Thank you very much for your investment in our unique data acquisition systems. These are top-quality instruments which are designed to provide you years of reliable service. This guide has been prepared to help you get the most from your investment, starting from the day you take it out of the box, and extending for years into the future.

www.dewesoft.com
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1 Notice

The information contained in this document is subject to change without notice.

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</thead>
<tbody>
<tr>
<td>Dewesoft GmbH. shall not be liable for any errors contained in this document. Dewesoft MAKES NO WARRANTIES OF ANY KIND WITH REGARD TO THIS DOCUMENT, WHETHER EXPRESS OR IMPLIED. DEWESOFT SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Dewesoft shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory, in connection with the furnishing of this document or the use of the information in this document.</td>
</tr>
</tbody>
</table>

Warranty Information:

A copy of the specific warranty terms applicable to your Dewesoft product and replacement parts can be obtained from your local sales and service office.

To find a local dealer for your country, please visit this link: [http://www.dewesoft.com/support](http://www.dewesoft.com/support) and select Find dealers on the left navigation bar.

Calibration

Every instrument needs to be calibrated at regular intervals. The standard norm across nearly every industry is annual calibration. Before your Dewesoft data acquisition system is delivered, it is calibrated. Detailed calibration reports for your Dewesoft system can be requested. We retain them for at least one year, after system delivery.

Support

Dewesoft has a team of people ready to assist you if you have any questions or any technical difficulties regarding the system. For any support please contact your local distributor first or Dewesoft directly.

<table>
<thead>
<tr>
<th>Austria</th>
<th>Slovenia</th>
</tr>
</thead>
</table>
| Dewesoft GmbH  
Grazerstrasse 7  
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Austria / Europe  
Tel.: +43 3132 2252  
Fax: +43 3132 2252-2  
Web: [http://www.dewesoft.com](http://www.dewesoft.com)  
The telephone hotline is available Monday to Thursday between 09:00-12:00 (GMT +1:00)  
13:00-17:00 (GMT +1:00)  
Friday: 09:00-13:00 (GMT +1:00) | Dewesoft d.o.o.  
Gabrsko 11a  
1420 Trbovlje  
Slovenia / Europe  
Tel.: +386 356 25 300  
Fax: +386 356 25 301  
Web: [http://www.dewesoft.com](http://www.dewesoft.com)  
The telephone hotline is available Monday to Friday between 08:00 and 16:00 CET (GMT +1:00) |

Service/repairs

The team of Dewesoft also performs any kinds of repairs to your system to assure a safe and proper operation in the future. For information regarding service and repairs please contact your local distributor first or Dewesoft directly.
Restricted Rights Legend:

Use Austrian law for duplication or disclosure.

Dewesoft GmbH
Grazerstrasse 7
A-8062 Kumberg
Austria / Europe

Printing History:

Version Revision 18
Released 2013
Last changed: 2. March 2015 16:03

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1.1 Safety instructions

Your safety is our primary concern! Please be safe!

Safety symbols in the manual

WARNING

Calls attention to a procedure, practice, or condition that could cause body injury or death.

CAUTION

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

General Safety Instructions

WARNING

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Dewesoft GmbH assumes no liability for the customer’s failure to comply with these requirements.
All accessories shown in this document are available as option and will not be shipped as standard parts.

Environmental Considerations

Information about the environmental impact of the product.

Product End-of-Life Handling

Observe the following guidelines when recycling a Dewesoft system:

System and Components Recycling

Production of these components required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at its end of life! Please recycle this product in an appropriate way to avoid an unnecessary pollution of the environment and to keep natural resources.

This symbol indicates that this system complies with the European Union’s requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). Please find further information about recycling on the Dewesoft website www.dewesoft.com

Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2002/95/EC RoHS Directive. However we take care about our environment and the product is lead free.

