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### **Note:**

The current operating instructions, safety instructions, the EC Declaration of Conformity and the EC Type Examination Certificate can be downloaded from the relevant product page at [www.ecom-ex.com](http://www.ecom-ex.com), or alternatively they can be requested directly from the manufacturer.

## **1. Application**

The Ex-GSM 02 is an intrinsically safe, splash water-, dust- and impact-resistant mobile phone for industrial application in areas with an increased risk of explosion in zones 2 and 22 in accordance with directive 1999/92/EC (ATEX 137).

## **2. Safety instructions**

These safety instructions contain information and safety regulations which are to be observed without fail for safe operation in the described conditions. Non-observance of this information and these instructions can have serious consequences or it may violate regulations.

Please read these safety instructions carefully before starting to use the unit! In case of any doubt (in the form of translation or printing errors) the German language operating instructions shall apply.

## **3. Faults and damage**

If there is any reason to suspect that the safety of the unit has been impaired, it must be withdrawn from use and removed immediately from the Ex-area. Measures must be taken to prevent it from being restarted accidentally.

The safety of the device may be compromised, if, for example:

- there is visible damage to the housing.
- the unit has been subjected to excessive loads.
- the unit has been improperly stored.
- the unit has been damaged in transit.
- unit markings or inscriptions are illegible.
- malfunctions occur.
- permitted limit values have been exceeded.

## **4. Safety regulations**



Use of the explosion-proof mobile phone Ex-GSM 02 assumes that the operator complies with conventional safety regulations and has read the certificate of conformity in order to eliminate faulty operation of the unit.

The following points are to be observed:

- The device may not be opened inside the Ex-area.
- Only the original battery module Ex-AM GSM 02 (Li-ion 3.7V/850 mAh) may be used!
- The battery module may not be changed inside the Ex-area!
- The battery module may only be charged outside the Ex-area and only then using the following appropriate chargers: charger LGH 05, car charger ALH 05, Car-Kit CKH 05 or USB data cable PCH 05.
- When changing the battery the battery compartment and the circulating seal are to be examined for any contamination and cleaned, if necessary, with a brush or by using blasts of compressed air.
- The covers for the SIM card and charging socket must be closed in the Ex-area.

- When replacing the battery cover it must be ensured that the cover locks in place properly and that the rear is secured using the six screws.
- It must be ensured that the phone is not taken into zone 0, 1, 20 or 21!
- Only approved accessories from ecom instruments GmbH may be used.
- The mobile phone is not waterproof, therefore keep it dry!
- Observe the corresponding laws that are in force in the respective country regarding the use of mobile phones while operating a vehicle!
- Use of the mobile phone in an airplane is not permitted!
- Switch off the mobile phone when in close proximity to medical instruments and if you are requested to do so by corresponding regulations!
- Manufacturers of cardiac pacemakers recommend a minimum distance of 15 cm is maintained between a mobile phone and a pacemaker.
- Do not switch on the mobile phone when the use of such devices is prohibited, as it may cause interference or result in danger.

### 5. Ex-Data


EC-Type Examination Certificate No.: ZELM 09 ATEX 3422  
 Ex-Designation:  II 3 G Ex ib IIC T4  
 II 3 D Ex ibD 22 IP54 T55°C.

Approved for zone 2, device group II, explosion group IIC (explosive gases, vapours or mist), temperature class T4.

Approved for zone 22, device group II, dust Ex-atmosphere, max. surface temperature (for surfaces on which dust can develop) + 55 °C.

