User Guide

IQSocket IQSW-GSM

Version v1.0 rev3

1.1 Important information

Every effort has been taken to ensure the accuracy of this document, however we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without further notice.

WARNING: This product is not designed for use in, and should not be used for, medical applications.

The product doesn't guarantee safe power source disconnection, only functional switching of power is performed.

The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair. Improper use, disassembling or product modification causes warranty loss.

2 Introduction

IQsocket IQSW-GSM is a member of family of intelligent power sockets brought to you by IQtronic, Ltd, having an enhanced set of features comparing with other members of the product family.

IQsocket IQSW-GSM allows you to control of any electric appliance connected to the device's socket remotely over GSM network. You can use for this purpose any mobile phone or even fixed-line telephone, simply by calling to, or by sending SMS to the number of SIM card inserted of your IQsocket IQSW-GSM.
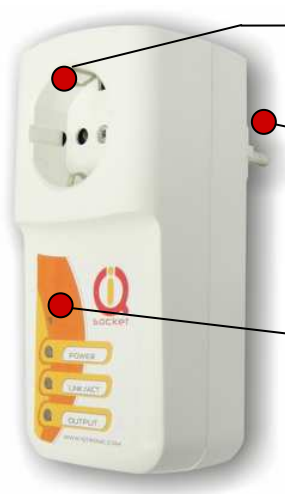
Output power socket: Connect your electric appliance here. This socket is intelligent, can be controlled remotely, manually or automatically (scheduler).

Power plug: Input of AC power for product and also for connected appliance. Fits into electric socket/outlet.

Microphone: For listening of sound from surrounding environment.
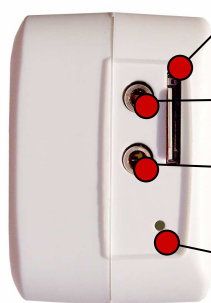
SIM socket: Socket for SIM card. Push-push type.

Input – Jack2: Opto-isolated input for external sensors.

Output Jack1: Auxiliary independent switched output, 30VDC/0.5A max.

Temperature sensor:

Push button: For turning on/ off output power socket manually or resetting configuration to factory default values.

Besides controlling of the power, IQsocket IQSW-GSM is equipped with a choice of useful functions, including:

- Temperature sensor allows monitoring temperature among temperature alarm and thermostat function
- Alarm function using external sensors connected to input jack
- Remote monitoring of the input state
- Listening of sound from surrounding environment using integrated microphone by call (tapping)
- Sending SMS alert on power lost and restored, keeps log of last five power lost events
- Time scheduler function, allowing switching on/off your appliance based on day of week and time.

2.1 Product features

In general, IQsocket IQSW-GSM has following features:

- Controlling (turn on, turn off; turn on/off for a specified time; restart by cutting power for short time) of any electric appliance connected to the switched socket by SMS, by call or manually by pressing pushbutton on IQSW-GSM body

- Controlling (turn on, turn off; turn on/off for a specified time; restart by cutting power for short time) of any electric appliance connected to the microrelay output jack by SMS or by call.

- Monitoring of temperature, temperature alarm and thermostat function

- Switching on/off your appliance automatically using scheduler function, based on day of week and time.

- Sending informational status SMS messages to user upon request or automatically on scheduled date/time

- Providing status of switched socket by SMS upon SMS request

- Sending SMS alarm alert on power loss and restore

- Automatically stores up to last five power lost events in internal log

- Input jack for connecting external sensors such as PIR, door contact, gas leakage sensor and so on – status can be remotely monitored and used to generate alarms

- Internal real-time clock

- Sending current values of user-configured IQSW-GSM parameters upon SMS request

- Configuring IQSW-GSM parameters simply by sending SMS commands

- Listening of sound from surrounding environment using integrated microphone by call (tapping)

3 Installation

Before starting installation, please read this manual and take into account Important information section at beginning of this manual.

3.1 Inserting SIM Card

Prepare a standard size SIM card from your favorite GSM operator and insert it into SIM bay of your IQsocket IQSW-GSM:

Insert SIM card into the SIM bay and push it gently inside until you hear/feel a click, so it becomes locked inside bay.

To remove SIM from your IQsocket IQSW-GSM, gently push the SIM inside the bay until you feel and hear a click again; card will become unlocked and now pull it out of the bay.

WARNING!

PIN authorization should be turned off before the SIM card is used in IQsocket IQSW-GSM

Authorization can be turned off by inserting the SIM card into a GSM phone and disabling SIM PIN usage using appropriate command usually located in 'Settings' phone menu. Now you can remove the SIM card from phone and insert it into your IQsocket IQSW-GSM.

Note...

> *It is highly recommended to delete all received SMS messages, stored on the SIM card before using it in IQsocket IQSW-GSM*

3.2 Wiring the IQsocket IQSW-GSM

Wiring is intuitive, simply connect your electric appliance into the device's socket and plug the IQSW-GSM into a free power socket.

Controlled power socket: Connect your electric appliance here.

Power plug: Plug the IQSW-GSM into an electrical socket.

Note...

> *Both the socket and the plug of the IQSW-GSM follow the same international standard and nominal voltage rating. Ensure you ordered proper international version of the IQSW-GSM suitable for your country*

WARNING!

> *Please respect maximum rating 16A for switched socket and 30VDC/0.5A for the auxiliary microrelay output. Do not overload your IQSW-GSM, as this may damage or shorten life span of the internal switching relays, which is not covered by warranty. It is recommended to use external contactors in case of higher current is required and/or capacitive/inductive load with high startup current needs to be switched.*

3.2.1 Using jack input and output

Both Output of auxiliary microrelay – the Jack1 and Input for external sensors – the Jack2 use for connection a standard 3.5mm "stereo jack" (three pin) sockets.

Input – Jack2: Opto-isolated input for external sensors.

