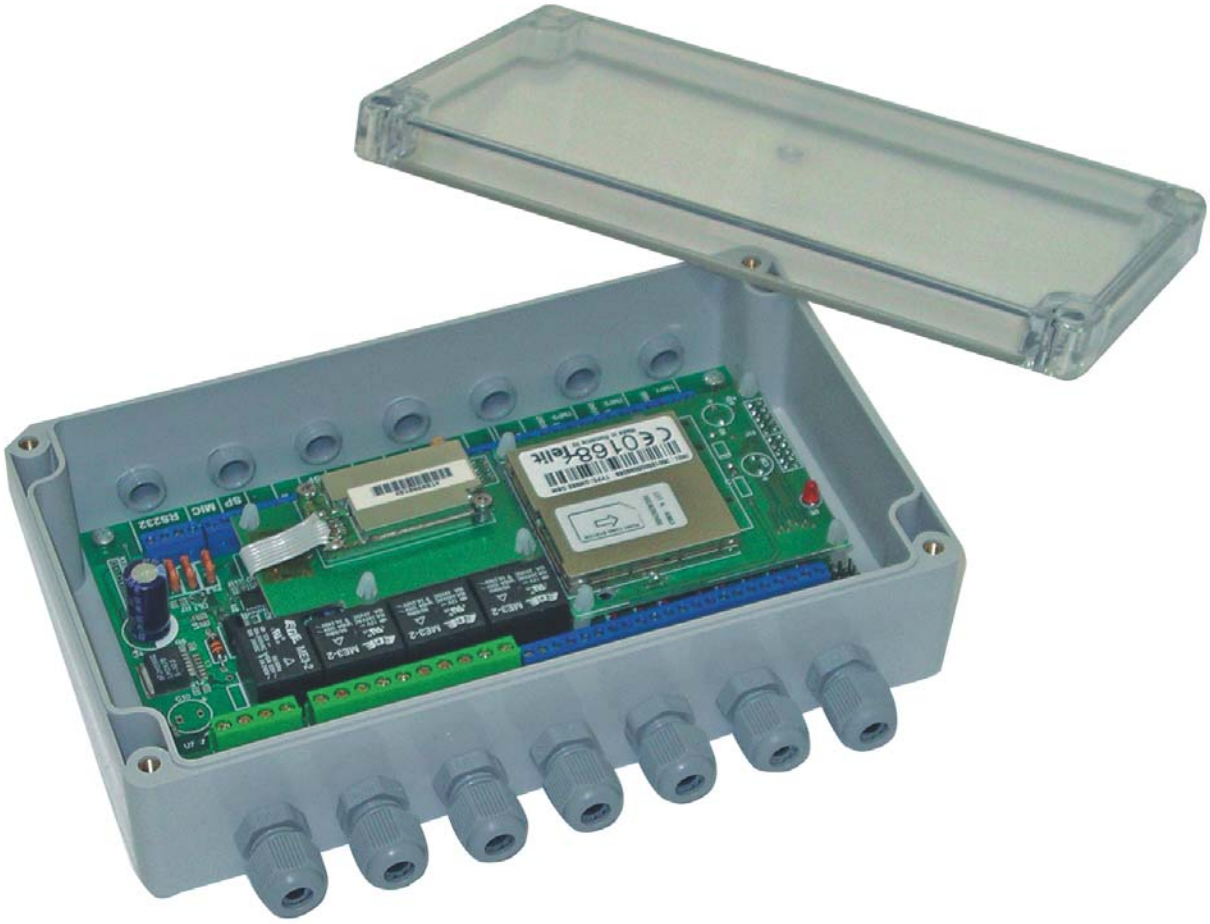
MGR100

GSM REMOTE CONTROL UNIT



Operating Instructions

ASTEL MARINE

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PREFACE

The MGR100 is a high-efficient GSM remote controller specially designed to use in nautical applications. Built-in GSM module with different interfaces enable simple and easy control and management of complete yacht electrical and electronic equipment through GSM mobile phone. Built-in relays enable remote control of different yacht devices. Alarm inputs enable remote control of different yacht systems like pumps, engines and other systems, voltage measuring and measuring of temperature and humidity. By the help of optional GPS receiver the position management and tracking are enable and alarming in the case of leaving or approaching to the hold position.
The control of the unit is possible by the help of SMS text messages or by the help of tone (DTMF) dialing. Alarming is possible by receiving the SMS text messages or by alarm calls or by the combination of both of them. Interactive voice responder confirms the requests during DTMF control or inform about the kind of alarm when alarm occurs. The unit enables also speaker and microphone connection to remote communication. Programming is possible by the help of SMS text messages or with PC by the help of RS-232 serial interface.
This GSM Remote Control Unit comes in three versions, Basic, Advance and Reference, every model is available also with GPS receiver.

