

# Wired Remote Controller MWR-WE10



## SAMSUNG ELECTRONICS CO.LTD

### General

### Concept

- Multi function wired remote controller for controlling A/C and ERV ventilator
  - MWR-WE10 can control all functions of ERV ventilator.
- Supports the functions of the new models like global 4way, ERV plus and mini AHU
  - Individual blade control, Occupancy detection, Auto cleaning, S-Plasma ion, Clean up.







Auto Cool Dry Fan Heat Defrost Quiet Sleep Tomps Set Tomps Coolega B Coolega B Coolega

### Features

- 1) A/C and ERV unified controller (ERV plus and Mini AHU support)
  - $\rightarrow$  ERV can connect independently
- 2) A/C : operation ON/OFF, operation mode, setting temperature, air flow, fan speed, quiet mode, sleep mode
- 3) ERV, ERV plus : operation ON/OFF, operation mode, fan speed, CO<sub>2</sub> status display, Exhaust hood status display, Exter control status display, clean up
- 4) Mini AHU : outdoor air intake, humidity, humidity status display
- 5) Error display
- 6) Filter replacement alarm display and reset
- 7) Single or multiple indoor unit control (Max 16 units)
- 8) Weekly operating schedule (A/C only, ERV only, A/C + ERV)
- 9) Upper/Lower temperature limit setting
- 10) Automatic operation stop function
- 11) Energy saving operation mode
- 12) Child lock
- 13) Different button permission levels
- 14) Real-time clock function: current time, day display function, summer time
- 15) Built-in room temperature sensor
- 16) Service mode support
- 17) S-Plasma ion, Auto clean and Human detecting functions support

### General



#### • Dimension







### General











Display & Buttons



**Common status** 

### General





**Temperature sensor** 

### General







### • Comparision (1)

Menu	MWR-SH00	MWR-WH00	MWR-WE00	MWR-WE10	
Reset key	Reset (S/W & H/W)	Reset (S/W & H/W)	Reset (S/W & H/W)	Reset (S/W & H/W)	
Size (W x H x D)	122 x 70 x 21	122 x 120 x 23	122 x 120 x 23	120 x 124 x 19	
Wire length	Not provided	10 m	10 m	Not provided	
Comm./Power connector	Ring terminal type	Connector type	Connector type	Ring terminal type	





### • Comparision (2)

Menu	MWR-SH00	MWR-WH00	MWR-WE00	MWR-WE10
On/Off	0	0	0	0
Operation mode	0	0	0	0
Fan speed	0	0	0	0
Louver swing On/Off	0	0	0	0
Temperature setting	0	0	0	0
ERV On/Off	X	X	0	0
ERV operation mode	X	X	X	0
ERV fan speed	X	X	0	0
7-day Scheduler	X	X	0	0
Auto mode skip	0	0	0	0
Automatic stop	X	0	0	0
Whole button lock	0	0	0	0
Partial button lock	X	0	0	0



### • Comparision (3)

Menu	MWR-SH00	MWR-WH00	MWR-WE00	MWR-WE10
Temperature setting limit	X	0	0	0
Filter reset	0	0	0	0
Energy saving mode	X	X	0	0
ERV interlocking	X	X	0	0
Error occurred unit address display	0	0	0	0
Mixed installation with other type wired remote controller	X	0	0	0
Clock	X	X	0	0
Summer time	X	X	X	0





Individual blade control

### Select only the desired blade to blow wind upward or downward.





#### • Energy saving operation (1)

- By comparing indoor room temperature, setting temperature and outdoor temperature, <u>wired remote controller</u> <u>changes ERV operation mode</u>.
- Especially during spring and autumn, it increases outdoor unit air intake to help cooling / heating.

