



FRIEDRICH

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**Endeavor® Line K-Series™
iM Air Conditioners**



FRA19AY

EcoNet® Enabled

Cooling Efficiencies up to: 20.0 SEER2 / 13 EER2

Nominal Sizes: 2 to 5 Tons [7.0 to 17.6 kW]

Cooling Capacities: 22.8 to 54 kBTU [6.7 to 15.83 kW]

Refrigerant Type: R-454B



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Features and Benefits

- **EcoNet® Enabled:** Automatic system configuration and optimization
- **PlusOne® Diagnostics & Bluetooth¹ Connectivity:** With the Friedrich® Contractor & EcoNet® Apps, built-in technology makes advanced set-up, monitoring, troubleshooting, and repairing the product easier than ever before
- **Brushless DC Condenser Motors (BLDC):** Enhances reliability and allows for easier serviceability
- **Swept Wing Fan Technology:** Features quieter operation and improved unit acoustics
- **PlusOne® Expanded Valve Space:** 3 in. – 4 in. – 5 in. service valve space—provides a minimum working area of 27-square inches for easier access
- **PlusOne® Triple Service Access:** 15 in. wide, industry leading corner service access, two fastener, removeable corner and individual louver panels – makes repairs easier and faster
- **PlusOne® Refrigerant Detection System™²:** An integrated one-box, patented design featuring the A2L sensor and mitigation board, offering easier commissioning with a single component and simplified wiring configuration, compatibility with any 24V thermostat application and system protection by automatically pausing outdoor unit operation – if excess refrigerant is detected

¹The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Rheem® is under license. Other trademarks and trade names are those of their respective owners. ²Factory or field installed in the furnace coil or air handler and is applicable to the complete heating and cooling system featuring Low GWP Refrigerant (A2L).

Air Conditioners

<u>FR</u>	<u>A</u>	<u>19</u>	<u>A</u>	<u>Y</u>	<u>24</u>	<u>A</u>	<u>J</u>	<u>V</u>	<u>C</u>	<u>A</u>
Brand	Product Category	SEER2	Region	Refrigerant	Capacity BTU/HR	Major Series	Voltage	Type	Controls	Minor Series
FR - Friedrich®	A - Air Conditioners	19 - 19 SEER2	A - All	Y - R-454B	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design	J - 208/230/1/60	V - Fully Variable	C - Communicating	A - 1st Design

[] Designates Metric Conversions

AVAILABLE MODELS	DESCRIPTION
FRA19AY24AJVCA	Endeavor® Line K-Series™ 2 ton EcoNet® Enabled Inverter Driven Variable Speed iM Air Conditioner - 208/230/1/60
FRA19AY36AJVCA	Endeavor® Line K-Series™ 3 ton EcoNet® Enabled Inverter Driven Variable Speed iM Air Conditioner - 208/230/1/60
FRA19AY48AJVCA	Endeavor® Line K-Series™ 4 ton EcoNet® Enabled Inverter Driven Variable Speed iM Air Conditioner - 208/230/1/60
FRA19AY60AJVCA	Endeavor® Line K-Series™ 5 ton EcoNet® Enabled Inverter Driven Variable Speed iM Air Conditioner - 208/230/1/60

STANDARD EQUIPMENT
R-454B Refrigerant
EcoNet® Enabled
Variable Speed Compressor
Compressor Sound Blanket
Variable Speed Outdoor Fan Motor
Swept Wing Fan Blade
Field Installed Filter Drier
Front Seating Service Valves
Internal Pressure Relief Valve
Internal Thermal Overload
Long Line capability
Low Ambient capability with Kit
3-4-5 Expanded Valve Space
Composite Basepan
2 Screw Control Box Access
Quick release louver panel design
No fasteners to remove along bottom
Optimized Venturi Airflow
Single Row Condenser Coil
Powder coated paint
Rust resistant screws
QR code
External gauge ports
Service trays

General Data				
GENERAL DATA				
MODEL NO.	FRA19AY24AJVCA	FRA19AY36AJVCA	FRA19AY48AJVCA	FRA19AY60AJVCA
Nominal Tonnage	2.0	3.0	4.0	5.0
Valve Connections				
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	7/8	7/8
Refrigerant (R-454B) furnished oz.¹				
Compressor Type	Variable Speed Scroll			
Outdoor Coil				
Net face area – Outer Coil	28.3	32.5	32.5	32.5
Net face area – Inner Coil	—	—	—	—
Tube diameter – in.	0.375	0.375	0.375	0.375
Number of rows	1	1	1	1
Fins per inch	20	20	20	20
Outdoor Fan				
Diameter – in.	26	26	26	26
Number of blades	3	3	3	3
Motor hp	1/3	1/2	1/2	1/2
Shipping weight – lbs.	238	258	263	263
Operating weight – lbs.	230	250	255	307
Electrical Data				
Line Voltage Data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Maximum overcurrent protection (amps)²	20	35	40	50
Minimum circuit ampacity³	12	20	24	30
Compressor				
Rated load amps	9	16	19	25
Locked rotor amps	35	50	50	50

¹Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.

