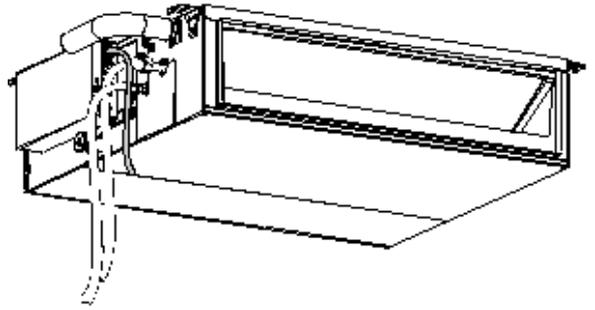


# INSTALLATION MANUAL



## MODELS

### Duct type air conditioner

DLV 007      DLV 009  
DLV 012      DLV 015  
DLV 018      DLV 021  
DLV 024

## SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

 **WARNING** This indication shows the possibility of causing death or serious injury.

 **CAUTION** This indication shows the possibility of causing harm or damage the equipment.

## WARNING

- 1) Use qualified installer and follow carefully this instructions. Otherwise it will cause electrical shock, water leakage, or esthetic problem.
- 2) Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- 3) For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
- 4) Use the specified cable and connect tightly for indoor connection. Connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
- 5) Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
- 6) When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.
- 7) Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock.
- 8) This equipment must be earthed. It may cause electrical shock if the grounding is not perfect.
- 9) Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- 10) Please disconnect the power supply when install or maintenance or service this system.

## CAUTION

- 1) Selection of the installation location.  
Select a installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.
- 2) Do not release refrigerant.  
Do not release refrigerant during piping work for installation, reinstallation and during repairing a refrigeration parts. Take care of the liquid refrigerant. it may cause frostbite.
- 3) It may need two people to carry out the installation work.
- 4) Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
- 5) Carry out drainage pipes as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

## Required tools for installation works

NO.	Tool	NO.	Tool	NO.	Tool
1	Screw driver	5	Pipe cutter	9	Torque wrench 18 Nm (1.8 kgf.m) 45 Nm (4.5 kgf.m) 65 Nm (6.5 kgf.m) 75 Nm (7.5 kgf.m)
2	Electric drill, hole core drill ( 60 mm)	6	Reamer		
3	Hexagonal wrench	7	Knife		
4	Spanner	8	Measuring tape		

## Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Central control display (optional) 	1	3	Drain tube+clips 	1	5	Unit operation manual 	2
2	Tie-Waps 	6	4	Screws washer dowels 	5	6	Gas tubing insulation 	1

# 1 SELECT THE BEST LOCATION

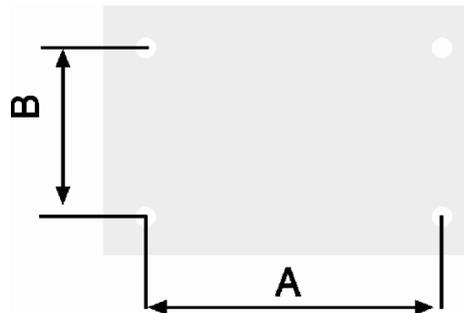
### While selecting a place for the indoor unit

- Allow max. air flow to the desire space.
- Allow max return air flow.
- Ensure adequate drainage of condensed water.
- The distance between air-conditioner and obstacles should meets the requirments in below fig.
- Leave a minimum 250 mm free space in front of the filter.
- Allow a free service access to electrical box.
- Allow easy access to the base of the indoor unit while providing enough space from the ceiling.
- The installation height should over 2.3m.

