## tTRUST

## INVERTER WALL MOUNTED SPLIT

## (TC SERIES)

## (9)TRUST

TRUST AIR CONDITIONING EQUIPMENT CO.
Prepared By: Engineering \& R \& D Department.

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توجه:

شركت تراست حق تغيير مشخصات دستكاه ها را در جهت بهبود و ارتقاى
كيفيت براى خود محفوظ مى ثارد.

## 1. Installation Details

### 1.1 Wrench torque sheet for installation

| Outside diameter |  | Torque | Additional tightening torque |
| :---: | :---: | :---: | :---: |
| mm | inch | N.cm | N.cm |
| $\Phi 6.35$ | $1 / 4$ | $1500(153 \mathrm{kgf.cm})$ | $1600(163 \mathrm{kgf} . \mathrm{cm})$ |
| $\Phi 9.52$ | $3 / 8$ | $2500(255 \mathrm{~kg} . \mathrm{cm})$ | $2600(265 \mathrm{kgf} . \mathrm{cm})$ |
| $\Phi 12.7$ | $1 / 2$ | $3500(357 \mathrm{kgf} . \mathrm{cm})$ | $3600(367 \mathrm{kgf} . \mathrm{cm})$ |
| $\Phi 15.9$ | $5 / 8$ | $4500(459 \mathrm{kgf.cm})$ | $4700(479 \mathrm{kgf} . \mathrm{cm})$ |
| $\Phi 19$ | $3 / 4$ | $6500(663 \mathrm{kgf} . \mathrm{cm})$ | $6700(683 \mathrm{kgf.cm})$ |

### 1.2 Connecting the cables

The power cord of connect should be selected according to the following specifications sheet.

| Rated current of appliance | Nominal cross-sectional area $\left(\mathrm{mm}^{2}\right)$ |
| :---: | :---: |
| $>3$ and $\leq 6$ | 0.75 |
| $>6$ and $\leq 10$ | 1 |
| $>10$ and $\leq 16$ | 1.5 |
| $>16$ and $\leq 25$ | 2.5 |

The cable size and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch.

### 1.3 Pipe length and the elevation

The pipe length and refrigerant amount:

| Model | Pipe size |  | Standard <br> length <br> (m) | Max. <br> Elevation B (m) | Max. <br> Length <br> A (m) | Additional refrigerant ( $\mathrm{g} / \mathrm{m}$ ) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Gas | Liquid |  |  |  |  |
| TMST09HT113.34/i(O)4SW1R1N1S | $\begin{gathered} 3 / 8^{\prime \prime} \\ (\Phi 9.52) \end{gathered}$ | $\begin{gathered} 1 / 4^{\prime \prime} \\ (\Phi 6.35) \end{gathered}$ | 5 | 10 | 25 | 15 |
| TMST12HT11 ${ }^{3.66 / i(O) 4 S W 1 R 1 N 1 S ~}$ | $\begin{gathered} 1 / 2^{\prime \prime} \\ (\Phi 12.7) \end{gathered}$ | $\begin{gathered} 1 / 4^{\prime \prime} \\ (\Phi 6.35) \end{gathered}$ | 5 | 10 | 25 | 15 |
| TMST18HT1 ${ }^{3.52} / \mathrm{i}(\mathrm{O}) 4 \mathrm{SW} 1 \mathrm{R} 1 \mathrm{~N} 1 \mathrm{~S}$ | $\begin{gathered} 1 / 2^{\prime \prime} \\ (\Phi 12.7) \\ \hline \end{gathered}$ | $\begin{gathered} 1 / 4 " \\ (\Phi 6.35) \\ \hline \end{gathered}$ | 5 | 20 | 30 | 15 |
| TMST24HT1 ${ }^{3.55 / i(O) 4 S W 1 R 1 N 1 S ~}$ | $\begin{gathered} 5 / 8^{\prime \prime} \\ (\Phi 15.9) \end{gathered}$ | $\begin{gathered} 3 / 8^{\prime \prime} \\ (\Phi 9.52) \\ \hline \end{gathered}$ | 5 | 25 | 50 | 30 |



## Caution:

The capacity test is based on the standard length and the maximum permissive length is based on the system reliability.