²HACR type circuit breaker of fuse.

³Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

Accessories

MODEL NO.	FRA19AY24AJVCA	FRA19AY36AJVCA	FRA19AY48AJVCA	FRA19AY60AJVCA
EcoNet® Smart Thermostat	CETST900SYS	CETST900SYS	CETST900SYS	CETST900SYS
Compressor Sound Cover	686020	686020	686020	686020
Supply/Return Sensor	RXHT-A02	RXHT-A02	RXHT-A02	RXHT-A02

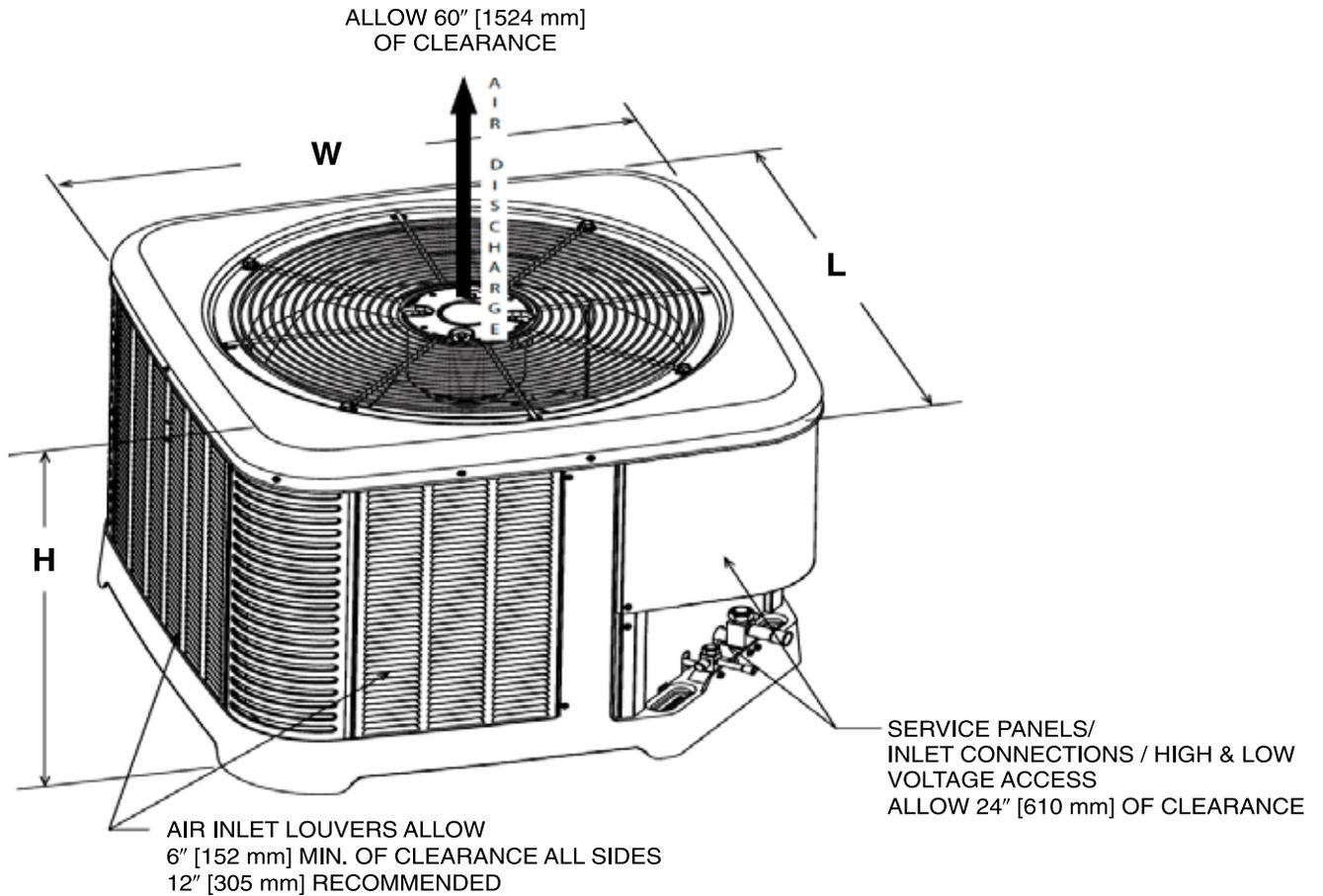
Weighted Sound Power Level

UNIT SIZE - VOLTAGE, SERIES	STANDARD RATING (DBA)	TYPICAL OCTAVE BAND SPECTRUM (DBA WITHOUT TONE ADJUSTMENT)						
		125	250	500	1000	2000	4000	8000
FRA19AY24AJVCA	59	29.0	36.5	42.0	45.7	42.3	43.2	33.0
	68	47.1	47.7	58.8	57.1	55.0	52.7	45.6
FRA19AY36AJVCA	57	29.2	36.7	44.9	45.4	42.2	39.4	32.2