#### X Operation restriction

- ERV must be connected more than one unit.
- When **Centralized** is displayed, energy saving mode does not work.
- Slave wired remote controller cannot use energy saving mode
- Energy saving operation condition
  - 1) Indoor unit or ERV are running ON
  - 2) Not "Centralized" state
  - 3) Not indoor unit "Fan" mode





#### • Energy saving operation (2)







• Energy saving operation – Cooling (3)

Ti : Indoor temp / Tiset : Indoor Setting temp / Tout : Outdoor temp







#### • Energy saving operation – Heating (4)

Ti : Indoor temp / Tiset : Indoor Setting temp / Tout : Outdoor temp





#### • Accurate temperature sensing (1)

- Realized more accurate temperature sensing
- Applied new temperature sensor in MWR-WE00 for accurate temperature sensing











#### • Built-in temperature sensor (1)

• Temperature control with built-in temperature sensor



\* The setting status of built-in temperature sensor can set and monitor in service mode. (1-2 menu)

Main menu	Sub menu	Function		Data bit	Factory setting	Description	Unit
			Temperature sensor selection	1	0	0 – Indoor unit, 1 – Wired remote controller	
1 2	Westerneteret	Use of average temperature	2	0	0 - No use, 0 - Use	-	
		Use of Auto mode	3	1	0 – No use, 0 - Use		
	Wireless remote controller Option setting/checking (2)	Temperature display	4	0	0 – Set temperature, 1 - Room temperature		



#### • Built-in temperature sensor (2)

• Power failure of wired remote controller



What if communication block occurs on the wired remote controller when its built-in temperature use is enabled ? (Block due to either power failure or disconnection only)

- When communication is blocked over 3 minutes
  - 1. Indoor unit ignores the built-in temperature sensor and accepts its sensor in the indoor unit.
  - 2. Heating mode temperature compensation setting is applied by value setting on the indoor unit. (2°C or 5°C)
- When communication resumes
  - 1. Built-in temperature use is recovered.
  - 2. Heating mode temperature compensation setting by the indoor unit is initialized by 0°C.



#### • Built-in temperature sensor (3)

• Heating mode temperature compensation



► What happens to heating mode temperature compensation (+2°C or +5°C) when the use of the wired R/C built-in temperature is enabled ?

- 1. The heating mode temperature compensation is cleared.  $(0^{\circ}C)$ .
- 2. In heating mode, if indoor unit is thermo off state, then fan stops.



### • User setting mode (1)

Main Menu	Sub menu	Functions		SEG Used	Default	Range	Unit
1		Auto	stop	1	0	0~12 hours	1 hour
2		Tomp limits (°C/°E)]	Lower Limit	1,2	16(61)	16~30°C (61~86°F)	1°C(1°F)
2			Upper Limit	3,4	30(86)	18~30°C (65~86°F)	1°C(1°F)
		All lo	cking	1	0	0-Cancel, 1-Locking	-
			Operation On/Off Button Lock	2	0	0-Cancel, 1-Locking	-
3			Operation Selection Button Lock	3	0	0-Cancel, 1-Locking	-
		Partial Button Locking	Temperature Setting Button Lock	4	0	0-Cancel, 1-Locking	-
			Fan speed Button Locking	5	0	0-Cancel, 1-Locking	-
		Schedule Setting Button Lock	Schedule Setting Button Lock	6	0	0-Cancel, 1-Locking	-
	1	Current Temperature Setting (Year, Month, Date)		1,2/3,4/5,6	10/01/01	00~99/1~12/1~31	YY,MM,DD
4	2	Current Time Setting (Day, Hour, Minute)		Day/AM/ PM/1,2/3,4	Friday/ PM/12/00	Sun~Sat/AM~PM/0~12/0~59	Day, hour, minute





