



AT2000 User Manual v1.03

CONTENTS

1	INTRODUCTION	3
1.1	ATTENTION	3
1.2	LEGAL NOTICE	4
1.3	PACKAGE CONTENTS	4
1.4	INSTRUCTIONS OF SAFETY AND BATTERIES	5
1.5	TEMPERATURE DEPENDENCE OF DISCHARGE CAPACITY	6
2	CHARACTERISTICS	6
2.1	ELECTRICAL CHARACTERISTICS	7
2.2	OPERATING FROM EXTERNAL POWER	8
3	AT2000 CONFIGURATION	8
3.1	ACTIONS BAR.....	9
3.2	STATUS BAR	9
4	SETTINGS MENU	10
4.1	SEA SCENARIO	10
4.2	LAND SCENARIO	10
4.3	SECURITY SCENARIO	11
5	GPRS SETTINGS.....	11
6	SMS SETTINGS	12
7	GEOFENCE SETTINGS	13
8	I/O SETTINGS.....	13
9	ADDITIONAL SETTINGS	15
10	ACCELEROMETER	16
10.1	ACCELEROMETER PARAMETERS:	16
11	ORDER CODES/ HW MODIFICATIONS	18
11.1	AVAILABLE ACCESSORIES	18
12	DIGITAL TEMPERATURE SENSOR CONNECTION SCHEMES (DS1820 OR DS18B20 AND TTJ100)	19
13	SMS & GPRS COMMAND LIST.....	20
13.1	SETTING PARAMETER FORMAT	24
13.2	READING PARAMETER FORMAT	25

1 INTRODUCTION

AT2000 is light terminal with GPS and GSM connectivity and autonomous rechargeable battery, which is able to get device coordinates via GSM (GPRS or SMS). It has magnet mount and mount/dismount detection and an attached magnetic sensor. It can be used as a metal door seal (i.e.: metal containers).

1.1 Attention



Personal or portable computers to be connected to the device must comply with the requirements of DIN EN 60950-1:2003.



Do not disassemble the device more than it is allowed. If the device is damaged, the power supply cables are not isolated or the isolation is damaged, before unplugging the power supply, do not touch the device.



All wireless data transferring devices produce interference that may affect other devices which are placed nearby.



The device may be fitted only by qualified personnel.



The device must be firmly fastened in the predefined location.



The programming must be performed using a second class PC (with autonomic power supply).



The device is susceptible to water and humidity in environment with IP class greater than IP65.



Use only batteries provided by Teltonika. If wrong batteries are used, the device may malfunction. Teltonika takes no responsibility for damage caused to device by third party batteries.



Any installation and/or handling during a lightning storm are prohibited.



Please use cables provided with the AT2000 device. Teltonika is not responsible for any harm caused by using wrong cables for PC <-> AT2000 connection.



Teltonika reserves the right to change or modify the device in a way that feels acceptable and is in agreement with terms and conditions.



Ensure that the batteries are not immersed in the water. When stored, keep the device in a cool and dry place.



Ensure that the device and batteries are not exposed to hot surfaces or direct sunlight.



When transporting, ensure that batteries are safe from metal parts and do not keep it with metal rings, chains, etc.



Do not damage the battery with sharp objects.



Charge the battery only with original charger or it may explode.

1.2 Legal Notice

Copyright © 2011 Teltonika. All rights reserved. Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without a prior written permission of Teltonika is prohibited.

Other products and company names mentioned here may be trademarks or trade names of their respective owners.

1.3 Package contents

The AT2000 device is supplied to the customer in a cardboard box containing all the equipment that is necessary for operation. The package contains:

1. The AT2000 device.
2. Micro USB cable.
3. 2 x 3.7V rechargeable batteries

1.4 Instructions of safety and Batteries

This chapter contains information on how to operate AT2000 safely. By following these requirements and recommendations, you will avoid dangerous situations. You must read these instructions carefully and follow them strictly before operating the device!

To avoid mechanical damage, it is advised to transport the AT2000 device in an impact-proof package.

The device is designed to be mounted in a zone of limited access. All related devices must meet the requirements of standard EN 60950-1.

AT2000 is autonomous device which uses two R14 (IEC 60086 standard) batteries. Batteries used in this device are rechargeable Li based type and should have the following parameters:

- LC26500, 3.7V, 3000mAh.
- Max pulse current not more than: 2000mA



The battery can be used within the following temperature ranges. Don't exceed these ranges!

- Charge temperature ranges: 0°C ~ 45°C
- Discharge Temperature ranges: -20°C ~ 60°C
- Storage: -20°C ~ 60°C

Don't leave, charge or use the battery in a car or similar place where inside of temperature may be over 60 C.

