# 3. Alignment and Adjustments

# **3-1 Error mode and check method**

### 3-1-1 Indoor Unit

#### ■ MH\*\*\*FPEA\*/MH\*\*\*FWEA/MH\*\*VP2-\*\*/MH\*\*VW2-\*\*/MH\*\*\*FVEA/MH\*\*VV1-\*\*

Display	Explanation	Main checking Point / Remark
<b>8</b> 1 ↔ <b>3</b> 1	Communication error (unable to receive data)	Communication cable connection
<b>50↔13</b>	Communication error (outdoor cannot communicate)	Another indoor unit or indoor PCB
<i>₹ 1 ↔ ₹ 1</i>	Indoor unit room temperature sensor error (Open/Short)	Room temperature sensor, indoor PCB
<b>55 ~ 1 3</b>	Indoor unit heat exchanger in temperature sensor error (Open/Short)	Heat exchanger in sensor, indoor PCB
<i>E i</i> ↔ <i>2</i> 3	Indoor unit heat exchanger out temperature sensor error (Open/Short)	Heat exchanger out sensor, indoor PCB
85↔13	Indoor unit heat exchanger in temperature sensor detached	Heat exchanger in sensor
81↔29	Indoor unit heat exchanger out temperature sensor detached	Heat exchanger out sensor
<i>E 1 ↔ 30</i>	Indoor unit heat exchanger in & out temperature sensor detached	Heat exchanger in & out sensor
<i>₹ 1</i> ↔ 5 4	Indoor unit fan motor malfunction	Fan motor and cable
<b>€ ; ↔ 5 ;</b>	More than 2 indoor units cool and heat simultaneously	Another indoor unit operation mode
<i>53↔</i> 33	EEPROM error	Indoor PCB
<i>€ 1 ↔ 8 3</i>	Option code setting error	Option code
<i>€ ¦⇔85</i>	Cable miss-wiring	Cable connection (Indoor & Outdoor unit)
<i>E ¦⇔88</i>	MPI error malfunction	MPI
<i>1</i> 0 ↔ 5 3	The number of indoor unit mismatched	Cable connection (another indoor unit & outdoor unit), SW01(outdoor)
<i>82</i> ↔ <i>51</i>	Compressor discharge sensor error(Short/Open)	Outdoor unit
<i>E</i> 5 ↔ 5 <i>9</i>	Outdoor unit error	Outdoor unit (Error code)

#### ■ MH\*\*\*FKEA/MH\*\*\*FMEA

				Indicators	5		
	MH***FKEA	Green	Red	Yellow	Green	Orange	
Abnormal conditions		Ċ		٢	S		Operating
	MH***FMEA	Ċ	*0	Ð	ş		
Power reset		•	×	×	×	×	
Error of temperature sensor in indoor unit (OF	PEN/SHORT)	×	×	•	×	×	
Error of heat exchanger sensor in indoor unit Error of heat exchanger OUT sensor in indoor unit Error of outlet temperature sensor in indoor unit (OPEN/SHORT): For heat pump models only			×	•	×	×	
Error of mixed operation		×	•	×	•	×	
Error of indoor fan motor : Below 450RPM for	15 minutes	×	×	×	•	×	
Error of outdoor temperature sensor Error of CONDENSER sensor Error of DISCHARGE sensor			×	×	•	×	
<ol> <li>No communication for 2 minutes between indoor unit and outdoor unit (communication error for more than 2 minutes)</li> <li>Indoor unit receiving the communication error from outdoor unit</li> <li>Outdoor unit tracking 3 minutes error</li> <li>When sending the communication error from outdoor unit due to the mismatching of the communication numbers and installed numbers after completion of tracking (communication error for more than 2 minutes)</li> </ol>			×	•	•	×	Error of indoor unit: Displayed on the indoor unit regardless of operation
<ol> <li>2<sup>nd</sup> detection of refrigerant completely leak</li> <li>2<sup>nd</sup> detection of high temperature CONDENSER</li> <li>2<sup>nd</sup> detection of high temperature DISCHARGE</li> <li>4. Compressor down due to 6th detection of freezing</li> </ol>		×	×	•	•	•	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
Error of float switch		×	×	×	0	•	
Error of setting option switches for optional accessories		×	×	•	×	•	
EEPROM error			×	•	•	×	
EEPROM option error		•	•	•	•	•	

 $\bullet: \mathsf{On} \quad \textcircled{}:\mathsf{Flickering} \quad \times:\mathsf{Off}$ 