**The user assumes responsibility for ensuring that the  
 Ex-GSM 02 is used in explosive atmospheres in  
 accordance with the applicable regulations!**

### 6. Specifications

Networks:	Triband GSM 900 / 1800 / 1900 MHz
Data transfer:	GPRS class 10 (up to 62.4 kbps)
Display:	Passive matrix display with 65,536 colours (resolution 128 x 128 pixels)
Power supply:	Li-ion rechargeable battery with 850 mAh capacity
Talk time / standby:	max. 4hrs / max. 150hrs
Charging time:	approx. 3hrs
Dimensions:	117 x 52 x 24 mm
Weight:	approx. 175g
CE-Designation:	 0102
Ambient temperature Ta:	-10 °C ... +50 °C
Charging temperature:	0 °C ... +40 °C
Protection rating:	IP54

SAR: GSM 900: 0.219 W/kg  
DCS 1800: 0.021 W/kg  
Permissible maximum value for both frequencies:  
2,000 W/kg

## **7. Battery**

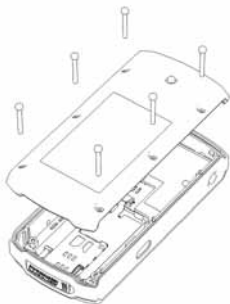
### **7.1 Changing the battery**

The battery module Ex-AM GSM 02 of the Ex-GSM 02 may only be changed outside the Ex-area. Only those battery modules which are approved by the manufacturer may be used. Other battery modules may not be taken into the Ex-area.

#### **Removing the battery module**

Proceed as follows to remove the rear cover (when replacing the battery):

- Remove the 6 screws using the screwdriver provided and then extract the battery module from the phone.
- When changing the battery module the battery compartment and the circulating seal are to be examined for any contamination and cleaned, if necessary, with a brush or by using blasts of compressed air.
- Insert the new battery module into the phone.
- Secure the battery module in place with the 6 screws, using the prescribed torque (0.15 Nm).
- Dispose of the battery module in accordance with local regulations.



### **7.2 Charging the battery**

Your phone is supplied with power via a rechargeable battery. Before a new battery can be used for the first time it must be charged for at least 4 hours. Full battery performance is only obtained after a few operating cycles. If the battery charge level decreases below the operating value, this will be indicated by the phone (the empty battery symbol flashes). When this appears charge the battery for at least 15 minutes before making any other calls, in order to prevent your discussion from being interrupted.

**Caution! Only charge the battery outside the Ex-area using the prescribed chargers (see point 4)!**

Proceed as follows to charge the battery:

Connect the charger to a wall outlet.

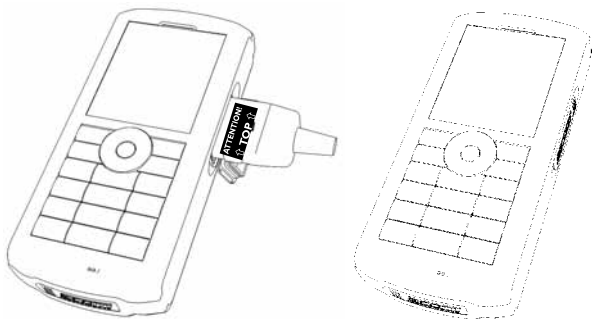
Open the side cover.

Carefully insert the charger plug into the charging socket located on the side without twisting it or using excess pressure.

**Please make sure that the following illustration on the charger plug is pointing in the same direction as the phone's display.**

**ATTENTION!**

↑ **TOP** ↑



The phone's battery will now be charged. The scrolling battery symbol indicates that the battery is being charged. When the battery is fully charged the charging process stops automatically. Remove the charger plug from the charging socket. Close the cover. Batteries can become warm during the charging process. This is a normal occurrence.

**NOTE:**

- Do not short-circuit the battery.
- The casing of the battery should not be opened under any circumstances.
- Only use chargers and batteries from ecom instruments GmbH. The use of other chargers or batteries is not permitted.
- If you do not intend using the phone for a prolonged period, you should remove the battery.
- Do not connect your charger to the phone if the battery is not inserted.

High quality lithium-ion batteries are used in your Ex-GSM 02. These batteries have numerous advantages in everyday use, such as a low weight and high capacity in a nevertheless compact construction. In addition these batteries also exhibit practically no memory effect.

