

# Body Sensor Manual

(Rev. 3)



AthenaDiaX GmbH,  
Fehrbelliner Str. 38  
16816 Neuruppin, Germany  
+49 (0) 3391/ 739 27 77  
www.athenadiax.de; E-Mail: info@athenadiax.de



## 1. Safty information

- Read the entire manual before using the devices.
- The body sensor should not be stored or used nearby strong electronic and electromagnetic fields. This can cause errors in the recording.
- Only original accessories may be used.
- The body sensor should not be used while swimming or in a sauna.
- ZEUS 2D and ZEUS XD are not sealed waterproof and must be protected against the ingress of moisture. The body sensor equipped with ZEUS 7D can be worn while taking a shower.
- The device can be damaged by using external defibrillators. A risk for the patient does not exist.

## 2. Intended Purpose of the Body Sensor

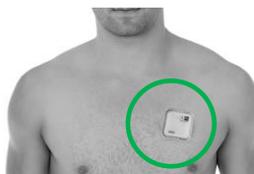
The AthenaDiaX body sensor is manufactured to record and store cardiac signals over long periods.

The body sensor consists of:

- ECG recorder (ARES)
  - ECG patch (ZEUS 2D, ZEUS XD or ZEUS 7D)
  - ECG reader (IRIS)
- The body sensor is not suitable for direct clinical status monitoring of patients because it has no signal display or alarm functions.
  - ZEUS 2D, ZEUS XD and ZEUS 7D are single-use products
  - The evaluation of the results should be made by qualified personnel.

## 3. Start of Signal Recording

- If necessary, shave the respective chest area. Clean and dry the skin. For this purpose alcohol pads can be used.
- Assemble the ECG recorder (ARES) and ECG patch (ZEUS). A clicking sound is heard. Marker lines on ARES and ZEUS are indicating the correct orientation of the both components.
- ZEUS 7D:** Remove the plastic cover, protecting the leads, of the ZEUS patch and position the device on the indicated area on the chest of the patient.



- ZEUS 7D:** After positioning the Sensor on the chest of the patient remove the protection liner that is oriented towards the skin of the patient from the Sensor. Press the edge of the Sensor foil with your finger to the skin. The protection liner will loosen at the same time from the sensor.



- ZEUS 2D / ZEUS XD:** Assemble the ECG recorder (ARES) and ECG patch (ZEUS). A clicking sound is heard. Marker lines on ARES and ZEUS are indicating the correct orientation of the both components.
- After sticking the body sensor to the chest, the signal recording and storage will start automatically.

**Function Control:** Indicating proper signal recording and storage the green LED blinks every 4s.

**Signal Control:** It is possible to activate this status while recording. Therefore, the body sensor needs to be firmly padded twice.

## 4. End of the Recording

- Pull off the body sensor from the skin slowly and carefully. Removing rapidly can cause skin irritation. First, loosen gently an easy accessible point of the body sensor from the skin, then remove the device from the thorax evenly.
- Make sure that the Sensor is in normal operation mode (green LED blinking) when the ARES is disconnected from the ZEUS.

## 5. Screening and Analysis of the ECG data

- Connect the reader (IRIS) to the PC via the USB cable.
- Place the ECG recorder (ARES) into the reader. Make sure that ARES is oriented correctly.



Data analysis must be undertaken utilizing the ThemisLight software that can be downloaded from [www.athenadiax.com](http://www.athenadiax.com).

LED Signal	Display of the Status on the body sensor
Orange blinking	<b>State self-test:</b> In this state, the sensor body performs a self-test concerning all necessary function of the device.
Orange blinking along with heart rate	<b>State measurement 1 (ECG recording):</b> In this state, an ECG recording will take place. The patient contact is available. After 30 s a change to the state of "measurement 2" takes place. All 3 LEDs blink to the patient's heart rate.
Green blinking	<b>State measurement 2:</b> In this status, an ECG recording will take place. After double-click on the ARES the state will be changed to the state measure 1.
NO LED Signal	<b>End of recording:</b> This state indicate the end of recording
Red LED Signal	<b>Out of service:</b> (Memory full / Batery emty / Hardware failure)

## 6. Instructions for use

- Patient may sleep on his or her back.
- To obtain correct measurement results, the patient should pay attention to an intact adhesive joint between Patch and body.
- The ECG recorder (ARES) should be checked prior to each use for visible damage. Defective devices or accessories should not be used on patients.
- The body sensor can be operated together with pacemakers or other stimulators when all participating devices are used according to their intended purpose.
- Mobile transmitting devices may disrupt the functions of the Sensor.
- The patient should take off the device if a physical problem e.g. severe skin irritation occurs during the recording.

## 7. Care and Maintenance

- The body sensor should only be cleaned with a slightly damp cloth.
- Do not use abrasive materials to clean the device.
- The body sensor should not be cleaned with organic solvents such as benzene or ether.
- Prevent penetration of liquids (do not spray).

## 8. Service and Repair

- Unauthorized repairs or modifications of the body sensor's parts or accessories can cause impairment of the function or hazards to the user or patient. Therefore, repairs should be carried out only by the manufacturer or by an authorized person.
- Illegal opening causes loss of warrant. For service or repair contact your distributor.

## 9. Product liability

The producer takes responsibility concerning product liability only under the following conditions:

- The Sensor is only used with original accessories
- Repairs are only done by from the producer appointed and trained personnel
- Devices are used in accordance to the user's manual

Any product liability is excluded in case of handling not in accordance to the intended use

## 10. Disposal after use

- The ECG recorder (ARES) and the reader (IRIS) should be properly disposed as old electrical equipment and the ECG recorder should never be disposed to the normal household waste.
- The ECG patch contains a lithium battery. Improper disposal can cause environmental hazards. Please act in accordance with local or national regulations for disposal of batteries.

## 11. Support

For questions and problems with the body sensor and accessories, please contact us at:

AthenaDiaX GmbH  
Saalmannstraße 9  
13403 Berlin Germany  
E-Mail: [Info@athenadiax.de](mailto:Info@athenadiax.de)  
[www.athenadiax.com](http://www.athenadiax.com)  
+49 30/ 692 067 950

## 12. Technical data

ECG channels	3
Max. Sample Rate ADC	1 kS/s (pro Signal)
Digital resolution	250 bis 1000 S/s (Depending on evaluation)
Dynamic range	0 - 40 mV
Input impedance	≥ 1 MOhm
Amplitude resolution	≤ 1 μV relative to input
Frequency range	0,1 – 75 Hz
Tolerances	DIN EN 60601-2-47: EN60601-1:

Typ of memory	micro SD Karte
Data formats	MIT-Format
Period of use	Up to 7 days, 24 hours per day
Ambient temperature and relative humidity according to EN 60601-1-11 and EN 60601-2-47	<ul style="list-style-type: none"><li>• Operating temperature: 10°C to 45°C</li><li>• humidity: 10% to 95%.</li><li>• Storage and transport temperature: -25°C (without humidity control) to 75°C (with a relative humidity up to 93% noncondensing)</li></ul>
Size	ARES: 54 x 54 x 9,6 mm ZEUS 2D, ZEUS XD: 57,4 x 57,4 x 10 mm ZEUS 7D: 57,4 x 57,4 x 7,75 mm
Weight	ARES: 19,0 g ZEUS 2D, ZEUS XD: 24,0 g ZEUS 7D: 19,6 g
Supply	Via ZEUS 2D, ZEUS XD or ZEUS 7D only