General safety and hazard warnings for all Dewesoft systems

- Safety of the operator and the unit depend on following these rules
- Use this system under the terms of the specifications only to avoid any possible danger.
- Read your manual before operating the system.
- Observe local laws when using the instrument.
- DO NOT touch internal wiring!
- DO NOT use higher supply voltage than specified!
- Use only original plugs and cables for harnessing.
- You may not connect higher voltages than rated to any connectors.
- The power-cable and -connector serve as Power-Breaker. The cable must not exceed 3 meters, disconnect function must be possible without tools.
- Maintenance must be executed by qualified staff only.
- During the use of the system, it might be possible to access other parts of a more comprehensive system. Please read and follow the safety instructions provided in the manuals of all other components regarding warning and security advices for using the system.
- With this product, only use the power cable delivered or defined for the host country.
- DO NOT connect or disconnect sensors, probes or test leads, as these parts are connected to a voltage supply unit.
- Ground the equipment: For Safety Class 1 equipment (equipment having a protective earth terminal), a non interruptible safety earth ground must be provided from the mains power source to the product input wiring terminals.
- Please note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, please read the corresponding specifications in the product manual carefully.
The inputs must not, unless otherwise noted (CATx identification), be connected to the main circuit of category II, III and IV.

The power cord separates the system from the power supply. Do not block the power cord, since it has to be accessible for the users.

DO NOT use the system if equipment covers or shields are removed.

If you assume the system is damaged, get it examined by authorised personnel only.

Adverse environmental conditions are:
- Moisture or high humidity
- Dust, flammable gases, fumes or dissolver
- Thunderstorm or thunderstorm conditions (except assembly PNA)
- Electrostatic fields, etcetera.

The measurement category can be adjusted depending on module configuration.

Any other use than described above may damage your system and is attended with dangers like short-circuit, fire or electric shocks.

The whole system must not be changed, rebuilt or opened

DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to Dewesoft sales and service office for service and repair to ensure that safety features are maintained.

DO NOT service or adjust alone. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

If you assume a more risk less use is not provided any more, the system has to be rendered inoperative and should be protected against inadvertent operation. It is assumed that a more risk less operation is not possible any more, if
- the system is damaged obviously or causes strange noises.
- the system does not work any more.
- the system has been exposed to long storage in adverse environmental.
- the system has been exposed to heavy shipment strain.

DO NOT touch any exposed connectors or components if they are live wired. The use of metal bare wires is not allowed. There is a risk of short cut and fire hazard!

Warranty void if damages caused by disregarding this manual. For consequential damages NO liability will be assumed!

Warranty void if damages to property or persons caused by improper use or disregarding the safety instructions.

Unauthorized changing or rebuilding the system is prohibited due to safety and permission reasons (CE).

Be careful with voltages >25 VAC or >35 VDC! These voltages are already high enough in order to get a perilous electric shock by touching the wiring.

The product heats during operation. Make sure there is adequate ventilation. Ventilation slots must not be covered!

Only fuses of the specified type and nominal current may be used. The use of patched fuses is prohibited.

Prevent using metal bare wires! Risk of short circuit and fire hazard!

DO NOT use the system before, during or shortly after a thunderstorm (risk of lightning and high energy over-voltage). An advanced range of application under certain conditions is allowed with therefore designed products only. For details please refer to the specifications.

Make sure that your hands, shoes, clothes, the floor, the system or measuring leads, integrated circuits and so on, are dry.

DO NOT use the system in rooms with flammable gases, fumes or dust or in adverse environmental conditions.

Avoid operation in the immediate vicinity of:
- high magnetic or electromagnetic fields
- transmitting antennas or high-frequency generators
Notice

⚠️ for exact values please refer to enclosed specifications.

⚠️ Use measurement leads or measurement accessories aligned to the specification of the system only. Fire hazard in case of overload!

⚠️ Do not switch on the system after transporting it from a cold into a warm room and vice versa. The thereby created condensation may damage your system. Acclimatise the system unpowered to room temperature.

⚠️ Do not disassemble the system! There is a high risk of getting a perilous electric shock. Capacitors still might be charged, even if the system has been removed from the power supply.

⚠️ The electrical installations and equipments in industrial facilities must be observed by the security regulations and insurance institutions.

⚠️ The use of the measuring system in schools and other training facilities must be observed by skilled personnel.

