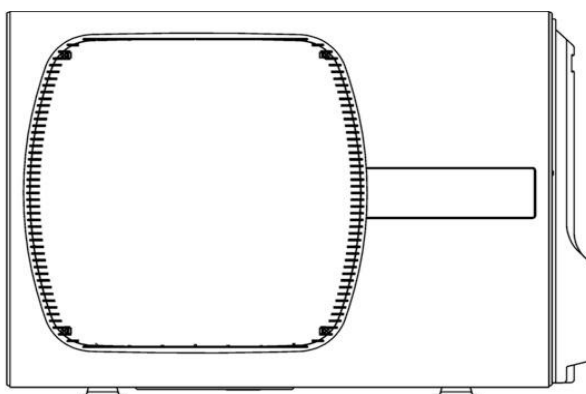
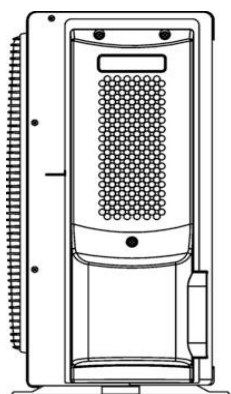


TECHNICAL DATA & SERVICE MANUAL

OUTDOOR UNIT: **GR9FI40R5IAA**

SPLIT SYSTEM AIR CONDITIONER

Model No.	Product Code No.
GR9FI40R5IAA	387107100



IMPORTANT! Please read before installation

This air conditioning system meets strict safety and operating standards.

For the installer or service person, it is important to install or service the system so that it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.
- The unit must be supplied with a dedicated electrical line.



WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If necessary, get help

These instructions are all you need for most installation sites and maintenance conditions.

If you require help for a special problem, contact our sale/service outlet or your certified dealer for additional instructions.

In case of improper installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

- During installation, connect before the refrigerant system and then the wiring one; proceed in the reverse order when removing the units.

WARNING

When wiring



ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIANS SHOULD ATTEMPT TO WIRE THIS SYSTEM.

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Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked, to ensure the grounding.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury and death.**

- **Ground the unit** following local electrical codes.
- The Yellow/Green wire cannot be used for any connection different from the ground connection.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- Do not use multi-core cable when wiring the power supply and control lines. Use separate cables for each type of line.

When transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminium fins on the air conditioner can cut your fingers.

When installing...

... In a ceiling or wall

Make sure the ceiling/wall is strong enough to hold the unit-weight. It may be necessary to build a strong wooden or metal frame to provide added support.

... In a room

Properly insulate any tubing run inside a room to prevent "sweating", which can cause dripping and water damage to walls and floors.

... In moist or uneven locations

Use a raised concrete base to provide a solid level foundation for the outdoor unit.

This prevents damage and abnormal vibrations.

... In area with strong winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

... In a snowy area (for heat pump-type systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When connecting refrigerant tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them; screw by hand and then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE:

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion, the refrigerant tubing for your particular model is specified as narrow tube for liquid, wide tube for gas.

When servicing

- Turn the power OFF at the main power board before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after the work, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- Ventilate the room during the installation or testing the refrigeration system; make sure that, after the installation, no gas leaks are present, because this could produce toxic gas and dangerous if in contact with flames or heat-sources.

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1. OPERATING RANGE

GR9FI40R5IAA			
	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	32°C D.B. / 23°C W.B.	43°C D.B.
	Minimum	10°C D.B. / 6°C W.B.	-15°C D.B.
Heating	Maximum	27°C D.B.	24°C D.B. / 18°C W.B.
	Minimum	5°C D.B.	-15°C D.B.