### • User setting mode (2)

Main Menu	Sub menu	Functions		SEG Used	Default	Range	Unit
	1	Summer Time Use and	Summer Time Used (Y/N)	1	0	0-Not used, 1-Used	-
		Setting Methods	Summer Time Application Method	2	0	0- Weekly, 1- Daily	-
-	2	Summer time Start (? Month	use (Weekly) n, ? th Sunday)	1,2/4	03/F	1~12th month/ 1~4,F (last week)th week	-
5	3	Summer time End (? Month	Summer time use (Weekly) End (? Month, ? th Sunday)		10/F	1~12 month/ 1~4,F (last week)th week	-
	4	Summer time use (Daily) Start (? Month, ? th Sunday)		1,2/3,4	03/22	Jan~Dec/1~31st day	Month, date
	5	Summer time use (Daily) End (? Month, ? th Sunday)		1,2/3,4	09/22	Jan~Dec/1~31st day	Month, date
		Backlight Time	Setting/Check	1,2	5	0~30 sec	1 sec
6		LED (Green	) used (Y/N)	3	1	0-Not used, 1-Used	-
		LED (Red) used (Y/N)		4	1	0-Not used, 1-Used	-
7		Ventilator(ERV) Delay Time	Ventilator(ERV) Delay Application (Y/N)	1	0	0-Not used, 1-Used	-
		Setting/Check	Delay Time	3,4	30	30~60 minutes	1 minute
0		Reset to user mode defaults (except the current time)		1	0	0-Not used, 1-Reset	-





### • Changed terminal type for power and communication connection

- Not provided the line for power and communication connection in mass product



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### Installation

#### • Back cover (1)

- 4 way grooves and cable guides are added for cable

4way grooves are added for cable.



### Easy to mount to the wall tightly.



### It can be easily open back case.





• Back cover (2)



<When the cable is not concealed>

<When the cable is concealed>





#### • Option switch

- It doesn't need to open the cover to set/change option switches.



#### No address & option switch on global 4way cassette





• Installation (1)





• Installation (2)













- Communication
  - Connect to all F1-F2 terminals
- Power supply
  - Connect to one indoor unit only

#### <Warning>

- Connect to all V1-V2 terminals and PCBs are damaged due to power contending and over-current.

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#### • Installation (3) - Precaution

- Turn off the indoor unit power before making connections of wired R/Cs.
  - Case 1. If wire V1 makes contact to F3 or F4 with the indoor unit powered ON, the indoor unit PCB could be damaged(COM2) by abrupt overload to communication terminals.
    Case 2. Contact of V1 and V2 makes the indoor unit PCB electrically short, which damages
    - indoor unit power supply by excessive current drive.





#### • Installation (4) – Protection circuit







### • Connection (1)

**Individual Control (1)** Control 1 Indoor unit with 1 wired remote controller



Connection	1:1
Control	Connected indoor unit
Display	Operation status of the connected indoor unit
Error occurrence	Displays an indoor unit error





### • Connection (2)

**Individual Control (2)** Control 1 ERV with 1 wired remote controller



Connection	1:1
Control	Connected ERV
Display	Operation status of the connected ERV
Error occurrence	Displays an ERV error





### • Connection (3)

**Group Control (1)** Control multiple indoor units with 1 wired remote controller



Connection	1 : N (Max. 16 units)
Control	All connected indoor units
Display	Operation status of connected master indoor unit
Error occurrence	Displays the error if there is an error occurred in one of indoor unit





### • Connection (4)

Group Control (2)	Control multiple indoor units connected to different outdoor unit with 1 wired remote controller
F1/F2	



Connection	Connection     1 : N (Max. 16 units)			
Control All connected indoor units				
Display	Operation status of connected master indoor unit			
Error occurrence	Displays the error if there is an error occurred in one of indoor unit			





#### • Connection (5)

**Group Control (3)** Control multiple indoor units and ERVs with 1 wired remote controller



Connection	1 : N (Max. 16 units)		
Control All connected indoor units and ERVs			
Display	Operation status of connected master indoor unit and ERV		
Error occurrence	Displays the error if there is an error occurred in one of indoor unit or ERV		





#### • Connection (6)

**Group Control (4)** Control multiple indoor units with 2 wired remote controller



Connection	2 : N (Max. 16 units)		
Control All connected indoor units			
<b>Display</b> Two wired remote controllers identically display the operation status of the indoor unit			
Error occurrence	Displays the error if there is an error occurred in one of indoor unit		





#### • Connection (7)



Connection	2 : N (Max. 16 units)
Control	All connected indoor units
Display	Two wired remote controllers identically display the operation status of the indoor unit
Error occurrence	Displays the error if there is an error occurred in one of indoor unit





#### • Connection (8)

**Group Control (6)** Control multiple indoor units and ERVs with 2 wired remote controller



Connection	2 : N (Max. 16 units)
Control	All connected indoor units and ERVs
Display	Two wired remote controllers identically display the operation status of the indoor unit and ERV
Error occurrence	Displays the error if there is an error occurred in one of indoor unit or ERV





### • Connection (9)





Connection	2 : N (Max. 16 units)		
Control All connected indoor units and ERVs (MWR-VH02 can control only ERV.)			
Display	Two wired remote controllers identically display the operation status of ERV		
Error occurrence	Displays the error if there is an error occurred in one of indoor unit or ERV		



# **Connection (10)**

**Installation** 

### • Master/Slave connection of wired remocon controller

	MWR-WE10	MWR-WE00	MWR-WH00	MWR-SH00	MWR-VH02
MWR-WE10	0	0	0	×	0
MWR-WE00	0	0	0	×	0
MWR-WH00	0	0	0	×	0
MWR-SH00	×	×	×	0	×
MWR-VH02	0	0	0	×	0

MWR-TH01, MWR-WS00, MWR-VH01 can not connect with MWR-WE10.

• Length of transmission wiring

Maximum distance between the farthest indoor unit and wired remote controller : 1000m





### • Indoor unit state display (1)









### • Indoor unit state display (2)

DVM Plus II/III 4way PCB



Option switch K10 of DVM Plus III/IV PCB				
Function	Display priority of indoor unit display on the wired remote controller.			
Operation	<ul><li>- ON : Slave (Low priority)</li><li>- OFF : Master (High priority)</li></ul>			

#### Note

- 1. Not applied to MWR-TH01 or MWR-SH00
- $2.\ \text{DVM}$  Plus II/III/IV, HR II/III/IV only







### • Operation sequence

Operation	Display					
Power reset	Auto Cool Dry Fan Heat Defrost Quiet Steep Teres. Set Teres. Coolegies Cool	All the LCD segments are ON for 1 second.				
Registration (Start)		Two segment on the temperature display rotates clockwise to search for indoor unit registration process				
Registration (Success)		Display all connected unit quantity. (AC + ERV)				
Normal operation	Cool Set Temp. Set Temp. S	Display connected unit operation state.				



#### Reset function

- ▶ No need to turn power OFF and ON again to restart
- ▶ Press "Previous" and "Delete" for 5 seconds to reset the wired remote controller
- ► When reset is required?
  - $\rightarrow$  After hardware setting change (ex. Option switch) or communication wiring change.
- After reset, all of LCD segment turn OFF and turn ON again. And then tracking procedure starts.







#### • Error display (1)



- E6\*\* : Error code





**\*** Error display priority : ERV error < Indoor unit error < Wired remote controller error  $\rightarrow$  Ex> If indoor unit and wired R/C make error at once, wired R/C displays its error.



### • Error display (2)

Display	Description
60 (	Communication error between wired remote controller and indoor/ERV units after successful communication.
605	No communication between Master(Main) and Slave(Sub) wired remote controllers.
604	No communication between wired remote controller and indoor/ERV units
606	Wired remote controller is connected on F1/F2 channel.
601	Two or more wired remote controllers is set as Master(Main).
608	No ERV unit installed for interlocking function.
609	No indoor unit installed for interlocking function.
5 18	Over 16 indoor/ERV indoor units installed.
6 19	Indoor units of different temperature setting(°C/°F) connected to same wired remote controller.
620	Wired remote controller(s) has different temperature unit setting with indoor unit(s).
1 53	Slave(Sub) wired remote controller has different option setting with Maser(MAIN).
620	Two or more wired remote controllers set as Slave(SUB).
630	No By-Pass function on ERV unit but wired remote controller is set to use By-Pass.
631	No Auto function on ERV unit but wired remote controller is set to use Auto.
653	Temperature sensor Open/Short error.
654	<ul> <li>Memory error.</li> <li>No damper feedback.</li> </ul>









