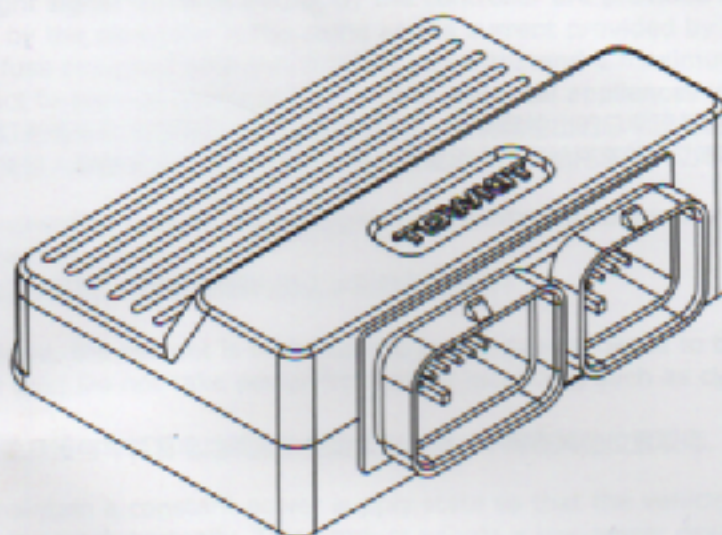


TOWKIT

T2CAN multifunctional trailer harness kit assembly instructions

T2can多功能拖车线束套件总成 (说明书)



T2CAN/T2CANFD
Rev: e1.5

(Read This First)

(使用请务必阅读该产品说明书)
专利产品，侵权必究

车辆在OTA升级前，请务必断开本控制器保险或电源，
以免OTA升级失败！

Before the vehicle undergoes an OTA(Over-The-Air) upgrade, Please ensure
to disconnect the fuse or power supply of this controller.
To avoid OTA upgrade failure!

Important matters Before installation, it is necessary to read carefully 重要事项，安装前必须仔细阅读

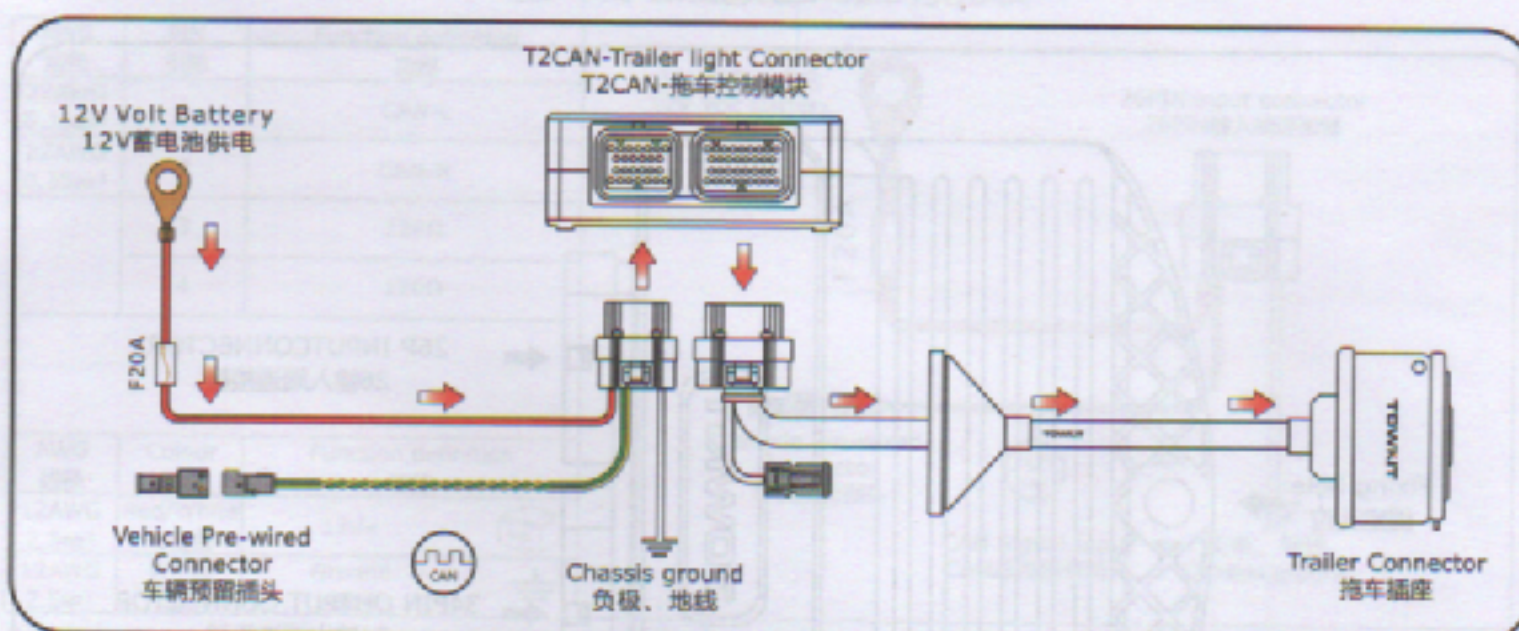
1. This product is only suitable for vehicles with a 12V battery system.
本产品仅适用于12V蓄电池系统的车辆。
2. **Warning:** All power and light signal currents output by the controller are provided by the input power line, and the total current output by the controller is the same as the current provided by the input power line. The default power cord and fuse equipped with this product can withstand a maximum current of 20A. Please do not use this product to provide power to high-power electrical appliances in trailers!
警告: 控制器输出所有的电源及灯光信号电流均由输入端的电源线提供，控制器输出的总电流与输入端电源线提供的电流相同。本产品默认配备的电源线及保险丝最大能够承受的电流为20A，请不要使用本产品给拖车的大功率电器提供供电！
3. Please do not install this controller outside the passenger compartment to avoid water ingress inside the controller affecting its service life!
请不要将本控制器安装在乘员舱以外区域，以免控制器内部进水影响使用寿命！
4. When the controller is loaded, the current is high and the power supply needs to be directly connected to the vehicle battery or main fuse box; Do not take power from other locations, such as cigarette lighters, key switches, etc.
控制器带载时电流较大，电源需要直接与车辆蓄电池或者主保险盒相连接；不得在其他位置取电，如点烟器、钥匙门开关等位置。
5. The controller needs to maintain a constant power supply state so that the vehicle lights can be turned on at any time and the controller can work normally. This product adopts a low-power design, so there is no need to worry about battery power consumption.
控制器需要保持常供电状态，以便在任何时候开启车辆灯光，控制器可以正常工作。本产品采用低功耗设计，无需担心蓄电池电量消耗。
6. When wiring, the wire harness should be fixed with zip ties and should not rub against other parts of the vehicle body; Keep away from heat sources such as engine compartments and exhaust pipes.
走线、布线时线束需使用扎带固定，不得与车身其他部件相互摩擦；并远离热源（如发动机舱、排气管）等位置。