Output Jack1: Auxiliary independent switched output, 30VDC/0.5A max.
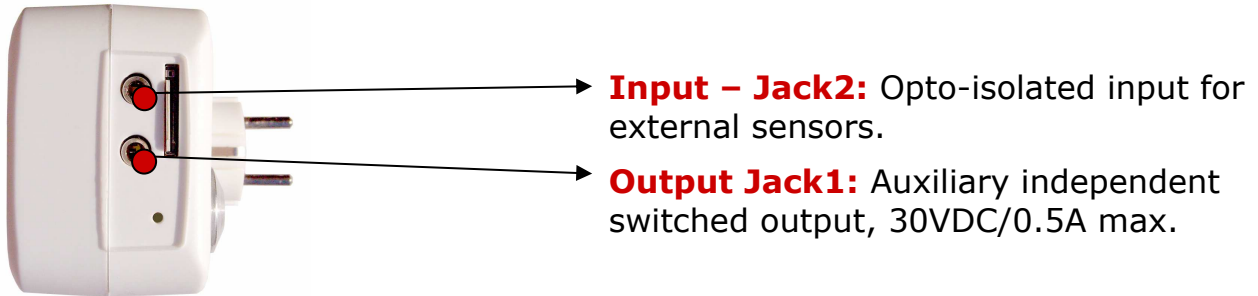
WARNING!

Please ensure you do not exchange Input and Output connections.

Jack1 - input

GND
Input
+5V/50mA internally fused

Y-adapter

There is provided +5V/50mA power supply line for powering external sensors.

It is also possible to connect more than a single sensor to the IQSW-GSM, but without identification of which particular sensor has invoked the change of the input state/alarm. You can use a standard Y-adapter for this purpose. Please note you must design wiring the way to perform a logical OR function since Y-adapter provides parallel connection of the plugs.
See also chapter 4.10.3 with description of *INPUTTYPE* command.

Jack2 - output
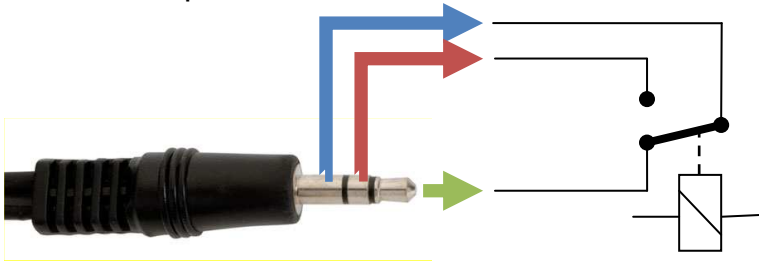
Input jack detects if there is a plug inserted into it, which is indicated by the *STATUS* message and response to *INPUTALARM* command.

Output is provided in a form C/SPDT microrelay contact as shown in the drawing – switch orientation is in position when the socket is in off state.

WARNING!

Please respect maximum rating of the auxiliary microrelay output - 30VDC/0.5A. Do not overload your IQSW-GSM, as this may damage or shorten life span of the internal switching relays, which is not covered by warranty. It is recommended to use external power relays/contactors in case of higher current is required and/or capacitive/inductive load with high startup current needs to be switched.
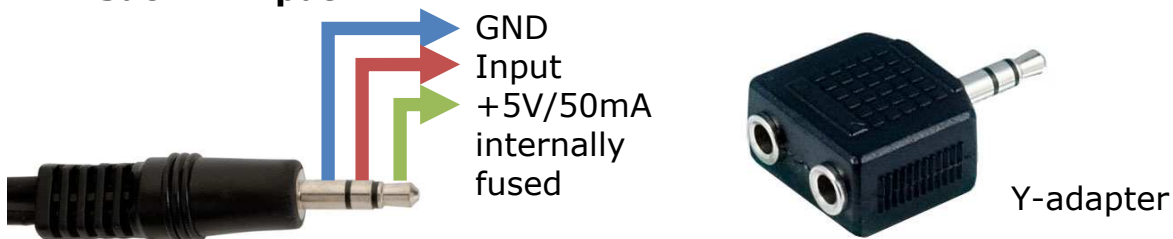
3.3 Powering IQSW-GSM On

Once you plug your IQsocket IQSW-GSM into a live electric socket, it become powered on and starts operation.

You can verify it by observing status of the LEDs:

- Once AC power is connected, all three LED indicators will blink shortly and internal self-test is performed in about 10seconds. Then, if everything is ok, the Power LED will turn to solid Red.

- In case of active PIN authorization on the SIM card, GSM LED starts blinking fast (approx. three times per second).

- LINK/ACT (Green) starts to blink slowly (approx. every three seconds), once device has been successfully logged into a GSM network. If the LINK/ACT blinks about every second, searching of GSM network is in progress.

- The Output LED (Yellow) indicates state of output socket. Shining LED means socket is active – appliance plugged into the output socket is operating and vice versa. Blinking LED (approx. every two seconds) indicates startup delay in progress - the output socket has been set to on state but will be physically turned on after passing 30 seconds delay since device startup.

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Please see chapter 5 for more information on LED indicators.

Your IQSW-GSM is now ready for use.

4 Managing IQSW-GSM

This chapter guides you through management commands and features of IQSW-GSM.

4.1 Managing by SMS

Commands are send in form of SMS messages to call number of SIM card inserted into your device. Messages have following syntax:

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

COMMAND   (e.g. *STATUS*)
   o with un-configured security password/SMSPIN

There are two kinds of commands:

Control commands (labeled as Ctrl in tables)
   o Used to control of the IQSW-GSM and can be used at any time. Security settings, such as SMSPIN, permitted callers list, **DO** apply.

