

## 2-PIPE MINI-FSV LE2 SERIES

kW		12.1		12.1		14.0		14.0		15.5		15.5			
Model name		U-4LE2R5 / U-4LE2R5E*		U-4LE2R8		U-5LE2R5 / U-5LE2R5E*		U-5LE2R8		U-6LE2R5 / U-6LE2R5E*		U-6LE2R8			
Power supply		230/240V/1-phase/50Hz		400/415V/3-phase/50Hz		230/240V/1-phase/50Hz		400/415V/3-phase/50Hz		230/240V/1-phase/50Hz		400/415V/3-phase/50Hz			
Voltage		230V	240V	400V	415V	230V	240V	400V	415V	230V	240V	400V	415V		
Capacity	Cooling	kW	12.1	12.1	14.0	14.0	15.5	15.5							
		BTU/h	41,300	41,300	47,800	47,800	52,900	52,900							
	Heating	kW	12.5	12.5	16.0	16.0	16.5	16.5							
		BTU/h	42,700	42,700	54,600	54,600	56,300	56,300							
EER/COP	Cooling	W/W	4.50	4.50	4.06	4.06	3.73	3.73							
	Heating	W/W	5.19	5.19	4.60	4.60	4.27	4.27							
Dimensions (H/W/D)		996 x 980 x 370		996 x 980 x 370		996 x 980 x 370		996 x 980 x 370		996 x 980 x 370		996 x 980 x 370			
Net weight		106		106		106		106		106		106			
Electrical ratings	Cooling	Running current	A	12.70	12.20	4.17	4.02	16.30	15.60	5.30	5.11	19.40	18.60	6.37	6.14
		Power input	kW	2.69	2.69	2.69	2.69	3.45	3.45	3.45	3.45	4.15	4.15	4.15	4.15
	Heating	Running current	A	11.60	11.20	3.78	3.64	16.60	15.90	5.34	5.15	18.20	17.50	5.93	5.71
		Power input	kW	2.41	2.41	2.41	2.41	3.48	3.48	3.48	3.48	3.86	3.86	3.86	3.86
Starting current		A		1		1		1		1		1			
Air flow rate		m <sup>3</sup> /h		4,140		4,140		4,320		4,320		4,440		4,440	
		L/s		1,150		1,150		1,200		1,200		1,233		1,233	
Refrigerant amount at shipment		kg		R410A 6.70		R410A 6.70		R410A 6.70		R410A 6.70		R410A 6.70			
Piping connection	Gas pipe	mm (inches)	Ø15.88 (Ø5/8)		Ø15.88 (Ø5/8)		Ø15.88 (Ø5/8)		Ø15.88 (Ø5/8)		Ø15.88 (Ø5/8)		Ø15.88 (Ø5/8)		
	Liquid pipe	mm (inches)	Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		
Ambient temperature operating range		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB			
Sound pressure level (Cooling)	Normal mode	dB(A)	52.0		52.0		53.0		53.0		54.0		54.0		
	Silent mode	dB(A)	45.0		45.0		46.0		46.0		47.0		47.0		
Sound power level (Cooling)		Normal mode		dB		69.0		69.0		71.0		71.0			

Global remarks	Rated conditions:		Cooling	Heating
	Indoor air temperature		27°C DB / 19°C WB	20°C DB
	Outdoor air temperature		35°C DB	7°C DB / 6°C WB

\* High durable model (with suffix "E") has same specifications.

