

Engineering Data Book



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FLOOR CONSOLE - RECESSED BASIC INFORMATION

External Appearance



Fig. 1 —40VMR007/009---3



Fig. 2 —40VMR012/015---3



Fig. 3 —40VMR018/024---3

Specifications

Table 1 —Data Table

MODEL			40VMR007---3	40VMR009---3
Total Cooling Capacity *1	Btu/h		7,000	9,000
Sensible Cooling Capacity *1	Btu/h		6,000	6,830
Heating Capacity *1	Btu/h		8,000	10,000
Power Supply	V-Ph-Hz		208/230-1-60	
MCA	A		0.55	0.55
MOCP	A		15	15
Casing			Galvanized steel	
Filter			Included	
Dimensions (H x W x D)	in.		24 x 35-1/4 x 8-3/8	
Net Weight	lbs.		48.9	
Heat Exchanger			Inner groove copper tube and hydrophilic aluminum fin	
Blower / Motor	Fan type		Centrifugal	
	Motor type		DC	
	Air Flow Rate (H/M/L)	CFM	300/276/253	
	Motor Output		100	
Min. External Static Pressure (factory setting)	in. WG		0	
Max. External Static Pressure	in. WG		0.12	
Sound Pressure Level*2	Cooling			
	H-dBA		39.7	39.5
	M-dBA		38.2	37.8
	L-dBA		35.3	35.1
	Heating			
	H-dBA		39.9	39.8
	M-dBA		38.1	37.9
	L-dBA		35.7	35.8
Piping Connections	Gas (Low) Pressure	in.	1/2	
	Liquid (High) Pressure	in.	1/4	
	Condensate	in.	5/8	
Refrigerant Control			Electronic Expansion Valve	
Connectable Outdoor Unit			38VMH – Heat Pump 38VMR – Heat Recovery 38VMH-1P – Single Phase Heat Pump	
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	
	Control Wiring	AWG	2-core stranded shielded cable 18AWG	

NOTES:

*1 Rated Conditions per AHRI (Air-Conditioning, Heating and Refrigeration Institute) 1230 Standard:

Cooling: Outdoor air temperature 80°F (27°C) DB / 67°F (20°C) WB; Outdoor 95°F (35°C) DB

Heating: Indoor air temperature 70°F (21°C) DB / Outdoor air temperature 47°F (8°C) DB / 43°F (6°C) WB

*2 These values are measured in anechoic chamber.

Table 2 —Data Table

MODEL			40VMR012---3	40VMR015---3
Total Cooling Capacity *1		Btu/h	12,000	15,000
Sensible Cooling Capacity *1		Btu/h	9,140	11,390
Heating Capacity *1		Btu/h	13,000	17,000
Power Supply		V-Ph-Hz	208/230-1-60	
MCA		A	0.63	0.83
MOCP		A	15	15
Casing			Galvanized steel	
Filter			Included	
Dimensions (H x W x D)		in.	24 x 43-1/8 x 8-3/8	
Net Weight		lbs.	59.1	
Heat Exchanger			Inner groove copper tube and hydrophilic aluminum fin	
Blower / Motor	Fan type		Centrifugal	
	Motor type		DC	
	Air Flow Rate (H/M/L)	CFM	400/335/271	500/424/347
	Motor Output		100	
Min. External Static Pressure (factory setting)		in. WG	0	
Max. External Static Pressure		in. WG	0.12	
Sound Pressure Level*2		Cooling		
		H-dBA	40.3	45.2
		M-dBA	36.3	41.4
		L-dBA	32.5	36.4
		Heating		
		H-dBA	40.2	45.2
		M-dBA	36.3	41.7
		L-dBA	32.1	36.8
Piping Connections	Gas (Low) Pressure	in.	1/2	
	Liquid (High) Pressure	in.	1/4	
	Condensate	in.	5/8	
Refrigerant Control			Electronic Expansion Valve	
Connectable Outdoor Unit			38VMH – Heat Pump	
			38VMR – Heat Recovery	
			38VMH-1P – Single Phase Heat Pump	
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	
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*2 These values are measured in anechoic chamber.

