

KL100

LTE-CAT 1 / GSM

Positioning Fuel Level Sensor

User Manual V1.0

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1. Overview

The KL100 is a high-performance, all-in-one telematics solution that integrates real-time positioning, precise fuel level monitoring, and

advanced anti-theft alarms. Engineered for demanding industries such as logistics, transportation, and construction machinery, this device

features global 4G LTE connectivity, a built-in Bluetooth module for local configuration, and a fully integrated fuel level sensor.

The KL100 enables critical fleet management functions including

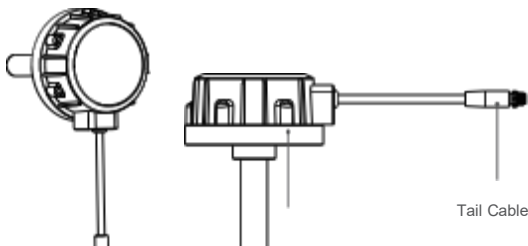
high-precision trajectory tracking, real-time fuel monitoring, and tamper detection, empowering fleet managers to significantly enhance

operational efficiency and asset security.

When paired with a telematics platform, the KL100 supports remote

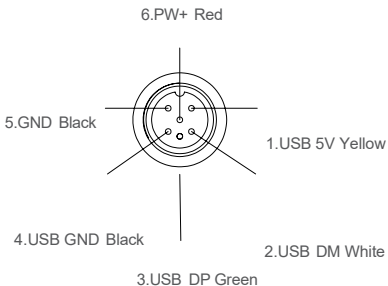
configuration, Over-The-Air (OTA) firmware updates, and multiple

alarm notification methods, making it a versatile and intelligent solution for diverse scenarios and global markets.



GPS module

— Sensor probe



Features:

GPS + BeiDou Dual-Mode Positioning

Cornering Smoothing & Static Drift Suppression

Ignition Status Detection (Virtual ACC)

Tamper & Removal Alarm

External Power Disconnection Alert

Overspeed Alarm

Geofencing (Entry/Exit Alerts)

Towing / Displacement Alerts

Vibration / Impact Alarm

Remote Immobilization via Bluetooth Relay

Integrated Fuel Probe Design

Fuel Theft Event Detection/Alarm

Refueling Event Detection/Notification

2. Packing List

KL100 Device	1	Unit	/
Power cable	1	Piece	/
Installation Kit	1	Packet	Five-hole Flange & Gasket

3. Technical Specifications

Cellular Connectivity

Technology	LTE Cat 1/GSM
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GNSS Positioning

Technology	GPS/BDS
Accuracy	<2.5m CEP
Tracking Sensitivity	−165dBm
Acquisition Sensitivity	Acquisition sensitivity −148dBm
TTFF (Open Sky)	Avg. hot start ≤2s; Avg. cold start ≤38s

Fuel Sensor

Operating Principle	Capacitive
Probe Length	1000mm
Max. Probe Cutting	750mm
Measurement Accuracy	<1% FS (Full Scale)

Power & Hardware

Battery	270mAh Li-Po with NTC
Input Voltage	9V to 30V DC

Bluetooth	Bluetooth BLE 5.0
Certification	CE & FCC

Platform Support

Configuration Platform	Jimi IoT Lab & Tracksolid Pro
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4. Installation Guide

4.1 Pre-Installation Check

Visually inspect the device to ensure it's in good condition and all accessories are included in the package.

4.2 SIM Card Attachment

Prepare a Nano SIM card with an active data plan and GPRS services enabled.



Standard ×



Micro ×



Nano ✓

Installation Steps:

1. Ensure the external power is disconnected and internal battery switch is OFF.
2. Insert the nano SIM card as shown in the device diagram.
3. Ensure the SIM card is properly seated and not in arrears.

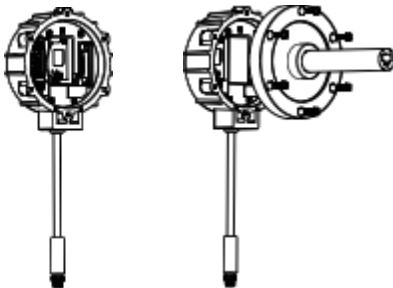
IMPORTANT: The SIM card must be inserted correctly with GPRS services activated and current account status.

4.3 Step-by-Step Installation

Step 1: Pre-Installation Preparation

1. Verify System Readiness: Ensure you have the correct KL100 device model and that your account is set up on the corresponding telematics platform. (It is highly recommended to pre-install a SIM card with an

active data plan).



CRITICAL: If installing the SIM card yourself, use a torque setting of 4 ± 0.1 N·m when tightening the cover screws to maintain the device's IP waterproof rating.

2.Measure Tank Height: Accurately measure the internal height of the fuel tank (from bottom surface to the flange mounting surface).

3.Trim the Sensor Tube: Carefully cut the probe so that its final length is approximately 1 cm shorter than the internal tank height. This prevents the probe from touching the tank bottom, which causes inaccurate readings.

4.Deburr and Seal: Smooth out any sharp edges or burrs from the cut end of the probe. Reinstall the bottom plug securely to ensure a proper sealing.