However, these batteries are susceptible to a natural ageing process which impairs their functionality. Modern batteries today have a lifespan of around 500 charge cycles, which, when used daily, corresponds to a service life of approximately 2 years. The ageing process increases rapidly after this period, which means that the batteries are deemed technically defective after 500 charge cycles. Moreover, the batteries could blow up and cause irreparable damage to your device in a worst case scenario.

For this reason rechargeable batteries with lithium cells should be replaced after 2 years at the latest or after reaching a battery capacity that is 50% of its initial value.

Note: The battery used in this unit poses a fire hazard and can cause chemical injuries if it is used improperly. Neither the battery nor the battery cells should be opened or disassembled and they should not be burned or exposed to temperatures exceeding 100°C.

**7.3 Safety precautions**

Damaged batteries and chargers should be removed from use and sent to ecom instruments GmbH for inspection.

Caution:

- Extreme temperatures can have an adverse effect on charging the battery module Ex-AM GSM 02.
- Do not dispose of the battery module in a fire!
- Do not short-circuit the battery module!

**7.4 Maintenance and storage instructions**

- A high battery capacity is maintained if it is recharged at 20% of its capacity.
- Extreme temperatures, particularly those in the minus figures, decrease the battery's capacity when it is used.

- A battery will not return to its full capacity after a prolonged period of storage if it was fully charged at the beginning of the storage period or if it has been stored in a particularly warm environment. Ideal conditions would be a 40% charge level at the start of the storage period and an ambient temperature of 0 °C. The environment should be as dry as possible.
- If the battery is depleted, charge it for approx. 30 minutes before storing it.
- Never stack multiple batteries on top of one another during storage.

### **8. Repair**

Repairs are to be conducted by ecom instruments GmbH or by personnel or service centres authorised by ecom instruments GmbH, because the safety of the unit needs to be tested after repairs are implemented. Use instead of the currently specified text.

### **9. Cleaning, maintenance and storage**

- Only use a suitable cloth or sponge to clean the unit. Do not use any solvents or abrasive cleaning agents when cleaning.
- It is recommended that you have the functionality and accuracy of the unit inspected by the manufacturer every two years.
- The battery should be removed from the phone during prolonged periods of storage.
- Do not exceed the permissible storage temperature range of -20 °C... 50 °C!

### **10. Disposal**

Please note that according to Section 7 of the ElektroG (Electrical and Electronic Equipment Act) all electronic appliances and accessories that are designated with this symbol should not be disposed of together with normal household waste. In this case it primarily applies to the end unit, charging unit, headset and data cable. Please observe this regulation in order to minimise the environmental impact when disposing of old appliances.

Old electrical devices as well as „historical“ old electrical devices from ecom instruments GmbH are supplied for disposal at our expense and disposed of free of charge in accordance with European Directive 2002/96/EC and the German electrical law of 16/03/2005. The costs associated with returning devices to ecom instruments GmbH are to be borne by the sender.

In accordance with Article 1, Section 18 and Article 2 of the Act revising the law of Waste-Related Product Responsibility for Batteries and Accumulators (Gesetz zur Neuregelung der abfallrechtlichen Produktverantwortung für Batterien und Akkumulatoren) dated 25 June 2009, we are obligated to provide the following information.

Your device contains a rechargeable lithium battery.

Depleted batteries or rechargeable batteries that can no longer be recharged should never be disposed of along with normal or household waste. Old batteries can contain harmful substances that are hazardous to health and damaging to the environment. Please return the batteries/rechargeable batteries. Return is free of charge and required by law. Please only dispose of discharged batteries in the designated containers and tape the terminals of lithium batteries.

**Note:** The battery used in this unit poses a fire hazard and can cause chemical injuries if it is used improperly. Neither the battery nor the battery cells should be opened or disassembled and they should not be burned or exposed to temperatures exceeding 100°C.

