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GSM ALARM AND MANAGEMENT SYSTEM

ULTIMA

Safety instructions

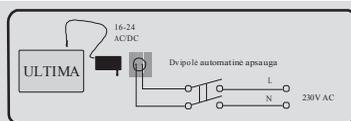
Please read and follow these safety guidelines in order to maintain safety of operators and people around:

- Alarm system ULTIMA (later referenced as system or detector) has radio transceiver operating in GSM900 and GSM1800 bands.
- Don't use the system where it can be interfere with other devices and cause any potential danger.
- Don't use the system with medical devices.
- Don't use the system in hazardous environment.
- Don't expose the system to high humidity, chemical environment or mechanical impacts.
- Don't attempt to personally repair the system. Any system repairs must be done only by qualified, safety aware personnel

 The system must be powered by main 16-24V 1.5A AC max or 18-24V 1.5A DC max power supply and back-up power supply – 12V 1,3-7Ah battery. Both mentioned power supplies must be approved by LST EN60950-1 standard

 Any additional device connected to the alarm system ULTIMA system must be powered up by a LST EN60950-1 approved supply.

 External power supply can be connected to AC mains only inside installation room with automatic 2-pole circuit breaker capable of disconnecting circuit in the event of short circuit or over-current condition. Open circuit breaker must have a gap between connections of more than 3mm.



 Mains power and back-up battery must be disconnected before any installation or tuning work starts. The system installation or maintenance must not be done during stormy conditions.

 The system must be used only with approved back-up battery to avoid fire or explosion hazards. Special care must be taken connecting positive and negative battery terminals.

 Backup battery must be connected via the connection which in the case of breaking would result in disconnection of one of battery pole terminals.

 The device is switched off by 2-pole circuit breaker and disconnecting back-up battery connector.

 Fuse F1 type – SlowBlown 3A. Replacement fuses have to be exactly the same as indicated by the manufacturer.

 **WARNING:** in order to avoid fire or explosion hazards the system must be used only with approved back-up battery. Special care must be taken when connecting positive and negative battery terminals



The WEEE (Waste Electrical and Electronic Equipment) marking on this product or its documentation indicates that the product must not be disposed of together with household waste. To prevent possible harm to human health and/or the environment, the product must be disposed of in an approved and environmentally safe recycling process. For further information on how to dispose of this product correctly, contact the system supplier, or the local authority responsible for waste disposal in your area.

CONTENT

Limited Liability

The buyer must agree that the system will reduce the risk of fire, theft, burglary or other dangers but does not guarantee against such events.

“Orvos Monitoring OÜ” will not take any responsibility regarding personal or property or revenue loss while using the system.

“Orvos Monitoring OÜ” liability according to local laws does not exceed value of the purchased system.

“Orvos Monitoring OÜ” is not affiliated with any of the cellular providers therefore is not responsible for the quality of cellular service.

Warranty

Warranty period is a 24-month.

Warranty period starts from the day the system has been purchased by the end user. The warranty is valid only if the system has been used as intended, following all guidelines listed in the manual and within specified operating conditions. Receipt must be kept as a proof of purchase date.

The warranty is voided if the system has been exposed to mechanical impact, chemicals, high humidity, fluids, corrosive and hazardous environment or other force majeure factors.

Package content:

1. GSM Alarm ULTIMA	qty. 1
2. Microphone	qty. 1
3. DALLAS button	qty. 1
4. DALLAS button reader	qty. 1
5. GSM Antenna	qty. 1
6. Mini buzzer	qty. 1
7. Battery connection wire	qty. 1
8. ULTIMA User Manual	qty. 1
9. Resistors 5,6kOm	qty. 6
10. Resistors 3,3kOm	qty. 6

About User Manual

This document describes alarm security system ULTIMA installation and operation. It is very important to read User Manual before start using the system.

A quick start guide is located in first two chapters. Chapter 3 and 4 describe additional system capabilities.

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1. General Information

1.1 Functionality

ULTIMA – microcontroller based security system for houses, cottages, country homes, garages and other buildings, also capable of managing electrical devices and appliances over cellular GSM network. It can be used as Intercom system.

The system can be used in the following applications:

- Property security
- Thermostat, heating and air-conditioner control, temperature monitoring
- Lighting, garden watering, water pump and other electrical equipment control via SMS messages
- Remote listening of what is happening in the secured property with microphone.
- Mains 230V power status with SMS message

1.2 Operation Description

Security alarm system ULTIMA works over GSM network. The system is armed or disarmed with DALLAS button (iButton – for more details see chapter 3.2), keyboard or short phone call from your mobile which doesn't incur any cost.

To arm or disarm the alarm system the user has to call to the number of the SIM card inserted in ULTIMA device. Before doing this it is necessary to change the default password and enter at least one user.

When alarm system number has been dialed and ringing is dropped after three call signals – means the system was successfully armed. If ringing is dropped after only one call signal – system disarmed. The user should wait until the system drops calls automatically.

When system is armed via phone call, there is no time delay; the alarm system is activated immediately. Meanwhile the system has 15 second delay before activation, meant for leaving premises if Dallas button or keyboard is used. The time delay is user configurable parameter (see chapter 3.1.6). Mini buzzer and/or light emitting diode will inform if delay time has been engaged. The security alarm system will not get armed if any one of the zones is active, which will be reported via SMS message.

First zone is special with 15 second activation delay which allows user to disarm the system using DALLAS button or keyboard. The user is notified about running delay with audible and LED signaling. The user must insert DALLAS button, enter pin code on the keyboard or make deactivating phone call before delay ends, otherwise the system will sound and report alarm. Activated alarm can be disabled same way, using DALLAS button, keyboard or a by a phone call.

When any of zones get activated, the system sends SMS message until successful delivery and rings to the pre-programmed numbers until the user picks up the phone or call expires. If the user answers the call sound alarm will be switched off and remote microphone gets activated for listening. At the end of the call the system will return to active state. SMS messages will include zones activated and will keep trying until successful delivery.

The system will automatically switch to back-up battery supply in case of mains power failure, and user gets SMS warning message. SMS message will also notify when mains power is restored or back-up battery is about to get discharged and system will be switched off.

The user can also inquire the system about temperature, system status, power supply status, network quality as well as connect and listen through a remote microphone.

In case of controlled temperature deviating from the allowable limits SMS message will also be sent informing about this. In this case it is necessary to connect temperature sensor.

ULTIMA can control 2 (10 optional) electronic appliances (a relay) sending a password and a special command from a GSM phone of any of the

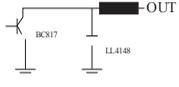
users. You can, for example, turn on the heating, lighting, lift the gates, blinds etc.

The system will ignore requests coming from unknown telephone number or SMS message with wrong password. With correct password user has the capability to access system management from any GSM phone (not necessary pre-programmed). See more details in chapter 3.8.

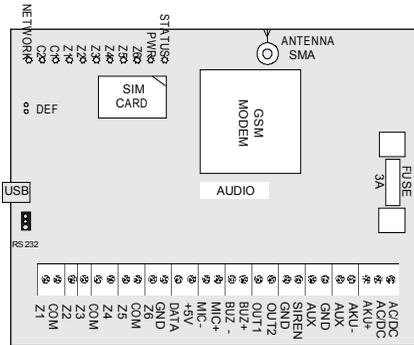
In order to use ULTIMA as Intercom or alarm system with two-way audio communication it is necessary to connect audio amplifier module.

1.3 Technical Specifications

Electrical and mechanical specifications

Main power supply	16-24V ~ 1.5A max or 18-24V DC ~ 1.5A max
Current in standby without external sensors and keypad	not more than 80mA
Back-up Battery voltage, capacity	12V; 1.3-7Ah
Back-up Battery type	lead-acid
Max Battery charge current	900mA
GSM modem frequency	900/1800Mhz
Number of Zones	6 (12 ATZ mode)
Nominal input resistance	5.6 kOm (ATZ mode: 5,6kOm and 3.3kOm)
Number of Outputs	2 (10 optional)
Output circuit	
Output (C1 and C2) max parameters	Current = 100mA, Voltage = 30V
Siren output when activated	Connected to GND
Auxiliary equipment supply voltage	13.8V DC
Max accumulative current of auxiliary equipment and siren	1A max
+5V maximal current supply voltage of Audio signaling device	150mA max
Supply voltage of Audio signaling device	5VDC
Dimensions	140x100x18mm
Operating temperature range	-20...+55°C
Temperature sensor type	DS18S20; DS18B20 „DALLAS/MAXIM“

1.4 Connector and LED functionality



FigNo1

Short explanation of the main units

GSM MODEM	GSM network 900/1800MHz modem
SIM CARD	SIM card
DEF	Connectors for restoring default settings
RS-232	Standard RS232 serial COM port
USB	Mini USB connector
FUSE	3A fuse
ANTENNA SMA	GSM antenna SMA type connector
AUDIO	Connector for AUDIO amplifier

Light emitted diodes (LED) functionality

STATUS	Indicates running microcontroller
PWR	Power supply OK
Z6	zone Z6 activated (ATZ mode: Z6 and Z12)
Z5	zone Z5 activated (ATZ mode: Z5 and Z11)
Z4	zone Z4 activated (ATZ mode: Z4 and Z10)
Z3	zone Z3 activated (ATZ mode: Z3 and Z9)
Z2	zone Z2 activated (ATZ mode: Z2 and Z8)
Z1	zone Z1 activated (ATZ mode: Z1 and Z7)
C1	C1 controlled output ON
C2	C2 controlled output ON
NETWORK	GSM network strength

Connector functionality

Z1;Z2;Z3;Z4;Z5;Z6 ATZ mode: Z1;Z2;Z3;Z4;Z5;Z6;Z7;Z8; Z9;Z10;Z11;Z12	protected zone inputs	BUZ-	Audio signalling device (Buzzer) negative input
COM	Common return pin for all zones	BUZ+	Audio signalling device (Buzzer) positive input
GND	earth pin	OUT1; OUT2	controlled C1 and C2 outputs
DATA	DALLAS button, keypad or temperature sensor pin	BELL	Audio siren negative input
+5V	temperature sensor supply voltage (+5V)	AUX	Positive +13.8V supply for auxiliary equipment and siren
MIC-	electret microphone negative input	AKU-	Back-up battery negative input
MIC+	electret microphone positive input	AKU+	Back-up battery positive input
		AC/DC	Main power supply input pins

1.5 Connection Circuit

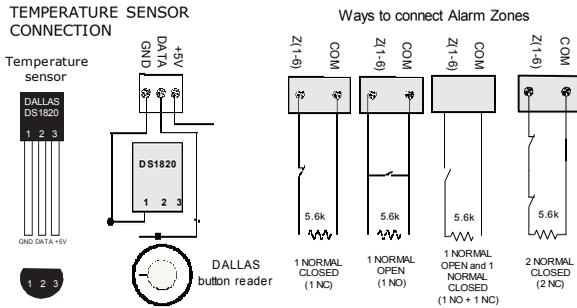
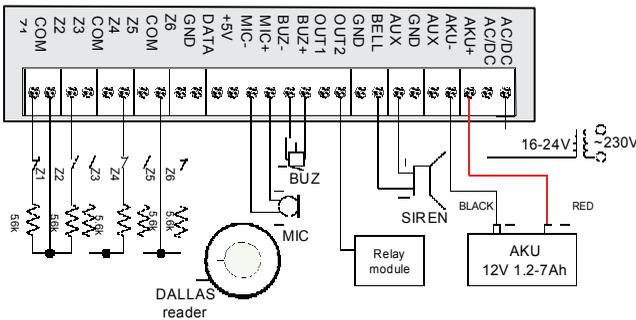
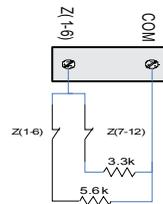


Fig No2



FigNo3

Alarm Zone doubling (ATZ mode)



FigNo4

1.6 System installation

1. Place SIM card in the holder but make sure that SIM card PIN code request is disabled. (PIN code can be disabled by putting SIM card into mobile phone and following proper menus). SIM card should not have any remaining SMS messages. Then connect antenna.
2. Install audio signalling device close to DALLAS button reader in order to hear system engaging or disengaging time-out period. Light emitting diode could be used instead of audio signalling device, or both.
3. Connect the circuit as shown in Fig. No.2. Fig. No.3 illustrates connection circuit of temperature sensor and various ways of connecting the secured zones. Fig. No.4 presents connection circuit of the secured zones using ATZ (zone duplicating) mode. ATZ can be enabled only using computer ULTIMA configuration tool.
4. Connect back-up battery and main power supply (transformer). The system will start in less than a minute. Indicator PWR will report external power supply status. Indicator STATUS should be blinking which indicates successful microcontroller operation.

USEFUL INFORMATION

The system can be used without DALLAS button, but it's good to have it as emergency switch in case your mobile phone is dead or missing. Also DALLAS button can be used as main key to enable or disable system.

USEFUL INFORMATION

To increase system reliability, it is recommended not to use prepaid SIM cards. The system would fail to send any messages upon depletion of prepaid account. Also it is recommended to disable call forwarding and voice mail.

USEFUL INFORMATION

It is worth to choose the same GSM cellular provider as most users use assuring fast and reliable SMS message delivery and phone call connection.

WARNING

Even though alarm system ULTIMA installation is not complicated, it is recommended to be performed by a person with basic knowledge in electrical engineering and electronics to avoid any system damage.

2. System pre-operation and essential control commands

VERY IMPORTANT!!!

Underscore symbol '_' in this manual is used to represent space. When writing SMS messages, every underscore symbol should be replaced by single space symbol. XXXX – means password. Don't leave any space at the beginning and the end of the message.

To set ULTIMA system parameters easier and quicker you can use the computer, USB cable and configuration program “GSM Ultima configuration tool” You can read more in chapter 4.2.

2.1 Signal strength

Connect external power supply and watch for “PWR” indicator to light up. “NETWORK” will start blinking when system registers with cellular network.

Try to choose GSM antenna location with best signal strength based on blinking frequency.

“NETWORK” indicator blinking	Meaning
OFF	No network connection
Every 3 sec	Poor network connection
Every 1 sec	Medium network connection
Several times a sec	Good network connection
Solid ON	Excellent network connection

2.2 Selecting device language and verification of SMS central number

The language in which the device communicates with the user can be chosen before changing factory default password. To change the language in the system that is already configured reset default settings as described in 4.1 appendix.

Send SMS message with the required language code to the number of the SIM card inserted in ULTIMA.

Table of possible languages

Language	Code
English	EN
Russian	RU
Lithuanian	LT



E.g., if you want to set the English language send the following SMS message: EN

30-60 seconds later you should get an SMS message: „English language confirmed.“ Go to chapter 2.2 upon reception of this message. Otherwise check for network connection and call ULTIMA system from your mobile and wait until the system drops the call. You should get an SMS message asking to change default password. Otherwise check for network connection and change SMS central number.

SMS central number is saved in SIM card, therefore if SIM card has been used to send SMS messages with a mobile phone, then you don't need to change SMS central number. Often SMS central number is already saved in SIM card by cellular operator.

Central number can be entered by sending SMS message (Example):

XXXX_SMS_+37211111111

XXXX – is a password. Default password is four zeros: 0000. SMS central number is provided by cellular network provider.

Example: 0000_SMS_+37211111111

Message should be sent to the number of SIM card which is placed into the system. If all went correct, the system will send a message: *SMS central number has been successfully changed to +37211111111*

2.3 Password change

All SMS commands start with a password, so please memorize it well. Manufacturer default password is four zeros 0000, **which is necessary to change**. Manufacturer default password can be changed by sending SMS message to ULTIMA:

0000_PSW_XXXX

To replace your password, send SMS message:

YYYY_PSW_XXXX

XXXX – any four digit number except four zeros. Non-numerical characters like dots, colons, spaces are not allowed. YYYY – old system password.

E.g. 0000_PSW_1111

Default manufacturer password can be restored, see chapter 4.1 for more details.



2.4 User numbers

System ULTIMA allows to pre-program up to five different mobile numbers which will have access to and controls the system. Number NR1 is mandatory while others can be skipped. All numbers must be entered starting with international country code. E.g. national code for Estonia is 372, UK – 44. Numbers should be entered based on priority, since the system will try to contact first entered number and in case of failure will follow with second and so on.

2.4.1 Saving or Changing numbers

Send SMS message with text to ULTIMA:

XXXX_NR1:37211111111111111111_NR2:37222222222222222222_NR3:37233333333333333333_NR4:37244444444444444444_NR5:37255555555555555555

Ones should be replaced with user numbers. Numbers don't have to be entered all or in sequential order right away. E.g. use can enter first and fourth number by sending following SMS message:

XXXX_NR1:37211111111111111111_NR4:37244444444444444444

Or individually one number at a time:

XXXX_NR3:37233333333333333333

Numbers can be changed same way as described above. New number will overwrite old one, therefore no erasing is necessary. E.g. 0000_NR1:37211111111111111111

2.4.2 Verification of saved numbers

To inquire the system about pre-programmed numbers, send SMS message:

XXXX_HELPNR

E.g. 0000_HELPNR

The system will reply with all pre-programmed numbers.



2.4.3 Deletion of saved numbers

Pre-programmed numbers can be erased by sending SMS message with numbers to be erased.

XXXX_NR2:DEL_NR3:DEL_NR4:DEL_NR5:DEL

To erase NR2 send following:

E.g. 0000_NR2:DEL

The system will not allow erasing first number NR1. It can only be changed.



2.5 Date and time settings

It is important to set correct date and time, so that the system can send reports at specified times. Date and time can be set by sending following format SMS message:

XXXX_MMMM.mn.dd_hh:mi

Where MMMM – means year, mn – month, dd – day, hh – hour, mi – minutes

E.g. 0000_2009.01.01_14:15



3. Additional system capabilities

3.1 Alarm zone inputs and controlled outputs

EXPLANATION

Activated zone can work in three different modes: simple, 24h and fire.

24h mode means that the zone is active and protected round the clock regardless whether the system is engaged or disengaged. Fire mode is same as 24h except the different audio siren tone which sounds with beeps

3.1.1 System and Zone settings. STATUS

To see the default texts of activated zones and controlled output names as well as their current settings and status send the following SMS message:

```
XXXX_STATUS
```

You will receive the answer – two SMS messages E. g.:

The first SMS message. *The system in ARMED/DISARMED. Z1:ON/OFF Z2:ON/OFF Z3:ON/OFF Z4:ON/OFF Z5:ON/OFF Z6:ON/OFF C1:CONTROLLER1:ON/OFF C2:CONTROLLER2:ON/OFF*

The second SMS message. *Z1:door triggered; Z2:windows triggered; Z3:fire triggered; Z4:motion1 triggered; Z5:motion2 triggered; Z6:motion3 triggered;*

ON- means that appropriate zone is activated, i. e., it will react in the case of alarm. OFF- it is deactivated. If zones were configured for 24 hour mode, then instead of ON it will show 24ON. For fire mode, instead of ON it will show FON.

If controlled output was enabled with timer (see chapter 3.3 for more details), STATUS command will report remaining time for controlled output to stay ON or OFF.

E.g. **C2:CONTROLLER2:ON:00.01.23**

This means that controlled output2 will be ON for 0 hours 1 minute and 23 seconds

The second SMS message indicates the set texts that will be delivered in case of alarm.



3.1.2 Changing alarm texts and controlled output names

Manufacturer set the following alarm texts for the triggered zones and controlled output names: Z1-door triggered, Z2-windows triggered, Z3-fire triggered, Z4-motion1 triggered, Z5-motion2 triggered, Z6-motion3 triggered, C1-CONTROL1, C2-CONTROL2.

E. g. if in the case of alarm zone Z4 is triggered, the system will send SMS message with the following text: motion1 triggered

Alarm texts can be changed by sending the following SMS message:

```
XXXX_Z1:NewAlarmText;Z2:NewAlarmText;Z3:NewAlarmText;Z4:NewAlarmText;Z5:NewAlarmText;Z6:NewAlarmText;
```

E.G. **XXXX_Z1:Door intrusion;Z2:Fire sensor triggered;**

The texts can be changed all at once for all zones, for several zones or one by one. Text limitation for one zone is 24 characters. The space equals one symbol. It is necessary to put a semicolon at the end of each new text. As semicolon is used for separating texts for different zones, it cannot be used in the middle of alarm texts. Also, the texts cannot have the same names as control commands.

Controller names can be changed by sending the following SMS message:

```
XXXX_C1:NewControllerName_C2:NewControllerName
```

E.G. **XXXX_C1:PUMP**

Maximum controller name length is 10 characters. Controller names should not contain a semicolon at the end. Zone names and controller names cannot be changed simultaneously.



3.1.3 Enabling/disabling zones

NOTE

Manufacturer set all the zones activated, i. e. in mode ON.

USEFUL INFORMATION

The zones can be enabled/disabled together or separately one by one.

