

MANUFACTURED FOR: MITSUBISHI ELECTRIC US, INC.

Flush Mount Room Temperature Sensor

PAC-USSEN002-FM-1

INSTALLATION/INSTRUCTION MANUAL

FOR INSTALLER

For your safety, first be sure to read 1. Safety Instructions and then install the Flush Mount Room Temperature Sensor PAC-USSEN002-FM-1 correctly.

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1. Safety Instructions

This sensor is not polarity sensitive and includes 24" of 22/2 AWG (ETFE) stranded etched Teflon wires for making all of the proper connections. Mitsubishi Electric US, Inc. recommends using 22/2 AWG UL 1007 non-shielded wire for up to 100' with this application. Temperature measurement range: 41° to +140° F (5° to +60° C)

 Warning	This symbol denotes what could lead to serious injury or death if your misuse the PAC-USSEN002-FM-1.
 Caution	This symbol denotes what could lead to a personal injury or damage to your property if you misuse the PAC-USSEN002-FM-1.

After reading this installation manual, keep it in a place where the final user can see it anytime he or she wants to.

When someone moves, repairs or uses the PAC-USSEN002-FM-1, make sure that this manual is forwarded to the final user.

 CAUTION	
Do not install in any place exposed to flammable gas leakage. Flammable gases accumulated around the body of PAC-USSEN002-FM-1 may cause an explosion.	Do not install in any place where an acidic or alkaline solution or special spray are often used. Doing so may cause an electric shock or malfunction.
Do not use in any special environment. Using in any place exposed to oil (including machine oil), steam and sulfuric gas may deteriorate the performance significantly or give damage to the component parts.	Use standard wires in compliance with the current capacity. A failure to do this may result in an electric leakage, heating or fire.
Wire so that it does not receive any tension. Tension may cause wire breakage, heating or fire.	Do not install in a place with much steam such as bathroom or kitchen. Avoid any place where moisture is condensed into dew. Doing so may cause an electric shock or a malfunction.
Completely seal the wire lead-in port with putty, etc. Any dew, moisture, cockroaches or insects entering the unit may cause an electric shock or malfunction.	Do not touch any PCB (printed circuit board) with your hands or with tools. Do not allow dust to collect on the PCB. Doing so may cause a fire or an electric shock.
Do not wash with water. Doing so may cause an electric shock or a malfunction.	Do not install in any place at a temperature of more than 40° C or less than 0° C or exposed to direct sunlight.

2. Confirming the Supplied Parts

Confirm that following parts are enclosed in the box in addition to this installation manual.

- Flush mount sensor
- Threaded insert
- Noise filter board with CN20 connector
- Instruction sheet

ATTENTION

PAC-USSEN002-FM-1 does not come with the conversion cable and is not compatible with the following indoor units: PEFY-NMHU, PFFY-NEMU and PFFY-NRMU.

Specifications are subject to change without notice.

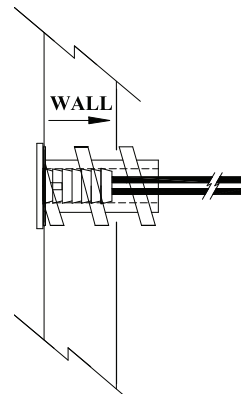
WARNING

Ask your dealer or technical representative to install the unit. Any deficiency caused by your installation may result in an electric shock or fire.	Ensure that installation work is done correctly following this installation manual. Any deficiency caused by installation may result in an electric shock or fire.
Install in a place which is strong enough to withstand the weight of the PAC-USSEN002-FM-1. Any lack of strength may cause the PAC-USSEN002-FM-1 to fall down, resulting in personal injury.	All electrical work must be performed by a licensed technician, according to local regulations and the instructions given in this manual. Any lack of electric circuit or any deficiency caused by installation may result in an electric shock or fire.
Firmly connect the wiring using the specified cables. Carefully check that the cables do not exert any force on the terminals. Improper wiring connections may produce heat and possibly a fire.	Do not move and re-install the PAC-USSEN002-FM-1 yourself. Any deficiency caused by installation may result in an electric shock or fire. Ask your dealer for moving and installation.
Never modify or repair the PAC-USSEN002-FM 1 by yourself. Any deficiency caused by your modification or repair may result in an electric shock or fire. Consult with your dealer about repairs.	Do not turn on the main power until installation has been completed. Failure to do so may cause an electric shock or fire.