If the battery needs to be disposed of, it can be removed as described under point (7.1). The disposal regulations specified above are also applicable for old devices. All batteries and rechargeable batteries can be recycled. Precious raw materials such as iron, zinc and nickel can therefore be reused.



The symbol has the following meaning: Batteries and rechargeable batteries should not be disposed of along with normal or household waste.

## **11. Warranty and liability**

In accordance with our general terms and conditions ecom instruments GmbH provides a warranty for this product for a period of two years regarding its function and material under the specified and permitted operating and maintenance conditions. This excludes all parts that are subject to wear and tear (e.g. batteries). We provide a 6-month manufacturer's warranty especially for the supplied Ex-battery. This warranty does not extend to products that are used improperly, have been modified, neglected, damaged in accidents or exposed to abnormal operating conditions and inappropriate handling.

Any claims under the warranty can be invoked by returning the defective equipment to the manufacturer. We reserve the right to repair, adjust or exchange the device. The aforementioned warranty conditions are the sole and only right of the purchaser to compensation, are exclusively valid and replace all other contract or legal warranty obligations. ecom instruments GmbH assumes no liability for special, direct, indirect, accompanying or consequential damage as well as losses including the loss of data, independent of whether it was caused by violation of the warranty obligation, lawful or unlawful action, action in good faith or any other action.

If the limitation of a legal warranty as well as the exclusion or limitation of accompanying or consequential damage is not permissible in certain countries, it

may be that the aforementioned limitations and exclusions are not valid for every purchaser. Should any such clause of these warranty conditions be declared ineffective or unenforceable by a competent court, then the effectiveness or enforceability of any of the other conditions of these warranty conditions shall remain unaffected by such a judgement.

## **12. Troubleshooting**

Please note that the latest information and new points concerning troubleshooting measures can be found on the ecom instruments GmbH website under Service > Troubleshooting.

<b>Problem</b>	<b>Remedy</b>
The phone won't switch on.	Press and hold the power button for approx. 6 seconds. If nothing happens, charge the battery
When the phone is charging the keypad illuminates, but the display remains blank.	If the battery is severely depleted, it may take up to 20 minutes before the display appears. If the display doesn't reappear after 20 minutes, disconnect the charger from the power supply and re-insert it after 1 minute.
When the phone is charging the keypad flashes and nothing appears in the display.	Disconnect the phone from the charger, remove the battery and then re-insert it again. Reconnect the charger to the phone and switch it on. If the problem persists, please contact the ecom instruments GmbH service department.
„E“ is displayed by the network symbol (bar indicator).	It is only possible to make emergency calls. Relocate to a position with a better reception.
The phone „freezes“ (display is on, no functions are possible).	Take out the battery and remove the SIM card. Then replace the SIM card, re-insert the battery and switch on the phone.

<p>My new SIM card causes malfunctions.</p>	<p>Make sure you are using a 3V type SIM card. If you use other SIM cards problems may occur. Contact your network operator for more information. If you are using a 3V SIM card, try the suggestion under phone „freezes“.</p>
<p>Contacts saved on the SIM card are not visible.</p>	<p>Take out the battery and remove the SIM card. Then replace the SIM card, re-insert the battery and switch on the phone.</p>
<p>„SIM missing“ is displayed.</p>	<p>Take out the battery and remove the SIM card. Check whether the SIM card is damaged. If it is damaged, contact your network operator for a new SIM card. Then replace the SIM card, re-insert the battery and switch on the phone.</p>
<p>Functions deviate from the standard settings.</p>	<p>Check the settings in the Options menu. Make sure no-one has changed the settings on your phone without letting you know.</p>
<p>How can I find out my IMEI number?</p>	<p>Enter *#06# after the start-up animation or in the welcome screen. The IMEI number appears in the display immediately.</p>
<p>How can I find out my phone's serial number?</p>	<p>You can enter the IMEI number on the ecom instruments GmbH website under Service &gt; Device information to find out the serial number. You can also find out the serial number by removing the battery and looking inside the phone.</p>
<p>The display is difficult to see because it is too dark.</p>	<p>Make sure the contrast is set to your requirements under „Settings &gt; Display &gt; Contrast“.</p>
<p>The phone switches itself off automatically.</p>	<p>If the battery power level drops below the operating value, the phone switches off automatically. Charge the battery.</p>

