



## *StudentAIRE® Systems*

*A complete range of HVAC systems for student transport vehicles.*



## *StudentAIRE<sup>®</sup> SYSTEMS*

Thermo King offers a complete StudentAIRE product line to meet a wide range of student transport applications. These systems are supported by the industry's largest worldwide service organization and are engineered for high performance, reliability and low maintenance for the life of the vehicle.



### *ENGINEERED FOR LIFE*

StudentAIRE leverages Thermo King's long history of transport refrigeration and HVAC, resulting in the most reliable HVAC system available for school bus applications. Each system is engineered and tested to last a minimum of 5 years or 400,000 miles with standard maintenance (see your dealer for warranty details).

### *EFFICIENCY*

Every component has been selected to provide the highest level of system efficiency to maximize passenger comfort.

- Proper component selection and sizing decreases engine load for maximum fuel savings
- Thermostatic Expansion Valves (TXV) precisely regulate refrigerant flow for highest efficiency, providing more capacity when needed vs. block valves or orifice tubes
- Oversized condensers ensure proper cooling in extreme climates
- Properly-sized fans give maximum cooling capacity with lower power consumption

### *SAFETY*

Each StudentAIRE product has been developed with the highest regard for safety. From standard centralized fusing and power distribution to the structural integrity of the unit, StudentAIRE systems have you covered.

# SPLIT SYSTEM EVAPORATORS

Split systems provide complete flexibility to meet the cooling needs for even the most demanding applications. Rooftop or skirt, single system or multiple systems, Thermo King provides solutions for every customer need. These units reflect Thermo King's commitment to sustainability, efficiency, and reliability, while maintaining customer value every step of the way.

## BE-SERIES BULKHEAD EVAPORATOR

- Lightest, most efficient bulkhead evaporator in the market
- Long life three speed blowers for optimal pull down and passenger comfort
- Easily accessible return air filter and blowers for efficient maintenance
- Standard aluminum covers for maximum durability
- Right or left side connections
- Compatible with skirt-mount and rooftop condensers



BE-450

BE-550

BE-650

## SA-SERIES CEILING MOUNT EVAPORATORS

- Long life three-speed blowers for optimal pull down and passenger comfort
- Easily accessible return air filter and blowers for efficient maintenance
- High-quality reusable air filter to enhance air quality
- Optional heat coil



SA-400

SA-600

SA-800

## SA-SERIES DUCTED EVAPORATORS

- Long life three-speed fans for optimal pull down and passenger comfort
- High-quality air filter to enhance air quality
- Optional heat coil
- All-aluminum construction for maximum durability and less weight



SA-600 DUCTED

SA-800 DUCTED

## UNDERMOUNT CONDENSERS

- Fully integrated under the vehicle to minimize impact on aesthetics
- Painted galvanneal construction provides excellent corrosion resistance
- Microchannel coils create high-capacity systems while minimizing space and refrigerant charge



SA-400

SA-600/800

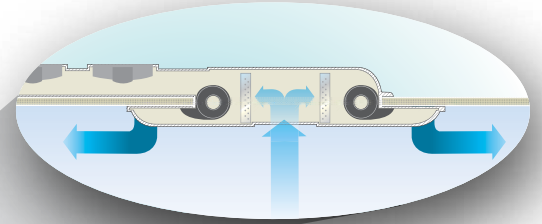
## SLC ROOFTOP CONDENSER

- Condenser is removed from harsh road environment: corrosion, heat, debris, and impacts
- Microchannel coils create high-capacity systems while minimizing space and refrigerant charge to reduce costs and environmental impact
- Minimal vehicle height impact - only 6" tall



SA-400/600/800

# StudentAire



## SLR

### COMPACT HIGH CAPACITY ROOFTOP SOLUTION

The SLR is a one-piece lightweight rooftop unit that has optimal clearance both inside and outside the vehicle. It delivers superior airflow throughout the vehicle due to its centered position compared to rear or front mounted units and can be configured in multiple ways to deliver the right amount of cooling for the application.

- Excellent air distribution for more comfortable passengers
- Low-profile design inside and out
- 90% of service and maintenance performed inside the vehicle
- 40% less refrigerant for reduced cost and environmental impact
- 12 VDC



SLR

## SR-50C

The SR-50C is a one-piece rooftop system designed for large shuttle applications. It is supplied with a unique center duct air distribution system, and the unit can be configured to ducted or free-blow configurations.

The SR-50C is Thermo King's highest capacity one-piece system that delivers maximum cooling and airflow performance day in and day out.

- One-piece rooftop system
- Lightweight
- Maximum capacity cooling, heating, and airflow
- Low power consumption
- R134a
- 12 or 24VDC



SR-50C

## UNDERMOUNT CONDENSERS

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- Painted aluminum construction provides excellent corrosion resistance
- Microchannel coils create high-capacity systems while minimizing space and refrigerant charge



SA-400



SA-600/800

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SA-400/600/800

## CONTROLLERS

OFFERING YOU CHOICE: THE RIGHT CONTROLLER FOR YOUR APPLICATION

### ROTARY/ROCKER SWITCH



- Simple Operation
- Optional Heat Switch

### CLIMAAIRE 1D



- Digital Readout
- Diagnostics
- Precise Temperature Control
- Four Operating Modes: Vent, Cool, Heat, Auto
- Remote Temp Sensor
- Fuel Savings
- Digital Readout