2. SPECIFICATIONS

2-1 Unit Specifications

GR9FI40R5IAA

Power source	220 - 240 V ~ 50 Hz
---------------------	---------------------

Voltage rating	230 V
-----------------------	-------

Performance *		MTA8FIA0R5I		Cooling	Heating
Capacity		kW		3,50	3,90
			BTU/h	11942	13307
Air circulation (High)		m ³ /h		600	
Moisture removal (High)		Liters/h		1,5	-

Electrical Rating		Cooling	Heating
Available voltage range	V	198 ~ 264	
Running amperes	A	4,40	4,30
Power input	W	950	930
Power factor	%	94	94
C.O.P.	W/W	3,68	4,19
Compressor locked rotor amperes	A	-	-

Features			
Fan speed			Variable (200÷800 continuous)
Compressor			Rotary (Hermetic) DC inverter
Refrigerant / Amount charged at shipment		g	R410A / 1100
Refrigerant control			Electronic expansion valve
Power noise level	Hi	dB-A	64
Refrigerant tubing connections			Flare type
Max. allowable tubing length at shipment		m	15
Refrigerant tube diameter	Narrow tube	mm(in.)	6,35 (1/4)
	Wide tube	mm(in.)	9,52 (3/8)

Dimensions & Weight			
Unit dimensions	Height	mm	630
	Width	mm	830
	Depth	mm	345
Package dimensions	Height	mm	710
	Width	mm	990
	Depth	mm	410
Weight	Net	kg	40,0
	Shipping	kg	45,0
Shipping volume		m ³	0,29

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Remarks:

Rating Conditions are:

Cooling: Indoor Air Temperature 27°C D.B. / 19°C W.B.

Outdoor Air Temperature 35°C D.B. / 24°C W.B.

Heating: Indoor Air Temperature 20°C D.B.

Outdoor Air Temperature 7°C D.B. / 6°C W.B.

* For other INDOOR UNITS' MODELS, please refer to catalogue

2-2 Major Component Specifications

GR9FI40R5IAA

Compressor				
Type	Rotary (Hermetic) DC inverter			
Compressor model	5RS102XBE01			
Nominal input (compressor rating condition)	W	985		
Compressor oil...Amount	cc	RB68A 320		
Coil resistance (Ambient temp. 20°C)	Ω	0,858		
Overload relay	Software Protection			
Safety devices	Type	-		
	Operating Temp.	Open	°C	-
		Close	°C	-

Fan & Fan Motor				
Type	Propeller			
Q'ty Ø	Nr. ... mm	1.... Ø 400		
Fan motor model...Q'ty	P35810 P0012			
No. Of poles...rpm	8 ... variable (200 ÷ 800)			
Nominal output	W	20		
Coil resistance (Ambient temp. 25 °C)	Ω	BRN-BLK: 210		
		YEL-BLK: 210		
		BRN-YEL: 210		
Safety devices	Type	-		
	Operating temp.	Open	°C	-
		Close	°C	-

Heat Exch. Coil			
Coil	Aluminium plate fin / Copper tube		
Rows	2		
Fin pitch	mm	1,5	
Face area	m ²	0,47	

External Finish	Acrylic baked-on enamel finish
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DATA SUBJECT TO CHANGE WITHOUT NOTICE