Catalogue

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安装需要准备的常用工具

Schematic diagram of working principle 工作原理图



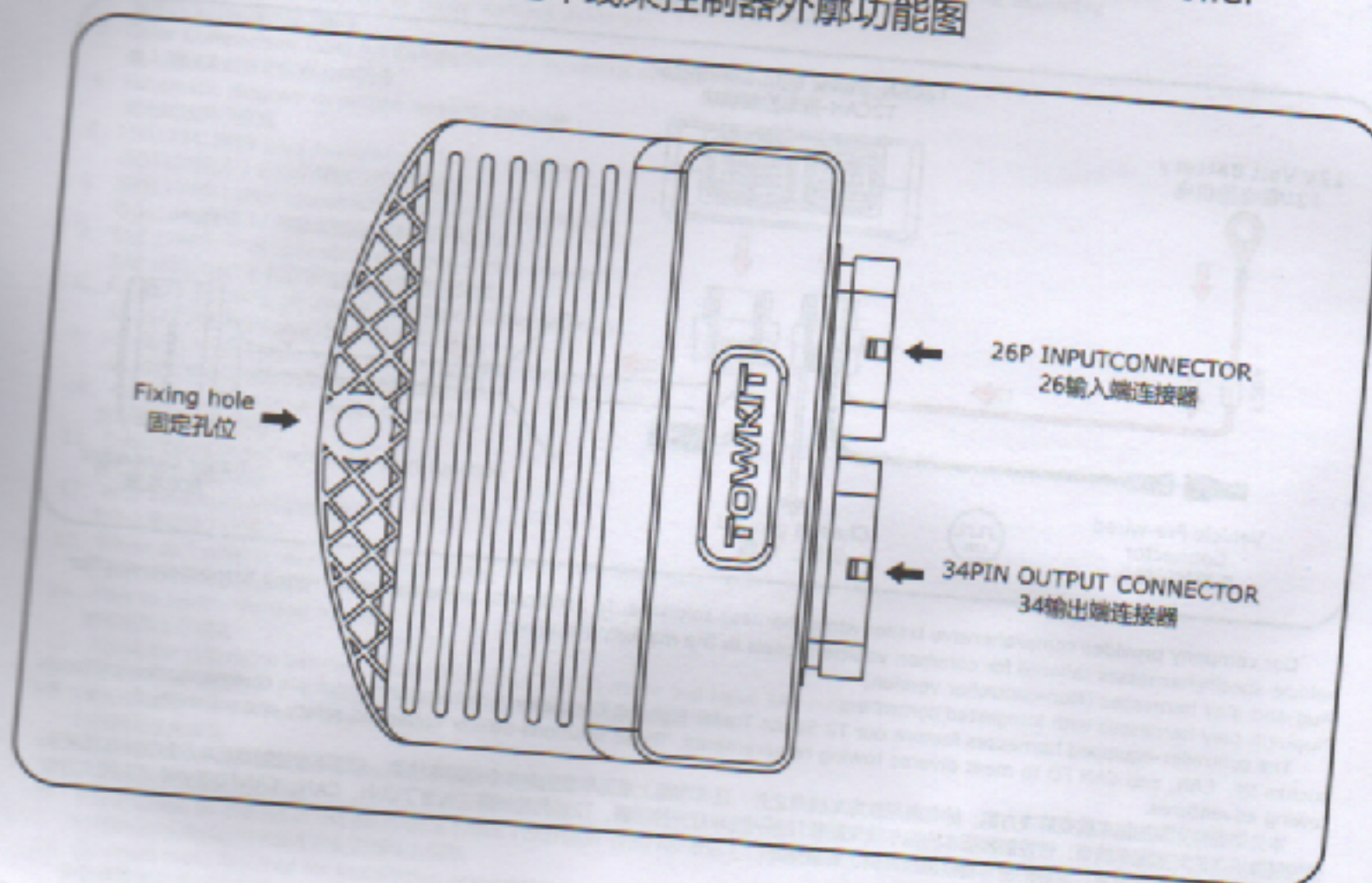
Our company provides comprehensive trailer wiring harness solutions. In addition to universal trailer wiring harnesses, we offer vehicle-specific harnesses tailored for common vehicle models in the market, including:

- Plug-and-play harnesses (Non-controller version)
- Plug-and-play harnesses with integrated controllers

The controller-equipped harnesses feature our T2 Series Trailer Lighting Controller, which supports multiple communication protocols such as IN, CAN, and CAN FD to meet diverse towing requirements. These solutions deliver enhanced safety and reliability for your RV towing adventures.

本公司拥有完整的拖车线束解决方案: 除有通用款拖车线束之外, 还有市面上常见车型的专车专用拖车线束。包括不带控制器版本的对插拖车线束及带控制器版本的对插拖车线束; 带控制器版本的拖车线束配备T2系列拖车灯光控制器, T2系列控制器还包含了以IN、CAN、CANFD等多种通讯技术方案的产品, 满足用户拖挂需求。为您的房车拖挂旅行提供了安全保障!

Outline functional diagram of trailer lighting controller 拖车线束控制器外廓功能图

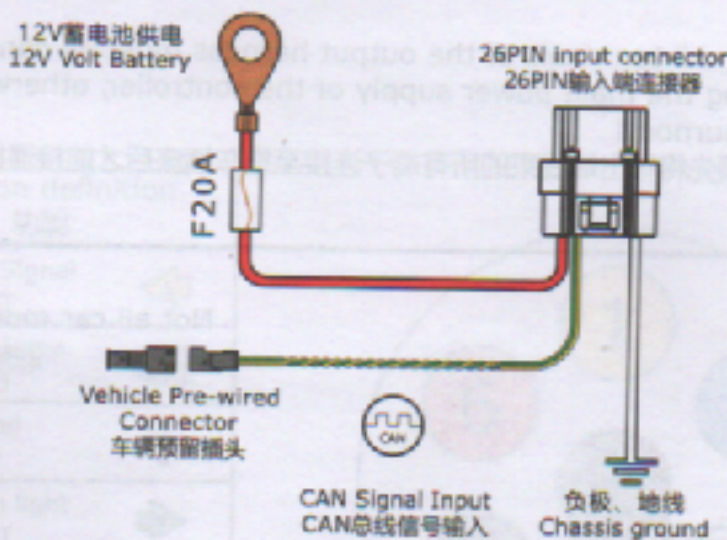


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Function table corresponding to input wire color 输入端电线颜色对应功能表

AWG 线径	PIN 引脚	Function definition 功能
22AWG 0.35mm ²	1	CAN-L
22AWG 0.35mm ²	2	CAN-H
	3	120Ω
	4	120Ω

AWG 线径	Colour 颜色	Function definition 功能
12AWG 2.5mm ²	Red/White 红白色	12V+
12AWG 2.5mm ²	White 白色	Ground 地线



Proper grounding is essential for the trailer wiring harness to function correctly. The ground wire must be attached to an unpainted screw stud on the vehicle body. If no suitable grounding point is available, connect the ground wire directly to the battery's negative terminal.

