CONTRIVE S.R.L.
Via Enrico Fermi 18 I-24040 SUISIO (Bergamo)
Tel. +39 (0)35 4948236 Fax +39 (0)35 4933759
www.gsm-control.biz

B1017.11.EN / 1210

GsmSwitch

COMPACT OUTDOOR
GSM REMOTE CONTROL

SIMonly™ CONFIGURATION

EN USER GUIDE

1017.11.00	**GsmSwitch**	MAIN UNIT
1015.20.02	**Battery**	LiIon BATTERY PACK (INCLUDED)
3010.00.91	**Temp Probe**	Optional temperature sensor

CE

DECLARATION OF CONFORMITY
R&TTE Directive 1999/5/EC

Company identification: Manufacturer: Contrive, Srl
Via Enrico Fermi 18 24040 Suisio Italy

Product identification: Brand: Contrive
Equipment name: GsmSwitch
Equipment type: GSM modem

We declare, on our sole responsibility, that the product described above is in compliance with the essential requirements of the 1999/5/EC Directive:

EN 301 511	GSM900/1800 essential requirements for mobile stations.
EN 301 489-1	Electromagnetic compatibility.
EN 301 489-7	ElectroMagnetic compatibility and Radio spectrum Matters Specific conditions for mobile and portable radio and ancillary equipments.
EN 60730-1	Automatic electrical controls for household and similar use Part 1: General requirements.
EN 60730-2-7	Automatic electrical controls for household and similar use Part 2-7: Particular requirements for timers and time switches
EN 60730-2-9	Automatic electrical controls for household and similar use Part 2-9: Particular requirements for temperature sensing controls
NOTE:	Class B equipment (domestic) emission level applied. Class A equipment (industrial) immunity level applied.

And all tests were carried out

Suisio, Italy January 4, 2011

SAFETY INFORMATION

Do not install this unit near medical devices like pacemakers or hearing aids. This unit may interfere with the operation of these devices.

Switch off this unit when flying.
Secure it so that it cannot be switched on inadvertently.

Do not install this unit near petrol stations, fuel depots, chemical plants or blasting operations when this unit can disturb the operation of technical equipment.

Interference can occur if this unit is used near televisions, radios or personal computers.

If the device has been stored in a cold environment, then condensation can occur. Before starting operations, the device must be absolutely dry.
Thus, an acclimatization period of at least three hours must be observed.

In order to avoid possible damage, we recommend that you only use the specified accessories.
These have been tested and shown to work well with this unit.

This device should be installed only by qualified personnel. Carefully read the instruction manual in its entirety and keep it safe for future reference.
It is essential to know the information and comply with the instructions given in the manual to ensure the fitting is installed, used and serviced correctly and safely.

This RF unit is not designed for and intended to be used in portable applications (within 20 cm or 8 inches of the body of the user) and such uses are strictly prohibited.

This unit is not authorised for use as critical component in life-support devices or systems unless a specific written agreement has been given.

If incorrectly installed in a vehicle, the operation of GSM device could interfere with the correct functioning of vehicle electronics. Verification of the protection of vehicle electronics should form a part of the installation.

No complex software or hardware system is perfect.
Bugs are always present in a system of any size.

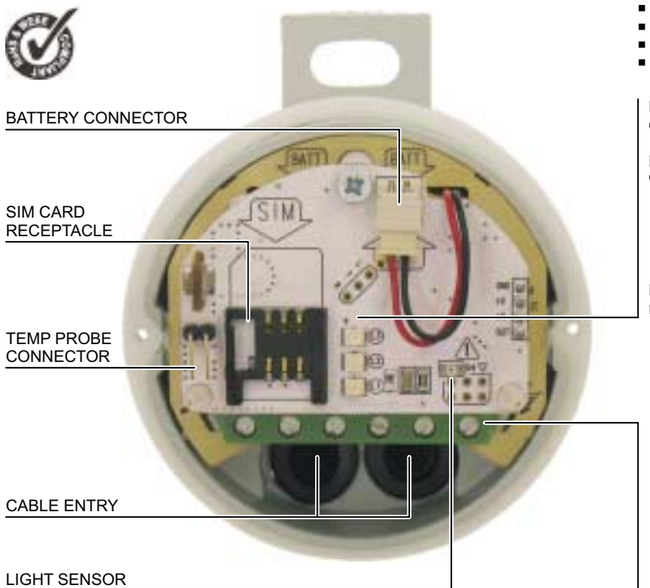
In order to prevent danger to life or property, it is the responsibility of the system designer to incorporate redundant protective mechanism appropriate to the risk involved.

