

Weatherproof GSM telephone

INDUTEL GSM



Operating manual



Please note

Please read this user manual thoroughly before installing the device.
Check that all component parts were delivered.

Table of contents

General operating instructions	3
Original condition	4
Packaging content	4
Telephone default settings	4
Assembly and Installation	4
Wall mounting	4
Battery connection	4
Solar panel or voltage supply connection	4
SIM cards	4
Serial port connection	5
Operating instructions	6
Control elements	6
Key touchpad	6
Making / receiving calls	6
Dialing	6
Programming	6
Setting call volume	7
Setting call melody	7
Setting speaker microphone sensitivity	7
Setting call reception volume	7
Programming priority settings for SIM cards	8
Programming emergency numbers	8
Changing the password	8
Restoring default settings	8
Serial port (RS485)	9
General instructions	10
Service	10
Care and maintenance	10
Warnings and safety instructions	10
Technical fact sheet	11
Conformity declaration	12
EMC guidelines	12

General operating instructions

1. The Indutel GSM is intended for use with a solar panel or a DC voltage of 5V. An internal battery serves as a voltage buffer. At least one SIM card is required for operation. The SIM cards must have their PIN request deactivated.
2. The telephone has a receiver hook with a contact-magnet as hook switch. To end a phone call, the receiver has to be placed back.
3. Telephone settings are programmed by sending information via SMS to the Indutel GSM.
4. Successful completion of programming is confirmed via a return SMS.
5. When the solar panel is in operation, the panel must be oriented in such a way that sufficient charging of the battery is ensured. The battery discharge status is reported via SMS to the number pre-programmed for this purpose.
6. When receiving calls, the Indutel GSM will ring at a volume and with the melody programmed by you.
7. When programming the device settings, the four digit alphanumeric password must be within the SMS text. This password can only be changed via SMS. If you forget your password, please contact our technical support team.
8. A warranty period of 24 months applies from the date of purchase. If you experience technical problems, please contact our technical support team in Germany, located in the city of Muelheim an der Ruhr:

Telephone: +49 (0)208 82 68 102 · Fax: +49 (0)208 82 68 377 · Email: info@fhf.de

If a fault cannot be fixed over the phone, please send the apparatus and all accessories, as well as a copy of the purchase receipt, to the following address:

FHF
Support Indutel
Gewerbeallee 15-19
45478 Muelheim an der Ruhr
Germany

Original condition

Telephone default settings

Password	0000
Call melody	3
Call volume	5
Receiver volume	4
Microphone sensitivity	4

The default settings can be restored at any time via the programming function. This will not however, change the new password.

Assembly and Installation

Wall mounting

Attach the mountings to the telephone using two screws for each. Use the M5 x 8 mm countersunk screws supplied. Fasten the telephone with four screws (up to Ø 8 mm in diameter) to the wall.

Serial port connection

Take off the key touchpad together with the handset.
Connect the positive battery connector (red cable) to clamp 9.

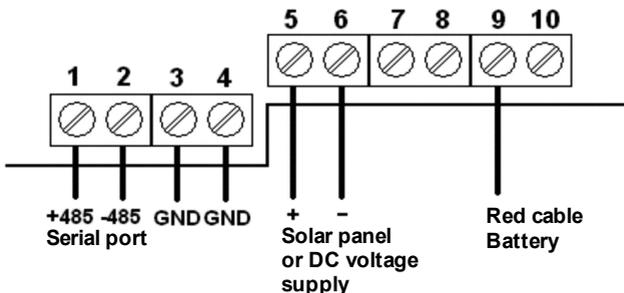
Solar panel or voltage supply connection

Push the solar panel cable or DC voltage supply cable through a cable fitting and put the end of the cable onto clamp 5 and 6 (Note: Observe polarity). Only use a cable with a cladding diameter between 5 mm to 9 mm, otherwise the protection rating of IP 66 is not guaranteed.

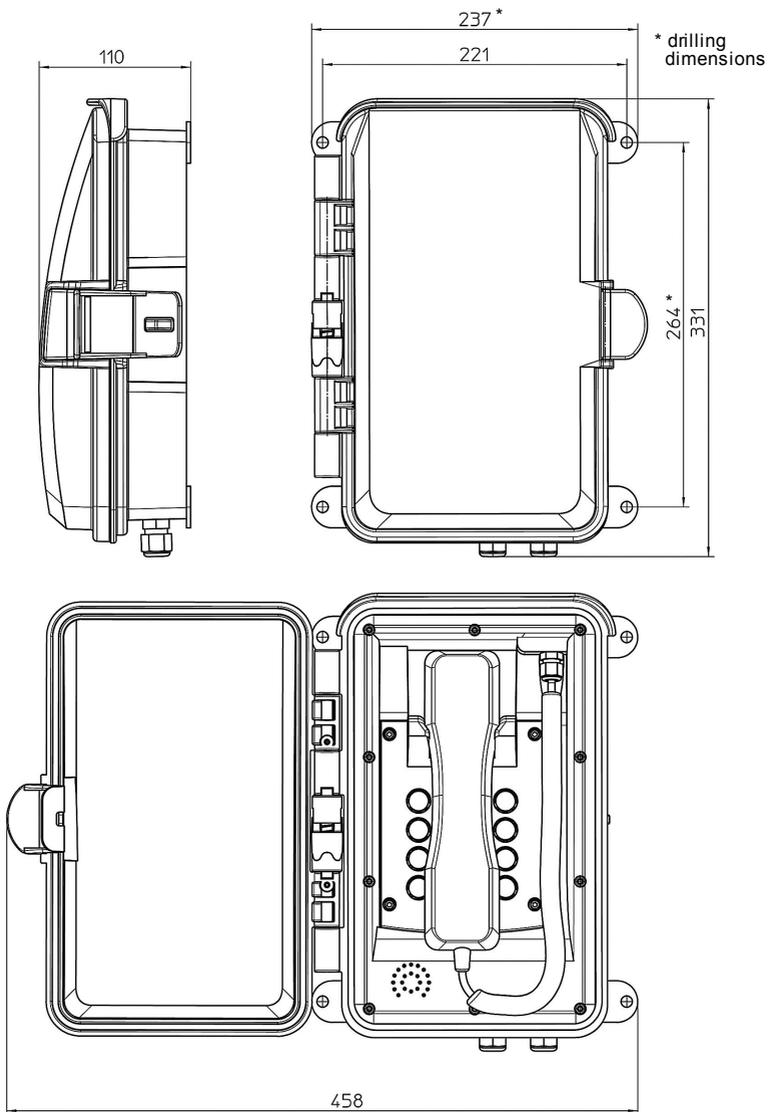
SIM cards

Please insert the SIM card necessary for operation into one of the SIM card holders. If operating with two SIM cards, please insert both SIM cards into the SIM card holders. The SIM cards must have their PIN request deactivated.

Plug the flat ribbon cable with connector onto the pin header of the touchpad panel.
Screw on touchpad panel with the four screws.



Connector clamps



Serial port connection (RS485)

The second cable entry point is intended for the serial port connection. Remove the key touchpad and take the sealing element out of the cable entry point. Pass the cable through the cable entry point and attach it to clamps 1, 2, 3 and 4. Fix the cable to the cable duct entry. Ensure that the cable diameter meets the cable duct entry guidelines otherwise the IP protection rating is not achieved. Then screw the key touchpad back on again using the four screws.

Operating instructions

Control elements

Key touchpad



Number key pads

Making / receiving calls

When receiving a telephone call, lift the receiver to answer the call.
To make a call, lift the receiver and dial the number you would like to call.

Dialling

Enter the number you would like to call using the touchpad. The star key and the hash key are neutral keys when making a call. Once the telephone number has been entered completely, press the R key to connect to that number.

Programming

Programming is done via SMS. A SIM card must be in the telephone to do this and the telephone must be connected to a network. The SMS necessary for programming must be sent to the Indutel GSM from another SMS enabled phone. The four (4) digit alphanumeric password currently valid must be included in the SMS text. In the following text, the password is equal to 0000.

Upon successful programming, the Indutel GSM will send the following SMS:

FHFnnnnnn,OK; (nnnnnn: Telephone ID number; alpha numeric)

If programming was unsuccessful, the following SMS is returned:

FHFnnnnnn,ERROR; (nnnnnn: Telephone ID number; alpha numeric)

Setting call volume

SMS text: FHF0000,FHF+VOLRING,value;
value (0...4)

Setting call melody

SMS text: FHF0000,FHF+TYPERING, value;
value (0...7)

Setting speaker microphone sensitivity

SMS text: FHF0000,FHF+VOLMIC_HS, value;
value (0...9)

Setting call reception volume

SMS text: FHF0000,FHF+VOLSPK_HS, value;
value (0...9)

SIM cards priority settings

The telephone always attempts to dial into the GSM net of SIM card 1.
SMS text: FHF0000,FHF+SIMCHK,SIM1,FX;

The telephone always attempts to dial into the GSM net of SIM card 2.
SMS text: FHF0000,FHF+SIMCHK,SIM2,FX;

The telephone first attempts to dial into the GSM net of SIM card 1. If this is unsuccessful, it will attempt to dial into the net of the second SIM card.
SMS text: FHF0000,FHF+SIMCHK,SIM1,NOR;

The telephone first attempts to dial into the GSM net of SIM card 2. If this is unsuccessful, it will attempt to dial into the net of the first SIM card.
SMS text: FHF0000,FHF+SIMCHK,SIM2,NOR;

Programming emergency numbers

SMS text: FHF0000,FHF+TNUM1,+49.....;

In an emergency, the programmed phone number receives an SMS, such as:
FHF000000,ALARM VBAT,3.41;

In this instance, the message says that battery voltage has fallen below a reliable value and the GSM module in the telephone will be switched off.

Restoring default settings

SMS text: FHF0000,FHF&LDEFAULT;

When 'restoring default settings' the PIN will **not** be set back to 0000.

Changing the telephone ID number (default setting 000000)

FHF0000,FHF+SN, value;

Changing the password

SMS text: FHF0000,FHF+PSW,new password;

Saving the new parameters

After setting the parameters listed above, the following SMS must be sent to ensure that those values are saved:

FHF0000,FHF&W;

Serial port (RS485)

Communication protocol for connecting with an external device.

Sending

The Indutel GSM sends

STX (start of text, 02 hex)

The Indutel GSM waits for

DLE (data link escape, 10 hex)

If a NAK (negative acknowledgement) or any other signal is sent back as a DLE or there is a timeout, sending is repeated 3 times. Sending is terminated after three unsuccessful attempts.

After receiving the DLE, Indutel GSM transmits a data byte

Value and meaning of the data byte:

81 hex	Ringling has started
82 hex	Ringling has stopped
83 hex	Receiver was lifted
84 hex	Recover was replaced

DLE
ETX (end of text, 03 hex)

and waits for

DLE

If a NAK (negative acknowledgement) or any other signal is sent back as a DLE or there is a timeout, sending is repeated 6 times. Sending is terminated after 6 unsuccessful attempts.

Receiving

The external apparatus sends

STX

and waits for

DLE

which is sent by Indutel GSM when it is ready to receive data.

After receiving the DLE, the external apparatus sends

1. Data byte	value and meaning of the data byte C1 or C2
2. Data byte	8 bit value
DLE	
ETX	

If transmission has been successful, Indutel GSM sends

DLE

If the data received is not correct or reception was impaired, Indutel GSM sends

NAK

requesting a repeat of the transmission. This request will be repeated 6 times. After 6 failed attempts, sending will be terminated.

Receiving data should trigger an SMS which states:

Alarm1 (2), 2. Data byte.

General instructions

Service

You have purchased a modern FHF product which is subject to a thorough quality control inspection. If you have any questions about the telephone or if a malfunction appears - even after the guarantee period - please contact FHF. Please have the model name and item number ready (see product label).

If the internal battery needs to be exchanged, you will receive an appropriate replacement battery from FHF including installation instructions.

Care and maintenance

The telephone is maintenance free. Nonetheless, in areas of operation that are heavily exposed to dirt such as dust, fats, oils, etc., cleaning should be carried out from time to time. Use a moist cleaning cloth to wipe down the apparatus and the receiver. Careful! Never use pointed objects to clean the phone. Please avoid using other cleaning or scrubbing agents.

Adjustable casing components must NOT(!) be brought into contact with grease or lubricants, e.g. fats and oils!

Warnings and safety instructions

This device is a weatherproofed telephone, made especially for operation in the rough conditions of an industrial environment. The following warnings and safety instructions are to be observed:

1. The IP 66 protection rating is only guaranteed when the casing is closed.
2. The telephone is intended for operation connected to a solar panel or DC voltage. The recommended voltage range is to be adhered to. Correct polarity connections are to be observed. Connecting cables are to be positioned in such a way as to eliminate accident risk.
3. The telephone may only be operated under the environmental conditions indicated (see Technical Fact Sheet). Adverse environmental conditions, such as extremely high or low air temperatures are not acceptable because they promote failure of the telephone's electronic components.
4. Ensure that the telephone, the connecting cable etc. are not damaged. Operation of the telephone is not acceptable in damaged condition.
5. When operating the telephone, statutory and commercial guidelines, accident prevention guidelines, as well as electrical regulations are to be observed.
6. For all repairs, only original parts are acceptable which must be installed by a qualified repair person. Other kinds of replacement parts can cause damage. The guarantee is voided.
7. Prior to a repair or replacement of the telephone, the voltage supply must be disconnected. The internal battery must also be disconnected. If maintenance or repair under voltage is unavoidable, only qualified personnel may carry it out.
8. The sealing elements necessary to ensure the casing is sealed must not be damaged during assembly and disassembly.
9. The recommended operating position (wall mounted) is to be observed.
10. Changes to this product that serve as technical improvements, may be made without prior notice.

Technical fact sheet

GSM frequency bands	Quad Band, GSM850, GSM 900, GSM1800, GSM1900
Voltage supply	5 V _{dc} + 10% from solar panel or DC voltage supply
Solar panel	10W recommended, open circuit voltage ≤ 6.9 V _{dc}
Maximum power supply	500 mA
Battery	Lithium Ion
Nominal voltage	3.75V
Standard capacity	approx. 5 Ah
Temperature range charging	-20°C to +60°C
Temperature range discharging	-50°C to +60°C
Operating time	With fully charged battery
Talk time	Approx. 21 hours
Standby	Approx. 30 days
Operation	With one or two 2 SIM cards
Ringling volume	With open casing cover Approx. 90 dB(A) at a distance of 1 m With closed casing cover Approx. 65 dB(A) at a distance of 1 m
Casing	
Height x width x depth	330 x 237 x 110 mm
Weight	
(telephone incl. telephone holder)	2.3 kg
Operating position	Vertical wall mounted
Receiver	
Speaker capsule	Electret microphone
Receiver capsule	Dynamic capsule
Connections	Single-wire or multi-wire up to 2.5 mm ²
Operating environment temp.	-25°C to +55°C
Transport and storage temperature	-25°C to +70°C
Protection rating as per IEC60529	IP66 (IP65 open casing)
Cable fitting	2x M16 x 1.5
for cable diameter	5 ÷ 9 mm

Conformity declaration

FHF Funke + Huster Fernsig GmbH confirm that the InduTel telephone is in conformance with the fundamental requirements and other relevant provisions of guideline 1999/5/EU (R&TTE).

However, should problems occur during operation, please contact the technical support team at FHF.



EMC (Electro Magnetic Compatibility) Guideline

The device meets the requirements of the new EMC guideline 2004/108/EG, the Low Voltage guideline 2006/95/EG and the R&TTE guideline 1999/5/EG.

Conformity to the guidelines listed above is verified by the C E (Conformité Européenne) sign.



Electronic devices and old electrical items with this symbol may contain hazardous substances. For this reason they may not be disposed of together with regular domestic waste. To protect the environment, public collection stations are available for the disposal of electronic devices and old electrical items with this symbol.

Subject to alterations
or errors



FHF Funke + Huster Fernsig GmbH

Gewerbeallee 15-19 · D-45478 Mülheim an der Ruhr
Phone +49/208/82 68-0 · Fax +49/208/82 68-286
<http://www.fhf.de> · e-mail: info@fhf.de