	72	42.9	52.8	62.7	63.6	58.7	54.1	52.4
FRA19AY48AJVCA	54	30.6	39.0	42.2	42.5	36.5	35.2	35.0
	72	48.2	55.0	64.6	61.7	56.2	51.7	46.2
FRA19AY60AJVCA	70	46.6	50.5	62.7	52.9	49.4	46.0	41.4
	76	50.7	62.7	67.7	65.4	64.2	59.2	54.9

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

Unit Dimensions

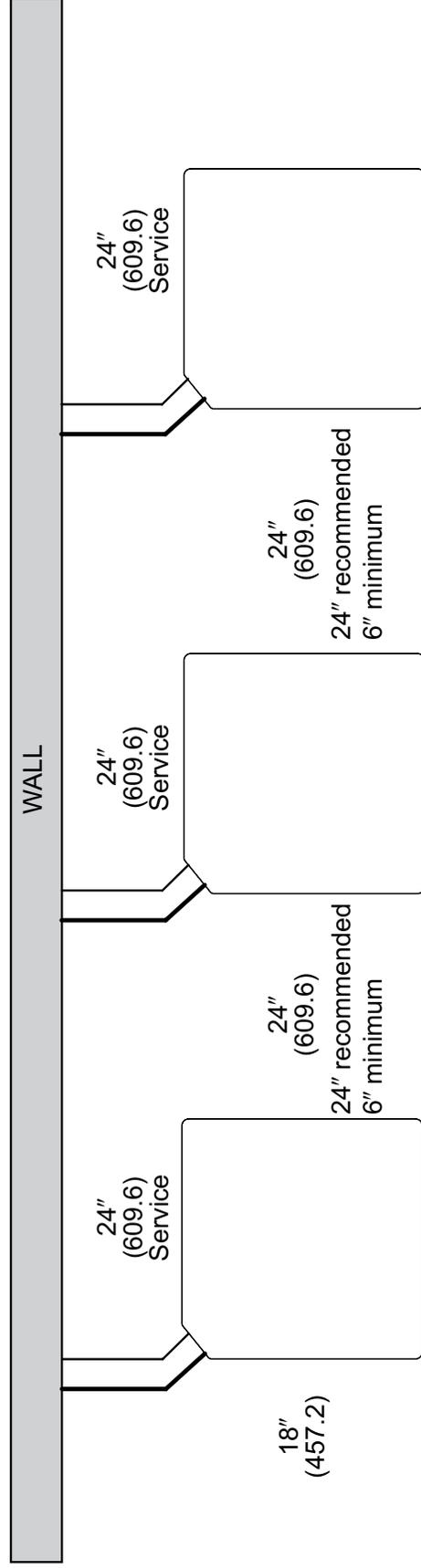
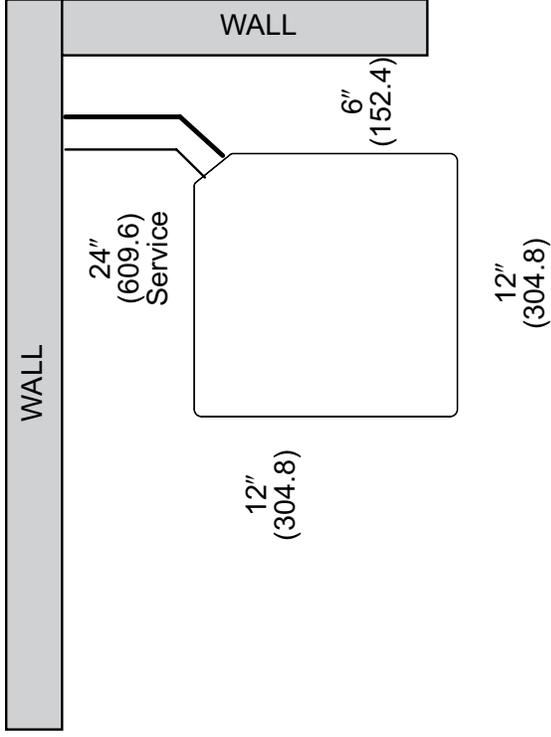
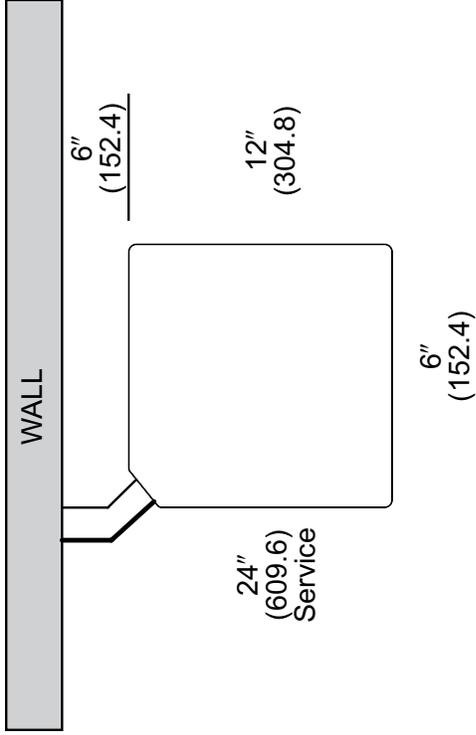
MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
FRA19AY24AJVCA	45.17	1147	36.13	918	36.13	918	48.18	1224	39.37	1000	39.64	1007
FRA19AY36AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007
FRA19AY48AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007
FRA19AY60AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007



