



SXM LS01

Weight Sensor

User Manual

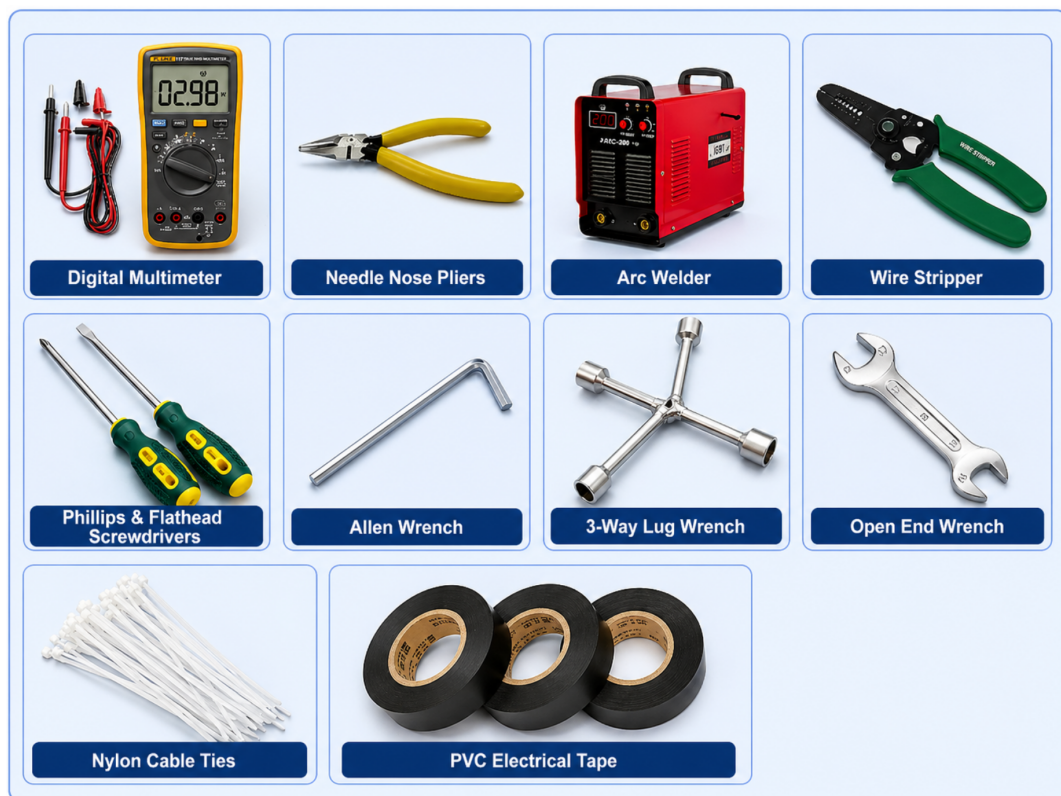
This manual describes the installation, connection and configuration procedures for the SXM LS01 weight sensor. It also includes the recommendations required to ensure proper operation and accurate measurement within the system.

Introduction to the weight sensor system installation

Main components: sensor body and high/low temperature resistant silicone protective tube.

Tools required for installation

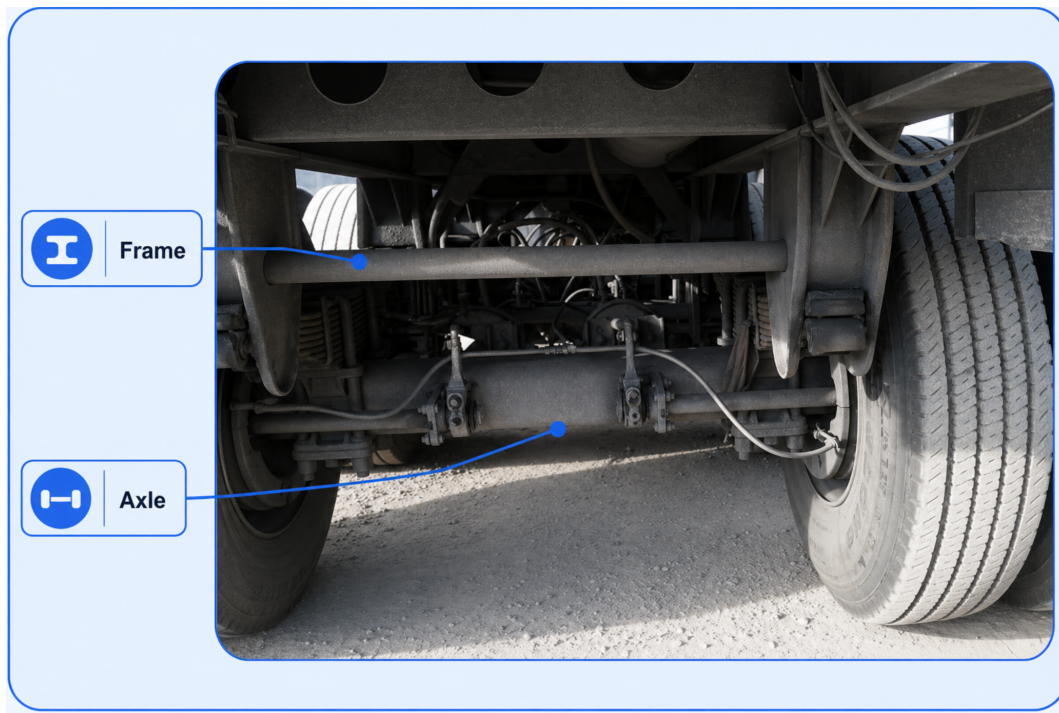
Prepare the following tools: electric welder, multimeter, wire stripper, diagonal pliers, flat-head and Phillips screwdrivers, No. 4 Allen key, No. 10, 12 and 14 socket wrenches or equivalent, electrical tape and cable ties.