Internal batteries charging starts immediately when external power is connected to device

NOTE: Use special caution when working with Li-ion cells, they are very sensitive to charging characteristics and may explode or burn if mishandled. Make sure the user has enough knowledge of Li-Ion rechargeable batteries in charging, discharging and assembly before use. Always charge in/on a fire-proof surface. Never leave charging batteries unattended. The Teltonika will not be held responsible or liable for any injury, damage, or defect, permanent or temporary that may be caused by the improper use of a LI-ION battery. Please have a basic understanding of the batteries you are using and how to care for them properly. Please contact us with any questions or concerns. Charging/Discharging temperature. The cell should be charged/discharged within a range of specified temperatures in the product specification.

1.5 Temperature Dependence of Discharge Capacity

- A 60°C ≥ 95%
- B 0°C ≥ 85%
- C -10°C ≥ 70%
- D -20°C ≥ 60%

Teltonika recommended batteries are available for sale from Teltonika office or distributors. Only with these batteries correct device operation and (or) prevention of permanent damage to device is guaranteed.

Warning: use only the same sort of batteries in pair and do not mix old batteries with new ones.

2 CHARACTERISTICS

GSM / GPRS features:

- Teltonika TM11Q quad band module (850, 900, 1800, 1900 MHz)
- GPRS class 10
- SMS (text, data)

GPS features:

- No less than -161 dBm sensitivity

Special features:

- External Power source option
- Battery charging from external power source
- Magnet sensor
- Magnet Pad
- Over voltage protection for digital inputs
- Accelerometer
- New encrypted communication protocol
- Universal configurator (Firmware update, debug log)
- Remote log
- GPRS commands
- Highly configurable data acquisition and sending
- Multiple geofence areas
- Real-time process monitoring
- Authorized number list for remote access
- Firmware update via USB or GPRS
- Configuration update via USB port or GPRS/SMS

- TCP/IP protocol support

Integrated scenarios:

- Asset tracking scenario in the sea
- Asset tracking scenario on land
- Sea/Land scenario
- Security scenario

I/O elements:

- Digital inputs (accessories: light sensors, alarm button, door sensor etc.)
- Digital output (accessories: LED light, buzzer)
- Analog input (for monitoring voltage: fuel sensors, generators etc.)
- 1-wire (Dallas temperature sensors support)

Interface:

- Micro USB
- 1-wire protocol support
- 2 configurable inputs (digital input, digital output, analog input)*

Size:

- Device: (148 x 84 x 43) mm

*- the interface depends on the chosen modification

2.1 Electrical characteristics

AT2000:

- External power supply: 6...30V DC
- Operation temperature: -25°C ... +75°C *

*- Read chapter Batteries and Safety Notes

Internal Battery:

- Voltage: 3.7V
- Nominal capacity 3000mAh
- Max pulse current not more than 2000mA
- Device use two batteries.

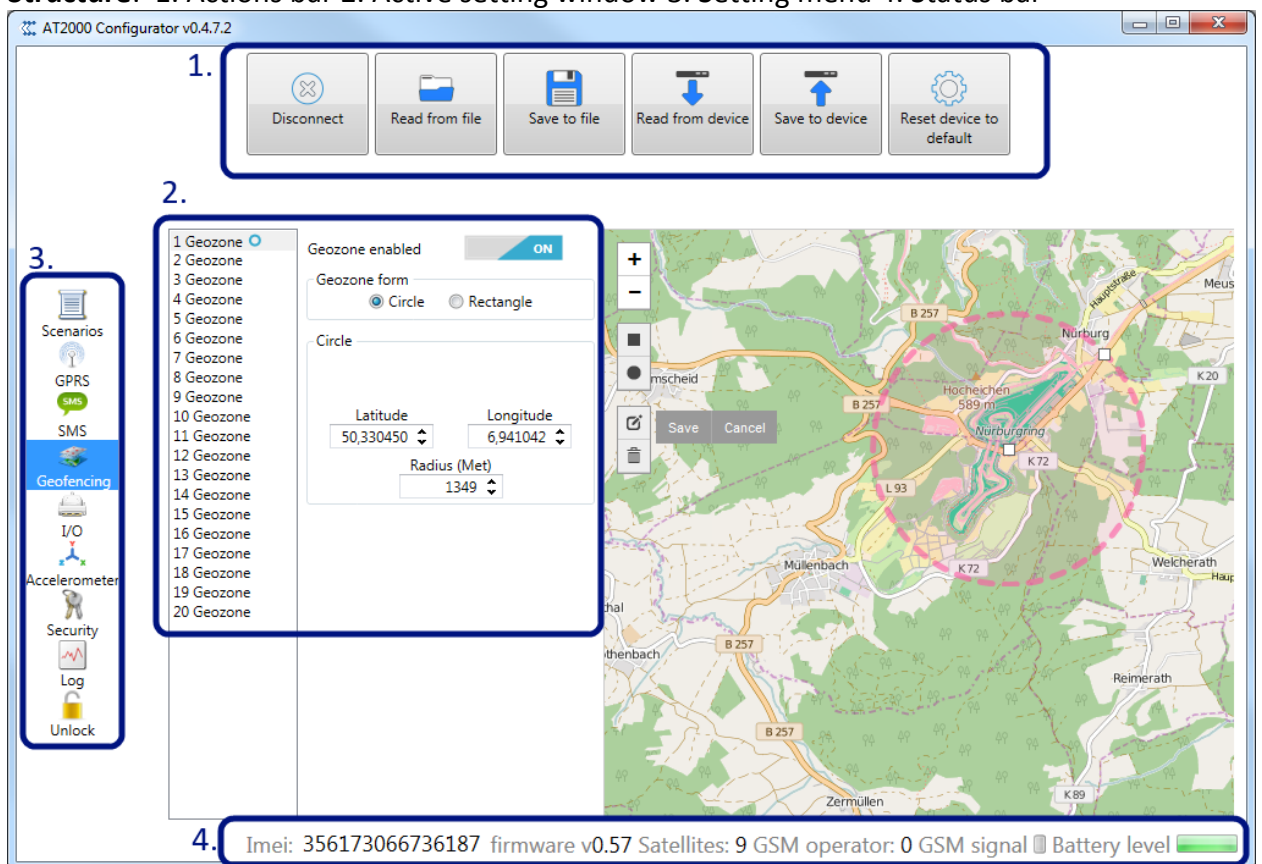
2.2 Operating from External Power.

