



Name of vehicle manufacturer

Zhongtong Bus Holding Co., Ltd.

Vehicle model

ZTN

Installation document for alcohol interlocks

Connection schematics

Figure 1 shows a general wiring diagram. When the alcohol test is not performed or the breath test fails, the ECU is in an interrupted state. At this time, the gray cable and the brown cable are disconnected, and the vehicle power system cannot be closed. Only when the equipment detects that the BrAC is lower than the preset limit ($\leq 20\text{mg}/100\text{mL}$, and different detection limit values can be set in different countries and regions), the ECU will be closed. At this time, the gray cable and the brown cable are closed, and the vehicle power system can be closed normally. When the driver operates the ignition switch to the ignition gear, the vehicle power system will complete high-voltage preparation. Figure 2 shows the flow chart of alcohol interlocks, which meets the 3a requirement in EN 50436-7:2016 Annex C.

(Reserved for holes)

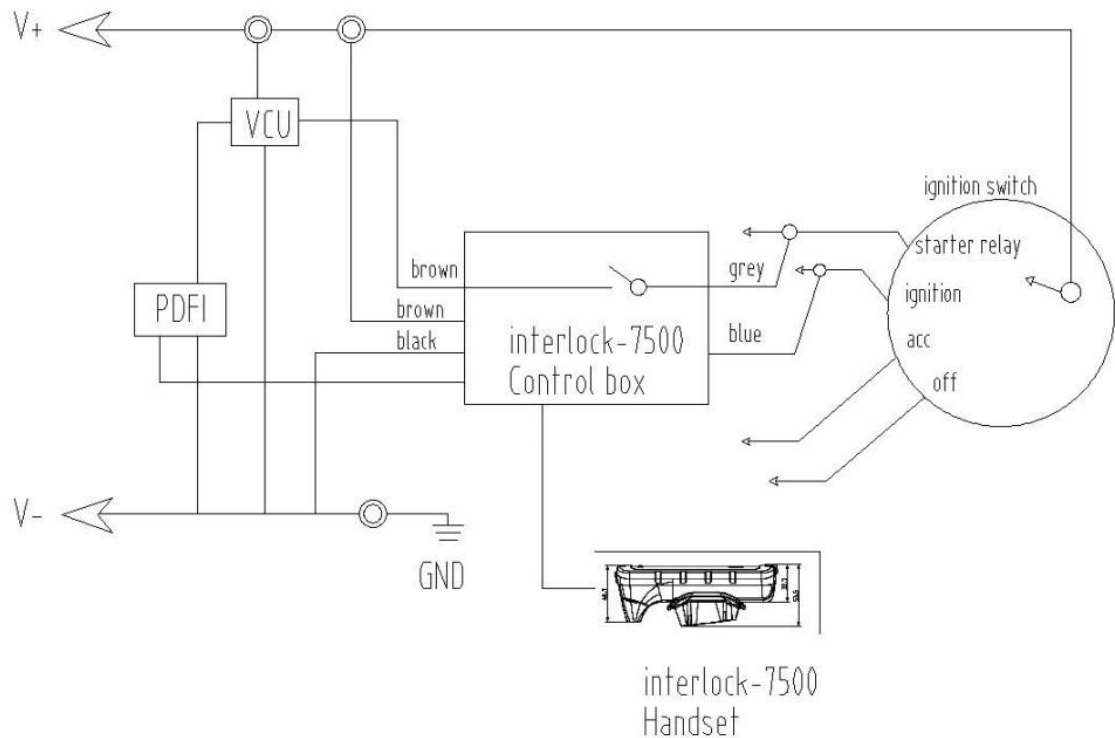


Figure 1

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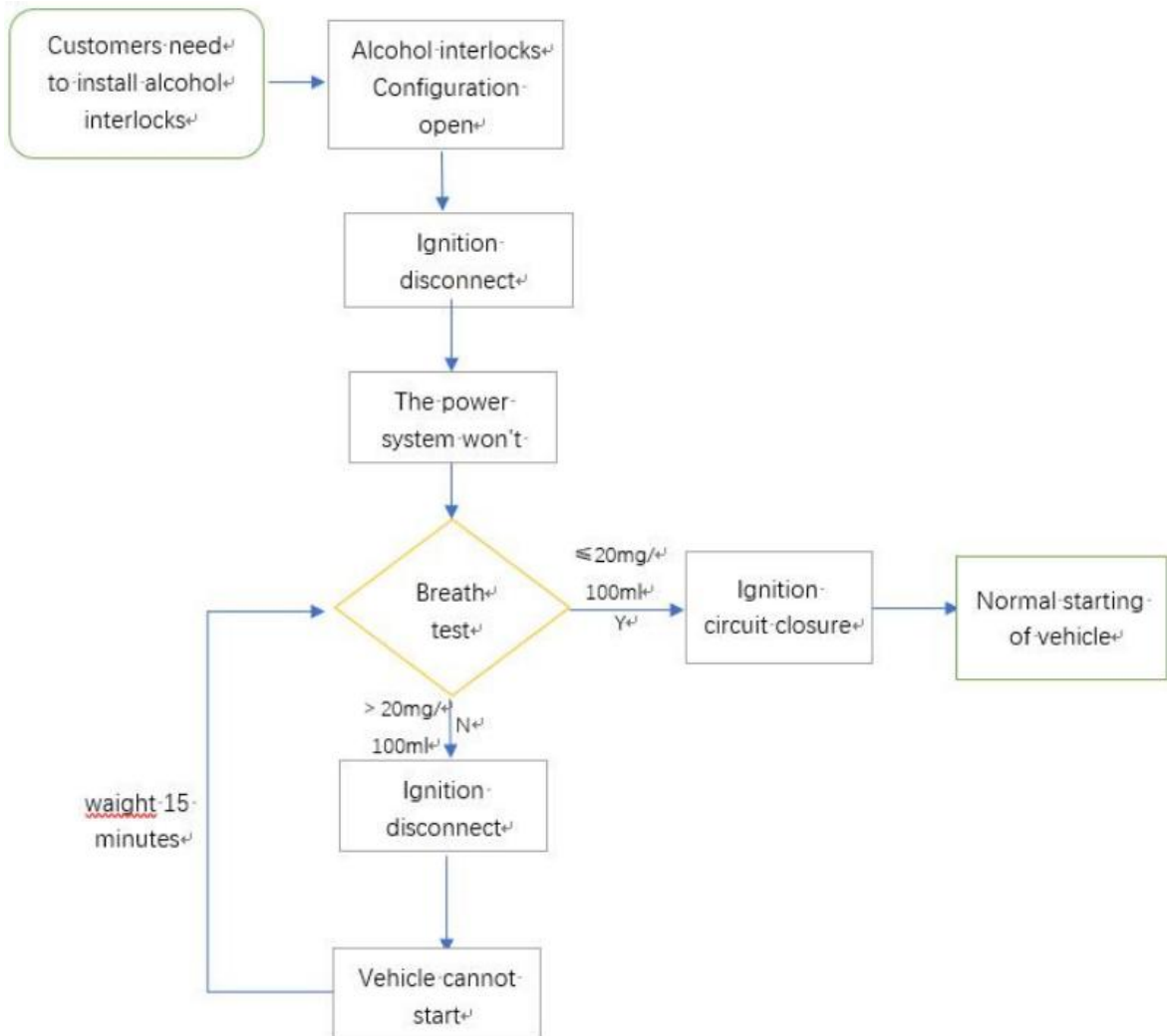


Figure 2

Connection diagram