Selecting the sensor location

The SXM LS01 vehicle weight sensor determines the vehicle load by measuring the variation in distance between the frame and the axle.

It must be installed on the vehicle frame, preferably near the center of the axle. The steel cable must be fixed to the axle directly below the sensor position.



The following reference diagrams show different vehicle models, with the sensor location indicated on the axle line.



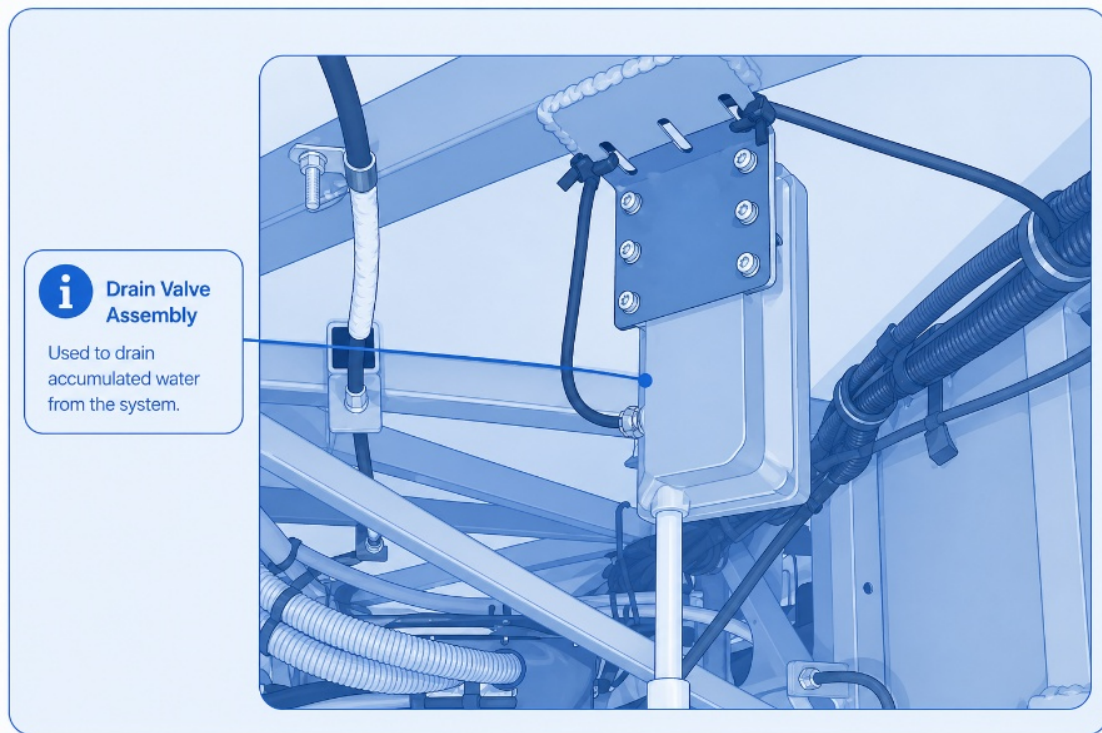
Sensor installation precautions

1. Sensor body

The sensor body must remain vertically upward and must be fixed to the frame using a dedicated mounting bracket. The welding area of the bracket must be kept away from the wiring harness and ventilation ducts.

