VEHICLE THERMAL MANAGEMENT SYSTEM (VTMS)

DOUBLE DECK BUS VTMS

PART NUMBERS:

3E-10001-0J01 - Passenger Heating, Air Conditioning and BTMS

3E-10001-0H01 - Passenger Heating and BTMS

900V DC capability will be available from January 2024.
Enquire today for more information.

SYSTEM OVERVIEW

Provide maximum comfort to your passengers while achieving optimum battery thermal management in a combined single unit with our energy-efficient Double Deck Bus Vehicle Thermal Management System (VTMS).

Designed specifically for the battery electric double deck city bus market across the globe, the VTMS uses the latest development in heat pump technology to meet passenger saloon set-points in heating mode.

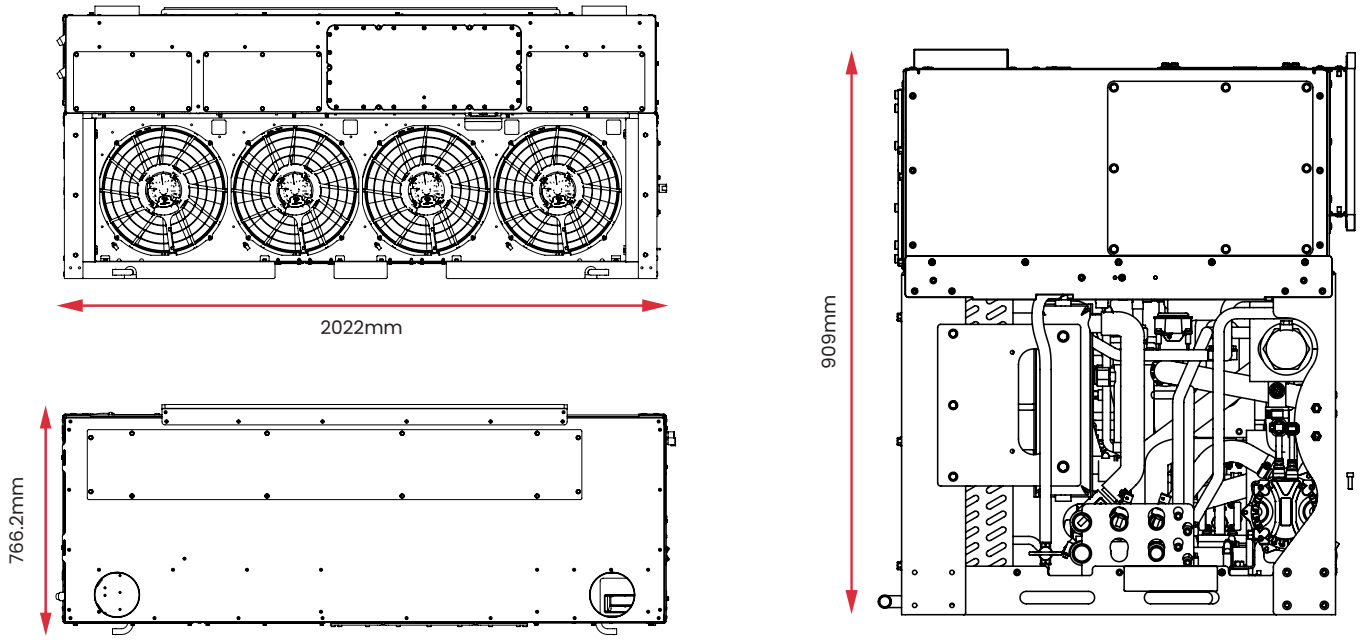
We have incorporated active cooling, passive cooling and heating of the vehicle batteries with passenger saloon heating and air conditioning for the upper deck, all controlled from the control system with in-house developed software.

KEY FEATURES:

- Twin refrigerant circuit, operating in reversible heat pump mode
- Upper deck blown air heating (heat pump) and air conditioning system
- Lower deck water-glycol heating system (heat pump)
- Direct connections to battery water-glycol circuit
- Aluminium frame and structure for weight saving
- 600V DC high voltage for scroll compressors (420V – 756V DC range - *>900V DC available from Jan 2024*)
- CAN J1939 protocol
- GTS-developed software for full system control
- 24V DC low voltage for valves, controllers, fans and blowers
- Integrated water tanks for battery and lower deck heating loops
- Service access for easy and efficient maintenance
- Proven technology and performance from our extensive range of BTMS and HVAC products for zero-emission vehicles

Grayson
Thermal Systems

DIMENSIONS



TECHNICAL INFORMATION

HVAC	Upper Saloon	Lower Saloon
Ambient temperature range	15°C to 35°C	
Maximum cooling capacity (at: 35°C outside ambient)	16 kW at 27°C interior	N/A BTMS: – 14 kW at 20°C coolant temperature, 45 lpm flow
BTMS passive cooling capacity (at 15°C outside ambient)		BTMS: 5kW at 25°C coolant temperature, 45 lpm
Heating Capacity (at 0°C outside ambient)	18 kW at 17°C interior, 0°C outside ambient	14kW at 17°C interior BTMS: 3.6kW @ 600VDC with 100Ω
High voltage power supply	420 – 750V DC (*900V DC available from Jan 2024*)	
Low voltage power supply	24VDC	
Refrigerant	R407C	
Refrigerant charge	5.5Kg	4.5Kg
Weight	245Kg	
Compressor type	Electric Scroll Compressor x2	
Compressor oil type	HAF68, POE	
High pressure relief valve	36 bar	