1. When AT receives power from external power supply device starts working from external power and starts automatically charge batteries.
2. There is a large variety of portable power supplies and external battery packs on the market today. A power bank or external battery charger will work great.
3. In case with battery charging from AC/DC adapters we recommend to use quality adapters with charging current impulse stabilization ([linear voltage regulator](#)).







3 AT2000 CONFIGURATION

Device configuration is performed via AT2000 Configurator program. Contact sales manager to get the latest AT2000 Configurator version. AT2000 configurator operates on **Microsoft Windows 7 OS** or higher and uses **MS.Net Framework 4.5** or higher. Module configuration is performed over USB cable, USB driver installation starts automatically.

Structure: 1. Actions bar 2. Active setting window 3. Setting menu 4. Status bar



3.1 Actions bar

Main Buttons	
Button	Description
 Connect	Automatically chose port and connects the device.
 Read from file	allows user to load configuration saved in .XML extension file
 Save to file	allows user to save currently entered settings to .XML file for later usage
 Read from device	reads configuration parameters from Flash memory
 Save to device	saves configuration parameters to Flash memory
 Reset device to default	loads default AT2000 settings

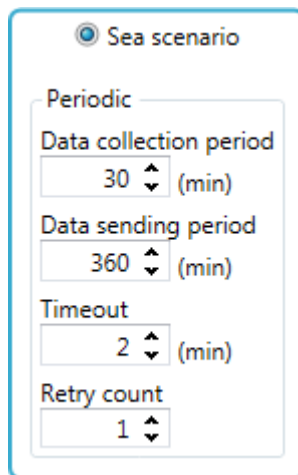
3.2 Status bar

While device is connected every 5 seconds configurator updates actual status of device :

- IMEI number
- Firmware version
- GPS Satellites
- GSM operator code
- GSM signal
- Battery level

4 SETTINGS MENU

4.1 Sea scenario



In sea scenario device saves and sends periodic data records.

If no GPS signal available device will save records with last good known coordinates (0 satellites in record). No priority event generation.

Data collection period - how often device enables GPS to save record

(min - 1; max – 65535) min.

Data sending period - how often device enables GPRS to send record

(min - 1; max – 65535) min.

Timeout - how long device is trying to save GPS position

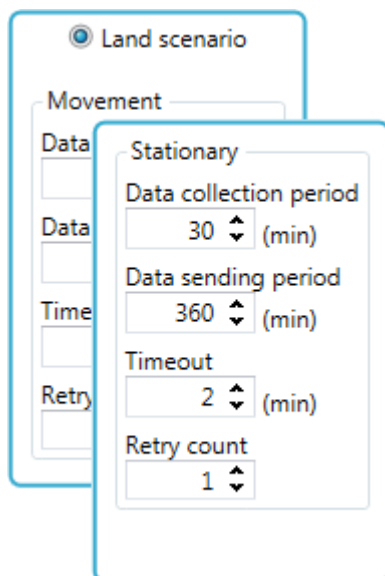
(min - 1; max – 255) min.

Retry count - how many times device is trying to make connection with server.