⚠️ The measuring systems are not designed for use at humans and animals.

⚠️ Please contact a professional if you have doubts about the method of operation, safety or the connection of the system.

⚠️ Please be careful with the product. Shocks, hits and dropping it from already lower level may damage your system.

⚠️ Please also consider the detailed technical reference manual as well as the security advices of the connected systems.

This product has left the factory in safety-related flawless and in proper condition. In order to maintain this condition and guarantee safety use, the user has to consider the security advices and warnings in this manual.

EN 61326-3-1:2008

IEC 61326-1 applies to this part of IEC 61326 but is limited to systems and equipment for industrial applications intended to perform safety functions as defined in IEC 61508 with SIL 1-3.

The electromagnetic environments encompassed by this product family standard are industrial, both indoor and outdoor, as described for industrial locations in IEC 61000-6-2 or defined in 3.7 of IEC 61326-1. Equipment and systems intended for use in other electromagnetic environments, for example, in the process industry or in environments with potentially explosive atmospheres, are excluded from the scope of this product family standard, IEC 61326-3-1.

Devices and systems according to IEC 61508 or IEC 61511 which are considered as “operationally well-tried”, are excluded from the scope of IEC 61326-3-1.

Fire-alarm and safety-alarm systems, intended for protection of buildings, are excluded from the scope of IEC 61326-3-1.

About this document
This is the user documentation for DEWESoft™ - RTK Version 1.0.2.
2 About this document

This is the user documentation for DEWESoft™ - RTK Version 1.0.0.

2.1 Legend

The following symbols and formats will be used throughout the document.

---

**IMPORTANT**

Gives you an important information about a subject. Please read carefully!

---

**HINT**

Gives you a hint or provides additional information about a subject.

---

**EXAMPLE**

Gives you an example of a specific subject.

<table>
<thead>
<tr>
<th>Example</th>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancel</td>
<td>Button</td>
<td>a button that you can click</td>
</tr>
<tr>
<td>File</td>
<td>Menu Item</td>
<td>a menu item, will open a sub menu or a dialog</td>
</tr>
<tr>
<td>Times New Roman</td>
<td>List Item</td>
<td>an item in a list (or tree) that you can select</td>
</tr>
<tr>
<td>Events</td>
<td>Tab Sheet</td>
<td>a tab sheet that you can select</td>
</tr>
<tr>
<td>C:\Program Files\OpenOffice.org 3\readme.txt</td>
<td>File Path and Name</td>
<td>a file name or path</td>
</tr>
<tr>
<td>Windows Key</td>
<td>a term</td>
<td>any kind of term (maybe also compound)</td>
</tr>
</tbody>
</table>

*Table 1: Layout formats used in the documentation*

---

2.2 Links

⚠️ DEWESoft™ homepage

[http://www.dewesoft.com](http://www.dewesoft.com)

you can download DEWESoft™ plugins when you go to: *Downloads – Plugins*
2.3 Compatibility

The plugin is compatible with DEWESoft™ 7.1 and DEWESoft™ X.

2.4 Files and Directories

The actual location of the directories on your computer may vary dependant on your computer’s locale settings and the settings you chose when installing DEWESoft™.

2.4.1 Important DEWESoft™ 7 Directories

2.4.1.1 DEWESoft™ Measurement Unit [recommended]

<table>
<thead>
<tr>
<th>Directory name</th>
<th>Explanation</th>
<th>Default path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bin</td>
<td>contains DEWESoft.exe</td>
<td>D:\DEWESoft7\Bin\V7_0</td>
</tr>
<tr>
<td>Addons</td>
<td>.dll files for plugins must be copied into this directory</td>
<td>D:\DEWESoft7\Bin\V7_0\Addons</td>
</tr>
<tr>
<td>Data</td>
<td>this is where DEWESoft™ will store your measurement data</td>
<td>D:\DEWESoft7\Data</td>
</tr>
<tr>
<td>Setups</td>
<td>this is where your DEWESoft™ setup files will be stored</td>
<td>D:\DEWESoft7\Setups</td>
</tr>
<tr>
<td>System</td>
<td>this is where DEWESoft™ project files are stored</td>
<td>D:\DEWESoft7\System\V7_0</td>
</tr>
<tr>
<td>Log</td>
<td>this is where DEWESoft™ will store log files</td>
<td>D:\DEWESoft7\System\V7_0\Logs</td>
</tr>
</tbody>
</table>

