

SINGLE

Technical Data Book

Zone Control Systems

SAMSUNG



ZONE CONTROL SYSTEM

+++++ Contents



I. Zone control system

1 Zone controller & remote temperature sensor

1. MWR-ZS00 / MWR-ZS10 / MRW-TS

- 1) Features 4
- 2) Product specification 5
- 3) Description of parts 6
- 4) Connection diagram 12
- 5) Wiring 15
- 6) Option function 16
- 7) Display 21

I Zone control system

1. Zone controller & remote temperature sensor

□ MWR-ZS00 / MWR-ZS10 / MRW-TS

1) Features

(1) MWR-ZS00

It consists of Master zone controller and Damper controller.

- The damper controller connects zone controllers(Master / Slave), remote temperature sensors, dampers and indoor units(Duct S only).
- The master zone controller controls 1~8 zones.
- It can set control indoor unit(Duct S)'s operation and each zone's operation and schedule.

(2) MWR-ZS10 (Option)

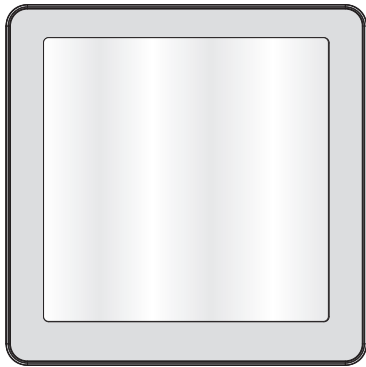
It is Slave zone controller.

- It controls and monitors its own zone only.
- It can control damper power on/off and temperature setting for damper control.

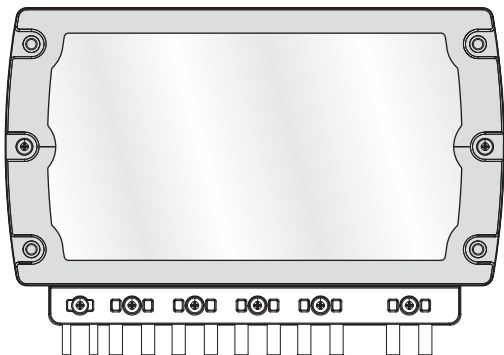
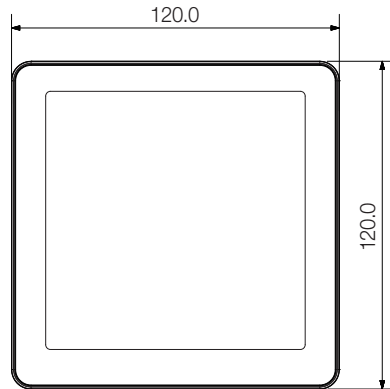
(3) MRW-TS (Option)

It is Remote temperature sensor for damper control of each zone.

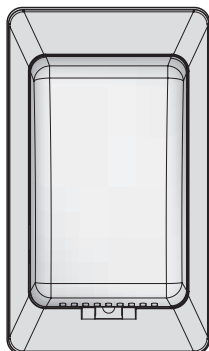
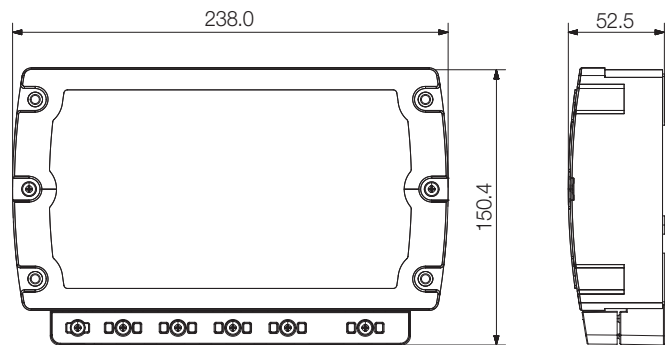
(Unit : mm)



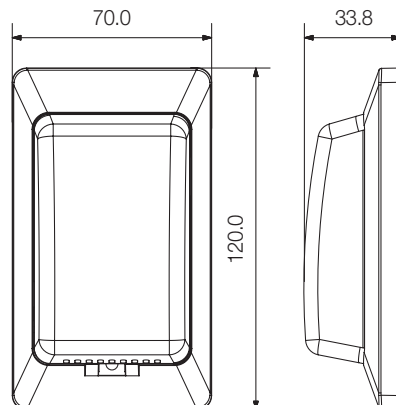
Master / Slave zone controller



Damper controller



Remote temperature sensor



2) Product specification

Type			Master / Slave zone controller	Damper controller	Remote temperature sensor
Power supply	V		DC 12	AC 220~240	DC 12
	Hz		50, 60	50, 60	50, 60
Power consumption	W		6	22 ^{1)*}	0.3
Net Dimension (mm)	W		120	238	70
	H		120	150.4	120
	D		19.5	52.5	33.8
Shipping dimension (mm)	W		255	365	255
	H		180	255	180
	D		112	112	112
Operating temperature range	°C		0 ~ 40	0 ~ 40	0 ~ 40
Operating humidity range	%RH		30~90	30~90	30~90
Communication	RS485	Port Q'ty	-	1	-
	PLC	Port Q'ty	1	1	1
Max. connection length	RS485	M	-	1000	-
	PLC	M	100	100	100
Max. connectable number of device	Indoor unit	EA	-	1	-
	Damper controller	EA	1	-	1
	Zone controller	EA	Total 8		
	remote temperature sensor	EA			

1)* This data doesn't include dampers. Damper power consumption is depending on local supplied damper specification.

