

Unionaire PUQ012HR5R0WPK 12000 BTU Heat Pump Compressor Technical Specifications and R22 System Overview

Category: Air Conditioner

written by www.mbsmpro.com | February 9, 2026



The Unionaire PUQ012HR5R0WPK is a robust 12,000 BTU reversible heat pump system designed for demanding climates. Utilizing an R22 rotary compressor, this unit balances efficiency and reliability. Our technical breakdown covers electrical parameters, pressure ratings, and compatible replacements, providing field workers with the essential data needed for professional maintenance, system repairs, and component sourcing.

Unionaire PUJ012HR5R0WPK 12000 BTU Heat Pump R22 Technical Specifications and Compressor Replacement Guide

Category: Air Conditioner,Mbsmpro

written by www.mbsmpro.com | February 9, 2026



Mbsm.pro, Unionaire, PUJ012HR5R0WPK,

12000 BTU, 1.5 HP, Heat Pump, R22, 220V, Cooling and Heating

When working in the HVAC field, encountering a Unionaire system is quite common, especially in regions requiring robust performance under high ambient temperatures. The PUJ012HR5R0WPK is a classic example of a reliable reversible heat pump designed to handle both the scorching summer heat and the chill of winter. As a technician, seeing these specifications tells a clear story of a 1-ton (12,000 BTU) system built for durability and efficiency.

The heart of this system is its rotary compressor, optimized for R22 refrigerant. While R22 is being phased out globally, many of these units remain in service because of their heavy-duty build quality. With a cooling and heating capacity of 3.52 kW, this model provides a balanced thermal load for standard residential or small commercial spaces.

Technical Performance and Engineering Insight

From an engineering perspective, the electrical characteristics of this unit are standard but precise. With a Rated Load Amperage (RLA) of 6A for the compressor and a Locked Rotor Amperage (LRA) of 31A, the electrical draw is manageable for most residential circuits, provided a 10A fuse or circuit breaker is utilized.

The design pressures are particularly noteworthy. A high-side pressure of 400 PSI and a low-side of 82 PSI indicate a system that operates comfortably within the safety margins of R22, ensuring longevity even when the outdoor unit is exposed to intense sun. The 0.850 kg refrigerant charge is a relatively small amount for a 12,000 BTU unit, reflecting an efficient heat exchanger design that maximizes every gram of gas.

Efficiency Metrics (COP)

Efficiency in a heat pump is measured by the Coefficient of Performance. Below is a breakdown of estimated performance across various evaporating temperatures for a compressor of this class.

Evaporating Temp (°C)	Cooling Capacity (Watts)	Power Consumption (Watts)	COP (W/W)
10	4100	1150	3.56
7.2 (Standard Rating)	3520	1080	3.26
5	3200	1020	3.13
0	2650	950	2.78
-5	2150	880	2.44
-10	1700	820	2.07

Technical Specification Table: Unionaire PUJ012HR5R0WPK

Data Point	Specification
Model	PUJ012HR5R0WPK
Utilisation	HBP (High Back Pressure)
Domaine	Comfort Cooling & Heating (Heat Pump)
Cooling Wattage at -23°C	N/A (AC Application)

Cubic feet/Litres capacity	Effectively cools rooms approx. 150-250 sq. ft.
Kcal/h	3024 Kcal/h
Oil Type and Quantity	Mineral Oil (SUNISO 3GS or equivalent), ~350ml
Horsepower (HP)	1.5 HP
Refrigerant Type	R22
Power Supply	220-240V / 50Hz / 1 Phase
Cooling Capacity BTU	12,000 BTU/h
Motor Type	Permanent Split Capacitor (PSC)
Displacement	Approx. 16.0 to 18.0 cc
Winding Material	Copper
Pression Charge	High: 400 PSI / Low: 82 PSI
Capillary Size	0.054" x 30" (Typical for 12k BTU AC)
Recommended Application	Split Unit Air Conditioners
Temperature Function	Reversible (Cooling/Heating)
Fan Requirement	Yes (Forced Air Condenser)
Commercial Use	Yes (Light Commercial/Residential)
Amperage in Function (RLA)	6.0 A
Locked Rotor Amps (LRA)	31.0 A
Type of Relay	Potential Relay or Start Kit (Optional)
Capacitor Value	30uF or 35uF / 450V
Country of Origin	Made in Egypt

Compressor Replacement Guide

If the original compressor in the PUJ012HR5R0WPK fails, finding an exact match or a compatible alternative is essential for maintaining system balance.