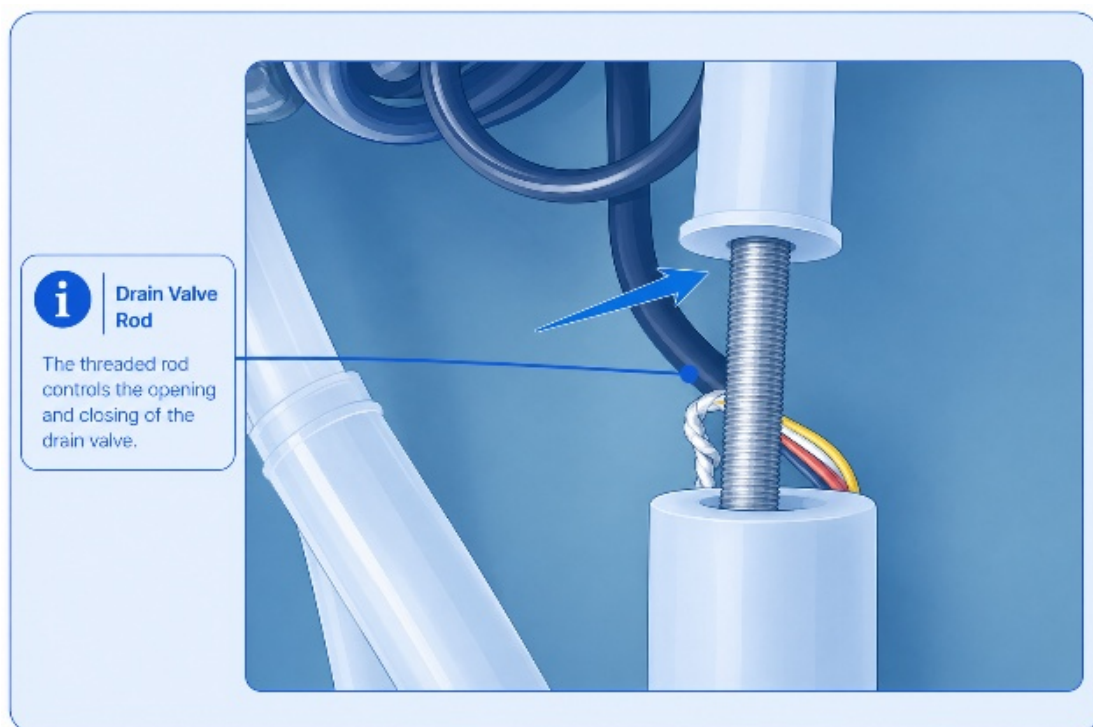
Do not move the sensor during the bracket welding process, because the sensor housing and shielded cable are electrically connected. Incorrect welder grounding may cause current to pass through the sensor and damage it.

The output cable of the waterproof connector must be oriented horizontally upward and fastened with cable ties to prevent loosening. It must also be kept away from moving parts of the vehicle.