Table 3 —Data Table

MODEL			40VMR018---3	40VMR024---3
Total Cooling Capacity *1		Btu/h	18,000	24,000
Sensible Cooling Capacity *1		Btu/h	12,610	17,880
Heating Capacity *1		Btu/h	20,000	27,000
Power Supply		V-Ph-Hz	208/230-1-60	
MCA		A	0.72	1.38
MOCP		A	15	15
Casing			Galvanized steel	
Filter			Included	
Dimensions (H x W x D)		in.	24 x 54-15/16 x 8-3/8	
Net Weight		lbs.	69.2	
Heat Exchanger			Inner groove copper tube and hydrophilic aluminum fin	
Blower / Motor	Fan type		Centrifugal	
	Motor type		DC	
	Air Flow Rate (H/M/L)	CFM	488/418/365	776/635/553
	Motor Output		100	
Min. External Static Pressure (factory setting)		in. WG	0	
Max. External Static Pressure		in. WG	0.12	
Sound Pressure Level*2			Cooling	
			H-dBA	49.9
			M-dBA	45.2
			L-dBA	42.5
			Heating	
			H-dBA	49.6
			M-dBA	45.1
			L-dBA	41.9
Piping Connections	Gas (Low) Pressure	in.	5/8	
	Liquid (High) Pressure	in.	3/8	
	Condensate	in.	5/8	
Refrigerant Control			Electronic Expansion Valve	
Connectable Outdoor Unit			38VMH – Heat Pump	
			38VMR – Heat Recovery	
			38VMH-1P – Single Phase Heat Pump	
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	
	Control Wiring	AWG	2-core stranded shielded cable 18AWG	

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Heating: Indoor air temperature 70°F (21°C) DB / Outdoor air temperature 47°F (8°C) DB / 43°F (6°C) WB

*2 These values are measured in anechoic chamber.

