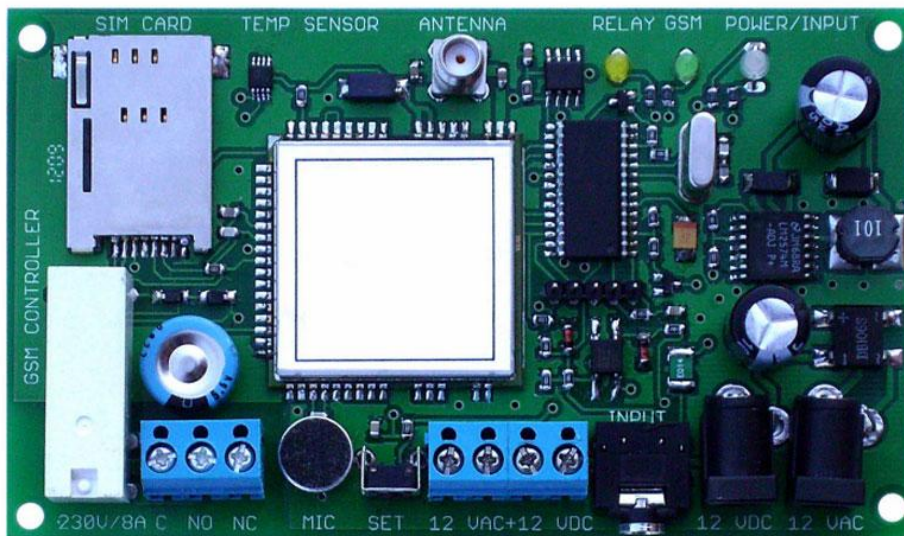
- Various communication data interfaces
- Various number of output power sockets / power interfaces
- Different power socket types/interfaces for different countries
- Different inputs / outputs

2. Product decription

Intelligent power control board IQsocket IQSB-GSM helps to control any appliance remotely over GSM network using by mobile or traditional phone. It was designed as an open board especially for installation companies with technical skills. IQSB-GSM is managed by SMS messages or phone call. It can work also as a independent thermo regulator because of integrated thermometer which control appliance by turning on/off according to preconfigured temperature rules. Additional features like a sensor inputs, realtime clock and built-in microphone are welcomed for many applications.

IQsocket Board IQSB-GSM provides following features to customers:

- Appliance control over SMS, by call or manually
- Remote power turnon/turnoff of up to 230V appliance
- Remote power turnoff for specified time
- Remote appliance restart / switchon-off
- Remote temperature monitoring
- Thermoregulating feature
- Alarm detection and processing
 - Built-in temperature sensor
 - External detector of motion, gas, fire, water; not included with product
 - External detector of opened door, window, shake detector; not included with product
 - all alarms are logged
 - other external detector
- Tapping
- Scheduler



Output power can be in load of 8A max.

SIM CARD – SIM socket , push to insert / push to eject

TEMP SENSOR – Built-in temperature sensor

ANTENNA – connector for external GSM antenna

RELAY / GSM / POWER / INPUT – LED indicator of output relay / GSM network / power / input power

C / NO / NC – contacts of bistable output relay 230V / 8A, C-NC = relay connected-turned on(LED active); C-NO connected – turned off(LED inactive)

MIC – Microphone for monitoring

SET – Button for rele status change, or reset to default

12VAC, 12VDC – Power supply input

INPUT – Digital input for external alarm (3,5 mm stereo jack)

3. Installation

Enter SIM card into SIM socket and push until its fixed



NOTE: Before SIM is finally used, please turn off PIN authorization.

Authorisation can be turned off using by mobile phone by inserting SIM card into mobile phone and disabling PIN usage by phone software. After this step you can pull out SIM card from phone.