## 2-PIPE MINI-FSV LE1 SERIES

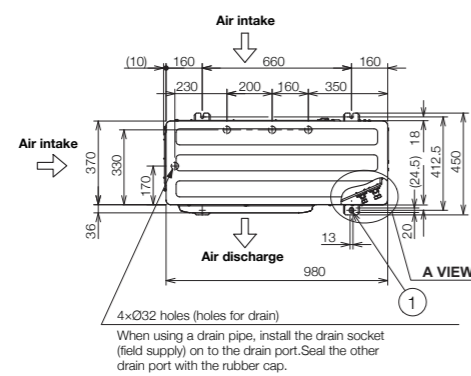
kW		22.4		25.0			
Model name		U-8LE1R8 / U-8LE1R8E*		U-10LE1R8 / U-10LE1R8E*			
Power supply		400/415V/3-phase/50Hz 380/400V/3-phase/60Hz		400/415V/3-phase/50Hz 380/400V/3-phase/60Hz			
Voltage		400V		415V			
Capacity	Cooling	kW	22.4	25.0			
		BTU/h	76,500	85,300			
	Heating	kW	25.0	28.0			
		BTU/h	85,300	95,600			
EER/COP	Cooling	W/W	3.80	3.31			
	Heating	W/W	4.02	3.93			
Dimensions (H/W/D)		1,500 x 980 x 370		1,500 x 980 x 370			
Net weight		132		133			
Electrical ratings	Cooling	Running current	A	9.15	8.80	11.70	11.30
		Power input	kW	5.89	5.89	7.55	7.55
	Heating	Running current	A	9.65	9.30	11.10	10.70
		Power input	kW	6.22	6.22	7.13	7.13
Starting current		A		1			
Air flow rate		m <sup>3</sup> /h		9,000		9,600	
		L/s		2,500		2,666	
Refrigerant amount at shipment		kg		R410A 6.30		R410A 6.60	
Piping connection	Gas pipe	mm (inches)	Ø19.05 (Ø3/4)		Ø22.22 (Ø7/8)		
	Liquid pipe	mm (inches)	Ø9.52 (Ø3/8)		Ø9.52 (Ø3/8)		
Ambient temperature operating range		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB		Cooling:-10°CDB--+46°CDB, Heating:-20°CWB--+18°CWB			
Sound pressure level (Cooling)	Normal mode	dB(A)	60.0		62.0		
	Silent mode	dB(A)	53.0		55.0		
Sound power level (Cooling)		Normal mode		dB		83.0	

Global remarks	Rated conditions:		Cooling	Heating
	Indoor air temperature		27°C DB / 19°C WB	20°C DB
	Outdoor air temperature		35°C DB	7°C DB / 6°C WB

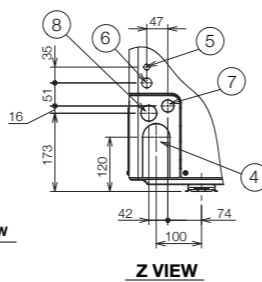
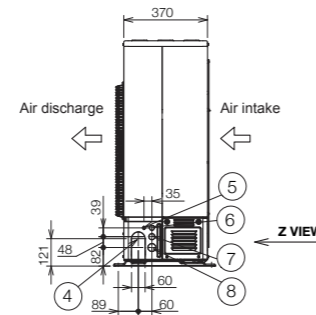
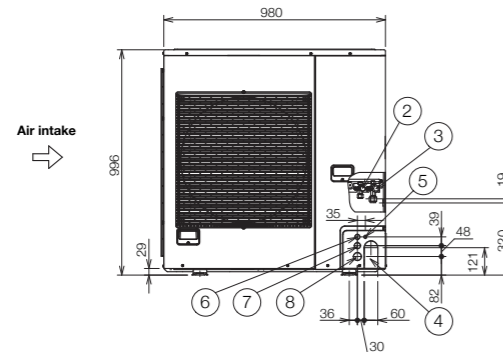
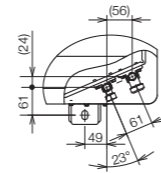
\* High durable model (with suffix "E") has same specifications.

### Dimensions

U-4LE2R5 / U-4LE2R8 / U-4LE2R5E  
 U-5LE2R5 / U-5LE2R8 / U-5LE2R5E  
 U-6LE2R5 / U-6LE2R8 / U-6LE2R5E



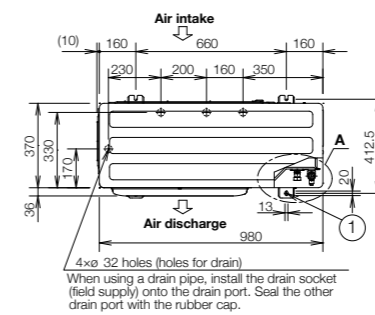
- ① Mounting hole (4-R6.5), anchor bolt : M10
- ② Refrigerant tubing (liquid tube), flared connection (Ø9.52)
- ③ Refrigerant tubing (gas tube), flared connection (Ø15.88)
- ④ Refrigerant tubing port
- ⑤ Electrical wiring port (Ø13)
- ⑥ Electrical wiring port (Ø22)
- ⑦ Electrical wiring port (Ø27)
- ⑧ Electrical wiring port (Ø35)