2.4.1.2 Windows Standard

<table>
<thead>
<tr>
<th>Directory name</th>
<th>Default path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bin</td>
<td>C:\ProgramFiles\DEWESoft7\Bin\V7_0</td>
</tr>
<tr>
<td>Addons</td>
<td>C:\ProgramFiles\DEWESoft7\Bin\V7_0\Addons</td>
</tr>
<tr>
<td>Data</td>
<td>C:\Dokumente und Einstellungen\All Users\Dokumente\DEWESoft7\Data</td>
</tr>
<tr>
<td>Setups</td>
<td>C:\Dokumente und Einstellungen\All Users\Dokumente\DEWESoft7\Setups</td>
</tr>
<tr>
<td>System</td>
<td>C:\Dokumente und Einstellungen\All Users\Dokumente\DEWESoft7\System\V7_0</td>
</tr>
<tr>
<td>Log</td>
<td>C:\Dokumente und Einstellungen\All Users\Dokumente\DEWESoft7\System\V7_0\Logs</td>
</tr>
</tbody>
</table>

2.5 Licensing

A valid license for DEWESoft™ is of course required.

To test the plugin you can use an Evaluation license.
2.5.1 Requesting an Evaluation license

You can request an Evaluation license from our homepage: http://www.dewesoft.com/registration

Illustration 1: Request Evaluation License

(1) Click on Evaluation license
(2) Fill out all the required fields
(3) Click the Request license button

2.5.2 Activating the Evaluation license

When you have received your trial licence key, open DEWESoft™, go to Settings - Hardware Setup..., select the Registration tab sheet and enter the license code (if you already have other licenses, you may need to click the Create button). Now enter the license code and click the Register online button. Then your new license key will show up in the list and should have the Status Valid.

Illustration 2: Enter license key
Illustration 3: Valid trial license

2.6 Plug-in Installation

Simply copy the file .dll into the Addons folder of your DEWESoft™ installation. (e.g. D:\DEWESoft7\Bin\V7_D\Addons\) and then start DEWESoft™.

HINT

When you are using Windows® 7, then you must click the Register plugins button (at the bottom of the Hardware setup dialogue) once and restart DEWESoft™ before the plugin shows up in the list of available plugins.
3 Options

There are several different RTK-GPS options, which are supported in Dewesoft.

RTK solution can be established either with:

- Internal RTK-GPS receiver,
- External IMU platform (Genesys, “Oxford”),
- External RTK-GPS receiver (Topcon, Novatel).

3.1 Features

- **Internal RTK-GPS receiver has real 100 Hz GPS engine with 2 cm accuracy**
- Portable and rugged instruments
- High speed CPU with the most powerful processor out of Intel® Core™ i7 family
- Expandable with SIRIUS slices or DEWE-43
- Easy-to-install, easy-to-use
- Many additional **synchronized** data sources like Video, CAN, FlexRay, XCP, OBDII, multi sensor inputs, advanced counter inputs,...
4 Scope of supply

4.1 Base station

Illustration 4: Base station

4.2 Rover with internal GPS in S-BOX
Illustration 5: Rover
5 Connection and configuration

5.1 Connect and configure the fixed Base station

5.1.1 Connection

1. When you receive the base station, you have to unpack RF and GPS antenna, cables for both antennas and mounting bracket for both antennas.

2. After unpacking assembly the RF antenna similar to Illustration 6 and screw the GPS mounting bracket into the GPS antenna (It's possible to place the GPS mounting bracket on top of the case, because there is a steel plate in the case and the bracket has a magnet on the bottom).

IMPORTANT

A small hole, which is on the black plastic, has to be turned to the ground.

3. Plug the RF antenna cable on one side to the RF antenna and on the other side to the correct in case connector, which connects RF antenna with the RF modem.