- Insert SIM card with inactive PIN usage into power socket's SIM socket
- In case of active PIN usage, GSM indicator starts blinking fast
- Plug your adapter into the board
- If everything is OK, red POWER indicator is turned on
- GSM indicator is blinking periodically (green light) – while searching GSM networks; after it's logged - blinking every 2 seconds.
- RELAY indicator should light on/off if output power is turned on/off
- Product is now ready for your use.

4. Managing outputs - basics

4.1 Managing outputs by SMS

Commands are send in form of SMS messages to SIM card call number which is in restartboard SIM slot. Messages has following syntax:

pinCOMMAND (e.g. 3366STATUS)
 - With pre-configured security password by command SMSPIN=3366

COMMAND (e.g. STATUS)
 - with unconfigured security password/SMSPIN

Command	Description	Response
TURNOFF	Output power is turned off	TurnedOFF
TURNON	Output power is turned on	TurnedON
TURNOFF=123	Output power is turned off for 123 minutes. Maximal acceptable value is 180.	TurnedOFF 123 min
TURNON=123	Output power is turned on for 123 minutes. Maximal acceptable value is 180.	TurnedON 123 min
RESTART	Interrupting power output for RESTARTTIME time	Restarted
STATUS	Information message: Request for power status: output power status, temperature, GSM signal Temperature is provided after 10 minutes from board startup	TurnedOFF, TEMP: 25C, Signal: 35 %, Input=NOTCONNECTED, Time=yy/mm/dd,hh:mm:ss, Alarm ACT
CREDIT*XX#	Check credit value on SIM card	YOUR CREDIT IS xxx

4.2 Managing output power by phone call

Output power can be managed also by call using by mobile phone or fixed phone. In such a case – IQ Socket Board runs some action immediately. Action can be output power interruption (appliance reboot), negating output power status or other action. Action must configured in advance.

NOTE: Configuration commands are accepted only within first 10 minutes after IQ Socket Board is plugged in. It is for security reasons. Configuration SMS messages are typed by Bold.

Message	Description	Response
RING=SWITCH	If this parameter is configured, status of output power is changed (negated) by phonecall.	RING=SWITCH - OK
RING=RESTART	If this parameter is configured, output power is turned on for time configured by RESETTIME parameter.	RING=RESTART - OK
RING=NOACTION	No action is performed on phone call	RING=NOACTION - OK
RING=MIC	Remote tapping form power is allowed on phone call	RING=MIC - OK
RING?	Information message: Request for ring action configuration	RING=(NOACTION),RESTART,SWITCH, MIC
RESTARTTIME=X X	Configures time in seconds for RESET action. Maximal number is 180.	RESTARTTIME=XX - OK
RESTARTTIME?	Information message: Request for RESETTIME configuration parameter	RESTARTTIME=30 seconds

4.3 Controlling output power manually

Output power can be managed also manually by Set button on bottom side near the microphone. Button can be activated by suitable thin tool. Pressing this button cause switching output power to negative value.

5. Security features

Product can be configured for advanced security to disable controlling the IQ Socket Board by unauthorized persons. IQ Socket Board uses two security methods:

- Allowing only authorized phone numbers
- Authentication by password/SMSPIN number

In case of first option – device will ignore all SMS and calls from unauthorized phone numbers. If security is not configured, anyone who knows SIM card calling number can control power output remotely. Power controller uses security lists for this purpose. This list supports 7 phone numbers max.

In case of SMSPIN use - individually or along with security lists, it is important to put SMSPIN command right before SMS command without any space or special character as shown here:

pinCOMMAND (e.g.. 3366STATUS)

- With preconfigured password/SMSPIN ; SMSPIN=3366

NOTE: password (SMSPIN), which is use dis different than traditional PIN code, which is usually assigned by GSM operator or assigned by user on SIM card. It is kind of IQ Socket Board password called SMSPIN and is used for SMS message authentication and has the same structure as standard PIN = 4 numbers.

5.1 Basic security settings

Security can be configured and viewed simply by following messages.