# 2 UNIT INSTALLATION

## 1.HOLES DRILLING LOCATION ON THE CEILING FOR INDOOR UNIT

Model	Unit:mm	
	A	B
DLV007-DLV015	790	565
DLV018-DLV024	1090	565

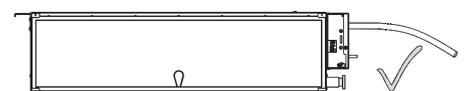
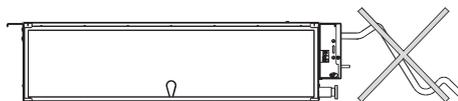
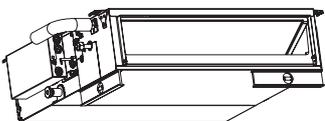


## 2.DRAINAGE INSTALLATION

### General

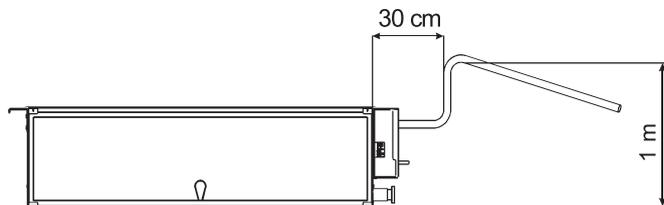
For an efficient functioning of the drainage system, please take care of the following:

- Always balance the unit with 2 downward to the drainage side of the unit.
- Use 19 mm tube drainage.
- It is recommended to prepare a drainage point by professional plumber close to the unit.
- For proper drainage, the passage must be planned with 1 down slope.
- Prevent any upwards or reverse flow in any part.
- For preventing of unpleasant smells in the room, install a siphon in the installation. Install the draining tube with 6 mm thickness thermal insulation sleeve.



## Horizontal drainage

- The unit includes a drain pump, which can elevate condensate water up to 120 cm from the unit lowest level. The drainage tube is connected to the upper drainage nozzle.
- The lower drainage nozzle role is to empty the drain pan before servicing the unit.
- Install on the drain tube with 5-10 mm thickness thermal insulation sleeve to prevent drippings.

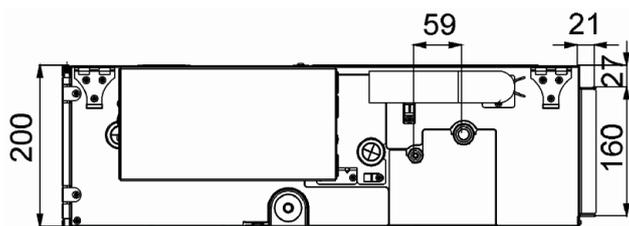


## Drainage test

For VRF system please do drainage test after finishing all installations, wiring and piping included, and doing ITEST (Installation test ) successfully:

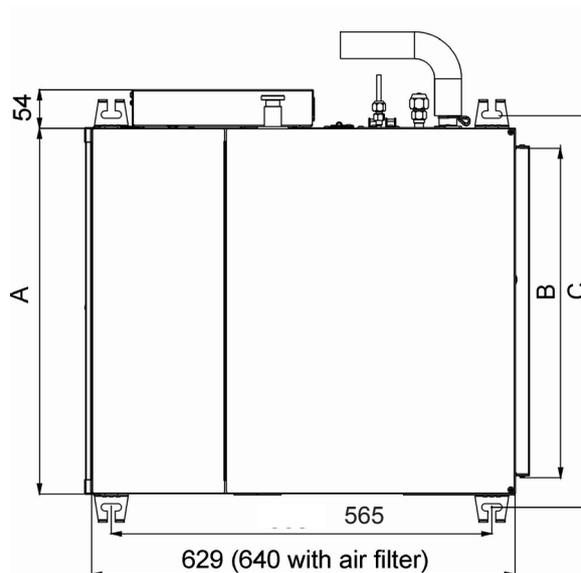
- (1) Power on the system, and runs cooling mode.
- (2) Check whether the pump sound is normal.
- (3) Slowly inject about 1,000 cc of water into the drain pan. Check the drainage through the transparent drain port to see if any drain leakage happens.
- (4) When the check is finished, do not forget to cut off the power supply.