(min - 0; max – 255)

**in case with very frequent data sending periods asset tracker can send data with slight delay, it depends how fast he can save GPS records in present conditions.*

4.2 Land scenario



When device is in **Stationary** mode he works in same way like in **sea scenario**, saves and sends periodic data records. When device is in **Movement** mode device all the time has GPS enabled and saves records according Data collection parameter. Also in Movement mode asset tracker can save records according distance (every 200m.) or/and cornering (every 25° turn). Switching between Stationary and Movement modes depends on **Accelerometer settings**.

Min and max values are the same like in the “Sea scenario”.

**saving according distance and angle can be enabled in I/O settings.*

4.3 Security scenario

Security scenario

Periodic

Data collection period: 30 (min)

Data sending period: 360 (min)

Timeout: 2 (min)

Retry count: 1

Active tracking: ON

Active

Data collection period: 5 (min)

Data sending period: 10 (min)

Timeout: 2 (min)

Retry count: 1

Security scenario works in same way like **sea scenario**, saves and sends periodic data records. In **security scenario** device can monitoring I/O elements and generate immediatelly events. Detailed information about events generaiton you can find in I/O elements section.

Min and max values are the same like in the “Sea scenario”.

I/O elements:

I/O Name	Event	Threshold
IO1	DIN <input checked="" type="checkbox"/> ON	10 (V)
IO2	AIN <input type="checkbox"/> OFF	10 (V)
Temperature	<input checked="" type="checkbox"/> ON	30 (°C)
MagneticPad	<input checked="" type="checkbox"/> ON	
ExternalPower	<input checked="" type="checkbox"/> ON	

Security scenario also supports active tracking mode. Actice tracking mode can turned on or off depending on configuraton. If active tracking mode is enabled device will start collecting and sending data with new intervals, while I/O element value is reached high state. For example device will start work by active tracking intervals while DIN value is 1, or while temperature is increased 30°C. When temperature will back to normal state, device will switch back to security scenario collecting/sending data intervals.

5 GPRS SETTINGS

Scenarios

- GPRS
- SMS
- Geofencing
- I/O
- Accelerometer
- Security

Allow data over GPRS: ON

Connection settings

APN: internet

APN Username:

APN Password:

Server address: 212.59.13.226

Server port: 2000

GPRS settings let for user to configure APN name, **APN username** and password (optional – depends on operator), **server IP** address and **server port** . AT2000 supports only TCP protocol with base firmware. Configurator let to configure predefined roaming operator list of 16 operator codes.

Allow roaming: ON

Roaming

Roaming operators

1	26001	2	00000
3	26003	4	00000

7 GEOFENCE SETTINGS

AT2000 supports **20 geofence zones** according which device can generate events when zone is crossed. In configurator you can see active geozones, check geozone type (circle or rectangle) to draw new geozones and edit them.

8 I/O SETTINGS

I/O Name	Event	Threshold
IO1	<input checked="" type="checkbox"/> ON	12,00 (V)
IO2	<input checked="" type="checkbox"/> ON	0 (V)
Temperature	<input checked="" type="checkbox"/> ON	5 (°C)
MagneticPad	<input type="checkbox"/> OFF	
ExternalPower	<input type="checkbox"/> OFF	
GeoZones	<input type="checkbox"/> OFF	
Roaming log	<input type="checkbox"/> OFF	
Distance	<input type="checkbox"/> OFF	
Course	<input type="checkbox"/> OFF	

IO1 parameter can be configured for:

DIN – digital input [0V-1.5V]=0; [1.5V-30V]=1; Can generate event form values change **0→1, 1→0**. For example: ignition turn on, door sensor swich open.

AIN – Voltage monitoring, 0-30V. Can generate events on threshold range crossing.

DOUT – Digital output control. Not used in base firmware, left for special firmware versions. Can be used for automotive relay control.

Temperature – For temperature monitoring and temperature events generation. Can generate events when temperature rise configured threshold. Temperature monitoring range is from -80°C to 300°C.

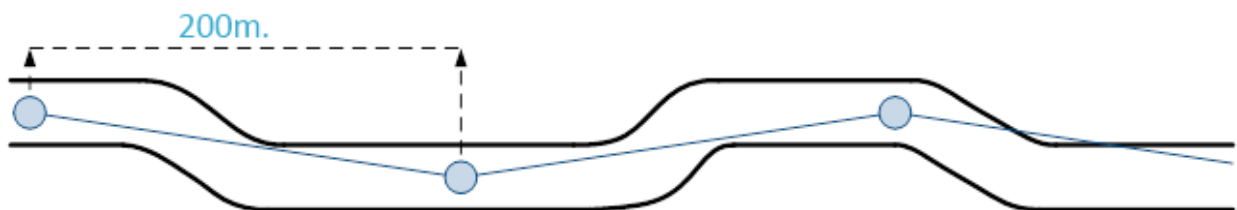
MagneticPAD – This parameter can monitoring magnets status which are integrated in mounting case. 0- means that AT is attaches to the metal surface. 1 - means that AT is detached from metal source.