4. Then follow the same steps to connect GPS antenna and DS-VGPS-HS with GPS antenna cable. If RF or GPS antenna cable is too short, it's possible to extend the line, with Antenna extend cables.

5. Plug supply power cable for RF Modem and DS-VGPS-HS to the Battery pack (It's disconnected during the transport, because of battery usage).

6. The last step for connection is to connect the RS232-USB converter into the DS-VGPS-HS and the other end into USB port on Laptop.
5.1.2 Configuration of fixed Base station

1. The next step is to configure the Base station in DEWESoft.

2. After starting DEWESoft you have to configure the GPS receiver. This can be done in Settings → Hardware setup → GPS. There you have to select GPS device, which is Dewesoft RS232 (Topcon/Javad/NVS).

3. The next step is to check on which COM port is the RS232-USB converter. This can be checked in Device Manager.

4. After checking the COM port, you have to choose it in DEWESoft.

5. By clicking on Refresh button, all the parameters from GPS will be shown.

6. Firstly you have to Reset receiver.

7. The next thing for base station is to configure Update rate to 10 Hz and set the Receiver mode in RTK base station. After this press Set button.

8. By choosing RTK Base station several new possibilities pops up.

9. Illustration 9 shows parameters, which you have to read and then set. With this you charge the coordinates of the Base station to the current position. We suggest that you wait for a minute or two, so receiver have some time to find enough satellites for better accuracy of coordinates. Those coordinates are marked red when they are not set. After reading the current position there is a blue text above the button, which says how many satellites were used. After successfully reading the coordinates click on Set Base position.

After configuring the base station you can disconnect the RS232-USB converter and close the case.
5.2 Connect and configure the Rover

Illustration 10: Connecting the S-BOX with internal RTK-GPS
5.2.1 Connection

1. When you receive the rover, you have to unpack all the instruments and the cables. Each of them is marked with a correct name. To simply connect everything together you can follow the schematic on the Illustration10.

2. After unpacking put the RF antenna, WLAN and GPS antenna (both with suction cups) on top of the vehicles roof. Then connect RF antenna to the RF modem with RF ANTENNA cable. For GPS do the same with GPS ANTENNA cable and connect it to the S-BOX.

3. To connect RF MODEM with S-BOX use RF MODEM cable and connect it to GPS connector on the S-BOX.

4. At WLAN connect the WLAN ANTENNA cable, which is mounted to the suction cup, to WLAN MODEM on the MAIN port. In the next step you have to connect ETHERNET cable from WLAN MODEM to S-BOX.

5. **IMPORTANT**

   Connect the WLAN antenna before connecting the power to the WLAN MODEM.

6. To connect SIRIUS slice with S-BOX use the SIRIUS USB and POWER cables. For the synchronization use SYNC connector, which is on the RF MODEM cable, and connect it to the SIRIUS slice.

7. On the MOB DISPLAY connect the VGA, USB and POWER DISPLAY cables. Lead the VGA and USB cable to the S-BOX and POWER cable to the SIRIUS slice.

8. The last step is to connect S-BOX and WLAN POWER cables to the Battery pack2. After this connect the BP POWER cable to the cigarette lighter in the vehicle.

9. **IMPORTANT**

   Charge the Battery pack to 100% before using it in the vehicle, otherwise it might burn the fuse in the vehicle.
5.2.2 Configuration of Rover for fixed Base station

1. The next step is to configure the Rover in DEWESoft.

2. After starting DEWESoft you have to configure the GPS receiver. This can be done in Settings → Hardware setup → GPS. There you have to select GPS device, which is Dewesoft RS232 (Topcon/Javad/NVS).

3. The next step is to check on which COM port is the GPS Receiver. This can be checked in Device Manager (if it's internally connected to the S-BOX it's COM3).

4. After checking the COM port, you have to choose it in DEWESoft.

5. By clicking on Refresh button, all the parameters from GPS will be shown.

6. The next thing for rover is to configure Update rate and set the Receiver mode in RTK rover. By pressing Set button you confirm the changes which you have made.