All units are 100% functionally tested. Specifications are based on characterisation of tested sample units rather than testing over temperature and voltage each unit.

Contrive disclaims all liability for damage to the fitting or to other property or persons deriving from installation, use and maintenance that have not been carried out in conformity with this instruction manual, which must always accompany the fitting.

PRODUCT DESCRIPTION

GsmSwitch is an industrial outdoor GSM modem for the supervision and control of remote output by means of enhanced features available through GSM network.
Industrial standard interface and an integrated SIM card reader mean it can be used rapidly, easily and universally to quickly implement new applications in telemetry, telematics and remote control. All interfaces are integrated in the housing.
The connections are suitable for use in domestic and industrial environments.



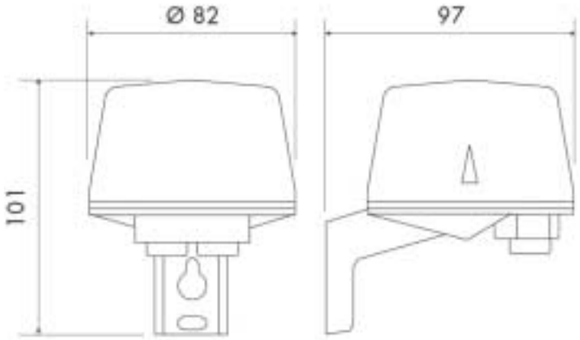
PRODUCT FEATURES

Quad band GSM850 / EGSM900 / DCS1800 / PCS1900 with automatic band selection for data, sms, fax and voice applications.
Full Type Approved and compliant with ETSI GSM Phase 2+.

Output power:	▪ Class 4 (2W @ 850 MHz & 900 MHz) Class 1 (1W @ 1800 MHz & 1900 MHz)
Sensitivity:	▪ -107 dBm [typ.]
Environment:	▪ Operating temperature -40 to 85°C Recommended battery temperature -20 to 60°C Battery storage temperature -20 to 45°C Relative humidity (NON CONDENSING) 25 to 85%
Enclosure:	▪ UV resistant enclosure, thermoplastic Dimensions (ØxPxH) 82 x 97 x 101 / 200 g IP 65 (EN-60529 / IEC 529) properly fitted
Power supply:	▪ 230V AC ±20% 50...60Hz 10 mA MAX
Appliance class:	▪ II (double insulated)
Battery:	▪ Li-Poly rechargeable 3,7V - 300 mAh
Antenna:	▪ embedded
Terminals:	▪ 4 x 1.5 mm² (AWG16) screw connector

This device is powered by a reachargeable backup battery,included.
To switch off GsmSwitch, remove the external power supply and disconnect the battery connector which is accessed by opening device cover.
To avoid fire or explosion hazards replace only with approved back-up batteries.

External power supply must be connected to AC mains protected with automatic 2-pole circuit breaker (having more than 3mm gap between open contacts) capable of disconnecting circuit in the event of short circuit or over-current condition.

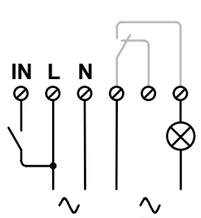


INSTALLATION

This unit can be installed outdoor. Choose a suitable position where the GSM network is available. To improve performance, do not expose the unit to direct sunlight. No damage occur to the unit if the battery is left disconnected, but GsmSwitch could not operate properly.

- Fix the body to the wall.
- Make all the electrical connections.
- Disable PIN code and optionally edit the phonebook of the SIM card.
- Insert the GSM SIM card in the receptacle.
- Plug in the battery connector.
- Turn on the main power supply.

L3 GREEN LED OUTPUT STATUS	FLASH	Output active
	OFF	Output released (or stealth mode)
L2 RED LED OPERATION	FLASH (70ms ON / 800ms OFF)	Network search, not registered
	SLOW FLASH (70ms ON / 2000ms OFF)	StandBy, registered full service
	QUICK FLASH (70ms ON / 150ms OFF)	Wrong PIN code, 1 remaining
	OFF	No power supply (or stealth mode)
L1 ORANGE LED INPUT STATUS	FLASH	Input closed
	OFF	Input open (or stealth mode)



INPUT
Contact voltage 230 VAC
Contact current < 2,5 mA

OUTPUT
Rated current 4 A
Rated voltage 250 Vac
Max breaking capacity 2500 VA
Minimum contact load 100 mA, 12 V
Cadmium free contacts
Insulation 250 V
IEC60664 / VDE0110b cat. III / C
Surge voltage coil contacts: 4000VRMS
Dielectric strength coil-contacts: 2500VRMS
Dielectric strength open contacts: 1000VRMS

CARE AND MAINTENANCE

Your GsmSwitch is the product of advanced engineering, design and craftmanship and should be treated with care. The suggestion below will help you to enjoy this product for many years.

- Do not expose the unit to any extreme environment where the temperature or humidity are out of operating range.
- Keep the unit closed while operating or storing in dusty or dirty areas. Its moving parts (SIM holder for example) can be damaged.
- Do not use chemical cleaning agent on the unit or the SIM card.
- Do not attempt to disassemble the unit or remove any part or label. There are no user serviceable parts inside.
- The unit is waterproof when properly closed, do not expose an open unit to water, rain or spilt beverages.
- Do not abuse the unit by dropping, knocking or violenty shaking it. Rough handling can damage it.
- Do not place the unit alongside computer discs, credit or travel cards or other magnetic media. The information contained on these devices may be affected.
- This unit is under your responsibility. Please treat it with care respecting all local regulations. It is not a toy. Therefore, keep it in a safe place at all times and out of the reach of children.
- Treat the SIM card with the same care as your credit card: do not bend or scratch or expose it to static electricity.
- Try to remember your password and PIN codes. Become familiar with and use the security features to block unautorised use and theft.

Do contact an authorized service center in the unlikely event of a fault in the unit.

REPLACING BACKUP BATTERY

This unit is equipped with high efficiency Lithium Poly battery having a long life, that largely depends on temperature and frequency of main power failures; used in normal condition can last several years. To change the battery:

- Remove main power supply.
- Remove the top cover of GsmSwitch.
- Unplug the battery connector.
- Carefully remove back-up battery.
- Insert the new battery in the receptacle slot.
- Plug the battery connector.
- Close the top cover of GsmSwitch.
- Turn on main power supply.

Recycling options available in your area must be Considered when disposing replaced batteries.
Do not dispose of in fire.

OPERATION

GsmSwitch works within GSM networks, before to operate at least few parameters must be set, this can be done very easily by means of ***SIMonly™ configuration***.

The following alerts can be issued by GsmSwitch, when properly configured:

- Make a phone call to designated recipient on input closing.
- Make a phone call to designated recipient on input opening.
- Make a phone call to designated recipient on main power failure.
- Make a phone call to designated recipient on main power restoring.
- Send a SMS to designated recipient on input closing.
- Send a SMS to designated recipient on input opening.
- Send a SMS to designated recipient on main power failure.
- Send a SMS to designated recipient on main power restoring.
- Send a SMS to designated recipient on low battery level.
- Send a SMS to designated recipient on light level above set threshold.
- Send a SMS to designated recipient on light level below set threshold.
- Send a SMS to designated recipient on temperature above set threshold.
- Send a SMS to designated recipient on temperature below set threshold.

Unsuccessfull calls and/or SMS will be retried up to 5 times.

The onboard OUTPUT RELAY can be controlled from remote using any telephone (landline, cordless or mobile) by means of free calls or SMS.

Depending on the settings, an **INCOMING CALL** from a registered user can:

- Close the output contact for the preset time (PULSE) and drop the call (no cost).
- Toggle the status of the output contact and drop the call (no cost). The unit will call back the user only when the output is turned on (free fedback).

Any registered user can operate the unit by means of **SMS COMMANDS**:

?	Status request
ON	Turn on output
OFF	Turn off output
ON?	Turn on output and status request
OFF?	Turn off output and status request

A Call or SMS coming from unknown telephone numbers will be ignored.

Output can be turned on and off also at specific light and/or temperature thresholds.

The configuration can be modified from remote by means of SMS providing the right password (remote configuration is disabled if no password is defined).

