

# ATHENIA™ MkII Electric

HVAC roof units for hybrid and electric buses

ELECTRIC AND HEAT PUMP SERIES



# Embark on a journey of comfort and efficiency.

Introducing the Thermo King's ATHENIA™ MkII Electric Series – where cutting-edge technology meets unparalleled comfort. Redefining the passenger experience, this innovative system ensures a climate-controlled environment for a seamless and enjoyable ride.

### FUNCTIONAL EXCELLENCE

Experience a wide range of functionalities seamlessly integrated into a compact design, along with a "plug-and-play" concept that ensures faster and easier installation, securing convenience and efficiency.

### ADAPTIVE ZONING

Customize the climate for various sections of the bus, ensuring individualized comfort for every passenger on board with our advantage state of the art CANAIRE Controller.

### SUSTAINABLE SOLUTION

ATHENIA™ MkII Electric utilizes eco-friendly refrigerants, prioritizing environmental responsibility without compromising performance.

### QUIET OPERATION

Say goodbye to noisy HVAC systems. ATHENIA™ MkII Electric operates silently, enhancing the overall travel experience.

### SMART CONTROLS

Take command of the climate with user-friendly controls. Adjust settings easily to meet the preferences of both passengers and drivers.

### DURABILITY AND RELIABILITY

Built to withstand the rigors of daily transit, ATHENIA™ MkII Electric is a robust system designed for longevity and consistent performance.

## Key features & options

### CLIMATE-ADAPTIVE PERFORMANCE

Our very powerful unit comes in two performance variants tailored for different climatic conditions, featuring an extended operating temperature range for universal application, providing unparalleled adaptability.

### INTEGRATED BATTERY THERMAL MANAGEMENT SYSTEM

Cooling and/or Heating or both integrated in Roof Unit (option).

### WASTE HEAT UTILIZATION

Waste Heat Utilization integrated in Roof Unit (option).