### Menu (1) All option switches existing on MWR-WE00/WH00 PCB can be set by service mode in MWR-WE10.

Main menu	Sub menu	Fu	nction	Data bit	Factory setting	Description	Unit
		I	Cooling/Heating selection	1	0	0 – Cooling/Heating, 1 – Cooling only	-
	1	Wireless remote controller	Use of wireless remote controller	2	1	0 – No use, 0 - Use	-
	'	Option setting/checking (1)	MAIN/SUB wired remote controller	3	0	0 – MAIN, 1- SUB	-
			Temperature unit	4	0	0 – Celcius(°C), 1 – Fahrenheit(°F)	-
			Temperature sensor selection	1	0	0 – Indoor unit, 1 – Wired remote controller	-
			Use of average temperature	2	0	0 – No use, 0 - Use	-
		Wirelass remote controller	Use of Auto mode	3	1	0 – No use, 0 - Use	-
	2	Option setting/checking (2)	Temperature display	4	0	0 – Set temperature, 1 - Room temperature	-
			AC On/Off button function	5	0	0 – Indoor unit + ERV, 1 – Indoor unit only, 2 – ERV only	-
1	3		Lock of Blade1	1	0	0-Unlock 1-lock	-
		Blade setting/checking	Lock of Blade2	2	0	0-Unlock 1-lock	-
			Lock of Blade3	3	0	0-Unlock, 1-lock	-
			Lock of Blade4	4	0	0 – Unlock, 1 – lock	-
		ERV option Setting/checking	Use of By-Pass mode	1	0	0 – No use, 1 - Use	-
			Use of Auto mode	2	0	0 – No use, 1 - Use	-
	4		Use of air purification mode	3	0	0 – No use, 1 - Use	-
			Use of external control	4	0	0 – No use, 1 - Use	-
	5	Room Temperature	Temperature control reference	1,2,3	0	-9~40(°C)	0.1(°C)
		compensation	Temperature compensation value	4,5,6	0	-9.9~9.9(°C)	0.1(°C)
	6	Number of connected units	Number of indoor units	1,2	-	0~16	-
	v	Number of connected units	Number of ERVs	3,4	-	0~16	-
	7	Temperature increm	ent/decrement (°C only)	1	0	0-1°C, 1-0.5°C, 2-0.1°C	-
	0	Factory o	ption setting	1	0	0 – Unchanged 1 – Factory setting	-



#### • Menu (2)

Main menu	Sub menu	Function		Data bit	Factory setting	Description	Unit	
2	1	Software code		1~6	-	Software code	-	
2	2	Software	version	1~6	-	Software version	-	
	1	Indoor unit room temperature		1,2,3	-	Room temperature	°C	
	2	Indoor unit EVA	IN temperature	1,2,3	-	EVA IN temperature	°C	
	3	Indoor unit EVA C	OUT temperature	1,2,3	-	EVA OUT temperature	°C	
	4	Indoor uni	t EEV step	1,2,3	-	EEV step	-	
			Use of central control	1	-	0 – No use, 1 - Use	-	
	5	Indoor unit option checking (1)	Use of drain pump	2	-	0 – No use, 1 - Use	-	
2	2		Use of electric heater	3	-	0 – No use, 1 - Use	-	
3			Use of hot water coil	4	-	0 – No use, 1 - Use	-	
		Indoor unit option checking (2)	Use of external control	1	-	0 – No use, 1 - Use	-	
	6		Use of RPM compensation	2	-	0 – No use, 1 - Use	-	
			Filter time	3	-	0 – 2000 hours, 1 – 1000 hours	-	
	0		Heating temperature	4		0.2% 1.5%		
			compensation	4 -	-	- 0-2 C, 1-5 C	-	
				EEV stop step in heating	5	-	0 – 1/80 steps, 1 – 80	-
		Indoor unit main a	address checking	1,2	-	Main address (0~63)	-	
	1	Indoor unit main address setting		3,4	-	Main address (0~63)	-	
		Indoor unit RMC address setting/checking		5,6	-	RMC address (00H~2FH)	-	
4	2	Indoor unit option co	de setting/checking	1)*	-	Indoor unit option code (24 bits)	-	
	3	Indoor unit option switch setting/checking		1)*	-	Refer to the indoor unit installation manual for details	-	