Note:

The reverse light and rear fog light wiring can be optionally installed based on the trailer's requirements. If the trailer lacks these functions, the corresponding wires may remain unconnected.

Special Feature: This product includes a soft-start function for the trailer's rear fog light (RFL), enabling the trailer's rear fog light to activate even if the tow vehicle's rear fog light circuit is not connected. For details, refer to **Page 11** of this manual.

良好的接地是拖车线束工作的必要条件。地线必须安装在车身无油漆喷涂的螺丝柱上才能正常工作。如果找不到合适的接地点，请将地线直接接至蓄电池负极上。

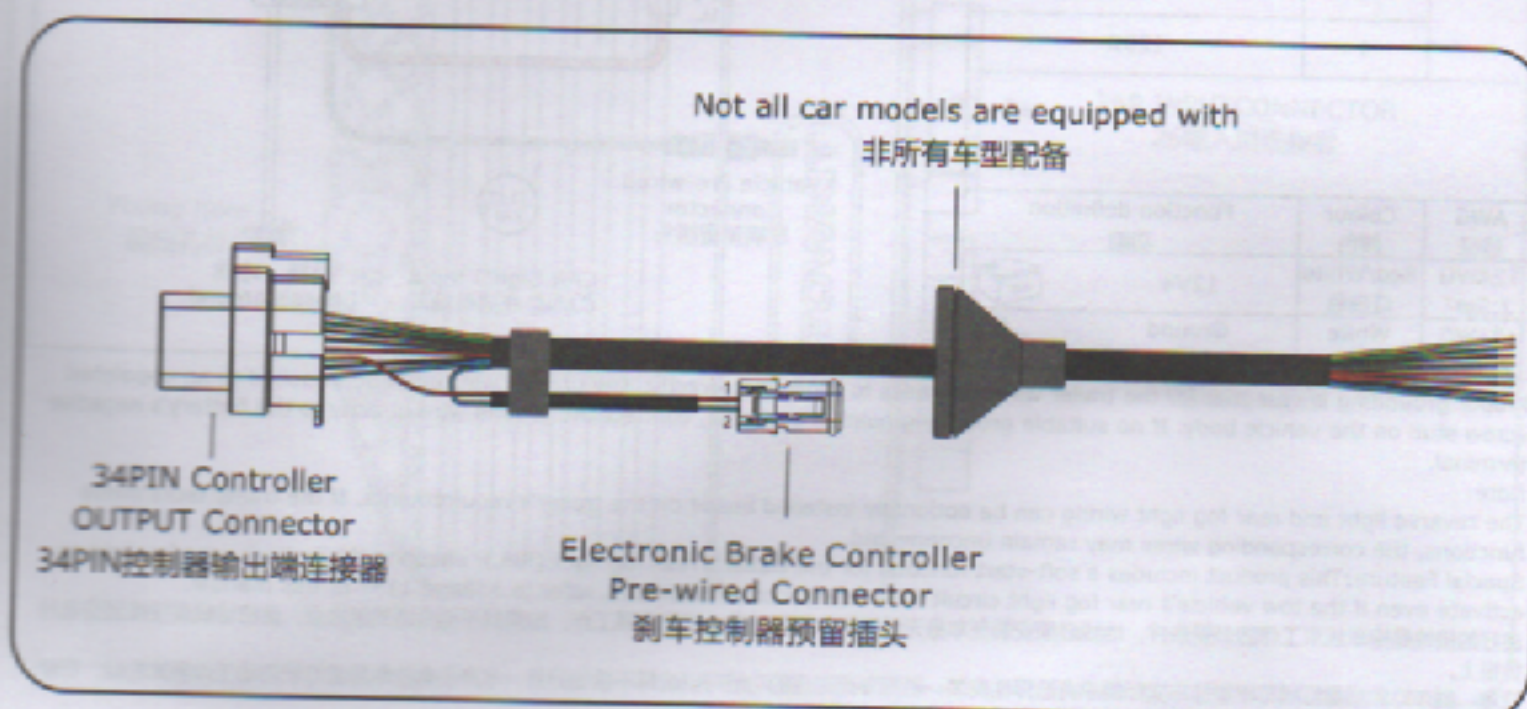
注意：倒车灯和后雾灯线可根据挂车实际需求有选择性安装；若拖车无对应的功能可以选择不接线另外，本产品有挂车后雾灯软启动工作模式功能，在牵引车不接后雾灯线也可以开启拖车的后雾灯功能，详见本说明书第 11 页。

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Schematic diagram of output cable harness 输出端线束示意图

Warning: All terminals of the output harness must be connected to the trailer connector before connecting the main power supply of the controller, otherwise there is a risk of short circuit and product burnout!

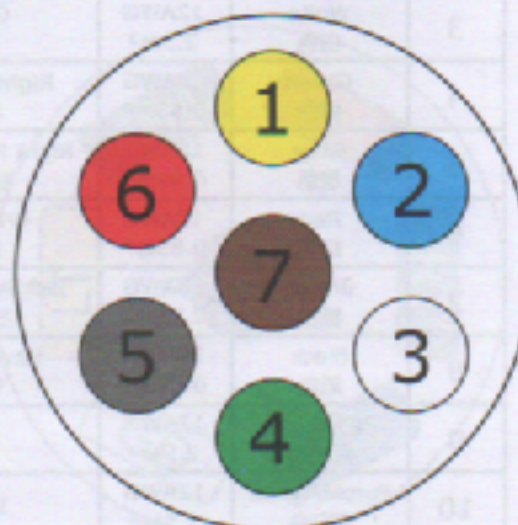
警告: 必须先将输出端线束的所有端子连接至拖车插座后才能接通控制器的总电源保险, 否则有短路风险造成产品烧毁!



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ISO1724 Connector Pin Function Definition 欧式 7 芯插座功能布局示意图

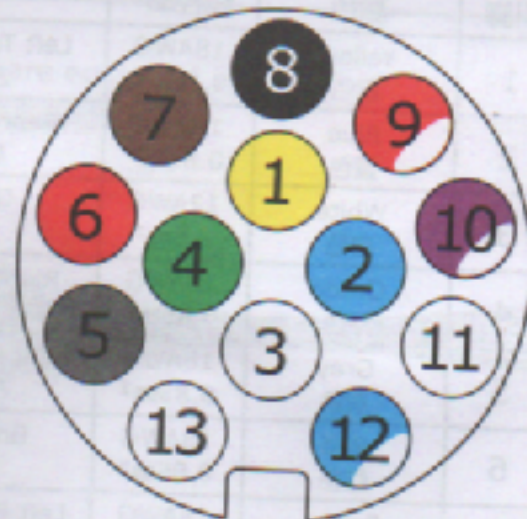
PIN 引脚	Colour 颜色	AWG 线径mm ²	Function definition 功能
1	Yellow 黄色	18AWG 0.85mm ²	Left Turn Signal 左转灯
2	Blue 蓝色	18AWG 0.85mm ²	Rear fog lamp 后雾灯
3	White 白色	12AWG 2.5mm ²	Ground 地线
4	Green 绿色	18AWG 0.85mm ²	Right turn light 右转灯
5	Grey 灰色	18AWG 0.85mm ²	Right Position light 右示宽灯
6	Red 红色	18AWG 0.85mm ²	Brake light 刹车灯
7	Brown 棕色	18AWG 0.85mm ²	Left Position light 左示宽灯