Figure 3. Connectors connected to the alcohol monitoring device reserved for the end of the vehicle harness. The five terminal definitions are listed in Table 1. Figure 4 shows the wiring harness connector of the product end of the alcohol lock device.

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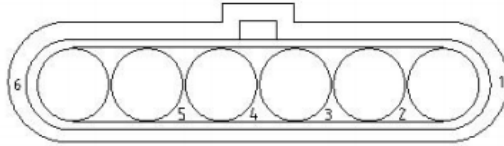


Figure3

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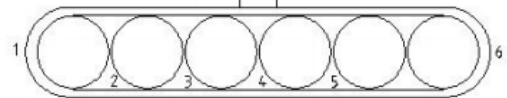


Figure4

Table 1 Interface of the vehicle

	Function	Cable/pin	Position of connection
1	Starting feedback	Pin 1 0.75mm ²	Pin 1 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area
2	Battery feed, 24V, uninterrupted	Pin 2 0.75mm ²	Pin 2 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area
3	Ground	Pin 3 0.75mm ²	Pin 3 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area
4	Ignition 24V	Pin 4 0.75mm ²	Pin 4 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area
5	Control site	Pin 5 0.75mm ²	Pin 5 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area
6	Ignition switch	Pin 6 0.75mm ²	Pin 6 (figure 3) in the connector, the connector is located inside the electric box on the side of the driving area

Table 2 Hardware list

	Information	Material code	Remarks
1	Drager Interlock 7500 alcohol interlock device	3716814	Includes handset and ECU control unit and mouthpiece(3 pieces)
2	Handset holder II	8322610	