2-3 Other Component Specifications

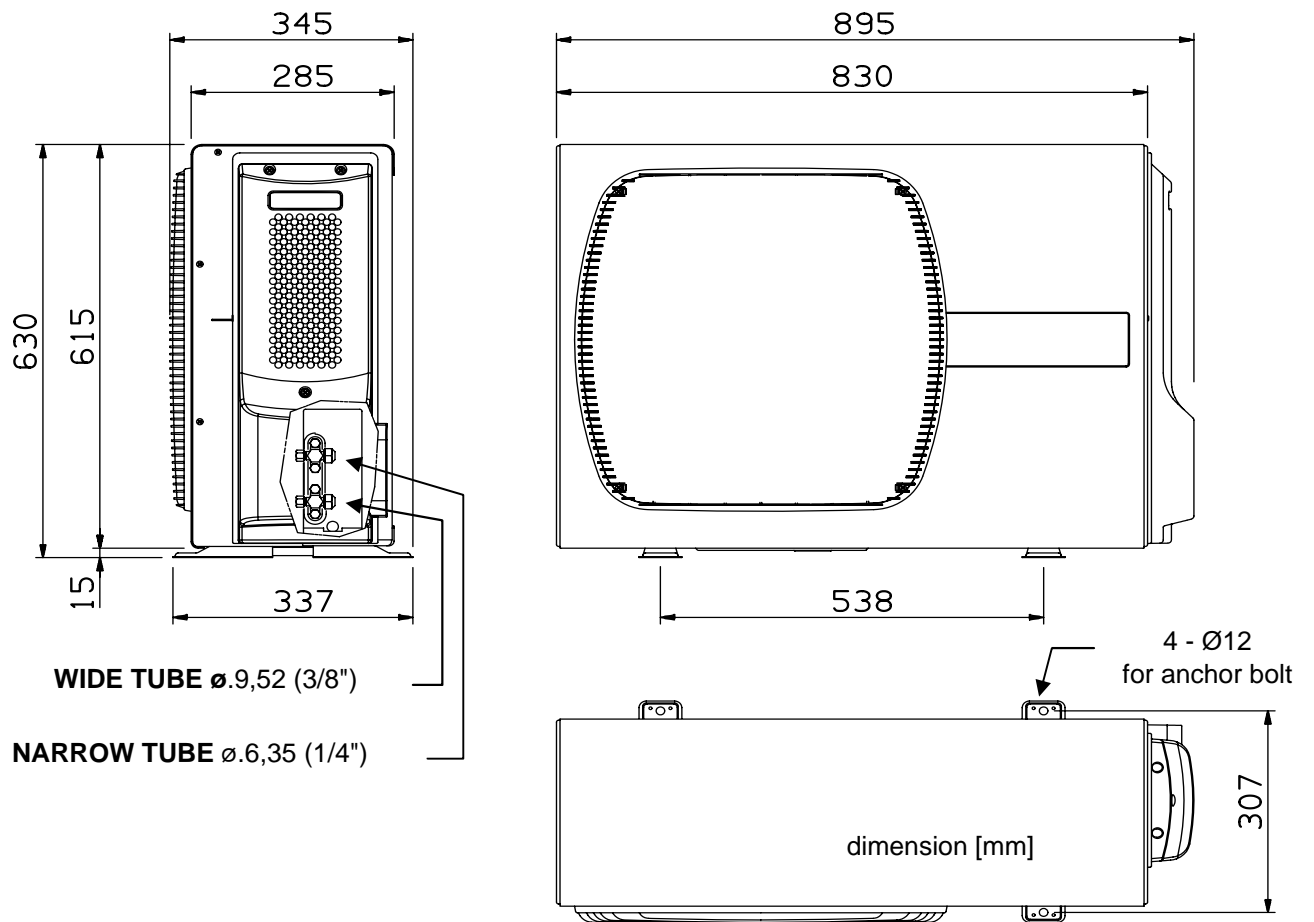
GR9FI40R5IAA

4-way Valve (20S)		SQ-136 (Coil) SHF-4H-23U (Valve)
Coil rating		AC 220/240 V, 50 Hz
Coil resistance	Ω (at 20°C)	1440 \pm 5%
Electronic Expansion Valve		ZCAM-MD12EX(Coil) ZCAM-BD15EX (Valve)
Coil rating		DC 12 V
Coil resistance / phase	Ω (at 20°C)	46 \pm 4%
Defrost Valve		FQ-235-RK (Coil) FDF6A-049-RK (Valve)
Coil rating		AC 220/240 V - 50 Hz
Coil resistance	Ω (at 20°C)	1273 \pm 10%
Thermistor (coil sensor)		NTC-THERMISTOR
Resistance	k Ω	10 at 25 °C
Thermistor (compressor discharge sensor)		NTC-THERMISTOR
Resistance	k Ω	10 at 25 °C
Thermistor (inlet air sensor)		NTC-THERMISTOR
Resistance	k Ω	10 at 25 °C
Crank case heater		30 W RESISTANCE
Resistance	Ω (at 20°C)	1760 \pm 10%
Base heater		SILICON RESISTANCE 75W
Resistance	Ω (at 20°C)	705 \pm 10%