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ISO11446 Connector Pin Function Definition 欧式 13 芯插座功能布局示意图

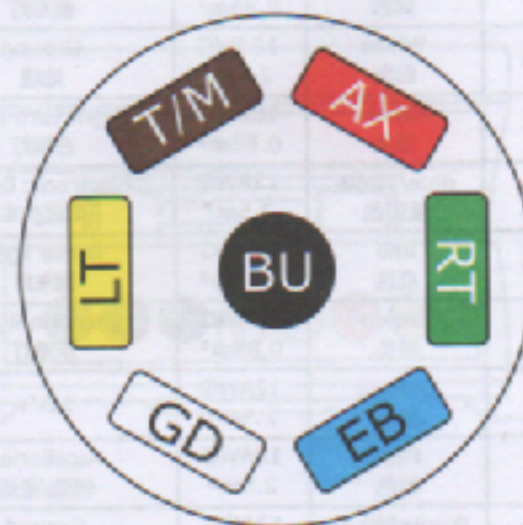
PIN 引脚	Colour 颜色	AWG 线径mm ²	Function definition 功能
1	Yellow 黄色	18AWG 0.85mm ²	Left Turn Signal 左转灯
2	Blue 蓝色	18AWG 0.85mm ²	Rear fog lamp 后雾灯
3	White 白色	12AWG 2.5mm ²	Ground 地线
4	Green 绿色	18AWG 0.85mm ²	Right turn light 右转灯
5	Grey 灰色	18AWG 0.85mm ²	Right Position light 右示宽灯
6	Red 红色	18AWG 0.85mm ²	Brake light 刹车灯
7	Brown 棕色	18AWG 0.85mm ²	Left Position light 左示宽灯
8	Black 黑色	18AWG 0.85mm ²	Reverse light 倒车灯
9	Red/White 红白色	12AWG 2.5mm ²	12V+
10	Purple/White 紫白色	12AWG 2.5mm ²	12Vacc
11	White 白色	12AWG 2.5mm ²	Ground 地线
12	Blue/White 蓝白色	12AWG 2.5mm ²	Electronic Brake 电磁刹车
13	White 白色	12AWG 2.5mm ²	Ground 地线



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SAE J2863 Connector Pin Function Definition 美式 7 芯插座功能布局示意图

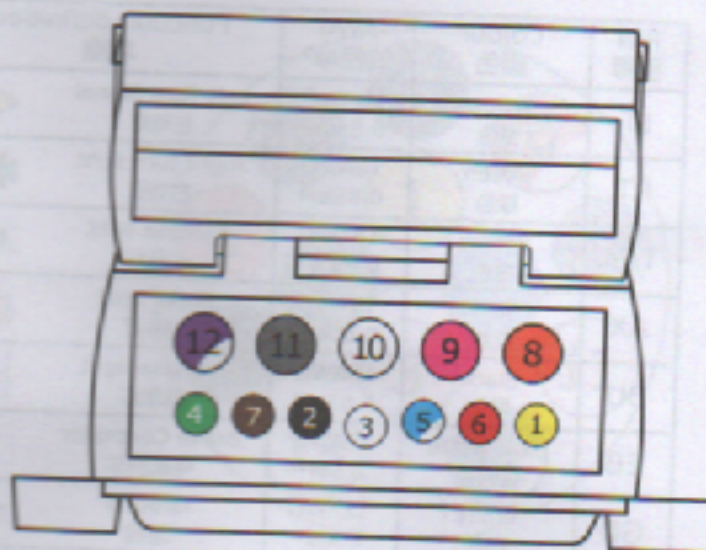
PIN 引脚	Colour 颜色	AWG 线径mm ²	Function definition 功能
LT	Yellow 黄色	18AWG 0.85mm ²	Left Turn Signal 左转灯
RT	Green 绿色	18AWG 0.85mm ²	Right turn light 右转灯
T/M	Brown 棕色	18AWG 0.85mm ²	Position light 示宽灯
AX	Red 红色	18AWG 0.85mm ²	Brake light 刹车灯
BU	Black 黑色	18AWG 0.85mm ²	Reverse light 倒车灯
EB	Blue/White 蓝白色	12AWG 2.5mm ²	Brake Controller 电磁刹车
GD	White 白色	12AWG 2.5mm ²	Ground 地线



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AS 4177.5 Connector 12Pin Function Definition 澳式 12芯插座功能布局示意图

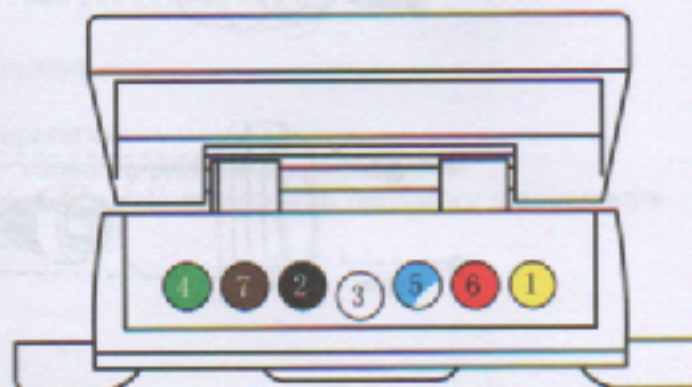
PIN 引脚	Colour 颜色	AWG 线径mm ²	Function definition 功能
1	Yellow 黄色	18AWG 0.85mm ²	Left Turn Signal 左转灯 
2	Black 黑色	18AWG 0.85mm ²	Reverse light 倒车灯 
3	White 白色	12AWG 2.5mm ²	Ground 地线 
4	Green 绿色	18AWG 0.85mm ²	Right turn light 右转灯 
5	Blue/White 蓝白色	12AWG 2.5mm ²	Electronic Brake 电磁刹车 
6	Red 红色	18AWG 0.85mm ²	Brake light 刹车灯 
7	Brown 棕色	18AWG 0.85mm ²	Position light 示宽灯 
8	Orange 橙色	12AWG 2.5mm ²	12V+
9	Pink 粉色	12AWG 2.5mm ²	Auxiliaries 辅助/备用
10	Purple/White 白色	12AWG 2.5mm ²	Ground 地线 
11	Grey 灰色	18AWG 0.85mm ²	Rear fog lamp 后雾灯 
12	Purple/White 紫白色	12AWG 2.5mm ²	Auxiliaries 辅助/备用



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AS 4177.5 Connector 7Pin Function Definition 澳式 7 芯插座功能布局示意图