Command	Description	Response
SECNUMBER=NO	Security phone lists are turned off/inactive.	SECNUMBER=(NO),YES,LIST
SECNUMBER=YES	Security phone lists are turned on/active for configured phone numbers.	SECNUMBER=NO,(YES),LIST
SECNUMBER=LIST	Informational message: Request for full list of secured numbers.	LIST 421903123456,421903111222,421235678235 LIST - NO NUMBER!
SMSPIN=xxxx	Configuration of SMS password/SMSPIN.	SMSPIN=xxxx - OK
SMSPIN=NOPIN	Using of password/SMSPIN is deactivated.	SMSPIN=NOPIN - OK
SMSPIN?	Informational message: Request for SMSPIN configuration.	SMSPIN=(NOPIN), 1234

5.2 Security list

Security list allow to configure up to 7 numbers and up to 15 digits for one phone number.

Command	Description	Response
SECNUMBER+421233355777	Add new number to security list.	SECNUMBER-421233355777 - OK
SECNUMBER-421233355777	Delete specific number from security list.	SECNUMBER-421233355777 - OK
SECNUMBER-ALL	Delete all numbers from security list	SECNUMBER-ALL - OK
SECNUMBER?	Informational message: Request for security list configuration.	SECNUMBER=(OFF),ON,LIST

- Security lists accept only numbers in international syntax:

Example: SECSMS+421265440655 means add number +421-2-65440655

Example: SECSMS-421265440655 means delete number +421-2-65440655
421 is country code in this example and 2 is city code.

6. Command confirmation settings

It is important to make you sure if command was executed successfully when communicating with IQ Socket Board. For this purpose we implemented notifications of each executed command. If you activate this notification, you will be informed about each command execution. In case of SMS commands, you will be notified by back SMS. In case of managing by phone call, your command will be confirmed by back phone call to your mobile phone.

6.1 Confirmation settings for SMS commands

Command	Description	Response
SMSCONFIRM=YES	SMS confirmation is turned on for all SMS commands	SMSCONFIRM=YES - OK
SMSCONFIRM=NO	SMS confirmation is turned off for all SMS commands	SMSCONFIRM=NO - OK
SMSCONFIRM?	Information message: Request for SMS confirmation settings	SMSCONFIRM=NO,(YES)

6.2 Confirmation settings for phone calls

Command	Description	Response
RINGCONFIRM=YES	Phone call confirmation is turned on for all commands. Hang off after 10 seconds	RINGCONFIRM=YES - OK
RINGCONFIRM=NO	Phone call confirmation is turned off for all commands	RINGCONFIRM=NO - OK
RINGCONFIRM?	Information message: Request for call confirmation settings	RINGCONFIRM=NO,(YES)

7. Measuring temperature

GSM IQ Socket Board has built in thermometer. This thermometer enable to measure temperature of environment and provide it over SMS. It also enables to act as a thermostat to control output power. Device enables to configure two temperature thresholds which control output power. This is just supplemental feature with accuracy $\pm 2^{\circ}\text{C}$ due to using inexpensive thermometer instead of using expensive precise external thermometer. This feature cannot replace professional thermostat feature.

Command	Description	Response
THERMOSTAT=YES	Activates temperature monitoring	THERMOSTAT=YES - OK
THERMOSTAT=NO	Deactivates temperature monitoring	THERMOSTAT=NO - OK
TEMPON=XX	Temperature limit for turning on of output power – if temperature threshold is reached or passed	TEMPON=XX - OK
TEMPOFF=XX	Temperature limit for turning off of output power – if temperature threshold is reached or passed	TEMPOFF=XX - OK
THERMOSTAT?	Information message: Request for temperature configuration	THERMOSTAT=NO,(YES) ON=25 OFF=27

7.1 Thermostat

This feature can be attractive if you wish to ensure activating or deactivating appliance when temperature threshold is reached.