Compatible product

Indoor unit	Only Duct S indoor unit (= Global duct)
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I Zone control system

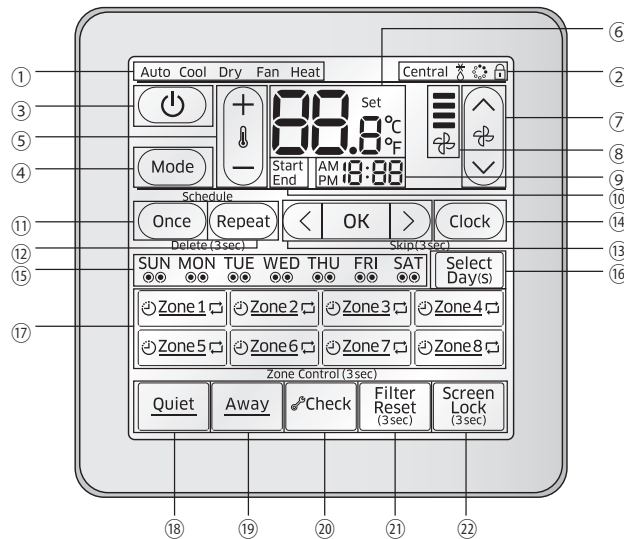
1. Zone controller & remote temperature sensor

□ MWR-ZS00 / MWR-ZS10 / MRW-TS

3) Description of parts

M Master zone controller

► Display & Buttons



Part	Indication		Name and explanation
Indicator	①	Auto Cool Dry Fan Heat	Operation mode indicator • Selected operation mode appears
	②	Central	Option (Central, Defrost, Virus doctor, Screen lock) indicator • Central icon appears when indoor unit is under central control. • icon appears when outdoor unit operates in defrost mode. • icon appears when virus doctor function is activated. • icon appears when the screen is locked.
Main Control	③		Power button • Tap to turn on/off the indoor unit
	④		Mode button • Tap to select desired operation mode
	⑤		Temperature adjustment button • Tap + and - to increase or decrease the desired temperature
	⑥		Temperature indicator • Desired temperature appears (default setting, it can be changed.) • Tap and hold to view current room temperature • When Demand Response signal occurs; - Temperature and DRED level (1~3) will be displayed alternately in 1 second interval in Cool/Heat mode (ex:) - Only DRED level (1~3) will be displayed in Fan mode (ex:)
	⑦		Fan speed adjustment button • Tap up and down arrow to select desired fan speed

Part	Indication		Name and explanation
Main Control	⑧		Fan speed indicator <ul style="list-style-type: none"> Selected Fan speed (Auto/Low/Medium/High) appears here
	⑨		Time indicator <ul style="list-style-type: none"> Current time appears Used to set the time for a schedule
	⑩		Timer start/end selection indicator <ul style="list-style-type: none"> Appears when selecting start/end time for a timer
Schedule & Zone Setting	⑪		Once button <ul style="list-style-type: none"> Tap to set non-repetitive timer
	⑫		Repeat button <ul style="list-style-type: none"> Tap to set repetitive (weekly) timer
	⑬		Select/OK button <ul style="list-style-type: none"> Tap <, > button to select options for timer and clock Tap OK button to set the selected options
	⑭		Clock button <ul style="list-style-type: none"> Tap to set current time
	⑮		Repetitive (Weekly) timer indicator <ul style="list-style-type: none"> Shows the status of the repetitive (weekly) timer
	⑯		Select Day(s) button <ul style="list-style-type: none"> Tap to select the day(s) to set up repetitive (weekly) timer Selected: / Not selected:
	⑰		Zone selection button <ul style="list-style-type: none"> Tap to open/close the damper for zone 1 through 8 Tap and hold to control individual zone Damper closed: / Damper opened: Non-repetitive timer icon Appears when non-repetitive timer is scheduled in such zone Not scheduled: / Scheduled: Repetitive (Weekly) timer icon Appears when repetitive (weekly) timer is scheduled in such zone Not scheduled: / Scheduled:
Options	⑱		Quiet button <ul style="list-style-type: none"> Tap to activate/deactivate Quiet mode
	⑲		Away button <ul style="list-style-type: none"> Tap to activate/deactivate Away mode Only the text "away" appears in the model with away mode
	⑳		Check button <ul style="list-style-type: none"> Displayed during the initial set up stage Normally inactive but blinks when checking is needed
	㉑		Filter Reset (3sec) button <ul style="list-style-type: none"> Normally inactive but blinks when time is reached for filter cleaning
	㉒		Screen Lock (3sec) button <ul style="list-style-type: none"> Tap and hold for 3 seconds to lock/unlock screen

I Zone control system

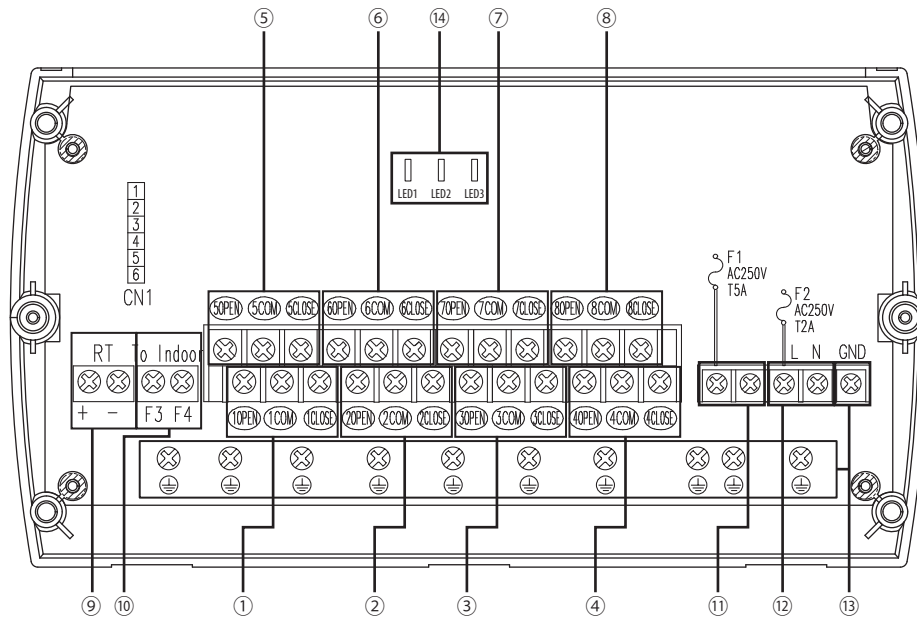
1. Zone controller & remote temperature sensor

