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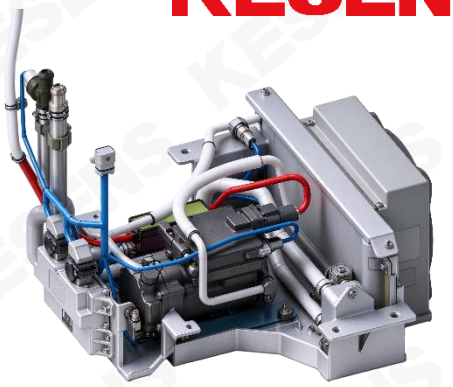
移动充电宝热管理系统

Thermal Management System for Mobile Power Station



产品介绍 Product Description

移动充电宝热管理系统是由压缩机、冷凝器风扇总成、chiller + EXV总成、电子水泵、水加热PTC及相关管路和支架等核心零件组成，可以对外输出约3KW的制冷/制热功率，可适用于大部分移动充电场景的热管理需求。

The thermal management system for mobile charging stations consists of core components including a compressor, condenser fan assembly, chiller + EXV assembly, electronic water pump, water heating PTC, as well as associated pipelines and brackets. It can provide about 3 kW of cooling or heating power, meeting the thermal management requirements for most mobile charging scenarios.

产品特征及优势 Feature and Benefits

- 体积小，重量轻，结构紧凑，安装方便。
  Small size, light weight, compact layout, easy to install.
- 功能集成，兼顾制冷及制热功能。
  Integrated Features，achieving both cooling and heating with a single unit
- 运行模式加目标水温控制，高效节能，运行稳定。
  TMS controls the operating mode and water temperature, making it energy-efficient and stable.
- 制冷量2.4kW、制热量2.7Kw，满足大部分使用场景。
  The cooling capacity reaches 2.4 kW, heating capacity reaches 2.7 kW, meeting most usage scenarios requirements.
- 接口标准化设计，通用性好。
  Performance and interface compatible with major customer.
- 激光打标+独立标签，双重追溯以得到更好的追溯性。
  Parts use laser marking and the modules use separate labels, double tracing for better traceability.

产品应用 Product Application

移动充电宝热管理系统是移动充电设备必不可少的组成部分之一，机组电控单元通过CAN通讯与需要被调节温度的电池（如移动充电车）BMS进行需求信号交互，通过调节进入电池包的冷却液的温度从而快速实现被温控电池模组的降温或加热需求。

TMS for Mobile Power Station is core component of the essential components of mobile charging devices. The control unit communicates via CAN with the BMS of the battery requiring temperature regulation (e.g., Mobile charging cart) to exchange demand signals. By adjusting the temperature of the coolant entering the battery pack, the TMS can rapidly meet the cooling or heating requirements of the battery modules whose temperature needs to be controlled.

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操作 Operation

基本原理 Basic Principle

移动充电宝热管理系统包含三套回路：冷却液回路、制冷剂回路和空气回路；其核心制冷原理是通过冷却液回路将电池包内部的热量搬运出来，然后在板式换热器处同制冷剂回路中的过冷态冷媒进行热交换，将冷却液的热量转移到制冷剂回路冷媒中，冷却液降温后再次循环进入电池包内吸热；最后由吸收了热量的冷媒在冷凝器处将热量散到空气中，散热后的冷媒再次进入压缩机进入下一个逆朗肯循环。制热原理是通过水加热PTC直接将冷却液加热，再进入电池包内加热电池，散热后的冷却液由水泵泵出再次进入PTC中进行下一个循环。

TMS for Mobile Power Station consists of three circuits: the coolant circuit, the refrigerant circuit, and the air circuit. The core cooling principle of the module is to transfer the heat inside the battery pack via the coolant. The coolant then undergoes heat exchange with the subcooled refrigerant in the refrigerant circuit at the plate heat exchanger, transferring the coolant's heat to the refrigerant in the refrigerant circuit. After cooling, the coolant circulates back into the battery pack to absorb heat again. Finally, the heat-absorbed refrigerant releases heat to the air at the condenser, and the cooled refrigerant returns to the compressor to enter the next reverse Rankine cycle. The heating principle involves using water-heated PTC to directly heat the coolant, which then enters the battery pack to warm the battery, after which it flows back into the PTC for the next cycle.

连接选项 Connection Options

根据客户选择定制连接系统。

Customized to customer choice of connection system.

包装选项 Packaging Options

可提供定制包装以满足任何需要，请联系KESENS技术部了解详情。

Custom packaging can be provided to meet any need, please contact KESENS Engineering for details.

技术参数 Functional Characteristics

项目		参数
供电电压 Power supply voltage	高压 High voltage	255-373VDC （Rated： 328.5VDC）
	低压 Low voltage	9-16VDC （Rated： 12VDC）
系统性能System performance	制冷量（KW） Cooling Capacity (KW)	2.4kW
	制热量（KW） heating Capacity (KW)	2.7kW
通讯方式 Communication		CAN
尺寸 size		580*580*245

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可根据客户需求定制产品，如有需求请联系我们。
Customized products available upon request. Contact us for details.

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