♦ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

#### ■ MH\*\*\*FDEA/MH\*\*\*FEEA

The error indicated on the LED display of Indoor unit

	Indicators					
Abnormal conditions		Concealed Type				
		Red	٩	- Star		Operating
	Standard Type					
	$\bigcirc$	**				
Power reset	•	×	×	×	×	
Error of temperature sensor in indoor unit(OPEN/SHORT)	×	×	•	×	×	Displayed on appropriate indoor unit which is operating
Error of heat exchanger sensor in indoor unit Error of heat exchanger OUT sensor in indoor unit Error of outlet temperature sensor in indoor unit (OPEN/SHORT): For heat pump models only	•	×	•	×	×	Displayed on appropriate indoor unit which is operating
Error of mixed operation	×	•	×	•	×	
Error of outdoor temperature sensor Error of COND sensor Error of DISCHARGE sensor	•	×	×	•	×	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
<ol> <li>No communication for 2 minutes between indoor unit and outdoor unit (communication error for more than 2 minutes)</li> <li>Indoor unit receiving the communication error from outdoor unit</li> <li>Outdoor unit tracking 3 minutes error</li> <li>When sending the communication error from outdoor unit the mismatching of the communication numbers and installed numbers after completion of tracking. (communication error for more than 2 minutes)</li> </ol>	×	×	٦	•	×	<ol> <li>Error of indoor unit : Displayed on the indoor unit regardless of operation</li> <li>Error of outdoor unit : Displayed on the indoor unit which is operating</li> </ol>
Self-diagnostic error (including the indoor unit not detected) 1. Error of electronic expansion valve close 2. Error of electronic expansion valve open 3. Breakaway of EVA OUT sensor 4. Breakaway of EVA IN sensor	×	×	)	•	•	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit

•: On •: Flickering  $\times$ : Off

♦ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

♦ If you re-operate the air conditioner, it operates normally at first, then detect an error again.

#### ■ MH\*\*\*FDEA/MH\*\*\*FEEA(cont.)

The error indicated on the LED display of Indoor unit

		I				
		led Type				Quantita
Abnormal conditions	Blue	Red	<b>(</b>	8		Operating
	Standard Type		0			
	(U) (W)					
<ol> <li>5. Breakaway of COND MID sensor</li> <li>6. 2<sup>nd</sup> detection of refrigerant completely leak</li> <li>7. 2<sup>nd</sup> detection of high temperature COND</li> <li>8. 2<sup>nd</sup> detection of high temperature DISCHARGE</li> <li>9. COMP DOWN due to 2nd detection of low pressure switch</li> <li>10. Error of reverse phase</li> <li>11. Compressor down due to 6th detection of freezing</li> <li>12. Self-diagnosis of condensation sensor (G8, G9)</li> <li>13. Compressor down due to condensation ratio control</li> </ol>	×	×	•	•	•	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
Error of float switch	×	×	×	•		
Error of setting option switches for optional accessories	×	×		×		
EEPROM error	•	×		•	×	
EEPROM option error	•	•	•	•	•	

 $\bullet: \mathsf{On} \quad \textcircled{}:\mathsf{Flickering} \quad \times:\mathsf{Off}$ 

♦ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

♦ If you re-operate the air conditioner, it operates normally at first, then detect an error again.

### 3-1-2 Outdoor Unit

Display		Explanation	Main checking Point
E 1	<i>0</i> /	Communication error (indoor unable to receive data)	Communication cable connection
E /	50	Communication error (outdoor unable to communicate)	Indoor unit
E 1	21	Indoor unit room temperature sensor error (Open/Short)	Indoor unit
E 1	22	Indoor unit heat exchanger in temperature sensor error (Open/Short)	Indoor unit
E 1	23	Indoor unit heat exchanger out temperature sensor error (Open/Short)	Indoor unit
E 1	28	Indoor unit sensor error - Evaporator pipe in sensor detached	Indoor unit
E 1	29	Indoor unit sensor error - Evaporator pipe out sensor detached	Indoor unit
E 1	30	Indoor unit heat exchanger in & out temperature sensor detached	Indoor unit
E 1	81	More than 2 indoor units cool and heat simultaneously	Indoor unit operation mode
ε:	90	<ul> <li>Piping check operation error</li> <li>– Auto Addressing Mode : Number of checked indoor unit is unmatched with it's assigned</li> <li>– Manual Addressing Mode : Detected indoor unit's Adddress is unmatch with assigned address.</li> </ul>	Outdoor(Number of indoor) Indoor (Address)
53	01	The number of indoor unit mismatched	Communication wiring
53	58	Communication error (outdoor unable to receive data)	Communication wiring
53	03	Communication error between 2 microcontroller on the outdoor PCB	Outdoor unit PCB
53	21	Outdoor temperature sensor error (Short/Open) – Error level : over 4.9V(-50°C) under 0.4V(93°C)	Temperature sensor
53	37	Condenser temperature sensor error (Short/Open) – Error level : over 4.9V(-50°C) under 0.4V(93°C)	Temperature sensor
53	48	Condenser temperature sensor detached	Temperature sensor
53	80	Compressor discharge sensor error (Short/Open) – Error check condition : outdoor temperature over -20°C – Error level : over 4.95V(-30°C) under 0.5V(151°C)	Temperature sensor
53	81	Compressor discharge sensor detached	Temperature sensor
83	20	Compressor OLP sensor error (Short/Open) – Error check condition : outdoor temperature over -20°C – Error level : over 4.95V(-30°C) under 0.5V(151°C)	Temperature sensor
٤4	<i>0</i> /	Indoor unit heat exchanger freezing and compressor stop (cooling mode)	Check pipe matching also(indoor-outdoor)