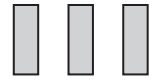
□ MWR-ZS00 / MWR-ZS10 / MRW-TS

3) Description of parts

D Damper controller

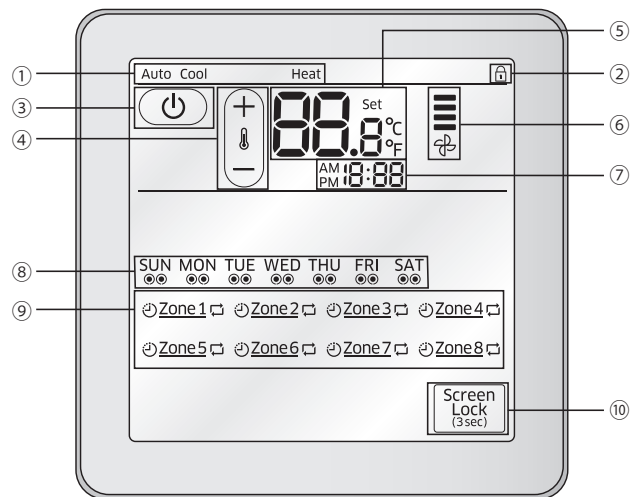
► Display & Buttons







No.	Name	Description
①	Damper 1 connection terminal (=Zone 1)	Damper connection terminal block (Total operating current of 8 dampers should be under 3.5 A)
②	Damper 2 connection terminal (=Zone 2)	
③	Damper 3 connection terminal (=Zone 2)	
④	Damper 4 connection terminal (=Zone 4)	
⑤	Damper 5 connection terminal (=Zone 5)	
⑥	Damper 6 connection terminal (=Zone 6)	
⑦	Damper 7 connection terminal (=Zone 7)	
⑧	Damper 8 connection terminal (=Zone 8)	
⑨	Zone controller / External remote temperature sensor connection terminal (PLC communication)	Total 8 units
⑩	Indoor unit connection terminal (RS485 communication)	Connect to Duct S indoor unit (1:1 connection)
⑪	Damper power connection terminal	Connect AC 24~240 V, 50/60 Hz power
⑫	Damper controller power connection terminal	Connect AC 220~240 V, 50/60 Hz power
⑬	Ground connection terminal	-
⑭	Checking LED  LED1 LED2 LED3	Checking the status of the damper controller LED1 : Turned on when DC 5 V power is supplied LED2 : Flickering when correct communication is performed with zone controllers LED3 : Flickering when correct communication is performed with indoor units

Slave zone controller

► Display & Buttons



Part	Indication		Name and explanation
Indicator	①	Auto Cool Heat	<p>Operation mode indicator</p> <ul style="list-style-type: none"> Slave controller does not display the operation mode of the indoor unit. Only Auto, Cool and Heat will be displayed accordingly. 'Auto' will be displayed when the desired temperature is set to a zone to controller the damper automatically. 'Auto' and 'Heat' or 'Cool' can be displayed at the same time. 'Cool' will be displayed when the indoor unit is operating in Cool, Dry or Fan mode. 'Heat' will be displayed when the indoor unit is operating in Heat mode. <div style="border: 1px solid black; padding: 5px;"> <p>Note</p> <ul style="list-style-type: none"> When the desired temperature is set to a zone, 'Auto' will appear however, it will disappear when you open/close the damper manually by using the Power button or by the master controller. </div>
	②		<p>Screen lock indicator</p> <ul style="list-style-type: none"> Appears when the screen is locked. Command cannot be executed and  icon will blink for 3 seconds when;
Main Control	③		<p>Power button</p> <ul style="list-style-type: none"> Tap to turn on/off the damper
	④		<p>Temperature adjustment button</p> <ul style="list-style-type: none"> Tap + and – to increase or decrease the desired temperature When the room temperature has not reached the desired temperature, damper will remain open

I Zone control system

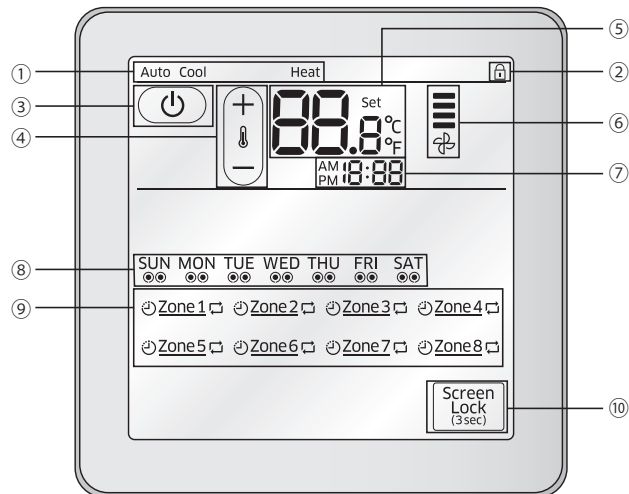
1. Zone controller & remote temperature sensor

□ MWR-ZS00 / MWR-ZS10 / MRW-TS

3) Description of parts

■ Slave zone controller

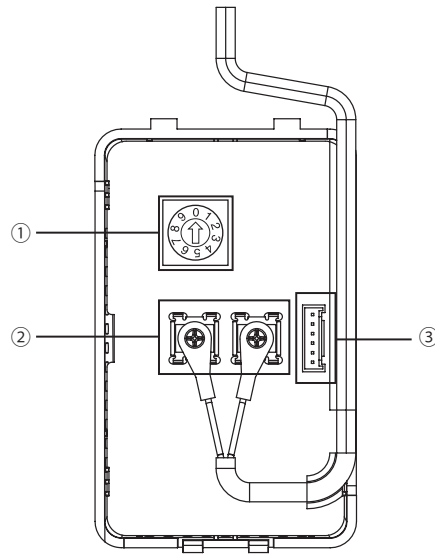
► Display & Buttons



Part	Indication	Name and explanation
Indicator	⑤	Temperature indicator <ul style="list-style-type: none"> Desired temperature appears (default setting, it can be changed.) Tap and hold to view current room temperature
	⑥	Fan speed indicator <ul style="list-style-type: none"> Selected Fan speed (Auto /Low/Medium/High) from the master
	⑦	Time indicator <ul style="list-style-type: none"> Current time appears
	⑧	Repetitive (Weekly) timer indicator <ul style="list-style-type: none"> Shows the status of the repetitive (weekly) timer
	⑨ * Slave zone controller displays its zone only.	Zone /Schedule indicator <ul style="list-style-type: none"> Displays current zone number Displays status of damper Damper closed: / Damper opened: Non-repetitive timer icon Appears when non-repetitive timer is scheduled in such zone Not scheduled: / Scheduled: Repetitive (Weekly) timer icon Appears when repetitive (weekly) timer is scheduled in such zone Not scheduled: / Scheduled:
Main Control	⑩	Screen Lock (3sec) button <ul style="list-style-type: none"> Tap and hold for 3 seconds to lock/unlock screen