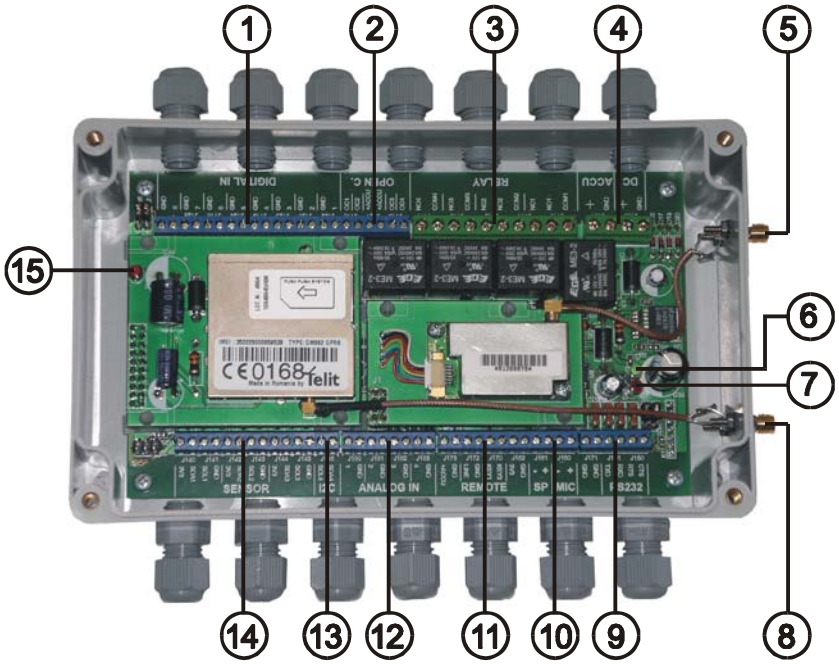
FEATURES

- built-in GSM module with SIM interface
- built-in GPS module for position management and alarming***
- SMS control
- DTMF (PSTN, ISDN, GSM) control*
- IVR – interactive voice responder**
- temperature measuring and management*
- analog voltage measuring and management*
- alarm sensor management
- remote keyboard interface
- speaker and microphone interface**
- PC remote and local management**
- wide range power supply
- ABS casing
- accumulator connection

PRECAUTIONS

- The remote control unit has to be installed and used in accordance with the instructions of this manual only.
- The power supply has to be disconnected before installation.
- Avoid using the remote control unit under the presence of appliances generating strong magnetic fields like radar, wheather station and in places subject to direct sunlight.
- Do turn power off immediately and refer servicing to qualified service personnel if the remote control unit does not operate normally following the operating instructions.

CONTROLS AND CONNECTORS



(1) DIGITAL IN
Terminal block to connect 8 different sensors.

(2) OPEN C.*
Terminal block to connect 4 different relays or other control units.

(3) RELAY*
Terminal block to connect 4 different devices.

(4) DC - ACCU
Terminal block to connect Accumulator and DC power supply.

(5) GPS antenna connector***
SMA connector to connect GPS antenna.

(6) Status LED
LED to show the status, LED blinks in normal operation.

(7) Alarm LED
LED to show the alarm status, lights when alarm occurs.

(8) GSM antenna connector
SMA connector to connect GSM antenna.

(9) RS-232**
Terminal block to connect RS-232 control equipment.

(10) SP – MIC**
Terminal block to connect Speaker and Microphone.

(11) REMOTE**
Terminal block to connect external keyboard.

(12) ANALOG IN*
Terminal block to connect 4 different voltage sources.

(13) I2C**
Terminal block to connect I2C control equipment.

(14) SENSOR*
Terminal block to connect 3 temperature or other sensors.

(15) GSM module LED
LED to show the GSM module status, lights in normal operation..

INSTALLATION

All the diagrams in this manual show the installation of the GSM Remote Control Unit, model MGR100G REFERENCE.

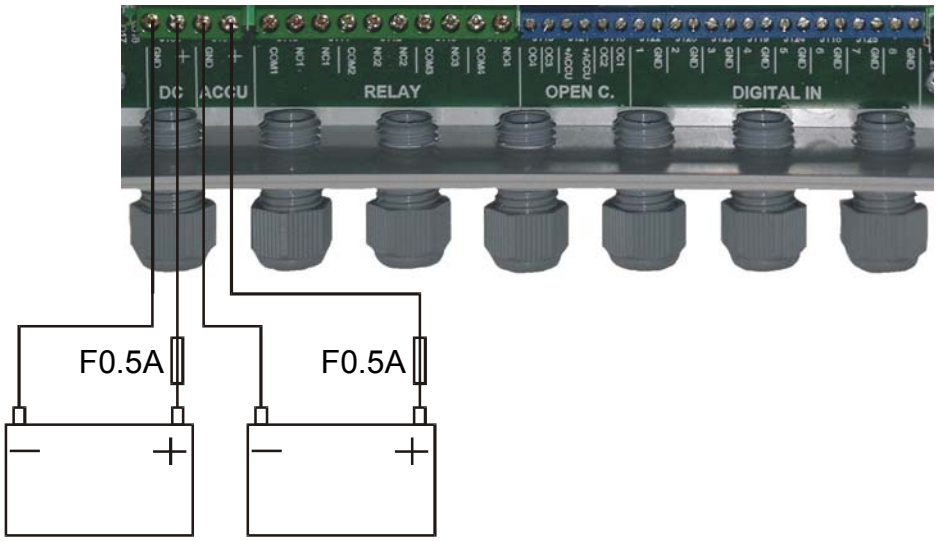
Note:
- ***The main DC power supply has to be switched off before installation.***
- ***Also refer to the instruction manual of the equipment to be connected.***
- ***The total power consumption of all sensors, relays and other devices supplied from the unit has not exceed 500mA.***

The MGR100 series remote control unit have to be installed near the control board. Avoid the installation in engine room, extremely hot places and near appliances generating strong magnetic fields. The installation have to be realize by a qualified personel.

Note:
- ***The GSM and GPS antennas have to be connected before the unit is switched-on.***
- ***The SIM card have to be inserted before the unit is switched-on. The SIM location 3 (password) has to be empty. The PIN code request have to be disabled.***

DC power supply and Accumulator connection
The power supply have to be connected to the DC terminal block connector with right polarity and protected with a fuse (not included). The power supply voltage have to be from 12 - 30VDC. The back-up accumulator have to be connected to the ACCU terminal block connector with right polarity and also protected with a fuse (not included).