Unit: mm

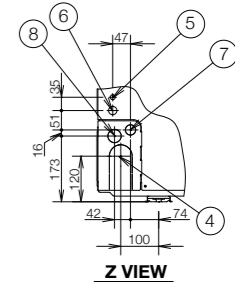
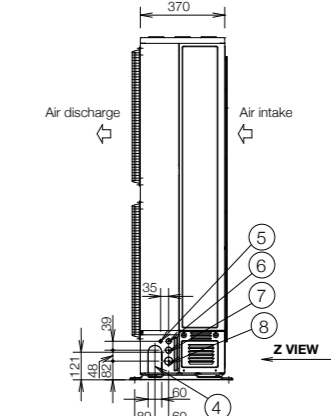
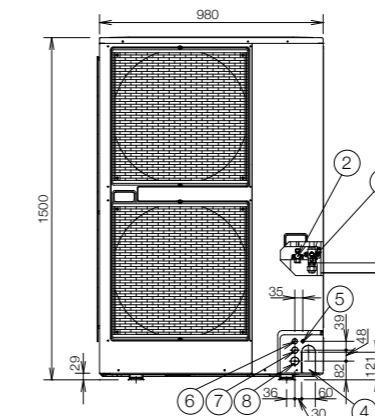
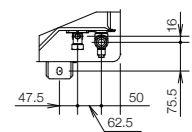
### Dimensions

U-8LE1R8 / U-10LE1R8  
 U-8LE1R8E / U-10LE1R8E



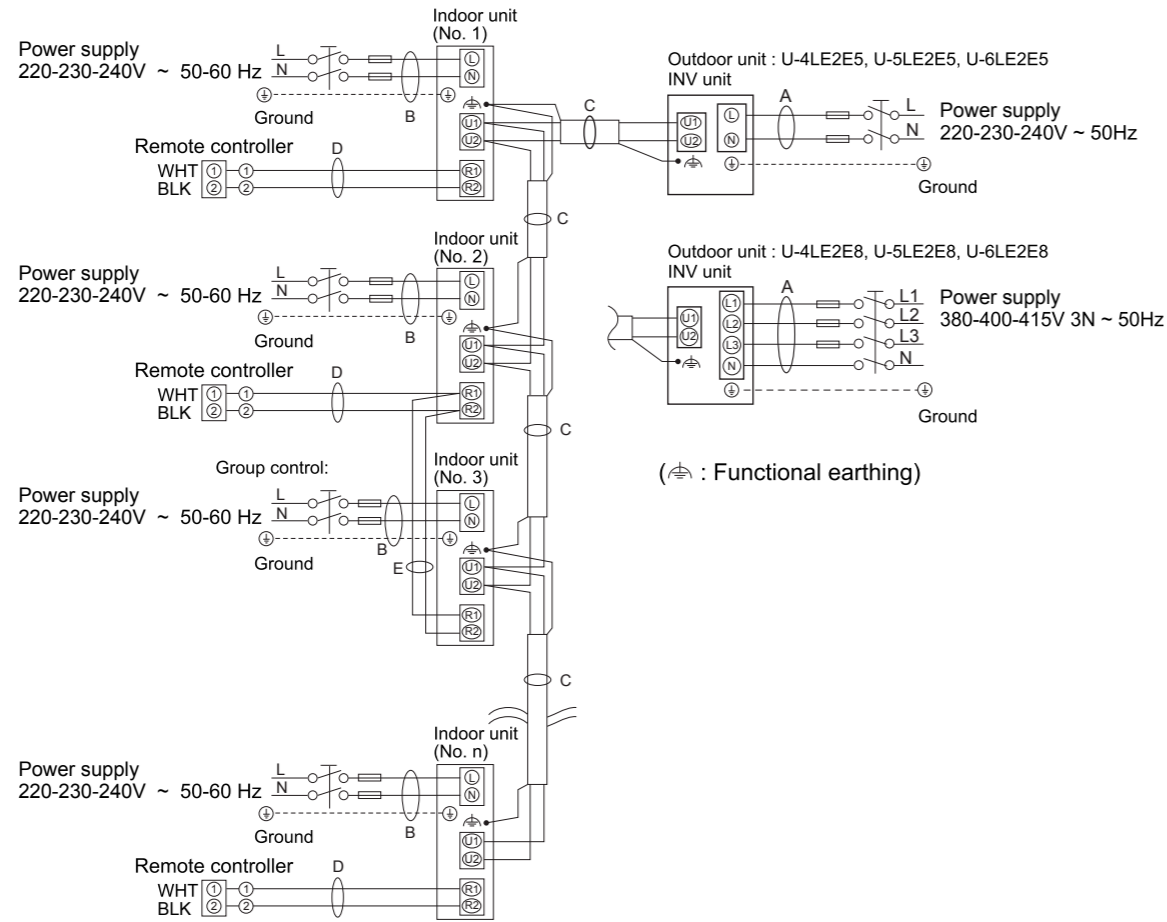
- ① Mounting hole (4-R6.5), anchor bolt : M10
- ② Refrigerant tubing (liquid tube), flared connection (Ø9.52) for 8-10 HP finally.
- ③ Refrigerant tubing (gas tube), flared connection (Ø19.05)
- ④ Refrigerant tubing port
- ⑤ Electrical wiring port (Ø13)
- ⑥ Electrical wiring port (Ø22)
- ⑦ Electrical wiring port (Ø27)
- ⑧ Electrical wiring port (Ø35)