Function of setting indoor unit address and option embedded inside. (Ex> Global 4way cassette)

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### • Menu (3)

Main menu	Sub menu	Function		Data bit	Factory setting	Description	Unit
5	1	AHU setting/checking	Setting/checking the differential value	1,2	-	0~30	1
			RPM setting/checking	3,4	-	0~25	1 RPM
			filter performance	5	-	0 – Pre 1 – Medium performance 2 – High performance	-
			humidity setting/checking	6	-	0 - 30, 1 - 40, 2 - 50	-
	2	AHU discharge temperature setting/checking	Use of discharge temperature control	1	-	0 – No use, 1 - Use	-
			Cooling discharge temperature	3,4	-	10~25°C	1°C
			Heating discharge temperature	5,6	-	28 ~43℃	1℃
	2	Fresh Duct discharge	Cooling discharge temperature	1,2	-	13~25	1℃
	2	temperature checking	Heating discharge temperature	3,4	-	18~30	1°C
6	1	ERV Plus setting/checking	Use of cold air prevention	1	-	0 – No use, 1 - Use	-
			Use of humidification	2	-	0 – No use, 1 - Use	-
			Use of fan operation in Defrost	3	-	0 – No use, 1 - Use	-
			Use of humidification	4	-	0 – No use, 1 - Use	-
	2	ERV Plus temperature	Cooling	1,2	-	15~30℃	1°C
		setting/checking	Heating	3,4	-	15~30℃	1°C
	3	ERV Plus Auto mode	Set temperature	1,2	-	15~30℃	1°C
		temperature setting/checking	Set temperature difference	3,4	-	5~15℃	1°C
	4	Setting/checking the compensating temperature A under the Heating EEV control for ERV Plus		1,2	-	0~10°C	1°C
		Checking the compensating temperature B under the Heating		3.4	-	0 – Non use of humidifier(0°C)	-
		EEV control for ERV Plus		1.0		1 – Use humidifier(10°C)	1.0011
	5	ERV Plus fan RPM setting/	Air supply RPM	1,2	-	10~27 RPM	TRPM
		checking	Air exhaustion RPM	3,4	-	10~27 RPM	1 RPM
0		Factory setting			-	0 – No use, 1 – Factory setting	-



### • Example 1 - Option code setting







Step 1

- 1. Press "Set" and "ESC" buttons at the same time for more than 3 seconds.
  - ► [Main menu] will be displayed and then press "↑,↓" button to select no. 4.

Step 2

- 2. Press " $\rightarrow$ " button to select the number you will set.
  - Press " $\uparrow$ ,  $\downarrow$ " button to select no. 2.

Step 3

- 3. Press " $\rightarrow$ " button to enter the option code setting stage.
  - When you enter the setting stage, the current setting value will be displayed like left picture.
- 4. Press " $\leftarrow$ , $\rightarrow$ " button to select the desired data.
- 5. Press "Set" button to complete the option setting.



#### • Example 2 - Temperature compensation value setting







Step 1

- 1. Press "Set" and "ESC" buttons at the same time for more than 3 seconds.
  - ► [Main menu] will be displayed and then press "↑,↓" button to select no. 1.

Step 2

- 2. Press " $\rightarrow$ " button to select the number you will set.
  - Press " $\uparrow$ ,  $\downarrow$ " button to select no. 5.

Step 3

- 3. Press " $\uparrow$ ,  $\downarrow$ " button to adjust the compensation temperature.
  - When you enter the setting stage, the current temperature and setting value will be displayed like left picture.
  - ► Setting range : -9.9 ~ 9.9°C
- 4. Press "Set" button to complete the setting.