Step 2: Fuel Tank Preparation

⚠WARNING: This procedure is ONLY SUITABLE for DIESEL and other non-flammable liquids. It is STRICTLY PROHIBITED for use with GASOLINE!

1.Determine Optimal Mounting Position: The geometric center of the tank's top surface is the ideal location for the most accurate readings.

2. Drill a Pilot Hole: Drill a small (3mm) pilot hole at the chosen location. Use steel wire to probe through the hole for any internal obstructions (like baffles or existing sensors).

3.Enlarge the Mounting Hole: Once the area is confirmed to be clear, use a hole saw to enlarge the opening to 35mm.

4.Off-Center Installation (If Required): If an obstruction prevents center mounting, select a new location as close to the center as possible where the probe will still be vertical and can accurately represent the fuel level.

Step 3: Sensor Calibration

● Calibration can be performed by either inverting the device, sealing the top, and filling it with fuel, OR by vertically immersing the probe in fuel.

Empty Calibration: With the probe clear of any fuel, send:

FUELCALIB,EMPTY#

Full Calibration: With the probe fully submerged up to the flange,

send: FUELCALIB,FULL#

Best Practice: For the highest accuracy, calibrate the sensor at both empty and full states before final installation in the vehicle's tank.

Step 4: Device Installation

1.Install the Probe: Carefully guide the sensor probe into the 35mm hole, ensuring it remains vertical.

2.Apply Sealant: Place the provided gasket over the opening. Apply

automotive-grade electronic sealant around the hole perimeter to create a leak-proof seal.

3.Secure the Device: Position the KL100's flange over the gasket. Tighten the provided screws evenly using a crisscross (star) pattern to ensure uniform pressure distribution.

Step 5: System Commissioning

1. Configure Tank Profile on Platform: Log into your telematics platform and enter the fuel tank specifications (e.g., shape, capacity, dimensions) for the assigned vehicle.

2. Verify Operation: Power on the vehicle and confirm that the device

appears online and transmits data correctly. Verify both real-time location updates and accurate fuel level readings on the platform.

Warranty Instructions

1. **Warranty Validity:** This warranty is valid only when the warranty card is properly completed and the original purchase invoice (showing the date of purchase, model and serial number) is presented. We reserve the right to refuse warranty service if this information has been

removed or altered after the original purchase.

2. **Warranty Coverage:** Our obligations are limited to repair of defects, replacement defective components, or at its discretion, replacement of the entire product.

3. **Authorized Service:** Warranty repairs must be performed by our

Authorized Service Centers. Warranty will be void if repair is attempted by any unauthorized service providers.

4. **Warranty Period:** Repair or replacement under warranty terms does extend or renew the warranty period.

5. **Warranty Limitations:** This warranty applies only to defects in

materials, design, or workmanship, and does not cover other types of damage or failure.

Battery

CAUTION : Replacement of a battery with an incorrect type that can defeat a safeguard (for example the case of some lithium battery types);

--disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of ibattery,that can result in an explosion;

--leaving a battery in an extremely high temperature surrounding environment that carresult in an explosion or the leakage of flammable liquid or gas;

--a battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

RF Exposure Information

This equipment complies with CE,FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

FCC Compliance Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to

correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EU Regulatory Conformance

Hereby, We, Shenzhen Jimi IoT Co., Ltd. declares that the radio equipment type KL100 is in compliance with the Directive 2014/53/EU.

1. Health (Article 3.1(a) of Directive 2014/53/EU)

Applied Standard (s):

- EN IEC 62311:2020

2. Safety (Article 3.1(a) of Directive 2014/53/EU)

Applied Standard(s):

- EN IEC 62368-1:2020+A11:2020

3. Electromagnetic compatibility (Article 3.1 (b) of Directive 2014/53/EU)

Applied Standard(s):

- ETSI EN 301 489-1 V2.2.3 (2019-11)
- ETSI EN 301 489-17 V3.3.1 (2024-09)
- ETSI EN 301 489-19 V2.2.1 (2022-09)
- ETSI EN 301 489-52 V1.3.1 (2024-11)

4. Radio frequency spectrum usage (Article 3.2 of Directive 2014/53/EU)

Applied Standard(s):

- EN 301 511 V12.5.1(2017-03)
- EN 301 908-1 V15.2.1(2023-01)
- EN 301 908-13 V13.2.1(2022-02)
- EN 300 328 V2.2.2 (2019-07)
- EN 303 413 V1.2.1(2021-04)

The device operates with the following frequency bands and transmitting power:

Frequency bands	Maximum output power
GSM 900	33 dBm
GSM 1800	30 dBm
LTE Band 1	24 dBm
LTE Band 3	24 dBm
LTE Band 7	24 dBm
LTE Band 8	24 dBm
LTE Band 20	24 dBm
LTE Band 28	24 dBm
LTE Band 34	24 dBm
LTE Band 38	24 dBm
LTE Band 40	24 dBm
LTE Band 41	24 dBm
Bluetooth 2402~2480MHz	7 dBm

Maintenance Record

Date		Service Performed By	
Product Model			
IMEI Number			
Failure Description			
Comments			