Accessories

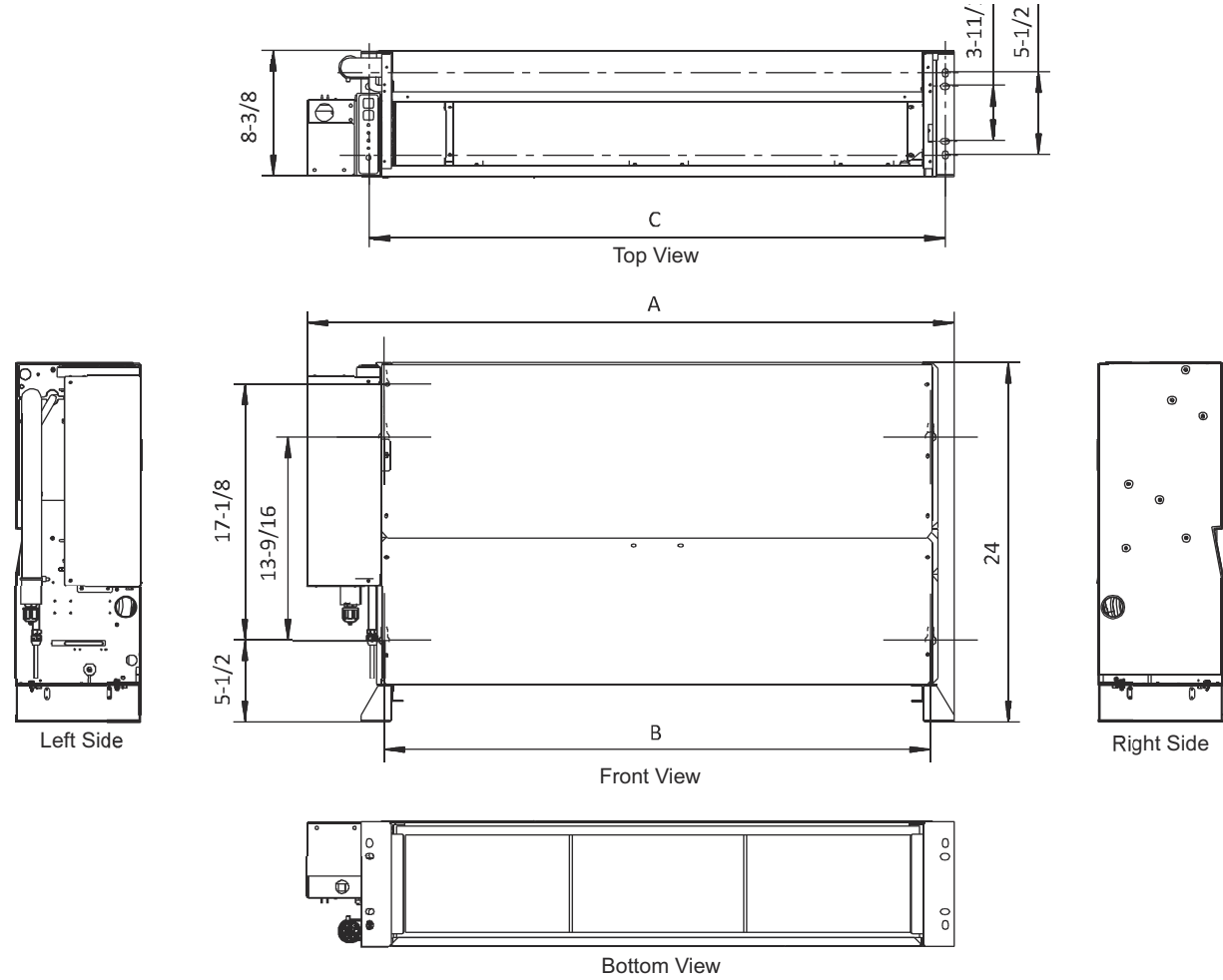
Table 4 —Table of Accessories

NAME	SHAPE	QUANTITY	FUNCTION
Foot mounting bolt		4	For connecting the feet to the bottom of the unit
Pipe Insulation material		2	Heat insulation
LED Display Panel		1	Operation and error display
Mounting feet		2	Supports unit in floor-mounted applications
Copper Nut		1	Use for pipe connection
PQE connection wire		2	Connects the outdoor unit, indoor unit, and sub MDC
Connecting Wire		1	Occupy sensor connecting wire

LEGEND:

MDC – Multi-port Distribution Controller

DIMENSIONS



NOTE: All dimensions are shown in inches.

Fig. 4 —40VMR007---3 to 40VMR024---3

MODEL	A	B	C
40VMR007, 009---3	35-1/4	28-9/16	30-1/2
40VMR012, 015---3	43-1/8	36-7/16	38-3/8
40VMR018, 024---3	54-15/16	48-1/4	50-3/16