Configuration commands (labeled as Cfg in tables)
   o Allows to configure the IQSW-GSM parameters and functions. Security settings, such as SMSPIN, permitted callers list, **DO NOT** apply – instead, as a security measure, configuration commands are accepted only in configuration mode.
   o Configuration mode can be activated by using *CONFIG* command. Notice CONFIG is a Ctrl-class command hence protected by your security settings. Configuration mode is automatically deactivated after 10 minutes since last configuration command has been received.
   o When a configuration command has been issued while configuration mode is not active/already expired, error message "Timed Out!" will be replied to the sender. See also chapters 4.7 and 0 for more information about error messages.

Each command is normally confirmed by a response SMS sent back to the command sender number. In case of an error is detected in a command, IQSW-GSM will respond with error message to the sender. Sending response and error SMS messages can be disabled. See also chapters 4.7 and 0 for more information about error messages.

Case of commands is ignored; STATUS or sTaTUS is the same command.
All incoming SMS messages longer than 30 characters or messages containing space and dot characters are being deleted without any error response.

SMS Command	Description	SMS Response	Type
TURNOFF	Turn the socket and the output off.	TurnedOff	Ctrl
TURNOFF1	Turn the socket off	TurnedOFF1	Ctrl
TURNOFF2	Turn the auxiliary output off	TurnedOFF2	Ctrl
TURNON	Turn the socket and the output on.	TurnedOn	Ctrl
TURNON1	Turn the socket on	TurnedON1	Ctrl
TURNON2	Turn the auxiliary output on	TurnedON2	Ctrl
TURNOFF=123	Turn the socket and the output off for 123 minutes.	TurnedOff 123 min	Ctrl
TURNOFF1=123	Turn the socket off for 123 minutes.	TurnedOff1 123 min	Ctrl
TURNOFF2=123	Turn the auxiliary output off for 123 minutes.	TurnedOff2 123 min	Ctrl
TURNON=123	Turn the socket and the auxiliary output on for 123 minutes.	TurnedOn 123 min	Ctrl

TURNON1=123	Turn the socket on for 123 minutes.	TurnedOn1 123 min	Ctrl
TURNON2=123	Turn the auxiliary output on for 123 minutes.	TurnedOn2 123 min	Ctrl
RESTART	Change (negate) state of the socket and the output for time preconfigured by command RESTARTTIME.	Restarted	Ctrl
RESTART1	Change (negate) state of the socket and the auxiliary output for time preconfigured by command RESTARTTIME.	Restarted1	Ctrl
RESTART2	Change (negate) state of the socket and the auxiliary output for time preconfigured by command RESTARTTIME.	Restarted2	Ctrl
STATUS	Get status of IQsocket IQSW-GSM: socket and auxiliary output, time, temperature, last power lost event, input state and GSM signal.	Output:OFF/OFF, Time:yy/mm/dd,hh:mm:ss, TEMP: 25°C Signal:76%, Last PWR Lost: yy/mm/dd,hh:mm:ss, Input: Not connected, Alarm ACT.	Ctrl
RINGON	A call-back to the sender's number will be made. Useful to keep-alive of credit in prepaid SIM cards.		Ctrl

Note...

Maximum time value of TURNON command is 180 minutes.

If a power failure occurs during TURNON= / TURNOFF= commands, time of power failure is not included in the countdown, so e.g. you need to run an appliance for a hour issuing TURNON=60 command, but AC power is lost after 30minutes and restored back say after 2hours, appliance will be running for half an hour after power is restored back.

Status message informs about Input alarm following ways:

ON, if input alarm function is turned on,

OFF, if input alarm function is turned off,

ACT, if input detected an alarm state,

DET, if input detected an alarm state but input alarm is off,

DIS, in plug from the input jack has been removed (like a tamper indication) while alarm function is turned on.

> **Note...**
>
> *Please note output socket is physically turned to the on state only after passing 30 seconds startup delay since device has been powered on. This is indicated by slow blinking (approx every two seconds) of the output LED indicator (yellow).*

4.2 Managing by phone call

The output socket of IQSW-GSM can be also controlled by dialing/ringing up the number of its SIM card. Call is for most commands rejected by IQSW-GSM so its use is free of charge, with exception for listening sounds using embedded Microphone.

Behavior of IQSW-GSM to incoming calls must be configured in advance using RING command per following table.

SMS Command	Description	SMS Response	Type
RING=NOACTION	No action is performed, call is rejected.	RING=NOACTION – OK	Cfg
RING=RESTART	Change (negate) state of the socket and the auxiliary output for time preconfigured by command RESTARTTIME, call is rejected.	RING=RESTART – OK	Cfg
RING=RESTART1	Change (negate) state of the socket for time preconfigured by command RESTARTTIME, call is rejected.	RING=RESTART1 – OK	Cfg
RING=RESTART2	Change (negate) state of the aux. output for time preconfigured by command RESTARTTIME, call is rejected.	RING=RESTART – OK2	Cfg
RING=SWITCH	Change (negate) state of the socket and auxiliary output, call is rejected.	RING=SWITCH – OK	Cfg
RING=SWITCH1	Change (negate) state of the socket, call is rejected.	RING=SWITCH1 – OK	Cfg
RING=SWITCH2	Change (negate) state of auxiliary output, call is rejected.	RING=SWITCH2 – OK	Cfg
RING=MIC	Listening of sound in surrounding environment via integrated microphone for one minute, call is answered.	RING=MIC – OK	Cfg
RING?	Get current configuration of RING action, active setting is in () parentheses.	RING=(NOACTION), RESTART, RESTART1, RESTART2, SWITCH,, SWITCH1, SWITCH2, MIC	Cfg

4.3 Manual Control

IQSW-GSM can be also controlled manually using push button located near to the SIM bay, see drawing in section 1. Operate button using a suitable narrow tool, e.g. a pen.

- Control of the socket: Short pressing of the push button will change (negate) state of the socket.

- Reset to default settings, by pressing for more than 5 seconds, please see chapter 6.1 for more information

Note...

Manual control by pressing of the push button become active after 30 seconds since IQsocket IQSW-GSM is powered on. A SIM card must be inserted in the SIM bay.