### INTEGRATED INVERTER

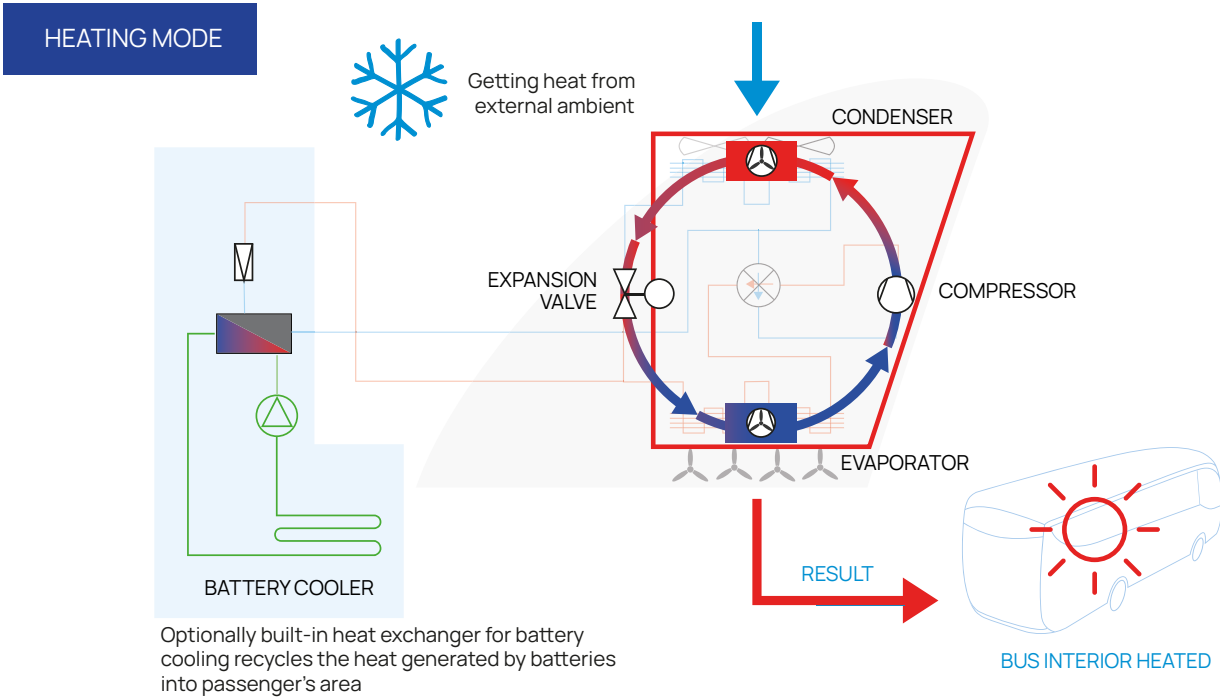
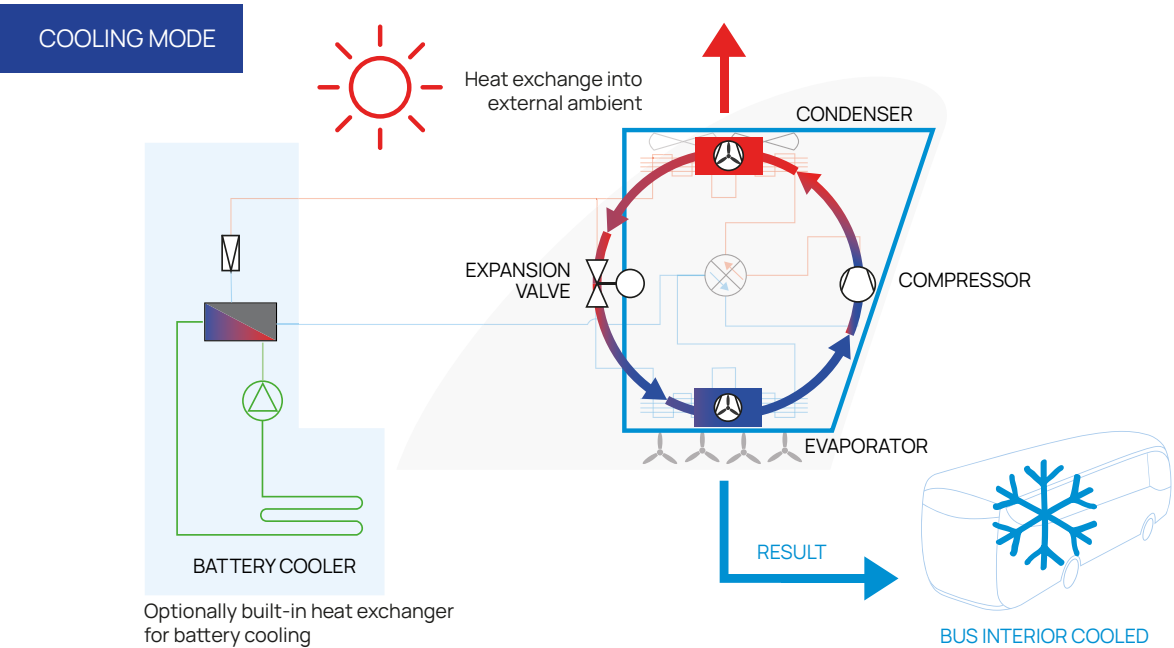
Inverter Option Integrated in Roof Unit or offered separately (option).

### INTEGRATED CO<sub>2</sub> SENSOR

CO<sub>2</sub> Sensor to manage Fresh Air Exchange effectively integrated in Roof Unit.

### CUSTOMIZED SOFTWARE SUPPORT

With customized software features, operators can monitor and adjust HVAC settings in real time, enhancing energy efficiency and reducing operational costs.