Illustration 11: Setting the COM port

Illustration 12: Configuration of GPS receiver for Rover

After this step you can check if RTK solution is working. This can be done in Channel setup → GPS
7. The next option which you have to use is again in Settings → Hardware setup → Timing

8. In drop down menu use DEWESoft USB

Illustration 13: Checking of RTK solution

Illustration 14: Timing configuration

9. Picture similar to Illustration14 should appear. In Time source settings choose GPS.

By doing steps from 7-9 the data between master and slave measurement unit will be synchronized over GPS PPS.
5.2.3 Configuration of Rover and Base station for moving Base station

1. First step is to configure the Rover and moving Base station in DEWESoft.

2. After starting DEWESoft you have to configure the GPS receiver. This can be done in Settings → Hardware setup → GPS. There you have to select GPS device, which is Dewesoft RS232 (Topcon/Javad/NVS).

3. The next step is to check on which COM port is the GPS Receiver. This can be checked in Device Manager (if it's internally connected to the S-BOX it's COM3).

4. After checking the COM port, you have to choose it in DEWESoft.

5. By clicking on Refresh button, all the parameters from GPS will be shown.

6. The next thing for rover and moving base station is to configure Update rate to 10 Hz and set one of the Receivers mode in RTK moving base station and the other one into RTK rover (with moving base station). By pressing Set button you confirm the changes which you have made.
After this step you can check if RTK solution is working. This can be done in Channel setup → GPS

Illustration 17: Checking of RTK solution

7. The next option which you have to use is again in Settings → Hardware setup → Timing
8. In drop down menu use DEWESoft USB

Illustration 18: Timing configuration

9. Picture similar to Illustration14 should appear. In Time source settings choose GPS.

By doing steps from 7-9 the data between master and slave measurement unit will be synchronized over GPS PPS.
5.3 Connect and configure the Rover with ADMA

Illustration 19: Connecting the S-BOX with external IMU platform
5.3.1 Connection

1. When you receive the rover with ADMA, you have to unpack all the instruments and the cables. Each of them is marked with a correct name. For easier connection take a look at Illustration 15, on which is a schematic of all the cables and instruments.

2. After unpacking put the RF antenna, WLAN and GPS antenna (both with suction cups) on top of the vehicles roof. Then connect RF antenna to the RF modem with RF ANTENNA cable. For GPS do the same with GPS ANTENNA cable and connect it to the ADMA.

3. To connect RF MODEM with ADMA use RF MODEM cable and connect it to brown connector on ADMA.

4. At WLAN connect the WLAN ANTENNA cable, which is mounted to the suction cup, to WLAN MODEM on the MAIN port. In the next step you have to connect ETHERNET cable from WLAN MODEM to S-BOX.

5. Connect the ADMA power adapter to the ADMA.

**IMPORTANT**

Connect the WLAN antenna before connecting the power to the WLAN MODEM. ADMA has to be powered over power adapter!

6. To synchronize the data use ADMA Sync cable and connect it from ADMA to the SIRIUS slice. Do the same with CAN cable as well.

7. ADMA COM cable together with RS232-USB converter has to lead the signal from ADMA to S-BOX.

8. To connect SIRIUS slice with S-BOX use the SIRIUS USB and POWER cables.

9. On the MOB DISPLAY connect the VGA, USB and POWER DISPLAY cables. Lead the VGA and USB cable to the S-BOX and POWER cable to the SIRIUS slice.

10. The last step is to connect S-BOX, WLAN POWER and ADMA adapter cables to the Battery pack 2. After this connect the BP POWER cable to the cigarette lighter in the vehicle.

**IMPORTANT**

Charge the Battery pack to 100% before using it in the vehicle, otherwise it might burn the fuse in the vehicle.
5.3.2 Configuration

1. The next step is to configure the ADMA in DEWESoft.

2. After starting DEWESoft go into Settings → Hardware setup → CAN. There you have to select Special device → ADMA and set the software Operation mode to Acknowledge.

3. The next step is to set all the SIRIUS slices, which are connected into the Slave mode.

4. Then check on which COM port is the ADMA connected. This can be done in Device Manager, where you can see ATEN RS232 to USB converter connection.