4.4 Timing setup

Following table summarizes settings of time interval of *RESTART* command.

SMS Command	Description	SMS Response	Type
RESTARTTIME=XX	Configures time of RESTART command. Range is 1 to 180 seconds.	RESTARTTIME=XX – OK	Cfg
RESTARTTIME?	Get current configuration of RESTARTTIME parameter.	RESTARTTIME=10 seconds	Cfg

4.5 Date/Time setup

There are three ways of date/time setup:
- Automatic setup of time from the GSM network, when particular operator and SIM card support such feature.

- Manual setup based on time stamp of incoming SMS message

- Manual setup using *DATE=* command. Enter target time in following format: *DATE=yy/mm/dd,hh:mm:ss+zz*
  where zz is Time zone, with either + or - sign.

SMS Command	Description	SMS Response	Type
DATE	Date/time is set from timestamp of incoming SMS message.	DATE yy/mm/dd,hh:mm:ss+zz – OK	Cfg
DATE=yy/mm/dd,hh:mm:ss+zz	Set Date/time manually.	DATE=yy/mm/dd,hh:mm:ss+zz – OK	Cfg
DATE?	Get current settings of Date/time.	DATE yy/mm/dd,hh:mm:ss+zz – OK	Cfg

4.6 Security features

IQsocket IQSW-GSM is equipped with advanced authorization features to avoid controlling by unauthorized users. The security features include:

- Allowing control only from authorized phone numbers
- Authentication of each SMS command by PIN code (SMSPIN)

Both features can be used simultaneously.

In case of using authorized numbers list, device will ignore all SMS messages and calls received from numbers not included in the permitted phone numbers list. If this security feature is not enabled, device can be controlled by anyone who knows number associated with inserted SIM card (and SMS pin in case PIN code protection is also active).

IQsocket IQSW-GSM allows to define up to 20 permitted phone numbers, each containing up to 15 numerals.

In case of using SMSPIN, right before each SMS command is placed PIN code without any space or special character, as shown here:

pinCOMMAND   (e.g. *3366STATUS*)

Command will be accepted only when entered PIN code matches with the code predefined by *SMSPIN* command.

Note...

> *Pin code (SMSPIN) is having no relation with SIM card PIN code. It is just a password called SMSPIN and used by IQsocket IQSW-GSM for SMS message authentication, having the same structure as standard PIN = 4 numbers.*

Security settings can be configured and viewed simply by following commands.

SMS Command	Description	SMS Response	Type
SECNUMBER=NO	Security using permitted phone numbers list is turned off/inactive.	SECNUMBER=NO - OK	Cfg
SECNUMBER=YES	Security using permitted phone numbers list is turned on/active.	SECNUMBER=YES - OK	Cfg
SECNUMBER?	Get current configuration of SECNUMBER parameter.	SECNUMBER=(NO),YES	Cfg
SECNUMBER+ 421233355777	Add new number to security list.	SECNUMBER+421233355 777 - OK	Cfg
SECNUMBER- 421233355777	Delete specific number from permitted phone numbers list.	SECNUMBER- 421233355777 - OK	Cfg
SECNUMBER-ALL	Delete all numbers from permitted phone numbers list.	SECNUMBER-ALL - OK	Cfg
SECNUMBER=LIST	Get dump of permitted phone numbers list.	LIST 421903123456,42190311 1222,421235678235 Or LIST - NO NUMBER!	Cfg
SMSPIN=1234	Configuration of SMS password/SMSPIN.	SMSPIN=1234 – OK	Cfg
SMSPIN=NOPIN	Using of password/SMSPIN is deactivated.	SMSPIN=NOPIN – OK	Cfg
SMSPIN?	Get configuration of SMSPIN parameter.	SMSPIN=(NOPIN), 1234	Cfg

Permitted phone numbers list accept up to 20 numbers, must contain only numbers in international format, without spaces or other characters, max. 15 numerals long:

Example: *SECNUMBER+421265440655* means add number +421-2-65440655
Example: *SECNUMBER-421265440655* means delete number +421-2-65440655. 421 is country code in this example and 2 is area code.

4.7 Response messages settings

When you communicate with your IQsocket IQSW-GSM, it is important to make you sure if command was understood and executed successfully. For this purpose we implemented response messages, confirming each command or informing you when an error is detected. In case of SMS commands, you will be notified by back SMS response message. If you manage your IQsocket IQSW-GSM by phone call, your command will be confirmed by back phone call to your phone number. Note it is not supposed you will answer such back call, you can simply reject it.

Configuration commands of response messages settings are summarized in following table.

SMS Command	Description	SMS Response	Type
SMSCONFIRM=YES	SMS confirmation is enabled/active for all SMS commands.	SMSCONFIRM=YES - OK	Cfg
SMSCONFIRM=NO	SMS confirmation is disabled/inactive for all SMS commands.	SMSCONFIRM=NO - OK	Cfg
SMSCONFIRM?	Get configuration of SMSCONFIRM parameter, active setting is in () parentheses.	SMSCONFIRM=NO,(YES)	Cfg
SMSCONFIRMUNAUTH =YES	SMS confirmation for SMS control commands is active also for unauthorized numbers.	SMSCONFIRMUNAUTH=YES - OK	Cfg
SMSCONFIRMUNAUTH =NO	SMS confirmation for SMS control commands is not active for unauthorized numbers.	SMSCONFIRMUNAUTH=NO - OK	Cfg
RINGCONFIRM=YES	Phone call confirmation is turned on for all commands. Hang off after 10 seconds.	RINGCONFIRM=YES – OK	Cfg
RINGCONFIRM=NO	Phone call confirmation is turned off for all commands.	RINGCONFIRM=NO – OK	Cfg
RINGCONFIRM?	Get configuration of RINGCONFIRM parameter, active setting is in () parentheses.	RINGCONFIRM=(OFF),ON	Cfg
ERRORREPLY=YES	Sending error SMS messages is enabled/active.	ERRORREPLY=YES- OK	Cfg
ERRORREPLY=NO	Sending error SMS messages is disabled/inactive.	ERRORREPLY=NO- OK	Cfg
ERRORREPLY?	Get configuration of ERRORREPLY parameter, active setting is in () parentheses.	ERRORREPLY=NO,(YES)	Cfg

Note...