3. Mounting Instructions

1. Select location for installation.

- Select a place where the sensor will detect an average temperature of the room.
- Make sure that the sensor is **not** in direct sunlight, miscellaneous heat sources, drafts, outside wall or supply air from the unit itself. These may generate incorrect readings.
- Drill or cut open a hole into the wall where the sensor will be installed. For hollow walls, the hole should be ½".
- Mount the sensor with the threaded insert inside of this hole by turning it clockwise until it sits flush with the wall.
- When mounting into solid walls (i.e. marble or rock) a ¼" hole is recommended, and the threaded corkscrew insert is not required.
- Field wire must be provided on site.



2. Connect the wires.

- Connect the sensor wires to the field wires using crimp connectors or wire nuts.
- Connect the loose end of the field wires to the wires extending from the noise filter board.
- Connect CN20 connector from the noise filter board to CN20 on the indoor unit control board.

4. Troubleshooting

Issue	Possible Cause
Sensor reads 1kΩ or less	Sensor or wires are shorted together or to ground.
Sensor reads 13kΩ or more	Sensor or wires have been damaged and are open.
Erratic readings	Loose wire connection or possibly moisture on the wires/sensor.

5. Setting Indoor Units

When the sensor is connected to the indoor unit and room temperature detection position is changed, reset the setting of "Set temp 4-deg. Up" in the heating mode as shown below:

- K control models DIP switch Nos. 1-6 on the control PCB of the indoor unit
- M-NET control models DIP switch Nos. 3-8 on the control PCB of the indoor unit
- A control models Refer to A-control air conditioner Service Technical Guide

6. Thermistor Calibration Table

Temperature [C °]	Resistance [Ω]
-20	42586.59
-19	40350.58
-18	38248.13
-17	36270.38
-16	34409.10
-15	32656.66
-14	31005.98
-13	29450.47
-12	27984.03
-11	26600.98

Temperature [C °]	Resistance [Ω]
-10	25296.02
-9	24064.24
-8	22901.06
-7	21802.22
-6	20763.75
-5	19781.95
-4	18853.35
-3	17974.74
-2	17143.10
-1	16355.64

Thermistor Calibration Table (continued)

Temperature [C °]	Resistance [Ω]
0	15609.72
1	14902.90
2	14232.87
3	13597.50
4	12994.77
5	12422.81
6	11879.86
7	11364.26
8	10874.47
9	10409.03
10	9966.60
11	9545.90
12	9145.71
13	8764.93
14	8402.49
15	8057.40
16	7728.72
17	7415.58
18	7117.14
19	6832.64
20	6561.34
21	6302.55
22	6055.61
23	5819.92

Temperature [C °]	Resistance [Ω]
24	5594.90
25	5380.00
26	5174.71
27	4978.54
28	4791.04
29	4611.78
30	4440.34
31	4276.33
32	4119.40
33	3969.20
34	3825.40
35	3687.69
36	3555.79
37	3429.40
38	3308.28
39	3192.17
40	3080.84
41	2974.07
42	2871.63
43	2773.34
44	2679.01
45	2588.44
46	2501.48
47	2417.95

Thermistor Calibration Table (continued)

Temperature [C °]	Resistance [Ω]
48	2337.71
49	2260.60
50	2186.49
51	2115.25
52	2046.74
53	1980.85
54	1917.47
55	1856.48
56	1797.79
57	1741.29
58	1686.89
59	1634.50
60	1584.04
61	1535.43
62	1488.58
63	1443.43
64	1399.91

Temperature [C °]	Resistance [Ω]
65	1357.94
66	1317.47
67	1278.43
68	1240.77
69	1204.42
70	1169.35
71	1135.49
72	1102.80
73	1071.23
74	1040.74
75	1011.28
76	982.82
77	955.32
78	928.74
79	903.04
80	878.19

This device is designed and intended for use in the residential, commercial and light-industrial environment.

Please be sure to put the installer's contact address/telephone number on this manual before handing it to the customer.

Manufactured for:
MITSUBISHI ELECTRIC US, INC.

www.mitsubishielectric-usa.com

Toll Free: 800-433-4822