SIMonly™ CONFIGURATION

Users and options are stored into the SIM card phonebook.
Any free entry can be used, upper and lowercase allowed.

QUICK START

- Insert the SIM card into any mobile phone or SIM card reader/writer.
- Disable PIN code protection, could be reactivated later by the device itself.
- Select SIM card phonebook and add a new setting in any available position or edit an existing one, usually up to 250 are available.

SMS MESSAGES

A typical SMS issued on status request:

`NORTH PARK`	Device name	
`Out ON`	Output status #	`OFF | ON`
`Input ON`	Input status	`OFF | ON`
`Main KO`	Main power supply status	`OK | KO`
`Batt 80%`	Battery level	`10...99 %`
`GSM 60%`	GSM signal strength	`10...99 %`
`-5C`	Temperature §	`-40...85 °C`
`130 lx`	Light level	`1...100000 lux`
`Vodafone`	GSM network operator	

\# Remaining time to switch off could follow

§ `EEE` temperature probe missing or open
`---` temperature probe short circuit

All unavailable values will be reported `??`

When input contact is closing, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Input ON`

When input contact is opening, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Input OFF`

When the light level is rising above the set “LIGHT” threshold, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Lux > XXX` where xxx is the set LIGHT threshold

When the light level is falling below the set “DARK” threshold, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Lux < XXX` where xxx is the set DARK threshold

When the temperature is falling below the set “COOL” threshold, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Temp < ±XX C` where xxx is the set COOL threshold

When the temperature is rising above the set “HOT” threshold, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Temp > ±XX C` where xxx is the set HOT threshold

When main power supply is missing, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`BATT 50%` Battery level
`Main KO`

When main power supply is restored, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`Main OK`

When the embedded battery is about to get discharged, GsmSwitch issues the following SMS to defined recipient:

`NORTH PARK` Device name (if defined)
`BATT < 25%` Battery level

USERS

Users can control the device by means of free calls or SMS.
At least one user must be stored to operate the unit.
To add new user, simply store a new phonebook entry. Enter the telephone number to be recognized in the phone number field, it’s better to use international format.

PHONE NUMBER	NAME	USER
`+441234....`	`U:Mark`	`Max 14 characters`
`+445645....`	`U:Mary`	`Max 14 characters`
`+392789....`	`U:Andrea`	`Max 14 characters`

CONFIGURATION PARAMETERS

Only the NAME field is required for operational parameters, the PHONE NUMBER field may be left blank or filled with a dummy value that will be ignored.
When a parameter is missing, GsmSwitch will use the default value (if any).
When a parameter is stored more than once, only the first entry read from SIM card will be considered.

PHONE NUMBER	NAME	LANGUAGE
`Don't care`	`I:IT`	`ITALIAN`
	`I:EN`	`ENGLISH`
	`I:FR`	`FRANCAIS`
	`I:DE`	`DEUTSCH`
	`I:ES`	`ESPANOL`

Default language is ITALIAN, to set ENGLISH, store `I:EN` anywhere into the SIM.

PHONE NUMBER	NAME	DEVICE IDENTIFIER
`Don't care`	`A:text`	`Max 14 characters`

Storing `A:NORTH PARK` every SMS sent by GsmSwitch will include the trailing text *NORTH PARK* to identify the sender of the message.

PHONE NUMBER	NAME	SIM CARD PIN
`Don't care`	`V:XXXX`	`0000....9999`

The SIM card must be inserted without PIN verify. If you want to protect a SIM whose PIN code is 1234, store `V:1234` anywhere into the SIM card phonebook.
GsmSwitch will activate PIN protection if this parameter is found.
Of course the PIN code must be the one provided by Operators (you may also

PHONE NUMBER	NAME	CALL BEHAVIOUR
`Don't care`	`C:D`	`Disable`
	`C:P600`	`Pulse output 10 min`
	`C:T`	`Toggle output on/off`

Select the behavior of GsmSwitch at incoming calls from registered users.
Store `C:P5` if you want to turn on the output for 5 seconds at every incoming call from registered users. Time can be set 1...3600 seconds (`P1...P3600`)
Store `C:T` if you want to toggle the output at every call from registered users.
GsmSwitch will make a call back only when the output is turned ON.
When this parameter is missing the unit will operate PULSE 3 seconds mode.