### 1.4 Installation for the first time

Air and moisture in the refrigerant system have undesirable effects as below:

- Pressure in the system rises.
- Operating current rises.
- Cooling or heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigerant system.
Therefore, the indoor units and the pipes between indoor and outdoor units must be leak tested and evacuated to remove gas and moisture from the system.

Gas leak check (Soap water method):
Apply soap water or a liquid neutral detergent on the indoor unit connections or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, the pipes have leakage.

## 1. Air purging with vacuum pump



1) Completely tighten the flare nuts of the indoor and outdoor units, confirm that both the 2 -way and 3 -way valves are set to the closed position.
2) Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port.
3) Connect the charge hose of handle hi
connection to the vacuum pump.
4) Fully open the handle Lo of the manifold valve.
5) Operate the vacuum pump to evacuate.
6) Make evacuation for 30 minutes and check whether the compound meter indicates -0.1 Mpa . If the meter does not indicate -0.1 Mpa after pumping 30 minutes, it should be pumped 20 minutes more. If the pressure can't achieve -0.1 Mpa after pumping 50 minutes, please check if there are some leakage points.
Fully close the handle Lo valve of the manifold valve and stop the operation of the vacuum pump. Confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
7) Turn the flare nut of the 3-way valves about $45^{\circ}$ counterclockwise for 6 or 7 seconds after the gas
coming out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure. Then remove the charge hose from the 3 way valve.
8) Fully open the 2 way valve and 3 way valve and securely tighten the cap of the 3 way valve.
2. Air purging by refrigerant


## Procedure:

1). Confirm that both the 2 -way and 3 -way valves are set to the closed position.
2). Connect the charge set and a charging cylinder to the service port of the 3 -way valve.
3). Air purging.

Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2 -way valve approximately 45 ' for 3 seconds then closing it for 1 minute; repeat 3 times.
After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.
4). Check the gas leakage.

Check the flare connections for gas leakage.
5). Discharge the refrigerant.

Close the valve on the charging cylinder and discharge the refrigerant by loosening the flare nut on the 2 -way valve approximately 45 ' until the gauge indicates 0.3 to 0.5 Mpa .
6 ). Disconnect the charge set and the charging cylinder, and set the 2 -way and 3 -way valves to the open position.
Be sure to use a hexagonal wrench to operate the valve stems.
7). Mount the valve stems nuts and the service port cap.
Be sure to use a torque wrench to tighten the service port cap to a torque $18 \mathrm{~N} \cdot \mathrm{~m}$.
Be sure to check the gas leakage.

## 3. Adding the refrigerant if the pipe length $>5 \mathrm{~m}$



## Procedure:

1). Connect the charge hose to the charging cylinder, open the 2 -way valve and the 3 -way valve.
Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom
up to ensure the liquid charge.
2). Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
3) Put the charging cylinder onto the electronic scale and record the weight.
4) Operate the air conditioner at the cooling mode.
5) Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.
6). When the electronic scale displays the proper weight (refer to the table), disconnect the charge hose from the 3 -way valve's service port immediately and turn off the air conditioner before disconnecting the hose.
7). Mount the valve stem caps and the service port
Use torque wrench to tighten the service port cap to a torque of $18 \mathrm{~N} . \mathrm{m}$.
Be sure to check for gas leakage.

### 1.5 Adding the refrigerant after running

 the system for many years

## Procedure:

1). Connect the charge hose to the 3 -way service port, open the 2-way valve and the 3-way valve. Connect the charge hose to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.
2). Purge the air from the charge hose.

Open the valve at the bottom of the cylinder
and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
3) Put the charging cylinder onto the electronic scale and record the weight.
4) Operate the air conditioner at the cooling mode.
5) Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.
6). When the electronic scale displays the proper weight (refer to the gauge and the pressure of the low side), disconnect the charge hose from the 3 -way valve's service port immediately and turn off the air conditioner before disconnecting the hose.
7). Mount the valve stem caps and the service port
Use torque wrench to tighten the service port cap to a torque of $18 \mathrm{~N} . \mathrm{m}$.
Be sure to check for gas leakage.