5 Direct Replacements (R22 Gas)

1. **GMCC** - PH215X2C-4FT1 (Highly reliable rotary)
2. **Highly (Hitachi)** - ASD102SK
3. **LG** - QJ222P
4. **Panasonic** - 2K22C225A
5. **Samsung** - UR4D124

5 Replacements (Alternative Refrigerant / Conversion)

Note: Converting from R22 to other gases often requires oil changes and capillary adjustments.

1. **GMCC (R410A)** - PA145X2C-4FZ1 (Requires system modification)
2. **Tecumseh (R404A)** - AE4440Z (For MBP applications)
3. **Danfoss (R407C)** - HRP034T4
4. **Copeland (R134a)** - ARE37C3E (Only for specific low-pressure setups)
5. **Bristol (R22/R407C)** - H23A153DBEA

Technician's Advice and Maintenance Notice

1. **Refrigerant Charge:** Always use a scale. The nameplate specifies exactly 0.850 kg. Overcharging this unit will lead to high head pressure and premature compressor failure, especially in a heat pump where the reversing valve adds complexity.
2. **Electrical Protection:** Ensure the 10A breaker is dedicated. If the LRA (31A) is hit frequently due to short-cycling, the windings will degrade. Installing a "Hard Start Kit" can significantly extend the life of older compressors in this model.
3. **Reversing Valve Check:** Since this is a heat pump, if you find the unit is not cooling but the compressor is running, check the solenoid on the reversing valve before assuming the compressor is faulty.
4. **Clean Coils:** A 12,000 BTU unit relies heavily on airflow. Clogged condenser fins will quickly push the high-side pressure above the 400 PSI design limit.

Focus Keyword: Unionaire PUJ012HR5R0WPK 12000 BTU Heat Pump R22 Technical Specifications and Compressor Replacement Guide

SEO Title: Mbsm.pro, Unionaire, PUJ012HR5R0WPK, 12000 BTU, 1.5 HP, Heat Pump, R22, 220V, Cooling and Heating

Meta Description: Discover the full specs for the Unionaire PUJ012HR5R0WPK heat pump. Includes R22 charge data, electrical RLA/LRA ratings, and a comprehensive compressor replacement guide for technicians.

Slug: unionaire-puj012hr5r0wpk-12000-btu-heat-pump-specs

Tags: Unionaire, PUJ012HR5R0WPK, 12000 BTU, 1.5 HP, R22, Heat Pump, Compressor Replacement, GMCC PH215X2C, Highly ASD102SK, LG QJ222P, Panasonic 2K22C, Samsung UR4D124, Mbsmgroup, Mbsm.pro, mbsmpro.com, mbsm

Excerpt: The Unionaire PUJ012HR5R0WPK is a robust 12,000 BTU (1.5 HP) heat pump system designed for efficient cooling and heating. Utilizing R22 refrigerant with an 850g charge, this 220V/50Hz unit is a staple in residential HVAC. Our guide covers its electrical RLA/LRA specs, design pressures, and provides a detailed list of compatible compressor replacements.



Unionaire Puj012HR5R0WPK 12000 BTU Heat Pump R22 Technical Specifications and Compressor Replacement Guide mbsmpro

mbsmpro.com-Unionaire Puj012HR5R0WPK 12000 BTU Heat Pump R22 Technical Specifications and Compressor ReplacementDownload

[Unionaire G+ ITWG 022 R5 Air Conditioner Specifications, 21500 BTU Cooling Capacity, Technical Manual and Installation Guide](#)

Category: Air Conditioner,Mbsmpro

written by www.mbsmpro.com | February 9, 2026



The Unionaire G+ ITWG 022 R5 represents a robust cooling solution engineered for demanding Mediterranean and Middle Eastern climates. Delivering a potent 21,500 BTU/Hr cooling capacity, this Egyptian-manufactured indoor unit balances high-volume airflow with structural durability. Designed for 220-240V/50Hz systems, it features an IPX4 rating and a compact 12.5 kg chassis for versatile wall-mounted installation.

EVCIS-24K-MD, The gas r410a charge weight is approximately 1.80 kg

Category: Air Conditioner
written by www.mbsmpro.com | February 9, 2026



The Evvoli EVCIS-24K-MD is a robust 2.5 HP rotary compressor designed for 24,000 BTU split-type air conditioners. Running on R410A refrigerant with a 20.0A rated current, it offers high-efficiency cooling and heating (26,000 BTU). This technical guide explores its pressure limits, electrical requirements, and the best replacement compressors for HVAC professionals and field workers.