PIPING DIAGRAM

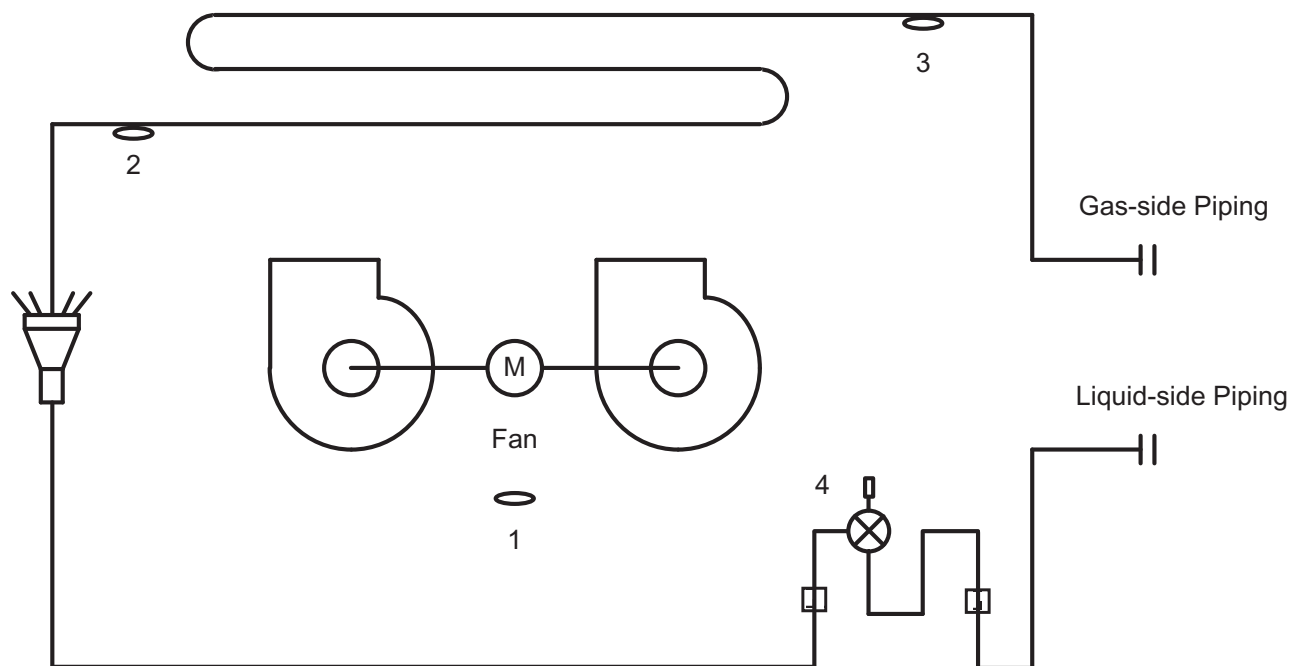


Fig. 5 —Piping

Table 5 —Piping

NUMBER	SYMBOL	NAME
1	T1	Suction air thermistor
2	T2A	Inlet pipe temperature thermistor
3	T2B	Outlet pipe temperature thermistor
4	EEV	Electronic expansion valve

Table 6 —Gas / Liquid Line Sizes

MODEL	GAS	LIQUID
40VMR007/009/012/015---3	1/2	1/4
40VMR018/024---3	5/8	3/8

WIRING DIAGRAM

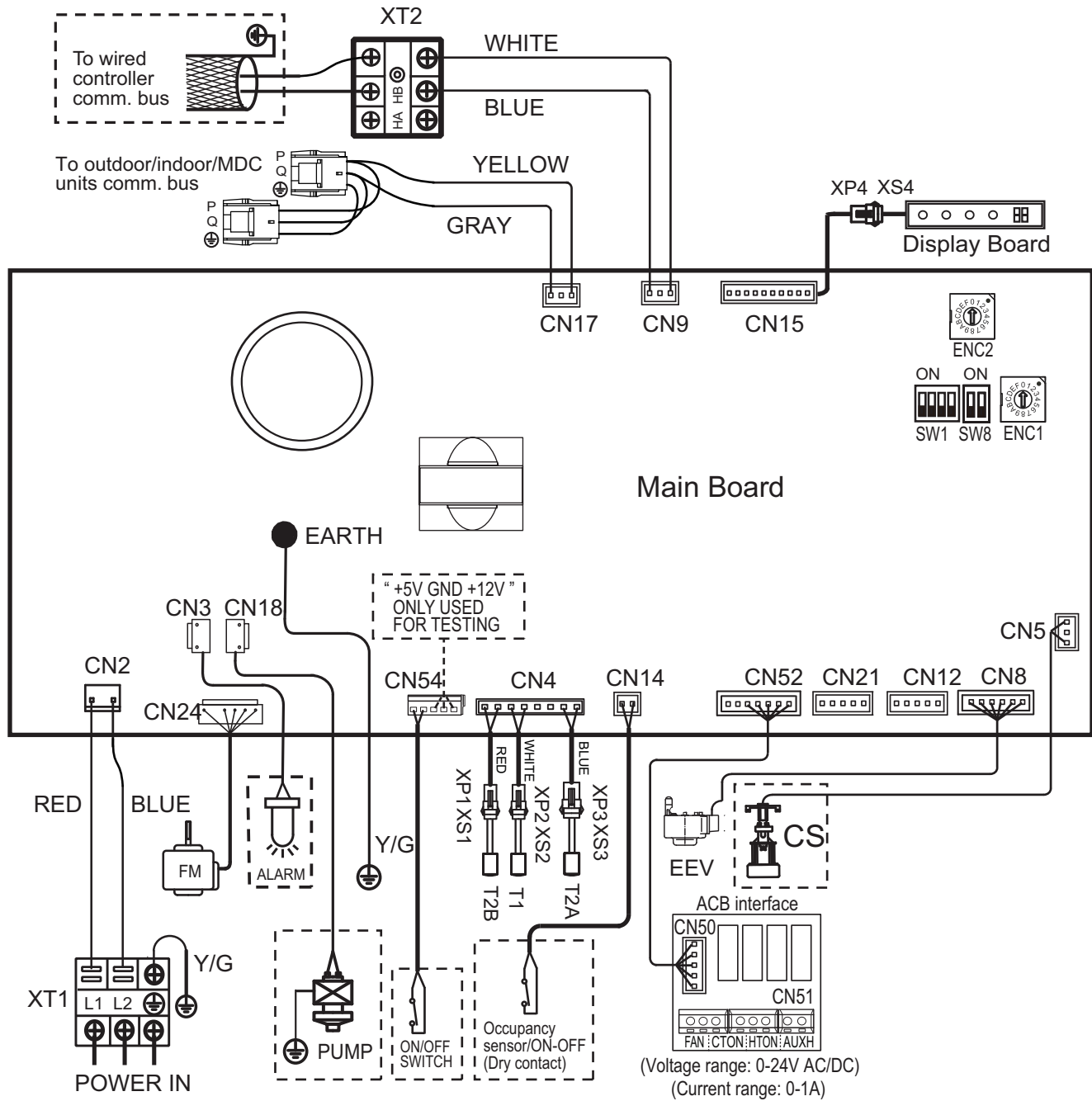


Fig. 6 —40VMR007---3 to 40VMR024---3

Wiring Diagram Definitions and Settings (40VMR All Models)