Enabling Zone

Any zone can be enabled by sending the following SMS message:

```
XXXX_Z1:ON;Z2:ON;Z3:ON;Z4:ON;Z5:ON;Z6:ON;
```

e.g. XXXX_Z2:ON;



Disabling Zone

Any zone can be disabled by sending the following SMS message:

```
XXXX_Z1:OFF;Z2:OFF;Z3:OFF;Z4:OFF;Z5:OFF;Z6:OFF;
```

e.g. XXXX_Z2:OFF;

3.1.4 Fire Mode

Fire mode for one or few zones can be enabled by SMS message:

```
XXXX_Z1:FON;Z2:FON;Z3:FON;Z4:FON;Z5:FON;Z6:FON;
```

e.g. XXXX_Z2:FON;

WARNING

If zone has been disabled with command OFF, the zone must first be enabled by command ON and then followed by FON.

Fire mode for specific zone/zones can be disabled by SMS message:

```
XXXX_Z1:FOFF;Z2:FOFF;Z3:FOFF;Z4:FOFF;Z5:FOFF;Z6:FOFF;
```

e.g. XXXX_Z2:FOFF;



3.1.5 24-hour mode

24-hour mode for specific zone/zones can be enabled by SMS message:

```
XXXX_Z1:24ON;Z2:24ON;Z3:24ON;Z4:24ON;Z5:24ON;Z6:24ON;
```

e.g. XXXX_Z2:24ON;

WARNING

If zone has been disabled with command OFF, then zone must be first enabled by command ON and then followed by 24ON.

24-hour mode for specific zone/zones can be disabled by SMS message:

```
XXXX_Z1:24OFF;Z2:24OFF;Z3:24OFF;Z4:24OFF;Z5:24OFF;Z6:24OFF;
```

e.g. XXXX_Z2:24OFF;

3.1.6 Enter and Exit time-out configuration

Alarm System ULTIMA allows configuring first zone timeout in seconds. This allows user to disarm system upon entering or arm system upon leaving with DALLAS button or keypad. The DALLAS button must be placed into the reader or user must enter PIN code with keyboard within configured time-out period (manufacturer default 15 sec) otherwise alarm will sound.

When arming alarm system with DALLAS key or using the keyboard it is allowed to leave the premises during the pre-set period (manufacturer set 15 sec).

Time-out period can be configured by SMS message:

```
XXXX_INOUT:SSI:SSO
```

Where SSI – first zone entry time-out after activation in seconds. SSO – exit time-out after activation. There is no time-out if period is set to 0.

E.g. **XXXX_INOUT:20:30** means 20 seconds time-out on entry to disable the system and 30 seconds – time-out to leave house before the system activates.



3.2 DALLAS buttons

WARNING

First DALLAS button can be associated with the system just by touching it to the reader without the need to send any SMS message. The system will beep twice informing about successful DALLAS button association and button will be saved into non-volatile system memory.

Other DALLAS buttons can be associated by entering special mode via SMS message:

```
XXXX_IBPROG:ON
```

The system will reply with a message stating entry into special programming mode. Then new button can be placed to the reader and its unique code will be recorded by the system. Again successful operation will be notified by double beep. The system allows to associate and save up to five DALLAS buttons.

E.g. The system will save and record every new button until fifth button has been recorded.

When all buttons have been associated and recorded, it's necessary to send SMS message:

```
XXXX_IBPROG:OFF
```

This SMS command will block adding new buttons. Failing to send this SMS message, the system will not accept and respond to DALLAS buttons. The DALLAS buttons can be erased one at a time or all at once by SMS:

```
XXXX_RESETEB
```

This SMS command will erase all recorded buttons, and new buttons can be added as described above.

3.3 Managing C1 Controller. Timer.

Alarm system ULTIMA has two open-collector controlled outputs C1 and C2. They can be used to control various electrical devices such as electric pumps, heating, lighting, etc. When outputs C1 or C2 are enabled, it corresponds to output pins being pulled to ground (GND).

Enabling output:

```
XXXX_C1:ON
```

Disabling output:

```
XXXX_C1:OFF
```

Set controlled output names can be used instead of C1 or C2.

E.g. **XXXX_PUMP:OFF**

Timer

Alarm system ULTIMA has internal timer clock. This feature allows any controlled output to be switched on or off for a specified time period. The following SMS command should be sent:

XXXX_C1:ON/OFF:HH.MM.SS

ON – output enabled. OFF – disabled HH – hours, valid values [00-24] MM – minutes, valid values [00-60] SS - seconds, valid values [00-60] It is not allowed to have all values equal zeros.