Note:
- ***The declared accumulator voltage have to be the same as the DC power supply voltage.***



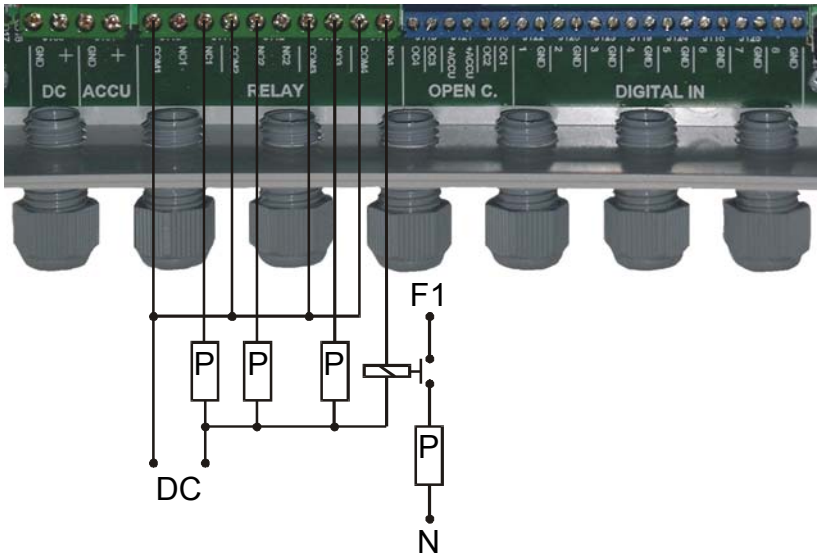
Control connections

Relays connection*

The relay control outputs are suitable to control four different yacht electrical and electronic devices, connected directly or through external relays. First two relays have NO and NC contacts, other two relays have only NO contacts.

Note:

- ***The total DC curent consumption of connected equipment to each relay must not exceed 1A when the equipment are controlled directly from the unit. The maximum voltage connected to the relays must not exceed 30V.***

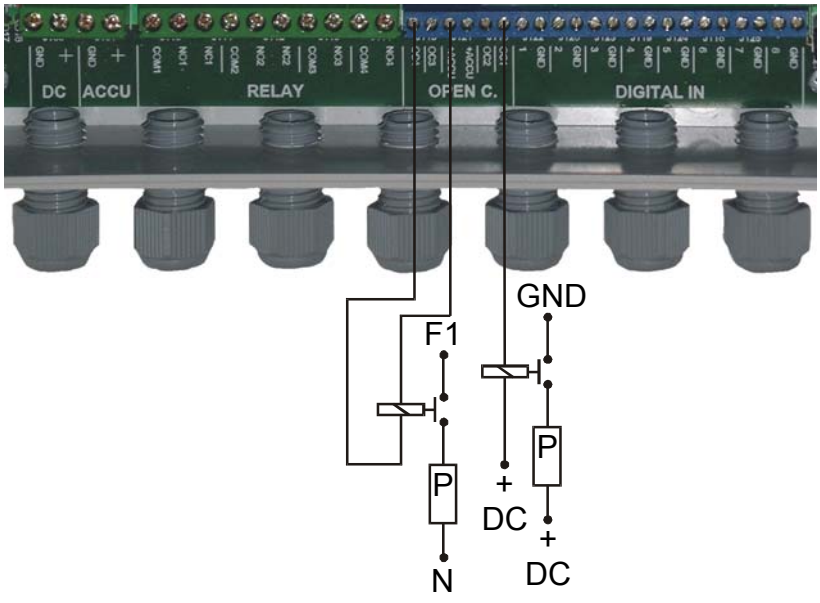


Digital outputs connection*

The digital outputs are suitable to control four different yacht electrical and electronic devices connected through external relays.

Note:

- ***The total DC curent consumption of each connected relay must not exceed 100mA.***



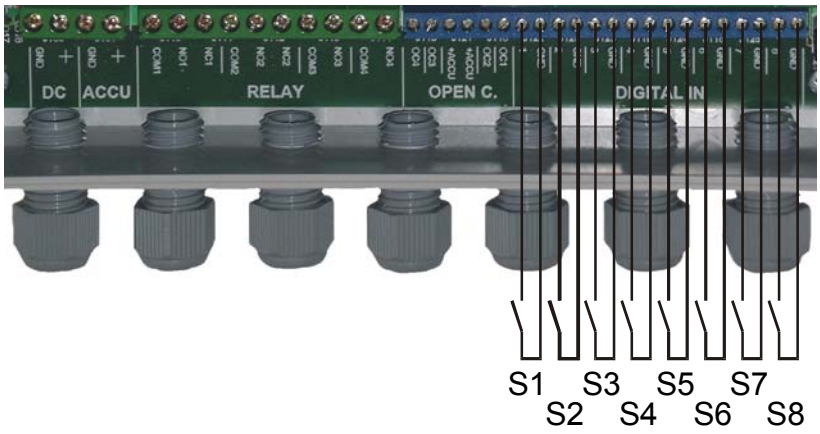
Alarm connections

Digital inputs connection

The digital inputs are suitable to connect eight different sensors like IR intruder sensors, smoke sensors, water inlet sensors (floating switches) with NO or NC contacts. The sensors can be supplied directly from the unit and connected to one of +ACCU terminal block.