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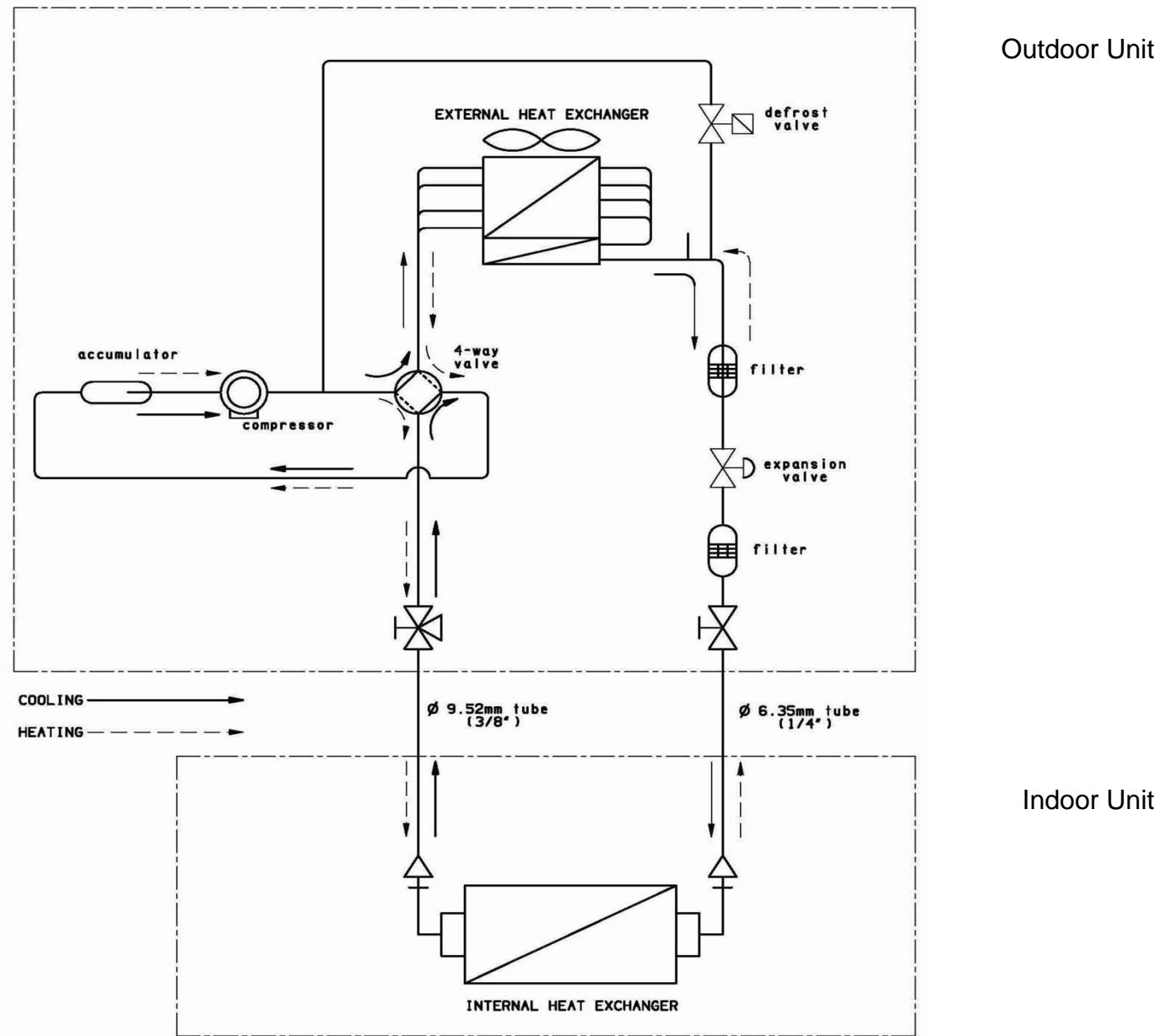
3. DIMENSIONAL DATA

GR9FI40R5IAA



4. REFRIGERANT FLOW DIAGRAM

Outdoor Unit: **GR9FI40R5IAA**
 Indoor Unit: **MTA8FIA0R5I MTA8FBIA0R5I CA8FIA0R5I KPA8FIA0R5I SDA8FIA0R5I**



Insulation of Refrigerant Tubing

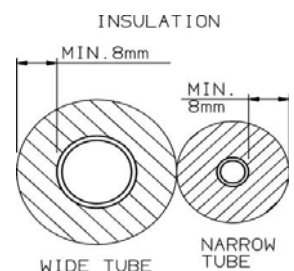
IMPORTANT

Because capillary tubing is used in the outdoor unit, both the wide and narrow tubes of this air conditioner become cold. To prevent heat loss and wet floors due to dripping of condensation, both tubes must be well insulated with a proper insulation material.

The thickness of the insulation should be a min. 8mm.

CAUTION

After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack.

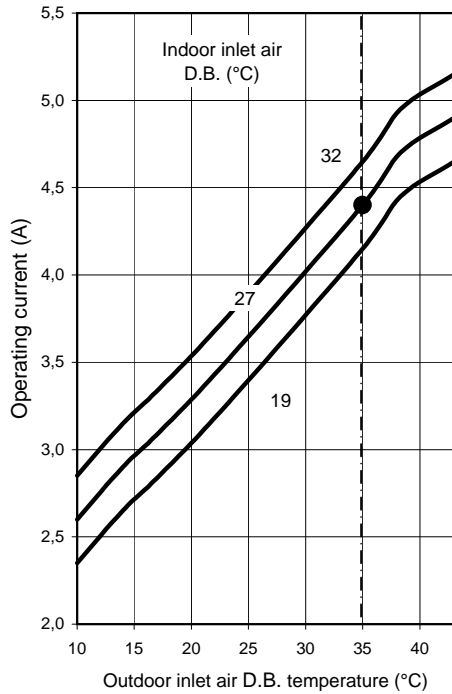


5. PERFORMANCE DATA

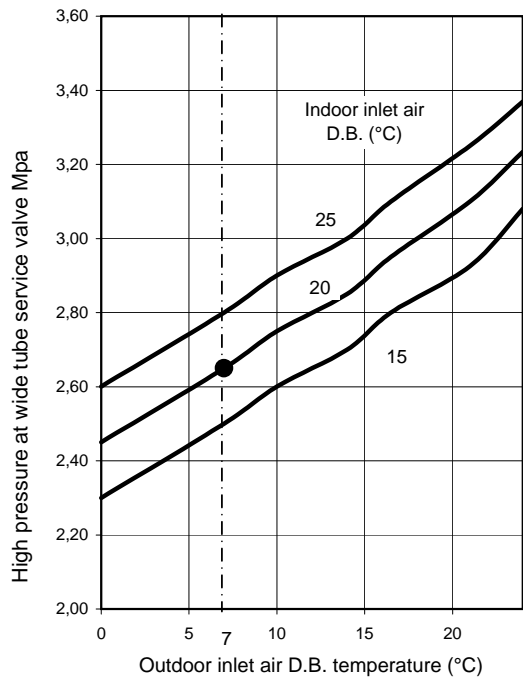
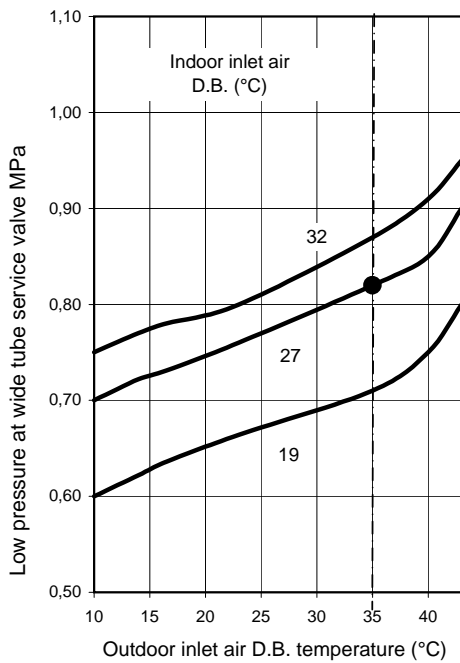
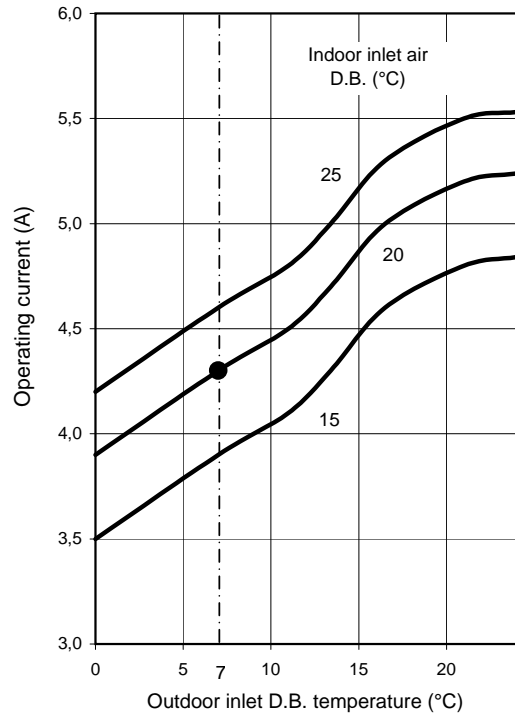
5-1 Performance charts

GR9FI40R5IAA

■ Cooling Characteristics



■ Heating Characteristics



Note

Overload prevention operates to protect the air conditioner when outdoor ambient temperature reaches extremely high values in heating mode.

● Points of Rating condition

Data referred to MTA8FIA0R5I

6. ELECTRICAL DATA

6-1 Electrical characteristics

OUTDOOR UNIT: **GR9FI40R5IAA**

COOLING

		Indoor Unit	Outdoor unit		Complete Unit
		Fan Motor	Fan Motor + Compressor		
Performance at		230 V - 1 Phase - 50 Hz			
Rating conditions	Running Amps. A	0,13	4,27		4,4
	Power input kW	0,031	0,919		0,950

Rating Conditions: Indoor Air Temperature 27°C D.B. / 19°C W.B.
Outdoor Air Temperature 35°C D.B. / 24°C W.B.

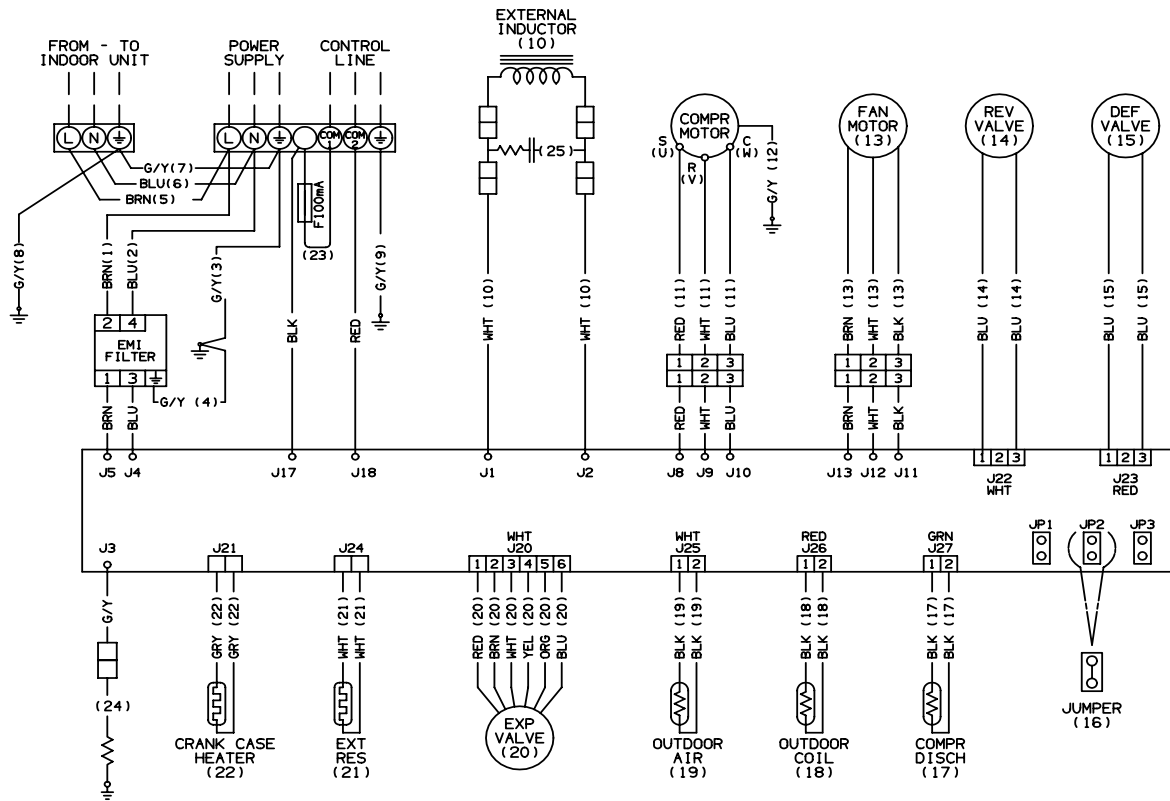
HEATING

		Indoor Unit	Outdoor unit		Complete Unit
		Fan Motor	Fan Motor + Compressor		
Performance at		230 V - 1 Phase - 50 Hz			
Rating conditions	Running Amps. A	0,13	4,17		4,3
	Power input kW	0,031	0,899		0,930