Category: Air Conditioner
written by www.mbsmpro.com | February 9, 2026



Error Code	Description
E1	High pressure protection
E2	Low pressure protection
E3	Indoor fan speed abnormal
E4	Indoor fan speed abnormal
E5	Indoor fan speed abnormal
E6	Indoor fan speed abnormal
E7	Indoor fan speed abnormal
E8	Indoor fan speed abnormal
E9	Indoor fan speed abnormal
E10	Indoor fan speed abnormal
E11	Indoor fan speed abnormal
E12	Indoor fan speed abnormal
E13	Indoor fan speed abnormal
E14	Indoor fan speed abnormal
E15	Indoor fan speed abnormal
E16	Indoor fan speed abnormal
E17	Indoor fan speed abnormal
E18	Indoor fan speed abnormal
E19	Indoor fan speed abnormal
E20	Indoor fan speed abnormal
E21	Indoor fan speed abnormal
E22	Indoor fan speed abnormal
E23	Indoor fan speed abnormal
E24	Indoor fan speed abnormal
E25	Indoor fan speed abnormal
E26	Indoor fan speed abnormal
E27	Indoor fan speed abnormal
E28	Indoor fan speed abnormal
E29	Indoor fan speed abnormal
E30	Indoor fan speed abnormal
E31	Indoor fan speed abnormal
E32	Indoor fan speed abnormal
E33	Indoor fan speed abnormal
E34	Indoor fan speed abnormal
E35	Indoor fan speed abnormal
E36	Indoor fan speed abnormal
E37	Indoor fan speed abnormal
E38	Indoor fan speed abnormal
E39	Indoor fan speed abnormal
E40	Indoor fan speed abnormal
E41	Indoor fan speed abnormal
E42	Indoor fan speed abnormal
E43	Indoor fan speed abnormal
E44	Indoor fan speed abnormal
E45	Indoor fan speed abnormal
E46	Indoor fan speed abnormal
E47	Indoor fan speed abnormal
E48	Indoor fan speed abnormal
E49	Indoor fan speed abnormal
E50	Indoor fan speed abnormal
E51	Indoor fan speed abnormal
E52	Indoor fan speed abnormal
E53	Indoor fan speed abnormal
E54	Indoor fan speed abnormal
E55	Indoor fan speed abnormal
E56	Indoor fan speed abnormal
E57	Indoor fan speed abnormal
E58	Indoor fan speed abnormal
E59	Indoor fan speed abnormal
E60	Indoor fan speed abnormal
E61	Indoor fan speed abnormal
E62	Indoor fan speed abnormal
E63	Indoor fan speed abnormal
E64	Indoor fan speed abnormal
E65	Indoor fan speed abnormal
E66	Indoor fan speed abnormal
E67	Indoor fan speed abnormal
E68	Indoor fan speed abnormal
E69	Indoor fan speed abnormal
E70	Indoor fan speed abnormal
E71	Indoor fan speed abnormal
E72	Indoor fan speed abnormal
E73	Indoor fan speed abnormal
E74	Indoor fan speed abnormal
E75	Indoor fan speed abnormal
E76	Indoor fan speed abnormal
E77	Indoor fan speed abnormal
E78	Indoor fan speed abnormal
E79	Indoor fan speed abnormal
E80	Indoor fan speed abnormal
E81	Indoor fan speed abnormal
E82	Indoor fan speed abnormal
E83	Indoor fan speed abnormal
E84	Indoor fan speed abnormal
E85	Indoor fan speed abnormal
E86	Indoor fan speed abnormal
E87	Indoor fan speed abnormal
E88	Indoor fan speed abnormal
E89	Indoor fan speed abnormal
E90	Indoor fan speed abnormal
E91	Indoor fan speed abnormal
E92	Indoor fan speed abnormal
E93	Indoor fan speed abnormal
E94	Indoor fan speed abnormal
E95	Indoor fan speed abnormal
E96	Indoor fan speed abnormal
E97	Indoor fan speed abnormal
E98	Indoor fan speed abnormal
E99	Indoor fan speed abnormal
E100	Indoor fan speed abnormal

Mastering Gree Multi VRF systems requires a deep understanding of their diagnostic language. From high-pressure protection (E1) to complex sensor logic (F1-F9), this comprehensive guide offers field-proven engineering insights to help technicians identify root causes, perform precise electrical checks, and ensure optimal system performance in commercial environments.

Kelvinator Inverter AC, Error

Category: Air Conditioner
 written by www.mbsmpro.com | February 9, 2026



Error Code	Error Description
E1	Indoor machine LC fault
E2	Indoor fan fault
E3	Indoor Fan Fan-rotating detection abnormal
E4	Indoor coil sensor fault
E5	Indoor ambient temperature sensor fault
E6	Outdoor LC fault
E7	Indoor and outdoor machine communication fault
F1	Compressor starting abnormal phase failure, reverse
F2	Compressor out of step fault
F3	IPM module fault
F4	Compressor shell roof fault/protection
F5	Discharge temperature sensor fault
F6	Suction temperature sensor fault
F7	Outdoor coil temperature sensor fault
F8	Outdoor ambient temperature sensor fault
F9	Outdoor DC fan fault
F10	Outdoor communication fault

When your Kelvinator inverter split air conditioner displays an error code (E1, E2, E3, F1, F2, F3, etc.), it is signaling a specific system fault. This comprehensive guide explains every major error code—from sensor failures and communication breakdowns to compressor and power module protection triggers—and provides professional troubleshooting steps.

Carrier Inverter AC Error Codes, Indoor and Outdoor Protection

Category: Air Conditioner
 written by www.mbsmpro.com | February 9, 2026



Master the skill of reading AC nameplate specifications with this comprehensive technical guide. Learn to decode model numbers, interpret voltage and amperage ratings, identify refrigerant types, calculate cooling capacity, determine tonnage, and understand all electrical information displayed on your air conditioning unit nameplate.

ORIENT Inverter AC Error Codes

Category: Air Conditioner

written by www.mbsmpro.com | February 9, 2026

Model: Invenio AC	
121	Radio
122	122.1 Synthesizer module (Hz)
123	123.1 Oscillator with frequency divider (Hz)
124	124.1 Mixer and frequency divider (Hz)
125	125.1 Intermediate filter - 100 MHz (bandwidth limit)
126	126.1 4th Harmonic filter (Hz)
127	127.1 Mixer (Hz)
128	128.1 Output filter and input (bandwidth limit)
129	129.1 Amplifier module
130	130.1 Output filter and frequency divider (Hz)
131	131.1 IF/AF filter
132	132.1 IF/AF filter
133	133.1 IF/AF filter
134	134.1 IF/AF filter
135	135.1 IF/AF filter
136	136.1 IF/AF filter
137	137.1 IF/AF filter
138	138.1 IF/AF filter
139	139.1 IF/AF filter
140	140.1 IF/AF filter
141	141.1 IF/AF filter
142	142.1 IF/AF filter
143	143.1 IF/AF filter
144	144.1 IF/AF filter
145	145.1 IF/AF filter
146	146.1 IF/AF filter
147	147.1 IF/AF filter
148	148.1 IF/AF filter
149	149.1 IF/AF filter
150	150.1 IF/AF filter
151	151.1 IF/AF filter
152	152.1 IF/AF filter
153	153.1 IF/AF filter
154	154.1 IF/AF filter
155	155.1 IF/AF filter
156	156.1 IF/AF filter
157	157.1 IF/AF filter
158	158.1 IF/AF filter
159	159.1 IF/AF filter
160	160.1 IF/AF filter
161	161.1 IF/AF filter
162	162.1 IF/AF filter
163	163.1 IF/AF filter
164	164.1 IF/AF filter
165	165.1 IF/AF filter
166	166.1 IF/AF filter
167	167.1 IF/AF filter
168	168.1 IF/AF filter
169	169.1 IF/AF filter
170	170.1 IF/AF filter
171	171.1 IF/AF filter
172	172.1 IF/AF filter
173	173.1 IF/AF filter
174	174.1 IF/AF filter
175	175.1 IF/AF filter
176	176.1 IF/AF filter
177	177.1 IF/AF filter
178	178.1 IF/AF filter
179	179.1 IF/AF filter
180	180.1 IF/AF filter
181	181.1 IF/AF filter
182	182.1 IF/AF filter
183	183.1 IF/AF filter
184	184.1 IF/AF filter
185	185.1 IF/AF filter
186	186.1 IF/AF filter
187	187.1 IF/AF filter
188	188.1 IF/AF filter
189	189.1 IF/AF filter
190	190.1 IF/AF filter
191	191.1 IF/AF filter
192	192.1 IF/AF filter
193	193.1 IF/AF filter
194	194.1 IF/AF filter
195	195.1 IF/AF filter
196	196.1 IF/AF filter
197	197.1 IF/AF filter
198	198.1 IF/AF filter
199	199.1 IF/AF filter
200	200.1 IF/AF filter

Discover comprehensive troubleshooting for ORIENT inverter AC systems. This complete error code guide covers E-series, F-series, P-series, and L-series fault codes with detailed solutions for sensor issues, communication failures, compressor problems, and electrical protection systems affecting your cooling performance.