PIN 引脚	Colour 颜色	AWG 线径mm ²	Function definition 功能
1	Yellow 黄色	18AWG 0.85mm ²	Left Turn Signal 左转灯 
2	Black 黑色	18AWG 0.85mm ²	Reverse light 倒车灯 
3	White 白色	12AWG 2.5mm ²	Ground 地线 
4	Green 绿色	18AWG 0.85mm ²	Right turn light 右转灯 
5	Blue/White 蓝白色	12AWG 2.5mm ²	Electronic Brake 电磁刹车 
6	Red 红色	18AWG 0.85mm ²	Brake light 刹车灯 
7	Brown 棕色	18AWG 0.85mm ²	Position light 示宽灯 



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Why switch working mode 为什么要切换工作模式

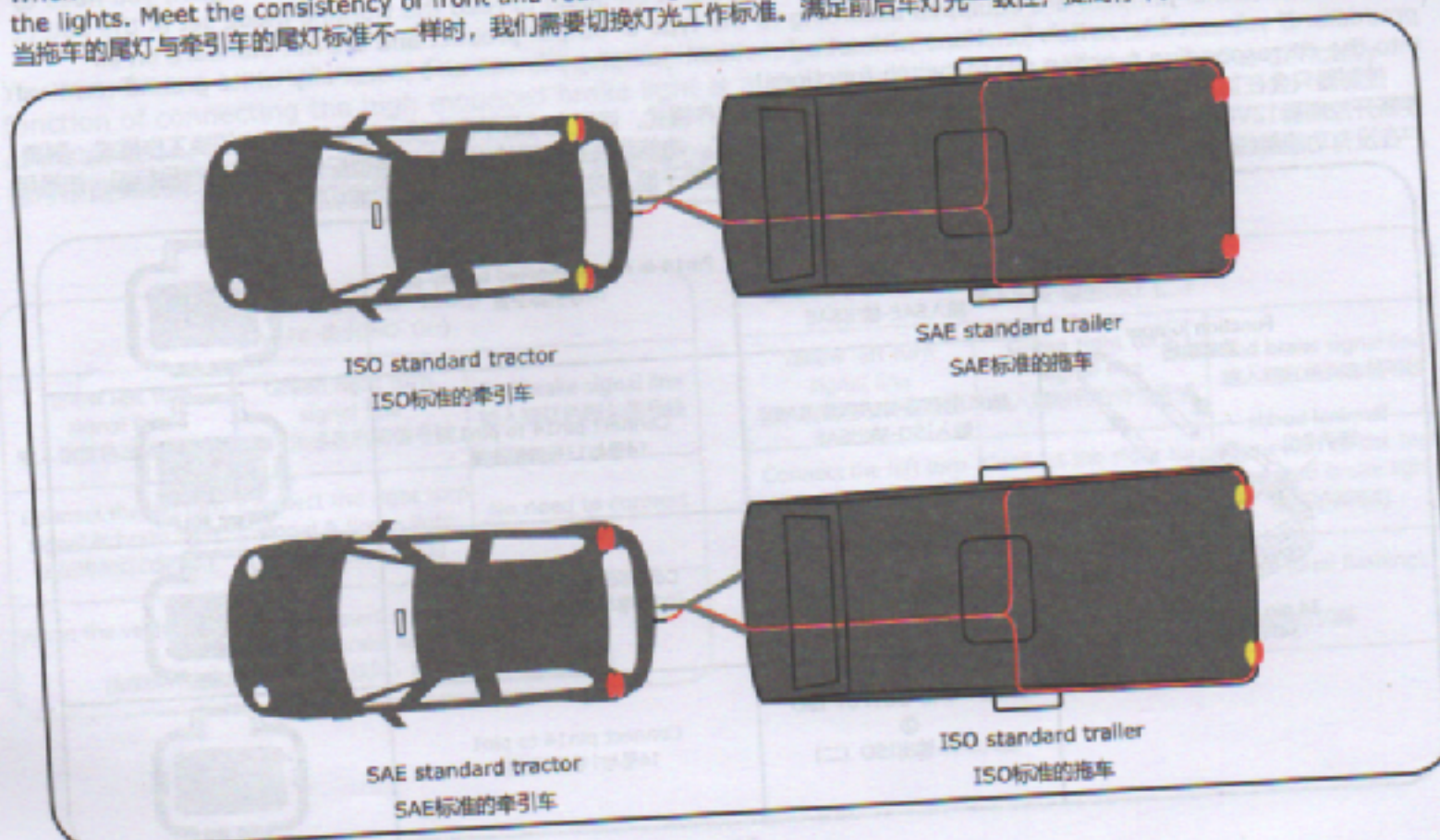
The following are the standard differences between the turn signals and brake lights of vehicles in different countries and regions.
以下是不同国家地区的车辆转向灯与刹车灯部分的标准区别:

Europe欧洲 ECE R48 (ISO Standard)	Turn lamp 转向灯	The turn signal is an independent light source with an amber color, and the flashing light source is the function of the turn signal. 转向灯为独立光源, 颜色为琥珀色, 光源闪烁为转向灯功能。
	Brake lamp 刹车灯	The brake light is an independent light source with a bright red color. The function of the brake light is to keep the light source constantly on. 刹车灯为独立光源, 颜色为高亮红色, 光源常亮为刹车灯功能。
China中国 GB4785 (ISO Standard)	Turn lamp 转向灯	The turn signal is an independent light source with an amber color, and the flashing light source is the function of the turn signal. 转向灯为独立光源, 颜色为琥珀色, 光源闪烁为转向灯功能。
	Brake lamp 刹车灯	The brake light is an independent light source with a bright red color. The function of the brake light is to keep the light source constantly on. 刹车灯为独立光源, 颜色为高亮红色, 光源常亮为刹车灯功能。
America美国 FMVSS108 (SAE Standard)	Turn lamp 转向灯	The turn signal and brake light share the same set of light sources, which are red in color. The flashing light source is the function of the turn signal. 转向灯和刹车灯共用同一组光源, 颜色为高亮红色, 光源闪烁为转向灯功能。
	Brake lamp 刹车灯	The turn signal and brake light share the same set of light sources, which are red in color. The brake light function is when the light source is constantly on. 转向灯和刹车灯共用同一组光源, 颜色为高亮红色, 光源常亮为刹车灯功能。

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When do I need to switch working modes 什么时候需要切换工作模式

When the tail lights of the trailer are different from those of the tractor, we need to switch the working standards of the lights. Meet the consistency of front and rear car lights, improve driving safety, and reduce accident rates.
当拖车的尾灯与牵引车的尾灯标准不一样时, 我们需要切换灯光工作标准。满足前后车灯光一致性, 提高行车安全, 降低事故发生率。



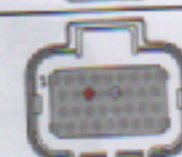
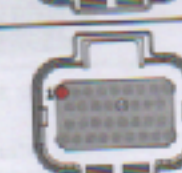
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How to switch working modes

怎样切换工作模式

The controller only reads the working mode of the output terminal function switching pin setting when powered on, and does not change after the reading is completed. If you need to switch the working mode again, you need to disconnect the 12V power supply of the controller and power it on again to read the working mode set at the output terminal. Functional jumpers are equipped according to the type of output product and are not standard on all products. If you need to switch functions without a functional jumper, you can also insert any white ground terminal into the corresponding function pin to switch functions!

