



Wired Zone Controller

MODEL DWCR

Owner's Manual

User Notice

Please read this Owner's manual carefully before operation and retain it for future reference.

Important Notice

- Johnson Controls, Inc. pursues a policy of continuing improvement in design and performance in its products. As such, Johnson Controls, Inc. reserves the right to make changes at any time without prior notice.
- Johnson Controls, Inc. cannot anticipate every possible circumstance that might involve a potential hazard.
- This inverter air conditioning unit is designed for standard air conditioning applications only. Do not use this unit for anything other than the purposes for which it was intended for.
- The installer and system specialist should safeguard against leakage in accordance with local pipefitter and electrical codes. The following standards may be applicable, if local regulations are not available. International Organization for Standardization: (ISO 5149 or European Standard, EN 378). No part of this manual may be reproduced in any way without the expressed written consent of Johnson Controls, Inc.
- This air conditioning accessory will be operated and serviced in the United States of America
and comes with all required Safety, Danger, and Caution warnings.
- If you have questions, please contact your distributor or dealer.
- This manual provides common descriptions, basic and advanced information to maintain and service this air conditioning unit which you operate, as well for other models.
- This air conditioning unit has been designed for a specific temperature range.
For optimum performance and long life, operate this unit within range limits.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

Product Inspection upon Arrival

1. Upon receiving this product, inspect it for any damages incurred in transit. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
2. Check the model number, electrical characteristics (power supply, voltage, and frequency rating), and any accessories to determine if they agree with the purchase order.
3. The standard utilization for this unit is explained in these instructions. Use of this equipment for purposes other than what it designed for is not recommended.
4. Please contact your local agent or contractor as any issues involving installation, performance, or maintenance arise. Liability does not cover defects originating from unauthorized modifications performed by a customer without the written consent of Johnson Controls, Inc. Performing any mechanical alterations on this product without the consent of the manufacturer will render your warranty null and void.

Table of Contents

Safety Summary.....	i
1 Controller Interface	1
1.1 Appearance and LCD Icons	1
1.2 Introduction to the LCD Icons	1
2 Buttons	4
2.1 Layout of Buttons.....	4
2.2 Functions of Buttons	4
3 Operation Instructions	5
3.1 On/off	5
3.2 Mode Setting	5
3.3 Temperature Setting.....	6
3.4 Fan Speed Setting.....	7
3.5 Right and Left Swing	7
3.6 Up and Down Swing	8
3.7 Timer Setting	9
3.8 Air Exchange Setting	10
3.9 Sleep Setting	12
3.10 I-Demand Setting.....	15
3.11 Vacation Setting	16

3.12 Turbo Function Setting	17
3.13 Save Function Setting	18
3.14 <i>This section left intentionally blank</i>	19
3.15 Blow Setting	20
3.16 Filter Setting	21
3.17 Quiet Setting	23
3.18 Ultra-Dry Setting	24
3.19 Other Functions	25
4 Installation of the Wired Zone Controller	27
4.1 Standard Parts	27
4.2 Installation Location and Installation Requirements	27
4.3 How to Install the Wired Zone Controller	29
4.4 How to Remove the Wired Zone Controller	29
5 Error Display	30
Customer Service, Technical Support	33

SAFETY MESSAGES



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

GENERAL PRECAUTIONS



To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied this product and the indoor and outdoor units.

- This system, including this controller, should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion.
- Use appropriate personal protective equipment, such as gloves and protective goggles and electrical protection equipment and tools suited for electrical operation purposes.
- Do not stand on or put any material on the controller.
- When installing the controller cabling to the units, do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump out any safety device.
- Use only Johnson Controls recommended or provided as standardized or replacement parts.
- Johnson Controls shall not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they...
 - may create hazards which could result in death, serious injury or equipment damage.
 - will void product warranties.
 - may invalidate product regulatory certifications.
 - may violate OSHA standards.

NOTICE

Take the following precautions to reduce the risk of property damage

- Do not touch the main circuit board or electronic components in the controller or remote devices. Also, make sure that dust and/or steam does not accumulate on the circuit board.
- Locate the wireless zone controller at a distance of at least 3 ft. (approx. 1m) between the indoor unit and electric lighting. Otherwise, the receiver part of the unit may have difficulty receiving operation commands.
- If the wired zone controller is installed in a location where electromagnetic radiation is generated, make sure that the wired zone controller is shielded and cables are sleeved inside conduit tubing.
- If there is a source of electrical interference near the power source, install noise suppression equipment (filter).
- During the run test, check the unit's operation temperature. If the unit is used in an environment where the temperature exceeds the operation boundary, it may cause severe damage. Check the operational temperature boundary in the manual. If there is no specified temperature, use the unit within the operational temperature boundary of 35°~104°F (0~40°C).
- Read installation and appropriate user manuals for connection with PC or peripheral devices. If a warning window appears on PC, the product stops, does not work properly or works intermittently, immediately stop using the equipment.

INSTALLATION PRECAUTIONS

WARNING

To reduce the risk of serious injury or death, the following installation precautions must be followed:

- If the remote sensors are not used with this controller then do not install this controller...
 - in a room where there is no thermostat.
 - where the unit is exposed to direct sunshine.
 - where the unit will be in close proximity to a heat source.
 - where hot/cold air from the outdoors, or a draft from elsewhere (such as air vents, diffusers or grilles) can affect air circulation.
 - in areas with poor air circulation and ventilation.
- Perform the run test using the controller to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the run test, keep fingers and clothing away from any moving parts.

After installation work for the system has been completed, explain the “Safety Precautions,” use, and maintenance of the unit to the customer according to the information in all manuals that accompanied the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

ELECTRICAL PRECAUTIONS



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death:

- Only use electrical protection equipment and tools suited for this installation.
- Insulate the wired zone controller against moisture and temperature extremes.
- Use specified cables between units and controller.
- The polarity of the input terminals is important, so be sure to match the polarity when using contacts that have polarity.
- Highly dangerous electrical voltages may be used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Before installing the controller or remote devices, ensure that the indoor and outdoor unit operation has been stopped. Further, be sure to wait at least five minutes before turning off the main power switch to the indoor or outdoor units. Otherwise, water leakage or electrical breakdown may result.
- Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply. Before connecting or servicing controller or cables to indoor or outdoor units, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with meter and equipment.
- Use an exclusive power supply at the controller’s rated voltage.
- Be sure to install circuit breakers (ground fault interrupter, isolating switch, molded case circuit breaker, and so forth) with the specified capacity. Ensure that the wiring terminals are tightened securely to recommended torque specifications.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers / fuses / overcurrent protection switches, and wiring in accordance with local, state and NEC codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.

1 Controller Interface



Fig. 1 Wired Zone Controller Interface

1.1 Appearance and LCD Icons

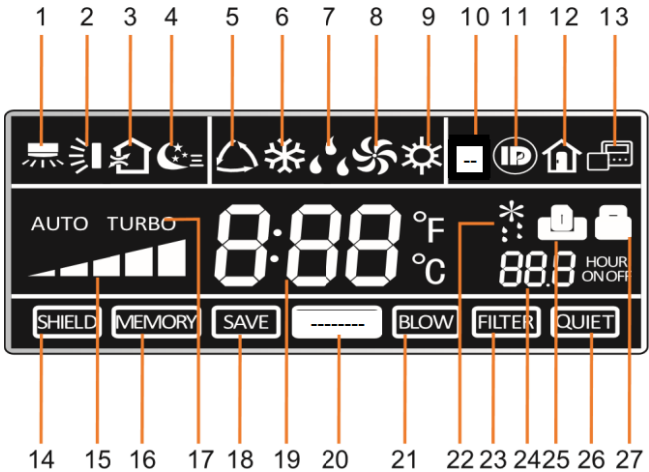



























Fig.2 LCD Display

1.2 Introduction to the LCD Icons

Table 1

No.	Icons	Discription
1		Left and right swing function
2		Up and down swing function
3		Air exchange function
4		Sleep function
5		Auto mode
6		COOL mode
7		DRY mode
8		FAN mode
9		HEAT mode
10	--	<i>Intentionally left blank</i>
11		I-Demand function
12		Vacation function
13		Status display of main and secondary wired zone controller
14		Shield function The button operation, temperature setting, "On/Off" operation, "Mode" setting, and "Save" setting are disabled.
15		Fan speed
16		Memory function The unit will resume the original setting state after power recovery.
17		Turbo function
18		Energy-saving function
19		Ambient/setting temperature

20	--	<i>Intentionally left blank</i>
21		Blower function
22		Defrosting function
23		Filter cleaning
24		Timer Setting
25		Keycard control / Detection of human body
26		Quiet function
27		Lock function

2 Buttons

2.1 Layout of Buttons

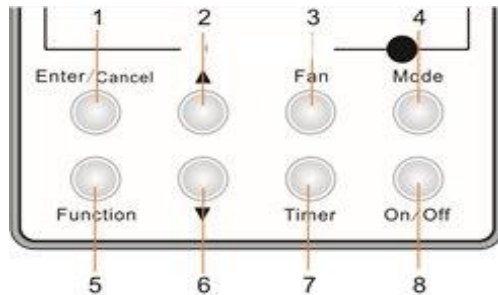


Fig.3 Press Buttons

2.2 Functions of Buttons

Table 2

No.	Name	Function
1	Enter/Cancel	①. Function selection and canceling. ②. Press for five seconds to find the outdoor and indoor ambient temperatures.
2	▲	①. Running temperature setting of indoor unit, range: 60.8°F to 86°F (16°C to 30°C). ②. Timer setting, range:0.5 hr. 24 hrs.
6	▼	③. Air function setting ④. Save setting ⑤. Clean setting
3	Fan	Select fan speed from high, mid-high, middle, mid-low, low and auto levels.
4	Mode	Selection of the COOL, HEAT, FAN or DRY mode.
5	Function	Switch-over among the functions of SWING/AIR/SLEEP/I-DEMAND/VACATION/TURBO/SAVE/BLOW/QUIET
7	Timer	Timer setting
8	On/Off	Turn on/off indoor unit
4 + 2 Mode + ▲	Memory	Press Mode and ▲ at the same time for five seconds under the OFF state of the unit to activate/deactivate memory function (If memory is set, indoor unit will resume original setting state after power recovery. If not, indoor unit is defaulted to be OFF after power recovery. Memory function is defaulted to be ON.)

