



Fig. 225800200

Operating manual

TecSonic 2G/GPRS, 4G/LTE Item no.: 225800200, 225800400

Translation of original operating manual

Important!

The operating manual is always to be read before commissioning the equipment. No warranty claim will be granted for faults and damage to the equipment arising from insufficient knowledge of the operating manual.

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1 Safety instructions

This device was manufactured taking into account the relevant laws and directives for ensuring security as well as the protection of the environment and health. Despite this, its use may result in hazards for persons and material assets. Hence, it is essential that the instructions in this manual are complied with.

Warning notices and symbols

In this operating manual, the following symbols are used to point out especially important information:

Specific details on the economic use of the device.

I Specific details and/or instructions for damage prevention.

Details and/or instructions for preventing injury to persons or extensive material damages.

Intended use

Use the device only when it is in perfect working condition and only for its intended purpose while observing all safety precautions and risks. In particular, all malfunctions that could pose a safety hazard are to be corrected immediately.

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The device and its components are intended for use exclusively with the liquids listed and only for the purpose described. Any other use or additional manner of usage is not intended.

Organisational measures

This operating manual is to be kept within easy reach at the place of operation. The nameplate and the warning labels on the device must be observed and kept completely legible at all times.

Qualified personnel



/!\

The personnel for installation, commissioning, operation, and maintenance of the device must possess the relevant and adequate qualifications for these tasks. The operator must ensure that the contents of this manual are fully understood and implemented by the personnel.

Maintenance and repairs



Do not make any changes, extensions and/or modifications to the device without the manufacturer's permission. Replacement parts must conform to the technical specifications defined by the manufacturer. For original parts, this conformity is always guaranteed.

Hazardous substances



In exceptional cases, the components of this device may contain hazardous substances. In accordance with the requirements of the European REACH regulation, we provide current information on this on our homepage, in the download section.

Observe all safety regulations for the respective product when handling oils, greases, fuels and other chemical substances!

2 Technical description

2.1 Description / Intended use

The TecSonic ultrasonic sensor which uses ultrasonic technology to measure the liquid level of your tank and then communicates this data to a remote server.

2.2 Versions

Item no.	Туре
225800200	TesSonic mobile 2G/GPRS
225800400	TecSonic mobile 4G/LTE

2.3 Technical specifications

Dimensions (WxHxD)	101x150x93 mm ±1 mm
Supply voltage	4x 1,5 V battery Type C LR14 (incorporated) Alkali-Mangan-Dioxid - ZnMnO2
Connection thread	1 ¼", 1 ½", and 2" BSP
Material measured	diesel, fuel oil, kerosene, water, waste oil
Temperature range Operation	G2: -10° C to 50° C / G4: -20° C to 50° C
Temperature range Storage	-30° C to 60° C
Protection class	IP67
Ultrasound range	G2: >12 cm up to <3 m / G4: >12 cm up to <4 m
Ultrasound signal deflection	30°
Ultrasound resolution	±1 cm
Measuring accuracy	±2 cm
Weight	530 g incl. battery / 290 g without battery
Housing material	UV stabilized polypropylene (compatible with oil)
Altitude range	<2 Km above sea level
Battery life	>2 years*
Humidity	15% - 95%
SIM card	M2M 1NCE (built in)

*Based on daily data transmission in standard configuration at a location with good reception coverage.

2.3.1 Wireless frequency G2

Quad-Band GSM/GPRS

2.3.2 Wireless frequency G4

LTE FDD (Cat M1): B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85 LTE FDD (Cat NB2): B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 EGPRS: 850/900/1800/1900MHz

2.4 Battery change

The battery can be replaced without tools after opening the housing.

2.5 Accessories

Item no. 225800020	Name Waveguide pipe TecSonic 2m (Armored conduit DN32 and 2 grub screws ISO 4027 M3x4)
225800020	Waveguide pipe TecSonic 3m (Armored conduit DN32 and 2 grub screws ISO 4027 M3x4)
225800050	Combi vent cap 2" for TecSonic mounting

3 Activation

3.1 2G/GPRS

- To activate the sensor, hold the supplied magnet to the hot spot, a beep will be heard to indicate correct placement of magnet.
- Keep the magnet held to the hot spot until a second beep is heard, remove magnet from hot spot once this has been achieved.