控制器只会在首次接通电源时读取输出端功能切换脚位设置的工作模式，读取完成后不再变换。如果需要再次切换工作模式，则需要断开控制器12V电源，下次通电会继续读取输出端设置的工作模式。功能跳线是根据输出端产品类型配备，非所有产品标配。如果用户在没有功能跳线的情况下需要切换功能，也可将任意一根白色地线端子插入对应的功能脚，进行功能切换！

 Function jumper 功能跳线 Terminal buckle 端子卡扣 34 pin connector 34PIN连接器	INPUT ISO-OUTPUT ISO 输入ISO-输出ISO OR INPUT SAE-OUTPUT SAE 输入SAE-输出SAE	Pin14 is not connected to any pins 14号引脚空置	
	INPUT ISO-OUTPUT SAE 输入ISO-输出SAE	Connect pin14 to pin13 14号与13号引脚相连接	
	INPUT SAE-OUTPUT ISO ① 输入SAE-输出ISO (一)	Connect pin14 to pin12 14号与12号引脚相连接	
	INPUT SAE-OUTPUT ISO ② 输入SAE-输出ISO (二)	Connect pin14 to pin1 14号与1号引脚相连接	

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About the difference between input SAE output ISO (I) mode and input SAE output ISO (II) mode

关于输入SAE-输出ISO (一) 模式与输入SAE-输出ISO (二) 模式的区别

You can choose a switching mode according to the following chart based on your actual needs, and the function of connecting the high mounted brake light is more complete. But it will increase the difficulty of installation.

您可根据实际需求按下述图表选择一种切换模式，连接高位刹车灯的功能更完善，但会增加安装难度。

INPUT SAE-OUTPUT ISO① 输入SAE-输出ISO (一)			INPUT SAE-OUTPUT ISO② 输入SAE-输出ISO (二)		
Yellow left turn signal line 输入端黄色左转信号线	Green right turn signal line 输入端绿色右转信号线	Red brake signal line 输入端红色刹车信号线	Yellow left turn signal line 输入端黄色左转信号线	Green right turn signal line 输入端绿色右转信号线	Red brake signal line 输入端红色刹车信号线
Connect the left turn signal & brake light 接左转向灯&刹车灯	Connect the right turn signal & brake light 接右转向灯&刹车灯	No need to connect 不接	Connect the left turn signal & brake light 接左转向灯&刹车灯	Connect the right turn signal & brake light 接右转向灯&刹车灯	Connected to the high mounted brake light 接高位刹车灯
When the vehicle turns on the hazard warning switch (dual flashing), The trailer's brake lights flash 当车辆开启危险报警开关 (双闪) 时，拖车的刹车灯闪烁			When the vehicle turns on the hazard warning switch (dual flashing), The trailer's turn signals flash 当车辆开启危险报警开关 (双闪) 时，拖车的转向灯闪烁		

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Explanation of buzzer prompt sound

蜂鸣器提示音说明

INPUT ISO OUTPUT ISO 输入ISO-输出ISO	INPUT ISO OUTPUT SAE 输入ISO-输出SAE	INPUT SAE OUTPUT ISO① 输入SAE-输出ISO (一)	INPUT SAE OUTPUT ISO② 输入SAE-输出ISO (二)	Fog lamp soft - start 雾灯软启动	Short circuit protection 短路保护
One long beep and two short beeps 一声长两声短	Two long beeps and two short beeps 二声长两声短	Three long beeps and two short beeps 三声长两声短	Four long beeps and two short beeps 四声长两声短	One long beep 一声长鸣	Continuous beeping for 20 seconds 长鸣20秒

After power - on, The controller will read the working mode set at the output end. After the controller determines the working mode, it will prompt for the corresponding working mode. By listening to the sound, you can judge the current working mode state of the controller. When the output load has a short - circuit, over - current, or over - load, the controller will immediately stop the output and the buzzer will beep continuously for 20 seconds. If the fault is not eliminated after 20 seconds, the output will remain closed and the alarm will continue. If the fault is eliminated, the output will be restored and the alarm will stop after 20 seconds.

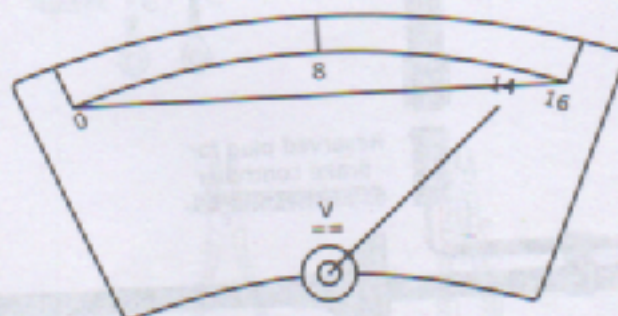
通电后，控制器将读取输出端设置的工作模式。控制器确定工作模式后，会提示相应的工作模式。通过听声音，可以判断控制器当前的工作模式状态。当输出负载发生短路、过电流或过载时，控制器将立即停止输出，蜂鸣器将连续蜂鸣20秒。如果20秒后故障仍未消除，输出将保持关闭状态，报警将继续。如果故障排除，输出将恢复，报警将在20秒后停止。

12Vacc power self starting function

12Vacc电源自启动功能

In the ISO11446 standard, the 10th pin of the trailer connector is a 12Vacc power supply. In conventional products, this pin needs to be connected to the vehicle's key door ON wire or fuse. Installing wiring and measuring lines is very complicated. This controller detects whether the vehicle battery voltage is fully charged and whether the engine is started by detecting the voltage of the battery. When the engine is turned off, the normal voltage of the vehicle's battery is 12V. After starting and the battery is fully charged, the battery voltage reaches 14V. The controller automatically turns on the relay to provide power to pin 10 of the trailer connector! Reduce the difficulty of user installation and wiring!