Note:

- ***The total power consumption of each sensor supplied from the unit must not exceed 100mA.***

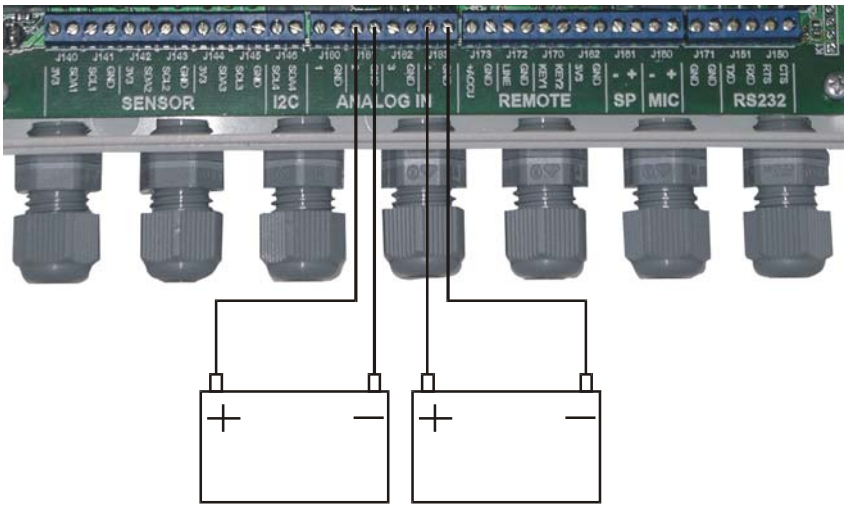


Analog inputs connection*

The analog inputs are suitable to connect four different voltage sources like are boat accumulators and to measure their voltages.

Note:

- ***Only the DC voltage can be connected to the analog inputs.***
- ***The maximum DC voltage connected to each input must not exceed 30Vdc.***

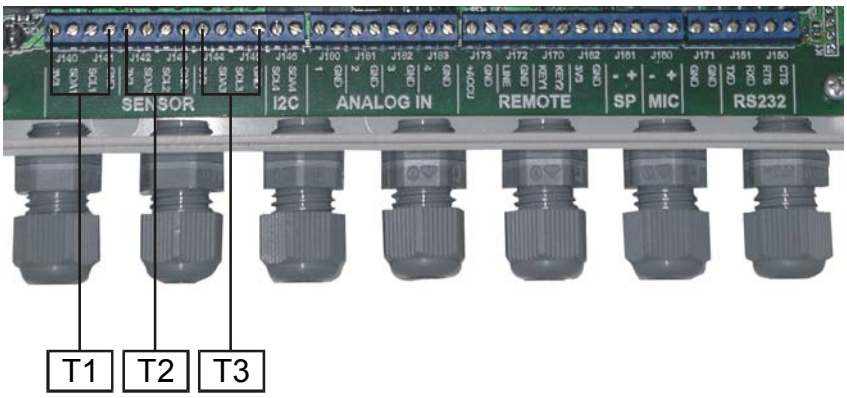


Temperature sensors connection*

The unit is designed to connect maximum three temperature sensors to measure the temperature in different places like are engine room, saloon, rooms and cockpit or fly-bridge.

Note:

- ***Only the specified sensors can be connected to the temperature sensors inputs.***



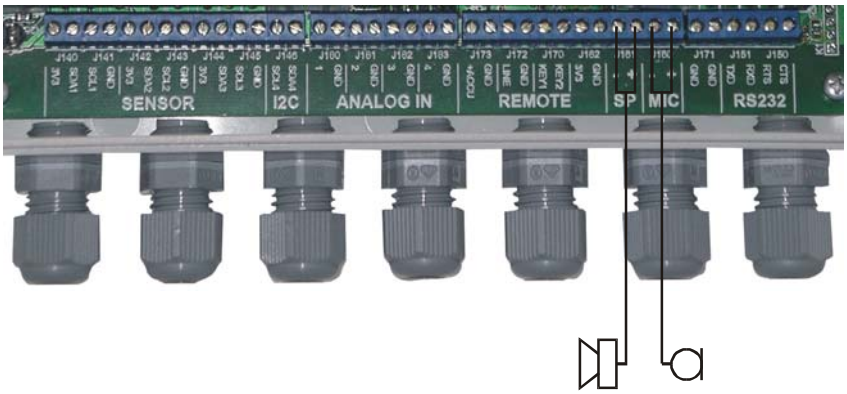
Other connections

Speaker and Microphone connection**

The unit is designed to connect the microphone which enables to listen the voice and low-power speaker for communication and notification.

Note:

- ***Only the specified speaker and microphone can be connected to the unit.***

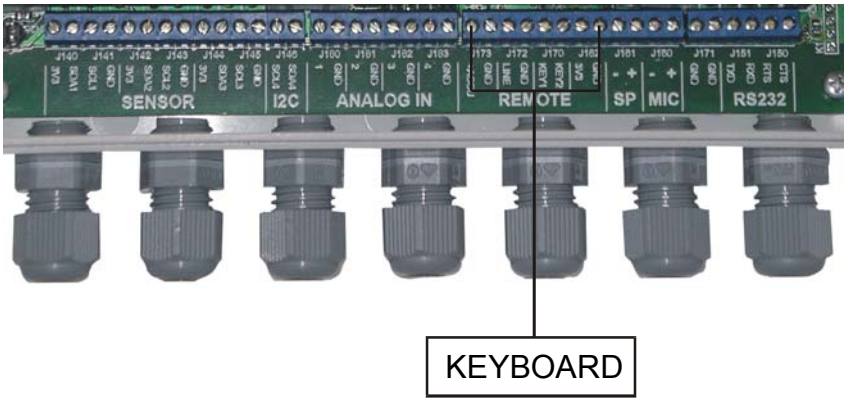


Remote keyboard connection**

The unit is designed to connect the simple remote keyboard which enables operating with the unit to enable and disable the alarming and other functions.