### 1.6 Re-installation while the indoor unit need to be repaired

1. Collecting the refrigerant into the outdoor unit


## Procedure

1). Confirm that both the 2 -way and 3 -way valves are set to the opened position
Remove the valve stem caps and confirm that the valve stems are in the opened position.
Be sure to use a hexagonal wrench to operate the valve stems.
2). Connect the charge hose with the push pin of
handle lo to the 3-way valves gas service port.
3). Air purging of the charge hose.

Open the handle Lo valve of the manifold valve slightly to purge air from the charge hose for 5 seconds and then close it quickly.
4). Set the 2-way valve to the close position.
5). Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1 MPa .
6 ). Set the 3 -way valve to the closed position immediately
Do this quickly so that the gauge ends up indicating 0.3 to 0.5 Mpa .
Disconnect the charge set, and tighten the 2-way and 3 -way valve's stem nuts.
Use a torque wrench to tighten the 3 -way valves service port cap to a torque of $18 \mathrm{~N} . \mathrm{m}$.
Be sure to check for gas leakage.
2. Air purging by the refrigerant


## Procedure:

1 ). Confirm that both the 2 -way and 3 -way valves are set to the closed position.
2). Connect the charge set and a charging cylinder to the service port of the 3 -way valve Leave the valve on the charging cylinder closed.
3 ). Air purging.
Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2 -way valve approximately 45 ' for 3 seconds then closing it for 1 minute; repeat 3 times.
After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.
4). Check the gas leakage

Check the flare connections for gas leakage.
5). Discharge the refrigerant.

Close the valve on the charging cylinder and discharge the refrigerant by loosening the flare nut on the 2-way valve approximately 45' until the gauge indicates 0.3 to 0.5 Mpa .
6 ). Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position
Be sure to use a hexagonal wrench to operate the valve stems.
7). Mount the valve stems nuts and the service port cap
Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.
Be sure to check the gas leakage.

### 1.7 Re-installation while the outdoor unit need to be repaired

## 1. Evacuation for the whole system



## Procedure:

1). Confirm that both the 2-way and 3-way valves are set to the opened position.
2). Connect the vacuum pump to 3-way valve's service port.
3). Evacuation for approximately one hour. Confirm that the compound meter indicates -0.1Mpa.
4). Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
5). Disconnect the charge hose from the vacuum pump.

## 2. Refrigerant charging



## Procedure:

1). Connect the charge hose to the charging cylinder, open the 2 -way valve and the 3 -way valve

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.
2). Purge the air from the charge hose

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
3) Put the charging cylinder onto the electronic scale and record the weight.
4). Open the valves (Low side) on the charge set and charge the system with liquid refrigerant
If the system cannot be charge with the specified amount of refrigerant, or can be charged with a little at a time (approximately 150 g each time), operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.
5).When the electronic scale displays the proper weight, disconnect the charge hose from the 3-way valve's service port immediately If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.
6 ). Mounted the valve stem caps and the service
port. Use torque wrench to tighten the service port cap to a torque of $18 \mathrm{~N} . \mathrm{m}$.
Be sure to check for gas leakage.