# Outdoor Unit(cont.)

Display		Explanation	Main checking Point
E 4	<i>0</i> 4	Outdoor unit overload and compressor stop (protection control in heating mode)	Check pipe matching also(indoor-outdoor)
<i>E</i> 4	18	Outdoor unit high discharge temperature and compressor stop (protection control in heating mode)	Check pipe matching also(indoor-outdoor)
<i>E</i> 4	19	Outdoor unit EEV open error (self diagnosis)	EEV
<i>E</i> 4	22	Outdoor unit EEV close error (self diagnosis)	EEV
<i>E</i> 4	4 <i>0</i>	High temperature (over 30°C) of outdoor as heating mode	Operation mode
<i>E</i> 4	4 /	Low temperature (under $-5^{\circ}$ C) of indoor as cooling mode	Operation mode
<i>E</i> 4	80	Wrong connection between communication and power cable	Wiring indoor and outdoor
٤4	81	Inverter Compressor starting failure (5 times)	Service valve, EEV, Compressor terminal, Compressor wire, Outdoor controller
٤4	52	Compressor trip by input current limit control	EEV, Gas over charge, Outdoor controller
٤ч	83	Compressor trip by OLP temperature limit control	Outdoor fan, Compressor, Outdoor controller
٤٩	84	Compressor peak current protection	Outdoor fan, Compressor, Compressor wire, Outdoor controller
٤ч	85	Compressor overload protection by current	Outdoor fan, EEV, Service valve, Outdoor controller
٤ ٢	88	DC-link voltage error (under 150V or over 410V) (This error might display for a few seconds after power cut)	Power voltage, Outdoor controller
६५	67	Compressor rotation error	Compressor terminal, Compressor wire, Outdoor controller
<i>E</i> 4	88	Current sensor error	Outdoor controller
<i>E</i> 4	83	DC-link voltage sensor error	Outdoor controller
٤٢	70	Compressor overload protection	Outdoor fan, EEV, Service valve, Outdoor controller
٤4	71	EEPROM error	Outdoor controller
٤ч	72	AC line zero-crossing detection circuit error	Outdoor controller, Terminal Block
85	54	NO GAS error (self diagnosis)	Piping (gas leak)

■ MH\*\*\*FPEA\* / MH\*\*VP2-\*\*

### ex) Option No. : 066064- 170373

#### Step 1 : Enter the Option Setup mode.

- 1<sup>st</sup> Take out the batteries of remote control.
- 2<sup>nd</sup> Press the temperature 🔘 I 🛆 button simultaneously and insert the battery again.
- $3^{rd}$  Make sure the remote control display shown as  $gg^{00}_{gg}g_{0}$ .







Press the Mode Selection key, 👸 to set the display part to 🛿 and check the display part.

→ The display part shows  $\frac{\partial S}{\delta O} = \frac{\delta O}{\delta V}$ .

Press the Mode Selection key,  $\overset{\text{\tiny Mode}}{O}$  to set the display part to l and check the display part.

→ The display part shows  $\frac{17}{33}$ .

#### Step 4 : Pressing the ON/OFF button (())

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( $\cong$ ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

#### Step 5 : Unit operation test-run

First, Remove the battery from the remote control.

Second, Re-insert the battery into the remote control.

Third, Press ON/OFF key with the direction of remote control for set.

#### Error Mode

1st If all lamps of indoor unit are flickering, plug out, plug in power plug again and press the ON/OFF key to retry.

#### ■ MH\*\*\*FWEA/MH\*\*VW2-\*\*

# ex) Option No. : 066064- 170373

#### Step 1 : Enter the Option Setup mode.

- 1<sup>st</sup> Take out the batteries of remote control.
- 2<sup>nd</sup> Press the temperature DIO button simultaneously and insert the battery again.
- $3^{rd}$  Make sure the remocon display shown as  $\frac{\partial G}{\partial g}_{\partial G}$ .







Press the Mode Selection key, 💮 to set the display part to 🖸 and check the display part.