2 + 6 ▲+▼	Lock	Under the ON state of the unit without any malfunction or under the OFF state of the unit, press ▲ and ▼ buttons at the same time for five seconds to go to the lock state. In the lock state, no other buttons will respond to being pressed. Repress ▲ and ▼ again for five seconds to quit the lock state.
4 + 6 Mode + ▼	Units °F/°C	Under the OFF state of the unit, press the Mode and ▼ at the same time for five seconds to switch the temperature units between Celsius and Fahrenheit.

3 Operation Instructions

3.1 On/Off

Press the On/Off button to turn the unit on or off.

Notes:

- ① . The state shown in Fig.4 indicates the OFF state of the unit after applying power.
- ② . The state shown in Fig.5 indicates the ON state of the unit after energization.



Fig.4 OFF State of the Unit



Fig.5 ON State of the Unit

3.2 Mode Setting

Under the ON state of the unit, press the Mode button to switch the operation modes' sequence as shown in Fig.6 below.

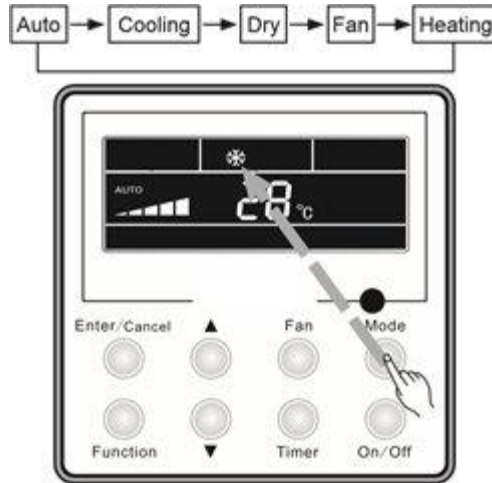


Fig.6

3.3 Temperature Setting

Press the ▲ or ▼ button to increase or decrease the temperature setpoint under the On state of the unit. When pressing either of them repeatedly, the temperature will be increased or decreased by 33.8°F (1°C) every 0.5 second.

In Cooling, Dry, Fan and Heating modes, the temperature setting range is 60.8°F to 86°F (16°C to 30°C).

In Auto mode, the temperature setting is not adjustable.

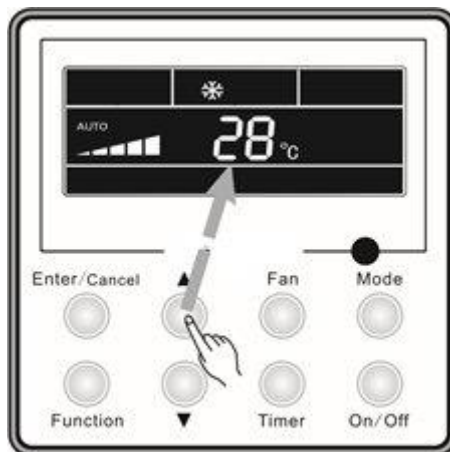


Fig.7 Temperature Setting

3.4 Fan Speed Setting

Press the Fan button. The fan speed of the indoor unit will change in the sequence shown in Fig.8:

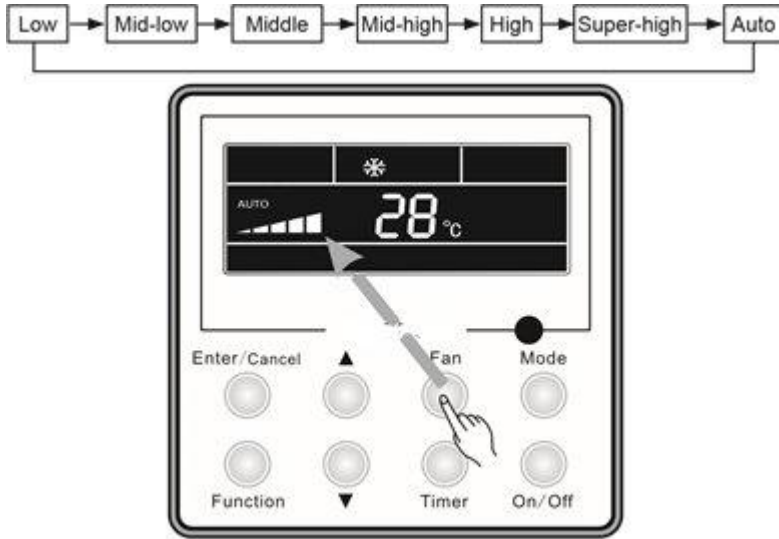


Fig.8 Fan Speed Setting

3.5 Right and Left Swing

Under the ON state of the unit, press the Function button to select the "Right and Left Swing" option. Then press the Enter/Cancel button to activate it.

Once the Swing function is activated, press the Function button to select the "Right and Left Swing" option. Then press the Enter/Cancel button to deactivate it.

The "Right and Left Swing" function setting is shown in Fig.9 below.

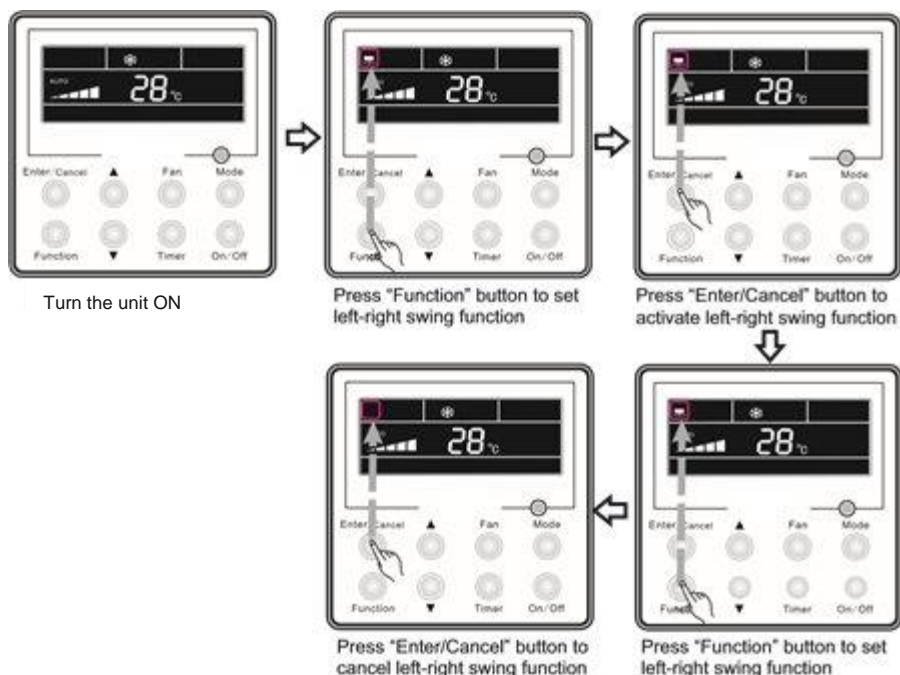


Fig.9 Right and Left Swing Setting

3.6 Up and Down Swing

Under the ON state of the unit, press the Function button to select the "Up and Down Swing" option. Then press Enter/Cancel to activate it.

When the Swing function is activated, press the Function button to select the "Up and Down Swing" option. Then press the Enter/Cancel button to deactivate it.

The "Up and Down Swing" function setting is shown in Fig.10 below.