Note:

- ***Only the specified remote keyboard can be connected to the unit.***

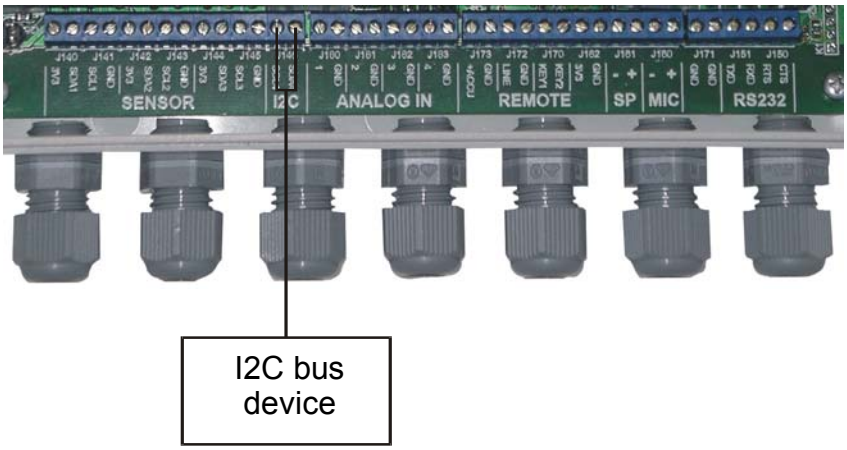


I2C bus connection**

The unit is designed to connect also the devices using the I2C protocols.

Note:

- ***Only the devices using I2C protocol can be connected to the I2C interface.***



RS-232 connection**

The unit is designed to connect also the devices using the RS-232 serial interface control like personal computer or other devices.

Note:

- ***Only the devices using RS-232 serial interface can be connected to the RS-232 port.***

INSTRUCTIONS

Login

The default setting of password is 1234.

To send the password

PWDxxxx x=1..9

`PWD1234` (if the password is 1234)
(PWD instruction should be uppercase, other instructions uppercase or lowercase)

`PWD1234_instr1_instr2_instr3`
(first should be sent the password then space and then instructions)

To change the password

NPWxxxx x=1..9

`NPW2222` (if the new password is 2222)

Controls

Relays*

To receive a status of relays:

REL

Received SMS:

```
NAME
REL1:REL1:12.10.00
REL2:REL2:ON
REL3:REL3:OFF
REL4:REL4:REM
```

To switch-on the relay:

RELxON x=1..4

REL1ON (to switch-on the relay 1)

To switch-off the relay:

RELxOFF x=1..4

`REL1OFF` (to switch-off the relay 1)

To switch-on the relay for selected time duration:

RELxONhh.mm x=1..4
hh=0..24
mm=0..60
ss=0..59

`REL1ON12.10.00` (to switch-on the relay for 12 hours, 10 minutes)

To switch-on the relay when alarm occurs:

RELxALMhh.mm.ss x=1..4
hh=0..24
mm=0..59
ss=0..59

`REL2ALM00.10.30` (switching-on the relay 2 for 10 minutes, 30 seconds)

To confirm the alarm by switching-off the relay

RELxALM x=1..4

`REL2ALM` (temporary switching-off the relay 2)

To switch-on audio or other indication when alarming is enabled/disabled:

RELxREM x=1..4

`REL4REM` (to switch-on audio or other indication on the relay 4)

Digital outputs*

To receive a status of open-collector outputs:

OCE

Received SMS:

```
NAME
OCE1:OCE1:12.10.00
OCE2:OCE2:ON
OCE3:OCE3:OFF
OCE4:OCE4:REM
```

To switch-on the open-collector output

OCExON x=1..4

`OCE1ON` (to switch-on the open-collector output 1)

To switch-off the open-collector output

OCExOFF x=1..4

`OCE1OFF` (to switch-off the open-collector output 1)

To switch-on the open-collector for selected time duration:

OCExONhh.mm.ss x=1..4
hh=0..24
mm=0..60
ss=0..59

`OCE1ON12.10.00` (to switch-on the open-collector 1 for 12 hours, 10 minutes)

To switch-on audio indication when alarming is enabled/disabled:

OCExREM x=1..4

`OCE4REM` (to switch-on audio indication on the open-collector output 4)

Alarms

Digital inputs

To receive alarm status on digital inputs:

ADS

Received SMS:

```
NAME
ALM:
D1:IN1:OFF
D2:IN2:OFF
D3:IN3:ON
D4:IN4:OFF
D5:IN5:OFF
D6:IN6:OFF
D7:IN7:REM
D8:IN8:REM
```

(when switching-on/off of alarming is enabled by the help of the digital inputs D7 in D8)

To enable alarms on digital inputs:

ADSxxxxxxxx x=1 or 0

`ADS00100000` (to enable alarm on digital input 3)

To receive alarm triggering on digital inputs:

ADT

Received SMS:

```
NAME
TRG:
D1:HIGH
D2:HIGH
D3:LOW
D4:LOW
D5:LOW
D6:LOW
D7:REM
D8:REM
```

(when switching-on/off of alarming is enabled by the help of the digital inputs D7 in D8)

To define alarm triggering on digital inputs:

ADTxxxxxxxx x=1 or 0

1- to activate the alarm when the input is high – open contact
0- to activate the alarm when the input is low – close contact

ADT11100000 (1.,2. – high inputs, 3, 4.,5.,6.,7.,8., - low inputs)

Alarming:

Received SMS:

```
NAME
ALARM:IN3:LOW
```

Analog inputs*

To receive alarm status on analog inputs:

AAS

Received SMS:

```
NAME
ALM:
A1:V1:OFF
A2:V2:OFF
A3:V3:OFF
A4:V4:ON
A5:DC:ON
A6:ACCU:ON
```

To enable alarms on analog inputs:

AASxxxxxx x=1 or 0

AAS000111 (to enable alarm on analog input 4,5,6)

To receive alarm triggering on analog inputs:

AAT

Received SMS:

```
NAME
TRG:
A1:Low:10.2V
High:20.2V
A2:Low:0.0V
High:30.0V
A3:Low:0.0V
High:30.0V
A4:Low:11.0V
High:30.0V
A5:Low:10.0V
High:14.0V
A6:Low:10.0V
High:14.0V
```

To define alarm triggering on analog inputs:

AATxsnn.n.snn.n x=1..6
s=L or H
nn.n=number with decimal point, max. 30.0

```
AAT1L10.2H20.2
```
(to activate the alarm when input voltage is lower than 10.2V and higher than 20.2V)

Alarming:

Received SMS:
```
NAME
ALARM:V4:10.5V
ALARM:DC:9.5V
ALARM:ACCU:9.5V
```

Temperature sensors*

To receive alarm status on temperature sensors:

ATS

Received SMS:
```
NAME
ALM:
T1:TEMP1:OFF
T2:TEMP2:OFF
T3:TEMP3:ON
```

To enable alarms on temperature sensors:

ATSxxx x=1..3

```
ATS001
```
(to enable alarm on sensor 3)

To receive alarm triggering on temperature sensors:

ATT

Received SMS:
```
NAME
TRG:
T1:Low:20.0C
High:30.0C
T2:Low:-50.0C
High:120.0C
T3:Low:2.0C
High:38.0C
```

To define alarm triggering on temperature sensors:

ATTxsnn.n.snn.n x=1..3
s=L or H
nn.n= number with decimal point

```
ATT1L10.5H20.5
```
(to activate the alarm when temperature on sensor 1 is lower than 10.5C and higher than 20.5C)

Alarming:

Received SMS:
```
NAME
ALARM:TEMP3:38.5C
```

GPS receiver***

To receive alarm status on pre-defined positions:

AGS

Received SMS:
```
NAME
ALM:
P1:POS1:ON
P2:POS2:OFF
P3:POS3:OFF
P4:POS4:ON
```

To enable alarms on pre-defined positions:

AGSxxxx x=1 or 0

```
AGS1001
```
(to enable GPS alarm on position 1 and 4)

To receive alarm triggering on pre-defined positions:

AGT

Received SMS:
```
NAME
TRG:
P1:Out:0.25km
P2:In:0.20km
P3:In:0.20km
P4:In:0.30km
```

To define distances and mode for alarm triggering:

AGTxsn.nnu x=1..4
s=I or O (IN or OUT)
n.nn=number, max. 9.99
u=k or n or m (km, nm, m)

`AGT1O0.25k`
(to activate the alarm when the distance from position 1 is longer than 0.25 km)

`AGT4I0.30k`
(to activate the alarm when the distance to position 4 is shorter than 0.30 km)

To receive pre-defined positions for alarm triggering:

AGC

Received SMS:

```
NAME
POS:
P1:Lat:45,45.281N
   Lon:013,49.892E
P2:Lat:0
   Lon:0
P3:Lat:0
   Lon:0
P4:Lat:45,48.390N
   Lon:013,48.300E
```

To define positions for alarm triggering:

AGCxann,nn.nnnbnnn,nn.nnn x=1..4
a=n,s
b=e,w
n=1-9

AGC1n45,45.281e013,49.892 (position 1 is 45,45.281N in 013,49.892E)

To avtomatically insert the alarm position by the help of momentary position:

AGMx x=1..4

`AGM1` (to avtomatically insert momentary position to alarm position P1)

Alarming:

Received SMS:

```
NAME
ALARM:GPS.POS1:OUT
```

GPS receiver status:

Received SMS:
NAME
GPS:UNLOCKED (when at least one AGS is ON and GPS signal is unlocked)

Received SMS:
NAME
GPS:LOCKED (when at least one AGS is ON and GPS signal is repeatedly locked)

Other alarm functions

To generally switch-on the alarming:

ALMON
(the delay time of alarming is reset)

To generally switch-off the alarming:

ALMOFF

To generally switch-on the alarming with delay:

ALMONhh.mm.ss hh=0..24
mm=0..59
ss=0..59

ALMON00.02.30 (the delay of alarming for 2 minutes, 30 seconds)
(when the alarming is switched-on/off by the remote control the delay time remains the same)

To enable the switching-on/off of alarming by the remote control on the inputs KEY1 and KEY2:**

REMKON

REMKON (switching-on/off of alarming is enabled)

To enable the switching-on/off of alarming by the remote control on the inputs D7and D8:

REMDON

REMDON (switching-on/off of alarming is enabled)

To disable the switching-on/off of alarming by the remote control on the inputs KEY1 and KEY2:**

REMKOFF

REMKOFF (switching-on/off of alarming is disabled)

To disable the switching-on/off of alarming by the remote control on the inputs D7and D8:

REMDOFF

REMDOFF (switching-on/off of alarming is disabled)

To check the remote control status:

REM

Received SMS:

```
NAME
REMOTE ALARMS:
KEY:ON (switching-on/off of alarming is enabled on the inputs KEY1 in KEY2)
DIG:OFF (switching-on/off of alarming is disabled by the help of the digital inputs D7 in D8)
```

To receive alarm status:

ALM

Received SMS:

```
NAME
ALARMS:ON (the alarming is switched-on)
```

Received SMS:

```
NAME
ALARMS:ON.DEL:00.02.30
```

(the alarming is switched-on with delay of 2 minutes and 30 seconds)