Table 7 —Legend

CODE	TITLE
FM	Indoor fan motor
T1	Room temperature sensor
T2A	Inlet pipe temperature sensor
T2B	Outlet pipe temperature sensor
ALARM	Warning lamp
EEV	Electronic expansion valve
XP1-4	Connectors
XS1-4	
XT1-2	Terminal
PUMP	Pump motor
CS	Condensate switch

Table 8 —Error Codes

ERROR CODE	ERROR CONTENT
dd	Mode conflict
E1	Comm. Error with outdoor unit
E2	Temp. sensor (T1) error
E4	Temp. sensor (T2B) error
E5	Temp. sensor (T2A) error
E6	DC fan error
E7	EEPROM error
UU	MDC error in auto system-check mode
E9	Comm error with wired controller
Eb	EEV error
EC	Indoor fan error in auto system-check mode
Ed	Outdoor unit error
EE	Water level alarm
FE	No address when first powered on

Table 9 —ENC1 Definition

	(Reserved)
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Table 10 —J1 Definition

	Without jumper "J1" for auto restart function
	With jumper "J1" for manual restart function

Table 11 —SW1 Definition

	0 means auto addressing mode (Default)
	1 means factory test mode (Default)
	0 means normal mode (Default)
	1 means factory self-checking mode (Reserved)
	Reserved
	0 means standard indoor unit (Default)
	1 means main indoor unit (Must be addressed #63)

Table 12 —SW8 Definitions

	Reserved
	Reserved

Table 13 —ENC2 Definitions

	Reserved
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Table 14 —0/1 Definition

	Means 0
	Means 1

ELECTRICAL CHARACTERISTICS

Table 15 —Electrical Characteristics

MODEL	POWER SUPPLY					IFM	
	HZ	VOLTS	VOLTAGE RANGE	MCA	MOCP	kW	FLA
40VMR007---3	60	208/230V	Max.253V Min.187V	0.55	15	0.10	0.44
40VMR009---3				0.55	15	0.10	0.44
40VMR012---3				0.63	15	0.10	0.50
40VMR015---3				0.83	15	0.10	0.66
40VMR018---3				0.72	15	0.10	0.57
40VMR024---3				1.38	15	0.10	1.10

MCA: Minimum Circuit Amps (A)

MOCP: Maximum Overcurrent Protection (A)

SYMBOLS: kW: Fan Motor Rated Output (kW)

FLA: Full Load Amps (A)