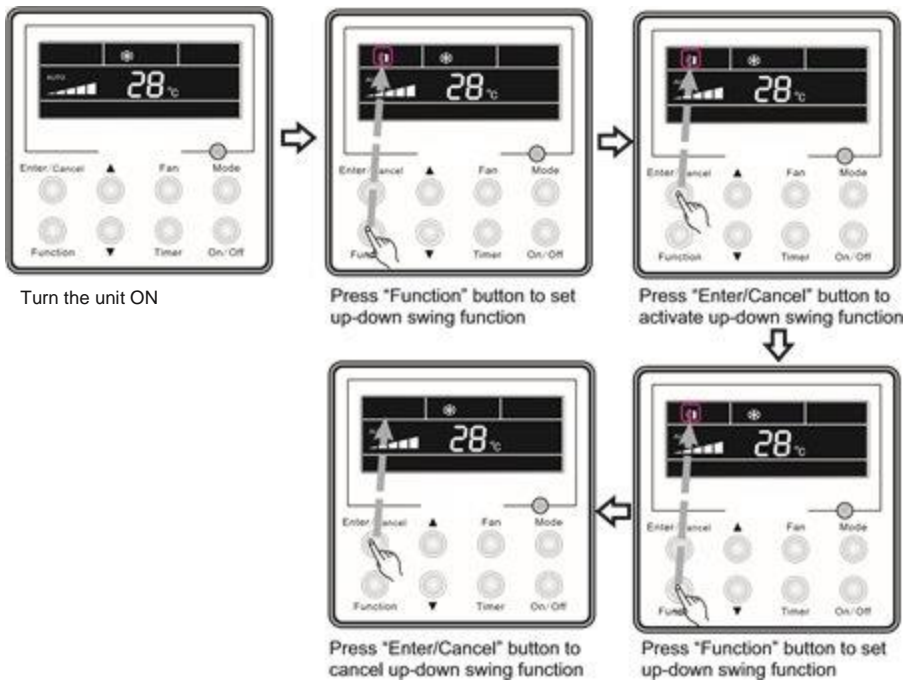


Fig.10 Up and Down Swing Setting

3.7 Timer Setting

Timer "On" Setting:

This setting is used to set the start time of the unit. When the unit is OFF, press the Timer button, with xx.Hour displayed and with ON blinking. Then press ▲/▼ to adjust the timer. After that, press the Timer button again to confirm. If the Mode button is pressed prior to the confirmation, it will switch to the Timer Off setting. After the timer Off setting, the LCD displays xx.Hour ON or xx.Hour OFF, indicating the time to start the unit, while the time to stop the unit won't be displayed.

Timer "Off" Setting:

This setting is used to set the stop time of the unit. When the unit is On, press the Timer button with xx.Hour displayed and with OFF blinking. Then press ▲/▼ to adjust the timer. After that, press the Timer button again to confirm. If the Mode button is pressed prior to the confirmation, it will switch to the Timer On setting. After the timer On setting, the LCD displays xx.Hour ON or xx.Hour OFF, indicating the time to stop the unit, while the time to start the unit won't be displayed.

Cancellation of Timer Setting: The timer setting can be canceled by pressing “Timer”. Then, the hour won’t be displayed.

Timer Setting under the ON state of the Unit is shown in Fig.11:

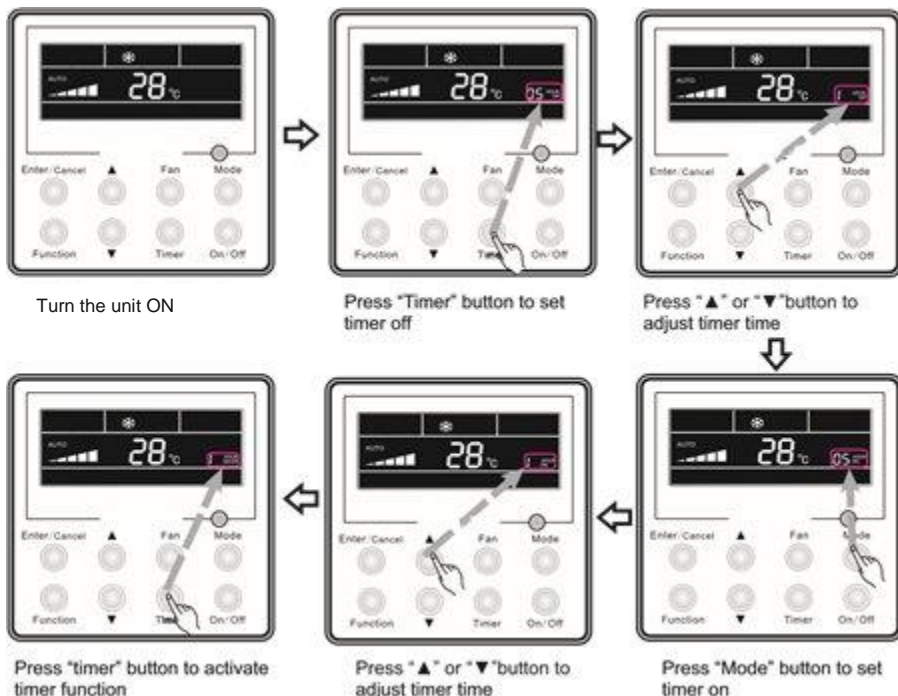


Fig.11 Timer Setting under the ON state of the Unit

Timer range: 0.5 hr. – 24 hrs. Every press of the ▲ or ▼ button will increase or decrease the timer setting by 0.5 hr. If pressing either of them repeatedly, the setting time will automatically increase/decrease by 0.5 hr. every 0.5 seconds.

Notes:

- ①. When Timer On and Timer Off are both set, the displayed time is the Timer On setting for the unit under the OFF state, or the timer Off setting for the unit under the ON state .
- ②. Timer On setting starts when the unit under the ON state is turned off while the Timer Off setting starts when the unit under the OFF state is turned on.

3.8 Air Exchange Setting

How to activate the air exchange function:

Under the ON state of the unit, press the Function button to select the "AIR" function, with the function symbol flashing. Then press ▲ or ▼ to adjust the "AIR" type. After that, press the Enter/Cancel button to activate this function. When this function is activated, the symbol will be displayed. Type 1 is the defaulted "AIR" type.

There are 10 "AIR" function types, but only 1 - 2 types are for the wireless remote controller.

- 1——The unit continuously runs for 60 min. and fresh air valve runs for 6 min.
- 2——The unit continuously runs for 60 min. and fresh air valve runs for 12 min.
- 3——The unit continuously runs for 60 min. and fresh air valve runs for 18 min.
- 4——The unit continuously runs for 60 min. and fresh air valve runs for 24 min.
- 5——The unit continuously runs for 60 min. and fresh air valve runs for 30 min.
- 6——The unit continuously runs for 60 min and fresh air valve runs for 36 min.
- 7——The unit continuously runs for 60 min. and fresh air valve runs for 42 min.
- 8——The unit continuously runs for 60 min. and fresh air valve runs for 48 min.
- 9——The unit continuously runs for 60 min, and fresh air valve runs for 54 min.
- 10——The unit continuously runs for 60 min. and fresh air valve always runs.

How to deactivate the air exchange function:

When the "AIR" function is activated, it can be deactivated in the same way by first pressing the Function button to select the "AIR" function option with the "AIR" symbol flashing. Then press the Enter/Cancel button and the "AIR" symbol disappears.

The Air Exchange setting is shown in Fig.12 below.

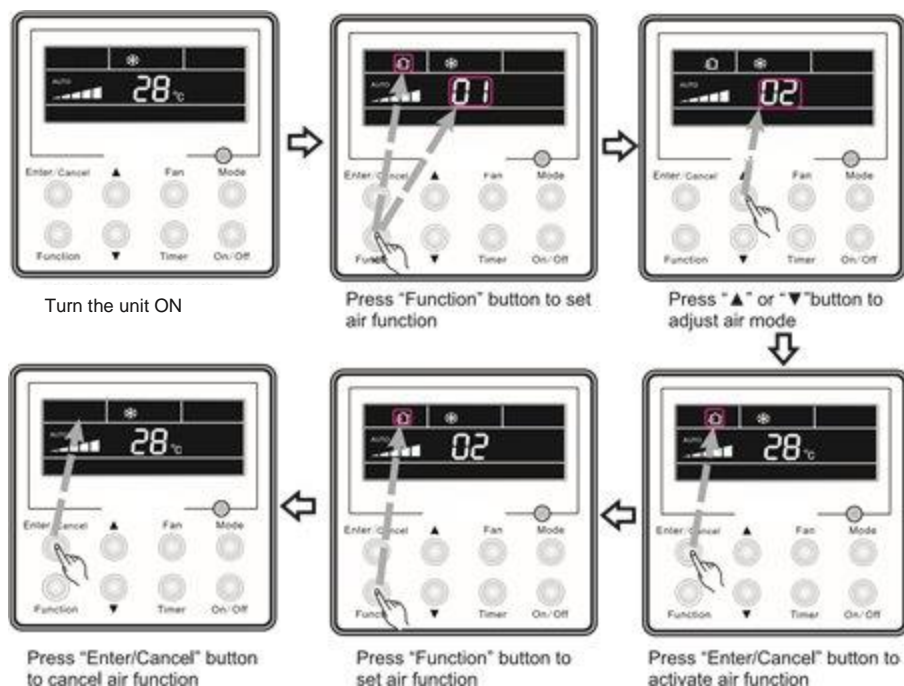


Fig.12 Air Exchange Setting

3.9 Sleep Setting

Sleep "On": Press the Function button under the ON state of the unit to select the "Sleep" option. Then press the Enter/Cancel button to activate it.

Sleep "Off": When the Sleep function is activated, press the Function button to select the Sleep option. Then press the Enter/Cancel button to deactivate this function.

The Sleep Setting is shown in Fig.13 below.