Remote temperature sensor

► PCB



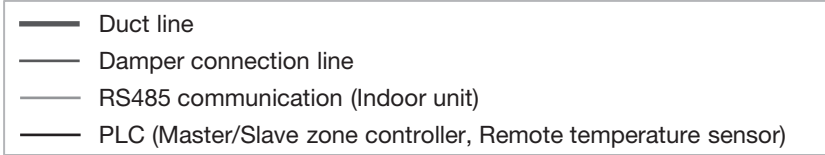
No.	Name	Description
①	Address switch	Setting range 1~8
②	Power/communication connection terminal	PLC connection. Connects to RT(+ -) of the damper controller
③	Download connector	Download connector for software upgrade

I Zone control system

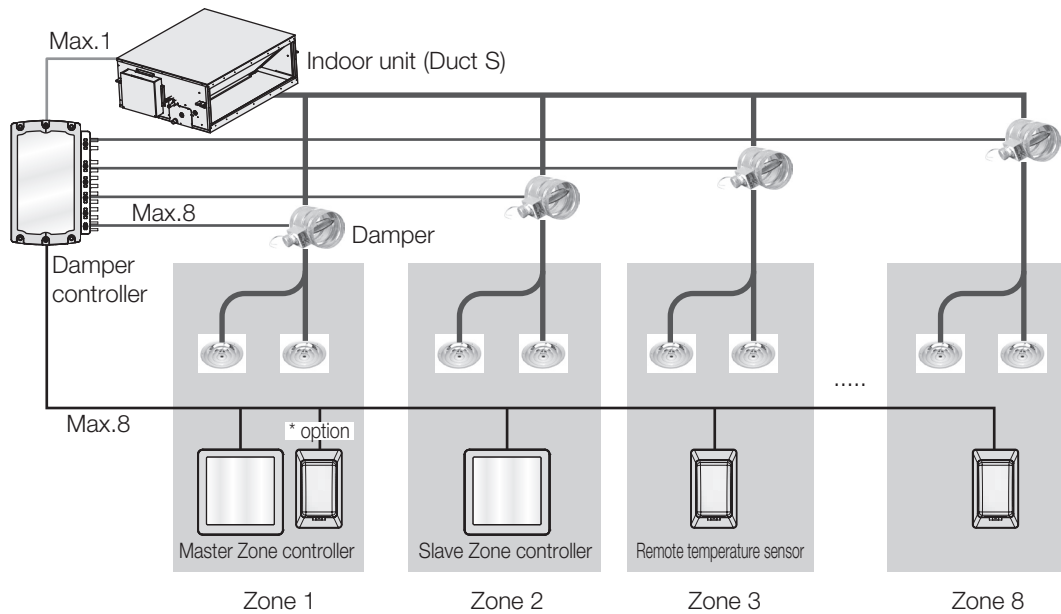
1. Zone controller & remote temperature sensor

□ MWR-ZS00 / MWR-ZS10 / MRW-TS

4) Connection diagram



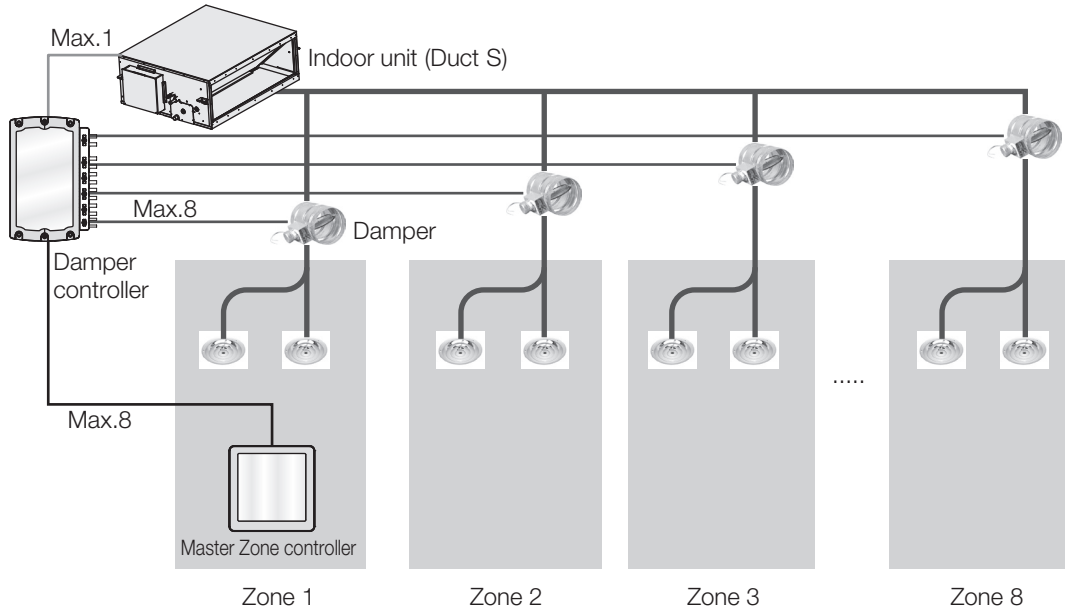
Overview



Case 1

► Only the master zone controller is connected to the damper controller.

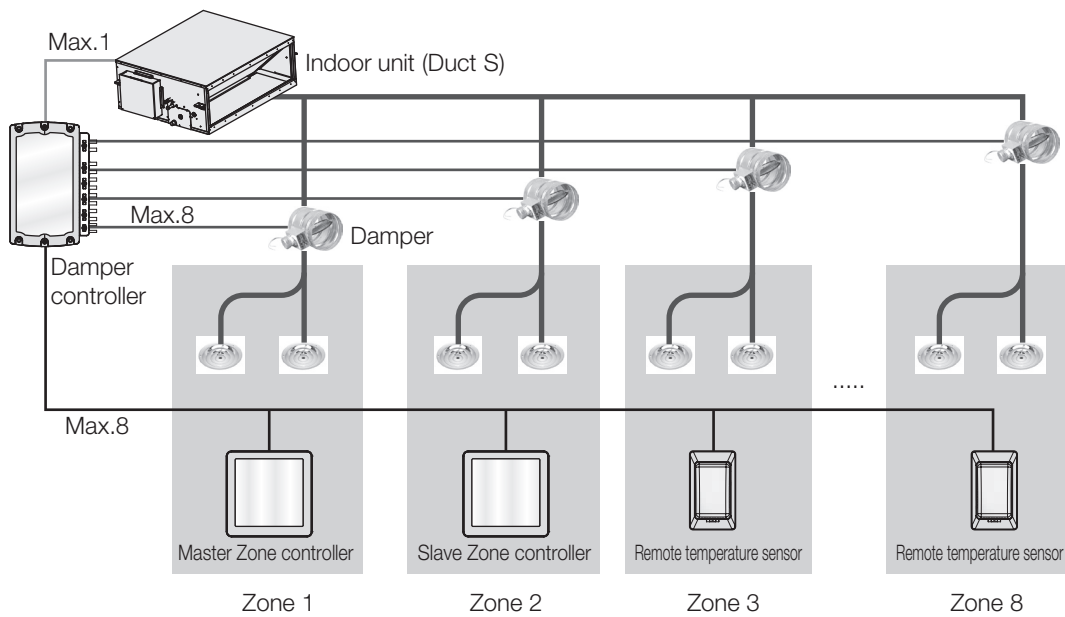
- The master zone controller controls all zones and indoor units.
(Controllable zone must be set in service mode. Main menu 8 - Sub menu 2.)



Case 2

► Each zone can have the zone controller or the remote temperature sensor.

- The master zone controller controls all zones and indoor units (All function).
- The slave zone controller controls its own zone (Damper on/off and temperature setting for damper control).
- The slave zone controller cannot monitor other zones' status.



I Zone control system

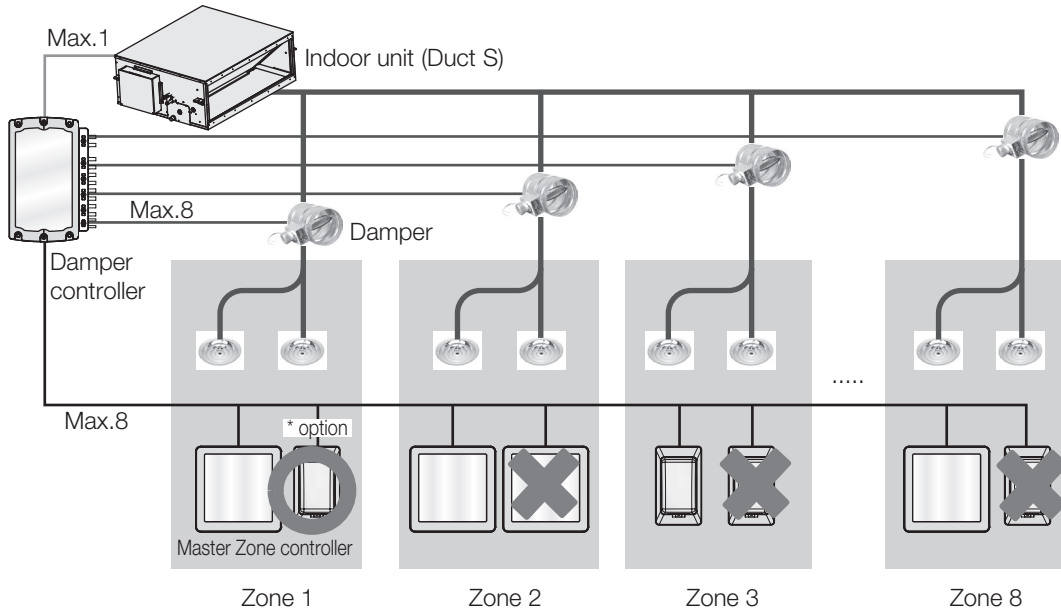
1. Zone controller & remote temperature sensor

□ MWR-ZS00 / MWR-ZS10 / MRW-TS

4) Connection diagram

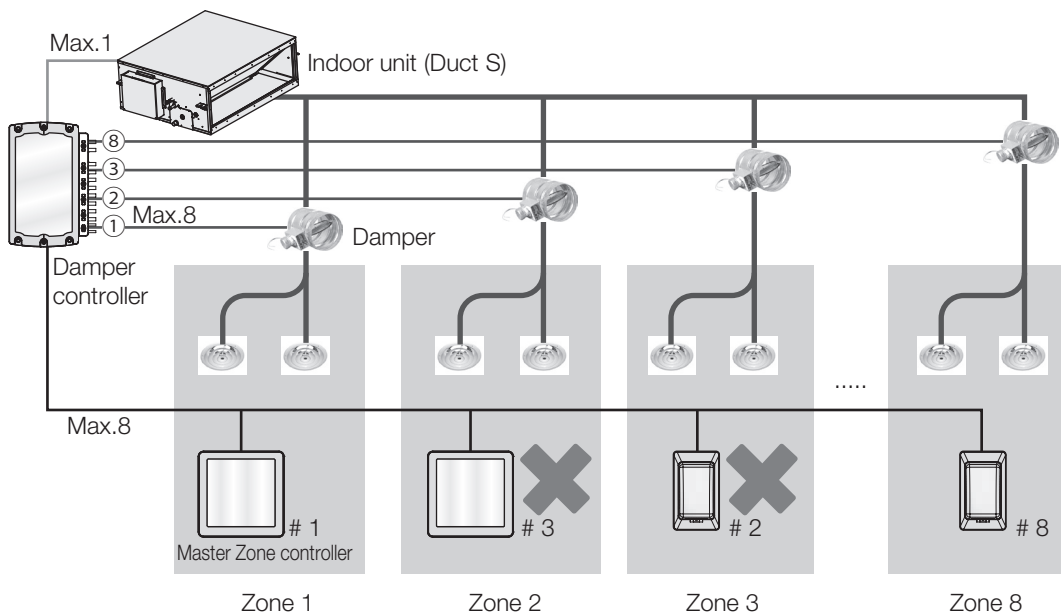
Caution 1

- ▶ A single zone cannot have multiple zone controllers or remote temperature sensors
- * However, the master zone controller can connect a single remote temperature sensor. (The sensor's address should be #1.)

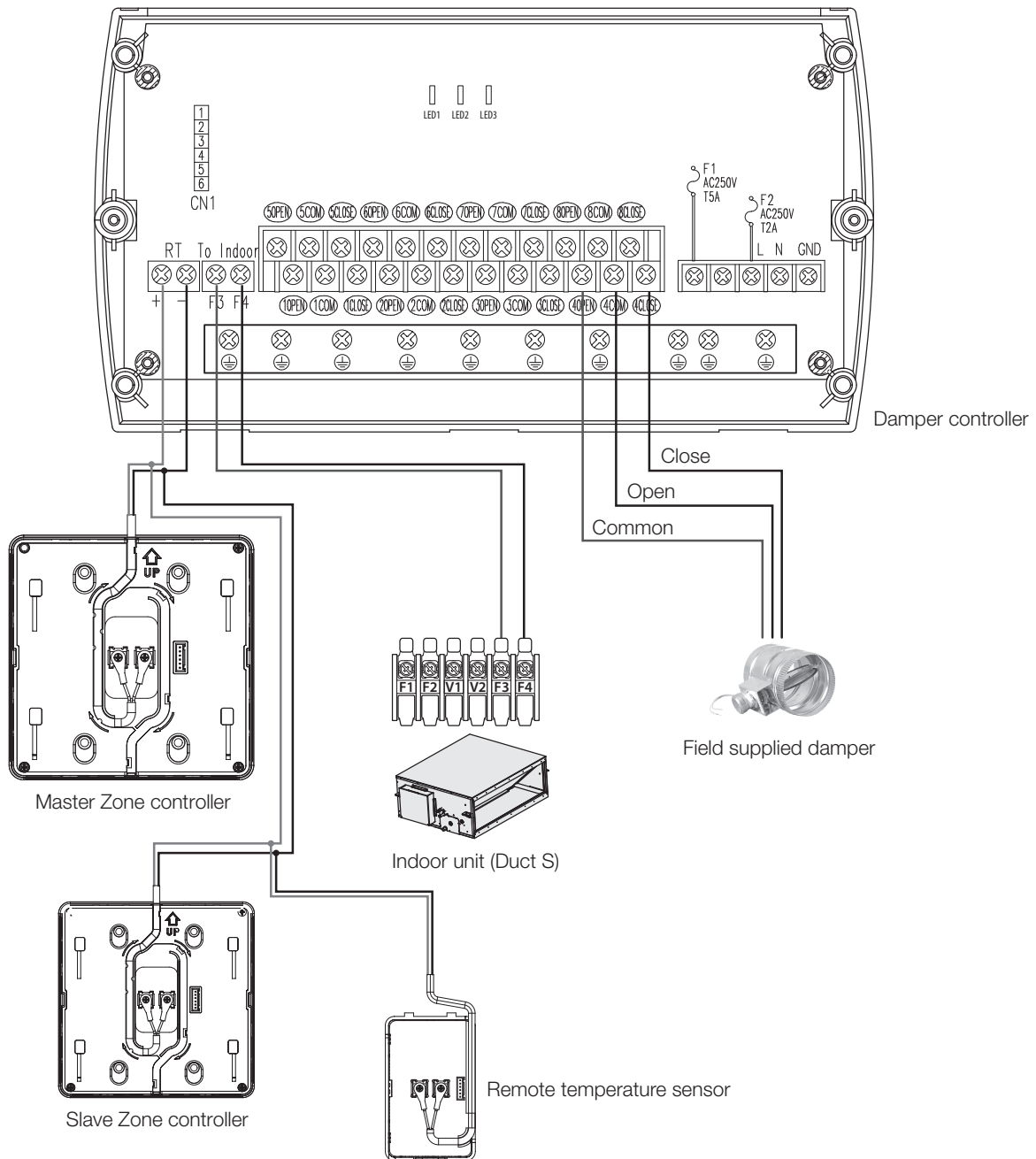


Caution 2

- ▶ Address of the zone controller and the remote temperature sensor must be matched with terminal number of the damper(=Zone number).



5) Wiring



(1) Indoor connection

- Connect indoor unit's F3/F4 line to F3/F4 terminal of the damper controller.
- Max. 1 unit can be connected to the damper controller

(2) Master/Slave zone controller and remote temperature sensor connection

- Connect it to [RT + -] terminal of the damper controller.
- Total 8 units(Master/Slave zone controllers and Room sensors) can be connected to a damper controller.
- The master zone controller must be connected to the damper controller.

(3) Field supplied damper connection

- Connect "Common", "Close" and "Open" lines to each terminal of the damper controller.
- The connected terminal number of the damper becomes zone number.
Ex) When you connect the damper to #4 terminal block. → The damper will be controlled for Zone 4.
- Max. 8 units can be connected to a single damper controller.

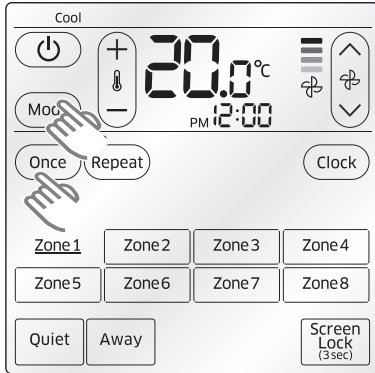
I Zone control system

1. Zone controller & remote temperature sensor

MWR-ZS00 / MWR-ZS10 / MRW-TS

6) Option function

U User setting mode

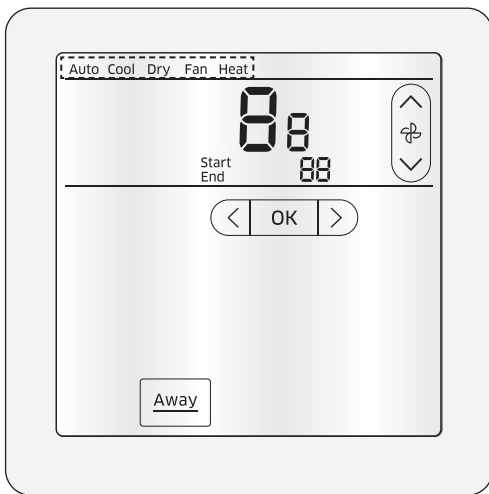
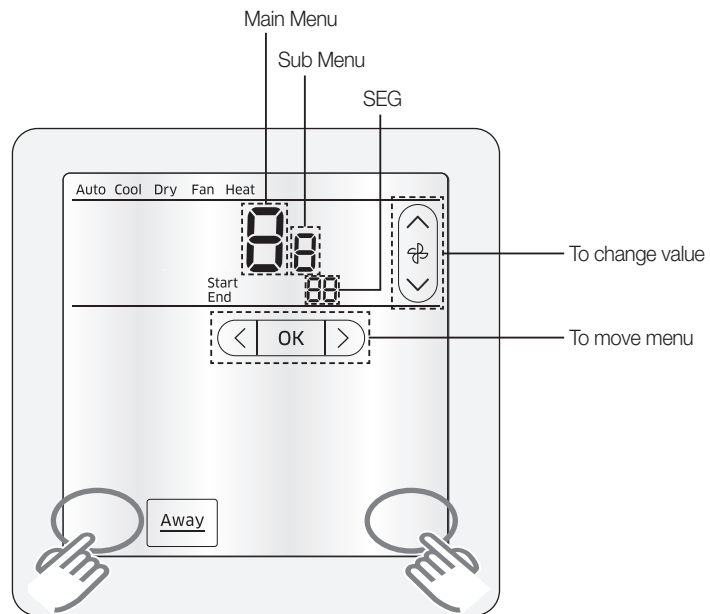


► Tap and hold the Mode and Once button for 3 seconds.

- You will enter the user mode and number of main menu ("1") will be blinking.
- You can check and/or change below settings from the user mode.

Main Menu	Sub Menu	Function		SEG No.	Default	Description	Unit
1	-	Auto stop		1,2	0	0~12 hours	1 hour
2	-	Temperature limit	Lower temperature	1,2	16	16~30 °C / 61~86 °F	1 °C / 1 °F
			Upper temperature	3,4	30	16~30 °C / 61~86 °F	1 °C / 1 °F
3	-	Partial button lock	All Lock	1	0	0 - Disable, 1 - Enable	-
			Power button lock	2	0	0 - Disable, 1 - Enable	-
			Mode button lock	3	0	0 - Disable, 1 - Enable	-
			Temperature button lock	4	0	0 - Disable, 1 - Enable	-
			Fan speed button lock	5	0	0 - Disable, 1 - Enable	-
			Schedule button (Once/Repeat) lock	6	0	0 - Disable, 1 - Enable	-
4	1	Current date setting (Year/Month/day)		1,2/3,4/5,6	10/01/01	00~99/1~12/1~31	Year, Month, Day
	2	Current time setting (Day/hour/minute)		day, AM/PM, 1,2/3,4	Fri/PM/12/00	Sun~Sat/ AM~PM/0~12/0~60	Day, Hour, Minute
5	1	Daylight saving time application/method	Daylight saving time application	1	0	0 - Disable, 1 - Enable	-
			Daylight saving time application method	2	0	0 - Weekly unit, 1 - Daily unit	-
	2	Beginning date of daylight saving time (Weekly unit) (?Month, ?th Sunday)		1,2/4	03, F	1~12 (Month) 1~4th, F(Final) week	-
	3	Ending date of daylight saving time (Weekly unit) (?Month, ?th Sunday)		1,2/4	10, F	1~12 (Month) 1~4th, F(Final) week	-
	4	Beginning date of daylight saving time (Daily unit) (Month, day)		1,2/3,4	0322	1~12 (Month), 1~31 (Day)	Month, day
5	Ending date of daylight saving time (Daily unit) (Month, day)		1,2/3,4	0922	1~12 (Month), 1~31 (Day)	Month, day	
6	-	Check/Set backlight duration		1,2	5	0~30 sec.	1 sec
8	-	Smart Tuning		1,2	0	-2~+2	-
9	-	Displayed contents when power is OFF	Temperature, Time	1	0	0 - Off, 1 - Time only, 2 - Temperature only, 3 - Time and temperature	-
			Schedule	2	0	0 - Off, 1 - On	-
0	-	Reset user mode to default value (except for current time)		1	0	0 - Disable, 1 - Reset	-

Installation & service mode



PAGE	DISPLAY		SEG	
1	Auto	Start	SEG1	SEG2
2	Cool		SEG3	SEG4
3	Dry		SEG5	SEG6
4	Fan		SEG7	SEG8
5	Heat		SEG9	SEG10
6	Auto	End	SEG11	SEG12
7	Cool		SEG13	SEG14
8	Dry		SEG15	SEG16
9	Fan		SEG17	SEG18
10	Heat		SEG19	SEG20

I Zone control system

1. Zone controller & remote temperature sensor

MWR-ZS00 / MWR-ZS10 / MRW-TS

6) Option function

Installation & service mode

(1) Master zone controller

Main menu	Sub menu	Function	SEG	Factory setting	Description	Unit	
1	1	Zone controller option setting/ checking (1)	Cooling/Heating selection	1	0	0 – Cooling/Heating, 1 – Cooling only	-
			Use of wireless remote controller	2	1	0 – No use, 1 – Use	-
			Master/Slave zone controller	3	0	0 – Master, 1– Slave	-
			Temperature unit	4	0	0 – Celsius(°C), 1 – Fahrenheit(°F)	-
			Setting the address of the slave zone controller	5	1	1– Master, 2–8-Slave address	-
	2	Zone controller option setting/ checking (2)	Temperature sensor selection	1	0	0 – Indoor unit, 1 – Zone controller	-
			Use of average temperature	2	0	0 – No use, 1 – Use	-
			Use of Auto mode	3	1	0 – No use, 1 – Use	-
			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	-
			Setting the sensor of the zone controller (Available only when a detecting sensor is the zone controller)	6	0	0-Indoor unit sensor (If the value is displayed, it cannot be changed.) 1– Inner sensor of the master controller 2~8 – Use numbered slave controller or remote temperature sensor	-
	5	Room Temperature compensation	Temperature control reference	1, 2, 3	0	-9~40(°C)	0.1(°C)
			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	-
			Number of ERVs	3, 4	-	0~16	-
	7	Temperature increment/decrement (°C only)		1	0	0 – 1 °C, 1 – 0.5 °C, 2 – 0.1 °C	-
	0	Factory option setting		1	0	0 – Unchanged 1 – Factory setting	-
	2	1	Software code	1~6	-	Software code	-
		2	Software version	1~6	-	Software version	-
3		Checking the program version information of the damper controller	1~6	-	Modified date	-	