IFM: Indoor Fan Motor

SOUND DATA

Sound Pressure Levels

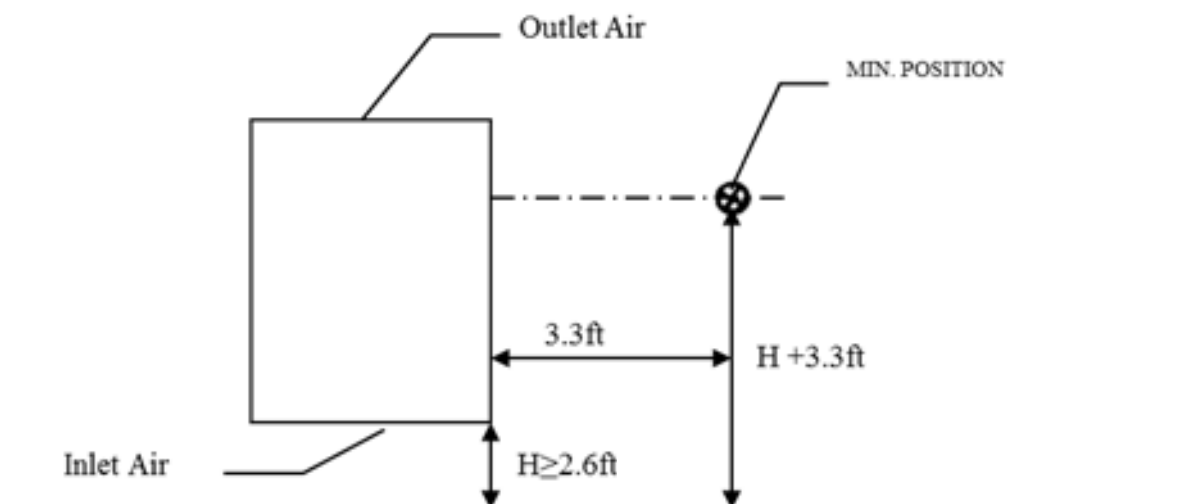


Fig. 7 —Overall Sound Levels

Table 16 —Cooling Mode

MODEL	H	M	L
40VMR007---3	39.7	38.2	35.3
40VMR009---3	39.5	37.8	35.1
40VMR012---3	40.3	36.3	32.5
40VMR015---3	45.3	41.4	36.4
40VMR018---3	38.9	34.8	32.6
40VMR024---3	49.9	45.2	42.5

Table 17 —Heating Mode

MODEL	H	M	L
40VMR007---3	39.9	38.1	35.7
40VMR009---3	39.8	37.9	35.8
40VMR012---3	40.2	36.3	32.1
40VMR015---3	45.2	41.7	36.8
40VMR018---3	39.0	35.5	32.8
40VMR024---3	49.6	45.1	41.9

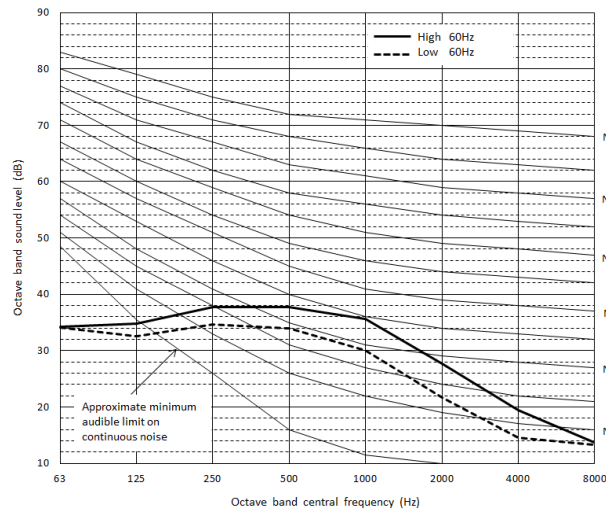
NOTE: Units are in dBA.

NC Curves

40VMR007---3

External Static Pressure: 0.0in. (0Pa)

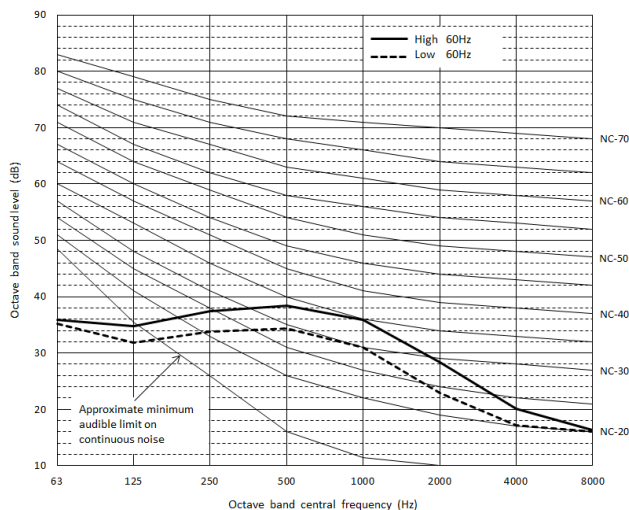
Power source:208/230V-1Ph-60Hz



40VMR009---3

External Static Pressure: 0.0in. (0Pa)

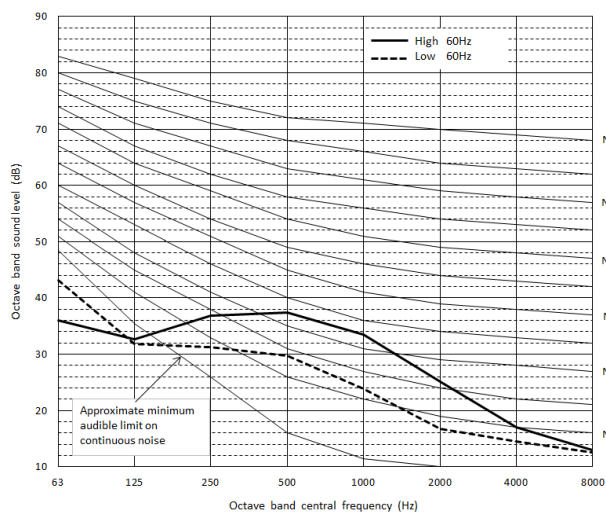
Power source: 208/230V-1Ph-60Hz



40VMR012---3

External Static Pressure: 0.0in. (0Pa)