Typical example is heating activation when temperature is below 20°C and deactivating when temperature is over 25°C .
(THERMOSTAT=YES, TEMPON=20, TEMPOFF=25)

Other example is airconditioning activation over 28°C and deactivation when temperature is below 24°C

(THERMOSTAT=YES, TEMPON=28, TEMPOFF=24)

8.Other commands

Command	Description	Response
ERRORREPLY=YES	Activates sending of information SMS for each received SMS command, which was not executed due to any error.	ERRORREPLY=YES – OK
ERRORREPLY=NO	Deactivates sending of information SMS for each received SMS command, which was not executed due to any error.	ERRORREPLY=NO – OK
ERRORREPLY?	Information message: Request for ERRORREPLY settings	ERRORREPLY=(NO),YES
OUTPUT=REM	Power output remember it's status after it's unplugged or central power is interrupted	OUTPUT=REM – OK
OUTPUT=ON	Power output will be turned on after it's unplugged or central power is interrupted	OUTPUT=ON – OK
OUTPUT=OFF	Power output will be turned off after it's unplugged or central power is interrupted	OUTPUT=OFF - OK
OUTPUT?	Information message: Request for initial mode configuration of power output.	OUTPUT=(REM), ON, OFF
INPUT=ALARMHIGH	Detection mode for external detector. In this case alarm is generated after high voltage is detected.	INPUT=ALARMHIGH – OK
INPUT=ALARMLOW	Detection mode for external detector. In this case alarm is generated after low voltage is detected.	INPUT=ALARMLOW - OK
INPUT?	Information message: Request for input mode configuration	INPUT=ALARMHIGH, (ALARMLOW)
VERSION	Request for firmware version	Ver. 1.0.6 (c) 2008
RINGON	Back call is realized to the number of the incoming SMS. Usefull feature when using prepaid cards to keep card active.	/no confirmation

- If bad command is received, IQ Socket Board replies with „message – ERROR!“ message
- Big and small letters are not recognized in commands
- SMS messages longer than 20 characters are automatically ignored

9. Alarms

9.1 External detector alarms

External detectors can be used for various alarm detections, for example motion, fire, gas, water, opened door/window detection and so on. Detectors are connected over 3.5 mm jack. It is possible to use more different detectors divide by jack divider, total current shouldn't be more than 50mA. Only first alarm within 60 seconds is indicated.

Command	Description	Response
ALARMON	Activated is alarm detection by external detectors.	AlarmOn = OK Alarm - NO sensor
ALARMOFF	Deactivated is alarm detection by external detectors.	AlarmOff = OK
ALARM+420123456789	When alarm is activated, board is making a call to preconfigured number. When external detector is unplugged, alarm is activated too and is repeated each 60 seconds.	Alarm+421903801254 - OK Alarm - NO sensor Alarm - NO number!

9.2 Temperature alarms

Built-in thermometer can be used to generate temperature alarms after critical temperature thresholds are reached. IQsocket uses low and high temperature thresholds which are configured by TEMPON=MAX and TEMPOFF=MIN commands. Temperature alarm monitoring is activated 10 minutes after IQsocket is powered on.

Command	Description	Response
TEMPALARM=NO	Temperature alarms are disabled	TEMPALARM=NO - OK
TEMPALARM=MAX	In case of maximal temperature threshold is reached - SMS is sent	TEMPALARM=MAX - OK
TEMPALARM=MIN	In case of minimal temperature threshold is reached - SMS is sent	TEMPALARM=MIN - OK
TEMPALARM=MIX	In case of mini or maximal temperature threshold is reached - SMS is sent	TEMPALARM=MIX - OK
TEMPALARM?	Request for temperature configuration	TEMPALARM=(NO),MAX,MIN,MIX

External detectors

9.3 Generated alerts

There are more ways how to inform you about detected alarm. You can be alerted by SMS or by phone call on active alarm. Or you can be informed by SMS on each change of logical INPUT.