To check alarmed functions:

ALMCHK

Received SMS:

```
NAME
ALARM:IN7:LOW
```

Received SMS:*

```
NAME
ALARM:V4:10.5V
```

Received SMS:*

```
NAME
ALARM:DC:9.5V
```

Received SMS:*

```
NAME
ALARM:ACCU:9.5V
```

Received SMS:*

```
NAME
ALARM:TEMP3:38.5C
```

Received SMS:***

```
NAME
ALARM:GPS.POS1:OUT
```

Alarm set-up

To set-up the alarming of the unit:

- Write the GSM numbers for receiving SMS to the SIM card location from 43 to 52.
- Write the phone numbers for calling to the SIM card location from 90 to 99.**
- Write the location of the first GSM number for receiving SMS to the SIM card location 8.
- Write the location of the last GSM number for receiving SMS to the SIM card location 9.
- Write the location of the first phone number for calling to the SIM card location 1.**
- Write the location of the last phone number for calling to the SIM card location 2.**
- Set all the alarms status and triggering by instructions *ADS, ADT, AAS*, AAT*, ATS*, ATT** and on the models with GPS receiver also by the *AGS***, AGT***, AGC**** or *AGMx***.*
- When the remote control is used set the switching-on/off of alarming by instructions *REMKON** or *REMDON* and audio or other indication by instructions *RELxREM** or *OCExREM*.*
- When the relays are used with alarming set the relay time by instruction *RELxALM*.*
- Switch-on the alarming by instructions *ALMON* or *ALMONhh.mm.ss* or with remote control.

Other functions

To receive the status of digital inputs:

DIG

Received SMS:

```
NAME
D1:IN1:LOW
D2:IN2:LOW
D3:IN3:LOW
D4:IN4:HIGH
D5:IN5:HIGH
D6:IN6:HIGH
D7:IN7:LOW
D8:IN8:HIGH
```

To receive the voltage on the analog inputs:

ANG*

Received SMS:

```
NAME
A1:V1:11.0V
A2:V2:5.8V
A3:V3:5.9V
A4:V4:10.5V
A5:DC:9.5V
A6:ACCU:9.5V
```

To receive the temperature on the temperature sensors:

TMP*

Received SMS:

```
NAME
T1:TEMP1:23.5C
T2:TEMP2:23.0C
T3:TEMP3:22.0C
```

To receive the momentary GPS position:

GPS***
Received SMS:

```
NAME
Lat:45,45.281N
Lon:013,49.892E
Altitude: 288.3m
```

To receive status of the digital inputs, the voltage on the analog inputs, the temperature on the temperature sensors and momentary GPS position:

SMS*

To receive GSM operator, signal, power supply voltage, accumulator voltage, GPS receiver status and software version:

MON

To define the GSM tel. number to which the SMS answer of requested instruction would be sent:

FWDx_instr x=GSM tel. number

`FWD0038641123456_rel` (to send the relay status on GSM tel. number 0038641123456)

To write the number to the location on the SIM card

PBWs&x& s=location on the SIM card
x=number

`PBW55&0038641123456&` (to write the number 0038641123456 on the location 55)

To write the name to the location on the SIM card

PBWs&&n s=location on the SIM card
n=name

`PBW55&&kiko` (to write the name KIKO on the location 55)

To write the name and number to the location on the SIM card

PBWs&x&n s=location on the SIM card
x=number
n=name

`PBW55&0038641123456&kiko`
(to write the number 0038641123456 and name KIKO on the location 55)

To delete the contents on the location on the SIM card

PBWs&& s=location on the SIM card

`PBW55&&` (to delete the contents on the location 55)

To receive the contents on the location on the SIM card

PBRs s=location on the SIM card

`PBR55` (to receive the contents on the location 55)

DTMF instructions*

`#1234#` password

`#81x#` to switch-on the relays
`#80x#` to switch-off the relays

`#71x#` to switch-on open-collector outputs
`#70x#` to switch-off open-collector outputs

`#98#` to generally enable all alarms:
`#97#` to generally disable all alarms:
`#60#` to check alarmed functions

`#95#` to switch-on a microphone
`#96#` to switch-on a microphone and speaker

`#91#` to receive the status (like SMS instruction)

SIM card locations

s&x&n s=location on the SIM card
x=number
n=name

Location (s):

```
1   &location of the first call number&  &0& - no call**
2   &location of the last call number&**
3   password (4 digits)
4   reserved
5   reserved
6   reserved
7   reserved
8   &location of the first SMS number&   &0& - no SMS
9   &location of the last SMS number&
10  reserved
11  &&IN1
12  &&IN2
13  &&IN3
14  &&IN4
15  &&IN5
16  &&IN6
17  &&IN7
18  &&IN8
19  &&REL1*
20  &&REL2*
21  &&REL3*
22  &&REL4*
23  &&OC1*
24  &&OC2*
25  &&OC3*
26  &&OC4*
27  &&TEMP1*
28  &&TEMP2*
29  &&TEMP3*
30  &&NAME
31  reserved
32  reserved
33  reserved
34  reserved
35  reserved
36  &&V1*
37  &&V2*
38  &&V3*
39  &&V4*
40  &&ACCU
41  &&DC
42  reserved
43  &SMS number 1&
44  &SMS number 2&
45  &SMS number 3&
46  &SMS number 4&
47  &SMS number 5&
48  &SMS number 6&
49  &SMS number 7&
50  &SMS number 8&
```

```
51  &SMS number 9&
52  &SMS number 10&
53  reserved
54  reserved
55  &&POS1***
56  reserved
57  &&POS2***
58  reserved
59  &&POS3***
60  reserved
61  &&POS4***
... reserved
90  &call number 1&**
91  &call number 2&**
92  &call number 3&**
93  &call number 4&**
94  &call number 5&**
95  &call number 6&**
96  &call number 7&**
97  &call number 8&**
98  &call number 9&**
99  &call number 10&**
```