E.g. to switch the pump on for 01 minutes and 23 seconds, send SMS XXXX_PUMP:ON:00.01.23

If the pump was enabled before and user want to disable it for 01 minute and 23 seconds, send SMS XXXX_PUMP:OFF:00.01.23



3.4 Siren configuration

Manufacturer default configuration for Siren alarm is 1 minute. The user can change this period or completely disable the siren. This can be done via SMS:

XXXX_SIREN:T

T can have values [0–5], 0 – Siren disabled, 1 – 1 minute, 2 – 2 minutes, etc. Maximum period allowed is 5 minutes.

E.g. XXXX_SIREN:5 means, that when system detects intrusion, alarm siren will sound for five minutes.

Siren period can be inquired by SMS:

XXXX_SIREN

System will send siren settings.



3.5 External power supply control

The system ULTIMA will report every time mains 230V power supply fails or recovers. In some remote places where mains power supply is unreliable, the system can be configured to ignore these changes.

Send SMS:

XXXX_M:ON

E.g., 0000_M:OFF

Or it can be enabled by SMS message:

XXXX_M:OFF



3.6 INFO on Status indication SMS messages (signal strength, status, temperature)

Security system ULTIMA can be inquired at any time about its status, signal strength, zone status. At the same time system can be tested. If SMS response message is received, means system is functioning properly. This is also useful for users with prepaid SIM cards. It can be checked whether SIM card has enough remaining balance for sending SMS. Send SMS message:

XXXX_INFO

The response SMS message will be received, e.g. 2009.01.07 11:15 System armed/disarmed Signal Strength Fair. External power supply OK. Temperature 20°C. Z1:OK/ALARM Z2:OK/ALARM Z3:OK/ALARM Z4:OK/ALARM Z5:OK/ALARM Z6:OK/ALARM

Where OK – if zone has not been activated, ALARM – if been activated

By default, this status SMS message will be sent daily at 11:00 in the morning. These parameters can be configured with SMS message:

XXXX_INFO:DD.TT

DD – message period in days, valid values [00–10] TT – time when message is sent, valid values [00–23]

E.g XXXX_INFO:01:10, means that status message will be sent every 1 day at 10:00.

If DD value is 0, and TT in the range of [1-23], then periodic status messages will be sent multiple times per day, with period being specified as TT time.

E.g. XXXX_INFO:0.2, means that status message will be sent every 2 hours.

To disable periodic status messages, send SMS:

```
XXXX_INFO:00.00
```

The status message INFO will not be sent until enabling or restoring default parameters.



3.7 Remote Microphone listening

To be able to listen what is going on in remote house can be done in two different ways:

1. When alarm has been activated, the system will ring pre-programmed numbers and user can answer the call. Remote microphone will be enabled for listening.
2. By sending SMS message

```
XXXX_MIC
```

The system will ring the sender of former SMS, and upon answering the call, user can listen to any sounds in the building. The phone call must be answered within 20 seconds otherwise the system will stop trying and return to previous state.

3.8 Blocking unknown incoming numbers

By default ULTIMA can be controlled from any of the pre-programmed numbers NR1 .. NR5. But user can access the system and control parameters from any number as long as password is known.

To enable this feature, send SMS message:

```
XXXX_STR:ON
```

E.g. 0000_STR:ON

To disable this feature, send SMS message:

```
XXXX_STR:OFF
```



3.9 Receiving alarm message due to temperature deviation

The system ULTIMA informs the user by SMS message in the case of temperature deviation from the set values. In order to use this function it is necessary to connect temperature sensor and set the parameters accordingly.

Examples of usage: temperature control for greenhouses, houses, aquariums, server premises, refrigerators etc. over GSM network.

Manufacturer set this function off. To turn the system on send the following SMS message:

```
XXXX_TEMP:min:max
```

min – temperature in °C, it can have values [-55...+125]

max – temperature in °C, can have values [-55...+125].

If the controlled temperature drops below min value by one degree, the user will receive SMS message with the temperature at that time.

If the controlled temperature rises above max value by one degree, the user will receive SMS message with the temperature at that time.

E.g. XXXX_TEMP:16:20 means that SMS message will be sent if the temperature drops below 16°C or rises above 20°C.

XXXX_TEMP:-10:-1 means that SMS message will be sent if the temperature drops below -10°C or rises above -1°C



To see temperature settings send the following SMS message:

```
XXXX_TEMP
```

To turn off temperature control, send the following SMS message:

```
XXXX_TEMP:0:0
```

If the value received by the system is two zeros, it will not react to temperature change. However, if the sensor is connected, temperature information will be sent together with INFO message, as described in section 3.6.