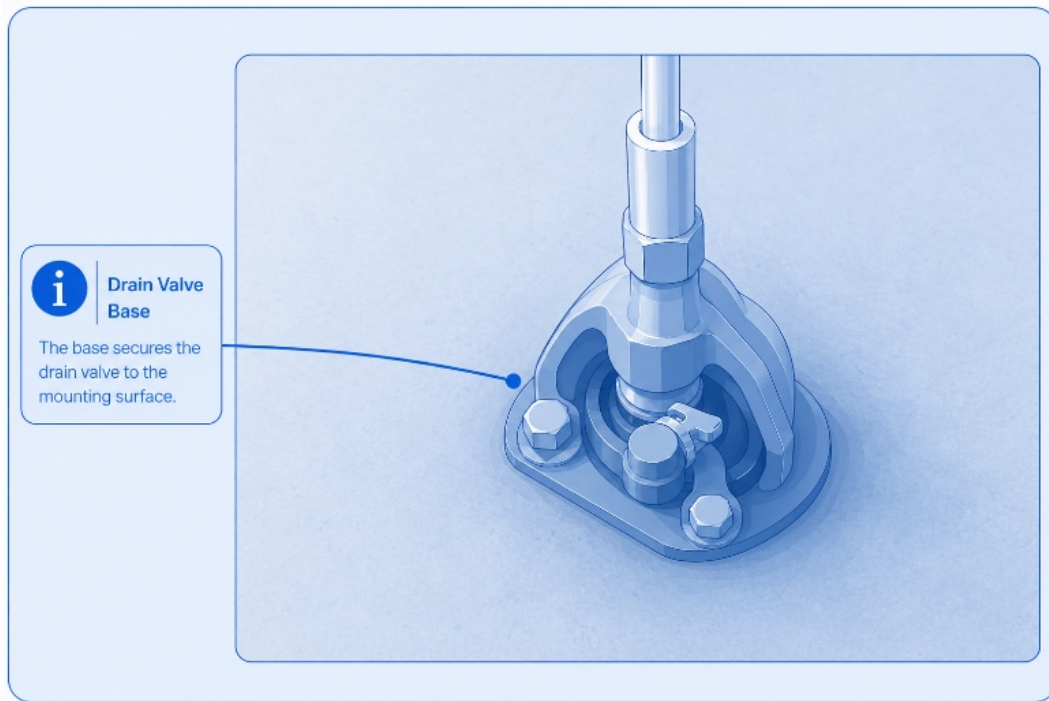


2. Sensor installation

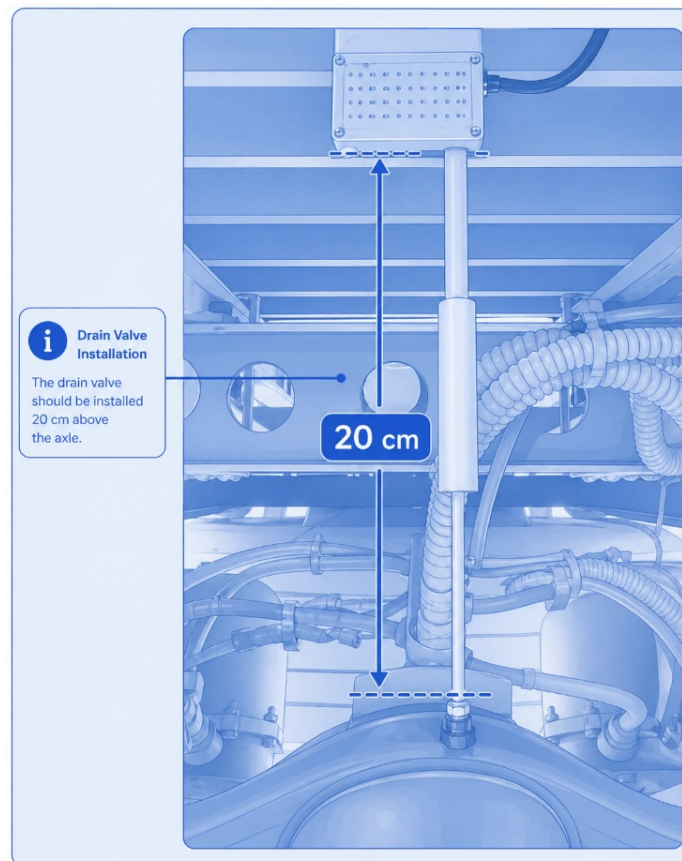
Install the sensor with the vehicle unloaded and on a flat surface. Do not install it on slopes or construction areas. Adjust the pull cable to the correct length and secure it properly. The tension spring is used for protection and must not remain tensioned after installation.



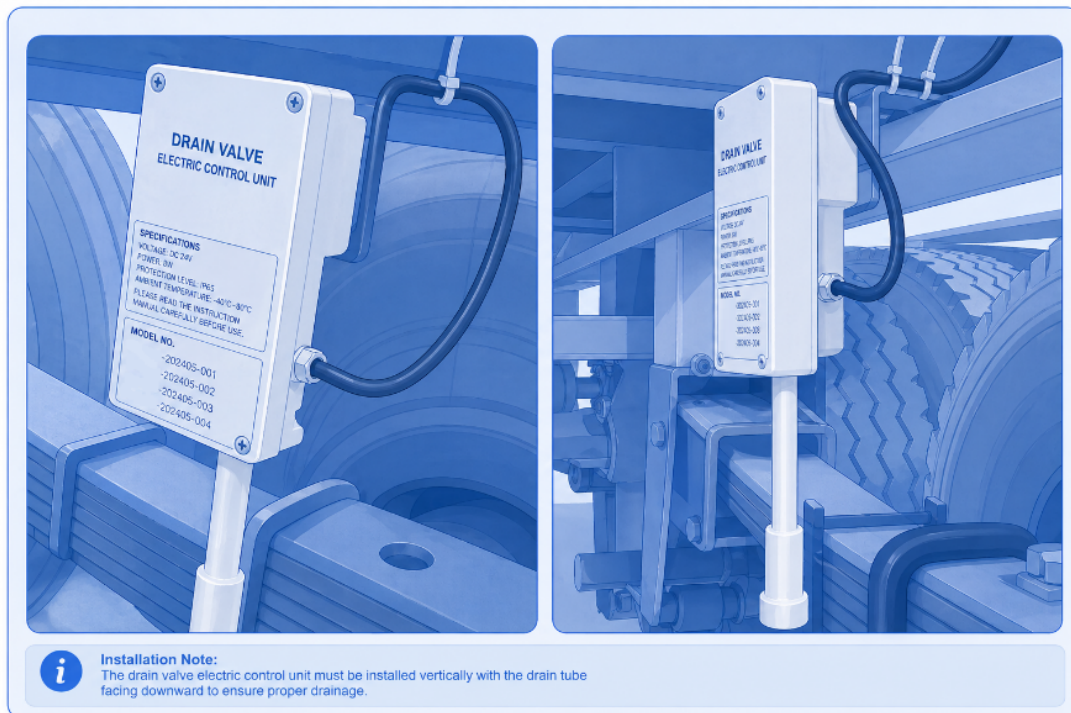
When fixing the steel cable, wrap it firmly around the metal ring at least twice and secure it with the aluminum clamp.



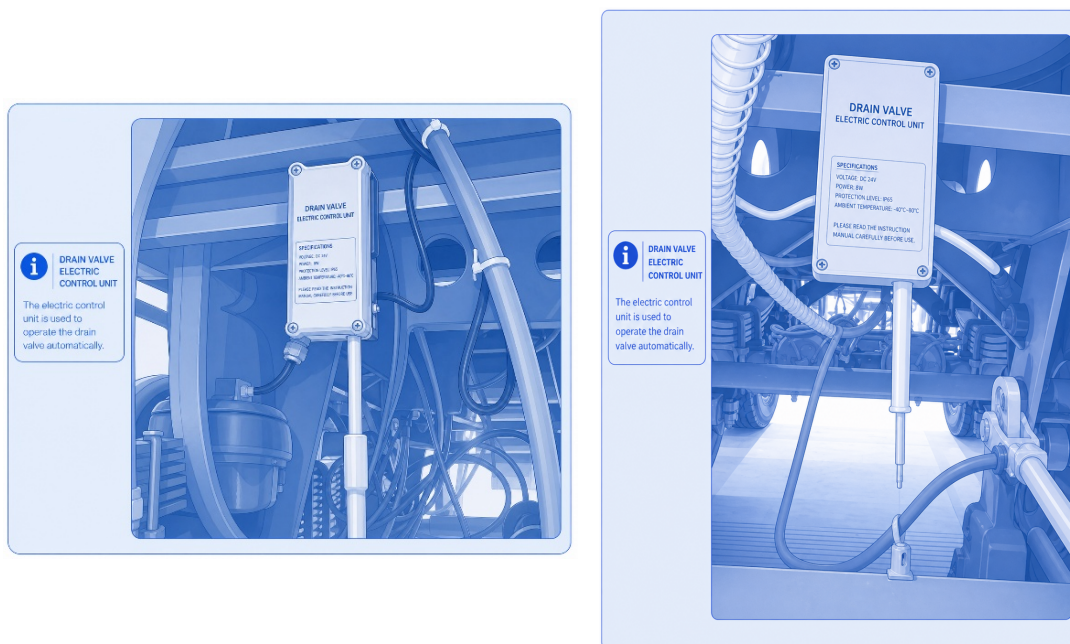
The steel cable must not be bent and must remain in a natural vertical position. After fixing the clamp, verify that the distance between the lower end of the sensor and the lower installation surface is at least 20 cm with the vehicle unloaded.



The sensor body and its wiring must be kept at least 5 cm away from other axle parts and cables to avoid vibration while the vehicle is moving.



Note: The previous image shows a side installation on the vehicle, which is practical for material flow monitoring, although it may be affected by road irregularities. For applications requiring higher measurement accuracy, installation at the center of the upper axle area is recommended. The pull cable must be firmly secured, since even a small variation can affect measurement accuracy and stability.