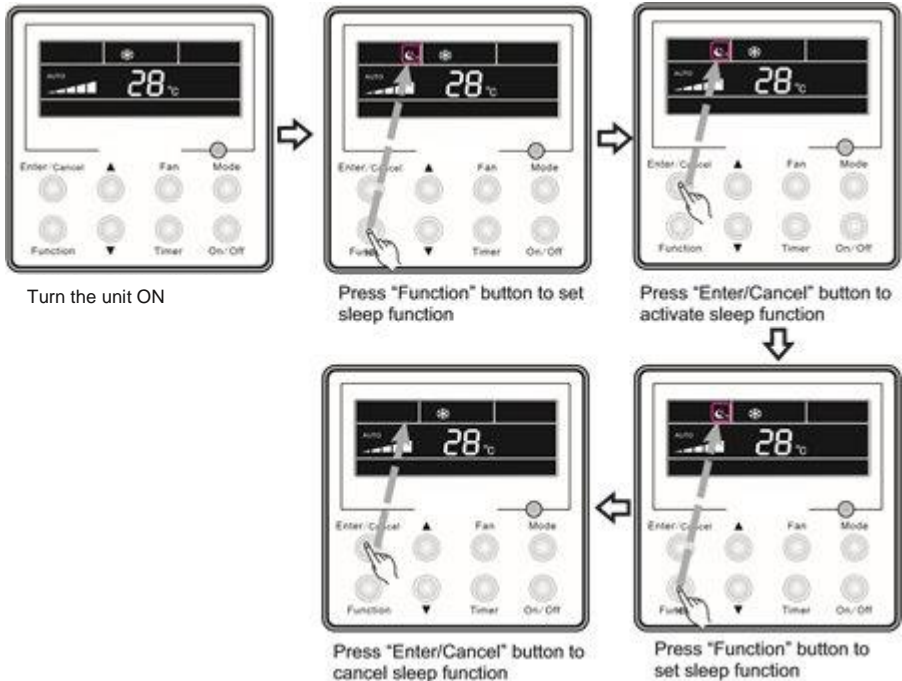


Fig.13 Sleep Setting

Notes:

- ①. The Sleep function is defaulted to be OFF after power recovery.
- ②. The Sleep function is unavailable under the Fan mode.
- ③. When the Quiet function is activated, the Quiet function will always keep the unit ON regardless if the Sleep function is activated or deactivated.
- ④. Under the Cool mode, the Sleep function is ON, the setting temperature range can be 16-23°C, 24-27°C, 28-29°C or 30°C. Each of them has a different curve as shown in Fig. 14 below.

If the setting temperature is 25°C, the temperature will rise by 1°C in each hour until it reaches 27°C. Seven hours later, the temperature will drop to 26°C. After that, the unit will run at this temperature.

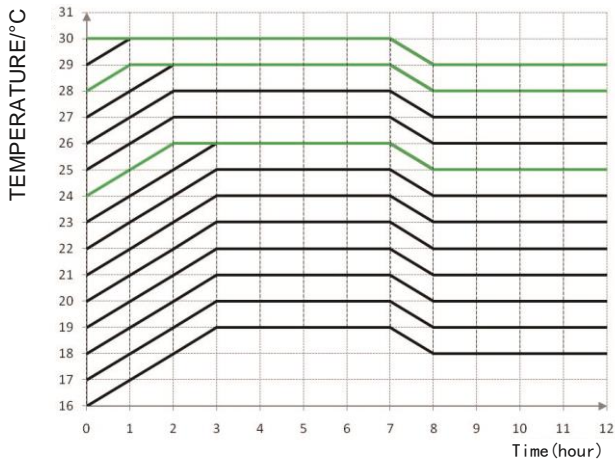


Fig.14 Sleep Curve under the COOL Mode

Under the Heat mode when the Sleep function is ON, the setting temperature range can be 60.8°F (16°C), 62.6°F to 68°F (17°C to 20°C), 69.8°F to 80.6°F (21°C to 27°C), or 82.4°F to 86°F (28°C to 30°C). Each of them has a different curve as shown in Fig.15. For example, if the setting temperature is 71.6°F (22°C), the temperature will drop by 33.8°F (1°C) each hour until it reaches 68°F (20°C). Then, the unit will run at this temperature.

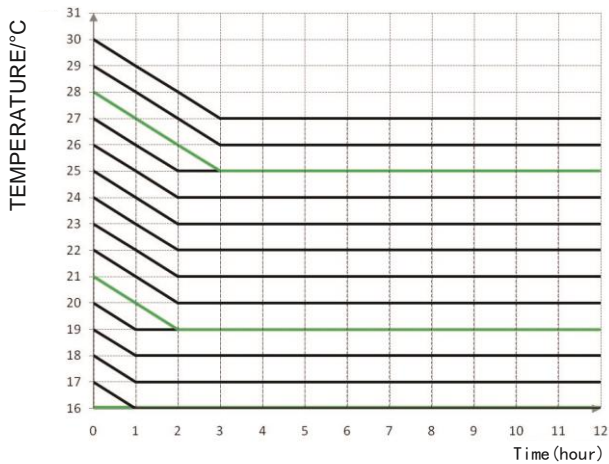


Fig.15 Sleep Curve under the HEAT Mode

3.10 I-Demand Setting

Under Cooling mode, press “Function” to select the I-Demand function with the “I-Demand” icon flashing. Press “Enter/Cancel” to activate the I-Demand function.

When I-Demand is on, press “Function” to set the function, with the “I-Demand” icon flashing. Then press the “Enter/Cancel” button to cancel the I-Demand function.

After entering the I-demand function through the function button on the wired zone control, the output capacity of the unit will be limited. The max power of the unit cannot exceed 75% of the rated power.

How to set the I-Demand function is shown in Fig.17 below.

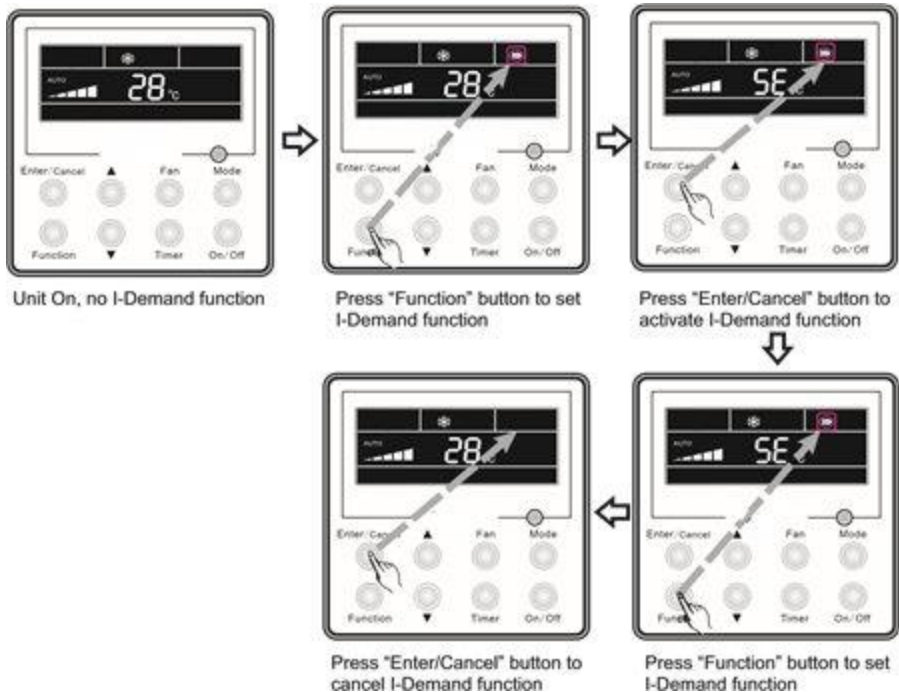


Fig.17 I-Demand Setting

Note:

- ①. The I-Demand function can be cancelled by switching modes and turning the unit ON/OFF.
- ②. After the unit On is resumed, the I-Demand function will be maintained.
- ③. The I-Demand function cannot be simultaneously set with and can be cancelled by the Sleep/Quiet functions.
- ④. When the I-Demand function is set, the unit will run with Auto fan speed. The Turbo fan speed is not available.
- ⑤. When the I-Demand function is set, the temperature setting of 80.6°F (27°C) cannot be changed.
- ⑥. When the shield function is enabled and the setting temperature is set by the central controller, the I-Demand function cannot be entered.

3.11 Vacation Setting

Vacation function: It's used to keep the indoor ambient temperature and activates fast heating.

Under the Heating mode, press "Function" to select the Vacation function with the "Vacation" icon flashing. Press "Enter/Cancel" to activate the Vacation function.

When Vacation is on, press "Function" to set the function. Then press the "Enter/Cancel" button to cancel the Vacation function and there is no icon flashing.

How to set the Vacation function is shown in Fig.18 below.