## 2. Operation Characteristics

| Mode |  |  |  |
| :--- | :--- | :--- | :--- |
| Temperature | Cooling operation | Heating operation | Drying operation |
| Room temperature | $17^{\circ} \mathrm{C} \sim 32^{\circ} \mathrm{C}$ <br> $\left(62^{\circ} \mathrm{F} \sim 90^{\circ} \mathrm{F}\right)$ | $0^{\circ} \mathrm{C} \sim 30^{\circ} \mathrm{C}$ <br> $\left(32^{\circ} \mathrm{F} \sim 86^{\circ} \mathrm{F}\right)$ | $10^{\circ} \mathrm{C} \sim 32^{\circ} \mathrm{C}$ <br> $\left(50^{\circ} \mathrm{F} \sim 90^{\circ} \mathrm{F}\right)$ |
| Outdoor temperature | $0^{\circ} \mathrm{C} \sim 50^{\circ} \mathrm{C}$ <br> $\left(32^{\circ} \mathrm{F} \sim 122^{\circ} \mathrm{F}\right)$ | $-15^{\circ} \mathrm{C} \sim 30^{\circ} \mathrm{C}$ <br> $\left(5^{\circ} \mathrm{F} \sim 86^{\circ} \mathrm{F}\right)$ | $0^{\circ} \mathrm{C} \sim 50^{\circ} \mathrm{C}$ <br> $\left(32^{\circ} \mathrm{F} \sim 122^{\circ} \mathrm{F}\right)$ |
|  | $-15^{\circ} \mathrm{C} \sim 50^{\circ} \mathrm{C}\left(5^{\circ} \mathrm{F} \sim 122^{\circ} \mathrm{F}\right)$ <br> $($ For the models with low <br> temperature cooling system $)$ |  |  |

## CAUTION:

1. If the air conditioner is used beyond the above conditions, certain safety protection features may come into operation and cause the unit to operate abnormally.
2. The room relative humidity should be less than $80 \%$. If the air conditioner operates beyond this figure, the surface of the air conditioner may attract condensation. Please set the vertical air flow louver to its maximum angle (vertically to the floor), and set HIGH fan mode.
3. The optimum performance will be achieved during this operating temperature zone.

## 3. Electronic function

### 3.1 Abbreviation

T1: Indoor room temperature
T2: Coil temperature of evaporator
T3: Coil temperature of condenser
T4: Outdoor ambient temperature
T5: Compressor discharge temperature

### 3.2 Display function

8.2.1 Icon explanation on indoor display board.


Digital display:
Displays the temperature settings when the air conditioner is operational.

Displays the room temperature in FAN mode.
Displays the self-diagnostic codes.
Dispalys ، $\square \boldsymbol{\prime}$ ' for three seconds when Timer ON, Fresh, Swing, Turbo or Silence feature is activated.

Dispalys 'DF' for three seconds when Timer OFF ,Fresh, Swing, Turbo or Silence feature is cancelled.

Dispalys ، $\mathbf{d F}$ ' under deforsting operation.
Dispalys ' $\mathbf{C}$ ', when anti-cold air feature is
activated under heating mode.
Dispalys '5[' during self clean operation (if aplicable).

Dispalys 'FP, under $8^{\circ} \mathrm{C}$ heating operation (if aplicable).
${ }^{\circ}$ (Optional)
According to the operation mode,the" " indicator displays different colour:

Under Cool or Dry mode,it displays as cool colour.

Under Heat mode, it displays as warm colour.

## ECO

(if aplicable)
Energy saving display:
Displays when the energy sacing feature is activated.(Not available when the unit does not have energy saving mode.)


WIFI control display:
Display when the WIFI control feature is activated. (Not available when the unit does not have this function.)

### 3.3 Main Protection

### 3.3.1 Three minutes delay at restart for compressor <br> 1 minute delay for the $1^{\text {st }}$ time start-up and 3 minutes delay for others.

3.3.2 Temperature protection of compressor top
The unit will stop working when the compressor top temp. protector cut off, and will restart after the compressor top temp. protector restart.

### 3.3.3 Temperature protection of compressor discharge

Compressor discharge temp. $\mathrm{T} 5>115^{\circ} \mathrm{C}$ for 5 s , compressor stops.

### 3.3.4 Fan speed is out of control

When indoor fan speed keeps too low
(300RPM) for certain time, the unit will stop and the LED will display the failure

### 3.3.5 Inverter module protection

The Inverter module has a protection function about current, voltage and temperature. If these protections happen, the corresponding code will display on indoor unit and the unit will stop working.

### 3.3.6 Indoor fan delayed open function

When the unit starts up, the louver will be active immediately and the indoor fan will open 7s later.

If the unit runs in heating mode, the indoor fan will be also controlled by anti-cold wind function.

### 3.3.7 Compressor preheating functions

Preheating permitting condition:
When T4(outdoor ambient temperature) $<3^{\circ} \mathrm{C}$, the preheating function will be activated.