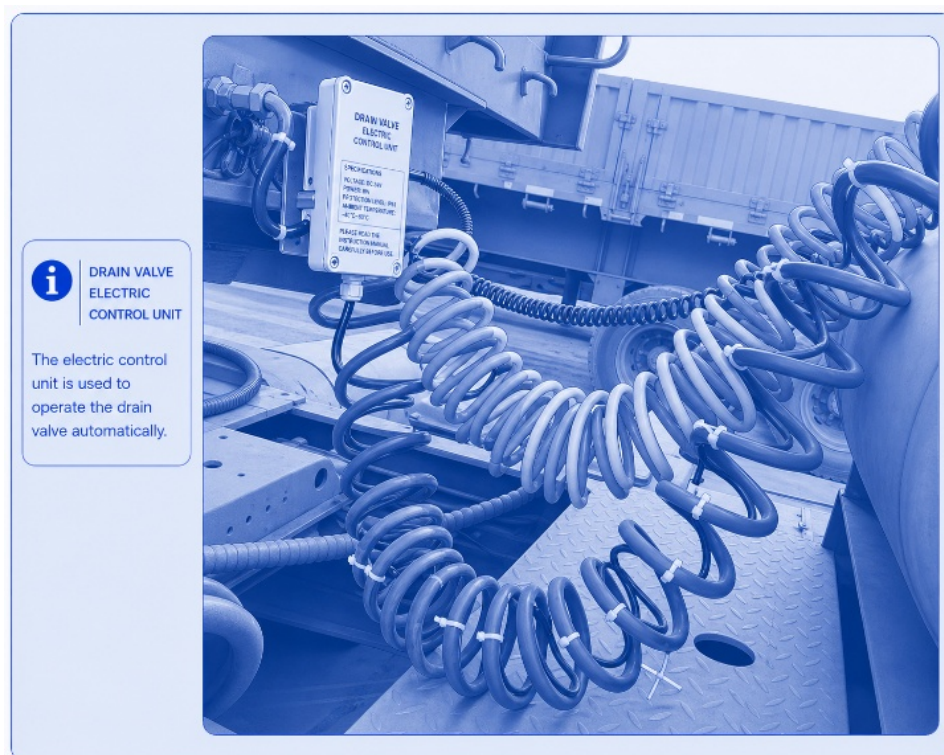
The image above shows the installation location for the trailer.
The following two images show the installation location for the bicycle.



3. Signal cable

Route the signal cable along the wiring harness or vehicle structure, keeping it away from moving parts or areas exposed to stepping, such as the landing gear or hydraulic joints.

Fasten it with cable ties every 30 cm to ensure proper support and to prevent movement, friction and possible signal failures during long-term operation.



The spring cable must be coiled and routed together with the vehicle original wiring, ensuring sufficient length. The connection between the front and rear of the trailer is made through an aviation interface, which facilitates maintenance, repair and annual vehicle inspection.

The connection area must be properly protected with waterproof electrical tape and marked as a fragile element.



4. Output wire definition by model

0 to 5 V output mode (SXM LS01A)

- Red wire: connect to positive power supply.
- Black wire: connect to ground.
- White wire: 0 to 5 V voltage signal output; connect to the corresponding signal line.

RS232 output mode (SXM LS01C)

- Red wire: connect to positive power supply.
- Black wire: connect to ground.
- White wire: RXD input; connect to the vehicle RS232 transmitter (TXD).
- Yellow wire: TXD output; connect to the vehicle RS232 receiver (RXD).

RS485 output mode (SXM LS01D)

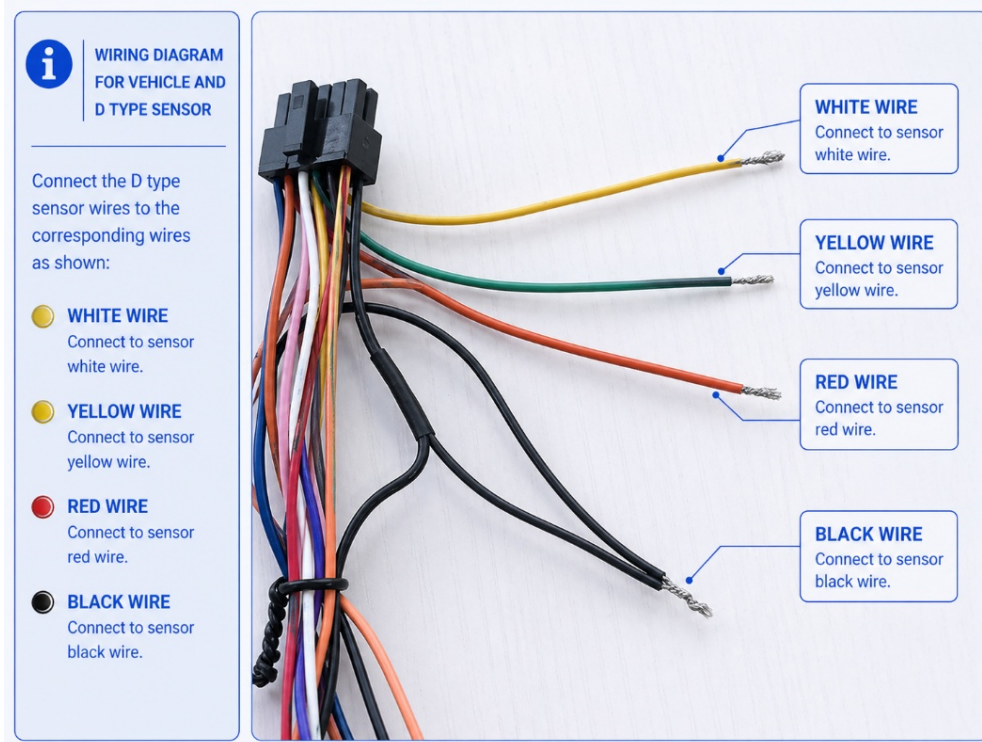
- Red wire: connect to positive power supply.
- Black wire: connect to ground.
- White wire: connect to RS485 A.
- Yellow wire: connect to RS485 B.