ExternalPower – This parametr shows when external power source is connected or disconnected. 0 - means that external power disconnected, 1 - means that external power connected.

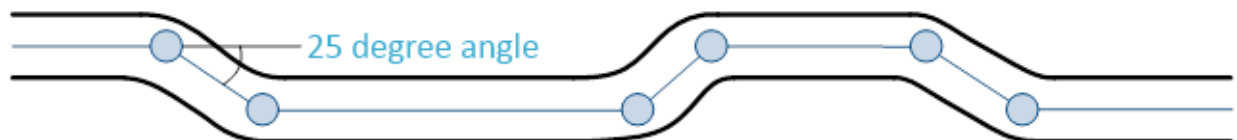
Geozones – If this parameter is enabled device can generate data record with warning according which server can generate warning info baloon or send email for predefined address.

Roaming entry event – According this parameter AT can generate data record with warning, when device connects to roaming GSM network. According this warning server can generate warning info baloon or send email for predefined address.




Distance – This prameter is used only in **land scenario**, when this parameter is enabled device will generate new record every 200 meters for detailed track while moving.



Angle - his prameter is used only in **land scenario**, when this parameter is enabled device will generate new record for detailed track while moving on every corner where angel is more than 25 degrees.



9 ADDITIONAL SETTINGS

Setting name	Description
 Unlock	Default unlock code is: 123456789
 Security	Security settings let to change unlock code.
 Log	<p>Log settings let to save log from device to file.</p> <p>All the time device saves log to flash memory, so user always can read saved log from memory.</p> <p>While USB cable is connected to device, tracker can't work by configured usage scenario, because device is in debugging mode.</p> <p>How read log:</p> <ul style="list-style-type: none"> • Press "clear" to remove old log from configurator (if exist). • Press "start" and wait until all log will be received. • Press "save as" to save it to file.

10 ACCELEROMETER

Accelerometer configuration is necessary for **land scenario** when device switching between stationary and movement modes.

Below you can find examples of accelerometer configuration depending on movement direction and mounting position.

10.1 Accelerometer parameters:

Working range - 2g, 4g, 8g, 16g

You can set the sensitivity level to whether 2g, 4g, 8g or 16g. The lower range gives more resolution for slow movements, the higher range is good for high speed tracking. 2G - Maximum sensitivity (but less can be measured), 16G - low sensitivity (more can be measured).

Duration – delay parameter of accelerometer.

Threshold – sensitivity (<150 – more sensitive; >150 – less sensitive)

For measuring the motion of a car it is recommended to use 2G range, duration 1s with threshold 150.

Accelerometer ON

	Duration in mg	Interrupt generation	
Working range <input checked="" type="radio"/> 2G	(1 - 2048 mg)	Low Axis High	
<input type="radio"/> 4G	(1 - 4096 mg)	<input type="checkbox"/> X <input type="checkbox"/>	
<input type="radio"/> 8G	(1 - 8192 mg)	<input type="checkbox"/> Y <input checked="" type="checkbox"/>	
<input type="radio"/> 16G	(1 - 16384 mg)	<input type="checkbox"/> Z <input type="checkbox"/>	
Duration	<input style="width: 50px;" type="text" value="1"/>		
Threshold	<input style="width: 50px;" type="text" value="150"/>		

Example for SMS configuration when Y axis high:
S>172=8

Accelerometer **ON**

Working range	Duration in mg	Interrupt generation		
		Low	Axis	High
<input checked="" type="radio"/> 2G	(1 - 2048 mg)		X	
<input type="radio"/> 4G	(1 - 4096 mg)	<input type="checkbox"/>	Y	<input type="checkbox"/>
<input type="radio"/> 8G	(1 - 8192 mg)	<input type="checkbox"/>	Z	<input checked="" type="checkbox"/>
<input type="radio"/> 16G	(1 - 16384 mg)	<input type="checkbox"/>		

Duration:

Threshold:

Example for SMS configuration when Z axis high:
S>172=32

Accelerometer **ON**

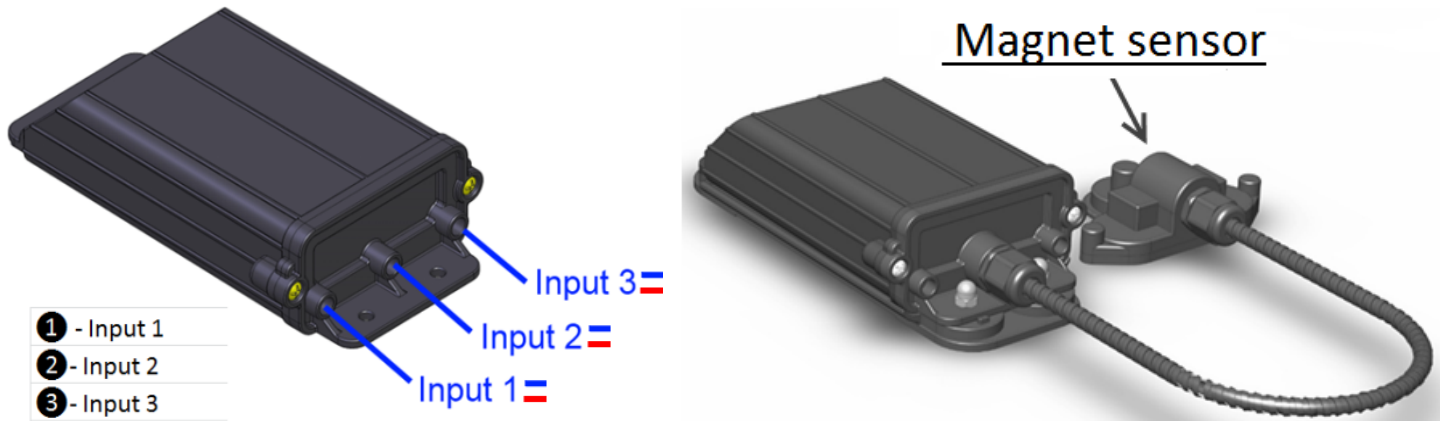
Working range	Duration in mg	Interrupt generation		
		Low	Axis	High
<input checked="" type="radio"/> 2G	(1 - 2048 mg)		X	<input checked="" type="checkbox"/>
<input type="radio"/> 4G	(1 - 4096 mg)	<input type="checkbox"/>	Y	<input type="checkbox"/>
<input type="radio"/> 8G	(1 - 8192 mg)	<input type="checkbox"/>	Z	<input type="checkbox"/>
<input type="radio"/> 16G	(1 - 16384 mg)	<input type="checkbox"/>		

Duration:

Threshold:

Example for SMS configuration when X axis high:
S>172=2

11 ORDER CODES/ HW MODIFICATIONS



- ① - Input 1
- ② - Input 2
- ③ - Input 3

	Iput1	Iput2	Iput3
AT2000B15001	-	External power (Red +, Blue -)	-
AT2000B15101	External power (Red +, Blue -)	<u>Magnet sensor</u> (IO1)	Digital input shorted event (Blue) 1-Wire input (Red)
AT2000B15201	External power (Red +, Blue -)	<u>Magnet sensor</u> (IO1)	AIN/DIN input (Blue) 1-Wire input (Red)
AT2000B15301	External power (Red +, Blue -)	Digital input shorted event (Red)(IO1) DIN/AIN input (Yellow) 1-Wire input (White) Ground(Blue)	-

11.1 Available accessories

Magnet PAD

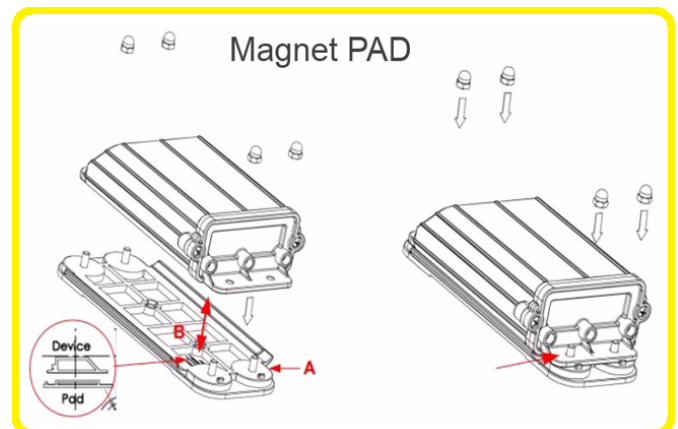
Order codes with Magnet PAD **M7**.

AT2000M75001 = AT2000B15001 + Magnet PAD

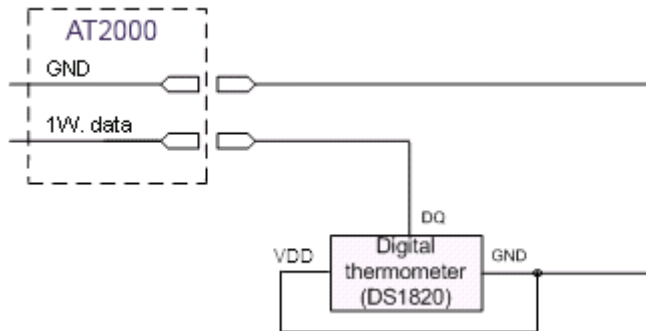
AT2000M75101 = AT2000B15101 + Magnet PAD