When RINGCONFIRM=YES command is used, confirmation back calls are only realized for SIM cards with active CLIP service.

4.8 Scheduler feature

Your IQsocket IQSW-GSM is equipped with a scheduler, allowing to control output socket and to get status message, based on time and day of week. Up to 20 scheduled tasks are supported.

Following table summarizes usage of *SCHEDULER* command.

SMS Command	Description	SMS Response	Type
SCHEDULER+hh:mm ,DOW,ACTION	Insert scheduler record to execute particular ACTION at time hh:mm every day of week DOW.	SCHEDULER+hh:mm, DOW,ACTION - OK	Ctrl
SCHEDULER-hh:mm	Remove scheduler record for particular time hh:mm.	SCHEDULER-hh:mm - OK	Ctrl
SCHEDULER?	Get list of all scheduler records.	hh:mm,DOW,ACTION	Ctrl

Where:
hh:mm denotes hour and minute of time in 24h format.

DOW denotes day of week.

Days of week numbers are recognized as follows:
1- Monday, 2-Tuesday, 3-Wednesday, 4 Thursday, 5-Friday, 6-Saturday, 7- Sunday

If "*" symbol is inserted, action will be executed daily. If number of day within week is inserted, action will be executed only in the particular day of week.

Possible **actions** are:
- **ON1** for turning the Output1 on (same as TURNON1 command)
- **ON2** for turning the Output1 on (same as TURNON2 command)
- **OFF1** for turning the Output1 off (same as TURNOFF1 command)
- **OFF2** for turning the Output2 off (same as TURNOFF2 command)
- **RES1** for restarting the Output1 (same as RESTART1 command)
- **RES2** for restarting the Output2 (same as RESTART2 command)
- **AON** for activating alarm function (same as ALARMON command)
- **AOFF** for deactivating alarm function (same as ALARMOFF command)
- **INF**, to send *STATUS* message by SMS to number preconfigured by the *ALARMNUMBER* command (e.g. *ALARMNUMBER+421903123456*, see chapter 4.10.2)

Example of SCHEDULER? command output (four actions were recorded):

- o 11:00,*,ON1   Turn on Output1 every day at 11:00
- o 14:30,*,OFF1   Turn off Output1 every day at 14:30
- o 01:30,1,RES1   Restart Output1 every Monday at 01:30
- o 19:00,5,INF   Send Status SMS every Friday at 19:00

Note...

In order to use INF action – sending status message, it is necessary to configure target numbers first using ALARMNUMBER command, see chapter 4.10 for more information.

Note...

Actions of SCHEDULER command are executed only on particular time, it is still possible to control of outputs by SMS or manually in other time intervals.

4.9 Thermostat function

Thermostat function act as a temperature regulator to control power socket or output microrelay circuit, using two temperature thresholds which control selected output. This is just a supplemental feature due to limited accuracy of the power sensor ± 2 ˚C.

Command	Description	Response	Type
THERMOSTAT=SOCKET	Activates thermostat function, using socket as the switching element.	THERMOSTAT= SOCKET– OK	Ctrl
THERMOSTAT=JACK	Activates thermostat function, using microrelay/Jack2 as the switching element.	THERMOSTAT= JACK– OK	Ctrl
THERMOSTAT=OFF	Deactivates thermostat function	THERMOSTAT=OFF – OK	Ctrl
THERMOSTAT?	Get current thermostat settings – selected output and temperature tresholds	THERMOSTAT=(OFF),SOCKET, JACK, ON=20 OFF=25	Ctrl
TEMPON=20	Temperature limit for turning on selected output, if temperature threshold is reached or passed	TEMPON=20 – OK	Ctrl
TEMPOFF=25	Temperature limit for turning off selected output, if temperature threshold is reached or passed	TEMPOFF=25 – OK	Ctrl

Supported is to control both heating and cooling appliances, using appropriate definition of the temperature thresholds.

Example for heating activation when temperature is below 20 ˚C and deactivating when temperature is over 25 ˚C, heater connected to the socket:

TEMPON=20, TEMPOFF=25, THERMOSTAT=SOCKET,

Example for cooling/air-conditioning activation over 28 ˚C and deactivation when temperature is below 24 ˚C, air-conditioning controlled by the Jack2/microrelay:

TEMPON=28, TEMPOFF=24, THERMOSTAT=SOCKET,

4.10 Alarms

IQSW-GSM supports following independent alarm sources, sorted by priority:

- Power lost alarm (highest priority)
- Input (Jack01) alarm

- Temperature alarm
- INF action of the *SCHEDULER* command (lowest priority)

An alarm can generate alert by sending SMS to or by calling of (only in case of input alarm) up to six predefined phone numbers.

Note...

In order to use SMS alarm alerts, it is necessary to configure target numbers by ALARMNUMBER and PWRALARMNUMBER command, see chapter 4.10.2 for more information.

4.10.1 Power lost alarm

The IQsocket IQSW-GSM is equipped with Power lost alarm feature, which can send an SMS alert to preconfigured number in case of mains power is lost and restored back.