### 3.3.8 Sensor protection at open circuit and breaking disconnection.

When there's only one temperature sensor in malfunction, the air conditioner will keep working but show the error code, in case of any emergency use.
When there's more than one temperature sensor in malfunction, the air conditioner will stop working.

### 3.3.9 Refrigerant leakage detection

This function is only active in cooling mode. It can better prevent the compressor being damaged by refrigerant leakage or compressor overload.
Open condition:
When compressor is active, the value of the Coil temperature of evaporator T2 has no change or very little change.

### 3.3.10 Zero crossing detection error protection

If AC detects time interval is not correct for continuous 240s, the unit will stop and the LED will display the failure. The correct zero crossing signal time interval should be between $6-13 \mathrm{~ms}$.

### 3.4 Operation Modes and Functions

### 3.4.1 Fan mode

(1) Outdoor fan and compressor stop.
(2) Temperature setting function is disabled, and no setting temperature is displayed.
(3) Indoor fan can be set to high/med/low/auto.
(4) The louver operates same as in cooling mode.
(5) Auto fan:


### 3.4.2 Cooling Mode

### 3.4.2.1 Compressor running rules

When $\mathrm{T} 1-\mathrm{Ts}<\Delta \mathrm{T}-2^{\circ} \mathrm{C}$, the compressor will stop, when $\mathrm{T} 1-\mathrm{Ts}>\Delta \mathrm{T}-0.5^{\circ} \mathrm{C}$, the compressor will be activated.
$\Delta T$ is the programmed parameter of temperature compensation.
When the AC run in mute mode, the compressor will run with low frequency. When the current is more than setting value, the current protection function will be activated, and the compressor will stop.

### 3.4.2.2 Outdoor fan running rules

The outdoor unit will be run at different fan speed according to T4.
For different outdoor units, the fan speeds are different.


### 3.4.2.3 Indoor fan running rules

In cooling mode, indoor fan runs all the time and the speed can be selected as high, medium, low and auto.
The indoor fan is controlled as below:


The auto fan acts as below rules:


### 3.4.2.4 Condenser temperature protection

T3

| 1 |  |  |
| :---: | :---: | :--- |
|  | Off |  |
|  | Decrease |  |
|  | Hold |  |
|  | Increase |  |
| Resume | V |  |

When condenser temperature temp. is more than setting value, the compressor will stop.

### 3.4.2.5 Evaporator temperature protection

When Evaporator temperature temp.is less than setting value, the compressor will stop.

### 3.4.3 Heating Mode

### 3.4.3.1 Compressor running rules

When $\mathrm{T} 1-\mathrm{Ts}>-\Delta \mathrm{T}$, the compressor will stop, when $\mathrm{T} 1-\mathrm{T}_{\mathrm{s}}<\Delta \mathrm{T}-1.5$, the compressor will be on. $\Delta T$ is the programmed parameter of temperature compensation.
When the AC run in mute mode, the compressor will run with low frequency. When the current is more than setting value, the current protection function will be activated and the compressor will stop.

### 3.4.3.2 Outdoor fan running rules

The outdoor unit will be run at different fan speed according to T4.
For different outdoor units, the fan speeds are different.


### 3.4.3.3 Indoor fan running rules

When the compressor is on, the indoor fan can be set to high/med/low/auto. And the anti-cold wind function has the priority. The indoor fan is controlled as below:

| Setting fan speed | T1-Td ${ }^{\text {C }}$ ( ${ }^{\circ} \mathrm{F}$ ) |  | Actual fan speed |
| :---: | :---: | :---: | :---: |
| H |  | \....................... $\uparrow$ | $\mathrm{H}+(\mathrm{H}+=\mathrm{H}+\mathrm{G})$ |
|  |  | A | H ( $=\mathrm{H}$ ) |
|  |  | B |  |
|  |  |  | H. (H. $=\mathrm{H} \cdot \mathrm{G}$ ) |
| M |  | \...................... $\uparrow$ | $\mathrm{M}+(\mathrm{M}+=\mathrm{M}+\mathrm{Z})$ |
|  |  | D ${ }^{\text {a }}$ | $\mathrm{M}(\mathrm{M}=\mathrm{M})$ |
|  |  | E |  |
|  |  | $\mathrm{F} \downarrow$ / | M-( M - $=\mathrm{M} \cdot \mathrm{Z}$ ) |
| L |  | $1 . . . . . . . . . . . . . . . . . . . . . .1$ | L+(L+EL + D) |
|  |  | G | L ( $\mathrm{L}=\mathrm{L}$ ) |
|  |  | H |  |
|  |  | I $\downarrow$ / | $L \cdot(L \cdot=L \cdot D)$ |

Auto fan action in heating mode:


### 3.4.3.4 Defrosting mode

AC will enter the defrosting mode according to the value of temp. of T3 and the value range of temp. change of T3 and also the compressor running time.
During the defrosting mode, the compressor keep running, indoor and outdoor motor will stop, defrost lamp of the indoor unit will be
lighted ."dF ." Will be displayed.
If any one of the following items is satisfied, the defrosting will finish and the machine will turn to normal heating mode.
----T3 rises to be higher than TCDE1 ${ }^{\circ} \mathrm{C}$.
----T3 keeps to be higher than TCDE2 ${ }^{\circ} \mathrm{C}$ for 80 seconds.
----The machine has run for 15 minutes in defrosting mode.

### 3.4.3.5 Evaporator coil temperature protection



Off: Compressor stops.
Decrease: Decrease the running frequency to the lower level.
Hold: Keep the current frequency.
Resume: No limitation for frequency.

### 3.4.4 Auto-mode

This mode can be chosen with remote controller and the setting temperature can be changed between $17^{\circ} \mathrm{C} \sim 30^{\circ} \mathrm{C}$
In auto mode, the machine will choose cooling, heating or fan-only mode according to $\Delta T$ ( $\Delta \mathrm{T}$ $=T 1-T s)$.

| $\Delta \mathrm{T}=\mathrm{T} 1-\mathrm{Ts}$ | Running mode |
| :---: | :---: |
| $\Delta \mathrm{T}>2^{\circ} \mathrm{C}$ | Cooling |
| $-2 \leq \Delta \mathrm{T} \leq 2^{\circ} \mathrm{C}$ | Fan-only |
| $\Delta \mathrm{T}<-2^{\circ} \mathrm{C}$ | Heating |

Indoor fan will run at auto fan of the relevant mode.
The louver operates same as in relevant mode. If the machine switches mode between heating and cooling, the compressor will keep stopping for 15 minutes and then choose mode according to $\mathrm{T} 1-\mathrm{Ts}$.
If the setting temperature is modified, the machine will choose running function again.

### 3.4.5 Drying mode

Indoor fan speed is fixed at breeze and can't be changed. The louver angle is the same as in cooling mode.
All protections are active and the same as that
in cooling mode.

### 3.4.6 Forced operation function

Forced cooling mode:
The compressor and outdoor fan keep running and the indoor fan runs at low speed. After running for 30 minutes, AC will turn to auto mode with $24^{\circ} \mathrm{C}$ setting temperature.
Forced auto mode:
The action of forced auto mode is the same as normal auto mode with $24^{\circ} \mathrm{C}$ setting temperature.
When AC receives signals, such as switch on, switch off, timer on, timer off, mode setting, fan speed setting, sleeping mode setting, follow me setting, it will quit the forced operation.

### 3.4.7 Timer function

3.4.7.1 Timing range is 24 hours.
3.4.7.2 Timer on. The machine will turn on automatically when reaching the setting time.
3.4.7.3 Timer off. The machine will turn off automatically when reaching the setting time.
3.4.7.4 Timer on/off. The machine will turn on automatically when reaching the setting "on" time, and then turn off automatically when reaching the setting "off" time.
3.4.7.5 Timer off/on. The machine will turn off automatically when reaching the setting "off" time, and then turn on automatically when reaching the setting "on" time.
3.4.7.6 The timer function will not change the AC current operation mode. Suppose AC is off now, it will not start up firstly after setting the "timer off" function. And when reaching the setting time, the timer LED will be off and the AC running mode has not been changed.
3.4.7.7 The setting time is relative time.
3.4.7.8 The $A C$ will quit the timer function when it has malfunction.