[] Designates Metric Conversions

ST-A1226-02-00

CLEARANCES



NOTE: NUMBERS IN () = mm

IMPORTANT: When installing multiple units in an alcove, roof well or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

Refrigerant Line Size Information

19 SEER2 VARIABLE SPEED AIR CONDITIONERS								
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE	ALLOWABLE VAPOR LINE SIZE	OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (FEET)					
			< 25	26-50	51-75	76-100	101-125	126-150
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
2 Ton* SEE NOTE 3	1/4"	5/8"	25/1.00	50/0.99	32/0.98	40/0.97	NR	NR
	5/16"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	1/4"	3/4"	25/1.00	50/1.00	32/0.99	40/0.99	NR	NR
	5/16"	3/4"	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
	3/8"	3/4"	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
3 Ton	5/16"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	37/0.91	NR
	3/8"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	NR
	5/16"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	37/0.97	22/0.96
	3/8"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
	1/2"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
4 Ton	3/8"	3/4"	25/0.99	50/0.98	50/0.97	50/0.96	50/0.94	50/0.93
	1/2"	3/4"	25/0.99	50/0.98	50/0.97	50/0.96	50/0.94	50/0.93
	3/8"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
	1/2"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
5 Ton	3/8"	3/4"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	NR
	1/2"	3/4"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	NR
	3/8"	7/8"	25/1.00	50/0.99	50/0.98	50/0.98	50/0.97	38/0.96
	1/2"	7/8"	25/1.00	50/0.99	50/0.98	50/0.98	50/0.97	50/0.96

NOTES:

- 1) Do not exceed 150 ft linear line length.
- 2) *Do not exceed 50 ft vertical separation between indoor and outdoor units.
- 3) **3/4" suction line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
- 4) Always use the smallest liquid line allowable to minimize refrigerant charge.
- 5) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
- 6) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

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Refrigerant Line Size Information (Con't.)

19 SEER2 VARIABLE SPEED AIR CONDITIONERS								
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE	ALLOWABLE VAPOR LINE SIZE	OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (METERS)					
			< 8	8-15	16-23	24-30	31-38	39-46
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
2 Ton* SEE NOTE 3	6.35 [1/4]	15.88 [5/8]	8/1.00	15/0.99	10/0.98	10/0.97	NR	NR
	7.94 [5/16]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	6.35 [1/4]	19.05 [3/4]**	8/1.00	15/0.99	10/0.99	12/0.99	NR	NR
	7.94 [5/16]	19.05 [3/4]**	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
	9.53 [3/8]	19.05 [3/4]**	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
3 Ton	7.94 [5/16]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	11/0.91	NR
	9.53 [3/8]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	NR
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	11/0.97	7/0.96
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
	12.70 [1/2]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
4 Ton	9.53 [3/8]	19.05 [3/4]	8/0.99	15/0.98	15/0.97	15/0.96	15/0.94	15/0.93
	12.70 [1/2]	19.05 [3/4]	8/0.99	15/0.98	15/0.97	15/0.96	15/0.94	15/0.93
	9.53 [3/8]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
	12.70 [1/2]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
5 Ton	9.53 [3/8]	19.05 [3/4]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	NR
	12.70 [1/2]	19.05 [3/4]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	NR
	9.53 [3/8]	22.23 [7/8]	8/1.00	15/0.99	15/0.98	15/0.98	15/0.97	12/0.96
	12.70 [1/2]	22.23 [7/8]	8/1.00	15/0.99	15/0.98	15/0.98	15/0.97	15/0.97