Following table summarizes commands relevant to this feature:

SMS Command	Description	SMS Response	Type
PWRALARM=NOALARM	Power alarm on power lost event is not active.	PWRALARM =NOALARM - OK	Cfg
PWRALARM=LASTNUMBER	On power lost event, sends SMS alert to the number detected from the last incoming SMS.	PWRALARM = LASTNUMBER - OK	Cfg
PWRALARM=USERDEFINED	On power lost event, sends SMS alert to the number preconfigured by PWRALARMNUMBER.	PWRALARM = USERDEFINED - OK	Cfg
PWRALARM?	Get configuration of PWRALARM, active setting is in () parentheses.	PWRALARM =(NOALARM), LASTNUMBER, USERDEFINED	Cfg

SMS Command	Description	SMS Response	Type
PWRRESTOREALARM=NO	Power alarm on power restored event is not active.	PWRRESTOREALARM =NO - OK	Cfg
PWRRESTOREALARM=YES	Power alarm on power restore is active.	PWRRESTOREALARM = YES - OK	Cfg
PWRRESTOREALARM?	Get configuration of PWRRESTOREALARM, active setting is in () parentheses.	PWRRESTOREALARM =(NO),YES	Cfg

Defining phone number where to send power alarm alerts

Command *PWRALARMNUMBER* allows to specify the phone number, where will be sent alerts in case of Power lost alarm events.

Following table summarizes its usage:

SMS Command	Description	SMS Response	Type
PWRALARMNUMBER +420123456789	Define number for sending Power lost alarm SMS alerts.	PWRALARMNUMBER +420123456789- OK	Cfg
PWRALARMNUMBER?	Get current value of PWRALARMNUMBER.	PWRALARMNUMBER =420123456789	Cfg

SMS alarm alerts

IQsocket IQSW-GSML allows you to customize format of SMS alerts that are sent when power lost alarms occur.

Alerts are having following content:

GSM Socket: PWR failed!
GSM Socket: PWR restored!

Where text "GSM Socket" can be customized by user via *DEVICENAME* command:

SMS Command	Description	SMS Response	Type
DEVICENAME=my cottage	Set device name to value "my cottage". Custom name can be up to 15 characters long.	DEVICENAME=my cottage -OK	Cfg
DEVICENAME?	Get current settings of device name	DEVICENAME=my cottage	Cfg

Power lost event log

Up to 5 (five) last Power lost alarm events are stored in internal event log. Oldest record is then rewritten by the actual one. Events are recorded automatically when date/time is successfully obtained from the GSM network; other settings don't have influence to events recording process.

SMS Command	Description	SMS Response	Type
SHOWPWRLOG	Get all stored power lost events.	No record	Ctrl

4.10.2 Defining phone numbers for SMS and ringing up alerts

Phone numbers must be entered in international format, see following table.

SMS Command	Description	SMS Response	Type
ALARMNUMBER+ 420123456789	Add a new number into list for alarm alerts using SMS message and call back.	ALARMNUMBER+4201234 56789 - OK	Cfg
ALARMNUMBER- 420123456789	Remove a number from list for alarm alerts using SMS message and call back.	ALARMNUMBER- 420123456789 - OK	Cfg
ALARMNUMBER-ALL	Remove all numbers from list for alarm alerts using SMS message and call back.	ALARMNUMBER-ALL- OK	Cfg
ALARMNUMBER=LIST	Get list of phone numbers for alarm alerts using SMS message and call back.	LIST 420123456789	Cfg

When generating alerts, numbers in list are processed per their order – the first number first, the last number as last. It is possible to define up to 6 numbers.

4.10.3 Input alarm

Alarm invoked by Inputs is having highest processing priority. See chapter 3.2.1 for information on wiring and recognizing of input states.

Setup of time intervals

For increased flexibility, evaluation of input alarm depends on user-defined trigger time:
Following table summarizes settings of trigger time interval for evaluation of input state used by *ALARM* command:

SMS Command	Description	SMS Response	Type
TRIGGERTIME=300	Configures trigger time in milliseconds for evaluation of the input state. Range is 300 to 60 000 milliseconds.	TRIGGERTIME1=300 – OK	Cfg
TRIGGERTIME?	Get current configuration of TRIGGERTIME parameter.	TRIGGERTIME=300 miliseconds	Cfg

It is also possible to define time delay between consecutive alarm activations by using *NEXTTESTTIME* command:

SMS Command	Description	SMS Response	Type
NEXTTESTTIME=1	Next activation of the input alarm is possible after 1 minute.	NEXTTESTTIME=1 - OK	Cfg
NEXTTESTTIME?	Get current settings of Input1 time delay	NEXTTESTTIME=1 minutes	Cfg

If an input alarm state occurs sooner than is *NEXTTESTTIME* value, alarm will be activated after expiring of *NEXTTESTTIME* time. Setting *NEXTTESTTIME to* zero (0) value deactivated this option.

Defining which input state causes alarm activation

Input alarm can be activated by:
  o change of the input state, or
  o by existence of one from possible states Log.0 (inactive, false, L-low, no voltage appears at the input pin or Log.1 (active, true, H-high, voltage higher than threshold appears at the input pin).

This behavior is configured by command *INPUTTYPE*:

SMS Command	Description	SMS Response	Type
INPUTTYPE=CHANGE	Alarm is activated at every change of input state	INPUTTYPE=CHANGE - OK	Cfg
INPUTTYPE=HIGH	Send alert SMS every time when remaining battery charge falls below defined threshold 50%.	INPUTTYPE=HIGH- OK	Cfg
INPUTTYPE=LOW	Disable sending remaining battery charge alerts	INPUTTYPE=LOW- OK	Cfg
INPUTTYPE?	Get configuration of INPUTTYPE, active setting is in () parentheses.	INPUTTYPE =(CHANGE), HIGH, LOW	Cfg

Activation of the input alarm

Alarm detection at the input can be activated by the *INPUTALARMON/INPUTALARMOFF* commands:

SMS Command	Description	SMS Response	Type
INPUTALARMON	Input alarm is activated	INPUTALARMON - OK	Ctrl
INPUTALARMOFF	Input alarm is deactivated	INPUTALARMOFF - OK	Ctrl

Note...