## 3. UNIT DIMENSIONS



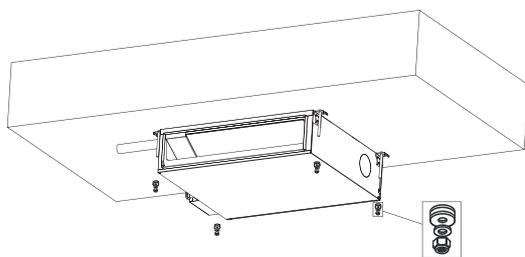
Unit:mm

Model	A	B	C
DLV007-DLV015	750	696	790
DLV018-DLV024	1050	996	1090



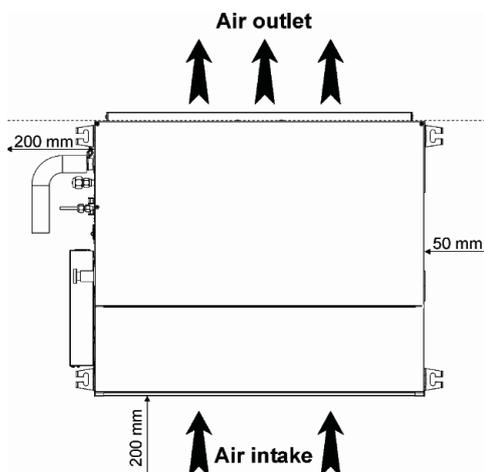
## 4.ACCESS TO THE UNIT

	Φ Liquid Pipe	Φ Gas Pipe
DLV007	1 /4"	1 /2"
DLV009	1/4"	1/2"
DLV012	1/4"	1/2"
DLV015	1 /4"	1 /2"
DLV018	1 /4"	1 /2"
DLV021	3/8"	5/8"
DLV024	3/8"	5/8"



## 5. UNIT INSTALLATION

- Insert 4 M10 or 3/8 threads rods into the ceiling.
- Introduce the rods through the slots of unit suspension brackets.
- Position the shock absorbers, add washers and screw the nuts until the unit is firmly supported.
- In case of a gap between the unit and the ceiling, put a rubber or a neoprene sheet.

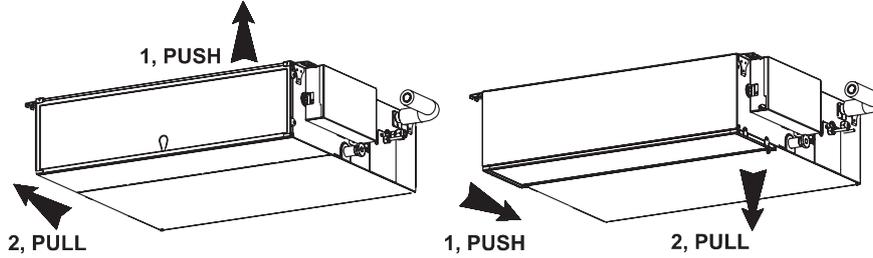


## 6. AIR FILTER LOCATION

The air filter is located in the rear side of the unit (default from factory) but can be easily relocated in the bottom of the unit if it is required.

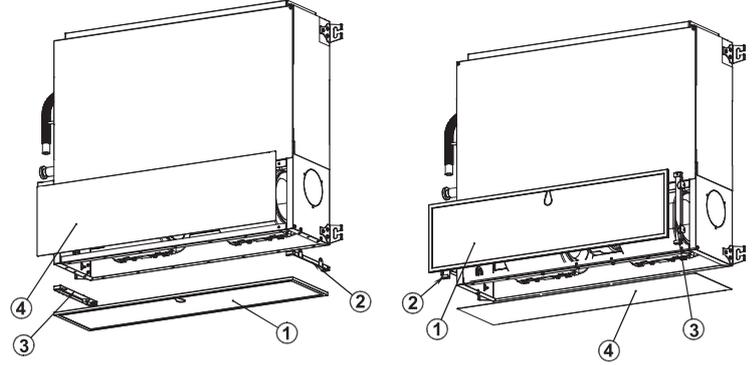
## 7. AIR FILTER CLEANING

For cleaning the filter remove it by pushing up toward the back of the unit and pull it out as described below.



## 8. AIR FILTER RELOCATION

1. Remove air filter from the unit.
2. Remove panel 4.
3. Remove filter trails 2-3.
4. Insert filter trails 2-3 on the opposite side of the unit. 5. Close panel 4 in the rear side of the unit.
5. Insert the filter into the trails.