NOTES:

- 1) Do not exceed 46 meters linear line length.
- 2) *Do not exceed 15 meters vertical separation between indoor and outdoor units.
- 3) **19.05mm [3/4 in.] vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
- 4) Always use the smallest liquid line allowable to minimize refrigerant charge.
- 5) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed
- 6) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Performance Data @ AHRI Standard Conditions – Cooling

DESIGNATED TESTED COMBINATION (DTC)							
OUTDOOR UNIT	AIR HANDLER	TOTAL CAPACITY BTU/H [KW]	NET SENSIBLE BTU/H [KW]	NET LATENT BTU/H [KW]	SEER2	EER2	INDOOR CFM [L/S]
FRA19AY24AJVC	FRHVVY3621MEACA	22,800 [6.7]	17,500 [5.1]	5,300 [1.6]	19.0	12.0	785 [370.5]
FRA19AY36AJVC	FRHVVY3621MEACA	34,200 [10.0]	26,200 [7.7]	8,000 [2.3]	19.0	12.0	1,225 [578.1]
FRA19AY48AJVC	FRHVVY4821SEACA	45,500 [13.3]	34,900 [10.2]	10,600 [3.1]	19.0	12.0	1,590 [750.4]
FRA19AY60AJVC	FRHVVY6021SEACA	54,000 [15.8]	41,400 [12.1]	12,600 [3.7]	17.5	10.5	1,685 [795.2]

NOTE: This data includes DTC (Designated Test Combination) ratings and is for reference purposes only. A full listing of official ratings and system match-ups, along with downloadable certificates, can be accessed from the AHRI website: www.ahridirectory.org.

[] Designates Metric Conversions

Integrated Controls



EcoNet® is smart, technology that allows Heating and Cooling, products to communicate with each other on one integrated network.

THE ECONET® SMART THERMOSTAT

BUILT-IN WIFI

4.3" LCD TOUCH SCREEN

LOCAL WEATHER – Current conditions plus 6-day forecast

5 OPERATING MODES – Heat, Cool, Auto, Emergency Heat and Fan Only

7-DAY PROGRAMMABLE SCHEDULE – Offers comfort without thought

ONE-TOUCH AWAY – Quickly switch to your energy-saving away preferences

VACATION SCHEDULING – Allows you to save while you're away and come home to comfort

STANDBY SCREEN – Displays indoor temperature and current weather



CETST900SYS

OPERATIONAL FEATURES

AUTOMATIC CHANGEOVER – Transitions between heating and cooling automatically to keep the house comfortable

INTEGRATED WATER CONTROL – Enables easy water heater management

SMOOTH ARRIVAL – Prompts the system to start ahead of schedule to ensure the home is at the desired temperature at the scheduled time

HUMIDITY CONTROL – Supports humidifier accessories or over-cool based dehumidification

DETAILED OPERATING STATUS – View pertinent equipment status information and run times

CONTINUOUS FAN – Offers 5 speeds (Low, Medium Low, Medium, Medium High, High)

SHORT-CYCLE PROTECTION – Avoids damage to equipment from short run cycles

MONITORING & REMOTE CONTROL FEATURES

ACTIVE MONITORING – Alerts to problems that need immediate attention

REMOTE CONTROL – Allows adjusting of comfort and settings from anywhere using a mobile device

SERVICE ALERTS – Sends routine maintenance reminders

AIR FILTER MONITORING – Detects when it's time to replace the air filter

ALARM HISTORY – Displays time-stamped alarm codes with clear descriptions



FRIEDRICH

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GENERAL TERMS OF LIMITED WARRANTY*

Friedrich® will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

Conditional Unit Replacement (Registration Required).....	Ten (10) Years
Parts	Ten (10) Years

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

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In keeping with its policy of continuous progress and product improvement, manufacturer reserves the right to make changes without notice.

5600 Old Greenwood Road
Fort Smith, Arkansas 72908 • Friedrich.com

125 Edgeware Road, Unit 1
Brampton, Ontario • L6Y 0P5