While attempting to activate input alarm, you can receive following error messages:
ALARM – no sensor *there is nothing connected to the input jack*
ALARM – no number *there is no phone number defined for alerts*

Selecting type of input alarm alert

SMS Command	Description	SMS Response	Type
ALARM=RING	Type of alarm alert is ringing up defined telephone number(s)	ALARM=RING- OK	Cfg
ALARM=SMS	Type of alarm alert is sending SMS to defined telephone number(s)	ALARM=SMS- OK	Cfg
ALARM?	Get configuration of ALARM, active setting is in () parentheses.	ALARM =(SMS), RING	Cfg

Note...

Alert by ringing up/calling target telephone numbers is supported only for alarms invoked by inputs.

Input event log

Up to 5 (five) last input change events are stored in an internal event log. Oldest record is then rewritten by the actual one. Events are recorded automatically when date/time is successfully obtained from the GSM network; other settings don't have influence to events recording process.

SMS Command	Description	SMS Response	Type
SHOWINPLOG	Get all stored input change events.	No record	Ctrl

4.10.4 Temperature alarm

IQSW-GSM allows watching user-defined temperature interval in range from 0 to 50°C using embedded temperature sensor. It is possible to define when will be alarm generated: when temperature is reaching minimum, maximum or both defined minimum and maximum levels; using the same levels *TEMPON/TEMPOFF* defined for the thermostat function (see Chapter 4.9)

SMS Command	Description	SMS Response	Type
TEMPALARM=NO	Temperature alarm is disabled	TEMPALARM=NO- OK	Ctrl
TEMPALARM=MIN	Temperature alarm is active for lower limit – sends SMS alert when TEMPON is reached	TEMPALARM=MIN- OK	Ctrl
TEMPALARM=MAX	Temperature alarm is active for upper limit - sends SMS alert when TEMPOFF is reached	TEMPALARM=MAX- OK	Ctrl
TEMPALARM=MIX	Temperature alarm is active for both lower and upper limit	TEMPALARM=MIX- OK	Ctrl
TEMPALARM?	Get configuration of TEMPALARM, active setting is in () parentheses.	TEMPALARM=(NO), MIN, MAX, MIX	Ctrl

Note...

Text of SMS alert of temperature alarm is in format

Alarm! Temperature: xx C.

In order to avoid sending alerts too often, there is a hysteresis – alert will be re-sent only when temperature reaches/swings through both temperature thresholds – temperature must reach lower threshold, then, if it reaches upper threshold, next SMS alert will be sent.

4.10.5 Disabling all alarms

In case you need to quickly disable all alarms e.g. in case of emergency or misconfiguration, you can do it by issuing single command *ALLALARMSOFF.* Please note all alarms will be disabled permanently, you need to enable each wanted alarm again one by one.

SMS Command	Description	SMS Response	Type
ALLALARMSOFF	All alarms are permanently disabled	ALLALARMSOFF- OK	Ctrl

4.11 Using microphone

Your IQSW-GSM is equipped with a highly sensitive microphone, which can be used to monitor sound through any phone. Sensitivity is typically sufficient to recognize voices within even larger room where is IQSW-GSM installed; it depends on device orientation and placement and also on background noise.

Microphone is activated by either answering a call from your IQSW-GSM, such as when an input alarm has been detected, while alarm alert is set to ring using *ALARM=RING* command (see chapter 4.10.3); or by calling the number of your IQSW-GSM, while *RING=MIC* setting is preconfigured (see chapter 0)

! *WARNING!*

Please respect privacy and local law regarding to tapping, especially when monitored subjects are not informed about it. It is your sole responsibility how you will use it.

4.12 Various other settings

SMS Command	Description	SMS Response	Type
CONFIG	Activate configuration mode. Automatically deactivated 10minutes after last configuration command that have been received.	CONFIG, OK	Ctrl
OUTPUT=REMEMBER	When powered on/power restored, output socket state will be returned to the same state as it was at time of disconnecting power /power lost.	OUTPUT=REMEMBER- OK	Cfg
OUTPUT=OFF	When powered on/power restored, output socket state will be set to OFF, regardless of state that was at time of disconnecting power /power lost.	OUTPUT=OFF- OK	Cfg
OUTPUT=ON	When powered on/power restored, output socket state will be set to ON, regardless of state that was at time of disconnecting power /power lost.	OUTPUT=ON- OK	Cfg
OUTPUT?	Get configuration of OUTPUT parameter, active setting is in () parentheses.	OUTPUT =(REMEMBER),OFF,ON	Cfg
HELP	Get list of all commands as help		Ctrl
LANG=EN	Switch language version	LANG=EN- OK	Cfg
LANG?	Get current language version, active setting is in () parentheses.	LANG=(EN), CZ	Cfg
VERSION	Get firmware version	Ver. 2.0.1 (c)2011	Ctrl

Note...

Please note firmware of IQsocket IQSW-GSM can be upgraded only by sending unit back to the factory or to an authorized service center.

4.13 Error messages

Error messages are being sent only when sending response messages is permitted (see also *ERRORREPLY* command).

SMS response	Description
Error!	Incorrect control or configuration command; or wrong SMSPIN.
Not allowed!	In case of permitted phone numbers list is active but used number is not included in it.
Timeout!	10 minutes interval of configuration mode has expired. In order to continue using configuration commands, please enter *CONFIG* command again.
Full memory!	Memory for storing permitted phone numbers is full.
No record	When trying to delete non-existing records, e.g. scheduled tasks, power lost event log.