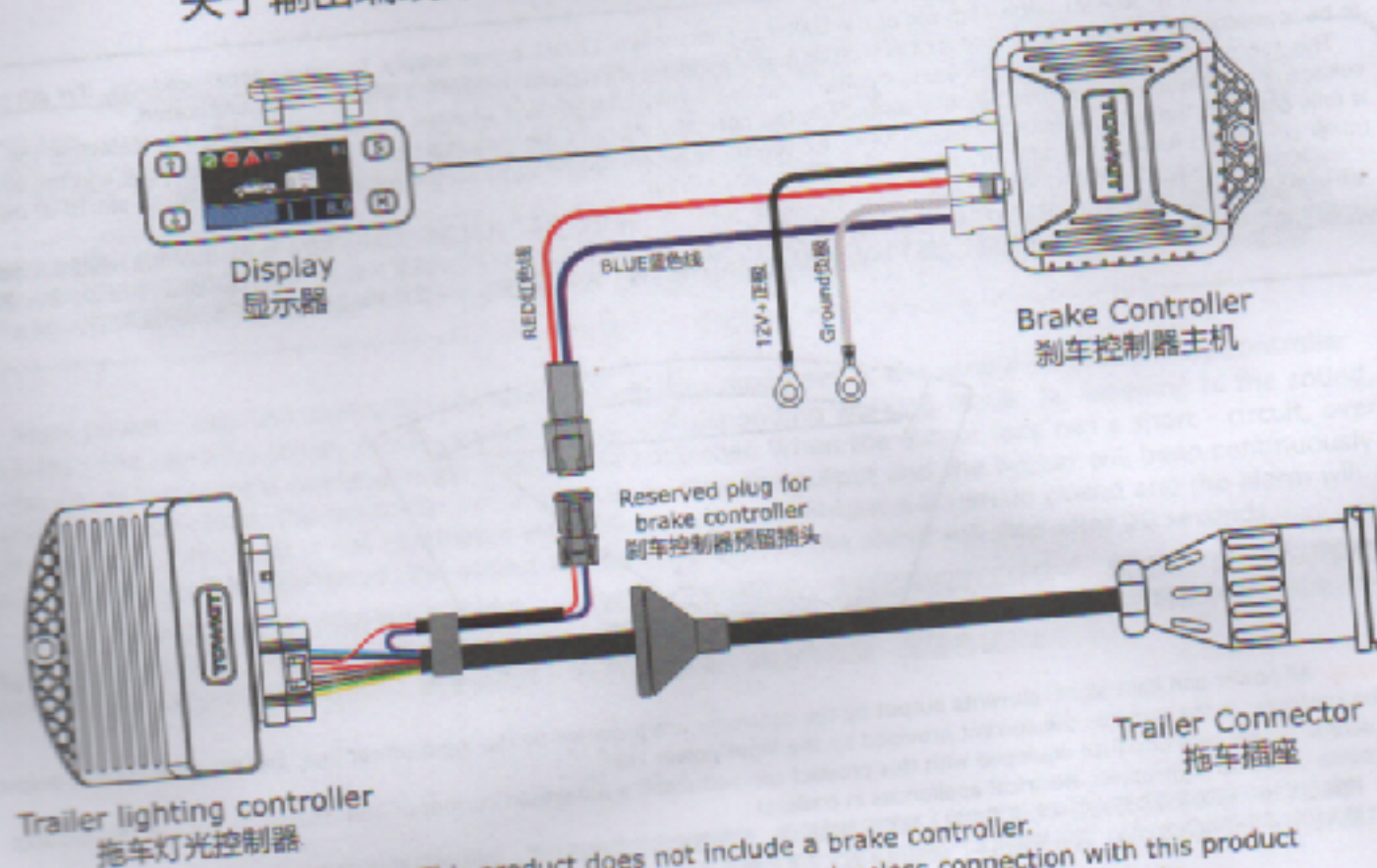
在ISO11446标准拖车插座的10号脚为12Vacc电源。在常规的产品中，该引脚要与车辆的钥匙门搭电线或保险丝相连接。安装布线、测线非常麻烦。本控制器通过检测车辆蓄电池电压的方式，检测蓄电池电压是否充满及发动机是否启动。当发动机熄火状态下，车辆的蓄电池正常电压为12V。发动机启动并且蓄电池电量充满后，蓄电池电压稳定达到了14V。控制器自动打开继电器，给拖车插座的10号脚提供电源！减少用户安装布线难度！



Warning: All power and light signal currents output by the controller are provided by the input power line, and the total current output by the controller is the same as the current provided by the input power line. The default power cord and fuse equipped with this product can withstand a maximum current of 20A. Please do not use this product to provide power to high-power electrical appliances in trailers!

警告: 控制器输出所有的电源及灯光信号电流均由输入端电源线提供。控制器输出的总电流与输入端电源线提供的电流相同。本产品默认配备的电源线及保险丝最大能够承受的电流为20A，请不要使用本产品给拖车的大功率电器提供供电！

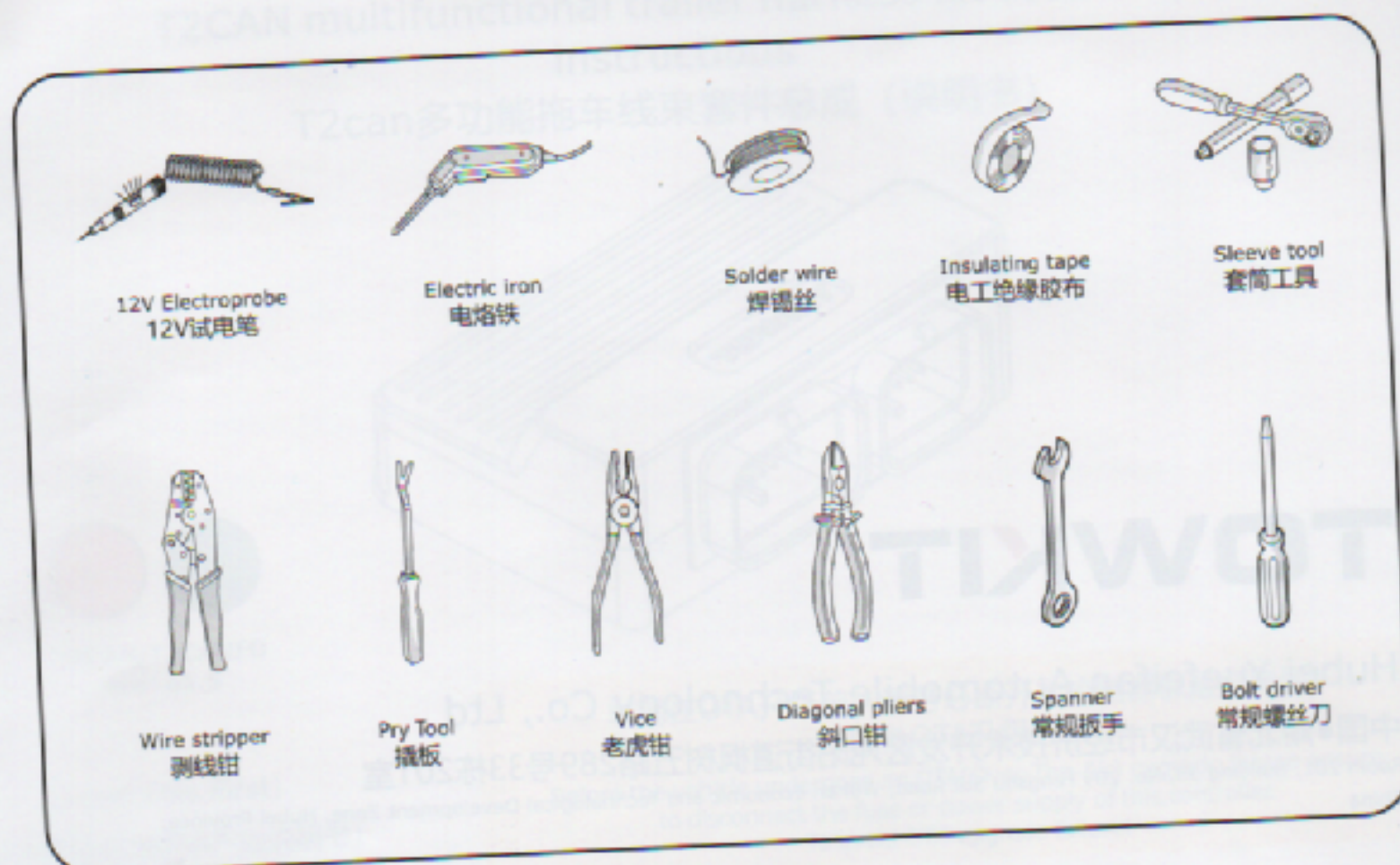
Explanation on reserving electronic brake controller plug for output wiring 关于输出端线束预留电磁刹车控制器插头的说明