Command	Description	Response
ALERT=RINGON	Phone call is established to predefined number in case of new alarm	ALERT=RINGON - OK
ALERT=SMS	SMS is sent to predefined number in	ALERT=SMS - OK

	case of new alarm	
ALERT=SMSCHANGE	SMS is sent on each logic value change to predefined number in case of new alarm	ALERT=SMSCHANGE - OK
ALERT?	Request for alert configuration	ALERT=(RINGON), SMS, SMSCHANGE

When option RINGON is used preconfigured number (by ALARM command) is called within 30 seconds. No new alert is generated within 60 seconds after alarm was detected. This option is ideal for PIR sensors which cause change of logical 0 to logical 1 value. On the other way - it is not suitable for door sensors which stay in switched logical 1 value. In this case alarm event is repeated until ALARMOFF command is sent.

In case of incoming alert by phone call, you have option to pick-up a call to monitor (tapping) remote activity using by built-in microphone.

9.4 Alarm logs

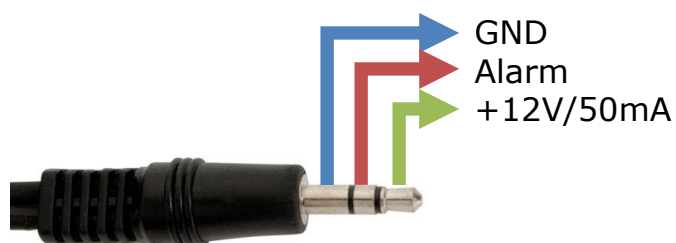
This command helps to watch over alarm history. Device keep last 5 events in internal memory sorted by time.

Command	Description	Response
SHOWALARM	Used to list alarm history log	yy/mm/dd:hh:ss

This feature can be also used for example to monitor people activity in room. In case of active ALARMON you can also switch to ALARMOFF by manual button on device. After this manual command you can use manual button under normal operation (not switching back to ALARMON).

More detectors can be used in parallel using by Jack splitter. Detectors are not recognized individually, max. current generated by detectors is 50mA.

9.5 External detectors – scheme



Connectors are not supplied with product

10. Date and time

Date and time are used for alarm logs and scheduling. It can be configured manually or automatically by each incoming SMS.

Command	Description	Response
DATE	Automatic date/time configuration from SMS is activated	DATE yy/mm/dd, hh:mm:ss+zz - OK
DATE=yy/mm/dd,hh:	Used for manual date/time configuration	DATE=yy/mm/dd,

mm:ss+zz		hh:mm:ss+zz – OK
DATE?	Resuest for actual date/time	DATE yy/mm/dd, hh:mm:ss+zz

NOTE: zz is GMT timezone

11. Scheduler

Scheduler enables to control output power automatically based on pre-scheduled date/time rules. Scheduler accept max. 8 rules.

Command	Description	Response
SCHEDULER+hh:mm,day,action	Add new rule for specified time valid for all days within a week	SCHEDULER+hh:mm,*,ON – OK
SCHEDULER-hh:mm	Delete record for configured time	SCHEDULER-hh:mm - OK
SCHEDULER?	Request for scheduler configuration	hh:mm,*,action

* = any day

1=Monday, 2=Tuesday, 3=Wednesday, 4=Thursday, 5=Friday, 6=Saturday, 7=Sunday

Actions: ON=Turn On, OFF=Turn off, INF=status of IQsocket is sent (as by STATUS command)

AON=Alarm On, AOF=Alarm Off

Examples:

SCHEDULER+10:00,*,ON

Every day at 10:00 is power output turned on

SCHEDULER+14:30,*,OFF

Every day at 14:30 is power output turned off

SCHEDULER+01:00,1,AON

Every Monday at 01:00 is activated alarm

SCHEDULER+02:00,2,AOF

Every Tuesday at 02:00 is deactivated alarm

SCHEDULER+18:00,5,INF

Every Friday at 18:00 is sent status info

12. Original settings

Each new device is preconfigured with factory default values. Device can be anytime returned back to these default values during it's lifecycle. This can be realized by reset to factory default procedure.