5 Indicators

The IQsocket IQSW-GSM is equipped with three LED indicators:
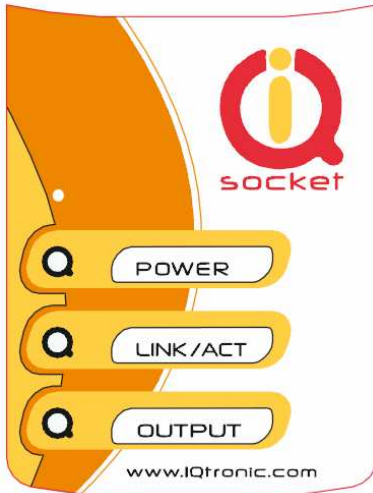
POWER

LIGHTS RED	Input power is OK;
BLINKS RED 2 x PER SECOND	SIM is not correctly inserted or missing or is bad

LINK/ACT

BLINKS GREEN, EACH 3 SECONDS	Logged to GSM network
BLINKING GREEN EACH SECOND	Not logged to GSM network yet, searching
LIGHTS GREEN 2 x PER SECOND	SIM card have active PIN protection, use a GSM phone to disable it.

OUTPUT

NOT ACTIVE	Output socket is OFF
LIGHTS YELLOW	Output socket is ON
BLINKS YELLOW EACH SECOND	Hardware error/failure
BLINKS YELLOW EACH 2 SECONDS	The output socket has been set to on state but will be physically turned on after passing 30 seconds since device has been powered on.

6 Factory default settings

Each device come from factory preconfigured with factory default values. Device can be anytime returned back to these default values by using reset to factory defaults procedure.

6.1 Reset to factory default procedure

Reset is done by pushing the push button located near to the SIM card bay. See also chapter 4.3.

In order to restore factory default configuration, push the button for at least 5 seconds and 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.

> **WARNING!**
>
> *Please BE CAREFULL! This step will erase all settings of your IQsocket IQSW-GSM except language settings.*

6.2 Factory default settings

Parameter	Default setting	Parameter	Default setting
RING	NOACTION	SMSCONFIRM	YES
RESTARTTIME	10	SMSCONFIRMUNAUTH	YES
RINGONTIME	30	RINGCONFIRM	NO
SMSPIN	NOPIN	ERRORREPLY	YES
SECNUMBER	NO	OUTPUT	REMEMBER
ALARM	SMS	PWRRESTOREALARM	NO
INPUTTYPE	CHANGE	TEMPON	20
TRIGGERTIME	300	TEMPOFF	25
NEXTTESTTIME	0	PWRALARM	NO

7 Technical specification

Model	IQsocket IQSW-GSM-E, CEE 7/5 French type socket IQsocket IQSW-GSM-F, CEE 7/4 "Schuko" earthed IQsocket IQSW-GSM-N, NEMA 5-15 USA socket IQsocket IQSW-GSM-B British BS 1363
Mains power	100-230VAC / 50-60Hz, own consumption avg. 20mA@230V
Output socket rating	16A
Microrelay rating	30VDC/0.5A
Management	Via SMS messages
Security	PIN code protected commands Permitted phone numbers list
GSM	EGSM900, GSM850 Class4 (2W) DCS1800, PCS1900 Class1 (1W) SIM card Plug-in 3V
Antenna	Integrated antenna (standard models) External 2dBi via SMA-F connector ("+" models)
Indicators	POWER: red LED GSM: green LED RELAY: yellow LED
Features	Appliance control over SMS, by call or manually Remote restart of appliances Temperature monitoring, alarm and thermostat function Scheduler Power lost alarm w/ SMS alert Monitoring of sound using integrated microphone
Dimensions	(LxWxH) 140 x 65 x 55mm(92mm w/ plug)
Weight	0.2kg netto
Operating temperature	0 to +50 ˚C
Humidity	Max. 80%, non-condensing
Operating temperature	0 to +50 ˚C
Environment protection	IP40, for normal environment
Installation category	Class II, overvoltage max. 2500V
Compliance	CE, FCC

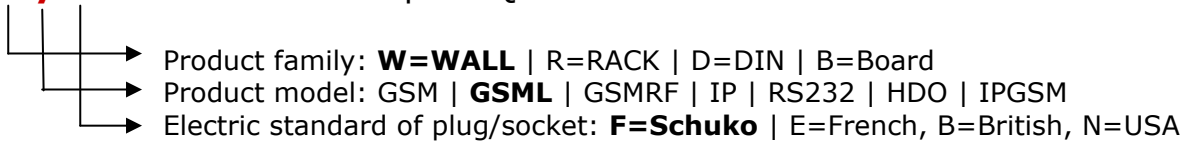## 7.1 Operation, maintenance and safety recommendations

- Do not modify product in any way and do not operate product modified any way. Warranty is void when product was disassembled or modified in any way.

- Product is not fused; ensure it is installed in fused electric installation only.

- Product can be operated only indoor office/house environment. Do not expose it to humid, wet nor chemically aggressive environment.

- Product is not designed for industrial operation with aggressive environment.

- 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.

- Don't expose product to vibrations, shaking or fall downs to avoid product damage.

- When use sound monitoring for taping purposes, ensure you have prior permission to do it from affected people.

- Maximum load current of the socket is 16A. If you need to switch higher current load, use an external contactor rated for target load. Switching higher than nominal rating currents and/or loads with severe inductive/capacitive character with high startup currents can cause permanent damage of switching elements, which is not covered by warranty.

- Before using a SIM card, ensure all received SMS messages stored on the card are deleted.

- Product is not a toy for children, SIM card represents a small part that can be easily ingested.

- WARNING: This product is not designed for use in, and should not be used for, medical applications.

8 Ordering and accessories

IQsocket product family uses following ordering code system:

IQS**x-y-z**   Example: IQSW-GSM-F

Product family: **W=WALL** | R=RACK | D=DIN | B=Board
Product model: GSM | **GSML** | GSMRF | IP | RS232 | HDO | IPGSM
Electric standard of plug/socket: **F=Schuko** | E=French, B=British, N=USA

Ordering code

Code	Description
IQSW-GSM-X	standard version, pls specify socket type in place of X
IQSW-GSM-X+	version with external antenna (included in package)

Photo of a IQSW-GSM with external antenna: