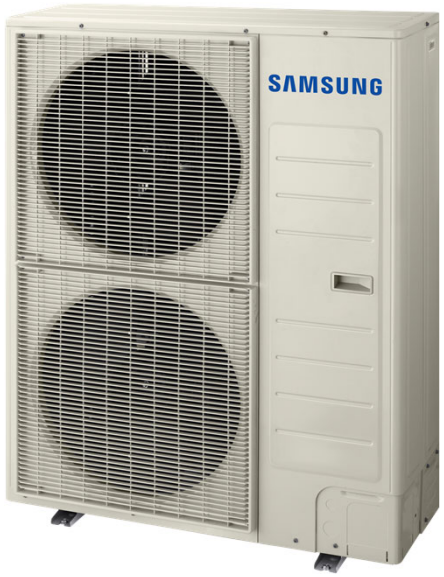
ECO HP/HR
Quick Reference Guide



Important Notice

This is not a substitute for the installation or service manuals. As new products are released, this list will be updated. Samsung is in no way responsible for inaccuracies. This document is intended to be used as a reference.

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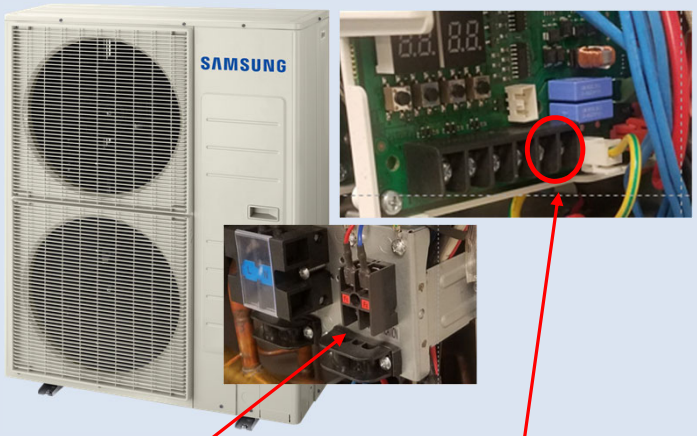
System Communication Wiring Guide

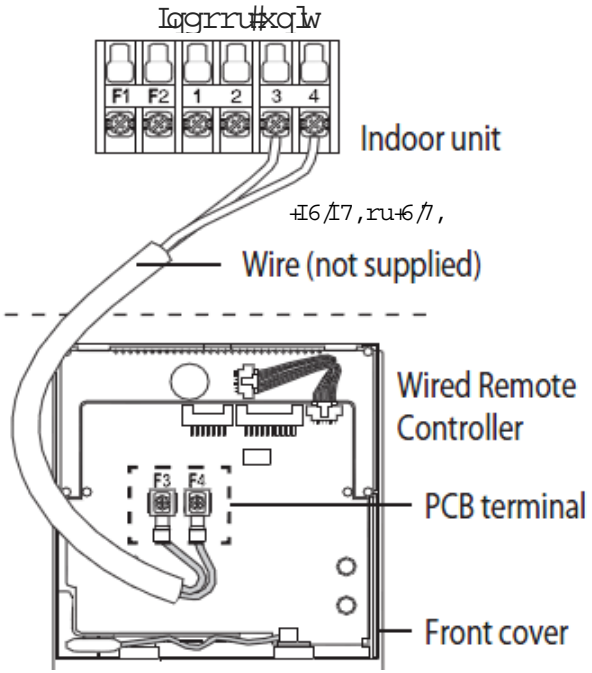
Outdoor Unit Terminal Block



F1 F2 – Set Layer:
ODU to IDU
Communications 5vdc

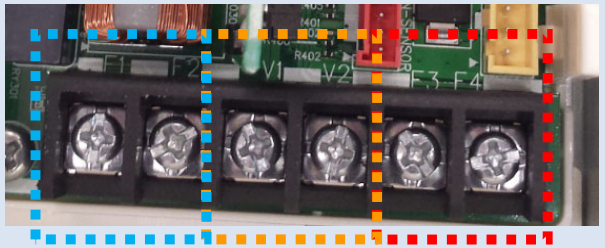
R1 R2 – Control Layer:
Outdoor Unit to DMS
Centralized Control

Wired Remote to Indoor Unit Terminal Block



Indoor Unit Terminal Block

Indoor unit PCB



ODU to IDU Communications 5vdc	12 vdc Samsung accessories	To Controller 485 & 12 Vdc
F1 F2	**V1 V2**	**F3 F4**