### INTELLIGAIRE III STANDARD



- Advanced Diagnostics
- Precise Temperature Control
- Common to Large Bus
- J1939 Communications
- Remote Temp Sensor
- Fuel Savings

### RELAY PANEL



- Centralized Power Distribution
- Individually fused components
- Compatible with all controllers

## COMPRESSORS

A COMPLETE RANGE OF COMPRESSORS, CLUTCHES AND MANIFOLDS AVAILABLE FOR ALL APPLICATIONS



TM-16

- Entry-level performance for buses
- 160 cm<sup>3</sup> compressor providing:
  - 4.8 kW idle capacity
  - 8.6 kW max capacity



TM-21

- Improved low-speed performance for buses
- 210 cm<sup>3</sup> compressor providing:
  - 6.1 kW idle capacity
  - 10.2 kW max capacity



TM-31

- Unmatched low-idle performance for buses
- Oil sump gives maximum durability and reliability
- 310 cm<sup>3</sup> compressor providing:
  - 9.4 kW idle capacity
  - 15.2 kW max capacity

# SELECTION GUIDE FOR YOUR STUDENTAIRE® SYSTEM

USE THE GRID TO DETERMINE THE PROPER UNIT BASED ON CAPACITY:

PASSENGER TEXT

		Ambient Temperature									
		120	115	110	105	100	95	90	85		
12											
14											
16											
18											
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92											

Dual SLR 75

Dual SLR 65 or SA-800/SA-400  
Combo or Dual BE-650

Combo BE 550 and BE 650

SA 400

BE 550

SA 600 or SLR 65  
or BE 650

SLR 75

Dual 400 or  
single SA 800

Dual 550 or SA-400/600 combo

## SELECT THE RIGHT AIR CONDITIONING UNIT FOR YOUR BUS.

Look up the number of passengers in the left hand column and the typical outside (ambient) temperature across the top row. The color at the intersection of the number of passengers and ambient temperature corresponds to the appropriate cooling system for your vehicle as indicated in the right column or bottom bar.

# SPECIFICATIONS

Model	SLR-65	SLR-75	SA-400	SA-600	SA-800	BE-450	BE-550	BE-650
IMACA Btu/hr (estimated)	66,000	75,000	46,000	65,000	82,000	45,000	55,000	65,000

Thermo King systems are developed and tested in accordance with American Society of Heating, Refrigeration and Air conditioning Engineers (ASHRAE). ASHRAE testing validates the entire system, ensuring performance in all climates vs. ratings determined via IMACA method, which may only test system components that are not reflective of the installed application.

Leveraging the ASHRAE application philosophy, Thermo King units are designed to deliver the required cooling capacity across the entire engine RPM range. This results in increased passenger comfort, fast recovery and decreased engine load.

Model	SLR-65	SLR-75	SA-400	SA-600	SA-800	BE-450	BE-550	BE-650
Engine Idle Capacity (ASHRE)* BTU/hr / kW	23,500/6.8	30,750/9	16,210 / 4.8	26,548 / 7.8	29,080 / 8.5	15,400/4.5 (estimated)	17,500/5.1 (estimated)	20,150/5.9
Maximum Capacity (ASHRE)* BTU/hr / kW	34,000/ 10.0	38,422 / 11.3	18,620 / 5.4	29,450 / 8.6	32,440 / 9.5	16,700/4.9 (estimated)	18,900/5.5 (estimated)	22,000/6.5
Heating Capacity BTU/hr / kW	42,000/12	-	31,000 / 9.1	42,000 / 12.3	63,000 / 18.5	-	-	-
Evaporator Airflow ft <sup>3</sup> / min (CFM) / m <sup>3</sup> /hr	1,000	1,000	450	800	1,050	250	500	650
Amperage Requirements 12 VDC	65	65	34	48	85	24	48	48
Recommended Compressor	TM-21 or TM-16	TM-31 or TM-21	TM-16 or TM-21	TM-21 or TM-16	TM-31 or TM-21	TM-16 or TM-21	TM-21 or TM-16	TM-21 or TM-16
Refrigerant	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Weight (lbs)								
Condenser (Rooftop)	-	-	73	73	73	73	73	73
Condenser (Skirt)	-	-	40	51	51	40	51	51
Evaporator Cool Only	-	-	44	64	92	23	26	35
Evaporator Cool/Heat	-	-	48	70	100	-	-	-
Rooftop Cool Only	124	131	-	-	-	-	-	-
Rooftop Cool/Heat	130	-	-	-	-	-	-	-
Dimensions (inches)								
Rooftop Condenser (L x W x H)	82 x 47 x 6	82 x 47 x 6	55 x 47 x 6	55 x 47 x 6	55 x 47 x 6	55 x 47 x 6	55 x 47 x 6	55 x 47 x 6
Skirt Condenser	-	-	34 x 14 x 10	50 x 14 x 10	50 x 14 x 10	34 x 14 x 10	50 x 14 x 10	50 x 14 x 10
Evaporator	-	-	32 x 24 x 9	44 x 24 x 9	61 x 24 x 9	32 x 24 x 9	32 x 6 x 12.5	50 x 14 x 10

\* AHSRAE results are based off the following conditions

TM-21 compressor  
Ambient 95°F, Interior Temperature 80°F, 50%RH  
Idle Capacity: Compressor speed 1,500 RPM  
Max Capacity: Compressor speed 4,000 RPM

SLR-75 and SA-800  
Results are based off of TM-31 with the same conditions



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