This product does not include a brake controller.
Choosing our electronic brake controller can achieve lossless connection with this product.
本产品不包含刹车控制器，选购本公司的电子刹车控制器可与本产品实现无损连接！

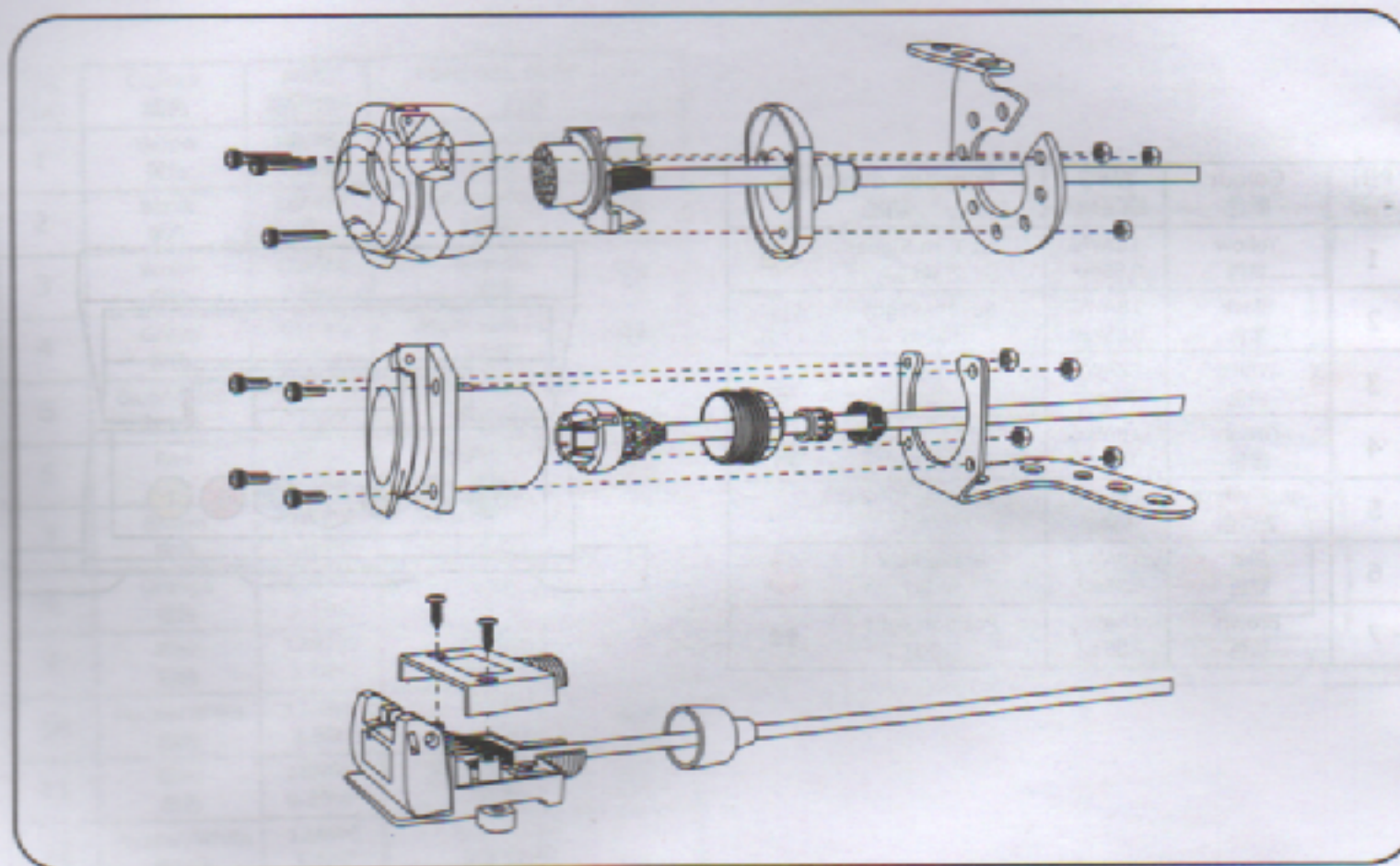
-18-

Prepare some common tools for installation 安装需自行准备一些常用的工具



-19-

Schematic diagram of connector assembly 拖车插座组装示意图



-10-

Soft Start Function for Rear Fog Lights - Instruction Manual 雾灯软启动功能说明

I. Functional Operating Steps

1. Activation Conditions

The adapter is properly connected to the tow vehicle.

2. Activating Fog Light Soft Start Mode

-Step 1: Press and hold the brake pedal.

-Step 2: Cycle the parking light switch three times (Off-On counts as one cycle).

-Step 3: On the third activation of the parking light, the trailer's rear fog light will illuminate simultaneously, while the tow vehicle's rear fog light remains off.

3. Exiting Soft Start Mode

Turn off the parking light switch to automatically reset the function.

II. Precautions

1. Ensure the trailer's electrical connection is normal during operation.

2. If activation fails, inspect the wiring harness connectors or consult a professional technician.

Through the Fog Light Soft Start function, users can efficiently and safely comply with regulatory requirements while protecting the original vehicle circuit system.

一、功能操作步骤

1. 启动条件

-本转接头与牵引车辆正确连接。

2. 激活雾灯软启动模式

-步骤1: 踩下刹车踏板并保持不松开;

-步骤2: 连续操作示宽灯开关3次(关闭→开启为1次);

-步骤3: 第3次开启示宽灯时, 拖挂房车的后雾灯将同步点亮, 同时牵引车辆的后雾灯保持关闭。

3. 退出软启动模式

-关闭示宽灯开关, 功能自动复位。

二、注意事项

1. 操作时需确保拖挂房车电路连接正常;

2. 若功能激活失败, 请检查线束接口或咨询专业技术人员。

通过雾灯软启动功能, 用户可高效、安全地满足法规要求, 同时最大限度保护车辆原有电路系统。

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