**For U-10LE1H7**  
 The tubing of the gas main has a diameter of Ø22.22, but the connection to the service valve of the outdoor unit has a diameter of Ø19.05, so a flare has to be used. Consequently, be sure to use the enclosed joint tube B and joint tube A in making connections (braze).



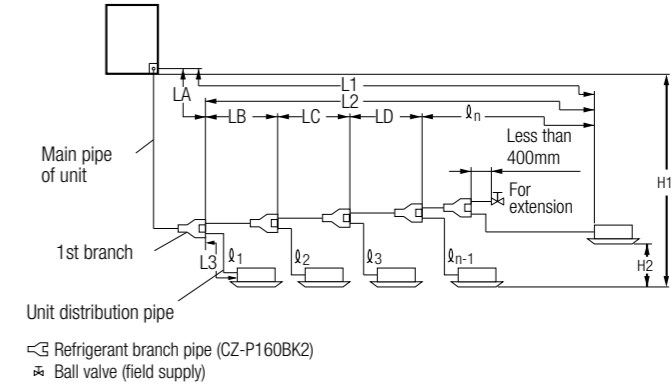
Unit: mm

### Wiring System Diagrams



### Piping design

Select the installation location so that the length and size of refrigerant piping are within the allowable range shown in the figure below.



### Ranges that Apply to Refrigerant Piping Lengths and to Differences in Installation Heights

Items	Marks	Contents	Length (m)
Allowable piping length	L1	Maximum tubing length	Actual length: 120 Equivalent length: 140
		$\Delta L (L2 - L3)$	Difference between maximum length and minimum length from the No.1 refrigerant branch pipe
	$l_1, l_2, \dots, l_n$	Maximum length of each distribution pipe	30
	$l_1, l_2, \dots, l_{n-1} + L1$	Total maximum piping length including length of each distribution pipe (only narrow piping)	150
Allowable elevation difference	H1	When outdoor unit is installed higher than indoor unit	50
	H2	When outdoor unit is installed lower than indoor unit	40
		Maximum difference between indoor units	15