→ The display part shows  $\frac{\partial S}{\delta \partial \delta} \frac{\partial S}{\delta Y}$ .

Press the Mode Selection key, or to set the display part to 1 and check the display part.

→ The display part shows  $n^{3}$   $n^{7}$   $n^{3}$ .

#### Step 4 : Pressing the ON/OFF button ( ())

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( $\cong$ ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

#### Step 5 : Unit operation test-run

First, Remove the battery from the remote control.Second, Re-insert the battery into the remote control.Third, Press ON/OFF key with the direction of remote control for set.

#### Error Mode

1st If all lamps of indoor unit are flickering, plug out, plug in power plug again and press the ON/OFF key to retry.

#### ■ MH\*\*\*FVEA/MH\*\*VV1-\*\*

# ex) Option No. : 066064- 170373

#### Step 1 : Enter the Option Setup mode.

- 1<sup>st</sup> Take out the batteries of remote control.
- 2<sup>nd</sup> Press the temperature DIO button simultaneously and insert the battery again.
- $3^{rd}$  Make sure the remocon display shown as  $\frac{\partial \Omega}{\partial \theta}_{00}$ .







Press the Mode Selection key, 💮 to set the display part to 🖸 and check the display part.

→ The display part shows  $\begin{array}{cc} \Box & & \\$ 

Press the Mode Selection key, or to set the display part to 1 and check the display part.

→ The display part shows  $I_{D3}^{T}$ 

#### Step 4 : Pressing the ON/OFF button ( ())

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( $\cong$ ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

#### Step 5 : Unit operation test-run

First, Remove the battery from the remote control.Second, Re-insert the battery into the remote control.Third, Press ON/OFF key with the direction of remote control for set.

#### Error Mode

1st If all lamps of indoor unit are flickering, plug out, plug in power plug again and press the ON/OFF key to retry.

### ■ MH\*\*\*FKEA/MH\*\*\*FMEA/MH\*\*\*FDEA/MH\*\*\*FEEA

ex) Option No. : 085 1 15- 182340

#### Step 1 : Enter the Option Setup mode.

- 1<sup>st</sup> Take out the batteries of remote control.
- 2<sup>nd</sup> Press the temp. Dispersion button simultaneously and insert the battery again.
- $3^{rd}$  Make sure the remote control display shown as  $\frac{00}{00}$  .







Press the Mode Selection key, use to set the display part to [] and check the display part.

→ The display part shows  $\begin{bmatrix} 08\\5 \end{bmatrix}$ .

Press the Mode Selection key, we to set the display part to t and check the display part.

→ The display part shows 🔓 .

23 40

#### Step 4 : Pressing the ON/OFF button ( 🚳 )

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( (()) ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

#### Step 5 : Unit operation test-run

First, Remove the battery from the remote control.

**Second,** Re-insert the battery into the remote control.

Third, Press ON/OFF button(O) with the direction of remote control for set.

#### • Error Mode

1st If all lamps of indoor unit are flickering, Plug out, plug in power plug again and press ON/OFF key to retry.

### $\blacksquare$ Table of the option code

MODEL	OPTION CODE
MH020FPEA	
MH14VP2-07	0d7400-13223F
MH16VP2-07	
MH19VP2-07	
MH023FPEA	
MH026FPEA	
MH16VP2-09	0d6400-142351
MH18VP2-09	
MH30VP2-09	
MH035FPEA	
MH19VP2-12	0d7404-162362
MH30VP2-12	
MH052FPEA	
MH052FPEA1	005408-192351
MH020FWEA	0E8400-1320F8
MH023FWEA	
MH026FWEA	
MH14VW2-07	
MH16VW2-07	0F8400-142228
MH16VW2-09	
MH18VW2-09	
MH19VW2-07	
MH30VW2-09	
MH035FWEA	
MH19VW2-12	0E7400-16226E
MH30VW2-12	
MH052FWEA	0E5404-19222E
MH023FVEA	
MH026FVEA	
MH18VV1-09	004402-1420E7
MH19VV1-07	
MH035EVEA	
MH19VV1-12	007402-16221A
MH052FVEA	005406-19225E
MH026FKEA	005600-14221d
MH035FKEA	005600-162340
MH030FMEA	045004 404054
MH035FMEA	045024-164051
MH052FMEA	045024-1940d5
MH052FDEA	015200-190000

# ■ Table of the option code(cont.)

External Static Pressure (mmAq)	1.0	2.0(Standard)	3.0	4.0
MH023FEEA MH026FEEA	015201-1400Fb	015201-14020c	015201-140360	015201-1403A2
MH035FEEA	015201-16025d	015201-16026E	015201-1603c4	015203-160108
MH052FEEA	011223-194108	011223-194119	011223-1941Ac	011223-19431d