Rating Conditions: Indoor Air Temperature 20°C D.B.
Outdoor Air Temperature 7°C D.B. / 6°C W.B.

NOTE: Data referred to indoor unit MTA8FIA0R5I model.
For other indoor unit models there could be some differences.

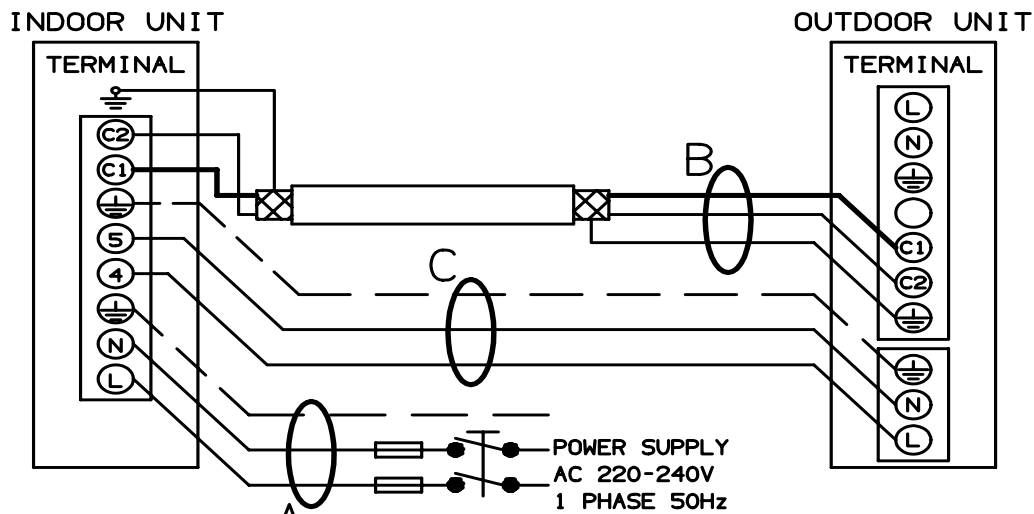
6-2 Electric Wiring Diagram



6-3 System Wiring Diagram

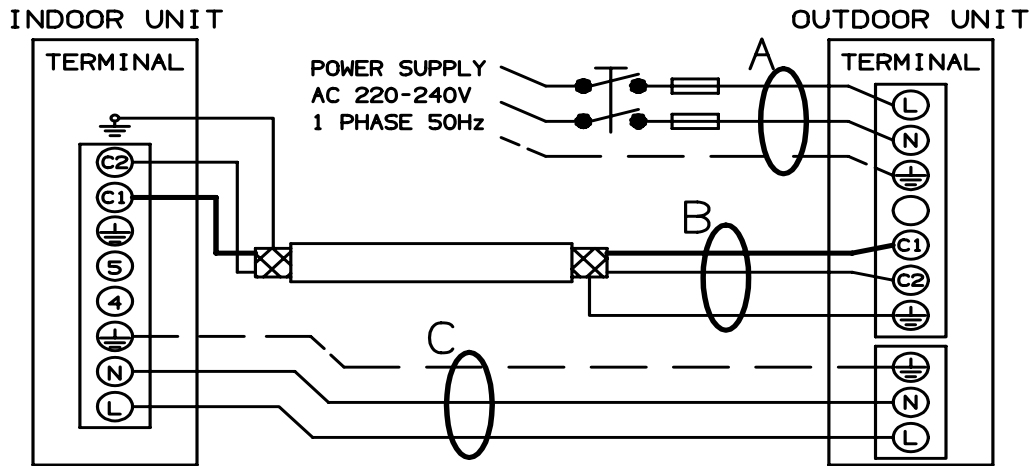
Wiring diagram for all units except hi-wall