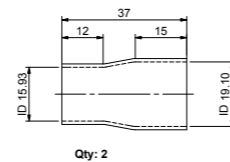
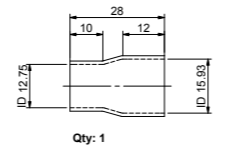
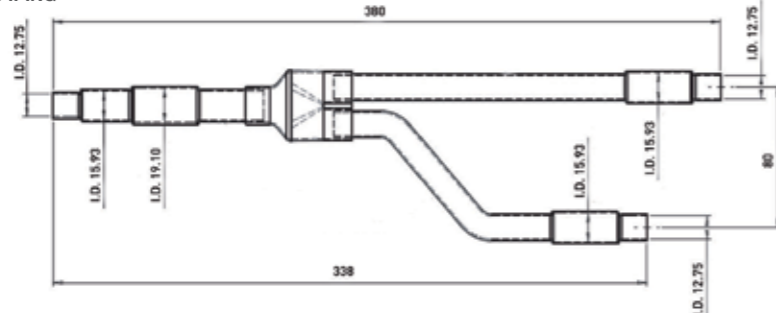
L = Length, H = Height

### Refrigerant Branch Pipes

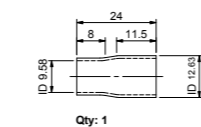
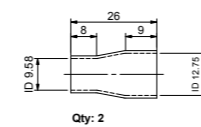
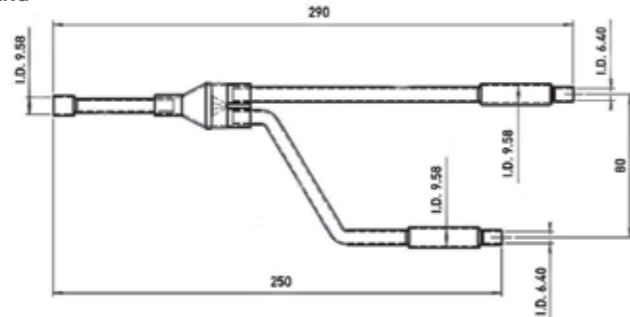
#### CZ-P160BK2

Use: For indoor unit (Capacity after refrigerant branch pipe is 22.4kW or less.)

#### GAS PIPING



#### LIQUID PIPING



All measurements are in mm. Size of connection points on each part shown are inside diameters of piping.

Size of connection point on each part (Shown are inside diameters of piping)					
Size	Part A	Part B	Part C	Part D	Part E
Dimension (mm)	Ø19.05	Ø15.88	Ø12.70	Ø9.52	Ø6.35
(inches)	Ø3/4	Ø5/8	Ø1/2	Ø3/8	Ø1/4

### Piping Size

#### Main Piping Size (LA)

	12.1kW	14.0kW	15.5kW
System kilowatts	12.1	14.0	15.5
Gas piping mm (inches)	Ø15.88 (Ø5/8)		Ø19.05 (Ø3/4)
Liquid piping mm (inches)	Ø9.52 (Ø3/8)		

Note :If the system consists of only one indoor unit with an outdoor 15.5kW, the main pipe of the unit (LA) should be Ø19.05. Convert Ø19.05 to Ø15.88 using a reducer (field supply) close to the indoor unit and then make the connection.

#### Indoor Unit Piping Connection (l1, l2...ln-1)

Indoor unit type	22	28	36	45	56	73	90	106	140	160
Gas piping mm (inches)	Ø12.7 (Ø1/2)					Ø15.88 (Ø5/8)				
Liquid piping mm (inches)	Ø6.35 (Ø1/4)					Ø9.52 (Ø3/8)				

### System Limitations

Outdoor units	12.1kW	14.0kW	15.5kW
Number of maximum connectable indoor units	6	8	9
Maximum allowable indoor/outdoor capacity ratio	50 - 130%		

kW = kilowatts

#### Main Piping Size After Distribution (LB, LC...)

Total capacity after distribution	Below kW				
	7.1	12.1	14.0	15.5	
Over kW	-				
	7.1				
Piping size	Gas piping	(mm)	Ø12.7	Ø15.88	Ø19.05
		(inches)	Ø1/2	Ø5/8	Ø3/4
	Liquid piping	(mm)	Ø9.52		
		(inches)	Ø3/8		

kW = kilowatts

Note :In case the total capacity of connected indoor units exceeds the total capacity of the outdoor units, select the main piping size for the total capacity of the outdoor units.