PHONE NUMBER	NAME	AUTORESET
`Don't care`	`K:XXX`	`1...250`

The unit can occasionally get disconnected from the network.
Store `K:24` if you want to periodically restart the unit every 24 hours, this interval can be set within the range 1...250 hours. The unit will work continuously without

PHONE NUMBER	NAME	DARK OUTPUT SWITCH
`Don't care`	`DO:XXX`	`005...99K`

The output relay can be turned on when the light level falls below a specific threshold, set in the range 5...99000 lux. Store `DO:080` if you want to switch on the relay when the light falls below 80 lux and switch off when rises above. Other controls may

PHONE NUMBER	NAME	LIGHT OUTPUT SWITCH
`Don't care`	`LO:XXX`	`005...99K`

The output relay can be turned on when the light level rises above a specific threshold, set in the range 5...99000 lux. Store `LO:10K` if you want to switch on the relay when light rises above 10000 lux and switch off when falls below. Other controls

PHONE NUMBER	NAME	COOL OUTPUT SWITCH
`Don't care`	`CO:XXX`	`-35...+75`

The output relay can be turned on when the temperature falls below a specific threshold, set in the range -35...+75°C. Store `CO:-05` if you want to switch on the relay when temperature falls below 5°C and switch off when rises above. Other

PHONE NUMBER	NAME	HOT OUTPUT SWITCH
`Don't care`	`HO:XXX`	`-35...+75`

The output relay can be turned on when the temperature rises above a specific threshold, set in the range -35...+75°C. Store `HO:+35` if you want to switch on the relay when temperature rises above 35°C and switch off when falls below. Other

PHONE NUMBER	NAME	STEALTH MODE
`Don't care`	`SL:X`	`Y|N`

To keep the LEDs off all the time store `SL:Y` (default is N, leds enabled).

SMS RECIPIENTS

Enter the telephone number of designated recipient for SMS in the phone number field, it’s better to use international format.
When a parameter is stored more than once, only the first entry read from SIM card will be considered.

PHONE NUMBER	NAME	INPUT CLOSING SMS
`+448798....`	`MS:John`	`Max 14 characters`

The unit will send an SMS when the input is closing (contact make).
Store the recipient’s name with a trailing `MS:` in the name field.

PHONE NUMBER	NAME	INPUT OPENING SMS
`+448798....`	`BS:John`	`Max 14 characters`

The unit will send an SMS when the input is opening (contact break).
Store the recipient’s name with a trailing `BS:` in the name field.

PHONE NUMBER	NAME	POWERFAIL SMS
`+448798....`	`FS:John`	`Max 14 characters`

The unit will send an SMS when a main power failure is detected.
Store the recipient’s name with a trailing `FS:` in the name field.

PHONE NUMBER	NAME	POWERGOOD SMS
`+448798....`	`PS:John`	`Max 14 characters`

The unit will send an SMS when the main power failure is restored.
Store the recipient’s name with a trailing `PS:` in the name field.

PHONE NUMBER	NAME	DARK SMS
`+447878....`	`DS:XXX ...`	`Max 14 characters`

Store `DS:075 Phil` in the name field if you want to issue an SMS when the light level falls below 75 lux.
An optional name can follow the threshold value, leave a blank space in the middle.

PHONE NUMBER	NAME	LIGHT SMS
`+448798....`	`LS:XXX ...`	`Max 14 characters`

Store `LS:15K John` in the name field if you want to issue an SMS when the light level rises above 15000 lux.
An optional name can follow the threshold value, leave a blank space in the middle.

PHONE NUMBER	NAME	COOL SMS
`+448798....`	`CS:±XX ...`	`Max 14 characters`

Store `CS:-10 John` in the name field if you want to issue an SMS when the temperature falls below -10°C.
An optional name can follow the threshold value, leave a blank space in the middle.

PHONE NUMBER	NAME	HOT SMS
`+447878....`	`HS:±XX ...`	`Max 14 characters`

Store `HS:+60 Phil` in the name field if you want to issue an SMS when the temperature rises above 60°C.
An optional name can follow the threshold value, leave a blank space in the middle.

PHONE NUMBER	NAME	LOW BATTERY SMS
`+448798....`	`Y:John`	`Max 14 characters`

The unit can send one or more SMS when the battery falls below 25%.