AT2000M75201 = AT2000B15201 + Magnet PAD

AT2000M75301 = AT2000B15301 + Magnet PAD

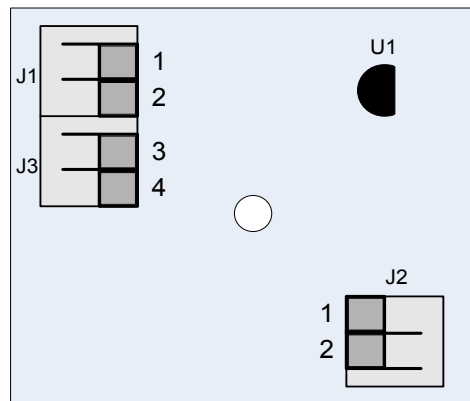


12 DIGITAL TEMPERATURE SENSOR CONNECTION SCHEMES (DS1820 OR DS18B20 AND TTJ100)



Left row of pins

1W. PWR must be connected to External power GND (-)	1
1W. Data must be connected to Temperature input (red wire)	2
GND must be connected to External power GND (-)	3
Digital Input No connection needed	4



Right row of pins

1	Vpp (+5 Volts DC) – power source for external digital sensor No connection needed
2	Output from external digital sensor No connection needed

13 SMS & GPRS COMMAND LIST

SMS Parameters			
ID	Parameter Name	Possible parameters values	Description
1	Current Scenario	1 - sea 2 - land 3 - security	The cell contains the current active scenario
Sea Scenario			
100	Period for Data Collection	1...65535	Data saving interval in minutes
101	Period for Data Sending	1...65535min	Data sending interval in minutes
102	Timeout getting data from GPS	1...255 min	How long device can wait for GPS coordinates.
103	GPRS Retry	0...255	How much time device can repeat unsuccessful connection to server.
Land scenario (no movement)			
120	Period for Data Collection	1...65535	Data saving interval in minutes
121	Period for Data Sending	1...65535min	Data sending interval in minutes
122	Timeout getting data from GPS	1...255 min	How long device can wait for GPS coordinates.
123	GPRS Retry	0...255	How much time device can repeat unsuccessful connection to server.
Land scenario (movement)			
130	Period for Data Collection	1...65535	Data saving interval in minutes
131	Period for Data Sending	1...65535min	Data sending interval in minutes
132	Timeout getting data from GPS	1...255 min	How long device can wait for GPS coordinates.
133	GPRS Retry	0...255	How much time device can repeat unsuccessful connection to server.
Security scenario			
155	Period for Data Collection	1...65535	Data saving interval in minutes
156	Period for Data Sending	1...65535min	Data sending interval in minutes
157	Timeout getting data from GPS	1...255 min	How long device can wait for GPS coordinates.

158	GPRS Retry	0...255	How much time device can repeat unsuccessful connection to server.
Security <Active tracking> scenario			
140	Active tracking	0-Disabled; 1-Enabled	Enables active tracking mode, while configured input is reached threshold
152	Data collection period	1...65535	Data saving interval in active tracking (minutes)
153	Data sending period	1...65535min	Data sending interval in active tracking (minutes)
150	Timeout	1...255 min	How long device can wait for GPS coordinates in active tracking
151	Retry count	0...255	How much time device can repeat unsuccessful connection to server in active tracking
GPRS			
5	Allow data over GPRS	0-Disabled; 1-Enabled	Allow data transmission via GPRS
6	Allow Roaming	0-Disabled; 1-Enabled	Allow roaming data transmission
32	APN	<= 32 symbols	Parameter defines GPRS Access Point Name
33	APN Username	<= 32 symbols	Parameter defines APN username. In case operator does not use username for login, value should be empty.
34	APN Password	<= 32 symbols	Parameter defines APN password. In case operator does not use password for login, value should be empty.
12	Server address	<= 64 symbols	The server, that will receive the data, and process commands
13	Server port	<= 5 symbols	Port through which connection will be established
SMS			
4	SMS functionality/ SMS tracking	0/1	Allow track data transmission via SMS
20	Server Phone Number	<= 16 symbols	Number that will receive the data of tracking if you use SMS transmission
21	Authorized Number 01	<= 16 symbols	Number from this list will be able to remotely configure device, as well as receive SMS from device.