Main menu	Sub menu	Function	SEG	Factory setting	Description	Unit	
3	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 OUT temperature	1,2,3	-	EVA OUT temperature	°C	
	4	Indoor unit EEV step	1,2,3	-	EEV step	-	
	5	Indoor unit option checking (1)	Use of central control	1	-	0 – No use, 1 – Use	-
			Use of drain pump	2	-	0 – No use, 1 – Use	-
			Use of electric heater	3	-	0 – No use, 1 – Use	-
			Use of hot water coil	4	-	0 – No use, 1 – Use	-
	6	Indoor unit option checking (2)	Use of external control	1	-	0 – No use, 1 – Use	-
			Use of RPM compensation	2	-	0 – No use, 1 – Use	-
			Filter time	3	-	0 – 2000 hours, 1 – 1000 hours	-
			Heating temperature compensation	4	-	0 – 2 °C, 1 – 5 °C	-
EEV stop step in heating			5	-	0 – 1/80 steps, 1 – 80	-	
4	1	Indoor unit main address checking	1, 2	-	Main address (0~63)	-	
		Indoor unit main address setting (outdoor unit reset is needed to set)	3, 4	-	Main address (0~63)	-	
		Indoor unit RMC address setting/checking	5, 6	-	RMC address (00H~2FH)	-	
	2	Indoor unit product option code setting/checking	Page 1~10	-	Indoor unit option code	-	
	3	Indoor unit installation option code setting/checking	Page 1~10	-	Refer to the indoor unit installation manual for details	-	
7	1	Automatic Air-Volume State Return	1	0	0 – OFF(Fail or Disable) 1 – Completion, 2 – Running Automatic Air-Volume	-	
	2	Automatic Air-Volume Operation	1	0	0- Disable 1- Enable	-	
	3	Automatic Air-Volume Voltage Setting	1	2	1 – 220 V 2 – 230 V (Default) 3 – 240 V	-	
8	1	Selecting a common damper	1	1	Default value for setting common damper-1 (Changeable)	-	
	2	Setting the use of damper or damper loads ¹⁾	1~16 (Page 1~8)	1	00-Disuse, 01 or more-Number of outlets (Common damper default -01)	-	
	3	Setting damper ON/OFF temperature difference	1	1	0 – 0.5 °C, 1 – 1 °C, 2 – 1.5 °C, 3 – 2 °C	-	
	4	Setting the maximum value of damper fan range (Medium, Low)	1~4 (Page1, 2)	Page1: 85 Page2: 59	Page1: Maximum range value for medium fan speed (Basic 85 %) Page2 : Maximum range value for low fan speed (Basic 59 %)	-	
0		Factory setting	1	-	0 – No use, 1 – Factory setting	-	

1)* You can set "Zone use" using this menu. Each page setting means use of zone and number of outlets.

For example : If you set 00 in Page2, it means you don't use Zone#2.

If you set 04 in Page3, it means you use Zone#3 and number of outlets is 4.

I Zone control system

1. Zone controller & remote temperature sensor

MWR-ZS00 / MWR-ZS10 / MRW-TS

6) Option function

Installation & service mode

(2) Slave zone controller

Main menu	Sub menu	Function	SEG	Factory setting	Description	Unit	
1	1	Zone controller option setting/ checking(1)	Cooling/Heating selection	1	0	0 – Cooling/Heating, 1 – Cooling only	-
			Use of wireless remote controller	2	1	0 – No use, 1 – Use	-
			Master/Slave zone controller	3	0	0 – Master, 1 – Slave	-
			Temperature unit	4	0	0 – Celsius(°C), 1 – Fahrenheit(°F)	-
			Setting the address of the slave zone controller	5	1	1-Master, 2~8-Slave address	-
	5	Room Temperature compensation	Temperature control reference	1, 2, 3	0	-9~40(°C)	0.1(°C)
			Temperature compensation value	4, 5, 6	0	-9.9~9.9(°C)	0.1(°C)
	7	Temperature increment/decrement (°C only)		1	0	0 – 1 °C, 1 – 0.5 °C, 2 – 0.1 °C	-
	0	Factory option setting		1	0	0 – Unchanged 1 – Factory setting	-
	2	1	Software code	1~6	-	Software code	-
2		Software version	1~6	-	Software version	-	
0	-	Factory setting	1	-	0 – No use, 1 – Factory setting	-	

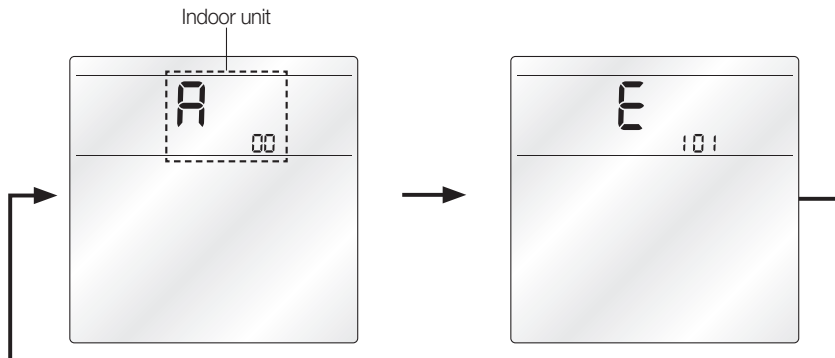
7) Display

Error display

Error codes for the zone controller and the product connected to the zone controller will be displayed on the LCD display.

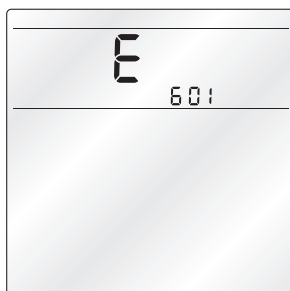
(1) When an error occurs in your Indoor/Outdoor Units

- The product address for the error will be displayed, followed by the error code.
Example : Error 101 has occurred in indoor unit with main address no. 00(decimal numbers).



(2) When an error occurs in your zone controller

- Only an error code will be displayed. (No address will be displayed.)
Example : Error 601 has occurred in your zone controller.



Zone controller error codes

Display	Description	Remarks
601	Communication error between zone controller and indoor/ERV units after successful communication	-
602	No communication between Master (Main) and Slave(Sub) zone controllers	-
604	No communication between damper controller and indoor units	-
606	Zone controller is connected on F1/F2 channel	-
607	Two or more zone controllers are set as Master (Main)	When using Master remote controller
608	No ERV unit installed for interlocking function	Detection available from both Master/Slave zone controller
609	No indoor unit installed for interlocking function	When external interlocking control is in use
618	Over 16 indoor/ERV indoor units installed	-
619	Indoor units of different temperature setting (°C/°F) connected to same zone controller	Detection available in Master zone controller
620	Zone controller(s) has different temperature unit setting with indoor unit(s)	-
653	Temperature sensor Open/Short error	Detection available in models with temperature sensor
654	• Memory error	-

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Specifications may be subject to change without prior notice for product improvement.