5. Positioning system wiring installation

The power cable of the GPS/Beidou positioning terminal must not be connected through a fuse, because it may become loose or disconnected, and it must not be connected to the ACC line.

The positioning device must be installed in a concealed location and fixed securely. The connector must be properly secured to avoid disconnection. The signal cable shield must be safely grounded.

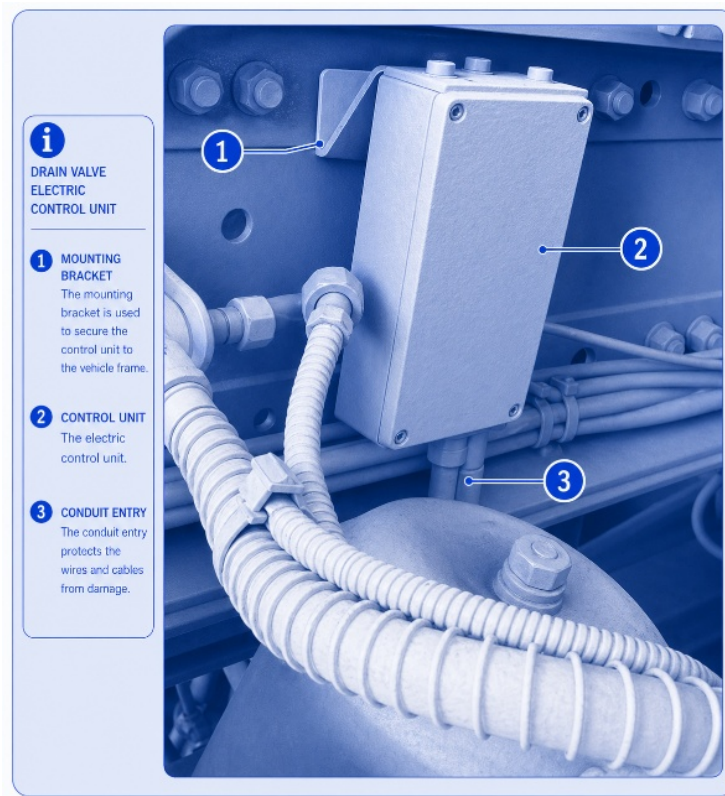
The following figure shows the vehicle and load wiring diagram.



Problems that may occur during installation

Due to the wide variety of vehicles, not all possible cases are described. For specific situations, each installation should be evaluated individually.

In the image below, the sensor bracket is bent and deformed because the lower end is too close to the vehicle body. While driving, vehicle vibration creates vertical movement that causes impacts against the sensor, deforming the bracket and affecting measurement accuracy.



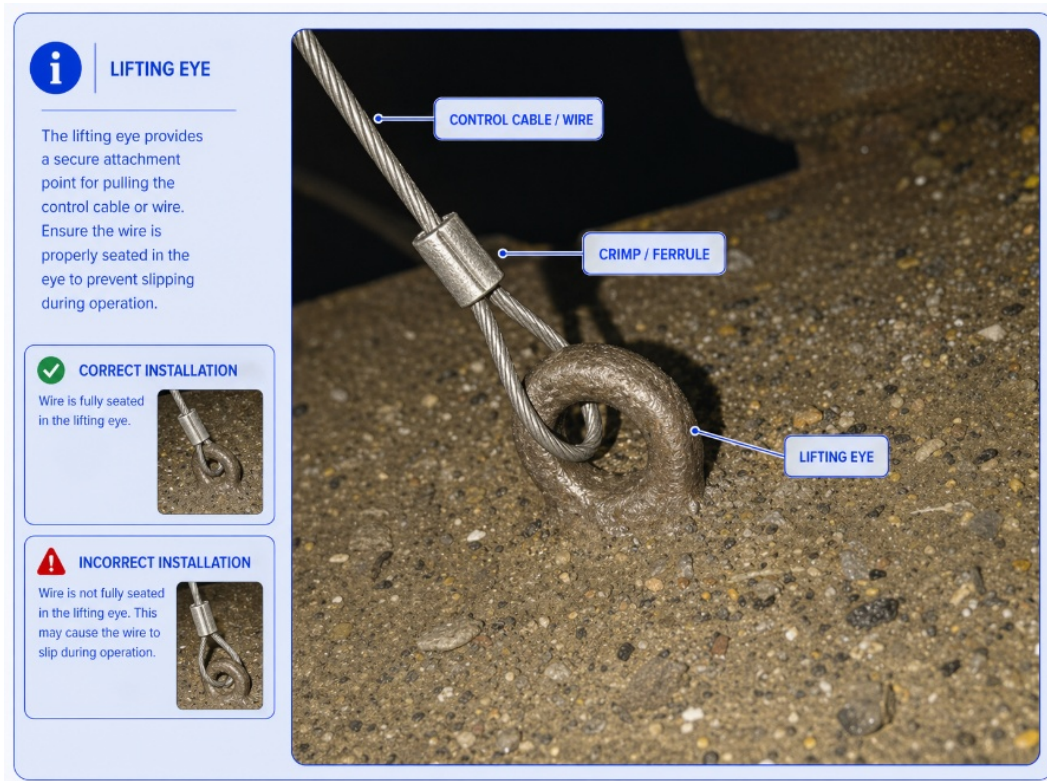
In the image below, the sensor is fixed to the lower tube with a cable, which prevents correct operation and affects measurement accuracy.