TECHNICAL SPECIFICATIONS

Power supply	12-30 Vdc
Accumulator (option)	1, the same voltage as power supply
Relays*	2 x NO/COM, 2 x NO/NC/COM
Digital outputs*	4, open-collector
Digital inputs	8, NO, TTL, 12V
Analog inputs*	4 (6), 0-30 Vdc (10 bit, ±2LSB)
Temperature sensor interface*	3, I2C interface
Keyboard interface**	1
Audio interface**	1, speaker, microphone
I2C interface**	1
PC serial interface**	1, RS-232
Casing	ABS
Protection	IP-65 (VDE)
Dimensions	210x165x55mm
Weight	0.7 kg

GSM module

Quad-band	E-GSM-900, GSM-850, DCS-1800, PCS-1900
SIM card interface	3V
Antenna connector	SMA

GPS module***

GPS receiver	12-parallel channel GPS receiver 1 second update rate Accuracy position < 15m, 95% typical (100m with selective availability on)
Sensitivity	-165 dBW min.
Antenna connector	SMA

(*) – only for ADVANCE and REFERENCE models
(**) – only for REFERENCE model
(***) – only for MGR100G models with GPS receiver

OPTIONAL ACCESSORIES

- Temperature sensor MT 01
- Temperature sensor MT 02
- IR intruder sensor MIR 01
- IR intruder sensor MIR 02
- IR intruder sensor MIR 03W
- Smoke sensor MF 01
- Smoke sensor MF 02W
- Water inlet sensor MW 01
- Magnetic Switch MM 02
- Magnetic Switch MM 03W
- GSM antenna MAGM 01
- GSM antenna MAGM 03
- GPS antenna MAGP 02
- Accumulator MAC 12
- Keyboard MKB 120
- Transmitter MRT 04W
- Receiver MRR 04W
- Keyfob Transmitter MRC 04W

Design and specifications subject to change without notice.

WARRANTY

1. The equipment manufactured by ASTEL d.o.o. is warranted to be free from defects in workmaship and materials under normal use and service.
2. This Warranty is in effect for of two years from the date of purchase by the user. Proof of purchase must be included, to establish that it is inside the warranty period.
3. This Warranty is transferrable and covers the product for the specified time period.
4. In case any part od the equipment proves to be defective, other than those parts excluded in paragraph 5 below, the owner should do the following:
   (a) prepare a detailed written statement of the nature and circumstances of the defect, to the best of the Owner's knowledge, including the date of purchase, the place of purchase, the name and adress of the installer, and the Purchaser's name, adress and telephone number;
   (b) the Owner should return the defective part or unit along with the statement referenced in the preceding paragraph to the warrantor, ASTEL d.o.o., or an authorized distributor, postage/shipping prepaid and at the expense of the Purchaser;
   (c) if upon the Warrantor's or authorized distributor's examination, the defect is determined to result from defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense;
   (d) no refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. Prior to refund of the purchase price, Purchaser must submit a statement in writing from a professional boating equipment supplier that the installation instructions of the Operating Instructions manual have been complied with and that the defect remains;
   (e) warranty service shall be performed only by the Warrantor, or an authorized distributor, and any attempt to remedy the defect by anyone else shall render this warranty void.
5. There shall be no warranty for defects or damages coused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment spacially designed as waterproof.
6. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, loss of income or profit, or any other consequential or resulting damage or cost which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment, or part thereof.
7. The Warrantor assumes no liability for incidental or consequential damages of any kind including damages arising from collision with other vessels or objects.

DECLARATION OF CONFORMITY

according to IEC Guide 22 and EN 45014

Manufacturer's Name:	ASTEL, Podjetje za projektiranje, proizvodnjo in trgovino, d.o.o.
Manufacturer's Address:	Dutovlje 138 6221 Dutovlje Slovenija

declares that the products

Item, Product Name and Model Number:	1. GSM Remote Control Unit MGR100 series

conform to the following Product Specifications:

Radio Spectrum:	EN 300 511 and 3GPP 51.010-1
EMC:	EN 301 489-1 and EN 301 489-7
Electrical Safety:	EN 60950

Supplementary Information:

The products herewith comply with the requirements of the following Directives and carry the CE-marking accordingly:

- the R&TTE Directive 1999/5/EC
- the Low Voltage Directive 73/23/EEC
- the EMC Directive 89/336/EEC

ASTEL d.o.o.
Dutovlje 138
6221 Dutovlje
Slovenija

11th May, 2005

DECLARATION OF CONFORMITY

according to IEC Guide 22 and EN 45014

Manufacturer's Name:	ASTEL, Podjetje za projektiranje, proizvodnjo in trgovino, d.o.o.
Manufacturer's Address:	Dutovlje 138 6221 Dutovlje Slovenija

declares that the products

Item, Product Name and Model Number:	1. GSM Remote Control Unit MGR100G series

conform to the following Product Specifications:

Radio Spectrum:	EN 300 511 and 3GPP 51.010-1
EMC:	EN 301 489-1 and EN 301 489-7 EN 50082-1 and EN 61000-6-1
Electrical Safety:	EN 60950

Supplementary Information:

The products herewith comply with the requirements of the following Directives and carry the CE-marking accordingly:

- the R&TTE Directive 1999/5/EC
- the Low Voltage Directive 73/23/EEC
- the EMC Directive 89/336/EEC

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11th May, 2005

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