

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

Category: air conditioner

written by www.mbsm.pro | 9 February 2026



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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

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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
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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)

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 Keyphrase: 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.



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Unionaire G+ ITWG 022 R5 Air Conditioner Specifications, 21500 BTU Cooling Capacity, Technical Manual and Installation Guide

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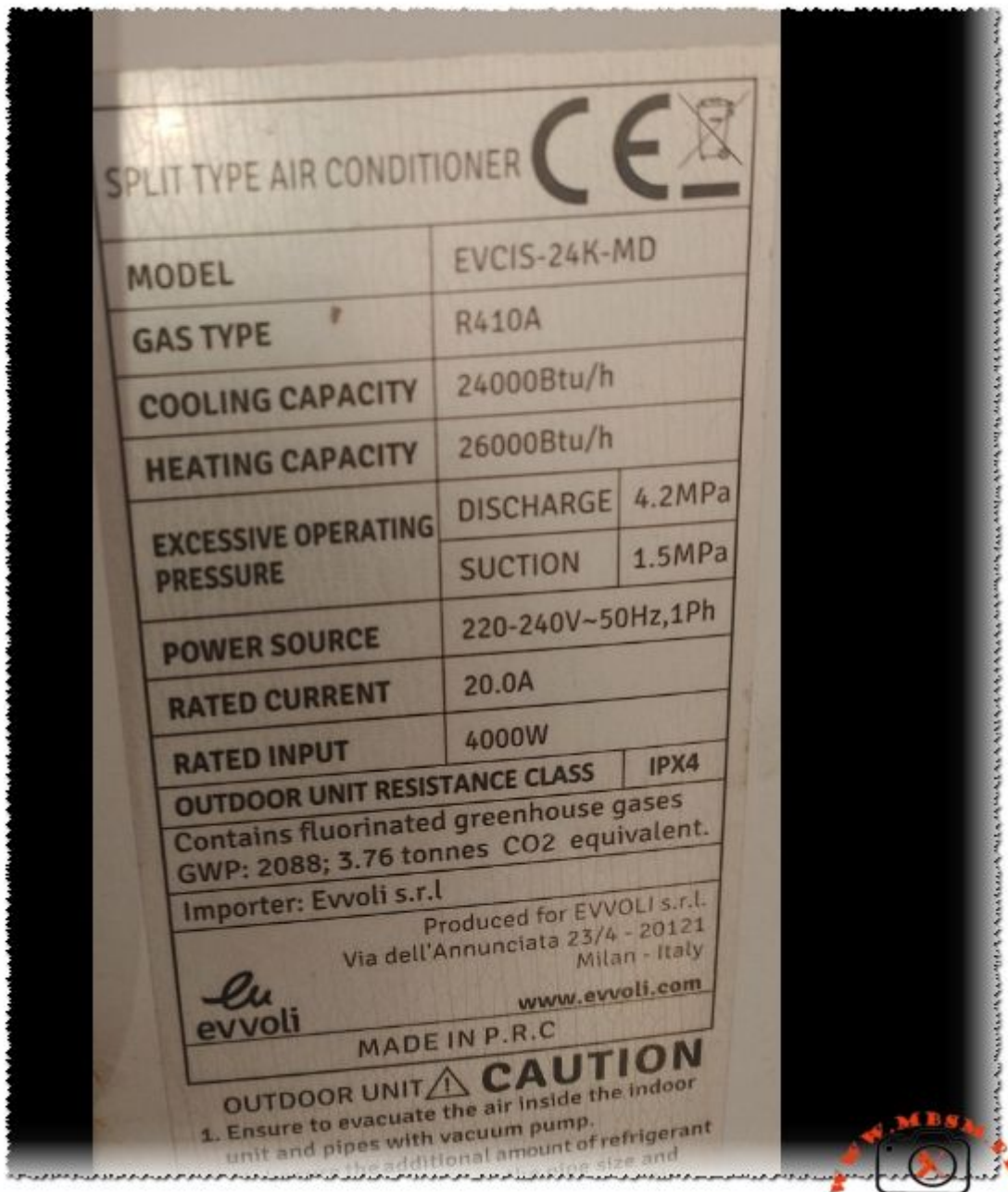
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The Unionaire G+ ITWG 022 R5 represents a robust cooling solution engineered for demanding Mediterranean and Middle Eastern climates. Delivering a potent 21,500 BTU/Hr cooling capacity, this Egyptian-manufactured indoor unit balances high-volume airflow 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

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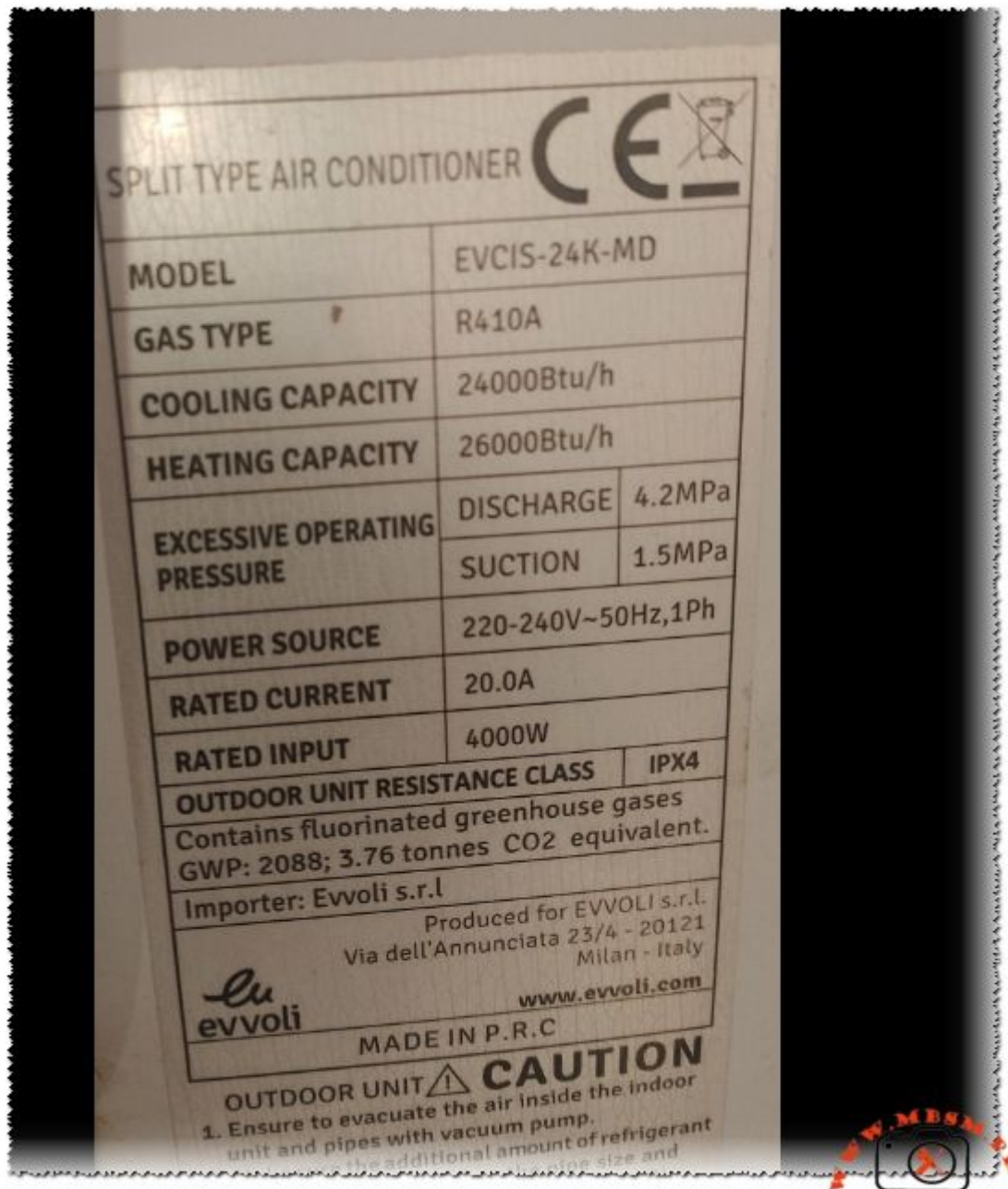
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The Evvoli EVCIS-24K-MD is a robust 2.5 HP rotary compressor designed for 24,000 BTU split-type air conditioners. Running on R410A refrigerant with a 20.0A rated current, it offers high-efficiency cooling and heating (26,000 BTU). This technical guide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

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TOSOT TS-H246JAL3

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The TOSOT TS-H246JAL3 is a high-performance 2-ton outdoor air conditioning unit from the Lord Series, specifically engineered for T3 tropical environments. Delivering 23,500 BTU/h of cooling power, this R22-based system is a staple for technicians requiring reliability in extreme heat. This article provides full technical specifications and professional cross-reference guides.