- A series of beeps will now be heard. This indicates the GPRS is registering onto the GSM network.
- Upon successful registration to the GSM network the sensor will attempt to initiate a GPRS connection to the myTecalemit server. This is indicated by higher pitched beeping.
- The successful activation of the sensor is indicated by two successive short beeps two seconds apart. This will wake the sensor from dormant mode and activate it to make a join-request to the server.
- It is recommended to log in to myTecalemit to check whether the sensor readings are received on the server and whether the readings are OK before leaving the installation site.

3.2 4G/LTE

- To activate the sensor, hold the supplied magnet to the hot spot which can be found directly below the LED.
- As the magnet is held to the hot spot, the LED will first flash Green then flash Red, after this the Red LED will light continuously, remove magnet from hot spot once this has been achieved.



- A series of beeps will be heard while this Red LED remains illuminated. This indicates the GSM/GPRS is registering onto the cellular network.
- After successful registration in the cellular network, the sensor attempts to establish a connection to the myTecalemit server.
- After successful activation of the sensor, the green LED lights up and a double beep pattern sounds. This will wake the sensor from dormant mode and activate it to make a join-request to the server.
- It is recommended to log in to myTecalemit to check whether the sensor readings are received on the server and whether the readings are OK before leaving the installation site.

4 Installation

The Ultrasonic GSM works in conjunction with the myTecalemit server.

- The following outlines the sensor mounting options. • The sensor must sit in a vertical position on top of the tank
- The sensor must sit in a vertical position on top of the tank and be fitted such that the sensor has a clear path to the tank contents. Position it so that there are no internal obstructions that may interfere with the ultrasonic signal.



- If obstacles cannot be avoided, then a waveguide may be required. More detailed information see chapter Waveguide on page 13.
- Locate a suitably positioned threaded opening on the top of the tank to hold the sensor.
- The sensor will fit directly into threaded 1 ¼", 1 ½" or 2" BSP (British Standard Pipe) existing tank connections.
- Ensure that the gasket is placed, and that the sensor is screwed correctly into the tank.



5 Login

The device is operated in combination with our myTecalemit web software.

Open the website mytecalemit.com in any browser and log in using your account information. If you do not yet have an account, please register and create a new company in myTecalemit for your company.

For a newly created company, the mytecalemit fill level module will first need to be activated. You can start with the 14-day trial version of the level module.

For permanent activation please contact:

NEUES FÜLLSTANDSMESSGERÄT

Bezeichnung Test 123

abbrechen

TecSonic mobile

TVD

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Once your company has been activated, you can add a new device.

Once the TecSonic is activated, please refer to chapter see chapter 3 on page 7, you can add a new device in the menu Master data – Level sensors.

V

In this menu, enter a description and select the type "TecSonic mobile". In the next
step, enter the 15-digit serial number (under the barcode on the device).

weiter

Test 123	Gerätedaten Adresse	
TecSonic mobile	Bezeichnung	
्रि Gerätedaten	Test 123	
🗂 Tankdaten	- 123456789012345	1
	Ultraschall Konfiguration	(i) v

You can now save the information or perform the configuration for the tank right away before saving.



TECSONIC MOBILE

iit Angabe	<u> </u>
iit Angabe	0 -
iit Angabe	0-
	1
kt wählen	(i) v
n n Sie eine Tankform	(i) v
üllhöhe oder Durchmesser	mm
offset	mm
ales Volumen (I) I
	n Sie eine Tankform Üllhöhe oder Durchmesser (1) offset (2) nales Volumen (2)

The device is now ready for use.

6 Beep Patterns

Beep Pattern	Definition
Low beep once per second	Network Registration
High beep once per second	TCP connecting
Low beep once every 4 seconds	Network / TCP Listen
Low beep once every 2 seconds	Re-establish Network / TCP
High / Low combination beep	Incoming Data
Low / High combination beep	Outgoing Data
Low double-beep every 4 seconds	Network Listen (Data Received & Unit Active)
Low double-beep every 2 seconds	Re-establish Network
High double-beep every 4 seconds	TCP Listen (Data Received & Unit Active)
High double-beep every 2 seconds	Re-establish TCP

6.1 LED Patterns (only 4G/LTE)

LED Pattern	Function
Green / Red / Off	LED test : When a magnet is held against the hot spot the LED will briefly indicate Green followed briefly by Red and then off.
Red LED - On continuous	Modem Busy: Registering on Network and sending data.
Green LED - On continuous	Activated: Server has responded and Activated the unit.

7 Disposal

7.1 Disposing of the device

Upon being decommissioned, the device is to be completely emptied and the fluid(s) disposed of properly. Upon being taken out of service permanently, the device is to be dismantled by specialist personnel and disposed of properly:



- Dispose of used metal parts at a recycling facility for metal.
- Bring plastic parts to a recycling center.
- Bring electrical scrap to a recycling center.
- Batteries and lamps which are not permanently sealed, glued shut, or installed must first be removed and disposed of separately.

The end user is responsible for deleting personal data stored on the old device. Further information on the disposal of electrical appliances can be found on our homepage in the download section.

• Observe all legal regulations concerning water protection.

7.2 Disposal of batteries

Batteries must not be disposed of with the domestic waste. Batteries can be returned free of charge via a suitable collecting point or to the dispatch stores. Consumers are legally obliged to return used batteries.

Batteries that contain harmful substances are marked with a crossed out dustbin (see above) and the chemical symbol (Cd, Hg or Pb) of the heavy metal that is decisive for the classification as containing harmful substances:

- 1. "Cd" stands for cadmium.
- 2. "Pb" stands for lead.
- 3. "Hg" stands for mercury.

8 Declaration of Conformity

We herewith declare that the construction typ	e
Type:	
TecSonic	
Designation:	
Ultrasonic sensor	
Item number:	
225800100, 225800200, 225800400	
in the form as delivered by us complies with t	he following applicable regulations:
 EMC directive 	2014/30/EU
 RoHS-Directive 	2011/65/EU
 Radio Equipment Directive 	2014/53/EU

Waveguide

The default sensor configuration is non-waveguide mode and the measurements will be inaccurate unless a waveguide configuration mode is used.

Source a suitable pipe to act as the waveguide. This pipe should conform the dimensions in the figure below in order to fit the sensor. The recommended pipe material is PVC (domestic waste pipe is often used). Other materials are possible but should be checked for chemical resistance to fuel oil.

Cross-section of waveguide pipe assembly:



Maximum outer diameter of pipe 36 mm Minimum outer diameter of pipe 34 mm

Nominal inner pipe diameter 32 mm/1,25 inch (Minimum inner pipe diameter 31 mm)



The pipe should be cleanly cut to length. The length required should be measured from the top of the tank (where the sensor is to be mounted) to that of the fuel outlet point (as shown).

Note: The bottom of the pipe should be a minimum of 5cm from the base (floor) of the tank to prevent it from touching in the case of tank dimensional changes due to temperature etc.

The waveguide pipe should be securely attached via the two grub screws and hand tightened with an M1.5 Allen key (Note: over-tightening the grub screws can damage the plastic). Care should be taken to keep the sensor and pipe vertically aligned and supported, while fitting during the installation.



Depending on the weight, length and surface finish of the pipe, it may be necessary to glue it into position. In this case a hole should be drilled near the top of the waveguide pipe, just below the adapter, to ensure that any trapped air can exit.

Insert the correctly sized rubber seal ring, as required for the tank opening (supplied), and position it on the face of the adapter that is screwed onto the top of the tank.



Insert the whole assembly carefully into the tank, taking care not to loosen the pipe, and fit into position. Hand tighten the assembly until the rubber seal locks into position.



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