22	Authorized Number 02	<= 16 symbols	-//-
23	Authorized Number 03	<= 16 symbols	-//-
24	Authorized Number 04	<= 16 symbols	-//-
25	Authorized Number 05	<= 16 symbols	-//-
26	Authorized Number 06	<= 16 symbols	-//-
27	Authorized Number 07	<= 16 symbols	-//-
28	Authorized Number 08	<= 16 symbols	-//-
29	Authorized Number 09	<= 16 symbols	-//-
31	Authorized Number 10	<= 16 symbols	-//-
Geofencing			
40	*GeoZone #1		-//-
41	*GeoZone #2		-//-
42	*GeoZone #3		-//-
43	*GeoZone #4		-//-
...
59	*GeoZone #20		-//-
I/O			
138	IO1 Type	<p>0 — port is disabled</p> <p>1 — port operates as an analog input</p> <p>2 — port operates as an digital input</p> <p>3 — port operates as an digital output</p>	Parameter defines in which mode IO1 will operate.
139	IO2 Type	<p>0 — port is disabled</p> <p>1 — port operates as an analog input</p> <p>2 — port operates as an digital input</p> <p>3 — port operates as an digital output</p>	Parameter defines in which mode IO2 will operate.
183	IO1 Event Flag	<p>0 — event disabled</p> <p>1 — event enabled</p>	Disable/ Enable event generation according to port 1 mode, both analog and digital inputs (depending on whether the port is set). Also the flag prohibits state change to "Panic / Alarm" by event from the port 1.

184	IO2 Event Flag	0 – event disabled 1 – event enabled	Disable/ Enable event generation according to port 2 mode, both analog and digital inputs (depending on whether the port is set). Also the flag prohibits state change to "Panic / Alarm" by event from the port 2.
10	IO1 – AIN threshold	Voltage: mV, 0 – 30 V Example: 1000mV = 10.0V 3005mV = 30.05V	It sets the threshold to analog input for event generation.
11	IO2 – AIN threshold	Voltage: mV, 0 – 30 V Example: 1000mV = 10.0V 3005mV = 30.05V	It sets the threshold to analog input for event generation.
180	Temperature Sensor	1 – enable 0 – disable	Disable/Enable temperature sensor I/O event
186	Temperature Event Flag	1 – enable 0 – disable	Disable/ Enable event generation according to temperature sensor. Also the flag prohibits state change to "Panic/Alarm" according to event by temperature sensor.
181	Temperature Threshold (°C)	-55...125C	Generate event when temperature rise configured treshold
187	Magnet Pad Event Flag	1 – enable 0 – disable	Disable/ Enable event generation according to event by magnetic sensor. Also the flag prohibits state change to "Panic/Alarm" according to magnetic sensor event.
188	External Power Event Flag	1 – enable 0 – disable	Disable/ Enable event generation when device is connected to external power
190	GeoZone Event Flag	1 – enable 0 – disable	Disable/ Enable event generation on geozone entering
191	Roaming Event Flag	1 – enable	Disable/ Enable event generation

		0 – disable	on mode change to roaming.
192	Distance Event Flag	1 – enable 0 – disable	Disable/ Enable "Distance" event generation in "Panic/Alarm" state.
193	Angle Event Flag	1 – enable 0 – disable	Disable/ Enable "Angle" event generation in "Panic/Alarm" state.
Accelerometer			
170	Accelerometer	1 – enable 0 – disable	Disable/Enable accelerometer
171	Accelerometer Working Range	2g (value= 0) 4g (value= 16) 8g (value= 32) 16g (value= 48)	Parameter defines in which working range accelerometer will work.
172	Events Source	To configure this parameter you need to convert binary number (8bit) to decimal and send decimal value to configure. First bit from right it is parameter X axis Low X axis low: 00000001 convert to decimal = 1 6 th bit from right it is parameter Z high. Z axis high (6 th parameter): 00100000 convert to decimal = 32	This parameter defines in which axis accelerometer will work and which priority. Examples of recommended values described in Accelerometer settings section.
173	Duration	1...1000 sec	Delay parameter of accelerometer.
174	Threshold	0...500 (recommended 150)	Sensitivity of accelerometer.

* SMS parameters with sign (*) do not work in current 67 firmware version.

13.1 Setting parameter format

Parameter identification and parameter value represents as a decimal string.

SMS string:

s>{parameter identifier}={parameter value},{parameter identifier}={parameter value},{...}

After sending SMS parameters to the device, it send back SMS with currently set parameters.

In one SMS configuration message can be send one parameter, or multiple parameters like in example below.

If the value does not match, then it is not applied. If the value is incorrect, device will return „?“ in parameter value field.

SMS Example:

Setting work scenario "Land"(ID=1) and Enable Temperature input monitoring (ID=180)

s>1=1,180=1

Device response:

s<1=1,180=1

13.2 Reading parameter format

Device send back SMS with currently set parameters.

Parameter identifier and parameter value represents as a decimal string.

SMS string:

g<{parameter identifier}={parameter value},{parameter identifier}={parameter value},{...}

If parameter can not be obtained, in parameter value field will appear „?“

SMS example:

Request for the current operating scenario

g>1,4

Device response:

g<1=1,4=0

CHANGE LOG

NR.	Date	Version	Comment
1	2016-04-30	1.0	Release created
2	2016-06-16	1.01	Added input colors
3	2016-07-04	1.02	Text corrections
4	2016-09-30	1.03	Updated SMS & GPRS command list