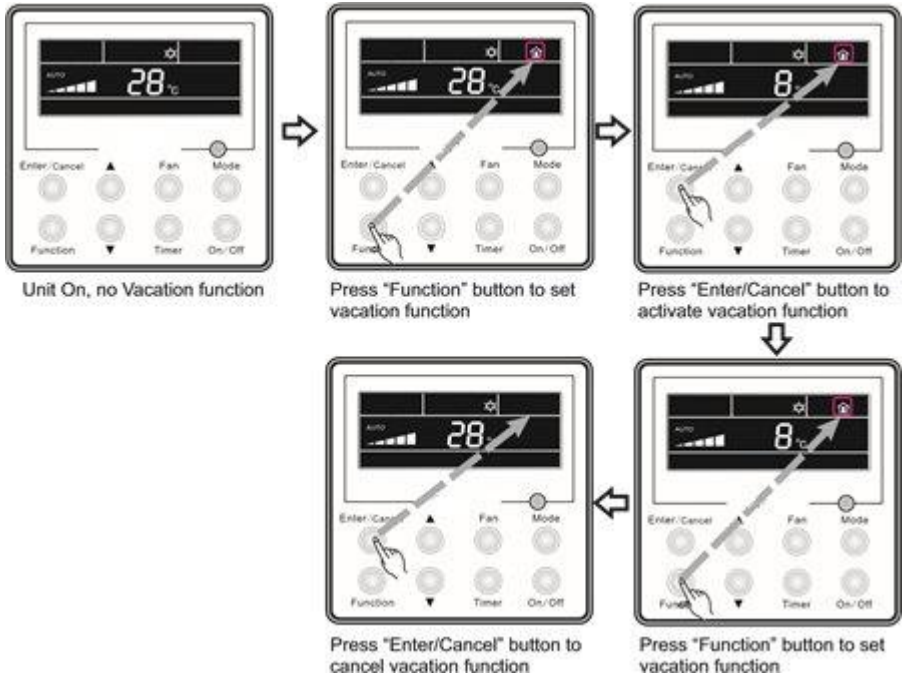


Fig.18 Vacation Setting

Note:

- ①. The Vacation function can only be set under the Heating mode.
- ②. The Turbo function will be cancelled when the vacation function is set.
- ③. The Sleep and Quiet functions will be cancelled when the Vacation function is set.
- ④. After the unit On is resumed, the Vacation function will be maintained.
- ⑤. When the Vacation function is set, the shield function from the central controller will not affect the setting temperature. Additionally, the vacation function cannot be set when the shield function is set by the central controller.
- ⑥. When the Vacation function is set, the temperature shown on the wired zone controller is 8°C. The indoor fan will automatically run as Auto fan speed.
- ⑦. The Vacation function will be cancelled when switching modes. The temperature will go back to the original temperature prior to that in the Vacation function.
- ⑧. Unit ON/OFF will not cancel the Vacation function.

3.12 Turbo Function Setting

TURBO function: The unit at the highest fan speed can realize quick cooling or heating so that room temperature can quickly approach the setting temperature.

In the COOL or HEAT mode, press the Function button to select the Turbo function option. Then press the Enter/Cancel button to activate it.

When the Turbo function is activated, it can be deactivated by first pressing the Function button to select the Turbo option, and then pressing the Enter/Cancel button.

The Turbo function setting is shown in Fig.19 below.

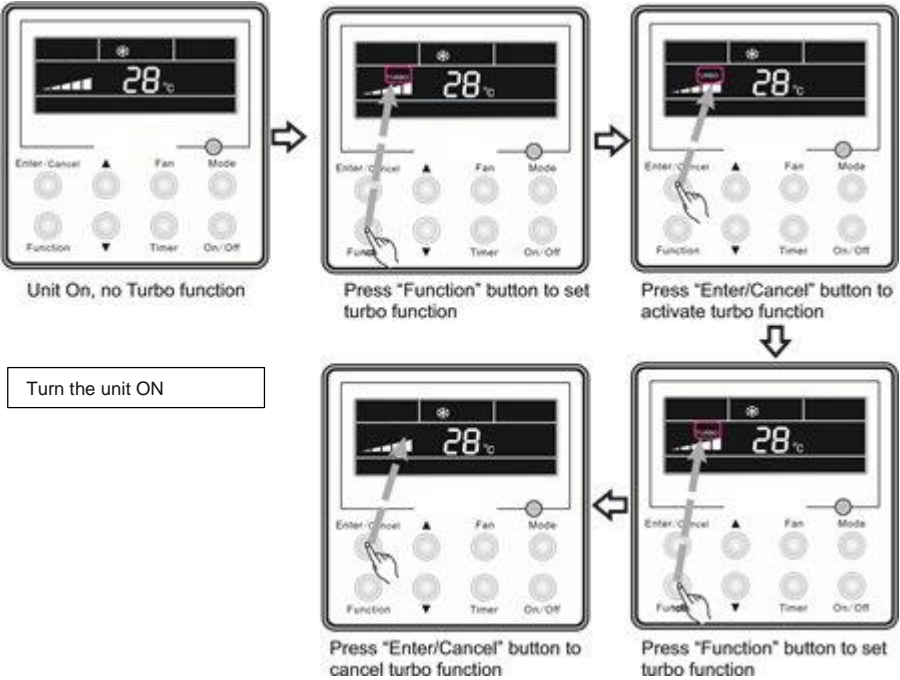


Fig.19 Turbo Function Setting

Notes:

- ①. The Turbo function will not be deactivated due to power failure. In DRY, FAN and AUTO modes, the Turbo function is unavailable and the function symbol won't be displayed.
- ②. The Turbo function will be automatically deactivated if the Quiet function is activated.
- ③. The FAN button can also be used to adjust the Turbo function.

3.13 Save Function Setting

Energy Saving Function: Energy saving can make the air conditioner run in a lower temperature range by setting a lower limited value for the temperature setting in the COOL or DRY mode and upper limited value in the HEAT mode.

(1). Energy Saving Setting for Cooling:

When the unit runs under the COOL or DRY mode, press the Function button to select the "SAVE" option, with "SAVE" flashing. Then press ▲ or ▼ to adjust the lower limit. After that, press the Enter/Cancel button to activate this function.

(2). Energy Saving Setting for Heating:

When the unit runs under the HEAT mode, press the Function button to select the "SAVE" option, with "SAVE" flashing. Then press ▲ or ▼ to adjust the upper limit., After that, press the Enter/Cancel button to activate this function.

The activated SAVE function can be deactivated by first pressing the "Function" button to select the "SAVE" option and then pressing the "Enter/Cancel" button.

The energy saving setting is shown in Fig.20 below.

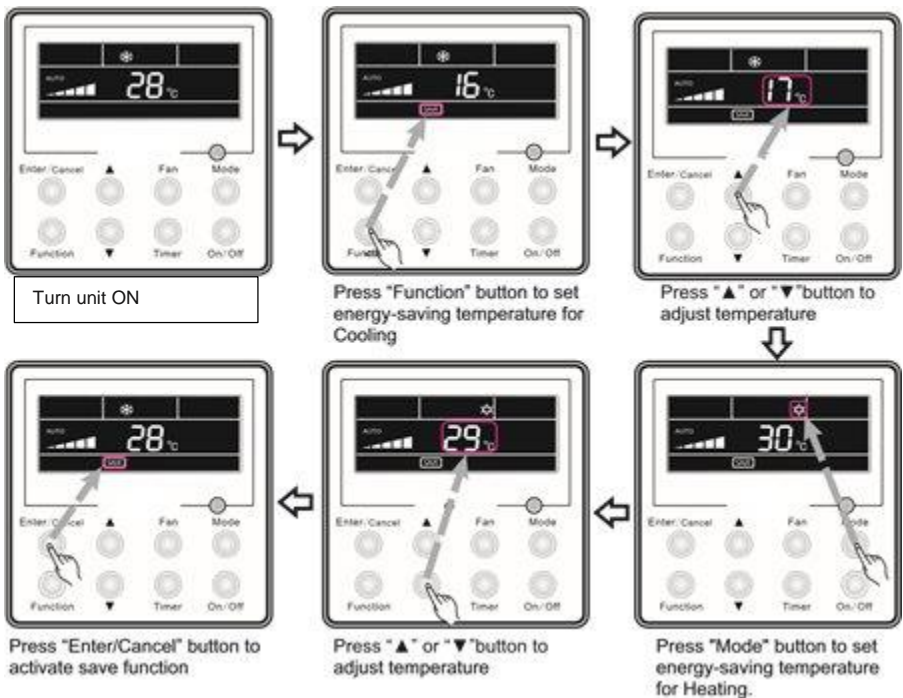


Fig.20 SAVE Function Setting

Notes:

- ①. Under the Auto mode, when the “SAVE” function is activated, the unit will forcibly quit the Auto mode and change to the current operation mode. Further, the “Sleep” function will be deactivated when the “SAVE” function is activated.
- ②. During the “SAVE” setting, if the Function button is pressed down or there is not any operation within five seconds after the last button operation, the system will quit the “SAVE” setting with the current setting data not saved.
- ③. The “SAVE” function setting will be memorized in case of a power failure.
- ④. The lower limit for cooling is 60.8°F (16 °C) and the upper limit for heating is 86°F (30°C).
- ⑤. During the “SAVE” setting, if the expected setting temperature is outside the limit range, then the limit temperature always prevails.

3.14 E-heater Setting

E-heater: in the HEAT mode, the E-heater function can be activated to improve heating efficiency. Generally, it will be activated automatically as the unit goes into the HEAT mode through any button operation .

Activation of the E-heater Function: First press the Function button to select the “E-heater” option, with the symbol “E-heater” flashing. Then press the Enter/Cancel button to activate it. After the activation, the symbol “E-heater” will always be displayed.

Deactivation of the E-heater Function: First press the Function button to select the “E-heater” option, with the symbol “E-heater” flashing. Then press the Enter/Cancel button to deactivate it.

The E-heater Function setting is shown in Fig.21 below. 

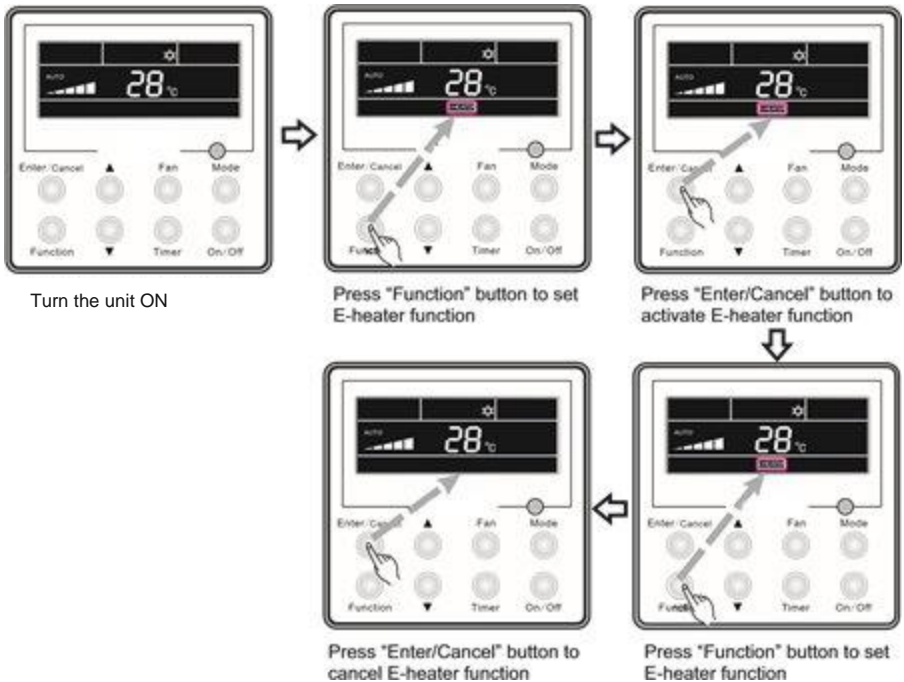


Fig.21 E-heater Function Setting

Note: The E-heater function is not available in the COOL, DRY, and FAN modes, with no "E-HEATER" symbol displayed.

3.15 Blow Setting

Blow function: After the unit is turned off, this function assists in water evaporation to avoid mildew in the indoor unit..

Activation of the Blow Function: In the COOL or DRY mode, press the Function button to select the "Blow" option, with the symbol "BLOW" flashing. Then press the Enter/Cancel button to activate it.

Deactivation of the Blow Function: The activated Blow function can be deactivated by first pressing the Function button to select the Blow option, and then pressing the Enter/Cancel button.

The Blow function setting is shown in Fig.22 below.

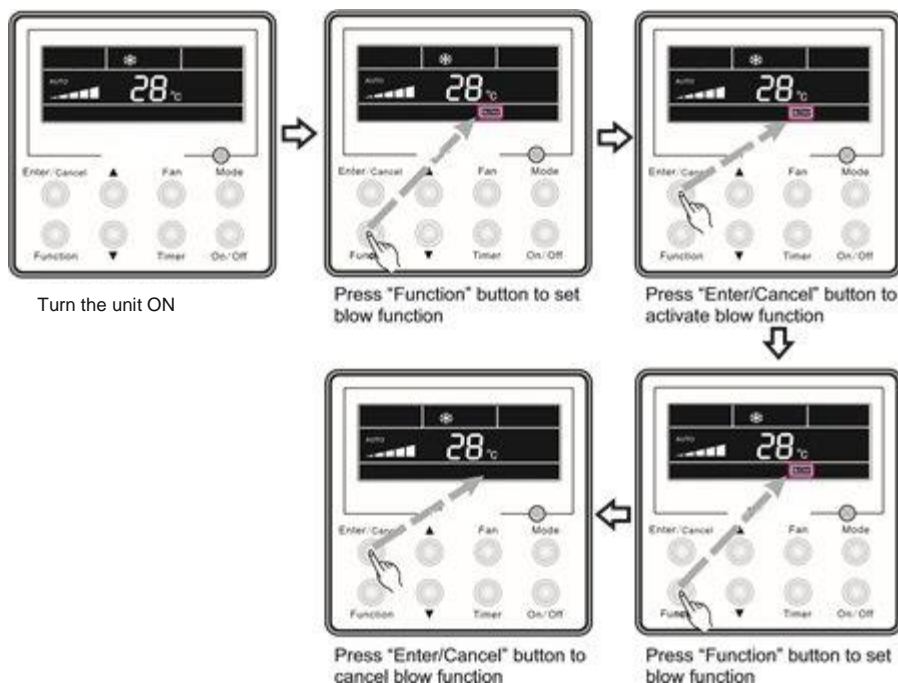


Fig.22 Blow Function Setting

Notes:

- ①. When the Blow function is activated, if the unit is turned off using the On/Off button, the indoor fan will still run at a low fan speed for another 10 minutes. When the Blow function is deactivated, the indoor fan will stop if the unit is turned off.
- ②. The Blow function is not available in the FAN and HEAT modes.

3.16 Filter Setting

Under the On status, press "Function" to set the Filter function with a FILTER icon flashing. The setting pollution level will be shown in the Timer area. Press "▲" and "▼" to adjust the pollution level and press "Enter/Cancel" to activate the Filter function.

When the Filter function is set, press "Function" to set showing the FILTER icon flashing. Press "▲" and "▼" to adjust until "00" is shown in the Timer area. Then press "Enter/Cancel" to cancel the Filter function.

How to set the Filter function is shown in Fig.23 below.

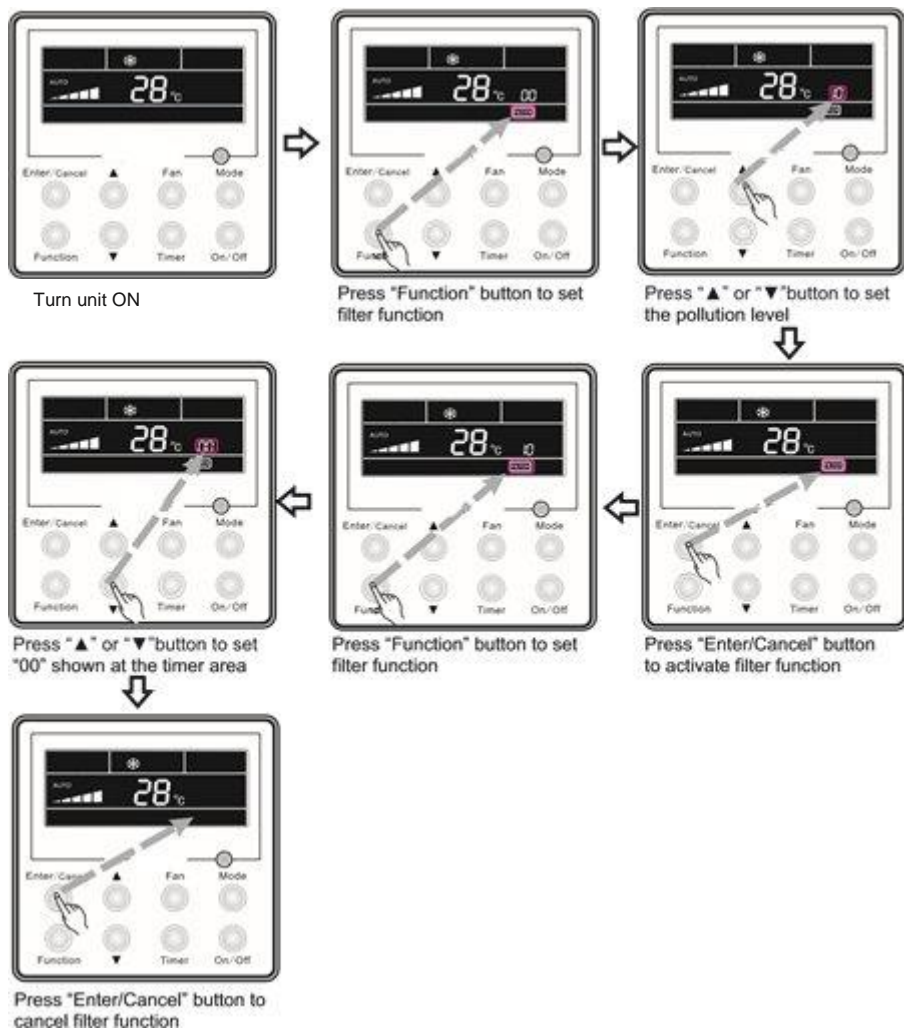


Fig.23 Filter Setting

Notes:

While setting the Filter, two numbers will be shown in the Timer area. The first number represents the pollution level. The second number shows the accumulated operating time of the indoor fan.