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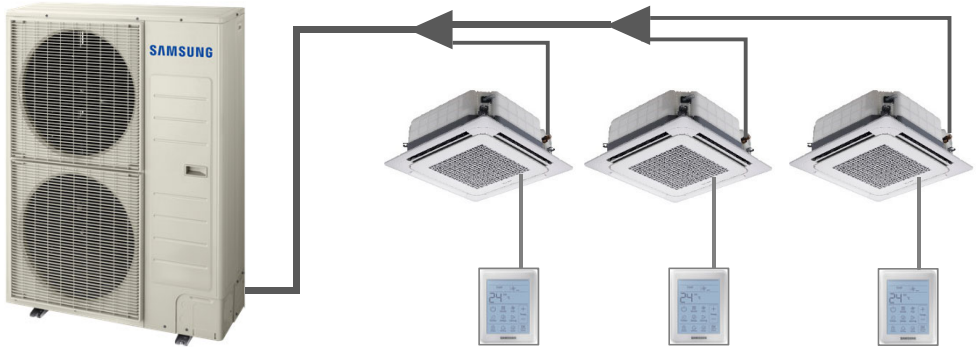
Piping Design

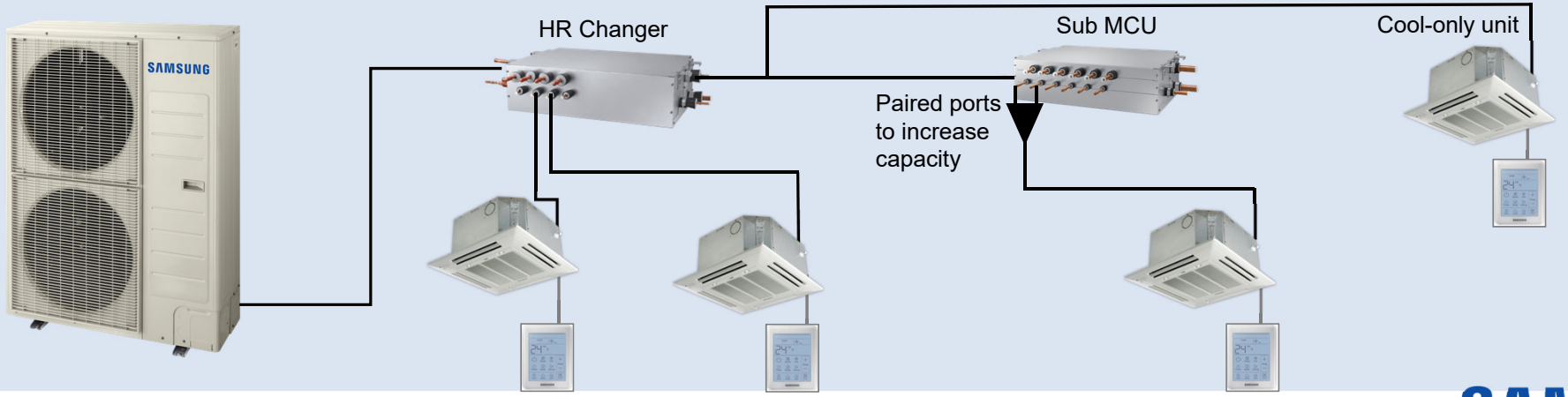
Standard HP: Y piping for heat pump application



Refrigeration piping:

- All piping specifications must be followed to insure that the system will operate properly.
- Maintain a minimum straight line distance: ≥ 20” before connecting to a Y-joint.
- Minimum 36” straight line between Y-joints.
- **HR Changer**: Mandatory device for indoor unit mode changeover
- HR Changer is installed as the first device in the refrigerant piping network. (Heat recovery only)
- **Cool-only** indoor unit is connected to the HR Changer low pressure gas and liquid outgoing pipes.
- **Sub MCU** required for additional indoor unit zones after the HR Changer

Standard HR: Piping for heat recovery application



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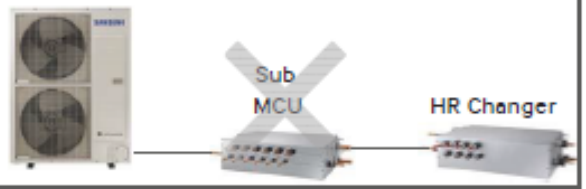
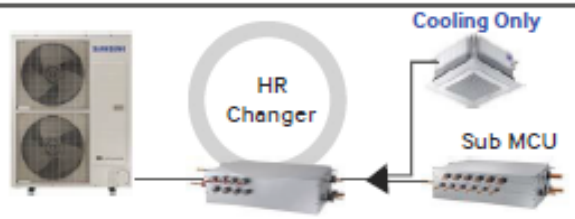
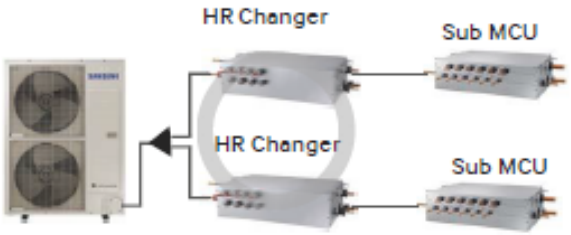
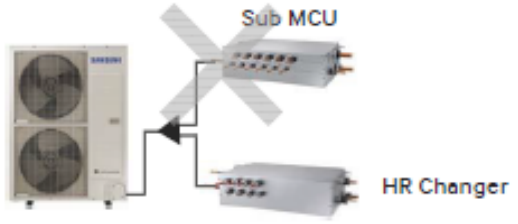
HR & Sub MCU Chart

Case	Correct installation*	Incorrect installation
HR Installation (HR changer required)		
Serial Installation		
Cooling only Indoor unit Installation		
Parallel Installation		

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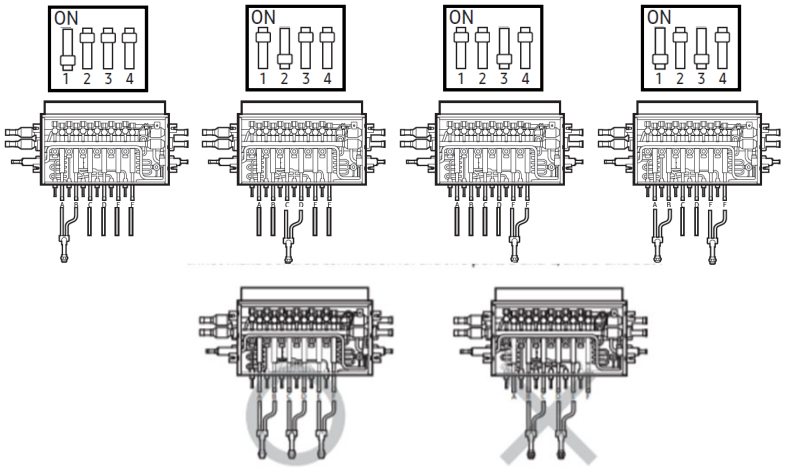
MCU Settings (HR changer & Sub changer)

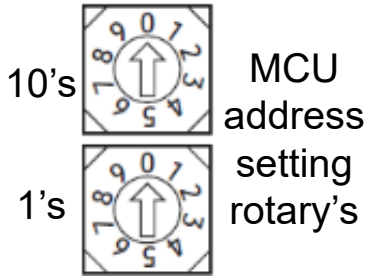
Note: Power must be off, complete prior to auto addressing

Port assign DIP switch No.	ON (Port Used)	OFF (Port not used)
1	Port A used	Port A not used
2	Port B used	Port B not used
3	Port C used	Port C not used
4	Port D used	Port D not used
Second DIP switch bank		
1	Port E used	Port E not used
2	Port F used	Port F not used

Pairing DIP switch No.	ON (Individual setting)	OFF (Paired setting)
1	A & B not paired	A & B paired
2	C & D not paired	C & D paired
3	E & F not paired	E & F paired
4	N/A	N/A

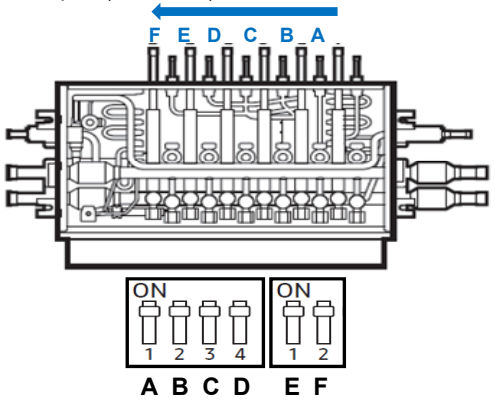


Use the rotary dial to give each MCU its own individual address



MCU address setting rotary's

Example: Port "C" not used. Capacity per port (≤19 MBtu)



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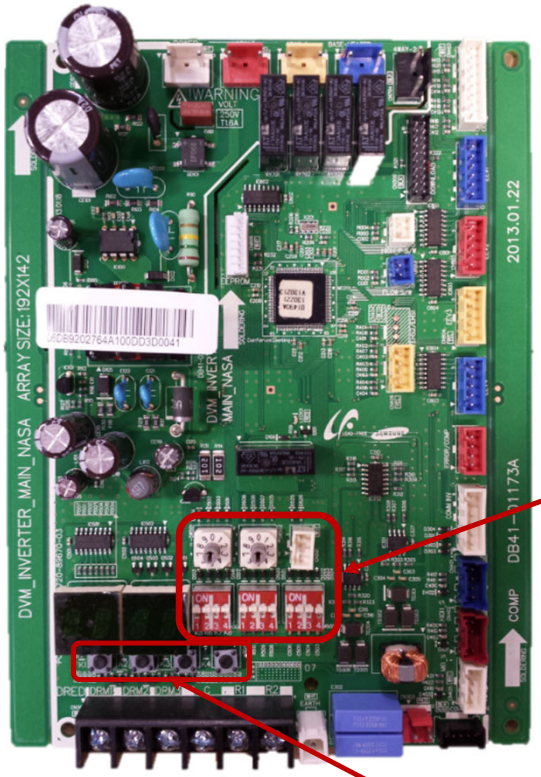
System PCB Identification

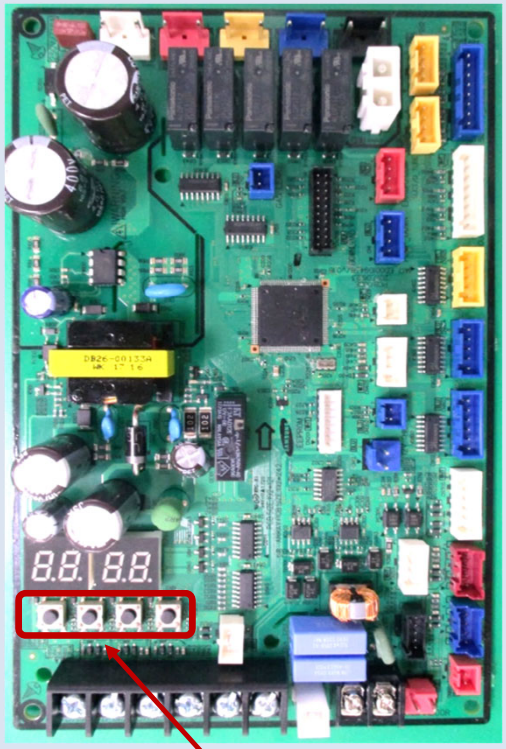
36, 48, & 53 MBtu/h Heat Pump Models



Indoor unit quantity
Rotary Dial.
Outdoor unit option settings-
-DIP switches.

Commissioning & Service modes
K1 K2 K3 K4 Tactile switches

60 MBtu/h HP Model – All HR Models



Outdoor unit option set, Indoor unit quantity set
Commissioning & Service modes. K1 K2 K3 K4 Tactile switches

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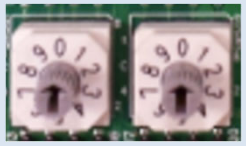
36, 48 & 53 Btu HP Initial System Settings

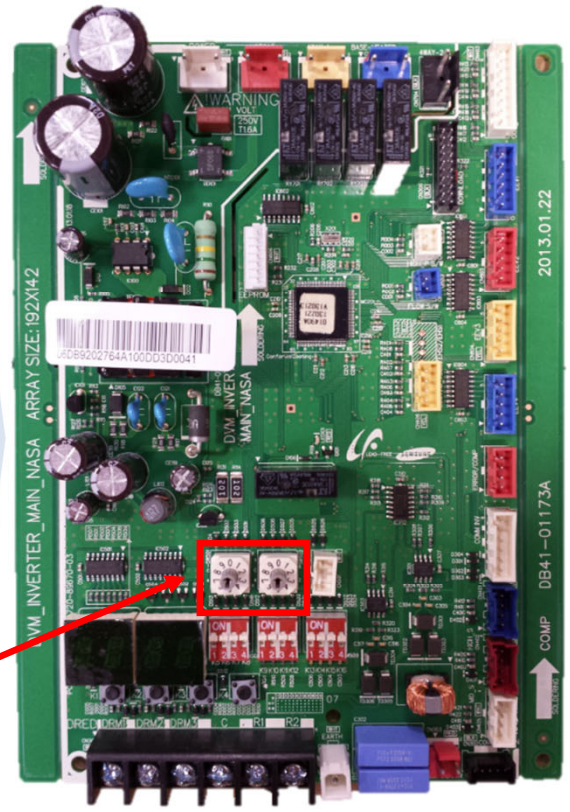
With system powered off:

- Set the connected indoor unit quantity on the ODU PCB

SW51:10's SW52:1's



- **When the ODU is powered up:**
  - The system will automatically address the IDU's
    - **Option**: Manual addressing – remote controller or SNET Pro 2



Set the quantity of indoor units from rotary switches: SW51 & SW52

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36, 48 & 53 Btu HP Initial System Settings

Switch	Position		Function
K6	ON		Snow prevention (Used) Default
	OFF		Snow prevention (Not used)
K7 & K8	ON	ON	(Target evap temp) 7-9 ºC / 44.6-48.2 ºF Default
	ON	OFF	5-7 ºC / 41-44.6 ºF
	OFF	ON	9-11 ºC / 48.2-51.8 ºF
	OFF	OFF	10-12 ºC / 50-53.6 ºF
K9 & K10	ON	ON	Night quiet mode not used Default
	ON	OFF	Step – 1
	OFF	ON	Step – 2
	OFF	OFF	Step - 3

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36, 48 & 53 Btu HP Initial System Settings

Switch	Position		Function	
K11 & K12	ON	ON	Capacity correction heating Default	
	ON	OFF	Default – 28.4 psi	
	OFF	ON	Default – 14.2 psi	
	OFF	OFF	Default + 14.2 psi	
K13 & K14	ON	ON	3 ton Default	4 + ton Default
	ON	OFF	Max current (–) 4(A)	Max current (–) 2A)
	OFF	ON	Max current (–) 6(A)	Max current (–) 4(A)
	OFF	OFF	Max current (–) 8(A)	Max current (–) 6(A)
K15 & K16	ON	ON	MID Default	
	ON	OFF	MID	
	OFF	ON	LOW1 (Humidity)	
	OFF	OFF	LOW2 (Humidity)	

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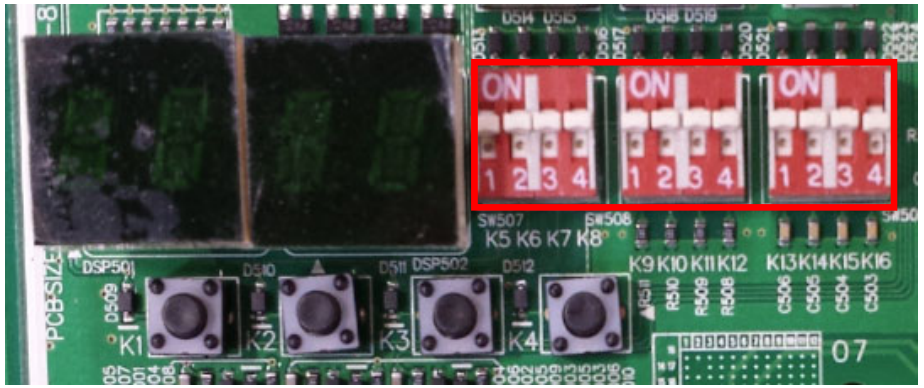
Outdoor Unit Option Settings – Defrost Interval Adjustment

- Defrost mode can start after 30 minutes of heat operation run time, and the suction temperature at the outdoor unit heat exchanger is less than 23°F, or there is a significant temperature difference between the heat exchanger suction gas and ambient.
- For installations with high humidity which creates too many defrost cycles, defrost interval can be changed to LOW1 or LOW2 (K5 K6)
- Heating capacity is reduced in this operation

Switch	Position		Function
K15 & K16	ON	ON	Humidity MID1 Default
	ON	OFF	Humidity MID2
	OFF	ON	Humidity LOW1
	OFF	OFF	Humidity LOW2

36,48&53 MBtu/h HP models



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60 Btu HP/HR Initial System Settings

Step	Button press	Display	Description	Note
Step 1	Power on unit		Indoor setting required	-
Quantity of indoor units				
Step 2	Press K1 & K2 for 2 seconds		Ready to set	-
Step 3	K2	id X0	Ten digit setting	-
	K4	id 0X	Ones digit setting	
	Hold K4 for 2 seconds to start auto detection mode			
Heat pumps hold K2 to save and exit. Segment will display Ad 00 then UP.				
Quantity of MCU (HR only)				
Step 4	Press K1		Ready to set	(Default)
Step 5	K2	NC X0	Ten digit setting	-
	K4	NC 0X	Ones digit setting	
	Hold K4 for 2 seconds for auto detection mode			
Heat recovery setting				
Step 6	Press K1		System type	-
Step 7	Press K4	ht 00	Heat pump	(Default)
		ht 01	Heat Recovery	Must set
Step 8	Hold K2	Exit	Save	Unit will display E201 or E213