5. After checking the COM port, you have to choose it in DEWESoft.

6. Also CAN baud rate has to be set on the same value as it was previously used in Hardware setup.

7. To set ADMA as clock provider click on use ADMA as clock provider.

8. To receive the correction data from Base station you have to use Online - DGPS mode with choosing the correction data protocol from drop down menu. In case you use it together with DEWESoft base station it has to be set to CMR.

Illustration 21: ADMA CAN configuration

Illustration 22: Synchronization of SIRIUS with ADMA clock

Illustration 23: Configuration of ADMA
9. When you are finished with the procedure in Settings, you should continue in Mounting menu to set parameters for the correct calculation of the GPS data (position, velocity, heading...).

10. On the top, we have to write the **parameters of the ADMA rotation**. X (Roll) and Y (Pitch) can be automatically read out of ADMA, which is inside the platform. Z (Yaw) has to be measured manually.

11. **Mounting offset position of GPS antenna** means offset of GPS antenna comparing to the ADMA. So you have to measure the distance in all 3 axis (X,Y,Z) from ADMA to GPS antenna.

12. In the bottom we can enter parameters for **Virtual measurement point**, this means we can receive the data of some different location in the vehicle instead of ADMA location. For instance if ADMA is in the back trunk of the vehicle and you want to get all the data from mechanical center of the vehicle, then you just measure an offset in Virtual measurement point and write them in software. By doing this ADMA will internally compensate this offset and output all the data as if ADMA would be placed in that location.

---

**IMPORTANT**

Before starting ADMA choose in Data menu, which channels you want to measure. If you forget to use some channel after starting ADMA, the data from this channel won't be available until you restart the ADMA.

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If you are done with all the steps then you can start ADMA. In the beginning a window with initialization will pop up. **Please follow the initialization instructions to calibrate ADMA correctly.** If you maybe want to quickly have a look if ADMA is in RTK mode or not, you have to wait for initialization of 10 seconds, but other procedure you can cancel. To see this there is an icon next to the start and stop button, which says GPS type. If RTK is working there will be a sign RTK-DGPS.
6 Configuring WLAN in Windows and NET option in DEWESoft

6.1 WLAN

1. Open Local Area Connection and click on Internet Protocol (TCP/IP)
2. The next step is to configure the Properties

   ![Illustration 26: Setting of IP address](image)

3. In Properties click on Use the following IP address and fill the field with IP address and Subnet mask.
4. Click also on Use the following DNS server addresses

After this steps repeat them also on the other PC and just change the last number in IP address → in our case to 192.168.1.2.

6.2 NET option

1. The next step is to configure NET option in DEWESoft to Slave and Master measurement unit.
2. This can be done in Hardware setup → NET.
3. Turn off any kind of firewall.
4. Then on the main PC choose Master measurement unit.

   ![Illustration 27: NET option](image)
5. After choosing Master measurement unit a screen similar to the picture on the left side should pop up.

6. Follow the same procedure also on the slave unit just instead of Master measurement unit choose **Slave measurement unit**.

7. After doing those steps on both units, click on **Add button** on Master unit.

8. If timing, IP addresses and NET configuration were done via described procedure, then you should see the slave unit, similar to the Illustration25.

9. After confirming current hardware setup with **OK button**. Illustration 26 will pop up on your screen.

10. By clicking on **Connect button**, units will be connected into NET option and channels, which are used on the slave unit, will be transferred to the Local PC.
7 Configuration of RF modem for different RTK options

RF modems are configured for one option either for fixed base station or for moving base station.

This has to be managed, because at fixed base station there is not so many data, which has to be transferred to the rover and we want to have as wide range of sending correction parameters as possible. Therefore we use 9600 baud rate on GNSS Receiver (which is set internally) and both RF modems has to be set manually to 9600 with Channel spacing 12.5 kHz.

For moving base station much more parameters has to be transferred and therefore we have to increase the baud rate and channel spacing, but still try to keep as wide range of sending correction information as possible. Therefore GNSS Receivers are internally set to baud rate – 38400, but you have to manually set RF modems to this value and change Channel spacing to 25 kHz.