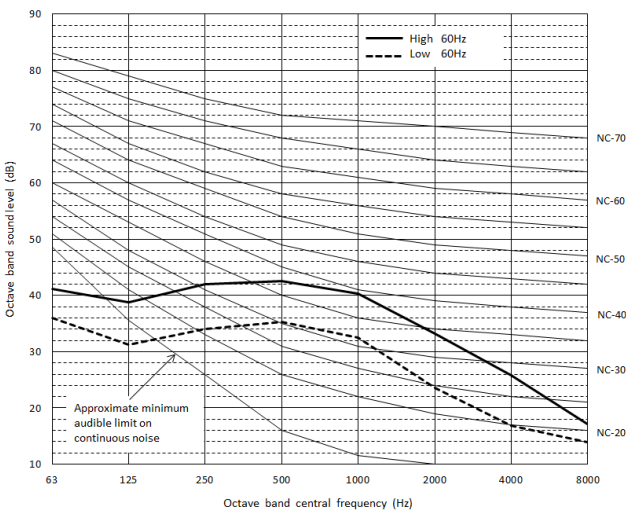
Power source: 208/230V-1Ph-60Hz



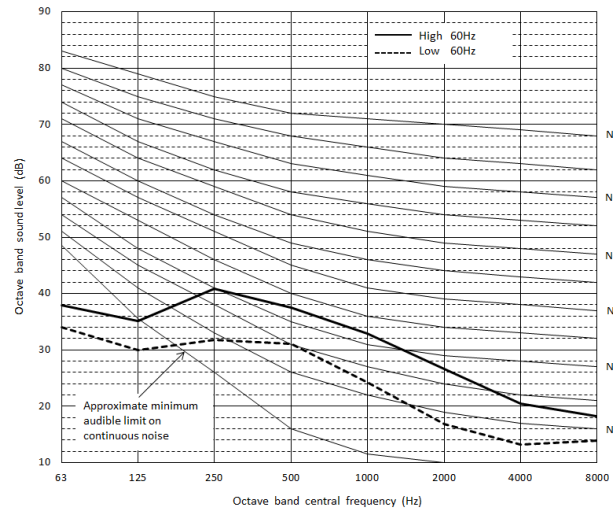
40VMR015---3

External Static Pressure: 0.0in. (0Pa)

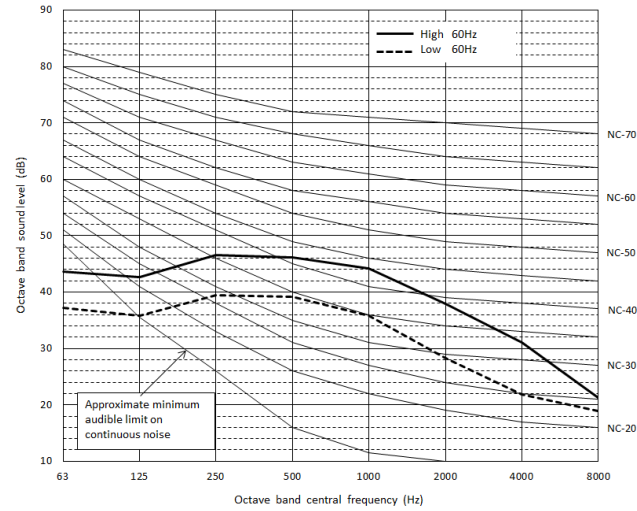
Power source: 208/230V-1Ph-60Hz



40VMR018---3
External Static Pressure: 0.0in. (0Pa)
Power source: 208/230V-1Ph-60Hz



40VMR024---3
External Static Pressure: 0.0in. (0Pa)
Power source: 208/230V-1Ph-60Hz