# 3 DISPLAY CONTROL UNIT

## 1. LOCATION CRITERIA

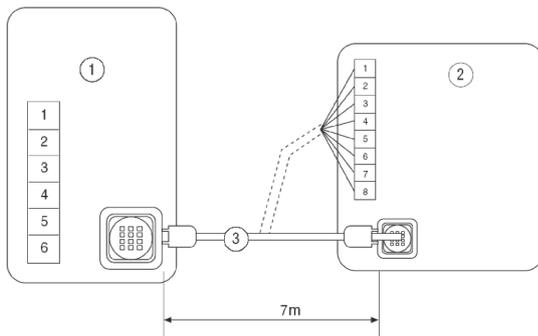
- It is recommended to install the Display Control Unit close to a ceiling in a central and neutral zone at typical conditions. In addition, the aesthetic aspect should be considered.
- The Display Control Unit is connected to the main control board on the air conditioner (the indoor unit) by a communication cable. Cable is connected to the Display Control Unit by a quick-connector. (8 pin plug)

## 2. INSTALLATION OF DISPLAY CONTROL UNIT ON WALL

- Drill a 12 mm diameter hole on the wall, for routing the communication cable.
- Open the unit cover, drill 3 holes in the wall to match the holes in the Display Control Unit, install the inserts and fasten the unit to the wall with 3 screws.
- The Display Control Unit is provided of a special communication cable, 7 meters long, terminated by a plug, connected in the housing itself to a distribution box, which enables the control of the air conditioner from several different rooms, each one from its own Display Control Unit.
- Connect the quick connector to the appropriate socket on the main control board in the indoor unit electrical box.

## 3. CONSIDERATIONS IN LOCATING THE REMOTE CONTROL UNIT

- a) Locate the Remote Control Unit in such a way that when mounted on its support on the wall, it will be in line sight with the Display Control Unit (at less than 8 m).
- b) It is recommended to establish the final location of the Remote Control Unit only after the first operation, assuring proper transmission and reception between the Remote Control Unit and the Display Control Unit.



1. Main Control Board on Indoor Unit.
2. Distribution Board.
3. Communication Cable.

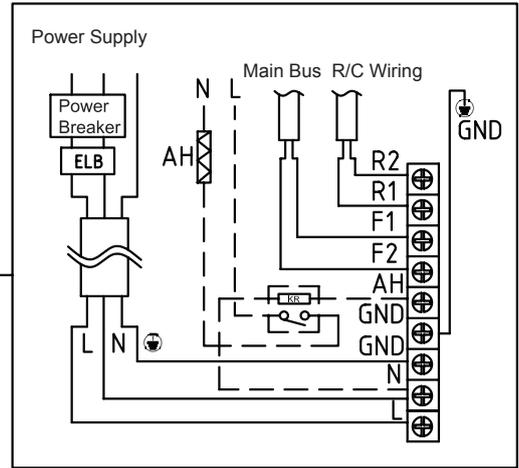
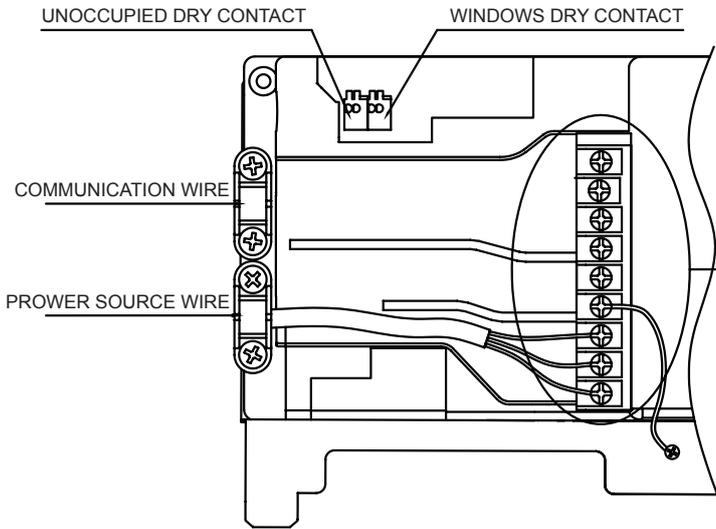
COLOR CHART			
Conn. Point	Wire Color	Conn. Point	Wire Color
1	Blue	5	Purple
2	Green	6	Yellow
3	Black	7	Orange
4	Brown	8	Red

# 4

# ELECTRICAL WIRING CONNECTION

## 1. POWER SUPPLY WIRING

- Unscrew and remove the electrical box.
- Connect the power supply wirings to the power supply terminal block.
- When doing this, press the power supply wiring under the wire clip.