7.1 Configuration of RF modem without Display

1. To change those parameters you have to use RS232 – USB converter to connect RF modem to the S-BOX or any other computer. Of course you must not forget to plug in the RF Power cable.

2. The next step is to check on which COM port the unit has registered to the computer. This can be done in Device manager – COM ports.
3. Then launch Satelline_Saterm software, which can be downloaded from http://www.satel.com/userData/satel/downloads/software/SaTerm_sw_v4_3_5.zip or you can get it by writing to our support team. After the program has started click on Mode in upper left corner and then choose Open terminal. In this screen choose the correct Port number and leave all other parameters as they were chosen by default.

4. Confirm those options by clicking on OK button. Immediately communication with the RF modem is established and Terminal window pops up.

5. Continue with turning ON the programming mode on the RF connector. If you have done everything correctly the following screen should be seen.
6. Then press **number 4** – to make a change on a serial port 1. After several seconds press **2** to change the baud rate of this port. Again wait several seconds and then choose the correct baud rate. If you want to use RF modems with **fixed** base station choose **9600 → number 6**, otherwise if you want to use them for **moving** base station use **38400 → type number 8**, after doing this press **two times Esc**, to get into first screen, similar to Illustration 36.

![Illustration 37: Configuration of RF modem](image)

7. That Moving base is working correctly please also change **Channel spacing**, which is by default for fixed Base station set to **12.5 kHz** and for moving base it is set to **25 kHz**. This can be done, if you go to first screen Illustration 36 and then press number **1**, following with number **2** to choose channel spacing option and then either **1** for 12.5 kHz (fixed base station) or **3** for 25 kHz (moving base station) channel spacing.

8. After you have done this press **Esc** and then **e** to save and exit of the configuration mode. On the end turn OFF programming mode on the RF connector.

---

**IMPORTANT**

You must not forget to turn OFF programming mode on the RF connector, otherwise correction data won’t be sent.

![Illustration 38: Turn OFF the programming mode](image)
7.2 Configuration or RF modem with Display

1. To do changes on Satel modem with Display, there is no need to put it into programming mode and can be done online.

2. The first step is to go into Setup. This can be done by pressing on a square button:

   Illustration 40: Buttons (circle, arrow up, arrow down, square)

3. After this press square button one more time to select Radio frequency option. In this screen change Tx & Rx frequency with pressing on square button. Then press square button one more time to Set the values.

   Illustration 41: Setup screen
   Illustration 42: Radio frequency screen
   Illustration 43: Tx & Rx frequency screen

4. After this steps you are able to change the settings (screen similar to Illustration 44). Press Square to go the next decimal value. Then use up and down arrow to change the number to wanted frequency.

   Illustration 44: Setting of new frequency
   Illustration 45: New frequency set
   Illustration 46: Conformation of frequency

5. If you make a mistake press cancel and repeat the procedure from point 3-4.

6. After coming to the end of decimal values press Set (with square button again). On screen it shows Ch. Accepted and new frequency next to it, similar to Illustration 46.
7. Then in the same screen where you have changed Tx & Rx frequency, scroll down with button down, until you come to Ch. Spacing and press Change (square button). Select either 12.5 kHz for fixed base station or 25 kHz for moving base station.

![Illustration 47: Radio frequency screen]

![Illustration 48: Scrolled down to Ch. spacing]

![Illustration 49: Ch. spacing set]

8. Then go back to first setup screen and scroll down and click on Port 1. There change the baudrate either to 9600 bit/s for fixed base station or 38400 bit/s for moving base station.

![Illustration 50: Setup screen]

![Illustration 51: Scrolled down to Port 1]

![Illustration 52: Port 1 screen]

![Illustration 53: Baud rate settings]

9. After performing all those steps go back and press Exit and Yes to save changes. The modem is now set to correct frequency, channel spacing and baudrate.
# Version History

## 8.1 Documentation Version

Revision number: 18  
Last modified: Mon 02 Mar 2015, 16:03

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