# ATHENIA™ MkII

## Electric Series

|                   |       |       |
|-------------------|-------|-------|
| COOL & HEAT MODEL | E-701 | E-961 |
|-------------------|-------|-------|

| PERFORMANCE                                        |                   |                                |                   |
|----------------------------------------------------|-------------------|--------------------------------|-------------------|
| Unit type                                          |                   | Narrow (N)                     |                   |
| Listed cooling capacity                            | kW                | 36                             | 38                |
| Rated cooling capacity <sup>1</sup>                | kW                | 13.6 @ 40 Hz                   | 13.7 @ 40 Hz      |
|                                                    |                   | 16.1 @ 50 Hz                   | 16.7 @ 50 Hz      |
|                                                    |                   | 21.3 @ 75 Hz                   | 21.6 @ 75 Hz      |
| Heating capacity <sup>2</sup>                      | kW                | 47                             |                   |
| Evaporator air capacity <sup>3</sup>               | m <sup>3</sup> /h | 4500 (4920)                    | 6200 (7380)       |
| Fresh air range                                    | %                 | 0-100                          | 0-100             |
| Current draw <sup>4</sup>                          | A                 | 81                             | 99                |
| Power supply of integrated compressor <sup>5</sup> |                   | 3PH 280V 38 Hz - 460V 75 Hz AC |                   |
| Dimensions roof unit (W x L x H)                   | mm                | 1850 x 2500 x 305              | 1850 x 2500 x 305 |
| Refrigerant type / average filling volume          | kg                | R407C / 3.2                    |                   |
| Weight (cool/cool+heat)                            | kg                | 231 / 238                      | 235 / 242         |
| Control system                                     |                   | CANAIRESM (EN/DE/CZ/IT/FR/SP)  |                   |
| Maximum operating temperature                      | °C                | 49                             |                   |

<sup>1</sup> Measured at conditions 35°C / 27°C / 19°C

<sup>2</sup> Measured at conditions -20°C / +80°C / 16,7 l / min

<sup>3</sup> Free blow capacity for brush (brushless) blowers<sup>4</sup> Current consumption for unit at 27 VDC

<sup>5</sup> Measured at conditions 35°C / 27°C / 19°C

COP (coefficient of performance) calculation includes all energy consumption components, not just compressor  
Values may vary based on configuration and option selection for roof top unit



# ATHENIA™ MkII

## Electric series with heat pump

| HEAT PUMP MODEL | E-701H | E-961H |
|-----------------|--------|--------|
|-----------------|--------|--------|

| PERFORMANCE                                            |           |                                                                                                                                               |                                                                                                                                                                                                      |
|--------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit type                                              | Unit type | Narrow (N)                                                                                                                                    |                                                                                                                                                                                                      |
| Listed cooling capacity                                | kW        | 36                                                                                                                                            | 38                                                                                                                                                                                                   |
| Rated cooling capacity <sup>1</sup>                    | kW        | 15.3 / 2,2 @ 50 Hz<br>19.6 / 1,8 @ 80 Hz                                                                                                      | 16.0 @ 50 Hz<br>20.4 @ 80 Hz                                                                                                                                                                         |
| Heating capacity / COP @ compressor 50 Hz <sup>4</sup> | kW        | 18.3 / 3.1 @ (15 °C / 22 °C)<br>12.9 / 2.5 (7 °C / 19 °C)<br>16.5 / 1.8 (0 °C / 19 °C)<br>13 / 1.6 (- 7°C / 17 °C)<br>9.9 / 1.4 (-14°C/ 15°C) | 19.2 / 3.1 @ (15 °C / 22 °C) <sup>6</sup><br>16.2 / 2.7 (7 °C / 19 °C) <sup>6</sup><br>17.8 / 1.9 (0 °C / 19 °C) <sup>6</sup><br>14.9 / 1.7 (- 7°C / 17 °C) <sup>6</sup><br>10.9 / 1.4 (-14°C/ 15°C) |
| Heating capacity - water coil <sup>2</sup>             | kW        | 47                                                                                                                                            |                                                                                                                                                                                                      |
| Evaporator air capacity <sup>3</sup>                   | m³/h      | 4500 (4920)                                                                                                                                   | 6200 (7380)                                                                                                                                                                                          |
| Fresh air range                                        | %         | 0-100                                                                                                                                         | 0-100                                                                                                                                                                                                |
| Maximum operating temperature                          |           | -15 to 49 °C                                                                                                                                  |                                                                                                                                                                                                      |
| Current draw <sup>4</sup>                              | A         | 81                                                                                                                                            | 99                                                                                                                                                                                                   |
| Battery cooling (small / high)                         | kW        | 6 / 12,4                                                                                                                                      |                                                                                                                                                                                                      |
| Battery heating                                        | kW        | 12,6                                                                                                                                          |                                                                                                                                                                                                      |
| Power supply of integrated compressor <sup>5</sup>     |           | 3 PH 360 V 45 Hz - 460 V 75 Hz AC                                                                                                             |                                                                                                                                                                                                      |
| Dimensions roof unit (W x L x H)                       | mm        | 1850 x 2925 x 305                                                                                                                             | 1850 x 2925 x 305                                                                                                                                                                                    |
| Refrigerant type / average filling volume              | kg        | R407C / 5                                                                                                                                     |                                                                                                                                                                                                      |
| Weight (cool+heat)                                     | kg        | 280                                                                                                                                           | 285                                                                                                                                                                                                  |