There are four statuses in total:

- ①. No Filter function setting ("00" shown in the Timer area)
- ②. When the filter reaches light-level pollution, "1" will be shown in the first place. When "0" displays in the second place, the accumulated operating hour reaches 5500 hours.

Every increase of the number means another 500 hours is accumulated. When “9” displays, it means the operating hour reaches 10000h.






- ③. When the filter reaches middle-level pollution, “2” will be shown at the first place, When “0” displays in the second place, the accumulated operating hour reaches 1400 hours. Every increase of the number means another 400 hours is accumulated. When “9” shows up, it means the operating hours reach 5000 hours.
- ④. When the filter reaches serious-level pollution, “3” will be shown in the first place. When “0” displays in the second place, the accumulated operating hours reach 100 hours. Every increase of the number means another 100 hours are accumulated. When “9” displays, it means the operating hours reach 1000 hours.

Pollution level with corresponding operating hours:

Table 3

Pollution level	Accumulated operating time (h)	Pollution level	Accumulated operating time (h)	Pollution level	Accumulated operating time (h)
10	5500	20	1400	30	100
11	6000	21	1800	31	200
12	6500	22	2200	32	300
13	7000	23	2600	33	400
14	7500	24	3000	34	500
15	8000	25	3400	35	600
16	8500	26	3800	36	700
17	9000	27	4200	37	800
18	9500	28	4600	38	900
19	10000	29	5000	39	1000

Notes:

- ①. If the Filter function is effectively set, the  icon will light up.
- ②. If it is not necessary to clean the filter, no matter whether the setting is changed or not, the unit will not restart to timing???? while pressing “Enter/Cancel”.
- ③. If the filter should be cleaned, under the On/OFF status, the  icon will blink once every 0.5 seconds as a reminder to clean the filter. Press “Function” button to set with the icon flashing. Press “▲” and “▼” to adjust the pollution level, and then press “Enter/Cancel” to activate it. If the pollution level is less than previously, the  will keep flashing. If the pollution level is more serious, the  will go out, and the Filter function will keep on working.
- ④. The only way to cancel the Filter function is when the function is set with the icon  flashing, let “00”shown in the Timer area, at this time, the accumulated time for cleaning will be zero.

3.17 Quiet Function Setting

Press the Function button to set the Quiet function with its icon flashing. Press “Enter/Cancel” to activate the Quiet function.

When the Quiet function is On, press "Function" to set with the Quiet icon flashing. Press "Enter/Cancel" to cancel the Quiet function.

How to set the Quiet function can be seen in Fig. 24 below.

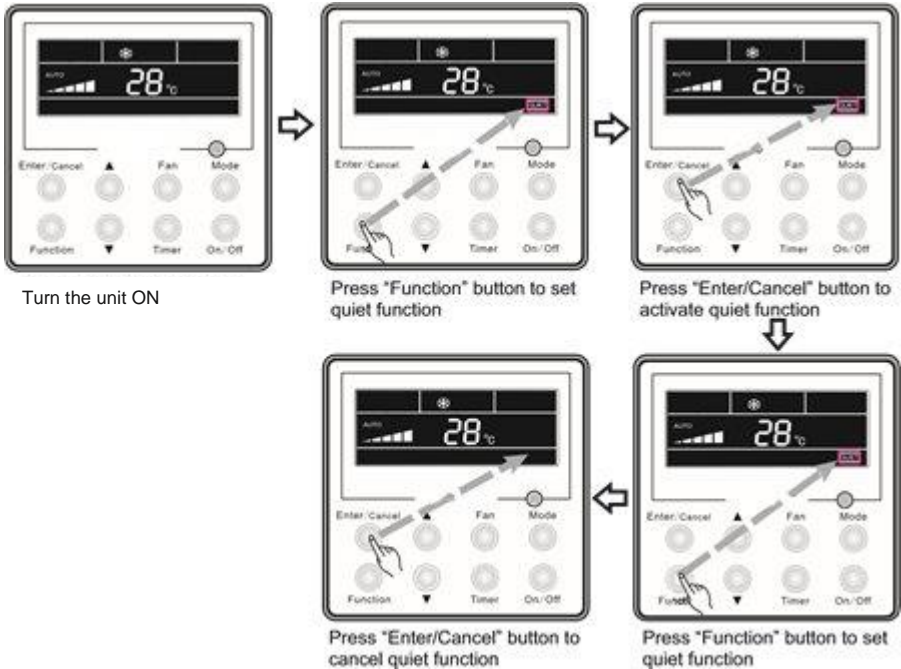


Fig.24 Quiet Function Setting

Notes:

- ①. The Quiet function is unavailable in Fan or Dry mode. If there is a power failure, the Quiet function is defaulted to be deactivated.
- ②. If the Quiet function is set, the Turbo function will be canceled.
- 3) When the Quiet function is activated, the Quiet function will always keep ON no matter if the Sleep function is activated or deactivated.


3.18 Ultra-Dry Setting

Under Dry mode, when the setting temperature is 60.8°F (16°C), press the ▼ button twice and the setting temperature will be changed to 53.6°F (12°C). At this time, the unit enters the Ultra-Dry function.

When the Ultra-Dry function is activated, it can be cancelled by pressing the ▲ button or the Mode button to switch modes.

3.19 Other Functions

3.19.1 Lock Function

Upon start-up of a unit with no malfunction or under the “Off” state of the unit, press ▲ and ▼ at the same time for five seconds until the wired zone controller enters the Lock function. In this case, the LCD displays .

After that, repress these two buttons at the same time for five seconds to quit this function.

Under the Lock state, any other button pressed won't work.

3.19.2 Memory Function

Memory switch-over: In the “Off” state of the unit, press “Mode” and ▲ at the same time for five seconds to switch memory states between memory ON and memory OFF. When this function is activated, Memory will be displayed. If this function is not set, the unit will be in the “Off” state after a power failure and then power recovery.

Memory recovery: If this function has been set for the wired zone controller, after a power failure the wired zone controller will resume its original running state upon power recovery.

Note: It will take about five seconds to save data. Therefore, please do not turn off the power at this time, or data will not be saved.

3.19.3 Selection of Celsius and Fahrenheit

Under the OFF state of the unit, press the Mode and ▼ buttons at the same time for five seconds. Celsius and Fahrenheit scales will be switched alternately.

3.19.4 Ambient Temperature Inquiry

Under the On/Off status, press “Confirm” for five seconds to enter the Inquiry display. At this time, what shows in the Timer area is the ambient temperature type: 01 or 02 and the temperature will be shown. “01” means the outdoor ambient temperature and “02” represents the indoor ambient temperature. Press the Mode button to switch between those two types. Pressing any other button except the Mode button will receive a signal from the remote controller to quit the Inquiry function. If there is no response in 20 seconds, the unit will quit from this function automatically.

Notes:

- ① . If the unit is not connected with the ambient temperature sensor, 12 hours after power is applied, the display of the ambient temperature sensor will be prevented.
- ② . If the outdoor temperature sensor has an error, 12 hours after power is applied, the display of the ambient temperature sensor will be prevented.

3.19.5 Indoor Fan Shutdown Mode Setting

Under the unit OFF status, simultaneously press “Function” and “Timer” for five seconds. The wired zone controller will enter a parameter-setting interface. Press “Mode” to set until “05” is shown on the temperature displayed area. Then the unit will enter the Indoor Fan Shutdown mode.

Two options are available for the Indoor Fan Shutdown mode:

Mode 1: When the temperature reaches a certain value, the indoor fan will not be shut down at any mode except Heating mode. After the unit is shut down, for the duct type unit and the floor or

ceiling type unit, the indoor fan will blow extra heat for 60 seconds and then stop running. For the cassette type unit, its indoor fan will operate at a low fan speed and blow extra heat for 60 seconds only when there is an error.

Mode 2: No matter which mode the unit is under, the indoor fan will keep running for 10 seconds after the temperature reaches a certain value, then it will stop.

Press “▲” or “▼” to adjust the mode. Under Mode 1/2, “00”/ “01” will show up in the Timer area. Then press “Enter/Cancel” to save the settings.

The setting procedures are shown in Fig.25 below.