Carrier Inverter AC Error Codes, Indoor and Outdoor Protection

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Error Display



Indoor duplity	Outdoor LED Flash	Error Information
E0	* 25 Times	Indoor unit EEPROM parameter error
E2	* 27 Times	Zero-crossing signal detection error
E4	* 28 Times	The indoor fan spersing sperating outside thcutl or short circuit
E5	* 28 Times	Eraporator coil temperature sensor is open circuit or short circuit
EC	* 30 Times	Refrigerant leakage detected
E1	* 2 Times	Indoor/outdoor units communication error
F1	* 11 Times	Outdoor ambient temperature sensor is open circuit or short circuit
F2	* 10 Times	Condeneer coil temperature sensor is open circuit or short circuit
F3	* 8 Times	Compressor discharge temperature sensor is open circuit or short circuit
F4	* 1 Time	Outdoor unit EEPROM parameter error
F5	* 12 Times	Outdoor DC fan molor fault
F6	* 9 Times	Compressor Suction temperature sensor fault
L3	* 33 Times	Drive phase curent overload fault
L4	* 34 Times	Phase current sampling fault
P0	* 6 Times	IPM module fault
F2	* 7 Times	Compressor shell temperature overheat protection
F4	* 4 Times	Compressor starting abnormal
P4	* 5 Times	Compressor out-of-step abnormal
F0	* 13 Times	Outdoor AC current protection
L1	* 31 Times	Drive bus vollage overload protection
L2	* 32 Times	Drive bus vollage over-low protection
F1	* 15 Times	Outdoor Over-high/Over-low AC voltage protection
P5	* 14 Times	Compressor phase current protection
P6	* 18 Times	Outdoor Over-high/Over-low DC voltage protection
P7	* 17 Times	IPM temperature over heat protection
P8	* 18 Times	Compressor discharge temperature overheat protection
P9	* 19 Times	Cooling indoor unit anti-freezing protection
PU	* 20 Times	Cooling outdoor coil overheat protection
PE	* 21 Times	Heating indoor coll overheat protection
PC	* 22 Times	Cooling outdoor ambient temperature over-low protection
PH	* 23 Times	Heating outdoor ambient temperature over-high protection

* Flash

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Carrier inverter air conditioners use detailed error codes to protect the compressor, sensors, and inverter electronics. Codes such as E0, F0, P0, and P6 reveal EEPROM faults, outdoor AC current problems, IPM module errors, and DC bus voltage issues, giving HVAC technicians a clear roadmap for safe, accurate troubleshooting and long-term system reliability.

LG Inverter AC Error Codes: Indoor and Outdoor Unit Professional Guide

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Model: Inverter AC

Indoor Unit

ERROR CODE	DISCRIPTION
1	Indoor unit room temperature sensor error
2	Indoor unit inlet pipe sensor error
3	Wired remote control error
4	Float switch error
5	Communication error between indoor and outdoor units
6	Indoor unit outlet pipe sensor error
9	Indoor unit EEPROM error
10	Indoor unit BLDC fan motor lock
12	Indoor unit middle pipe sensor error

Outdoor Unit

ERROR CODE	DISCRIPTION
21	DC Peack (IPM) fault
22	CT2 (Max CT)
23	DC link low voltage
26	DC Comp position error
27	PSC fault
29	Comp phase over current
32	Inverter compressor D pipe overheat
34	High pressure sensor high
35	Low pressure sensor low
36/38	Refrigerant leak detection
37	Exceed the compression ration limit
40	CT sensor error
41	Discharge pipe sensor error
42	Low pressure sensor error
43	High presure sensor error
44	Outdoor air sensor error
45	Cond middle pipe sensor Error
46	Suction pipe sensor Error
51	Excess capacity (Mismatch between IDU and odu unit)
53	Communication error
61	Cond. Pipe high
62	Heat sink sensor temp. High



67	BLDC motor fan lock
72	Detect 4 way valve transfer failure
93	Communication error

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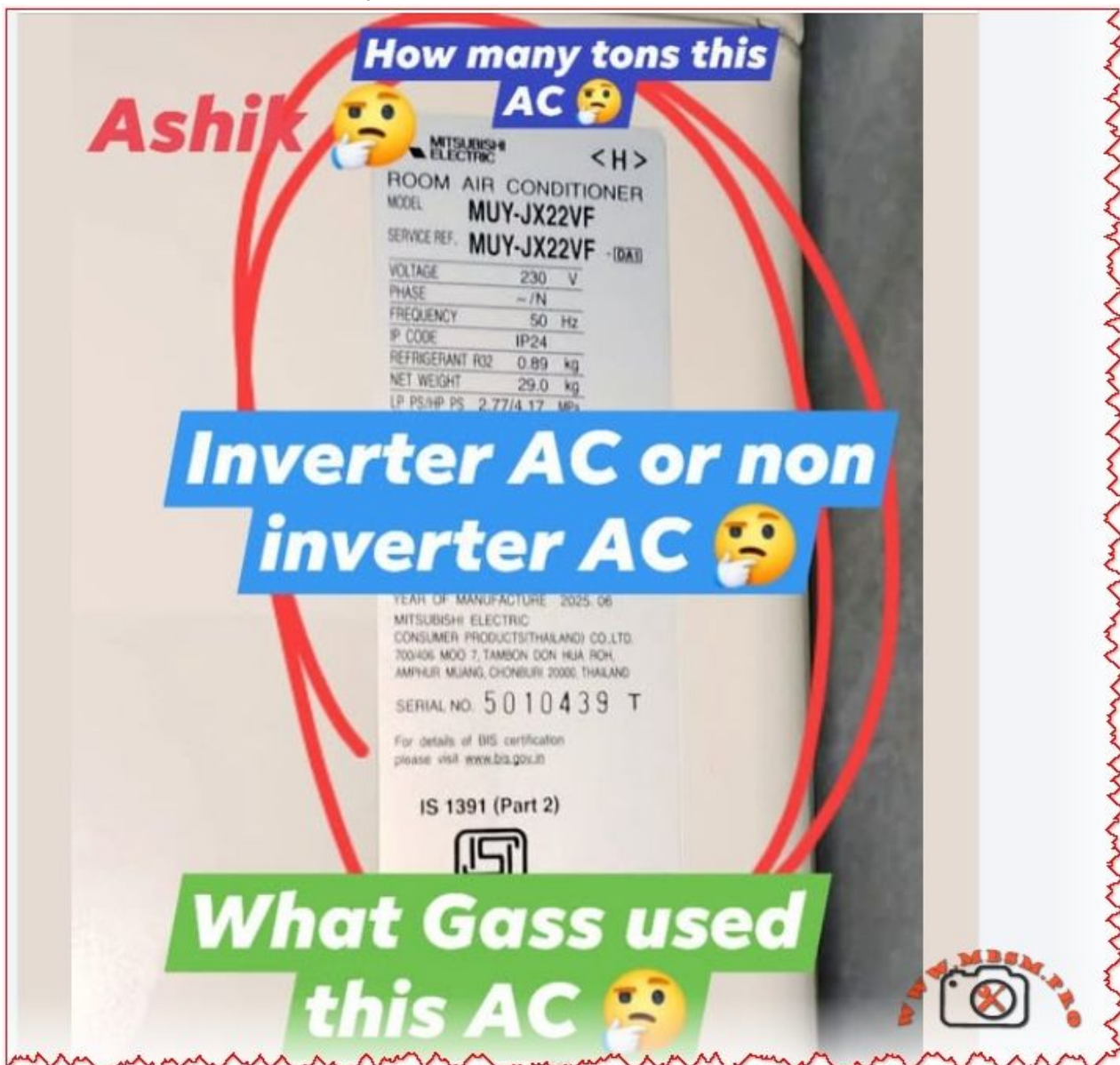
LG inverter air conditioner error codes give technicians a precise window into what is happening inside both indoor and outdoor units. From simple room

temperature sensor faults to complex IPM and DC peak alarms, decoding these numbers correctly is critical for fast, safe, and accurate HVAC troubleshooting on modern LG split systems.

Mitsubishi Ashiki MUY-JX22VF electrical technical data interpretation

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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

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Model : Inverter AC

<u>Error Code</u>	<u>Faults</u>
E1	Room Temperature sensor faulty
E2	Outdoor coil temperature sensor fault
E3	Indoor coil temperature sensor fault
E4	Indoor fan motor or DC Motor feedback fault
E5	Indoor & Outdoor communication error
E6	Sliding door fault
E8	Display board and main control board communication
E9	Humidity sensor failure
EA	Indoor fan zero crossing detection fault
Eb	Indoor EEPROM fault
F0	Outdoor DC Fan motor fault
F1	IPM modular fault
F2	PFC modular fault
F3	Compressor operation fault
F4	Exhaust temperature sensor fault
F5	Compressor top cover protection
F6	Outdoor ambient temperature sensor fault
F7	Over / under voltage protection
F8	Outdoor modular communication fault
F9	Outdoor EEPROM fault
FA	Suction temperature sensor fault
Fb	Indoor DC motor fault (Floor standing)
FC	Four way valve switching fault
Fd	Outdoor fan zero crossing detection fault
P2	High voltage protection
P3	Lack of fluid protection
P4	Outdoor coil prevent overload protection
P5	Exhaust protection
P6	Protection form high temperature
P7	Anti freezing protection

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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.