All units powered on

↓

Indoor unit count

↓

MCU count
HR only

↓

Outdoor Type

↓

Finished

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MCU Auto Pipe Pairing
Auto Addressing (H/R only)

Note: MCU address and dip switch settings must be completed before Auto Pipe Pairing operation is initiated

The outdoor unit will display E213 if addressing has not been completed

The Indoor Unit MICOM firmware version must be **"161222"** or higher see next slide
yr./month/day

To run the Auto Pipe Pairing operation, take the following steps:

1.Press the **K2** **button 10 times** on the main PBA of the outdoor unit to start the Auto pipe pairing operation. (Display : H H 88)

Temperature	Outdoor temp < 75°F	Outdoor temp 75°F ≥ 85°F	Outdoor temp ≥ 86°F
Avg. Indoor temp <75°F	Main heating operation	Main heating operation	Main cooling operation
Avg. Indoor temp ≥75°F		Main cooling operation	

- The operation takes about 25 to 55minutes normally depending on the number of indoor units connected.(Max 2hours)

Step 1 (Start H H 01) → Steps 2 - 8 (Setup H H 08) → Step 9 (Check H H 09) → Step 10 (Confirmation H H 10)

Note: Verify service valves are open and the proper charge has been added

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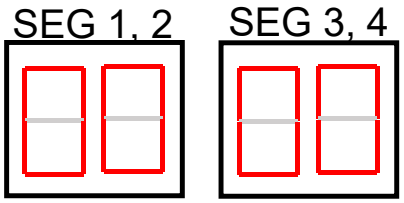
Outdoor Setting

NOTE:

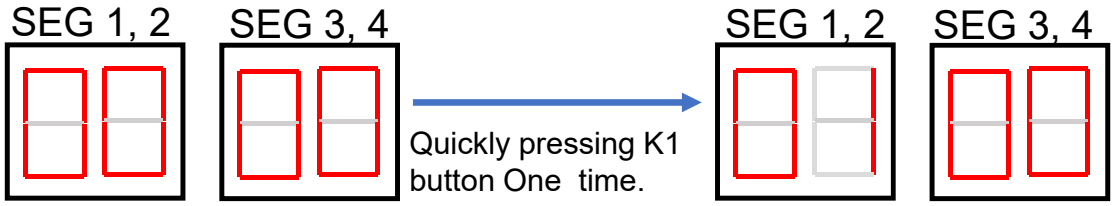
- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

1. Press and hold K2 to enter the option setting.
   (system must be thermo-off)
   -display will show as follows:

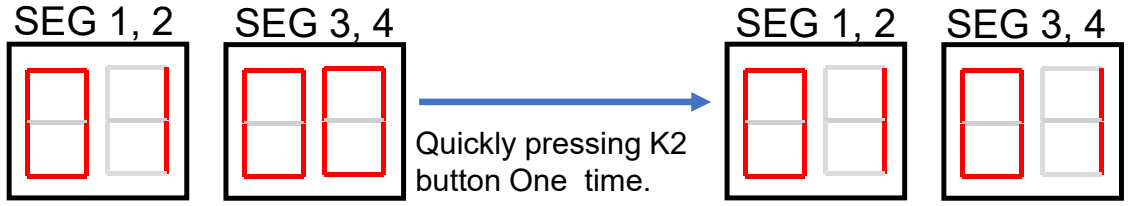


-SEG 1 & 2 will display the number of the optional setting.
-SEG 3 & 4 will display the number of set value for the function setting.

2. Shortly press the K1 button to adjust the value of SEG 1 & 2 to match the desired option number.
   -Example:



3. Shortly press the K2 button to adjust the value of SEG 3 & 4 to match the desired option number.
   -Example:



4. After setting the number values in SEG 1, 2, 3 & 4 for the function option you want to change. Press and hold the K2 button for 2 seconds or more to save.
5. All Segments will BLINK and begin tracking