### 3.4.8 Economy function

3.4.8. The sleep function is available in cooling, heating or auto mode.
3.4.8.2. Operation process in sleep mode is as
follow:
When cooling, the setting temperature rises $1^{\circ} \mathrm{C}$ (be lower than $30^{\circ} \mathrm{C}$ ) every one hour, 2 hours later the setting temperature stops rising and the indoor fan is fixed at low speed.
When heating, the setting temperature decreases $1^{\circ} \mathrm{C}$ (be higher than $17^{\circ} \mathrm{C}$ ) every one hour, 2 hours later the setting temperature stops rising and indoor fan is fixed at low speed. (Anti-cold wind function has the priority).
3.4.8.3 Operation time in sleep mode is 7 hours. After 7 hours the AC quits this mode and turns off.

### 3.4.8.4 Timer setting is available

### 3.4.9 Auto-Restart function

The indoor unit is equipped with auto-restart function, which is carried out through an auto-restart module. In case of a sudden power failure, the module memorizes the setting conditions before the power failure. The unit will resume the previous operation setting (not including swing function) automatically after 3 minutes when power returns.
If the memorization condition is forced cooling mode, the unit will run in cooling mode for 30 minutes and turn to auto mode as $24^{\circ} \mathrm{C}$ setting temp.
If $A C$ is off before power off and $A C$ is required to start up now, the compressor will have 1 minute delay when power on. Other conditions, the compressor will have 3 minutes delay when restarts.

### 3.4.10 Refrigerant Leakage Detection

With this new technology, the display area will show "EC" when the outdoor unit detects refrigerant leakage.

### 3.4.11 Louver Position Memory Function

When starting the unit again after shutting down, its louver will restore to the angle originally set by the user, but the precondition is that the angle must be within the allowable range, if it exceeds, it will memorize the maximum angle
of the louver. During operation, if the power fails or the end user shuts down the unit in the turbo mode, the louver will restore to the default angle.

### 3.4.12 $8^{\circ} \mathrm{C}$ Heating(optional)

In heating operation, the preset temperature of the air conditioner can be as lower as $8^{\circ} \mathrm{C}$, which keeps the room temperature steady at $8^{\circ} \mathrm{C}$ and prevents household things freezing when the house is unoccupied for a long time in severe cold weather.

### 3.4.13 Self clean (optional)

For heat pump models which are provided with this function, after running in cooling or drying mode, if the user press "Self Clean" button on remote controller, firstly, indoor unit runs in fan only mode for a while, then low heat operation and finally runs in fan only again. This function can keep the inside of indoor unit dry and prevent breeding of mold.

### 3.4.14 Follow me (optional)

1) If the indoor PCB receives the signal which results from pressing the FOLLOW ME button on remote controller, the buzzer will emit a sound and this indicates the follow me function is initiated. But when the indoor PCB receives signal which sent from remote controller every 3 minutes, the buzzer will not respond. When the unit is running with follow me function, the PCB will control the unit according to the temperature from follow me signal, and the temperature collection function of room temperature sensor will be shielded, but the error detective function of room temperature sensor will be still valid.
2) When the follow me function is available, the PCB will control the unit according to the room temperature from the remote controller and the setting temperature.
3) The PCB will take action to the mode change information from remote controller
signal, but it will not affected by the setting temperature.
4) When the unit is running with follow me function, if the PCB doesn't receive any signal from remote controller for 7 minutes or pressing FOLLOW ME button again, the follow me function will be turned off automatically, and the temperature will control the unit according to the room temperature detected from its own room temperature sensor and setting temperature.

### 3.4.15 Silence operation (optional)

Press the "silence" button on remote controller to initiate SILENCE function. When the Silence function is activated, the compressor running frequency will keep lower than F2 and the indoor unit will bring faint breeze, which will reduce the noise to the lowest level and create a quiet and comfortable room for you.