12.1 Reset to factory default procedure

Reset button is available on the bottom side near the microphone, details can be found in first pages of this document.

Please push this reset button at least 5 seconds, then release. All LED indicators should start blinking for next 10 seconds. Please press the button again within these 10 seconds to confirm reset to factory default procedure. After this step is your device in original factory configuration.

BE CAREFULL! This step will erase all your IQ Socket Board configuration.

9.2. Default factory settings

Parameter	Value/Status	Parameter	Value/Status
Output power	OFF	ALARM	OFF
Mikrorelay/output2	OFF	TEMPCAL	4

		ALERT	RINGON
RESTARTTIME	10	DATE	AUTOMATIC
RING	NOACTION	SCHEDULER	EMPTY
SECNUMBER	NO	TEMPALARM	NO
SMSCONFIRM	YES		
RINGCONFIRM	NO		
THERMOSTAT	NO		
TEMPON	25		
TEMPOFF	20		
SMSPIN	NOPIN		
OUTPUT	REMEMBER		
INPUT	ALARMHIGH		
ERRORREPLY	NO		

NOTE: ON = Turned ON, OFF = Turned OFF

13. Firmware upgrade

Firmware upgrades of IQsocket products can be realised in case of need only by authorised trained person or in authorised service center.

14. LED indicators



LIGHTS RED
BLINKS RED 4 x WITHIN SECOND
LIGHTS GREEN
BLINKS GREEN 4 x WITHIN SECOND
BLINKS RED 2 x PER SECOND

Input power is OK;
Alarm detection is active
Alarm is detected while detection is active
Alarm is detected, detection is not active
SIM is not correctly inserted or missing

GSM

BLINKS GREEN, EACH 3 SECONDS
BLINKING GREEN EACH SECOND
LIGHTS GREEN 2 x PER SECOND

Logged to GSM network
Not logged to GSM network yet, searching
SIM card have active PIN usage

RELAY

NOT ACTIVE
LIGHTS YELLOW
BLINKS YELLOW

Output power is OFF
Output power is ON
Hardware error

15. Technical specification

Model	IQSB-GSM
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Input power	12V DC, Adapter 230V/12VDC or VAC Jack 3pin – GND, Input, 12V, max 50mA with reverse fuse 140mA
Output power	230V , 8A bi-stable
Data interfaces	GSM SIM socket
Switching	Output 1: Relay, 230V/8A
Management	SMS configuration SMS parameters monitoring
Indicators	POWER: two-color LED GSM: green LED RELAY: yellow LED
Detectors	Inbuilt thermometer 0-50°C (+/- 2°C) Alarm input for external detectors (motion, gas, water, fire, door/Windows, and more.)
GSM	900 / 1800 /1900 MHz SIM card Plug-in 3V 2dBi Antenna SMAf Connector
GPRS	Not supported
Software features	Appliance control over SMS, by call or manually Remote power turnon/turnoff of up to 230V appliance Remote power turnoff for specified time Remote appliance restart Remote appliance status switch (turnon to turnoff or back) Remote temperature measuring Thermoregulating feature Alarm detection Monitoring of sound
Power	230V , CEE 7/7
Weight Netto	310g
Operating temperature	0°C to +50 °C

16. Care and security recommendations

Product was designed for indoor use for example houses, flats or offices. Don't use it in wet or chemically aggressive environment. It is also not designed for industry operation with aggressive environmental conditions. Don't let the product to get in shaking or fall downs, otherwise it can be damaged. Before use, please check, if mobile phones can be used in the area. In not, please don't put product into operation, it can have negative influence to other electronic systems.

Improper use or disassembling or modifying of product is automatically broken warranty. Product doesn't guarantee safe power source interruption, only functional switching is realized.

17. Ordering

IQ socket Board product family uses following ordering code system:

IQSx-y

Example: IQSB-GSM