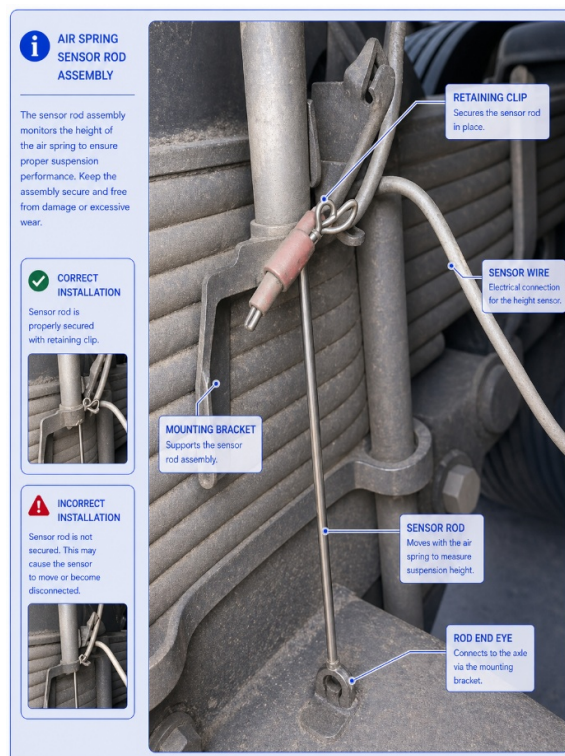
The installation position shown in the image below is too close to the lower end. Under these conditions, the sensor may contact the vehicle structure when the vehicle is loaded and travels over uneven surfaces, affecting its integrity and operation.



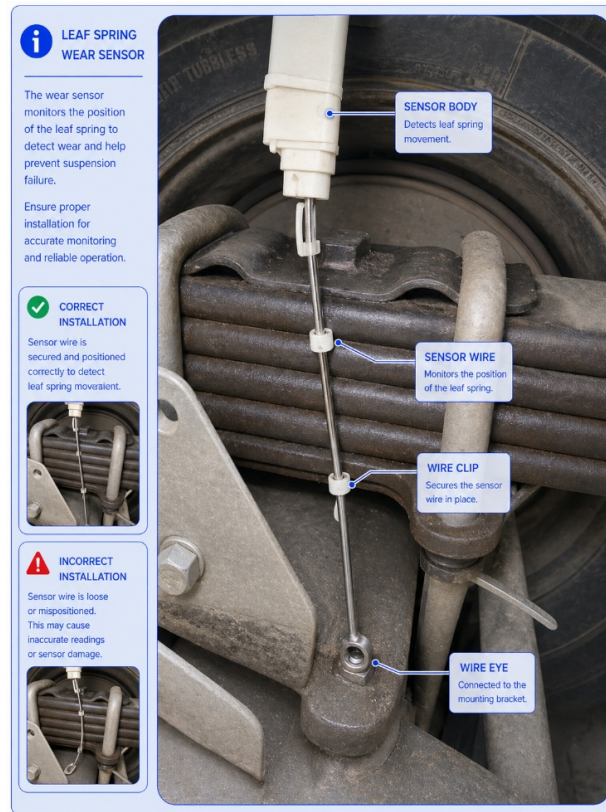
In the following figure, the fixing end of the sensor cable is loose, which may affect measurement accuracy.



In the following figure, the sensor power output interface has a poor termination, which may cause false contacts or even short circuits during long-term operation. In addition, the power cable is not properly secured and vibrates while the vehicle is moving. If it becomes caught on any component, there is a risk of breakage.



In the image below, the cord is not in a vertical position and is inclined, which may affect correct sensor operation.





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Product may vary from description.

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