<sup>2</sup> Measured at conditions 35°C / 27°C / 19°C

<sup>3</sup> Measured at conditions -20°C / +80°C / 16,7 l / min

<sup>4</sup> Free blow capacity for brushless blowers

<sup>5</sup> Measured at conditions 35°C / 27°C / 19°C (Outside temperature / interior set point)

<sup>6</sup> Calculated

## ATHENIA™ MkII Electric and Heat Pump Series

# All-In-One Solution

### VERSATILE COMPATIBILITY

Athenia™ MkII Electric and Heat Pump HVAC units can be mounted on bus roofs with curvatures from 7.5 meters to completely flat, offering a broad range of applicability.

### INSTALLATION OPTIONS

These units support both screw and glue installation methods, providing flexibility and convenience to suit different bus designs and preferences.

### READY TO USE

Units come pre-charged with refrigerant, ensuring they are ready for immediate operation post-installation, streamlining the setup process.

### INTEGRATED DESIGN

The electrical compressor is built into the roof unit to reduce installation costs and simplify the installation process, promoting efficiency in vehicle assembly.

### ENHANCED FEATURES & CONTROL

The Athenia™ MkII Electric Heat Pump variant can include an optional heat exchanger for battery cooling, optimizing battery performance and longevity in hybrid/electric buses. Additionally, an optional front box connection is available, and the CANAIRE™ control system offers a user-friendly LCD panel for dual-zone HVAC management, with customizable settings via diagnostic software to meet specific customer needs.

# Low Global Warming Potential

### INCREASED EFFICIENCY & REDUCED CO<sub>2</sub> EMISSIONS

Our advanced electrical heat pump technology boosts the power efficiency ratio of the unit while effectively lowering CO<sub>2</sub> emissions.