### 3.4.16 Point check function

Press the LED DISPLAY or LED or MUTE button of the remote controller three times, and then press the AIR DIRECTION or SWING button three times in ten seconds, the buzzer will keep ring for two seconds. The air conditioner will enter into the information enquiry status. You can press the LED DISPLAY or AIR DIRECTION button to check the next or front item's information.

When the AC enter the "information enquiry" status, it will display the code name in 2 seconds, the details are as follows.

| Enquiry information | Displaying code | Meaning |
| :---: | :---: | :---: |
| T1 | T1 | T1 temp. |
| T2 | T2 | T2 temp. |
| T3 | T3 | T3 temp. |
| T4 | T4 | T4 temp. |
| T2B | Tb | T2B temp. |
| TP | TP | TP temp. |
| TH | TH | TH temp. |
| Targeted Frequency | FT | Targeted Frequency |
| Actual Frequency | Fr | Actual Frequency |
| Indoor fan speed | IF | Indoor fan speed |
| Outdoor fan speed | OF | Outdoor fan speed |
| EXV opening angle | LA | EXV opening angle |
| Compressor continuous running time | CT | Compressor continuous running time |
| Causes of compressor stop. | ST | Causes of compressor stop. |
| Reserve | A0 |  |
| Reserve | A1 |  |
| Reserve | b0 |  |
| Reserve | b1 |  |
| Reserve | b2 |  |
| Reserve | b3 |  |
| Reserve | b4 |  |
| Reserve | b5 |  |
| Reserve | b6 |  |
| Reserve | dL |  |
| Reserve | Ac |  |
| Reserve | Uo |  |
| Reserve | Td |  |

When the $A C$ enter into the information enquiry status, it will display the code value in the next 25 s , the details are as follows.

| Enquiry information | Display value | Meaning | Remark |
| :---: | :---: | :---: | :---: |
| T1,T2,T3,T4, <br> T2B,TP,TH, <br> Targeted <br> Frequency, <br> Actual <br> Frequency | $\begin{aligned} & -1 \mathrm{~F},-1 \mathrm{E},-1 \mathrm{~d},-1 \mathrm{c},- \\ & 1 \mathrm{~b},-1 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & -25,-24,-23,-22,-21,-2 \\ & 0 \end{aligned}$ | 1. All the displaying temperature is actual value. <br> 2. All the temperature is ${ }^{\circ} \mathrm{C}$ no matter what kind of remote controller is used. <br> 3. T1, T2, T3, T4, T2B display range:-25~70, TP display range:-20~130. <br> 4. Frequency display range: $0 \sim 159 \mathrm{HZ}$. <br> 5. If the actual value exceeds the range, it will display the maximum value or minimum value. |
|  | -19-99 | -19-99 |  |
|  | A0,A1, ...A9 | 100,101,... 109 |  |
|  | b0,b1,...b9 | 110,111,... 119 |  |
|  | c0,c1,...c9 | 120,121,... 129 |  |
|  | d0,d1,...d9 | 130,131,... 139 |  |
|  | E0,E1,...E9 | 140,141,... 149 |  |
|  | F0,F1, ...F9 | 150,151,...159 |  |
| Indoor fan <br> speed <br> /Outdoor fan <br> speed | 0 | OFF |  |
|  | 1,2,3,4 | Low speed, Medium speed, High speed, Turbo | For some big capacity motors. |
|  | 14-FF | Actual fan speed=Display value turns to decimal value and then multiply 10 . The unit is RPM. | For some small capacity motors, display value is from 14-FF(hexadecimal), the corresponding fan speed range is from 200-2550RPM. |
| EXV opening angle | 0-FF | Actual EXV opening value=Display value turns to decimal value and then multiply 2. |  |
| Compressor continuous running time | 0-FF | 0-255 minutes | If the actual value exceeds the range, it will display the maximum value or minimum value. |
| Causes of compressor stop. | 0-99 | For the detailed meaning, please consult with engineer | Decimal display |
| Reserve | 0-FF |  |  |

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