<p>The volume during a call is too low.</p>	<p>During the call press the navigation stick up to increase the volume or down to decrease the volume. This setting is automatically reset to the middle value after the call.</p>
<p>The battery life is less than specified.</p>	<p>Try the measures described under point 7.7 in this manual. Please also note that the battery's full operating capacity is only obtained after several charging cycles.</p>
<p>Poor reception quality.</p>	<p>Hold the phone by its base to avoid covering the antenna with your fingers.</p>
<p>„PIN code incorrect“ is displayed after entering the PIN.</p>	<p>An incorrect PIN code has been entered. Caution! If a PIN code is entered incorrectly three times in succession, the SIM card is blocked.</p>
<p>„SIM BLOCKED“ is displayed.</p>	<p>If the PIN code has been entered incorrectly three times in succession, proceed as follows:</p> <ul style="list-style-type: none"> <li>- Enter **05*</li> <li>- Enter the PUK code you received from your network operator when the SIM card was delivered and confirm your entry.</li> <li>- Enter and confirm your PIN number.</li> <li>- Enter and confirm your PIN number again.</li> </ul> <p>After 5 or 10 failed attempts (depending on the type of SIM card), the SIM card is blocked definitively. If this occurs, contact your network operator for more information.</p>

<p>„Connection failed“ is displayed.</p>	<p>Check whether you have dialled the correct number.          If an „E“ appears by the network icon, see problem 4.          Check to make sure you have sufficient credit.          Make sure the SIM card used is compatible with the desired service and that the card is still valid.          Check any restrictions for outgoing calls and disable these if necessary. The network may be overloaded. Try again later.</p>
<p>No incoming calls.</p>	<p>Try and establish a connection to check whether the phone is operational and ready to receive calls.          Check whether the call divert function is active (the symbol appears in the display) and disable this if necessary.          Check any restrictions for incoming calls and disable these if necessary.</p>
<p>It is not possible to send messages.</p>	<p>Make sure the number for the message centre has been entered correctly (in the menu „Messages &gt; Options &gt; Message Centre“). You can obtain the correct number from your network operator.</p>
<p>No Mailbox.</p>	<p>Check whether the SIM card used is compatible with this service.          Check whether the call divert function to your mailbox is active and that the correct number (available from your network operator) has been entered (menu „Settings &gt; Calls &gt; Mailbox Number“).          Try and establish a connection to check whether the phone is operational and ready to receive calls.</p>
<p>Mailbox symbol flashes.</p>	<p>Establish a connection to your mailbox and listen to your new messages to make the symbol disappear.</p>

In connection with WAP: Message „No response from server“ is displayed.	Switch off the phone and then switch it back on again.
Connection to home page is not possible.	Select the option „Empty cache“ under „WAP > Menu services“.
The name of the network operator is not indicated in the display.	Select „Menu > Settings > Networks > Select“ to choose the desired network operator. Check the setting under „Menu > Settings > Display > Network Operator Logo“. This must be activated to display the network operator.
How do I enable/disable the keypad lock function?	Press and hold the * button for at least 2 seconds to enable or disable the keypad lock function.
How do I activate the silent mode?	Press and hold the # button for at least 2 seconds to enable or disable the silent mode.
How do I activate the magnifying glass function?	The magnifying glass can only be activated in the SMS, MMS and WAP display. To activate it press and hold the # button for at least 2 seconds.
How do I get rid of the message that is displayed on the welcome screen ( „1 Call“)?	Press the red call button to deactivate the message display without having read the message.
How do I get rid of the envelope in the welcome screen?	The envelope indicates that you have received a new SMS message. Access the SMS message to deactivate the symbol.
How do I get rid of the symbol for voice messages in the welcome screen?	The symbol for voice messages indicates that there is a new voice message in your mailbox. Call your mailbox and listen to your new messages to deactivate the symbol.
If the problem persists, please contact the ecom instruments GmbH service department.	



## 14. EC-Type Examination Certificate

### Translation

- (1) **Certificate of conformity** **ZELM ex**
- (2) Devices and shielding systems intended for use in explosive areas - **Directive 94/9/EC**
- (3) Test certificate number

### ZELM 09 ATEX 3422

- (4) Device: **Explosion-protected mobile phone, model Ex-GSM 02**
- (5) Manufacturer: **ecom instruments GmbH**
- (6) Address: **D-97959 Assamstadt**
- (7) The design of this device and its various approved embodiments are defined in the attachment to this certificate.
- (8) As nominated body no. 0820 in accordance with article 9 of the EC council directive dated March 23 1994 (94/9/EC), the Test and Certification Body (Prüf- und Zertifizierungsstelle) ZELM Ex certifies conformance with the basic health and safety requirements for the design and construction of devices and protective systems for intended use within explosive areas in accordance with appendix II of the directive.

The results of the test are documented in confidential test report no. ZELM Ex 1790924754.

- (9) The basic health and safety requirements are fulfilled through compliance with:  
**EN 60079-0:2006 EN 60079-11:2007 EN 61241-0:2006 EN 61241-11:2006**
- (10) If the certification number is followed by an "X", then this indicates that special conditions exist for the safe operation of the device. These special conditions are contained in the attachment to this certificate.
- (11) This certificate of conformity only refers to the construction/design, checking and testing of the specified device or protection system in accordance with directive 94/9/EC. Further requirements contained in this directive may apply with regard to the manufacturing process and the supply of the device or protection system. Such requirements are not covered by this certification.
- (12) The device must be labelled with the following information:



**II 3 G Ex ib IIC T4**

**II 3 D Ex ibD 22 IP54 T55°C**

### ZELM ex

#### Certification body

Braunschweig, 04.12.2009  
Zertifizierungsstelle ZELM ex  
Dipl.-Ing. Harald Zelm

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Declarations of conformity without a signature and stamp are not valid. This declaration of conformity may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM ex.

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(13) **Appendix**

**ZELM ex**

(14) **Certificate of conformity ZELM 09 ATEX 3422**

(15) Description of the device

The explosion-protected mobile phone (type Ex-GSM 02) serves as a wireless connection point in the explosive area. Only those accessories that are approved by the manufacturer may be used under the specified conditions. The device must be charged outside the Ex-area using the corresponding battery charger.

Electrical data

Supply current circuit	from an integrated rechargeable battery Type Ex-AM GSM02 The internal electrical circuits are intrinsically safe.
Transmitting power	up to 2 W
Interface electric circuit	in ignition protection class Intrinsic Safety Ex ib IIC and Ex ibD Only for connection to approved accessories

permissible ambient temperature range -10 °C to + 50 °C

Note:

The instruction manual is to be observed, particularly with regard to the approved corresponding accessories. Only these accessories may be used. The device may only be charged outside the explosive area using the corresponding charger or the appropriate charging accessories. Only the Ex-battery module Ex-AM GSM02 may be used! All connection sockets must be kept sealed in the Ex-area.

(16) Test report No.  
ZELM Ex 1790924754

(17) Special conditions  
not applicable

(18) Basic health and safety requirements  
satisfied by virtue of the standards

**Braunschweig, 04.12.2009**  
Zertifizierungsstelle ZELM ex  
Dipl.-Ing. Harald Zelm

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