### SUPERIOR ENVIRONMENTAL PERFORMANCE

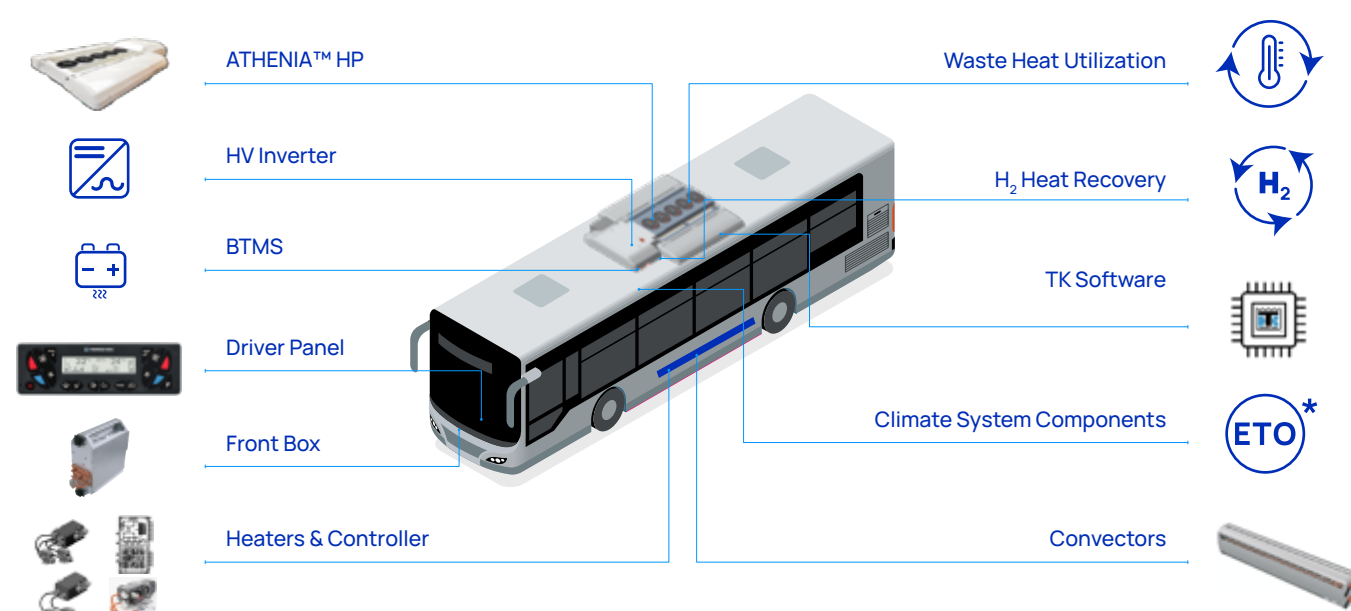
The ATHENIA™ MkII Electric unit excels in environmental performance, offering a low global warming potential (GWP) due to its state-of-the-art micro-channel coils that reduce refrigerant charge by 50% compared to traditional coils.

### ENVIRONMENTAL FRIENDLINESS

Our ATHENIA™ MkII Electric and ATHENIA™ MkII Electric Heat Pump units come pre-filled with refrigerant and feature a hermetic refrigerant circuit to minimize leakage, ensuring a high level of environmental friendliness.

### SAFETY ASSURANCE

Operating on non-flammable refrigerants with an A1 classification, our units prioritize safety and provide peace of mind for users.



\* Engineer to Order

### OUR DEALER SERVICE NETWORK:

- Over 500 authorized service points in 75 countries
- Open and available 24/7/365
- Always in your area
- most locations are within a two-hour drive
- Direct telephone contact
- Immediate assistance in your language
- Optimised fleet maintenance

Find the dealer closest to you  
with our online dealer locator:  
[dealers.thermoking.com](https://dealers.thermoking.com)

# Sustainable. Efficient. Smart.

## **SUSTAINABLE**

Reduce your carbon footprint and maximize energy efficiency with our advanced electrical heat pump technology. Perfect for low and zero-emission zones.

## **EFFICIENT**

Enjoy optimal passenger comfort, guaranteed. Our advanced heating and cooling system delivers maximum efficiency and a pleasant environment.

## **SMART**

Take control. The CANAIRE™ control system with a user-friendly LCD panel is fully customizable with intuitive software, allowing for easy service, diagnostics, and tailored operation to meet your specific needs.



Thermo King – by Trane Technologies (NYSE TT), a global climate innovator – is a worldwide leader in sustainable transport temperature control solutions. Thermo King has been providing transport temperature control solutions for a variety of applications, including trailers, truck bodies, buses, air, shipboard containers and railway cars since 1938.

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