3.10 SMS message delivery to multiple users

Upon activated alarm, SMS messages are repeatedly sent until first successful delivery to one of the users. System starts with NR1, and if delivery fails, follows with NR2, etc.

It is also possible that SMS message will be sent to all recorded users.

To enable this function, send SMS message:

```
XXXX_SMSALL:ON
```

To disable this function, send SMS message:

```
XXXX_SMSALL:OFF
```

3.11 SMS message informing about system arming/disarming

By default the user NR1 will receive a short message every time system is armed or disarmed. To disable this function, send SMS message:

```
XXXX_MASTER:OFF
```

To re-enable this function, send SMS message

```
XXXX_MASTER:ON
```

4. Appendix

4.1 Restoring Default Parameters

To restore default parameters:

1. Disconnect main power supply and back-up battery.
2. short circuit (connect) connectors DEF
3. connect power supply for several seconds
4. disconnect power supply
5. disconnect connectors DEF

4.2 ULTIMA configuration tool

To configure the device quicker and easier as well as use more system capabilities, use "GSM Ultima Configuration Tool" which can be downloaded from our website www.orvos.ee

4.3 Technical support

Indication	Possible reason
PWR indicator OFF	<ul style="list-style-type: none">· No external power supply· Circuit not properly connected· Blown fuse
NETWORK indicator OFF or not blinking	<ul style="list-style-type: none">· missing SIM card· PIN code hasn't been disabled· SIM card not active· Disconnected antenna· Network signal too weak· Problems with cellular network provider
STATUS indicator solid ON or solid OFF	<ul style="list-style-type: none">· microcontroller program didn't start properly due to electrical mains noise or static discharge
System does not send any SMS messages and/or does not ring	<ul style="list-style-type: none">· SIM card account depleted· Incorrect SIM central number· No network signal· User number is not programmed in (or disabled access from unknown numbers)· SIM card has been changed without disconnected external power supply or back-up battery
Received SMS message "Incorrect Format"	<ul style="list-style-type: none">· Wrong syntax· extra space symbol could be space left in SMS message
Missing temperature reading in "INFO" message	<ul style="list-style-type: none">· temperature sensor not connected· Temperature sensor broken· Connecting wires too long
24-hour or fire modes don't work	<ul style="list-style-type: none">· Specific zone must be enabled by ON command
No sound while listening to remote microphone	<ul style="list-style-type: none">· microphone not connected· Microphone connection incorrect

Failing to record DALLAS buttons	<ul style="list-style-type: none"> · Failed contact in button reader · Reader connection incorrect · DALLAS button record mode not enabled · Trying to save more than five buttons · Connecting wires too long
Failed to activate/deactivate system with DALLAS button	<ul style="list-style-type: none"> · Failed contact in button reader · Reader connection incorrect · DALLAS button record mode not enabled · Button not been saved in system memory
Siren starts without system alarm detection	<ul style="list-style-type: none"> · Enabled Fire or 24-hour mode for specific zone
Audio signaling device SIREN silent	<ul style="list-style-type: none"> · Siren connection has polarity mixed up
With detection of active zone and starting siren, the system could not be disabled from first short phone call. It takes few phone calls to disable alarm system.	<ul style="list-style-type: none"> · One of the saved numbers NR1-NR5 has voice mail activated.

If your problem could not be fixed by the self-guide above, please contact your distributor or manufacturer tech support by email info@orvos.ee More up to date information about your device and other products can be found at the website www.orvos.ee

4.4 Shortlist of essential functions

	Phone call	DALLAS button
Arming	Ring the system. If phone call gets dropped after 3 rings, the system in armed. Zones shouldn't be activated during phone call.	Place your button to the reader. Audio signalling device will start beeping, informing to leave the premises. Zones shouldn't be activated when placing button to the reader.
Disarming	Ring the system. If phone call is dropped after one ring, then the system alarm is disarmed	Place button into the reader. Audio signalling device should stop beeping.
To find out system status, temperature, 230V mains status, signal strength	Send SMS message: XXX_INFO	
To find out programmed user numbers	Send SMS message: XXXX_HELPPNR	
To find out zone and output controller names and their status	Send SMS message: XXXX_STATUS	
When DALLAS button has been lost	Erased all programmed DALLAS buttons by sending SMS message: XXXX_RESETEB	