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<p><u>Safety risk at installation and items to be considered</u></p> <ol style="list-style-type: none"> 1. This manual is intended for use only by trained technicians having a knowledge of vehicle electronic systems and the unique installation requirements. 2. Disconnect battery earth lead before further work. 3. Fire hazard! A clean and reliable connection between the leads must be ensured! 4. Please be careful not to damage or scratch the access cover when removing it. 5. The ground connection should be made first to prevent any damage to the ECU. 6. It is necessary to avoid connecting handheld devices to high-voltage components and to avoid falling off. 7. The connection between the Handset machine and the control box needs to be fixed to avoid shaking or interfering with the operation of the driver and the passenger. <p><u>Assembly instruction</u></p> <p>Step 1. After parking the bus turn off and break the low-voltage battery.</p> <p>Step 2. Open the frontmost inspection hatch on the left outside of the vehicle with tools(This step is not required for Figure 10).</p> <p>Step 3. Unscrew the four wing nuts, turn down the access cover to expose the access port(Figure 9), or press the two buttons and rotate outside then you can remove the access cover(Figure 10), and find the connector shown in Figure 5.</p> <p>Step 4. Connect the connector(Figure 6) of the control box with the connector shown in Figure 5 and install the control box. To install the control box on the vehicle, use adhesive buckles or cable ties or bolts. We can install the control box in the reserved space of the side electrical box (Figure 9 or 10).</p> <p>Step 5. Mount the handset bracket in an accessible location for the driver. Make certain that it does not obstruct any of the vehicle controls. The handset bracket can be mounted on the dashboard of the vehicle using adhesive buckle straps or using screws. If screws are being used, attach the handset bracket to a flat part. However, it is necessary to communicate with customers in advance to avoid customer complaints due to damage to the interior.</p> <p>Step 6. A wire hole is opened at the front end of the electric box at the driving area side of the bus, and a rubber ring is installed to protect the cable. Insert the cable of the handheld device into the control box through this hole (Figure 8), and insert the other end into the handheld device, and put the device in the bracket.</p> <p>Step 7:</p> <ul style="list-style-type: none"> - Restore the access cover and fasten it with wing nuts, and close the left front inspection hatch (Figure 9). or - Put the access cover back and press the button to ensure its reliable installation(Figure 10). <p>Step 8. After completing all the above steps, reconnect the low-voltage battery, start the vehicle and try to close the power system of the whole vehicle. At this time, unless the alcohol test is passed, the power system cannot complete the high-voltage preparation.</p>				
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Modification of vehicle operation

1. After you have completed all the steps of Assembly instruction, representative the vehicle have already have equip the alcohol monitoring systems. Before passing the alcohol test or failing the test, The driver can't ignite and power on normally, and you can't start the high-voltage power system and high-voltage equipment of the whole vehicle at this time.
2. The alcohol interlock device may remain on standby in 30minutes after the vehicle is turn off, at which point the alcohol interlock device has less operating current so do not worry about the SOC (the device generally sleeps in 30 minutes).
3. For other tips from the handset and control box, please refer to the instruction manual for the alcohol interlock device.

Mounting position of alcohol interlock handset and the alcohol interlock control-unit

1. About the installation position of the control box on vehicle, the installation position of the control box is reserved, it is inside the electric box on the side of the driving area. We can install the control box in this space through the access port in the left front hatch outside or inside the vehicle.
2. About the installation position of the handset You can choose to place the handset on the A-pillar on the left front side of the driver's area by using the adhesive tape or using the screw, so that the driver can use it when necessary.

Example with pictures



Figure 5



Figure 6

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Figure 7



Figure 8

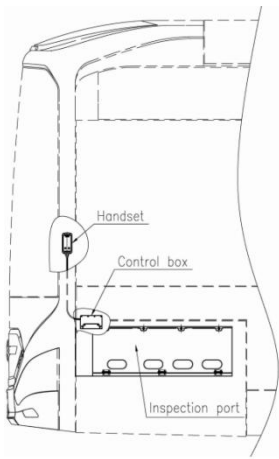


Figure 9

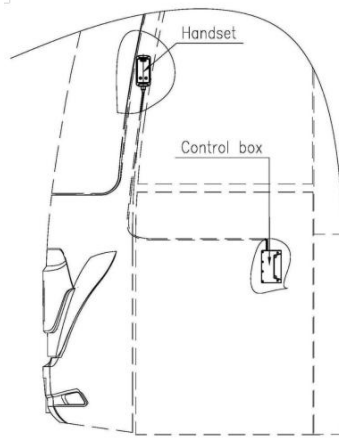


Figure 9

OR

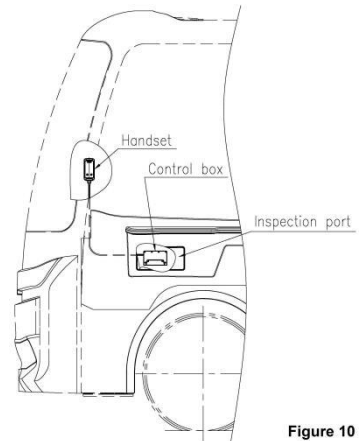


Figure 10

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