PHONE NUMBER	NAME	SMS FORWARDING
`+448798....`	`R:John`	`Max 14 characters`

Any incoming SMS not recognized as a command could be routed (redirected) to a specific destination. Store the recipient’s name with a trailing `R:` in the name field.
Forwarded message will be converted to uppercase and break if too long.
Device identifier and the phone number of the Sender will be included at the beginning of the forwarded SMS.

SMS delivery failure is usually less than 1% but you must keep in mind that a message could not arrive and you cannot complain with your operator for this. **GsmSwitch will parse all pending SMS at power-on.**

CALL RECIPIENTS

Enter the telephone number of designated recipient for calls in the phone number field, it’s better to use international format. When a parameter is stored more than once, only the first entry read from SIM card will be considered.
If the recipient answers the call, the unit will give some alert tones.

PHONE NUMBER	NAME	INPUT CLOSING CALL
`+447878....`	`MC:Phil`	`Max 14 characters`

The unit will make a call when the input is closing (contact make).
Store the recipient’s name with a trailing `MC:` in the name field.

PHONE NUMBER	NAME	INPUT OPENING CALL
`+448798....`	`BC:John`	`Max 14 characters`

The unit will make a call when the input is opening (contact break).
Store the recipient’s name with a trailing `BC:` in the name field.

PHONE NUMBER	NAME	POWERFAIL CALL
`+448798....`	`FC:John`	`Max 14 characters`

The unit will make a call on main power supply failure.
Store the recipient’s name with a trailing `FC:` in the name field.

PHONE NUMBER	NAME	POWERGOOD CALL
`+448798....`	`PC:John`	`Max 14 characters`

The unit will make a call on main power supply restore.
Store the recipient’s name with a trailing `PC:` in the name field.

REMOTE CONFIGURATION

The whole SIM card phonebook could be edited from remote by means of SMS issued from any phone number, providing a password that must be previously stored into the SIM card phonebook.Case unsensitive.
Storing an unique parameter, the old one will be replaced.
Once defined, the password itself could be changed from remote.
If the password is missing no remote editing will be possible.

PHONE NUMBER	NAME	PASSWORD
`Don't care`	`W:....`	`Max 14 characters`

Store `W:Goofy14` if you want to use the password: *Goofy14*.

To add a SIM card entry, send an SMS:

`PWD,+NAME,PHN`	`PWD`	password
	`+`	means ADD
	`NAME`	name field
	`PHN`	phone field

Example:

`Goofy14,+U:Mary,+445645....`	Add Mary to users
`Goofy14,+K:24`	Set autoreset to 24 hours

To remove a SIM card entry:

`PWD,-NAME`	`PWD`	password
	`-`	means REMOVE
	`NAME`	name field

Example:

`Goofy14,-U:Sue`	Delete user Sue
`Goofy14,-MC:Antony`	Delete recipient Antony

All entries including the given text will be deleted: the first SMS of the example above will delete all users including “Sue”, thus if a SueAnn exist, she will be deleted too.

Specifying the field identifier only, all relevant entries will be removed:

Example:

`Goofy14,-U:`	Delete all users
`Goofy14,-Y:`	Delete low battery SMS recipient

GsmSwitch will ringback the sender to confirm successful editing.
No ringback if there are errors (configuration discarded).

To ask for the list of parameters and associated settings:

`PWD,!`	`Password,Exclamation point`

Example: `Goofy14,!`

Will return an SMS like the following:

`I:EN`	**I**nterface language
`A:NORTH PARK`	**A**pplication identifier
`C:P60`	**C**all behaviour
`K:24`	Autoreset (auto**K**ill interval)
`V:1234`	**V**erify SIM Card Pin
`SL:N`	**S**tealth **L**ed mode
`D:075 lx`	**D**ark SMS threshold
`L:15K lx`	**L**ight SMS threshold
`C:-10 C`	**C**ool SMS threshold
`H:+60 C`	Hot SMS thershold
`DO:080 lx`	**D**ark threshold for **O**utput activation
`LO:10K lx`	**L**ight threshold for **O**utput activation
`CO:-05 C`	**C**ool threshold for **O**utput activation
`HO:+35 C`	**H**ot threshold for **O**utput activation