ELB:Electricity Leakage Breaker.  
AH :Assistant heater.

## 2.MAIN BUS AND R/C COMMUNICATION WIRING

- Unscrew and remove the electrical box.
- Connect the R/C wirings to R1,R2 terminal block and the mainbus wirings to F1,F2 terminal block.
- Press the wirings under the wire clip tightly.

## 3.TIGHTENING TORQUE FOR THE TERMINAL SCREWS

- Use the correct screwdriverfortightening the terminal screws.
- If the blade of screwdriver is too small, the head of the screw might be damaged, And the screw will not be properly tightened. If the terminal screws are tightened too hard, screws might be damaged.
- Refer to the table below for the tightening torque of the terminal screws.

Terminal	Size	Tightening torque
Terminal block (total 9 pins)	M4	1.2~1.5N.m

## 4.ELECTRICAL CHARACTERISTICS

Unit			Power supply		Fan motor	
Model	Hz	Volts	MCA	MFA	KW	FLA
DLV007	50	220~240	0.64	16	0.12	0.38
DLV009			0.64	16	0.12	0.38
DLV012			0.64	16	0.12	0.38
DLV015			0.64	16	0.12	0.38
DLV018			0.73	16	0.14	0.45
DLV021			0.73	16	0.14	0.45
DLV024			0.73	16	0.14	0.45

MCA: Min. Circuit Amps (A)  
MFA: Max. Fuse Amps(A)  
KW : Fan Motor Rated Output(KW)  
LA : Full Load Amps(A)

- All field supplied parts and materials and electricians works must conform to local codes.
- Use copper wire only.
- All wiring must be performed by an authorized electrician.
- Every indoor unit must have a sub circle breaker and the whole system must have a main circle breaker.
- Be sure to ground the air conditioner.
- The appliance shall be installed in accordance with national wiring regulations , and shall be provided to ensure all-pole disconnection from the supply mains, and distance between the poles shall be more than 3 mm .

## 5.SPECIFICATIONS FOR FIELD SUPPLIED ELB AND WIRE

Model	Power supply wiring		Remote controller wiring Transmission wiring	
	Field ELB	Wire and Size	wires	Size
DLV007	16A	Must comply with maximum current and local codes ( $\geq 0.75\text{mm}^2$ )	Twisted-pair Wire	$\geq 1.0\text{mm}^2$
DLV009				
DLV012				
DLV015				
DLV018				
DLV021				
DLV024				

## 6.HEIGHT COMPENSATION SETTING

The Compensation setting according to installation height can be done by using the dip switch 11 and 12 on controller PCB.

Installation Height	Height Code	DS11	DS12
2.3-2.7(m)	H0	OFF	OFF
2.7-3.1(m)	H1	OFF	ON
3.1-3.5(m)	H2	ON	OFF
3.5(m)	H3	ON	ON

Note: Please disconnect the power supply when change this setting.

If you feel too noisy, please set DS11 and DS12 to lower height code level.

## CHECK ITEMS

### BEFORE POWER ON

- Is there any gas leakage at flare nut connections?
- Has the heat insulation been carried out at flare nut connection?
- Is the connecting cable being fixed to terminal board firmly? Is the connecting cable being clamped firmly?
- Is the drainage OK? (Refer to "Check the drainage" section)
- Is the earth wire connection properly done?
- Is the indoor unit properly hooked to the installation plate? Is the power supply voltage complied with rated value?

### AFTER POWER ON

- Is there any abnormal sound?
- Is the cooling operation normal?
- Is the thermostat operation normal?
- Is the remote control's LCD operation normal?