CAPACITY DATA TABLES

Table 18 —Cooling Capacity

INDOOR UNIT ENTERING AIR CONDITIONS:		COOLING CAPACITY INDICATION											
		7K		9K		12K		15K		18K		24K	
drybulb (°F)	wetbulb (°F)	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
70	58	4.4	4.33	5.65	4.94	7.54	6.67	9.42	8.28	11.31	9.19	15.07	12.93
70	62	5.55	3.77	7.14	4.52	9.52	6.06	11.9	7.53	14.28	8.68	19.04	11.86
70	67	7	2.99	9	3.88	12	5.16	15	6.4	18	7.84	24	10.22
70	72	/	/	/	/	/	/	/	/	/	/	/	/
70	76	/	/	/	/	/	/	/	/	/	/	/	/
75	58	4.43	4.40	5.69	5.65	7.59	7.54	9.49	9.42	11.39	11.08	15.18	15.07
75	62	5.59	4.90	7.19	5.64	9.59	7.60	11.98	9.46	14.38	10.57	19.17	14.80
75	67	7.05	4.11	9.06	5.00	12.08	6.70	15.11	8.33	18.13	9.72	24.17	13.15
75	72	7.58	2.89	9.74	3.76	12.99	5.00	16.24	6.20	19.49	7.62	25.98	9.91
75	76	/	/	/	/	/	/	/	/	/	/	/	/
80	58	4.46	4.40	5.73	5.65	7.65	7.54	9.55	9.42	11.47	11.31	15.28	15.07
80	62	5.63	5.53	7.24	6.77	9.65	9.15	12.07	11.39	14.48	12.46	19.31	17.75
80	67	7.10	5.24	9.13	6.12	12.17	8.24	15.21	10.25	18.25	11.61	24.34	16.10
80	72	7.63	4.01	9.81	4.88	13.08	6.54	16.35	8.13	19.63	9.51	26.16	12.85
80	76	8.04	3.00	10.34	3.86	13.79	5.14	17.23	6.38	20.68	7.76	27.57	10.17
85	58	4.49	4.40	5.77	5.65	7.70	7.54	9.62	9.42	11.55	11.31	15.39	15.07
85	62	5.67	5.55	7.29	7.14	9.72	9.52	12.15	11.90	14.58	14.28	19.44	19.04
85	67	7.15	6.37	9.19	7.25	12.25	9.78	15.32	12.18	18.38	13.50	24.51	19.05
85	72	7.69	5.14	9.88	6.01	13.17	8.08	16.47	10.06	19.76	11.39	26.34	15.79
85	76	8.10	4.13	10.41	4.99	13.89	6.69	17.35	8.31	20.82	9.65	27.76	13.12
90	58	4.52	4.40	5.81	5.65	7.75	7.54	9.69	9.42	11.63	11.31	15.50	15.07
90	62	5.71	5.55	7.34	7.14	9.79	9.52	12.24	11.90	14.68	14.28	19.58	19.04
90	67	7.20	7.00	9.25	9.00	12.34	12.00	15.42	15.00	18.51	18.00	24.68	24.00
90	72	7.74	6.27	9.95	7.14	13.26	9.63	16.58	11.99	19.90	13.28	26.53	18.74
90	76	8.15	5.26	10.49	6.11	13.98	8.23	17.47	10.24	20.97	11.54	27.96	16.07

Rated Condition: Evaporation temperature is 42.8°F (6°C) with high speed airflow.

TC = Total capacity; KBTU/h

SC = Sensible capacity; KBTU/h

Table 19 —Heating Capacity

MODEL	CAPACITY INDICATION	HEATING INDOOR AIR TEMPERATURE							
		61 °FDB	64 °FDB	67 °FDB	70 °FDB	73 °FDB	75 °FDB	77 °FDB	80 °FDB
		TC	TC	TC	TC	TC	TC	TC	TC
Recessed floor	7	8.48	8.32	8.16	8.00	7.46	7.11	6.75	6.21
	9	10.60	10.40	10.20	10.00	9.33	8.88	8.44	7.77
	12	13.78	13.52	13.26	13.00	12.13	11.55	10.97	10.10
	15	18.02	17.68	17.34	17.00	15.86	15.10	14.34	13.21
	18	21.21	20.80	20.40	20.00	18.66	17.77	16.88	15.54
	24	28.63	28.08	27.54	27.00	25.19	23.99	22.78	20.97

Rated Condition: Condensation temperature is 114.8°F (46°C).

TC=Total capacity; KBTU/h

SC=Sensible capacity; KB