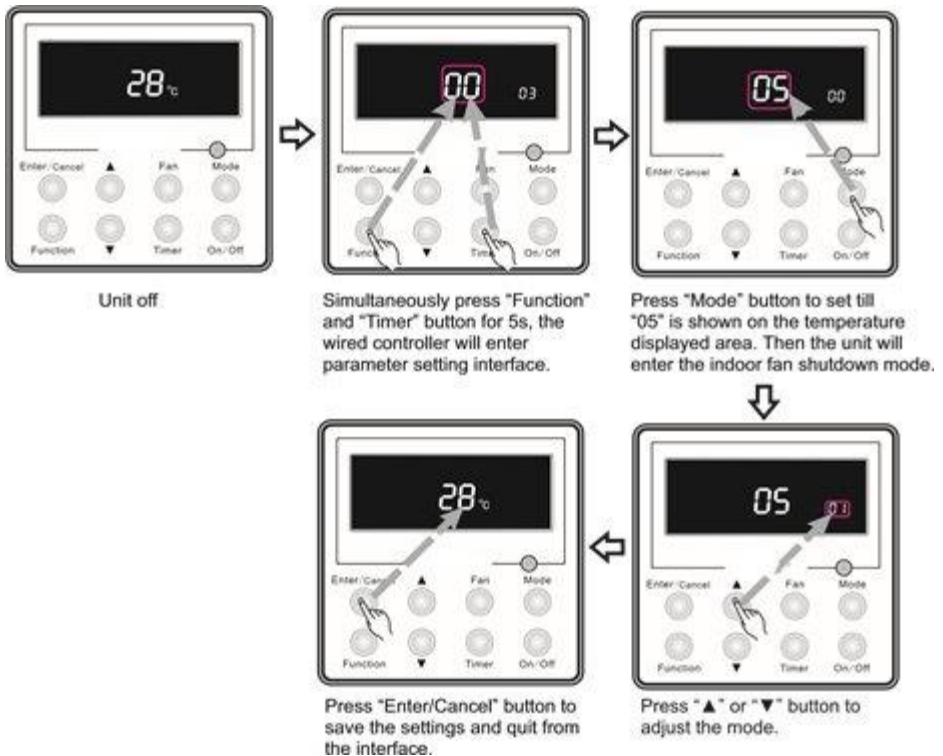


Fig.25 Indoor Fan Shutdown Mode Setting

Note: In the parameter setting interface, only when “05” is shown, can the Indoor Fan Shutdown mode be set. Other parameters cannot be modified.

4 Installation of the Wired Zone Controller

4.1 Standard Parts

No.	Description	Quantity
1	Base Box	1
2	Soleplate	1
3	Screw M4x25	2
4	Front Panel	1

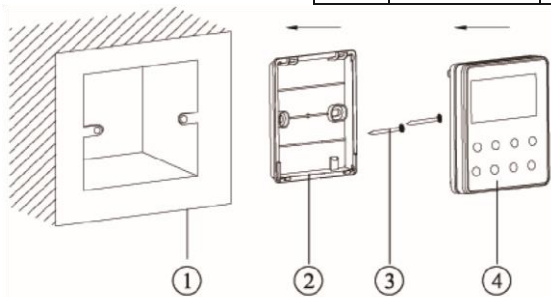


Fig.26 Standard Parts of the Wired Zone Controller

Table 4 Standard Parts

4.2 Installation Location and Installation Requirements

- (1). Do not install the wired zone controller in a damp place or in direct sunlight.
 - (2). Do not install the wired zone controller close to a hi-temperature object or place where the wired zone controller is likely to suffer water spray.
 - (3). Do not install the wired zone controller directly opposite to a window so as to avoid improper operation caused by interference from another wired zone controller of the same model.
 - (4). Please cut off the power supply of wires embedded in the wall. No operation should be done with the power on.
 - (5). To avoid abnormal operation caused by electromagnetic interference (EMI) or other causes, please take notice of the following statements during wiring. Also refer to the Safety Summary in this manual.
- ① . Be sure the communication cable is wired into the correct port. Otherwise it would result in a communication malfunction.
 - ② . The communication cable (wired zone controller) and power line must be separated with a minimal distance of 8 in. (20cm). Otherwise it would result in a communication malfunction.

- ③. If the air conditioner is installed where there might be electromagnetic interference (EMI), the communication cable of the wired zone controller must be shielded communication cable.

(6) Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.

4.3 How to Install the Wired Zone Controller

The selection and connecting method of the communication cable is as follows:

- (1). Select appropriate communication line of the wired controller: 2-conductor signal wire (wire size $\geq 0.75\text{mm}^2$, length $<30\text{m}$, recommended length: 8m).
- (2). With the indoor unit power off, secure the communication cable onto the indoor terminal board with screws.

Then, follow the specific installation steps as shown in Fig.27 below.

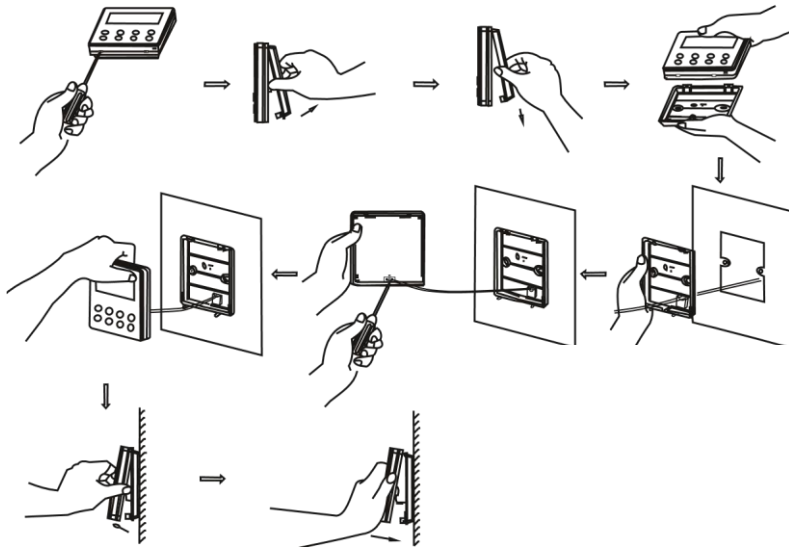


Fig.27 Installation of the Wired Zone Controller

Brief instructions:

- ① . Pull out the 2-conductor signal wire from the mounting hole and pass this wire through the round hole located at the bottom of the wired zone controller.
- ② . Use M4x25 screws to secure the soleplate of the wired zone controller onto the wall.
- ③ . Affix the signal wire on the copper tabs X1 and X2. Make sure the wire is tightly secured and with no short-circuit potential.
- ④ . Place the panel and the bottom together using the clasps.

4.4 How to Remove the Wired Zone Controller

The wired zone controller can be easily removed as shown in Fig.28.

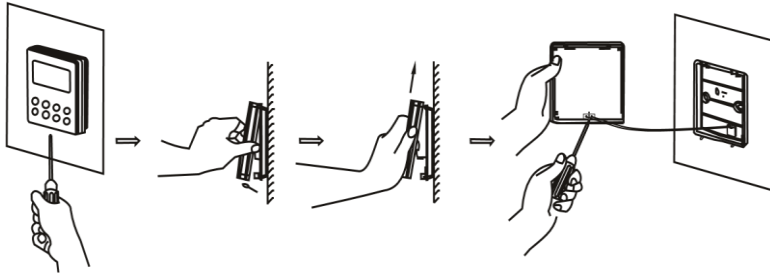


Fig. 28 Removal of the Wired Zone Controller

5 Errors Display

When an error is detected by the unit, the error code will display on the wired zone controller. When multiple errors simultaneously happen, their codes will be displayed in a sequential fashion.

If an error code is displayed, reference Table 5 below for error code explanation and contact you service representative for further assistance.

As shown in Fig.29, error code E1 corresponds to a compressor high pressure protection.

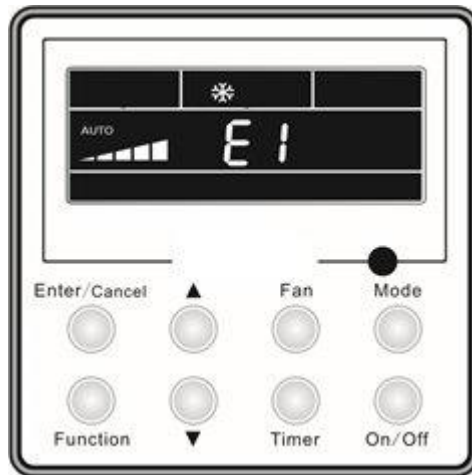


Fig.29

Error codes and their meanings:

Table 5

Number	Error code	Error
1	E1	Compressor high pressure protection
2	E2	Indoor anti-freeze protection
3	E3	Compressor low pressure protection, refrigerant lacking protection and refrigerant collecting mode

4	E4	Compressor high discharge temperature protection
5	E6	Communication error
6	E8	Indoor fan motor error
7	E9	Full water protection
8	F0	Indoor ambient temperature sensor error
9	F1	Evaporator temperature sensor error
10	F2	Condenser temperature sensor error
11	F3	Outdoor ambient temperature sensor error
12	F4	Discharge temperature sensor error
13	F5	Temperature sensor error of wired zone controller
14	C5	Capacity code error
15	EE	Outdoor micro-processor?? error
16	PF	Electric box sensor error
17	H3	Compressor overload protection
18	H4	Overloading
19	H5	IPM protection
20	H6	DC fan motor error
21	H7	Drive desynchronizing protection
22	Hc	PFC protection
23	L1	Humidity sensor error
24	Lc	Activation failure
25	Ld	Compressor phase sequence protection
26	LF	Power protection
27	Lp	Indoor and outdoor mismatch
28	U7	4-way valve direction changing protection
29	P0	Drive reset protection
30	P5	Over-current protection

31	P6	Communication error between main control and drive
32	P7	Drive module sensor error

33	P8	Drive module over temperature protection
34	P9	Zero passage protection
35	PA	AC current protection
36	Pc	Drive current error
37	Pd	Sensor connecting protection
38	PE	Temperature drift protection
39	PL	Bus low voltage protection
40	PH	Bus high voltage protection
41	PU	Charge loop error
42	PP	Input voltage abnormality
43	ee	Drive memory chip error

Product improvement, specifications and appearance in this manual are subject to change without prior notice.

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