INDOOR UNIT POWER SUPPLY



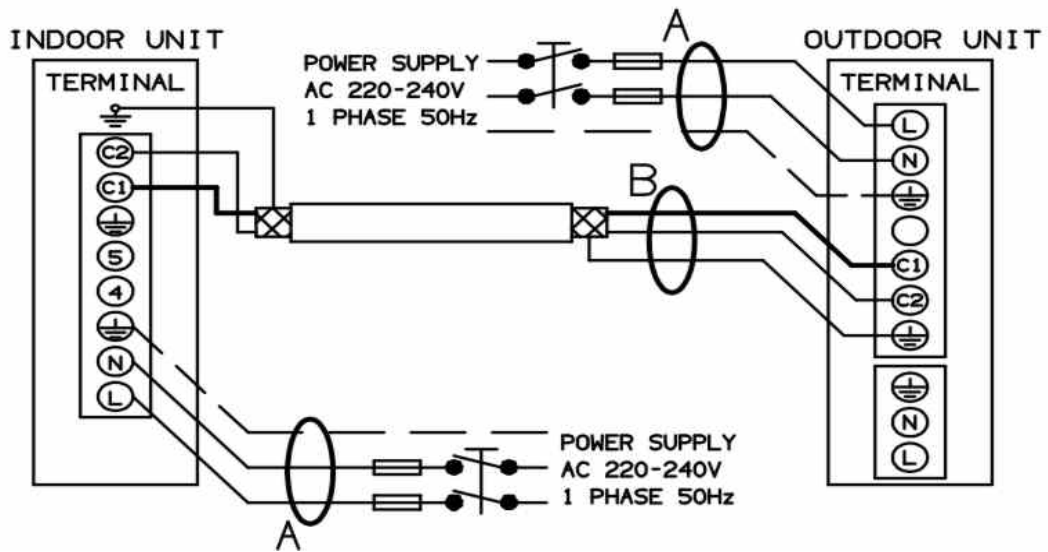
Wiring diagram for all units

OUTDOOR UNIT POWER SUPPLY



Wiring diagram for all unit except hi-wall

INDOOR + OUTDOOR UNIT POWER SUPPLY



7. FUNCTION

7-1 Diagnostic

With this feature it is possible to have a visual signal that a trouble is occurring.

This mode is always active and the signalling is made through the display board LEDs .

In case of no troubles the LEDs status follows its normal function.

The detected troubles are showed to the user/technician using the 3 or 5 leds of the indoor unit receiver and the 5 leds on the outdoor pcb. For each fault there are different effects upon the operation of the A/C:

NOTES

- The troubles are showed according to a priority list that is in case of more than one trouble present, is always showed, at first, the one with the highest priority (3 ⇨ 2 ⇨ 1 etc).
- Sensor damaged means a situation where sensor is short-circuited or opened.
- In case of damaged sensors, the system (CM, FMO, FMI etc), if in OFF state, does not start.

INDICATION ON OUTDOOR UNIT	
✕ LED OFF	⚡ LED BLINKING

RANK	DIAGNOSIS CONTENTS	DL3	DL4	DL5	DL6	DL7	EFFECTS
10	-CDT PROBE DAMAGED OR NOT CONNECTED	✕	⚡	✕	✕	✕	system does not operate as soon as fault is cleared, the system automatically re-start after 3 min. during this time, the signalling is showed
9	-OAT PROBE DAMAGED OR NOT CONNECTED	✕	✕	⚡	✕	✕	
8	-OCT PROBE DAMAGED OR NOT CONNECTED	✕	✕	✕	⚡	✕	
7	-COMPRESSOR OVERCURRENT	✕	✕	✕	✕	⚡	
6	-COMPRESSOR OVERTEMPERATURE	⚡	⚡	✕	✕	✕	
5	-FAN OVERCURRENT	✕	⚡	⚡	✕	✕	
4	-FAN OVERTEMPERATURE	✕	✕	⚡	⚡	✕	
3	-FAULT ON INDOOR UNIT	✕	✕	✕	⚡	⚡	
2	-COMUNICATION ERROR	⚡	⚡	⚡	✕	✕	
1	-PFC FAULT	✕	⚡	⚡	⚡	✕	



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