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Cooling Correction	Main PCB	0	1	0	0	44-48 (F) Default (A type PBA)	Target Evaporator Temp (F) manual readings are (C) when lower temperature value is set, discharge air Temp of the indoor unit will decrease.
				0	1	41-44 (F) Default (B type PBA)	
				0	2	48-51 (F)	
				0	3	50-53 (F)	
				0	4	51-55 (F)	
				0	5	53-57 (F)	
				0	6	55-57 (F)	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Heating Correction	Main & Sub PCB	0	2	0	0	Default 435 (PSI)	Target High Pressure (PSI) (When low pressure value is set, discharge air temperature of indoor unit will decrease).
				0	1	362 (PSI)	
				0	2	377 (PSI)	
				0	3	391 (PSI)	
				0	4	406 (PSI)	
				0	5	420 (PSI)	
				0	6	449 (PSI)	
				0	7	464 (PSI)	
				0	8	478 (PSI)	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Current Restriction	Main PCB	0	3	0	0	100% Default	When restriction option is set, cooling and heating performance may decrease.
				0	1	95%	
				0	2	90%	
				0	3	85%	
				0	4	80%	
				0	5	75%	
				0	6	70%	
				0	7	65%	
				0	8	60%	
				0	9	55%	
				1	0	50%	
				1	1	No restriction	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Oil Collection	Main PCB	0	4	0	0	Default	-
				0	1	Shorten the Interval by 1/2	
Temperature to trigger Defrost	Main PCB	0	5	0	0	Default	Apply this setting when installation location is in humid area. (near lakes, rivers etc.).
				0	1	High humidity	
Outdoor Fan Speed	Main & Sub PCB	0	6	0	0	Default	Changing this setting will increase fan speed to maximum value.
				0	1	Increase fan speed	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Silent mode	Main PCB	0	7	0	0	Disabled Default	If enabled in AUTO this function will operate automatically (Cooling mode only) (MIM-B14) is needed to control night mode by contact for both heating and cooling.
				0	1	Level 1 / Auto	
				0	2	Level 2 / Auto	
				0	3	Level 3 / Auto	
				0	4	Level 1 External contact	
				0	5	Level 2 External Contact	
				0	6	Level 3 External contact	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
High-head condition	Main PCB	0	8	0	0	Disabled Default	-
				0	1	Level 1 Type 1 Indoor lower than outdoor unit	When outdoor unit is located 131-262ft above indoor units.
				0	2	Unused	
				0	3	Type 2 Outdoor unit lower than indoor unit	When indoor units are over 98ft above the outdoor unit.
Long –piping condition (cannot be set with high-head setting)	Main PCB	0	9	0	0	Disabled Default	-
				0	1	Level 1	When equivalent length of farthest indoor unit from the outdoor unit is over 328ft.
				0	2	Unused	

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Energy savings mode	Main PCB	1	0	0	0	Disable Default	
				0	1	Energy saving mode	Energy saving triggers when the room temperature reaches desired set-point (Heating mode only).
				0	2	Rapid Cooling	Increase cooling speed.

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit.

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Unused option	Main PCB	1	2	-	-	Unused	-
				-	-	Unused	-
Channel address	Main PCB	1	3	A	U	Automatic Setting Default	Classifying product from upper level controller DMS, S-net3 etc.
				0 - 15		Manual setting	
Snow accumulation control	Main PCB	1	4	0	0	Enabled Default	Fan will turn on in low ambient temperatures even if system is not operating.
				0	1	Disabled	
Unused option	Main PCB	1	5	-	-	Unused	-
Unused option	Main PCB	1	6	-	-	Unused	-

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit

Option item	Input unit	SEG1	SEG2	SEG3	SEG4	Function	Remarks
Unused option	Main PCB	1	7	-	-	Unused	-
				-	-		
Max. Capacity restriction	Main PCB	1	8	0	0	Enabled Default	Restrict excessive capacity increase when operating small indoor unit capacity.
				0	1	Disable	
Gas leak Pump down	Main PCB	1	9	0	0	Disabled Default	When gas leak is detected enter the pump down operation.
				0	1	Enable	
Unused option	Main PCB	2	0	0	0	Unused	-
Unused option	Main PCB	2	1	-	-	Unused	-
				-	-		

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Outdoor Setting

NOTE:

- Press and hold the K1 button to reset values to previous settings.
- Press and hold K4 to restore to factory default settings.
- Once you release K4 for factory default wait until the system resets and starts the tracking process. Then press and hold the K2 button to save the setting.
- Press K3 at any time to exit

Option item	Input unit	SEG1	SEG2	SE03	SEG4	Function	Remarks
Emergency operation indoor unit error	Main PCB	2	2	0	0	Disabled Default	When set operation is possible even if an indoor communication error occurs.
				0	1	Indoor high humidity condition	
				0	2	Indoor unit low humidity	
Base heater	Main PCB	2	3	0	0	Disabled Default	-
				0	1	Enabled	
Unused option	Main & Sub PCB	0	0	-	-	Unused	-
				-	-		
				-	-		

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UP Un-Prepared

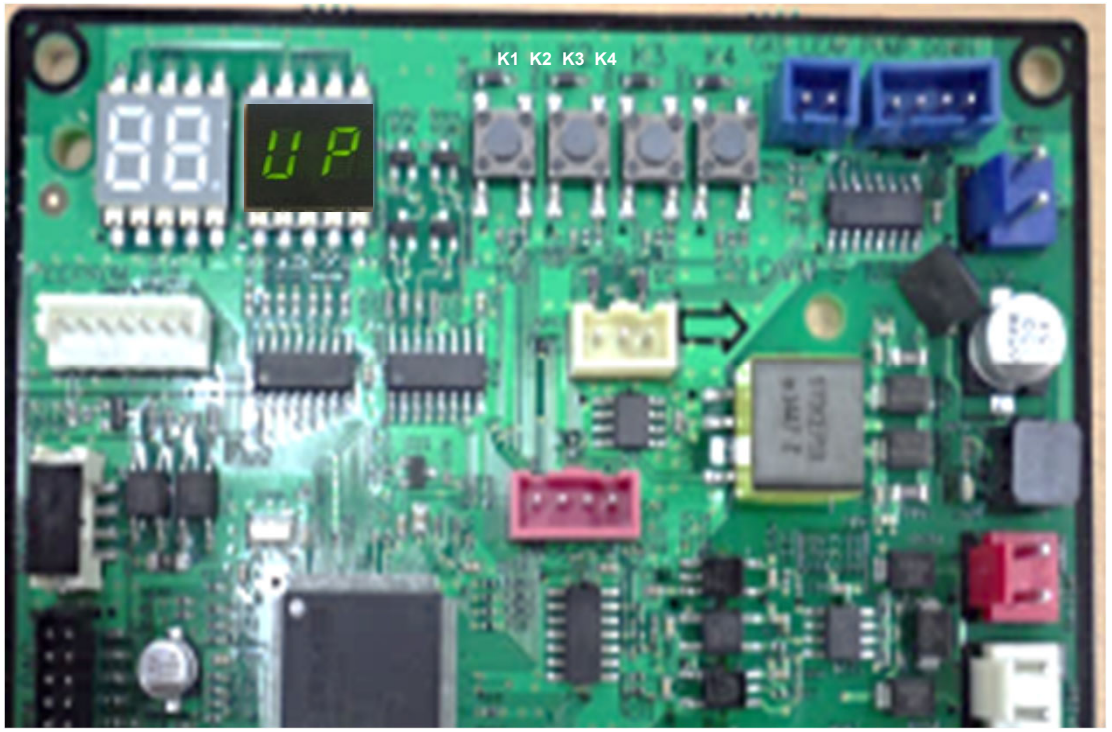
Once all equipment is communicating and auto piping has successfully completed. UP will be displayed on the main PCB.

Before entering auto trial operation:

- All option settings should be made through the outdoor PCB and S-Net.
- Verify that the proper charge has been added and the service valves are fully open.

To enter Auto Trial Operation

- Press and hold K1 for 5 seconds.
- The display will change to “K”“K”.
- Once successfully completing Auto Trial the system will stop operation and the display will begin to scroll connected equipment addressing.



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View Mode - Key Operation

K1 Control	Key operation	Display on segment
Press and Hold	Auto trial operation	“K” “K” “BLANK” “BLANK”
K1 No. of presses	**Key Operation**	**Display on segment**
1 time	Refrigerant charging in Heating	“K” “1” “BLANK” “BLANK”
2 times	Trial operation in Heating	“K” “2” “BLANK” “BLANK”
3 times	Pump out in Heating	“K” “3” “BLANK” “1”
4 times	Vacuuming	“K” “4” “BLANK” “1”
5 times	End Key	-

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View Mode - Key Operation

K2 No. of presses	Key operation	Display on segments
1 time	Refrigerant charging in Cooling	“K” “5” “BLANK” “BLANK”
2 times	Trial operating in Cooling	“K” “6” “BLANK” “BLANK”
3 times	Pump down all units in Cooling	“K” “7” “BLANK” “BLANK”
4 times	Automatic setting of operation mode (Cooling/Heating) for trial operation)	“K” “8” “BLANK” “BLANK”
5 times	Refrigerant check mode	“K” “9” X-X
6 times	Discharge made DC line voltage	“K” “A” “BLANK” “BLANK”
7 times	Forced defrost	“K” “B” “BLANK” “BLANK”
8 time	Forced oil return	“K” “C” “BLANK” “BLANK”
9 times	Inverter compressor check	“K” “D” “BLANK” “BLANK”
10 times	H/R: Piping check operation H/P not used	“K” “E” “BLANK” “BLANK”
11 times	End Key operation	-
K3 No. of presses	**Key operation**	**Display on segment**
1 time	Initialize (reset/exit)	“8” “8” “8” “8” “back to main display”

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